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53

AD-A041 400

DDC/BIB-77/06

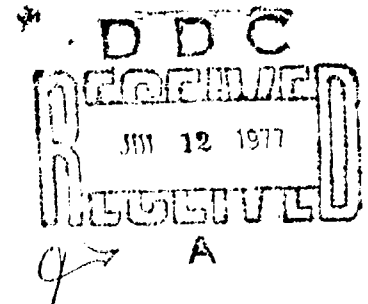
ENVIRONMENTAL POLLUTION NOISE POLLUTION

SONIC BOOM

A DDC BIBLIOGRAPHY

**DDC-TAS
Cameron Station
Alexandria, Va. 22314**

JUNE 1977



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Cameron Station

Alexandria, Va. 22314

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This bibliography contains citations of studies and analyses covering a wide range of the parameter of sonic boom and noise pollution, as well as damages caused by it. Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

(#19 Continued)

Shock Waves
Jet Plane Noise
Jet Aircraft
Aircraft Noise
Physiological Effects
Reaction (Psychology)

FOREWORD

This bibliography consists of 156 selected unclassified and unlimited citations of reports on *Noise Pollution - Sonic Boom*.

These citations are studies and analyses covering a wide range of the parameter of sonic boom and noise pollution, as well as damages caused by it.

References were taken from entries processed into the Defense Documentation Center's AD data bank during the period of January 1953 to March 1977.

This bibliography supersedes DDC report bibliography on *Environmental Pollution: Noise Pollution - Sonic Boom* AD-769 970, DDC-TAS-73-74, dated November 1973.

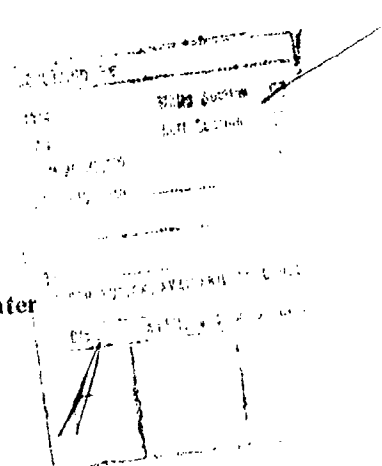
Individual entries are arranged in AD number sequence under the heading AD Bibliographic References. Computer generated indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.

BY ORDER OF THE DIRECTOR, DEFENSE LOGISTICS AGENCY

OFFICIAL

Hubert E. Sauter

HUBERT E. SAUTER
Administrator
Defense Documentation Center



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TITLE	T-1
PERSONAL AUTHQR	P-1

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 229 463

ARDE-PORTLAND INC NEWARK N J

RESPONSE OF STRUCTURES TO AIRCRAFT GENERATED SHOCK
WAVES

(U)

APR 59 138P

CONTRACT: AF33 616 5197

MONITOR: WADC TR-58-169

UNCLASSIFIED REPORT

DESCRIPTORS: *SHOCK WAVES, *STRUCTURES, *TRANSONIC
CHARACTERISTICS, FAILURE (MECHANICS),
HOUSING(DWELLINGS), INSTALLATION, JET PLANE NOISE,
PRESSURE, SONIC BOOM

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 260 635

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

GROUND MEASUREMENTS OF THE SHOCK-WAVE NOISE FROM
SUPERSONIC BOMBER AIRPLANES IN THE ALTITUDE RANGE
FROM 30,000 TO 50,000 FEET (U)

JUL 61 IV MAGLIERI, DOMENIC J.; HUBBARD, HARVEY

H.;
REPT. NO. TN D 880

UNCLASSIFIED REPORT

DESCRIPTORS: *JET BOMBERS, *LIFT, *SHOCK WAVES,
*SUPERSONIC AIRCRAFT, AERODYNAMIC CHARACTERISTICS,
BOMBER AIRCRAFT, GAS FLOW, MEASUREMENT, PRESSURE,
TRANSONIC CHARACTERISTICS (U)

SHOCK-WAVE GROUND-PRESSURE MEASUREMENTS HAVE BEEN
MADE FOR SUPERSONIC BOMBER AIRPLANES IN THE MACH
NUMBER RANGE FROM 1.24 TO 1.52, FOR ALTITUDES FROM
ABOUT 30,000 TO 50,000 FEET, AND FOR A GROSS-WEIGHT
RANGE FROM ABOUT 83,000 TO 120,000 POUNDS. THE
MEASURED OVERPRESSURES WERE GENERALLY HIGHER THAN
WOULD BE PREDICTED BY THE THEORY WHICH ACCOUNTS ONLY
FOR VOLUME EFFECTS. THERE IS THUS A SUGGESTION
THAT LIFT EFFECTS ON SONIC-BOOM INTENSITY MAY BE
SIGNIFICANT ON THIS TYPE OF AIRPLANE FOR THE
ALTITUDE RANGE OF THE PRESENT TESTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 260 636

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D
C

AN INVESTIGATION OF THE INFLUENCE OF LIFT ON SONIC-
BOOM INTENSITY BY MEANS OF WIND-TUNNEL MEASUREMENTS
OF THE PRESSURE FIELDS OF SEVERAL WING-BODY
COMBINATIONS AT A MACH NUMBER OF 2.01

(U)

JUL 61 IV CARLSON, HARRY W.;
REPT. NO. TN D 881

UNCLASSIFIED REPORT

DESCRIPTORS: *LIFT, *SHOCK WAVES, *SOUND, *SUPERSONIC
FLOW, *WING BODY CONFIGURATIONS, ACOUSTICS, AERODYNAMIC
CHARACTERISTICS, AMPLIFIERS, PRESSURE, SONIC BOOM, WIND
TUNNELS

(U)

AN INVESTIGATION OF THE EFFECT OF LIFT ON SONICBOOM
INTENSITY WAS PERFORMED BY MEANS OF WINDTUNNEL
MEASUREMENTS OF THE PRESSURE FIELDS SURROUNDING SMALL
WING=BODY COMBINATIONS. EFFECTS OF LIFT WERE FOUND
TO BE REAL AND SIGNIFICANT. MEASURED BOW-SHOCK
INTENSITIES AGREED FAIRLY WELL WITH, BUT WERE
CONSISTENTLY LESS THAN, SHOCK INTENSITIES ESTIMATED
BY THEORETICAL METHODS. AVAILABLE FLIGHT DATA WERE
EXAMINED FOR CORRELATION WITH WIND-TUNNEL TEST
RESULTS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 292 658

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

FLIGHT - EXPLOSION

(U)

NOV 62

IV

YUR'YEV, L.;

REPT. NO. TT 62 98

UNCLASSIFIED REPORT

DESCRIPTORS: *BLUNT BODIES, AERODYNAMIC CHARACTERISTICS, AERODYNAMIC CONFIGURATIONS, ATMOSPHERE ENTRY, SHOCK WAVES, SONIC BOOM, SPIKES, SUPERSONIC FLOW, SWEEPBACK WINGS (U)

A STUDY WAS MADE OF A NEW METHOD OF STUDY AND CALCULATION OF THE MOTION OF SLENDER, BLUNT-FACED BODIES THROUGH AIR AND THE PROPAGATION OF EXPLOSIVE WAVES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 404 562

FEDERAL AVIATION AGENCY WASHINGTON D C

COMMERCIAL SUPERSONIC TRANSPORT AIRCRAFT RESEARCH
PROGRAM. SELECTED REFERENCES.

(U)

APR 63 38P
MONITOR: FAA BLB

UNCLASSIFIED REPORT

DESCRIPTORS: *TRANSPORT AIRCRAFT, *SUPERSONIC,
*AIRFRAMES, *FLIGHT CONTROL SYSTEMS, *BIBLIOGRAPHIES,
JET ENGINES, SONIC BOOM, SIMULATION, LUBRICATION, JET
ENGINE FUELS, MATERIALS, DYNAMICS, METALS, JET
PROPULSION, AIRCRAFT, STRUCTURAL PROPERTIES. (U)

BIBLIOGRAPHIES IN REFERENCE TO COMMERCIAL SUPERSONIC
TRANSPORT AIRCRAFT.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 408 716
ARMY SIGNAL RADIO PROPAGATION AGENCY WHITE SANDS MISSILE
RANGE N MEX

PROCEEDINGS OF THE SYMPOSIUM ON ATMOSPHERIC ACOUSTIC
PROPAGATION, 14-16 JUNE, 1961, TEXAS WESTERN
COLLEGE AND FORT BLISS, EL PASO, TEXAS. VOLUME 1. (U)

AUG 61 268P

UNCLASSIFIED REPORT

DESCRIPTORS: (*ACOUSTICS, SYMPOSIA), (*PROPA,
ATMOSPHERES), SHOCK WAVES, FLIGHT PATHS, NOMUGRAPHS,
ABSORPTION, BALLISTICS, DETERMINA, MICROPHONES, ACOUSTIC
PROPERTIES, CON, THEORY, DATA, GEOMETRY, BLAST, NOISE,
WAVE PROPAGATION, ELECTROMAGNETIC, SONIC BOOM,
DETONATION WAVES, METEOROLOG, GUIDED MISSILES, WIND,
TEMPERA, CAPACITORS, TELEMETER, CORRECTIONS, ARTILLERY
FIRE, DATA, BACKGROUND, ANALYSIS, EXPLOSIONS. (U)

SYMPOSIA ON ATMOSPHERIC ACOUSTIC PROPAGATION.

UNCLASSIFIED

UDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 720M09

AD- 422 294

AEROSPACE CORP EL SEGUNDO CALIF

NOTES ON THE DIFFRACTION OF BLASTS BY FLYING
VEHICLES. PART ONE: GENERAL COMMENTS PART TWO: BLAST-
WAVE, MACH-WAVE INTERACTION, (U)

AUG 63 1P MILES, J. W. ;
REPT. NO. TDR269 4230 3U 1
CONTRACT: AFD4 695 269
MONITOR: SSD TDR63 195

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AIRFOILS, BLAST), (*SHOCK WAVES,
DIFFRACTION), SUPERSONIC CHARACTERISTICS, AERODYNAMIC
CONFIGURATIONS, WEDGES, SUPERSONIC FLOW, MATHEMATICAL
ANALYSIS, SUPERSONIC AIRFOILS, MATRICES (MATHEMATICS),
INTERFERENCE, SONIC BOOM, AERODYNAMIC LOADING (U)

WHITHAM'S TECHNIQUE FOR THE APPROXIMATE CALCULATION
OF THE DIFFRACTION OF SHOCK WAVES BY STATIONARY
BODIES IS APPLIED TO THE DIFFRACTION OF A BLAST WAVE
BY A MACH WAVE THAT EMANATES FROM THE APEX OF A
THIN WEDGE IN SUPERSONIC FLIGHT. THE APPROXIMATE
RESULTS TEND TO THE EXACT RESULTS FOR WEAK BLAST
WAVES BUT ARE UNSATISFACTORY FOR VERY STRONG BLAST
WAVES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 447 717

FEDERAL AVIATION AGENCY WASHINGTON D C

SONIC BOOM BIBLIOGRAPHY,

(U)

SEP 64

11P

FRIEDMAN, ROBERT K. :

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SONIC BOOM, BIBLIOGRAPHIES),
(•BIBLIOGRAPHIES, SONIC BOOM), URBAN AREAS,
ATTITUDES (PSYCHOLOGY), SUPERSONIC FLIGHT, TRANSPORT
AIRCRAFT

(U)

THIS BIBLIOGRAPHY ON SONIC BOOM HAS BEEN COMPILED
IN RESPONSE TO A SPECIFIC REQUEST. NO CLAIM IS
MADE THAT THESE 193 CITATIONS COMPRISE AN EXHAUSTIVE
OR CRITICAL COMPILATION. THE INCLUSION OF ANY
REFERENCE TO MATERIAL IS NOT TO BE CONSTRUED AS AN
ENDORSEMENT OF THE INFORMATION CONTAINED IN THAT
MATERIAL. THE REFERENCE SEARCH WAS COMPLETED
AUGUST 28, 1964. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 464 647

LIBRARY OF CONGRESS WASHINGTON D C AEROSPACE TECHNOLOGY
DIV

DATA ON SOVIET SPACE PROGRAM.

(U)

DESCRIPTIVE NOTE: ANALYTICAL SURVEY OF SOVIET-BLOC
SCIENTIFIC AND TECHNICAL LITERATURE.

JUN 65 16P

REPT. NO. ATD-P-65-37

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ASTRONAUTICS, USSR), (*AERONAUTICS,
USSR), SPACE BIOLOGY, SUPERSONIC AIRCRAFT, HYPERSONIC
AIRCRAFT, SONIC BOOM, JET TRANSPORT PLANES, SPACECRAFT,
LUNAR CRAFT, MANNED SPACECRAFT, ADJUSTMENT (PSYCHOLOGY),
SPACE ENVIRONMENTS, CONFINED ENVIRONMENTS, PHYSIOLOGY,
MEASUREMENT, WEIGHTLESSNESS, SPACE CAPSULES (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS, VOSKHOD (U)

CONTENTS: SPACE BIOLOGY; SUPERSONIC
AIRCRAFT; HYPERSONIC AIRCRAFT; THE SONIC
BOOM; SOVIET OFFICIALS ON SST; THE
VOSKHOD SPACECRAFT; SOVIET EXPLORATION OF THE
MOON.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUMU9

AD- 468 794

FEDERAL AVIATION AGENCY WASHINGTON D C

EFFECT OF SONIC BOOMS OF VARYING OVERPRESSURES ON
SNOW AVALANCHES. (U)

65 33P
REPT. NO. SST-65-9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH FOREST
SERVICE, WASHINGTON, D. C., DEPARTMENT OF THE AIR
FORCE, WASHINGTON, D. C. AND NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION, WASHINGTON, D. C.

DESCRIPTORS: (•SONIC BOOM, AVALANCHES), (•AVALANCHES,
SONIC BOOM), SNOW, PRESSURE, SUPERSONIC AIRCRAFT,
HAZARDS, COLORADO, NOISE, JET FIGHTERS (U)
IDENTIFIERS: F-100 AIRCRAFT, F-104 AIRCRAFT,
OVERPRESSURE (U)

ON 18 - 20 MARCH 1965, A SONIC BOOM PROGRAM WAS
CONDUCTED IN THE STAN MOUNTAIN AREA NEAR
LEADVILLE, COLORADO, IN THE SAN ISABEL
NATIONAL FOREST. OBJECTIVE WAS TO DETERMINE
THE EFFECTS OF SONIC BOOM OVERPRESSURES ON SNOW
AVALANCHES. A TOTAL OF 18 COMBINED F-104 AND F-
100 RUNS WERE MADE WITH OVERPRESSURES RANGING FROM
1.5 TO 5.2 MEASURED. NO AVALANCHE WAS OBSERVED AS
A DIRECT RESULT OF THE SONIC BOOMS. FOREST
SERVICE PERSONNEL RATED THE AVALANCHE HAZARD AS
'LOW' DURING THE TEST PERIOD, RESULTING IN THE
RECOMMENDATION FOR FURTHER TESTS DURING PERIODS OF
'HIGH' AVALANCHE HAZARD. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 474 778 20/1

BLUME (JOHN A) AND ASSOCIATES SAN FRANCISCO CALIF RESEARCH
DIV

REPORT ON THE NATIONAL SONIC BOOM STUDY STRUCTURAL
REACTION PROGRAM. SUMMARY, CONCLUSIONS, AND
ANALYSIS. VOLUME 1. (U)

APR 65 179P

CONTRACT: FA-SS-65-12

MONITOR: FAA-SST 65-15-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-474
779L.

DESCRIPTORS: (*SONIC BOOM, *BUILDINGS), TEST METHODS,
STATE-OF-THE-ART REVIEWS, DESIGN, NEW MEXICO, DAMAGE,
PRESSURE, WALLS, FRACTURE(MECHANICS),
FOUNDATIONS(STRUCTURES), CONSTRUCTION, METEOROLOGICAL
PHENOMENA, JET FIGHTERS, JET BOMBERS, BRICK, WOOD,
PREFABRICATED BUILDINGS, JET TRANSPORT PLANES,
SUPERSONIC AIRCRAFT, LOADS(FORCES), CONCRETE, GLASS,
STRUCTURAL MEMBERS, SHOCK WAVES, STRUCTURES (U)
IDENTIFIERS: B-58 AIRCRAFT, F-104 AIRCRAFT, SUPERSONIC
TRANSPORTS (U)

CONTENTS: SURVEY OF LITERATURE -- SONIC
BOOM, AIR BLAST AND RELATED PHENOMENA,
GENERAL BEHAVIOR OF STRUCTURAL ELEMENTS
UNDER STATIC AND DYNAMIC LOADS, CROSS
SECTIONAL SURVEY OF HOUSE TYPES IN THE
UNITED STATES, NATURAL LOADING CONDITIONS
THROUGHOUT THE UNITED STATES, BUILDING
CODES; TEST PLAN -- SITE SELECTION,
DESIGN OF NEW TEST STRUCTURES, STRUCTURAL
MODULES, PREFAB, STPREFRONT AND GREENHOUSE,
EXISTING STRUCTURES OBSERVED IN TEST, DAMAGE
OBSERVATION PLAN, INSTRUMENTATION, DATA
REDUCTION AND ANALYSIS; SPECIAL TESTS --
MATERIAL TESTS, FOUNDATION MATERIALS
EVALUATION, LOAD-DEFLECTION AND 'TWANG'
TESTS; OBSERVED STRUCTURAL BEHAVIOR --
LOADING CONDITIONS, PARAMETERS, PLASTER ON
WOOD LATH, PLASTER ON GYPLATH; METAL LATH
AND CONCRETE BLOCK, GYPBOARD, BATHROOM
TILE, GLASS, STUCCO, CONCRETE BLOCK,
BRICK, BRIC-A-BRAC; ANALYSIS OF STRUCTURAL
BEHAVIOR -- LOAD MODIFICATION STUDIES,
STRUCTURAL RESPONSE,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 474 779 20/1
BLUME (JOHN A) AND ASSOCIATES SAN FRANCISCO CALIF RESEARCH
DIV

STRUCTURAL REACTION PROGRAM. NATIONAL SONIC BOOM
STUDY PROJECT. VOLUME 2.

(U)

APR 65 234P
CONTRACT: FA-55-65-12
MONITOR: FAA-55T 65-15-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-474
778L.

DESCRIPTORS: (*SONIC BOOM, *BUILDINGS), DESIGN,
SPECIFICATIONS, NEW MEXICO, BIBLIOGRAPHIES, PRESSURE,
JET FIGHTERS, JET BOMBERS, TABLES(DATA), DAMAGE, SHOCK
WAVES, STRUCTURAL MEMBERS, JET TRANSPORT PLANES,
SUPERSONIC AIRCRAFT, PREFABRICATED BUILDINGS,
STRUCTURES (U)
IDENTIFIERS: B-58 AIRCRAFT, F-104 AIRCRAFT, SUPERSONIC
TRANSPORTS (U)

THE TWO VOLUMES OF THIS REPORT DESCRIBES THE
RESULTS OF THE NATIONAL SONIC BOOM STRUCTURAL
RESPONSE STUDY CONDUCTED AT THE WHITE SANDS
MISSILE RANGE, WHITE SANDS, N.M. IT IS ONE
OF THE ONGOING SERIES OF SONIC BOOM RESEARCH
PROGRAMS CONDUCTED BY THE GOVERNMENT IN THE
SUPERSONIC TRANSPORT DEVELOPMENT PROGRAM.
THE PRIMARY OBJECTIVE WAS DETERMINATION OF SONIC
BOOM OVERPRESSURE DAMAGE INDEX LEVELS ASSOCIATED WITH
VARIOUS TYPES OF STRUCTURAL MATERIAL SUCH AS PLASTER,
GLASS AND MASONRY. THE TEST AREA INCLUDED 21
STRUCTURES VARYING IN DESIGN, CONSTRUCTION AND AGE.
FURNITURE, MIRRORS, TELEVISION SETS AND OTHER HOME
APPLIANCES, DISHES, CRYSTAL, BRIC-A-BRAC AND VARIOUS
OTHER ITEMS WERE IN THE TEST STRUCTURES. THE TEST
SITE WAS EXPOSED TO 1494 SONIC BOOMS OF OVERPRESSURES
RANGING FROM 1.6 TO 23.4 POUNDS PER SQUARE FOOT
(P.S.F.). SONIC BOOMS AND STRUCTURAL MATERIAL
REACTION WERE MEASURED. TO STUDY THE CUMULATIVE
EFFECTS OF REPEATED SONIC BOOMS, 680 SUCCESSIVE
FLIGHTS AT A SCHEDULED OVERPRESSURE OF 5.0 P.S.F.
IT IS CONCLUDED THAT NO PREVIOUSLY UNDAMAGED
MATERIAL WAS IDENTIFIED DURING THE ACCUMULATIVE
EFFECTS PORTION OF THE STUDY. SONIC BOOM
OVERPRESSURE LEVELS AT WHICH INCIDENT EFFECTS APPEAR
IN STRUCTURES AND MATERIALS ARE PRESENTED.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 475 662 20/1 13/13
BLUME (JOHN A) AND ASSOCIATES SAN FRANCISCO CALIF RESEARCH
DIV

THE EFFECTS OF SONIC BOOM ON STRUCTURAL BEHAVIOR. A
SUPPLEMENTARY ANALYSIS REPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 65 192P WIGGINS, JOHN H. JR.;
CONTRACT: FA-SS-65-12
MONITOR: FAA-SST 65-18

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *BUILDINGS), RESPONSE,
DAMAGE, OKLAHOMA, NEW MEXICO, SHOCK WAVES, STATISTICAL
DISTRIBUTIONS, STATISTICAL ANALYSIS, DAMAGE ASSESSMENT,
LOADS(FORCES), INTENSITY, REFLECTION, PRESSURE,
MATHEMATICAL PREDICTION, STRUCTURES, RESONANT FREQUENCY,
DAMPING, RESONANCE, WALLS, SOILS, ALTITUDE, TIME,
THEORY, VIBRATION, STRESSES, DEFLECTION, GLASS,
STRUCTURAL PROPERTIES, FRACTURE(MECHANICS),
METEOROLOGICAL PHENOMENA, JET FIGHTERS, JET BOMBERS (U)
IDENTIFIERS: B-58 AIRCRAFT, F-104 AIRCRAFT, F-106
AIRCRAFT (U)

RESPONSE AND DAMAGE DATA FROM THE FEDERAL
AVIATION AGENCY SONIC BOOM TESTS AT
OKLAHOMA CITY, OKLAHOMA, AND WHITE SANDS,
NEW MEXICO, ARE ANALYZED AND EFFECTS ON
STRUCTURES SUMMARIZED. PARAMETERS GOVERNING THE
FREE-FIELD AND NEAR-FIELD BOOM WAVES ARE ALSO STUDIED
AND THEIR INFLUENCE ON SCATTER IN THE DATA ESTIMATED
STATISTICALLY. THIS REPORT THEN CONSERVATIVELY
SUMMARIZES THE RESULTS IN A DAMAGE PREDICTION TABLE
AND CHART. INSURANCE ADJUSTERS ARE GIVEN GUIDANCE
ON THE TREATMENT OF SONIC BOOM DAMAGE CLAIMS ALONG
WITH THE CHART. FINALLY, RECOMMENDATIONS FOR
FUTURE WORK IN SONIC BOOM, STRUCTURAL BEHAVIOR
STUDIES ARE MADE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 479 366 20/1 4/2 1/1
WEATHER WING (6TH) ANDREWS AFB WASHINGTON D C

SONIC BOOM.

(U)

FEB 66 43P
REPT. NO. 6WWP-105-1-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPT. NO. 4WGP-105-1-1
DATED 1 JUL 60.

DESCRIPTORS: (SONIC BOOM, *METEOROLOGICAL PHENOMENA),
MEASUREMENT, SOUND, PROPAGATION, ATMOSPHERES, SUPERSONIC
FLIGHT, PRESSURE, SHOCK WAVES, MATHEMATICAL ANALYSIS,
VELOCITY, FLIGHT PATHS, TRAJECTORIES, TROPOSPHERE, WIND,
ATMOSPHERIC TEMPERATURE, TNT, TEST METHODS, SUPERSONIC
WIND TUNNELS, BOMBER AIRCRAFT, FIGHTER AIRCRAFT,
AIRPLANE MODELS, ROCKETS, LAUNCH VEHICLES, NOISE,
SUPERSONIC CHARACTERISTICS, SOUND TRANSMISSION (U)
IDENTIFIERS: SATURN LAUNCH VEHICLES (U)

BECAUSE THERE ARE IMPORTANT METEOROLOGICAL EFFECTS
ON SHOCK WAVE PROPAGATION, WEATHER OFFICERS SHOULD
BECOME ACQUAINTED WITH SOME OF THE TERMINOLOGY AND
THE PHYSICAL PRINCIPLES OF WEATHER EFFECTS ON SONIC
BOOM PROPAGATION. CALCULATION OF SHOCK WAVE
PATTERNS COVERING MANY SQUARE MILES IS AN EXCEEDINGLY
COMPLEX OPERATION WHICH INVOLVES SEVERAL PARAMETERS
OTHER THAN WEATHER DATA. SONIC BOOMS CAUSED BY
EITHER AIRCRAFT OR MISSILES ARE INFLUENCED BY SIZE,
SHAPE, SPEED, TRAJECTORY, ETC. THE USE OF
EQUATIONS TO COMBINE THE EFFECTS OF SUCH A LARGE
NUMBER OF VARIABLES CAN ONLY GIVE RESULTS IN TERMS OF
SIMPLIFIED CONDITIONS. ACTUAL MEASUREMENTS MADE IN
FIELD TESTS SHOW A RATHER BROAD RANGE OF VALUES
SURROUNDING THOSE DERIVED FROM MATHEMATICAL
CALCULATION. IN THIS REPORT, NO ATTEMPT WILL BE
MADE TO PRESENT THE MATHEMATICAL TREATMENTS REQUIRED
BY THOSE WHO CALCULATE EXPECTED SONIC BOOMS WITH THE
AID OF ELECTRONIC COMPUTERS. CURRENT KNOWLEDGE OF
THE EFFECT OF WEATHER PARAMETERS ON SONIC BOOM HAS
BEEN GAINED PRIMARILY FROM LIMITED ATMOSPHERIC
MEASUREMENT MADE NEAR THE TIME AND LOCATION OF
PLANNED SONIC BOOM TESTS. METEOROLOGISTS ARE BEING
ASKED TO EXAMINE AND HELP EXPLAIN THE RATHER WIDE
VARIABILITY IN THE OBSERVED SONIC BOOM PRESSURES
BEING MEASURED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 601 688

FEDERAL AVIATION AGENCY WASHINGTON D C

SUPERSONIC TRANSPORT DEVELOPMENT PROGRAM.

(U)

JUN 63 67P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, AIR TRANSPORTATION),
(*COMMERCIAL PLANES, AIR TRANSPORTATION PRODUCTION),
DESIGN, ECONOMICS, COSTS, COMMERCE, SPEED, SONIC BOOM,
ALUMINUM, STEEL, TITANIUM, MONEY, MANAGEMENT
ENGINEERING, PERSONNEL, AIRFRAMES, JET ENGINES, PAY
LOAD (U)

THIS REPORT DESCRIBES THE PROGRAM FOR THE
DEVELOPMENT OF A COMMERCIAL SUPERSONIC TRANSPORT
AIRCRAFT AS APPROVED BY THE PRESIDENT. TOPICS
INCLUDE SUPERSONIC TRANSPORT AND THE NATIONAL
INTEREST, FOREIGN COMPETITION, MARKET POTENTIAL FOR
THE SUPERSONIC TRANSPORT, DESIGN CONSIDERATIONS FOR A
UNITED STATES SUPERSONIC TRANSPORT, FACTORS
INFLUENCING DESIGN SPEED, SONIC BOOM, SUPERSONIC
TRANSPORT OPERATING ECONOMICS, DEVELOPMENT PROGRAM,
PRODUCTION PROGRAM, ESCALATION OF DEVELOPMENT AND
PRODUCTION COSTS, OTHER TECHNICAL CONSIDERATIONS,
MANAGEMENT ORGANIZATION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 602 173

FEDERAL AVIATION AGENCY WASHINGTON D C

SOME CONSIDERATIONS OF SONIC BOOM.

(U)

DESCRIPTIVE NOTE: SUMMARY REPT.,

MAY 61 29P POWER, J. KENNETH ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SONIC BOOM, THEORY), JET PLANE NOISE,
LIFT, VOLUME, SHOCK WAVES, PRESSURE, SUPERSONIC
AIRCRAFT, PRESSURE, ATMOSPHERIC TEMPERATURE, EQUATIONS,
FLUID DYNAMICS, PUBLIC RELATIONS, FLIGHT TESTING (U)
IDENTIFIERS: OVERPRESSURE (U)

CONTENTS: BASIC PHENOMENA DISCUSSION,
THEORETICAL CONSIDERATIONS, LIFTING EFFECTS, FLIGHT
TEST--COMPARISON WITH THEORY, GENERAL CONSIDERATIONS
OF NOISE, SONIC BOOM--POINT SOURCE EXPLOSIONS,
PREDICTION OF EFFECTS OF SONIC BOOM OVERPRESSURES,
SHOCK WAVE NOISE PROBLEMS OF FUTURE SUPERSONIC
TRANSPORT AIRCRAFT, AVAILABLE REFERENCES ON SONIC
BOOM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 602 175

FEDERAL AVIATION AGENCY WASHINGTON D C

SONIC BOOM EFFECTS ON LIGHT AIRCRAFT HELICOPTERS AND
GROUND STRUCTURES. (U)

DESCRIPTIVE NOTE: REPT. FOR 3 FEB-10 APR 64,
JUN 64 44P POWER, JOSEPH KENNETH I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: FOR PRESENTATION TO THE AMERICAN
SOCIETY FOR TESTING AND MATERIALS, CHICAGO, ILL.,
JUNE 25, 1964.

DESCRIPTORS: (*SONIC BOOM, DAMAGE), METEOROLOGICAL
PHENOMENA, SOUND, SHOCK WAVES, PRESSURE, HELICOPTERS,
AIRCRAFT, TESTS, HOUSING(DWELLINGS) (U)
IDENTIFIERS: OVERPRESSURE (U)

SONIC BOOM EFFECTS ON LIGHT AIRCRAFT HELICOPTERS AND
GROUND STRUCTURES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 602 176

FEDERAL AVIATION AGENCY WASHINGTON D C

SONIC BOOM AND COMMUNITY RELATIONS,

(U)

APR 64 40P POWER, J. K. BATES, GEORGE I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL AERONAUTICAL MEETING, WASHINGTON, D. C. APRIL 8-11, 1963. SOCIETY OF AUTOMOTIVE ENGINEERS, INC., PAPER NO. 683B

DESCRIPTORS: (*SONIC BOOM, DAMAGE), SUPERSONIC FLIGHT, HUMANS, SUPERSONIC AIRCRAFT, LIFT, VOLUME, SHOCK WAVES, METEOROLOGICAL PHENOMENA, PRESSURE, DESIGN, SOUND, COMMERCIAL PLANES, PUBLIC OPINION (U)

SOME PRELIMINARY ACCOMPLISHMENTS OF SONIC BOOM RESEARCH IN PREDICTING STRENGTH AND LOCATION OF SONIC BOOM SHOCK WAVES, DETERMINING THE EFFECTS ON LIGHT AIRCRAFT, AND EVALUATING COMMUNITY TOLERANCE TO VARIOUS LEVELS OF SONIC BOOM INTENSITY ARE REVIEWED. A BRIEF SUMMARY OF THE IMPLICATIONS OF SONIC BOOM WITH REGARD TO SUPERSONIC TRANSPORT DESIGN IS INCLUDED. (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 610 463

BOEING CO RENTON WASH AIRPLANE DIV

METEOROLOGICAL ASPECTS OF THE SONIC BOOM.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 64 143P

KANE, EDWARD J. ; PALMER,

THOMAS Y. ;

CONTRACT: FA WA4717

PROJ: 206 003R

MONITOR: FAA ,

RD64 160

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SONIC BOOM, METEOROLOGICAL PHENOMENA),
(*METEOROLOGICAL PHENOMENA, SONIC BOOM), (*LEVEL FLIGHT,
SONIC BOOM), ATMOSPHERES, METEOROLOGICAL PHENOMENA,
ATMOSPHERIC TEMPERATURE, PRESSURE, WIND, TURBULENCE,
SUPERSONIC FLIGHT, SHOCK WAVES, PROPAGATION, OKLAHOMA,
FOCUSING (U)

IDENTIFIERS: B-58 AIRCRAFT, F-104 AIRCRAFT, F-101
AIRCRAFT (U)

THIS REPORT IS A STUDY OF THE EFFECT OF CHANGING
METEOROLOGICAL CONDITIONS ON THE SONIC BOOM PRODUCED
DURING STEADY LEVEL FLIGHT. THE INFLUENCE OF
VARIATIONS IN ATMOSPHERIC TEMPERATURE, PRESSURE, AND
WIND ON THIS NOISE ARE INVESTIGATED. SIMPLIFIED
METHODS ARE ESTABLISHED FOR ESTIMATING THE EFFECT OF
THESE VARIATIONS. COMBINATIONS OF METEOROLOGICAL
CONDITIONS WHICH CAN PRODUCE ANOMALOUS PROPAGATION
SUCH AS COMPLETE CUT-OFF, FOCUSING, AND EXTREME
LATERAL SPREAD ARE DISCUSSED. THE EFFECT OF AIR
TURBULENCE NEAR THE GROUND IS CONSIDERED. A NUMBER
OF COMPARISONS WITH TEST DATA MEASURED AT OKLAHOMA
CITY (1964) ARE PRESENTED, AND RECOMMENDATIONS
FOR ADDITIONAL EXPERIMENTAL AND THEORETICAL WORK ARE
OUTLINED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 610 822

ANDREWS ASSOCIATES INC OKLAHOMA CITY OKLA

STRUCTURAL RESPONSE TO SONIC BOOMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT., VOL. 1.

FEB 65 240P

CONTRACT: FA64AC6 526

MONITOR: FAA-SST 65-1-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
MUGGINS, THOMPSON, BALL AND ASSOCIATES, INC.,
OKLAHOMA CITY, OKLA.

DESCRIPTORS: (*SONIC BOOM, DAMAGE),
(*HOUSING(DWELLINGS), SONIC BOOM), BUILDINGS, STRUCTURAL
MEMBERS, STRESSES, DEGRADATION, FRACTURE (MECHANICS),
SHOCK WAVES, STRAIN (MECHANICS), AIRCRAFT, FINISHES AND
FINISHING, URBAN AREAS, OKLAHOMA, FLIGHT PATHS,
PRESSURE, TESTS (U)

THE REPORT DOCUMENTS AND REPORTS ON THE RESULTS OF
THE STRUCTURAL RESPONSE OF SOME RESIDENTIAL
STRUCTURES IN THE OKLAHOMA CITY AREA DURING A 39-
WEEK TESTING PROGRAM CONSISTING OF TWENTY-SIX WEEKS
OF EIGHT DAILY, CONTROLLED SONIC BOOMS, FOLLOWED BY
THIRTEEN WEEKS OF OBSERVATION AND INSPECTION OF THE
STRUCTURES TO DETERMINE THE RATE OF NORMAL
DETERIORATION AS COMPARED TO THE RATE OF
DETERIORATION FOUND DURING THE 26-WEEK SONIC BOOM
PERIOD. THE TEST STRUCTURES CONSISTED OF A TOTAL
OF ELEVEN TYPICAL TYPES OF RESIDENTIAL STRUCTURES,
EIGHT OF WHICH WERE LOCATED WITHIN FIVE MILES OF THE
REGULAR FLIGHT PATH, ONE OF WHICH WAS LOCATED TEN
MILES FROM THE FLIGHT PATH, AND THE REMAINING TWO
LOCATED ABOUT TWENTY-FIVE MILES FROM THE FLIGHT PATH
AT NORMAN, OKLAHOMA WHICH WAS BEYOND THE SONIC
BOOM AREA. CONCLUSIVE EVIDENCE OF SIGNIFICANT
DAMAGE TO THE TEST STRUCTURES WAS NOT PRODUCED BY
THIS INVESTIGATION. HOWEVER, A SIGNIFICANT
INCREASE IN OCCURRENCE OF MINOR PAINT CRACKING OVER
NAIL HEADS AND IN CORNERS OF THE WALLBOARD INTERIORS
OF TWO OF THE TEST STRUCTURES DURING THE SONIC BOOM
PERIOD SUGGESTS THAT SONIC BOOMS ACCELERATED THIS
RATHER MINOR DETERIORATION. NO INCREASE OCCURRED IN
THE RATE AT WHICH PAINT FINISH ON LATH AND PLASTER
WALL INTERIORS CRACKED DURING THE SONIC BOOM PERIOD.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 610 823

ANDREWS ASSOCIATES INC OKLAHOMA CITY OKLA

STRUCTURAL RESPONSE TO SONIC BOOMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT., VOL. 2, APP.

FEB 65 181P

CONTRACT: FA64AC6 526

MONITOR: FAA-SST 65-1-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
HUGGINS, THOMPSON, BALL AND ASSOCIATES, INC.,
OKLAHOMA CITY, OKLA.

