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Welcome to the world of TOYO OPTICS. Your new TOYO OPTICS professional grade lens for your 35mm SLR will give you complete versatility to help you shoot like a pro. All TOYO OPTICS lenses are multi-coated to assure the right amount of contrast and minimum light flare.

Computer design has helped make them compact and lightweight. To obtain the best photographic results, take the time to read this instruction manual and get fully acquainted with the features, capabilities, handling and care of your new TOYO OPTICS lens.

LENS CARE

1. Always use a blower brush, pressurized air product, or a soft, lintless cloth when cleaning your lens.
2. Never touch the front or rear lens surface with your fingertips.
3. Use only lens cleaning liquids formulated for camera optics.
4. Never place lens cleaning liquid directly on the lens surface.
5. Clean the lens surface from the center to the edge.
6. A TOYO OPTICS UV or Skylight filter is helpful in protecting the front element from dust and scratches. Clean your filters in the manner described above.
7. Always cap the lens when not in use.

HELPFUL HINTS

1. Keep your camera, lenses and filters clean.
2. Never keep cameras, film, or lenses in the trunk or glove box of your car.
3. Use a lens shade to cut glare or unwanted light.
4. Check camera and flash batteries regularly. Replace camera batteries at least once a year.
5. If the camera and lens are exposed to salt water, clean with a soft, damp cloth and wipe dry immediately.
6. If the camera and lens are exposed to sand, use a blower or pressurized air product to remove the particles. Brushing the sand may scratch the lens surface.
7. Use a tripod or monopod when shooting at speeds slower than 1/60.
8. When shooting portraits, use the widest possible f stop to blur distracting backgrounds.
9. Keep lenses and cameras in a case when not in use.
GENERAL INFORMATION

MOUNTING THE LENS

Your new TOYO OPTICS lens is similar in design to the standard lens normally purchased with the camera. It is mounted and removed in the same manner. Extra caution should be taken when mounting telephoto and zoom lenses as these are much larger and longer than normal lenses. Do not force the lens to fit. See your dealer if you experience difficulty.

AUTO/MANUAL RING

Some TOYO OPTICS lenses are equipped with an A/M ring to allow stopping-down the diaphragm opening to preview the depth-of-field or meter the scene at the selected aperture. The setting should be moved to “M” when manual operation is desired. For normal automatic operation, the ring should be moved to the “A” position. Most cameras have a built-in depth-of-field preview.

METER COUPLING

When the lens is mounted on the camera, the meter coupling is automatic. Full aperture metering is retained in most cases, except with the PENTAX Universal 42mm Screw Mount.
AUTOMATIC OPERATION

Many new cameras are equipped with an automatic f stop selection feature called, "aperture priority". The TOYO OPTICS lens selected will allow for this automatic operation. Mount the lens with the diaphragm ring in a **manual aperture setting** in order to retract the EE pin. Rotate the diaphragm ring to the green marking just beyond the minimum aperture setting. Consult your camera instruction manual or dealer for cameras with "shutter priority" modes.

SETTING THE $f$ STOP

The $f$ stop (2.5; 4.5; 5.6; etc.) will control the depth-of-field and allow varying amounts of light to reach the film surface. Rotate the diaphragm ring to the desired $f$ stop at the index mark on the lens barrel. The diaphragm can be set at full $f$ stops or at a position in-between. The proper $f$ stop can be determined by using the camera's built-in exposure meter, a separate exposure meter, or by special requirements in controlling depth-of-field.

DEPTH-OF-FIELD

Some lenses are provided with a depth-of-field scale. Depth-of-field is indicated for any distance and $f$ stop setting, on the double scale of $f$ stop markings on both sides of the center of the reference (index) mark. These markings indicate the range of sharpness in feet and meters at the selected $f$ stop setting.
FOCUSBING THE LENS

Look through the viewfinder of your camera and rotate the focusing ring until you get a sharp, clear image. With wide angle lenses, it may be difficult to see the image 'snap' into focus due to the wide depth-of-field. When using flash with wide angle, telephoto, or zoom lenses, be sure to check the distance scale on both the lens and flash unit.

INFRA-RED FOCUS

For infra-red photography, correction of the distance scale is necessary because infra-red light waves are longer than light waves of the visible spectrum. Focus in the usual manner. Before making the exposure, reset the distance indicated on the focusing ring to the appropriate R-index (red line). For proper exposure and filtration with infra-red materials, follow the manufacturer's instructions and recommendations. Infra-red marking are not included on all lenses.

MACRO LENSES

Macro/Close Focusing features extend the focusing range of the lens. For best results, it is recommended that it be utilized at close distances. The Macro position will increase the size of the image. On One-Touch TOYO OPTICS Macro Zoom lenses, the Macro mode may be used at all focal lengths. On Two-Touch TOYO OPTICS Macro Zoom lenses, the Macro ratios can be set on the focusing ring at all focal lengths.
OPERATION

Zoom lenses have become the most popular lenses to own. Because they provide many focal lengths in one lens, they expand your picture taking vistas. Some zooms can take you from wide angle to medium telephoto. Others take you from medium telephoto to telephoto. Zoom lenses let you 'crop' your pictures right in the camera by sliding the barrel back and forth on One-Touch TOYO OPTICS lenses.

