Nr.: 01 - Angenieux 57,5-230mm T1.5 Space-Lens with recording Module

Super Rare Angenieux 57,5-230mm T1.5 Space-Lens with recording Module

Some words of the owner Dedo Weigert / Munich:

I have a monster Angenieux zoom, supposedly 9 pieces of this zoom were built for outer space application. This had no mounting for any camera, but had attached an electronic camera, which is also included in the collection. I got this lens through a spare parts person in Los Angeles, called Uncle Ray, who had a company called S.P. Air parts. He had received this one from the father of Jim Fisher (Fisher dollys) and Jim Fisher was for many years sore at me that I got this zoom, because he wanted to have it. Later, he gave me the electronic camera as a gift because he didn't want to be angry with me anymore.

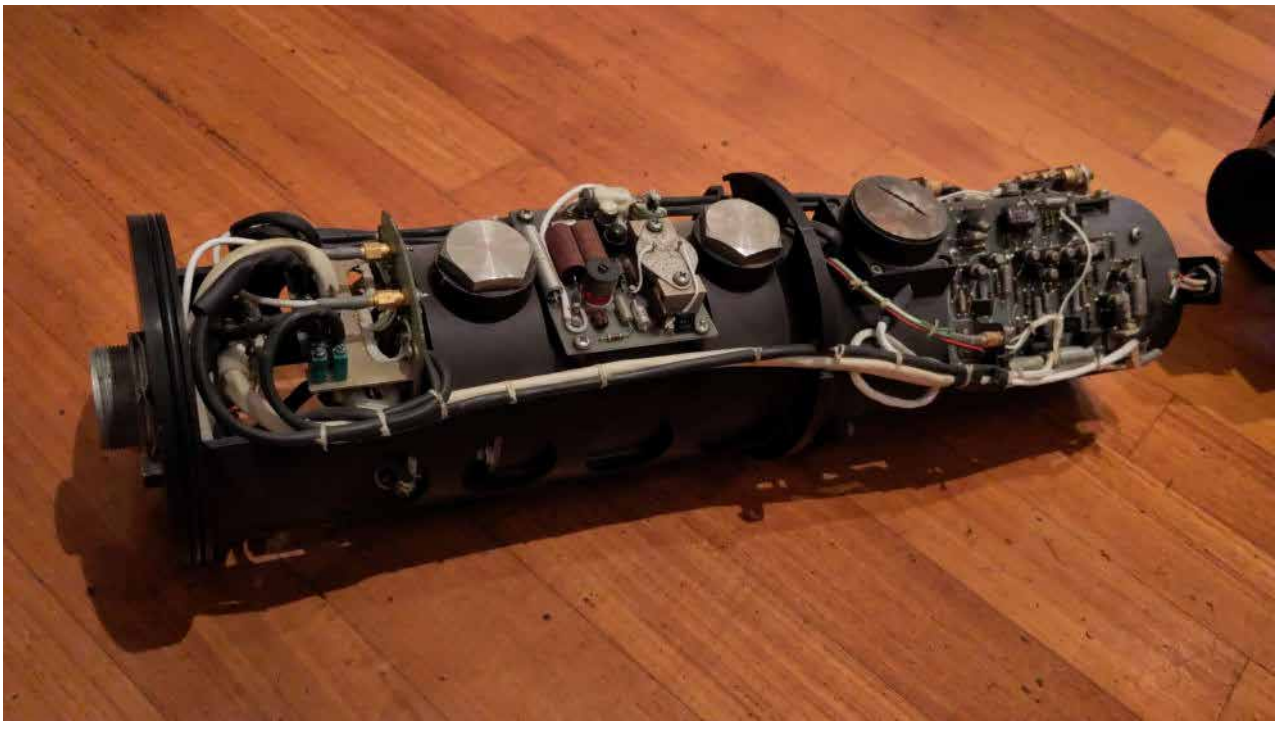
Super seltene Angenieux 57,5-230 mm T1.5 Space-Lens mit Aufnahmemodul

Einige Worte des Besitzers Dedo Weigert / München:

Ich habe ein Monster-Zoomobjektiv von Angenieux, von dem angeblich nur 9 Stück für den Einsatz im Weltraum gebaut wurden. Es hatte keine Halterung für eine Kamera, aber eine elektronische Kamera war daran befestigt, die ebenfalls Teil der Sammlung ist. Ich habe dieses Objektiv über einen Ersatzteilhändler in Los Angeles namens Uncle Ray bekommen, der eine Firma namens S.P. Air Parts hatte. Er hatte es vom Vater von Jim Fisher (Fisher Dollys) erhalten, und Jim Fisher war mir viele Jahre lang böse, dass ich dieses Zoomobjektiv bekommen hatte, weil er es selbst haben wollte. Später hat er mir die elektronische Kamera geschenkt, weil er mir nicht mehr bösen sein wollte.


ANGENIEUX-ZOOM
TYPE 4×57.5


TYPE 4×57.5
N°1266069



Nr.: 02 - Auricon Super 1200 16mm Camera with optical sound

Auricon Super 1200 16mm Camera with optical sound

In 1952, Berndt-Bach Inc. launched the Auricon CM-74 "Super 1200" 16mm sound-on-film motion picture camera. It was self-blimped for quiet operation and utilizes magazines with a 1200 ft film capacity to allow for up to 33 minutes of continuous filming. The Auricon Super-1200 was designed for long interviews and TV studio films. It also offered several professional-type options, such as a variable shutter and rackover ground glass focusing (the latter possible only when the camera was not operating). This model was used by Andy Warhol to film Empire, as well as subsequent films including his works with Paul Morrissey which benefited from the long takes the camera made possible.

Auricon Super 1200 16mm Kamera mit Bildton

Im Jahr 1952 brachte Berndt-Bach Inc. die Auricon CM74 „Super 1200" 16-mm-Tonfilmkamera auf den Markt. Sie war für einen leisen Betrieb selbstgedämpft und verwendete Magazine mit einer Filmkapazität von 1200 Fuß, um bis zu 33 Minuten kontinuierliche Filmaufnahmen zu ermöglichen. Die Auricon Super-1200 wurde für lange Interviews und Fernsehstudiofilme entwickelt. Sie bot auch mehrere professionelle Optionen, wie einen variablen Verschluss und eine RackoverMattscheibenfokussierung (letztere war nur möglich, wenn die Kamera nicht in Betrieb war). Dieses Modell wurde von Andy Warhol für die Dreharbeiten zu Empire sowie für nachfolgende Filme verwendet, darunter seine Arbeiten mit Paul Morrissey, die von den langen Einstellungen profitierten, die die Kamera ermöglichte.

Auricon cameras that could record single system optical sound-on-film tracks contained a Mirror galvanometer, which was a device that recorded sound on the film by means of a beam of light that varied in accordance with the frequency and intensity of the sound being recorded. Several types of galvanometer were offered including variable-density both with and without "noise-reduction" bias, unilaterial variable-area both with and without "noise-reduction" bias, and an extra cost "Modulite" unilateral variable area which featured a separate "noise-reduction" shutter rather than a "noisereduction" bias. Although all of these optical sound systems were RCA-licensed, none was as good as a true RCA system.

Auricon-Kameras, die optische Tonspuren auf Film aufnehmen konnten, enthielten ein Spiegelgalvanometer, ein Gerät, das den Ton mittels eines Lichtstrahls auf den Film aufzeichnete, der sich entsprechend der Frequenz und Intensität des aufgenommenen Tons veränderte. Es wurden verschiedene Arten von Galvanometern angeboten, darunter solche mit variabler Dichte mit und ohne „Rauschunterdrückungs"-Vorspannung, solche mit einseitiger variabler Fläche mit und ohne „Rauschunterdrückungs"-Vorspannung und ein gegen Aufpreis erhältliches „Modulite"Galvanometer mit einseitiger variabler Fläche, das anstelle einer „Rauschunterdrückungs"-Vorspannung über einen separaten „Rauschunterdrückungs"-Verschluss verfügte. Obwohl alle diese optischen Tonsysteme von RCA lizenziert waren, war keines so gut wie ein echtes RCA-System.

Some words of the camera owner Dedo Weigert / Munich:

When I was involved in an NBC Special about the History of the Kremlin, I had 8 cameras, two blimped Mitchell cameras and six Arri cameras and all of a sudden the entire American team was gone and they told me to stay. I had no idea what that meant. Much later, I found out that this was the so-called Cuba Crisis. One day, I got a call from NBC, saying - today you shoot news and I was a little bit lost, - how should I do this with 35mm cameras, but they said there is a camera

at the NBC office and there is a lady there, that you can ask and get the camera. This was an Auricon 1200 camera, a 1200 monster camera. Auricon cameras in those days were the main cameras for news-gathering worldwide. Smaller cameras like the Auricon Pro 600, where I also was the first one to ever use such a camera as hand-held camera, which was totally unsuitable, but we shot the entire film about Pierre Cardin 1963 on such a camera, which was driven by mains power and when Cardin got excited and threw down everything on the floor and ran down the staircase, I tried to run with him and there were 8 electricians who were not supposed to be seen, feeding the cable.

So, - back to the Moscow story. The Auricon 1200 was a camera where the sound was recorded on the edge of the B&W film in the camera and there was an extra box. I figured out the camera and how to lace it up, but the box still causes nightmares for me today. I have this camera, not the very same one that was used in Moscow, but the identical model and also the sound control box. In Moscow, I recorded the first press conference of cosmonauts Nikolajew and Popowitsch with the Auricon.

Einige Worte des Kamerabesitzers Dedo Weigert / München:

Als ich an einer NBC-Sondersendung über die Geschichte des Kremls mitwirkte, hatte ich acht Kameras, zwei Mitchell-Kameras mit Blimp und sechs Arri-Kameras, und plötzlich war das gesamte amerikanische Team verschwunden und sie sagten mir, ich solle bleiben. Ich hatte keine Ahnung, was das bedeutete. Viel später erfuhr ich, dass es sich um die sogenannte Kuba-Krise handelte.

Eines Tages erhielt ich einen Anruf von NBC, in dem mir mitgeteilt wurde, dass ich heute Nachrichten drehen solle. Ich war etwas ratlos, wie ich das mit 35-mm-Kameras machen sollte, aber sie sagten, dass es im NBC-Büro eine Kamera gebe und dort eine Dame, die ich fragen könne, um die Kamera zu bekommen. Es handelte sich um eine Auricon 1200, eine 1200er-Monsterkamera. Auricon Kameras waren damals weltweit die Hauptkameras für die Nachrichtenberichterstattung. Kleinere Kameras wie die Auricon Pro 600, die ich als Erster als Handkamera einsetzte, was völlig ungeeignet war, aber wir drehten den gesamten Film über Pierre Cardin 1963 mit einer solchen Kamera, die mit Netzstrom betrieben wurde, und als Cardin aufgeregt wurde, alles auf den Boden warf und die Treppe hinunterrannte, versuchte ich, mit ihm mitzulaufen, und es gab acht Elektriker, die nicht zu sehen sein sollten und das Kabel führten.

Also, zurück zur Geschichte aus Moskau. Die Auricon 1200 war eine Kamera, bei der der Ton am Rand des Schwarzweißfilms in der Kamera aufgezeichnet wurde und es gab eine zusätzliche Box. Ich habe herausgefunden, wie die Kamera funktioniert und wie man sie einrichtet, aber die Box bereitet mir bis heute Alpträume. Ich habe diese Kamera, nicht genau dieselbe, die in Moskau verwendet wurde, aber das identische Modell und auch die Tonsteuerungsbox. In Moskau habe ich mit der Auricon die erste Pressekonferenz der Kosmonauten Nikolajew und Popowitsch aufgenommen.


DWF EX3
AURICON
SOUND TRACK EXPOSURE
"A" BAT. TEST
"B" BAT. TEST
SOUND TRACK EXPOSURE METER
LOW RANGE
HIGH RANGE
SPEECH ONLY
SPEECH WITH MUSIC
SINGING WITH MUSIC
MUSIC ONLY
AMPLIFIER OFF
MICROPHONE INPUT VOLUME
MICROPHONE INPUT TONE CONTROL
SOUND TRACK EXPOSURE


AURICON
SOUND-ON-FILM RECORDING EQUIPMENT
FOR AMPLIFIER SCHEMATIC, SEE INSIDE CHASSIS COVER OR IN AURICON INSTRUCTION BOOK
SER. NUMBER RA-31-AD7-1868
BACH AURICON
BACH AURICON, INC.
HOLLYWOOD 38, CALIFORNIA
MADE IN U.S.A.

Nr.: 03 - Bell & Howell Eyemo Camera 71 Model C

Bell & Howell Eyemo Camera 71 Model C

Designed and first manufactured in 1925, it was for many years the most compact 35 mm motion picture film camera, having a 100-foot film capacity. Its small size and ruggedness made it a favorite choice for newsreel and combat cameramen (it was used throughout World War II and the Vietnam War, the War Department providing special manuals for it), and also found use for fiction and documentary filmmakers whenever a portable, rugged, and inconspicuous camera was needed.

Eyemos feature a built-in clockwork (spring wind) motor which, when wound by a ratchet key, can shoot about 20 seconds of film per winding at standard 24 fps (frames per second) speed, and also runs at speeds of four through 64 fps, depending on the model. The camera can be hand-cranked with a manual crank accessory. Later, it was replaced by a 16mm model called Filmo.

Day of the Fight (1951) – short shot by Stanley Kubrick on a rented Eyemo
The Killing (1956) Co-producer Alex Singer used the clockwork single lens Eyemo and thirty-metre loads of film to shoot 'day in the life' style racetrack footage in San Francisco. Psycho (1960) – Multiple cameras used to film shower scene

Bell & Howell Eyemo Camera 71 Model C

Entworfen und erstmals hergestellt im Jahr 1925, war sie viele Jahre lang die kompakteste 35-mm-Filmkamera mit einer Filmkapazität von 100 Fuß. Aufgrund ihrer geringen Größe und Robustheit war sie die bevorzugte Wahl für Nachrichten- und Kriegsfilmer (sie wurde während des Zweiten Weltkriegs und des Vietnamkriegs eingesetzt, wobei das Kriegsministerium spezielle Handbücher dafür zur Verfügung stellte) und fand auch bei Spiel- und Dokumentarfilmern Verwendung, wenn eine tragbare, robuste und unauffällige Kamera benötigt wurde. Eyemos verfügen über einen eingebauten Uhrwerkmotor (Federantrieb), der, wenn er mit einem Ratschenschlüssel aufgezogen wird, bei einer Standardgeschwindigkeit von 24 fps (Bilder pro Sekunde) etwa 20 Sekunden Film pro Aufzug aufnehmen kann und je nach Modell auch mit Geschwindigkeiten von 4 bis 64 fps läuft. Die Kamera kann mit einem manuellen Kurbelzubehör von Hand gekurbelt werden. Später wurde sie durch ein 16mm Model unter dem Namen Filmo ersetzt.

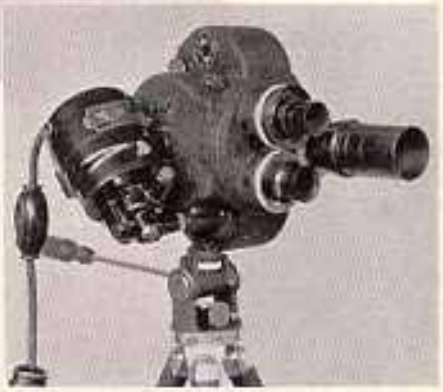
Day of the Fight (1951) – Kurzfilm von Stanley Kubrick, gedreht mit einer gemieteten Eyemo
The Killing (1956) Co-Produzent Alex Singer verwendete die Uhrwerk-Einzellinsen-Eyemo und 30 Meter Film, um in San Francisco Aufnahmen im Stil eines „Tages im Leben" auf der Rennbahn zu drehen. Psycho (1960) – Mehrere Kameras wurden verwendet, um die Duschszene zu filmen

The Bell & Howell EYEMO *Cameras*

Eyemo 71-A. See model list on page 6

Eyemo Model 71-C Camera, with three-lens turret head, seven speeds, variable area viewfinder, and provision for hand crank.

Eyemo Model 71-C with 12- or 110-volt motor for giving uniform 24 (sound) speed throughout an entire loading of film, or accurate slower speeds if desired



THE lightness and compactness of the EYEMO make it the ideal portable 35 mm. camera. It weighs only 7 pounds (slightly more for EYEMO 71-C). It is as compact as a motion picture camera of equal capacity can be made, and is as convenient to carry as the average size "still" camera. No tripod need be used except with telephoto lenses.

A touch of the trigger starts the film mechanism moving at exactly the correct operating speed, right from the first frame exposed. When the trigger is released, the movement stops. There is

EYEMO *Model 71-C*

PART TWO
OPERATING INSTRUCTIONS

NOTE: For information on destroying this equipment to prevent enemy use, see the destruction notice at the front of this manual.

SECTION IV
STEP-BY-STEP OPERATING PROCEDURE

37. GENERAL.

Only those operating procedures relating to the complete Camera PH-330-G are considered in the discussion which follows. With a few minor exceptions, all parts issued for use with Camera PH-330-(*) are involved in the operation of the complete Camera PH-330-G. Consequently, all characteristic stages of camera operating procedure are here represented. Operation involving features not furnished with certain models (electric motors, magazine attachments, turrets, turret viewfinders, etc.) obviously will not apply to those models. It also is apparent that hand operation of the camera dispenses with procedure involving equipment used only with the tripod.

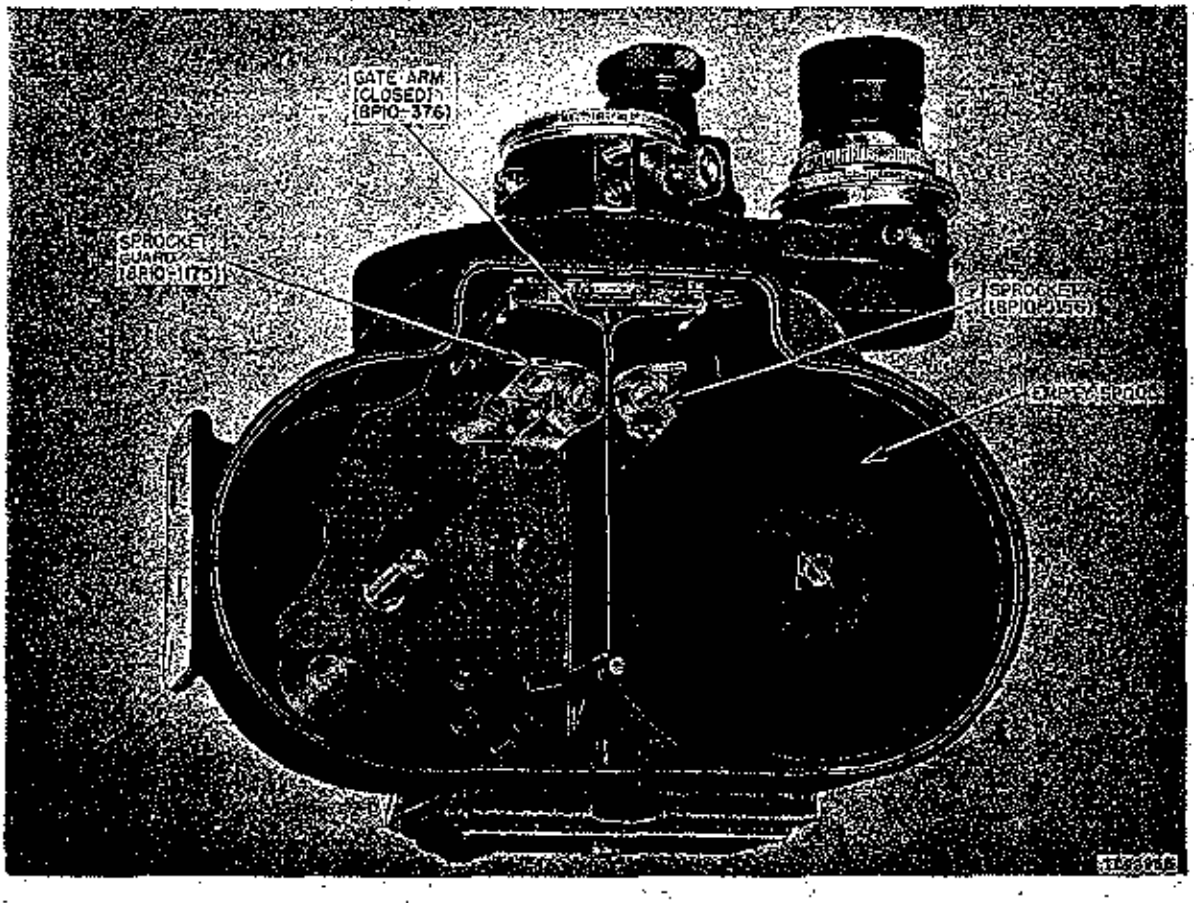


Figure 24. Before loading, Camera PH-330-(*): gate arm in closed position.

