



F-16C/D HUD CAMERA



Usable on existing F-16C/D retrofit from Block 40 and up and F-16 MLU.

Successfully passed all military testing requirements.

P/N: 93-4300-200

The Photo-Sonics F-16C/D camera is an intelligent mix of MIL-Standard and ruggedized Commercial-Off-The-Shelf (COTS) components. This combination provides excellent environmental characteristics and superb image quality at a reasonable cost. This fully qualified, lightweight camera assembly is designed around single-unit construction and is easily installed and aligned in less than one hour. The camera incorporates extensive filtering to provide noise-free images using 400 cycle aircraft power. Although designed for 115VAC, 3-phase, 400 cycle aircraft power, the camera can also be used with 85 to 265 VAC, single phase, 47 to 440 cycle power. This allows ground support of the camera using conventional U.S. and foreign power without the necessity of an expensive 400 cycle power converter.

The unit is a form, fit and function replacement for the legacy camera. No aircraft modifications are necessary, and no special interface cable is required. The existing aircraft connectors and mounting provisions are used. The single-piece design eliminates the need for the remote Electronic Unit (EU).

The camera has successfully passed Mil-Standard environmental and EMI tests as outlined on the reverse side of this document.

During the development of this camera, early configurations were flown extensively by Lockheed and others on F-16C/D demonstration aircraft and the F-16AFTI aircraft. Early configurations of this camera are currently flying in production installations in several air forces around the world.

The camera assembly is mounted on the HUD in front of the dual combiners. In this position, the camera records only the outside world. The HUD symbology is electronically overlaid on the camera video in the HUD Electronic Unit. A precision periscope/lens assembly permits accurate boresighting with the aircraft computer resulting in minimal pipper-to-target alignment errors. A simplified alignment procedure is included in the manual.

Photo-Sonics has delivered more than 5000 gunsight cameras and over 1800 HUD cameras since 1969. During this time we developed unique camera configurations for over 25 different tactical aircraft models including the F-16A/B.

SPECIAL FEATURES:

- **No modifications to F-16C/D**
- **Superior image quality**
- **High reliability (>30,000 MTBF)**
- **Event Mark usable on both day and night missions**
- **Form, fit, and function replacement unit for block 40 and up**

Photo-Sonics, Inc.

FEATURES

- 85 to 265VAC, 47-440 Hz, single phase
- Automatic Exposure Control (AEC)
- Visual event mark (day and night)
- Sensor: Interline-transfer hyper HAD CCD, 1/2"
- Horizontal resolution: NTSC - 470 TV lines
- Picture elements: NTSC - 768(h) x 494(v)
- Sensitivity - 2000 Lux at f/5.6
- S/N ratio: Camera Video - NTSC > -48dB
- Shutter speeds: 1/60th second, flickerless, and CCD iris
- Gamma - 0.45
- White balance - ATW
- AGC - off
- Weight - less than 2 lbs
- MTBF: >30,000 hours
- 12 month warranty

OPTICAL SPECIFICATIONS

Lens Focal Length	FOV Horizontal	Degrees Vertical	FOV Horizontal	Milliradians Vertical	Application
16.42mm, f1.4	22.06	16.63	384.9	290.3	HUD-Special

ENVIRONMENTAL SPECIFICATIONS

Test	Procedure	Method	Specification
High Temperature	I and II	501	MIL-STD-810B
Low Temperature	I	502	MIL-STD-810B
Temperature Shock	I	503	MIL-STD-810B
Humidity	I	507	MIL-STD-810B
Altitude	II	500	MIL-STD-810B
Salt Spray (500 hours)	I	509	MIL-STD-810E
Random Vibration	4.2.3.3.2.2*	514	MIL-STD-810B
Sinusoidal Vibration	4.2.3.3.2.1*	514	MIL-STD-810B
Gunfire Vibration	4.2.3.3.2.3*	514	MIL-STD-810B
Fungus	I	508	MIL-STD-810B
Sunshine	I and II	505	MIL-STD-810B
Rain	I	506	MIL-STD-810B
Sand and Dust	I	510	MIL-STD-810B
Explosive Atmosphere	II	511	MIL-STD-810B
Temperature - Altitude	I	504	MIL-STD-810B
Acceleration	V	516	MIL-STD-810B

* Paragraph of Lockheed Camera specifications.

EMI/EMC Tests to MIL-STD-461D

RE102	Radiated Emissions
RS103	Radiated Susceptibility
CE102	Conducted Emissions
CS101	Conducted Susceptibility
CS114	Conducted Susceptibility
CS115	Conducted Susceptibility
CS116	Conducted Susceptibility