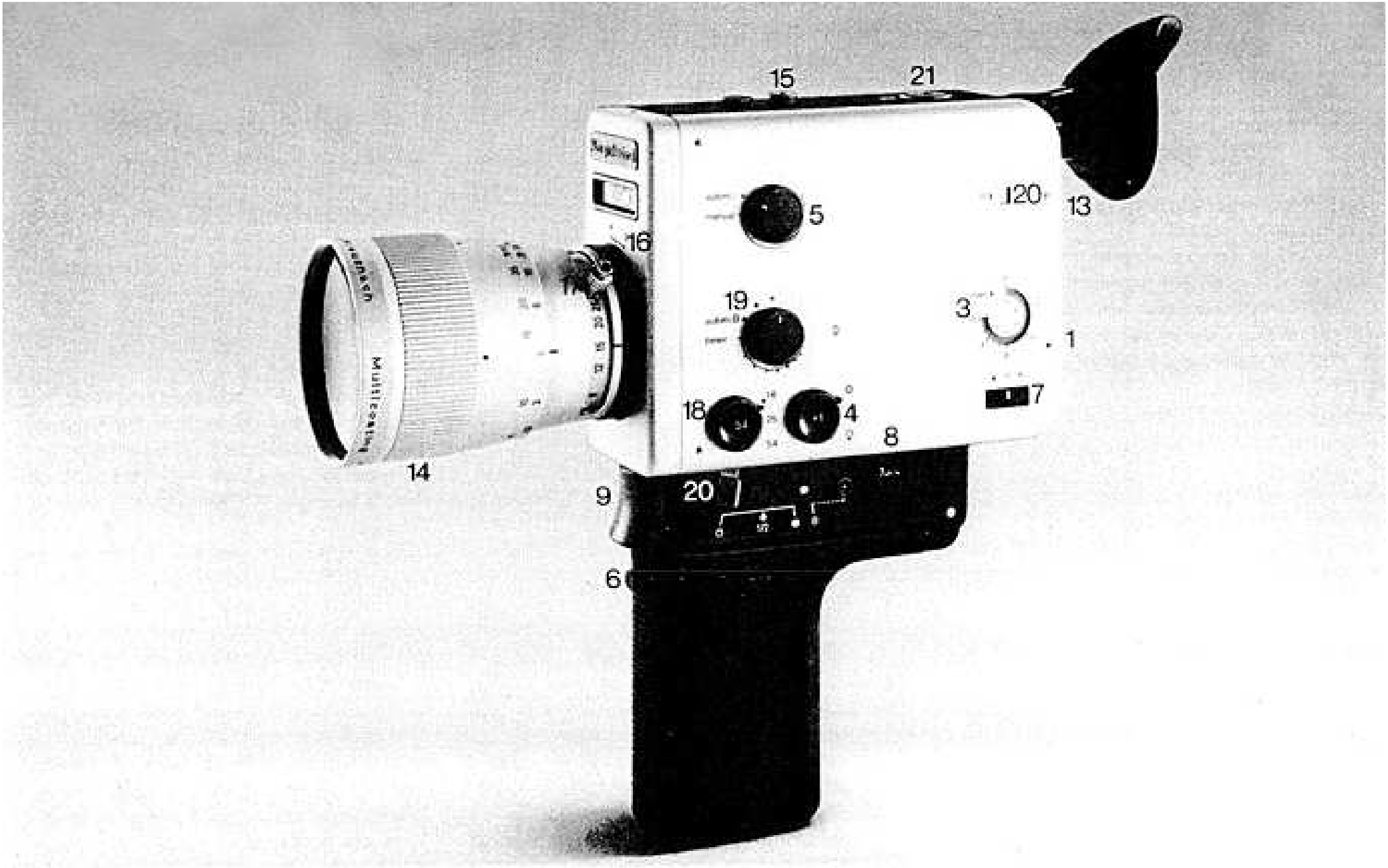
Braun Super 8

Nizo professional

BRAUN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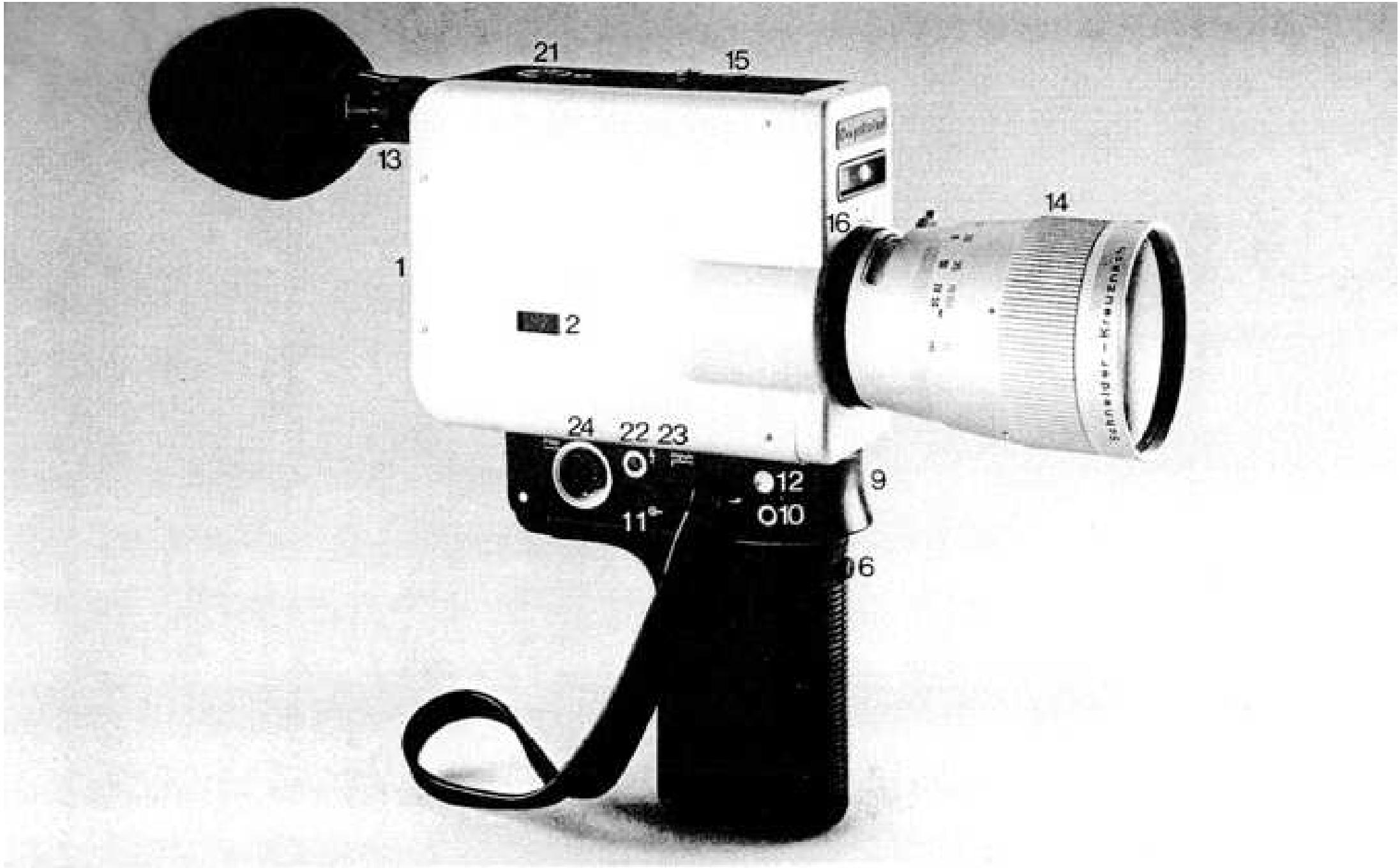
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Contents

Filming with the Nizo professional

We congratulate you on your choice of the Nizo camera, a product of the pioneer German cine camera company. From now on your films will be taken with a Super 8 camera built to the highest international standards.

If you fold out the double pages on the left and right at the end of this manual you will see the controls illustrated and numbered. The same numbers are used below to explain the various operating functions briefly so that you can rapidly become familiar with your camera. We have confined ourselves to essential instructions. If you initially set all controls to the red dots provided and do not concern yourself with animated filming of other special features of your Nizo camera you will be able to shoot your first film without giving too much thought to the «mechanics» of camera operation and can devote your entire attention to composing the scenes of your film and practicing camera movements.

Getting to know your Nizo camera

1. Cartridge compartment
A flap secured by a catch will be found on the rear end of the camera. Press the catch down, open the flap and slide the cartridge into the compartment.
For the first time: do not use force if the flap will not shut. Remove the cartridge and turn it round. The makers label must be visible through the inspection window.

