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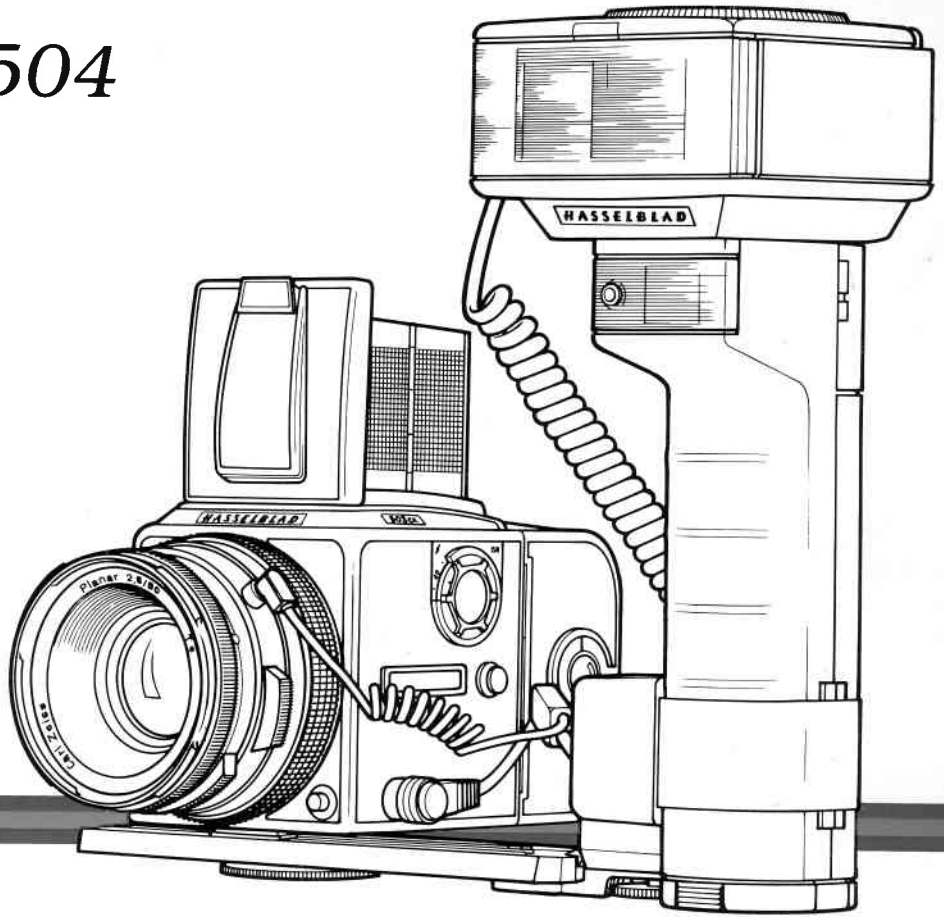
HASSELBLAD®

PROFLASH 4504

User's Manual



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HASSELBLAD PROFLASH 4504

Contents

Maintenance and Service

Protect your Proflash from moisture and excessive heat.
Remove the AA alkaline batteries from the holder when not in use over long periods of time to avoid battery leakage.
Excessive heat, such as direct sunshine or naked flames, may damage the batteries. Unlike NiCad batteries, the AA alkaline batteries must never be recharged.

Formation of the flash capacitor

The built-in flash capacitor may change physically when stored for long periods of time without use. To prevent such deformation the capacitor should be activated every three mounths by switching on the unit for about 15 minutes without firing flashes, or by operating it from the mains for 15 minutes, using the unit N22.
Prior to forming the flash capacitor we recommend recharging of the NiCad pack for five hours to compensate for self-discharging.

When service is required

Contact a center authorized by Hasselblad. The sign "Hasselblad Authorized Service Center" is your guarantee that you will be professionally received and that you can be confident of the results.

Warranty

Provided that you purchased your Proflash 4504 from an authorized Hasselblad outlet, it is covered by an international guarantee for one year from the date of purchase.

About PROFLASH 4504.

The Hasselblad Proflash 4504 dedicated electronic flash unit is the perfect complement to the Hasselblad System. Particularly designed to operate with those of the Hasselblad camera models which are provided with the TTL/OTF (Through The Lens/Off The Film) flash metering and control system, it can also be used with all other Hasselblad models as well as with any other camera.

Due to its built-in SCA-adapter the Proflash 4504 is simple to connect since it needs one connecting cord only between the flash unit and the camera. The mode selector dial combines with an ingenious aperture/flash-to-subject distance calculator. With the tilt-and-swivel main reflector you can direct the flash straight on or bounce it any way you wish. And if you bounce it you always have the fill-in reflector for additional illumination of the subject if reequired.

The Proflash 4504 offers maximum versatility through its four operating modes — TTL, Automatic, Manual and Winder — and three different connector options — Hasselblad TTL, SCA adapter and plain PC cord. There are also three optional power sources available — rechargeable NiCad batteries, size AA alkaline batteries or the AC mains unit in the accessory range for the Mecablitz, manufactured by Metz AG, W Germany.

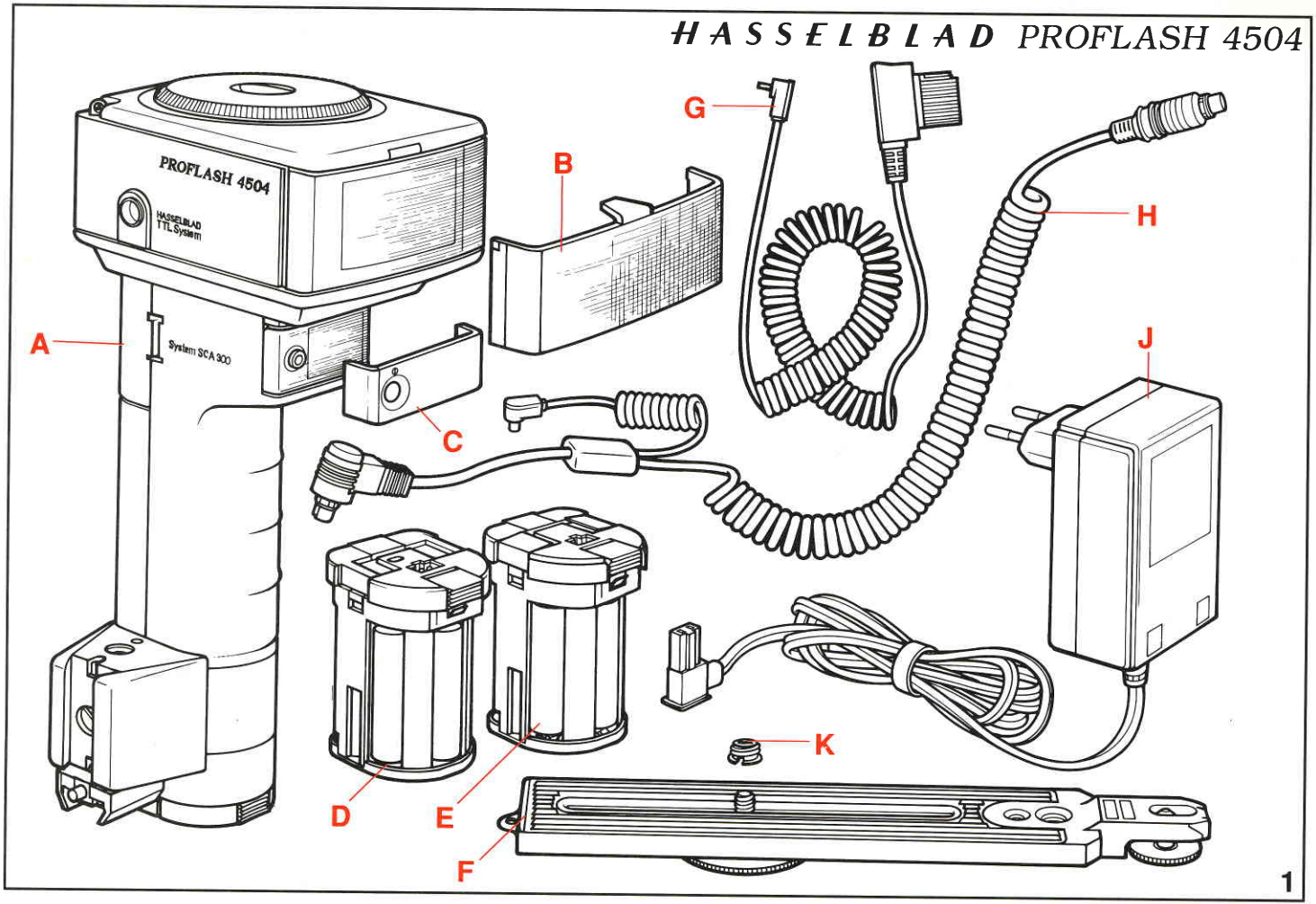
Developed by Hasselblad in cooperation with one of the world's major manufacturers of high quality electronic flashes, Metz AG, and manufactured by Metz, the Proflash 4504 guarantees a long operational life and reliable function. Through the cooperation with Metz, Hasselblad gives you access to their wide range of accessories to be used with the Proflash 4504. Maintenance and service is available worldwide at the Hasselblad Authorized Service Centers.