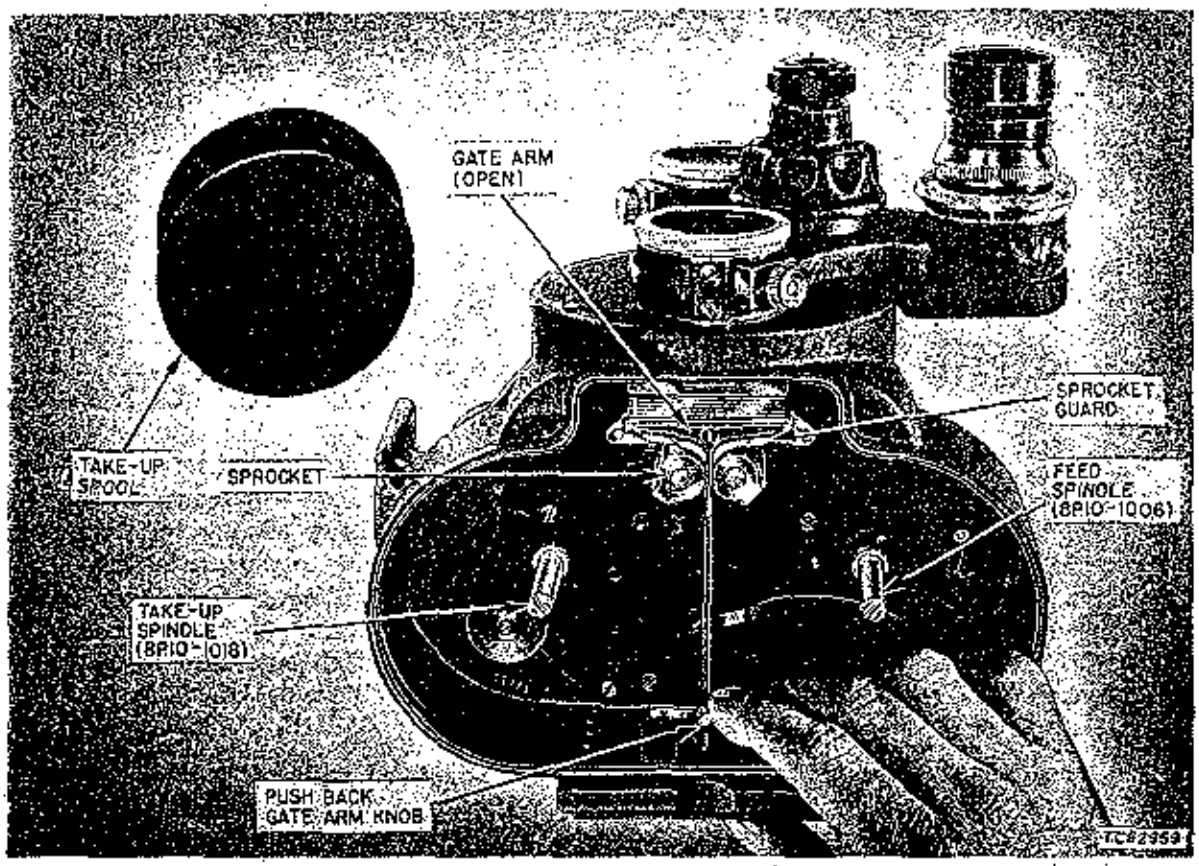


Figure 25. Before loading, Camera PH-330-(*); opening film gate.

38. THREADING FILM (WITHOUT MAGAZINE).

NOTE: When using the 100-foot daylight loading spool, the loading and threading of the film may be done in daylight. A subdued light should be chosen; direct sunlight is to be avoided during the threading operation.

a. Make sure that the spring is tensioned by giving the ratchet crank one or two complete turns. This will bring the shuttle teeth (fig. 43 (21)) into their lower or engaged position at the film gate.

b. Place the camera on its side, with the camera door (left-hand side) up, and the lens away from the operator. Turn the camera door latches (fig. 6) to OPEN and remove the door. The two door latches which fasten the cover are actuated by a single cam link (fig. 66 (34)) and are turned simultaneously.

c. Remove the take-up spool (fig. 25). With the camera in the position described above, the take-up spool is at the left and the feed spool is at the right. Both the feed and the take-up spindle (fig. 25) are now empty.

d. Open the film gate by pressing the gate arm knob (fig. 25) toward the back of the camera. Be sure to move the knob as far back as it will go, as the flange on the gate arm forces the sprockets away from the sprocket guards (fig. 25).

e. Hold the feed spool with the right hand, and with the left hand draw about a foot of film from the spool in a clockwise direction. Make an approximate loop with the left hand and place the spool partly over the feed spindle. Insert the film loop partly between the feed sprocket and its guard (fig. 26). Complete the rough thread-up by fitting the film into the channel between the pressure plate and the aperture plate (fig. 26) and then inserting it partly between the take-up sprocket and its guard (fig. 27). Be sure that the film is inserted so that the emulsion side is facing the lens.

f. Seat the feed spool securely on the feed

spindle (fig. 26). This may be done either by turning the spool counterclockwise, or by turning the feed spindle.

g. Fit the film snugly between the sprocket and its guard, and engage the sprocket holes in the teeth. Form loops above the film gate in such a way that the upper, or feed, loop will have nine sprocket holes visible when the gate is closed.

h. Insert the film between the take-up sprocket and its guard (fig. 27) and engage the sprocket holes in the sprocket teeth, so that the lower, or take-up loop will have 11 sprocket holes visible when the gate is closed.

i. Close the film gate by pressing the gate arm knob forward as far as it will go (fig. 27), locking the sprockets into operating position.

j. Engage the film in the shuttle teeth by inserting an index finger in the loops, pulling slightly to the right and to the left, until the teeth are firmly seated in the sprocket holes.

k. Check the take-up spool for shape. The flanges of the spool must not be battered or bent inward, as this is one of the most frequent causes of buckling and film jam. Use the spool gauge (fig. 2 (18)) to check flanges.

l. Insert the end of the film into the slot on the hub of the take-up spool (fig. 28), winding it clockwise until most of the slack film has been wound on. Place the spool on the take-up spindle.

m. If the loops are found to lack the correct number of sprocket holes, re-open the film gate and increase or decrease the loop through the lower sprocket only. Always push the film through the open sprocket; do not pull it.

n. With the camera door still open, quickly press the operating lever on and off (fig. 29). Keep a finger pressed lightly on the feed spool (fig. 29) to prevent backlash and fogging of the unexposed film. If the loops do not buckle or alter their shape during this test run, the camera is threaded properly. Replace the camera door and turn the door latch to the CLOSED position. If the camera door does not fit easily in place on the camera housing, the gate arm is not fully closed.

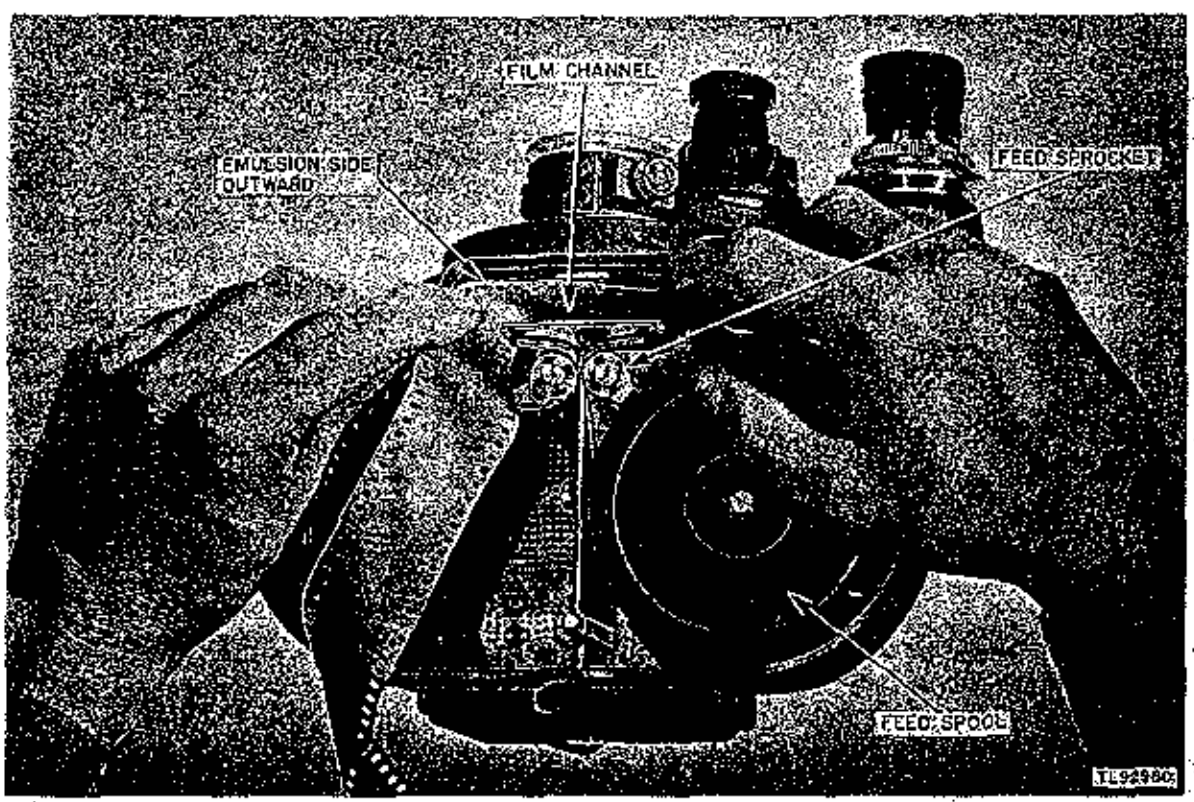


Figure 26: Loading, Camera PH-330-(*); inserting film in channel and engaging sprocket holes.

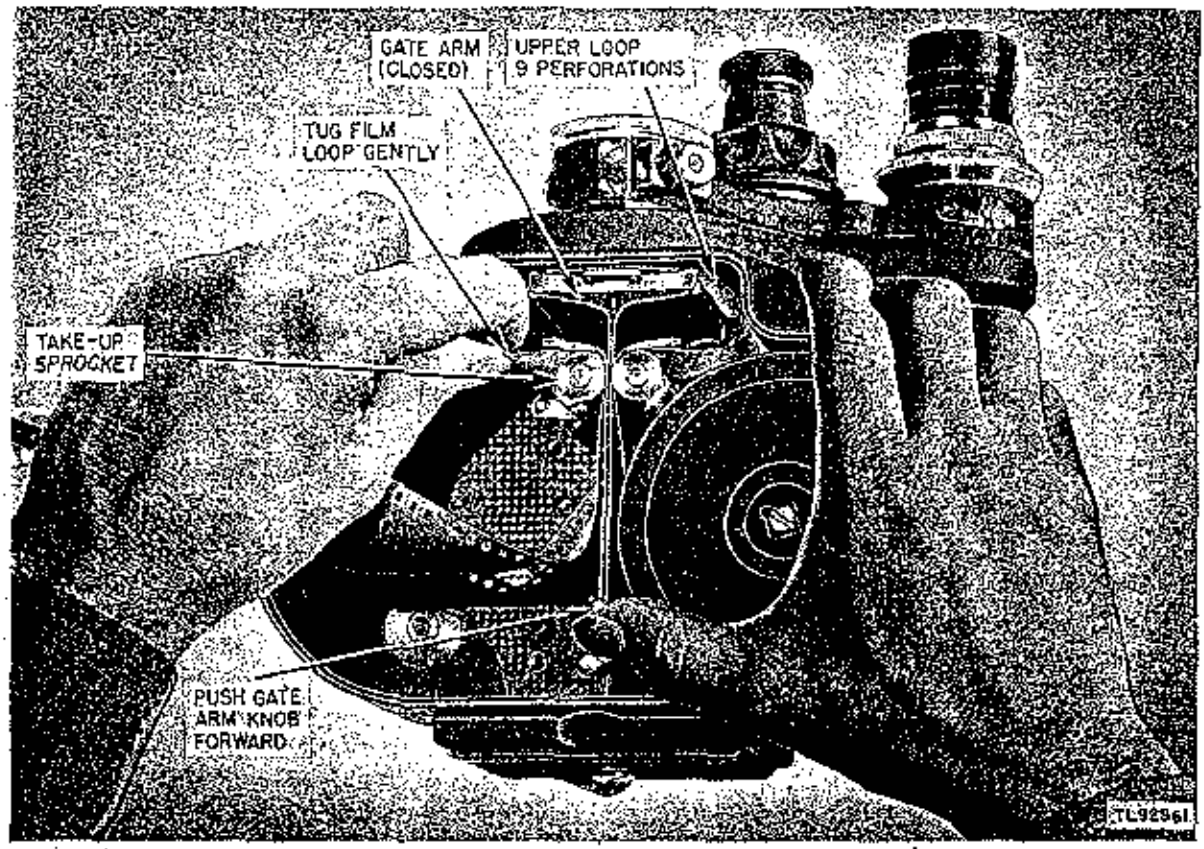


Figure 27. Loading, Camera PH-330-(*): forming loops, engaging film in shuttle teeth, and closing film gate.

NOTE: The 100-foot dyalight spool carries an actual film load of about 110 feet, with a spliced leader to protect unexposed film during threading and a spliced trailer to protect the film roll after exposure. The leader at the beginning of the roll is marked "unexposed," and the trailer at the end is marked "exposed." Film may be used which has been spooled from bulk, in which case the loading and threading operation will have to be accomplished in the darkroom. If this is done, the total film length may be as much as 120 feet, all usable for exposure except for the short length used in threading.

39. WINDING SPRING MOTOR AND OPERATING BY HAND CRANK.

The spring motor should be fully wound before every take to insure a consistent operating speed for all exposures. All winding devices for Camera PH-330-(*) are operated by rotating in a counterclockwise direction until a definite mechanical resistance is noted, indicating the fully wound position.

a. Ratchet Winding Crank (fig. 12 (2)). Insert the crank into the winding crank receptacle (fig. 5) directly to the rear of the focusing magnifier. Wind counterclockwise.

b. Hand Crank (fig. 12 (5)). The function of the hand crank has been described in paragraph 8c. In general, this crank should be used sparingly as an emergency device for driving the camera mechanism. A uniform shooting speed is virtually impossible with hand operation, even when the camera is firmly seated on a tripod for the take. Special precaution also must be exercised when hand-cranking short lengths of film in reverse for making lap dissolves. A reverse cranking of the camera mechanism serves to wind the spring. Consequently, the amount of footage which can be rewound is limited by the extent to which the motor spring is unwound. Moreover, the feed spool will not take up the rewound film during this operation, leaving the rewound footage to loop back on itself inside the camera. Under no circumstances should more than 2 feet of rewound film be allowed to back up into the camera in this manner. When cranking in reverse, the lens should be covered with a lens cap to avoid unwanted exposures on the film. Wherever possible, all special effects, such as lap dissolves, should be accomplished in the laboratory by means of the optical printer. Note also that the

footage dial will add footage, instead of subtracting it, when the film is cranked in reverse. Footage therefore, should be recorded prior to reverse hand crank operation and the footage dial reset when reverse cranking is completed. The dial must be set back double the hand cranked (reverse) footage. For example:

Scene ended	50 ft
Reverse crank	2 ft
New reading	52 ft (50 plus 2)
Actual footage	48 ft (50 minus 2)
Required setting	4 ft back

40. SETTING FOOTAGE DIAL.

a. Before Exposure. When the camera has been threaded properly and the camera door inserted in place, set the footage dial (fig. 11) with 0 at the small right-hand dot by turning the dial counterclockwise. For the standard daylight spool, allow a 5-foot leader to pass through the camera by operating the mechanism until the footage dial registers 0. The camera now is ready for a useful take of 100 feet.

b. During Exposure. Since the footage dial is calibrated for 100 feet only, it will be necessary to note carefully when and how often the pointer has registered 0 with magazine loads in excess of this amount. Extra footage with darkroom-loaded spools should be checked in this manner. The length of all individual scenes or shots may be determined by checking against the footage dial and the large center dot (fig. 11) engraved above it.

c. After Exposure. For the standard daylight-loaded run, the camera should not be opened when the footage dial has returned to the 0 position after one full revolution. The mechanism should be operated until the 0 mark coincides with the left-hand dot (at least another 5 feet) to provide a protective trailer around the exposed film roll.

41. SETTING GOVERNOR SPEED DIAL.

Adjust the governor speed dial (fig. 11) to the desired number of exposures per second by rotating the dial until the appropriate index

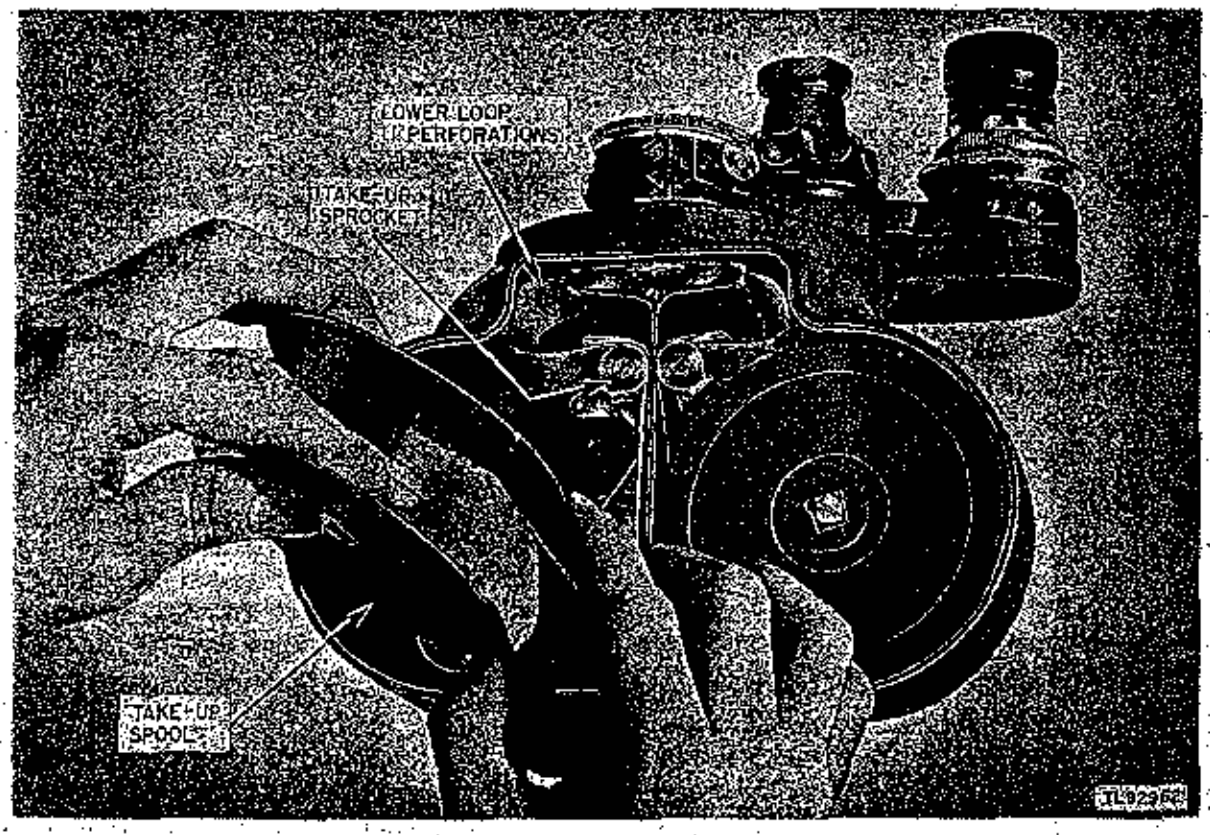


Figure 28. Loading, Camera PH-330-(*): inserting film leader in take-up spool.

