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ENVIRONMENTAL ENGINEERING ABSTRACTS

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ENVIRONMENTAL ENGINEERING ABSTRACTS

Prepared for

THE ENVIRONMENTAL TESTING LABORATORY
Organization 7300

By

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SANDIA CORPORATION
Albuquerque, New Mexico

INTRODUCTION

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Major Subject	Code
ACCELERATION	A
ACOUSTIC	B
ATMOSPHERE	C
CLIMATIC	D
ELECTRICAL	E
GASEOUS	F
GENERAL	G
HYGRO-ENVIRONMENT	H
INDUCED	I
MEASUREMENT/INSTRUMENTS	K
NATURAL	L
PRESSURE	M
RADIATION	N
SHOCK	O
SPACE	P
SPECIFICATIONS	Q
TEMP-HI (GEN)	R
VIBRATION-RANDOM (also when Sinusoidal included)	T
VIBRATION-SINUSOIDAL	U
BIOLOGICAL/CHEMICAL	V
MISCELLANEOUS/FACIL	W
UNRELATED	X
RELIABILITY	Y
ENGR-PRACTICES	Z

ACCELERATION ENVIRONMENTS

TATE DR NBS TAT6001A
ABSOLUTE VALUE OF G AT THE NATIONAL BUREAU OF STANDARDS
=ENG.AND INSTR VOL.70C,P.149 APR-JUNE,1966. 1FIG

1.INFORMATION 2.MEASUREMENT 3.NATURAL 4.NOMINAL 5.SINGLE 7.TEST EQUIP 8.ENVIRO-MEAS 9.GRAVITAL

THE VALUE REDUCED TO A GRAVITY METER STATION ON THE FLOOR OF THE SITE IS 9.801018 M/S SQUARED WITH A STANDARD DEVIATION OF 0.3X10 TO MINUS 5 M/S SQUARED. THE ABSOLUTE VALUE,WHICH IS 13.2X10 TO MINUS 5 M/S SQUARED (13.2 MILLIGALS) LESS THAN THE CORRESPONDING POTSDAM VALUE IS IN GENERAL AGREEMENT WITH OTHER RECENT ABSOLUTE DETERMINATIONS.

ACOUSTIC ENVIRONMENTS

FRANKEN PA BOLT BERANEK FRA6001B
ENERGY-METHOD ESTIMATES OF RESPONSE TO INFLIGHT DYNAMIC LOADS
=IES PROC.1966,P.99-104 15REF 3FIG

1.THEORY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.STRUCTURE-LINEAR 8.ENVIRO-EFFECTS 9.ACOUSTIC

A QUALITATIVE DESCRIPTION OF THE ELEMENTS OF THE STATISTICAL ENERGY METHOD IS GIVEN FIRST. NEXT,THE RESULTS OF APPLYING THE METHOD TO AEROSPACE PROBLEMS ARE PRESENTED--FIRST,IN A PROBLEM OF STRUCTURAL RESPONSE TO AN EXTERNAL PRESSURE FIELD,AND SECOND,IN A PROBLEM INVOLVING TRANSMISSION OF VIBRATION AND RE-RADIATION OF SOUND TO INTERNAL SPACES. IT IS ALSO SHOWN HOW THIS METHOD SUGGESTS MEASUREMENTS OR TREATMENTS THAT DIFFER FROM CONVENTIONAL APPROACHES.

HANCOCK RN LING-TEMCO-VOUGHT HAN6001B
EMPIRICAL DETERMINATION OF PROPERTIES OF SELECTED AUTOCORRELATION AND CROSS-CORRELATION FUNCTIONS USING AN ANALOG CORRELATOR
=IES PROC.1966,P.89-95 2REF 18FIG

1.DESIGN 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.RECORDER, SPECTRUM-ANALYZER 8.ENVIRO-MEAS 9.ACOUSTIC

DESCRIBES THE CONSTRUCTION OF A FUNCTIONAL TIME DELAY DEVICE ASSEMBLED IN THE ACOUSTICS LAB AT LTV AND ADDED TO THE ANALOG ACOUSTIC AND VIBRATION ANALYSIS EQUIPMENT. THE PERFORMANCE OF THIS DEVICE,WHICH WAS DESIGNED FOR ACOUSTIC SIGNALS FROM 80 TO 8000 CPS,IS DESCRIBED FOR KNOWN TEST SIGNALS. USE OF A TYPICAL ACOUSTIC MEASUREMENT IS ILLUSTRATED AND OTHER APPLICATIONS ARE DISCUSSED.

CLIMATIC ENVIRONMENTS

EDELSTEIN MW NAVAL WEATHER SERV EDE6001D
EFFECTS OF THE AIR-SEA ENVIRONMENT ON NAVAL OPERATIONS
=IES PROC.1966,P.537-543 12FIG

1.INFORMATION 2.METHOD,EFFECTS 3.NATURAL 4.NOMINAL 5.SINGLE 7.SHIP 8.ENVIRO-MEAS 9.CLIMATIC

THE EFFECTS OF THE AIR-SEA ENVIRONMENT ON REPLENISHMENT AT SEA WAS SELECTED AS AN EXAMPLE OF HOW ENVIRONMENTAL PREDICTIONS CAN BE STATED IN OPERATIONAL AND PROBABILISTIC TERMS.

POLLINI RJ NAVAL BOILER AND TURB LAB POL6001D
SIMULATING A MARINE GAS TURBINE ATMOSPHERE
=IES PROC.1966,P.545-548 7REF 4FIG

1.DESIGN 2.SIMULATION,MEASUREMENT 3.NATURAL 4.NOMINAL 5.SINGLE 7.TURBINE,TEST-EQUIP,SHIP,CHAMBER 8.ENVIRO-MEAS 9.SALT

MEASUREMENTS WERE MADE ABOARD A NUMBER OF DESTROYERS TO DETERMINE THE CHARACTERISTICS OF SEA WATER AEROSOLS THROUGH THE USE OF PORTABLE IMPACTION EQUIPMENT. IN THE TEST OF A LARGE GAS TURBINE FOR NAVAL VESSEL USE,AEROSOLS WERE REPRODUCED FOR INJECTION INTO THE ENGINE. AEROSOLS WERE ALSO USED TO TEST EQUIPMENT DESIGNED TO REMOVE THEM. THE SPRAY CHAMBER WAS SUCCESSFUL IN PRODUCING A 5 MICRON MASS MEDIAN DISTRIBUTION IN CONCENTRATIONS OF FROM 0.01 TO 1.0 PPM SALT TO AIR BY WEIGHT.

GENERAL ENVIRONMENTS

GILES S NORTH AM AV GIL6003G
CONTAMINANTS,OUTGASSING AND SUBLIMATION IN VACUA
=IES PROC.1966,P.141-146 12REF 4FIG 3TABLES

1.STUDY 2.ENGR-PRACTICE 3.GENERAL 4.NOMINAL 5.COMBINED 7.MATERIALS,METALS 8.ENVIRO-EFFECTS 9.HI-VAC,VH-TEMP,OUT-GAS

MANY SOURCES OF CONTAMINATION CAN BE PRESENT IN A VACUUM SYSTEM--THE PARTS BEING TESTED OR PROCESSED,THE VACUUM CHAMBER STRUCTURE AND THE TEST FIXTURING TO NAME A FEW. THE INFLUENCE OF SUBLIMATION,EVAPORATION,DIFFUSION,AND CLEANING OF FLIGHT HARDWARE MUST BE CAREFULLY EVALUATED. THIS PAPER DESCRIBES SOME OF THE MECHANISMS INVOLVED AND OUTLINES CLEANING PROCEDURES WHICH HAVE BEEN SUCCESSFULLY USED TO REDUCE CONTAMINATION EFFECTS.

HYGRO-ENVIRONMENTS

DICKERSON LJ MCDONNELL AIRCRAFT DIC6002H
A UNIQUE METHOD OF OBTAINING STATIC FLOTATION CHARACTERISTICS
=IES PROC.1966,P.129-133 13FIG

1.DESIGN 2.FACILITY 3.NATURAL 4.NOMINAL 5.SINGLE 7.GEMINI 8.ENVIRO-CONTROL 9.OCEAN

DESCRIBES A FREE-FLOATING,EXTERNALLY-BALLASTED SYSTEM IN WHICH THE ATTITUDE AND TOTAL WEIGHT OF THE SPECIMEN CAN BE VARIED EASILY TO PERMIT THE EVALUATION OF VARIOUS PROPOSED SPACECRAFT CONFIGURATIONS.

QUINN FC HYGRODYNAMICS INC QUI5002H
ARE HUMIDITY-TEMPERATURE TESTS VALID
=ENVIR.QUAR VOL.11,P.18-21 DEC.1965 1FIG

1.PHILOSOPHY 2.ENGR-PRACTICE 3.INDUCED 4.NOMINAL 5.COMBINED
7.HUMID-INDICTR 8.ENVIRO-MEAS 9.MED-HUM,HI-HUM,WAT-IMMERS

TESTS CAN BE VALID IF THE ORIGINATOR OF THE SPECIFICATION UNDERSTANDS THE PURPOSE OF THE TEST AND IF THE TESTER UNDERSTANDS THE ACCURACY AND LIMITATIONS OF THE INSTRUMENTATION. TESTING SHOULD BE CONDUCTED DURING PART OF THE HUMIDITY TEMPERATURE EXPOSURE THAT IS MOST CONDUCIVE TO POTENTIAL DAMAGE. CRITICAL HYGROSCOPIC ITEMS SHOULD NOT BE TESTED TO DETERMINE ACTUAL BREAKDOWN EXCEPT IN DESIGN STUDIES. INHERENT LIMITATIONS OF PSYCHROMETRIC INSTRUMENTATION SHOULD BE CONSIDERED.

