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A CONCEPTUAL MODEL FOR A NAVY ENLISTED CAREER PLAN(U)
TRAINING ANALYSIS AND EVALUATION GROUP (NAVY) ORLANDO
FL J M HENRY ET AL. AUG 79 TAEG-74

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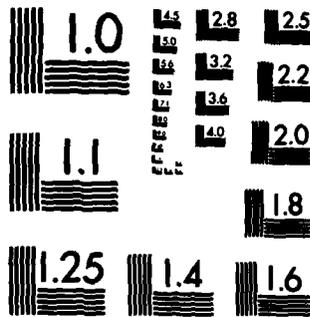
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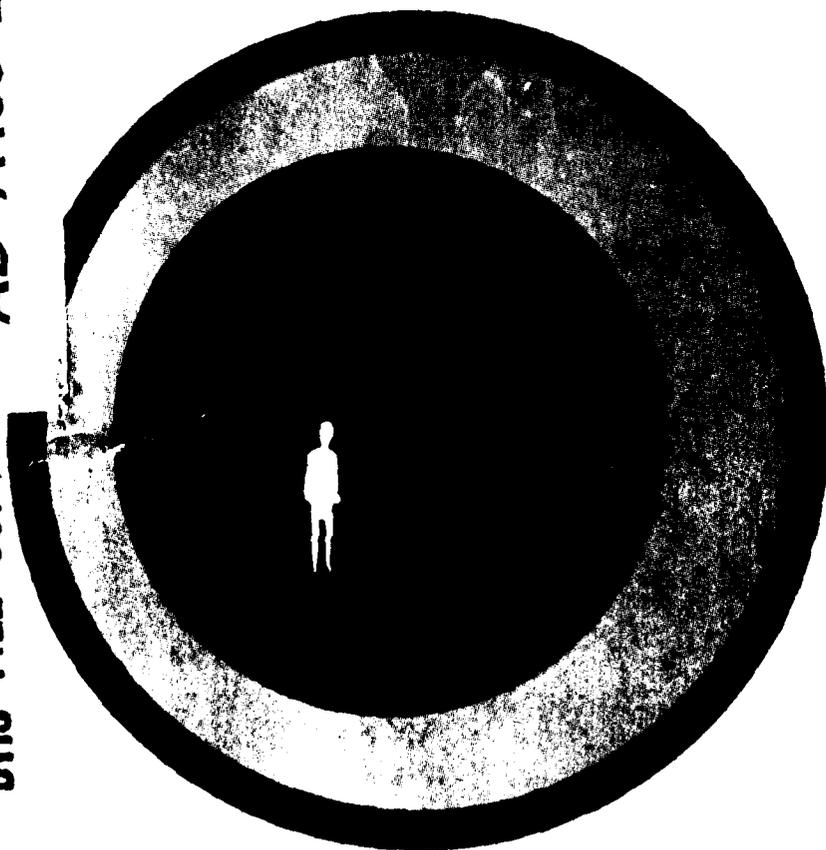
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TAEG REPORT
NO. 74

A CONCEPTUAL MODEL
FOR A NAVY ENLISTED CAREER PLAN

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AUGUST 1979



TRAINING ANALYSIS AND EVALUATION GROUP

ORLANDO FLORIDA 32813

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A CONCEPTUAL MODEL FOR A NAVY
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James M. Henry
Gene S. Micheli

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Training Analysis and Evaluation Group

August 1979

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SECTION I

INTRODUCTION

PREFACE

The Chief of Naval Education and Training (CNET) tasked the Training Analysis and Evaluation Group (TAEG) to develop a model for an enlisted career plan to include viable options beneficial to the enlisted force and the Navy at large. The plan should identify types of training required, placement of training, optimum means for achieving the required training, and the qualifications that the training will meet. Initial guidance was to conceptualize a 30-year career model minimally constrained by current organizational structures or operational policies. To achieve the necessary operational context, the Aviation Electrician's Mate (AE) rating was selected as the vehicle for the development of a basic career plan. Although a specific aircraft maintenance rating is involved, it is believed that the career model proposed is generalizable to a range of Navy ratings.

The present study describes the development and design of an AE rating plan in terms of coordinated training and qualifications for probable career duty assignments. Some elements of the plan impinge upon current policies and practices of the Recruiting Command and Service School Commands. The major discordance envisaged between the proposed plan and present day operations is the time delay the majority of Navy enlistees will experience before being eligible for "A" school technical training. Simply, the proposed plan calls for a significantly reduced level of technical training immediately following initial enlistment. Generalized maintenance training and fleet experience are provided prior to selection for career technical training. Following initial technical training, periodic update and expansion of technical and supervisory skills are provided throughout a career. The long-term benefits of this approach outweigh any short-term debilitations. The payoff will be improved selection of personnel for technician training and improved allocation of resources toward meeting fleet technician training and qualification requirements.

What is provided here is an initial attempt at developing an enlisted career plan. Substantial detailed development and modification of the proposed model are envisaged as a prelude to subsequent decisions on implementation.

Features of the proposed AE career plan include:

- . a trackable career system
- . clearly defined professional career levels based upon expected duties in the career environment
- . rating core training and specialty training at the beginning of each professional duty level
- . advancement upon completion of professional level training and during follow-on duty tour contingent upon full qualification at that level

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- periodic integrated military, technical, and professional training within career structure
- delayed major training investment within career structure until required
- meaningful career status designation at an optimal length of service (LOS) point
- optional duty tracks for senior petty officer grades
- increased duty opportunities and utilization of senior enlisted personnel.

BACKGROUND

Navy training of enlisted personnel is currently an unsystematic process. The primary reason for this situation is that a number of disconnected and redundant programs exist. Since these programs operate independently they have been difficult to manage toward achievement of an integrated longitudinal approach to training. The problem is compounded by lack of trackable career plans for the majority of ratings upon which to base long-term training resource requirements. The situation has carried over into the operational environment requiring the fleet operating forces to provide basic job qualification training out of sequence with the "A" school technical qualification in order to utilize the benefits of the rating qualification provided.

Other formalized programs, in addition to "A" school technical training are concentrated early in the enlisted career continuum. Few programs fully support a Navy career approach. Examples of such current programs include: Advancement in Rating Examinations; Navy Enlisted Classification structure; Navy Enlisted Occupational Standards; Personnel Advancement Requirements; Career Reenlistment Objectives (CREO); Guaranteed Assignment Retention Detailing (GUARD) Program; Personnel Qualifications Standards; and Personnel Exchange Program.

It is clear that an integrated systematic career approach to Navy enlisted training is required.

PURPOSE OF THE STUDY

The purpose of this study is to design a conceptual model for a 30-year career plan for the AE rating. The goal is to provide a basic career plan model which can be employed to advantage in the subsequent development of a systematic approach to training and qualification of enlisted personnel.

ASSUMPTIONS AND CONSTRAINTS

The development of the AE career training plan was guided by the following assumptions and constraints:

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1. Training is generally accepted as a subsystem of personnel management. Therefore, the career training plan should be viewed as part of the manpower acquisition, training and personnel system under cognizance of the Chief of Naval Operations (CNO), OP-01, although training cognizance may be delegated to the CNET.

2. The career training plan must be compatible with the goals and objectives of OPNAVINST 5310.13.

3. Ongoing personnel management/training subsystems should be modified and integrated to achieve system efficiency rather than be replaced.

4. Enlisted career management systems must provide a balance among management, enlisted working force, and operational objectives and conditions to achieve maximum system output.

5. A consolidated data base from which requirements for training in a rating in the form of military, technical, operational, and career related elements can be generated is within current Navy development capabilities. A master executive program permitting timely access to critical rating management/training data at specified management levels is required for efficient management and training of manpower resources. Several elements for such a system are in existence or in planning. One example is the Naval Enlisted Professional Development Information System (NEPDIS). The NEPDIS will have the capability to store, organize, and analyze the data required for training program development. Initial efforts to validate the application of NEPDIS have been initiated by CNET. Other examples are the Naval Occupational Task Analysis Program (NOTAP), Navy Integrated Training Resources and Administrative System (NITRAS), Catalog of Navy Training Courses (CANTRAC), Training Resource Model (TRM), and Manpower and Personnel Management Information System (MAPMIS).

6. Career modeling efforts should provide easily understood enlistment to retirement career tracking. This can be achieved by dividing the total career span (1 to 30 years) into appropriate "expected duty" modules, with each module defined by qualification and experience requirements, training required to qualify, and benefits associated with full qualification.

7. Career modeling efforts should include consideration of the impact of the model on recruiting, military and technical training/qualification, operational requirements, career commitments and entitlements and the political/socioeconomic impact of proposed changes. Some long-standing policies may require change to achieve full benefit of the resulting proposed AE career model.

APPROACH

Several sources of data and information were utilized as a prelude to developing the proposed conceptual model. The work began with an examination of the available documents relevant to career modeling. Also, the current Navy MANTRAPERS instruction (OPNAVINST 5310.13) and documentation supporting the ongoing enlisted career structure, training, reenlistment, and advancement

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programs were reviewed. Discussions concerning ongoing and anticipated changes in programs related to manpower acquisition, training, qualification, and assignment were held with appropriate personnel at the OPNAV, CNET, and CNTECHTRA levels. Force loading, attrition, enlistment, and reenlistment data were also reviewed.

Comparisons were made among the several available AE rating job task descriptions which differ in purpose and detail (e.g., NAVPERS 18068D, NOTAP, CNET job task inventory). These sources were consolidated and then combined with the organizational objectives of the Naval Aviation Maintenance Program (NAMP) to obtain a composite career picture.

The duties of other ratings within the avionics group were also examined to identify commonality and compatibility within the avionics rating clusters in order to ensure an AE rating career training plan readily adaptable to companion ratings.

The AE career plan proposed in this report responds to identified career duty segments in terms of technical and supervisory skill levels. The training and qualification requirements to support the career plan were superimposed following development of the basic plan. For example, at the beginning of each professional level, military and general rating training was formalized into training called "core training." The core training is followed by specific technical training, as required, to prepare the individual for the most probable billet assignment at that particular level of experience. The objective was to place training where the highest payoff potential exists, maintain rating currency, and expend training resources in a manner which mutually benefits both the individual's career and the Navy.

ORGANIZATION OF THE REPORT

The report contains four sections in addition to this introduction. Section II addresses the present day AE rating and duty qualification process. Included are job task data assessments and a functional description of the AE rating and the maintenance environment of the rating. Section III develops career plan components and guidelines for the career plan by merging job task inventory data from section II with the working environment and MANTRAPERS objectives. Section IV is the AE Career Plan. A training/qualification schema to support the career plan is included. Section V presents the benefits of the career plan system via a series of conclusions and recommendations. An appendix is included in support of section II. It consists of AE data sheets developed to assist in identification of the AE rating task/training continuum.

SECTION II

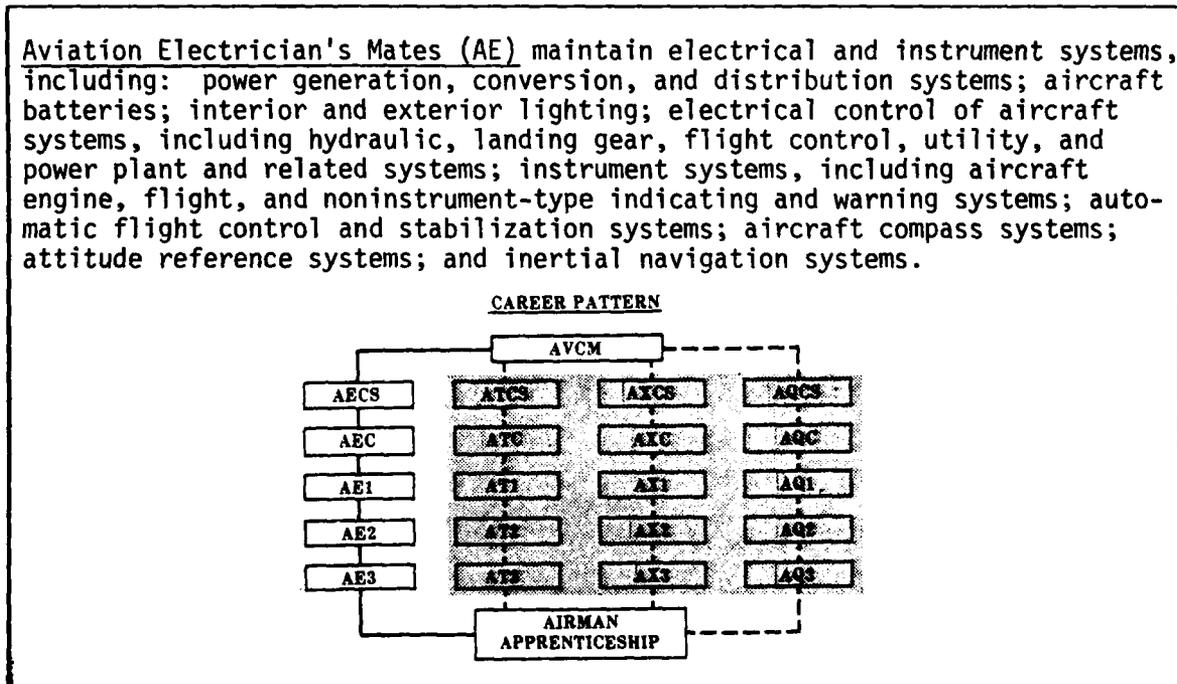
AVIATION ELECTRICIAN'S MATE (AE) RATING
CURRENT DESCRIPTIVE DATA

This section provides assessments of current AE rating information and data. Subsequent portions of the section present the AE rating description contained in NAVPERS 18068D, the ongoing duty qualification process, NOTAP data on the AE rating, and development of an AE job task inventory (JTI) by the CNET. The section concludes with a functional description of the AE rating and the maintenance environment in which it exists. In addition to the informational value of these descriptions, the background material also serves as a basis for the development of section III of this report.