All TOYO OPTICS Zoom lenses are parfocal lenses. Parfocal lenses allow you to sustain focus at any focal length as the zoom control is used to compose your picture. The lens should first be set at the longest focal length and focused for the sharpest image. Zoom back for composition. The lens remains in focus. The larger image and shallow depth-of-field at long focal lengths will help find the most critical focal point.
**WIDE ANGLE LENSES**

Wide angle lenses give you minimum focusing distance, a large viewing angle and a wide depth-of-field at nearly every f stop. Wide angle lenses are recommended for outdoor scenes and for quick, pre-focused shooting. They are not recommended for most portraits.

**TELEPHOTO LENSES**

Telephoto and medium telephoto lenses bring you closer to the subject or increase image size. Their short depth-of-field makes them ideal for portraits or sports photography.

**TELECONVERTER**

The TOYO OPTICS 2X Teleconverter (automatic) can be added to any TOYO OPTICS lens. First mount the Teleconverter to your lens. Mount the lens and Teleconverter on the camera body as one. The 2X Teleconverter will double the focal length (s) of your lenses:

- 24mm becomes 48mm
- 28mm becomes 56mm
- 135mm becomes 270mm
- 200mm becomes 400mm
TOYO OPTICS Mirror Telephoto lenses (300mm and 500mm) are surprisingly light-weight and compact making them easy to handle and pack in your camera bag. They are mounted in the same manner as other TOYO OPTICS lenses that fit your 35mm SLR and come with removable skylight and neutral density filters. Mirror telephoto lenses bring you closer than ever before.

TOYO OPTICS FILTERS

TOYO OPTICS filters are manufactured from the finest solid optical glass and are ground and polished to the most practical thinness. They are heat-treated to avoid distortion on focal shift. Close-up filters are available only in mount sizes 49mm-58mm. All other TOYO OPTICS FILTERS are available in the following popular sizes: 49mm, 52mm, 55mm, 58mm, 62mm, 67mm, 72mm, 77mm. (UV or Sky 1A Only: 29.5mm, 30.5mm, 40.5mm, 43mm, 43.5mm, 46mm and 48mm.)
1. Focusing Ring
2. Distance Scale
3. Depth-Of-Field Scale
4. R-Index
5. Diaphragm Ring
6. Lens Mount
7. Built-In Lens Hood
8. Zoom Ring
9. Zoom (Focal Length) Scale
# FILTER SPECIFICATIONS

<table>
<thead>
<tr>
<th>Name</th>
<th>Hue</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skylight - mc</td>
<td>pi</td>
<td>Protects lens. Reduces haze and bluish tint. Warming effect.</td>
</tr>
<tr>
<td>Polarizing</td>
<td>gy</td>
<td>Produces rich, saturated colors. Eliminates glare from non-metallic surfaces. Darkens sky on black and white</td>
</tr>
<tr>
<td>Cross 4x6x8x</td>
<td></td>
<td>Special effects filter. Transforms all point light sources to 4, 6, or 8 point stars.</td>
</tr>
<tr>
<td>Diffusion</td>
<td></td>
<td>Creates soft, airy look. Useful for portraits.</td>
</tr>
<tr>
<td>Soft cross</td>
<td></td>
<td>Soft focus plus cross flare light stream effect.</td>
</tr>
<tr>
<td>Spot diffusion</td>
<td></td>
<td>Softens image everywhere but the center.</td>
</tr>
<tr>
<td>Close-up lenses</td>
<td>cl</td>
<td>Effective when wishing to come closer to the subject than the closest shooting distance of your lens.</td>
</tr>
<tr>
<td>+1:+2:+4:+10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral Density X2.X4</td>
<td></td>
<td>Useful for picture taking in bright light on high speed film. Cuts the amount of light allowing wider f stops or slower shutter speeds</td>
</tr>
<tr>
<td>80A</td>
<td>bl</td>
<td>Reduces red. Use with daylight film and photoflood lamps 3200K.</td>
</tr>
<tr>
<td>80B</td>
<td>bl</td>
<td>Use with daylight film and 3400K light source.</td>
</tr>
<tr>
<td>81A</td>
<td>or</td>
<td>Reduces blue. Daylight film in shade. Warms color.</td>
</tr>
<tr>
<td>82A</td>
<td>bl</td>
<td>Use with color film A. Converts 3400K to 3200K light.</td>
</tr>
<tr>
<td>85A</td>
<td>or</td>
<td>Converts type A color film to outdoors or electronic flash.</td>
</tr>
<tr>
<td>85B</td>
<td>or</td>
<td>Converts type B color film to outdoors or electronic flash.</td>
</tr>
<tr>
<td>FL D FL B</td>
<td></td>
<td>Use with daylight film under fluorescent lights. FL-B for use with type B.</td>
</tr>
</tbody>
</table>

## Black & White Filters

<table>
<thead>
<tr>
<th>Name</th>
<th>Hue</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow (K2)</td>
<td>ye</td>
<td>Absorbs uv. Contrast between clouds and sky. Most accurate tonal reproduction outdoors.</td>
</tr>
<tr>
<td>Orange (O2)</td>
<td>or</td>
<td>Darkens blue, violet and green. Lightens red and orange.</td>
</tr>
<tr>
<td>Red (25A)</td>
<td>re</td>
<td>Lightens red. Darkens blue, violet and green. Dramatically darkens sky.</td>
</tr>
<tr>
<td>Green (11)</td>
<td>gn</td>
<td>Darkens blue, red, violet. Lightens green foliage. Useful for outdoor portraits.</td>
</tr>
</tbody>
</table>