

AE-251 LAB-1

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OBJECTIVE

To get acquainted with various types of aircraft instruments, their working principles and an overview of a glider cockpit.

INTRODUCTION

The instruments are a crucial part as a feedback during any flight to a pilot. They are of various types (Analog, Digital, Semi-Digital). They are governed by principles like momentum balance, pressure difference, etc.

OBSERVATION

1. Pitot Tube Instruments
 - 1.1. Altimeter
 - 1.2. Vertical Speed Indicator
 - 1.3. Air Speed Indicator
2. Gyro Instruments
 - 2.1. Attitude Indicator
 - 2.2. Turn & Bank Indicator
3. Engine Instruments
 - 3.1. Oil Pressure Indicator
 - 3.2. RPM Gauge
 - 3.3. Fuel Level Indicator
 - 3.4. Manifold Pressure Gauge
4. Others
 - 4.1. Accelerometer
 - 4.2. Magnetic Compass
 - 4.3. Air Temperature Indicator
5. Communication
 - 5.1. VHF Communication
 - 5.2. Emergency Location Indicator
 - 5.3. Navigation Instruments

6. Equipment

- 6.1. Hydraulic Governor
- 6.2. Electric driven fuel pump
- 6.3. Flap motor
- 6.4. Engine driven vacuum pump
- 6.5. Alternator
- 6.6. Starter
- 6.7. Brake Master Cylinder

7. Glider

- 7.1. Name: Saratoga (Piper)
- 7.2. Capacity: 8000 lbs. (6-seater)
- 7.3. Engine: 6-cylinder Lycoming IO-540-K1G5
- 7.4. Propeller: Hartzell HC-I3-YR-1RF

CONCLUSION

We got an insight of different types of measurement and control instruments used in an aircraft and their working principles.

We also understood their assembly in the glider and function of various switches & levers of the glider. Apart from this we also got a brief overview of controlling various control surfaces i.e. Elevators, flaps, rudders and ailerons.