



**INSTRUMENTATION
MARKETING CORP.**

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Spec/Data Sheet

February 1977

Photo-Sonics high-speed hand-held camera with continuous reflex viewing.

Actionmaster/500[®] Model 16mm-1PDL

Featuring . . .

- The only camera with continuous reflex viewing up to 500 fps.
- Dual speed controls.
- 5-second magazine changing.
- Now available with crystal-controlled 24 fps operation.

**No other camera
can provide
these features
in one
package!**



The Actionmaster/500 is designed to meet the more sophisticated high-speed requirements of hand-held documentation motion picture photography. It is a direct by-product of the Photo-Sonics 16 mm-1PL instrumentation camera.

The Actionmaster/500 has specific appeal to documentation cinematographers since it can serve as a normal 24 fps camera as well as for high speed. It is frequently used in the normal speed mode because footage can be spliced to film taken with other documentation cameras.

It is really a dual-purpose camera!





The Actionmaster/500 is a fantastic camera

... considering its versatility — operating from 24 to 500 fps! Two speeds can be dialed in allowing operation at 24 fps, for example, then switching to high speed while the camera is running, never having to stop . . . continuous filming with no break in the scene . . . all the way up to 500 fps!

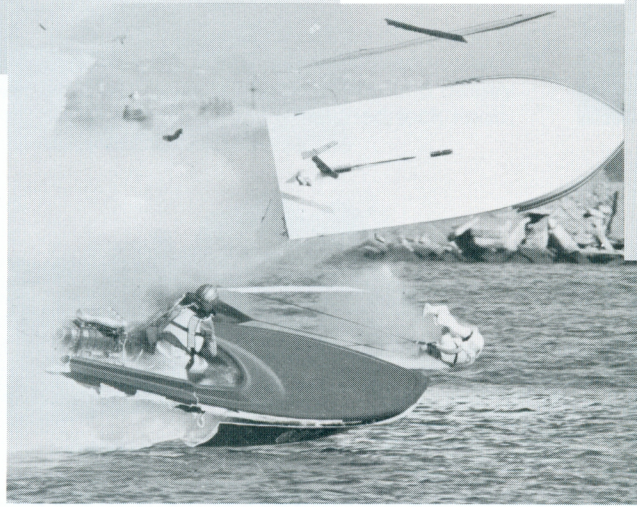
General description —

The Actionmaster/500 operates from 24 to 500 frames per second allowing you to pre-set two speeds and instantly switch between the two whenever you wish. Other unique features are interchangeable ground glasses that let you change to the format required at any given time; gelatin filter holder located behind the lens; continuous reflex viewing with image always correct — in two-axis 360° rotation; and built-in heater for sub-zero work.

