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1993

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ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

SEARCH CONTROL NUMBER T18182

SEARCH STRATEGY

THE TERMS BELOW WERE SEARCHED BY THE COMPUTER. ASTERISK TERMS REPRESENT WEIGHTED RETRIEVAL TERMS. TRUNCATED RETRIEVAL TERMS INDICATE THAT ALL TERMS WITH THE DEPICTED ROOT HAVE BEEN SEARCHED. HIERARCHY TERMS ARE PRECEDED BY A DOLLAR SIGN ($) AND INDICATE THAT ALL TERMS WITH A HIERARCHICAL RELATIONSHIP TO THE DESCRIPTOR HAVE BEEN SEARCHED. COORDINATE SEARCHES ARE PORTRAYED AS SEARCH TERMS LISTED ON VARIOUS LEVELS. EXCLUDED RETRIEVAL TERMS ARE DISPLAYED UNDER AN EXCLUDE LISTING.

FIRST LEVEL SEARCH TERMS

5.56 MM	(TRUNCATED)
5.56MM	(TRUNCATED)
5.56-MM	(TRUNCATED)

ACCOUNTABILITY RECORD

RESEARCH AND TECHNOLOGY WORK UNIT INFORMATION SYSTEM

DDC SEARCH CONTROL NO. T18182

A LIST OF THE SELECTED RECORDS FOLLOW. EACH ENTRY SHOWS: (1) THE AGENCY ACCESSION NUMBER, (2) THE SECURITY CLASSIFICATION CODE OF THE REPORT, WORK, TITLE, KEYWORDS, TECHNICAL OBJECTIVE, APPROACH AND PROGRESS, (3) THE RELEASE LIMITATION CODE AND (4) THE REGRADING CODE.
* INDICATES THERE IS NO NARRATIVE DATA PRESENT.

NL NO LIMITATION ON DISTRIBUTIONITATION

FX UNDEFINED LIMITATION

(GE)(GF)(GT)(GX) U. S. GOVERNMENT ONLY

(DE)(DS)(DP)(DX) DEPARTMENT OF DEFENSE ONLY

LC HEW ONLY

RD RESTRICTED DATA. THE TERM RESTRICTED DATA MEANS ALL DATA CONCERNING: (1) DESIGN, MANUFACTURE, OR UTILIZATION OF ATOMIC WEAPONS, (2) THE PRODUCTION OF SPECIAL NUCLEAR MATERIAL OR (3) THE USE OF SPECIAL NUCLEAR MATERIALS IN PRODUCTION OF ENERGY, BUT SHALL NOT INCLUDE DATA DECLASSIFIED OR REMOVED FROM THE RESTRICTED DATA CATEGORY PURSUANT TO SECTION 142 OF THE UNITED STATES ATOMIC ENERGY ACT OF 1954 AS AMENDED.

FR FORMERLY RESTRICTED DATA. INFORMATION WHICH HAS BEEN REMOVED FROM THE RESTRICTED DATA CATEGORY PURSUANT TO SECTION 142(A) OF THE ATOMIC ENERGY ACT OF 1954 AS AMENDED.

DDC SEARCH CONTROL NO. T18182

AGENCY ACCESSION	RPT	WRK	TLE	KEY WRD	TCH OBJ	APR	PRG	RELSE LIMIT	RE-GRD
No Rejects									
DA0F4492	U	U	U	U	U	U	U	NL	
DA0L1594	U	U	U	U	U	U	U	DP	
DA0J1627	U	U	U	U	U	U	U	NL	
DA0M1595	U	U	U	U	U	U	U	DP	
DN035515	U	U	U	U	U	U	U	GE	
DA0C4534	U	U	U	U	U	U	U	NL	
DA0H1629	U	U	U	U	U	U	U	NL	
DA0D4440	U	U	U	U	U	U	U	NL	
DA0J1594	U	U	U	U	U	U	U	NL	
DA0F4429	U	U	U	U	U	U	U	NL	
DA0F4486	U	U	U	U	U	U	U	NL	
DA0J1626	U	U	U	U	U	U	U	NL	
DA0E1627	U	U	U	U	U	U	U	GU	
DA0J1614	U	U	U	U	U	U	U	GU	
DA0L1626	U	U	U	U	U	U	U	GU	
DA0H1603	U	U	U	U	U	U	U	GU	
DA0J1628	U	C	U	U	U	U	U	NL	
DA0P0115	U	C	U	U	U	U	U	DP	
DA0N0083	U	U	U	U	U	U	U	NL	
DA0E4548	U	C	U	U	U	U	U	NL	
DA0J1629	U	U	U	U	U	U	U	NL	
DA0E1626	U	U	U	U	U	U	U	GU	

T18182 STATISTICS JAN 25, 1973 (730125)

DIGRAPH	UNCLASSIFIED	CONFIDENTIAL	SECRET	TOTAL
DA	21	0	0	21
DN	1	0	0	1
TOTAL	22	0	0	22

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DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) CREW SERVED WEAPONS, AR- (U) TASK 07 - PERFORMANCE PARAMETER + EFFECT

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PRINCIPAL INVESTIGATOR
BROSSEAU,T L

TELEPHONE NUMBER
3012784443

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 11 70

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: APR 71

DATE OF SUMMARY: 26 JUL 72

OBJECTIVE: (U) A, TO EVALUATE THE 8MM, CHAUCHAT MACHINE GUN B, TO STUDY DESIGN PRINCIPLES IN AUTOMATIC WEAPONS C, TO CARRY OUT HYBRID OR ANALOG COMPUTER SIMULATIONS OF WEAPON MECHANISMS

APPROACH: (U) A, A SERIES OF EXPERIMENTS WILL BE CONDUCTED TO STUDY THE PERFORMANCE OF THE 8MM, FRENCH CHAUCHAT NACHINE GUN UNDER A VARIETY OF TEST CONDITIONS, THE MECHANISM WILL BE EVALUATED WITH RESPECT TO ITS SIMPLICITY OF DESIGN AND LONG RECOIL ACTION, B, EXPERIMENTS WILL BE INITIATED TO ESTABLISH THE DESIGN PRINCIPLES OF MACHINE GUN MECHANISMS WHICH MINIMIZE THE OPERATIONAL MALFUNCTIONS ENCOUNTERED UNDER ADVERSE CONDITIONS SUCH AS HOT, COLD, DUST AND UNLUBRICATED CONDITIONING OF THE WEAPON SYSTEM, C, HYBRID OR ANALOG COMPUTER STUDIES WILL BE INITIATED TO ANALYZE WEAPON DYNAMICS OF SMALL ARMS WEAPON MECHANISMS FOR ESTABLISHING A PREDICTIVE CAPABILITY FOR WEAPON PERFORMANCE.