TEST ENGINEERING TES6010H
CONSTRUCTION OF SMALL TEST CHAMBERS USING POLYESTER-URETHANE FOAM
=TEST ENG VOL.15,P.28-29 JUNE 1966 6FIG

1.INFORMATION 2.FACILITY 3.GENERAL 4.NOMINAL 5.SINGLE
7.CHAMBER,PLASTIC,STRUCTURE-SANDWICH 9.MED-HUM

SMALL TEST CHAMBERS CONSTRUCTED OF URETHANE FOAM SANDWICHED BETWEEN REINFORCED POLYESTER SKINS PRODUCED BY THERMAL RESEARCH,INC. ARE SAID TO ALLOW THE CONTROL OF TEMPERATURE AND HUMIDITY WITH EXCEPTIONAL PRECISION. THE UNIT CARRIES A PERFORMANCE GUARANTEE TO .25 DEG F AND .50 PERCENT RH.

INDUCED ENVIRONMENTS

BREN J REF DYNAMICS CORP BRE4001I
TROUBLESHOOTING CUSTOM TEST EQUIPMENT
=TEST ENG VOL.12,P.13-14 AUG.1964 2FIG

1.INFORMATION 2.INSTRUMENT 3.INDUCED 4.NOMINAL 5.SINGLE
7.SENSOR-TEMP,RECORDER 8.ENVIRO-MEAS 9.LO-TEMP,HI-TEMP

DESCRIBES THE USE OF THE PORTABLE AND RUGGED AMPROBE MINIATURE STRIP CHART RECORDER,MODEL LT8100(RANGES -50 TO +100 DEG F AND +50 TO +250 DEG F) IN RECORDING TEMPERATURES FOR TROUBLESHOOTING,MAINTENANCE AND RESEARCH APPLICATIONS.

HUNT FC LING ELECTRONICS HUN6001I
A TEN INCH STROKE ELECTRODYNAMIC THRUSTER
=IES PROC.1966,P.225-228 4FIG

1.DESIGN 2.FACILITY 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHAKER
8.ENVIRO-CONTROL 9.LF-VIBR,HF-VIBR,LO-G

THE DESIGN IS SIMILAR TO CONVENTIONAL SHAKER DESIGNS EXCEPT FOR THE ARMATURE GUIDANCE SYSTEM,THE ARMATURE,THE MASSIVE BASE,THE OVER SIZE TRUNNIONS AND THE THRUSTER ROTATION SYSTEM.

LOVELACE DE ENDEVCO LOV3002I
DEVELOPMENT AND APPLICATIONS OF A PIEZORESISTIVE STRAIN GAUGE ACCELEROMETER
=ENVIR.ENG.QUAR NO.8,P.11-13 DEC.1963 6REF 5FIG 1TABLE

1.EVALUATION 2.INSTRUMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.ACCELEROMETER 8.ELECTRICAL 9.HF-VIBR,VHF-VIBR,SUSTAINED,SHOCK

THE NEW ACCELEROMETER DESCRIBED HAS A SENSITIVITY OF 1.4 MV PK/G PK AT 10V DC EXCITATION,WITH A RANGE OF + OR -250G FULL SCALE. THE NATURAL FREQUENCY IS 12 KC/S WHICH GIVES ACCURATE UNDAMPED RESPONSE TO FREQUENCIES GREATER THAN 2 KC/S WITHOUT APPRECIABLE PHASE SHIFT OR RESONANT RISE. APPLICATIONS WILL BE IN AREAS OF CONSTANT ACCELERATION WITH SUPERIMPOSED HIGH FREQUENCY VIBRATION,AND FOR LONG DURATION SHOCK MEASUREMENTS.

MB VIBRATION NOTEBOOK MBV6001I
CALIBRATION A KEY FACTOR IN FOUR-SHAKER TESTS OF SATURN S-II STAGE OXIDIZER MASS SENSORS
=MB VIBRATION NOTEBOOK VOL.12,P.3-6 SEPT.1966 7FIG

1.DESIGN 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.SATURN, SENSOR,CALIBR-EQUIP,SHAKER 8.CALIBRATION 9.LF-VIBR,HF-VIBR, RDM-VIBR,LO-G

OUTLINES THE CALIBRATION AND TEST PROCEDURES FOR THE SHOCK AND SINUSOIDAL AND RANDOM VIBRATION TESTING ALONG THE X-AXIS,WHICH WAS PERFORMED BY ONE SHAKER,AND ALONG THE Y-AND Z-AXES,WHICH REQUIRED FOUR SHAKERS.

MOENING CJ AEROSPACE CORP MOE5001I
VIBRATION AND SHOCK DATA FROM THE ATHENA BOOSTER
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.353-371 17FIG 6TABLE

1.XPER-RESULTS 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.ATHENA,SHIELD,EXPLOSIVE 8.ENVIRO-MEAS 9.HI-G,LO-G,HF-VIBR

DURING ELEVEN FLIGHTS,MEASUREMENTS WERE MADE IN EACH OF THREE ORTHOGONAL AXES AT THE STAGE 3 LOCATION(MISSILE ATTITUDE CONTROLLER BASE PLATE). ON SIX OF THESE FLIGHTS,MEASUREMENTS WERE ALSO MADE IN EACH OF THE THREE AXES AT THE STAGE 4 LOCATION (PAYLOAD INTERFACE PLATE). GROUND TESTS WERE INSTRUMENTED TO MEASURE THE MAGNITUDE OF SHOCK INDUCED AS A RESULT OF PYROTECHNIC SEPARATION DEVICES. THE VIBRATION DATA ARE PRESENTED AS ACCELERATION SPECTRAL DENSITIES AND THE SHOCK DATA ARE PRESENTED AS RESPONSE SPECTRA.

MOORE RG ARMY ELEC PROVING GD MO06001I
THE NUCLEAR WEAPON ENVIRONMENT
=IES PROC.1966,P.41-47 5REF 5FIG

1.INFORMATION 2.EFFECTS,PROTECTION 3.INDUCED 4.NOMINAL 5.SINGLE 7.ELECTRONIC 8.ENVIRO-EFFECTS 9.NUCLEAR,BLAST-TEMP, BLAST-SHOCK

SHOCK AND BLAST,THERMAL RADIATION,AND NUCLEAR RADIATION ARE DISCUSSED AS THE BASIC ELEMENTS OF A NUCLEAR WEAPON ENVIRONMENT. THE RELATIVE EFFECTS OF THESE ELEMENTS ON BOTH PERSONNEL AND MATERIEL ARE SUMMARIZED. THE MECHANISMS OF INTERACTION BETWEEN NUCLEAR RADIATION AND MATTER ARE DESCRIBED. IN PARTICULAR,THE EFFECT OF NUCLEAR RADIATION ON ELECTRONIC EQUIPMENT IS DISCUSSED. MATERIEL CAN,WITHIN LIMITS,BE PROTECTED FROM NUCLEAR RADIATION THROUGH HARDENING TECHNIQUES.

SCHELL EH AF FLIGHT DYNAMICS LAB SCH5010I
PROXIMITY SPECTRUM--A NEW MEANS OF EVALUATING SHOCK MOTIONS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.229-248 5REF 15FIG

1.THEORY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.MODEL 8.ENVIRO-CONTROL 9.SHOCK,RDM-VIBR

DEVELOPS THE PROXIMITY CRITERION (PRESENTED AT THE 34TH SYMPOSIUM) INTO THE PROXIMITY SPECTRUM BY VARYING THE NATURAL FREQUENCIES OF THE TWO SYSTEMS SO THAT DATA CAN BE OBTAINED FOR SPECTRAL PLOTS. DIGITAL COMPUTATION IS USED FOR OBTAINING DATA FROM A MATHEMATICAL MODEL. THE TECHNIQUE PROVIDES MEANS OF COMPARING DIFFERENT SHOCK MOTIONS IN TERMS OF THEIR EFFECTS ON A STANDARD EQUIPMENT. PROXIMITY SPECTRA OF HALF-SINE,TERMINAL-PEAK SAWTOOTH,AND RECTANGULAR SHOCK MOTIONS ARE PRESENTED.

STARR F ENGLISH ELEC CO STA6001I
THE EVALUATION OF ELECTRICAL INSULATING MATERIALS BY ENVIRONMENTAL TESTING
=ENVIR.ENG NO.22,P.21-26 SEPT.1966 5REF 12FIG

1.XPER-RESULTS 2.EFFECTS 3.INDUCED 4.LIFE 5.COMBINED 7.POWER-SOURCE,MATERIALS,MODEL 8.ENVIRO-EFFECTS 9.HI-TEMP,LF-VIBR,HI-HUM,CHEM-IMMERS

A MODEL(MOTORETTE)WHICH REPRODUCES REALISTICALLY THE TYPES OF EQUIPMENT ASSOCIATED WITH THE GENERATION OF ELECTRICITY FOR AN AIRCRAFT WAS SUBMITTED TO THE FOLLOWING TEST CYCLE--1.THERMAL AGING,2.THERMAL SHOCK,3.VIBRATION,4.HIGH RELATIVE HUMIDITY, AND 5.DIELECTRIC TESTING. INVESTIGATION WAS ALSO MADE OF THE EFFECTS OF HOT OIL ON VARNISHES.

