

CASE STUDY

AD Aerospace Cargo Surveillance Solution

A series of CCTV cameras within the cargo area of aircraft connected to a digital video server and Electronic Flight Bag (EFB) or dedicated LCD display situated on the flight deck, which allows the crew to keep a visual check on cargo loading, to assess progress and monitor for illegal activity.

Somon Air is the national air carrier of Tajikistan, which has been operating international flights since 2008 on a scheduled and charter basis. The airline operates a fleet of Boeing 737-300, -800 and -900 aircraft, and identified a requirement to increase security measures to help protect both the aircraft cargo from theft and damage, and also to help identify the cause of damage to the aircraft in the vicinity of the cargo bays.

AD Aerospace has a broad portfolio of aerospace approved video surveillance equipment, from which it draws appropriate units to design bespoke cargo bay video surveillance systems according to customer's requirements. In this instance, a system was proposed which consisted of two FV-0421 Covert Video Surveillance Cameras per cargo bay, with optional camera housings and associated FV-0950 Camera Control Units, an FV-0610 Video Transmission Unit, and an optional FV-0835 cockpit mounted LCD Monitor with associated FV-1050 Control Panel.



FV-0421

Video Camera



FV-0950

Camera Control Unit



Optional Camera
Housing



FV-0610

Video Transmission Unit



FV-0835

6" LCD Monitor



FV-1050

Control Panel



The Technical Details

The FV-0421 Video Camera is very compact and ideally suited to installations where either partial or complete concealment is required. In this case, an optional subtle camera housing was proposed which would allow a relatively easy camera installation and provide a visible but subtle presence. The camera produces colour images in normal lighting conditions but continues to operate down to extremely low light conditions where it switches to monochrome without the need for any additional Infra-Red illumination. Each FV-0421 camera requires an associated FV-0950 Camera Control Unit which is required to supply the camera with 12V power supply as opposed to aircraft 28V.

The FV-0610 Video Transmission Unit provides for up to 8 video inputs, which are multiplexed, digitized, and compressed. The video is then stored on an easily accessed Compact Flash memory card which can be removed for remote viewing on a laptop, This is a compact unit that can be installed almost anywhere on the aircraft provided there is access to enable removal and replacement of the Compact Flash memory card. In this instance, installation in the electronics bay was proposed. The system utilizes aircraft weight on wheels switching in order to ensure that video recording only takes place whilst the aircraft is on the ground, in order to conserve memory space.

The option of providing a live viewing capability was proposed by use of an FV-0835 6" LCD Monitor with an associated FV-1050 Control Panel. Whilst not an essential part of the system, this added functionality allows for live monitoring of the cargo bays during the loading and unloading process and thereby allowing immediate identification of any damage to the cargo or airframe, or illegal behaviour by baggage handlers.

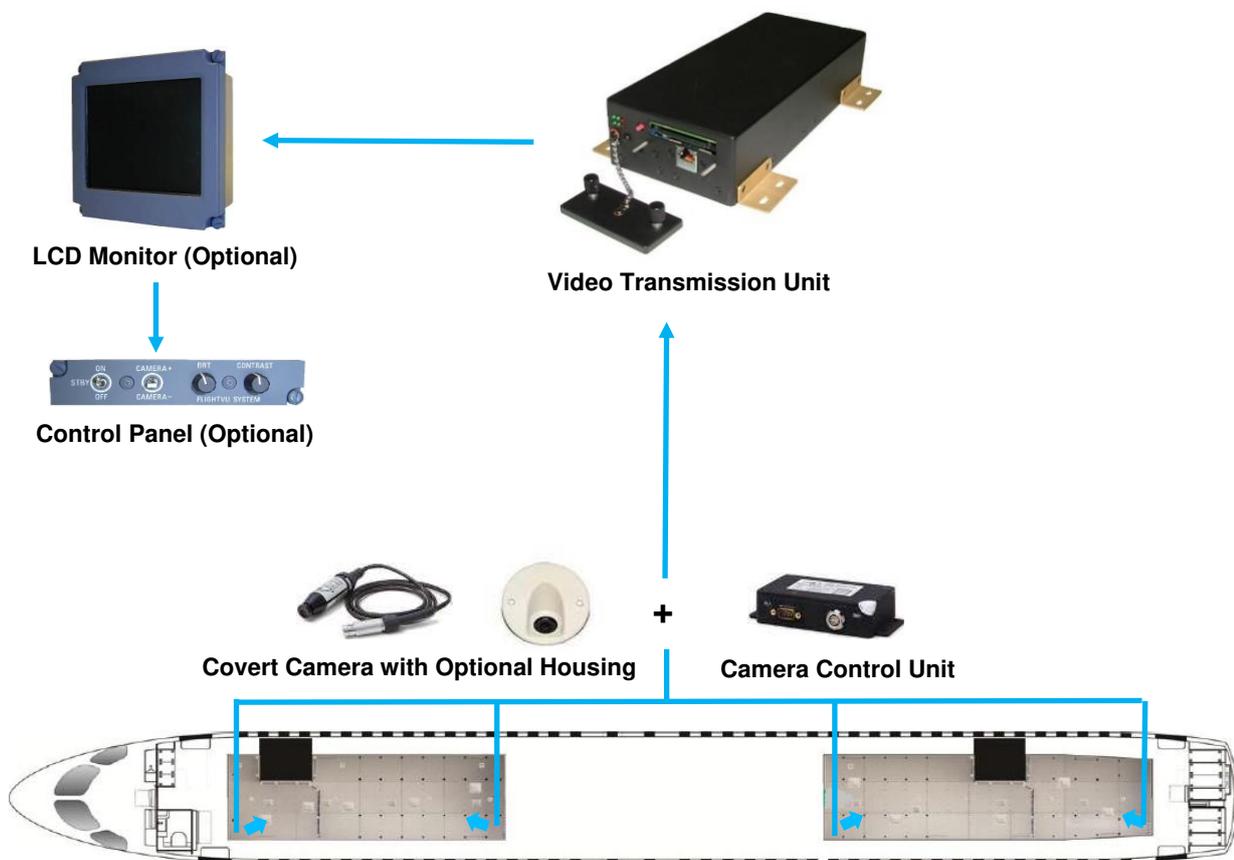


Figure 1: System Schematic (generic aircraft image)



The Technical Details continued

Such Cargo video surveillance systems can help deter illegal activity in the cargo bays, but should this still occur, it provides recorded video evidence of activity in the cargo bay during the process of cargo loading and unloading. Utilizing motion detection software, activity in the cargo bays is recorded if anyone enters the cargo bay either for legitimate reasons or with the intention of committing an illegal act such as drug smuggling or theft for example. In the case of such activity occurring, or should damage occur to either the cargo or the airframe during the loading or unloading process, video evidence would be captured, thereby allowing such evidence to be submitted in the case of legal action, where such evidence is admissible.

So, the AD Aerospace Cargo Surveillance System not only acts as a deterrent for illegal activity in the cargo bays, but should such activity still take place, the system will provide recorded video evidence to help identify the cause of damage and the perpetrators, thereby helping to reduce potentially costly and time consuming repair work, drug smuggling fines, or excessive insurance claims which impact premiums.