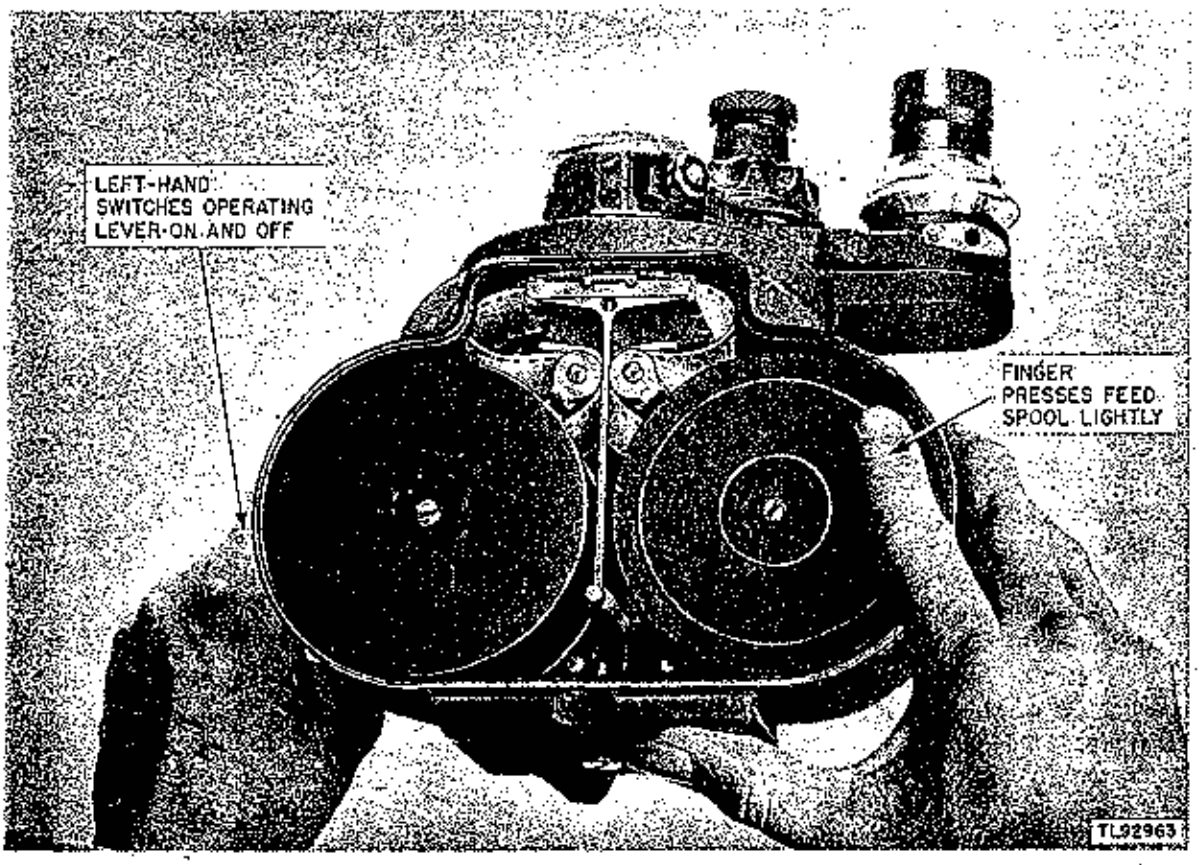


Figure 29. After loading, Camera PH-330-(*): testing for performance.

marking is in position. Standard operating procedure demands that the speed dial be set at 24 frames per second for the normal theatrical sound-on-film run. Where special effects of slow or accelerated motion are desired, the speed may be varied above or below this marking. Films to be projected as silent motion pictures only, without an accompanying sound track, may be photographed at 16 frames per second. If the films are intended for general theatrical exhibition, however, a camera speed of 24 frames per second is necessary at all times, since theater projectors operate only at 24 frames per second.

42. SETTING RELATIVE EXPOSURE INDICATOR.

Set the inner dial of the relative exposure indicator (fig. 11) so that the desired calibration for shooting speed (frames per second) is opposite the *f*/stop on the outer ring demanded by a specific lighting condition. To convert for any change of speed, find the new camera speed calibration on the inner dial. The corresponding *f*/stop index on the outer ring immediately above it will give the new diaphragm reading. Thus, if the inner dial is set for an operating speed of 24 frames per second, with a lens set at *f*/11, conversion to 48 frames automatically will call for a change of diaphragm to *f*/8.

43. SETTING LENS DIAPHRAGM.

The lens diaphragm (fig. 8) collar opens and closes an iris diaphragm regulating the amount of light passing through the lens. When the proper *f*/stop reading for the prevailing light condition and camera speed has been determined on the relative exposure indicator, set the diaphragm collar at that stop by turning the ring to the appropriate index marking.

44. SETTING LENS FOCUSING COLLAR.

The lens focusing collar (fig. 8) is calibrated for distance in feet and is adjustable for objects from close distances of only a few feet to objects at infinity distance. Measure the distance from the camera to the object being photographed.

Then revolve the focusing collar until the appropriate calibration for distance in feet is in line opposite the marker on the lens mount seat. Lock the collar at this setting by tightening the focusing clamp knob on the lens mount seat (fig. 8).

CAUTION: Double check the diaphragm and focusing collar readings before exposing film, for any change or shift of the collar position. Watch for accidental slippage, and remember at all times to convert diaphragm and focus calibrations for any change in speed, distance, and lighting condition. The use of a reliable exposure meter wherever available will be helpful in determining proper exposure. See TM 11-2351, Exposure Meters PH-77, PH-77-A, PH-77-C, PH-77-D, PH-77-E, and PH-252-A, as changed by Changes 1, dated 5 December 1944.

45. CHANGING LENS.

When a change of lens is required, remove the lens mount from the lens mount seat by releasing the focusing clamp knob (fig. 8) and pressing on the lens mount lock lever (fig. 8). Fit the new lens mount in the lens mount seat by inserting it as far as it will go. Release the lens mount lock lever so that is is tensed firmly against the lens mount by the compression spring. When the lens mount is seated and locked, pull gently on the lens barrel to make sure that it is securely placed.

NOTE: The lens mount will not slide into its seat unless the groove or keyway in the lens mount coincides with the tongue in the lens seat.

46. MOUNTING LIGHT FILTER.

The selection of the filter will depend on the prevailing light and terrain features, the nature and color of the subject, the film used, and the special requirements of the mission. A detailed filter factor table is given in the appendix to this manual and should be consulted whenever filters are used. The filter holder available for Camera PH-330-G is for 35-mm filter elements only. These may be readily fitted in the holder, and the holder slipped into place over the barrel of the lens. As previously pointed out in paragraph 18, special filter holders for use with the 75-mm Baltar lens and the 254-mm Wollensak lens are not provided. All filters used with the 75-mm Baltar lens are fitted directly between the lens and hood of the Baltar lens mount, while filters used with the 254-mm Wollensak lens are fitted between the lens and hood of the Wollensak lens mount. The procedure for mounting filters to be used with the Baltar 152-mm lens is given in the note following paragraph 18c. Check carefully on the correspondence of all filters and lenses.

47. OPERATING SPIDER TURRET.

To rotate the turret arms for any desired lens, loosen the large turret lock knob (fig. 8) on the front of the turret plate by twirling it counterclockwise. Grasp the turret post dust cap (fig. 8) and pull the turret plate clear; care must be taken so that the turret tension spring does not forcibly snap the turret plate back into place. When the lens mount seats have cleared the camera head entirely, rotate the turret to bring the desired turret arm with its appropriate lens in either the viewing or the shooting position. The tension spring should draw the turret plate tightly into place against the camera head casting. Lock the turret by twirling the knob clockwise. Do not apply undue pressure to the knob, since the lock should not be screwed too tightly.

48. HAND-HOLDING CAMERA.

When shooting is done without a tripod, the camera holding handle (fig. 5) should always be used to insure maximum camera control. The handle should be screwed into place in the tripod socket insert (fig. 51 (2)) under the base of the camera housing, before preparing to sight in the viewfinder. One method for holding the camera is shown in figure 1. Note that, in the standing position, both elbows are pressed firmly against the sides of the body for supoprt and stability. The left hand may be kept entirely free, grasping the camera housing beneath the turret, with the handle grasped by the right hand and the strap looped over the right wrist. An alternate method is described below.

a. Loop the wrist strap over the left hand in such a way that the hand is free to hold the camera beneath the turret. Be careful to avoid covering the lens with the thumb.

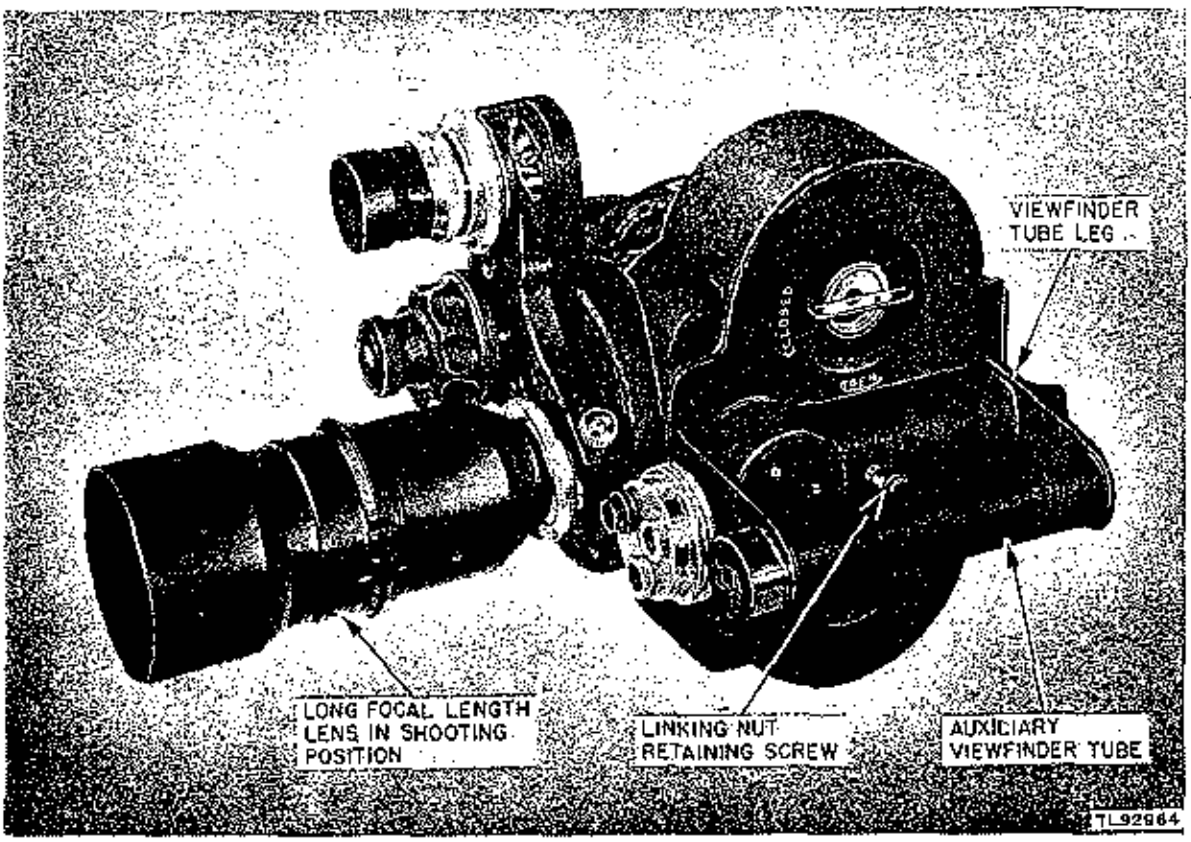


Figure 30. Camera PH-330-G, with auxiliary viewfinder tube attached.

b. Grasp the holding handle firmly with the right hand, with the right thumb in position on the operating lever or trigger.

c. Raise the camera into position for viewing, with the flat side of the camera braced firmly against the forehead and nose, and the left eye aligned with the viewfinder eyepiece.

NOTE: When the camera is being operated under emergency or combat situations, and particularly in the case of uneven or hazardous terrain, the use of the wrist strap is not advised.

49. SIGHTING IN VIEWFINDER.

a. Turret Viewfinder. Before raising the camera to the viewing position, be sure that the viewfinder lens to be used in conjunction with the camera lens is screwed into place on the finder turret (fig. 4). Select the finder lens (fig. 4) to match the focal length of the camera lens and rotate the viewfinder turret until the finder lens is in position before the finder eyepiece. For example, the 35-mm finder lens should be in position before the finder eyepiece when the 35-mm camera lens is in the shooting position at the exposure aperture. The 75-mm finder lens should be used with the 75-mm shooting lens, and so on. Raise the camera to the viewing position and locate the subject to be photographed in the viewfinder. When the scene has been composed in the viewfinder and the camera is firmly supported for shooting, press the *operating lever for the actual take.*

b. Drum Viewfinder. In models equipped with the drum viewfinder, revolve the calibrated outer dial until the matte corresponding with the focal length of the camera lens in use is in position before the viewfinder eyepiece. This is done by rotating the knurled edges of the drum until the dot and the appropriate numeral engraved on the drum are flush with the dot engraved on the tube of the finder (9 o'clock position (fig. 10)). Check carefully to see that the matte number on the revolving drum and the focal length of the shooting lens correspond: a 2-inch matte for a 2-inch lens, a 4-inch matte for a 4-inch lens, and so on. When the scene has been composed in the eyepiece and the camera is in position for shooting,

press the operating lever for the actual take.

c. Auxiliary Viewfinder. When lenses of long focal length and wide aperture (fig. 30) obstruct the field of the drum or turret viewfinders, an auxiliary viewfinder tube should be mounted alongside the standard finder. This is done by setting the auxiliary viewfinder tube flush with the turret viewfinder, so that the linking nut retaining screw (fig. 30) in the center of the auxiliary tube fits naturally over the threaded stud in the center of the turret viewfinder tube (fig. 10). When properly seated, the curved legs at each end of the auxiliary finder tube (fig. 10) will encircle the turret viewfinder tube just above the knurled drum at one end and the offset eyepiece at the other (fig. 30). When positioned on the drum viewfinder, the legs of the auxiliary tube must be fitted into place around the eyepiece rim and the base of the drum finder. Drum viewfinders do not provide the threaded stud in the center for the auxiliary linkage. Eyepieces and lenses for the auxiliary viewfinder are available in both the slip-in and the screw-on types, and should be properly attached before mounting the auxiliary unit. When the scene has been composed in the auxiliary viewfinder and the camera is in position for shooting, press the operating lever for the actual take.

CAUTION: Since the drum or turret viewfinder is located 1½ inches to the side of the lens, it is necessary when filming objects at close distances, to make a corresponding allowance for the offset of the finder from the position of the lens. The auxiliary viewfinder has a displacement of 3⅝ inches, or almost double that of the other two viewfinders. A greater correction, therefore, is required for compensation of parallax.

50. SETTING UP TRIPOD PH-520/U.

Tripod PH-520/U should be fully set up with alignment gauge and camera before any attempt is made to use the prismatic focusing magnifier or to attach the auxiliary magazine and motor units. The procedure is given below.

a. Invert the tripod, with the tripod head (fig. 7) on the ground and its legs in the air.

b. Raise the legs evenly to the desired height by loosening the fluted knobs (fig. 7) between any leg unit and extending or telescoping the leg elements as required. Lock the leg at this position by tightening the fluted knob. Similarly adjust the other two legs for an approximate positioning of the tripod base in relation to the specific terrain features.

c. Return the tripod to its normal standing position. If the panning handle is not in position on the tripod head (fig. 7), unscrew it from its socket under the base casting. Insert it into the socket under the adapter plate (fig. 67) and screw it firmly into place.

d. Spread the legs to accommodate the tripod to the terrain and to the specific leg height for which it is adjusted. Where possible, sink the steel spurs at the base of each leg firmly into the ground by pressing on the foot plates (fig. 7).

e. To level the tripod, readjust the leg-locking knobs until the base of the tripod head is level in all directions. On tripod models not carrying the T-level bubble device, this may be done by sight-leveling the tripod head to bring it parallel with the real or imaginary horizon lines. Final positioning should be made wherever possible by adjusting one leg for the T-level bubble reading on the base of the tripod head.

NOTE: Final check for tripod position should be made after all adjustments prior to actual shooting are completed. All supplementary operating units should be attached before the tripod is finally positioned, since the adjustment of the tripod is likely to be disturbed during the assembly procedure.

51. ATTACHING ALIGNMENT GAUGE.

The alignment gauge (fig. 13) should always be used with the prismatic focusing magnifier to compensate for parallax in the two positions of the lens during focusing and shooting. To mount this unit, fasten the gauge to the tripod head, using the tripod and camera coupling knob and screw assembly (fig. 67 (18)). Note that when the gauge is not in use, this knob and screw assembly fastens the camera to the camera base adapter plate (fig. 67 (17)). Attach the camera to the sliding platform (fig. 13) by means of the screw which fits both the hole in the platform plate and the tripod socket insert (fig. 51 (2)) in the base of the camera. Seat the platform in the gauge channel so that it rides easily from one end of the gauge

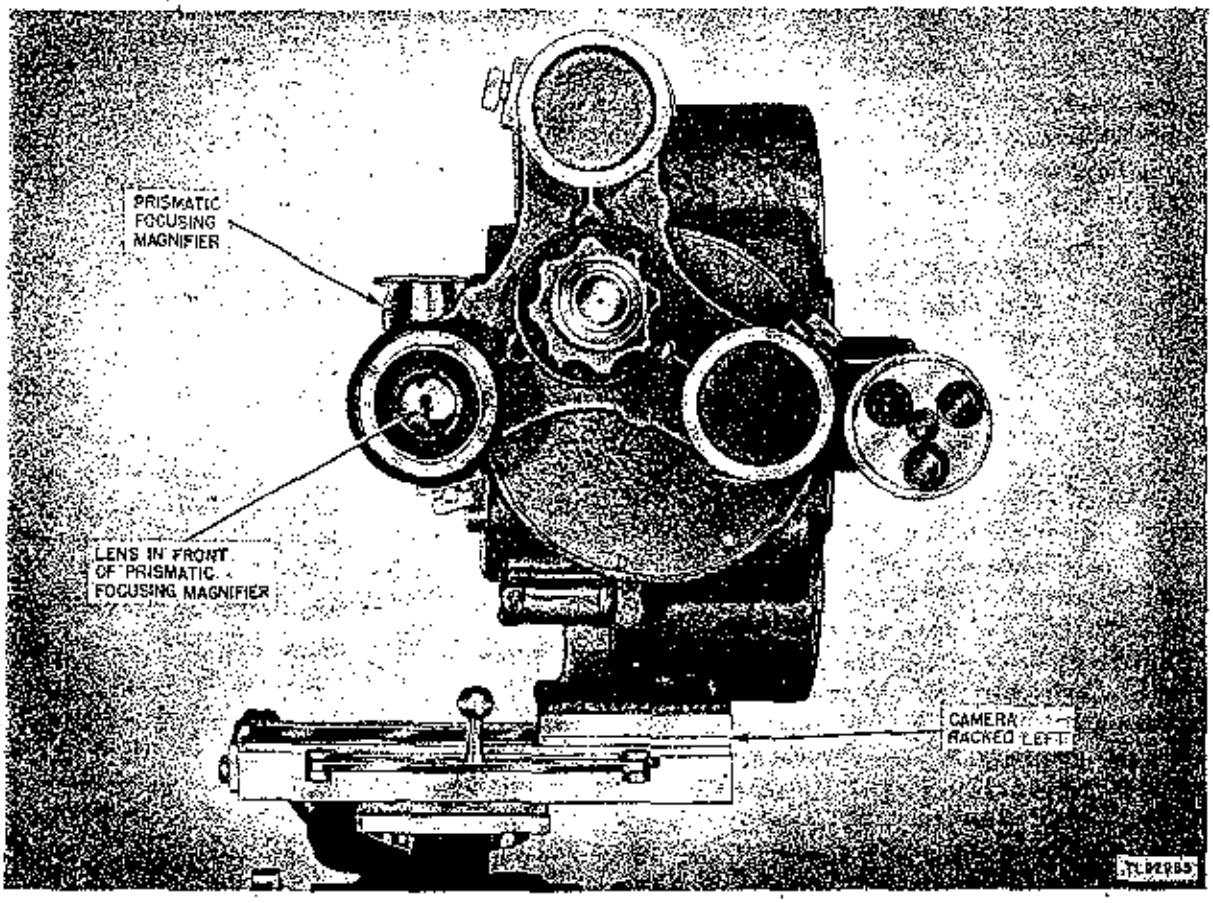


Figure 31. Alignment gauge, rack over, viewing position, Camera PH-330-C.

bed to the other, and test the platform-locking knob (*fig. 13*) for its engagement at either extreme.

52. OPERATING ALIGNMENT GAUGE.

Rotate the turret arm to bring the required lens into the viewing position (fig. 31) before the focusing magnifier. Rack the camera over by sliding the platform in its bed to the extreme left of the gauge (operator behind camera). Set the diopter adjustment to accommodate the eye of the operator, by rotating the eyepiece until the frame line on the ground glass is at maximum sharpness. Open the lens diaphragm and compose the scene by visual inspection in the prismatic magnifier. Focus the lens, and lock the focusing collar by tightening the focusing clamp knob. The lens now is adjusted for critical definition of the image, with the composition framed in the magnifier. Rotate the turret arm to return the lens to the shooting position before the exposure aperture. Rack the camera over again to the extreme right of the gauge (operator behind the camera) so that the lens (in shooting position) is directly over the tripod head (fig. 32). Lock the platform in position with the platform locking knob (*fig. 13*). The camera now is focused and corrected for parallax.

53. OPERATING PRISMATIC FOCUSING MAGNIFIER.

The rule of the focusing magnifier in relation to the turret arms and lens when in viewing and shooting positions has already been explained (par. 5b and c). The procedure for visual focusing of the lens is self-explanatory: the focusing collar of the lens (in the viewing position) is rotated until definition of the image is visually sharp on the ground glass of the magnifier. For best results, the diaphragm should be fully opened while adjusting for definition. The collar then is locked in position by tightening the focusing lock clamp knob on

the lens mount seat, and the entire turret arm rotated to place the lens before the exposure aperture for shooting. Note that the eyepiece of the magnifier is set at right angles to the lens and may be rotated up or down at will. The pilot screw for adjusting the eyepiece to the individual operator is shown in figures 9 and 52 (5).

