

APPENDIX 2A

1. Document Group 14001 - 14100
2. Selection of documents used for compilation of search questions
3. Questions resulting from selection
4. Extract of letter sent to compilers of questions

PART 1. DOCUMENT GROUP 14001 - 14100

- P14001 LOVE, E.S. Pressure rise associated with shock-induced boundary layer separation. 1955. NACA TN.3601.
- P14002 SEABERG, E. C. Laboratory investigation of an autopilot utilizing a mechanical linkage with a dead spot to obtain an effective rate signal. 1956. NACA TN.3602.
- P14003 ADAMS, J.J. and MATHEWS, C.W. Theoretical study of the lateral frequency response to gusts of a fighter airplane, both with controls fixed and with several types of autopilots. 1956. NACA TN.3603.
- P14004 HORNE, W. and others. Low speed yawed-rolling characteristics and other elastic properties of a pair of 26-inch diameter, 12 ply rating, type VII aircraft tires. 1956. NACA TN.3604.
- P14005 QUELJO, M.J. Theoretical span load distributions and rolling moments for sideslipping wings of arbitrary plan form in incompressible flow. 1955. NACA TN.3605.
- P14006 HUCKEL, V. Tabulation of the f_{λ} functions which occur in the aerodynamic theory of oscillating wings in supersonic flow. 1956. NACA TN.3606.
- P14007 DALEY, B.N. and DICK, R.S. Effect of thickness, camber and thickness distribution on airfoil characteristics at Mach numbers up to 1.0. 1956. NACA TN.3607.
- P14008 EDGE, P.M. Hydrodynamic impact loads in smooth water for a prismatic float having an angle of dead rise of 10° . 1956. NACA TN.3608.
- P14009 BOBBITT, P.J. Linearized lifting-surface and lifting line evaluation of sidewash behind rolling triangular wings at supersonic speeds. 1956. NACA TN.3609.
- P14010 HARRIN, E.N. Comparison of landing-impact velocities of first and second wheel to contact from statistical measurements of transport airplane landings. 1956. NACA TN.3610.
- P14011 SPAHR, J.R. Theoretical investigation of the effects of configuration changes on the center-of-pressure shift of a body-wing-tail combination due to angle of attack and Mach number at transonic and supersonic speeds. 1955. NACA RM.A55F02.
- P14012 CHAPMAN, D.R. and others. Preliminary report on a study of separated flows in supersonic and subsonic streams. 1956. NACA TM.A55L14.
- P14013 MOECKEL, W.E. Flow separation ahead of a blunt axially symmetric body at Mach numbers 1.76 to 1.10. 1951. NACA RM.E51I25.