2. Inspection window
This enables you to check at any time whether your camera is loaded and with what type of film.

3. Film counter
The counter returns automatically to zero when you open the cartridge compartment flap.

4. Filter switch
Super 8 film material is designed to match the colour temperature of artificial light. Your camera has a built-in filter to adapt it for daylight filming.
When filming in daylight, set the filter selector to the sun symbol, even if using black and white film. If you are filming in artificial light, turn the switch so that the white mark on it is opposite the lamp symbol.

Warning: when the artificial light filter is out of action, a second signal will appear next to the film feed scale above the viewfinder image.
The centre of the filter switch contains a spring-loaded button marked «+1». If you keep this button pressed in the automatic exposure control will open up the aperture by 1 additional stop.

5. Lens aperture control
Can take place automatically or manually by turning this knob (read-off aperture setting on the scale under the viewfinder image).
The first time: leave the aperture control set to the red dot (= automatic exposure control).

6. Handgrip lock
The handgrip can be swung back out of the way. The grip contains a safety box for 6 x 1.5 V Mignon cells which drive the camera motor.
The first time: if the camera does not start the batteries may have been inserted wrongly in the box. Please insert the batteries as indicated by the symbols on the box.

7. Electric master switch
0 = All circuits switched off. This setting preserves the batteries. Red dot = all circuits switched on. Black dot = setting for checking voltage of drive batteries. The switch is spring-loaded in this position. When holding position the aperture needle on the scale under the viewfinder image should move as far as possible to the left of the test mark 8. If the pointer remains to the right of the 8, new batteries are required.
The first time: if the camera does not start make sure that the master switch is set to the red dot position.

8. Outside power source connection
An accumulator is available as an accessory (in the Nizo Power Set) and enables the camera to be driven with a greater reserve of energy.

9. Shutter release
Can be conveniently operated with the index finger of the left or right hand. The drive mechanism is started electromagnetically.
The first time: do not jerk the shutter release when operating. Do not film in short bursts (a good rule of thumb is to allow each shot to run for 5–6 seconds).

10. Connection for cable release
This connection is used if you wish to start the camera motor with a cable release, for instance if one is built-in to the control arm of your tripod. It can also be used for animation in conjunction with the manual single frame setting of the camera.

11. Connection for electric remote release
The Nizo remote release (available as an accessory) can be connected here and the camera motor started by a built-in solenoid.

12. Continuous run switch
This switch is needed primarily to operate the automatic single frame filming device.
Press the button in until it engages. The camera will run until the wide shutter release button (9) is pressed.
The first time: do not forget to set filming speed switch 2 to the automatic single frame (time-lapse) position before operating the continuous run switch as otherwise film material will be wasted.

13. Adjustable viewfinder eyepiece
This adapts the optical system of your camera to your own eyesight, as on binoculars.
Continue turning until the line in the centre of the split-image range finder in the viewfinder appears sharp. This initial setting is important for correct through-the-lens focusing.

14. Lens focusing range
To focus turn until the vertical lines of the subject appear unbroken at the point of intersection with the dividing line of the range finder in the viewfinder image. For this purpose set the focal length to 80 mm.
If you set the lens focusing and focal length rings of the lens to the red figures (coloured for ease of identification) you will hardly need to bother about focusing any more. In this way you utilize the considerable depth of field for shots requiring quick reaction.

15. Automatic power zoom
is operated by motor (push button) or manually when you switch off the power zoom (see 16). Note: when you exceed a focal length of about 25 mm (Tele) you should support your hand or stand the camera on its handgrip. For absolutely steady tele shots a tripod is the ideal solution. The green button for tele setting is surface textured for identification.
This first time: zoom shots should be used with discretion at the start, or even better omitted.

15a Macro setting
If you grip the focal length setting ring by the knurled section and lift it you can move the focal length ring past the wide angle stop (7 mm) to the macro setting for extreme close-ups with picture areas as small as 30 x 41 mm. In this position extremely short subject distances down to 1 cm are possible. The knurled section will lock if you raise it to its fullest extent and turn it slightly clockwise or anti-clockwise.

16. Manual override for power zoom
You can disconnect the power zoom mechanism by turning the black ring on the lens from the red dot to 0. The long zoom lever supplied with the camera can then be screwed on to the focal length setting ring and the focal length varied manually while filming.

17. Frame speed switch 1 (for slow motion)
This switch enables you to vary the standard frame speed of 18 frames per second (fps) to semi-slow motion of 25 fps and 3 x slow-motion at 54 fps.
If when shooting you press the 54 button you can change continuously from 18 or 25 fps to 54 fps and back.
The first time: the 54 fps speed reduces the exposure time. That is to say the aperture opens and the depth of field is reduced. For this reason focus as accurately as possible.

18. Frame speed switch 2 (time-lapse)
This switch operates the automatic single frame mechanism which provides continuously variable time-lapse speeds from 6 fps to approx. 1 frame per minute.

Set the mark on the switch to the first black square on the semi-circular scale. Operate the continuous running switch 12 and then master switch 7. Adjust the setting until the required frame speed is obtained. The black square beside the red dot marks the setting for manual single frame operation by cable release or remote release. In the »autom. B« setting the frame speed is controlled automatically according to the available light (automatic increase exposure control).
The first time: set switch to red dot.

19. Variable shutter
If you pull back this spring-loaded lever to its fullest extent while filming you will gradually fade out the picture. If you start filming with the lever moved fully to the rear and allow it to slide forward slowly while the camera is running fade-in is obtained.
The first time: do not move the lever for fade in and fade out too quickly.

Reduced exposure: pull lever to 1/2 position and then down. Lever will engage.

Increased exposure: pull lever right back. Press lock button. Pull lever into the shaded zone and release the lock button. Not that the film image will now be exposed until the automatic single frame device advances the next frame in front of the film gate. The increased exposure device operates only in conjunction with the time-lapse speeds provided by the automatic single frame mechanism (frame speed switch 2).
This also takes place automatically: see 13.
The first time: after filming with the reduced or increased time exposure mechanism do not forget to release the variable shutter lever and move it back to the normal setting.

20. Automatic lap dissolve
To conclude a shot press the R button on the camera. The automatic mechanism will fade out, wind back the film used for the purpose and stop the drive mechanism automatically.
For the next shot press the R button on the camera again and at the same time operate the shutter release. The camera will fade-in automatically.
The function of the button can also be performed by a cable release which screws into the socket beside the button.
You can check the various phases of the lap dissolve in the window: 0 = ready for lap dissolve 1 (fade out and rewind).
R = ready for Phase 2 (fade in).
The first time: do not forget that a lap dissolve is intended to provide a smooth transition between two scenes on your film, and time the shots accordingly.

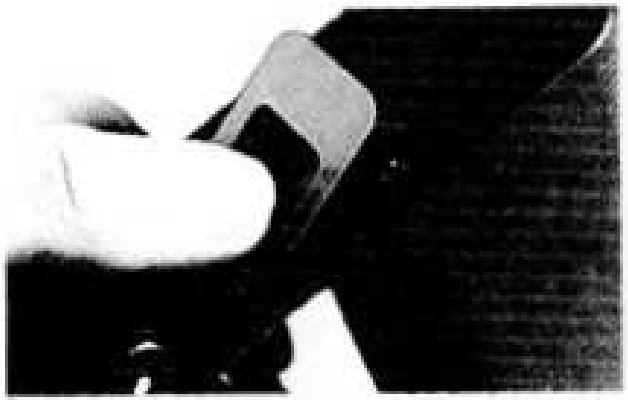
21. Connection for electronic flash
You can connect a powerful flash gun to this socket for illumination of extreme time lapse shots.

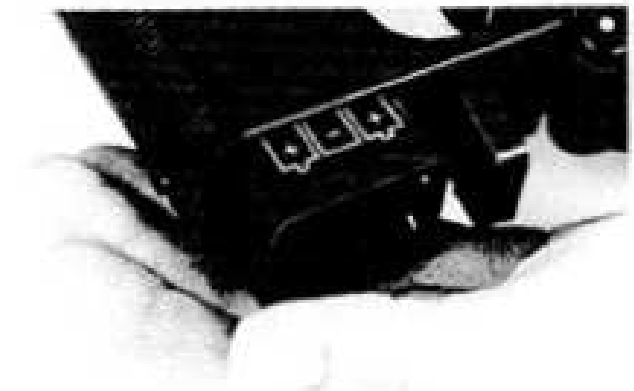
22. 1000 Hz pilot tone connection
The camera incorporates an oscillator which, according to the double band sound system selected and corresponding Braun connecting cable to the tape recorder, transmits a 1000 Hz pulse to the tape for every single or every fourth frame passing the film gate. The standard sound system for which Braun AG supply the Synton FP coupler and the suitably equipped Braun FP 7 projector operates on one control pulse to every fourth film frame.

23. 50 Hz pilot tone connection in accordance with DIN 15 575
Facility for connection to the professional pilot tone system. For this purpose the camera additionally incorporates a 50 Hz generator.

