

TEST PILOTS' GROUP REPRINTS

The following is a list of the Test Pilots' Group lectures that have been printed in the *Journal*. Most of them are available as Reprints.

Bedford, A. W.	The Role of the Test Pilot	June 1964
Henderson, Sqn. Ldr. J. M.	Low-Speed Handling of a Slender Delta (HP115)	May 1965
White, Lt. Col. R. M.	Flying the X-15	September 1965
Merewether, H. C. H.	Erect and Inverted Spinning with Particular Reference to the Hunter (<i>Out of Print</i>)	December 1965
Watts, Gp. Capt. R. A.	The Training of Test Pilots	June 1966
Trubshaw, E. B.	Low Speed Handling with Special Reference to the Super Stall	July 1966
Symposium	Flight Testing for the Certification of Civil Transport Aircraft	November 1967
Prahl, V. E.	A Résumé of the F-111 Flight Test Programme	January 1968
Gill, Sqn. Ldr. T. E.	Thoughts on Flight Instrument Presentations	June 1968
Knight, Maj. W. J.	Increased Piloting Tasks and Performance of X-15A-2 in Hypersonic Flight ...	September 1968
Farley, J. F.	Piloting Aspects of Poor Weather Jet V/STOL	October 1968
Pinsker, W. J. G.	The Theory and Practice of Inertia Cross-Coupling	August 1969

HISTORICAL GROUP REPRINTS

The following is a list of the Historical Group lectures that have been printed in the *Journal*. Some of them are available as Reprints.

Sopwith, Sir Thomas	My First Ten Years in Aviation (<i>Out of Print</i>)	April 1961
Cave-Browne-Cave T. R.	R101 and other Airships—The Process of Development	August 1962
Banks, F. R.	Five Decades of the Aero Engine	November 1962
Wills, P. A.	Air Transport Auxiliary: Its Place in Aviation History (<i>Out of Print</i>)	June 1965
Bruce, J. M.	A History of Martinsyde Aircraft (<i>Out of Print</i>)	September 1968
Goddard, Air Marshal Sir Victor	Per Ardua—Peradventure, A Contemporary Review of Innovations during the First Fifty Years of the RAF (<i>Out of Print</i>)	October 1968
Peckham, C	Air Photography	January 1969
James, T.	Charles Grey and his Pungent Pen	October 1969
Brown, Sir Vernon	Flying and Accidents during and between the Two Wars	November 1969

Electronic displays from Smiths Industries

The new technique of electronic head-down display is well advanced at Smiths Industries

The unretouched photo taken on long exposure shows a 5½" c.r.t. display of engine pressure ratio and emphasises the clarity and stability of the symbology. Virtually any type of information can be presented on this type of head-down display on a sequential or selective basis.

The head-down unit receives information from the new Smiths digital waveform generator, which represents a major advance in symbol generation for electronic displays.

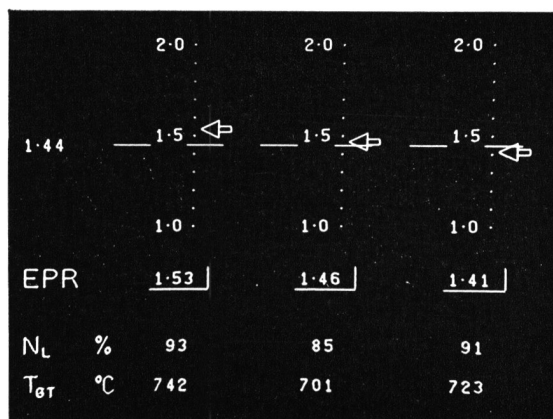
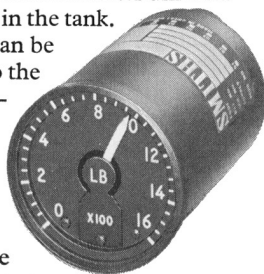
Small, light and entirely new in concept, this generator greatly increases the flexibility of the display system by use of plug-in modules for re-programming. It employs M.O.S. chips and multi-layer circuit boards for greater reliability and will accept digital and/or analogue input signals—other features include failure monitor capability, press-to-test facility and a predicted MTBF in excess of 1000 hours.

