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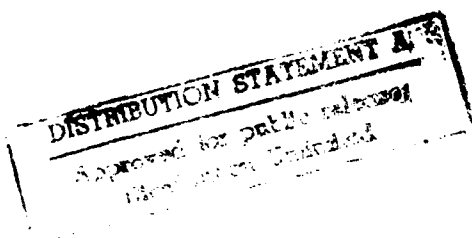
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Rating Training Continuum: Development Procedures

April Moranville



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13. ABSTRACT (Maximum 200 words) The Deputy Chief of Naval Operations (Manpower, Personnel and Training) (OP-01) tasked Navy Personnel Research and Development Center (NPRDC) to construct a training continuum design methodology using the Operations Specialist (OS) and the Electronic Warfare Technician (EW) ratings as the design vehicles. Rating Training Continuum Development Workshops were held for the OS and EW ratings in FY89 and FY90. The results of the workshop were incorporated into Continuum Training Plans (CTPs) and published in 1991. To provide guidance for future developers of rating training continua, NPRDC identified the procedures involved in planning, conducting, and publishing the results of a rating training continuum. The information was organized into four sections: Preliminary activities, workshop preparation, workshop activities, and continuum training plan production. The importance of updating the CTP as work requirements change within the rating was also emphasized.				
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FOREWORD

The work was sponsored by the Deputy Chief of Naval Operations (OP-111J) as part of the Career Systems Design (CSYD) project. It was funded under the Education and Training Function, Program Element 0603720N, Work Unit R1772-ET010.

The CSYD project, which was conceived using a systems approach to career implementation, preparation, and development, was tasked to design a Rating Training Continuum Design Methodology. The resultant methodology was applied to the Operations Specialist (OS) and the Electronic Warfare Technician (EW) ratings. Rating training continuum workshops were held for the OS and EW ratings in FY89 and FY90 respectively. The results of the workshops were incorporated into Continuum Training Plans (CTPs) and published in 1991.

This report identifies the steps and procedures involved in producing a rating training continuum. It is intended to assist future continuum developers.

The author wishes to acknowledge the assistance of Donald H. Hewitt, John W. Schuler, and Meryl S. Baker in the preparation of the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

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SUMMARY

Problem

The Deputy Chief of Naval Operations (Manpower, Personnel and Training) (OP-01) tasked Navy Personnel Research and Development Center (NPRDC) to construct a rating training continuum design methodology using the Operations Specialist (OS) and Electronic Warfare Technician (EW) ratings as the design vehicles. Rating Training Continuum Development Workshops were held for the OS and EW ratings in FY89 and FY90 respectively. The results of the workshop were incorporated into Continuum Training Plans (CTPs) and published in 1991. The research phase of the CSYD project has ended. The Continuum Development Office (OP-111J) will be responsible for developing future Rating Training Continua. The Continuum Development Office (OP-111J) has no existing document that identifies the steps and procedures involved in producing a rating training continuum.

Objective

The objective of this effort was to provide guidance for future development of rating training continua.

Approach

To identify the procedures required to produce a rating training continuum, this document has been organized into four sections: Preliminary activities, workshop preparation, workshop policies and procedures, and continuum training plan production. Each section outlines the activities that should occur at that particular phase of the effort.

Preliminary Activities

To ensure the success of a rating training continuum, the rating sponsors and all commands that affect the rating under consideration must be identified and involved in the process. This section discusses the initial planning, meetings, and correspondence that must be initiated and coordinated.

Workshop Preparation

Once the preliminary activities have been conducted, it is time to prepare for the rating training continuum workshop. This section discusses the facilities, materials, personnel, and software required to conduct the workshop.

Workshop Activities

A rating training continuum workshop provides the information necessary to produce a continuum training plan. It is the subject matter experts (SMEs) responsibility to provide this information in a relatively short time. This section outlines the activities that will aid the SMEs in performing their function. This section also specifies the policies and procedures that were particularly effective during the OS and EW workshops.

Continuum Training Plan Production

Once the rating training continuum workshop is concluded, the information must be incorporated into a continuum training plan. This section discusses formatting the data, the procedures associated with fleet reviews, executive committee meetings, producing a draft CTP, and a final CTP.

Concluding Remarks

Once the CTP has been published, the information will be used to develop training throughout the rating. This section emphasizes the importance of using and updating the CTP as work requirements change within the rating.

CONTENTS

	Page
INTRODUCTION	1
Background and Problem.....	1
Objective	1
APPROACH.....	1
PRELIMINARY ACTIVITIES	2
Executive Committee Meetings.....	2
Rating Training Continuum Process.....	3
Turbulence	3
Definition of Apprentice, Journeyman, and Master Levels	3
Qualifications of SMEs	3
Officers.....	4
Timeline	4
Special Instructions.....	4
Correspondence Requirements	5
Administrative Message Requesting SMEs.....	5
Letter Requesting Technical Documents	5
Courier Cards	6
WORKSHOP PREPARATION.....	6
Billing	6
Personnel Support Detachment (PSD).....	6
Workshop Site	6
Transportation	7
Mail	7
Equipment.....	7
Computers	7
Printers	8
Tape Drive Backup	8
Software Requirements.....	8
Overhead Display	8
Copiers	9
Telecopiers	9
Tables and Chairs.....	9
Phone Lines.....	9
Safes.....	9
White Boards	10
Bookshelves	10
Supplies.....	10

Workshop Reference Library	10
Support Personnel	10
Security	11
Notifying Security.....	11
Maintaining Classified Materials	11
Workshop Site	11
Badges.....	11
ADP Security	11
Orientation Materials	11
WORKSHOP ACTIVITIES	12
Officer Orientation	12
Timelines.....	12
Enlisted Orientation	12
Personnel Performance Profile Development	13
Hardware Personnel Performance Profiles Tables	13
Task/Function Personnel Performance Profiles Tables.....	14
Background Personnel Performance Profiles Tables	14
Training Level Assignment Development	14
Table Assignment Chart Development	15
Career Path Chart Development	15
Communication Channels.....	15
Officer and Senior Enlisted Meetings	15
Review Days	16
Executive Summary	16
Administrative Requirements	16
Site Visits	16
Evaluations.....	16
Facilities.....	17
Orders.....	17
Equipment Return	17
CONTINUUM TRAINING PLAN PRODUCTION	17
Formatting Data	17
Printing.....	18
Fleet Review	18
Review Comments	19
Executive Committee Meetings.....	19
Incorporating Fleet Comments	19
Final CTP	19
Final Printing	20
CONCLUDING REMARKS	20

REFERENCES.....	21
APPENDIX A--RATING TRAINING CONTINUUM DEVELOPMENT WORKSHOP: WORKBOOK	A-0
APPENDIX B--EW RATING TRAINING CONTINUUM WORKING GROUP GUIDANCE	B-0
APPENDIX C--SAMPLE TASK/FUNCTION CHART	C-0
APPENDIX D--LIST OF COMMANDS THAT REVIEWED THE OS AND EW CTPs.....	D-0
DISTRIBUTION LIST	

INTRODUCTION

Background and Problem

In 1983, the Navy Inspector General (NAVINGEN) identified several training areas that needed improvement. Specifically, improvement was needed in the communications between the fleet and school commands, in the training community's response time to fleet comments, and in the agreement between the skills and knowledge that the fleet requires and the school curriculum. The training continuum concept evolved when senior Navy decision makers concluded that no cohesive and comprehensive plan for training requirements existed across the career of enlisted personnel. The Navy Training Strategy (Office of Chief of Naval Operations, 1989) directed the Deputy Chief of Naval Operations (Manpower, Personnel and Training) (OP-01) to coordinate the application of a continuum approach to rate and mission area training. The rating training continuum concept establishes career training requirements and provides an appropriate and timely mix of formal school, on-board training, and sea and shore assignments.

The Navy Personnel Research and Development Center (NPRDC) was tasked to construct a training continuum design methodology using the Operations Specialist (OS) and Electronic Warfare Technician (EW) ratings as the design vehicles. The continuum training concept requires the participation of current fleet experienced rating qualified subject matter experts (SMEs) to develop the continuum training plan (CTP). A workshop was determined to be the most effective means of bringing the SMEs together and obtaining the necessary information.

To date, there have been two rating training continuum development workshops: The first for the OS rating and the second for the EW rating. During each workshop, the SMEs developed training requirements in the form of personnel performance profiles (PPPs), training level assignments (TLAs), and a completed training pipeline. All the information was then incorporated into a separate CTP for each rating. A plan to evaluate the effectiveness of the OS and EW CTPs was also prepared and baseline data to support the evaluation was collected in 1991 (Megrditchian & Moranville, 1991).

The Career Systems Design (CSYD) project was completed at the end of FY91. The Continuum Development Office (OP-111J) will continue to be responsible for developing future rating training continua. To assist the Continuum Development Office (OP-111J) in producing additional rating training continua, a document identifying the steps and procedures involved in planning, developing and publishing the results of a continuum was needed.

Objective

The objective of this effort was to provide guidance for future development of rating training continua.

APPROACH

The rating training continuum process requires coordinated management and organization to be successful. It also requires the involvement and participation of many diverse groups and organizations. To provide a detailed explanation of the procedures involved in the process, this

document has been organized into four sections: Preliminary activities, workshop preparation, workshop activities, and CTP production.

The first section, preliminary activities, discusses the initial planning that should take place to coordinate the effort. It outlines who should attend the preliminary meetings and what issues should be addressed and resolved. This section also indicates the preliminary correspondence that should be initiated immediately.

The second section, workshop preparation, discusses the activities that should occur in preparation for a rating training continuum workshop. The facilities, materials, personnel, and software required to conduct a workshop are discussed in detail. The administrative activities associated with planning the workshop are also discussed.

The third section, workshop activities, identifies the issues involved in running a rating training continuum workshop. Orientation procedures for both the officers and the enlisted personnel are suggested. A brief explanation of the procedures for developing PPPs, TLAs, table assignment charts (TACs) and career path charts (CPCs) is included. The administrative requirements of the workshop are outlined and the additional responsibilities of the officers are discussed. This section outlines the policies and procedures that were effective during the OS and EW workshops.

The fourth section, continuum training plan (CTP) production, identifies the procedures required to produce a completed CTP. The contents of a CTP are summarized and possible formats for the draft CTP are discussed. The procedures for fleet review and the time requirements of such reviews are specified. The objectives of the final executive meetings are discussed.

PRELIMINARY ACTIVITIES

To ensure the success of a rating training continuum, the rating sponsors and all commands that affect the rating under consideration must be identified and involved in the process. It is essential to include representatives from OP-01, the appropriate warfare sponsors, and the training commands associated with the rating at the beginning of the effort. The responsible parties should attend, or send a representative to, all preliminary meetings. Without the participation of all responsible parties, there will not be enough support to implement the changes/recommendations resulting from the continuum process.

Executive Committee Meetings

Once the representatives have been identified, preliminary meetings must be scheduled. The purpose of the meetings is to organize and involve all responsible parties and to produce clear guidelines to support the rating training continuum workshop. The agenda for the meetings will vary depending on what kind and how many issues need to be addressed. Minimally, the executive committee members should: Understand the rating training continuum process; resolve any areas of turbulence within the rating; define apprentice, journeyman, and master levels; adopt a continuum development timeline; specify the qualifications of all the SMEs who will participate in the rating training continuum workshop; and provide the SMEs with any special instructions they may need to perform their function. More than one meeting may be required to address all of the issues involved.

Rating Training Continuum Process

All representatives must understand the rating training continuum process so that they can make informed decisions on the policies and administration of the effort. The representatives should be briefed on what the SMEs will be required to do during the workshop. The steps involved in developing PPPs and TLAs, and the time associated with the process should be explained. OP-111J is familiar with the process and has individuals available to explain it. The process is also described in detail in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

Turbulence

Turbulence within the rating refers to rating-specific issues that must be resolved before the workshop begins. During the process of developing PPPs and TLAs, the SMEs should not be constrained or diverted by any policy turbulence. It is the responsibility of the executive committee to provide clear guidelines for the SMEs to follow. During the Operations Specialist (OS) executive committee meeting, for example, a decision was made on whether or not to split the rating. During the Electronic Warfare (EW) Technician executive committee meeting, decisions were made regarding the inclusion of electronics training for 4-year and 6-year obligors (4YOs and 6YOs). If issues such as these are not addressed and resolved at the executive committee meetings, they will hinder the ability of the SMEs to perform their function and will negatively impact the final product.

Definition of Apprentice, Journeyman, and Master Levels

The finished product of a rating training continuum workshop is a continuum training plan (CTP). A CTP is organized into three levels: Apprentice, Journeyman, and Master. The executive committee must determine what constitutes Apprentice, Journeyman, and Master level competency and provide the definitions to the SMEs at the beginning of the workshop. The definitions provide the SMEs with the guidelines they need to organize the PPPs into TLAs. With the competency levels clearly defined, the SMEs can focus on the development of the PPPs, and they will be less likely to digress into policy issues.

Qualifications of SMEs

After the rating-specific issues have been resolved, the qualifications of the SMEs who will participate in the workshop must be specified. Choosing SMEs is a critical step in the rating training continuum process and must be given careful consideration. The SMEs selected for the workshop will construct and revise the PPPs and the TLAs that will be the basis for the training produced over the next several years.

The SMEs must be excellent performers who are motivated to participate in an effort that will improve their rating. They must also be willing to discuss all aspects of their job. SMEs who do not voice their views and opinions will negatively affect the final product.

Fleet and shore commands from both the East and West coasts should be represented by SMEs. There may be considerable differences between the operation of East and West coast commands

within the rating. To produce a final product that is acceptable to all members of the rating, SMEs from both areas should be included.

All paygrades should be represented. Each paygrade has specific knowledge and skills. In order to incorporate all the necessary information, representatives from every level of the rating will be required.

The optimal number of SMEs depends on the rating. If the rating includes many technical specialties that are not common to all members of the rating, a larger number will be required. The optimal number is reached when the SMEs selected represent all the warfare areas and platforms across all paygrades in the rating. The OS continuum workshop had 21 subject matter experts, and the EW continuum had 19.

The SMEs should be aware of the fact that their sea pay stops after 30 days. Since a workshop generally lasts from 6 to 8 weeks, this may have a significant effect on the pay of some of the SMEs.

Officers

In addition to the SMEs, there must be officers to direct the workshop. The officers are there to maintain discipline and to ensure productivity, not to participate in the actual production of PPPs or TLAs. The reason for this distinction is that officers are usually somewhat removed from performing rating-specific tasks. Officers may also be influenced by a variety of factors which do not affect actual job performance. The SMEs were chosen because of their expertise and experience, and they should be concerned only with identifying the skills and knowledge required to perform their jobs. The political ramifications and other influencing factors that the officers are aware of will be addressed in subsequent executive committee meetings.

During the OS rating training continuum workshop, two officers, a post-major command captain and a post-command commander, were the commanding officer and executive officer. During the EW rating training continuum workshop, a captain and a lieutenant served in these capacities.

Timeline

During the preliminary executive committee meetings, a tentative schedule of major events and a timeline should be drafted. The major events are: the preworkshop executive committee meeting, rating training continuum workshop, development of a draft CTP, fleet review of the draft CTP, postworkshop executive committee meeting, and the approval of the CTP. Judging by past rating training continuum efforts, the entire process requires approximately one year to complete.

Special Instructions

The executive committee must keep in mind that they are preparing general guidelines for the SMEs. Anything that the SMEs will be required to do other than prepare PPPs and TLAs should be determined at the outset. If the occupational standards or any other document need to be reviewed by the SMEs, then they must be made aware of that fact. If money will not be available for additional training, the SMEs should be informed that they will have to make offsets by

reducing resources elsewhere. If the SMEs must temper assignment of training requirements with real world resource constraints, they need to be informed. If training requirements that are not rating specific (e.g., general military training (GMT), Equal Opportunity, Rights and Benefits) will not be addressed, the SMEs should be told. The instructions that the executive committee gives the SMEs will determine whether the product they produce is usable and appropriate. An example of the guidance given the EW working group is provided in Appendix B.

Correspondence Requirements

Many administrative details must be attended to once the preliminary meetings have occurred. Correspondence must be initiated to obtain the SMEs as well as the specific materials required to support them.

Administrative Message Requesting SMEs

An administrative message must be sent specifying the qualifications of the SMEs and requesting the commands to select appropriate candidates. In some cases, the executive committee members may decide to select SMEs by name. This process worked particularly well during the EW rating training continuum workshop because the EW rating is relatively small and the representatives at the executive committee meeting knew the outstanding performers.

Once the commands have responded and identified their candidates, the members of the executive committee must review the candidates and determine whether they are acceptable. Because of the time requirements associated with the workshop, some commands may be unwilling to allow their top personnel to participate. In some cases, it may be necessary to convince the command of the significant contribution that the individual could make to the overall rating.

Letter Requesting Technical Documents

A letter must be sent to the various commands requesting they make training and rating-specific materials available. During the workshop, the SMEs will need to review technical documents to refresh their memory and resolve any technical issues. It is important that a reference library be set up at the workshop site so that the materials the SMEs may need are available at all times. Since it takes quite a bit of time to obtain all of the required documentation, this job should be started immediately.

Requesting documents requires time and expertise. In preparing for the OS and EW rating training continuum efforts, one SME was asked to list all the documents that he thought would be required by such a group. The list contained instructions, reports, current curriculum guides, Navy War plans, and technical manuals. The commands where the documents could be obtained were contacted and the documents were requested. The more people involved in creating the list, the more comprehensive it will be. It is very difficult for one person to itemize every document that may be needed by the SMEs. For this reason, it is advantageous to have one or two people collaborate on the list and then send it out to other SMEs for comments and additions. A final list developed in this way should be comprehensive enough to give the SMEs a good start.

Courier Cards

If classified training and/or rating-specific materials are not available at the workshop site, and there is not sufficient time to have them sent, they must be picked up in person. To pick up classified material in person requires a valid courier card. Courier cards can be issued for the length of the workshop and they can be used repeatedly.

WORKSHOP PREPARATION

Once the preliminary meetings have occurred and the messages requesting SMEs and access to documentation have been sent, it is time to consider preparing for the workshop itself. Obtaining the cooperation of all commands associated with the workshop is essential. The facilities, materials, personnel, and the software required to produce the workshop must be reserved in advance to ensure availability. The command hosting the workshop, Personnel Support Detachment (PSD), and the appropriate bachelor officers' and enlisted quarters, (BOQ/BEQ) should be informed and involved well before the start of the workshop. The various commands should then notify the specific departments and personnel that will be affected by the workshop so that they can prepare as necessary.

Generally, a workshop takes from six weeks to two months to complete. During those six to eight weeks, the SMEs will need to be billeted, fed, and paid and will require a variety of other administrative services. Advanced planning and actions will ensure that the administrative details associated with the workshop run smoothly.

Billeting

The SMEs will be traveling on temporary additional duty (TAD) or temporary duty (TEM DU) orders and many will require billeting. As soon as the convening date and the approximate length of the workshop have been established, the appropriate BOQ/BEQ should be contacted. A preliminary list of possible room requirements should be provided to the BOQ/BEQ with the understanding that a firm list of names, rates/ranks and exact room requirements will be forthcoming. Contact with the BOQ/BEQ manager should be maintained to ensure that the reservations do not get lost or otherwise pre-empted.

