U.S. ARMY MATERIAL DEVELOPMENT AND READINESS COMMAND

MANUFACTURING METHODS & TECHNOLOGY

PROJECT EXECUTION REPORT

SECOND CY 80

PREPARED BY USA INDUSTRIAL BASE ENGINEERING ACTIVITY

MANUFACTURING TECHNOLOGY DIVISION

MARCH 1981

ROCK ISLAND, ILLINOIS 61299

81 5 01 005
This document is a summary compilation of the Manufacturing Methods and Technology Program Project Status Reports (RCS DRCMT-301) submitted to IBEA from DARCOM major Army subcommands and project managers. Each page of the computerized section lists project number, title, status, funding, and projected completion date. Summary pages give information relating to the overall DARCOM program.
SUBJECT: Manufacturing Methods and Technology (MMT) Program Project Execution Report, Second Half CY80

SEE DISTRIBUTION

1. Reference AR 700-90, Cl, paragraph 3-8e(1), 10 Mar 77, subject: Logistics, Army Industrial Preparedness Program.

2. The Project Execution Report is a summary compilation of the MMT Program Project Status Reports (RCS DRCMT-301) submitted to IBEA from DARCOM major Army subcommands (SUBMACOM) and project managers. This document is used as a management tool for monitoring the progress of MMT projects. There are separate sections in the report showing projects that are new, active, and completed. Also, included is a discussion of the overall DARCOM Program.

3. Persons who are interested in the details of an individual project should contact the manufacturing technology representative at the SUBMACOM. A list of those representatives is included in Appendix IV to this report. The Project Officer for this task is Ms. L. Hancock, AV 793-6521.

J. R. GALLAUGHER
Director
Industrial Base Engineering Activity
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INTRODUCTION

BACKGROUND

The Army Manufacturing Methods and Technology (MMT) Program was established in 1964 as a part of the Army Production Base Support (PBS) Program. The MMT Program has goals of improving existing manufacturing technology, translating new technology into production line processes, and supporting the modernization and expansion of the military hardware production base. The program is governed by the provisions of AR 700-90, Chapter 3, which has been recently updated and submitted to the field in its draft form.

COMPOSITION OF THE REPORT

This MMT Project Execution Report provides the status summaries of 473 active projects which have a total authorized cost of $214,491,000. Total MMT program statistics, as well as the summaries of the active projects are also included. The report is compiled, edited, and published for HQ, DARCOM by the Manufacturing Technology Division of the Army Industrial Base Engineering Activity (IBEA) in accordance with AR 700-90, C1, paragraph 3-8e(1).

Distribution of this report is extended to Army materiel developers and users and to counterparts in the Navy and the Air Force. Inquiries on the detailed technical aspects of any individual project may be answered by the MMT Program representative of the action command under which the project was completed or is being executed. Inquiries or suggestions concerning this report or other facets of the MMT Program may also be directed to the Manufacturing Technology Division of IBEA.

The report is composed of three major sections:

a. Projects Added 2nd Half, CY80 - A list divided by organization of all projects funded during the second half of CY80. Included is a narrative of the problem for each project.

b. Projects Completed 2nd Half, CY80 - A list divided by organization of all projects completed during the second half of CY80. Included is a narrative of the final status for each project.

c. Summary Project Status Report - These reports are divided by organization and include a summary of funding by fiscal year and a narrative status for each project.
DISCUSSION

Manufacturing Methods and Technology (MMT) Projects and Efforts are major elements of the Army's Manufacturing Technology (MANTECH) Program. AR 700-90 succinctly describes the MANTECH objective as the improvement of the industrial readiness and efficiency of the production base for Army materiel. Further defined objectives are stated in the Statement of Principles for the DOD Manufacturing Technology Program. This Statement, originating at the Deputy Under Secretary of Defense level, not only establishes ground rules for the Program but highlights the level of emphasis that the Program receives.

To attain the objectives described in the Statement of Principles, the Army funds discrete work units, called Projects, on a yearly basis. These projects, identified by a seven-digit number, contain work requests, which upon completion will result in an end product whose technical transfer can be effected. At times, in order to have a total work package which is implementable, (i.e., which can achieve the payback for which the work was funded) the scope can be of such a magnitude that total funding in one fiscal year can be an inefficient use of resources. In this event, the total work might be multi-year funded, (i.e., be more than one project, each having a technically transferrable end product). These total implementable work units are called "Efforts". These Efforts can consist of many projects or just be one project, depending on the amount of work required to achieve the implementable technical goal. Efforts are identified by a four-digit number which is the same as the last four digits of a project or projects which make up the effort.

The following three charts (Figures 1-3) summarize MMT project reporting and funding status for the 2nd Half of CY80. These summaries include data from the Major Army subcommands (SUBMACOM) that have active projects and the AMMRC and DARCOM sponsored projects. Cumulative figures pertaining to project distribution and expenditures of funds on contract and in-house are provided. Completed projects are not included in this section. They are listed in a separate section on page 27 which gives a final work status for each project that was completed during this reporting period.

A summary of the MMT program (Figure 1) indicates that the number of active projects has decreased by 27% in comparison with the 2nd half of CY79. The comparison is made between parallel reporting periods (2nd half, CY79 and 2nd half, CY80) in order to observe the project number and funding changes that occur within each command and within the total program. The data on this chart shows projects that were active for the period July through December 1980. It can be noted that there was a decrease in number of projects and authorized funds within every command except AMMRC/DARCOM/DESCOM. This decrease reflects a decline in funding levels and points out continuing success in the close-out of old projects. Another cause for the decrease was
the late funding of the FY81 program. Many of the newly added projects were not funded until after December 1980 whereas during the previous year (2nd half CY79) much of the new program had been funded.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Number of Projects</th>
<th>Funding Status</th>
<th>Percent Change</th>
<th>Percent Change</th>
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<td></td>
<td>2nd Half CY79</td>
<td>2nd Half CY80</td>
<td></td>
<td></td>
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<tr>
<td>TECOM</td>
<td>4</td>
<td>3</td>
<td>-25</td>
<td>-22</td>
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<tr>
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<td>93</td>
<td>72</td>
<td>-23</td>
<td>-8</td>
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<td>74</td>
<td>62</td>
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<td>152</td>
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<td>-35</td>
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<tr>
<td>ARRADCOM/ARRCOM (Weapons)</td>
<td>96</td>
<td>64</td>
<td>-33</td>
<td>-25</td>
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<tr>
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<td>15</td>
<td>-29</td>
<td>-35</td>
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<td>TOTAL</td>
<td>646</td>
<td>473</td>
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Figure 1

by the end of December. Numerically, the largest decreases were in Ammunition and Weapons. ARRADCOM/ARRCOM (Ammunition) reflect the largest decrease in active funding level with reduction in authorized funds of $46.4 million.
A breakout of the active projects by fiscal years is shown in Figure 2. An increased emphasis has been placed during the past year on closing out older projects. The success of this close-out is shown by comparing the fiscal years 73-7T of the 2nd half CY79 with the current

<table>
<thead>
<tr>
<th>Organization</th>
<th>73</th>
<th>74</th>
<th>75</th>
<th>76</th>
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<td>19</td>
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<tr>
<td>ARRADCOM/ARRCOM (Ammo)</td>
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<td>8</td>
<td>1</td>
<td>10</td>
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<td>50</td>
<td>8</td>
<td>152</td>
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<td>7</td>
<td>17</td>
<td>31</td>
<td>64</td>
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</tr>
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<td>2</td>
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<td>2</td>
<td>8</td>
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</tr>
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<td>41</td>
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<td></td>
</tr>
<tr>
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<td>4</td>
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<td>TACOM</td>
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<td>11</td>
<td>12</td>
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<td>TOTAL</td>
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<td>13</td>
<td>3</td>
<td>34</td>
<td>61</td>
<td>132</td>
<td>166</td>
<td>62</td>
<td>473</td>
</tr>
</tbody>
</table>

| 2nd CY79 TOTAL           | 1  | 5  | 15 | 40 | 6  | 86 | 141| 181| 171| 0    | 646   |

Figure 2

period. A year ago there were 67 active projects for these fiscal years. There were only 18 active projects (73-7T) during the 2nd half CY80. The total span of the active MMT program is now seven years.
Also, there was a total of 118 projects completed overall during the current reporting period. This is the largest number of projects completed during a six-month period within the last two years. Figure 3

Program Funding Expenditures

(Millions)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Projects</th>
<th>Authorized Funding</th>
<th>Contractor Amount Expended</th>
<th>In-House Remaining Expended</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECOM</td>
<td>3</td>
<td>$2.6</td>
<td>$0.2</td>
<td>$2.4</td>
</tr>
<tr>
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<td>72</td>
<td>23,3</td>
<td>11.3</td>
<td>11.9</td>
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<tr>
<td>MCOM</td>
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<td>21.7</td>
<td>12.0</td>
<td>9.7</td>
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<tr>
<td>ARRADCOM/ARRCOM (Ammo)</td>
<td>152</td>
<td>86.7</td>
<td>48.8</td>
<td>37.9</td>
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<tr>
<td>ARRADCOM/ARRCOM (Weapons)</td>
<td>64</td>
<td>13.0</td>
<td>4.1</td>
<td>8.9</td>
</tr>
<tr>
<td>MERADCOM</td>
<td>15</td>
<td>4.1</td>
<td>3.2</td>
<td>0.9</td>
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<tr>
<td>CORADCOM</td>
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<td>4.2</td>
<td>2.1</td>
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<td>15.5</td>
<td>7.7</td>
<td>7.9</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>473</strong></td>
<td><strong>$214.5</strong></td>
<td><strong>$116.3</strong></td>
<td><strong>$98.3</strong></td>
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2nd CY79

<table>
<thead>
<tr>
<th>Projects</th>
<th>Authorized Funding</th>
<th>Contractor Amount Expended</th>
<th>In-House Remaining Expended</th>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>646</strong></td>
<td><strong>$286.2</strong></td>
<td><strong>$120.8</strong></td>
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</table>

Figure 3

*All values rounded to one decimal place.

indicates at what rate the project funds are being expended. The percent of in-house expenditures has increased by 11% from the 2nd
half CY79 and the percent of contract expenditures has remained about the same. This would seem to indicate that in-house funds are being expended at a greater rate than in the past. While this is true to a degree, other factors have also resulted in this apparent program improvement. As stated earlier, the late funding of the new FY81 program caused a decrease in funding level through December 1980. This explains part of the significant difference between in-house funds from the 2nd half CY79 ($165.3 million) and the 2nd half CY80 ($98.3 million). The 2nd half CY79 period which included more new projects, would thus have more funds remaining in-house. This then would result in a smaller expenditure rate than the current period.

Accuracy of project information depends on the quality of the project status reports submitted to IBEA from the commands. Efforts were again made this period to improve the quality of individual reports. Any report containing significant errors or inadequate description of accomplishments was sent back to the command for correction.

Accuracy also depends on a complete submission of all the project status reports for each command. In December, a call letter was mailed out to each SUBMACOM. Included with this letter was a computerized listing of the projects for which a status report was required for this reporting period. There were 30 reports, which five weeks after the due date, were not submitted. This is a reduction of eight reports compared to the last report period. This is significant because the cutoff date was moved up a week and yet the number of delinquent status reports was reduced. The following list shows the number of delinquent reports within each command.

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<td>MICOM</td>
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<tr>
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<td>MERAADCOM</td>
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<td>CORADCOM</td>
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<td>DARCOM</td>
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<td>DESCOM</td>
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<tr>
<td>NARADCOM</td>
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<tr>
<td>TACOM</td>
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</table>

This delinquency creates a void in the information presented in the compiled report. Continuing improvement in this area will insure a more useful review of the progression of the MMT Program.
MMT PROGRAM

PROJECTS ADDED 2nd HALF, CY80
PROJECTS ADDED IN 2ND HALF, CY80

DARCOM

D 81 5053
DIGITAL ELEVATION DATA DUBBING FACILITY (DEDDF)

TECHNOLOGY EXISTS TO TRANSFER FORMATTED DIGITAL ELEVATION DATA (FOR MAPS) FROM 9-TRACK COMMERCIAL TAPES TO CASSETTES COMPATIBLE WITH THE FIREFINDER SYSTEM. HOWEVER THIS TECH HAS NOT BEEN INTEGRATED INTO VAN-MOUNTED PORTABLE FIELD FACILITIES.

MERRADCOM

E 81 3717
HIGH TEMPERATURE TURBINE NOZZLE FOR 10KW PU

SUPER ALLOY METALS USED IN HOT COMPONENTS OF GAS TURBINES ARE LIMITED IN OPERATING TEMPERATURE AND ARE SUBJECT TO PREMATURE FAILURE IN DUSTY OR CORROSIVE ATMOSPHERE. ALLOY METALS ARE STRATEGIC MATERIALS AND ARE COSTLY TO MANUFACTURE.

E 81 3747
LACV-30, SKIRT + FINGER COMPONENTS

FABRICATION OF SKIRT, FINGERS AND CONES IS CURRENTLY HIGHLY LABOR INTENSIVE, LEADING TO HIGH COMPONENT REPLACEMENT COSTS.

E 81 3759
KEVLAR CABLE REINF FOR MILITARY BRIDGES

TO PROVIDE LIGHT WEIGHT REINFORCEMENT TENSION MEMBER HAVING HIGH TENSILE PROPERTIES AND MODULUS.

CORADCOM

F 81 3036
CAD/CAM OF SPECIAL ELECTRONIC CIRCUITS (CAM)

SEMICONDUCTOR INTEGRATED CIRCUITS NEEDED FOR SPECIAL COMMUNICATIONS EQUIP. MUST BE CUSTOM DESIGNED FOR EACH NEW APPLICATION. EACH IC REQUIRES SEVERAL MASK SETS AND A NUMBER OF IC ARE REQUIRED FOR EACH DEVICE. CONSIDERABLE ARTWORK IS REQUIRED.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

F 81 3056
ELECTROLUMINESCENT NUMERIC MODULES

HIGH CONTRAST NUMERIC READOUTS ARE REQUIRED FOR SUNLIGHT LEGIBILITY AND FULL ENVIRONMENTAL OPERATION IN TACTICAL EQUIP. ELECTROLUMINESCENT MODULES NEEDED TO FULFILL THIS REQUIREMENT ARE AVAILABLE ONLY AS SMALL QTY, HIGH COST, LAB BUILT SAMPLES.

ERADCOM

H 81 3031
10.6 UM CO-2 TEA LASERS

LASERS CONSTRUCTED IN UNIT QUANTITIES ARE EXPENSIVE AND VARY IN SPECIFICATIONS. PRESENT RANGE FINDER LASERS HAVE REDUCED ALL WEATHER CAPABILITIES AND ARE INEFFECTIVE AGAINST COUNTERMEASURE SMOKES.

H 81 5110
COMMON MODULE DETECTOR ARRAYS

MERCURY-Cadmium TELLURIDE DETECTOR ARRAYS ARE NOW HAND LAPPED AND POLISHED. CONTACT MASKING IS USED FOR PHOTOLITHOGRAPHY AND WET ETCHING FOR DELINEATION. ALSO, GOLD WIRING IS USED FOR LEADOUTS. THESE ARE LABOR INTENSIVE AND NON-UNIFORM.

AWMRC

H 81 6390
MMT PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER

THE SUCCESS OF THE MMT PROGRAM IS VERY DEPENDENT ON WHETHER THE RESULTS OF MMT WORK GET IMPLEMENTED. THIS IN TURN IS DEPENDENT ON WHETHER INFORMATION CONCERNING THE MMT TECHNOLOGY IS MADE AVAILABLE AND USED BY CONCERNED PARTIES.

NARADCOM

Q 80 8063
IMPROVED METHODS OF MFG OF BUTYL RUBBER HANDWEAR

THE PRESENT METHOD OF STANDARD BUTYL RUBBER GLOVE FOR OW PROTECTION IS BY A SOLE SOURCE DIPPING PROCESS WHICH REQUIRES CLOSE QUALITY AND ENVIRONMENTAL SUPERVISION INCREASED COST AND LIMITED DURABILITY AND PROTECTION.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

Q 80 8066
CONTINUOUS FILAMENT HELMET PREFORM

CONVENTIONAL MODE OF MOLDING THE PASGT HELMET I.E. WEAVING KEVLAR YARNS INTO FABRIC CUTTING PREFORM AND LAYING UP, IS VERY WASTEFUL.

TACOM

T 80 4392
JOINING DISSIMILAR METALS
CURRENT ARMOR DESIGNS ONLY EMPLOY ONE TYPE OF METAL FOR WELDING.

T 81 5014
IMPROVED FOUNDRY CASTINGS UTILIZING CAM

FOUNDRY CASTING PROCESSES ARE WASTEFUL OF RAW MATERIALS AND ENERGY.

T 81 5054
LASER SURFACE HARDENED COMBAT VEHICLE COMPONENTS

PRESENT METHODS OF SURFACE HARDENING INPUTS HEAT OVER LARGE SURFACE AREA.

T 80 5062
ARMORED VEHICLE VISION BLOCKS

FABRICATE AN ECONOMICALLY IMPROVED BALLISTIC VISION DEVICE.

T 81 5068
NEW ANTI-CORROSIVE MATERIALS AND TECHNIQUES (PHASE II)

METALLIC COMPONENTS ARE DETERIORATED BY THE ENVIRONMENT.

T 81 5075
MILITARY ELASTOMERS FOR TRACK VEHICLES (PHASE II)

TRACK LIFE IS HELD AT ITS PRESENT LEVEL BY FAILURE OF RUBBER COMPONENTS SUCH AS BUSHINGS, PADS AND BLOCKS.

T 81 5062
FLEXIBLE MACHINING SYS (FMS) PILOT LINE F/TCV COMPONENTS

PARTS FOR TRACKED COMBAT VEHICLES ARE TYPICALLY NOT MANUFACTURED IN LARGE QUANTITIES. BECAUSE OF THIS, MASS PDN TECHNOLOGIES THAT RESULT IN LOWER PDN COSTS ARE NOT USED.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

T 81 5090
IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY (PHASE III)

MACHINE DATA ON NEWER MATERIALS AND NEW REMOVAL RATES ARE
NOT ESTABLISHED.

T 81 5097
INTEGRALLY CAST LOW COST COMPRESSOR (PHASE III)

TURBINE BLADES AND DISCS MUST HAVE ADEQUATE LOW AND HIGH
CYCLE FATIGUE PROPERTIES. AXIAL COMPRESSOR STAGES ARE
DESIGNED AS SEPARATELY BLADED ASSEMBLIES.

T 81 6011
SPRINGS FROM FIBER/PLASTIC COMPOSITES

STEEL SPRINGS FOR TACTICAL VEHICLES ARE HEAVY AND SUBJECT
TO FAILURE FROM FATIGUE. CARBON FIBER COMPOSITES ARE
LIGHTER AND HAVE EXCELLENT FATIGUE RESISTANCE.

T 81 6053
WELDING SYSTEMS INTEGRATION

OF ALL METAL WORKING PROCESSES EMPLOYED IN TRACKED COMBAT
VEHICLES MANUFACTURING, WELDING IS THE MOST LABOR INTENSIVE
AND AFTER MACHINING, THE MOST COSTLY. AUTOMATION WHICH
COULD REDUCE THESE COSTS IS AS YET AN UNACHIEVED GOAL.

T 81 6054
ADVANCED METROLOGY SYSTEMS INTEGRATION

THE METROLOGY METHODS USED IN MILITARY VEHICLE MANUFACTURE,
IN GENERAL, EMPLOYS CONTACT GAUGES MANUALLY EMPLOYED. THIS
REPRESENTS A SUBSTANTIAL PART OF THE COST OF OUR MILITARY
VEHICLES.

T 81 6057
XM1 COMBAT VEHICLE

MATERIALS AND MANUFACTURING PROCESSES EMPLOYED IN THE MFG
OF THE XM1 CAN BE IMPROVED BY INCORPORATING NEW
TECHNOLOGIES TO THE CURRENT SYSTEM. THIS WILL ENABLE THE
XM1 TO BE MANUFACTURED MORE ECONOMICALLY.

T 81 6076
AUTOMATED DEPOT INSPECTION OF ROADWHEELS
TECOM

0 81 5071
PRODUCTION TEST METHODOLOGY ENGINEERING MEASURES

ARTILLERY, VEHICLE AND ELECTRONIC CONVENTIONAL TEST CAPABILITIES NEED TO BE UPGRADED TO PROVIDE MORE TIMELY ACCURATE TEST DATA FOR THE TEST AND EVALUATION PROCESS.

AVRADCOM

1 81 7036
ISOTHERMAL ROLL-FORGING COMPRESSOR BLADES

TECHNOLOGY FOR FABRICATING ADVANCED ENGINE MATERIALS INTO COMPRESSOR BLADE CONFIGURATIONS IS EITHER UNAVAILABLE OR EXCESSIVE IN COST.

1 81 7108
MANUFACTURING TECHNIQUES F/TRANSMISSION SHAFT SEALS

CURRENT HELICOPTER TRANSMISSION SEALS ARE SUSCEPTIBLE TO WEAR AND THERMAL DEGRADATION RESULTING IN LEAKAGE OF TRANSMISSION OIL AND FREQUENT SEAL REPLACEMENT.

1 81 7113
COMPOSITE REAR FUSELAGE MANUFACTURING TECHNOLOGY

APPLICATION OF COMPOSITE MATERIALS TO AIRFRAME FUSELAGE COMPONENTS POSSESSES A LARGE POTENTIAL FOR COST AND WEIGHT SAVINGS. HOWEVER, PRODUCTION MANUFACTURING PROCESSES HAVE NOT BEEN ESTABLISHED FOR LARGE, FULL-SCALE, COMPOUND CURVATURE COMPONENTS.

1 81 7143
CERAMIC GAS PATH SEAL-HIGH PRESSURE TURBINE

METALLIC SYSTEMS CURRENTLY USED IN HIGH PRESSURE TURBINE SEALS DEGRADE DUE TO EROSION, COFROSION, AND ADVERSE RUB BEHAVIOR RESULTING IN INCREASED CLEARANCES OVER THE TURBINE BLADE TIPS AND LOSS OF ENGINE PERFORMANCE.

1 81 7155
COST EFFECTIVE MANUF METH F/IMPVD HIGH PERF HELICOPTER GEARS

DEMAND IN HELICOPTER OPERATION OF GREATER RELIABILITY OF HIGH PERFORMANCE GEARS AT LOWER COST HAS REQUIRED THAT IMPROVED PROCESSING AND EVALUATION TECHNIQUES BE INSTITUTED.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

1 81 7183
SEMI-AUTO COMP MANUF SYS F/HELI FUSELAGE SECONDARY STRUC

HELICOPTER FUSELAGE STRUCTURES HAVE HIGH MANUFACTURING COST DUE TO HIGH PART COUNT AND HIGH ASSEMBLY COSTS. METHODS OF COMPOSITE FABRICATION HAVE BEEN INVESTIGATED BUT HAND OPERATIONS RESULT IN HIGH LABOR COSTS.

1 81 7197
FABRICATION OF INTEGRAL ROTORS BY JOINING

CURRENT GAS TURBINE ROTORS ARE EITHER INTEGRALLY CAST OR THE BLADES AND DISKS ARE SEPARATE UNITS. THE BLISK CONCEPT DOES NOT PERMIT OPTIMUM MECHANICAL PROPERTIES OF THE UNIT AND THE OTHER METHOD REQUIRES COMPLEX AND EXPENSIVE MACHINING.

1 81 7200
COMPOSITE ENGINE INLET PARTICLE SEPARATOR

CURRENTLY, FABRICATION OF THE T700 INLET PARTICLE SEPARATOR (IPS) INVOLVES MACHINING OF CASTINGS AND FORGINGS AND THE JOINING OF THESE PARTS BY WELDING AND BRAZING. THIS IS COSTLY IN TERMS OF BOTH MATERIAL AND LABOR.

1 81 7202
APPLICATION OF THERMOPLASTICS TO HELICOPTER SECONDARY STRUC

FORMING FIBER REINFORCED THERMOPLASTIC COMPONENTS INTO COMPLEX, MULTI-CURVED STRUCTURAL CONFIGURATIONS, WITH UNIFORM FIBER DISTRIBUTION, MINIMUM WARPAGE, AND ACCEPTABLE DIMENSIONAL TOLERANCES HAS NOT BEEN ESTABLISHED FOR AIRCRAFT COMPONENTS.

1 81 7205
CAST TITANIUM COMPRESSOR IMPELLERS

CURRENT CENTRIFUGAL COMPRESSOR IMPELLERS ARE FABRICATED BY MACHINING THE FLOWPATH AND BLADE SURFACES FROM A FORGING. THIS RESULTS IN A SUBSTANTIAL LOSS OF MATERIAL AND EXPENSIVE MACHINING OPERATIONS.

1 81 7288
PMT DETERMINATION OF OPTIMAL CURING CONDITIONS

CURRENT METHODS OF CURING COMPOSITES ARE BASED ON EMPIRICAL DETERMINATION OF REQUIRED PROCESSING CONDITIONS. A TRIAL AND ERROR PROCEDURE IS FOLLOWED UNTIL THE MANUFACTURER IS REASONABLY SATISFIED WITH MECHANICAL PROPERTIES.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

1 81 7291
TITANIUM POWDER METAL COMPRESSOR IMPELLER

WHEN COMPLEX CONFIGURATIONS, SUCH AS CENTRIFUGAL IMPELLERS AND COMPRESSOR ROTORS ARE UTILIZED IN GAS TURBINE ENGINES, TYPICALLY HIGH MANUFACTURING COST ARE ENCOUNTERED.

1 81 7298
HIGH TEMPERATURE VACUUM CARBURIZING

GEAR CARBURIZING IS PRESENTLY CARRIED OUT WITH A RELATIVELY SLOW ENDOOTHERMIC PROCESS, TYPICALLY AT 1700 DEG F, WHICH REQUIRES SURFACE PROTECTION AGAINST DECARBURIZING DURING THE CYCLE OR A POST HEAT TREAT REMOVAL OF THE DECARBURIZED LAYER.

1 81 7300
IMPROVED LOW CYCLE FATIGUE CAST ROTORS

INTEGRALLY CAST TURBINE ENGINE ROTORS HAVE BEEN SHOWN TO BE COST EFFECTIVE. HOWEVER, INVESTMENT CASTING RESULTS IN LARGE GRAIN SIZES IN THE DISK REGION AND THIS REDUCES FATIGUE LIFE COMPARED TO WROUGHT MATERIAL.

1 81 7302
PRODUCTION OF BORIDE COATED LONG LIFE TOOLS

AIRFRAME COMPONENTS AND PRINTED CIRCUIT BOARDS OF FIBERGLASS AND OTHER COMPOSITES ARE DIFFICULT TO MACHINE. TOOL LIFE IS 5-10 PCT COMPARED TO USE ON TITANIUM WORKPIECES. TITANIUM DIBORIDE (TiB2) COATED TOOLS ARE BETTER BUT NOT ECONOMICAL.

1 81 7319
PROD METH F/DIGITAL ADDRESSABLE MULTI-LEGEND DISPLAY SWITCH

EXPERIMENTAL VERSIONS ARE EXPENSIVE AND DIFFICULT TO MANUFACTURE BECAUSE THE MOUNTING OF THE COMMERCIALLY AVAILABLE ELECTRONICS DISPLAY CHIPS AND SWITCHES MUST BE DONE BY HAND TO OBTAIN PROPER RUGGEDNESS AND OPERATION OF THE STRUCTURE.

1 81 7322
LOW COST TRANSPIRATION-COOLED COMBUSTOR LINER

COMBUSTOR LINERS OF ADVANCED GAS TURBINE ENGINES ARE REQUIRED TO SURVIVE USING LESS COOLING AIRFLOW THAN HERETOFORE AVAILABLE. STATE OF THE ART TRANSPIRATION COOLED LINERS CAN MEET THE REQUIREMENTS BUT MANUFACTURING PROCESSES ARE NOT COST EFFECTIVE.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

1 81 7338
COMPOSITE TAIL SECTION

THE POTENTIAL COST AND WEIGHT ADVANTAGES OF COMPOSITES FOR AIRFRAME COMPONENTS HAVE NOT BEEN FULLY DEMONSTRATED DUE TO FABRICATION LIMITATIONS RELATED TO CONFIGURATION RESTRAINTS, FOR EXAMPLE, IN-PLACE WINDING, COMPLEX CONTOURS, AND CO-CURING.

1 81 7339
FILAMENT WOUND COMPOSITE FLEXBEAM TAIL ROTOR

FILAMENT WINDING FROM A SOLID FLEXBEAM TO AN OPEN SPAR SECTION, WINDING TO NET SHAPE, IMPROVED RESIN CONTROL AND TOLERANCE CONTROL MUST BE OBTAINED TO ENHANCE THE COST EFFECTIVENESS OF FLEXBEAM TAIL ROTERS.

1 81 7340
COMPOSITE MAIN ROTOR BLADE

CURRENT PRODUCTION COMPOSITE BLADE PROGRAMS HAVE NOT BEEN ORIENTED TOWARD OPTIMIZING MANUFACTURING TECHNIQUES/PROCESSES RELATED TO BLADE CONFIGURATIONS, FABRICATION METHODS, AND IMPROVED STRUCTURAL RELIABILITY.

1 81 7341
STRUCTURAL COMPOSITES FABRICATION GUIDE

THE NEED EXISTS TO DOCUMENT INDUSTRY EXPERIENCE IN COMPOSITES SO THAT COST AND MANUFACTURING COMPARISONS CAN BE MADE.

1 81 7342
PULTRUSION OF HONEYCOMB SANDWICH STRUCTURES

FABRICATION OF HONEYCOMB SANDWICH PANELS IS LABOR INTENSIVE AND FACE-TO-CORE BONDING OFTEN TAKES TWO CURE OPERATIONS. PULTRUSION CAN BE USED FOR CONTINUOUS PRODUCTION BUT COMMERCIAL PARAMETERS AND TOULING ARE NOT SUITABLE FOR MILITARY USE.

1 81 7345
IN PROCESS CONTROL OF RESIN MATRIX CURE

CONVENTIONAL CONTROL OF THE CURE STAGE DURING COMPOSITE HARDWARE MANUFACTURING IS ATTAINED THROUGH MANUAL OR AUTOMATIC CONTROL OF THE AUTOCLAVE/PRESS TEMPERATURE AS A FUNCTION OF TIME. THIS METHOD IGNORES THE CHEMICAL STATE OF THE RESIN DURING CURE.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

1 81 7351
COMPOSITE SHAFTING FOR TURBINE ENGINES

CURRENT MATERIAL CAPABILITIES ASSOCIATED WITH HIGH SPEED GAS TURBINE ENGINE SHAFTING REQUIRE EXCESS BEARINGS AND CAREFUL DESIGN REGARDING SHAFT DYNAMICS.

1 81 7354
INTEGRALLY STIFFENED HELICOPTER TRANSMISSION CASE

THE LOW STIFFNESS OF THE CURRENT CH-47 CAST MAGNESIUM ALLOY TRANSMISSION CASE CAUSES EXCESSIVE GEAR WEAR, EXCESSIVE NOISE AND EXCESSIVE VIBRATION.

1 80 7370
RING WRAP COMPOSITES

LARGE IRREGULAR SHAPED OR LONG AIRFOIL PROFILES PRESENT SPECIAL PROBLEMS WHEN ATTEMPTS ARE MADE TO FILAMENT WIND THESE CONFIGURATIONS.

1 81 7371
INTEGRATED BLADE INSPECTION SYSTEM (IBIS)

INSPECTION OF TURBINE ENGINE BLADES AND VANES NECESSITATES HIGH ACCURACY. THE EFFORT IS TIME CONSUMING AND SUSCEPTIBLE TO ERROR.

1 81 7376
AUTO INSPECT AND PRECISION GRINDING OF SB GEARS

CURRENT MFG METHOD FOR SPIRAL BEVEL GEARS IS LABOR INTENSIVE, REQUIRING CONTACT PATTERN CHECKS WITH EXPENSIVE MASTER MATING GEARS. THIS PATTERN-shifts WITH A CHANGE IN TORQUE AND TEMPERATURE. AS A RESULT THE CURRENT TOOTH FORM EXPERIENCES GREAT STRES.

1 80 7412
INFRARED DETECTOR FOR LASER WARNING RECEIVER

SUPPLY OF Gallium arsenide etalons FOR USE AS IR DETECTORS IS LIMITED. METHODS FOR DIFFUSING THE DETECTOR JUNCTION, FOR SURFACE PASSIVATION, FOR BONDING THE INTERDIGITATED ETALON TO THE INTERDIGITATED DETECTOR ARE LARGELY HAND METHODS.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

MICOM

3 81 1021
CPPP MACHINED CYLINDRICAL PARTS (CAM)

PRESENT MANUAL METHOD FOR PRODUCTION PROCESS PLANNING OF
MACHINED CYLINDRICAL METAL COMPONENTS ARE INADEQUATE DUE TO
HIGH PROCESS PLANNING COSTS AND A LACK OF STANDARDIZATION.

3 81 1026
PRODUCTION OF LOW COST MISSILE VANES

METAL CONTROL VANES+FINS AND MISSILE FAIRINGS CAUSE HIGH
COST+WEIGHT PENALTIES AND LONG LEAD TIME

3 81 3139
MILLIMETER SEEKERS FOR TERMINAL HOMING (TH)

LOW QUANTITY PRODUCTION IS TOO COSTLY FOR THE SYSTEM
REQUIREMENTS.

3 81 3294
PRODUCTION PROCESS FOR ROTARY ROLL FORMING

MECHANICALLY JOINING OR WELDING A CONVENTIONAL CLOSURE TO
COMMERCIAL TUBING IS EXPENSIVE.

3 81 3445
PRECISION MACHINING OF OPTICAL COMPONENTS

EXISTING PRECISION MACHINING FACILITIES CANNOT KEEP UP WITH
THE DEMAND, MEET OPTICAL DESIGN REQUIREMENTS, MEET
PRODUCTION SCHEDULES, AND STAY WITHIN REASONABLE COST
BOUNDARIES.

ARRADCOM-ARRCOM (AMMO)

5 81 1318
EST CHEM PROD + FILL CLOSE + LAP TECH F/XVX2 XM736

THE 3L PROCESS FOR VX BINARY MFG RESULTS IN LARGE
QUANTITIES OF WASTE, AND ORGANIC PHOSPHOROUS COMPOUNDS.
PRIOR PROCEDURES FOR DISPOSAL (DEEP WELL) ARE NO LONGER
ACCEPTABLE. NEW TECHNIQUES ARE REQUIRED.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

5 81 1907
AUTOMATED GAGING FOR MEDCAL PROJ BODIES (CAM)
CURRENT INSPECTION IS INADEQUATE TO MEET 5 INCH PROJECTILE BODIES REQUIREMENT AND REQUIRES DESIGN CHANGES.

5 81 4225
RED WATER POLLUTION ABATEMENT SYSTEM
RED WATER PRODUCED IN VOLUME FROM THE PURIFICATION OF TNT IS A POLLUTANT FOR WHICH A SATISFACTORY DISPOSAL METHOD DOES NOT EXIST.

5 81 4285
TNT EQUIVALENCY TESTING FOR SAFETY ENGINEERING
PRESENT CRITERIA FOR BLAST RESISTANT STRUCTURES IS IN TERMS OF SURFACE BURST OF HEMISPHERICAL TNT. IN STRUCTURAL DESIGN, TO PROTECT FROM THE OUTPUT OF OTHER ENERGETICS, THE DESIGNERS MUST HAVE DATA PERTINENT TO THE MATERIAL IN QUESTION.

5 81 4288
EXPLOSIVE SAFE SEPARATION AND SENSITIVITY CRITERIA
DATA IS REQUIRED TO UPGRADE PROCESSES AND MATERIAL FOR THE MAXIMUM SAFETY OF PERSONNEL AND EQUIPMENT AGAINST EXPLOSION PROPOGATION.

5 81 4341
IMPROVED NITROCELLULOSE PURIFICATION PROCESS
EXISTING NITROCELLULOSE PURIFICATION FACILITIES WERE BUILT IN EARLY 1940'S AND ARE IN DETERIORATED CONDITION. THE PROCESS USED DATES BACK TO WWI AND CONSUMES LARGE QUANTITIES OF ENERGY AND WATER.

5 81 4344
FSTAB OF WASTE DISPOSAL TECH FOR M687 BINARY PROJECT
LARGE QUANTITIES OF SOLID WASTES ARE GENERATED DURING OF MFG. THERE IS NO ACCEPTABLE DISPOSAL METHOD. DRUM STORAGE IS NOT FEASIBLE AND LANDFILL MAY REQUIRE SPECIAL PREPARATION.

5 80 4417
PROCESS TECHNOLOGY FOR BLENDING RP SMOKE COMPOSITIONS
SMOKE PRODUCED FROM HC HAS LED TO SOME INJURIES AND IS SUSPECTED OF BEING A CARCINOGEN. R&D WORK IS BEING DONE TO DEVELOP A RED PHOSPHORUS MIX TO REPLACE HC. HOWEVER NO LARGE SCALE RP PREPARATION FACILITIES CURRENTLY EXIST.
PROJECTS ADDED IN 2ND HALF, CY80
(CONTINUED)

5 81 4454
AUTO INSPECT DEVICE EXPLOSIVE CHARGE SHELL (AIDECS)

THE PRESENT METHOD OF INSPECTION LOADED PROJECTILE UTILIZES A STANDARD RADIOGRAPHIC FILM METHOD. LABOR AND MATERIAL (FILM) ARE COSTLY. DETERMINATION OF CRITICAL DEFECT IS SUBJECT TO HUMAN JUDGEMENT, FATIGUE, AND ERROR.

5 80 4480
HIGH SPEED HEAD TURN TOOL MOD F/SC AMMO PROD

THE SCAMP CASE SUBMODULE HAS CONTINUOUSLY EXPERIENCED EXCESSIVELY HIGH USAGE RATE OF HEAD TURN TOOL MODULES. THIS IS DUE MORE TO THE TOOL MODULE GOING OUT OF ADJUSTMENT THAN TO BREAKAGE OF TOOLING.

5 80 4484
IMPR HI-SPEED WATERPROOFING APPL F/SC AMMO

THE PRIMER LACQUER AND MOUTH WATERPROOFING APPLICATOR SYSTEMS ON THE SCAMP PRIMER INSERT SUBMODULE PERIODICALLY FAIL TO PERFORM AS REQUIRED. THE MISAPPLICATION RESULTS IN EXPENSIVE REWORK.

TOTAL PROJECTS ADDED IN 2ND HALF, CY80 71
MMT PROGRAM

PROJECTS COMPLETED 2nd HALF, CY80
PROJECTS COMPLETED IN 2ND HALF, CY80

"MERADCOM"

E 78 3605
TRANSSCALENT-HIGH POWER-TRANSISTOR

RCA COMPLETED THE WORK WHICH IS DESCRIBED IN E79 3605. THIS 30K WAS TO GET THE CONTRACT STARTED EARLY.

E 79 3605
TRANSSCALENT-HIGH POWER-TRANSISTOR

RCA DEVELOPED SPECIAL FIXTURES AND PRODUCTION PROCEDURES FOR RAPID FABRICATION OF HEAT PIPES, AND FOR BONDING THE NEXT PIPE TO THE SILICON WAFER. PLATING, LAPPING AND SOLDERING GIVE VOID-FREE JOINTS. JIGS ALIGN EMITTER BALLASTS TO TRANSISTOR WAFERS.

E 80 3605
TRANSCALENT (HIGH POWER) TRANSISTOR

THE CONTRACT WITH RCA WAS TERMINATED BECAUSE STANDARD TECHNOLOGY OVERTOOK THIS WORK. OTHER DEVICES OF THE SAME CAPACITY ARE NOW AVAILABLE COMMERCIALLY. RCA PROVIDED A LESSONS LEARNED SUPPLEMENT AND VIDEO TAPE OF FABRICATION PROCESSES.

E 78 3606
250 AMP TRANSCALENT (HIGH POWER) RECTIFIER

RCA DEVELOPED A PROCESS FOR PLATING A TAPERED THICKNESS OF CONDUCTOR ON A WAFER. ALSO DEVELOPED JIGS, FIXTURES AND TEST GEAR TO APPLY HEAT PIPES TO HIGH CURRENT RECTIFIER WAFERS. PERFECTED HIGH TEMP BRAZING, METAL WICKS SINTERING AND COOLANT FILLING.

E 79 3606
250 AMP TRANSCALENT (HIGH POWER) RECTIFIERS

PROJECT WAS TERMINATED AT THE REQUEST OF RCA BECAUSE THE PROCESSES WERE PROVEN ON PROJECTS FOR HIGH POWER TRANSISTORS AND THYRISTORS. RCA ACTIVELY PROMOTED THE SALE OF THIS TYPE DEVICE BUT A CHEAPER PACKAGE IS SELLING BETTER. SAMPLES ARE AVAILABLE.

E 79 3613
VEHICLE-MOUNTED ROAD MINE DETECTOR SYSTEM ANTENNAS

PRODUCTION OF ANTENNAS HAS BEEN FINISHED AND TESTS ARE COMPLETE. FINAL REPORT HAS BEEN APPROVED AND DELIVERED. PROJECT HAS BEEN COMPLETED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

E 79 3706
COATED FABRIC COLLAPSIBLE FUEL TANK—CIRCULAR SEAM WEAVING

CONTRACT AWARDED FOR PERFECTION OF WEAVING TECHNOLOGY TO
PRODUCE LARGE SCALE SEAMLESS FABRICS FOR FUEL TANKS. SCALE
MO IFI SEAMLESS TUBES HAVE BEEN WOVEN. TRIAL COATINGS
APPLIED TO TUBULAR FABRIC IN A LABORATORY COATER.

CORADCOM

2 78 9773
COMPUTER AIDED F/PREP OF AUTO ANALOG CIRCUIT PROD TEST PROG

A COMPUTER PROGRAM SYSTEM WAS DEVELOPED FOR AUTOMATED
SOURCE CODE GENERATION OF TEST PROGRAMS FOR ANALOG UNITS
UNDER TEST. THE SYSTEM IS APPLICABLE TO ANALOG AMPLIFIERS,
OSCILLATORS, POWER SUPPLIES, MIXERS AND FILTERS. FUNCTIONAL
TESTING DEMONSTRATED

ERADCOM

H 80 5095
MFG TECH ASSESSMENT OF ELECTRONICS

PROJECT WAS CANCELLED BECAUSE OF INSUFFICIENT MANPOWER.
GOAL WAS TO SURVEY MAJOR WEAPONS SYSTEMS TO DETERMINE WHAT
ELECTRONIC MMT WAS NEEDED.

2 76 9771
LOW TEMP PROCESS OF BULK SEMICONDUCTOR SWITCHES + LIMITERS

MICROWAVE ASSOC. APPLIED PROCESS CONTROLS AND SET PROCESS
TOLERANCES FOR PRODUCING SEMICONDUCTOR DIODE PROTECTORS FOR
RADAR FRONT ENDS. PROJECT WAS DESCRIBED IN A PAPER AT
GOMAC. SAMPLES WENT TO RAYTHEON FOR USE IN SPARROW MISSILES
TESTED IN TPG-36.

2 77 9806
AUTO INPROCESS EVAL OF THICK FILM PRINT + HYBRID CKT ASSY

THIS PROJECT IS COMPLETE. AN AUTOMATIC IN-PROCESS
MICROCHIP EVALUATION SYSTEM WAS DESIGNED, BUILT, AND
TESTED. TECHNICAL AND PHYSICAL DESCRIPTIONS OF THE SYSTEM
ARE AVAILABLE.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

2 77 9827
PROCESSING XP ARMOR FOR RADAR HARDENING APPLICATIONS

ALL WORK COMPLETED. QUALITY CONTROL REPORT ON CONTRACTOR SUBMITTED. PRODUCTION CAPABILITY DEMO HELD. THE PROCESS FOR MOLDING RIGID ARMOR SHEET FROM ASSEMBLIES OF ORIENTED POLYPROPYLENE FILM SUCCESSFULLY DEMONSTRATED. FINAL REPORT APPROVED.

AMMRC

4 78 6370
OPTIMIZATION OF MMT PROGRAM EFFECTIVENESS

PROJECT IS COMPLETE. FINAL 301 REPORT RECEIVED. TECHNICAL REPORT INCLUDED WITH THE FINAL 301 REPORT.

VARADCOM

0 79 8063
IMPROVED METHODS OF MFG OF BUTYL RUBBER HANDWEAR

TWO CONTRACTS WERE AWARDED TO INJECTION MOLD AND TO LATEX DIP GLOVES RESPECTIVELY. THE LATEX DIP CONTRACTOR FORMED SAMPLES WHICH WILL BE TESTED IN-HOUSE. IF THE SAMPLES ARE ACCEPTABLE PHASE 2 WORK WILL BE INITIATED.

TACOM

4 76 4563
ROTATIONAL MOLDING OF LARGE CAPACITY FUEL TANKS.

RECEIVED M551 FUEL TANKS WITH AIR VENTS. TESTING CARRIED OUT AND RESULTS SUGGEST ITEM READY FOR PRODUCTION.

T 79 5007
ADVANCED TECHNOLOGY BRAKE LINING MATERIALS-PHASE 2

DATA GENERATED BY DYNAMOMETER TEST SHOWED THAT THE TEST LINING MATERIAL SHOWED NO IMPROVED PERFORMANCE OVER THE CURRENT ORGANIC LINING MATERIAL. THEREFORE THE PROJECT WAS ELIMINATED. FUNDS WILL BE REPROGRAMMED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(continued)

T 77 5014
IMPROVED FOUNDRY CASTINGS UTILIZING CAM

THE COMPUTER PROGRAMS FOR CASTING SOLIDIFICATION SIMULATION
HAVE BEEN COMPLETED. FURTHER CASTING TRIALS ARE BEING
PERFORMED IN AN EFFORT TO EVALUATE THE PROGRAMS WITH
RESPECT TO THE MORE COMPLEX TORSION EAR HOUSING.

4 78 5019
PLASTIC CONTAINER FOR LOW MAINTENANCE DRY CHARGED BATTERY

FINAL DRAFT OF LOW MAINTENANCE BATTERY PERFORMANCE
SPECIFICATION, WITH TRI-SERVICES AND INDUSTRY COORDINATED
COMMENTS RESOLVED, HAS BEEN COMPLETED. THE SPECIFICATIONS
ARE NOW BEING PUBLISHED FOR GIN LOW MAINTENANCE BATTERIES.

T 78 5024
CAM GEAR DIE DESIGN AND MANUFACTURING PHASE I.

A SET OF COMPUTER PROGRAMS HAS BEEN DEVELOPED TO DEFINE THE
EXACT TOOTH FORM OF A HYPOID OR SPIRAL BEVEL GEAR OR
PINION. THE FINITE ELEMENT PROGRAMS FOR STRESS ANALYSIS AND
TEMPERATURE DISTRIBUTION OF THE DIE HAVE BEEN COMPLETED.
CONTINUED ON 6795024

T 79 5054
LASER SURFACE HARDENED COMBAT VEHICLE COMPONENTS-PHASE 1

PHASE 1 OF THE CONTRACT HAS BEEN COMPLETED. TRACK
COMPONENTS HAVE BEEN DELIVERED FOR FIELD TESTING. PROJECT
WORK HAS BEEN COMPLETED. PHASE 2 WORK WILL BE PERFORMED
UNDER THE FOLLOW-ON FY81 PROJECT.

T 79 5082
FLEXIBLE MACHINING SYSTEMS PILOT LINE FOR TCV COMPONENTS

THIS PROJECT (PHASE 1 OF THE ARMY'S FMS PROGRAM) IS
COMPLETE. THIS PROJECT HAS LAID THE GROUNDWORK FOR CARRYING
OUT THE ENTIRE FMS PROGRAM. SEE PROJECT T 80 5082.

T 79 6000
LIGHT WEIGHT TILT-UP HOOD FENDER ASSEMBLY-PHASE 1

CONTRACT AMENDED TO PRODUCE HOOD/FENDER ASSEMBLY FOR THE
M963 5-TON PIP TRUCK. THIS CHANGE NEVER FUNDED AND CONTRACT
TERMINATED FOR CONVENIENCE OF GOVT. DA DIRECTED DARCOM NOT
TO USE M939 TRUCK CHASIS THAT WAS AVAILABLE FOR TESTING.
T 78 6023
FABRICATION OF FLAT THIN GAGE ALLOY STEEL PLATE

THE CONTRACTOR IS NOW PURCHASING MATERIAL WITHIN THE ONE HALF INCH OUT OF FLATNESS MAXIMUM. 302 REPORT IS PUBLISHED.

TECOM

0 78 5071
IMPROVEMENT OF PRODUCTION TEST METHODOLOGY

SEE SUBTASKS BELOW FOR PROJECT STATUS.

0 78 5071 31
GEDAAC AND CONVENTIONAL INSTRUMENTATION DATA CORRELATION

A TECH DEFINITION OF THE TOTAL DATA REG OF GENERATOR TESTS PERFORMED UNDER APG INTERNAL PROCEDURES HAS BEEN COMPLETED. COMPUTER PROGRAMS HAVE BEEN WRITTEN TO COMPUTE THE HARMONIC CONTENT AND THE WAVEFORM DEVIATION OF THE TEST GENERATOR WAVEFORM.

