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SEARCH CONTROL NO. 021492

PERSHING(U)

A R E P O R T B I B L I O G R A P H Y

000132

TO: ARMY MSL COMD

REDSTONE ARSENAL, AL 35809

REQUESTED BY: DAVID CHRISTIANSON 19 AUG 69 H-9045

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BY

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-854 361 17/7 16/4,2 9/2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
AN AUTOMATED COMPUTATION OF THE CIRCULAR  
ERROR PROBABILITY FOR AN INERTIAL GUIDANCE  
SYSTEM. (U)

FEB 69 114p ISOM, LARMON S. ;  
REPT. NO. RG-TR-60-2  
PROJ: DA-1-M-262301-A-204

UNCLASSIFIED REPORT  
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF  
COMMANDING GENERAL, ARMY MISSILE COMMAND,  
ATTN: AMSMI-RG, REDSTONE ARSENAL, ALA,  
35809.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), INERTIAL GUIDANCE), (\*CIRCULAR ERROR  
PROBABLE, PROGRAMMING(COMPUTERS)), MATHEMATICAL  
MODELS, MISS DISTANCE, GUIDED MISSILE TRAJECTORIES,  
ERRORS, IMPACT PREDICTION, FLOW CHARTING,  
SUBROUTINES (U)  
IDENTIFIERS: PERSHING, XMGM-31A MISSILES (U)

THIS REPORT DISCUSSES IN DETAIL A DIGITAL COMPUTER  
PROGRAM TO EVALUATE THE CIRCULAR ERROR PROBABILITY OF  
A WEAPON'S INERTIAL GUIDANCE SYSTEM. IT INCLUDES A  
DERIVATION OF EQUATIONS AND AN EXAMPLE OF A TYPICAL  
CIRCULAR ERROR PROBABILITY CASE STUDY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-851 173L 9/2 16/1 16/4.2  
PLANNING RESEARCH CORP LOS ANGELES CALIF  
STUDY OF PERSHING PLA COUNTDOWN PROGRAM  
11051812.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,  
APR 69 33p FERGUSON, J. D. ; FOSTER, R.

W. ;

REPT. NO. PRC-R-854

CONTRACT: DAAH01-68-C-2040

UNCLASSIFIED REPORT

DISTRIBUTION: CONTROLLED; ALL REQUESTS TO  
COMMANDING GENERAL, ARMY MATERIEL COMMAND,  
ATTN: AMCPM-PE-X, REDSTONE ARSENAL, ALA.  
35809.

DESCRIPTORS: (\*COMPUTER PROGRAMS, GUIDED MISSILE  
LAUNCHERS), (\*CHECKOUT PROCEDURES, COMPUTER  
PROGRAMS), SUBROUTINES, LAUNCHING, GUIDED  
MISSILES(SURFACE-TO-SURFACE), CHECKOUT EQUIPMENT,  
GROUND SUPPORT EQUIPMENT, LAUNCHING SITES,  
PROGRAMMING(COMPUTERS), ELECTROMAGNETIC  
COMPATIBILITY, RADIOFREQUENCY INTERFERENCE

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-848 096                    9/2                    17/7  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
LARGE-SCALE INTEGRATED CIRCUIT COMPUTER FOR  
COORDINATED TRANSMISSION, (U)  
AUG 68                    37p                    PENA, RAUL , JR;  
REPT. NO. RG-TR-68-12  
PROJ: DA-1X279191D678

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF  
COMMANDING GENERAL, ARMY MISSILE COMMAND,  
ATTN: AMSMI-RG, REDSTONE ARSENAL, ALA.  
35809.

DESCRIPTORS: (\*NAVIGATION COMPUTERS, \*DIGITAL  
DIFFERENTIAL ANALYZERS), (\*INERTIAL GUIDANCE,  
NAVIGATION COMPUTERS), GUIDED MISSILES(SURFACE-  
TO-SURFACE), ALGORITHMS, MATRIX ALGEBRA,  
TRANSFORMATIONS(MATHEMATICS), INTEGRATED  
CIRCUITS, FEASIBILITY STUDIES, LOGIC CIRCUITS,  
COMPUTER LOGIC (U)  
IDENTIFIERS: STRAPPED DOWN GUIDANCE SYSTEMS,  
PERSHING, PERSHING 2 MISSILES, XMGM-31A  
MISSILES, LARGE SCALE INTEGRATED CIRCUITS (U)

METHODS AND ALGORITHMS FOR NAVIGATION SYSTEMS WITH  
BODY-MOUNTED INERTIAL INSTRUMENTS HAVE BEEN STUDIED  
BY VARIOUS RESEARCH GROUPS THROUGHOUT THE COUNTRY,  
THE HIGH ITERATION RATES FOR COORDINATE  
TRANSFORMATION IN A PERSHING II MISSILE AND THE  
COMPLEXITY OF THE NAVIGATION SOLUTIONS MAKE A GENERAL  
PURPOSE COMPUTER OR SPECIAL PURPOSE COMPUTER  
UNFEASIBLE FOR THIS APPLICATION. A SCHEME TO USE A  
SMALL DIGITAL DIFFERENTIAL ANALYZER AS THE FRONT END  
OF A GENERAL PURPOSE NAVIGATION COMPUTER TO PERFORM  
THE COORDINATE TRANSFORMATION IS FEASIBLE, THIS  
REPORT DESCRIBES A UNIQUE MECHANIZATION OF A DIGITAL  
DIFFERENTIAL ANALYZER TO TRANSFORM THE OUTPUTS FROM  
INERTIAL INSTRUMENTS FROM A BODY-FIXED COORDINATE  
SYSTEM TO A STABILIZED COORDINATE SYSTEM, THE  
DESIGN IS SPECIALLY ADAPTABLE TO VARIOUS LEVELS OF  
LOGIC DENSITY USING LARGE-SCALE INTEGRATED CIRCUITS  
BECAUSE IT HAS FEW DIFFERENT LOGIC CIRCUITS USED  
REPEATEDLY AND PERFORMS SERIAL COMPUTATION THAT  
REQUIRES MINIMUM INPUT AND OUTPUT LEADS, UNIQUE  
FEATURES OF THE DIGITAL DIFFERENTIAL ANALYZER ARE  
THAT IT SOLVES A 3 X 3 DIRECTION COSINE MATRIX BY  
MERELY CIRCULATING DATA AROUND A PAIR OF REGISTERS  
AND ADDERS FOR EACH MATRIX ELEMENT AND USES A TWO-BIT  
ADDER TO ADD, SUBTRACT, AND MULTIPLY BY 2 TO THE NTH  
POWER. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-845 681L 16/4.2 15/5  
ARMY GENERAL EQUIPMENT TEST ACTIVITY FORT LEE VA  
SURFACE TRANSPORTABILITY TEST PORTION OF  
ENGINEERING AND SERVICE TEST OF PERSHING 1A  
MISSILE SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

OCT 68 48p FRANK, JOSEPH J. ;

PROJ: RDT/E-1-X-279191-D-678, USATECOM-23000427

TASK: 1-X-279191-D-67802

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DISTRIBUTION: DOD ONLY; OTHERS TO COMMANDING  
GENERAL, ARMY TEST AND EVALUATION COMMAND,  
ATTN: AMSTA-FA, ABERDEEN PROVING GROUND,  
MD. 21005.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), TRANSPORTATION), TRAILERS, RAILROAD  
CARS, CARGO SHIPS, MILITARY REQUIREMENTS,  
LOGISTICS, HANDLING, ATTACHMENT, HOISTS,  
METERS, MOUNTING BRACKETS, CABLES(MECHANICAL),  
CABLE ASSEMBLIES, TRANSPORTER-ERECTORS, TACTICAL  
WEAPONS (U)

IDENTIFIERS: PERSHING, M-757 TRUCKS,  
TRANSPORTABILITY, LOTS(LOGISTICS OVER THE  
SHORE), M-656 TRUCKS(5-TON), TIEDOWNS (U)

TESTS WERE CONDUCTED TO DETERMINE THE SUITABILITY  
OF THE PERSHING 1A MISSILE SYSTEM FOR SURFACE  
TRANSPORTABILITY BY HIGHWAY CARRIER, RAILCAR, SELF-  
PROPELLED, AND MARINE CRAFT (OCEAN AND INLAND  
WATERWAYS) AND LOGISTICS-OVER-THE-SHORE  
(LOTS) OPERATIONS. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-840 260 16/4,2 5/3  
PLANNING RESEARCH CORP LOS ANGELES CALIF  
STUDY OF FUTURE PROJECT MANAGEMENT OPTIONS FOR THE  
PERSHING PLA IPTC COUNTDOWN PROGRAM. (U)  
DESCRIPTIVE NOTE: TECHNICAL ADVISEMENT MEMO.,  
SEP 68 29p FOSTER, R. W. ;  
REPT. NO. 319-1, PRC-D-2031  
CONTRACT: DAAH01-68-C-2040

UNCLASSIFIED REPORT  
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF  
COMMANDING GENERAL, ARMY MISSILE COMMAND,  
ATTN: AMCPM-PE-ES, REDSTONE ARSENAL, ALA.  
35809.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), CHECKOUT PROCEDURES), (\*MANAGEMENT  
ENGINEERING, SCHEDULING), ANTITANK AMMUNITION,  
MANAGEMENT CONTROL SYSTEMS, MANAGEMENT PLANNING,  
PROGRAMMING(COMPUTERS), EFFECTIVENESS, COSTS (U)  
IDENTIFIERS: PERSHING, CONFIGURATION MANAGEMENT  
PROGRAM, PROGRAM DEVELOPMENT, XMGM-31A  
MISSILES (U)

THE TECHNICAL ADVISEMENT MEMORANDUM PRESENTS THE  
RESULTS OF MANAGEMENT EFFORTS IN STUDYING THE  
FOLLOWING TASK ACTIVITIES: REVIEW AND EVALUATE  
EFFECTIVENESS OF PRESENT CONTRACTOR METHODS FOR  
MANAGEMENT OF PROGRAM DEVELOPMENT; EVALUATE PRESENT  
METHODS FOR CONFIGURATION MANAGEMENT OF PERSHING  
SOFTWARE; EVALUATE PRESENT MANAGEMENT TECHNIQUES  
FOR TESTING PERSHING SOFTWARE; AND DEVELOP  
RECOMMENDATIONS FOR NEW TECHNIQUES FOR MANAGEMENT  
CONTROL OF PERSHING COMPUTER PROGRAMMING,  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-822 567L 20/6 16/4 14/2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
AN EVALUATION OF DRC'S 3000-COUNT DIRECT AXIS OPTICAL  
ENCODER, (U)  
SEP 67 28p HUNTER, JOE S. ;  
REPT. NO. RG-TR-67-25  
PROJ: DA-15222901D375

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DISTRIBUTION: USGO; OTHERS TO ARMY MISSILE  
COMMAND, ATTN: AMSMI-RG, REDSTONE ARSENAL,  
ALA. 35809.

DESCRIPTORS: (\*OPTICAL INSTRUMENTS, SENSITIVITY),  
(\*GUIDED MISSILE COMPONENTS, INERTIAL NAVIGATION),  
(\*DATA TRANSMISSION SYSTEMS, CODING), GUIDED  
MISSILES(SURFACE-TO-SURFACE), MOBILE, DIGITAL  
SYSTEMS, CONFIGURATION, DESIGN, SPECIFICATIONS,  
WEIGHT, ACCURACY, VOLTAGE,  
PERFORMANCE(ENGINEERING), SENSITIVITY,  
CALIBRATION, RETICLES, INTERFEROMETERS,  
COLLIMATORS, ACCELEROMETERS (U)  
IDENTIFIERS: \*ENCODERS, OPTICAL ENCODERS,  
PERSHING (U)

THE PURPOSE OF THIS REPORT IS TO PRESENT THE  
RESULTS OF AN EVALUATION CONDUCTED ON THE DYNAMICS  
RESEARCH CORPORATION (DRC) 3000-COUNT  
OPTICAL ENCODER. THE ENCODER WAS EVALUATED  
FOR LINEARITY, PHASING BETWEEN CHANNELS AND VOLTAGE  
SENSITIVITY. ALL TESTS WERE CONDUCTED USING A  
PRECISION LEITZ DIVIDING HEAD. AN  
AUTOCOLLIMATOR WAS USED TO INSURE MINIMUM ENCODER  
SHAFT 'RUNOUT.' THE MANUFACTURER'S LINEARITY  
SPECIFICATION OF + OR - 30 ARC SEC AND PHASING  
(OR COUNT-TO-COUNT ACCURACY) SPECIFICATION OF +  
OR - 25 ELECTRICAL DEG WERE VERIFIED. NO  
SPECIFICATION WAS GENERATED ON VOLTAGE SENSITIVITY.  
THE RESULTS OBTAINED IN THIS EVALUATION OFFER  
INFORMATION WHICH IS DIRECTLY APPLICABLE TO THE  
PERSHING AMAB-2 ACCELEROMETER PROGRAM.  
(AUTHOR) (U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-803 224 9/2 16/4,2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB  
DESIGN OF A DIGITAL INTERFACE CONTROL UNIT, (U)  
JUL 66 10P COPELAND, D. E. ; JONES, M.  
C. ;  
REPT. NO. RG-TR-64-21  
PROJ: DA-1X279191D678

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DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA, 35809,  
ATTN: AMSMI-RG.

DESCRIPTORS: (\*DIGITAL COMPUTERS, SURFACE  
PROPERTIES), (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
DIGITAL COMPUTERS), ADAPTERS,  
PROGRAMMING(COMPUTERS), INPUT-OUTPUT DEVICES,  
DESIGN, DATA STORAGE SYSTEMS, COMPUTER LOGIC,  
TACTICAL WEAPONS (U)  
IDENTIFIERS: PERSHING, OR GATES,  
PTS(PERSHING PROGRAMMER TEST STATION) (U)

THIS REPORT PRESENTS A DESCRIPTION OF THE DESIGN  
AND OPERATION OF A UNIT TO INTERFACE THE PRESENT  
PERSHING PROGRAMMER TEST STATION COMPUTER WITH THE  
NEWLY DEVELOPED IMPROVED PROGRAMMER TEST STATION  
ADAPTER. THE DESIGN PROVED FEASIBLE AND  
SATISFACTORILY OPERATED THE BREADBOARD MODEL. NO  
HARDWARE OR CONSTRUCTION PROBLEMS WERE EVIDENT.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-674 653 5/3 5/1  
ARMY MATERIEL COMMAND WASHINGTON D C SYSTEMS AND COST  
ANALYSIS DIV  
MACROBEHAVIOR OF DEVELOPMENT COSTS AND ESTIMATES  
(STEC PLOTS). (U)  
DESCRIPTIVE NOTE: TECHNICAL REPT.,  
SEP 68 28p SCHOW, HORACE, III;  
MONITOR: AMC TR-68-2

UNCLASSIFIED REPORT

DESCRIPTORS: (\*TANKS (COMBAT VEHICLES), COSTS),  
(\*HELICOPTERS, COSTS), (\*GUIDED  
MISSILES (SURFACE-TO-SURFACE), COSTS),  
(\*VEHICLES, COSTS), OPERATIONS RESEARCH,  
SYSTEMS ENGINEERING, WEAPON SYSTEMS, INTEGRATED  
SYSTEMS, MANAGEMENT PLANNING, BUDGETS, RESEARCH  
PROGRAM ADMINISTRATION, COST EFFECTIVENESS, ADVANCED  
PLANNING, CONTRACTS, INDUSTRIAL PRODUCTION,  
STATISTICAL ANALYSIS, PERFORMANCE (HUMAN) (U)  
IDENTIFIERS: M-56, TRUCKS (1-1/4-TON),  
SERGEANT, PERSHING, AH-56A AIRCRAFT,  
SHERIDAN TANKS, STEC (STUDY OF TRENDS AND  
ESCALATION OF COSTS), STEC PLOTS, H-56  
AIRCRAFT, AAFSS (ADVANCED AERIAL FIRE SUPPORT  
SYSTEM), ADVANCED AERIAL FIRE SUPPORT SYSTEMS,  
COST ANALYSIS, GRAPHS (CHARTS), XMTM-31B  
MISSILES, XMGM-29 MISSILES (U)

THIS REPORT PROVIDES THE MACROBEHAVIOR OF  
DEVELOPMENT COSTS AND ESTIMATES FOR THESE FIVE  
SYSTEMS: (1) PERSHING MISSILE SYSTEM; (2)  
SERGEANT MISSILE SYSTEM; (3) M561 (GAMA GOAT)  
TRUCK; (4) SHERIDAN VEHICLE; AND (5) ADVANCED  
AERIAL FIRE SUPPORT SYSTEM (AAFSS) (AH-  
56A). THE STEC PLOT IS DEVELOPED TO PRESENT  
THE NORMALIZED DEVELOPMENT DATA. A NEW RATE  
QUANTITATIVE MACROBEHAVIOR MEASURE, THE EFFICACY  
RATING, IS DEVELOPED TO DESCRIBE, NOT JUDGE, THE  
DEVELOPMENT PHASE OF A WEAPON SYSTEM.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-635 242 15/5 16/4 13/6  
ARMY TRANSPORTATION ENGINEERING AGENCY FORT EUSTIS VA  
PERSHING TRANSPORTABILITY STUDY, FOREIGN RAILWAYS,  
VOLUME III, (U)  
DESCRIPTIVE NOTE: ENGINEERING REPT.  
JUL 66 39p GRIER, JOHN H. ;  
REPT. NO. USATEA-46-11-VOL-3,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-635 242,

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
LOGISTICS), (\*RAILROAD CARS, GUIDED  
MISSILES(SURFACE-TO-SURFACE), (\*TRANSPORTATION,  
GUIDED MISSILES(SURFACE-TO-SURFACE)), BOOSTER  
MOTORS, RAILROADS, CONTAINERS, MOORING, SECOND-  
STAGE MOTORS, IMPACT TESTS, SHOCK(MECHANICS),  
VIBRATION, CHOCKS, HANDLING (U)  
IDENTIFIERS: PERSHING, M-475 CONTAINERS, M-476  
CONTAINERS (U)

FOREIGN RAILCARS WERE USED IN CONDUCTING RAIL  
IMPACT TESTS ON PERSHING MISSILE SYSTEM FIRST AND  
SECOND STAGE MOTOR CONTAINERS, XM 475 AND XM 476,  
DATA FROM THE TESTS WILL BE USED IN EVALUATING THE  
EFFECTS OF THE FOREIGN RAIL ENVIRONMENT ON THE  
CONTAINERS AND IN DETERMINING IF THE PROCEDURES USED  
IN RESTRAINING THE CONTAINERS FOR CONUS RAIL  
SHIPMENT WOULD BE APPLICABLE TO FOREIGN RAIL  
SHIPMENT. THE CONUS RAIL SHIPMENT RESTRAINING  
ARRANGEMENT EVALUATED DURING THIS STUDY WAS BASICALLY  
IN CONFORMANCE WITH PAGES 4 AND 9 OF SAVANNA ARMY  
DEPOT DRAWING NO. 5425. RESULTS OF THE STUDY  
SHOWED THAT THE CONTAINER SKID BOLTS DO NOT HAVE THE  
REQUIRED STRUCTURAL STRENGTH TO RESIST THE DYNAMIC  
LOADING IMPOSED BY RAIL IMPACTS, THE 1/2-INCH-  
DIAMETER BOLTS ATTACHING THE SKID TO THE CONTAINER  
EXPERIENCED SHEAR FAILURE AT IMPACT VELOCITIES OF 7  
MILES PER HOUR WHEN THE CONTAINER SKID WAS NOT  
ABUTTED FLUSH WITH THE FORKLIFT RECEPTACLE, THE  
RESULTS OF THE STUDY ALSO INDICATED THAT THE  
RESTRAINING ARRANGEMENT PROVIDING TRANSFER OF SHOCKS  
INTO THE FORKLIFT RECEPTACLE RATHER THAN TO THE  
CONTAINER SKIDS IS THE PREFERRED ARRANGEMENT,  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-635 240 15/5 16/4 13/6  
ARMY TRANSPORTATION ENGINEERING AGENCY FORT EUSTIS VA  
PERSHING TRANSPORTABILITY STUDY, CALCULATIONS AND  
ANALYSIS OF RAILWAY TESTS, VOLUME I, (U)  
DESCRIPTIVE NOTE: ENGINEERING REPT.  
JUL 66 29p GRIER, JOHN H. ;  
REPT. NO. USATEA-66-11-VOL-1,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-635 241.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
LOGISTICS), (\*RAILROAD CARS, GUIDED  
MISSILES(SURFACE-TO-SURFACE), (\*TRANSPORTATION,  
GUIDED MISSILES(SURFACE-TO-SURFACE),  
SHOCKS(MECHANICS), CONTAINERS, SECOND-STAGE  
MOTORS, RAILROADS, IMPACT TESTS, BOOSTER MOTORS,  
MOORING, LOADING(MECHANICS), CHOCKS, CARGO,  
VIBRATION, HANDLING (U)  
IDENTIFIERS: PERSHING, CONUS RAILWAYS, M-475  
CONTAINERS, M-476 CONTAINERS (U)

A STRESS ANALYSIS, BASED ON THE TEST LOADS IMPARTED  
TO THE XM 475 AND XM 476 CONTAINERS IN THE  
CONUS RAILWAY IMPACT TESTS, IS PRESENTED IN ORDER  
TO COMPARE THE STRUCTURAL ADEQUACY OF THE TWO  
DIFFERENT TYPES OF RESTRAINING ARRANGEMENTS EVALUATED  
IN THE TESTS. RESULTS OF THE STRESS ANALYSIS,  
WHICH CONFIRMED THE TEST RESULTS, DEMONSTRATE THAT  
THE RESTRAINING ARRANGEMENT USED ON THE XM 475  
CONTAINER IS STRUCTURALLY ADEQUATE AND MEETS THE  
REQUIREMENTS OF TB 55-100; WHEREAS, THE ARRANGEMENT  
USED ON THE XM 476 CONTAINER IS NOT STRUCTURALLY  
ADEQUATE AND DOES NOT MEET THE REQUIREMENTS.  
MATHEMATICAL ENERGY RELATIONSHIPS WERE COMPUTED AND  
USED AS A BASIS FOR COMPARING IMPACT LOADS TO THE  
CARGO IN THE CONUS AND FOREIGN RAILWAY TESTS.  
THE IMPACT CALCULATIONS VERIFY THE TEST RESULTS  
WHICH SHOW THAT RAILCAR IMPACT LOADS TO THE CARGO ARE  
MORE SEVERE FOR FOREIGN RAILCARS THAN FOR CONUS  
RAILCARS AT SIMILAR IMPACT VELOCITIES. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-607 324

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN, ONE-PIECE HIGH PERFORMANCE  
ROCKET MOTOR CASE. (U)

DESCRIPTIVE NOTE: GENERAL REPT. NO, 23 (FINAL), 1  
JAN-SEP 63,

SEP 64 12P MARTIN, WAYNE A. ;

CONTRACT: DA20 01RORD23004

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*DRAWING (MACHINE PROCESSING), ROCKET  
CASES) (\*ROCKET CASES, MANUFACTURING METHODS), (\*ROCKET  
MOTORS (SOLID PROPELLANT), ROCKET CASES), TOOLS, DIES,  
STEEL, NICKEL ALLOYS, COBALT ALLOYS, MOLYBDENUM ALLOYS,  
GRAIN STRUCTURES (METALLURGY), HEAT TREATMENT, TESTS,  
HYDROSTATICS, METAL FORMING PRESSES, MARAGING STEELS,  
MACHINING (U)  
IDENTIFIERS: PERSHING (U)

THE GENERAL OBJECTIVE OF THIS CONTRACT IS TO  
UTILIZE THE HOT CUP-COLD DEEP DRAW FABRICATION METHOD  
TO DEVELOP IMPROVED MONOLITHIC ROCKET MOTOR CASES FOR  
40'' (AND OVER) DIAMETER SOLID PROPELLANT  
ROCKETS. THE SPECIFIC GOALS ARE: 1. THE  
DEVELOPMENT OF RELIABLE MOTOR CASES WITH HOOP STRESS  
LIMITS SUBSTANTIALLY IN EXCESS OF 200, 000 PSI  
STEEL EQUIVALENT. 2. A CAPABILITY OF FABRICATION  
WITH REASONABLE EASE ON AN INDUSTRIAL SCALE. 3. A  
PRODUCIBILITY PROVEN BY RELIABILITY TESTS AT FINAL  
FULL SCALE. 4. THE OBJECTIVE IS TO BE  
ACCOMPLISHED UTILIZING THE PERSHING 2ND STAGE MOTOR  
CASE CONFIGURATION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-602 356

PICATINNY ARSENAL DOVER N J AMMUNITION ENGINEERING  
DIRECTORATE

XM15 RELIABILITY TEST EQUIPMENT PROGRAM CONNECTOR  
SWITCH TEST CONSOLE, (U)

JUN 64 116p MAGGIO, FRANK G. ; HALL, WILLIAM

N. ;

MONITOR: PA TM1438

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE.

DESCRIPTORS: (\*GUIDED MISSILE COMPONENTS, CHECKOUT  
EQUIPMENT), (\*ELECTRIC SWITCHES, TEST SETS), (\*TEST  
SETS, DESIGN), ELECTRIC CONNECTORS, RELIABILITY, TEST  
EQUIPMENT (ELECTRONICS), ELECTRIC INSULATION, RESISTANCE  
(ELECTRICAL), OHMMETERS, TIME INTERVAL COUNTERS, CONTROL  
PANELS, CALIBRATION, CHECKOUT PROCEDURES (U)  
IDENTIFIERS: PERSHING (U)

A CONNECTOR SWITCH TEST CONSOLE WAS DESIGNED TO  
PROVIDE QUALIFICATION TESTING OF THE SAFING AND  
ARMING, AND POWER DISCONNECT SWITCHES IN THE  
PERSHING MISSILE SYSTEM FOR THE RELIABILITY  
TEST PROGRAM. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-481 835 16/4.2 1777

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB

PRESSURE TEST: PERSHING GUIDANCE AND CONTROL AFT  
PRESSURE DOME, (U)

AUG 63 10P KANAAN, M. J.; HARGETT, J. A.

:

PROJ: DA-516-05-011

MONITOR: AMC-RA

RT-TM-63-51

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA,  
35809.

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TO-  
SURFACE), PRESSURE VESSELS), GUIDED MISSILE  
COMPONENTS, MOBILE, ARMY, TACTICAL WEAPONS,  
COMMAND + CONTROL SYSTEMS, INSTRUMENTATION,  
PRESSURIZATION, PERFORMANCE (ENGINEERING),  
STRUCTURAL PROPERTIES, DESIGN, CONSTRUCTION (U)

IDENTIFIERS: PERSHING, PRESSURE DOMES (U)

THIS REPORT DESCRIBES A SERIES OF TESTS PERFORMED  
ON A PROPOSED AFT PRESSURE DOME FOR THE PERSHING  
GUIDANCE AND CONTROL SECTION. TESTS WERE  
CONDUCTED TO DEMONSTRATE THE STRUCTURAL INTEGRITY OF  
AN EASILY REMOVABLE AFT PRESSURE DOME, (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-478 999 14/2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB  
PERSHING ALIGNMENT AMPLIFIER TESTS, (U)  
JAN 66 57P WHITE, H. V. ;  
PROJ: DA-1X279191D678  
MONITOR: AMC-RA RG-TR-66-2

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA, 35809.  
ATTN: AMSMI-RG.

