

AFWAL-TM - 83-174-FIMG

DESCRIPTIVE SURVEY OF HIGH SPEED FLOW SEPARATION

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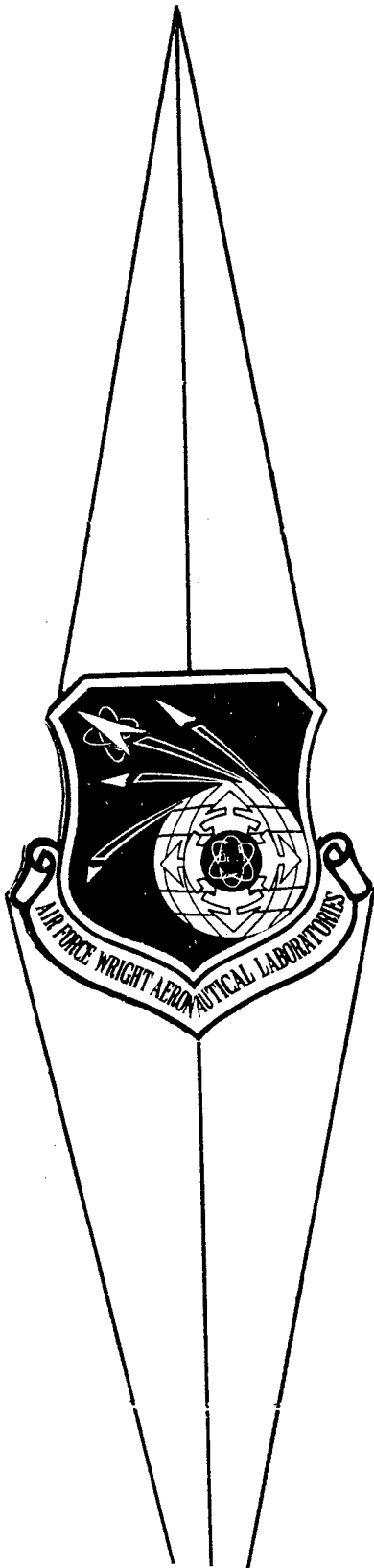
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13. ABSTRACT (Maximum 200 words) FLOW SEPARATION CAN SUBSTANTIALLY ALTER THE ANTICIPATED PRESSURE AND HEATING LOADS ON HIGH SPEED AIRCRAFT SURFACES AND CAN COMPROMISE THE DESIGN OF HIGH SPEED VEHICLES. REPORT HAS 3 MAJOR PORTIONS: 1) INVERSE CHRONOLOGICAL LISTING OF REPORTS OF HIGH SPEED SEPARATED FLOW INVESTIGATIONS; 2) A DESCRIPTIVE TABLE AND DISCUSSION OF THE INVESTIGATIONS OF VARIOUS ASPECTS OF HIGH SPEED FLOW PHENOMENA; AND 3) A REFERENCE LIST EMPHASIZING THE MORE RECENT INVESTIGATIONS [ED. NOTE: REPORT WAS PUBLISHED IN 1983]. ALSO INCLUDED IN REPORT IS A CROSS REFERENCE LIST OF FIRST AUTHORS AND DATES OF REPORT.				
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FOREWORD

This report was prepared by Reservists assigned to the Aeronautical Systems Division (ASD) for the Air Force Wright Aeronautical Laboratories (AFWAL) located at Wright-Patterson Air Force Base, Ohio. The ASD Reserve Project number was 77-052.

The Air Force Project Monitor was Richard Neumann (AFWAL/FIMG) and the work was performed as part of Air Force Task 240407, "Aeroperformance and Aeroheating Technology". Richard Neumann formulated the project, guided our efforts, and continually supported the needs of the project. The authors thank Richard Neumann and James Hayes (AFWAL/FIMG) for their substantial contributions to this project.

The authors also wish to acknowledge and thank the numerous Air Force Reservists who contributed to this work: LTC Allan Dean, MAJ Paul Beck, MAJ Myron Goldman, MAJ Jack Grimes, MAJ Harold Jensen, MAJ Robert Kirchner, CPT Lawrence Crain and CPT Eric Holwitt.

This memorandum has been reviewed and is approved.



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Section I
INTRODUCTION

Flow separation can substantially alter the anticipated pressure and heating loads on high speed aircraft surfaces, and can compromise the design of high speed vehicles. The importance of this problem is well recognized and has prompted several hundred scientific investigations of various aspects of separated flow phenomena. Many of these investigations are listed and categorized herein. Investigations of lee side separated flow phenomena, however, are not included.

Three major portions of this report are: 1) the inverse chronologic listing of reports of high speed separated flow investigations, 2) a descriptive table and discussion of the investigations of various aspects of high speed flow phenomena, and 3) a reference list emphasizing the more recent investigations. We have also included a cross reference list of first authors and date of report. These are described in more detail in the following text. This report is useful in describing features of various aspects of high speed flow separation phenomena and delineating recent and appropriate references.

Section II

LITERATURE SEARCHES

Many library searches were accomplished in gathering material pertinent to high speed flow separation. "Key Words" were used to obtain bibliographies from: the U. S. Air Force, the U. S. Navy, NASA, the American Institute of Aeronautics and Astronautics (AIAA), and Grumman Aerospace Corporation. The proliferation of reports prompted our formulating a computer program for listing the reports in an orderly fashion (reverse chronological and alphabetical by author). In addition to the various library searches, reference lists from each report were reviewed to obtain additional references pertinent to high speed flow separation.

Emphasis has been placed on the more recent investigations, although landmark older references are also listed. The computer printout lists the date, year and month, of the reference, and the first 18 letters of the title. Numbers following the date are simply a numerical listing, alphabetically by author of the reports issued in a particular month. To our knowledge, this is the most complete listing of investigations of high speed flow separation phenomena currently available.

Date, Authors, and initial portions of report titles are listed in Table I, "Chronologic List of Reports."

Section III

DESCRIPTION OF TYPES OF SEPARATION AND INVESTIGATIONS

Experimental and theoretical investigations of high speed flow separation phenomena are listed and categorized in Table II. The date is the same as that given in the computer listing (Table I), but the names of the first authors have been reduced to just the first eight letters. Thirty-five categories are used to delineate features of each report. These separated flow phenomena and selected investigations are described below. Only a few investigations are singled out for specific examples but every reference listed was carefully reviewed.

The letters in the table are the same as the first letter of the column heading; an aid in reading the tables. Column headings are described below.

The first four columns describe the general nature of the report. Included under "survey" are reports that include much information gleaned from many other investigations. One of the more outstanding survey reports, because of its thoroughness, is that prepared by Ryan. Of course, most reports in this complex field are experimental in nature. The theoretically oriented reports deal primarily with two-dimensional flows. Many of the theoretical reports lean heavily on numerical analyses and computer codes. Even though a numerical program is operational at one facility, it may require much work to make it operational at another facility.

Two-dimensional and axisymmetric separated flows are somewhat similar in theory. Conical flares or rocket exhaust plumes being the axisymmetric counterpart of two-dimensional ramps, flaps, or external burning. Much theoretical work in this area has been accomplished by Holden. Many have conducted experimental investigations and an empirical data base, along with analytical methods, has been established for predicting pressure and heat transfer distributions. The methods are practically useful for engineering needs, but it should be noted that the steadiness of two-dimensional separated flows is questionable. Indeed, Ginoux shows evidence of three-dimensional flow effects at reattachment of pseudo two-dimensional separated flows.

Three-dimensional separated flows are untenable to purely theoretical methods. There are, however, many numerical methods (such as those of Hankey, Shang et al) and analytical empirical methods (such as those of Neumann and Hayes) for predicting adequately facets of three-dimensional separated flows. Flap aspect ratio and end plate effects are discussed in several reports (Ball, Cassel, Kaufman, Neumann and others).

Hankey, Shang, and others have addressed the corner flow problem, numerically. This is treated as a conical flow and is different from the disturbance caused by a fin mounted on a surface (Korkegi, Neumann and others).

Edwards, Kaufman, Whitehead, and others investigated wing sweep effects on separated flows ahead of trailing edge controls. These effects are most pronounced when there is a change in the character of the boundary layer over the surface (from laminar outboard to turbulent inboard, transition occurring parallel to the swept leading edge).

NASA, the Air Force, other government agencies, and many private corporations have written "white papers" on high speed aircraft and missile design, and incorporation of the vehicle design with the (scramjet) propulsion system.

Chapman, Sterrett, Zukoski, and many others have investigated separated flows ahead of forward facing steps. These flows are now fairly well understood and their characteristics predictable for practical engineering purposes. Separated flows ahead of ramps or flaps pose a far more severe theoretical problem (the reattachment location is unknown initially). Furthermore, there is an unsteadiness in these flows that can cause control "buzz". Nevertheless, there is a wealth of experimental data useful in pinning down salient aspects of the flows.

There are many varieties of "base" flows. This category includes: rearward facing steps, blunt bases of axisymmetric bodies, flows over sharp expansion corners, wake flows and plume induced flow separation (which may also be included under "ramp"). Many base geometries and flow parameters proliferate a numerous variety of flows, precluding inclusive analyses of all such type flows. Of course many investigations provide guidelines, but an experimental approach for a particular vehicle and flow conditions still appears to be mandated.

The desire to release internal stores stably at high speeds has led to many investigations of cavity flows (Heller, Rossiter and others). Two-dimensional cavity flows and cavities on axisymmetric vehicles (applicable to high-altitude deceleration) have been investigated. However, the bulk of high speed cavity flow investigations pertain to flows past bomb bays. The steadiness of the flow and accoustics are important aspects of this problem. Criteria are available for analyzing and even predicting certain facets of cavity flows, but even fundamental scaling laws have yet to be established.

Ericsson, Stetson and others have performed many investigations of flows over forward facing spikes and cavities in nose cones. Again, stability of these flows is of paramount importance. Ablating nose cones are also considered under this heading.

Amick, Kaufman, Voitenko, Werle and others have performed experimental and theoretical investigations of flows past transverse jets. The jet fluid boundary has occasionally been represented as a forward facing step or, three-dimensionally, as a cylinder mounted perpendicularly to the surface.

Flows past protuberances from a surface have much practical significance and have accordingly received much attention. Some investigators that come to mind here are: Couch, Dolling, Gillerlain, Hayes, Kaufman, Korkegi, Lucas, Neumann and Waltrup. The shock wave associated with the protuberance separates the boundary layer from the vehicle surface and results in a complex viscid-inviscid three-dimensional flow field. Neumann and Hayes present practical methods for estimating the extent of separation and the increased pressure and thermal loads on a surface adjacent to sharp leading edge fins. The boundary layer character on the vehicle surface is an important parameter. For blunt fins, or cylinders, not only the character of the boundary layer but also its thickness relative to the fin height and diameter are important parameters.

The shock generated by a fin, or other protuberance, is incident to the boundary layer on the vehicle surface. Other incident shock-wave boundary-layer interactions are created by adjacent bodies, such as the shuttle and the main fuel pod, or stores mounted on wings. The two-dimensional case has been analyzed and "free interaction" theories developed that are reliable. Three-dimensional interaction cases are more complex and frequently require interpolation between sets of experimental data. In our experience, the

extent of the three-dimensional viscid-inviscid interaction flow region is considerably larger than would be anticipated using inviscid flow analyses.

Edney made the definitive investigation of shock impingement. The shock wave ahead of a protuberance separates the boundary layer from the surface. The "dead air" region forms an effective wedge and gives rise to a shock wave. This secondary shock wave impinges on the protuberance shock wave. A slip line starting at the juncture of the shock waves impinges on the protuberance leading edge. The energy of this small portion of the flow field is enormous and results in extremely large heating rates locally at a particular spot on the protuberance leading edge (Fig. 1). Indeed, the destruction of a ventral fin on the X-15 was a result of this type of flow interaction. The interaction also results in local high pressure regions on the surface ahead of the fin. Various types of shock impingement interaction flows can occur. These were categorized by Edney and investigated by him, Keyes, Voitenko, and others.

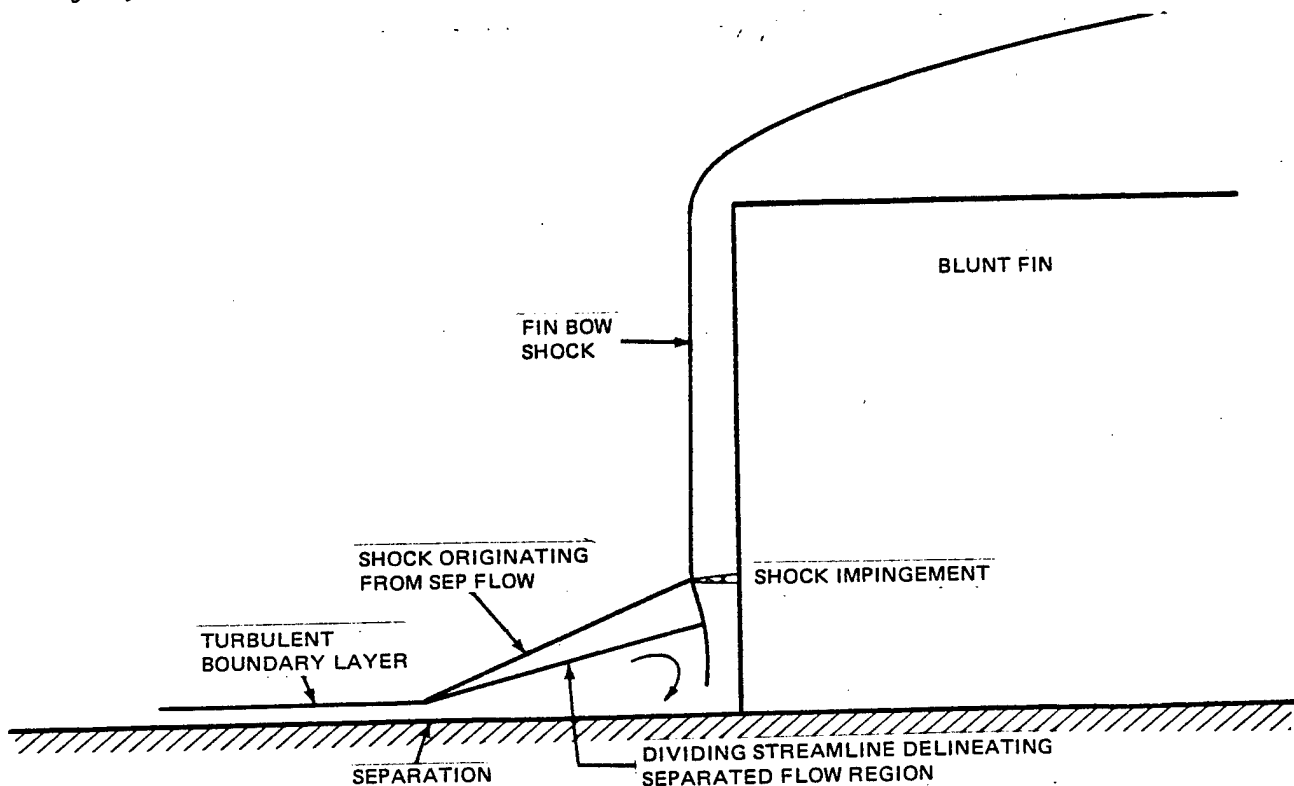


Fig. 1 Centerplane Sketch of Flow Separation and Impingement on a Blunt Leading Edge Fin

As would be expected, boundary layer characteristics are of paramount importance in shock-wave boundary-layer interaction flows. The definitive work here is that of Chapman, though many theoretical and experimental investigations have advanced knowledge in these types of interactions since Chapman's work. Transitional boundary layers are not as readily amenable to theoretical analyses as either laminar or turbulent boundary layers, but are prevalent in wind tunnel experiments. Indeed, the extent of transition is frequently comparable to the extent of laminar boundary layer flow. The lower case "t" used in this column is simply to distinguish it from the adjacent upper case "T" used for turbulent boundary layer interaction flows.

The vast majority of experiments have been conducted using wind tunnels; flight test is considerably more complicated and expensive.

The following columns indicate the type of information presented, whether calculated or measured. Surface static pressure and heat transfer rate distributions are most common. Flow field characteristics, whether calculated or measured, are harder to obtain and therefore appear less frequently in the literature.

The column headed "SCHL-SHD" pertains to all and any type of flow field photograph: schlichting, shadowgraph, interferograph, holograph, or vapor screen.

Surface oil flow photographs and motion pictures delineate not only the extent of separation but many other features of the interaction flow. These features include the character of the boundary layer (laminar, transitional, or turbulent), the steadiness and stability of the interaction flow, surface streamline directions, and the extent of influence of the interaction flow. Ericsson, Gillerlain, Hayes, Kaufman, Kitchens, Neumann, Sedney and Winkelmann are just a few who have used the surface oil flow technique successfully.

Carriere, Chapman, Gadd, Hung, and several others have formulated expressions for the extent of separation as well as the "free interaction" pressure rise at the onset of separation. These correlations are generally adequate for engineering purposes.

A few reports touch upon other topics, and are usually described more fully under "Notes." These are self-explanatory.

An author-chronologic cross reference list is given in Table III to facilitate recalling the works of specific scientists in this field.

Section IV

CONCLUSIONS

Many investigations of high speed flow separation were reviewed. Salient aspects of interaction flows are discussed. Pertinent references are categorized in a descriptive table.

This reference work was designed to be a useful tool for aerodynamicists interested in the effects of high speed flow separation. At the least, it narrows the number of references to be reviewed in a particular effort involved with a particular aspect of high speed separated flow phenomena.