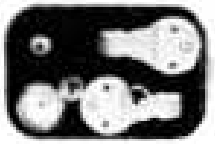
Drive system

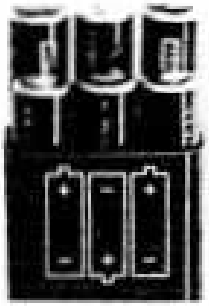
Drive battery and safety box
The transport mechanism, the power zoom and the automatic exposure control are operated electrically from one battery box consisting of six 1.5 V Mignon cells, such as are used for operating transistor radios. We recommend purchasing Alkali-manganese cells (e. g. Mallory MN 1500, Everready E 94, Ucar E 94). These are accommodated in the safety box in the camera handgrip.





Pull back the knurled button on the lowered hand grip and lift up the contact plate retained by it. Turn the camera round and slide the battery box into your hand.
Slacken knurled screws on the bottom of the box until the cover can be removed. Insert six 1.5 V cells as indicated by the markings. Secure the cover with the knurled screws. The staybolt on the cover of the box are of different lengths so that the cover must of necessity be fitted in the right position. Place the box in the handgrip compartment and press lightly until the knurled button snaps into position over the lug on the box. If the batteries have been incorrectly fitted the camera will not be damaged but it will not run.

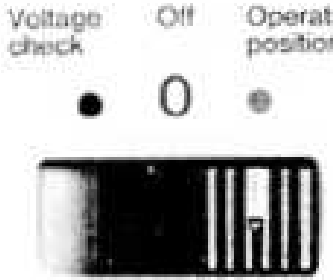




The safety battery box protects the camera contacts from any Electrolyte leaking out of the old batteries. A full reserve box (accessory) will ensure continuous filming in such cases and also in extreme cold. If the battery in the camera fails as a result of the cold it can be replaced in a matter of moments by the spare set kept warm (for example in your trouser pocket).

Braun NC accumulator box: an alternative accessory
This accumulator box contains six rechargeable NC (= nickel cadmium) cells. Their capacity is sufficient with normal loading (only occasional use of time-lapse and slow motion speeds) for transporting the film from 10 Super 8 cartridges. For recharging the Braun charger is available as an accessory for the NC accumulator box; the latter is handled in exactly the same way as the standard battery safety box. For further information see the corresponding operating instructions.

Electric master switch
When the master switch is set to 0, all circuits are switched off. When set to

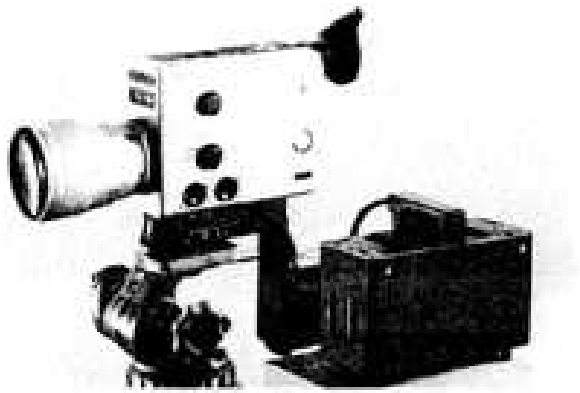


operating position (red dot) the battery discharges slightly as a result of a small standby current even if the transport mechanism is not operated. For this reason it is advisable to set the master switch to 0 during prolonged periods out of use. In this way the camera is also protected against unintentional release of the transport mechanism. The black dot indicates the switch setting for checking the drive battery voltage.

Checking voltage of drive battery
The electric master switch is spring loaded when moved to the black dot setting so that it cannot remain in this position inadvertently. To test the battery voltage push the electric master switch to the black dot and hold it in position there.

On looking at the aperture scale under the viewfinder image the aperture pointer must deflect as far as possible to the left (16, 22) past the red coloured 8 which acts as a test mark. If the pointer remains at 8 or on the right of it all 6 cells of the battery must be removed from the box immediately if possible or the Braun NC accumulator box must be recharged.

Connection to outside power supply and accumulator operation with the Braun Power Set (accessory)
If a considerable amount of filming is done or if the power supply must be ensured for a long journey or for time-lapse sequences lasting whole days it is advisable to obtain power from an outside source by means of the Nizo Power Set (accessory). The Power Set is available alternatively with Barix accumulator or dry (NC) accumulator. The carrying case contains the rechargeable accumulator with charging/mains lead, maintenance accessories and a special cable for connecting the accumulator to the camera. The accumulator



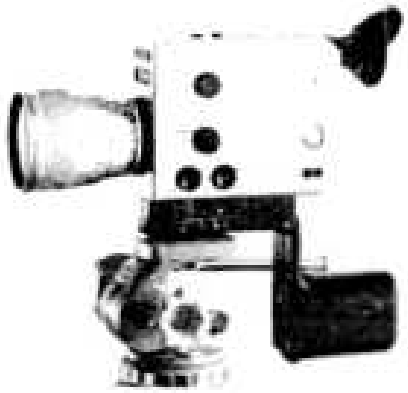
is capable of running up to 30 Super 8 cartridges through the camera before recharging is necessary. By means of the charging/mains lead the accumulator can be used on »buffer« operation to power the camera from the mains supply during prolonged time-lapse sequences. The accumulator lead connection is on the camera base next to the variable shutter. Further details are given in the operating instructions for the Power Set.

Holding the camera, operating the shutter release
All Nizo cameras can be operated with either the right hand or the left hand. Pass the hand through the carrying loop before taking hold of the grip. The shutter can easily be reached and operated with the index finger. The large eye cup supplied with the camera will normally position the eye at the correct distance from the eyepiece. The eye cup also excludes extraneous light. However, no light can in any circumstances reach the film after passing through the viewfinder. If you normally wear spectacles you may prefer to use the eyepiece cushion supplied which provides a flatter support when using the viewfinder. Both the eyepiece cushion and the eye cup can be removed and fitted quite simply by pushing over the rim on the eyepiece.

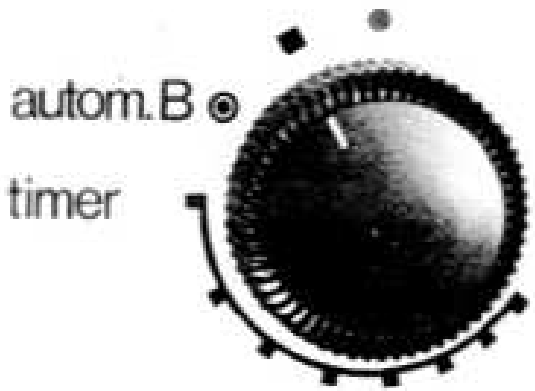
The hand not holding the camera is used to operate the focusing ring or the power

zoom. During actual filming this hand can also be used to press the camera gently down into the other hand.

Using a tripod and cable release
Filming with the camera mounted on the tripod is always worthwhile on account of the improved picture steadiness during projection and in particular when panning, zooming by altering the focal length, animation with the single frame mechanism and when using focal lengths above approx. 40 mm.



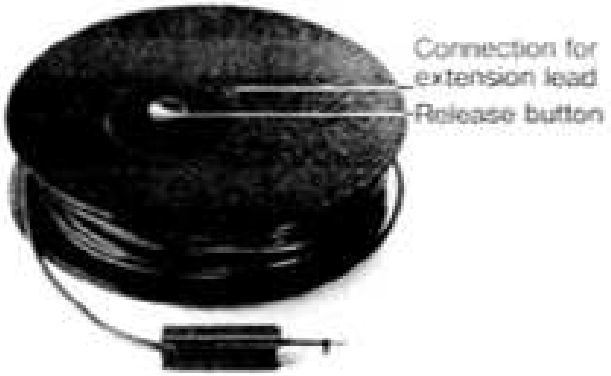
Fold the handgrip of the camera down and leave it hanging in this position. 2 bushes are provided on the camera base under the release button. The screw on the pan and tilt head of your tripod will fit into one of them. If the transport mechanism is to be operated by cable release the latter should be



screwed into the socket beside the carrying loop mounting.

If the cable release is to be used for manual single frame operation set the mark on frame speed switch 2 (automatic single frame mechanism) to the black square beside the red dot.

Electric remote release
Instead of using the cable release the camera drive mechanism can also be operated by means of a Nizo remote release cable (available as an accessory). This actuates a solenoid in the camera body and can also be used for manually controlled single frame shots. The master switch must first be moved to the red dot. The electric remote release consists of a 10 m (33 ft) reel of cable, only 1.2 mm (0.05 in) thick, a push button release and a connection for



attachment of a further 10 m (33 ft) of extension cable. If necessary several reels of cable can be connected together so that the camera can be operated from a maximum distance of 100 m (330 ft).

The electric remote release permits filming with a concealed camera or shots in which the cameraman himself appears in the picture. The camera should be set up

The film cartridge

firmly – preferably on a tripod – in front of the scene to be filmed, the picture area selected and the exposure control set to »automatic«. The electric remote release plug should be inserted in the second socket to the left of the carrying loop mounting. The connection for further reels of extension cable is located on the remote release reel next to the push button release.

