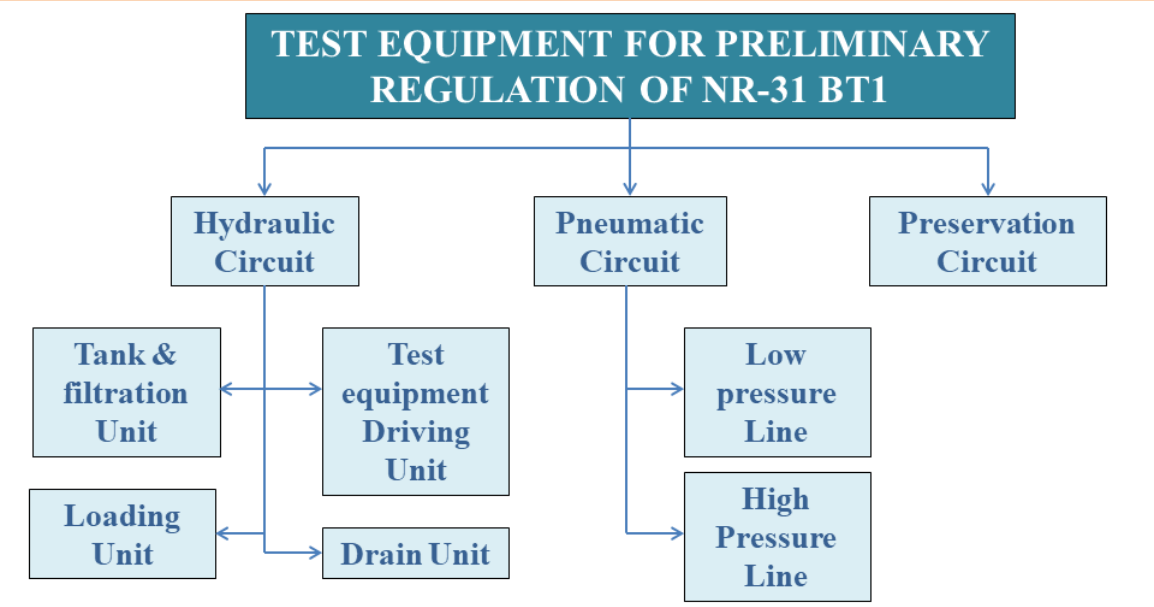
About

Test Equipment For Aircraft Fuel Pump

This test equipment is meant for preliminary regulation of **Aircraft fuel pump test rig** Unit. **Aircraft fuel pump test rig** is the fuel pump and controller of the engine. It regulates fuel flow in relation to throttle position, engine speed, engine inlet air temperature, engine compressor outlet pressure and electrical commands for engine control. Apart from controlling fuel flow , the **Aircraft fuel pump test rig** unit controls the position of compressor inlet guide vanes in relation to engine speed and engine inlet temperature.



❖ **The Test Equipment is sub-divided into following Sub-sections,** viz;

i. **Hydraulic Circuit –** The functions of the fuel system is to:

- Feed the unit with fuel.
- Supply constant pressure lines of 22 Kgf/cm^2 & 11 kgf /cm^2.
- Maintain drain pressure 2 kgf/cm^2.
- Simulation of Guide vane cylinder actuation.

This Circuit can be further divided into:

a) Tank and Filtration Unit: This includes 100 liters Tank (for ATF) and Low Pressure Filtration Unit.

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b) **Loading Unit –** This includes Loading Section, inlet from Pump (rated 50 kgf/cm^2, 50 LPM) to Test Unit (NR-31 Fuel Pump), via, Constant Pressure Valves set at 11 ± 0.2 kgf/cm^2 and 22 ± 0.2 kgf/cm^2.