Personnel Support Detachment (PSD)

Much of the administrative processing of the SMEs will be done by a PSD office. The PSD office may not have had previous experience with servicing a large group of SMEs on either TEMDU or TAD orders who are participating in a workshop. Informing the PSD office in advance will expedite matters and reduce delays.

Workshop Site

If the workshop is held at a military command, the commanding officer of the facility must be informed and involved. The CO should be briefed on the rating training continuum process, how many people will be accommodated, the facilities that will be required, and how it will affect the command.

The workshop site should be a facility that can accommodate from 20 to 30 SMEs in one room with adjacent rooms or areas for small group discussions. The officers will require at least a semiprivate area in which to work and conduct business. There should also be space available for the reference library. The workshop facilities must be wired to allow for several computers and printers. There should also be phones available for the officers to use, as well as phones designated for SMEs.

Parking should be taken into consideration. If cars have been authorized for the SMEs, they will require parking at the workshop site. During both the OS and the EW workshops, there was plenty of parking available and the captain was provided with a marked parking place.

Transportation

The SMEs must have some form of transportation to and from the workshop and their quarters. Some or all of the SMEs may be authorized to rent a car; car pools can be arranged for those who are not. If not enough (or no) rental cars are authorized, it may be necessary to secure vans to transport the SMEs to and from the workshop site. If vans, or some other mode of transportation, are required, they should be reserved in advance.

Mail

The SMEs will be at the workshop site for six to eight weeks and may require the services of the command mailroom during that time. The mailroom should be notified of the added requirements for their services, and arrangements should be made for additional mail drops at the workshop site.

Equipment

Computers

The SMEs will be required to develop PPP tables alone or in small groups. They will review and possibly revise the PPP tables many times. Creating and revising drafts on a computer saves both time and energy. The number of computers and printers required will vary depending on the size of the group, but a minimum of one computer per small group is recommended. During the EW rating training continuum workshop, nine computers and two printers were available and in constant use.

The most appropriate type of computer depends on what the SMEs are familiar with and what is available. Zenith Z-248 microcomputers with floppy disk capability¹ were found to be very useful during both the OS and EW workshops. The PPP tables could be put on floppy disks and the disks could be used on all the computers interchangeably.

The computers must contain hard disk drives capable of storing large amounts of data. At least two of the computers should have a 80-megabyte hard disk drive. During the EW workshop,

¹Identification of specific equipment and software is for documentation only and does not imply endorsement.

additional memory space was very useful. The computers with the 80-megabyte hard disk drive were used to collect all final PPPs and TLAs.

Printers

At least two printers should be available at the workshop site. There will be many occasions in which the SMEs will need to print the information that has been stored on floppy disks or resides in the computers. Laser printers were used during both the OS and EW workshops. Although dot matrix printers can be used, they are slower and the finished product is not as sharp.

Tape Drive Backup

Tape drive backup units or other suitable backup devices should be available at the workshop site. Even with enough computers, much of the storage space available on the hard drive will be used by the software programs. There will be instances when the information should be saved, but need not be retrieved right away and storing the information on tape would be more appropriate. Backing information up on tape also prevents loss due to power outages or careless operators. With a number of people entering data, accidental deletions are a very real possibility.

Software Requirements

WordStar and DBase were used successfully during both the OS and EW workshops to enter, store, and manipulate the data. Other word processing computer applications could be used. The only considerations are that the programs chosen should be familiar to most of the SMEs so that minimal down time is associated with learning a new system, and that the program chosen is capable of organizing the data appropriately.

Several boxes of diskettes will be required throughout the course of the workshop. These diskettes will be used by the SMEs to save their PPPs and TLAs for group review and revisions.

A workbook was developed to aid the SMEs in developing PPPs and TLAs. The workbook describes the process and the SMEs' role. It provides step-by-step instructions and includes examples. Each SME should receive a copy of the workbook (Appendix A) in advance of the workshop so that they can become familiar with the process.

Overhead Display

A device called View Frame was used successfully during the EW workshop. It was particularly helpful during group reviews. The View Frame rests on top of an ordinary overhead projector and is connected to the computer on which the data are stored. Once it is connected, it enables the overhead projector to display whatever is entered onto the computer. Visual adjustments are made by adjusting the overhead projector itself. In this way, the entire group can see what is on the computer screen, and revisions can be entered on the computer and viewed immediately.

Another method that enables the entire group to view what is on the computer screen is to connect the computer directly to a video monitor.

During the OS workshop, neither of these methods was available and copies had to be made of all changes and then distributed to the SMEs. Copying all the changes, reviewing, revising, and copying the finished product was very time consuming and lengthened the workshop considerably.

Copiers

With the use of the View Frame, it will not be necessary to copy documents as often, but there will still be occasions when a copier will be needed. If a copier is not available at the workshop site, one should be available nearby. During the EW workshop copies of some of the completed PPP tables were sent to individuals not at the workshop site. There were also occasions when everyone needed copies of a particular agenda, or personnel forms had to be duplicated for administrative purposes.

Telecopiers

During the OS and EW workshops, telecopiers were very useful. Telecopying was used to keep the other members of the rating involved in the process. During the EW workshop, a weekly or monthly memo was distributed to inform the interested parties of the progress of the workshop. There were also instances when documents were requested immediately and sending or receiving them by telecopier was the only way it could be accomplished quickly.

Tables and Chairs

Tables and chairs will be required in all the meeting rooms. The main meeting room should have enough seating to accommodate everyone participating in the reviews and briefings. Tables will be required for the computers and for the SMEs' use when writing. The areas designated for the officers will require desks and some additional chairs.

Phone Lines

The workshop facilities must include phone lines. A phone should be available in the officers' area and at least one should be in the meeting rooms for the SMEs' use. SMEs may be required to confirm procedures, information, or request additional materials over the phone. In addition, a number of administrative details could be handled over the phone.

During the EW and OS workshops, many outside calls came in for the SMEs participating in the workshop. Because they were outstanding performers, the ship or shore command from which they came often had quick questions which required the SMEs' expertise. These calls did not disrupt the workshop and made the SMEs' absence less of a hardship on their command.

Safes

If the rating will require classified documents during the course of the workshop, they must be kept in a safe. The number of safes required will depend on the volume of classified material. A detailed estimate of the amount of classified material that will be maintained as reference material should be made. Command security should be contacted to ensure sufficient classified material containers are available. All security regulations must be adhered to when maintaining classified materials.

White Boards

White boards or blackboards will be required. There may be occasions when it is necessary to diagram something during a discussion. The commanding officer may need to post schedules or indicate timelines. Large blackboards were often used during the OS and EW rating training continuum workshops.

Bookshelves

Bookshelves to house the workshop reference library will be required. The number of bookshelves depend on the number of documents in the library.

Supplies

The SMEs will require minimal supplies. Paper, pencils, pens, a hole punch, scissors, and staplers are sufficient.

Workshop Reference Library

The reference library is an important aspect of the workshop. The reference library contains all the documents that the SMEs may need to consult and/or review during the course of the workshop. The documents may consist of instructions, reports, current curriculum guides, Navy War plans, technical manuals, or any other reference materials. The documents should be organized systematically so that they can be easily located and obtained by the SMEs.

During the OS and EW rating training continuum workshops, a document guide was produced which listed all the materials available in alphabetical order within topic areas. The materials were placed in binders and organized by topic areas. A color coding system was also used for easy access. A workshop staff member was available to assist SMEs in locating any materials that they might need. Producing a document guide requires additional time, but it provides the SMEs with an organized and efficient way to locate required materials.

A check-out system should be established and maintained to account for all documents. During the EW workshop, request forms were developed to account for the materials. When more than one person required a particular document, the use of these request forms enabled the documents to be located easily. This procedure was particularly important when classified materials were involved. At the end of the day, if there were any outstanding request forms, it was very easy to determine what was still checked out and who had it.

Support Personnel

Many administrative tasks associated with the workshop could be performed by a support person or staff. During the EW workshop, the support staff performed many functions which helped keep the workshop running smoothly. The support staff ordered and picked up additional documents, copied schedules and status reports, faxed documents, typed the revisions to the PPP tables during group reviews, maintained the reference library, monitored the classified documents, and dealt with many of the administrative details. Having a support staff allowed the SMEs to concentrate on their primary tasks: developing PPPs, TLAs, TACs, and a CPC.

Security

Notifying Security

Security is a very important consideration during the workshop. The head of security at the facility that hosts the workshop should be briefed on the rating training continuum process and be aware of what kinds of security arrangements will be necessary. The SMEs will be required to provide their security clearances in advance of their arrival. Classified documents may begin to arrive for the workshop reference library. Safes will be required to hold the classified documents in the reference library, and they must be checked at regular intervals. Obtaining the cooperation and assistance of the security personnel is essential.

Maintaining Classified Materials

Classified materials must be obtained, used, and maintained in accordance with Navy regulations. Minimally, only those individuals who have the appropriate level of security clearance should have access to classified material. Classified material must be signed for, not be left unattended, and returned to the workshop reference library to be locked up in a safe at the end of each workday. A custodian of the safe must be appointed so that the designated check-off sheets associated with the safe can be signed in accordance with security regulations.

Workshop Site

The workshop area should be able to be secured. Although classified information may not be discussed constantly, the area should be locked at the end of the day.

Badges

Depending on the location of the workshop, badges may be required for the SMEs. The names and security clearances for all of the SMEs should be received well in advance of the workshop, and temporary badges can be prepared at that time. During the EW rating training continuum workshop, permanent badges were not prepared until the SMEs arrived because of possible last minute personnel changes.

ADP Security

If computer inputs include classified information, the system used must be secured. A workshop ADP security officer must be appointed, and a tempest certified computer must be used. Obtaining a tempest certificate is a time consuming process that should be initiated at least six months prior to the start of the workshop. A tempest secured computer that has been moved after certification loses its tempest certificate. If there is a tempest secured computer in the area, it is often easier to obtain access to it than to have one recertified at the workshop site.

Orientation Materials

Each SME should be sent a packet of orientation materials. The orientation materials should include: the location of the workshop, the billeting arrangements, the time the SME is to report, a copy of the *Rating Training Continuum Development Workshop: Workbook* (Appendix A), and

perhaps some information about the area. Any administrative information that the SME will be required to know should be included. A map of the host command would be helpful.

WORKSHOP ACTIVITIES

A rating training continuum workshop lasts anywhere from six to eight weeks. During that time the SME must produce PPPs, TLAs, TACs, and a CPC. To allow the SMEs to focus on their task, the workshop must proceed in an organized and orderly fashion. It is the responsibility of the officers in charge to ensure that the policies and procedures are adhered to and that the SMEs are not distracted from their primary tasks.

This section includes a brief overview of the procedures necessary to produce PPPs, TLAs, TACs, and a CPC. The in-depth instructions required to produce PPPs, TLAs, TACs, and a CPC are located in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

Officer Orientation

The officers participating in the rating training continuum workshop should arrive at least two days before the enlisted personnel. The extra days will allow the officers to meet with the commanding officer of the base (if the workshop is held on a military installation), become familiar with the rating training continuum process, prepare a schedule of events, and set up their office space.

Timelines

The officers should prepare a timeline or schedule at the outset of the workshop. Although it is difficult to determine how long the process will take, rough estimates should be made to ensure that the workshop does not continue indefinitely.

The OS rating training continuum workshop completed 88 PPP tables and TLAs in 11 weeks. The EW rating training continuum workshop completed 58 PPP tables and TLAs in 8 weeks. There is a learning curve associated with the task, and the SMEs become faster the more they produce. During the EW rating training continuum workshop, the SMEs spent 4 weeks producing the PPPs, 3 weeks producing the TLAs, and 1 week writing the executive summary and producing the career path chart (CPC).

Enlisted Orientation

The first day of the workshop should be a general orientation for the SMEs. A representative from OP-01 (or the sponsoring organization) should give an introductory brief telling them why they are there, what they will accomplish, and the impact that the end-product will have on their rating in the years to come. The brief by the OP-01 representative should be followed by a security brief given by the security officer of the base. The security brief, should be followed by a brief concerning the administrative details associated with their stay so that any difficulties can be dealt with immediately.

Once the briefings have been concluded, the SMEs should receive a basic overview of the rating training continuum process and what their participation will be. For most of the SMEs, the process of PPP and TLA development will be unfamiliar. If the SMEs were provided with the *Rating Training Continuum Development Workshop: Workbook* with their orientation materials, they will be somewhat familiar with the process, but the first couple of days are usually a learning experience.

Personnel Performance Profile Development

The first workshop activity for the SMEs is to list all the PPP tables that they will need to develop. Listing the necessary PPP tables will enable the SMEs to organize and track the development process. Many documents are available that will help the SMEs develop the list. The occupational standards, personnel qualification standards, and even course materials will suggest topic areas. Any existing PPP tables should be included on the list and reviewed to determine if the information they contain is valid. There is no need to develop new PPPs if appropriate PPP tables already exist. All the technical materials required to suggest topic areas should be available in the workshop reference library.

When a draft list of PPP tables has been completed, the SMEs must classify each table as a hardware, task/function, or a background table. The reason for this is that producing hardware PPP tables requires following a different development sequence than does producing task/function or background PPP tables. Specific instructions on the production of the PPP tables are provided in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

Once all the PPPs have been listed and categorized, the SMEs should break into small groups to produce them. Not all SMEs will have the same job experience or expertise. The small groups should consist of the SMEs with the most expertise in a particular area, and they should be assigned the PPPs associated with their area of expertise.

One person in each small group should be responsible for maintaining the latest versions of whatever the group is working on. If this is not done, there will be confusion when it is time to review the completed PPPs and/or TLAs.

Hardware Personnel Performance Profiles Tables

The hardware PPP tables should be developed first. Hardware PPPs list the skills and knowledge required to operate and maintain a system, subsystem, or piece of equipment. Fortunately for the SMEs, the hardware tables have model statements associated with them. Model statements are general guidelines that identify the type of information needed in the PPP tables. The SMEs can follow the model statements line by line to develop all the hardware PPPs. During the EW rating training continuum workshop, the model statements were entered into the computer so that the SMEs were able to call them to the screen and fill in the blanks for the specific equipment, subsystem, or system on which they were working.

As the PPP tables are completed, they should be reviewed by the entire group. Group reviews worked very well during the OS and EW rating training continuum workshops because the other SMEs were able to add insight and identify confusing or conflicting statements, and to point out

omissions. To avoid confusion, one person should be assigned the responsibility of compiling and monitoring all completed, revised, and approved PPP tables.

Task/Function Personnel Performance Profiles Tables

Once the hardware PPP tables have been produced, the SMEs will begin producing task/function PPP tables. Task/function tables list the skills and knowledge required to perform a specific task or function that is not unique to the operation and maintenance of a particular system, subsystem, or equipment. For many SMEs, producing task/function PPP tables will be more difficult than producing hardware PPPs. One reason for this is that there are no existing model statements to rely on. The SMEs must begin with nothing and produce the entire table on their own. During the EW workshop, an organizational system was developed which seemed to aid the SMEs in the construction of task/function PPP tables. It organized the task/function PPPs into areas similar to the system, subsystem, and equipment hierarchy used for the hardware PPP tables. Its purpose was to ensure that no subject areas were left out. An example of the task/function chart appears in Appendix C.

The SMEs must be very careful to use verbs that represent an action that can be observed and measured as they complete each statement in the task/function PPP tables. Since they will not have the model statements to rely on, a verb list has been provided in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A). Other verbs may be used as long as the actions they represent can be observed and measured. If the verb's actions cannot be observed and measured, the completed statement will not be usable.

As with the hardware PPP tables, the task/function PPP tables are usually produced by small groups of SMEs, and then reviewed by the entire group for consistency and accuracy.

Background Personnel Performance Profiles Tables

The final group of PPP tables the SMEs will be required to produce are the background PPP tables. Background PPP tables list the skills and knowledge that are prerequisites to learning a specific task and are not directly related to any specific equipment. As with the task/function tables, no model statements are available for the development of background tables. Generally, there are fewer background PPP tables to develop than hardware or task/function tables. Because the SMEs have been developing task/function tables without model statements, they are more familiar with the process, and background table development is usually easier for them. As with the other categories, group review is most helpful.

Training Level Assignment Development

Training Level Assignments (TLAs) assign specific PPP items to specific types of training for apprentice, journeyman, and master level personnel. Curriculum developers will use the TLAs to ensure each PPP skill and knowledge line item is included in their curriculum. The step-by-step process for developing TLAs is contained in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

This process can be conducted by small groups of individuals with similar expertise, or by individuals. During the OS and EW rating training continuum workshops, TLAs were produced by small groups. SMEs seem to catch on to TLA production faster than PPP production.

Table Assignment Chart Development

A Table Assignment Chart (TAC) is a graphic presentation of the training path for a rating. A TAC lists the courses with Course Identification Numbers (CINs) in the sequence in which they should be taught, and the PPP table numbers and training objective statement (TOS) codes applicable to these courses. The PPPs and TLAs contain all the information necessary to produce the TACs. The information is taken from the completed PPPs and TLAs, and then organized in a different format. Completing the TACs makes CPC production easier. The step-by-step procedures for developing TACs are in the *Rating Training Continuum Development Workshop: Workbook*, (Appendix A).

Career Path Chart Development

The Career Path Chart (CPC) summarizes the training pipeline for the rating. It is a visual representation of the training that should occur at each particular point in a 20-year career. The CPC is developed after the PPPs, TLAs, and TACs, have been completed and is generally the final product of the SMEs. The CPC is produced by the group as a whole and usually generates quite a bit of discussion. During the EW workshop, the CPC was produced during the last week. Because the PPPs, TLAs, and TACs are already complete, the basics of the CPC are also complete. The step-by-step procedures for developing CPCs are in the *Rating Training Continuum Development Workshop: Workbook* (Appendix A).

Communication Channels

To provide the level of support required to implement the suggested changes resulting from the workshop, it is advantageous to keep other affected and interested commands and key individuals informed of the progress of the working group. This will involve the people not actively participating in the workshop.

During the EW workshop, an administrative message was sent out to all interested parties to come to the workshop site and review and discuss what the SMEs had produced. The meeting was held away from the SMEs so that they were not disturbed and could continue to work. Copies of all PPPs and TLAs were provided to the attendees. This proved to be a beneficial way of disseminating the information and provided another means of checking the quality of the work produced.

Officer and Senior Enlisted Meetings

If the SMEs break into small groups, the senior enlisted will be considered group leaders because of their expertise and their rank. It is important that the senior enlisted keep the officers in charge apprised of any personnel and technical issues that arise. During the EW workshop, the senior enlisted and the officers met regularly to plan strategy, discuss personnel problems, determine if the schedule was being adhered to, and resolve technical issues.

Review Days

Review sessions will be required to review the work that has been done. Review sessions allow the group as a whole to critique what has been produced. The critique is an excellent way to double check that the tables are accurate and complete. During the EW rating training continuum workshop, Friday afternoons were set aside as review times. Everyone reviewed the PPP tables or TLA charts that had been produced that week.