TABLE I
CHRONOLOGIC LIST OF REPORTS

8203		ERICSSON REDING	DYNAMIC SIMULATION THROUGH ANALYTIC
8201	1	HORSTMAN SETTLES W	A REATTACHING FREE SHEAR LAYER IN C
8201	2	SETTLES WILLIAMS B	REATTACHMENT OF A COMPRESSIBLE TURB
8201	3	SHANG HANKEY SMITH	FLOW OSCILLATIONS OF SPIKE-TIPPED B
8111		DODS COE	CROSSFLOW EFFECTS ON STEADY AND FLU
8110		TAI	DETERMINATION OF THREE-DIMENSIONAL
8109	1	HUNG CHAUSEE	COMPUTATION OF SUPERSONIC TURBULENT
8109	2	KAUFMAN JOHNSON	METHODS FOR ESTIMATING PRESSURE AND
8108		COUSTEIX HOUEDEVILL	SINGULARITIES IN THREE-DIMENSIONAL
8105	1	DOLLING BOGDONOFF	SCALING OF INTERACTIONS OF CYLINDER
8105	2	ERICSSON	AEROELASTICITY, INCLUDING DYNAMIC E
8104	1	MEIER GRONAU	VISCOUS AND INTERACTING FLOW FIELD
8104	2	TOBAK PEAKE	TOPOLOGY OF THREE-DIMENSIONAL SEPAR
8103		RIEBE PITTMAN	AERODYNAMIC CHARACTERISTICS OF A HY
8101	1	DOLLING BOGDONOFF	UPSTREAM INFLUENCE SCALING OF SHARP
8101	2	NESTLER	AN EXPERIMENTAL STUDY OF CAVITY FLO
8101	3	NEUMANN HAYES	PROTUBERANCE HEATING AT HIGH MACH N
8101	4	SETTLES PERKINS BO	UPSTREAM INFLUENCE SCALING OF 2D +
8101	5	ZUMWALT	EXPERIMENTS ON THREE-DIMENSIONAL SE
8012		ARDONCEAU ALZARY A	CALCUL DE L'INTERACTION ONDE DE CHO
8011	1	BRANDEIS ROM	THREE-LAYER INTERACTIVE METHOD FOR
8011	2	DAVIS MALCOLM	TRANSONIC SHOCK-WAVE/BOUNDARY-LAYER
8010		BOGDONOFF SETTLES	SEPARATED FLOW AND BOUNDARY LAYER R
8008	1	CASSEL MCMILLEN TA	FINITE SPAN EFFECTS ON FLAP HEATING
8008	2	HANKEY SHANG	ANALYSES OF PRESSURE OSILLATIONS IN
8008	3	HUSSAINI BALDWIN M	ASYMPTOTIC FEATURES OF SHOCK-WAVE B
8008	4	MATEER VIEGAS	MACH AND REYNOLDS NUMBER EFFECTS ON
8007	1	CASSEL JARRETT	HYPERSONIC FLOW OVER SMALL SPAN FLA
8007	2	GOLDSTEIN	WORKSHOP REPORT FOR THE AIAA 5TH AE
8007	3	PEAKE TOBAK	THREE-DIMENSIONAL INTERACTIONS AND
8007	4	SETTLES PERKINS BO	INVESTIGATION OF THREE DIMENSIONAL
8006	1	MACIULAITIS	IMPROVED PREDICTION OF FREQUENCY MO
8006	2	SHILOH SHIVAPRASAD	MEASUREMENTS OF THE TRANSVERSE VELO
8006	3	TIPTON	WEAPON BAY CAVITY NOISE ENVIRONMENT
8004	1	JARRETT CASSEL MCM	FINITE SPAN EFFECTS ON FLAP HEATING
8004	2	SIMPSON CHEW SHIVA	MEASUREMENTS OF A SEPARATING TURBUL
8003	1	JOHNSON KAUFMAN	HIGH-SPEED INTERFERENCE HEATING LOA
8003	2	KUHN	CALCULATION OF SEPARATED TURBULENT
8003	3	PAYNTER	ANALYSIS OF WEAK GLANCING SHOCK/BOU
8003	4	PEAKE TOBAK	THREE-DIMENSIONAL INTERACTIONS AND
8003	5	REDING GUENTHER JE	SCALE EFFECTS ON FLUCTUATING PRESSU
8001	1	CLARK KAUFMAN MACI	AERODACOUSTIC MEASUREMENTS FOR MACH
8001	2	HUNG CLAUSS	THREE-DIMENSIONAL PROTUBERANCE INTER
8001	3	MARCONI	SUPERSONIC INVISCID CONICAL CORNER
8001	4	ROSEN PAVISH ANDER	CORRELATION TECHNIQUE FOR PREDICTIN
8001	5	SICLARI	INVESTIGATION OF CROSSFLOW SHOCKS O
7912	1	CEBECI KHALIL WHIT	CALCULATION OF SEPARATED BOUNDARY-L
7912	2	KIRCHNER	ANALYTIC INVESTIGATION OF HYPERSONI
7911	1	DYMENT	UNSTEADY PROPERTIES OF SEPARATED PL
7911	2	HORSTMAN HUNG	COMPUTATION OF THREE DIMENSIONAL TU

7911	3	IKAWA	REAL GAS LAMINAR BOUNDARY-LAYER SEP
7911	4	SHAW	SUPPRESSION OF AERODYNAMICALLY INDU
7911	5	TASSA SANKAR	EFFECT OF SUCTION ON A SHOCK SEPARA
7910	1	CRAWFORD	SOME RECENT DEVELOPMENTS IN THE PRE
7910	2	HUNT LAWING MARCUM	PERFORMANCE POTENTIAL AND RESEARCH
7910	3	KAUFMAN	PRETEST REPORT FOR HEAT TRANSFER EX
7909	1	DELERY	ANALYSIS OF THE SEPARATION DUE TO S
7909	2	REDING	FLUCTUATING PRESSURES ON MILDLY IND
7908		MAUK	BOUNDARY LAYER SEPARATION. CITATION
7907	1	LEGENDRE	SEPARATION OF A FLOW ALONG A LINE O
7907	2	MODARRESS JOHNSON	INVESTIGATION OF TURBULENT BOUNDARY
7907	3	SHANG HANKEY PETTY	THREE-DIMENSIONAL SUPERSONIC INTERA
7906	1	CASSEL DUNCAN LAHT	HYPERSONIC INTERFERENCE FLOW FLIGHT
7906	2	CHOW	SEPARATED FLOW PROBLEMS WITHIN THE
7906	3	KIRCHNER	COMMENT ON "WALL SHEAR STRESS MEASU
7906	4	NASH SCRUGGS	CALCULATION OF TIME DEPENDENT FLOWS
7906	5	ROSE MURTHY	REPLY BY AUTHORS TO R D KIRCHNER
7906	6	SCHEPERS PFEIFFER	FLOW FIELD INVESTIGATIONS IN CORNER
7906	7	SCHWEIGER ERHARDT	SHOCK-SHOCK AND SHOCK-BOUNDARY LAYE
7906	8	SETTLES FITZPATRIC	DETAILED STUDY OF ATTACHED AND SEPA
7905	1	ERICSSON ALMROTH B	HYPERSONIC AEROTHERMOELASTIC CHARAC
7905	2	NEUMANN HAYES	AERODYNAMIC HEATING IN THE FIN INTE
7903		KAUFMAN JOHNSON	PRESSURE AND THERMAL DISTRIBUTIONS
7902	1	CLARK	EVALUATION OF F-111 WEAPON BAY AERO
7902	2	SCIBILIA DUROX	ETUDE DE LA FORMATION D'UN DECOLLEM
7902	3	SHEN	SUPERSONIC FLOW OVER A DEEP CAVITY
7901	1	DOLLING COSAD BOGD	THE SCALING OF 3D BLUNT FIN INDUCED
7901	2	EDITORIAL STAFF	U.S. AIR FORCE RESEARCH AND DEVELOP
7901	3	GILLERLAIN	FIN CONE INTERFERENCE FLOW FIELD
7901	4	HANKEY SHANG	THE NUMERICAL SOLUTION TO PRESSURE
7901	5	HORSTMAN HUNG	COMPUTATION OF THREE DIMENSIONAL TU
7901	6	JOHNSON KAUFMAN	HIGH SPEED INTERFERENCE HEATING LOA
7901	7	ROSEN PAVISH ANDER	A CORRELATION TECHNIQUE FOR PREDICT
7901	8	RUDMAN	THREE DIMENSIONAL SHOCK WAVE INTERA
7812		DEVEIKIS BARTLETT	PRESSURE AND HEAT-TRANSFER DISTRIBU
7811	1	EATON JEANS ASHJAE	A WALL-FLOW-DIRECTION PROBE FOR USE
7811	2	ERICSSON	ASYMMETRIC UNSTEADY FLOW IN FORWARD
7811	3	HABERCOM	FLOW REATTACHMENT. A BIBLIOGRAPHY W
7810	1	ERICSSON	FLOW PULSATIONS ON CONCAVE CONIC FO
7810	2	HUNG MACCORMACK	NUMERIC SOLUTION OF THREE-DIMENSION
7810	3	VAN DEN BERG (ED)	EUROPEAN RESEARCH PROGRAMME ON VISC
7809	1	DOLLING COSAD BOGD	THREE-DIMENSIONAL SHOCK WAVE TURBUL
7809	2	FIGORE	BOUNDARY LAYER EFFECTS
7809	3	LEGENDRE	SEPARATION OF A FLOW ALONG A LINE O
7808	1	HAYES NEUMANN	TURBULENT HEAT TRANSFER DUE TO THRE
7808	2	JOHNSON KAUFMAN	HEAT TRANSFER DISTRIBUTIONS INDUCED
7808	3	KAUFMAN KIRCHNER	SURFACE HEAT TRANSFER DISTRIBUTIONS
7808	4	LITTLE	SEPARATION TESTING OF LARGE WEAPONS
7808	5	MORRISETTE GOLDBER	TURBULENT-FLOW SEPARATION CRITERIA
7808	6	NELSON	THE INFLUENCE OF A WAKE SPLITTER PL

7808	7	REDING GUENTHER JE	SCALE EFFECTS ON THE FLUCTUATING PR
7808	8	XERIKOS STEIGER	EXPERIMENTAL INVESTIGATION OF HEATI
7807	1	AYMER DE LA CHEVAL	INTEGRAL METHOD IMPROVEMENT FOR COM
7807	2	KAUFMAN MACIULAITI	PRETEST REPORT FOR JOINT AFFDL/GAC
7807	3	MURTHY ROSE	WALL SHEAR STRESS MEASUREMENTS IN A
7805	1	CHANG	REVIEW OF THE USSR ARTICLE ENTITLED
7805	2	LAWING	CONFIGURATION HEATING FOR A HYPERSO
7804	1	KAUFMAN KIRCHNER	HIGH SPEED FLOW SEPARATION AHEAD OF
7804	2	SHEN	MULTIPLE SHOCK AERODYNAMIC WINDOW
7803	1	HABERCOM	CAVITY FLOW, VOLUME 2, A BIBLIOGRAP
7803	2	HAYES	OPTICAL FLOW FIELD DATA ON FIN INTE
7803	3	OSKAM VAS BOGDONOF	OBLIQUE SHOCK WAVE/TURBULENT BOUNDA
7802	1	AGARD	CONFERENCE PROCEEDINGS
7802	2	SIRIEIX (ED)	THREE DIMENSIONAL AND UNSTEADY SEPA
7801	1	DEVEIKIS BARTLETT	PRESSURE AND HEAT-TRANSFER DISTRIBU
7801	2	DOLLING COSAD BOGD	THREE DIMENSIONAL SHOCK WAVE TURBUL
7801	3	HUNT LAWING MARCUM	CONCEPTUAL STUDY OF HYPERSONIC AIRB
7801	4	NEUMANN PATTERSON	AERODYNAMIC HEATING TO THE HYPERSON
7801	5	SCUDERI	EXPRESSIONS FOR PREDICTING 3-D SHOC
7801	6	TELIONIS KOROMILAS	EXPERIMENTAL INVESTIGATION OF UNSTE
7800		KENWORTHY	A STUDY OF AXISYMMETRIC SEPARATION
7712	1	GUENTHER REDING	FLUCTUATING PRESSURE ENVIRONMENT OF
7712	2	REDING ERICSSON	EFFECTS OF FLOW SEPARATION ON SHUTT
7712	3	VAICAITIS DOWELL	RESPONSE OF SPACE SHUTTLE SURFACE I
7711	1	INGER	ON THE CURVATURE OF COMPRESSIBLE BO
7711	2	PATTERSON	INVESTIGATION OF TEST FACILITY EFFE
7711	3	SHANG HANKEY	NUMERICAL SOLUTION OF THE NAVIER-ST
7710	1	CLARK DORAN	THE EFFECTS OF WEAPONS BAY TURBULEN
7710	2	DOLLING COSAD BOGD	THREE DIMENSIONAL SHOCK WAVE TURBUL
7710	3	HAYES	AN OVERVIEW OF THE TEST PROGRAM AND
7709	1	DYMENT GRYSO	STUDY OF SUBSONIC AND SUPERSONIC TU
7709	2	JOHNSON TAYLOR WEI	HEAT-TRANSFER AND PRESSURE MEASUREM
7709	3	PANARAS	HIGH SPEED UNSTEADY SEPARATION ABOU
7708	1	ERICSSON	FLOW OSCILLATIONS ON CONCAVE CONIC
7708	2	HEFNER CARY BUSHNE	DOWNSTREAM INFLUENCE OF SWEEP SLOT
7708	3	HORSTMAN SETTLES V	REYNOLDS NUMBER EFFECTS ON SHOCK-WA
7707	1	COOPER HANKEY	FLOW FIELD MEASUREMENTS IN AN ASYMM
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7005	4	WERLE DRIFTMYER SH	TWO DIMENSIONAL JET INTERACTION WIT
7005	5	WINKELMANN	FLOW VISUALIZATION STUDIES OF A FIN
7004		KAUFMAN	SPACE SHUTTLE SYSTEM: RCS AUGMENTAT
7003	1	HANKEY	SOME DESIGN ASPECTS OF HYPERSONIC V
7003	2	RHUDY	INVESTIGATION OF LAMINATE BOUNDARY-
7001	1	LUCERO	TURBULENT BOUNDARY-LAYER SEPARATION
7001	2	REDA PAGE	SUPERSONIC TURBULENT FLOW REATTACHM
7001	3	STRIKE BUCHANAN	CIRCULAR SONIC LATERAL JET INTERACT
7000	1	AEROSPACE RESEARCH	VISCOUS INTERACTION PHENOMENA IN SU
7000	2	GREEN	INTERACTIONS BETWEEN SHOCK WAVES AN
7000	3	LAPIN	TURBULENTNYY POGRANICHNYY SLOY V SU
6912	1	CRESCHI RUBIN NARDO	HYPERSONIC INTERACTION ALONG A RECT
6912	2	KAUFMAN	ON SHOCK IMPINGEMENT HEATING AND RE
6912	3	KLINEBERG LEES	THEORY OF LAMINAR VISCOUS INVISED I
6911		WATSON MURPHY ROSE	INVESTIGATION OF LAMINAR AND TURBUL
6910	1	AMICK	JET INTERACTION RESEARCH, USN AAC.
6910	2	GOLDBERG HEFNER ST	HYPERSONIC AERODYNAMIC CHARACTERIST
6910	3	MURPHY	A CRITICAL EVALUATION OF ANALYTIC M
6910	4	ROSE	A METHOD FOR ANALYZING THE INTERACT
6909	1	CASSEL DURANDO BUL	JET INTERACTION CONTROL EFFECTIVENE
6909	2	GINOUX	ON SOME PROPERTIES OF REATTACHING L
6909	3	KEYES	PRESSURES AND HEAT TRANSFER ON A 75
6909	4	STEWARTSON WILLIAM	SELF-INDUCED SEPARATION, PROC.R.SOC
6908	1	CARAFOLI PANTAZOPO	SUPERSONIC PLANE STREAMS SEPARATED
6908	2	PAGE	COMMENTS ON A REATTACHMENT CRITERIO
6908	3	POLAK KALIVRETENOS	HYPERSONIC TURBULENT BOUNDARY-LAYER
6907	1	COUCH	FLOW FIELD MEASUREMENTS DOWNSTREAM
6907	2	NESTLER SAYDAH AUX	HEAT TRANSFER TO STEPS AND CAVITIES
6907	3	REDING GUENTHER ER	NONEXISTENCE OF AXISYMMETRIC SEPARA
6906	1	DIAB SRINIVASAN KR	STUDIES IN TWO-DIMENSIONAL FLUID IN
6906	2	HAHN	EXPERIMENTAL INVESTIGATION OF SEPAR
6906	3	POLAK KALIVRETENOS	HYPERSONIC-TURBULENT BOUNDARY-LAYER
6905	1	BALL	AN INVESTIGATION OF THE EXTENT OF L
6905	2	BERTRAM HENDERSON	SOME RECENT RESEARCH WITH VISCOUS I
6905	3	BLOOM RUBIN CRESCHI	THREE-DIMENSIONAL VISCOUS INTERACTI
6905	4	GINOUX	HIGH SPEED FLOWS OVER WEDGES AND FL
6905	5	HOLDEN	THEORETICAL AND EXPERIMENTAL STUDIE
6905	6	ROSHKO THOMKE	SUPERSONIC, TURBULENT BOUNDARY LAYE
6905	7	STOLLERY	HYPERSONIC VISCOUS FLOW OVER CONCAV
6905	8	TODISCO REEVES	TURBULENT BOUNDARY LAYER SEPARATION
6905	9	WERLE DRIFTMYER SH	TWO DIMENSIONAL JET-INTERACTION EXP
6904	1	KAUFMAN	INTERACTION BETWEEN HIGH SPEED FLOW
6904	2	RYAN	SUMMARY OF THE AEROTHERMODYNAMIC IN
6903	1	BOVERIE	RECENT HIGH SPEED GASDYNAMIC RESEAR
6903	2	NEUMANN BURKE	THE INFLUENCE OF SHOCK WAVE-BOUNDAR
6903	3	REDING GUENTHER ER	NONEXISTENCE OF AXISYMMETRIC SEPARA
6901	1	ALABAMA UNIVERSITY	RESEARCH AND ANALYSIS IN THE GENERA
6901	2	AVDUYEVSKII ET AL	THE PHYSICAL PROPERTIES OF A FLOW I
6901	3	GINOUX	SUPERSONIC SEPARATED FLOWS OVER WED
6901	4	PANOV	SHAPE OF THE SEPARATED FLOW REGION