Suitable films for your camera
The camera should be loaded with Super 8 film cartridges. When the camera is loaded the automatic exposure control is set to the speed of the film in the cartridge. The following film speed ranges are available:

Artificial light colour film	*13 to 23 DIN* (= 16 to 160 ASA)
Daylight colour film	*11 to 21 DIN* (= 10 to 100 ASA)
Black and white film	*11 to 21 DIN* (= 10 to 100 ASA)

Inserting cartridges and checking camera loading
Open the flap on the rear end of the camera and slide the cartridge with the film aperture at the front into the compartment. The circular recess on the cartridge must be on the control knob side of the camera. Otherwise the flap will not close. In such cases do not use force.
The cartridge automatically sets the exposure control to the type of film being used. The film counter returns to start position when the cartridge compartment flap is opened. The counter also runs when there is no cartridge in the camera. The outer scale indicates the length of film still available in metres, the inner scale in feet. The plain side of the camera (opposite to the side incorporating the controls) includes a window which enables you to check wheter the camera is loaded and what type of film is being used. If the film in the cartridge is being transported correctly a red illuminated signal must appear intermittently above the viewfinder image. As the length of available film is reduced the intervals between the light signals will become longer. When the end of the film is reached the indicator light above the viewfinder image will remain on continuously. The complete film is exposed when the word »exposed« is visible in the film aperture of the cartridge removal.

The built-in filter
Super 8 colour films are matched to artificial light with its low colour temperatures. A built-in conversion filter (red) corrects the film for daylight shots, when the mark on the filter switch points to the sun symbol. When filming in artificial light the mark should be opposite the lamp symbol.

The artificial light setting is indicated by a red luminous symbol at top right of the viewfinder when the camera is running. This should be noted if you continue filming in daylight to prevent shots with an overall blue colour cast.

Exposure control

For black and white film and daylight colour film the filter switch mark should always be set to the sun symbol.

Automatic exposure control
The CdS automatic exposure control of the Nizo camera measures the exposure through the lens. The readings can be checked on the scale under the viewfinder image. The automatic exposure control will only provide accurate values when the camera is loaded with a film cartridge. It is pointless to compare the readings of the built-in automatic exposure control with, for example, the readings of a hand-held exposure meter (even if it is of the same make – Gossen), because the exposure meter of the Nizo takes into account both the different angles of view of the various focal length settings and the lens groups of the zoom lens and the prism of the camera. The built-in exposure control is therefore, individually matched to the camera itself.

If the pointer is opposite the left or right warning marks at the ends of the scale satisfactory results may under certain circumstances be possible but cannot be guaranteed. If the light is too strong remember that your camera has a reduced exposure time facility; if very little light is available the corresponding extended exposure device can be used (both of these systems are described in the section on the use of the variable shutter). Alternatively use faster film such as Ektachrome 160 or quartz iodine cine lamps.

Manual control of lens aperture
The automatic system can be switched off and any desired aperture setting selected by hand. The exposure control knob must first be turned from «automatic» to «manual». The pointer on the exposure scale in the viewfinder will now respond to rotation of the control knob.
In this way the exposure values calculated by the automatic system can be corrected, for example, if the most important part of the scene is considerably lighter or darker than the surroundings. The light reflected by the subject should then be measured as accurately as possible at short range or with long focal length. The aperture thus determined is then set manually.

Example: the automatic exposure system indicates f/11 when filming a subject in the middle of an area covered with snow and in bright sunlight. If the scene is actually filmed at this exposure setting the subject will be far too dark as the camera will expose for the surrounding snow area. In other words the exposure requires correction.
Another example: if back lit subjects are not to appear as silhouettes but with

Focusing

proper shadow detail, turn round, measure «with the light», set the aperture measured and then film against the light.

Always remember to return the aperture control knob from «manual» to «automatic» after completion of manually exposed shots.

In most cases the «plus one» control will produce the required results.

Plus 1 correction
You can open the diaphragm by one stop retaining the automatic control (e. g. f/8 instead of f/11). For this purpose depress the button marked «+ 1» in the centre of the filter switch. This correction is effective only as long as you depress the spring loaded button. Always depress the button when the shadows in the subject are more important that the highlights. This will frequently be the case with back lit shots. The automatic exposure control operating in combination with the plus one correction is also useful for example, for shots with an overcast sky if you want to film particularly dark subjects.

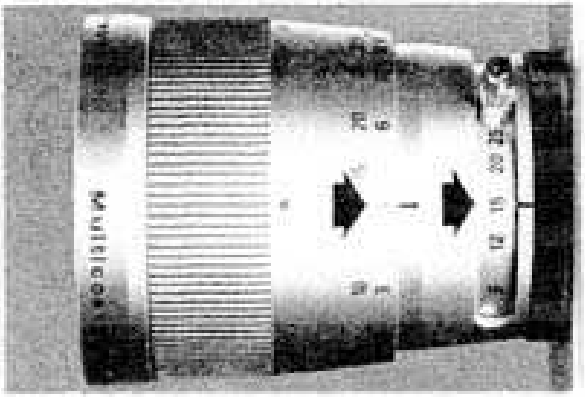
Eyepiece adjustment (diopter compensation)
Before focusing through the lens the viewfinder must be adjusted to suit the cameraman's eyesight (as with binoculars). The eyepiece of the Nizo is provided with a knurled ring for this purpose. Turn this ring until the horizontal dividing line in the range finder appears sharp. Point the camera at a plain background (wall, sky). The focal length or range selected is unimportant.

The split-image range finder
The split-image range finder operates with two prisms which appear in the centre of the viewfinder as a circle divided by a horizontal line. If the vertical lines of the subject are displaced where they intersect the horizontal line of the range finder you should turn the lens focusing ring until they appear continuous.

When using the range finder always select the longest focal length (80 mm) on the zoom lens of your Nizo.

Accurate focusing is of particular importance when filming at long focal lengths (from about 25 mm upwards), for ranges below 3 m, for shots with supplementary lenses and when filming under adverse light conditions.

Taking advantage of the depth of field
The Super 8 film format provides generous depth of field. Please see the depth of field table supplied with the camera. Even with the shortest focal length (7 mm) of the zoom lens, and also at medium settings up to approx. 15 mm the depth of field compensates for focusing errors (even at full aperture). The 4 m mark on the lens focusing ring and the 15 mm mark on the zoom lens



focal length scale are coloured red. If you use this combination you have a depth of field of 1.74 m to »infinity« even with relatively poor light which requires an automatic setting of f/4. Take advantage of this generous depth of field whenever you have insufficient time for accurate focusing. The depth of field increases with decreasing focal length and decreases with increasing focal length. This is the reason why your shots may not remain sharp if you zoom from wide angle to telephoto without first focusing accurately.

Macro setting

If you want to move the focal length setting ring past the 7 mm stop into the macro range grip the focal length setting ring by the knurled section and pull it up. Then rotate the knurled section slightly to the left or right to release the catch – this should also be done when resetting to the normal focal length range. In this way it is possible to take zoom shots manually or automatically from the longest focal length right into the macro range.

For focusing in the macro range it is best to use the slow speed of the power zoom. You can of course, focus manually with the focal length setting ring. The automatic exposure control will continue to operate just as accurately as under normal conditions.

With this macro setting of your camera you can penetrate far into the microcosmos and take extremely small picture areas of 30 x 41 mm at subject distances starting at 1 cm.

If you prefer close-up filming with supplementary lenses they are available as accessories: Nizo NL 8001, 8002 and 8003 1, 2 and 3 diopter lenses.

Setting focal length

General description of zoom lens

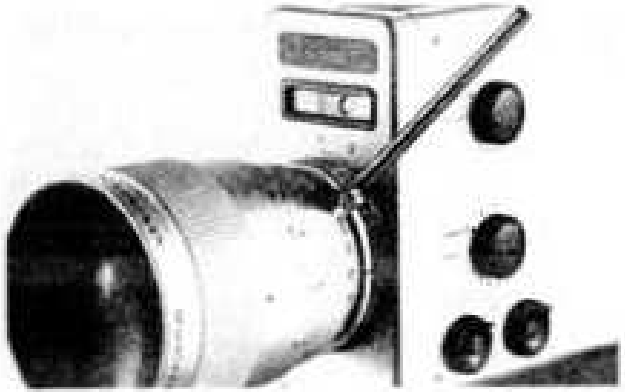
The zoom lens (also called a variable focal length lens) enables you to film entire sequences incorporating general wide angle shots, semi close-ups and extreme close-ups if required without changing the camera position. Thus the zoom lens combines the focal lengths and angles of view of a whole series of special lenses. On the Nizo professional lens the angle of view extends from 42° to 3° 50'. The longer the focal length the steadier the camera must be held. You should support it when you use focal length above about 25 mm and no tripod is available.
In addition you can also take power zoom shots.