DESCRIPTORS: (\*AMPLIFIERS, ALIGNMENT), TESTS,  
TEST EQUIPMENT(ELECTRONICS), GUIDED  
MISSILES(SURFACE-TO-SURFACE), TACTICAL WEAPONS (U)  
IDENTIFIERS: PERSHING (U)

THE NEWLY DESIGNED PERSHING ALIGNMENT AMPLIFIER,  
A UNIT OF THE IMPROVED PROGRAMMER TEST STATION, WAS  
SUBJECTED TO LABORATORY TESTS, BENCH, SYSTEM, AND  
INTEGRATOR CUTOFF TESTS WERE PERFORMED ON THE  
ENGINEERING MODEL. ADEQUATE PERFORMANCE WAS  
OBTAINED FROM THE BENCH AND SYSTEM TESTS. LESS  
SATISFACTORY RESULTS WERE OBTAINED FROM THE  
INTEGRATOR CUTOFF TEST. SIMILAR TESTING OF  
FORTHCOMING UNITS IS RECOMMENDED TO GAIN FURTHER  
CONFIDENCE IN THE NEW DESIGN SINCE ONLY ONE UNIT WAS  
AVAILABLE FOR TESTING AT THIS TIME. (AUTHOR) (U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-477 025 14/4 5/9  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GROUND SUPPORT  
EQUIPMENT LAB  
PERSHING MISSILE TRAINER WEAPON SYSTEM ENGINEERING  
EVALUATION TEST REQUIREMENTS, (U)  
JAN 63 33p EUBANKS, J. E., JR.; BRANTLEY,  
L. W., JR.; HAMMOND, K. J. ;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RL-TN-63-4

UNCLASSIFIED REPORT  
DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*RELIABILITY, \*GUIDED MISSILE  
SIMULATORS), GUIDED MISSILE COMPONENTS, ARMY,  
GUIDANCE, OPTIMIZATION, CONTROL SYSTEMS, MOBILE,  
ACCELEROMETERS, PERFORMANCE(ENGINEERING) (U)  
IDENTIFIERS: PERSHING (U)

THIS DOCUMENT DEFINES THE WEAPON SYSTEM  
EVALUATION TEST REQUIREMENTS WHICH WILL BE  
ACCOMPLISHED TO DETERMINE SATISFACTORY PERFORMANCE  
AND RELIABILITY OF COMPONENTS PROGRAMMED FOR BLOCK  
III TRAINER INSTALLATION. BLOCK III COMPONENTS  
AND/OR MODIFICATIONS WILL BE INCORPORATED WITH THE  
SYSTEMS OF GUIDED MISSILE TRAINER (GMT-P  
002). BLOCK II HYDRAULIC ACTUATOR SIMULATORS  
WILL BE UTILIZED DURING THE TEST AND REMAIN WITH THE  
TRAINER UPON COMPLETION. THE ORDER AND METHOD OF  
TESTING WILL BE UNDER THE DIRECTION OF ENGINEERING  
PERSONNEL OF THE GSE LAB; HOWEVER, IT WILL  
GENERALLY CONFORM TO THE FOLLOWING TEST OUTLINES.  
THE TRAINER WILL BE TESTED IN THE HORIZONTAL  
POSITION, THE SECTIONS WILL BE SEPARATED WITH THE USE  
OF SECTION EXTENDER CABLES, UNLESS OTHERWISE STATED,  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-475 956 16/2 16/3  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
PERSHING REENTRY BODY SPIN SYSTEM QUALIFICATION TEST, (U)  
FEB 63 96p BATSON, JAMES L. ;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RT-TM-62-60

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (+REENTRY VEHICLES, SPIN  
STABILIZATION), NOSE CONES, GUIDED  
MISSILES (SURFACE-TO-SURFACE), DISKS, RUPTURE,  
EXHAUST VALVES, GAS GENERATING SYSTEMS, EXPLOSIVES  
INITIATORS, IGNITERS, ATMOSPHERE ENTRY,  
MALFUNCTIONS, NOZZLES, TEST METHODS,  
ENVIRONMENTAL TESTS, SPACE ENVIRONMENTAL CONDITIONS,  
IGNITION, RELIABILITY, SPECIFICATIONS, NUCLEAR  
WARHEADS, TACTICAL WEAPONS, GUIDED MISSILE WARHEADS (U)  
IDENTIFIERS: PERSHING, SPIN SYSTEMS, M-30 (U)  
WARHEADS (U)

TESTS WERE CONDUCTED TO DETERMINE IF THE PERSHING  
REENTRY BODY SPIN SYSTEM WILL FUNCTION  
PROPERLY UNDER THE ANTICIPATED PERSHING  
ENVIRONMENTAL CONDITIONS. A TOTAL OF TWELVE BURST  
DISCS, THIRTY-SIX IGNITERS, AND TWENTY-THREE SPIN  
SYSTEMS WERE SUBJECTED TO ENVIRONMENTAL TREATMENTS  
AND TESTED AT REDSTONE ARSENAL, ALABAMA. THE  
BURST DISCS, IGNITERS, AND SPIN SYSTEMS QUALIFIED.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-475 954 16/1  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TEST PLAN FOR DROP TESTING THE ELECTRICAL SHOP OF THE  
PERSHING MISSILE SYSTEM, (U)  
APR 63 5p KANAAN ,M. J. ;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RT-TN-63-47

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*MAINTENANCE EQUIPMENT, DROP  
TESTING), CHECKOUT EQUIPMENT, ELECTRICAL EQUIPMENT,  
SHOCK(MECHANICS), MOBILE, MEASURING  
DEVICES(ELECTRICAL + ELECTRONIC), GUIDED  
MISSILES(SURFACE-TO-SURFACE), MECHANICAL PROPERTIES,  
ACCELEROMETERS, TRANSPORTATION (U)  
IDENTIFIERS: PERSHING (U)

THIS TEST PLAN DESCRIBES A METHOD OF TESTING THE  
FIELD MAINTENANCE ELECTRICAL SHOP OF THE  
PERSHING MISSILE SYSTEM TO SIMULATE CONDITIONS  
THAT ARE EXPECTED DURING TRANSPORTATION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-474 846 16/4.2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
ENGINEERING EVALUATION TESTS ON THE PERSHING GUIDED  
MISSILE TRAINER. (U)

DESCRIPTIVE NOTE: PHASE REPT. 23 JAN-26 MAR 63,  
OCT 63 41P GASSAWAY, JOHN F.; SMITH,  
BRIMAGE L. ;

PROJ: DA-516-05-011

MONITOR: AMC-RA RT-TM-63-45

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), TRAINING DEVICES), (\*GUIDED MISSILE  
SIMULATORS, \*TRAINING DEVICES), GUIDED MISSILE  
COMPUTERS, CONTROL SYSTEMS, ACCELEROMETERS,  
AMPLIFIERS, PERFORMANCE(ENGINEERING),  
ACCEPTABILITY, VOLTAGE, MEASUREMENT (U)

IDENTIFIERS: PERSHING (U)

DURING THE ENGINEERING EVALUATION TESTS, THE  
FOLLOWING BLOCK III TRAINER COMPONENTS WERE  
TESTED: CONTROL COMPUTER, GUIDANCE COMPUTER,  
STATIC INVERTERS, ST-120 PLATFORM SIMULATOR,  
ACCELEROMETER SIMULATOR, AND TYPE X WARHEAD  
PRESETTING. THESE TESTS WERE CONDUCTED TO VERIFY  
THAT CHANGED COMPONENTS OF THE PERSHING BALLISTIC  
GMT ARE CAPABLE OF SATISFACTORY PERFORMANCE,  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-474 822 16/3 16/4.2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
PERSHING WARHEAD SEPARATION (PAL) TEST, (U)  
MAR 64 34p LAWSON, HARVEL T. ;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RT-TM-64-11

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*GUIDED MISSILE WARHEADS,  
SEPARATION), TESTS, ELECTRIC CABLES, CORDAGE,  
DISCONNECT FITTINGS, PITCH(MOTION), YAW,  
RANGES(DISTANCE), ACCELERATION,  
STRAIN(MECHANICS), FORCE(MECHANICS),  
GUIDED MISSILES(SURFACE-TO-SURFACE),  
PERFORMANCE(ENGINEERING), EXPERIMENTAL DATA (U)  
IDENTIFIERS: PERSHING (U)

THIS REPORT SUMMARIZES THE RESULTS OF A SERIES OF  
PERSHING WARHEAD SEPARATION TESTS. THESE  
TESTS WERE CONDUCTED TO ESTABLISH A BASIS FOR  
COMPARING THE NEWLY DESIGNED PAL CABLE SYSTEM WITH  
THE TACTICAL GUIDANCE AND CONTROL SECTION TO WARHEAD  
CABLES. THE GUIDANCE AND CONTROL SECTION AND THE  
WARHEAD FROM MISSILE 303 WERE UTILIZED FOR THE  
TESTS. THESE COMPONENTS WERE MOUNTED HORIZONTALLY  
IN A SPECIAL TEST FIXTURE WHICH ALLOWED THE WARHEAD  
TO ACCELERATE DOWN A FIXED TRACK UPON SEPARATION. A  
TOTAL OF SEVEN SEPARATION TESTS WERE CONDUCTED;  
THESE TESTS INCLUDED A SERIES OF THREE WITH THE PAL  
SYSTEM, THREE WITH THE TACTICAL SYSTEM, AND ONE WITH  
NO INTERCONNECTING CABLES TO ISOLATE ERRORS INDUCED  
BY SIMULATED TEST CONDITIONS. THE TEST DATA  
INDICATE ADVANTAGES OF THE PAL SYSTEM OVER THE  
TACTICAL GUIDANCE AND CONTROL SECTION TO WARHEAD  
CABLES AND CONNECTORS. (AUTHOR) (U)

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-473 972

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
MARRIAGE OF PERSHING GUIDED MISSILE TRAINER (GMT-P-  
002) XM19 WITH ARTILLERY SET NO. 1. (U)

DESCRIPTIVE NOTE: PHASE REPT.,

FEB 63 87p GASSAWAY, JOHN F.; SMITH,  
BRIMAGE L. ;

REPT. NO. RT-TN-63-50

PROJ: DA-516-05-011

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
\*GROUND SUPPORT EQUIPMENT), ARTILLERY,  
COMPATIBILITY, TRAINING DEVICES, GUIDED MISSILE  
COMPONENTS, PERFORMANCE(ENGINEERING), TABLES (U)

IDENTIFIERS: PERSHING (U)

THE PURPOSE OF THE MARRIAGE TESTS IS THREE-  
FOLD: (1) TO DETERMINE IF THE PERSHING GUIDED  
MISSILE TRAINER XM19 IS COMPATIBLE WITH THE  
UNITS OF GROUND SUPPORT EQUIPMENT, (2) TO  
DETERMINE THE VALIDITY OF THE DATA TAKEN WITH THE  
TEST CONSOLE DURING ENVIRONMENTAL TESTING, AND (3)  
TO RESOLVE ANY INCOMPATIBILITIES AND THEREBY PERMIT  
AMICOM PERSONNEL OF THE GROUND SUPPORT  
EQUIPMENT LABORATORY TO UTILIZE ARTILLERY SET  
NO. 1 TO VERIFY OPERATION OF GMT-P-002 DURING THE  
ENGINEERING EVALUATION TESTS OF BLOCK III  
COMPONENTS. THIS PHASE REPORT COVERS  
REFURBISHMENT, MODIFICATIONS TO AND SHIPMENT OF THE  
TRAINER, AT REDSTONE ARSENAL, ALSO, RECEIVING,  
CONSOLE EVALUATION, AND THE MARRIAGE TEST PROGRAM  
AT MARTIN/ORLANDO. SUBSEQUENT PHASE REPORTS  
WILL COVER THE REMAINING TESTS AT THE MARTIN  
COMPANY. (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-473 970

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB

TEST PLAN FOR RAILROAD HUMPING THE ELECTRICAL AND  
REPAIR PARTS SHOPS OF PERSHING MISSILE SYSTEM, (U)

FEB 63 7p KANAAN, M. J.; BATSON, J. L.

:

REPT. NO. RT-TN-63-38

PROJ: DA-516-05-011

UNCLASSIFIED REPORT

NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TO-SURFACE),  
\*MAINTENANCE EQUIPMENT), (\*GROUND SUPPORT EQUIPMENT,  
GUIDED MISSILES), RAILROAD CARS, TRANSPORTATION,  
TEST METHODS, IMPACT SHOCK, MAINTENANCE, SPARE  
PARTS, ELECTRICAL EQUIPMENT, INSTRUMENTATION (U)  
IDENTIFIERS: PERSHING, TRANSPORTABILITY (U)

THIS TEST PLAN DESCRIBES A METHOD OF TESTING THE  
FIELD MAINTENANCE ELECTRICAL SHOP AND THE REPAIR  
PARTS SHOP OF THE PERSHING WEAPON SYSTEM UNDER  
THE CONDITIONS THAT ARE EXPECTED DURING RAIL  
TRANSPORTATION. THE TEST WILL BE CONDUCTED AT  
REDSTONE ARSENAL BY TEST AND EVALUATION  
LABORATORY, DIRECTORATE OF RESEARCH AND  
DEVELOPMENT, U. S. ARMY MISSILE COMMAND,  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 750

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
PERSHING QUALITY REPORT NUMBER 11 FOR APRIL  
1960.

(U)

JUN 60 93p

REPT. NO. ABMA-DRR-TM-26-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TO-SURFACE),  
QUALITY CONTROL), GUIDED MISSILE COMPONENTS,  
RELIABILITY, VISUAL INSPECTION, DATA,  
ANALYSIS

(U)

IDENTIFIERS: PERSHING

(U)

THIS IS THE ELEVENTH MONTHLY QUALITY REPORT FOR THE  
PERSHING WEAPON SYSTEM AND ITS PURPOSE IS TO  
PRESENT MANAGEMENT WITH A GENERAL PICTURE OF THE  
OVERALL QUALITY OF THE PWS AS REFLECTED FROM  
INSPECTION AND TEST RESULTS SUBMITTED TO THE  
ANALYSIS AND QUALITY ENGINEERING SECTION,  
RELIABILITY BRANCH, SYSTEMS ANALYSIS AND  
RELIABILITY LABORATORY BY THE MARTIN COMPANY.  
(AUTHOR)

(U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 748

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
ABMA REQUIREMENTS FOR ORDNANCE INSPECTION PERSHING  
GUIDANCE AND CONTROL SYSTEM BENDIX CORPORATION,  
ECLIPSE-PIONEER DIVISION, (U)

JUN 60 7P JONES, B. F.; HARRELL,

WILLIAM B. ;

REPT. NO. ABMA-DRR-TM-21-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*CONTROL SYSTEMS, GUIDED  
MISSILES(SURFACE-TO-SURFACE)), (\*GUIDANCE, CONTROL  
SYSTEMS), QUALITY CONTROL, GUIDED MISSILE COMPONENTS (U)  
IDENTIFIERS: PERSHING (U)

REQUIREMENTS FOR ORDNANCE INSPECTION DURING THE  
DEVELOPMENT OF THE PERSHING GUIDANCE AND CONTROL  
SYSTEM.

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 746

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
PERSHING MISSILE SYSTEM PREFLIGHT CERTIFICATION TEST  
RESULTS LEV-3 MOD. II AUTO-PILOT, (U)

FEB 60 24p LIDE, WILTON C. , JR.;

REPT. NO. ABMA-DG-TM-6-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
AUTOMATIC PILOTS), (\*AUTOMATIC PILOTS,  
PERFORMANCE(ENGINEERING), ATTITUDE CONTROL SYSTEMS,  
ENVIRONMENTAL TESTS, TEMPERATURE, VIBRATION,  
ROLL, YAW, PITCH(MOTION), CAPTIVE TESTS,  
SHOCK(MECHANICS), ACCELERATION, GYROSCOPES,  
ACCEPTABILITY, ACCELEROMETERS, TELEMETERING DATA,  
AZIMUTH, DESIGN (U)

IDENTIFIERS: PERSHING (U)

THE TESTS AND RESULTS PRESENTED IN THIS REPORT ARE  
TO ESTABLISH THAT THE LEV-3 MOD. II AUTO-  
PILOT WILL FUNCTION PROPERLY UNDER THE ANTICIPATED  
PERSHING R+D ENVIRONMENTAL CONDITIONS. THE  
LEV-3, MOD. II AUTO-PILOT IS AN ATTITUDE  
REFERENCE SYSTEM, CONSISTING OF A PITCH GYRO, A YAW-  
ROLL GYRO, A PITCH PROGRAM TRANSMISSION, AN  
INTEGRATING GYRO ACCELEROMETER TO PROVIDE TELEMETRY  
DATA OF MISSILE VELOCITY AND AN OPTICAL PRISM FOR  
AZIMUTH ALIGNMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-469 068

MARTIN CO ORLANDO FLA

MICROLOGIC ELEMENTS, FAIRCHILD SEMICONDUCTOR CORP,  
BUFFER, HALF SHIFT, COUNTER, GATE AND HALF ADDER, (U)

DESCRIPTIVE NOTE: PERSHING EVALUATION TEST REPT.

JUN 64 99p

REPT. NO. OR-5944

CONTRACT: DAO1 009ORD1001

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*GUIDED MISSILE COMPUTERS, ELECTRONIC  
EQUIPMENT), (\*COMPUTER LOGIC, NON-DESTRUCTIVE  
TESTING), CIRCUITS,  
MICROMINIATURIZATION(ELECTRONICS),  
GATES(CIRCUITS), INPUT-OUTPUT DEVICES, PULSE  
COUNTERS, COUPLING CIRCUITS, GUIDED

MISSILES(SURFACE-TO-SURFACE), TACTICAL WEAPONS (U)

IDENTIFIERS: PERSHING (U)

THE MICROLOGIC ELEMENTS TESTED WERE THE FOLLOWING:  
BUFFERS, GATES, HALF ADDERS, COUNTERS, AND  
SHIFT REGISTERS. TESTS WERE PERFORMED TO  
DETERMINE IF THE ELEMENTS MEET THE REQUIREMENTS OF  
THE PERSHING WEAPON SYSTEM AS SPECIFIED ON THE  
ORDNANCE DRAWINGS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-468 281

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
COMPARISON OF UPPER-AIR CONDITIONS OVER WSMR, UTAH,  
AND GERMANY, (U)

JUN 65 30P DUDEL, HELMUT P. ;

REPT. NO. RR-TR-65-9

PROJ: DA-1-X-279191-D-678

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*CLIMATOLOGY, HIGH ALTITUDE), NEW  
MEXICO, UTAH, WEST GERMANY, ATMOSPHERIC  
TEMPERATURE, DENSITY, WIND, PERIODIC VARIATIONS,  
STATISTICAL DATA, RADIOSONDES, GUIDED  
MISSILES (SURFACE-TO-SURFACE), METEOROLOGICAL  
PARAMETERS, LOW ALTITUDE, DATA, TABLES (U)

IDENTIFIERS: PERSHING (U)

DATA ARE PRESENTED WHICH SHOW THE DIFFERENCES  
BETWEEN UPPER-AIR CONDITIONS OVER WSMR, UTAH,  
SOUTHERN GERMANY, AND NORTHERN GERMANY,  
UPPERAIR PARAMETERS DISCUSSED ARE: MEAN  
TEMPERATURE, MEAN DENSITY, DENSITY VARIABILITY  
(ONE-SIGMA VALUES), MEAN SCALAR WIND SPEED, AND  
MOST FREQUENT WIND DIRECTION. TWO KINDS OF  
GRAPHICAL PRESENTATIONS ARE USED: VERTICAL PROFILES  
FOR SUMMER AND WINTER IN THE ALTITUDE INTERVAL  
SURFACE TO 25 KM ABOVE MEAN SEA LEVEL, AND CURVES OF  
MONTH-TO-MONTH VARIATION FOR SELECTED ALTITUDE  
LEVELS. (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-463 910L

PICATINNY ARSENAL DOVER N J FELTMAN RESEARCH LABS  
EFFECTS OF IMPULSIVE LOADING ON REENTRY  
VEHICLES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
JUN 65 93P ROSENDORF, LAWRENCE ;  
MONITOR: PA TR-3227

UNCLASSIFIED REPORT

NOTICE: RELEASE ONLY TO U. S. GOVERNMENT AGENCIES  
IS AUTHORIZED. OTHER CERTIFIED RE-QUESTERS SHALL OBTAIN  
RELEASE APPROVAL FROM TECHNICAL INFORMATION BRANCH,  
PICATINNY ARSENAL, DOVER, N. J.

SUPPLEMENTARY NOTE: REPORT ON OPERATION SNOWBALL -  
PROJECT 1.5.

DESCRIPTORS: (\*REENTRY VEHICLES, BLAST), (\*NOSE CONES,  
BLAST), PRESSURE, EXPLOSION EFFECTS, RANGES (DISTANCE),  
CYLINDRICAL BODIES, CONICAL BODIES, STRAIN (MECHANICS),  
MODEL TESTS, LOADING (MECHANICS), VULNERABILITY,  
COMPOSITE MATERIALS, PHENOLIC PLASTICS, ALUMINUM,  
HEMISPHERICAL SHELLS, EXPERIMENTAL DATA, GRAPHICS,  
PHOTOGRAPHS, ANTIMISSILE DEFENSE SYSTEMS, EXPLOSIONS (U)  
IDENTIFIERS: SNOWBALL OPERATION, PERSHING (U)

THE FINAL RESULTS ARE PRESENTED OF PROJECT 1.5 OF  
OPERATION SNOWBALL. TWENTY-ONE SIMPLE SHELL  
MODELS (CONES AND CYLINDERS), POSITIONED AT  
DISTANCES VARYING FROM 320 TO 980 FEET FROM GROUND  
ZERO, WITH SIDE-ON AND HEAD-ON ORIENTATIONS, WERE  
SUBJECTED TO A 500-TON TNT EXPLOSION ON 17 JULY  
1964. THRESHOLD DAMAGE OCCURRED AT ABOUT HALF THE  
PREDICTED PRESSURES FOR CYLINDERS AND AT ABOUT .65 OF  
PREDICTED VALUES FOR CONES. THE HEAD-ON MODELS  
WITHSTOOD ABOUT TWICE AS MUCH PRESSURE AS THE SIDE-ON  
ONES. RUPTURE OCCURRED AT ABOUT 3 TIMES THE  
EXPERIMENTALLY DETERMINED THRESHOLD DAMAGE PRESSURE  
FOR THE CYLINDERS, AND AT ABOUT 1.65 TIMES THE  
EXPERIMENTALLY DETERMINED THRESHOLD DAMAGE PRESSURE  
FOR THE CONES. FORTY CHANNELS OF INSTRUMENTATION  
WERE PROVIDED FOR THE TEST, 20 OF REFLECTED PRESSURE  
AND 20 OF STRAIN. GOOD PRESSURE-TIME RECORDS WERE  
OBTAINED FOR BOTH HEAD-ON AND SIDE-ON CYLINDERS,  
(AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-460 620L

SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF AUTOMOTIVE RESEARCH

DEVELOPMENT OF A PROTOTYPE SELF-CLEANING FILTER FOR THE PERSHING MISSILE POWER STATION GAS TURBINE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,

DEC 64 49p MERIWETHER, ROSS F. ;

REPT. NO. AR-557

CONTRACT: DA44 009ENG5245

PROJ: 11 1240

UNCLASSIFIED REPORT

NOTICE: RELEASE ONLY TO U. S. GOVERNMENT AGENCIES IS AUTHORIZED. OTHER CERTIFIED REQUESTERS SHALL OBTAIN RELEASE APPROVAL FROM ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS., FORT BELVOIR, VA. 22060.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*LAUNCHING SITES, POWER SUPPLIES), (\*POWER SUPPLIES, GAS TURBINES), (\*GAS TURBINES, FILTERS (FLUID)), (\*FILTERS (FLUID), AIR), DESIGN, OPERATION, FEASIBILITY STUDIES, TURBINES, DUST, EROSION, REDUCTION, EFFECTIVENESS, CLEANING, AUTOMATIC, MAINTENANCE, LIFE EXPECTANCY, MECHANICAL DRAWINGS, PRESSURE, VALVES, ACTUATORS, COTTON TEXTILES, GLASS TEXTILES, PENETRATION, PARTICLES, DACRON, REINFORCING MATERIALS, GUIDED MISSILES (SURFACE-TO-SURFACE) (U)

IDENTIFIERS: LEAKS (FLUIDS), PERSHING (U)

RECENT FIELD RESULTS AND LABORATORY EXPERIMENTS WITH GAS TURBINE ENGINES IN DUST ENVIRONMENTS HAVE CALLED ATTENTION TO THE NECESSITY OF PROVIDING ADEQUATE PROTECTION FOR THE TURBINE FROM THE INGESTION OF AIRBORNE DUST. A SERIES OF TESTS WITH THE GAS TURBINE ENGINE FROM THE PERSHING MISSILE POWER STATION DEMONSTRATED THAT WITHOUT PROTECTION THE PERSHING TURBINE WOULD BE DESTROYED (I.E., CAPABLE OF PRODUCING ONLY 19 PERCENT OF ITS ORIGINAL POWER) IN ONLY 90 HOURS OF OPERATION IN EVEN A LIGHT DUST CONCENTRATION (0.8 MILLIGRAMS OF DUST PER CUBIC FOOT OF INLET AIR). THE OBJECTIVE OF THIS PROGRAM HAS BEEN TO DEVELOP A CONCEPT FOR A SELF-CLEANING AIR FILTER SYSTEM FOR SPECIFIC APPLICATION TO THE PERSHING MISSILE POWER STATION TURBINE ENGINE. THE LOGISTIC DESIRABILITY OF A SELF-CLEANING FILTER IS APPARENT, BUT IN THIS PARTICULAR APPLICATION IT IS VIRTUALLY A NECESSITY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-460 576L

SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF AUTOMOTIVE RESEARCH

DEVELOPMENT OF A PROTOTYPE SELF-CLEANING FILTER FOR THE PERSHING MISSILE POWER STATION GAS TURBINE, PHASE II. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

OCT 64 1V MERIWETHER, ROSS F. ;

REPT. NO. AR-549

CONTRACT: DA44 009ENG5245

PROJ: 11-1240

UNCLASSIFIED REPORT

NOTICE: RELEASE ONLY TO U. S. GOVERNMENT AGENCIES IS AUTHORIZED. OTHER CERTIFIED REQUESTERS SHALL OBTAIN RELEASE APPROVAL FROM ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS, FORT BELVOIR, VA.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*LAUNCHING SITES, POWER SUPPLIES), (\*POWER SUPPLIES, GAS TURBINES), (\*GAS TURBINES, FILTERS (FLUID)), (\*FILTERS (FLUID), AIR), DESIGN, FEASIBILITY STUDIES, CLEANING, AUTOMATIC, MECHANICAL DRAWINGS, OPERATION, CONTROL, DRIVES, CONTAMINATION, DUST, SEALS (STOPPERS), RUBBER, SYNTHETIC RUBBER, HALOCARBON PLASTICS, MAINTENANCE, GUIDED MISSILES (SURFACE-TO-SURFACE) (U)

IDENTIFIERS: PERSHING, NEOPRENE, TEFLON (U)

THE SUSCEPTIBILITY OF GAS TURBINE ENGINES TO THE INGESTION OF EVEN LIGHT CONCENTRATIONS OF AIRBORNE DUST WAS DEMONSTRATED BY A SERIES OF RECENT TESTS AT SOUTHWEST RESEARCH INSTITUTE. THESE TESTS REVEALED THE NEED FOR AN AIR FILTER FOR THE PERSHING SUPPORT TURBINE, AND LOGISTIC CONSIDERATIONS DICTATED THAT THE AIR FILTER BE SELF-CLEANING. THE FIRST PHASE OF THIS SELF-CLEANING AIR FILTER DESIGN AND DEVELOPMENT PROGRAM WAS DEVOTED TO ESTABLISHING THE BEST COMMERCIALY AVAILABLE FILTER MEDIUM UNDER THE SPECIFIED DUST CONDITIONS. THE SECOND PHASE OF THE PROGRAM WAS THE ACTUAL DESIGN AND FABRICATION OF THE SELF-CLEANING AIR FILTER SYSTEM, AND THE RESULT IS REPORTED HEREIN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 934

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
THERMAL DIFFUSIVITY OF SOLID PROPELLANTS-DEVELOPMENT  
OF APPARATUS AND INITIAL TEST RESULTS. (U)  
DESCRIPTIVE NOTE: PROGRESS REPT, NO. 8, NOV 63-FEB 64,

MAR 64 30p TANGER, G. E. ;  
CONTRACT: DA01 0090RD1023

UNCLASSIFIED REPORT

DESCRIPTORS: (\*PROPELLANT GRAINS, THERMAL DIFFUSION),  
MEASUREMENT, THERMAL CONDUCTIVITY, TEST EQUIPMENT, HEAT  
TRANSFER, TEST METHODS, CALIBRATION, LABORATORY  
EQUIPMENT, DENSITY, SPECIFIC HEAT, EXPERIMENTAL DATA,  
MATHEMATICAL ANALYSIS, DESIGN (U)  
IDENTIFIERS: PERSHING (U)

RESULTS OF RECENT TESTS ON THE THERMAL CONDUCTIVITY  
OF PERSHING PROPELLANT ARE INCLUDED IN THE REPORT.  
THESE TESTS WERE PERFORMED AT THE PROPULSION  
LABORATORY OF THE ARMY MISSILE COMMAND,  
HUNTSVILLE, ALABAMA. A TRANSIENT HEAT TRANSFER  
SYSTEM HAS BEEN CONSTRUCTED AND TESTED IN AN ATTEMPT  
TO DETERMINE THE THERMAL DIFFUSIVITY OF SOLID  
PROPELLANT. DETAILS ON THE CONSTRUCTION AND  
CALIBRATION OF THE APPARATUS ARE GIVEN IN THE REPORT.  
ALSO, THERMAL CONDUCTIVITY HAS BEEN DETERMINED FOR  
AN INERT PROPELLANT SAMPLE BY THE LINE-SOURCE AND  
STEADYSTATE METHODS USED PREVIOUSLY. THE DENSITY  
OF THE SPECIMEN WAS MEASURED AND THE SPECIFIC HEAT  
WAS CALCULATED IN ORDER TO PROVIDE A COMPLETE THERMAL  
ANALYSIS. DERIVATION OF A SERIES SOLUTION FOR THE  
PROBLEM OF TRANSIENT HEAT FLOW IN A SEMI-INFINITE  
SOLID IS GIVEN IN AN APPENDIX. THE EQUATIONS ARE  
PROGRAMMED SO AS TO OBTAIN A TRIAL-AND-ERROR SOLUTION  
FOR THE THERMAL DIFFUSIVITY. (AUTHOR) (U)

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021492



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 891

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
FORCED CONVECTION HEAT TRANSFER AND PROPELLANT  
THERMAL PROPERTIES FOR THE PERSHING MISSILE  
SYSTEM.