When the review has been completed and the PPPs/TLAs have been revised, completed, and approved, they should be stored in one of the computers with an 80-megabyte capacity. The 80-megabyte capacity may be necessary because it will take quite a bit of storage space to keep all final PPPs and TLAs on one computer. One person should be appointed to maintain files containing the completed and approved PPPs and TLAs.

Executive Summary

The executive summary is part of the CTP. It outlines the results of the workshop and generally highlights some of the major changes resulting from the workshop. The executive summary is written by the senior enlisted and the officers.

Administrative Requirements

There are many administrative details to consider during the workshop. The responsibilities involved in managing a group of 20 to 30 individuals, the required equipment, and the administration of the facilities must all be considered and managed effectively. It is the officers' responsibility to ensure that all administrative aspects run smoothly so that the SMEs are able to concentrate on their tasks.

Site Visits

If the SMEs are unfamiliar with the operation and/or maintenance requirements of a particular piece of equipment, it may be necessary to arrange a site visit. A site visit allows the SMEs to receive first-hand information and, in many cases, hands-on experience with the equipment in question. Site visits should be arranged in advance, with the appropriate security clearances.

During the EW workshop, the SMEs did not have expertise with a particular piece of equipment because it was just coming out of development. A site trip was arranged so that the SMEs could get some hands-on experience with the equipment. The SMEs that went on the site visit took a laptop computer with them so that they could complete the required PPP tables while they had access to the equipment. A property pass was necessary to take the computer off the base where the workshop was being held.

Evaluations

The officers will be responsible for completing the evaluations of the participants. The SMEs should be aware that they will be held accountable for their actions and inactions during the course of the workshop.

Facilities

Unless the facilities chosen to host the workshop are generally used for such a purpose, it will be necessary to make some arrangements for security and custodial care of the premises.

Orders

As the workshop nears completion the SMEs will need to complete their travel claims and have their orders stamped and signed. Some or all of the SMEs may be unfamiliar with the paperwork involved. During the EW workshop, the last day was devoted to completing all necessary administrative functions. A representative from PSD gave a brief on how their travel claims should be filled out and everyone completed them at the same time.

Equipment Return

After the workshop is over, the equipment and facilities should be turned back to their original owners. This may require the removal of many computer files if the computers were borrowed, and the physical relocation of the supplies and desks and chairs.

CONTINUUM TRAINING PLAN PRODUCTION

When the SMEs have developed the PPPs, TLAs, TACs, and the CPC, the workshop will be concluded and the SMEs will return to their commands. Once the workshop is concluded the PPPs, TLAs, TACs, and the CPC must be formatted into a Continuum Training Plan (CTP). A CTP specifies the training path with all skill and knowledge requirements for a designated rating and identifies the appropriate career points for administration of that training. A CTP includes a cover letter, PPP line-item change sheets, TLA change sheets, implementation impact worksheets, a table of contents, an executive summary, an introduction, an overview of the continuum training development process, PPPs, TLAs, TACs, a CPC, and appendixes identifying acronyms, abbreviations, or any other aspects that need more amplification.

Formatting Data

After the SMEs return to their commands, the PPPs, TLAs, TACs, and the CPC must be organized into a document that can be reviewed by the fleet as well as shore and school commands. If the PPPs and TLAs are not formatted so that they can be viewed at the same time, it is very difficult and time consuming to review them. A comprehensive review requires the reviewer to determine if a PPP line item is appropriate and then look at the corresponding TLA to determine if it is taught at the correct level and at the correct time in an individual's career. For the fleet review, it is much easier if the PPPs appear on one half of the page and their corresponding TLAs appear on the other half of the page. This enables them to be reviewed without flipping back and forth through the draft CTP. The draft CTP is generally a large and imposing document and the review will be more thorough if the reviewer's job is made as easy as possible.

A computer program is required to combine the PPP line items and the TLA line items side-by-side on the same page. Although several off-the-shelf programs can probably accommodate this, Dbase was used successfully during the OS and EW efforts. Formatting the PPPs and TLAs

takes time even with the appropriate program. To prepare the EW draft CTP for fleet review took a team of five people three weeks to complete. The draft contained not only the PPPs and TLAs, but also the executive summary written by the officers, a brief overview of the process, as well as appendixes identifying acronyms and abbreviations. The completed draft was sent to OP-111J for review prior to being printed and sent out for fleet review.

Printing

Printing is another factor that must be considered when making any kind of time estimates. A draft CTP is large and many copies will be required. The length of time that will be required to duplicate the draft CTP will vary depending on the printing office, and what kind of jobs they can handle. It took three weeks to print 75 copies of the draft EW CTP. The EW CTP was approximately 675 pages long and the OS CTP was approximately 450 pages long.

Fleet Review

Once the draft CTP has been printed, it must be sent out to members of the fleet and shore commands for review. The review is essential because it gives everyone in the rating a chance to see exactly what the workshop has accomplished. It also gives them a chance to point out deficiencies, omissions, or inaccuracies in the draft document. The draft CTP should be sent to all personnel who attended the preliminary executive committee meetings, all affected school and shore commands, and as many representatives from the fleet as possible. Appendix D lists the commands that reviewed the draft OS and EW CTPs.

Fleet review can be very time consuming. Sufficient time must be allowed for the draft CTP to be received, reviewed, and the comments returned. Generally, the draft is sent to a particular command and the command designates who should review the document. It does not always arrive in the reviewer's hands immediately, but often follows a chain, which is time consuming. The document is quite large and requires considerable time to review carefully. Most individuals have full-time duties already, and the review has been added to them. Other items on their agenda may have priority and reviewing the draft may not be done immediately.

Another factor that must be taken into consideration is when in the calendar year the document is available for review. If it is around the Christmas season, additional reviewing time must be incorporated to accommodate planned leave.

Once the draft has been reviewed, the comments must travel up the chain of the reviewing command before they are forwarded to the organization completing the CTP. During the OS and EW continuum efforts, it was requested that the draft CTPs be reviewed and returned within one month. In neither case did this occur. It generally took at least two and in some cases three months for the comments to be returned.

Any crisis occurring around the world that might require military intervention will have a definite impact on the review time.

Review Comments

The purpose of the fleet review is to point out any deficiencies or omissions in the draft CTP. Many individuals will review the document and some will comment on the same items. To prevent duplication, all the comments should be compiled and reviewed for accuracy. Then, a decision will have to be made as to whether or not they should be incorporated. During the OS and EW draft CTP review, additions that were agreed upon by fleet and shore activities from both the East and the West coasts were incorporated. Items that were not agreed upon were decided in a postworkshop executive committee meeting.

Executive Committee Meetings

The purpose of an additional executive committee meeting is to determine which, if any, of the comments returned should be incorporated into the final CTP. The SMEs were brought together because of their expertise and knowledge of the area. There are no guarantees that the individuals reviewing the document have the same level of expertise. Since the fleet reviewers were not chosen because of their skills in the individual areas, care must be taken before changes to the draft document are made.

Depending on the amount and importance of the comments, it may take more than one meeting to reach a consensus. The OS CTP review produced over 3,000 comments, and it took several weeks to combine them. A large portion of the comments were minor and could be incorporated immediately. The remaining comments were presented to the executive committee for decision.

The EW CTP review produced considerably fewer comments. That may have been because the interested commands were kept apprised of the decisions of the workshop on a weekly basis and were encouraged to send representatives to an open meeting held toward the end of the workshop to preview what had been accomplished. During that meeting, many issues were resolved immediately. In addition, the EW community contains 3000 individuals and the OS community contains approximately 13,000.

Incorporating Fleet Comments

Once the decision has been made on exactly which comments should be incorporated into the final CTP, the changes to the draft must be completed. Revising the document is time consuming. Depending on the number of changes, this step could take a week or a month. The program used to prepare the original draft CTP may or may not be receptive to incorporating changes. It is difficult to make an estimate on the actual time this step will require.

Final CTP

Once the approved revisions have been incorporated into the document, it must be printed once more. In the case of the OS CTP, there had been so many changes that the draft was sent out to the fleet one more time. There were some additional comments and another executive committee meeting was held to determine if they should be incorporated.

The Naval Education and Training Program Management Support Activity (NETPMSA) must be sent a copy of each finalized PPP table to assign an official number to each. NETPMSA maintains and monitors all PPP tables. Before the final document can be printed, the official PPP numbers must be incorporated into the CTP.

The EW CTP was not sent out for a second fleet review. After a two-day executive committee meeting, all decisions concerning the CTP had been made.

Final Printing

When all the changes have been incorporated, the entire document must be sent to OP-01 for approval. This approval has taken the form of a memo signed by OP-01 and included as one of the front pages in the CTP document. Approval generally takes a few weeks as the document goes up the chain and is signed off on a number of levels before it reaches the final signature line. Once the memo is signed, it must be incorporated into the body of the CTP and the final printing can be done. When the printing has been completed, the final CTP must be distributed to all involved individuals and commands.

CONCLUDING REMARKS

This document is a guide for future developers of rating training continua. It identifies the tasks and considerations associated with each phase of the rating training continuum process. It also outlines the techniques that were particularly useful during the OS and EW rating training continua. Each developer must determine which of the suggestions are appropriate for his/her particular situation.

Some of the activities associated with a rating training continuum are ongoing. The CTPs will be used as the basis for developing training, and determining when and where in an individual's career specific training should occur. CTPs are designed to be flexible documents that can be revised to reflect changes in job/training requirements. It is the responsibility of the rating to ensure that the CTP is kept current and accurate by using the completed CTP and actively participating in the periodic reviews.

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APPENDIX A

**RATING TRAINING CONTINUUM DEVELOPMENT WORKSHOP:
WORKBOOK**

RATING TRAINING CONTINUUM DEVELOPMENT WORKSHOP: WORKBOOK

Prepared for:

Deputy Chief of Naval Operations (Manpower, Personnel, and Training)

Total Force Training and Education Division (OP-11)

Prepared by:

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San Diego, CA 92152-6800

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FOREWORD

You were selected by an OPNAV Executive Committee to participate in the rating training continuum development workshop. During this workshop, you will be part of an effort to improve the training, assignment, and promotion opportunities for the individuals in your rating. Specifically, you will use your expertise, skills, and knowledge to develop a rating training continuum.

The Deputy Chief of Naval Operations, Total Force Training and Education Division (OP-11) defines a rating training continuum as:

A training path with all skill and knowledge requirements for a designated rating which identifies the appropriate career points for administration of that training. It extends from the completion of recruit training through all potential rating-related billets and includes both formal and on board training.

The move toward the training continuum approach in the Navy began in 1983 when a Navy Inspector General (NAVINGEN) review of the Chief of Naval Education and Training (CNET) found no cohesive training plan across an individual's career. The Navy training strategy (OPNAVINST 1500.51B), published in 1989, directed the Deputy Chief of Naval Operations (Manpower, Personnel, and Training (OP-01)) to coordinate the application of a continuum approach to rate and mission area training. Specific direction was to establish a continuum process so that training is administered at the appropriate time in an individual's career. The training strategy specified that the continuum process used must reinforce the learning experience, maximize benefit to the fleet, achieve cost savings, and provide career incentives.

Developing components of the rating training continuum includes establishing:

- Fleet skill and knowledge requirements for the rating.
- The training level for each skill and knowledge requirement for a 20-year enlistment.
- Where, in the training pipeline, the fleet skill and knowledge requirements should be taught.

This workbook provides the information and instructions you and the other Subject Matter Experts (SMEs) in your group will need to develop the components that constitute the rating training continuum according to Navy specifications in MIL-STD-1379(D).

CONTENTS

	Page
CHAPTER 1 INTRODUCTION TO THE WORKSHOP AND WORKBOOK	1-1
CHAPTER 2 RESOURCES	2-1
CHAPTER 3 PERSONNEL PERFORMANCE PROFILE (PPP) TABLE DEVELOPMENT	3-1
3.1 Develop a List of PPP Tables	3-2
3.2 Develop Hardware PPP Tables	3-7
3.3 Develop Task/Function PPP Tables	3-13
3.4 Develop Background PPP Tables	3-17
CHAPTER 4 TRAINING PATH SYSTEM (TPS) DEVELOPMENT	4-1
4.1 Develop Training Level Assignments (TLAs)	4-2
4.2 Develop Table Assignment Charts (TACs)	4-8
4.3 Develop Career Path Chart (CPC)	4-11
APPENDIX A-- MODEL PPP SKILL STATEMENTS	A-0
APPENDIX B-- SAMPLE ACTION VERBS	B-0
APPENDIX C-- MODEL PPP KNOWLEDGE STATEMENTS	C-0
APPENDIX D-- SAMPLE PERSONNEL PERFORMANCE PROFILE (PPP) TABLES	D-0
APPENDIX E-- EXAMPLE OF A COMPLETED TRAINING LEVEL ASSIGNMENT (TLA)	E-0
APPENDIX F-- ELECTRONIC WARFARE (EW) PERSONNEL LEVEL DEFINITIONS	F-0
APPENDIX G-- MODEL TRAINING OBJECTIVE STATEMENTS (TOSs) FOR TRAINING LEVEL ASSIGNMENTS (TLAs)	G-0
APPENDIX H-- EXAMPLE OF TABLE ASSIGNMENT CHART (TAC) DEVELOPMENT	H-0
APPENDIX I-- COMPLETED CAREER PATH CHART (CPC) FOR THE OPERATIONS SPECIALIST (OS) RATING	I-0

LIST OF FIGURES

		Page
1-1	Rating training continuum development process	1-2
2-1	Service request form	2-2
2-2	Workshop support personnel responsibilities	2-3
3-1	Personnel Performance Profile (PPP) table development	3-1
3-2	Relation between system, subsystem, and equipment	3-4
3-3	A ship as an example of a system	3-4
3-4	Format for list of PPP table titles	3-6
3-5	Sequence for developing hardware PPP tables	3-8
4-1	Training Path System (TPS) development	4-1
4-2	Example of a Training Level Assignment (TLA)	4-2
4-3	Example of a course identification code list	4-3
4-4	Relationship between knowledge and skill TOSs	4-5

CHAPTER 1

INTRODUCTION TO THE WORKSHOP AND WORKBOOK

This chapter introduces you to the workshop. It covers the objectives of the workshop. It then gives an overview of the workbook and discusses the role of participants in the workshop. Finally, it states the expected outcomes of the rating training continuum which you develop.

OBJECTIVES

This workbook will help you meet three main objectives:

1. Establish fleet skill and knowledge requirements for your rating.

By meeting this objective, you will help improve the match between job requirements of the fleet and the training supporting them. The requirements that you identify will improve the ability of the operational communities to train the personnel in your rating.

2. Establish the training level for each skill and knowledge requirement for a 20-year enlistment.

By meeting this objective, you will help ensure that training will occur at the best and most effective time in an individual's career. The training pipeline that you develop for your rating will reinforce the learning experience throughout an individual's career and provide career incentives whenever possible.

3. Establish where, in the training pipeline, the fleet skill and knowledge requirements should be taught.

By meeting this objective, you will help the operational and training communities determine how to improve training. You will identify and use existing training materials. You will identify requirements for additional training materials, job aids, or technical documentation.

OVERVIEW

In 1983, the Navy Inspector General (NAVINSGEN) conducted a review of the Chief of Naval Education and Training (CNET). The NAVINSGEN findings indicated there was no cohesive training plan across an individual's Navy career. The Navy Training Strategy, published in 1989, directed the DCNO, Manpower, Personnel and Training (OP-01) to establish a continuum approach to training. This workshop will provide input to produce the training continuum for your rating.

The concept of continuum training is defined as "the management of training assets to administer the right training to the right individual at the right level and career point via the most effective and efficient means."

You have been selected for this workshop as a Subject Matter Expert (SME) to help develop a Continuum Training Plan (CTP) for your rating. A workshop is used so that individuals in the rating can come straight from the fleet and stipulate current fleet training requirements. The goal is to have a CTP developed by the rating for the rating. This workbook will guide you, as a SME, through a process to accomplish the objectives of the workshop and produce a CTP. Figure 1-1 is a diagram of the process.

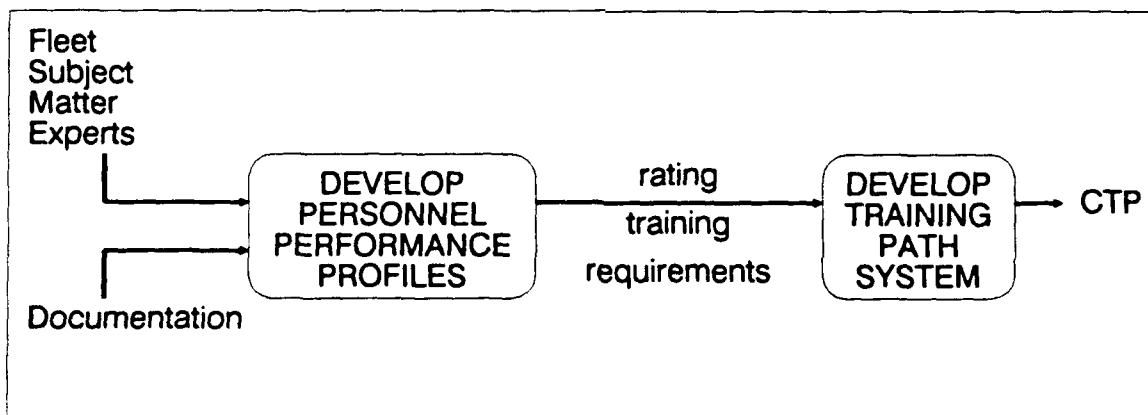


Figure 1-1. Rating training continuum development process.

PARTICIPANTS' ROLES

The workshop is set up so that products (like PPP tables or JTIs) are developed individually or in small groups. The products are then reviewed by all SMEs in one group. During the workshop, a wide range of people will be involved.

Workshop Coordinator

The workshop coordinator:

1. Provides overall leadership of the workshop.
2. Sets the workshop tempo and direction, communicates internal policy issues, establishes priorities in workshop tasking.
3. Acts as a liaison between the workshop and the Executive Committee (EXCOM).

Deputy Workshop Coordinator

The deputy workshop coordinator:

1. Establishes work groups, provides work group leadership, and work product quality assurance.
2. Maintains progress through the duration of the workshop.

Work Group Leaders

The work group leaders will work with the SMEs to help track document production, do content reviews of the products produced, and ensure consistency within each work group. They represent the end-users of the training materials and requirements.

Subject Matter Experts (SMEs)

The main focus of the workshop is on the experience that the enlisted personnel bring to the workshop. Your experience includes the formal, schoolhouse training you have had, the knowledge and skills that you gained during your career, and the unique warfare experiences you have had.

Workshop Support Personnel

Workshop support personnel are available during the course of the workshop. They will assist you in accomplishing your workshop activities. Chapter 2 details the general responsibilities of workshop support personnel.

OUTCOME

Your final product will be the Continuum Training Plan (CTP) for your rating. The CTP will contain all the information needed to improve training and detailing for personnel in your rating. For example, you will document in the CTP recommendations for changes to existing schoolhouse and on-board training, as well as additions of new courses. Then, Navy training communities will use the CTP to determine training requirements, develop learning objectives for training materials, and decide how best to evaluate performance.

CHAPTER 2

RESOURCES

In order to construct a rating training continuum, you, as a SME, will need adequate resources. This chapter:

1. Identifies the resources available for your use throughout the workshop.
2. Provides an overview of how to use these resources.