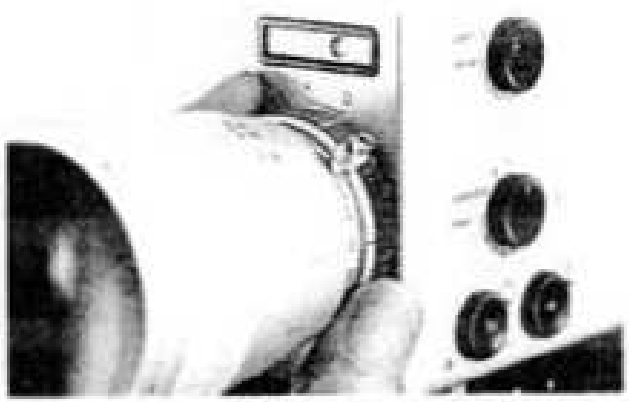
Varying the focal length

You can set the focal length manually before shooting on the focal length scale if you want to use a certain focal length quickly.
The control buttons for the power zoom are located on the body of the Nizo. The black knob nearer the lens reduces the focal length (wide angle) and the green knob on the eyepiece side increases the focal length (telephoto). So that you do not have to remove the camera from your eye to select the buttons the green telephoto button is surface textured for identification.

There are two power zooming speeds. If either of the control knobs is pressed only lightly the focal length will change more slowly than if the knob is pressed right down. The effect of a zoom shot appears still smoother if you set the »Panorama« speed of 25 fps.

Manual zoom control
The power zoom can be switched off and the focal length set easily by hand with the lever supplied. Manual zooming enables you to determine the zooming speed and also permits very rapid zooming during a shot by moving the lever round as fast as possible.
The lever should be screwed onto the mounting on the focal length scale. The power zoom is switched off (and the lever moves more easily) when the mark on the black knurled ring between the focal length scale and camera body is



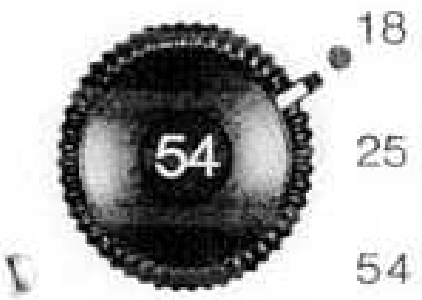


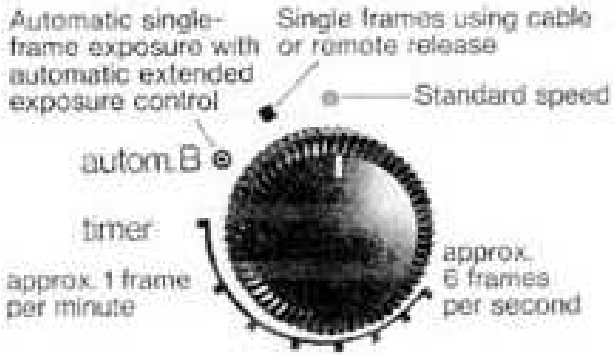
turned fully clockwise up to the zero mark on the body.

Camera running speeds (frame speeds)

Slow motion (frame speed switch 1)
The normal running speed takes 18 frames per second (fps) and exposes each of them for 1/43 second. All speeds above 18 fps will produce slow motion effects when projected at 18 fps, and all slower speeds will produce time-lapse (speeded up) effects on the projection screen.
With the aid of frame speed switch 1 you can change from the normal running speed of 18 fps to 25 fps and 54 fps slow motion. If shots taken at 25 fps are projected at normal speed all movement will appear ⅓ slower. This is not genuine slow motion but is always useful when the camera is traversing long distances, for example during prolonged panning or when shooting from a vehicle on a rough road.

In addition 25 fps is the filming speed for films intended for projection through an electronic scanning system. 54 fps is a genuine slow motion speed. When projected at 18 fps triple slow motion effect will be obtained. Fast movements filmed in this way can be studied to better advantage during projection. As 1 second of filming produces 3 seconds of projection slow motion also helps to reproduce very brief happenings on the screen. Rapid selection of running speed is facilitated by the automatic slow





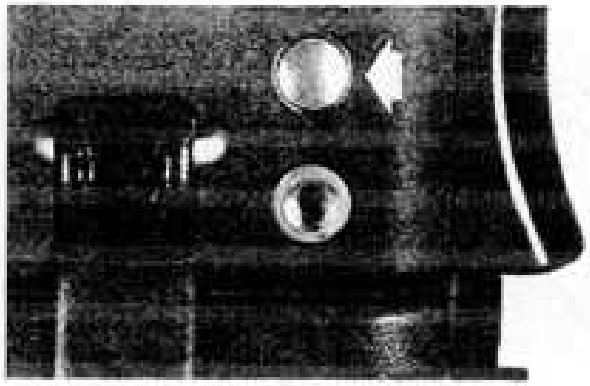
motion device. This is the black button in the centre of frame speed switch 1. With this button it is possible to switch continuously from 18 or 25 fps to 54 fps and back. At 54 fps the effective exposure is $^1/_{125}$ second. The lens aperture opens approximately 1.5 stops to compensate for this. Under unfavourable conditions this can produce insufficient depth of field. If there is sufficient time therefore it is advisable to focus accurately beforehand.

Time-lapse (frame speed switch 2)
Frame speed switch 2 (automatic single frame device) of your Nizo provides all time-lapse speeds between 6 frames per second and (at least) 1 frame per minute. Rational production involves certain tolerances here as a result of which the frame speed may possibly be slightly slower. This is also the reason why frame speed switch 2 does not run on a standard scale which gives exact figures for the continuously adjustable frame speeds. For practical purposes however this is of so little importance that we could not justify passing the additional expense involved on to you.

Single frame series with time-lapse effect can be produced by the Nizo fully automatically on the one hand as regards exposure and advance of individual frames and on the other hand as regards correct exposure. The latter is ensured if frame speed switch 1 is set to 18. In this way it is possible to let the Nizo camera run on its own as long as power and film last.

When the mark on frame speed switch 2 is opposite the first black rectangle on the semi-circular scale (separate black rectangle = manual operation by cable release, »autom. B« = automatic increased exposure control), the frame speed will be 6 fps with triple time-lapse effect.

The Nizo starts shooting – without your having to depress the shutter release button on the handgrip – if you press the continuous run release (on the camera base) next to the carrying loop attachment). Pressing the normal, wide release button will switch the transport mechanism off again.



As you turn frame speed switch 2 further to the right the interval between frames increases. 2 fps for example represents action speeded up 9 times in relation to the original scene. If the Nizo is used to take only one frame per minute, the complete action taking place during 1

hour will be shown on the screen in 3.3 seconds if the projector is running at 18 fps (time-lapse effect = 1080 x).

If you have set the frame speed between 6 and approximately 2 fps it is not essential to mount the camera on a tripod if you hold the camera very steady, do not pan and zoom and remember that on time-lapse in the range mentioned above 1 single second of projection will require 3 to 9 seconds of filming.

Extreme time-lapse shots on the other hand, require absolutely steady camera support on a tripod. As a temporary measure the Nizo can also be stood on its handgrip. Remember however, that this will limit you to the field of view obtained where the camera happens to be resting.

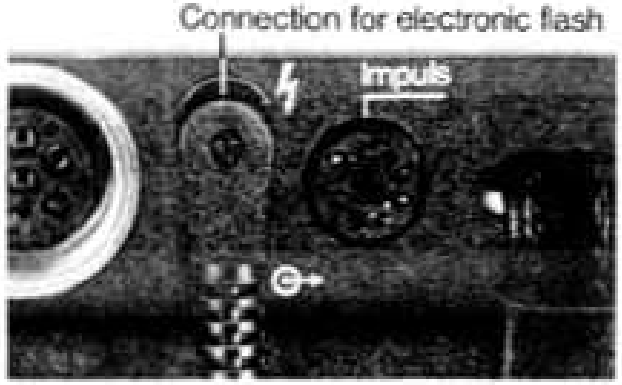
Animation

If single frames are exposed at considerable intervals you will have time to arrange the position of inanimate objects between each exposure. For example you could raise or lower the arm of a doll by a small amount each time or advance a matchbox a short distance across a table to quote two simple examples. When the single exposures are projected at the normal speed of 18 frames per second the inanimate objects come to life on the screen. The doll waves her arm and the matchbox moves across the table.

For all shots of this type the camera must be mounted absolutely rigidly. If the camera position is moved accidentally during a series of shots it is best to change to a series taken from another viewpoint or at a different focal length. The camera can be operated manually with the cable release or the electric remote release. However you can also leave this to the built-in automatic single frame device and thus save yourself constantly moving between the camera (for exposure) and the subject (to alter its position). For this purpose frame speed switch 2 is set to a suitable interval to permit manipulation of the subject.