(U)

DESCRIPTIVE NOTE: PROGRESS REPT. NO. 7, AUG-OCT 63,  
DEC 63 62P TANGER, G. E.; NIX, G. H.  
; CARPENTER, A. D. ;

CONTRACT: DA01 009ORD1023

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*PROPELLANT GRAINS, THERMAL PROPERTIES),  
HEAT TRANSFER, THERMAL DIFFUSION, TEST METHODS, TEST  
EQUIPMENT, MEASUREMENT, THERMAL CONDUCTIVITY, SILICONE  
PLASTICS, SYNTHETIC RUBBER

(U)

IDENTIFIERS: PERSHING

(U)

A STUDY HAS BEEN INITIATED TO DEVELOP RAPID  
EXPERIMENTAL PROCEDURES FOR MEASURING THERMAL  
DIFFUSIVITY. A LITERATURE SURVEY IS PRESENTED OF  
METHODS WHICH HAVE BEEN DEVELOPED, ALONG WITH A  
DISCUSSION OF THE VARIOUS FACTORS TO BE CONSIDERED IN  
THE MEASUREMENT OF THERMAL DIFFUSIVITY. WORK HAS  
CONTINUED ON THE EXPERIMENTAL MEASUREMENT OF THERMAL  
CONDUCTIVITY. RESULTS OBTAINED FROM THE LINE-  
SOURCE METHOD AGREE WITH AVAILABLE COMPARISON VALUES.  
A NUMBER OF MODIFICATIONS HAVE BEEN MADE ON THE  
APPARATUS AND ARE DISCUSSED IN THE REPORT. FOR  
CROSS-CHECK PURPOSES, A STEADYSTATE APPARATUS HAS  
BEEN DEVELOPED AT THIS FACILITY AND TESTS HAVE BEEN  
CONDUCTED ON INERT PROPELLANT AND SILICONE RUBBER.  
A COMPARISON IS MADE OF THE RESULTS OBTAINED BY THE  
TWO DIFFERENT METHODS. AN APPARATUS WAS DEVELOPED  
FOR STUDY OF FORCED CONVECTION HEAT TRANSFER FROM  
CIRCULAR CYLINDERS. THE APPARATUS INCLUDED AN  
ELECTRICALLY HEATED CYLINDER WITH LONGITUDINAL  
ELECTRICALLY HEATED TEST SECTION AND WIND TUNNEL.  
EMPHASIS OF THE FORCED CONVECTION STUDY HAS BEEN  
PLACED ON AN EXTENSION OF THE PRESENT CORRELATION  
CURVE. HEAT TRANSFER MEASUREMENTS WERE MADE FOR  
 $140,000 < OR = RE < OR = 435,000$ . A NEW  
EQUATION WAS WRITTEN FOR THE INCREASED RANGE. THE  
DATA CORRELATION WAS THUS EXTENDED FROM  $RE=250,000$   
TO  $RE=435,000$ . (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 883

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
THE EFFECTS OF WEATHER CONDITIONS ON THE PERSHING  
MOTOR. (U)

DESCRIPTIVE NOTE: PROGRESS REPT, No. 2, MAY-JUL 62,  
AUG 62 16p TANGER, G. E. ; WEIR, R. C. ;  
CARPENTER, A. D. ;  
CONTRACT: DA01 0090RD1023

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET MOTORS (SOLID PROPELLANT), COLD  
WEATHER TESTS), (\*BLANKETS, HEATING ELEMENTS),  
PROGRAMMING (COMPUTERS), GUIDED MISSILES (SURFACE-TO-  
SURFACE), POWER SUPPLIES, HEAT TRANSFER, HEAT TRANSFER  
COEFFICIENTS, WIND, METEOROLOGICAL PARAMETERS, TABLES,  
ATMOSPHERIC TEMPERATURE, HUMIDITY, CLOUD COVER, DEW  
POINT, ATMOSPHERIC PRECIPITATION, SURFACE TEMPERATURES,  
LOW-TEMPERATURE RESEARCH, GRAPHICS (U)  
IDENTIFIERS: PERSHING (U)

THE COMPUTER PROGRAM HAS BEEN MODIFIED TO INCLUDE  
THE BLANKET THAT IS USED TO MAINTAIN ENVIRONMENT  
CONDITIONS OF THE MOTOR. THE PROGRAM TAKES INTO  
ACCOUNT THAT THE BLANKET IS A HEAT SOURCE. A POWER  
FAILURE CAN BE SIMULATED IN THE PROGRAM. ALSO, THE  
OUTSIDE FILM COEFFICIENT HAS BEEN MADE A FUNCTION OF  
WIND VELOCITY. DATA HAVE BEEN OBTAINED FROM 18  
DIFFERENT WEATHER STATIONS IN THE CONTINENTAL  
UNITED STATES AND ALASKA. THESE DATA WERE  
SELECTED BY THE WEATHER CONSULTANTS AT THE CLIMATIC  
CENTER AS BEING REPRESENTATIVE OF LOW TEMPERATURES  
AND HIGH WIND VELOCITIES, ALONG WITH SOME RAPID  
VARIATION OF TEMPERATURE. THIS REPORT PRESENTS  
SOME PRELIMINARY RESULTS OBTAINED FROM THE MODIFIED  
COMPUTER PROGRAM AND PART OF THE DATA OBTAINED FROM  
THE AIR CLIMATIC CENTER. THE REPORT ALSO  
INCLUDES A TABULATION OF THE WEATHER DATA BY  
LOCATION, PERIOD COVERED AND REASON FOR SELECTION BY  
THE AIR CLIMATIC CENTER. (AUTHOR) (U)

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-445 888

THIOKOL CHEMICAL CORP HUNTSVILLE ALA

NOZZLE AND CASE EVALUATION. (U)

DESCRIPTIVE NOTE: QUARTERLY INTERIM TECHNICAL REPT., 22

MAR21 JUNE 64.

AUG 64 11P

REPT. NO. 30 64

CONTRACT: DA01 021ORD11919

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET CASES, HYDROSTATIC PRESSURE),  
(\*NOZZLE INSERTS, PREPARATION), STEEL, FILAMENT WOUND  
CONSTRUCTION, TAPE, TITANIUM COMPOUNDS, BORON COMPOUNDS,  
NITRIDES, COLD WORKING, MARAGING STEEL, ROCKET MOTORS  
(SOLID PROPELLANT), SECOND-STAGE MOTORS (U)

IDENTIFIERS: SPIRAL-WRAP CONSTRUCTION, PERSHING (U)

THE OBJECTIVE OF THIS PROGRAM IS TO EVALUATE  
EXPERIMENTAL ROCKET MOTOR CASES AND NOZZLES. THIS  
REPORT DESCRIBES THE HYDROTESTING OF A 20-INCH  
DIAMETER, SPIRAL-WRAPPED, MAR-AGED STRIP STEEL MOTOR  
CASE. THE REPORT ALSO DESCRIBES THE PREPARATIONS  
BEING CONDUCTED FOR HYDROTESTING TWO 12-INCH  
DIAMETER, CRYOGENICALLY FORMED MOTOR CASES AND A  
SECOND-STAGE PERSHING MOTOR CASE MANUFACTURED BY  
THE HOT-CUP, COLDDRAW PROCESS. ALSO REPORTED ARE  
THE PREPARATIONS FOR STATIC TESTING A 2-INCH DIAMETER  
TITANIUM BORONITRIDE NOZZLE THROAT INSERT.

(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-440 343

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB

THE IMPORTANCE OF AERODYNAMIC ANGLE OF ATTACK METERS  
IN MISSILE SYSTEMS, (U)

AUG 63 20p LACKNER, HELMUT G. ;

REPT. NO. RR-TM-63-1

PROJ: DA-3-A-9927015

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ANGLE OF ATTACK, TEST EQUIPMENT), GUIDED  
MISSILE TRAJECTORIES, DRAG, WIND, VELOCITY, STABILIZED  
PLATFORMS, ATTITUDE CONTROL SYSTEMS, EQUATIONS, LIFT,  
MEASUREMENT, INSTRUMENTATION, HIGH ALTITUDE,  
TRANSDUCERS, PRESSURE, ATMOSPHERE, AERODYNAMIC  
CHARACTERISTICS, FLIGHT, GUIDED MISSILES (SURFACE-  
TOSURFACE), MOBILE, ARMY (U)

IDENTIFIERS: PERSHING (U)

THIS REPORT DESCRIBES THE IMPORTANCE OF ANGLE OF  
ATTACK MEASUREMENTS IN THE DETERMINATION OF THE  
EFFECTS OF CERTAIN ATMOSPHERIC PHENOMENA ON MISSILES.  
IT INCLUDES A BRIEF ANALYSIS OF COMMON INSTRUMENTS  
AND AN OUTLINE OF A SYSTEM UNDER DEVELOPMENT TO COVER  
THE CRITICAL LOW DYNAMIC PRESSURE RANGES OF A  
TRAJECTORY. THE SYSTEM WILL UTILIZE A SENSITIVE,  
HIGH ALTITUDE ANGLE OF ATTACK TRANSDUCER, NOW UNDER  
DEVELOPMENT, WHICH IS EXPECTED TO RESPOND TO A  
DYNAMIC PRESSURE DOWN TO ABOUT 10 KP/SQ M.  
(AUTHOR) (U)

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-439 441

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF  
SYSTEMS ENGINEERING: AN ANNOTATED BIBLIOGRAPHY, (U)  
APR 63 44P EVANS, GEORGE R. ;  
REPT. NO. SB840 63 3 SB63 12

UNCLASSIFIED REPORT  
NOFORN  
SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*SYSTEMS ENGINEERING, BIBLIOGRAPHIES),  
(\*BIBLIOGRAPHIES, SYSTEMS ENGINEERING), HANDBOOKS,  
LAUNCH VEHICLES (AEROSPACE), MANNED SPACECRAFT, GUIDED  
MISSILES (SURFACE-TO-SURFACE), TACTICAL WEAPONS, DIGITAL  
COMPUTERS, SATELLITES (ARTIFICIAL), SCIENTIFIC  
SATELLITES, SPACE PROBES, INERTIAL GUIDANCE, PAYLOAD,  
MANNED, LUNAR SURFACE VEHICLES, PRINTED CIRCUITS,  
RESEARCH PROGRAM ADMINISTRATION, METEOROLOGICAL  
SATELLITES, SPACE FLIGHT, WEAPON SYSTEMS, STABILITY,  
CONTROL, MILITARY SATELLITES, HEAT HOMING, ANTIMISSILE  
DEFENSE SYSTEMS, LIQUID ROCKET PROPELLANTS, HYDROGEN,  
LIQUEFIED GASES, REENTRY VEHICLES, PACKAGING (U)

IDENTIFIERS: SHIL, ELAGH, ATLAS, EXPLORER, MINUTEMAN,  
REDSTONE, PERSHING, MAULER, BAMBI, TITAN, SERGEANT,  
SATURN, NIMBUS (U)

THE SCOPE OF THE SEARCH IS LIMITED TO METHODOLOGY  
OF SYSTEMS ENGINEERING AND FURTHER LIMITED TO THE  
HANDLING OF THE TECHNICAL PROBLEMS RATHER THAN OTHER  
PROBLEMS SUCH AS ECONOMIC, MARKETING, ETC.

(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-434 499

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
ENVIRONMENTAL TESTS ON PERSHING GUIDED MISSILE  
TRAINER XM-19. (U)

DESCRIPTIVE NOTE: FINAL REPT.

187p SMITH, BRIMAGE L. ; GASSAWAY,

JOHN F. ;

REPT. NO. RT-TR-64-1

PROJ: DA-516-05-011

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE, ORIGINAL CONTAINS COLOR PLATES; ALL  
DDC REPRODUCTIONS WILL BE IN BLACK AND WHITE. ORIGINAL  
MAY BE SEEN IN DDC HQ.

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TO-SURFACE),  
TRAINING DEVICES), (\*TRAINING DEVICES, GUIDED MISSILES  
(SURFACE-TO-SURFACE)), (\*ENVIRONMENTAL TESTS, TRAINING  
DEVICES), CORROSION, SALT SPRAY TESTS, FUNGUS  
DETERIORATION, ARMY, MOBILE, MILITARY TRAINING (U)

IDENTIFIERS: 1964, PERSHING, GUIDED MISSILE  
TRAINER (U)

PERSHING GUIDED MISSILE TRAINER S/N 002 WAS  
SUBJECTED TO AN ACCELERATED SALT SPRAY TEST AND  
A PROLONGED FUNGUS TEST TO DETERMINE THE EFFECTS  
OF THESE ENVIRONMENTS ON THE OPERATION OF PERSHING  
TRAINERS. IT WAS FOUND THAT THESE ENVIRONMENTS  
CAUSED CONSIDERABLE CORROSION OF TRAINER COMPONENTS  
AND REFURBISHMENT AFTER EACH TEST WAS NECESSARY  
BEFORE A SUCCESSFUL COUNTDOWN COULD BE COMPLETED.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-429 334

ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS FORT BELVOIR  
VA

EVALUATION OF 150,000-BTU/HR, DUCT-TYPE, PORTABLE,  
GASOLINE-ENGINE-DRIVEN AND 208/416-VOLT, 400-CYCLE,  
ELECTRIC-MOTOR-DRIVEN HEATERS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT FOR JUL 59-FEB 63,  
NOV 63 79p LITTLE, ROBERT L. ;

REPT. NO. AERDL-1758

PROJ: DA-1D643303D545, DA-8F71-11-001

TASK: 1D643303D54502, 8F71-11-001-02

UNCLASSIFIED REPORT

DESCRIPTORS: (\*HEATERS, GASOLINE), (\*WINTERIZATION KITS,  
HEATERS), (\*HOUSING, HEATERS), ELECTRIC MOTORS, INTERNAL  
COMBUSTION ENGINES, DRIVES, VENTILATION FANS,  
PERFORMANCE (ENGINEERING), FUEL SYSTEMS, HUMIDITY, SALT  
SPRAY TESTS, LIFE EXPECTANCY, VIBRATION, SHOCK  
(MECHANICS), GUIDED MISSILES, LAUNCHING SITES, PRESSURE,  
ENVIRONMENTAL TESTS (U)

IDENTIFIERS: 1963, LITTLE JOHN, HAWK, PERSHING (U)

THIS REPORT COVERS DEVELOPMENT AND TESTS OF THE  
150,000-BTU/HR, GASOLINE-ENGINE-DRIVEN AND ELEC  
TRIC-MOTOR-DRIVEN HEATERS. THE 150,000-BTU/HR  
HEATERS ARE COMPATIBLE WITH WINTERIZATION KITS FOR  
THE LITTLE JOHN, HAWK, AND PERSHING MISSILE  
SYSTEMS AND ARE SUITABLE FOR QUANTITY PROCUREMENTS,  
SERVICE LIFE TESTS OF THE PRODUCTION HEATERS HAVE  
NOT BEEN COMPLETED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-426 949

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
PERSHING GUIDED MISSILE TRAINER XM-19 MARRIAGE,  
ENGINEERING EVALUATION AND WEAPON SYSTEM TESTS. (U)  
DESCRIPTIVE NOTE: FINAL REPT., 17 DEC 62-6 MAY 63,  
DEC 63 57p SMITH, BRIMAGE L.; GASSAWAY,  
JOHN F.;  
REPT. NO. RT-TR-63-12  
PROJ: DA-516-05-011

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*TRAINING DEVICES, GUIDED MISSILES  
(SURFACE-TO-SURFACE), (\*GUIDED MISSILES  
(SURFACE-TO-SURFACE), TRAINING DEVICES),  
MOBILE, TACTICAL WEAPONS, COMPATIBILITY,  
HANDLING, CHECKOUT PROCEDURES, LAUNCHING,  
GUIDED MISSILE WARHEADS, INSTALLATION, NAVI  
GATION COMPUTERS, INVERTERS, STABILIZED PLAT  
FORMS, ACCELEROMETERS, TRANSPORTER-ERECTORS, (U)  
IDENTIFIERS: 1963, PERSHING. (U)

RESULTS OF THE CONSOLE/TRAINER COMPATIBILITY TEST  
INDICATED NO APARENT INCOMPATIBILITY OF EQUIPMENT.  
THE MARRIAGE OF GMT-P S/N 002 WITH PROGRAMMER  
TEST STATION FROM ARTILLERY SET NO. 5 WAS  
SATISFACTORY AND ALL TRAINER SYSTEMS RESPONDED  
CORRECTLY TO COMMANDS RECEIVED FROM GROUND SUPPORT  
EQUIPMENT. THE PRECISION FIXED RESISTORS CAN BE  
USED ON THE SUMMING AMPLIFIER PRINTED CIRCUIT CARDS  
TO REPLACE POTENTIOMETERS NOW BEING USED. THIS  
WOULD ELIMINATE EXISTING ALINEMENT PROBLEMS IN THE  
CONTROL SYSTEM. THE LATHE BED AZIMUTH LAYING  
SYSTEM MODIFICATION TO THE ST-120 STABILIZED  
PLATFORM SIMULATOR PERFORMED TO DESIGN REQUIREMENTS.  
THE VARIABLE SPEED ACCELEROMETER SIMULATOR WITH  
MINOR MODIFICATIONS WILL MEET THE REQUIREMENTS OF  
SIMULATING DIFFERENT GEOGRAPHICAL LOCATIONS AND  
HEADINGS. THE BLOCK III GUIDANCE COMPUTER  
SIMULATOR SATISFIED THE CHECKOUT REQUIREMENTS OF THE  
PERIPHERAL EQUIPMENT WITHIN THE PROGRAMMER TEST  
STATION. STATIC INVERTERS CAN REPLACE THE ROTARY  
INVERTER PRESENTLY UTILIZED IN THE GUIDED MISSILE  
TRAINER; HOWEVER, THE UNITS TESTED DID NOT HAVE THE  
REQUIRED CAPACITY. THE AK SIMULATOR RESPONDED  
CORRECTLY TO THE PRESET VALUES AND INSERTED  
MALFUNCTIONS. (AUTHOR) (U)

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021492



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-424 709

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
ENVIRONMENTAL TESTS ON PERSHING GUIDED MISSILE  
TRAINER XM-19. (U)

DESCRIPTIVE NOTE: FINAL REPT., 1 AUG-11 DEC 62,  
NOV 63 307P GASSAVAY, JOHN F. ; SMITH,  
BRIMAGE L. ;  
REPT. NO. RT-TR-63-11  
PROJ: DA-516-05-0,1

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*TACTICAL WEAPONS, ENVIRONMENTAL TESTS),  
(\*GUIDED MISSILES (SURFACE-TO-SURFACE), ENVIRONMENTAL  
TESTS), (\*TRAINING DEVICES, ENVIRONMENTAL TESTS),  
TRAINING, TESTS, TEMPERATURE, ALTITUDE CHAMBERS,  
HANDLING, THERMAL STRESSES, SAND, HUMIDITY,  
TRANSPORTATION, ICE, TEST EQUIPMENT, TEST FACILITIES (U)  
IDENTIFIERS: 1963, PERSHING (U)

THIS REPORT COVERS THE ENVIRONMENTAL TESTS  
PERFORMED ON THE PERSHING GUIDED MISSILE  
TRAINER (GMT-P-002) TO VERIFY THAT THE  
MISSILE TRAINER IS CAPABLE OF SATISFACTORY OPERATION  
IN WORLDWIDE ENVIRONMENT. THE ENVIRONMENTAL TESTS  
CONSISTED OF MISSILE TRAINER INSPECTION, MATING,  
HANDLING, AND FUNCTIONAL TESTS; HIGH TEMPERATURE  
TESTS; LOW TEMPERATURE TESTS; THERMAL SHOCK AND ICING  
TESTS; HUMIDITY AND RAIN TESTS; SAND AND DUST TESTS;  
ALTITUDE TESTS; AND TRUCK TRANSPORTATION TESTS.  
THE PERSHING TRAINER OPERATED SATISFACTORILY  
UNDER ALL SIMULATED ENVIRONMENTS EXCEPT THE HIGH  
TEMPERATURE TREATMENTS. (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-422 783

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TRANSPORTATION-VIBRATION TEST OF PERSHING MISSILE  
SYSTEM TACTICAL SHIPPING AND STORAGE CONTAINERS,  
PHASE IV. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

OCT 63 21p EYESTONE, R. G. ;

REPT. NO. RT-TR-63-10

PROJ: 516 05 011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TOSURFACE),  
TRANSPORTATION), TACTICAL WEAPONS, TESTS, TEST METHODS,  
VIBRATION, STORAGE, CONTAINERS, INSTRUMENTATION, ROADS,  
EFFECTIVENESS, TRAILERS, DAMAGE (U)  
IDENTIFIERS: 1963, PERSHING (U)

THIS TEST SUBJECTED A MODIFIED TACTICAL FIRST STAGE  
CONTAINER FOR THE PERSHING MISSILE SYSTEM, AND  
ITS DUMMY LOAD, TO A ROUGH ROAD TEST DESIGNED TO  
DUPLICATE THE VIBRATION SPECTRUM SPECIFIED DURING  
TRUCK TRANSPORTATION. THIS TEST WAS CONDUCTED BY  
THE TEST AND EVALUATION LABORATORY AT  
REDSTONE ARSENAL, ALABAMA AT TEST AREA 3 IN  
AUGUST 1963. (AUTHOR) (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-422 521

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE-511,

(U)

SEP 63 29P BAGLEY, HUBERT D. ; BILLIONS,

NOVELLA S. ;

REPT. NO. RR-TR-63-23

PROJ: 1B2 79191D678

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*METEOROLOGICAL PARAMETERS, LAUNCHING),  
(\*LAUNCHING, GUIDED MISSILES (SURFACE-TO-SURFACE)),  
RADIOSONDES, TACTICAL WEAPONS, FLIGHT TESTING, HIGH  
ALTITUDE, WIND, METEOROLOGICAL CHARTS, UPPER ATMOSPHERE,  
WEATHER COMMUNICATIONS, METEOROLOGICAL BALLOONS,  
ATMOSPHERIC TEMPERATURE, HUMIDITY, THERMODYNAMICS,  
EQUATIONS, DATA, SOUNDING ROCKETS (U)  
IDENTIFIERS: 1963, PERSHING, ARCAS (U)

THIS REPORT PRESENTS THE ATMOSPHERIC ENVIRONMENT  
FOR THE FLIGHT OF PERSHING MISSILE-511, WHICH WAS  
LAUNCHED ON 5 APRIL 1963 AT 1945 EST, FROM THE  
ATLANTIC MISSILE RANGE, CAPE CANAVERAL,  
FLORIDA. THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME, AND  
UPPER AIR CONDITIONS AS MEASURED BY RAWINSONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. THIGH ALTITUDE WIND DATA OVER THE  
LAUNCH AREA AS DETERMINED FROM A METEOROLOGICAL  
ROCKET FLIGHT ARE ALSO PRESENTED. RELATIVE  
DEVIATIONS OF THERMODYNAMIC QUANTITIES FROM THE  
PATRICK AIR FORCE BASE ANNUAL REFERENCE  
ATMOSPHERE ARE PRESENTED IN GRAPHICAL FORM FOR EASY  
REFERENCE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-420 381

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE-408,

(U)

29p BAGLEY, HUBERT D. ; BILLIONS,

NOVELLA S. ;

REPT. NO. RR-TR-63-21

PROJ: DA-1-B-279191-D-678

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNCLASSIFIED REPORT

DESCRIPTORS: (\*GUIDED MISSILE RANGES, METEOROLOGICAL  
PARAMETERS), FLIGHT TESTING, ATMOSPHERE, GUIDED MISSILES  
(SURFACE-TO-SURFACE), TACTICAL WEAPONS, WIND,  
ATMOSPHERIC SOUNDING

(U)

IDENTIFIERS: 1963, PERSHING

(U)

THE ATMOSPHERIC ENVIRONMENT IS PRESENTED FOR THE  
FLIGHT OF PERSHING MISSILE-408, WHICH WAS LAUNCHED  
ON 3 APRIL 1963, FROM THE ATLANTIC MISSILE  
RANGE. THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME,  
AND UPPER AIR CONDITIONS AS MEASURED BY RAWINSONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. HIGH ALTITUDE WIND DATA OVER THE LAUNCH  
AREA AS DETERMINED FROM A METEOROLOGICAL ROCKET  
FLIGHT ARE ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PATRICK AIR  
FORCE BASE ANNUAL REFERENCE ATMOSPHERE ARE  
PRESENTED IN GRAPHICAL FORM FOR EASY REFERENCE.  
(AUTHOR)

(U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-415 279

THIOKOL CHEMICAL CORP HUNTSVILLE ALA

(NO TITLE).

(U)

DESCRIPTIVE NOTE: MONTHLY PERSHING STATUS LETTER, 21

JUNE 20 JULY 63.

AUG 63 4p

REPT. NO. U63 396

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*ROCKET MOTORS (SOLID PROPEL  
LANT), GUIDED MISSILES (SURFACE TO SURFACE)),  
CAPTIVE TESTS, VIBRATION, TEMPERATURE, AGING  
(MATERIALS), STORAGE, MOISTURE, TENSILE PROPER  
TIES, TACTICAL WEAPONS.

(U)

IDENTIFIERS: 1963. PERSHING.

(U)

MONTHLY STATUS LETTER ON PERSHING MOTORS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-412 587L

ARMY ELECTRONIC PROVING GROUND FORT HUACHUCA ARIZ  
DESCRIPTIVE NOTE: FINAL REPT.,

JUL 63 47p JANTZ, MARVIN A.;

PROJ: 6 3 3310 03

MONITOR: AEPG PUB. NO. ETA105,

UNCLASSIFIED REPORT

NOTICE: LL REQUESTS REQUIRE APPROVAL OF ARMY MATERIAL  
COMMAND, WASHINGTON 25, D. C.

DESCRIPTORS: (\*RADIO COMMUNICATION SYSTEMS,  
COMMAND AND CONTROL SYSTEMS), (\*COMMAND AND  
CONTROL SYSTEMS, RADIO COMMUNICATION SYSTEMS),  
GROUND SUPPORT EQUIPMENT, GUIDED MISSILES  
(SURFACE-TO-SURFACE), RANGES (DISTANCE),  
PERFORMANCE (ENGINEERING), ANTENNAS, SCATTER  
ING, DIVERSITY RECEPTION, TERRAIN, RADIO TELETYPE  
SYSTEMS, TROPOSPHERE, TRACKED VEHICLES, MOBILE,  
PROPAGATION, SITE SELECTION, ATTENUATION,  
VOICE COMMUNICATION SYSTEMS.

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-410 876

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 363,

(U)

MAR 63 29p BAGLEY, HUBERT D.; BILLIONS,

NOVELLA S.;

REPT. NO. RR-TR-63-12

PROJ: 1B2 79191D678

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*METEOROLOGY, GUIDED MISSILE  
RANGES), SURFACE TEMPERATURES, UPPER ATMOSPHERE,  
TROPOSPHERE, RADIOSONDES, WIND, HIGH ALTITUDE,  
DATA, METEOROLOGICAL PARAMETERS,

(U)

IDENTIFIERS: 1963, PERSHING, FLORIDA, CAPE  
CANAVERAL,

(U)

THE ATMOSPHERIC ENVIRONMENT FOR THE FLIGHT OF  
PERSHING MISSILE 363, WHICH WAS LAUNCHED ON 30  
JANUARY 1963 AT 1930 EST, FROM THE ATLANTIC  
MISSILE RANGE, CAPE CANAVERAL, FLORIDA IS  
PRESENTED. THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME, AND  
UPPER AIR CONDITIONS AS MEASURED BY RAWINSONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. HIGH ALTITUDE WIND DATA OVER THE LAUNCH  
AREA AS DETERMINED FROM A METEOROLOGICAL ROCKET  
FLIGHT ARE ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PATRICK AIR  
FORCE BASE ANNUAL REFERENCE ATMOSPHERE ARE  
PRESENTED IN GRAPHICAL FORM FOR EASY REFERENCE.  
(AUTHOR)

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-409 880

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB

ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 403,

(U)

APR 63 28p BAGLEY, HUBERT D.; BILLIONS,

NOVELLA S.;

REPT. NO. RR-TR-63-13

PROJ: 1B2 791910678

UNCLASSIFIED REPORT

DESCRIPTORS: (\*ATMOSPHERE MODELS, GUIDED MISSILE  
RANGES), (\*MICROMETEOROLOGY, DATA),  
METEOROLOGY, SURFACE TEMPERATURES, WIND, UPPER  
ATMOSPHERE, ATMOSPHERIC TEMPERATURE, RADIO SONDES,  
METEOROLOGICAL RADAR, METEOROLOGICAL CHARTS,

(U)

IDENTIFIERS: 1963, FLORIDA, PERSHING,

(U)

THE ATMOSPHERIC ENVIRONMENT IS PRESENTED FOR THE  
FLIGHT OF PERSHING MISSILE-403, WHICH WAS LAUNCHED  
ON 14 FEBRUARY 1963, FROM THE ATLANTIC MISSILE  
RANGE, CAPE CANAVERAL, FLORIDA, THE  
GENERAL SYNOPTIC SITUATION FOR THE FLIGHT AREA,  
SURFACE OBSERVATIONS AT LAUNCH TIME, AND UPPER AIR  
CONDITIONS AS MEASURED BY RAWINSONDES RELEASED AS  
CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE ARE GIVEN.  
HIGH ALTITUDE WIND DATA OVER THE LAUNCH AREA AS  
DETERMINED FROM A METEOROLOGICAL ROCKET FLIGHT ARE  
ALSO PRESENTED. (AUTHOR)

(U)

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021492



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-409 484

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 358,

(U)

MAR 63 29P BILLIONS, NOVELLA S.; BAGLEY,  
HUBERT D.;

PROJ: 182 79191D678

MONITOR: AMC RR TR63 9

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*GUIDED MISSILE RANG METEOROLOGICAL  
PARAMETERS), (\*METEOROLOGICAL PARAMETERS, GUIDED  
MISSILE RANGES), GUIDED MISSILES (SURFACE TO  
SURFACE), METEOROLOGICAL CHARTS, TACTICAL WEAPONS,

(U)

IDENTIFIERS: 1963, PERSHING,

(U)

THIS REPORT PRESENTS THE ATMOSPHERIC ENVIRONMENT  
FOR THE FLIGHT OF PERSHING MISSILE-358, WHICH WAS  
LAUNCHED FROM THE ATLANTIC MISSILE RANGE,  
CAPE CANAVERAL, FLORIDA ON 17 JANUARY 1963 AT  
2233 EST. THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME,  
AND UPPER AIR CONDITIONS AS MEASURED BY RAWINSONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. WIND DATA OBTAINED FROM RADAR TRACK OF  
AN ARCAS METEOROLOGICAL ROCKET FLIGHT PROVIDED BY  
THE PAFB AIR WEATHER SERVICE IN SUPPORT OF  
MISSILE 358 ARE ALSO PRESENTED. RELATIVE  
DEVIATIONS OF THERMODYNAMIC QUANTITIES FROM THE PAFB  
REFERENCE ANNUAL ATMOSPHERE ARE PRESENTED IN  
GRAPHICAL FORM FOR EASY REFERENCE. (AUTHOR)

(U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-407 092L

ABERDEEN PROVING GROUND MD  
ACCEPTANCE TEST (PRODUCTION) OF HEATER, DUCT TYPE,  
PORTABLE, 150,000 BTU/HR, GASOLINE ENGINE DRIVEN,

(U)

JUN 63 19P HANCOCK, R.P.;

PROJ: 703276 01

MONITOR: APG DPS994

UNCLASSIFIED REPORT

NOTICE: ONLY MILITARY OFFICES MAY REQUEST FROM DDC,  
OTHERS REQUEST APPROVAL OF ABERDEEN PROVING GROUND,  
MD, ATTN: STEAP-DS.