ZERVIGON LM CHRYSLER SPACE DIV ZER6001I
OPTIMIZING RANDOM VIBRATION TEST DATA ACQUISITION AND REDUCTION PROGRAMMING
=IES PROC.1966,P.105-111 9REF 5FIG

1.INFORMATION,DESIGN 2.DATA 3.INDUCED 4.NOMINAL 5.SINGLE 7.RECORDER,COMPUTER,SPECTRUM ANALYZER 8.ELECTRICAL 9.RDM-VIBR, ACOUSTIC

OPTIMIZATION OF DATA ACQUISITION SYSTEM PROGRAMMING IS DEVELOPED ON THE BASIS OF MINIMIZING THE VARIATION IN COMPOSITE DATA LEVELS BY ADJUSTMENT OF SYSTEM SCALE FACTORS USING MANUAL OR AUTOMATIC ATTENUATORS.

STATIC ENVIRONMENTS

DAVID CV GENERAL DYNAMICS DAV5004J
FLEXIBLE TOROIDAL SPRING CHARACTERISTICS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.5,P.243-259 2REF 12FIG
=1TABLE

1.STUDY 2.MITIGATION 3.INDUCED 4.NOMINAL 5.SINGLE 7.ISOLATOR
8.ENVIRO-EFFECTS 9.STATIC-TORSION

MULTITOROUS STACKS AND CONCENTRIC MULTISTACK ASSEMBLIES THAT OPERATE AS A UNIT ARE INVESTIGATED IN THIS STUDY. APPROXIMATE ANALYTICAL SOLUTIONS WERE DERIVED FOR THREE MODES OF LOADING--COMPRESSION-TENSION,SHEAR,AND BENDING,AND THE TORUS-SYSTEM CHARACTERISTICS FOR THESE THREE MODES WERE DETERMINED. SEVERAL SMALL EXPERIMENTAL TORUS-SPRING SYSTEMS WERE CONSTRUCTED AND TESTED BOTH STATICALLY AND DYNAMICALLY. THE EQUATIONS OF MOTION,RESTORING FORCES,AND MOMENTS CORRESPONDING TO THE DYNAMIC TESTING OF A PLATE ATTACHED TO A THREE-TORUS SPRING SYSTEM WERE SIMULATED ON AN ANALOG COMPUTER. THE RESULTS OBTAINED HAVE BEEN COMPARED AND WERE FOUND TO BE IN GOOD AGREEMENT.

ROSCOE AJ NAVY MARINE ENG LAB ROS5005J
MEASUREMENT OF COMPLEX SHEAR MODULUS OF VISCOELASTIC MATERIALS BY MECHANICAL IMPEDANCE METHODS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.7,P.267-274 3REF 9FIG

1.THEORY 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.STRUCTURE-SANDWICH 8.MECHANICAL 9.PHYSICAL-TEST

IN A METHOD DEVELOPED BY KERWIN ET AL,THE LOSS TANGENT AND THE SHEAR STORAGE MODULUS,TOGETHER WITH THE CIRCULAR FREQUENCY AND THE PHYSICAL PARAMETERS OF THE BEAM,CONSTITUTE SUFFICIENT INFORMATION TO COMPUTE THE COMPOSITE DAMPING OF THE SYSTEM AND ITS FLEXURAL RIGIDITY AT PREDETERMINED FREQUENCIES. THE COMPLEX SHEAR MODULUS OF A VISCOELASTIC MATERIAL IS OBTAINED BY REVERSING THE PROCESS USED IN THE ABOVE METHOD,I.E.,INSTEAD OF KNOWING THE VALUES OF THE SHEAR STORAGE MODULUS AND LOSS TANGENT,IT IS ASSUMED THAT THE QUANTITIES ARE UNKNOWN AND MAY BE DETERMINED BY EXPERIMENTALLY MEASURING BEAM LOSS FACTOR VS FREQUENCY.

MEASUREMENT/INSTRUMENTATION

DUFFIELD FE ETHER ENG LTD DUF6001K
TRANSDUCERS FOR INSTRUMENTATION
=ENVIR.ENG NO.22,P.15-21 SEPT.1966 9FIG 1TABLE

1.EVALUATION 2.INSTRUMENT 3.INDUCED 4.NOMINAL 5.SINGLE
7.TRANSDUCER 8.ELECTRICAL

A SURVEY ARTICLE WHICH GIVES THE PRINCIPLES OF OPERATION AND THE CHIEF APPLICATIONS OF POTENTIOMETRIC,INDUCTIVE,STRAIN GAGE,AND SEMICONDUCTOR STRAIN GAGE TRANSDUCERS,WITH THE LATTER RECEIVING THE FULLEST TREATMENT.

3

NATURAL ENVIRONMENTS

ILNE AR PACIFIC NAVAL LAB CANADA MIL6001L
STATISTICAL DESCRIPTION OF NOISE UNDER SHORE-FAST SEA ICE IN WINTER
=ACOUST.SOC.AM.JL VOL.39,P.1174-1182 JUNE 1966 12REF 5FIG

1.THEORY 2.MEASUREMENT 3.NATURAL 4.NOMINAL 5.SINGLE 7.MODEL, HYDROPHONE 8.ENVIRO-MEAS 9.ACOUSTIC,OCEAN,LO-TEMP

AMBIENT NOISE UNDER SHORE-FAST SEA ICE IN MIDWINTER IS GENERATED AT THE SURFACE OF THE ICE BY WIND ACTION AS WELL AS BY MECHANICAL CRACKING CAUSED BY DECLINING AIR TEMPERATURES. AN ATTEMPT HAS BEEN MADE TO RELATE FIELD MEASUREMENTS OF UNDERWATER NOISE TO THE SOURCES OF THE NOISE BY MEANS OF A GEOMETRICAL MODEL OF THE ENVIRONMENT. THE STATISTICAL PROPERTIES AND THE SPECTRA OF THE UNDER-ICE NOISE CAN BE RELATED TO THE SURFACE DENSITY AND THE WAVEFORM OF THE SOURCE PRESSURE PULSES BY MEANS OF THE MODEL.

PRESSURE ENVIRONMENTS

ILES S CONSULTANT GIL4004M
DIFFUSION PUMPED SYSTEMS
=TEST ENG VOL.12,P.30+ AUG.1964 7FIG

1.INFORMATION 2.FACILITY 3.SPACE 4.NOMINAL 5.SINGLE 7.PUMP 8.ENVIRO-CONTROL 9.HI-VAC,VH-VAC

A GENERAL DISCUSSION OF THE OPERATION OF DIFFUSION PUMPED SYSTEMS WHICH INCLUDES THE BASIC PRINCIPLES,A SET OF CURVES ILLUSTRATING VARYING PERFORMANCES THAT CAN BE OBTAINED,AND A GRAPH ILLUSTRATING THE RELATIVE RATE OF BACKSTREAMING FROM A TYPICAL DIFFUSION PUMP.

IMMERHAUS KD UNIV OF COLO TIM4001M
CRYOGENICS IN SPACE SIMULATION
=TEST ENG VOL.12,P.26+ AUG.1964 11REF 1TABLE

1.STUDY 2.SIMULATION 3.SPACE 4.NOMINAL 5.SINGLE 7.CHAMBER, CRYO-LIQUID 8.ENVIRO-CONTROL 9.HI-VAC

AFTER A GENERAL DISCUSSION OF THE REQUIREMENTS OF SPACE SIMULATORS,A MORE DETAILED TREATMENT IS GIVEN OF THE CRYOGENIC AND REFRIGERATION ASPECTS OF THESE SIMULATORS.

RADIATION ENVIRONMENTS

FAVALE AJ GRUMMAN FAV6001N
LARGE AREA UNIFORM ELECTRON BEAMS FOR SPACE RADIATION ENVIRONMENT STUDIES
=IES PROC.1966,P.65-72 2REF 25FIG

1.DESIGN 2.FACILITY,METHOD 3.INDUCED,SPACE 4.NOMINAL 5.SINGLE 7.OPTICS,FACILITY,8.ENVIRO-CONTROL,9.NUCLEAR

WITH THIS TECHNIQUE,BEAM UNIFORMITIES OF BETTER THAN 4 PARTS PER 100 HAVE BEEN DEMONSTRATED WITH AN ELECTRON BEAM WHOSE BEAM DIVERGENCE HALF ANGLE IS 7.5 DEG. THE TECHNIQUE HAS BEEN USED TO STUDY THE EFFECTS OF STARFISH RADIATION ON THE NASA OAO STAR TRACKERS,ON THE TWO ATMOSPHERIC AIRGLOW EXPERIMENTS ABOARD NASA OGO,AND ON ISOLATED RCA 1P21 PHOTOMULTIPLIER TUBES. THE RESULTS OF THESE TESTS,WHICH AGREED WITH THE DATA THAT HAVE BEEN RECEIVED FROM THE PRESENTLY ORBITING OGO,SHOW THAT THE SIMULATED RADIATION ENVIRONMENT INDUCES NOISE IN THE PHOTOMULTIPLIER TUBES PRESENT IN ALL OF THESE SUBSYSTEMS

KRUGER R NASA GODDARD KRU6001N
PROJECT ASSESS--A REPORT OF A LONG TERM SOLAR SIMULATION TEST
=IES PROC.1966,P.271-288 21FIG

1.STUDY 2.SIMULATION,METHOD,FACILITY 3.SPACE 4.NOMINAL 5.SINGLE 7.GUIDED MISSILE,ARC-LAMP,OPTICS,FACILITY,SENSOR-TEMP,MONITOR 8.ENVIRO-MEAS 9.SOLAR

THE TEST RAN FOR 44 CONSECUTIVE DAYS. THE SIMULATION DUPLICATED THE ORBITAL HISTORY OF THE SISTER SPACECRAFT,ARIEL II SATELLITE. ELECTRONIC PERFORMANCE OF THE TEST ITEM WAS SIMILAR TO THAT OF ARIEL II. THE THERMAL DATA WAS COMPARABLE TO FLIGHT DATA BELOW A 90 DEG ANGLE BUT MARKEDLY DIFFERED AT ASPECT ANGLES OVER 105 DEG. PROJECT ASSESS PROVED THE FEASIBILITY OF A LARGE SCALE SOLAR SIMULATION TEST.