54. MOUNTING ELECTRIC MOTOR.

In converting to electric motor drive with the 400-foot magazine attachment, the motor should be mounted before the camera is threaded. The procedure for attaching the motor follows.

a. Before attaching the motor, operate the camera mechanism until the spring motor is fully unwound. Lock the operating lever in the operating, or on, position by pressing it downward and turning the knurled end clockwise.

b. Loosen the motor mounting thumb screw (fig. 33) at the base of the motor mounting bracket (fig. 33), to allow passage of the motor mounting shaft.

c. Insert the motor mounting shaft on the upper part of the motor (fig. 33) into the socket of the motor mounting bracket.

d. At the same time, insert the coupling shaft on the lower portion of the motor (fig. 9) into the coupling housing at the base of the camera frame below the focusing magnifier.

e. If the motor does not fit snugly against the camera frame, lift the motor slightly and hand-turn the knurled knob at the rear of the motor (figs. 9 and 33) until the coupling shaft engages the camera mechanism. When the engagement of slot and lug is complete, the motor should slide into its proper position.

f. With the camera door open, turn the knurled motor knob a few times by hand. The rotation of the camera sprockets assures proper

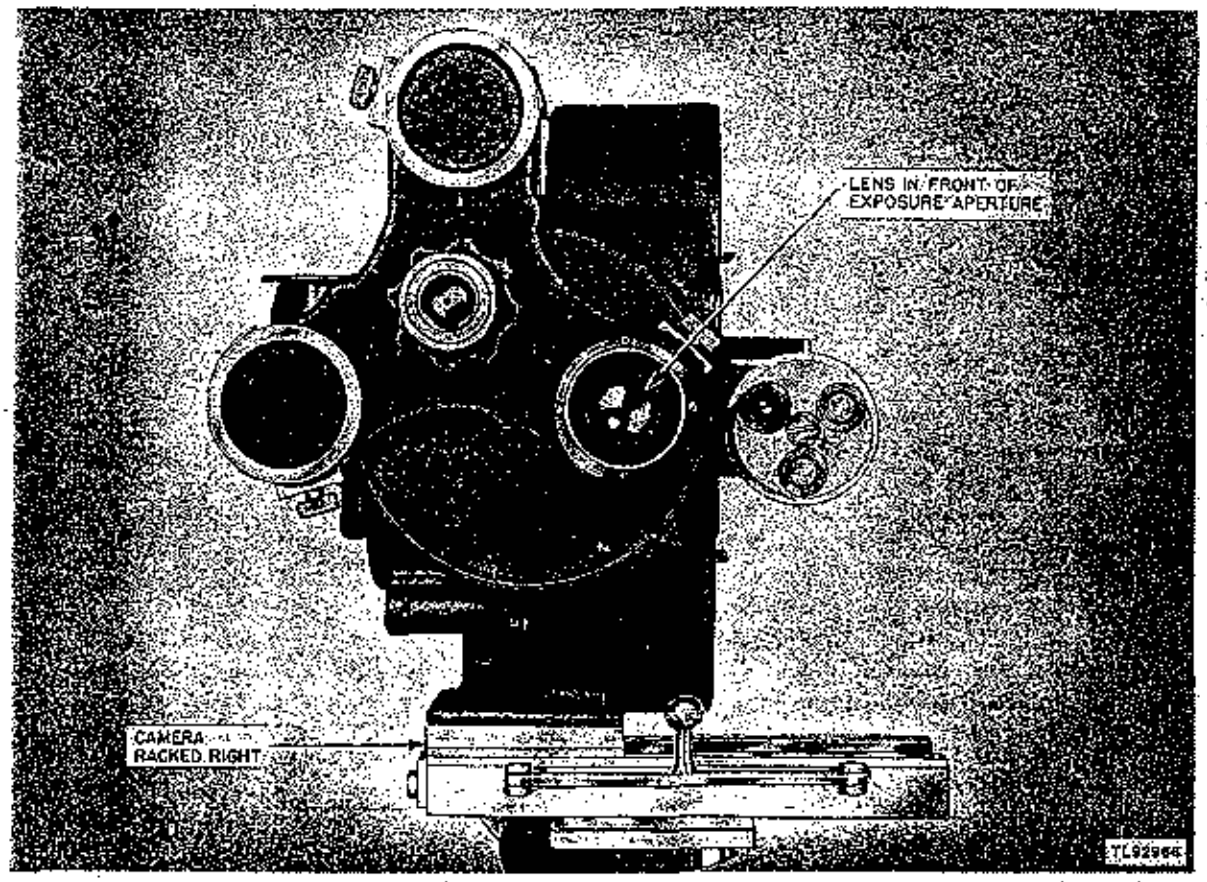


Figure 32. Alignment gauge, rack over, shooting position, Camera PH-330-C.

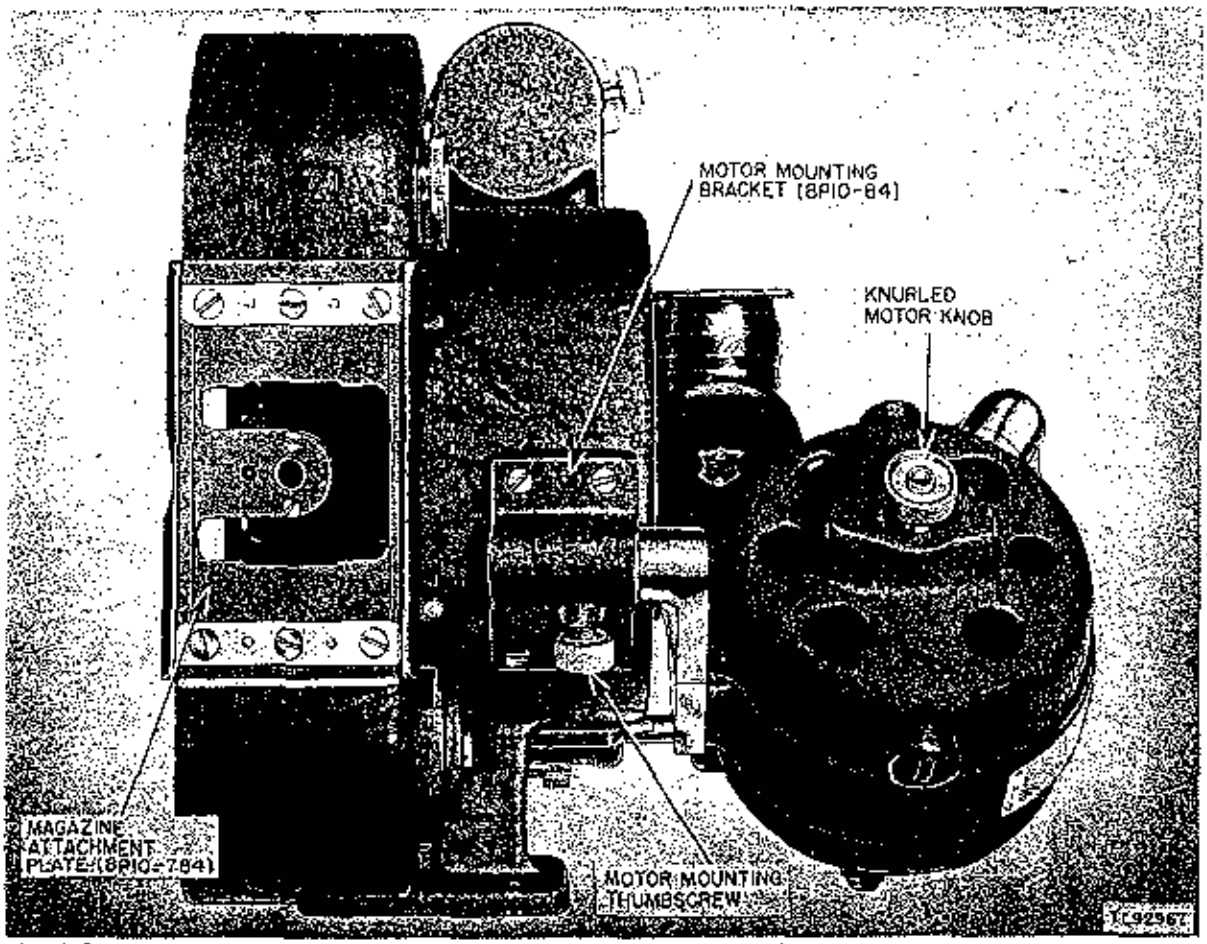


Figure 33. Camera PH-330-G, with electric motor attached, rear view.

engagement of the motor coupling shaft with the operating mechanism.

g. Connect the power cable assembly by fitting the cable plug cap into the plug cap receptacle at the top of the motor (fig. 7), and attaching the twist lock plug at the other end of the cable (fig. 7) to the receptacle of battery Case PH-403.

CAUTION: When direct current is used, *check the line voltage and frequency* with the specifications indicated on the nameplate of the motor.

h. Set the governor speed dial at the desired speed.

i. Keep the cable operating switch (fig. 7) in the OFF position until ready for shooting. After threading, switch to ON to operate the camera mechanism.

55. LOADING MAGAZINE.

The loading of the magazine must be done in a darkroom or changing bag before the magazine is mounted on the camera. When using a 200-foot load in the 400-foot magazine, the wooden core on which the film is originally wound must be replaced by the metal or plastic spool provided in the magazine. Large-sized film rolls are already packed with the proper metal core. The recommended procedure for darkroom loading follows.

a. Place the magazine, cover side up, with the coupling plate (fig. 14) away from the operator. Unscrew both magazine cover plates (fig. 14) by pressing three or four fingers firmly into the circular depressions on the plates, and turning counterclockwise.

b. Insert the spur-shaped end of the valve opening clip into the aperture on the magazine

coupling plate as illustrated in figure 14. Bring the clip handle flush with the side of the magazine and secure the metal loop at the upper end over the edge of the magazine. The clip should be in this position throughout the loading operation to keep the film light valves open.

NOTE: In the latest issues a lever key (Signal Corps stock No. 8P10-529) is substituted for the valve opening clip.

c. Unwind from 12 to 14 inches of film, to allow for complete threading from the feed spool to the coupling plate and back again to the take-up spool.

d. Guide the free end of the film through the feed compartment valve and out beyond the coupling plate and drop the film spool onto the feed spindle.

e. Make a loop of approximately 8 inches (emulsion side out) and thread the film back into the lower valve to the take-up compartment (fig. 14). Crimp the first quarter-inch of the film and insert the end of the film in the take-up spool slot. Fasten it securely by revolving the spool counterclockwise with the hand. Do not wind the loop back into the magazine.

f. Screw back the magazine cover plates. Remove the valve opening clip. Check the loop outside the magazine; if less than 8 inches long, draw the required amount from the feed spool.

56. MOUNTING MAGAZINE.

The mounting of the magazine is a second stage in loading and threading the camera, and may be performed in daylight. To attach the magazine to the camera, first unscrew the magazine attachment plate cover (fig. 5) on the rear of the camera frame. Slip the magazine film loop into the camera, fitting the loop over and around the U-shaped portion of the magazine attachment plate (fig. 33). Bring the magazine into place against the attachment plate, with the magazine cover plates facing the same side as the camera door. Fasten the magazine firmly against the attachment plate by tightening the large knurled knob on the rear of the magazine (fig. 13). Insert one end of the spring driving belt (fig. 2 (13)) into the opening in the magazine belt pulley housing (fig. 5) and feed the belt over the pulley until it emerges at the other opening. Fasten both ends of the belt together securely, check the joined ends for kinks, and slip the loop thus formed over the lower, or take-up magazine pulley (fig. 7). Make sure that the belt is neither too tightly nor too slackly mounted on the pulleys.

57. THREADING CAMERA (WITH MAGAZINE).

Threading with the large magazine (fig. 13) is essentially the same process as threading with the small magazine, except for the differences noted below. Open the camera door and pull back the gate arm (fig. 25), placing tension on the spring by hand-winding the motor, or turning the knurled knob on the back of the electric motor (fig. 33) until the shuttle teeth are in the lower and engaged position. Proceed to thread the loop of film from the magazine in the manner already described (par. 38). The upper loop, however, should be 10 sprocket holes instead of 9, and the lower loop should be 12 holes instead of 11. The additional sprocket hole in each case will be taken up by the tension of the magazine. Close the camera door. Note that the camera door latches actuate a plunger which opens the film light valves of the magazine when the door latches are turned to the CLOSED position. The film then may pass freely from the magazine to the camera and back. Conversely, the door latches in the OPEN position automatically lock the magazine light valves, eliminating stray light and film fog.

58. MISCELLANEOUS OPERATING FEATURES, CAMERA PH-330-(*).

Various operating features not included on Camera PH-330-G give rise to the following differences in operation.

a. Single Lens Cameras. Cameras PH-330-A and -H are single lens models, with no provision for multiple lens mount (pars. 29a and 30a). Lens mounts for these cameras, vary slightly from the mounts fitted to the other models in this series. The lenses therefore, are not interchangeable with the lenses of other models. Lenses are similarly installed and locked in the single lens mount seat, and require an identical focusing procedure. Lenses of varied focal lengths may be used wherever available (par. 45).

b. Ratchet Winding Key. The non-rotating ratchet winding key (fig. 12 (1)) and the geared winding crank (fig. 12 (4)) are furnished with

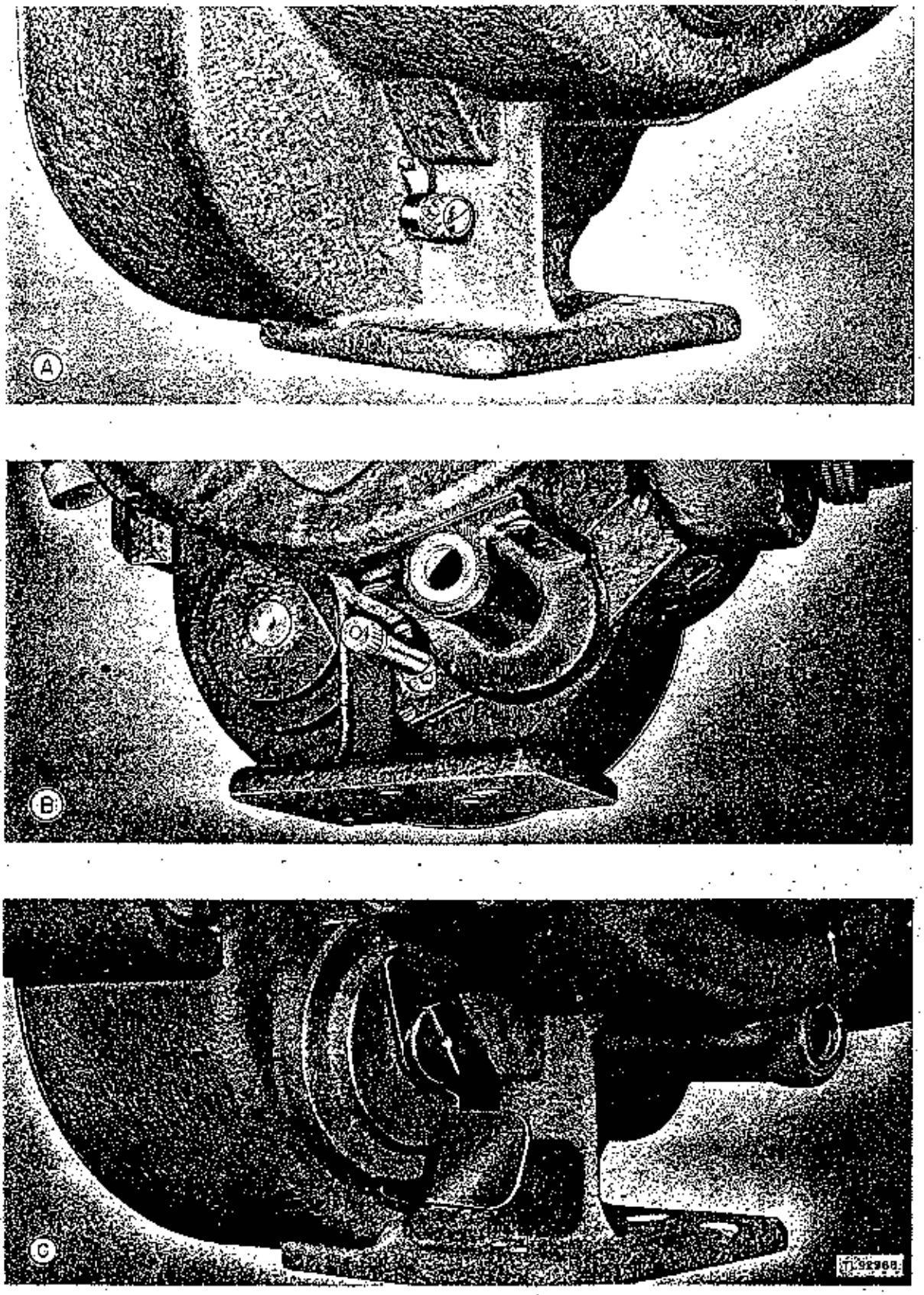


Figure 34. Operating lever devices, Cameras PH-330-A, -G, and -H.

Cameras PH-330-H and -A (bombspotter model). When winding with the ratchet key, use the weight of the camera itself for leverage, rather than relying solely on hand operation. The key is semipermanently attached, with a wing handle that may be folded back against the camera when not in use.

c. Geared Winding Crank. The geared winding crank provided with Cameras PH-330-H and -A (bombspotter model) is semipermanently attached and collapsible. When not in use it is extended full length against the side of the camera, with the wooden handle fitted into the curve of the coupling housing (fig. 23) at the base of the camera. When in use, the crank is folded upward on itself, with the wooden handle away from the camera housing. After each winding, the handle should be allowed to spring back to the extended position and should be locked into place with the crank holder (fig. 23). Otherwise, the crank will hinder operation while the camera is running.

d. Compact Turret. Caution should be used in mounting two or more lenses of any appreciable focal-length variation on the compact lens turret because the barrels are certain to interfere with one another's field. For example, a 4-inch lens cannot be used at all with a standard 47-mm lens, because of actual physical interference. A 3-inch lens may be mounted with a 47-mm lens, but must be removed when shooting with the 47-mm lens since it interferes with the field of view. In point of actual practice, the three-lens compact turret is virtually as limited as the single lens camera, and is used most safely with a single lens mount only.

e. Filter Channel. Camera PH-330-H is provided with a special filter channel on the upper left-hand portion of the camera head behind the lens (fig. 19). Rectangular metal filter holders with an aperture for gelatin filters (fig. 23) are dropped directly into the slot (fig. 23) from above. Models of Camera PH-330-A have a filter slot on one side for insertion of the filter holder.

f. Operating Lever Devices. A previous model of Camera PH-330-H is equipped with a flat operating trigger convenient for thumb operation, but not adapted to rough handling in the field. It has since been supplanted by an operating lever device similar to that in general use with Camera PH-330-(*) (fig. 34).

g. Viewfinder PH-532/UF (Vario-focus). For full details concerning the installation, operation, and maintenance of this viewfinder, see TB Sig 159, Viewfinder PH-532/UF.

SECTION V
EQUIPMENT PERFORMANCE CHECK LIST

59. CAMERA PH-330-G (HAND-HELD).

	Item No.	Item	Action or condition	Normal indication	Checks and corrective measures
PREPARATORY	1	Film chamber (100-foot load)	Loaded and threaded as directed (par. 38) for daylight or darkroom.	See threading pattern (fig. 29). Upper loop 9 sprocket holes, lower loop 11 holes.	Alter shape and size of loop as needed.
	2	Camera door	Locked for shooting.	Latched in CLOSED position.	
	3	Spring motor drive	Wound for shooting.	Fully wound after every shot.	
	4	Footage dial	Set for shooting.	Dial reads 0.	See par. 40.
	5	Governor speed dial	Set for shooting speed.	Dial at 24 frames for normal run.	See par. 41 for other speeds.
	6	Relative exposure indicator	Set for *f*/stop calculation (optional use).	Inner and outer dials correlated as directed (par. 42).	
	7	Lens and mount	Correctly selected for focal length and angle.		
			Mounted for shooting.	Seated and locked in lens mount seats.	See par. 58d for multiple mounting with compact turret.
			Set at required *f*/stop.	Diaphragm collar rotated to desired *ff* number.	Check for slippage.
			Focused for shooting.	Focusing collar at required calibration for distance.	Tighten focusing lock clamp screw.
	8	Filter and filter holder	Mounted for shooting.	Mounted in filter holder, lens mount, or lens hood, as directed (par. 46).	Set *f*/stop to compensate for filter factor.
	9	Turret (spider)	Rotated and locked for shooting.	Correct turret arm in position before aperture.	Check arm for correct lens. Lock turret knob.
	10	Turret (compact)	Rotated and locked for shooting.	Correct lens in photographing position.	Check multiple lens mount for interference.
	11	Camera carrying handle	Hand-held for shooting.	Strap and handle in position as directed. Thumb on operating lever.	Avoid using wrist strap under hazardous conditions.
	12	Viewfinder (general)	In position for shooting.	Camera braced against forehead and nose. Left eye at finder eyepiece.	Correct for parallax for distances closer than 6 feet. Align camera to frame scene in viewer.

