

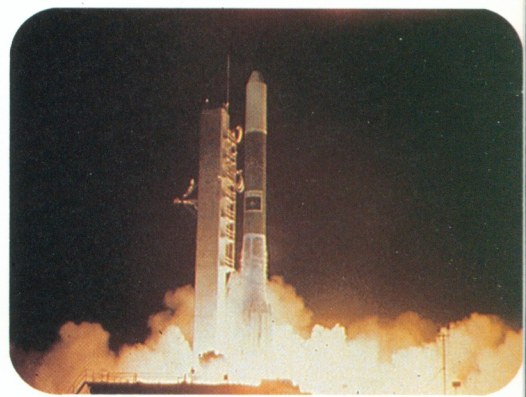
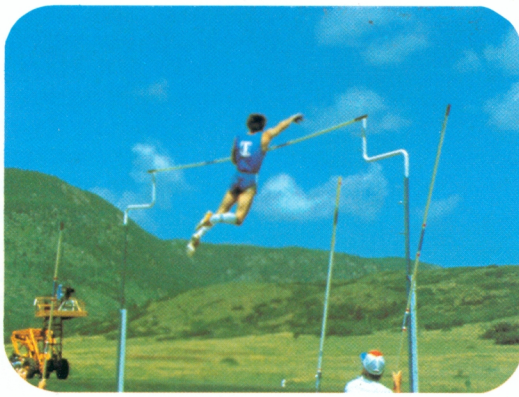
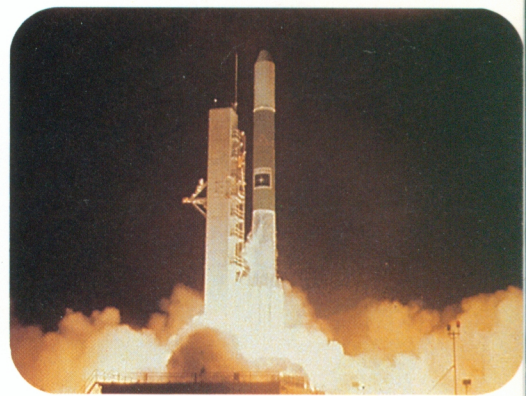
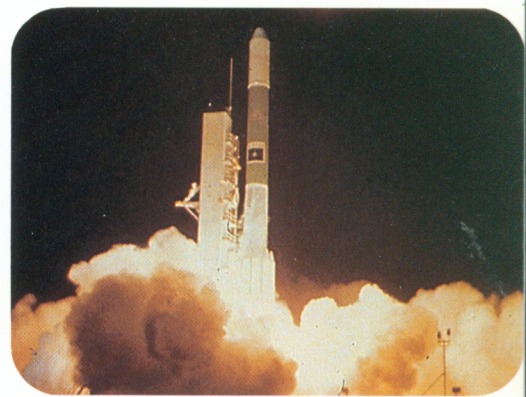
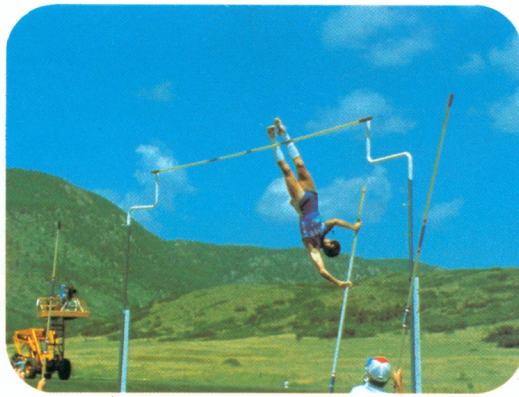
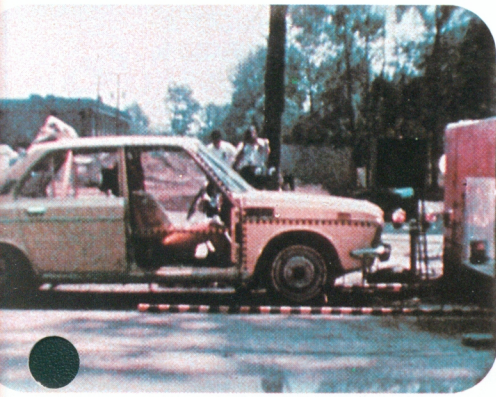


