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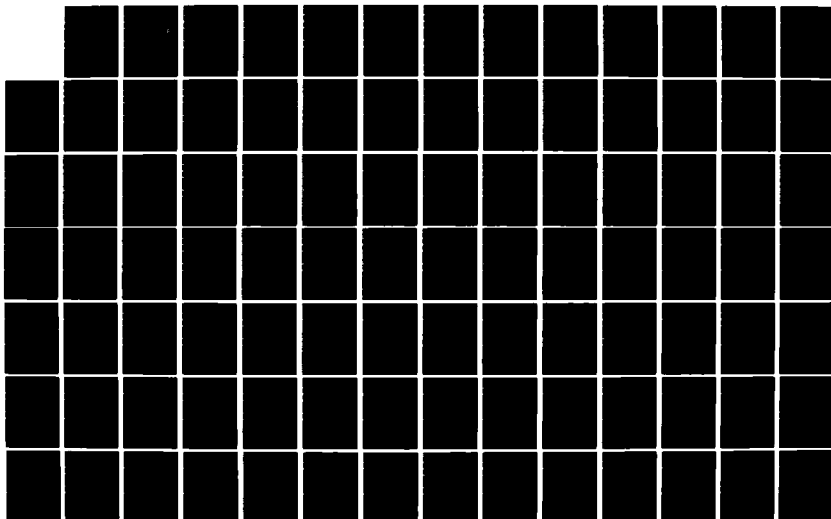
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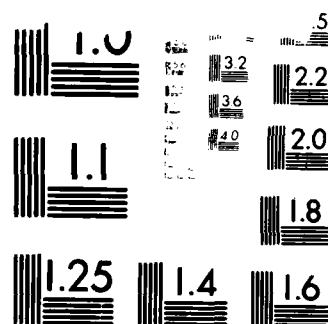
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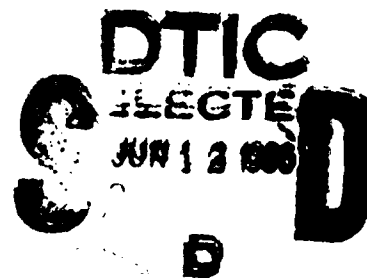
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TECHNICAL SKILL TRAINING
IN THE NAVAL RESERVE

Working Note RA401-3

July 1985



Edward D. Simms, Jr.
Walter T. Cook
Dayton S. Pickett

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6400 Goldsboro Road
Bethesda, Maryland 20817-5886

PREFACE

This working note describes the current training strategies designed to build and sustain competence in certain logistics skills in the Naval Reserve. It concentrates on enlisted ratings important to accomplishing the missions of certain logistics support units that place heavy reliance on Reservists.

We invite comment and corrections to this working note.

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1. INTRODUCTION

PURPOSE

This working note describes the current Navy system designed to build and sustain technical logistics skills in the Navy Selected Reserve. The purpose of the review is to assess suitability and adequacy of the policies and programs which support technical skill training for the Navy's Selected Reserve.

SCOPE

We address only the programs dealing with the development and sustainment of certain essential logistics skills of individual enlisted personnel, not including the training programs for general management/supervisory skills or unit collective proficiency. We concentrate on the Selected Reserve¹ of the Navy, excluding consideration of the Individual Ready Reserve.

We have analyzed seven specialties (ratings) that are found in support operations (activities) where the Navy's dependence on its Selected Reserve is particularly high. Dependence on Reservists in this context is based upon the percentage of billets expected to be filled by Selected Reservists upon mobilization.

In order to understand fully the requirements for individual training programs, we describe first the roles and responsibilities of enlisted logistics specialists in the Selected Reserve. We examine the probable wartime

¹Included throughout this working note are references to Naval enlisted personnel classified as "Training and Administration of the Reserves (TARs)." TARs are Naval Reservists on extended active duty within the U.S. Navy. They very often support Reserve activities. TARs are not members of the Selected Reserve, but are often reported within that group. Where possible, data on TARs are reported separately within this document. Where that is not possible, an annotation makes clear the combination of TAR and Selected Reserve information.

jobs of these sailors, looking not only at the documented duties associated with each rating but also at the wartime mission of the associated naval activities. Next, we review the characteristics (personal attributes and experience factors) of the Selected Reserve population that currently occupies these positions to understand who it is the Navy is training. Finally, we analyze the training strategy² and the specific training programs now conducted to prepare Naval Reserve logistics specialists to perform their wartime tasks. This information is presented in the following sections, and the specific details for each rating in our sample are presented separately in Appendices A through G. Additional information on the Naval Reserve direct enlistment Sea and Air Mariner Program is presented in Appendix H. Appendix I discusses another training program of relevance to Naval Reservists, and Appendix J presents an overview of command and staff relationships within the Naval Reserve.

LOGISTICS ACTIVITIES EXAMINED

Many Naval Reserve units exist solely to provide personnel for required billets in Active Navy fleet units, shore units, and support activities, all of which serve as "gaining commands" for the Reserve units. These Naval Reserve units, commonly called "augment units," would join their gaining commands upon mobilization. Units of this kind are common in the logistics field.

Before selecting ratings to be analyzed in detail, we identified logistics activities that are highly dependent on Naval Reservists during wartime. These activities extended across the three classic logistics functional areas

²A training strategy in this context is the overall approach that governs the training, including the plans, policies, and procedures.

of maintenance, supply, and transportation. The specific activities selected for review within each logistics function are listed below.

- Maintenance:

- Tenders, Repair Ships, and Yard Repair Barges;
- Shore Intermediate Maintenance Activities (SIMAs); and
- Ashore Aircraft Intermediate Maintenance Departments (AIMDs) (less Naval Air Training Command activities).

- Supply:

- Supply Centers; and
- Supply Depots.

- Transportation:

- Cargo handling battalions;
- Assault craft units; and
- Beachmaster units.

In the following subsections, we briefly describe how these activities support the overall Navy logistics system.

Maintenance

The Navy operates a three-tiered maintenance system consisting of organizational-, intermediate-, and depot-level maintenance. This system applies both to ships and to aircraft. Organizational and intermediate maintenance is performed both ashore and afloat, normally by military personnel. Depot maintenance is usually performed by civilian personnel at depots, repair facilities, or shipyards within the Continental United States (CONUS) or outside CONUS (OCONUS). For this study we selected maintenance activities that perform intermediate-level maintenance on surface ships and aircraft at CONUS and OCONUS locations.

Supply

The Navy supply system has three echelons. The system consists of organizational supply (stocks afloat on the ship to be served), combat resupply (stocks afloat on replenishment ships), and second-echelon resupply (stocks on hand in CONUS supply centers and in OCONUS supply depots). Combat ships normally carry 90-day supplies, with enough for an additional 90 days available on board combat replenishment ships. Supply depots and centers provide additional provisions to replenishment ships and occasionally to combat ships. Our selected Naval Reserve supply units augment supply depots and centers.

Transportation

Any consideration of the transportation function in the Navy necessarily includes arbitrary categories and definitions, because most major segments of the Navy can be considered as providing "transport" of one kind or another. For our purposes, we consider Navy transportation to include the movement of men and material for amphibious landings and the loading and unloading of cargo in general. The units we concentrate on are directly involved in moving cargo from ships into the theater of operations.

NAVY ENLISTED OCCUPATIONAL CLASSIFICATION SYSTEM

General

The Navy Enlisted Occupational Classification System applies to both Regular Navy and Reserve and serves both peacetime and wartime needs. It has three major subsystems: (1) the Enlisted Rating Structure, (2) the Navy Enlisted Classification (NEC) Structure, and (3) Special Qualifications. These subsystems specify the type of skills and level of proficiency required to perform the different jobs in the Navy.