AE RATING DESCRIPTION

The AE rating description and career pattern contained in the occupational standards section of NAVPERS 18068D are provided in table 1. The AE rating is one of four within the avionics rating group. An airman apprentice entering the avionics group specializes in one of four ratings (AE, AT, AX, or AQ) for most of a career before returning to generalized supervisory duties over all four of the included ratings.

TABLE 1. AVIATION ELECTRICIAN'S MATE*



*Extracted from NAVPERS 18068D

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Table 2 provides the NAVPERS 18068D listing of the 19 occupational areas and area designation numbers currently assigned to the AE rating. Table 3 lists the same occupational areas shown in table 2 arranged in a matrix of qualification requirements by rate. Seven of the 19 areas require progressive qualification for advancement and each rate includes qualification in all preceding lower pay grade rates. For example, an AVCM (E-9) must meet qualifications in areas 35 and 52 in addition to those in pay grades E-4 through E-8.

TABLE 2. AE OCCUPATIONAL AREAS

<u>NAVPERS 18068D Area Designation</u>	<u>Area Title</u>
11	Damage Control
18	Test Equipment
24	Electrical Maintenance
28	Technical Drawings
50	Maintenance Planning and Quality Assurance
54	Logistics Support
62	Aircraft Handling and Aviation Support
79	Corrosion Control and Material Preservation
92	Electro/Mechanical Maintenance
94	Mechanical Maintenance
38	Administration
40	Fabrication and Manufacturing
51	Maintenance Planning and Quality Assurance (Maintenance)
37	Administration
20	Safety
35	Administration
46	Publications
44	Training
52	Financial Control

TABLE 3. AE OCCUPATIONAL AREA PROGRESSIVE QUALIFICATION MATRIX

AE3 (E-4)	AE2 (E-5)	AE1 (E-6)	AEC (E-7)	AECS (E-8)	AVCM (E-9)
11					
18	18	18			
24	24	24			
28		28			
50					
54		54	54		
62					
79	79	79	79		
92					
94					
	38				
	40				
	51	51	51	51	
		37			
			20		
			35	35	35
			46		
				44	
					52

NAVPERS 18068D also lists approximately 65 Navy Enlisted Classification (NEC) conversion codes available to the AE rating within the avionics field. These NECs are actually job specialty descriptions within the general rating. Aviation personnel qualify for NECs and work according to NECs. However, qualifying for advancement is based primarily on general rating criteria rather than on the NEC. This results in complexity and confusion within the AE rating.

DUTY QUALIFICATION PROCESS

As an AE entering the rating, an airman must obtain and maintain a series of certifications and qualifications. Typical, but not inclusive, are rating qualifications, NEC qualifications, advancement qualifications, soldering certification, plane captain qualification, taxi/turn-up licensing, Ground Support Equipment (GSE) operator certification, Damage Control certification, and firefighting qualification. Although Navy training schools provide the bulk of training for initial basic qualification, operational readiness is heavily dependent upon additional in-service and on-the-job (OJT) training in order to achieve functional qualification of personnel.

In-service training and OJT are assisted by special programs such as NOTAP, Personnel Qualification Standards (PQS), Fleet Replacement Aviation Maintenance Program (FRAMP), and a revised General Military Training (GMT) program. All of these programs have been successful to a degree and have improved the Navy training/qualification-for-job process. All, however,

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respond to a different set of requirements or problems and were developed using different analysis data. The rating qualification data base is, for example, different from the NOTAP data base. The CNET has attempted to consolidate and verify AE rating data from several sources and include it in a single data base. This CNET task, discussed later in this section, recognizes a primary requirement for a data-based system which provides individual rating data that can be universally utilized for personnel management, training, qualification, and career development. Payoff would result in improved personnel planning and qualification actions (including training) based upon objective rather than subjective requirements.

NOTAP DATA ON THE AE RATING

Special program printouts of NOTAP data provided AE rating job descriptions by skill level ordered by: (1) percent of members performing, (2) percent of time spent performing, (3) average percent of time spent by all members, and (4) alphabetical order. Identified skill levels included the apprentice (E1-E4), journeyman (E5-E6), and supervisor/manager (E7-E8). An arbitrary selection criterion of 50 percent or greater participation in an event by the skill level being reported was used by the TAEG to determine "BASIC" tasks for that particular skill level. Although not expected, it was also found that time spent accomplishing the selected BASIC tasks verified the task selections. Tables 4 through 6 report the BASIC job tasks for the apprentice, journeyman, and supervisors/managers task listings derived from the NOTAP data.

Table 4, for example, shows that 50 percent of AE apprentices spend 95 percent of their time on the 14 tasks listed. Approximately 58 percent of journeyman AEs (table 5) spend 97 percent of their time involved with 16 tasks. Over 50 percent of supervisors/managers spend 90 percent of their time on 11 tasks listed in table 6.

TABLE 4. AE APPRENTICE BASIC TASKS*

Fundamental Aviation Maintenance
General Military/Administrative Functions (Dept./Div.)
Avionics Maintenance
Aviation Maintenance Administration
Adjustment/Alignment
Operational Test/Check
Electrical Circuitry Maintenance/Repair
Supply Functions
Line Service/Plane Captains Functions
Corrosion/Contamination Prevention
Directing and Implementing
General Airframes/Power Plants Maintenance
Planned Maintenance Inspections
Minimum Performance Test/Check

*Derived from NOTAP data.

TABLE 5. AE JOURNEYMAN BASIC TASKS*

Aviation Maintenance Administration
Directing and Implementing
General Military/Administrative Functions (Dept./Div.)
Fundamental Aviation Maintenance
Avionics Maintenance
Adjustment/Alignment
Supply Functions
Supervising and Management
Operational Test/Check
Electrical Circuitry Maintenance/Repair
Corrosion/Contamination Prevention
Line Service/Plane Captains Functions
General Airframes/Power Plants Maintenance
Planned Maintenance Inspections
Training and Education
Minimum Performance Test/Check

*Derived from NOTAP data.

TABLE 6. AE SUPERVISORS/MANAGERS BASIC TASKS*

Supervising and Management
Directing and Implementing
General Military/Administrative Functions (Dept./Div.)
Aviation Maintenance Administration
Supply Functions
Fundamental Aviation Maintenance
Training and Education
Avionics Maintenance
Adjustment/Alignment
Corrosion/Contamination Prevention
Operational Test/Check

*Derived from NOTAP data.

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Examination of tables 4 through 6 indicates that task continuity across different duty levels exists for the AE rating. Table 7 summarizes these data using the apprentice level tasks as a baseline. It is inaccurate to assume, however, that the apparent commonality of task areas reflects the job qualifications required for a specific task. Levels of response to a specific task area may vary greatly as to level of responsibility, technical capability required, and duty elements involved by the separate duty levels. Therein lies a major problem area for the training community. The level of discrimination within NOTAP task descriptions, as now reported, is less than adequate to determine precise training requirements.

TABLE 7. TASK COMMONALITY ACROSS AE RATING

APPRENTICE	JOURNEY-MAN	SUPERVISOR/MANAGER	
X	X	X	Fundamental Aviation Maintenance
X	X	X	General Military/Admin. Functions (Dept./Div.)
X	X	X	Avionics Maintenance
X	X	X	Aviation Maintenance Administration
X	X	X	Adjustment/Alignment
X	X	X	Operational Test/Check
X	X	*48%	Electrical Circuitry Maintenance/Repair
X	X	X	Supply Functions
X	X	*48%	Line Service/Plane Captains Functions
X	X	X	Corrosion/Contamination Prevention
X	X	X	Directing and Implementing
X	X	*43%	General Airframes/Power Plants Maint.
X	X	*37%	Planned Maintenance Inspections
X	X	*35%	Minimum Performance Test/Check

*Percentage of personnel performing when under 50 percent participation in job setting.

In addition to the AE career level analysis of job task data, a comparison of NOTAP job task data across the avionics group was made. Included were the AE, AT, AX and AQ ratings. The purpose was to identify BASIC job tasks that might indicate core training requirements for the avionics group. Those tasks analyzed as being common are shown in table 8. The 50 percent or more of personnel performing a task was again used as the criterion. Common core instruction and qualification appears valid across 13 common job task areas within the avionics group. Three additional tasks not included which may be worthy of further consideration include Supervising and Management, Training and Education, and Test and Evaluation. These tasks simply did not meet the selected 50 percent level of commonality cutoff.

TABLE 8. TASK COMMONALITY ACROSS AE, AT, AO, AX RATINGS

General Avionics Maint/Repair Electronic Circuitry Maint/Repair Fundamental Aviation Maintenance Aviation Maintenance Administration General Military/Admin Function Operational Test/Check - Test Equipment Calibration Quality Adjustment/Alignment Line Service/Plane Captains Functions Supply Functions Corrosion/Contamination Directing and Implementing Minimum Performance Test/Check - Basic Troubleshooting Planned Maintenance Inspections
--

DEVELOPMENT OF AE JOB TASK INVENTORY BY CNET

Based upon rating data developed by the Navy Enlisted Occupational Classification System Study Group under the Chief of Naval Personnel sponsorship (1973 - 1975), a job task inventory (JTI) refinement tasking for the AE rating was initiated by the CNET. This included a sampling of 16 typical AE NECs within 32 related conversion codes in the 7000 series. AEs also convert to seven NECs in the 6000 series (AT related) and 25 NECs in the 8300 series (AE Organizational Maintenance Technicians). Approximately 64 rating conversion codes are involved when considering common job data within the AE career spectrum. In addition to this subtotal, nontechnical special duty codes are also involved (e.g., instructor, recruiter, company commander) which compound the rating description.

The above paragraph indicates the size and complexity of organizing, describing, and understanding the JTI data within a single rating. Results of the CNET analysis are comprehensive in identifying by range of complexity 26 typical task types at three skill levels and in two major duty subcategories. A selective sampling of 16 NECs was used in the CNET analysis. Verification of that sampling in terms of providing accurate technical definition for job tasks within the AE occupational area is underway via CNET (N-5) data development projects. If the selective NEC sampling technique used can be validated for both rating description and training determination purposes, the technique will represent a breakthrough in the area of reducing data for other rating JTI development.

As with the NOTAP data, the CNET data are primarily related to identifying technical job elements. Those tasks of a general duty nature, related to day-to-day success or failure in the operational setting, are not identified. Examples of these latter tasks are: understanding organizational structure and mission, the NAMP requirements for maintenance control, the MRC/3M system, supply procedures, documentation and publication systems.

AE RATING FUNCTIONAL DESCRIPTION

This subsection describes the AE rating in the operational environment and includes certain perceptions of the writers.

The world of the AE following recruit training and apprentice training or "A" school can be generally stated as transition training. Personnel are usually assigned to an operating unit where they may be detached for type aircraft maintenance training; i.e., Fleet Replacement Aviation Maintenance Program (FRAMP). This normally includes Naval Air Maintenance Training Detachment (NAMTRADET) systems training, interspersed with unit support activity such as compartment cleaning and mess cooking. This is followed by plane captain's training and duty. If personnel have difficulty at any stage in the process or low unit manning requires additional manpower, the entering apprentice can expect repeat cycles of general detail duty. This is the work world of the apprentice until paygrade E-4 is attained which usually eliminates general detail duty. In terms of length of service (LOS), the period is normally between 2 and 2.5 years. At this career point, the apprentice duty becomes more involved with line duty and completing unit certifications/licenses, allowing the apprentice to become functional at the preventive maintenance level under the NAMP. The apprentice period normally terminates at the 3 year LOS point.

Upon unit certification of skill level (class "A") and special skill training (class "C"), if required, the journeyman AE career continues at the organizational maintenance level with the added responsibility of performing corrective maintenance of specified avionics subsystems. As experience and capability increases, the journeyman should be qualified at approximately the 6-year LOS point to perform either organizational or intermediate level subsystem maintenance and progress toward qualification to maintain complete avionics systems. System qualification or subsystem specialty qualification should be achieved by the 7-year LOS point at which time paygrade E-6 may be awarded. Journeyman technician duty continues from this point with increased responsibility for supervision and additional system qualification, as NAMP requirements dictate, until selection for E-7, at approximately the 12-year point. At this career point, type of duty may split. Some candidates will remain maintenance technicians while others will head toward maintenance system management and control. Both sets of candidates require technological update and supervisor skill training for the 6-year duty tour at this level of functioning. Advanced technology systems coming into inventory will require an increased number of experienced and retrained maintenance technicians to maintain and manage such weapon systems.

At approximately 18-years LOS, the E-9 paygrade is achievable and a new set of duties in the avionics field are assumed. This career point generally marks a return to general supervisory duties of the enlisted force although indications are that the requirement is expanding for avionics managers with strong technical backgrounds. This is based on a forecast of increased numbers of small self-sustaining strike forces in the future composition of our military forces.