INTRODUCTION

In order to take full advantage of the resources available to you throughout the workshop, you will need to become familiar with the following information items:

1. Document guide.
2. Document check-out procedures.
3. Procedures for handling classified material.
4. Computer use.
5. Roles of workshop support personnel.
6. Personal message handling.
7. Telephone access.

DETAILED INSTRUCTIONS

Document Guide

The Document Guide lists the documents available in the workshop technical library in alphabetical order within topic area (e.g., curriculum , PQS, etc.). The Document Guide should help you to:

1. Identify quickly the documents in the technical library.
2. Determine the most appropriate document or documents to review when constructing different parts of the rating continuum.

Document Check-out Procedures

To look at any document in the technical library, ask the librarian. If you decide to check out a document, the librarian will provide a service request form to fill out (see Figure 2-1). During the workshop, you will use this form for requesting services such as:

1. Checking out documents for review.
2. Getting supplies and equipment.

Filling out the form has only one stringent requirement: You must sign the form for receiving classified information. If you need assistance in using the form, please ask one of the workshop support personnel.

Service Request Form	
Date:	_____
Time:	_____
Name:	_____
Is this material contained in the document guide? Yes ___ No ___	
What is the topic area of this document? (PQS, curriculum, etc.)	

What is the title of the document? _____	

What is the binder number and letter? _____	
Is this document classified? Yes ___ No ___	
When is this document needed by? _____	
SME signature: _____	
Office Use Only	
Date/time document checked-out: _____	
Librarian signature: _____	
Date/time document returned: _____	
Librarian signature: _____	

Figure 2-1. Service request form.

Procedures for Handling Classified Material

Obtain, use, and maintain all classified material in accordance with Navy regulations for handling this material. Be sure:

1. To have the appropriate level of security clearance for access to classified material.
2. To use a service request form to request classified material.
3. To sign for all classified information or material.
4. Not to leave classified material unattended.
5. To return classified material to the librarian at the end of each workday.
6. Not to remove classified material from the workshop facility.
7. To have workshop support personnel who have the appropriate level of security clearance make any copies of classified material that you need.

Roles of Workshop Support Personnel

Workshop support personnel are available during the course of the workshop to assist you in accomplishing your workshop activities. Support personnel will assist in:

1. Providing guidance to develop the best documentation possible.
2. Preparing the documents.
3. Ensuring accuracy and consistency across documents.

Table 2-2 summarizes the workshop support personnel general responsibilities.

Workshop Support Personnel	
WILL...	WILL NOT...
● Monitor security policies. ● Serve as the workshop librarian. ● Respond to service request forms. ● Answer questions related to development procedures. ● Answer computer and word processing questions. ● Answer general workshop-related administrative and procedural questions.	● Participate in constructing and/or writing PPP and TPS tables. ● Arbitrate between SMEs. ● Return classified materials for you. ● Make phone calls for you.

Figure 2-2. Workshop support personnel responsibilities.

Computer Use

Zenith Z-248 microcomputers and a printer will be available for your use in preparing drafts. For assistance, refer to workshop support personnel.

Personal Message Handling

For your convenience, the workshop has a message board for posting messages and workshop-related information. Please check this board periodically.

Telephone Access

You have access to a telephone in the workshop for workshop-related business only. NPRDC is part of the Consolidated Area Telephone System (CATS). To make an AUTOVON call, dial 80 and the AUTOVON number. All CATS telephones can receive incoming AUTOVON calls. The number of the NPRDC TELECOPIER you will use is (619) 553-7678 (AUTOVON 553-7678).

CHAPTER 3

PERSONNEL PERFORMANCE PROFILE (PPP)

TABLE DEVELOPMENT

In this chapter, you will learn the first step in developing a rating training continuum, the development of Personnel Performance Profile (PPP) tables (see Figure 3-1). PPP tables are a basic element in the design, development, and management of training. A PPP table is a minimum requirements listing of all knowledge and skills required to operate and maintain a system, subsystem, or equipment, or to perform a task or function. They are used to develop training pipelines and curriculum materials, and they are the basic building blocks for the Training Path System (TPS).

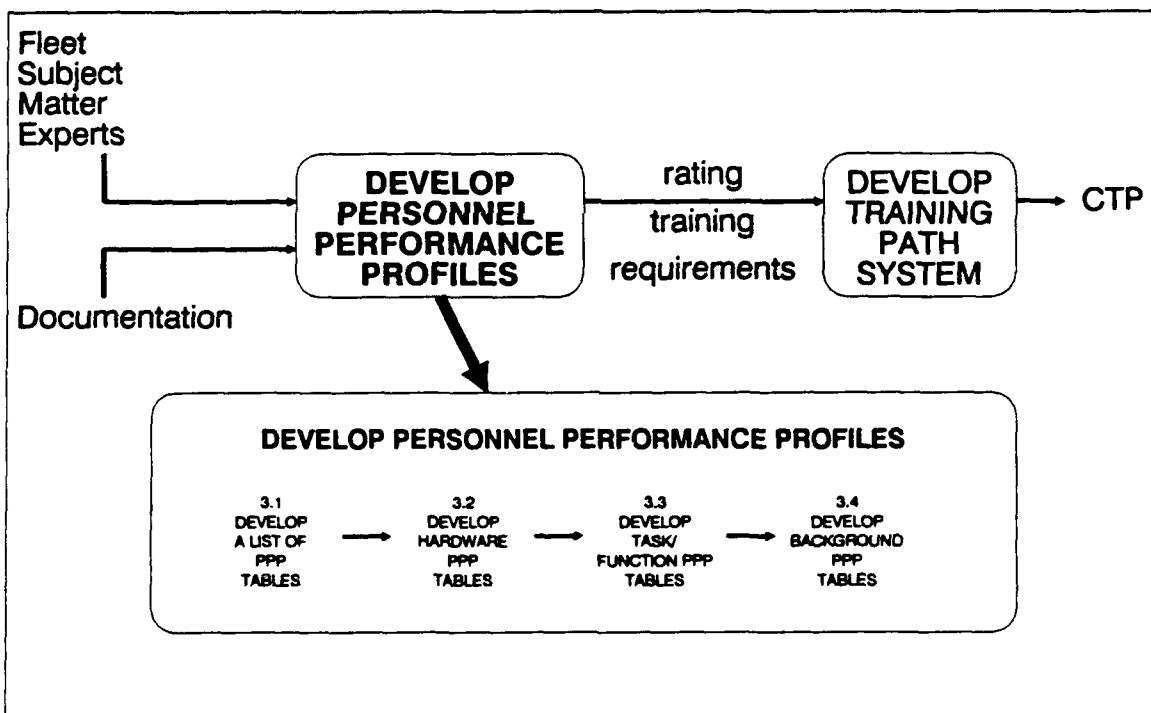


Figure 3-1. Personnel Performance Profile (PPP) table development.

3.1 DEVELOP A LIST OF PPP TABLES

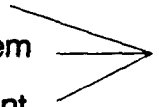
OBJECTIVE

Given appropriate data sources, develop a list of PPP tables.

INTRODUCTION

All SMEs will need to assemble and list the PPP tables that will be used and/or created during this workshop. Several different documents will be reviewed to ensure that the list is complete. Your list of PPP tables will help you organize and track the development of all the PPP tables. As you develop the PPP tables, this list will change; you will delete some tables and add others. This section will explain how to use the different documents to develop a list of PPP tables.

There are five types of PPP tables:

- System
 - Subsystem
 - Equipment
 - Task/Function
 - Background
- 
- Hardware

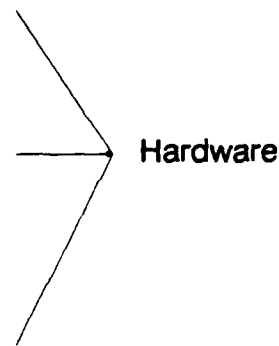
The first three types (system, subsystem, and equipment) are grouped together and called hardware PPP tables.

Definitions

A system PPP table lists the skills and knowledge required to operate and maintain a system. A system is two or more interrelated subsystems.

A subsystem PPP table lists the skills and knowledge required to operate and maintain a subsystem. A subsystem is two or more interrelated pieces of equipment.

An equipment PPP table lists the skills and knowledge required to operate and maintain a piece of equipment.



A task/function PPP table lists the skills and knowledge required to perform a specific task or function. A task/function table does not deal with the operation or maintenance of specific hardware.

A background PPP table contains the skills and knowledge required before students can learn the skills and knowledge listed in other PPP tables. Background tables can apply to both duties and hardware.

In order to develop a list of PPP tables you need to:

1. Review the Occupational Standards (OCCSTDs) for your rating and identify the tasks as hardware or task/function.
2. Compare the OCCSTDs for your rating with existing PPP tables and identify which PPP tables need to be revised or developed.
3. Consider performance discrepancies and identify PPP tables that need to be developed
4. Review relevant documents to ensure that your list is complete.
5. List the PPP tables in the proper format.

DETAILED INSTRUCTIONS

Follow each of the steps to develop a PPP table listing for your rating.

1. Review the Occupational Standards (OCCSTDs) for your rating and identify the tasks as hardware or task/function.

The OCCSTDs should have been revised during a Rating Review prior to this workshop. You will use the OCCSTDs to begin the PPP development process. Review each OCCSTD and determine whether the tasks associated with it are hardware or task/function. Remember that hardware includes systems, subsystems, and equipment. Examine Figure 3-2 so that you will understand the relationship between systems, subsystems, and equipment. Figure 3-3 provides an example of a ship as a system.

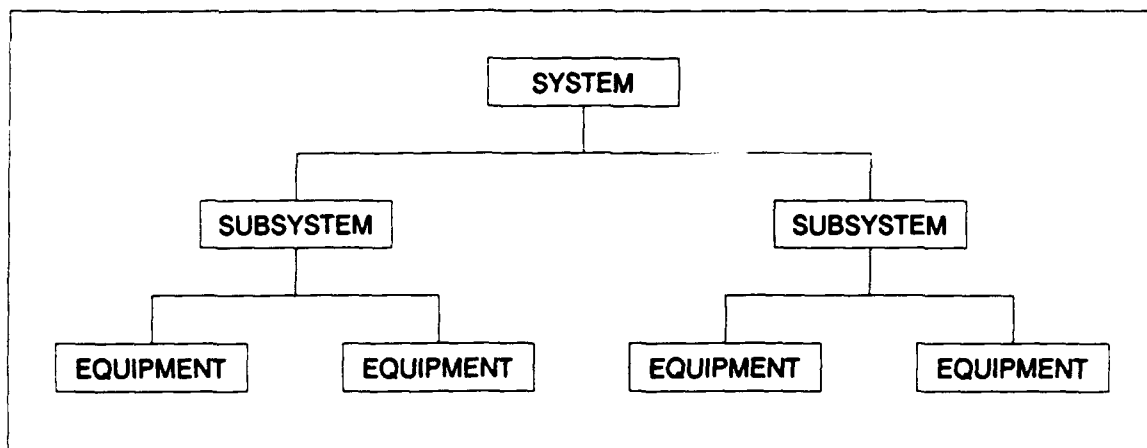


Figure 3-2. Relation between system, subsystem, and equipment.

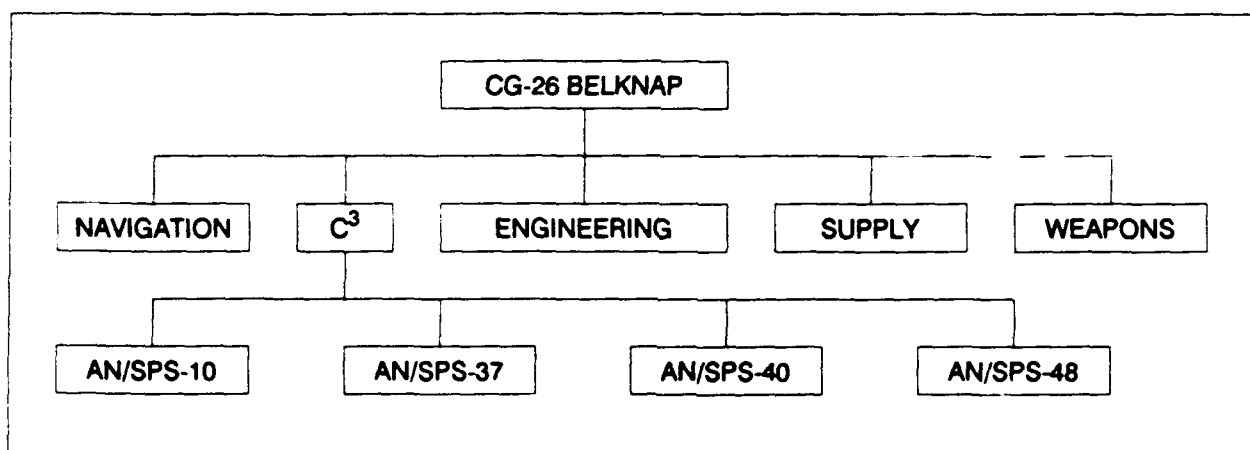


Figure 3-3. A ship as an example of a system.

2. Compare the OCCSTDs for your rating with existing PPP tables and identify which PPP tables need to be revised or developed.

Obtain a list of existing PPP tables from the Document Guide (see p. 2-1). You should also review existing Warfare Area Continuum Training Plans (CTPs) for references to other PPP tables. These existing PPP tables may be obtained from the technical librarian. Review the existing PPP tables and determine if they cover the tasks addressed in the OCCSTDs. If the existing PPP tables cover the tasks described in the OCCSTDs, you won't have to develop a new table. Because the OCCSTDs have been revised, you may find that some of the existing PPPs need to be revised to reflect the changes. If you are not certain that the OCCSTDs are covered by the existing PPP tables, you will need to develop some new tables.

3. Consider performance discrepancies and identify PPP tables that need to be developed.

There may be tasks or equipment that have not been covered by the OCCSTDs or existing PPP tables. To identify additional tasks, consider performance discrepancies. A discrepancy is an existing problem or difference between what is actually being done and what should be done. A discrepancy exists, for instance, when a new weapon system and/or associated equipment is introduced into the fleet. PPP tables must be developed to overcome the lack of knowledge and skills required to operate the new system. Other types of discrepancies occur when specific requirements are generated by higher authority, when changes are made to the OCCSTDs, or when equipment becomes obsolete. If you can think of any training discrepancies, you will need to develop new PPP tables to cover the knowledge and skills associated with the discrepancy.

4. Review relevant documents to ensure that your list is complete.

Review the documents listed in the Document Guide (see p. 2-1) to ensure that your PPP list is complete. Pay attention to Personnel Qualification Standards (PQSs) and NEC producing courses. Often the skills and knowledge can be taken directly from the PQS and put into a task/function PPP table.

5. List the PPP tables in the proper format.

The PPP table listing identifies the new tables to be developed and revised or used during this workshop. This list will help you organize the tasks and subtasks and help track development of all tables. This list will change, as you find it necessary to delete some tables and add others.

List all the system PPP tables first, followed by all the subsystem tables and then the equipment tables. Task/function tables are listed next, and background tables are always listed last. Group functionally related equipment together as much as possible. If you are listing a new table, assign a temporary number such as XXX1, XXX2, etc. A permanent number will be assigned later. Combine all PPP table titles into one list using the format shown in Figure 3-4.

<u>PPP Table Listing</u> (Your Rating)		
<u>Table Number</u>	<u>Table Title</u>	<u>Activity</u>
D1080	AN/WLR-1H(V)3 (Equipment)	NTTC Corry
S1399	AN/SLQ-17 Countermeasures Set (Equipment)	NETPMSA
B001	Shipboard 3-M Manager (Task/Function)	NETPMSA
B226	Electronic Warfare Intermediate (Task/Function)	COMTRAPAC
A109	Electronic Warfare in AAW (Background)	AAW
X002	Basic Electricity (Background)	NAVEDTRA
Z048	Electronic Warfare (Background)	NAVEDTRA
XXX1	Electronic Warfare Employment (Background)	

Figure 3-4. Format for list of PPP table titles.

Note in Figure 3-4 that:

- The type of table (e.g., system, subsystem, equipment, task/function, or background) is placed in parentheses following each table title.
- If any of the tables already exist, its existing table number is entered in the first column.
- If there is a new table, a temporary table number is entered in the first column (you will replace the number later).

Note: As you develop your PPP tables, the table listing may change, as some tables may be deleted and others added.

PERFORMANCE CHECKLIST

The entire group of SMEs should review the list of PPP tables. For each table listed, ensure that:

1. The list includes all system, subsystem, equipment, task/function, and background PPP tables.
2. The type of table (e.g., system, subsystem, equipment, task/function, or background) is included in parentheses after each table title.

3.2 DEVELOP HARDWARE PPP TABLES

OBJECTIVE

Given an assigned list of hardware PPP titles, develop hardware PPP tables.

INTRODUCTION

Now that you have identified the PPP tables that need to be revised and the new PPP tables that need to be developed, we will begin the actual development process starting with hardware PPP tables. As you may remember, hardware PPP tables include systems, subsystems, and equipment. System PPP tables are developed first, then the subsystem tables, and finally the equipment tables.

To develop PPP tables, you must determine the skills and knowledge associated with each task. First, determine the skill requirements and then the knowledge required to support these skills. This ensures that the thrust of training is always on performance, on being able to operate/maintain the hardware/software, or perform the task or function.

Definitions

A skill describes a physical or mental action that an individual must be able to perform to accomplish a task.

Knowledge describes the rules, concepts, symbology, and terms that an individual needs to know to perform a task, understand publications, etc. It includes knowledge about procedures and techniques needed to finish a task.

Figure 3-5 provides an overall map of the skill and knowledge statement development process to which you may refer while going through the required steps beginning on page 3-9.