Enlisted Rating Structure

The Enlisted Rating Structure provides paths of advancement from pay grades E1 through E9. It is composed of General Ratings, Service Ratings, and Emergency Ratings.

General Ratings. These are broad enlisted career fields, encompassing similar duties, functions, aptitudes, and qualifications for advancement in enlisted career development. These ratings normally identify personnel from pay grades E4 through E9, although exceptions exist wherein a general rating begins and/or terminates at other pay grades (e.g., the Legalman (LN) rating, which extends from pay grade E5 through E9 only). All the ratings in this study are General Ratings, and none is of the "LN" type.

To provide for progressively higher levels and scopes of authority and responsibility, some general ratings merge at the E8 or E9 level, where occupational content is similar, to form broader career fields. In the ratings studied, this occurs in the Aviation Machinist's Mate and Aviation Electronics Technician ratings at the E9 level (see Appendices A and B).

Service Ratings. These ratings are subdivisions of certain general ratings that provide for further specialization, but not the degree of specialization provided by the NEC Structure. Aviation Boatswain's Mate (AB) is a General Rating, but within its scope lie three Service Ratings: Aviation Boatswain's Mate (Launching and Recovery Equipment) (ABE), Aviation Boatswain's Mate (Fuels) (ABF), and Aviation Boatswain's Mate (Aircraft Handling) (ABH). In the ratings studied there are no Service Ratings.

Emergency Ratings. These ratings encompass skills or qualifications not required to be identified by rating in the peacetime Navy but are required in war. Currently, there are no Emergency Ratings.

General Rates. These are identifications assigned to personnel at pay grades E1, E2, and E3 to indicate eligibility for entry into various ratings. There are six General Rates: Seaman (SN), Hospitalman (HN), Dentalman (DN), Fireman (FN), Constructionman (CN), and Airman (AN). Within these apprenticeships, enlisted personnel receive their recruit training ("Boot Camp") and initial technical training.

Navy Enlisted Classification Structure

The NEC Structure supplements the Enlisted Rating Structure in identifying both personnel and billets. NEC codes reflect special knowledge and skills that identify personnel and requirements when the rating structure is insufficiently precise by itself for manpower management purposes. NECs identify additional skills required by a specific job (e.g., T-56 Turboprop Engine Skills).

Special Qualifications

The special qualification structure defines extraordinary, special skills that are required by specific billets. These special qualifications extend across normal occupational fields and are not linked to specific ratings. We do not address the training required for these skills.

2. THE JOB

BACKGROUND

Skill Level, Grade, and Title

Throughout this report we use the terms "apprentice, journeyman, master, supervisor/manager" as titles to represent a logical progression in skill level within each rating or specialty. These terms and their corresponding enlisted grades are --

- Apprentice: E3/E4;¹
- Journeyman: E5;
- Master: E6; and
- Supervisor/manager: E7 and above (not considered further in this report).

Skill Range

The terms (apprentice, journeyman, master) denote a level of proficiency and a range of skills/tasks over which that proficiency must be achieved and maintained. In general, higher-skilled jobs require higher proficiency levels over a broader range of tasks than do lower-skilled jobs in the same rating.

¹Standard, entry-level skills are possessed by sailors who have attained the grade of E4. By our definition, these people are apprentices. In addition, however, the Navy considers a large group of E3s to possess skill proficiency on a level equivalent to that of the new E4. These E3s include those who have successfully completed Class "A" School, those who have demonstrated proficiency through on-the-job training, and those who have passed E4 promotion examinations but who have not yet advanced. We, therefore, consider the enlisted grades associated with apprentices to be E3/E4.

Apprentices are sailors who have successfully completed Class "A" School² or on-the-job training in their career fields but have only limited job/unit experience. While they require considerable technical supervision, they can perform many basic job requirements of the rating unsupervised.

Journeymen have achieved a level of skill that enables them to perform normal technical tasks routinely. They operate with minimal supervision and are expected to accomplish most recurring tasks. Additionally, they can guide the work of apprentices at the job site.

Masters have attained an advanced level of skill. They can accomplish all routine tasks and have the skills and knowledge to accomplish more complex, unexpected tasks. They have both extensive technical knowledge and extended job experience. They are able to organize the job site and give technical oversight to others.

RATING DESCRIPTION

To assess the Navy's training strategy, we selected seven ratings to analyze in detail. These ratings were chosen because (1) they require a high degree of skill, or (2) they are critical in wartime, or (3) one or more features of the training requirement or environment make training for them especially difficult. The selected ratings, shown by function and activity, are displayed in Table 2-1. Brief job descriptions are included.

²This type of school provides the basic technical knowledge required for job performance and, later, more specialized training. An NEC code may be awarded upon completion.

TABLE 2-1. NAVY RATINGS SELECTED FOR STUDY, BY FUNCTION AND ACTIVITY

ACTIVITY/RATING	LOGISTICS FUNCTION	JOB DESCRIPTION
1. <u>AIMDs Ashore</u> Aviation Machinist's Mate (AD) Aviation Electronics Technician (AT)	Maintenance Maintenance	Maintains and repairs engines, engine components, and propellers. Maintains and repairs aircraft communications, navigation, and digital data systems.
2. <u>SIMAs, Tenders, Repair Ships, and Yard Repair Barges</u> Boiler Technician (BT) Electronics Technician (ET) Machinery Repairman (MR)	Maintenance Maintenance Maintenance	Maintains and operates marine boilers and components. Maintains and repairs shipboard communication, detection, tracking, recognition and identification, and aids to navigation equipment. Makes replacement parts and repairs or overhauls ship's engine auxiliary equipment and deck equipment.
3. <u>Supply Centers and Supply Depots</u> Storekeeper (SK)	Supply	Accounts for money, controls stocks and inventories, does warehousing work, and distributes supplies.
4. <u>Cargo Handling Battalions, Assault Craft Units, and Beachmaster Units</u> Boatswain's Mate (BM)	Transportation	Maintains ship's exterior surfaces and deck machinery, handles cargo, and operates small boats.

RATING DISTRIBUTION BETWEEN THE ACTIVE AND RESERVE COMPONENTS

Approximately one-fifth of the billets designated for these seven ratings in the Total Navy force structure in Fiscal Year (FY) 1985 are in the Selected Reserve. This distribution is shown in Table 2-2.

TABLE 2-2. ACTIVE COMPONENT/RESERVE COMPONENT DISTRIBUTION
OF SEVEN SELECTED SKILLS NAVY-WIDE

RATING	QUANTITY				PERCENT OF TOTAL		
	TOTAL	USN	TAR	SELRES	USN	TAR	SELRES
AD	13,165	10,365	1,169	1,631	78.7	8.9	12.4
AT	13,240	10,468	1,110	1,662	79.1	8.4	12.5
BM	14,676	10,650	220	3,806	72.6	1.5	25.9
BT	10,881	9,515	313	1,053	87.4	2.9	9.7
ET	20,053	18,042	218	1,793	90.0	1.1	8.9
MR	3,755	2,789	106	860	74.3	2.8	22.9
SK	14,416	8,571	656	5,189	59.4	4.6	36.0
Total	90,186	70,400	3,792	15,994	78.1	4.2	17.7

NOTE: USN = U.S. Navy and SELRES = Selected Reserve.

While the proportion of the Total Navy positions of these ratings assigned to the Reserve Component is not large, the Reserve Component's role in the logistics activities we have selected for study is considerable. Over 40 percent of the billets designated for the seven ratings in these activities are assigned to the Reserve Component. In many cases, Reservists provide the manpower to extend operation of these activities to a sustained, 24-hour, wartime basis; in other cases, Reservists provide complete units (e.g., 12 of the 13 cargo handling battalions are in the Naval Reserve). The Active and Reserve Component distribution for these units, by function and activity, is shown in Table 2-3.