	Item No.	Item	Action or condition	Normal indication	Checks and corrective measures
	12a	Turret viewfinder	Rotated and adjusted for viewing.	Correct finder lens in position before eyepiece.	Check correspondence of finder lens and shooting lens.
	12b	Drum viewfinder	Rotated and adjusted for viewing.	Correct matte on drum in 9 o'clock position.	Check correspondence of matte and shooting lens.
	12c	Auxiliary viewfinder	Mounted and adjusted for viewing with lens of long focal length.	See instructions for mounting (par. 49c).	Check eyepiece and lens elements.
START	13	Operating lever	Depress to start camera mechanism.	Characteristic sound of film driving mechanism.	Check for jam and motor wind if mechanism stops.
			Lock lever for continuous run.	Lever depressed and knob pushed clockwise.	Retain hold on lever for instant unlocking action.
	14	Footage dial	Registers footage exposed.	Rotation when camera is operating.	Take dial reading before and after operating.
STOP	15	Operating lever	Release or unlock to stop mechanism.	Film driving mechanism silent.	Do not jar mechanism to unlock lever. Maintain steady camera hold.
	16	Footage dial	Note footage exposed and remaining.	New footage reading.	Check by large center dot above dial.
	17	Spring motor drive	Wind spring fully.		Full rewind after each shot.

60. CAMERA PH-330-G (WITH TRIPOD, ELECTRIC MOTOR, AND MAGAZINE ATTACHMENTS).

	Item No.	Item	Action or condition	Normal indication	Checks and corrective measures
PREPARATORY	1	Tripod PH-520/U	Set up with alignment gauge and camera as directed (pars. 50 and 51).	Tripod head level with horizon.	
	2	Alignment gauge	In viewing position.	Racked over to left of gauge.	Check for position.
			In shooting position.	Racked over to right of gauge.	Check for position.
	3	Prismatic focusing magnifier.	In viewing position.	Correct lens and turret arm in position before magnifier.	Check diopter adjustment of eyepiece. Adjust lens focusing collar for sharp image on ground glass. Compose scene. Lock lens collar. Readjust diaphragm.

	Item No.	Item	Action or condition	Normal indication	Checks and corrective measures
PREPARATORY			In shooting position.	Focused lens and turret arm in position before exposure aperture.	Check for position, seating of lens, and lens lock.
	4	Spider turret	Turret arm rotated for viewing.	Correct lens and turret arm before magnifier.	Check turret arm for correct selection for lens and position.
			Turret arm rotated for shooting.	Lens focused in magnifier before exposure aperture.	
	5	Electric motor	Mounted and connected for electric motor drive.	Motor mounting shaft snug in motor mounting bracket; coupling shaft engaged with camera mechanism.	Spring motor unwound. Operating lever locked in ON position.
				Power cable assembly connected to battery and camera.	
				Power cable switch on OFF position.	
	6	Magazine attachment (400-foot)	Load magazine as directed (par. 55).	8-inch loop outside magazine with emulsion side out. Cover plates replaced.	Load in darkroom. Check loop size. Use valve opening clip as directed (par. 55b).
			Mount magazine as directed (par. 56).	Magazine flush with camera. Cover plates face camera door.	Tighten magazine knob. Check film loop around coupling plate.
			Thread magazine as directed (par. 57).	See threading pattern. Upper loop 10 sprockets. Lower loop 12 sprockets.	Check loop size. Camera door in CLOSED position.
	7	Driving spring belt	Fastened for magazine drive.	Around magazine take-up pulley and camera drive pulley.	Check belt for kinks and tension.
		For all other adjustments see check list for hand-held operation (par. 59).			
START	8	Cable assembly switch	Switch to ON position.	Characteristic motor driving sound. Rotation of footage dial, pulleys, and spring belt.	Check footage dial. Note when and how often 0 is passed.
	9	Tripod PH-520/U	Pan and tilt as needed.		Do not jar tripod when using. Use upper half of body to pan and tilt. Avoid foot movement. Follow scene in viewfinder.
STOP	10	Cable assembly switch.	Switch to OFF position.	Motor, footage dial, and pulley movement off.	

Nr.: 04 - Cameflex Eclair CM3

Cameflex Eclair CM3

This Éclair Cameflex CM3 16/35mm camera features: spinning mirror reflex view-finding, a bright orientable viewfinder, a 3-lens turret, and includes two 400' 35mm displacement magazines, a variable speed motor, an original Eclair aluminum tripod and friction head, and an Eclair quick release baseplate with Iris Rods and Matte Box. The 3lens turret features 1 Nikon lens mount and 2 Eclair lens mounts. (The Nikon lens is shown for demonstration purposes and is sold separately.) The camera is in very good, clean condition and ready for your production.

In 1945, Jacques Mathot and André Coutant designed the Caméflex motion picture camera. The Caméflex became a favorite of the French New Wave cinema movement. In the U.S., the camera was called the Camerette/CM3, and was honored with an Academy Award for its unique and versatile design in 1949. Éclair continues to operate today as a post-production and film preservation company.

Cameflex Eclair CM3

Diese Éclair Cameflex CM3 16/35-mm-Kamera verfügt über einen drehbaren Spiegelreflexsucher, einen hellen, ausrichtbaren Sucher, einen Dreifach-Objektivturm und umfasst zwei 400-Fuß-35-mm-Magazine, einen Motor mit variabler Drehzahl, ein originales Eclair-Aluminiumstativ mit Friktionskopf sowie eine Eclair-Schnellwechselplatte mit Irisstangen und Matte Box. Der Dreifach-Objektivturm verfügt über 1 Nikon-Objektivfassung und 2 EclairObjektivfassungen. (Das Nikon-Objektiv dient nur zu Demonstrationszwecken und ist separat erhältlich.) Die Kamera ist in sehr gutem, sauberem Zustand und einsatzbereit für Ihre Produktion.

1945 entwarfen Jacques Mathot und André Coutant die Caméflex-Filmkamera. Die Caméflex wurde zu einem Favoriten der französischen Nouvelle-Vague-Kinobewegung. In den USA wurde die Kamera Camerette/CM3 genanntund 1949 für ihr einzigartiges und vielseitiges Design mit einem Oscar ausgezeichnet. Éclair ist auch heute noch als Postproduktions-

und Filmkonservierungsunternehmen tätig.

Nr.: 05 - Photo-Sonics 4ER High-Speed 35mm camera movement

Photo-Sonics 4ER High-Speed 35mm camera movement as a demonstration model

This is a working demonstration model of a film transport system for a Photo-Sonics 4ER 35mm high-speed camera. This camera was designed for use by the US military and was later also used by the German Armed Forces. The transport mechanism has 12 transport and 4 locking bolts. The film was sucked in by negative pressure for stabilization after further transport. Frame rates of 6 up to 360 frames per second were possible.

Photo-Sonics 4ER High-Speed 35mm Kamera Movement als Demonstrationsmodell

Das ist ein funktionierendes Demonstrationsmodell eines Filmtransportwerk-Systems einer Photo-Sonics 4ER 35mm High-Speed Kamera. Diese Kamera war für den Einsatz beim US Militär konzipiert und wurde später auch bei der Bundeswehr eingesetzt. Das Transportwerk verfügt über 12 Transport- und 4 Sperr-Riegel. Der Film wurde zur Stabilisierung nach dem Weitertransport durch Unterdruck angesaugt. Es waren Bildraten von 6 bis 360 Bilder pro Sekunde möglich.

Nr.: 06 - Photo-Sonics 70mm camera movement

Photo-Sonics 70mm camera movement

This is a film transport system for a Photo Sonics 10A 70mm camera. This camera was designed for use by the US military and was later also used by the German Armed Forces. The transport mechanism has 6 transport and 2 locking bolts. The film was sucked in by negative pressure for stabilization after further transport. Frame rates of up to 80 frames per second were possible.

Photo-Sonics 70mm Kamera Transportwerk

Das ist ein Filmtransportwerk einer Photo Sonics 10A 70mm Kamera. Diese Kamera war für den Einsatz beim US Militär konzipiert und wurde später auch bei der Bundeswehr eingesetzt. Das Transportwerk verfügt über 6 Transportund 2 Sperr-Riegel. Der Film wurde zur Stabilisierung nach dem Weitertransport durch Unterdruck angesaugt. Es waren Bildraten von bis zu 80 Bilder pro Sekunde möglich.

Nr.: 07 - Debrie High Speed 35mm Model F

Debrie High Speed 35mm Model F

Debrie GV highspeed cinecamera, model F for 35mm film. Normally hand turned, but modified by Arthur Kingston for electric motor drive. Speed contiunuously variable up to 200 fps, shutter angle automatically adjusts as speed is altered to compensate expsure. Reflex focusing; battery lead, control handle.

Debrie High Speed 35 mm Modell F

Debrie GV Hochgeschwindigkeits-Filmkamera, Modell F für 35-mm-Film. Normalerweise handbetrieben, aber von Arthur Kingston für den Antrieb durch einen Elektromotor modifiziert. Stufenlos einstellbare Geschwindigkeit bis zu 200 fps, Shutter Angle passt sich automatisch an die Geschwindigkeit an, um die Belichtung auszugleichen. Reflexfokussierung; Batteriekabel, Steuergriff.

Some words of the camera owner Dedo Weigert / Munich:

The Debrie high-speed camera 35 mm, which I was told was used last time 1928 in the famous fight by the boxer Joe Lewis. This was a camera in the collection and possession of Chick Hyman from Camera-Mart in New York. When they closed down, I bought a number of his cameras. So, with this story behind it, it may have some historical value.

Einige Worte des Kamerabesitzers Dedo Weigert / München:

Die Debrie-Hochgeschwindigkeitskamera 35 mm, die, wie mir gesagt wurde, zuletzt 1928 bei dem berühmten Kampf des Boxers Joe Lewis verwendet wurde. Diese Kamera gehörte zur Sammlung von Chick Hyman von Camera-Mart in New York. Als das Geschäft geschlossen wurde, habe ich einige seiner Kameras gekauft. Mit dieser Geschichte im Hintergrund hat sie vielleicht einen gewissen historischen Wert.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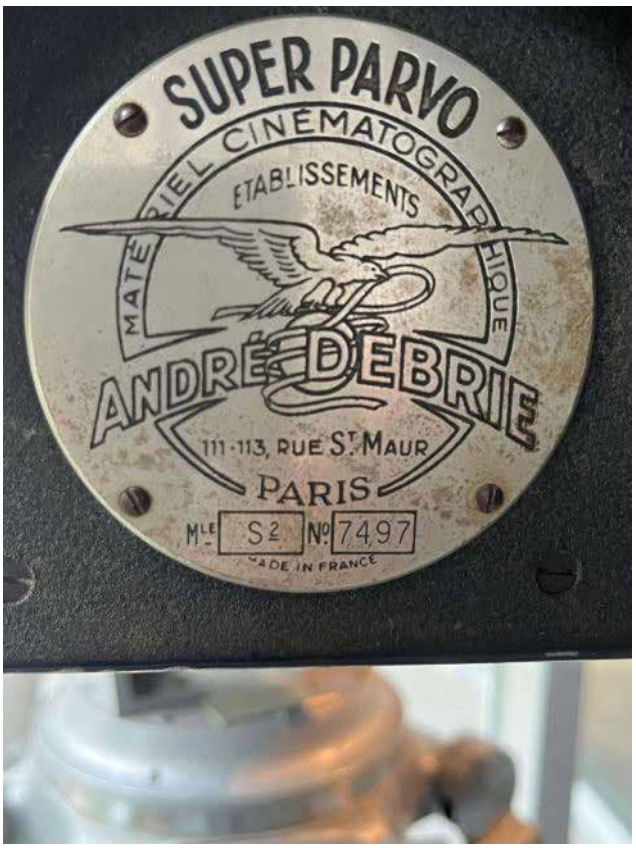
CAMERA
MOTOR
MODEL
NO.
CREW

Nr.: 08 - Super-Parvo-Color Camera, c. 1955 André Debrie, Paris.



~~Super-Parvo-Color Camera, c. 1955 André Debrie, Paris.~~

Noise-absorbing 35mm movie sound studio camera for two 300-meter film cartridges , driven by Debrie 380 volt synchronous motor for 24 frames per second. Incl. Cooke lens set. A reflex picture finder enables control of the image on the back. The camera is mounted to a wooden tripod. Electrical functions untested. - The Super-ParvoColor camera was the most important post-war sound movie camera in Europe.

Super-Parvo-Color-Camera, um 1955André Debrie, Paris.

Geräuschgedämpfte Atelierkamera für 35mm-Film in zwei Kassetten à 300 m. Eingebauter Debrie-Synchronmotor für 24 B/Sek. Schalter und Stecker an der Kamera. Inklusive Cooke Objektiv Set. Suchersystem: rotierender Reflexspiegel auf dem verstellbaren Umlaufsektor. Das Mattscheibenbild kann über die Fernrohrlupe an der Kamerarückseite betrachtet werden. In der Kamera Schrittschaltwerk mit zwei Zug- und Sperrgreifern. Die Kamera steht auf einem Holzstativ. Inklusive des KameraKoffer´s und einem Zubehörkoffer u.a. mit Kompendium und einem Set Cooke Objektiven. - Elektrische Funktionen nicht geprüft.

The increased use of color film from 1950 onwards prompted André Debrie to build the Super-Parvo-Color SLR camera, a marvel of French precision engineering. The large body was necessary to accommodate the higher sensitivity of studio microphones at the time. From the early 1950s to the 1970s, the major film companies in Europe worked with Super-Parvo-Color cameras (CCC-Film Berlin, Bavaria Munich, Studio Hamburg, Wien-Film, DEFA Babelsberg, and many others). Many successful productions, such as the “Sissi” trilogy with Romy Schneider, “Der Hauptmann von Köpenick” with Heinz Rühmann, and “Eine Pariserin” with Brigitte Bardot, were filmed with such Super Parvo cameras. A camera type with a background in film history.

Der ab 1950 verstärkte Einsatz von Farbfilmen nötigte die Firma André Debrie zum Bau der Spiegelreflexkamera Super-Parvo-Color, einem Wunderwerk französischer Feinmechanik. Das große Gehäuse wurde notwendig für die inzwischen höheren Empfindlichkeiten der Studiomikrophone. Die großen Filmgesellschaften Europas arbeiteten ab Beginn der 50er-Jahre bis in die 70er-Jahre mit Super-Parvo-Color-Kameras (CCC-Film Berlin, Bavaria München, Studio Hamburg, Wien-Film, DEFA Babelsberg u.v.a.). Viele erfolgreiche Produktionen wie die "Sissi"-Trilogie mit Romy Schneider, "Der Hauptmann von Köpenick" mit Heinz Rühmann und "Eine Pariserin" mit Brigitte Bardot wurden mit solchen Super-Parvo-Kameras photographiert. Ein Kameratyp mit filmgeschichtlichem Hintergrund.

Nr.: 09 - Doiflex-16 16mm Reflex Movie Camera

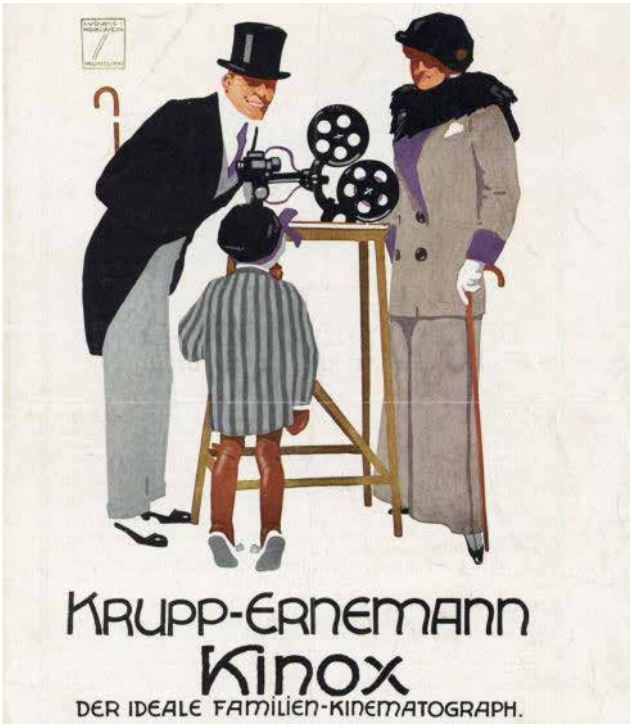
Doiflex-16 16mm Reflex Movie Camera

The Doiflex from 1960's is a rare Pro Japanese version of the Arriflex 16. It comes with a 3 lens turret and it's compact, light weight and very quiet. Weighs about the same as an Arri. This Camera will accept a 100ft roll.

Doiflex-16 16mm Reflex Film Kamera

Die Doiflex aus den 1960er Jahren ist eine seltene japanische Version der Arriflex 16. Sie verfügt über einen Dreifach-Objektivturm, ist kompakt, leicht und sehr leise. Sie wiegt etwa genauso viel wie eine Arri. Diese Kamera kann eine 100-Fuß-Filmrolle aufnehmen.

Nr.: 10 - Krupp Ernemann Kinox II Projector



Krupp Ernemann Kinox II Projector

Tabletop cinematograph for 2 reels of 35 mm film up to 500 m in length. Crank-operated film transport with Maltese cross. One turn of the hand crank transports 8 frames. Lamp housing for low-voltage lamp, Ernemann Pro-Anastigma 60 mm lens. Manufactured from 1919 in Dresden by Ernemann-Werke AG. Painted black and mounted on a wooden board.

Krupp Ernemann Kinox II Projektor

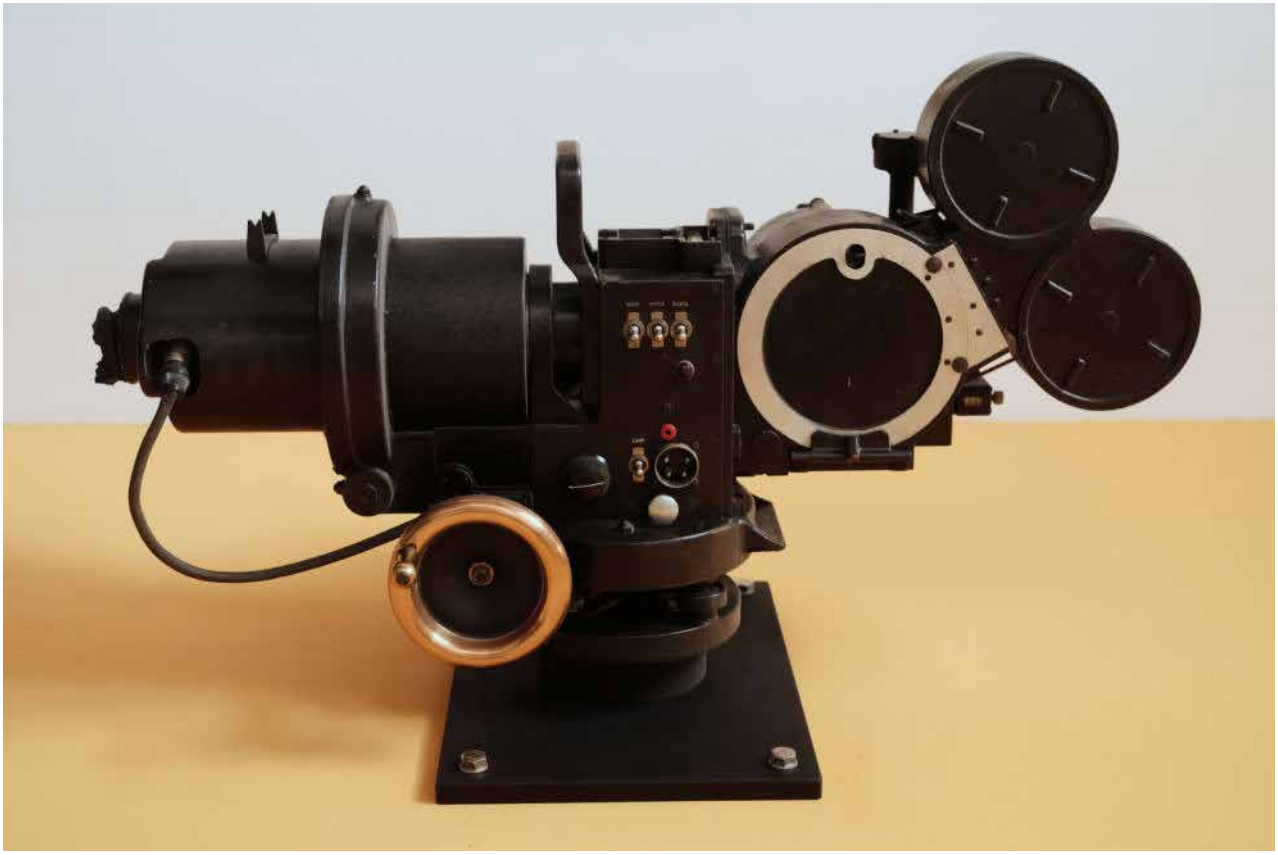
Tischkinematograph für 2 Spulen 35-mm-Film bis zu 500 m Länge. Kurbel betriebener Filmtransport mit Malteserkreuz. Mit einer Umdrehung der Handkurbel werden 8 Bilder transportiert.Lampengehäuse für Niedervoltlampe, Ernemann-Objektiv Pro-Anastigma 60mm. Hergestellt ab 1919 in Dresden bei ErnemannWerke AG. Schwarz lackiert und auf einem Holzbrett montiert.