PROGRESS: (U) 72 04-72 07 - A, THE BASIC ANALOG SIMULATION OF THE XM19 RIFLE HAS BEEN COMPLETED AND A DRAFT COPY OF A REPORT HAS BEEN WRITTEN, B, EXPERIMENTAL STUDIES ON THE 7,62MM, SHKAS MACHINE GUN HAVE BEEN COMPLETED, THE DATA HAS BEEN ANALYZED AND A REPORT IS BEING PREPARED.

ACCESSION NUMBER: DAOF4492

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) DEFINE WEAPON FACTORS IN A BROAD SPECTRUM OF AMMUNITION

RESPONSIBLE GOVT ORGANIZATION NAME
WECOM SCIENCE + TECHNOLOGY LAB

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ROCK ISLAND AR IL 61201

RESPONSIBLE INDIVIDUAL
HAMMER,A

TELEPHONE NUMBER
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PERFORMING ORGANIZATION NAME
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PRINCIPAL INVESTIGATOR
WU,S M

TELEPHONE NUMBER
6082623591

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 06 70

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 71

DATE OF SUMMARY: 26 JUN 72

OBJECTIVE: (U) ON THE BASIS OF THE TECHNIQUES OF STATISTICAL EXPERIMENTAL DESIGN, DEVELOP A METHOD OF IDENTIFYING PRODUCTION LOTS OF 5.56MM AMMUNITION WITH THE CHARACTERISTICS NEEDED FOR WEAPON TESTS TO DEFINE THE RELATIVE FUNCTIONAL RELIABILITY AND THE IMPORTANT ENGINEERING CHARACTERISTICS OF GAS ACTUATED WEAPONS.

APPROACH: (U) THROUGH TIME-SERIES MODELING AND-OR CUSUM PLOTTING, DEVELOP A METHOD OF SYSTEMATICALLY ESTABLISHING CUT OFF DATES WITHIN WHICH AMMUNITION PRODUCTION MAY BE CONSIDERED FREE FROM TRENDS, THUS PERMITTING A VALID STATISTICAL ANALYSIS FOR CALCULATION OF THE CONTROL LIMITS WITHIN WHICH WEAPONS TEST AMMUNITION MAY BE SELECTED,RANDOMIZED-BLOCK + FACTORIAL ANALYSES WILL BE PERFORMED TO CORRELATE THE HISTORICAL RECORDS OF PRODUCTION AMMUNITION ACCEPTANCE TESTS WITH THE RESULTS OF SPECIAL PRESSURE-TIME RECORDINGS ON SELECTED AMMUNITION LOTS TO BE CONDUCTED IN GOVERNMENT LABORATORIES, FRACTIONAL FACTORIAL EXPERIMENTS WILL BE DESIGNED TO ANALYZE THE INTERACTIONS BETWEEN SELECTED AMMUNITION PARAMETERS AND WEAPONS HAVING CHARACTERISTIC TYPES OF OPERATING MECHANISMS, THE RESULTS OF THE EXPERIMENTS WILL BE ANALYZED FOR CORRELATION OF AT LEAST THE TWO-LEVEL VARIABLES INCLUDED IN THE TEST, AND ADDITIONAL BLOCKS FOR THE FRACTIONAL FACTORIAL, OR A NEW EXPERIMENT, WILL BE DESIGNED TO CONVERGE ON THE MOST EFFICIENT METHOD FOR WEAPON TEST AMMUNITION

SELECTION.

PROGRESS: (U) 71 06-72 06 - THE FINAL REPORT ON THIS CONTRACT EFFORT HAS BEEN RECEIVED AND DISTRIBUTED. THE REPORT IS ENTITLED, 'INVESTIGATION OF THE INTERACTION OF WEAPON AMMUNITION SUBSYSTEMS' SWERR-TR-72-30 (AD 742723). ACCEPTANCE-TEXT DATA FOR FIVE MANUFACTURER'S PRODUCTION OF 5.56MM AMMUNITION WERE ANALYZED THROUGH TIME-SERIES MODELING, AND A BIVARIATE HISTOGRAM WAS DEVELOPED FOR USE IN THE SELECTION OF WEAPON-TEST AMMUNITION.

ACCESSION NUMBER: DAOL1594

DISTRIBUTION INSTRUCTIONS: DOD ONLY - INTERNAL INFORMATION

REGRADING:

UNCLASSIFIED
DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) DEVELOPMENT AND PRODUCTION OF IMPROVED 5.56MM AMMUNITION

RESPONSIBLE GOVT ORGANIZATION
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MEYER,A R

TELEPHONE NUMBER
3097946110

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 01 69

FUNDING AGENCY (1): DA
(2): DM
(3):

ESTIMATED COMPLETION DATE: MAR 72

DATE OF SUMMARY: 09 MAR 72

OBJECTIVE: (U) TO PROVIDE ADMINISTRATIVE AND TECHNICAL INTERFACE SUPERVISION FOR IMPROVED 5.56MM BALL AND TRACER AMMUNITION FOR USE IN ENGINEERING DEVELOPMENT AND ENGINEERING SERVICE TESTS OF 5.56MM MACHINE GUNS.

APPROACH: (U) ENGINEERING SUPPORT AND COORDINATION OF ACTIVITIES WHICH INCLUDE- DEVELOPMENT AND PRODUCTION OF BALL AND TRACER AMMUNITION WITH INCREASED TERMINAL BALLISTICS PERFORMANCE FOR USE IN ENGINEERING DEVELOPMENT TESTING OF THE 5.56 MACHINE GUN AMMUNITION SYSTEM. DETERMINATION AND TEST ANALYSIS OF AMMUNITION REPRESENTATIVE OF THE ALLOWABLE PRODUCTION EXTREMES.

PROGRESS: (U) 71 02-72 03 - EVALUATION COMPLETED NOVEMBER 1971. FINAL REPORT, SWERR TR-72-13, PUBLISHED 1 MARCH 1972.

ACCESSION NUMBER: DAOJ1627

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) DEVELOPMENT OF FINITE ELEMENT APPROACHES FOR MATHEMATICAL MODELING OF HIGH SPEED, UNSTEADY GAS FLOW

RESPONSIBLE GOVT ORGANIZATION
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WECOM WEAPONS LAB
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EHLE,P E

TELEPHONE NUMBER
3097944636

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 04 71

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 72

DATE OF SUMMARY: 31 DEC 71

OBJECTIVE: (U) IT IS PRESENTLY IMPRACTICAL TO RIGOROUSLY SOLVE THE BASIC GOVERNING EQUATIONS OF FLUID MECHANICS FOR MANY IMPORTANT FLOW SITUATIONS. ONE TECHNIQUE THAT HOLDS PROMISE FOR APPROXIMATE SOLUTIONS TO COMPLEX PHYSICAL PROBLEMS IS THE IDEA OF DIVIDING A COMPLICATED PROBLEM INTO SIMPLER ELEMENTS THAT CAN BE ANALYZED AND THEN ACCOUNTING FOR THEIR INTERACTION. IN MANY FLOW PROBLEMS THERE MAY BE A SERIES OF NATURALLY OCCURRING ELEMENTS SUCH AS BEND, AREAS OF SURFACE ROUGHNESS, HEAT AND MASS SOURCES, HEAT AND MASS SINKS, ETC. THE OBJECTIVE IS TO EXPLOIT THE PHILOSOPHY OF FINITE ELEMENT TECHNIQUES TO DEVELOP REALISTIC MATHEMATICAL MODELS OF HIGH SPEED, UNSTEADY, COMPRESSIBLE GAS FLOW UNDER SEVERAL TYPES OF BOUNDARY CONDITIONS.

