



## JET PROPULSION TEST STAND P372/415



2  
study

### Features

- Unit supplied complete with test stand and two engines - ram jet & pulse jet
- Compare and contrast the performance of differing types of jet engine
- Able to compare and contrast relative engine performance using different fuels
- Collect and review key performance indicators such as exhaust velocity temperatures, thrust drag and fuel consumption

### Description

The ramjet, the simplest concept of aircraft propulsion, consists of an almost cylindrical duct, open at both ends. It relies on its forward speed to ram air into the forward opening. Fuel is burnt inside the duct to accelerate the air stream, which together with the products of combustion, issues from the rear as a high velocity jet. The change in momentum in the engine provides the propulsive force. Also supplied is a pulsejet engine, which utilises a cyclic combustion process but is unique in design in that like the ramjet, it has no moving parts. The Hilton P372 Jet Propulsion Test Stand will provide interesting and instructive experimental activity for all students studying thermodynamics and propulsion and will be of particular interest to those studying.

#### Related Laws/Applications

- Thermodynamics
- Heat Transfer
- Aeronautical engineering
- Combustion
- Propulsion
- Sound and vibration
- Environmental engineering

#### Learning capabilities

- Complete performance analysis at various approach speeds. Calculation of exhaust velocities, measurement of temperatures, thrust, specific thrust, drag and fuel consumption.
- Collection of gas samples from any point within the ramjet motor.
- Demonstration and investigation of the ramjet principle.
- Total and static pressure plots along the ramjet engine axis.
- Demonstration and investigation of the pulsejet principle.
- Comparison of Propane with other gaseous fuels, e.g. Butane, Methane.
- Jet noise investigation using suitable additional instrumentation.

#### Technical Specification

- Fully instrumented test stand able to measure engine balance (1), pressure (3), flue flow (2), temperature (2), pressure (2)
- Ram jet engine 127mm diameter, 390mm in length
- Pulse jet engine 185mm in length
- Test stand measures 1760mm (H), 910mm (D) 3050mm (W) approx.'
- Includes standalone air supply

#### Essential Ancillaries

- Supply of appropriate gas - Butane, Methane

#### What's in the Box?

- Test stand
- 2 jet engines
- Floor mounted single stage compressor
- Pitot Static Probe Trolley
- 10N Weight
- 100g Weight Hanger
- Carbon Monoxide Detector / Alarm
- Ear Defenders

#### Weights & Dimensions

- Weight: 212Kg
- Length: 910mm
- Width: 1760mm
- Height: 1760mm

#### Essential Services

- Electrical: A:380/415V 3 Phase, 50Hz (With Neutral and earth/ground). Line current up to 19A at 380V
- Gas Fuel Supply: Commercial bottled propane, pressure regulated to 2.7 Bar gauge.
- Cold Water: Continuous supply, 10 litres per minute at 20m head.
- Exhaust/Venting

#### Ordering information

To order this product, please call PA Hilton quoting the following code: P372/415

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