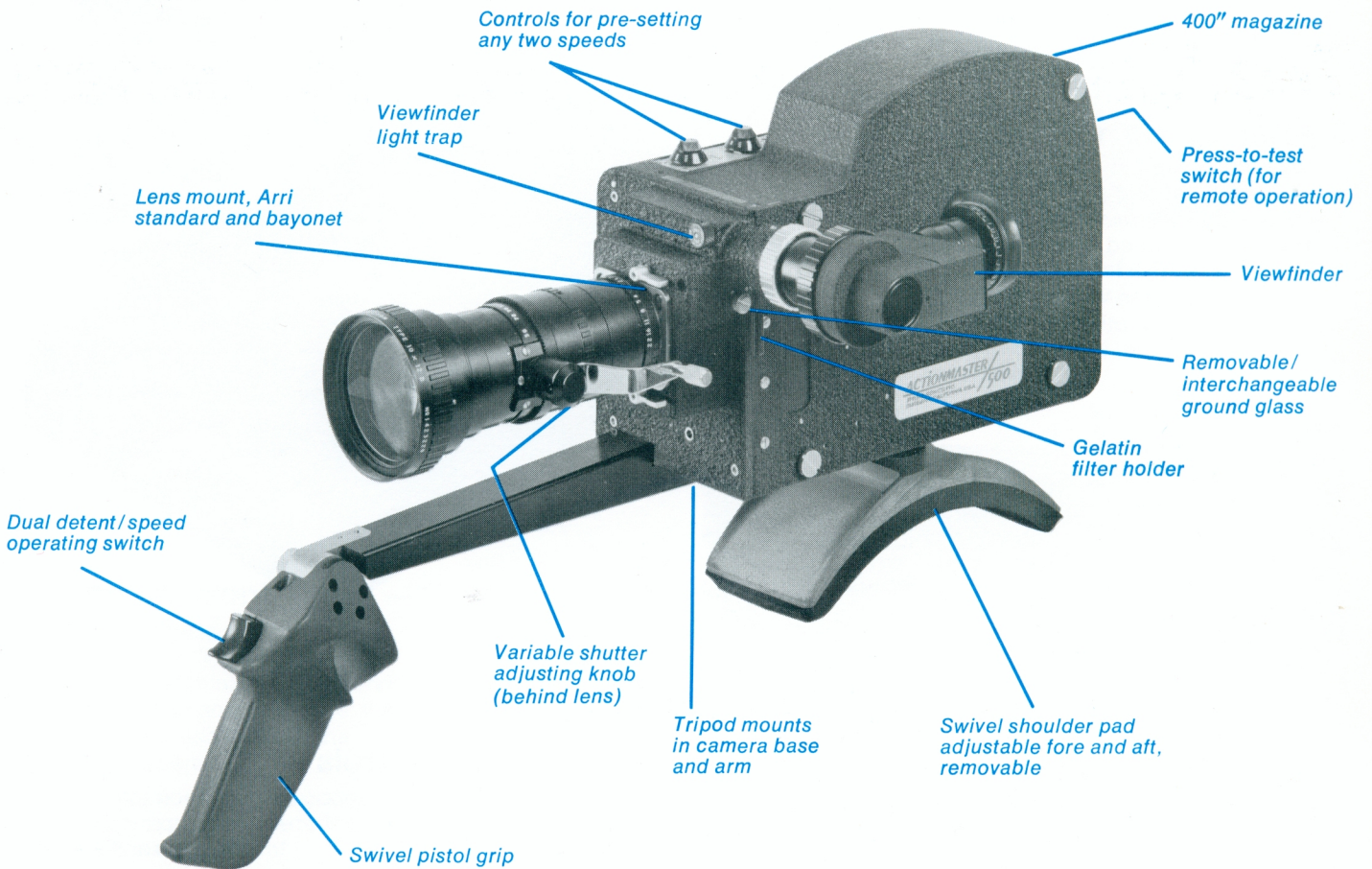
The Actionmaster/500 daylight-loading magazines, for maximum reliability and flexibility, with built-in pin-registered movements, are available in 200', 400' and 1200' capacities, and the magazines can be interchanged in just a few seconds! No take-up motors are required.

Optional equipment —

A number of options and accessories are available, including a "C" lens mount front plate for special configurations in rugged applications, ruggedized lens supports, LED timing lights, the field-proven Apex automatic exposure control, variable shutter from 7½° to 160°, power zoom, time-lapse kit, portable power packs, carrying case, etc.



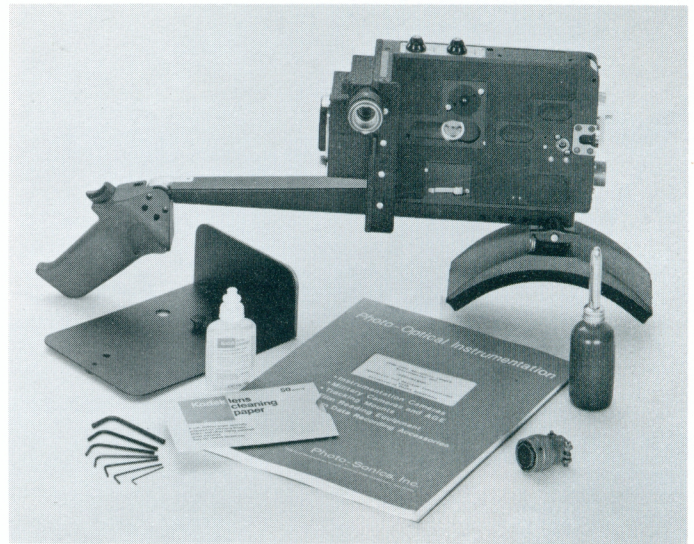
Photos courtesy of:
 Bob Bagley
 Mike Hoover
 John Jay
 Keith Merrill
 Ron Eveslage
 Craig Pease
 Dick Bordon
 users of
 Actionmaster/500
 cameras.