APPROACH: (U) LITERATURE SURVEYS WILL BE MADE, GENERAL THEORETICAL METHODS WILL BE FORMULATED, THESE WILL FIRST BE APPLIED TO GAS IN THE M16 RIFLE, WHICH WILL SERVE AS A TEST VEHICLE WITH ITS READILY AVAILABLE SOURCE OF RAPID, COMPRESSIBLE, UNSTEADY FLOW. EXPERIMENTAL MEASUREMENTS OF PRESSURE, TEMPERATURE, AND VELOCITY WILL BE MADE TO VERIFY AND IMPROVE THE THEORY, IN LIGHT OF KNOWLEDGE GAINED FROM THE RESULTING MATHEMATICAL MODELS, ADDITIONAL FLOW SITUATIONS WILL BE EXAMINED.

PROGRESS: (U) 71 06-71 12 - SIMULATENOUS NONLINEAR ORDINARY DIFFERENTIAL EQUATIONS DESCRIBING FLOW THROUGH COUPLED

CYLINDRICAL ELEMENTS WERE WRITTEN AND PROGRAMMED FOR ANALOG AND DIGITAL COMPUTATION, BOTH LINEAR AND PARABOLIC DISTRIBUTIONS OF DENSITY, TEMPERATURE, AND VELOCITY ACROSS AN ELEMENT WERE USED, WAVE PROPAGATION AND REFLECTION WERE STUDIED USING THE RESULTING PROGRAMS, PROOFS OF EXISTENCE AND UNIQUENESS OF SOLUTION WERE DERIVED FOR THE SET OF EQUATIONS, A TEST VEHICLE WAS DESIGNED AND MEASURING EQUIPMENT PROCURED,

ACCESSION NUMBER: DAOM1595

DISTRIBUTION INSTRUCTIONS: DOD ONLY - INTERNAL INFORMATION

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) EVALUATION OF GUN PROPELLANTS

RESPONSIBLE GOVT ORGANIZATION NAME
NAVAL ORDNANCE SYSTEMS COMMAND

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PRINCIPAL INVESTIGATOR
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TELEPHONE NUMBER
703-663-8531, X8711

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 10 69

FUNDING AGENCY (1): DN
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 70

DATE OF SUMMARY: 15 DEC 70

OBJECTIVE: (U) TEST SPECIFIC AMMUNITION LOTS, IN ACCORDANCE WITH APPLICABLE ARMY SPECIFICATIONS, TO DETERMINE BALLISTIC ACCEPTABILITY.

APPROACH: (U) CONDUCT BALLISTIC TESTS ON 5.56MM AMMUNITION IN GUNS SUPPLIED BY THE ARMY, BUT USING NWL FACILITIES AND INSTRUMENTATION.

PROGRESS: (U) THE WORK IS COMPLETE. DIFFICULTIES IN ADJUSTING INSTRUMENTATION, ENVIRONMENTAL FACILITIES AND GUN SET-UP FOR THIS TEST WERE ENCOUNTERED INITIALLY. ADDITIONAL CHECKOUT PROGRAMS INCREASED THE COST OF THE TEST BEYOND THE ORIGINAL ESTIMATE. ALL THE REQUIRED TESTS WERE CONDUCTED AND ALL AMMUNITION LOTS WERE FOUND TO CONFORM TO THE SPECIFICATIONS.

ACCESSION NUMBER: DN035515

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - EXPORT CONTROLLED

REGRADING:

TITLE: (U) EVALUATION OF WEAPON SYSTEMS

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3012783109

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 07 67

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE:

DATE OF SUMMARY: 16 JUN 69

OBJECTIVE: (U) TO SUPPLY DATA ON ELEMENTS OF WEAPONS TO ASSIST IN PRELIMINARY EVALUATION OF WEAPONS SYTEMS.

APPROACH: (U) UTILIZE EXISTING DATA OR, IF REQUIRED, CONDUCT TESTS IN ORDER TO SUPPLY INFORMATION ON THE PROBABLE AERODYNAMIC OR BALLISTIC BEHAVIOR OF WEAPONS SYSTEM COMPONENTS.

PROGRESS: (U) 68 01-68 06 - DATA FOR THE 9MM SMG EVALUATION AND THE 5,56MM XM177 SMG EVALUATION WERE FURNISHED, TERMINATED DUE TO RESTRUCTURING OF TASKS.

ACCESSION NUMBER: DAOC4534

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) EXP. DEV. OF AN INDIVIDUAL SHOULDER FIRED WEAPON FOR 5.56 CASELESS AMMO

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8059681011126

CONTRACT NUMBER: DAAF01-68-C-0306

SECURITY
SUMMARY(U) WORK(U

START DATE: 12 67

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: DEC 68

DATE OF SUMMARY: 12 JAN 70

OBJECTIVE: (U) TO DEVELOP A CONCEPT OF A 5.56MM GUN MECHANISM TO AUTOMATICALLY FIRE THE FRANKFORD ARSENAL CONFIGURATION OF MOLDED CHARGE CASELESS AMMUNITION TO OBTAIN A MUZZLE VELOCITY OF 3250 FPS AT A RATE OF 750 ROUNDS PER MINUTE.

APPROACH: (U) DESIGN, FABRICATE AND TEST AND FIRING FIXTURE USING BOTH GOVERNMENT FURNISHED AND CONTRACTOR FABRICATED AMMUNITION. THE FIXTURE IS GAS OPERATED WITH A WIPING TYPE PRESSURE LOADED OBTURATOR LOCATED NEAR THE MID CHAMBER. EXTRACTOR/EJECTOR IS MANUALLY OPERATED.

PROGRESS: (U) 68 12-70 01 - THERE HAS BEEN NO EFFORT, THEREFORE NO PROGRESS DURING THE REPORT PERIOD. THERE IS NO PRESENT COMMITMENT TO CONTINUE THIS WORK UNIT.