6901	5	RAO	FLOW VISUALIZATION AND CONTROL EFFECTS
6900		THOMKE ROSHKO	INCIPIENT SEPARATION OF A TURBULENT
6812	1	WHITEHEAD KEYES	FLOW PHENOMENA AND SEPARATION OVER
6812	2	YOUNG KAUFMAN KORK	EXPERIMENTAL INVESTIGATION OF INTER
6811	1	DEARING HAMILTON	HEAT TRANSFER AND PRESSURE DISTRIBUTION
6811	2	LAMB HOOD	AN INTEGRAL ANALYSIS OF TURBULENT HEAT
6811	3	MARKARIAN	TRANSFER IN SHOCK WAVE-BOUNDARY
6811	4	WALLACE	A REVIEW OF THE ANALYTIC METHODS AT
6810		KAUFMAN KOCH	HIGH SPEED FLOWS PAST TRANSVERSE JETS
6809	1	BUSHNELL WEINSTEIN	CORRELATION OF PEAK HEATING FOR RE
6809	2	CLAYTON WUERER	FLOW SEPARATION IN HIGH SPEED FLIGHT
6809	3	PHINNEY WERLE KNOT	SLOT JET INTERACTION STUDIES OF AN
6809	4	ROSE MURPHY WATSON	INTERACTION OF AN OBLIQUE SHOCK WAVE
6809	5	VOITENKO	INFLUENCE OF MACH NUMBER ON FLOW IN
6808	1	CARRIERE SIRIEUX S	PROPRIETES DE SIMILITUDE DES PHENOMENES
6808	2	DEARING HAMILTON	EFFECT OF HINGE LINE BLEED ON HEAT
6808	3	HARVEY	EXPERIMENTAL INVESTIGATION OF LAMINAR
6808	4	KEYES GOLDBERG EME	TURBULENT HEAT TRANSFER ASSOCIATED
6808	5	NESTLER	CORRELATION OF TURBULENT HEAT FLUX
6807	1	GLAGOLEV ZUBKOV PA	SUPERSONIC FLOW OVER AN OBSTACLE IN
6807	2	MEYER	ROCKET EXPERIMENTS ON THE HEAT TRANSFER
6807	3	WESTKAEMPER	TURBULENT BOUNDARY-LAYER SEPARATION
6806	1	LAWRENCE WEYNAND	FACTORS AFFECTING FLOW SEPARATION IN
6806	2	LITTLE GRIFFITH	EFFECT OF MASS TRANSFER ON RAMP-INDUCED
6806	3	NESTLER SAYDAH AUX	HEAT TRANSFER TO STEPS AND CAVITIES
6805	1	LEES	VISCOUS EFFECTS AND HEAT TRANSFER IN
6805	2	PISTOLESI MARINI	PENETRATION AND INTERACTION OF A TRAILING
6805	3	VOITENKO	THE EXISTENCE OF SUPERSONIC ZONES IN
6804		BUSHNELL	EFFECTS OF SHOCK IMPINGEMENT AND OF
6803	1	BAUM	AN INTERACTION MODEL OF A SUPERSONIC
6803	2	JOHNSON	PRESSURE AND FLOW-FIELD STUDY AT MA
6803	3	SHEERAN DOSANJH	OBSERVATIONS ON JET FLOWS FROM A TRAILING
6802	1	BALL KORKEGI	AN INVESTIGATION OF THE EFFECT OF
6802	2	EDNEY	ANOMALOUS HEAT TRANSFER AND PRESSURE
6802	3	HAMA	EXPERIMENTAL STUDIES ON THE LIP SHOCK
6802	4	SPAUD ZUKOSKI	A STUDY OF THE INTERACTION OF GASED
6801	1	ALLAN	AN EXPERIMENTAL INVESTIGATION OF THE
6801	2	BLOOM (ED)	STRONG INTERACTIONS IN AERODYNAMICS
6801	3	EDNEY	EFFECTS OF SHOCK IMPINGEMENT ON THE
6801	4	GOLDMAN MORKOVIN S	UNSTEADY CONTROL SURFACE LOADS OF
6801	5	HOLDEN	LEADING-EDGE BLUNTNES AND BOUNDARY
6801	6	LEWIS KUBOTA LEES	EXPERIMENTAL INVESTIGATION OF SUPER
6801	7	NESTLER	CORRELATION OF TURBULENT HEAT FLUX
6801	8	STRIKE	ANALYSIS OF THE AERODYNAMIC DISTURBANCE
6801	9	WALTRUP HALL SCHET	FLOW FIELD IN THE VICINITY OF CYLINDRICAL
6801	10	WERLE	A CRITICAL REVIEW OF ANALYTICAL METHODS
6800	1	CARRIERE SIRIEUX S	SIMILARITY PROPERTIES OF THE LAMINAR
6800	2	KLINEBERG	THEORY OF LAMINAR VISCOUS-INVIScid
6800	3	REYHNER FLUEGGE-LO	THE INTERACTION OF A SHOCK WAVE WITH
6712	1	BALL	WALL TEMPERATURE EFFECT ON INCIPIENT

6712	2	BALL HANKEY	SOLUTIONS OF LAMINAR BOUNDARY EQUAT
6712	3	MECKLER	EFFECTS OF SEPARATION ON THE CHARAC
6712	4	NEEDHAM	A NOTE ON HYPERSONIC INCIPIENT SEPA
6712	5	WHITEHEAD	HYPERSONIC SEPARATED FLOW
6711	1	GOLDBERG	TURBULENT SEPARATION ASSOCIATED WIT
6711	2	HILL	ANALYSIS OF EXPERIMENTS ON HYPERSON
6711	3	NARASIMHA RAVINDRA	LEADING SHOCK IN TWO-DIMENSIONAL SE
6710		ZUKOSKI	TURBULENT BOUNDARY-LAYER SEPARATION
6709	1	BARNES DAVIS TANG	CONTROL EFECTIVENESS OF TRANSVERSE
6709	2	KAUFMAN	HYPERSONIC FLOWS PAST TRANSVERSE JE
6709	3	THOMAS	FLOW INVESTIGATION ABOUT A FIN PLAT
6708		BALL	AN EXPERIMENTAL INVESTIGATION OF TH
6707		BARNES DAVIS TANG	CONTROL EFECTIVENESS OF TRANSVERSE
6706	1	CHILCOTT	A REVIEW OF SEPARATED AND REATTACHI
6706	2	DONALDSON	ON THE SEPARATION OF A SUPERSONIC F
6706	3	GRANGE KLINEBERG L	LAMINAR BOUNDARY LAYER SEPARATION A
6706	4	RAY	LATERAL JET INTERACTION EFFECTS ON
6705	1	EMERY BARBER STERR	FLOW VISUALIZATION OF A SECONDARY J
6705	2	HOLDEN	THEORETICAL AND EXPERIMENTAL STUDIE
6705	3	PAGE HILL KESSLER	REATTACHMENT OF TWO-DIMENSIONAL SUP
6705	4	SCHETZ HAWKINS LEH	STRUCTURE OF HIGHLY UNDEREXPANDED T
6705	5	WHITACRE UNGAR	A CRITICAL REVIEW OF DATA ON HEAT T
6704	1	HANKEY CROSS	APPROIMATE CLOSED-FORM SOLUTIONS FO
6704	2	HAWK AMICK	TWO DIMENSIONAL SECONDARY JET INTER
6704	3	SPAID ZUKOSKI	A STUDY OF THE INTERACTION OF GASEO
6703		GULBRAN REDEKER MI	HEATING IN REGIONS OF INTERFERING F
6702	1	HANKEY	PREDICTION OF INCIPIENT SEPARATION
6702	2	HIERS LOUBSKY	EFFECTS OF SHOCK WAVE IMPINGEMENT O
6702	3	HOELMER	LAMINAR BOUNDARY-LAYER SEPARATION I
6702	4	PRICE STALLINGS	INVESTIGATION OF TURBULENT SEPARATE
6701	1	BOGDONOFF	RESEARCH ON HYPERSONIC FLOWS
6701	2	GULBRAN REDEKER MI	HEATING IN REGIONS OF INTERFERING F
6701	3	LEWIS KUBOTA LEES	EXPERIMENTAL INVESTIGATION OF SUPER
6701	4	SCHERBERG SMITH	AN EXPERIMENTAL STUDY OF SUPERSONIC
6701	5	STERN ROWE	EFFECT OF GAP SIZE ON PRESSURE AND
6701	6	STERRETT BARBER AL	EXPERIMENTAL INVESTIGATION OF SECON
6701	7	VOITENKO ZUBKOV PA	SUPERSONIC GAS FLOW PAST A CYLINDRI
6700		KISTLER TAN	SOME PROPERTIES OF TURBULENT SEPARA
6612	1	BAUM	AN INTERACTION MODEL OF A SUPERSONI
6612	2	COUCH STALLINGS CO	HEAT-TRANSFER MEASUREMENTS ON A FLA
6612	3	GUENTHER	FLOW SEPARATION STUDIES
6612	4	SPAID ZUKOSKI	FURTHER EXPERIMENTS CONCERNING SECO
6611		KAUFMAN MECKLER HA	AN INVESTIGATION OF FLOW SEPARATION
6610	1	ALPINIERI ADAMS	FLOW SEPARATION DUE TO JET PLUMING
6610	2	HOLDEN	AN ANALYTICAL STUDY OF SEPARATED FL
6610	3	HSIA	EQUIVALENCE OF SECONDARY INJECTION
6610	4	THOMAS PERLBACHS N	ADVANCED RE-ENTRY SYSTEMS HEAT-TRAN
6609	1	CATHERALL MANGLER	THE INTEGRATION OF TWO-DEIENSIONAL
6609	2	GINOUX	SUPERSONIC FLOW OVER FLAPS WITH UNI
6609	3	POPINSKI EHRLICH	DEVELOPMENT DESIGN METHODS FOR PRED

6608	1	BORLAND	METHODS OF CALCULATING AERODYNAMIC
6608	2	FITZSIMMONS DOYLE	ANALYSIS OF HYPERSONIC PRESSURE AND
6608	3	GILES THOMAS	ANALYSIS OF HYPERSONIC PRESSURE AND
6608	4	GRAY	ON THE EXISTENCE OF A PRESSURE PLAT
6608	5	JOHNSON	A THEORETICAL AND EXPERIMENTAL STUD
6608	6	KAUFMAN	HYPERSONIC FLOWS PAST TRANSVERSE JE
6608	7	MCCABE	THE THREE-DIMENSIONAL INTERACTION O
6608	8	MIKESELL	LENGTH SCALE OF SEPARATED TURBULENT
6608	9	NAGEL FITZSIMMONS	ANALYSIS OF HYPERSONIC PRESSURE AND
6608	10	NAGEL SAVAGE WANNE	INVESTIGATION OF BOUNDARY LAYER TRA
6608	11	POPINSKI	SHOCK WAVE-BOUNDARY LAYER INTERACTI
6608	12	SPAID ZUKOSKI ROSE	A STUDY OF SECONDARY INJECTION OF G
6608	13	WEISS WEINBAUM	HYPERSONIC BOUNDARY-LAYER SEPARATIO
6608	14	ZUKOSKI	REVIEW OF DATA CONCERNING TURBULENT
6607	1	EMANUEL	BLOWING FROM A POROUS CONE OR WEDGE
6607	2	GILLETTE	SEPARATION MEASUREMENT OF SUPERSONI
6607	3	THOMAS	INVESTIGATION OF THE PRESSURE DISTR
6606	1	MORKOVIN	HIGHLIGHTS OF 1966 AGARD SYMPOSIUM
6606	2	NEEDHAM STOLLERY	BOUNDARY LAYER SEPARATION IN HYPERS
6606	3	ROSHKO THOMKE	OBSERVATIONS OF TURBULENT REATTACHM
6606	4	SPEAKER AILMAN	STATIC AND FLUCTUATING PRESSURES IN
6606	5	WILSON	AN EXPERIMENTAL INVESTIGATION OF SE
6605	1	GINOUX UEBELHACK	DISCUSSION FOLLOWING THE PRESENTATI
6605	2	HOLDEN	THEORETICAL AND EXPERIMENTAL STUDIE
6605	3	KAUFMAN	REMARKS ON HYPERSONIC FLOWS PAST TR
6605	4	ROSSI NICHOLSON AD	WIND TUNNEL TEST OF A SELF-ALIGNING
6605	5	STERRETT BARBER	A THEORETICAL AND EXPERIMENTAL INVE
6604	1	CHANG	THE REATTACHMENT OF LAMINAR CAVITY
6604	2	MAGNAN SPURLIN	INVESTIGATION OF FLOW FIELD INTERFE
6603		WEINBAUM	THE PRESSURE FIELD IN COMPRESSIBLE
6602	1	JONES HUNT	USE OF FUSIBLE TEMPERATURE INDICATO
6602	2	KAUFMAN	ON REENTRY VEHICLE CONTROL: HYPERSON
6601		KUCHEMANN	SOME GENERAL ASPECTS OF THE INTERAC
6512		WILLIAMS	ON THE UPSTREAM LENGTH OF TURBULENT
6511	1	EMERY LOLL SADUMAS	HEAT TRANSFER AND PRESSURE DISTRIBU
6511	2	HOLLOWAY STERRETT	AN INVESTIGATION OF HEAT TRANSFER W
6511	3	KAUFMAN MECKLER H	AN INVESTIGATION OF FLOW SEPARATION
6511	4	KNOX	MEASUREMENTS OF SHOCK-IMPINGEMENT E
6511	5	MAURER	INTERFERENCE EFFECTS PRODUCED BY GA
6511	6	SURBER	HEAT TRANSFER IN THE VICINITY OF SU
6509		TRUITT	HYPERSONIC TURBULENT BOUNDARY LAYER
6508		MCCABE	A THREE-DIMENSIONAL INTERACTION OF
6507	1	FRANCIS	EXPERIMENTAL HEAT-TRANSFER STUDY OF
6507	2	GULBRAN REDEKER MI	HEATING IN REGIONS OF INTERFERING F
6507	3	RAY PALKO	AN INVESTIGATION OF THE EFFECTS OF
6506		MECKLER	PRESSURE MEASUREMENTS AT MACH 8 ON
6505		PUTNAM	INVESTIGATION OF EFFECTS OF RAMP SP
6504	1	KAUFMAN	SHOCK TUNNEL EXPERIMENTS ON FLOWS P
6504	2	WUERER CLAYTON	FLOW SEPARATION IN HIGH SPEED FLIGH
6503	1	FONTENOT	A METHOD OF ESTIMATING THE EFFECT O

6503	2	MCDONALD	A STUDY OF THE TURBULENT SEPARATED-
6503	3	VINSON	EXTENSION OF REACTION CONTROL EFFEC
6502		HALPRIN	STEP INDUCED BOUNDARY-LAYER SEPARAT
6501	1	HSIA SEIFERT KARAM	SHOCKS INDUCED BY SECONDARY FLUID I
6501	2	KAUFMAN MECKLER HA	AN INVESTIGATION OF HYPERSONIC FLOW
6501	3	ROGERS BERRY DAVIS	AN EXPERIMENTAL INVESTIGATION OF TH
6411	1	CHARWAT ALLEGRE	INTERACTION OF A SUPERSONIC STREAM
6411	2	ELLIS RYAN	DRAG RESULTING FROM SEPARATED FLOW
6411	3	LEES REEVES	SUPERSONIC SEPARATED AND REATTACHIN
6411	4	SILER DEAKINS	EFFECT OF SHOCK IMPINGEMENT ON THE
6410	1	GINOUX	LAMINAR SEPARATION IN SUPERSONIC FL
6410	2	KAUFMAN	PRESSURE MEASUREMENTS FOR MACH 8 FL
6410	3	ZUKOSKI SPAID	SECONDARY INJECTION OF GASES INTO A
6409	1	EVANS KAUFMAN	AERODYNAMIC CHARACTERISTICS AND FLA
6409	2	HARTOFILIS	PRESSURE AND HEAT TRANSFER MEASUREM
6409	3	MECKLER	HEAT TRANSFER MEASUREMENTS AT MACH
6409	4	STALLINGS COLLINS	HEAT TRANSFER MEASUREMENTS ON A FLA
6408	1	KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6408	2	STAINBACK	HEAT-TRANSFER MEASUREMENTS AT A MAC
6407		KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6405	1	HANSEN (ED)	SYMPOSIUM ON FULLY SEPARATED FLOWS
6405	2	KAUFMAN	PRESSURE MEASUREMENTS FOR MACH 8 FL
6405	3	STERRETT HOLLOWAY	ON THE EFFECT OF TRANSITION ON PARA
6404		VICK CUBBAGE ANDRE	ROCKET EXHAUST - PLUME PROBLEMS AND
6403	1	KISTLER	FLUCTUATING WALL PRESSURE UNDER A S
6403	2	PATE	INVESTIGATION OF FLOW SEPARATION ON
6402	1	KAUFMAN	PRESSURE MEASUREMENTS FOR MACH FIVE
6402	2	MILLER HIJMAN CHIL	MACH 8 TO 22 STUDIES OF FLOW SEPARA
6401	1	KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6401	2	KAUFMAN	PRESSURE MEASUREMENTS FOR MACH FIVE
6400	1	BECKWITH	EXPERIMENTAL INVESTIGATION OF HEAT
6400	2	JONES	HEAT TRANSFER AND PRESSURE INVESTIG
6312		KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6311		KARAMCHETI HSIA	INTEGRAL APPROACH TO AN APPROXIMATE
6310	1	KAUFMAN	PRESSURE MEASUREMENTS FOR MACH 8 FL
6310	2	MILLER	A CORRELATION OF SWEEP AND TWO-DIME
6309	1	KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6309	2	KAUFMAN	PRESSURE AND HEAT TRANSFER MEASUREM
6309	3	KAUFMAN	PRESSURE DISTRIBUTIONS AND OIL FILM
6309	4	MECKLER	STATIC AERODYNAMIC CHARACTERISTICS
6305	1	BROADWELL	ANALYSIS OF THE FLUID MECHANICS OF
6305	2	HARTOFILIS	PRESSURE MEASUREMENT AT MACH 19 FOR
6304	1	KAUFMAN MECKLER	PRESSURE AND HEAT TRANSFER MEASUREM
6304	2	STRACK	HEAT TRANSFER AT REATTACHMENT OF A
6304	3	STRIKE SCHULER DEI	INTERACTIONS PRODUCED BY SONIC LATE
6304	4	WALKER STONE SHAND	INTERACTION BETWEEN SONIC SIDE-JETS
6302		WALKER STONE SHAND	SECONDARY GAS INJECTION IN A CONICA
6212		BURBANK NEWLANDER	HEAT TRANSFER AND PRESSURE MEASUREM
6211		SAYANO	HEAT TRANSFER IN SHOCK WAVE TURBULE
6210		BOGDONOFF VAS	SOME EXPERIMENTS ON HYPERSONIC SEPA