Read this manual carefully to learn how to get the most out of your Proflash 4504 and how to expand the operational range of your Hasselblad system further.

Hasselblad PROFLASH 4504
Delivery Package

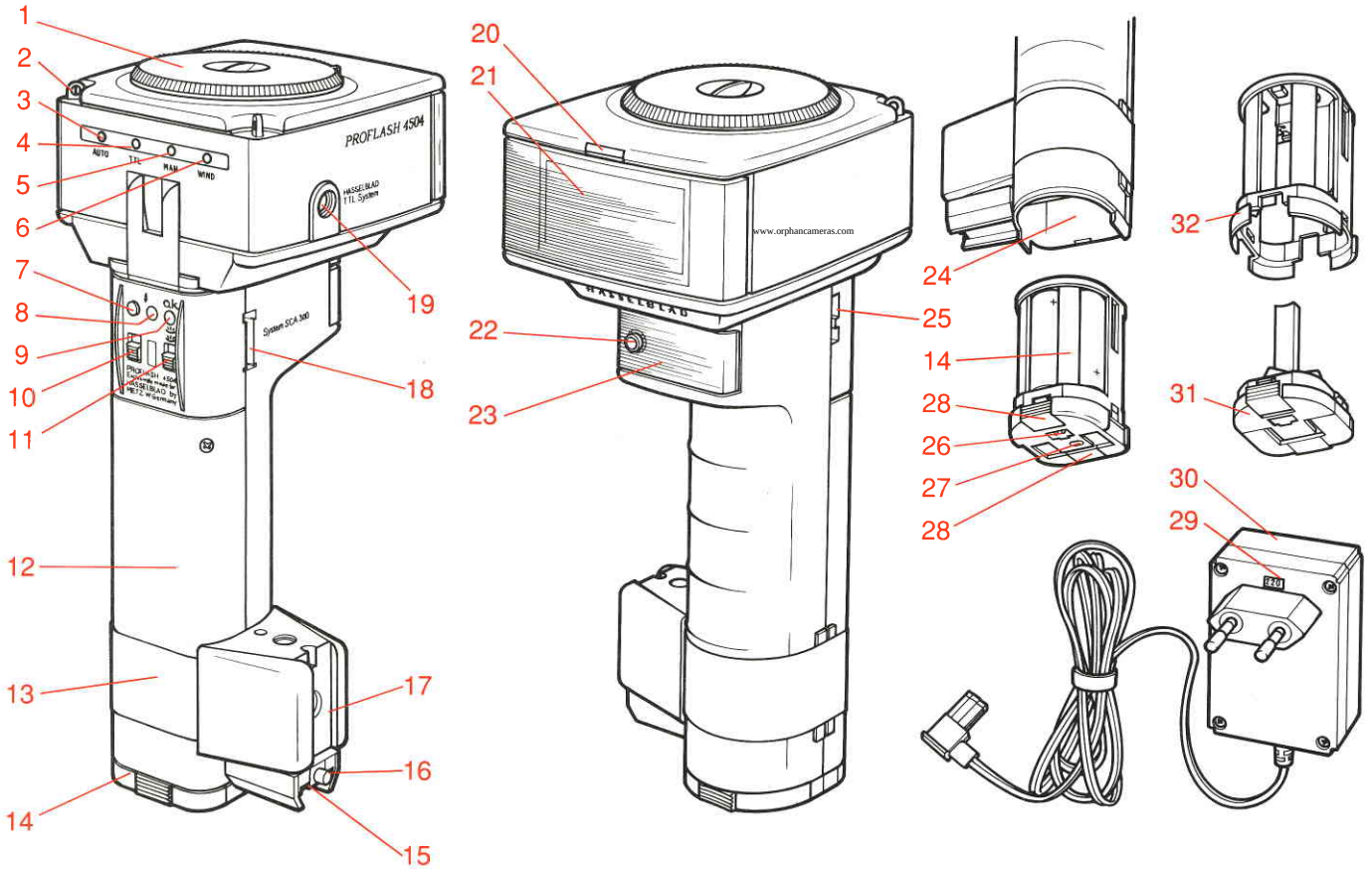
A. PROFLASH 4504 Unit
B. Wide-angle Diffuser
C. Fill-in Flash Reduction Filter
D. NiCad Battery Unit
   (Inserted in the Flash Handle)
E. AA Alkaline Battery Holder
F. Camera Bracket
G. PC Synchronization Cord
H. Hasselblad TTL Synchronization Cord
J. NiCad Battery Charger
K. 1/4" to 3/8" Tripod Thread Insert

HASSELBLAD PROFLASH 4504



Parts and Components (1)

1 Control Center/Aperture Calculator
2 Shoulder Strap Eyelets
3 Automatic Mode Indicator "AUTO" (green)
4 TTL Mode Indicator "TTL" (orange)
5 Manual Mode Indicator "MAN" (red)
6 Winder Mode Indicator "WIND" (yellow)
7 Manual Flash Release Button
8 Flash Ready Indicator (green)
9 Auto/TTL Exposure Indicator (red)
10 Main Switch
11 Fill-in Flash Switch
12 Flash Handle/Battery Compartment
13 Retaining Strap
14 NiCad Battery Unit
15 Camera Bracket Mount
16 Bracket Catch Button
17 Bracket Stow-away Mount
18 SCA/PC Connector Socket
19 Hasselblad TTL Connector Socket
20 Wide-angle Shift Key
21 Main Reflector
22 Light Sensor
23 Fill-in Flash Reflector
24 Battery Compartment
25 Mains Power Unit Socket
26 Accumulator Charger Socket
27 Accumulator Charging Indicator
28 Nicad Pack Retaining Catches
29 Voltage Selector (certain units only)
30 NiCad Battery Charger
31 AA Alkaline Battery Holder Base
32 AA Alkaline Battery Holder Cage



