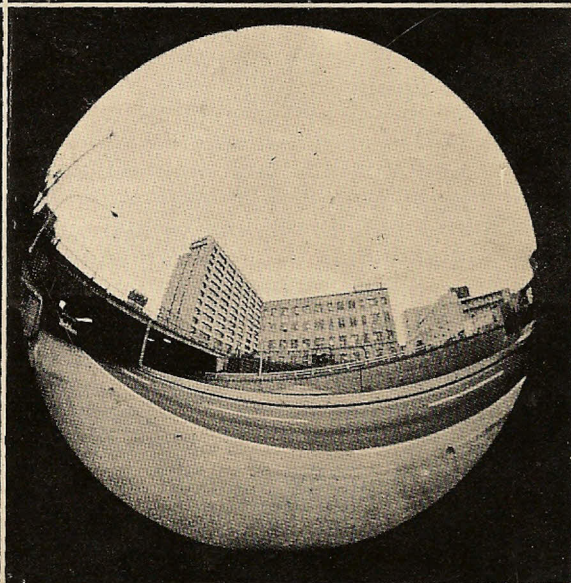
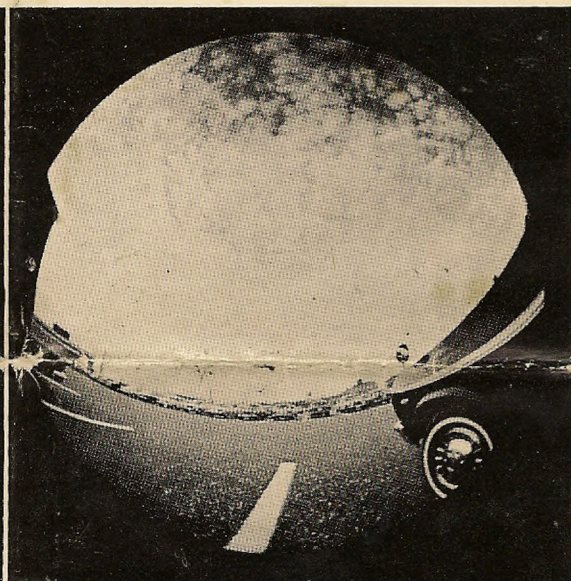
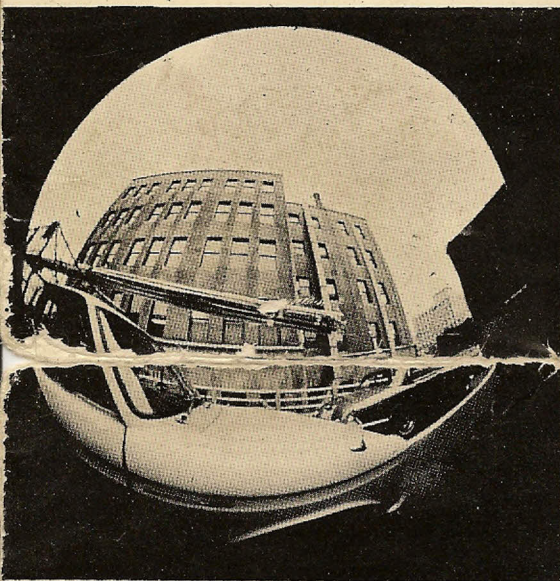


**SPIRATONE**  
AUXILIARY  
FISH-EYE LENS





## OPERATING INSTRUCTIONS FOR THE **SPIRATONE** AUXILIARY FISH-EYE LENS.

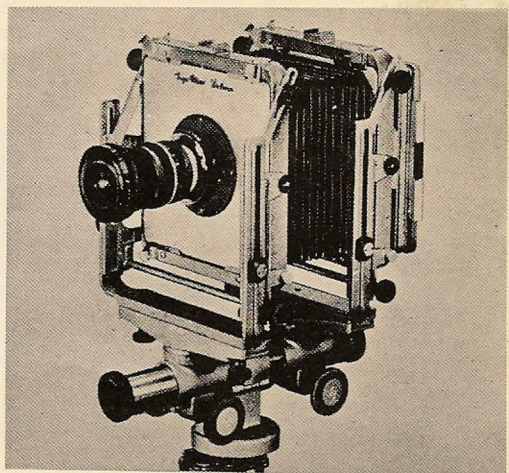
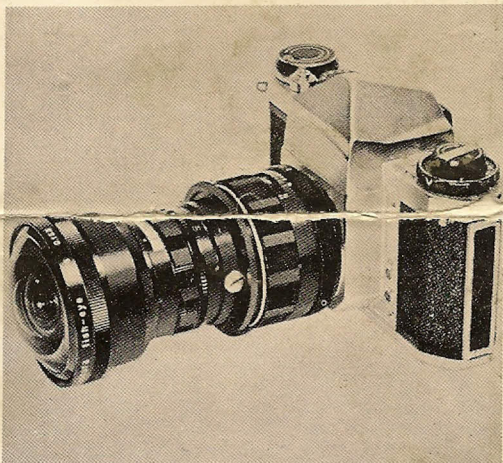
The **SPIRATONE** Auxiliary Fish-Eye lens can be used successfully with just about any camera from 8mm movie to 8×10" view! In conjunction with normal focal length lenses, the Auxiliary Fish-Eye produces the typical circular Fish-Eye format with 180° coverage. The afocal auxiliary design of the **SPIRATONE** Fish-Eye has many distinct and unique advantages over "prime" Fish-Eye lenses. Among them:

- \* An almost universal adaptability to a wide variety of cameras and prime lenses.
- \* The ability to function with various focal length lenses, yielding, in each particular combination, a resultant focal length of .15X the prime focal length. Example: 50mm focal length is converted to 7.5mm, 135mm is converted to 20.25mm and so on.
- \* The normal camera viewing system is used, so that with SLR cameras, the mirror need not be locked up, out of the way, and focusing and composing is done normally on the groundglass in the usual manner.
- \* In conjunction with the focusing mount of the prime lens, objects as close as  $\frac{1}{2}$ " from the front of the Fish-Eye can be brought into sharp focus.

### SUITABILITY.

The Auxiliary Fish-Eye lens is is suitable for virtually all types of cameras including 8mm, Super 8mm and 16mm, as well as 35mm movie cameras; T. V. cameras; subminiature cameras; half size and regular size 35mm range finder and single lens reflex cameras; 2 $\frac{1}{4}$ ×2 $\frac{1}{4}$ ", 4×5", 5×7", 8×10" view and press cameras.

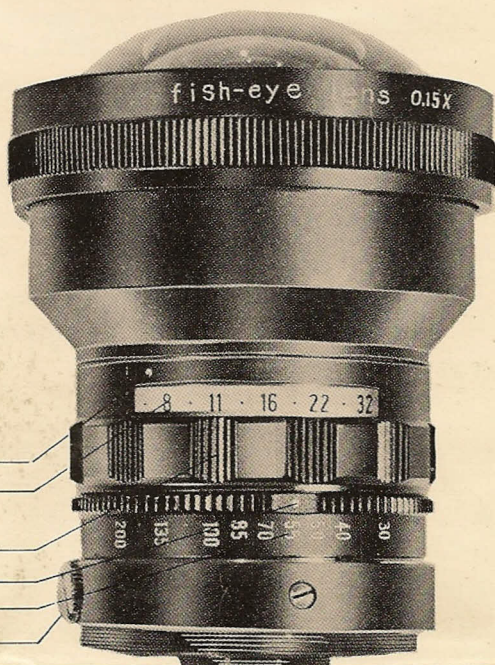
The Auxiliary Fish-Eye lens is not recommended for use with wideangle lenses (resulting diameter of circular image too small), for lenses longer than 200mm (resulting speed too slow), some zoom lenses (both diameter of circular image and image quality may be unsatisfactory), prime lenses into which Fish-Eye cannot be screwed or bayonetted (slip-on fittings are not suitable), lenses with a greatly recessed front element (may cause vignetting due to increased distance between prime and auxiliary lens).





## SPECIFICATIONS

- Lens construction : 10 elements, 6 groups.  
 Angle of View : 180° maximum; variable in conjunction with telephoto lenses.  
 Aperture (resultant f value) : f3.5 maximum (in conjunction with 30mm lens), f/5.6 in conjunction with 50mm lens.  
 Resulting Focal Length : 0.15X the prime lens focal length.  
 Circular Field Diameter : 0.427X the prime lens focal length.  
 Focusing : Fixed focus. However, focus adjustment of prime lens brings objects as close as  $\frac{1}{2}$  inch from front of Fish-Eye into focus.