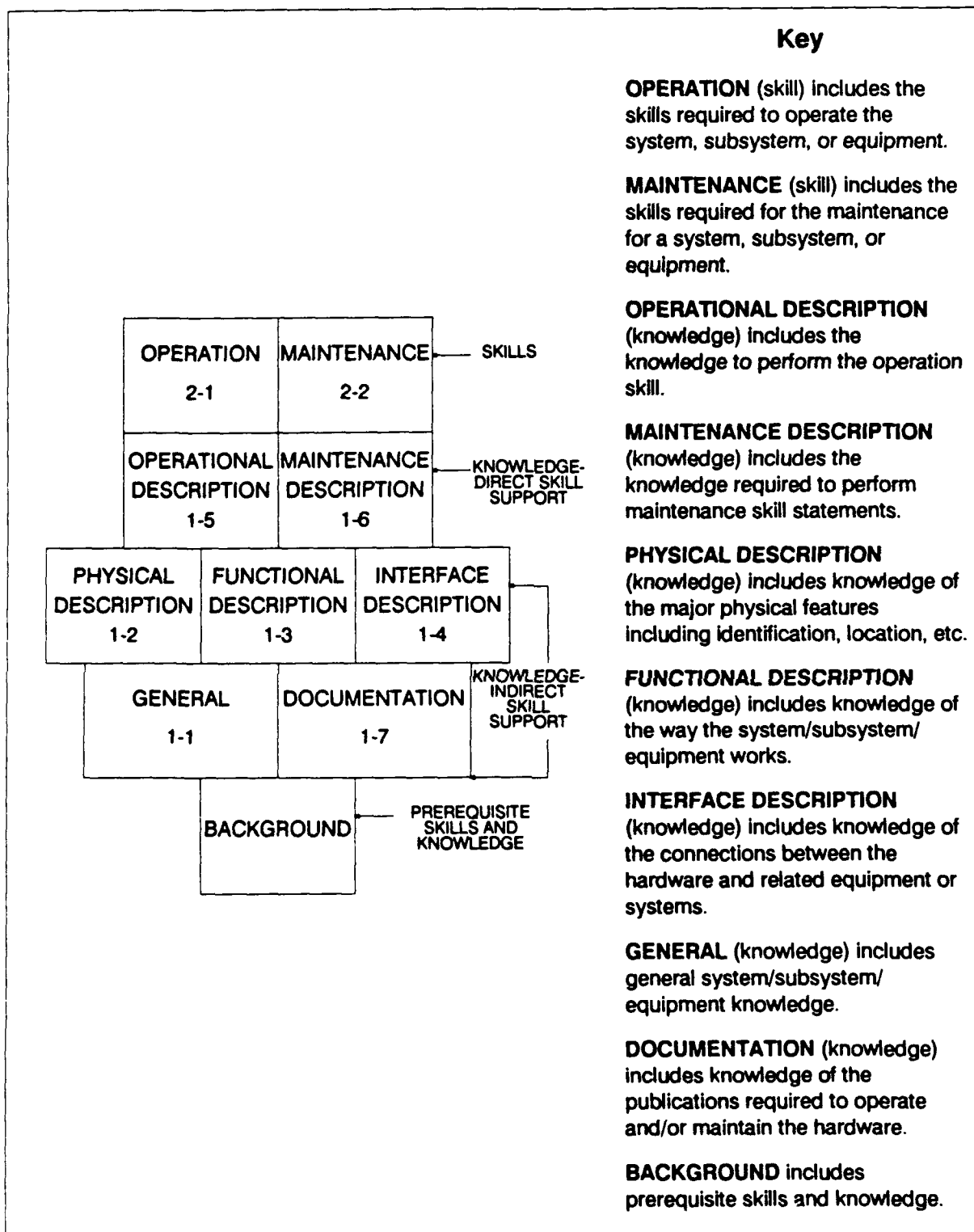


Figure 3-5. Sequence for developing hardware PPP tables.

In order to develop hardware PPP table statements, you need to:

1. Select operational skill model statements.
2. Revise and/or add statements using skill action verbs.
3. Select directly supporting knowledge model statements.
4. Revise and/or add statements using knowledge action verbs.
5. Repeat steps 1-4 for maintenance skill statements.
6. Select indirectly supporting knowledge model statements.
7. Revise and/or add indirectly supporting knowledge statements as necessary.
8. Save any prerequisite skills and knowledge for background PPP tables.
9. Put the knowledge statements before the skill statements.

DETAILED INSTRUCTIONS

Follow each of the steps to develop skill and knowledge statements for hardware PPP tables.

1. Select operational skill model statements.

Refer to the model statements in Appendix A. The model statements are general guidelines for the type of information needed in the PPP tables. You can follow the model statements line by line for systems, subsystems, or equipment PPP tables. The model statements describe content requirements and are used to ensure that no skill or knowledge is overlooked. Complete each model statement that is specific to your task. Begin with the operational requirements, go through the operational skill statements, and use them, if appropriate for the task you are working on. In Figure 3-5, you will notice that the operation skills are numbered 2-1, and the maintenance skills are numbered 2-2. Using the number assigned to each model statement sequences the statements correctly. Stop when you arrive at the maintenance skill statements.

2. Revise and/or add statements using skill action verbs.

If the model operational skill statements do not precisely describe the skills involved, revise them now. Delete portions of the model statements that do not apply to your rating. If you think of a task that did not appear in the model operational statements, now is the time to add it to the PPP table. Write a skill statement that exactly describes the actions the person will perform on the job. Appendix B lists action verbs appropriate for skill statements. These verbs describe actions that someone can observe. Use these verbs to develop your operational skill PPP statements. You may use other action verbs if they in fact describe observable actions.

3. Select directly supporting knowledge model statements.

Each skill statement must have at least one knowledge statement that directly supports it. Appendix C (pp. C-3 - C-5) contains model knowledge statements available for your use. The model knowledge statements can also be used as a format guide. Operational description knowledge statements (numbered 1-5) directly support the operational skill statements you developed earlier. The knowledge statements should describe what an individual needs to know to understand the operational skills. They must also indicate how that knowledge will be demonstrated. Examples of this would be understanding operation safety precautions, analysis of displays, alarms, printouts, etc. Complete each operational description model statement that is specific to your task. Stop after you have completed the operational description statements.

4. Revise and/or add statements using knowledge action verbs.

If the model knowledge statements do not precisely describe the knowledge involved, revise them now. Delete any portions of the model statements that do not apply to your rating. As with the skill statements you developed earlier, if you think of a task that does not appear in the model knowledge statements, develop the additional knowledge statements now. Refer to Appendix B for a list of action verbs for appropriate knowledge statements. These verbs describe actions someone can observe in a training or classroom environment. Use these verbs to develop your knowledge statements. You may use other verbs if they describe how someone would show that they know the material.

5. Repeat steps 1-4 for maintenance skill statements.

You have gone through the sequence to develop all the operational skill statements and their associated knowledge statements. Now you must determine if there are maintenance skills associated with this PPP table. Turn to Appendix A and repeat steps 1-4 using the maintenance skill model statements (numbered 2-2) and their associated maintenance description knowledge model statements (numbered 1-6).

6. Select indirectly supporting knowledge model statements.

Now that you have completed the skill statements and their directly supporting knowledge statements, the next step is to complete the indirectly supporting knowledge statements (e.g., physical description, functional description, interface description, general, and documentation). If you need to refresh your memory, refer to Figure 3-5 for the definitions associated with the indirectly supporting knowledge statements. To write indirectly supporting knowledge statements, refer to Appendix C (pp. C-3 - C-5) which contains model statements which you can use to assist you.

7. Revise and/or add indirectly supporting knowledge statements as necessary.

Again you need to determine which model statements are appropriate and which are not. You may need to revise them, as you did with the model skill and directly supporting knowledge statements. You may also need to develop additional statements. Remember to use the action verbs in Appendix B if you develop additional statements.

8. Save any prerequisite skills and knowledge for background PPP tables.

You may notice some skills and knowledge that do not fit the model statements. They are probably prerequisite skills and knowledge which will be used to develop background PPP tables later. Refer to Figure 3-5 to see where prerequisite skills and knowledge (background) items fit in the sequence. The cutoff level for prerequisite skills and knowledge must never be below the academic entry point defined for replacement training or the level normally expected of a high school graduate. Save these skill and knowledge statements for later use in developing background PPP tables.

9. Put the knowledge statements before the skill statements.

Although you developed the knowledge statements after the skill statements, knowledge statements are always listed first in a final PPP table. Since you followed the model statements when you developed the PPP tables, your numbering and sequence should be correct. The knowledge statements start with 1-__, and the skill statements start with 2-__. For an example of the numbering in a completed PPP hardware table, see Appendix D (pp. D-1 - D-8).

PERFORMANCE CHECKLIST

The entire group of SMEs should review each completed hardware PPP table.

Ensure that each statement:

1. Does not conflict with other statements.
2. Is written in general, rather than specific terms.
3. Reflects the minimum requirements necessary to operate and maintain the hardware.
4. Includes references to technical publications where applicable.
5. Uses an appropriate action verb.
6. Is arranged in a logical order.
7. Is numbered correctly.

3.3 DEVELOP TASK/FUNCTION PPP TABLES

OBJECTIVE

Given an assigned list of task/function PPP table titles, develop task/function PPP tables.

INTRODUCTION

After your group has completed all system, subsystem, and equipment PPP tables, you are ready to develop task/function PPP tables from the list of task/function PPP tables developed in section 3.1.

A task/function PPP table is developed for each task or function performed that is not unique to the operation and maintenance of a particular system, subsystem, or equipment. "Motorized Vehicles Driving Requirements" is an example of a task/function table (see pp. D-9 - D-16). There are no model statements for the task/function PPP tables because the tasks are different for each table. The definitions and placement of skill and knowledge statements are the same as for hardware PPP tables. Skill items are still developed before the knowledge items that support them.

In order to develop task/function PPP table statements, you need to:

1. Identify task categories.
2. Write skill statements.
3. Identify background skill statements.
4. Write knowledge statements.
5. Identify background knowledge statements.
6. Put the knowledge statements before the skill statements.

DETAILED INSTRUCTIONS

Follow each of the steps below to develop skill and knowledge statements for task/function PPP tables.

1. Identify task categories.

The task categories address major areas of the task/function PPP tables. In the "Motorized Vehicles Driving Requirements Task/ Function PPP Table" (shown on pp. D-4 through D-11), examples of task categories would be "Basic Driving" and "Emergency Driving." Notice that both basic driving and emergency driving tasks are identified by a two digit number, 1-1 and 1-2 when referring to knowledge and 2-1 and 2-2 when referring to skills.

2. Write skill statements.

Now that you have identified the tasks, you will need to break them down into skill statements. To help you do this, ask yourself: "What do I do when I perform (name the task)?" or "What steps are involved in performing (name the task)?" Answering these questions will remind you of the individual skills you perform when you are performing a particular task.

Now, incorporate the individual skills into skill statements. Remember to use the appropriate action verb (listed in Appendix B).

As you write skill statements, remember that PPP tables list the minimum requirements, as illustrated by the following example taken from the "Motorized Vehicles Driving Requirements Task/Function Table."

2-2-3. Perform braking/stopping maneuvers.

- a. wet pavement
- b. icy pavement
- c. sand
- d. gravel
- e. mud
- f. snow

The skill statements are minimized so that the PPP table will be broad enough to absorb changes, such as updating and still be useful.

3. Identify background skill statements.

Finally, go through your list of task/function statements to see if you have included any background skills. Recall that the background skills are skills that an individual must know before he/she can learn a specific task. Remove any statements that are prerequisites to the listed task and place them on a separate sheet of paper labeled "background skills." You will use these later when you write background PPP tables.

4. Write knowledge statements.

Use the same task categories that you developed in step 1, and break them down into knowledge statements. The knowledge statements support the skill statements you developed earlier. Knowledge statements describe what an individual needs to know to understand and perform each skill. They can be adapted from the corresponding skill statements already developed. Remember to use the knowledge action verbs listed in Appendix B. After you have written one or more knowledge statements for each skill statement, check to see that all possible knowledge statements are included. Make sure that at least one knowledge statement supports each skill statement.

5. Identify background knowledge statements.

Finally, identify any background knowledge needed to learn the task/function subject matter. Write them on a separate sheet of paper for background PPP tables.

6. Put the knowledge statements before the skill statements.

Although you developed the knowledge statements after the skill statements, list knowledge statements first in a final PPP table. As you remember from the hardware tables, task/function knowledge statements are listed first in all PPP tables.

PERFORMANCE CHECKLIST

The entire group of SMEs should review each completed hardware PPP table.

Ensure that each statement:

1. Does not conflict with other statements.
2. Is written in general, rather than specific terms.
3. Reflects the minimum requirements necessary to perform a task or function.
4. Includes references to technical publications where applicable.
5. Uses an appropriate action verb.
6. Is arranged in a logical order.
7. Is numbered correctly.

3.4 DEVELOP BACKGROUND PPP TABLES

OBJECTIVE

Given the PPP table listing and background statements, develop background PPP tables.

INTRODUCTION

After your group has completed all system, subsystem, and equipment task/function PPP tables, you are ready to develop background PPP tables. In this section, you will develop the skill and knowledge statements that make up a background PPP table. When you have completed this section, you will have developed all of the PPP tables.

A background PPP table lists the skills and knowledge that are prerequisites to learning a specific task, and are not directly related to any specific equipment.

Prerequisite skills and knowledge for a background table must be equal to or above:

1. The academic entry point for replacement training.

or

2. The level normally expected of a high school graduate.

For example, the skill level required for computing the Closest Point of Approach (CPA) is beyond the academic entry point for replacement training. A high school graduate is not expected to know how to compute it. Such a skill statement can be placed on a background PPP table.

However, a high school graduate is expected to be able to use a hand calculator to multiply two numbers. Therefore, it should not be listed on a background PPP table.

In order to develop a background PPP table, you need to:

1. Obtain all related background skill and knowledge statements.
2. Write background skill statements.
3. Write background knowledge statements.
4. Put the knowledge statements before the skill statements.

DETAILED INSTRUCTIONS

1. Obtain all related background skill and knowledge statements.

When you first listed all of the PPP tables that would need to be developed or revised, some were probably in the category of background. As you developed hardware and task/function PPP tables, you were asked to set aside background skills and knowledge. Now, you will use them.

Gather all the skills and knowledge that you have determined to be background information. Then, check the PPP table listing for background tables and decide into which tables these background skills and knowledge statements fit. If a particular skill or knowledge, or groups of skill and knowledge do not fit in an existing table, it will be necessary to create a new background table.

2. Write background skill statements.

Background skills are required before an individual can perform tasks described in other PPP tables. They relate to a single subject area. An example might be using tools. You might need to be able to use a certain tool before you can perform some procedure. These background skill statements cover observable tasks as well as administration and management functions. Use the skill action verbs listed in Appendix B when writing background skill statements.

3. Write background knowledge statements.

Knowledge statements for background tables are required to understand or recognize principles, rules, concepts, symbols, and terms. They also support the performance of background skill items. Use the knowledge action verbs listed in Appendix B.

4. Put the knowledge statements before the skill statements.

Although the knowledge statements were developed after the skill statements, list the knowledge statements first in a final PPP table. Arrange the knowledge statements in a logical order from general to more specific. Then, number the knowledge statements starting with 1-__, and the skill statements starting with 2-__.

PERFORMANCE CHECKLIST

The entire group of SMEs should review each completed background PPP table.

Be sure that each statement:

1. Does not conflict with other statements.
2. Is written in general, rather than specific terms.
3. Reflects the minimum prerequisites necessary to learn to operate and maintain hardware or perform a task or function.
4. Addresses prerequisite skills at or above the academic entry point for replacement training or the level normally expected of a high school graduate.
5. Uses an appropriate action verb.
6. Is arranged in a logical order.
7. Is numbered correctly.

CHAPTER 4

TRAINING PATH SYSTEM (TPS) DEVELOPMENT

In the last chapter, you assembled all the Personnel Performance Profile (PPP) tables that applied to your rating. In this chapter, you will use these PPP tables to construct a Training Path System (TPS) which is the core of the Continuum Training Plan (CTP) for your rating (see Figure 4-1).

A TPS shows where and when in the training pipeline to teach the skills and knowledge in the PPP tables to apprentice, journeyman, and master level personnel. Determining when, where, and at which level each skill and knowledge will be taught requires careful consideration.

You will develop the core elements of a TPS in this chapter, including:

Training Level Assignments (TLAs) assign specific PPP items to specific levels and types of training for apprentice, journeyman, and master level personnel.

Table Assignment Charts (TACs) show which PPP tables need to be covered in each schoolhouse and on board training course.

Career Path Chart (CPC) illustrates the rating training pipeline, by level.

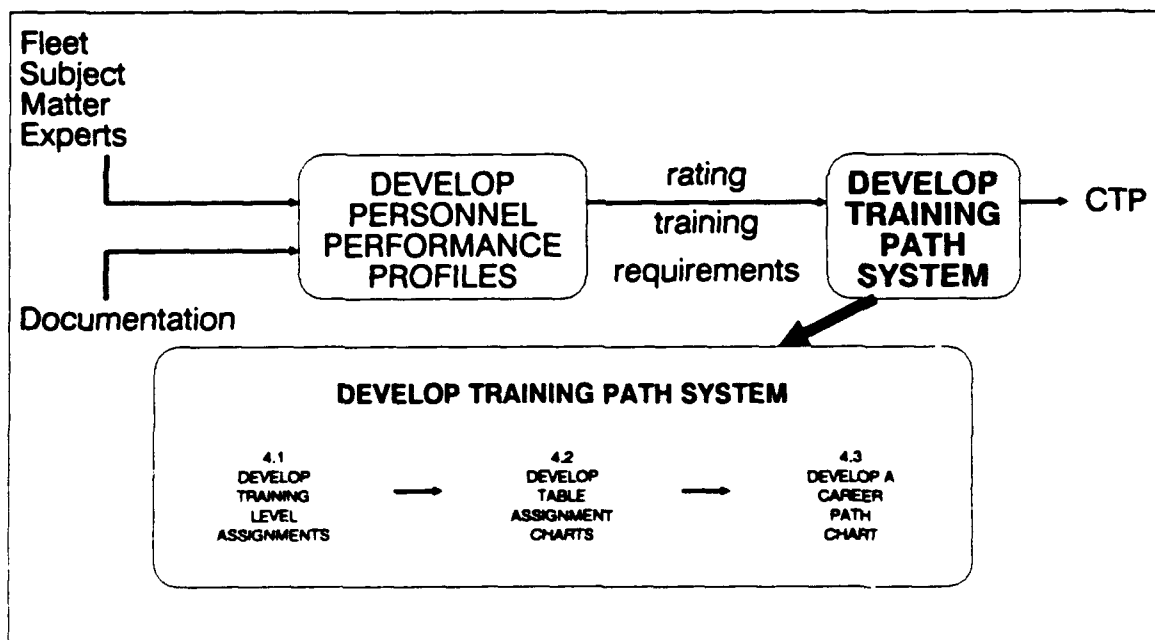


Figure 4-1. Training Path System (TPS) development.

4.1 DEVELOP TRAINING LEVEL ASSIGNMENTS (TLAs)

OBJECTIVE

Given the PPP table listing, PPP tables, existing course curriculum, and Course Identification Numbers (CINs), develop TLAs for the rating.

INTRODUCTION

TLAs establish levels of training and indicate where and when training should occur in an individual's career. Curriculum developers will use the TLAs to ensure each PPP skill and knowledge statement (line item) is included in their schools.

Figure 4-2 shows part of a TLA for one PPP table. At least one TLA will be developed for each PPP Table. Appendix E shows a completed TLA corresponding to the PPP Table B398 for a CT apprentice.

Table B398			
Item Number	T0 Level		
	B1	B2	S
1-1-1	A59		
1-1-2	A59		
1-1-3	A59		
1-1-4		A59/O01	
-1-		A59	

Figure 4-2. Example of a Training Level Assignment (TLA).

A TLA consists of the level of personnel, PPP table number, Training Objective Statements (TOSs) codes, PPP line item numbers, TLA codes, and course codes. In this section you will develop all the components of the TLA for your rating.

In order to develop Training Level Assignments (TLAs), you need to:

1. Review the defined levels of personnel (apprentice, journeyman, and master).
2. Assign identification codes to all formal courses.
3. Review Training Objective Statements (TOSs) and their codes.
4. Enter the TLA heading and the PPP table number.
5. Start at the top of the PPP table and decide to which level of personnel each line item applies.
6. Determine the Training Objective Statement (TOS) and Training Level Assignment (TLA) codes for each line item.
7. Enter course codes in the appropriate column.