**TABLE 2-3. ACTIVE COMPONENT/RESERVE COMPONENT DISTRIBUTION
OF SEVEN SELECTED SKILLS BY FUNCTION AND ACTIVITY**

ACTIVITY/RATING	LOGISTICS FUNCTION	QUANTITY				PERCENT OF TOTAL		
		Total	USN	TAR	SELRES	USN	TAR	SELRES
<u>AIMDs Ashore</u>								
AD	Maintenance	1,803	1,304	154	345	72.3	8.5	19.2
AT	Maintenance	2,061	1,299	283	479	63.0	13.7	23.3
<u>SIMAs, Tenders, Repair Ships, and Yard Repair Barges</u>								
BT	Maintenance	1,921	1,087	183	651	56.6	9.5	33.9
ET	Maintenance	2,417	1,669	135	613	69.1	5.5	25.4
MR	Maintenance	2,370	1,612	77	681	68.0	3.3	28.7
<u>Supply Centers and Supply Depots</u>								
SK	Supply	2,378	199	0	2,179	8.4	0	91.6
<u>Cargo Handling Battalions, Assault Craft Units, and Beachmaster Units</u>								
BM	Transportation	1,201	326	0	875	27.1	0	72.9
Total		14,151	7,496	832	5,823	53.0	5.9	41.1

RATING PROGRESSION

Apprentice

Navy apprentices (grades E3 and E4) in technical logistics specialties routinely perform their duties under the supervision of a journeyman. As an example of the difference between apprentices' and journeymen's duties, an E4 Aviation Machinist's Mate will service an installed propeller (e.g., check hydraulic fluids) while an E5 Aviation Machinist's Mate will perform minor repairs to propeller blades and remove, install, and adjust propeller assemblies. The apprentice Boatswain's Mate operates and maintains cargo handling equipments while the journeyman supervises the loading, discharging, and

storing of cargo. In completing these and other tasks, apprentices practice previously acquired skills and acquire new ones. Experience brings promotion to E5 while still performing apprentice tasks. In this way the apprentice experiences on-the-job training under the direction of more seasoned technicians.

Journeyman

The journeyman (E5) logistics specialist performs independent tasks of greater complexity than does the apprentice. In some cases, recordkeeping responsibilities, collateral duty quality assurance responsibilities, and the ordering of parts, tools, equipment, and material are required. For the journeyman who is a repairer, malfunction diagnosis responsibilities are greater than those of the apprentice. On-the-job training supervision responsibilities appear at this level for the first time.

Master

The master (E6) logistics specialist typically exercises technical supervision over others. In one specialty studied (Machinery Repairman), however, the master specialist may be assigned to a position requiring great skill and precision while working essentially alone. The master Storekeeper, for the first time, acquires the responsibility for processing vendors' bills for payment. In general, however, the technical logistics master specialist is a work-center foreman, supervising technical workers' techniques and production.

SUMMARY

The seven specialties chosen for study represent tough, complex, and important jobs in logistics units supporting operating forces. All of these units are required upon mobilization to (1) support the increased operating tempo of deployed forces, and (2) provide logistics support to those

CONUS-based operational units deploying upon mobilization. The Selected Reserve units supporting maintenance activities (AIMDs, SIMAs, Tenders, Repair Ships) will augment currently operating activities to expand capacity. The Selected Reserve units supporting supply activities will provide the preponderance of the uniformed labor force at supply centers and depots. The assault craft, beachmasters, and cargo handling units will operate as independent units in support of tactical operations. In general, these Reservists will have limited opportunity for technical skills improvement upon mobilization.

3. THE INCUMBENT POPULATION

GENERAL

This chapter describes the Naval Reserve population assigned to the seven sample Navy occupational ratings (specialties) and compares them to their Active Navy counterparts. This comparison is made using personal attributes and experience factors as the major characteristics which directly affect trainability and job performance. The objective of this comparison is to identify any consistent major differences between the Active and Reserve populations.

PERSONAL ATTRIBUTES

Members of the Naval Reserve are generally similar to their Active Navy counterparts occupying the logistics specialist positions studied. While some small variations do exist between the Active and Reserve for the three attributes reviewed (age, aptitude area scores, and civilian education), the populations are similar. The range or variation, by attribute, of the Naval Reserve populations is greater than the more homogeneous Active Navy populations. Tables 3-1 through 3-3 show summarized personal attribute information across the entire population of the seven logistics skills studied.

Age

Reservists are older than Active Navy sailors in the ratings studied. The difference is smallest in the lowest enlisted grades, growing with increase in rank. Table 3-1 contains this information.

TABLE 3-1. INCUMBENT PERSONAL ATTRIBUTES -- AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	21.9
	Reserve	23.5
E4	Active	23.4
	Reserve	29.1
E5	Active	26.1
	Reserve	33.6
E6	Active	31.3
	Reserve	38.7
E7	Active	36.1
	Reserve	43.1

NOTE: Reserve includes TARs.

Aptitude Area Scores¹

Aptitude area composite scores for the specialties studied are the same or slightly higher for Naval Reserve incumbents than for Active Component incumbents. According to these results, Naval Reservists' potential for success in being trained for these specialties is equivalent to their Active counterparts. These data are displayed in Table 3-2.

¹Aptitude area scores are derived by combining subtest scores of the Armed Services Vocational Aptitude Battery (ASVAB) and are used to determine an individual's potential for success in being trained in a rating.

TABLE 3-2. INCUMBENT PERSONAL ATTRIBUTES -- APTITUDE AREA SCORES

(Mean Scores)

COMPONENT	SPECIALTIES						
	AD ¹	AT ²	BM ³	BT ⁴	ET ⁵	MR ⁶	SK ⁷
USN	210.3	237.5	NA	107.4	244.4	167.5	107.0
Reserves ⁸	218.4	237.2	NA	107.7	249.3	172.3	110.1

¹Minimum acceptable score is 190.²Minimum acceptable score is 218.³Not applicable to the BM rating.⁴Minimum acceptable score is 94.⁵Minimum acceptable score is 218.⁶Minimum acceptable score is 155.⁷Minimum acceptable score is 104.⁸Includes TARs.Civilian Education

The Naval Reserve has a substantially larger percentage of non-high-school graduates than the Active Component at the apprentice level (E1 through E4), as shown in Table 3-3. This disparity exists through all seven ratings. On average, 13 percent of the Reserve Component apprentices (E1 through E4) are non-high-school graduates, while only 7 percent of the Active Component apprentices are non-high-school graduates. The Reserve, however, has a substantially larger percentage of sailors with some college experience than does the Active Component.

TABLE 3-3. INCUMBENT PERSONAL ATTRIBUTES -- CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	8.4	0	88.1	3.5
	Reserve	18.9	1.7	74.8	4.6
E4	Active	6.4	0	87.7	5.9
	Reserve	11.6	1.6	72.5	14.3
E5	Active	8.6	0	85.1	6.3
	Reserve	9.2	1.2	65.5	24.1
E6	Active	9.6	0	81.1	9.3
	Reserve	9.5	0.9	59.7	29.9
E7	Active	8.3	0	84.2	7.5
	Reserve	12.7	0.8	59.4	27.1
Total	Active	8.1	0	85.5	6.4
	Reserve	11.0	1.2	66.0	21.8

¹Incumbents who have not graduated from high school.²Incumbents who have completed high school through General Education Development (GED) equivalency.³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.⁴Incumbents who have completed at least some college or university work.

NOTE: Reserve includes TARs.