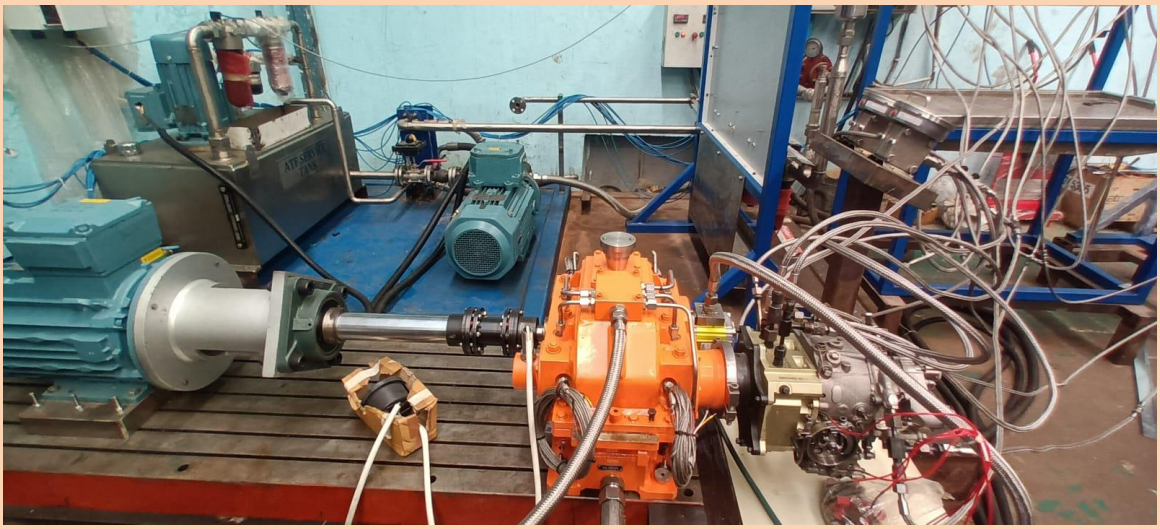
c) **Test Equipment Driving Unit:** This includes Test Equipment driving motor connected to Test unit by Gear box with a gear ratio of 1:4.32.

d) **Drain Unit:** This unit consists of Dome Regulated Pressure valve which maintains a Pressure of 22 ± 0.2 kgf/cm^2 in the drain line.

ii. **Pneumatic Circuit –** This is further divided as:

a) **Low Pressure Line:** The low pressure system is meant for supplying air for drying of units by blowing.
High Pressure Line: The high pressure air system is meant for supply of simulation air pressure to TDK-Tp temperature sensor.

iii. **Preservation Circuit –** Includes Circuit which is used to fill the Test unit with Preservation oil heated to a temperature of 70^{o}C.



Specification

ATF is used as working media for Test equipment for Preliminary Regulation of NR-31BT1.

Fluid Specifications: - Density (at 15 ºC): 775.0 to 840.0 kg/m^3.

- Kinematic viscosity at minus 20°C, mm^2/s
- Flash point: 38 ºC.
- Temperature of working fluid (ºC): 15 to 40 ºC.
- ATF tank capacity: 100 liters.