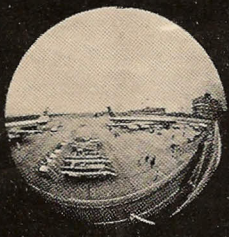
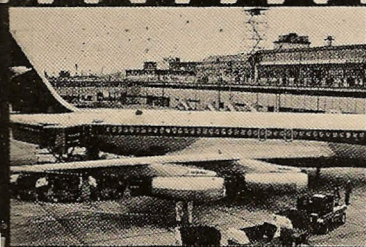
- ① Aperture guide dot
- ② Aperture scale
- ③ Aperture setting ring (5 stops-click setting)
- ④ Guide ring for prime lens' focal length
- ⑤ Focal length scale (of prime lens)
- ⑥ Set-Screw for orienting lens

(Fig. 1)

## CALCULATION OF DIAMETER OF CIRCULAR FIELD.

The diameter of the circular field is directly proportional to the focal length of the prime lens. Simply multiply the focal length by .427 to determine the field size.

- Example:
- |                 |              |           |
|-----------------|--------------|-----------|
| 50mm prime lens | (50 × .427)  | = 21.4 mm |
| 80mm            | (80 × .427)  | = 34.4 mm |
| 100mm           | (100 × .427) | = 42.7 mm |
| 135mm           | (135 × .427) | = 57.7 mm |



With normal 50mm lens

With 50mm lens and Fish-Eye

With 135mm lens and Fish-Eye



## MOUNTING THE AUXILIARY FISH-EYE TO THE CAMERA LENS.

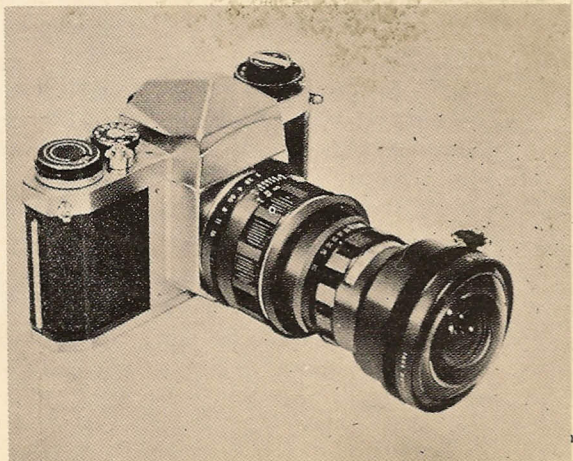
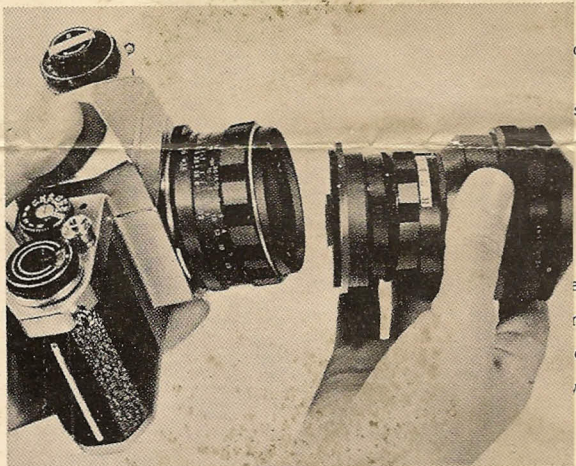
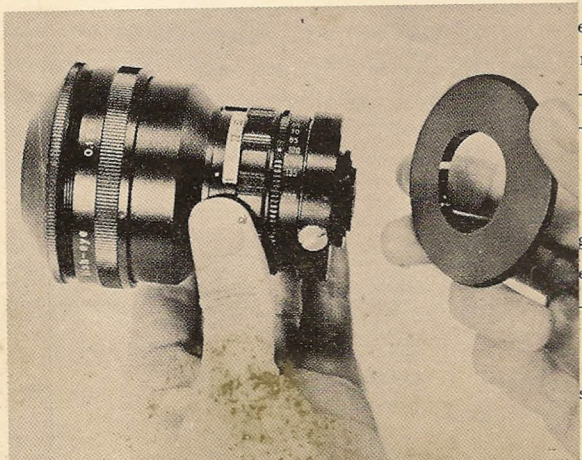
The Spiratone Auxiliary Fish-Eye is supplied with an interchangeable rear custom fitting which matches the front threads or bayonet of a specific camera lens of your choice. These fittings are available in most popular size threads including 34, 35.5, 40.5, 43, 46, 48, 49, 52, 55, 58, 60, 62, and 67mm, plus various bayonet and series size fittings.

Simply screw the appropriate custom rear fitting onto the back of the Fish-Eye. Thread or bayonet the Fish-Eye into the front of the camera lens.

Avoid mounting the Fish-Eye with slip-on or set screw adapters, since these tend to be precarious and shift the attachment off the optical axis.