**REDLAKE CORPORATION**

PRECISION PHOTO-INSTRUMENTATION SYSTEMS

# LOGAM<sup>®</sup> II

*family of precision high speed 16mm motion picture cameras*





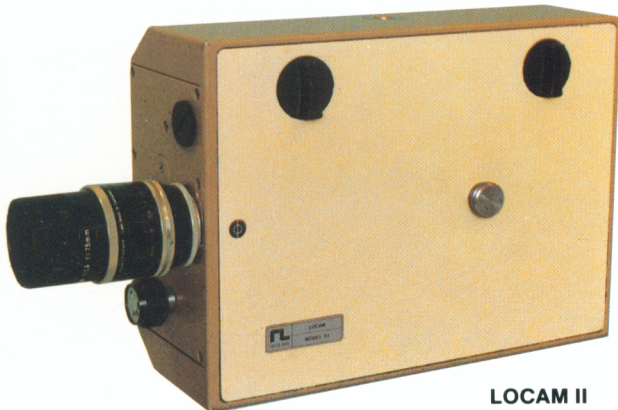


Our front cover illustrates some of the applications where Redlake Locam High Speed Instrumentation cameras are helping scientists and engineers analyze events which happen too fast for the human eye to perceive. The new Locam II series of cameras incorporates recent improvements with the benefits and features of the standard Locam which has proven in years of use to be the most reliable 16mm pin-registered high speed camera available.

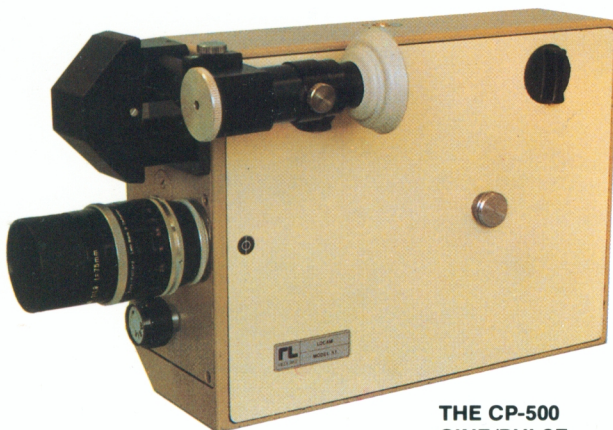
Redlake is a company responsive to change and thru many hundreds of customer applications we've learned a great deal about how our equipment is used. Combining customer inputs with our continuing engineering design program, we have updated and refined the Locam and are now proud to offer the Locam II... a complete family of precision photo-instrumentation cameras.



**LOCAM II  
SERIES 50**



**LOCAM II  
SERIES 51**



**THE CP-500  
CINE/PULSE**

These refinements include an all new electronic servo control for dependable operation even at the lowest speed of 2 frames per second and a spike suppression circuit to assure reliability in those situations where you may have to use marginal "field" power supplies. A protective circuit also guards against equipment damage caused by a low voltage supply. With Locam II, if the power drops below spec limits there is only a drop in speed, not an equipment failure.

These are only a few of the advances we've made. This brochure further describes the new Locam II, from design approach to the many features of most benefit to you. We think you'll agree that the Locam II family of high speed 16mm motion picture cameras will help solve the everyday problems which face scientists, researchers and engineers when there is a need to observe that which the human eye just cannot see.

### **LOCAM II SERIES 50**

The smallest member of the family. The model 50 is designed specifically for those situations where minimum size is essential (an outline drawing is shown on the back page). This series, with 200' film capacity, has proven valuable in applications such as onboard rockets and high performance jet aircraft. Restricted space in many industrial applications are also a prime area for this model.

### **LOCAM II SERIES 51**

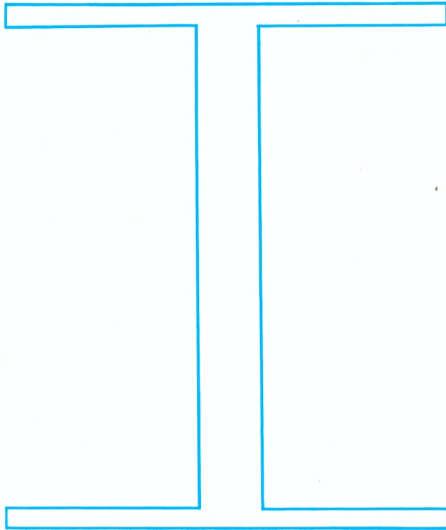
This model is the mainstay of the photo-instrumentation industry. It is mechanically the same as the series 50 above but has a 400' film capacity. Standard features for both series include dual pull down and dual register pins, accepts long or short pitch film on daylight loading spools, choice of AC or DC models, servo speed control that is continuously variable from 2 to 500 frames per second, lifetime lubrication, and a host of built-in options such as reflex optics, heaters, timing lights and timing light generator. All Locam II's are designed to withstand severe environments. In cases where extremely harsh conditions are anticipated, we offer a special High "G" model tested to 90 "G" peak shock levels. The Locam II price schedule references this model.