- P14014 BERNSTEIN, H. and BRUNK, W. E. Exploratory investigation of flow in the separated region ahead of two blunt bodies at Mach number 2. 1955. NACA RM. E55D07b.
- P14015 JAGGER, J. M. and MIRELS, H. Experimental pressure distributions over wing tips at Mach numbers 1.9 - 1 Wing tip with subsonic leading edge. 1949. NACA TN. E8K2.
- P14016 BULL, G. V. Aeronautical studies in the aero-ballistic range. 1957. CARDE REPORT No. 302/57.
- P14017 KRIEGER, F. J. and WHITE, W. B. The composition and thermodynamic properties of air at temperatures from 500 to 8000°K and pressures from 0.00001 to 100 atmospheres. 1957. Rand Corp. R. 149.
- P14018 HINZ, E. R. Stability and control characteristics of the vertical attitude VTOL aircraft. 1957. I.A.S. Preprint 763.
- P14019 LOWRY, J. G. and others. The jet-augmented flap. 1957. I.A.S. Preprint 715.
- P14020 HOUGHTON, D. S. and CHAN, A. S. L. Discontinuity stresses at the junction of a pressurised spherical shell and a cylinder. 1957. C. of A. Note No. 80.
- P14021 MILLER, A. E. An analysis of the requirements for oxygen in commercial turbo-prop and jet transports. 1957. S.A.E. Preprint.
- P14022 MILLER, A. E. Work and progress in oxygen and aviation oxygen equipment. 1957. Aero Medical Ass. Reprint.
- P14023 ALLEN, H. Combustion of various highly reactive fuels in a 3.84 by 10 inch Mach 2 wind tunnel. NASA Memo 1-15-59E.
- P14024 MEYER, R. E. & MAHONY, J. J. Analytical treatment of two-dimensional supersonic flow. Part 1: Shock free flow. 1954. A. R. L. (Australia) Report A93.
- P14025 MEGSON, N. J. L. Structural plastics for airframe construction. 1957. AGARD Report 162.
- P14026 PURSER, P. E. Review of some recent data on buffet boundaries. 1951. NACA RM. L51E02a.
- P14027 HOFFMAN, S. Comparison of zero lift drag determined by flight tests at transonic speeds of pylon, underslung, and symmetrically mounted nacelles at 40 per cent semispan of a 45° sweptback wing and body combination. 1951. NACA RM L51D26.
- P14028 STRASS, H. K. and others. Some effects of spanwise aileron location and wing structural rigidity on the rolling effectiveness of 0.3- chord flap type ailerons on a tapered wing having 63° sweptback at the leading edge and NACA 64A005 airfoil sections. 1951. NACA RM. L51D18a.
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- P14030 SPREEMAN, K. P. and ALFORD, W. J. Investigation of the effects of twist and camber on the aerodynamic characteristics of a $50^{\circ} 38'$ sweptback wing of aspect ratio 2.98. NACA RM. L51C16.
- P14031 JOHNSON, H. S. Wind tunnel investigation at subsonic and low transonic speeds of the effects of aileron span and spanwise location on the rolling characteristics of a test vehicle with three untapered 45° sweptback wings. 1951. NACA RM. L51B16.
- P14032 HELDENFELS, R. and VOSTEEN, L. Approximate analysis of effects of large deflections and initial twist on torsional stiffness of a cantilever plate subjected to thermal stresses. 1957. NACA TN. 4067.
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- P14036 GEORGE, J. M. The measurement of air temperature in high speed flight. C. of A. Note No. 86.
- P14037 GARNER, H. C. Numerical aspects of unsteady lifting-surface theory at supersonic speeds. 1956. A. R. C. Report 19, 268.
- P14038 MILES, D. J. The improvement of the voltage waveform of high frequency alternators. R. A. E. Tech. Note EL. 136.
- P14039 MITCHELL, A. H. Alkali vapour and plasmatron valves as power rectifiers. 1957. R. A. E. Tech. Note EL. 139.
- P14040 COX, W. J. G. Development of the types IT. 3-1-1 and 3-2-1 accelerometers. 1957. R. A. E. Tech. Note Instn. 158.
- P14041 HAYWARD, D. C. The mechanical properties of RR58 aluminium alloy sheet (Clad) in tension and compression at room and elevated temperatures. 1957. R. A. E. Tech. Note MET. 261.
- P14042 ROWLEY, G. C. Basic cold cathode electronic units for the assembly of special purpose decimal computers. 1957. R. A. E. Tech. Note M. S. 34.
- P14043 ROWLEY, G. C. The decimal adder for data handling systems. 1957. R. A. E. Tech. Note M. S. 36.
- P14044 BORGARS, S. J. Measurement of optimum coolant flow for radio equipment in supersonic aircraft. 1957. R. A. E. Tech. Note RAD. 667.
- P14045 TAYLOR, A. S. The laws of aeroelastic similarity and their application with particular reference to the design and testing of elastic wind tunnel models. 1957. R. A. E. Report Aero. 2393.
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- P14047 ROWE, P. N. Deflection by vanes with particular reference to small angles. 1957. D.G.G.W. Report EMR/57/4.
- P14048 WILLIAMS, W. H. Thermodynamic charts for the combustion products of nitric acid and kerosene. 1954. A. R. C. R. & M. 2982.
- P14049 THOMLINSON, J. A study of the aircraft arresting-hook bounce problem. 1954. A. R. C. R. & M. 2980.
- P14050 KNOWLER, A. E. and HOLDER, D. W. The efficiency of high speed wind tunnels of the induction type. 1954. A. R. C. R. & M. 2448.
- P14051 RIVELLO, R. M. The yield strength of beams in pure bending. Jnl. Aero. Scs. 1959, pp 303-304.
- P14052 SCHJELDERUP, H. C. Accumulative fatigue damage caused by random loading. Jnl. Aero. Scs. 1959, pp 394-395.
- P14053 BLOOM, M. H. On hypersonic similarity for nozzles. Jnl. Aero. Scs. 1959, p 395.
- P14054 FERRI, A. and ZAKKAY, V. Pressure distributions for a two dimensional blunt nosed body at different angles of attack. Jnl. Aero. Scs. 1959, pp 395-396.
- P14055 NESS, N. On the continuity of the Schmidt number at the interface between the laminar sublayer and the other turbulent region. Jnl. Aero. Scs. 1959, pp 396-397.
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- P14064 GASSNER, E. The problem of fatigue strength in aircraft structures. Aircraft Engineering, 1956, pp 228-234.
- P14065 JOHNSON, A. E. Turbine disks for jet propulsion units. Aircraft Engineering, 1956, pp 235-243.
- P14066 STUBBS, R. A. Specific aeromedical problems in high performance aircraft. Canadian Aeronautical Journal, 1957, pp 216-219.
- P14067 SONEY, C. I. Reliability control of electronic equipment in aircraft and weapon systems: general and management aspects. Canadian Aeronautical Journal, 1957, pp 222 - 231.

