INCREASED PRODUCTIVITY THROUGH IMPROVED TECHNICAL TRAINING.
Increased Productivity Through Improved Technical Training

Distribution is unlimited. This report is approved for public release (August 1977).

APPROVED:

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Robins Air Force Base, Georgia

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INTRODUCTION

During the week 12-16 January 1976, personnel from the ASD PRAM Office visited this ALC to explore methods of improving Maintenance Productivity. Numerous areas were discussed with the one area of training standing out as possibly being the biggest cost saver for the least investment.

Warner Robins was requested to undertake the project on training by the Hq ASD PRAM Office.

Texas Instrument Learning Center was contacted and provided costing information on videotape lessons. Further, a TDY trip to Eastfield College, Dallas, Texas provided advantages and disadvantages of CCTV for electronics fundamental training.
Increased Productivity Through Improved Technical Training

A. Executive Summary

1. Electronics mechanics in the Avionics Division, MAI, undergo a 3-year apprentice program to develop the necessary skills to repair complex electronic equipment. The total program encompasses 1,380 classroom hours. Presently live instruction is the method used to present the course material.

2. The present method of training electronics mechanics is extremely expensive creating many hours of lost production time. The 1,380 hours classroom time plus the necessary travel time to and from class amounts to approximately one-third of each apprentice’s available productive time during the 3-year duration of the program. Obviously, the Avionics Division’s productivity could be increased by reducing classroom time for the apprentice program, thereby increasing the time available for actual productive work. To achieve this, video tape instruction coupled with minimum live instruction was proposed. Course tapes on “Semi-Conductors” and “D.C. Electricity” were purchased and a service test of the proposed method was scheduled.

3. The service test has been completed with the following results:

   (a) The “Semi-Conductors” video tape course was determined to be too broad and general. While it provides a good introductory film to the course, it is not sufficient to be used as the basis for the course presentation.

   (b) The “D.C. Electricity” video tape course did achieve the desired results of providing qualified electronics mechanics with less classroom hours. A 15 percent reduction of classroom time for each student trained was achieved during the service test. Additionally, Mr. Charles Wood, Chief of the Avionics Training Center, stated that the 15 percent reduction in course time should improve as the instructor learns to rely more on the film for presenting the course material.

4. The cost to purchase the necessary equipment and course materials required to implement the service test amount to $11,794. Based on the current projection of 60 students to be trained per year, the projected 5-year net savings will be $15,806.

RECOMMENDATION: Each ALCs Civilian Training Office within the Personnel Division should screen their training processes for application of video tape courses in lieu of live instruction.
B. Economic Summary

1. Project Cost

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Texas Instruments 'Understanding Semiconductors' course consisting of 12x60 minute video tape lessons in 3/4&quot; cassette format and 25 lesson summaries; complete Texas Instruments 'Basic Electricity and DC Circuits' lecture video tape course consisting of 14x30 minutes video tape lessons in 3/4&quot; color cassette format and 25 student texts; complete Texas Instruments 'Basic Electricity and DC Circuits' 15 lab sessions in eight video tapes and 25 lab manuals; two Panasonic NV-2110M 3/4&quot; cassette video tape players.</td>
<td>$11,265.00</td>
</tr>
<tr>
<td>TDY trip for (2) to Eastfield College, Dallas, Texas, to attend conference on advantages and disadvantages of Closed Circuit Television (CCTV) for electronics fundamentals training.</td>
<td>$529.00</td>
</tr>
</tbody>
</table>

Total Project Cost: $11,794.00

2. Computation of Savings

Before: 60 Students/yr X 131.5 hrs/student X $4.67/hr = $36,846.00

After: 60 Students/yr X 111.8 hrs/student X $4.67/hr = $31,326.00

Average Gross Annual Savings = $5,520.00

3. Savings by FY (5 years)

<table>
<thead>
<tr>
<th>FY78</th>
<th>FY79</th>
<th>FY80</th>
<th>FY81</th>
<th>FY82</th>
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<tr>
<td>$5,520.00</td>
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5-year Total Gross Savings $27,600.00

Project Cost $11,794.00

5-year Total Net Savings $15,806.00
3. Savings by FY (5 years)

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5-year Total Gross Savings: $27,600.00
Project Cost: 11,794.00
5-year Total Net Savings: $15,806.00

C. Audit Trail

Results of this project will be audited by reviewing the Avionics Training Center's records for number of students trained in this course and the length of time in the classroom.