Head-up

Smiths Industries advanced head-up display systems have been specified for the Harrier and Jaguar aircraft—development is also taking place on a head-up system for civil applications.

28V Capacitance Fuel Gauge

The Type 7 Capacitance Fuel Gauge has been specifically designed by Smiths Industries for feeder-liner, executive and light aircraft requiring a simple and inexpensive fuel measurement system. Operating directly from a 28 V dc supply, Type 7 is accurate, uncomplex and compact. Basically it consists of a 2 inch indicator, a small converter unit and a probe or probes in the tank. The installation can be tailored exactly to the needs of the particular application. Typical accuracy figures for a basic system in normal temperature and fuel conditions are ±1.15% tank empty to ±1.30% tank full.



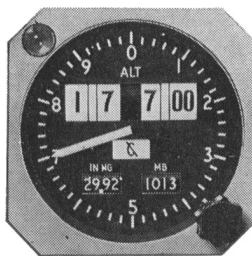
Compensation for variations in fuel permittivity is easily incorporated by the addition of an immersed capacitance reference unit.

While primarily designed for aircraft fuels, Type 7 can also be applied to oil contents measurement.

Altitude alerting meets FAA mandatory requirements

By March 1971 a sequence of audio/visual signals to warn pilots of approach to a selected flight level will be a mandatory FAA requirement for U.S. civil airliners. Smiths Type 3B Self-Sensing Servo Altimeter with an Altitude Alerting Unit is the simple answer.

An output of indicated height (baroset corrected) from the type 3B is fed to the Altitude Alerting Unit to produce any sequence of audio/visual warnings. The system also signals departure from the selected flight level. The altimeter has a contact type digitiser for automatic height reporting, an integral servo amplifier and a full five-figure height readout. A servo repeater version is also available.



The Altitude Alert Unit, in a ½-3ATI case, has integral lighting with front replaceable lamps, automatic reset, press-to-test facility and an accuracy better than 50ft. at all warning levels.

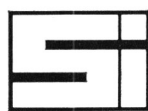
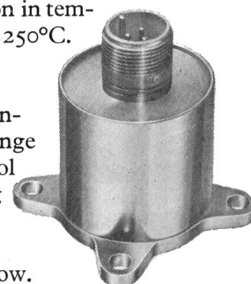
Engine health—taking the pulse

Accurate detection of shaft-speeds, gas temperatures and oil, fuel and air pressures is vital for monitoring the health and performance of aircraft gas turbines. On the RR Olympus 593 in the Concorde, for example, Smiths Industries supplies no less than 18 units per engine for sensing these vital parameters.