Parts and Components (2)

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37 Feet Distance Scale
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42 Manual Mode 1/4 Power Setting Index
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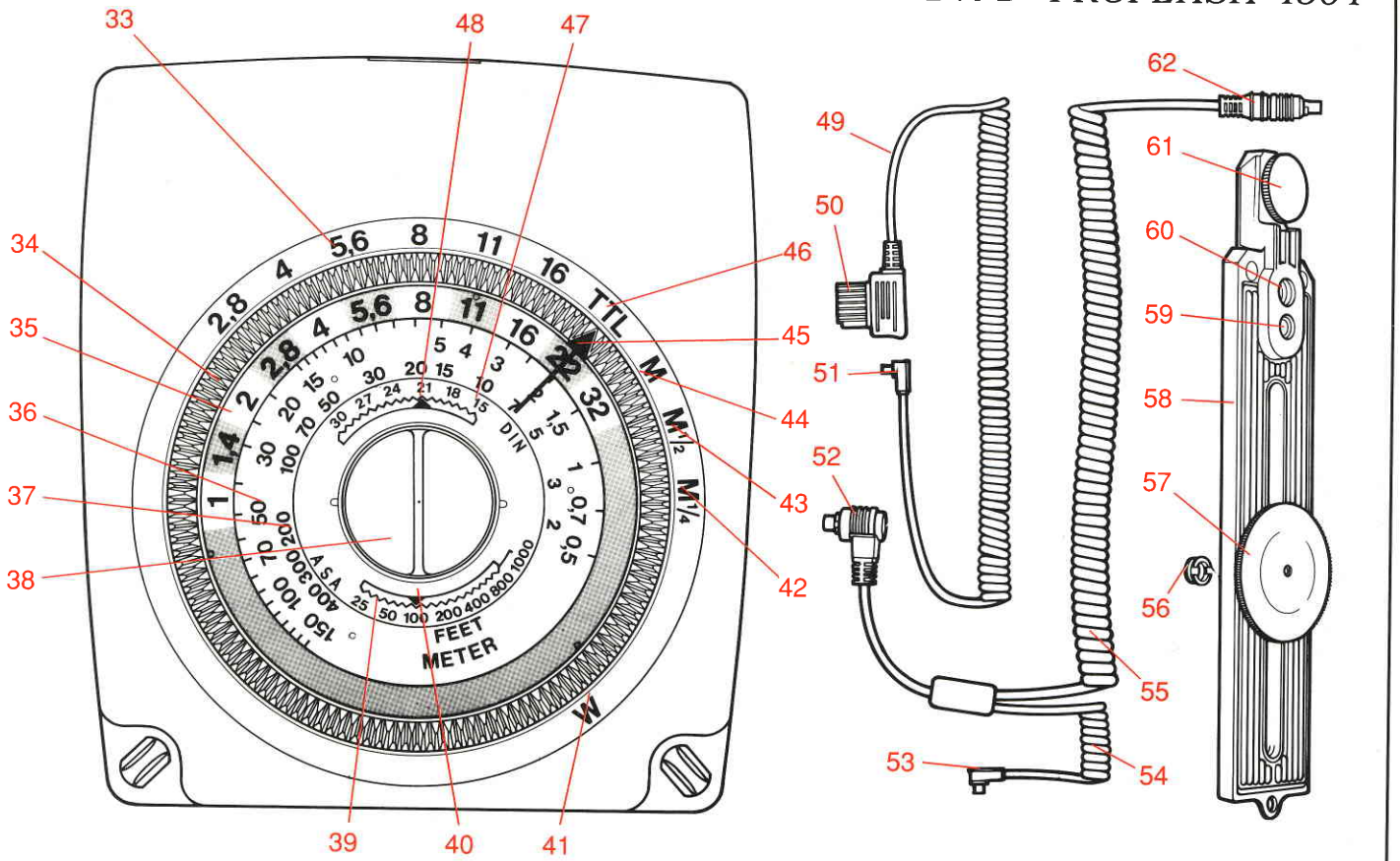
48 DIN Film Speed Setting Index
49 SCA/PC Synchronization Cord
50 SCA Plug
51 PC Plug
52 TTL Camera Plug
53 TTL Cord PC Plug
54 TTL/PC Cord Branch
55 Hasselblad TTL Cord
56 1/4" to 3/8" Tripod Thread Insert
57 Camera Retaining Screw, 1/4"
58 Camera Bracket
59 Tripod Thread Socket, 1/4"
60 Tripod Thread Socket, 3/8"
61 Camera Bracket Locking Screw
62 TTL Flash Plug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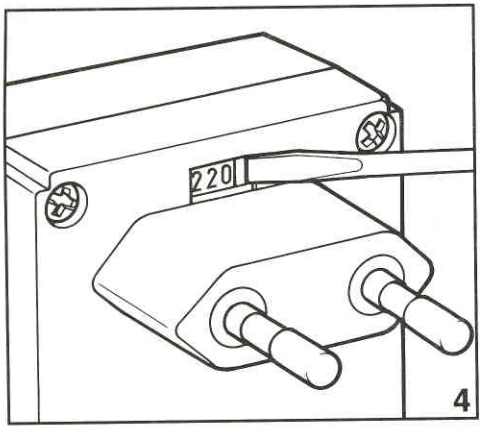
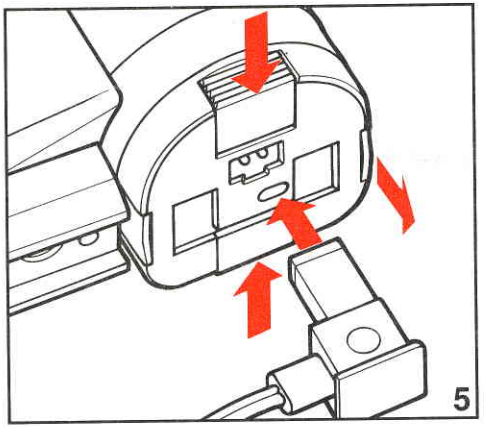
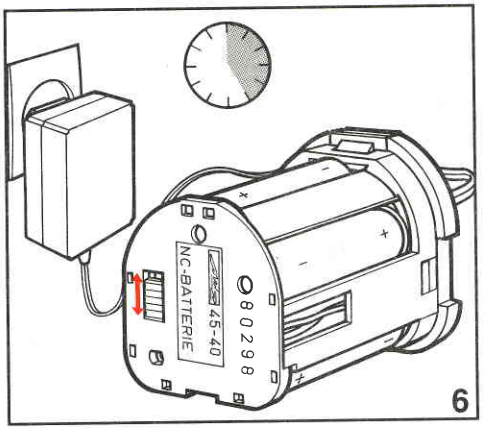