DESCRIPTORS: (*SONIC BOOM, DAMAGE),
(*HOUSING(DWELLINGS), SONIC BOOM), BUILDINGS, STRUCTURAL
MEMBERS, STRESSES, DEGRADATION, FRACTURE (MECHANICS),
SHOCK WAVES, STRAIN (MECHANICS), SUPERSONIC AIRCRAFT,
EXPERIMENTAL DATA, MECHANICAL DRAWINGS, URBAN AREAS,
OKLAHOMA, FLIGHT PATHS, PRESSURE (U)

THE VOLUME CONSISTS OF APPENDICES TO AD-610 822.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 613 620

NATIONAL OPINION RESEARCH CENTER NEW YORK

COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA CITY AREA.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR APR 63-FEB 65,

FEB 65 61P BORSKY, PAUL N. ;

REPT. NO. 101

CONTRACT: AF33 657 11148

PROJ: 7231

TASK: 723103

MONITOR: AMRL , TR-65-37

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SONIC BOOM, OKLAHOMA), (*REACTION (PSYCHOLOGY), SONIC BOOM), (*AIR TRANSPORTATION, OKLAHOMA), SUPERSONIC AIRCRAFT, TRANSPORT AIRCRAFT, PUBLIC OPINION, ACOUSTICS

(U)

THE OKLAHOMA CITY, OKLAHOMA, AREA WAS REPEATEDLY EXPOSED TO SONIC BOOMS GENERATED BY A SIMULATED SCHEDULE OF SUPERSONIC TRANSPORT OVERFLIGHTS DURING A PERIOD OF 6 MONTHS FROM FEBRUARY TO JULY 1964. THE SCHEDULE PROVIDED FOR EIGHT SONIC BOOMS PER DAY PROGRAMED AT AN INTENSITY OF 1.5 POUNDS PER SQUARE FOOT (PSF) DURING THE FIRST PORTION OF THE STUDY AND 2.0 PSF DURING THE LATTER STAGES. ALMOST 3000 LOCAL RESIDENTS WERE PERSONALLY INTERVIEWED THREE TIMES DURING THE 6-MONTH PERIOD TO DETERMINE THE NATURE AND EXTENT OF THEIR REACTIONS TO THE SONIC BOOMS. AMONG THE FINDINGS IT WAS SHOWN THAT SUBSTANTIAL NUMBERS OF RESIDENTS REPORTED INTERRUPTIONS OF ORDINARY LIVING ACTIVITIES, AND SOME ANNOYANCE WITH THESE INTERRUPTIONS, HOWEVER, THE OVERWHELMING MAJORITY FELT THEY COULD LEARN TO LIVE WITH THE NUMBERS AND KINDS OF BOOMS EXPERIENCED DURING THE 6-MONTH STUDY.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 618 770

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

HUMAN RESPONSES TO SONIC BOOM,

(U)

MAY 65 IIP NIXON, CHARLES W. ;
REPT. NO. AMRL-TR-65-9
PROJ: 7231
TASK: 723103

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN AEROSPACE MEDICINE V36 N5
P399-405 MAY 1965 (COPIES NOT AVAILABLE TO DDC OR
CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*SONIC BOOM, REACTION(PSYCHOLOGY)), JET
PLANE NOISE, SHOCK WAVES, SUPERSONIC CHARACTERISTICS,
TOLERANCES(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY), HUMANS,
BEHAVIOR, ATTITUDES(PSYCHOLOGY) (U)

AIRCRAFT IN SUPERSONIC FLIGHT GENERATE PRESSURE
WAVES THAT ARE PERCEIVED ALONG THE GROUND AS SONIC
BOOMS. THE IMPACT OF THE SONIC BOOM PHENOMENON
UPON HUMANS HAS GENERATED A GREAT DEAL OF CONCERN AND
CONJECTURE REGARDING INDIVIDUAL RESPONSES AND
PERCEPTIONS, GROUP RESPONSES, AND PHYSIOLOGICAL
RESPONSES. DATA ACCUMULATED DURING THE PAST
SEVERAL YEARS BY SPECIFIC GOVERNMENTAL AND AVIATION
AGENCIES HAVE PROVIDED SOME INSIGHT INTO THE MANNER
IN WHICH INDIVIDUALS AND COMMUNITIES HAVE RESPONDED
TO THE SONIC BOOM. THE REPORT SUMMARIZES THESE
DATA IN TERMS OF THE NATURE OF HUMAN RESPONSES AND
THE MANNER IN WHICH THEY OCCUR, FACTORS INFLUENCING
ACCEPTANCE OF THE BOOM, THE POSSIBILITY OF
PHYSIOLOGICAL INJURY, PSYCHOLOGICAL EFFECTS, AND SOME
REPORTS OF ALLEGED MINOR DAMAGE TO PROPERTY AND THEIR
RELATION TO HUMAN REACTIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 619 720

REGIONAL ENVIRONMENTAL HEALTH LAB (AFLC) KELLY AFB TEX

EFFECT OF SONIC BOOMS ON THE HATCHABILITY OF CHICKEN EGGS. (U)

FEB 65 40P HEINEMANN, JACK H. ;LEBROCK,
ERIC F. ,JR.;
PROJ: 62-2
MONITOR: FAA-SST 65-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: LIMITED NUMBER OF COPIES CONTAINING COLOR OTHER THAN BLACK AND WHITE ARE AVAILABLE UNTIL STOCK IS EXHAUSTED. REPRODUCTIONS WILL BE MADE IN BLACK AND WHITE ONLY.

DESCRIPTORS: (+SONIC BOOM, DAMAGE), (+EGGS, SONIC BOOM), CHICKENS, EXPOSURE(PHYSIOLOGY), EMBRYOS, STRESS(PHYSIOLOGY), SUPERSONIC AIRCRAFT, VETERINARY MEDICINE (U)

STRAIN-CROSS WHITE LEGHORN HATCHING EGGS WERE INCUBATED IN AN AREA SUBJECTED TO 30 OR MORE SONIC BOOMS PER DAY THROUGHOUT THE 21 DAYS REQUIRED TO HATCH CHICKEN EGGS. THE OVERPRESSURES OF THESE SONIC BOOMS, CREATED BY USAF SUPERSONIC F-104 AIRCRAFT, WERE EQUAL TO OR MUCH GREATER THAN THOSE NORMALLY PRODUCED BY OPERATIONAL MILITARY AIRCRAFT OR THE PROPOSED CIVILIAN SUPERSONIC TRANSPORT (SST). THE HATCHABILITY OF THE EGGS EXPOSED TO THE SONIC BOOMS WAS NOT LOWER THAN THAT OF UNEXPOSED EGGS OR TO PREVIOUS HATCHES OF THIS STRAIN IN A COMMERCIAL HATCHERY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 620 347

TENNESSEE UNIV KNOXVILLE

AN ANALYSIS OF LIABILITY IN AIRCRAFT TRESPASS AND
NUISANCE CASES SINCE 1958. (U)

DESCRIPTIVE NOTE: MASTER'S THESIS,

AUG 65 85P ROBINS, RAYMOND C. ;

CONTRACT: AF33 608 1118

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED TO THE GRADUATE COUNCIL
OF THE UNIVERSITY OF TENNESSEE.

DESCRIPTORS: (*JET PLANE NOISE, LAW); (*LAW, JET PLANE
NOISE), SONIC BOOM, AIRPORTS, MILITARY FACILITIES,
UNITED STATES GOVERNMENT, AIRCRAFT NOISE, LOW ALTITUDE,
FLIGHT, MILITARY LAW (U)

THE STUDY DISCUSSES THE NATURE OF THE AIRCRAFT
NOISE PROBLEM, ANALYZES COURT CASES INVOLVING JET
NOISE AROUND AIRPORTS AND MILITARY BASES, AND
IDENTIFIES THE FACTORS SIGNIFICANT IN DETERMINING
WHETHER NOISE CONSTITUTES A COMPENSABLE DAMAGE. IN
THE 1946 'UNITED STATES V. CAUSBY' CASE, THE
U. S. WAS HELD LIABLE FOR THE NOISE OF ARMY
PLANES THAT INTERFERED SERIOUSLY WITH THE OPERATION
OF CAUSBY'S CHICKEN FARM. IN THE 1962 'GRIGGS
V. ALLEGHENY COUNTY' CASE, THE SUPREME COURT
HELD THE MUNICIPALITY OPERATING THE GREATER
PITTSBURG AIRPORT LIABLE FOR AIRCRAFT NOISE,
SAYING THE COUNTY SHOULD HAVE CONDEMNED ENOUGH
PROPERTY TO PREVENT AIRCRAFT OPERATIONS FROM
INTERFERING WITH ADJACENT LANDOWNERS. THE
CONTENTION IS MADE THAT (1) HIGHER COURTS SHOULD
INSIST ON MORE CONSISTENT INTERPRETATION OF THE
CRITERIA USED TO DETERMINE WHEN AN EASEMENT HAS BEEN
TAKEN, ALTITUDE ALONE BEING A LESS IMPORTANT FACTOR
THAN OTHERS, (2) INTENSITY AND FREQUENCY OF NOISE
AND THE USE MADE OF THE PROPERTY IS MORE IMPORTANT
THAN A LINE MARKING THE PROPERTY BOUNDARY, (3)
RIGID REQUIREMENTS SHOULD BE SET TO INSURE ADEQUATE
SPACE FOR NEW AIRPORTS, (4) SOLVING THE NOISE
PROBLEM AT EXISTING AIRPORTS SHOULD BE A COOPERATIVE
EFFORT, AND (5) DETERMINATION OF COMPENSABLE
NOISE DAMAGE SHOULD BE MADE BY COURTS WITH
CONSIDERATION MORE FOR DEGREE OF DISTURBANCE THAN FOR
PROPERTY BOUNDARIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 624 050 1/2 20/1
SUPERSONIC TRANSPORT DEVELOPMENT FEDERAL AVIATION AGENCY
WASHINGTON D C

SONIC BOOM RESEARCH AND DESIGN CONSIDERATIONS IN THE
DEVELOPMENT OF A COMMERCIAL SUPERSONIC TRANSPORT
(SST), (U)

NOV 65 32P HIGGINS, THOMAS H. I
REPT. NO. FAA-SST-65-19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE MEETING OF THE
ACOUSTICAL SOCIETY OF AMERICA (70TH), ST. LOUIS,
MO.

DESCRIPTORS: (*SONIC BOOM, COMMERCIAL PLANES),
(*SUPERSONIC AIRCRAFT, TRANSPORT AIRCRAFT), (*TRANSPORT,
SUPERSONIC AIRCRAFT), (*COMMERCIAL PLANES, SONIC BOOM),
AIRCRAFT NOISE, TOLERANCES (PHYSIOLOGY),
REACTION (PSYCHOLOGY), PUBLIC OPINION, STRUCTURES,
DAMAGE, SCIENTIFIC RESEARCH, OKLAHOMA, NEW MEXICO,
ACOUSTICS; AERONAUTICS (U)

THIS PAPER PRESENTS A SHORT HISTORY OF SONIC BOOM
RESEARCH AND RELATED OPERATIONAL CONSIDERATIONS IN
THE DEVELOPMENT OF A COMMERCIAL SUPERSONIC TRANSPORT
(SST). THE MOST INTENSIVE PUBLIC REACTION RESEARCH
PROGRAM TO DATE WAS CONDUCTED AT OKLAHOMA CITY,
OKLAHOMA. AN INTENSIVE RESEARCH PROGRAM TO
DETERMINE STRUCTURAL REACTION TO SONIC BOOMS WAS
CONDUCTED AT THE WHITE SANDS MISSILE RANGE.
THESE TWO PROGRAMS ARE DISCUSSED AND A BRIEF
SUMMARY OF THE FINDINGS OF THE PROGRAMS IS PRESENTED.
THE PAPER CONCLUDES THAT ALTHOUGH MUCH HAS BEEN
LEARNED ABOUT THE SONIC BOOM PHENOMENA THROUGH PAST
FLIGHT AND RESEARCH ACTIVITIES, ADDITIONAL RESEARCH
AND THEORETICAL STUDIES ARE WARRANTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 625 332 1/3 20/1 5/10 13/13
NATIONAL OPINION RESEARCH CENTER NEW YORK

COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA
CITY AREA. VOLUME II. DATA ON COMMUNITY REACTIONS
AND INTERPRETATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT., APR 63-FEB 65,
OCT 65 315P BORSKY, PAUL N. ;
REPT. NO. 101-PT-2
CONTRACT: AF33(657)-11148
PROJ: 7231
TASK: 723103
MONITOR: AMRL , TR-65-37-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SONIC BOOM, PUBLIC OPINION),
ATTITUDES(PSYCHOLOGY), POPULATION, URBAN AREAS, DAMAGE,
STRUCTURES, REACTION(PSYCHOLOGY), NOISE, SUPERSONIC
AIRCRAFT, COMMERCIAL PLANES, OKLAHOMA, TABLES(DATA) (U)

DURING A PERIOD OF SIX MONTHS FROM FEBRUARY TO
JULY 1964, THE OKLAHOMA CITY, OKLAHOMA, AREA
WAS REPEATEDLY EXPOSED TO SONIC BOOMS GENERATED TO
SIMULATE OVERPRESSURE LEVELS THAT ARE EXPECTED FOR
SUPERSONIC TRANSPORT OVERFLIGHTS. THE SCHEDULE
PROVIDED FOR EIGHT SONIC BOOMS PER DAY. DURING THE
SIX-MONTH PERIOD, ALMOST 3,000 LOCAL RESIDENTS WERE
INTERVIEWED THREE TIMES TO DETERMINE THE NATURE AND
EXTENT OF THEIR REACTIONS TO THE SONIC BOOMS. THIS
REPORT CONTAINS A DETAILED DESCRIPTION OF THE OVERALL
STUDY DESIGN INCLUDING THE SELECTION OF HOUSEHOLDS,
SELECTION OF RESPONDENTS, TRAINING AND SELECTION OF
INTERVIEWERS AND SAMPLES OF QUESTIONNAIRES USED
DURING THE INTERVIEWS. AMONG THE FINDINGS IT WAS
DETERMINED THAT ORDINARY LIVING ACTIVITIES WERE OFTEN
INTERRUPTED BY SONIC BOOMS, BUT THAT A MAJORITY OF
THE RESIDENTS FELT THEY COULD LEARN TO LIVE WITH THE
INTERRUPTIONS. A SUBSTANTIAL NUMBER OF RESIDENTS
FELT THEY HAD SUSTAINED DAMAGES FROM THE BOOMS,
ALTHOUGH DETAILED ENGINEERING OBSERVATIONS OF
STRUCTURES IN THE AREA DID NOT CONFIRM MOST OF THESE
REPORTS. AS THE INTENSITY OF THE BOOMS INCREASED,
ACCEPTANCE OF THE BOOMS BY RESIDENTS WAS REDUCED.
RESIDENTS WHO FELT THAT THE DEVELOPMENT OF A
COMMERCIAL SUPERSONIC AIRPLANE WAS IMPORTANT WERE
MORE LIKELY TO ACCEPT THE EXPOSURES TO THE SONIC
BOOMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 628 175 6/10
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

ON NOISE AND VIBRATION EXPOSURE CRITERIA, (U)

APR 65 17P VON GIERKE, HENNING E. ;
REPT. NO. AMRL-TR-65-84,
PROJ: AF-7231,
TASK: 723101.

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN ARCHIVES OF
ENVIRONMENTAL HEALTH VII P327-39 SEP 1965. COPIES
TO DDC USERS ONLY.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NOISE, TOLERANCES(PHYSIOLOGY)),
(*VIBRATION, TOLERANCES(PHYSIOLOGY)), SONIC BOOM,
PERFORMANCE(HUMAN), INDUSTRIAL MEDICINE, STANDARDS,
SUPERSONIC AIRCRAFT, STRESS(PHYSIOLOGY) (U)

REPRINT: ON NOISE AND VIBRATION EXPOSURE CRITERIA.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 637 563 1/3 20/1 5/10
NATIONAL OPINION RESEARCH CENTER NEW YORK

COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA
CITY AREA. VOLUME III. QUESTIONNAIRES. APPENDIX TO
VOLUME II. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 63-FEB 65.
MAR 66 60P BORSKY, PAUL N. I
CONTRACT: AF 33(657)-11148,
PROJ: AF-7231,
TASK: 723103,
MONITOR: AMRL TR-65-37-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-625 332.

DESCRIPTORS: (*SONIC BOOM, PUBLIC OPINION),
REACTION(PSYCHOLOGY), NOISE, SOUND, PRESSURE, SUPERSONIC
AIRCRAFT, OKLAHOMA (U)

THE APPENDIX CONTAINS SAMPLES OF QUESTIONNAIRES
USED DURING THE INTERVIEWS THAT TOOK PLACE FROM
FEBRUARY TO JULY 1964 IN THE OKLAHOMA CITY,
OKLAHOMA, AREA. THAT AREA WAS REPEATEDLY EXPOSED
TO SONIC BOOMS GENERATED TO SIMULATE OVERPRESSURE
LEVELS THAT ARE EXPECTED FOR SUPERSONIC TRANSPORT
OVERFLIGHTS. THE SCHEDULE PROVIDED FOR EIGHT SONIC
BOOMS PER DAY. DURING THE 6-MONTH PERIOD, ALMOST
3,000 LOCAL RESIDENTS WERE INTERVIEWED THREE TIMES TO
DETERMINE THE NATURE AND EXTENT OF THEIR REACTIONS TO
THE SONIC BOOMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 641 352 6/19 5/10 20/1
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

EFFECTS OF SONIC BOOM ON PEOPLE: REVIEW AND OUTLOOK.
(U)

NOV 65 12P VON GIERKE, HENNING E. ;
REPT. NO. AMRL-TR-65-195
PROJ: AF-7231
TASK: 723103

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN JOURNAL OF ACOUSTICAL
SOCIETY OF AMERICA V39 N5 PT2 P543-50 MAY 1966.

DESCRIPTORS: (*SONIC BOOM, TOLERANCES(PHYSIOLOGY)),
(*PSYCHOACOUSTICS, SONIC BOOM), STRESS(PHYSIOLOGY),
STRESS(PSYCHOLOGY), PRESSURE, NOISE,
THRESHOLDS(PHYSIOLOGY), VIBRATION, SOCIAL PSYCHOLOGY,
REVIEWS, SYMPOSIA (U)

THE REPORT REVIEWS THE HISTORY OF OBSERVATIONS ON
HUMAN REACTIONS TO THE SONIC BOOM FROM THE TIME WHEN
THE BOOM WAS A DEMONSTRATION CURIOSITY TO THE PRESENT
DAY WHERE REACTION OF THE POPULATION TO THE SONIC
BOOM IS A SCIENTIFIC PROBLEM OF TECHNICAL, ECONOMIC,
SOCIAL, AND POLITICAL CONSEQUENCES AT THE NATIONAL
AND INTERNATIONAL LEVEL. THE FIELD PROGRAMS
CONDUCTED BY THE USAF AND NASA OVER THE LAST 15
YEARS AND OVER THE LAST 5 YEARS BY THE FAA WERE ALL
OF LIMITED SCOPE WITH RESPECT TO EXPLORING DIRECT AND
INDIRECT PHYSIOLOGICAL AND PSYCHOLOGICAL HUMAN
REACTIONS TO SONIC BOOMS OF DIFFERENT INTENSITY AND
EXPOSURE FREQUENCY. ALTHOUGH THE DATA ACCUMULATED
MIGHT BE ADEQUATE TO DECIDE ON PRELIMINARY STOPGAP
EXPOSURE CRITERIA, IT IS OBVIOUS THAT A BROADER
APPROACH TO THE PROBLEM IS REQUIRED. LABORATORY
WORK IN SUPPORT OF THESE QUESTIONS HAS HARDLY BEEN
STARTED. NEITHER CONVENTIONAL ACOUSTIC AND
VIBRATION GENERATORS FOR BOOM-TYPE STIMULATION NOR
SPECIAL EQUIPMENT FOR HIGH-FIDELITY SONIC-BOOM
SIMULATION HAVE BEEN FULLY UTILIZED. SOME OF THE
OPEN QUESTIONS AND POSSIBLE APPROACHES ARE DISCUSSED
AS PART OF A BROAD, LONG-RANGE RESEARCH PROGRAM
REQUIRED TO COME UP WITH SCIENTIFIC DATA AS BASES FOR
OPERATIONAL SONIC-BOOM EXPOSURE CRITERIA.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 646 028 1/3 20/1
BOEING CO RENTON WASH AIRPLANE DIV

EFFECT OF SONIC BOOM ON SUPERSONIC TRANSPORT DESIGN
AND PERFORMANCE, (U)

FEB 64 17P KANE, EDWARD J. ISIGALLA,
ARMAND I
REPT. NO. D6-8614

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: CONFERENCE ON APPLIED METEOROLOGY
OF THE AMERICAN METEOROLOGICAL SOCIETY; ATMOSPHERIC
PROBLEMS OF AEROSPACE VEHICLES (5TH), MARCH 2-6,
1964, ATLANTIC CITY, NEW JERSEY.

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, DESIGN), (*TRANSPORT
AIRCRAFT, DESIGN), (*SONIC BOOM, CONTROL),
CONFIGURATION, PERFORMANCE(ENGINEERING), PRESSURE, LIFT,
ATMOSPHERES, FLIGHT PATHS (U)

THE PAPER DISCUSSES THE EFFECT OF SONIC BOOM
OVERPRESSURE LIMITS ON THE DESIGN AND PERFORMANCE OF
A SUPERSONIC TRANSPORT. POSSIBLE METHODS OF
REDUCING THE SONIC BOOM BY CONFIGURATION TAILORING
AND THE EFFECT OF THIS ON PERFORMANCE ARE DESCRIBED.
THE SONIC BOOM OVERPRESSURE PRODUCED BY AN AIRPLANE
IS INFLUENCED BY CONTRIBUTIONS OF THE VOLUME AND LIFT
OF THE CONFIGURATION, THE STRUCTURE OF THE
ATMOSPHERE, AND THE FLIGHT PATH OF THE AIRPLANE.
ESTABLISHMENT OF MAXIMUM OVERPRESSURE LEVELS MAY
IMPOSE SERIOUS DESIGN AND OPERATION RESTRICTIONS ON
THE AIRPLANE, RESULTING IN A COMPROMISED
CONFIGURATION WHICH DOES NOT OPERATE EFFICIENTLY.
IT IS POSSIBLE TO CONTROL THE SHOCK WAVE STRENGTH
BY CAREFUL DESIGN OF THE CONFIGURATION SO AS TO
EMPLOY FAVORABLE INTERACTIONS BETWEEN THE LIFT AND
VOLUME CONTRIBUTIONS. HOWEVER, CARE MUST BE TAKEN
NOT TO COMPROMISE OTHER DESIGN FEATURES OF THE
AIRPLANE, SUCH AS ITS DRAG, IN ORDER TO OBTAIN LOWER
SONIC BOOM OVERPRESSURES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 646 676 1/3 20/1 1/2
DEPUTY CHIEF OF STAFF RESEARCH AND DEVELOPMENT (AIR FORCE)
WASHINGTON D C

THE SONIC BOOM PROBLEM.

(U)

DESCRIPTIVE NOTE: DEVELOPMENT PLANNING MEMO.
MAR 63 32P

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, STATE-OF-THE-ART REVIEWS),
(*SUPERSONIC AIRCRAFT, DESIGN), (*TRANSPORT AIRCRAFT,
DESIGN), (*CIVIL AVIATION, SONIC BOOM), FLIGHT TESTING,
LIFT, PUBLIC OPINION, PROPAGATION, SUPERSONIC FLIGHT (U)

THE MEMO SUMMARIZES THE CURRENT STATE OF KNOWLEDGE
RELATING TO SONIC BOOM GENERATION, PROPAGATION, AND
EFFECTS, AND ATTEMPTS TO JUDGE THE SEVERITY OF THE
PROBLEM THAT WILL ARISE WITH THE BEGINNING OF
COMMERCIAL SUPERSONIC FLIGHTS. IT IS BASED ON BOTH
RECENTLY PUBLISHED INFORMATION AND CONVERSATIONS WITH
SPECIALISTS THROUGHOUT THE COUNTRY WHO ARE WORKING IN
THE SONIC BOOM FIELD. THE LATTER INCLUDE
REPRESENTATIVES OF PRIVATE INDUSTRY AS WELL AS OF
GOVERNMENT AGENCIES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 647 326 20/1
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

EFFECTS OF SONIC BOOM ON PEOPLE: ST. LOUIS,
MISSOURI, 1961-1962. (U)

NOV 65 12P NIXON, CHARLES W. IBORSKY,
PAUL N. I
REPT. NO. AMRL-TR-65-196
PROJ: AF-7231
TASK: 723102

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN JOURNAL OF THE
ACOUSTICAL SOCIETY OF AMERICA V39 N5 PT2 PSS1-8
MAY 1966. PREPARED IN COOPERATION WITH CHICAGO
UNIV., ILL. NATIONAL OPINION RESEARCH CENTER.
SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY NASA
CONTRACT NAS1-1397.

DESCRIPTORS: (*SONIC BOOM, MEDICAL RESEARCH), (*PUBLIC
OPINION, SONIC BOOM), HUMANS, NOISE, SUPERSONIC FLIGHT,
SUPERSONIC AIRCRAFT, ACOUSTICS, DAMAGE, SOUND
TRANSMISSION (U)

THE VICINITY OF ST. LOUIS, MISSOURI, WAS
EXPOSED TO APPROXIMATELY 150 SONIC BOOMS DURING A 10-
MONTH PERIOD FROM JULY 1961 TO APRIL 1962.
GROUND OVERPRESSURES, RANGING UP TO ABOUT 3 LB/SQ
FT, WERE CAREFULLY MEASURED FOR A SERIES OF 17 OF THE
SUPERSONIC FLIGHTS. DATA OBTAINED FROM OVER 2300
DIRECT INTERVIEWS, ANALYSES OF COMPLAINTS, AND
ENGINEERING EVALUATIONS OF ALLEGED DAMAGE WERE
RELATED TO INFORMATION ON AIRCRAFT OPERATIONS AND
SONIC-BOOM OVERPRESSURE MEASUREMENTS. MOST
RESIDENTS INTERVIEWED INDICATED SOME INTERFERENCE
WITH ROUTINE LIVING ACTIVITIES, YET LESS THAN 1%
FILED FORMAL COMPLAINTS. ALLEGED BUILDING DAMAGE
WAS SUPERFICIAL IN NATURE AND CONSISTED MOSTLY OF
CRACKS IN BRITTLE SURFACES. THERE WERE NO REPORTS
OF DIRECT ADVERSE PHYSIOLOGICAL EFFECTS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 647 513 20/1 14/2 1/2 19/1
EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT WALTHAM
ABBAY (ENGLAND)

SONIC BANG SIMULATION BY A NEW EXPLOSIVES TECHNIQUE. (U)

DEC 66 7P HAWKINS, S. J. THICKS, J.
A. I
REPT. NO. ERDE-OFFPRINT-66/13

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN NATURE V211 NB055
P1244-5 SEP 17 1966.

DESCRIPTORS: (*SONIC BOOM, SIMULATION), (*EXPLOSIVE
CHARGES, GEOMETRIC FORMS), SUPERSONIC FLIGHT, SHOCK
WAVES, ACOUSTICS, MECHANICAL WAVES, GREAT BRITAIN (U)

A STUDY OF THE FEASIBILITY OF USING EXPLOSIVES TO
SIMULATE THE PRESSURE WAVEFORMS GENERATED AT GROUND
LEVEL BY SUPERSONIC OVERFLIGHTS LED TO THE
REALIZATION THAT IT IS POSSIBLE TO SIMULATE WAVEFORMS
OF A WIDE RANGE OF SHAPES AND DURATIONS USING
EXTENDED EXPLOSIVE CHARGES HAVING A HIGH LENGTH/
BREADTH RATIO. THE REPORT DESCRIBES PRELIMINARY
RESULTS OBTAINED FROM USING THESE CHARGES IN SONIC
BOOM SIMULATION STUDIES, AND INDICATES A NUMBER OF
OTHER APPLICATIONS IN WHICH SUCH TECHNIQUES SHOW
PROMISE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 648 264 20/14 20/1 17/9
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

PRELIMINARY EXPERIMENTAL STUDY OF EMAC PROBE USING
ACOUSTIC SHOCK WAVES AS REFLECTING SURFACES. (U)

DESCRIPTIVE NOTE: FINAL REPT., NOV 63-JAN 65,
NOV 65 66P ALLEN, CLAYTON H. WEINER,
STEVEN D. ;
REPT. NO: 3BN-1228
CONTRACT: AF 19(628)-4013
PROJ: AF-6672
TASK: 667205

UNCLASSIFIED REPORT

DESCRIPTORS: (•ELECTROMAGNETIC RADIATION, •ACOUSTICS),
DOPPLER RADAR, METEOROLOGICAL RADAR, COHERENT RADAR,
SONIC BOOM, RADAR CLUTTER, SIGNALS, SHOCK WAVES,
FEASIBILITY STUDIES, RADAR REFLECTIONS (U)

PRELIMINARY EXPERIMENTS HAVE BEEN MADE IN AN
ATTEMPT TO DEMONSTRATE THE FEASIBILITY OF REFLECTING
RADAR FROM AN ACOUSTIC SHOCK WAVE. TESTS WERE
CONDUCTED USING UHF RADAR (71.5 CM WAVELENGTH)
TO VIEW SONIC BOOM SHOCK WAVES. HOWEVER, GROUND
CLUTTER RAISED THE EFFECTIVE NOISE LEVEL AND
ATMOSPHERIC TURBULENCE MAY HAVE ROUGHENED THE SHOCK
FRONT ENOUGH TO DECREASE THE RETURNED SIGNAL LEVEL
SIGNIFICANTLY; AS A RESULT, NO INDICATION OF A RETURN
IDENTIFIABLE WITH THE SONIC BOOM SHOCK FRONT WAS
OBSERVED. IT IS CONCLUDED THAT THE USE OF
DOPPLER TECHNIQUES TO ELIMINATE CLUTTER AND THE USE
OF COHERENT INTEGRATION TO INCREASE THE EFFECTIVE
SIGNAL LEVEL ARE NECESSARY FOR THE SUCCESS OF THIS
EMAC PROBE TECHNIQUE. BRIEF THEORETICAL AND
EXPERIMENTAL STUDIES OF SHOCK WAVE SOURCES WERE
CONDUCTED. PROPOSALS ARE PRESENTED FOR FURTHER
DEFINITIVE EXPERIMENTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 651 857 14/2 20/1
ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)

PROPOSAL FOR A SHOCK-TUBE FACILITY TO SIMULATE SONIC
BANGS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 66 19P WARREN, C. H. E. 1
REPT. NO. TR-66344

UNCLASSIFIED REPORT

DESCRIPTORS: (*SHOCK TUBES, SONIC BOOM), (*SONIC BOOM,
SIMULATION), SUPERSONIC FLIGHT, DESIGN, AIRCRAFT, SOUND
TRANSMISSION, GREAT BRITAIN (U)

THE REPORT PROPOSES THE USE OF A SHOCK-TUBE
FACILITY TO SIMULATE SONIC BANGS FOR THE STUDY OF
THEIR EFFECTS. THE BASIC PHILOSOPHY OF SUCH A
FACILITY IS PROPOUNDED FROM THEORETICAL
CONSIDERATIONS, SUBSTANTIATED BY SOME PILOT
EXPERIMENTAL STUDIES. IT IS SUGGESTED THAT A
DETAILED DESIGN OF A FACILITY BASED ON THE PROPOSALS
SHOULD NOW BE MADE. THIS WILL REQUIRE THE SOLUTION
OF A NUMBER OF TECHNICAL PROBLEMS, WHICH ARE LISTED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 651 899 20/1 4/2 4/1
BUREAU OF NAVAL WEAPONS WASHINGTON D C WEAPON SYSTEMS
ANALYSIS DIV

WEATHER ASPECTS OF THE SONIC BOOM, (U)

MAY 60 61P FISHER, DAVID ;
REPT. NO. RRSY-60-24

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, METEOROLOGICAL PHENOMENA),
(*SOUND TRANSMISSION, METEOROLOGICAL PHENOMENA), MACH
NUMBER, JET STREAMS, SHOCK WAVES, AIRCRAFT NOISE, WIND,
ATMOSPHERIC TEMPERATURE, ATMOSPHERE MODELS (U)

AN EXPLANATION OF THE EFFECT OF METEOROLOGICAL
CONDITIONS ON THE PATH OF THE SONIC BOOM IS
PRESENTED. AREAS COVERED BY SONIC BOOMS RESULTING
FROM AIRCRAFT FLYING AT VARIOUS MACH NUMBERS AND
DIVE ANGLES ARE SHOWN, TAKING STANDARD ATMOSPHERIC
GRADIENTS INTO ACCOUNT. CALCULATIONS ARE GIVEN FOR
THE EFFECT OF THE JET STREAM AS WELL AS ORDINARY
WINDS ON THE SONIC BOOM. (AUTHOR) (U)

UNCLASSIFIED

/ZOM09

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 651 907 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

AVIATION MEDICINE TRANSLATIONS: ANNOTATED
BIBLIOGRAPHY OF RECENTLY TRANSLATED MATERIAL. IV, (U)

JAN 66 15P ALLEN, MARY ELLEN ; CRAIN,
RUTH ANN ;
MONITOR: FAA-AM 66-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*AVIATION MEDICINE, BIBLIOGRAPHIES),
ABSTRACTS, VERTIGO, NYSTAGMUS, HYPOXIA, VISION, HIGH
ALTITUDE, DRUGS, HEARING, DECOMPRESSION, VESTIBULAR
APPARATUS, BLACKOUT(PHYSIOLOGY), HUMAN FACTORS
ENGINEERING, PROPRIOCEPTION, SONIC BOOM, ACCELERATION
TOLERANCE, SPACE PERCEPTION, STRESS(PHYSIOLOGY) (U)

AN ANNOTATED BIBLIOGRAPHY OF TRANSLATIONS OF
FOREIGN-LANGUAGE ARTICLES IS PRESENTED. THE 25
LISTED ENTRIES ARE CONCERNED WITH STUDIES IN AVIATION
MEDICINE, VERTIGO AND NYSTAGMUS, PHYSICAL SCIENCE,
HYPOXIA, VISION, ALTITUDE, DRUGS, BINAURAL HEARING,
TIME SHIFTS, GRAVITY EFFECTS, PERCEPTION,
DECOMPRESSION, AND SONIC BOOM. PROCEDURES FOR
OBTAINING COPIES OF THE TRANSLATIONS ARE INCLUDED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 655 310 1/2 5/10 5/5 13/13
20/1

STANFORD RESEARCH INST MENLO PARK CALIF

SONIC BOOM EXPERIMENTS AT EDWARDS AIR FORCE
BASE.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.

JUL 67 410P

CONTRACT: AF 49(638)-1758

PROJ: SRI-ETU-6065

MONITOR: NSBEO 1-67

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, RESPONSE),
(*REACTION(PSYCHOLOGY), SONIC BOOM), (*STRUCTURES, SONIC
BOOM), ANIMALS, HUMANS, SUPERSONIC AIRCRAFT, AIRCRAFT
NOISE, PROPAGATION, DAMAGE, ACCEPTABILITY, TESTS,
SEISMOLOGY (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

A SERIES OF TESTS WAS CONDUCTED IN WHICH HUMAN
SUBJECTS (LOCATED INDOORS AND OUTDOORS), SPECIAL
TEST STRUCTURES, AND ANIMALS WERE EXPOSED TO BOOMS
FROM F-104, F-106, B-58, SR-71, AND XB-70
SUPERSONIC AIRCRAFT, AND THE NOISE FROM KC-135 AND
WC-135B SUBSONIC AIRCRAFT. PHYSICAL
MEASUREMENTS WERE MADE OF THE SONIC BOOM SIGNATURES,
SUBSONIC AIRCRAFT NOISE, AND THE RESPONSE OF
STRUCTURES TO THE BOOMS AND NOISE. PSYCHOLOGICAL
MEASUREMENTS WERE MADE OF THE SUBJECTIVE
ACCEPTABILITY TO SEVERAL HUNDRED SUBJECTS OF THE
BOOMS AND SUBSONIC AIRCRAFT NOISE. DETAILS OF THE
TEST PLAN AND PROCEDURES, AND THE RESULTS OF THE DATA
ANALYZED TO DATE ARE PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 655 603 1/3 14/1 5/3
DEPARTMENT OF COMMERCE WASHINGTON D C

SST AN ECONOMIC ANALYSIS. PART 1. EXECUTIVE SUMMARY, (U)

MAR 65 170P CONNOR, JOHN T. I

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-655 604 AND AD-655 605.

DESCRIPTORS: (*SUPersonic AIRCRAFT, ECONOMICS),
(*TRANSPORT AIRCRAFT, ECONOMICS), FEASIBILITY STUDIES,
DECISION MAKING, DESIGN, COSTS, AIR TRANSPORTATION,
SONIC BOOM, SPECIFICATIONS, AIRCRAFT INDUSTRY, COST
EFFECTIVENESS, ANALYSIS (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

CONTENTS: AUTHORITY FOR STUDY; STATEMENT OF
THE PROBLEM; POLICY ISSUES; PRICE, COMPETITION,
AND RISK-SHARING; AIRCRAFT CONSIDERED; SUMMARY OF
RESULTS AND POLICY CONSIDERATIONS; STUDY APPROACH;
AIRCRAFT DESCRIPTIONS; ESTIMATING MARKETS FOR AIR
TRANSPORT AND AIRCRAFT; RANKING OF PROGRAM
ALTERNATIVES; ECONOMIC SIGNIFICANCE OF SONIC BOOM;
SST PROGRAM FINANCING; BALANCE OF PAYMENTS
EFFECTS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 655 604 1/3 14/1 5/3
DEPARTMENT OF COMMERCE WASHINGTON D C

SST AN ECONOMIC ANALYSIS. PART I. EXECUTIVE
SUMMARY, PRELIMINARY SUPPLEMENT I,

(U)

APR 65 90P CONNOR, JOHN T. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-655 603.

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, ECONOMICS),
(*TRANSPORT AIRCRAFT, ECONOMICS), FEASIBILITY STUDIES,
SONIC BOOM, COST EFFECTIVENESS, MANAGEMENT PLANNING AND
CONTROL, ANALYSIS, COSTS, AIRCRAFT INDUSTRY (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

CONTENTS: PURPOSE AND SCOPE; PROGRAM
ALTERNATIVES; PROSPECTUS (CONTINUATION OF THE
SST PROGRAM, TERMINATION OF THE SST PROGRAM);
COST-BENEFIT ANALYSIS (PROGRAM RANKING, POLICY
ISSUES, SENSITIVITY ANALYSIS, COMPARATIVE CASH
FLOWS).

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMD9

AD- 655 608 1/3 14/1 5/3
INSTITUTE FOR DEFENSE ANALYSES ARLINGTON VA ECONOMIC AND
POLITICAL STUDIES DIV

SST AN ECONOMIC ANALYSIS. PART III. CONTRACTOR'S
REPORTS. C. SONIC BOOM. (U)

DESCRIPTIVE NOTE: SPECIAL REPT.,
DEC 64 150P ASHER, NORMAN J. IDZIUBAN,
STANLEY W. HAMBURGER, WILLIAM J

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-655 607.