0 78 5071 39
TRANSUCER VELOCITY MEASUREMENT

MATHEMATICAL APPROACHES THAT HAVE BEEN DEVELOPED HAVE BEEN REVIEWED. A THEORETICAL MODEL HAS BEEN DEVELOPED. THIS MODEL WILL BE SUBJECT TO VERIFICATION USING SIMULATION TECHNIQUES.

0 78 5071 48
TANK MAIN WEAPON FIRING INHIBITOR

AN OPTICAL INHIBITOR SYS USING DETECTION OF CODED LIGHT HAS BEEN BREADBOARDED AND HAS BEEN DEMONSTRATED. THE SYSTEM HAS A RANGE CAPABILITY OF 2000 METERS. DUE TO GROUND WAVE INTERFERENCE, THE SYS IS ONLY RELIABLE UP TO 1000 METERS.

0 78 5071 49
IMPROVED TRANSPORTABILITY/CONTAINER TEST CAPABILITY

PRELIMINARY PLANS & COST ESTIMATES HAVE BEEN COMPLETED FOR A NEW LANDSHIP MAIL HANDLING TEST FACILITY TO IMPROVE EQUIP TRANSPORTATION TESTING AT APG. PREPARATION OF CONSTRUCTION OF FACILITIES DOCUMENTS ARE BEING PREPARED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

AVRADCOM

1 76 7079
BRAIDING OF REINFORCED PLASTIC STRUCTURAL COMPONENT

PROJECT WORK WAS COMPLETED. THIS PROJECT ESTABLISHED THE
PROCESSING AND IMPREGNATING TECHNIQUES FOR BRAIDING PRIMARY
STRUCTURAL HELICOPTER COMPONENTS. THE FINAL TECHNICAL
REPORT WILL REPRESENT THE BASIS FOR FUTURE IMPLEMENTATION
OF THIS TECHNIQUE.

1 77 7114
MFG TECHNIQUES FOR INFRARED SUPPRESSION AIRCRAFT COMPONENTS

ALL CONTRACT HAS BEEN COMPLETED. FOUR PARTS FABRICATED FROM
A 321 CRES MATERIAL AND ONE FROM A-286 MATERIAL HAVE BEEN
SHIPPED TO CCAD. CONTRACTOR'S REPORT HAS BEEN SUBMITTED TO
CCAD. PROJECT IS COMPLETED.

1 79 7119
NON-DESTRUCTIVE EVALUATION TECH FOR COMPOSITE STRUCTURES

PROJECT WORK WAS COMPLETED. FATIGUE TESTS ON K747 AH-1
COMPOSITE ROTOR BLADE WERE COMPLETED. WORK WILL BE
CONTINUED IN 1 80 7119.

1 78 7121
INTEGRALLY HEATED + PRESSURIZED TOOLING F/UTTAS ROTOR BLADES

PROJECT WORK WAS COMPLETED. THE WORK WAS TECHNICALLY
SUCCESSFUL, AND FULLFILLED THE PRINCIPLE PROJECT OBJECTIVE
OF REDUCING CURE COSTS. THIS TECHNOLOGY WILL BE IMPLEMENTED
FOR TAIL ROTORS FOR OH-58 TYPE HELICOPTERS, AND FOR OTHER
SIMILAR APPLICATIONS.

1 78 7123
CONTINUOUS BALANCING OF HELICOPTER SHAFTING

AN ECONOMIC ANALYSIS OF THE PROCESS WAS COMPLETED.
DEMONSTRATION OF SHAFT BALANCING PROCEDURE WAS COMPLETED ON
16 SEP 80. FINAL TECHNICAL REPORT HAS BEEN PREPARED.
AUTOMATED BALANCING MACHINE IS PLANNED FOR TROUBLESHOOTING
FOR AAH HELICOPTER PROGRAM.

1 78 7183
SEMI-AUTO COMPOSITE MFG SYS- HELICOPTER FUSELAGE STRUCTURES

PROJECT WORK WAS COMPLETED. THE MANUFACTURING PLANS FOR THE
UPPER FAIRING DOORS AND THE WORK PLATFORM HAVE BEEN
FINALIZED. TOOLING REQUIREMENTS AND PRELIMINARY TOOLING
CONCEPTS WERE ESTABLISHED. WORK IS BEING CONTINUED IN MMT
1797183.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

1 79 7183
SEMI-AUTO COMPOSITE MFG SYS-HELICOPTER FUSELAGE STRUCTURES

PROJECT WORK WAS COMPLETED. AN ACQUISITION COST ANALYSIS
REPORT COVERING PROJECTED ACQUISITION COSTS AND COST
TRADE-OFFS BETWEEN PROTOTYPE AND COMPOSITE DOORS WAS
COMPLETED. TOOLING WAS FABRICATED. WORK IS CONTINUING IN
MMT 1807183.

1 80 7183
SEMI-AUTO COMPOSITE MANUFACTURING SYSTEM-HELICOPTER SECONDARY STRU

PROJECT WORK WAS COMPLETED. FABRICATION OF THE FAIRING
DOORS AND WORK PLATFORM IS IN PROCESS. NORTHROP, THE
SUBCONTRACTOR TO HUGHES HAS COMPLETED WORK. HUGHES IS
CONTINUING WORK ON A LIMITED BASIS. WORK IS BEING CONTINUED
IN MMT 1817183.

1 79 7197
FABRICATION OF INTEGRAL ROTORS BY JOINING

PROJECT IS COMPLETE. HARDWARE FABRICATION AND MATERIAL
VALIDATION WERE SUCCESSFULLY COMPLETED. FOLLOW ON PROJECTS
WILL PROCURE AND ENGINE TEST HARDWARE FOR T63-A700/A720.

1 79 7200
COMPOSITE ENGINE INLET PARTICLE SEPARATOR

SUBELEMENT TESTING WAS COMPLETED. WORK IS CONTINUING UNDER
PROJECTS 1 80 7200 AND 1 81 7200.

1 80 7200
COMPOSITE ENGINE INLET PARTICLE SEPARATOR

PROJECT WORK WAS COMPLETED. SUBELEMENT TESTING WAS
COMPLETED. FABRICATION OF SWIRL FRAMES WAS INITIATED, AND
WILL BE CONTINUED IN 1 81 7200.

1 79 7202
APPLICATION OF THERMOPLASTICS

PROJECT WORK WAS COMPLETED. ATTEMPTS TO MOLD THE RIBBED
INNER SKIN OF THE ENGINE ACCESS DOOR DEMONSTRATION
COMPONENT RESULTED IN WRINKLING. ADDITIONAL MATERIALS OTHER
THAN WOVEN KEVLAR REINFORCED POLYSULFONE WILL BE TRIED IN
THE FY80 PROJECT.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

1 78 7284
SUPERPLASTIC FORMING/DIFFUSION BONDING OF TITANIUM

PHASE I COMPONENT SELECTION AND TOOL DESIGN WAS COMPLETED. THIS PROJECT IS COMPLETED.

1 78 7286
SUPERALLOY POWDER PRODUCTION FOR TURBINE COMPONENTS

ALL CONTRACTS AND SUBCONTRACTS HAVE BEEN ESTABLISHED. INITIAL POWDER BLENDS WERE EVALUATED FOR CLEANLINESS AS ATOMIZED AND AFTER VARIOUS PROCESSING STEPS. CONTAMINANTS WERE IDENTIFIED. FAILURES WERE RELATED TO IDENTIFIED CONTAMINANTS. SEE FOLLOW-ONS.

1 79 7291
TITANIUM POWDER METAL COMPRESSOR IMPELLER

MATERIAL AND PROCESS REVIEW WERE COMPLETED. TOOLING DESIGN WAS COMPLETED. PROJECT IS COMPLETE. WORK TO CONTINUE IN FOLLOW ON EFFORT.

1 79 7297
PROD-INSTALL OF URETHANE EDGE GUARDS ON ROTOR BLADES

PROJECT WORK WAS TERMINATED DUE TO MATERIAL PROBLEMS. BUBBLES AND SURFACE INDENTATIONS IN THE MATERIAL COULD NOT BE ELIMINATED, AND WOULD REQUIRE EXTENSIVE BASIC DEVELOPMENT WORK TO RESOLVE.

1 78 7348
LTWT COMPOSITE FASTENING SYS FOR COMPOSITE HELICOPTER COMPTS

PROJECT WORK WAS COMPLETED. THE COMPOSITE FASTENERS, TESTED ON A 40X40 INCH PANEL SECTION OF THE TAILBOOM OF THE BLACKHAWK HELICOPTER, MET ALL PROJECT OBJECTIVES. RESULTS OF THE PROJECT WILL BE PRESENTED IN A TECHNICAL REPORT AND A BRIEFING.

1 75 8035
PROD OF TRANSPARENT FORMS OF POLYOLEFIN FOR LTWT ARMOR APPLN

ALL TASKS COMPLETED. 20 TRIANGULAR WINDOWS IN 2 THICKNESSES MOLDED AND COATED ON EACH SIDE WITH ABRASION RESISTANT COATING. 850 LBS OF COMMERCIAL FILM FROM SAME ORDER DLVD TO AMMRC. PROCESS SPEC SENT AND FINAL REPORT DISTRIBUTED IN JANUARY, 1981.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

1 76 8148
PROCESSING ADVANCED GEAR MATERIALS

INVESTIGATION IS COMPLETE. CONTRACTOR IS PREPARING THE
FINAL TECHNICAL REPORT.

MICOM

R 77 3135
PROCESS DEVELOPMENT FOR CARBORANE MANUFACTURE

THE IMPLEMENTATION OF THIS PROJECT IS UNDERWAY WITH IPF
FUNDs. THE CONTRACTOR'S FINAL TECHNICAL REPORT OF 27
VOLUMES WAS RECEIVED.

R 79 3136
IMPROVED MFR PROCESSES FOR COMPLIANT BEARING GYROS

A PILOT PRODUCTION LINE WAS SET UP AND EIGHT GYRO'S WERE
PRODUCED. A DEMONSTRATION INCLUDING A PIECE PART DISPLAY,
COMPLIANT BEARING MOLDING, ROTOR BALANCING AND AUTOMATED
PERFORMANCE TESTING WAS HELD BY HONEYWELL FOR GOVT AND
INDUSTRY.

R 79 3142
PRODUCTION METHODS FOR LOW COST PAPER MOTOR COMPONENTS

APPLICATION OF REALISTIC NDT METHODS FOR SCREENING CRITICAL
DEFECTS WITH REAL TIME RADIOGRAPHY; SONICS AND/OR OTHER
COST EFFECTIVE SCANNING TECHNIQUES STUDIES CARRIED OUT.
INTERIM PROJECT TECHNICAL REPORT IS BEING PREPARED.

R 78 3167
PROD CONTROLS TO PREVENT PLATED-THROUGH HOLE CRACKING

HUGHES IMPLEMENTED PLATING PROCESS CHANGES INTO ITS PLATING
LINE. ADDED AMMONIA AND OTHER AGENTS TO PLATING BATH TO
BALANCE THROWING POWER AND DUCTILITY OF PYROPHOSPHATE
COPPER PLATED INTO THRU-HOLES. WAS DEMONSTRATED TO 140
ATTENDEES ON 21, 22 AUG.

R 78 3171
AUTO MONITOR AND CONTROL FOR WAVE SOLDERING MACHINES

THIS PROJECT IS COMPLETE. AN INDUSTRY DEMONSTRATION WAS
HELD IN SEPT 1980. A 50 PERCENT DECREASE IN SOLDER DEFECTS
WAS OBTAINED OVER THE OLD METHOD. PROJECTED SAVINGS ARE
ESTIMATED AT 1.1 MILLION DOLLARS.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

R 79 3242
DIGITAL FAULT ISOLATION OF PRINTED CIRCUIT BOARD

THE DEVELOPED SYSTEM ENHANCED A COMMERCIALLY AVAILABLE DTS-70 HEWLETT PACKARD TEST SYSTEM WITH A SIGNATURE ANALYZER A SOFTWARE ENHANCEMENT THAT WILL ALLOW COMPREHENSIVE TESTING OF ALL TYPES OF DIGITAL PRINTED CIRCUIT CARDS. IMPLEMENTATION PLANNED.

R 78 3253
HIGH CURRENT DENSITY CATHODES

SPERRY DEVELOPED A METHOD TO VAPOR DEPOSIT MOLYBDENUM CONES + A GATE FILM IN + ON A SILICON DIOXIDE LAYER TO FORM THOUSANDS OF TINY EMITTERS. SPERRY'S REPORT DESCRIBES ALL PROCESSING STEPS. CATHODES WERE INSTALLED IN A TEST ITEM. FY78 WORK COMPL.

R 79 3272
FLEX PRINTED CIRCUITS WITH INTEGRAL MOLDED CONNECTORS

WESTINGHOUSE ESTABLISHED PRODUCTION METHODS FOR FLEXIBLE PRINTED CIRCUITS WITH MOLDED CONNECTORS. PROCESSES OPTIMIZED INCLUDE LASER INSULATION STRIPPING, LASER WELDING & AUTOMATED INJECTION MOLDING. WORK COMPLETED EXCEPT FOR FINAL REPORT. DEMO HELD.

R 78 3436
DEVELOPMENT OF CERAMIC CIRCUIT BOARDS AND LARGE AREA HYBRIDS

BOTH CONTRACTORS HAVE COMPLETED THE FIRST PHASE OF THE EFFORT AND ARE PREPARING FINAL REPORTS.

R 78 3440
PRODUCTION TESTING OF CONTROL SYSTEMS FOR GUIDED WEAPONS

THE AUTOMATED EQUIPMENT DEMONSTRATED A TEST CYCLE OF 9 MIN. & 41 SEC. THE CONTRACT REQUIREMENT WAS 12 MIN OR LESS. THE CONTRACT REQ. & OBJECTIVES WERE SUCCESSFULLY COMPLETED. A SECOND TEST STAND IS BEING FAB FOR THE COPPERHEAD PRODUCTION.

ARRADCOM-ARRCOM (AMMO)

5 75 1284
IMPROVEMENT + MOD OF INSPECTION AIDS F/DEF + PRO T ITEMS

THIS PROJECT HAS BEEN COMPLETED. THE XQ127A1 PROTOTYPE TESTER IS A SIGNIFICANT IMPROVEMENT OVER Q127. HOWEVER, TEST RESULTS OF XQ127A1 TESTER HAVE NOT JUSTIFIED ADOPTION OF THIS TESTER. SOME IMPROVEMENTS ARE REQUIRED BEFORE THE TESTER CAN BE ACCEPTED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 77 1320
PILOT STATIONS FOR FILLING + CLOSING IMPROVED WP MUNITIONS
DEBUGGING OPERATIONS OF FILL LINE EQMT COMPLETED. ALL LAP
LINE EQMT WAS INSTALLED AND TEST OPERATED.

5 78 1320
PILOT STATIONS FOR FILLING + CLOSING IMPROVED WP MUNITIONS
DURING SEP TO OCT 80 1500 RDS WERE FILLED AND LAPED WITH A
MINIMUM OF PROBLEMS. LINE ACCEPTED IN OCT 80 AND LOW RATE
INITIAL PRODUCTION INITIATED ON CANISTER FILLING. A FINAL
TECHNICAL REPORT HAS BEEN PREPARED.

8 78 1339
PREPARATION OF B-1 DYE
A SPRAY DRYING METHOD WAS DEVELOPED FOR THE USE OF B-1 DYE
IN M9 DETECTOR PAPER. A MANUFACTURING DIRECTIVE FOR B-1 DYE
WAS PREPARED AND SUBMITTED FOR INCLUSION IN THE TOP. A
FINAL TECHNICAL REPORT WAS PREPARED.

5 77 3905
PS127 RESERVE POWER SUPPLY MFG FOR THE XM587 FUZE
SPECIAL MACHINES WERE DESIGNED AND USED TO BUILD 160 PS127
BATTERIES. FINAL ASSEMBLY WAS BY HAND AND THE BATTERIES
WERE SUCCESSFULLY TESTED. THEREBY VALIDATING BOTH THE
PROCESS AND THE MACHINES. MODS RECOMMENDED TO BE EMPLOYED
IN THE IPF.

5 79 3913
MECHANICAL JOINING OF MINIATURIZED ELECTRONIC COMPONENTS
HDL LASER WELDED BATTERY COMPONENTS BUT THEY HAD INTERNAL
LEAKS. HDL WELDED ANTI-SPIN TABS ON THE UNATTENDED JAMMER.
THESE WILL BE DESCRIBED IN THE FINAL REPORT WHICH IS NOW IN
EDITORIAL DEPT. A DESIGN GUIDE CANNOT BE PREPARED BECAUSE
OF LOW FUNDING.

5 77 4000
AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT
FINAL STATUS REPORT SUBMITTED. WORK WAS INITIATED ON CUP
INSPECTION MODULE. INSPECTION MODELS FOR ASSEMBLED
DETONATORS WERE CONSTRUCTED. TESTS WITH LACQUERS WERE
CONDUCTED. THE MULTI-TOOLED LOADER WAS DEBBUGED. AN
ASPIRATOR SYSTEM WAS FABRICATED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 78 4000
AUTOMATED M55 DETONATOR PRODUCTION EQUIPMENT

FINAL STATUS REPORT SUBMITTED. AUTO INSPECTION MODULE WAS SUCCESSFULLY TESTED. CONCEPTS WERE ESTABLISHED FOR AUTO PACKOUT MODULE. DESIGN AND BUILD OF ASSEMBLY MODULE REACHED 60% COMPLETION. EQUIPMENT MODEL OF ULTRASONIC SEALER WAS FABRICATED.

5 75 4050
AUTOMATED LOADING OF PROPELLANT FLASH REDUCERS

TESTING WAS SUCCESSFULLY COMPLETED IN LOADING THE M3 BAG. HOWEVER THE REQUIREMENT FOR THE M3 CEASED. TESTING OF THE LOAD MODULE ON THE M3A1 BAG WAS UNSUCCESSFUL. INSTRUCTIONS TO STORE THE MODULE AT INAAP IN ITS PRESENT LEVEL OF COMPLETION WERE GIVEN.

5 76 4114
METHODS TO MINIMIZE ENVIRONMENTAL CONTAMINATION

REFER TO INDIVIDUAL TASK AREAS. TOTAL RESPONSIBILITY FOR SUBPROJECT 1, TASKS 14 AND 15 HAVE BEEN TRANSFERRED FROM DRDAR-LCM-S TO DRDAR-LCU-M, AS SUBPROJECT 2, TASKS 1 AND 4. TECHNICAL REQUIREMENTS FOR FY76 HAVE NOW BEEN COMPLETED.

5 76 4114 F01
IDENT + CONTROL OF POLLUTION - PRESENT REQMTS

MAYS AAP DETERMINED NOT TO MEET CURRENT POLLUTION ABATEMENT REQMTS. COSTS OF MODERNIZING SAME FACILITIES AT ST LOUIS AAP DETERMINED. SAMPLING ANALYSES AT SCRANTON AAF SHOVED SIGNIFICANT REDUCTION IN POLLUTANT DISCHARGE INCL. CR, ZN, P04 AND CR04.

5 76 4114 F02
CONTROL OF POLLUTION GENERATED BY SURFACE TREAT LINES

LINE WASTE TREATMENT PILOT PLANT PUT INTO FULL OPERATION AT SCRANTON AAP. IT RECycles 50PCT OF H2O. CONTRACT AWARDED FOR DESIGN OF SYSTEM FOR ABATEMENT OF SURFACE LINE POLLUTION AT LA AAF. EVALUATION OF ULTRAFILTRATION FOR REGEN OF ALKALI CLNG SOL CPL.

5 76 4114 F04
IMPROVED TREATMENT FOR PRIMER MIX PLANT

BATELLE REPORT PROPOSES INTEGRATED SYSTEM FOR DESSENSITIZATION TREATMENT AND DISPOSAL OF PRIMER WASTES. SYSTEM APPLICABLE TO FRANKFORD ARSENAL, TWIN CITIES AAP AND LAKE CITY AAP. REPORT INCLUDES BACKGROUND STUDIES AND CONCEPT EVALUATION OF PROPOSALS.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 76 4114 F06
LUBRICATION POLLUTION PROBLEMS

CONTRACTS AWARDED TO EXXON TO DETERMINE FEASIBILITY OF REPROCESSING WASTE LUBRICATING AND COOLING OILS AT SCRANTON, TWIN CITIES AND RIVERBANK AAPs. DISSOLVE AIR FLOTATION WOULD BE USED TO BRING OIL CONCENTRATION IN WASTEWATER TO MANAGEABLE 10-15 PPM.

5 76 4114 F08
POLLUTION ABATEMENT FROM PLATING OPERATIONS

TWO CONCEPT DESIGNS FOR TREATMENT OF AL CHROMATING AND AL HARDCOAT ANODIZING OPS WASTE STREAMS. BOTH USE PRECIPITATION AS PRINCIPAL MEANS OF SEPARATION. ION-EXCHANGE USED WHEN HIGH PURITY H2O REQUIRED. FINAL REPORT PUBLISHED.

5 76 4114 F12
POLLUTION CONTROL FOR SCAMP

PILOT LINE UTILIZING REVERSE OSMOSIS TESTED AT TWIN CITIES AAP ON ACTUAL SCAMP LINE WASTES. THIS TECHNIQUE EFFECTIVE IN CONCENTRATING OILY WASTES. MEMBRANE SUSCEPTIBLE TO FOULING AT TEMPERATURES ABOVE 100 DEG. F. FINAL REPORT PREPARED.

5 76 4114 F13
MONITOR \* CONTROL OF POLLUTANTS

ON SITE H2O QUALITY TESTING PERFORMED AT LA AAP. EQUIPMENT PROVIDES RAPID, SEMI-AUTOMATIC MEANS OF ANALYSIS OF H2O AT METAL PARTS PLANT. EVAL OF AIR MONITORING EQUIP CONDUCTED AT SCRANTON AAP. REGULAR MONITORING EQUIP CAN BE ADAPTED TO AAP PLANT USE.

5 76 4114 F14
ELIM OF AIR POLLUTION FROM METAL PARTS MFG

EVAL CONDUCTED OF CHARGED DROPLET SCRUBBER AT SCRANTON AAP FORGE SHOP. PILOT UNIT INDICATES VERY GOOD REMOVAL EFFICIENCY. THIS PLUS SMOG HOG RECOMMENDED FOR SCRANTON AAP FORGE SHOP MCA PROJECT. NOT RECOMMENDED FOR OTHERS UNTIL THIS ONE INSTD//EBUGGED.

5 76 4114 F16
WATER BASED FORGING LUBRICANTS

ALTHOUGH SUCCESSFUL IN LABORATORY TESTS, ALL EFFORTS TO PRODUCE A VIABLE MEANS OF APPLYING THE LUBRICANT IN A PRODUCTION MODE WERE UNSUCCESSFUL. WORK MAY BE RE-DIRECTED, BUT DECISION MADE TO CURTAIL ALL EFFORTS UNDER THIS TASK.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 76 4114 P01
PROGRAM CONTROL, COORDINATION AND SUPPORT

CONTINUOUS COORDINATION AND LIASON WAS MAINTAINED WITH ALL
COMMAND ACTIVITIES AS WELL AS OTHER GOVERNMENT AGENCIES ON
PROGRAMS TO CONTROL ENVIRONMENTAL POLLUTION.

5 76 4114 P04
NO-X ABATEMENT METHODS

AFTER BENCH SCALE STUDIES, A SULFURIC ACID AND SELLITE
SCRUBBING SYSTEM WAS DESIGNED AND INSTALLED FOR CONTROL OF
NOX AND TNM FROM TNT MANUFACTURE. FINAL TESTING NOT
COMPLETED BECAUSE TNT FACILITY AT RADFORD IS NOT IN
OPERATION. SEE ALSO P33.

5 76 4114 P06
PROPELLANT AND EXPLOSIVE WASTE INCINERATION

NEW FLUIDIZED BED INCINERATOR AND P AND E SLURRY FEED
SYSTEM TESTED WITH INERT SIMULANTS AND DEBUGGED. PILOT
PLANT EVALUATION, USING EXPLOSIVE, MADE. RESULTS EXCELLENT
AND PROVED VIABILITY OF P AND E DISPOSAL THAT IS SAFE AND
SUPERIOR TO OTHER SYSTEMS.

5 76 4114 P07
ELIMINATION OF NITRATE WASTES

DEVELOPED DESIGN DATA FOR A BIOLOGICAL DENITRIFICATION
SYSTEM. ALTHOUGH THE TECHNOLOGY WAS SUCCESSFUL, BOTH THE
CAPITAL COSTS AND OPERATING COSTS ARE EXCESSIVE. AN
ECONOMIC AND PERFORMANCE COMPARISON SHOULD BE MADE WITH
OTHER PROCESSES.

5 76 4114 P08
DISPOSAL OF RED WATER FROM TNT PURIFICATION

FIVE CONTINUOUS LONG DURATION PILOT SCALE MULTI-HEARTH
FURNACE TESTS WERE PERFORMED AT NICHOLS ENGINEERING TO
OBTAIN DATA FOR FY83 MCA PROJECT AT RAAP. TECHNOLOGY
DEVELOPMENT EFFORTS ON SUNOCO SULFITE RECOVERY PROCESS WILL
CONTINUE UNDER PROJ 5784225.

5 76 4114 P10
DISPOSAL OF WASTES FROM PROPELLANT MFG

STUDIES DEMONSTRATED THAT MEMBRANE TECHNOLOGY EQUIPMENT CAN
EFFECTIVELY REMOVE AND SEPARATE COLLAGEN AND SODIUM
SULPHITE FROM THE BALL POWDER MANUFACTURE WASTEWATER STREAM
AND CONCENTRATE BOTH TO ACCEPTABLE LEVELS FOR POSSIBLE
REUSE. TECH REPORT MADE.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 76 4114 P12
ELIMINATION OF ORGANIC WASTES SUCH AS SOLVENT

0.7PCT NAOH IN H2O SCRUBBER DECOMPOSED NG VAPOR TO LESS
THAN 0.1PPM IN EXHAUST AIR. STUDIES SHOWED ADDN OF H2O TO
SCRUBBER WOULD ABSORB ETHANOL AND ALLOW ONLY SMALL QUAN OF
ACETONE TO LEAVE SCRUBBER. ADSORBENT RESIN NOT REC FOR
REMOVING NG/SOLVENTS.

5 76 4114 P16
PROCESS WATER MANAGEMENT AT GOGG PLANTS

RECS FROM H2O MGMT STUDIES WILL BE USED IN NITROGUANIDENE
PROD AT SUNFLOWER AAP AND THE HNO3 FLT AT VOLUNTEER AAP.
THEY WILL LOWER H2O USAGE AND INPUT TO WASTE TRMT PLT. REC
FROM IOWA AAP STUDIES WILL BE USED IN OPERATING PROCEDURES
WITH SIMLR BENFT

5 76 4114 P19
METHODS + EQPT TO MONITOR AND CONTROL POLLUTANTS

SUCCESSFUL EVAL OF BEST POLLUTION MONITORS ResultED IN
FOLLWG IMPLTN- SULFIDE MONITOR AT RAA-P- TOTAL C AT RAA-P-
STACK MONITOR AT ARD/COM. POLAROGRAPHIC AND RAMAN H2O
MONITORS IMPLEMENTATION PENDING FIELD DEMONSTRATION UNDER
5XX4462.

5 76 4114 P20
DISPOSAL OF LEAD AZIDE

HAZARDS ANALYSIS COMPLETED FOR IOWA AAP. ELECR0LYTIC
PROCESS VIABLE SINCE LEAD AZIDE ONCE DISSOLVED IN ANOH NOT
READILY RECOVERABIE AS EXPLOSIVE. ELEC PROCESS IS CAPABLE
OF BEING MANAGED TO INSURE SAFETY EQUIVALENT TO GENERALLY
ACCEPTED INDUSTRY STD

5 76 4114 P26
SO-X ABATEMENT METHODS

TECH REPORT DESCRIBES STATE-OF-THE-ART IN 502 ABATEMENT
PROCESSES AS OF 1976. TRADEOFF ANALYSIS OF BEST SYSTEMS
MILESTONE DELETED BECAUSE DECISION MADE NOT TO PURSUE
DIETHYLENE GLYCOL PROCESS.

5 76 4114 P27
SOLID WASTE SOIL DISPOSAL TECHNIQUES

EXPERIMENTAL WORK AT CRANE IND PROVED THAT NO AIRBORNE TNT
OR DERIVATIVES RELEASED DURING COMPOSTING OPERATION. ALSO
NO TOXIC PRODUCTS PRODUCED. FINAL COMPOSTED PRODUCT MAY BE
RETURNED TO THE LAND AS A SOIL ENRICHHER FOR NON-FOOD CROP
APPLICATIONS.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 76 4114 P31
FREEZE TECHNOLOGY FOR WATER POLLUTION

THE MAX BRINE CONC OF 24PCT OBTAINED WITH 1-STAGE FREEZING IS CONSIDERABLY LESS THAN 35PCT PRODUCED BY MULTI-EFFECT EVAPORATION AT VAAP. THIS ADDL SOLIDS SEPARATION PROBLEMS ARE SERIOUS DRAWBACKS TO USE OF THIS TECHNOLOGY FOR RED H2O CONCENTRATNS.

5 76 4114 P33
REMOVAL OF NO-X AND TNM FROM NITRATION FUMES

P04 AND P33 COMBINED IN FUNDING. INSTALLATION COMPLETED AND OPERATING PROCEDURES WRITTEN. BECAUSE THE RADFORD TNT LINE WILL NOT RUN UNTIL 1981 FINAL TESTING NOT COMPLETED.

5 76 4114 P35
BIOLOGICAL WASTEWATER TREATMENT PILOT PLANT (RAAP)

ACTIVATED SLUDGE BIOLOGICAL TREATMENT NOT SUITABLE BECAUSE OF FLUCTUATIONS IN QUANTITY AND COMPOSITIONS OF WASTEWATER. ROTATING BIOLOGICAL SURFACE TREATMENT PROCESS PROVIDED EXCELLENT TREATMENT. P04 REMOVAL GRTR THAN 94PCT- COD REMOVAL 85-PLUS PCT.

5 75 4136
DEVELOPMENT OF A GENERALIZED MATH MODEL

THIS PROJECT IS COMPLETE. THE EFFORT TO EXTEND THE MUNITIONS EFFECTIVENESS METHODOLOGY WAS COMPLETED. A SYSTEM OF COMPUTER PROGRAMS HAS BEEN DEVELOPED FOR PERFORMING BAYESIAN RELIABILITY ASSESSMENTS ON COMPLEX SYSTEMS BASED ON COMPONENT DATA.

5 76 4136
DEVELOPMENT OF A GENERALIZED MATH MODEL

THIS PROJECT IS COMPLETE. A COMPUTERIZED RAM DATA BASE TAILORED TO IMPLEMENT THE GENERALIZED MATH MODEL TECHNIQUES WAS ESTABLISHED. THE MODFL RELATES ACTUAL SYSTEM PERFORMANCE TO ALTERNATE DESIGNS, DESIGN PARAMETERS AND REQUIREMENTS.

5 79 4137
AUTOMATED LOADING OF CENTER CORE IGNITERS

THIS IS FINAL 361 REPORT. INDEPENDENT FEASIBILITY STUDIES WERE CONDUCTED BY ARADCOM AND INAAF. RESULTS WERE FORWARDED TO PDM FOR EVALUATION AND FOLLOW ON DESIGN AND FABRICATION. final TECHNICAL REPORT DUE MAR 81.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 74 4147
COMPUTER CONTROL APPLICATION TO CONTINUOUS TNT MANUFACTURE

AN ELECTRONIC ANALOG CONTROL SYSTEM CAPABLE OF MONITORING AND CONTROLLING SIGNIFICANT PROCESS VARIABLES HAS BEEN DESIGNED, PROCURED, AND INSTALLED ON TNT LINE C AT RADFORD AAPP. SYSTEM EVALUATION WILL OCCUR AT SUCH TIME AS THE LINE ITSELF IS RESTARTED.

5 79 4163
CONTROLLED PROD LOADING SYS F/105MM HEAT-T M456A1

FINAL STATUS REPORT WAS SUBMITTED. PROCESS PARAMETERS AND PROCEDURES FOR LOADING THE 105MM HEAT-T M456A1 PROJECTILE ARE BEING IMPLEMENTED IN PROTOTYPE LINE AT MILAN AAP.

5 79 4189
HIGH FRAGMENTATION STEEL PRODUCTION PROCESS

THIS PHASE 1 PROJECT IS COMPLETE EXCEPT FOR THE TECHNICAL REPORT. RESULTS WILL BE UTILIZED IN SUBSEQUENT PHASES. INTERIM TECHNICAL REPORT SCHEDULED FOR JUNE 30, 1981 COMPLETION.

5 79 4194
IMPROVED PROCESS F/PRESSING LX-14 EXPL CHARGES

PRESSES WERE MADE OPERATIONAL. TOOLING FOR PRESSING TOW WARHEADS WAS DESIGNED. FURTHER WORK ON THIS PROJECT WAS Terminated SINCE TECHNOLOGY FOR PRODUCING LX-14 ADVANCED MAKING THE ORIGINAL OBJECTIVES OBSOLETE.

5 80 4200
TNT CRYSTALLIZER FOR LARGE CALIBER MUNITIONS

PROGRAM WAS TERMINATED TO DEVELOP A CONTINUOUS SYSTEM TO CONTROL MOLTEN TNT POUR TEMPERATURES AND INCORPORATION OF SOLIDS. REDUCED PROJECT WAS COMPLETED AFTER SYSTEM REQUIREMENTS WERE ESTABLISHED AND A SCOPE OF WORK WAS PREPARED.

5 77 4211
MOD OF PROCESS CONTROL OF EXPLOSIVE COMPOSITIONS

A RDX/TNT EXPLOSIVE GUAGE WAS DEVELOPED TO MEASURE CONCENTRATION TO A PRECISION OF 1 PERCENT. AN IMPACT SENSITIVITY TESTER WAS DEVELOPED WHICH WILL PROVIDE MORE RAPID EVALUATION OF LARGER SAMPLE SIZES.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 77 4223
APPLICATION OF ULTRASONIC ENERGY TO DOUBLE-BASE PROP PROC

ENHANCED EXTRUSION WITH ULTRASONIC DIE ACTIVATION
DEMONSTRATED ON PILOT SCALE BUT NOT AS PROTOTYPE. PROBLEMS
WITH MECHANICAL AND ELECTRONIC COMPONENTS. LIVE EXTRUSION
RUNS WITH N5 PROPELLANT ON PROTOTYPE DID NOT SHOW EXTRUSION
IMPROVEMENT. ONLY N5 CKD

5 79 4225
RED WATER POLLUTION ABATEMENT SYSTEM

FILTER CAKE DRYING TESTS WITH VERTI-STAK DRYER PROVIDED
EXCELLENT DRYING WITHOUT PRODUCT LOSS. HAZARDS ANALYSIS OF
RED WATER ABATEMENT COMPLETED BY RADFORDAAP. PORCUPINE
PROCESSOR AND DOUBLE DRUM DRYER PROVIDED CONCENTRATED RED
WATER FEEDSTOCKS.

5 80 4236
AUTO LACE JACKETS FOR CENTER CORE CHARGES

PROJECT TERMINATED AND REDUCED BY $557,00. FINAL REPORT
DATED 12/01/80.

5 78 4249
SEPARATION OF EXPLOSIVES FROM SPENT ACID/WATER SLURRIES

PROBLEMS WERE ENCOUNTERED WITH FILTER CLOTH BLINDING, LINE
COATING, VALVE DIAPHRAGM FAILURE. PROCESSING WAS MODIFIED
AND BUTTERFLY VALVES ORDERED TO ELIMINATE THE PROBLEMS.

5 78 4252
IMPROVE PRESENT PROCESSES FOR THE MANUFACTURE OF RDX + HMX

REACTION PROMOTERS, HEXAMINE AND PARAFORMALDEHYDE WERE
STUDIED IN PILOT PLANT. THROUGHPUT OF HMX INCREASED 16.4
PERCENT BY USE OF HEXAMINE. PARAFORMALDEHYDE INCREASED
THROUGHPUT BY 11 PERCENT. A FINAL TECHNICAL REPORT HAS BEEN
PREPARED.

5 79 4263
AUTO PILOT LINE F/CONT COOL AND PROC OF HE LD PROJ

FINAL STATUS REPORT COVERED SUCCESSFUL PILOT PLANT
OPERATIONS OF AUTO REMOTE MELT POUR AND COOLING OF 155MM
M107 PROJECTILES. PROCESS WAS FINALIZED. BENEFITS WERE
CITED AND TECH DATA WAS TRANSFERRED FOR FACILITY PROJECT
DESIGNS AT FIVE LAP PLANTS.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 77 4281
ENERGY SAVING AT ARMY AMMO PLANTS
SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS.

5 77 4281 A01
PROCESS ENERGY INVENTORY

FINAL REPORTS WERE RECEIVED FROM BOTH HAAP AND RAAP WHICH COVERED PROCESS ENERGY INVENTORY. AREAS OF POTENTIAL ENERGY SAVINGS WERE IDENTIFIED. THE CLOSER CONTROL OF STEAM USAGE IN THE SOLVENT RECOVERY SYSTEM AT RAAP YIELDED AN ANNUAL SAVING OF $58K.

5 77 4281 A04
WASTE HEAT FROM CHEMICAL REACTIONS

AN ANALYSIS WAS COMPLETED BY TRW, INC OF THE ENERGY-INTENSIVE PROCESS OPERATIONS AT RAAP, HAAP, AND VAAP. THE ANALYSIS INCLUDED ENERGY/COST SAVING PROJECTIONS AS WELL AS SPECIFIC DESIGN APPROACHES AND ENGINEERING COST ESTIMATES FOR EACH OPERATION.

5 77 4281 A08
CAVITATIONAL REMOVAL OF EXPLOSIVES

REMOVAL OF EXPLOSIVES FROM PROJECTILES USING A CAVITATING JET WAS DEMONSTRATED TO BE SAFE AND CONSIDERABLY MORE EFFICIENT THAN COMPETING METHODS. A NOZZLE DSN AND OPN COND WERE ESTAB WHICHL WILL BE USLD AS THE FIRST TRIAL DURING THE PILOT PLANT PHASE.

5 77 4281 B02
REDUCED FORGING TEMPERATURE

NO CHANGE FROM PRIOR REPORTING PERIOD. PROJECTED SAVINGS FOR PROJECTILE METAL PARTS FACILITIES AT MOBILIZATION PRODUCTION RATES ARE ESTIMATED TO BE $1,666,000 PER YEAR.

5 78 4288
EXPLOSIVE SAFE SEPARATION AND SENSITIVITY CRITERIA

ZERO PALLET SPACING ESTABLISHED FOR 155MM M483HE PROJECTILE. PROJECTILE DISTANCES ESTABLISHED FOR SHIELDED AND UNSHIELDED M549 HERA PROJECTILES. WEIGHT UNITS OF NITROGUANIDINE AND GUANIDINE NITRATE TESTED. FLAKED TNT TESTING COMPLETED.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 7T 4301
ACCEPT PLAN FOR CONTINUOUSLY PROD·MULTIBASE CANNON PROP·CAM
NO SIGNIFICANT EFFORT HAS BEEN EXPENDED ON THIS PROJECT DURING THIS REPORT PERIOD. THIS PROJECT IS COMPLETED. HOWEVER WORK CONTINUES UNDER PROJECT 5774301.

5 76 4301
ACCEPT PLAN- CONT PRODUCTION MULTI-BASE CANNON PROPELLANTS
NO SIGNIFICANT EFFORT HAS BEEN EXPENDED ON THIS PROJECT DURING THIS REPORT PERIOD. THIS PROJECT IS COMPLETED. HOWEVER WORK CONTINUES UNDER PROJECT 5774301.

5 77 4303
ACCEPTANCE OF CONTINUOUSLY PRODUCED BLACK POWDER
NO NEW ACCOMPLISHMENTS TO REPORT FOR THIS REPORT PERIOD, UNDER THIS FISCAL YEAR OF FUNDING. REFERENCE IS MADE TO PROJECT 5764303 FOR CONTINUATION OF WORK. THIS IS A FINAL STATUS REPORT.

5 78 4322
CHARACTERIZE DORMANCY EFFECT ON ELECTRONIC EQUIPMENT
TEST AND EVALUATION PLAN DETAILING THE METHODOLOGY OF ASSESSING THE OPERATIONAL INTEGRITY OF A ELECTRONIC PROCESS CONTROL SYSTEM HAS BEEN DEVELOPED. THE METHODOLOGY FOR PROPERLY BRINGING AN EPCS ON LINE HAS BEEN DEVELOPED. WORK CONTINUED ON 5794322.

5 79 4332
IMPROVEMENTS FOR POTTING ELECTRONIC ASSEMBLY FOR GATOR
AEROG/ET ORDNANCE CO. EVALUATED NEW POTTING MATERIALS + ENCAPSULATION PROCESSES FOR SCATTERABLE MINES. NEW POTTING TECHNIQUES + ARNCO'S SUPERIOR FASTCAST T70D EPOXY REDUCED LABOR TIME + INCREASED YIELD, NEED FOR MOLDS WAS ELIMINATED.

5 76 4337
ALTERNATE MATERIALS FOR CURING/MOLDING PROCESS F/AIP MINES
STUDY OF EFFECT OF ATC-3 ON CURE TIME OF ADAM ENCAPSULANT SHOWED REDUCED FLEX STRENGTH AND CURE TIME MAKING ATC-3 UNACCEPTABLE. UVRADIATION CURE OF OTHER FASCAM ENCAPSULANTS RESULTS IN UNACCEPTABLE PROCESS TEMPS, IN-SITU BONDING FOR GATOR MINES DROPP
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 76 4338
DEV AUTO PROCESS + PROTO EQUIP FOR LAP OF M483 155MM PROJO

MACHINE FAILED DEMONSTRATED TESTS. CONTRACT FUNDS FULLY
EXPENDED. CONTRACTOR OFFERED TO MAKE THE MAJOR COMPONENT OF
MACHINE OPERABLE, USING CORPORATE FUNDS ONLY. ARRADCOM WILL
REWORK TWO AUXILIARY COMPONENTS AT THE SAME TIME.

5 77 4362
REHEAT OF LARGE CAL PROJECTILES TO ELIMINATE BASE SEPARATION

FINAL STATUS REPORT WAS SUBMITTED. CONTROLLED COOLING
PROCESSES WERE SUCCESSFUL ON 155MM M549 AND XM795 AND 81N
M650 PROJECTILES. XM795 PROCESS WAS IMPLEMENTED FOR TNT
LOADING OF ALL DTII PROJECTILES AT LOUISIANA AAP.

5 78 4447
NITROGUANIDINE PROCESS CONTROL ANALYTICAL SYSTEMS

PROJ WAS COMPLETED. ANALYTICAL METHODS WERE ESTABLISHED FOR
NQ PRODUCTION PROCESS CONTROL. THESE INCLUDED
CHROMATOGRAPHIC, COLORIMETRIC AND PLOAROGRAPHIC METHODS FOR
CA, CARBONATE, CYANIMIDE, FLUORIDE, GUANIDINIUM, SULFATE,
AND SULFUR.

5 78 4449
PROCESS IMPROVEMENT FOR COMPOSITION C-4

WORK COMPLETED. IT WAS DETERMINED THAT M112 DEMO BLOCKS &
M18A1 MINE BLOCKS COULD BE EXTRUDED FROM COMP C-4 WITH
NOMINAL CLASS 1/NOMINAL CLASS 5 RDX IN LIEU OF CLASS
1/CLASS 5 RDX. EXISTING SPECS HAVE BEEN AMENDED TO INCLUDE
USE OF NOM CL 1/NOM CL 5.

5 78 4462
MODERNIZED FAD FOR MULTI-BASE PROPELLANTS

WORK COMPLETED. A BAY WAS SELECTED AND MODIFIED FOR
EVALUATION. A CAUSTIC SCRUBBER FOR NG REMOVAL WAS PROCURED
AND SPECIFICATIONS FOR THE SOLVENT ABSORBER WERE COMPLETED.
TEMPERATURE DISTRIBUTION WITHIN THE BAY TO BE MODERNIZED
WAS DETERMINED.

5 78 4466
EVAL TNT, CYCLOTOL, AMATEX, OCTOL IN MELT POUR FACILITIES

FINAL STATUS REPORT COVERED EFFORTS TO CONTROL SOLIDS IN
TNT SLURRIES. TESTS SHOWED NO CORRELATION BETWEEN %SOLIDS
AND VISCOSITY. NAVY EQUIP REVIEWED BUT NOT ADOPTED. POUR OF
CYCLOTOL UNSUCCESSFUL DUE TO PLUGGED LINES OF SETTLED RDX.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

5 78 4469
AUTOMATED INSERTION OF GRENADE LAYERS.

THE DESIGN AND FABRICATION OF INSPECTION DEVICES FOR THE AUTOMATED INSERTION SYSTEM WERE SUCCESSFULLY DEMONSTRATED AND WILL BE USED IN THE PROTOTYPE SYSTEM. THE DESIGN OF THE PREPACK DELIVERY SYSTEM AND THE GRENADE INSERTION SYSTEM WAS COMPLETED.

5 78 4498
CONSOLIDATION + AUTOMATIC ASSEMBLY OF SMALL MINES

A PROCEDURE FOR LOADING THE M74 GEMS SELF-PROPELLED GRENADE HAS BEEN DEVELOPED. TECHNICAL SPECIFICATIONS WERE PREPARED FOR AN ELECTRONIC LENS TESTER AND AUTOMATED SOLDERING MACHINE. IN LIEU OF AUTOMATED/MECHANIZED ASSEMBLY, MECHANIZED LAP WAS SELECTED.

5 78 4506
PROCESS IMPROVEMENT OF PRESSABLE RDX COMPOSITIONS

AN IMPROVED PROCESS FOR PRODUCING COMP A-5 WAS DEVELOPED. 100,000 LBS OF A-5 HAVE BEEN PRODUCED AND SHIPPED FOR EVALUATION. A FINAL REPORT ON IMPROVED PROCESSES FOR PRESSABLE RDX COMPOSITIONS WAS ISSUED.

5 79 6553
ADAPT ACOUSTIC ANALYSIS/INSPECT WELDED OVERLAY BANDS-ARTYS HL

THIS TASK HAS BEEN COMPLETED. THE ACOUSTIC ANALYSIS CONCEPT WAS PROVEN TO BE FEASIBLE FOR INSPECTION OF WELDED OVERLAY BANDS.

5 76 6628
AUTOMATED INSPECT. OF M.T. FUZE COMPONENTS-MOVE. PLATES-

AN AUTOMATED NON-CONTACT INSPECTION MACHINE WAS DEMONSTRATED FOR INSPECTION OF THIN MOVEMENT PLATES. THE MACHINE CONSISTS OF A DIGITALIZER, COMPUTER CONTROL SYSTEM AND AN ILLUMINATING SYSTEM. SYSTEM HAS SHORTCOMINGS WHICH CAN BE CORRECTED.

5 78 6654
NDT FOR QC IN MFGR OF ADVANCED FRAGMENTING STEEL SHELLS

THIS TASK HAS BEEN COMPLETED. THIS SYSTEM WAS SUCCESSFULLY DEMONSTRATED. THE SYSTEM HAS BEEN DELIVERED TO ARRADCOM FOR INSTALLATION & FURTHER TESTING.
EVALUATION OF AQUA QUENCH UNDER PRODUCTION CONDITIONS

QUENCH CRACKING OCCURRED IN BOTH THE 155MM M107 AND M483 PROJECTILES BY THE AQUA QUENCH HEAT TREATMENT METHOD. SYNTHETIC WATER BASED QUENCHANTS ARE THEREFORE NOT RECOMMENDED FOR PROJECTILE HEAT TREATMENT.

PRODUCTION OF TUNGSTEN BASE ALLOY PENEITRATORS FOR AP MUNIT

SEVERAL TECHNICAL REPORTS WERE PREPARED AND PRESENTED AT THE CHARLOTTESVILLE SECOND ANNUAL KINETIC ENERGY SYMPOSIUM.

BALL PROPELLANT DETERRENT COATING-CAM RELATED

DESIGN OF SYSTEM TO MODIFY EXISTING PILOT PLANT EQUIPMENT AND IMPROVE PROCESS CONTROL SYSTEM COMPLETED. ALL WORK NOW COMPLETE ON THIS PROJECT.

TECH READINESS ACCEL THRU COMPUTER INTEGRATED MFG (CAD)

NO NEW ACCOMPLISHMENTS TO REPORT FOR THIS REPORT PERIOD UNDER THIS FISCAL YEAR OF FUNDING. THIS IS A FINAL STATUS REPORT FOR THIS PROJECT. WORK IS CONTINUING UNDER PROJECT 5806736.