Nr.: 11 - Mitchell Matte Box

Mitchell Matte Box


DWF EX3

Nr.: 12 - Mitchell Theodolite PH-BE-33 35 mm camera

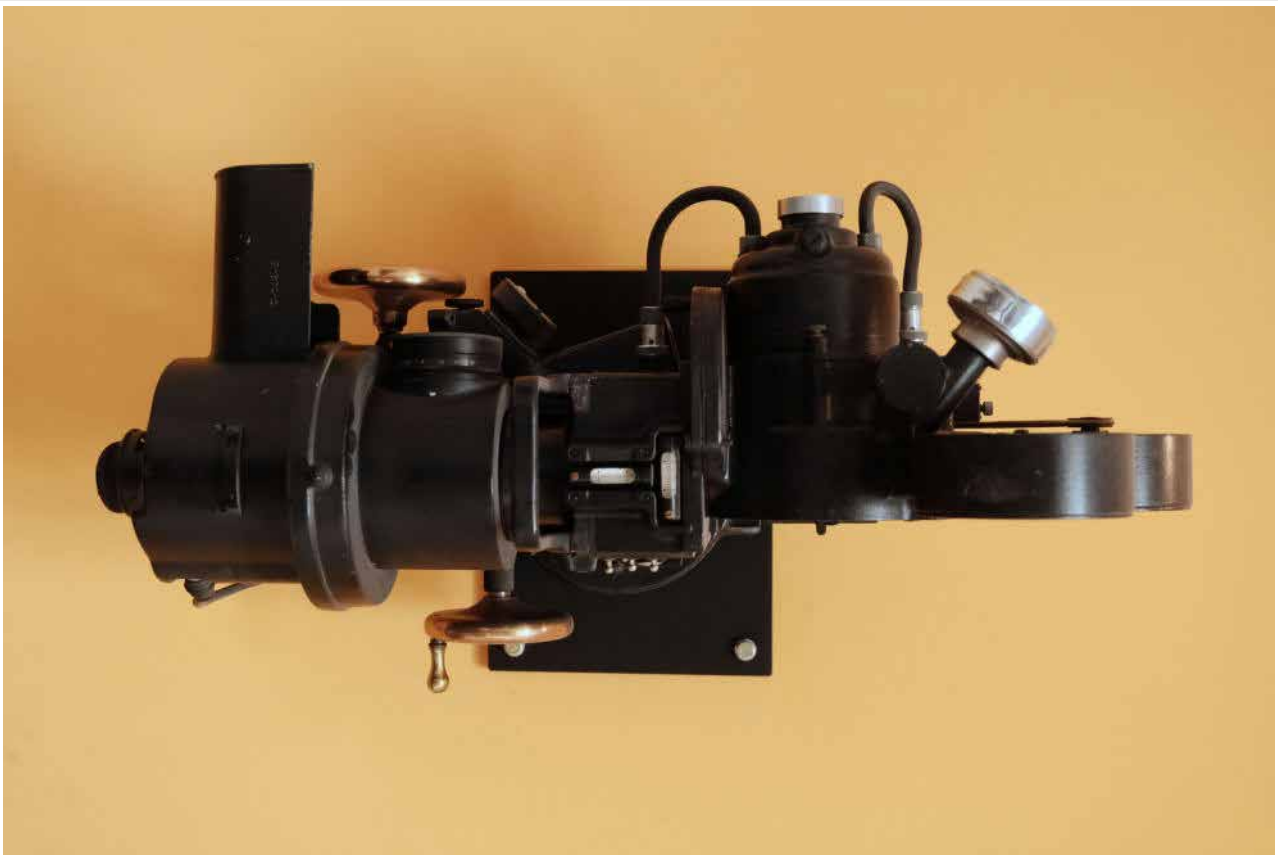


Mitchell Theodolite PH-BE-33 35 mm camera used by the Military Signal Corps during World War II

The Mitchell Theodolite PH-BE-33 35 mm camera used by the Military Signal Corps during World War II is powered by a 12-volt motor. This camera is large and heavy. Two sturdy cranks control its movement with precision.

Mitchell Theodolite PH-BE-33 35-mm-Kamera des Militärischen Fernmeldekorps aus dem Zweiten Weltkrieg

Die Mitchell Theodolite PH-BE-33 35-mm-Kamera des Militärischen Fernmeldekorps aus dem Zweiten Weltkrieg wird von einem 12-Volt-Motor angetrieben. Diese Kamera ist groß und schwer. Zwei solide funktionierende Kurbeln steuern die Bewegung präzise.



Nr.: 13 - NAC E-10 High Speed Camera

NAC E-10 High Speed Camera

The Nac E-10 is a high speed rotary prism 16mm camera with continuously selectable frame rates from 300-10000 fps. A beamsplitter behind the lens permits reflex viewing while the camera is running. A through the lens exposure indicator verifies proper exposure. Built-in event synchronization circuitry insures that the event is captured. The LED timing light system creates timing data marks on the edge of the film to enable determination of the precise camera speed during any frame or series of frames for motion analysis purposes.

Speed: 300-10, 000 fps / Shutter: 72 degrees fixed
Movement: Continuous film transport, rotary prism imaging
Film Specs: 16mm double perforations (2R), .2994 pitch
Magazines: 400 foot capacity, balanced cores required

NAC E-10 Hochgeschwindigkeitskamera

Die Nac E-10 ist eine Hochgeschwindigkeits-Rotationsprisma-16-mm-Kamera mit stufenlos wählbaren Bildraten von 300 bis 10.000 Bildern pro Sekunde. Ein Strahlteiler hinter dem Objektiv ermöglicht die Reflexionsbetrachtung während des Betriebs der Kamera. Eine Belichtungsanzeige durch das Objektiv überprüft die richtige Belichtung. Eine integrierte Ereignissynchronisationsschaltung stellt sicher, dass das Ereignis erfasst wird. Das LED-TimingLichtsystem erzeugt Timing-Datenmarkierungen am Rand des Films, um die genaue Kamerageschwindigkeit während eines beliebigen Bildes oder einer Bildserie für Bewegungsanalysezwecke zu bestimmen.


nac
notiz

High Speed Camera **nac** E-10

High speed camera is an excellent Engineering Analysis Tool to record phenomena happening in a moment on the film at high speed for observing and analyzing the details of the motion by replaying in slow motion.

nac E-10 can photograph up to 10000 fps (frames per second). The phenomena can be extended 625 times in time at 16 fps projection.

nac E-10 has been developed after searching the idea of "highest quality of rotating prism type of high speed camera". Herewith the ideal high speed camera has been developed.

nac E-10 has many characteristic features.

1. Excellent picture stability and sharp image assured.

- A dual sprocket drive system virtually eliminates image "bounce" or "jump" that has been defects of rotating prism type of high speed camera. The high quality image available from **nac** E-10 is compatible with that of intermittent type of high speed camera.
- Fast relay lens and high refraction prism make the total optics number F2.5. Such a fast optics is one of most characteristic features of this high speed camera.
- Interchangeable rotating disc shutter makes image quality improved.

2. Easy operation, wide variety photography.

- With bright, high magnified continuous reflex viewfinder, framing and focusing is extremely easy. Continuous reflex viewing is available only with **nac** E-10 among rotating prism type high speed cameras.
- Higher frame rate is available with half and quarter height frame photography by easily interchanging rotating prism.
  4 sided rotating prism (full frame) 300-10,000 fps
  8 sided rotating prism (1/2 frame) 600-20,000 fps
  16 sided rotating prism (1/4 frame) 1,200-40,000 fps
- Streak photography is available.
  A combination of slit and fixed prism can provide streak photography.

3. Many functions are incorporated for better analysis.

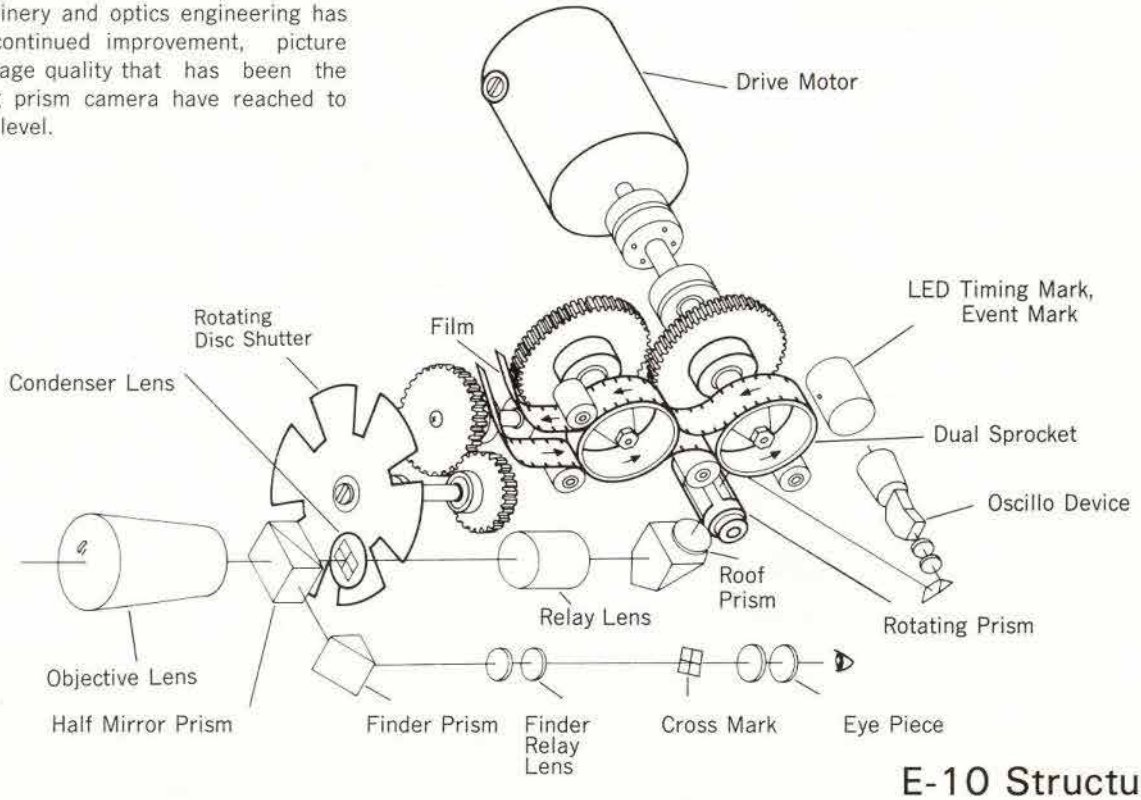
- Optics for recording oscilloscope image simultaneously on the film is available.
- Reference cross mark can be photographed.
- Halfway stop of film is available (up to 3000 fps).
  The film footage exposed can be displayed in digital.
- A pulse can be triggered corresponding to each frame.
- Timing mark and event mark can be recorded.
  Precise timing information in 100 and 1000 Hz can be recorded on one edge of film by crystal controlled timing pulse generator. Event mark to show the phenomena occuring time can be recorded on the other edge of the film.

4. Latest electronic controller.

The electronic controller was designed with easy and correct operation. Test run switch, real time speed indicator, event mark sync lamp, and digital footage counter are laid out on the operation control panel for easy and confirmed operation.

- Speed is regulated in the range from low speed to maximum speed.
- Film acceleration to the frame rate set is very fast and film runs at constant speed after the speed reaches to the frame rate set.
- Synchronization with the phenomena can be all made in digital. Pre-start that camera controls the phenomena and post-start that the phenomena controls the camera can be set in digital.
- Real time frame rate indicator, for the first time with high speed camera in the world, can be displayed on the panel. It is the indicator of sense of relief.

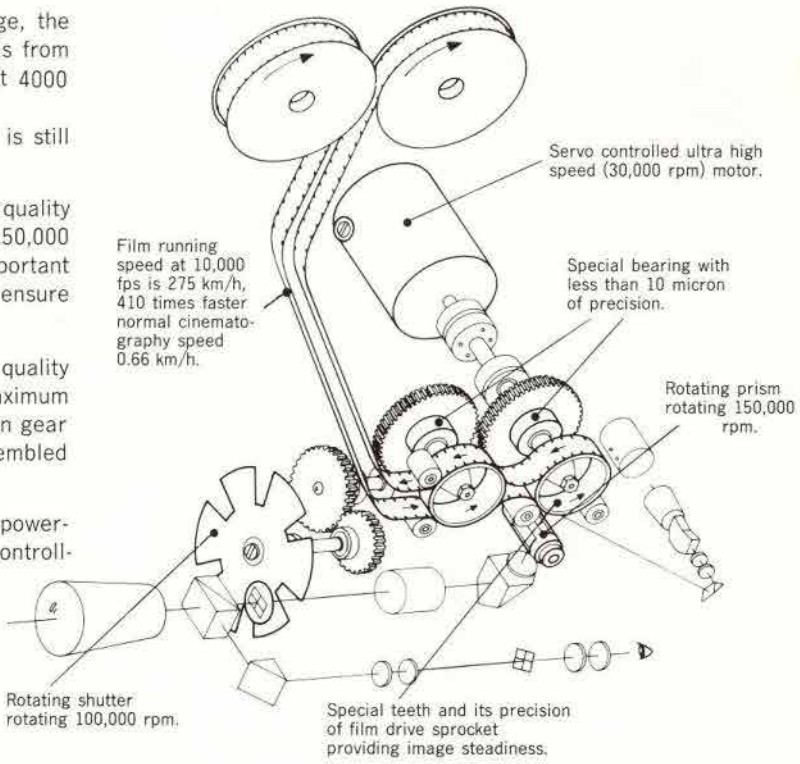
nac E-10 rotating prism camera is the fine result that Japan's machinery and optics engineering has produced. With continued improvement, picture steadiness and image quality that has been the subject of rotating prism camera have reached to the world highest level.



E-10 Structure

nac E-10's excellent design

- 16mm cine film used in high speed photography is very delicate. In normal cinematography of 24 fps, the film runs at 0.66 km/h in the camera. In the high speed photography of 10,000 fps with **nac** E-10, the film runs at 275 km/h. It has been considered difficult to have stabilized image same as the normal speed cinematography.
- Without damaging the film by scratches or breakage, the speed reaches the maximum speed in 1.8 seconds from the start and the camera finishes photography about 4000 frames (30 meter length) at the stabilized speed. At such the maximum frame rate, the image quality is still assured.
- **nac** E-10 high speed camera incorporates highest quality optics, high precision 4 sided rotating prism (max. 150,000 rpm), special bearing to support prism assy and important high precision dual sprocket with special teeth to ensure image stability.
- Rotating disc shutter effective for improving image quality and shutter effect rotates at 100,000 rpm. (The maximum rotation speed is "Mach 1"). Excellent high precision gear and all mechanical parts are manufactured and assembled with strict inspection.
- **nac** E-10 developed with combination of compact powerful, ultra high speed motor (maximum 30,000 rpm) controlled by latest electronic technology.



Nr.: 14 - Photo-Sonics, Inc. 35mm 4ER high-speed film camera

Photo-Sonics, Inc. 35mm 4ER high-speed film camera

The Photo-Sonics 4ER runs from 6 to 360 fps. It uses a reflex viewing system with a Jurgens/Arri orientable viewfinder and a shuttered video tap. The 4ER uses an intermittent movement with 12 pull down claws and 4 registration pins. There is a rotary disc type 120 degree shutter that is adjustable in 5 degree increments (between 5 and 50 degrees and 10 degrees between 50 and 120 degrees). The Aperture is .724 x .986 inches and will hold various ground glass types. The 4ER uses 1000 foot magazines, BNCR or Panavision mounted lenses.

Photo-Sonics, Inc. 35-mm-4ER Hochgeschwindigkeits Filmkamera

Die Photo-Sonics 4ER läuft mit 6 bis 360 Bildern pro Sekunde. Sie verwendet ein Reflex-Sichtsystem mit einem schwenkbaren Sucher von Jurgens/Arri und einem Videoausgang mit Verschluss. Sie verwendet eine intermittierende Bewegung mit 12 Pull-Down-Klauen und 4 Registrierungsstiften. Es gibt einen rotierenden Scheibenschutter mit 120 Grad, der in 5-Grad-Schritten einstellbar ist (zwischen 5 und 50 Grad und 10 Grad zwischen 50 und 120 Grad). Die Blende beträgt 0,724 x 0,986 Zoll und ist für verschiedene Arten von Mattscheiben geeignet. Die 4ER verwendet 1000-FußMagazine, BNCR- oder Panavision-Objektive.

This camera is used very heavily in the entertainment industry in movies, commercials, and music videos and the hard part is that it requires 200-250 VAC Single Phase 60 hz @ 35 amps. You have to keep a great deal in mind when picking exposures for the high speed camera. Here is how this chart works. At the frame rate indicated on the left, you compensate your normal 24 fps exposure with the number under the column called "Stop Comp w/BeamSplitter. So if you would have exposed an f4 at 24 fps and you want to shoot at 90fps, you subtract 2.9 stops. Basically, the shutter is typically at 120 degrees and the beam splitter are the cause for the compensation.

Diese Kamera wird in der Unterhaltungsindustrie in Filmen, Werbespots und Musikvideos bis heute sehr häufig eingesetzt und der schwierige Teil ist, dass sie 200-250 VAC Einphasenstrom mit 60 Hz bei 35 Ampere benötigt. Bei der Auswahl der Belichtung für die Hochgeschwindigkeitskamera müssen Sie viele Faktoren berücksichtigen. So funktioniert diese Tabelle: Bei der links angegebenen Bildrate kompensieren Sie Ihre normale 24-fps-Belichtung mit der Zahl unter der Spalte „Stop Comp w/BeamSplitter“ (Kompensation mit Strahlteiler). Wenn Sie also mit f4 bei 24 fps belichtet hätten und mit 90 fps aufnehmen möchten, ziehen Sie 2,9 Blendenstufen ab. Grundsätzlich liegt der Verschluss normalerweise bei 120 Grad, und der Strahlteiler ist der Grund für die Kompensation.