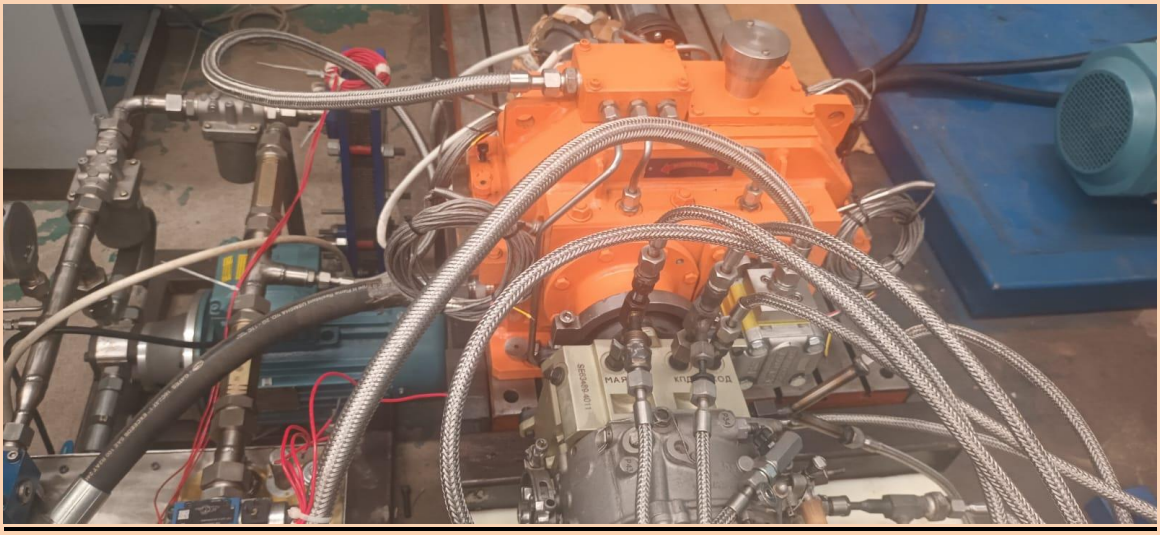
Ball Valve: Pressure : UP TO 10 Kgf/cm²

Filter: Filter Rating-16 micron

Non-Return Valve: 10 kgf/cm2

Pump Pressure: 10 kgf/cm2

Motor To Drive Pump: Motor suitable to drive pump(59)Should be flameproof type.



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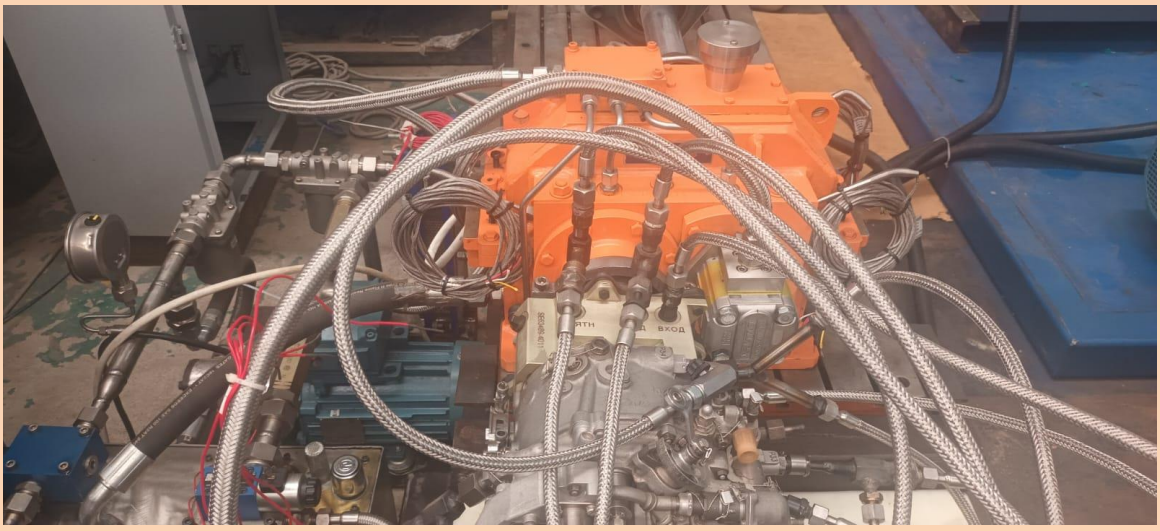
Key Features

1. **Fuel Flow Regulation**: The equipment allows for preliminary regulation of the NR-31BT1 unit's fuel control system, ensuring that fuel is delivered according to various operational parameters such as throttle position, engine speed, and environmental factors like inlet air temperature.
2. **Engine Performance Optimization**: By enabling fine-tuning of fuel flow in relation to engine compressor outlet pressure and electrical commands, this test equipment ensures the NR-31BT1 unit is set up to maintain optimal engine performance and responsiveness.
3. **Compressor Inlet Guide Vane Control**: The equipment helps regulate the NR-31BT1's control over the compressor inlet guide vanes. This control optimizes airflow into the engine based on engine speed and inlet temperature, which is crucial for maintaining efficiency and stability under different operating conditions.
4. **Preliminary Calibration and Adjustment**: It allows technicians to conduct initial adjustments to the NR-31BT1, aligning it to expected engine performance specifications before full engine testing. This ensures that the unit is correctly set up before installation in the engine, reducing potential performance issues.



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Applications

The **Test Equipment for Aircraft** fuel pump is specifically designed to facilitate the setup and calibration of the Aircraft fuel pump**.**

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