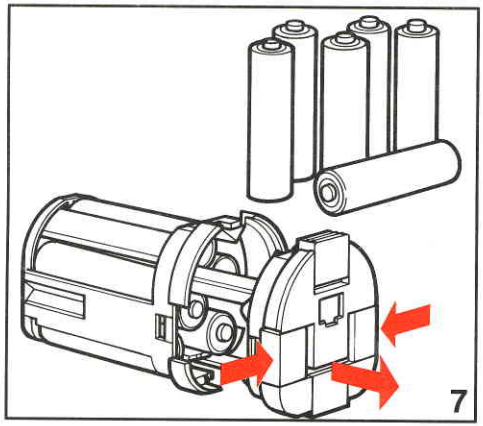
Getting Started

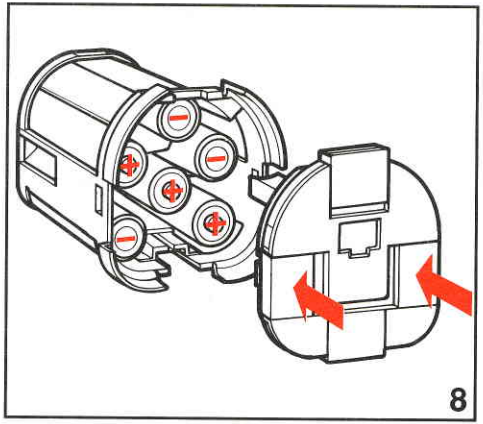
Charging the NiCad Battery Unit

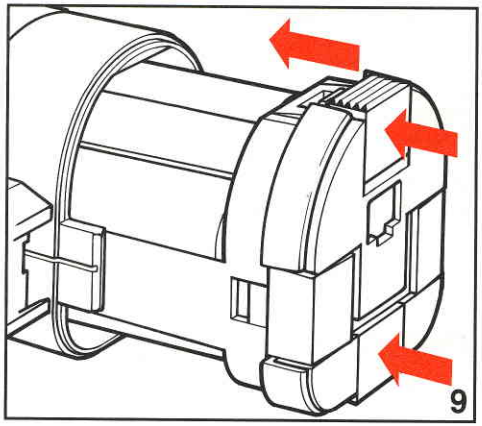
To get started you have to charge the NiCad battery unit for **5** hours using the battery charger included in the flash package. If your charger has an opening close to the connector pins (fig. 4) displaying the voltage, ensure that it is set at the correct voltage. Otherwise it is preset from the factory. To change the setting, insert a small screwdriver in the groove at either end of the sign and push it to the other side to display the alternative voltage. Connect the charger connector to the NiCad unit's terminal and the charger to an AC mains outlet. The NiCad battery can be charged inside or outside the flash unit. To withdraw the NiCad battery unit, squeeze the two grooved buttons (fig. 5) and pull the unit out.

At the inner end of the unit is a small slider (fig. 6) which can be set at white or black. Use it as a reminder to indicate whether the unit is charged or discharged.
In continued normal use the NiCad batteries should be recharged when it takes 30 seconds ore more for the "ready" light to light up when the flash unit is switched on or when the light has gone out after a full power flash.

The flash unit must be switched off when you are charging the NiCad battery inside it.







Quick-start with AA Alkaline Batteries

To avoid waiting for 5 hours to get started you can use the battery holder also included in the flash package to power the flash with 6 pcs AA size 1,5 V alkaline batteries. Open the battery holder by squeezing the two **flat** buttons (fig. 7) and pulling the end part out. Insert the batteries ensuring that they are inserted as indicated in fig. 8. Reattach the end part. Make sure that the catches engage properly.

Insert the holder in the flash handle, pushing at the flat surfaces of the grooved catch buttons (fig. 9). Ensure that these catches also engage properly.

NOTE: Rechargeable AA-size NiCad batteries have lower voltage and should not be used in the battery holder!

Please note that for environmental reasons alkaline batteries should not be disposed of with ordinary refuse!

Testing the Flash

Switch on the flash by pushing the main switch at the left on the rear of the flash handle upwards (fig. 10). When switched on the switch displays red underneath the slide button. The flash is ready to operate when the green "ready" light in the center lights up. Press the button beneath the flash mark to release the flash (fig. 11). The red "OK" light illuminates when the flash unit has provided sufficient light for the circumstances and fades out after 2-3 seconds.
Switch off the flash when it is not used to conserve power!

Flash Operational Modes

The PROFLASH 4504 operational modes are

TTL Mode, where the camera controls the flash output,
Automatic Mode, where the flash itself controls the exposure,
Manual Mode, where you control the exposure yourself,
Winder Mode, which is a manual mode with reduced power to facilitate a fast action of 2 flashes/sec.

TTL Mode

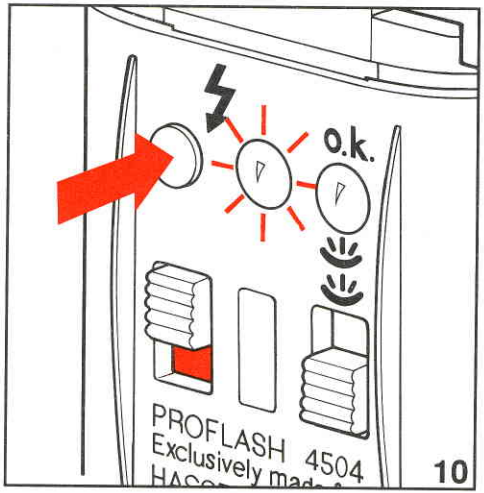
Follow this procedure to use the Proflash 4504 in TTL mode (fig.12):

1. Turn the transparent mode selector disk to point the index arrow at the orange TTL symbol.
2. Set the film speed dial (blue ASA or DIN scale) to align the speed of the film used with the white index pointer by turning the knob in the center. The film speed and the distance scales move together.
   NOTE: The film speed setting does not affect the function of the flash.
3. Read the maximum flash-to-subject distance straight below the value of the aperture to be used. The minimum distance for full TTL flash control is shown in the table on page 39.

Regarding use of Wide-angle Diffuser for parallax compensation at short flash-to-subject distances please see page 33.

When you switch on the flash, the orange "TTL" indicator lights up (fig. 11). The green "ready" light on the back of the handle lights up when the flash is ready to operate and goes out only if most of the flash power has been used for the flash. The red "OK" indicator lights up when the flash output was satisfactory and fades out after 2-3 seconds.

