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FEATURES OF THE AF 280T

No matter what type of hotshoe synch camera you own, on the basis of its general features alone, you’ll find the Pentax AF 280T one of the most convenient flash units you’ve ever worked with. That’s because it not only offers you two-level automatic flash control through the built-in sensor at the base of the flash head, it also features two-level High/Low manual flash with a fast recycle at the low setting. Additional standard features include a convenient rotating flash head that permits 180° horizontal and 90° vertical bounce flash operation. There’s also a click-stop setting at -15° for close-ups. And for difficult bounce or other complex flash situations, the auto check lamp on the back of the unit lets you pretest the flash by lighting after you press the test button.

Moreover, in addition to offering the above benefits with all cameras featuring hotshoe synch, the AF 280T also features the special benefits of a “dedicated” and/or TTL flash with many of the latest model Pentaxes.

How to use this manual
Regardless of the type of camera you own, be sure to read the “Flash Preparation” section of this manual beforehand, after which, pause briefly at the “Flash Synchronization/Operational Features” section (pages 10-11) to examine the particular features that the AF 280T has to offer when used with your camera.

Cameras without “dedicated”/TTL flash provision:
All sections of the manual, except “TTL Auto Flash Operation” contain information
pertinent to the operation of this flash unit with your camera and should be read carefully in order to take maximum advantage of the many benefits the flash unit has to offer.

**Cameras with "dedicated" flash provision**

When operated at the two-level auto mode settings and also at the M/S (manual w/auto synch) settings, your camera will have the added benefits of automatic flash synchronization and viewfinder flash data indication with the AF 280T. Thus, as with cameras not offering this provision, except for the "TTL Auto Flash Operation" section, carefully read all sections of the manual, paying particular attention to the notes on "dedicated" flash operation offered in pertinent sections of the text, in order to fully understand the advantages the AF 280T has to offer with your camera.

**Cameras with TTL Auto Flash Provision:**

Cameras featuring TTL Auto Flash capability with the AF 280T, such as the Pentax LX with the IDM (Integrated Direct Metering) system of exposure measurement, were especially designed for TTL Auto Flash operation with the AF 280T. With the LX, the "TTL Auto" is the main operating mode, so after examining the chart on pages 10 - 11, skip directly to the "TTL Auto Flash Operation" section to gain an understanding of basic flash operation with your camera. Then go on to read the other sections of the manual, paying particular attention to the "M/S" (Manual w/auto synch) and "M" (Manual) sections, as there will be occasions when one form of manual flash is more
advantageous than the other. Because the advantages of through-the-lens flash outweigh those of two-level auto flash operation with your camera use of this mode is unnecessary. Thus, it would save time if you omit the “Two-Level Auto Flash Operation” section entirely, or save it for last.

NOTE: For operation of the AF 280T with late model Pentax cameras not specifically mentioned in this manual, refer to your camera instruction booklet.
DESCRIPTION OF PARTS

1. Rotating flash head
2. Slots for Wide-Angle/Tele Adaptors
3. Auto flash sensor
4. Battery compartment lock lever
5. Battery compartment cover
6. Flash head lock lever
7. Flash head angle scale
8. Hotshoe bracket
9. Auto exposure check lamp
10. Thumbscrew
11. Test button
Flash Control Panel

1. L Distance scale (for M/S "L" setting)
2. Aperture scale
3. ASA window
4. ASA film speed index mark
5. Viewfinder auto check ON/OFF switch
6. Flash mode selector lever
7. Distance scale
8. Wide-Angle/Tele Adaptor aperture indices
9. Two-level Auto aperture indices
10. ON/OFF Switch
11. Flash ready lamp
FLASH PREPARATION

Inserting the batteries
1. Press down on the arrowhead marking on the battery compartment cover and slide the lever with your thumb until the cover pops open.
2. Insert four AA size penlight batteries into the battery compartment in accordance with the plus/minus (+ –) markings and close the cover.

Test flash: Before mounting the flash unit on the camera, it’s a good idea to test it to see if the flash is functioning properly. Slide the flash unit’s ON/OFF switch to the ON position. In a few seconds, the flash ready lamp above the power switch will light, indicating that the capacitor has charged. After the lamp lights, press the test button (TEST) to discharge the flash; then, slide the power switch back to OFF.