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, ECONOMICS),
(*TRANSPORT AIRCRAFT, ECONOMICS), SONIC BOOM, DAMAGE,
COSTS, ANALYSIS, BUILDINGS, MATHEMATICAL MODELS, COST
EFFECTIVENESS (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

THE PURPOSE OF THE STUDY IS TO ESTIMATE CLAIMS
COSTS RESULTING FROM THE SONIC BOOM OF THE SST, AND
TO EXAMINE TRADEOFFS BETWEEN THESE COSTS AND AIRCRAFT
OPERATING COSTS FOR VARIOUS OPERATING PROCEDURES
DESIGNED TO REDUCE CLAIMS COSTS. CLAIMS FOR DAMAGE
TO GROUND STRUCTURES COMPRISE BY FAR THE LARGEST
CATEGORY OF CLAIMS. BASED ON THE OKLAHOMA CITY
DATA, THE MAJOR ITEM OF COST WAS ADMINISTRATIVE
HANDLING OF THE CLAIMS. ACTUAL PAYMENTS FOR
ALLEGED DAMAGES WERE SMALL. THE OKLAHOMA CITY
CLAIMS DATA ARE REPRESENTATIVE OF THE SITUATION THAT
MAY EXIST IN THE US AND CANADA DURING THE SST
OPERATIONS. HOWEVER, THEY ARE ALMOST CERTAINLY NOT
REPRESENTATIVE OF THE SITUATION THAT WILL BE FOUND IN
OTHER AREAS OF THE WORLD. SST OPERATIONS SHOULD
NOT DAMAGE THE BASIC STRUCTURE OF REASONABLY WELL-
CONSTRUCTED BUILDINGS. IT IS NOT CLEAR THAT AN
AIRLINE (OR THE FEDERAL GOVERNMENT, FOR THAT
MATTER) WOULD BE LIABLE FOR SONIC BOOM DAMAGE
RESULTING FROM THE OPERATION OF A COMMERCIAL
TRANSPORT, FLOWN IN ACCORDANCE WITH FLIGHT RULES AND
PROCEDURES PRESCRIBED BY THE FEDERAL GOVERNMENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY. SEARCH CONTROL NO. /ZOM09

AD- 661 840 20/1 1/3
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C

THE SUPERSONIC TRANSPORT: THE SONIC BOOM AND YOU,

(U)

67 40P POWERS, JOHN O. (POWER,
KENNETH ;

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, SONIC BOOM),
(*TRANSPORT AIRCRAFT, SONIC BOOM), (*SONIC BOOM,
REVIEWS), ECONOMICS, FLIGHT TESTING, DESIGN, STRUCTURES,
STRESS(PHYSIOLOGY), STRESS(PSYCHOLOGY) (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

AN ATTEMPT WAS MADE TO OUTLINE THE HISTORICAL
DEVELOPMENT OF THE UNITED STATES SUPERSONIC
TRANSPORT DEVELOPMENT PROGRAM AND TO PLACE IN PROPER
PERSPECTIVE THE NATIONAL SIGNIFICANCE OF THE SST
PROGRAM. THE TECHNOLOGICAL ASPECTS AND PROBLEMS OF
THE SONIC BOOM WERE REVIEWED. THE ACTUAL
OVERFLIGHT SONIC BOOM PROGRAMS TO DATE WERE REVIEWED
AND CAPSULE RESULTS WERE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 662 003 13/13 20/1 1/2
BLUME (JOHN A) AND ASSOCIATES SAN FRANCISCO CALIF RESEARCH
DIV

RESPONSE OF STRUCTURES TO SONIC BOOMS PRODUCED BY XB-
70, B-58 AND F-104 AIRCRAFT, BASED ON SONIC BOOM
EXPERIMENTS AT EDWARDS AIR FORCE BASE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 67 378P BLUME, JOHN A. ISHARPE,
ROLAND L. IKOST, GARRISON IPROULX, JACQUES I
CONTRACT: AF 49(638)-1739
MONITOR: NSBEO 2-67

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, LOADS(FORCES)), (*STRUCTURES,
DAMAGE), (*SUPERSONIC AIRCRAFT, SONIC BOOM), TESTS,
BOMBER AIRCRAFT, FIGHTER AIRCRAFT, BUILDINGS, RESPONSE,
DEFORMATION (U)
IDENTIFIERS: B-58 AIRCRAFT, B-70 AIRCRAFT, F-104
AIRCRAFT (U)

THE RESPONSE OF TEST STRUCTURES AND STRUCTURE
ELEMENTS TO SONIC BOOMS PRODUCED BY XB-70, B-58
AND F-104 AIRCRAFT WAS STUDIED. THESE AIRCRAFT
PRODUCED SONIC BOOMS OF DIFFERENT SIGNATURE
DURATIONS. THEY WERE FLOWN AT SEVERAL FLIGHT TRACK
OFFSETS, ALTITUDES AND MACH NUMBERS SO AS TO
GENERATE DIFFERENT OVERPRESSURE LEVELS AND SIGNATURE
CHARACTERISTICS. FREE FIELD SIGNATURE DATA AND THE
EFFECTS OF FREE FIELD SIGNATURE PARAMETERS ON
STRUCTURAL RESPONSE WERE ANALYSED. STUDIES WERE
MADE OF THE PLATE RESPONSE (LATERAL DEFORMATION)
AND RACKING RESPONSE (IN-PLANE DEFORMATION) OF
THE TEST STRUCTURES. DAMAGE COMPLAINTS RESULTING
FROM THE TEST MISSIONS WERE INVESTIGATED AND THE
RESULTS ANALYSED. THE IMPLICATIONS OF THE
MAGNITUDES OF THE RESPONSES OF THE TEST STRUCTURES
AND THE INVESTIGATION OF THE DAMAGE CLAIMS RESULTING
FROM THE TEST MISSIONS ON POSSIBLE DAMAGE CAUSED BY
SUPERSONIC FLIGHTS WERE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 662 893 13/13 20/1
DATACRAFT INC GARDENA CALIF

THEORETICAL STUDY OF STRUCTURAL RESPONSE TO NEAR-
FIELD AND FAR-FIELD SONIC BOOMS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JUL-30 SEP 66,
OCT 66 201P WIGGINS, JOHN H. , JR.;
KENNEDY, BRUCE ;
REPT. NO. 3407-8
CONTRACT: AF 49(638)-1777
PROJ: AF-7908

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *STRUCTURES), INTENSITY,
MECHANICAL WAVES, FIGHTER AIRCRAFT, BOMBER AIRCRAFT,
RESPONSE, THEORY, LOADS(FORCES), MODELS(SIMULATIONS) (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

THE STUDY INVESTIGATES THE DIFFERENCE BETWEEN NEAR-
FIELD AND FAR-FIELD SONIC BOOM INTENSITIES. TO DO
SO IT DEFINES A NEW INTENSITY STANDARD, EFFECTIVE
STATIC LOAD WHICH DEPENDS ON LOAD WAVEFORM AS WELL AS
MAGNITUDE. MANY SONIC BOOM LOADING WAVEFORMS ARE
COMPUTED FOR 19 STRUCTURAL ELEMENTS, OF VARIOUS
TYPES, PRODUCED BY TWO SST DESIGNS AS WELL AS F-
104, B-58 AND XB-70 AIRCRAFT. IT IS CONCLUDED
THAT NEAR-FIELD BOOMS ARE LESS INTENSE THAN FAR-FIELD
BOOMS, THE MAGNITUDE OF THE DIFFERENCE DEPENDING ON
THE CHARACTER OF THE WAVEFORM. THE MORE THE
WAVEFORM IS DISTORTED FROM A SYMMETRICAL FAR-FIELD
(N-WAVE) WAVESHAPE, THE LOWER THE NEAR-FIELD
INTENSITY. IT IS RECOMMENDED THAT FURTHER
THEORETICAL STUDY BE MADE IN ORDER TO QUANTIFY
RESULTS AND ISOLATE THE INFLUENCE OF SPECIFIC
PARAMETERS ON BOOM INTENSITY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 668 942 1/3 20/1 13/13 6/16
5/10

NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL
WASHINGTON D C

COMMITTEE ON SST-SONIC BOOM.

(U)

DESCRIPTIVE NOTE: STATUS REPT.

JAN 65 34P

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, *TRANSPORT
AIRCRAFT), (*SONIC BOOM, COMMERCIAL PLANES), JET
BOMBERS, STRATEGIC WEAPONS, SHOCK WAVES, STRUCTURES,
CONSTRUCTION MATERIALS, PHYSIOLOGY,
REACTION(PSYCHOLOGY), PSYCHOPHYSIOLOGY,
RESPONSE(BIOLOGY), ACCEPTABILITY

(U)

IDENTIFIERS: B-70 AIRCRAFT, B-58 AIRCRAFT, *SUPERSONIC
TRANSPORTS

(U)

FOUR MAJOR PROBLEM AREAS ARE DISCUSSED: (1)
GENERATION AND PROPAGATION OF SHOCK WAVES - THE
AERONAUTICAL ASPECTS OF THE PROBLEM; (2)
EFFECTS OF THE SONIC BOOM ON STRUCTURES AND
STRUCTURAL MATERIAL; (3) PHYSIOLOGICAL EFFECTS
OF THE SONIC BOOM; (4) BEHAVIORAL RESPONSE TO
THE SONIC BOOM. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 668 943 1/3 20/1 5/10 6/16
13/13

NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL
WASHINGTON D C

COMMITTEE ON SST-SONIC BOOM.

(U)

DESCRIPTIVE NOTE: STATUS REPT.
JUL 65 36P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
COLUMBIA UNIV., SCHOOL OF ENGINEERING AND APPLIED
SCIENCES, NEW YORK CITY, N. Y.

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, *TRANSPORT
AIRCRAFT), (*SONIC BOOM, *COMMERCIAL PLANES), DESIGN,
BUILDINGS, DAMAGE, PHYSIOLOGY, REACTION(PSYCHOLOGY),
SLEEP, PUBLIC OPINION, ACCEPTABILITY, PREDICTIONS,
ATTITUDES(PSYCHOLOGY), PSYCHOACOUSTICS, COSTS, LAW,
PROPAGATION, JET AIRCRAFT, SHOCK WAVES (U)
IDENTIFIERS: OVERPRESSURE, SUPERSONIC TRANSPORTS (U)

CONTENTS: GENERATION AND PROPAGATION OF SONIC
BOOMS - THE AERONAUTICAL ASPECTS OF THE SONIC BOOM
PROBLEM--STATE OF KNOWLEDGE, INFLUENCE UPON AIRPLANE
DESIGN, RESEARCH NEEDS; STRUCTURAL RESPONSE--STATE
OF KNOWLEDGE; PHYSIOLOGICAL EFFECTS--INDIRECT OR
TRIGGER EFFECTS, DISTURBANCE OF SLEEP;
PSYCHOLOGICAL RESPONSE--PUBLIC ACCEPTABILITY OF THE
SONIC BOOM (PRESENT STATUS OF KNOWLEDGE, FUTURE
TESTING), PSYCHOACOUSTIC EFFECTS(PSYCHOLOGICAL
ACCEPTABILITY), FUTURE RESEARCH, LEGAL AND
INSURANCE ASPECTS, PUBLIC RESPONSE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 680 454 6/16 20/1
NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL
WASHINGTON D C COMM ON HEARING BIOACOUSTICS BIOMECHANICS

SUMMARY OF WORKING GROUP ACTIVITY FROM 1952 TO
1968 OF THE COMMITTEE ON HEARING, BIOACOUSTICS,
AND BIOMECHANICS. (U)

DESCRIPTIVE NOTE: HISTORICAL SUMMARY 1952-1968.
DEC 68 SOP
CONTRACT: NONR-2300(05)

UNCLASSIFIED REPORT

DESCRIPTORS: (HEARING, SCIENTIFIC ORGANIZATIONS),
BIOPHYSICS, PSYCHOACOUSTICS, AUDITORY PERCEPTION, NOISE,
REACTION(PSYCHOLOGY), AUDIOMETRY, SONAR, SONIC BOOM,
AIRPORTS, JET ENGINE NOISE, GUIDED MISSILES, ROCKET
ENGINES, SPEECH (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 680 800 20/1 6/19 5/10 13/13
1/2

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

SONIC BOOMS RESULTING FROM EXTREMELY LOW-ALTITUDE
SUPERSONIC FLIGHT: MEASUREMENTS AND OBSERVATIONS ON
HOUSES, LIVESTOCK AND PEOPLE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 68 31P NIXON, C. W. HILLE, H. K.
; SOMMER, H. C. ; GUILD, ELIZABETH ;
REPT. NO. AMRL-TR-68-52
PROJ: AF-7231
TASK: 723103

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUPERSONIC FLIGHT, LOW ALTITUDE), (*SONIC
BOOM, RESPONSE), (*STRESS(PHYSIOLOGY), SONIC BOOM),
STRESS(PSYCHOLOGY), REACTION(PSYCHOLOGY), JET FIGHTERS,
PRESSURE, STRUCTURES, ANIMALS, HUMANS,
HOUSING(DWELLINGS), PSYCHOACOUSTICS, GLASS, RUPTURE,
RESPONSE(BIOLOGY), SITE SELECTION, MILITARY TRAINING (U)
IDENTIFIERS: F-4C AIRCRAFT, F-4 AIRCRAFT,
OVERPRESSURE (U)

SONIC BOOMS GENERATED BY F-4C AIRCRAFT FLYING
LOW-LEVEL TERRAIN-FOLLOWING PROFILES DURING JOINT
TASK FORCE II OPERATIONS NEAR TONOPAH,
NEVADA, WERE RECORDED UNDER AND NEAR THE FLIGHT
TRACKS, AND RESPONSES OF STRUCTURES, ANIMALS, AND
PEOPLE WERE OBSERVED. RECORDED OVERPRESSURES UP TO
144 PSF WERE ANALYZED, CORRELATED WITH AVAILABLE
AIRCRAFT OPERATIONS DATA, AND COMPARED WITH DATA FROM
DIFFERENT AIRCRAFT FLYING SIMILAR PROFILES.
OBSERVATIONS OF STRUCTURES, ANIMALS, AND PEOPLE
WERE CORRELATED WITH THE MEASURED OVERPRESSURES.
RESULTS INCLUDE ACQUISITION OF NEAR-FIELD
RECORDINGS OF OVERPRESSURES GENERATED BY THE F-
4C, THE FINDING THAT SOME WINDOW GLASS FRAGMENTS
WERE PROPELLED A SHORT DISTANCE RATHER THAN FALLING
DIRECTLY BELOW THE WINDOW, AN INSTANCE IN WHICH THE
MEASURED OVERPRESSURE OF A SONIC BOOM 1 MILE TO THE
SIDE OF THE TRACK FAR EXCEEDED THE PREDICTED VALUE,
THE FINDING THAT LIVESTOCK (UNDETERMINED PRIOR
EXPOSURE TO ACOUSTIC STIMULI IN THIS SITUATION) DID
NOT RESPOND ADVERSELY TO THE SONIC BOOMS,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 682 050 20/1 1/3 1/2 20/4
1/1

BOEING SCIENTIFIC RESEARCH LABS SEATTLE WASH FLIGHT
SCIENCES LAB

AN ANALYSIS OF THE POSSIBILITY OF REDUCTION OF SONIC
BOOM BY ELECTRO-AERODYNAMIC DEVICES, (U)

SEP 68 45P CHENG, SIN-I ; GOLDBURG,
ARNOLD ;
REPT. NO. DI-82-0764
MONITOR: IDEP 347.60.00.00-C6-10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
PRINCETON UNIV., N. J., DEPT. OF AEROSPACE AND
MECHANICAL SCIENCES.

DESCRIPTORS: (SONIC BOOM, REDUCTION), ELECTRIC
DISCHARGES, IONS, ELECTRONS, INTERACTIONS, POWER
SUPPLIES, DEFLECTION, SUPERSONIC FLOW, THRUST,
SUPERSONIC AIRCRAFT, TRANSPORT AIRCRAFT, COMMERCIAL
PLANES, WEIGHT, FEASIBILITY STUDIES, AERODYNAMIC
NOISE (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

THE PURPOSE OF THE PAPER IS TO INVESTIGATE THE
PHYSICS OF ELECTRO-AERODYNAMIC TECHNIQUES FOR
REDUCING THE SONIC BOOM AND TO DRAW CONCLUSIONS AS TO
THE USEFULNESS OF THE PROPOSED TECHNIQUES. AN
ANALYSIS OF THE INTERACTION OF IONS AND ELECTRONS OF
AN ELECTRIC DISCHARGE WITH NEUTRAL PARTICLES IN
MOVING AIR ACCORDING TO A ONE-DIMENSIONAL MODEL IS
DESCRIBED AND ANALYZED. A SIMPLE EXPRESSION FOR
THE CHANGE OF TOTAL STREAM THRUST BY THE ELECTRIC
WIND MECHANISM IS GIVEN. THE ELECTRIC POWER
REQUIRED FOR MAINTAINING THE DISCHARGE IS CALCULATED.
WITH THESE BASIC RESULTS, THE SPECIFIC POWER
REQUIREMENT OF THE ELECTRO-AERODYNAMIC DEVICES
PROPOSED FOR DEFLECTING THE ONCOMING AIR OF THE
SUPERSONIC TRANSPORT IS EVALUATED TO BE OF THE ORDER
OF 1 WATT/DYNE (1/2 MEGAWATT/POUND FORCE). FOR
10% CHANGE OF BOOM INTENSITY BY ELECTRO-AERODYNAMIC
DEFLECTION OF THE ONCOMING STREAM THRUST, A
COMMERCIAL SUPERSONIC TRANSPORT REQUIRES OF THE ORDER
OF THOUSANDS OF MEGAWATTS OF ELECTRIC POWER. AT
THE SPECIFIC WEIGHT OF 1 POUND PER KILOWATT, CLEARLY
THE ELECTRIC EQUIPMENT IS BEYOND PAYLOAD CAPABILITY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 682 900 5/4 20/1 1/3 1/5
STANFORD UNIV CALIF

LEGAL ASPECTS OF AIRPORT NOISE AND SONIC BOOM.
PART I CHAPTERS I-VII,

(U)

FEB 68 214P ALTREE, LILLIAN R. ; BAXTER,
WILLIAM F. ;
CONTRACT: FA-67-WA-1675

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, CHAPTERS 8-9,
AD-682 901, AND PART 2, AD-682 902.

DESCRIPTORS: (*LAW, *SONIC BOOM), (*AIRCRAFT NOISE,
*AIRPORTS), COSTS, DECISION MAKING, JET TRANSPORT
PLANES, SUPERSONIC AIRCRAFT

(U)

IDENTIFIERS: COST BENEFIT ANALYSIS, LAND USE, RIGHT OF
WAY ACQUISITION, SUPERSONIC TRANSPORTS

(U)

CONTENTS: INTRODUCTION; BASIC ECONOMICS; THE
NATURE OF AIRPORT EXTERNALITIES; THE EFFECT OF
EXTERNALITIES ON DECISION; A THEORETICAL ALLOCATION
OF COSTS AND BENEFITS AND SOME PRACTICAL LIMITATIONS;
TIME-LIMITED EASEMENTS; A MODEST STEP TOWARD
SOLUTION; PRESENT REMEDIES FOR LOSSES CAUSED BY
AIRPORT NOISE.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 682 901 5/4 20/1 1/3 1/5
STANFORD UNIV CALIF

LEGAL ASPECTS OF AIRPORT NOISE AND SONIC BOOM.
PART I CHAPTERS VIII-IX, (U)

FEB 68 116P ALTREE, LILLIAN R. ; BAXTER,
WILLIAM F. ;
CONTRACT: FA-67-4A-1675

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, CHAPTERS 1-7,
AD-682 900, AND PART 2, AD-682 902.

DESCRIPTORS: (*LAW, *SONIC BOOM), (*AIRCRAFT NOISE,
*AIRPORTS), COSTS, JET TRANSPORT PLANES, DECISION
MAKING, SUPERSONIC AIRCRAFT (U)
IDENTIFIERS: RIGHT OF WAY ACQUISITION, SUPERSONIC
TRANSPORTS (U)

PRESENT DIMENSIONS OF THE AIRPORT NOISE PROBLEM ARE
DELINEATED AND PROPOSED SOLUTIONS ARE PRESENTED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 682 902 5/4 20/1 1/3 1/5
STANFORD UNIV CALIF

LEGAL ASPECTS OF AIRPORT NOISE AND SONIC BOOM.
PART II, (U)

FEB 68 116P ALTREE, LILLIAN R. ; BAXTER,
WILLIAM F. ;
CONTRACT: FA-67-WA-1675

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART I, CHAPTERS 1-7,
AD-682 900, AND PART I, CHAPTERS 8-9, AD-682 901.

DESCRIPTORS: (*LAW, *SONIC BOOM), (*AIRCRAFT NOISE,
*AIRPORTS), DAMAGE, SUPERSONIC AIRCRAFT, JET TRANSPORT
PLANES, PSYCHOPHYSIOLOGY, COSTS (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS (U)

TOPICS INCLUDE: SONIC BOOM PRODUCTION BY
SUPERSONIC AIRPLANES; VARIATIONS IN SONIC BOOM
STRENGTH; SONIC BOOM EFFECTS; LEGAL ASPECTS OF SONIC
BOOM; INCLUDING RECOVERY FOR SONIC BOOM DAMAGE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 684 806 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C

SONIC BOOM RESEARCH (1958-1968), (U)

NOV 68 23P SANDS, JOHNNY M. ;

UNCLASSIFIED REPORT

DESCRIPTORS: (SONIC BOOM, REVIEWS), UNITED STATES
GOVERNMENT, TEST FACILITIES, TEST METHODS, THEORY,
REPORTS, BIBLIOGRAPHIES (U)

THE UNITED STATES GOVERNMENT HAS BEEN
ACTIVELY ENGAGED IN SONIC BOOM RESEARCH SINCE 1958 IN
AN EFFORT TO LEARN MORE ABOUT THIS PHENOMENON AND THE
MEANS OF CONTROLLING IT. TO THIS END, EXTENSIVE
TESTING HAS BEEN DONE IN THE FIELD AS WELL AS IN THE
LABORATORY ENVIRONMENT. THIS DOCUMENT IS A BRIEF
HISTORY OF SONIC BOOM RESEARCH. PART I PRESENTS
A CHRONOLOGICAL LISTING OF THE VARIOUS FIELD RESEARCH
PROGRAMS, IDENTIFIES THE GOVERNMENT AGENCIES
INVOLVED AND PROVIDES A BRIEF SUMMARY OF THE WORK
ACCOMPLISHED. PART II DESCRIBES SOME OF THE
LABORATORY EXPERIMENTS AND THEORETICAL STUDIES
CONDUCTED UNDER GOVERNMENT SPONSORSHIP. PART
III CONTAINS A LISTING OF PUBLICATIONS RESULTING
FROM THESE RESEARCH PROGRAMS AND TELLS HOW THESE
DOCUMENTS MAY BE OBTAINED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 687 172 20/1 19/4
EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT WALTHAM
ABBAY (ENGLAND)

A NEW EXPLOSIVES TECHNIQUE FOR SYNTHESIZING A WIDE
RANGE OF PRESSURE WAVEFORMS IN AIR. PART 2. THE
APPLICATION OF LINEAR EXPLOSIVE CHARGES TO THE
SIMULATION OF SONIC BANGS, (U)

OCT 68 31P HAWKINS, S. J. HICKS, J.
A. I
REPT. NO. ERDE-10/R/68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, AD-687 222.

DESCRIPTORS: (SONIC BOOM, SIMULATION), EXPLOSIVE
CHARGES, PRESSURE, DETONATION WAVES, PROPAGATION,
AIRBURST, NOISE, KINETIC ENERGY, GREAT BRITAIN (U)
IDENTIFIERS: N WAVES, POINT SOURCE DISSEMINATION,
WAVEFORMS (U)

THE CHARACTERISTICS OF THE SO-CALLED SONIC BANG ARE
BRIEFLY REVIEWED. THE DESIRABILITY, FIELDS OF
APPLICATION AND ADVANTAGES OF SONIC BANG SIMULANTS
ARE CONSIDERED AND SOME POSSIBLE METHODS OF ACHIEVING
SIMULATION DISCUSSED. AN ACCOUNT IS GIVEN OF THE
DEVELOPMENT OF TWO TYPES OF SIMULANT USING THE
PRINCIPLES OF THE EXTENDED EXPLOSIVE CHARGE TECHNIQUE
DESCRIBED IN PART 1 OF THIS REPORT (ERDE 9/R/
68). THEIR PROPERTIES ARE OUTLINED AND CRITERIA
FOR THEIR SUITABILITY FOR DIFFERENT TYPES OF
APPLICATION ARE PUT FORWARD TOGETHER WITH THE RESULTS
OBTAINED ON APPLYING THESE CRITERIA TO THE TWO TYPES
OF LINEAR CHARGE SIMULANT DEVELOPED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 687 175 20/1
EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT WALTHAM
ABBEY (ENGLAND)

SOME MEASUREMENTS OF THE SONIC BANGS PRODUCED AT
EXERCISE WESTMINSTER. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
OCT 68 38P HAWKINS, S. J. THICKS, J.
A. ;
REPT. NO. ERDE-17/M/68

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, SIMULATION), MEASUREMENT,
STANDARDS, EXPLOSIVES, RECORDS, STRUCTURES, SHOCK WAVES,
GREAT BRITAIN (U)

OPPORTUNITY WAS TAKEN AT EXERCISE WESTMINSTER
TO MAKE RECORDINGS OF SONIC BANG WAVEFORMS FOR USE
AS STANDARDS OF COMPARISON BY WHICH THE EXPLOSIVELY
GENERATED SIMULANT WAVEFORM UNDER DEVELOPMENT AT
ERDE COULD BE JUDGED. A VARIATION OF THE SONIC
BANG WAVEFORM ALONG THE AIRCRAFT TRACK, FIRST
REPORTED IN THE USA, WAS OBSERVED IN THIS COUNTRY
FOR THE FIRST TIME. FROM THE RECORDED WAVEFORMS,
ENERGY SPECTRA AND LOUDNESS VALUES WERE COMPUTED,
CORRESPONDING TO THE MEDIAN AND EXTREME FORMS OF THE
VARIATION. IT IS CONCLUDED THAT (1) THE
SUBJECTIVE EFFECTS OF SONIC BANGS CAN VARY MARKEDLY
WITH THE LOCATION OF THE OBSERVER ALONG THE AIRCRAFT
TRACK, EVEN THOUGH THE FLIGHT CONDITIONS AND LOCAL
TOPOGRAPHY ARE CONSTANT, AND (2) THE ERDE MARK
I EXPLOSIVE SIMULANT IS VERY SUITABLE FOR THE
ASSESSMENT OF THE EFFECTS OF SONIC BANGS ON BUILDING
STRUCTURES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 687 222 1971 1974
EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT WALTHAM
ABBEY (ENGLAND)

A NEW EXPLOSIVES TECHNIQUE FOR SYNTHESIZING A WIDE
RANGE OF PRESSURE WAVEFORMS IN AIR. PART I.
APPROXIMATE THEORY OF AIR BLAST FROM EXTENDED
EXPLOSIVE CHARGES, (U)

OCT 68 29P HAWKINS, S. J. HICKS, J.
A. I
REPT. NO. ERDE-9/R/68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 2, AD-687 172.
ALSO AVAILABLE FROM MINTECH, TIL, BLOCK 'A',
STATION SQUARE, ST. MARY CRAY, ORPINGTON,
KENT. BR5 3RE.

DESCRIPTORS: (EXPLOSIVE CHARGES, BLAST); SHOCK WAVES,
PROPAGATION, CONFIGURATION, AIRBURST, PRESSURE, WAVEFORM
GENERATORS, SONIC BOOM, HYDRODYNAMICS, GREAT
BRITAIN (U)

A NEW TECHNIQUE FOR GENERATING AIR BLAST WAVES
USING SPATIALLY EXTENDED EXPLOSIVE CHARGES HAS BEEN
DEVELOPED. IT HAS BEEN FOUND TO BE CAPABLE OF
SYNTHESIZING PRESSURE WAVEFORMS HAVING A WIDE RANGE
OF SHAPES AND DURATIONS AND WAS APPLIED, AMONG OTHER
THINGS, TO THE SIMULATION OF SONIC BANGS, THE
APPLICATIONS OF THE TECHNIQUE BEING DESCRIBED
SEPARATELY IN THE SECOND PART OF THE REPORT (ERDE
10/R/68). IN THIS FIRST PART OF THE REPORT A
PHENOMENOLOGICAL THEORY OF THE AIR BLAST FROM SUCH
CHARGES IS DEVELOPED UNDER CERTAIN SIMPLIFYING
ASSUMPTIONS. THESE ASSUMPTIONS ARE FIRSTLY THAT
THE GIVEN SPATIAL DISTRIBUTION OF EXPLOSIVE MAY BE
REDUCED TO AN EQUIVALENT LINEAR DISTRIBUTION IN THE
LINE-OF-SIGHT BY MAKING AN EXTENSION OF THE 'ENERGY
HYPOTHESIS' COMMONLY APPLIED TO THE CASE OF
SPHERICALLY SYMMETRIC EXPLOSIONS. SECONDLY, THIS
LINEAR DISTRIBUTION IS IN TURN REGARDED AS AN
INFINITE SET OF ELEMENTARY LINEAR CHARGE ELEMENTS
GENERATING ACOUSTIC WAVELETS THE COMBINED EFFECTS OF
WHICH ARE OBTAINED BY LINEAR SUPERPOSITION. FOR
SUCH A MODEL OF THE AIR BLAST PROCESS, THE PRESSURE
WAVE IN THE FAR FIELD MAY BE REPRESENTED EXACTLY IN
TERMS OF AN ASSUMED SHAPE OF ELEMENT WAVEFORM.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 687 491 1/3 20/1 20/4 1/1
ARA INC WEST COVINA CALIF

GAP EFFECTS OF A SHARP EDGED DELTA WING AT
SUPERSONIC SPEEDS, (U)

FEB 69 58P MAZELSKY, BERNARD ; CHAO, CHIA-
CHUN ; SHEN, CHENG-CHUNG ;
REPT. NO. ARA-102
CONTRACT: F44620-68-C-0027
PROJ: AF-9781
TASK: 978101
MONITOR: AFOSR 69-0846TR

UNCLASSIFIED REPORT

DESCRIPTORS: (*WING SLOTS, SONIC BOOM), (*SONIC BOOM,
DELTA WINGS), (*DELTA WINGS, SUPERSONIC
CHARACTERISTICS), LEADING EDGES, MODEL TESTS, LIFT,
DRAG, CAMBER, REYNOLDS NUMBER, PRESSURE, SHOCK WAVES,
PITCH(MOTION), SWEEPBACK WINGS, ANGLE OF ATTACK (U)
IDENTIFIERS: LIFT DRAG RATIO, SHARP BODIES (U)

SONIC BOOM MEASUREMENTS WERE CONDUCTED TO EVALUATE
THE EFFECTS OF A LEADING SLAT WITH VARIOUS DEGREES OF
CAMBER AND GAP SIZE BETWEEN THE SLAT AND THE MAIN
WING ON A 70 DEG SWEEP DELTA WING AT SUPERSONIC
SPEEDS. THE MODEL WAS SIZED FOR SONIC BOOM
MEASUREMENTS IN A WIND TUNNEL. IN ADDITION TO
THESE MEASUREMENTS, THE MODEL WAS INSTRUMENTED WITH
SEVERAL PRESSURE TAPS FOR INDICATING THE FLOW THROUGH
THE GAP. AS A SEPARATE WIND TUNNEL ENTRY, FORCE
MEASUREMENTS WERE ALSO TAKEN TO INDICATE THE EFFECT
OF THE CAMBERED SLAT ON THE PITCH STABILITY AND LIFT-
DRAG RATIO. DUE TO THE SMALL SIZE OF THE MODEL
REQUIRED TO MEASURE THE SONIC BOOM, THE GAP
CONFIGURATION WAS SUCH THAT THE AIRFLOW WAS NORMAL TO
THE WING SURFACE. FOR OPTIMUM LIFT AND DRAG
PERFORMANCE, THE GAP SHOULD BE DESIGNED SUCH THAT THE
FLOW FROM THE UPPER SURFACE SHOULD BE TANGENTIAL TO
THE UPPER SURFACE. A SECOND MODEL HAS BEEN
CONSTRUCTED TO EVALUATE THE LIFT-DRAG PROBLEM
SEPARATELY BY INCREASING THE SIZE OF THE MODEL SUCH
THAT THE PROPER GAP CONFIGURATIONS CAN BE FABRICATED.
REGARDLESS OF THE NON-OPTIMIZATION OF THE GAPS, THE
FOLLOWING RESULTS WERE ESTABLISHED BY THIS PHASE OF
THE PROGRAM. (1) THE EFFECT OF CAMBER RESULTS
IN AN INCREASE IN (L/D)MAX. (2) THE EFFECT
OF REYNOLDS NUMBER ON (L/D)MAX IS NEGLIGIBLE
WHEN THE GAP IS CLOSED. HOWEVER, FOR A VERY SMALL
GAP, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 689 844 20/1 5/10
STANFORD RESEARCH INST MENLO PARK CALIF

PSYCHOLOGICAL EXPERIMENTS ON SONIC BOOMS CONDUCTED
AT EDWARDS AIR FORCE BASE. (U)

DESCRIPTIVE NOTE: FINAL REPT.

AUG 68 119P KRYTER, K. A. ; JOHNSON, P.

J. ; YOUNG, J. R. ;

CONTRACT: AF 49(638)-1758

PROJ: SRI-ETU-6065

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *PSYCHOACOUSTICS), AIRCRAFT
NOISE, ACCEPTABILITY, INTENSITY, AUDITORY PERCEPTION,
SUBSONIC CHARACTERISTICS, SUPERSONIC AIRCRAFT, WEATHER,
STRUCTURES, RESPONSE (U)

A SERIES OF TESTS WERE CONDUCTED IN JUNE 1966 AND
OCTOBER 1966 TO JANUARY 1967 IN WHICH HUMAN
SUBJECTS (LOCATED INDOORS AND OUTDOORS), AND
SPECIAL TEST STRUCTURES WERE EXPOSED TO BOOMS FROM
F-104, F-106, B-58, SR-71, AND XB-70
SUPERSONIC AIRCRAFT, AND THE NOISE FROM KC-136 AND
WC-135B SUBSONIC AIRCRAFT. PHYSICAL
MEASUREMENTS WERE MADE OF THE SONIC BOOM SIGNATURES,
SUBSONIC AIRCRAFT NOISE, AND THE RESPONSE OF
STRUCTURES TO THE BOOMS AND NOISE. PSYCHOLOGICAL
MEASUREMENTS WERE MADE OF THE SUBJECTIVE
ACCEPTABILITY TO SEVERAL HUNDRED SUBJECTS OF THE
BOOMS AND SUBSONIC AIRCRAFT NOISE. DETAILS OF THE
TEST PLAN AND PROCEDURES, AND THE RESULTS OF THE DATA
ANALYZED ARE PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 691 212 20/1
STANFORD RESEARCH INST MENLO PARK CALIF

CALCULATED UNDERWATER PRESSURE LEVELS FROM SONIC
BOOMS. (U)

DESCRIPTIVE NOTE: INTERIM REPT. NO. 8,
DEC 67 17P SAWYERS, KENNETH N. ;
CONTRACT: AF 49(638)-1696

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMMERCIAL PLANES, SONIC BOOM), (*SOUND
TRANSMISSION, UNDERWATER), SUPERSONIC AIRCRAFT, JET
TRANSPORT PLANES, JET PLANE NOISE, PRESSURE (U)
IDENTIFIERS: *NOISE POLLUTION, SUPERSONIC
TRANSPORTS (U)

THE UNDERWATER PRESSURE LEVELS HAVE BEEN COMPUTED
FOR TWO 'TYPICAL' SONIC BOOMS WITH AMPLITUDES OF 2.5
PSF. THE BOOMS HAVE PERIODS OF 0.1 AND 0.3 SEC AND
GROUND SPEEDS OF 1,500 AND 2,500 FT/SEC,
RESPECTIVELY. THE COMPUTED LEVELS ARE COMPARED
WITH AMBIENT LEVELS FROM VARIOUS SOURCES. IT WOULD
APPEAR THAT AT FREQUENCIES TO WHICH THE ACOUSTIC
RECEPTORS OF UNDERWATER ANIMALS ARE MOST SENSITIVE,
THERE ARE OFTEN ACOUSTIC SIGNALS IN THE OCEAN THAT
EQUAL OR EXCEED THE SIGNALS DUE TO SONIC BOOMS
FALLING ON THE SURFACE OF THE OCEAN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 691 496 5/3 13/13 20/1 5/2
STANFORD RESEARCH INST MENLO PARK CALIF

REPORT ON DATA RETRIEVAL AND ANALYSIS OF USAF SONIC
BOOM CLAIMS FILES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 67 183P GRUBB, C. A. ; VAN ZANDT,
J. E. ; BOCKHOLT, J. L. ;
REPT. NO. TR-4
CONTRACT: AF 49(638)-1696
PROJ: SRI-ETU-5897

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, DAMAGE), (*BUILDINGS,
DAMAGE), (*DAMAGE, *COSTS), (*INFORMATION RETRIEVAL,
SONIC BOOM), AIR FORCE, STRUCTURAL MEMBERS, STATISTICAL
ANALYSIS, URBAN AREAS, DECISION MAKING, DATA PROCESSING,
GLASS (U)
IDENTIFIERS: *CLAIMS, *NOISE POLLUTION (U)

GENERALLY, ABOUT THREE-FOURTHS OF ALL ALLEGED
CLAIMS FOR DAMAGE INVOLVED SINGLE FAMILY STRUCTURES.
COMMERCIAL STRUCTURES ACCOUNTED FOR ONE-SIXTH OF
THE CLAIMS WITH MULTIFAMILY STRUCTURES, AUTOMOBILES,
MISCELLANEOUS STRUCTURES, AND PEOPLE AND ANIMALS
CONSTITUTING LESS THAN 10 PERCENT. THE STRUCTURES
WERE 84 PERCENT OWNER OCCUPIED, 90 PERCENT IN FAIR-
TO-SOUND CONDITION, 90 PERCENT OF ONE AND TWO
STORIES, AND ABOUT 50 PERCENT BUILT AFTER WORLD
WAR II. GLASS, PLASTER, AND 'OTHER' TYPES OF
DAMAGE WERE ALMOST EQUALLY CLAIMED IN SINGLE FAMILY
RESIDENCES; HOWEVER, GLASS WAS BY FAR THE PREDOMINANT
TYPE IN COMMERCIAL STRUCTURES--78 PERCENT. THE
AVERAGE PAID CLAIM ALLEGED DAMAGE OF \$93, THOUGH
PAYMENT AVERAGED \$72. OF ALL CLAIMS, THE
PROPORTIONS OF SINGLE FAMILY PAID AND DENIED CLAIMS
WERE ABOUT THE SAME. ON THE OTHER HAND, CLAIMS FOR
COMMERCIAL AND MULTIFAMILY STRUCTURES WERE MORE
LIKELY TO BE PAID--TWO TO THREE TIMES MORE LIKELY FOR
COMMERCIAL ESTABLISHMENTS AND 25 TO 50 PERCENT MORE
LIKELY FOR MULTIFAMILY STRUCTURES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 692 340 1/3 20/1
CORNELL UNIV ITHACA N Y

REDUCTION OF SONIC BOOM BY AZIMUTHAL REDISTRIBUTION
OF OVERPRESSURE, (U)

JUL 68 8P GEORGE, A. R. 1
CONTRACT: AF 49(638)-1346, NGR-33-010-054

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN AIAA JNL., V7 N2 P291-298
FEB 69.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 22 MAR
68. PRESENTED AT THE AIAA/SAEROSPACE SCIENCES
MEETING (6TH), NEW YORK CITY, 22-24 JAN 66 AS
PAPER 68-159.

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, SONIC BOOM), (*SONIC
BOOM, FLOW FIELDS), SUPERSONIC FLOW, PROPAGATION, LIFT,
WAKE, APPROXIMATION(MATHEMATICS), SLENDER BODIES,
INTEGRAL TRANSFORMS, QUADRUPOLE MOMENT (U)

THIS PAPER ANALYZES THE POSSIBILITY OF
REDISTRIBUTING PART OF THE THETA VARIATION OF A
SUPERSONIC AIRCRAFT'S PRESSURE FIELD TO REDUCE THE
SONIC BOOM OVERPRESSURE FELT BELOW THE AIRCRAFT.
THE EFFECTS OF MULTIPOLE CONTRIBUTIONS TO THE FLOW
ARE ANALYZED IN DETAIL. IT IS SHOWN THAT MULTIPOLE
CONTRIBUTIONS CAN BE IMPORTANT EVEN IN THE FAR FIELD
AND CONCEPTS FOR EFFICIENTLY EXCITING THEM ARE
DISCUSSED. PHYSICALLY POSSIBLE MULTIPOLE
DISTRIBUTIONS CAN BE USED TO REDUCE THE BOOM, BUT THE
CONTRIBUTION OF LIFT TO THE BOOM CAN USUALLY BE
REDUCED ALTHOUGH NEVER ELIMINATED IN THIS MANNER.
THE WAVE DRAG CHANGES ASSOCIATED WITH THE FLOW
MODIFICATIONS ARE ALSO TREATED. SOME SPECIFIC
NUMERICAL RESULTS ARE GIVEN DEMONSTRATING BOOM
REDUCTION AND WAVE DRAG CHANGES FOR A SPECIFIC
SUPERSONIC TRANSPORT DESIGN. WORK STILL REMAINS TO
BE DONE ON THE DETAILS OF CONFIGURATIONS TO BE USED
TO PRODUCE THESE MULTIPOLE EFFECTS AND ON THEIR
VORTEX AND SKIN-FRICTION DRAG. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 692 550 1/3 20/1
ARMY ELECTRONICS COMMAND FORT MONMOUTH N J INST FOR
EXPLORATORY RESEARCH

LENGTHENING OF SHOCK WAVEFORMS CAUSED BY THEIR
PROPAGATION TO HIGH ALTITUDES, (U)

JAN 69 1P DANIELS, FRED B. I

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN THE JNL. OF THE ACOUSTICAL
SOCIETY OF AMERICA, V45 N1 P241-242 JAN 69.