ACCESSION NUMBER: DAOH1629

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) FEASIBILITY AND EVALUATION OF PROPOSED DEVICES AND ACCESSORIES

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RESPONSIBLE INDIVIDUAL
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PRINCIPAL INVESTIGATOR
BANNISTER,E L

TELEPHONE NUMBER
3012784480

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 07 68

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUL 69

DATE OF SUMMARY: 09 JAN 70

OBJECTIVE: (U) TO PROVIDE BASIC DATA, TECHNIQUES, AND GUIDANCE TO AID IN THE DESIGN AND DEVELOPMENT OF MORE EFFICIENT AND EFFECTIVE PROPULSION SYSTEMS.

APPROACH: (U) THEORETICAL AND EXPERIMENTAL INVESTIGATIONS ARE CARRIED OUT TO PROVIDE INTERIOR BALLISTIC DATA FOR WEAPONS OF A VARIETY OF CALIBERS. INTERIOR BALLISTIC MODELS ARE USED TO PROVIDE SIMULATED DATA FOR THE EVALUATION OF PROPOSED PROPULSION SYSTEMS. TEST PROGRAMS ARE CONDUCTED TO PROVIDE INTERIOR BALLISTIC DATA WHERE HARDWARE OR MATERIALS EXIST.

PROGRESS: (U) 69 01-69 06 - THIS TASK WAS TERMINATED IN JULY 69 BECAUSE OF RESTRUCTURING.

ACCESSION NUMBER: DAOD4440

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT 80100

TITLE: (U) HEAT TRANSFER IN CASELESS AMMUNITION WEAPONS

RESPONSIBLE GOVT ORGANIZATION
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WECOM SMALL ARMS SYSTEMS LAB
ADDRESS
ROCK ISLAND AR IL 61201

RESPONSIBLE INDIVIDUAL
LORENZEN,T G

TELEPHONE NUMBER
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PERFORMING ORGANIZATION
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PRINCIPAL INVESTIGATOR
STERBUTZEL,G

TELEPHONE NUMBER
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CONTRACT NUMBER: DAAF01-69-C-0420

SECURITY
SUMMARY(U) WORK(U

START DATE: 03 67

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUL 69

DATE OF SUMMARY: 14 JAN 70

OBJECTIVE: (U) DETERMINE THE MECHANISM OF THE HEAT TRANSFER BETWEEN THE BURNING PROPELLANT, THE WEAPON AND THE SUCCEEDING UNFIRED CHAMBERED ROUND IN SMALL ARMS CASELESS AMMUNITION, DEVELOP A SYSTEM OF EQUATIONS AMENABLE TO COMPUTER ANALYSIS TO PREDICT THE HEAT TRANSFER FOR VARIOUS AMMUNITION/WEAPON CONFIGURATIONS.

APPROACH: (U) OBTAIN ACTUAL TEST DATA AND CORRELATE WITH THE SCIENCE OF HEAT TRANSFER TO SYNTHESIZE THE PREDICTIVE RELATIONSHIPS.

PROGRESS: (U) 69 07-70 01 - CONTRACTOR FINAL REPORT NUMBER GI 2758-Z-1, CASELESS AMMUNITION HEAT TRANSFER VOLUME II, OCT 69, HAS BEEN COMPLETED. HEAT TRANSFER DATA HAS BEEN OBTAINED AND ANALYZED FOR 5.56, 7.62, AND 27MM CASELESS AMMUNITION IN SINGLE SHOT AND BURST FIRE TESTS. RESULTS INDICATE THAT PROPELLANT COOK OFF CAN OCCUR DURING RAPID FIRE, BUT APPLICATION OF SUITABLE PLASTIC COATINGS CAN ALLOW DESIGN OF WEAPONS USING CASELESS AMMUNITION TO HAVE COOK-OFF PERFORMANCE COMPARABLE TO THAT OF PRESENT WEAPONS EMPLOYING CASED AMMUNITION.

ACCESSION NUMBER: DAOJ1594

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) IMPROVED PROPELLANT/PRIMER AND IGNITION TECHNOLOGY

RESPONSIBLE GOVT ORGANIZATION
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TRAFTON, T R

TELEPHONE NUMBER
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CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 07 69

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: CONT

DATE OF SUMMARY: 24 JUL 72

OBJECTIVE: (U) TO DEVELOP A COMPUTER MODEL FOR THE INTERIOR BALLISTICS OF SMALL ARMS, THE MODEL WILL BE USED TO ASCERTAIN AND DEFINE PROPELLANT PARAMETERS AND CHARACTERISTICS REQUIRED TO ESTABLISH SUITABLE PROPELLANT ACCEPTANCE CRITERIA FOR SMALL ARMS.

APPROACH: (U) NECESSARY MODIFICATIONS WILL BE MADE TO THE EXISTING COMPUTER MODEL FOR LARGE CALIBER GUNS DOCUMENTED IN BRL R 1183. A COMBINED THEORETICAL AND EXPERIMENTAL INVESTIGATION IS BEING CONDUCTED TO PROVIDE FOR THE DEVELOPMENT OF THE DETAILED MODEL. THE MOST SIGNIFICANT INNOVATION IS TO CONSIDER SMALL ARMS PROPELLANTS WITH DETERRENT COATINGS AS HAVING VARYING COMPOSITIONS AND THEREFORE VARYING FORCES AT DIFFERENT DEPTHS IN A PROPELLANT GRAIN.

PROGRESS: (U) 71 07-72 06 - A REPORT ON THE FORTRAN VERSION OF THE DIGITAL COMPUTER MODEL FOR PREDICTING INTERIOR BALLISTIC PERFORMANCE OF WEAPONS USING SMALL ARMS DETERRED PROPELLANTS IS IN THE FINAL STAGES OF PREPUBLICATION REVIEW. CHEMICAL ANALYSES REQUESTED TO PROVIDE MORE SPECIFIC PROPELLANT INPUT DATA RESULTED IN PUBLICATION OF BRL MR 2169, VARIATION OF DIBUTYL PHTHALATE CONCENTRATION WITH GRAIN SIZE IN WC-846 BALL POWDER, APRIL 1972. EFFORTS TO DETERMINE NG CONTENT VARIATION WITH GRAIN SIZE GAVE SIMILAR PRELIMINARY INDICATIONS OF VARIATION BUT, AS YET, NO CONCLUSIVE RESULTS BECAUSE OF MUTUAL INTERFERENCES BETWEEN NG AND DPA DURING CHEMICAL ANALYSIS. PREPARATIONS ARE COMPLETED TO

SATISFY A NEED FOR A BROADER RANGE OF EXPERIMENTAL PERFORMANCE MEASUREMENTS. PROGRESS WAS SIGNIFICANTLY DELAYED BY ASSIGNMENT OF THE PRINCIPAL INVESTIGATOR TO A FOUR-WEEK TOUR AT ROCK ISLAND ARSENAL AS PART OF THE WECOM BUSHMASTER EVALUATION TEAM. HE ALSO PRESENTED A PAPER DESCRIBING THE MODEL AT THE 8TH JANNAF SOLID PROPELLANT COMBUSTION MEETING. A COPY OF THE SMALL ARMS INTERIOR BALLISTIC COMPUTER PROGRAM CARD DECK WAS FORWARDED TO USAWECOM, ROCK ISLAND ARSENAL, JUNE 1972, FOR INCLUSION IN THE DES-VAL MATHEMATICAL MODELS MATRIX.

