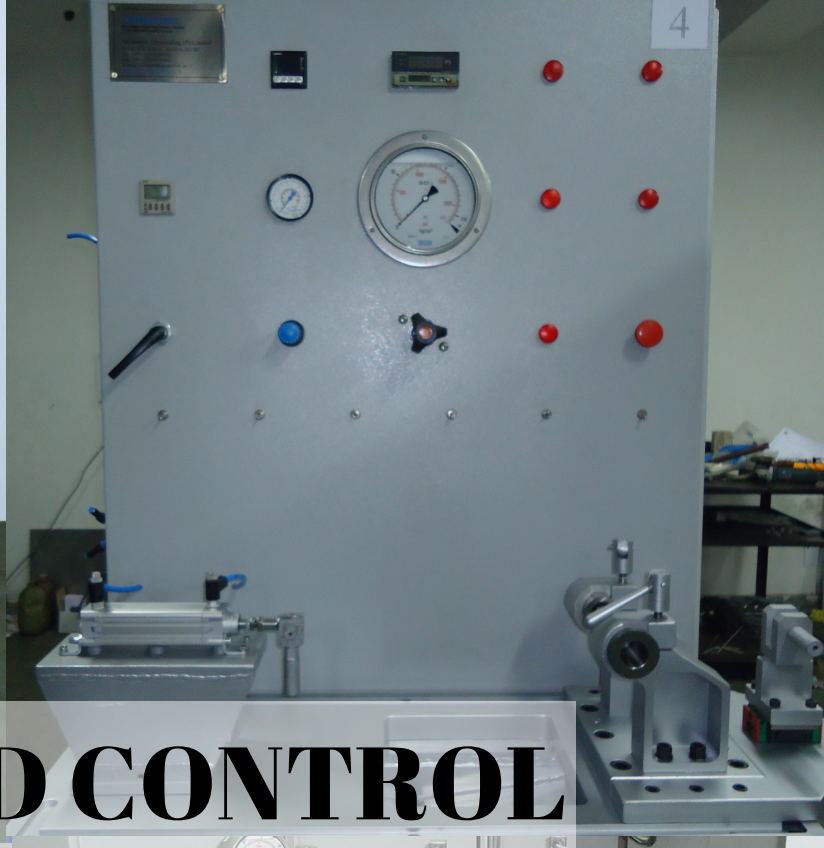
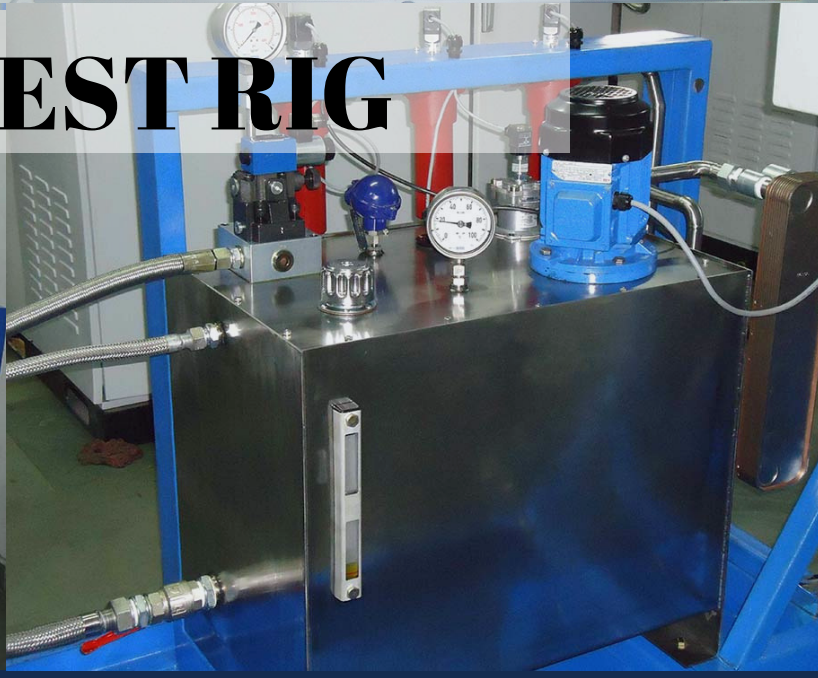


COMBINED CONTROL UNIT TEST RIG



The Test rig is used for testing servo hydraulic actuator. It used for testing helicopter and fighter plane components. It is fully computerized system with the software which can control up to 120 testing sequence. There is also custom built report generation system. It can Test any servo hydraulic actuator used in aviation.

NEOMETRIX
The Complete Engineering Solutions Company

E-148, Sector 63 Rd, E Block, Sector 63, Noida,
Uttar Pradesh 201301
+91 7777-876-876 ; +91 (0120) 4500-800 (100 Lines)
contact@neometrixgroup.com

TESTS

- Frequency response Analysis.
- Simulate any load and profile for displacements.
- Measure cyclic test.