Standard camera —

Includes dual speed knobs, built-in 28V DC motor, fixed 160° shutter, automatic end-of-film cut-off switch, 28V 200W heater, Arri standard and bayonet mount with dust cover, aperture dust cover, camera connector, press-to-test switch, filter holder, removable ground glass, dual-speed pistol grip with shoulder pad, oil and instruction manual.

All cameras are wired to accept the crystal speed control module for **exactly** 24 fps operation.

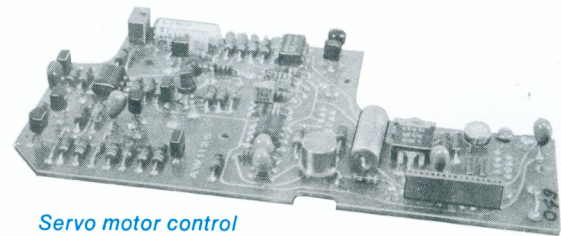


Camera electronics —

The modular electronics are solid state and the motor speed control is pulse width modulated.

This type of system is inherently less sensitive to voltage and temperature variations, providing greater accuracy and stability than found in comparable analog systems. A unique protection circuit prevents damage to the electronics in the event of a mechanical failure.

An acceleration control circuit provides smooth starting. A remote start capability requires only 25 ma from a 28-volt source, eliminating the need for switching main camera power.

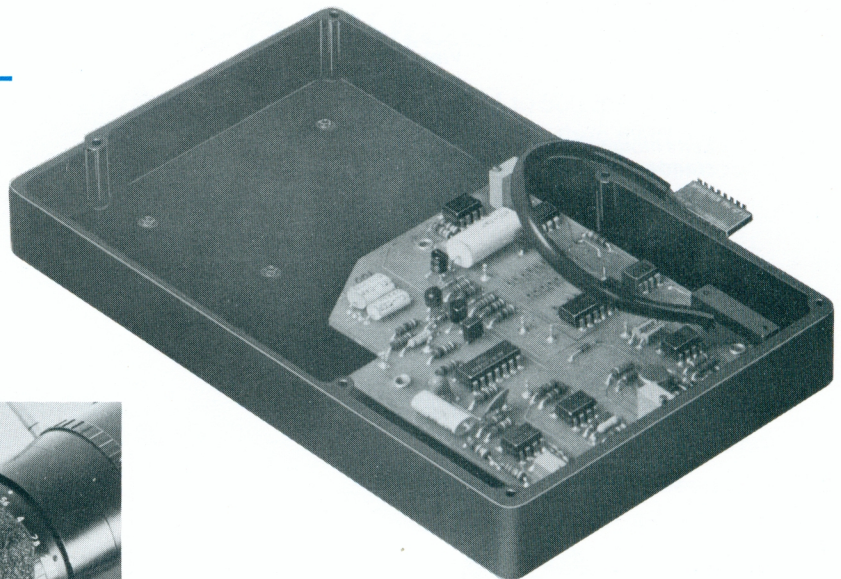


Servo motor control

The servo control is on one plug-in printed circuit board held in place by captive thumb screws. This board is **completely** interchangeable between cameras with no re-calibration adjustments necessary.