### **THE CP-500 CINE/PULSE**

(Shown with continuous reflex viewing system available on all models). A unique member of the Series 51 camera line. The CP-500 (Cine/pulse) camera is the only instrumentation camera made which is capable of both high speed and pulse/time lapse photography. It's a single unit that provides pin-registered accuracy at 500 frames per second or at pulse rates from single frame to 5 pulses per second with a built-in intervalometer. There is no need to change motors or electronic circuits to convert from cine to pulse; just turn a switch and operate in either mode instantly. The following page shows the switch functions and capabilities of this versatile camera. Multiple CP-500 cameras can also be connected together to provide phase-lock operation in pulse mode.



## DESIGN FEATURES



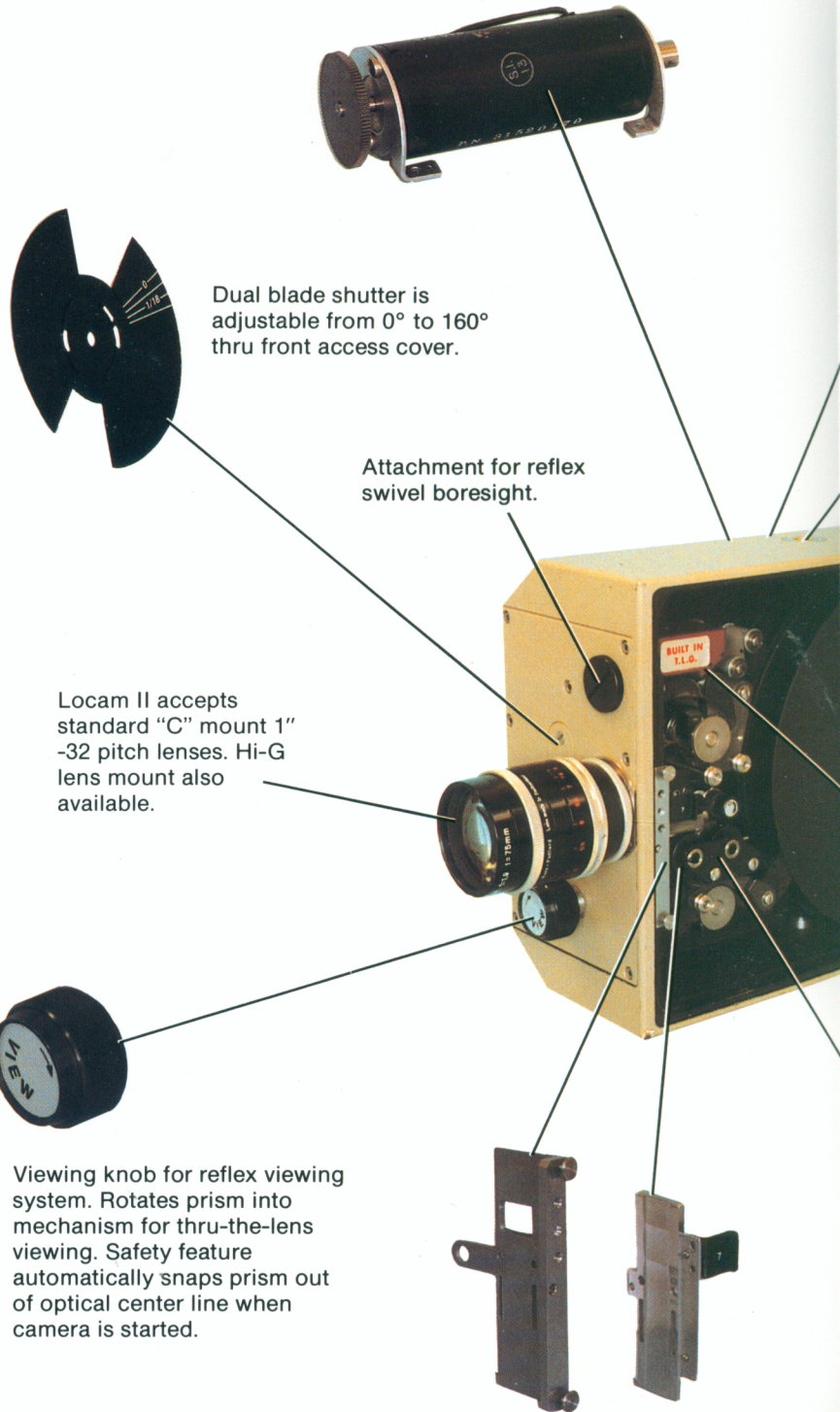
Ruggedized I-Beam construction is the basis of all Locam cameras. The camera housing is a one piece casting in the form of an I-Beam. This mid rib cast aluminum housing gives Locam II the strength to withstand very severe shock and vibration environments associated with industrial and aerospace applications. All internal mechanisms are fitted to the main center rib - film movement on one side; gear train and electronics on the other side. Another benefit is a sealed film chamber that separates the drive train from the film compartment to prevent film chips from entering the gear train.