EXPERIENCE FACTORS

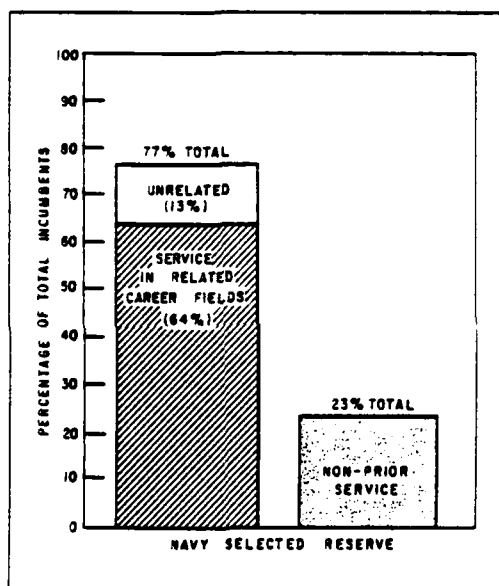
Three experience factors for Reserve Component populations are reviewed: prior active military service, length of total service, and time in grade. In addition, the level of full-time support within each specialty is considered. If a significant portion of the incumbents bring related experience to their military jobs, training in the unit is easier. Technical skills are easier to sustain with moderate training if the group has significant experience related to their military job and significant full-time support staff members from whom to seek technical help.

Prior Military Service

We estimate² that over three-quarters of all Naval Selected Reservists assigned to the ratings in this study have had extended prior active military service of some kind. At least two-thirds of the Reservists assigned to these specialties have had active military service in related career fields.³ Figure 3-1 displays prior military service data.

FIGURE 3-1. INCUMBENT EXPERIENCE --
PRIOR ACTIVE MILITARY SERVICE

(Seven Technical Logistics Skills)



²All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative active duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 9,331 Selected Reserve accessions in the seven study specialties since 1 October 1982.

³Service in "related career fields" means: (1) service in the Navy in the same rating; (2) service in the Navy, not in the same rating but in the same Department of Defense (DoD) occupational code; or (3) service in a different Military Service in the same DoD occupational code. These types of service are displayed separately in the appendices.

Length of Service/Time in Grade

Naval Reservists have accrued greater length of total service and time in grade than have the Active specialists occupying similar positions. It is difficult to assess the implications of these differences because of the lack of accepted conversion criteria involving duty days and training days per year across components. Table 3-4 shows information for these two experience factors across all seven selected ratings, by enlisted grade.

TABLE 3-4. INCUMBENT EXPERIENCE -- LENGTH
OF TOTAL SERVICE/TIME IN GRADE

GRADE	COMPONENT	AVERAGE LENGTH OF SERVICE	AVERAGE TIME IN GRADE
E1-E3	Active	2.3	0.9
	Reserve	3.3	1.4
E4	Active	3.4	1.1
	Reserve	6.0	1.6
E5	Active	6.2	1.8
	Reserve	9.7	3.1
E6	Active	11.5	2.7
	Reserve	15.2	4.3
E7	Active	16.6	3.3
	Reserve	20.4	5.2

NOTE: Reserve includes TARs.

Full-Time Support

The level and nature of full-time support available can influence the ability of Reserve logistics specialists to sustain and improve their skills. Full-time support is provided to the Navy's Selected Reserve by a combination of civilian and active-duty military personnel. The active-duty military positions include Regular Navy personnel, a small number of Reserve officers voluntarily recalled to active duty for specific assignments, and

15,210 TAR officers and enlisted personnel. The civilian support staff provides limited clerical and administrative support to Reserve facilities and similar operations. Because most Reserve Component support is provided by TARs, the following discussion of full-time support is limited to consideration of that group.

None of this full-time support is assigned directly to Selected Reserve units. Other than for Naval Reserve Force (NRF) ships, Reserve Force squadrons, and mobile inshore undersea warfare units, full-time support is assigned to activities supporting the Naval Reserve Program (e.g., Naval Reserve Training Centers, Naval Reserve Air Stations/Facilities). These TARs represent a potentially valuable source of skill and experience for the support of peacetime training of the Reserve. The extent to which that support occurs is not clear in all cases. Where the Reserve unit is located near the gaining activity or similar activity, the U.S. Navy and TAR full-time staffs provide training support to Selected Reservists routinely. In cases where the unit is located at some distance from these activities, no training support by the full-time staff is possible. Table 3-5 shows the distribution of TAR full-time support assigned to the selected activities in the seven ratings studied.

TABLE 3-5. FULL-TIME SUPPORT FOR SELECTED RESERVE
IN SEVEN SELECTED SKILLS

(Activities of Interest)

RATING	SELRES BILLETS	TAR BILLETS
AD	345	154
AT	479	283
BM	875	0
BT	651	183
ET	613	135
MR	681	77
SK	2,179	0
Totals	5,823	832

NOTE: Full-time support does not include Regular Navy personnel or civilian clerical and other administrative employees of the Department of the Navy.

SUMMARY

As a group, the Reservists in our seven skills represent a mature, talented, and highly experienced population of logistics specialists. With over two-thirds of the group having served on extended active duty in the same skill area, these Reservists bring substantial levels of directly applicable skill to their Selected Reserve job. When the variations in characteristics between the Active and Reserve Components incumbent populations are considered, both from the perspective of selected personal attributes and from that of experience, the dominant impression is one of similarities, rather than one of difference.

4. LOGISTICS SKILL TRAINING SYSTEM

TRAINING STRATEGY

General

For the seven ratings studied, the training strategy for Reservists is essentially the programs used to train Active Component personnel. Training developers concentrate on Active Navy personnel as the target audience when designing programs to develop and sustain technical logistics skills. The Active Component training model in these fields calls for intensive technical training (from 5 to 61 weeks) after a standard Recruit Training ("Boot Camp") course of 7.7 weeks.

The Navy's technical training programs are directed toward providing personnel with suitable skills and knowledge upon which the Navy and the individual can build. After the completion of technical training, there is no requirement for the logistics specialist to return for additional institutional technical training. Many logistics specialists do, however, receive additional technical training later in their careers. This "follow-on" training is typically related to specific equipment or a special skill. This supplementary training often results in the award of an NEC. Table 4-1 shows the institutional training associated with the seven specialties included in our analysis.

TABLE 4-1. TECHNICAL SKILL TRAINING STRATEGY

RATING	RECRUIT TRAINING (COMMON)	TECHNICAL TRAINING		SKILL PROGRESSION (JOURNEYMAN AND MASTER SKILL DEVELOPMENT)
		4-Year Obligation	6-Year Obligation	
AD	7.7 weeks	7.6 weeks	--	OJT/OJE ¹ through E7 (23 special courses available ranging in length from 3 to 15 weeks)
AT	7.7 weeks	24.0 weeks ²	44.0 weeks ²	OJT/OJE through E7 (80 special courses available ranging in length from 3 to 17 weeks)
BM ³	7.7 weeks	0	--	OJT/OJE through E7 (3 special courses available ranging in length from 3 to 5 weeks)
BT	7.7 weeks	4.7 weeks ²	13.7 weeks	OJT/OJE through E7 (11 special courses available ranging in length from 3 to 16 weeks)
ET	7.7 weeks	--	60.9 weeks ²	OJT/OJE through E7 (96 special courses available ranging in length from 1 to 26 weeks)
MR	7.7 weeks	9.7 weeks	--	OJT/OJE through E7 (3 special courses available 7 weeks in length)
SK ⁴	7.7 weeks	8.6 weeks	--	OJT/OJE through E7 (14 special courses available ranging in length from 2 to 6 weeks)

¹On-the-job training/on-the-job experience.

²Length of training dependent upon whether enlisted in the Advanced Technical Field (ATF) program (BTs) or Advanced Electronics Field (AEF) program (ATs and ETs) and length of obligated service (4 or 6 years). See Appendix I for additional information.

³BM rating achieved through on-the-job training (see Appendix C).