NOTE: If the ready lamp fails to light within 30 seconds, batteries may be inserted improperly (if new) or worn out (if old).
Mounting the flash unit

1. Slide the flash unit’s hotshoe bracket into the camera hotshoe (this is easier if you grasp the flash unit at the bottom near the bracket). Make sure the bracket slides all the way into the hotshoe to ensure proper contact.
2. Turn the thumbscrew in the direction of the arrow (FIX) so that the unit is firmly fixed to the camera.

To remove the flash unit: Loosen the thumbscrew and slide the bracket out of the hotshoe.

Indexing the ASA film speed

Before operating the flash unit, index the ASA film speed number of the film loaded in your camera by sliding the ASA film speed lever of the flash unit’s control panel until the ASA film speed number aligns with the white film speed index mark.

NOTE: If you neglect to index the film speed properly, the indicated f-stops will not give the proper exposure.
THE MODE SELECTOR

Located at the base of the control panel on the back of the flash unit, the mode selector lever enables selection of any of the AF 280T's six flash operating modes. To select the mode of operation, slide the mode selector lever until the white index mark on the back of the selector corresponds with the index mark for the desired operating mode.
**TTL AUTO** This setting is used for through-the-lens integrated flash control with Pentax cameras featuring IDM or similar TTL flash metering systems (see page 16).

**TWO-LEVEL AUTO** These dual-mode settings are used for auto flash operation with all camera's not offering TTL operation; in this instance, flash output is control by the flash unit's built-in auto flash sensor. The GREEN setting is used for low flash output; the RED setting for high output flash (see page 12).

**M/S (H, L)** At these settings, manual flash with automatic flash synchronization and viewfinder flash ready indication is offered with Pentax cameras featuring TTL/dedicated flash provision. With other cameras, these settings offer standard high/low manual flash (see page 19).

**M (Manual)** This setting offers full output manual operation. With Pentax cameras offering TTL/dedicated flash, this setting enables you to override the camera's TTL/dedicated flash features (see page 21).
The method of flash synchronization and the operational features of the AF 280T vary depending upon the camera you are using. Both Two-Level Auto and Manual flash operation are featured with all cameras that offer hotshoe synchronization, and TTL flash is available with the Pentax LX. In addition, with certain other Pentax cameras, automatic flash synchronization and viewfinder flash ready indication are offered along with other dedicated flash features (as indicated in the chart).

**Method of Synchronization:** With Pentax cameras mentioned specifically in the chart, flash synchronization is possible as indicated in the column of the chart representing your camera. For cameras offering TTL/dedicated flash provision that are not mentioned specifically on the chart, refer to your camera instruction manual for synchronization and operating details. With older model Pentax cameras and cameras of other makes, synchronization is basically as indicated in the last column of the chart. However, there are exceptions; be sure to refer to your camera instruction manual for details.

<table>
<thead>
<tr>
<th>Flash Modes</th>
<th>LX</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTL Auto, Two-Level Auto, M/S (H, L), M (Manual)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automatic Synch</th>
<th>At &quot;X&quot; 1/75 sec. with shutter dial set at &quot;Automatic&quot; or &quot;X&quot; on charging.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Synch</td>
<td>At &quot;X&quot; (1/75 sec.) setting of shutter dial</td>
</tr>
</tbody>
</table>
| Flash Ready Indication | 1) LED lamp inside viewfinder
                           | 2) Flash ready lamp on back of flash                                       |
| Auto Flash Check      | 1) Flashing LED inside viewfinder
<pre><code>                       | 2) Auto check lamp on back of flash                                        |
</code></pre>
<p>| Camera overrides flash | Camera's auto exposure system overrides flash exposure when indicated LED shutter speeds exceed required flash synchro-  |
| nization speed                                                            |</p>
<table>
<thead>
<tr>
<th>MG, MV, MV-1</th>
<th>ME-F, ME SUPER</th>
<th>ME, MX, K2, ETC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-Level Auto, M/S (H, L), M (Manual) Standard non-dedicated manual operation at TTL Auto setting of flash unit</td>
<td>Two-Level Auto, Low output manual at M/S (L) setting, standard full output manual at M (Manual) setting, M/S (H) setting and TTL auto setting</td>
<td></td>
</tr>
<tr>
<td>At &quot;X&quot; (1/100 sec.) with shutter dial at &quot;Auto&quot; setting</td>
<td>At &quot;X&quot; (1/125 sec.) with shutter dial at &quot;Auto&quot; or &quot;M&quot;</td>
<td>At indicated shutter speed between 1/30 and below with automatic cameras set for automatic operation.**</td>
</tr>
<tr>
<td>At &quot;100X&quot; setting of shutter mode dial</td>
<td>At &quot;1/125X&quot; setting of shutter mode dial</td>
<td>At &quot;X&quot; setting of shutter speed dial or slower speeds when provided. (With leaf-shutter cameras, all speeds may be used.)</td>
</tr>
<tr>
<td>unit</td>
<td>unit</td>
<td>Flash ready lamp on back of flash unit only</td>
</tr>
<tr>
<td>after flash discharge.</td>
<td>Auto check lamp on back of flash unit only</td>
<td>NOT FEATURED</td>
</tr>
</tbody>
</table>