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Although many can be predicted to enter the fleet reserve after the 20-year LOS point, others will remain and provide invaluable leadership if opportunities for job satisfaction exist. Such job opportunity is presently less than adequate for the 24-30 LOS group of personnel. E-9 personnel following the 24-year LOS point should enter a special assignments category and bid for the most challenging positions, provided basic qualifications are or can be met.

THE MAINTENANCE ENVIRONMENT

The NAMP is viewed as the working environment for the AE rating in terms of career qualification. The NAMP is based upon the three level maintenance concept as established by the Department of Defense (DOD).¹ Definitions of these levels of maintenance, table 9, have been extracted from the NAMP for ready reference. All Naval facilities tasked with aviation maintenance conduct Organizational Maintenance ("O" level) and most conduct Intermediate Maintenance ("I" level), which requires a higher capability in the areas of testing and calibration. Depot maintenance is essentially a civilian function managed by the Navy but represents the highest level of maintenance in terms of technical capability. This is significant because the majority of enlisted careers in the aviation maintenance field can reasonably be expected to be involved only with organizational or intermediate level maintenance.

The NAMP also defines maintenance department organization and functional responsibility for "O" and "I" level maintenance. Standard procedure calls for tasks in the electrical and electronic maintenance area to be placed within the Avionics/Armament Division. It is noteworthy that functions performed by branches included in the Avionics/Armament Division at the "O" level correspond to tasks contained in rating descriptions for the avionics group in NAVPERS 18068D. For example, the Electrical Instrument Branch functions compare closely to the AE rating task description.

¹ OPNAVINST 4790.2A, Vol. I, P. 1-1.

TABLE 9. MAINTENANCE LEVEL DEFINITIONS*

a. Organizational Maintenance. Those upkeep maintenance functions normally performed by an operating unit on a day-to-day basis in support of its own operations. "0" level functions can be grouped under the following categories:

(1) Equipment inspections.

(2) Equipment servicing.

(3) Equipment handling.

(4) "On-equipment" corrective and preventive maintenance. This includes "on-equipment" repair, removal and replacement of defective parts and components. Maintenance actions performed on removable repairable components usually at the Aircraft Intermediate Maintenance Department (AIMD) is considered "off-equipment" work.

(5) Incorporation of designated technical directives.

(6) Necessary record keeping and reports.

b. Intermediate Maintenance. That upkeep maintenance which is the responsibility of, and is performed by, designated maintenance activities in support of using organizations. Its phases normally consist of calibration; off-equipment repair or replacement; repair or replacement of damaged or unserviceable parts, components, or assemblies; the manufacture of certain nonavailable parts; certain periodic inspections; and providing technical assistance to using organizations.

c. Depot Maintenance. That rework maintenance performed on material requiring major overhaul or a complete rebuilding of parts, assemblies, sub-assemblies, and end items, including the manufacture of parts, modifications, testing, and reclamation as required. Depot maintenance serves to support lower categories of maintenance by providing engineering assistance and performing that maintenance beyond the capability of the lower level activities.

*Extracted from OPNAVINST 4790.2A, Vol. 1.

SECTION III

CONSTRUCTION OF CAREER PLAN COMPONENTS

This section provides the framework for the AE career plan presented in section IV. The presentation begins with a description of the consolidation of AE maintenance skill task categories. This is followed by definition of a five level skill hierarchy used to provide a modular approach to the plan. Next, MANTRAPERS goals and objectives included in the design are addressed. The section concludes with a listing of career plan guidelines used during construction of the proposed career model.

AE DATA CONSOLIDATION

In order to obtain a realistic view of the AE rating in the operational environment upon which to base a career plan it was necessary to use several sources. AE BASIC task listings from the NOTAP and CNET sources were consolidated and combined with organizational objectives of the AE career work environment (NAMP) and NAVPERS 18068D to provide a composite career picture. Table 10 lists the resulting AE System Maintenance skill task categories. In general, it may be stated that the NAMP provides a valid operational model upon which to base career, job, and training/qualification requirements for the aviation maintenance career fields. Interviews conducted during this study with personnel having long-term aviation maintenance experience provided strong indications that knowledge of general maintenance procedures and capability to function effectively within the NAMP may be as important to career maintenance personnel as individual rating technical qualification. The implication is that future training, rating qualification, and career planning efforts will require continued emphasis toward aligning technical rating qualification to the operational maintenance system in order to achieve and maintain efficiency. During the data consolidation it was evident that job assignment by rating and NEC was closely aligned to the paygrade structure in terms of billet responsibility and expected job capability. Increased responsibility also occurs as a function of LOS. This also indicates requirement for progressive and continuing formal training and qualification throughout the maintenance career structure. Additionally, the billet assignment system implies that within various paygrades only certain levels of technical capability will be allowed to be exercised. This occurs because billets are allocated and filled by paygrade according to overall requirements rather than by individual specialist capability. In fact, specialist capabilities are progressive in nature, being a function of certification procedures and experience acquired through OJT at the unit level. Unit commanders often direct personnel to class "C" schools, factory training, in-service training, and PQS training as a means of achieving the technical portions of individual certification/qualification. Such action is part of the process of maintaining unit operational readiness.

Working experience and general education endeavors are often as important in the qualification process as service school training since many skills permitting qualification are achieved via general education. Future career planning must achieve a balanced mixture of general education and career training/qualification to achieve maximum benefit from the enlisted force.

TABLE 10. AE MAINTENANCE SKILL TASK CATEGORIES

Safety Practices and Procedures
Operational and Equipments Security
System/Component Identification and Operation
Use of Ground Support Equipment
Use of Maintenance Documentation
Equipment Inspection
Use of Test Equipment
Tests for Satisfactory Operation
Use of Drawings, Schematics and Technical Publications
Classified Information Handling Procedures
Align or Adjust Electrically
Align or Adjust Mechanically
Repair Components
Remove and Replace Components
Assemble and Disassemble Components
Rig or Hoist Equipment
Install Equipment
Preventive Maintenance
Corrective Maintenance
Compliance with Technical Directives
Maintenance Administration
Supervision, Training and Skill Qualification

This statement is supported by the AE data sheets (see appendix) that were developed early in the study to identify enabling skills required by the AE career system.

A formal structure to provide general military and general education skill progression in support of technical skill progression should be viewed as practical insurance covering technical qualification investments. Career plans for all ratings should include such support to already recognized long-term career issues of qualification and advancement.

AVIATION MAINTENANCE CAREER SKILL LEVELS

Naval aviation maintenance career plans require a series of rating skill levels corresponding to experience and qualifications to be achieved within the NAMF duty structure. A standard plan to acquire training, certification or qualification for each level of maintenance (organizational or intermediate) performed by specific rating skill levels is prerequisite to accomplishing such plans. These views are supported by an earlier TAEG investigation concerning skill level definition and groupings in the avionics area (Pearson, MacKeraghan, Stubbs, and Moore, 1974). In this study involving the EW rating it was reported that the electronic technician's highest order of maintenance tasks in terms of frequency of performance was associated with equipment when it was working properly and defined those tasks as preventive maintenance tests and measurements. The report further stated that when preventive maintenance procedures identified an equipment malfunction, corrective maintenance procedures were initiated and that a technician who cannot perform at the preventive maintenance level cannot be expected to perform at the corrective maintenance level. The statements point out that recognition of skill capability ranging from low to high is vital to the effective performance of avionics maintenance.

The above paragraph is applicable to all avionics ratings and provides insight into practical career qualification and career design within the avionics maintenance ratings. Although precise duty/skill limitations by paygrade or any other single criterion would not be practical for effective line maintenance, general skill levels can be defined that embrace several criteria. It can be reasonably stated that apprentices are assigned to preventive maintenance duties. Similarly, more experienced and better qualified personnel; i.e., journeyman technicians, normally function at the corrective maintenance level which includes preventive maintenance procedures. By applying this concept to both the NAMF design structure and the Naval personnel career structure design, five skill/experience categories result. The range from low to high is identified as recruit, apprentice technician, journeyman technician, master technician/supervisor, and systems supervisor/avionics manager. Tables 11 through 15 provide a synopsis of each of these skill classifications and include five career factors: paygrade, approximate length of service, duty probability within the NAMF, military-technical requirements, and general education goals which provide enabling skill acquisition. Note that tables 11 through 15 are proposed for the typical AE career with the caveat that the terms "average" or "typical" trainee lack precision of definition but are generally used and understood.

TABLE 11. RECRUIT (AVIONICS)

SKILL CLASSIFICATION: RECRUIT

FIELD: AVIONICS

PAYGRADE: E-1

APPROX LOS: 0-4 months

CLASSIFICATION DESCRIPTION:

A prospective trainee for the avionics ratings who has met initial screening criteria during enlistment process.

DUTY PROBABILITY WITHIN NAMP:

General detail following recruit training if not entered into apprentice program.

MILITARY-TECHNICAL TRAINING REQUIREMENT:

Outfitting and indoctrination to effective functioning within the Navy environment as a basic sailor.

GENERAL EDUCATION GOAL/EXPERIENCE EQUIVALENT:

ASVAB composite scores for entering avionics rating.

TABLE 12. APPRENTICE (AVIONICS)

SKILL CLASSIFICATION: APPRENTICE TECHNICIAN

FIELD: AVIONICS

PAYGRADE: E-2 - E-4

APPROX LOS: 0.5-3 years

CLASSIFICATION DESCRIPTION:

A general maintenance assistant to a journeyman technician. Has basic knowledge of the function and operation of Naval Aviation Maintenance System and general knowledge of aircraft systems preventive maintenance routines. Has been trained in use of basic hand tools, maintenance and supply system documentation and ground service equipments. Level of duty, includes use of procedural technical information such as checklists and forms.

DUTY PROBABILITY WITHIN NAMP:

1. General duty in support of assigned unit.
2. General maintenance detail under supervision.
3. Nontechnical support to journeyman technicians.
4. Assistant plane captain duty.
5. "O" or "I" level preventive maintenance team assignment.

MILITARY-TECHNICAL TRAINING REQUIREMENT:

1. Airman Apprentice Training (Aviation Fundamentals)
2. Aviation Preventive Maintenance and GSE.

GENERAL EDUCATION GOAL/EXPERIENCE EQUIVALENT:

ASVAB qualified for avionics.

TABLE 13. JOURNEYMAN (AE)

SKILL CLASSIFICATION: JOURNEYMAN TECHNICIAN

FIELD: AVIATION ELECTRICIAN'S MATE

PAYGRADE: E-5 - E-6

APPROX LOS: 3-12 years

CLASSIFICATION DESCRIPTION:

A maintenance specialist knowledgeable in prescribed subsystem component standards of performance, modes of operation, test equipment, electromechanical alignment and test procedures, functional relationships of subsystem components within an occupational field subsystem and associated documentation. Exercises supervisory duties of small or isolated occupational field subsystems. Supervises and trains apprentice trainees as directed. Level of duty requires capability to use proceduralized technical documentation and limited ability to use nonproceduralized technical information.

DUTY PROBABILITY WITHIN NAMP:

1. Preventive and/or corrective maintenance at the "O" or "I" level.
2. System or subsystem specialist at "O" or "I" level.
3. System supervision at "O" or "I" level.
4. System or subsystem inspector at "O" or "I" level.
5. Maintenance staff duty.

MILITARY-TECHNICAL TRAINING REQUIREMENT:

1. LMET
2. BE&E Training.
3. Reading and using technical documentation.
4. "A" School.
5. Electronic testing and test equipment - functional and diagnostic.
6. "C" School or equivalent on individual basis.

GENERAL EDUCATION GOAL/EXPERIENCE EQUIVALENT:

High school or technical school certificate.

TABLE 14. MASTER TECHNICIAN/SUPERVISOR (AE)

SKILL CLASSIFICATION: MASTER TECHNICIAN/SUPERVISOR

FIELD: AVIATION ELECTRICIAN'S MATE

PAYGRADE: E-7 - E-8

APPROX LOS: 12-20 years

CLASSIFICATION DESCRIPTION:

A senior maintenance specialist capable of directing and functionally integrating all subsystem components through test and operational procedures to achieve performance standards meeting design specifications. Oversees and directs the operation and maintenance of assigned subsystems within an occupational field. Level of duty requires expertise in the use of technical documentation. Manages the job functions of small and isolated occupational fields. May act in the functional maintenance area as Master Technician or in the maintenance administration area as Supervisor.

DUTY PROBABILITY WITHIN NAMP:

1. Subsystem or system supervisor at "O" or "I" level.
2. Troubleshooting specialist on major systems.
3. Test and calibration.
4. Shop supervisor at "I" or depot level.
5. Inspector, Systems Instructor.
6. Field service teams.
7. Division or branch supervisory billet.
8. Maintenance Department Staff (Analysis, Quality Assurance, Material or Production Control, Administration)

MILITARY-TECHNICAL TRAINING REQUIREMENTS:

1. "C" School or equivalent (System/PME/QA)
2. LMET
3. Maintenance Administration
4. Maintenance Data Systems Management.

GENERAL EDUCATION GOAL/EXPERIENCE EQUIVALENT:

Associate Degree

TABLE 15. SYSTEMS SUPERVISOR/AVIONICS MANAGER (AVIONICS)

SKILL CLASSIFICATION: SYSTEMS SUPERVISOR/AVIONICS MANAGER

FIELD: AVIONICS

PAYGRADE: E-9

APPROX LOS: 20-30 years

CLASSIFICATION DESCRIPTION:

A senior master technician or supervisor capable of directing and functionally integrating all system components through test and operational procedures to achieve performance standards meeting design specifications. Controls and directs the implementation of command doctrine within the enlisted community associated within or across occupational fields, as required. Dependent upon technical or administrative career path acts as most qualified enlisted consultant to upper management in area of expertise.