The Locam II is entirely modular in design for ease of maintenance and repair. Subassemblies such as aperture plates, film guides, electronic modules and even the complete film advance mechanism, are interchangeable from camera to camera - a unique feature for precision high speed cameras. Periodic oiling and lubrication are not required in the Locam II as all key mechanisms are lubricated for life.

Locam II is the most reliable and flexible pin-registered photo-instrumentation equipment available today - a fact supported by many years of experience and hundreds of cameras in daily use around the world. Our design philosophy allows older cameras to be retrofitted with the improvements of the new Locam II.

This page expands further on the design benefits built with care into every Locam II high speed camera.

115 Volt AC or 28 Volt DC motors power the Locam II and are readily interchangeable in the field to convert cameras for either input power mode.



Dual blade shutter is adjustable from 0° to 160° thru front access cover.

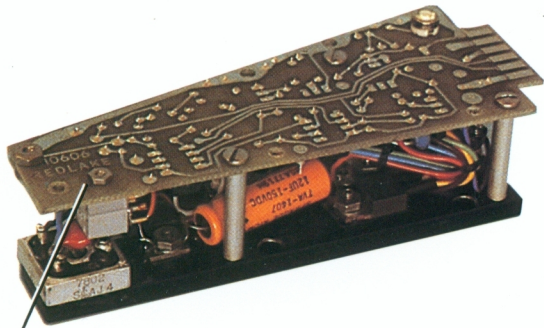
Attachment for reflex swivel boresight.

Locam II accepts standard "C" mount 1" -32 pitch lenses. Hi-G lens mount also available.

Viewing knob for reflex viewing system. Rotates prism into mechanism for thru-the-lens viewing. Safety feature automatically snaps prism out of optical center line when camera is started.

Aperture plate and film guide pull out for cleaning, are interchangeable from camera to camera and accept acetate or polyester film without adjustment. Precision steel and polished chrome finish assures smooth film travel.





Advanced modular, electronic speed control provides reliable operation, continuously variable from 2 to 500 Fr/Sec; has controlled soft start, reverse polarity protection, spike suppression circuits and expanded input voltage range. Drift free servo speed control assures speed stability at all frame rates. A unique stall protection circuit automatically stops camera if less than one half of the selected speed is not maintained. Easily field convertible for AC or DC operation.

3/8" -16 mounting socket on top and bottom, four 10-32 mounting holes on top and bottom surface for dovetail plate.

Constant reading film remaining indicator. Positive displacement type which indicates footage remaining.

Frame rate selector adjustable from 2 to 500 Fr/Sec in 1 Fr/Sec increments. Precision dial potentiometer can be locked at selected speed.

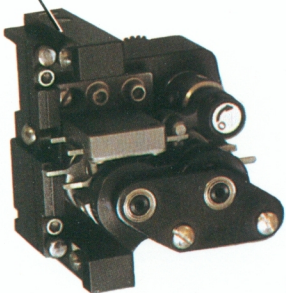
Deutch DM9601-19P electrical connector. Mating connector is also supplied.

Film advance knob, used to manually advance film thru the mechanism while loading. Automatically retracts reflex optics when in the viewing position.

CP-500 Cine/Pulse Control Switch provides four operating modes:  
**CINE** - Camera operates as a regular Locam high speed camera at speeds of 5 to 500 frames per second.  
**PULSE** - An internal intervalometer provides 3 pulse ranges:  
 1. PPS - Pulses per second  
 2. PPM - Pulses per minute  
 3. PPH - Pulses per hour  
 Pulse rates are selected by the same dial used to set cine speeds. The scale is divided by 100 for pulse mode, e.g. a setting of 100 in the PPS range is 1 pulse per second.  
**EXTERNAL PULSE** - Pulses at a rate controlled by an external input, up to 5 PPS.  
**REMOTE** - Provides external switching from pre-set cine speed to external pulse rates.