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* As metering is stepless at the film plane, this speed varies with shooting conditions. With the Pentax LX flash is generally obtained with a maximum speed of 1/30 sec., but occasionally 1/60th second.

** Slower speeds may be required depending upon your camera; at faster speeds, the complete frame may not be exposed; be sure to take precaution against picture blur when using slow shutter speeds.
TWO-LEVEL AUTO FLASH OPERATION

The AF 280T offers Two-Level (high/low) auto flash operation via the flash unit’s built-in sensor with all cameras featuring hotshoe synchronization. The dual RED/GREEN Auto settings on the control panel of the flash unit are the standard settings for auto flash operation with all cameras except those having TTL flash provision (see page 16).

3) Set the mode selector lever on the flash control panel to either the RED or GREEN Auto setting in accordance with the adjacent chart. When depth-of-field control is desired, either mode may be used for the 1m - 3.5m operating range; with subjects closer than 1m, however, the GREEN setting must be used to obtain the proper exposure. Conversely, for subjects beyond 3.5 meters the high output RED mode must be used.

Preliminaries
1) Set the ASA film speed of the film in your camera in the ASA window of the flash unit control panel (see page 7).
2) Set the camera’s shutter speed/control dial to the proper synchronization mode (pages 10 - 11).
**GREEN or RED:** 1m–3.5m (3.2ft–11.5ft)
It is simplest to use the green mode for this range and also saves batteries. The RED setting may be used when a smaller lens aperture is desired.

**GREEN ONLY:** 0.5–1m (1.6ft–3.2ft)
Overexposure results when the RED setting is used for subjects closer than 1 meter; for subjects closer than 0.5 meter, switch to manual flash (see pages 19 - 21).

**RED ONLY:** 3.5–7m (11.5–24ft)
Underexposure will result if the GREEN setting is used for subjects beyond 3.5 meters; use manual flash for subjects further than 7 meters (see pages 19 - 21).

---

**Setting the F-Stop**

1) Pick out the f-stop on the aperture scale of the flash control panel that is directly above the index mark for the mode you have selected. If you are using ASA 100 film, and the GREEN setting, for example, you would use an aperture of f/8; with the RED setting, it would be f/4.

2) Set the aperture ring of the lens to the correct f-stop.

**NOTE:** The RED and GREEN W and T markings are provided for indexing the f-stop when using the Wide-Angle and Telephoto Adaptors (see page 26).
Shooting:
Slide the flash unit ON/OFF switch to the ON and compose the picture. Shoot anytime after the flash ready lamp lights.

Viewfinder Flash Ready Indication:
Pentax cameras featuring dedicated flash provision also offer the additional benefit of flash ready indication right inside the viewfinder. When the flash unit reaches its charge, the LED flash ready indicator inside the viewfinder will glow to signal that the flash is ready. (The method of indication varies from camera to camera; refer to the camera instruction manual for operating details.)

Automatic Exposure Check:
Another advantage of the AF 280T is that you can make sure your subject is within the flash unit's automatic exposure control range by pressing the "Test" button before actually making the exposure. If the subject is within the auto operating range and proper exposure is possible, the auto check lamp (A. CHECK) on the back of the flash unit will flicker after the exposure. If the lamp does not light, use a more powerful flash setting or move closer to the subject.
Viewfinder Exposure Confirmation
In addition to the auto check lamp, camera's featuring dedicated flash (except for the ME SUPER) also provide auto exposure confirmation right inside the viewfinder following your flash exposures. If the subject received sufficient light, the LED flash ready indicator inside the viewfinder will flicker on and off. If the lamp does not light, additional flash exposure is required.