Frame Rate	X Speed	Exposure Time	Stop Comp w/ Beamsplitter	1000' Run Time
24 fps	1x24 fps	1/72	- 1.0 stop	11.10 Min
48 fps	2x24 fps	1/144	- 2.0 stop	5.50 Min
60 fps	3x24 fps	1/180	- 2.3 stop	4.40 Min
90 fps	4x24 fps	1/270	- 2.9 stop	2.96 Min
120 fps	5x24 fps	1/360	- 3.3 stop	2.22 Min
140 fps	6x24 fps	1/420	- 3.7 stop	1.66 Min
160 fps	7x24 fps	1/480	- 3.7 stop	1.66 Min
180 fps	8x24 fps	1/540	- 3.9 stop	1.48 Min
200 fps	8x24 fps	1/600	- 4.0 stop	1.33 Min
220 fps	9x24 fps	1/660	- 4.2 stop	1.21 Min
240 fps	10x24 fps	1/720	- 4.3 stop	1.11 Min
260 fps	11x24 fps	1/780	- 4.4 stop	1.02 Min
280 fps	12x24 fps	1/840	- 4.5 stop	57. Sec
300 fps	13x24 fps	1/900	- 4.6 stop	53. Sec
320 fps	13x24 fps	1/960	- 4.7 stop	50. Sec
340 fps	14x24 fps	1/1020	- 4.8 stop	47. Sec
360 fps	15x24 fps	1/1080	- 4.9 stop	44. Sec

Nr.: 15 - Redlake Hycam II 16mm High Speed

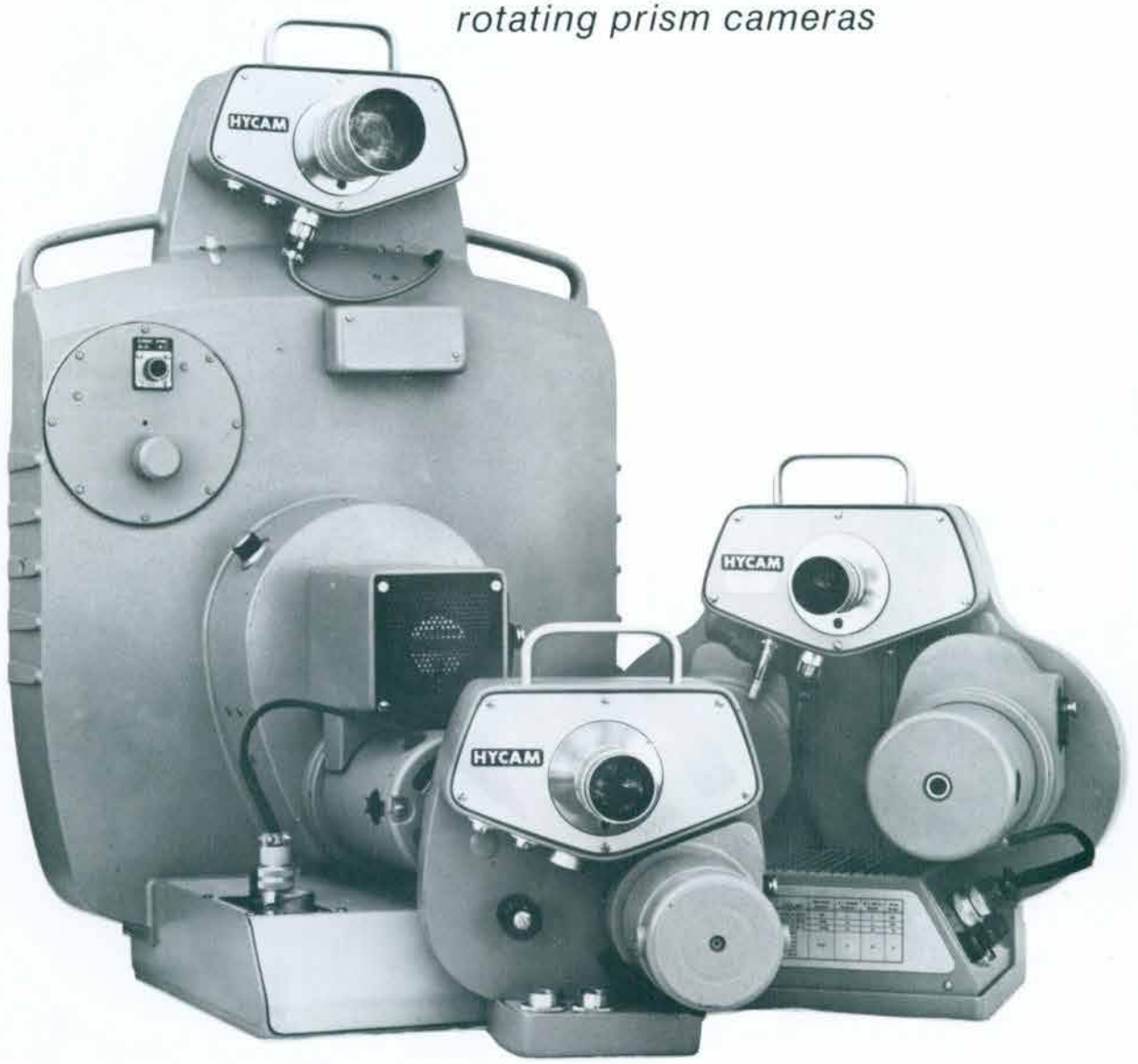
1965. Vintage Redlake Hycam II 16mm High Speed Military Camera Model 41-0064.

REDLAKE CORPORATION

PRECISION PHOTO-INSTRUMENTATION SYSTEMS

the HYCAM® II

family of high speed 16mm rotating prism cameras



REDLAKE CORPORATION 15005 Concord Circle, Morgan Hill, California 95037 (408) 779-6464 Telex 757592

The Redlake Corporation Hycam II family of rotating prism cameras represents the latest advances in high speed camera design technology. The Hycam II incorporates a completely new generation electronic control system with speed regulation over the camera's entire range including its top speed of 11,000 frames per second.

The Hycam II is available in various AC & DC models with 100, 400 & 2,000 foot film capacities. This broad range of model configurations provide the flexibility to meet varying photo-instrumentation needs. Camera speeds up to 44,000 frames per second are achieved with interchangeable optical heads that provide full, 1/2 & 1/4 frame formats.

The benefits and features of the Hycam II exceed anything available in todays marketplace. But the proof of any high speed camera is the confidence level established in a day to day operation. Reliability is synonymous with Hycam since its introduction almost 20 years ago. Thousands of cameras are in daily use around the world assisting scientists and engineers in their research and development programs.

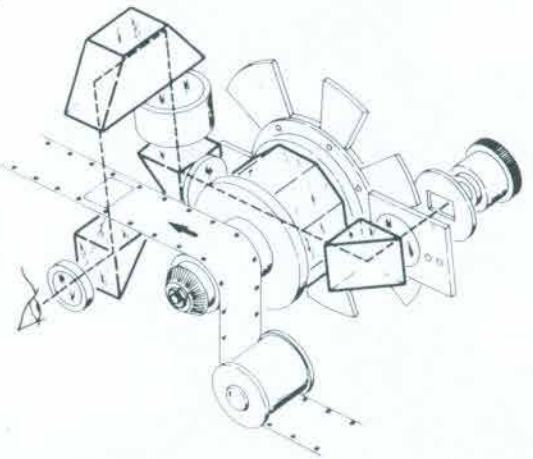
HYCAM II FEATURES INCLUDE:

- Choice of various AC or DC models.
- New electronics with Servo Control over the entire speed range.
- Field convertible to AC or DC operation.
- Event synchronizer with isolated electronic control.
- New style electronic film run-out switch.
- Remote START/STOP control.
- Camera READY & RUN indicators.
- Built-in crystal controlled Timing Pulse Generator.
- Shutter Pulse Output for strobe synchronization or camera run indication.

Traditional Hycam benefits include: Interchangeable shutters, use of standard "C" mount lenses, glass reticles for printing grids or cross hairs on film, LED timing lights, oscillo and streak kits for continuous recording, spool adapters, split-reels and a host of accessory items.

HYCAM II PATENTED OPTICAL SYSTEM

The heart of the Hycam II is its unique optical system which combines the sprocket, rotating prism and shutter assembly on a single shaft. This design eliminates any relative motion between the film sprocket and the rotating prism, resulting in consistent image registration on continuously moving film. Uniform exposure over the entire format is an additional benefit provided by this system.



An optical relay designed in conjuction with the single shaft principal permits the use of readily available "C" mount lenses. This concept also allows easy insertion of grids and reticles to be be superimposed on each film frame. An aperture mask located at the focal plane insures a distinct and even frame line. Constant exposure is retained at the top and bottom of the frame even when narrow shutter discs are utilized. Additional Hycam II features, benefits and specifications are fully described on the following pages.

A full frame optical head with sprocket and rotating prism assembly is illustrated above. Six separate shutter discs are easily exchanged to provide shutter speeds to one microsecond. Full, ½ and ¼ frame optical heads are interchangeable between 100, 400 & 2,000 foot Hycam II cameras.

The design of the Hycam II optical head has a convenient location where a glass reticle may be inserted. Eight reticles are available in multiple grid & cross hair patterns and provide fixed reference markers on film when desired. These markers are particularly useful when extracting displacement measurements with a film analyzer.

The new generation Hycam II electronic system utilizes an array of digital thumb wheel switches to select camera speed and to set the event synchronizer circut. Camera speeds are selectable in increments of 10, from 80 to 11,000 frames per second. The event synchronizer of trigger circut is fully isolated from all other camera power and logic functions and produces a contact closure when the selected film footage is reached. This permits the camera to synchronize the start of an external test event when the camera reaches the optimum speed. Control panel functions include a local START/STOP switch with ready & run indicator lights.

All Hycam II optical heads can be fitted with optional LED timing lights. A built-in crystal controlled timing pulse generator is also available for use with the LED timing lights. Selectable frequencies are: 100,1,000 and 5,000 Hz. A 3-position rotary switch is located on the bottom surface of the optical head to select the desired pulse rate. A 2-pin connector adjacent to the rotary switch accepts externally applied timing or event signals.

SPECIFICATIONS COMMON TO ALL HYCAM II MODELS

OPTICAL SYSTEM: Rotating Prism with integral sprocket and shutter on a single shaft assembly with companion relay optics. All optics are high-efficiency anti reflection (HEA) coated to provide maximum transmission in the visible spectrum.

OPTICAL HEAD: A modular unit which contains the complete optical system and key mechanical elements from the objective lens mount to the film plane. Heads are interchangeable between all Hycam II cameras.

FULL FRAME HEAD: Utilizes an 8 sided rotating Prism with an aperture size of: .295" X .410".

HALF FRAME HEAD: Utilizes a 16 sided rotating Prism with an aperture size of: .147" x .410".

QUARTER FRAME HEAD: Utilized a 32 sided rotating Prism with an aperture size of: .074" x .410".

OPTICAL TRANSMISSION: f/3.2 geometric aperture, f/3.8 to f/4.0 transmittance.

LENS MOUNT: ASA "C" mount standard.

VIEW FINDER: 5X viewfinder and focusing gate with ground glass furnished with each camera. Provides full field viewing.

SHUTTER: Interchangeable segmented disc type. Standard shutter ratio is: 1/2.5 or 144° opening.

FILM TRANSPORT: Continuous flow, with the sprocket shaft assembly and film take-up spool driven by a single motor.

FILM TYPE: Accepts 16mm motion picture film perforated 2 sides, on daylight loading spools. 0.2994" (standard pitch) or 0.3000" (Hi-Speed pitch) per ASA standards PH 22.110 and PH 22.5.

END OF FILM SWITCH: Stops camera at film run out.

EVENT SYNCHRONIZER: Provides a contact closure or contact opening to trigger an external event when camera reaches a pre-selected footage. This circuit is isolated from all other camera control electronics.

SHUTTER PULSE SYNC UNIT: Provides output pulse which is synchronized with shutter open interval. Pulse characteristics: 10V to 15V square wave positive pulse.

CAMERA START/STOP: Local ON/OFF toggle switch and remote control by external contact closure.

CONSTRUCTION: Cast aluminum alloy.

FINISH: Exterior: Tough epoxy paint, light and medium tan (missile range white is optional).

Interior: All non-working surfaces flat black.

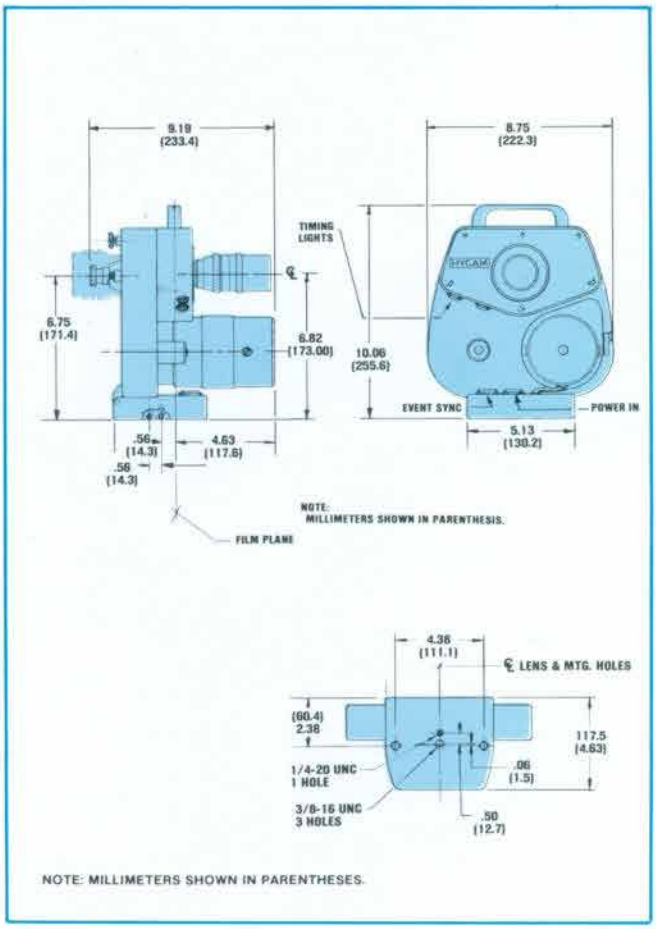
CABLES: Power and remote control cables furnished.

STANDARD ACCESSORIES FOR ALL HYCAM II MODELS

- Dual LED Timing lights.
- Built-in Timing Light Generator: 100,1,000 & 5,000 Hz.
- Interchangeable shutters.
- Glass reticles with cross hairs or grid patterns.
- Spool adapters & Split reels.
- Oscillo and streak kits.
- Carrying case for camera & accessories.
- 90 volt battery pack for Series 41 cameras.

See price schedule for a complete list of options & accessories. Including: Lenses, Tripods, Mounts, Lighting equipment, etc.

HYCAM® II Series 40 Cameras



DESCRIPTION

The Series 40 is the smallest member of the Hycam family of high speed cameras. It is ideal for those applications where small size and maximum portability are needed. This camera utilizes the new generation electronic speed control system which is packaged in a separate module or a variable autotransformer for unregulated speeds up to 8,000 full frames per second.

SPECIFICATIONS

FILM CAPACITY: 16mm x 100 feet acetate base film or 16 mm x 125 feet 4 mil. polyester base film.

ELECTRONIC SPEED CONTROL RANGE: 80 to 3,500 frames per second (full frame). 200 to 7,000 frames per second (half frame). 400 to 14,000 frames per second (quarter frame).

UNREGULATED SPEED CONTROL RANGE: 80 to 8,000 frames per second (full frame). By use of a separate 115 VAC variable autotransformer which varies the voltage to the motor from 0 to 300 volts. Speeds with half & quarter frame heads increase accordingly.

SPEED SELECTOR: Thumb wheel speed selector switch in 10 FR./SEC. increments to 3,500 FR./SEC. self-locking at each position.

ACCELERATION: (With Electronic Control) 1.5 seconds to 3,000 FR./SEC., utilizes 50' of film to reach speed (nominal).

EVENT SYNCHRONIZER: 2 digit thumbwheel selector in 1 foot increments. Accuracy ± 5% or better.

POWER REQUIREMENTS: MODEL: 40-0090 115V ± 10VAC, 50/60 Hz. with 15 AMP circuit. MODEL: 40-0093 230V ± 20VAC, 50/60 Hz. with 10 AMP circuit.

VARIABLE AUTOTRANSFORMER

POWER REQUIREMENTS: MODEL: 40-0035 115VAC 50/60 Hz. with 20 AMP circuit. Variable output 0 to 300 volts.

MOUNTING PROVISIONS: Bottom surface has standard 1/4" - 20 threaded tripod hole & 3 ea. 3/8" - 16 holes.

DOOR ASSEMBLY: Hinge type, swings down 90° for loading.

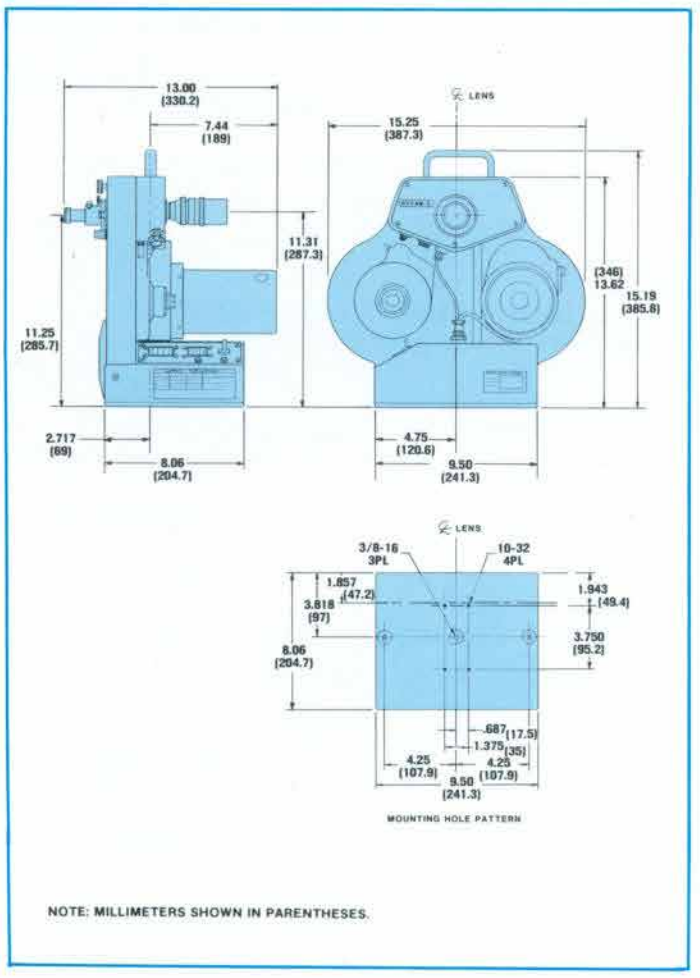
END OF FILM SWITCH: Automatically stops camera when end of film is reached.

CAMERA WEIGHT: 14 pounds, less film & lens.

Event synchronizer, shutter pulse sync unit and optional built-in timing light generator only function with the electronic speed control unit. These items require 5 volt logic level which is not available with the variable auto transformer.

See price schedule for a complete list of accessory and optional items.

HYCAM®II Series 41 Cameras



NOTE: MILLIMETERS SHOWN IN PARENTHESES.

DESCRIPTION

The Series 41 Hycam is the most popular 16mm rotating Prism camera in use today. Its broad speed range, flexible performance and easy operation have made the 400 foot Hycam the first choice in rotating prism cameras. Recently introduced improvements include new generation electronics, AC or DC power options and other subtleties to further expand the capabilities of this versatile Hi-Speed recording instrument. Your existing Series 41 Hycam cameras can also be updated with the improvements described in the following specifications.

SPECIFICATIONS

FILM CAPACITY: 16mm x 400 feet acetate base film or 16mm x 450 feet 4 mil. polyester base film.

SPEED RANGE: 80 to 11,000 frames per second (full frame). 200 to 22,000 frames per second (half frame). 400 to 44,000 frames per second (quarter frame).

SPEED CONTROL: Electronic Servo control, provides regulation over entire speed range to ± 1% or 1 full frame whichever is greater.

SPEED SELECTOR: Thumbwheel speed selector switch in 10 FR./SEC. increments. Self-locking at each position.

ACCELERATION (TYPICAL): 1.50 seconds to 5,000 FR./SEC., utilizes 75' of film to reach speed (nominal).

EVENT SYNCHRONIZER: Thumbwheel selector, 4 to 396 feet in 4 foot increments. Accuracy ± 5% or better.

POWER REQUIREMENTS: MODELS: 41-0064, 41-0065 & 41-0066, 115V ± 10 VAC, 50/60 Hz. with 30A circuit.
MODELS: 41-0067, 41-0068 & 41-0069, 230V ± 20 VAC, 50/60 Hz. with 15A circuit.
MODELS: 41-0073, 41-0074 & 41-0075, 60-120V DC provides speeds up to 10,000 full frames per second.

MOUNTING PROVISIONS: Bottom surface has standard 3/8" - 16 tapped holes in 3 locations plus 4 No. 10-32 tapped holes for mounting dovetail base plate.

DOOR ASSEMBLY: Hinge type, swings down 90° or may be removed for easy access to film chamber.

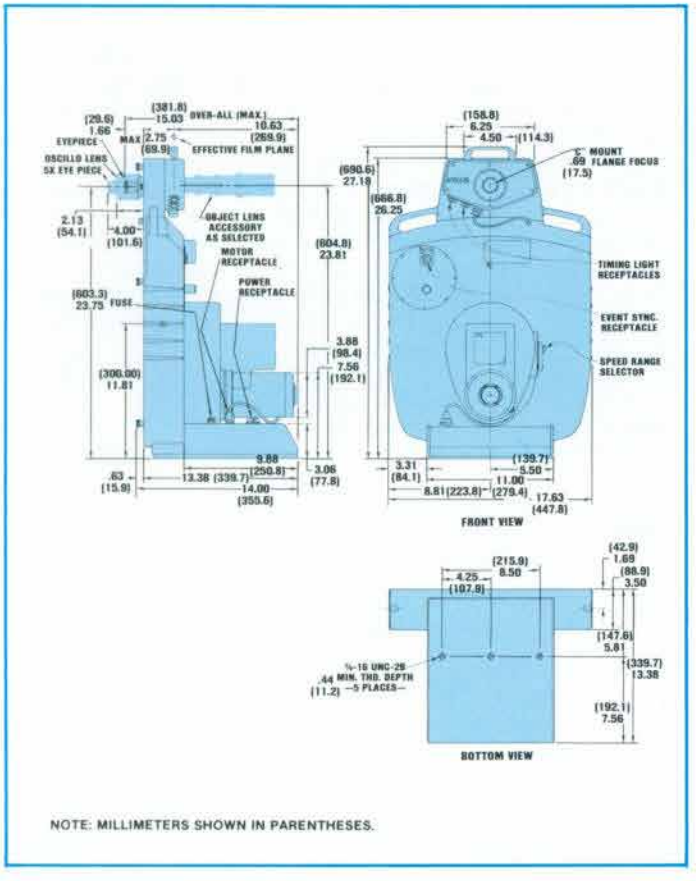
FILM FOOTAGE INDICATOR: Door mounted lever, spring loaded away from film spool. When depressed manually the lever indicates film remaining.