Flash illumination for time-lapse filming

The long interval necessary in time-lapse between exposure and advance of the individual frames makes it possible to illuminate the subject with the »cold« daylight temperature light of a powerful flash unit. Subjects sensitive to heat (plants, cartoon sheets etc) need not be exposed to the heat of spots and cine lights. For this reason your Nizo has a connection for the flash cord of a flash



unit (on the camera base, marked with a flash symbol).

The electronic flash unit must have a high capacity per charge (because 18 flashes will only illuminate 1 second's filming) and in addition have short recycling times for long series of shots (because the flash unit must be ready to illuminate before the next time the camera advances).

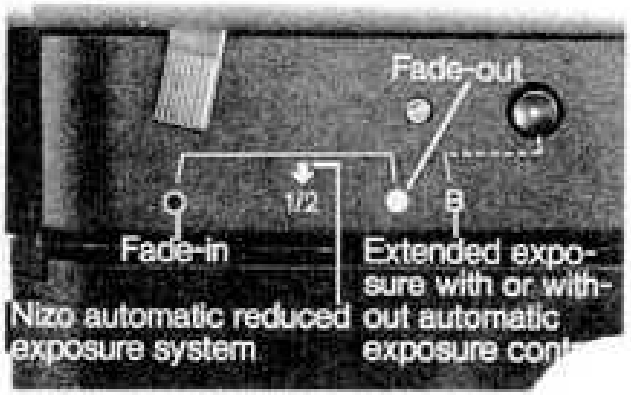
Braun offer a wide range of electronic flash units (all with swivel reflector) which meet these requirements. The Braun 2000 Vario Computer one-piece flash unit is available at present in 3 models: 42 VC, 34 VC and 40 VCR. They differ in their guide numbers: 42, 34 and 40 with 21 DIN film. The power consumption of these units depends on the subject distance and how much light is

The variable shutter

absorbed by the subjects. At a subject distance of 1 metre and with a background which does not absorb excessive light recycling times of approximately 1000 times (42 VC) until recharging is necessary.

Using flash with the Nizo:
Electronic flash has the same colour temperature as daylight. This means that the Nizo filter switch must be set to the sun symbol.
The recycling time must be shorter than the time-lapse interval set with frame speed switch 2.
The lens aperture of the Nizo must be opened up one stop further than indicated by the aperture calculator of the flash unit as the beam splitting prism of the Nizo and the unusually large number of elements of the zoom lens must be taken into account. (See «Manual Control of the Lens Aperture»).

General description of the variable shutter
The variable shutter (VS shutter) is the equivalent of the shutter on a still camera. The disc rotates in front of the film gate. When the shutter closing covers the gate the film is advanced. When the shutter opening uncovers the gate the film is exposed. On the Nizo the shutter opening can be continuously opened and closed for fade in and fade



out. The shutter opening can be reduced to shorten exposure time and to extend the exposure time (for time-lapse sequences) it can be stopped in front of the film gate.

Fade in and fade out
To fade a scene out hold the camera in the right hand. With the other hand move the lever of the variable shutter (at left of camera base next to shutter release) smoothly and slowly back to its fullest extent while the camera is still running. Then stop the camera by removing your finger from the shutter release. Only then should the variable shutter control lever be allowed to return to its original position.

To fade a scene in the variable shutter lever should be pulled fully to the rear before the camera is started. Press the shutter release and allow the variable shutter lever to move fully forwards at the same slow smooth rate as used for fade out. In most cases the fade out of one scene should be followed by the fade in of the next scene.

Automatic lap dissolve
Perfect lap dissolve is obtained by fading out, rewinding the length of film used for this purpose and fading in the new scene on exactly the same section of film previously used for fading out. The automatic lap dissolve of your Nizo ensures that fade in and fade out coincide exactly and thus guarantee smooth, technically perfect lap dissolve.

Lap dissolve should only be taken at frame speeds of 18 or 25 fps.

Only 2 operations are necessary for this purpose. If lap dissolve is to be pro-

duced press the R button on the camera for at least 1 second before the end of the scene with the camera running. Then release this rewind button together with the shutter release. Everything else takes place automatically: In 3.5 seconds fade out takes place over 63 frames and exactly this number of frames is rewound. Then the transport mechanism stops automatically.

The camera will not restart unless the R button is pressed in addition to the shutter release.

The next scene thus begins with a fade in which should be taken into account when determining the scene length.

After fade out and film rewind the fade in necessary for lap dissolve must follow, otherwise the length of film is spoiled. The automatic device on the Nizo ensures that you cannot overlook this. You can check this in the window above the film counter: R on a black background means »rewound«, that is to say ready for fade in as phase 2 of the lap dissolve.

0 on a white background indicates normal position. Phase 1 of a lap dissolve can therefore be initiated (fade out and rewind).

The function of the button can also be assumed by a cable release which is screwed into the socket beside the button.

Lap dissolves should be avoided on the last few metres of the film as satisfactory operation cannot be guaranteed.

You must realize that during rewind the camera automatically returns about 27 cm of film into the Super 8 cartridge. At the end of the film there is no space in the cartridge for this purpose. During rewind the film in the cartridge is wound back on itself several times. If the film does not slide smoothly it is possible for jams and faults to occur.

In such cases: switch off the power supply to the motor *immediately*; that is to say fold the handgrip down and pull out the accumulator plug or set the master switch to zero. Loosen the cartridge in the cartridge compartment of the camera; it is best to pull out about 1 cm. Now reconnect the power supply so that the lap dissolve can be completed. Now push the cartridge in again and close the cover. Do not try any further lap dissolves with this cartridge. Only use film types for lap dissolve which have been found by experience to be suitable for the purpose.

Nizo automatic reduced exposure control

Half way between front and rear end positions the lever of the variable shutter mechanism will engage at one point in which it will lock when the knob of the lever is pulled down slightly and released.

In this position the exposure time for shots at a normal speed of 16 fps corresponding to $^1/_{33}$ second will be halved and will then be approximately $^1/_{66}$ second. On 25 fps each single frame will be exposed at $^1/_{115}$ second, instead of $^1/_{52}$ second.

Do not use the automatic reduced exposure control for shots at 54 fps as here the position of the lens aperture will not be corrected automatically.

At both the other speeds the exposure control reacts to halving of the exposure time by opening the lens aperture 1 stop. On this basis it continues to control exposure automatically. This provides the following additional filming facilities:
1. Shots can be continued even if excessive light causes the aperture pointer in the viewfinder to deflect over to the warning mark (neutral density filters are thus superfluous).
2. Opening up the lens aperture by 1 stop reduces the depth of field and

thus makes picture composition possible where the subject is made to stand out from an unsharp background.
3. Subjects are rendered more sharply. But then the following rule is particularly important: fast moving objects must be filmed at an acute angle.

Do not forget to disengage the lever of the variable shutter again after shooting with the Nizo automatic reduced exposure control.

Increased exposure times
If you are using a time-lapse speed the intervals between exposure and advance of the individual frames are greater than at the normal speed of 18 fps. These intervals can be utilized to extend the exposure time of the individual frames. The combination of the automatic time-lapse speeds with the increased exposure time permits filming even in extremely poor light. Interior shots in museums, churches or other photogenic buildings can for example, be made without recourse to filming still slides or other measures.

According to the time-lapse speed selected it will be possible to obtain exposure times between $^1/_{18}$ second (at 6 fps) and 1 minute (at 1 fpm). As soon as you pull the lever of the variable shutter past the safety catch into the shaded area on the camera base the shutter opening of the variable shutter will be positioned in front of the film gate. The frame will be exposed until the automatic control of the frame speed switch 2 advances the next frame for exposure and the shutter closing masks the film gate for this purpose.
Move the lever of the variable shutter to its rearmost position. Press the safety catch marked with a white dot. This will permit the lever to move into the shaded area. Release the catch. The lever is now locked.

With the variable shutter in this position the frame behind the film gate will be exposed immediately. Extended exposure therefore should only be used for the scenes for which it is intended.

As with all shots using the slower time-lapse speeds the Nizo should be attached to a tripod or stood on the handgrip on a vibration-free surface. The time-lapse intervals should now be set long or short according to light conditions. As with still photography rough approximations will generally surfice as extended exposure is used under lighting conditions which exclude the possibility of overexposure and where every increase in light will improve the picture quality. The normal automatic exposure control of the Nizo should remain in operation.

Do not forget to return the lever to normal position after increased exposure as otherwise the first frames of all subsequent shots taken in normal lighting will be so severely over exposed that they will appear white.

Increased exposure time (without automatic exposure control) can also of course, be used for single frames taken manually using a table or the electromagnetic remote release. You should then ensure that the manually controlled intervals are as uniform as possible so that the projected image does not flicker.

