

GPL . . . Precision Television System with Ruggedized Camera

MODEL PD-152

ii-TV*

GPL



**RUGGEDIZED CAMERA
WITH REMOTE IRIS AND
FOCUS CONTROL**

FEATURES

1. Designed for operation in high vibration and noise environments. Used in flight testing, rocket and jet test stands, wind tunnels, automotive testing applications and military ground applications involving extreme shocks.
2. Operates successfully while subjected to:
 - a. forces of 15 G's in each of its three axes.**
 - b. ambient noise levels higher than 175 db.
 - c. humidity of 100%.
 - d. altitudes up to 100,000 feet without any additional shielding, covers or accessory items.
 - e. temperature extremes ranging from -30°C to $+60^{\circ}\text{C}$. (The only limitation up to 100°C is the inherent difficulty of maintaining the Vidicon target within its range of operating temperature).
3. Complete remote control of lens optical focus and iris aperture available.
4. Camera alone is required at pickup location; all other components may be remote.
5. Associated control equipment—video chassis, sweep chassis, synchronizing generator, power supply and control panel—are housed in a portable carrying case which may be wall mounted when a permanent installation is desired. The control equipment may also be rack-mounted.
6. Two signal outputs: composite video for standard monitor, and modulated r. f. (tunable from channel 2 through 6), for introduction into standard television receivers.
7. Plug-in type chassis for simplified troubleshooting and maintenance.



**CAMERA
CONTROL
UNIT**

* Industrial and Institutional Television Systems Manufactured by General Precision Laboratory Incorporated.
** Tests now in progress indicate this figure may go to 30 G's.



DESCRIPTION

Industry and the Armed Forces have challenged the electronics manufacturer to produce a rugged, closed-circuit television system of high definition for use under extreme environmental conditions. Model PD-152, with its ruggedized camera and associated control equipment, meets this demand.

The camera has been lashed to the engine firewall of aircraft, within a wheel well housing, and has successfully monitored the operation of the landing gear in detail during take-off and landing as well as during in-flight maneuvers. The camera was rigidly mounted to the aircraft structure and no shock isolation of any type was used.

In another application, the camera was mounted in the air-stream on the leading edge of an aircraft wing, outboard of the No. 2 engine nacelle just behind the propeller, for the purpose of viewing the exhaust stack of a turbo-compound engine. Its operation was satisfactory throughout a series of flight tests.

One of the cameras has been employed in some 800 hours of flight tests without incurring a failure although it was located directly in the air stream under the vertical stabilizer with no protection. While not hermetically sealed, the camera is spray

proof and has worked for several days in an icing tunnel without damage or failure.

The camera is the only component required at the pickup scene—all monitor and control operations may be handled at a remote point.

The camera will resolve better than 500 lines with aperture correction to maintain high-definition pickup standards.

The control units can be rigidly wall-mounted or rack-mounted. Where the feature of portability will provide added operational flexibility, this is also provided. The video, sweep, sync generator chassis and the control panel are plug-in units. Duplicates of these can be supplied to function as spare units for rapid replacement. The control panel may be removed and operated remote from its associated units to provide control over "BEAM", "FOCUS", "TARGET", "BLANKING" and "GAIN".

The small physical size and rugged construction of the camera makes this equipment ideal for use in wind tunnels, rocket and jet test stands, automotive testing applications and military ground applications involving extreme shocks. The camera utilizes standard, commercially available 16mm lenses, using a C type mount. Remote operation of optical focus and aperture are available.

These cameras are being produced by GPL under special license arrangement with Lockheed Aircraft Corporation.

CAMERA ENVIRONMENTAL CAPABILITIES*

VIBRATION AND SHOCK

More than 15 G's in each of its three axes.

AMBIENT NOISE LEVELS

More than 175 db.

ALTITUDE

Users have operated camera more than 100,000 feet above sea level without any additional shielding, covers or accessory items.

TEMPERATURE

-30°C to +60°C

HUMIDITY

100%

*These capabilities represent the limits of the environmental test equipment used to test the camera. Thus, it is quite probable that the camera will perform successfully under conditions that extend beyond these limits.

PERFORMANCE SPECIFICATIONS

SYSTEM

525 Lines, 60 Fields Interlaced.

RESOLUTION

500 Lines.

SENSITIVITY

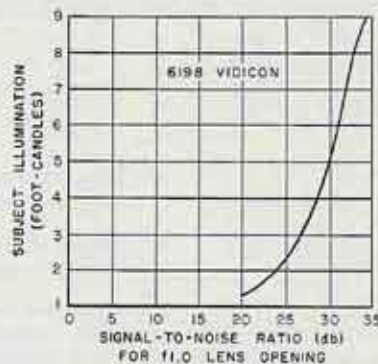
Refer to graph (e.g., with f 1.0 lens opening, S/N ratio of 30 db at 5 foot-candles incident light).

SIGNAL OUTPUTS

Composite Video: 1.4V P-P into 75 ohms.
Modulated R.F.: 0.1V into 75 ohms.

R. F. OUTPUT FREQUENCIES

Tunable from 54-88 Megacycles, covers Channel 2 through Channel 6.



POWER REQUIREMENTS

105-125V-AC, 60 CPS, 180 Watts.

WEIGHT

Camera—6½ lbs.
Camera Control Unit—35 lbs.

DIMENSIONS

Camera—5¾" x 9" x 3½"
Camera Control Unit—
20" x 14¾" x 9"

TUBE COMPLEMENT

7-6U8	2-6247	1-0B2
5-12AU7	1-6AL5	1-6111
3-12AT7	1-6CM6	1-6198

EQUIPMENT SUPPLIED

PD-152-1 SYSTEM

Ruggedized Camera
Portable Camera Control Unit with Power Cable
Complete set of tubes including Vidicon

NOTE: Required but not included—Camera Cable, Lens

PD-152-2 SYSTEM

Ruggedized Camera with Iris and Focus Control
Portable Camera Control Unit with Power Cable
Complete set of tubes including Vidicon
Control Box with Power Cable

NOTE: Required but not included—Camera Cable, Control Cable, Lens, Lens Adapter Kit

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