DESCRIPTORS: \*HEATERS, ENVIRONMENTAL TESTS,  
DUCTS, SAND, GUIDED MISSILES (SURFACE TO  
SURFACE), GROUND SUPPORT EQUIPMENT, INTERNAL  
COMBUSTION ENGINES,

(U)

IDENTIFIERS: 1963, PERSHING,

(U)

THE HEATER, DUCT TYPE, PORTABLE, 150,000  
BTU/HR, GASOLINE ENGINE DRIVEN, WAS SUBJECTED  
TO SAND AND DUST TEST AS PART OF AN ACCEPTANCE TEST.  
TESTS DISCLOSED THAT THE UNIT MET THE REQUIREMENTS  
OF PROCEDURE I, SECTION 4.10 OF MILITARY  
SPECIFICATION MIL-E-4970A (USAF),  
'ENVIRONMENTAL TESTING, GROUND SUPPORT  
EQUIPMENT, GENERAL SPECIFICATION FOR,' DATED 3  
MARCH 1959. THE HEATER IS FOR USE WITH THE  
PERSHING MISSILE SYSTEM. (AUTHOR)

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-299 468

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB

ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE-354 (U)

JAN 63 1V BAGLEY, H.D.; BILLIONS, NOVELLA S.;

REPT. NO. RR TR 63 3

UNCLASSIFIED REPORT

DESCRIPTORS: \*GUIDED MISSILES (SURFACE-TO-SURFACE), (U)  
\*STRATOSPHERE, ATMOSPHERE, LAUNCHING, METEOROLOGY (U)

IDENTIFIERS: PERSHING (U)

ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 354,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-298 839

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB

ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE-351 (U)

JAN 63 1v BILLIONS, NOVELLA S.;

REPT. NO. RR TR 63 2

UNCLASSIFIED REPORT

DESCRIPTORS: \*GUIDED MISSILES (SURFACE-TO-SURFACE),  
\*METEOROLOGY, ATMOSPHERE, HUMIDITY, LAUNCHING,  
MEASUREMENT, METEOROLOGICAL CHARTS, PRESSURE, SOUNDING  
ROCKETS, TEMPERATURE, THERMODYNAMICS (U)  
IDENTIFIERS: ARCAS, PERSHING (U)

ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE LAUNCHING.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-298 154

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

SEP 62 1v

REPT. NO. GR 21

CONTRACT: DA20 01RORD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, COLD WORKING, HARDENING,  
HARDNESS, HEAT TREATMENT, HYDROSTATIC PRESSURE,  
MANUFACTURING METHODS, MARTENSITE, MECHANICAL  
PROPERTIES, MICROSTRUCTURE, NON-DESTRUCTIVE TESTING,  
TESTS

(U)

IDENTIFIERS: PERSHING

(U)

FABRICATION OF ONE PIECE HIGH PERFORMANCE ROCKET  
MOTOR CASE.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-296 509

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
A SECOND STUDY ON REDUCTION OR ELIMINATION OF AIR  
CONDITIONING IN THE PERSHING GUIDANCE AND CONTROL  
COMPARTMENT (U)

JAN 63 1V VANHOFF, PETER; GAMBILL, RUSSELL T.;

REPT. NO. RG TR 63 4

PROJ: DA-1-B-279191-D-678

UNCLASSIFIED REPORT

DESCRIPTORS: \*GUIDED MISSILES (SURFACE-TO-SURFACE),  
ACCELEROMETERS, AIR CONDITIONING EQUIPMENT, COMPUTERS,  
CONTROL SYSTEMS, GEARS, GIMBALS, GYROSCOPES, INERTIAL  
GUIDANCE, SERVO AMPLIFIERS, SERVOMOTORS, TEMPERATURE  
CONTROL (U)

IDENTIFIERS: PERSHING (U)

REDUCTION OR ELIMINATION OF AIR CONDITIONING IN THE  
PERSHING GUIDANCE AND CONTROL COMPARTMENT.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-295 597

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
APPLICATION OF ENCODERS IN MISSILE AZIMUTH ALIGNMENT  
SYSTEMS (U)

DEC 62 1V MOONEY, F. J.;

REPT. NO. RG TR 62 8

UNCLASSIFIED REPORT

DESCRIPTORS: \*AZIMUTH, \*CODING, \*TACTICAL WEAPONS,  
CONTROL, DETERMINATION, ELECTRONIC EQUIPMENT, ERRORS,  
GUIDED MISSILE COMPUTERS, GUIDED MISSILE LAUNCHERS,  
GUIDED MISSILES (SURFACE-TO-SURFACE), RELIABILITY,  
THEODOLITES (U)

IDENTIFIERS: PERSHING (U)

THE USE OF SHAFT ANGLE ENCODERS IN MISSILE AZIMUTH  
ALIGNMENT SYSTEMS IS DISCUSSED. A BRIEF RESUME OF  
THE CHARACTERISTICS OF SEVERAL ENCODERS IS PRESENTED  
WITH A DISCUSSION OF THE USE OF INCREMENTAL ENCODERS  
AS A STEP TOWARD INCREASED SYSTEM RELIABILITY.  
(AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-292 948

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER

A STUDY ON REDUCING OR ELIMINATING AIR CONDITIONING  
OF THE PERSHING GUIDANCE AND CONTROL COMPARTMENT (U)

NOV 62 1v VANHOFF, PETER A.; GAMBILL, RUSSELL T.;  
REPT. NO. RG TM 62 27

UNCLASSIFIED REPORT

DESCRIPTORS: \*AIR CONDITIONING EQUIPMENT, \*GUIDED  
MISSILES (SURFACE-TO-SURFACE), \*INERTIAL GUIDANCE,  
\*TACTICAL WEAPONS, CLIMATOLOGY, CONTROL SYSTEMS, COSTS,  
FEASIBILITY STUDIES, TEMPERATURE, TEST METHODS (U)  
IDENTIFIERS: PERSHING (U)

A STUDY IS PRESENTED ON THE POSSIBILITY OF REMOVING  
OR REDUCING THE AIR CONDITIONING NOW REQUIRED BY THE  
PERSHING GUIDANCE AND CONTROL COMPARTMENT. A  
CLIMATICAL STUDY WAS MADE TO ESTABLISH THE  
OPERATIONAL ENVIRONMENT, AND A PROPOSED LABORATORY  
TEST PROGRAM IS DESCRIBED TO DETERMINE GUIDANCE AND  
CONTROL COMPARTMENT OPERATING TEMPERATURE, SPECIFIC TESTS  
TO BE PERFORMED ON A MISSILE, AND THE MISSILE  
MODIFICATIONS AND TEST EQUIPMENT REQUIRED. ALSO  
INCLUDED ARE MANPOWER AND COST ESTIMATES FOR THE  
PROPOSED TEST PROGRAM. (AUTHOR) (U)

UNCLASSIFIED

021492



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-288 550L

ABERDEEN PROVING GROUND MD  
ENGINEERING DESIGN TEST OF THE FIRE-CONTROL PACK  
(FCP) ON THE XM474E2 CARRIER, THE UNIT TEST ADAPTER  
(UTA), AND THE ASSEMBLY TEST ADAPTER (ATA) ON AN M55  
TRUCK (PERSHING WEAPON SYSTEM) (U)

NOV 62 1V FORD, T. J.  
REPT. NO. DPS 694

UNCLASSIFIED REPORT  
DOD ONLY

DESCRIPTORS: \*FIRE CONTROL COMPUTERS, \*FIRE CONTROL  
SYSTEMS, \*GUIDED MISSILE COMPUTERS, \*TACTICAL WEAPONS,  
CARGO VEHICLES, GAS TURBINES, GROUND SUPPORT EQUIPMENT,  
GUIDED MISSILES (SURFACE-TO-SURFACE), INSTRUMENTATION,  
MAINTENANCE EQUIPMENT, PHOTOGRAPHS, POWER SUPPLIES, TEST  
METHODS, TESTS, TRACKED VEHICLES, TRANSPORTATION,  
VIBRATION (U)

IDENTIFIERS: M-55 TRUCKS, 5-TON, M-474 VEHICLES,  
PERSHING (U)

ADAPTER KITS, THE FIRE-CONTROL PACK (FCP), UNIT  
TEST ADAPTER (UTA), AND THE ASSEMBLY TEST ADAPTER  
(ATA) WERE EVALUATED BY MEANS OF A RAIL-HUMPING  
TEST, ROADSHOCK AND VIBRATION TEST, AND A ROAD-  
ENDURANCE TEST. THE FCP WAS MOUNTED ON THE  
XM474E2 CARRIER, AND THE UTA AND ATA WERE  
MOUNTED ON THE M55 TRUCK SEPARATELY FOR THE ROAD-  
SHOCK AND VIBRATION TESTS AND THE ROAD-ENDURANCE  
TEST. THE XM474E2 CARRIER AND THE M55 TRUCK  
WERE PROVED ADEQUATE FOR THE TRANSPORTATION OF THE  
ABOVE UNITS. THE RELIABILITY OF THE FCP CANNOT  
BE PROPERLY EVALUATED DUE TO THE LOW ENDURANCE  
MILEAGE ACCUMULATED. THE NUMBER OF FAILURES OF THE  
UTA AND ATA INDICATES THAT A FURTHER STUDY OF THE  
VULNERABLE PARTS SHOULD BE MADE BY CODE A,  
(AUTHOR) (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-285 944

ARDE-PORTLAND INC PARAMUS N J  
CRYOGENIC STRETCH FORMING OF SOLID PROPELLANT ROCKET  
CASES (U)

SEP 62 1v CLAFFY, GEORGE;

CONTRACT: DA30 069ORD3501

UNCLASSIFIED REPORT

DESCRIPTORS: \*CRYOGENICS, \*MANUFACTURING METHODS,  
\*ROCKET MOTORS, CONFIGURATION, CYLINDRICAL BODIES,  
DEFORMATION, PRESSURE VESSELS, PRODUCTION, STAINLESS  
STEEL, STRESSES (U)

IDENTIFIERS: PERSHING (U)

CRYOGENIC STRETCH FORMING OF SOLID PROPELLANT ROCKET  
CASES. THE FEASIBILITY OF THIS METHOD WAS  
DEMONSTRATED. PRESENT OBJECTIVES ARE CONCERNED WITH  
DEVELOPING THE PROCESS TO A POINT WHERE A PREDETERMINED,  
COMPLEX CONFIGURATION CAN BE PRODUCED WHILE MAINTAINING  
THE HIGH STRENGTH ACHIEVED IN PROTOTYPE CASES.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-284 682L

ABERDEEN PROVING GROUND MD

AUTOMOTIVE TESTING OF THE POWER STATION EQUIVALENT  
SET FOR THE PERSHING WEAPON SYSTEM (U)

SEP 62 1V EDDINGTON, V.A.;

REPT. NO. DPS 624

UNCLASSIFIED REPORT  
DOD ONLY

DESCRIPTORS: \*GENERATORS, \*GROUND SUPPORT EQUIPMENT,  
\*GUIDED MISSILES (SURFACE-TO-SURFACE), \*POWER SUPPLIES,  
ELECTRIC POWER PRODUCTION, FAILURE (MECHANICS),  
RAILROADS, RELIABILITY, ROADS, SHOCK RESISTANCE,  
TACTICAL WEAPONS, TESTS, TRANSPORTATION, VIBRATION (U)  
IDENTIFIERS: PERSHING (U)

AUTOMOTIVE TESTING OF POWER STATION EQUIVALENT (PSE) SET  
FOR PERSHING WEAPON: EFFECTS OF ROAD SHOCK AND  
VIBRATION RAILROAD HUMMING AND FIELD TRANSPORTATION ON  
FACILITIES DISTRIBUTION TRAILER (FDT) AND 45-KW  
GENERATOR SET AND TRAILER.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-283 264

ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS FORT BELVOIR  
VA

ENGINEERING REPORT OF 6,000-BTU/HR AIR CONDITIONING  
UNIT (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.

MAR 62 44p MCDONALD, JOHN L.; ADKINS, L.H.;

REPT. NO. AERDL-1709

PROJ: DA-8F71-11-001

TASK: 8F71-11-001-03

UNCLASSIFIED REPORT

DESCRIPTORS: \*AIR CONDITIONING EQUIPMENT, \*GROUND  
SUPPORT EQUIPMENT, ARTILLERY, COMMUNICATION EQUIPMENT,  
FIRE CONTROL SYSTEMS, GUIDED MISSILES, GUIDED  
MISSILES(SURFACE-TO-SURFACE), MOBILE, SHELTERS, SURFACE-  
TO-SURFACE, TESTS, TRAILERS (U)  
IDENTIFIERS: PERSHING (U)

THE DEVELOPMENT AND TESTING ARE PRESENTED FOR A  
MULTIPACK GE SELF-CONTAINED AIR-COOLED 6,000BTU/  
HR, AIR CONDITIONING UNIT TO BE USED IN ALL MOBILE  
TRAILERS AND EXPANSIBLE VANS. THE REPORT  
CONCLUDES: (A) THE 6,000-BTU/HR,  
STANDARDWEIGHT, 40-CYCLE, AIR CONDITIONING UNIT  
(TYPE 60) IN THE PRESENT STAGE OF DEVELOPMENT  
MEETS THE REQUIREMENTS OF THE MILITARY CHARACTERISTI  
S AND THE PURCHASE DESCRIPTION EXCEPT FOR LOW  
COOLING CAPACITY AND LOW CONDENSER FAN MOTOR  
HORSEPOWER; (B) THE 6,000 -BTU/HR, S  
ANDARDWEIGHT, MULTIPACKAGE, 400-CYCLE, AIR  
CONDITIONING UNIT (TYPE 400 SECOND-STAGE DESIGN)  
IS SATISFACTORY AND MEETS THE REQUIREMENTS OF THE  
MILITARY CHARACTERISTICS AS OUTLINED IN THE PROJECT  
CARD AND THE PURCHASE DESCRIPTION EXCEPT FOR MINOR  
DEFICIENCIES; (C) THE TESTED AIR CONDITIONER  
DESIGN CAN ONLY BE REPRODUCED BY USING MANUFACTURING  
DRAWINGS AS A PURCHASE REQUIREMENT; D) INCE  
THE 400-CYCLE VERSION HAS HAD THE EQUIVALENT OF A  
SERVICE TEST, IT IS NOW READY FOR TYPE  
CLASSIFICATION; (E) A LOUVER ARRANGEMENT TO  
DEFLECT THE CONDENSER DISCHARGE AIR UPWARD AS DONE IN  
THE PERSHING HUTS WOULD GUARD AGAINST POSSIBLE  
RECIRCULATION AND REDUCTION OF PERFORMANCE. (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-278 677

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

APR 62 IV MARTIN, WAYNE A.;

CONTRACT: DA20 O18ORD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: ALLOYS, ALUMINUM ALLOYS, CHROMIUM ALLOYS,  
COBALT ALLOYS, DEFS, HARDNESS, HEAT TREATMENT, MACHINE  
TOOLS, MECHANICAL PROPERTIES, METAL-FORMING PRESSES,  
METALLURGICAL ANALYSIS, METALS, MICROSTRUCTURE, NICKEL  
ALLOYS, STRESSES, VANADIUM ALLOYS

(U)

IDENTIFIERS: PERSHING

(U)

8 I 8C T IC IC D V LOPM NT OF  
DEEP DRAWN - ONE PI C IG FORM CE ROCK O OR  
C G ER L R P O. , \* U R RLY R P  
O 8 / - / P BY Y AR I .

/) APR 62, 38P. INCL. ILLUS. BLE. CONTRACT DA  
<)-)/\*-ORD-23004, UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*DRAWING  
(MACHINE PROCESSING), \*TITANIUM ALLOYS, DIE  
, MACHINE TOOLS, METAL FORMING PRESSES,  
METALS, ALLOYS, ALUMINUM ALLOYS, CHROMIUM  
ALLOY VANADIUM ALLOYS NICKEL ALLOYS, COBALT  
ALLOYS MECHANICAL PROPERTIES STRESSES,

MICROSTRUCTURE, METALLURGICAL ANALYSIS, HARDNESS  
HEAT TREATMENT, MANUFACTURING METHODS.  
IDENTIFIERS: PERSHING, 300-M STEEL. SPECIAL

TOOLING AND FABRICATION OF THE 40-IN. DIAMETER  
PERSHING END-SEGMENT CASE REACCOMPLISHED,  
METALLURGICAL ANALYSIS DATA OF 300-C SE I IC  
APR POS SDT E DE IR GR I 8 FLOW PTR  
U IFOR I ICRO RUC UR UB- CL

DRAWING TSO LL-B TILLOY CASES INCLUDED  
METALLURGICAL ANALYSIS AND MICROSTRUCTURE,

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-274 828

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

FEB 62 1V MARTIN, WAYNE A.;

CONTRACT: DA20 01RORD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*STEEL, \*TITANIUM ALLOYS,  
ALLOYS, COBALT ALLOYS, DIES, DRAWING (MACHINE  
PROCESSING), HEAT TREATMENT, MACHINE TOOLS,  
MANUFACTURING METHODS, METAL-FORMING PRESSES, METALS,  
MOLYBDENUM ALLOYS, NICKEL ALLOYS

(U)

IDENTIFIERS: PERSHING

(U)

PROGRESS IS REPORTED ON THE FABRICATION OF SPECIAL  
TOOLING. THE HOT CUP, FIRST DRAW, SECOND DRAW,  
THIRD DRAW, AND FOURTH DRAW DIE ASSEMBLIES ARE  
COMPLETE. THE FIFTH DRAW, SIXTH DRAW, AND HEADING  
DIES ARE NEARING COMPLETION. THREE CASES WERE  
PROCESSED THROUGH THREE COLD DRAWING OPERATIONS EACH  
OF WHICH WAS FOLLOWED BY ANNEAL AT 1250 F FOR 1 HR.  
A CHAMBER (AT-1) WAS SECTIONED FOR  
METALLURGICAL ANALYSIS AFTER COMPLETION OF THE HOT  
CUP OPERATION AND SUBSEQUENT HEAT TREATMENT. THE  
TOTAL RANGE IN HARDNESS OVER THE ENTIRE SECTION WAS  
FROM 98 TO 99 ROCKWELL B. THE GRAIN FLOW  
PATTERN WAS RADIAL IN THE DOME AND PARALLEL TO THE  
LONGITUDINAL AXIS IN THE SIDEWALL OF THE CUP. THE  
STRUCTURE POSSESSED A RELATIVELY FINE FERRITIC GRAIN  
(ASTM 7 TO 8) AND WAS COMPLETELY SPHEROIDIZED.  
PARTIAL DECARBURIZATION AFTER NORMALIZING TREATMENT  
WAS INDICATED BY AN AVERAGE CARBON CONTENT OF 0.34%  
IN THE OUTER 0.005 IN. OF MATERIAL AS COMPARED TO  
0.43% CARBON IN THE 0.005- TO 0.010-IN. LAYER.  
THE MICROSTRUCTURE AND GRAIN FLOW IN ALL SECTIONS  
ARE IN THE OPTIMUM CONDITION FOR SUBSEQUENT COLD  
WORK.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-272 353

ORDNANCE MISSION WHITE SANDS MISSILE RANGE N MEX  
PERSHING MISSILE 309 AND TEL NR 7 HIGH AND LOW  
TEMPERATURE TESTS.

(U)

FEB 62 SP WELLS, JAMES L., JR.;

BAXTER, JAMES ;

REPT. NO. SPECIAL-58

PROJ: 516-05-011

UNCLASSIFIED REPORT

DESCRIPTORS: \*GUIDED MISSILE SIMULATORS , \*GUIDED  
MISSILES , \*HIGH-TEMPERATURE RESEARCH , \*LOW-TEMPERATURE  
RESEARCH , \*TEMPERATURE , CONTROL SYSTEMS , ELECTRICAL  
EQUIPMENT , GUIDANCE , GUIDED MISSILE FUZES , GUIDED  
MISSILE LAUNCHERS , GUIDED MISSILE PERSONNEL , GUIDED  
MISSILE WARHEADS , RELIABILITY , ROCKET MOTORS , SAFETY ,  
SIMULATION , SURFACE-TO-SURFACE , TESTS (M)

HIGH AND LOW TEMPERATURE RELIABILITY TESTS WERE  
CONDUCTED ON THE PERSHING MISSILE 309, IN THE  
ENVIRONMENTAL TEST CHAMBER TO DETERMINE THE SYSTEM'S  
RELIABILITY, RUGGEDNESS, AND RELATED HUMAN FACTORS  
DURING CONDITIONS OF HIGH AND LOW TEMPERATURE  
EXTREMES. THE PERSHING MISSILE 309 CONSISTED OF  
AN INERT WARHEAD, GUIDANCE AND CONTROL UNIT, AND  
DUMMY FIRST AND SECOND STAGE MOTORS; ELEVATING  
LAUNCHER, INCLUDING THE CABLE MAST; AND A SET OF  
ELECTRICAL BLANKETS FOR THE MISSILE. MALFUNCTIONS  
OF THE WARHEAD FUZE DURING EXTREME PHASES OF  
TEMPERATURE TESTING PROVED IT UNACCEPTABLE. OIL  
PRESSURE ON TWO HYDROPACKS DROPPED DURING THE LOW  
TEMPERATURE CYCLES ON ONE HYDROPACK FROZE, RENDERING  
IT INOPERABLE. EQUIPMENT BECAME TOO HOT TO HANDLE  
COMFORTABLY WITHOUT PROTECTIVE CLOTHING DURING  
CHECKOUT PROCEDURES AT HIGH TEMPERATURES. DURING  
LOW-TEMPERATURE TEST, THE WARHEAD SECTION DRAINED OFF  
HEAT GENERATED BY BLANKETS COVERING THE GUIDANCE AND  
CONTROL SECTION, THEREBY CAUSING THE GUIDANCE AND  
CONTROL COMPARTMENT TO DROP BELOW OPERATION  
TEMPERATURE. IT WAS RECOMMENDED THAT STUDIES BE  
CONTINUED ON WARHEAD FUZE OPERATION AT EXTREME  
TEMPERATURES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-269 501

ARMY ELECTRONIC PROVING GROUND FORT HUACHUCA ARIZ  
EVALUATION OF MODIFIED TELETYPEWRITER SET MODEL-  
104

(U)

NOV 61 1v  
REPT. NO. 2126  
CONTRACT: AF49 63R 17B  
MONITOR: AFOSR 1802

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*COMMUNICATION SYSTEMS, \*TELETYPE SYSTEMS,  
ARMIES, COMMUNICATION EQUIPMENT, GUIDED MISSILES,  
MINIATURE ELECTRICAL EQUIPMENT, RELIABILITY, SURFACE-TO-  
SURFACE, TESTS (U)  
IDENTIFIERS: PERSHING (U)

TESTS WERE CONDUCTED TO DETERMINE THE PERFORMANCE  
AND SUITABILITY OF THE MODIFIED TELETYPEWRITER  
SET MODEL 104 FOR USE AS A LOW ECHELON TACTICAL  
TELETYPEWRITER AND FOR USE WITH PERSHING MISSILE  
COMMUNICATIONS SYSTEM. RESULTS OF THE TESTS  
REVEALED THAT THE MODEL 104V STILL HAS OPERATING  
DEFICIENCIES WHICH SHOULD BE CORRECTED. THE  
PRIMARY DEFICIENCY ENCOUNTERED DURING THE 100HOUR  
RELIABILITY TEST WAS THE MALFUNCTION OF THE LATERAL  
PRINT-PREVENT AND ADVANCE-PREVENT ADJUSTMENTS.  
THESE ADJUSTMENT MALFUNCTIONS CAUSED NONLEGIBLE  
PRINT COPY AFTER SEVERAL HOURS OF OPERATION,  
BECAUSE THE SPRING TENSION OF THE PAPER FEED  
MECHANISM IS NOT GREAT ENOUGH TO HOLD THE PAPER  
AGAINST THE PLATEN, IT CAUSES THE PAPER TO FEED  
UPWARD AT AN ANGLE RATHER THAN STRAIGHT RESULTING IN  
NONLEGIBLE COPY. THE ON, OFF, AND LIGHT  
SWITCHES AS PRESENTLY LOCATED IN THE CASE COVER ARE  
EASILY BENT OR BROKEN. END-OF-LINE AND MOTOR-STOP  
FEATURES ARE NOT PRESENT ON TELETYPEWRITER MODEL  
104V. NOTWITHSTANDING PRESENT DEFICIENCIES,  
TELETYPEWRITER MODEL 104V IS A CONSIDERABLE  
IMPROVEMENT OVER THE ORIGINAL MODEL 104.  
(AUTHOR)

(U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-267 887

NAVAL RADIOLOGICAL DEFENSE LAB SAN FRANCISCO CALIF

OCT 61 1v SINCLAIR, K.F.; HITCHCOCK, G.W.;

REPT. NO. TR534

UNCLASSIFIED REPORT

DESCRIPTORS: AMPLIFIERS, COMBUSTION, CRYSTAL DETECTORS,  
DETECTION, ERRORS, FAILURE (MECHANICS), FRACTURE  
(MECHANICS), GUIDED MISSILES, NON-DESTRUCTIVE TESTING,  
PHOTOTUBES, QUALITY CONTROL, ROCKET MOTORS, ROCKET  
PROPELLANTS, ROCKET PROPULSION, SCINTILLATION COUNTERS,  
SOLID ROCKET PROPELLANTS, TEST EQUIPMENT, TEST METHODS,  
X-RAY TUBES (U)  
IDENTIFIERS: MINUTEMAN, PERSHING, POLARIS (U)

THE DESIGN AND PERFORMANCE OF CONTINUOUS SCAN TYPE  
FLAW DETECTION SYSTEMS ARE PRESENTED FOR USE IN THE  
DETAILED EXAMINATION OF SOLID PROPELLANT MISSILE  
MOTORS. FACTORS AFFECTING PERFORMANCE ARE  
DISCUSSED INDIVIDUALLY AND RELATED IN A SYSTEM  
EQUATION. AN EXPERIMENTAL SYSTEM, USING TWO  
SCINTILLATION DETECTORS IN A DIFFERENTIAL  
CONFIGURATION, IS DESCRIBED AND TESTS PERFORMED USING  
ISOTOPIC AND X-RAY SOURCES ARE REVIEWED. THE  
PREDICTED PERFORMANCE AND THE EXPERIMENTAL RESULTS  
OBTAINED ARE COMPARED. (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-265 001

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

JUL 61 1v MARTIN, WAYNE A.;

CONTRACT: DA20 01RORD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*ROCKET MOTORS, DEFORMATION,  
DIES, DRAWING (MACHINE PROCESSING), FORGING, HEAT  
TREATMENT, IRON ALLOYS, MANUFACTURING METHODS, NICKEL  
ALLOYS, SMALL TOOLS, SOLID ROCKET PROPELLANTS, STEEL,  
TESTS, TORPEDO COMPONENTS (U)  
IDENTIFIERS: PERSHING (U)

ESTIMATED DELIVERY SCHEDULES ARE PRESENTED FOR THE  
SPECIAL TOOLING (DIES AND PUNCHES) REQUIRED FOR  
THE PRODUCTION OF THE DEEP-DRAWN 40-IN.-DIAM ROCKET  
CASES. EVALUATION DATA FOR THE PROCESS ANNEALING  
AND COLD REDUCTION OF 20 AND 25% NI STEELS ARE  
ALSO PRESENTED. THE 20% NI WAS ANNEALED AT  
1500 F FOR 1 HR AND THE 25% NI AT 1600 F FOR  
1 HR. NO FRACTURES WERE NOTED AFTER 6 REDUCTIONS  
OF 30.5 TO 34.5% ON THE 20% NI, AND 6  
REDUCTIONS OF 26 TO 29% ON THE 25% NI ALLOY.  
PRELIMINARY ATTEMPTS WERE MADE TO DEEP DRAW THE  
20% NI ALLOY ON THE SUB-SCALE (2-IN) TOOLING.  
THE RESULTS INDICATED THAT IT IS FEASIBLE TO COLD  
DRAW THE MATERIAL. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-264 713

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN-ONE PIECE HIGH PERFORMANCE  
ROCKET MOTOR CASE (U)

MAY 61 1V

CONTRACT: DA20 01RORD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*STEEL, \*TITANIUM ALLOYS,  
ALUMINUM ALLOYS, CHEMICAL ANALYSIS, CHROMIUM ALLOYS,  
DEFORMATION, DIES, DRAWING (MACHINE PROCESSING),  
FORGING, FRACTURE (MECHANICS), GRAIN STRUCTURES  
(METALLURGY), HARDENING, HEAT TREATMENT, IRON ALLOYS,  
MANUFACTURING METHODS, MICROSTRUCTURE, NICKEL ALLOYS,  
NON-DESTRUCTIVE TESTING, ROCKET MOTORS, SMALL TOOLS,  
SOLID ROCKET PROPELLANTS, TENSILE PROPERTIES, TORPEDO  
COMPONENTS, ULTRASONIC RADIATION, VANADIUM ALLOYS (U)  
IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-258 000

ABERDEEN PROVING GROUND MD  
ENVIRONMENTAL TEST OF PERSHING COMMUNICATIONS PACK  
NO. 1

(U)

JUN 61 1V WILES, RAY L.:

REPT. NO. DPS 244

UNCLASSIFIED REPORT

DESCRIPTORS: \*CLIMATOLOGY, \*COMMUNICATION EQUIPMENT,  
\*GUIDED MISSILES, \*SHELTERS, \*SURFACE-TO-SURFACE, AIR  
CONDITIONING EQUIPMENT, ANTENNA MASTS, ELECTRIC POWER  
PRODUCTION, GENERATORS, GROUND SUPPORT EQUIPMENT,  
INSTRUMENTATION, MULTIPLEX, TELETYPE SYSTEMS, TEST  
METHODS, TESTS, VIBRATORS (MECHANICAL), VOICE  
COMMUNICATION SYSTEMS

(U)

IDENTIFIERS: AN/TRC-80, PERSHING

(U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-252 853

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

FEB 61 1V

CONTRACT: DA20 01BORD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, HEAT TREATMENT, MACHINING,  
MANUFACTURING METHODS, ROCKET MOTORS, SOLID ROCKET  
PROPELLANTS, STEEL

(U)

IDENTIFIERS: PERSHING

(U)

SPECIFICATIONS ARE PRESENTED FOR 20 FORGED BILLET  
BLOCKS OF VACUUM MELTED TRICENT (INCO 300-M), A  
CR-NI-MO-SI LOW ALLOY STEEL. THE MATERIAL  
SHALL BE PRODUCED BY ELECTRIC FURNACE AIR MELTING  
FOLLOWED BY CONSUMABLE ELECTRODE VACUUM REMELTING.  
THE INGOT THUS OBTAINED WILL BE REDUCED TO A  
BILLET WITH A REDUCTION RATIO BETWEEN 2.5/1 AND 3/1.  
MULTIPLES OF THIS BILLET SHALL BE UPSET FORGED BY  
AN UPSET RATIO BETWEEN 2.5/1 AND 3/1.

SPECIFICATIONS ARE INCLUDED FOR CHEMICAL  
COMPOSITION, QUALITY, MACRO-ETCH, NONMETALLIC  
INCLUSIONS, GRAIN SIZE, HEAT TREATMENT RESPONSE, TEST  
RESPONSIBILITY, VERIFICATION TESTS, CERTIFICATION,  
PACKING, AND MARKING.