⁴SK rating may be achieved through on-the-job training (see Appendix G).

NOTE: A number of special courses available for the various ratings provide the technician with equipment-specific knowledge and/or skills required in a specific job assignment. In all probability an NEC will be awarded upon completion of the training. Some of these courses are taught by the Army and the Air Force.

Mid-Career Courses

While no courses are required for normal career development of the Navy logistics specialist, a number of supplementary technical courses are available for the mid-career enlisted member. The majority of these courses are designed to provide the technician with equipment-specific skills (NEC-awarding courses). Within the seven specialties studied, there are mid-career courses that many individuals choose upon reenlisting. These courses

are designed to further the technician's knowledge gained during technical training, to provide the technician with additional skills, and to enhance career progression (promotion). They are not required, however, for promotion. These mid-career courses are available to and attended by Selected Reservists as well as by Active Component sailors. Attendance at these courses by the Reservist hinges on his or her ability to be absent from civilian employment.

Navy Enlisted Classification

The NEC Structure supplements the Enlisted Rating Structure by identifying skills that (1) require more specific identification than is provided by rates and ratings and (2) are not rating-wide requirements (e.g., there is no need for all Navy Aviation Machinist's Mates (ADs) to hold the AD-6418 T-56 Turboprop Engine and 54H60 Series Propeller First Degree Intermediate Maintenance Activity Mechanic NEC). NECs may be awarded as a result of formal training, of on-the-job training, or of a combination of both. Some NECs are prerequisites for other NECs. Table 4-2 shows the distribution of billets requiring an NEC, between the Active and Reserve Components, in the activities chosen for this study. From the data displayed in Table 4-2, it is evident that the Navy attempts to assign billets requiring NECs to the Active Component. While over 40 percent of the billets in the selected activities (in the ratings studied) are assigned to the Naval Reserve, only 22 percent of the billets requiring NECs within those ratings are assigned to the Reserve.

TABLE 4-2. ACTIVE COMPONENT/RESERVE COMPONENT DISTRIBUTION
OF NEC BILLET REQUIREMENTS IN SELECTED ACTIVITIES

GRADE	QUANTITY				PERCENT OF TOTAL		
	TOTAL	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	367	318	7	42	86.6	1.9	11.5
E4	1,152	796	102	254	69.1	8.9	22.0
E5	1,707	1,159	153	395	67.9	9.0	23.1
E6	1,368	950	104	314	69.4	7.6	23.0
E7	559	391	30	138	69.9	5.4	24.7
Total	5,153	3,614	396	1,143	70.1	7.7	22.2

THE RESERVE COMPONENT TRAINING ENVIRONMENT

The training environment of the Navy Selected Reserve differs markedly from that of the Active Component. The primary training difficulties caused by the Reserve Component environment are related to the lack of training opportunities (equipment, facilities, time) where mobilization-related, hands-on training can routinely be accomplished. Within our sample, this problem is most serious for those units designated to reinforce SIMAs, Tenders, and Repair Ships. The ratings most affected are Boiler Technician (BT), Electronics Technician (ET), and Machinery Repairman (MR).

In general, Selected Reservists attend approximately 38 days of military duty each year. These days are divided between a periodic Inactive Duty Training (IDT) phase (approximately 24 days) and an annual Active Duty for Training (ACDUTRA) phase (approximately 14 days). Additional periods of training may be authorized when the need is demonstrated. The IDT phase training is normally conducted at the nearest Reserve Training Center with one 2-day period per quarter at the gaining command, at a similar command, or at a

nearby training site where equipment concentrations exist. ACDUTRA is normally conducted with the gaining command, or a similar command, or in a formal Navy school.

Another obstacle to the conduct of on-the-job training in the Selected Reserve is the composition of the units. Many of these units, especially the maintenance units, include a wide variety of ratings. This results in few billets of any specific rating being authorized for any one unit, thereby making on-the-job training supervision especially difficult. In addition, for units supporting fleet units, the equipment and weapon systems they must support are not readily available for IDT.

TRAINING SUPPORT

General

Training simulators, devices, and other support materials are developed for and are used primarily by Active Component trainers. A number of separate arrangements have been made by Selected Reserve units; by the Chief, Naval Reserve Force; and by intermediate Reserve commands for various types of support for Reserve training. Examples of these independent arrangements are:

- Assignment of landing craft to Reserve assault craft units for training so that the units, when mobilized, will operate with the same make and model of craft.
- Use of Maritime Administration cargo ships from the Ready Reserve Fleet as training platforms for cargo handling units.
- Construction, from scrap and salvaged materials, of a dry-land mock-up (complete with winches and cranes) of a cargo ship as a cargo handling training platform.

Weekend-Away Training. The weekend-away training (WET) concept is designed to provide members of the Selected Reserve opportunities to receive hands-on training in mobilization tasks in a work-center environment. Selected Reserve units are transported to training sites where equipment

concentrations exist. For our selected logistics units, the current policy is that each unit will receive a minimum of one WET opportunity per quarter.

Reserve Airlift. The Commander Naval Air Reserve Force (COMNAVAIRESFOR) is assigned the responsibility to provide airlift of Naval Reserve units and other air logistics support for fleet commanders during wartime or periods of national emergency. Administrative support of the Naval Reserve during peacetime training flights is offered whenever possible.

Every Friday, some COMNAVAIRESFOR aircraft complete a training flight circuit with stops for embarking Naval Reservist passengers. Late on Sunday, the training flight circuit is repeated to provide homeward transportation for individual Reservists.

In the past, the Reserve airlift has been dedicated primarily to transporting Reservists assigned to aviation units. This has enabled the aviation units to recruit and retain highly skilled and experienced people, even though their residence location may preclude automobile travel to training assemblies with their Reserve unit. This program is now being expanded to provide similar support to Naval Reserve surface units.

The use of Reserve airlift assets in support of Reserve unit training during WET is generally used for training at sites over 300 miles from the permanent drill site for groups of more than 15 passengers. This support is currently being provided by training funds already allocated to the Naval Reserve.

RESERVE TRAINING INITIATIVES

A number of recent training initiatives have begun to address the attainment and sustainment of technical skills by members of the Naval Reserve. The design of these initiatives reflect the marked increase in attention afforded the Naval Reserve by Navy leaders over the past several years. That attention

stems partly from concern over the likelihood of an overburdened Navy training base as a result of (1) the influx, via the Sea and Air Mariner (SAM) program (see Appendix H), of Reserve sailors without prior military service; and (2) programmed growth in Naval Reserve manning levels over the next few years.

The eight initiatives described below do not constitute an exhaustive list of approaches to Selected Reserve training in the Navy. They do represent, however, a reasonable sampling of what has become an attack across a broad front intended to improve Naval Reserve training.

- Utilizing Fleet Training Centers on weekends to train Reservists. For FY87, 9 officers and 196 enlisted people have been requested to support this increased workload.
- Constructing courses in modules to fit Reserve time schedules. This project started with a prototype effort, the HARPOON weapon maintenance course at Dam Neck, Virginia. The first Reserve input is slated for August 1985.
- Using civilian vocational/technical training programs to alleviate shortfalls in Active Component schools seats brought about by growth in the Active Component and need to provide technical training for the SAMs.
- Evaluating the concept of strategically located Reserve Readiness Centers (RRCs). These would be large Naval Reserve Centers designed, equipped, and staffed to provide training. Reservists would be transported to these activities for technical training on a recurring basis. Also, active duty personnel assigned to the RRC would travel to local training centers to conduct training.
- Increasing support for WET experiences. Additional manpower has been requested to manage WET for surface Reserve units in FY87.
- Developing self-teaching, exportable packages (STEP) for the individual Reservists' use at home. For FY87, \$775,000 has been requested to develop 25 different packages over the next 5 years.
- Developing a computer bank of test questions, by rating, to measure the individual Reservist's level of knowledge. Results of tests would determine future training. As the sailor progresses through the tailored training program, his or her progress would be measured using these testing procedures. For FY87, \$1,532,000 has been requested.
- Targeting of Reserve recruiting effort to attract even more Navy veterans with technical skills.