Camera Overrides Flash
(Cameras with TTL Provision Only):
With the Pentax LX in the Two-Level Auto Flash mode, the camera’s auto exposure system will override the flash when the shutter speed exceeds the required flash speed (see "TTL AUTO OPERATION," page 16).
Pentax cameras with provision for TTL auto flash, such as the Pentax LX with its TTL integrated flash control system, offer the benefit of fully utilizing the capabilities of the AF 280T. Because the flash is controlled directly at the film plane by the metering cell inside the camera, almost all the traditional problems associated with flash photography are eliminated. Not only does the direct integrated flash control system permit the use of any f-stop within the flash unit’s operating range, but the need for compensation when using filters and close-up accessories is also eliminated. Moreover, bounce flash operation is made easier, while full integration with the camera’s automatic exposure system enables metering of both ambient and electronic flash lighting during the exposure. Accordingly, the non-flash exposure system overrides the flash when not needed to give correct exposure even in changing lighting conditions.

**Shooting**

1. Set the ASA film speed in the ASA window on the back of the flash unit (see page 7).
2. Set the flash mode selector to “TTL AUTO.”
3. Leave the camera’s shutter dial set to “Automatic,” and switch the flash unit “ON.” The camera automatically synchronizes for flash at “X” when the flash unit charges. In addition, both the LED flash ready indicator in the finder and the ready lamp on the back of the flash unit illuminate as ready lights.
4. Select the desired f-stop, then after checking that the subject is within the flash exposure range offered at your f-stop (see following paragraph or TTL Auto Flash Range Chart), take the picture.

**F-Stop Selection**

The versatility of the AF 280T’s TTL flash control system permits you to select any f-stop within the TTL flash coupling range. The flash range varies of course depending upon the f-stop in use. At midrange apertures it’s virtually unnecessary to check the exposure using standard ASA film speeds at average
subject distances, while with wide apertures and standard film speeds you get auto flash coverage all the way to distances of 15 and 20 meters. At relatively small apertures, however, distances are reduced considerably, so until you get an ideal of the working ranges, it’s a good idea to check that the f-stop in use will offer adequate exposure.

**Checking the Exposure**

**Maximum distances:** With distant subjects, merely glance at the aperture scale on the back of the flash unit. The figure on distance scale below the f-stop you have selected is the maximum flash range for that aperture. With ASA 100 film at f/8, for example, the maximum range is 3.5 m, at f/2, it is 14 m.

<table>
<thead>
<tr>
<th>Aperture</th>
<th>Distance (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>f/2</td>
<td>14</td>
</tr>
<tr>
<td>f/2.8</td>
<td>7</td>
</tr>
<tr>
<td>f/4</td>
<td>5.6</td>
</tr>
<tr>
<td>f/5.6</td>
<td>3</td>
</tr>
<tr>
<td>f/8</td>
<td>1.5</td>
</tr>
<tr>
<td>f/11</td>
<td>1</td>
</tr>
<tr>
<td>f/16</td>
<td>0.5</td>
</tr>
<tr>
<td>f/32</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**Minimum distances:** With film speeds of ASA 100 or slower its safe to shoot at minimum distances down to 1 meter using all apertures of f/5.6 or smaller. However, when shooting closer subjects at smaller apertures, or subjects from 1 to 4 meters at wider apertures, its a good ideal to check the flash range.

The TTL Auto Flash Range Chart provided along with this manual proves handy for such situations. Carry it along in your pocket or gadget bag for critical flash photography.

**Quick calculation of minimum distances:**

In situations where it is inconvenient to carry the chart or you should forget it, you can also easily determine the “safe” minimum working distances by the the following simple calculation. As the minimum distance is approximately 1/5 that of the maximum distance at any given f-stop, divide the maximum distance for the f-stop in use by 5. With ASA 100 film at f/2, for example: 14 (meters) / 5 = 2.8 (as the actual distance is 2.5 meters, this gives you a leeway of 0.3 meters or approximately 10%. When a more precise calculation is required, divide by 5.4).
**Auto Flash Exposure Check**

Pre-exposure checks for the auto flash range cannot be made with the flash mode selector set at TTL Auto as the sensor is inside the camera. However, if the aperture you select is the same or wider than the aperture indicated by the red or green marks, you can make an approximate check by moving the mode selector to either the red or green Two-Level Auto flash setting (whichever is appropriate) and pressing the test button. If the subject is properly exposed, the auto check lamp on the back of the flash will flicker. Turn the lever to the TTL Auto mode setting before making the actual exposure.