FEATURES

The Key features of the Test Rig are:

- Ease of Operation
- User Friendliness
- Safety
- Ease of Maintenance
- Automatic & Manual Mode of Operation
- Automatic Report Generation/ Data Storage

NEOMETRIX
The Complete Engineering Solutions Company
+917777 876 876; contact@neometrixgroup.com

TEST RIG SPECIFICATIONS

S. No.	Parameter	Range/Value
1	Working Fluid	Hydraulic Oil AMR-10-GOST.6754-53
2	Maximum Pressure which can be built up in the System	80 Kg/Cm^2
3	Working Pressure	60 - 65 Kg/Cm^2 in Check Mode
		42 - 73 Kg/Cm^2 in Functional Mode
4	Return Back Pressure	5 - 7 Kg/Cm^2
5	Hydraulic Fluid Temperature	Up to 80^0 C
6	Permissible Contamination Level	Up to count 12 of NAS 1638
7	Accumulator Nitrogen Pressure	30+/- 2 Kg/Cm^2
8	Leakage Measurement Range	0-2000 cc
9	Electric Motor Detail	10 kW, 1460 RPM, 3 Phase
10	Operating Principle	Software Controlled Hydro-Electro-Mechanical
11	Loading Springs Performance	
	For P_{max}	1850 Kg (K= 45, 62, 5 Kg/mm)
	For Running in Test	1500 Kg (K= 27, 42 Kg/mm)
12	Cooling	Chilled Water
13	Heating	Automatically through the Pump flow over Relief
14	Hydraulic System	Main System & Duplicate System

APPLICATION

- Testing and Adjusting of Combined Control Unit of MI8 Helicopter.
- The Test Rig is for carrying out acceptance, control & periodic test of Servo Units KAY-30B, PA-60B according to the specific Test Schedules of the components

SUB SYSTEMS

1. Hydraulics System
2. Mechanical System
3. Electronics, Instrumentation & Electrical System
4. DAS, Software & Control System The

Hydraulics System:

Hydraulic System is as per the Hydraulics Circuit Diagram & Hydraulics Bill of Material.

It consists of **identical** Main System & Duplicate System. The System consists of a SS Test Panel with Drip Tray. Control apparatus, Levers, Hydraulic Supply/ Return Ports are mounted on this Panel. Measurement Gauges for Manual Testing are installed on the Panel.

The Drip Tray/Test Table/Test Panel has drawers on both sides for the operators to keep Fittings/ Spares/ Hydraulic Connectors/ Plugs and other necessities needed to connect the Test Rig Equipment's/ Components.

The Power Pack of the Hydraulic System is kept separate from the Test Panel to avoid Noise/ Vibration and related disturbances during the Testing.

Mechanical System

Mechanical System consists of the Test Bench & Loading Springs for Load Generation as per the Test requirements.

The Test Unit mounting fixtures shall be attached at the Test Table (Above the Drip Tray).

Load Cells & LVDT (for displacement measurement) is provided for the measurements.

Electronics, Instrumentation & Electrical System:

The Test Rig is fully automated and also operates manually. To take care of the above detailed instrumentation is instrumented.

Parameters, which are to be controlled, measured and recorded in the Test Rig are - Pressure, Leak Rate and Temperature of operating fluid.
Load, Displacement is also to be me measured & recorded.

- Flow Rate (Leakage) of the working fluid is to be measured by digital flow indicator and the indication should be in cc/Min.

- Temperature of the working fluid at inlet and outlet of unit, at the heat exchanger is to be measured by Digital Temperature Indicator and the indication should in °C.

- Level of operating fluid in Tank of Test Rig is inspected visually on level indicator and Level Switches are provided for Low Level & High Level Indication.

- All Filters have Electrical Clogging Indication at the Panel.

- Load Measurement.

- Displacement Measurement.

Pressure Measurement and Control

Pressure shall be measured by Digital Pressure Indicator and through a Pressure Transducer. The pressure so measured is to be connected to the DAS also. Suitable snubber shall be provided before transducer to arrest pressure pulsation during measurement.

Suitable Remote Controlled Pilot Operated Proportional Pressure Control Valves shall be provided for automatic Pressure Controls of the pressure in the system. Suitable adjustable pressure relief valves are to be provided in main line as well as in drain line.

Pump shall be provided with automatic Pressure & flow control features built in it.

DAS, Software & Control System:

The Complete Test Sequence for both the Test Components shall be implemented in the software.

Basic Features of the software is given below:
The Software Screens/ Reports are customized as per the user requirement.

The customized software is developed on Lab View 8.1. The key specifications of the software are as follows:

The graphical application development software used in this application should have the following features.

a) The programming language uses icons instead of lines of text to create application. The application development should use data flow programming, where the flow of data determines execution in contrast to the text based programming language where instructions determine program execution.

b) There is a provision to build a 3D user interface by using a set of tools and objects.

c) software is integrated fully for communication with hardware such as GPIB, VXI, PXI, RS-232, RS-485 and plug in DAQ device with the technologies such as MITE, PGIA, and STC etc.

d) The software has built in feature for connecting the application to the web using Web Server & software standards such as TCP/IP, Data Socket, DLL, and SQL. Networking and Active X.

e) The software has a true 32 bit compiler for faster execution of the application

f) The software has a profile window as a tool for analyzing as to how the application uses the execution time as well as the memory so that the areas can be identified for optimization.

g) The software will provide DAQ solution wizard for quick start up. The software should execute with multithreading features, de bugging features like break points, probes, single stepping modes, execution-highlighting etc.

SOFTWARE FEATURES

The Test Rig is fully computerized and the application software incorporates the basic minimum architecture as described below:
PC compatible hardware, COTS, Microsoft Windows 98 (or equal) Operating System, COTS