(U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-249 607L

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON D  
C

DATA REDUCTION ANALYSIS OF PERSHING RADAR ALTIMETER  
SYSTEM (U)

1v CRAFT, RAY H.:

REPT. NO. RT TR 2 61

MONITOR: ABMA RT TR 2 61

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*ATMOSPHERE ENTRY, \*GUIDED MISSILES,  
\*HEIGHT FINDING, \*NOSE CONES, \*RADAR, \*RADIO ALTIMETERS,  
ALTIMETERS, ERRORS, GUIDED MISSILE WARHEADS, (U)  
INSTRUMENTATION, MATHEMATICAL ANALYSIS (U)  
IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-247 318

POLYTECHNIC INST OF BROOKLYN N Y MICROWAVE RESEARCH  
INST

NETWORK PROPERTIES OF DISCONTINUITIES IN MULTIMODE  
CIRCULAR WAVEGUIDE (U)

JUL 60 IV FELSEN, L.B.; KAHN, W.K.;

REPT. NO. PIBMRI-803-60

CONTRACT: DA-36-039-SC-78001, DA-36-039-SC-73219

PROJ: DA-3-99-15-108

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE, CONTINUATION OF CONTRACT DA-36-  
039-SC-73219.

DESCRIPTORS: \*WAVE TRANSMISSION, \*WAVEGUIDES,  
DIELECTRICS, ELECTROMAGNETIC WAVES, MATHEMATICAL  
ANALYSIS, MEASUREMENT, PROPAGATION, SCATTERING (U)

IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-242 979

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
HIGH ALTITUDE SIMULATOR (U)

JUN 60 1v HOLDERER, OSCAR C.;

REPT. NO. ABMA-DA-TR-15-60

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*CONTROL SURFACES, \*GUIDED MISSILES, \*TEST  
FACILITIES, AIRFOILS, CALIBRATION, DIFFUSERS, HIGH  
ALTITUDE, MOBILE, SIMULATION, STRAIN GAGES, SURFACE-TO-  
SURFACE (U)

IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

021492



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-851 726L 9/2 5/1 16/1  
PLANNING RESEARCH CORP LOS ANGELES CALIF  
SUMMARY OF FINDINGS AND RECOMMENDATIONS OF  
PHASE III, MANAGEMENT TECHNIQUES PHASE OF  
THE STUDY OF PERSHING PLA COUNTDOWN  
SOFTWARE.

(U)

DESCRIPTIVE NOTE: TECHNICAL ADVISEMENT MEMO.,  
APR 69 31P FOSTER, RICHARD W. ;  
REPT. NO. 319-4, PRC-D-2036  
CONTRACT: DAAH01-68-C-2040

UNCLASSIFIED REPORT

DISTRIBUTION: CONTROLLED: ALL REQUESTS TO  
COMMANDING GENERAL, ARMY MATERIEL COMMAND,  
ATTN: AMCPM-PE-X, REDSTONE ARSENAL, ALA.  
35809.

DESCRIPTORS: (\*COMPUTER PROGRAMS, CHECKOUT  
PROCEDURES), MANAGEMENT ENGINEERING, COSTS,  
MANPOWER, CONFIGURATION, SPECIFICATIONS, GUIDED  
MISSILES(SURFACE-TO-SURFACE), EFFECTIVENESS,  
ACCEPTABILITY

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-849 898L 16/3 13/6  
MARTIN MARIETTA CORP ORLANDO FLA ORLANDO DIV  
ROAD SHOCK AND VIBRATION TEST OF THE  
PERSHING WARHEAD SECTION AND THE H-4211B  
HANDLING DEVICE MOUNTED ON THE PERSHING IA  
IMPROVED ERECTOR-LAUNCHER VEHICLE.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
OCT 68 79P FRISBIE, WALTER ;  
MONITOR: PA TR-3811

UNCLASSIFIED REPORT

DISTRIBUTION: CONTROLLED: ALL REQUESTS TO  
COMMANDING OFFICER, PICATINNY ARSENAL, DOVER,  
N. J. 07801.

DESCRIPTORS: (\*GUIDED MISSILE WARHEADS, ROAD  
TESTS), (\*TRANSPORTER-ERECTORS, NUCLEAR  
WARHEADS), GUIDED MISSILES(SURFACE-TO-SURFACE),  
MOBILE, ARMY, VIBRATION, SHOCK(MECHANICS),  
HANDLING, VIBRATION ISOLATORS, INSTRUMENTATION,  
ACCELEROMETERS, TELEMETER SYSTEMS, TRAILERS,  
ACCEPTABILITY, GUIDED MISSILE LAUNCHERS, SHOCK  
ABSORBERS

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-845 684L 16/4,2 15/5  
ARMY AIRBORNE ELECTRONICS AND SPECIAL WARFARE BOARD FORT  
BRAGG N C  
SERVICE TEST (AIR PORTABILITY) OF THE  
PERSHING IA MISSILE SYSTEM, (U)  
DESCRIPTIVE NOTE: LETTER REPT,  
OCT 68 24P  
REPT. NO. USAAESWBD-AB-6766  
PROJ: RDT/E-1-X-279191-D-678, USATECOM-23000425  
TASK: 1-X-279191-D-67802

UNCLASSIFIED REPORT

DISTRIBUTION: DOD ONLY: OTHERS TO COMMANDING  
GENERAL, ARMY TEST AND EVALUATION COMMAND,  
ATTN: AMSTA-FA, ABERDEEN PROVING GROUND,  
MD. 21005.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), \*AIR TRANSPORTATION), TRANSPORT  
PLANES, ACCEPTABILITY, FITTINGS, HANDLING,  
DAMAGE CONTROL, SAFETY, COMPATIBILITY, TACTICAL  
WEAPONS (U)  
IDENTIFIERS: M-4 TRAILERS, PERSHING, C-130  
AIRCRAFT, C-124 AIRCRAFT (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-841 844L 20/6 16/4.2  
PITTSBURGH UNIV WASHINGTON D C RESEARCH STAFF  
AZIMUTH-LAYING TRAINING DEVICE FOR PERSHING  
MISSILE,

(U)

DESCRIPTIVE NOTE: TECHNICAL INFORMATION REPT,  
MAY 68 14P

CONTRACT: DA-49-186-AMC-214(D)  
PROJ: DA-1-X-279191-D-678  
MONITOR: AMC TIR-33.3.3.9

UNCLASSIFIED REPORT

DISTRIBUTION: USGO; OTHERS TO COMMANDING GENERAL,  
ARMY MISSILE COMMAND, ATTN: AMCPM-PE,  
REDSTONE ARSENAL, ALA, 35809.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), AIMING CIRCLES), (\*THEODOLITES,  
TRAINING DEVICES), STABILIZED PLATFORMS,  
ALIGNMENT, AZIMUTH, PRISMS(OPTICS), DISPLAY  
SYSTEMS, DESIGN, CHECKOUT PROCEDURES,  
PERFORMANCE(ENGINEERING)

(U)

IDENTIFIERS: PERSHING, \*AZIMUTH LAYING

(U)

THIS TECHNICAL INFORMATION REPORT DESCRIBES A  
DEVICE FOR TRAINING THE ENTIRE AZIMUTH-LAYING CREW OF  
THE PERSHING MISSILE SYSTEM FIRING BATTERY  
INDEPENDENTLY OF OTHER PERSONNEL AND EQUIPMENT.  
USE OF THE DEVICE WILL MAKE IT POSSIBLE TO CONDUCT  
FREQUENT AND REPETITIVE EXERCISES WITH REALISM, FOR  
EFFECTIVE TRAINING AND MAINTENANCE OF PROFICIENCY IN  
PERSHING MISSILE SYSTEM AZIMUTH-LAYING SKILLS.  
THE TRAINING DEVICE CONSISTS OF TWO PRISMS  
OPTICALLY IDENTICAL TO THE PRISM ON THE MISSILE'S  
STABILIZED PLATFORM, AN ALIGNMENT FIXTURE FOR  
POSITIONING BOTH PRISMS, AND A CONTROL PANEL. THE  
DEVICE WEIGHS ABOUT 150 POUNDS AND OPERATES FROM A  
POWER SUPPLY OF EITHER 105-125 VOLTS, 50, 60, OR 400  
HERTZ, SINGLE-PHASE AC, OR 24-30 VOLTS DC.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-836 709L 16/4.2 5/9  
ARMY ARTILLERY BOARD FORT SILL OKLA  
SERVICE TEST OF AZIMUTH LAYING TRAINING DEVICE  
(PERSHING).  
DESCRIPTIVE NOTE: FINAL REPT, 2 JAN-25 MAR 68,  
JUL 68 61P BOGDANOWICZ, FRANK T. ;  
STROHM, ALVIN W. ;  
REPT. NO. USAARTYBD-FA-1566  
PROJ: RDT/E-1-W-2-79191-D-678, USATECOM-2-3-0004-  
24

(U)

UNCLASSIFIED REPORT

DISTRIBUTION: CONTROLLED: ALL REQUESTS TO ARMY  
MISSILE COMMAND, ATTN: AMCPM-PE, REDSTONE  
ARSENAL, ALA, 35809,

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), TRAINING DEVICES), MOBILE,  
SIMULATORS, AZIMUTH, TRAINING,  
PRISMS(OPTICS), RELIABILITY, ARTILLERY,  
STABILIZED PLATFORMS, ALIGNMENT, ARMY, TACTICAL  
WEAPONS, GUNNERY TRAINERS, ENVIRONMENT, TEST  
METHODS

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-822 427L 5/5 17/2.1  
HUMAN ENGINEERING LABS ABERDEEN PROVING GROUND MD  
A HUMAN FACTORS ENGINEERING EVALUATION OF THE  
PERSHING WEAPON SYSTEM: COMMUNICATIONS PACK (AN/TRC-  
80). (U)  
DESCRIPTIVE NOTE: TECHNICAL MEMO, 10 JUN 60-14 JAN 61,  
SEP 61 72P WEISS, ROGER ;  
REPT. NO. HEL-TM-7-61

UNCLASSIFIED REPORT

DISTRIBUTION: DOD ONLY: OTHERS TO ARMY  
MISSILE COMMAND, ATTN: AMCPM-PE-M, REDSTONE  
ARSENAL, ALA, 35809.

DESCRIPTORS: (\*HUMAN ENGINEERING, \*RADIO  
COMMUNICATION SYSTEMS), GROUND SUPPORT EQUIPMENT,  
DESIGN, GUIDED MISSILES(SURFACE-TO-SURFACE),  
CONTROL PANELS, CONTROL KNOBS, CONFIGURATION,  
MALFUNCTIONS (U)  
IDENTIFIERS: PERSHING, AN/TRC-80 (U)

THIS REPORT PRESENTS THE RESULTS OF THE HUMAN  
FACTORS ENGINEERING EVALUATION OF THE PERSHING  
COMMUNICATIONS PACK (AN/TRC-80) CONDUCTED  
DURING THE PERIOD 10 JUNE 1960 TO 14 JANUARY  
1961. THE UNIT STUDIED CONTAINED MANY DEFICIENCIES  
AND SHORTCOMINGS. THE COMMUNICATIONS PACK IS  
PRESENTLY UNDERGOING REDESIGN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-802 302 21/8,2  
ARDE-PORTLAND INC PARAMUS N J  
CRYOGENIC FORMING OF FLIGHT WEIGHT EXPERIMENTAL SOLID  
PROPELLANT ROCKET CASES, (U)  
DESCRIPTIVE NOTE: FINAL REPT, JUN 62-JUN 65,  
JUL 65 13P MCDONOUGH, ROGER G. ; ALPER,  
RALPH H. ;  
REPT. NO. AMR-168  
CONTRACT: DA-30-069-ORD-3501

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, HUNTSVILLE,  
ALA, 35809.

DESCRIPTORS: (\*ROCKET CASES, MANUFACTURING METHODS),  
(\*CRYOGENICS, ROCKET CASES), PRODUCTION,  
PERFORMANCE(ENGINEERING), STRESSES, EQUATIONS,  
CONFIGURATION, MODELS(SIMULATIONS), STRETCH  
FORMING, STAINLESS STEEL, AUSTENITE, ROCKET  
COMPONENTS, HYDROFORMING(MECHANICAL),  
PROGRAMMING(COMPUTERS), SECOND-STAGE MOTORS,  
WEIGHT, ROCKET MOTORS(SOLID PROPELLANT) (U)  
IDENTIFIERS: PERSHING, ARDEFORM PROCESS,  
STAINLESS STEEL 301 (U)

THE DEVELOPMENT AND FABRICATION OF EXPERIMENTAL  
SIMULATED SECOND STAGE PERSHING ROCKET CASE  
HARDWARE WAS UNDERTAKEN THROUGH THE UTILIZATION OF  
'ARDEFORM' CRYOGENIC STRETCH FORMING TECHNIQUES,  
COMPLETED VESSELS SUBJECTED TO HYDROBURST SHOWED  
STRENGTHS AS HIGH AS 337,000 PSI AT -65 F AND 342,  
800 PSI AT ROOM TEMPERATURE, THE CONFIGURATIONAL  
FEATURES OF THE PERSHING CASE WERE FIRST  
INVESTIGATED IN A SIMULATED SUBSCALE CASE PROGRAM,  
FOLLOWED BY A HIGHER STRENGTH SUBSCALE PROGRAM,  
THE FULL SCALE HARDWARE WAS THEN FABRICATED, USING  
TECHNIQUES DEVELOPED IN THE SUBSCALE STUDIES, IT  
WAS SHOWN THAT ELLIPTICAL HEADS, SKIRT ATTACHMENTS,  
AND NOZZLE END RINGS COULD BE READILY FORMED IN  
VESSELS WITH VERY HIGH STRENGTHS, UTILIZING THE  
ARDEFORM PROCESS, EQUATIONS WERE DERIVED,  
RELATING THE PREFORM SHAPE, MATERIAL PROPERTIES, AND  
STRETCH PRESSURE TO THE FINAL SHAPE, THROUGH THE  
USE OF A COMPUTER, IT WAS POSSIBLE TO DESIGN THE  
PREFORM VESSEL TO ACHIEVE A PRESCRIBED SHAPE WHEN  
STRETCHED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-635 243 15/5 16/4 13/10  
ARMY TRANSPORTATION ENGINEERING AGENCY FORT EUSTIS VA  
PERSHING TRANSPORTABILITY STUDY, VESSEL STOWAGE,  
VOLUME IV. (U)

DESCRIPTIVE NOTE: ENGINEERING REPT,  
JUL 66 30P GRIER, JOHN H. ;  
REPT. NO. USATEA-66-11-VOL-4,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-635 240.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
SHIPBORNE), (\*SHIPPING(MARINE), GUIDED  
MISSILES(SURFACE-TO-SURFACE)), (\*TRANSPORTATION,  
GUIDED MISSILES(SURFACE-TO-SURFACE)), CONTAINERS,  
MOORING, CARGO SHIPS, CHOCKS,  
LOADING(MECHANICS), STORAGE, HANDLING, SECOND-  
STAGE MOTORS, LOGISTICS (U)  
IDENTIFIERS: PERSHING, M-476 CONTAINERS (U)

A VESSEL STOWAGE STATIC STUDY WAS CONDUCTED ON A  
PERSHING MISSILE SYSTEM SECOND STAGE MOTOR  
CONTAINER, XM 476. THE PURPOSE OF THE STUDY WAS  
TO EVALUATE THE STRUCTURAL INTEGRITY OF A PROPOSED  
PROCEDURE FOR THE STOWAGE OF AN XM 476 AND SIMILAR  
CONTAINERS ABOARD A VESSEL SUBJECTED TO ADVERSE OCEAN  
ENVIRONMENTS, THAT IS, STATE OF SEA, BOWDITCH  
SCALE 5-7. DYNAMIC LOADINGS LIKELY TO ACCRUE FROM  
SUCH AN ENVIRONMENT WERE EMPIRICALLY REDUCED TO  
STATIC CRITERIA AND MEASUREMENT. OTHER PORTIONS OF  
THE OVERALL STUDY WILL OBTAIN ACTUAL MEASUREMENTS OF  
THE DYNAMIC LOADING. THE APPLIED STATIC LOADING  
CONDITIONS WERE (1) 3G VERTICAL, (2) 3G  
TRANSVERSE, AND (3) 1G LONGITUDINAL. RESULTS  
OF THE STUDY SHOWED THAT THE CONTAINER SKIDS DO NOT  
HAVE THE REQUIRED STRUCTURAL STRENGTH TO RESIST THE  
APPLIED STATIC LOADING CONDITIONS. THE PROPOSED  
STOWAGE PLAN AND RESTRAINING PROCEDURE PROVED TO BE  
SATISFACTORY IN WITHSTANDING THE APPLIED STATIC  
LOADS. (AUTHOR) (U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-635 241 15/5 16/4 13/6  
ARMY TRANSPORTATION ENGINEERING AGENCY FORT EUSTIS VA  
PERSHING TRANSPORTABILITY STUDY, CONUS RAILWAYS,  
VOLUME II, (U)  
DESCRIPTIVE NOTE: ENGINEERING REPT,  
JUL 66 53P GRIER, JOHN H. ;  
REPT. NO. USATEA-66-11-VOL-2,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-635 240.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
LOGISTICS), (\*RAILWAY CARS, GUIDED  
MISSILES(SURFACE-TO-SURFACE)), (\*TRANSPORTATION,  
GUIDED MISSILES(SURFACE-TO-SURFACE)), RAILROADS,  
CONTAINERS, MOORING, HANDLING, IMPACT TESTS,  
SHOCKS(MECHANICS), VIBRATION, CHOCKS, BOOSTER  
MOTORS, SECOND-STAGE MOTORS, GUIDED MISSILE  
COMPONENTS (U)  
IDENTIFIERS: PERSHING, CONUS RAILWAY, M-474  
CONTAINERS, M-475 CONTAINERS, M-476  
CONTAINERS (U)

CONUS RAILCARS WERE USED IN CONDUCTING RAILCAR  
IMPACT TESTS ON THREE RESEARCH AND DEVELOPMENT  
CONTAINERS: THE PERSHING MISSILE GUIDANCE AND  
CONTROL SECTION CONTAINER (XM 474) AND THE FIRST  
AND SECOND STAGE MOTOR CONTAINERS (XM 475 AND XM  
476). DATA FROM THE TESTS WERE USED TO DETERMINE  
SCIENTIFICALLY THE IMPOSED SHOCKS ON THE CONTAINERS  
AND TO EVALUATE THE STRUCTURAL ADEQUACY OF THE  
TIEDOWN AND RESTRAINT ARRANGEMENTS WHEN SUBJECTED TO  
CONUS RAILWAY ENVIRONMENTS CONTAINED IN  
DEPARTMENT OF THE ARMY TB 55-100, THE  
RESULTS OF THIS STUDY DEMONSTRATE THAT THE  
ARRANGEMENT RECOMMENDED IN USATEA REPORT 66-11,  
VOLUME III, AD-635 242, AND SHOWN IN THIS REPORT  
AS FIGURES 1 AND 2, SATISFACTORILY WITHSTOOD THE  
TEST ENVIRONMENTS AND PROVIDED GREATER STRUCTURAL  
INTEGRITY THAN THE ARRANGEMENT PRESCRIBED IN THE  
SAVANNA ARMY DEPOT DRAWING NO, 5425, PAGE 9,  
IT IS RECOMMENDED THAT THIS SYSTEM BE ADOPTED FOR  
CONUS AND FOREIGN RAILCAR MOVEMENTS, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-618 225

HARRY DIAMOND LABS WASHINGTON D C  
ALTIMETER FOR REENTRY VEHICLE, DESIGN PROPOSAL, (U)  
JUN 65 1V GOODMAN, ROBERT S. ;

REPT. NO. TM-65-29

PROJ: 01500

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*RADIO ALTIMETERS, REENTRY VEHICLES),  
(\*REENTRY VEHICLES, RADIO ALTIMETERS), HEIGHT  
FINDING, ECHO RANGING, DESIGN, GUIDED MISSILES  
COMPONENTS, RADAR EQUIPMENT, RANGE FINDING,  
TELEMETERING TRANSMITTERS, TELEMETER SYSTEMS,  
TRANSPONDERS, GUIDED MISSILE TRAJECTORIES,  
MONITORS (U)  
IDENTIFIERS: PERSHING (U)

THE REPORT DESCRIBES A PROPOSED DESIGN OF AN  
ALTIMETER SYSTEM TO GIVE REENTRY ALTITUDE DATA AND  
HEIGHT-OF-BURST INFORMATION. THE INTENDED  
APPLICATION OF THE PROPOSED SYSTEM REQUIRES A  
MISSILE-BORNE ALTIMETER THAT IS SIMILAR TO THE PULSE-  
RADAR RANGING DEVICE DEVELOPED BY HDL FOR THE  
PERSHING MISSILE. THE ASSOCIATED DATA  
ACQUISITION STATION (DAS) MUST BE CAPABLE OF  
OPERATING EITHER GROUND BASED OR AIRBORNE.  
OPERATION OF THE SYSTEM PROPOSED REQUIRES SIMPLY A  
TRANSMITTER AND TRANSPONDER CONTAINED IN THE REENTRY  
VEHICLE AND A DAS LOCATED IN EITHER AN AIRPLANE OR  
SURFACE STATION. THE ALTITUDE DATA ARE RECORDED IN  
DIGITAL FORM, TOGETHER WITH AN ANALOG RECORD OF TM  
DATA. THE RECORDED INFORMATION IS PROCESSED LATER  
BY A COMPUTER. THE DESIGN IS BASED ON A 40-FT  
SYSTEM ACCURACY REQUIREMENT AND NOT ON COMPONENT  
LIMITATION. FEASIBILITY OF THE DESIGN CONCEPT HAS  
BEEN PROVED IN FIVE FLIGHTS UNDER PERSHING MISSILE  
ENVIRONMENT. THE ACCURACY OF THE PERSHING  
ALTIMETER WAS APPROXIMATELY ±15 FT. A DETAILED  
DESCRIPTION OF THE PROPOSED ALTIMETER DESIGN AND ITS  
THEORY OF OPERATION ARE REPORTED. (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-602 774

ARDE-PORTLAND INC PARAMUS N J

CRYOGENIC STRETCH-FORMING OF SOLID PROPELLANT ROCKET CASES. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. 8 FOR 1 MAR 63-31  
MAY 64,

MAY 64 26P ALPER, R. H. ;

CONTRACT: DA30 0690RD3501

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET CASES, STRETCH FORMING), ROCKET COMPONENTS, MODELS (SIMULATIONS), MANUFACTURING METHODS, DIES, TOLERANCES (MECHANICS), MACHINING, WELDS, STRESSES, TENSILE PROPERTIES, METAL SPINNING, ROCKET MOTOR NOZZLES, ATTACHMENT, ROCKET MOTORS (SOLID PROPELLANT), GUIDED MISSILES (SURFACE-TO-SURFACE) (U)  
IDENTIFIERS: PERSHING (U)

THE EFFECT OF CLOSER DIE TOLERANCES AND ADDITIONAL OVERPRESSURE ON THE OUT-OF-ROUNDNESS OF THE PERSHING SUBSCALE CASES WAS EXAMINED AND DETERMINED TO SIGNIFICANTLY REDUCE THE TOLERANCES ON THE VESSEL. THE EFFECT OF THE ADDITION OF SKIRTS AND END RINGS TO STRETCHED PERSHING SUBSCALE VESSELS ON THE ROOM TEMPERATURE STRENGTH LEVEL WAS DETERMINED, NO SIGNIFICANT DECREASE IN YIELD STRENGTH OF THE VESSEL WAS NOTED. SOME PROBLEMS IN THE SPINNING OF THE COMPONENTS FOR THE FULL SCALE PREFORM WERE ENCOUNTERED AND OVERCOME. DESIGN ANALYSIS OF THE STRESSES ENCOUNTERED DURING THE STRETCHING OF BOTH THE SUBSCALE AND PROJECTED FULL SCALE CASES INDICATED MARGINAL STRESSES IN THE VICINITY OF THE JUNCTURE OF THE AFT CONE AND THE AFT CYLINDER OF THE PREFORM. DESIGN OF A PREFORM FOR A VERY HIGH STRENGTH SUBSCALE CASE WAS STARTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-482 166L 21/8,2  
AEROJET-GENERAL CORP AZUSA CALIF  
POSSIBLE APPLICATIONS OF MECHANICAL IMPEDANCE  
MEASUREMENT TECHNIQUES IN TESTING MISSILE MOTOR  
CASES,  
JAN 63 9P CUSICK, JOHN H. ;

(U)

UNCLASSIFIED REPORT

DISTRIBUTION: USGO: OTHERS TO COMMANDER, NAVAL  
ORDNANCE SYSTEMS COMMAND, WASHINGTON, D. C.  
20360, ATTN: 915.

SUPPLEMENTARY NOTE: NAD CONCORD PRESENTATION, POLARIS/  
MINUTEMAN/PERSHING MEETING ON FILAMENT WOUND  
CHAMBERS.

DESCRIPTORS: (\*ROCKET CASES, \*FILAMENT WOUND  
CONSTRUCTION), GLASS TEXTILES, ULTRASONIC  
PROPERTIES, FORCE (MECHANICS), VELOCITY, TESTS,  
SECOND-STAGE MOTORS, TEST EQUIPMENT, SEPARATION,  
GUIDED MISSILES

(U)

IDENTIFIERS: POLARIS, MINUTEMAN, PERSHING,  
MECHANICAL IMPEDANCE

(U)

POBBIBLE APPLICATIONS OF MECHANICAL IMPEDANCE MEASUREMENT  
TECHNIQUES IN TESTING MISSILE MOTOR CASES.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-481 340L 17/7 16/4,2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB  
PENDULOUS PLATFORM, (U)  
SEP 65 SOP MCCARLEY, H. R. ; DOOLEY, J.  
L. ;  
PROJ: DA-1LO13001A91A  
MONITOR: AMC-RA RG-TR-65-32

UNCLASSIFIED REPORT

DISTRIBUTION: USGO; OTHERS TO COMMANDING GENERAL,  
ARMY MISSILE COMMAND, REDSTONE ARSENAL, ALA,  
35809, ATTN: AMSMI-RG,

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-  
SURFACE), ACCELERATION), (\*GUIDED  
MISSILES(SURFACE-TO-SURFACE), FLIGHT CONTROL  
SYSTEMS), (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
STABILIZED PLATFORMS), GUIDANCE, CONTROLLABLE-  
THRUST ROCKET MOTORS, EQUATIONS OF MOTION, GUIDED  
MISSILE COMPONENTS, ACCELEROMETERS, GYRO  
STABILIZERS, RESONANT FREQUENCY, PITCH(MOTION),  
YAW, ROLL, GIMBALS, SYNCHROS, OSCILLATION,  
ERRORS (U)  
IDENTIFIERS: AVC(ACCELERATION VECTOR CONTROL),  
PENDULOUS PLATFORM, PENDULUM, HARMONIC  
OSCILLATORS(MECHANICS), SERGEANT, PERSHING,  
PIGA(PENDULOUS INTEGRATING GYRO ACCELEROMETER) (U)

THE PENDULOUS PLATFORM IS BEING DEVELOPED FOR  
POSSIBLE USE IN BOTH MEDIUM- AND LONG-RANGE MISSILES.  
THE PLATFORM INDICATES THE MAGNITUDE AND DIRECTION  
OF THE MISSILE ACCELERATION VECTOR RELATIVE TO A  
FIXED STRAIGHT LINE AS ESTABLISHED BY A TWO-AXIS  
SPACE-FIXED REFERENCE. THE PLATFORM OUTPUT  
INFORMATION IS USED TO CONTROL THE MISSILE SO THAT  
THE DIRECTION OF ITS ACCELERATION VECTOR COINCIDES  
WITH THE FIXED STRAIGHT LINE REFERENCE THROUGHOUT  
GUIDED FLIGHT. THE MAGNITUDE OF THE ACCELERATION  
VECTOR MAY BE CONTROLLED AT CONSTANT LONGITUDINAL  
ACCELERATION BY A VARIABLE THRUST MOTOR. STUDIES  
ARE UNDERWAY TO INVESTIGATE THE ELIMINATION OF THE  
REQUIREMENT, FOR CONSTANT ACCELERATION, VELOCITY  
CUTOFF IS OBTAINED BY THE SOLUTION OF A SIMPLE  
GUIDANCE EQUATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-477 026 14/4 5/9  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA GROUND SUPPORT  
EQUIPMENT LAB  
PERSHING MISSILE TRAINER ENGINEERING EVALUATION  
TEST.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
APR 63 59P COLE, MYRON W., JR.;  
BRANTLEY, L. W., JR.; EUBANKS, J. E., JR.;  
HAMMOND, K. J.; CASE, F. H., JR.;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RL-TN-63-6

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF  
COMMANDING GENERAL, ARMY MISSILE COMMAND,  
REDSTONE ARSENAL, ALA, ATTN: GSEL.