D. Approval and Coordination

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<tr>
<th>TASK</th>
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<tr>
<td>1.</td>
<td>Provide XRS a report of the number of students trained in DC Electricity Course and length of course (hrs). Reports due 1 Jan 78, 1 Jul 78, 1 Jan 79, and 1 Jul 79.</td>
</tr>
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<td>2.</td>
<td>Compute semi-annual savings based on MAIPE input data and forward to PRAM Office.</td>
</tr>
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<td>3.</td>
<td>Summary of audit results to ASD/RA by 1 Feb and 1 Aug each year.</td>
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DIVISION LEVEL SIGNATURE

MAIPE B. WOODHAM Chief, Electronics Division
Directorate of Maintenance

XRS R. Bähn, Chief Logistics Research and Systems Division
Directorate of Logistics

PRAM Program Director
C. Audit Trail

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<td>MAIPE</td>
<td>Brannan D. Woodham Chief, Elect Div Directorate of Maintenance</td>
</tr>
<tr>
<td>XRS</td>
<td>H.E. Eschen, Chief Log Research &amp; Sys Division Directorate, Plans and Programs</td>
</tr>
<tr>
<td>RA</td>
<td>W. R. Elliott PRAM Program Director</td>
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RECOMMENDATION: Each ALCs Civilian Training Office within the Personnel Division should screen their training processes for application of video tape courses in lieu of live instruction.
INSTRUCTIONS FOR COMPLETING THE GIDEP GENERAL DOCUMENT SUMMARY SHEET

NOTE: Completion of a Summary Sheet by the participant is not mandatory for document acceptance into GIDEP. A Summary Sheet will be prepared by the GIDEP Operations Center for document submittals received.

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BOX

1 Leave blank---entry will be completed by GIDEP Operations Center.

2 Enter standard nomenclature associated with GIDEP Subject Thesaurus selected from Section 12, Policies and Procedures Manual.

3 Indicate application which the device was used (e.g., ground, missile, shipboard, spacecraft; refer to P & P Manual, Section 13).

4 Device manufacturer must be notified of test results. Manufacturer approval of report is not required---include pertinent manufacturer correspondence with document submitted to GIDEP; check NOTIFIED entry. If document is for a nonstandard part or of a general nature and a manufacturer is not identified, check NOT APPLICABLE.

5 Enter month and year of document issue.

6 Enter complete document title exactly as it appears on originator document.

7 Identify document type by inserting letter X by appropriate descriptor.

8 Enter document number exactly as it appears on originator document.

9 Enter part name and identification as assigned by organization/agency originating the report; if not specified, enter N/A (Not Applicable).

10 Delete either SUPERSEDES or SUPPLEMENTS. If document supersedes/supplements an existing GIDEP document, enter GIDEP microfilm access number of appropriate document. If document neither supersedes nor supplements an existing GIDEP document, enter the word NONE.

11 Enter the single symbol coding for environmental exposure as defined in Subject Thesaurus, Section 12, P&P Manual (e.g., C - Salt Spray; V - Vibration; % - Shelf Life); if not specified, enter N/A (Not Applicable).

12 Enter manufacturer abbreviation and H-4 Code number listed in GIDEP Manufacturer List. If manufacturer is not listed, enter the phrase, SEE BOX 15; enter manufacturer's full name and division (if any) in Box 15. If more than one manufacturer, enter phrase, SEE BOX 15; enter additional manufacturers as appropriate. If manufacturer is not specified, enter N/A (Not Applicable).

13 Enter complete part number. Use open O for alpha letter O, and use O for numeric zero. If more than one part number, enter phrase, SEE BOX 15; enter additional part number(s). If a part number is not specified, enter four dashes (------).

14 Enter standard part number such as the 1N or 2N---diode and transistor designators. For GIDEP purposes, any military assigned number is considered as a government standard part number. If more than one standard number, enter phrase SEE BOX 15; enter additional standard number(s).

15 If subject matter in document can be categorized into more than one major subject category, enter additional subject categories in upper right-hand corner. Briefly summarize test results or material detailed in text of document. Include any pertinent details or comments required for proper interpretation of material presented (e.g., peculiar environmental capabilities, unique electrical characteristics that may be "state-of-the-art," or characteristics that restrict part usage to particular applications or any other details that may aid a prospective user of the part).

16 Enter appropriate words or phrases that enhance information retrieval on subject matter(s) contained in document. As a secondary data retrieval technique within each applicable Major Category (entry 2), the document is referenced in the computer data bank and Report Index according to each key word. Do not use abbreviations or words that are part of the subject category listed in Box 2. Key word phrases are limited to 60 total characters and blank spaces. Separate key words and/or phrases with commas.

17 Enter signature or name of GIDEP Representative.

18 Enter name, city, and state of participant activity or corporation and division submitting the document and GIDEP two-character code (e.g., X1).