DRYING OF LOW DENSITY BALL PROPELLANT

FLUID BED DRYING DETERMINED TO BE MORE FEASIBLE THAN MICROWAVE DRYING. PRELIM HAZARDS ANALYSIS CONDUCTED. SCOPE OF WORK FOR PURCHASE OF FLUID BED DRYING SYSTEM PREPARED. 160 LBS OF LOW DENSITY BALL PROPELLANT PURCHASED FOR USE IN PLANNED DRYING TESTS.
ARRADCOM-ARRCOM (WPNS)

6 78 3901
MANUFACTURE OF FLUIDIC AMPLIFIERS BY COLD FORMING

THIS PROJECT HAS BEEN COMPLETED. RESULTS HAVE DEMONSTRATED THAT FINEBLANKING CAN BE SUCCESSFULLY USED TO MANUFACTURE HIGH-QUALITY FLUIDIC AMPLIFIER LAMINATES. MORE DEVELOPMENT IS NEEDED BEFORE IT CAN BE CONSIDERED A RELIABLE PRODUCTION TECHNIQUE.

6 73 7087
APPL. OF HIGH FREQ. INDUCTION HEATING FOR HOT COIL SPRINGS

A METHOD WAS DESIGNED AND DEVELOPED TO COIL SPRINGS BY HIGH FREQUENCY INDUCTION HEATING. THE XM-1 RECOIL SPRING AND SPRING NO. 5172634 FOR THE M101-A1 WERE FABRICATED. THE PROJECT WAS COMPLETED.

6 79 7213
HIGH SPEED CHROME PLATING TECHNIQUE

PROJECT RESULTED IN A MORE SUITABLE APPROACH TO HIGH SPEED CHROME PLATING. A FULL LENGTH NON-CONFORMING ANODE IS USED. A TDP WAS PREPARED WHICH INCLUDES DESIGN OF EQUIPMENT, SPECIFICATION REQUIREMENTS AND PROCESS PROCEDURES. PROJECT IS COMPLETED.

6 77 7313
SIMULATOR FOR PRODUCTION TESTS OF WEAPONS - CAM

THIS PROJECT IS COMPLETE. A PASSIVE SIX-DEGREE-OF-FREEDOM SIMULATOR WAS SUCCESSFULLY DEVELOPED. THIS SIMULATOR PROVIDES DOD WITH A SOPHISTICATED, ECONOMICAL MEANS TO TEST THE INTERACTION BETWEEN WEAPONS, MOUNTS, AND THE SYSTEM.

6 77 7485
APPLICATION OF CHEMICAL PROCESSES TO IMPROVE SURFACE FINISH

105MM SPECIMENS WERE ELECTROPOLISHED USING THE CONFORMING ANODE. METAL REMOVAL WAS UNIFORM AND THE PROJECTED RATE OF REMOVAL AND SURFACE SMOOTHNESS WERE ACHIEVED.

6 75 7589
AUTO T/A'JETING SYS FOR PRODUCTION TEST OF AUTO WPN & AMMO

THIS PROJECT IS COMPLETE. A NEW CONCEPT FOR AUTOMATICALLY SCORING SMALL CALIBER TARGETS WAS DEVELOPED. THE TARGETING SYSTEM WAS INSTALLED AND IS IN USE. THE TECHNICAL DATA PACKAGE DEVELOPED FOR THIS SYSTEM IS AVAILABLE.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

6 77 7711
ELECTROPOLISHING PROCESS MODELS FOR SMALL BORE WEAPONS

NEW ELECTROPOLISHING CONDITIONS FOR SEVERAL GUN BARREL
MATERIALS TO OBTAIN SMOOTH AND ADHERENT CHROMIUM PLATING
WERE EVALUATED. THE METHODS ARE SUMMARIZED FOR ROUTINE BATH
CONTROL AND ANALYTICAL PROCEDURES FOR ELECTROPOLISHING
SOLUTIONS.

6 78 7726
APPLICATION OF COLD AND WARM ROTARY FORGING

THE COLD FORGING TRIALS WILL BE ASSIMILATED IN THE FY79
PORTION OF THIS EFFORT.

6 78 7802
ESTABLISH MACHINE TOOL PERFORMANCE SPECIFICATIONS

THIS PROJECT HAS BEEN COMPLETED. INITIAL SAVINGS OF NEARLY
$67,000 HAVE BEEN IDENTIFIED WITH THE SPECIFICATION OF DEEP
HOLE DRILLING AND BORING EQUIPMENT. FINAL TECHNICAL REPORT
WILL BE DISTRIBUTED BY APRIL 1981.

6 79 7948
ESTABLISH CUTTING FLUID CONTROL SYSTEM

THE WORK ON PHASE I HAS BEEN COMPLETED. SEVERAL AREAS OF
POTENTIAL COST REDUCTION WERE IDENTIFIED. ADDITIONAL DATA
IS NEEDED TO ESTABLISH REQUIREMENTS FOR CUTTING FLUID
CONTROL SYSTEM FOR ROCK ISLAND ARSENAL. SPECIFIC
IMPROVEMENTS HAVE REDUCED COSTS.

6 79 7965
DIFFERENTIAL SCATTEROMETRY FOR MICROFINISH SURFACES

ELECTRONIC BREADBOARD DESIGN AND ASSEMBLY IS NOT POSSIBLE
DUE TO LAPSE OF FUNDING. THIS PROJECT HAS BEEN TERMINATED
BUT IS STILL INCOMPLETE.

6 79 8004
CO-DEPOSITION OF SOLID LUBRICANTS DURING ANODIZING

A SURVEY OF VARIOUS COATING PROCESSES WAS MADE. EVALUATION
OF SOLUTIONS AND COATINGS WAS COMPLETED. CHARGED LUBRICANT
PARTICLES WERE CO-DEPOSITED ONTO 7075-T6 ALUMINUM ALLOYS
DURING HARDCOAT ANODIZING.
PROJECTS COMPLETED IN 2ND HALF, CY80
(CONTINUED)

678 8047
PASS THRU STEADY RESTS FOR TUBE TURNING

ALL GENERAL ENGINEERING REQUIREMENTS HAVE BEEN COMPLETED. DESIGNS HAVE BEEN INCORPORATED INTO A PROCUREMENT SPECIFICATION PACKAGE FOR AN FY80 FOLLOW-ON PROJECT.

679 8107
CREEP FEED CRUSH FORM GRINDING.

TEST SPECIMENS WERE EVALUATED, ENGINEERING DATA WAS OBTAINED, AND DATA HAS BEEN EVALUATED AND SUMMARIZED FOR ENGINEERING SPECIFICATION PREPARATION.

TOTAL PROJECTS COMPLETED IN 2ND HALF, CY80 118
The Summary Project Status Report for each major Army subcommand (SUBMACOM) is preceded by the tabulated SUBMACOM MMT project funding status. The accuracy of funding amounts is based on the individual project status reports. The status as reported here is the IBEA condensation of information contained in the report or other comments as deemed useful. If a status report was not provided, a pertinent comment was made so that the project would be printed.
## Test and Evaluation Command

**Current Funding Status: 2nd CYRO**

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<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds (S)</th>
<th>Contract Allocated (S)</th>
<th>Contract Expended (S)</th>
<th>In-House Funding Remaining (S)</th>
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<td><strong>2,555,200</strong></td>
<td><strong>192,000</strong></td>
<td><strong>175,700 (88%)</strong></td>
<td><strong>2,555,000</strong></td>
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**Authorized Funding**  **Contract Allocated 83%**  **In-House Remaining 92%**
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<th>Title &amp; Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>07557152</td>
<td>Study was initiated to determine the effects of firing depleted uranium projectiles into a target enclosure. This info was to be used in the design of the target enclosure. This effort had been terminated due to unplanned events.</td>
</tr>
<tr>
<td>07557152</td>
<td>Certification of high-energy test. Various pulleys consisting of 4 or 6 tone reel sets with 19,500 ft in a hanger. This was performed at 500 RPM. The data from these tests have been analyzed.</td>
</tr>
<tr>
<td>07557154</td>
<td>On-line electrolysis test. The environment software has been written to determine the low voltage &amp; current limit for remote testing. The software programs have been developed.</td>
</tr>
<tr>
<td>07557155</td>
<td>Fast burst reactor. The test facility is established to determine the characteristics of the reactor to determine the low voltage &amp; current limit for remote testing. The software programs have been developed.</td>
</tr>
<tr>
<td>08557151</td>
<td>Production test methodology. See previous cell for project status.</td>
</tr>
<tr>
<td>08557151</td>
<td>Acceptance test procedures. Nine out of ten tests were reviewed. One hundred eighty were reviewed.</td>
</tr>
<tr>
<td>08557151</td>
<td>Test conditions procedures. Twenty two tests were published during this reporting period.</td>
</tr>
<tr>
<td>08557153</td>
<td>Electrostatic generation and precipitation. A 16 kilowatt facility cage has been constructed. Initial tests indicate that it will generate static charges. A 16 kilowatt cage was delayed for 16 months due to the lack of funds &amp; instrumentation repairs.</td>
</tr>
<tr>
<td>08557155</td>
<td>Electrostatic cage current inspection. Six of eleven current tests for the test unit were received. Test unit was demonstrated which remotely induces charges on the 250 WV. area of the test facility with field exercises.</td>
</tr>
<tr>
<td>08557156</td>
<td>Electrostatic device advanced tests for Foresight testing. A 16 kilowatt facility cage is complete. The cage was demonstrated which remotely induces charges on the 250 WV. area of the test facility with field exercises.</td>
</tr>
</tbody>
</table>
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM
SUMMARY PROJECT STATUS REPORT
2ND SEMESTER SUBMISSION CY 83 RES DRCMT-301

PROJ NO. TITLE & STATUS

0 80 5071 43 TEST AUTOMATION DEVELOPMENT
A STUDY WAS COMPLETED THAT IDENTIFIED THE EQUIP & PROCEDURES REQ
TO AUTOMATE THE TESTING OF AIRCRAVE AVIONICS EQUIP. THE INSTL OF
AUTOMATED ANTENNA PATTERN TEST EQUIP HAS BEEN COMPLETED. THE
TESTING OF THIS EQUIP WAS STARTED.

0 80 5071 57 GENERAL PURPOSE BIT SLICE MICRO-COMPUTER
A GENERAL PURPOSE COMPUTER INTERFACE HAS BEEN DESIGNED AND PLACED
ON THE ADVANCED MICRO DEVICE'S 2916 BIT SLICE MICROPROGRAM
CONTROLLER CHIP. THE AMP 2910 CONTROLLER, THOUGH ABLE TO ADDRESS
UP TO 4K OF MEMORY, IS CONFIGURED USING FOUR 256P PROMS.

0 80 5071 58 AIR VELOCITY INFLUENCES ON FUNGAL SPORE GERMINATION
THE AIR VELOCITY CHAMBER WAS CONSTRUCTED, TESTED AND PROVEN
EFFECTIVE. BASE LINE DATA ON BASIC GERMINATION CHARACTERISTICS OF
THE INDIVIDUAL MIL-STD-286C METHOD 556 TEST FUNGI HAVE BEEN
DETERMINED.

0 80 5071 59 SOLAR POWERED INSTRUMENTATION VAN
THE PROCUREMENT ACTIONS ON ALL PART & EQUIP HAVE BEEN FINALIZED &
96% OF THE ITEMS HAVE BEEN RECEIVED. SOFTWARE PROGRAM FOR CONTROL
& MONITORING OF THE HEATING, COOLING & POWER USAGE HAS BEEN
WRITTEN & FOR DEBUGGED.

0 80 5071 60 RECEIVER OPERATING CHARACTERISTICS MEASUREMENTS
THE PRELIMINARY LITERATURE SEARCH OF THE TEST & OTHER TECHNICAL
DOCUMENTS HAS BEEN COMPLETED. A FAST FOURIER TRANSFORM SYS WAS
ACQUIRED FOR PRELIMINARY BACKGROUND WORK APPLICABLE TO ROC
INVESTIGATIONS.

0 80 5071 61 SMOKE OBSCURATION TEST PROCEDURES
LACK OF PERSONNEL HAS DELAYED THIS PROJECT. HOWEVER, PRELIMINARY
CONTACTS HAVE BEEN MADE WITH TECOM, EFOC, AND CLEIN. A CHAIRMEN
REVIEW OF THE STATE OF THE ART HAS STARTED.

0 80 5071 62 DISPERSION DATA FOR AUTOMATIC WEAPONS AT LONG RANGE
BACKLOGGED PROJECTS WITH HIGHER PRIORITIES HAVE BEEN ASSIGNED FOR
COMPLETION AHEAD OF THIS STUDY. THIS INVESTIGATION, HOWEVER,
SHOULD BE COMPLETED IN THE FIRST HALF OF CALENDAR YEAR 1983.

0 80 5071 63 BALLISTIC TEST OF HIGH HARDNESS STEEL ARMOR
TESTING HAS BEEN COMPLETED ON THE STEEL PLATES. FUTURE WORK
INVOLVES TESTING ANOTHER 3/4-INCH & 1-INCH PLATE FROM ANOTHER
HEAT OF USS COAP AND ANOTHER 3/4-INCH CHI STEEL PLATE. THE DATES
OF AVAILABILITY OF THIS METAL ARE NOT FIRM.
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>ORIGINAL COMPLETE DATE</th>
<th>PROJ STATUS</th>
<th>PRESENT COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 60 5071 64</td>
<td>IMPROVED ENGINE WEAR ANALYSIS</td>
<td></td>
<td></td>
<td></td>
<td>DEC 82</td>
<td>JAN 83</td>
</tr>
<tr>
<td>SAMPLES OF BOTH NEW &amp; USED ENGINE &amp; FINAL DRIVE GEARS HAVE BEEN OBTAINED. BASELINE ANALYSES BY EDDM ATOMIC ABSORPTION SPECTROSCOPY &amp; EMISSION SPECTROSCOPY HAVE BEEN COMPLETED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 65</td>
<td>PRODUCTION/STANDARDIZATION OF CENELLA (EURIFIED) SLURRIES</td>
<td></td>
<td></td>
<td></td>
<td>DEC 82</td>
<td>JUN 83</td>
</tr>
<tr>
<td>THE AD-0 CALIFORNIA STRAIN OF C EURIFIED HAS GROWN SUCCESSFULLY IN EMBRYONATED EGGS &amp; PASSED IN JUNEA EGS. FACULTY STUDENTS OF YOLK-SAC SUSPENSION SUFFICIENT VOLUME TO CHALLENGE THE DETECTION LIMITS TO BE DEFERRED UNTIL PROD. OF FERTILE EGGS INCREASE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 66</td>
<td>CERTIFICATION OF THE DEMILITARIZATION PROTECTIVE ENSEMBLE</td>
<td></td>
<td></td>
<td></td>
<td>DEC 82</td>
<td>JAN 81</td>
</tr>
<tr>
<td>THE EFFORT WAS COMPLETED AND THE FINAL REPORT HAS BEEN UPTENN.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 67</td>
<td>INTEROPERABILITY TEST METHODOLOGY</td>
<td></td>
<td></td>
<td></td>
<td>DEC 82</td>
<td>JUN 83</td>
</tr>
<tr>
<td>HARDWARE SPEC. A SOFTWARE DRIVER HAVE BEEN DEVELOPED. LINK PROTOCOLS OF THE FIELD ARMY ARTILLERY, AIR DEFENSE, AND ELECTRONIC WARFARE/INTELLIGENCE TACTICAL AUTOMATED SYSTEMS HAVE BEEN STUDIED TO IDENTIFY SPECIFIC HARDWARE &amp; SOFTWARE LOADERS.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 68</td>
<td>MOD AND UPDATE OF HUMA FACTORS ENG FIELD INSTR PACKAGE</td>
<td></td>
<td></td>
<td></td>
<td>JUN 83</td>
<td></td>
</tr>
<tr>
<td>THE CONTRACTOR HAS VISITED 7 IEDM PROVING GROUNDS AND HAS ADMINISTERED QUESTIONS ON THE UNIQUE INSTR REL. THE CONTRACTOR PUBLISHED A RECOMMENDED IEDM INSTR PACKAGE TO MEET THE PARTICULAR NEEDS OF EA OF THE IEDM AGENCIES.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 69</td>
<td>BACKSPANNING CHARACTERISTICS</td>
<td></td>
<td></td>
<td></td>
<td>JUL 83</td>
<td></td>
</tr>
<tr>
<td>TESTING HAS BEEN COMPLETED ON CLA MACHINERY STEEL PLATES IN THICKNESS 3/64, 1/16, 1/8-INCH. TEST RESULTS INDICATE THAT SMALL BACKSPANNING WHICH OCCURS ON 1/4-INCH PLATE MAY NOT BE ACCEPTABLE. ADDITIONAL TESTS ARE NOT ON 3/8-INCH PLATE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 60 5071 70</td>
<td>MEASUREMENT OF ARTILLERY PROJECTILE TIME OF FLIGHT</td>
<td></td>
<td></td>
<td></td>
<td>JUN 63</td>
<td></td>
</tr>
<tr>
<td>THE ATME-PROJECTILES HAS BEEN CHECKED OUT. THE IP CHRONOGRAPH HAS BEEN OBTAINED &amp; CHECKED OUT. ALSO THE VIDEO SYSTEM HAS BEEN OBTAINED. THE RADAR HAS BEEN INSTALLED ON SITE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 81 5071</td>
<td>PRODUCTION TEST METHODOLOGY ENGINEERING MEASURES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIS PROJECT WAS JUST FUND. A STATUS REPORT IS REQUIRED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### AVIATION RED COMMAND

**CURRENT FUNDING STATUS, 2ND CY86**

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>NO. OF PROJECTS</th>
<th>AUTHORIZED FUNDS (G)</th>
<th>CONTRACT ALLOCATED (G)</th>
<th>CONTRACT EXPENDED (G)</th>
<th>IN-HOUSE FUNDING REMAINING (G)</th>
<th>IN-HOUSE FUNDING EXPENDED (G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>2</td>
<td>267,600</td>
<td>171,500</td>
<td>111,700</td>
<td>36,100</td>
<td>35,600</td>
</tr>
<tr>
<td>78</td>
<td>5</td>
<td>1,805,000</td>
<td>1,304,700</td>
<td>790,620</td>
<td>428,600</td>
<td>352,900</td>
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<tr>
<td>79</td>
<td>13</td>
<td>3,991,290</td>
<td>3,066,290</td>
<td>1,725,180</td>
<td>690,900</td>
<td>542,800</td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>8,879,580</td>
<td>6,591,580</td>
<td>3,986,910</td>
<td>1,688,910</td>
<td>981,800</td>
</tr>
<tr>
<td>81</td>
<td>27</td>
<td>9,289,800</td>
<td>325,800</td>
<td>0</td>
<td>8,995,000</td>
<td>37,800</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>72</strong></td>
<td><strong>23,265,300</strong></td>
<td><strong>11,333,300</strong></td>
<td><strong>6,484,300</strong></td>
<td><strong>11,938,300</strong></td>
<td><strong>1,549,300</strong></td>
</tr>
</tbody>
</table>

**AUTHORIZED FUNDING**  **CONTRACT ALLOCATED 49%**  **IN-HOUSE REMAINING 51%**
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>EXPENDED ORIGINAL LABOR PROJECTED COMPLETE MATERIAL AND DATE ($000)</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>178 7036</td>
<td>Isothermal Roll-Forming of Compressor Blades</td>
<td>425.0 375.0 56.0</td>
<td>56.0</td>
<td>Jun 76  Dec 80</td>
<td></td>
</tr>
<tr>
<td>179 7036</td>
<td>Isothermal Roll-Forming of Compressor Blades</td>
<td>62.5</td>
<td>55.5</td>
<td>Mar 81  Apr 81</td>
<td></td>
</tr>
<tr>
<td>181 7036</td>
<td>Isothermal Roll-Forming Compressor Blades</td>
<td>310.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>178 7055</td>
<td>Ultrasonic Welding of Helicopter Fuselage Structures</td>
<td>441.0 330.1 72.0</td>
<td></td>
<td>Jan 76  May 82</td>
<td></td>
</tr>
<tr>
<td>179 7086</td>
<td>Abrasive Seals for Compressor Blade Tip Applications</td>
<td>100.0 80.6 10.5</td>
<td>10.3</td>
<td>Sep 86  Mar 81</td>
<td></td>
</tr>
<tr>
<td>178 7091</td>
<td>Processing Aircraft Components Using Pultruded Materials</td>
<td>320.0 150.0 171.0</td>
<td>171.0</td>
<td>Sep 80  Nov 81</td>
<td></td>
</tr>
<tr>
<td>177 7106</td>
<td>Manufacturing Techniques for Transmission Shaft Seals</td>
<td>135.6 121.5 13.5</td>
<td>13.5</td>
<td>Aug 75  Mar 81</td>
<td></td>
</tr>
<tr>
<td>181 7106</td>
<td>Manufacturing Techniques for Transmission Shaft Seals</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>180 7113</td>
<td>Composite Rear Fuselage Manufacturing Technology Phase II Work Was Continued. Manufacturing nec full-scale drawings are nearing completion. Fabrication of the tooling is also nearing completion. Work is progressing on fatigue, detailed stress, and damage tolerance analyses.</td>
<td>960.0 910.6 25.0</td>
<td>25.0</td>
<td>Dec 82  Jul 82</td>
<td></td>
</tr>
<tr>
<td>181 7113</td>
<td>Composite Rear Fuselage Manufacturing Technology</td>
<td>1,356.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

65
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>EXPENDED ORIGINAL AND COMPLETE MATERIAL ($000)</th>
<th>PRESENT PROJECTED AND COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 80 7119</td>
<td>NON-DESTRUCTIVE EVAL TECHNIQUES FOR COMPOSITE STRUCTURES</td>
<td>300.0</td>
<td>59.0</td>
<td>174.4</td>
<td>SEP 82 SEP 82</td>
</tr>
<tr>
<td>1 80 7119</td>
<td>A CONTRACT WAS LET WITH ROCKWELL INTERNATIONAL TO PERFORM A STATE-OF-THE-ART REVIEW OF ALL INPROCESS QUALITY CONTROL AND INSPECTION TECHNIQUES APPLICABLE TO THE PRODUCTION OF COMPOSITES.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 81 7145</td>
<td>CERAMIC GAS PATH SEAL-HIGH PRESSURE TURBINE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 78 7147</td>
<td>FUNDS IN THE AMOUNT OF $256K ARE IN THE PROCESS OF BEING FORWARDED TO THE PROPULSION LABORATORY.</td>
<td>300.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 78 7147</td>
<td>1720 ENGINE NOZZLE IN-PROCESS INSPECTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 78 7155</td>
<td>DELINQUENT STATUS REPORT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 78 7155</td>
<td>WFG METHODS FOR IMPROVED HIGH PERFORMANCE HELICOPTER GEARS DESIGN OF THE PROTOTYPE GEAR ROLLER MACHINE WAS COMPLETED AND ASSEMBLY DRAWINGS ARE NEAR COMPLETION. GEAR MATERIAL WAS PURCHASED. AN INITIAL DESIGN PRINT OF THE ROLLER DIE WAS COMPLETED.</td>
<td>209.0</td>
<td>178.1</td>
<td></td>
<td>NOV 79 JUN 81</td>
</tr>
<tr>
<td>1 80 7155</td>
<td>COST EFFECTIVE MANUFACTURING METHODS FOR HELICOPTER GEARS DESIGN OF THE PROTOTYPE GEAR ROLLER MACHINE WAS COMPLETED AND ASSEMBLY DRAWINGS ARE NEAR COMPLETION. GEAR MATERIAL WAS PURCHASED. AN INITIAL DESIGN PRINT OF THE ROLLER DIE WAS COMPLETED.</td>
<td>410.0</td>
<td>343.5</td>
<td></td>
<td>NOV 80 JUL 83</td>
</tr>
<tr>
<td>1 80 7155</td>
<td>COST EFFECTIVE MANUFACTURING METHODS FOR HELICOPTER GEARS DESIGN OF THE PROTOTYPE GEAR ROLLER MACHINE WAS COMPLETED AND ASSEMBLY DRAWINGS ARE NEAR COMPLETION. GEAR MATERIAL WAS PURCHASED. AN INITIAL DESIGN PRINT OF THE ROLLER DIE WAS COMPLETED.</td>
<td>200.0</td>
<td>126.0</td>
<td>74.0</td>
<td></td>
</tr>
<tr>
<td>1 81 7155</td>
<td>COST EFFECTIVE MANUFACTURING METHODS FOR HELICOPTER GEARS DESIGN OF THE PROTOTYPE GEAR ROLLER MACHINE WAS COMPLETED AND ASSEMBLY DRAWINGS ARE NEAR COMPLETION. GEAR MATERIAL WAS PURCHASED. AN INITIAL DESIGN PRINT OF THE ROLLER DIE WAS COMPLETED.</td>
<td>320.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 80 7156</td>
<td>ULTRASONIC ASSISTED MACHINING FOR SUPERALLOYS</td>
<td>59.0</td>
<td>44.7</td>
<td></td>
<td>AFR 81 AFR 81</td>
</tr>
<tr>
<td>1 80 7156</td>
<td>A CONTRACT HAS BEEN AWARDED TO SAEKIDAH CORP FOR MODIFICATION OF ULTRASONIC EQUIPMENT USED UNDER CONTRACT DAAG 46-76-C-059.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 81 7153</td>
<td>SEMI-AUTO COMP MANUFS SYSTM A/K/A FUSELAGE SECONDARY STRUCTURAL FABRICATION</td>
<td>300.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 80 7197</td>
<td>FABRICATION OF INTEGRAL ROTORS BY JOINING A/B AND C/DE, EIS J/C, FT. EUSTICE, VA.</td>
<td>100.0</td>
<td></td>
<td>24.0</td>
<td>SEP 81 MAY 81</td>
</tr>
<tr>
<td>1 81 7197</td>
<td>FABRICATION OF INTEGRAL ROTORS BY JOINING A/B AND C/DE, EIS J/C, FT. EUSTICE, VA.</td>
<td></td>
<td></td>
<td>356.0</td>
<td></td>
</tr>
<tr>
<td>1 79 7195</td>
<td>LASER HARDENING OF GEARS, BEARINGS AND SEALS</td>
<td>180.0</td>
<td>156.0</td>
<td></td>
<td>OCT 80 MAY 82</td>
</tr>
<tr>
<td>1 79 7195</td>
<td>DELINQUENT STATUS REPORT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 80 7199</td>
<td>SURFACE HARDENING OF GEARS, BEARINGS AND SEALS</td>
<td>225.0</td>
<td>162.3</td>
<td></td>
<td>SEF 81 FEB 83</td>
</tr>
<tr>
<td>1 80 7199</td>
<td>EFFORTS WERE MADE TO IMPROVE INFECTION CONTROL AND FOCUS OF THE LASER BEAM AND TO ELIMINATE IN TRANSIT BLUERING CAUSED BY CONTAMINATION OF ENGRAVING AIR. BUCK TEMPERING AND NON-UNIFORM CASE DEPTH PROBLEMS STILL EXIST. NO RETRACTED SOLUTIONS ARE EXPECTED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

66
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>181 7200</td>
<td>COMPOSITE ENGINE INLET PARTICLE SEPARATOR FUND ARE IN THE PROCESS OF BEING FORWARDED TO ATL. FT. EUSTICE, VA.</td>
</tr>
<tr>
<td>180 7202</td>
<td>APPLICATION OF THERMOPLASTIC TO HELICOPTER SECONDARY STRUCT TOOL PROOFING WAS CONDUCTED. MODIFICATION OF THE TOOLING WAS NEEDED, AND IS IN PROCESS. ADDITIONAL COMPONENT SKIN MATERIALS IN CLADDING PARAMETER DEFINITION WILL CONTINUE.</td>
</tr>
<tr>
<td>181 7202</td>
<td>APPLICATION OF THERMOPLASTIC TO HELICOPTER SECONDARY STRUCT FUND ARE BEING FORWARDED TO FT EUSTICE FOR PROJECT EXECUTION.</td>
</tr>
<tr>
<td>177 7238</td>
<td>PRECISION FORGED ALUMINUM POWDER METALLURGY ***** DELINQUENT STATUS REPORT *****</td>
</tr>
<tr>
<td>179 7238</td>
<td>PRECISION FORGED ALUMINUM POWDER METALLURGY ***** DELINQUENT STATUS REPORT *****</td>
</tr>
<tr>
<td>180 7240</td>
<td>MACHINING METHODS FOR ESR AND STEEL FOR HELICOPTER APPL. AN RFG WAS SENT TO HUGHES. THEIR REPLY WAS IN EXCESS OF AVAILABLE FUNDS. A REDUCED SCOPE OF WORK IS BEING PREPARED.</td>
</tr>
<tr>
<td>179 7241</td>
<td>HOT ISOSTATIC PRESSING OF TITANIUM CASTINGS THREE HUBS HAVE BEEN CAST AND INSPECTED. HUBS SHOWED CONSISTENT OUT-OF-ROUNDNESS IN THE ARMS. OLD AND CORE PATTERNS ARE BEING MODIFIED. HEAT TREATMENT STUDY AND EVALUATION OF HIP CYCLES HAS BEEN COMPLETED.</td>
</tr>
<tr>
<td>180 7241</td>
<td>HOT ISOSTATIC PRESSED TITANIUM UPON COMPLETION OF PHASE IIa WORK ON PHASE III WITH FY 80 FUNDS WILL BEGIN.</td>
</tr>
<tr>
<td>180 7243</td>
<td>MACHINING OPERATIONS ON Kevlar Laminated Constructions THE SOLICITATION REVIEW BOARD SELECTED HUGHES HELICOPTER FOR THE CONTRACT WORK.</td>
</tr>
<tr>
<td>179 7244</td>
<td>SUPERPLASTIC FORGING/DIFFUSION BINDING OF TITANIUM THE SUPERPLASTICALLY FORGED FIREWALL WAS NOT WITHIN TOLERANCES. THE CONTRACTOR PLANS TO CORRECT THESE DEFECTS DURING THE NEXT PHASE. THE CONTRACTOR WILL ALSO PREPARE A LOW COST PRODUCT TEST PLAN TO ASSURE QUALIFICATION FOR IMPLEMENTATION.</td>
</tr>
<tr>
<td>179 7245</td>
<td>CAST TITANIUM COMPRESSOR IMPELLERS DETROIT DIESEL ALLISON HAS COMPLETED PHASE I AND HAS INITIATED PHASE IIa. SOLAR HAS COMPLETED ABOUT 65 PERCENT OF PHASE I. DELAYS HAVE BEEN CAUSED BY SUBCONTRACTORS NOT DELIVERING CASTINGS.</td>
</tr>
<tr>
<td>Proj No.</td>
<td>Title + Status</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1 80 7265</td>
<td>CAST TITANIUM COMPRESSOR IMPPELLERS; WORK HAS NOT BEEN INITIATED ON THIS PART OF THE EFFORT DUE TO DELAYS ENCOUNTERED IN PRIOR PROJECT.</td>
</tr>
<tr>
<td>1 81 7265</td>
<td>CAST TITANIUM COMPRESSOR IMPPELLERS; NO WORK DONE. FUNDS JUST RELEASED.</td>
</tr>
<tr>
<td>1 79 7266</td>
<td>SUPERALLOY POWDER PRODUCTION FOR TURBINE COMPONENTS; PROBABLE SOURCES OF CONTAMINANTS HAVE BEEN IDENTIFIED AND CORRECTIVE ACTION IS BEING TAKEN. WORK ON THE AREA OF DYNAMIC OUTGASSING IS BEING EXPANDED. A METHOD FOR SURFACE ADDITION IN THE ELECTRON BEAM REMELTING OF INGOTS HAS BEEN DEFINED.</td>
</tr>
<tr>
<td>1 80 7266</td>
<td>HIGH QUALITY SUPERALLOY POWDER PRODUCTION FOR TUBE COMP.; FY60 FUNDING WILL BE USED IN-HOUSE FOR ENGINEERING SUPPORT EFFORTS AS AIR FORCE MANAGED CONTRACTS NEAR COMPLETION TO DATE; NO WORK HAS BEEN ACCOMPLISHED.</td>
</tr>
<tr>
<td>1 79 7268</td>
<td>OPTIMAL CURING CONDS. FOR PROCESS FIBER-REINFORCED COMPOSITES; WORK ON THE EFFECT OF COOL-DOWN RATE AFTER CURE ON THE PHYSICAL PROPERTIES AND CHEMICAL COMPOSITION OF THE COMPOSITES HAS CONTINUED.</td>
</tr>
<tr>
<td>1 80 7268</td>
<td>DETERMINATION OF OPTIMAL CURING CONDITIONS FOR COMPOSITES; WORK WAS INITIATED WITH A RECENTLY ACQUIRED PREPREG MACHINE TO PRODUCE CUSTOM FORMULATIONS OF CLAY/PLY FOR IN-HOUSE CHARACTERIZATION AND COMPARISON TO EXISTING COMMERCIAL PREPREGS. THE ULTIMATE OBJECTIVE OF THIS IS TO ESTABLISH OPTIMAL CURING.</td>
</tr>
<tr>
<td>1 81 7268</td>
<td>MMT DETERMINATION OF OPTIMAL CURING CONDITIONS; FUNDS ARE BEING TRANSFERRED TO MMT.</td>
</tr>
<tr>
<td>1 80 7291</td>
<td>TITANIUM POWDER METAL COMPRESSOR IMPELLER TOOLING BEING PROCURED. PREPARATIONS ARE BEING MADE FOR SHAPE TRIALS.</td>
</tr>
<tr>
<td>1 81 7291</td>
<td>TITANIUM POWDER METAL COMPRESSOR IMPELLER; NO WORK DONE. FUNDS JUST RELEASED.</td>
</tr>
<tr>
<td>1 79 7298</td>
<td>HIGH TEMPERATURE VACUUM CARBURIZING; A SCOPE OF WORK HAS BEEN WRITTEN AND AN RFG INITIATED. RATING OF BIDERS WAS COMPLETED. PLANNED CONTRACT START IS 15 APRIL 1981.</td>
</tr>
<tr>
<td>1 80 7298</td>
<td>HIGH TEMPERATURE VACUUM CARBURIZING; THIS PROJECT SUPPORTS THE WORK PLANNED FOR THE FY75 PROJECT. PLANNED CONTRACT START IS 15 APRIL 1981.</td>
</tr>
<tr>
<td>PROJ No.</td>
<td>TITLE + STATUS</td>
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<tr>
<td>----------</td>
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</tr>
<tr>
<td>1 81 7298</td>
<td>HIGH TEMPERATURE VACUUM CARBURIZING FUND IN THE AMOUNT OF $50,000 Was BEING FORWARDED TO AMRC.</td>
</tr>
<tr>
<td>1 81 7300</td>
<td>IMPROVED LOW CYCLE FATIGUE CAST ROTORS NO WORK DONE. FUNDS JUST RELEASED.</td>
</tr>
<tr>
<td>1 81 7302</td>
<td>PRODUCTION OF BRIDE COATED Ltm LIFE TOOLS FUNDS ARE BEING HELD FOR REPRODUCING</td>
</tr>
<tr>
<td>1 79 7315</td>
<td>LOW COST MANUFACTURE OF NOISE GIMAL MATERIAL SAMPLES OF GRAPHITE IN/IDI/MGWAMITE WERE FABRICATED AND TESTED. WORK WAS INITIATED ON CONFIRMATORY AND THERMAL TEST SAMPLES. THE PROJECT SCOPE WAS EXPANDED TO ACCESS THE ELEVATION GIMAL ALSO. PROJECT FUNDING WAS INCREASED BY $100K.</td>
</tr>
<tr>
<td>1 81 7319</td>
<td>PHD METH /DIGITAL ADDRESSABLE MULTI-LEGEND DISPLAY SWITCH CONTRACT NOT YET AWARDED. PROJECT WILL AUTOMATE BONDING &amp; ASSEMBLY METHODS FOR A MODULAR THIN FILM ELECTROLUMINESCENT DISPLAY SWITCH. ETCHED COPPER/AVPTN FILM USED AS HYBRID SURFACE &amp; CIRCUIT INTERCONNECT WILL BE PONDOED TO THE GLASS DISPLAY ELEMENT.</td>
</tr>
<tr>
<td>1 81 7322</td>
<td>LOW COST TRANSPARATION-COOL COMBUSTOR LINER NO WORK DONE. FUNDS JUST RELEASED.</td>
</tr>
<tr>
<td>1 79 7330</td>
<td>COMPOSITE TAIL SECTION TASK 1 DESIGN REFINEMENTS HAS SLIPPED DESIGN IS NOT FINALIZED ON STABILATOR AND VERTICAL FIN. FABRICATION REFINEMENTS FOR CURE CYCLE, PROCESSING, BUILD-UP, AND TOOLING OPTIMIZATION ARE CONTINUING.</td>
</tr>
<tr>
<td>1 80 7338</td>
<td>COMPOSITE TAIL SECTION A CRITICAL PROGRAM REVIEW WAS HELD AUG 66 TO ASSESS ALL WORK PRIOR TO GIVING HUMES PERMISSION TO PROCEED WITH FABRICATION. PRELIMINARY TOOLING FABRICATION WAS INITIATED ON THE TAIL BOOM. FABRICATION TO BE DONE AT FEIER SCIENCE, SALT LAKE, UTAH.</td>
</tr>
<tr>
<td>1 81 7336</td>
<td>COMPOSITE TAIL SECTION FUNDS ARE IN THE PROCESS OF BEING FORWARDED TO AVRADCOM PROCUREMENT.</td>
</tr>
<tr>
<td>1 80 7339</td>
<td>FILAMENT WOUND COMPOSITE FLEXIBLE TAIL ROTOR TAIL ROTORS HAVE BEEN FABRICATED. THE BLADES DISPLAYED GOOD APPEARANCE, AND ARE BEING NONDESTRUCTIVELY TESTED. IN THE GROUND-AIR-GROUND FATIGUE AND THE STATIC ULTIMATE TEST THE ROTOR SPECIMENS FAILED. REDESIGN OF THE BLADE IS BEING CONSIDERED.</td>
</tr>
<tr>
<td>Proj 40</td>
<td>Title + Status</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>181-7339</td>
<td>Filament wound composite flexbeam tail rotor Funds are in the process of being forwarded to Avradcom procurement.</td>
</tr>
<tr>
<td>180-7340</td>
<td>Composite main rotor blade fatigue tests were resumed with a corrected test procedure and lower frequency with successful results. Flight tests revealed problem area in the blade design. Hughes with their funding, is in the process of changing the design.</td>
</tr>
<tr>
<td>181-7340</td>
<td>Composite main rotor blade funds are in the process of being forwarded to Avradcom procurement.</td>
</tr>
<tr>
<td>180-7341</td>
<td>Structural composites fabrication guide phase ii briefing was held oct 1980. Team members present progress on their chapters. Format revisions to be incorporated in the third edition publication have been finalized. Work continued on gathering technology and cost data.</td>
</tr>
<tr>
<td>181-7341</td>
<td>Structural composites fabrication guide funds are in the process of being forwarded to the Air Force (WPAB).</td>
</tr>
<tr>
<td>180-7342</td>
<td>Pulsatson of Honeycomb sandwich panels a reply to the sol was received from the contractor. The proposal price is higher than anticipated. Field pricing support is being solicited before any additional action is taken on the proposal.</td>
</tr>
<tr>
<td>181-7342</td>
<td>Pulsatson of Honeycomb sandwich structures funds in the amount of $1,000 are in the process of being transferred to AMAR.</td>
</tr>
<tr>
<td>181-7345</td>
<td>In process control of resin path cure funds are being held at Avradcom for reprogramming.</td>
</tr>
<tr>
<td>181-7351</td>
<td>Composite shafting for turbax engines funds in the amount of $27,000 are in the process of being forwarded to ATL, PT. Eustice, VA.</td>
</tr>
<tr>
<td>181-7354</td>
<td>Integrally stiffened helicopter transmission case funds are being held at Avradcom for reprogramming.</td>
</tr>
<tr>
<td>180-7370</td>
<td>Ring wrap composites work to prepare a contract was initiated.</td>
</tr>
</tbody>
</table>
### MANUFACTURING METHODS AND TECHNOLOGY PROGRAM

**SUMMARY PROJECT STATUS REPORT**

**2ND SEMI-ANNUAL SUBMISSION CY 80 RCS ORCMT-301**

<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACTED VALUES ($000)</th>
<th>EXPENDED VALUES LABOR AND MATERIAL ($000)</th>
<th>ORIGINATED PROPOSED COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 79 7571</td>
<td>INTEGRATED BLADE INSPECTION SYSTEM (IBIS) WORK IS CONTINUING ON THE VIM OF IBIS. PART SELECTION FOR DEMONSTRATION OF THE VIM SOFTWARE PREPARATION, ESTABLISHMENT &amp; VERIFICATION TESTING ARE UNDERWAY. WORK IS PROGRESSING ON SCHEDULE.</td>
<td>212.5</td>
<td>212.5</td>
<td></td>
<td>MAR 82</td>
<td>NOV 81</td>
</tr>
<tr>
<td>1 80 7571</td>
<td>INTEGRATED BLADE INSPECTION SYSTEM (IBIS) SEE PROJECT NO 1 81 7571 FOR STATUS.</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
<td>SEP 84</td>
</tr>
<tr>
<td>1 81 7571</td>
<td>INTEGRATED BLADE INSPECTION SYSTEM (IBIS) THE CONTRACT WAS AWARDED AND THE WORK BEGAN IN NOVEMBER 1966. THIS INITIAL WORK CONSISTS OF THE DESIGN, SOFTWARE DEVELOPMENT, ESTABLISHMENT OF PROCESSES FOR THE INFRARED THERMOGRAPHY AND X-RAY TOMOGRAPHY. THE WORK IS PROGRESSING ON SCHEDULE.</td>
<td>357.0</td>
<td>325.0</td>
<td>32.0</td>
<td>SEP 84</td>
<td></td>
</tr>
<tr>
<td>1 81 7576</td>
<td>AUTO INSPECT AND PRECISION GRINDING OF SB GEARS FUNDS IN THE AMOUNT OF $200,000 BEING FORWARDED TO PROPULSION LAB.</td>
<td>215.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 80 7582</td>
<td>LOW COST COMPOSITE MAIN ROTOR BLADE FOR THE UN-60A A DRAFT CONTRACTUAL STEMENT OF WORK HAS BEEN PREPARED AND IS CURRENTLY BEING REVIEWED.</td>
<td>100.0</td>
<td>2.0</td>
<td></td>
<td></td>
<td><strong>1982</strong></td>
</tr>
<tr>
<td>1 80 7591</td>
<td>BEARING DIAGNOSTIC AND RECLAMATION TECHNIQUES THE BEARING INVENTORY HAS BEEN REVIEWED AND INSPECTED. CURRENT AND PROPOSED APPROACHES TO BEARING REJABMENT HAVE BEEN ANALYZED, AND BEARING INSPECTION PROCEDURES HAVE BEEN REVIEWED.</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
<td>MAR 81</td>
</tr>
<tr>
<td>1 80 7512</td>
<td>INFRARED DETECTOR FOR LASER WARNING RECEIVER THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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71
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds (S)</th>
<th>Contract Funding Allocated (S)</th>
<th>Contract Funding Expended (S)</th>
<th>Remaining Funding (S)</th>
<th>In-House Funding Expended (S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>1</td>
<td>372,500</td>
<td>433,000</td>
<td>422,000</td>
<td>139,000</td>
<td>139,000 (100%)</td>
</tr>
<tr>
<td>77</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (100%)</td>
</tr>
<tr>
<td>78</td>
<td>2</td>
<td>440,000</td>
<td>363,000</td>
<td>332,000</td>
<td>57,000</td>
<td>57,000 (70%)</td>
</tr>
<tr>
<td>79</td>
<td>12</td>
<td>5,645,000</td>
<td>2,149,000</td>
<td>1,032,000</td>
<td>1,117,000</td>
<td>1,117,000 (96%)</td>
</tr>
<tr>
<td>80</td>
<td>19</td>
<td>7,936,000</td>
<td>5,990,000</td>
<td>4,690,000</td>
<td>1,300,000</td>
<td>1,300,000 (56%)</td>
</tr>
<tr>
<td>81</td>
<td>23</td>
<td>7,833,000</td>
<td>6,399,200</td>
<td>4,934,200</td>
<td>1,464,800</td>
<td>1,464,800 (61%)</td>
</tr>
<tr>
<td>82</td>
<td>5</td>
<td>1,765,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (100%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62</strong></td>
<td><strong>21,660,600</strong></td>
<td><strong>11,965,400</strong></td>
<td><strong>8,577,700</strong></td>
<td><strong>3,382,700</strong></td>
<td><strong>3,382,700 (20%)</strong></td>
</tr>
</tbody>
</table>

Authorized Funding: 21,660,600
Contract Allocated: 11,965,400
In-House Remaining: 3,382,700