DESCRIPTORS: (•SUPERSONIC AIRCRAFT, SUPERSONIC FLIGHT),
(•SONIC BOOM, SHOCK WAVES), ACOUSTICS, PROPAGATION,
UPPER ATMOSPHERE, NUMERICAL ANALYSIS, SOUND (U)
IDENTIFIERS: N WAVES (U)

EXPRESSIONS ARE GIVEN FOR THE LENGTHENING OF SHOCK
WAVEFORMS THAT IS CAUSED BY THEIR TRAVEL UPWARDS TO
HIGH ALTITUDES. NUMERICAL VALUES ARE COMPUTED FOR
SPECIFIC EXAMPLES AND PRONOUNCED LENGTHENING OF THE
WAVEFORM IS FOUND TO OCCUR. IN PARTICULAR, THE N
WAVE FROM A SUPERSONIC TRANSPORT (SST) IS
LENGTHENED TO A POINT WHERE IT MAY BE A SOURCE OF
INTERFERENCE TO GEOPHYSICISTS OBSERVING INFRASOUND OF
NATURAL ORIGIN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 693 132 8/13 8/11 20/1
AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

ON THE APPLICATION OF AIR-COUPLED SEISMIC
WAVES.

(U)

DESCRIPTIVE NOTE: ENVIRONMENTAL RESEARCH PAPERS NO. 302.
JUL 69 43P CROWLEY, FRANCIS A. LOSSING,
HENRY A. I
REPT. NO. AFCRL-69-0312
PROJ: AF-7639
TASK: 763904

UNCLASSIFIED REPORT

DESCRIPTORS: (*ROCKET ENGINE NOISE, *SEISMIC WAVES),
(*SEISMIC WAVES, SOILS), (*LANDING FIELDS, CRACK
PROPAGATION), PLAYAS, CRACKS, SONIC BOOM, AIRBURST,
LANDING FIELDS, SOIL MECHANICS
IDENTIFIERS: F-1 ENGINES

(U)
(U)

SEISMIC MEASUREMENTS TAKEN ON ROGERS LAKE
PLAYA, EDWARDS AFB, CALIFORNIA, WERE PROMPTED
BY A CONCERN THAT GROUND VIBRATIONS EXCITED BY F-1
ROCKET ENGINES MIGHT AFFECT THE ROLE OF PLAYA
CRACKING. THESE MEASUREMENTS RELATE TO OTHER AIR
FORCE INTERESTS. SPECIFICALLY, THE NOTE
CHARACTERIZES SEISMIC WAVES EXCITED BY F-1 ROCKETS,
SONIC BOOMS, AND ATMOSPHERIC EXPLOSIONS TO:
(1) PLAYA LANDING AREAS; (2) GROUND
CONDITIONS AFFECTING SONIC BOOMS AND ROCKET FIRINGS
SENSED IN BUILDINGS; (3) DETECTION OF ACOUSTIC
SOURCES USING SEISMIC SYSTEMS; (4) THE PLAYA'S
SELECTIVE DISTORTION OF ACOUSTIC WAVE
CHARACTERISTICS; AND (5) CONSIDERATION OF A
PLAYA SEISMIC ALARM SYSTEM. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 693 964 20/1 1/3
OFFICE OF NAVAL RESEARCH LONDON (ENGLAND)

AGARD MEETING ON 'AIRCRAFT ENGINE NOISE AND SONIC
BOOM,' FRENCH-GERMAN RESEARCH INSTITUTE, ST.
LOUIS, FRANCE. (U)

DESCRIPTIVE NOTE: CONFERENCE REPT.,
AUG 69 ZIP BOVERIE, RICHARD T. ;
REPT. NO. ONRL-C-11-69

UNCLASSIFIED REPORT

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, *SYMPOSIA),
(*SONIC BOOM, SYMPOSIA), SOUND TRANSMISSION, REDUCTION,
BUILDINGS, DAMAGE, JET ENGINE NOISE, SHOCK WAVES,
PROPAGATION, TURBOFAN ENGINES, SIMULATION (U)
IDENTIFIERS: NOISE POLLUTION (U)

AN ANNOTATED LISTING IS GIVEN OF PAPERS PRESENTED
DURING THE FOLLOWING SEVEN SESSIONS: SURVEY AND
REVIEW PAPERS; ENGINE NOISE GENERATION; SONIC
BOOM--GENERATION AND PROPAGATION; ENGINE NOISE
REDUCTION; ENGINE NOISE; SONIC BOOM; REAL
AIRCRAFT NOISE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 697 190 20/1 21/5 1/3
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

AIRCRAFT ENGINE NOISE AND SONIC BOOM. (U)

DESCRIPTIVE NOTE: CONFERENCE PROCEEDINGS.
MAY 69 565P
REPT. NO. AGARD-CP-42

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE JOINT MEETING OF
THE FLUID DYNAMICS PANEL AND PROPULSION AND
ENERGETICS PANEL (33RD), SAINT-LOUIS, FRANCE,
27-30 MAY 69. NATO FURNISHED.

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, *SYMPOSIA),
(*SONIC BOOM, SYMPOSIA), (*AIRCRAFT NOISE, SYMPOSIA),
TURBOFAN ENGINES, REDUCTION, AIRPORTS, DESIGN,
PSYCHOPHYSIOLOGY, SHOCK WAVES, JET PLANE NOISE,
ATMOSPHERES, SIMULATION, JET TRANSPORT PLANES (U)
IDENTIFIERS: C-5 AIRCRAFT, C-5A AIRCRAFT (U)

THE REPORT INCLUDES: REVIEW PAPERS DEVOTED
RESPECTIVELY TO THE PHYSICS OF NOISE, SOME LEGAL
PROBLEMS RELATING TO SONIC BOOM, AIRPORT DESIGN AND
OPERATION FOR MINIMIZING EXPOSURE TO NOISE, THE
EFFECTS OF AIRCRAFT NOISE AND SONIC BOOM ON GROUND
STRUCTURES, HUMAN RESPONSE TO SONIC BOOMS, AND
SPECIALIZED ASPECTS, THEORETICAL AND EXPERIMENTAL, OF
AIRCRAFT ENGINE NOISE OR SONIC BOOM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMU9

AD- 697 678 1/3 5/3
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF
SUPERSONIC TRANSPORT DEVELOPMENT

SUMMARY OF CURRENT ECONOMIC STUDIES OF THE UNITED
STATES SUPERSONIC TRANSPORT. (U)

SEP 69 50P

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUPERSONIC AIRCRAFT, *ECONOMICS), (*JET
TRANSPORT PLANES, *COMMERCIAL PLANES), AIR TRAFFIC, AIR
TRANSPORTATION, AIRCRAFT INDUSTRY, PREDICTIONS, SONIC
BOOM, FEASIBILITY STUDIES (U)
IDENTIFIERS: INVESTMENT RETURNS, *SUPERSONIC
TRANSPORTS (U)

THE THREE STUDIES DISCUSSED IN THE REPORT PROVIDE A
RANGE IN THEIR BASE CASE 1990 MARKET ESTIMATES FOR
THE SST UNDER SONIC BOOM RESTRICTIONS FROM 500 TO
800 AIRPLANES. THE LOW MARKET ESTIMATE OF 500
SST'S, THE FAA BASE CASE, IS SUFFICIENT TO ENABLE
THE GOVERNMENT TO RECOVER ALL OF ITS INVESTMENT FOR
DEVELOPMENT AND CONSTRUCTION OF TWO PROTOTYPES PLUS A
SMALL RETURN. THE BASIC CONCLUSION IS THAT THE
PROGRAM IS NOT ONLY ECONOMICALLY VIABLE BUT
REASONABLY PROFITABLE TO ALL PARTICIPANTS OVER A WIDE
RANGE OF ASSUMPTIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 698 398 5/4 20/1 1/3
SANTA CLARA UNIV CALIF

THE ROAR, THE WHINE, THE BOOM AND THE LAW: SOME
LEGAL CONCERNS ABOUT THE SST, (U)

69 40P HUARD, LEO A. ;

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN SANTA CLARA LAWYER, V9 N2
P189-226 1969.

SUPPLEMENTARY NOTE: SPONSORED BY NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION, WASHINGTON. D. C.

DESCRIPTORS: (*LAW, *SONIC BOOM), (*JET TRANSPORT
PLANES, *COMMERCIAL PLANES), (*SUPERSONIC AIRCRAFT,
LAW), JET PLANE NOISE, JET ENGINE NOISE, AIRPORTS,
AIRCRAFT INDUSTRY, REACTION(PSYCHOLOGY) (U)

IDENTIFIERS: NOISE POLLUTION, *SUPERSONIC
TRANSPORTS (U)

THE INQUIRY SHOWS THAT SUPERSONIC AIRPLANES MAY
BRING ABOUT A CHANGE IN THE QUANTITY OF AIRPORT
NOISE, BUT THEY ARE NOT LIKELY TO AFFECT THE QUALITY
OF THAT NOISE. IT SEEMS UNLIKELY THAT THE SSTs
WILL TRIGGER RADICAL REFORMS IN THE LEGAL RULES
APPLICABLE TO AIRPORT NOISE, BECAUSE THEY SIMPLY WILL
NOT MAKE A RADICAL PHYSICAL CHANGE IN SUCH NOISE.
THE AIRPORT NOISE PROBLEM CRIES OUT FOR A CURE
WITHOUT THE SST, AND THE ADVENT OF THAT TYPE OF
AIRCRAFT WILL NOT IMPROVE THE SITUATION, BUT IT WILL
NOT MAKE IT MUCH WORSE EITHER. REFORM OF 'AIRPORT'
LAW WILL NOT FIND ITS RAISON D'ETRE IN THE SST AND
REFORMERS MUST SEEK THEIR IMPETUS ELSEWHERE.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 699 657 20/1
TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES

AERODYNAMIC NOISE,

(U)

69 451P RIBNER, H. S. ;
CONTRACT: AF-AFOSR-1423-68
MONITOR: AFOSR 70-0177TR

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY AVAILABLE FROM TORONTO
UNIV. (ONTARIO). \$15.00.

SUPPLEMENTARY NOTE: PRESENTED AT THE PROCEEDINGS OF
AFOSR-UTIAS SYMPOSIUM, TORONTO (ONTARIO), 20-21
MAY 68.

DESCRIPTORS: (*AERODYNAMIC NOISE, *SYMPOSIA), JETS,
BOUNDARY LAYER, AXIALLY SYMMETRIC FLOW, PRESSURE,
IMPACT, PANELS, ATMOSPHERES, DUCTS, SHOCK WAVES,
AIRPLANE ENGINE NOISE, PROPELLER NOISE, SONIC BOOM,
CANADA

(U)

IDENTIFIERS: NOISE POLLUTION

(U)

CONTENTS: JETS AND NOISE; THE DEVELOPMENT OF
ENGINEERING PRACTICES IN JET, COMPRESSOR, AND
BOUNDARY LAYER NOISE; SCALES PERTINENT TO NOISE
GENERATION FROM A JET; ESTIMATION OF THE INTENSITY
OF NOISE RADIATED FROM A SUBSONIC CIRCULAR JET;
GENERAL METHOD FOR CALCULATING THE SOUND PRESSURE
FIELD EMITTED BY STATIONARY OR MOVING JETS; JET
NOISE AT VERY LOW AND VERY HIGH SPEED; AN
INVESTIGATION OF THE NEAR NOISE FIELDS OF A CHOKED
AXI-SYMMETRIC AIR JET; NOISE FROM UNDEREXPANDED
AXISYMMETRIC JET FLOWS USING RADIAL JET FLOW
IMPINGEMENT; THE RESPONSE OF A SIMPLE PANEL TO THE
PSEUDO-SOUND FIELD OF A JET; ATMOSPHERIC ABSORPTION
OF NOISE; ATTENUATION OF SOUND IN SOFT-WALLED
CIRCULAR DUCTS; FLOW PERTURBATIONS GENERATED BY A
SHOCK WAVE INTERACTING WITH A ENTROPY WAVE; TRENDS
IN BOUNDARY LAYER NOISE RESEARCH; A REVIEW OF THE
SOUND-GENERATING MECHANISMS IN AIRCRAFT-ENGINE FANS
AND COMPRESSORS; DISCRETE NOISE GENERATION AND
PROPAGATION BY A FAN ENGINE; A THEORETICAL STUDY OF
HELICOPTER ROTOR NOISE; A STUDY OF PROPELLER NOISE
RESEARCH; REVIEW OF SONIC BOOM THEORY; RECENT
RESULTS OF SONIC BOOM RESEARCH; SONIC BANG
SIMULATION BY EXPLOSIVES; SECOND-ORDER WAVE
STRUCTURE--PLANAR FLOWS; AND LIFTING AERODYNAMIC
CONFIGURATIONS WITH NO SONIC BOOM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 699 915 20/1 1/2
DEPARTMENT OF TRANSPORTATION WASHINGTON D C LIBRARY
SERVICES DIV

AIRCRAFT NOISE AND SONIC BOOM. SELECTED
REFERENCES.

(U)

DEC 69 46P
REPT. NO. BIBLIOGRAPHIC LIST-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *BIBLIOGRAPHIES), (*AIRCRAFT
NOISE, BIBLIOGRAPHIES), MEASUREMENT, CONTROL, REDUCTION,
STRUCTURES, RESPONSE, REACTION(PSYCHOLOGY), AIRPLANE
ENGINE NOISE, LAW (U)
IDENTIFIERS: *NOISE POLLUTION (U)

CONTENTS: BIBLIOGRAPHIES; AIRCRAFT NOISE
(GENERAL, MEASUREMENT, CONTROL, HUMAN
RESPONSE); SONIC BOOM (GENERAL, GENERATION
AND PROPAGATION, REDUCTION, HUMAN RESPONSE,
STRUCTURAL RESPONSE, MISCELLANEOUS EFFECTS);
LEGAL ASPECTS.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 700 225 20/1 1/2
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

TECHNICAL EVALUATION REPORT ON AGARD SPECIALISTS'
MEETING ON AIRCRAFT ENGINE NOISE AND SONIC BOOM, (U)

JAN 70 9P SEARS, W. R. ;
REPT. NO. AGARD-ADVISORY-22

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: NATO FURNISHED.

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, REVIEWS), (*SONIC
BOOM, REVIEWS), AERODYNAMIC NOISE, REDUCTION, ENGINE
NOISE, DESIGN (U)
IDENTIFIERS: EVALUATION (U)

THE MEETING JUSTIFIED THE TERM 'SPECIALISTS' IN ITS
TITLE. ONE RECEIVED THE IMPRESSION THAT ALL
PRESENT WERE TRULY KNOWLEDGEABLE IN THIS IMPORTANT
FIELD OF TECHNOLOGY AND THAT THEIR EXPERTISE SPANNED
A BROAD RANGE FROM THE HIGHLY MATHEMATICAL TO THE
SEVERELY PRACTICAL. THE MIXING OF PROPULSION AND
FLUID-DYNAMICS SPECIALISTS WAS EMINENTLY SUCCESSFUL;
THE DIVIDING LINE BETWEEN THE CATEGORIES WAS NEVER
VISIBLE. CLEARLY, MUCH IMPORTANT INFORMATION WAS
EXCHANGED THROUGHOUT THE MEETING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 701 854 20/4 20/1 1/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

DIE THEORIE DER KNALLAUSBREITUNG IN EINER
GESCHICHTETEN ATMOSPHAERE (THE THEORY OF SHOCK
WAVE PROPAGATION IN AN ISOTHERMAL
ATMOSPHERE),

(U)

OCT 68 11P STUFF, R. ;
REPT. NO. DFVLR-SONDERDRUCK-2

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ZEITSCHRIFT FUER
FLUGWISSENSCHAFTEN, V17 N5 P156-164 1969. NO COPIES
FURNISHED.
SUPPLEMENTARY NOTE: TEXT IN GERMAN.

DESCRIPTORS: (*SHOCK WAVES, PROPAGATION); (*SONIC BOOM,
MATHEMATICAL ANALYSIS), ACCELERATION, AXIALLY SYMMETRIC
FLOW, DAMPING, WEST GERMANY (U)

THE CHARACTERISTIC METHOD BY K. OSWATITSCH IS
MODIFIED WITH RESPECT TO THE CALCULATION OF SHOCK
WAVES FROM ACCELERATED, DECELERATED AND NON
ACCELERATED AXISYMMETRIC BODIES IN AN ISOTHERMAL
ATMOSPHERE. FORMULAS FOR THE SONIC BANGS OF ANY
AIRCRAFT ARE OBTAINED. THE EXPLICIT FORMULAS YIELD
SATISFYING RESULTS FROM A DISTANCE OF TWENTY BODY
LENGTHS UP TO INFINITY, WHEREAS THE FORMULAS BY G.
B. WHITHAM GIVE SUFFICIENTLY EXACT RESULTS ONLY
FROM A DISTANCE OF THOUSAND BODY LENGTHS. IN
STATIONARY FLIGHT THE SHOCKS ARE DAMPED WITH AN ERROR
FUNCTION AND NOT AS USUALLY ASSUMED WITH THE $3/4$
POWER OF THE DISTANCE. FURTHER, THE DAMPING OF THE
SHOCK WAVES DEPENDS THE MORE ON THE ACCELERATION OR
DECELERATION, THE LARGER THE DISTANCE FROM THE BODY
AND THE CLOSER THE VELOCITY TO THE SPEED OF SOUND.
THE ISOTHERMAL ATMOSPHERE INFLUENCES THE SHOCK
STRENGTH WITH INCREASING DISTANCE. (AUTHOR) (U)

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UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 702 378 20/1 13/13
NORTHWESTERN UNIV EVANSTON ILL DEPT OF CIVIL
ENGINEERING

RESPONSE OF STRUCTURES SUBJECTED TO SONIC BOOMS,

(U)

68 10P HERRMANN, GEORGE ; KRAJCIKOVIC,
DUSAN ;
CONTRACT: AF-AFOSR-100-67
PROJ: AF-9782
TASK: 978201
MONITOR: AFOSR 70-0641TH

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN PROCEEDINGS OF THE
INTERNATIONAL ASSOCIATION FOR BRIDGE AND STRUCTURAL
ENGINEERING CONGRESS (8TH) NEW YORK, N. Y.

9-14 SEP 68, P1149-1155.

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
INGERSOLL-RAND RESEARCH CENTER, PRINCETON, N.
J.

DESCRIPTORS: (*SONIC BOOM, DAMAGE), (*STRUCTURES,
RESPONSE), AERODYNAMIC LOADING, PRESSURE, VIBRATION,
BEAMS(STRUCTURAL), RESONANT FREQUENCY, DIFFERENTIAL
EQUATIONS

(U)

IT IS SUGGESTED THAT THE LOADING ON STRUCTURES
INDUCED BY THE SONIC BOOM GENERATED BY SUPERSONIC
AIRCRAFT CAN BE REPRESENTED BY A DIPOLE IN TIME.
THE TERM 'BIPULSE' IS INTRODUCED FOR THIS TYPE OF
TRANSIENT LOADING. IT IS SHOWN THAT SIMPLE
STRUCTURES SUBJECTED TO SUCH BIPULSE LOADING MAY BE
CONVENIENTLY ANALYZED AND THE RESPONSE READILY
COMPARED WITH THAT DUE TO OTHER TYPES OF DYNAMIC
EFFECTS SUCH AS, FOR EXAMPLE, STEP LOADING AND
IMPULSIVE LOADING. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 704 606 13/13 20/1
STANFORD RESEARCH INST MENLO PARK CALIF

RESPONSE OF WINDOWS TO SONIC BOOMS. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT. NO. 7,
JUN 67 115P SEAMAN, L. ;
CONTRACT: AF 49(638)-1696
PROJ: SRI-ETU-5897

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, STRUCTURES), (*STRUCTURAL
MEMBERS, AERODYNAMIC LOADING), (*GLASS, RUPTURE),
RESPONSE, PRESSURE, STRESSES, DEFLECTION, MATHEMATICAL
PREDICTION (U)
IDENTIFIERS: *WINDOWS, *WINDOW GLASS (U)

A METHOD FOR CALCULATING THE RESPONSE OF SIMPLY
SUPPORTED WINDOWS TO SONIC BOOMS WAS DEVELOPED. THE
PROCEDURE IS BASED ON A LINEAR ONE-DEGREE-OF-FREEDOM
ANALYSIS PLUS ESTIMATES OF THE IMPORTANCE OF
NONLINEAR AND MULTIMODAL EFFECTS. EFFECTS OF STRESS
RAISERS AND OF MOVEMENT FOLLOWED BY IMPACT OF LOOSE
WINDOWS ARE NOT CONSIDERED. SIGNIFICANT
CONTRIBUTIONS TO THE MAXIMUM STRESS IN WINDOWS
SUBJECTED TO 2 PSF SONIC BOOMS ARE MADE BY LARGE
DEFLECTIONS (NONLINEARITIES), MODES ABOVE THE
FUNDAMENTAL, AND THE INTERNAL PRESSURE BUILT UP IN
THE BUILDING BY THE BOOM. AN ATTEMPT TO ESTIMATE
STATISTICALLY THE OCCURRENCE OF WINDOW FAILURE UNDER
2 PSF BOOMS WAS FRUSTRATED BY THE LACK OF PRECISE
KNOWLEDGE OF THE STATISTICAL DISTRIBUTION OF GLASS
STRENGTH. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 709 514 20/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

DIE VERTIKALE AUSBREITUNG VON EBENEN STÖßWELLEN IN
EINER SCHWEREGESCHICHTENTEN ATMOSPHERE MIT EINEM
TEMPERATURGRADIENTEN (THE VERTICAL PROPAGATION
OF HOMOGENEOUS SHOCK WAVES IN A HEAVILY
STRATIFIED ATMOSPHERE WITH TEMPERATURE
GRADIENTS),

(U)

NOV 69 6P STUFF,ROLAND ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ZEITSCHRIFT FUER
FLUGWISSENSCHAFTEN; V18 N2/3 P80-83 1970. NO COPIES
FURNISHED.
SUPPLEMENTARY NOTE: TEXT IN GERMAN, ATTACHED SUMMARY
IN ENGLISH.

DESCRIPTORS: (*SHOCK WAVES, PROPAGATION); VELOCITY,
PERTURBATION THEORY; ATMOSPHERIC TEMPERATURE; WEST
GERMANY; SONIC BOOM

(U)

AN ANALYTIC SOLUTION IS FOUND FOR A PLANE ACOUSTIC
WAVE MOVING UP- AND DOWNWARD IN A POLYTROPIC
ATMOSPHERE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZUM09

AD- 710 888 20/1 1/2
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

TECHNICAL EVALUATION REPORT ON AGARD SPECIALISTS'
MEETING ON 'AIRCRAFT ENGINE NOISE AND SONIC
BOOM'. (U)

DESCRIPTIVE NOTE: ADVISORY REPT.,
JUN 70 8P POWERS, JOHN G. PIANKO, M.
;
REPT. NO. AGARD-AR-26-70

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: NATO FURNISHED. SEE ALSO AD-700
225.

DESCRIPTORS: (*AIRPLANE ENGINE NOISE, *REVIEWS), (*SONIC
BOOM, REVIEWS), AERODYNAMIC NOISE, FANS, COMPRESSOR
NOISE, SOURCES, DESIGN, CONTROL, REDUCTION (U)

CONTENTS: AIRCRAFT NOISE SOURCE; NOISE
PREDICTION; JET NOISE SOURCE; FAN AND COMPRESSOR
NOISE SOURCE; DESIGN FOR NOISE SOURCE CONTROL;
ACOUSTIC PATH CONTROL; ACOUSTIC IMPACT ON
RECEIVER. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 711 124 20/1
DOUGLAS AIRCRAFT CO LONG BEACH CALIF

SONIC BOOM MODELING INVESTIGATION OF TOPOGRAPHICAL
AND ATMOSPHERIC EFFECTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 69-JUL 70,
JUL 70 214P BAUER, A. B. ; BAGLEY, C.
J. ;

REPT. NO. MDC-J0734/01
CONTRACT: FA-69-WA-2114
MONITOR: FAA-NO 70-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *ATMOSPHERIC MOTION),
(*TERRAIN, SONIC BOOM), GEOMETRIC FORMS, TURBULENCE,
INTERACTIONS, JETS, MATHEMATICAL MODELS (U)

AN EXPERIMENTAL PROGRAM WAS UNDERTAKEN TO STUDY THE EFFECTS OF TOPOGRAPHICAL AND STRUCTURAL SHAPES ON SONIC BOOM FOCUSING AND TO STUDY THE EFFECTS OF ATMOSPHERIC TURBULENCE ON SONIC BOOM SIGNATURES. THESE EFFECTS WERE MODELED BY FIRING PROJECTILES AND BY ALLOWING THE PROJECTILE N WAVES TO INTERACT WITH MODEL SHAPES AND WITH TURBULENT JETS. THE WAVE INTERACTIONS WERE STUDIED BY MEANS OF SHADOWGRAPH PICTURES AND MICROPHONE PRESSURE RECORDS. THE BOOM FOCUSING PARAMETERS WERE RELATED TO THE WORK OF TING AND PAN. A CANYON MODEL SHOWED WAVE AMPLIFICATION FACTORS AS LARGE AS 14 FOR A SPECIAL SHAPE AND A PARTICULAR WAVE DIRECTION OF PROPAGATION. A LARGE AMOUNT OF STATISTICAL INFORMATION WAS OBTAINED FROM THE TURBULENCE INTERACTIONS. THIS INFORMATION WAS STUDIED AND FOUND TO BE IN ESSENTIAL AGREEMENT WITH THE THEORY OF CREW, BUT THE MECHANISMS OF THE SHOCK FRONT BREAKUP AND OF CERTAIN NONLINEAR FEATURES ARE NOT UNDERSTOOD. TURBULENCE SCALING PARAMETERS ARE DEVELOPED AND USED TO RELATE THE MODEL RESULTS TO FULL SCALE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 711 516 20/1
GENERAL APPLIED SCIENCE LABS INC WESTBURY N Y

EFFECT OF GROUND REFLECTIVE AND OTHER MICROPHONE
MOUNTING CONDITIONS ON SONIC BOOM MEASUREMENTS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 70 72P ABELE, MANLIO ; TOMBOULIAN,
ROGER ; PESCHKE, WILLIAM ; DANTUONO, DANIEL ;
CONTRACT: DOT-FA60-2185
MONITOR: FAA-NO 70-4

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, MEASUREMENT); REFLECTIVITY,
SURFACE PROPERTIES, MICROPHONES, SOILS, ASPHALT, GLASS
TEXTILES (U)

AN INVESTIGATION OF THE EFFECTS OF VARIOUS GROUND
SURFACES ON THE CHARACTER OF A REFLECTED N-WAVE WAS
PERFORMED. THE RESPONSE OF AN FAA FIELD TEST
MICROPHONE WAS COMPARED WITH THAT OF A STANDARD
CONDENSER MICROPHONE AND THE RESPONSE CAPABILITY OF
AN FAA TRANSIENT DATA RECORDER WAS DETERMINED.
THE EFFECT OF MICROPHONE HEIGHT AND WAVE INCIDENCE
ANGLE WITH RESPECT TO BOTH A RIGID REFERENCE SURFACE
AND SEVERAL GROUND SURFACES WAS EVALUATED IN A SONIC
BOOM SIMULATOR. THE GROUND SURFACES TESTED INCLUDED
ASPHALT, MEDIUM DENSITY GRASS, SPADED SOIL, COARSE
AGGREGATE, ETC. TWO DIFFERENT N-WAVE SIGNATURES
WERE USED IN THE TESTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 711 963 20/1
HYDROSPACE RESEARCH CORP ROCKVILLE MD

PENETRATION OF SONIC BOOM ENERGY INTO THE OCEAN:
AN EXPERIMENTAL SIMULATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 70 56P WATERS, JOHN F. ; GLASS, RAY
E. ;
REPT. NO. HRC-TR-288
CONTRACT: N00014-70-C-0374, FA-70-WAI-185

UNCLASSIFIED REPORT

DESCRIPTORS: (*SEA WATER, ACOUSTIC PROPERTIES), (*SONIC
BOOM, SEA WATER), (*CIVIL AVIATION, SUPERSONIC
AIRCRAFT), SIMULATION, HYDROPHONES, ABSORPTION, SHOCK
WAVES, PRESSURE, ECOLOGY, EXPLOSIVE CHARGES, REFLECTION,
MATHEMATICAL PREDICTION (U)
IDENTIFIERS: *AMBIENT NOISE (U)

PENETRATION OF SOUND INTO A BODY OF WATER FROM A
SIMULATED AIRBORNE SONIC BOOM WAS MEASURED IN AN
ACOUSTICALLY SCALED EXPERIMENT. DYNAMITE CAPS WERE
USED TO PRODUCE SPHERICALLY SPREADING N-WAVES WHICH
IMPINGED UPON THE WATER. MICROPHONES AT THE WATER
SURFACE AND HYDROPHONES AT VARIOUS SHALLOW DEPTHS
WERE USED TO MEASURE THE EXPONENTIALLY ATTENUATING
PENETRATION OF THE AIRBORNE PRESSURE FIELD INTO THE
WATER, UNDER TOTAL REFLECTION CONDITIONS. AGREEMENT
BETWEEN THE SCALED EXPERIMENTAL MEASUREMENTS AND
PREDICTIONS BASED ON EXISTING THEORY WAS GENERALLY
GOOD. APPLICATION OF THE THEORY TO THE CASE OF
ACTUAL SONIC BOOMS IMPINGING UPON THE OCEAN, AND
COMPARISONS WITH MEASUREMENTS OF TYPICAL DEEP-OCEAN
AMBIENT NOISE, INDICATE THAT UNDERWATER SONIC BOOM
NOISE WILL BE DISCERNIBLE ONLY AT VERY LOW
FREQUENCIES AND AT SHALLOW DEPTHS. PRESSURE
FLUCTUATION SPECTRUM LEVELS DUE TO SURFACE WAVES WILL
BE HIGHER THAN LEVELS DUE TO SONIC BOOMS.
(AU: 40R) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 716 830 20/1
AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

LOWER BOUNDS FOR SONIC BOOM CONSIDERING THE
NEGATIVE OVERPRESSURE REGION,

(U)

MAY 70 4P PETTY, JAMES S. ;
REPT. NO. ARL-70-0297V
PROJ: AF-7064
TASK: 7064

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN JNL. OF AIRCRAFT, V7 N4
P375-377 JUL-AUG 70.

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 7 JAN
70.

DESCRIPTORS: (*SONIC BOOM, MATHEMATICAL ANALYSIS),
PRESSURE, SUPERSONIC AIRCRAFT, JET TRANSPORT PLANES,
THEORY

(U)

IDENTIFIERS: OVERPRESSURE, SUPERSONIC TRANSPORTS

(U)

CONSIDERATION IS GIVEN TO BOTH THE POSITIVE AND
NEGATIVE PARTS OF THE OVERPRESSURE SIGNATURE IN AN
ANALYSIS OF LOWER BOUND CONFIGURATIONS FROM THE
NONASYMPTOTIC THEORY.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 717 193 20/1
AIR FORCE FLIGHT DYNAMICS LAB WRIGHT-PATTERSON AFB
OHIO

CRITICAL EVALUATION OF A NONUNIFORM FLOW
SONIC BOOM REDUCTION CONCEPT.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. OCT 68-JUL 69.
SEP 70 40P WEEKS, THOMAS M. ;
REPT. NO. AFFDL-TR-70-65
PROJ: AF-1366
TASK: 136612

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, REDUCTION), TWO DIMENSIONAL
FLOW, FLOW FIELDS, JETS, FLAT PLATE MODELS, LEADING
EDGES, INTERACTIONS (U)
IDENTIFIERS: NONUNIFORM FLOW, EVALUATION (U)

AN INVESTIGATION WAS MADE OF A 'NONUNIFORM FLOW
FIELD' SONIC BOOM ELIMINATION DEVICE. THE TWO-
DIMENSIONAL FLOW FIELD CONSISTS OF A SLIT JET
IMPINGING ON AN INCLINED FAT PLATE AIRFOIL. THE
REPORT PRESENTS INDEPENDENT ANALYSES OF THE PROBLEM
AS WELL AS A CRITIQUE OF THE ANALYSIS. THE MAJOR
FINDING IS THAT ONE CAN EXPECT NO MORE THAN A 10%
REDUCTION IN THE STRENGTH OF THE LEADING EDGE SHOCK
WAVE AT A THOUSAND CHORD LENGTHS FROM THE PLATE WHEN
COMPARED TO THE CORRESPONDING CASE WITHOUT JET FLOW
(SAME CHORD AND LOWER SURFACE PRESSURE). UNDER
IDENTICAL CONDITIONS, A 20% REDUCTION IS FOUND.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 718 835 20/1
BOEING SCIENTIFIC RESEARCH LABS SEATTLE WASH

FINITE DIFFERENCE CALCULATION OF THE BEHAVIOR
OF A DISCONTINUOUS SIGNAL NEAR A CAUSTIC,

(U)

JAN 71 21P SEEBASS, R. MURMAN, E. M. ;
KRUPP, J. A. ;
REPT. NO. D1-82-1040

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE CONFERENCE ON
SONIC BOOM RESEARCH (3RD), NASA HEADQUARTERS,
WASHINGTON, D. C., 29-30 OCT 70.

DESCRIPTORS: (SONIC BOOM, WAVE PROPAGATION), TRANSONIC
CHARACTERISTICS, PROPAGATION, INTERACTIONS, PRESSURE,
NUMERICAL METHODS AND PROCEDURES (U)
IDENTIFIERS: OVERPRESSURE, FINITE DIFFERENCE
THEORY (U)

IT IS IMPORTANT TO PREDICT SONIC BOOM OVERPRESSURE
SIGNATURES IN THE VICINITY OF A CAUSTIC. IN
PARTICULAR, ONE NEEDS TO BE ABLE TO CALCULATE THE
OVERPRESSURE WHEN THE CAUSTIC SURFACE INTERSECTS, OR
WHEN IT IS NEAR THE GROUND. WHILE THE ANALYTICAL
FORMULATION OF THIS PROBLEM IS A SIMPLE ONE, THE
SOLUTION BY FORMAL MATHEMATICAL TECHNIQUES PRESENTS
GREAT DIFFICULTIES. CONSEQUENTLY, THERE IS GREAT
IMPETUS FOR DEVELOPING NUMERICAL TECHNIQUES THAT CAN
PROVIDE SUCH PREDICTIONS. HERE THE AUTHORS REPORT
ON THE EXTENSION TO THE CAUSTIC PROBLEM OF A
TECHNIQUE DEVELOPED BY MURMAN AND COLE FOR
TRANSONIC FLOWS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 721 010 20/1 1/3
WYLE LABS INC HUNTSVILLE ALA RESEARCH STAFF

NOISE PRIMER FOR THE SUPERSONIC
TRANSPORT.

(U)

MAR 71 34P
CONTRACT: FA-55-71-9

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *SUPERSONIC AIRCRAFT),
(*JET TRANSPORT PLANES, *COMMERCIAL PLANES), SONIC BOOM,
LAW, UNITED STATES GOVERNMENT, JET ENGINE NOISE,
AIRPORTS, REDUCTION, URBAN AREAS (U)
IDENTIFIERS: *NOISE POLLUTION, *SUPERSONIC
TRANSPORTS (U)

THE FIRST AIM OF THE BOOKLET IS TO CLARIFY THE
BASIC CONCEPTS AND TERMINOLOGY NECESSARY IN ANY
DISCUSSION OF AIRPORT-COMMUNITY NOISE AND THE SST.
THE SECOND AIM OF THE BOOKLET IS TO DESCRIBE THE
EXPECTED NOISE OF THE PLANNED COMMERCIAL SST--USING
THE TERMINOLOGY AND CONCEPTS DEVELOPED TO DESCRIBE
AIRCRAFT NOISE. THIS DESCRIPTION TRIES TO PUT SST
NOISE INTO PERSPECTIVE BY: SUMMARIZING THE
STATUS OF THE MAJOR EFFORTS TO REDUCE SST NOISE;
CLARIFYING SOME OF THE OLD NUMERICAL VALUES FOR
SST NOISE WHICH HAVE CAUSED CONFUSION; COMPARING
THE NOISE OF THE SST WITH THAT OF OTHER AIRPLANES
IN TERMS OF CERTIFICATION NOISE LEVELS; AND SHOWING
HOW THE AIRPORT-COMMUNITY NOISE FROM SST OPERATIONS
FITS INTO THE NOISE PICTURE ALONG WITH THE NEW
AIRPLANES OF THE FUTURE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 721 423 20/1 20/11 13/13
EXPLOSIVES RESEARCH AND DEVELOPMENT ESTABLISHMENT WALTHAM
ABBAY (ENGLAND)

EXPLOSIVELY GENERATED AIR PRESSURE WAVES
FOR STRUCTURAL FORCING, (U)

APR 69 10P HARPER, M. J. HAWKINS, S.
J. THICKS, J. A. I
REPT. NO. ERDE-OFFPRINT-10

UNCLASSIFIED REPORT

PAPER COPY AVAILABLE FROM MINISTRY OF TECHNOLOGY
REPORTS CENTRE, STATION SQUARE HOUSE, ST.
MARY CRAY, ORPINGTON KENT (ENGLAND) BR5
3RE. NO COPIES FURNISHED BY DDC OR NTIS.
SUPPLEMENTARY NOTE: PUB. IN JNL. OF SOUND VIBRATIONS
VII N2 P217-224 1970.