MCGUIRE JF NASA GODDARD MCG6002N
REAL TIME INTENSITY DISPLAY SYSTEM
=IES PROC.1966,P.517-520 3FIG

1.INFORMATION 2.INSTRUMENT 3.SPACE 4.NOMINAL 5.SINGLE 7.ARC-LAMP,SENSOR-RADIATION,MONITOR 8.ENVIRO-MEAS 9.SOLAR

CONTAINS A DESCRIPTION OF THE THEORY AND OPERATION OF A SYSTEM USED TO MONITOR THE OUTPUT OF 127 SOLAR LAMP MODULES. A DISPLAY SIMILAR TO A RADAR SYSTEM OUTPUT SHOWS VISUALLY THE INTENSITY AND VARIATIONS OF THE PATTERN IN REAL TIME.

POLAK LF AEROSPACE CONTROLS POL6001N
HIGH EFFICIENCY COLLECTORS FOR HIGH ENERGY RADIANT SOURCES
=IES PROC.1966,P.635-637 6FIG

1.DESIGN 2.FACILITY 3.SPACE 4.NOMINAL 5.SINGLE 7.ARC-LAMP, OPTICS 8.ENVIRO-CONTROL 9.SOLAR

DESCRIBES A MAXIMUM EFFICIENCY CONTOUR SOURCE COLLECTOR USED PRIMARILY IN SOLAR SIMULATORS WHICH WAS DEVELOPED BY AEROSPACE CONTROLS CORP. IT IS DESIGNED FOR COMPACT ARC SOURCES AND THE DESIGN APPROACH CAN BE APPLIED TO ALL SIZES OF LAMPS. THE GOAL IS TO COLLECT AND TO CONCENTRATE THE MAXIMUM AMOUNT OF RADIANT ENERGY EMITTED BY A COMPACT ARC SOURCE INTO AN APERTURE OF FINITE SIZE AND LOCATION FROM THE SOURCE.

TALBOTT GR NORTH AM AV TAL6001N
A SIMPLIFIED METHOD OF EVALUATING THE NUCLEAR REACTOR ENVIRONMENT FOR THE DESIGN ENGINEER
=IES PROC.1966,P.9-20 3REF YTABLE

1.THEORY 2.METHOD,MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.NUCLEAR-MTL,REACTORS,SHIELD 8.ENVIRO-EFFECTS 9.NUCLEAR, SOLAR

PROVIDES A SIMPLE MEANS OF EVALUATING THERMAL AND IONIZING ENERGIES FROM THE FISSION OF URANIUM ATOMS. A BASIC FISSION EQUATION,CHARACTERISTIC OF THE AVERAGE URANIUM REACTOR,IS WRITTEN AND THE CONCEPT OF MASS DEFECT EXPLAINED. THE CONVERSION OF MASS TO KINETIC ENERGY IS DISCUSSED AND THE TOTAL ENERGY OF A NUCLEAR REACTION CLASSIFIED. A SOMEWHAT DETAILED TECHNICAL APPENDIX IS INCLUDED FOR THOSE INTERESTED IN THE RELATIONS BETWEEN CONCEPTS IN NUCLEAR AND ATOMIC PHYSICS.

MECHANICAL SHOCK ENVIRONMENTS

BOGART TF LING ELECTRONICS BOG50010
ANALOG METHOD FOR STUDY OF SHOCK SPECTRA IN NONLINEAR SYSTEMS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.197-207 7REF 9FIG

1.STUDY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHAKER,COMPUTER,PULSE 8.ENVIRO-EFFECTS 9.SHOCK

OPERATIONAL AMPLIFIERS WERE USED TO SOLVE THE SIMULTANEOUS DIFFERENTIAL EQUATIONS DESCRIBING THE RESPONSE OF A SIMULATED SHAKER ARMATURE AND MASS LOAD JOINED BY A NONLINEAR SPRING ELEMENT IN THE PRESENCE OF DAMPING. A CUBIC FUNCTION GENERATOR WAS DEVELOPED TO SIMULATE THE NONLINEAR TERMS IN THE EQUATIONS. STUDIES WERE MADE USING BOTH HARDENING AND SOFTENING SPRINGS. SHOCK SPECTRUM SYNTHESIS EQUIPMENT WAS USED TO GENERATE A LOW-LEVEL SHOCK PULSE AT THE ARMATURE OF THE SIMULATED NONLINEAR SYSTEM. THE GAIN OF THE SYNTHESIS EQUIPMENT WAS THEN INCREASED BY A KNOWN AMOUNT,AND SHOCK SPECTRUM ANALYSIS EQUIPMENT WAS USED TO DETERMINE THE MODIFIED SPECTRUM. IT WAS CONCLUDED THAT SHOCK SPECTRA ARE NOT SIGNIFICANTLY AFFECTED BY SPRING NONLINEARITIES OF PRACTICAL MAGNITUDES.

BRODING WC AVCO BRO50030
ANALYTIC DYNAMIC MODELING FOR IMPULSIVE ENVIRONMENTS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.285-307 23REF 28FIG

1.STUDY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.MODEL,STRUCTURE-SHELL,STRUCTURE-BEAM-FREE 8.ENVIRO-MEAS 9.BLAST-SHOCK, IMPACT-HARD

THE SCOPE OF MODELING CONSIDERED COVERS ONLY LINEAR THEORY FOR THE DEFINITION OF STRUCTURAL OVERALL DAMAGE WITHIN THE EARLY RESPONSE TIME OF THE ENTIRE STRUCTURE. COMPARISONS ARE SHOWN OF VARIOUS APPROACHES TO THE DEFINITION OF THE PHYSICAL CHARACTERISTICS OF THE DYNAMIC SYSTEM,USING THREE METHODS--DIRECT-STIFFNESS,LUMPED-PARAMETER,AND THE HOUBOLT FINITE-DIFFERENCE APPROACHES. GEOMETRIES CONSIDERED ARE SHALLOW SPHERICAL SHELLS,SPHERE-CONES,AXIALLY AND LATERALLY LOADED CYLINDERS, AND ELASTIC BARS.

EHRLICH IR STEVENS INST OF TECH EHR60010
EDUCATING FOR MOBILITY RESEARCH
=IES PROC.1966,P.97-98

1.PHILOSOPHY 2.ENGR-PRACTICE 3.GENERAL 7.ENGINEER,TRAINING 9.TRANSPORT

PROBLEMS OF MOBILITY ARE NOT SIMPLY RELATIONSHIPS BETWEEN VEHICLE AND SOIL,BUT ALSO THE MORE COMPLEX RELATIONS BETWEEN THE OFF-ROAD VEHICLE AND THE ENTIRE TRANSPORTATION INDUSTRY AND THE OVERALL MOVEMENT SYSTEM. EDUCATION FOR THIS FIELD SHOULD INCLUDE A BROAD TRAINING IN THE MATHEMATICAL AND BASIC ENGINEERING SCIENCES PLUS THE SOCIAL,POLITICAL AND ECONOMIC ASPECTS OF THE TRANSPORTATION PROBLEM.

GARRETT EE ARMY ENG WATERWAYS EXP STA GAR60020
THE PARAMETRIC VERSUS THE QUALITATIVE-GENETIC APPROACH TO TERRAIN ANALYSIS
=IES PROC.1966,P.73-80 5FIG

1.PHILOSOPHY 2.ENGR-PRACTICE,MEASUREMENT 3.NATURAL 4.NOMINAL 5.SINGLE 7.GROUND 8.ENVIRO-MEAS 9.TRANSPORT

A QUANTITATIVE OR PARAMETRIC TERRAIN EVALUATION SYSTEM IS ONE IN WHICH SIGNIFICANT PHYSICAL PROPERTIES ARE MEASURED DIRECTLY. TO PREDICT WITH A HIGH DEGREE OF RELIABILITY BOTH THE KIND AND MAGNITUDE OF EFFECTS OF TERRAIN ON ACTIVITIES OR MACHINES REQUIRES VERY DETAILED AND ACCURATE QUANTITATIVE TERRAIN DATA. THERE IS A POSSIBILITY THAT APPROXIMATE QUANTITATIVE VALUES CAN BE CORRELATED WITH TRADITIONAL TERRAIN DESCRIPTIONS,BUT IT IS QUESTIONABLE WHETHER THESE VALUES WILL BE SUFFICIENTLY ACCURATE FOR USE IN PREDICTING EFFECTS OF TERRAIN ON MILITARY ACTIVITIES.