**Viewfinder Auto Exposure Confirmation**

On TTL Auto, the AF-280T signals confirmation right inside the viewfinder after the picture is taken ensuring that your subject received adequate flash exposure. Immediately after a properly exposed photo on TTL Auto, the viewfinder flash ready indicator flickers on and off. If the indicator does not light, additional distance or aperture adjustments are required. For fast action flash photography the viewfinder signal can be turned off with the FINDER A. CHECK switch on the back of the flash.

**NOTE:** In addition to "Automatic," with the Pentax LX, the camera's shutter speed dial may also be set at "X" for TTL operation. Do not use other settings, however, or proper synchronization will not be obtained. The camera's integrated TTL flash/non-flash auto exposure control system prevents flash when the metered shutter speed of the exposure being made exceeds the speed where flash is required. Generally, automatic synchronization for flash is obtained when the viewfinder LED indicates a shutter speed of 1/30th second and below (occasionally flash is also obtained at 1/60th second due to stepless metering). The above feature also applies with the LX during Two-Level Auto Flash operation and manual flash at either of the M/S flash mode settings.
M/S MANUAL (Manual Flash with Auto Synch)

A unique feature of the AF 280T is its two-level (high/low) M/S flash settings. When the flash mode selector is positioned at either of these two settings, the photographer has the option of either full output flash at the high (H) setting, or a low-level flash output at the low (L) setting—the latter is very convenient for close-ups or work requiring a fast recycle time. In addition, when Pentax cameras offering TTL/dedicated flash functions are used at either of the M/S settings, the camera synchronizes automatically for flash on charging, while the camera’s shutter dial remains set at “Automatic.” LED flash ready indication is also given inside the viewfinder to signal the flash is ready to fire. When the AF 280T is used at the M/S settings with cameras not having dedicated flash provision, standard two-level manual flash is offered.

Preliminaries
1) Set the ASA film speed of the film in your camera on the back of the flash unit (see page 7).
2) Set the flash mode selector to the desired H or L mode setting.

3) For automatic synchronization with cameras offering TTL/dedicated flash provision, leave the camera shutter dial set to “Automatic” (or “M” in the case of the ME SUPER). For cameras without TTL/dedicated flash provision, synchronize for flash as indicated in the chart on pages 10-11. To override the automatic synch features offered at the M/S settings with cameras offering dedicated flash, set the cameras’ shutter dial to the mechanical “X” setting.

NOTE: With cameras having TTL flash provision such as the LX, the fail-safe feature whereby the non-flash exposure overrides flash at fast shutter speeds is still offered, even when synchronized at “X.” When manual flash without the flash override feature is desired, or when synchronization is desired at speeds other than “X,” switch to the “M” manual flash mode (see page 21).
Exposure Setting

1) First focus on the subject and look up the subject distance with the distance scale on the back of the flash unit. Then pick out the f-stop aligned with the distance indicated. When using the high setting, use the standard white distance scale below the aperture scale; for the low setting, use the yellow L distance scale above the aperture scale.

| H | 32 22 16 11  8 5.6 4  2.8 2 1.4 1 |
| L |  0.5 1 1.5 2 3.5 5 7 10 14 20 28 40 m |

When you wish to use a specific lens aperture, choose the lens aperture first, then adjust the subject distance accordingly.

2) Set the f-stop indicated with the lens aperture ring and switch the flash unit on. When the flash ready lamp lights either on the back of the flash or inside the viewfinder (with cameras having dedicated/TTL flash provision), press the shutter button all the way to take the picture.

Be sure to turn the flash unit off immediately when no longer needed.

Guide Numbers:

You can also calculate the correct aperture setting for manual flash by dividing the guide number by the flash-to-subject distance. With ASA 100 film at H and the subject at 7 meters, for example, the correct f/stop would be GN28 ÷ 7 = 4 or f/4 (to determine the aperture setting with guide numbers that are in feet, divide the guide number in feet by the distance in feet).