DESCRIPTORS: (•SONIC BOOM, SIMULATION), (•STRUCTURES,
GUST LOADS), AIRBURST, BLAST, SHOCK WAVES, PRESSURE,
INTEGRAL TRANSFORMS, GREAT BRITAIN (U)

THE AERIAL BLAST WAVE GENERATED BY A SMALL
EXPLOSION MAY BE USED TO PRODUCE IMPULSIVE FORCING OF
STRUCTURES WITH NATURAL PERIODS LONGER THAN
APPROXIMATELY 1 MSEC! THE FREE RESPONSE OF SUCH
STRUCTURES MAY THEN BE DETERMINED. A TECHNIQUE HAS
BEEN DEVELOPED USING SPATIAL DISTRIBUTIONS OF
EXPLOSIVE WHEREBY IT IS POSSIBLE TO GENERATE WAVES OF
MUCH LONGER DURATIONS AND OF A MUCH WIDER RANGE OF
SHAPES, SO THAT STUDIES OF THE FORCED RESPONSE OF
STRUCTURES ARE MADE FEASIBLE. THE TECHNIQUE HAS
BEEN APPLIED TO THE GENERATION OF A BLAST WAVEFORM OF
THE SAME SHAPE AS THAT OF THE SONIC BANG, FOR
EXAMPLE, THUS PERMITTING STUDIES OF RESPONSE TO SONIC
BANGS TO BE CARRIED OUT WITHOUT THE NECESSITY OF
FLYING SUPERSONIC AIRCRAFT AND WITHOUT RECOURSE TO
SCALED MODEL EXPERIMENTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZQM09

AD- 721 932 20/1
BOEING SCIENTIFIC RESEARCH LABS SEATTLE WASH

NONLINEAR ACOUSTIC BEHAVIOR AT A CAUSTIC,

(U)

FEB 71 52P SEEBASS, R. I
REPT. NO. DI-82-1039

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, MATHEMATICAL MODELS), SHOCK
WAVES, WAVE FUNCTIONS, REFLECTION, SUPERSONIC FLIGHT,
PARTIAL DIFFERENTIAL EQUATIONS, NONLINEAR SYSTEMS (U)
IDENTIFIERS: COMPUTERS, GRAPHICS (U)

THE PAPER IS CONCERNED WITH MODIFYING THE BASIC
THEORY OF SONIC BOOMS TO INCLUDE NONLINEAR EFFECTS
NOT PROPERLY ACCOUNTED FOR IN THE NEIGHBORHOOD OF A
CAUSTIC. THE BASIC THEORY ACCOUNTS FOR NONLINEAR
EFFECTS ON THE PROPAGATION OF THE PRESSURE SIGNAL
DOWN A RAY TUBE, BUT THE CONCEPT OF RAY TUBES IS A
LINEAR ONE. THE ENVELOPE OF THE RAYS IS A CAUSTIC
SURFACE; THIS SURFACE IS THE LOCUS OF CUSPS IN THE
ACOUSTIC WAVE FRONTS. INTEREST IS IN THE DETAILED
STRUCTURE OF THE WAVE FRONT AS IT REFLECTS AT A
CAUSTIC SURFACE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZQM09

AD- 723 112 11/2 20/1
WYLE LABS HUNTSVILLE ALA

AN EXPERIMENTAL STUDY TO DETERMINE THE
EFFECTS OF REPETITIVE SONIC BOOMS ON GLASS
BREAKAGE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 70 84P KAO, GEORGE C. ;
REPT. NO. WR-70-11
CONTRACT: FA-69-WA-2204
MONITOR: FAA-NO 70-13

UNCLASSIFIED REPORT

DESCRIPTORS: (*GLASS, VULNERABILITY), (*SONIC BOOM,
GLASS), BRITTLINESS, PREDICTIONS, SUPERSONIC FLIGHT,
EXPERIMENTAL DATA, TEST METHODS, DAMAGE ASSESSMENT,
MODELS(SIMULATIONS)

(U)

A PNEUMATIC PISTONPHONE SIMULATOR, DEVELOPED BY
WYLE LABORATORIES, WAS USED UNDER THE PRESENT
CONTRACT TO EXPERIMENTALLY DETERMINE DAMAGE POTENTIAL
TO SINGLE STRENGTH GLASS SPECIMENS WHEN EXPOSED TO
REPETITIVE SONIC BOOMS. THE GLASS SPECIMEN
DIMENSIONS WERE TYPICALLY 48 INCH X 48 INCH X 3/32
INCH. IN THESE EXPERIMENTS, PARTICULAR EMPHASIS
WAS PLACED ON THE CUMULATIVE DAMAGE FROM A LARGE
NUMBER OF BOOMS. PRELIMINARY STATIC STRENGTH TESTS
WERE CONDUCTED ON TWO SIZES OF NEW (PREVIOUSLY
UNUSED) SINGLE STRENGTH GLASS TO DETERMINE MEAN
VALUES AND PROBABILITY DISTRIBUTIONS OF INCIPIENT
FAILURE PRESSURES, AND A FEW SUCH TESTS WERE ALSO
CONDUCTED FOR USED (SCRATCHED AND WEATHERED)
GLASS SPECIMENS. AS A BY-PRODUCT, THESE TESTS
YIELDED DATA REGARDING NONLINEAR STIFFNESS
CHARACTERISTICS OF GLASS PANES AND THE EFFECTS OF
BOUNDARY CONDITIONS ON THIS STIFFNESS. ALTHOUGH
THE TEST DATA ARE LIMITED, RESULTS INDICATE THAT
SONIC BOOM OVERPRESSURES REQUIRED TO CAUSE INCIPIENT
FAILURE ARE NEARLY COMPARABLE TO STATIC FAILURE
PRESSURES, AND THE PROBABILITY OF GLASS FAILURE AT
REALISTIC SONIC BOOM OVERPRESSURES IS QUITE SMALL FOR
PROPERLY MOUNTED NEW GLASS. FURTHER EXPERIMENTS
WILL BE REQUIRED TO VALIDATE AND EXTEND THESE
RESULTS. A PRELIMINARY GLASS NEIGHBORHOOD SURVEY
WAS CONDUCTED TO DETERMINE BREAKAGE RATES UNDER
NATURAL ENVIRONMENTS; HOWEVER, BECAUSE OF THE SMALL
SAMPLE SIZE, THE GLASS BREAKAGE STATISTICS OBTAINED
WERE OF LIMITED VALUE IN FORMULATING A REALISTIC
BREAKAGE PROBABILITY MODEL.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 723 339 20/1 14/2 1/3
GENERAL APPLIED SCIENCE LABS INC WESTBURY N Y

SONIC BOOM MODELING INVESTIGATION OF
TOPOGRAPHIC AND ATMOSPHERIC EFFECTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. APR 69-APR 70,
APR 70 157P PESCHKE, WILLIAM ; SLUTSKY,
SIMON ; DANTUONO, DANIEL ;
CONTRACT: DOT-FA69WA-2113
MONITOR: FAA 70-12

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, MODEL TESTS); (*SUPERSONIC
AIRCRAFT, SONIC BOOM), ATMOSPHERES, INTERACTIONS,
TERRAIN, TEST FACILITIES, ACOUSTIC HORNS, GAS FLOW,
THERMAL PROPERTIES, MICROPHONES, TURBULENCE, PRESSURE,
DIFFRACTION, MATHEMATICAL PREDICTION,
MODELS(SIMULATIONS)
IDENTIFIERS: OVERPRESSURE, GRAPHS(CHARTS)

(U)

(U)

THE EFFECTS OF SONIC BOOM INTERACTION WITH SEVERAL
TOPOGRAPHIC CONFIGURATIONS AND WITH INERTIAL AND
THERMAL TURBULENCE HAVE BEEN INVESTIGATED IN REDUCED
SCALE UTILIZING AN ACOUSTIC HORN TYPE TEST FACILITY.
OPERATIONS OF THE FACILITY AND THE SPECIFIC
MODIFICATIONS REQUIRED TO GENERATE THE INERTIAL AND
THERMAL TURBULENCE ARE DESIRED. EIGHT TOPOGRAPHIC
MODEL CONFIGURATIONS WERE TESTED OVER A RANGE OF
MODEL ORIENTATIONS AND WAVE INCIDENCE ANGLES
CORRESPONDING TO MACH NUMBERS RANGING BETWEEN 1.0
AND 1.4. REGIONS OF SIGNIFICANT OVER-PRESSURE ON
THE MODEL SURFACE, ARISING AS A CONSEQUENCE OF WAVE
REFLECTION PHENOMENA WERE STUDIED IN PARTICULAR.
GOOD AGREEMENT, BOTH AS TO THE MAGNITUDE OF THE
OVER-PRESSURE AND THE TIME OF OCCURRENCE OF THE
PRESSURE PEAKS, WAS OBTAINED WITH THE PREDICTIONS OF
LINEAR ACOUSTIC THEORY. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 723 579 20/1 1/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS
RESEARCH AND DEVELOPMENT SERVICE

AIRCRAFT NOISE STANDARDS AND
REGULATIONS.

(U)

DESCRIPTIVE NOTE: SPEECH REPT. MAR-APR 71,
APR 71 74P POWER, JOSEPH K. ;
REPT. NO. FAA-RD-71-24

UNCLASSIFIED REPORT

DESCRIPTORS: (*JET PLANE NOISE, *STANDARDS), (*UNITED
STATES GOVERNMENT, CIVIL AVIATION), JET ENGINE NOISE,
SONIC BOOM, TAKEOFF, AIRCRAFT LANDINGS, AIRPORTS,
TOLERANCES (PHYSIOLOGY) (U)

THE PAPER DISCUSSES PUBLIC LAW 90-411 AND FAR
PART 36 OF FEDERAL REGULATIONS. NOISE
EXPOSURE FORECASTS AND VARIOUS SYSTEMS FOR RATING
AIRCRAFT NOISE WORLD-WIDE ARE PRESENTED. NOISE
CERTIFICATION AND AIRCRAFT RETROFIT REGULATIONS ARE
DISCUSSED AS WELL AS AIRCRAFT OPERATIONAL PROCEDURES
TO REDUCE NOISE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 724 344 20/1
CATHOLIC UNIV OF AMERICA WASHINGTON D C INST OF OCEAN
SCIENCE AND ENGINEERING

A LITERATURE SURVEY OF NOISE POLLUTION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 71 96P SHIH, H. H. I
REPT. NO. 71-5
CONTRACT: N00014-69-A-0432

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, *REVIEWS), PUBLIC HEALTH,
ENVIRONMENT, STRESS(PSYCHOLOGY), STRESS(PHYSIOLOGY),
CONTROL, HEARING, INDUSTRIAL MEDICINE, SONIC BOOM,
BIBLIOGRAPHIES (U)
IDENTIFIERS: *NOISE POLLUTION (U)

PHYSICALLY, NOISE IS A COMPLEX SOUND THAT HAS
LITTLE OR NO PERIODICITY. HOWEVER, THE ESSENTIAL
CHARACTERISTIC OF NOISE IS ITS UNDESIRABILITY.
THUS, NOISE CAN BE DEFINED AS ANY ANNOYING OR
UNWANTED SOUND. IN RECENT YEARS, THE RAPID INCREASE
OF NOISE LEVEL IN OUR ENVIRONMENT HAS BECOME A
NATIONAL PUBLIC HEALTH HAZARD. NOISE AFFECTS MAN'S
STATE OF MENTAL, PHYSICAL, AND SOCIAL WELL-BEING.
THE PROBLEM FORMS A SPECIAL TYPE OF AIR POLLUTION.
NOISE STUDY IS A RATHER NEW SUBJECT AMONG OTHER
BRANCHES OF SCIENCE. THE TRANSITION FROM ART TO
NEAR-SCIENCE STARTED FROM BEFORE THE WORLD WAR
II. THE WORK IS AN ATTEMPT TO ARRIVE AT AN
UNDERSTANDING OF THE GENERAL SITUATION ON THE PROBLEM
OF NOISE. THE SURVEY CONSISTS OF FOUR MAJOR
PARTS: THE PRESENT STATUS OF NOISE POLLUTION, ITS
SOURCES, ITS EFFECTS, AND THE CONTROL. MANY URGENT
RESEARCH NEEDS ARE ALSO IDENTIFIED. FINALLY, LISTS
OF TERMINOLOGY AND BIBLIOGRAPHY RELATING TO NOISE
POLLUTION PROBLEMS ARE PROVIDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 724 942 4/1 20/1
LAMONT-DOHERTY GEOLOGICAL OBSERVATORY PALISADES N Y

SOUND FROM APOLLO ROCKETS IN SPACE, (U)

OCT 70 7P COTTEN, DONALD ; DONN, WILLIAM
L. ;

REPT. NO. LDGO-1618
CONTRACT: DAAB07-69-C-0250, DAHCO4-67-C-0037
PROJ: DA-2-0-061102-B-53-B
MONITOR: AR0D 6997:10-EN

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN SCIENCE, V171 P565-567, 12
FEB 71.

DESCRIPTORS: (*MICROBAROMETRIC WAVES, MEASUREMENT),
(*MANNED SPACECRAFT, SONIC BOOM), SOUND TRANSMISSION,
TURBULENCE, UPPER ATMOSPHERE, SUPERSONIC FLOW, KINETIC
THEORY, LOW FREQUENCY, BERMUDA (U)
IDENTIFIERS: APOLLO 12 SPACECRAFT, APOLLO, APOLLO 13
SPACECRAFT, INFRASONICS, RADIATION (U)

LOW-FREQUENCY SOUND HAS BEEN RECORDED ON AT LEAST
TWO OCCASIONS IN BERMUDA WITH THE PASSAGE OF
APOLLO ROCKET VEHICLES 180 KILOMETERS ALOFT. THE
SIGNALS, WHICH ARE REMINISCENT OF N-WAVES FROM
SONIC BOOMS, ARE: HORIZONTALLY COHERENT; HAVE
EXTREMELY HIGH (SUPERSONIC) TRACE VELOCITIES
ACROSS THE TRIPARTITE ARRAYS; HAVE NEARLY IDENTICAL
APPEARANCE AND FREQUENCIES; HAVE ESSENTIALLY
IDENTICAL ARRIVAL TIMES AFTER ROCKET LAUNCH; ARE THE
ONLY COHERENT SIGNALS RECORDED OVER MANY HOURS.
THESE OBSERVATIONS SEEM TO ESTABLISH THAT THE
RECORDED SOUND COMES FROM THE ROCKETS AT HIGH
ELEVATION. DESPITE THIS HIGH ELEVATION, THE VALUES
OF SURFACE PRESSURE APPEAR TO BE EXPLAINABLE ON THE
BASIS OF A COMBINATION OF A KINETIC THEORY APPROACH
TO SHOCK FORMATION IN RAREFIED ATMOSPHERE WITH
ESTABLISHED GAS-DYNAMICS SHOCK THEORY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 725 132 20/1
NAVAL ORDNANCE LAB WHITE OAK MD

SONIC BOOMS IN THE SEA.

(U)

FEB 71 21P URICK, R. J. ;
REPT. NO. NOLTR-71-30
PROJ: NOL-IR-1

UNCLASSIFIED REPORT

DESCRIPTORS: (*UNDERWATER SOUND, MEASUREMENT), (*SONIC
BOOM, UNDERWATER SOUND), JET FIGHTERS, SOUND
TRANSMISSION, DEEP WATER, SURFACE TO UNDERWATER, NAVAL
AIRCRAFT (U)

IDENTIFIERS: AIR WATER INTERACTIONS, MOST PROJECT-

2

(U)

SONIC BOOMS LAID DOWN BY NAVY FIGHTER AIRCRAFT
FLYING AT MACH 1.1-1.2 HAVE BEEN OBSERVED BELOW THE
SURFACE OF THE SEA BY MEANS OF A STRING OF
HYDROPHONES 195 FEET LONG DANGLING FROM A SURFACE
SHIP. THE UNDERWATER BOOMS WERE FOUND TO DECAY
ABOUT AS THE $-3/2$ POWER OF THE DEPTH BELOW THE
SURFACE, TO HAVE THE SAME SPECTRAL CONTENT AS THE
BOOM IN AIR, AND TO TRAVEL DOWN THE STRING WITH THE
VELOCITY OF SOUND IN WATER. THESE FINDINGS
CONTRADICT THE THEORY OF AN 'INHOMOGENEOUS' WAVE
INCIDENT BEYOND THE CRITICAL ANGLE, AS ORIGINALLY
STATED BY RAYLEIGH AND AS RECENTLY EXTENDED TO
SONIC BOOMS BY SAWYERS AND COOK. THEY SUGGEST,
INSTEAD, THAT THE UNDERWATER SONIC BOOM IS A WAVE
SCATTERED BY THE ROUGH SEA SURFACE INTO THE SEA
BELOW. ITS DECAY WITH DEPTH IS SO RAPID THAT IT IS
NOT LIKELY TO BE PERCEPTIBLE AGAINST THE AMBIENT
NOISE BACKGROUND AT DEPTHS GREATER THAN ONE OR TWO
THOUSAND FEET IN THE DEEP SEA. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 725 185 20/1
ROCHESTER UNIV N Y DEPT OF ELECTRICAL ENGINEERING

MEASUREMENTS OF THE REFRACTION AND DIFFRACTION
OF A SHORT N WAVE BY A GAS-FILLED SOAP
BUBBLE.

(U)

SEP 70 9P DAVY, BRUCE A. ; BLACKSTOCK,
DAVID T. ;
CONTRACT: F44620-69-C-0044
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-71-1670

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN THE JNL. OF THE ACOUSTICAL
SOCIETY OF AMERICA, V49 N3 PT2 P732-737 MAR 71.

DESCRIPTORS: (*SONIC BOOM, SPECTRUM SIGNATURES), (*SOUND
TRANSMISSION, BUBBLES), EXPERIMENTAL DESIGN, TEST
EQUIPMENT, TEST METHODS, REFRACTION, DIFFRACTION,
FOCUSING

(U)

IDENTIFIERS: WAVEFORMS

(U)

THE PRESSURE SIGNATURES OF SONIC BOOMS MEASURED IN
THE FIELD OFTEN SHOW CONSIDERABLE VARIATIONS FROM THE
IDEAL N WAVESHAPE. PEAKED AND ROUNDED VERSIONS OF
THE N ARE COMMONLY OBSERVED. PIERCE HAS PROPOSED
THAT PEAKING AND ROUNDING ARE THE RESULT OF
REFRACTION AND DIFFRACTION CAUSED BY ATMOSPHERIC
INHOMOGENEITIES. TO TEST THIS EXPLANATION, A MODEL
EXPERIMENT HAS BEEN CARRIED OUT IN THE LABORATORY.
N WAVES ABOUT 1 CM LONG WERE PRODUCED BY AN
ELECTRIC SPARK, REFRACTED AND DIFFRACTED BY A GAS-
FILLED SOAP BUBBLE, AND RECEIVED BY A VERY WIDE-RANGE
CONDENSER MICROPHONE. THE MICROPHONE OUTPUT WAS
DISPLAYED ON AN OSCILLOSCOPE. THE SPARK-MICROPHONE
DISTANCE WAS HELD FIXED, AND MEASUREMENTS WERE TAKEN
WITH THE BUBBLE AT VARIOUS POINTS IN BETWEEN. THE
BUBBLE ACTED AS A CONVERGING ACOUSTIC LENS WHEN IT
WAS FILLED WITH ARGON AND AS A DIVERGING LENS WHEN
FILLED WITH HELIUM. IT WAS FOUND THAT THE
CONVERGING LENS CAUSED PEAKING OF THE N WAVE, WHILE
THE DIVERGING LENS CAUSED ROUNDING. THESE RESULTS
QUALITATIVELY SUPPORT PIERCE'S THEORETICAL MODEL.
THE DATA DO NOT SERVE AS A QUANTITATIVE TEST OF
PIERCE'S SPECIFIC NUMERICAL EXAMPLES, HOWEVER,
BECAUSE THE PARTICULAR CONDITIONS HE ASSUMED WERE NOT
REPRODUCED IN OUR EXPERIMENT. A DISCUSSION IS GIVEN
OF THE EFFECT OF SOME OF THESE CONDITIONS, SUCH AS
THE ORDER AND RELATIVE TIME OF ARRIVAL OF THE
REFRACTED AND DIFFRACTED WAVES, ON THE WAVEFORM.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 725 658 20/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

UEBERSCHALLKNALL UND WIDERSTAND EINES VORNE
SPITZEN ROTATIONSKOERPERS IN EINER
SCHEREGESCHICHTETEN ATMOSPHAERE (SONIC BOOM
AND RESISTANCE OF A FORWARD BOW BOOM BODY
IN A STRATIFIED ATMOSPHERE),

(U)

JUL 70 9P STUFF,ROLAND I
REPT. NO. DFLR-SONDERDRUCK-97

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN ZEITSCHRIFT FUER
ANGEWANDTE MATHEMATIK UND PHYSIK, V21 N6 P940-946
1970. NO COPIES FURNISHED BY DDC OR NTIS.

SUPPLEMENTARY NOTE: TEXT IN GERMAN, ATTACHED SUMMARY IN
ENGLISH.

DESCRIPTORS: (*SONIC BOOM, AERODYNAMIC CONFIGURATIONS),
DRAG, SHOCK WAVES, THICKNESS, WEST GERMANY (U)

J. L. RYHMING CONCLUDED THAT THE MINIMUM-BOOM
BODY FOR GIVEN BOW-SHOCK WAVE DRAG AND MAXIMUM BODY
THICKNESS IS ALSO THE MINIMUM DRAG BODY DUE TO THE
BOW SHOCK FOR A GIVEN MAXIMUM BODY THICKNESS. IT IS
SHOWN THAT THE ABOVE CONCLUSION IS ONLY VALID FOR
ASYMPTOTIC DISTANCES. THE GEOMETRY OF THE MINIMUM-
BOOM BODY DEPENDS ON THE DISTANCE FOR WHICH ONE WANTS
TO MINIMIZE THE SONIC BOOM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 725 865 20/1
KALAMAZOO COLL MICH DEPT OF PHYSICS

STUDIES OF N WAVES FROM WEAK SPARKS IN
AIR.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 63P WRIGHT, WAYNE M. ;
CONTRACT: NONR-3932(00)
PROJ: NR-384-321

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTRIC DISCHARGES, ACOUSTIC
PROPERTIES), SOUND TRANSMISSION, GAS DISCHARGES, SHOCK
WAVES, SONIC BOOM, TRANSIENTS (U)

THE REPORT SUMMARIZES WORK PERFORMED AT KALAMAZOO
COLLEGE DURING THE PERIOD 1962-1970 ON THE STUDY OF
ACOUSTIC TRANSIENTS IN AIR. THE MAJOR PORTION OF
THIS RESEARCH WAS A MANY FACETED STUDY OF THE
ACOUSTIC TRANSIENTS PRODUCED IN AIR BY WEAK SPARKS.
THE SPARK ENERGIES WERE IN THE RANGE 0.0016 - 0.56
J. AND THE ACOUSTIC WAVEFORMS RESEMBLED N WAVES
WITH DURATIONS OF 10 - 40 MICROSECONDS AND AMPLITUDES
OF THE ORDER OF 0.01 ATMOSPHERE. THESE WAVEFORMS
WERE OBSERVED BY MEANS OF WIDE-BAND CONDENSER
MICROPHONES. IT WAS POSSIBLE TO REPRODUCE A WEAK
SHOCK WITH A RISE TIME AS SHORT AS 1/2 MICROSECONDS.
TOPICS INVESTIGATED INCLUDE THE DEPENDENCE OF
ACOUSTIC WAVEFORM UPON PROPAGATION DIRECTION, SPARK
LENGTH, AND DISCHARGE ENERGY; THE DISTORTION OF THE
WAVE PROFILE WITH PROPAGATION DISTANCE; AND THE
DIFFRACTION AND SCATTERING OF N WAVES FROM
RECTANGULAR PLATES, CIRCULAR DISCS, AND CYLINDRICAL
RODS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 728 332 5/10 20/1
STANFORD RESEARCH INST MENLO PARK CALIF

A STUDY OF SENSITIVITY TO NOISE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUN 71 65P BECKER, R. W. ; POZA, F. ;
KRYTER, K. D. ;
CONTRACT: DOT-FA69WA-2211
MONITOR: FAA-EQ 71-4

UNCLASSIFIED REPORT

DESCRIPTORS: (*NOISE, SENSITIVITY), (*PSYCHOPHYSIOLOGY,
*SONIC BOOM), AUDITORY PERCEPTION, PSYCHOACOUSTICS,
REACTION(PSYCHOLOGY), PERSONALITY, ATTITUDES,
SIMULATION, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: NOISE POLLUTION (U)

IN THE STUDY, 140 SUBJECTS WERE EXPOSED TO
SIMULATED SONIC BOOMS AND RECORDED RESIDENTIAL NOISES
IN ONE, TWO, OR THREE TWO-HOUR SESSIONS OVER A PERIOD
OF SIX MONTHS. ELECTROPHYSIOLOGICAL MEASURES OF
HEART RATE AND ELECTROMYOGRAPHIC RESPONSES TO THE
STIMULI WERE ANALYZED. BIOGRAPHICAL,
DEMOGRAPHICAL, AND PERSONALITY INVENTORIES WERE ALSO
OBTAINED FOR EACH OF THE SUBJECTS. THE PURPOSE OF
THIS RESEARCH WAS TO: DETERMINE WHETHER THERE ARE
DIFFERENT DEGREES OF PSYCHOLOGICAL AND PHYSIOLOGICAL
SENSITIVITY TO NOISE IN A LARGE GROUP OF PEOPLE; TO
DETERMINE WHETHER AND HOW SUCH SENSITIVITY VARIED IN
TIME; AND TO RELATE SUCH SENSITIVITY TO OTHER
PSYCHOLOGICAL AND PERSONALITY VARIABLES.
SIGNIFICANT DIFFERENCES IN PSYCHOLOGICAL
SENSITIVITY TO NOISE WERE FOUND IN THE SUBJECT
POPULATION. THESE DIFFERENCES REMAINED STABLE FOR
THE DURATION OF THE EXPERIMENT AND WERE ALSO FOUND TO
BE RELATED TO THE ATTITUDINAL AND BELIEF STRUCTURES
OF THE INDIVIDUALS. DEFINITE PHYSIOLOGICAL
RESPONSES TO THE SIMULATED SONIC BOOMS WERE OBSERVED.
HOWEVER, THE PHYSIOLOGICAL INDICES USED IN THIS
RESEARCH DID NOT SHOW INDIVIDUAL DIFFERENCES IN
PHYSIOLOGICAL SENSITIVITY TO NOISE. THESE RESULTS
DO NOT PRECLUDE THE POSSIBILITY THAT MORE ELABORATE
AND EXTENSIVE PSYCHOPHYSIOLOGICAL MEASUREMENT MIGHT
DEMONSTRATE VARYING PHYSIOLOGICAL SENSITIVITY TO
NOISE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMD9

AD- 729 833 5/10 20/1
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

THE EFFECTS OF SIMULATED SONIC BOOMS ON
TRACKING PERFORMANCE AND AUTONOMIC RESPONSE, (U)

JUN 71 18P THACKRAY, RICHARD I. ;
TOUCHSTONE, R. MARK ; JONES, KAREN N. ;
PROJ: FAA-AM-A-71-PSY-21
MONITOR: FAA-AM 71-29

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *REACTION(PSYCHOLOGY)),
PERFORMANCE TESTS, RESPONSES, TRACKING, HEART, SKIN,
PSYCHOPHYSIOLOGY, SIMULATION (U)
IDENTIFIERS: OVERPRESSURE, HEART RATE (U)

SUBJECTS WERE EXPOSED TO FOUR SIMULATED 'INDOOR'
SONIC BOOMS OVER AN APPROXIMATE THIRTY-MINUTE PERIOD.
THE OVERPRESSURE LEVELS WERE 1.0, 2.0 AND 4.0 PSF
(AS MEASURED 'OUTDOORS') WITH DURATIONS OF 295
MILLISECONDS. SUBJECTS PERFORMED A TWO-DIMENSIONAL
COMPENSATORY TRACKING TASK DURING THE EXPOSURE PERIOD
AND CONTINUOUS RECORDINGS WERE OBTAINED OF HEART RATE
AND SKIN CONDUCTANCE. NO EVIDENCE OF PERFORMANCE
IMPAIRMENT WAS FOUND FOR ANY OF THE OVERPRESSURE
LEVELS. RATHER, PERFORMANCE IMPROVED SIGNIFICANTLY
FOLLOWING BOOM STIMULATION ALONG WITH HEART-RATE
DECELERATION AND SKIN CONDUCTANCE INCREASE. THE
OBTAINED PATTERN SUGGESTS THAT THE SIMULATED BOOMS
MAY HAVE ELICITED MORE OF AN ORIENTING OR ALERTING
RESPONSE THAN A STARTLE REFLEX. THE RESULTS ARE
DISCUSSED IN TERMS OF THE POSSIBLE IMPORTANCE OF RISE
TIME AS A DETERMINANT OF THE PHYSIOLOGICAL AND
PERFORMANCE EFFECTS WHICH MAY BE PRODUCED BY SONIC
BOOMS. SINCE FASTER RISE TIMES OF THE SIMULATED
BOOMS MIGHT HAVE INCREASED LOUDNESS SUFFICIENTLY TO
CHANGE THESE RESULTS CONSIDERABLY, CARE SHOULD BE
TAKEN TO AVOID DRAWING UNWARRANTED CONCLUSIONS,
RELATIVE TO GENERAL SONIC BOOM EFFECTS, ON THE BASIS
OF THESE FINDINGS ALONE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 732 679 13/2 6/6
RAND CORP SANTA MONICA CALIF

FIFTY MORE TIMELY PROBLEMS OF THE
ENVIRONMENT,

(U)

MAR 71 65P LIBBY, L. M. ;
REPT. NO. P-4589

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPT. NO. P-4415 DATED
SEP 70.

DESCRIPTORS: (*ENVIRONMENT, PROBLEM SOLVING), (*AIR
POLLUTION, REVIEWS), (*WATER POLLUTION, REVIEWS),
CORRECTIONS, ECOLOGY, MINING ENGINEERING, ARSENIC,
ANTARCTIC REGIONS, SONIC BOOM, AIRPORTS, FOG, ENZYMES,
SEA ICE, MERCURY, FOOD, USSR, PUBLIC HEALTH, PETROLEUM
INDUSTRY, VERMONT, ARCTIC REGIONS, INDIANA, HARBORS, NEW
YORK, SANITARY ENGINEERING, REFINERIES, GEORGIA (U)
IDENTIFIERS: WATER RECLAMATION, WEATHER MODIFICATION,
NOISE POLLUTION, HOUSTON SHIP CHANNEL, SURFACE WATER
RUNOFF, DETERGENTS (U)

THE ARTICLE INCLUDES VERY BRIEF REPORTS ON VARIOUS
ENVIRONMENTAL TOPICS SOME OF THE TOPICS INCLUDE:
EARTHQUAKE-RESISTANT BUILDING CONSTRUCTION, NOISE
POLLUTION; ECOLOGICAL CHANGES CAUSED BY THE ASWAN
DAM; MONITORING STARTUP OF NEW MINES AND
SHUTDOWN OF OLD FURNACES; ARSENIC IN DETERGENTS AND
IN RUN-OFF WATERS; DAMAGED FOOD VALUE OF VEGETABLE
CROPS; ENZYMES IN DETERGENTS; ENVIRONMENTAL
SAFETY IN HOUSTON SHIP CHANNEL; LIMITS OF
HUMAN TOLERANCE FOR MERCURY CONTENT OF FOODS;
SCALED COSTING OF WATER AS INCENTIVE FOR INDUSTRIAL
REUSE; THERMAL POLLUTION OF LAKES AND RIVERS;
SURVEY OF POLLUTION CONTROL BY INDUSTRY; OIL
DISCOVERIES IN THE ARCTIC--OWNERSHIP; NEW CITY
ON STATEN ISLAND; PNEUMATIC COLLECTION OF TRASH
CITYWIDE; DEEP WELL WASTE DISPOSAL FOR WATER;
STOL AIRPORTS FOR LARGE CITIES; SINKING LAND
COMBATTED BY SOLID WASTE DISPOSAL; WATER POLLUTION
BY FEED LOTS; RADIATION TREATMENT FOR SEWAGE; TAX
INCENTIVES FOR COAL BURNERS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 734 436 20/1 1/3
GENERAL APPLIED SCIENCE LABS INC WESTBURY N Y

SONIC BOOM MINIMIZATION THROUGH AIR STREAM
ALTERATION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 70-JUL 71,
JUL 71 138P LIPPERT, F. W. ;
REPT. NO. GASL-TR-760
CONTRACT: FA-70-WA-2320
MONITOR: FAA-RD 71-90

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, REDUCTION), (*SUPERSONIC
PLANES, SONIC BOOM), SUPERSONIC CHARACTERISTICS,
PRESSURE, COMBUSTION, BOUNDARY LAYER, INTERFERENCE,
LIFT, JETS, LASERS
IDENTIFIERS: SCAT 15F AIRCRAFT, SUPERSONIC TRANSPORT
PLANES

(U)

(U)

THE POTENTIAL OF MODIFYING SUPERSONIC AIRCRAFT
SONIC BOOM SIGNATURES BY MEANS OF ALTERING THE FLOW
FIELD IN THE VICINITY OF THE AIRCRAFT WAS
INVESTIGATED THEORETICALLY. A SPECIFIC AIRPLANE,
THE NASA SCAT-15F, WAS SELECTED AS A BASIS, AND
A CRUISE FLIGHT CONDITION OF MACH 2.7, 62,000 FEET
WAS CHOSEN. SIGNATURES WERE COMPUTED USING REAL
(1962) ATMOSPHERIC PROPERTIES. FINITE RISE
TIMES, REDUCED OVERPRESSURES, AND REDUCED SHOCK
PRESSURE RISES WERE AMONG THE SIGNATURE IMPROVEMENTS
INVESTIGATED. FLOW FIELD ALTERATION MECHANISMS
CONSIDERED INCLUDED FREE COMBUSTION, BOUNDARY LAYER
MASS ADDITION, FORCE FIELDS, AND LASER-GENERATED HEAT
FIELDS. FINALLY, THE CONCEPT OF A SEPARATE 'PENALTY
AIRCRAFT' WAS PUT FORTH. THIS WOULD BE AN AIRCRAFT,
PRESUMABLY CARRYING NO PAYLOAD, THAT WOULD FLY IN
CLOSE PROXIMITY (SO THAT THE SONIC BOOMS
INTERFERE) TO THE BASELINE AIRCRAFT AND RELIEVE THE
NECESSITY OF INCREASING THE BASELINE AIRCRAFT GROSS
WEIGHT BECAUSE OF SONIC BOOM ALLEVIATION SCHEMES.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 735 296 1/2 20/1
BOEING CO RENTON WASH COMMERCIAL AIRPLANE GROUP

STUDY COVERING CALCULATIONS AND ANALYSIS OF
SONIC BOOM DURING OPERATIONAL MANEUVERS.
VOLUME I. ANALYSIS AND COMPUTATION OF
MANEUVER EFFECTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 70-FEB 71.
FEB 71 311P
REPT. NO. D6-A12108-1
CONTRACT: DOT-FA70WA-2315
MONITOR: FAA-EQ 71-2

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, MANEUVERABILITY),
(*SUPERSONIC PLANES, SONIC BOOM), PRESSURE, NUMERICAL
ANALYSIS, STATISTICAL DATA (U)
IDENTIFIERS: SCAT 15F AIRCRAFT, *SUPERSONIC
TRANSPORTS (U)

THE METHODS AND RESULTS OF THE STUDY OF THE EFFECTS
OF OPERATIONAL SST MANEUVERS ON SONIC BOOM ARE
CONTAINED IN THREE VOLUMES. VOLUME I SHOWS THAT
THE THEORETICAL EFFECTS OF OPERATIONAL MANEUVERS DUE
TO TYPICAL SST MANEUVERS ARE SMALL EXCEPT FOR
MANEUVERS AT MACH NUMBERS BELOW ABOUT MACH 1.3.
METHODS ARE OUTLINED FOR APPLYING THE RESULTS TO
ANY AIRPLANE, AND SELECTED PRESSURE SIGNATURES ARE
PRESENTED FOR THE U.S. SST AND SCAT 15-F.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 735 297 1/2 20/1
BOEING CO RENTON WASH COMMERCIAL AIRPLANE GROUP

STUDY COVERING CALCULATIONS AND ANALYSIS OF
SONIC BOOM DURING OPERATIONAL MANEUVERS.
VOLUME III. DESCRIPTION OF COMPUTER
PROGRAM 'SONIC BOOM PROPAGATION IN A
STRATIFIED ATMOSPHERE' AND ESTIMATION OF
LIMITATION NEAR CAUSTICS. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 70-FEB 71,
FEB 71 294P HAGLUND, G. T. ; OLSON, D.

L. :

REPT. NO. D6A-12108-3
CONTRACT: DOT-FA70WA-2315
MONITOR: FAA-EQ 71-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-735 390.

DESCRIPTORS: (*SUPERSONIC PLANES, SONIC BOOM), COMPUTER
PROGRAMS, PRESSURE, METEOROLOGICAL PARAMETERS (U)
IDENTIFIERS: SCAT 15F AIRCRAFT, FORTRAN, FORTRAN 4
PROGRAMMING LANGUAGE, *SUPERSONIC TRANSPORTS (U)

THE METHODS AND RESULTS OF THE STUDY OF THE EFFECTS
OF OPERATIONAL SST MANEUVERS ON SONIC BOOM ARE
CONTAINED IN THREE VOLUMES. VOLUME III DESCRIBES
THE COMPUTER PROGRAM, 'SONIC BOOM PROPAGATION
IN A STRATIFIED ATMOSPHERE', WRITTEN IN FORTRAN
IV FOR PROCESSING ON AN IBM 7090 OR CDC 6600 AND
PLOTING ON A CALCOMP DIGITAL INCREMENTAL PLOTTER.
IT PROVIDES THE CAPABILITY TO CALCULATE SONIC BOOM
PRESSURE SIGNATURES GENERATED BY ARBITRARY
MANEUVERING AIRPLANES IN HORIZONTALLY STRATIFIED
ATMOSPHERES WITH WIND. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 735 390 1/2 20/1
BOEING CO RENTON WASH COMMERCIAL AIRPLANE GROUP

STUDY COVERING CALCULATIONS AND ANALYSIS OF
SONIC BOOM DURING OPERATIONAL MANEUVERS.
VOLUME II. PRELIMINARY FLIGHT TEST
PLAN. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR-DEC 70,
DEC 70 101P HAGLUND, GEORGE T. IKANE,
EDWARD J. ;
REPT. NO. D6A-12108-2
CONTRACT: DDT-FA70WA-2315
MONITOR: FAA-EQ 71-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME I, AD-735 296, AND
VOLUME 3, AD-735 297.

DESCRIPTORS: (*SUPERSONIC PLANES, *SONIC BOOM), FLIGHT
TESTING, ACCELERATION, LEVEL FLIGHT, MATHEMATICAL
ANALYSIS (U)
IDENTIFIERS: SCAT 15F AIRCRAFT, *SUPERSONIC
TRANSPORTS (U)

THE METHODS AND RESULTS OF THE STUDY OF THE EFFECTS
OF OPERATIONAL SST MANEUVERS ON SONIC BOOM ARE
CONTAINED IN THREE VOLUMES. VOLUME II CONTAINS A
FLIGHT TEST PLAN DESIGNED TO INVESTIGATE CAUSTICS AT
THE GROUND PRODUCED DURING LONGITUDINAL
ACCELERATIONS, CIRCULAR TURNS, AND STEADY, LEVEL
FLIGHT AT THE THRESHOLD MACH NUMBER. A FLIGHT
TEST PLAN IS DEFINED FOR STUDYING SONIC BOOM
PHENOMENA NEAR LATERAL CUT-OFF. CHARTS ARE
PROVIDED TO BE USED IN THE FIELD IN DETERMINING THE
REQUIRED AIRPLANE POSITION RELATIVE TO THE MEASURING
NETWORKS AS A FUNCTION OF FLIGHT VARIABLES AND
METEOROLOGICAL CONDITIONS. METHODS ARE GIVEN FOR
CALCULATING CAUSTIC LOCATIONS DUE TO LONGITUDINAL
ACCELERATIONS AND THE LATERAL CUT-OFF LOCATION DURING
STEADY, LEVEL FLIGHT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 738 790 21/5
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V BRUNSWICK (WEST GERMANY)

ZUR AUSLEGUNG UND BEMESSUNG EINES TRIEBWERKS
MIT WAHLWEISE ZUSCHALTBAREN TRIEBWERKSKOMPONENTEN
FUER DEN EINSATZ IN UEBERSCHALL-
VERKEHRSFLUGZEUGEN (DESIGN AND PARAMETERS OF A
POWER PLANT WITH OPTIONALLY SELECTIVE POWER
COMPONENTS FOR SUPERSONIC AIRLINERS), (U)

AUG 70 12P VON BONIN, LUTZ :
REPT. NO. DFVLR-SONDERDRUCK-169

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ZEITSCHRIFT FUER
FLUGWISSENSCHAFTEN V19 N11 P437-448 1971. NO COPIES
FURNISHED BY DDC OR NTIS.
SUPPLEMENTARY NOTE: TEXT IN GERMAN. SUMMARY IN
ENGLISH AND FRENCH.

DESCRIPTORS: (•AIRCRAFT ENGINES, EXPERIMENTAL DESIGN),
SUPERSONIC AIRCRAFT, SUBSONIC CHARACTERISTICS, HIGH
ALTITUDE, SUPERSONIC CHARACTERISTICS, MATHEMATICAL
MODELS, PAYLOAD, FEASIBILITY STUDIES (U)

THE SUBJECT OF THE STUDY IS THE PROPOSAL FOR A TWIN
SPOOL POWER PLANT WITH HIGH PRESSURE CUT OFF FOR
OPERATION IN SUPERSONIC AIRLINERS (MACH NUMBER 3)
WHICH HAVE TO PASS A LARGER FLIGHT SECTION IN THE
SUBSONIC RANGE REACHING BEYOND THE CLIMB AND
ACCELERATION PHASE WITH REGARD TO THE SUPERSONIC
BOOM. THIS PROPOSAL IS BASED ON CONSTRUCTING AN
ENGINE FOR THE TWO EXTREMELY DIFFERING FLIGHT
CONDITIONS - SUPERSONIC FLIGHT WITH MACH NUMBER 3
IN AN ALTITUDE OF 20 KM AND SUBSONIC FLIGHT WITH
MACH NUMBER 0.9 IN AN ALTITUDE OF 11 KM - THAT IS
OPTIMALLY DESIGNED AND SIZED FOR BOTH FLIGHT PHASES.
AFTER A BRIEF DISCUSSION OF THE STRUCTURE AND
METHOD OF OPERATION OF SUCH AN ENGINE, THE SYSTEM OF
EQUATIONS FOR THE DETERMINATION OF THE PAYLOAD
RELATED TO THE STARTING WEIGHT IS DEVELOPED WITH SOME
SIMPLIFYING ASSUMPTIONS IN ORDER TO BE ABLE TO
INVESTIGATE THE EFFECT OF SUCH AN ENGINE CONCEPT ON
THE PROFITABILITY OF THE AIRCRAFT WITHIN A FIRST
ONSET. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 740 697 5/10 20/1
TRACOR INC AUSTIN TEX

ENVIRONMENTAL INFLUENCE ON PUBLIC RESPONSE TO
THE SONIC BOOM. (U)

DESCRIPTIVE NOTE: FINAL REPT.