DESCRIPTORS: (\*GUIDED MISSILE SIMULATORS,  
\*RELIABILITY), TESTS, ANALYSIS, CONTROL  
SYSTEMS, COMPUTERS, SIMULATORS, HYDRAULIC SEALS,  
GUIDANCE, INVERTERS, STATIC DISCHARGERS,  
STABILIZED PLATFORMS,  
PERFORMANCE(ENGINEERING)

(U)

IDENTIFIERS: PERSHING

(U)

NEWLY DESIGNED SIMULATOR COMPONENTS FOR THE  
PERSHING GUIDED MISSILE TRAINER WERE  
EXTENSIVELY TESTED. IT WAS DETERMINED THAT  
PRECISION FIXED RESISTORS CAN BE USED ON THE SUMMING  
AMPLIFIER PRINTED CIRCUIT BOARDS TO REPLACE  
POTENTIOMETERS NOW USED. THIS WOULD ELIMINATE  
ALIGNMENT PROBLEMS IN THE CONTROL SYSTEM THAT NOW  
EXIST. THE LATHE BED AZIMUTH LAYING MODIFICATION  
TO THE ST-120 SIMULATOR PERFORMED TO DESIGNED  
EXPECTATIONS. THE CAPABILITY OF THE SYSTEM IS  
CONTAINED IN THE TEXT. THE VARIABLE SPEED  
ACCELEROMETER SIMULATOR WITH MINOR MODIFICATIONS WILL  
MEET THE REQUIREMENTS OF SIMULATING DIFFERENT  
GEOGRAPHICAL LOCATIONS AND HEADINGS. THE GUIDANCE  
COMPUTER SIMULATOR WILL MEET THE CHECKOUT  
REQUIREMENTS OF THE PERIPHERAL EQUIPMENT. THE TEST  
SHOWS THAT THE STATE-OF-THE-ART HAS ADVANCED TO THE  
POINT THAT STATIC INVERTERS CAN REPLACE THE ROTARY  
INVERTER IN THE GUIDED MISSILE TRAINER. THE UNITS  
TESTED DID NOT HAVE THE REQUIRED CAPACITY. THE AK  
SIMULATOR RESPONDED CORRECTLY TO THE PRESENT VALUES  
AND INSERTED MALFUNCTIONS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-475 958 16/1

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB

INDUCED TRANSPORTATION ENVIRONMENT TESTS OF TWO  
PERSHING FIELD MAINTENANCE SHOPS, (U)

DESCRIPTIVE NOTE: REPT. FOR MAR-APR 63,

JUN 63 76P KANAAN, MITCHELL J. ;BATSON,  
JAMES L. ;

PROJ: DA-516-05-011

MONITOR: AMC-RA RT-TM-63-38

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*MAINTENANCE EQUIPMENT, ENVIRONMENTAL  
TESTS), IMPACT SHOCK, SHOCK(MECHANICS), MOBILE,  
HANDLING, TRANSPORTATION, VIBRATION, DROP  
TESTING, RAILROADS, GUIDED MISSILES(SURFACE-TO-  
SURFACE), MAINTENANCE, MEASURING  
DEVICES(ELECTRICAL + ELECTRONIC), ACCELERATION,  
ACCELEROMETERS, TABLES, STRUCTURAL PROPERTIES,  
DAMAGE ASSESSMENT, CHECKOUT EQUIPMENT, (U)

IDENTIFIERS: PERSHING (U)

A SERIES OF TESTS WERE CONDUCTED ON TWO PERSHING  
FIELD MAINTENANCE SHOPS TO SIMULATE ENVIRONMENTS  
ENCOUNTERED DURING TRANSPORTATION AND HANDLING.  
THE TESTS INCLUDED ROAD SHOCK AND VIBRATION,  
RAILROAD HUMMING, AND DROPPING. CHECKOUT AFTER THE  
ROUGH ROAD AND RAILROAD HUMMING TESTS REVEALED NO  
STRUCTURAL DAMAGE OR EQUIPMENT MALFUNCTION. THE  
ELECTRICAL SHOP STRUCTURE FAILED IN SEVERAL AREAS  
DURING THE DROP TESTS, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-475 955 21/8.2  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TEST PLAN FOR DESIGN DEMONSTRATION TEST (DDT) PROGRAM  
FOR PERSHING ROCKET MOTORS, (U)  
MAR 63 98P BATSON, JAMES L.; WRIGHT,  
OLNEY H.;  
PROJ: DA-516-05-011  
MONITOR: AMC-RA RT-TN-63-35

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*ROCKET MOTORS(SOLID PROPELLANT),  
TEST METHODS), (\*BOOSTER MOTORS, CAPTIVE TESTS),  
(\*SECOND-STAGE MOTORS, CAPTIVE TESTS),  
ENVIRONMENTAL TESTS, SPECIFICATIONS, CYLINDRICAL  
BODIES, DESIGN, INTERIOR BALLISTICS, DAMAGE  
ASSESSMENT, TEMPERATURE, AGING(MATERIALS),  
THRUST, PRESSURE, STRAIN(MECHANICS), DATA,  
EQUATIONS, CORRECTIONS, MEASUREMENT (U)  
IDENTIFIERS: PERSHING, THERMAL CYCLING (U)

THE PERSHING ROCKET MOTOR DESIGN  
DEMONSTRATION TEST (DDT) PROGRAM IS DESIGNED  
TO VERIFY THAT THE XB1 AND XB2 CYLINDRICAL CORE  
ROCKET MOTORS WILL PERFORM SATISFACTORILY ACCORDING  
TO THE DESIGN REQUIREMENTS OUTLINED IN ABMA-XPD  
784, REVISION 5. THE TEST PROGRAM CONSISTS OF 18  
CYLINDRICAL CORE MOTORS -- EIGHT XB 1 MOTORS AND  
TEN XB 2 MOTORS. EACH MOTOR WILL BE SUBJECTED TO  
SELECTED ENVIRONMENTS, INSPECTED FOR DAMAGE, AND  
STATIC FIRED. THE BALLISTIC PERFORMANCE  
CHARACTERISTICS DETERMINED FROM THE TEST FIRINGS WILL  
BE COMPARED WITH THE REQUIRED SPECIFICATIONS LISTED  
IN ABMA-XPD 784, REV. 5 FOR DESIGN DEMONSTRATION.  
(AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-474 849 17/7

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TEST PLAN FOR PERSHING GUIDANCE AND CONTROL  
COMPARTMENT TEMPERATURE TESTS, (U)

MAR 63 12P EYESTONE, RONALD G. ;

PROJ: DA-516-05-011

MONITOR: AMC-RA

RT-TN-63-34

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*GUIDANCE, ENVIRONMENTAL TESTS),  
GUIDED MISSILES(SURFACE-TO-SURFACE), TEMPERATURE,  
INSTRUMENTATION, SOLAR RADIATION, HEAT, GAS  
FLOW, AIR, AIR CONDITIONING EQUIPMENT, REDUCTION,  
DATA PROCESSING SYSTEMS, DIGITAL SYSTEMS, ANALOG  
SYSTEMS (U)

IDENTIFIERS: PERSHING (U)

THIS SERIES OF TESTS SHALL DETERMINE OPERATING  
TEMPERATURE LEVELS OF STANDARD PERSHING GUIDANCE  
AND CONTROL EQUIPMENT UNDER ADVERSE TEMPERATURE AND  
SOLAR RADIATION CONDITIONS. THE TESTS ARE TO BE  
PERFORMED PRIMARILY TO INVESTIGATE THE POSSIBILITY OF  
ELIMINATING AIR CONDITIONING REQUIREMENTS WHEN THE  
MISSILE SYSTEM IS OPERATED IN AN EXTREME DESERT  
ENVIRONMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-474 845 16/4  
ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
SHOCK TEST OF THIRTY-TWO PERSHING INERTIA SWITCHES,

(U)

MAY 63 18P BISSINGER, JACK C. ;

PROJ: DA-516-05-011

MONITOR: AMC-RA

RT-TM-63-41

UNCLASSIFIED REPORT

DISTRIBUTION: NO FOREIGN WITHOUT APPROVAL OF ARMY  
MISSILE COMMAND, REDSTONE ARSENAL, ALA.

DESCRIPTORS: (\*ELECTRIC SWITCHES, \*GUIDED MISSILE  
COMPONENTS), ACCELERATION, VELOCITY, INERTIA,  
RELIABILITY(ELECTRONICS), SHOCK RESISTANCE,  
TEMPERATURE, ENVIRONMENTAL TESTS, TEST EQUIPMENT,  
PERFORMANCE(ENGINEERING), CALIBRATION,  
ELECTROMAGNETIC SHIELDING

(U)

IDENTIFIERS: PERSHING, INERTIA SWITCHES

(U)

THESE TESTS WERE DESIGNED TO INVESTIGATE THE  
ACCURACY, REPEATABILITY, AND RELIABILITY OF EACH  
INERTIA SWITCH TO INDICATE WHEN THEIR PRE-SET G  
LEVEL HAS BEEN EXCEEDED. THE TESTS WERE CONDUCTED  
DURING APRIL 1963. BASED ON THE TEST RESULTS AND  
THE GENERAL PERFORMANCE OF THE THIRTY-TWO SWITCHES,  
IT IS EXPECTED THAT THE SWITCHES WILL OPERATE  
ACCURATELY AND RELIABLY, PROVIDED THAT (1) THE  
SWITCHES ARE PROPERLY CALIBRATED AND (2) ADEQUATE  
MEASURES ARE TAKEN TO SHIELD THE SWITCHES FROM  
EXTERNAL MAGNETIC INFLUENCES UNDER SERVICE  
CONDITIONS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-473 973

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB

PERSHING WARHEAD SEPARATION (PAL) TEST PLAN, (U)

JAN 64 5P GASSAWAY, JOHN F. ;

REPT. NO. RT-TN-64-6

PROJ: DA-516-05-011

UNCLASSIFIED REPORT

NO PUBLIC OR FOREIGN RELEASE,

DESCRIPTORS: (\*GUIDED MISSILE WARHEADS,  
SEPARATION), TEST METHODS, SIMULATION, TEST  
EQUIPMENT, GUIDED MISSILES (SURFACE-TO-SURFACE),  
CABLE ASSEMBLIES (U)

IDENTIFIERS: PERSHING (U)

THIS TEST PLAN PROVIDES INFORMATION AND DIRECTION  
FOR SETUP AND PERFORMANCE OF PERSHING WARHEAD  
SEPARATION TESTS. THE WARHEAD AND GUIDANCE  
AND CONTROL SECTION FROM MISSILE 303 WILL BE  
UTILIZED FOR THE TESTS. THE WARHEAD WILL BE  
MOUNTED HORIZONTALLY IN A SPECIAL TEST FIXTURE WHICH  
ALLOWS THE WARHEAD TO ACCELERATE DOWN A FIXED TRACK  
UPON SEPARATION. TACTICAL GUIDANCE AND CONTROL TO  
WARHEAD CABLES AND CONNECTORS WILL BE TESTED AND USED  
AS A BASIS FOR COMPARISON FOR THE NEWLY DESIGNED PAL  
CABLES AND CONNECTORS WHICH WILL ALSO BE TESTED. A  
TOTAL OF SIX SEPARATIONS WILL BE MADE. THESE  
TESTS ARE TO BE PERFORMED BY THE T+RE LAB AT  
REDSTONE ARSENAL, ALABAMA. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-473 971

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TEST PLAN FOR ROUGH ROAD TESTING OF THE ELECTRICAL  
AND REPAIR PARTS SHOPS OF PERSHING MISSILE SYSTEM, (U)  
FEB 63 12P KANAAN ,M, J. ;BATSON,J, L.

REPT. NO. RT-TN-63-39  
PROJ: DA-516-05-011

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
\*GROUND SUPPORT EQUIPMENT), MAINTENANCE EQUIPMENT,  
ELECTRICAL EQUIPMENT, TEST EQUIPMENT, TEST  
METHODS, TRANSPORTATION (U)  
IDENTIFIERS: PERSHING, REPAIR SHOPS, ROAD  
TESTING (U)

THIS TEST PLAN DESCRIBES A TEST OF THE FIELD  
MAINTENANCE ELECTRICAL SHOP AND THE REPAIR  
PARTS SHOP OF THE PERSHING WEAPON SYSTEM TO  
SIMULATE CONDITIONS THAT ARE EXPECTED DURING TACTICAL  
AND LOGISTIC TRANSPORTATION. THE TEST WILL BE  
CONDUCTED AT REDSTONE ARSENAL BY TEST AND  
EVALUATION LABORATORY, DIRECTORATE OF  
RESEARCH AND DEVELOPMENT, U. S. ARMY MISSILE  
COMMAND, REDSTONE ARSENAL, ALABAMA.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 751

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
PRELIMINARY EVALUATION OF PERSHING 105 FLIGHT TEST,

(U)

APR 60 58P FULMER ,C. R. ;LINDBERG,J. P.

REPT. NO. ABMA-DA-TM-28-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE,

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
FLIGHT TESTING), PERFORMANCE(ENGINEERING),  
BOOSTER MOTORS, ROCKET MOTORS(SOLID PROPELLANT),  
FLIGHT CONTROL SYSTEMS, ACCELEROMETERS, STABILITY,  
RANGES(DISTANCE), SPECIFIC IMPULSE, VELOCITY,  
TEMPERATURE, GUIDED MISSILE TRAJECTORIES, WEIGHT,  
HYDRAULIC SYSTEMS, VIBRATION, EXPERIMENTAL DATA

(U)

IDENTIFIERS: PERSHING

(U)

MISSILE P-105 WAS THE FIRST PERSHING MISSILE TO  
BE FLIGHT TESTED. IT WAS LAUNCHED AT THE AMR ON  
25 FEBRUARY 1960 AT 1301 EST. THE FIRST STAGE  
SOLID PROPELLANT A MOTOR PERFORMED VERY CLOSELY TO  
THE PREDICTIONS. THE POWER FLIGHT CONTROL,  
INCLUDING BODY FIXED ACCELEROMETER CONTROL, WAS  
ENTIRELY SATISFACTORY. THE COAST PHASE UNTIL 100  
SECONDS FLIGHT TIME WAS NOT SUCCESSFULLY CONTROLLED.  
THE MISSILE WENT OUT OF CONTROL IN ALL THREE PLANES  
AT APPROXIMATELY 13 SECONDS AFTER BURNOUT.  
ANALYSIS OF THE FLIGHT DATA INDICATED A STABILITY  
RATIO  $C1/C2$  OF -6.93 COMPARED TO A PREDICTED  
RATIO OF -4.05 AT THE TIME OF LOSS OF CONTROL. DUE  
TO THE DISTURBED SPATIAL FLIGHT THE MISSILE IMPACTED  
AT A RANGE OF 16.9 MM COMPARED TO THE PREDICTED 30MM.  
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 749

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
PERSHING QUALITY REPORT NUMBER 10 FOR MARCH 1960,

(U)

JUN 60 97P MANNING, ELIZABETH G. ;

REPT. NO. ABMA-DRR-TM-23-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
QUALITY CONTROL), MANAGEMENT ENGINEERING,  
ELECTRONIC EQUIPMENT, MANUFACTURING METHODS,  
INSTALLATION, VISUAL INSPECTION, GROUND SUPPORT  
EQUIPMENT, TRANSPORTATION, GUIDED MISSILE  
COMPONENTS, TACTICAL WEAPONS, MOBILE, ARMY,  
PROCESSING

(U)

IDENTIFIERS: PERSHING

(U)

THE PURPOSE OF THIS REPORT IS TO PRESENT MANAGEMENT  
WITH A GENERAL PICTURE OF THE OVERALL QUALITY OF THE  
PWS AS REFLECTED FROM INSPECTION AND TEST RESULTS,  
(AUTHOR)

(U)

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AD-472 747

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
PERSHING MISSILE SYSTEM PREFLIGHT CERTIFICATION TEST  
RESULTS LEV-3 MOD. II AUTO-PILOT (ADDENDUM), (U)

AUG 60 4P LIDE, WILTON C. ;

REPT. NO. ABMA-DG-TM-6-60-ADD.

UNCLASSIFIED REPORT

NO PUBLIC OR FOREIGN RELEASE.

SUPPLEMENTARY NOTE: ADDENDUM TO REPT. NO. ABMA-DG-TM-  
6-60 DATED 15 FEB 60, AD-472 746.

DESCRIPTORS: (\*GUIDED MISSILES(SURFACE-TO-SURFACE),  
FLIGHT TESTING), AUTOMATIC PILOTS, HIGH-  
TEMPERATURE RESEARCH, MOBILE, GYROSCOPES,  
ACCELEROMETERS, LOW-TEMPERATURE RESEARCH,  
VIBRATION, SHOCK(MECHANICS) (U)

IDENTIFIERS: PERSHING (U)

PERSHING MISSILE SYSTEM PREFLIGHT CERTIFICATION TEST  
RESULTS.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-472 745

ARMY BALLISTIC MISSILE AGENCY REDSTONE ARSENAL ALA  
OPERATIONAL CAPABILITIES AND COMPONENT EVALUATION OF  
THE PERSHING MISSILE SYSTEM TRANSPORTER-ERECTOR-  
LAUNCHER, MISSILE LIFT TRAILERS, AND XM-474 TRACKED  
VEHICLE, (U)

SEP 60 23P JOHNSON, ARTHUR G. ;

REPT. NO. ABMA-RS-TM-2-60

UNCLASSIFIED REPORT  
NO PUBLIC OR FOREIGN RELEASE.

DESCRIPTORS: (\*TRANSPORTER-ERECTORS, GUIDED  
MISSILES(SURFACE-TO-SURFACE)), (\*TRAILERS, GUIDED  
MISSILES(SURFACE-TO-SURFACE)), (\*TRACKED VEHICLES,  
GUIDED MISSILES(SURFACE-TO-SURFACE)), GROUND  
SUPPORT EQUIPMENT, OPERATION, RELIABILITY,  
HANDLING, JACKS(MECHANICS), DESIGN,  
COMPATIBILITY, EFFECTIVENESS, CHECKOUT  
PROCEDURES, ALIGNMENT, DEPLOYMENT (U)  
IDENTIFIERS: PERSHING, M-474 VEHICLES (U)

THE TEL AND THE XM-474, WITH SOME MINOR  
REDESIGN, ARE ADEQUATE TO TRANSPORT AND ERECT THE  
PERSHING MISSILE IN THE GROUND MOBILE  
CONFIGURATION. THE MAJOR PROBLEM ENCOUNTERED  
DURING OPERATION WAS THE INSUFFICIENT LENGTH OF THE  
STABILIZER JACKS WHICH PRECLUDED THE LEVELING OF THE  
LAUNCH PAD ON THE SLOPE ESTABLISHED BY SYSTEM  
REQUIREMENTS. THE EVALUATION PROGRAM EMPHASIZED  
THE LIMITATIONS OF THE PERSHING EQUIPMENT WHEN  
EMPLOYED IN THE HELICOPTER MODE. OPERATOR  
TECHNIQUES AND THE SITE TERRAIN DETERMINES TO A GREAT  
EXTENT THE TACTICAL EFFECTIVENESS. NEITHER CAN THE  
ELEMENT OF CHANCE BE DISREGARDED, CONSIDERING THE  
WIDE VARIATION IN TIME REQUIRED BY THE SAME OPERATORS  
FOR IDENTICAL OPERATIONS. EXAMPLES OF THE LATTER  
WOULD BE IN MATING THE MISSILE SECTIONS, ALIGNING THE  
LIFT TRAILERS, AND IN MATING THE COMPLETE MISSILE TO  
THE AZIMUTH RING. SINCE THE PERFORMANCE OF THESE  
OPERATIONS IN THE ALLOTTED TIME OBVIOUSLY CANNOT BE  
LEFT TO CHANCE, IT MUST BE CONCLUDED THAT  
INSUFFICIENT PRECISE INDEXES EXIST FOR THE PROCEDURAL  
OPERATIONS. CONTRIBUTING A GREAT DEAL TO THE  
SITUATION IS THE DIFFICULTY EXPERIENCED IN ALIGNING  
THE LIFT TRAILERS AND, CONSEQUENTLY, THE MISSILE  
SECTIONS FOR MATING. TOO, AS STATED BEFORE, THE  
MISSILE LIFT TRAILER CONTROL VALVES ARE INHERENTLY  
DIFFICULT TO OPERATE AND REQUIRE A HIGH DEGREE OF  
FAMILIARITY ON THE PART OF THE OPERATOR. IN  
SUMMARY, IT IS FELT THAT IT IS EXTREMELY UNLIKELY  
THAT CONSISTENTLY SUCCESSFUL OPERATIONS CAN BE (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-468 425

ALABAMA UNIV UNIVERSITY BUREAU OF ENGINEERING  
RESEARCH

A THEORETICAL STUDY TO IMPROVE UTILIZATION OF MISSILE  
TELEMETRY SYSTEMS, (U)

DESCRIPTIVE NOTE: FINAL REPT., 11 APR 62-10 JAN 63,  
FEB 63 48P SIMPSON, RICHARD S.; BURNETT,  
J. REESE ;

CONTRACT: DAO1 009ORD1041

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*TELEMETER SYSTEMS, GUIDED  
MISSILES), BANDWIDTH, TELEMETERING DATA,  
CLASSIFICATION, VIBRATION, PULSE COMPRESSION,  
DATA, ANALYSIS, FREQUENCY (U)

IDENTIFIERS: PERSHING (U)

DATA BANDWIDTH COMPRESSION OF SLOWLY VARYING  
MEASUREMENTS CAN BE ACCOMPLISHED USING RATHER  
STRAIGHTFORWARD TECHNIQUES, THE EXTENSION OF THE  
CONCEPT OF DATA COMPRESSION TO VIBRATION MEASUREMENTS  
APPEARS TO BE A NATURAL STEP, HOWEVER,  
CONSIDERABLE DIFFICULTY IS ENCOUNTERED WHEN THIS STEP  
IS ATTEMPTED BY USE OF SYSTEMS OTHER THAN SIMPLE  
BAND-TYPE ANALYZERS, THE MAJOR DIFFICULTY IS THAT  
OF EXTRACTING INFORMATION FROM THE RAW DATA WHICH  
WILL GIVE THE POWER DENSITY SPECTRUM, THIS IS AN  
IMPORTANT FACET OF THE PROCESS BECAUSE THE MAJOR  
PORTION OF THE POSSIBLE DATA COMPRESSION IS  
CONCENTRATED IN THIS STEP, IN THIS WORK THE BAND-  
TYPE ANALYZER AND THE COHERENT MEMORY-FILTER ANALYZER  
(CMF) HAVE BEEN CONSIDERED AS POSSIBLE TECHNIQUES  
FOR ACCOMPLISHING THE TASK, ONLY THE BAND-TYPE  
ANALYZER APPEARS TO BE FEASIBLE UNDER THE STRICT  
HARDWARE LIMITATIONS IMPOSED ON NON-TACTICAL SYSTEMS,  
ONCE THE PROBLEM OF OBTAINING THE POWER DENSITY  
SPECTRUM HAS BEEN SOLVED, ADAPTIVE DATA COMPRESSION  
IS POSSIBLE, THOUGH THE CONTRIBUTION TO TOTAL  
COMPRESSION IS LESS THAN THAT REALIZED IN OBTAINING  
THE POWER DENSITY SPECTRUM, SIGNIFICANT COMPRESSION  
IS GAINED, HARDWARE REQUIREMENTS RENDER THIS  
COMPRESSION COSTLY, HOWEVER, IDENTIFICATION AND  
BUFFERING PROBLEMS GENERALLY IMPLY THE USE OF A  
DIGITAL SYSTEM, FINALLY, IT IS APPARENT THAT THE  
ONLY FEASIBLE DATA BANDWIDTH COMPRESSION SYSTEM IS  
ONE USING BAND-TYPE ANALYZERS OPERATING IN THE SIMPLE  
MODE, (AUTHOR) (U)

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-468 201L

SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF AUTOMOTIVE RESEARCH

A STUDY OF THE EFFECTS OF DUST ON THE PERSHING MISSILE GROUND SUPPORT TURBINE ENGINE, (U)

DESCRIPTIVE NOTE: SUPPL. A TO FINAL TECHNICAL REPT.,

DEC 62 43P MERIWETHER, ROSS F. ;

REPT. NO. AR-489

CONTRACT: DA44 009ENG4770

PROJ: 8M49 11 001 02A, SWRI PROJ. 1075-11

UNCLASSIFIED REPORT

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SUPPLEMENTARY NOTE: SUPPLEMENT A TO REPORT DATED 30 MAR 62, AD-468 197.

DESCRIPTORS: (\*DUST, GUIDED MISSILES (SURFACE-TO-SURFACE)), (\*GAS TURBINES, DUST), GROUND SUPPORT EQUIPMENT, TESTS, PERFORMANCE (ENGINEERING), LIFE EXPECTANCY, DAMAGE, EROSION, DATA, TITANIUM, ALUMINUM (U)

IDENTIFIERS: PERSHING (U)

THE FOLLOWING CONCLUSIONS CAN BE DRAWN FROM THE RESULTS OF THIS SECOND TURBINE DUST TEST: (1) EVEN WITH THE USE OF HIGHER QUALITY MATERIALS IN THE TURBINE SECTION, THE PERSHING MISSILE SUPPORT TURBINE ENGINE IS STILL VERY SUSCEPTIBLE TO DAMAGE BY DUST EROSION FROM VERY CONSERVATIVE DUST ATMOSPHERES. (2) THE TURBINE SECTION IS STILL THE MOST VULNERABLE PART OF THE TURBINE. (3) THE USE OF TITANIUM IN SOME OF THE COMPRESSOR COMPONENTS (1ST STAGE INDUCERS, 1ST STAGE COMPRESSOR SHROUD, 2ND STAGE COMPRESSOR WHEEL) APPEARS TO ASSIST THE ABILITY OF THAT COMPONENT TO RESIST EROSION. HOWEVER, THERE IS NO DIRECT COMPARISON OF ALUMINUM AND TITANIUM AVAILABLE, SO THE RESULTS OF THIS TEST CAN ONLY BE SUGGESTIVE OF THIS CONCLUSION. (4) FURTHER EVIDENCE OF THE SUPERIORITY OF BACKWARD SWEEPED COMPRESSOR VANES IN RESISTING EROSION WAS OBTAINED, PARTICULARLY ON THE 1ST STAGE COMPRESSOR WHERE LITTLE EROSION OF THE ALUMINUM IMPELLER OCCURRED, ON AN EARLIER TURBINE TEST PROGRAM, STRAIGHT VANED ALUMINUM IMPELLERS WERE FOUND TO BE HIGHLY VULNERABLE TO DUST EROSION. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-462 249

ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS FORT BELVOIR  
VA

THE 10-KW, 400-CYCLE, GASOLINE ENGINE DRIVEN  
GENERATOR SET USED IN THE RADIO TERMINAL (AN/TRC-80)  
FOR THE PERSHING MISSILE SYSTEM. (U)

DESCRIPTIVE NOTE: ENGINEERING EVALUATION REPT, 10 MAR  
61-11 JAN 62,

MAR 65 34P BELT, RICHARD N. ;

REPT. NO. AERDL-1801

PROJ: DA-BM18-13-001

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: (\*GENERATORS, PERFORMANCE (ENGINEERING)),  
(\*RADIO COMMUNICATION SYSTEMS, POWER SUPPLIES), INTERNAL  
COMBUSTION ENGINES, GASOLINE, GROUND SUPPORT EQUIPMENT,  
GUIDED MISSILES (SURFACE-TO-SURFACE), MOBILE, ARMY (U)  
IDENTIFIERS: PERSHING, AN/TRC-80 (U)

THE REPORT COVERS THE DEVELOPMENT, ENGINEERING  
DESIGN TEST RESULTS, AND EVALUATION OF THE 10-KW,  
400-CYCLE, GASOLINE-ENGINE-DRIVEN GENERATOR SET USED  
IN THE RADIO TERMINAL (AN/TRC-80) WITH THE  
PERSHING MISSILE SYSTEM. THE REPORT  
CONCLUDES THAT THE GENERATOR SET MEETS THE TECHNICAL  
OBJECTIVES AND ELECTRICAL POWER REQUIREMENTS OF THE  
AN/TRC-80. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO., 021492

AD-460 606L

SOUTHWEST RESEARCH INST SAN ANTONIO TEX DEPT OF AUTOMOTIVE RESEARCH

DEVELOPMENT OF A PROTOTYPE SELF-CLEANING FILTER FOR THE PERSHING MISSILE POWER STATION GAS TURBINE, PHASE I, (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,  
NOV 64 44P MERIWETHER, ROSS F. ;  
REPT. NO. AR-548  
CONTRACT: DA44 009ENG5245  
PROJ: 11 1240

UNCLASSIFIED REPORT

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SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*LAUNCHING SITES, POWER SUPPLIES), (\*POWER SUPPLIES, GAS TURBINES), (\*GAS TURBINES, FILTERS (FLUID)), (\*FILTERS (FLUID), AIR), DESIGN, FEASIBILITY STUDIES, CLEANING, DUST, AUTOMATIC, MECHANICAL DRAWINGS, EFFECTIVENESS, FLUID FLOW, PRESSURE, REDUCTION, LIFE EXPECTANCY, VELOCITY, TEST METHODS, PAPER, IMPREGNATION, PHENOLIC PLASTICS, CATION TEXTILES, BONDING, NYLON, THERMOSETTING PLASTICS, CELLULOSE, GLASS TEXTILES, GUIDED MISSILES (SURFACE-TO-SURFACE) (U)

IDENTIFIERS: PERSHING (U)

THE SUSCEPTIBILITY OF GAS TURBINE ENGINES TO THE INGESTION OF EVEN LIGHT CONCENTRATIONS OF AIRBORNE DUST WAS DEMONSTRATED BY A SERIES OF RECENT TESTS AT SOUTHWEST RESEARCH INSTITUTE. THESE TESTS REVEALED THE NEED FOR AN AIR FILTER FOR THE PERSHING SUPPORT TURBINE, AND LOGISTIC CONSIDERATIONS DICTATED THAT THE AIR FILTER BE SELF-CLEANING. THIS FIRST PHASE OF THE PROGRAM TO DEVELOP A SELF-CLEANING AIR FILTER SYSTEM WAS DEVOTED TO EVALUATING COMMERCIALY AVAILABLE FILTER MEDIA TO FIND AT LEAST ONE MEDIUM WHICH WOULD MEET THE PERFORMANCE REQUIREMENTS OF THIS PARTICULAR APPLICATION. THIS REPORT COVERS THE RESULTS OF THAT SEARCH FOR AN ACCEPTABLE FILTER MEDIUM. (AUTHOR) (U)

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021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 935

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
METHODS FOR COMPUTING THERMAL CONDUCTIVITY, THERMAL  
DIFFUSIVITY, AND SPECIFIC HEAT, (U)

DESCRIPTIVE NOTE: PROGRESS REPT, NO, 9, MAR-JUN 64,  
JUL 64 48P TANGER, G. E. ;

CONTRACT: DAO1 009ORD1023

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AVAILABILITY: FOR REFERENCE ONLY AT EACH OF THE DDC  
OFFICES. THIS REPORT CANNOT BE SATISFACTORILY  
REPRODUCED: DDC DOES NOT FURNISH COPIES.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*THERMAL CONDUCTIVITY, MEASUREMENT),  
THERMAL PROPERTIES, SPECIFIC HEAT, THERMAL DIFFUSION,  
HEAT TRANSFER, CYLINDRICAL BODIES (U)

IDENTIFIERS: PERSHING (U)

THE STUDY OF THERMAL PROPERTY DETERMINATION HAS  
CONTINUED. THE PROPERTIES INVESTIGATED INCLUDE  
THERMAL DIFFUSIVITY, THERMAL CONDUCTIVITY, AND  
SPECIFIC HEAT. THE METHODS DEVELOPED WILL BE USED  
PRIMARILY TO DETERMINE ACCURATE THERMAL PROPERTIES  
FOR THE PERSHING MISSILE SYSTEM AND FOR OTHER  
PROPELLANTS OF CURRENT INTEREST. THE METHOD FOR  
DETERMINING THERMAL DIFFUSIVITY REPORTED IN THE LAST  
PROGRESS REPORT HAS BEEN REFINED, AND NEW TESTS ARE  
REPORTED TO POINT OUT THE IMPROVEMENTS IN ACCURACY  
THAT HAVE BEEN OBTAINED. LIMITATIONS OF THE  
EXPERIMENT ARE DISCUSSED IN THE REPORT. SEVERAL  
IMPROVEMENTS HAVE BEEN MADE IN THE LINE-SOURCE METHOD  
FOR DETERMINING THERMAL CONDUCTIVITY. THE  
IMPROVEMENTS ARE DESIGNED TO MAKE THE METHOD  
COMPETITIVE WITH THE GUARDED HOT-PLATE METHOD.  
TEST RESULTS ON LIVE SARGEANT AND ALUMINUM STAPLE  
PROPELLANT ARE REPORTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 930

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
FURTHER STUDY OF WEATHER EFFECTS ON THE PERSHING  
MOTOR.