Automatic extended exposure system
If you wish to use the automatic exposure control set the mark on frame speed switch 2 to the »autom. B« position and remove the lens hood from the lens. It is unnecessary anyway under these lighting conditions. Now press the continuous-run release (on the camera base under the plain side of the camera, beside the shutter release) until it engages.
Then pull the red lever of the variable shutter right back, press the safety catch with the white dot and move the lever

into the shaded area where it will remain when you release the catch. Now the (time-lapse) frame speed will be determined not by the automatic single frame mechanism but by the existing light after measurement by a special automatic exposure control in the window of the front panel of the camera. Please try this out with the camera unloaded: hold it in the dark and slowly pan the camera towards a light source. If the intervals become too short (over 6 frames per second; this will be audible), it is advisable to switch off the automatic extended exposure control in reserve order. That is to say: move variable shutter lever to normal position, but now do not press the continuous run switch but the normal shutter release until the continuous run switch disengages. Do not forget to set frame speed switch 2 to the red dot. It goes without saying that the extended exposure control can only be used to advantage in adverse lighting conditions even with automatic exposure control.

Ensure that the window under the name plate on the front of the camera is not masked.

Behind it is located the meter cell of the special automatic exposure control. Here your Nizo provides external measurement (in contrast to the usual TTL measurement) so that small individual light sources in the picture such as for example lanterns or candles etc., cannot affect measurement excessively.

Synchronized filming and sound recording

General information on synchronized sound recording using the double band system

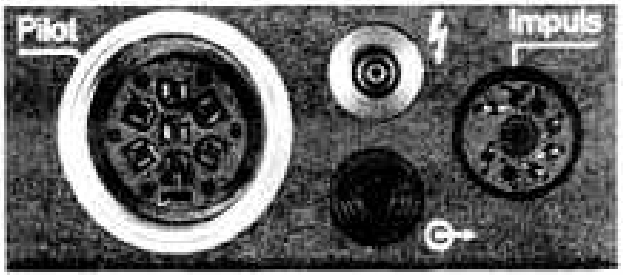
By «double band» film dubbing is meant synchronization of a tape with the film during recording and playback. If the tape is not perforated pulses transmitted by the camera to the tape at certain intervals provide a form of electrical perforation which on playback for film processing or projection controls the projector in the same way as the camera has been running during recording. The sound quality of the double band system has its limits only in the performance of the tape recorder used. The Nizo professional has provision for all double band systems at present on the market – including the professional pilot tone in accordance with DIN 15575. With the exception of the Synton FP coupler, the corresponding camera lead and the Braun FP 7 projector with provision for connection of the Synton FP for the standard sound system Braun AG do not supply any additional equipment.

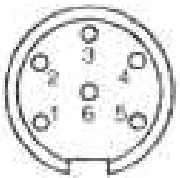
Equipment of the Nizo professional for sound filming

The camera incorporates a 50 Hz generator. This emits the corresponding pilot tone pulses (in accordance with DIN 15575) via the large 6-pole jack on the camera base when the camera is

running at 25 fps. Synchro marking is effected by means of an »electric clapper«, that is to say by means of pre-exposure on the film and a tone on the tape. For taking films to be played back by electronic scanning the frame speed switch 1 can be set to 25 fps.

On the left is the pilot tone jack in accordance with DIN 15575 and beside it the 8-pole audio pulse jack to DIN 15790. The diagram below illustrates the connection of the system.





1
50 Hz pilot signal
in positions
P 0,2 50 Hz
P 1,0 50 Hz

1
Reference
potential
Chassis-housing

2
Reference
potential
Chassis-housing

3
+Ubatt (7–9 V)
during pre-
exposure time
in positions
P 0,2 50 Hz
P 1,0 50 Hz

4
Tape start
Make contact

5
Tape start
Break contact

6
Tape start
Center contact

2 + 3
1000 Hz pulse
packs in position
Imp. 1/1 0,3
Imp. 4/1 0,3
Imp. 4/1 0,0
or 1000 Hz
frequency
in positions
P 0,2 50 Hz
P 1,0 50 Hz

4
unoccupied

5
50 Hz pilot signal
in positions
P 0,2 50 Hz
P 1,0 50 Hz

6
Tape start
Break contact

7
Tape start
Center contact

8
Tape start
Make contact

In addition the camera incorporates a 1000 Hz oscillator which emits a corresponding control pulse (in accordance with DIN 15970) via the small 8-pole jack on the camera base for every single or every fourth frame.

When the camera handgrip is lowered a system selector switch is exposed on the bottom of the camera base which can be set with a coin to the following functions:

0 = *no sound*. All synchronization facilities are switched off to preserve the battery.

P 0,2 50 Hz = 50 Hz pilot tone with pre-exposure over 0,2 sec film running time
Set frame speed switch 1 to 25 fps. Connect professional tape recorder to the large 6-pole jack on the camera base. Press camera release button.

Camera and tape recorder will start immediately at the same time (or the tape recorder is already running). The film is pre-exposed automatically for approximately 0,2 seconds and the generator of the tape recorder is started. Afterwards the camera emits a sinusoidal frequency of 50 Hz at 25 fps. In addition during the pre-exposure time a sinusoidal frequency of 1000 Hz ± 2% and

Pilot tone. For starting the camera with approx. 0.2 sec. pre-exposure of the film with the tape recorder running.

Pilot tone. For remote control of the (stationary) tape recorder with approximately 1 sec. pre-exposure of film.

For 1 : 1 system. Camera starting delay approx. 0.3 sec.

Standard tone system. Camera starting delay approx. 0.3 sec.

Standard tone system. Without starting delay in combination with rapid run-up cassette recorders.

effective level 500 mV at 250 Ohm is available at the small audio lead jack on the camera base.
P. 1.0 50 Hz = 50 Hz pilot tone with pre-exposure over 1 sec. film running time.
Operation as above. However this position gives the stationary (professional) tape recorder a longer run-up time. In addition the tape recorder can be started by remote control from the camera.

Specification DIN 15575
Level: 1 V ± 0.1 V eff at 60 Ohm
Distortion: less than 10%

Imp. 1/1 0.3 = 1 pulse per frame after 0.3 sec. tape run-up. Set frame speed switch 1 to 18 fps. Connect tape recorder to the small 8-pole jack on the camera base. Depress shutter release. The tape will be started by remote control.
The camera starts approx. 0.3 seconds after tape start-up. After camera start one 1000 Hz pulse sequence in accordance with DIN 15970 is emitted for each single frame. DC erasing takes place in the pulse intervals.

Imp. 4/1 0.3 = one pulse for every fourth frame (standard tone system = ETS) after 0.3 sec. tape run-up. Operation as above. But: after the camera start one 1000 Hz pulse in accordance with DIN 15970 is emitted for every fourth frame for the ETS. In the pulse intervals DC erasing takes place (approx. 1.2 V).

Imp. 4/1 0.0 = one pulse for every fourth frame (ETS) without tape run-up. Operation as above. Here, however a rapid start cassette recorder or tape recorder with the same run-up characteristics as the camera (e. g. Uher CR 210 or Compact Stereo 124) is necessary. Camera and tape recorder start simultaneously and immediately. For every fourth frame one 1000 Hz pulse in accordance with DIN 15970 is emitted. In the pulse intervals DC erasing takes place at a DC voltage of 1.2 V.

Specification DIN 15970
Pulse frequency: 1000 Hz ± 20%
Pulse amplitude: 500 mV eff at 250 Ohm
Pulse sequence length: 125 ± 25 ms
Distortion: less than 10%

Sound film accessories
Braun AG supply accessories for synchronized sound recording and film dubbing using the standard sound system (one pulse to every fourth frame). During playback the pulses control the running speed of the projector and thus the synchronism of film and tape. For this purpose the Synton FP coupler (an accessory in the Braun AG range) should be connected between the tape recorder and the suitably prepared projector.

The following summary shows all audio leads available and suitable for certain tape recorders. If your recorder is not included in the list choose the Nizo N lead and have the plug to suit your tape recorder fitted. The operating instructions provided with each Nizo audio lead contains an installation diagram.

The booklet «Sound filming with Braun equipment» in the Braun AG photo publication series (see list of publications appended to these instructions) gives information on synchronized sound filming and film dubbing using the standard sound system.

Synton FP coupler with Braun FP 7 projector.

Audio leads available as accessories

Article No	Abbreviated designation	To fit tape recorder:	Remarks	Recommended camera setting
7 690 958	UC 4	Uher CR 210 Stereo		Imp. 4/1 0.0
7 690 958	UC 4	Uher Compact Stereo 124	If necessary with adapter plug K 838 from Messrs. Uher.	Imp. 4/1 0.0
7 690 954	US 4	Uher Report Stereo	The Uher Report Stereo recorders can be used for pulse recording without conversion. One stereo channel each for sound and pulses. Each stereo channel has an input amplifier. For this reason audio pulse lead with pulse attenuator.	Imp. 4/1 0.0 or Imp. 4/1 0.3
7 690 956	UV 4	Uher report 4000, 4200, 4400 (also stereo version)	In combination with subsequently fitted pulse head and SV 4000 lead from Messrs. Volland.	Imp. 4/1 0.0 or Imp. 4/1 0.3
7 690 950	Ph 4	Philips 2209 AV		Imp. 4/1 0.0
7 690 957	N	For tape recorders other than those listed above (preferably suitable for remote control)	«N» stands for «neutral». Plug for the Nizo is fitted. Free end of lead intended for own fitment of suitable tape plug.	