Crystal speed control module —

The camera is wired to accept the crystal speed control housing and PC board for synchronous 24 fps recording. The camera **must** also be equipped with a shutter pulse generator for feedback to the crystal. The camera has also been wired and machined to accept the shutter pulse generator.

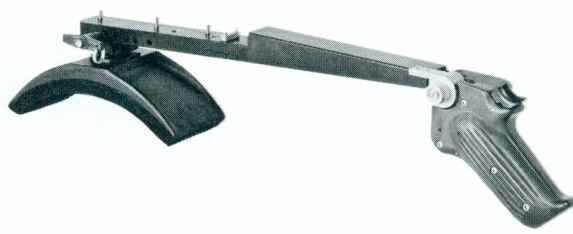


Dual speed controls —

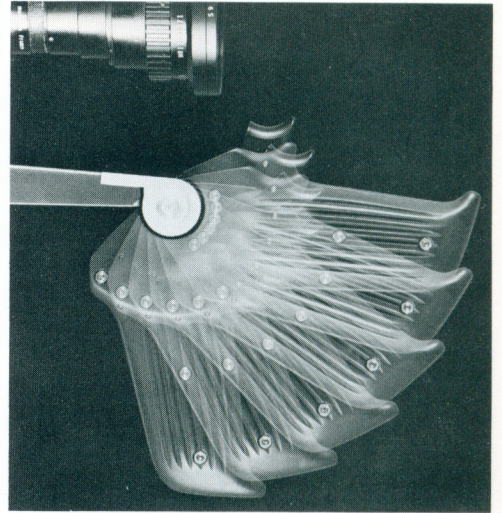
The two pre-set film speed knobs are shown on top of camera. Pistol grip trigger with two detents provide instant finger-tip speed control . . . to get *all* the action, with no lost footage.

Pistol grip shoulder pad —

The pistol grip is attached to the camera by the use of three small screws, and electrical connection is automatically made to the two-position trigger switch. The pistol grip swivels, and the shoulder pad moves forward and aft — and also swivels. Provisions for tripod mounting are in the pistol grip arm so that its removal from the camera is not necessary when mounting on a tripod. The shoulder pad detaches in a few seconds.

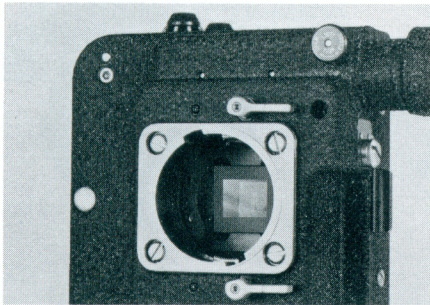
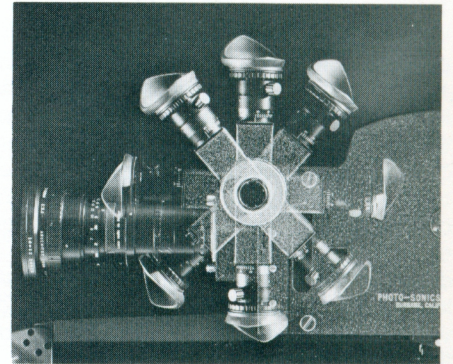
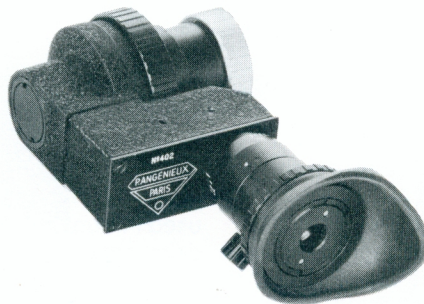


The total swiveling capability of the pistol grip is dramatically illustrated. The grip can be locked in place by a precision-machined serrated ring and deeply knurled lock knob.



