

CASE STUDY

3D Modelling & ALM Printing

Workstation and Equipment Rack Prototyping



/ Task Objectives

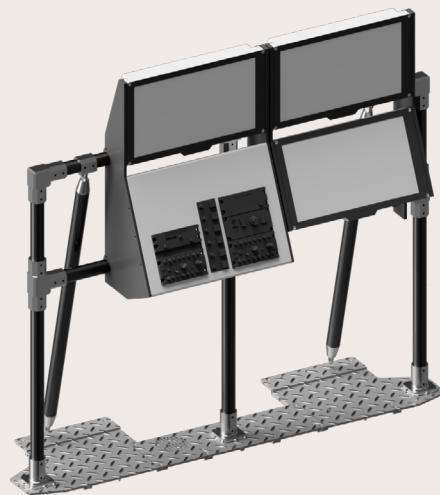
AFD was engaged by Airbus Helicopters UK to create 3D-CAD models and 3D-Printed ALM artifacts (or prototypes) of a modular workstation and mission equipment rack for a special mission variant of the H145 helicopter.

Modular Workstation

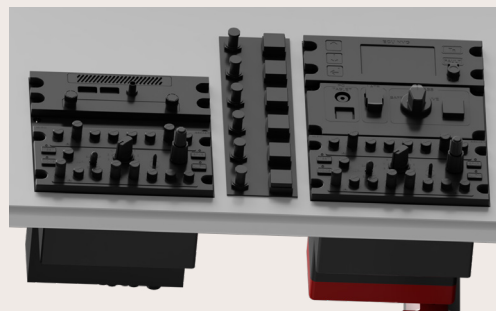
An initial concept of the modular workstation structure was provided by AIRBUS and this was subsequently refined and optimised by AFD for strength and manufacturability.

Adaptations to the real structure were introduced to the 3D-print models to ensure parts were optimised for printing.

A combination of black and white toughened PLA was selected as the preferred materials for printing the workstation in order to distinguish various elements of the assembly, keep the material cost down, and enable a quick turn-around.



The workstation screens and equipment were assembled using a combination of adhesive and mechanical fasteners to form a sub-assembly, prior to final assembly into a representative frame within the helicopter cabin.

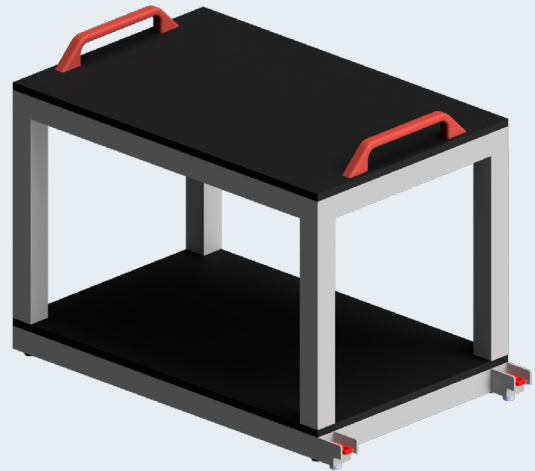


Equipment Rack

A similar process was followed for the equipment rack.

A combination of grey, black and red toughened PLA was selected as the preferred materials in this case.

The equipment rack was assembled using similar means as the workstation and subsequently used to investigate optimal placement of avionics equipment and wire cable routing.



Conclusion

AFD provided a turn-key service for 3D modelling and subsequent additive layer manufacturing in response to an urgent customer requirement to demonstrate their latest design concept for the H145 modular workstation and equipment rack, designed specifically for special mission operations.

AFD employed a mix of skills, toolsets, and advanced manufacturing techniques to create realistic physical artifacts of both the workstation and equipment rack, simplifying the models to enable rapid prototyping, and utilising low cost materials and 3D printing technologies.

With a commitment to excellence in engineering, we ensure our customers receive timely solutions to the highest standard of service, every step of the way.



// "AIRBUS Helicopters UK had an urgent customer requirement to demonstrate design concepts for a modular workstation and equipment rack. Engaging with AFD enabled the delivery of rapid and representative 3D printed prototypes that subsequently aided discussions and sales with our customer." //

AIRBUS Helicopters UK
Head of Design

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