Kodak Ciné-Kodak Special 16 mm motion picture camera
ca. 1933

Model history

This is a Kodak Ciné-Kodak Special motion picture camera. This professional 16 mm turret camera was the technical pinnacle of the Ciné-Kodak motion picture camera dynasty. The model was introduced in 1933, and was manufactured until 1948. It has many special features and an elaborate set of controls.

The camera was succeeded by the Ciné-Kodak Special II (1948-1961), which is very similar in appearance and features, but with several important design improvements.

The camera is "substantial". Equipped with the 100 foot film magazine (as we see above) but with no lenses and no film, it weighs in at just about 9 pounds.

Film system

The camera utilizes 16mm roll film which can be single- or double-perforated.

The camera uses interchangeable film magazines (later called by Kodak "film chambers"), available with capacities of 100 feet (as seen here) or 200 feet. The chamber is in effect "half of the camera".

The entire film transport system, including the exposure gate and intermittent pulldown mechanism, is contained in the magazine. It is driven from the camera itself via a coupling that is engaged when the magazine is mounted.

The transport system uses a single sprocket. The film gate can easily be completely opened and disassembled for cleaning.

At some point in the life of this model, the intermittent pulldown mechanism was changed from one in which the pulldown claw entered the film from the front to one in which the claw entered from the rear.

An "available footage" indicator, visible through a window on the rear of the chamber (for the 100 foot chamber), shows how much film remains. It operates by "feeling" the supply spool. The camera proper also has a "footage exposed" indicator. It must be zeroed when the camera is loaded, and increments based on the operation of the camera mechanism.

Lenses

The camera's turret accommodates two lenses, using a mount that was unique to this camera (sometimes called the "CKS" mount).

This model was commonly initially furnished with a Cine Ektar II 25 mm f/1.9 lens as the "starter" lens. The available alternative lenses were initially available with a CKS mount as well. However, not too long after this model was introduced, Kodak began to move away from making alternative lenses with mounts for each of the cameras on which they might be used, and instead make such lenses only with a single "standard" mount, Type S. Then, on this camera, alternative lenses would be fitted via "S to CKS" mount adapters.

The turret face is flat, and the lens axes are parallel. This gives a substantial risk that one lens on the turret will interfere, physically or optically, with the other one. The successor model, the Ciné-Kodak Special II, had a different turret design, with a "roof shaped" face, which greatly alleviated this problem.

Drive

The camera mechanism is operated by a governed spring motor, wound by a folding crank.

The camera can be set to operate at any frame rate from 8 fr/s to 64 fr/s by turning a knob on the "control panel". The knob has markings at 8, 16, 24, 32, and 64 fr/s, considered to be the "available frame rates".

An 8 fr/sec rate had traditionally been used to permit shooting under lower light conditions that would otherwise be possible (as it increases the exposure time). Of course a side effect is that the apparent speed of motion of the moving subject when the film is viewed is twice what it actually was. And of course this doubling of speed can be used intentionally for comedic effect.

The 16 fr/s frame rate is the norm for 16 mm silent motion pictures. A 24 fr/s rate (used for 16 mm sound films) is most often used when a magnetic sound track is to be laid on the film after development, or when the film shot is to be integrated into a production with sound during post production.

The higher frame rates are most often used for "slow motion" effects.

When fully wound, the motor is able to drive the camera for 38 feet of film. At a frame rate of 16 fr/s, that would be 1 minute 35 seconds of shooting; at a frame rate of 24 fr/s, a little over 1 minute.

The spring wind crank is wound counterclockwise. Among Ciné-Kodak cameras, that is only true for this model and its direct predecessor, the Ciné-Kodak Special.

The camera is operated by pressing a control button on the front of the camera (on its right side). If the button is pushed in and then pushed down, it locks in the running position, useful when the camera is on a tripod and the operator wishes to join the scene. A separate control button on the camera's right side "control panel" shoots a single frame, a feature that can be used for stop motion animation.

There are provisions for using a second, smaller crank to hand wind the camera, forward or backward, in order to do in-camera double exposures, split screen shots, dissolves, and the like. In about 1935 (after this specimen was made), a frame counter dial was added to assist in keeping precise track of such maneuvers.