GERTEL M ALLIED RES ASSOC GER50020
DEFINITION OF SHOCK DESIGN AND TEST CRITERIA USING SHOCK AND FOURIER SPECTRA OF TRANSIENT ENVIRONMENTS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.249-264 15REF 13FIG
=1TABLE

1.STUDY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.COMPUTER 8.ENVIRO-CONTROL 9.BLAST-SHOCK

SHOCK AND FOURIER SPECTRA FOR A VARIETY OF MEASURED AND IDEALIZED ACCELERATION PULSES AND COMPLEX WAVEFORMS HAVE BEEN COMPUTED ON AN IBM 7094 USING GHARAS RECURSION EQUATIONS FOR THE DUHAMEL INTEGRAL. THESE SPECTRA HAVE BEEN MACHINE-PLOTTED IN A NORMALIZED FOUR-COORDINATE FORMAT SIMILAR TO THAT PROPOSED BY VIGNESS USING A GENERAL DYNAMICS SC4020 COMPUTER PLOTTER. SEVERAL SAMPLES OF COMPUTED SPECTRA ARE PRESENTED. THE APPLICATION OF SHOCK AND FOURIER SPECTRA IS DISCUSSED IN CONNECTION WITH RECENT MEASURED SHOCKS REPRESENTATIVE OF MISSILE PYROTECHNIC STAGE SEPARATION AND ARMY TANK TURRET GUNFIRING.

GROOTENHUIS P IMPERIAL COLLEGE GR030030
A SIMPLE PARAMETER FOR THE SELECTION OF MATERIALS SUBJECTED TO SHOCK
=ENVIR.ENG.QUAR NO.8,P.22-23 DEC.1963 5REF 1FIG 1TABLE

1.THEORY 2.MITIGATION 3.INDUCED 4.NOMINAL 5.SINGLE 7.ISOLATOR, MATERIALS 8.ENVIRO-EFFECTS 9.SHOCK

A VERY SIMPLE APPROACH WHICH NEVERTHELESS CAN PROVIDE SOME USEFUL POINTERS AS TO THE TYPE OF MATERIAL TO SELECT FOR THE SHOCK ABSORBING MEMBERS OF A COMPLEX SYSTEM IS TO CONSIDER ONE ELEMENT OF ELASTIC MATERIAL RECEIVING AT ONE CROSS-SECTION SUDDENLY A VELOCITY SHOCK AND BEING BACKED UP AT ANOTHER SECTION BY A COMBINED INERTIA OR MASS--IN OTHER WORDS,A SINGLE-DEGREE-OF-FREEDOM SYSTEM.

HENDERSON RL SANDIA CORP HEN50030
DESIGN AND PERFORMANCE CHARACTERISTICS OF A WATER JET ACTUATOR
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.47-54 1REF 8FIG

1.DESIGN 2.FACILITY 3.INDUCED 4.NOMINAL 5.SINGLE 7.ACCELERATION-DEVICE 9.IMPACT-HARD

IN RESPONSE TO A NEED FOR A VELOCITY GENERATOR TO PROVIDE A 400-FPS IMPACT VELOCITY WITH A 3000-LB TEST SLED,A WATER JET CATAPULT WAS DESIGNED AND FABRICATED. THE DESIGN OF THE FACILITY IS DISCUSSED ALONG WITH A DESCRIPTION OF THE MAJOR COMPONENTS AND THE PREDICTED AND MEASURED PERFORMANCE OF THE FACILITY. REFERENCE IS ALSO MADE TO A SMALL LOW-VELOCITY GENERATOR, DESIGNED USING THE SAME BASIC PRINCIPLES.

HOFFMAN AR JPL HOF50010
PYROTECHNIC SHOCK ANALYSIS AND TESTING METHODS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.309-329 19FIG 2TABLE

1.XPER-RESULTS 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.RANGER,MARINER,EXPLOSIVE 8.ENVIO-MEAS 9.BLAST-SHOCK

DETAILED ANALYSIS OF CERTAIN PYROTECHNIC SHOCKS IS PRESENTED. THE DATA USED ARE FROM THE RANGER BLOCK III AND MARINER MARS TEST PROGRAMS. SHOCK SPECTRA FORM THE BASIS OF CORRELATION BETWEEN SIMILAR SHOCKS OF VARIOUS SPACECRAFT AND ASSEMBLY TESTING. COMPARISONS OF SHOCK DATA USING STATISTICAL METHODS ARE ALSO INCLUDED. THE RESULTS INDICATE THE NECESSITY FOR A SYSTEM LEVEL PYROTECHNIC TEST PROGRAM IF THE ENVIRONMENT IS TO BE PROPERLY SIMULATED.

KUOPPAMAKI K CONSULTANT KUO50010
AEROSPACE SHOCK TEST SPECIFIED AND MONITORED BY THE RESPONSE SPECTRUM
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.163-172 9REF 12FIG

1.STUDY 2.METHOD,SIMULATION 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHAKER,GAGE 8.ENVIRO-CONTROL 9.LO-G,HI-G

LABORATORY DATA ARE PRESENTED ON TWO DEVELOPMENTS IN SHOCK TESTING--(A)A CONTINUOUS FREQUENCY,CONSTANT Q,SHOCK SPECTRUM ANALYSIS TECHNIQUE,AND (B)A SHOCK SPECTRUM SYNTHESIS TECHNIQUE EMPLOYING ELECTRODYNAMIC SHAKERS. DAMAGE POTENTIAL AND ACCURACY OF SHOCK SPECTRUM TESTING IS COMPARED TO THAT OF STANDARD PULSE SHAPE TESTING. PRESENT ELECTRODYNAMIC SHAKER LIMITATIONS ARE DISCUSSED AND A SHAKER SYSTEM FOR PYROTECHNIC EVENT SIMULATION IS DESCRIBED.

MATHEWS FH SANDIA CORP MAT50020
THE DOUBLE FORCE PROGRAMMER SHOCK TESTING METHOD--A NEW TECHNIQUE FOR CONTROLLING SHOCK PULSE WAVEFORMS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.149-161 20FIG 1TABLE

1.STUDY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHOCK-TESTERS, HONEYCOMB 8.ENVIRO-CONTROL 9.HI-G

THIS METHOD CAN BE USED TO GENERATE A WIDE VARIETY OF UNUSUAL PULSE SHAPES AND CAN BE APPLIED TO MOST SHOCK MACHINES. TWO HONEYCOMB SPRINGS,PLACED BETWEEN THREE CARRIAGES,ARE USED TO GENERATE THE DESIRED ACCELERATION-TIME PULSE ON THE CENTER (TEST ITEM)CARRIAGE. A TEST IS CONDUCTED WHEN ONE OF THE OUTER CARRIAGES (RAM) IMPACTS INTO THE TWO STATIONARY CARRIAGES. THE STRENGTH AND SHAPE OF THE HONEYCOMB SPRINGS ARE ADJUSTED TO PRODUCE THE DESIRED TEST ITEM ACCELERATION HISTORY. THE METHOD WAS USED WITH A PNEUMATIC ACTUATOR TO SHOCK TEST A 450-LB TEST ITEM CARRIAGE BY APPLYING A TRIANGULAR SHOCK PULSE OF SHORT RISE FOLLOWED BY A LONG DELAY. THESE RESULTS ARE USED TO ILLUSTRATE SEVERAL PROBLEMS WHICH OCCURRED DURING THE TEST SERIES. ANALYTICAL METHODS ARE DEVELOPED WHICH PREDICT REQUIRED HONEYCOMB SPRING GEOMETRIES. A PARAMETER STUDY IS DESCRIBED IN WHICH EFFECTS OF HONEYCOMB RATE SENSITIVITY AND RESTITUTION ARE INVESTIGATED.

NOBLE EC CONVAIR NOB50010
SHAPED CHARGE SHOCK ENVIRONMENT FOR CENTAUR VEHICLE COMPONENTS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.331-351 20FIG 2TABLE

1.XPER-RESULTS 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.CENTAUR,EXPLOSIVE,DATA-SYSTEM 8.ENVIRO-MEAS 9.BLAST-SHOCK

DESCRIBES THE ACQUISITION AND ANALYSIS OF HIGH-FREQUENCY SHOCK DATA OBTAINED DURING THREE GROUND TESTS OF A FULL-SCALE CENTAUR VEHICLE. THE MOUNTING STRUCTURE SHOCKS WERE PRODUCED BY A LINEAR SHAPED CHARGE SEPARATION SYSTEM THAT CUTS THE STRUCTUREAL JOINTS OF THE EXTERNAL INSULATION PANELS AND WERE MEASURED AT THE MOUNTS. A COMPARISON IS MADE BETWEEN A GROUND TEST SHOCK MEASUREMENT AND A SIMILAR FLIGHT MEASUREMENT. THE SHAPED CHARGE ACOUSTIC ENVIRONMENT IN THE CENTAUR FORWARD EQUIPMENT AREA IS EVALUATED. SHOCK SPECTRA OF THE SHOCK MEASUREMENTS SEVERAL INCHES TO 219 IN AWAY FROM THE SHAPED CHARGE SEVERED JOINTS ARE PRESENTED AND ANALYZED.

NOONAN VS MCDONNELL AIRCRAFT NOO50010
STRUCTURAL RESPONSE TO IMPULSIVE LOADING (PYROTECHNIC DEVICES)
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.265-284 3REF 30FIG
=3TABLES

1.XPER-RESULTS 2.EFFECTS 3.INDUCED 4.NOMINAL 5.SINGLE 7.EXPLOSIVE,GEMINI,ACCELEROMETER 8.ENVIRO-EFFECTS 9.BLAST-SHOCK

TWO TEST PROGRAMS WERE CONDUCTED,ONE PRIMARILY TO DETERMINE THE TYPE OF INSTRUMENTATION NEEDED TO OBTAIN RELIABLE TRANSIENT DATA,AND THE OTHER TO OBTAIN THE TRANSIENT RESPONSE DATA OF THE GEMINI ADAPTER DUE TO FIRING. FOURIER TRANSFORMS WERE CALCULATED FOR THE DATA OBTAINED. A FOURIER TRANSFORM COMPUTER PROGRAM WAS SET UP AND CHECKED OUT BY USING THE DATA FROM A KNOWN SQUARE PULSE. THE MAXIMUM ACCELERATIONS RECORDED BY THE ADAPTER SHELL MOUNTED ACCELEROMETERS,FOR BOTH THE LONGITUDINAL AND RADIAL DIRECTIONS DURING THE TWO TESTS,WERE 6500 AND 4100G,RESPECTIVELY. WHEN ALL THE KNOWN FACTS ARE ASSOCIATED WITH EACH DATA POINT,A CURVE CAN BE ATTAINED SHOWING THE ATTENUATION OF THE IMPULSE DUE TO GEMINI STRUCTURE.