44%
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>EXPENDED ORIGINAL MATERIAL AND LABOR DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 80 1016</td>
<td>IMPROVED NFC PROCESS FOR CRY TUNED ACCELEROMETERS (CAP) ***** DELINQUENT STATUS REPORT *****</td>
<td>228.0</td>
<td>228.0</td>
<td>MAR 81</td>
<td>MAR 81</td>
</tr>
<tr>
<td>R 80 1021</td>
<td>COMPUTERIZED PROD PROCESSES PLAN FOR MACHINED CYLINDRICAL PARTS A PLAN FOR THE ENTIRE PROJECT WAS DEVELOPED. IMPLEMENTATION PLANS WERE DEVELOPED. DESIGN OF THE INTERACTIVE GRAPHICS MODULE WAS LARGELY COMPLETED. SEVERAL EXTENSIONS TO THE COMPUTER PROCESS PLANNING LANGUAGE WERE IDENTIFIED (SEE PROJECT 5 61 1921).</td>
<td>240.0</td>
<td>184.0</td>
<td>25.0</td>
<td>OCT 82</td>
</tr>
<tr>
<td>3 81 1021</td>
<td>CPPR MACHINED CYLINDRICAL PARTS (CAP) (SEE PROJECT R 80 1021) PROGRMCN2 AND TESTED. ADMINISTRATIVE CAPABILITIES WERE ADDED TO THE SOFTWARE THAT BUILDS AND USES THE DATA BASE FILES. THE READABILITY OF DATA BASE DOCUMENTATION WAS IMPROVED</td>
<td>234.0</td>
<td></td>
<td>JUL 82</td>
<td>JUL 82</td>
</tr>
<tr>
<td>R 80 1023</td>
<td>DIGITAL FAULT ISOLATION F/ADAPT MICROELECTRONIC MODULES CONTRACT NOT YET AWARDED. GOAL IS TO ADAPT THE PROBEING TECHNIQUE AND EQUIPMENT FROM PROJECT R 79 2242 TO THE SPECIALIZED CIRCUITRY AND PROBING REQUIREMENTS OF HYBRID MODULES. AUTOMATED PROBE TRACE METHOD WILL ISOLATE FAULTS TO THE CHIP LEVEL.</td>
<td>300.0</td>
<td></td>
<td>3.0</td>
<td>OCT 81</td>
</tr>
<tr>
<td>R 80 1024</td>
<td>MNT RADIO FREQUENCY STRIPLINE HYBRID COMPONENTS CONTRACT NOT YET AWARDED. PROJECT WILL ADAPT SEPIADITIVE PRINTED CIRCUIT BOARD PROCESS TO STRIPLINE AND MICROSTRIP HYBRID DEVICES. RF PLASMA ETCHING, SOLDERING, EUTECTIC BONDING, ULTRASONIC WELDING &amp; THERMAL COMPRESSION FUSING WILL BE OPTIMIZED.</td>
<td>745.0</td>
<td></td>
<td>42.4</td>
<td>AUG 82</td>
</tr>
<tr>
<td>R 80 1026</td>
<td>LOW COST MANUFACTURING PROCESS FOR MISSILE CASES THE MAJOR OBJECTIVES OF THIS EFFORT ARE TO AUTOMATICALLY CUT, ASSEMBLE AND TRANSPORT MATERIALS TO FABRICATION WORK STATIONS. THE PLAN TO ACCOMPLISH THIS TASK HAS BEEN APPROVED. WORK HAS BEGUN ON TOOL FABRICATION, REFINEMENT (SEE PROJECT 3 81 1026).</td>
<td>305.0</td>
<td>269.4</td>
<td>JUN 81</td>
<td>AUG 81</td>
</tr>
<tr>
<td>3 81 1026</td>
<td>PRODUCTION OF LOW COST MISSILE VARIOUS (SEE PROJECT R 80 1026) OF CONTROL VANE DESIGN AND EVALUATION OF CO-CURING TECHNOLOGIES.</td>
<td>360.0</td>
<td></td>
<td>AUG 81</td>
<td>AUG 81</td>
</tr>
<tr>
<td>R 79 1041</td>
<td>LSI FABRICATION METHODOLOGY IMPROVEMENT (MARKS: RCA + MARTIN STUDIED TYPOLG AND PROCESS MODIFICATIONS, PRODUCIBILITY + YIELD IMPROVEMENTS. TEST METHODS &amp; DOCUMENTATION, ARE LOOKING AT SENSITIVITY CHANCE WITH LAYOUT AND PROCESS CHANGES, SHOOTING FOR 7-15% YIELD. EXCELLENT CONTRACTOR NPT.)</td>
<td>1,000.0</td>
<td>992.8</td>
<td>3.0</td>
<td>SEP 80</td>
</tr>
<tr>
<td>R 80 1071</td>
<td>HYBRID INTEGRATED CAD AND MANUFACTURING (MICRO) ***** DELINQUENT STATUS REPORT *****</td>
<td>100.0</td>
<td></td>
<td>3.7</td>
<td>SEP 81</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED</td>
<td>CONTRACT</td>
<td>EXPENDED ORIGINAL MATERIAL</td>
<td>PRESENT COMPLETED DATE</td>
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<td>-----------------------------------------------------------------------------</td>
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<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>R 60 1075</td>
<td>ELECTRONICS COMPUTER AIDED MANUFACTURING (ECAM) PID PROPOSALS WERE EVALUATED. A PRIME CONTRACTOR WILL FORM A COALITION WITH SEVERAL KNOWLEDGEABLE FIRMS AND ESTABLISH CURRENT MODEL AND ARCHITECTURE FOR CADCAM IN SEVEN ELECTRONIC TECHNOLOGIES. WILL IDENTIFY VOIDS. THIS IS A TRI-SERVICE EFFORT.</td>
<td>200.0</td>
<td>10.0</td>
<td>SEP 81</td>
<td>DEC 81</td>
</tr>
<tr>
<td>3 76 3115</td>
<td>ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****</td>
<td>661.0</td>
<td>234.0</td>
<td>370.0</td>
<td>SEP 79</td>
</tr>
<tr>
<td>3 79 3115</td>
<td>ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****</td>
<td>693.0</td>
<td>347.0</td>
<td>212.0</td>
<td>SEP 80</td>
</tr>
<tr>
<td>R 80 3115</td>
<td>ENGINEERING FOR METROLOGY AND CALIBRATION ***** DELINQUENT STATUS REPORT *****</td>
<td>747.0</td>
<td>420.0</td>
<td>112.0</td>
<td>DEC 81</td>
</tr>
<tr>
<td>R 79 3116</td>
<td>ROSETTE AIR DEFENSE SEEKER OPTICS AND DETECTORS GENERAL DYNAMICS PRODUCTION ENGINEERED A NICKEL PLATED ALUMINUM MIRROR, SAPPHIRE CORRECTOR LENS IN FILTER, PREAMPLIFIER, PM TITANIUM HOUSING, PLASTIC OPTICAL Baffle, AND MOTOR ASSEMBLY. GO IS CUTTING COST W/O SACRIFICING QUALITY. TEST JIGS ALSO BUILT.</td>
<td>675.0</td>
<td>639.6</td>
<td>35.0</td>
<td>SEP 79</td>
</tr>
<tr>
<td>R 78 3121</td>
<td>APPLICATION AND NOT OF LINE PIFF FOR MOTOR COMPONENTS EIGHT 6/6 INCH DIAMETER BY 1/6 INCH WALL THICKNESS 1935 ELECTRIC RESISTANCE WELD PIPE REQUIRED FOR PHASE 9 COMPONENT FABRICATION HAS BEEN RECEIVED. THE COMPONENTS HAVE BEEN FABRICATED AND DELIVERED FOR TESTING.</td>
<td>380.0</td>
<td>239.3</td>
<td>60.7</td>
<td>SEP 79</td>
</tr>
<tr>
<td>R 78 3133</td>
<td>LITHIUM FERRITE PHASE SHIFTER FOR PHASED ARRAY RADAR RAYTHEON USED CARBIDE MANDRELS AND OUTER BAGS TO FORM GREEN TURBOID KNOBS WORKED WITH FURACCRO LOADING 1A 11 FIRINGS &amp; RAISED YIELD FROM 7 TO 45%. MORE MANUFACTURING CONTROL IS NEEDED FOR MORE REPRODUCIBLE RESULTS. MATCHING LIFE TO CARNET IS HARD.</td>
<td>325.0</td>
<td>195.9</td>
<td>80.0</td>
<td>SEP 79</td>
</tr>
<tr>
<td>R 80 3139</td>
<td>PROD METHODS F/MILLIMETER SEEK/E TERMINAL HOMEING APPLICATION SPERRY WRITING A COMPUTER MATH MODEL TO EVALUATE ANTENNA COMPONENT MATERIALS AND SENSITIVITY TO RADIUS. ALSO DETERMINED MORE EFFICIENT PACKAGING SPEC FOR MAJOR COMPONENTS WERE SENT TO PF PART VENDORS. WILL NOW WORK ON ASSEMBLY METHODS. IS P&amp;D-IEM.</td>
<td>393.4</td>
<td>393.3</td>
<td>MAY 82</td>
<td>SEP 81</td>
</tr>
<tr>
<td>3 81 5139</td>
<td>MILLIMETER SEEKERS FOR TERMINAL HOMEING 6TH WILL BE A FOLLOW-ON CONTRACT TO ABOVE. THE FIRM WILL DEVELOP INCOMING PARTS INSPECTION, ANTENNA ASSEMBLY, IN-PROCESS TEST, AND ACCEPTANCE TESTING METHODS, WILL REDUCE NUMBER OF PARTS, DEVELOP ASSEMBLY FIXTURING, AND TEST PROCEDURES.</td>
<td>375.0</td>
<td>5.0</td>
<td>SEP 82</td>
<td>SEP 82</td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED VALUES ($000)</td>
<td>CONTRACT VALUES ($000)</td>
<td>EXPENDED ORIGINAL DATE</td>
<td>PROJECTED COMPLETE DATE</td>
</tr>
<tr>
<td>---------</td>
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<tr>
<td>R 80 3142</td>
<td>PRODUCTION METHODS FOR LOW COST ELECTRONIC COMPONENTS - FULL SCALE MOTOR CONCEPT DEMONSTRATION BEGAN. REPRODUCIBILITY DEMO WITH PRODUCTION CONTRACTOR ALSO STARTED. PROGRAM IS ON SCHEDULE.</td>
<td>200.0</td>
<td>179.8</td>
<td>15.0</td>
<td>JUN 82</td>
</tr>
<tr>
<td>R 79 3146</td>
<td>HIGH DENSITY MULTILAYER THICK FILM HYBRID MICRO CIRCUITS - MICROELECTRONICS CORP EVALUATED DIELECTRIC MATERIAL SCREENING, GOLD Firing TEMPERATURE &amp; PAINTED LINE CONDUCTIVITY. IS FOR HIGH DENSITY MULTILAYER HYBRID CIRCUITS WITH 3 MIL LINES &amp; SPACES. 2 MIL LINES RUN 2.5 FIBER TO ALLOW FOR BLEED OUT.</td>
<td>350.0</td>
<td>240.0</td>
<td>41.2</td>
<td>JUN 80</td>
</tr>
<tr>
<td>R 78 3147</td>
<td>ADDITIVE PROCESSES FOR FABRICATION OF PRINT CIRCUIT BOARDS - HUGHES IS USING AN AUTOMATED ELECTROLESS COPPER PLATING PROCESS TO CHEMICALLY DEPOSIT COPPER CONDUCTOR PATTERNS ON PCBs. GOAL IS TO ACHIEVE PATTERNS WITH CIRCUIT BONDS EQUIVALENT TO THOSE PRODUCED BY HIGH TEMP. HIGH PRESSURE LAMINATIONS.</td>
<td>250.0</td>
<td>170.1</td>
<td>79.9</td>
<td>JUN 78</td>
</tr>
<tr>
<td>R 79 3160</td>
<td>CLEANLINESS + PROCESS CRITERIA FOR CIRCUIT BOARDS - MARTIN IN OPTION 1 IS WORKING TO IDENTIFY, QUANTIFY, AND REMOVE CONTAMINANTS REMAINING ON PCBs AFTER NORMAL CLEANING. LUCID PHASE CHROMATOGRAPH WAS USED TO MEASURE CONTAMINANTS IN RINSE WATER. GOAL IS TO MONITOR PROCESS STEPS &amp; SET CLEANLINESS LEVELS.</td>
<td>279.4</td>
<td>244.6</td>
<td>18.0</td>
<td>MAR 80</td>
</tr>
<tr>
<td>R 78 3165</td>
<td>PRINT PROCESS + TECHNIQUES FOR SEALING HYBRID WIRING PACKAGING - DELINQUENT STATUS REPORT *****</td>
<td>220.0</td>
<td>211.0</td>
<td>9.0</td>
<td>NOV 79</td>
</tr>
<tr>
<td>R 77 3165</td>
<td>AUTO OPTICAL INSPECTION OF PCB BOARDS AND COMPONENTS(CAM) - DELINQUENT STATUS REPORT *****</td>
<td>275.0</td>
<td>268.6</td>
<td>6.4</td>
<td>SEP 78</td>
</tr>
<tr>
<td>R 80 3169</td>
<td>OPTICAL INSPECTION OF PAINTED CIRCUIT BOARDS - DELINQUENT STATUS REPORT *****</td>
<td>90.0</td>
<td>90.0</td>
<td>0.0</td>
<td>SEP 80</td>
</tr>
<tr>
<td>R 77 3185</td>
<td>IMPROVED PROCESSES FOR INERTIAL GRADE G-FLEX ACCELEROMETER - DELINQUENT STATUS REPORT *****</td>
<td>165.0</td>
<td>114.4</td>
<td>25.0</td>
<td>DEC 79</td>
</tr>
<tr>
<td>R 78 3185</td>
<td>IMPROVED PROCESSES FOR INERTIAL GRADE G-FLEX ACCELEROMETER - DELINQUENT STATUS REPORT *****</td>
<td>180.0</td>
<td>115.6</td>
<td>15.0</td>
<td>JUL 80</td>
</tr>
<tr>
<td>R 78 3188</td>
<td>INFRARED Imaging SEEKERS FOR THERMAL HYDROGEN MISTILES - DELINQUENT STATUS REPORT *****</td>
<td>560.0</td>
<td>449.9</td>
<td>25.0</td>
<td>MAR 76</td>
</tr>
<tr>
<td>R 79 3204</td>
<td>INTERNAL SPEAR FORMING OF MISSILE STRUCTURES - ALL WORK IS COMPLETE EXCEPT THE PRODUCTION OF THREE DELIVERABLE PARTS. DELIVERY OF SAMPLES, ECONOMIC ANALYSIS AND FINAL TECHNICAL REPORT.</td>
<td>273.9</td>
<td>273.9</td>
<td>0.0</td>
<td>SEP 80</td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED ($)</td>
<td>CONTRACT VALUES ($)</td>
<td>LABOR AND MATERIAL ($)</td>
<td>EXPENDED ORIGINAL PROJECTED COMPLETE DATE</td>
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<tr>
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<tr>
<td>R 79 3217</td>
<td>AUTOMATED PRODUCTION METHODS FOR TRAVELING WAVE TUBES / LIMITS / ALL / CONTRACT / FUNDS PRIOR TO COMPLETION OF THE PILOT RUN. PATRIOT WM / WILL PAY FOR 12 TUBES TO BE DELIVERED TO RAYTHEON FOR QUALIFICATION TEST. A PRODUCTION CONTRACT IS EXPECTED FROM RAYTHEON IN EARLY 1981 FOR TUBES FOR PATRIOT.</td>
<td>685.0</td>
<td>620.0</td>
<td>65.0</td>
<td>JUL 80</td>
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<tr>
<td>R 80 3217</td>
<td>AUTOMATED PRODUCTION METHODS FOR TRAVELING WAVE TUBES</td>
<td>335.0</td>
<td>300.0</td>
<td>12.7</td>
<td>OCT 79</td>
</tr>
<tr>
<td>R 78 3218</td>
<td>REDUCE THE FINISHING COST OF FUSED SILICA RADDORS</td>
<td>300.0</td>
<td>12.7</td>
<td>281.0</td>
<td>AUG 79</td>
</tr>
<tr>
<td>R 79 3219</td>
<td>AUTOMATIC POLYMER ATTACHMENT PRODUCTION METHODS</td>
<td>200.0</td>
<td>81.0</td>
<td>70.0</td>
<td>NOV 77</td>
</tr>
<tr>
<td>R 80 3219</td>
<td>AUTOMATIC POLYMER ATTACHMENT PRODUCTION METHODS</td>
<td>200.0</td>
<td>14.3</td>
<td>JAN 81</td>
<td>JUN 81</td>
</tr>
<tr>
<td>3 76 3227</td>
<td>LOW COST PROC PETH FOR HAND HYDROCHIP W/TAFF CAR LEAD FR SEE SUBTASKS BELOW. INDUSTRY DEMONSTRATION SET FOR 26 FEB 81 AT HONEYWELL AEROSPACE; ST PETERSBURG, FL.</td>
<td>572.5</td>
<td>433.5</td>
<td>139.0</td>
<td>FEB 81</td>
</tr>
<tr>
<td>3 76 3227 A</td>
<td>HONEYWELL WORK</td>
<td>200.0</td>
<td>149.9</td>
<td>50.1</td>
<td>FEB 81</td>
</tr>
<tr>
<td>3 76 3227 E</td>
<td>DETEX SYSTEMS WORK</td>
<td>43.0</td>
<td>32.0</td>
<td>11.0</td>
<td>OCT 79</td>
</tr>
<tr>
<td>3 76 3227 C</td>
<td>HONEYWELL MODIFICATION</td>
<td>72.4</td>
<td>54.1</td>
<td>18.3</td>
<td>JUN 80</td>
</tr>
<tr>
<td>3 76 3227 D</td>
<td>HONEYWELL EARLIER DELIVERED REPORTS SHOWING TAPE CARRIER SPEC'S, WAFER METALLIZATION PROCESS, TAFF CARRIER PROCESSING, INNER LEAD BOND DEFINITION, OUTER LEAD BOND DEFINITION, CIE TESTING AND REWORK TECHNIQUES</td>
<td>234.6</td>
<td>175.0</td>
<td>59.6</td>
<td>FEB 81</td>
</tr>
<tr>
<td>3 76 3227 E</td>
<td>HONEYWELL OPTION</td>
<td>22.5</td>
<td>22.5</td>
<td>JAN 81</td>
<td>FEB 81</td>
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<tr>
<td>Proj No.</td>
<td>Title + Status</td>
<td>Authorized Values ($000)</td>
<td>Contract Values ($000)</td>
<td>Expended Original Material ($000)</td>
<td>Present Date</td>
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</tr>
<tr>
<td>R 78 3229</td>
<td>Methodology for producing low cost disposable mandrels. Work accomplished cannot be determined from the status report that was submitted.</td>
<td>275.4</td>
<td>196.4</td>
<td>61.2</td>
<td>SEP 79</td>
</tr>
<tr>
<td>R 79 3253</td>
<td>MCM current density cathodes. Sperry Unvac etched holes thru resist to the surface of the silicon wafer. Holes were then metallized to form emitter spikes. Planar plasma etching may permit hole spacing to be reduced from 12 to 4 microns. Increasing current density is key work.</td>
<td>175.0</td>
<td>126.3</td>
<td>48.0</td>
<td>JUN 86</td>
</tr>
<tr>
<td>R 80 3254</td>
<td>Low cost semi-flexible thin film semiconductors (LAM) phase II follow-on to R 78 3253. Microelectronics Corp. is fabricating functional thin film circuits using PILOT LINE FROM PHASE I. NEW MATERIALS, COATINGS, AND HIGH GAIN TRANSISTOR CONFIGURATIONS ARE UNDER TEST &amp; EVALUATION. YIELDS WERE IMPROVED.</td>
<td>375.0</td>
<td>375.0</td>
<td></td>
<td>JUN 81</td>
</tr>
<tr>
<td>R 80 3263</td>
<td>Printed wire boards utilizing leadless components. ***** Delinquent Status Report *****</td>
<td>250.0</td>
<td>127.0</td>
<td>95.5</td>
<td>JAN 81</td>
</tr>
<tr>
<td>R 79 3268</td>
<td>Automatic control of plating (CAS). Control software is operational. Software was functioned in test run simulating the control of line PLATING TANKS. MODIFICATIONS TO THE AUTOMATIC PLATING LINE ARE APPROXIMATELY 75% COMPLETE AND THE CONTROL EQUIPMENT HAS BEEN POSITIONED.</td>
<td>456.0</td>
<td>209.4</td>
<td>240.5</td>
<td>SEP 86</td>
</tr>
<tr>
<td>R 79 3280</td>
<td>ENGR ANALYSIS OF MFG PARAMETERS FOR THERMAL BATTERIES. ***** Delinquent Status Report *****</td>
<td>145.0</td>
<td></td>
<td></td>
<td>SEP 86</td>
</tr>
<tr>
<td>R 79 3287</td>
<td>Production methods for low cost strip laminate motor cases. Full scale motor concept demo and reproducibility demo carried out. Production components made to Chaparral drawings and delivered. Draft final report reviewed and final version is being published.</td>
<td>250.0</td>
<td>196.6</td>
<td>51.2</td>
<td>APR 86</td>
</tr>
<tr>
<td>R 80 3294</td>
<td>Production processes for rotary roll forming. A contract was awarded to Battelle Columbus Laboratories. Manufacturing techniques and procedures for roll forming nozzle contours in line pipe were established.</td>
<td>300.0</td>
<td>227.4</td>
<td></td>
<td>DEC 81</td>
</tr>
<tr>
<td>S 81 3294</td>
<td>Production process for rotary roll forming. Second year buy will begin in July 1981.</td>
<td>159.0</td>
<td></td>
<td></td>
<td>JUN 82</td>
</tr>
<tr>
<td>R 79 3372</td>
<td>Manufacturing methods for magnetic materials. The only status report was that a final report is in progress.</td>
<td>410.0</td>
<td>362.0</td>
<td>46.0</td>
<td>OCT 75</td>
</tr>
<tr>
<td>Proj No.</td>
<td>Title &amp; Status</td>
<td>Authorized</td>
<td>Contract Labor</td>
<td>Projected Material</td>
<td>Present Projected Date</td>
</tr>
<tr>
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</tr>
<tr>
<td>R 78 3376</td>
<td>Testing electro-optical components and subsystems Hardware has been assembled breadboard fashion for preliminary checkout &amp; demonstration. Remaining tasks call for placing hardware in its final configuration &amp; operating it to test real optical systems, which will be applied by the government.</td>
<td>205.0</td>
<td>175.0</td>
<td>30.0</td>
<td>Dec 80 Jan 81</td>
</tr>
<tr>
<td>R 80 3376</td>
<td>Testing of electro-optical components and subsystems The hardware necessary for generating extremely high resolution computer generated holograms has been completed. This design is based on the use of a precision cathode ray tube and a precision x-y stage to write holograms directly onto film.</td>
<td>475.0</td>
<td>475.0</td>
<td></td>
<td>Jun 81 Jun 81</td>
</tr>
<tr>
<td>R 79 3381</td>
<td>Low cost, improved 2-D heat shields Tubular braid cannot be used with EPM resin. Tubular braids have been made from E-glass yarn for a leaching evaluation. Commercial silica yarn has been purchased and braided directly into a tubular braid. Most in-house braiding equipment required.</td>
<td>500.0</td>
<td>476.1</td>
<td></td>
<td>Mar 80 Jul 81</td>
</tr>
<tr>
<td>R 80 3396</td>
<td>Injection molding of low cost-piece nozzles The nozzle for the MLRS rocket was selected as the demonstration component. An injection mold die is being fabricated and will be completed early in the next reporting period.</td>
<td>180.0</td>
<td>158.5</td>
<td></td>
<td>Jun 81 Jun 81</td>
</tr>
<tr>
<td>R 79 3410</td>
<td>Production method for heat pipes for hybrid/LSI Hughes fabricated heat pipes for hybrid LSI circuits. Two package types were selected for the pilot run. Thermal, chemical &amp; electrical compatibility tests are still in progress. Package leak &amp; fill problems resulted in two month schedule slippage.</td>
<td>250.0</td>
<td>206.9</td>
<td>43.1</td>
<td>Sep 79 Mar 81</td>
</tr>
<tr>
<td>R 80 3411</td>
<td>MFG of non-planar printed circuit boards procurement being processed. The purpose of this project is to provide the capability to produce non-planar circuit boards.</td>
<td>770.0</td>
<td></td>
<td></td>
<td>Feb 81 Feb 83</td>
</tr>
<tr>
<td>R 80 3455</td>
<td>Simplification of high-power thin film hybrids ***** Delinquent Status Report *****</td>
<td>350.0</td>
<td>5.0</td>
<td></td>
<td>Sep 83 Sep 83</td>
</tr>
<tr>
<td>R 80 3456</td>
<td>Ceramic circuit boards &amp; large area hybrids MM-contract modifications have been made to this contract and a no cost 60 day extension was granted. Go contract-modification to the technical requirements we made and general dynamics is in the process of re-estimating the effort.</td>
<td>450.0</td>
<td>38.0</td>
<td></td>
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<tr>
<td>R 79 3458</td>
<td>Delidding, parallel seam sealed hybrid microelect packages Joint work with NAVY, WESTINGHOUSE established improved techniques for delidding &amp; rescaling hybrid packages. Both welded planar and soldered packages were successfully rescaled by welding. SP110 saw machine cutter spindle bearing replaced.</td>
<td>200.0</td>
<td>84.2</td>
<td>104.9</td>
<td>Oct 79 Jul 81</td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE * STATUS</td>
<td>AUTHORIZED VALUES ($000)</td>
<td>CONTRACTED VALUES ($000)</td>
<td>EXPENDED ORIGINAL MATERIAL COST ($000)</td>
<td>PROJECTED COMPLETE DATE</td>
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<tr>
<td>R 79 3441</td>
<td>APPLICATION OF HIGH ENERGY LASER MANUFACTURING PROCESSES. ALL WORK HAS BEEN ACCOMPLISHED. FINAL REPORT IS IN PUBLICATION.</td>
<td>400.0</td>
<td>200.0</td>
<td>200.0</td>
<td>SEP 79</td>
</tr>
<tr>
<td>R 79 3444</td>
<td>FULLY ADDITIVE MANUFACTURING FOR PRINTED WIRING BOARDS. DELINQUENT STATUS REPORT *****</td>
<td>200.0</td>
<td>120.0</td>
<td>26.0</td>
<td>SEP 79</td>
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<tr>
<td>R 80 3444</td>
<td>FULLY ADDITIVE MANUFACTURING FOR PRINTED WIRING BOARDS. DELINQUENT STATUS REPORT *****</td>
<td>200.0</td>
<td></td>
<td></td>
<td>JUN 80</td>
</tr>
<tr>
<td>R 79 3445</td>
<td>PRECISION MACHINING OF OPTICAL COMPONENT. THE INTERIM REPORT FOR THE BASIC EFFORT WAS SUBMITTED IN SEPT 1979. THREE OF THE FIVE TASKS HAVE OPTION 1 ARE UNDER WAY INCLUDING 1. CREW TESTING THE ENGINEERS AND TECHNICIANS WHO WILL USE THE EQUIPMENT. (SEE PROJECT R 80 3445).</td>
<td>300.0</td>
<td>176.0</td>
<td>30.0</td>
<td>OCT 81</td>
</tr>
<tr>
<td>R 80 3445</td>
<td>PRECISION MACHINING OF OPTICAL COMPONENTS. (SEE PROJECT R 79 3445). SPHERICAL SURFACES ON BLOCKS OF ALUMINUM. 2. G. E. FLYCUTTER CHECKOUT—ALL THE SLIDES AND SPINDLES HAVE BEEN OFFERED AND CHECKED TO DETECT AND CORRECT ERRORS IN THE CONTROL FEEDBACK SYSTEMS. (SEE PROJECT R 81 3445).</td>
<td>400.0</td>
<td>246.0</td>
<td>30.0</td>
<td>JUN 81</td>
</tr>
<tr>
<td>81 3445</td>
<td>PRECISION MACHINING OF OPTICAL COMPONENTS (SEE PROJECT R 79 3445). 3. FACILITY CHECKOUT—THE FACILITY TO HOUSE THE EQUIPMENT HAS BEEN DESIGNED TO PROVIDE CLEAN AIR, STABILIZED TEMPERATURE, SEISMIC AND ACOUSTIC ISOLATION PLUS NECESSARY UTILITIES.</td>
<td>625.0</td>
<td></td>
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<td>JUN 82</td>
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<tr>
<td>R 78 3453</td>
<td>GROUND LASER LOCATOR DESIGNATOR PRODUCTION IMPROVEMENTS. DELINQUENT STATUS REPORT *****</td>
<td>211.0</td>
<td></td>
<td></td>
<td>DEC 80</td>
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<tr>
<td>R 78 3454</td>
<td>LOW COST — H2 VOLUME RADIOGRAPHIC INSPECTION. THE TECHNICAL EFFORT HAS BEEN COMPLETED. THE END OF CONTRACT DEMONSTRATION WAS CONDUCTED IN SEPT 1980. THE FORMAL FINAL REPORT WILL BE COMPLETED BY JUNE 1981.</td>
<td>206.0</td>
<td>147.6</td>
<td>52.4</td>
<td>FEB 80</td>
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### ARRCO - ARRADCO (AMMUNITION)

**CURRENT FUNDING STATUS: 2ND QTR 80**

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<th>FISCAL YEAR</th>
<th>NO. OF PROJECTS</th>
<th>AUTHORIZED FUNDS (S)</th>
<th>CONTRACT FUNDING ALLOCATED (S)</th>
<th>CONTRACT FUNDING EXPENDED (S)</th>
<th>IN HOUSE FUNDING REMAINING (S)</th>
<th>IN HOUSE FUNDING EXPENDED (S)</th>
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<td>76</td>
<td>1</td>
<td>3,760,000</td>
<td>2,236,000</td>
<td>2,169,000 (96%)</td>
<td>1,584,000</td>
<td>1,482,000 (96%)</td>
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<tr>
<td>76</td>
<td>0</td>
<td>5,591,000</td>
<td>2,076,000</td>
<td>2,643,700 (91%)</td>
<td>2,714,700</td>
<td>2,636,000 (97%)</td>
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<tr>
<td>77</td>
<td>1</td>
<td>1,079,000</td>
<td>963,000</td>
<td>888,000 (92%)</td>
<td>314,000</td>
<td>86,000 (74%)</td>
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<tr>
<td>77</td>
<td>19</td>
<td>9,726,000</td>
<td>3,695,900</td>
<td>3,276,900 (90%)</td>
<td>2,858,700</td>
<td>1,684,000 (90%)</td>
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<tr>
<td>78</td>
<td>23</td>
<td>13,325,300</td>
<td>5,559,200</td>
<td>6,427,200 (74%)</td>
<td>4,766,100</td>
<td>4,125,200 (76%)</td>
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<tr>
<td>79</td>
<td>51</td>
<td>25,996,200</td>
<td>14,194,900</td>
<td>6,497,700 (45%)</td>
<td>11,601,300</td>
<td>9,532,300 (80%)</td>
</tr>
<tr>
<td>80</td>
<td>50</td>
<td>26,200,300</td>
<td>16,297,000</td>
<td>5,100,000 (19%)</td>
<td>9,999,300</td>
<td>3,951,500 (40%)</td>
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<tr>
<td>81</td>
<td>6</td>
<td>6,012,000</td>
<td>0</td>
<td>0</td>
<td>5,012,000</td>
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<td><strong>TOTAL</strong></td>
<td><strong>152</strong></td>
<td><strong>96,606,000</strong></td>
<td><strong>48,044,100</strong></td>
<td><strong>25,972,700 (52%)</strong></td>
<td><strong>37,054,300</strong></td>
<td><strong>22,947,200 (59%)</strong></td>
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**AUTHORIZED FUNDING**