72 47P
CONTRACT: DOT-FA70WA-2254
PROJ: FAA-253-011
MONITOR: FAA-NO 70-17

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *ATTITUDES(PSYCHOLOGY)),
(*PUBLIC OPINION, *SONIC BOOM), JET PLANE NOISE,
AIRPORTS, URBAN AREAS, NOISE, VEHICLES, TRANSPORTATION(U)
IDENTIFIERS: *NOISE EXPOSURE, *NOISE POLLUTION,
COMMUNITIES (U)

PREVIOUS STUDIES OF PUBLIC RESPONSE TO THE SONIC
BOOM HAVE NOT CONSIDERED REACTIONS TO THE BOOM WITHIN
THE CONTEXT OF THE CITY OR NEIGHBORHOOD ENVIRONMENT.
DATA CONCERNING COMMUNITY REACTION TO AIRPORT NOISE
IN ORDER TO STUDY THE EFFECT OF ENVIRONMENT
CONDITIONS, BOTH PHYSICAL AND SOCIAL, ON RESPONSE TO
THE BOOM. ATTITUDINAL RESPONSE IS AFFECTED BY THE
RESPONDENT'S ENVIRONMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 740 897 20/1
TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES

THE EFFECTS OF WIND AND TEMPERATURE
GRADIENTS ON SONIC BOOM CORRIDORS.

(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
OCT 71 39P ONYEONWU, R. O. I
REPT. NO. UTIAS-TN-168
CONTRACT: AF-AFOSR-1885-70
PROJ: AF-9781
TASK: 978102
MONITOR: AFOSR TR-71-3087

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, EQUATIONS OF MOTION),
DIFFERENTIAL EQUATIONS, VECTOR ANALYSIS, CURVE FITTING,
FLIGHT PATHS, MATHEMATICAL MODELS, SUPERSONIC FLIGHT,
ATMOSPHERIC TEMPERATURE, WIND, CANADA (U)

CALCULATION OF SONIC BOOM CORRIDOR WIDTHS BASED ON
CLOSED FORM SOLUTIONS OF RAY ACOUSTIC EQUATIONS USING
PIECEWISE LINEAR ATMOSPHERIC MODELS OF WINDS AND
TEMPERATURES HAS BEEN ACCOMPLISHED. DETAILED
SOLUTIONS OF RAY TRACING EQUATIONS ARE PRESENTED FOR
ALL POSSIBLE VARIATIONS OF WINDS AND TEMPERATURES,
WITHIN THE FRAMEWORK OF THE ASSUMED MODEL ATMOSPHERE.
THE EFFECTS OF AIRCRAFT FLIGHT ALTITUDE AND MACH
NUMBER, WIND AND TEMPERATURE GRADIENTS, AND WIND
DIRECTION ON SONIC BOOM CORRIDOR ARE INVESTIGATED IN
DETAIL, INCLUDING THE EFFECTS OF NON-STANDARD
ATMOSPHERES SUCH AS PREVAIL IN WINTER MONTHS.
NUMERICAL RESULTS ARE PRESENTED AND AMPLY
DISCUSSED. AGREEMENT OF THE PRESENT CALCULATIONS
WITH PUBLISHED DATA IS EXCELLENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 741 852 13/13
WIGGINS (J H) CO PALOS VERDES ESTATES CALIF

SONIC BOOM AND NATURAL DETERIORATION
EFFECTS ON BUILDINGS - WHITE SANDS
STRUCTURE RESURVEY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 72 51P WIGGINS, J. H. , JR;
MONITOR: FAA-RD 72-25

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *BUILDINGS), DEGRADATION,
CRACKS, DAMAGE ASSESSMENT, NEW MEXICO (U)
IDENTIFIERS: WEATHERING (U)

THE PURPOSE OF THE STUDY WAS TO EVALUATE THE
CURRENT STATE OF NATURAL DETERIORATION OF THE
STRUCTURES USED FOR SONIC BOOM TESTING PURPOSES BY
THE FAA AND TO COMPARE THAT STATE WITH THE DAMAGES
CAUSED BY THE 1494 SONIC BOOMS GENERATED DURING THE
TESTS. STRUCTURAL RESPONSE TESTS WERE CONDUCTED
UNDER SONIC BOOMS RANGING IN INTENSITY FROM 1.5 PSF.
TO 38 PSF. SINCE THE TESTING PROGRAM, SEVEN YEARS
OF NATURAL FORCES RESULTING FROM SUN, WIND, MOISTURE
AND SOIL MOVEMENTS HAVE TAKEN PLACE. IT WAS OF
GREAT INTEREST, THEREFORE, TO REEAXAMINE THESE
STRUCTURES SOME SEVEN YEARS LATER AND DETERMINE THE
AMOUNT OF NATURALLY OCCURRING CUMULATIVE DAMAGE THAT
HAS TAKEN PLACE OVER THE YEARS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 745 728 20/1 4/1
NAVAL ORDNANCE LAB WHITE OAK MD

PROPAGATION OF A WEAK SHOCK WAVE THROUGH A
TURBULENT MEDIUM,

(U)

MAY 72 26P PHINNEY, RALPH E. ; TAYLOR,
LEONARD S. ;
REPT. NO. NOLTR-72-130
PROJ: NOL-324/FAA

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, DISTORTION), (*ATMOSPHERIC
MOTION, MICROBAROMETRIC WAVES), PROPAGATION, PARTIAL
DIFFERENTIAL EQUATIONS, VECTOR ANALYSIS, TURBULENCE,
SHOCK WAVES

(U)

THE PROPAGATION OF A WEAK NEARLY PLANE SHOCK WAVE
THROUGH A SLIGHTLY INHOMOGENEOUS MEDIUM WAS STUDIED.
THE EQUATIONS FOR A FINITE STRENGTH SHOCK WAVE ARE
USED AS A STARTING POINT IN ORDER THAT THE CUMULATIVE
EFFECT OF SECOND ORDER TERMS WILL NOT BE LOST. THE
MOTIVATION FOR THE STUDY WAS THE EXPERIMENTAL
OBSERVATION THAT ATMOSPHERIC TURBULENCE CAN
ALTERNATELY FOCUS AND DEFOCUS WEAK WAVES FROM AN
AIRCRAFT. A MORE DETAILED UNDERSTANDING OF THE
INFLUENCE OF ATMOSPHERIC TURBULENCE ON THIS PROBLEM
WAS SOUGHT. THE BASIC EQUATIONS ARE DERIVED, AND
SOME PRELIMINARY RESULTS ARE OBTAINED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 747 989 5/10
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

RESIDUAL PERFORMANCE EFFECTS OF SIMULATED
SONIC BOOMS INTRODUCED DURING SLEEP, (U)

MAY 72 12P CHILES, W. DEAN (WEST,
GEORGETTA ;
MONITOR: FAA-AM 72-19

UNCLASSIFIED REPORT

DESCRIPTORS: (*SLEEP, *SONIC BOOM),
(*STRESS(PSYCHOLOGY), SONIC BOOM), PERFORMANCE(HUMAN),
MALES, SIMULATION, AGING(PHYSIOLOGY), DIURNAL
VARIATIONS, PSYCHOACOUSTICS (U)

TWENTY-FOUR MALE SUBJECTS WERE TESTED ON A COMPLEX PERFORMANCE DEVICE INVOLVING MONITORING, MENTAL ARITHMETIC, AND PATTERN DISCRIMINATION. THREE AGE-GROUPS WERE USED: 20 TO 26, 40 TO 45, AND 60 TO 72. SUBJECTS WERE TESTED FOR 30 MINUTES EACH MORNING AND EACH EVENING FOR A 21-DAY PERIOD. ON THE SIXTH THROUGH THE 17TH NIGHTS, SUBJECTS WERE EXPOSED TO EIGHT SIMULATED SONIC BOOMS WITH AN 'OUTDOORS' OVERPRESSURE LEVEL OF 1.0 PSF PRESENTED AT 1-HOUR INTERVALS DURING SLEEP. THE RESULTS PROVIDED NO EVIDENCE THAT EXPOSURE TO SIMULATED SONIC BOOMS DURING SLEEP PRODUCED MEASURABLE CONSEQUENCES WITH RESPECT TO COMPLEX PERFORMANCE. A SIGNIFICANT AGE EFFECT WAS FOUND FOR FIVE OF THE TEN MEASURES. SIGNIFICANT DIFFERENCES (APPARENTLY A LEARNING EFFECT) WERE FOUND IN PERFORMANCE ACROSS THE THREE PHASES (PRE-BOOM, BOOM, AND POST-BOOM). THERE WAS ALSO A SIGNIFICANT INTERACTION BETWEEN AGE AND PHASE FOR FIVE OF THE MEASURES. (AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 748 055 5/10 20/1
AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB
OHIO

HUMAN RESPONSE TO SONIC BOOM IN THE
LABORATORY AND THE COMMUNITY,

(U)

JAN 71 18P GIERKE, H. E. VON NIXON, C.
W. ;
REPT. NO. AMRL-TR-69-47
PROJ: AF-7231

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN THE JNL. OF THE ACOUSTICAL
SOCIETY OF AMERICA, V51 N2 P766-782 1972.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 3 NOV
70.

DESCRIPTORS: (*SONIC BOOM, REACTION(PSYCHOLOGY)),
PSYCHOACOUSTICS, ATTITUDES(PSYCHOLOGY), SUPERSONIC
AIRCRAFT, TRANSPORT AIRCRAFT, INTENSITY (U)
IDENTIFIERS: *NOISE POLLUTION, OVERPRESSURE (U)

PRESENT-DAY ESTIMATES REGARDING THE ACCEPTABILITY
OF SONIC BOOMS BY MAN ARE DERIVED FROM VARIOUS
OBSERVATIONS, OVERFLIGHT PROGRAMS, AND EXPERIMENTAL
FIELD AND LABORATORY STUDIES CONDUCTED BOTH WITHIN
AND OUTSIDE THE UNITED STATES. THE LOUDNESS AND
ANNOYANCE OF INDIVIDUAL BOOMS AND THEIR DEPENDENCE ON
THE BOOM OVERPRESSURE AND PRESSURE-TIME FUNCTION AS
WELL AS THE COMPLEX REACTION OF INDIVIDUALS, GROUPS,
AND COMMUNITIES EXPOSED TO SONIC BOOMS OF VARIED
MAGNITUDE AND FREQUENCY ARE DISCUSSED. THE FEW
EXPERIMENTS AVAILABLE PROVING THAT EVEN SONIC BOOMS
OF THE MAXIMUM INTENSITY PRESENTLY FEASIBLE DO NOT
PRODUCE DIRECT MEDICAL INJURY ARE DESCRIBED. BASED
ON THE INTEGRATED BODY OF RESULTS OF RECENT
PHYSIOLOGICAL, PSYCHOACOUSTIC, BEHAVIORAL, AND
SOCIOLOGICAL STUDIES IN VARIOUS COUNTRIES, ESTIMATES
OF THE EFFECTS AND ACCEPTABILITY OF REGULAR, FREQUENT
SUPERSONIC COMMERCIAL OVERLAND FLIGHT SCHEDULES ARE
PRESENTED AND DISCUSSED IN TERMS OF AIRCRAFT NOISE
POLLUTION IN GENERAL, AND OF POTENTIAL CERTIFICATION
OF AIRCRAFT WITH RESPECT TO NOISE AND SONIC BOOM.
FINDINGS SUPPORT THE CURRENT POLICY THAT COMMERCIAL
SUPERSONIC TRANSPORT AIRCRAFT WILL NOT BE PERMITTED
TO FLY OVER THE UNITED STATES UNLESS AND UNTIL
THE NOISE FACTORS ARE BROUGHT WITHIN ACCEPTABLE
LIMITS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 749 277 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

SONIC BOOMS AND SLEEP: AFFECT CHANGE AS A
FUNCTION OF AGE, (U)

JUN 72 15P SMITH, ROGER C. HUTTO, GARY
L. I
MONITOR: FAA-AM 72-24

UNCLASSIFIED REPORT

DESCRIPTORS: (SLEEP, *SONIC BOOM), BEHAVIOR,
STRESS(PHYSIOLOGY), AGING(PHYSIOLOGY),
FATIGUE(PHYSIOLOGY), STRESS(PSYCHOLOGY) (U)

THE STUDY CONCERNED THE MEASUREMENT OF MOOD CHANGES
RESULTING FROM SIMULATED SONIC BOOMS OCCURRING DURING
SLEEP. SUBJECTS FROM THREE AGE GROUPS (21 TO 26,
40 TO 45, AND 60 TO 72 YEARS OLD) SPENT 21
CONSECUTIVE NIGHTS IN A SLEEPING ROOM EQUIPPED FOR
SONIC-BOOM SIMULATION. DURING THE SIXTH THROUGH
SEVENTEENTH NIGHTS, SIMULATED SONIC BOOMS OF 1.0 PSF
'OUTDOORS' OVERPRESSURE LEVEL (1.1 PSF MEASURED
INSIDE THE THE SLEEPING ROOMS) WERE PRESENTED
HOURLY THROUGHOUT EACH NIGHT. AS THE MEASURE OF
MOOD, THE SUBJECTS COMPLETED A COMPOSITE MOOD
ADJECTIVE CHECKLIST IN THE EVENING BEFORE RETIRING
AND IN THE MORNING AFTER WAKING ON EACH OF THE 21
DAYS. NO CHANGE IN MOODS ATTRIBUTABLE TO THE
OCCURRENCE OF SIMULATED SONIC BOOMS WAS FOUND.
SUBSTANTIAL EFFECTS RELATING TO THE AGE OF
SUBJECTS, IRRESPECTIVE OF BOOM PRESENTATIONS, WERE
OBTAINED. IT WAS CONCLUDED THAT SIMULATED SONIC
BOOMS OF SUCH LOW INTENSITY WERE UNLIKELY TO HAVE
ADVERSE CONSEQUENCES ON THE MOOD STATES OF MOST
INDIVIDUALS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 931 2/5 6/19 20/1
AGRICULTURAL RESEARCH SERVICE BELTSVILLE MD

AN INTERDISCIPLINARY STUDY OF THE EFFECTS OF
REAL AND SIMULATED SONIC BOOMS ON FARM-
RAISED MINK (MUSTELA VISON).

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

AUG 72 242P TRAVIS, HUGH F. ; BOND, JAMES
; WILSON, R. L. ; LEEKLEY, J. R. ; MENEAR, J.
R. ;

CONTRACT: DOT-FA70WAI-171

MONITOR: FAA-EQ 72-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
WASHINGTON STATE UNIV., SEATTLE, ALASKA UNIV.,
COLLEGE, AND THE DEPARTMENT OF THE AIR FORCE,
WASHINGTON, D. C.

DESCRIPTORS: (*RODENTS, SONIC BOOM), (*SONIC BOOM,
STRESS(PHYSIOLOGY)), NOISE, ANIMALS, BEHAVIOR,
REPRODUCTION(PHYSIOLOGY), INFECTIOUS DISEASES,
PATHOLOGY

(U)

IDENTIFIERS: *NOISE POLLUTION, ANIMALS, BEHAVIOR,
DOMESTIC ANIMALS

(U)

STUDIES WERE CONDUCTED AT THREE SITES ON MITKOF
ISLAND, ALASKA, TO DETERMINE THE EFFECTS OF THREE
REAL OR THREE SIMULATED SONIC BOOMS OF ABOUT 6 POUNDS
PER SQUARE FOOT OVER-PRESSURE UPON REPRODUCTION IN
FARM-RAISED MINK. CONTROL ANIMALS WERE NOT BOOMED.
NO DIFFERENCES ($P > .05$) WERE FOUND AMONG
EXPERIMENTAL TREATMENTS FOR LENGTH OF GESTATION,
NUMBER OF KITS BORN PER FEMALE WHELPING, NUMBER OF
KITS ALIVE PER FEMALE AT 5 AND 10 DAYS OF AGE, WEIGHT
OF KITS AT 49 DAYS OF AGE, KIT PELT VALUE AND SELLING
PRICE. A BEHAVIORAL STUDY SHOWED NO EVIDENCE THAT
THE FEMALE MINK UNDER OBSERVATION WERE SUFFICIENTLY
DISTURBED BY SONIC BOOMS. RESULTS OF NECROPSY
EXAMINATIONS SHOWED NO MINK DEATHS ATTRIBUTABLE TO
REAL OR SIMULATED SONIC BOOMS. LIKEWISE, NO
EVIDENCE WAS FOUND THAT BACTERIAL DISEASE WAS INDUCED
IN THE HERD FOLLOWING EXPOSURE TO SONIC BOOMS. THE
CONCLUSION DRAWN FROM THESE STUDIES IS THAT EXPOSURE
OF FARM-RAISED MINK TO INTENSE SONIC BOOMS DURING
WHELPING SEASON HAD NO ADVERSE AFFECT ON THEIR
REPRODUCTION OR BEHAVIOR. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 934 20/1 13/13
BLUME (JOHN A) AND ASSOCIATES SAN FRANCISCO CALIF RESEARCH
DIV

ADDITIONAL SONIC BOOM DATA RELATED TO
TESTS CONDUCTED AT WHITE SANDS, NEW
MEXICO, AND EDWARDS AIR FORCE BASE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 72 19P LEE, LLOYD A. ;
MONITOR: FAA-RD 72-114

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, STRESSES), (*STRUCTURAL
MEMBERS, SONIC BOOM), STRAIN GAGES, STATISTICAL DATA (U)
IDENTIFIERS: *WINDOWS, OVERPRESSURE (U)

DATA IN THE FORM OF NOTES AND RECORDING WHICH WERE
COMPILED DURING THE WHITE SANDS AND EDWARDS
AIR FORCE BASE SONIC BOOM TEST PROGRAMS
AND WHICH ARE PRESENTLY AVAILABLE IN FILES AT THE
BLUME OFFICES WERE REVIEWED TO PRESENT WINDOW
MOUNTED STRAIN GAGE READINGS WITH RELATED
OVERPRESSURES DURING THE 1965 WHITE SANDS TESTS
AND WINDOW SIZES OF THE EDWARDS AFB 1966 TEST
STRUCTURES. THESE DATA ARE TO BE USED BY FAA IN
CURRENT STUDIES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 751 935 13/13 20/1
NEW YORK UNIV BRONX DEPT OF AERONAUTICS AND
ASTRONAUTICS

NUMERICAL PREDICTION OF INTERIOR AND
STRUCTURAL RESPONSE OF BUILDINGS TO SONIC
BOOM OVERFLIGHTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. MAR 71-SEP 72,
SEP 72 55P SLUTSKY, SIMON ; ARNOLD, LEE ;
REPT. NO. NYU-AA-72-23
CONTRACT: DOT-FA71WA-2559
MONITOR: FAA-RD 72-116

UNCLASSIFIED REPORT

DESCRIPTORS: (*BUILDINGS, RESPONSE), (*SUPERSONIC
FLIGHT, *SONIC BOOM), STRUCTURAL MEMBERS, FLOORS, ROOFS,
ACOUSTIC PROPERTIES, MODELS(SIMULATIONS), SUPERSONIC
AIRCRAFT, NUMERICAL ANALYSIS

(U)

THE REPORT DESCRIBES A PROCEDURE FOR PREDICTING THE
STRUCTURAL AND ACOUSTIC RESPONSE OF FULL SCALE
ARCHITECTURAL STRUCTURES TO SONIC BOOMS USING
LABORATORY TECHNIQUES. IT IS SHOWN THAT THE
ESSENTIAL ACOUSTIC PROPERTIES OF A FULL SCALE
STRUCTURE LOCATED IN ISTRES, FRANCE COULD BE
ACCURATELY SIMULATED ON A SMALL SCALE (1:20)
MODEL LOCATED AT N.Y.U. AND THAT THIS MODEL
COULD BE USED TO DETERMINE ACOUSTIC IMPULSE RESPONSE
FUNCTIONS OF VARIOUS ROOMS UNDER VARYING WINDOW AND
DOOR CONFIGURATIONS AND UNDER VARYING SUPERSONIC
FLIGHT MACH NUMBERS. THE CALCULATED IMPULSE
RESPONSE FUNCTIONS WERE USED IN CONJUNCTION WITH
MEASURED SONIC BOOM SIGNATURES FROM MIRAGE III
OVERFLIGHTS AT SPEEDS OF MACH 1 AND MACH 2 TO
CALCULATE BUILDING RESPONSES. THESE RESPONSES WERE
THEN COMPARED WITH MEASURED BUILDING RESPONSES.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 294 20/4 20/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

THE WAVE FORMATION AND SONIC BOOM DUE TO
A DELTA WING,

(U)

MAR 71 24P OSWATITSCH, K. ; SUN, Y. C. ;
REPT. NO. DFVLR-SONDERDRUCK-205

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN THE AERONAUTICAL
QUARTERLY, V23 P87-108 MAY 72.

DESCRIPTORS: (*DELTA WINGS, SHOCK WAVES), (*SONIC BOOM,
DELTA WINGS), PREDICTIONS, THREE DIMENSIONAL FLOW, FLOW
FIELDS, TRAILING EDGE, LEADING EDGES, WEST GERMANY (U)

BY EMPLOYMENT OF THE ANALYTICAL METHOD OF
CHARACTERISTICS AND OF A LIMITING PROCEDURE SUITABLE
FOR DEALING WITH THE TRAILING EDGE EXPANSION, THE
INFLUENCE OF NEAR-FIELD FLOW ON THE FAR-FIELD WAVE
FORMATION HAS BEEN INVESTIGATED FOR AN INCIDENT FLAT
DELTA WING WITH SUPERSONIC LEADING EDGES. THROUGH
CONFINED IN ITS SCOPE TO THE FRONT SHOCK IN THE
VERTICAL PLANE OF SYMMETRY OF THE WING AND TO A
HOMOGENEOUS ATMOSPHERE WITHOUT DENSITY AND
TEMPERATURE GRADIENTS, THE PRESENT ANALYSIS REVEALS
FEATURES OF FLOW WHICH ARE INTERESTING FROM THE
STANDPOINT OF THE GENERAL THEORY OF THREE-DIMENSIONAL
SUPERSONIC FLOW. IT IS FOUND THAT THE FRONT SHOCK
DUE TO A DELTA WING WILL AS A RULE BE CANCELLED AT A
FINITE DISTANCE FROM THE WING BY THE PLANE-WAVE
EXPANSION EMANATING FROM THE TRAILING EDGE. THE
OVER-EXPANSION MUST THEN GIVE RISE TO A REAR SHOCK
SEPARATE FROM THE FRONT ONE. THUS, AT LEAST IN THE
PLANE OF SYMMETRY, A SHARP-FRONT WAVE SIGNATURE CAN
NOT, IN GENERAL, BE EXPECTED FROM THE WING AT A
DISTANCE BEYOND THE TERMINATING POINT OF THE FRONT
SHOCK. THE BOOM SIGNATURE THEN WILL BE
QUALITATIVELY DIFFERENT FROM THAT OF A BODY OF
REVOLUTION. THE GENERAL NON-EQUIVALENCE OF A WING
TO A BODY OF REVOLUTION IN THIS RESPECT SHOULD EVOKE
SOME RETHINKING ABOUT SONIC BOOM PREDICTION AND
ALLEVIATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 472 20/1 20/4
NAVAL ORDNANCE LAB WHITE OAK MD

DISTORTION OF NEAR-SONIC SHOCKS BY WEAKLY
TURBULENT LAYERS, (U)

SEP 72 25P TAYLOR, LEONARD S. ; PHINNEY,
RALPH E. ;
REPT. NO. NOLTR-72-225
PROJ: NOL-324/FAA

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, SHOCK WAVES), TURBULENCE,
FOCUSING, ATMOSPHERIC MOTION, NONLINEAR DIFFERENTIAL
EQUATIONS, PARTIAL DIFFERENTIAL EQUATIONS (U)

THE FOCUSING EFFECTS OF TURBULENCE IN THE
PROPAGATION MEDIUM UPON NEAR-SONIC SHOCKS ARE STUDIED
BY EXTENDING THE THEORY OF SHOCK DYNAMICS TO A MEDIUM
WITH RANDOM TEMPERATURE AND PRESSURE VARIATIONS. A
PERTURBATION PROCEDURE IS USED TO SOLVE AND RESULTING
NONLINEAR PARTIAL DIFFERENTIAL EQUATION. THE
RESULTS ARE APPLIED IN A DISCUSSION OF SONIC BOOM
DISTORTION IN THE TERRESTRIAL BOUNDARY LAYER.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 658 4/1 22/2
LAMONT-DOHERTY GEOLOGICAL OBSERVATORY PALISADES N Y

ON THE GENERATION AND PROPAGATION OF SHOCK
WAVES FROM APOLLO ROCKETS AT ORBITAL
ALTITUDES. (U)

JUL 71 14P COTTEN, DONALD E. ; DONN,
WILLIAM L. ; OPPENHEIM, ALAN ;
REPT. NO. LDGO-1738
CONTRACT: DAAB07-69-C-0250, DA-ARO-D-31-124-71-
G90
PROJ: DA-2-0-061102-8-53-8
MONITOR: AROD 6997:21-EN

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN GEOPHYSICAL JNL. OF THE
ROYAL ASTRONOMICAL SOCIETY, V26 P149-159 1971.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH CITY
UNIV. OF NEW YORK. SPONSORED IN PART BY GRANT
NSF-GA-17454.

DESCRIPTORS: (*MANNED SPACECRAFT, MICROBAROMETRIC
WAVES), (*LAUNCH VEHICLES, *SHOCK WAVES), UPPER
ATMOSPHERE, SONIC BOOM, ATTENUATION (U)
IDENTIFIERS: APOLLO 12 SPACECRAFT, APOLLO 13
SPACECRAFT, INFRASONICS, RADIATION (U)

ACOUSTIC SIGNALS FROM APOLLO ROCKETS AT ORBITAL
ALTITUDE (188 KM) APPEAR TO BE EXPLAINABLE WITH
THE ASSUMPTION THAT THE EXHAUST PLUME SERVES AS A
CONICAL BODY OF LARGE CROSS-SECTION MOVING
SUPERSONICALLY WITH THE ROCKET. THE PRESENCE OF
THE SURFACE SIGNAL (1.3 HZ AND HIGHER) IMPLIES
THAT PROPAGATION IN THE UPPER ATMOSPHERE OCCURRED AS
AN N-WAVE SHOCK CONE WITHOUT THE STRONG ATTENUATION
TO WHICH AN ACOUSTIC WAVE OR EVEN A SAW-TOOTHED
(SHOCKED) WAVE OF SIMILAR FREQUENCY WOULD BE
SUBJECTED. THE SHOCK CONE DOES NOT ATTENUATE
BECAUSE ENERGY IS CONTINUALLY RESUPPLIED ALONG THE
SHOCK CONE FROM THE VEHICLE AND ITS PLUME ACTING AS A
PISTON. CALCULATED OVERPRESSURES DO NOT REDUCE TO
ACOUSTIC AMPLITUDES UNTIL THE WAVE IS BELOW 40KM
WHERE ACOUSTIC ATTENUATION BECOMES NEGLIGIBLE.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 752 881 20/1
ACOUSTICAL SOCIETY OF AMERICA NEW YORK

PROCEEDINGS OF THE SONIC BOOM SYMPOSIUM
(2ND) SPONSORED BY THE ACOUSTICAL SOCIETY OF
AMERICA (80TH MEETING) HELD AT HOUSTON,
TEXAS ON 3 NOVEMBER 1970, (U)

72 152P RIBNER, HERBERT S. ; HUBBARD,
HARVEY H. I

UNCLASSIFIED REPORT

AVAILABILITY: AVAILABLE FROM BACK-NUMBERS
DEPT., AMERICAN INSTITUTE OF PHYSICS, 335 EAST 45
ST., NEW YORK, N. Y. 10017. PC\$5.00.

SUPPLEMENTARY NOTE: SPONSORED IN PART BY FEDERAL
AVIATION ADMINISTRATION. LIBRARY OF CONGRESS CARD
CATALOG NO. 72-96208. INTERNATIONAL STANDARD BOOK
NO. 0-88318-201-7.

DESCRIPTORS: (*SONIC BOOM, SYMPOSIA), ACOUSTICS,
SUPERSONIC FLIGHT, SHOCK WAVES, PROPAGATION,
STRESS(PHYSIOLOGY), HUMANS, ANIMALS, BEHAVIOR
IDENTIFIERS: NOISE POLLUTION, RAY TRACING (U)
(U)

A MAJOR ENVIRONMENTAL EFFECT OF SUPERSONIC FLIGHT
THAT SETS IT APART FROM OTHER AIRCRAFT OPERATIONS IS
THE SONIC BOOM. THE WAVE PATTERN THAT TRAVELS WITH
THE AIRCRAFT--RATHER LIKE THE BOW WAVE OF A SHIP--
SWEEPS OVER UNDERLYING AREAS AND MIMICS THE ADVANCING
SHOCK WAVE OF A MILD EXPLOSION. IMPELLED BY THE
PROSPECT OF CIVIL SUPERSONIC TRANSPORT (SST)
AIRCRAFT, THERE HAS BEEN A GREAT VOLUME OF RESEARCH
ON THE SONIC BOOM AND ITS EFFECTS, PARTICULARLY
DURING THE LAST DECADE. THE STATE-OF-THE-ART AS OF
1965 WAS SUMMED UP IN THE FIRST SONIC BOOM
SYMPOSIUM SPONSORED BY THE ACOUSTICAL SOCIETY
OF AMERICA, HELD IN ST. LOUIS. THE STATE-OF-
THE-ART AS OF 1970 WAS LARGELY SUMMED UP IN THE
SECOND SONIC BOOM SYMPOSIUM HELD IN HOUSTON
FIVE YEARS LATER ON 3 NOVEMBER 1970. THE 1970
SYMPOSIUM CONSISTED AGAIN OF A SERIES OF INVITED
PAPERS, FOR THE MOST PART OF A SURVEY NATURE. THE
AUTHORS WERE DRAWN FROM THE INTERNATIONAL COMMUNITY
OF RESEARCHERS ON SONIC BOOM AND ITS EFFECTS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 754 784 13/2
STANFORD RESEARCH INST MENLO PARK CALIF

SUPPORT OF ENVIRONMENTAL PROGRAM
PLANNING.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
OCT 72 391P MACKIN, JAMES L. ; SCHMIDT,
RICHARD A. ;
CONTRACT: N00014-72-C-0445, ARPA ORDER-2195
PROJ: NR-089-091, SRI-1878

UNCLASSIFIED REPORT

DESCRIPTORS: (*DEPARTMENT OF DEFENSE, *ENVIRONMENT),
(*RESEARCH MANAGEMENT, ENVIRONMENT), SCIENTIFIC
RESEARCH, NATURAL RESOURCES, AIR POLLUTION, WATER
POLLUTION, HEAT, ECONOMICS, ELECTRIC POWER PRODUCTION,
ENERGY, STRATOSPHERE, EXHAUST GASES, PESTICIDES, NOISE,
SONIC BOOM, WEAPON SYSTEMS, MONITORS (U)
IDENTIFIERS: WASTE DISPOSAL, NOISE POLLUTION, OILS,
POLLUTION, REMOVAL, *POLLUTION, *RESEARCH MANAGEMENT,
ROCKET EXHAUST, SOLID WASTE DISPOSAL, HAZARDOUS
MATERIALS, LAND USE, THERMAL POLLUTION,
ELECTROMAGNETIC RADIATION HAZARDS, ENVIRONMENTS,
SURVEYS, ENVIRONMENTAL IMPACT S (U)

PRINCIPAL ENVIRONMENTAL PROBLEM AREAS OF IMPORTANCE
TO THE DEPARTMENT OF DEFENSE WERE IDENTIFIED AND
POSSIBLE APPROACHES TO ADVANCED RESEARCH PROJECTS
DIRECTED TOWARD SOLUTIONS OF THESE PROBLEMS WERE
SUGGESTED TO PROVIDE PARTIAL SOURCE MATERIAL IN
SUPPORT OF DEFENSE ADVANCED RESEARCH PROJECTS
AGENCY'S RESEARCH PROGRAM PLANNING. TOPICS
REGARDING ENVIRONMENTAL IMPACT ANALYSIS, RESOURCES
MANAGEMENT, AIR QUALITY, WATER QUALITY, MATERIALS
HANDLING AND DISPOSAL, DATA MANAGEMENT AND SPECIAL
PROBLEMS WERE INCLUDED. FOR EACH TOPIC,
INFORMATION WAS ORGANIZED ACCORDING TO STATEMENT OF
THE PROBLEM, STATE OF THE ART, PRESENT ACTIVITIES AND
ORGANIZATION, IMPLICATIONS FOR THE DOD, AND
RECOMMENDATIONS FOR FURTHER STUDIES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 756 787 20/1
DEUTSCHE FORSCHUNGS- UND VERSUCHSANSTALT FUER LUFT- UND
RAUMFAHRT E V AACHEN (WEST GERMANY)

CLOSED FORM SOLUTION FOR THE SONIC BOOM IN
A POLYTROPIC ATMOSPHERE, (U)

APR 72 8P STUFF, R. ;
REPT. NO. DFVLR-SONDERDRUCK-251

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN JNL. OF AIRCRAFT, V9 N8
P556-562 AUG 72.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 12 OCT
71.