## ORIENTING THE FISH-EYE

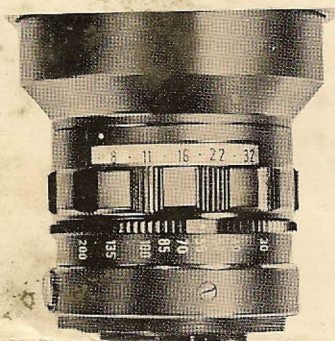
If the aperture scale of the Fish-Eye is not centered in the upright position, loosen the set-screw in the base ring [Fig.1-⑥] of the Fish-Eye. rotate the lens to the desired position and retighten the set-screw.





## SETTING THE FOCAL LENGTH SCALE.

Rotate the focal length scale so that the focal length of the prime (camera) lens is set opposite the red dot reference mark. Setting this focal length scale shifts the diaphragm scale, indicating the f stops available with that particular focal length combination. Intermediate settings of the focal length scale may be used where required.



## FOCAL LENGTH - APERTURE RELATIONSHIP

Effective f Value	Prime Focal Length
Intermediate Value	
Indicated	
f 3.5	30mm or shorter
f 4	35
f 4.4	40
f 5	45
f 5.6	50
f 6.2	55
f 6.4	58
f 8	70
f 9	80
f 9.4	85
f 10.1	90
f 11	100
f 11.8	105
f 13.2	127
f 16	135
f 16.9	150
f 20.1	180
f 22	200

## VIEWING AND COMPOSING.

On SLR and other cameras with groundglass viewing screens, viewing is direct. With non-groundglass cameras, the approximate field coverage can be estimated by holding the Auxiliary Fish-Eye in front of one's eye—it will indicate the approximate field covered by the camera with the Fish-Eye attached.

An accessory viewfinder is available for 35mm cameras.

On twin lens reflex cameras, the Fish-Eye can be shifted from the top lens for viewing and focusing to the lower lens for actual shooting.

It is difficult to visualize the extreme angle of coverage of the Fish-Eye, even when using a reflex viewing system. The usual position of tripod legs, your hat, or even your own feet may show in the Fish-Eye picture unless you take special care to avoid this.

## FOCUSING.

While the Auxiliary Fish-Eye has no focusing mount of its own, with SLR and view cameras the focusing mount of the prime lens is effective in varying focus to objects from infinity to only  $\frac{1}{2}$ " from the lens. With the prime lens set to infinity, the depth of field of the Fish-Eye extends from about 3 feet to infinity. At smaller openings, depth of field at the infinity setting may extend to as close as  $1\frac{1}{2}$  feet. With non-reflex cameras, the infinity setting should be used at all times.

## OPERATING THE DIAPHRAGM.

Always set the diaphragm of the camera lens to its maximum aperture (wide open). Rotate the diaphragm control ring of the Fish-Eye to the desired f stop—the f stop shown on the Fish-Eye diaphragm scale is accurate for that focal length setting, and no further compensation is required.

For optimum definition, an aperture setting of 2 or 3 stops below the maximum opening is recommended.

## EXPOSURE.

Exposure is determined in the usual manner, depending on the opening at which the diaphragm of the Fish-Eye is set. On cameras on which the Fish-Eye covers all or part of the built-in electric eye, the exposure mechanism must be operated manually. When measuring exposure by means of a separate meter, it is important to keep in mind that the average meter covers an angle considerably narrower than that covered by the Fish-Eye, and that the subject may include areas of greatly varying brightness which should be measured separately, with such exposure selected to best record the most significant part of the subject within the total field.

On cameras with through-the-lens metering system, care should be taken that the meter reading area is within the picture field. Meters that integrate the entire groundglass image will give a false reading unless the Auxiliary Fish-Eye is used with 135mm or longer lenses to yield an image covering the entire film format.

When the Fish-Eye is used with shorter than 135mm focal length lenses on 35mm through-the-lens meter reading cameras, a separate exposure meter should be used to establish correct exposure.

## CARE OF THE FISH-EYE LENS.

The extreme curvature and exposed position of the front element requires special care in handling and storing to avoid touching and damaging the glass surface. Keep the special cap on the Fish-Eye at all times, except when actually shooting. Brush gently to remove dust and, if necessary, wipe the lens with as light a touch as possible.

## WARRANTY.

The Spiratone Auxiliary Fish-Eye lens is unconditionally guaranteed against defects in manufacture and workmanship for a period of 90 days after date of purchase; during that period, any repair or adjustment necessitated by reason of defect or as the result of normal handling will be taken care of by us without charge, provided no repair attempts have been made on it by any unauthorized party.

SPIRATONE, INC., 135-06 Northern Blvd., Flushing, New York 11354.