Built-in timing light module (dual led). Includes built-in generator, crystal controlled, with selectable rates of: 1, 10 or 100 Hz.



Precision film movement module is interchangeable from camera to camera. Features balanced dual pull-down claws and dual register pins. Knob rotates register pins out of the film plane to simplify loading and provides positive film locking zone when loaded.



## VIEWING SYSTEMS

To meet your needs, choose from three types of viewing systems.

**1. FRAMING AND FOCUSING TOOL** for viewing and focusing thru-the-lens without film in place. Attaches to aperture plate in camera.

**2. SELF-RETRACTING REFLEX SYSTEM** for viewing and focusing thru-the-lens with film in place. Reflex optics retract automatically when camera is started. Used with reflex swivel boresight tool (10-20X zoom eyepiece) or with optional top mounted boresight tool designed for applications where access to side of camera is limited. This extends 1" behind rear of series 51 camera and includes 10-20X zoom eyepiece.

**3. CONTINUOUS REFLEX VIEW-FINDER** for thru-the-lens viewing while filming (shown with optional sports/documentary support and 2-speed trigger control). This system utilizes a behind the lens and shutter beamsplitter prism. Viewfinder rotates in two axes - from side over top of camera while maintaining correct image orientation and 360° rotation parallel to camera. Reticle shows normal projection aperture and safe TV aperture. Has fine ground glass with cross hair in center and tracking area outside of projector aperture. Magnification is 10X with a bright image. Light loss at film plane less than 1/2f stop. Accepts standard "C" mount lenses.

## ACCESSORIES

**4.** A complete line of 28 volt batteries with built-in charger and low voltage alarms. Built specifically for high speed cameras.

**5.** Optional timing systems including the microprocessor controlled HDRS Hexadecimal Data Recording System that provides digital data recording on each film frame.

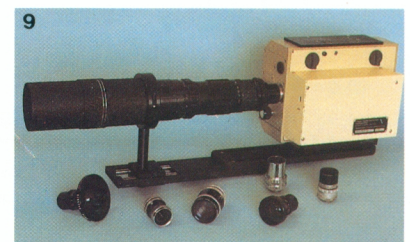
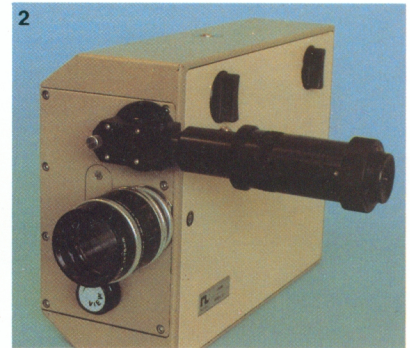
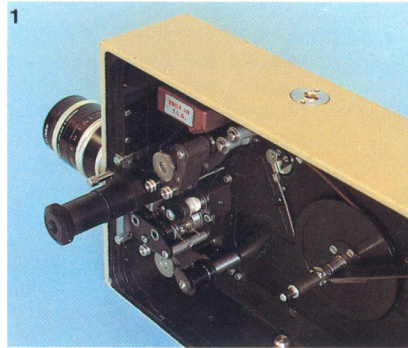
**6.** A full selection of lighting systems to meet any need. The Pallite hi-intensity ring light is shown here.

**7.** Select from a range of tripods and various types of fixed camera mounts with azimuth/elevation adjustments.

**8.** Analysis projectors for flickerless film analysis-stop frame, forward and reverse with a selection of pulse rates up to 12 pictures per second.

**9.** Choose from a large selection of wide angle, standard and telephoto lenses with adjustable lens supports.

**Note:** For further details on accessory items, refer to separate data sheets and price schedules.





## STANDARD SPECIFICATIONS:

TYPE: Intermittent motion with dynamically balanced dual pull-down claws and dual register pins.

FILM: 16mm ASA standard, perforated two sides. Accepts either 0.2994" or 0.3000" pitch film.

FILM CAPACITY: Series 50 accepts 100' and 200' daylight load spools. Series 51 accepts 100', 200' and 400' daylight load spools.

SPEEDS: Continuously variable from 2 to 500 Fr/Sec.