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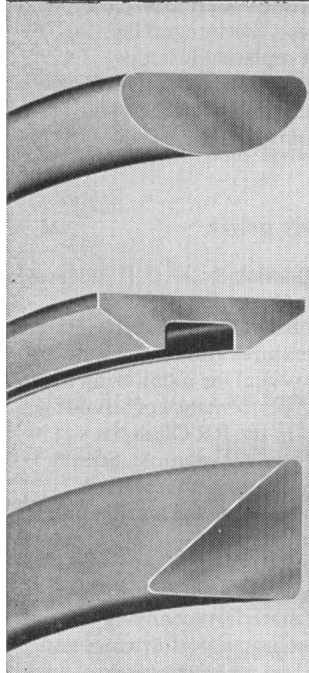
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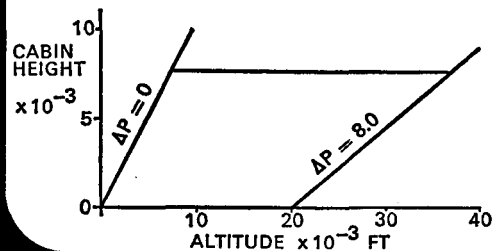
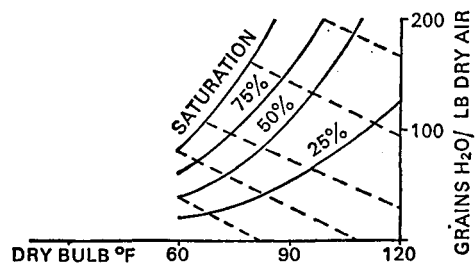
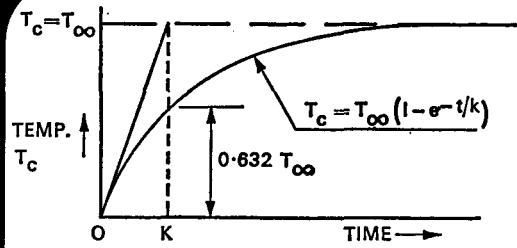
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Applications are invited from suitable graduates for the post of lecturer in aviation economics or planning in the department of Transport Technology or as a joint appointment with another appropriate department. The successful candidate will be required to develop undergraduate and postgraduate lectures on air transport economics and systems with particular reference to the airline/airport/aircraft manufacturer interface. The preferred research area is in the field of airport planning as a total system. The appointment is essentially of an interdisciplinary nature so that all candidates with a relevant basic discipline will be considered.

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The Aeronautical Journal RAeS March 1970

WILKINSON, K. G.

Automatic Landing in BEA's Trident Operations—A Review of Effort and Achievement

The Second Sir Geoffrey de Havilland Memorial Lecture given at the Hatfield Branch in April 1969. A review of progress in one of the most significant and difficult projects ever undertaken jointly by manufacturers and operators—that of the achievement in regular commercial service of automatic landing in what has come to be known as Category 3B (i.e. nearly blind) conditions. The project has from the outset needed the closest possible partnership between manufacturers of aircraft and systems, operators of aircraft and ground services and the research establishments. It has established a world lead for the partnership in a development which shows every promise of being the final answer to a fundamental problem of air transport which has beaten all-comers until today.

The Aeronautical Journal RAeS March 1970

Symposium on Altitude Testing of Turbojet Engines

Five papers were presented at the Symposium—Air Breathing Engine Testing in the Propulsion Wind Tunnel Facility of the AEDC, by R. W. Hensel and M. Pindzola; The Design and Development of a Large Supersonic Free-Jet Test Cell, by P. F. Ashwood; Free-Jet Testing of a Supersonic Engine/Intake Combination, by D. D. Williams and D. P. Morriss; Use of an Altitude Test Facility in Engine Development, by R. M. Hartley and J. Boal; Thrust Measurement in Flight, by A. A. Woodfield. The papers were followed by a general discussion. The first three papers are printed in this issue, the final two papers and the discussion will be printed in the April issue.

The Aeronautical Journal RAeS March 1970

**Is There a Future for British Air Transport?
(A Discussion on the Edwards Report)**

This was the subject of a joint Air Transport and Air Law Group Half-Day Symposium. The proceedings were opened by Sir William Hildred and papers were given by: Prof. Keith Legg, Mr. Peter Martin, Prof. D. H. N. Johnson, Mr. H. Caplan, Mr. J. E. D. Williams, Mr. H. C. Brilliant, Mr. D. R. Newman. These papers were followed by a general discussion.

The Aeronautical Journal RAeS March 1970

An Investigation of the Effects of Working Pressure on Aircraft Hydraulic Systems

WALSH, R. H.

Methods are developed for calculating the effect of pressure on the size and weight of components of aircraft hydraulic systems, and a number of generalised curves presented which enable these techniques to be applied to particular cases. Application to the Lighting, Trident and Concorde indicated that the lowest system weight would be obtained at pressures between about one and a half and twice the present design values and that weight reductions of 5% should be achievable.



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