See page 21 how to use the Proflash 4504 with the Hasselblad TTL/OTF flash metering cameras!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PROFLASH 4504
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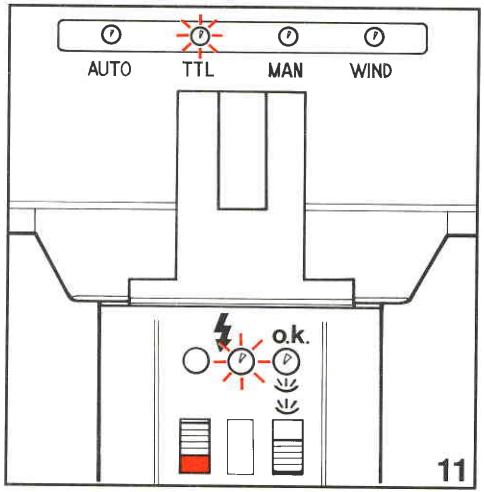
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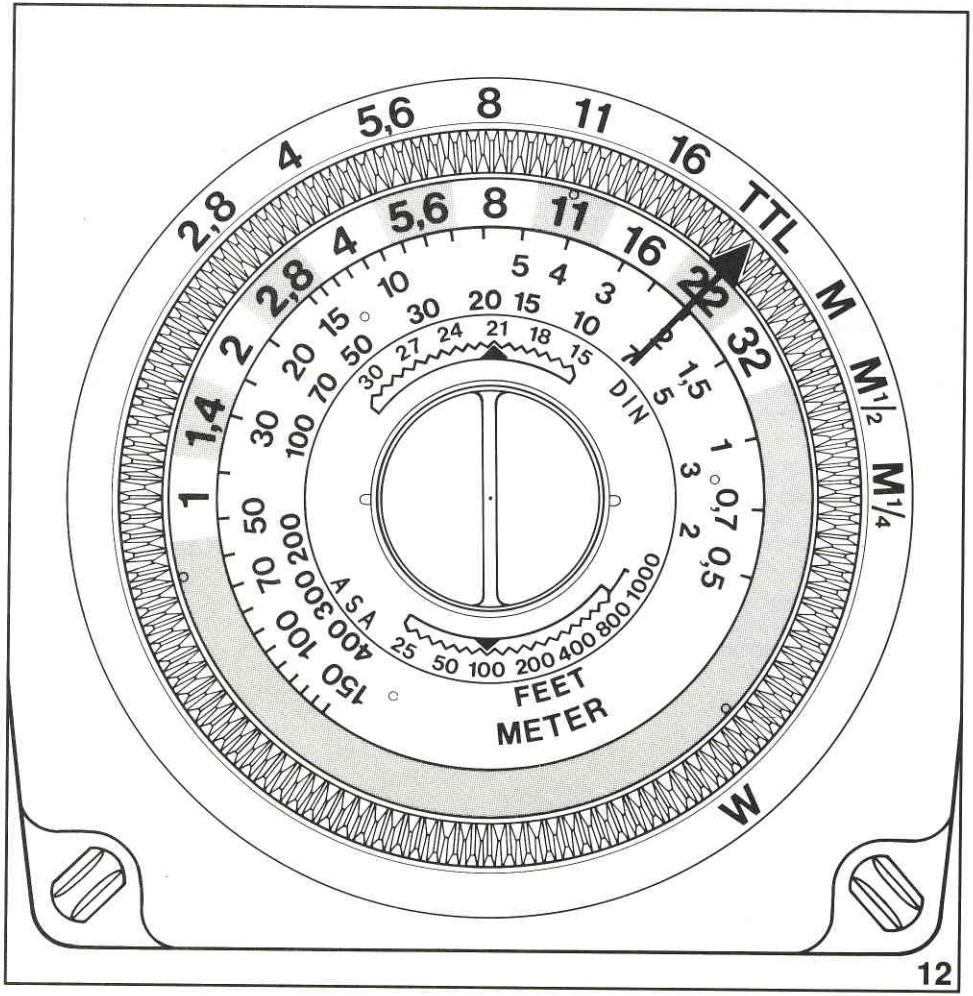
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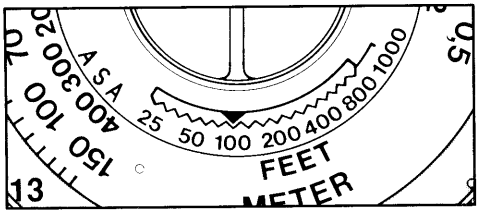
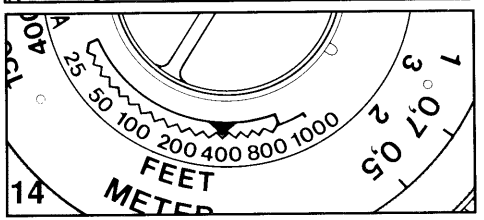
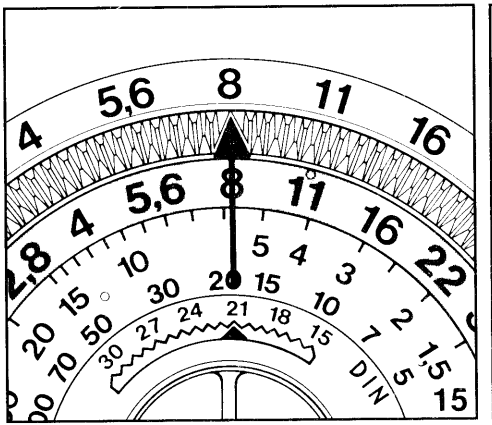
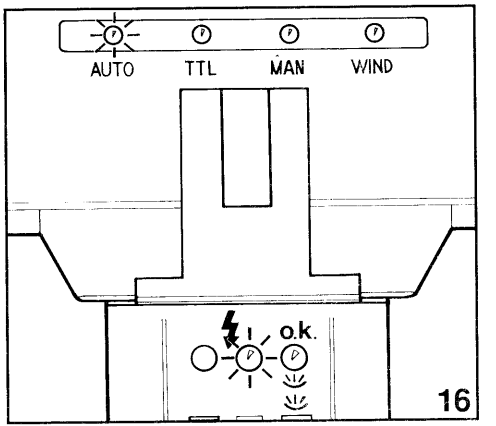








Automatic Mode

In Automatic mode the Proflash 4504 gives a correct over-all exposure and can be used with any camera, since the built-in metering system in the flash works independent of the camera to which the flash is connected. The flash settings are identical in all cases:

1. Set the film speed dial (blue ASA or DIN scale) to align the speed of the film used with the white index pointer by turning the knob in the center. The film speed and the distance scales move together (fig:s. 13,14)
2. Rotate the transparent mode selector disk to align the index arrow with the green aperture value corresponding the aperture to be used **or** to match the distance between the flash and the subject (fig. 15). The green "AUTO" indicator light turns on (fig. 16) when the flash is switched on.
3. Read the **maximum** flash-to-subject distance straight below the value of the aperture to be used **or** read the **largest** aperture value to be used for the apparent flash-to-subject distance. The minimum distance for fully automatic flash control is approximately 10% of the maximum distance. Subjects beyond the maximum distance will be underexposed and subjects closer than the minimum distance will be overexposed.

Example 1:

Flash-to-subject distance: 2.5 m (8 ft)
Film speed: ISO(ASA) 100/21°

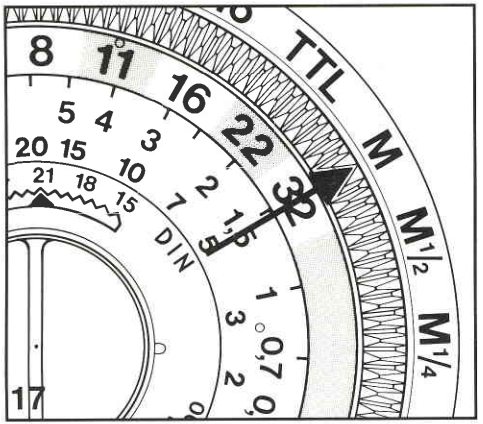
Procedure: Set the film speed (p.2, page 14). In this example the flash-to-subject distance falls between the shortest maximum distance to be read at the available apertures (3 m at 16) and the minimum distance (0,3 m) according to p.3 above. Thus, you can chose any of these apertures, e.g. f/16 for larger depth-of-field.
Turn the selector disk to point the index arrow at the green number 16 and also set your camera aperture at f/16.