DESCRIPTORS: (*SONIC BOOM, MATHEMATICAL ANALYSIS),
VELOCITY, WEST GERMANY, SHOCK WAVES, FLIGHT PATHS (U)
IDENTIFIERS: METHOD OF CHARACTERISTICS (U)

THE SONIC BOOM PROBLEM FOR TYPICAL AIRCRAFT
MANEUVERS IN A POLYTROPIC ATMOSPHERE IS SOLVED
ANALYTICALLY USING THE ANALYTIC METHOD OF
CHARACTERISTICS. THE LINEARIZED WAVE PROPAGATION,
WHICH SERVES AS INITIAL SOLUTION TO THE METHOD OF
CHARACTERISTICS, IS SOLVED FIRST. THE
CHARACTERISTIC METHOD IS MODIFIED TO ENCOMPASS THE
CASE OF AN ONCOMING STREAM WITH VARIABLE SOUND
VELOCITY. (AUTHOR MODIFIED ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 756 790 20/1 4/1
NATIONAL AERONAUTICAL ESTABLISHMENT OTTAWA (ONTARIO)

A DETERMINISTIC MODEL OF SONIC BOOM
PROPAGATION THROUGH A TURBULENT ATMOSPHERE. (U)

DESCRIPTIVE NOTE: AERONAUTICAL REPT.,
NOV 72 24P LEE, B. H. K.; RIBNER, H.
S. ;

REPT. NO. NAE-LR-566
MONITOR: NRC 12981

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, EQUATIONS OF MOTION),
ATMOSPHERIC MOTION, TURBULENCE, SHOCK WAVES,
PROPAGATION, PRESSURE, CANADA (U)
IDENTIFIERS: WAVE EQUATIONS (U)

THE PROPAGATION OF A WEAK NORMAL SHOCK WAVE THROUGH
A TURBULENT ATMOSPHERE IS STUDIED IN TERMS OF AN
IDEALIZED MODEL. THE TURBULENT FIELD IS ASSUMED TO
BE WEAK AND REPRESENTED BY THE SUPERPOSITION OF TWO
INCLINED SHEAR WAVES OF OPPOSITE INCLINATION TO THE
MEAN FLOW. THE RESULTING FLOW IS OF A CELLULAR
NATURE. THE CELLS ARE RECTANGULAR IN SHAPE AND THE
SENSE OF ROTATION OF THE FLOW ALTERNATES FROM CELL TO
CELL. IF THE ANGLES MADE BY THE NORMAL OF THE
INCIDENT SHEAR WAVES WITH THE DIRECTION OF THE MEAN
FLOW ARE GREATER THAN SOME CRITICAL VALUE AN
EXPONENTIALLY DECAYING PRESSURE WAVE IS GENERATED
BEHIND THE SHOCK. 'SPIKED' OR 'ROUNDED' WAVEFORMS
ARE OBTAINED BY ADDING OR SUBTRACTING THIS PRESSURE
WAVE FROM THE STEADY STATE PRESSURE FIELD. AN
ILLUSTRATIVE EXAMPLE FOR A MEAN FLOW MACH NUMBER OF
1.0005 IS CONSIDERED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 757 273 20/1
TENNESSEE UNIV SPACE INST TULLAHOMA

FUNDAMENTAL RESEARCH ON ADVANCED TECHNIQUES
FOR SONIC BOOM SUPPRESSION.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 72 200P GEOTHERT, B. H. ; PAN, Y.
S. ; CHAUDHURI, S. N. ; KOHL, R. ; GRUSCHKA, H. ;

CONTRACT: DOT-FA70WA-2260
MONITOR: FAA-RD 73-4

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, REDUCTION), INTENSITY,
THEORY, AERODYNAMIC CONFIGURATIONS, AIRFRAMES, WINGS,
EXHAUST NOZZLES, EXHAUST GASES, SLOTTED FLAPS (U)
IDENTIFIERS: NOISE REDUCTION (U)

A MULTIPHASE THEORETICAL INVESTIGATION ON
PREDICTING AND ALLEVIATING SONIC BOOM INTENSITY IS
DESCRIBED. A NEW THEORY TO PREDICT SONIC BOOM
INTENSITY ON THE GROUND FROM WIND TUNNEL TESTS USING
NORMAL SIZE MODELS (AS OPPOSED TO THE VERY SMALL
MODELS PRESENTLY USED) WAS DEVELOPED. A
RELATIVELY EASY METHOD TO DETERMINE AIRCRAFT CONTOURS
WITH DESIRABLE FINITE PRESSURE RISE TIMES IS
PRESENTED, AS IS A METHOD TO DETERMINE PHANTOM BODY
SHAPES WITH DESIRABLE PRESSURE RISE TIMES WHICH CAN
BE SIMULATED BY HEAT ADDITION TO THE FLOW UPSTREAM OF
THE AIRCRAFT. IT IS SHOWN THAT A SLOTTED NOZZLE
ENGINE EXHAUST HAS THE UNIQUE CAPABILITY TO SHIFT
LIFT FROM THE SOLID SURFACE OF THE WING TO THE REGION
BEHIND THE WING, WITH A RESULTING REDUCTION IN SONIC
BOOM INTENSITY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 758 239 6/6 20/1
BUREAU OF SPORT FISHERIES AND WILDLIFE SEATTLE WASH WESTERN
FISH DISEASE LAB

EFFECT OF SONIC BOOM ON FISH. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 73 72P RUCKER, ROBERT S. ;
PROJ: FAA-202-556-015
MONITOR: FAA-RD 73-29

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *FISHES), (•EGGS, FISHES),
(•ECOLOGY, FISHES), MORTALITY RATES,
EXPOSURE (PHYSIOLOGY) (U)
IDENTIFIERS: NOISE POLLUTION (U)

A PROGRAM WAS INITIATED TO STUDY THE EFFECT OF SONIC BOOM ON FISH AND FISH EGGS DURING CRITICAL STAGES OF DEVELOPMENT. DURING THE DEVELOPMENT OF FISH EGGS THEY REACH A CRITICAL PERIOD WHERE THEY BECOME SENSITIVE TO VIBRATION OR DISTURBANCE. THIS PROGRAM WAS DESIGNED TO DETERMINE IF THE DISTURBANCES CAUSED BY SONIC BOOMS COULD HAVE A DETRIMENTAL EFFECT DURING THIS PERIOD. IT CONSISTED OF BOTH FIELD AND LABORATORY TESTS CONDUCTED AT SEVERAL NATIONAL FISH HATCHERIES (NFH). FISH EGGS FROM BOTH TROUT AND SALMON WERE REARED IN THE NORMAL MANNER, EXCEPT THAT WHEN THEY WERE IN THEIR MOST CRITICAL PHASE OF DEVELOPMENT THEY WERE EXPOSED TO SONIC BOOMS PRODUCED BY MILITARY AIRPLANES. EGG AND FISH FRY MORTALITIES FROM EXPOSED GROUPS OF EGGS WERE COMPARED TO THOSE FOR CONTROL GROUPS OF EGGS SPAWNED AT THE SAME TIME. THESE COMPARISONS INDICATED THAT THE SONIC BOOM EXPOSURE CAUSED NO INCREASE IN MORTALITY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 760 720 13/13 20/1
NEW YORK UNIV BRONX DEPT OF AERONAUTICS AND
ASTRONAUTICS

EXPERIMENTAL-ANALYTIC DYNAMIC TECHNIQUES TO
DETERMINE ACOUSTIC RESPONSE TO SONIC BOOM
WITHIN STRUCTURES. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 69-JUN 71,
JUN 71 160P SLUTSKY, SIMON ; ARNOLD, LEE ;
REPT. NO. NYU-AA-70-19
CONTRACT: DOT-FA69WA-2145
MONITOR: FAA-EQ 71-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*BUILDINGS, RESPONSE), (*SONIC BOOM,
TRANSIENTS), MODELS(SIMULATIONS), ACOUSTICS, STRUCTURAL
PROPERTIES, SIMULATION, POWER SPECTRA, SOUND
TRANSMISSION, COMPUTER PROGRAMS, NUMERICAL ANALYSIS (U)
IDENTIFIERS: *ACOUSTIC RESPONSE, *ACOUSTIC WAVES,
*SPECTRA, COMPUTER AIDED ANALYSIS (U)

AN EXPERIMENTAL AND THEORETICAL PROGRAM WAS
UNDERTAKEN TO DETERMINE THE TIME HISTORY OF THE
AIRBORNE PRESSURE AND THE CORRESPONDING ACOUSTIC AND
STRUCTURAL RESPONSE WITHIN ARCHITECTURAL STRUCTURES
DUE TO SONIC BOOM TRANSIENTS, AND TO DETERMINE THOSE
FEATURES OF SONIC BOOM SIGNATURE WHICH TEND TO SHAPE
THE INTERIOR ACOUSTIC WAVEFORM. A SIMPLE SONIC BOOM
WAVE GENERATOR WAS BUILT IN WHICH SMALL SCALE MODELS
OF ARCHITECTURAL STRUCTURES WERE TESTED. THE
PHENOMENON OF 'SPIKING' OCCURED AND WAS FOUND TO
DEPEND ON THE RISE TIME OF THE INCIDENT WAVE, THE
WINDOW DIMENSIONS AND THE DISTANCE OF THE MICROPHONE
FROM THE WINDOW. INCREASE OF INCIDENT WAVE RISE
TIME WAS FOUND TO RADICALLY ALTER THE HIGH FREQUENCY
CONTENT OF THE ROOM RESPONSE. ALTHOUGH A
COMPLETELY CLOSED STRUCTURE DID NOT GENERATE INTERNAL
PRESSURE SPIKES, IT WAS FOUND THAT THE WALL
ACCELERATION WAS DEPENDENT ON THE INCIDENT WAVE
PRESSURE. THEN IN RESPONSE TO FAST RISE SONIC BOOM
WAVES, A SIMPLE WALL COULD EXCITE SMALL OBJECTS, WITH
HIGH RESONANT FREQUENCY THAT MIGHT BE COUPLED TO THE
WALL. A GENERAL MATHEMATICAL PROCEDURE WAS
DEVELOPED TO CALCULATE SYSTEM TRANSFER FUNCTIONS FROM
MEASURED DATA. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 761 495 11/2
WYLE LABS HUNTSVILLE ALA

EFFECTS OF REPETITIVE SONIC BOOMS ON GLASS
BREAKAGE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 72 252P WHITE, R. W. ;
REPT. NO. WR-72-4
CONTRACT: DOT-FA71WA-2645
MONITOR: FAA-RD 72-43

UNCLASSIFIED REPORT

DESCRIPTORS: (*GLASS, *SONIC BOOM), FATIGUE(MECHANICS),
FRACTURE(MECHANICS), COMPUTER PROGRAMS, PRESSURE,
SIMULATION (U)
IDENTIFIERS: *WINDOW GLASS, OVERPRESSURE, FORTRAN,
FORTRAN 4 PROGRAMMING LANGUAGE (U)

AN EXPERIMENTAL PROGRAM WAS CONDUCTED IN WHICH
FIFTY-EIGHT SQUARE PANES (EDGE LENGTHS OF 3 FT AND
4 FT) OF SINGLE STRENGTH WINDOW GLASS WERE EXPOSED
TO REPETITIVE SONIC BOOM ENVIRONMENTS IN ORDER TO
MEASURE RESPONSE CHARACTERISTICS, DYNAMIC STRENGTHS
AND CUMULATIVE DAMAGE EFFECTS FOR RESIDENTIAL WINDOWS
CONTINUALLY EXPOSED TO SONIC BOOMS GENERATED BY
SUPERSONIC AIRCRAFT. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 762 988 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

SIMULATED SONIC BOOMS AND SLEEP: EFFECTS
OF REPEATED BOOMS OF 1.0 PSF, (U)

DEC 72 31P COLLINS, WILLIAM E. ;
IAMPINETRO, P. F. ;
PROJ: FAA-AM-B-70-PSY-24, FAA-AM-B-71-PSY-24
MONITOR: FAA-AM 72-35

UNCLASSIFIED REPORT

DESCRIPTORS: (*SLEEP, *SONIC BOOM), NOISE,
STRESS(PHYSIOLOGY), ACCLIMATIZATION, PSYCHOPHYSIOLOGY,
AGING(PHYSIOLOGY) (U)
IDENTIFIERS: *NOISE POLLUTION (U)

EIGHT MALE SUBJECTS IN EACH OF THREE AGE GROUPS
(21-26, 40-45, 60-72 YEARS) SLEPT IN PAIRS IN THE
CAMI SONIC BOOM SIMULATION FACILITY FOR 21
CONSECUTIVE NIGHTS. THE FIRST FIVE NIGHTS WERE
USED TO ACCLIMATE THE SUBJECTS (NIGHTS 1 AND 2)
AND TO OBTAIN BASELINE DATA (NIGHTS 3-5); THE
12 SUBSEQUENT NIGHTS (BOOM) INVOLVED THE HOURLY
PRESENTATION OF SIMULATED SONIC BOOMS AT AN
OVERPRESSURE LEVEL OF 1.0 PSF (AS THOUGH MEASURED
'OUTDOORS'); DURING FOUR ADDITIONAL NIGHTS
(RECOVERY) THERE WERE NO BOOM PRESENTATIONS.
ALL-NIGHT RECORDS OF EEG, EOG, EMG, ECG,
AND BSR WERE OBTAINED AND ANALYZED. NONE OF
THESE PHYSIOLOGICAL MEASURES SHOWED ANY STATISTICALLY
SIGNIFICANT EFFECT OF THE BOOM PRESENTATIONS ON
NIGHTLY SLEEP PATTERNS. (MODIFIED AUTHOR
ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 763 594 11/2 13/3 20/1
800Z-ALLEN APPLIED RESEARCH INC BETHESDA MD

STATISTICAL PREDICTION MODEL FOR GLASS
BREAKAGE FROM NOMINAL SONIC BOOM LOADS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 73 216P HERSHEY, ROBERT L. HIGGINS,
THOMAS H. I
CONTRACT: DOT-FA72WA-2823
MONITOR: FAA-RD 73-79

UNCLASSIFIED REPORT

DESCRIPTORS: (*BUILDINGS, GLASS), (*GLASS,
FAILURE(MECHANICS)), (*SONIC BOOM, BUILDINGS),
CONFIGURATION, LOADS(FORCES), STRESSES, PROBABILITY
DENSITY FUNCTIONS, CRACKS, RANDOM VARIABLES (U)
IDENTIFIERS: WINDOWS, OVERPRESSURE, BREAKAGE, COMPUTER
AIDED ANALYSIS (U)

A STATISTICAL MODEL WAS DEVELOPED WHICH CAN BE USED
TO ESTIMATE THE PROBABILITY OF GLASS BREAKAGE FROM
SONIC BOOMS AS A FUNCTION OF THEIR NOMINAL
OVERPRESSURE. OTHER PARAMETERS WHICH CAN BE TAKEN
INTO ACCOUNT IN BREAKAGE PROBABILITY CALCULATIONS
WITH THIS MODEL INCLUDE WINDOW SIZE, AIRCRAFT VECTOR,
BOOM DURATION, AND WHETHER THE GLASS WAS PREVIOUSLY
IN GOOD CONDITION OR CRACKED. A MODEL WINDOW
POPULATION HAS BEEN DEVISED FROM AVAILABLE DATA WHICH
INCLUDES THE DISTRIBUTIONS OF DYNAMIC AMPLIFICATION
FACTORS AND BREAKING PRESSURES FOR SEVEN WINDOW
TYPES. PROVISION HAS BEEN MADE IN THE MODEL TO
TREAT .61% OF THE WINDOW POPULATION AS CRACKED
GLASS. FROM COMPUTER GENERATION OF HISTOGRAMS FROM
TEST DATA, THE DISTRIBUTION OF BOTH SONIC BOOM
STRESSES AND GLASS STRENGTHS WERE FOUND TO BE
LOGNORMAL. BY USE OF THE MODEL, IT WAS ESTIMATED
THAT THERE WOULD BE 1.1 BREAKS PER MILLION PANES IN
GOOD CONDITION BOOMED AT A NOMINAL OVERPRESSURE OF 1
PSF. THIS ESTIMATE AGREES WELL WITH SONIC BOOM
CLAIMS DATA. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 766 326 6/19
MAN-ACOUSTICS AND NOISE INC SEATTLE WASH

THE EFFECT OF SIMULATED SONIC BOOM RISE
TIME AND OVERPRESSURE ON
ELECTROENCEPHALOGRAPHIC WAVEFORMS AND
DISTURBANCE JUDGMENTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 39P HARRY, J. E. IPARRY, H. J.

1
REPT. NO. MAN-1004
CONTRACT: DOT-FA73WA-3213
PROJ: FAA-202-554-015
MONITOR: FAA-RD 73-115

UNCLASSIFIED REPORT

DESCRIPTORS: (*ELECTROENCEPHALOGRAPHY, *SONIC BOOM),
(*NOISE, *SLEEP), SIMULATION, STRESS(PHYSIOLOGY),
AIRCRAFT NOISE, JET AIRCRAFT

(U)

THE THREE MAIN OBJECTIVES OF THIS STUDY WERE AS
FOLLOWS: DETERMINE THE FEASIBILITY OF
INVESTIGATING EFFECT OF SIMULATED SONIC BOOMS ON SOME
SLEEP PATTERNS OF PERSONS UNDERGOING ROUTINE
ELECTROENCEPHALOGRAPHIC (EEG) EXAMINATIONS;
DETERMINE THE EXTENT THAT EEG WAVEFORMS ARE ALTERED
BY THE SIMULATED SONIC BOOMS; AND OBTAIN
'DISTURBANCE', JUDGMENTS AS A FUNCTION OF THE
SIMULATED BOOM NOISES. RESULTS WERE OBTAINED FROM
FIFTY (50) SUBJECTS OF BOTH SEXES WITH AGES
RANGING FROM 15 TO 72 YEARS OF AGE. DATA WAS
RELEVANT TO RESTING, DOZING, OR LIGHT SLEEP. THE
EEG WAVEFORMS FOR RESTING OR DOZING PERSONS WAS NOT
CHANGED BY THE SIMULATED BOOM NOISES. IN GENERAL,
THE SUBJECTS WERE NOT, 'DISTURBED', BY THE SIMULATED
BOOMS. NINETY-TWO (92) PERCENT OF THE SUBJECTS
REPORTED NO, 'DISTURBANCE', TO ANY OF THE SIMULATED
BOOMS PRESENTED. TWO RISE TIMES OF 15 AND 7 MS
WERE EMPLOYED WITH OVERPRESSURES RANGING FROM 0.94 TO
2.85 PSF. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 767 454 13/13 20/1 11/2
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS
RESEARCH AND DEVELOPMENT SERVICE

A POTENTIAL DESIGN WINDOW FOR SUPERSONIC
OVERFLIGHT BASED ON THE PERCEIVED LEVEL
(PLDB) AND GLASS DAMAGE PROBABILITY OF
SONIC BOOMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
AUG 73 28P HIGGINS, THOMAS H. ;
CARPENTER, LARRY K. ;
REPT. NO. FAA-RD-73-116

UNCLASSIFIED REPORT

DESCRIPTORS: (*GLASS, DAMAGE), (*SUPERSONIC FLIGHT,
*SONIC BOOM), JET PLANE NOISE, PRESSURE, SONIC FATIGUE,
ACOUSTICS, TOLERANCES (PHYSIOLOGY) (U)
IDENTIFIERS: WINDOW GLASS, OVERPRESSURE, SOUND
PRESSURE, DESIGN CRITERIA (U)

A POTENTIAL DESIGN WINDOW FOR SUPERSONIC OVERFLIGHT
BASED ON THE PERCEIVED LEVEL (PLDB) AND GLASS
DAMAGE PROBABILITY OF SONIC BOOMS IS OUTLINED. THE
EVALUATION OF A SIMPLE OPERATIONAL METHOD OF
ESTIMATING THE PERCEIVED LEVEL (PLDB) OF SONIC
BOOMS IS DISCUSSED AND COMPARED WITH THE FOURIER
TRANSFORM COMPUTER PROGRAM CALCULATIONS OF PEASE
BASED ON THE THEORY OF ZEPLER AND HAREL. THE
RESULTING ESTIMATED PERCEIVED LEVELS ARE IN GOOD
AGREEMENT I.E., WITHIN 1 TO 2 PLDB OF EACH OTHER
IN THE IMPORTANT POTENTIAL CERTIFICATION OR DESIGN
WINDOW THAT IS IN THE 90 TO 100 PLDB RANGE.
THESE PERCEIVED LEVELS ARE SHOWN TO BE ACCEPTABLE
TO 95 TO 100 PERCENT OF THE PEOPLE EXPOSED TO THEM.
(MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 768 847 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF
SYSTEMS ENGINEERING MANAGEMENT

ENGINEERING AND DEVELOPMENT PROGRAM PLAN -
AIRCRAFT NOISE AND SONIC BOOM. (U)

JUN 73 38P
REPT. NO. FAA-ED-20-2

UNCLASSIFIED REPORT

DESCRIPTORS: (AIRCRAFT NOISE, ACOUSTIC IMPEDANCE), JET
PLANE NOISE, SONIC BOOM, ENGINE NOISE,
STRESS(PHYSIOLOGY), TOLERANCES(PHYSIOLOGY), LAW,
PLANNING (U)

IDENTIFIERS: NOISE, NOISE EXPOSURE, NOISE REDUCTION,
NOISE REDUCTION, NOISE POLLUTION, ENVIRONMENTAL NOISE
EXPOSURE MEASUREMENT (U)

THE REPORT DESCRIBES A PROGRAM PLAN DESIGNED TO
PROVIDE A DATA BASE FROM WHICH TO DEVELOP RULE MAKING
FOR CONTROL AND ABATEMENT OF AIRCRAFT NOISE AND SONIC
BOOM. PRIMARY OBJECTIVES ARE TO MINIMIZE THE
ENVIRONMENTAL IMPACT OF AIRCRAFT GENERATED NOISE AND
SONIC BOOM AND TO DEVELOP PREDICTION, REDUCTION AND
CERTIFICATION CRITERIA FOR ALL CATEGORIES OF
AIRCRAFT. DEVELOPMENT ACTIVITIES CURRENTLY IN
PROGRESS PLUS PROGRAMS PLANNED FOR A PERIOD OF
APPROXIMATELY FIVE YEARS ARE DESCRIBED.
(AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM09

AD- 768 853 6/19 6/6
TEER (JAMES G) AND CO COLLEGE STATION TEX

STUDIES OF THE EFFECTS OF SONIC BOOM ON
BIRDS.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAR-15 AUG 73,
SEP 73 90P TEER, JAMES G. ; TRUETT, JOE
C. ;

PROJ: FAA-202-554-015
MONITOR: FAA-RD 73-148

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, *BIRDS),
REPRODUCTION(PHYSIOLOGY), GROWTH(PHYSIOLOGY), MORTALITY
RATES, SURVIVAL(PERSONNEL), AIRCRAFT NOISE, AIRPORTS (U)

A FIELD STUDY WAS CARRIED OUT NEAR GLEN ROSE,
TEXAS TO TRY TO DISCOVER IF OCCURRENCE OF SONIC
BOOMS CREATED BY OVERFLYING AIRCRAFT WAS ADVERSELY
AFFECTING REPRODUCTION OF WILD BIRDS. SEVERAL
MEASURES OF REPRODUCTION SUCCESS IN MOURNING DOVES,
MOCKINGBIRDS, CARDINALS, AND LARK SPARROWS WERE
COMPARED BETWEEN A TEST AREA AND A CONTROL AREA.
THE TEST AREA WAS SUBJECT TO SONIC BOOM OCCURRING
TWO OR THREE TIMES A WEEK; THE CONTROL AREA WAS
ESSENTIALLY FREE FROM SONIC BOOM DISTURBANCE. IN
THE FINAL ANALYSIS, THE AUTHORS COULD FIND NO
EVIDENCE THAT SONIC BOOM DISTURBANCE AFFECTED PHASES
OF BIRD REPRODUCTION STUDIES IN THE PROGRAM.
STUDIES OF THE EFFECTS OF PRESSURE ON GROWTH,
REPRODUCTION AND MORTALITY OF BOBWHITE QUAIL WERE
MADE IN THE LABORATORY WITH EQUIPMENT DESIGNED TO
DELIVER PRESSURE TREATMENTS UNDER CONTROLLED
CONDITIONS. RESULTS OF THESE EXPERIMENTS SHOWED
THAT THE PRESSURES HAD NO EFFECTS ON HATCHING
SUCCESS, GROWTH RATES, OR MORTALITY. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 769 970 20/1 1/3
DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA

ENVIRONMENTAL POLLUTION: NOISE POLLUTION -
SONIC BOOM.

(U)

DESCRIPTIVE NOTE: REPORT BIBLIOGRAPHY APR 59-FEB 73.
NOV 73 179P
REPT. NO. DDC-TAS-73-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-722 910.

DESCRIPTORS: (*SONIC BOOM, *BIBLIOGRAPHIES),
(*JET AIRCRAFT, *NOISE POLLUTION), SUPERSONIC
AIRCRAFT, JET TRANSPORT PLANES, PUBLIC OPINION,
PSYCHOACOUSTICS, LAW, JET PLANE NOISE, SHOCK
WAVES, ABSTRACTS

(U)

THE REFERENCES IN THE BIBLIOGRAPHY COVER A WIDE
RANGE OF THE PARAMETER OF SONIC BOOM AND NOISE
POLLUTION, AS WELL AS DAMAGES CAUSED BY IT.
CORPORATE AUTHOR/MONITORING AGENCY,
SUBJECT, AND PERSONAL AUTHOR INDEXES ARE
INCLUDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 771 274 1/3 20/1
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

SONIC BOOM LITERATURE SURVEY. VOLUME II.
CAPSULE SUMMARIES.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-SEP 73,
SEP 73 348P RUNYAN, LARRY J. ; KANE,
EDWARD J. ;
REPT. NO. D6-41292-2
CONTRACT: DOT-FA72WA-3039
MONITOR: FAA-RD 73-129-VOL-2

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *LITERATURE SURVEYS,
SOUND TRANSMISSION, JET PLANE NOISE, JET AIRCRAFT,
RESPONSE(BIOLOGY), THRESHOLDS(PHYSIOLOGY),
ANIMALS

(U)

THE PURPOSE OF THE REPORT IS TO PROVIDE A REFERENCE
FOR INVESTIGATORS IN THE FIELD OF SONIC BOOM TO HELP
IN ELIMINATING POSSIBLE DUPLICATION OF FUTURE EFFORTS
BY COMPILING IN ONE DOCUMENT THE RESULTS OF ALL
PUBLISHED SONIC BOOM INVESTIGATIONS. VOLUME 2
CONSISTS OF A COMPREHENSIVE ANNOTATED REFERENCE OF
ALL SONIC BOOM STUDIES IN THE FORM OF CAPSULE
SUMMARIES. EACH CAPSULE SUMMARY CONTAINS A
COMPLETE REFERENCE OF THE PAPER, A STATEMENT OF ITS
PURPOSE, A SUMMARY OF SIGNIFICANT RESULTS, A
COMPARISON OF THE WORK WITH OTHER SIMILAR PAPERS, AND
AN EVALUATION OF THE PAPER. SUBJECT AND AUTHOR
INDEXES ARE GIVEN AT THE END OF THE REPORT.
(MODIFIED AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 382 20/1 1/3
BOEING COMMERCIAL AIRPLANE CO SEATTLE WASH

SONIC BOOM LITERATURE SURVEY. VOLUME I.
STATE OF THE ART. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-SEP 73,
SEP 73 173P RUNYAN, LARRY J. ; KANE,
EDWARD J. ;
REPT. NO. D6-41292-1
CONTRACT: DOT-FA72WA-3039
PROJ: FAA-202-554-015
MONITOR: FAA-RD 73-129-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-771 274.

DESCRIPTORS: *SONIC BOOM, *LITERATURE SURVEYS,
STATE OF THE ART, THRESHOLDS(PHYSIOLOGY),
SOUND TRANSMISSION, JET PLANE NOISE,
RESPONSE(BIOLOGY), ANIMALS (U)

THE REPORT PROVIDES A REFERENCE FOR INVESTIGATORS
IN THE FIELD OF SONIC BOOM TO HELP IN ELIMINATING
POSSIBLE DUPLICATION OF FUTURE EFFORTS BY COMPILING
IN ONE DOCUMENT THE RESULTS OF ALL PUBLISHED SONIC
BOOM INVESTIGATIONS. THE REPORT CONTAINS A SUMMARY
OF THE CURRENT STATE OF THE ART. ITS PURPOSE IS TO
ACQUAINT THE READER WITH THE SUBJECT IN SUFFICIENT
DEPTH TO ALLOW EVALUATION OF SUBSEQUENT TECHNICAL
WORK OR THE COMPLETION OF CURRENT UNFINISHED
INVESTIGATIONS. FUNDAMENTAL CONCEPTS, IDEAS, AND
STUDY RESULTS OF SONIC BOOM WORK IN THE AREAS OF
GENERATION, PROPAGATION, MINIMIZATION, HUMAN RESPONSE
AND SOCIAL CRITERIA, STRUCTURAL RESPONSE, ANIMAL
RESPONSE, THRESHOLD MACH NUMBER, SIMULATION
METHODS, AND INSTRUMENTATION TECHNIQUES ARE
SUMMARIZED. ASPECTS OF SONIC BOOM THAT NEED
FURTHER RESEARCH ARE ALSO IDENTIFIED. (MODIFIED
AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 773 451 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

SONIC BOOM STARTLE EFFECTS--REPORT OF A
FIELD STUDY,

(U)

JUL 73 20P THACKRAY, RICHARD I. ;
RYLANDER, RAGNAR ; TOUCHSTONE, R. MARK ;
MONITOR: FAA-AM 73-11

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *NOISE POLLUTION,
AVIATION MEDICINE, PSYCHOPHYSIOLOGY, SOUND,
STIMULATION, REACTION(PSYCHOLOGY),
STRESS(PHYSIOLOGY), THRESHOLDS(PHYSIOLOGY),
SWEDEN, FEMALES
IDENTIFIERS: *STARTLE RESPONSE

(U)

(U)

THE STUDY REPORTS THE RESULTS OF A SONIC BOOM FIELD
STUDY CONDUCTED IN SWEDEN DURING OCTOBER 1972.
TEN FEMALE SUBJECTS WERE TESTED INDOORS ON EACH OF
SIX DAYS. TWO AGE GROUPS WERE STUDIED: 20-35
AND 50-65 YEARS. FIGHTER AIRCRAFT FLYING AT VARIOUS
HEIGHTS OVER THE TEST SITE PRODUCED BOOMS WITH
OUTDOOR OVERPRESSURES RANGING FROM 60-640 N/SQ.M.
THE NUMBER OF BOOMS EXTENDED FROM 5 TO 13 PER DAY.
SUBJECTS PERFORMED INDOORS ON AN ARM-HAND
STEADINESS TASK. THE RESULTS INDICATED THAT
OUTDOOR OVERPRESSURES RANGING FROM 70-120 N/SQ.M.
(26-35 N/SQ.M. INDOORS) PRODUCED REFLEXIVE ARM-
HAND MOVEMENTS IN ABOUT 10 PER CENT OF THE SUBJECTS.
BOOMS OF 300 N/SQ.M. (67 N/SQ.M. INDOORS)
AND GREATER PRODUCED RESPONSES IN ABOUT 75 PER CENT
OF THE SUBJECTS. BETWEEN THESE EXTREMES OF
OVERPRESSURE THERE WAS THE SUGGESTION OF A CRITICAL
OVERPRESSURE RANGE LYING BETWEEN 150-180 N/SQ.M.
(40-46 N/SQ.M. INDOORS) IN WHICH AN ABRUPT
INCREASE IN STARTLE RESPONSE OCCURRED. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 775 095 1/2 20/1 1/3
TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES

A NUMERICAL STUDY OF THE EFFECTS OF AIRCRAFT
MANOEUVERS ON THE FOCUSING OF SONIC BOOMS,

(U)

JUL 73 119P ONYEONWU, RONALD O. ;
REPT. NO. UTIAS-192
CONTRACT: AF-AFOSR-1885-70
PROJ: AF-9783
TASK: 978306
MONITOR: AFOSR TR-74-0181

UNCLASSIFIED REPORT

DESCRIPTORS: *JET AIRCRAFT, *FLIGHT MANEUVERS,
*SONIC BOOM, *FOCUSING, SHOCK WAVES, ACOUSTIC
BEAMS, RAY TRACING, ATMOSPHERE MODELS,
MATHEMATICAL MODELS, CANADA

(U)

THE EFFECTS OF AIRCRAFT MANEUVERS ON THE FOCUSING
OF SONIC BOOMS ARE INVESTIGATED FOR A MODEL
ATMOSPHERE WHICH IS PIECEWISE LINEAR IN WIND AND
SOUND SPEEDS, AND PIECEWISE CONSTANT IN WIND
DIRECTION. RAY-TUBE AREAS AND TRAJECTORIES ARE
OBTAINED IN CLOSED FORM FOR A REAL ATMOSPHERE WITH
WINDS AND AIRCRAFT IN ARBITRARY MANEUVERS. A
MATHEMATICAL FORMALISM IS DEVELOPED FOR IDENTIFYING
THE FOCUSING RAY IN GENERAL MANEUVERS, LEADING TO A
DIRECT AND ACCURATE DETERMINATION OF THE CAUSTIC
SURFACE GROUND INTERCEPT. THE ALGORITHMS DERIVED
IN THE ANALYSIS COMPLEMENT THOSE OF HAYES TO FORM
THE BASIS FOR A COMPUTER PROGRAM FOR PREDICTING SONIC
BOOM PROPERTIES. THERE APPEARS TO BE A TEN-FOLD
REDUCTION IN COMPUTING TIME AS COMPARED WITH THE
HAYES-HAEFELI PROGRAM. (MODIFIED AUTHOR
ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 775 555 1/1 1/3
CORNELL UNIV ITHACA N Y

THE DESIGN OR OPERATION OF AIRCRAFT TO
MINIMIZE THEIR SONIC BOOM,

(U)

73 10P SEEBASS, A. R. 1

UNCLASSIFIED REPORT

AVAILABILITY: PAPER COPY AVAILABLE FROM AIAA, 1290
AVENUE OF THE AMERICAS, NEW YORK, N.Y.
10019.

SUPPLEMENTARY NOTE: PRESENTED AT AIAA AIRCRAFT DESIGN,
FLIGHT TEST AND OPERATIONS MEETING (5TH) ST.
LOUIS, MO., 6-8 AUG 73. PAPER NO. 73-817.

DESCRIPTORS: *SUPERSONIC AIRCRAFT, *SONIC BOOM,
*NOISE REDUCTION, SHOCK WAVES, AERODYNAMIC
CONFIGURATIONS, SUPERSONIC FLIGHT, OVERPRESSURE
IDENTIFIERS: *DESIGN CRITERIA

(U)

(U)

MEANS OF REDUCING OR ELIMINATING THE SONIC BOOM
THROUGH AERODYNAMIC DESIGN OR AIRCRAFT OPERATION ARE
DISCUSSED. THESE INCLUDE DESIGNING AIRCRAFT TO
MINIMIZE OR ELIMINATE CERTAIN FEATURES OF THE
OVERPRESSURE SIGNATURE, OPERATING AIRCRAFT AT
SLIGHTLY SUPERSONIC SPEEDS SO THAT THE SONIC BOOM
DOES NOT REACH THE GROUND, AND SEEKING REDUCTIONS
THROUGH THE HIGH ALTITUDE-HIGH SPEED FLIGHT
CONDITIONS OF HYPERSONIC TRANSPORTS. A SIMPLE
COMPUTER PROGRAM HAS BEEN DEVELOPED THAT DETERMINES
THE AREA DEVELOPMENT OF THE EQUIVALENT BODY OF
REVOLUTIONN REQUIRED TO MINIMIZE VARIOUS SONIC BOOM
SIGNATURE PARAMETERS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 776 136 6/5 6/19
CIVIL AEROMEDICAL INST OKLAHOMA CITY OKLA

AVIATION MEDICINE TRANSLATIONS: ANNOTATED
BIBLIOGRAPHY OF RECENTLY TRANSLATED MATERIAL.
VIII, (U)

DEC 73 14P CONSTANT, GREGORY N. ;
GOULDEN, D. R. ; GRIMM, E. JEAN ;
PROJ: FAA-AM-A-73-PSY-33, FAA-AM-D-74-PSY-33
MONITOR: FAA-AM 73-19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAY 72, AD-
747 125.

DESCRIPTORS: *AVIATION MEDICINE, *BIBLIOGRAPHIES,
TRANSLATIONS, STRESS (PHYSIOLOGY), VESTIBULAR
APPARATUS, CARDIOVASCULAR SYSTEM, NYSTAGMUS,
PERFORMANCE (HUMAN), CARBON MONOXIDE, BLOOD,
VISION, SONIC BOOM, AVIATION SAFETY (U)

AN ANNOTATED BIBLIOGRAPHY OF TRANSLATIONS OF
FOREIGN-LANGUAGE ARTICLES IS PRESENTED. THE 22
LISTED ENTRIES ARE CONCERNED WITH STUDIES OF
EQUILIBRATION TESTS, VESTIBULAR FUNCTION, OPTOKINETIC
NYSTAGMUS, ELECTRONYSTAGMOGRAPHY, CARDIOVASCULAR
REACTIONS TO NOISE STRESS, STRESS AND PERFORMANCE,
APTITUDES FOR FLYING, FACIAL RECONSTRUCTION
TECHNIQUES IN THE IDENTIFICATION OF HUMAN REMAINS
FROM ACCIDENTS, ATTITUDES AND PERFORMANCE OF AIR
TRAFFIC CONTROLLERS, TECHNIQUES FOR DETERMINING
LEVELS OF CARBON MONOXIDE IN THE BLOOD, NOISE,
VISION, CARDIOLOGY, FLIGHT SAFETY, AND ANIMAL
RESPONSES TO SONIC BOOMS. PROCEDURES FOR OBTAINING
COPIES OF THE TRANSLATIONS ARE INCLUDED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 777 581 6/19
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF
AVIATION MEDICINE

A COMPARISON OF THE STARTLE EFFECTS
RESULTING FROM EXPOSURE TO TWO LEVELS OF
SIMULATED SONIC BOOMS, (U)

DEC 73 14P THACKRAY, RICHARD I. ;
TOUCHSTONE, ROBERT M. ; BAILEY, JOE P. ;
REPT. NO. FAA-AM-73-16

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, PSYCHOMOTOR FUNCTIONS,
STRESS(PHYSIOLOGY), RESPONSE(BIOLOGY),
PERFORMANCE(HUMAN), HEART, EYE, GALVANIC
SKIN RESPONSE, REFLEXES, NOISE, AUTONOMIC NERVOUS
SYSTEM (U)
IDENTIFIERS: *STARTLE RESPONSES, NOISE POLLUTION,
HEART RATE (U)

SUBJECTS WERE EXPOSED INDOORS TO SIMULATED SONIC
BOOMS HAVING OUTSIDE OVERPRESSURES OF 50 AND 150 N/
SQ M. RISE TIMES WERE HELD CONSTANT AT 5.5 MSECS.
IN ADDITION TO THE OUTSIDE MEASUREMENTS, INSIDE
MEASURES OF DBL IN AND DBA WERE ALSO OBTAINED.
SUBJECTS ATTEMPTED TO HOLD A HAND-STEADINESS DEVICE
ON TARGET DURING BOOM EXPOSURE AND AMPLITUDE OF THE
ARM-HAND STARTLE RESPONSE WAS DETERMINED.
RECORDINGS WERE ALSO OBTAINED OF THE SKIN
CONDUCTANCE AND HEART-RATE RESPONSES AS WELL AS THE
EYE-BLINK REFLEX. ALTHOUGH THE 50 N/SQ M BOOM
PRODUCED SLIGHT ARM-HAND STARTLE RESPONSES IN A SMALL
PERCENTAGE OF SUBJECTS, THE FREQUENCY OF THESE
RESPONSES WAS SIGNIFICANTLY GREATER TO THE HIGHER
BOOM LEVEL. TENTATIVE CONCLUSIONS ADVANCED THAT
SONIC BOOMS EXPERIENCED INDOORS MAY CAUSE SLIGHT ARM-
HAND STARTLE RESPONSES WHICH COULD HAVE ADVERSE
EFFECTS ON OCCUPATIONAL TASKS IN WHICH ARM-HAND
STEADINESS IS THE PRINCIPAL SKILL REQUIRED, BUT THAT
IT SEEMS UNLIKELY THESE RESPONSES WOULD SIGNIFICANTLY
IMPAIR PERFORMANCE ON LESS SENSITIVE PSYCHOMOTOR
TASKS. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 778 242 20/1
TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES

RECENT DEVELOPMENTS IN SONIC-BOOM
SIMULATION USING SHOCK TUBES,

(U)

APR 73 15P GOTTLIEB, J. J. (GLASS, J.

I. ;

CONTRACT: AF-AFOSR-2274-72

PROJ: AF-9783

TASK: 978306

MONITOR: AFOSR

TR-74-0613

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN CANADIAN JNL. OF

PHYSICS, V52 N3 P207-218 1974.

SUPPLEMENTARY NOTE: TEXT IN ENGLISH; SUMMARIES IN
ENGLISH AND FRENCH.

DESCRIPTORS: *SONIC BOOM, *SIMULATORS, *SHOCK
TUBES, STRUCTURES, GAS DYNAMICS, ACOUSTICS, WAVE
PROPAGATION, COMMUNITY RELATIONS, CANADA
IDENTIFIERS: PYRAMIDAL STRUCTURE

(U)

(U)

GASDYNAMIC AND ACOUSTIC ANALYSES WERE PERFORMED IN
ORDER TO PROVIDE GREATER INSIGHT INTO THE OPERATION
OF SONIC-BOOM SIMULATORS UTILIZING SHOCK-TUBE
DRIVERS. THREE BASIC SHOCK TUBES WERE CONSIDERED:
EACH HAD A PYRAMIDAL DRIVER JOINED AT THE DIAPHRAGM
STATION TO A PYRAMIDAL CHANNEL OF THE SAME DIVERGENCE
ANGLE (PYRAMIDAL SHOCK TUBE), OR OF A DIFFERENT
ANGLE, OR JOINED TO A CONSTANT-AREA CHANNEL.
CLASSICAL ACOUSTIC THEORY WAS APPLIED TO OBTAIN NEW
ANALYTICAL SOLUTIONS TO DESCRIBE THE WAVE MOTION IN
SUCH FACILITIES, IN AGREEMENT WITH EXPERIMENTAL DATA.
IN ADDITION, A DETAILED STUDY OF THE NONLINEAR
GENERATION AND PROPAGATION FEATURES OF THE N WAVE
WAS MADE FOR THE IMPORTANT AND PRACTICAL CASE OF THE
PYRAMIDAL SHOCK TUBE. THE WORK DESCRIBED ABOVE IS
OF CURRENT INTEREST AS SHOCK-TUBE-TYPE FACILITIES ARE
IN PRESENT USE IN FRANCE, GERMANY, ENGLAND, THE
UNITED STATES, AND CANADA TO ASSESS SOCIETAL
PROBLEMS ASSOCIATED WITH SONIC BOOM. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 779 151 20/1 1/3
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

NOISE MECHANISMS.

(U)

DESCRIPTIVE NOTE: CONFERENCE PROCEEDINGS NO. 131.

74 376P

REPT. NO. AGARD-CP-131

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE FLUID DYNAMICS
PANEL SPECIALISTS' MEETING, BRUSSELS, 19-21 SEP
73. NATO FURNISHED.