ACCESSION NUMBER: DAOF4429

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) INDIVIDUAL WEAPON ADVANCED DEVELOPMENT-AR18

RESPONSIBLE GOVT ORGANIZATION NAME
AMC BALLISTIC RESEARCH LABS
ADDRESS
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RESPONSIBLE INDIVIDUAL
LENTZ,S S

TELEPHONE NUMBER
3012784771

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PRINCIPAL INVESTIGATOR
SAMOS,G

TELEPHONE NUMBER
3012782411

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 12 69

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: APR 71

DATE OF SUMMARY: 18 OCT 71

OBJECTIVE: (U) TO EVALUATE THE KINEMATIC PERFORMANCE OF THE AR18 RIFLE WITH RESPECT TO THAT OF THE M16A1 RIFLE.

APPROACH: (U) MEASUREMENTS WILL BE MADE OF THE DISPLACEMENT OF THE BOLT CARRIER AND THE PRESSURE IN THE CHAMBER AND GAS CYLINDER AS FUNCTIONS OF TIME, THESE RECORDS WILL BE USED TO ASSESS THE KINEMATIC PERFORMANCE, THE POTENTIAL FOR SUB-ZERO TEMPERATURE FIRING AND THE REQUIRED FREQUENCY FOR THOROUGH CLEANING.

PROGRESS: (U) 70 11-71 10 - THIS TASK HAS BEEN COMPLETED AND THE RESULTS OF THE COMPARISON BETWEEN THE AR18 AND THE M16A1 RIFLES HAVE BEEN REPORTED IN BRL MR 2037.

ACCESSION NUMBER: DAOF4486

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) INVESTIGATION TO DETERMINE WEAPON CONFORMITY OF CANDIDATE 5.56MM MACHINE GUNS

RESPONSIBLE GOVT ORGANIZATION
NAME
WECOM SMALL ARMS SYSTEMS LAB
ADDRESS
ROCK ISLAND AR IL 61201

RESPONSIBLE INDIVIDUAL
THOMPSON,R S

TELEPHONE NUMBER
3097944452

PERFORMING ORGANIZATION
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ADDRESS
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PRINCIPAL INVESTIGATOR
MEYER,A R

TELEPHONE NUMBER
3097946110

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 01 69

FUNDING AGENCY (1): DA
(2): DM
(3):

ESTIMATED COMPLETION DATE: MAR 72

DATE OF SUMMARY: 09 MAR 72

OBJECTIVE: (U) TO PROVIDE ADMINISTRATIVE AND TECHNICAL SUPERVISION OF AN INVESTIGATION OF EACH CONTENDER TO DETERMINE IF THE PRODUCT DELIVERED CONFORMS TO THE MANUFACTURER'S SPECIFICATIONS,AND IS CAPABLE OF BEING PRODUCED TO THOSE SPECIFICATIONS UNDER COMMON MANUFACTURING METHODS.

APPROACH: (U) ACTIVITIES INCLUDE SUPERVISION AND ANALYSIS OF-IN-PLANT ACCEPTANCE INSPECTIONS, PARTS INTERCHANGEABILITY TESTS, INSPECTIONS FOR DIMENSIONAL CONFORMITY, PRODUCIBILITY STUDIES AND GENERAL PRE-FIRING, FIRING, AND POST-FIRING INSPECTIONS.

PROGRESS: (U) 71 02-72 03 - EVALUATION COMPLETED NOVEMBER 1971. FINAL REPORT, SWERR TR-72-13, PUBLISHED 1 MARCH 1972.

ACCESSION NUMBER: DAOJ1626

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) KINEMATIC STUDY OF COMMERCIAL 5,56MM MACHINEGUN

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PRINCIPAL INVESTIGATOR
FREYMANN, E W

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CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 04 68

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE:

DATE OF SUMMARY: 30 JUL 69

OBJECTIVE: (U) REVIEW LATEST DESIGN FEATURES OF STONER 5,56MM MACHINEGUN FOR POSSIBLE INFLUENCES ON DYNAMICS OF THE WEAPON AND PROCURE 2 WEAPONS FOR KINEMATIC STUDIES IN THE AREAS NEEDED TO UPDATE FORMER EVALUATION, OBSERVE FOR POWER REQUIREMENTS, ENERGY LOSSES, STRESSES ON OPERATING PARTS, SENSITIVITY TO ENVIRONMENTAL HARMONICS, ETC., FOR WEAPONS OF THE CURRENT DESIGN, DERIVE COMPLETE KINEMATIC AND PARAMETRIC CHARACTERISTICS FOR INPUT TO DATA BANK AND SUBSEQUENT USE BY WEAPONS DESIGNERS.

APPROACH: (U) UTILIZE THE FACILITIES OF ROCK ISLAND ARSENAL FOR PARAMETRIC STUDIES AND THOSE OF ABERDEEN RESEARCH AND DEVELOPMENT CENTER FOR COMPLETE KINEMATIC ANALYSIS.

PROGRESS: (U) 68 04-69 07 - THIS EFFORT IS BEING TERMINATED AND FUTURE WORK WILL BE REPORTED ON ARSAP PROGRAM.

ACCESSION NUMBER: DAOE1627

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - PRELIMINARY INFORMATION

REGRADING:

TITLE: (U) RIFLE 5.56MM FABRIQUE NATIONAL

RESPONSIBLE GOVT ORGANIZATION
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RESPONSIBLE INDIVIDUAL
RHOADES,C J

TELEPHONE NUMBER
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PRINCIPAL INVESTIGATOR
DAHLQUIST,R L

TELEPHONE NUMBER
3097944251

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 03 69

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 71

DATE OF SUMMARY: 02 FEB 72

OBJECTIVE: (U) DETERMINE WEAPON CHARACTERISTICS, ITS CAPABILITIES AND ITS POTENTIAL FOR MILITARY APPLICATION.

APPROACH: (U) MONITOR AND COORDINATE ENGINEER DESIGN TEST OF TEN (10) FABRIQUE NATIONALE RIFLES, TEST PROGRAM WILL INCLUDE DETERMINATIONS OF ACCURACY AND DISPERSION, RELIABILITY AND DURABILITY, HIGH TEMPERATURE (PLUS 155 DEGREES F), COLD TEMPERATURE (MINUS 65 DEGREES F), KINEMATIC STUDIES, MAINTENANCE, AND HUMAN FACTORS.