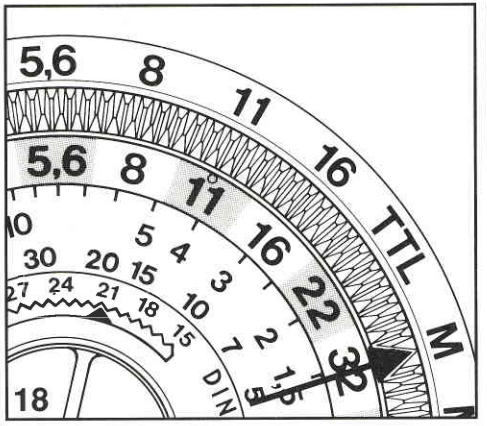
Example 2:

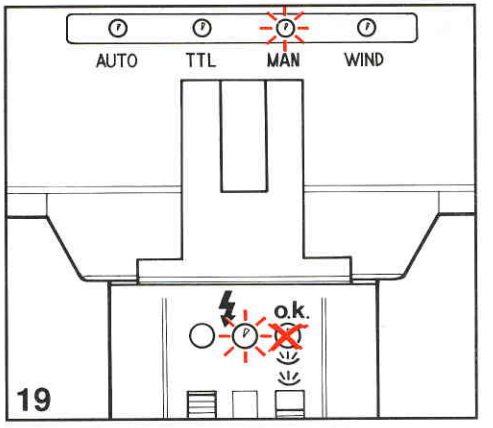
Flash-to-subject distance: 8 m (26 ft)
Film speed: ISO(ASA) 400/27°

Procedure: Set the film speed (p.2, page 14). The flash-to-subject distance 8 m can be read at the aperture 8. Thus, you can use any of the aperture settings giving you an equal or larger maximum distance, i.e. 2.8, 4, 5.6 and 8. E.g. you can chose 2.8 for the shallowest depth-of-field. Set the index arrow on the selector disk at the green value 2.8 and your camera aperture at f/2.8.

When you switch on the flash, the green "AUTO" indicator lights up, as does the green light on the back of the handle when the flash is ready to operate (fig. 16). The red "OK" indicator lights up if the exposure was satisfactory and fades out after 2-3 seconds. The green "ready" light stays on if the flash did not use all of the power and the remaining power is sufficient for a new flash.







Manual Mode

The Manual mode has three different settings:

M for full power,
M1/2 for half power and
M1/4 for one quarter of the full power output.

The different settings are selected with the transparent selector disk by pointing the index arrow at the corresponding symbol. The distance scale and the selector disk move together to the M1/2 and M1/4 settings to give proper distance readings when you are using the flash at reduced power.

When the flash unit is switched on the red "MAN" indicator lights up, as does the green "ready" light when the unit is ready to operate. The "OK" light goes on and off but has no relevance in the Manual mode (fig. 19).

In the Manual mode the setting of the camera aperture is dependent on the flash-to-subject distance and the **Guide Number** of the flash unit for the film speed used (see table, page 40). Every change in flash-to-subject distance requires a corresponding change in camera aperture setting. The camera aperture to be set for a certain distance is best determined by means of the **Control Center** (see fig.12, page 13).

Using the Control Center

Set the film speed by turning the center knob.
Turn the selector disk to point the index arrow at the red **M** (fig. 17) to select Manual mode with full output power. Now you can read the aperture to be set on your camera from the black and white aperture scale directly above the actual flash-to-subject distance (fig. 18).

Example 1:

Using the control center

Film speed:	ISO(ASA) 100/21°
Flash-to-subject distance:	approx. 8 m
Aperture setting:	f/5.6

Example 2:

Using the Guide Number

To determine the aperture required for a certain flash-to-subject distance use the method below:

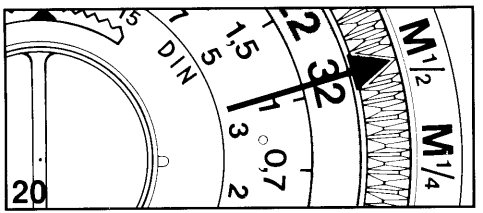
$$\text{Camera aperture} = \frac{\text{Guide Number}}{\text{Flash-to-subject distance}}$$

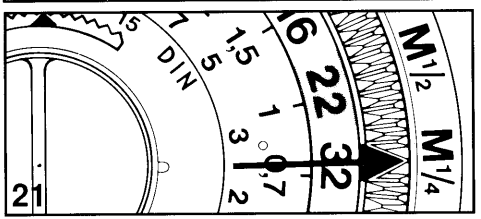
Referring to the previous example:

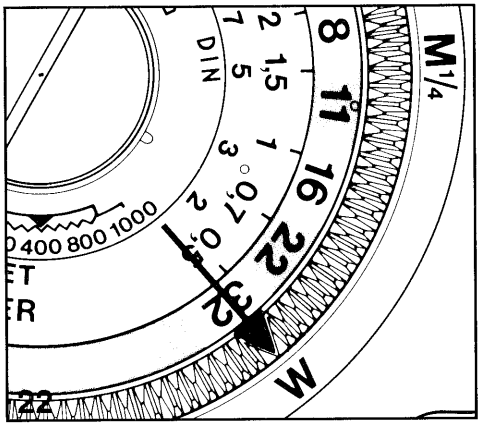
Guide number for ISO 100/21° film from the table on page 40: **45**
Flash-to-subject distance: **8 m**

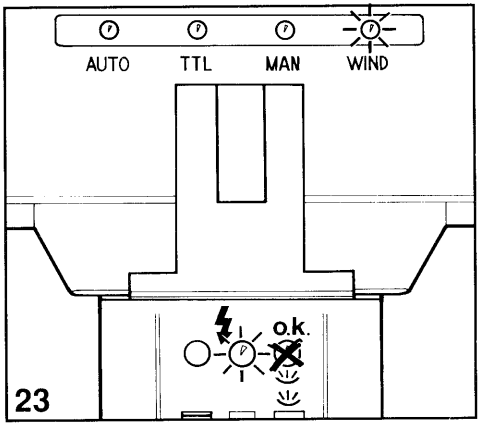
$$\frac{45}{8} = 5{,}625; \quad \text{Camera aperture} = \mathbf{5{,}6}$$

If necessary round the calculated figure up or down to correspond to the nearest possible camera setting.
When you are using the **wide-angle diffuser** you have to open up the camera aperture one full stop, i.e. set 4 instead of 5,6 in this example.









Using the Reduced Flash Output

In the Manual mode you can select two settings with reduced light output, **M1/2** with 50% (fig. 20) and **M1/4** with 25% (fig. 21) output. The output reduction is achieved by reducing the flash duration to 1/1000s and 1/2500s respectively. Since less power is used for these flashes the recycling time is proportionally shorter. The illumination of the "OK" light is not relevant in these modes and should be disregarded (fig. 19)

To select the reduced output you follow the procedure described on page 16, but you turn the selector disk to point the index arrow at the M1/2 or M1/4 setting. You can read the required camera aperture setting for the actual flash-to-subject distance from the black and white aperture scale directly above that distance.

Examples to the use of Reduced Flash Output

The reduced output modes are particularly useful when the flash-to-subject distance is very short or when a short exposure is required to capture a moving subject.

Example 1: Short flash-to-subject distance.

Film speed:	ISO(ASA) 200/24°
Flash-to-subject distance:	1.5m (5 ft)
Smallest camera aperture:	f/22

When using the full output the aperture calculation will be:

Guide number/Distance = Aperture 64/1.5 = **43** Not available!