6208		SAYANO BAUSCH DONN	AERODYNAMIC HEATING DUE TO SHOCK IN
6207	1	EVANS KAUFMAN	PRETEST REPORT ON HYPERSONIC FLOW S
6207	2	ROYALL	INVESTIGATION OF HEAT TRANSFER ON A
6206		ERDOS FALLONE	SHOCK-BOUNDARY LAYER INTERACTION AN
6204		BECKER KORYCINSKI	HEAT TRANSFER AND PRESSURE DISTRIBU
6203	1	KAUFMAN OMAN HARTO	A REVIEW OF HYPERSONIC FLOW SEPARAT
6203	2	SYKES	THE SUPERSONIC AND LOW SPEED FLOWS
6202	1	GINOUX	ON THE EXISTENCE OF CROSS FLOWS IN
6202	2	KAUFMAN	CLASSIFICATION OF INTERACTIONS DUE
6202	3	WALKER STONE SHAND	SECONDARY GAS INJECTION IN A CONICA
6111		CURLE	THE EFFECTS OF HEAT TRANSFER ON LAM
6110	1	CARTER CARR	FREE-FLIGHT INVESTIGATION OF HEAT T
6110	2	STRIKE RIPPY	INFLUENCE OF SUCTION ON THE INTERAC
6107		CHARWAT DEWEY ROOS	AN INVESTIGATION OF SEPARATED FLOWS
6106		CHARWAT ROOS DEWEY	AN INVESTIGATION OF SEPARATED FLOWS
6104		ROMEO STERRETT	AERODYNAMIC INTERACTION EFFECTS AHE
6101	1	NEWLANDER	EFFECT OF SHOCK IMPINGEMENT ON THE
6101	2	SOGIN BURKHARD RIC	HEAT TRANSFER IN SEPARATED FLOWS
6012		STERRETT EMERY	EXTENSION OF BOUNDARY LAYER SEPARAT
6009		RHODY HIERS PIPPEY	PRESSURE DISTRIBUTION AND HEAT TRAN
6008		MAULL	HYPERSONIC FLOW OVER AXIALLY SYMMET
6003		SEDDON	THE FLOW PRODUCED BY INTERACTION OF
5911		LARSON	HEAT TRANSFER IN SEPARATED FLOWS
5907		YIP	TEST REPORT FOR PHASE III OF THE AE
5903		HAKKINEN GREBER TR	THE INTERACTION OF AN OBLIQUE SHOCK
5900		VALLENTINE	APPLIED HYDRODYNAMICS (BUTTERWORTH)
5810		WISNIEWSKI	TURBULENT HEAT TRANSFER COEFFICIENT
5800		CHAPMAN KUEHN LARS	INVESTIGATION OF SEPARATED FLOWS IN
5708		BLOOM FALLONE	HEAT TRANSFER TO SURFACES IN THE NE
5703		GADD	AN EXPERIMENTAL INVESTIGATION OF HE
5602		MAGER	ON THE MODEL OF THE FREE, SHOCK-SEP
5506		BOGDONOFF	SOME EXPERIMENTAL STUDIES OF SEPARA
5505		RESHOTKO TUCKER	EFFECTS OF A DISCONTINUITY ON TURBU
5500		SCHLICHTING	BOUNDARY LAYER THEORY (MCGRAW-HILL)

TABLE II - FEATURES OF REPORTS

DATE	SURVEY EXPERIMENT 2-DIMENS	AXISMETRIC CORNER AR & B.P.	WING SWEEP	AIRCRAFT STEP	RAMP BASE	CAVITY	SPKS FINS	INCIDENT CYLINDER	IMPINGE LAMINAR TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-FLD	SCHL-SHD EXT-FLOW CORRELATION	NOTES AUTHOR
8203	E	A 3		R					L t	T F	P	S	ERICSSON
8201-01	E T N 2				C					T	P	U	HORSTMAN
8201-02	S E T N 2				C					T	P	B	SETTLES
8201-03	T N				C	S				T	P	U	SHANG HA
8111	E	A 3		R						T	P	U	DODS COE
8110	T N	A 3	A							P	P		TAI
8109-01	T N	3		R						P	P	B	HUNG CHA
8109-02	S E T	3 A C W		R		I				P H	P		KAUFMAN
8108	T N	3								T	P	S O E C	COUSTEIX
8105-01	S E	3						C		T	P	E	DOLLING
8105-02	E T	3	A							F	P	U	ERICSSON
8104-01	S E T N 2	3 W							L	T	P		MEIER GR
8104-02	T	3								H F			TOBAK PE
8103	E	3	A						L t	T	P	O	RIEBE PI
8101-01	E	3					F			T	P	S O C	DOLLING
8101-02	E	A 3			C				L t	T	P	S O	NESTLER
8101-03	S E	3					F	C		T	P	C	NEUMANN
8101-04	E	3 C W		R						T	P	O E C	SETTLES
8101-05	E	A 3 C			B	J F	C			T	P	O	ZUMWALT
8012	T N 2					I				P	P	B	ARDONLEA
8011-01	T N 2				C				L		P		BRANDEIS
8011-02	E T	2								T	P	U	DAVIS MA
8010	E T	3 C W		R						T	P		BOGDONOF
8008-01	S E	3 A		R						T	P		CASSEL M
8008-02	T N 2				C					P	P	A, U	HANKEY

NOTES

A Acoustic (noise)
 B Boundary layer
 E Experimental techniques
 F Force & moment
 H Hinge line gaps
 I Inlet & scramjet
 L Laser
 P Plume & wakes
 R References (extensive bibliography)
 S Store separation & trajectories
 T Thrust vector control
 U Unsteady

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMETRIC 3-DIMENS AR & E. P.	WING SWEEP	AIRCRAFT STEP	RAMP BASE	CAVITY	SPIRES JENS	PINS INCIDENT	IMPINGE T-WALL	TRANSIENT TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-FIELD	SCHLITZ EXT-FLOW	OTHER CORRELATION	NOTES AUTHOR
8008-03	T	2							I	L	T	P			B	HUSSAINI
8008-04	E T	2							I		T	P			B	MATEER
8007-01	E	2	3 A	R							T	P H F		C		CASSEL J
8007-02	S	3	3	A							T	F		O	A	GOLDSTEIN
8007-03	T	3	3	A						L	T	F		O		PEAKE TO
8007-04	E	3	3 C S	R							T	P F	S O			SETTLES
8006-01	E T	3	3			C					T	P	S O	C O	A	MACIULAI
8006-02	E	2	3								T	H F			L	SHILOH S
8006-03	E	3	3	A		C					T	F P		C	A	TIPTON
8004-01	E	2	3 A	R							T	P H F				JARRETT
8004-02	E	2									T	H F			L	SIMPSON
8003-01	E	2	3 A C W	R							T	P H	S O E			JOHNSON
8003-02	T N	2	A	R							T	P			F	KUHN
8003-03	E T	2	3 C	R				I			T	P		O	B	PAYNTER
8003-04	T	3	3	A						L	T	F		O		PEAKE TO
8003-05	E	3	A				S				T	F P	S O E	O	U	REDING G
8001-01	E	3	3			C					T	P	S O	O	A	CLARK KA
8001-02	S E	3	3						C	L	T	H	E			HUNG CLA
8001-03	E T N	3	3 C	R				F			T	P		O	I	MARCONI
8001-04	E	2		R							T	P				ROSEN PA
8001-05	E T N	3	3 W								T	P				SICLARI
7912-01	T	2		R							T	F				CEBECI
7912-02	S E T	3	3 A	S				F	C		T	P		O		KIRCHNER
7911-01	E	3	3						C		T	P	S		U	DYMENT
7911-02	T N	3	3					F			T	P H F				HORSTMAN
NOTES																
A Acoustic (noise)			H Hinge line gaps			R References (extensive bibliography)										
B Boundary layer			I Inlet & scramjet			S Store separation & trajectories										
E Experimental techniques			L Laser			T Thrust vector control										
F Force & moment			P Plume & wakes			U Unsteady										

DATE	SURVEY EXPERIMENT THEORY	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & B.P.	WING SWEEP	AIRCRAFT SWEEP	RAMP BASE CAVITY	SPKES PINS	INCIDENT CYLINDER	IMPINGE T-MALL TURBULENCE	TUNNEL PRESSURE HEAT-TR	SCHL-SHD OIL-FLOW CORRELATION	NOTES	AUTHOR
7911-03	T N 2					R			L	F P	O	A	IKAWA
7911-04	E	3			A	C	I		L	P	O		SHAW
7911-05	T N 2								I	F	S		TASSA SA
7910-01	E T 2				A				L t T	F		F	CRAWFORD
7910-02	S E T	3							L t				HUNT LAW
7910-03	E	3	W			R			L t	H	E		KAUFMAN
7909-01	E E 2						I		T	F	O		DELEY
7909-02	E E 2	A 3							T	P		U	REDING
7908	S	3					I		L	P			MAUK
7907-01	T 2						I		L				LEGENDE
7907-02	E 2						I		T	F	O		MODARRES
7907-03	T N	3	C						L t	F			SHANG HA
7906-01	S E	A 3			A		F		T	F P H	O	F,U	CASSEL D
7906-02	T N 2	A				B			L	P		B	CHOW
7906-03	E T 2						I		T				KIRCHNER
7906-04	T N 2						I		L	F		B	NASH SCR
7906-05	E T 2						I		T				ROSE MUR
7906-06	E E 2	3	C						L	P			SCHEPERS
7906-07	E E 2	3					C		T	P	S O E		SCHWEIGE
7906-08	E T 2	3				R			T	P			SETILES
7905-01	T	3			A		F		T	P H F	O		ERICSSON
7905-02	E	A 3					F	C	T	P H F	S O E C		NEUMANN
7903	E E 2	3	C W		A	R	F		T	P H	S O E		KAUFMAN
7902-01	E E 2	3			A	C			T	T F P	E	A	CLARK
7902-02	E 2					R			L	H	S		SCIBILIA
NOTES													
A	Acoustic (noise)	H	Hinge line gaps	R	References (extensive bibliography)								
B	Boundary layer	I	Inlet & scramjet	S	Store separation & trajectories								
E	Experimental techniques	L	Laser	T	Thrust vector control								
F	Force & moment	P	Plume & wakes	U	Unsteady								

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC AR & B.P. CORNER	WING SWEEP	AIRCRAFT STEP	RAMP BASE	CAVITY	SPIKES	PINS	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIENT TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-FLD	SCHL-SRD EXT-FLOW CORRELIN	NOTES	AUTHOR
7902-03	E	3										T	P				SHEN
7901-01	E	3										T	P				DOLLING
7901-02	S	3	W	A					F			T	F			F	EDITORIA
7901-03	E	A 3										T	P				GILLERLA
7901-04	E T N 2	3										T	P			A	HANKEY S
7901-05	T N	3										T	P				HORSTMAN
7901-06	E	3	C W	A	R				F			T	P H		S O E		JOHNSON
7901-07	T				R							T	P				ROSEN PA
7901-08	T N	3										T	P				RUDMAN
7812	E	2			R							T	P H		O	H	DEVEIKIS
7811-01	E	2										T				U	EATON JE
7811-02	E T	A 3		A				S				T		S	C O	F, U	ERICSSON
7811-03	S	A 3			R					L		T					HABERCOM
7810-01	E T	A 3						S				T		S	C O	F, U	ERICSSON
7810-02	T N	3							F			T	P H				HUNG MAC
7810-03	S	3	C			B				L		T	P H		O		VAN DEN
7809-01	E	3							F			T	P H		O E		DOLLING
7809-02	S E T N 2	3							F I			T	P H F		O		FIORE
7809-03	T									T L t T		T			C		LEGENDE
7808-01	E	A 3							F		L	T	H F		O E O		HAYES NE
7808-02	E	3	W	A	R				F			T	H		O E		JOHNSON
7808-03	E	3 A		S								T	H		S O E C		KAUFMAN
7808-04	E	3		A								T					LITTLE
7808-05	S E N 2	A				B					t T	T	P		E C		MORRISET
7808-06	E												P		S	F	NELSON
NOTES																	
A	Acoustic (noise)	H	Hinge line gaps	R	References (extensive bibliography)												
B	Boundary layer	I	Inlet & scramjet	S	Store separation & trajectories												
E	Experimental techniques	L	Laser	T	Thrust vector control												
F	Force & moment	P	Plume & wakes	U	Unsteady												

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & E.P.	WING CORNER	AIRCRAFT STEP	RAMP BASE	CAVITY	SPICES PINS	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIENT TURBULENT	TUNNEL FLIGHT PRESSURE	HEAT-TR FLOW-FID	SCHL-SHD EXT-FLOW	OTHER CORRELATION	NOTES	AUTHOR
7808-07	E	A 3			A	C	S			L t T	T F P	H	S O	O	A, U	REDING C	
7808-08	E	A 3														XERIKOS	
7807-01	E T 2				R					T	P					AYMER DE	
7807-02	E	3			A	C				T	P	F	O	O	U	KAUFMAN	
7807-03	E							I		T	T			O		MURTHY R	
7805-01	S E N													O	R	CHANG	
7805-02	E	3	W		A			F		L t T	T	H	O			LAWING	
7804-01	E	3 A			S					T	T	H	S O E	O	L	KAUFMAN	
7804-02	E	2				C					F					SHEN	
7803-01	S	3			S	C	J							O		HABERCOM	
7803-02	E	3						F		T	T		S O E			HAYES	
7803-03	E	3						F		T	T	P H F				OSKAM VA	
7802-01	S E T N 2	3	W		A		J F			L	T	P F	S	O	U	AGARD	
7802-02	S E N 2	3	W		A	B	J F			L	T	P H		O	U	SIRIEIX	
7801-01	E	2			A	R										DEVEIKIS	
7801-02	E	3						F		T	T	P H	O E C	O		DOLLING	
7801-03	E T	3			A					L	T					HUNT LAW	
7801-04	S E T	3			A							H				NEUMANN	
7801-05	E T	3						F		T		P H	O E C	O	U	SCUDERI	
7801-06	E	2											S			TELONIS	
7800	E T	A						S				P	S		U	KENWORTH	
7712-01	E	A						S			T	P		O	U	GUENTHER	
7712-02	E				A							P		O		REDING E	
7712-03	T 2				A							P		O		VAICAITI	
7711-01	T 2					R				L T		P		C		INGER	
NOTES	A Acoustic (noise) H Hinge line gaps R References (extensive bibliography) B Boundary layer I Inlet & scramjet S Store separation & trajectories E Experimental techniques L Laser T Thrust vector control F Force & moment P Plume & wakes U Unsteady																

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & B.P.	WING SWEEP	AIRCRAFT SWEEP	RAMP	BASE CAVITY	SPIKES SEPS	INS CYLINDER	IMPINGE T-WALL	GRANULAR TURBULENT	TUNNEL FLIGHT PRESSURE	HEAT FLOW CORRELATION	SCHL-GRD EXT-FLOW	OTHER CORRELATION	NOTES	AUTHOR
7711-02	E	3									T	P H		C			PATTERSON
7711-03	E T N	3	C							L t	T	P H					SHANG HA
7710-01	E	3									T	P			A		CLARK DO
7710-02	E T	2						F			T	P H		O C O			DOLLING
7710-03	E	A 3						F			T	H F		O C			HAYES
7709-01	E					B				L t	T			S	U		DYMENT G
7709-02	E	2				R					T	P H		C			JOHNSON
7709-03	E							S J			T	P			U		PANARAS
7708-01	E	A 3			A			S		L t	T	P		S O	A, U		ERICSSON
7708-02	E	3	W					J		T	T	P H F					HEFNER C
7708-03	E T	2				R					T	P		S O E	O		HORSTMAN
7707-01	E	3	C							L	T	P H F					COOPER H
7707-02	T N	2								L	T	P					DODGE LI
7707-03	E	3	W					F			T	P		O			DOLLING
7707-04	S	A 3	C							T L t	T	P H F					FIORIO
7707-05	E	3						J	C		T			E			GLAGOLEV
7707-06	E T	2						I		T L	T	P		C			HODGE
7707-07	T N	3	C							L	T	P H F					SHANG HA
7707-08	E	2								T	T	H		C O	B		VOISINET
7706	S E	2			A					L	T			C			HUNG
7705-01	E T	2									T	P		O	L		ALTSTATT
7705-02	E T	3						F			T	P H		O E C			HAYES
7704-01	T N										T	P H F		O	B		COAKLEY
7704-02	E				A						T	P H F		O			JOHNSON
7704-03	E	3	W			R		F		t	T	P		S O E			KAUFMAN

NOTES

A Acoustic (noise)
 B Boundary layer
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 F Force & moment
 H Hinge line gaps
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 T Thrust vector control
 U Unsteady

DATE	SURVEY THEORY NUMERICAL	AXISYMETRIC 3-DIMENS	WING SWEEP	AIRCRAFT SPEED	RAMP BASE CAVITY	SPRINGS PINS INCIDENT	IMPINGE 9-WALL LAMINAR TURBULENT	TUNNEL PRESSURE FLOW-TR	SCHL-SHD EXT-FLOW CORRBLAIN	OTHER	AUTHOR			
7704-04	E	3				C	I	T	P	O E C	U	SEDNEY K		
7703-01	E T	A 3		A				T	P			DVORAK M		
7703-02	E	3		A	C			T	F P	O		SHAW SMI		
7702	E	3				C		T	P	S O E C		SEDNEY K		
7701-01	T N 2			S	B	J		T	T			BAUER FO		
7701-01	E	A 3		A		S		T		O	A, U	GUENTHER		
7701-03	E	A		R			T	t	P H	C O	B	HOLDEN		
7701-04	E T N 2			R			T	T	P P	S O E C	B	HORSTMAN		
7701-05	E	A 3		A		S	L t	T	P	O	A, U	REDING G		
7700-01	S	3		A				T		O	A, F	BABER DR		
7700-02	S E T N 2	A 3	W	A		J F I	T L t	T	P H F	C O	B	BUSHNELL		
7700-03	T	2					T	T	P			EAST SMI		
7700-04	E	3		A		J	T	T		E		GLAGOLEV		
7700-05	S	3		A			T	T		O		KIRKHAM		
7700-06	E	2		A			T	T	P			KOOI		
7700-07	T	2					T	T	P			RASTOGI		
7612-01	S E	3		A			T	T	T F P H		I	HEARTH P		
7612-02	E	3	W	S			L t	T	T	O E		KAUFMAN		
7612-03	E	2		R			T	T	P F	O	B	SETTLES		
7611-01	S E	3		A	C	F	L	T	F	O	F	GALLAGHE		
7611-02	S E T	2					L	T	F			PEAKE RA		
7610-01	S E	3		A	C	F	T	T	F P	O	F	BAULLING		
7610-02	E	A		R	B		T	T	P P	S	U	DOUGHTY		
7609-01	S	2			B		T	T	P P			CHOW SPR		
7609-02	S	2	C		B				P H			EAST		
NOTES												A Acoustic (noise) B Boundary layer E Experimental techniques F Force & moment	H Hinge line gaps I Inlet & scramjet L Laser P Plume & wakes	R References (extensive bibliography) S Store separation & trajectories T Thrust vector control U Unsteady