PROGRESS: (U) 71 02-72 02 - REPORTING PERIOD FEBRUARY 1971 TO FEBRUARY 1972 NINE (9) MODEL 2 FABRIQUE NATIONALE CARBINES (PRE PRODUCTION MODELS) AND ONE MODEL 3 FABRIQUE NATIONALE CARBINE WERE SUBMITTED TO AN ENGINEERING DESIGN TEST. THE USATECOM REPORT BASICALLY CONCLUDED THAT THE MODEL 2 CARBINES WERE COMPARABLE TO THE M16A1 RIFLE WITH RESPECT TO PHYSICAL CHARACTERISTICS, EASE OF MAINTENANCE, CYCLIC RATE OF FIRE, ACCURACY, AND DISPERSION, AND HUMAN FACTORS BUT INFERIOR WITH RESPECT TO RELIABILITY AND DURABILITY THROUGHOUT THE TEMPERATURE RANGE OF MINUS 65 DEGREES F TO PLUS 155 DEGREES F, COOK-OFF, FLASH AND DYNAMIC DUST. THE LIMITED TESTING CONDUCTED WITH THE MODEL 3 INDICATED IT MAY BE SUPERIOR TO THE M16A1 RELATIVE TO RELIABILITY AND MAY BE EQUAL RELATIVE TO DURABILITY. THE FINAL TEST RESULTS ARE CONTAINED IN THE FINAL REPORT FOR ENGINEER DESIGN TEST OF 5.56MM FABRIQUE NATIONALE RIFLES, MODELS CAL 2 AND 3, REPORT NO. APG-MT-3844, USATECOM PROJECT NO. 8-WE-600-000-002, DATED JUNE 1971.

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

ACCESSION NUMBER: DA0J1614

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - PRELIMINARY INFORMATION

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) RIFLE 5.56MM FABRIQUE NATIONALE MODEL C, A, L,

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PRINCIPAL INVESTIGATOR
DAHLQUIST,R

TELEPHONE NUMBER
3097946518

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 01 71

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 72

DATE OF SUMMARY: 03 FEB 72

OBJECTIVE: (U) TO DETERMINE WEAPON CHARACTERISTICS, OBTAIN FUNCTIONING DATA AND ASSESS POTENTIAL MILITARY APPLICATION,

APPROACH: (U) CONDUCT WEAPON FIRINGS TO OBTAIN SIMULTANEOUS TIME DISPLACEMENT CURVES OF THE WEAPON SLIDE, BREECH BLOCK, BOLT AND RECEIVER, ANALYZE DATA AND PROVIDE FINAL REPORT,

PROGRESS: (U) 71 02-72 02 - THE WEAPON FIRINGS HAVE BEEN CONDUCTED TO RECORD SIMULTANEOUSLY THE TIME DISPLACEMENT RELATIONSHIPS OF THE WEAPON SLIDE, BREECH BLOCK, BOLT AND RECEIVER TO EACH OTHER, ANALYSIS OF THE DATA HAS BEEN COMPLETED AND THE TEST REPORT HAS BEEN DRAFTED,

ACCESSION NUMBER: DAOL1626

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - PRELIMINARY INFORMATION

REGRADING:

TITLE: (U) RIFLE 5.56MM (FABRIQUE NATIONALE) EXPLOITATION

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PERFORMING ORGANIZATION
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ARMY WEAPONS COMMAND
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PRINCIPAL INVESTIGATOR
FREYMANN,E W

TELEPHONE NUMBER
3097944251

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 07 69

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: CONT

DATE OF SUMMARY: 23 JAN 70

OBJECTIVE: (U) DETERMINE THE WEAPON CHARACTERISTICS, ITS CAPABILITIES AND ITS OUTSTANDING FEATURES, DETERMINE ITS POTENTIAL AS A MILITARY WEAPON COMPARED TO OTHER WEAPONS OF THE SAME CALIBER.

APPROACH: (U) CONDUCT EXPLOITATION TEST OF BOTH THE RIFLE AND ATTACHED GRENADE LAUNCHER, RECORD ALL DATA INCLUDING WEAPON WEIGHT WITH AND WITHOUT GRENADE LAUNCHER, DETERMINE TOTAL NUMBER OF RIFLE PARTS, TOTAL NUMBER OF LAUNCHER PARTS, TOTAL NUMBER OF SUB-ASSEMBLIES AND TOTAL NUMBER OF PERMANENT ASSEMBLY, SAFETY CERTIFY WEAPON PRIOR TO FUNCTION TESTING, CONDUCT WEAPON PERFORMANCE TEST AND ACCURACY TEST USING BOTH THE STANDARD M193 BALL AMMUNITION AND THE FABRIQUE NATIONALE AMMUNITION.

PROGRESS: (U) 69 07-70 01 - THE EXPLOITATION TEST HAS BEEN COMPLETED AND TEST REPORT PUBLISHED, FINDINGS INCLUDE THE FOLLOWING- A. INSPECTION OF TWO (2) FIRED HIGH PRESSURE TEST CARTRIDGES REVEALED DEFORMATION OF THE CASE HEAD IN THE DIRECTION OF THE EXTRACTOR AND EJECTOR RECESSES AND ENLARGEMENT OF THE PRIMER POCKET ALLOWING THE PRIMER TO SEPARATE FROM THE CASE. B. EXHIBITED PART BREAKAGE WAS LIMITED TO THE HAMMER SPRING AFTER 1230 ROUNDS WERE FIRED. C. EIGHT (8) STOPPAGES WERE EXHIBITED WHICH WERE ATTRIBUTED TO EITHER BOLT OVER-RIDE OR SHORT RECOIL.

ACCESSION NUMBER: DAOH1603

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - PRELIMINARY INFORMATION

REGRADING:

TITLE: (U) SERVICES + INVESTIGATION FOR 5,56MM MACHINE GUN ASSESSMENT PROGRAM

RESPONSIBLE GOVT ORGANIZATION
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WECOM SMALL ARMS SYSTEMS LAB
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RESPONSIBLE INDIVIDUAL
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TELEPHONE NUMBER
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ROCK ISLAND IL 61201

PRINCIPAL INVESTIGATOR
MEYER,A R

TELEPHONE NUMBER
3097946110

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(C

START DATE: 01 69

FUNDING AGENCY (1): DA
(2): DM
(3):

ESTIMATED COMPLETION DATE: JAN 70

DATE OF SUMMARY: 28 JAN 70

OBJECTIVE: (U) TO CONDUCT ADMINISTRATIVE AND TECHNICAL SUPERVISION OF ACTIVITIES DETERMINING THE DISPERSION CHARACTERISTICS AND TACTICAL EFFECTIVENESS OF MACHINE GUNS IN GENERAL AND 5,56MM CONTENDERS IN PARTICULAR, THE FORMULATION OF MATHEMATICAL EFFECTIVENESS MODELS AND PSUEDO-TACTICAL HIT CAPABILITY TESTS PROVIDES MEANINGFUL DATA ON DEVELOPING NEW WEAPON SYSTEMS, DETERMINING SUITABILITY OF EXISTING AND CONTENDER SYSTEMS, AND ON MORE EFFECTIVE METHODS OF EMPLOYMENT FOR AVAILABLE SYSTEMS.