**CONTRACT ALLOCATED 96%**

**IN HOUSE REMAINING 43%**

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84
<table>
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<th>Title &amp; Status</th>
<th>Authorized values</th>
<th>Contracted Labor</th>
<th>Original Projected Complete Date</th>
<th>Present Projected Complete Date</th>
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</thead>
</table>
| 5 80 0900 | Automated Multiple Filter Life Tester  
THE CONTRACTOR'S PROPOSAL WAS REJECTED. A REVIEW WAS HELD TO DETERMINE ALTERNATIVE TO ACCOMPLISH THE PROJECT OBJECTIVE. IT WAS DETERMINED TO REVISE THE TECHNICAL WORK SCOPE TO REFLECT A TWO-PHASE INCREMENTALLY FUNDED CONTRACT. | 252.0            | 34.0             | Nov 81                          | Feb 84                           |
| 9 80 0915 | Group Tech Requirements Definition Electronics  
THE PURPOSE OF THIS PROJECT IS TO PROVIDE A DESCRIPTION OF THE FUNDAMENTAL CHARACTERISTICS OF A CLASSIFICATION AND CODING SYSTEM FOR ELECTRONICS. CONTRACT AWAIRE IS PLANNED FOR 3RD QTR FY61. THIS IS A TRSI SERVICE EFFORT. | 45.0             |                  | Dec 81                          | Dec 81                           |
| 5 80 1001 | Pilot Line for Fuze Fluidic Follower Supplies  
A LETTER CONTRACT HAS BEEN ALAERTED TO KCI PCISION PRODUCTS, INC. INITIAL PILOT PRODUCTION LINE LAYOUT HAS BEEN COMPLETED. | 253.0            | 202.0            | Oct 81                          | Oct 81                           |
| 5 80 1003 | Low Cost Molded Packaging for Hybrid Electronics  
SPRINGFIELD LABS WILL ADAPT INJECTION MOLDING, ENECAPSULATION AND SEALING TECHNIQUES USED FOR LUAL-LINE PLASTIC PACKAGES TO LARGER HYBRID CIRCUITS. MATERIALS SURVEY WAS COMPLETED. MOLD DESIGN WORK IS IN PROGRESS. IT FOR SET AND SCA FUSES. | 243.0            | 174.0            | May 81                          | Sep 81                           |
| 5 80 1005 | Ceramic-Metal Substrates for Hybrid Electronics  
WESTINGHOUSE IS SETTING UP PRODUCTION PROCESS. HATES & EQUIPMENT FOR MAKING THICK FILM HYBRID FUZE CIRCUITS ON CORR.41% EMAILED STEEL SUBSTRATES. RESISTOR MATERIAL INVESTIGATION IS UNDERWAY. TEST FIXTURE FOR RESISTOR PRINT & LASER TRIM WAS PAID. | 319.0            | 204.0            | Oct 81                          | Mar 72                           |
| 5 77 1255 | Modernization of Charcoal Filter Test Equipment  
THE ENGINEERING STUDY FOR THE TEST EQUIPMENT AND CONTAINMENT CHAMBER HAS BEEN COMPLETED. THIS INCHLDED TESTING OF KEY TESTER COMPONENTS, ENGR DRAWINGS & DESIGN CONCEPT AND FACILITIES REQUIREMENTS. | 240.0            | 175.0            | Aug 75                          | Mar 81                           |
| 5 79 1255 | Modernization of Charcoal Filter Test Equipment  
The Scope of Work for the Detailed Design of the Test Equipment has been prepared. An additional $760k will be req to complete this project. This cost increase is primarily due to the inflation and delays encountered since 1975. | 660.0            | 20.0             | Dec 66                          | Sep 84                           |
| 8 78 1296 | NT for CF Filters  
SPI EVALUATED CHARCOAL HANDLIE CENT. SPI DEVELOPED PERFORATED PLATE AND SCREEN DISPERSION DEVICE. INVESTIGATED VIBRATION TO COMPACT CHARCOAL AND PREPARE TEST REPORT. SPI PREPARED REPORT ON FILTER TEST RESULTS. SPI REPORT ON DUST LEVEL PREPARED. | 654.0            | 291.0            | Mar 79                          | Dec 80                           |
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED</th>
<th>CONTRACT</th>
<th>EXPENDED ORIGINAL</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
</table>
| 5 79 1296 | WT FOR CB FILTERS
SP2 SIDE FILLING MACHINE FOR FILLING FILTERS WAS CONSTRUCTED AND MODIFIED TO USE VIBRATION AND COMPRESSING TO AID FILLING. SP2 FILTER PULSE WAS FOUND TO BE NOT A VABLE PROCESS CONTROL TEST. PREPARATION OF UNTESTED STUDIES AND REPORT PREPARED. | 400.0      | 75.0     | 324.3             | MAY 86 APR 81                    |
| 5 60 1296 | MANUFACTURING TECHNOLOGY FOR CB FILTERS
SP2 CONTINUED STUDY OF SIDE FILLING OF FILTERS INCLUDING INCREMENTAL FILLING. SP2 VELOCITY TRAVERSE AND LASER-INDUCED FLUORESCENCE TEST METHODS WERE EVALUATED. EFFECTS OF PACKING DEPTH ON FILTER PERFORMANCE IS BEING STUDIED. | 464.0      | 186.0    | 172.5             | MAR 81 DEC 81                    |
| 5 76 1311 | M229 REFILL KIT COMPONENT-CHEMICAL AGENT ALARM CONTRACT WITH INDUSTRIAL DESIGN LABS FOR FAR AND CAM MACHINES HAS BEEN TERMINATED. NEGOTIATED SETTLEMENT HAS BEEN APPROVED. FINAL REPORT WILL BE WRITTEN IN 5TH TO COMPLETE THE PROJECT. | 570.0      | 128.0    | 393.0             | DEC 77 JUN 81                    |
| 5 77 1312 | PAPER, CHEMICAL AGENT DETECTOR #5
PAPER RUNS TO EVALUATE DETENTION AIDS AND ANALYSIS OF CYTOTOXICITY IN PAPER HAVE BEEN COMPLETED. AN INCREASE OF 11.5 PERCENT IN INDICATOR CYTOTOXICITY WAS DEPICTED. A FINAL TECHNICAL REPORT HAS BEEN SUBMITTED FOR REVIEW. | 116.0      | 115.0    | MAR 78 MAR 81     |                                 |
| 5 79 1311 | CHEMICAL PRODUCTION FILL, CLOSE AND LAF FOR F IN 3W36 PROJ
AUTOMATIC EVALUATION OF THE FILL, THE STATIONS WAS COMPLETED. EXUATION AND UNDERGROUND INJECTION CONSIDERED FOR DISPOSAL OF GLO WASTE BUT REJECTED. HAZARDOUS LAND FILLING WAS CONSIDERED FOR GLO WASTE. | 398.0      | 398.0    | MAR 81            | MAR 81                          |
| 5 80 1316 | EST CHEM PROD + FILL CLOSE + LAF TECH F/PROJ FILL V+2
BENCH SCALE TESTS FOR RECOVERY of AMMONIA AND ETHANOL FROM AQUEOUS WASTES FOR RECYCLING WAS STUDIED. BOTH CARRIERS AND RESINS WERE EVALUATED AS ADSORPTION AGENTS. A TOXICITY SURVEY OF PROCESS COMPOUNDS WAS COMPLETED. | 484.0      | 154.0    | JUN 81            | JUN 81                          |
| 5 81 1313 | EST CHEM PROD + FILL CLOSE + LAF TECH F/PROJ V+2
THIS PROJECT WAS JUST FUNDED. WT STATUS REPORT IS REQUIRED. | 216.0      |          |                   |                                 |
| 5 77 1327 | IMPROVEMENT AND MODERNIZATION OF GAS MASK LEAKAGE TESTING
CONTRACT DATA REQUIREMENTS HAVE BEEN REVIEWED. DRAWINGS AND RELIABILITY TEST PLAN HAVE BEEN COMPLETED AND ACCEPTED. | 305.0      | 193.0    | 50.0              | MAR 79 NOV 80                    |
| 8 76 1325 | MFG TECH FOR NEW PROTECTIVE PASS
SPECIFICATION AND PURCHASE REQUEST FOR A LENS MOLDING AND ASSEMBLY CLEAN ROOM WERE PREPARED. CONTINUED PREPARATION OF WC PLAN. PROCESS ENGINEERING WORK FOR COATING AUTOMATION WAS COMPLETED. | 764.0      | 460.0    | 295.0             | JUN 79 JAN 82                    |
<table>
<thead>
<tr>
<th>Proj No.</th>
<th>Title &amp; Status</th>
<th>Authorized Values</th>
<th>Expended Original Values</th>
<th>Projected Complete Date</th>
<th>Present Complete Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 79 1335</td>
<td>MAN TECH FOR NEW PROTECTIVE MASK COMPLETED FRONT VOICEMITTER AND HOUSING TOOLING, REVIEWED AND APPROVED DRAWINGS FOR FACEPLATE, LEAS MOLD, AND NOSE CAP.</td>
<td>672.0</td>
<td>666.7</td>
<td>OCT 82</td>
<td>JUN 82</td>
</tr>
<tr>
<td>5 80 1335</td>
<td>MANUFACTURING TECHNIQUES FOR NEW PROTECTIVE MASK RESTRUCTURED PROGRAM TO CONDUCT IN INDUSTRY, REVIEWED PROPOSAL ON AUTOMATED TEST EQUIPMENT, PREPARED PURCHASE REQUESTS FOR DIE CAST TOOLS FOR EXAMINATION VALVE AND SIDE PORT.</td>
<td>1504.0</td>
<td>976.0</td>
<td>DEC 82</td>
<td>OCT 82</td>
</tr>
<tr>
<td>8 78 1345</td>
<td>BIOLOGICAL WARNING SYSTEM ALL PROJECT TASKS HAVE BEEN SUCCESSFULLY COMPLETED EXCEPT FOR SORI CONTRACT, SORI IS COMPLETING QUALITY CONTROL STUDIES OF TACK AND PEEL STRENGTH OF DETECTOR TAPE.</td>
<td>480.0</td>
<td>233.0</td>
<td>JAN 81</td>
<td>MAR 81</td>
</tr>
<tr>
<td>5 79 1345</td>
<td>BIOLOGICAL WARNING SYSTEM ALL PROJECT TASKS HAVE BEEN COMPLETED EXCEPT THE COP FOR LUMINOUS PURIFICATION AND THE WASH STATION INVESTIGATION. FIVE SAMPLES OF LUMINOUS WERE PURIFIED AND BROADENED UP TO SPECIFICATIONS, WASH STATIONS ARE BEING PROCURED BY CEC TO VERIFY PRODUCIBILITY.</td>
<td>525.0</td>
<td>229.0</td>
<td>DEC 82</td>
<td>MAR 82</td>
</tr>
<tr>
<td>5 80 1345</td>
<td>BIOLOGICAL WARNING SYSTEM PREPARED, REFILL KIT, AND DURABILITY TESTS WERE CONTINUED. LEATHER ARM AND CLIP STUDIES WERE COMPLETED AND RESULTED IN SATISFACTORY OPERATION IN THE INJECTOR PUMPS. MICROPROCESSOR LOGIC STUDIES ARE COMPLETE.</td>
<td>462.0</td>
<td>123.0</td>
<td>SEP 82</td>
<td>SEP 82</td>
</tr>
<tr>
<td>5 80 1348</td>
<td>SUPER TROPICAL BILACH THREE FEASIBLE PROCESSES IDENTIFIED BY RATTILLC AS CANDIDATES FOR PRODUCTION OF CHLORINATED LINE, A LIQUID-LIGHT DETERGENT. SALT PROCESS WAS SELECTED FOR FURTHER STUDY BECAUSE OF DISTINCT ADVANTAGES OVER OTHER PROCESSES.</td>
<td>202.0</td>
<td>174.5</td>
<td>MAR 81</td>
<td>JAN 82</td>
</tr>
<tr>
<td>5 78 1353</td>
<td>SMOKE MIX PROCESS (GLATT) COMPLETED INSTALLATION OF BULK TRANSFER SYSTEM, CONTINUED EVALUATION OF 4 BLENDS ON EACH OF 4 X-16 MX COLORS, CONTINUED TEST PROGRAM TO CONFIRM FORK/LIFT AND TO DETERMINE OPERATIONAL PARAMETERS IN THE FULL SCALE CLATT GRANULATOR.</td>
<td>414.6</td>
<td>16.6</td>
<td>OCT 81</td>
<td>AUG 81</td>
</tr>
<tr>
<td>5 79 1354</td>
<td>SLUDGE VOLUME REDUCTION AND DISPOSAL PROCESS STUDY DESIGN DATA FOR PRE-CLARIFICATION/EQUALIZATION COMPLETED, EVALUATION OF NEW TREATMENT CHEMICALS COMPLETED, PILOT-SCALE SLUDGE DEWATERING PROTOTYPE COMPLETE, RESULTS OF ALL THREE INCORPORATED INTO NCA-83 PROJECT FOR POLLUTION PREVENTION.</td>
<td>122.0</td>
<td>99.4</td>
<td>SEP 81</td>
<td>SEP 81</td>
</tr>
</tbody>
</table>
| 5 80 1354 | SLUDGE VOLUME REDUCTION AND DISPOSAL PROCESS STUDY TESTING OF SLUDGE HANDLING METHODS DURING PILOT RECOVERY AND TRANSFER COMPLETED, PRELIM DESIGN INFO FOR PEA HAZARDOUS LANDFILL DISPOSAL HAS BEEN INCORPORATED INTO AN NCA-63 HAZARDOUS LANDFILL CONSTRUCTION RFP SUBMISSION. ELIMINATED SLUDGE SHALS PRODU
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE</th>
<th>STATUS</th>
<th>AUTHORIZED</th>
<th>CONTRACT VALUES</th>
<th>EXPENDED LABOR AND MATERIAL ($000)</th>
<th>ORIGINAL PROJECTED COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
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</thead>
<tbody>
<tr>
<td>5 79 1366</td>
<td>MANUFACTURING PLANT TOXIC EFFLUENT/EMISSION PRETREATMENT CONTINUED IDENTIFICATION OF TOXIC SUBSTANCES AT PEA USING BOTH CHEMICAL AND BIOLOGICAL METHODS. COMPLETED BUDGET EST FOR ION EXCHANGE AND CARBON COLUMNS FOR TREATMENT OF INDUSTRIAL EFFLUENTS. REVIEWED DRAFT REPORT BY Battelle.</td>
<td>104,0</td>
<td>52,2</td>
<td>51,8</td>
<td>JAN 81</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>5 80 1355</td>
<td>MANUFACTURING PLANTS TOXIC EFFLUENT/EMISSION PRETREATMENT CONDUCTED PATCH CARBON TREATMENT OF PEA INDUSTRIAL WASTE ANALYSIS OF PEA INDUSTRIAL WASTE INDICATED PRESENCE OF CUX, MICHROMETHANE, AND SEVERAL HEAVY METALS WHICH ARE TOXIC TO AQUATIC LIFE.</td>
<td>222,0</td>
<td>32,0</td>
<td>DEC 81</td>
<td>DEC 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 79 1463</td>
<td>IMPROVED PROCESSES/STANDARDS FOR NONTOXIC DYES-HP SPK GRENADES FINAL SELECTION OF YELLOW AND GREEN SMOKE MIX SIMULATIONS CONTAINING NONTOXIC DYE COMPOUNDS. PROTOTYPE GUN DYES FOR PERFORMANCE AND HAZARDS CLASSIFICATION TESTS. INITIATED STUDIES FOR PREPARATION OF DYE SPECIFICATION.</td>
<td>315,0</td>
<td>168,0</td>
<td>JUN 81</td>
<td>JUN 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 79 1903</td>
<td>CIE CAST TAILCONE + DESIGN MACHINE FOR BLU-96/F</td>
<td>456,0</td>
<td>426,0</td>
<td>24,6</td>
<td>APR 86</td>
<td>JUN 81</td>
<td></td>
</tr>
<tr>
<td>5 80 1903</td>
<td>CIE CAST TAILCONE + DESIGN MACHINE FOR BLU-96/F</td>
<td>1,176,0</td>
<td>1,146,0</td>
<td>10,6</td>
<td>MAR 81</td>
<td>JUN 81</td>
<td></td>
</tr>
<tr>
<td>5 79 1905</td>
<td>PRO CONTINUOUS CASTING FOR PURCHASED LOADING FIXE $/UNITS CONTRACT FOR TECH SUPPORT AWARDED TO AEL IN SEPT PR. TAC DATA ON DESIGN A CONTINUOUS PEA PILOT PLANT HAS BEEN TRANSFERRED TO CONTRACTOR DURING MEETING WITH NAVY PERSONNEL WORK ON CONTRACT TASKS IS IN PROGRESS.</td>
<td>250,0</td>
<td>94,0</td>
<td>50,0</td>
<td>DEC 86</td>
<td>JUL 81</td>
<td></td>
</tr>
<tr>
<td>5 81 1907</td>
<td>AUTOMATED CASING FOR MED. CAL. PROJ. BODIES (CAP) THIS PROJECT IS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>625,0</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>5 78 3507</td>
<td>MSG COUNTER-MEMOIREY CIRCUIT FOR FUZES NITRON WIRE AND PACKAGED 626C METAL NITRIDE (FUSE) SEMICONDUCTOR (MOS) TIME CRIRCUITS FOR THE CHF-357 FUZE. MEASURES HANDOFF AND FINAL REPORT ARE EXPECTED BY MARCH 81. PLASTIC DUAL-IN-LINE PACKAGES WERE USED.</td>
<td>300,0</td>
<td>273,7</td>
<td>25,6</td>
<td>SEP 79</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>5 79 3960</td>
<td>PROTOTYPE PDQ EQUIP FOR PRINTED CIRCUIT BOARDS HAD USED THEIR PROTOTYPE PRODUCING EQUIPMENT TO VERIFY DESIGN PACKAGES FOR SECURITY AND JAMMER FOUND PROBLEMS WHILE BUILDING THE CIRCUIT BOARDS. INFORMED DESIGN GROUP USED NEW PLOTTER, EXPOSER, DEVELOPER, ETCHER, LAMINATION, AND COMPONENT INAGER.</td>
<td>400,0</td>
<td>173,0</td>
<td>94,0</td>
<td>DEC 79</td>
<td>SEP 81</td>
<td></td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE &amp; STATUS</td>
<td>AUTHORIZED (000)</td>
<td>CONTRACT LABOR VALUES (000)</td>
<td>EXPENDED ORIGINAL AND MATERIAL COMPLETE (000)</td>
<td>PROJECTED COMPLETE DATE</td>
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<tr>
<td>579 3961</td>
<td>IMPROVED 3-D VIBRATION ACCEPTANCE TEST FOR ART FUZES ESSENTIALLY ALL WORK HAS BEEN COMPLETED FOR THE DESIGN OF THE 3D-TO-2 PHASE I CONTRACT FUZES HAVE BEEN EXPANDED. HOWEVER, THE TOP IS NOT IN FINALIZED FORMAT. ADDITIONAL TESTING IS BEING PROGRAMMED. SEE MT PROJECT 5 60 3961.</td>
<td>260 0</td>
<td>192 0</td>
<td>69 0 SEP 81</td>
<td>JUN 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 3961</td>
<td>IMPR 43-DI VIB ACCEPT TSNG F ART FUZES AND 3/A MECHANISMS SEE MT PROJECT 5 79 3961. A CONTRACT FOR THE 314C-6-335 SHAKER SYSTEMS WAS AWARDED. FABRICATION OF THE TWO SHAKERS COMMENCED OCT 80. INTERCONNECT-CABLES AND 1-40 LENGTH HAVE BEEN ESTABLISHED AT 32 FEET.</td>
<td>352 0</td>
<td>262 0</td>
<td>4 0 SEP 82</td>
<td>JUN 82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>579 4000</td>
<td>AUTOMATED 855 DETONATOR PRODUCTION EQUIPMENT CUP INSPECTION MODULE WAS INSTALLED AT CROMAR S A/E INSpection Module being assembled. EQUIP FOR MATERIAL HANDLING WAS RECEIVED AND INSTALLATION PLOMS ANALYSIS CONTRACT FOR PROTOTYPE LINE AT IOWA A/E INITIATED WITH IITRI.</td>
<td>1 600 0</td>
<td>719 0</td>
<td>600 4 MAR 81</td>
<td>JUN 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 4000</td>
<td>AUTOMATEC 55 DETONATOR PRODUCTION EQUIPMENT LIAISON CONTINUED WITH IITRI ON THE SYSTEM MATERAL ANALYSIS AND NDIO PLANTS. SUPPORT WAS FURNISHED FOR FABRICATION OF THE MATERIAL HANDLING SYSTEM.</td>
<td>250 0</td>
<td>26 0</td>
<td>183 7 MAR 81</td>
<td>JUN 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>579 4024</td>
<td>CNN' DEV BLD PROT COMP AND AUTO ASSY MACH M223 FZ A CONTRACT WAS AWARDED TO INCEF INC. THE CONCEPT DESIGNS WERE REVIEWED AND DETAILED DESIGNS STARTED. THE 854-2 AND WEIGHT ASSEMBLY MACHINE AND THE SLIDE ASSEMBLY MACHINE DESIGNS WERE COMPLETED.</td>
<td>1 132 0</td>
<td>945 1</td>
<td>89 3 SEP 81</td>
<td>FEB 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 4053</td>
<td>CAUSTIC RECOVERY FROM SODIUM NITRATE SLUDGE LAB STUDIES REVEALED TECHNICAL PROBLEMS IN PROCESSING SODIUM NITRATE. 5 ALTERNATIVE PROCESSES WERE PROPOSED AND AN ECONOMIC ANALYSIS WAS DONE ON EACH. A CONTRACT TO OBTAIN AN INDEPENDENT ANALYSIS OF THE ALTERNATIVES WAS AWARDED TO BATTelle COLUMBUS.</td>
<td>153 0</td>
<td>16 0</td>
<td>69 0 JAN 81</td>
<td>DEC 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 4057</td>
<td>PROCESS IMPROVEMENT FOR PLASTIC-BOND EXPLOSIVES PROCESS SURVEY FOR CRK-4, U-ICE PREFGAT, PB+01636 AND LY-24-0 WAS DONE. IMPROVEMENTS WERE IDENTIFIED. DIRECT CONING FOR PB+0260 AND LE-1-4-0 IS BEING EVALUATED. CALCULATIONS FOR THE CIPCO BELT FILTER FOR USE IN DENATING C-5 WERE PERFORMED.</td>
<td>234 9</td>
<td>264 8</td>
<td>36 6 DEC 81</td>
<td>DEC 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>579 4041</td>
<td>AUTO EQUIP FOR ASSY OF MORTAR COMPONENTS VENDOR TESTS OF STATIONS AND OVERALL SYSTEM WERE CONDUCTED IN JUNE 80. EQUIPMENT NOT ACCEPTED BY GOVT DUE TO NUMEROUS MACHINE STOPPAGES. FILITY DEBUG AND TESTING WERE DEFERRED TO MILAN A/E MOD PROJECT 5 52667. MT PROJECT WILL COMPLEAT TECH DATA.</td>
<td>867 0</td>
<td>666 0</td>
<td>193 6 JUL 75</td>
<td>JUN 81</td>
<td></td>
<td></td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE &amp; STATUS</td>
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<td>CONTRACT VALUES</td>
<td>EXPENDED ORIGINAL LABOR AND MATERIAL</td>
<td>PROJECTED COMPLETE DATE</td>
<td>PROJECTED COMPLETE DATE</td>
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<tr>
<td>579 4646</td>
<td>QUANTITATIVE ANAL. OF BLENDED EXPLOS. SAMPLS. EFFORT CONTINUED TOWARD DEVELOPMENT OF A PROCESS TO ANALYZE PA-100 VIA THE POLAROGRAPH TECHNIQUE. PRESENT THRUST IS A PROCEDURE USING POLAROGRAPH WITH WET CHEMICAL ANALYSIS. FINAL REPRODUCIBILITY TESTING OF THE PROCEDURE IS IN PROCESS.</td>
<td>507.0</td>
<td>70.0</td>
<td>200.1</td>
<td>NOV 80</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>579 4059</td>
<td>OPTIMIZATION - NITROGUANADINE IN 35 PROPellant. TWO NG PARTICLE SIZE MONITORS, ONE FOR THE CRYSTALLIZER SLURRY AND ONE FOR THE FINAL PRODUCT WERE MODIFIED AND INSTALLED IN THE NGT. PRELIMINARY SPINS AND STANDARDIZATION WERE ACCOMPLISHED. SOME DISCREPANCIES WERE IDENTIFIED AND MUST BE RESOLVED.</td>
<td>250.0</td>
<td>225.0</td>
<td>22.5</td>
<td>MAR 81</td>
<td>JUL 81</td>
<td></td>
</tr>
<tr>
<td>580 4661</td>
<td>NITROGUANADINE PROCESS OPTIMIZATION. A REVIEW OF THE PROCESS PARAMETERS HAS COMPLETED FOR ALL PARTS OF THE PLANT. MAXIMUM AND MINIMUM OPERATING CONDITIONS WERE DETERMINED. OPERATIONS OF THE 35D DURING PROOF OUT WERE CLOSELY FOLLOWED. AN INTERIM TEST PLAN WAS PREPARED.</td>
<td>250.0</td>
<td>124.0</td>
<td>51.0</td>
<td>MAY 81</td>
<td>AUG 81</td>
<td></td>
</tr>
<tr>
<td>579 4062</td>
<td>AUTO PFG SYSTEM FOR PORTER INCREDENT CONTAINERS. THREE CONTRACT AWARDS WERE MADE ON 29 SEPTEMBER 1980 TO DESIGN AUTOMATED MANUFACTURING AND ASSEMBLY SYSTEMS FOR PORTER INCREMENT VALVES.</td>
<td>507.0</td>
<td>12.4</td>
<td>206.7</td>
<td>APR 81</td>
<td>AUG 81</td>
<td></td>
</tr>
<tr>
<td>580 4062</td>
<td>AUTO MANUFACTURE SYS F/PORTER INCREMENT CONTAINERS. DESIGN EFFORTS ARE UNDERWAY AT FMC CORPORATION FOR THE ESTABLISHMENT OF SLURRY VACUUM FORMING AND PAPER FOLDING BASED MANUFACTURING SYSTEMS. AND AT INNOVA INC, FOR THE ESTABLISHMENT OF AN AUTOMATED ASSEMBLY SYSTEM.</td>
<td>889.5</td>
<td>635.7</td>
<td></td>
<td>OCT 81</td>
<td>OCT 81</td>
<td></td>
</tr>
<tr>
<td>579 4064</td>
<td>AUTO LAP OPERATIONS FOR 105MP TANK CARTRIDGES. A PRACTICAL PRODUCTION LINE SYSTEM FOR THE LOAD AND ASSEMBLY OF A FAMILY OF 105MP TANK CARTRIDGES HAS BEEN DESIGNED AND IS IN VARIOUS STAGES OF DESIGN EXECUTION AND VERIFICATION.</td>
<td>1,262.0</td>
<td>519.7</td>
<td>135.7</td>
<td>SEP 80</td>
<td>SEP 81</td>
<td></td>
</tr>
<tr>
<td>579 4064</td>
<td>OPAQUE/MASS EMISSION CORRELATION BASED ON CONFIRMATORY TESTS AND DATA ANALYSIS. A CORRELATION BETWEEN MASS EMISSIONS AND OPAQUE WAS ESTABLISHED FOR FLINCHFANG.</td>
<td>121.0</td>
<td>92.5</td>
<td>28.5</td>
<td>JUN 81</td>
<td>JUN 81</td>
<td></td>
</tr>
<tr>
<td>580 4664</td>
<td>OPAQUE/MASS EMISSION CORRELATION FIELD TESTING AT SCRANTON AAF WAS COMPLETED.</td>
<td>111.0</td>
<td>15.0</td>
<td>65.0</td>
<td>JUN 81</td>
<td>SEP 81</td>
<td></td>
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<tr>
<td>576 4122</td>
<td>PRODUCTION LINE MODERNIZATION FOR CFU WEAPONS. DELICION STATUS REPORT.</td>
<td>720.0</td>
<td>128.0</td>
<td>574.3</td>
<td>MAR 77</td>
<td>JUN 81</td>
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<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
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<td>CONTRACT $</td>
<td>LABOR EXPENDED ($)</td>
<td>ORIGINAL MATERIAL DATE</td>
<td>PROJECTED COMPLETE DATE</td>
<td></td>
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</tr>
<tr>
<td>579 4124</td>
<td>FABRICATION OF CONTROL ACTUATION SYSTEM HOUSINGS PRELIMINARY TOOL AND FIXTURE SPECIFICATIONS FOR THE 5 AND 8 INCH HOUSINGS HAVE BEEN COMPLETED. THE PROGRAMMING AND PACKAGE DESIGN ASPECTS ARE NEAR COMPLETION WHILE TOOL AND FIXTURE PURCHASES HAVE BEGUN.</td>
<td>930.0</td>
<td>786.2</td>
<td>41.2</td>
<td>JUN 80</td>
<td>DEC 82</td>
<td></td>
</tr>
<tr>
<td>580 4137</td>
<td>AUTOMATED LOADING OF CENTER/CEFR IGNITERS FY60 FUNDING CUL FROM 967 TO 67. EFFORT REDUCED TO PREPARATION OF PHASE II SCOPE OF WORK TO DESIGN, FABRICATE, TEST AND INSTALL A PROTOTYPE MODULE. THE SCALE OF WORK IS UNDER PREPARATION.</td>
<td>67.0</td>
<td></td>
<td>39.4</td>
<td>JUN 81</td>
<td>JUN 81</td>
<td></td>
</tr>
<tr>
<td>578 4137</td>
<td>APPLICATION OF RADAR TO BALLISTIC ACCEPTANCE TEST OF AMMO THIS PROJECT IS NOT ADDING PHASE II AS IS KNOWN AS THE FY60/61 ENHANCEMENT PROGRAM. THE OBJECTIVE OF THE PROGRAM IS TO IMPROVE THE PERFORMANCE OF GREAT BY UPGRADING HARDWARE AND SOFTWARE. SEE MRT PROJECT 579 4139.</td>
<td>1,565.0</td>
<td>1,293.7</td>
<td>271.3</td>
<td>FEB 79</td>
<td>SEP 81</td>
<td></td>
</tr>
<tr>
<td>579 4139</td>
<td>APPLY OF RADAR TO BALLISTIC ACC TESTS OF AMMO AREAT SEE MRT PROJECT 578 4139. THE ORIGINAL CONTRACTOR, ITT GILFILIAN WILL RECEIVE A CONTRACT TO ENHANCE THE RADAR SYSTEM. ARCADOP WILL CONTINUE TO MANAGE THE PROGRAM.</td>
<td>763.8</td>
<td>736.6</td>
<td>28.2</td>
<td>SEP 79</td>
<td>SEP 81</td>
<td></td>
</tr>
<tr>
<td>578 4143</td>
<td>MFG OF CANISTERS AND COMB F/P255 + P264 ROCKETS THE 500 WICKS RECEIVED FROM THE CONTRACTOR WERE LOADED INTO 5 CANISTERS (10 WICKS PER CANISTER). TESTS WERE PERFORMED AT HIGH AND LOW TEMPERATURES TO VERIFY THE ACCEPTABILITY OF THE NEW CONFIGURATION. FINAL REPORT WAS COMPLETED.</td>
<td>160.0</td>
<td>83.4</td>
<td>71.0</td>
<td>MAR 80</td>
<td>OCT 80</td>
<td></td>
</tr>
<tr>
<td>578 4149</td>
<td>LOADING OF 30MM ADEN/DFEA HEDP AMMUNITION PRIOR WORK SUSPENSION WAS REMOVED. THREE HUNDRED FLUTED LINERS WERE FABRICATED BY MCT FORGE PROCESS WITH CLOSE TOLERANCES. PROJECTILES WERE CHARGED AND SCHEDULED FOR QUALIFICATION TESTS.</td>
<td>500.0</td>
<td>405.7</td>
<td>92.2</td>
<td>MAY 79</td>
<td>FEB 81</td>
<td></td>
</tr>
<tr>
<td>578 4150</td>
<td>NEW MANUFACTURING PROCESSES FOR SAW AMMUNITION DURING THIS REPORT PERIOD THIS SERIES OF PROJECTS HAD TO BE DIRECTED DUE TO THE DECISION OF THE BELGIAN ARMY OVER THE US DESIGN HAD RESULTED IN DELAYS.</td>
<td>61.4</td>
<td>28.5</td>
<td>26.5</td>
<td>SEP 80</td>
<td>JUN 81</td>
<td></td>
</tr>
<tr>
<td>579 4150</td>
<td>NEW MANUFACTURING PROCESSES FOR SMALL CALIBER PENETRATORS THIS PROJECT WILL DEVELOP THE REQUIRED BULLET ASSEMBLY MACHINE MODIFICATIONS. THE EFFORT HAD TO BE DIRECTED TO ACCOMPLISH THE NEW CONFIGURATION DESIGN WORK IS NEARLY COMPLETE AND FABRICATION WAS STARTED.</td>
<td>376.0</td>
<td>220.0</td>
<td>99.8</td>
<td>MAR 81</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>580 4150</td>
<td>NEW MANUFACTURING PROCESSES FOR SAW AMMUNITION CONTRACTS WERE AWARDED FOR THE SCHEDULED ROLL FORMING AND THE NEED TO ROLL PHASES OF THE PENETRATOR. A BULLET ASSEMBLY CONTRACT WAS AWARDED TO THE GDO FACTORY. THESE EFFORTS WERE NOW DIRECTED TO THE BELGIAN SS109 CONFIGURATION.</td>
<td>409.0</td>
<td>357.0</td>
<td>102.0</td>
<td>JUN 82</td>
<td>SEP 81</td>
<td></td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED ($)</td>
<td>CONTRACT ($)</td>
<td>LABOR ($)</td>
<td>MATERIAL ($)</td>
<td>ORIGINAL PROJ COMPLETE DATE</td>
<td>PROJECTED COMPLETE DATE</td>
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<tr>
<td>5 78 4153</td>
<td>INCL. 'IA WELDER FOR THE M569 AND M68 PROJECTILES alternate and seat geometries and flux/dioct coatings have been investigated. Tool breakage has been a problem.</td>
<td>350.0</td>
<td>225.0</td>
<td>26.2</td>
<td></td>
<td>AUG 80</td>
<td>SEP 81</td>
</tr>
<tr>
<td>5 80 4165</td>
<td>HIGH FRAGMENTATION STEEL PRODUCTION PROCESS contract with operating contractor at SAPPDBAMT. Forging tools in design. Funding sent to AMPR for specs on short rod fracture toughness testing equipment.</td>
<td>1,046.0</td>
<td>574.0</td>
<td>223.2</td>
<td></td>
<td>JAN 81</td>
<td>DEC 81</td>
</tr>
<tr>
<td>5 80 4210</td>
<td>DRY CUTTING OF ENERGETIC MATERIALS work on safety site plan and review initiated. Hazard classification of 1st established. Approx. 300 lbs. of inert propellant simulant prepared. Concept drawings of material handling equipment prepared. The jet cutter will be re-located over conveyor.</td>
<td>450.0</td>
<td>338.0</td>
<td>39.0</td>
<td></td>
<td>MAY 82</td>
<td>JUN 82</td>
</tr>
<tr>
<td>5 78 4214</td>
<td>POLLUTION ENGINEERING FOR 1983-85 REQUIREMENTS project 5XX4214 is an orderly transition of project 5XX4114 pollution abatement methods for propellants and explosives and is directed to meeting future standards. Refer to the four individual tasks for any changes and/or addl info re the project.</td>
<td>1,180.0</td>
<td>516.5</td>
<td>663.5</td>
<td></td>
<td>SEP 79</td>
<td>SEP 81</td>
</tr>
<tr>
<td>5 78 4214 F1</td>
<td>TECHNOLOGY REQUIREMENTS ARRACOM coordinating chemical assessment program at IOWA AP with FED/DETRICK LAB. EXPLOSIVE STANDARDS ACQUIRED TO COMPILE LIBRARY OF REFERENCE GAS CHROMATOGRAM SPECTRA CURVES. These were acquired from ARRACOM and US ARMY. TOXIC AND HAZ WASTE AGENCY</td>
<td>211.7</td>
<td>203.4</td>
<td></td>
<td></td>
<td>SEP 79</td>
<td>MAR 81</td>
</tr>
<tr>
<td>5 78 4214 F2</td>
<td>IN-PLANT REUSE OF POLLUTION AFFECTED WATERS final report, recommendations, schematics of propellent reuse measures prepared for RAAP and SAPP.</td>
<td>377.0</td>
<td>130.3</td>
<td>246.7</td>
<td></td>
<td>JUL 79</td>
<td>MAR 81</td>
</tr>
<tr>
<td>5 78 4214 P3</td>
<td>LOW COST SYSTEM TO ABATE NITROGEN POLLUTION two additional experiments involving plume magnitude at higher temp concentration were made and the final report was completed by IOWA AP. This final report was received and is being reviewed.</td>
<td>355.0</td>
<td>235.9</td>
<td>119.1</td>
<td></td>
<td>JUL 79</td>
<td>MAR 81</td>
</tr>
<tr>
<td>5 78 4214 P4</td>
<td>AN-NITRATE ESTER REMOVAL BY ADSORPTION/RECYCLE BENCH-SCALE ADSORPTION TESTS WITH AGA-9 and RE-50A RESINS WERE INITIATED. ADDITIONAL PURIFICATION DATA BASED UPON THE RESULTS OF THE ABOVE HAVE INDICATED THAT PILOT PLANT TEST OF A 2-BED DOWFLOW ADSORPTION/DESORPTION SYSTEM SHOULD USE RE-50A RESIN.</td>
<td>236.0</td>
<td>150.0</td>
<td>86.0</td>
<td></td>
<td>JUL 78</td>
<td>SEP 81</td>
</tr>
<tr>
<td>5 78 4214</td>
<td>POLLUTION ENGINEERING FOR 1983-85 REQUIREMENTS project 5XX4214 is an orderly transition of project 5XX4114 pollution abatement methods for propellants and explosives and is directed to meeting future standards. Refer to the four individual tasks for any changes and/or addl info re the project.</td>
<td>1,269.0</td>
<td>553.0</td>
<td>632.0</td>
<td></td>
<td>SEP 80</td>
<td>JUN 82</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE &amp; STATUS</td>
<td>AUTHORIZED</td>
<td>CONTRACT</td>
<td>EXPENDED ORI.</td>
<td>CONSUMED</td>
<td>ORIGINAL</td>
<td>COMPLETE</td>
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<tr>
<td></td>
<td>TECHNOLOGY REQUIREMENTS</td>
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<tr>
<td>5 79 4214 P1</td>
<td>TECHNOLOGY REQUIREMENTS</td>
<td>367.0</td>
<td>142.0</td>
<td>219.7</td>
<td>SEP 79</td>
<td>SEP 81</td>
<td></td>
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<tr>
<td>5 79 4214 P2</td>
<td>N-PLANT REUSE OF POLLUTION AFFECTED WATERS</td>
<td>449.0</td>
<td>296.0</td>
<td>153.0</td>
<td>JUL 80</td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td>5 79 4214 P3</td>
<td>LOW COST SYSTEM TO ABATE NITROGEN POLLUTION</td>
<td>325.0</td>
<td>45.0</td>
<td>200.4</td>
<td>MAY 81</td>
<td>MAR 82</td>
<td></td>
</tr>
<tr>
<td>5 79 4214 P4</td>
<td>NITRATE ESTER REMOVAL BY AEROSOLIZATION/RECYCLE BENCH SCALE ADSORPTION TESTS WERE COMPLETED. PRELIMINARY HAZARDS ANALYSIS OF THE NITRATE ESTER REMOVAL SYSTEM WAS COMPLETED. STABILITY TESTS AND DTA PERFORMED ON NITRATE LITHIUM RESINS. 4-IN DIA X 24-IN LONG PILOT PLANT ADSORPTION COLUMNS COMPLETED.</td>
<td>128.0</td>
<td>70.0</td>
<td>58.0</td>
<td>SEP 80</td>
<td>JUN 82</td>
<td></td>
</tr>
<tr>
<td>5 80 4225</td>
<td>RED WATER POLLUTION ABATEMENT SYSTEM</td>
<td>116.0</td>
<td>71.0</td>
<td>7.0</td>
<td>MAY 81</td>
<td>MAR 82</td>
<td></td>
</tr>
<tr>
<td>5 81 4225</td>
<td>RED WATER POLLUTION ABATEMENT SYSTEM</td>
<td>160.0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5 80 4266</td>
<td>ON-LINE MONITORS FOR WATER POLLUTANTS REVISED SCOPE OF WORK ACCEPTED BY RADFORD, GOOD CONTRACT MOD ISSUED BY ARRCOP 30 SEPT. ASSEMBLY AND CAL CU OF THE ELECTROCHEMICAL AND RAMAN ANALYZERS INITIATED AT RADFORD AAR.</td>
<td>168.0</td>
<td>48.2</td>
<td>44.1</td>
<td>NOV 81</td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td>5 80 4231</td>
<td>N-PLANT REUSE OF POLLUTION AFFECTED WATERS THE MOD (KWM MORTAIN LINE) 1110 (BLUE LINE) 1100 (RED LINE) AREAS AT KANSAS ADR IDENTIFIED AS PRACTICAL AND ECONOMICAL AREAS FOR RECYCLE/REUSE OF POLLUTION AFFECTED WATERS. Y-LINE (METAL PARTS LINE) AT LOUISIANA SIMILARLY IDENTIFIED.</td>
<td>250.0</td>
<td>163.4</td>
<td>46.3</td>
<td>JUL 81</td>
<td>JUN 82</td>
<td></td>
</tr>
<tr>
<td>5 80 4246</td>
<td>PWS INS &amp; TEST EQUIPMENT EFF MAGNETIC FLOW SUPPLY THE CONTRACT WAS AWARDED TO THE CONTRACTOR 24 JULY 1980. THE DETAIL DESIGN OF THE ASSEMBLY STATION WAS COMPLETED AND A FUNCTIONAL LAYOUT OF THE LINE ESTABLISHED. FIRST PROCUREMENT OF THE ASSEMBLY STA. CRITICAL MARLAGE WAS BEEN INITIATED.</td>
<td>345.0</td>
<td>270.0</td>
<td>35.6</td>
<td>JUL 82</td>
<td>JUN 82</td>
<td></td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED (000)</td>
<td>CONTRACT VALUES (000)</td>
<td>EXPENDED ORIGINAL LABOR AND MATERIAL (000)</td>
<td>PROJECTED COMPLETE DATE</td>
<td>PRESENT PROJECTED COMPLETE DATE</td>
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<tr>
<td>5 77 4267</td>
<td>CONTINUOUS PROCESS FOR GRANULAR COMPOSITION &amp;</td>
<td>500.0</td>
<td>429.0</td>
<td>76.7 SEP 79 DÉC 81</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>&quot;HOG ATOMIZER TERMINATED CONTRACT TO DESIGN PRILLING TANK. INERT TEST OF TWO FLUID NOZZLE PERFECTED BY TAILOR CO. TWO COMPANIES BEING CONSIDERED FOR TECHNICAL CAPABILITY AND LIVE TESTS FOR PRILLING COMPOSITION &amp;</td>
<td></td>
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<tr>
<td>5 78 4267</td>
<td>CONTINUOUS PROCESS FOR GRANULAR COMPOSITION &amp;</td>
<td>254.0</td>
<td>9.0</td>
<td>108.4 MAR 82 JUN 82</td>
<td></td>
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<tr>
<td></td>
<td>THE SCOPE OF WORK FOR THIS EFFECT WAS REVISED BASED ON FUNDING CHANGES*</td>
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</tr>
<tr>
<td>5 78 4261</td>
<td>ENERGY SAVING AT ARMY AMMO PLANTS</td>
<td>5059.4</td>
<td>756.1</td>
<td>144.5 MAR 82 SEP 82</td>
<td></td>
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<tr>
<td></td>
<td>SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS</td>
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<td></td>
</tr>
<tr>
<td>5 78 4261 A01</td>
<td>PROCESS ENERGY INVENTORY</td>
<td>176.2</td>
<td>108.1</td>
<td></td>
<td></td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DETAILED ENERGY AUDITS WERE PERFORMED AT KAAP ON EACH OF THE PROCESSES INVOLVED IN THE PRODUCTION OF M43 14.5MM ICM RDS. ENERGY CONSUMPTION BASE LINES WERE ESTABLISHED FOR ALL OF THE INDIVIDUAL OPSNS ASSOCIATED WITH THIS ROWN</td>
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</tr>
<tr>
<td>5 78 4261 A04</td>
<td>ENERGY RECOVERY FROM WASTE HEAT</td>
<td>324.9</td>
<td>272.0</td>
<td>52.5 SEP 82</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>RADCED AAB HAS FINALIZED THE DESIGN OF THE HEAT EXCHANGER FOR THIS PROJECT. THE TWO HOT WATER STORAGE TANKS HAVE BEEN CONSTRUCTED.</td>
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</tr>
<tr>
<td>5 78 4261 A05</td>
<td>ENERGY RECOVERY FROM WOOD WASTE</td>
<td>75.0</td>
<td>75.0</td>
<td></td>
<td></td>
<td>MAR 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TIM INC'S FINAL REPORT ON THE FEASIBILITY OF USING WOOD WASTE AS AN ALTERNATE ENERGY SOURCE WAS RECEIVED. THE STUDY CONCLUDED THAT WOOD WASTE IS A Viable ALTERNATIVE TO FOSSIL FUELS AT MSTL/KSAP</td>
<td></td>
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</tr>
<tr>
<td>5 78 4261 A06</td>
<td>CAVITATIONAL REMOVAL OF EXPLOSIVES</td>
<td>293.0</td>
<td>275.0</td>
<td>21.8 JUN 82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TESTING OF THE REMOVAL OF EXPLOSIVES FROM LIVE 155MM SHELLS WITH A CAVITATING WATER JET WAS SUCCESSFULLY COMPLETED. THE CYCLE TIME WAS APPROXIMATELY TWO MINUTES. THIS IS A REDUCTION OF OVER 90% IN THE TIME REQUIRED USING CONVENTIONAL STEAM-OUT METHOD</td>
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<tr>
<td>5 79 4261</td>
<td>CONSERVATION OF ENERGY AT ARMY AMMUNITION PLANTS</td>
<td>1285.0</td>
<td>695.3</td>
<td>559.4 JUL 80 DEC 82</td>
<td></td>
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<td>SEE THE FOLLOWING INDIVIDUAL TASKS FOR WORK STATUS</td>
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</tr>
<tr>
<td>5 79 4261 A01</td>
<td>PROCESS ENERGY INVENTORY</td>
<td>242.0</td>
<td>111.9</td>
<td>67.9 JUL 81 SEP 81</td>
<td></td>
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<td></td>
<td>THE MOST ACTIVE LINX (LINE 23 AT IAAP WAS SURVEYED. LINE 3 AUDIT WAS COMPLETED AND AN INTERIM REPORT WAS WRITTEN TO ARARCOM. EVALUATION OF STEAM, ELECTRICITY, AND COMPRESSED AIR MEASUREMENTS IS UNDERWAY TO FORMULATE PLANS FOR IMPLEMENTATION</td>
<td></td>
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</tr>
<tr>
<td>5 79 4261 A02</td>
<td>OPTIMIZED INSULATION</td>
<td>193.0</td>
<td>103.0</td>
<td>90.0 OCT 79 JAN 81</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A COMPOUND INSULATING SCHEME HAS BEEN APPLIED TO THE SIDEWALL OF A KC ROILING TUBE AFTER 12 CYCLES OF OPERATION, NO DETRIMENTAL EFFECTS ON THE INSULATION ARE OBSERVED. THIS SCHEME FOR INSULATING THE TIP OF THE TUBE IS BEING EVALUATED.</td>
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</table>

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<table>
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<th>Authorized Contract Values ($000)</th>
<th>Expended Labor and Material ($000)</th>
<th>Original Projected Complete Date</th>
<th>Present Projected Complete Date</th>
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<tr>
<td>579 4281 A03</td>
<td>Synthetic Natural Gas for Process Operations</td>
<td>206.0 189.0 19.0</td>
<td>SEP 79 DEC 82</td>
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<tr>
<td>579 4281 A04</td>
<td>Energy Recovery from Waste Heat</td>
<td>515.0 239.0 276.6</td>
<td>JUN 86 SEP 82</td>
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<tr>
<td>579 4281 B04</td>
<td>Waste Heat Recovery</td>
<td>127.0 44.4 64.5</td>
<td>AUG 79 DEC 81</td>
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<td>580 4281</td>
<td>Conservation of Energy at Amyx Ammunition Plants</td>
<td>1234.0 519.6 231.8</td>
<td>JUN 82 MAR 83</td>
<td></td>
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<tr>
<td>579 4285</td>
<td>TNT Equivalency Testing for Safety Engineering Final Technical Reports Completed on TNT Equivalencies of Nitrocelluloses Composition C4a, C4b, C4c, C4d, C4e, C4f, C4g, C4h, C4i</td>
<td>426.0 201.7 212.2</td>
<td>MAY 86 JUN 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>580 4285</td>
<td>TNT Equivalency Testing for Safety Engineering Test Plans for 122 mm DGL-RP, CYCLOTOL 7C130, and FRN-203 have been prepared and sent to safety for approval</td>
<td>408.0 174.6 39.4</td>
<td>MAY 81 JUN 82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>581 4285</td>
<td>TNT Equivalency Testing for Safety Engineering This Project was just funded. No Status Report is required</td>
<td>441.0</td>
<td></td>
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<tr>
<td>579 4288</td>
<td>Explosive Safe Separation and Sensitivity Criteria Testing has been completed for 155mm M795 HE and 120mm M769 HEAD Projectiles and M42/M46 Grenade Round Packs. Testing of 155mm and 120mm Weapon Systems is partially completed</td>
<td>643.0 177.3 417.4</td>
<td>OCT 86 DEC 80</td>
<td></td>
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<tr>
<td>580 4288</td>
<td>Explosive Safe Separation and Sensitivity Criteria Vertical and Horizontal Positive Distances for the 105mm P456 HEAT-T Projectile was established. Test Conditions for the Detonator Inspection Machine Test were established. Contract awarded to SW Research Inst for study of safe separation of buckets</td>
<td>767.0 266.0 138.6</td>
<td>SEP 81 SEP 81</td>
<td></td>
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<tr>
<td>581 4288</td>
<td>Explosive Safe Separation and Sensitivity Criteria This Project was just funded. No Status Report is required</td>
<td>720.0</td>
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<td>PROJ NO.</td>
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<tr>
<td>5 79 4291</td>
<td>BLAST EFFECTS IN THE MUNITIONS FLLANT ENVIRONMENT REPORT COMPLETED ON BLAST CAPACITY OF STRENGTHENED STEEL BUILDINGS. THIS WILL PROVIDE DATA FOR DESIGN OF ECONOMICAL BLAST RESISTANT STEEL BUILDINGS. REPORT ON BLAST CAPACITY OF COLD FORMED STEEL PANELS WAS COMPLETED.</td>
<td>$235.00</td>
<td>$80.00</td>
<td>$107.00</td>
<td>JUN 81</td>
</tr>
<tr>
<td>5 16 4291</td>
<td>BLAST EFFECT IN THE MUNITIONS FLLANT ENVIRONMENT ANALYTICAL STUDIES PERFORMED ON DEVELOPMENT OF DESIGN CRITERIA FOR USING ALTERNATE CONSTRUCTION MATERIALS (WOOD, CLAY TILES, BRICK, PRE-CAST CONCRETE, METAL PANELS) IN THE BLAST ENVIRONMENT.</td>
<td>$100.00</td>
<td>$23.40</td>
<td>$29.30</td>
<td>SEP 81</td>
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<tr>
<td>5 77 4301</td>
<td>ACCEPT PLAN-COAT PRODUCTION MULTI-PLANE CANON PROPELLANTS PRELIMINARY TESTS OF THE DYNAGUN. WITH PROPELLANT UNTEN BEEN CONDUCTED. BALLISTIC TESTS OF 20 LOTS OF M-309 PROPELLANT HAVE BEEN COMPLETED AT THE PROVING GROUND. DESIGN CHANGES HAVE BEEN IMPLEMENTED IN THE DYNAGUN DURING DEBUGGING PROCEDURES.</td>
<td>$559.00</td>
<td>$261.00</td>
<td>$293.00</td>
<td>MAY 78</td>
</tr>
<tr>
<td>5 76 4303</td>
<td>ACCEPTANCE OF CONTINUOUSLY PRODUCED BLACK POWDER THE FLAMESHOLD TESTER DEVELOPED BY PRINCETON COMPOSTION RESEARCH LABORATORIES WAS INSTALLED AT INDIANA AAF. WHERE IT WILL BE DUGGDED PRIOR TO USE DURING FYEO 81 OF THE BLACK POWDER FACILITY.</td>
<td>$363.00</td>
<td>$183.70</td>
<td>$170.30</td>
<td>APR 77</td>
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<tr>
<td>5 79 4305</td>
<td>PEN TECH FOR IMPROVED MP 355MM SMOKE MUNITION (XP251) DEBUGGING OPERATIONS OF FILLING EQUIPMENT WAS COMPLETED. PREPARED SCP FOR FILLING. WORK ON DRAFT OF PROCESS BASLINE WAS CONTINUED. PREPARATION OF TECHNICAL REPORT WAS INITIATED.</td>
<td>$265.00</td>
<td>$257.00</td>
<td>$106.00</td>
<td>MAR 81</td>
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<tr>
<td>5 79 4309</td>
<td>PROCESS DEVELOPMENT FOR 120MP TANK AMMUNITION SEE SUBTASKS BELOW FOR INDIVIDUAL WORK STATUS.</td>
<td>$847.60</td>
<td>$516.10</td>
<td>$329.30</td>
<td>NOV 80</td>
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<tr>
<td>5 79 4309 01</td>
<td>DEVELOP MFG METHODS FOR STICK AND JA-2 PROPELLANT PROCESS STUDIES FOR JA-2 AND LIIL-66 PROPELLANT WERE COMPLETED. FML PASTE PROCESS/THRU EXTRACTION * A 4 IN. PRESS. WORK ON DIES FOR 15 IN. PRESS WAS INITIATED. ROLL TYPE CUTTERS FOR 85 AND 355MM STICKS BEING FABRICATED. PNEUMATIC TUBE CONVEYOR WAS TESTED.</td>
<td>$654.00</td>
<td>$514.00</td>
<td>$139.00</td>
<td>DEC 81</td>
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<tr>
<td>5 79 4309 02</td>
<td>EXPLOSIVE LOADING OF 120MP HE-100 MONITORING EFFORTS CONTINUED IN THE V07 PRESS LOADING EFFORTS. A GERMAN FORMULATION OF 65/75 RED/RED WITH 0.1% GRAPHITE ADDITION WOULD PROVIDED TO HONEYWELL FOR PRESS LOADING THE DYNAGUN PROJECT. GERMAN EXPLOSION MFG SPECS HAD PROVED OUT TO BE PROBLEMS EXIST OUT OF THE MFG SPECS.</td>
<td>$193.60</td>
<td>$2.10</td>
<td>$191.50</td>
<td>MAR 81</td>
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<tr>
<td>5 80 4309</td>
<td>PROPELLANT PROCESS DEVELOPMENT FOR 120MP TANK AMMUNITION A CONTRACT FOR THE FSD MFG EFFORT WAS SUCCESSFULLY NEGOTIATED WITH HONEYWELL, INC. FOR INDIVIDUAL WORK STATUS, SEE SUBTASKS BELOW.</td>
<td>$3,726.00</td>
<td>$3,224.00</td>
<td>$1,684.00</td>
<td>JUN 82</td>
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<td>5 80 4309 01</td>
<td>DEVELOP MFG METHODS FOR STICK AND JA-2 PROPELLANT</td>
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<td>5 80 4309 02</td>
<td>EXPLOSIVE LOADING OF 120MM HEAT-HP</td>
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<td>5 80 4309 03</td>
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<td>685.0</td>
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<td>5 80 4309 04</td>
<td>PROCESS FOR MOLDING REAR SEAL 120MM APDS</td>
<td>919.0</td>
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<td>5 80 4309 05</td>
<td>INVESTIGATE FORMING HEAT TREAT METHODS FOR CORE APDS</td>
<td>103.0</td>
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<td>DMSO KRYSTALLIZATION OF NMX/PEX</td>
<td>491.6</td>
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<td>5 80 4310</td>
<td>DMSO KRYSTALLIZATION OF RD/PEX</td>
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<td>5 77 4311</td>
<td>DEVELOP AUTOMATED PRODUCTION EQUIPMENT FOR FM-92</td>
<td>1.452.9</td>
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<td>5 79 4312</td>
<td>INJECTION MOLDING FOR PRODUCTION EXPLOSIVE LOADING</td>
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<td>1.452.9</td>
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<td>255.3</td>
<td>AUG 76</td>
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<td>Expended Labor and Material Values ($000)</td>
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<td>5 80 4312</td>
<td>INJECTION MOLDING FOR PRODUCTION: EXPLOSIVE LOADING TEST PLAN AND HAZARDS ANALYSIS WAS PREPARED.</td>
<td>279.0</td>
<td>125.0</td>
<td>62.6</td>
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<td>5 79 4322</td>
<td>MPT DESIGN/CMAR OF ELEC CONT SYS FOR PROC FAC. FIRST REACTIVATION AT VOLUNTEER AAF IS COMPLETED AND USER ADAPTED START-UP MANCUAL SUBMITTED FOR REVIEW. DATA BASE FOR GENERATING RELIABILITY PREDICTION MODEL FOR JOLIET AAP AND VOLUNTEER AAF FACILITIES WAS ESTABLISHED.</td>
<td>607.0</td>
<td>289.0</td>
<td>308.8</td>
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<tr>
<td>5 80 4322</td>
<td>CHARACTERIZE DURABILITY EFFECT ON ELECTRONIC EQUIPMENT FOR ALL FONDS FOR FYRC OBLIGATED AT AAFS. SET OF LAYAWAY READINGAG PROCEDURES DEVELOPED INTO MATRIX FORMAT TO PERMIT COMPREHENSIVE LAYAWAY PLANNING. <em>THIRD PARTY</em> OPERABILITY MANUALS COMPLETED IN USER ADAPTED FLP FOR JOLIET AAF.</td>
<td>515.0</td>
<td>317.5</td>
<td>36.7</td>
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<td>5 79 4325</td>
<td>ALTERNATIVE PROC FOR TITANIIUM GYRESCOPE COMPONENTS-COPPERHEAD. 4 OF THE 5 GYRE PARTS HAVE BEEN SUCCESSFULLY FABRICATED USING SELECTED POWDER METAL PROCESSES. TENSILE TESTS OF BOTH COMMERCIAL TITANIIUM AND Ti-6AL-4VI ALLOY HAVE BEEN PERFORMED TO VERIFY PROPERTIES.</td>
<td>411.0</td>
<td>566.0</td>
<td>10.3</td>
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<td>5 76 4341</td>
<td>IMPROVED NITROCELLULOSE PURIFICATION PROCESS. THE CONCELL WAS SUCCESSFULLY HYDROSTATICALLY TESTED. ALL MAJOR COMPONENTS OF THE NC PURIFICATION PROCESS PILOT PLANT ARE NOW ON SITE AT RAFF. ASSEMBLY OF THE UNIT IS BEING DEFERRED UNTIL THE CONCRETE PAD IS FLORED.</td>
<td>734.9</td>
<td>644.9</td>
<td>90.0</td>
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<td>5 79 4341</td>
<td>IMPROVED NITROCELLULOSE PURIFICATION PROCESS. A SUBCONTRACT WAS LET FOR THE CONSTRUCTION OF THE ELDG TO HOUSE THE CONCELL. THE COMPLETION CYNCLINE IS 21 DEC 81. INSTALLATION OF THE CONCELL IS SCHEDULED FOR COMPLETION BY 20 FEB 81. PREPARATION OF THE SDF'S WAS ETCUN.</td>
<td>742.0</td>
<td>673.0</td>
<td>69.0</td>
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<tr>
<td>5 80 4341</td>
<td>IMPROVED NITROCELLULOSE PURIFICATION PROCESS. RAFF WAS REQUESTED TO IDENTIFY THOSE PROPERTIES OF NC WHICH AFFECT ITS PROCESSING INTO MILITARY PROPELLANTS AND ANY OTHERS THAT AFFECT ITS PERFORMANCE. A CONTROL SYST FUNCTIONAL CRITERIA WAS INITIATED. A COST GROWTH OF 85% FOR CONCILY CONTROLLER.</td>
<td>583.0</td>
<td>413.0</td>
<td>126.0</td>
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<td>5 81 4341</td>
<td>IMPROVED NITROCELLULOSE PURIFICATION PROCESS. THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>765.0</td>
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<tr>
<td>5 80 4344</td>
<td>ESTAB OF WASTE DISPOSAL TECH CFP MET BINARY PROJECT REVIEW AND ANALYSIS OF PRIOR OF PRODUCTION WASTE WORK WAS COMPLETED. INITIATED EFFORT ON EVALUATION OF ALTERNATIVE PROCESSES FOR WASTE TREATMENT. PREPARED AND SUBMITTED RFP FOR REVIEW OF INDUSTRIAL EFFORTS ON OF.</td>
<td>106.0</td>
<td>72.5</td>
<td>48.0</td>
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<td>EXPENDED ORIGINAL MATERIAL VALUES ($000)</td>
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<tr>
<td>5 81 4344</td>
<td>ESTAB OF WASTE DISPOSAL TECH FOR M687 BINARY PROJECT. THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>200.0</td>
<td>250.0</td>
<td>JUN 80</td>
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<tr>
<td>5 78 4349</td>
<td>MODERNIZATION OF PRESS LOADING FOR MHP PROJECTILES PROTOTYPE COMPLETED. INERT TEST COMPLETED. PRESS WILL HAVE TO BE SENT TO ANOTHER FACILITY FOR LIVE LOADING. REVISED PROJECT COMPLETION DATE IS DEC 81.</td>
<td>556.0</td>
<td>22.2</td>
<td>JUN 83</td>
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<tr>
<td>5 80 4357</td>
<td>NONDESTRUCTIVE TEST EQUIP F/LARGE CALIBER MUNITIONS FMARSAL THE SCOPE OF WORK WAS FINALIZED AND THE RFP HAS BEEN MADE AVAILABLE TO THE PROSPECTIVE CONTRACTORS. THE CONTRACTORS PROPOSALS HAVE BEEN EVALUATED AND THE CONTRACT AWARD IS IN PROGRESS.</td>
<td>280.0</td>
<td>190.0</td>
<td>DEC 83</td>
</tr>
<tr>
<td>5 80 4411</td>
<td>SMALL CALIBER AMMUNITION PROCESS IMPROVEMENT PROGRAM CONTRACT PLACED WITH LCAAF ON 29SEP80. NEW ELECTRONICS WERE INSTALLED AND EVALUATION IS UNDERWAY. THIS IS A CONTINUATION OF THE 6200 SERIES OF PROJECTS.</td>
<td>280.0</td>
<td>190.0</td>
<td>DEC 83</td>
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<tr>
<td>5 80 4417</td>
<td>PROCESS TECHNOLOGY FOR BLENDING RP SMOKE COMPOSITIONS FUNDS RECEIVED IN OCT 80. SCOPE OF WORK COMPLETED INDICATING EQUIPMENT TO BE USED AND TECHNICAL OBJECTIVES INITIATED RESTORATION OF AIRKIN MIXER FOR USE.</td>
<td>5.0</td>
<td>115.0</td>
<td>MAY 81</td>
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<tr>
<td>5 78 4444</td>
<td>BODY FOR M42/M46 GRENADE CONTRACTS AWARDED TO DAYRON CLRF. AND ME ASSOC. DAYRON HAS COMPLETED DESIGN STAGE. ME ASSOC. SUBMITTED DESIGN DRAWINGS FOR ONE PIECE M46 BODY.</td>
<td>626.0</td>
<td>434.5</td>
<td>JUN 79</td>
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<tr>
<td>5 79 4444</td>
<td>BODY FOR M42/M46 GRENADE CONTRACTS HAVE BEEN AWARDED.</td>
<td>563.0</td>
<td>144.5</td>
<td>SEP 80</td>
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<tr>
<td>5 78 4454</td>
<td>AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL-CAM SITE PROJECT 5 60 4454 FOR SALT. THE FUNDING STATUS FOR THIS PORTION OF THE EFFORT HAS BEEN COMBINED WITH THE FY79 &amp; FY80 AND IS DISPLAYED WITH THE FY80 PROJECT INFORMATION.</td>
<td>3874.0</td>
<td>2665.2</td>
<td>APR 82</td>
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<td>5 79 4454</td>
<td>AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL-CAM SITE PROJECT 5 60 4454 FOR SALT. THE FUNDING STATUS FOR THIS PORTION OF THE EFFORT HAS BEEN COMBINED WITH THE FY79 &amp; FY80 AND IS DISPLAYED WITH THE FY80 PROJECT INFORMATION.</td>
<td>707.0</td>
<td>420.0</td>
<td>MAY 82</td>
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<td>5 80 4454</td>
<td>AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE SHELL (AIDEC) SEE SUBTASK BELOW FOR PROJECT STATUS.</td>
<td>3874.0</td>
<td>2665.2</td>
<td>APR 82</td>
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<tr>
<td>5 80 4454 01</td>
<td>AUTOMATIC INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL (A) THE PROGRAM HAS BEEN RESTRUCTURED TO PRODUCE A 155M PRODUCTION PROTOTYPE SYE THAT WILL BE TESTED AT THE CONTRACTOR's. A SUCCESSFUL DEMONSTRATION WAS CONDUCTED AT THE CONTRACTOR FACILITY IN JULY 1980.</td>
<td>1685.0</td>
<td>APR 82 M A Y 82</td>
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<tr>
<td>5 80 4454 02</td>
<td>AUTOMATIC X-RAY INSPECTION SYSTEM (4-15) THE PROPOSAL FOR THE COST INCREASE HAS BEEN REVIEWED AND THE CONTRACT HAS BEEN AWARDED. THE FABRICATION OF THE OPTICAL SYSTEM HAS BEEN COMPLETED AND IS BEING INSTALLED IN THE SYSTEM. THE PACKAGING OF THE COMPUTER SOFTWARE DOCUMENTATION HAS STARTED.</td>
<td>236.0 114.0 122.0</td>
<td>DEC 80 JUN 81</td>
<td></td>
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<tr>
<td>5 81 4454</td>
<td>AUTO INSF DEVICE EXPLGS CHARGE SHELL (AEDC'S) THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
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<td>5 79 4460</td>
<td>COLD MIXER-ILLUSTRANT COMP ANAL + CONTROL SYSTEM VENDOR SYSTEM EVALUATION; PRELIMINARY HAZARD ANALYSIS AND EQUIPMENT SELECTION IS COMPLETE. THE X-RAY FLUORESCENCE SYSTEM WAS SELECTED FROM THREE SYSTEMS EVALUATED BASED ON TEST DATA AND MINIMA INSTALLATION REQUIREMENTS. FINAL TECH REP HEING WRITTEN</td>
<td>526.0 396.0 123.3</td>
<td>JUL 81 JUN 81</td>
<td></td>
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<td>5 79 4462</td>
<td>MODERNIZED FAD FOR MULTI-BASE PROPELLANTS 10 PROPELLANT DRYING RUNS WERE CONDUCTED ON M2C, M20A1, &amp; M31A1 IN THE MODERIZED FAD BAY. 20% MORE PROPELLANT WAS CAPABLE OF BEING DRIED THAN IN A CONVENTIONAL BAY. A SOLVENT ABSORBER WAS ORDERED.</td>
<td>650.0 565.0 116.4</td>
<td>SEP 82 JUN 82</td>
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<td>5 80 4462</td>
<td>FORCED AIR DRY FOR MULTI-BASED PROPELLANTS USE OF A MAT PIPE IN THE PROCESS WAS FOUND NOT TO BE COST EFFECTIVE AND WAS DELETED FROM THE FY60 50M. A CONTROL SYSTEM FUNCTIONAL CRITERIA BROCHURE WAS PREPARED FOR RADFORD ARP REVIEW.</td>
<td></td>
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<td>5 79 4466</td>
<td>EVAL TNT CYCLOTOL OCTOL IN MELT-FOUR FACILITY COST GROWTH OF $250K WAS APPROVED TO ASSURE A COMPLETE EVALUATION OF THE TNT SOLIDS MIXER WITH LIVE EXPLOSIVES. FABRICATION OF 5 TUNES MIXER WAS INITIATED. FLOOR AREAS WERE PREPARED FOR EQUIPMENT INSTALLATION.</td>
<td>461.0 152.1 101.3</td>
<td>APR 81 MAR 82</td>
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<tr>
<td>5 79 4469</td>
<td>AUTOMATIC INSERTION OF GRENADE LAYERS FINAL INSTALLATION FOR THE GRENADE INSERTION SYSTEM WERE COMPLETED. NECESSARY COMPONENTS WERE ORDERED. THE M443 AND M505 RETENTION RING TESTS WERE TESTED AND ACCEPTED. THE GRENADE PREPACK ASSEMBLY EQUIPMENT CONCEPTS WERE FINALIZED.</td>
<td>1156.0 871.6 111.8</td>
<td>JAN 82 DEC 82</td>
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<td>5 80 4469</td>
<td>AUTOMATIC INSERTION OF GRENADE LAYERS PRELIMINARY ACCEPTANCE TEST FEAT WERE DEVELOPED.</td>
<td>350.0 177.4 2.4</td>
<td>JAN 81 MAR 82</td>
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<td>5 79 4474</td>
<td>DEMODIFIED AIR FOR DRYING SINGLE-BASE PROPELLANT</td>
<td>175.0</td>
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<td>5 80 4486</td>
<td>HIGH SPEED HEAD TURN TOOL NOE FSC AMMO PROD</td>
<td>184.0</td>
<td>2.0</td>
<td>SEP 82</td>
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<tr>
<td>5 80 4487</td>
<td>IMPROVED HIGH SPEED WATERPROOFING, APPL FSC AMMO</td>
<td>126.0</td>
<td>2.0</td>
<td>MAR 82</td>
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<td>5 79 4496</td>
<td>CONSOLIDATION + AUTOMATIC ASSEMBLY OF SMALL PARTS</td>
<td>572.0</td>
<td>500.0</td>
<td>46.2</td>
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<td>5 80 4456</td>
<td>DEVELOPMENT FOR CONSOL AND AUTO ASSY OF SMALL PARTS</td>
<td>392.0</td>
<td>212.0</td>
<td>6.5</td>
</tr>
<tr>
<td>5 79 4506</td>
<td>PROCESS IMPROVEMENT OF PRESSABLE RESIN COMPOSITIONS</td>
<td>357.0</td>
<td>289.0</td>
<td>66.6</td>
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<tr>
<td>5 80 4508</td>
<td>PROCESS IMPROVEMENT OF PRESSABLE RESIN COMPOSITIONS</td>
<td>526.0</td>
<td>334.0</td>
<td>73.4</td>
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<tr>
<td>5 76 6200</td>
<td>SMALL CALIBER AMMO PROCESS IMPROVEMENT PROGRAMP</td>
<td>496.0</td>
<td>296.0</td>
<td>1,002.0</td>
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<tr>
<td>5 77 6200</td>
<td>SMALL CALIBER AMMO PROCESS IMPROVEMENT PROGRAMP</td>
<td>216.0</td>
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<tr>
<td>5 76 6472</td>
<td>APPLY OF ALT PROCES FOR FAB OF PRECIS PETAL PARTS FOR MTFUZE</td>
<td>363.0</td>
<td>329.5</td>
<td>56.9</td>
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<tr>
<td>5 77 6494</td>
<td>NEW CONCEPTS FOR FPS &amp; INSPECTION OF 25MM 35MM AMMU</td>
<td>1,079.0</td>
<td>963.0</td>
<td>86.0</td>
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<td>5 75 6494</td>
<td>MANUFACTURE AND INSPECTION OF CAL 50, 25MM, 35MM AMMU</td>
<td>3,750.0</td>
<td>2,256.0</td>
<td>1,452.6</td>
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<td>5 76 6494</td>
<td>MANUFACTURE AND INSPECTION OF CAL 50, 25MM, and 35MM AMMU</td>
<td>1,196.0</td>
<td>619.0</td>
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<td>NEW CONCEPTS FOR FPS AND INSPECTION OF 25MM 35MM AMMU</td>
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<td>5 76 6557</td>
<td>CONTINUOUS PROPELLANT DRYING SALT COATING AND GLAZING</td>
<td>862.0</td>
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<td>1,616.0</td>
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<td>FULL PROPELLANT FILOET PLANT STUDIES</td>
<td>194.0</td>
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<td>5 77 6623</td>
<td>ALTO INSPECTION DEVICES FOR AFT PROJECTILES IN MOD PLANTS</td>
<td>564.1</td>
<td>340.7</td>
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<td>5 76 6634</td>
<td>MFG DU ALLOYS FOR LARGE CALIBER ARMR DEFEATING PROJECTILE</td>
<td>400.0</td>
<td>400.0</td>
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<tr>
<td>5 79 6634</td>
<td>MFG DU ALLOYS FOR LARGE CALIBER ARMR DEFEATING PROJECTILE</td>
<td>542.0</td>
<td>334.6</td>
<td>202.6</td>
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<td>TITLE/STATUS</td>
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<tr>
<td>577 6640</td>
<td>PFOD CONTROL/QA OF SHAPED CHM LINERS BY AUTO X-RAY ANAL</td>
<td></td>
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</tbody>
</table>