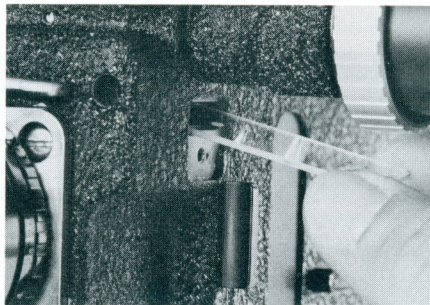
Viewfinder —

The field-proven Angenieux 360-degree fully orienting viewfinder provides maximum flexibility and viewing angle while constantly maintaining the image correctly. It is great for that special shot that other viewfinders are just not able to handle, or that out-of-the-ordinary shot where camera position is extremely critical.



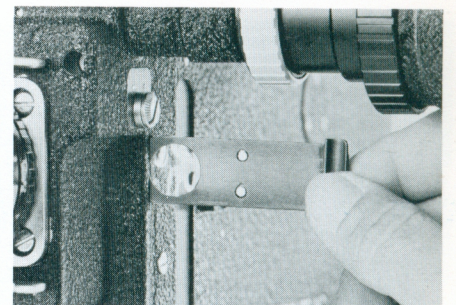
Lens mount —

Front view of the Actionmaster/500 showing the Arri standard and bayonet mount, and the beam splitter. Immediately up and to the right of the lens mount is the light trap knob for the viewfinder when it is not in use.



Ground glass —

Ground glass for providing a variety of formats can be easily interchanged in less than one minute.



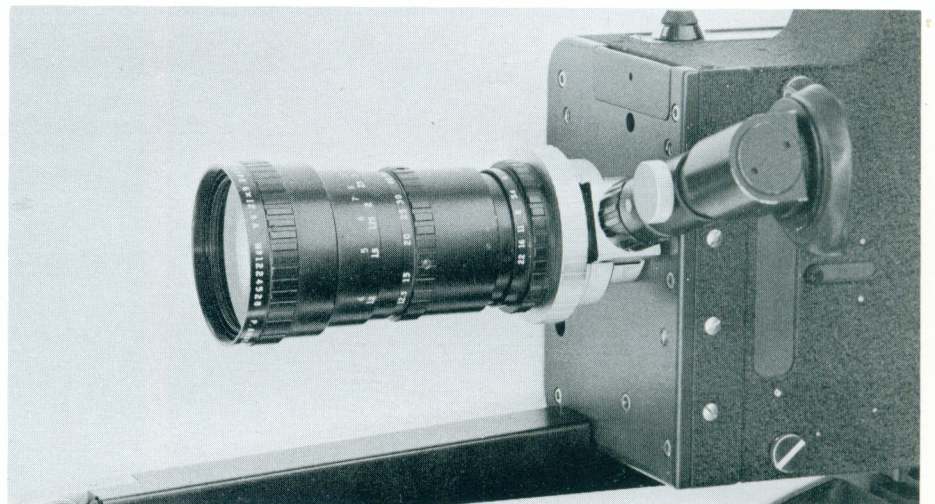
Filter holder —

The gelatin filter holder is located directly behind the beam splitter, in front of the film, and is easy to remove.

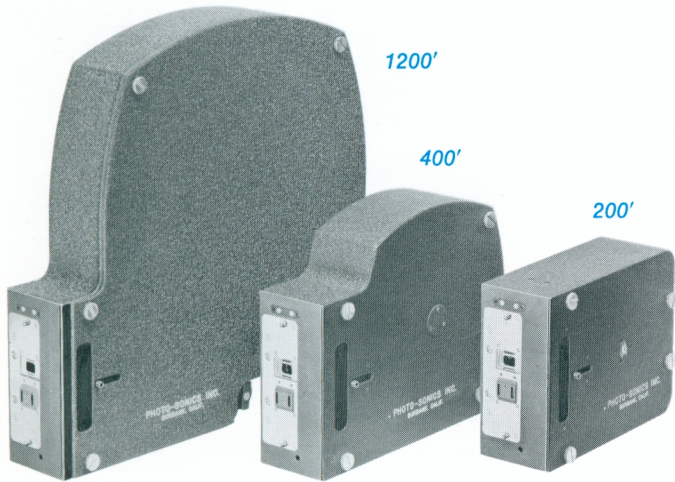
“C” mount front plate —

The reflex front plate may be substituted with a “C” mount front plate. Doing so eliminates the ground glass, gelatin filter and, of course, the Arri mount. This also reduces the price of the camera.