DESCRIPTORS: *AERODYNAMIC NOISE, *MEETINGS, JET
ENGINES, SONIC BOOM, NOISE REDUCTION, SHOCK WAVES,
VORTICES, PHYSIOLOGICAL EFFECTS

(U)

THIS SPECIALISTS' MEETING WAS HELD TO FOLLOW ON THE
MEETING ON 'AIRCRAFT ENGINE NOISE AND SONIC
BOOM', HELD JOINTLY WITH THE PROPULSION AND
ENERGETICS PANEL IN MAY 1969. EMPHASIS ON
THIS OCCASION WAS ON THE FUNDAMENTAL PROBLEMS OF
NOISE GENERATION AND ATTENUATION; MAIN ASPECTS
CONSIDERED WERE NOISE GENERATION AND DAMPING,
COMBUSTION AND JET NOISE, SONIC BOOM THEORY AND NOISE
DUE TO BOUNDARY AND SHEAR LAYER EFFECTS. THE
MEETING CONCLUDED WITH A ROUND TABLE DISCUSSION.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 780 050 6/6
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C SYSTEMS
RESEARCH AND DEVELOPMENT SERVICE

THE RESPONSE OF SONGBIRDS TO THE SEISMIC
COMPRESSION WAVES PRECEDING SONIC BOOMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 74 28P HIGGINS, THOMAS H. ;
REPT. NO. FAA-RD-74-78
PROJ: FAA-202-554-015

UNCLASSIFIED REPORT

DESCRIPTORS: *BIRDS, *SONIC BOOM, *SEISMIC WAVES,
WILDLIFE, RESPONSE(BIOLOGY), AUDIO TAPES,
TEST METHODS, TEST EQUIPMENT, RECORDING SYSTEMS,
SOUND, SUPERSONIC AIRCRAFT, JET PLANE NOISE (U)
IDENTIFIERS: *ANIMAL BEHAVIOR, NOISE
POLLUTION (U)

AMONG THE ENVIRONMENTAL AND OPERATIONAL PROBLEMS
STUDIED DURING THE PROGRAM WERE THE EFFECTS OF THE
SONIC BOOMS ON WILDLIFE. IN ADDITION TO THE
CUSTOMARY SONIC BOOM OVERPRESSURE SIGNATURE
MEASUREMENTS, AUDIO TYPE RECORDINGS WERE MADE AT BOTH
OUTDOOR AND INDOOR MEASUREMENT SITES AND THESE WERE
STUDIED IN REACTION TO THE OTHER MEASURES OBTAINED.
ANALYSIS OF THE AUDIO TAPES DISCLOSED AN
INTERESTING PHENOMENA. THE CONTINUOUS SONGS OF
BIRDS OF THE FIELD WERE COMPLETELY SILENCED 4 TO 8
SECONDS PRIOR TO THE ARRIVAL OF THE AUDIBLE SONIC
BOOM. ADDITIONAL AUDIO RECORDINGS, MADE FOR THE
SPECIFIC PURPOSE OF VERIFYING THIS COMPLETE SILENCE
OF ALL SONGBIRDS 4 TO 8 SECONDS PRIOR TO THE ARRIVAL
OF THE SONIC BOOM'S AUDIBLE REPORT AND OVERPRESSURE
SIGNATURE MEASUREMENT, WERE IDENTICAL TO THE FIRST
OBTAINED. FURTHER STUDY DISCLOSED THAT THIS
RESPONSE OF SONGBIRDS COINCIDES WITH THE ARRIVAL OF
THE SEISMIC SIGNAL PROPAGATED THROUGH THE GROUND AND
PRECEDING THE SONIC BOOM SHOCK WAVE BY 4 TO 8
SECONDS. (MODIFIED AUTHOR ABSTRACT) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 781 899 20/1 13/13 1/2
ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)

THE RESPONSE OF SOME LEADED WINDOWS TO
SIMULATED SONIC BANGS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 73 51P PALLANT, R. J. ;
REPT. NO. RAE-TR-73111
MONITOR: DRIC 9R-37827

UNCLASSIFIED REPORT

DESCRIPTORS: *WINDOWS, *SONIC BOOM, AERODYNAMIC
LOADS, DAMAGE ASSESSMENT, OVERPRESSURE, SUPERSONIC
AIRCRAFT, GREAT BRITAIN, DYNAMIC RESPONSE

(U)

AN INVESTIGATION WAS MADE INTO THE BEHAVIOR OF THE
LEAD FRAMEWORK, OR CALMES, IN LEADED-LIGHT WINDOWS
DUE TO REPEATED LOADINGS BY SIMULATED SONIC BANGS OF
MODERATE AMPLITUDE. THE THRESHOLD AT WHICH DAMAGE
OCCURS HAS ALSO BEEN ASSESSED. THIS REPORT
DESCRIBES HOW THE TESTS WERE CARRIED OUT AND GIVES
RESULTS OF THE MEASUREMENTS TAKEN. THE RESULTS
INDICATE THAT SOME SMALL PERMANENT DEFLECTION OF
LEADED LIGHTS MAY OCCUR IF THEY ARE SUBJECTED TO REAL
SONIC BANGS OVER A LONG PERIOD. CHARACTERISTIC
OVERPRESSURES GREATER BY A FACTOR OF 20 THAN THOSE
PREDICTED FOR COMMERCIAL SUPERSONIC TRANSPORT
AIRCRAFT IN THE CRUISE WILL BE REQUIRED TO PRODUCE
EVEN A FIRST INDICATION OF DAMAGE. (MODIFIED
AUTHOR ABSTRACT)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 804 043 1/3 20/4
BOEING CO RENTON WASH AIRPLANE DIV

COMMERCIAL SUPERSONIC TRANSPORT PROGRAM. PHASE II-A.
COMPREHENSIVE REPORT. VOLUME VII-A. SONIC BOOM AND
NOISE. (U)

NOV 64 105P
REPT. NO: D6-8680-7
CONTRACT: FA-SS-64-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5-A BOOK 2,
AD-804 042L.

DESCRIPTORS: (•JET TRANSPORT PLANES, SUPERSONIC
AIRCRAFT), (•AIRFRAMES, DESIGN), JET ENGINE NOISE, JET
PLANE NOISE, SONIC BOOM, SONIC FATIGUE, AIRCRAFT CABINS,
AIRPLANE MODELS, MODEL TESTS, SOURCES, (U)
FATIGUE(MECHANICS) (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS

THE BOEING COMPANY HAS SUBMITTED FOR PHASE
II-A EVALUATION AN AIRPLANE DESIGN, WHICH, IN ITS
INTERCONTINENTAL AND DOMESTIC VERSIONS, WILL PROVIDE
ECONOMICAL SUPERSONIC TRANSPORTS MEETING THE DIVERSE
REQUIREMENTS OF VARIOUS OPERATORS AND ALSO MEETING
THE DESIGN OBJECTIVES OF THE FAA. THE TWO MODELS
OF THE AIRPLANE ARE IDENTICAL IN ALL RESPECTS EXCEPT
FOR OPERATIONAL EMPTY WEIGHT AND MAXIMUM GROSS
WEIGHT. BOTH THE DOMESTIC AND INTERCONTINENTAL
VERSIONS MEET OR ARE LOWER THAN ALL NOISE OBJECTIVES
ESTABLISHED BY THE FAA. NOTABLE PROGRESS HAS
BEEN MADE DURING PHASE II-A TOWARD DEVELOPING A
SUPERSONIC TRANSPORT THAT HAS BOTH INTERIOR AND
EXTERIOR NOISE LEVELS LOWER THAN PRESENT SUBSONIC
AIRPLANES. SIGNIFICANT CONFIGURATION CHANGES FROM
THE PHASE I PROPOSAL THAT HAVE CONTRIBUTED TO
IMPROVEMENT ARE: (1) DEVELOPMENT OF ENGINE INLET
AND NOZZLE NOISE SUPPRESSION TECHNIQUES WITH NO
PERFORMANCE PENALTY; AND (2) RELOCATION OF ENGINES
AFT ON THE WING TO REDUCE ENGINE NOISE HEARD IN THE
CABIN. THESE CHANGES, COUPLED WITH TEST-PROVEN
STRUCTURAL DESIGN CONCEPTS, WILL ENSURE A 50,000-HOUR
FATIGUE LIFE FOR THE AIRPLANE WITH MINIMUM WEIGHT
PENALTY. THIS DOCUMENT PRESENTS THE SUBSTANTIATING
DATA FOR SONIC BOOM, ENGINE NOISE, INTERIOR NOISE,
AND SONIC FATIGUE EFFECT ON STRUCTURES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 804 051 1/3
BOEING CO RENTON WASH AIRPLANE DIV

COMMERCIAL SUPERSONIC TRANSPORT PROGRAM. PHASE II-A.
COMPREHENSIVE REPORT. VOLUME XX-A. PARAMETRIC AND
TRADEOFF STUDIES. (U)

NOV 64 105P
REPT. NO. D6-8680-20
CONTRACT: FA-SS-64-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 18-A, AD-804
050L.

DESCRIPTORS: (*JET TRANSPORT PLANES, SUPERSONIC
AIRCRAFT), AIRFRAMES, RANGE(DISTANCE), FLIGHT SPEEDS,
SONIC BOOM, AERODYNAMIC CONFIGURATIONS, DESIGN,
FEASIBILITY STUDIES, JET ENGINE FUELS, OPERATION,
COMMERCIAL PLANES, COSTS (U)
IDENTIFIERS: SUPERSONIC TRANSPORTS, TRADEOFFS (U)

IT IS THE PURPOSE OF THIS DOCUMENT TO SHOW THE
RESULTS OF EXTENSIVE PARAMETRIC AND TRADE STUDIES ON
THE EFFECTS OF AIRPLANE SPEED, SIZE, AND RANGE ON
TOTAL PURCHASE PRICE, DIRECT OPERATING COST, AND
SONIC BOOM. THESE PARAMETRIC STUDIES WHICH COVER A
WIDE RANGE OF EACH DESIGN VARIABLE, ARE THE BASES FOR
SELECTION OF PROPOSED VARIABLE SWEEP SUPERSONIC
TRANSPORT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 809 210 20/1
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

A SONIC BOOM STUDY FOR THE STRUCTURAL ENGINEER. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT., 1 JUN 65-1 SEP 66,
MAR 67 106P BAILEY, DURL I
REPT. NO. AFWL-TR-66-154
PROJ: AF-5713

UNCLASSIFIED REPORT

DESCRIPTORS: (*SONIC BOOM, SUPERSONIC AIRCRAFT),
STRUCTURAL PROPERTIES, DAMAGE ASSESSMENT, ENGINEERING,
PRESSURE, MANEUVERABILITY, TERRAIN, METEOROLOGICAL
PHENOMENA, MATHEMATICAL ANALYSIS, EQUATIONS, SHOCK
WAVES, STRUCTURES, DAMAGE (U)

SONIC BOOMS GENERATE AN N-TYPE PRESSURE WAVE.
EQUATIONS AND TABLES ARE PRESENTED FOR THE
CALCULATION OF PEAK OVERPRESSURE FOR THE SONIC BOOM
GENERATED BY AIRCRAFT IN STRAIGHT LEVEL FLIGHT. AN
EQUATION IS ALSO FURNISHED FOR THE CALCULATION OF THE
TIME DURATION OF THE SONIC BOOM PRESSURE WAVE.
AIRCRAFT MANEUVERS, GROUND TERRAIN, AND
METEOROLOGICAL CONDITIONS AFFECT THE PEAK
OVERPRESSURE OF THE PRESSURE WAVE. CORRECTIONS FOR
THESE EFFECTS CAN ONLY BE ROUGHLY ESTIMATED.
DYNAMIC LOAD FACTORS FOR THE PRESSURE WAVES OF
SONIC BOOMS ARE PRESENTED. THESE FACTORS MAY BE
USED TO CALCULATE THE DYNAMIC DEFLECTION AND STRESS
CAUSED BY A SONIC BOOM. SAMPLE CALCULATIONS OF
DYNAMIC DEFLECTION AND STRESS FOR A BEAM, PLATE, AND
ROOF TRUSS ARE FOUND IN APPENDIXES 3, 4, AND 5
RESPECTIVELY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 816 591 14/2 20/4
GENERAL ELECTRIC CO PHILADELPHIA PA MISSILE AND SPACE
DIV

A SHOCK-ON-SHOCK TEST FACILITY.

(U)

DESCRIPTIVE NOTE: TECHNICAL INFORMATION SERIES,
OCT 66 19P HARRIS, CLARENCE J. IWARREN,
W. R. IPRIDGEN, ROBERT G. ;
REPT. NO. R66SD56
CONTRACT: AF 04(647)-617

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AIAA AERODYNAMIC
TESTING CONFERENCE, LOS ANGELES, CALIF. SEP 66,
AS PAPER 66-764.

DESCRIPTORS: (*SHOCK TUBES, AERODYNAMICS), (*REENTRY
VEHICLES, SHOCK WAVES), (*SUPERSONIC AIRCRAFT, SHOCK
WAVES), REFLECTION, SUPERSONIC FLIGHT, HYPERSONIC
FLIGHT, TEST FACILITIES, PRESSURE, INTERACTIONS,
AERODYNAMIC CHARACTERISTICS, SONIC BOOM, TRANSPORT
PROPERTIES, NOSE CONES, HYPERSONIC CHARACTERISTICS,
SUPERSONIC CHARACTERISTICS

(U)

IDENTIFIERS: DRIVER GASES

(U)

IN CURRENT RE-ENTRY TECHNOLOGY AS WELL AS IN
SUPERSONIC AIRCRAFT EVALUATION STUDIES THERE IS
INTEREST IN THE EFFECTS WHICH OCCUR WHEN A STRONG
AERODYNAMIC WAVE TRAVERSES AND REFLECTS FROM A
VEHICLE IN SUPERSONIC OR HYPERSONIC FLIGHT. TO
STUDY THIS PROBLEM EXPERIMENTALLY IN THE LABORATORY
AN EXISTING COMBUSTION DRIVER SHOCK TUNNEL HAS BEEN
CONVERTED INTO A HEATED BLOW DOWN WIND TUNNEL -
NORMAL BLAST WAVE GENERATOR SHOCK-ON-SHOCK TEST
FACILITY. THIS FACILITY HAS BEEN USED TO OBTAIN
SHOCK INTERACTION SURFACE PRESSURE DATA ON STING
MOUNTED AND WIRE SUPPORTED MODELS. THE TEST
FACILITY CONFIGURATION AND THE APPROACH USED PRESENT
UNIQUE OPERATIONAL FEATURES. THIS PAPER REPORTS ON
THE BASIC FACILITY DESIGN APPROACHES AND CONCEPTS
CONSIDERED, THE ACTUAL CONVERSION OF THE SHOCK TUNNEL
INTO A SHOCK-ON-SHOCK TEST FACILITY, AND THE
RESULTING PERFORMANCE OF THIS FACILITY. ALSO
PRESENTED ARE SHOCK-ON-SHOCK MODEL SURFACE TRANSIENT
PRESSURE RESULTS OBTAINED USING THIS FACILITY.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD- 900 405 20/1 1/3 12/1 9/2
WYLE LABS EL SEGUNDO CALIF

PREDICTION METHODS FOR NEAR FIELD NOISE
ENVIRONMENTS OF VTOL AIRCRAFT.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FEB 69-OCT 71,
MAY 72 244P SUTHERLAND, LOUIS C. BROWN,

DAVID ;

REPT. NO. WR-71-19

CONTRACT: F33615-69-C-1407

PROJ: AF-1471

TASK: 147102

MONITOR: AFFDL

TR-71-180

UNCLASSIFIED REPORT

DESCRIPTORS: (*VERTICAL TAKEOFF AIRCRAFT, *AIRCRAFT
NOISE), (*NOISE, MATHEMATICAL PREDICTION),
(*MATHEMATICAL MODELS, NOISE), AIRPLANE ENGINE NOISE,
JET ENGINE NOISE, JET PLANE NOISE, PROPELLER NOISE,
AERODYNAMIC NOISE, WHITE NOISE, SONIC BOOM, AIRCRAFT
LANDINGS, TAKEOFF, FATIGUE (MECHANICS), AIRFRAMES,
VIBRATION, GROUND EFFECT, SOUND TRANSMISSION,
REFLECTIVITY, FREQUENCY, BUFFETING, ROTOR BLADES (ROTARY
WINGS), REDUCTION, INTENSITY, ACOUSTIC PROPERTIES, GAS
FLOW, SHOCK WAVES, TURBULENCE, VORTICES, GAS TURBINES,
WALLS, FANS, JETS, POWER SPECTRA, AERODYNAMIC LOADING,
LIFT, BLADE AIRFOILS, ANECHOIC CHAMBERS, COMPUTER
PROGRAMS, JET AIRCRAFT, HELICOPTERS, BIBLIOGRAPHIES (U)
IDENTIFIERS: J-57 ENGINES, J-57-P-21 ENGINES, NEAR
FIELD NOISE, SOUND CONTOURS, STORED ROTORS (U)

THIS REPORT ESTABLISHES A CONSISTENT SET OF
PREDICTION METHODS WHICH MAY BE USED TO ESTIMATE NEAR
FIELD NOISE LEVELS FOR JET POWERED AND ROTOR/
PROPELLER POWERED VTOL AIRCRAFT OPERATING IN CLOSE
PROXIMITY TO THE GROUND. THE METHODS PROVIDED
UTILIZE AVAILABLE THEORY AUGMENTED EXTENSIVELY BY
EXPERIMENTAL DATA WHICH WAS AVAILABLE OR WAS OBTAINED
DURING THE PROGRAM. THE NOISE PREDICTION METHODS
PRESENTED WILL ALLOW AN ANALYSIS OF NEAR FIELD
ENVIRONMENTS OF VTOL AIRCRAFT USING A SIMPLIFIED
PROCEDURE SUITABLE FOR MANUAL CALCULATIONS. THE
EXPERIMENTAL EFFORT CARRIED OUT IN THE PROGRAM
CONSISTED OF NOISE MEASUREMENTS IN THE NEAR FIELD OF
A MODEL PROPELLER AND A SUBSONIC JET IN A FREE AND
VERTICAL CONFIGURATION. GROUND REFLECTION
CORRECTION FACTORS FOR A SIMPLE SOURCE ARE TABULATED
ALONG WITH THE COMPUTER PROGRAM LISTING.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A002 266 5/10 20/1
FEDERAL AVIATION ADMINISTRATION WASHINGTON D C OFFICE OF
AVIATION MEDICINE

BEHAVIORAL, AUTOMATIC, AND SUBJECTIVE
REACTIONS TO LOW- AND MODERATE-LEVEL
SIMULATED SONIC BOOMS: A REPORT OF TWO
EXPERIMENTS AND A GENERAL EVALUATION OF SONIC
BOOM STARTLE EFFECTS, (U)

SEP 74 15P THACKRAY, RICHARD I. ;
TOUCHSTONE, R. MARK ; BAILEY, JOE P. ;
REPT. NO. FAA-AM-74-9
PROJ: FAA-AM-E-74-PSY-47, FAA-AM-E-75-PSY-47

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *STRESS (PSYCHOLOGY),
*PSYCHOLOGICAL TESTS, SIMULATION, INTENSITY,
RESPONSE, NOISE POLLUTION, EYE (U)
IDENTIFIERS: *STARTLE EFFECTS, ANNOYANCE,
EYEBLINK (U)

TWO SEPARATE STUDIES ARE REPORTED. THE FIRST
ATTEMPTED TO DETERMINE A SONIC BOOM EXPOSURE LEVEL
BELOW WHICH STARTLE REACTIONS WOULD NOT OCCUR.
SUBJECTS WERE EXPOSED INDOORS TO SIX SIMULATED
SONIC BOOMS HAVING VARIOUS OUTSIDE OVERPRESSURES.
IN THE SECOND STUDY, SUBJECTS WERE EXPOSED INDOORS
TO A SERIES OF 12 SIMULATED BOOMS IN ORDER TO ASSESS
HABITUAL EFFECTS. AUTOMATIC AND EYEBLINK
RESPONSES, AS WELL AS RATINGS OF SUBJECTIVE
ANNOYANCE, WERE OBTAINED IN BOTH STUDIES. THE FINAL
SECTION OF THE REPORT SUMMARIZES THE EXPECTED
BEHAVIORAL, AUTONOMIC, AND SUBJECTIVE EFFECTS OF
EXPOSURE TO VARIOUS LEVELS OF SONIC BOOMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOMD9

AD-A005 986 6/3
ALABAMA COOPERATIVE WILDLIFE RESEARCH UNIT AUBURN

THE EFFECT OF SONIC BOOM ON THE NESTING AND
BROOD REARING BEHAVIOR OF THE EASTERN WILD
TURKEY.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 75 45P LYNCH, THOMAS E. ; SPEAKE,
DAN W. ;
MONITOR: FAA-RD 75-2

UNCLASSIFIED REPORT

DESCRIPTORS: •TURKEYS, •SONIC BOOM,
•STRESS(PHYSIOLOGY), REACTION(PSYCHOLOGY),
REPRODUCTION(PHYSIOLOGY), BEHAVIOR, TEST
METHODS, WILDLIFE
IDENTIFIERS: DOT/5B, DOT/5I

(U)

(U)

TWENTY WILD TURKEY HENS WERE CAPTURED AND EQUIPPED
WITH 164 MHZ TRANSMITTERS. THE NEST SITES OF
EIGHT HENS WERE SUCCESSFULLY LOCATED BY TELEMETRIC
TRIANGULATION AND FOUR OF THESE WERE SUBJECTED TO
BOTH REAL AND SIMULATED SONIC BOOMS. HENS WITH
YOUNG WERE ALSO LOCATED BUT WERE SUBJECTED TO
SIMULATED SONIC BOOMS ONLY. SONIC BOOMS DID NOT
INITIATE ANY ABNORMAL BEHAVIOR IN WILD
TURKEYS THAT WOULD RESULT IN DECREASED PRODUCTIVITY.(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A007 205 20/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE SONIC BOOM, (U)

FEB 75 36P ZHILIN, YU. L. ;
REPT. NO. FTD-MT-24-0565-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: WORKING COPY MACHINE TRANS. OF
TSENTHAL'NYI AEROGIDRODINAMICHESKII INSTITUT. UCHENYE
ZAPISKI (USSR) V2 N3 P1-11 1971.

DESCRIPTORS: *SONIC BOOM, *SUPERSONIC FLIGHT,
*ACOUSTIC FIELDS, AIRCRAFT NOISE, MATHEMATICAL
MODELS, SHOCK WAVES, EQUATIONS, ATMOSPHERIC
PHYSICS, TRANSLATIONS, USSR (U)

THE SONIC BOOM--TRANSLATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 296 5/10 20/1 1/3
GENERAL APPLIED SCIENCE LABS INC WESTBURY N Y

PSYCHOPHYSICAL TESTS OF POTENTIAL DESIGN/
CERTIFICATION CRITERIA FOR ADVANCED
SUPERSONIC AIRCRAFT.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 75 83P HIGGINS, THOMAS H. I
SANLORENZO, ERNEST A. I
REPT. NO. GASL-TR-789
CONTRACT: DOT-FA73WA-3203
MONITOR: FAA-RD 75-10

UNCLASSIFIED REPORT

DESCRIPTORS: *SUPERSONIC AIRCRAFT, *SONIC BOOM,
*PSYCHOACOUSTICS, SONIC FATIGUE, JET ENGINE NOISE,
ACOUSTIC SIGNATURES, ACOUSTIC MEASUREMENT,
RESPONSE(BIOLOGY), NOISE POLLUTION
IDENTIFIERS: DOT/40Z/DA, DOT/5B

(U)

(U)

A SUBJECTIVE VALUATION OF SIMULATED SONIC BOOMS
HEARD INDOORS AND OUTDOORS HAS BEEN CARRIED OUT TO
ASSESS THE VALIDITY OF A SIMPLE FORMULATION FOR
ESTIMATING PERCEIVED NOISE LEVELS. USING A
PSYCHOACOUSTIC EXPERIMENT DESIGN BASED ON MAGNITUDE
ESTIMATION OF THE PERCEIVED LEVEL, IT WAS SHOWN THAT
THE SUBJECTIVE RESPONSE WAS CONSISTENT WITH THE
PREDICTIONS OF BOTH THE SIMPLE FORMULA FOR PLDB
AS WELL AS PLDB DETERMINED FROM AN ANALYSIS OF
THE SONIC BOOM STIMULI USING THE MARK 7 PROCEDURE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 656 20/1 1/3
MAN-ACOUSTICS AND NOISE INC SEATTLE WASH

ESTABLISHING CERTIFICATION/DESIGN CRITERIA
FOR ADVANCED SUPERSONIC AIRCRAFT UTILIZING
ACCEPTANCE, INTERFERENCE, AND ANNOYANCE
RESPONSE TO SIMULATED SONIC BOOMS BY
PERSONS IN THEIR HOMES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 101P MABRY, J. E. MONCLEY, P.
B. 1
REPT. NO. MAN-1010
CONTRACT: DOT-FA74WAI-444
MONITOR: FAA-RD 75-44

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *COMMERCIAL AIRCRAFT,
*SUPERSONIC TRANSPORTS, SIMULATION, COMMUNITIES,
NOISE POLLUTION, SURVEYS, RESIDENTIAL SECTION,
ACCEPTABILITY, THRESHOLD EFFECTS,
STRESS (PSYCHOLOGY), NOISE REDUCTION,
STANDARDS (U)
IDENTIFIERS: DOT/5B, DOT/402/DA (U)

TWO MAIN OBJECTIVES OF THE STUDY WERE: (1)
TO ESTABLISH A THRESHOLD OF ACCEPTABILITY FOR
COMMERCIAL AIRCRAFT SONIC BOOMS, (2) TO
INVESTIGATE AND DEVELOPE THE TECHNOLOGY TO PROVIDE
SIMULATION TO ANY COMMUNITY NOISE PROBLEM. SEVEN
COMMUNITY NOISE SIMULATION SYSTEMS WERE
DESIGNED AND FABRICATED, AND SIMULATED SONIC BOOMS
WERE INTRODUCED, VIA THESE SYSTEMS, INTO THE HOMES OF
TWELVE SUBJECT FAMILIES. ACCEPTANCE, INTERFERENCE,
AND ANNOYANCE RESPONSE DATA WERE MEASURED. THREE
BOOM LEVELS AND TWO FREQUENCY SCHEDULES WERE STUDIED.
IT WAS CONCLUDED THAT FOR ESTABLISHING A DESIGN/
CERTIFICATION SONIC BOOM THRESHOLD OF ACCEPTABILITY
FOR ADVANCED SUPERSONIC TRANSPORTS, A LEVEL OF 87
DB SHOULD BE CONSIDERED FOR INDOOR LIVING WITH NOT
MORE THAN FIFTEEN DAILY BOOM EXPOSURES (NO
NIGHTTIME BOOMS). IT WAS ALSO CONCLUDED THAT THE
SIMULATION DEVELOPED CAN BE USED TO ESTABLISH
STANDARDS INVOLVING TRAFFIC NOISE, NOISE FROM
AIRPORTS, CONSTRUCTION NOISE, AND EFFECTS OF
INDUSTRIAL NOISE ON SURROUNDING COMMUNITIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A009 663 20/1 5/10 1/3 6/19
H M AEROSPACE DESIGN CO ELMSFORD N Y

SURVEY OF SONIC BOOM PHENOMENA FOR THE NON-
SPECIALIST.

(U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 74-FEB 75,
FEB 75 106P SLUTSKY, SIMON I
REPT. NO. HHA-14
CONTRACT: DOT-FA74WAI-468
MONITOR: FAA-RD 75-68

UNCLASSIFIED REPORT

DESCRIPTORS: *STRESS(PHYSIOLOGY), *SONIC BOOM,
*ENVIRONMENTS, ANIMALS, SUPERSONIC AIRCRAFT,
ACOUSTIC WAVES, WAVE PROPAGATION, PHYSIOLOGICAL
EFFECTS, RESPONSE(BIOLOGY), STRUCTURAL
RESPONSE

(U)

IDENTIFIERS: DOT/40Z/DA, DOT/5B

(U)

THE PURPOSE OF THIS DOCUMENT IS TO MAKE AVAILABLE
TO THE NON-SPECIALIST AND NON-SCIENTIST A REVIEW OF
THE TECHNICAL CONCEPTS UNDERLYING THE WORK DONE IN
THE FIELD OF SONIC BOOM RESEARCH. IT CONTAINS A
NON-TECHNICAL DISCUSSION OF THE ACOUSTIC MECHANISMS
WHICH ARE FUNDAMENTAL IN SONIC BOOM PHENOMENA, USING
PHOTOGRAPHS OF WATER WAVE ANALOGUES. THEN THE
REPORT DISCUSSES A VARIETY OF BASIC ASPECTS
INCLUDING: GENERATION, PROPAGATION, MINIMIZATION,
HUMAN RESPONSE AND SOCIAL CRITERIA, STRUCTURAL AND
WILDLIFE RESPONSE, THRESHOLD MACH NUMBER OPERATIONS
AND SIMULATION METHODS. THE REPORT SITES MANY
REFERENCES AND DRAWS EXTENSIVELY ON A RECENT REVIEW
FOR INVESTIGATORS IN THE FIELD OF SONIC BOOM PREPARED
BY L. J. RUNYAN AND E. J. KANE.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A010 488 20/1 20/4
TORONTO UNIV (ONTARIO) INST FOR AEROSPACE STUDIES

SIMULATION OF A TRAVELLING SONIC BOOM IN A
PYRAMIDAL HORN.

(U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JUL 74 231P GOTTLIEB, JAMES JOSEPH ;
REPT. NO. UTIAS-196
CONTRACT: AF-AFOSR-2274-72
PROJ: AF-9783
MONITOR: AFOSR TR-75-0711

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *ACOUSTIC WAVES,
*ACOUSTIC HORNS, SIMULATORS, SHOCK TUBES, SHOCK
WAVES, MASS FLOW, FLOW RATE, CANADA

(U)

IN ORDER TO ASSESS CURRENT SOCIETAL PROBLEM
ASSOCIATED WITH THE SONIC BOOM, A HORN-TYPE SIMULATOR
WAS CONSTRUCTED AT THE INSTITUTE FOR AEROSPACE
STUDIES, UNIVERSITY OF TORONTO (UTIAS).
THE SIMULATOR HORN IS IN THE FORM OF A HORIZONTAL
CONCRETE PYRAMID, WHICH IS 25 M LONG AND HAS 3-M-
SQUARE BASE. AT ITS APEX A SPECIALLY-DESIGNED
VALVE IS USED TO CONTROL THE MASS-FLOW RATE OF AIR
FROM A HIGH-PRESSURE RESERVOIR INTO THE HORN WHERE
THE FLOW GENERATES A SIMULATED SONIC BOOM OR
TRAVELLING N-WAVE OF SUITABLE AMPLITUDE AND
DURATION, AND ACCEPTABLY-SHORT RISE TIME.
ALTERNATIVELY, A SHOCK-TUBE DRIVER CAN BE INSTALLED
AT THE APEX AND USED FOR GENERATING SHORT-DURATION
AND RAPID RISE-TIME SONIC BOOMS. FOR THE MASS-FLOW
VALVE MODE OF OPERATION OF HIGH-FREQUENCY SOUND
ABSORBER CAN BE INSTALLED NEAR THE APEX OF THE HORN
TO FILTER OUT OF THE PASSING N-WAVE UNDESIRABLE JET
NOISE THAT IS PRODUCED BY THE HIGH-SPEED TURBULENT
FLOW AT THE VALVE.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A012 090 20/1 1/3
ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
PARIS (FRANCE)

AIRCRAFT NOISE GENERATION, EMISSION AND
REDUCTION.

(U)

DESCRIPTIVE NOTE: LECTURE SERIES.

JUN 75 187P
REPT. NO. AGARD-LS-77

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED IN BELGIUM 16-17 JUN 75,
WEST GERMANY 19-20 JUN 75, AND IN THE UNITED
KINGDOM 23-24 JUN 75. NATO FURNISHED.

DESCRIPTORS: *JET AIRCRAFT, *AIRCRAFT NOISE, JET
ENGINE NOISE, PROPELLER NOISE, SONIC BOOM, NOISE
REDUCTION, PHYSIOLOGICAL EFFECTS, LEGISLATION,
NATO

(U)

IDENTIFIERS: *NOISE SOURCES, *NOISE ABATEMENT

(U)

THE PHYSICAL PROPERTIES OF AIRCRAFT NOISE ARE
SUMMARIZED, WITH SPECIAL EMPHASIS ON JET NOISE AND
FAN-COMPRESSOR-PROPELLER-ROTOR NOISE. TOPICS
INCLUDE ACOUSTIC FUNDAMENTALS, NOISE SOURCE
CHARACTERISTICS AND INTERACTIONS, ATMOSPHERIC
PROPAGATION, AIRFRAME NOISE, SONIC BOOM, DUCT LINER
AND MUFFLER THEORY. DURING THE SERIES, RESEARCH
AND TECHNOLOGY ACTIVITIES RELATED TO JET ENGINE NOISE
AND ITS CONTROL ARE DISCUSSED, AND THE IMPACT OF THIS
NOISE ON PEOPLE AND COMMUNITIES AND AIRCRAFT
OPERATIONAL PROCEDURES FOR NOISE MINIMISATION ARE
ALSO REVIEWED.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-AD14 965 1/3 1/1 4/2
KAMAN AEROSPACE CORP BLOOMFIELD CONN

TEST AND EVALUATION OF A REAL-TIME
SIMULATED TRANSCONTINENTAL SUPERSONIC
BOOMLESS FLIGHT SYSTEM. VOLUME I. MAIN
TEXT AND APPENDIX A. (U)

DESCRIPTIVE NOTE: FINAL REPT. 16 NOV 73-19 NOV 74,
APR 75 235P BUNDGAARD, ROBERT C. I
CONTRACT: DOT-FA74WA-3363
MONITOR: FAA-RD 75-131-1

UNCLASSIFIED REPORT

DESCRIPTORS: *SUPERSONIC AIRCRAFT, *SUPERSONIC
FLIGHT, SONIC BOOM, METEOROLOGICAL DATA,
COMMUNICATIONS NETWORKS, WEATHER FORECASTING,
COMPUTER GRAPHICS, COMPUTER PROGRAMS (U)
IDENTIFIERS: *TRANSCONTINENTAL FLIGHTS, *BOOMLESS
SUPERSONIC FLIGHT, DOT/40Z/DA, DOT/41Z/
1A (U)

IN THE INVESTIGATION REPORTED, NUMERICAL METHODS
SIMULATED SUPERSONIC FLIGHT CARRIED OUT IN REAL-TIME
AND CONCURRENTLY AT PRESENT TIME. A COMPUTER
PROGRAM IDENTIFIES, ACQUIRES, ANALYZES AND PREDICTS
THE INFORMATION NEEDED IN ORDER TO PLAN, FLY AND
VERIFY BOOMLESS FLIGHT. IT OPTIMIZES THE CUT-OFF
MACH TIME-GAIN IN TRADE-OFF ALONG WITH OTHER
PERTINENT NECESSARY CONSIDERATIONS NOW BEING
REGULARLY CARRIED OUT IN THE ADVANCED AIR OPERATIONS
OF TODAY. FOR COMMUNICATION INFORMATION IN CURRENT
REAL-TIME FOR BOOMLESS TRANSCONTINENTAL FLIGHTS, THE
INVESTIGATION UTILIZED NATIONWIDE NETWORKS:
ARINC, UNINET. THE PROGRAM FORESEES THE FUTURE
CONDITIONS AFFECTING THE CUT-OFF MACH FLIGHT
PERFORMANCE IN SUFFICIENT TIME FOR CARRYING OUT
RELIABLE PREFLIGHT PLANNING AND FOR MONITORING THE
IN-FLIGHT MODIFICATIONS JUST AHEAD OF THE AIRCRAFT,
UTILIZING THE APPROPRIATE PREDICTION OF ATMOSPHERIC
CONDITIONS (BOOM-AHEAD COMPUTER). (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM09

AD-A028 512 1/3 20/1 1/2
BOOZ-ALLEN APPLIED RESEARCH INC BETHESDA MD

STATISTICAL MODEL OF SONIC BOOM STRUCTURAL
DAMAGE.

(U)

DESCRIPTIVE NOTE: FINAL REPT.:
JUL 76 142P HERSHEY, ROBERT L. HIGGINS,
THOMAS H. I
CONTRACT: DOT-FA72WA-2823
MONITOR: FAA-RD 76-87

UNCLASSIFIED REPORT

DESCRIPTORS: *SONIC BOOM, *DAMAGE ASSESSMENT,
STRUCTURAL RESPONSE, AIRCRAFT NOISE, GLASS,
WINDOWS, BRICK, OVERPRESSURE

(U)

THE PROBABILITIES OF STRUCTURAL DAMAGE FROM SONIC
BOOMS WERE ESTIMATED FOR VARIOUS SUSCEPTIBLE
STRUCTURAL ELEMENTS USING A STATISTICAL MODELING
TECHNIQUE. THE BREAKAGE PROBABILITIES WERE FOUND
TO VARY WIDELY WITH THE SPECIFIC MATERIAL
CONFIGURATION, BUT TO CONSISTENTLY INCREASE WITH
INCREASING NOMINAL OVERPRESSURES. THE RANGES OF
BREAKAGE PROBABILITIES AT A NOMINAL OVERPRESSURE OF 1
PSF FOR TYPICAL CONFIGURATIONS OF SUSCEPTIBLE
MATERIALS WERE AS FOLLOWS: WINDOWS--.000004 TO
.00000003, PLASTER--.0003 TO .0000005, BRICK--
.000001 TO .00000001, BRICK WALLS--.0000006 TO
.000000001. THE RESULTS OF THE MODELING TEND TO
AGREE WELL WITH SONIC BOOM CLAIMS EXPERIENCE.

(U)

UNCLASSIFIED

CORPORATE AUTHOR - MONITORING AGENCY

•ACoustical Society of America New York

•••
PROCEEDINGS OF THE SONIC BOOM SYMPOSIUM (2ND) SPONSORED BY THE ACOUSTICAL SOCIETY OF AMERICA (BOTH MEETING) HELD AT HOUSTON, TEXAS ON 3 NOVEMBER 1970.
AD- 752 881

•ADvisory Group for Aerospace Research and Development Paris (France)

•••
AGARD-ADVISORY-22
TECHNICAL EVALUATION REPORT ON AGARD SPECIALISTS' MEETING ON AIRCRAFT ENGINE NOISE AND SONIC BOOM.
AD- 700 225

•••
AGARD-AR-26-70
TECHNICAL EVALUATION REPORT ON AGARD SPECIALISTS' MEETING ON AIRCRAFT ENGINE NOISE AND SONIC BOOM.
AD- 710 888

•AGARD-CP-42 Aircraft Engine Noise and Sonic Boom.

AD- 697 190
•••
AGARD-CP-131
NOISE MECHANISMS.
AD- 779 151

•••
AGARD-LS-77
AIRCRAFT NOISE GENERATION, EMISSION AND REDUCTION.
AD-AG12 090

•AEROSPACE CORP EL SEGUNDO CALIF

•••
TOR269 4230 30 1
NOTES ON THE DIFFRACTION OF BLASTS BY FLYING VEHICLES. PART ONE: GENERAL COMMENTS PART TWO: BLAST-WAVE, MACH-WAVE INTERACTION, (SSD-TOR63 195)
AD- 422 294

•AEROSPACE MEDICAL Research Lab Wright-Patterson AFB OHIO

•••
AMRL-TR-65-37
COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA CITY AREA.
AD- 613 620

•••
AMRL-TR-65-37-VOL-2
COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA CITY AREA. VOLUME II. DATA ON COMMUNITY REACTIONS AND INTERPRETATIONS.
AD- 625 332

•••
AMRL-TR-65-37-VOL-3
COMMUNITY REACTIONS TO SONIC BOOMS IN THE OKLAHOMA CITY AREA. VOLUME III. QUESTIONNAIRES. APPENDIX TO VOLUME II.
AD- 637 563

•••
AMRL-TR-69-47
HUMAN RESPONSE TO SONIC BOOM IN THE LABORATORY AND THE COMMUNITY.
AD- 748 055

•AEROSPACE MEDICAL Research Labs Wright-Patterson AFB OHIO

•••
AMRL-TR-65-9
HUMAN RESPONSES TO SONIC BOOM.
AD- 618 770

•••
AMRL-TR-65-84
ON NOISE AND VIBRATION EXPOSURE CRITERIA.
AD- 628 175

•••
AMRL-TR-65-195
EFFECTS OF SONIC BOOM ON PEOPLE: REVIEW AND OUTLOOK.
AD- 641 352

•••
AMRL-TR-65-196
EFFECTS OF SONIC BOOM ON PEOPLE: ST. LOUIS, MISSOURI, 1961-1962.
AD- 647 326

•••
AMRL-TR-66-52

0-1
UNCLASSIFIED /ZOM09

SONIC BOOMS RESULTING FROM EXTREMELY LOW-ALTITUDE SUPERSONIC FLIGHT: MEASUREMENTS AND OBSERVATIONS ON HOUSES, LIVESTOCK AND PEOPLE.
AD- 650 800

•AEROSPACE Research Labs Wright-Patterson AFB OHIO

•••
ARL-70-0297V
LOWER BOUNDS FOR SONIC BOOM CONSIDERING THE NEGATIVE OVERPRESSURE REGION.
AD- 716 830

•AGRICULTURAL Research Service Beltsville MD

•••
AN INTERDISCIPLINARY STUDY OF THE EFFECTS OF REAL AND SIMULATED SONIC BOOMS ON FARM-RAISED WINK (MUSTELA VISION).
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1961-1962.
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UNCLASSIFIED

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- ROBINS, RAYMOND G. . . .
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UNCLASSIFIED

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- . . .
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FIELD SONIC BOOMS.
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