DUTY PROBABILITY WITHIN NAMP:

1. Major Systems Supervisor/Manager
2. Occupational Group Manager
3. Enlisted Command Representative
4. Staff Technical Consultant
5. Force Inspection and/or Quality Control
6. Military Assistance Representative
7. Department of Navy Special Projects

MILITARY-TECHNICAL TRAINING REQUIREMENTS:

1. LMET
2. Maintenance Supervision/Management
3. Navy/DOD/Industry Technological and Logistics Training as Appropriate to meet assignments.

GENERAL EDUCATION GOAL/EXPERIENCE EQUIVALENT:

Bachelor's Degree in technical or administrative area of interest.

MANTRAPERS GOALS AND OBJECTIVES

During initial analysis of the AE rating task it was apparent that the AE career plan should be compatible with and responsive to MANTRAPERS goals and objectives (OPNAVINST 5310.13). Those considered most applicable to the case at hand are identified in table 16. Application of these goals and objectives to the analysis of the AE rating and the environment in which the rating functions, resulted in development of the guidelines for the AE career plan contained in the following subsection.

TABLE 16. COMPOSITE EXTRACT OF MANTRAPERS GOALS AND OBJECTIVES*

GOALS:	
1.	Optimum mix in the total force
2.	Ability to respond to necessary change
3.	Structured with a profile of experience
4.	Equal opportunity to attain necessary standards
5.	Sensitivity to needs of the organization and of the individual
6.	Optimization of the most effective achievement of the missions of the Navy.
OBJECTIVES:	
5-4	Training system tied to operational readiness
5-8	Training system support accountability
5-9	Training resource accountability
5-11	Total training system from common data base.

*Extracted from OPNAVINST 5310.13.

CAREER PLAN GUIDELINES

A series of design guidelines developed from application of the above cited MANTRAPERS goals and objectives to AE rating data have been utilized in the development of the AE career plan. The guidelines presented below are considered of high priority in creating a positive net effect to maximize career effectiveness.

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- . The career plan should identify professional qualification groupings (i.e., apprentice, journeyman, master technician, etc.). This would better describe rating, rate, and NEC criteria to clarify the job qualification process for management and enlisted personnel alike.
- . Training and qualification systems for the AE rating, avionics group, and aviation maintenance personnel should be based upon duty requirements specified by the Naval Aviation Maintenance Program (NAMP) OPNAVINST 4790.2A.
- . The avionics ratings should be entry skill level trained for probable NAMP duty assignments at designated career points which can be estimated by LOS.
- . Personnel entering the avionics field should be trained only to the apprentice skill level involving organizational preventive maintenance routines since normal duties do not include advanced electronic skills.
- . Advancement criteria should be aligned with designated skill level career points.
- . Career status designation at approximately 10-year LOS should provide guaranteed career opportunities and benefits to personnel by the Navy and certain career obligations to the Navy by personnel accepting such contracts.
- . The Navy needs increased in-service support to general education which develops enabling skills for technical training as a function of career progression incentives.
- . Senior personnel (E8-E9) within the career system require increased job opportunities and utilization of experience to achieve an acceptable level of payoff to the career system and career satisfaction.

SECTION IV

PROPOSED AVIATION ELECTRICIAN'S MATE (AE) CAREER PLAN

The AE career plan proposed here is based on the data summarizations in sections I and II and the criteria developed in section III of this report. Included is an explanation of the skill level and qualification/duty portion of the plan. Selected features of the plan which require modification to traditional thinking are also addressed. It is expected that changes in current policy will be required in order to implement the proposal. A plan for realignment of training to meet AE career objectives concludes the section.

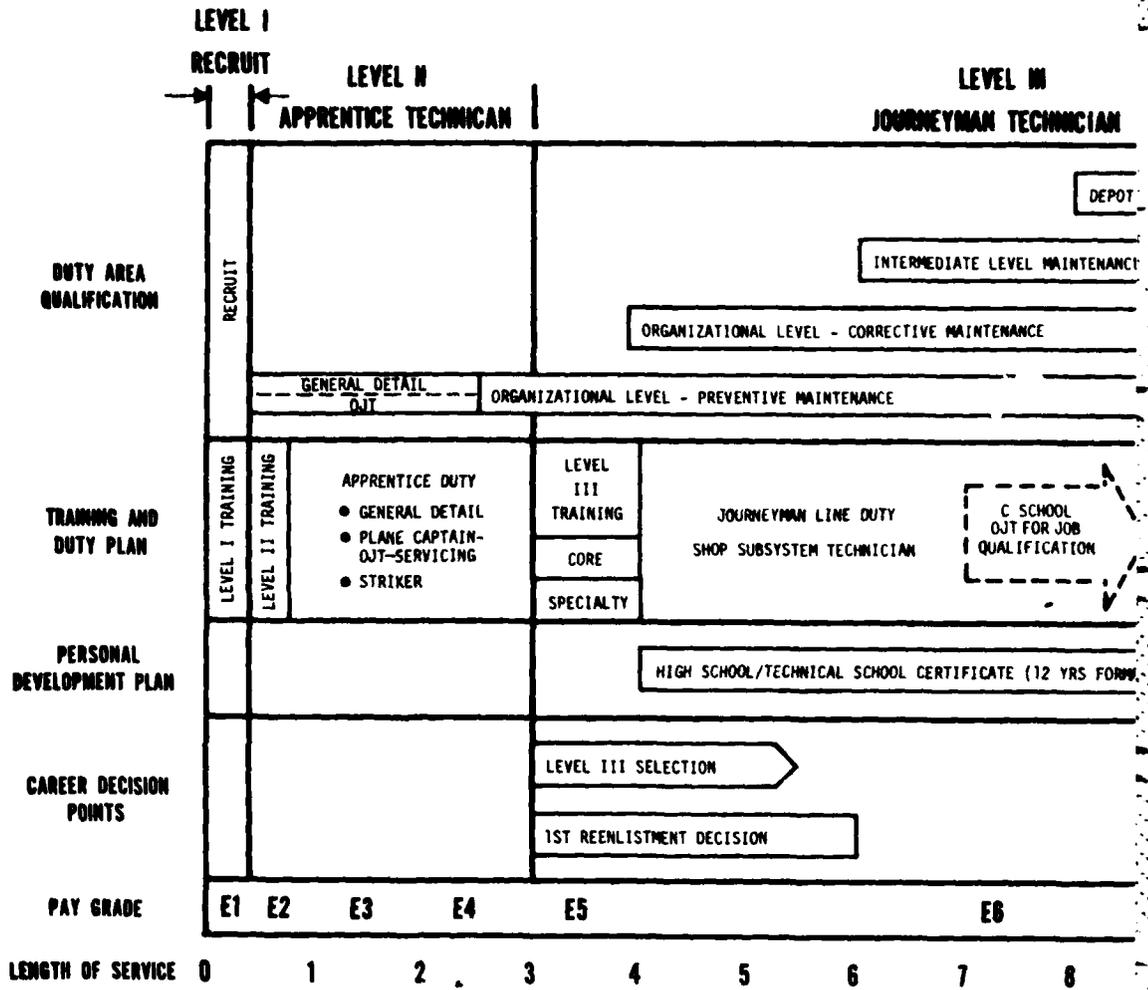
CAREER PLAN MODEL

The AE rating career plan is based upon a progressive series of five skill qualification levels related to duty assignment over a 30-year period within the Naval aviation maintenance field. Figure 1 summarizes the model. Six career descriptors appearing at the left of figure 1 provide information blocks which are parts of career modules approximated by LOS. For example, the Journeyman Technician, career level III, extends from the 3-year LOS point to the 12-year LOS point. All information pertaining to this career segment is contained between those points. The relationships of career data, however, extend horizontally as well as vertically. Thus it is possible by selecting either a specific LOS point or a paygrade to determine placement within the career system, predict probable future duty assignments and options, forecast the training/qualification routines to be encountered, and estimate advancement within the system upon meeting the relevant criteria. The model does not impose a penalty for those remaining at a particular skill level except that certain benefits associated with career progression, such as job opportunity and advanced training, will not be provided until selection to the next higher level has occurred.

The following topic area discussions present pertinent details of the proposed AE career plan.

PROFESSIONAL SKILL LEVELS AND QUALIFICATION/DUTY PLAN. The skill levels described in section II of this report have been aligned with probable duty area assignments under the NAMP. The Recruit (level I) has no job qualification requirements other than meeting training requirements and performing general detail duties as required.

The Apprentice Technician following level II training, is essentially in a transition mode while qualifying for general aviation maintenance duty. Neither commercial corporations nor the Navy can afford to allow other than experienced personnel to work on multi-million dollar weapon systems where an easily avoidable mistake could cause loss of life, loss of the weapon system (aircraft) or both. The apprentice duty schedule also involves general detail duty at least through paygrade E-3. According to the career plan, apprentice duty is in reality a service tryout period to precede heavy resource investment in technical competency training. The position is that following initial processing, outfitting, and service indoctrination during recruit

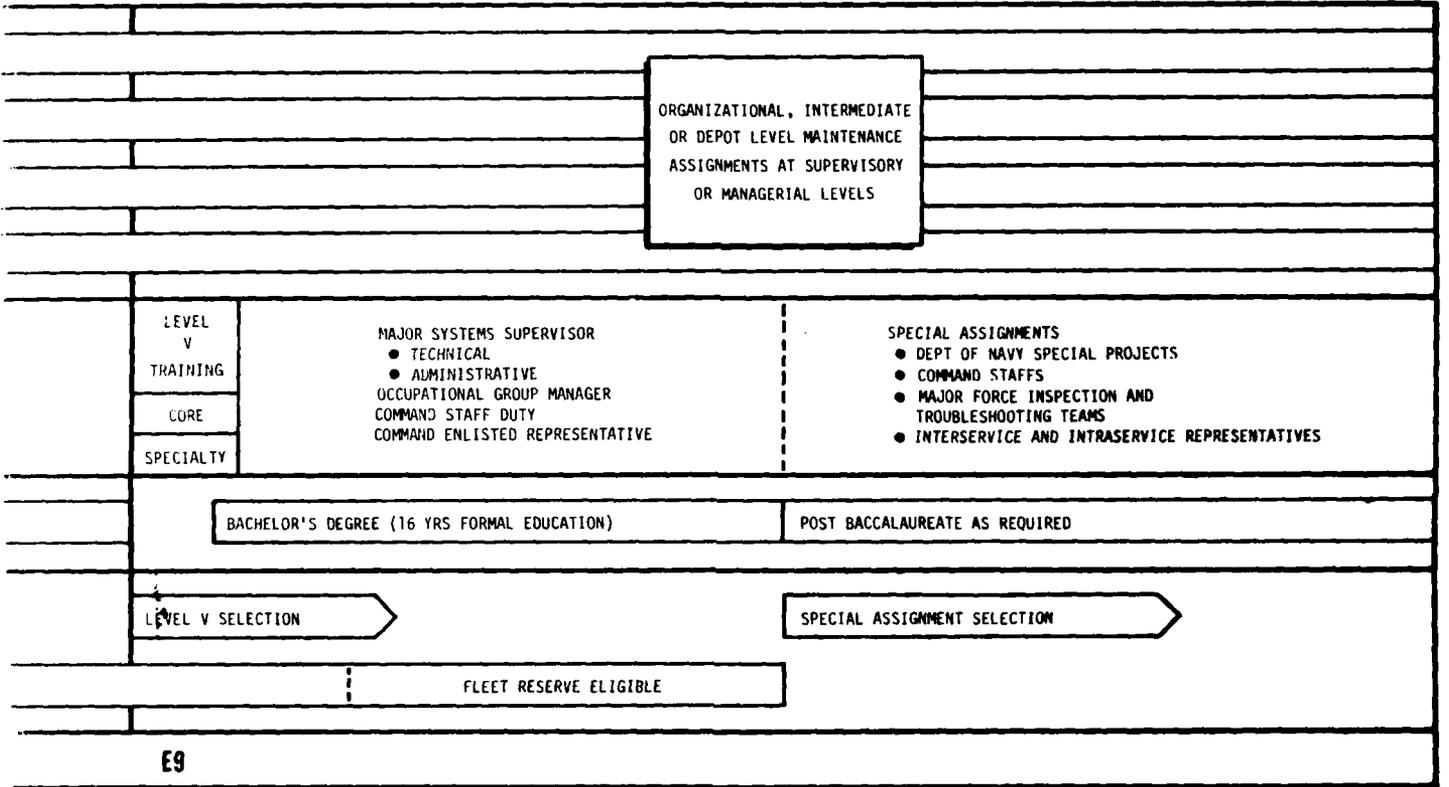


(11)

AN		LEVEL IV MASTER TECHNICIAN-SUPERVISOR		LEVEL V								
EFFECT LEVEL MAINTENANCE												
TITLE												
OCCUPATIONAL FIELD SPECIALIST SYSTEM TECHNICIAN MAINTENANCE CONTROL INSPECTION/QUALITY ASSURANCE		LEVEL IV TRAINING	OCCUPATIONAL FIELD SPECIALIST DUTY SYSTEMS SUPERVISOR ● TECHNICAL BRANCH ● MAINTENANCE ADMIN. BRANCH	LEVEL V TRAINING	MAJOR SYSTEMS SPECIALIST ● TECHNICAL ● ADMINISTRATIVE OCCUPATIONAL GROUP COMMAND STAFF DUTY COMMAND ENLISTED							
		CORE		CORE								
		SPECIALTY		SPECIALTY								
FORMAL EDUCATION)		ASSOCIATE DEGREE (14 YRS FORMAL EDUCATION)		BACHELOR'S DEGREE (16 YRS FORMAL EDUCATION)								
		LEVEL IV SELECTION		LEVEL V SELECTION								
CAREER STATUS		LDO-NO COMMISSION ELIGIBLE				FLEET						
E7		E8		E9								
9	10	11	12	13	14	15	16	17	18	19	20	21

21

**LEVEL V
SYSTEMS SUPERVISOR-AVIONICS MANAGER**



7 18 19 20 21 22 23 24 25 26 27 28 29 30

FIGURE 1. AE CAREER PLAN

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training, all personnel should receive apprentice training and general duty experience designed for probable future rating field duties. It is predictable that some personnel will acclimate rapidly to Navy life and become "strikers" involved with organizational maintenance early in their career while others will be less competent.

