

# A High-Speed Rotating Mirror With Greater Dynamic Resolution

By WILLARD E. BUCK

*Increased dynamic resolution is possible with a newly designed turbine-driven rotating mirror. This is accomplished by eliminating the air turbulence around the rotating mirror by operating it in an evacuated camera, and by the use of a beryllium mirror that has exceedingly low dynamic distortion. Additional advantages derived from an evacuated camera are: (1) light from the vacuum ultraviolet may be used to increase overall light flux; (2) the mirror may be run to its bursting speed with an air drive with no helium required; and (3) size of air supply equipment is reduced, making a semiportable setup practical. For more convenient operation the new design also includes a built-in oil pump that pressurizes and circulates the oil for the bearings and vacuum seal; a magnetic pickup with a phase adjustable output for precise timing of controlled events; and a vacuum seal between turbine and mirror permitting the camera to be evacuated. A cross-section drawing showing construction details and a set of operating characteristics were presented.*

Presented in summary form on October 20, 1960, at the Fifth International Congress on High-Speed Photography in Washington, D.C., by Willard E. Buck, Buck Instrument Co., and Consultant on Instrumentation, P.O. Box 930, Boulder, Colo.