- P14068 NOWN, J.S.Mc. Drag in unsteady flow. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 124-130.
- P14069 HASIMOTO, H. The unsteady axial motion of an infinitely long cylinder in a viscous fluid. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 135-143.
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- P14071 RUDINGER, G. Boundary conditions in nonsteady flow. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 152-163.
- P14072 KAPLUN, S. Low Reynolds number flow past a circular cylinder. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 167-175.
- P14073 KAPLUN, S. Asymptotic expansions of Navier-Stokes solutions for small Reynolds number. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 177-186.
- P14074 RIVLIN, R.S. Some flow properties of visco-elastic fluids. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 187-195.
- P14075 BROER, L.J.F. Laminar flow of a visco-elastic fluid. Proc. 9th Int. Con. App. Mech. Vol. 3, 1957, pp 205-209.
- P14076 PARET, R.E. Fabrication of low nickel high manganese steels. Metal Progress, May, 1956, pp 54-57.
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- P14080 LAMBOURNE, N.C. On the conditions under which energy can be extracted from an air stream by an oscillating aerofoil. Aero. Quarterly, 1952-54, pp 54-68.
- P14081 ROBINSON, A. Aerofoil theory for swallow tail wings of small aspect ratio. Aero. Quarterly, 1952-54, pp 69-82.
- P14082 WITTRICK, W.H. Correlation between some stability problems for orthotropic and isotropic plates under bi-axial and uni-axial direct stress. Aero. Quarterly, 1952-54, pp 83-90.
- P14083 COLLIS, D.C. The dust problem in hot-wire anemometry. Aero. Quarterly, 1952-54, pp 93-102.
- P14084 POWELL, A. On the noise emanating from a two dimensional jet above the critical pressure. Aero. Quarterly, 1952-54, pp 103-122.
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- P14087 ZIMMERMAN, R. H. A method for predicting supercompressibility factors of natural gases. A.S.M.E. Trans. Oct. 1958, pp 1358-1362.
- P14088 WOODS, L. C. Compressible subsonic flow in two dimensional channels. Aero. Quarterly, 1955, pp 205-220.
- P14089 DONALDSON, I. S. The effect of sting supports on the base pressure of a blunt-based body in a supersonic stream. Aero. Quarterly, 1955, pp 221-229.
- P14090 JESSOP, H. T. and others. Photoelastic investigation in connection with the fatigue strength of bolted joints. Aero. Quarterly, 1955 pp 230-240.
- P14091 TANNER, L. H. Note on a null method for the direct measurement of pressure coefficient. Aero. Quarterly, 1955, pp 241-253.
- P14092 WOODS, L. C. Compressible subsonic flow in two dimensional channels. Aero. Quarterly, 1955, pp 254-277.
- P14093 GUNN, K. Effect of yielding on the fatigue properties of test pieces containing stress concentrations. Aero. Quarterly, 1955, pp 277-294.
- P14094 COLEMAN, W. S. Stabilisation of the aeroplane in symmetric flight at zero or very small air speeds. Aero. Quarterly, 1955, pp 295-328.
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- P14096 HALL, L. G. Chemical Milling. Application of the process to airframe structures. Air. Prod. 1957, pp 257-259.
- P14097 INTEGRAL SKINS. Production techniques and equipment used in the manufacture of large wing panels. Air. Prod. 1957, pp 260-272.
- P14098 SLEEVES and PLUNGERS. D-Brit drilling and lapping components in hydraulic servo equipment. Air. Prod. 1957, pp 274-278.
- P14099 MILLING HIGH TENSILE STEEL. Some notes on the use of Strasmann roughing cutters. Air. Prod. 1957, pp 278-281.
- P14100 DRIEST, E. R. van. Aerodynamic heating. App. Mech. Rev. Feb. 1958, pp 51-53.

