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**Microelectronic Status Analysis and Secondary Part Procureability
Assessment Process Tools and Procedures Development and Implementation**

(5-20208 & 5-20209)

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PREFACE

This technical report was prepared by the staff of the Research Institute, The University of Alabama in Huntsville. The purpose of this report is to provide documentation of the work performed and results obtained under Delivery Order 11 of AMCOM Contract No. DAAH01-98-D-R001. Mr. Gary Maddux was the principal investigator. Mr. Robert Gibbs, Industrial Operations Division, Systems Engineering and Production Directorate, Research, Development, and Engineering Center, U.S. Army Aviation & Missile Command, provided technical coordination.

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Prepared for: Commander
U.S. Army Aviation & Missile Command
Redstone Arsenal, AL 35898

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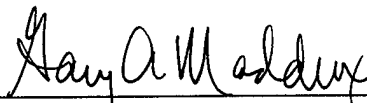

Principal Investigator

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	OBJECTIVES	1
3.0	STATEMENT OF WORK	1
4.0	DEVELOPMENT OF DMSMS PROCESSES & PROCEDURES ..	2
5.0	CONCLUSIONS AND RECOMMENDATIONS	2

1.0 Introduction

The Industrial Operations Division (IOD), Systems Engineering and Production Directorate (SEPD), Research, Development, and Engineering Center (RDEC), Aviation & Missile Command (AMCOM) has the mission and function of providing microelectronic technology assessments, and producibility and supportability analyses for AMCOM weapon systems. IOD evaluates the impacts of nonavailability of microelectronic parts on the life cycle supportability of the AMCOM weapon systems and evaluates the producibility of AMCOM weapon systems. IOD required engineering support in performing microelectronic technology and availability assessments for several hundred items and in assessing the impact of nonavailability on AMCOM weapon systems. IOD also required engineering support developing state of the art microelectronic technology and availability assessments tools and procedures for AMCOM weapon systems.

In order to facilitate the development of these technologies, the Systems Management and Production Laboratory at The University of Alabama in Huntsville Research Institute was tasked to conduct an in-depth analysis as to the processes and procedures used for Diminishing Manufacturing Sources and Material Shortages (DMSMS) analysis.

2.0 Objective

The purpose of the work to be performed under this task order was to provide engineering support to develop state of the art tools, processes, and procedures for implementing a weapon system modernization plan and strategy used in AMCOM weapon systems and which may have applicability to all weapon systems. Determination of the producibility of AMCOM weapon systems was required and included reactive and proactive parts/system obsolescence management.

3.0 Statement of Work

The statement of work, as outlined in delivery order 11, was as follows:

3.1 UAH shall analyze current directives, procedures, processes,, existing Government owned and leased tools currently in use. This understanding shall assist UAH in development of a weapon system modernization plan. UAH shall develop an understanding of the methodology utilized to analyze weapon system state of modernization. UAH shall also gain an understanding of the current selection criteria utilized by the Department of the Army for modernization candidates and justification.

3.1.1 UAH shall develop a baseline template and approach to implement modernization candidates which meet selection criteria for evaluation/determination of parts

standardization opportunities. UAH shall evaluate all available data such as industry data bases, sources accessible through the world wide web, part manufacturers, distributors, suppliers, part locators, DoD supply centers, and other sources and programs for possible use within the baseline template. UAH shall evaluate and determine the effectiveness and applicability of legacy and state of the art automated data base development opportunities that streamline and enhance the standardization process.

- 3.2 UAH shall develop and institute a new modernization implementation process, utilizing existing portions of the E-MOAT system where necessary, and utilizing other tools, technologies, sources, and approaches as deemed appropriate. UAH shall present the recommended process and implement the new approach as directed by IOD.

4.0 Development of DMSMS Processes and Procedures

Under this task members of the UAH Systems Management and Production Lab performed a detailed engineering analysis on the current processes and procedures used to determine the state of DMSMS. Specifically, microelectronic component databases were analyzed according to their applicability to the AMCOM environment. The analysis included the current as is process, plus recommended solutions to meet future AMCOM and SEPD needs.

The results of this task were published and delivered to IOD under separate cover.

5.0 Conclusion and Recommendations

During the time frame allocated by the delivery order, members of the UAH Systems Management and Production Lab, with the cooperation of representatives from AMCOM Systems Engineering and Production Directorate developed enhanced processes and procedures to address the DMSMS needs of AMCOM project offices. Because of the rapidly changing microelectronics industry, it is imperative that this analysis be refreshed on a periodic basis.