The career model designates the 3-year LOS as the point at which personnel are selected and training initiated for entry into the journeyman skill level. This selection point also corresponds to the standard E-5 advancement schedule. Major factors which contributed to the 3-year LOS selection decision were:

- . training corresponds to NAMP duty qualification requirements as related to ongoing system-duty timing schedules
- . increased maturity and apprentice duty experience provide personnel readiness for technical training
- . training immediately precedes probable duty experience as related to rate and LOS
- . training resources will be expended upon personnel with potential payoff in terms of investment
- . delayed technical training is compatible with common operational practice in the aviation maintenance field
- . technical training at the journeyman level becomes an earned privilege and inducement for reenlistment or enlistment extension.

The Journeyman Technician duty tour is aligned with progressive qualification at the "O" level from preventive to corrective maintenance and into "I" level and depot maintenance. The qualified journeyman is the "bread and butter man" of the aviation maintenance program. Historical data² show that in-service attrition increases significantly at a point slightly beyond the 2-year LOS point and remains high through the 7-year LOS point. This period generally covers first-term reenlistments and includes early operational duty experience under the current personnel management system. Part of the strategy of the AE career plan is to reduce the attrition peak and move it further down the career path by 3 to 5 years. This would be accomplished in part by providing increasing levels of challenge within the journeyman level. It is reinforced by the required apprenticeship period prior to journeyman duty which in effect raises the perceived importance of the journeyman professional level and the esteem of those involved with such duty. In other words, there is a recognizable experience and qualification schedule involved with becoming a Journeyman AE that matches the informal real-world conditions. A journeyman

² BUPERS Daily Strength Reports, November 1978.

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AE designation would become an earned privilege. As indicated in figure 1, a career sailor may advance through levels of maintenance, advance within levels of maintenance, or remain static within the system. This is important because many qualified personnel seek and maintain a personally comfortable level of qualification and production which is acceptable to the maintenance mission. Others require challenge and opportunity, which is also available.

The Master Technician-Supervisor (level IV) provides further challenge and opportunity by providing two related occupational duty branches: line (or technical) and maintenance control. Obviously, not all personnel will get first choice in all operational conditions, but the option is recognized by the career plan. An individual has the opportunity to direct a career toward a preferential duty type as an earned privilege.

The Systems Supervisor-Avionics Manager (level V) module is proposed as a two-part proposition for the 12-year tour. Although Aviation Maintenance is still the name of the game, increased utilization of the talents of this experienced group is indicated by figure 1. The first half of the tour corresponds to assignments available under the present personnel assignment system. The second half replaces the "twilight tour" concept with opportunity to provide a major service to the Navy by special assignments as indicated. It is perceived as utilizing personnel who have met the challenge and completed tours such as Master Chief of Command, and in turn lack further upward mobility. This small pool of technical experts might be placed at the disposal of the Master Chief of the Navy. Another option would be to allow bidding on special assignments according to a system yet to be developed. The proposal represents the final link in the career plan concepts of always providing foreseeable challenge and benefits in terms of professional pride from date of enlistment through completion of a 30-year career.

QUALIFICATION, TRAINING, AND ADVANCEMENT. The career plan is based upon job qualification at identified career levels with formal entry training at the beginning of each duty level and informal training, as required, within each duty level to assist full qualification. Advancement history within petty officer grades has been used in the career plan design to assist in determining the proper duration of the professional levels previously defined. It is also used in the plan as reward for meeting specified qualification levels.

Selection for Journeyman training (level III), for example, corresponds to the historical paygrade E-5 advancement at approximately the 3-year LOS point. Advancement to E-6 occurs close to the 7-year LOS point which is also approximately midway in the duty period and an arbitrary point where full journeyman qualification should occur. A similar condition exists at the Master Technician level where advancement occurs at about 11- to 12-years LOS. This corresponds to selection for level IV training. Whether or not such advancement should be tied to selection for or completion of "level" training will require policy decision. Paygrade E-8 can be correlated to full qualification and satisfactory duty at level IV. Level V training

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corresponds closely to paygrade E-9. This proposed alignment of advancement with progressive qualification/experience levels could eliminate the present rating qualification examination process as part of the advancement system and base advancement upon qualification for and in the duty environment.

CAREER PLAN AND RECRUITING. The relationship of the proposed career plan to recruiting has been found to be a significant issue. On the one side are those who view delayed in-depth technical training as the most practical approach to proper selection and training of personnel as well as management of available resources. A staff study³ reporting reenlistment rates supports this side of the issue. Service supplied data showed initial reenlistment rates across the services ranging from 10 percent to 26 percent with Navy first-term reenlistments at 19 percent. On the other side are those who feel that delay of in-depth technical training as proposed will deny Navy recruiting a valuable tool in meeting interservice competition for highly qualified enlistees.

The career plan offers in-depth career technical training throughout a Navy career. Initial technical training for apprentice duty is proposed for all personnel at a level somewhat under the present "A" school level and journeyman training somewhat beyond the present "A" level.

The design will allow recruiters to better present a Navy career to prospective enlistees because each professional level can be more clearly defined and explained to the enlistee in terms of training, qualification requirements, probable duty, probable advancement, and probable benefits. It may be beneficial to restrict all initial Navy enlistments to 3 years as a service tryout period to precede heavy resource investment in technical competency training. This career design provides such investment delay. Practical training is provided, however, before initial operational assignment. The position is that despite the fact most enlistees desire training for success the majority of enlistees have been less than completely successful in a pure academic environment. The career plan offers an alternative. The cooperative approach; e.g., a combination of training and work experience, would be provided prior to in-depth technical training. This would allow increased maturity and potentiality screening and, therefore, be of mutual benefit to both the enlistee and the Navy. This does not preclude the use of special enlistment programs (4-6 years) required by specific needs of the service which would continue the present front-end loading format of technical qualification training for a smaller and more highly screened group of individuals. Experience gained from studies of recruit and enlisted technical training previous to this investigation indicates that a majority of in-service personnel involved with training and qualification at the operating levels firmly believe delayed technical training; i.e., "A" school, would benefit the Navy and the productivity of the enlisted force.

³Office of Management and Budget, Recruit Training Study, Special Studies Division, September 19, 1977, p. 21.

CAREER DECISION POINTS AND CAREER STATUS. The AE career plan recognizes significant career decision points as part of the career planning process. The first critical in-service decision point occurs at approximately the 3-year LOS point where the Journeyman (level III) entry selection process and the decision for reenlistment or extension of enlistment occurs. The plan calls for extensive career review/planning during level III core training counseling. Part of this review will be accomplished in conjunction with the selection process/decisions resulting from the Journeyman selection process.

The career plan recognizes the 10-year LOS point for official career status designation in lieu of the first reenlistment date. This was done to increase the meaningfulness of the designation by making such status a career milestone. Career status designation should include careful review of future options available based upon the individual's past record as a part of the planned career counseling effort. This designation should guarantee certain benefits to the individual for attaining such status. Possibilities include guaranteed retirement, increased annual leave, professional bonus, supplemental no-cost life insurance, special consideration for training and education, and duty assignment options within needs of the Naval service. A primary purpose of career status recognition is to provide tangible rewards of significant value and to provide sufficient reason for qualified avionics maintenance personnel to seriously consider remaining in the Naval service as a professional.

Some well-qualified personnel may reach their career peak with career designation and provide acceptable performance for the remainder of their career at that level without desire for further advancement. The maintenance support system can ill afford to lose this talent pool and should not impose penalty for lack of further progression. For others, increased opportunity is provided at approximately the 12-year LOS point with selection for and acceptance of level IV training and duty. Of significance at the 12-year LOS point also are decisions related to opportunities for the Limited Duty Officer (LDO) and Warrant Officer (WO) programs.

The 18-year LOS point generally marks a return to general supervisory duties of the enlisted force for those achieving E-9. Decisions regarding other opportunities offered by the career plan at 18-years LOS involving level V selection and duty qualification exist. A major feature of the career plan is increased recognition and utilization of senior enlisted experience.

Under present conditions many enter the fleet reserve at or shortly after the 20-year LOS point. Lack of recognizable worthwhile duty assignments continues to be a contributing factor toward early retirement of experienced personnel. The career plan attempts to recognize this by suggesting alternatives. E-9 personnel following the 24-year LOS point are placed in a special assignments category. Such personnel can be invaluable as troubleshooters for major forces or the Department of the Navy. The consultant value of these experienced personnel remains a generally untapped resource which could be utilized in a variety of project or task force teams to improve problem areas, implement new Navy systems, or act as military assistance advisors to allied forces. The fact is that under current policy there is little opportunity or challenge available for an E-9 after serving a tour as Force Master Chief which can occur at the 24- or 25-year LOS point.

The sea/shore rotation cycle is not addressed as an integral part of the career system. Initial assessments indicate that following the initial 2-year operational duty tour and skill level training at the 3-, 12-, and 18- years LOS points, sufficient duty time is available to schedule any reasonable rotation scheme. In-level duty periods beginning with Journeyman are 9, 6, 6, and 6 years. The terminal 6-year duty period, however, would necessarily be a function of the position accepted in terms of sea/shore rotation.

PERSONAL DEVELOPMENT, TRAINING, AND DUTY. An additional feature of the proposed career system is initiated during the journeyman duty phase. It is that of fully sponsored general education opportunity designed to enhance Navy professionalism by developing skills resulting from general education as well as technical skills. The concept integrates present off-duty education/training opportunities with the future duty-career system. This can be accomplished by defining desirable career objectives for each career skill level followed by Navy support in terms of policy and funding. It is not the intent to make every career person a college graduate. In the case of the journeyman, the general education goal could be a high school or technical school diploma. Master technicians could receive a sponsored opportunity to acquire an associate degree by 18-years LOS. Systems supervisors might be offered support to acquire a bachelor's degree by 24-years LOS, with senior systems supervisors being offered post baccalaureate sponsorship in special cases. The difference from the present general education off-duty programs is that such training would be Navy sponsored in terms of dollars and a type of administrative leave during normal duty hours to accomplish the effort. The purpose is to provide career incentives to promising personnel with desire and capability to acquire the technical skills and knowledge required at advanced career levels in response to the increasing complexity of the technical work environment. The payoff would be a more competent and better qualified petty officer force.

CAREER LEVEL TRAINING

Formalized career level training is proposed at five professional levels:

Level I	Recruit (E1)
Level II	Apprentice (E2-E4)
Level III	Journeyman (E5-E6)
Level IV	Master Technician/Supervisor (E7-E8)
Level V	Systems Supervisor/Avionics Manager (E9)

Career level training will occur at or near the beginning of each duty level; i. e., apprentice, journeyman, etc. Such training does not inhibit specialized operational training or formal NEC training within the operational environment. Career level training can be programmed according to career LOS as follows:

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<u>Level</u>	<u>APPROX. LOS CAREER POINT</u>	<u>EST. LENGTH OF TRAINING</u>
I	0-3 mos.	2 mos.
II	3-4 mos.	3 mos.
III	3-4 yrs.	6-9 mos.
IV	12-13 yrs.	4-6 mos.
V	18-19 yrs.	4-6 mos.

LEVEL I - RECRUIT TRAINING. The purpose of level I training is to provide Navy in-processing, outfitting, military and Navy indoctrination, and basic communication skills required to be successful in follow-on training or duty assignments. This training would correspond to the ongoing recruit training with the exception that some "Navy only topics" would be moved to level II. Such training would be replaced at the Recruit Training level by communications and basic skills training in the form of language, mathematics, and physical science subjects designed to match national education standards at the 10th to 12th grade level. Those individuals meeting qualification by means of pre-test scoring would pass on to level II training while those not qualifying would remain at level I and receive the required training.

Level II and subsequent level training would be in two parts--core training and specialty training. Core training would include Navy general and career training designed to meet entry level requirements of the following *duty tour*.

LEVEL II - APPRENTICE TRAINING. This training provides general knowledge associated with aviation maintenance and basic general maintenance support skills. The objective of the training is to prepare personnel to safely function on the flight line in an OJT status. Job elements include support of daily aircraft handling and servicing and assistance to qualified personnel in preventive maintenance routines as directed by the NAMP. Level II training could be accomplished at Naval training centers conducting recruit training (with modest investment), Naval Air Technical Training Center Memphis, or at designated fleet air stations.

