

HYDRAULIC HIGH POINT

One company has designed and manufactured a universal test stand to support a multinational fighter development program

The Eurofighter project required just one single testing solution for hydraulic components. On top of this, the customer required a multiplatform capability. The universal hydraulic component test stand was developed to provide the engineering solution, as well as to deliver a sustainable business case that provided excellent value for money.

In military aviation, the necessity for component testing has many special requirements. Every nation has different weapons systems and the maintenance process and specification is provided by the individual nations. In the 1980s, the UK, Germany and Italy started to fly the Tornado fighter/bomber and the maintenance equipment for this aircraft was purchased.

In early 2000, these nations started to put a more complex weapon system into service – the Eurofighter Typhoon – together with the corresponding maintenance equipment.

COMBINATION DEVELOPMENT

Test-Fuchs, a global specialist in customized test equipment, reacted quickly and designed a universal hydraulic component test stand that can be used for Eurofighter and Tornado components at the same time.

The German Air Force was the first to use this rather complex test stand, which fulfills the tasks of various hydraulic test stands. Up to 28 components for the Tornado can be tested, including actuators, selector valves, hydraulic tank and door locks. The same test stand is also capable of testing up to 56 hydraulic components for the Eurofighter Typhoon. Among these are primary and secondary flight controls, actuators, break manifolds, servo valves, filter packages and landing gear. These test stands operate with three individual and independent workstations, using one hydraulic power unit, meaning different components can be tested at the same time.

Workstation 1 has a horizontal loading mechanism for actuator testing and an external, vertical loading mechanism for undercarriage testing.

Workstation 2 has a load unit for steering motors and components with high flow.

Workstation 3 features a hydraulic quick fixing plate including seven internal, free connectable elements.

EC&MU

An important feature that has been included for the primary actuator tests is an electronic and monitoring unit (EC&MU).

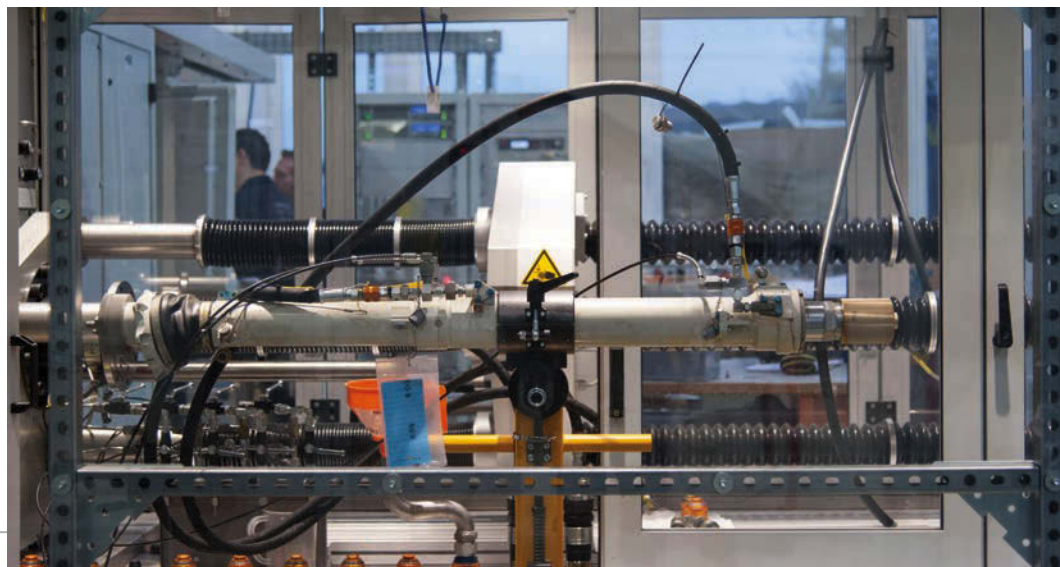
To reduce test time for each workstation, a new innovative quick clamp device saves time mounting the components. Each workstation can be operated manually or with fully automatic test runs, which is extremely user-friendly and intuitive. The software is Windows-based and easy to use.

After the first one of these unique test stands had been delivered to Germany, the other nations that were using the Eurofighter started to show an interest in this extraordinary development. The economic crisis and the reorganization of air forces have led to drastic cuts in budgets, and this investment will help to save money in the long term, due to lower circular flow of spares and shorter turnaround time. Additionally, all the tools, adapters and test hoses are available in the scope of delivery. The test stand also has low maintenance requirements, high reliability and a proven track record.

According to clients, this test stand is an ideal solution because it is flexible and can easily be adapted for components of other

aircraft types, and new component programs can be installed via remote maintenance. The UK version of this test stand has already been put into service and is used to test the hydraulic components of the Eurofighter Typhoon. The delivery, installation and commissioning can be carried out in less than three weeks; considering the size and complexity of the equipment, this is very quick.

The Italian version of the test stand will be delivered in spring 2014 and will help to cut down maintenance costs for the Italian government in the future. ■



ABOVE RIGHT: Aircraft landing gear trials

RIGHT: Inflight refueling probe under test

FREE READER ENQUIRY SERVICE
Test-Fuchs GmbH

READER
ENQUIRY
104

To learn more about this advertiser, visit <http://www.ukipme.com/info/tea> NOW!