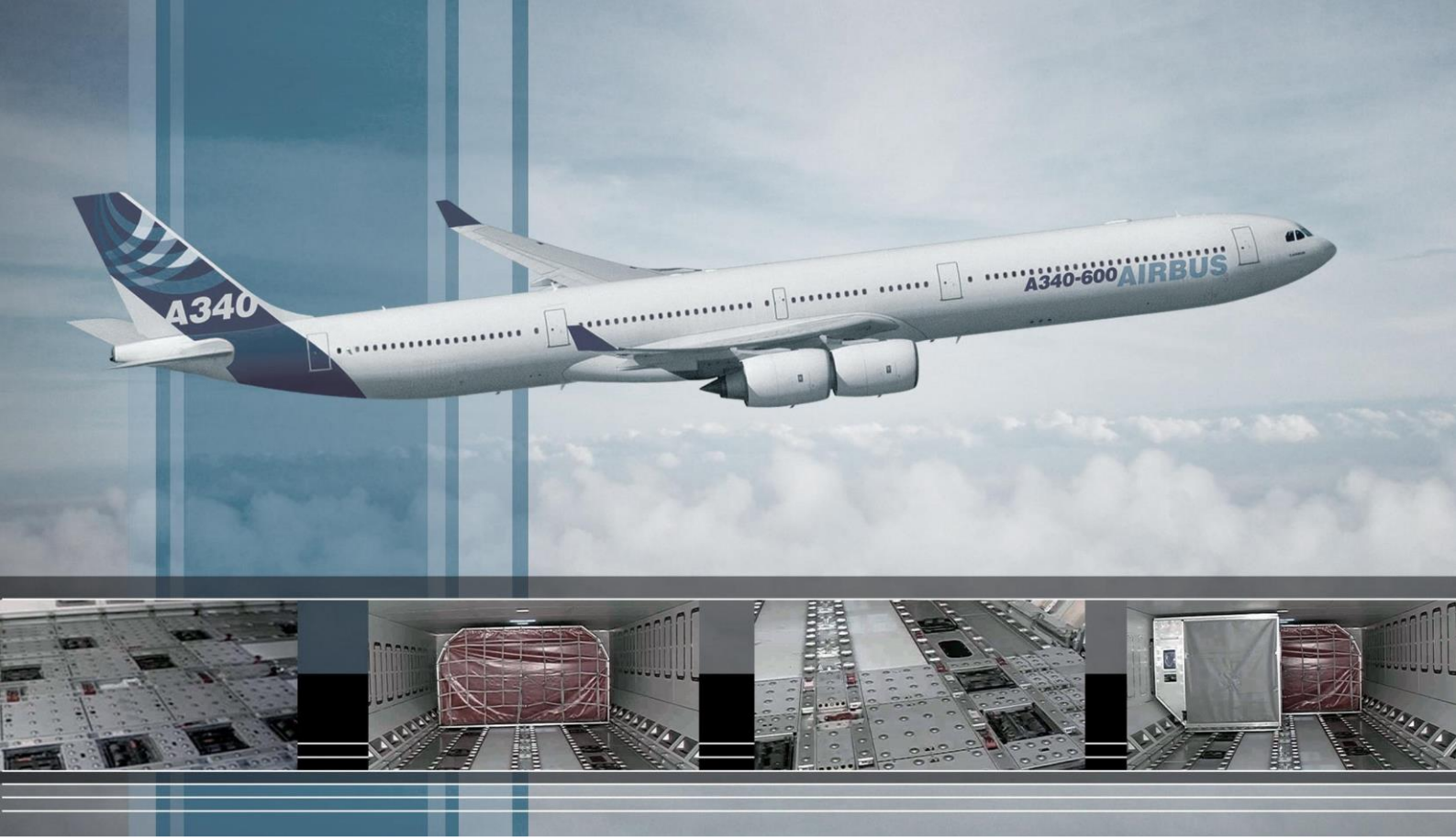

Cargo Loading Conveyance System –

Airbus A340 – 500/600

ADAS has been exclusively selected by AIRBUS to develop and cargo loading conveyance systems for the A340-500/600 series.

Thus, the ADAS scopes of supply today not only includes power drive units, but also control systems – consisting of control boxes, control panels and displays – which play a crucial role in every aircraft.

In the hatch area of the cargo hold, perfect control technology – and especially the interplay of the control system and the power drive units – ensures optimum loading of containers into the interior of the passenger planes. Further back in the cargo hold, in an A340-600, for example, PDU systems (roughly the size of a standard sheet of paper) transport the containers into their final position, where they are then locked into place.

Quite inconspicuous, the PDUs are an erecting roller design: when a container rolls in, the motor erects itself, transporting the load via one rubber roller to the next. In this way, the container moves automatically through the aircraft.

Loading and unloading is the responsibility of a single employee, the loader, who controls the cargo loading system at the control panel. The loader stands on a hydraulic platform lift, controlling the loading process via the joystick and the switches of the control panel.

The Compartment Control Box is the heart of the system. It provides the central power for the overall system and controls and monitors the power drive units (PDU‘s) in the cargo door area (ballmat). The box is also the interface to the Outside Control Panel and the Inside Control Panel which is an innovation, fitted in the ceiling above the ball- mat area.

The number of Sector Control Boxes used depends on the size of the cargo compartment. These boxes are responsible for local control and monitoring of the power drive units in individual sectors, using incoming signals from the proximity switches and container/pallet sensors for ULD- sensing. Another new development in the A340-500/600 system is the Maintenance Display Unit. As the central display and evaluation system, which indicates malfunctions of individual components to enable efficient trouble shooting. The complete system architecture developed by ADAS is distinguished by its very high flexibility. All system units communicate via a CAN bus network.

Cargo Loading Conveyance System

System Components - Technical Features

Operation	•With electrical aircraft power •Independent from the other CLCS •On ground only •Semi-automatic (ulds will be moved by the pdu‘s and manually locked)
Main functions	•ULD transport with electrical power drive units •Human machine interface •Monitoring of electrical system components •Indication of CLCS fault data on the maintenance display
Compartment Control Box (CCB)	•Installed in the doorway area of each cargo compartment •Distributes, controls and monitors the AC and DC cargo compartment power supplies •Monitors the joystick commands from OCP and ICP •Monitoring and control of transversal pdu‘s in the ballmat area
Sector Control Box (SCB)	•Installed in the floor of the cargo compartments •Control and monitoring of pdu‘s and proximity switches
Maintanenance Display Unit (MDU)	•Installed in the door area of each cargo compartment •Indicates relevant maintenance data on a display in alphanumerical form •Generates real-time data to synchronise the process timing
Outside Control Panel (OCP)	•Located behind a service door in the outer skin of the A/C fuselage forward of the cargo door •Main command interface for the operator •5-way joystick including SPLIT command •System power ON/OFF switching and indication
Inside Control Panel (ICP)	•Located in the ceiling of the ballmat area near the cargo door •2-way joystick for FWD/AFT command
Power Drive Unit (PDU)	•Designed to transport ulds with both smooth and uneven bottoms •Provides ULD hold function •Equipped with an ULD present sensor •Self-lift PDU (installed in the ballmat area driven in longitude and transverse) •Spring-lift PDU (installed outside the ballmat area driven in longitude direction)

Airbus Defence and Space
Airbus DS Airborne Solutions GmbH | Sebaldsbrücker Heerstrasse 235 | 28309 Bremen | Germany
T: +49 (0) 421 457-07 | F: +49 (0) 421 457-4755 | www.airbusds-airborne.com