

MOTORIZED EMPENNAGE SYSTEM WITH ACQUISITION



REFERENCE : EX600-B

This system makes it possible to approach the fields of Mechanical Engineering and Electrical Engineering :

- Structural analysis of the empennage control mechanism
- 1 TD with corrected : role of empennage in the flight dynamics of the A320
- Functional analysis of the empennage control mechanism
- Identification of the components of the empennage control mechanism
- Schematic and geometric representations of this mechanism
- Kinematic behavior of this mechanism Static behavior of this mechanism
- Technical analysis, characteristics of assemblies and guides
- Definition, structure of a slave system and definition of performance
- Open loop operation of the system with obtaining graphs of kinematic and dynamic functions
- Closed loop operation of the slave system (gain adjustment) with obtaining graphs, kinematic and dynamic functions

Technical specifications :

- An articulated tail support with respect to the attachment frame. The support was designed to allow to create, manually, a complementary effort of disturbance on the empennage.
- From a DC motor.
- Of a bevel gear pair, with straight teeth,
- From a screw - ball nut system.
- Two spring rods (simulating the aerodynamic forces), with springs of two different stiffness.
- A visualization device for the operation of the ball screw.
- Motorized tail system with acquisition.
- A part information and steering system composed:
 - A PCI card to acquire the data
 - An angular position sensor, located on the ball screw
 - A potentiometric sensor located on the tilting box, measuring the angle of rotation of the empennage
- Of an acquisition chain of the following functions: voltage at the motor terminals, moment of the engine torque,
- Angular positions of the empennage, angular input and output speeds of the mechanism, overall reduction ratio
- An electrical box including the power card of the stepper motor, a power supply, the connections required to connect the model and the PC (not supplied).

Non contractual photo

SERVICE :

**DIMENSIONS : EX600 : 700 X 500 X 400 MM;
ELECTRICAL CABINET : 300 X 220 X 150
MM
WEIGHT : EX600 : 4 KG; ELECTRICAL
CABINET : 1KG**