NOTES

A Acoustic (noise)
 B Boundary layer
 E Experimental techniques
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 L Laser
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DATE	SURVEY THEORY EXPERIMENT	AXISMETRIC 2-DIMENS	AR & E.P. CORNER	AIRCRAFT WING SWEEP	RAMP	BASE CAVITY	SPKES	INCIDENT	IMPINGE	T-WAVE	TURBULENT	TUNNEL	FLIGHT PRESSURE	HEAT-TR	SCHL-SHD	EXT-FLOW	OTHER	NOTES	AUTHOR
7609-03	E T N 2	A 3							L				P H F		E O			HODGE	
7608-01	N												P		O			AIELLO	
7608-02	T N 2																	BURGGRAF	
7608-03	T N 2								L				P		O			DAVIS WE	
7608-04	S T N 2	3						C					P H F		E C			GOLUBINS	
7608-05	E T	A 3 C						F C					F		O			WANG	
7608-06	T N 2									T					E C			WERLE BE	
7607-01	E	3								T								BLISS HA	
7607-02	T N 2												P					BURGGRAF	
7607-03	S T 2							I	L t T				H		C			HUNG GRE	
7607-04	E	3						J F		T			P		F			PEAKE	
7607-05	T	A				B							P		F			PREZ PI	
7607-06	E	A				R				T			P		F	E C		ROSHKO T	
7606	E 2	A				R		I		T			P		F	S C		LAW	
7605-01	E 2							I		T			T		F	O	L	EAST	
7605-02	T 2	A						J			L							INGER SW	
7605-03	S T	3						F		L			P H					KORKEGI	
7605-04	E	3						F I		T			P		O			KORKEGI	
7605-05	E	A						I		T			P		F			MIKULLA	
7604-01	E	3				A		S					P		S O	O F,U		ERICSSON	
7604-02	E T	A 3						F										GILLERLA	
7604-03	E	A 3						F		I			P H		S O E			GILLERLA	
7604-04	T N 2					R			L	T			P H			O	B	HUNG MAC	
7604-05	E T	3							L t T				P		F	O F,S		STRIKE P	
7603-01	S T N 2	3				A			L t T				P		F	S C O	B,R	BUSHNELL	
NOTES	A Acoustic (noise) B Boundary layer E Experimental techniques F Force & moment				H Hinge line gaps I Inlet & scramjet L Laser P Plume & wakes													R References (extensive bibliography) S Store separation & trajectories T Thrust vector control U Unsteady	

DATE	SURVEY THEORY NUMERICAL	AXISMETRIC 2-DIMENS	AR & B.P. WING SWEEP	AIRCRAFT SWEEP	RAMP BASE	CAVITY	SPICES PINS	INCIDENT CYLINDER	IMPINGE T-WALL	LAMINAR TURBULENT	TUNNEL PRESSURE	SCHL-SHD OIL-FLOW	EXT-SPPRN CORRELATE	NOTES	AUTHOR
7603-02	E	A			S	B				L t	T				GLOTOV L
7603-03	E	3		A	R		F				H	O			KIRLIN
7602	E	3	C	R			C				H F	E			SCHEPERS
7601-01	E	3		R			F		I		H F				KEYES
7601-02	S	3								L	T	O			KORKEGI
7601-03	E	3					F C			T	F	S O E C			SEDNEY K
7601-04	E	2		R						T	P	S C			SETTLES
7600-01	E	3					F			T	P	O			KORKEGI
7600-02	T	2		R						T	P			U	NENNI
7600-03	E	3					F			L	T				OSKAM
7512-01	E	2								T	P H				BARYSHEV
7512-02	E	2					J		I	t	P H F	S O			BIRCH RU
7512-03	T	2							I		P				CHIEN
7512-04	E	3				C				T	P		O		CLARK
7512-05	E	3		S						T	P	E			CZARNECK
7512-06	T N									L	P H F				MILLER
7511-01	S E T N	2	W	R	B		F I			L t	T	S O E C O	U		AGARD
7511-02	T N	2								L	P H F				CARTER
7511-03	E T	2								T	P	C	B		CHU YOUN
7511-04	E T	2					F I			T	P	S			COUSTEIX
7511-05	S E T N	2	W	R	B		F			L t	T	S O E C O	U		KUCHEMAN
7511-06	E T	2					J			L	P	S	F, U		ROSENBAU
7511-07	E	2					J			T	P	E C			SPAID
7511-08	T N						F			T	P	O			MATSA WE
7510-01	E	3					S				P H	E			KENWORTH
NOTES															
A Acoustic (noise)															R References (extensive bibliography)
B Boundary layer															S Store separation & trajectories
E Experimental techniques															T Thrust vector control
F Force & moment															U Unsteady
H Hinge line gaps															
I Inlet & scramjet															
L Laser															
P Plume & wakes															

DATE	SURVEY THEORY	NUMERICAL 2-DIMS	AXISMETRIC 3-DIMS	WING SWEEP AR & E.P.	AIRCRAFT SWEEP	RAMP BASE	CAVITY	SPIKES FINS	INCIDENT CYLINDER	IMPINGE 5-WALL TUBULENT	TUNNEL FLIGHT PRESSURE	HEAT FR FLOW-FLD	SCHL-SHD EXT-FLOW CORRELATN	NOTES	AUTHOR
7510-02	E		3	W	R					L t T	T	P F	E C	RAO	RAO
7510-03	E		3			C				L T	T	P P	C	A, U	SMITH SH
7509-01	E T	2	3							L T	T	P P			INGER
7509-02	E		3		A	R B				L T	T	P P			RICHARDS
7508	S	2	3			R B				L T	T	P H			FANNELOP
7507-01	E	2			R				I	I	T	P	S E C		BERTIN H
7507-02	E	2								L	T	P H	C		CHRISTOP
7507-03	E		A 3					F			T	P H	S O E		GILLERLA
7507-04	T	2	3							L t T	T	H F			INGER
7507-05	E	2	3		A	R B		F			T	P H	O		KORKEGI
7507-06	E		A 3			C				t	T	P H	C		NESTLER
7507-07	E	2	A					I			T	P H	O E		VOISINET
7506-01	E	2			R						T	P P	S E C		BOGDONOF
7506-02	E		3					F			T	P P	O		FREEMAN
7506-03	S E T N	2								L T	T	P P			GINOUX K
7506-04	S E T N	2			R					L t T	T	P H	E		HANKEY
7506-05	S E T N	2			R			I		L T	T	P H	C		HANKEY H
7506-06	E T	2			R			I		L	T	P H			HOLDEN
7506-07	E	2	A							t T	T	H	C O	B	HOLDEN
7506-08	E	2						I		L T	T	P H	E C		JOHNSON
7506-09	E		3	W	S					L t T	T	P	S O E		KAUFMAN
7506-10	E	2			R			I		T	T	P P	S		LAW
7506-11	E		3					F		t T	T	P H	O		LAW
7506-12	E	2	3		R			F		t T	T	P P	S O		LAW
7506-13	E		3		A					t	T	H	O	S	LAWING
NOTES	A Acoustic (noise) B Boundary layer E Experimental techniques F Force & moment H Hinge line gaps I Inlet & scramjet L Laser P Plume & wakes R References (extensive bibliography) S Store separation & trajectories T Thrust vector control U Unsteady														

DATE	SURVEY THEORY NUMERICAL	ASYMMETRY 2-DIMENS	AR & B.P. CORNER WING SWEEP	AIRCRAFT RAMP BASE CAVITY	SPKS PINS INCIDENT	IMPINGE T-WALL TURBULENT	TUNNEL TRANSPARENT	FLIGHT PRESSURE	SCHL-SHD EXT-FLOW CORRELATN	NOTES	AUTHOR
7506-14	E	3			F		T	T	F	S	SEDNEY K
7506-15	T	A 3			J	L	T	T	P	O	WALITT W
7506-16	E	3		S	C		T	T	P H	E C	WU CHEN
7506-17	E	2		R		L	T	T	P H	E C	ZAKKAY
7506-18	E	2		R			T	T	P H	E C	ZAKKAY P
7505-01	S	2			C		T	T			BOGDONOF
7505-02	T	2		R		L					BURGGRAF
7505-03	N	2		R		L		P			DWOYER
7505-04	E	3			F C		T	P		O	SEDNEY K
7504-01	S	2		S R B			T	P	F		CARRIERE
7504-02	S	2			F		T	T	H	C	KORKEGI
7503-01	E	3	W	R		L	t	T	P H	S E	EDWARDS
7503-02	E T	3		A	I		T	T	P H		OMAN FOR
7502-01	E	3			I		T	T	P H F	C	HELLER B
7502-02	E N	A					T	T	P H F	E	KUSSOY H
7502-03	E	3			F		T	T	P H F	O	OSKAM BO
7502-04	E N 2					L					POLAK WE
7502-05	E	A			J	L	T	T		S C	REINECKE
7501-01	E T N 2	A		R	I	T L	T	T	P H		GINOUX D
7501-01	E T	2		R				T	P		SETTLES
7500-01	S	2					T				BALDWIN
7500-02	E	2		R			T	T	P		WINTERWE
7412-01	E	2			I	L	T	T	P H F	S	KAUFMAN
7412-02	E N	A		B	J			T	P		WHITE
7411-01	E	3		A		L	T	T	P	F	JOHNSON
NOTES											
A Acoustic (noise)											
B Boundary layer											
E Experimental techniques											
F Force & moment											
H Hinge line gaps											
I Inlet & scramjet											
L Laser											
P Plume & wakes											
R References (extensive bibliography)											
S Store separation & trajectories											
T Thrust vector control											
U Unsteady											

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMETRIC 3-DIMENS	WING CORNER AR & E.P.	AIRCRAFT STEP	RAMP BASE	CAVITY	SPICES	FINES	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIENT TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-FLD	SCHL-GRD EXT-SPRIN	OTHER CORRELATN	NOTES	AUTHOR	
7411-02	S E	2	3						F		L	T	T	H F				SEDNEY	
7411-03	N 2				R						L	T	P	F F				WERLE VA	
7411-04	N 2				R				I			T	P	F F				WILCOX	
7410-01	E		A 3	C								T	T	P H F	O			COOPER H	
7410-02	E		3						F			T	T	P H	O E C			NEUMANN	
7410-03	T N 2										L	T	T	P F		B		POLAK	
7410-04	T 2											T		F		U		WILLIAMS	
7409-01	E	2								I		T	T	P H	E C			HOPKINS	
7409-02	E	2	3							I		T	T	P	E			JOHNSON	
7409-03	2				R							T	T	P				REDA	
7409-04	E	2								I		T	T	P	E			WILCOX	
7408-01	E T	2			R							T	T	P	O			HAVENER	
7408-02	S E T	2							I		L	T	T	P				INGER	
7408-03	E	2	A 3								L	T	T	P H				INGER	
7408-04	E		A		R	B						T	T	F	S O			KAYSER	
7408-05	E T N 2		A 3								T L	T	T	P H				MAISE RO	
7407-01	E T	2			R							T	T	P H F				CARY BER	
7407-02	T	2			R						T L	T	T	P H F				HOLT LU	
7406-01	E	2		W					F			T	T	P H F	S C			COLEMAN	
7406-02	E	2	3		S							T	T	P	E C			CZARNECK	
7406-03	E	2				R						T	T	P	S O E C O			LAW	
7404	E T		3						F			T	T	H				TOKEN	
7403-01	E		3	C W	A							t T	F	H				GREENWOO	
7403-02	T	2								I		T						LIN RUBI	
7403-03	T	2										T		F	O	U		SCHNEIDE	
7402-01	T	2			R B						L	T	T	P H F	S C			BLOY GEO	
NOTES																		A Acoustic (noise)	R References (extensive bibliography)
																		B Boundary layer	S Store separation & trajectories
																		E Experimental techniques	T Thrust vector control
																		F Force & moment	U Unsteady

DATE	SURVEY EXPERIMENT THEORY NUMBER	AXISMETRIC 2-DIMENS	AR & P.P. WING SWEEP CORNER	ATCRAFT RAMP BASE CAVITY	SPICES JETS CYLINDER	IMPING I-WALL TRANSIENT TUNNEL	FLIGHT PRESSURE HEAT FR	SCHL-SHD OIL-FLOW EXT-SEP-RN	OTHER CORRELATN	NOTES	AUTHOR
7402-02	E T 2	3									EICHELBR
7402-03	E 3										GINOUX M
7402-04	S E T N 2										HANKEY
7402-05	E T 2										HOLDEN
7402-06	S T 3										VON KARM
7401-01	E 2	A 3	W	R	F						COLEMAN
7401-02	E 2			S	J						DRIFTMYE
7401-03	T N 2										KLEINBER
7401-04	E 2			R							LAW
7401-05	T A			R							STOLLERY
7400	T 2										STEWARTS
7312-01	S E 2										BOGDONOF
7312-02	S E 2	3 A	W	S	J						SPALD CA
7312-03	T N 2	3									WERLE VA
7311-01	E 2				I						CHRISTOP
7311-02	E 3			R	F I						GOLDBERG
7311-03	T N 2			S							KARASHIM
7311-04	E T 2	3		R	F						KORKEGI
7311-05	T N 2			R							WERLE VA
7311-06	T N 2				I						WILCOX
7310-01	S 2	3 C		B							DAVIES
7310-02	E 3	W		A							GOLDMAN
7310-03	E N 2			R							HOLDEN
7310-04	E 3				I						KAUFMAN
7310-05	E 2	3 A			F I						REDA MUR
7309-01	E 2	3		R							APPELS

NOTES

A Acoustic (noise) R References (extensive bibliography)

B Boundary layer S Store separation & trajectories

E Experimental techniques T Thrust vector control

F Force & moment U Unsteady

DATE	SURVEY THEORY EXPERIMENT	AXISYM 2-DIMENS	AR & B.P. WING SWEEP	AIRCRAFT RAMP	BASE CAVITY	SPICES PINS	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIENT TURBULENCE	TUNNEL PRESSURE	HEAT-FLUX FLUX-FLUX	SCHL-STD EXT-FLUX	NOTES AUTHOR
7309-02	S	2		A				T L		T	P H F		EDITORIA
7309-03	E	2	A 3	R		J					P H	E	GRAY RHU
7309-04	E	2						L	T		P H F	E	KHARCHEN
7308	S	2	C		B						P H	E	KRAUSE
7307-01	E	2		R			I		T		P		CHOU SAN
7307-02	SE	2	A 3	A			I	L t	T	T	P H	C	HUNG
7307-03	E	2		R				L	T		P	S O E	LAW
7307-04	T N	2									F		TELIONIS
7307-05	E	2					C		T		P	S	VIDAL WI
7306	SE	2	3						T		F	S O	SEDNEY
7305-01	E	2	A	S					T	T	P	S O	DRIFTME
7305-02	E	2	A 3		C	J		I L	T		P H	C	GINOUX M
7305-03	SE T	2	A 3			F		I	T		P H	C	KEYES HA
7305-04	T N	2						I			P H F		MORRIS K
7305-05	E	2	A			J			T		P		ROSE PAG
7305-06	E	2	A 3	A	C	J		L t	T	T	P H	S O	STRIKE B
7303-01	E	2	A 3	A	C	J		L t	T	T	P H	S O	BREVIQ
7303-02	E	2	3	R		F			T		H F	C	GOLDBERG
7303-03	E	2	A 3	A				I L t	T	T	H	C	HUNT JON
7303-04	T	2					I		T		F		LUMSDAIN
7302	E	2							T	T	P	O E C	REDA MUR
7301-01	E	2	3	A	C	J		L t		T	P H	S	BREVIQ S
7301-02	T	2									H		GERHART
7301-03	E	2	W	A	R			L	T	T	P	S	GOLDMAN
7301-04	E	2	3	A	R			L	T	T	H	C	HUNG BAR
7301-05	E	2	3			F		I L t	T	T	P	S O E C	KAUFMAN
NOTES	A Acoustic (noise) B Boundary layer E Experimental techniques F Force & moment	H Hinge line gaps I Inlet & scramjet L Laser P Plume & wakes	R References (extensive bibliography) S Store separation & trajectories T Thrust vector control U Unsteady										

NO	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISMETRIC 3-DIMENS	AR & E.P. CORNER	WING SWEEP	AIRCRAFT STEP	BASE CAVITY	SPKES FINS	INCIDENT CYLINDER	IMPINGE T-WALL	LAMINAR TURBULENT	TUNNEL FLIGHT	HEAT-TR PRESSURE	SCHE-SHD EXT-FLOW	OTHER CORRELAIN	NOTES	AUTHOR
7301-06	S	2	3		A	R					T	T	P	F	S	O	NAGEL BE
7301-07	ET	2									T	T	P	F	S	C	WALTRUP
7300	SE	2	A 3	W	SR	BC		S	I		T	T	P	F	S	C	SIRIEIX
7212-01	E	2	A			B		J		L	T	T				E	ADDY
7212-02	E	2	3		A				I	L	t	T	P	H	S		ANDERSON
7212-03	E	2	3	W							T	T	P	H		O	HEFNER W
7211-01	ETN	2				R				TL			P	H		C	GAUTIER
7211-02	E	2	3		A					I	T	T	P	H		O	HAINS KE
7211-03	E	2	A					J			T	T	P	F		E	HEFNER S
7211-04	E	2			SR			I			T	T	P			F	REEVES
7211-05	TN	2	3	W							T	T	P	F	S	E	SRINIVAS
7210-01	TN	2									L		P	F			PRUNET-F
7210-02	TN	2			S	B	C	J			L		P	F		E	SPRING
7209-01	SET	2			S	B		J	C		L	T				E	LEES KUB
7209-02	ET	2	A		S	B					L	t	H			C	ROM SEGI
7209-03	SET	2	3	W	A	RB					L	t	T	P		C	STOLLERY
7208-01	ET	2	3					J								E	BILLIG O
7208-02	E	2									t	T	P		S	C	BIRCH KE
7208-03	S	2	3	C		B					L	T	P	H			DAVIES
7208-04	S	2	3	C		B					L	T	P	H			EAST
7208-05	E	2	3					F			T	T	P	F	S	O	KAUFMAN
7208-06	E	2	3								T	T	P	H		C	KEYES MO
7208-07	ET	2	3					J								E	ZUKOSKI
7207-01	SE	2	A								T	T	P	H		U	BOGESS
7207-02	E	2	3		A	R			I		t	T	P	H	S	O	HASLETT
7207-03	E	2				R				T	T	T	P	H	S		SPAID FR