DETAILED INSTRUCTIONS

Follow each of the steps to develop a TLA for each PPP table and level of personnel.

1. Review the defined levels of personnel (apprentice, journeyman, and master).

First, review the definition of an apprentice, journeyman, and master in your rating. Appendix F contains the definitions for apprentice, journeyman, and master levels developed by the EW Executive Committee (EXCOM).

2. Assign identification codes to all formal courses.

List each formal (schoolhouse) course available to your rating. For convenience, assign a two-digit numerical code to each current course. List each course with its CIN and the two-digit code you assigned to it, as shown in Figure 4-3.

Course Identification Code List		
<u>Course</u>	<u>Course Identification Number (CIN)</u>	<u>Code</u>
AN/SLQ-32 (V) Operations Course	A-102-0210	01
Security for EW Operations Course	A-102-0209	02
Enlisted Tactical Applications Course	J-221-0025	03

Figure 4-3. Example of a course identification code list.

3. Review Training Objective Statements (TOSs) and their codes.

The next step in developing a TLA is to review and become familiar with the model Training Objective Statements (TOSs). The TOSs describe, in general terms, what students will be able to do when they complete training. The TOSs consist of nine statements that define the level and depth of training for all hardware PPP tables for the rating and one statement with three substatements for task/ function and background tables.

The TOS identification code consists of a letter and a number. The letter indicates the general knowledge and skill category. The number indicates the level of skill and knowledge. Task/function and background PPP tables use the following TOS codes:

T0 - Prerequisite knowledge and skills

B1 - Basic knowledge

B2 - Basic comprehension

S - Basic skills

Hardware PPP tables use the following TOS codes:

F1 - Familiarization theory

T1 - Normal operational task knowledge

T2 - Preventive maintenance knowledge

T3 - Corrective maintenance knowledge

O1 - Normal operational skills

O2 - Advanced operational skills

P1 - Preventive maintenance skills

C1 - Basic corrective maintenance skills

C2 - Advanced corrective maintenance skills

Note: The previous statements are abbreviations of the model TOSs contained in Appendix G.
--

The higher numbers indicate a greater depth of training. For example, T2 indicates a greater depth of knowledge than T1. Figure 4-4 shows the interrelationship between knowledge and skill TOSs. Each skill statement describes an operation or maintenance skill and is directly supported by a knowledge statement. For example, in supporting O1, T1 will provide the depth of knowledge required to support performance of normal operational tasks.

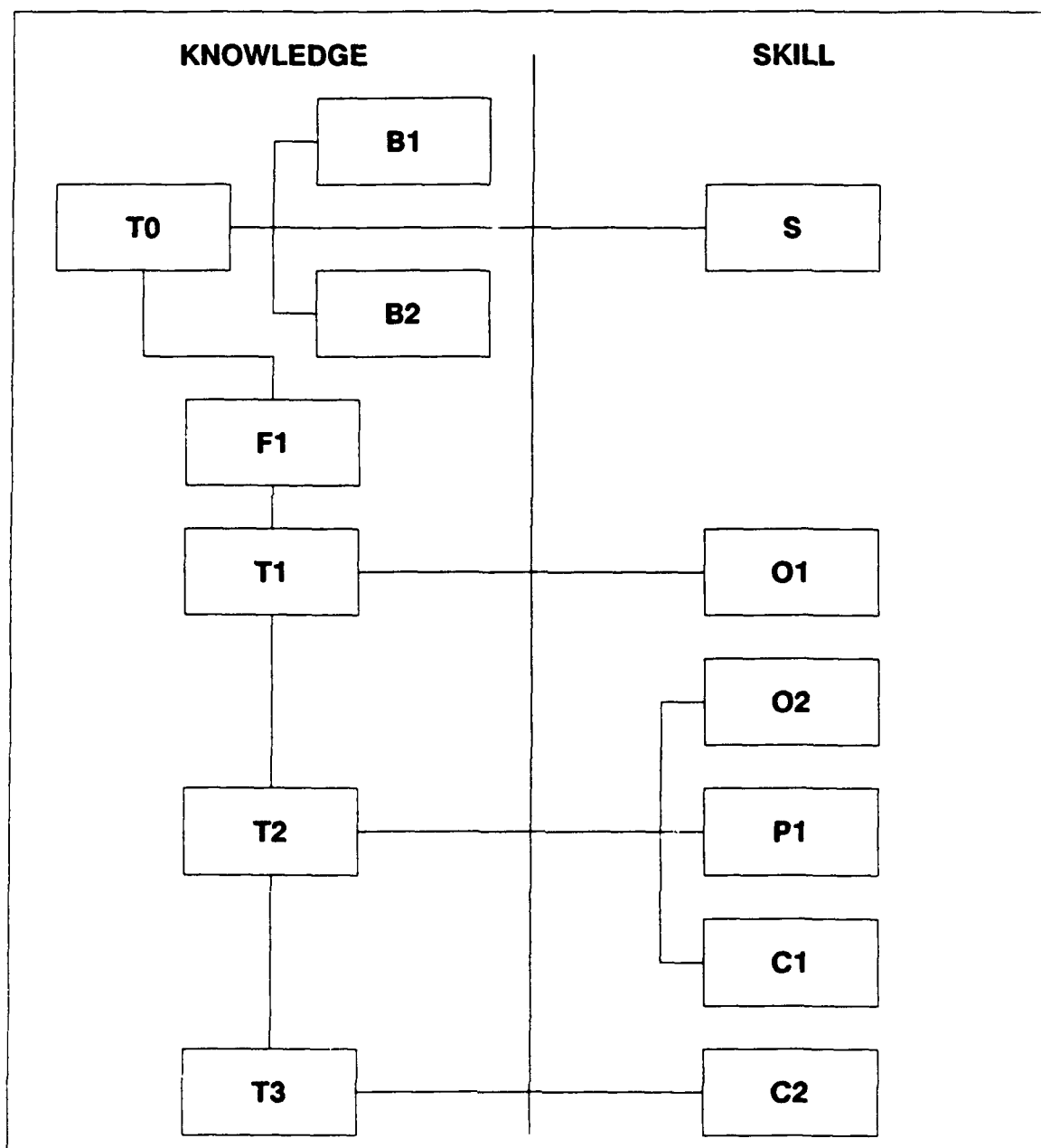


Figure 4-4. Relationship between knowledge and skill TOSs.

4. Enter the TLA heading and the PPP table number.

Two TLA forms are available for your use: one contains the TOS codes appropriate for hardware PPP tables (F1, T1, T2, T3, O1, O2, P1, C1, C2); the other contains TOS codes appropriate for task/function and background PPP tables (TO divided into B1, B2, and 3). Use the two forms so that the final product is in the format required by MIL-STD-1379(D).

Select the TLA form appropriate for the type of PPP table you are working with. At the top of the form, enter the rating, training level, and NEC (if applicable). Next to the word TABLE, enter the number of the PPP table you are using. Appendix E contains examples of a completed TLA.

Note: You will need three blank TLA forms for each PPP table to cover each level of personnel (apprentice, journeyman, and master).

5. Start at the top of the PPP table and decide to which level of personnel each line item applies.

Spread the three blank TLA forms and the PPP table in front of you. Enter all line item numbers from the PPP table in the far left column in each of the TLAs. Read each line item on the PPP table and determine which level of personnel it applies to. The line items may fit one or more levels. For example, skills that need to be updated may be required at both the journeyman and master levels.

6. Determine the Training Objective Statement (TOS) and Training Level Assignment (TLA) codes for each item.

The columns across the top of each TLA contain the TOS codes you reviewed in step 3 (the TOS codes indicate the level and depth of training). For each PPP line item, determine the appropriate TOS code.

You may, in fact, decide that a line item has more than one appropriate TOS code. (For example, a school may introduce or define a term at the "B1" level and then, at the "B2" level cover its supporting theory, its use, etc.). As you determine which TOS code fits each PPP line item, identify where training should take place by entering one or more of the following TLA codes in the appropriate TOS column.

B - Background training course. Provides basic technical knowledge and skill required for higher learning.

- R - Replacement/conversion training course.** Replacement training is formal training that provides the minimum required operational and/or maintenance qualifications on assigned hardware to prepare trainees for their first assignment. Conversion training is formal training provided to previously trained personnel to operate and/or maintain updated or modified hardware, or to perform newly introduced tasks.
- A - Advanced training course.** Formal training provided after replacement/conversion training.
- O - On Board Training (OBT).** Formal or informal training provided to shipboard personnel.

Note: If more than one TLA code fits a line item, separate the codes with a slash (/) to indicate training is available in more than one way.

7. Enter the course code in the appropriate column.

For each line item, determine the course in which the training will occur. Get the course codes from the course list you developed in step 2. Check the course description and the course objectives for each of these courses. Be sure the course is relevant to the line item and the level of personnel you are working with. Enter the course code beside the TLA code you assigned in step 6.

If you find a line item that does not fit into a course, ask the deputy workshop coordinator whether to list it with an existing course or leave it without a TLA code.

PERFORMANCE CHECKLIST

Review the completed TLAs as a group and be sure that:

1. Each line item is addressed at least at one level of personnel (apprentice, journeyman, or master).
2. Correct numbers are assigned.
 - a. Knowledge line items (1-) contain only the following codes: B, T, or F.
 - b. Skill line items (2-) contain only the following codes: S, O, P, or C.

4.2 DEVELOP TABLE ASSIGNMENT CHARTS (TACs)

OBJECTIVE

Given Training Level Assignments (TLAs) and PPP tables, develop Table Assignment Charts (TACs) for your rating.

INTRODUCTION

A TAC is a graphic presentation of the training path for a rating. A TAC lists the courses with their Course Identification Numbers (CINs) in the sequence in which they should be taught and the PPP table numbers and training objective statement (TOS) codes applicable to these courses. The TAC is organized into four training levels:

Background training - Provides basic technical skills and knowledge required for higher learning.

Replacement/conversion training - Replacement training is formal training that provides the minimum required operational and/or maintenance qualifications on assigned hardware to prepare trainees for their first assignment.

Conversion training is formal training provided to previously trained personnel to operate and/or maintain updated or modified hardware, or perform newly introduced tasks.

Advanced training - Formal training provided after replacement/conversion training.

On Board Training (OBT) - Formal or informal training provided to shipboard personnel.

Appendix H contains an example of Table Assignment Chart (TAC) development.

Note: The completed TLA contains all the information needed to complete the TAC.

To develop a Table Assignment Chart (TAC), you need to:

1. Arrange courses in TAC columns.
2. Insert the appropriate PPP table numbers below each course.
3. Group any remaining PPP tables into course blocks.

DETAILED INSTRUCTIONS

Follow each of the steps to develop a Table Assignment Chart (TAC) for the areas of skill and knowledge required by personnel.

1. Arrange courses in TAC columns.

Place each course of instruction or on board training segment in the column which describes the correct training level. You determined this information in section 4.1 and listed it on your completed TLA (B, R, A, O). Use a separate TAC worksheet for each level of personnel (apprentice, journeyman, master). In each column, enter the CINs above the course names in the sequence in which they should be taught. List prerequisite courses first. Leave space between the courses to enter PPP table numbers and TOS codes. (You may want to enter course names on sticker notes so that you will have room later to add the PPP table numbers.)

2. Insert the appropriate PPP table numbers below each course.

You established the levels of the courses in step 2 in Section 4.1, now list the applicable PPP table numbers below the appropriate course in each training column. Check the contents of each PPP table so that you list it below the proper course(s). Then, insert the applicable TOS codes next to the corresponding PPP table number. In order to group the information, draw a box around the PPP table number(s), and TOS code(s).

3. Group any remaining PPP tables into course blocks.

Check the PPP table numbers on the TAC against the PPP table listing to be sure the TAC includes all PPP table numbers. Insert any missing numbers in the appropriate places on the TAC. Group any PPP tables that have not been assigned to a course. Draw a box around them. Write a possible course title in brackets above the box.

Check the order of the blocks within a column. Be sure they are listed in the sequence in which they should be taught. If they are not in the proper sequence, resequence them now. Remember that a course which is a prerequisite to another course must be listed before that course. List courses which are not prerequisites side by side. List replacement courses before conversion courses within each column.

PERFORMANCE CHECKLIST

Review the TACs as a group and be sure that:

1. Course names with their CINs are entered in the appropriate columns.
2. Courses are listed in the sequence in which they should be taught, with prerequisite courses listed first.
3. All PPP table numbers are entered in the appropriate TAC column(s) below relevant courses.
4. The appropriate TOS code(s) is/are entered next to each PPP table number.

4.3 DEVELOP A CAREER PATH CHART (CPC)

OBJECTIVE

Given the Training Level Assignments (TLAs) and Table Assignment Charts (TACs), prepare a Career Path Chart (CPC) for your rating.

INTRODUCTION

The CPC summarizes the training pipeline for the rating. In one glance, someone can see what training should occur at a particular point in a person's career. A sample CPC, developed during the OS training continuum workshop, is included as Appendix I.

To develop a Career Path Chart (CPC), you need to:

1. Determine operational tours and sea/shore rotations.
2. Build a list of all courses listed in the TACs for each level of personnel.
3. Identify which courses are best taught during and between each tour.
4. Draw the CPC.

DETAILED INSTRUCTIONS

Follow each of the steps to develop a Career Path Chart (CPC).

1. Determine operational tours and sea/shore rotations.

Careers have common operational events. Typically, apprentices attend "A" school, perhaps attend some specialized school, and then go to their first operational tour. Upon completion of the tour, they may attend another school to transition from apprentice to journeyman. Identify the major tours and rotations that typically occur in your rating throughout a 20-year career.

2. Build a list of all courses listed in the TACs for each level of personnel.

Use the TACs you developed in section 4.2 to list which courses are covered at the apprentice level. Make a similar list of courses for both the journeyman and master levels.

3. Identify which courses are best taught during and between each tour.

Treat each course as a building block. Identify the courses that need to be taken before personnel can successfully complete more advanced courses. Looking at the curriculum will help you get an idea of the course prerequisite requirements. Then, consider situations such as these:

- Does everyone need to attend "A" school?
- What specialized schools do you recommend apprentices attend before their initial sea tour?
- What training do you recommend apprentices receive during their first operational tour?
- What courses do you recommend apprentices complete between their first and second operational tour?
- Is a formal course mandatory for someone transitioning from apprentice to journeyman?

4. Draw the CPC.

Finally, divide a sheet of paper onto three sections; one for apprentice, journeyman, and master levels. Draw blocks representing the major sea and shore rotations. List courses within and between these blocks, as appropriate. Connect these courses with lines and arrows to illustrate the training pipeline.

Remember that the CPC must distinguish between OPTIONAL and MANDATORY (TEM DU/OBT/PCS enroute) schooling assignments. Distinctive course blocks are drawn for each category.

PERFORMANCE CHECKLIST

Review the CPC as a group and be sure that:

1. The CPC agrees with the TLAs.
2. Courses appear at the appropriate level and time in the training pipeline.
3. Both OPTIONAL and MANDATORY schooling assignments are distinguished.

APPENDIX A
MODEL PPP SKILL STATEMENTS

2. EQUIPMENT, SUBSYSTEM, OR SYSTEM SKILLS

2-1. OPERATION

No operation involved. (Inserted when the equipment, subsystem, or system requires no operator action.)

OR

2-1-1. Perform tasks for operation of the _____ including:

a. Preoperational procedures

(1) Routine

(2) Installation

(3) Assembly

b. Operational procedures

c. Postoperational procedures

2-1-2. Perform appropriate operator actions in the proper sequence on the _____ in response to all indications occurring during the performance of the operating procedures.

2-1-3. Perform tasks in the casualty, degraded, abnormal, and not-full-mission-capable modes of operation for the _____.

2-1-4. Perform data logging requirements for the _____.

2-1-5. Perform acceptance tests for the _____.

2-1-6. Utilize personnel and equipment safety precautions during operation of the _____.

2-2. MAINTENANCE

2-2-1. Use special tools and test equipment required for maintenance of the _____ as prescribed in applicable documentation, to include:

2-2-2. Perform preventive maintenance procedures, including quality assurance procedures, on the _____ as scheduled by the Preventive Maintenance Management Program (PMMP), Planned Maintenance System (PMS), and Naval Aviation Maintenance Program (NAMP).

2-2-3. Perform alignment, adjustment, and calibration procedures on the _____.

- 2-2-4. Perform the operational tests and diagnostic programs, as applicable, for maintenance of the _____.
- 2-2-5. Perform systematic fault isolation procedures contained in prescribed maintenance documentation.
- 2-2-6. Use authorized methods to isolate faults which cannot be located using procedures contained in prescribed maintenance documentation.
- 2-2-7. Disassemble, repair, and reassemble the _____ to the authorized maintenance level. (Not applicable to the subsystem and system PPP model statements.)
- 2-2-8. Perform post-repair procedures, including quality assurance procedures, on the _____.
- 2-2-9. Utilize personnel and equipment safety precautions when performing maintenance procedures on the _____.

APPENDIX B
SAMPLE ACTION VERBS

Skill

accomplish
adjust
align
apply
assemble
balance
blend
build
calibrate
change
check
clean
complete
construct
correct
deenergize
demonstrate

employ
energize
enter
exchange
fabricate
find
inject
insert
inspect
install
isolate
load
locate
manipulate
measure
mix
move
operate

perform
plot
polish
position
remove
repair
replace
show
solder
start
stop
synchronize
test
tie
trace
troubleshoot
use
utilize

Knowledge

achieve
administer
analyze
calculate
choose
coordinate
communicate
compare
compute
condense
decide
define
deliver
derive
describe
determine
diagnose

differentiate
distinguish
divide
draw
eliminate
evaluate
explain
express
fill out
identify
illustrate
instruct
interpret
list
manage
match
monitor

name
observe
recite
recognize
repeat
report
select
solve
spell
state
submit
summarize
synthesize
tell
translate
write

APPENDIX C
MODEL PPP KNOWLEDGE STATEMENTS

1. EQUIPMENT, SUBSYSTEM, OR SYSTEM KNOWLEDGE

1-5. OPERATIONAL DESCRIPTION

No operation involved. (Inserted when the equipment, subsystem, or system requires no operator action.)

OR

1-5-1. Describe the authority and regulations pertaining to the operation of the _____ and any external equipment that interfaces with it.

1-5-2. Describe operational tasks to perform on the _____.

a. Preoperational procedures

(1) Routine (GO/NO-GO, Self tests, etc.)

(2) Installation

(3) Assembly

b. Operational procedures

c. Postoperational procedures

1-5-3. Describe indications which should or may occur during operation of the _____ including alarms, indicators, displays, read-outs, and printouts/typeouts.

1-5-4. Describe casualty, degraded, abnormal, and not-full-mission-capable modes of operation of the _____.

1-5-5. Describe interpretation, function, use, and format of tapes punched under computer control of the _____.

1-5-6. Describe the data logging requirements for the _____ including logging method, type of data logged, and disposition.

1-5-7. Describe all acceptance tests for the _____.

1-5-8. Describe personnel and equipment safety precautions which are to be observed during operation of the _____.