(U)

DESCRIPTIVE NOTE: PROGRESS REPT. NO. 3, AUG-OCT 62,  
DEC 62 27P TANGER, G. E. ; NIX, G. H. ;  
CONTRACT: DAO1 0090RD1023

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*PROPELLANT GRAINS, HEAT TRANSFER),  
THERMAL DIFFUSION, WIND, TEMPERATURE, METEOROLOGICAL  
PARAMETERS, ROCKET MOTORS (SOLID PROPELLANT), UNITED  
STATES, CANADA, DIFFERENCE EQUATIONS, NUMERICAL  
ANALYSIS, MATHEMATICAL PREDICTION, HEATING ELEMENTS,  
BLANKETS

(U)

IDENTIFIERS: PERSHING

(U)

AN ATTEMPT HAS BEEN MADE TO PREDICT THE  
TEMPERATURE GRADIENTS THAT OCCUR IN A CYLINDRICAL  
ROCKET GRAIN UNDER CONDITIONS OF CHANGING AMBIENT  
TEMPERATURE AND WIND VELOCITY. THE GRAIN WAS  
ASSUMED TO BE PROTECTED BY AN ELECTRIC BLANKET AND  
COMPUTER RESULTS ARE PRESENTED FOR VARYING CONDITIONS  
OF TEMPERATURE AND WIND VELOCITY FROM STATIONS IN THE  
CONTINENTAL UNITED STATES AND CANADA.  
WEATHER DATA WERE OBTAINED FROM THE AIR  
CLIMATIC CENTER, USAF, WASHINGTON, D. C. AND  
RUNS WERE MADE FOR STATIONS WHERE LOW TEMPERATURES  
AND HIGH WIND VELOCITIES OCCURRED. CALCULATIONS  
WERE MADE FOR STATIONS THAT MIGHT PROVIDE GRADIENTS  
THROUGH THE MOTOR. THE COMPUTER PROGRAM IS  
ARRANGED SUCH THAT THE BLANKET MAY BE INCLUDED AS A  
HEAT SOURCE AND RESULTS ARE PRESENTED FOR AN ASSUMED  
POWER FAILURE OF THE BLANKET. RESULTS FROM THE  
COMPUTER PROGRAM ARE COMPARED WITH THEORETICAL  
RESULTS FOR TRANSIENT, ONE-DIMENSIONAL HEAT  
CONDUCTION THROUGH A SLAB, A SOLID CYLINDER AND A  
HOLLOW CYLINDER. AN EFFORT HAS BEEN MADE TO  
GENERALIZE THE RESULTS THAT HAVE BEEN OBTAINED.  
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-457 890

AUBURN UNIV ALA DEPT OF MECHANICAL ENGINEERING  
FORCED CONVECTION AND THERMAL PROPERTIES  
INVESTIGATION PERTAINING TO THE PERSHING ROCKET  
MOTOR,

(U)

DESCRIPTIVE NOTE: PROGRESS REPT, NO. 6, MAY-JUL 63,  
AUG 63 33P TATOM, F. B. ; NIX, G. H. ;  
CARPENTER, A. D. ;  
CONTRACT: DAO1 009ORD1023

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*PROPELLANT GRAINS, THERMAL PROPERTIES),  
THERMAL CONDUCTIVITY, SILICONE PLASTICS, STYRENE  
PLASTICS, HEAT TRANSFER, FLUID FLOW, MEASUREMENT, TEST  
METHODS, TEST EQUIPMENT (U)  
IDENTIFIERS: PERSHING (U)

IN THE REPORT, PRELIMINARY RESULTS ON THERMAL  
CONDUCTIVITY OF INERT PERSHING PROPELLANT ARE  
REPORTED, ALSO PRESENTED IS A COMPARISON OF  
RESULTS FOR POLYSTYRENE PLASTIC AND SILICONE RUBBER,  
A DISCUSSION OF THE PROCEDURE USED IN CASTING THE  
SAMPLES CHECKED BY THE NATIONAL BUREAU OF  
STANDARDS IS PRESENTED ALONG WITH A LISTING OF  
THEIR RESULTS, AN EXPLANATION OF THE COMPLETE  
APPARATUS NECESSARY FOR THE FORCED CONVECTION  
INVESTIGATION IS PRESENTED ALONG WITH A DISCUSSION OF  
THE CAPABILITIES OF CONDUCTING TESTS WITH PRESENT  
EQUIPMENT, PRELIMINARY RESULTS ARE PROVIDED FOR  
NATURAL AND FORCED CONVECTION WITH UNCONTROLLED FREE-  
STREAM TURBULENCE, ADDITIONAL DATA FROM LITERATURE  
ARE ALSO PRESENTED, (AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-451 960

PITTSBURGH UNIV PA

DEVELOPMENT OF MISSILE EQUIPMENT CARRIER, XM474  
SERIES.

(U)

SEP 61 6P

CONTRACT: DA36 034AMC3785X

MONITOR: AMC TIR12 5 1A1

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*TRACKED VEHICLES, SPECIFICATIONS),

TRANSPORTER-ERECTORS

(U)

IDENTIFIERS: M-474 VEHICLES, PERSHING

(U)

DEVELOPMENT OF MISSILE EQUIPMENT CARRIER, XM474 SERIES,

UNCLASSIFIED

021492



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-440 886

LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF  
AERODYNAMIC CHARACTERISTICS OF BODIES OF REVOLUTION  
WITHOUT FINS; AN ANNOTATED BIBLIOGRAPHY, (U)

213P EVANS, GEORGE R. ;

REPT. NO. 8 4 63 13 ,SB63 75

CONTRACT: NOW63 0050C

UNCLASSIFIED REPORT

NOFORN

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*BIBLIOGRAPHIES, BODIES OF REVOLUTION),  
(\*BODIES OF REVOLUTION, BIBLIOGRAPHIES), AERODYNAMIC  
CHARACTERISTICS, SUPERSONIC CHARACTERISTIC, HYPERSONIC  
CHARACTERISTIC, CONICAL BODIES, BLUNT BODIES,  
CYLINDRICAL BODIES, SPIKES, SLENDER BODIES, GUIDED  
MISSILES, NOSE CONES, OGVES, REENTRY VEHICLES, SPACE  
CAPSULES, STABILITY, DRAG, PRESSURE, FORCE, FLARED  
AFTERBODIES (U)

IDENTIFIERS: MINUTEMAN, POLARIS, APOLLO, PERSHING,  
SATURN, SKYBOLT, MERCURY, TITAN (U)

THE BODIES OF REVOLUTION MAY BE OF ANY  
CONFIGURATION, THE REFERENCES ARE LISTED BY  
PERSONAL AUTHR OR, IN THE ABSENCE OF ONE, LISTING IS  
BY TITLE, THE FIRST FIFTEEN REFERENCES ARE  
LISTINGS OF BIBLIOGRAPHIES, HANDBOOKS, AND LITERATURE  
SURVEYS OF AERODYNAMICS IN GENERAL. SOURCE/  
AGENCY AND SUBJECT INDEXES ARE INCLUDED, THE  
SUBJECT INDEX IS DIVIDED INTO THREE SECTIONS, THE  
FIRST SECTION LISTS BODIES OF REVOLUTION WITH  
ARBITRARY CONFIGURATION, THE SECOND SECTION LISTS  
SPECIFIC TYPES OF CONFIGURATIONS SUCH AS CONES,  
CYLINDERS, AND BLUNT BODIES, THE THIRD SECTION  
LISTS SPECIFIC VEHICLES, EG., POLARIS, TITAN,  
AND MINUTEMAN, THE SPECIFIC AERODYNAMIC  
CHARACTERISTICS ARE: STATIC STABILITY, DRAG (AXIAL  
FORCE) PRESSURE DISTRIBUTION, AND FORCE  
DISTRIBUTION, THE MACH FLOW IS FROM 0 TO  
INFINITY, THE PERIOD COVERED IS JANUARY 1960  
THROUGH JUNE 1963, THERE ARE 463 REFERENCES.  
(AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-440 327L

ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS FORT BELVOIR  
VA

ENGINEERING EVALUATION REPORT ON THE TRAILERMOUNTED  
POWER STATION (FORMERLY POWER STATION EQUIVALENT) FOR  
THE PERSHING WEAPON SYSTEM, (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.

MAR 64 38P WILLIAMS, ROBERT A. ; COOPER,  
T. D. ;

REPT. NO. AERDL-1770

PROJ: 8M18 13 001

UNCLASSIFIED REPORT

NOTICE: RELEASE ONLY TO U. S. GOVERNMENT AGENCIES  
IS AUTHORIZED. OTHER CERTIFIED REQUESTERS SHALL OBTAIN  
RELEASE APPROVAL FROM ARMY ENGINEER RESEARCH AND  
DEVELOPMENT LABS., FORT BELVOIR, VA.

DESCRIPTORS: (\*MAINTENANCE VEHICLES, GROUND SUPPORT  
EQUIPMENT), (\*GROUND SUPPORT EQUIPMENT, MAINTENANCE  
VEHICLES), MOTOR GENERATORS, POWER SUPPLIES, TRAILERS,  
ELECTRICAL EQUIPMENT, CONTROL PANELS, DISTRIBUTION,  
PNEUMATIC SYSTEMS, AIR CONDITIONING EQUIPMENT, TEST  
METHODS, HIGH PRESSURE COMPRESSORS, DIRECT CURRENT,  
MAINTENANCE EQUIPMENT, MAINTENANCE, PORTABLE (MAN-  
PORTABLE), GUIDED MISSILES (SURFACE-TO SURFACE), MOBILE,  
ARMY (U)

IDENTIFIERS: PERSHING (U)

THIS REPORT COVERS THE ENGINEERING DESIGN TESTING  
AND EVALUATION OF THE TRAILER-MOUNTED POWER STATION  
DEVELOPED BY THE MARTIN COMPANY FOR USE IN THE  
PERSHING WEAPON SYSTEM. THE REPORT CONCLUDES  
THAT THE POWER STATION WILL MEET THE APPLICABLE  
SPECIFICATIONS AND WILL BE SUITABLE FOR USE IN THE  
PERSHING WEAPON SYSTEM AFTER CERTAIN  
DEFICIENCIES HAVE BEEN CORRECTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-434 892

ARDE-PORTLAND INC NEWARK N J

CRYOGENIC STRETCH-FORMING OF SOLID-PROPELLANT ROCKET CASES, (U)

DESCRIPTIVE NOTE: QUARTERLY REPT, NO, 7, 1 DEC 63-28  
FEB 64

FEB 64 16P ALPER, R, H. ;

CONTRACT: DA30 069ORD3501

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET CASES, STRETCH FORMING), (\*ROCKET MOTOR NOZZLES, RINGS), MANUFACTURING METHODS, CRYOGENICS, EFFECTIVENESS, PROCESSING, GUIDED MISSILES (SURFACE-TOSURFACE), ROCKET MOTORS (SOLID PROPELLANT)(U)  
IDENTIFIERS: 1964, PERSHING (U)

THE OBJECTIVE OF THE PROGRAM IS TO PRODUCE EXPERIMENTAL, FLIGHT-WEIGHT ROCKET MOTOR CASES OF A CONFIGURATION SIMILAR TO PERSHING, BY THE CRYOGENIC STRETCH-FORMING PROCESS. PREVIOUS WORK DEMONSTRATED THE FEASIBILITY OF PRODUCING HIGH-STRENGTH ROCKET CASES BY CRYOGENIC STRETCHFORMING. THE PRESENT FOLLOW-ON PROGRAM IS BEING UNDERTAKEN TO EVALUATE THE PROCESS FOR PRODUCING A SPECIFIC, PREDETERMINED, COMPLEX-CONFIGURATION MOTOR CASE AT THE STRENGTH LEVEL PREVIOUSLY ACHIEVED (240,000 PSI NOMINAL YIELD STRESS). DETAILS OF THIS CONFIGURATION INCLUDE SKIRTS, FORWARD IGNITER PORT, CONICAL AFT CLOSURE, AND NOZZLE ATTACHMENT RING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-433 809

CURTISS-WRIGHT CORP WOOD-RIDGE N J WRIGHT AERONAUTICAL  
DIV

DESIGN, DEVELOPMENT AND FABRICATION OF ULTRA-HIGH  
STRENGTH SOLID PROPELLANT ROCKET MOTOR CASES, (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 3, 20 NOV  
6320 FEB 64,

FEB 64 403P CRANE, V. ; GILEWICZ, E. P.

REPT. NO. 407 3

CONTRACT: AF04 611 9064

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET CASES, DESIGN), (\*ROCKET MOTORS  
(SOLID PROPELLANT), ROCKET CASES), NICKEL ALLOYS, STEEL,  
AGING (MATERIALS), HEAT TREATMENT, MARTENSITE,  
METALLURGY, OPTIMIZATION, SPECIFICATION, GUIDED MISSILES  
(SURFACE-TO-SURFACE), HYDROSTATIC PRESSURE, FILAMENT  
WOUND CONSTRUCTION, WIRE, INSTRUMENTATION, TEST METHODS,  
MECHANICAL PROPERTIES, VISUAL INSPECTION, FORGING,  
PRODUCTION, FAILURE (MECHANICS), LOADING (MECHANICS) (U)  
IDENTIFIERS: 1964, PERSHING, MINUTEMAN (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-428 863

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TRANSPORTATION-VIBRATION TEST OF PERSHING MISSILE  
SYSTEM TACTICAL SHIPPING AND STORAGE CONTAINERS -  
PHASE II, (U)

DESCRIPTIVE NOTE: FINAL REPT.,  
DEC 63 4SP EYESTONE, RONALD G. ;  
REPT. NO. RT-TR-63-8  
PROJ: DA-516-05-011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*ROCKET MOTORS (SOLID PROPELLANT),  
CONTAINERS), (\*CONTAINERS, TRANSPORTATION), VIBRATION,  
STORAGE, TESTS, TRAILERS, TEST METHODS, TEST FACILITIES,  
FAILURE (MECHANICS), DAMAGE, CARGO VEHICLES, BOOSTER  
MOTOR, SECOND STAGE MOTORS, GUIDED MISSILES (SURFACE-TO-  
SURFACE) (U)  
IDENTIFIERS: 1964, PERSHING (U)

TACTICAL FIRST- AND SECOND-STAGE SHIPPING AND  
STORAGE CONTAINERS FOR THE PERSHING MISSILE  
SYSTEM, WITH DUMMY LOADS, WERE SUBJECTED TO THE  
MAXIMUM VIBRATION CONDITIONS WHICH THEY MAY  
EXPERIENCE DURING TRUCK TRANSPORTATION. THE TEST  
WAS PERFORMED BY TRANSPORTING THE CONTAINERS, TRUCK  
MOUNTED, OVER A ROUGH ROAD COURSE WHILE VARYING THE  
SPEED TO OBTAIN DESIRED G LEVELS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-426 364

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER  
ANALYSIS AND DESIGN OF A SIMPLIFIED INERTIAL  
PLATFORM ALIGNMENT LOOP, (U)

40P DOOLEY, JERRY L. ; MCCARLEY,

HERBERT R. ;

REPT. NO. RG-TR-63-26

PROJ: DA-1-B-279191-D-678

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*STABILIZED PLATFORMS, MISALIGNMENT),  
(\*INERTIAL GUIDANCE, CALIBRATION), SERVO AMPLIFIERS,  
ERRORS, AZIMUTH, STABILIZATION, SERVO AMPLIFIER,  
GYROSCOPES, SIMULATION, ANALOG SYSTEMS, POTENTIOMETERS,  
TACHOMETERS, SYNCHROS, DIGITAL COMPUTERS, HARMONIC  
OSCILLATORS (U)  
IDENTIFIERS: PERSHING, 1963, PENDULUM (U)

THE TACHOMETER OUTPUT SIGNAL IS PROPORTIONAL TO  
THE PENDULUM OUTPUT, IN THE PRESENT STABILIZED  
PLATFORM ALIGNMENT AMPLIFIER FOR THE PERSHING  
GUIDANCE AND CONTROL SYSTEM, USING THE PENDULUM  
SIGNALS FOR A PROPORTIONAL SIGNAL IN PLACE OF THE  
TACHOMETER REDUCES THE NULL REQUIREMENT OF THE  
ALIGNMENT LOOP CAUSED BY THE THRESHOLD OF THE MOTOR-  
TACHOMETER, A THEORETICAL ANALYSIS OF THE PRESENT  
ALIGNMENT LOOPS AND THEIR EFFECT ON THE PLATFORM  
SERVO LOOPS IS PRESENTED, A NEW AND MUCH SIMPLER  
TECHNIQUE FOR MECHANIZING THE ALIGNMENT LOOPS IS  
PROPOSED, AND THE FEASIBILITY OF THE TECHNIQUE IS  
VERIFIED ANALYTICALLY. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-423 631

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TRANSPORTATION-VIBRATION TEST OF PERSHING MISSILE  
SYSTEM TACTICAL SHIPPING AND STORAGE CONTAINERS,  
PHASE III. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 63 24P EYESTONE, R. G. ;

REPT. NO. RT-TR-63-9

PROJ: DA-516-05-011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*CONTAINERS, VIBRATION), (\*TACTICAL  
WEAPONS, CONTAINERS), TESTS, DUMMY LOADS,  
INSTRUMENTATION, TEST METHODS, GUIDED MISSILES (SURFACE-  
TO-SURFACE), TRANSPORTATION, DATA, EFFECTIVENESS, CARGO  
VEHICLES, STORAGE, ROCKET MOTORS, TRANSPORTS (U)

IDENTIFIERS: PERSHING, 1963 (U)

THIS TEST SUBJECTED MODIFIED TACTICAL FIRST STAGE  
AND UNMODIFIED TACTICAL SECOND STAGE CONTAINERS FOR  
THE PERSHING MISSILE SYSTEM, AND THEIR DUMMY LOADS  
TO A ROAD TEST DESIGNED TO DUPLICATE THE VIBRATION  
SPECTRUM EXPECTED DURING TRUCK TRANSPORTATION.  
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-422 778

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER

A METHOD FOR MINIMIZING THE EFFECT OF THE PERSHING  
ST-120 SERVO BOX INTERCHANGE ON CROSS RANGE  
ACCELEROMETER DRIFT, (U)

SEP 63 12P WHITE, H. V. ; MCCARLEY, H.

R. ;

REPT. NO. RG-TR-63-24

PROJ: DA-1-B-279191-D-678

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*SERVO AMPLIFIERS, GUIDED MISSILES  
(SURFACE-TO-SURFACE)), (\*GUIDED MISSILE COMPONENTS,  
SERVOMECHANISMS), MOBILE, TACTICAL WEAPONS,  
INSTRUMENTATIONS, GUIDED MISSILE COMPONENTS,  
POTENTIOMETERS, ACCELEROMETERS, CALIBRATION, DRIFT,  
AMPLIFIERS (U)

IDENTIFIERS: 1963, PERSHING (U)

A METHOD TO ALLOW THE PERSHING ST-120 SERVO BOX  
TO BE INTERCHANGED WITHOUT READJUSTING THE  
ACCELEROMETER AMPLIFIER BALANCE POTENTIOMETER IS  
PRESENTED. THE METHOD INVOLVES ADJUSTING THE  
BALANCE POTENTIOMETER WITH THE SERVO BOX REMOVED FROM  
THE SYSTEM AND MAKING A FINAL MECHANICAL ADJUSTMENT  
ON THE ACCELEROMETER AFTER IT IS MOUNTED ON THE  
ST-120 PLATFORM, TEST DATA ARE PRESENTED TO SHOW  
THE FEASIBILITY OF USING THE METHOD. (AUTHOR) (U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-421 930

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA TEST AND  
RELIABILITY EVALUATION LAB  
TRANSPORTATION-VIBRATION TEST OF PERSHING MISSILE  
SYSTEM TACTICAL SHIPPING AND STORAGE CONTAINERS, PART  
I. (U)

DESCRIPTIVE NOTE: FINAL REPT.,  
OCT 63 53P EYESTONE, RONALD G. ;  
REPT. NO. RT-TR-63-6  
PROJ: DA-516-05-011

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*GUIDED MISSILES (SURFACE-TO-SURFACE),  
TRANSPORTATION), (\*TRANSPORTATION, GUIDED MISSILES  
(SURFACE-TO-SURFACE)), TACTICAL WEAPONS, TESTS, TEST  
METHODS, TEST EQUIPMENT, INSTRUMENTATION, DAMAGE,  
CONTAINERS, STORAGE, VIBRATION, DATA, TRAILERS, CARGO  
VEHICLES, OSCILLOGRAPHS, ROADS, ROCKET MOTORS (SOLID  
PROPELLANTS), GUIDED MISSILE COMPONENTS, GROUND SUPPORT  
EQUIPMENT (U)  
IDENTIFIERS: 1963, PERSHING (U)

THIS TEST SUBJECTED TACTICAL CONTAINERS FOR THE  
PERSHING MISSILE SYSTEM, AND THEIR DUMMY LOADS, TO  
THE VIBRATION SPECTRUM EXPECTED DURING TRUCK  
TRANSPORTATION. THE TESTS WERE CONDUCTED BY THE  
TEST AND EVALUATION LABORATORY AT REDSTONE  
ARSENAL, ALABAMA, AT TEST AREA 3 IN JUNE  
1963. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-419 588

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA  
LIST OF TECHNICAL DOISHED DURING THE YEARS 1958  
THROUGH 1962.

APR 63 178P

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: (\*BIBLIOGRAPHIES, GUIDED MISSILES),  
(\*GUIDED MISSILES, BIBLIOGRAPHIES), GUIDED  
MISSILES (SURFACE TO SURFACE), ROCKET MOTORS,  
ANTITANK AMMUNITION, ROCKET MOTORS (LIQUID  
PROPELLANT), ROCKET MOTORS (SOLID PROPELLANT),  
LAUNCH VEHICLES (AEROSPACE), GUIDED MISSILE  
WARHEADS, INDEXES.

(U)

IDENTIFIERS: 1963, JUPITER, ATLAS, REDSTONE,  
PERSHING, SATURN, SERGEANT.

(U)

A BIBLIOGRAPHY OF TECHNICAL DOCUMENTS LISTS TITLES  
OF REPORTS PUBLISHED FROM 1958 THROUGH 1962 BY THE  
PRESENT ARMY MISSILE COMMAND (AMICOM), WHICH  
INCLUDES THE ACTIVITIES OF THE ARMY ROCKET AND  
GUIDED MISSILE AGENCY (ARGMA) AND THE ARMY  
BALLISTIC MISSILE AGENCY (ABMA). THE  
BIBLIOGRAPHY WAS COMPILED FROM LIBRARY RECORDS AND  
RESPONSES TO REQUESTS FOR DOCUMENT LISTINGS FROM THE  
RESEARCH AND DEVELOPMENT ORGANIZATIONS OF THE  
COMMAND, AND MAKES NO PRETENSE OF BEING A COMPLETE  
COVERAGE. DUE TO PROPRIETARY INFORMATION  
RESTRICTIONS, THE FORMATION AND LATER CONSOLIDATION  
OF ABMA AND ARGMA, AND THE FORMATION OF NASA'S  
MARSHALL SPACE FLIGHT CENTER, MANY REPORTS  
WERE NEVER ENTERED OR RECORDED IN THE LIBRARY. FOR  
EXAMPLE, IT IS KNOWN THERE WERE APPROXIMATELY 35  
REPORTS IN THE 4RF SERIES WHICH WERE EVALUATIONS OF  
MAJOR INDUSTRIAL TECHNICAL PROPOSALS WHICH DO NOT  
APPEAR IN THIS PUBLISHED LISTING. UNDOUBTEDLY,  
MANY REPORTS WRITTEN BY PERSONS WHO HAVE LEFT THE  
COMMAND WERE LIKEWISE NOT ENTERED IN THE LIBRARY  
AND WERE NOT INCLUDED IN THE SOLICITED SUBMISSIONS.  
(AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-415 045

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSIL-410,

(U)

JUL 63 30P BILLIONS, NOVELLA S. ; BAGLEY,

HUBERT D. ;

REPT. NO. RR-TR-63-20

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (\*METEOROLOGICAL PARAMETERS, FLIGHT  
TESTING), GUIDED MISSILES (SURFACE-TO-SURFACE), FLIGHT  
TESTING, TEMPERATURE, HUMIDITY, BAROMETRIC PRESSURE,  
WIND, CLOUDS, HIGH ALTITUDE (U)

IDENTIFIERS: FLORIDA, BAHAMA ISLANDS, SAN SALVADOR,  
PERSHING, 1963 (U)

THE ATMOSPHERIC ENVIRONMENT IS GIVEN FOR THE FLIGHT  
OF PERSHING MISSILE-410, WHICH WAS LAUNCHED ON 21  
MARCH 1963, AT 2015 EST, FROM THE ATLANTIC  
MISSILE RANGE, CAPE CANAVERAL, FLORIDA.

THE GENERAL SYNOPTIC SITUATION FOR THE FLIGHT AREA,  
SURFACE OBSERVATIONS AT LAUNCH TIME, AND UPPER AIR  
CONDITIONS AS MEASURED BY RAWINSONDES RELEASED AS  
CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE ARE GIVEN.  
HIGH ALTITUDE WIND DATA OVER THE LAUNCH AREA AS  
DETERMINED FROM A METEOROLOGICAL ROCKET FLIGHT ARE  
ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PATRICK AIR  
FORCE BASE ANNUAL REFERENCE ATMOSPHERE ARE  
PRESENTED IN GRAPHICAL FORM FOR EASY REFERENCE.  
(AUTHOR) (U)

UNCLASSIFIED

021492

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-411 387

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE-407,

(U)

JUN 63 29P BAGLEY, HUBET D.; BILLIONS,

NOVELLA S.;

REPT. NO. RR-TR-63-19

PROJ: POJ, 1B2 79191D678

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*METEOROLOGY, GUIDED MISSILE  
RANGES), METEOROLOGICAL PARAMETES, UPPE  
ATMOSPHEE, MEASUREMENT, RADIOSONDES, WIND,  
HIGH ALTITUDE, METEOROLOGICAL INSTRUMENTS, DATA.

(U)

IDENTIFIERS: 1963, PERSHING.

(U)

THE ATMOSPHEIC ENVIRONMENT IS PESENTED FOR THE  
FLIGHT OF PERSHING MISSILE-407, WHICH WAS LAUNCHED  
MACH 1963, AT 2046 EST, FOM THE ATLANTIC  
MISSILE RANGE, CAPE CANAVERAL, FLORIDA.  
THE GENERAL SYNOPTIC SITUATION FOR THE FLIGHT AREA,  
SURFACE OBSEVATIONS AT LAUNCH TIME, AND UPPER AI  
CONDITIONS AS MEASURED BY RAWINSONDES ELEASD AS  
CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE AE GIVEN,  
HIGH ALTITUDE WIND DATA OVETHE LAUNCH AREA AS  
DETERMINED FROM A METEOROLOGICAL ROCKET FLIGHT ARE  
ALSO PRESENTED. RELATIVE DEVIATIONS OF THEMODYNAMIC  
QUANTITIES FROM THE PATRICK AIR FORCE BASE  
ANNUAL REFERENCE ATMOSPHERE ARE PRESENTED IN  
GRAPHICAL FORM FOR EASY REFERENCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-410 411

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 405,

(U)

JUN 63 29P BAGLEY, HUBERT D.; BILLIONS,

NOVELLA S.;

REPT. NO. RR-TR-63-17

PROJ: 1B2 79191D678

UNCLASSIFIED REPORT

DESCRIPTORS: (\*GUIDED MISSILE RANGES,  
METEOROLOGICAL PARAMETERS), (\*METEOROLOGICAL  
PARAMETERS, GUIDED MISSILE RANGES), GUIDED  
MISSILES (SURFACE TO SURFACE), FLIGHT TESTING,  
WING, HIGH ALTITUDE, METEOROLOGICAL CHARTS,  
TACTICAL WEAPONS.

(U)

IDENTIFIERS: 1963, PERSHING,

(U)

THE ATMOSPHERIC ENVIRONMENT IS PRESENTED FOR THE  
FLIGHT OF PERSHING MISSILE-405, WHICH WAS LAUNCHED  
ON 4 MARCH 1963, AT 2000 EST, FROM THE ATLANTIC  
MISSILE RANGE, CAPE CANAVERAL, FLORIDA.  
THE GENERAL SYNOPTIC SITUATION FOR THE FLIGHT AREA,  
SURFACE OBSERVATIONS AT LAUNCH TIME, AND UPPER AIR  
CONDITIONS AS MEASURED BY RAWINSONDES RELEASED AS  
CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE ARE GIVEN.  
HIGH ALTITUDE WIND DATA OVER THE LAUNCH AREA AS  
DETERMINED FROM A METEOROLOGICAL ROCKET FLIGHT ARE  
ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PATRICK AIR  
FORCE BASE ANNUAL REFERENCE ATMOSPHERE ARE  
PRESENTED IN GRAPHIRM FOR EASY REFERENCE.  
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-409 485

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 406,

(U)

MAY 63 28P BAGLEY, HUBERT D.; BILLIONS,  
NOVELLA S.;

REPT. NO. RR-TR-63-15

PROJ: 1B2 79191 D678

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*GUIDED MISSILE RANGES,  
METEOROLOGICAL PARAMETERS), (\*METEOROLOGICAL  
PARAMETERS, GUIDED MISSILE RANGES), GUIDED  
MISSILES (SURFACE TO SURFACE), METEOROLOGICAL  
CHARTS, TACTICAL WEAPONS,  
IDENTIFIERS: 1963, PERSHING.

