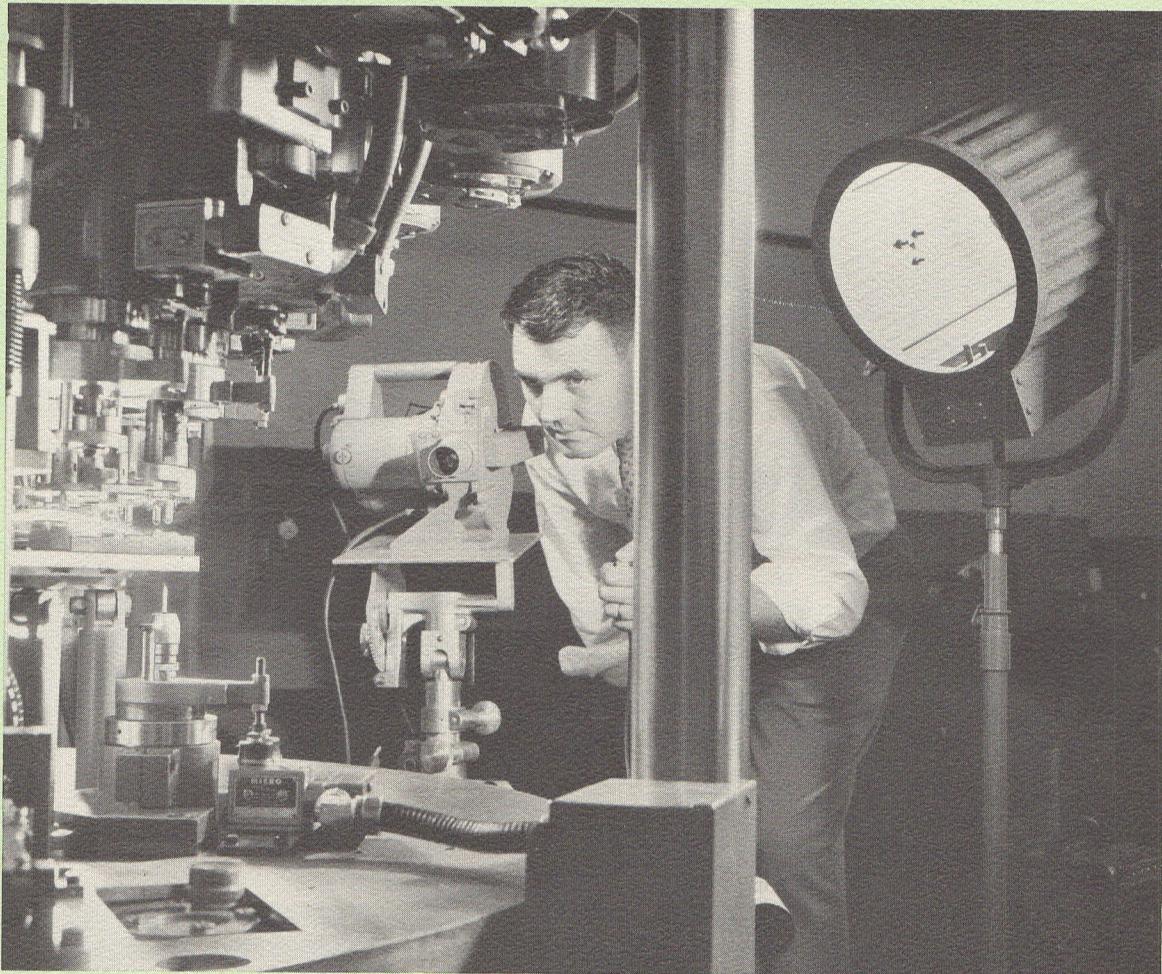


# HIGH-SPEED PHOTOGRAPHY



**A new engineering tool . . . for  
studying actions too fast  
for the human eye to resolve  
. . . saves time, cuts cost,  
reduces engineering effort**

**FASTAX**

**HIGH-SPEED CAMERAS**  
**by**  
**WOLLENSAK**

# What is HIGH-SPEED MOTION PICTURE PHOTOGRAPHY?

High-speed motion picture photography is the taking of pictures at frame rates from 150 to 16,000 pictures per second. It has given research engineers a new tool for studying design and production problems involving movements of mechanical parts, fluids or devices.