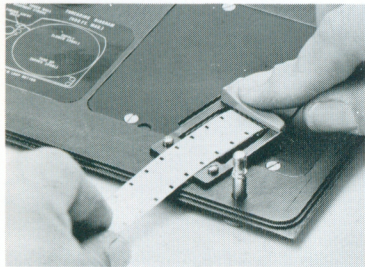
When purchased with “C” mount front plate only the camera is referred to as the Sportsmaster/500.



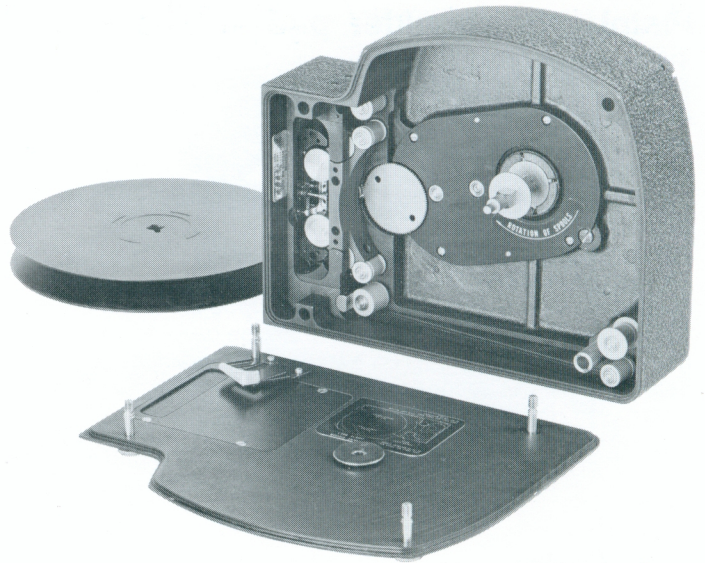
Magazines —



The real uniqueness of the camera lies in the magazines loading concept. The movement is built-in and provides positive film control through the use of dual registration pins and/or dual pulldown pins at all times. The film may be loaded in less than one minute and the magazine installed on the camera in just a few seconds. There are no film guides or shoes, sprocket guards or levers to release or move in order to load the film. Even the climbing loop is gone. It is the closest thing to automatic threading — yet, still gives the operator complete control at all times. All magazines are gear driven and do not require any take-up motors. A spring-loaded viewing port is provided in the magazine door to allow viewing of the film transport and film without disturbing the camera set-up.

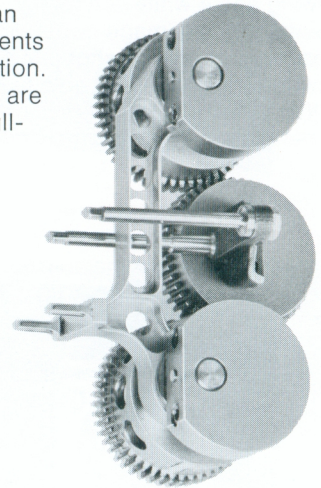


The built-in film cutter is required for the semi-automatic threading of the film transport mechanism. This eliminates the necessity of carrying scissors or other types of cutting devices and speeds up the loading time to less than one minute.



The 400-foot magazine shows the typically compact, rugged design and easy accessibility. All magazines are coaxial daylight loading with no climbing loops.

The film transport is a truly clean design. A minimum of components are used for trouble-free operation. Permanent lubricated bearings are used throughout. The single pull-down arm incorporating two pulldown pins is hard chrome plated and precision ground for maximum strength and durability. The registration pins are of high strength steel and are precision ground and polished. One pin is full-fitting; the other is full-fitting in the vertical direction only allowing for film tolerance variations.