SIXTY PERCENT OF SAMPLE PROJECTILES HAVE BEEN STATIC SPIN |
TESTED. X-RAY SPECIMENS HAVE BEEN FABRICATED AND ARE BEING |
EVALUATED. RESULTS INDICATE THAT LINERS FROM CROSS ROLLED |
MATERIAL PRODUCED ARE CONSISTENT THAN CONVENTIONAL |
LINERS. |

| 579 6662 | SIMULATION OF AMMUNITION PRODUCTION LINES |

THE GENDO PROGRAM AND ECONOMIC DISTRIBUTION METHODOLOGY WERE USED TO |
SIMULATE THE METAL PARTS PRODUCTION LINE AT PSAAP FOR 155MM M283. |
The results of a buffer analysis became the criteria for |
EVALUATION OF PROPOSALS FOR MATERIAL HANDLING EQUIPMENT. |

| 579 6693 | BALL PROPPELLANT DETERRENT COATING-CAM RELATED |

CORRELATION OF ARRACH-DEVELOPED EXPERIMENTAL DATA COMPLETED BY |
NO CAROLINA STATE UNIV. DESIGN OF PILOT PLANT MATERIAL IS |
COMPLETE AND MOST PURCHASED PARTS HAVE BEEN RECEIVED. |
**CONTRACT** - M3D CORP. **150,000 CONTRACT MODIFICATION PLANNED**. |

| 579 6716 | MATH MODEL OF FORMING OPERATIONS FOR ARTILLERY DESIGN |

CONFIRMATION TEST FOR THE COLD AND HOT FORMING OPERATIONS WERE |
CONDUCTED. COMPUTERIZED MATH MODELS FOR THE CABRAGUE AND |
PIERCING OPERATIONS HAVE BEEN COMPLETED AND TESTED. AN '61 PROJECT |
IS PLANNED TO INTEGRATE ALL OF THESE MATH MODELS. |

| 580 6736 | TECH READINESS ACCEL TG-R COMPUTER INTEGRATED FGC (CAM) |

PRELIMINARY PLANNING FOR TECHNOLOGY TRANSFER IS CONTINUING. |
DEVELOPMENT OF THE DATA BASE STRUCTURE AND INPUT/OUTPUT FORMATS |
IS PROGRESSING. |

| 579 6738 | USE OF ULTRA-HIGH SURFACE SPEEDS METAL REMOVAL; ARTILLERY SHELL |

PLASMA ARC MACHINING TESTS AT 1/4A WERE UNSUCCESSFUL. ADDITIONAL |
TESTS WILL BE MADE IN TOOL R&D ENVIRONMENT. HIGH SPEED MACHINING |
TESTS ON 2 DIFFERENT ARTILLERY SHELL STEELS ARE UNDERWAY. TESTS |
WERE INTERRUPTED DUE TO CONTRACTOR'S COMMERCIAL ACTIVITIES |

| 580 6738 | ULTRA-HIGH SPEED METAL REMOVAL; ARTILLERY SHELL |

PLASMA ARC MACHINING TESTS AT 1/4A WERE UNSUCCESSFUL. ADDITIONAL |
TESTS WILL BE MADE IN TOOL R&D ENVIRONMENT. HIGH SPEED MACHINING |
TESTS ON 2 DIFFERENT ARTILLERY SHELL STEELS ARE UNDERWAY. TESTS |
WERE INTERRUPTED DUE TO CONTRACTOR'S COMMERCIAL ACTIVITIES |

| 578 6740 | SCAMP sollution APATEMENT |

INITIAL DEBUGGING PROBLEMS WERE RECTIFIED. SAMPLE RESULTS WERE |
RECEIVED AND EVALUATED. THESE RESULTS SHOWED BETTER THAN EXPECTED |
WASTE SEPARATION. THE QUALITY OF THE APATION WAS ACCEPTED IN NOV 61 AND THE |
FINAL REPORT IS EXPECTED DURING THE NEXT FISCAL QUARTER. |

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<tr>
<th>AUTO-ZIZED</th>
<th>CONTRACT</th>
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<th>ORIGINAL</th>
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<td>($1000)</td>
<td>($1000)</td>
<td>MATERIAL AND LABOR</td>
<td>PROJECTED COMPLETE DATE</td>
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<td>174.6</td>
<td>49.6</td>
<td>90.6</td>
<td>JUN 76 SEP 81</td>
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<td>170.0</td>
<td>170.0</td>
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<td>171.0</td>
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<td>306.0</td>
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<td>JUN 80 JUN 81</td>
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<td>181.0</td>
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<td>24.3</td>
<td>SEP 80 SEP 81</td>
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<td>297.0</td>
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<td>63.1</td>
<td>AUG 81 SEP 81</td>
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<td>310.0</td>
<td>193.6</td>
<td>111.5</td>
<td>JAN 81 SEP 81</td>
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### MANUFACTURING METHODS AND TECHNOLOGY PROGRAM

#### SUMMARY PROJECT STATUS REPORT

**26 SEMIANNUAL SUBMISSION CY 80 RCS ORCMT-301**

<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
<th>AUTHORIZED TIMES</th>
<th>CONTRACTED LABOR</th>
<th>EXPENDED LABOR</th>
<th>MATERIAL</th>
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<td>SCAMP POLLUTION ABATEMENT</td>
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<td>578 6755</td>
<td>METHODS FOR ORIENTING AND FEEDING SMALL CAL AMM</td>
<td>475.0</td>
<td>366.0</td>
<td>93.0</td>
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<td>579 6760</td>
<td>DRYING OF LOW DENSITY BALL PROPELLANT</td>
<td>101.0</td>
<td>65.0</td>
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<td>JAN 81</td>
<td>JUN 81</td>
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<td>576 6774</td>
<td>MANUFACTURING METHODS FOR APDS PROJECTILE</td>
<td>300.0</td>
<td>249.0</td>
<td>51.0</td>
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<td>579 6774</td>
<td>MANUFACTURING METHODS FOR APDS PROJECTILE</td>
<td>695.0</td>
<td>711.0</td>
<td>169.8</td>
<td>NOV 75</td>
<td>JUN 81</td>
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104
<table>
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<tr>
<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds ($)</th>
<th>Contract Allocated ($)</th>
<th>Funding Expended ($)</th>
<th>Inhouse Remaining ($)</th>
<th>Funding Expended ($)</th>
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<td>75</td>
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<td>98,100 (100%)</td>
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<td>40,500 (96%)</td>
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<td>285,400 (81%)</td>
<td>64,600</td>
<td>45,500 (70%)</td>
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<td>77</td>
<td>7</td>
<td>2,470,300</td>
<td>1,558,800 (63%)</td>
<td>911,500</td>
<td>817,600 (89%)</td>
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<td>78</td>
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<td>79</td>
<td>17</td>
<td>2,758,000</td>
<td>772,400 (28%)</td>
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<td>80</td>
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<td>5,852,200</td>
<td>777,300 (13%)</td>
<td>5,074,900</td>
<td>931,800 (18%)</td>
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<td>81</td>
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<tr>
<td>82</td>
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<td>0 (0%)</td>
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**Total** | 64            | 12,962,500            | 4,100,900 (32%)       | 8,861,600            | 3,367,500 (37%)       |

Authorized Funding | Contract Allocated 32% | Inhouse Remaining 68%
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM
SUMMARY PROJECT STATUS REPORT
240 SEMIANNUAL SUBMISSION 80-84 RCS ORC-63-561

<table>
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<tr>
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<th>TITLE &amp; STATUS</th>
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<th>EXPENDED ORIGINAL AND MATERIAL (1000)</th>
<th>PROJECTED COMPLETE DATE</th>
<th>PRESENT COMPLETE DATE</th>
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<tbody>
<tr>
<td>6 60 3901</td>
<td>MANUFACTURE OF FLUIDIC AMPLIFIERS BY COLD FORMING (PHASE 2) DRAWINGS FOR THREE LAMINATES TO BE FINALIZED HAVE BEEN GENERATED, REVIEWED, AND ACCEPTED. FABRICATION OF THE TOOLING IS IN PROGRESS.</td>
<td>59.0</td>
<td>59.0</td>
<td></td>
<td>AUG 81</td>
<td>AUG 81</td>
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<tr>
<td>6 77 7201</td>
<td>ARTILLERY WEAPON FIRING TEST SIMULATOR THE SECOND SIMULATOR HAS BEEN INSTALLED. THE CONTRACTOR IS HAVING PROBLEMS WITH THE COMPUTER HARDWARE AND SOFTWARE. ALTHOUGH THE SYSTEM IS BEING USED ON A LIMITED BASIS, FINAL ACCEPTANCE WILL NOT BE MADE UNTIL THE CONTRACTOR REMEDIES ITS PROBLEMS.</td>
<td>620.0</td>
<td>669.7</td>
<td>110.9</td>
<td>OCT 76</td>
<td>SEP 81</td>
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<tr>
<td>6 79 7217</td>
<td>OPTIMIZATION OF STEP THREAD TOOLING SPECIAL CUTTER ELBOW GRINDING FIXTURE FOR SHARPENING TOOLS IS BEING UTILIZED. LAST SET OF CUTTER BLADES HAS NOT BEEN TESTED DUE TO Machine DOWN TIME AND OPERATOR TRAINING.</td>
<td>75.0</td>
<td>5.2</td>
<td>33.4</td>
<td>NOV 86</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7482</td>
<td>MODIFIED FIBER RIFLING GENERATING MACHINE A PROPOSAL FOR A 3RD MACHINE HAS BEEN RECEIVED AND IS BEING EVALUATED.</td>
<td>296.0</td>
<td>20.4</td>
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<td>APR 81</td>
<td>DEC 83</td>
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<tr>
<td>6 75 7532</td>
<td>SINGLE POINT CUTTING FOR METAL + PLASTIC OPTICS ***** OBLIVIANT STATUS REPORT *****</td>
<td>140.0</td>
<td>40.1</td>
<td>40.5</td>
<td>JUN 76</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7555</td>
<td>DYNAMIC PRESSURIZATION STAND + SLIDE FLOCK BLEACH TEST PROBLEMS WITH THE RELIABILITY OF THE SYSTEM HAS ELIMINATED THE ACCEPTANCE. THE ACCEPTANCE IS SCHEDULED FOR JAN 1981. THE UNIT WAS COMPLETED AND IS IN THE PROCESS OF BEING INSPECTED. THE BASE VALVE ASSY IS SCHEDULED TO BE COMPLETED IN JULY 1981.</td>
<td>121.0</td>
<td>50.9</td>
<td>15.4</td>
<td>SEP 81</td>
<td>FEB 81</td>
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<tr>
<td>6 76 7580</td>
<td>PILOT AUTO SHOP LOADING AND CONTROL SYSTEM - CAM SEVERAL SIMULATION TEST CYCLES WERE RUN ON THE MATERIAL REQUIREMENTS AND CAPACITY PLANNING MODULES. PROGRAMMING OF SOFTWARE FOR THE COST MONITORING AND CONTROL MODULE CONTINUES. TAG SYSTEM INSTALLED AND IMPROVED THE ACCURACY OF WORK-IN-PROCESS RECORDS.</td>
<td>350.0</td>
<td>265.4</td>
<td>45.5</td>
<td>SEP 79</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7605</td>
<td>CHEMICALLY BONDED SAND FOR close TOLERANCE CASTING THE CONTRACTUAL EFFORT TO DESIGN MOLD AND COFF MAKING SYSTEM HAS BEEN COMPLETED. CORE MAKING SYSTEM HAS BEEN RECEIVED AND WILL BE INSTALLED WHEN MATERIAL FOR UTILITIES MFG UP ARE RECEIVED.</td>
<td>127.0</td>
<td>22.0</td>
<td>97.0</td>
<td>MAR 81</td>
<td>MAR 81</td>
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<tr>
<td>6 80 7605</td>
<td>CHEMICALLY BONDED SAND FOR close TOLERANCE CASTING PROJECT IS BEING DELAYED DUE TO DELAYS ENCOUNTERED IN PREVIOUS PROJECT.</td>
<td>174.0</td>
<td>39.7</td>
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<td>FEB 82</td>
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<tr>
<td>6 77 7644</td>
<td>APPLICATION OF INTEGRAL CULLA SANDIZE FOR ALUMINUM LABORATORY EVALUATIONS HAVE BEEN COMPLETED. THE SUPERIORITY OF THE HARD COATING PROCESS WAS DEMONSTRATED. THIRTY MIGA RECEIVERS, COATED WITH CHARCOAL BRAY ICK COATINGS, WERE PROVIDED TO THE INFANTRY BOARD FOR FIELD EVALUATION.</td>
<td>7.0</td>
<td>73.0</td>
<td>APR 78</td>
<td>JAN 81</td>
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<tr>
<td>6 77 7710</td>
<td>INJECTION MOLDING OF RUBBER USMATOR PADS MOLD MODIFICATIONS WERE MADE, AND RESOLVED PROBLEMS OF UNEVEN CURVING. MOLD CONDITIONS WERE ESTABLISHED. MATERIAL PROPERTIES MET PHYSICAL REQUIREMENTS. A SIMPLIFIED PRODUCTION RUN WAS COMPLETED, AND SUCCESSFULLY DEMONSTRATED REPRODUCIBILITY.</td>
<td>77.0</td>
<td>41.6</td>
<td>JUL 79</td>
<td>MAR 81</td>
<td></td>
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<tr>
<td>6 77 7714</td>
<td>MULTI-MODE WEAPON + MOUNT IMPEDANCE SIMULATOR (C2P) THIS PROJECT WILL RESULT IN TEST EQUIPMENT FOR SMALL AND MEDCAL ELLIPSE AND AMMUNITION. THE TEST CUNIT (SIMULATOR) HAS BEEN COMPLETELY ASSEMBLED AND IS UNDERGOING TUNING OF THE MAIN SERVO CIRCUIT.</td>
<td>335.0</td>
<td>245.0</td>
<td>OTC 79</td>
<td>JUL 81</td>
<td></td>
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<tr>
<td>6 79 7724</td>
<td>GROUP TECHNOLOGY OF WEAPON SYSTEMS USING MIGA, A TOTAL OF 473 DETENTIAL PARTS HAVE BEEN CODED. THE FEASIBILITY of ESTABLISHING A MIGA CELL WAS NOT VERIFIED. FUTURE WORK WILL BE DIRECTED TOWARDS AUTOMATED PROCESS PLANNING.</td>
<td>83.0</td>
<td>35.6</td>
<td>36.4</td>
<td>FEB 80</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7725</td>
<td>APPLICATION OF COLD AND WARM RATORY FERGING AN ELECTRONIC MALFUNCTION FAILED COLD FORGING TRIALS. TRIALS ARE NOW SCHEDULED FOR 2ND QUARTER FY81. BATTILLE HAS SUBMITTED A PROPOSAL FOR A COMPUTER PROGRAM TO SIMULATE THE INTEGRATED FERGING LINE. THIS PROPOSAL IS BEING EXPLORED.</td>
<td>166.0</td>
<td>69.9</td>
<td>11.7</td>
<td>SEP 80</td>
<td>SEP 81</td>
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<tr>
<td>6 79 7727</td>
<td>RECYCLING OF SCRAP GUN TUBES BY ROTARY FORGING FORGING TRIALS ARE COMPLETE, INSPECTION IS PROGRESSIONAL TESTING IS COMPLETE FOR ALL OF THE TEN EXPELS TOGETHER. A 75MM TUBE HAS BEEN SELECTED FOR TESTING UNDER THE FIRST ARTICLE ACCEPTANCE MATERIAL.</td>
<td>237.0</td>
<td>7.6</td>
<td>184.9</td>
<td>JUL 81</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7731</td>
<td>MANUFACTURE OF SPLIT RING BREECH SEALS EXC. STUDY COST. EDM TRIED (UNSUCCESSFULLY) WITH COPPER WIRE. WORK CONTINUED USING HYDRAULICALLY OPERATED MACH. ADDITIONAL MODIFICATIONS WERE DECIDED UPON.</td>
<td>137.0</td>
<td>44.0</td>
<td>JUN 80</td>
<td>JUN 81</td>
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<tr>
<td>6 79 7733</td>
<td>MANUFACTURE OF SPLIT RING BREECH SEALS LIMTED SUCCESS WITH POWER OPERATED MACH'ING UNIT. MODIFICATIONS ARE BEING CARRIED OUT.</td>
<td>363.0</td>
<td>8.6</td>
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<td>6 77 7744</td>
<td>IMPROVE FC PARAMETERS FOR OPTICS ***** DEPLOYMENT STATUS REPORT *****</td>
<td>165.0</td>
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<td>JUL 81</td>
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<td>Contract Labor Values ($000)</td>
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<td>Present Projected Complete Date</td>
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<tr>
<td>677745</td>
<td>DIAMOND TOOL FABRICATION CAPABILITY - DARCOM APPROVED JUSTIFICATION FOR CONTINUATION OF THIS PROJECT AND WORK WAS COMPLETED UNDER A CONTRACT WITH ITCH OPTICAL SYSTEM'S DIVISION TO DEVELOP FABRICATION AND/OR REFORMING TECHNIQUES FOR DIAMOND PELLETS.</td>
<td>112.0</td>
<td>56.0</td>
<td>MAR 76</td>
<td>DEC 81</td>
<td></td>
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<tr>
<td>677765</td>
<td>NOISE SUPPRESSOR FOR POWDER TYPE RECOIL MECHANISM TESTING - A CONTRACT HAS BEEN NEGOTIATED. THE EQUIPMENT DESIGN IS BEING REVISED. DUE TO CIRCUMSTANCES BEYOND CONTROL THIS PROJECT HAS SLIPPED. HOWEVER, THE PROJECT IS BEING PROPERLY MANAGED AND SUCCESS IS CONTINGENT UPON TECHNICAL FEASIBILITY.</td>
<td>365.0</td>
<td>326.2</td>
<td>FEB 80</td>
<td>MAY 81</td>
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<tr>
<td>6787602</td>
<td>ESTABLISH MACHINE TOOL PERFORMANCE SPECIFICATIONS - AN OVERALL PROCUREMENT METHODOLOGY WAS ESTABLISHED. DEVELOPMENT OF NEW MACHINE TOOL TESTING AND VALIDATION PROCEDURES CONTINUED. CONTRACTOR PERSONNEL VISITED AIA TO INSPECT EXISTING EQUIPMENT AND PROCEDURES AND DISCUSS MACHINE TOOL DESIGN AND CONTROL.</td>
<td>262.0</td>
<td>259.3</td>
<td>JUN 81</td>
<td>OCT 81</td>
<td></td>
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<tr>
<td>6787607</td>
<td>PROGRAMMED OPTICAL SURFACING EQUIPMENT AND METHODOLOGY (CAM) - A CONTRACT WAS AWARDED TO THE UNIVERSITY OF ROCHESTER FOR A CNC OPTICAL SURFACING CENTER. EITHER A CNC-MOGO 300 OR A COSTUMATIC 300 CNC PRECISION MACHINING CENTER WILL BE BOUGHT. SEE MNT PROJECT 6797807.</td>
<td>134.0</td>
<td>106.5</td>
<td>DEC 79</td>
<td>MAY 82</td>
<td></td>
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<tr>
<td>6797607</td>
<td>PROGRAMMED OPTICAL SURFACING EQUIPMENT AND METHODOLOGY (CAM) - SEE MNT PROJECT 6787607. THE CONTRACTOR IS EVALUATING DATA FROM THE HARDWARE VENDORS. AFTER FINAL EVALUATION, THE CNC MACHINING CENTER WILL BE PURCHASED AND ADAPTED FOR OPTICS FABRICATION.</td>
<td>158.0</td>
<td>119.5</td>
<td>NOV 80</td>
<td>MAY 82</td>
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<tr>
<td>6787608</td>
<td>LEAK DETECTION TECHNIQUES FOR SMALL-SCALE FIXTURE ASSM - ADDITIONAL FUNDING WAS AWARDED TO COMPLETE FABRICATION OF THE TEST FIXTURE AND VALIDATE THE NEW PROCESS. WORK WAS APPROVED BY DARCOM. THE PROJECT WORK WILL COMMENCE IN DEC 80.</td>
<td>133.2</td>
<td>76.2</td>
<td>APR 76</td>
<td>DEC 81</td>
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<tr>
<td>6787640</td>
<td>PORTABLE MULTI-DEGREE-OF-FREEDOM SIMULATOR - UTILIZING THE KNOWLEDGE GAINED FROM MNT PROJECT 6777513, THIS PROJECT WILL PROVIDE A PORTABLE SIMULATOR. CONTRACT NEGOTIATIONS ARE UNDERWAY.</td>
<td>369.0</td>
<td>52.0</td>
<td>JUN 81</td>
<td>APR 83</td>
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<tr>
<td>6807920</td>
<td>CONSERVATION OF CRITICAL MATERIALS FOR GUN TUBES - A CONTRACT HAS BEEN AWARDED TO FABRICATION OF THE TEST FIXTURE; FABRICATION OF THE TEST FIXTURE AND VALIDATE THE NEW PROCESS WAS APPROVED BY DARCOM. THE PROJECT WORK WILL COMMENCE IN DEC 80.</td>
<td>236.0</td>
<td>26.2</td>
<td>SEP 81</td>
<td>DEC 81</td>
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</table>
MANUFACTURING METHODS AND TECHNOLOGY PROGRAM
SUMMARY PROJECT STATUS REPORT
2ND SEMI-ANNUAL SUBMISSION CY 70 RCS DMCN-7-2

PROJ NO. TITLE STATUS

<table>
<thead>
<tr>
<th>AUTHORIZED</th>
<th>CONTRACT</th>
<th>EXPENDED</th>
<th>ORIGINAL</th>
<th>PROJECTED</th>
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<tr>
<td>($000)</td>
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<td>DATE</td>
<td>DATE</td>
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<tr>
<td>6 80 7925</td>
<td>BORE EXCAVATOR BORING</td>
<td>111.0</td>
<td>9.0</td>
<td>MAR 82</td>
<td>MAR 82</td>
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<tr>
<td>LVG AND FEASIBILITY STUDIES HAVE BEEN COMPLETED. A DECISION WAS MADE TO PURSUE SIMULTANEOUS MACHINEING OF BOTH ENDS OF THE EXCAVATOR ASSEMBLY AND EQUIP IS BEING OBTAINED.</td>
<td></td>
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<tr>
<td>6 80 7926</td>
<td>HOT ISOSTATIC PRESSING OF LARGE ORDNANCE COMPONENTS</td>
<td>216.0</td>
<td>10.1</td>
<td>JAN 82</td>
<td>SEP 82</td>
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<tr>
<td>QUOTES HAVE BEEN OBTAINED FROM CAPABLE MIP VENDORS TO PRODUCE TEST FILLETS. WATERVIKT ARSENAL IS NEGOTIATING CONTRACTS.</td>
<td></td>
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<tr>
<td>6 80 7927</td>
<td>GENERATION OF HASTE MACHINING SURFACES</td>
<td>66.0</td>
<td>13.6</td>
<td>MAR 81</td>
<td>JUN 81</td>
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<tr>
<td>A DETAIL ENGINEERING ANALYSIS WAS PERFORMED THAT LED TO THE SELECTION OF AN ENGINEERING DESIGN FOR THE AUTOMATED SYSTEM. WORK HAS COMMENCED ON A PROCUREMENT SPECIFICATION FOR THE SYSTEM.</td>
<td></td>
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<tr>
<td>6 80 7928</td>
<td>ROBOTIZED PUNCHING OPERATIONS</td>
<td>113.0</td>
<td>6.2</td>
<td>AUG 81</td>
<td>AUG 81</td>
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<tr>
<td>FEASIBILITY STUDY HAS BEEN INITIATED. A SAMPLE COMPONENT WAS SENT TO A MANUFACTURER OF ROBOTS FOR TRIAL TESTS. IT SEEMS THAT THREE ROBOT MANUFACTURERS AT MOST (REAM), THERMOWOOD AND AZEIS) HAVE THE CAPABILITY TO SUPPLY A ROBOT TO SOLVE THE PROBLEM.</td>
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<td>6 77 7842</td>
<td>ANALYSIS FOR MODERNIZATION OF INDUSTRIAL OPERATIONS</td>
<td>574.3</td>
<td>347.9</td>
<td>328.1</td>
<td>FEB 81</td>
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<tr>
<td>EFFORTS CONTINUE ON THE PLANNING FOR ROCKSIL ARSENAL MODERNIZATION. CONTRACT IS SHEDDED TO CASE &amp; CO. FOR MACHINE TOOL REPLACEMENT ANALYSIS. STUDIES WERE COMPLETED FOR ENVIRONMENTAL ASSESSMENT, ADDITIONAL ELECTRICAL POWER AND UPDATES TO MASTER PLAN.</td>
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<tr>
<td>6 77 7842</td>
<td>ANALYSIS FOR MODERNIZATION OF INDUSTRIAL OPERATIONS</td>
<td>441.6</td>
<td>419.7</td>
<td>28.6</td>
<td>JUN 81</td>
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<tr>
<td>PLANNING KIDS FOR TELT FACILITY LAYOUTS WERE FOUND FOR THE ROCK ISLAND ARSENAL MODERNIZATION Master Plan.</td>
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<td>6 80 7442</td>
<td>ESTABLISH CUTTING FLUID CONTROL SYSTEM</td>
<td>156.0</td>
<td>122.0</td>
<td>2.6</td>
<td>SEP 81</td>
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<tr>
<td>MATERIALS WERE ORDERED FOR TESTING TESTS. ADDITIONAL FLUIDS WERE REQUESTED AND THE TESTS WERE INITIATED FOR TURNING, BORING, MILLING, DRILLING AND GRINDING.</td>
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<tr>
<td>6 79 7944</td>
<td>APPLICATION OF GROUP TECHNOLOGY TO RIA MRF (CAE)</td>
<td>127.0</td>
<td>91.5</td>
<td>31.5</td>
<td>FEB 81</td>
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<tr>
<td>PICLASS ALONG WITH SUPPORTING APPLICATION PROGRAMS HAVE BEEN INSTALLED. THIS GIVES RIA A COMPLETE OPERATIONAL CLASS. AND CODING AND CT SYSTE M. TO DATE A TOTAL OF 500 PARTS HAVE BEEN CODED. AN ADDITIONAL 500 PARTS ARE CURRENTLY EJILE CODED.</td>
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<td>6 80 7444</td>
<td>APPLICATION OF GROUP TECHNOLOGY TO RIA MFR (CAE)</td>
<td>155.0</td>
<td>31.2</td>
<td>MAY 82</td>
<td>MAY 82</td>
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<tr>
<td>DEVELOPMENT OF PLAN LAYOUT SOFTWARE AND GROUP SCHEDULING SOFTWARE IS CONTINUING. A DATA BASE FOR AN AUTOMATED PROCESS PLANNING SYSTEM IS BEING ETRB. WORK ON IDENTIFYING A PROTOTYPE GE MACHINING CELL IS UNDERWAY.</td>
<td></td>
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110
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<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>EXPENDED LABOR AND MATERIAL VALUES ($000)</th>
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<th>CURRENT PROJECTED COMPLETE DATE</th>
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<tr>
<td>680 8024</td>
<td>HIGH SPEED ABRASIVE BELT GRINDING</td>
<td>324.0</td>
<td>14.8</td>
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<td>679 8025</td>
<td>ELECTRONIC PROFILE READOUT CASE FOR POWDER CHAMBER CONTROLS</td>
<td>104.6</td>
<td>17.6</td>
<td>41.3</td>
<td>JUL 81</td>
<td>DEC 81</td>
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<td>680 8035</td>
<td>COATING TUBE SUPPORT SLEEVES WITH BEARING MATERIALS</td>
<td>180.0</td>
<td>73.1</td>
<td>MAR 81</td>
<td>MAR 81</td>
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<td>680 8036</td>
<td>WEAPON AIMING SYSTEM FOR THE 6-DOF SIMULATOR</td>
<td>126.6</td>
<td>25.0</td>
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<td>APR 82</td>
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<tr>
<td>680 8047</td>
<td>PASS THRU STEADY RESTS FOR TUBE TURNING</td>
<td>269.0</td>
<td>20.4</td>
<td>JUL 81</td>
<td>JUL 83</td>
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<tr>
<td>678 8048</td>
<td>IMPROVE INSPECTION TECHNIQUES FOR FORGED FORGING</td>
<td>113.0</td>
<td>41.2</td>
<td>65.8</td>
<td>SEP 81</td>
<td>DEC 81</td>
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<tr>
<td>678 8049</td>
<td>MANUFACTURING PROCESSES ENERGY CONSERVATION PROGRAM</td>
<td>104.0</td>
<td>51.0</td>
<td>27.2</td>
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<td>JUN 81</td>
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<tr>
<td>689 8051</td>
<td>APPLICATION AND CONTROL OF MACHINE TOOLS (CAM)</td>
<td>100.0</td>
<td>9.6</td>
<td>AUG 81</td>
<td>OCT 81</td>
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<tr>
<td>Proj No.</td>
<td>Title + Status</td>
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<td>Contract Labor Complete Date</td>
<td>Original Material Complete Date</td>
<td>Present Projected Complete Date</td>
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<tr>
<td>6 80 8054</td>
<td>Optical scratch and dig standards for fire control systems. Contract not yet awarded. Project will improve processes used to form optical scratch &amp; dig standards. Laser scribing will be used to make lives in the metal die used to hold the scratch standard. Plasma etching will be used to form dig standards.</td>
<td>165.0</td>
<td>22.0 AUG 84</td>
<td>AUG 84</td>
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<tr>
<td>6 80 8057</td>
<td>Dual rifling broach removal system. Design of broach removal system is nearly complete. Design of rifling heads has been completed and forwarded to tools branch. Procurement action is being initiated on commercial items which will be included in design of the system.</td>
<td>215.0</td>
<td>40.5 SEP 82</td>
<td>DEC 82</td>
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<tr>
<td>6 80 8059</td>
<td>Salavage of cannon components by electrodeposition. Drawings and rejection reports of candidate components have been obtained and the requirements of a salvage coating have been determined. Components have been requested from operations.</td>
<td>152.0</td>
<td>51.6 JUN 81</td>
<td>JUN 81</td>
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<tr>
<td>6 80 8060</td>
<td>Improved MFG processes for final inspection of cannon tubes. Specifications have been rewritten using new formats. These specifications are in the process of being revised.</td>
<td>262.0</td>
<td>215.7 DEC 81</td>
<td>AUG 82</td>
<td></td>
<td></td>
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<tr>
<td>6 80 8062</td>
<td>Rapid internal threading. An industrial survey to determine equipment availability is ongoing.</td>
<td>69.0</td>
<td>9.1 DEC 81</td>
<td>DEC 81</td>
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<tr>
<td>6 79 8104</td>
<td>Improved breach block manufacturing. A decision was made to initiate action to purchase a flexible manufacturing system with Fy2l/pear systems. A presolicitation conference was held on 25 Sep 80. A specification package to solicit concept proposals is being prepared.</td>
<td>100.0</td>
<td>30.4 JAN 81</td>
<td>JUN 81</td>
<td></td>
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<tr>
<td>6 80 8105</td>
<td>Establish rough thread blanks. P-inch #201 bushing. An engineering study concluded that a combination of milling and multiple slotting would have the most impact on reducing machining time. It was concluded that the required machinery is available and fixtureing design has begun.</td>
<td>86.0</td>
<td>20.4 SEP 81</td>
<td>DEC 81</td>
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<tr>
<td>6 80 8106</td>
<td>Large caliber powder chamber boring. A performance-type purchase spec has been completed for a CNC precision positioning system. Final boring bar system drawings are nearing completion. Procurement action has been initiated to purchase a variety of boring tool cartridges + carbide insert.</td>
<td>59.0</td>
<td>37.0 NOV 81</td>
<td>DEC 81</td>
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<tr>
<td>6 80 8107</td>
<td>Creep feed crush form grinding. Fixturing design for retention of 105mm M6 &amp; 105mm ring was completed. Eng specs for all major capital equip to construct 100 hp creep feed crush form profile grinding system has been completed. Formal procurement procedures were started.</td>
<td>576.7</td>
<td>12.4 MAY 83</td>
<td>JUN 83</td>
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<tr>
<td>PROJ NO.</td>
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<td>PROJECTED COMPLETE DATE</td>
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<tr>
<td>6 80 8206</td>
<td>MATERIAL HANDLING CONTRACT FOR CONSULTING SERVICES SIGNED BY PROCUREMENT ON 20 OCT 1980.</td>
<td>16.0</td>
<td>10.0</td>
<td>7.2 SEP 82</td>
<td>SEP 81</td>
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<tr>
<td>6 80 8209</td>
<td>PILOT PRODUCTION OF GRADIENT INDEX OPTICS A SCOPE OF WORK AND PROCUREMENT PACKAGE WERE PREPARED. A CONTRACT WILL BE NEGOTIATED WITH UNIV. OF ROCHESTER TO SCALE UP ION DIFFUSION TECHNIQUES FOR AXIAL GRADIENT INDEX LENS BLANKS. THEY WILL BE GROUND &amp; POLISHED INTO LENSES AND PROVEN IN A SIGHT.</td>
<td>213.0</td>
<td>63.0</td>
<td>DEC 83</td>
<td>DEC 83</td>
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<tr>
<td>6 80 8342</td>
<td>KEYWAY MILLING MACHINE DESIGN HAS BEEN FINALIZED ON THE PURCHASE OF A 3-SPINDLE HORIZ ERROR SUPPORTED COLUMN TRAVELING MILLING MACH. THE MACH WILL BE CAPABLE OF INDEPENDENT AND SIMULTANEOUS CUTTING BY ALL THREE MILLING HEADS.</td>
<td>242.0</td>
<td>121.0</td>
<td>JAN 82</td>
<td>DEC 83</td>
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<td>Fiscal Year</td>
<td>No. of Projects</td>
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<td>Contract Allocated ($)</td>
<td>Contract Expended ($)</td>
<td>Inhouse Remaining ($)</td>
<td>Inhouse Expended ($)</td>
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<td>742,200</td>
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<td>7,800</td>
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<td>295,000</td>
<td>196,000 (66%)</td>
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<td>55,000 (100%)</td>
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<td>1,579,000</td>
<td>489,500 (31%)</td>
<td>161,000</td>
<td>87,100 (54%)</td>
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<td>613,700</td>
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<td>437,300</td>
<td>64,900 (14%)</td>
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<td>0 (0%)</td>
<td>229,000</td>
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<tr>
<td>82</td>
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<td>0</td>
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<td>0 (0%)</td>
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<td>Total</td>
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<td>3,229,900</td>
<td>1,829,500 (56%)</td>
<td>890,100</td>
<td>207,000 (23%)</td>
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Authorized Funding: 78%
Contract Allocated: 56%
Inhouse Remaining: 21%
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<th>CONTRACT VALUES ($000)</th>
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<th>PROJECTED COMPLETE DATE</th>
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<tr>
<td>E 79 3532</td>
<td>MOLTEN SALT LI/CL BATTERY NEW FELT SEPARATORS DEVELOPED ARE LESS COSTLY AND GIVE IMPROVED PERFORMANCE. CPI IS NOW DESIGNING THE BATTERY INSULATION BOX. CELLS WITH FELT SEPARATORS HAVE BEEN OPERATED FOR OVER 1000 CYCLES. THERMAL CYCLING HAS HAD NO LASTING EFFECT ON CELLS.</td>
<td>295.0</td>
<td>280.0</td>
<td>16.0</td>
<td>AUG 80</td>
<td>APR 82</td>
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<tr>
<td>E 79 3592</td>
<td>IMPROVED GRAPHITE REINFORCEMENT-PHASE 3 PILOT PLANT FABRICATION IS NEARING COMPLETION. SEVERAL THOUSAND FEET OF BORON TREATED GRAPHITE FIBER IS BEING TESTED AS REINFORCEMENT IN METAL MATRIX COUPLING. A P-16 HAS BEEN PREPARED TO SUPPORT PHASE III OF THE EFFORT.</td>
<td>282.0</td>
<td>247.5</td>
<td>16.0</td>
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<td>MAR 81</td>
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<tr>
<td>E 79 3604</td>
<td>SOLID STATE POWER SWITCH DELTA ELECTRONIC CORP. CONTINUES TO HAVE TECHNICAL PROBLEMS BUILDING THE INTEGRATED POWER SWITCH. THEY MAY HAVE SOLVED THEIR FINANCIAL AND GROWTH PROBLEMS, BUT ENGINEERING SAMPLES HAVE NOT BEEN DELIVERED. CONTRACT IS FIXED IN PRICE AND SHOULD NOT INC</td>
<td>350.0</td>
<td>295.0</td>
<td>55.0</td>
<td>JUN 80</td>
<td>SEP 81</td>
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<td>E 79 3604</td>
<td>SOLID STATE POWER SWITCH DELTA ELECTRONIC CORP. CONTINUES TO HAVE TECHNICAL PROBLEMS BUILDING THE INTEGRATED POWER SWITCH. THEY MAY HAVE SOLVED THEIR FINANCIAL AND GROWTH PROBLEMS, BUT ENGINEERING SAMPLES HAVE NOT BEEN DELIVERED. CONTRACT IS FIXED IN PRICE AND SHOULD NOT INC</td>
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<td>54.0</td>
<td>26.0</td>
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<td>E 80 3708</td>
<td>COATED FABRIC COLLAPSIBLE FUEL TANK PROGRAM - CIRCULAR SEAL PERFECTION OF THE COATING PROCESS IS CONTINUING UNDER THIS PROJECT. FUTURE EFFORTS WILL BE DIRECTED TO PRODUCTION OF THE FULL SIZE SEAMLESS FABRIC AND COAT THE FABRIC ON PRODUCTION MACHINERY.</td>
<td>100.0</td>
<td>70.0</td>
<td>17.0</td>
<td>SEP 81</td>
<td>SEP 82</td>
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<tr>
<td>E 79 3709</td>
<td>CONTINUOUS LENGTH FUEL HOSE SEE E 60 3709 FOR WORK ACCOMPLISHED.</td>
<td>245.0</td>
<td>164.5</td>
<td>41.5</td>
<td>SEP 81</td>
<td>MAR 82</td>
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<tr>
<td>E 80 3709</td>
<td>CONTINUOUS LENGTH FUEL HOSE PHASE 2 WAS COMPLETED. THE ADVANCING MANDREL MANUFACTURING TECHNIQUE WAS SELECTED FROM THE FOUR CANDIDATE TECHNIQUES EVALUATED. PHASE 2 WORK WAS INITIATED.</td>
<td>179.0</td>
<td>15.7</td>
<td>15.7</td>
<td>SEP 83</td>
<td>MAR 82</td>
</tr>
<tr>
<td>E 80 3717</td>
<td>HIGH TEMPERATURE TURBINE NOZZLE FOR 10 KW POWER UNIT SUBCONTRACTS FOR CERAMIC PARTS HAVE BEEN AWARDED. PARTS WILL BE FABRICATED ON PRODUCTION TOOLING. ACCEPTANCE TESTS WILL BE ACCOMPLISHED TO DETERMINE QUALITY OF PARTS.</td>
<td>436.0</td>
<td>409.8</td>
<td>26.2</td>
<td>OCT 82</td>
<td>SEP 81</td>
</tr>
<tr>
<td>E 81 3717</td>
<td>HIGH TEMPERATURE TURBINE NOZZLE FOR 10 KW POWER UNIT PHASE 2 WAS COMPLETED. THE ADVANCING MANDREL MANUFACTURING TECHNIQUE WAS SELECTED FROM THE FOUR CANDIDATE TECHNIQUES EVALUATED. PHASE 2 WORK WAS INITIATED.</td>
<td>60.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

117
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT EXPENDED VALUES ($000)</th>
<th>EXPENDED LABOR AND MATERIAL VALUES ($000)</th>
<th>PROJECTED COMPLETE DATE</th>
<th>PRESENT COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E 79 3743</td>
<td>COMPOSITE SPUN MATERIAL LAUNCHING BEAM FOR BRIDGES</td>
<td>833.0</td>
<td>633.0</td>
<td>633.0</td>
<td>SEP 80</td>
<td>DEC 82</td>
</tr>
<tr>
<td>E 80 3747</td>
<td>LIGHTER LAVC-30, SKIRT AND FINGER COMPONENTS CONTRACT PACKAGE HAS BEEN PREPARED, APPROVED, AND IS AWAITING SOLICITATION.</td>
<td>191.0</td>
<td>6.0</td>
<td>NOV 80</td>
<td>FEB 82</td>
<td></td>
</tr>
<tr>
<td>E 81 3747</td>
<td>LAVC-30, SKIRT + FINGER COMPONENTS INITIATION OF WORK, WAITING LETTING OF CONTRACT 1A MM1 E 80 3747.</td>
<td>60.0</td>
<td></td>
<td>FEB 63</td>
<td>FEB 83</td>
<td></td>
</tr>
<tr>
<td>E 77 3749</td>
<td>HYDRAULIC ROTOR ACTUATORS ON-VEHICLE TESTING WAS COMPLETED AND ACTUATORS ARE BEING PREPARED FOR SHIPMENT TO BIRD-JOHNSON COMPANY FOR LEAKAGE TEST AND WEAR ANALYSIS.</td>
<td>750.0</td>
<td>742.2</td>
<td>MAY 79</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>E 80 3749</td>
<td>HYDRAULIC ROTARY ACTUATORS CRITICAL COMPONENTS ARE BEING REDESIGNED, SEARCH FOR MANUFACTURING SUB-CONTRACTORS IS UNDERWAY.</td>
<td>145.0</td>
<td>133.5</td>
<td>DEC 81</td>
<td>APR 81</td>
<td></td>
</tr>
<tr>
<td>E 81 3759</td>
<td>KEVLAR CABLE REINF FOR MILITARY BRIDGES A CONTRACT PACKAGE HAS BEEN PREPARED. CONTRACT AWARD IS ANTICIPATED FOR 3Q81.</td>
<td>109.0</td>
<td></td>
<td>MAY 82</td>
<td>MAY 82</td>
<td></td>
</tr>
</tbody>
</table>
## Communications R & D Command

### Current Funding Status - 2nd CY 86

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds ($)</th>
<th>Contract Allocated ($)</th>
<th>Contract Expended ($)</th>
<th>In-House Funding Remaining ($)</th>
<th>In-House Funding Expended ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>1</td>
<td>437,800</td>
<td>392,800</td>
<td>358,800</td>
<td>45,000</td>
<td>45,000 (100%)</td>
</tr>
<tr>
<td>77</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>78</td>
<td>1</td>
<td>316,500</td>
<td>292,500</td>
<td>0 (0%)</td>
<td>24,000</td>
<td>24,000 (100%)</td>
</tr>
<tr>
<td>79</td>
<td>2</td>
<td>1,508,700</td>
<td>1,440,800</td>
<td>733,906</td>
<td>67,900</td>
<td>56,200 (85%)</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>825,000</td>
<td>0</td>
<td>0 (0%)</td>
<td>825,000</td>
<td>37,500 (4%)</td>
</tr>
<tr>
<td>81</td>
<td>2</td>
<td>1,097,000</td>
<td>0</td>
<td>0 (0%)</td>
<td>1,097,000</td>
<td>2,000 (0%)</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>4,185,000</strong></td>
<td><strong>2,126,100</strong></td>
<td><strong>1,092,700</strong></td>
<td><strong>2,056,900</strong></td>
<td><strong>166,700 (8%)</strong></td>
</tr>
</tbody>
</table>

**Authorized Funding**: Contract Allocated 51%

**In-House Remaining**: 49%
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE / STATUS</th>
<th>AUTHORIZED VALUES ($1000)</th>
<th>CONTRACTED VALUES ($1000)</th>
<th>EXPENDED MATERIAL COST ($1000)</th>
<th>ORIGINAL PROJECTED COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 80 3636</td>
<td>CAD/CAM OF SPECIAL ELECTRONIC CIRCUITS</td>
<td>20.0</td>
<td>13.5</td>
<td>AUG 61</td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td>F 81 3036</td>
<td>CAD/CAM OF SPECIAL ELECTRONIC CIRCUITS (CAM)</td>
<td>320.0</td>
<td>20.0</td>
<td>DEC 61</td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td>F 80 3050</td>
<td>PRODUCT DESIGN METHODS FOR MULTI-LAYER FOLDED CIRCUITS</td>
<td>885.0</td>
<td>29.0</td>
<td>SEP 62</td>
<td>MAY 82</td>
<td></td>
</tr>
<tr>
<td>F 81 3056</td>
<td>ELEVATION THROUGH EJECTION METHODS</td>
<td>777.0</td>
<td></td>
<td>DEC 82</td>
<td>DEC 82</td>
<td></td>
</tr>
<tr>
<td>276 977A</td>
<td>LONG LIFE LIGHT EMITTER FOR FIBER OPTICS</td>
<td>437.6</td>
<td>592.6</td>
<td>45.0</td>
<td>AUG 76</td>
<td>APR 61</td>
</tr>
<tr>
<td>276 977B</td>
<td>LONG LIFE LIGHT EMITTER FOR FIBER OPTICS</td>
<td>216.4</td>
<td>142.6</td>
<td>29.5</td>
<td>APR 61</td>
<td>APR 81</td>
</tr>
<tr>
<td>276 977C</td>
<td>LONG LIFE LIGHT EMITTER FOR FIBER OPTICS</td>
<td>221.4</td>
<td>198.9</td>
<td>22.5</td>
<td>APR 61</td>
<td>APR 81</td>
</tr>
<tr>
<td>F 79 9635</td>
<td>INTEGRATE THE FIBER TRANSISTOR DISPLAY</td>
<td>996.7</td>
<td>943.6</td>
<td>13.5</td>
<td>AUG 81</td>
<td>AUG 81</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE &amp; STATUS</td>
<td>AUTHORIZED</td>
<td>CONTRACT</td>
<td>EXPENSED</td>
<td>ORIGINAL PROJ. COMPLETE DATE</td>
<td>PRESENT PROJ. COMPLETE DATE</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>2 79 9494</td>
<td>SUGGESTED TACTICAL FIELD OF VIEW CABLES</td>
<td>316.5</td>
<td>292.5</td>
<td>24.0</td>
<td>NOV 79</td>
<td>DEC 81</td>
</tr>
<tr>
<td>2 79 9494</td>
<td>IN ELECTRO-OPTIC (EO) INTERFERENCE CABLE, CALIBRATING AND POLYHEDRAL INFRASTRUCTURE SUITABLE FOR MILITARY APPLICATION. CONFIRMATORY SAMPLE CABLES WERE FABRICATED &amp; ARE UNDER TEST. PRODUCTION SCALES ARE FULLY OPERATIONAL AT REQUIRED RATE.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 79 9420</td>
<td>THREE COLOR LIGHT EMITTING EYE DISPLAY UNIT</td>
<td>516.0</td>
<td>457.6</td>
<td>44.7</td>
<td>SEP 81</td>
<td>MAR 82</td>
</tr>
<tr>
<td>F 79 9420</td>
<td>THREE COLOR LIGHT EMITTING EYE DISPLAY UNIT</td>
<td>516.0</td>
<td>457.6</td>
<td>44.7</td>
<td>SEP 81</td>
<td>MAR 82</td>
</tr>
<tr>
<td>F 79 9420</td>
<td>THREE COLOR LIGHT EMITTING EYE DISPLAY UNIT</td>
<td>516.0</td>
<td>457.6</td>
<td>44.7</td>
<td>SEP 81</td>
<td>MAR 82</td>
</tr>
</tbody>
</table>