When motion pictures taken at 16,000 frames per

second are projected at the normal speed of 16 frames a second, motion is literally "stopped." Time is magnified. Space, too, is magnified when seen enlarged on a projection screen. Thus operations, too fast for the human eye to follow, can be recorded and the results analyzed picture by picture.

## Where is it used?

High-speed photography has unlimited applications. Studies in the electrical, mechanical, chemical, medical, and physical fields have already been successfully accomplished. For example: a study of aircraft wing tips made by a prominent research laboratory, showed that when subjected to supersonic velocities, structural weaknesses resulted. Analysis of the projected film pointed to the elements needing redesign. A medium sized tool company studied cracking of rapidly moving metal cams. "Seeing" the problem made the solution easy. A small ruler company cut printing rejects to a fraction of a percent by using high-speed photography and re-

ducing the blur of speed to simple visual examination, thereby turning an unseeable problem into an obvious solution. The solution took \$12 worth of film plus a few hours' time. The yearly saving was over \$5,000.

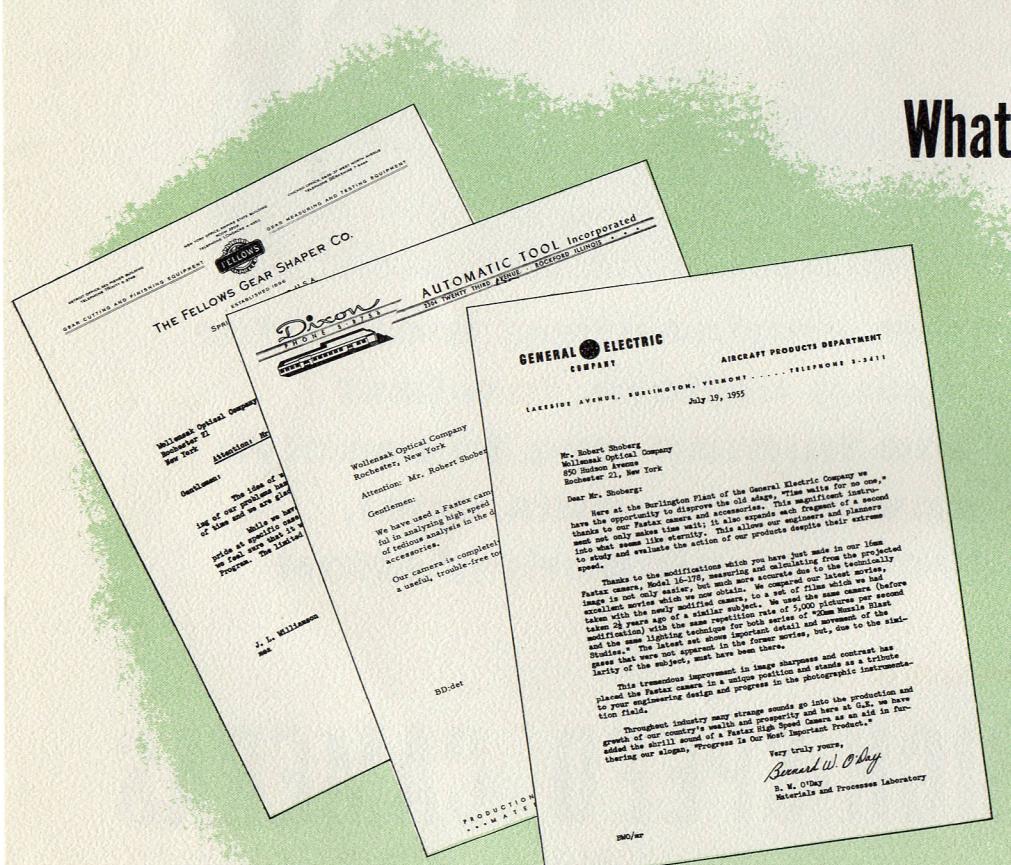
High-speed motion picture photography can help many kinds of businesses whether large or small. It will pay you to investigate.