Change to 1/4 output. Guide number factor = 0,5 (page 40)

Guide number: 64 x 0,5 = 32 32/1,5 = 21,3 **22**

Example 2:

A sharp image of a fast moving subject is required which calls for a short flash duration. In the TTL or Automatic modes the flash duration is not defined. The alternative is Manual mode with reduced output where the flash duration is both well known and sufficiently short.

Winder Mode

The Winder mode is a variety of the Manual mode with further reduced output to facilitate a flash sequence of 2 flashes/second. The flash output is 1/40 (2,5%) of the full output and the Guide Number Factor is 0,16 (see page 40). The flash duration is approx. 1/10000 second.
You select the Winder mode by turning the selector disk to point the index arrow at the **W** symbol (fig. 22). The aperture scale is automatically adjusted to correspond to the reduced guide number. When you switch on the flash unit the yellow "WIND" indicator lights up, as does the green "ready" light when the flash unit is ready to operate. The red "OK" light is not relevant in the winder mode and should be disregarded (fig. 23).

NOTE: In Winder mode the PROFLASH should be powered by NiCad batteries only!

Example 1:

A sports event requires a winder sequence of images. The flash-to-subject distance is 5m (17 ft) and the largest available lens aperture is f/4. Which is the slowest film speed to be used?

Procedure:
Turn the selector disk to point the index arrow at **W**.
Turn the central knob to set the distance **5**m at the aperture figure **4** on the black and white aperture scale.

Read the required film speed ISO(ASA) **800/30°** off the blue ASA/DIN film speed scales.

Example 2:

An image of a fast moving machinery part requires the shortest possible exposure. The flash-to-subject distance is 1,5m (3 ft) and the speed of the film used is ISO 200/24°.
Which aperture should be used?

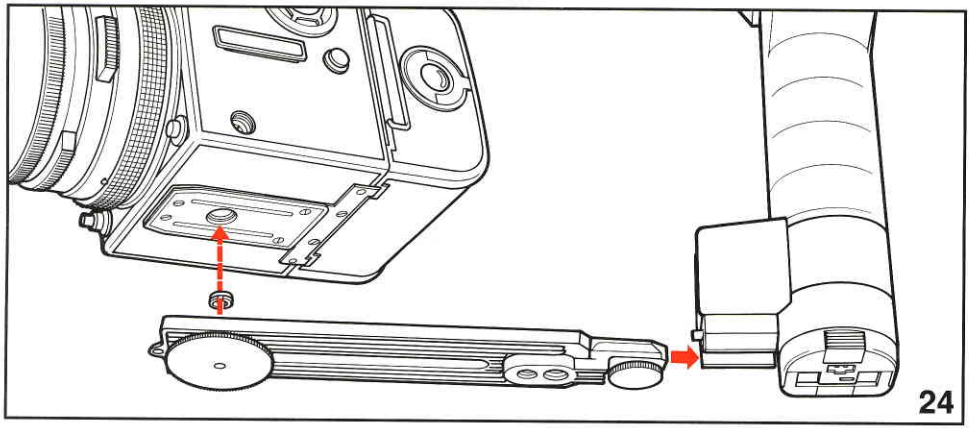
Procedure:
Turn the selector disk to point the index arrow at **W** to select a flash duration of 1/10000 second.
Turn the center knob to set the film speed **200/24°**.

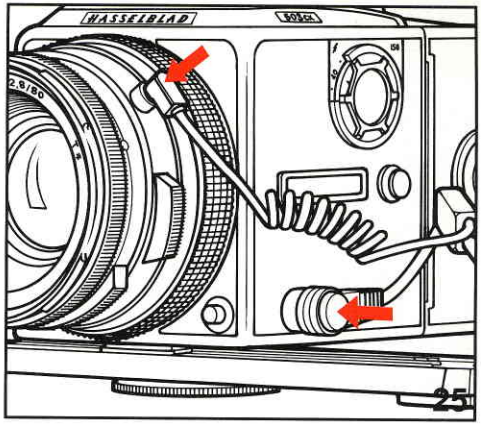
Read the applicable aperture to between **5,6** and **8** above the distance mark **1,5**(m).

If you require the accurate aperture figure you have to calculate:

Guide number **64** for film speed ISO 200/24°
Reduction factor **0,16** (page 40) 64 x 0,16 = **10,24** 10,24/1,5 = **6.8**

NOTES





PROFLASH 4504 with Hasselblad CX and ELX models

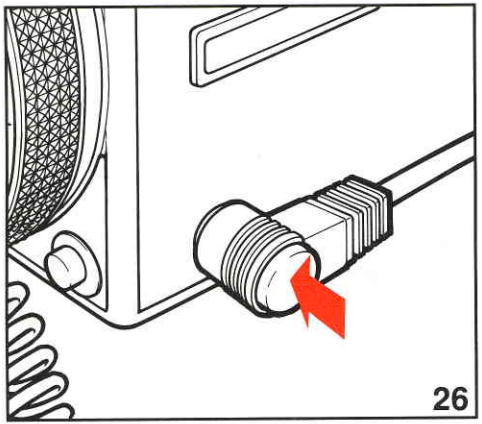
Attaching the Flash to the Camera

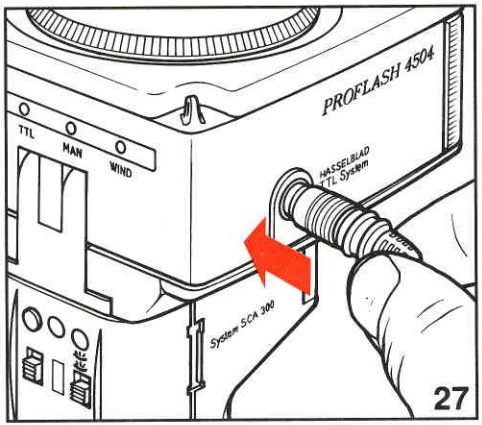
Use the camera bracket to attach the flash unit to the camera (fig. 24). The large retaining screw in the bracket has a 1/4" thread. Insert the thread reduction bushing into the camera tripod mount if that has a 3/8" thread. First attach the bracket to the camera and then fit the dovetail mount of the flash unit to the dovetail end of the bracket. Tighten the flash retaining screw on the bracket to eliminate the play in the mount.
To detach the flash unit from the bracket release the retaining screw, press the catch button in the mount and withdraw the unit.

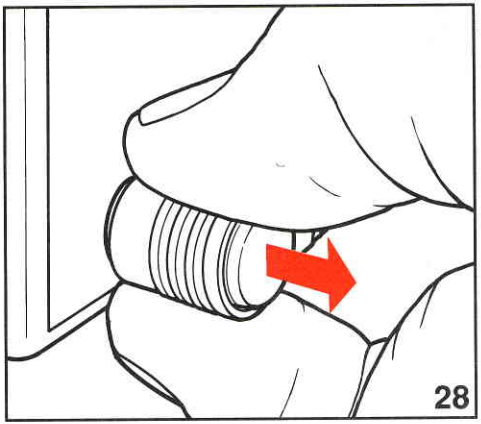
Connecting the Flash

Use the TTL cord to connect the flash unit to the camera. The cord has two female six-socket TTL plugs and a branched-off cord with a PC plug. Insert the L-shaped TTL plug into the TTL socket in the camera body and the PC plug into the PC terminal on the lens (fig. 25). Please observe that the cord exit on the L-shaped TTL plug should point towards the rear of the camera.