Level II core training, for example, would include such topics as:

- . Navy mission and Naval Forces
- . Hardware and technology
- . Career perspective of apprentice duty
- . Qualifications and advancement criteria
- . Leadership and Management Education and Training (LMET)
- . General Military Training (GMT)
- . Communications (oral and written)
- . The Naval Aviation Maintenance Program
- . Operational subsystem interface (administration - technical)
- . General development and self improvement opportunity
- . Individual career planning.

Specialty training for level II (apprentice) could include the following topics:

- Introduction to Mechanics
- Introduction to Electronics
- Introduction to Hydraulics
- Introduction to Blueprint Reading
- Introduction to Technical Manuals
- Introduction to Planned Maintenance System (3-M)
- Introduction to Maintenance Documentation
- Introduction to Office Procedures and Practices
- Introduction to Office Machines and ADP
- Introduction to Flight Line Procedures
- Introduction to Flight Line Safety
- Introduction to Aircraft Servicing.

LEVEL III - JOURNEYMAN TRAINING. This training provides functional career and technical rating qualification training at the entry skill level for journeyman organizational level preventive or corrective maintenance. Level III training, because of the technical aspects of the training and numbers of personnel involved, would require multiple sites at major technical training centers.

Level III core training should include:

- . Leadership and Management Education and Training (LMET)
- . General Military Training (GMT)
- . Navy mission and force structure
- . Hardware and software systems knowledge
- . Career parameters and expectations of journeyman duty
- . Technical documentation systems
- . Maintenance subsystems supporting the NAMP
- . Reading and using technical documentation typical of aviation maintenance
- . Parts and supply routines
- . Career counseling and planning.

Level III specialty technical training would be provided by an upgraded "A" school and "C" school system. A fully qualified journeyman is defined as entry qualified plus 1 to 2 years field experience. This individual, qualified for intermediate level maintenance, should be able to function effectively and have knowledge in the following areas:

- . Procedures for maintenance/repair
- . System/subsystem design and purpose
- . Subsystem components

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- . Subsystem documentation
- . Safety criteria associated with work environment
- . Normal and abnormal operating conditions and limits
- . Checking, using, and caring for test equipments
- . Preventive maintenance routines
- . Basic fault isolation
- . Corrective maintenance routines and documentation
- . Inspection criteria.

LEVEL IV - MASTER TECHNICIAN/SUPERVISOR TRAINING. This proposed training provides technical education/training at the entry level of supervisory maintenance. Level IV core training should respond to the changing nature of duty experience encountered during this career phase. It is suggested that level IV and level V career training be considered as candidate courses for the future Petty Officers' Academy since the numbers of personnel to be trained could be handled at a single site. This would also provide an excellent information exchange opportunity for Navy enlisted leaders. Logical topics for level IV core training include:

- . Leadership and Management Education and Training (LMET)
- . General Military Training (GMT)
- . Navy force structure
- . Personnel Qualification and Advancement System
- . Personnel management procedures and application to maintain the NAMP
- . Effective communication in the NAMP environment
- . Career counseling, retention, and attrition
- . Systems management and associated reporting systems
- . Quality control
- . Management/information system techniques and logic
- . Training and training programs
- . Inspection, standardization, and evaluation
- . Career mapping and options.

Specialty training should include:

- . Technology and systems maintenance update training
- . System training on systems or subsystems resulting from expanded responsibility; i.e., "C" school, factory, or other technical training.

The fully qualified Master Technician should have capability to functionally operate in the following areas:

- . Overall system design and system documentation
- . System components
- . Normal and abnormal operating conditions, procedures, and limits
- . Personnel and equipment safety

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- . Subsystems design and purpose
- . Subsystems components
- . Normal and abnormal operating limits
- . Inspection routines and criteria
- . Preventive maintenance routines
- . Fault isolation and test equipment
- . Maintenance personnel certification/qualification
- . Parts supply routine
- . Repair procedures and reports
- . Alternative solutions to specific maintenance problems.

LEVEL V - SYSTEMS SUPERVISOR/AVIONICS MANAGER TRAINING. Systems Supervisor training extends the functional career track evolving from the Master Technician track. The Avionics Manager training follows the maintenance administration track evolving from Supervisor designation at level IV.

Core training for level V is designed to prepare personnel for entry into the maintenance management career level experienced by senior enlisted personnel as part of being senior technicians and rating representatives. Such training should include:

- . Navy and command directives and policies
- . Leadership and Management Education and Training (LMET)
- . General Military Training (GMT)
- . Personnel management, communication techniques, and procedures
- . Systems documentation, inspection criteria, and quality control
- . Maintenance planning and scheduling routines
- . Career counseling
- . Training and training program management
- . Technology and systems update
- . Communication of maintenance information, data, and instructions.

The technical specialization portion of level V training would be tailored to individual need based upon review of career history and area of future assignment. Such training might include some variation of the following subject areas:

- . Operating conditions, limits, and safety standards for all systems under cognizance
- . Conducting emergency drill and technical training programs
- . Logistic support requirements for systems under cognizance
- . Inspection, repair, and quality control programs
- . Systems engineering and documentation
- . Security, administrative and personnel administration for area of cognizance
- . Technical and discrepancy history of systems under cognizance
- . Procedures for managing personnel training in the operational environment.

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OVERVIEW

The salient features of the career training plan are set forth below. The conceptual model has the following capabilities:

- . provides a career plan for the AE rating
- . provides a road map for a typical 30-year career in the aviation maintenance field
- . provides an incentive/reward approach to AE career planning
- . provides an AE career plan based upon qualification requirements of the operational environment; i.e., the Naval Aviation Maintenance Program
- . displays AE career duty as a sequential series of duty experiences requiring increasing technical qualification and responsibility
- . aligns rating advancement schedules with identifiable training and duty qualification throughout a career
- . provides general education of increasing value as a career incentive/reward for personnel advancing within the career system
- . provides identifiable career points where general military, rating, and technical training should occur
- . consolidates general military, rating, and technical training into identifiable blocks at specific career points for improved management capability
- . provides training for probable duty assignment at the beginning of duty periods according to specified levels of technical competency
- . promotes expenditure of resources for training and qualification only where reasonable return for investment can be expected
- . promotes increased utilization of senior enlisted personnel to the mutual benefit of the Navy and the individual in the career system.

SECTION V

CONCLUSIONS AND RECOMMENDATIONS

This final section of the report presents the conclusions derived from the study concerning the advisability of developing long-term career paths for Navy ratings. Following this is a series of recommendations for facilitating the achievement of the AE career plan and career plans for a broad range of Navy ratings.

CONCLUSIONS

1. No acceptable single job task data source upon which to base career duties, training, assignments, advancement, and other career actions exists. A more comprehensive enlisted career data base by rating is required for efficient, coordinated functioning of the personnel resource system.

2. Intelligible and trackable 30-year career plans remain nonexistent for the majority of Navy ratings. Such information is prerequisite to development of efficient training subsystems. The AE career plan proposed in this report is applicable to all aviation ratings and with minor modifications it appears adaptable to other rating groups.

3. The proposed AE career plan is generally compatible with ongoing personnel programs and merges some elements of existing career management and training subsystems to the mutual benefit of the individual within the system and the organizational elements affected by the system. This was accomplished by structuring career, training, qualification, and advancement elements according to "real-time" conditions as could best be determined by documentation and interview data.

4. A career plan based upon defined professional levels of increasing competence, challenge, and responsibility provides a trackable career map where levels of duty qualification reflect traditional duty patterns of responsibility, technical expertise, and supervisory capability.

5. A career plan that prepares the individual at the entrance to each professional level to perform general military, technical, and Navy functions for typical follow-on duty tours should reduce the skill deterioration problem associated with front-end loading of career technical training. Typically, many skills now acquired early in the career are not called upon until some later career point. The career plan provides opportunity to offer the latest version of equipment/systems training at the career point where it is to be utilized. In the process, quality assurance of personnel capability is enhanced by providing periodic opportunity for standardization of methods, policies, and skills.

6. The career plan provides a planned opportunity to develop the individual professionally as well as technically throughout a career. This conclusion refers to the proposal that the Navy provide full support in terms of time and other resources to provide general education during duty hours

for what is now known as "off-duty" education. The proposed career plan promotes formalization of defined levels of increasing educational and technical qualification aligned with career professional level progression to promote overall personnel capability.

7. A career plan based upon the training, qualification, and readiness continuum related to professional level job attributes implies increased control and management of the overall system. It also implies individual record reviews at designated career points, counseling to determine each individual's place within the career system, and viable future options at the advanced career levels. Career planning will be able to propose qualification training tailored to meet approved option selections based upon individual preference within Navy needs. This is particularly important since capability to accomplish cross training of experienced, qualified technicians into new skill areas as a result of weapon systems or technical changes is formalized. In addition, the Navy, by its attention to individuals involved, will show that personnel are needed and wanted.

8. A career plan that aligns advancement with training, qualification, and the experience continuum throughout a career will simplify the advancement system. The proposed career model suggests a dual application of the advancement system. Advancement would occur with (1) selection for and completion of professional level career training and (2) full qualification on a particular professional level approximately mid-point during the duty period for that level. Traditional advancement examinations could be eliminated since they would no longer be required. Advancement system resources could then be applied to accomplish and maintain the career "professional level" system.

9. The proposed career plan is directly adaptable to the avionics ratings, the aviation maintenance ratings, and the surface and subsurface rating structures with minor modifications. This is because the training/qualification routines at professional level entry points may be changed independently to reflect operational system or technical job changes without subverting the overall career plan. Optional tracks for senior technicians are also similarly available within the plan to maintain technical experience within the system although application of that technical experience factor may require redirection or modification to match Navy needs. The career plan represents a significant breakthrough in enlisted career structuring from the viewpoint that identifiable career blocks within a trackable career plan offer opportunities to apply instructional and developmental strategies appropriate to particular rating levels to the benefit of the overall personnel training and qualification process.

10. The determination of core training, specialty training requirements, placement of training within the career system, and realignment of future training in response to predictable technical change all rely upon training analysis of validated career/job task data which is generally not now refined to an acceptable level. As a result, effective response by training activities attempting to improve training efficiency is essentially a function of manpower available and time required to verify essential data required to formulate and effect necessary change. This action could be more effectively accomplished

with access to a comprehensive data base upon which to base all personnel, qualification and training decisions.

11. Training documentation is an integral element of the training process. Developing, initiating, and maintaining valid instructional programs, materials, and equipments all require accountability documentation. Efficiency of operation in these areas could be materially improved by access to a universal data base upon which to formulate training which would more closely align to operational fleet and career training requirements. Improved interface of information systems between personnel resource management subsystems offers opportunity to achieve increased effectiveness within the training/qualification process.

12. Implementation of a career plan system based upon the proposed AE career plan will require a coordinating staff to align change efforts in the manpower requirements, acquisition, classification, training, distribution, and human resource management subsystems identified in the MANTRAPERS plan. A data base for a career system is required which is capable of use for billet determination, training, job qualification, advancement criteria, or any other career related actions. Several fragmented data bases and data sources exist throughout the Navy which have been developed for singular purposes. Approximately 25 sources were used by the CNET in developing the AE rating job task inventory.

RECOMMENDATIONS

It is recommended that CNET:

1. review the proposed AE career model for relevance and subsequent utility
2. continue development and refinement of the ongoing job task inventory model with an end goal of procedural guidelines to be followed for other ratings Navy-wide
3. develop a staff support plan that will have the capability of coordinating and supporting development and implementation of the career plan concept
4. actively pursue development of a rating data base system that will provide common rating data which can be used by management concerned with personnel administration, training, and operational assignment
5. evaluate the effect of replacing existing advancement qualification testing programs with career training, duty qualification criteria, and LOS as advancement criteria
6. evaluate the effect of basing NAVEDTRACOM training on the career plan concept contained in this report in terms of management, manning, and support requirements.

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- Training Resource Model (TRM) Feasibility Study. 31 May 1978. Advanced Technology, Inc., McLean, VA.