SUMMARY

The Navy's approach to training both the Active and Reserve Component logistics specialists was designed for the Active Component sailor. That approach requires a lengthy period of institutional, technical training followed by on-the-job training for the remainder of the sailor's career. Supplementary technical courses, usually designed for a specific system or piece of equipment or assignment, are available for both components. An NEC is often awarded upon completion of these courses. Attendance at any one of the courses is not required for promotion.

The Navy's standardized approach to initial skill training does not adversely affect the Selected Reservist. The sustainment of these skills or the learning of new skills, on the other hand, does present a problem for members of the Selected Reserve.

Difficulties associated with skill sustainment are related to the nature of the Reserve training environment, e.g., limited time available for training and unit location at some distance from Active and Reserve Component facilities where a concentration of training opportunities exists. To improve technical proficiency, the Naval Reserve has recently developed a number of initiatives addressing the skill sustainment issue.

5. OBSERVATIONS

TRAINING REQUIRED

Enlisted logistics specialists in the Naval Reserve are required to maintain the same level of skill as Active Component logistics specialists. Many of these Reserve specialists directly affect the Navy's ability to deploy and maintain forces early in mobilization. A significant fraction of the Navy's logistics force structure in important support activities is assigned to the Selected Reserve. Currently, the vast majority of the Reserve logistics specialists have acquired and reinforced their technical skills while serving at least one tour of active duty. This prior-service group represents a solid core of highly trained technicians that must have their skills refreshed periodically. Therefore, the Navy's peacetime training approach must sustain the skills of logistics specialists in the Naval Selected Reserve at a level that will allow employment with little or no additional training. As the SAM program matures, the Navy training orientation will have to broaden and focus more attention and resources on building the skills of non-prior-service sailors as well as sustaining skills.

TRAINING STRATEGIES

Navy training strategies, designed primarily for the Active Component sailors, do not meet the skill sustainment needs of many Reserve Component sailors due to the nature of their training environment, limited time available for training, and remoteness from Active Component facilities where hands-on-training can readily be accomplished.

Recognizing these problems, the Navy has initiated several steps to improve Selected Reserve training. A number of initiatives are under

development to modify Navy training strategies to fit the Reserve environment more effectively.

The Navy's initiatives designed to improve and enhance IDT, WET, and ACDUTRA are particularly important to SAM program participants. Reserve Component sailors need these improved opportunities to perform mission-related work in a unit setting.

APPENDIX A

NAVY AVIATION MACHINIST'S MATE

SPECIALTY: AD (Rating).

TITLE: Aviation Machinist's Mate (AD).

QUALIFICATIONS FOR RATING

General

The following general qualifications must be met to achieve the Aviation Machinist's Mate (AD) rating:

- Successful completion of Class "A" School (see section on the Training Program);
- A total score of 190 or higher on the Arithmetic Reasoning, Mathematical Knowledge, Electronic Information, and General Science aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB); and
- Normal color vision.

THE JOB

General

Navy ADs are aircraft engine mechanics. They inspect, adjust, repair, and overhaul aircraft engines and repair propellers. They also perform maintenance on helicopter power trains. These technicians specialize in jet engines, although some ADs work on reciprocating (piston) engines. ADs may function as aircrewmembers in various types of aircraft.

As an apprentice, the individual works under the supervision of others with more experience. Principal duties involve removing, cleaning, adjusting, servicing, and replacing jet engine components -- all according to technical directives and manuals.

The journeyman supervises the apprentice and performs more complex and independent work than the apprentice (e.g., rig and adjust controls, troubleshoot engine fuel and oil systems, and correct engine vibration malfunctions).

At the master level, the AD maintains logs and records, instructs subordinate personnel, troubleshoots, inspects and balances aircraft propeller assemblies and rotating engine components, and prepares weekly schedules of preventive maintenance.

Units of Assignment

This review focuses upon AD positions in ashore Aircraft Intermediate Maintenance Departments (AIMDs), except for those supporting the Naval Air Training Command. This activity was chosen for review because of its key role in making ready for deployment the first increment of additional tactical aircraft to support the fleet in time of war. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of ADs in ashore AIMDs is shown in Table A-1.

TABLE A-1. AC/RC DISTRIBUTION OF ADs IN AIMDs ASHORE

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	306	268	5	33	87.6	1.6	10.8
E4	504	369	39	96	73.2	7.7	19.1
E5	482	334	59	89	69.3	12.2	18.5
E6	358	241	38	79	67.3	10.6	22.1
E7	153	92	13	48	60.1	8.5	31.4
Total	1,803	1,304	154	345	72.3	8.5	19.2

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the AD career field, examples of NECs are: AD-6422 Jet Test Cell Operator, AD-6428 Helicopter Rotors/Related Components Intermediate Maintenance Activity Mechanic, and AD-6418 T-56 Turboprop Engine and 54H60 Series Propeller Intermediate Maintenance Activity Mechanic.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Almost 1,400 of the 1,800 AD billets in AIMDs ashore require specialization to the NEC level of specificity. Table A-2 displays the Active/Reserve distribution of those positions.

TABLE A-2. AC/RC DISTRIBUTION OF ADs NEC REQUIREMENTS IN AIMDs ASHORE

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	254	224	4	26	88.2	1.6	10.2
E4	373	314	9	50	84.2	2.4	13.4
E5	382	285	21	76	74.6	5.5	19.9
E6	272	201	14	57	73.9	5.1	21.0
E7	115	80	1	34	69.6	0.8	29.6
Total	1,396	1,104	49	243	79.1	3.5	17.4

Peacetime versus Wartime

While the Navy utilizes a number of different aircraft powerplants, the peacetime workload for the typical AD includes repair of only a portion of these. Jet engines and their accessories are similar enough that little difficulty is foreseen in the maintenance of additional systems even if wartime assignment requires realignment of support-to-supported relationships.

Implications of Force Modernization

Introduction of the F/A-18 offers the greatest immediate challenge to the AD from a force modernization perspective. To the extent the ADs in the Selected Reserve attend the appropriate courses (and maintain the skills learned there) in the quantities required for appropriate unit wartime performances, the impact of force modernization upon the AD rating will be minimized.

Career Progression/Merging

The Navy AD serves as an apprentice through the grade of E4. As the AD becomes more proficient, he/she may continue assignments as an engine repairer or, at the E6 enlisted grade, may also become a work-center supervisor. The AD rating does not merge with any other rating through the master level; at the E9 level it merges with the Aviation Structural Mechanic rating to become Aviation Maintenanceman.

THE INCUMBENT POPULATION

Personnel Attributes

Age. In general, Naval Reserve ADs are older than their Active Component counterparts. Table A-3 displays this information.

TABLE A-3. AD INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	21.4
	Reserve	22.8
E4	Active	23.9
	Reserve	26.9
E5	Active	26.6
	Reserve	32.8
E6	Active	32.6
	Reserve	39.9
E7	Active	36.7
	Reserve	45.9

NOTE: Reserve includes TARs.

Aptitude Area Scores. Naval Reserve ADs achieve modestly higher scores (minimum acceptable score is 190) in the Arithmetic Reasoning, Mathematical Knowledge, Electronic Information, and General Science subtests of the ASVAB than do their Active Component counterparts. These data are displayed in Table A-4. Test scores by grade are not available.

TABLE A-4. AD INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE ¹
Active	210.3
Reserve	218.4

¹The minimum acceptable score is 190 for this rating.