Viewfinder

The camera is equipped with an open viewfinder, typically operating in the "reverse Galilean" mode. with a vision adjustment control. Only the rear portion is on the camera (actually, on the film chamber). It is given the proper field of view for each taking lens by way of a distinct front viewfinder lens, matched to the focal length of the taking lens, which comes into place when that taking lens is put in place. (On a lens with a CKS mount, the finder lens is part of the lens assembly. When a mount adapter is used, the finder lens is part of the adapter.

Reflex viewfinder

The camera is equipped with a reflex viewfinder, allowing for precision framing and focusing, but only before shooting commences.

Exposure control

Control of exposure is done both by change in the lens aperture, done by rotating a ring on the lens, and by changing the "shutter angle" (fraction of the time the shutter is open), done with a lever on the camera's control panel, which changes the frame exposure time (for any given frame rate). The shutter angle can be changed continuously, including down to zero (no exposure) while the camera is running, to provide "fade" and "dissolve" effects.

Exposure planning

As for essentially all Ciné-Kodak cameras of the era, the Ciné-Kodak Special carries on its front (actually, on the turret) a plate that carries the aperture markings, to be indicated by a pointer on the lens. Each aperture is accompanied by a description of a scene lighting situation, thus giving an aperture "suggestion" for such a situation. This scheme is predicated on the use of a certain kind of film (Kodak Panchromatic film) and on the use of the normal frame rate (16 fr/s), with the variable shutter fully open.

Original cost

In June of 1933, when the model was introduced, a Ciné-Kodak Special II with the 100 foot film magazine and a 25mm f/1.9 lens sold for $375.00 (considered equivalent in September of 2017 to about $7200.00).

This specimen

This specimen is a Kodak Ciné-Kodak Special 16 mm motion picture camera, serial number 330, equipped with the 100 foot film magazine, serial number 100-330 (doubtless a matched pair).

This camera was almost certainly made in 1933.

It is exhibited with a Kodak Cine Ektar II 25 mm f/1.9 lens ("normal" focal length for this camera) with a CKS mount (matching that of the camera), and a Kodak 6 inch (152 mm) telephoto lens, also with a CKS mount.

Acquisition and provenance

The camera was purchased in October of 2017 on from eBay seller "aofphoto".

On this model, the buyer could opt to have his name put, at the factory, on an engraved nameplate discreetly located on the bottom of the camera front plate. If not, a blank nameplate was provided. The nameplate for this specimen is still blank.

However, inside the magazine, on the chrome and gray plate, there are scratched the initials "WHP". We have no idea to whom that might pertain.

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Appendix A

Exposure planning on the Ciné-Kodak Special

As for essentially all Ciné-Kodak cameras of the era, the Ciné-Kodak Special carries on its front (actually, on the turret) a plate that carries the aperture markings, to be indicated by a pointer on the lens. Each aperture is accompanied by a description of a scene lighting situation, thus giving an aperture "suggestion" for such a situation. There are many complications with this scheme. The matter is discussed in the Appendix.

But of course the actual photographic exposure is determined not by the aperture alone, but also by the exposure time. In a ciné camera, the exposure time is determined by the *frame rate* (which in this camera can be varied from 8 fr/s to 64 fr/s) and by the *shutter angle* (which in this camera can be varied down to 1/4 of the "normal" value.

Further, the needed photometric exposure is determined by the sensitivity of the film, and during the life of this camera model a number of different films, with differing sensitivity, and suitable for use in this camera came into being.

In any case, the aperture "recommendations" given by the lighting descriptions on the aperture indicating plate were predicated in the film is use being Kodak Panchromatic Ciné film; on the frame rate being 16 fr/s; and on the shutter angle being "full". For all other circumstances, the aperture suggestion would need to be adjusted, a matter that is discussed in considerable and tedious detail in the camera manual.

To rationalize this problem Kodak, in 1940, introduced the Ciné-Kodak Universal Guide. This was a dial-type exposure "calculator", which was mounted on the left side of the camera (in the case of a Ciné-Kodak special, on the left side of the film chamber. A small card, specific to the particular film type in use, was slipped into a frame on the Guide. On the dial there were multiple "pointers", corresponding to different frame rates. In this way, the aperture recommendation would take into account the sensitivity of the film in use and the frame rate in use. The use of shutter angles less than "full" was usually limited to special effects, such as fades. In almost all such cases the shutter angle was varied between "full" and "closed" over the course of the fade. Exposure planning would normally be predicated on the full shutter angle situation.

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