NOTES

A Acoustic (noise)
 B Boundary layer
 E Experimental techniques
 F Force & moment
 H Hinge line gaps
 I Inlet & scramjet
 L Laser
 P Plume & wakes
 R References (extensive bibliography)
 S Store separation & trajectories
 T Thrust vector control
 U Unsteady

DATE	SURVEY EXPERIMENT NUMERICAL	2-DIMENS ASYMMETR CORNER AR & B.P.	WING SWEPT ALPHA	RAMP BASE CAVITY	SPICES FINS INCIDENT	INGRESS T-WALL TRANSURBULENT	TUNNEL FLIGHT PRESSURE	HEAT-TR FLOW-FID	SCHL-SID EXT-FLOW CORRELATION	OTHER	NOTES	AUTHOR
7207-04	E	2			J	T	T	F	E	U		YOUNG BA
7206-01	E	3			J	T	T	F	C			KUSH SCH
7206-02	E	3			F	T	T	F	O E			REDA MUR
7205-01	E	2				T	T	F	C			ELFSTRON
7205-02	E	3				L t	T	F	O	U		GOLDMAN
7205-03	T					L	T	F				KLINBER
7205-04	E	2			F	L	T	P H				NEUMANN
7205-05	E	3				L	T	P	O	B,F		PEAKE RA
7205-06	E	A			J	T	T	P	S			SHREEVE
7205-07	E	2			F	L t	T	P	O E			WEST KOR
7204-01	E	2				T	T	H				COLEMAN
7204-02	E	2					T	P				HARTZUIK
7204-03	T				J			P		F		KAUFMAN
7204-04	E	2						P	O E			WHITEHEA
7203-01	E	2			I	T	T	H				COLEMAN
7203-02	E	2			I	T	T	H				COLEMAN
7203-03	E	2			I	L	T	P H				HUNG
7203-04	E	3			F	L t	T		O E C			KORKEGI
7202-01	E	3			F	T	T	P	E			KAUFMAN
7202-02	E	2				T	T	P	C			WERLE DR
7201-01	E	2			J		T	F	C			DRIFTMYE
7201-02	E	2				T	T	P H	S			HOLDEN
7201-03	S E	2			J	L	T	P H	C			LAPIN
7201-04	E	3			F	T	T	P H	O	B		WINKELMA
7112	S E	2			F	L t	T	P H	O			AEROSPAC

NOTES

A Acoustic (noise)
 B Boundary layer
 E Experimental techniques
 F Force & moment
 H Hinge line gaps
 I Inlet & scramjet
 L Laser
 P Plume & wakes
 R References (extensive bibliography)
 S Store separation & trajectories
 T Thrust vector control
 U Unsteady

DATE	SURVEY EXPERIMENT	NUMERICAL THEORY	2-DIMENS	AXISYMMETRIC AR & E.P. CORNER	WING SWEEP	AIRCRAFT STEP	RAMP	BASE CAVITY	SPIKES SENS	INCIDENT CYLINDER	IMPINGE T-WALL	LAMINAR TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-PLD	SCHL-SHD OIL-FLOW	EXT-SPRN CORRELATION	NOTES	AUTHOR
7111	E T	2					S B			I		L	T P H F	S O			WU SU MC	
7110-01	E E	2	A				R				L	T	P P		C		BALL	
7110-02	E E	2					R						P P		C		ELFSTRON	
7110-03	E T	2					S B				L	T	P P				SHANG HA	
7109-01	S	2	3 C				B				L	T	P H			O	DAVIES	
7109-02	S	2	3 C				B				L	T	P H			O	DAVIES	
7109-03	E T	2					R				T	T	P P	S			ELFSTRON	
7107-01	E E	2								I	L	T	H				KESSLER	
7107-02	E E	2	A				R					T	P		E		POLAK	
7106-01	S E T	2	3						J			T	P	S	E C		BILLIG O	
7106-02	T	2	A									T	H F				JOHNSON	
7105-01	S E T	2	3				A			I		T	P H	S O			KORKEGI	
7105-02	T N	2	3				A					T	P F				SCHEUING	
7104-01	E E	2	3						F C	I			P H				CRAIG OR	
7104-02	E E	2	A 3				A		J				P	O C		F	GILMAN	
7103-01	E E	2	A				R				L	T	P P	S	E C		GRAY RHU	
7103-02	E E	2	3				C				L		H	S			KAUFMAN	
7103-03	E E	2					S B				L		P H				SHANG HA	
7103-04	E E	2	3						J				P H F	S			WAGNER C	
7102	T	2							J				P				LEE BARF	
7101-01	E E	2	3				A		J				F			O	DAHLKE	
7101-02	E E	2	3						F C			t T	P P	S O E			LUCAS	
7101-03	T T	2							I		L		P H		O		MURPHY	
7012-01	T T	2	3										F			A	COVERT	
7012-02	E T	2					R				L		P		E C		HILL	
NOTES																		
A Acoustic (noise)																		R References (extensive bibliography)
B Boundary layer																		S Store separation & trajectories
E Experimental techniques																		T Thrust vector control
F Force & moment																		U Unsteady

DATE	SURVEY THEORY EXPERIMENT	AXISYMMETRIC 2-DIMENS	AR & B.P. WING CORNER	AIRCRAFT SWEEP	RAMP BASE	CAVITY	SPIKES PINS	INCIDENT CYLINDER	IMPINGE T-MALL	LAMINAR TURBULENT	TUNNEL PRESSURE	HEAT-TR FLOW-RD	SCHL-SHD EXT-SEPPN	OTHER CORRELAIN	NOTES AUTHOR
7012-03	T 2			A	C				L	T	H F			A	HODGSON
7012-04	S T	3		R			J		L	T	F P			O	WALKER
7012-05	E 2	3			C				T	T	P P				WERLE DR
7011	E 2	3							T	T	P P	S		A	MCGREGOR
7009-01	S E	3		A						T	P H			O	BECKER
7009-02	E T N	3 C									P F				BLOOM RU
7009-03	E E	A 3					F C		L	t	H				KAUFMAN
7009-04	E 2			R						T	P P				ROBERTS
7009-05	E 2				C				L	T	P H				WIETING
7008	E	3					J			T	P F				POVINELL
7007-01	E 2								L t	T	H				JOHNSON
7007-02	S E T	3 C		A	R			I	L	T	P F				KORKEGI
7006-01	E T						J I			T	P H				ALZNER Z
7006-02	S E T	3		A					L t	T	P F				SMALL KI
7006-03	E T			S B			J			T	P F			O	VAUGHN
7006-04	E 2						J			T	P P				WERLE DR
7006-05	E 2						J			T	P P				WERLE SH
7006-06	E E	A 3		R						T	P F				WHITEHEA
7005-01	E T						J		L	T	P P				AMICK
7005-02	E	3					J			T	P F			F	KOCH COL
7005-03	E T	A 3							L	T	P P				LEBLANC
7005-04	E 2						J			T	P P				WERLE DR
7005-05	E	3					F C			T	H				WINKELMA
7004		3					J			T	P				KAUFMAN
7003-01	S T	3		A R						T	F P			F, I	HANKEY
NOTES	A Acoustic (noise) R References (extensive bibliography) B Boundary layer S Store separation & trajectories E Experimental techniques T Thrust vector control F Force & moment U Unsteady														

DATE	SURVEY EXPERIMENT THEORY	NUMERICAL 2-DIMENS	AXISYMMETRIC AR & E. P. CORNER	WING SWEEP	AIRCRAFT SPEED	BUMP	CAVITY	SPICES PIPS	INCIDENT CYLINDER	INFILTRATION T-WALL	TRANSIENT TURBULENCE	TUNNEL PRESSURE FLOW-FLD	SCHL-SHD EXT-FLOW CORRELATION	NOTES	AUTHOR
7003-02	E	2			R			J	C	T	L	T	P	F	RHODY
7001-01	E		3		S	B		J				T	P	F	LUCERO
7001-02	E	2										T	P	F	REDA PAC
7001-03	E	2								L		T	P	H	STRIKE B
7000-01	S E T	2	3		A					L		T	S	E O	AEROSPAC
7000-02	S E T	2	3	W	A S R B			I				T	P	F	GREEN
7000-03	S E T	2	3	A	A R			J		L		T	P	H F	LAPIN
6912-01	E T	2	3	C								T	P	H F	CRESCI R
6912-02	E		3		A			J		I T	L	T	P	H	KAUFMAN
6912-03	T N	2			R			I		T	L	T	P		KLINEBER
6911	E	2						I		L		T	P	F	WATSON M
6910-01	S				A R			J		L		T	O		AMICK
6910-02	E	2	3					F		L		T	P	H F	GOLDBERG
6910-03	T	2	3					I		L		T	P	H F	MURPHY
6910-04	T	2	3									T	P	H F	ROSE
6909-01	E	2	3		A			J				T	P	H F	CASSEL D
6909-02	E	2	3						C	L t	T	T	P	H F	GINOUX
6909-03	E	2	3	W				I		L		T	P	H	KEYES
6909-04	T	2	3					J		L		T	P	F	STEWARTS
6908-01	T	2										T	P	F	CARAFOLI
6908-02	T	2			R							T	P		PAGE
6908-03	E		A		R							T	O E		POLAK KA
6907-01	E	2	3		S	C			C			T	P		COUCH
6907-02	E	2			R							T	P	H	NESTLER
6907-03	E		A	3						t		T	S O		REDING G
NOTES															
A	Acoustic (noise)				H	Hinge line gaps				R	References (extensive bibliography)				
B	Boundary layer				I	Inlet & scramjet				S	Store separation & trajectories				
E	Experimental techniques				L	Laser				T	Thrust vector control				
F	Force & moment				P	Plume & wakes				U	Unsteady				

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & B.P.	WING SWEEP	ALPHA SWEEP	RAMP	BASE CAVITY	SPINES CYLINDER	IMPINGE T-MALL TURBULENT	TUNNEL PRESSURE FLOW-TR	SCHE-SHD OIL-FLOW CORRELAIN	OTHER NOTES	AUTHOR
6906-01	E T	2	A 3						T	T	F	C	DIAB SRI
6906-02	E		A				C		L t	T	P	S	HAHN
6906-03	E		A			R			T	T	P	S	POLAK KA
6905-01	E	2				R			L t	T	P	O E C	BALL
6905-02	E	2	3 C W			R			L	T	H	O C O	BERTRAM
6905-03	E T N		3 C						L	T	P	C	BLOOM RU
6905-04	E	2	A			R			L t	T	P	C	GINOUX
6905-05	E T	2				R			L	T	P	S	HOLDEN
6905-06	E	2				R			T	T	P	C	ROSHKO T
6905-07	E T	2				R			T	T	P	E C	STOLLERY
6905-08	E T	2				R			L t	T	P	C	TODISCO
6905-09	E	2							L	T	P	C O	WERLE DR
6904-01	E T	2						J	L	T	P	C	KAUFMAN
6904-02	S E T	2	A 3 A			R		J	L t	T	P	C	RYAN
6903-01	S		3					J	L	T	P		BOVERIE
6903-02	S E	2	3					F I	L t	T	P	C	NEUMANN
6903-03	E		A 3	A		R			t	T	P	O	REDING G
6901-01	S E		3	A				J		T	F	O	ALABAMA
6901-02	E		3					J		T	P	E	AVDUYEV S
6901-03	E T	2	A 3			R			L	T	P	S	GINOUX
6901-04	E		3					J		T	P	O E	PANOV
6901-05	E		3	W		R			t	T	P	S	RAO
6900	E T	2				R			T	T	P	S	THOMKE R
6812-01	E		3	W		R		F	t	T	P	S O E C	WHITEHEAD
6812-02	E		3			R			L t	T	P	S O E C	YOUNG KA
NOTES	A Acoustic (noise) R References (extensive bibliography) B Boundary layer S Store separation & trajectories E Experimental techniques T Thrust vector control F Force & moment U Unsteady												

DATE	SURVEY THEORY NUMERICAL	AXISYMETRIC 2-DIMENS	AR & B.P. WING SWEEP	AIRCRAFT SWEEP	RAMP CAVITY	SPIKES PINS	INCIDENT CYLINDER	IMPINGE T-WALL TURBULENCE	TUNNEL PRESSURE FLOW-PTD	SCHL-SHD OIL-FLOW CORRELATION	NOTES AUTHOR	
6811-01	E	2		A	R			L	T	P H	H	DEARING
6811-02	T	2			B						O	LAMB HOC
6811-03	S E	3		S R		F I		I	T	P H	C	MARKARIA
6811-04	S E	2						L	T	P		WALLACE
6810	E	2				J			T	P	S E	KAUFMAN
6809-01	E	2			R			L	T	H	C	BUSHNELI
6809-02	S E T	2	3							C	R	CLAYTON
6809-03	E	2	A			J			T	P		PHINNEY
6809-04	E	2				I		T	T	P F	S	ROSE MUR
6809-05	E	2	3			J	C	T	T	P	O E	VOITENKO
6808-01	S E T	2			R			L	T	P	E C	CARRIERE
6808-02	E	2		A	R R			L	T	P H	O	DEARING
6808-03	E	2			R R			L	T	P H	S	HARVEY
6808-04	E	2	3 A W		R R				T	H	O	KEYES GO
6808-05	E	2			R			T	T	H	C	NESTLER
6807-01	E	3				J	C	T	T	P	O E	GLAGOLEV
6807-02	E	3			C	F			T F P H	S	MEYER	
6807-03	E	3					C		T	P	E	WESTKAEN
6806-01	E	2	A					L	T	P	S	LAWRENCE
6806-02	E	2			R			L	T	P H	S	LITTLE G
6806-03	E	2		S	B C				T	P H		NESTLER
6805-01	T	2		R B				T L		H		LEES
6805-02	T		3			J					C O	PISTOLES
6805-03	E	3				J	C	T	T	P	F	VOITENKO
6804	E	3				F	C	I	T	P	F	BUSHNELI
NOTES												
A Acoustic (noise)												
B Boundary layer												
E Experimental techniques												
F Force & moment												
H Hinge line gaps												
I Inlet & scramjet												
L Laser												
P Plume & wakes												
R References (extensive bibliography)												
S Store separation & trajectories												
T Thrust vector control												
U Unsteady												

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS	AR & E.P. CORNER	WING SWEEP	AIRCRAFT SWEEP	RAMP BASE	CAVITY	SPICES DEMS	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIENT TURBULENT	TUNNEL PRESSURE	HEAT-FLUX FLOW-FIELD	SCHL-SHD EXT-FLOW	OTHER CORRELATION	NOTES AUTHOR
6803-01	T N 2					S					L		P	F			BAUM
6803-02	E 2					R			J		L t		T		S		JOHNSON
6803-03	E 2														S	C	SHEERAN
6802-01	E 2					R					L		T		S	O	BALL KOR
6802-02	E T 2	A 3							F	C	I		T	F	S		EDNEY
6802-03	E 2						B						P	F	S		HAMA
6802-04	E 2								J		T		T	F	S	O	SPAID ZU
6801-01	E 2								J		T		T		S	O	ALLAN
6801-02	S 2	A 3					B		J	I		T	P	F	S	C	BLOOM
6801-03	E T 2	A 3							F		I	T	T	F	S		EDNEY
6801-04	E 2	3				A					L t		T	P	S	F, U	GOLDMAN
6801-05	E T 2					R					L		T	P	S	O	HOLDEN
6801-06	E 2	A				R					T L t		T	P	S	C	LEWIS KU
6801-07	E 2					R							P	H	S	C	NESTLER
6801-08	E 2	3							J			T	T	P	S		STRIKE
6801-09	E 2	3															WALTRUP
6801-10	S T 2								J	C		T	T	P	E	O	WERLE
6800-01	E 2					R					L	T	P		E	C	CARRIERE
6800-02	T 2								I		L		P	H	P		KLINBER
6800-03	E 2								I		L		P				REYHNER
6712-01	E 2						R				T L				O		BALL
6712-02	T 2						R				L		P	F		O	BALL HAN
6712-03	E 2	3				A					L		T		S	O	MECKLER
6712-04	E 2										T L		T		E	C O	NEEDHAM
6712-05	S T 2										L		H				WHITEHEAD
NOTES																	
A Acoustic (noise) R References (extensive bibliography)																	
B Boundary layer S Store separation & trajectories																	
E Experimental techniques T Thrust vector control																	
F Force & moment U Unsteady																	