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### ELECTRONICS R & D COMMAND

**CURRENT FUNDING STATUS, 2ND CYEO**

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>NO. OF PROJECTS</th>
<th>AUTHORIZED FUNDS ($  )</th>
<th>CONTRACT ALLOCATED ($  )</th>
<th>CONTRACT EXPENDED ($  )</th>
<th>IN HOUSE FUNDING REMAINING ($  )</th>
<th>IN HOUSE EXPENDED ($  )</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>2</td>
<td>431,700</td>
<td>375,466</td>
<td>329,100 (67%)</td>
<td>56,300</td>
<td>35,000 (62%)</td>
</tr>
<tr>
<td>77</td>
<td>0</td>
<td>7,790,600</td>
<td>6,695,600</td>
<td>5,401,100 (80%)</td>
<td>1,294,500</td>
<td>587,800 (53%)</td>
</tr>
<tr>
<td>78</td>
<td>10</td>
<td>3,671,300</td>
<td>1,692,466</td>
<td>2,613,100 (136%)</td>
<td>1,778,500</td>
<td>294,300 (161%)</td>
</tr>
<tr>
<td>79</td>
<td>10</td>
<td>5,569,300</td>
<td>5,006,800</td>
<td>2,054,900 (41%)</td>
<td>582,500</td>
<td>375,300 (64%)</td>
</tr>
<tr>
<td>80</td>
<td>12</td>
<td>7,119,300</td>
<td>4,727,200</td>
<td>849,000 (17%)</td>
<td>2,392,600</td>
<td>307,500 (12%)</td>
</tr>
<tr>
<td>81</td>
<td>2</td>
<td>1,303,000</td>
<td>0</td>
<td>0 (0%)</td>
<td>1,303,000</td>
<td>27,000 (2%)</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>41</strong></td>
<td><strong>25,905,200</strong></td>
<td><strong>16,697,500</strong></td>
<td><strong>11,247,200 (60%)</strong></td>
<td><strong>7,207,700</strong></td>
<td><strong>1,626,500 (22%)</strong></td>
</tr>
</tbody>
</table>

**AUTHORIZED FUNDING**

**CONTRACT ALLOCATED 72%**

**INHOUSE REMAINING 27%**
<table>
<thead>
<tr>
<th>Proj No.</th>
<th>Title &amp; Status</th>
<th>Authorized Contract Values</th>
<th>Exceeded Original Contract Values</th>
<th>Complete Project Date</th>
<th>Complete Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 80 3616</td>
<td>MILLIMETER-WAVE SOURCES FOR 60, 94, AND 146 GHz</td>
<td>622.0</td>
<td>514.4</td>
<td>6.1 JUN 79 JUN 82</td>
<td></td>
</tr>
<tr>
<td>H 80 3612</td>
<td>INFRA-RED SOURCE FOR AN/ALL-144</td>
<td>350.0</td>
<td>264.3</td>
<td>15.0 JAN 81 DEC 81</td>
<td></td>
</tr>
<tr>
<td>H 80 3623</td>
<td>TUBULAR PLASMA PANEL</td>
<td>800.0</td>
<td>674.0</td>
<td>6.0 APR 79 JUN 82</td>
<td></td>
</tr>
<tr>
<td>H 80 3626</td>
<td>HIGH PRESSURE DURICL IC PROCESS</td>
<td>464.0</td>
<td>101.4</td>
<td>46.0 MAY 82 OCT 82</td>
<td></td>
</tr>
<tr>
<td>H 01 3811</td>
<td>15.0x UM CO-2 TLG LASERS</td>
<td>550.0</td>
<td>27.0</td>
<td>27.0 JUN 82 DEC 84</td>
<td></td>
</tr>
<tr>
<td>H 01 3501</td>
<td>THIRD GENERATION PHOTOCELLS ON FIBER OPTIC FACEPLATE</td>
<td>572.4</td>
<td>492.4</td>
<td>26.0 MAR 82 MAR 82</td>
<td></td>
</tr>
<tr>
<td>H 79 3504</td>
<td>ACV MET F/FAITH CHALCOGENIDE CL IR LENS BKS</td>
<td>350.1</td>
<td>250.3</td>
<td>35.0 MAY 81 JUN 81</td>
<td></td>
</tr>
<tr>
<td>H 80 3511</td>
<td>TRANSDUCER PROCESS TECHNOLOGY FOR KM DELAY LINES</td>
<td>569.0</td>
<td>272.1</td>
<td>12.0 AUG 82 AUG 82</td>
<td></td>
</tr>
<tr>
<td>Proj No.</td>
<td>Title + Status</td>
<td>AuthORIZED</td>
<td>CONTRACT</td>
<td>EXPENDED</td>
<td>ORIGINAL COMPLETE DATE</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>H 78 3511</td>
<td>Fab of ultraviolet photomasks for integrated circuit devices a contract for the direct wafer slipper was let to optimetrix corp for delivery in May 81, acceptance tests are being developed at mnl. short wavelength uv optics are being incorporated. will permit sue-michael line widthing for advanced patterning.</td>
<td>732.0</td>
<td>713.7</td>
<td>12.3</td>
<td>SEP 81</td>
</tr>
<tr>
<td>H 79 3516</td>
<td>Cryogenic cooler heater motor circuit aeroflex supplied relays due to personnel changes and need for ncl substrate also transistors were damaged by ineffective cleaning and melting moisture transistor die failure inspection and final inspection field strengthening. 5 samples are being built.</td>
<td>175.9</td>
<td>140.8</td>
<td>26.0</td>
<td>JUN 81</td>
</tr>
<tr>
<td>H 79 3520</td>
<td>Production unit forging of alkali halide lenses honeywell is hot pressing potassium bromide to form lens blanks, the press now uses constant spring instead of constant rate, inert gas pressure was reduced from several atmospheres to one. lenses will help cost for picture protection.</td>
<td>551.0</td>
<td>541.0</td>
<td>46.0</td>
<td>SEP 81</td>
</tr>
<tr>
<td>H 79 3542</td>
<td>Large diameter kc litton has grown 5cm diameter neodymium yttrium aluminum garnet (c-lagy) foxtails to 64mp leveling, crystals have blossoming &amp; cracks but quality is impressive &amp; sufficient to make engineering samples. rods cut from foxtail are used in algols-5 laser.</td>
<td>356.0</td>
<td>363.6</td>
<td>42.6</td>
<td>JUL 81</td>
</tr>
<tr>
<td>H 80 3554</td>
<td>MMI-6 KEB KOD EQUIP</td>
<td>40.0</td>
<td>40.5</td>
<td></td>
<td>JUN 81</td>
</tr>
<tr>
<td>H 80 3570</td>
<td>Common module detector array santa barbara research center documented every step in the array fabrication process. 25 steps are candidates for improvement, prototype lapping and polishing equipment was installed and used of 56 samples. glow shield toling was also installed.</td>
<td>1,150.0</td>
<td>1,096.7</td>
<td>22.4</td>
<td>JUN 81</td>
</tr>
<tr>
<td>H 81 3510</td>
<td>Common module detector Arrays this project was just funded. a status report is required.</td>
<td>753.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H 80 3547</td>
<td>HI resistivity polycrystalline silicon memblock semiconductor corp will optimize its trichromosilane reactor to produce silicon for polycrystalline silicon. the poly material will be refined by an automatic float zone in a good production facility on proj 5510047.</td>
<td>346.0</td>
<td>306.0</td>
<td>29.0</td>
<td>SEP 81</td>
</tr>
</tbody>
</table>
## Manufacturing Methods and Technology Program

**Summary Project Status Report**

2nd Quarter Submission FY 60 RCS DACM-361

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Title * Status</th>
<th>Authorized Labor Values ($000)</th>
<th>Exceeded Original Contract Labor Values ($000)</th>
<th>Present Projected Complete Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 60 9565</td>
<td>Miniature High Voltage Power Supplies for Night Vision Goggles</td>
<td>535.0</td>
<td>347.1</td>
<td>15.0</td>
</tr>
<tr>
<td>H 60 9566</td>
<td>Third Generation Low Cost Image Intensifier Tubes</td>
<td>900.0</td>
<td>16.0</td>
<td>January 82 April 83</td>
</tr>
<tr>
<td>2 76 9736</td>
<td>Epitaxial Metallization Processes for Gas Impatt Diodes</td>
<td>246.8</td>
<td>247.0</td>
<td>June 77 May 81</td>
</tr>
<tr>
<td>2 76 9738</td>
<td>Pulsed Gallium Arsenide Impatt Diodes</td>
<td>500.0</td>
<td>441.2</td>
<td>40.0</td>
</tr>
<tr>
<td>2 77 9751</td>
<td>Microwave Associates Extended Automated Growth Controls Developed on 276975A</td>
<td>142.0</td>
<td>119.0</td>
<td>23.0</td>
</tr>
<tr>
<td>2 77 9754</td>
<td>MFG Methods for Fabrication of YAG Laser Rods</td>
<td>2091.8</td>
<td>2035.8</td>
<td>63.0</td>
</tr>
<tr>
<td>2 76 9766</td>
<td>Continous Cycle Proc of Shock Resistant Quartz Crystal Units</td>
<td>162.9</td>
<td>126.4</td>
<td>35.0</td>
</tr>
<tr>
<td>2 79 9763</td>
<td>Production of High Resistivity Silicon Material</td>
<td>916.6</td>
<td>858.6</td>
<td>34.5</td>
</tr>
</tbody>
</table>

Hughes Projected a Lost Growth of 1500K for M. Automated Zoner. Scope of work was reduced to a "Automotive-Project" Zoner and Size of work was reduced to 1520K. Work and funding are joint with AF R. Work on components started.

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<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES</th>
<th>CONTRACTED VALUES</th>
<th>EXPENDED ORIGINAL MATERIALS AND LABOR VALUES</th>
<th>PRESENT PROJECTED VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>77 9792</td>
<td>FDY OF FUNNELLED MCP'S WITH HIGH SECONDARY EMITTING COATING GALILEO COPPA LED MOUTH TO REDUCE EMISSION DEFECTS AT HIGH FIELD EMISSION POINTS. EARLIER THEY WORKED ON STAB DRIVING, FUSING, FUNNELING, COATING, FILM EVAPORATION. TESTING, AND HOW TO SALVAGE MCP'S WITH INJECTIVE FILMS. 2 MONTH DELAY GRANTED.</td>
<td>600.0</td>
<td>471.7</td>
<td>129.3</td>
<td>MAR 0</td>
</tr>
<tr>
<td>77 9793</td>
<td>PRODUCTION OF INTAGLIATED FIBER OPTIC PHOSPHOR SHOWED THAT IT COMPLETED WORK ON THE CONTRACT AND IS USING THE PROCESSES TO MAKE FIBER OPTIC PHOSPHOR SHEETS FOR THE ALWES-2 DRIVERS AND INSIDE KIT PROJECT. CONTRACT WAS FOR CORE ETCHING AND WALL METALIZATION TO REDUCE LIGHT SCATTERING.</td>
<td>200.0</td>
<td>177.1</td>
<td>32.0</td>
<td>DEC 75</td>
</tr>
<tr>
<td>77 9805</td>
<td>AUTO MICROCIRCUIT BRIDGE PPA 544 OF QUARTZ CRYSTALS MUGS: BUILT ON ADVANCED QUARTZ CRYSTAL PARAMETER MEASURING SYSTEM WITH TEST CAPACITY OF 75 UNITS A DAY. A NEW MICROCIRCUIT BRIDGE IS UNDER EVALUATION. TEST SYSTEM IS 75 PERCENT COMPLETE. RESULTANT TEST TECHNIQUES TO BE INTEGRATED INTO MIL-G-2696 SPE</td>
<td>615.0</td>
<td>764.0</td>
<td>75.0</td>
<td>JAN 79</td>
</tr>
<tr>
<td>77 9805</td>
<td>QUARTZ CRYSTAL PARAMETER TESTING FOLLOW-ON TO ABE. MUGS WILL INCREASE TESTING CAPABILITY OF PREVIOUS SYSTEM TO 50 CRISTALS A DAY. CRYSTAL FREQUENCY, TEMPERATURE &amp; AGING CHARACTERISTICS WILL BE AUTOMATICALLY MEASURED, EVALUATED, DISPLAYED &amp; STORED. EQUIPMENT PURCHASE HAS BEEN ORDERED.</td>
<td>725.0</td>
<td>665.0</td>
<td>10.0</td>
<td>JUN 80</td>
</tr>
<tr>
<td>77 9807</td>
<td>PROCESSING HIGH STABILITY QUARTZ CRYSTAL UNIT GMB IS EXPANDING THE VACUUM CRYSTAL PRODUCTION EQUIPMENT BUILT UNDER 77 9794. MODIFICATIONS WILL INCREASE FUTURE VACUUM PRODUCTION CAPABILITY OF CRYSTAL CRYSTALS. POLISHING TEST EQUIPMENT HAS BEEN ORDERED.</td>
<td>760.0</td>
<td>762.0</td>
<td>22.0</td>
<td>MAR 01</td>
</tr>
<tr>
<td>77 9809</td>
<td>MIG TECHNIQUE FOR CLEANNESS IN SPE PROD FOR SOLID STATE MICROCHIP MEASUREMENTS OF INTEGRITY TYPE AND LEVEL DURING MIG OF PIN DIODE WERE COMPLETED. CONTRACTOR HAS ELECTRONICS DIVISION REPORTED NO PROGRESS FOR THIS FILTER.</td>
<td>639.0</td>
<td>621.0</td>
<td>7.0</td>
<td>NOV 0</td>
</tr>
<tr>
<td>77 9812</td>
<td>SPLIT CYCLE STANDING COOLER MARTIN METALS INSTALLED NEW MIG SENSORS IN THE COOLERS AND PUT THEM ON LIFE TEST AFTER THE MIGS FAILED. MARTIN LEARNED HOW TO SHAPE, FINISH, AND HANDLE THE METAL SPOOLING. INSTEAD WAS EXECUTED BY THE MARTIN SYSTEMS LTD.</td>
<td>795.0</td>
<td>439.0</td>
<td>65.0</td>
<td>JAN 01</td>
</tr>
<tr>
<td>77 9815</td>
<td>PRELIMINARY LOW COST QUADRANT EFFECTOR FOR CLOE. IT SUBMITTED A PROPOSAL TO TERMINATE THE CONTRACT BECAUSE THEIR INTEGRATOR HAVE VARYING LACK CAPABILITIES AND ALSO FA LIED TO BE COST COMPETITIVE WITH MARTIN METALS. EFFECTOR PRODUCED FAULTS, TESTS CANTILEVERED LIFTS FAILED THERMAL SHOCK TEST.</td>
<td>275.0</td>
<td>153.0</td>
<td>43.0</td>
<td>JAN 01</td>
</tr>
</tbody>
</table>

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MANUFACTURING METHODS AND TECHNOLOGY PROGRAM
SUMMARY PROJECT STATUS REPORT
2ND SEMI-ANNUAL SUBMISSION CY 60 RCS GRMT-351

<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
<th>AUTHORIZED VALUES ($)</th>
<th>CONTRACT VALUES ($)</th>
<th>EXPENDED VALUES ($)</th>
<th>ORIGINAL PROJECTED COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 79 9638</td>
<td>MINIATURE CATHODE PAY TUBES</td>
<td>366.7</td>
<td>27.7</td>
<td>59.0</td>
<td>AUG 81</td>
<td>APR 82</td>
</tr>
<tr>
<td>H 79 9644</td>
<td>CMOS CIRCUITS USING SILICON ON SAPPHIRE - SOS-TECHNOLOGY</td>
<td>770.0</td>
<td>666.4</td>
<td>45.1</td>
<td>NOV 81</td>
<td>DEC 82</td>
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<tr>
<td>2 77 9645</td>
<td>NUMERICALLY CONTROLLED OPTICAL FABRICATION</td>
<td>333.3</td>
<td>303.3</td>
<td>20.5</td>
<td>OCT 77</td>
<td>APR 81</td>
</tr>
<tr>
<td>2 77 9657</td>
<td>AUTO SEPARATION CARRIER MOUNTING + TESTING OF SEMI-CUT DIODE</td>
<td>1,275.0</td>
<td>1,125.3</td>
<td>131.0</td>
<td>OCT 79</td>
<td>JUL 81</td>
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<tr>
<td>H 78 9860</td>
<td>PAN TECHNOLOGY - GALLIUM ARSENIDE KIW FIELD EFFECT TRANSISTORS</td>
<td>469.3</td>
<td>399.3</td>
<td>59.0</td>
<td>NOV 80</td>
<td>SEP 81</td>
</tr>
<tr>
<td>2 77 9873</td>
<td>ANTENNA PATTERN MEASUREMENTS USING NEARFIELD TECHNIQUES</td>
<td>719.4</td>
<td>692.4</td>
<td>27.0</td>
<td>OCT 79</td>
<td>MAR 81</td>
</tr>
<tr>
<td>H 79 9677</td>
<td>LIGHT EMITTING DIODE ARRAY COMMON MODULE</td>
<td>625.6</td>
<td>575.6</td>
<td>48.7</td>
<td>APR 81</td>
<td>DEC 81</td>
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<tr>
<td>H 78 9889</td>
<td>THIRD GENERATION C-3 MICRO WAFER INTENSIFIER TUBE</td>
<td>1,770.0</td>
<td>161.1</td>
<td>145.0</td>
<td>JUN 81</td>
<td>SEP 81</td>
</tr>
<tr>
<td>Proj No.</td>
<td>Title + Status</td>
<td>Authorized Values ($000)</td>
<td>Contract Labor and Material Projections (G000)</td>
<td>Expended Original Material Complete Date</td>
<td>Present Projected Complete Date</td>
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</tr>
<tr>
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<td>----------------------------------------------</td>
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<td></td>
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<tr>
<td>H 78 9889 A</td>
<td>THIRD GENERATION 0.9 MICRON WAFFER INTENSIFIER TUBE (ITT)</td>
<td>710.1</td>
<td>632.1</td>
<td>75.0</td>
<td>JUN 81 SEP 81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITT HAS ITS 12-TUBE PROCESSING CHAMBER TESTED BUT IS WAITING FOR GOOD QUALITY GA-45 CATHODES. DELAY WAS CAUSED BY OTHER WORK PRIORITY AND 3RD GEN TECHNICAL PROBLEMS. REMAINING FUNDS WILL PROVIDE ONLY 12 TUBES. TWO SAMPLE TUBES WERE DELIVERED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H 78 9889 B</td>
<td>THIRD GENERATION 0.9 MICRON WAFFER INTENSIFIER TUBE (VARIAN)</td>
<td>1,960.0</td>
<td>960.0</td>
<td>70.0</td>
<td>JUN 81 OCT 81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VARIAN EXHAUSTED ITS FUNDS AND CANNOT COMPLETE HARDWARE AND SOFTWARE REQUIREMENTS WITHOUT ADDITIONAL FUNDING. VARIAN REQUESTED 1,461K MORE. CONTRACT IS TO BE MODIFIED TO REQUIRE ONLY SOFTWARE. SAMPLES MADE IN MULTI-PROCESSOR NET SPECIFICATIONS.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H 80 9897</td>
<td>SURFACE ACOUSTIC WAVE RESONATOR - REFLECTIVE ARRAY DEVICES DRY ETCHING PROCESSES ARE BEING TESTED TO DETERMINE THE BEST FOR UNIFORMITY AND REPEATABILITY. ELECTRICAL DESIGNS FOR THE RESONATOR AND COMPRRESSOR ARE NEARLY COMPLETED. SEVERAL CONFERENCES HAVE BEEN HELD WITH PROSPECTIVE SUPPLIERS OF PACKAGES.</td>
<td>596.4</td>
<td>569.4</td>
<td>1.5</td>
<td>AUG 82 OCT 82</td>
<td></td>
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</table>
## HQ-DARCOM & ARMY MATERIALS AND MECHANICS RESEARCH CENTER & DESCOR

### CURRENT FUNDING STATUS: 2ND CY80

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>NO. OF PROJECTS</th>
<th>AUTHORIZED FUNDS ($ )</th>
<th>CONTRACT ALLOCATED ($ )</th>
<th>CONTRACT FUNDING EXPENDED ($ )</th>
<th>IN HOUSE FUNDING REMAINING ($ )</th>
<th>IN HOUSE FUNDING EXPENDED ($ )</th>
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<tbody>
<tr>
<td>77</td>
<td>1</td>
<td>363,000</td>
<td>363,000</td>
<td>251,300 (65%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>77</td>
<td>1</td>
<td>305,000</td>
<td>208,000</td>
<td>208,000 (70%)</td>
<td>97,000</td>
<td>97,000 (100%)</td>
</tr>
<tr>
<td>78</td>
<td>2</td>
<td>5,370,000</td>
<td>1,946,700</td>
<td>812,700 (41%)</td>
<td>3,423,300</td>
<td>3,423,300 (98%)</td>
</tr>
<tr>
<td>79</td>
<td>3</td>
<td>5,417,000</td>
<td>2,749,600</td>
<td>976,800 (35%)</td>
<td>2,666,800</td>
<td>2,593,400 (97%)</td>
</tr>
<tr>
<td>80</td>
<td>4</td>
<td>5,220,000</td>
<td>2,391,700</td>
<td>1,210,800 (50%)</td>
<td>2,814,300</td>
<td>2,716,700 (96%)</td>
</tr>
<tr>
<td>81</td>
<td>2</td>
<td>260,000</td>
<td>0</td>
<td>0</td>
<td>260,000</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13</td>
<td>16,941,900</td>
<td>7,679,000</td>
<td>3,400,700 (44%)</td>
<td>9,262,900</td>
<td>8,786,400 (94%)</td>
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</table>

**AUTHORIZED FUNDING**

**CONTRACT ALLOCATED 45%**

**INHOUSE REMAINING 54%**
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE &amp; STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>LABOR PROJECTED AND COMPLETE MATERIAL DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
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<tbody>
<tr>
<td>471 5052</td>
<td>ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT CONTINUED WORK ON 706-100, DESIGN GUIDE FOR PRODUCIBILITY, 706-159 AND 159, DYNAMICS OF BALLISTIC IMPACT, PART I AND II OF 706-199, DEVELOPMENT GUIDE FOR RELIABILITY.</td>
<td>363.0</td>
<td>363.0</td>
<td>JUN 78</td>
<td>MAR 81</td>
</tr>
<tr>
<td>477 5052</td>
<td>ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK IN EXPERIMENTAL STATISTICS, MAINTAINABILITY AND SAFETY, DESIGN GUIDES, PLUS OTHER TECHNICAL AREAS.</td>
<td>305.0</td>
<td>208.0</td>
<td>97.0</td>
<td>SEP 79 JUN 81</td>
</tr>
<tr>
<td>478 5052</td>
<td>ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK IN MATERIAL DETERIORATION PREVENTION AND CONTROL, QUALITY ASSURANCE IN HELICOPTER ENGINEERING. PLUS OTHER TECHNICAL AREAS.</td>
<td>870.0</td>
<td>742.0</td>
<td>82.0</td>
<td>NOV 79 JAN 82</td>
</tr>
<tr>
<td>479 5052</td>
<td>ARMY ENGINEERING DESIGN HANDBOOK FOR PRODUCTION SUPPORT WORK CONTINUES ON UPDATING AND PREPARING NEW ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT. SELECTED EXAMPLES INCLUDE WORK ON THE DESIGN GUIDE FOR PRODUCIBILITY, MATERIALS ENGINEERING FOR PLASTIC PRODUCT DESIGN.</td>
<td>495.0</td>
<td>387.0</td>
<td>71.2</td>
<td>MAY 83 MAY 83</td>
</tr>
<tr>
<td>480 5052</td>
<td>ARMY ENGINEERING DESIGN HANDBOOKS FOR PRODUCTION SUPPORT WORK WAS INITIATED ON A NEW HANDBOOK ON THE METEOROLOGICAL EFFECTS ON MILITARY MATERIAL AND WEAPON SYSTEMS. WORK CONTINUES ON UPDATING AND PREPARING NEW HANDBOOKS FOR PRODUCTION SUPPORT. REVISIONS INCLUDE FUSES HYDRAULIC FLUIDS PLUS OTHER TECH AREAS.</td>
<td>460.0</td>
<td>432.0</td>
<td>25.1</td>
<td>JAN 83 JAN 83</td>
</tr>
<tr>
<td>481 5053</td>
<td>DIGITAL ELEVATION DATA DURING FACILITY (DEDF) THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>170.0</td>
<td></td>
<td></td>
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</table>

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<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT LABOR PROJECTED AND COMPLETE DATE ($000)</th>
<th>EXPENDED ORIGINAL MATERIAL AND COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 78 6350</td>
<td>MATERIALS TESTING TECHNOLOGY (MTT)</td>
<td>4,500.0</td>
<td>1,204.7</td>
<td>3,295.3</td>
<td>JUN 79</td>
</tr>
<tr>
<td>M 78 6350 2029</td>
<td>MINI COMPUTER MAPPING OF FATIGUE ACKS IN THREADS</td>
<td>55.0</td>
<td>55.0</td>
<td></td>
<td>DEC 80</td>
</tr>
<tr>
<td>M 78 6350 2000</td>
<td>SIZING AND COUNTING CONTAMINANTS IN RECOIL HYDRAULIC REVISIONS TO THE CONTRACTOR ESTABLISHED OPERATING PARAMETERS HAVE BEEN MADE TO ADAPT THE SYSTEM TO MORE CLOSELY MINT THE RIA REG. THE NEW SAMPLE PREPARATION TECHNIQUE ALLOWS MORE AND DIFFERENT TYPES OF SAMPLES TO BE OBSERVED.</td>
<td>90.0</td>
<td>83.4</td>
<td>APR 86</td>
<td>MAR 81</td>
</tr>
<tr>
<td>M 78 6350 2201</td>
<td>ROTARY FORGED TUBE LASER GAGE MEASUREMENT</td>
<td>115.0</td>
<td>115.0</td>
<td>JUN 80</td>
<td>DEC 80</td>
</tr>
<tr>
<td>M 78 6350 2202</td>
<td>DYNAMIC TWIST MEASUREMENT OF RIFLED MACHINES</td>
<td>36.0</td>
<td>36.0</td>
<td>APR 88</td>
<td>SEP 88</td>
</tr>
<tr>
<td>M 78 6350 2205</td>
<td>HOLOGRAPHIC INSPECTION OF ROTARY FORGED PREFORES</td>
<td>60.0</td>
<td>16.0</td>
<td>NOV 86</td>
<td>JUN 81</td>
</tr>
<tr>
<td>M 78 6350 2206</td>
<td>OPTICAL DETERMINATION OF DIMENSIONAL CAPS ON TANK PROJECTILE</td>
<td>125.0</td>
<td>99.0</td>
<td>MAY 86</td>
<td>JAN 81</td>
</tr>
<tr>
<td>M 78 6350 2213</td>
<td>LASER INTERFERENCE CALIBRATION STATION</td>
<td>60.0</td>
<td>60.0</td>
<td>APR 86</td>
<td>DEC 86</td>
</tr>
<tr>
<td>M 78 6350 2214</td>
<td>ELECTROTHERMAL ANALOG RESPONSE INSPI OF EED'S ARREDOCM 12-78 PHASE I OF THIS TASK, LITERATURE SEARCH, LABORATORY EQUIPMENT SET-UP, AND THE PERFORMING OF THERMAL RESPONSE TESTING AND MEASUREMENTS UTILIZING NON-EXPLOSIVE DEVICES.</td>
<td>75.0</td>
<td>75.0</td>
<td>OCT 86</td>
<td>JUN 81</td>
</tr>
<tr>
<td>Project No.</td>
<td>Title + Status</td>
<td>Authorized Values ($000)</td>
<td>Contract Values ($000)</td>
<td>Expended Original Tools and Material Complete Date</td>
<td>Present Projected Complete Date</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>M 78 6350 2215</td>
<td>Radar Method for Sensing and Output Testing of Detonators. THE TECHNICAL REPORT HAS BEEN COMPLETED, AN EVALUATION OF THIS PROJECT IS IN PROCESS TO DETERMINE FUTURE EFFORTS.</td>
<td>133.0</td>
<td>133.0</td>
<td>DEC 80</td>
<td></td>
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<tr>
<td>M 78 6350 2220</td>
<td>Mechanical Test for Composites in Tubular Shapes</td>
<td>75.0</td>
<td>75.0</td>
<td>JUL 80</td>
<td>MAY 81</td>
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<tr>
<td>M 78 6350 2224</td>
<td>Automated Antenna Pattern Measurement</td>
<td>45.0</td>
<td>45.0</td>
<td>DEC 79</td>
<td>SEP 81</td>
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<tr>
<td>M 78 6350 2225</td>
<td>3-D Shock/Vibration Test for missile Arty Fuze Fail</td>
<td>69.5</td>
<td>69.5</td>
<td>NOV 80</td>
<td>AUG 81</td>
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<tr>
<td>M 78 6350 2226</td>
<td>Air Flow Test Equipment</td>
<td>85.0</td>
<td>84.6</td>
<td>AUG 80</td>
<td>MAR 81</td>
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<tr>
<td>M 78 6350 2227</td>
<td>Set-Back Drag Tester for 5-A Devices</td>
<td>86.0</td>
<td>86.0</td>
<td>JUN 86</td>
<td>MAR 81</td>
</tr>
<tr>
<td>M 78 6350 2229</td>
<td>Analysis of Chitin in Contaminated Jet Aircraft Fuels</td>
<td>40.0</td>
<td>37.5</td>
<td>JUN 86</td>
<td>SEP 80</td>
</tr>
<tr>
<td>M 78 6350 2234</td>
<td>Inspection of Flux-Core Arc Welding</td>
<td>75.0</td>
<td>7.4</td>
<td>APR 81</td>
<td></td>
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<tr>
<td>M 78 6350 2241</td>
<td>Dielectric Tech for HDI Non-Conducting Ceramic Material</td>
<td>85.0</td>
<td></td>
<td>JUL 81</td>
<td>JUN 81</td>
</tr>
<tr>
<td>Proj No.</td>
<td>Title &amp; Status</td>
<td>Authorized Values</td>
<td>Contract Values</td>
<td>Expended Material Complete Date</td>
<td>Present Projected Complete Date</td>
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</tr>
<tr>
<td>M 78 6350 2245</td>
<td>Nondestructive Evaluation of Ceramic Materials - A Review of NDT techniques for ceramics has been completed. Also a review of flaw detection was conducted for various materials prepared for high frequency ultrasonic, ultrasonic means &amp; resonance frequency.</td>
<td>148.0</td>
<td>86.1</td>
<td>61.9</td>
<td>DEC 80 APR 81</td>
</tr>
<tr>
<td>M 78 6350 2247</td>
<td>Ultrasonic Spectroscopy Inspection Adhesive Bonded Structures - The contractor is currently working on metal-metal bonded structures which appear to be easier to handle ultrasonically. The correlation between the ultrasonic spectroscopic signature and destructive measured bond strength have not been promising.</td>
<td>100.0</td>
<td>65.0</td>
<td>SEP 81</td>
<td>MAY 81</td>
</tr>
<tr>
<td>M 78 6350 2248</td>
<td>Fast Ultrasonic Inspection of Artillery Shells - This task has been completed. The infr is currently scheduled to be placed in a contractor plant Feb 1981 for extensive evaluation of its capability to inspect rotating bands.</td>
<td>50.0</td>
<td>50.0</td>
<td>OCT 80</td>
<td></td>
</tr>
<tr>
<td>M 78 6350 2402</td>
<td>Inspect &amp; Test Instr &amp; Mass Prod Scatterable Mines Micr - In-House Engineering Efforts for this project commenced in March 1980. The work accomplished to date indicates that the subject area surrounds with impractical solutions &amp; improper problem definitions.</td>
<td>18.0</td>
<td>18.0</td>
<td>JAN 82</td>
<td>MAR 82</td>
</tr>
<tr>
<td>M 78 6350 2423</td>
<td>Inspection of Knuh 155mm 1554 Rap Documentation - A GRI was prepared &amp; presented to industry. Proposals were received from industry and evaluated. The final scope of work was prepared. A contract was negotiated &amp; awarded.</td>
<td>86.0</td>
<td>66.0</td>
<td>OCT 80</td>
<td>FEB 81</td>
</tr>
<tr>
<td>M 78 6350 2431</td>
<td>Computerized Color Matching System - The RPI contract has been completed. This contract provided a quantitative comparison of the three new color spectrophotometers in terms of repeatability, stability &amp; overall reliability.</td>
<td>415.0</td>
<td>325.9</td>
<td>OCT 82</td>
<td></td>
</tr>
<tr>
<td>M 78 6350 2430</td>
<td>Rapid NDT for Dopant Density &amp; Distribution - This task has been completed. The technical report is being prepared and will be submitted to EMRP in March 1981.</td>
<td>19.0</td>
<td>5.0</td>
<td>14.0</td>
<td>MAR 80 MAR 81</td>
</tr>
<tr>
<td>M 78 6350 2449</td>
<td>General Purpose Residual Stress Analyzer - The Elastic Stress Cantilever Apparatus was modified to fit the RIGA Residual Stress Analyzer. This apparatus bends a 1/4 inch thick specimen elastically in a reproducible manner. A 1/4 inch thick specimen of 6061 &amp; 7005 aluminum was received.</td>
<td>25.0</td>
<td></td>
<td>JUN 86</td>
<td>MAR 81</td>
</tr>
<tr>
<td>M 79 6350</td>
<td>Materials Testing Technology - For Project Status see Subtasks Below.</td>
<td>4660.0</td>
<td>2157.5</td>
<td>2502.5</td>
<td>OCT 80 OCT 81</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED valeurs ($000)</td>
<td>CONTRACT LABOR VALUES ($000)</td>
<td>EXPENDED ORIGINAL MATERIAL VALUES ($000)</td>
<td>PRESENT PROJECTED MATERIAL VALUES ($000)</td>
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<tr>
<td>M 79 6350 2025</td>
<td>AUTO INSPECTION DEVICE FOR EXPLOSIVE CHARGE IN SHELL TERMINATION OF THE CONTRACT IS CONTINUING. THE CONTRACTUAL DOCUMENTS HAVE BEEN SUBMITTED TO THE CONTRACTOR FOR APPROVAL. THE GOVERNMENT ELECTED NOT TO PROCEED WITH PHASE III OF THE ORIGINAL CONTRACT.</td>
<td>531.5</td>
<td>226.0</td>
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<tr>
<td>M 79 6350 2214</td>
<td>ELECTROTHERMAL ANALOG RESPONSE INSPECTION OF EED'S DATA HANDLING HAS BEEN IMPROVED. MANUAL SCANNING OF DIGITAL RECORDER FOR DATA HAS BEEN REPLACED BY CURSOR TRIGGERING. THIS HAS RESULTED IN SIGNIFICANT SAVING OF TIME TO READ THERMAL RESPONSES. THIS COULD LEAD TO EVENTUAL AUTOMATED ON-LINE TESTING.</td>
<td>85.0</td>
<td>44.6</td>
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</tr>
<tr>
<td>M 79 6350 2401</td>
<td>CANNON TUBE AUTOMATIC MAGNETIC BORESCOPE INSPECTION THE MMB SYSTEMS HAVE BEEN DELIVERED TO APEL. THESE SYSTEMS ARE BOTH OPERATIONAL. DURING THE CHECK-OUT, IT WAS DISCOVERED THAT A FEW MODIFICATIONS WOULD BE REG. THE SYS ARE BEING EVALUATED FOR CONTRACTUAL COMPLIANCE.</td>
<td>307.0</td>
<td>32.0</td>
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<tr>
<td>M 79 6350 2404</td>
<td>AUTO MEASUREMENT OF J-INTEGRAL FRACTURE TOUGHNESS THIS TASK HAS BEEN COMPLETED. A FINAL REPORT HAS BEEN DRAFTED AND SUBMITTED TO ASTM FOR PUBLICATION. ALSO THE RESULTS OF THIS PROGRAM WERE PRESENTED TO ASTM SUBCOMMITTEE E24.04 AT THEIR LATEST MEETING. THERE WAS INTEREST IN THE JS METHOD.</td>
<td>44.0</td>
<td>44.0</td>
<td></td>
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<tr>
<td>M 79 6350 2405</td>
<td>BURN TIME TEST FOR ZIRCONIUM POWDER IN THERMAL BATTERY MODIFICATIONS ARE CONTINUALLY BEING MADE TO IMPROVE THE PROTOTYPE BURN TIME MEASURING SYS. WORK IS PROCEEDING ON THE FAB OF A DEVICE FOR MAKING ACCURATE BURN TIME MEASUREMENTS ON A SHORTER POWDER TRAIN.</td>
<td>70.0</td>
<td>47.8</td>
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<tr>
<td>M 79 6350 2410</td>
<td>ULTRASONIC TRANSDUCER EVALUATION INSTRUMENT A TRANSDUCER EVALUATION INSTRUMENT WAS DELIVERED. THIS INSTRUMENT IS CAPABLE OF GENERATING FAST BEAM PROFILE MEASUREMENTS. BOTH CONTACT &amp; IMMERSON TYPE TRANSDUCERS. CURRENTLY, THIS INSTRUMENT IS BEING ENHANCED BY IMPROVING IMAGE DISPLAY &amp; COMPUTER PROCESSING CAPABILITY.</td>
<td>70.0</td>
<td>70.0</td>
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<tr>
<td>M 79 6350 2411</td>
<td>EVAL &amp; APPLY PYROELECTRIC VIVICA TO SHELTER PANELS EVALUATION &amp; APPLICATION STUDIES OF THE AMRCC PYROELECTRIC VIDICON SYS HAVE BEEN DELAYED BY THE FAILURE OF EQUIPMENT. TWO COMMERCIALLY AVAILABLE SYSTEMS ARE AVAILABLE AND ARE BEING CONSIDERED FOR COMPARISON WITH THE AMRCC SYSTEM.</td>
<td>65.0</td>
<td>55.0</td>
<td></td>
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<tr>
<td>M 79 6350 2412</td>
<td>MODAL ANALYSIS OF STRUCTURES DUE TO THE DIFFICULTIES ENCOUNTERED WITH THE SOLICITATION OF TESTING SERVICES, A CONTRACT OF EXPANDED Scope WAS AWARDED. TESTING OF THE HONEYCOMB PANELS WITH VARIOUS SKIN &amp; HONEYCOMB THICKNESS &amp; CONTROLLED DEFECT ARE INCLUDED IN THIS CONTRACT.</td>
<td>50.0</td>
<td>48.0</td>
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<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
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<tr>
<td>M 79 6350 2413</td>
<td>TESTING OF TIRES AND ELASTIC PRODUCTS</td>
<td>52.0</td>
<td>40.0</td>
<td>SEP 60</td>
<td>JUN 81</td>
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<td>M 79 6350 2417</td>
<td>COPPERHEAD CRITICAL FLAW DETECT OF COMPLEX COMPONENTS</td>
<td>35.0</td>
<td>22.0</td>
<td>AUG 81</td>
<td>JUN 81</td>
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<td>M 79 6350 2418</td>
<td>HALF LIFE OF TRITIUM LUMINOUS LAMPS</td>
<td>125.0</td>
<td>92.5</td>
<td>SEP 81</td>
<td>APR 81</td>
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<td>M 79 6350 2419</td>
<td>OBJECTIVE TECH + INSTR FOR INSPECT OF IR COMPONENTS</td>
<td>60.0</td>
<td>60.0</td>
<td>DEC 80</td>
<td>JUL 81</td>
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<td>M 79 6350 2420</td>
<td>CALIBRATION FOR OPTICAL SCRATCH/DIG STDS FOR FIRE CONT</td>
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<td>50.0</td>
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<td>APR 81</td>
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<td>M 79 6350 2421</td>
<td>INSPECT/MEAS METHOD FOR SPHERICAL SURFACED COMPONENTS</td>
<td>110.0</td>
<td>49.2</td>
<td>MAR 81</td>
<td>APR 81</td>
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<td>M 79 6350 2422</td>
<td>KNURR INSPECTION 255 PM SS9 RAP</td>
<td>93.0</td>
<td>57.0</td>
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<td>M 79 6350 2423</td>
<td>AUTOMATIC GEAR TOOTH CONTOR INSPECTION SYSTEM</td>
<td>98.0</td>
<td>98.0</td>
<td>MAY 81</td>
<td>DEC 81</td>
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<tr>
<td>M 79 6350 2424</td>
<td>OPTICAL TESTING OF IR INFRARED MATERIALS</td>
<td>85.0</td>
<td>77.0</td>
<td>SEP 80</td>
<td>SEP 81</td>
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<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
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<td>CONTRACT VALUES</td>
<td>EXPENDED ORIGINAL MATERIAL AND COMPLETE LABOR PROJECTED</td>
<td>PROJECTED COMPLETE DATE</td>
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<td>M 79 6356 2426</td>
<td>CRYOGENIC COOLER HELIUM LEAK RATE TEST SET</td>
<td>120.0</td>
<td>40.0</td>
<td>DEC 80</td>
<td>MAY 81</td>
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<tr>
<td>M 79 6350 2428</td>
<td>TWO CHANNEL TELEMETER FOR 3-INCH SPIN AIR GUN</td>
<td>66.0</td>
<td>66.0</td>
<td>MAY 80</td>
<td>DEC 80</td>
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<tr>
<td>M 79 6350 2430</td>
<td>ACCEPT TESTER FOR COMMON MODULE SCANNER PERFORMANCE</td>
<td>100.0</td>
<td>98.7</td>
<td>SEP 80</td>
<td>MAY 81</td>
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<tr>
<td>M 79 6356 2431</td>
<td>POWER SUPPLY TEST CASSEL FOR 21D GEN IMAGE INTENSIFIER</td>
<td>156.0</td>
<td>14.5</td>
<td>FEB 80</td>
<td>SEP 81</td>
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<tr>
<td>M 79 6356 2436</td>
<td>ANALYTICAL CHEMICAL METHODS FOR MIL-C-14485</td>
<td>20.0</td>
<td>14.6</td>
<td>FEB 80</td>
<td>JAN 81</td>
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<td>M 79 6356 2438</td>
<td>HIGH PERF LIQUID CHROMATOGRAPHIC TEST OF AZIRIDINES</td>
<td>79.0</td>
<td>63.7</td>
<td>DEC 80</td>
<td>DEC 80</td>
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<tr>
<td>M 79 6350 2439</td>
<td>SPECS FOR COMPOSITE PROPELLANT FLYERS</td>
<td>55.0</td>
<td>53.9</td>
<td>JUN 80</td>
<td>MAY 80</td>
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<td>M 79 6350 2444</td>
<td>ULTRASONIC TESTING OF ROADWHEELS</td>
<td>55.0</td>
<td>5.6</td>
<td>SEP 80</td>
<td>JUL 81</td>
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<tr>
<td>M 79 6350 2446</td>
<td>BLACKLIGHT TV SYSTEM</td>
<td>30.0</td>
<td>2.7</td>
<td>AUG 80</td>
<td>APR 81</td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE &amp; STATUS</td>
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<tr>
<td>79 6350 2451</td>
<td>GUN TUBE ROUNDNESS MEASUREMENT - A TECHNICAL PROPOSAL FOR THE ANCILLARY ELECTRONIC EQUIPMENT HAS BEEN REVIEWED AND FOUND ACCEPTABLE. BIDS ARE CURRENTLY BEING SOLICITED FOR THE FURNISHING OF THE FIXTURES.</td>
<td>65.0</td>
<td>28.6</td>
<td>SEP 81</td>
<td>SEP 81</td>
</tr>
<tr>
<td>79 6350 2452</td>
<td>LOCATION OF CANNON TUBE BORE SURFACES FOR VISUAL INSPECTION - THIS TASK WAS COMPLETED</td>
<td>60.0</td>
<td>11.0</td>
<td>SEP 80</td>
<td>SEP 80</td>
</tr>
<tr>
<td>79 6350 2453</td>
<td>THICKNESS MEASUREMENT OF NON-METALLIC COATINGS - TWO PROPOSALS WERE RECEIVED AND EVALUATED. A CONTRACT WAS AWARDED. THE DELIVERY DATE WAS EXTENDED 30 DAYS FROM 160 TO 210 DAYS. THIS EXTENSION WAS REQUESTED BY THE CONTRACTOR.</td>
<td>60.0</td>
<td>24.0</td>
<td>DEC 80</td>
<td>SEP 81</td>
</tr>
<tr>
<td>79 6350 2454</td>
<td>IMPROVEMENT OF BORE EROSION GEAR - THIS EFFORT WAS COMPLETED. MEASUREMENTS WERE MADE ON A 105MM M68 TUBE SECTION. BORE PROFILES WERE OBTAINED PRIOR TO AND AFTER EACH ELECTROPLATING STEP. THE THICKNESS OF THE PLATE REMOVED CORRELATED WELL WITH AN ULTRASONIC PULSE THICKNESS MONITOR.</td>
<td>20.0</td>
<td>26.0</td>
<td>MAR 80</td>
<td>SEP 80</td>
</tr>
<tr>
<td>79 6350 2455</td>
<td>QUENCH CRACK DETECTION - TECHNICAL PROPOSALS FOR THE DETECTION OF QUENCH CRACKS IN GUN TUBES WERE RECEIVED. ONLY THOSE PROPOSALS THAT RECOMMENDED EDDY CURRENT DETECTION WERE FOUND ACCEPTABLE. THE AIP FOR THE PURCHASE OF AN EDDY CURRENT SYSTEM HAS BEEN REJECTED.</td>
<td>120.0</td>
<td>20.0</td>
<td>DEC 80</td>
<td>JUN 82</td>
</tr>
<tr>
<td>79 6350 2456</td>
<td>TEST SYSTEM FOR REAL TIME MECHANICAL WEAR ASSESSMENT - THIS TASK WAS COMPLETED. A TECHNICAL REPORT IS BEING PREPARED AND IS SCHEDULED FOR SUBMISSION TO NRC IN APRIL 1981.</td>
<td>25.0</td>
<td>3.0</td>
<td>OCT 80</td>
<td>DEC 80</td>
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<tr>
<td>80 6350</td>
<td>MATERIALS TESTING TECHNOLOGY FOR PROJECT STATUS - ALL TASKS COMPLETED</td>
<td>4,404.0</td>
<td>1,714.4</td>
<td>2,689.6</td>
<td>APR 83</td>
</tr>
<tr>
<td>80 6350 2014</td>
<td>PORTABLE FLUTER RADIOGRAPHY SYST - ENRG MODEL - THE FIELD EVALUATION SCHEDULE HAS BEEN FINALIZED. YUMA PROVIDE GROUND WAS SELECTED TO PERFORM THE EVALUATIONS. THE LOGISTIC PLANNING ASSOCIATED WITH THE EVOLUTION HAS BEEN COMPLETED.</td>
<td>763.0</td>
<td>726.0</td>
<td>AUG 81</td>
<td></td>
</tr>
<tr>
<td>80 6350 2205</td>
<td>HOLOGRAPHIC INSPECTION OF ROTARY FORGED PRECURSORS - THE CONFIGURATION REC FOR THE IMAGING SYSTEM HAVE BEEN DEVELOPED. THE SCOPE OF WORK WAS COMPLETE AND CHALLENGED FOR REVIEW AND SOLICITATION.</td>
<td>105.0</td>
<td>4.2</td>
<td>DEC 81</td>
<td></td>
</tr>
<tr>
<td>80 6350 2235</td>
<td>WROD EVALUATION OF ACOUSTIC EMISSION TECHNICAL - THE CONTRACT WAS INCREASED IN SEPT 80. INTRODUCTORY COORDINATION WILL PROCEED TO PERFORM THE WROD PERSONNEL OF THE CAPABILITIES &amp; POTENTIAL OF THE NEW SYP AND COORDINATE THE MDU SYSPY PRODUCTION LINE TEST DURING MAY/JUNE 81 TIME FRAME.</td>
<td>117.5</td>
<td>0.4</td>
<td>SEP 81</td>
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<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED VALUES</td>
<td>EXPENDED ORIGINAL MATERIAL COST</td>
<td>PROJECTED COMPLETE DATE</td>
<td>PRESENT COMPLETE DATE</td>
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<tr>
<td>M 80 6350 2407</td>
<td>LIQUID CHROMATOGRAPHY FOR EPOXY RESIN FORMULATION TEST PROCEDURES WERE DESIGNED FOR THE QUANTITATIVE ANALYSIS OF EPOXY RESIN COMPONENTS IN SF 250 PREPREG. LIQUID CHROMATOGRAPHIC PROCEDURES HAVE BEEN DEvised TO FINGERPRINT THE CHEMICAL COMPOSITION AND TO IDENTIFY AND QUANTITATIVELY ANALYZE COMPONENTS.</td>
<td>55.0</td>
<td>46.0</td>
<td>MAR 61</td>
<td></td>
</tr>
<tr>
<td>M 80 6350 2408</td>
<td>CHEMICAL ANALYSIS OF SILICON VITRIFID. ADDITIONAL DISKS WERE FAB TO TEST REPRODUCIBILITY OF THE PROCEDURE. DUPLICATE SPECIMENS WERE PREPARED FROM FIVE OF THE SAMPLES. THE HIGHEST DIFFERENCE IN INTENSITY WAS 5.5% WITH THE AVE BEING APPROX. 2.4%.</td>
<td>56.0</td>
<td>18.4</td>
<td>APR 61</td>
<td></td>
</tr>
<tr>
<td>M 80 6350 2409</td>
<td>EMISSION SPECTROGRAPH ANAL MAPPING STEEL PLASMA EXCITATION. SIGNIFICANT IMPROVEMENT IN ACCURACY WAS ATTAINED USING SOLID EXCITATION SOURCE. THIS WAS ACCOMPLISHED BY REDUCING SPECTRAL INTERFERENCES. CALIBRATION CURVES WERE GOOD FOR ALL ELEMENTS EXCEPT CARBON AND SULFUR.</td>
<td>55.0</td>
<td>58.6</td>
<td>MAR 61</td>
<td></td>
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<tr>
<td>M 80 6350 2417</td>
<td>COPPER-LEAD CRITICAL FLAW DETECT OF COMPLEX COMPONENTS. PROPOSALS WERE RECEIVED AND REVIEWED. THE COSTS WERE NEGOTIATED AND A CONTRACT IS SCHEDULED TO BE AWARDED NOVEMBER 1960.</td>
<td>250.0</td>
<td>16.3</td>
<td>JAN 63</td>
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<tr>
<td>M 80 6350 2418</td>
<td>HALF LIFE OF TRITIUM LAMPS. ALL THE NECESSARY TEST MEASUREMENTS AND DATA MANAGEMENT EQUIPMENT HAS BEEN RECEIVED. ARRANGEMENTS ARE CURRENTLY UNDERGOING TRAINING IN THE USE AND OPERATION OF THIS EQUIPMENT.</td>
<td>60.0</td>
<td>20.3</td>
<td>APR 61</td>
<td></td>
</tr>
<tr>
<td>M 80 6350 2419</td>
<td>DEVELOPMENT OF INFRARED AND OPTICAL TESTS. THE RFQS WERE ISSUED 23 JULY 1960 AND THE CONTRACT WAS AWARDED 7 NOV 60.</td>
<td>140.0</td>
<td>4.6</td>
<td>MAR 62</td>
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<tr>
<td>M 80 6350 2420</td>
<td>CALIBRATION FOR OPTICAL SCJECT/BRIG STDS FOR FIRE CONTROL SCOPE OF WORK WAS COMPLETED. A RFQ WAS ISSUED. THE CONTRACTOR PROPOSALS WERE RECEIVED 31 OCT 79%, AND ARE CURRENTLY BEING EVALUATED.</td>
<td>110.0</td>
<td>4.5</td>
<td>AUG 62</td>
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<tr>
<td>M 80 6350 2422</td>
<td>INSPECTION METHODS FOR SPHERICAL SURFACED COMPONENTS. FUNDS JUST RELEASED. NO WORK ACCOMPLISHED.</td>
<td>150.0</td>
<td>56.6</td>
<td>DEC 61</td>
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<tr>
<td>M 80 6350 2436</td>
<td>ANALYTICAL CHEMICAL METHODS FOR MIL-C-14460. INVESTIGATIONS INDICATED THAT SODIUM GLUTONATE CAN BE DETERMINED AS A SULFYL DERIVATIVE BY UTILIZATION OF GAS LIQUID CHROMATOGRAPHY. THIS METHOD APPEARS ADAPTABLE TO THE MIL-C-14460 COMPOSITION.</td>
<td>70.0</td>
<td>56.6</td>
<td>APR 61</td>
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<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED</td>
<td>CONTRACT VALUES</td>
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<td>M 80 6350 2445</td>
<td>ULTRASONIC TIRE INSPECTION</td>
<td>25.0</td>
<td>6.4</td>
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<td>MAR 81</td>
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<td>M 80 6350 2450</td>
<td>GUN STEEL ADHESION CHROMIUM COATING MEASUREMENT</td>
<td>23.9</td>
<td>4.5</td>
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<td>FEB 81</td>
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<td>M 80 6350 2460</td>
<td>PROVIDE AUTO SPHERICITY INTERFERENCE F/TEST LENS SURFACES</td>
<td>181.0</td>
<td>23.7</td>
<td>APR 82</td>
<td>MAR 82</td>
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<td>M 80 6350 2604</td>
<td>NEU Compatibility test method for explosive systems</td>
<td>50.0</td>
<td>50.0</td>
<td>SEP 81</td>
<td>SEP 81</td>
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<tr>
<td>M 80 6350 2613</td>
<td>INFLOW AIR BLEED TEST, LTC-712 ENGINE</td>
<td>287.0</td>
<td>21.0</td>
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<td>JAN 82</td>
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<tr>
<td>M 80 6350 2614</td>
<td>TEMP. COMPENSATED VOLTAGE CONT CRYSTAL OSCILLATOR TEST METHOD</td>
<td>75.0</td>
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<td>FEB 82</td>
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<tr>
<td>M 80 6350 2616</td>
<td>AUTOMATED SOFTWARE AIDS FOR TESTING REQUIREMENTS</td>
<td>150.0</td>
<td>98.9</td>
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<td>JUN 81</td>
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<td>M 80 6350 2621</td>
<td>THERMOELECTRIC MATERIALS TEST</td>
<td>95.0</td>
<td>19.0</td>
<td>JUL 81</td>
<td>JUN 81</td>
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<tr>
<td>M 80 6350 2623</td>
<td>NDT MEAS OF GOLD FLATING THICKNESS ON SMALL CYL COMP WIRE</td>
<td>117.0</td>
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<td>SEP 81</td>
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<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED</td>
<td>CONTRACT</td>
<td>LABOR</td>
<td>PROJECTED Complete DATE</td>
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<td>AUTO ANALYSIS OF PC PLOTTING SOLUTION STRENGTH</td>
<td>75.0</td>
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<td>M 80 6350 2625</td>
<td>HYBRID CIR CHIP SEMICONDUCTOR ELEC TEST + SCREEN PROCEDURE</td>
<td>85.0</td>
<td>8.0</td>
<td>JUL 81</td>
<td></td>
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<td>M 80 6350 2626</td>
<td>DETERMINATION OF LOW LEVEL CONCENTRATION OF LEAD IN PAINT</td>
<td>56.0</td>
<td>17.2 SEP 81</td>
<td>SEP 81</td>
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<tr>
<td>M 80 6350 2627</td>
<td>INFRARED SPECTROSCOPY ANALYSIS OF NON-VOLATILE VEHICLES</td>
<td>20.0</td>
<td>14.7 APR 81</td>
<td>APR 81</td>
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<tr>
<td>M 80 6350 2628</td>
<td>STANDARD CONTAMINANTS FOR TEST FUELS</td>
<td>36.4</td>
<td>1.2 AUG 81</td>
<td>SEP 81</td>
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<tr>
<td>M 80 6350 2629</td>
<td>IN-PROCESS DIM 15% ROTARY FORCED CARBON TUBES</td>
<td>79.0</td>
<td>9.3</td>
<td>SEP 82</td>
<td></td>
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<tr>
<td>M 80 6350 2630</td>
<td>CRITICAL ULTRASONIC INSPECTION PROBLEMS WITHIN THE ARMY</td>
<td>195.0</td>
<td>96.0 JAN 81</td>
<td>SEP 81</td>
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<tr>
<td>M 80 6350 2631</td>
<td>CRITICAL ELECTROSTATIC INSPECTION PROBLEMS WITHIN THE ARMY</td>
<td>100.0</td>
<td>35.0</td>
<td>MAR 81</td>
<td></td>
</tr>
<tr>
<td>M 80 6350 2632</td>
<td>ROADWHEEL SEAL TEST MACHINE VARIOUS DESIGN CONCEPTS ARE CURRENTLY BEING CONSIDERED, ALSO, THE MACHINE PERFORMANCE OBJECTIVES AND CAPABILITIES ARE BEING ESTABLISHED</td>
<td>140.0</td>
<td>44.9 JUN 82</td>
<td>DEC 82</td>
<td></td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED ($)</td>
<td>CONTRACT VALUES ($)</td>
<td>EXPENDED ($)</td>
<td>ORIGINAL PROJECTED COMPLETE DATE</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------------</td>
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<td>-------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>M 80 6350 2640</td>
<td>TRACK TEST MACHINE CURRENTLY FOUR ALTERNATIVE DESIGN CONCEPTS ARE BEING EVALUATED FOR TESTING TRACK BLOCKS.</td>
<td>275.0</td>
<td></td>
<td>4.5 SEP 82</td>
<td>APR 83</td>
</tr>
<tr>
<td>M 80 6350 2641</td>
<td>MECHANICALLY INDUCED CRACKS FOR NDT STANDARDS RECENT EFFORTS HAVE BEEN DIRECTED AT PRODUCING A SLOT INTO THE SIDE SURFACE OF THE PLATE. THE SLOT SURFACE IS PARALLEL TO THE ROLLING PLANE. THIS APPEARS TO BE A MORE DIRECT METHOD OF CLOSING SLOTS.</td>
<td>60.0</td>
<td></td>
<td>14.9 OCT 81</td>
<td>OCT 81</td>
</tr>
<tr>
<td>M 80 6350 2642</td>
<td>ADVANCED PENETRATING RADIATION TECH F/P PRODUCT EVALUATION A NUMBER OF FORMER MTT TASKS HAVE BEEN COMBINED TO FORM THIS EFFORT. THESE TASKS ARE HIGH-RESOLUTION RADIOPHOTOGRAPHY, NEUTRON RADIOGRAPHY, RADIOMETRY, RADIOGRAPHIC QUALIFICATION. THE MMTS DOES NOT MAINTAIN DATA ON SUB-TASKS.</td>
<td>180.0</td>
<td></td>
<td>70.0 SEP 80</td>
<td>SEP 81</td>
</tr>
<tr>
<td>M 79 6350</td>
<td>PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER CONTRACT IS COMPLETE. FINAL REPORT HAS BEEN ACCEPTED. MTT TECH NOTES HAVE BEEN PREPARED FOR THE REPORTING PERIOD.</td>
<td>262.9</td>
<td>264.3</td>
<td>19.7 JUN 80</td>
<td>MAR 81</td>
</tr>
<tr>
<td>M 80 6390</td>
<td>MPT PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER MANTECH JOURNAL BEING PUBLISHED. MTT NOTES BEING PREPARED. CAD/CAM FOR DIE MAKING REPORT PUBLISHED.</td>
<td>250.0</td>
<td>235.6</td>
<td>4.0 MAR 81</td>
<td>MAR 81</td>
</tr>
<tr>
<td>M 81 6390</td>
<td>MPT PROGRAM IMPLEMENTATION AND INFORMATION TRANSFER NEW PROJECT. NO FUNDS OBLIGATED. FULL AMOUNT OF FUNDS NOT YET RECEIVED.</td>
<td>90.0</td>
<td></td>
<td></td>
<td>MAR 82</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE</td>
<td>STATUS</td>
<td>AUTHORIZED VALUES ($000)</td>
<td>CONTRACT LABOR PROJECTED COMPLETE MATERIAL DATE ($000)</td>
<td>PRESENT PROJECTED COMPLETE DATE</td>
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<tr>
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<td>---------</td>
<td>----------</td>
<td>--------------------------</td>
<td>-----------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>G 80 0001</td>
<td>VOICE CONTROLLED PROGRAMMING OF COMPUTERS</td>
<td>THE FEASIBILITY OF INTERFACING TOLEMAH KRCY DEPOT NC TAPE PUNCH AND INTERACTIVE GRAPHICS SYSTEM WITH VOICE RECOGNITION DEVICES HAS BEEN PROVEN. WORK WAS INITIATED ON GENERAL SYSTEMS SPECIFICATIONS OF A VOICE CONTROL SYSTEM.</td>
<td>92.0</td>
<td>9.7</td>
<td>NOV 81 NOV 81</td>
</tr>
</tbody>
</table>
### Natick Research and Development Command