1-6. MAINTENANCE DESCRIPTION

1-6-1. Define the maintenance policy for the _____ including:

a. Preventive maintenance - the requirement for periodic performance of tasks to minimize equipment malfunctions

- (1) Servicing - scheduled or unscheduled inspections, cleaning, fueling, lubrication, corrosion control, and any other function in support of maintaining any equipment full-mission-capable
 - (2) Operational checks (confidence or self-tests)
 - (a) Premaintenance procedures
 - (b) Performance checks
 - (c) Degradation/deterioration checks
 - (d) Quality assurance checks
 - (3) Progressive maintenance - periodic refurbishment of components or assemblies in order to maintain levels of performance or reliability
- b. Corrective maintenance - checks and procedures used to locate and correct malfunctions
- (1) Authorized repair responsibility - correction of malfunctions to the authorized maintenance level
 - (2) Fault isolation - location of faults to the level of available spares and authorized repair level
 - (a) Equipment operational checks and tests
 - (b) Fault isolation tests and procedures
 - (3) Analytical procedures - isolation of faults using authorized methods not contained in prescribed maintenance documentation
 - (4) Postmaintenance procedures - procedures performed after repair including quality assurance checks
- 1-6-2. Describe the use of special tools and test equipment required for maintenance of the _____ as prescribed in applicable maintenance documentation.
- 1-6-3. Describe preventive maintenance procedures for the _____ including recognition and interpretation of all indications, records, reports, and instructions.
- 1-6-4. Describe alignment, adjustment, and calibration procedures for the _____.
- 1-6-5. Describe the operational tests and diagnostic programs for maintenance of the _____ including the test names, uses, and procedures.

- 1-6-6. Describe the recognition and interpretation of all malfunction indications for the _____.
- 1-6-7. Describe the systematic fault isolation procedures contained in prescribed maintenance documentation for the _____.
- 1-6-8. Describe authorized methods to isolate faults which cannot be located using procedures contained in prescribed documentation.
- 1-6-9. Describe the procedures to disassemble, repair, and reassemble the _____ to the authorized maintenance level. (Not applicable to the subsystem and system knowledge statements.)
- 1-6-10. Describe the postrepair procedures for the _____.
- 1-6-11. Describe the personnel and equipment safety precautions which are to be observed when performing maintenance on the _____.

1-1. GENERAL

- 1-1-1. State the function(s) of the _____.
- 1-1-2. List the major functional areas (for equipment, use "major functional areas"; for subsystem, use "equipment"; for system, use "subsystem") of the _____ including the function of each.
- 1-1-3. Define the abbreviations, terms, and symbols used with the _____.
- 1-1-4. State the operational characteristics and capabilities of the _____ including power, logic levels, capacity, emergency, tolerances, and accuracies.
- 1-1-5. Describe the differences between models of the _____.
- 1-1-6. State the security requirements for the _____.

1-2. PHYSICAL DESCRIPTION

- 1-2-1. Describe all major and associated components (for equipment, use "major components, subassemblies, and functional areas"; for subsystem, use "equipment"; for system, use "subsystem") of the _____ including name, nomenclature, physical appearance, reference designators, location, and construction features.

- 1-2-2. Describe the displays, controls, and indicators directly associated with the _____ including name, reference designators, positions, colors, and location.

1-3. FUNCTIONAL DESCRIPTION

- 1-3-1. Describe how the _____ and its components (for equipment, use "major components, subassemblies, and functional areas"; for subsystem, use "equipment"; for system, use "subsystem") work (functional operation) including methods of control, sequential operation, and indications.
- 1-3-2. Describe how the _____ works (functional operation) including (as applicable): types of signals, signal flow, sequential operation, coding, indication, frequencies, modes, inputs and outputs, signal exchange, signal generation, timing relationship of signals, sequence of events, logic elements, circuits and registers involved, integration of circuits or elements to perform loop functions, signal/data format, power supplies, and protective devices.
- 1-3-3. Describe how loops within the _____ work (functional operation) including (as applicable): method of control, signal flow, sequential operation, indications, types of signals, coding, frequencies, modes, inputs and outputs, signal exchange, signal generation, timing relationship of signals, sequence of events, phase-lock loops, logic elements, circuits and registers involved, integration of circuits or elements to perform loop functions, signal/data format, power supplies, and protective devices.
- 1-3-4. Describe the functions of each control and indicator in each position, condition, and color.
- 1-3-5. Describe each program, subprogram, routine, command, instruction, code, option, etc. used with the _____ including name, program number, and assumptions and constraints imposed.

1-4. INTERFACE DESCRIPTION

- 1-4-1. Describe the physical interface between the _____ and related external (system/subsystem/equipment) including name, physical appearance, reference designators, and locations.
- 1-4-2. Describe functional interface between the _____ and related external (system/subsystem/equipment):

- a. Electrical (power sources)
- b. Electronic (input, output, and control signals)
- c. Pneumatic (gases of any type; e.g., nitrogen, freon, air, helium, etc.)
- d. Hydraulic (liquids of any type; e.g., water, hydraulic oil, lube oil, etc.)
- e. Mechanical
 - (1) Structural or hull
 - (2) Shafts, gears, springs, etc.

1-7. DOCUMENTATION

- 1-7-1. Describe the organization, content, and use of all technical documentation provided for use with the _____, to include:**
(List equipment, subsystem, or system level documentation as appropriate.)

APPENDIX D

SAMPLE PERSONNEL PERFORMANCE PROFILE (PPP) TABLES

**PERSONNEL PERFORMANCE PROFILE
FOR
COMMAND-CONTROL COMMUNICATIONS**

**TABLE S1399
AN/SLQ-17 COUNTERMEASURES SET
8 FEBRUARY 1988**

EQUIPMENT MODIFICATION RECORD

None

NEW DESIGN - DRAWING NUMBER

None

S1399-1/S1399-2

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment)

ITEM NO.	KNOWLEDGE/SKILL
1.	<u>EQUIPMENT KNOWLEDGE</u>
1-1.	GENERAL
1-1-1.	State the functions of the AN/SLQ-17.
1-1-2.	State that the AN/SLQ-17 consists of the following major functional areas. Include the function of each. a. Low Power Amplifier (LPA) b. Antenna c. Antenna Control Unit d. High Power Amplifier (HPA) e. Video Data Processor f. Control and Display Group g. Heat Exchanger h. System Interconnection
1-1-3.	Define the abbreviations, terms, and symbols used with the AN/SLQ-17.
1-1-4.	State the operational characteristics and capabilities of the AN/SLQ-17. a. System specifications
1-1-5.	State the security requirements for the AN/SLQ-17.
1-2.	PHYSICAL DESCRIPTION
1-2-1.	Describe all major and associated components of the AN/SLQ-17. Include name, nomenclature, physical appearance, reference designators, and location. a. Low Power Amplifier (LPA) b. Antenna c. Antenna Control Unit d. High Power Amplifier (HPA) e. Video Data Processor

S1399-3

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
	f. Control and Display Group g. Heat Exchanger h. System Interconnection
1-2-2.	Describe the displays, controls, and indicators, directly associated with the AN/SLQ-17. Include name and location.
1-3.	FUNCTIONAL DESCRIPTION
1-3-1.	Describe how the AN/SLQ-17 works. Include methods of control, sequential operation, and indications. a. Low Power Amplifier (LPA) b. Antenna c. Antenna Control Unit d. High Power Amplifier (HPA) e. Video Data Processor f. Control and Display Group g. Heat Exchanger h. System Interconnection
1-3-2.	Describe how loops within the AN/SLQ-17 work. Include: method of operation, signal flow, sequential operation, indications, types of signals, coding, frequencies, modes, inputs and outputs, signal exchange, signal generation, timing relationship of signals, sequence of events, phase-lock loops, logic elements, circuits and registers involved, integration of circuits or elements to perform loop functions, signal/data format, power supplies, and protective devices.
1-3-3.	Describe the functions of each control and indicator in each position and condition.
1-3-4.	Describe each program, subprogram, routine, command, instruction, code, option, etc. used with the AN/SLQ-17. Include name, program number, and assumptions and constraints imposed.

S1399-4

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-4.	INTERFACE DESCRIPTION
1-4-1.	Describe the physical interface between the AN/SLQ-17 and related external equipment. Include name and location.
1-4-2.	Describe functional interface between the AN/SLQ-17 and related external equipment. a. Electrical b. Electronic
1-5.	OPERATIONAL DESCRIPTION
1-5-1.	Describe the authority and regulations pertaining to the operation of the AN/SLQ-17, including external equipment which interface with it.
1-5-2.	Describe operational tasks to perform on the AN/SLQ-17. a. Pre-operational procedures (1) Routine (Self tests, ETP, etc.) b. Operational Procedures Post-Operational Procedures
1-5-3.	Describe indications which should or may occur during operation of the AN/SLQ-17. Include alarms, indicators, displays, readouts, and printouts.
1-5-4.	Describe degraded modes of operation for the AN/SLQ-17.
1-5-5.	Describe loading and care of tapes for the AN/SLQ-17.
1-5-6.	Describe typewriter logging and types of messages for the AN/SLQ-17.
1-5-7.	Describe personnel and equipment safety precautions which are to be observed during operation of the AN/SLQ-17.

S1399-5

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-6.	MAINTENANCE DESCRIPTION
1-6-1.	Define the maintenance policy for the AN/SLQ-17. a. Preventive maintenance - the requirement for periodic performance of tasks to minimize equipment malfunctions. (1) Servicing - scheduled or unscheduled inspections, cleaning, lubrication, and any other function in support of maintaining any equipment full-mission-capable. (2) Operational checks (self tests) (a) Pre-maintenance procedures (b) Performance checks (c) Degradation/deterioration checks (3) Progressive maintenance - periodic refurbish of components or assemblies in order to maintain levels of performance or reliability. b. Corrective maintenance - checks and procedures used to locate and correct malfunctions. (1) Authorized repair responsibility - correction of malfunctions to the authorized maintenance level. (2) Fault isolation - location of faults to the level of available spares and authorized repair level. (a) Equipment operational checks and tests (b) Fault isolation tests and procedures (3) Analytical procedures - isolation of faults using authorized methods not contained in prescribed maintenance documentation. (4) Post-maintenance procedures - procedures performed after repair including quality assurance checks.
1-6-2.	Describe the use of special tools and test equipment required for maintenance of the AN/SLQ-17 as prescribed in applicable maintenance documentation.
1-6-3.	Describe preventative maintenance procedures for the AN/SLQ-17. Include recognition and interpretation of all indications, records, reports, and instructions.

S1399-6

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-6-4.	Describe alignment, adjustment, and calibration procedures for the AN/SLQ-17.
1-6-5.	Describe the operational tests and diagnostic programs, as applicable, for maintenance of the AN/SLQ-17. Include the tests' names, uses and procedures.
1-6-6.	Describe the recognition and interpretation of all malfunction indications for the AN/SLQ-17.
1-6-7.	Describe the systematic fault isolation procedures contained in prescribed maintenance documentation for the AN/SLQ-17.
1-6-8.	Describe authorized methods to isolate faults which cannot be located using procedures contained in prescribed documentation.
1-6-9.	Describe the procedures to disassemble, repair, and reassemble the AN/SLQ-17 to the authorized maintenance level.
1-6-10.	Describe the post-repair procedures for the AN/SLQ-17.
1-6-11.	Describe the personnel and equipment safety precautions which are to be observed when performing maintenance on the AN/SLQ-17.
1-7.	DOCUMENTATION
1-7-1.	Describe the organization content, and use of all technical documentation provided for use with the AN/SLQ-17.
2.	<u>EQUIPMENT SKILLS</u>
2.1	OPERATION
2-1-1.	Perform tasks for operation of the AN/SLQ-17 including: a. Preoperational procedures

S1399-7

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
	(1) Routine b. Operational Procedures c. Post-operational Procedures
2-1-2.	Recognize and interpret all indications occurring during the performance of the operating procedures and perform appropriate operator actions in the proper sequence on the AN/SLQ-17.
2-1-3.	Perform tasks in the degraded modes of operation for the AN/SLQ-17.
2-1-4.	Download disk from tape.
2-1-5.	Perform typewriter logging procedures for the AN/SLQ-17.
2-1-6.	Adhere to personnel and equipment safety precautions during operational procedures for the AN/SLQ-17.
2-2.	MAINTENANCE
2-2-1.	Use special tools and test equipment required for maintenance of the AN/SLQ-17 as prescribed in applicable documentation.
2-2-2.	Perform preventive maintenance procedures on the AN/SLQ-17 as scheduled by the Planned Maintenance System (PMS).
2-2-3.	Perform alignment, adjustment, and calibration procedures on the AN/SLQ-17.
2-2-4.	Perform the operational tests and diagnostic programs, as applicable, for maintenance of the AN/SLQ-17.
2-2-5.	Recognize and interpret all malfunction indications for the AN/SLQ-17.

S1399-8

TABLE S1399. AN/SLQ-17 Countermeasures Set
(Equipment) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
2-2-6.	Perform systematic fault isolation procedures contained in prescribed maintenance documentation.
2-2-7.	Use authorized methods to isolate faults which cannot be located using procedures contained in prescribed maintenance documentation.
2-2-8.	Disassemble, repair, and reassemble the AN/SLQ-17 to the authorized maintenance level.
2-2-9.	Perform post-repair procedures on the AN/SLQ-17.
2-2-10.	Adhere to personnel and equipment safety precautions when performing maintenance procedures on the AN/SLQ-17.

S1399-9

PERSONNEL PERFORMANCE PROFILE

TABLE B076

TASK/FUNCTION

MOTORIZED VEHICLES DRIVING REQUIREMENTS

1 MARCH 1986

EQUIPMENT MODIFICATION RECORD

None

B076-1/B076-2

TABLE B076. Motorized vehicles driving requirements
(Task/Function)

ITEM NO.	KNOWLEDGE/SKILL
1.	<u>KNOWLEDGE</u>
1-1.	BASIC DRIVING
1-1-1.	Describe vehicle inspection points and criteria. a. bumpers b. headlights c. safety glass d. windshield wipers e. brakes (foot and parking) f. muffler and exhaust system g. signal lights h. tires i. license plate and light j. brake and tail lights k. horn l. restraint devices (seat belts and shoulder harness) m. mirror(s)
1-1-2.	Describe driving maneuvers and safety precautions. a. negotiating intersections b. left and right turns c. reversing directions (U-turn) d. starting and stopping including quick stop e. signaling (hand, arm, automatic) f. selecting proper lane g. parallel parking h. backing i. following a vehicle j. speed control k. highway hypnosis l. night driving m. winter driving n. driving in rain/fog o. interstate driving p. skidding

B076-3

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-1-3.	Describe rules of the road. a. obeying officers b. changing lanes c. slow moving vehicles d. coasting e. use of headlights f. throwing material from vehicles g. speed limits and adjusting speed to conditions h. passing i. yielding to emergency vehicles and school buses j. railroad crossings k. right of way l. turns and signaling m. traffic signs and signals (1) color (2) shape n. highway markings o. interstate procedures p. night driving and headlight courtesy q. winter driving r. driving in rain/fog
1-1-4.	List recommended safety and emergency equipment.
1-1-5.	Describe procedures when involved in an accident.
1-1-6.	Describe procedures when first on the scene of an accident.
1-1-7.	Describe initial procedures for emergency conditions. a. flooded engine (stall) b. accelerator jammed c. brake failure (including wet brakes) d. tire blowout e. right wheels off pavement f. car approaching in your lane g. fire

B076-4

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-1-8.	Describe the effect of alcohol on driving behavior and ability.
1-1-9.	Describe the Implied Consent Law and the consequences of arrest for Driving While Intoxicated (DWI).
1-2.	EMERGENCY DRIVING
1-2-1.	Describe operation to include authority and regulations for collision avoidance equipment. a. horn b. siren c. lights d. bell
1-2-2.	Describe accident prevention maneuvers including: occasions for use, hazards involved, and procedures. a. swerving to avoid stationary objects b. swerving to avoid moving objects c. controlled skid
1-2-3.	Describe transiting, braking/stopping maneuvers including: occasions for use, hazards involved, and procedures. a. wet pavement b. icy pavement c. sand d. gravel e. mud f. snow g. rain h. fog
1-2-4.	Describe high speed maneuvers including: applicable regulations, occasions for use, hazards involved, and procedures. a. passing b. turning

B076-5

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
	c. going through intersections d. reversing directions
1-2-5.	Describe emergency escort procedures including: applicable regulations, occasions for use, hazards involved, and procedures. a. leading b. following
1-2-6.	Describe abbreviations, terms, and symbols associated with emergency driving. a. hydroplaning b. fishtailing
1-2-7.	Describe the organization, content, and use of all documentation applicable to emergency driving.
1-2-8.	Describe situations which require emergency driving, including applicable regulations. a. medical emergencies b. law enforcement emergencies c. fire/natural disasters d. courier/message delivery
1-2-9.	Describe the effects of environmental conditions on emergency driving, include visibility, speed constraints, and traction effects. a. rain b. snow c. ice d. sand e. gravel f. mud g. oil/lubricants h. fog

B076-6

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
1-2-10	Describe the personnel and equipment safety precautions applicable to emergency driving.
2.	<u>SKILLS</u>
2-1.	BASIC DRIVING
2-1-1.	Perform vehicle inspection. a. bumper b. headlights c. safety glass d. windshield wipers e. brakes (foot and parking) f. muffler and exhaust system g. signal lights h. tires i. license plate and light j. brake and tail lights k. horn l. restraint devices (seat belts and shoulder harness) m. mirror(s)
2-1-2.	Perform driving maneuvers. a. intersection negotiating b. left and right turns c. reversing directions (U-turn) d. starting and stopping including quick stop e. use of hand and arm or turn signals f. selecting proper lane g. parallel parking h. backing i. following a vehicle j. speed control k. night driving l. winter driving m. interstate driving

B076-7

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
	n. driving in rain/fog o. skidding
2-1-3.	Adhere to personnel and equipment safety precautions and the rules of the road applicable to basic driving.
2-1-4.	Perform emergency procedures for: a. flooded engine b. accelerator jammed c. brake failure d. tire blowout e. right wheel off pavement f. car approaching in your lane g. fire
2-2.	EMERGENCY DRIVING
2-2-1.	Operate collision avoidance equipment. a. horn b. siren c. lights d. bell
2-2-2.	Perform accident preventing maneuvers. a. swerving to avoid stationary object b. swerving to avoid moving object c. controlled skid
2-2-3.	Perform braking/stopping maneuvers. a. wet pavement b. icy pavement c. sand d. gravel e. mud f. snow

B076-8

TABLE B076. Motorized vehicles driving requirements
(Task/Function) - Continued.

ITEM NO.	KNOWLEDGE/SKILL
2-2-4.	Perform high speed maneuvers. a. passing b. turning c. going through intersections d. reversing directions
2-2-5.	Perform emergency escort procedures. a. leading b. following
2-2-6.	Transit various hazardous surfaces. a. wet pavement b. icy pavement c. sand d. gravel e. mud f. snow
2-2-7.	Adhere to personnel and equipment safety precautions applicable to emergency driving.
2-2-8.	Adhere to applicable laws and rules of the road while performing emergency driving.

B076-9

APPENDIX E

EXAMPLE OF A COMPLETED TRAINING LEVEL ASSIGNMENT (TLA)

This is a completed TLA from the Anti-Surface Warfare (ASUW) Continuum Training Plan (CTP). It was developed from the Personnel Performance Profile (PPP) table number B398 titled *Detection, Tracking, and Classification*.