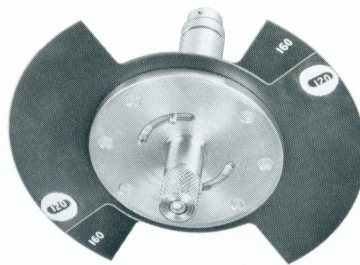
A fully equipped and loaded camera — ready to go — showing its clean lines and extreme compactness.



Accessories/options—

Variable shutter —

This is one unique accessory most people want! To set, the knurled knob protruding from the front of the camera is pulled out, disengaging one blade of the shutter. The motor knob is turned until the proper setting appears in the window. It's that easy! Nine different settings from 7.5° to 160° are provided.

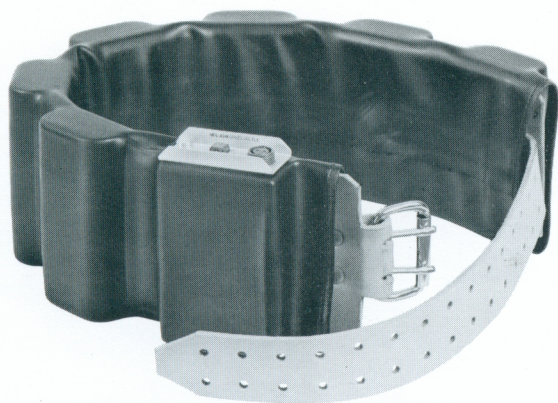


Automatic exposure control —

The Apex-BZA automatic exposure control is designed especially for the Angenieux zoom lens. It has no overshoot and is accurate.

If AEC is being ordered, a power connector must be added to the front of the camera as an option.

The Apex adjusts automatically for one speed only. Speed is 6 f-stops in 2 second; light range is from 5 to 20,480 foot-lamberts; ASA range is from 25 to 1600, and exposure range is from 1/12 to 1/12,800 of a second.



Rechargeable power belt —

This is a *modified* power belt for use with the Actionmaster/500; a standard power belt can NOT be used without modification.



Carrying case —

Carrying case is a fitted Zero Haliburton that provides life-time protection. It is rugged, lightweight, dust and moisture-proof, and polyurethane foam interior gives maximum shock protection and permits individual customizing. It accommodates the complete standard Actionmaster/500 camera system and an extra 400-foot magazine, excluding battery.

Standard specifications of Actionmaster/500, Model 16mm-1PDL —

Frame rate: 24, 48, 100, 200, 300, 400 and 500 fps on both speed knobs, by transistorized dual speed controls. Accuracy, $\pm 1\%$ or ± 1 frame, whichever is greater.

Aperture size: .296" x .410" (USA PH 22.7-1964).

Film specification: Uses both .3000" pitch (USA PH 22.5-1953) and .2994" pitch (USA PH 22.110-1965), both 4 and 6-mil with no adjustments.

Film capacity: 200, 400 and 1200-foot daylight loading magazines.

Film transport: Intermittent, two registration pins and two pull-down pins with film held captive in aperture gate at all times.

Shutter: Fixed 160°; one optional 7.5° to 90° fixed at no additional cost.

Ground glass: Removable, 6 formats; standard A.S.C., TV safe action, TV safe title, 1.85:1 ratio, combination of standard A.S.C., TV safe action and safe title, and combination of standard A.S.C. and 1.85:1 ratio.

Filter holder: Gelatin, behind the lens.

Motor: Built-in 28V DC, 12 amps max. at 500 fps.; 115V AC, 50/400 Hz motor optional.

Lens mount: Arri standard and bayonet.

Heater: 28V, 200W; 115V AC/DC, 300W optional.

Weight: 18 lbs. complete with 12-120mm zoom lens, pistol grip and 400' magazine loaded, ready to go.

Mounting: $\frac{3}{8}$ -16 with $\frac{1}{4}$ -20 insert for tripod, in both camera and pistol grip arm.

NOTE: Top speed is 400 fps. on the 1200' magazine.

Specifications subject to change without notice.

Outline drawing —