Guide Number Chart

<table>
<thead>
<tr>
<th>ASA</th>
<th>50</th>
<th>100</th>
<th>200</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>m (G.No.)</td>
<td>20</td>
<td>28</td>
<td>40</td>
<td>55</td>
</tr>
<tr>
<td>ft. (G.No.)</td>
<td>65</td>
<td>90</td>
<td>130</td>
<td>180</td>
</tr>
<tr>
<td>m (G.No.)</td>
<td>5.7</td>
<td>8</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>ft. (G.No.)</td>
<td>18.7</td>
<td>26</td>
<td>36</td>
<td>49</td>
</tr>
</tbody>
</table>
MANUAL FLASH AT "M"

When the flash mode lever of the AF 280T is set to "M," full output manual flash is obtained as with the H setting of the M/S mode, except that automatic synchronization at "X" and viewfinder flash ready indication are not offered with cameras having TTL/dedicated flash provision. This is handy with cameras having TTL flash provision, in particular, for situations when shutter speeds other than "X" are required. Moreover, with the Pentax LX, integration with the camera's auto exposure system or flash override is no longer offered, thus allowing flash with each shot when needed.

Preliminaries
1) Set the ASA film speed of the film loaded in the camera in the ASA window on the back of the flash (see page 7).
2) Set the flash mode selector to "M."
3) With non-dedicated cameras synchronize for flash by setting the shutter speed dial as described in the chart on page 10 – 11. With auto cameras having dedicated flash provision, use the mechanical "X" setting. With the Pentax LX or other TTL/
dedicated cameras having full manual speeds (except the ME SUPER), use speeds of "X" or below for flash.
4) Calculate the exposure as indicated in "Exposure Setting" on page 20 using the standard white distance scale below the aperture scale. Then, switch the flash unit ON; take the picture when the ready lamp on the back of the flash glows.

NOTE: During operation at the "M" (Manual) flash mode setting, the auto setting of the shutter dial may also be used for flash with the Pentax LX and other automatic cameras offering viewfinder shutter speed indication. Generally, the full exposure will be obtained at speeds of 1/30th second and slower (although this varies from camera to camera). When faster speeds are used, the full frame will not always be exposed; be sure to take precaution against picture blur when long exposures are indicated.
The flash head of the AF 280T features full 105° vertical and 180° horizontal rotation which is highly convenient for bounce flash and other special flash techniques. Moreover, the flash head may also be angled downward to -15° for close-up flash work.

**Bounce Flash**

Bouncing the light off of ceilings or walls is a very effective way of avoiding the flat lighting or harsh shadows which often accompany direct flash lighting. For vertical bounce flash, raise the flash head to the desired angle indicated on the back of the flash head (the head features click-stops at the 45°, 65° and 90° settings). For horizontal bounce flash, the head rotates up to 180° to the right and 90° to the left with in-between click-stops at 45°.

**Bounce Flash on Auto:** When bounce flash is performed in either the TTL Auto or Two-Level Auto flash modes, compensation isn’t required as the automatic flash sensor automatically computes the exposure. Moreover, to assure that the angle you have chosen includes your subject, you can
perform a test flash by first pressing the "Test" button on the back of the flash unit; if your subject is correctly exposed, the auto check lamp (A. CHECK) will flicker in green after you press the test button; if it doesn’t flicker, exposure adjustments are required.

**Bounce Flash on Manual:** When performing bounce flash on manual, it is generally sufficient to expose one or two additional stops beyond the f-stop indicated by the guide number calculation. However, because exposure is highly influenced by the nature of the reflective surface and the color of surrounding objects, formulas are quite varied. For bounce flash, it’s helpful to read a flash photo guidebook beforehand.

**Close-ups**

For close-ups such as desk-top work at distances of less than one meter, the flash head may be angled to -15°. To lower the flash head, slide the flash head lock lever toward the back of the flash unit, and angle the head downward.

In addition to the TTL auto and the GREEN two-level auto settings, the L setting of the M/S mode with its closer range is highly convenient for close-up work when using small lens apertures.

*Do not attempt to lower the head without first releasing the lock or breakage could result.*
PRECAUTIONS

Power Switch
When not using the flash unit for long intervals, turn the power switch to OFF to save batteries. Moreover, always remember to turn the power switch off after putting the flash unit away; batteries will soon drain if the switch is left on.

Flash Ready Lamp
The flash ready lamp on the back of the unit comes on when the flash unit reaches 80% of its charge, which is sufficient for full exposure in almost all shooting situations when batteries are relatively new. With old batteries, however, wait an additional 4–5 seconds after the lamp lights before taking the photo in order to ensure sufficient flash. When taking the photo immediately after the lamp lights, expose one additional stop.