All leads are intended for one pulse transmission for every fourth frame. Leads for pulse transmission for every single frame on request. Length of lead approx. 3 meters.

Lens filters

Your Nizo camera will generally produce excellent results without lens filters. For this reason the accessory range does not include any filters. If colour film shots taken around mid-day, with blue sky, over large areas of water appear to have an excessive blue cast we recommend fitting a CR 1.5 filter (also called skylight filter) to the lens of your camera. If necessary please ask your photographic dealer for a good quality filter with thread sizes 62/67. This filter suppresses blue, cuts out ultraviolet rays to a certain degree and is capable of dispersing haze over long distances. Special UV filters are superfluous as the construction of your zoom lens already restricts the passage of ultra-violet rays.

Please do not use a polarising filter on your camera.

Your Nizo operates (as most Super 8 cameras of this type) with a beam splitting prism which itself has a polarising effect. This effect can combine with that of a polarising filter. You are warned that incorrect exposure may result.

The carrying case

A carrying case is available for your Nizo camera to provide adequate protection while ensuring that the camera can easily by reached when needed. The case has been thoroughly tested in practice. For this reason you should ensure that you are offered only a genuine Nizo carrying case for your camera.

The camera is placed in the case with the handgrip folded back and the lens at the front. If you prefer you can leave the handgrip projecting out of the case and can close the zip fastener until only the handgrip protrudes.

The upper side pocket accepts two spare film cartridges. You can save space by removing the outer packing beforehand. The lower pocket is intended for a remote release, filters or other small items. A loop is formed on the zip fastener seam to hold a cable release (or alternatively the long zoom lever).

Minor faults and their remedies

A breakdown on your Nizo camera is extremely rare. There are however certain minor defects which can be caused by accidental errors in operation; even the most careful design cannot always eliminate these. For example the batteries can give rise to apparent or genuine defects. In such a case you will be able to trace and rectify the fault quickly and without outside help if you follow this trouble shooting chart.

The camera will not start

Possible cause:	*Remedy:*
Main switch not turned of	Obvious: switch on.
Drive batteries defective or exhausted	Check battery voltage. Check that the batteries locate correctly in the box. Check that the battery poles are not dirty.
Oxidation of battery pole	Clean with coarse cloth.
The «R» button was not pressed after film rewind	If the «R» is visible in the indicator window the «R» button and the shutter release must be pressed so that lap dissolve can be completed.
Automatic single frame device (frame speed switch 2) is switched on.	Set switch to red dot.

Camera starts jerkily

Possible cause:	*Remedy:*
Drive batteries too weak	Check the voltage. Change complete set of batteries.

Current consumption is too high

Possible cause:	*Remedy:*
Master switch was not turned off during a prolonged non-filming period	Only switch on master switch just before using the camera.
Partially exhausted batteries were inserted.	Only use factory-fresh batteries.

Unsuitable batteries were used.	Good results will be obtained with alkali-manganese batteries.
Four or five Super 8 cartridges have been exposed in quick succession. This will cause extreme battery drain. The batteries are exhausted but need time to recover.	Give the batteries a chance to recover with the camera switched off.
Filming has taken place at very low temperatures.	Batteries do not deliver their full output when cold. Keep a spare battery box ready at body temperature.

Aperture indicator is not working

Possible cause: Master switch not switched on	*Remedy:* Obvious: switch on.
Automatic exposure control is switched off	Mark on aperture knob not set to «autom.»

Under exposure

Possible cause: Back lit shots	*Remedy:* Use + 1 button.
Under exposure and also a totally over-exposed frame at the beginning and/or the end of the scene with corona-shaped rings on both the adjacent frames. The shots were made with extended exposure and at a normal running speed.	Check camera setting when filming. Use the «extended exposure» position of the variable shutter only in conjunction with the automatic single frame device (frame speed switch 2).

Insufficient available light for switching to 54 fps.	Note exposure control indicator in viewfinder. Take aperture increase of 1½ stops into account.
Subject contrast excessive	Next time: use manual aperture control.
Automatic exposure control switched off	Set aperture knob mark to red dot.

Camera runs continuously

Possible cause: Continuous run switch next to shutter release has been locked in the position needed for the automatic single frame device.	*Remedy:* Move switch to normal position.
Check battery voltage.	Check battery voltage.

Unsharpness

Possible cause: Eyepiece incorrectly adjusted or not at all.	*Remedy:* See the corresponding note in the section on eyepiece adjustment of these instructions.
The range was not set at the longest focal length before filming.	Use the telephoto setting for focusing. Particularly important for zoom shots.

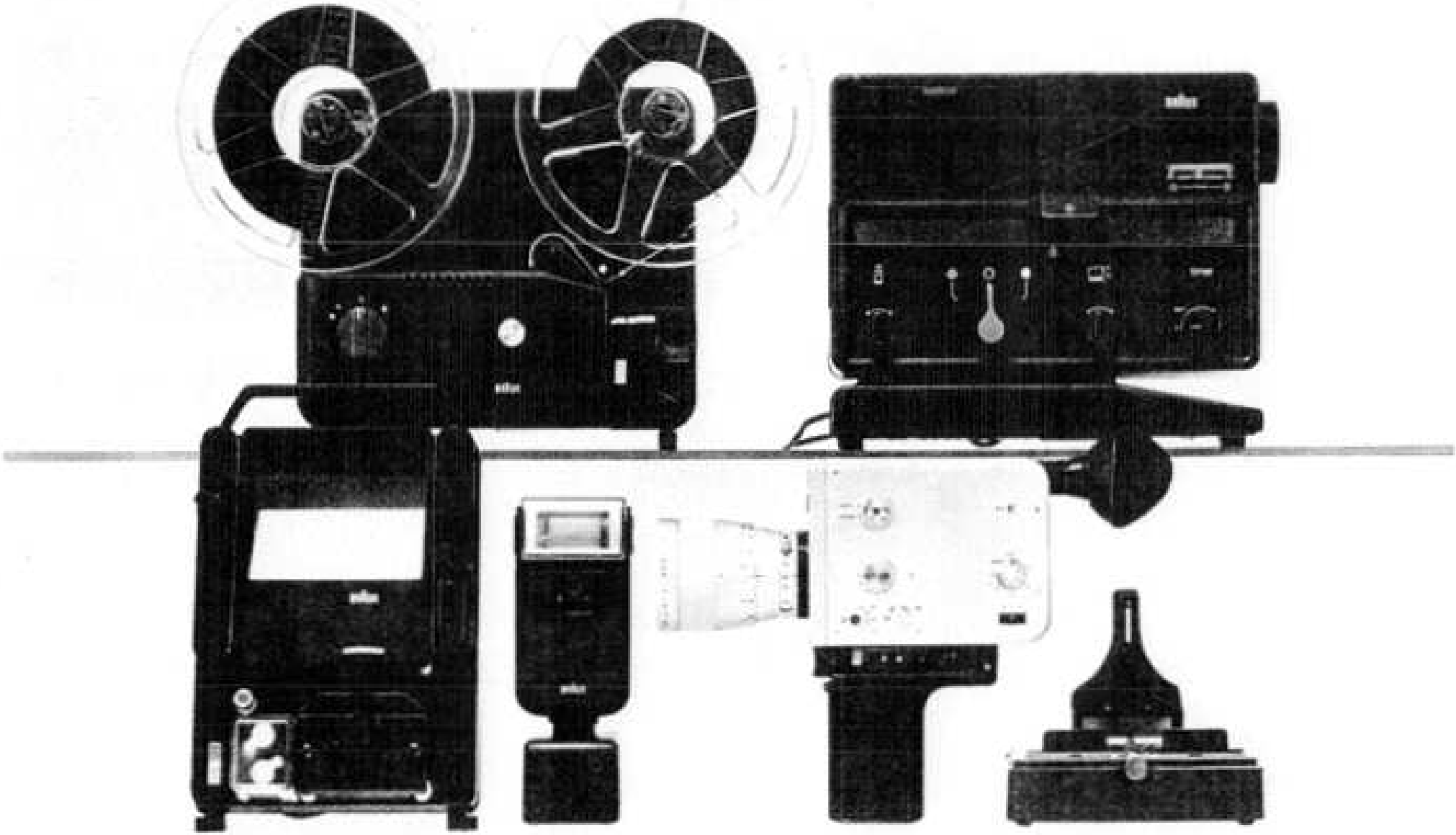
Power zoom does not function

Possible cause: Batteries too weak.	*Remedy:* Check battery voltage.

Adjusting ring at the rear of the zoom lens is set to 0, as a result of which the power zoom has been disengaged.	Turn setting wheel to red dot.

Transport mechanism stops during lap dissolve

Possible cause: Insufficient film slip.	*Remedy:* See detailed description on page 17



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