High speed studies have been made of calculating machinery, motors, generators, firearms, farm machinery, relays, switches, textile machinery, wind tunnel phenomena, the flow of liquids and gases, impact tests, rockets and missiles, airplanes, explosive effects of bombs, shells, grenades, and many other applications.

## What has it accomplished?

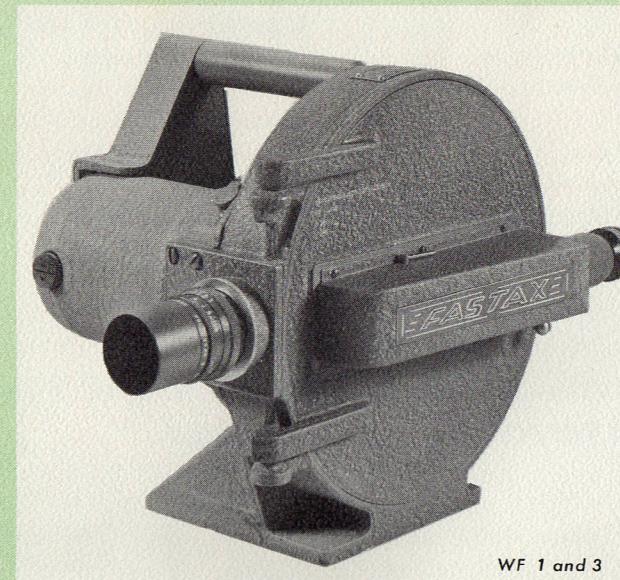
High-speed photography has saved engineering time, spot-lighted design weakness in models and exposed the reasons for parts failure. The result is a saving in time . . . in money . . . in company reputation.

Here are a few letters testifying to the thousands of dollars that were saved by the use of FASTAX high-speed motion pictures.

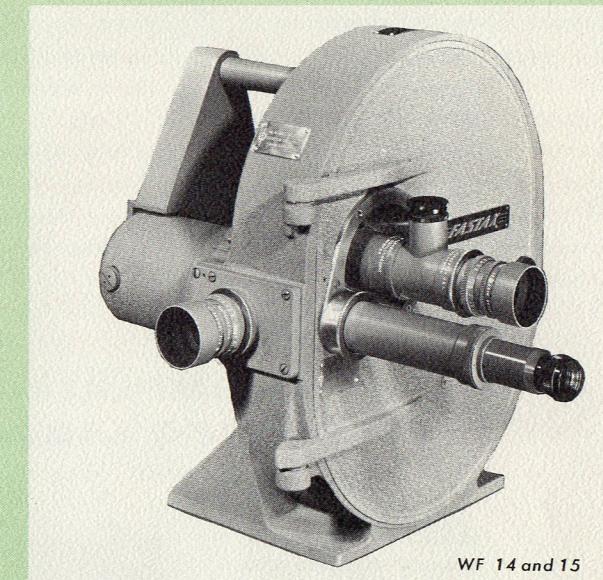


**It's not what you look at, it's what you see. Only with high-speed photography can you see clearly the fastest motion at the leisurely pace needed for accurate analysis.**