(U)

(U)

THIS REPORT PRESENTS THE ATMOSPHERIC ENVIRONMENT  
FOR THE FLIGHT OF PERSHING MISSILE-406, WHICH WAS  
LAUNCHED ON 25 FEBRUARY 1963, AT 2031 EST, FROM  
THE ATLANTIC MISSILE RANGE, CAPE CANAVERAL,  
FLORIDA. THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME, AND  
UPPER AIR CONDITIONS AS MEASURED BY RAWIN SONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. HIGH ALTITUDE WIND DATA OVER THE LAUNCH  
AREA AS DETERMINED FROM A METEOROLOGICAL ROCKET  
FLIGHT ARE ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PATRICK AIR  
FORCE BASE ANNUAL REFERENCE ATMOSPHERE ARE  
PRESENTED IN GRAPHICAL FORM FOR EASY REFERENCE.  
(AUTHOR)

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-409 297

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA PHYSICAL  
SCIENCES LAB  
ATMOSPHERIC ENVIRONMENT FOR PERSHING MISSILE 353,

(U)

FEB 63 30P BILLIONS, NOVELLA S.; BAGLEY,  
HUBERT D.;

REPT. NO. RR-TR-63-6

PROJ: 182 79191D678

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: (\*GUIDED MISSILE RANGES,  
METEOROLOGICAL PARAMETERS), (\*METEOROLOGICAL  
PARAMETERS, GUIDED MISSILE RANGES), GUIDED  
MISSILES (SURFACE TO SURFACE), WIND, METEOROLOG  
ICAL CHARTS, TACTICAL WEAPONS,

(U)

IDENTIFIERS: 1963, PERSHING,

(U)

THIS REPORT PRESENTS THE ATMOSPHERIC ENVIRONMENT  
FOR THE FLIGHT OF PERSHING MISSILE 353, WHICH WAS  
LAUNCHED ON 10 DECEMBER 1962, AT 2155 EST, FROM  
THE ATLANTIC MISSILE RANGE, CAPE CANAVERAL,  
FLORIDA, THE GENERAL SYNOPTIC SITUATION FOR THE  
FLIGHT AREA, SURFACE OBSERVATIONS AT LAUNCH TIME, AND  
UPPER AIR CONDITIONS AS MEASURED BY RAWIN SONDES  
RELEASED AS CLOSE TO MISSILE LAUNCH TIME AS POSSIBLE  
ARE GIVEN. WIND DATA OBTAINED FROM MEASUREMENTS  
ABOARD THE MISSILE ARE COMPARED TO RAWINSONDE DATA AT  
THE CAPE CANAVERAL LAUNCH SITE AND DOWN RANGE AT  
GRAND BAHAMA ISLAND (OBSERVATION STATION  
NEAREST IMPACT AREA), WIND DATA OBTAINED FROM RADAR  
TRACK OF AN ARCAS ROBIN METEOROLOGICAL ROCKET  
FLIGHT PROVIDED BY THE PATRICK AIR FORCE BASE  
WEATHER SERVICE IN SUPPORT OF MISSILE 353 ARE  
ALSO PRESENTED. RELATIVE DEVIATIONS OF  
THERMODYNAMIC QUANTITIES FROM THE PAFB REFERENCE  
ANNUAL ATMOSPHERE ARE PRESENTED IN GRAPHICAL FORM  
FOR EASY REFERENCE, (AUTHOR)

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-401 495L

ABERDEEN PROVING GROUND MD

PRODUCTION ENGINEERING TEST OF TIEDOWN KIT FOR  
PERSHING MISSILE WARHEAD SECTION

(U)

APR 63 1V CANTEMIRY, E.G.;

REPT. NO. DPS 893

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*GUIDED MISSILE WARHEADS, CARGO VEHICLES,  
CONTAINERS, GUIDED MISSILES(SURFACE-TO-SURFACE),  
HANDLING, IMPACT SHOCK, PHOTOGRAPHS, TABLES, TACTICAL  
WEAPONS, TESTS

(U)

IDENTIFIERS: PERSHING

(U)

PRODUCTION ENGINEERING TEST OF TIEDOWN KIT FOR PERSHING  
MISSILE WARHEAD SECTION.

UNCLASSIFIED

021492



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-299 424L

ABERDEEN PROVING GROUND MD  
ENGINEERING DESIGN TEST OF WARHEAD AND ADAPTER KIT  
FOR THE PERSHING MISSILE SYSTEM ON THE XM474E2 (U)

MAR 63 1V HANCOCK, R.P. ;  
REPT. NO. DPS 867

UNCLASSIFIED REPORT  
DOD ONLY

DESCRIPTORS: \*ARMORED VEHICLES, \*GUIDED MISSILE  
WARHEADS, ADAPTERS, BOMB HANDLING VEHICLES, GUIDED  
MISSILES(SURFACE-TO-SURFACE), IMPACT SHOCK, PHOTOGRAPHS,  
TABLES, TACTICAL WEAPONS, TEST METHODS, TESTS, TRACKED  
VEHICLES (U)

IDENTIFIERS: M-28 WARHEADS 3.5 IN., M-474 VEHICLES,  
PERSHING (U)

ENGINEERING DESIGN TEST OF WARHEAD AND ADAPTER KIT FOR THE  
PERSHING MISSILE SYSTEM ON THE XM474E2 MISSILE EQUIPMENT  
CARRIER.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-298 555

ARDE-PORTLAND INC PARAMUS N J

CRYOGENIC STRETCH-FORMING OF SOLID-PROPELLANT ROCKET  
CASES (U)

DEC 62 1V CLAFFY, GEORGE;

CONTRACT: DA30 0690RD3501

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: \*CRYOGENICS, EXPERIMENTAL DATA, ROCKET  
CASES, STRETCH FORMING, STRUCTURAL PARTS (U)

IDENTIFIERS: PERSHING (U)

CRYOGENIC STRETCH FORMING OF SOLID-PROPELLANT  
ROCKET CASES.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-296 852

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB  
OHIO

ACOUSTIC NOISE AND VIBRATION STUDIES AT CAPE  
CANAVERAL MISSILE TEST ANNEX, ATLANTIC MISSILE RANGE,  
VOLUME I, ACOUSTIC NOISE (U)

DEC 62 IV COLE, JOHN N.; POWELL, ROBERT G.; HILLE,

HARALD K.;

MONITOR: ASD TR61 608 V1

UNCLASSIFIED REPORT

NOFORN

DESCRIPTORS: \*ACOUSTICS, \*GUIDED MISSILES (SURFACE-TO-  
SURFACE), \*ROCKET MOTOR NOISE, HAZARDS, LAUNCHING SITES,  
MATHEMATICAL PREDICTION, MEASUREMENT, STATISTICAL  
ANALYSIS (U)

IDENTIFIERS: ATLAS, JUPITER, MINUTEMAN, PERSHING,  
POLARIS, SATURN, SCOUT, THOR, TITAN (U)

ACOUSTIC EVALUATION OF MISSILE AND SPACE VEHICLE NOISE  
HAZARDS AND NUISANCE, MEASUREMENT LIMITED TO  
DISTANCE RANGING FROM 150 TO 96,000 FEET FROM LAUNCH  
SITES.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-295 699

ARMY MISSILE COMMAND REDSTONE ARSENAL ALA ARMY INERTIAL  
GUIDANCE AND CONTROL LAB AND CENTER

A STUDY ON REDUCING OF ELIMINATING AIR CONDITIONING  
IN THE PERSHING GUIDANCE AND CONTROL COMPARTMENT (U)

JAN 63 1V VANHOFF,PETER A.;GAMBILL,RUSSELT,;

REPT. NO. RG TR 63 2

UNCLASSIFIED REPORT

DESCRIPTORS: \*AIR CONDITIONING EQUIPMENT, \*TACTICAL  
WEAPONS, \*TEMPERATURE CONTROL, CLIMATOLOGY, COOLING,  
COSTS, DESIGN, DIURNAL VARIATIONS, GUIDED  
MISSILES(SURFACE-TO-SURFACE), INERTIAL GUIDANCE,  
INSTRUMENTATION, LABOR, SOLAR RADIATION, TEMPERATURE,  
TEST EQUIPMENT, TESTS (U)

IDENTIFIERS: PERSHING (U)

A STUDY ON REDUCING OR ELIMINATING AIR CONDITIONING IN THE  
PERSHING GUIDANCE AND CONTROL COMPARTMENT.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-294 145L

ARMY ENGINEER RESEARCH AND DEVELOPMENT LABS FORT BELVOIR  
VA

THERMAL RADIATION MEASUREMENTS OF A POWER STATION,  
TRANSPORTABLE, PERSHING GUIDED MISSILE SYSTEM (U)

DESCRIPTIVE NOTE: TECHNICAL REPT,

SEP 62 20P WUNDERLEY, ROBERT H.;

REPT. NO. AERDL-1722

PROJ: DA-8F23-11-001

TASK: 8F23-11-001-02

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*GUIDED MISSILES (SURFACE-TO-SURFACE),  
\*POWER SUPPLIES, \*THERMAL RADIATION, CONTROL PANELS,  
ELECTRIC POWER PRODUCTION, EXHAUST GASES, EXHAUST  
NOZZLES, INFRARED DETECTORS, INFRARED RADIATION,  
INFRARED RESEARCH, LAUNCHING, MEASUREMENT, MOBILE,  
PHOTOGRAPHIC FILM, POWER PLANTS (ESTABLISHMENTS),  
RADIOMETERS, TACTICAL WEAPONS, TEMPERATURE, TESTS,  
THERMAL TARGETS, ULTRAVIOLET RADIATION, ULTRAVIOLET  
RESEARCH (U)

IDENTIFIERS: PERSHING (U)

UREMENT, GUIDED MISSILES (TACTICAL),  
IDENTIFIERS: PERSHING, THE THERMAL RADIATION  
CHARACTERISTICS OF A POWER STATION, TRANSPORTABLE,  
PERSHING GUIDED MISSILE SYSTEM (PERSHING  
GENERATOR) ARE DISCUSSED, A DISCUSSION IS  
PRESENTED ON THE THERMAL CHARACTERISTICS OF THE  
GENERATOR COLD, RUNNING UNDER SIMULATED RATED LOAD,  
AND IMMEDIATELY AFTER SHUTDOWN, THE HEAT  
DISTRIBUTION OF THE GENERATOR AND THE PLUME IS  
EXAMINED, DISCLOSING THE PRESENCE OF THREE GENERAL  
RANGES OF TEMPERATURES. RESEARCH CONCLUDES THAT:  
THE EXHAUST PLUME OF THE PERSHING GENERATOR  
PRESENTS AN EXCELLENT TARGET TO INFRARED DETECTORS,  
AND THE RUNNING GENERATOR PRESENTS THREE RANGES OF  
TEMPERATURES: THE RELATIVELY LOW TEMPERATURES OF  
THE HOUSING AND PANELS, THE WARM AIR EXHAUSTS OF THE  
OIL COOLER AND REAR EXHAUST FAN, AND THE VERY HOT  
EXHAUST GASES. (AUTHOR) (U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-289 344L

ABERDEEN PROVING GROUND MD

PREPARATION OF CALIBRATION PROCEDURES FOR PERSHING  
MISSILE SYSTEM TRAINING EQUIPMENT (U)

NOV 62 1V LANSLOWNE, LEVIN W;

REPT. NO. DPS 757

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*TACTICAL WEAPONS, \*TRAINING DEVICES, TEST  
METHODS (U)

IDENTIFIERS: PERSHING (U)

PREPARATION OF CALIBRATION PROCEDURES FOR PERSHING MISSILE  
SYSTEM TRAINING EQUIPMENT.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-286 979

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN-ONE PIECE HIGH PERFORMANCE  
ROCKET MOTOR CASE (U)

JUN 60 1V POREMBSKI, C.J.;

CONTRACT: DA30 115 5020RD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, \*STEEL, AUSTENITE, DRAWING  
(MACHINE PROCESSING), HARDNESS, HEAT TRANSFER,  
MECHANICAL PROPERTIES, METALLURGY, MICROSTRUCTURE,  
PROCESSING, SOLID ROCKET PROPELLANTS (U)

IDENTIFIERS: PERSHING (U)

FORTY INCH DIAMETER PERSHING 2ND STATE  
MOTOR CASE: THE SECOND GROUP OF CASES WERE  
PROCESSED THROUGH THE 5TH DRAW, METALLURGICAL  
ANALYSIS OF ROCKET CASE AT-5 AFTER THE FIFTH  
COLD DRAW AN ANNEAL REVEALED; (1) TOTAL  
RANGE IN HARDNESS OVER THE FORWARD DOME WAS 98.5 TO  
99.5 ROCKWELL B SCALE, A SOMEWHAT LOWER  
HARDNESS THROUGHOUT THE REDUCED SIDEWALL WAS DUE TO  
PROCESSING DIFFERENCES; (2) DIRECTION OF THE  
GRAIN WAS RADIAL IN THE DOME AND LONGITUDINAL IN THE  
SIDEWALL, THE SIDEWALL POSSESSED A FINER AND MORE  
UNIFORM MACROSTRUCTURE THAN THE FORWARD DOME; (3)  
MICROSTRUCTURE STUDIES IN THE SIDEWALL REGIONS SHOW  
D A RELATIVELY FINE FERRITIC GRAIN SIZE AND COMPLETE  
RECRYSTALLIZATION DURING ANNEALING, FERRITIC GRAIN  
SIZE WAS SOMEWHAT COARSER IN THE DOME REGIONS; AND  
(4) EXAMINATION OF CASE SURFACES SHOWED THEM TO  
BE FREE OF COMPLETE DECARBURIZATION ON THE SIDEWALL  
REGIONS; THERE WAS NO EVIDENCE OF DECARBURIZATION ON  
THE DOME SURFACES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-285 120L

ABERDEEN PROVING GROUND MD  
ENGINEERING DESIGN TEST OF CARRIER, MISSILE  
EQUIPMENT, XM474E2 AND PERSHING WEAPON SYSTEM  
TACTICAL COMPONENTS

(U)

SEP 62 1V EDDINGTON, V.A.;

REPT. NO. DPS 615

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*TRACKED VEHICLES, GUIDED MISSILES(SURFACE-  
TO-SURFACE), INTERNAL COMBUSTION ENGINES, TACTICAL  
WEAPONS, TESTS, TRANSPORTATION

(U)

IDENTIFIERS: M-474 VEHICLES, PERSHING

(U)

APPROXIMATELY 16,000 MILES OF OPERATION WERE  
CONDUCTED ON FOUR XM474E2 VEHICLES IN THE  
DEVELOPMENT OF ENGINEERING PERFORMANCE, ROAD SHOCK  
AND VIBRATION, AND ENDURANCE DATA, ROAD SHOCK AND  
VIBRATION DATA COLLECTED FOR ALL OF THE WEAPON SYSTEM  
COMPONENTS WERE FORWARDED TO CODE A FOR  
EVALUATION. DURING ENDURANCE TEST OPERATION, 27  
SEPARATE DEFICIENCIES AND 41 SHORTCOMINGS ACCOUNTED  
FOR A TOTAL OF 248 TEST INCIDENTS, EXCLUDING THOSE  
INCIDENTS INVOLVING THE MAJOR WEAPON SYSTEM  
COMPONENTS. HEADLIGHT SEALED-BEAM UNITS  
CONSTITUTED THE GREATEST NUMBER OF VEHICLE INCIDENTS  
AS A TOTAL OF 52 UNITS WERE REPLACED, TRACK AND  
ROAD WHEEL LIFE ON THE VEHICLE TRANSPORTING THE  
MISSILE WAS REDUCED TO APPROXIMATELY 50% OF THE  
NORMAL 4000 MILES. THE XM474E2 VEHICLES ARE  
WELL ADAPTED TO TRANSPORTING THE VARIOUS PERSHING  
MISSILE SYSTEM (TACTICAL) COMPONENTS, HOWEVER, IT  
IS CONSIDERED NECESSARY TO CONDUCT ADDITIONAL  
ENGINEERING STUDIES TO ELIMINATE THOSE DEFICIENCIES  
WHICH WERE OF A DESIGN NATURE AND AS MANY OF THE  
SHORTCOMINGS AS POSSIBLE. (AUTHOR)

(U)



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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-283 326

TRW SPACE TECHNOLOGY LABS LOS ANGELES CALIF  
AN ANALYSIS OF THE FLUID MECHANICS OF SECONDARY  
INJECTION FOR THRUST VECTOR CONTROL (REVISED) (U)

1V BROADWELL, JAMES E.;

MONITOR: BSD TR-65-67

UNCLASSIFIED REPORT

DESCRIPTORS: \*EXHAUST GASES, \*GASES, CONTROL SYSTEMS,  
EQUATIONS, FLUID MECHANICS, GAS FLOW, JETS, LIQUIDS,  
MATHEMATICAL ANALYSIS, PRESSURE, ROCKET MOTOR NOZZLES,  
SECONDARY INJECTION, SUPERSONIC FLOW, TESTS, THEORY,  
THRUST, THRUST VECTOR CONTROL SYSTEMS (U)

IDENTIFIERS: PERSHING (U)

AN ANALYSIS IS MADE OF THE INTERACTION OF AN  
INJECTED GAS OR LIQUID WITH A SUPERSONIC STREAM AND  
THE FORCE INDUCED ON AN ADJACENT WALL PREDICTED.  
THE STUDY DEALS ONLY WITH THE FREE STREAM-  
INJECTANT INTERACTION; THE MODIFICATIONS TO THE FLOW  
INTRO UCED BY THE BOUNDARY LAYER ARE NOT CONSIDERED.  
IN THE CASE OF LIQUIDS, IT IS SHOWN THAT THE  
MOMENTUM DEFICIT OF THE INJECTANT RELATIVE TO THE  
FREE STREAM MAY PLAY A LARGER PART IN PRODUCING THE  
SIDE FORCE THAN THE VOLUME GENERATION BY VAPORIZATION  
AND REACTION, THE ANALYTICAL RESULTS ARE COMPARED  
WITH THOSE OBTAINED FROM EXPERIMENTS IN A WIND TUNNEL  
AND IN NOZZLES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-282 432

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

MAY 62 1V POREMBSKI, C.J.;

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, DRAWING (MACHINE  
PROCESSING), HEAT TREATMENT, IRON ALLOYS, METALLURGY,  
NICKEL ALLOYS, PROCESSING, SOLID ROCKET PROPELLANTS,  
STAGING

(U)

IDENTIFIERS: PERSHING

(U)

THE DEVELOPMENT OF AN IMPROVED MONOLITHIC ROCKET  
MOTOR CASES FOR THE 40 IN. (AND OVER) DIAMETER  
SOLID PROPELLANT ROCKETS WAS CONTINUED. THE  
SPECIFIC GOALS ARE THE DEVELOPMENT OF RELIABLE MOTOR  
CASES WITH HOOP-STRESS LIMITS SUBSTANTIALLY IN EXCESS  
OF 200,000 PSI STEEL EQUIVALENT. THE MOTOR CASES  
MUST BE CAPABLE OF BEING PRODUCED WITH REASONABLE  
EASE ON AN INDUSTRIAL SCALE AND THEIR REPRODUCIBILITY  
PROVEN BY RELIABILITY TESTS AT FINAL FULL SCALE.  
THE GENERAL OBJECTIVE IS TO BE ACCOMPLISHED  
UTILIZING THE PERSHING 2ND STAGE MOTOR CASE  
CONFIGURATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. 021492

AD-275 766

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

MAR 62 1V MARTIN, WAYNE A.;

CONTRACT: DA20 018ORD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*DRAWING (MACHINE PROCESSING), \*ROCKET  
CASES, \*STEEL, \*TITANIUM ALLOYS, ALLOYS, ALUMINUM  
ALLOYS, CHROMIUM ALLOYS, COBALT ALLOYS, DEFORMATION,  
DIES, HARDNESS, HEAT TREATMENT, MACHINE TOOLS,  
MANUFACTURING METHODS, MECHANICAL PROPERTIES, METAL-  
FORMING PRESSES, METALS, MICROSTRUCTURE, MOLYBDENUM,  
NICKEL ALLOYS, STRESSES, VANADIUM ALLOYS

(U)

IDENTIFIERS: PERSHING

(U)

THE PRODUCTION OF 40-IN.-DIAM MONOLITHIC ROCKET  
CASES BY COLD REDUCTION DEEP DRAWING TECHNIQUES.

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-273 826

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTORCASE

(U)

1V MARTIN, WAYNE A.;

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*ROCKET MOTORS, \*STEEL,  
\*TITANIUM ALLOYS, ALLOYS, DIES, DRAWING (MACHINE  
PROCESSING), HARDENING, HEAT TREATMENT, MACHINE TOOLS,  
MANUFACTURING METHODS, METALS, MICROSTRUCTURE, NICKEL  
ALLOYS, PROCESSING, SOLID ROCKET PROPELLANTS (U)

IDENTIFIERS: PERSHING

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-269 913

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

NOV 61 1V MARTIN, WAYNE A.;

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*ROCKET MOTORS, HARDENING,  
HEAT TREATMENT, IRON ALLOYS, MANUFACTURING METHODS,  
MECHANICAL PROPERTIES, METALLURGY, METALS,  
MICROSTRUCTURE, NICKEL ALLOYS, PROCESSING, PRODUCTION,  
SMALL TOOLS, SOLID ROCKET PROPELLANTS, STEEL, TITANIUM  
ALLOYS, TORPEDO COMPONENTS

(U)

IDENTIFIERS: PERSHING

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-268 925

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN-ONE PIECE HIGH PERFORMANCE

ROCKET MOTOR CASE

(U)

OCT 61 1V MARTIN, WAYNE A.;

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*ROCKET MOTORS, DEFORMATION,  
DIES, DRAWING (MACHINE PROCESSING), GUIDED MISSILES,  
HEAT TREATMENT, MANUFACTURING METHODS, MICROSTRUCTURE,  
NICKEL ALLOYS, PROCESSING, PRODUCTION, ROCKET  
PROPULSION, SMALL TOOLS, SOLID ROCKET PROPELLANTS,  
SURFACE-TO-SURFACE, TESTS, TITANIUM ALLOYS, TORPEDO  
COMPONENTS

(U)

IDENTIFIERS: PERSHING

(U)

UNCLASSIFIED

021492

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-265 918

NAVAL RESEARCH LAB WASHINGTON D C  
NONDESTRUCTIVE TESTING OF GLASS EPOXY POLARIS MOTOR  
CASES (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.  
DEC 61 13P ABEL, JOHN E.;  
REPT. NO. NRL-TM-167  
PROJ: NRL-62-RO5-19A

UNCLASSIFIED REPORT

DESCRIPTORS: \*HYGROMETERS, \*ROCKET CASES, ABSORPTION,  
DETECTION, DETERMINATION, DIELECTRIC PROPERTIES, EPOXY  
PLASTICS, FIBERS, FILAMENT WOUND CONSTRUCTION,  
FILAMENTS, GLASS TEXTILES, GUIDED MISSILES, LAMINATES,  
MEASUREMENT, MOISTURE, NON-DESTRUCTIVE TESTING,  
PLASTICS, SURFACE-TO-SURFACE, TEST EQUIPMENT,  
UNDERWATER-TO-SURFACE (U)  
IDENTIFIERS: MINUTEMAN, PERSHING, POLARIS (U)

THE LABORATORY MODEL OF THE TEST INSTRUMENT WAS  
MECHANIZED TO MEASURE THE DISSIPATION FACTOR OF THE  
DIELECTRIC (THE MOTOR CASE), THE DISSIPATION  
FACTOR OF THE DIELECTRIC VARIES AS A FUNCTION OF  
MOISTURE CONTENT, THE MEASUREMENT METHOD USES THE  
Q OF A VERY STABLE TUNED CIRCUIT AS A STANDARD FOR  
COMPARISON. A CONCENTRIC PROBE IS CONNECTED IN  
PARALLEL WITH THE CAPACITOR ELEMENT OF THE TUNED  
CIRCUIT, THE SAMPLE TO BE INVESTIGATED IS PLACED  
ON THIS PROBE AND THUS FORMS THE DIELECTRIC PORTION  
OF A CAPACITOR. IF THE DISSIPATION FACTOR OF THIS  
DIELECTRIC IS CHANGED BY WATER ABSORPTION THEN THE  
RESULTANT Q OF THE TUNED CIRCUIT WILL BE LOWERED.  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-264 996

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

JUN 61 1V MARTIN, WAYNE A.;

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*ROCKET MOTORS, \*STEEL,  
\*TITANIUM ALLOYS, ALUMINUM ALLOYS, CHROMIUM ALLOYS,  
COATINGS, DIES, DRAWING (MACHINE PROCESSING), HEAT  
TREATMENT, IRON ALLOYS, LUBRICANTS, MANUFACTURING  
METHODS, NICKEL ALLOYS, SALTS, SMALL TOOLS, SOLID ROCKET  
PROPELLANTS, TORPEDO COMPONENTS, VANADIUM ALLOYS (U)  
IDENTIFIERS: PERSHING (U)

PROGRESS IS REPORTED ON THE SPECIAL TOOLING  
(DIES AND PUNCHES) FOR PRODUCING THE 40-IN.-DIAM  
MONOLITHIC ROCKET MOTOR CASES. METALLOGRAPHIC  
EXAMINATIONS OF STRAIN-HARDENED SAMPLES OF 20%  
NI, 25% NI STEELS, AND THE ALL BETA TI ALLOYS  
INDICATE THE ABSENCE OF INTERNAL MICROCRACKS. THE  
NI STEELS APPEARED TO BE COMPATIBLE WITH THE  
COATING, SOAP SOLUTIONS, AND SALT BATH USED FOR  
STEEL, WHILE THE ALL BETA TI ALLOY TENDED TOWARD A  
MARGINAL SURFACE FINISH WHEN HEATED IN THE SALT BATH.  
IT IS PROPOSED TO USE THE TOOLING FROM AN OBSOLETE  
2-IN. ROCKET PROGRAM FOR SUB-SCALE DEEP DRAWING TESTS  
ON THE 20% NI AND 25% NI STEEL AND THE ALL BETA  
TI ALLOY. (U)



UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, 021492

AD-259 977

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

APR 61 1V

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT

DESCRIPTORS: \*ROCKET CASES, \*STEEL, DRAWING (MACHINE  
PROCESSING), HEAT TREATMENT, MANUFACTURING METHODS,  
ROCKET MOTORS, SOLID ROCKET PROPELLANTS, TITANIUM  
ALLOYS

(U)

IDENTIFIERS: PERSHING

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-256 536L

ABERDEEN PROVING GROUND MD

ROAD SHOCK AND VIBRATION TEST OF PRIMARY POWER PACK  
NO. 1 ON THE XM474E1 VEHICLE FOR THE PERSHING WEAPON  
SYSTEM (U)

MAY 61 1V EDDINGTON, V.A.;

REPT. NO. DPS 208

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: \*FIRE CONTROL SYSTEMS, \*TRACKED VEHICLES,  
ACCEPTABILITY, DESIGN, TESTS, VIBRATION ISOLATORS (U)  
IDENTIFIERS: M-474 VEHICLES, PERSHING (U)

THE PRIMARY POWER PACK NO. 1 FOR THE PERSHING  
WEAPON SYSTEM WAS MOUNTED ON AN XM474E1 VEHICLE,  
AND THE COMBINED UNIT SUBJECTED TO A LIMITED AMOUNT  
OF OPERATION OVER VARIOUS COURSES, SHOCK AND  
VIBRATION DATA WERE RECORDED DURING ALL PHASES OF THE  
TEST, A STUDY OF THE STATISTICAL AND SPECTRAL  
ANALYSIS DATA INDICATES THAT THE DESIGN CRITERION OF  
EIGHT G IS A REALISTIC LIMIT, NO MAJOR FAILURES  
OCCURRED DURING THIS TESTING, BUT THIS CANNOT BE  
CONSTRUED AS INDICATIVE OF UNIT RELIABILITY, SINCE  
ONLY A LIMITED AMOUNT OF OPERATION WAS PERFORMED,  
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-250 686

LYON INC DETROIT MICH

DEVELOPMENT OF DEEP DRAWN- ONE PIECE HIGH PERFORMANCE  
ROCKET MOTOR CASE (U)

DEC 60 1V

CONTRACT: DA20 0180RD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, HEAT TREATMENT, MACHINING,  
MANUFACTURING METHODS, ROCKET MOTORS, SOLID ROCKET  
PROPELLANTS, STEEL (U)  
IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-248 187

LYON INC DETROIT MICH  
DEVELOPMENT OF DEEP DRAWN - ONE PIECE HIGH  
PERFORMANCE ROCKET MOTOR CASE

(U)

NOV 60 1V

CONTRACT: DA20 018ORD23004

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: \*ROCKET CASES, HEAT TREATMENT,  
MANUFACTURING METHODS, METALLURGY, ROCKET MOTORS, SOLID  
ROCKET PROPELLANTS, STEEL (U)  
IDENTIFIERS: PERSHING, POLARIS (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-245 015L

ARNOLD ENGINEERING DEVELOPMENT CENTER ARNOLD AIR FORCE  
STATION TENN

STATIC AND DYNAMIC TESTING OF CONICAL TRAILING  
DECELERATORS FOR THE PERSHING RE-ENTRY VEHICLE (U)

OCT 60 IV COATS, JACK D.;

REPT. NO. TN60 188

CONTRACT: AF40 600 800

UNCLASSIFIED REPORT

DOD ONLY

DESCRIPTORS: AERODYNAMIC CHARACTERISTICS, AERODYNAMIC  
HEATING, ATMOSPHERE ENTRY, CONICAL BODIES, DECELERATION,  
GUIDED MISSILES, INSTRUMENTATION, MODEL TESTS,  
REDUCTION, REENTRY VEHICLES, STABILITY, SUPERSONIC FLOW,  
SURFACE-TO-SURFACE, TESTS (U)

IDENTIFIERS: PERSHING (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 021492

AD-225 267

VITRO CORP OF AMERICA NEW YORK

A HISTORY OF INERTIAL GUIDANCE (U)

SEP 59 1V MUELLER, F.K.;

CONTRACT: DA30 0690RD2331

UNCLASSIFIED REPORT  
NOFORN

DESCRIPTORS: ACCELEROMETERS, HISTORY (U)

IDENTIFIERS: JUPITER, PERSHING, REDSTONE, THOR (U)

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