CASE STUDY

United Airlines

United Airlines is a major American airline which operates a large domestic and international route network spanning all six continents. Measured by fleet size and the number of routes, it is the third largest airline in the world. United Airlines decided that although the installation of a cockpit door surveillance system is not mandated by the FAA, the benefit of providing visibility to the pilots of the area outside the cockpit door, would be an important factor when selecting options for the new Boeing 737MAX aircraft on order.

AD Aerospace has a Boeing line fit approved Flight Deck Entry Video Surveillance System (FDEVSS) for all variants of the Boeing 737, and after promptly addressing all questions in relation to the system, it was subsequently chosen for installation on all new B737MAX aircraft.

The Boeing line fit FDEVSS system includes three FV-0406 Monochrome Video Surveillance Cameras, three FV-1038 Infra-Red Illuminators, three FV-0950 Camera Control Units, an FV-0530 MFD Video Switch Unit, and an FV-1070 Control Panel.

FV-0406 + FV-1038

In Boeing Housing

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FV-0406

Video Camera

+

FV-1038

IR Illuminator

FV-0950

Camera Control Unit

FV-0530

Video Switch Unit

FV-1070

Control Panel

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The Technical Details

The system includes three FV-0406 Monochrome Video Surveillance Cameras which are installed in a Boeing designed housing which also allows for installation of an FV-1038 Infra-Red Illuminator. The three housings with cameras and Infra-Red Illuminators installed, are fitted in appropriate locations immediately in front of the cockpit door, above the forward passenger door and above the forward service door. This combination of camera locations provides full visibility of the forward passenger cabin area from in front of the passenger door, right across to the service door, including the galley area. This means that when the pilot is checking the system to identify who is requesting access to the cockpit, it is also possible to see that there is nobody else hiding behind the toilet bulkhead or in the galley, and that the person outside the galley door is not under threat or duress.

The Interface between the cameras and the Video Switch Unit is managed by an FV-0950 Camera Control Unit, with one being installed for each camera. The Camera Control Units provide regulated, filtered DC power (12V) to the cameras, as well as providing a 100-ohm balanced video signal drive output for distances of up to 100 meters (328 ft), ensuring a cleaner image.

The FV-0530 Video Switch Unit has up to 4 balanced video inputs, which are switched to the various MFD screens in accordance with the Boeing D6-83088 “Multifunction Display Flight Deck Entry Video Surveillance System Requirements Document”.

The FV-1070 Control Panel is used in conjunction with the FV-0530 Video Switch Unit. The front panel switches are fitted behind a light plate which provides trans-illumination through the switches, around the panel and through the lettering, allowing the clear identification in a darkened flight deck.

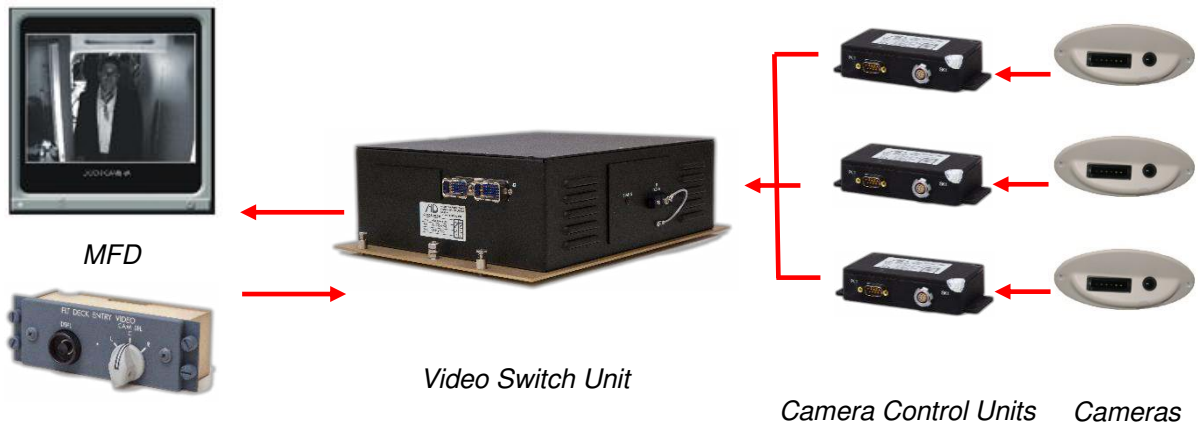

Figure 1: System Schematic

The whole system is installed by Boeing during the aircraft production stage. Once fully functional, the pilots have full visibility of the area outside of the cockpit door, are able to clearly identify anyone requesting permission to access the cockpit, and are able to be made fully aware of all activity within a 2-3 metre radius from the door.

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