APPROACH: (U) A CONTRACT HAS BEEN LET TO AMSAA, THE APPROACH OF WHICH INCLUDES-DETERMINATION OF APPROPRIATE TECHNIQUES OF FIRE AND METHODS OF TARGET ENGAGEMENT, SELECTION OF TEST FIRERS AND TEST WEAPONS, VARYING OF MOUNTS AND SYSTEM PARAMETERS,BURST DISPERSION TESTS-FORMULATION OF MATHEMATICAL EFFECTIVENESS MODELS, AND VERIFICATION OF EFFECTIVENESS MODELS BY COMPARISON OF PREDICTED AND TEST HIT CAPABILITY RESULTS.

PROGRESS: (U) 69 07-70 01 - AN AMSAA STUDY BASED ON AVAILABLE DATA COMPARING THE EFFECTIVENESS OF THE 7,62MM M60 MACHINE GUN FIRING M80 BALL AMMUNITION WITH THE XM207 MACHINE GUN FIRING THE STANDARD M193, 5,56 BALL AND SEVERAL LOW DRAG 5,56MM BULLETS IS COMPLETED. AMSAA TECHNICAL MEMORANDUM NO, 41 (C) DEALING WITH THIS STUDY IS AVAILABLE. NO FURTHER STUDY IS PLANNED UNDER THIS WORK UNIT.

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

ACCESSION NUMBER: DAOJ1628

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) SMALL ARMS AMMUNITION, EXPLORATORY DEV - SYSTEMS ANALYSIS

RESPONSIBLE GOVT ORGANIZATION
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MUCOM SMALL CALIBER AMMO D+E LABS
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RESPONSIBLE INDIVIDUAL
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PERFORMING ORGANIZATION
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PRINCIPAL INVESTIGATOR
MALINOSKI,F A

TELEPHONE NUMBER
2155352900 6105

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(C

START DATE: 07 68

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: CONT

DATE OF SUMMARY: 29 APR 71

OBJECTIVE: (U) THE OBJECTIVE OF THIS TASK IS TO CONDUCT SYSTEM ANALYSIS STUDIES ON AMMUNITION CONCEPTS FOR POTENTIAL APPLICATION IN PISTOL, SHOTGUN, RIFLE AND MACHINE GUN SYSTEMS.

APPROACH: (U) TO CONTINUE SYSTEM ANALYSIS STUDIES ON AMMUNITION CONCEPTS, TO ESTABLISH IN-HOUSE WEIGHTING FACTORS WITH RESPECT TO LETHALITY CRITERIA, ENGINEERING FEASIBILITY, COST, EFFECTIVENESS, ETC., AND TO DEFINE PERFORMANCE PREREQUISITIES PRIOR TO CONCEPT TRANSITION INTO VARIOUS PHASES OF DEVELOPMENT.

PROGRESS: (U) 70 05-71 04 - WORK HAS BEEN TERMINATED UNDER THE ABOVE PROJECT AND WILL BE REPORTED ON A NEW WORK UNIT SUMMARY IN ACCORDANCE WITH AMC RESTRUCTURE OF PROJECTS, THE NEW WORK UNIT SUMMARY WILL BE REPORTED UNDER THE DA1W562604 A010 PROJECT.

ACCESSION NUMBER: DA0P0115

DISTRIBUTION INSTRUCTIONS: DOD ONLY - INTERNAL INFORMATION

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) TACTICAL PACKAGING

RESPONSIBLE GOVT ORGANIZATION
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MUCOM FRANKFORD ARSENAL
ADDRESS
PHILADELPHIA PA 19137

RESPONSIBLE INDIVIDUAL
MARKGRAF, R W

TELEPHONE NUMBER
234180021124

PERFORMING ORGANIZATION
NAME
ROWLAND + CO
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HADDONFIELD NJ 08033

PRINCIPAL INVESTIGATOR
BENDER, DR

TELEPHONE NUMBER
NOT REPORTED

CONTRACT NUMBER: DAAA25-71-C-0200

SECURITY
SUMMARY(U) WORK(U

START DATE: 11 70

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: APR 72

DATE OF SUMMARY: 22 FEB 72

OBJECTIVE: (U) THE OBJECTIVE OF THIS CONTRACT IS TO GENERATE NEW AND IMPROVED AMMUNITION PACKAGING CONCEPT USING THE 5.56MM M16A1 SYSTEM AS A TEST VEHICLE.

APPROACH: (U) THE ABOVE CONTRACT HAS BEEN EXTENDED TO INCLUDE PACKAGING FOR MACHINE GUN AMMUNITION, CONCEPTS WILL BE GENERATED AND REVIEWED BY CDC, A NUMBER OF THESE CONCEPTS WILL LATER BE PROCURED AND/OR MANUFACTURED AND ASSESSED VIA A LIMITED FIELD TESTS.

PROGRESS: (U) 71 02-72 02 - TO DATE, APPROXIMATELY TEN PACKAGING CONCEPTS HAVE BEEN SELECTED FOR RIFLE AMMUNITION, THESE CONCEPTS HAVE BEEN REVIEWED BY CDC, EFFORTS ARE CURRENTLY UNDERWAY FOR NEW CONCEPTS FOR MACHINE GUN AMMUNITION.

ACCESSION NUMBER: DAON0083

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) TERMINAL EFFECTS OF BULLETS AND FRAGMENTS

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RESPONSIBLE INDIVIDUAL
FRASIER, J T

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PRINCIPAL INVESTIGATOR
GRABAREK, C L

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3012783304

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(C

START DATE: 07 70

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE: JUN 71

DATE OF SUMMARY: 30 JUN 71

OBJECTIVE: (U) TO DETERMINE THE EFFECTS OF SELECTED BULLETS AND SIMULATED FRAGMENTS UPON IMPACT WITH 5.56MM AMMUNITION PACKAGED IN VARIOUS FORMS SUITABLE FOR CARRYING ON THE PERSON OR FOR USE IN CREW-SERVED WEAPONS.

APPROACH: (U) BULLETS 5.56MM WILL BE FIRED TO IMPACT 5.56MM AMMUNITION CASE TYPES SUCH AS BRASS, PLASTIC AND CASELESS AMMUNITION PACKAGES MADE OF STEEL, ALUMINUM AND PLASTIC MAGAZINES EACH CONTAINING 20 TO 40 ROUNDS. X-RAY INSTRUMENTATION WILL BE USED TO RECORD THE EVENT BEFORE AND AFTER TARGET IMPACT. THE PROBABILITY AND EXTENT OF FLAME PROPAGATION WILL BE RECORDED BY OPTICAL METHODS.