Finder A. Checks Switch
When the viewfinder LED flash data lamp fails to flicker following auto exposures with cameras having TTL/dedicated flash provision, check to see if the viewfinder auto check ON/OFF switch on the back of the flash unit is set to ON. As the unit will not flash again until the auto check signal inside the viewfinder has stopped flickering, set the viewfinder auto check switch to OFF when rapid shooting is desired in the TTL Auto and Two-Level Auto Modes. (NOTE: Viewfinder auto flash check is not offered with the Pentax ME SUPER.)
BATTERY CARE

- Protect your flash from leakage by removing the batteries whenever the flash unit will not be used for long periods of time.
- When the ready lamp no longer lights within 30 seconds after a test flash, it’s time to replace batteries (replace earlier when faster recycling times are desired.)
- Use batteries that are fairly new, as performance tends to deteriorate with batteries that have exceeded the expiration date marked on the battery contacts. Performance also varies depending upon brand and type. Best results are obtained with high-performance alkaline batteries. Rechargeable Ni-Cad batteries offer the advantage of shorter initial recycling times but give less total flashes per charge.
- Batteries are also sensitive to cold and performance trends to deteriorate at temperatures near freezing. Performance is restored to normal as soon as batteries are subjected to room temperatures. It’s a good idea to have a set of spares on hand that have been kept warm for shooting in freezing weather.

ALWAYS KEEP BATTERIES OUT OF THE REACH OF CHILDREN AND NEVER THROW USED BATTERIES INTO FIRE OR EXPOSE TO EXCESSIVE HEAT TO GUARD AGAINST EXPLOSION.
The Pentax AFW 1 Wide-Angle Adaptor and the AFT 1 Telephoto Adaptor offer greater flash beam control when used in conjunction with the AF 280T in both auto and manual flash modes. The Wide-Angle Adaptor extends flash coverage for use with wide-angle lenses down to 24mm, and improves results with 28mm and 30mm wide-angle lens. The Telephoto Adaptor offers greater concentration of the flash beam with telephoto lenses in the 85mm–200mm range.

**How To Attach the Adaptors**
Fit either adaptor into the slots at the top and bottom of the flash head, and slide it in all the way until it is centered over the flash head.

**Automatic Flash Exposure with the Adaptors**
When either the Wide-Angle or Telephoto Adaptor are used when the flash unit is set for Two-Level Auto Flash operation, the W and T indices of the respective GREEN and RED aperture indices on the back of the flash unit are used as a guide for maximum distance selection. Using the GREEN auto mode
with ASA 100 film, for example, the flash range would be up to 8 feet with Wide-Angle Adaptor and 16 feet with the Telephoto Adaptor; in the RED mode it would be 16 feet with the Wide-Angle Adaptor and 32 feet with the Telephoto Adaptor. Note that the flash range decreases when the Wide-Angle Adaptor is used and increases for the Telephoto Adaptor as indicated by the respective W and T index markings. During TTL Auto operation, compensation for the Adaptors is performed by the camera’s metering system.

Manual Flash Exposure with the Adaptors
To compensate for manual flash exposure with the adaptors, halve the ASA film speed setting in the ASA window on the back of the flash when using the Wide-Angle Adaptor, and double the setting with the Telephoto Adaptor. With ASA 100 film using the Wide-Angle Adaptor you would set the dot representing ASA 50 in the ASA window, with the telephoto Adaptor align ASA 200 in the ASA window.
SPECIFICATIONS


Mounting: Direct to camera hotshoe

Guide Number: 28 in meters (90 in feet) at full output

(at ASA 100)

8 in meters (26 in feet) at low output

Operating Modes:


Auto Flash Ranges:

At red setting: 1—7 meters (3.5—24 ft.)

At green setting: 0.5—3.5 meters (1.6 ~ 11.5ft)

TTL Auto Range: 0.25—20 meters (0.8 ~ 65 ft.) at ASA 100 with an f/1.4 lens

Auto Sensor Angle: 20°

Apertures on Auto: TTL Auto: All apertures at ranges specified on flash control panel. Two Level Auto: f/4 at ASA 100, f/8 at ASA 400 on RED; f/8 at ASA 100, f/16 ASA 400 on GREEN.

Number of Flashes/Recycling Times:

<table>
<thead>
<tr>
<th></th>
<th>GN 28</th>
<th>GN 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source</td>
<td>Alkaline</td>
<td>Nicad</td>
</tr>
<tr>
<td>Number of Flashes</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>Recycling Times</td>
<td>8sec.</td>
<td>6sec.</td>
</tr>
</tbody>
</table>
Flash Control Panel Data
ASA film speed index, Distance scale (standard and low), Aperture scale, Two-Level auto aperture indices (including W and T indices for Wide-Angle, Telephoto Adapters), six-way flash mode selector, viewfinder auto check ON/OFF switch, flash ready lamp, flash ON/OFF switch, auto check lamp, test button.