END OF FILM SENSOR: An infrared (IR) sensor automatically stops the camera when the end of film clears the sensor aperture.

SPOOL ADAPTERS: All Series 41 cameras accept accessory adapters for use with 100 foot & 200 foot film spools which reduce end of film chipping & shatter at high speeds.

CAMERA WEIGHT: 32 pounds, all models, less lens and film.

HYCAM® II Series 42 Cameras



NOTE: MILLIMETERS SHOWN IN PARENTHESES.

DESCRIPTION

The Series 42 represents the largest film capacity 16mm High Speed camera available. It was designed for those applications where long recording times are required at relatively high camera speeds. Rocket engine static test firing is a common activity where this type of large film capacity is needed. This model Hycam can be stopped and re-started over its entire speed range.

SPECIFICATIONS

FILM CAPACITY: 16mm x 2,000 feet acetate base film or 16mm x 2,400 feet 4 mil. polyester base film.

SPEED RANGE: Up to 5,000 frames per second (full frame). Up to 10,000 frames per second (half frame). Up to 20,000 frames per second (quarter frame).

SPEED CONTROL: Electronic Servo control provides regulation over entire speed range to ± 1% or one frame whichever is greater.

SPEED SELECTOR: Thumbwheel speed selector switch in 10 FR./SEC. increments. Self-locking at each position.

ACCELERATION (TYPICAL): 7.0 seconds to 2,000 FR./SEC., utilizes 275' of film to reach speed (nominal).

EVENT SYNCHRONIZER Continuously moving dial sets follow arm on film supply. A contact closure or open will occur when pre-set arm position is reached.

POWER REQUIREMENTS: MODELS: 42-0007, 42-0008 & 42-0009 115V. ± 10 VAC, 50/60 Hz. with 30A circuit.
MODELS: 42-0010, 42-0011, & 42-0012, 230V. ± 20 VAC, 50/60 Hz. with 20A circuit.

MOUNTING PROVISIONS: Bottom surface has standard 3/8" - 16 tapped holes in 3 locations plus 1 ea. 3/8" - 16 tapped hole on each side of camera casting.

DOOR ASSEMBLY: Removeable with 5 captive locking screws.

FILM CASSETTES: Each camera is furnished with a pair of interchangeable film cassettes. Supply cassettes pre-loaded in a dark room with film supplied on a "Z" core. When loaded, cassette can be daylight installed & threaded into camera.

FILM FOOTAGE INDICATOR: Follow arm, displacement type, indicates film footage remaining.

END OF FILM SENSOR: An infrared (IR) sensor automatically stops the camera when the end of film clears the sensor aperture.

CAMERA WEIGHT: 82 pounds, all models, less lens and film.

REDLAKE CORPORATION 15005 Concord Circle, Morgan Hill, California 95037 (408) 779-6464 Telex 757592

Nr.: 16 - Red Lake Hytax 35mm Streak

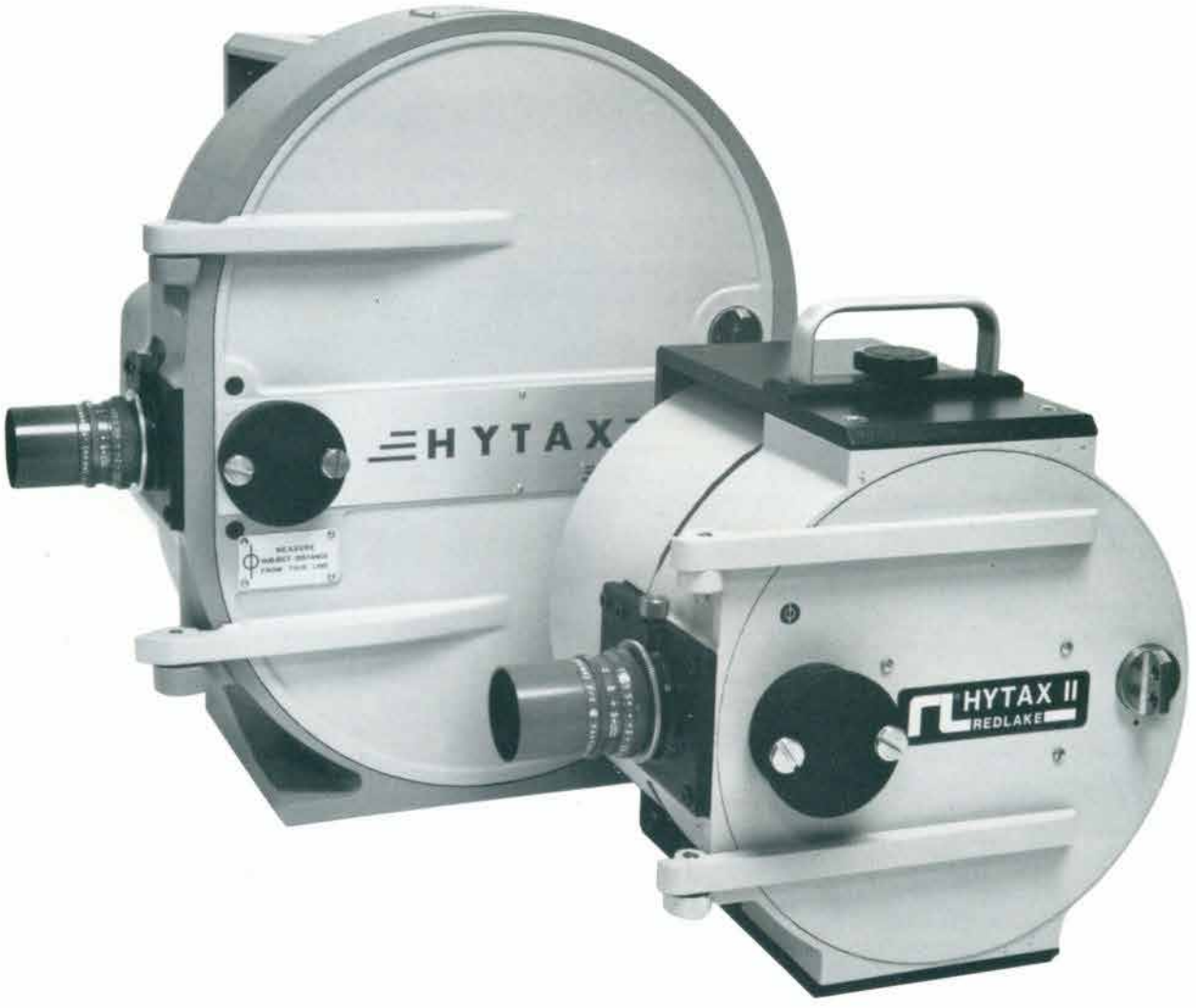
Red Lake Hytax 35mm Streak 61-0125

REDLAKE CORPORATION

PRECISION PHOTO-INSTRUMENTATION SYSTEMS

HYTAX® II

high speed 35mm streak/synchro-ballistic cameras



REDLAKE CORPORATION 15005 Concord Circle, Morgan Hill, California 95037 (408) 779-6464 Telex 757592

The Hytax II instrumentation camera is an advanced, high speed, continuous recording camera designed for the photography of rapid transient phenomena using streak or synchro-ballistic techniques. The Hytax system has gained wide acceptance in defense and scientific facilities throughout the world. The new generation Hytax II incorporates many system improvements that further enhance effectiveness and user benefits.

A continuous film movement and a choice of six stationary narrow slit apertures are key features of the Hytax design. The split aperture extends across the film width, perpendicular to the direction of film travel. Slit width may be varied by means of interchangeable masks to provide a wide range of exposure control. The Hytax II design enables positioning of the slit close to the surface of the film. In this way the slit can function as a focal plane shutter. The result is a continuous film record covering the entire duration of the subject event with exposure time expressed in microseconds.

While framing type cameras may miss significant data during closed shutter periods, the Hytax II provides 100% time resolution. Hytax II cameras provide large image size and high resolution data, free from image-motion blur. They are entirely electronically self-contained, providing operational flexibility and easy set-up.

FEATURES

- Three models offer the user choice of film capacity and velocity.
- Camera speed is controlled by electronic servo over the entire dynamic range. Thumbwheel speed selection offers 1 ft/sec. increments to match film velocity to subject velocity or displacement.
- Bi-directional film movement simplifies set-up (model 61 series).
- Standard timing lights with optional built-in crystal-controlled timing generator print data on the film with no displacement from the recorded image. Amber and red LED's facilitate printing on color and black and white film.
- Fixed aperture slit masks are quickly interchangeable to accommodate variations in lighting level, film velocity and film sensitivity. Slit widths are 0.005"; 0.010"; 0.020"; 0.030"; 0.040"; and 0.050".

- Optional 10X boresight viewfinder scans full slit width; 61-1200 fiducial mask aids focusing and alignment.
- Compact, rugged, dust-sealed design accommodates field and range conditions.
- Pentax, Fastax and Nikon lens plates are available, allowing access to a wide range of lenses.
- A connector enables the camera to be started remotely by one of two methods through use of a remote RUN/STOP switch or by breaking a continuity circuit.
- Available for 115V or 230V 50/60 Hz operation.

THREE MODELS

Redlake offers three Hytax II camera models. Two model 61s are available. Each offers up to 500 foot film capacity but the cameras differ in film velocity—30-250 feet per second or 6-50 feet per second. The choice of camera is dictated by the expected subject velocity.

The Model 60 has a reduced film capacity (up to 150 feet of polyester film), but is smaller and lighter for applications where a 400 foot load is not required, or where space or weight is an important consideration.

APPLICATION

Streak Photography involves filming a subject that remains in the camera field of view and exhibits movement in only one plane. The camera is positioned so that subject motion is parallel to the slit aperture and perpendicular to film travel. The moving film provides one component of motion and the subject provides the second at 90°. The result is a continuous line image with time measured along the length of the film and spatial displacement across the film width.
The streak technique is often used when an oscillograph-type record with the rapid transient response time from a cathode ray oscilloscope is needed. Beam deflection in the direction of film travel is reduced to zero. The camera is set up to cover the full beam sweep across the tube face in the direction of the slit aperture. Extremely rapid transient phenomena may be recorded with the high writing speed offered by this technique.

Streak film techniques can also be used to study time/displacement of mechanical parts and other moving objects. The only limitation is that the movement must be in a linear motion at 90° to the direction of film travel.

Small targets attached to the subject can aid the display of motion. Jewelled reflectors, reflective tape or small point source lamps attached to the object can provide an excellent streak film record.

Synchro-Ballistic Photography

is concerned with the recording of objects that move across the camera field of view perpendicular to the slit aperture. Continuously moving film compensates for image motion and cancels the motion effect of the high velocity subject.

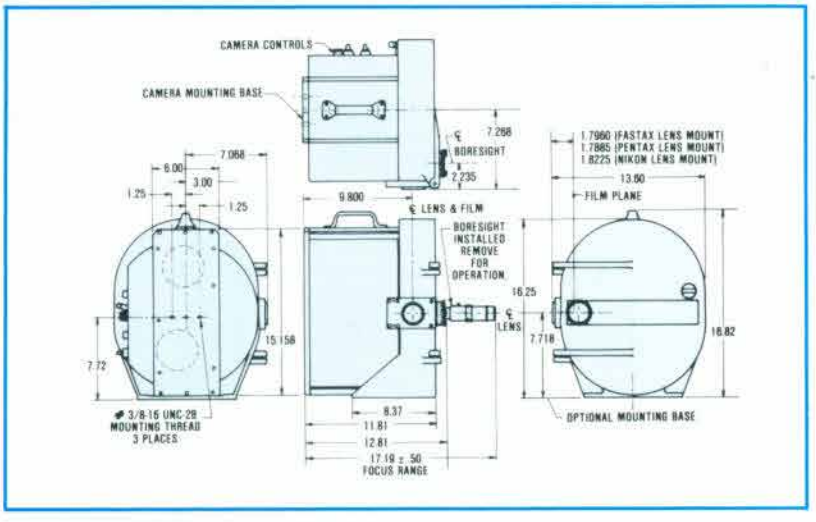
The camera is positioned so that the film is transported parallel to the motion of the subject but in the opposite direction. As the subject crosses the camera field of view, the subject's image moves in the opposite direction at a velocity proportional to the reduction in image size. When film velocity matches image velocity, the effects of linear motion are cancelled. The resulting pictures have the high resolution associated with recording still subjects.

Any fixed objects within the slit field are recorded as continuous straight streaks. If the moving subject has any degree of transverse motion or rotation, the image resolution will be slightly degraded. In most cases, the effect is minimal and the resulting record is still valuable for evaluation.

Although used primarily for recording projectile movement, the camera's capabilities are equally adaptable to high speed linear motion found in industrial applications. Examples include the study of chain drives, belt conveyers, extrusion operations, continuous coating processes, piston or plunger strokes, peripheral motion of wheels or rollers, and impact at a point of contact.

The Hytax II camera can provide performance data from high velocity objects with continuous recording and 100% time resolution. Full image compensation is available in one direction with image size limited only by film width or user requirements.

HYTAX® II 400 Specifications



OPTICAL SYSTEM: Streak type system, no internal optics, with interchangeable slits of 0.005, 0.010, 0.020, 0.030, 0.040 and 0.050 inch.

FILM TRANSPORT: 35mm continuous flow over drive sprocket. Two motor drive-bi-directional film movement on Model 61.

FILM TYPE: 35mm ASA standard, perforated two sides.

FILM CAPACITY: 35mm x 400' acetate base or 35mm x 500' polyester.

SPEED RANGE: Models 61-0001 and 61-0002, 15 to 250 feet per second.

SPEED SELECTOR: Thumbwheel speed selector switch self-locking at each position. Provides settability in 1 ft/sec. increments.

SPEED CONTROL: Electronic servo control provides regulation over entire speed range.

SPEED REGULATION: ±1% or 1 ft/sec., whichever is greater after reaching set speed.

ACCELERATION (typical): .85 sec to 125 ft/sec. Uses 70' of film to this speed (nominal).

EVENT SYNCHRONIZATION: Thumbwheel selector 4 to 396 feet in 4 foot increments. Provides switch closure or opening when selected film footage is reached. Accuracy is ±5% or better.

LENS PLATES: FASTAX, Pentax or Nikon mounts available. Specify when ordering.

ELECTRICAL CONNECTORS: Power- MS-3102A-14S-7PX-639 (Bendix MS type). Signal- PTOOE-10-6P (Bendix Bayonet type). Remote- PTOOA-10-6P (Bendix Bayonet type).

POWER REQUIREMENTS: 115 VAC ±10 volts. Camera has (2) 25 ampere circuits fused at 25 AMPS each.

WEIGHT: 61 pounds, less lens and film.

FINISH: Tough epoxy paint, light and medium tan. White finish is optional.

OPERATIONAL ENVIRONMENT: Acceleration/ Shock: 25g's both directions.

CONSTRUCTION: Cast aluminum with integral midrib and hinged door.

MOUNTING PROVISIONS: Top and side, 3/8"-16 mounting holes (4) with steel inserts.

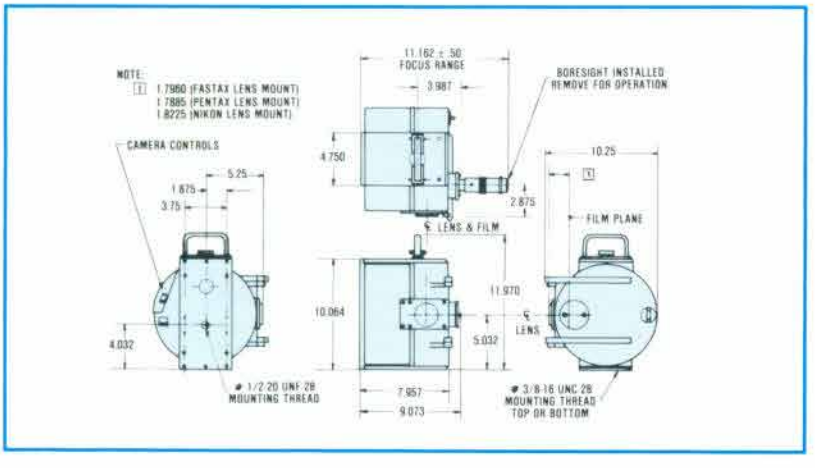
NOTE

The 400 foot series HYTAX II camera is available in three other configurations. These include 230 VAC, 115 VAC and 230 VAC slow speed (5 to 50 FT/SEC). Specifications and model designations are detailed in price schedule and instruction manual.

STANDARD ACCESSORIES

- Dual LED timing lights
- Built-in timing light generator; 100, 1000 and 5000 Hz.
- Boresight tools: Straight at 90° to optical center line. Swivel rotates 360° in plane parallel to optical centerline.
- Heater: For all models to provide operation down to 0°F.
- Interchangeable aperture slit masks.
- Carrying case
- Lenses: Wide angle to telephoto in FASTAX, Nikon or Pentax mounts.

HYTAX® II 100 Specifications



OPTICAL SYSTEM: Streak type system, no internal optics, with interchangeable slits of 0.005, 0.010, 0.020, 0.030, 0.040 and 0.050 inch.

FILM TRANSPORT: 35mm continuous flow over drive sprocket.

FILM TYPE: 35mm ASA standard, perforated two sides.

FILM CAPACITY: 35mm x 100' acetate base or 35mm x 150' polyester.

SPEED RANGE: Models 60-0001 and 60-0002 and 60-0003 (5 to 175 feet per second).

SPEED SELECTOR: Thumbwheel speed selector switch self-locking at each position. Provides settability in 1 ft/sec. increments.

SPEED CONTROL: Electronic servo control provides regulation over entire speed range.

SPEED REGULATION: ±1% or 1 ft/sec., whichever is greater after reaching set speed.

ACCELERATION (typical): 0.6 sec to 100 ft/sec.

EVENT SYNCHRONIZATION: Thumbwheel selector 1 to 99 feet in 1 foot increments. Provides switch closure or opening when selected film footage is reached. Accuracy is ±5% or better.

LENS PLATES: FASTAX, Pentax or Nikon mounts available. Specify when ordering.

ELECTRICAL CONNECTORS: Power- MS-3102A-14S-7PX-639 (Bendix MS type). Signal- PTOOE-10-6P (Bendix Bayonet type).

POWER REQUIREMENTS: 115 VAC ±10 volts. 50/60 Hz 15 ampere circuit. Camera is fused at 15 amps.

WEIGHT: 24 pounds, less lens and film.

FINISH: Tough epoxy paint, light and medium tan. White finish is optional.

OPERATIONAL ENVIRONMENT: Acceleration/ Shock: 25g's both directions.

CONSTRUCTION: Cast aluminum with integral midrib and hinged door.

MOUNTING PROVISIONS: Top and side, 3/8"-16 mounting holes (4) with steel inserts.

NOTE

The 100 foot series HYTAX II camera is available in two other configurations: 230 VAC and 50/90 volts DC. Specification and model designations are detailed in price schedule and instruction manual.

STANDARD ACCESSORIES

- Dual LED timing lights
- Built-in timing light generator; 100, 1000 and 5000 Hz.
- Boresight tools: Straight at 90° to optical center line. Swivel rotates 360° in plane parallel to optical centerline.
- Heater: For all models to provide operation down to 0°F.
- Interchangeable aperture slit masks.
- Carrying case
- Lenses: Wide angle to telephoto in FASTAX, Nikon or Pentax mounts.

REDLAKE CORPORATION 15005 Concord Circle, Morgan Hill, California 95037 (408) 779-6464 Telex 757592

Nr.: 16 - Cinephon BH Handheld Camera CS 35mm ACR 0339

Cinephon BH Handheld Camera CS 35mm ACR 0339

Manufactured around 1935-1940 at the Cinephon factory of Josef Slechta in Prague. Built for 35mm film in a black housing with a hand crank mechanism. It could be converted to motor operation with an optionally available motor. The camera has Pan-Tachar-Astro lenses, 35, 50, and f 2.3 75mm. It has a very interesting focusing system in which the optics themselves are not focused, but rather the entire retaining ring is shifted for focusing, which is why the engravings for the various focal lengths are located on the outside of the retaining ring of the revolving lens system. The Cinephon is said to be a copy of an Arriflex and was manufactured for the US Army.

Cinephon BH Handkamera CS 35mm ACR 0339

Hergestellt um 1935-1940 in den Cinephon-Werken Josef Slechta, Prag. Gebaut für 35mm Film in einem schwarzen Gehäuse mit einem Handkurbelmechanismus. Sie konnte durch einen optional erhältlichen Motor auf Motorbetrieb umgebaut werden. Die Kamera hat Pan-Tachar-Astro Objektive, 35, 50 und f 2.3 75mm. Sie verfügt über ein sehr interessantes Fokussiersystem, bei der nicht die Optik selber fokussiert wird, sondern der ganze Haltering zum Fokussieren verschoben wird und deshalb sind die Gravuren für die verschiedenen Schärfen außen auf dem Haltering des Revolver – Objektiv Systems angebracht. Die Cinephon soll die Kopie einer Arriflex sein und wurde für die USArmee hergestellt.