OSTERGREN SM GENERAL ELEC OST50010
SHOCK TESTING TO SHOCK SPECTRA SPECIFICATIONS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.185-196 11REF 15FIG

1.DESIGN 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHOCK-TESTERS 8.ENVIRO-CONTROL 9.SHOCK

THE PROBLEMS THE TEST ENGINEER FACES IN UTILIZATION OF A SHOCK SPECTRUM ARE--1)TO DETERMINE WHICH SHOCK PULSE WILL PRODUCE THE REQUIRED SHOCK SPECTRUM,AND 2)TO DEMONSTRATE THAT THE TEST REQUIREMENT HAS BEEN MET. THE PAPER CONSIDERS THEORETICAL AND EMPIRICAL METHODS THAT THE ENGINEER CAN USE TO DEAL WITH THESE PROBLEMS. EXAMPLES ARE GIVEN SHOWING HOW THE PULSE HEIGHT,DURATION,AND WAVEFORM CAN BE DETERMINED FROM A GIVEN SHOCK SPECTRUM.

PALMISANO F ARMY ELEC COMMAND PAL50010
A MECHANICAL SHOCK PULSE SURVEY
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.209-227 8REF 21FIG
=3TABLES

1.STUDY 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHOCK-TESTERS,ELECTRONIC 8.ENVIRO-MEAS 9.LO-G,HI-G,VH-G

THE EIGHT SHOCK MACHINES USED FOR THIS SURVEY INCLUDE THE GENERAL TYPES OF FREE-FALL,PENDULUM,AND CAM-ACTIVATED. THE SHOCK PULSES RANGE IN NOMINAL TIME DURATION OF FROM 40 TO 1150 G. THE METHODS OF ANALYSIS,QUANTITATIVE AND QUALITATIVE,OF THE SHOCK PULSE CURVES OBTAINED FROM THE SHOCK MACHINES WERE TO FIRST DETERMINE SHOCK PULSE CURVES AMPLITUDE-FREQUENCY SPECTRUM BY USE OF A SPECIAL-PURPOSE ANALOG COMPUTER DESIGNED SPECIFICALLY TO COMPUTE FOURIER INTEGRALS. THE FREQUENCY SPECTRUM IS THEN CONVERTED TO A BODE DIAGRAM FROM WHICH A GRAPHICAL COMPARISON OF THE SHOCK PULSE IS MADE.

UMBERGER CC ARMY ENG R AND D LABS UMB60010
NEW VEHICLE CONCEPTS FOR MARGINAL TERRAIN
=IES PROC.1966,P.629-632 8FIG

1.EVALUATION 2.EFFECTS 3.NATURAL 4.NOMINAL 5.SINGLE 7.VEHICLE 8.ENVIRO-EFFECTS 9.TRANSPORT

THE FOUR VEHICLE CONCEPTS FOR MARGINAL TERRAIN(COMBINATION OF SOFT SOIL AND WATER) ARE--1) THE DRUM CONCEPT,2)THE DRUM-BELT CONCEPT,3)THE TRACK CONCEPT,AND 4)THE TRACK WITH PONTOONS CONCEPT. THESE VEHICLES WERE DESIGNED TO CARRY THREE MEN,HAVE SPEEDS OF 10-12MPH ON LAND AND 3-4MPH IN WATER,AND ALLOW THREE UNITS TO BE CARRIED INTERNALLY IN THE CH-47 HELICOPTER.

VIGNESS I NAVAL RES LAB VIG50030
SPECIFICATION OF ACCELERATION PULSES FOR SHOCK TESTS
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION,AND ASSOCIATED ENVI-
=RONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.6,P.173-183 27FIG

1.STUDY 2.SIMULATION 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHOCK-TESTERS 8.ENVIRO-CONTROL 9.SHOCK

DESCRIPTIONS ARE GIVEN OF METHODS BY WHICH ACCELERATION PULSES USED FOR SHOCK TESTING CAN BE DESCRIBED AND HAVE THEIR TOLERANCES SPECIFIED. ILLUSTRATIONS ARE GIVEN OF MEASURED ACCELERATION PULSES OBTAINED FROM USUAL SHOCK MACHINES TO ILLUSTRATE DIFFERENCES BETWEEN GENERATED AND SPECIFIED SHOCK PULSE MOTIONS. FROM THESE DIFFERENCES IT IS POSSIBLE TO ESTIMATE WHAT TOLERANCES ARE REASONABLE AT THIS TIME.

SPACE ENVIRONMENTS

COURTNEY WJ IIT RES INST COU6001P
A COMBINED IRRADIATION FACILITY FOR SIMULATION OF SELECTED SPACE ENVIRONMENTS
=IES PROC.1966,P.21-25 6FIG

1.DESIGN 2.SIMULATION,FACILITY 3.SPACE 4.NOMINAL 5.COMBINED 7.CHAMBER,RADIATION-EQUIP,ARC-LAMP,PUMP 8.ENVIRO-CONTROL 9.UV,NUCLEAR,HI-TEMP,HI-VAC

THIS FACILITY WAS DESIGNED FOR USE IN THE STUDY OF THE OPTICAL BEHAVIOR OF MATERIALS IN SIMULATED SPACE ENVIRONMENTS. IT ALLOWS MEASUREMENTS OF THE IN-SITU CHARACTER OF THE RESPONSE OF MATERIALS. THE CHAMBER DESIGN PERMITS EITHER THE COMBINED OR INDIVIDUAL USE OF ULTRA VIOLET RADIATION,HIGH OR LOW ENERGY CHARGED PARTICLES,TEMPERATURE CONTROL,AND HIGH VACUUM. THIS BAKEABLE SYSTEM INCLUDES BOTH ION AND SUBLIMATION PUMPING.

HAGER RN CONVAIR HAG6001P
THERMAL VACUUM TESTING--BASIC PHILOSOPHY THROUGH DATA PROCUREMENT FOR CENTAUR VEHICLE COMPONENTS
=IES PROC.1966,P.421-426 6REF 4FIG

1.STUDY 2.SIMULATION 3.SPACE 4.NOMINAL 5.COMBINED 7.CENTAUR , COMPONENT,ARC-LAMP 8.ENVIRO-EFFECTS 9.HI-VAC,UL-TEMP,AERODYNAMIC,SOLAR

THE CENTAUR COMPONENTS THERMAL VACUUM TEST WAS ESTABLISHED WITH THE FOLLOWING OBJECTIVES--TO DETERMINE THE MINIMUM AND MAXIMUM TEMPERATURE A COMPONENT COULD ATTAIN DURING A CENTAUR MISSION,TO DETERMINE IF AND WHEN A COMPONENT EXCEEDS ITS OPERATING LIMITS,AND TO PROVIDE DATA TO THERMODYNAMICISTS FOR THE PURPOSE OF CALCULATING TIME TEMPERATURE PROFILES.

JOHNSON JL ATOMICS INTERNATL JOH6003P
ENVIRONMENTAL TESTING OF SNAP 10A INSTRUMENTATION
=IES PROC.1966,P.33-39 4FIG 3TABLES

1.DESIGN,XPER-RESULTS 2.METHOD 3.SPACE 4.NOMINAL 5.COMBINED 7.POWER-SOURCE,REACTORS TEST-EQUIP 8.ENVIRO-MEAS,ELECTRICAL 9.HI-TEMP,VH-TEMP,HI-VAC,NUCLEAR

REVIEWS THE PERFORMANCE OF THE SNAP 10A INSTRUMENTATION DURING COMPONENT QUALIFICATION,GROUND SYSTEM AND FLIGHT SYSTEM TESTS. DURING SYSTEM FLIGHT OPERATION,INSTRUMENTS WERE SIMULTANEOUSLY EXPOSED TO A HARD VACUUM(TO 10 TO -10 TORR),TEMPERATURES BETWEEN 80 AND 1000 DEG F,AND FAST NEUTRON FLUXES BETWEEN 10 TO THE 6 POWER NEUTRONS/CM SQUARED -SEC AND 4 X 10 TO THE 10 POWER NEUTRONS/CM SQUARED -SEC. CONTROL AND DIAGNOSTIC (APPROX. 125 DIAGNOSTIC INSTRUMENTS)INSTRUMENTATION WERE DEVELOPED AND QUALIFIED TO WITHSTAND THIS ENVIRONMENT,THE LAUNCH ENVIRONMENT AND THE GROUND SYSTEM TEST ENVIRONMENT. TYPICAL PERFORMANCE PARAMETERS THAT WERE MEASURED DURING SYSTEM FLIGHT TESTING INCLUDED TEMPERATURES,COOLANT FLOW,ELECTRICAL CURRENT,VOLTAGES, POSITIONS,LINEAR AND ANGULAR DISPLACEMENTS,AND NUCLEAR RADIATION FLUXES.