OPNAV INSTRUCTIONS

- 1500.22C General Military Training Guide
- 1500.34A Fleet Readiness Aviation Maintenance Personnel Training Program
- 3120.31A Operations Security (OPSEC)
- 3120.32 Standard Organization and Regulations of the U.S. Navy

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REFERENCES (continued)

- 3500.32A Shipboard Training
- 3500.34B Personnel Qualifications Standards (PQS) Program
- 4100.3A Department of the Navy Integrated Logistics Support (ILS) System
- 4700.24 Policies Governing Maintenance Engineering Within the Department of Defense
- 4790.2A Naval Aviation Maintenance Program
- 4790.3A Navy Maintenance and Material Management (3-M) System Responsibilities in Navy Manpower and Material Analysis Centers
- 5310.13 Manpower, Training and Personnel Plan
- 5510.45B U.S. Navy Physical Security Manual
- 5510.60H OPNAV Security Regulations

NAVAIR Publications

- 3500.1B Uniform System of Alert Conditions (LERTCONS) (U)
- 4000.14A Navy Prepared Integrated Logistic Support Plans (ILSPs) and Operational Logistic Support Plans (OLSPs) for Aeronautical Systems and Equipment
- 4000.19 Standard Integrated Support Management System (SISMs)
- 4140.2 Level of Repair (LOR) Analysis for Naval Air Systems Command (NAVAIR) Material
- 4355.2B Program for Surveillance Inspection of Electrical and Electronic Systems Wiring and Equipment Installations in Naval Aircraft
- 4408.1 Aeronautical Components, Equipment and Training Devices in Need of Depot Rework and/or Test: Responsibilities, and procedures for processing of
- 4420.1C Naval Air Systems Command Aircraft Maintenance Material Readiness List (AMMRL) Program
- 4420.4B Policies and Procedures for Stock Coordination
- 4423.3B Policies, Procedures and Responsibilities for Assignment and Application of Uniform Source, Maintenance, and Recoverability (SM&R) Codes

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REFERENCES (continued)

- 4423.4A Selection and Management of Parts Kits
- 4423.5A Supply Support Management Plan
- 4423.7 Policies, Procedures, and Responsibilities for the Provisioning of Equipment and Components
- 4440.7 Allowances and Reporting Requirements for MIARS (Maintenance Information Automated Retrieval System) Equipment
- 4440.8 Equipment Maintenance Management Program (EMMP)
- 4700.16 Credit for Turn-In of Exchangeable Repairable Material
- 4790.3 SRC (Scheduled Removal Component) Program for Aeronautical Components
- 4790.11 3-M Planned Maintenance Subsystem (PMS) Requirements for Operational Systems/Equipments
- 5215.8B The NAVAIR Technical Directive System
- 5600.19B Policy, Procedures and Responsibilities for Technical Manual Rapid Action Change Program
- 5605.4A Distribution of Aeronautic Technical Publications
- 1500.7A Fleet Readiness Aviation Maintenance Personnel Training Program
- 3500.2B Personnel Qualification Standards Program
- 3541.1B Damage Control Training Requirements
- 4120.106 DOD Parts Control Program
- 4700.4B Navy Policy Governing Levels of Equipment Maintenance
- 5040.4C Naval Inspection Program
- 5400.12A Management of Shipboard Flight and Hangar Deck Personnel Protective Equipment
- 5430.52 Electronic Test Equipment, Classification and Assignment
- 5600.10 Technical Manual Management; Policies and Procedures
- 10290.2B Policy Governing Tool Control Procedures

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REFERENCES (continued)

NAVPERS Publications

NAVPERS 18068D	Manual of Navy Enlisted Manpower and Personnel Classification and Occupational Standards, July 1978
BUPERSINST 1430.16	Manual of Advancement
NAVPERS 15878	Retention Team Manual
BUPERSINST 1133.22E	Reenlistment Quality Control Program
BUPERSINST 1410.4	Ratings Open to Enlisted Women
NAVPERS 10307-C	Rate Training Manual - Airmen
BUPERSMAN 1060020	Score Program
BUPERSMAN 1060020	Star Program
NAVPERS 15980	LINK Enlisted Personnel Distribution Bulletin, Volume IV, 1978
NAVPERS 1414/4 (AE) (1-77)	Personnel Advancement Requirement (PAR)

CNET Publications

NAVEDTRA 010-01-69-77	Single Subject Training Manual V (Recruiting and Retention Programs) of Navy Counselor 1 & C
NAVEDTRA 10061-AL	List of Training Manuals and Correspondence Courses
NAVEDTRA 10052Z	Bibliography for Advancement Study
NAVEDTRA 10348-D	Rate Training Manual - Aviation Electrician's Mate 3 & 2
NAVEDTRA 10349-D	Rate Training Manual - Aviation Electrician's Mate 1 & C
NAVEDTRA 10054-D	Rate Training Manual - Basic Military Requirements
NAVEDTRA 10057-D	Rate Training Manual - Military Requirements for PO 1 & C
NAVEDTRA 10115	Rate Training Manual - Military Requirements for Senior and Master Chief Petty Officer
NAVEDTRA 10058-B	Rate Training Manual - Human Behavior and Leadership

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APPENDIX
AE DATA SHEETS

Aviation Electrician's Mate (AE) PREVENTIVE MAINTENANCE (1 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Checking - - Perform bench check - Perform functional check - Perform post-maint. check - Perform minimum performance check - Perform operational check	Naval Aviation Maintenance Plan OPNAVINST 4790.2A Series	<ul style="list-style-type: none"> . Using technical documentation . Following checklist procedures . Using basic test equipment . System and system component identification . Use of associated GSE 	"A" School MTD FRAMP Inservice Tng "C" School	BE&E "A" School MTD "C" School Inservice Tng	FRAMP "C" School OJT Plane CAPT Tng Factory Tng	Fleet Unit or School Certification
Testing - - perform continuity, resistance, voltage, current checks - perform capacitance check	OPNAVINST 4790.2A	<ul style="list-style-type: none"> . Knowledge of basic electricity . Using technical documentation . Procedures for making basic electronic tests <ul style="list-style-type: none"> .. test equipment .. selection of .. safety precautions .. test procedural .. reading scales and meters 	N/A	BE&E "A" School OJT	"A" School FRAMP OJT	Fleet Unit or School

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Aviation Electrician's Mate (AE) PREVENTIVE MAINTENANCE (2 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Inspecting - - Perform visual check - Perform preliminary check - Inspect	OPNAV 5040.7 NAVAIR 4355.2 NAVLEX 4790.5 NAVMAT 4790.10 NAVMAT 5040.4 OPNAV 5600 Series (NATOPS) OPNAVINST 4790.2A	<ul style="list-style-type: none"> Knowledgeable of NAMP "MRC" Inspecting documenta- tion .. control .. evaluation phase .. fix phase VIDs/MAFs 	MTD FRAMP "C" School OJT	"A" School MTD "C" School OJT Inservice Trng	FRAMP OJT	Fleet Unit Certification
Cleaning - (Includes corrosion control)	OPNAVINST 4790.2 NA 01-1A-509 NA 01-1A-518	<ul style="list-style-type: none"> Know aircraft cleaning and corrosion control requirements and methods Know prevention com- pounds and precautions Painting according to specification 	"A" School FRAMP OJT	"A" School FRAMP OJT Inservice Trng	FRAMP OJT	Fleet Unit
Servicing - - Drain - Lubricate - Purge - Service	OPNAVINST 4790.2 Appropriate NATOPS, NAVAIR or other equipment servicing instruction	<ul style="list-style-type: none"> Types and safety pre- cautions for fuels and lubricants Read and follow ser- vicing instructions for system being serviced Use of GSE Organizational ser- vicing procedures Forms, records and reports 	MTD FRAMP OJT Inservice Trng	MTD "A" School OJT Plane Captain Trng	FRAMP OJT	Fleet Unit

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		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Aviation Electrician's Mate (AE) CORRECTIVE MAINTENANCE (1 of 2)						
Isolate fault/trouble- shoot	OPNAVINST 4790.2 NAVAIRINST 4790.2 MN-11468	<ul style="list-style-type: none"> GSE Following procedural guidelines Using test equipments Reading and interpreting test equipment indications Knowledge of system component effects Documentation 	"A" School MTD "C" School OJT	BE&E "A" School MTD Inservice Tng	FRAMP OJT "C" School Inservice Tng	Fleet unit or school certification
Adjustments - (Electrical/Mechanical)	OPNAVINST 4790.2 NAO1-xxx-6xxxx (MRC)	<ul style="list-style-type: none"> Following procedural guidelines Using hand tools and test equipments Reading test equipments Documentation 	BE&E "A" School FRAMP OJT Inservice Tng "C" School	BE&E AVN Fund "A" School FRAMP Inservice Tng "C" School	FRAMP OJT "C" School Inservice Tng	Fleet unit or school certification
Assemble/Disassemble	OPNAVINST 4790.2 NAVAIRINST 4790.3	<ul style="list-style-type: none"> Knowledge of safety precautions Knowledge of documentation and supply system Use of hand tools Following procedures Documentation 	MTD FRAMP OJT Inservice Tng Factory Tng	"A" School MTD FRAMP OJT "C" School Inservice Tng	FRAMP OJT "C" School Inservice Tng	Fleet unit or school certification
Repairing - - Correct isolated fault - Repair	Level of Repair (LOR) Analysis for NAVAIR Material NAVAIR 4140.2 OPNAVINST 4790.2 AR-60 NOTICE #1 AR-48	<ul style="list-style-type: none"> Basic electronics Soldering, potting and cable fabrication Quality control requirements Test equipment Hand tools Safety requirements Documentation 	BE&E FRAMP "C" School Inservice Tng OJT	BE&E "A" School MTD Inservice Tng	FRAMP OJT "C" School Inservice Tng	Fleet unit or school certification

Aviation Electrician's Mate (AE) CORRECTIVE MAINTENANCE (2 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Diagnose/conduct system analysis of electrical malfunctions (intermittent, recurring, interacting)	OPNAVINST 4790.2 NA 01-xxx-1 (NA TOPS) NAVAIRINST 4790.2 MN 11468	<ul style="list-style-type: none"> GSE Following procedural guidelines Using test equipments Reading and interpreting test equipment indications Knowledge of system component effects Documentation 	"A" School MTD "C" School OJT	BE&E "A" School MTD Inservice Tng	FRAMP OJT "C" School Inservice Tng	Fleet unit or school certification
Install instruments, components	OPNAVINST 4790.2 NA 01-xxx-6xxxx (MRC)	<ul style="list-style-type: none"> Reading and following technical instructions Use of hand tools Use of test equipment Documentation GSE 	MTD FRAMP OJT Inservice Tng PQS "C" School	MTD "A" School OJT Inservice Tng "C" School	FRAMP OJT "C" School Factory Tng Inservice Tng	Fleet unit or school certification
Rig and Hoist Equipment	OPNAVINST 4790.2 OPNAVINST 5160.19 OPNAVINST 3500.26	<ul style="list-style-type: none"> Knowledge of Safety precautions GSE 	N/A	OJT	OJT	Fleet unit certification

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Aviation Electrician's Mate (AE) OPERATIONS (LINE DUTY) (1 of 3)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Operating equipment for designed mission	OPNAVINST 5442.2 " 4790.2	<ul style="list-style-type: none"> Hand tools VIDS/MAF system GSE License Turn-up Licensed Line safety Checklists Documentation pro- cedures 	<p>AVN Fund "A" School FRAMP OJT - POS Inservice Tng Plane Captain Tng</p>	<p>AVN Fund FRAMP MTD OJT - POS Inservice Tng</p>	FRAMP OJT	Fleet unit
Line service/plane captain duties	OPNAVINST 4790.2 " 4790.3	<ul style="list-style-type: none"> Line safety Technical competence in area VIDS/MAF system GSE Licensed NAMP familiarity Time management skills Supervisory skills Refueling/derueling Read, use technical publications Knowledge of aircraft weight and balance Checklist use Test equipment use Documentation pro- cedures General A/C systems knowledge 	<p>AVN Fund "A" School FRAMP OJT Plane Captain Tng</p>	<p>AVN Fund "A" School MTD OJT Plane Captain Tng Inservice Tng</p>	FRAMP OJT	Fleet unit certification
Operate ground power/ service units (GSE)	OPNAVINST 4790.2	<ul style="list-style-type: none"> Line safety familiar- ity Read and understand and follow technical publications General line exper- ience General systems knowledge Read meters and gages Documentation pro- cedures Use of checklists 	<p>AVN Fund "A" School FRAMP OJT Inservice Tng</p>	<p>AVN Fund "A" School FRAMP OJT Inservice Tng</p>	FRAMP OJT	Fleet unit licensing

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Aviation Electrician's Mate (AE) OPERATIONS (LINE DUTY) (2 of 3)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Airborne operations - operating equipment while in flight - write up malfunc- tions on yellow sheet	OPNAVINST 4790.2	<ul style="list-style-type: none"> Read and follow check- lists and tech pubs Mental and physical dexterity Knowledge of safety and systems operation Ability to use VIDS/ MAF forms and other documentation Ability to respond to aircraft commander's general instructions Read and interpret meters, gages and dials 	"A" School FRAMP	OJT	--	Fleet unit
Perform computer operations - Load program tapes - Keypunch data/manu- ally insert data	OPNAVINST 4790.2A	<ul style="list-style-type: none"> Knowledge of system requirements and normal operation Reading technical documentation Basic computer pro- gramming 	"C" School Inservice Tng OJT	"C" School OJT	OJT	Fleet unit
Select, use and care for electrical measur- ing instruments, hand tools	NAVAIRINST 4790.16 " " 4790.2A	<ul style="list-style-type: none"> Knowledge of basic avionics measurements and test procedures Read technical docu- mentation/specifica- tions 	"A" School FRAMP OJT	"A" School FRAMP OJT	OJT	Fleet unit
Use interpret wiring diagrams, manuals of instruction, flow charts, tables, schematics, charts	NAVAIRINST 4790.2A	<ul style="list-style-type: none"> Reading and compre- hending technical documentation 	--	"A" School --	OJT Inservice Tng	Fleet unit

Aviation Electrician's Mate (AE) OPERATIONS (LINE DUTY) (3 of 3)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Solder and splice, connector potting	NAVAIRINST 4790 2A (p. 2-8) NAVAIR 01-1A-505	<ul style="list-style-type: none"> • Hand tool, equipment materials selection • Reading specifications • Manual dexterity • Parts identification ability 	--	BE&E "A" School	"A" School FRAMP OUT	Fleet unit