NOTE: Reserve includes TARs.

Civilian Education Completed. Almost one-quarter of Reserve ADs of the lowest grades have not completed high school, as compared with about 8 percent of their Active Navy counterparts. On the other hand, more Reserve ADs have completed some college work. Table A-5 contains information on civilian education completed.

TABLE A-5. AD INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	7.8	0	89.8	2.4
	Reserve	23.3	2.5	72.0	2.2
E4	Active	9.5	0	87.9	2.6
	Reserve	13.4	0	78.8	7.8
E5	Active	10.7	0	85.0	4.3
	Reserve	9.6	0.5	71.2	18.7
E6	Active	9.4	0	85.7	4.9
	Reserve	13.0	1.1	61.5	24.4
E7	Active	6.5	0	90.5	3.0
	Reserve	18.6	0	62.1	19.3
Total	Active	9.0	0	87.6	3.4
	Reserve	14.5	0.9	70.5	14.1

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

NOTE: Reserve includes TARs.

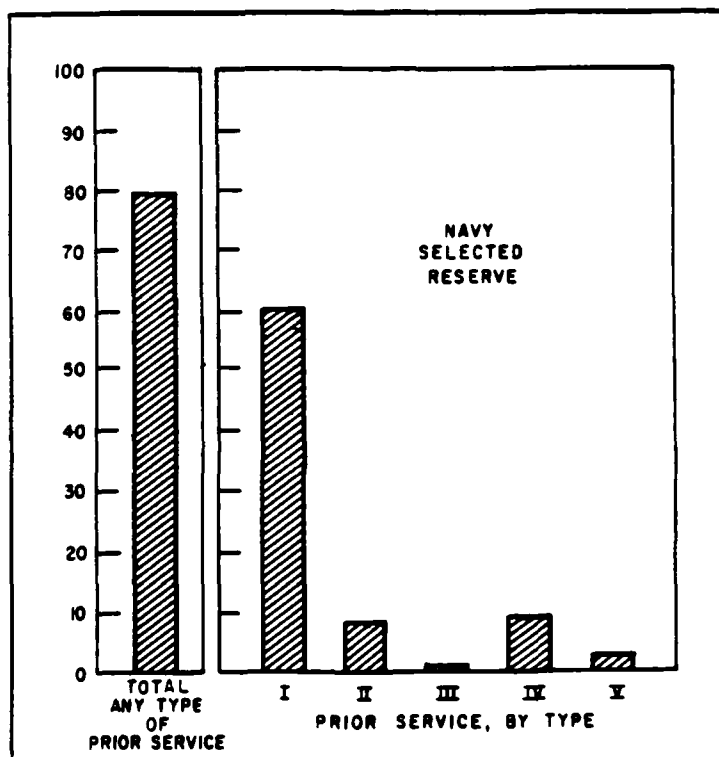
Experience

Prior Military Service. Most of the Selected Reserve ADs bring experience from prior active military service to their present military jobs.

Our estimate¹ is that just under 80 percent of Selected Reserve AD incumbents have this type of experience. Further, we believe that a large proportion (69 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure A-1 displays these estimates.

FIGURE A-1. AD INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE

(Composite Estimates)



NOTE. EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD
- I, II & III RELATED SERVICE (69%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD
- IV & V UNRELATED SERVICE (11%)

¹ All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative active duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 1,339 Selected Reserve AD accessions since 1 October 1982.

Length of Service. Reserve ADs at all grade levels have served longer than their Active Navy counterparts. Table A-6 shows the comparative data for both components.

TABLE A-6. AD INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	2.1
	Reserve	3.3
E4	Active	4.3
	Reserve	6.2
E5	Active	6.9
	Reserve	10.7
E6	Active	13.0
	Reserve	17.2
E7	Active	17.4
	Reserve	17.6

NOTE: Reserve includes TARs.

Time in Grade. Except for those holding the lowest enlisted grades, the average time spent in each enlisted grade is longer for the Reserve Component AD than for the Active Component AD. Table A-7 displays specific information, by grade.

TABLE A-7. AD INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	1.7
	Reserve	1.6
E4	Active	1.1
	Reserve	2.1
E5	Active	1.9
	Reserve	4.1
E6	Active	3.8
	Reserve	5.4
E7	Active	3.5
	Reserve	7.8

NOTE: Reserve includes TARs.

Full-Time Support. No full-time support is assigned to the Naval Selected Reserve units augmenting ashore AIMDs. However, active-duty (U.S. Navy and TARs) ADs are assigned to the ashore AIMDs in peacetime. While these technicians represent a potentially valuable source of skill and experience for the support of peacetime training of the Reserve ADs, the extent to which that support occurs is not clear in all cases. Where the AIMD Reserve augmentation unit is located near an AIMD, the U.S. Navy and TAR full-time staffs provide training support to Selected Reservists routinely. In cases where the augmentation unit is located at some distance from an AIMD, no training support by the AIMD staff is possible.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. To a great extent (given the level of prior-service-same-skill experience shown in Figure A-1), they are precisely the same sequences

followed by Selected Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the very same training strategy is applied, with the possibility of training interruptions for sailors choosing a "split-training" option.

Apprentice Training

Following successful completion of Recruit Training ("Boot Camp"), the sailor who is to become an AD attends an 11-day Enlisted Basic Aviation Training (EBAT) course at the Naval Air Technical Training Center (NATTC), Naval Air Station Memphis, Millington, Tennessee. Upon completion of this course, the individual stays at Millington, Tennessee to attend a 42-day AD Class A-1 course which provides the technical knowledge and skills of the AD rating. (These two courses together comprise the Class "A" School referred to in our earlier discussion of rating qualifications.) The designated AD then proceeds to his/her first duty station. Those ADs reporting to an AIMD will, in all probability, receive additional training en route to the first assignment. This training will be equipment-specific; generally the course consists of formal classroom instruction, followed by on-the-job training at an AIMD.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the AD puts to practical use those skills and knowledge learned en route to his/her assignment. He/she works toward the attainment of journeyman skills primarily through on-the-job training and the use of rate training manuals² and technical publications.

²Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating (e.g., Aviation Machinist's Mate); and subject-matter manuals or basic manuals that give information that applies to more than one rating (e.g., Basic Electronics, Military Requirements for E6 and E7).

Any further formal training will probably depend upon the needs of the job assignment.

Master Training

There is no master-level training per se for the AD rating. The master-level status is achieved through a combination of formal training throughout a career, on-the-job training and experience, use of technical publications, and self-directed study using rate training manuals and correspondence courses.

APPENDIX B

NAVY AVIATION ELECTRONICS TECHNICIAN

SPECIALTY: AT (Rating).

TITLE: Aviation Electronics Technician (AT).

QUALIFICATIONS FOR RATING

General

The following general qualifications must be met to achieve the Aviation Electronics Technician (AT) rating:

- Successful completion of Class "A" School (see section on the Training Program);
- A total score of 218 or higher on the Arithmetic Reasoning, Mathematics Knowledge, Electronic Information, and General Science aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB);
- Normal color vision;
- Eligible for a security clearance;
- U.S. citizen; and
- High school graduate or General Education Development equivalency.

THE JOB

General

The Navy ATs are aircraft electronics maintainers. They inspect and perform organizational and intermediate maintenance on aviation electronics equipment, including detection, reconnaissance, identification, communication, navigation, display, and aircraft data systems. ATs also operate airborne combat information centers and electronic countermeasure equipment.

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As an apprentice, the AT works under the supervision of others employing assorted test equipment in troubleshooting and repair of electronics equipment. This specialist uses schematics to trace and troubleshoot circuits, and uses system block diagrams and data flow charts to maintain avionics equipment. The apprentice AT also fabricates, replaces, and repairs interconnecting electronic cables and performs corrosion control and material preservation functions.