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PLAISTED RM HONEYWELL PLA6001P
TEST CONCEPT FOR THE GEMINI ACME SYSTEM
=IES PROC.1966,P.27-31

1.ORGANIZATION 2.METHOD,ENGR-PRACTICE 3.SPACE 4.OVERTEST,LIFE 5.COMBINED 6.MIL-STD-810,MIL-E-5272,MIL-I-26600 7.GEMINI,GYROSCOPE,ELECTR-SYSTEM 8.ENVIRO-MEAS 9.HI-TEMP,LO-TEMP,HI-VAC,RDM-VIBR,ACOUSTIC,PROGRAMMED,SALT,HUMIDITY,ELECTRICAL

THE MASTER TEST PLAN FOR GEMINI ATTITUDE CONTROL AND MANEUVER ELECTRONICS SYSTEM CONSISTED OF DEVELOPMENT,QUALIFICATION, OVERSTRESS,LIFE,ACCEPTANCE TESTING AND QUALITY CONTROL. THIS TESTING INCLUDED EVALUATION OF COMPONENTS,CIRCUITS,SUBASSEMBLIES AND THE COMPLETE SYSTEM. THIS PAPER DISCUSSES THE PHILOSOPHY AND CONSIDERATIONS IN ESTABLISHING AND EXECUTING THIS PROGRAM.

SPECIFICATIONS

CLARK RD TEXAS INSTRUMENTS INC CLA6001Q
SIGNIFICANT ENVIRONMENTAL CRITERIA FOR MICROELECTRONICS TESTING
=IES PROC.1966,P.135-140 4REF 7TABLES

1.INFORMATION 2.ENGR-PRACTICE 3.GENERAL 4.NOMINAL 5.SINGLE 6.GENERALIZED 7.ELECTRONIC 8.FUNCTIONAL 9.VIBR,HI-TEMP,LO-TEMP,HI-G,VH-G

INCORPORATES RECOMMENDED STANDARD ENVIRONMENTAL TEST CONDITIONS FOR MICROELECTRONIC SPECIFICATIONS ENCOMPASSING MOST OF THE NATURAL AND INDUCED ENVIRONMENTS PRESENTLY REQUIRED BY MILITARY,INDUSTRIAL AND CONSUMER MARKETS.

HIGH TEMPERATURE AND UNSPECIFIED TEMPERATURE

BANNISTER TC NASA MARSHALL BAN6001R
RESEARCH AND DEVELOPMENT STUDY ON SPACE THERMAL CONTROL BY USE OF FUSIBLE MATERIALS
=IES PROC.1966,P.593-607 10REF 14FIG

1.STUDY 2.METHOD 3.INDUCED 4.NOMINAL 5.SINGLE 7.MODEL,HONEYCOMB,MATERIALS,HEATERS 8.ENVIRO-CONTROL 9.HI-TEMP

THE PHASE-CHANGE TECHNIQUE IS PARTICULARLY WELL-SUITED FOR SPACE APPLICATIONS WHERE THERMAL ENERGY MUST BE CONSERVED, INCREASED THERMAL INERTIA IS NECESSARY,AND CONSTANT TEMPERATURES ARE REQUIRED. THREE PASSIVE SYSTEMS USING PHASE CHANGE WERE CONCEIVED FOR THERMAL CONTROL OF SPACECRAFT COMPONENTS, ONE A ONE-DIMENSIONAL ADIABATIC SYSTEM,AND THE OTHER TWO USING RADIATING FINS ATTACHED TO THE FUSIBLE MATERIALS. FOUR N-PARAFFINS WITH AN EVEN NUMBER OF CARBON ATOMS WERE SELECTED FOR LABORATORY STUDY. FILLER MATERIALS GREATLY IMPROVED THE THERMAL DIFFUSIVITY OF THE SYSTEM. THIS STUDY DEMONSTRATED THE DESIRABILITY OF USING FUSIBLE MATERIALS FOR THERMAL CONTROL AND INDICATED AREAS NEEDING IMPROVEMENT.

BOWMAN NJ GENERAL ELEC BOW6002R
PYROTECHNIC DEVICES FOR USE ON STERILIZED SPACECRAFT
=JL.SPACECRAFT AND ROCKETS VOL.3,P.1542-1544 OCT.1966 3REF
=1FIG 2TABLES

1.XPER-RESULTS 2.EFFECTS 3.INDUCED 4.NOMINAL 5.SINGLE 7.EXPLOSIVE 9.HI-TEMP

A FOUR-PHASE EXPERIMENTAL PROGRAM STUDYING THE EFFECTS OF THE DRY HEAT STERILIZATION METHOD ON PYROTECHNIC DEVICES PROVIDED A LIST OF EXPLOSIVES THAT WILL PROBABLY STAND STERILIZATION AND A LIST OF DEVICES FOUND TO BE STERILIZABLE.SINCE THERE WAS NO IGNITER SUITABLE FOR A ROCKET MOTOR,ONE WAS DESIGNED USING THE TECHNOLOGY DEVELOPED IN THIS PROGRAM.

RANDOM VIBRATION AND UNSPECIFIED VIBRATION

PEACOCK CD ROCKETDYNE PEA6001T
VIBRATION TESTING THE SATURN S-II ULLAGE MOTOR
=MB VIBRATION NOTEBOOK VOL.12,P.1-2 SEPT.1966 3FIG

1.INFORMATION 2.FACILITY 3.INDUCED 4.NOMINAL 5.SINGLE 7.MOTOR,SATURN 9.LF-VIBR,HF-VIBR,VHF-VIBR,RDM-VIBR

THE FACILITY USED BY ROCKETDYNE AT MCGREGOR,TEX.,IS DESCRIBED. TESTING IS BEING DONE AT TEMPERATURES OF 20 AND 125 DEG F. THE CONTROL ACCELEROMETER IS MOUNTED ON ONE OF THE MOTOR ATTACHMENT FITTINGS. TESTS ARE CONDUCTED FROM A REMOTE CONTROL CENTER. TWO DIFFERENT FIXTURES MACHINED FROM MAGNESIUM CASTINGS WITH ATTACHMENT POINTS MACHINED FROM STEEL ARE USED FOR THE LONGITUDINAL AND TANGENTIAL-PERPENDICULAR TESTS.

TUSTIN W TUSTIN INST OF TECH TUS6007T
BUBBLE COALESCENCE IN A VIBRATING FLUID.
=TEST ENG VOL.15,P.20-21 JUNE 1966 1FIG

1.INFORMATION 2.EFFECTS 3.INDUCED 4.NOMINAL 5.SINGLE 7.LIQUIDS 9.LF-VIBR,HF-VIBR,RDM-VIBR

REPORTS ON AN INTERESTING STUDY BEING MADE AT NASAS MARSHALL SPACE FLIGHT CENTER. EFFECTS ARE BEING OBSERVED OF METHANOL IN A CLEAR PLASTIC CONTAINER VIBRATING AT VARIOUS INTENSITIES AND FREQUENCIES,DRIVEN BY A 5,000-LB. ELECTROMAGNETIC SHAKER. IT IS HOPED THAT THIS STUDY WILL SHOW SOME DEFINITE CAUSE-AND-EFFECT RELATIONSHIPS BETWEEN FORMATION OF GAS BUBBLES IN PROPELLANTS AND THE UNSTABLE BURNING OF LIQUID-FUELED ROCKET ENGINES.

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SINUSOIDAL VIBRATION

ENGINEERING NEWS RECORD ENG6001U
SUSPENSION BRIDGE MODEL GETS EXCITED
=MS VIBRATION NOTEBOOK VOL.12,P.7 SEPT.1966 2FIG

1.INFORMATION 2.FACILITY 3.NATURAL 4.NOMINAL 5.SINGLE 7.STRUCTURE,SHAKER 9.LF-VIBR

A VERY BRIEF DESCRIPTION OF A FACILITY OF THE JAPANESE CONSTRUCTION MINISTRY FOR EVALUATING SEISMIC EFFECTS ON BRIDGES. THE LAB MODEL HAS A MAIN SPAN OF 49.2 FT AND SIDE SPANS OF 24.6 FT WITH TWO 6.9-FT-HIGH TOWERS WHICH REST ON SLIP TABLES CONNECTED TO FOUR VIBRATION EXCITERS. ADDITIONAL TESTS ARE BEING RUN ON SEISMIC EFFECTS ON OCEAN BOTTOM SOIL AND WATER SHOCKWAVE EFFECTS ON BRIDGE FOUNDATIONS AND FOOTINGS. REPRINTED FROM ENGINEERING NEWS RECORD AUGUST 11,1966.

ENVIRONMENTAL ENGINEERING QUARTERLY ENV3004U
PHOTOELECTRONIC MEASUREMENT OF VIBRATORY DISPLACEMENTS
=ENVIR.ENG.QUAR NO.8,P.18-19 DEC.1963

1.INFORMATION 2.MEASUREMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.CALIBR-EQUIP 8.CALIBRATION 9.VIBR

A TECHNIQUE IS DESCRIBED FOR MEASUREMENT OF VIBRATION DISPLACEMENT THAT INCREASES THE PRECISION OF CALIBRATION METHODS FOR VIBRATION PICKUPS. IT USES A FIZEAU-TYPE INTERFEROMETER WITH A MONOCHROMATIC LIGHT SOURCE AND A PHOTOMULTIPLIER TUBE TO SENSE CHANGES IN THE INTERFERENCE PATTERN. VIBRATION AMPLITUDES ARE IDENTIFIED IN THE PRESENCE OF JITTER WITH GREATER SENSITIVITY THAN BY PREVIOUS VISUAL MEANS. THE TECHNIQUE DESCRIBED WAS DEVELOPED AT THE NATIONAL BUREAU OF STANDARDS,USA.