DATE	SURVEY THEORY NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & E.P. CORNER	WING SWEEP	AIRCRAFT	RAMP	BASE	CAVITY	SPICES	ENGINE	INCIDENT	IMPINGE	LAMINAR	TRANSIENT	TUNNEL	PRESSURE	HEAT-TR	SCHE-SHD	EXT-SPRIN	OTHER	NOTES	AUTHOR
6711-01	E	A		R								L	T	T	P	P		C		GOLDBERG	
6711-02	E	2		R								L	t	T	P	F	E	C		HILL	
6711-03	E	2						J					T	T	T			C		NARASIMH	
6710	E	2		S								L	t	T	P		S	C		ZUKOSKI	
6709-01	E	2	3 A	R				J					T	T	P	H	S	E	C	BARNES D	
6709-02	E	2						J				L		T	P		S			KAUFMAN	
6709-03	E	2	3 W					F				L		T	P	F	O	C	E	THOMAS	
6708	E	2	A	R								L		T	P	H	S			BALL	
6707	S E T	2	3					J				L	T	T	P		S	E	C	BARNES D	
6706-01	S	2		S R B				I				L	t	T	P	H	S	C		CHILCOTT	
6706-02	E	2	A	S B									T	T	P	F	S			DONALDSON	
6706-03	E T	2		B								L		T	P	F	S			GRANGE K	
6706-04	E	2	3					J				L		T	P		S			RAY	
6705-01	E	2						J						T	T	F	S			EMERY BA	
6705-02	E T	2		R								L		T	P	H	S			HOLDEN	
6705-03	E	2		B									T	T	P	F				PAGE HIL	
6705-04	E	3						J				L		T	T		S	C		SCHETZ H	
6705-05	S	A	A											T	F	H		C		WHITACRE	
6704-01	T	2		S R B				I				L		T	P	F	S	E	C	HANKEY C	
6704-02	E	2						J				L								HAWK AMI	
6704-03	E	2						J					T	T	P	F	S			SPAID ZU	
6703	E T	2						I				L	t	T	P	H	S			GULBRAN	
6702-01	T	2		S R								L		T	P		S			HANKEY	
6702-02	E	3 W						F				L		T	H	F	S	O		HIERS LO	
6702-03	S E	2						I				L		T	P		S	C		HOELMER	

NOTES	A	Acoustic (noise)	H	Hinge line gaps	R	References (extensive bibliography)
	B	Boundary layer	I	Inlet & scramjet <td>S</td> <td>Store separation & trajectories</td>	S	Store separation & trajectories
	E	Experimental techniques	L	Laser <td>T</td> <td>Thrust vector control</td>	T	Thrust vector control
	F	Force & moment	P	Plume & wakes <td>U</td> <td>Unsteady</td>	U	Unsteady

NOTES

A Acoustic (noise)
 B Boundary layer
 E Experimental techniques
 F Force & moment
 H Hinge line gaps
 I Inlet & scramjet
 L Laser
 P Plume & wakes
 R References (extensive bibliography)
 S Store separation & trajectories
 T Thrust vector control
 U Unsteady

DATE	SURVEY THEORY	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS	WING CORNER AR & E.P.	AIRCRAFT STEP RAMP BASE CAVITY	SPKES PINS INCLINOR	IMPINGE T-WALL CYLINDER	TUNNEL TRANSLAT	TUNNEL PRESSURE	HEAT-TR FLOW-PID	SCHL-SHD EXT-FLOW CORRELATN OTHER	NOTES	AUTHOR
6702-04	E		3			F		T	T	P	E		PRICE ST
6701-01	S	2	3	W	R		L t	T	P	P	S		BOGDNOF
6701-02	E		3	W			I	T	P	P	S		GULBRAN
6701-03	E	T	A		R		T L t	T	P	P	S	C	LEWIS KU
6701-04	E	2			S B		L	T	P	P	S		SCHERBER
6701-05	E	2			A R		L	T	P	P	S		STERN RO
6701-06	E	2				J		T	P	P	E		STERREIT
6701-07	E	2	3			J		T	P	P	E		VOITENKO
6700	E	2	3		C			T	P	P	E	O	KISTLER
6612-01	T N	2			S B		L	T	P	P	S		BAUM
6612-02	E	2	3			F	L	T	P	H	S		COUCH ST
6612-03	S	2			S R	I	L t	T	P	P		C	GUENTHER
6612-04	E	2	3	W		J	L t	T	P	P		C	SPAID ZU
6611	S E	2	3		A R B	F	L t	T	P	P	S O E	O	KAUFMAN
6610-01	E		A			J		T	P	P			ALPINIER
6610-02	T	2			R		T L	T	P	P		O	HOLDEN
6610-03	E	2				J	L	T	P	P	E C		HSIA
6610-04	S	2	3		A		L t	T	F	H			THOMAS P
6609-01	T N	2					L	T	P	H			CATHERAL
6609-02	E	2			R		L t	T	P	H			GINOUX
6609-03	S E	2	3	W	A R	F I	L t	T	P	H	O	C O	POPINSKI
6608-01	E	T N	3	W	A		L	T	P	P		O	BORLAND
6608-02	E	2	3		R		L	T	P	H	E	O	FITZSIMM
6608-03	E	2	3	W	A R	F	L t	T	P	H	S	C	GILES TH
6608-04	E	2			R		L	T	P	P		O	GRAY

NOTES

A	Acoustic (noise)	R	References (extensive bibliography)
B	Boundary layer	S	Store separation & trajectories
E	Experimental techniques	T	Thrust vector control
F	Force & moment	U	Unsteady

DATE	SURVEY THEORY	NUMERICAL 2-DIMENS	AXISMETRIC 3-DIMENS	WING SWEEP CORNER AR & P.P.	AIRCRAFT SWEEP	RAMP BASE CAVITY	SPIKES FINS	INCIDENT CYLINDER	IMPINGE T-WAVE TRANSIENT	TUNNEL PRESSURE	HEAT-TR FLOW-FLD	SCHT-SHD OIL-FLOW	CORRELATN OTHER	NOTES	AUTHOR
6608-05	E T	2	A		R		J		T L t	T P H		S O E			JOHNSON
6608-06	E E	2					F		L	T P		S			KAUFMAN
6608-07	E	3							T	T P					McCABE
6608-08	E T	2	A		R				T	T P		E C			MIKESELL
6608-09	E	3	W						L t T	T P H		S O			NAGEL FI
6608-10	E T N	2	W		R				L t	T P H		S E C			NAGEL SA
6608-11	E E	2							L	T P		S E C			POPINSKI
6608-12	E E	2								T P					SPAUD ZU
6608-13	E T	2	A		B		J		L	T P		S	P		WEISS WE
6608-14	S E	2			S				T	T P		S C O			ZUKOSKI
6607-01	T N	2	A				J			P					EMANUEL
6607-02	E E	2			R				T	T P		S O E C			GILLETTE
6607-03	E T	2	W				F		L	T P					THOMAS
6606-01	S E T	2	3		S R		F		L t T	T P H F		E C			MORKOVIN
6606-02	S	2	A		R				L t T	T P					NEEDHAM
6606-03	E E	2	A		S B				T	T P		O	A		ROSKHO T
6606-04	E E	2			S B		I		T	T P		C O			SPEAKER
6606-05	E E	2	A		S				T	T P		O E C			WILSON
6605-01	S E	2	3		S R B		J	C	L	T P H F					GINOUX U
6605-02	E T	2					I		T L	T P H		S			HOLDEN
6605-03	E E	2					J		L	T P		S			KAUFMAN
6605-04	E E	2	A				S			T P			F, U		ROSSI NI
6605-05	E T	2			C		J		L	T P H F		S E			STERRETT
6604-01	E T	2	A						L	T P H F					CHANG
6604-02	E	2	3				F I		L	T P H F		S			MAGNAN S
NOTES															
A	Acoustic (noise)				H	Hinge line gaps		R	References (extensive bibliography)						
B	Boundary layer				I	Inlet & scramjet		S	Store separation & trajectories						
E	Experimental techniques				L	Laser		T	Thrust vector control						
F	Force & moment				P	Plume & wakes		U	Unsteady						

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS	WING CORNER AR & E.P.	ALTRAP SWEEP	STEP RAMP	BASE CAVITY	SPIKES JEES	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSIT TURBULENT	TUNNEL PRESSURE	FLIGHT FROM-FLD	SCHL-SHD OIL-SPRNN	EXPL-SEPRN OTHER	NOTES	AUTHOR
6603	T N 2		A 3			R B				L t T	L t T	P		S C			WEINBALM
6602-01	E T 2					A R		J		L t T	L t T	H		S O E O			JONES HU
6602-02	S T 2					A R				L t T	L t T	P H		S O E O			KAUFMAN
6601	T T 2					A R						P		E C			KUCHEMAN
6512	T T 2																WILLIAMS
6511-01	E 2		3				C					T P H					EMERY LO
6511-02	E 2					S R B				L t T	L t T	T P H		S C			HOLLOWAY
6511-03	E 2		3	W		A R B		F		L t T	L t T	T P H F		S O E			KAUFMAN
6511-04	E 2		3					S	C			T P H					KNOX
6511-05	E 2							J				T P					MAURER
6511-06	E 2		A 3			A		F	C			F H					SURBER
6509	E T 2		3					F	C	L	T	P H		C			TRUITT
6508	E 2		3					F	C			T P H		O			McCABE
6507-01	E 2		3					F		I	L	F P H		C			FRANCIS
6507-02	E 2		3			R		F		L	L	T P H					GULBRAN
6507-03	E 2		3					S	C	I		T P					RAY PALK
6506	E 2		3			A R						T P					MECKLER
6505	E 2		3	A		R		J		L		T P		S O C			PUTNAM
6504-01	E 2									L		T P		S			KAUFMAN
6504-02	S 2		A 3			S B C		F I		L t T	L t T	P H		E C			WUERER C
6503-01	E 2		3						C	I		T P H					FONENOT
6503-02	E T 2					R B				T		P		E C			McDONALD
6503-03	E 2		A 3					J F		T		P		C			VINSON
6502	E 2		3			S			C	T		P					HALPRIN
6501-01	E 2		3					J				F		S O C			HSIA SEI

NOTES

A	Acoustic (noise)	H	Hinge line gaps	R	References (extensive bibliography)
B	Boundary layer	I	Inlet & scramjet	S	Store separation & trajectories
E	Experimental techniques	L	Laser	T	Thrust vector control
F	Force & moment	P	Plume & wakes	U	Unsteady

DATE	SURVEY EXPERIMENT THEORY	NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & B.P.	WING SWEEP AIRCRAFT	RAMP BASE CAVITY	SPICES PINS INCIDENT	IMPINGE T-WALL TURBULENT	TUNNEL PRESSURE HEAT-TR	SCHL-SHD OIL-FLOW CORRELATION	NOTES	AUTHOR
6501-02	S E	2	3 A W	A R B	F	I T L t T	T P H F	O O			KAUFMAN
6501-03	E E	2	3	S	J	L T	T P				ROGERS B CHARWAT
6411-01	E E	2									ELLIS RY
6411-02	E E	2									LEES REE
6411-03	T	2			I	L	P F	S O			SILER DE GINOUX
6411-04	E				F C	I L	P H				KAUFMAN
6410-01	E E		W			L t	P P	S E C			ZUKOSKI
6410-02	E E	2	3 A	R	J	T t	P P	S O E			EVANS KA
6410-03	E E	3	3 A			L t T	T				HARTOFIL
6409-01	E E	3	3 A	A R	F	L L	P H	S			MECKLER
6409-02	E E	2	3	R B	F	L t	H H				STALLING
6409-03	E E	3	3	A R		L	P H				KAUFMAN
6409-04	E E	3	3		C	L	H				STAINBAC
6408-01	E E	3	3	A R	F	L L	P H				KAUFMAN
6408-02	E E	3	3 C			L	H				KAUFMAN
6407	E E	2	A	S R		t	H				HANSEN
6405-01	S	2	A 3	S R	J	L t T	P H F	S O			KAUFMAN
6405-02	E E	2		R		T t	P P	S			STERRETT
6405-03	E E	2		S R	J	L t T	P H	C			VICK CUB
6404	T	3		B		I L T	P H F	S O	P		KISTLER
6403-01	E E	2		S		L	P	E O	A		PATE
6403-02	E E	2	A	R		L T	P P	E C			KAUFMAN
6402-01	E E	3		A R		L t	P P	S			MILLER H
6402-02	E E	2	3 A W	R		L	P H	S O			KAUFMAN
6401-01	E E	3	3 A	A R	F	L t	P H	S O	O		

NOTES	A Acoustic (noise)	R References (extensive bibliography)
	B Boundary layer	S Store separation & trajectories
	E Experimental techniques	T Thrust vector control
	F Force & moment	U Unsteady
	H Hinge line gaps	
	I Inlet & scramjet	
	L Laser	
	P Plume & wakes	

NOTES

A Acoustic (noise)
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 T Thrust vector control
 U Unsteady

DATE	SURVEY THEORY NUMERICAL 2-DIMENS	AXISYMMETRIC 3-DIMENS AR & E. P.	WING SWEEP	AIRCRAFT SWEEP	RAMP BASE CAVITY	SPINES PINS INCIDENT	IMAGING T-WALL TRANSPARENT	TUNNEL TURBULENT	FLIGHT PRESSURE	HEAT-TR FLOW-FLD	SCHL-SHD OIL-FLOW CORRELATION	NOTES	AUTHOR
6401-02	E	3 A	A	R		F	L t	T	P	S O E			KAUFMAN
6400-01	E	3	R	F		F		T	P H				BECKWITH
6400-02	E	3		F		F			P H				JONES
6312	E	3 A	S R	J			t		P		C		KAUFMAN
6311	T	3										F	KARAMCHE
6310-01	E	2	B			F I	L	T	P P	S	O E C		KAUFMAN
6310-02	E	2	R						P P				MILLER
6309-01	E	2	B				L	T	P H F	S			KAUFMAN
6309-02	E	2	R			F	L t	T	P P	S			KAUFMAN
6309-03	E	3					L t	T	P	O E			KAUFMAN
6309-04	E	3	A R				L t	T	T		O	F	MECKLER
6305-01	E	3		J			L		P		C	F	BROADWEL
6305-02	E	3	A R			F	L		P P	E			HARTOFIL
6304-01	E	3					t		P H F	O E			KAUFMAN
6304-02	E	2	S B					T	P H F				STRACK
6304-03	E	2	A 3 A	J			L	T	P	S O			STRIKE S
6304-04	E	3		J						C O		F	WALKER S
6302	E	3		J				T	P	C		F	WALKER S
6212	E	3	S R B	F	I			T	P H F	O E			BURBANK
6211	E	2						T	P H	S			SAYANO
6210	E	2	S R C	S			L		P H		O	B	BOGDONOF
6208	E	2				I		T	P H	E C			SAYANO B
6207-01	E	2	A			F	L t	T	P H F	S O E			EVANS KA
6207-02	E	A 3	A R			F	t		F H				ROYALL
6206	T	2					L	T	P	E C			ERDOS PA
NOTES	A Acoustic (noise) R References (extensive bibliography) B Boundary layer S Store separation & trajectories E Experimental techniques T Thrust vector control F Force & moment U Unsteady												

DATE	SURVEY EXPERIMENT	NUMERICAL THEORY	2-DIMENS AXISMETRIC	3-DIMENS AR & E.P.	WING SWEEP CORNER	ATCRAFT RAMP	BASE CAVITY	SPICES FINS	INCIDENT CYLINDER	IMPINGE T-WALL	TRANSPIRENT TUBES	TUNNEL FLIGHT	PRESSURE HEAT FR	SCHE-SHO OIT-FLOW	EXT-SEPRN CORRELATN	NOTES	AUTHOR
6204	E		A			R				L		T	P H				BECKER K
6203-01	S	2	3			S R B C		S F I C		L t T			P H	S	C		KAUFMAN
6203-02	E		3									T	P P				SYKES
6202-01	E	2	3			S B		J		T		T	P P				GINOUX
6202-02	T	2											P F				KAUFMAN
6202-03	E		3					J		T		T	P P		C O	F	WALKER S
6111	E T	2				R		I		T L		T	P P		C		CURLE
6110-01	E		A 3					F I C		I		T	F H F	S			CARTER C
6110-02	E	2						I		T		T	P P				STRIKE R
6107	E		3				C			T		T	P H				CHARWAT
6106	E	2					B C			L t T		T	P P	S	E C		CHARWAT
6104	E	2				S		J		t T		T	P P	S			ROMEO ST
6101-01	E		3							I		T	H	O			NEWLANDE
6101-02	S E	2				B		C		L		T	P H				SOGIN BU
6012	E	2				S				L		T	P P		C		STERRETT
6009	E		3		W			F C				T	P H				RHODY HI
6008	E T		A					S					F			U	MAULL
6003	E	2						I		T		T	P P		E C		SEDDON
5911	E	2	A				C			T T		T	H				LARSON
5907	E		A 3							T		T	H				YIP
5903	E	2						I		L		T	P P				HAKKINEN
5900	S	2	3							L		T	P P	S			VALLENTI
5810	E		3					C		T		T	H				WISNIOWS
5800	E	2				S R B		I		L t T		T	P H	S	C		CHAPMAN
5708	E		3					C		T		T	H				BLOOM PA
NOTES																	
A	Acoustic (noise)					H	Hinge line gaps			R	References (extensive bibliography)						
B	Boundary layer					I	Inlet & scramjet			S	Store separation & trajectories						
E	Experimental techniques					L	Laser			T	Thrust vector control						
F	Force & moment					P	Plume & wakes			U	Unsteady						

DATE	SURVEY EXPERIMENT	NUMERICAL 2-DIMENS	AXISYMMETRY 3-DIMENS	WING SWEEP	AIRCRAFT STEP	RAMP BASE	CAVITY	SPIKES	PINS	INCIDENT CYLINDER	IMPINGE T-WALL	LAMINAR TURBULENT	TUNNEL PRESSURE FLOW-IR	SCHL-SHD OIL-FLOW CORRELATION OTHER	NOTES	AUTHOR		
5703	E	T	2		R				I		T	L	T	P	T	C	GADD	
5602		T	2		S							T	T	P	T		MAGER	
5506	S		2		S R							T	T	P	T		BOGDONOV	
5505		T	2		S R							T	T	P	T	C	RESHOTO	
5500	S	T	2	3					I		L	t	T	P	H	F	S	SCHLICHT
NOTES																		
A Acoustic (noise)																		
B Boundary layer																		
E Experimental techniques																		
F Force & moment																		
H Hinge line gaps																		
I Inlet & scramjet																		
L Laser																		
P Plume & wakes																		
R References (extensive bibliography)																		
S Store separation & trajectories																		
T Thrust vector control																		
U Unsteady																		

