

The AERONAUTICAL Journal



Contents

R. C. Lock

The prediction of the drag of aerofoils and wings at high subsonic speeds

P. M. Sinclair

An exact integral (field panel) method for the calculation of two-dimensional transonic potential flow around complex configurations

A. W. Bloy, P. J. Lamont, H. A. Abu-Assaf and K. A. M. Ali

The lateral dynamic stability and control of a large receiver aircraft during air-to-air refuelling

Library reviews, additions and reports

Incorporating

The Aeronautical Quarterly

Volume 90 Number 896 June/July 1986

SIXTH

BRISTOL RPV CONFERENCE

6th-8th APRIL 1987

The sixth in this successful series of unclassified conferences, sponsored jointly by the Royal Aeronautical Society and the University of Bristol, will be held in the University of Bristol, UK, from 6th-8th April 1987. Following the now successful formula, the conference will include formal paper presentations, a keynote speech and conference summary, a trade exhibition and a varied social programme, with published proceedings available at the meeting.

The conference committee are now soliciting abstracts of papers under the following broad topics, relating to both civil and military use of airborne RPV's.

1. Operational Philosophy
2. RPV Systems
3. Airframe Sub-systems (including propulsion)
4. Payloads
5. Navigation and Guidance Systems
6. Communications Systems
7. Ground Stations and Equipment

A short abstract of no more than 250 words should be submitted by 1st September 1986, to the Organising Secretary:

Dr R. T. Moses,
Faculty of Engineering,
University of Bristol,
Queen's Building,
Clifton,
Bristol BS8 1TR, UK

The 5th RPV Conference, held in September 1985, attracted 206 participants, from 15 countries, with 22 exhibitors, and the proceedings containing the full technical papers are now available, at a cost of £32.00 (plus postage) from the Organising Secretary, Dr R. T. Moses, at the above address.

The AERONAUTICAL Journal

Incorporating the Aeronautical Quarterly



Head of Publications:
Robert Bryanton

Editor: Jay Wolff,
Assoc. Member RAeS

Deputy Editor: Michèle Didyk

Associate Editor:
Professor L. F. Crabtree,
PhD, CEng, FRAeS

4 Hamilton Place, London W1V 0BQ
Tel: 01-499 3515
Telex: 262826 RAESOC
Cables: Didaskalos,
London W1

Advertisements:
Kevin Shead,
T. G. Scott & Son,
30-32 Southampton Street,
London WC2E 7HR.
Tel: 01-240 2032
Telex: 299181.

(Telecopier facilities available)

Reproduction of any of the papers
published in this journal is not
permitted without the written con-
sent of the Editor.

None of the papers or paragraphs
must be taken as expressing the
opinion of the Council unless
otherwise stated.

Printed by
Manor Park Press Ltd.
Unit 7, Highfield Industrial Estate,
Edison Road, Hampden Park,
Eastbourne.

Subscriptions: £116 per annum,
post free.

RAeS members: £10.50 per
annum.

Single copies, including back
numbers: £12.

All foreign currency rates on
application.

Published by
The Royal Aeronautical Society,
4 Hamilton Place,
London W1V 0BQ, England.

ISSN: 0001-9240

**PUBLISHED MONTHLY
EXCEPT JUNE AND
AUGUST**

Contents

207

R. C. Lock

The prediction of the drag of aero-
foils and wings at high subsonic
speeds

227

P. M. Sinclair

An exact integral (field panel)
method for the calculation of two-
dimensional transonic potential flow
around complex configurations

237

**A. W. Bloy, P. J. Lamont, H. A. Abu-
Assaf and K. A. M. Ali**

The lateral dynamic stability and
control of a large receiver aircraft
during air-to-air refuelling

244

**Library reviews, additions and
reports**

**Incorporating the Journals of The
Institution of Aeronautical Engineers and
The Helicopter Association of Great
Britain**

The Royal Aeronautical Society

FOUNDED 1866

INCORPORATED BY ROYAL CHARTER 1949

Patron: HER MAJESTY THE QUEEN

COUNCIL

President: Dr. J. W. FOZARD, OBE, DSc, DCAE, BSc(Hons), FEng, FIMechE, FAIAA, FRAeS

President-Elect: PROFESSOR J. L. STOLLERY, DSc(Eng), DIC, CEng, FCGI, AFAIAA, FRAeS

Vice-Presidents:

Dr. P. H. CALDER, OBE, PhD, BSc(Hons), DIC, ACGI, CEng, MIMechE, FRAeS
N. A. JACKSON, CBE, CEng, FRAeS

Past Presidents:

PROFESSOR M. G. FARLEY, HonCGIA, CEng, FIMechE, FBIM, FIProdE, FRAeS
Dr. G. K. C. PARDOE, PhD, BSc(Eng), DLC, CEng, FBIS, FRAeS
T. H. KERR, CB, BSc, CEng, FRAeS

Members:

M. W. ANDERSON, AE, MA(Cantab), CEng, MICE, MSAE, AFAIAA, FRAeS
A. E. M. BARTON, DFC, CEng, MRaES
A. L. BLACKMAN, OBE, MA, FRAeS
D. J. CHILDS, MSc, CEng, MRaES (*Chairman — Astronautics
and Guided Flight Section*)
V. W. CLARKSON, CEng, FRAeS (*Chairman — Branches Committee*)
AIR MARSHAL SIR ERIC DUNN, KBE, CB, BEM, CEng, FRAeS, RAF.
N. FALCONER, BSc, MEcon, FISTat, MRaES
Dr J. E. GREEN, MA, PhD, CEng, FRAeS
P. A. HEARNE, MSc, DLC, FEng, FRAeS
G. C. HOWELL, MA, MSc, CEng, FRAeS
D. J. KNIGHT, BSc(Eng), MRaES
B. P. LAIGHT, OBE, MSc, FEng, FIMechE, FRAeS
H. METCALFE, OBE, BSc, ARCS, FEng, FRAeS
Dr. G. G. POPE, MSc(Eng), PhD, DIC, CEng, FCGI, FRAeS
AIR MARSHAL SIR CHARLES PRINGLE, KBE, MA, FEng, CBIM, FRAeS, RAF(Ret'd)
D. J. RICHER, MSc, CEng, MRaES
V. A. B. ROGERS, MSc, FEng, FIMechE, FRAeS
P. R. SAMPSON, TEng, AMRAeS
J. T. STAMPER, MA(Cantab), FEng, HonFRAeS
D. STINTON, MBE, CEng, MIMechE, FRAeS
R. B. STRATTON, CEng, MCASI, FSLAET, FRAeS (*Chairman — Rotorcraft Section*)
A. T. WORKER

Overseas Division:

D. R. REES, CEng, FRAeS (*President — Australia*)
WG. CDR. G. MURRAY, CEng, MRaES (*President — New Zealand*)
B. H. PRESCOTT, CEng, MRaES (*President — South Africa*)
CAPT. J. R. HEAP, CEng, FRAeS (*President — Zimbabwe*)

Officers:

Hon. Treasurer: PROFESSOR M. G. FARLEY, HonCGIA, CEng, FIMechE, FBIM, FIProdE, FRAeS
Secretary: G. C. MAY, CEng, MIProdE.