

Combined Test System for Aircraft Mounted Accessory Drive (AMAD), Generator Converter Unit (GCU) and Transmission Units

>PAM18GT<



This combined test system provides for testing of Aircraft Mounted Accessory Drives, Generator Converter Units, Transmission Units, generators, and regulators. It serves to check identification data, such as pressure, flow, temperature, torque, force, speed, angle of rotation, vibration, voltage, current, frequency, and power.

- > In addition to the test stations, the test system (short designation: GEPAL) also contains the hydraulic and lube oil supplies as well as a cooling water aggregate.
- > Operation and monitoring of the test system is effected from two control desks, which can be used alternatingly. One control desk is installed in the control room, the other in the test room. Each control desk is equipped with monitor, keyboard and mouse. The control desk located in the test room moreover is equipped with incremental potentiometers (for adjustment tasks).

GENERAL INFORMATION

- > The test system is to be operated using keyboard and mouse resp. following the instructions and menus displayed on the monitor. The measurement values are displayed on the monitor digitally and analogically (bargraphs) and are also saved. Error messages are read out in clear text. The test runs can be executed fully automatically, semi-automatically or manually.
- > A laser printer provides for the printing of curves showing dynamic processes (X/Y and X/T diagrams). Highly dynamic processes are stored in a dynamic recorder channel and can also be printed.
- > Each pressure transducer is equipped with shut off valve and parallel outlet enabling easy calibration as well as the use of the pressure transducer in another circuit (the pressure transducers are freely switchable).
- > The test oil and lube oil circuit are separated from each other and integrated in separate cabinets. The cooling circuit is mounted in a cabinet beside the transmission unit. The electrical items are all installed in closed switch cabinets; these cabinets also contain the mains connector.
- > Driving and loading unit
Both the deposit area for the UUT and the large-surface mounting platform are accessible by the swivel crane with precision hoist control.
The mounting platform is equipped with two connection boxes containing all the electrical and hydraulic connectors. The hydraulic supply connectors are arranged around the mounting platform. Confusion about quick-disconnect couplings or multi-pin connectors is practically impossible as these elements are all clearly labeled i.a.w. a defined identification code.
The mounting platform is designed to receive the UUT as well as the test stand driving and loading units. Each loading unit can be regulated from minimum to full load by means of a control valve. ATS and PTS drives further can be switched to the functions driving, braking or idle run.
Due to the fact that the units are equipped with energy recuperation systems the driving power only needs to cover efficiency losses. All the units are equipped with torque measuring systems. Speed values are determined either using suitable transducers or via the AMAD transmission ratio.
- > Transmission unit
The swivel crane serves to transport UUTs and test equipment.
The UUTs are adapted on an adaption revolver similar to that used on the aircraft. Mounting time is reduced to minimum.
The variable electric drive unit provides for loading at the input. The input shaft is equipped with torque, speed and rotary angle measuring systems and can be stopped (brake function), if necessary.
Output loading is provided by a servocylinder and measured by means of a load cell. In addition to the load cell and the torque measuring system, the output is equipped with measuring systems for rotary angle and running time.
The system enabling the measuring of the operating angle and backlash testing is directly connected to the UUT.

- > Hydraulic and lube oil supply
The main tank (hydraulic oil) has a capacity of approx. 500 l; the lube oil tank has a capacity of approx. 100 l. The two tanks are made of stainless steel. The filling level is monitored by three float-type switches. A temperature sensor measures the oil temperature in the tank; an overtemperature switch protects the unit against inadmissibly high temperatures.
- > Cooling water aggregate
The two fluids, i.e., cooling medium and fresh water, run in separate tubings. Indication and adjustment of the positions of the various valves and the output temperature are effected on and from resp. the control desk. In the event of malfunction, the respective error message is displayed on the monitor.

TECHNICAL DATA

<p>> General Information:</p> <ul style="list-style-type: none"> - Cooling water aggregate Temperature: 11 to 30°C (controllable) - Hydraulic Low pressure: max. 10bar, 220lpm High pressure: max. 315bar, max. 190lpm High pressure: max. 320bar, 16lpm Main tank: approx. 500litres Lube oil tank: approx. 100litres - Motor (ATS) Speed: max. 14 000rpm Torque: max. 500Nm - Generator Speed: max. 28 000rpm Torque: max. 200Nm - Hyd. pump Speed: max. 5 000rpm Torque: max. 200Nm - Fuel pump Speed: max. 8 000rpm Torque: max. 100Nm 	<ul style="list-style-type: none"> - Pump / motor (PTS) Speed: max. 20 000rpm Torque: max. 500Nm - Transmission unit Force: max. 100N Force: max. 200kN Stroke: max. 260mm Time: max. 999,9sec Rotation angle: max. 45° Rotation angle: max. 360° Torque: max. 500Nm Speed: max. 500rpm - Computer system INTEL Pentium, Industrial Standard Windows NT Workstation 4.0
	<p>> Power requirements:</p> <p>Electrical mains supply: 3/N/PE AC 50Hz 400V (main supply) 1/N/PE AC 50Hz 230V (emergency power supply) 1/N/PE AC 50Hz 230V (lighting)</p> <p>Compressed air supply: 6 to 10bar</p> <p>Fresh water supply: Inlet temperature/ outlet temperature T 50°C flow rate max. 70lpm</p>

OPTIONS

Many options are possible for adaption, e.g. adaption to other aircraft types etc.