PROGRESS: (U) 70 07-71 06 - FIRINGS OF 5.56MM, M193 BALL BULLETS AND 7.62MM M80 BALL BULLETS AGAINST PLASTIC AND ALUMINUM MAGAZINES LOADED WITH 5.56MM, M193 BRASS CARTRIDGES HAVE BEEN COMPLETED. DATA IS BEING MADE AVAILABLE ON THE MASS, VELOCITY AND DIRECTION OF TRAVEL OF ALL METALLIC PARTICLES EMERGING FROM THE REAR OF THE MAGAZINE, PLUS THE PROBABILITY OF IGNITION OF TARGET ROUNDS, NUMBER OF ROUNDS BURNED AND TEMPERATURE-TIME HISTORIES WHERE BURNING OCCURS.

ACCESSION NUMBER: DAOE4548

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

TITLE: (U) WEAPON SENSITIVITY, RELIABILITY, DURABILITY AND MAINTAINABILITY

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RESPONSIBLE INDIVIDUAL
THOMPSON,R S

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PRINCIPAL INVESTIGATOR
MEYER,A R

TELEPHONE NUMBER
3097946110

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 01 69

FUNDING AGENCY (1): DA
(2): DM
(3):

ESTIMATED COMPLETION DATE: CONT

DATE OF SUMMARY: 21 JAN 70

OBJECTIVE: (U) TO PROVIDE ADMINISTRATIVE AND TECHNICAL SUPERVISION, SUPPORT, AND SERVICES ASSOCIATED WITH THE ENGINEERING DEVELOPMENT TESTS OF CONTENDER 5.56MM MACHINE GUNS. PROGRAM OBJECTIVES ARE TO DETERMINE WEAPON RELIABILITY, DURABILITY, SENSITIVITY, MAINTAINABILITY, SERVICE LIFE, AND ABILITY TO PERFORM UNDER THE ENVIRONMENTAL CONDITIONS OF COMBAT.

APPROACH: (U) ACTIVITIES INCLUDE ORGANIZATION, CONDUCT, AND ANALYSIS OF ENDURANCE TESTING, CONTROLLED CONDITIONS TESTING, AND SPECIAL TESTS WHICH VERIFY CONCLUSIONS OF THE 'WEAPONS CHARACTERISTICS STUDY' AND ADDRESS CERTAIN SPECIFIC MARINE CORPS REQUIREMENTS. STANDARD WEAPON DEVELOPMENT AND PERFORMANCE TEST PROCEDURES ARE BEING UTILIZED WHEREVER POSSIBLE.

PROGRESS: (U) 69 07-70 01 - THE ENGINEERING DEVELOPMENT TEST HAS BEEN COMPLETED AND AN INTERIM REPORT WILL BE AVAILABLE ON 20 FEB 70. TWO XM207 MACHINE GUNS, FIRED 36,000 ROUNDS EACH, REVEALED DEFICIENCIES IN THE LIFE OF THE BOLT CARRIER AND STOCKS WITH A HIGH FREQUENCY OF 'SPIN BACK' MALFUNCTIONS WHICH PRECLUDED ENTERING THE ENGINEERING TEST. THE MANUFACTURER WILL SUPPLY WEAPONS WITH IMPROVED PARTS LIFE AND RIGHT HAND FEED TO CORRECT THE 'SPIN BACK' PROBLEM FOR AN ENGINEERING DEVELOPMENT CHECK TEST SCHEDULED TO START ON 24 FEB 70. A NEW DD 1498 HAS BEEN WRITTEN TO COVER THE EDT CHECK TEST.

DDC REPORT NUMBER T18182, JAN 25, 1973
DDC FORMAT B0100

ACCESSION NUMBER: DAOJ1629

DISTRIBUTION INSTRUCTIONS: UNLIMITED

REGRADING:

TITLE: (U) 5,6 MACHINEGUN CONVERSION

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PRINCIPAL INVESTIGATOR
FREYMANN, E W

TELEPHONE NUMBER
3097944251

CONTRACT NUMBER:

SECURITY
SUMMARY(U) WORK(U

START DATE: 04 68

FUNDING AGENCY (1): DA
(2):
(3):

ESTIMATED COMPLETION DATE:

DATE OF SUMMARY: 30 JUL 69

OBJECTIVE: (U) CONDUCT FEASIBILITY STUDIES OF A 5,56MM SQUAD LIGHTWEIGHT MACHINEGUN CAPABLE OF DELIVERING A LARGE VOLUME OF AUTOMATIC, LETHAL, ACCURATE BELT FED SUSTAINED FIRE. PRIMARY EMPLOYMENT OBJECTIVE IS THE ANTI-PERSONNEL ROLE, BUT THE WEAPON WILL BE DEVELOPED FOR VERSATILITY AND EFFECTIVENESS AGAINST VEHICLES, HASTY FIELD FORTIFICATIONS AND SLOW FLYING AIRCRAFT. EXPLORE APPROPRIATENESS OF 5,56MM DESTRUCTIVE POTENTIAL FOR THESE ROLES, UTILIZE CURRENT TECHNOLOGY AND GENERATE NEW CONCEPTS TO MINIMIZE WEAPON SENSITIVITY TO VARIABLES INHERENT IN NORMAL AMMUNITION PRODUCTION, REDESIGN AND CONVERT EXISTING 5,6MM (SPIW) CALIBER AUTOMATIC FIXTURE TO FIRE A 5,56MM CARTRIDGE USING EXISTING COMMERCIAL LINKS. PROVIDE IMPROVED BUFFER, TO MINIMIZE BOLT REBOUND, AND RATE CONTROLLER TO SELECTIVELY REDUCE NATURAL CYCLIC RATE TO A RATE OF ABOUT 400 ROUNDS PER MINUTE. CONDUCT PRELIMINARY KINEMATIC STUDY OF THE CONVERTED SYSTEM TO DETERMINE FEASIBILITY VERSUS EXISTING COMMERCIAL SYSTEMS.

APPROACH: (U) THROUGH INTERIOR BALLISTICS AND APPLIED MECHANICS STUDIES, DETERMINE FEASIBILITY OF CONVERSION, MODIFY EXISTING FIRING FIXTURE FOR EXPERIMENTAL VERIFICATION OF THEORIES.

PROGRESS: (U) 68 04-69 07 - THIS EFFORT IS BEING TERMINATED AND FUTURE WORK WILL BE REPORTED ON ARSAP PROGRAM.

ACCESSION NUMBER: DAOE1626

DISTRIBUTION INSTRUCTIONS: U S GOVT ONLY - PRELIMINARY INFORMATION

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