# THE WOLLENSAK **FASTAX** HIGH-SPEED CAMERAS . . .

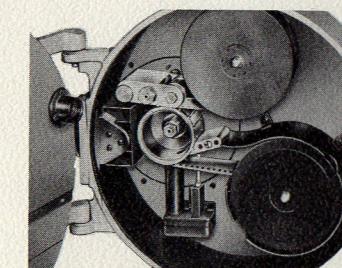


WF 1 and 3



WF 14 and 15

## THE MOST VERSATILE CAMERAS WITH THE GREATEST SPEED RANGES

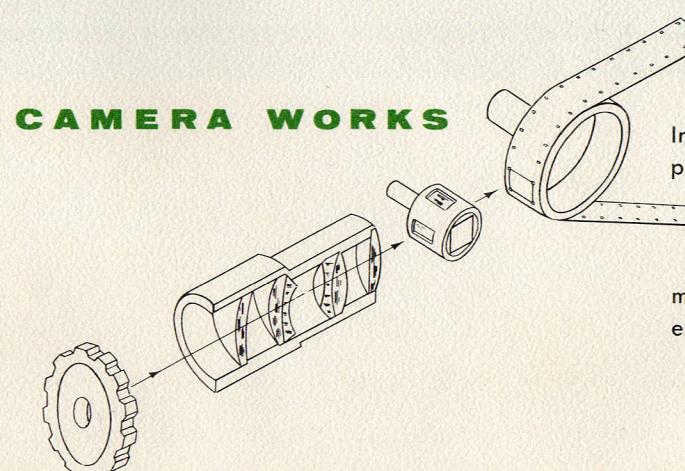


FASTAX cameras are not complex instruments. They can be operated by most anyone with some knowledge of photography and a little training. FASTAX cameras differ from ordinary motion picture cameras in that the film is pulled past the aperture in a continu-

ous motion. Instead of a shutter and the exposing of each film frame during a stationary cycle, FASTAX frames are exposed through a rotating prism, traveling at the same speed as the film. By this method, speeds up to 16,000 frames per second are obtained.

8mm, 16mm, and 35mm FASTAX cameras with 100', 400' and 500' film capacities and speeds from 150 to 16,000 frames per second are available in both straight motion picture and combined motion picture-oscillographic models.

## HOW THE CAMERA WORKS



In the FASTAX camera, light from the subject passes through the taking lens, through a rotating prism and then on to the film. Two motors are used—one to drive the film-sprocket-prism mechanism and the other to take up the exposed film.

# Many Satisfied **FASTAX** Users

Allen-Bradley Co.  
Aluminum Co. of America  
Armour Research Foundation  
Bell Aircraft Corp.  
Bell Telephone Laboratories, Inc.  
Bigelow-Sanford Carpet Co., Inc.  
Burroughs Adding Machine Co.  
Chance Vought Aircraft, Inc.  
Chrysler Corp.  
Convair  
Cornell Aeronautical Laboratories

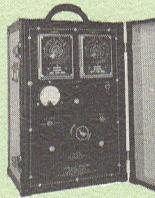
Douglas Aircraft Co., Inc.  
Fellows Gear Shaper Co.  
Ford Motor Co.  
General Motors Corporation  
International Business Machines Corp.  
Arthur D. Little, Inc.  
Massachusetts Institute of Technology  
North American Aviation, Inc.  
Phillips Petroleum Co.

Pratt & Whitney Aircraft Div.,  
United Aircraft Corp.  
Republic Aviation Corp.  
Sandeia Corporation  
Temco Corporation, Inc.  
University of Texas  
United States Air Force  
United States Army  
United States Navy  
Yale University  
and others

## Accessories . . . A COMPLETE HIGH-SPEED MOTION PICTURE LABORATORY IS AVAILABLE



**LENSSES** • FASTAX cameras are supplied with Wollensak Raptar lenses that meet the highest standards of definition, edge-to-edge sharpness and brilliance. Lenses are available in focal lengths from 5.3mm to 80 inches. Extension tubes for extreme close-ups can be provided.



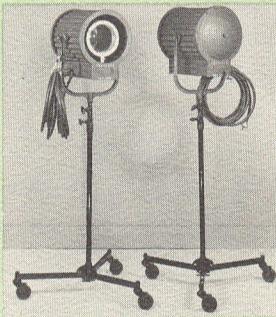
**FASTAX GOOSE CONTROL UNIT** • The control unit consists of a variable AC transformer capable of outputs up to 280 volts which permits maximum operating speeds. In addition, a set of electrical timers make possible synchronization between the camera and event being photographed.



**FASTAX EXPOSURE METER** • This is a special incident-type meter capable of measuring up to 300,000 foot candles.



**FASTAX FILM** • Du Pont Type 931 Rapid Reversal Pan permits increased exposure speeds indoor and out with a minimum of grain . . . has wide latitude, longer tonal range, pinpoint gradation. Can be developed as a negative or as a reversal.



**FASTLITES** • Fastlites are 1,000 watt high-intensity focusing spotlights capable of an output of 50,000 foot candles each. They are mounted on an adjustable stand and sold in pairs.

**WOLLENSAK OPTICAL CO. • 850 Hudson Avenue • Rochester 21, N.Y.**