**Current Funding Status: 2nd CY80**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds ($)</th>
<th>Contract Funding Allocated ($)</th>
<th>Expended (%)</th>
<th>In-House Funding Remaining ($)</th>
<th>Expended (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>1</td>
<td>255,500</td>
<td>160,900</td>
<td>156,100 (97%)</td>
<td>92,600</td>
<td>56,600 (51%)</td>
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<tr>
<td>78</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>79</td>
<td>1</td>
<td>297,700</td>
<td>297,700</td>
<td>174,100 (58%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>85,900</td>
<td>31,800</td>
<td>0 (0%)</td>
<td>54,900</td>
<td>7,400 (13%)</td>
</tr>
<tr>
<td>81</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
<td><strong>637,100</strong></td>
<td><strong>469,600</strong></td>
<td><strong>350,200 (67%)</strong></td>
<td><strong>147,500</strong></td>
<td><strong>64,600 (43%)</strong></td>
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</tbody>
</table>

Authorized Funding: Contract Allocated 77%

In-House Remaining: 23%
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHOR-IZED</th>
<th>CONTRACT</th>
<th>EXPENDED</th>
<th>ORIGINAL</th>
<th>PRESENT</th>
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<tr>
<td></td>
<td></td>
<td>($000)</td>
<td>($000)</td>
<td>($000)</td>
<td>LABOR</td>
<td>COMPLETE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MATERIAL</td>
<td>COMPLETE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DAIL</td>
<td>DATE</td>
</tr>
<tr>
<td>Q 77 8053</td>
<td>CADAM OF PARACHUT HARDWARE &lt;br&gt;SOFTWARE FOR THE EDGER, FLATTENER, BLOCKER, AND FINISH DIE &lt;br&gt;CAVITIES HAVE BEEN COMPLETED. COMPUTER SOFTWARE FOR NLABS UNIVAC 1106 COMPUTER HAS BEEN DELIVERED. THE FINAL REPORT IS ALMOST COMPLETE</td>
<td>253.5</td>
<td>166.9</td>
<td>56.6</td>
<td>MAR 78</td>
<td>SEP 81</td>
</tr>
<tr>
<td>Q 80 8063</td>
<td>IMPROVED METHODS OF MFG OF BUTYL RUBBER HARDWEAR &lt;br&gt;ALL AGENT TESTING WAS Halted BY THE DARCOM SAFETY OFFICE UNTIL NEW REGULATIONS ARE INSTITUTED. AS A RESULT, THE CONTRACT HAS BEEN AMENDED TO ALLOW FOR THE DELAY.</td>
<td>47.5</td>
<td></td>
<td></td>
<td></td>
<td>JUN 82</td>
</tr>
<tr>
<td>Q 79 8066</td>
<td>CONTINUOUS FILAMENT HELMET PREFORM &lt;br&gt;IN ORDER TO COMPARE CONTINUOUS YARN PASGT HELMETS WITH THE ORIGINAL FABRIC HELMETS ON AN EQUAL KEVLAR WEIGHT BASIS. THE CONTRACT WITH BRUNSWICK WAS CHANGED TO SPECIFY THE WEIGHT OF THE MOLDED SHELL RATHER THAN FINISHED WEIGHT WITH COMPONENTS INSTALLED</td>
<td>297.7</td>
<td>297.7</td>
<td></td>
<td>MAR 81</td>
<td>SEP 81</td>
</tr>
<tr>
<td>Q 80 8066</td>
<td>CONTINUOUS FILAMENT HELMET PREFORM &lt;br&gt;The contract with BRUNSWICK has been extended 90 days to 30 March 1981.</td>
<td>38.4</td>
<td>31.0</td>
<td>7.4</td>
<td></td>
<td>SEP 81</td>
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</table>
# Tank Automotive Command

**Current Funding Status: 2nd CY80**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>No. of Projects</th>
<th>Authorized Funds ($)</th>
<th>Contract Funding Allocated ($)</th>
<th>Contract Expenditure ($)</th>
<th>Contract Remaining ($)</th>
<th>Inhouse Funding Expenditure ($)</th>
<th>Inhouse Remaining ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>1</td>
<td>500,000</td>
<td>356,600</td>
<td>302,400 (64%)</td>
<td>143,000</td>
<td>26,600 (16%)</td>
<td>0</td>
</tr>
<tr>
<td>77</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
</tr>
<tr>
<td>78</td>
<td>5</td>
<td>3,392,000</td>
<td>2,569,300</td>
<td>1,927,400 (75%)</td>
<td>822,700</td>
<td>525,300 (63%)</td>
<td>0</td>
</tr>
<tr>
<td>79</td>
<td>10</td>
<td>3,670,400</td>
<td>2,063,300</td>
<td>969,200 (46%)</td>
<td>1,607,100</td>
<td>523,000 (33%)</td>
<td>0</td>
</tr>
<tr>
<td>80</td>
<td>11</td>
<td>3,130,400</td>
<td>2,679,700</td>
<td>877,800 (32%)</td>
<td>450,300</td>
<td>151,000 (33%)</td>
<td>0</td>
</tr>
<tr>
<td>81</td>
<td>12</td>
<td>4,852,000</td>
<td>0</td>
<td>0 (0%)</td>
<td>4,052,000</td>
<td>0 (0%)</td>
<td>0</td>
</tr>
<tr>
<td>82</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
<td>0 (0%)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>39</strong></td>
<td><strong>15,544,400</strong></td>
<td><strong>7,666,900</strong></td>
<td><strong>4,076,200 (53%)</strong></td>
<td><strong>7,675,500</strong></td>
<td><strong>1,225,900 (15%)</strong></td>
<td><strong>0</strong></td>
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</tbody>
</table>

**Authorized Funding: 49%**

**Inhouse Remaining: 50%**
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACTED VALUES ($000)</th>
<th>ORIGINAL LABOR MATERIAL COMPLETE DATE</th>
<th>PENDING PROJECT COMPLETED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 78 4264</td>
<td>TRACK INSERTS AND FILLERS FOR TRACK RUBBER PADS</td>
<td>520.0</td>
<td>225.6</td>
<td>149.0</td>
<td>JAN 81</td>
</tr>
<tr>
<td>T 80 4592</td>
<td>JOINING DISSIMILAR METALS</td>
<td>23.0</td>
<td>20.0</td>
<td>MAY 81</td>
<td>MAY 81</td>
</tr>
<tr>
<td>T 77 4566</td>
<td>TECH DATA/CONFIGURATION MANAGEMENT SYSTEM (TD/CMGS)</td>
<td>500.0</td>
<td>356.6</td>
<td>26.6</td>
<td>JUN 79</td>
</tr>
<tr>
<td>T 79 4575</td>
<td>LASER WELDING TECHNIQUES FOR MILITARY VEHICLES</td>
<td>375.0</td>
<td>280.6</td>
<td>31.0</td>
<td>JUL 81</td>
</tr>
<tr>
<td>T 79 4566</td>
<td>IMPROVED LARGE ARMOR STEEL CASTINGS - PHASE 1</td>
<td>1,082.0</td>
<td>522.7</td>
<td>102.4</td>
<td>OCT 80</td>
</tr>
<tr>
<td>T 79 5002</td>
<td>FABRICATING TORSION SPRINGS FROM HIGH STRENGTH STEELS</td>
<td>150.0</td>
<td>69.2</td>
<td>31.0</td>
<td>FEB 81</td>
</tr>
<tr>
<td>T 78 5014</td>
<td>IMPROVED FOUNDRY CASTINGS UTILIZING CAM MOLDS</td>
<td>415.0</td>
<td>150.0</td>
<td>5.5</td>
<td>JAN 81</td>
</tr>
<tr>
<td>T 81 5014</td>
<td>IMPROVED FOUNDRY CASTINGS UTILIZING CAM</td>
<td>50.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 80 5615</td>
<td>STORAGE BATTERY, LOW MAINTENANCE-PHASE III</td>
<td>30.0</td>
<td>22.0</td>
<td>DEC 82</td>
<td>SEF 81</td>
</tr>
<tr>
<td>T 79 5024</td>
<td>GEAR DESIGN РФГ UTILIZING COMPUTER TECHNOLOGY, CLF-PH3</td>
<td>345.0</td>
<td>274.4</td>
<td>39.6</td>
<td>JUN 80</td>
</tr>
</tbody>
</table>

MANUFACTURING METHODS AND TECHNOLOGY PROGRAM
SUMMARY REPORT PROJECT STATUS REPORT
2ND SEMI-ANNUAL SUBMISSION CY 80 RCS ORCH-561
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED LABOR ($000)</th>
<th>CONTRACTED LABOR ($000)</th>
<th>EXPENDED ORIGINAL MATERIAL ($000)</th>
<th>PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 81 5045</td>
<td>SMALL SUPPRESSIVE ARMOR FOR COMBAT VEHICLES (PHASE III)</td>
<td>86.0</td>
<td>56.0</td>
<td>17.0</td>
<td>NOV 81 OCT 82</td>
</tr>
<tr>
<td>T 81 5054</td>
<td>LASER SURFACE HARDENED COMBAT VEHICLE COMPONENTS</td>
<td>175.0</td>
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<tr>
<td>T 80 5062</td>
<td>ARMORED VEHICLE VISION BLOCKS</td>
<td>20.0</td>
<td></td>
<td>7.0</td>
<td>MAY 81 MAY 81</td>
</tr>
<tr>
<td>T 79 5064</td>
<td>LIGHT WEIGHT SADDLE TANK-PHASE 2</td>
<td>196.0</td>
<td>1.0</td>
<td>63.0</td>
<td>FEB 81 SEP 82</td>
</tr>
<tr>
<td>T 79 5067</td>
<td>PLASTIC BATTERY BOX</td>
<td>156.0</td>
<td>97.0</td>
<td>39.0</td>
<td>OCT 79 JUN 81</td>
</tr>
<tr>
<td>T 80 5067</td>
<td>PLASTIC BATTERY BOX (PHASE III)</td>
<td>15.0</td>
<td></td>
<td>12.0</td>
<td>DEC 80 DEC 81</td>
</tr>
<tr>
<td>T 80 5068</td>
<td>NEW ANTI-CORROSION MATERIALS AND TECHNIQUES (PHASE I)</td>
<td>30.0</td>
<td></td>
<td>19.0</td>
<td>FEB 82 MAY 82</td>
</tr>
<tr>
<td>T 81 5066</td>
<td>NEW ANTI-CORROSION MATERIALS AND TECHNIQUES (PHASE II)</td>
<td>360.0</td>
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<td></td>
</tr>
<tr>
<td>T 81 5075</td>
<td>MILITARY ELASTOMERS FOR TRACK VEHICLES (PHASE II)</td>
<td>200.0</td>
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<td></td>
</tr>
<tr>
<td>T 80 5082</td>
<td>FLEXIBLE MACHINING SYSTEM PILOT LINE FOR TVC COMPONENTS</td>
<td>857.0</td>
<td>813.3</td>
<td>38.0</td>
<td>JAN 81 JUN 81</td>
</tr>
</tbody>
</table>

This report is a summary of the project status for the manufacturing methods and technology program, covering the second semi-annual submission for CY 80. Each entry details the project's title, status, authorized and contracted labor, expended original material, and projected complete date.
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($1000)</th>
<th>CONTRACTED VALUES ($1000)</th>
<th>EXPENDED ORIGINAL MATERIAL COMPLETE DATE ($1000)</th>
<th>PRESENT PROJECT STATUS COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 01 5082</td>
<td>FLEXIBLE MACHINING SYS (FMS) PILOT LINEFFEY COMPONENTS THIS PROJECT WAS JUST FUNDED NO STATUS REPORT IS REQUIRED.</td>
<td>860.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 79 5083</td>
<td>UFSCALING OF ADVANCED POWDERED METALLURGY PROCESSES-PH 3</td>
<td>475.0</td>
<td>276.0</td>
<td>96.0 MAR 81</td>
<td>OCT 83</td>
</tr>
<tr>
<td>T 78 5085</td>
<td>PRODUCTION TECHNIQUES FOR FABRICATION OF TURBINE REGENERATOR ONE SET OF PLATES FABRICATED BY LASER HAVE BEEN ASSEMBLED AND A SECOND SET ARE IN PROCESS OF BEING ASSEMBLED FOR THE ENGINE TEST UPON SUCCESSFUL ENGINE TEST THE PROTOTYPE PRODUCTION SYSTEM WILL BE ORDERED.</td>
<td>485.0</td>
<td>443.0</td>
<td>42.0 JAN 80</td>
<td>OCT 81</td>
</tr>
<tr>
<td>T 80 5085</td>
<td>TURBINE REGENERATOR T 79.5085 FUNDING SUPPORT FOR PHASE 2 PROGRAM FUNDED IN FISCAL YEAR 1978 TO COVER COST GROWTH.</td>
<td>214.0</td>
<td></td>
<td>11.4 OCT 81</td>
<td>OCT 81</td>
</tr>
<tr>
<td>T 79 5090</td>
<td>IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY SEE T 80 5090.</td>
<td>360.0</td>
<td>326.0</td>
<td>23.0 FEB 81</td>
<td>NOV 81</td>
</tr>
<tr>
<td>T 80 5090</td>
<td>IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY PHASE 2) OUTPUT FROM MECUT MACHINING OPERATIONS HAS BEEN FORWARD TO CHRYSLER-LIMA.</td>
<td>229.0</td>
<td>229.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 81 5090</td>
<td>IMPROVED AND COST EFFECTIVE MACHINING TECHNOLOGY PHASE IIIF) THIS PROJECT WAS JUST FUNDED NO STATUS REPORT IS REQUIRED.</td>
<td>290.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 79 5094</td>
<td>ARMOR STEEL TREATED WITH RARE EARTH ADDITIONS A PROCUREMENT REQUEST HAS BEEN INITIATED IN RESPONSE TO AN UNSOLICITED PROPOSAL FROM BATHY. THE FIFTH PHASE WILL ESTABLISH FEASIBILITY AND DEFINE APPROACH USED TO CONFIRM ARMOR IMPROVEMENT UNDER PRODUCTION MANUFACTURING METHODS.</td>
<td>46.0</td>
<td></td>
<td>25.0 SEP 80</td>
<td>OCT 81</td>
</tr>
<tr>
<td>T 78 5097</td>
<td>INTELLIGENT CAST LOW COST COMP[SET][S] (PHASE II) FIRST STAGE TOLLING DESIGN HAS BEEN INITIATED AND THE FABRICATION IS IN PROGRESS. PROCESS VARIABLES AND PARAMETRIC STUDIES FOR OPTIMIZING THE CASTING PROCESS FOR THE FIFTH STAGE IS IN PROGRESS.</td>
<td>342.0</td>
<td>267.0</td>
<td>75.0 JUN 80</td>
<td>SEP 81</td>
</tr>
<tr>
<td>T 81 5097</td>
<td>INTELLIGENT CAST LOW COST COMP[SET][S] (PHASE IIIF) THIS PROJECT WAS JUST FUNDED NO STATUS REPORT IS REQUIRED.</td>
<td>50.0</td>
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<tr>
<td>T 81 6011</td>
<td>SPRINGS FROM FIBER/PLASTIC COMPOSITES THIS PROJECT WAS JUST FUNDED NO STATUS REPORT IS REQUIRED.</td>
<td>256.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>T 78 6035</td>
<td>ESTABLISH ON-LINE NDT FOR TRACKED COMBINE VEHICLES (PHASE 1) THE ABILITY TO ACCURATELY DETECTIVE TYPES OF LINEAR DISCONTINUITIES WITH A-SCAN TECHNOLOGY IS OPERATOR DEPENDENT AND TIME CONSUMING. DATA RECOGNITION AND PATTERN RECOGNITION ANALYSIS HAS BEEN INITIATED USING A MICROPROCESSOR BASED PRODUCTION SYSTEM.</td>
<td>1,635.0</td>
<td>1,450.0</td>
<td>201.4 APR 81</td>
<td>JUN 81</td>
</tr>
<tr>
<td>PROJ NO.</td>
<td>TITLE + STATUS</td>
<td>AUTHORIZED VALUES ($000)</td>
<td>CONTRACT VALUES ($000)</td>
<td>EXPENDED ORIGINAL LAND &amp; LABOR ($000)</td>
<td>PROJECTED COMPLETE DATE</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>------------------------</td>
<td>---------------------------------------</td>
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</tr>
<tr>
<td>T 79 6058</td>
<td>HIGH DEPOSITION WELDING ELECTRODES HAVE BEEN SELECTED. PROCESS PLANNING FOR CRUCIFORM TESTS WAS COMPLETED. PURCHASE REQUISITIONS HAVE BEEN SUBMITTED FOR EQUIPMENT.</td>
<td>459.0</td>
<td>203.0</td>
<td>65.0</td>
<td>JUL 80</td>
</tr>
<tr>
<td>T 81 6053</td>
<td>WELDING SYSTEMS INTEGRATION THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>493.0</td>
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</tr>
<tr>
<td>T 81 6054</td>
<td>ADVANCED METROLOGY SYSTEMS INTEGRATION THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>350.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T 80 6057</td>
<td>XM1 COMBAT VEHICLE CONTRACT AWARDED TO CHRYSLER 36 SEPTEMBER. CHRYSLER IS EVALUATING SUBCONTRACTORS FOR THE METROLOGY TASK.</td>
<td>1,088.0</td>
<td>1,058.0</td>
<td>2.0</td>
<td>OCT 82</td>
</tr>
<tr>
<td>T 81 6057</td>
<td>XM1 COMBAT VEHICLE THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>1,567.0</td>
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<tr>
<td>T 80 6059</td>
<td>LARGE CAST ALUMINUM COMPONENTS CAST A206 PLATES HAVE BEEN MADE FOR PRELIMINARY BALLISTIC TESTS. TURRET DESIGN CONTINUED.</td>
<td>538.0</td>
<td>523.0</td>
<td>3.0</td>
<td>JUL 81</td>
</tr>
<tr>
<td>T 81 6076</td>
<td>AUTOMATED DEPOT INSPECTION OF ROADWHEELS THIS PROJECT WAS JUST FUNDED. NO STATUS REPORT IS REQUIRED.</td>
<td>247.0</td>
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</table>
APPENDIX I: Command Identification
### APPENDIX: ARMY ACTION COMMAND/ACTIVITY IDENTIFICATION

<table>
<thead>
<tr>
<th>Action Command</th>
<th>Acronym</th>
<th>Command Identifier</th>
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<tbody>
<tr>
<td>Test &amp; Evaluation Command</td>
<td>TECOM</td>
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<tr>
<td>Aviation R&amp;D Command</td>
<td>AVRADCOM</td>
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<tr>
<td>Communications &amp; Electronics Command</td>
<td>CERCOM</td>
<td>2</td>
</tr>
<tr>
<td>Missile Command</td>
<td>MICOM</td>
<td>3</td>
</tr>
<tr>
<td>Armament Materiel Readiness Command (Munitions)</td>
<td>ARRCOM (Ammo)</td>
<td>5</td>
</tr>
<tr>
<td>Armament R&amp;D Command (Munitions)</td>
<td>ARRADCOM (Ammo)</td>
<td>8</td>
</tr>
<tr>
<td>Armament Materiel Readiness Command (Weapons)</td>
<td>ARRCOM (Wpns)</td>
<td>6</td>
</tr>
<tr>
<td>Armament R&amp;D Command (Weapons)</td>
<td>ARRADCOM (Wpns)</td>
<td>9</td>
</tr>
<tr>
<td>Troop Support &amp; Aviation Materiel Readiness Command</td>
<td>TSARCOM</td>
<td>7</td>
</tr>
<tr>
<td>Materiel Development &amp; Readiness Command</td>
<td>DARCOM</td>
<td>D</td>
</tr>
<tr>
<td>Mobility Equipment R&amp;D Command</td>
<td>MERADCOM</td>
<td>E</td>
</tr>
<tr>
<td>Communications R&amp;D Command</td>
<td>CORADCOM</td>
<td>F</td>
</tr>
<tr>
<td>Depot Systems Command</td>
<td>DESCOM</td>
<td>G</td>
</tr>
<tr>
<td>Electronics R&amp;D Command</td>
<td>ERADCOM</td>
<td>H</td>
</tr>
<tr>
<td>Army Materials and Mechanics Research Center</td>
<td>AMMRC</td>
<td>M</td>
</tr>
<tr>
<td>Natick R&amp;D Command</td>
<td>NARADCOM</td>
<td>Q</td>
</tr>
<tr>
<td>Tank-Automotive Command</td>
<td>TACOM</td>
<td>T</td>
</tr>
</tbody>
</table>

**NOTE:** Abbreviation - R&D Research and Development
APPENDIX II: Project Slippage Study
The purpose of this study is to monitor trends in the timeliness of the MMT Project Execution. Figure 1 is a slippage profile for each command and for the program as a whole. An observation of this data shows that there has been very little change in the project slippage distribution when comparing the current period with the 2nd half CY79. The 5% increase in the "No Data" column is a reflection of the large number of projects which were approved late (i.e. after Nov) this fiscal year vs the number of projects approved late last fiscal year. Status reports are not required for projects just funded. Therefore, there is no scheduled completion date available for these projects causing them to fall into the "No Data" column. Also, 80 of these FY81 projects were not funded until after the 2nd CY80 reporting period (July-Decmeber 1980). Slippage data on these projects will not be available for another reporting period.

There are two problems that affect accurate project slippage reporting. One problem is delinquent status reports. If a status report is not submitted for a project, then the slippage will remain the same until the next status report is submitted. During the current reporting period there were 30 delinquent status reports. This is a decrease of eight reports from the previous period. A continued decrease in delinquency of project status reports will help improve the accuracy of the project slippage profile.

Another problem that affects accurate project slippage reporting is the basis on which final status reports are submitted. Some organizations await financial close-out before submitting final status reports. By doing this, several months might be added to the apparent duration of the project. The general policy has been that final status reports should be submitted when the technical work has been physically completed. If outstanding financial action does not hinder project implementation, then the time required for financial close-out is not meant to be added to an indicator which measures engineering achievement. Continued emphasis on using a consistent basis for project close-out, namely technical completion, will provide a more accurate accounting of the technical life of MMT projects.
### PROJECT SLIPPAGE STUDY

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>NO. ACTIVE PROJECTS*</th>
<th>PROJECT SLIPPAGE DISTRIBUTION (PERCENT)</th>
<th>NO DATA</th>
<th>0 MO</th>
<th>1-6 MO</th>
<th>7-12 MO</th>
<th>13-16 MO</th>
<th>19-24 MO</th>
<th>25+ MO</th>
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<tr>
<td>CORADCOM</td>
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<tr>
<td>AVRADCOM</td>
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<tr>
<td>ARRADCOM-ARRCOM (AMMO)</td>
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<td>18</td>
<td>19</td>
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<tr>
<td>ARRADCOM-ARRCOM (WPNS)</td>
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<td>SJMMARY</td>
<td>553</td>
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<td>12</td>
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<tr>
<td>(DARCOM WIDE)</td>
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<tr>
<td>2ND CY79 SUMMARY</td>
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<td>10</td>
<td>13</td>
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*FIGURES REFLECT DATA ON THE ACTIVE PROGRAM AS OF 12 MAR 81.*

Figure 1 - Slippage Profile
APPENDIX III: User's Guide
<table>
<thead>
<tr>
<th>PROJ NO.</th>
<th>TITLE + STATUS</th>
<th>AUTHORIZED VALUES ($000)</th>
<th>CONTRACT VALUES ($000)</th>
<th>EXPENDED ORIGINAL MATERIAL ($000)</th>
<th>PROJECTED COMPLETE DATE</th>
<th>PRESENT PROJECTED COMPLETE DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 78 9889 A</td>
<td>THIRD GENERATION 0.9 MICRON WAFFER INTENSIFIER TUBE (ITT) ITT HAS ITS 12-TUBE PROCESSING CHAMBER TESTED BUT IS WAITING FOR GOOD QUALITY GA-AS CATHODES. DELAY WAS CAUSED BY OTHER WORK PRIORITY AND 3RD GEN TECHNICAL PROBLEMS. REMAINING FUNDS WILL PROVIDE ONLY 12 TUBES. TWO SAMPLE TUBES WERE DELIVERED.</td>
<td>710.1</td>
<td>632.1</td>
<td>75.0</td>
<td>JUN 81</td>
<td>SEP 81</td>
</tr>
<tr>
<td>H 78 9889 B</td>
<td>THIRD GENERATION 0.9 MICRON WAFFER INTENSIFIER TUBE (VARIAN) VARIAN EXHAUSTED ITS FUNDS AND CANNOT COMPLETE HARDWARE AND SOFTWARE REQUIREMENTS WITHOUT ADDITIONAL FUNDING. VARIAN REQUESTED $461K MORE. CONTRACT IS TO BE MODIFIED TO REQUIRE ONLY SOFTWARE. SAMPLES MADE IN MULTI-PROCESSOR SET SPECIFICATIONS.</td>
<td>1060.0</td>
<td>920.0</td>
<td>70.0</td>
<td>JUN 81</td>
<td>OCT 81</td>
</tr>
<tr>
<td>H 80 9997</td>
<td>SURFACE ACOUSTIC WAVE RESONATOR + REFLECTIVE ARRAY DEVICES DRY ETCHING PROCESSES ARE BEING TESTED TO DETERMINE THE BEST FOR UNIFORMITY AND REPEATABILITY. ELECTRICAL DESIGNS FOR THE RESONATOR AND COMPRESSOR ARE NEARLY COMPLETED. SEVERAL CONFERENCES HAVE BEEN HELD WITH PROSPECTIVE SUPPLIERS OF PACKAGES.</td>
<td>596.4</td>
<td>565.4</td>
<td>1.5</td>
<td>AUG 82</td>
<td>OCT 82</td>
</tr>
</tbody>
</table>

This form is used for summarizing the MMT program projects' status. User's guide below explains the significance of each column here in.
COLUMN 1. PROJECT NUMBER
A project identified by the first and last four digits which corresponds to the project title for the life of its execution. However, for accounting and reporting purposes, a project is recognized by the totality of its seven-digit numeral of alphanumeric number. Example:

3 75 6241

Project identifying number, which corresponds to the project title and is designated by action command.

Fiscal year of funding - the only two digits that may vary according to funding frequency (7T for FY transition).

Action command (see list in Appendix I).

COLUMN 2. Subtask identifier, if any.

COLUMN 3. PROJECT TITLE
The title descriptive of project effort.

COLUMN 4. An abstract of project status taken from the Project Status report. Whenever possible, technical accomplishments during the reporting period were summarized.

COLUMN 5. AUTHORIZED
The total amount of funds authorized in dollars, to complete the project.

COLUMN 6. CONTRACT VALUES
The portion of authorized funds actually expended or obligated for work performed by private industry.

COLUMN 7. EXPENDED LABOR AND MATERIAL
The portion of authorized funds actually expended in-house, namely within the Government.

COLUMN 8 ORIGINAl PROJECTED COMPLETION DATE
Calendar date clearly given in, or the nearest calendar month and year as could be read from the Milestone Chart of, the very first Project Status Report, RCS DRCMT-301.

COLUMN 9. PRESENT PROJECTED COMPLETION DATE
Calendar date clearly given in, or the nearest calendar month and year as could be read from Milestone Chart of, the latest Project Status Report, RCS DRCMT-301.
APPENDIX IV: Army MMT Program
Representatives
ARMY MMT PROGRAM REPRESENTATIVES

HQ, DARCOM
US Army Materiel Development and Readiness Command
ATTN: DRCMT
5001 Eisenhower Avenue C: 202 274-8284/8298
Alexandria, VA 22333 AV: 284-8284/8298

AVRADCOM
US Army Aviation R&D Command
ATTN: DRDAV-EGX, Mr. Dan Haugan
4300 Goodfellow Blvd. C: 314 263-1625
St. Louis, MO 63120 AV: 693-1625

CERCOM
US Army Communications & Electronics Materiel Readiness Command
ATTN: DRSEL-LE-R, Mr. William Coutros C: 201 532-4035
Fort Monmouth, NJ 07703 AV: 992-4035/4077

CORADCOM
US Army Communications R&D Command
ATTN: DRDCO-PPA-TP, Mr. Al Feddeler/Sam Esposito/Burton Resnic
Building 2700 C: 201-535-2418/4926
Fort Monmouth, NJ 07703 AV: 995-2418/4926/4026

ERADCOM
US Army Electronics R&D Command
ATTN: DELET-R, Mr. Joseph Key C: 201 544-4258
Fort Monmouth, NJ 07703 AV: 995-4258

MICOM
US Army Missile Command
ATTN: DRSMI-RST, Mr. Richard Kotler C: 205 876-2065
Redstone Arsenal, AL 35809 AV: 746-2065

TACOM
US Army Tank-Automotive Command
ATTN: DRSTA-RCKM, Dr. Jim Chevalier C: 313 573-2065/1814/ 2467
Warren, MI 48090 AV: 273-2065/1814/2467

ARRCOM
US Army Armament Materiel Readiness Command
ATTN: DRSAR-IRB, Mr. August Zahatko C: 309 794-4485/5446
Rock Island Arsenal Rock Island, IL 61299 AV: 793-4485/5446

ARRADCOM
US Army Armament R&D Command
ATTN: DRDAR-PML, Mr. Donald J. Fischer C: 201 328-2708
Dover, NJ 07801 AV: 880-2708
DISTRIBUTION:

Defense Technical Information Center:

Document Processing Division, Attn: DDC-DDA-2, Mr. Richard Matthews (12 cys)

Department of Defense:

DIRSO, Attn: Mr. B. Bartsch
OUUSDRE (R&AT), The Pentagon, Attn: Dr. Lloyd L. Lehn (2 cys)

Department of the Army:

HQDA, OASARDA, The Pentagon, Attn: Manufacturing Technology Representative
HQDA, ODCSRDA, The Pentagon, Attn: DAMA-PPM-P, Mr. R. Barnett
DCSRDA, Attn: DAMA-WSW, LTC Raymond Roskowski
DCSRDA, Attn: DAMA-CSC-BU, MAJ Paul Harvey

HQ DARCOM:

Cdr, DARCOM, Attn: DRCCG
Cdr, DARCOM, Attn: DRCDMD
Cdr, DARCOM, Attn: DRCDMR
Cdr, DARCOM, Attn: DRCPP
Cdr, DARCOM, Attn: DRCPPP-I (3 cys)
Cdr, DARCOM, Attn: DRCDE
Cdr, DARCOM, Attn: DRDAR (20 cys)
Technical Library, Attn: DRXAM-L

AVRADCOM:

Cdr, Attn: DRDAV
Cdr, Attn: DRDAV-EGX, Mr. Dan Haugan
Technical Library, St. Louis, MO

ARIIDCOM:

PM, Cannon Artillery Weapons Systems, Attn: DRCPM-CAWS
Cdr, Attn: DRDAR
Cdr, Attn: DRDAR-PML, Mr. Donald J. Fischer (7 cys)
Cdr, Benet Wns Lab, Attn: DRDAR-LCB-S, Dr. F. Heiser
Chemical Systems Lab, Technical Library, Attn: DRDAR-CLY-T
DRXIB-MT
DISTRIBUTION (Cont'd):

Aberdeen Proving Ground:

Cdr, Attn: STEAP-MT-M, Mr. T.R. Giroux

APRCOM:

Cdr, Attn: DRSAR-ASA
Cdr, Attn: DRSAR-AS
Cdr, Attn: DRSAR-CG
Cdr, Attn: DRSAR-IRB, Mr. August Zahatko (5 cys)
Cdr, Attn: DRSAR-IRW, Mr. Arne Madsen (2 cys)
Cdr, Attn: DRSAR-LEP (5 cys)
Technical Library, Attn: DRSAR-LEP-L

AMMRC:

Dir, Attn: DRXMR-PMT, Mr. Raymond Farrow
Dir, Attn: DRXMR-EQ, Dr. Morton Kliman
Dir, Attn: DRXMR, DRXMR-M, DRXMR-PL, (1 cy ea)
Dir, Attn: DRXMR-MI, Mr. G. Darcy, Jr.

CERCOM:

Cdr, Attn: DRSEL-LE-RI, Mr. William Coutros

CORADCOM:

Cdr, Attn: DRDCO
Cdr, Attn: DRDCO-PPA-TP, Messrs, Feddeler, Esposito, Resnic (1 cy ea)
RD&E Technical Documents Ctr, Ft. Monmouth, NJ

DESCOM:

Cdr, Attn: DRSDS

ERADCOM:

PM, Stand-off Target Acquisition Systems, Attn: DRCPM-STA
Cdr, Attn: DRDEL
Cdr, Attn: DELET-R, Mr. J. Key
Cdr, Attn: DRDEL-ED, Mr. Harold Garson
DRXIB-MT
DISTRIBUTION (Cont'd):

MERADCOM:
PM, Mobile Electric Power, Attn: DRCPM-MEP (Springfield, VA)
Cdr, Attn: DRDME
Cdr, Attn: DRDME-UE, Mr. R. Goehner
Technical Library, Ft. Belvoir, VA

MICOM:
PM, HAWK, Attn: DRCPM-HA
Cdr, Attn: DRSMI
Cdr, Attn: DRSMI-RST, Messrs. Kotler, Austin (1 cy ea)
Magazine Room, Attn: RSIC

NARADCOM:
Cdr, Attn: DRDNA

TACOM:
Cdr, Attn: DRSTA
Cdr, Attn: DRSTA-RCKM, Dr. J. Chevalier
Technical Library, Warren, MI

TECOM:
Cdr, Attn: DRSTE
Cdr, Attn: DRSTE-AD-M, Mr. Grover Shelton

TSARCOM:
Cdr, Attn: DRSTS
Cdr, Attn: DRSTS-PLE, Mr. Don G. Doll

Arsenals:
Cdr, Pine Bluff Arsenal (PBA), Attn: SARPB-CO
Cdr, Rock Island Arsenal (RIA), Attn: SARRI-CO
Cdr, RIA, Attn: SARRI-ENM, Mr. Joseph DiBenedetto
Cdr, WVA, Attn: SARWV-PPI, Mr. G. Spencer
Cdr, Benet Wpns Laboratory, Attn: DRDAR-LCB-TL (Tech Library)
Munitions Production Base Modernization Agency:

Cdr, MPBMA, Attn: SARPM-PBM-DP, Mr. Joseph Taglairino

Army Ammo Plants:

Cdr, Crane AAA, Attn: SARCN-ED
Cdr, Hawthorne AAP, Attn: SARHW-ADF
Cdr, Holston AAP, Attn: SARHO
Cdr, Iowa AAP, Attn: SARIO-EN
Cdr, Lone Star AAP, Attn: SARLS
Cdr, Milan AAP, Attn: SARMI-EN
Cdr, Mississippi AAP, Attn: SARMS

Depots:

Cdr, New Cumberland Army Depot, Attn: SDSNC-ME
Cdr, Red River Army Depot, Attn: SDSRR-MO
Cdr, Sacramento Army Depot, Attn: SDSSA-RPM-1
Cdr, Tobyhanna Army Depot, Attn: SDSTO-ME
Cdr, Tooele Army Depot, Attn: SDSTE-MAN

Army Organizations:

Cdr, HDL, Attn: DELHD-PO, Mr. Julius Hoke
Cdr, Foreign Science and Technology Ctr (FSTC), Attn: DRXST-MTI, Mr. James Wamsley
Dir, Installations and Services Activity (I&SA), Attn: DRCIS-RI
Dir, Army Management Engineering Training Acty (AMETA), Attn: DXOM-SE, Dr. Shallman (3 cys)
Cdr, Army Night Vision and Electro-Optics Lab, Attn: DELNV-RM, Mr. Sheldon Kramer
Dir, DARCOM Intern Training Center, Attn: DRXMC-ITC-E, Mr. Carter

Navy Organizations:

Cdr, NAVMAT, Attn: Mr. J. W. McInnis, Code 064
Cdr, NAVSEA, Attn: T. E. Draschil, Code C-05R23
Cdr, Naval Weapons Ctr, Attn: Code 36404
Dir, NMCIRD, Bldg 75-2, Naval Base

Air Force:

Cdr, AFML/LT, WPAFB
Cdr, AFWAL/MLTE, /MLTN, WPAFB (1 cy ea)
Cdr, AFWAL/MLS, WPAFB
Cdr, AFLC/MAX, WPAFB
Cdr, San Antonio Air Logistics Ctr, Kelly AFB, Attn: B. Boisvert, MMEI