SALTER JP RARDE SAL3003U
TAMING THE GENERAL-PURPOSE VIBRATION TEST
=ENVIR.ENG.QUAR NO.8,P.14-18 DEC.1963 11REF

1.PHILOSOPHY 2.ENGR-PRACTICE 3.INDUCED 4.NOMINAL 5.SINGLE 6.GENERALIZED 8.ENVIRO-EFFECTS 9.VIBR

ACCELERATION LEVELS QUOTED IN MANY OFFICIAL GENERAL PURPOSE TEST SPECIFICATIONS ARE BASED ON MEASUREMENTS MADE AT VIBRATION ANTINODES. IN SUCH CASES,THERE IS NO JUSTIFICATION FOR PERMITTING THE ACCELERATION LEVEL AT ANY OF THE ATTACHMENT POINTS TO EXCEED THE LEVEL QUOTED,OR FOR PERMITTING THE APPLIED FORCE TO EXCEED A COMPUTABLE VALUE. AN EXTENSION OF THE CONTROL SYSTEM RESULTS IN A MORE RATIONAL TEST.

STUCKMAN EC MCDONNELL AIRCRAFT STU6001U
A DEVICE FOR DETECTING VIBRATION-INDUCED,SHORT-DURATION ELECTRICAL MALFUNCTIONS
=IES PROC.1966,P.153-160 18FIG

1.INFORMATION 2.INSTRUMENT 3.INDUCED 4.NOMINAL 5.SINGLE 7.MONITOR,TRANSISTOR,ELECTR-HDWR 8.ELECTRICAL 9.VIBR

DESCRIBES THE DESIGN OF THE VARIOUS MONITORING DEVICES USED IN THE MCDONNELL DYNAMICS LAB,SHOWING SOME OF THE UNITS COMPRISING THE 130 CHANNELS BUILT TO DATE,AND PRESENTS SEVERAL APPLICATIONS OF THE DEVICES AS MONITORING DETECTORS OF ELECTRICAL MALFUNCTIONS DURING VIBRATION ENVIRONMENTAL TESTS. USING UNIJUNCTION TRANSISTORS AS THE MAIN TRIGGERING COMPONENTS,MONITORING CAPABILITY HAS PROGRESSED FROM 10-MICROSEC IMPEDANCE-CHANGE MONITORING(OPENS OR SHORTS)TO VOLTAGE-CHANGE MONITORING(INCREASE OR DECREASE)AND IMPEDANCE-CHANGE MONITORING WHERE THE DETECTION-DURATION CAN BE VARIED FROM SEVERAL SECONDS TO 1 MICROSEC. A DIGITAL INDICATION OF FAILURE DURATION AND THE TOTAL NUMBER OF FAILURES OF A PRE-SET DURATION OR GREATER CAN ALSO BE DETERMINED.

TUSTIN W CONSULTANT TUS4008U
INSTRUMENTATION FOR SLIP TABLES
=TEST ENG VOL.12,P.20+ AUG.1964 1FIG

1.INFORMATION 2.ENGR-PRACTICE 3.INDUCED 4.NOMINAL 5.SINGLE 7.SHAKER,ACCELEROMETER 8.ENVIRO-MEAS 9.HF-VIBR

USERS OF AUXILIARY SUPPORT TABLES OFTEN ASSUME THAT IDENTICAL MOTION EXISTS OVER THE ENTIRE SURFACE. THIS IS TRUE ONLY AT LOW FREQUENCIES. AT HIGH FREQUENCIES THERE ARE LARGE DIFFERENCES IN THE MOTION AT VARIOUS POINTS. THE AUTHOR RECOMMENDS THAT THE TABLE ACCELERATION BE SEPARATELY MONITORED.

TUSTIN W TUSTIN INST OF TECH TUS6003U
VIBRATION TRAINING FOR MAINTENANCE SPECIALISTS
=TEST ENG VOL.15,P.18-19 MAR.1966 3REF

1.PHILOSOPHY 2.ENGR-PRACTICE 3.INDUCED 5.SINGLE 7.TECHNICIAN, SHAKER 9.VIBR

THE MAJOR PORTION OF THIS BRIEF ARTICLE OUTLINES THE DUTIES OF A MAINTENANCE SPECIALIST. TRAINING WILL COME FROM OBSERVING TESTS AND ASKING QUESTIONS OF OPERATING PERSONNEL AND FROM DETAILED STUDY OF SYSTEM MANUALS,DIAGRAMS,CHARTS,ETC. ALSO, MAJOR MANUFACTURERS OFFER TRAINING AT THEIR PLANTS.

WALLERSTEIN L LORD MFG CO WAL5002U
DRY FRICTION DAMPING WITH FORCE PROPORTIONAL TO DISPLACEMENT
=US DIRECTOR OF DEFENSE SHOCK,VIBRATION AND ASSOCIATED ENVIRONMENTS,SYMPOSIUM,35TH,OCT.1965 PT.5,P.179-185 3REF 12FIG
=2TABLES

1.STUDY 2.PROTECTION 3.INDUCED 4.NOMINAL 5.SINGLE 7.ISOLATOR, MODEL 8.ENVIRO-EFFECTS 9.VIBR

ONE FORM OF A DISPLACEMENT-PROPORTIONED DAMPER IS DESCRIBED WHICH EXHIBITS BOTH AN ELASTIC STIFFNESS AND A FRICTION GRADIENT FOR WHICH EXPRESSIONS ARE GIVEN. ANALOG COMPUTER SOLUTIONS FOR A SINGLE DEGREE OF FREEDOM SYSTEM ARE GIVEN AS TRANSMISSIBILITY-FREQUENCY CURVES FOR SEVERAL DAMPING RATIOS. THE DECAY RATE AT HIGH FREQUENCIES IS 12 DB/OCTAVE. RESONANCE TRANSMISSIBILITY DEPENDS ONLY ON THE RATIO OF FRICTION GRADIENT TO ELASTIC GRADIENT. IT IS (ANALYTICALLY)INDEPENDENT OF INPUT AMPLITUDE,AS CONFIRMED BY MODEL TESTS.

BIOLOGICAL ENVIRONMENTS

STREIMER I SAN FERNANDO VALLEY COLL STR6001V
ERGONOMIC FACTORS IN THE DESIGN OF EXTENDED DURATION MANNED UNDER-WATER SYSTEMS
=IES PROC.1966,P.625-628 27REF

1.INFORMATION 2.EFFECTS 3.NATURAL 4.NOMINAL 5.SINGLE 7.HUMAN 8.ENVIRO-EFFECTS 9.BIOLOGICAL

THE GENERIC WORK TASKS ANTICIPATED IN USING MEN IN THE RESEARCH AND EXPLOITATION OF THE SEAS INCLUDE PERFORMANCE IN CONTROL,CONSTRUCTION,MAINTENANCE,ASSEMBLY AND SCIENTIFIC EXPERIMENTATION FUNCTIONS. WHEREVER POSSIBLE,ANALOGIES TO SPACE CREW WORK PROBLEMS ARE DRAWN AND A VARIETY OF FACTORS BELIEVED TO AFFECT CHARACTERISTICS AND CAPABILITIES OF UNDERSEA OPERATORS ARE DISCUSSED. ANTICIPATED PERFORMANCE DECREMENTS ARE DISCUSSED IN TERMS OF THEIR IMPACT UPON SUCH SYSTEM VARIABLES AS ENVIRONMENTAL CONTROL SYSTEM DESIGN AND SIZING,MANNING REQUIREMENTS,LIFE SUPPORT SYSTEM REQUIREMENTS,WORK-REST CYCLES, ETC.

MISCELLANEOUS ENVIRONMENTS

ENVIRONMENTAL ENGINEERING QUARTERLY ENV3003W
TEST HOUSES--I.FAIREY ENGINEERING
=ENVIR.ENG.QUAR NO.8,P.27-29 DEC.1963 3FIG

1.INFORMATION 2.SIMULATION 3.GENERAL 4.NOMINAL 5.SINGLE 6.K114,2G10C,AVP24,DID 1085B 7.FACILITY 9.HI-HUM,RAIN,FUNGUS, WAT-IMMERS,DUST,VIBR,SUSTAINED,SHOCK,STATIC,PRESSURE

A DESCRIPTION OF THE ENVIRONMENTAL TEST FACILITIES WHICH CAN BE PROVIDED BY FAIREY ENGINEERING LTD WHICH INCLUDE CLIMATIC TEST FACILITIES,VIBRATION TEST FACILITIES,STEADY ACCELERATION TESTS,SHOCK TESTING EQUIPMENT,PNEUMATIC AND HYDRAULIC TESTS AND MECHANICAL LOAD TESTS.

ENGINEERING PRACTICES

BROWN RH TENNEY ENG INC BRO6003Z
FIVE WAYS NOT TO ORDER A TEST CHAMBER
=TEST ENG VOL.16,P.12-13+ AUG.1966 3FIG

1.INFORMATION 2.ENGR-PRACTICE 3.GENERAL 4.NOMINAL 5.COMBINED 7.CHAMBER 8.ENVIRO-CONTROL 9.LO-TEMP,HUMIDITY

TREATS FIVE MISCONCEPTIONS IN BUYING TEMPERATURE-HUMIDITY EQUIPMENT--THE ALL-PURPOSE SYNDROME,MISTAKING CAPABILITIES, CONFUSION ON INSTRUMENTATION,AUTHORITY WITHOUT RESPONSIBILITY, AND CATALOG PICKING.