SPEED REGULATION:  $\pm 1\%$  or 1 frame per second, whichever is greater.

SHUTTER: Variable from  $0^\circ$  to  $160^\circ$ .

POWER REQUIREMENTS: 115 Volts AC, 50 to 400 Hz, 3.0 amp nominal or 28 Volts DC  $\pm 4$  Volts, 10.0 amp nominal.

FOOTAGE INDICATOR: Positive displacement type indicating film remaining.

LENS MOUNT: "C" ASA Standard.

MOUNTING PROVISION: 3/8" -16 mounting socket on top and bottom, four 10 -32 mounting holes on top and bottom for dovetail plate.

ELECTRICAL CONNECTOR: Deutsch DM 9601-19P connector. Mating connector is supplied.

FIDUCIAL MARKS: Female type, one top and one side.

WEIGHT: Series 50 - 8 lbs., 11 oz. less lens and film. Series 51 - 11 lbs., less lens and film.

CONSTRUCTION: Cast aluminum with integral mid-rib.

### OPERATIONAL ENVIRONMENT:

Acceleration/Shock: 25g's in both directions of three principle axes, peak shock duration 50 ms.

Temperature:  $-65^\circ\text{F}$

Humidity: 95%

## OPTIONAL SPECIFICATIONS:

### CP-500 CINE/PULSE LOCAM

POWER REQUIREMENTS: 28 Volts DC + 4 -0 Volts. Pulse Mode - 6 amps @ 5 pps. Cine Mode - 10.0 amps @ 500 Fr/Sec.

CONNECTOR: Bendix type, PT02A-14-19P

### OPERATING RANGE:

- Pulse, Internal intervalometer, 1 pulse every 5 hours to 5 pps.
- Pulse, external source customer supplied, to 5 pps.
- Cine, 5 to 500 Fr/Sec, continuously variable.

Nominal Exposure Time in pulse modes is equivalent to 24 Fr/Sec cine rate.

### PULSE DUTY CYCLE:

RATE	MAXIMUM ON TIME	MINIMUM OFF TIME
1 pps	No restriction	No restriction
2 pps	No restriction	No restriction
3 pps	40 minutes	20 minutes
4 pps	30 minutes	20 minutes
5 pps	20 minutes	20 minutes

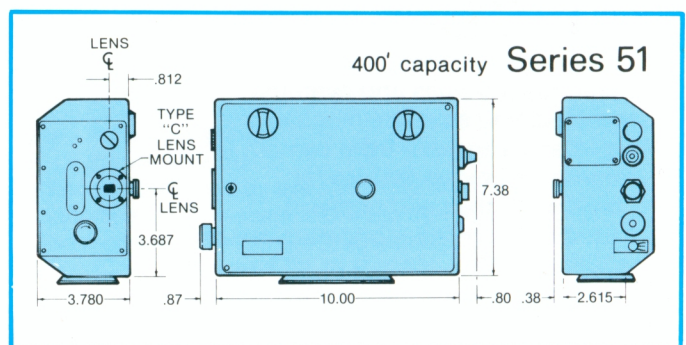
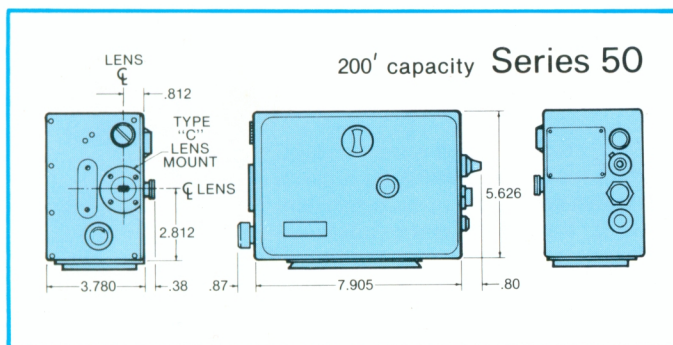
### HI-G LOCAMS

These models are designed to withstand high level shock and vibration forces up to 90 G's, at a peak shock duration of 70 ms. Film spools are positively locked onto the spindle shaft. A large flange take-up spool adapter is utilized along with a ball bearing spindle shaft support on the camera door. Three No. 10 thumb screws provide positive door retention along with the standard latch knobs.

### ACCESSORY EQUIPMENT:

Please refer to price schedule for timing lights, viewing systems, heaters, lenses and other accessories. Due to product improvements, these specifications are subject to change without notice.

PRINTED IN U.S.A.



**REDLAKE CORPORATION**

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