Color Temperature
Balanced for daylight

Synchronization/Dedicated Flash
Automatic synchronization with the shutter dial set to "Automatic" when used with Pentax cameras having TTL/Dedicated flash provision, plus viewfinder flash ready indication/auto exposure check (only viewfinder flash ready indication with Pentax ME SUPER). Automatic synch also offered with shutter dial set at "X" with Pentax LX and at "M" with Pentax ME SUPER; synchronization for cameras without dedicated flash provision as specified in camera's instruction manual; automatic cameras with viewfinder shutter speed indication may use indicated auto speeds for flash.

Bounce Flash
Vertical and horizontal bounce flash capacity via rotating flash head; vertical angles from $-15^\circ$ to $90^\circ$ with click-stops settings at $-15^\circ$, $0^\circ$, $45^\circ$, $65^\circ$ and $90^\circ$ (lock release provided to lower flash head below $0^\circ$); horizontal rotation $180^\circ$ to the right (with click-stops at $45^\circ$, $90^\circ$ and $180^\circ$); rotates $90^\circ$ to the left with click-stops at $45^\circ$ and $90^\circ$.

Power Sources
Four AA size 1.5v alkaline or NiCad Batteries.

Size
80mm x 68mm x 116mm (3.1” x 2.7” x 4.6”)

Weight
300g.

Accessories
Case

Optional Accessories
AFW-1 Wide Angle Adaptor, AFT-1 Telephoto Adaptor.

- Recycle times and number of flashes depend on power source used; condition of the batteries and distances between flash and subject are given as approximations only.
<table>
<thead>
<tr>
<th>ASA</th>
<th>25</th>
<th>50</th>
<th>100</th>
<th>200</th>
<th>400</th>
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</thead>
<tbody>
<tr>
<td>f/1.2</td>
<td>2.1</td>
<td>3.0</td>
<td>4.2</td>
<td>5.9</td>
<td>8.3</td>
</tr>
<tr>
<td>f/1.4</td>
<td>1.8</td>
<td>2.5</td>
<td>3.6</td>
<td>5.0</td>
<td>7.2</td>
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<tr>
<td>f/2</td>
<td>1.3</td>
<td>1.8</td>
<td>2.5</td>
<td>3.6</td>
<td>5.0</td>
</tr>
<tr>
<td>f/2.8</td>
<td>0.9</td>
<td>1.3</td>
<td>1.8</td>
<td>2.5</td>
<td>3.6</td>
</tr>
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<td>0.9</td>
<td>1.3</td>
<td>1.8</td>
<td>2.5</td>
</tr>
<tr>
<td>f/5.6</td>
<td>0.5</td>
<td>0.6</td>
<td>0.9</td>
<td>1.3</td>
<td>1.8</td>
</tr>
<tr>
<td>f/8</td>
<td>0.3</td>
<td>0.5</td>
<td>0.6</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>f/11</td>
<td>0.25</td>
<td>0.3</td>
<td>0.5</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>f/16</td>
<td>—</td>
<td>0.25</td>
<td>0.3</td>
<td>0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>f/22</td>
<td>—</td>
<td>—</td>
<td>0.25</td>
<td>0.3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

*Shaded areas indicate optimum shooting ranges for general shooting.*
## TTL AUTO FLASH RANGE CHART

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<thead>
<tr>
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<th>200</th>
<th>400</th>
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<tr>
<td>f/1.2</td>
<td>6.9 ~ 37.7</td>
<td>9.8 ~ 53.5</td>
<td>13.8 ~ 75.4</td>
<td>19.4 ~ 106.6</td>
<td>27.2 ~ 150.0</td>
</tr>
<tr>
<td>f/1.4</td>
<td>5.9 ~ 32.8</td>
<td>8.2 ~ 46.0</td>
<td>11.8 ~ 65.6</td>
<td>16.4 ~ 91.8</td>
<td>23.6 ~ 131.0</td>
</tr>
<tr>
<td>f/2</td>
<td>4.3 ~ 23.0</td>
<td>5.9 ~ 32.8</td>
<td>8.2 ~ 46.0</td>
<td>11.8 ~ 65.6</td>
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