(continued on page 22)







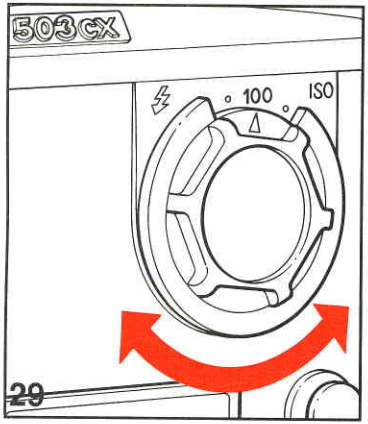
Insert the straight TTL plug into the TTL socket on the right hand side of the flash head (fig. 27). Rotate the plug to match the grove on the plug-in part with the corresponding lug in the socket. When inserting the TTL plugs, do not grip on the metallic sleeves but on the black plastic parts and push the plugs straight into the socket mounts. On the L-shaped plug push at the flat top surface (fig. 26). The plugs lock in the sockets with an audible click.

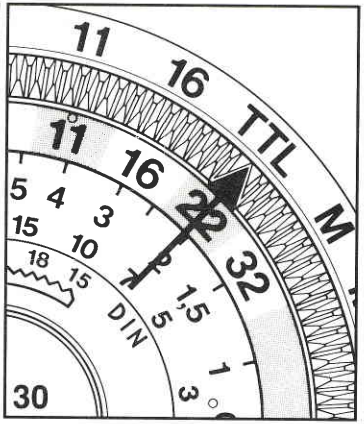
To disconnect the TTL plugs, grip at the metallic sleeves and pull straight out (fig. 28).
You can also connect the flash through a Hasselblad SCA 390 Flash Adapter but then you will need an additional cable SCA 300A supplied by METZ, West Germany.

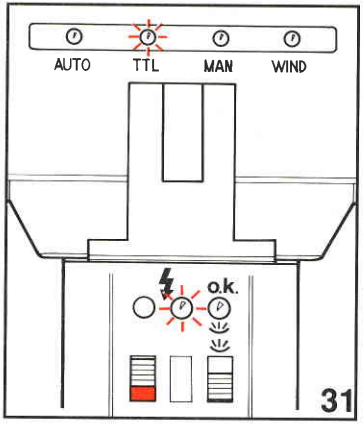
Camera and Lens Settings

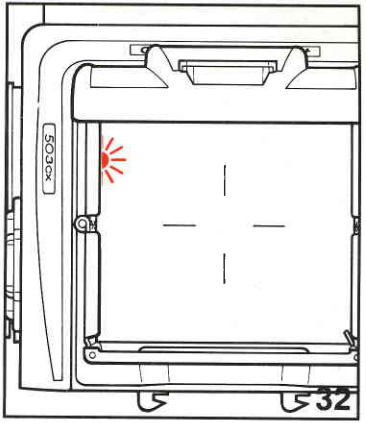
When you are using the TTL/OTF flash control system in the 503CX, 500ELX or 553ELX, the only setting you need to do on the camera, except the normal lens settings, is the film speed dial.

NOTE: The TTL system measures the light reflected from the film surface. The degree of reflection varies between different films depending on the color and structure of the film surface. The best way to compensate for the variations is to alter the film speed setting. You are recommended to make several trial shots to determine the film speed setting for the film you are using. See the table on page 41 for a review of suggested settings for different films.









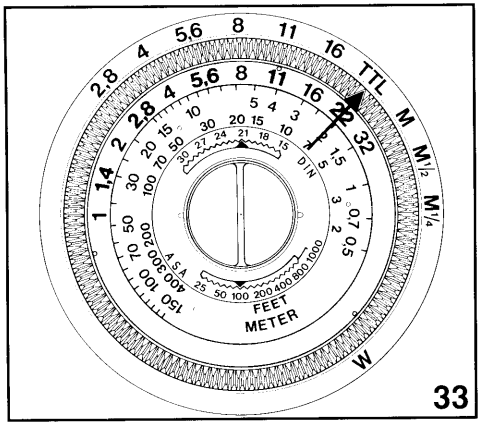
This is the dial on the left hand side of the camera, above the strap lug (fig. 29). The setting range of the dial is from ISO 16/13° to ISO 1000/31° with intermediate click stops between the noted values as indicated in the complete scale illustrated below.
Please observe that ISO 1000 is represented by a dot mark.

When the full flash power is used, e.g. at long flash-to-subject distances, the flash duration is approximately 1/300 s. Using the fastest shutter speeds (1/250, 1/500 s) may then result in an underexposure of subjects at the far limit of the flash range. **To avoid that, you are recommended to use shutter speeds of 1/125 s or slower whenever possible.**

TTL setting on the Flash

Select the TTL mode by rotating the transparent selector disk to position the index arrow at the orange TTL mark (fig. 30). This is the only setting you need to do to use the flash in TTL mode.
Switch on the flash unit with the main switch (fig. 10). The orange TTL index light on the back of the flash head lights (fig. 31). When the flash is operative, the green "ready" light on the flash **and** the red index light (fig. 32) in the camera viewfinder light up.

ISO/ASA	16	•	25	•	40	•	64	•	100	•	•	200	•	•	400	•	•	800	•
DIN	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31



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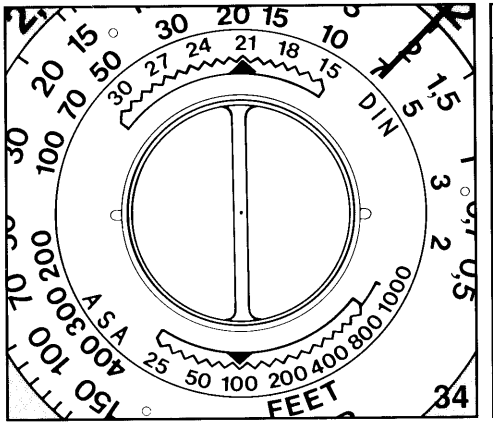

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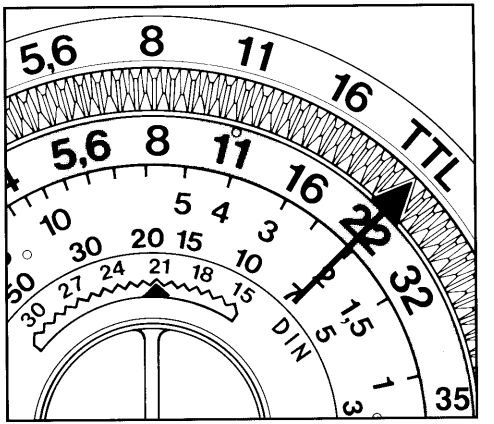

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Utilizing the Flash Control Center

In TTL mode the control center scales (fig. 33) can be used as a flash illumination range calculator and a film speed reminder. The film speed setting does not affect the flash operation in this mode.

To find the maximum range of the flash, set the film speed by rotating the central knob until the film speed is positioned opposite the white index mark (fig. 34). Observe that when rotating the knob you move the blue film speed scales, not the index marks. With the film speed set you can read the maximum flash range below the aperture numbers on the black and white aperture scale (fig. 35).

Example: With the disk arrow set at TTL and the film speed set at ISO(ASA)100/21° you read 8m at f/5,6 or 4m at f/11 etc.

NOTE: The readings described above denotes the far limit of the flash range and the aperture range for medium speed films. For the near limits and the aperture ranges for slower and faster films see the table on page 39!