PART 2. SELECTION OF DOCUMENTS USED FOR
COMPILATION OF SEARCH QUESTIONS

- P14001 LOVE, E.S. Pressure rise associated with shock-induced boundary layer separation. 1955, NACA TN.3601.
- P14004 HORNE, W. and others. Low speed yawed-rolling characteristics and other elastic properties of a pair of 26-inch diameter, 12 ply rating, type VII aircraft tires. 1956. NACA TN.3604.
- P14007 DALEY, B.N. and DICK, R.S.. Effect of thickness, camber and thickness distribution on airfoil characteristics at Mach numbers up to 1.0. 1956. NACA TN.3607.
- P14009 BOBBITT, P.J. Linearized lifting-surface and lifting line evaluation of sidewash behind rolling triangular wings at supersonic speeds. 1956. NACA TN.3609.
- P14017 KRIEGER, F.J. and WHITE, W.B. The composition and thermodynamic properties of air at temperatures from 500 to 8000°K and pressures from 0.00001 to 100 atmospheres. Rand Corp. R.149.
- P14020 HOUGHTON, D.S. and CHAN, A.S.L. Discontinuity stresses at the junction of a pressurised spherical shell and a cylinder. C. of A. Note No.80.
- P14025 MEGSON, N.J.L. Structural plastics for airframe construction. AGARD Report 162.
- P14032 HELDENFELS, R. and VOSTEEN, L. Approximate analysis of effects of large deflections and initial twist on torsional stiffness of a cantilever plate subjected to thermal stresses. 1957. NACA TN.4067.
- P14036 GEORGE, J.M. The measurement of air temperature in high speed flight. C. of A. Note No.86.
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- P14041 HAYWARD, D.C. The mechanical properties of RR58 aluminium alloy sheet (Clad) in tension and compression at room and elevated temperatures. R.A.E. Tech.Note MET.261.
- P14053 BLOOM, M.H. On hypersonic similarity for nozzles. Jnl.Aero.Scs. Vol.26, 1959, p 395.
- P14060 HOVGARD, P.E. The comparative performance of helicopter convertiplanes, and slow-flying airplanes. Aero.Eng.Rev. Vol.14, 1955 pp 40-44.
- P14063 NONWEILER, T. The design of wing sections. Air.Engng. July 1956, pp 216-227.
- P14069 BERNSTEIN, H. Delayed cracking of rolled Ti-150A. Metal Progress, Vol.69, 1956, pp 65-66.
- P14078 ROBINSON, A. Aerofoil theory for swallow tail wings of small aspect ratio. Aero.Quarterly, Vol.4, 1952-54, pp 69-82.

- P14081 COLLIS, D. C. The dust problem in hot-wire anemometry. Aero. Quarterly, Vol. 4, 1952-54, pp 93-102.
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- P14087 WOODS, L. C. Compressible subsonic flow in two dimensional channels. Aero. Quarterly, Vol. 6, 1955, pp 205-220.
- P14090 HALL, L. G. Chemical Milling. Application of the process to airframe structures. Air. Prod. Vol. 19, 1957, pp 257-259.

PART 3. QUESTIONS RESULTING FROM SELECTION

P14001	40-06	Boundary-layer shock wave interaction.
P14004	40-12	Elastic characteristics of 26 x 6.6 pneumatic tyres.
P14007	40-07	Effect of change of aerofoil design lift coefficient on the type of flow obtained in the transonic region.
P14009	40-11	Method of calculating sidewash on vertical fin due to wing rolling, for delta wing at $M = 2$.
P14017	40-01	Locate a table giving specific entropy of air at temperatures from 500 to 8000°K.
P14020	40-08	Stresses at joins between a pressurised spherical shell and a cylinder.
P14025	40-02	Plastics in radomes.
P14038	40-15	Use of networks to modify the voltage/frequency and impedance/frequency characteristics of an alternator.
P14041	40-09	Data on strength of R. R. 58 sheet at elevated temperatures.
P14053	40-13	Application of Tsien's hypersonic similarity theory for potential flow to two dimensional and axially-symmetric nozzle flow.
P14053	40-03	Application of hypersonic similarity theory to analysis of nozzle flow.
P14060	40-04	Comparison of convertiplanes with helicopters.
P14060	40-14	Weight and power estimates for convertiplane, helicopter, and airplane, each with 4,000 pounds pay loads.
P14063	40-05	Optimum shapes for two-dimensional wing sections at supersonic speeds.
P14083	40-10	Super-compressibility factor of natural gas at flow temperature 80° F and flow pressure 1400 p.s.i.g.

PART 4. EXTRACT OF LETTER SENT TO COMPILERS OF QUESTIONS

"The Test Programme

"The testing of the systems will be done by putting to the various indexes questions which are based on documents in the collection. We need altogether a total of 1,500 questions, and we should be grateful for offers to compile twenty questions or multiples of twenty.

"To those who volunteer to help in this aspect we will send a selected list of references to papers included in the project. We will ask that questions based on the listed documents should be compiled, and that such questions should range from the specific to the general, i.e. some questions should be so specific that the document on which they are based is likely to be the only document which would give the answer, while other questions are of such a general nature that a satisfactory answer might be expected to be found in a number of documents. Examples of such questions might be 'hinge moments of a horizontal tail, 45 deg., sweptback planform, of aspect ratio 2 and taper ratio 0.5', or 'effect of surface roughness on drag of aircraft'. While these two examples deal with aerodynamics, we shall require questions based on all the subject fields included in this project."