Training Requirements	Specification/ Authority	Acquisition				Measurement/ Certification
		Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Update/maintain publications, instructions, records, forms, status boards, inventories, files and logs	NAVAIR 5215.8 series NAVMAT 5609.10 OPNAVINST 4790.2A	<ul style="list-style-type: none"> Reading Writing Working knowledge of NAMP 	OJT	OJT	OJT	--
Draft/prepare/submit messages/instructions and reports	SECNAVINST 5216.5 OPNAVINST 2100.1 OPNAVINST 5510.1 BUPERSINST 2340.1	<ul style="list-style-type: none"> Reading Writing Working knowledge of administrative system 	OJT	OJT	OJT	--
Fill out forms	OPNAVINST 4790.2 OPNAVINST 4790.1 OPNAVINST 4750.6 NAVSUPPUB 2002 ASD-1 thru 5 MDR-1 thru MDR-S-10 as required	<ul style="list-style-type: none"> Reading Writing Working knowledge of NAMP and system documentation 	"A" School FRAMP OJT	"A" School FRAMP OJT	OJT	--

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Aviation Electrician's Mate (AE) SUPERVISING/MANAGING (1 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Counsel personnel	SECMNAVINST 5370.2 BUPERSMAN 6210.40 BUPERSINST 1133.22 /.25 NAVPER 1587.8 BUPERSINST 1418.10	<ul style="list-style-type: none"> • Rapport skills • System knowledge 	OJT	OJT	--	Advancement Quals
Prepare/review/assign personnel requirements for maintenance/train- ing/billets/work	NAVAIRINST 5370.5 AR-50 OPNAVINST 4790.2A	<ul style="list-style-type: none"> • Analyze future require- ments • Analyze projected personnel data • Identify shortfalls • Develop plans to cover shortfalls • Establish and initiate programs • Monitor plans/programs • System analysis 	OJT	Off Duty Education OJT	--	Advancement Quals
Prepare personnel evaluations	BUPERSMAN 3410150	<ul style="list-style-type: none"> • Evaluating skills • Writing skills 	OJT	Off Duty Education OJT Inservice Trng	--	Advancement Quals
Review/analyze/evalu- ate/recommend changes/ certify maintenance/ records/materials/ forms/data/logs/opera- tional equipments	NAVAIR 4355.2 Series	<ul style="list-style-type: none"> • Evaluating skills • Writing skills • Management skills 	OJT	Off Duty Education OJT	--	Advancement Quals

Aviation Electrician's Mate (AE) SUPERVISING/MANAGING (2 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Inspect work and equipment	OPNAVINST 3750.14 OPNAVINST 4790.2A NA 01-xxx-6xxx (MRC) NA-01-1A-509	<ul style="list-style-type: none"> • Specification and system knowledge • Read and interpret military/technical publications • Evaluating skills • Documentation skills 	OJT	OJT	--	--
Supervise using, filing and updating of publications, logs, records and inventories	NAVMAT 5600.10 NAVAIR 5600.16 (Tech documentation) OPNAVINST 4790.2A	<ul style="list-style-type: none"> • Knowledge of documentation within NAMP and supply system 	OJT	OJT	OJT	Advancement Quals
Assign personnel to work	Appropriate SQMD OPNAV 5320. Series OPNAVINST 4790.2A	<ul style="list-style-type: none"> • LMET skills 	OJT	OJT	OJT	Advancement Quals
Supervise/direct aircraft electrical inspections	OPNAVINST 4790.2A	<ul style="list-style-type: none"> • LMET skills • Knowledge of NAMP and MRC's 	OJT Inservice Trng	OJT	OJT	Advancement Quals
Supervise general military functions and operations	NAVY REGULATIONS	<ul style="list-style-type: none"> • LMET skills 	OJT	OJT	OJT	Advancement Quals
Ensure compliance with safety messages/directives	OPNAVINST 5100.8 5100.19 NAVMAT P-5100	<ul style="list-style-type: none"> • LMET skills 	OJT	OJT	OJT	--

Aviation Electrician's Mate (AE) TRAINING (1 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Determine training requirements	NAVFAC 1520.1 NAVMAT 1500.7 OPNAV 1500.34	<ul style="list-style-type: none"> Reading technical data Analyzing maint. data Analyzing training requirements 	OJT	OJT	OJT	--
Organize/schedule training programs	NAVLEX 1500.3 OPNAV 1550.8 CNET 1550.12	<ul style="list-style-type: none"> LMET skills Knowledge of NAMP 	OJT	OJT	OJT	--
Evaluate training program effectiveness	CNET 3500.3 (PQS)	<ul style="list-style-type: none"> Knowledge of tests and measurements criteria Instructor training/experience Knowledge of instructional systems 	Instructor Tng OJT	Instructor Tng Off Duty Education	OJT	--
Initiate improvements in training programs	OPNAVINST 1540.2 " 4790.2A	<ul style="list-style-type: none"> LMET skills Instructor experience Understanding instructional systems approach 	Instructor Tng	Instructor Tng Off Duty Education	OJT	--
Prepare/make/update training lectures, training aids, training material	OPNAVINST 1540.2 " 4790.2A NAVEDTRA 106 NAVEDTRA 107	<ul style="list-style-type: none"> Writing technical materials Reading technical materials Analyzing technical material Instructional experience 	Instructor Tng OJT	Instructor Tng Off Duty Education	OJT	
Operate, use, demonstrate training equipment	NAVEDTRA 107	<ul style="list-style-type: none"> Reading technical documentation Organizing instruction Following published instructional techniques 	Instructor Tng OJT	Instructor Tng OJT	OJT	

Aviation Electrician's Mate (AE) TRAINING (2 of 2)		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Skills Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Administer/grade/ prepare tests, examinations	NAVEDTRA 106	<ul style="list-style-type: none"> • Reading technical material • Analyzing instructional material • Analyzing test results • Understanding test and measurement system requirements 	Instructor Ing OJT Off Duty Education	Instructor Ing OJT Off Duty Education	OJT	University Degree System

Aviation Electrician's Mate (AE) PERFORM SAFETY FUNCTIONS		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Direct/comply with/ plan/implement safety programs/FOD programs	OPNAVINST 4790.2A NAVMAT P-5100	<ul style="list-style-type: none"> Leadership Management skills Supervisory skills Reading comprehension 	OJT	Apprentice Ing AVN Fundamentals	OJT	Rating Quails
Inspect work/equip- ment/spaces for unsafe conditions	OPNAVINST 5100.8 OPNAVINST 4790.2A	<ul style="list-style-type: none"> Knowledge of system or area being inspected Safety inspection criteria 		"A" & "C" School OJT	OJT	Unit Certification
Ensure compliance with safety messages, directives	NAVMAT P-5100	<ul style="list-style-type: none"> Leadership Management skills Supervisory skills 	OJT	OJT	OJT	--
Participate in FOD walkdowns	OPNAVINST 4790.2A	<ul style="list-style-type: none"> Follow instructions 	OJT	Apprentice Ing AVN Fundamentals	OJT	N/A

Aviation Electrician's Mate (AE) PERFORM LOGISTIC FUNCTIONS		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Inventory/pickup turn-in/issue/order stow, breakout/ package tools, parts, supplies, equipment, publications	Integrated Logistic Support Management organization and responsibilities NAVAIR 4000.12 series Supply, Support Management Plan NAVAIR 4423.5 Provisioning equip- ment and components NAVAIR 4423.7 Maintenance Plan Pro- gram NAVAIR 4790.4 3M(PMS) NAVAIR 4790.11 Tool control - NAVAIR 10290.2	<ul style="list-style-type: none"> Reading comprehension Parts identification Counting Filling out forms 	OJT	OJT	OJT	None
Research publications to obtain supply data	Management of tech- nical data and information - a policy manual - NAVWATINST 4000.15	<ul style="list-style-type: none"> Supply System familiarity Reading comprehension Using supply publica- tions 	OJT	OJT	OJT	None

Training Requirements	Specification/ Authority	Acquisition				Measurement/ Certification
		Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Aviation Electrician's Mate (AE) HOUSEKEEPING (GENERAL) Scrubdowns	OPNAVINST 4790.2 NAVAIR 01-1A-509	<ul style="list-style-type: none"> Applications of water, hoses and fittings Knowledge of weapon systems cleaning and associated safety practices 	OJT FRAMP	Recruit Tng NBC Training	OJT	N/A
Corrosion Control	OPNAVINST 4790.2 NAVAIR 01-1A-509	<ul style="list-style-type: none"> Safety precautions Ability to recognize basic hand tools Basic chemical compounds Handling 	PMS TNG - OJT Apprentice Tng "A" School FRAMP	Apprentice Training "AE" - "A" School FRAMP OJT	OJT	Unit certification
Equipment Maintenance	OPNAVINST 4790.2 NAVAIRINST 5215.8 NAVAIRINST 4420.1 NAVAIRINST 4411.1	<ul style="list-style-type: none"> Safety Equipment cleaning procedures 	PMS Tng - OJT FRAMP	Apprentice Tng "AE" - "A" School FRAMP	OJT	Unit certification PAR

Aviation Electrician's Mate (AE) PERFORM SECURITY FUNCTIONS		Acquisition				Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
Receiving/using/ filling/stowing/ destroying classified material	Dept of Navy - Information Security Program Regulation - OPNAV- INST 5510.1 series	<ul style="list-style-type: none"> Reading Security classifica- tions Security procedures for classified data handling Classified data logging 	OJT	OJT	OJT	None
Operational Security- aircraft, flight line, and shop security under routine condi- tions and emergency conditions	OPNAVINST 5511.9 U.S. Navy Physical Security Manual - OPNAVINST 5510.45 series NAVSUP 5510.2	<ul style="list-style-type: none"> Understanding and following verbal/ written instructions 	OJT	Recruit Tng OJT	OJT	Fleet readiness inspections Unit of SFC monitoring
Natural Disaster, civil disturbance, enemy action plans	OPNAVINST 5510.1 series	<ul style="list-style-type: none"> Following written and verbal instruction First Aid Firefighting, damage control, NBC defense Base defense training 	--	Recruit Tng	--	--

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Aviation Electrician's Mate (AE) MILITARY		Acquisition					Measurement/ Certification
Training Requirements	Specification/ Authority	Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance		
Maintaining Navy Standards	Public Law UCMJ Navy Regulations	<ul style="list-style-type: none"> Reading Listening Following instructions 	Recruit Training	Recruit Training	Recruit Training	Fleet Feedback Performance Evaluations Advancement Quails	
Perform general/emergency drills according to HQ&S Bill	PAR (AE-3) NAVPERS 1414/4 (AE) 1-77 NAVPERS 180680	<ul style="list-style-type: none"> Reading Understanding instructions Following instructions 	Recruit Training OJT	Recruit Training OJT	OJT	PQS Watch Bill Certification Advancement Quails	
Performing disaster preparedness functions	PAR (AE-3) NAVPERS 1414/4 (AE) 1-77	<ul style="list-style-type: none"> Reading Listening Following instructions 	Recruit Training OJT	Recruit Training OJT	Fleet Training OJT	Fleet Unit Certification PQS Advancement Quails	
Operate firefighting equipment	PAR (AE-3) NAVPERS 1414/4 (AE) 1-77	<ul style="list-style-type: none"> Safety Fire types and agents used Basic mechanics Fluids and pressures 	Recruit Training Fleet Periodic Tng Ashore OJT	Recruit Training Fleet Training	Fleet Training	Fleet Certification	
Monitor/supervise corrosion control	OPNAVINST 4790.2 NA-01-1A-509	<ul style="list-style-type: none"> Physical science Communications Maintenance Adm 	Apprentice Tng AVN Fund OJT	Apprentice Tng AVN Fund AE "A" School Correspondence Cse OJT	OJT	Fleet Unit Certification	
Standing Watches	Unit Organization and Regulation Manual and Battle Bill	<ul style="list-style-type: none"> Physical fitness Understanding instructions Watch qualification (technical) 	Recruit Training Apprentice Tng OJT	Recruit Training "A" School OJT	Unit Sign Off/PQS	Work Center Supervisor	

Aviation Electrician's Mate (AE) FABRICATION	Training Requirements	Specification/ Authority	Acquisition				Measurement/ Certification
			Required Enabling Skills	Understanding of System	Knowledge of Fundamentals	Skill Performance	
	Build/construct test sets	NOT VIABLE	REQUIREMENT FOR MAJORITY OF PERSONNEL IN RATING ALTHOUGH INDICATED BY INDIVIDUAL NATOPS	ALTHOUGH INDICATED BY INDIVIDUAL NATOPS			
	Modify test equipment	NOT VIABLE	REQUIREMENT FOR MAJORITY OF PERSONNEL IN RATING ALTHOUGH INDICATED BY INDIVIDUAL NATOPS	ALTHOUGH INDICATED BY INDIVIDUAL NATOPS			
	Design test equipment	NOT VIABLE	REQUIREMENT FOR MAJORITY OF PERSONNEL IN RATING ALTHOUGH INDICATED BY INDIVIDUAL NATOPS	ALTHOUGH INDICATED BY INDIVIDUAL NATOPS			
	Fabricate aircraft electrical cables	OPNAVINST 4790.2A	Hand tools Reading and following technical specifications	"A" School OJT	"A" School FRAMP	FRAMP OJT	Fleet unit
	Fabricate tiedown lines	OPNAVINST 4790.2A	Hand tools Reading and following technical specifications	"A" School OJT	"A" School OJT	FRAMP OJT	Fleet unit

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