TABLE III
ALPHABETIC-CHRONOLOGIC CROSS REFERENCE LIST

ADDY	7212	01	AEROSPACE	7112		AEROSPACE	7000	01
AGARD	7802	01	AGARD	7511	01	AIELLO	7608	01
ALABAMA UN	6901	01	ALLAN	6801	01	ALSTATT	7705	01
ALPINIERI	6610	01	ALZNER ZAK	7006	01	AMICK	7005	01
AMICK	6910	01	ANDERSON	7212	02	APPELS	7309	01
ARDONCEAU	8012		AVDUYEVSKI	6901	02	AYMER DE L	7807	01
BABER DRIV	7700	01	BALDWIN RO	7500	01	BALL	7110	01
BALL	6905	01	BALL	6712	01	BALL	6708	
BALL HANKE	6712	02	BALL KORKE	6802	01	BARNES DAV	6709	01
BARNES DAV	6707		BARYSHEV L	7512	01	BAUER FOX	7701	01
BAULLINGER	7610	01	BAUM	6803	01	BAUM	6612	01
BECKER	7009	01	BECKER KOR	6204		BECKWITH	6400	01
BERTIN HIN	7507	01	BERTRAM HE	6905	02	BILLING ORT	7208	01
BILLIG ORT	7106	01	BIRCH KEYE	7208	02	BIRCH RUDY	7512	02
BLISS HAYD	7607	01	BLOOM (ED)	6801	02	BLOOM PALL	5708	
BLOOM RUBI	7009	02	BLOOM RUBI	6905	03	BLOY GOERG	7402	01
BOGDONOFF	7505	01	BOGDONOFF	7312	01	BOGDONOFF	6701	01
BOGDONOFF	5506		BOGDONOFF	8010		BOGDONOFF	6210	
BOGDONOFF	7506	01	BOGGESS	7207	01	BORLAND	6608	01
BOVERIE	6903	01	BRANDEIS R	8011	01	BREVIQ	7303	01
BREVIQ STR	7301	01	BROADWELL	6305	01	BURBANK NE	6212	
BURGGRAF	7608	02	BURGGRAF	7505	02	BURGGRAF O	7607	02
BUSHNELL	6804		BUSHNELL C	7700	02	BUSHNELL C	7603	01
BUSHNELL W	6809	01	CARAFOLI P	6908	01	CARRIERE S	7504	01
CARRIERE S	6808	01	CARRIERS E	6800	01	CARTER	7511	02
CARTER CAR	6110	01	CARY BERTR	7407	01	CASSEL DUN	7906	01
CASSEL DUR	6909	01	CASSEL JAR	8007	01	CASSEL MCM	8008	01
CATHERALL	6609	01	CEBECI KHA	7912	01	CHANG	7805	01
CHANG	6604	01	CHAPMAN KU	5800		CHARWAT AL	6411	01
CHARWAT DE	6107		CHARWAT RO	6106		CHIEN	7512	03
CHILCOTT	6706	01	CHOU SANDB	7307	01	CHOW	7906	02
CHOW SPRIN	7609	01	CHRISTOPHE	7507	02	CHIRSTOPHE	7311	01
CHU YOUNG	7511	03	CLARK	7902	01	CLARK	7512	04
CLARK DORA	7710	01	CLARK KAUF	8001	01	CLAYTON WU	6809	02
COAKLEY VI	7704	01	COLEMAN	7203	01	COLEMAN LE	7406	01
COLEMAN ST	7401	01	COLEMAN ST	7204	01	COLEMAN ST	7203	02
COOPER HAN	7707	01	COOPER HAN	7410	01	COUCH	6907	01
COUCH STAL	6612	02	COUSTEIX H	8108		COUSTEIX H	7511	04
COVERT	7012	01	CRAIG ORTW	7104	01	CRAWFORD	7910	04
CRESCI RUB	6912	01	CURLE	6111		CZARNECK	7512	05
CZARNECKI	7406	02	DAHLKE	7101	01	DAVIES (ED)	7310	01

DAVIES (ED)	7208	03	DAVIES (ED)	7109	01	DAVIES (ED)	7109	02
DAVIS MALC	8011	02	DAVIS WERL	7608	03	DEARING HA	6811	01
DEARING HA	6808	02	DELERY	7909	01	DEVEIKIS B	7812	
DEVEIKIS B	7801	01	DIAB SRINI	6906	01	DODGE LIEB	7707	02
DODS COE	8111		DOLLING BO	8105	01	DOLLING BO	8101	01
DOLLING CO	7901	01	DOLLING CO	7809	01	DOLLING CO	7801	02
DOLLING CO	7710	02	DOLLING CO	7707	03	DONALDSON	6706	02
DOUGHTY	7610	02	DRIFTMYER	7401	02	DRIFTMYER	7305	01
DRIFTMYER	7201	01	DVORAK MAS	7703	01	DWOYER	7505	03
DYMENT	7911	01	DYMENT GRY	7709	01	EAST	7605	01
EAST (ED)	7609	02	EAST (ED)	7208	04	EAST SMITH	7700	03
EATON JEAN	7811	01	EDITORIAL	7901	02	EDITORIAL	7309	02
EDNEY	6802	02	EDNEY	6801	03	EDWARDS	7503	01
EICHELBREN	7402	02	ELFSTROM	7205	01	ELFSTROM	7110	02
ELFSTROM	7109	03	ELLIS RYAN	6411	02	EMANUEL	6607	01
EMERY BARB	6705	01	EMERY LOLL	6511	01	ERDOS PALL	6206	
ERICSSON	8105	02	ERICSSON	7811	02	ERICSSON	7810	01
ERICSSON	7708	01	ERICSSON A	7905	01	ERICSSON R	8203	
ERICSSON R	7604	01	EVANS KAUF	6409	01	EVANS KAUF	6207	01
FANNELOP	7508		FIGORE	7809	02	FIGORE	7707	04
FITZSIMMON	6608	02	FONTENOT	7603	01	FRANCIS	6507	01
FREEMAN KO	7506	02	GADD	5703		GALLAGHER	7611	01
GAUTIER GI	7211	01	GERHART	7301	02	GILES THOM	6608	03
GILLERLAIN	7901	03	GILLERLAIN	7604	02	GILLERLAIN	7604	03
GILLERAIN	7607	03	GILLETTE	6607	02	GILMAN	7104	02
GINOUX	6909	02	GINOUX	6905	04	GINOUX	6901	03
GINOUX	6609	02	GINOUX	6410	01	GINOUX	6202	01
GINOUX DOL	7501	01	GINOUX KOR	7506	03	GINOUX MAT	7402	03
GINOUX MAT	7305	02	GINOUX UEB	6605	01	GLAGOLEV P	7707	05
GLAGOLEV P	7700	04	GLAGOLEV	6807	01	GLOTOV LAV	7603	02
GOLDBERG	7311	02	GOLDBERG	7303	02	GOLDBERG	6711	01
GOLDBERG H	6910	02	GOLDMAN MO	6801	04	GOLDMAN OB	7310	02
GOLDMAN OB	7301	03	GOLDMAN OB	7205	02	GOLDSTEIN	8007	02
GOLUBINSKY	7608	04	GRANGE KLI	6706	03	GRAY	6608	04
GRAY RHUDY	7309	03	GRAY RHUDY	7103	01	GREEN	7000	02
GREENWOOD	7403	01	GUENTHER	6612	03	GUENTHER R	7712	01
GUENTHER R	7701	02	GULBRAN RE	6703		GULBRAN RE	6701	02
GULBRAN RE	6507	02	HABERCOM	7811	03	HABERCOM	7803	01
HAHN	6906	02	HAINS KEYE	7211	02	HAKKINEN G	5903	
HALPRIN	6502		HAMA	6802	03	HANKEY	7506	04
HANKEY	7402	04	HANKEY	7003	01	HANKEY	6702	01

HANKEY CRO	6704	01	HANKEY HOL	7506	05	HANKEY SHA	8008	02
HANKEY SHA	7901	04	HANSEN (ED)	6405	01	HARTOFILIS	6409	02
HARTOFILIS	6305	02	HARTZUIKER	7204	02	HARVEY	6808	03
HASLETT KA	7207	02	HAVENER RA	7408	01	HAWK AMICK	6704	02
HAYES	7803	02	HAYES	7710	03	HAYES	7705	02
HAYES NEUM	7808	01	HEARTH PRE	7612	01	HEFNER CAR	7708	02
HEFNER STE	7211	03	HEFNER WHI	7212	03	HELLER BLI	7502	01
HIERS LOUB	6702	02	HILL	7012	02	HILL	6711	02
HODGE	7707	06	HODGE	7609	03	HODGSON	7012	03
HOELMER	6702	03	HOLDEN	7701	03	HOLDEN	7506	07
HOLDEN	7506	06	HOLDEN	7402	05	HOLDEN	7310	03
HOLDEN	7201	02	HOLDEN	6905	05	HOLDEN	6801	05
HOLDEN	6705	02	HOLDEN	6610	02	HOLDEN	6605	02
HOLLOWAY S	6511	02	HOLT LU	7407	02	HOPKINS	7409	01
HORSTMAN H	7911	02	HORSTMAN H	7901	05	HORSTMAN H	7701	04
HORSTMAN S	8201	01	HORSTMAN S	7708	03	HSIA	6610	03
HSIA SEIFE	6501	01	HUNG	7706		HUNG	7307	02
HUNG	7203	03	HUNG BARNE	7301	04	HUNG CHUSE	8109	01
HUNG CLAUS	8001	02	HUNG GREEN	7607	03	HUNG MACCO	7810	02
HUNG MACCO	7604	04	HUNT JONES	7303	03	HUNT LAWIN	7910	02
HUNT LAWIN	7801	03	HUSSAINI B	8008	03	IKAWA	7911	03
INGER	7711	01	INGER	7509	01	INGER	7507	04
INGER	7408	02	INGER	7408	03	INGER SWEA	7605	03
JARRETT CA	8004	01	JOHNSON	7007	01	JOHNSON	6803	02
JOHNSON	6608	05	JOHNSON BO	7106	02	JOHNSON KA	8003	01
JOHNSON KA	7901	06	JOHNSON KA	7808	02	JOHNSON KA	7506	08
JOHNSON KA	7409	02	JOHNSON LA	7704	02	JOHNSON MA	7411	01
JOHNSON TA	7709	02	JONES	6400	02	JONES HUNT	6602	01
KARAMCHETI	6311		KARASHIMA	7311	03	KAUFMAN	7910	03
KAUFMAN	7204	03	KAUFMAN	7004		KAUFMAN	6912	02
KAUFMAN	6904	01	KAUFMAN	6709	02	KAUFMAN	6608	06
KAUFMAN	6605	03	KAUFMAN	6602	02	KAUFMAN	6504	01
KAUFMAN	6410	02	KAUFMAN	6408	01	KAUFMAN	6407	
KAUFMAN	6405	02	KAUFMAN	6402	01	KAUFMAN	6401	01
KAUFMAN	6401	02	KAUFMAN	6312		KAUFMAN	6310	01
KAUFMAN	6309	01	KAUFMAN	6309	02	KAUFMAN	6309	03
KAUFMAN	6202	02	KAUFMAN FR	7612	02	KAUFMAN FR	7506	09
KAUFMAN JO	8109	02	KAUFMAN JO	7903		KAUFMAN JO	7704	03
KAUFMAN JO	7412	01	KAUFMAN KI	7808	03	KAUFMAN KI	7804	01
KAUFMAN KO	6810		KAUFMAN KO	7310	04	KAUFMAN KO	7301	05
KAUFMAN KO	7208	05	KAUFMAN KO	7202	01	KAUFMAN LE	7103	02

KAUFMAN LE	7009	03	KAUFMAN MA	7807	02	KAUFMAN ME	6304	01
KAUFMAN ME	6611		KAUFMAN ME	6511	03	KAUFMAN ME	6501	02
KAUFMAN OM	6203	01	KAYSER	7408	04	KENWORTHY	7800	
KENWORTHY	7510	01	KESSLER RE	7107	01	KEYES	7601	01
KEYES	6909	03	KEYES GOLD	6808	04	KEYES HAIN	7305	03
KEYES MORR	7208	06	KHARCHENKO	7309	04	KIRCHNER	7912	02
KIRCHNER	7906	03	KIRKHAM HU	7700	05	KIRLIN	7603	03
KISTLER	6403	01	KISTLER TA	6700		KLINEBERG	6800	02
KLINEBERG	7205	03	KLINEBERG	6912	03	KLINEBERG	7401	03
KNOX	6511	04	KOCH COLLI	7005	02	KOOI	7700	06
KORKEGI	7605	03	KORKEGI	7605	04	KORKEGI	7601	02
KORKEGI	7600	01	KORKEGI	7507	05	KORKEGI	7504	02
KORKEGI	7311	04	KORKEGI	7203	04	KORKEGI	7105	01
KORKEGI	7007	02	KRAUSE (ED)	7308		KUCHEMANN	6601	
KUCHEMANN	7511	05	KUHN	8003	02	KUSH SCHET	7206	01
KUSSOY HOR	7502	02	LAMB HOOD	6811	02	LAPIN	7201	03
LAPIN	7000	03	LARSON	5911		LAW	7606	
LAW	7506	10	LAW	7506	11	LAW	7506	12
LAW	7406	03	LAW	7401	04	LAW	7307	03
LAWING	7805	02	LAWING	7506	13	LAWRENCE W	6806	01
LEBLANC GL	7005	03	LEE BARFIE	7102		LEES	6805	01
LEES KUBOT	7209	01	LEES REEVE	6411	03	LEGENDRE	7907	01
LEGENDRE	7809	03	LEWIS KUBO	6801	06	LEWIS KUBO	6701	03
LIN RUBIN	7403	02	LITTLE	7808	04	LITTLE GRI	6806	02
LUCAS	7101	02	LUCERO	7001	01	LUMSDAINE	7303	04
MACIULAITI	8006	01	MAGER	5602		MAGNAN SPU	6604	02
MAISE ROSS	7408	05	MARCONI	8001	03	MARKARIAN	6811	03
MATEER VIE	8008	04	MAUK	7908		MAULL	6008	
MAURER	6511	05	MCCABE	6608	07	MCCABE	6508	
MCDONALD	6503	02	MCGREGOR W	7011		MECKLER	6712	03
MECKLER	6506		MECKLER	6409	03	MECKLER	6309	04
MEIER GRON	8104	01	MEYER	6807	02	MIKESELL	6608	08
MIKULLA HO	7605	05	MILLER	7512	06	MILLER	6310	02
MILLER HIJ	6402	02	MODARRESS	7907	02	MORKOVIN	6606	01
MORRIS KEY	7305	04	MORRISETTE	808	05	MURPHY	7101	03
MURPHY	6910	03	MURTHY ROS	7807	03	NAGEL BECK	7301	06
NAGEL FITZ	6608	09	NAGEL SAVA	6608	10	NARASIMHA	6711	03
NASH SCRUG	7906	04	NEEDHAM	6712	04	NEEDHAM ST	6606	02
NELSON	7808	06	NENNI	7600	02	NESTLER	8101	02
NESTLER	7507	06	NESTLER	6808	05	NESTLER	6801	07
NESTLER SA	6907	02	NESTLER SA	6806	03	NEUMANN	7205	04

NEUMANN BU	6903	02	NEUMANN HA	8101	03	NEUMANN HA	7905	02
NEUMANN PA	7801	04	NEUMANN TO	7410	02	NEWLANDER	6101	01
OMAN FOREM	7503	02	OSKAM	7600	03	OSKAM BOGD	7502	03
OSKAM VAS	7803	03	PAGE	6908	02	PAGE HILL	6705	03
PANARAS	7709	03	PANOV	6901	04	PATE	6403	02
PATTERSON	7711	02	PAYNTER	8003	03	PEAKE	7607	04
PEAKE RAIN	7611	02	PEAKE RAIN	7205	05	PEAKE TOBA	8007	03
PEAKE TOBA	8003	04	PHINNEY WE	6809	03	PISTOLESI	6805	02
POLAK	7410	03	POLAK	7107	02	POLAK KALI	6908	03
POLAK KALI	6906	03	POLAK WERL	7502	04	POPINSKI	6608	11
POPINSKI E	6609	03	POVINELLI	7008		PRESZ PITK	7607	05
PRICE STAL	6702	04	PRUNET-FOC	7210	01	PUTNAM	6505	
RAO	7510	02	RAO	6901	05	RASTOGI DU	7700	07
RAY	6706	04	RAY PALKO	6507	03	REDA	7409	03
REDA MURPH	7310	05	REDA MURPH	7302		REDA MURPH	7206	02
REDA PAGE	7001	02	REDING	7909	02	REDING ERI	7712	02
REDING GUE	6907	03	REDING GUE	6903	03	REDING GUE	8003	05
REDING GUE	7808	07	REDING GUE	7701	05	REEVES	7211	04
REINECKE	7502	05	RESHOTKO T	5505		REYHNER FL	6800	03
RHUDY	7003	02	RHUDY HIER	6009		RICHARDS K	7509	02
RIEBE PITT	8103		ROBERTS	7009	04	ROGERS BER	6501	03
ROM SEGINE	7209	02	ROMEO STER	6104		ROSE	6910	04
ROSE MURPH	6809	04	ROSE MURTH	7906	05	ROSE PAGE	7305	05
ROSEN PAVI	8001	04	ROSEN PAVI	7901	07	ROSENBAUM	7511	06
ROSHKO THO	7607	06	ROSHKO THO	6905	06	ROSHKO THO	6606	03
ROSSI NICH	6605	04	ROYALL	6207	02	RUDMAN	7901	08
RYAN	6904	02	SAYANO	6211		SAYANO BAU	6208	
SCHEPERS	7602		SCHEPERS P	7906	06	SCHERBERG	6701	04
SCHETZ HAW	6705	04	SCHEUING	7105	02	SCHLICHTIN	5500	
SCHNEIDER	7403	03	SCHWEIGER	7906	07	SCIBILIA D	7902	02
SCUDERI	7801	05	SEDDON	6003		SEDNEY	7411	02
SEDNEY	7306		SEDNEY KIT	7704	04	SEDNEY KIT	7702	
SEDNEY KIT	7601	03	SEDNEY KIT	7506	14	SEDNEY KIT	7505	04
SETTLES BO	7601	04	SETTLES BO	7501	02	SETTLES FI	7906	08
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SHANG HANK	8201	03	SHAW	7911	04	SHAW SMITH	7703	02
SHEERAN DO	6803	03	SHEN	7902	03	SHEN	7804	02
SHILOH SHI	8006	04	SHREEVE OA	7205	06	SICLARI	8001	05
SILER DEAK	6411	04	SIMPSON CH	8004	02	SIRIEIX	7300	

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TODISCO RE	6905	08	TOKEN	7404		TRUITT	6509	
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