Training Level Assignment (TLA) for CT

Apprentice

Table B398			
Item Number	T0 Level		
	B1	B2	S
1-1-1	A59		
1-1-2	A59		
1-1-3	A59		
1-1-4		A59/O01	
1-1-5		A59/O01	
1-1-6		A59/O01	
1-1-7		A59/O01	
1-1-7-A	A59	O01/O03	
1-1-7-B		A59/O01	
1-1-7-C	A59		
1-2-1	A59/O01		
1-2-2		A59/O01	
1-2-3		A59	
1-2-4	A64	O01/O03	
1-2-5		A59/O01/O03	
1-2-6		A59/O01/O03	
2-1-1			A59/O01/O03/O04
2-1-2			A59/O01/O03/O04
2-1-3			A59/O01/O03/O04
2-1-4			A59/O01/O03/O04

APPENDIX F
ELECTRONICS WARFARE (EW)
PERSONNEL LEVEL DEFINITIONS

ELECTRONICS WARFARE (EW)

PERSONNEL LEVEL DEFINITIONS

EW Technician (Apprentice)

The Electronics Warfare Technician is a watchstander in training to become an EW journeyman with the ability to perform maintenance with supervision.

EW Technician (Journeyman)

The Electronics Warfare Technician is qualified as an EW Watch Supervisor and is able to effectively communicate and interface with the Tactical Action Officer (TAO) and Combat Systems Officer. He is qualified as a work center supervisor, performs routine maintenance without supervision, and conducts apprentice level EW training.

EW Technician (Master)

The Electronics Warfare Technician is qualified to coordinate battle group and battle force EW operations and training. He is qualified to assist in the development and implementation of shipboard, battle group, and battle force EW war fighting doctrine and instructions. He conducts journeyman EW training and coordinates all on board EW training.

APPENDIX G
MODEL TRAINING OBJECTIVE STATEMENTS (TOSS)
FOR TRAINING LEVEL ASSIGNMENTS (TLAs)

Task/function or Background Training Objective Statements (TOSs)

Code	Statement
------	-----------

Prerequisite knowledge and skills

- T0 Includes the background skill and knowledge which is prerequisite and those tasks or functions which are not unique to the understanding of the operation and maintenance of the system/subsystem/equipment. This level of training includes:

Basic Knowledge

- B1 Completion of training provides the level of knowledge necessary to recognize or recall ideas, phenomena, symbology, and terminology which are prerequisite to the comprehension of a task or function.
- B2 Completion of training provides the comprehension of principles, rules, and concepts necessary to solve given problems and situations and performance of assigned tasks or functions.

Basic Skills

- S Completion of training provides the ability and knowledge to apply principles, rules, or concepts in the solution of given problems and to perform assigned operation or maintenance tasks or functions.

Hardware Training Objective Statements (TOSs)

Code

Statement

Familiarization Theory (Knowledge)

- F1 Completion of training provides familiarity with the purpose, function, and location of specific system/subsystem/equipment, on a system/subsystem level, and with supporting documentation, required to safely perform general duties with the (weapons system). When applied to Computer Software the following definitions shall apply: Completion of training provides familiarity with documentation, purpose and function of the software package on a level required to safely perform general duties within the (weapons system).

Theory (Knowledge)

- T1 Completion of training provides the depth of knowledge to understand functional operation and to support performance of normal operational tasks.
- T2 Completion of training provides the depth of knowledge to understand functional operation and to support performance of all operational tasks and all preventive and basic corrective maintenance.
- T3 Completion of training provides the depth of knowledge to support all corrective maintenance.

Operation (Skill)

- O1 Completion of training provides the skill to perform, with supervision, normal operational procedures.
- O2 Completion of training provides the skills to perform, with supervision, both normal and advanced operational procedures.

Preventive Maintenance (Skill)

- P1 Completion of training provides the skill to perform, with supervision, preventive maintenance procedures.

Hardware Training Objective Statements (TOSs) (Continued)

Code	Statement
<u>Corrective Maintenance (Skill)</u>	
C1	Completion of training provides the skill and knowledge to perform, with supervision and to the authorized maintenance level, documented fault isolation, and repair procedures:
C2	Completion of training provides the skill and knowledge to perform, with supervision and to the authorized maintenance level, repairs and isolation of faults that cannot be located using procedures contained in prescribed documentation or that require advanced analysis.

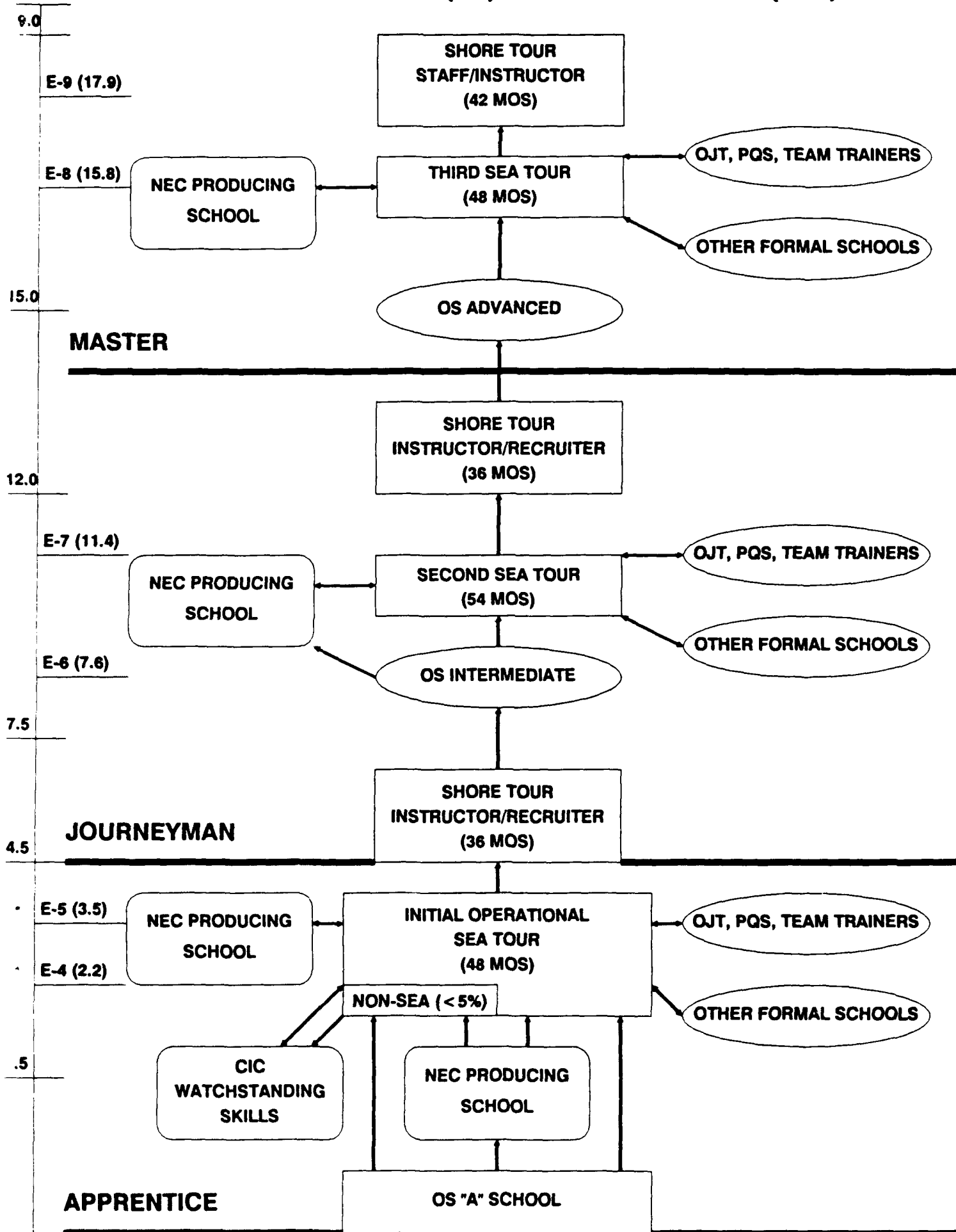
APPENDIX H

EXAMPLE OF TABLE ASSIGNMENT CHART (TAC) DEVELOPMENT

TABLE ASSIGNMENT CHART (TAC) FOR (YOUR RATING) JOURNEYMAN			
BACKGROUND TRAINING	REPLACEMENT/ CONVERSION TRAINING	ADVANCED TRAINING	ON BOARD TRAINING
A-102-0214 ELECTRONIC TECHNOLOGY (EW/CTM) A241 B1 B394 B1, S S2029 F1, T1, O1	A-102-0210 AN/SLQ-32 (V) OPERATIONS COURSE A250 B2, S B682 B1, B2, S S2023 F1, T1, T2,	J-221-0025 ENLISTED TACTICAL APPLICATIONS COURSE A242 B2 A247 B2 A249 B2	K-221-0082 ON BOARD CIC TEAM TRAINER A243 B1, B2, S B670 B2, S S2045 F1, T1, T2
Note 1: These PPP table numbers are placed here because the TLA code "B" was used on the TLA.			
Note 2: These PPP table numbers are placed here because the TLA code "R" was used on the TLA.			
Note 3: These PPP table numbers are placed here because the TLA code "A" was used on the TLA.			
Note 4: These PPP table numbers are placed here because the TLA code "O" was used on the TLA.			

APPENDIX I
COMPLETED CAREER PATH CHART (CPC)
FOR THE OPERATIONS SPECIALIST (OS) RATING

OPERATIONS SPECIALIST (OS) CAREER PATH CHART (CPC)



APPENDIX B

EW RATING TRAINING CONTINUUM WORKING GROUP GUIDANCE

EW RATING TRAINING CONTINUUM WORKING GROUP GUIDANCE

1. The Electronic Warfare (EW) Rating Training Continuum effort will provide a continuum of Apprentice, Journeyman, and Master level training to prepare members of the EW rating to effectively accomplish all operational duties of rate in support of warfighting capability. The working group shall operate with the following definitions.

EW Apprentice:

The Electronics Warfare Technician who, during his first operational tour, performs as an EW watchstander, operator, and assistant maintainer with supervision.

EW Journeyman:

The Electronics Warfare Technician qualified as EW Watch Supervisor and able to effectively communicate and interface with the Tactical Action Officer and Combat Systems Office. He is qualified as a work center supervisor, performs routine corrective maintenance without supervision, and conducts apprentice level EW Training.

EW Master:

The Electronics Warfare Technician qualified to coordinate battle group and battle force EW operations and training. He is qualified to assist in the development and implementation of shipboard, battle group, and battle force EW war fighting doctrine and instructions. He conducts journeyman EW training and coordinates all on-board EW training.

2. The EW Continuum Working Group shall develop EW training requirements in the form of Personnel Performance Profiles (PPPs) and Training Level Assignments (TLAs) using MIL-STD-001379C (NAVY) (Department of the Navy, 1985). Requirements for all major components of EW duties of rate include, but are not limited to, duties performed in the following areas:

a. Watchstanding with tactical application toward:

1. Shipboard
2. Shipboard with CTs
3. Staff (CARGRU, CRUDESGRU, PHIBGRU)
4. Staff (TYCOM, FLTCINC, OPNAV)

b. Equipment Maintenance

1. Shipboard passive
2. Shipboard active
3. Shipboard other
4. MOTU (TECHREP)

3. Training requirements must include those associated with all billets specific to the EW rating, both afloat (shipboard and staff) and ashore to which the particular rating skills of the EW community are applied. General or administrative billets (recruiting duty, instructor duty) to which the rating may be assigned should not be addressed. Likewise, training requirements that are not rating specific (GMT, Equal Opportunity, etc.) should not be addressed.

4. The following training categories will be considered:

- a. Formal (Schoolhouse)
- b. Other (OBT, PQS, MTT, etc.)

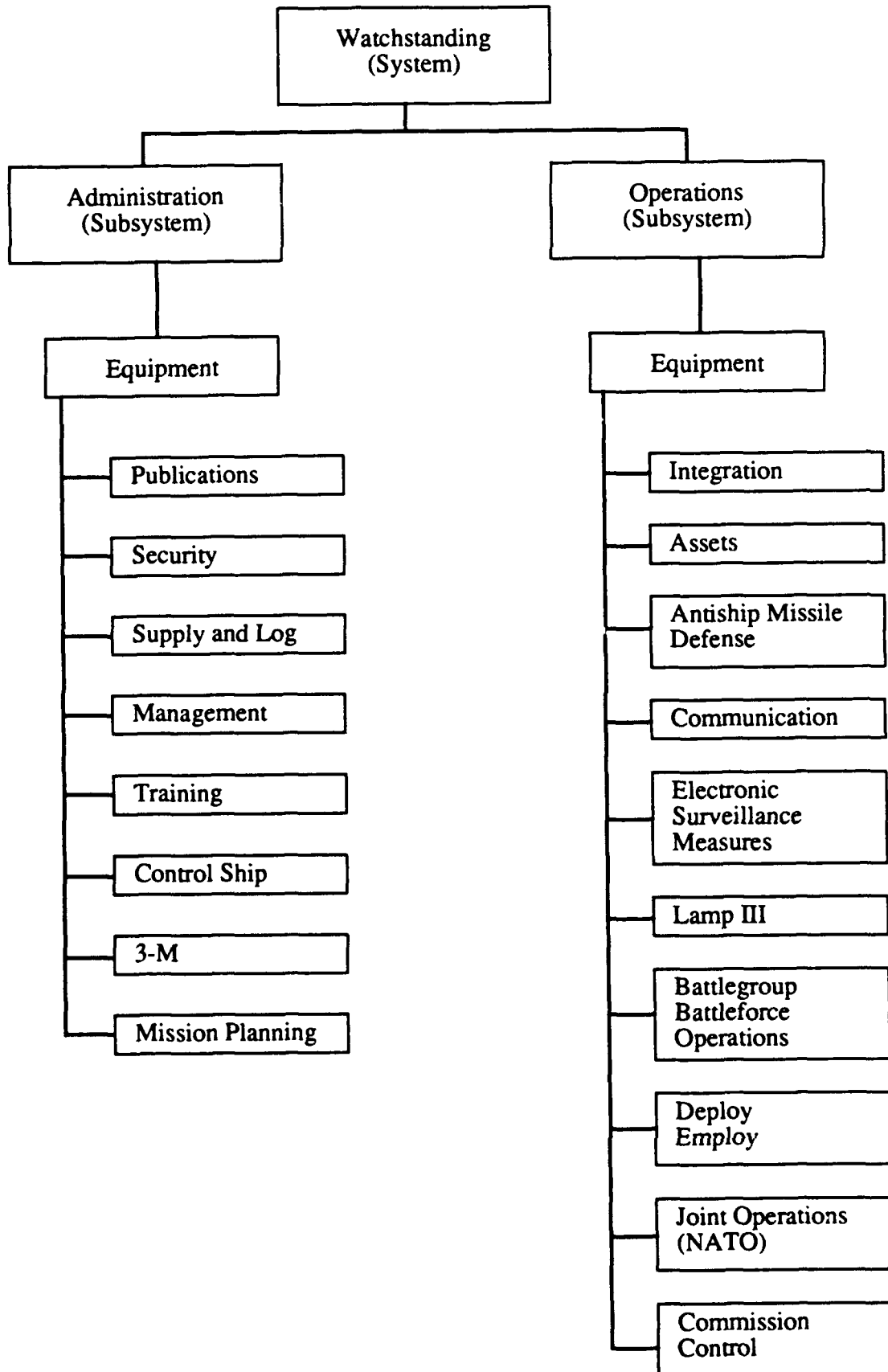
5. The PPPs/TLAs developed by the Continuum Working Group will be reviewed by both the fleet and the training community. To expedite this process, the PPPs/TPs will be forwarded directly to the TYCOMS for fleet review and to the appropriate training centers/activities for review by the training community. Review comments/recommendations will be returned to OPNAV via the normal chain-of-command.

6. Specific guidance for the Continuum Working Group is provided below:

- a. Assign PPP line items in accordance with the general guidance provided in the training paths identified by the executive committee.
- b. Determine requirement for additional maintenance training (i.e., 3 week soldering/digital/test equipment course) proposed as a follow-on to ELTECH.
- c. Ensure minimum training requirements are identified with the constraints specified by the approved training path.
- d. Review EW OCCSTDs and PARs to ensure consistency between the OCCSTDs and the training requirements identified.
- e. Review SLQ-32(V)2 ESM Maintenance COI (A-102-0215) for content and length.
- f. Determine course requirement, content, and course length for an advanced maintenance (journeyman) COI.
- g. Develop PPPs and TLAs for Antiship Missile Defense (ASMD) and CDS/SLQ-32 Interface training.
- h. Review training deficiencies and modify training requirements as necessary.
- i. Identify those critical knowledge and skill items (PPPs) around which a testing program should be developed to periodically assess Electronics Warfare Technician (EW) effectiveness.

APPENDIX C

SAMPLE TASK/FUNCTION CHART



APPENDIX D

LIST OF COMMANDS THAT REVIEWED THE OS AND EW CTPs

COMMANDS THAT REVIEWED THE OS AND EW CTPs

Operation Specialist (OS) Continuum Training Plan

CNO (OP-01R, 11, 13, 29, 39, 59, 73)

CINCLANTFLT

CINCUSNAVEUR

COMNAVAIRPAC

COMNAVSURFPAC

COMNAVSEASYSOM

COMTRAPAC

TACTRAGRULANT

CNTECHTRA

FCTCPAC

NAVPERSRANDCEN

NODAC

COMCOGARD

FLETRACEN San Diego

FLEASWTRACENLANT

FLETRALANT

CINCPACFLT

COMNAVAIRLANT

COMNAVSURFLANT

CNET

COMTRALANT

COMNAVMILPERSCOM (N-406C)

TACTRAGRUPAC

FCTCLANT

NAVSUBSCOL

NETPMSA

COMSURFWARDEVGRU

FLETRACEN Mayport

FLEMINEWARTRACEN

FLEASWTRACENPAC

NAVPHIBSCOL Little Creek

Electronic Warfare Technician (EW) Continuum Training Plan

CNO (OP 111, 132, 29, 392C, 440C, 59, 76, 92, 94)

COGARD

NAVAL RESEARCH LAB

COMNAVMILPERSCOM (PERS-406, NODAC)

COMNAVAIRSYSCOM

COMSPAWARSYSCOM

COMNAVSEASYSYSCOM (06W1, 06WT2)

AEGIS Training Center

NAVPERSRANDCEN (142)

CNET (N34)

FCTC (322A2)

NAVTECHTRACEN (P330P)

CNTECHTRA (N34)

CINCLANTFLT (N915A)

CINCLANFLT (3191)

CINCUSNAVEUR

COMSECONDFLT

COMTHIRDFLT

COMSIXTHFLT

COMNAVRESFOR

COMNAVAIRLANT (338)

COMNAVAIRPAC (Code N31, 91, 723, 7443)

COMNAVSURFLANT (N-42)

COMNAVSURFPAC (N-41)

COMTRALANT (N-31)

COMTRAPAC (N-212A)

COMPHIBGRU

TGU_s

FLTDECGRU

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