At the journeyman level, the AT performs modifications to avionics equipment; tests and repairs printed and transistor circuits; diagnoses reported discrepancies; performs routine upkeep of test equipment; and performs apprentice-level work. In addition, the journeyman is responsible for adhering to maintenance standards and procedures, conducting on-the-job training of apprentices, maintaining a shop's technical library, and performing quality assurance inspections.

As a master technician, this specialist supervises and instructs others of lesser skills in troubleshooting and maintenance practices and procedures. The master technician also directs the work center safety program, prepares weekly preventive maintenance schedules, performs quality assurance inspections, supervises the avionics corrosion control program, and conducts avionics inventories.

Units of Assignment

This review concentrates on AT positions in ashore Aircraft Intermediate Maintenance Departments (AIMDs), less those supporting the Naval Air Training Command. This activity was chosen for review because of its key role in making ready for deployment the first increment of additional tactical

aircraft to support the fleet in time of war. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of ATs in these activities is shown in Table B-1.

TABLE B-1. AC/RC DISTRIBUTION OF ATs IN AIMDs ASHORE

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	256	205	2	49	80.1	0.8	19.1
E4	494	264	85	145	53.4	17.2	29.4
E5	605	385	84	136	63.6	13.9	22.5
E6	495	319	73	103	64.4	14.8	20.8
E7	211	126	39	46	59.7	18.5	21.8
Total	2,061	1,299	283	479	63.0	13.7	23.3

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the AT career field, examples of NECs are: AT-6605 Aircraft Radar Altimeter Equipment Intermediate Maintenance Activity (IMA) Technician, AT-6607 Digital Data Link Communications IMA Technician, and AT-6608 Aircraft Navigation Computers IMA Technician.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Almost 1,420 of the 2,061 AT billets in AIMDs ashore included in this study require specialization to the NEC level of specificity. Table B-2 displays the Active/Reserve distribution of those positions.

TABLE B-2. AC/RC DISTRIBUTION OF ATs NEC REQUIREMENTS IN AIMDs ASHORE

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	111	93	2	16	83.8	1.8	14.4
E4	385	207	72	106	53.8	18.7	27.5
E5	460	286	62	112	62.2	13.5	24.3
E6	384	256	38	90	66.7	9.9	23.4
E7	78	56	10	12	71.8	12.8	15.4
Total	1,418	898	184	336	63.3	13.0	23.7

Peacetime versus Wartime

The impact of mobilization and wartime operation upon the AT rating is negligible. The functions ATs would be performing upon mobilization are those they are performing in peacetime.

Implications of Force Modernization

Introduction of the F/A-18 offers the greatest immediate challenge to the AT from a force modernization perspective. To the extent the ATs in the Selected Reserve attend the appropriate courses (and maintain the skills learned there) in the quantities required for appropriate unit wartime performances, the impact of force modernization upon the AT rating will be minimized.

Career Progression/Merging

The Navy AT serves as an apprentice through grade E4. Journeyman skills call for the grade of E5. As the AT becomes more proficient, he/she may be assigned as a work-center supervisor or quality assurance inspector. The AT rating does not merge with any other rating through the master level (E6); at the E9 level it merges with the Aviation Fire Control Technician, Aviation Electrician's Mate, and Aviation Antisubmarine Warfare Technician ratings to become Avionics Technician.

THE INCUMBENT POPULATION

Personnel Attributes

Age. In general, Naval Reserve ATs are older than their Active Component cohorts. Table B-3 displays this information.

TABLE B-3. AT INCUMBENT ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	21.9
	Reserve	22.3
E4	Active	23.5
	Reserve	26.7
E5	Active	26.5
	Reserve	32.9
E6	Active	31.8
	Reserve	39.1
E7	Active	36.3
	Reserve	42.6

NOTE: Reserve includes TARs.

Aptitude Area Scores. Navy ATs are required to achieve a combined score of at least 218 on the Arithmetic Reasoning, Mathematical Knowledge, Electronic Information, and General Science aptitude areas of the ASVAB. The average aptitude scores are shown in Table B-4. Test scores by grade are not available.

TABLE B-4. AT INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE
Active	237.5
Reserve	237.2

NOTE: Reserve includes TARs.

Civilian Education Completed. Fewer Reserve Component ATs are high-school-diploma graduates than are their Active Navy counterparts. On the other hand, more Reserve Component ATs have completed some college work. Table B-5 contains information on civilian education completed.

TABLE B-5. AT INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	7.4	0	88.6	4.0
	Reserve	13.1	1.4	78.7	6.8
E4	Active	4.0	0	90.0	6.0
	Reserve	8.3	1.7	78.8	11.2
E5	Active	4.4	0	88.7	6.9
	Reserve	4.0	0.6	65.3	30.1
E6	Active	2.3	0	87.2	10.5
	Reserve	5.5	0.3	52.3	41.9
E7	Active	1.9	0	88.1	10.0
	Reserve	4.2	0	53.1	42.7
Total	Active	4.5	0	88.6	6.9
	Reserve	6.3	0.7	64.5	28.5

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

NOTE: Reserve includes TARs.

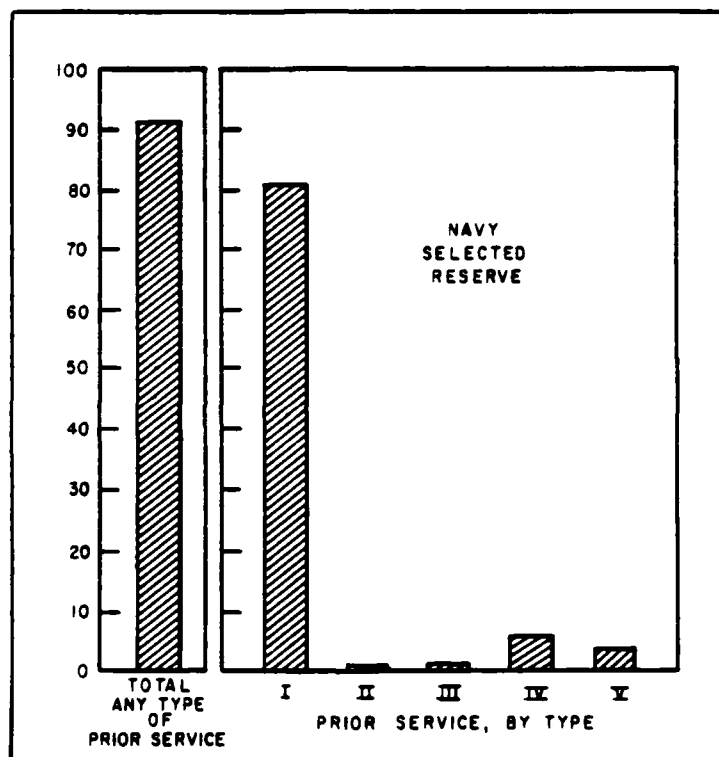
Experience

Prior Military Service. The vast majority of the Selected Reserve ATs bring experience from prior active military service to their present

military jobs. Our estimate¹ is that over 91 percent of Selected Reserve AT incumbents have this type of experience. Further, we believe that a very large proportion (over 82 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure B-1 displays these estimates.

FIGURE B-1. AT INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE

(Composite Estimate)



NOTE. EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD
- I, II & III RELATED SERVICE (82.5%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD
- IV & V UNRELATED SERVICE (1%)

¹All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 1,035 Selected Reserve AT accessions since 1 October 1982.

Length of Service. While the disparities are not large, Reserve ATs at all grade levels have served longer than their Active Navy counterparts. Table B-6 shows the comparative data for the Active Navy and Naval Reserve.

TABLE B-6. AT INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY EXPERIENCE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	2.3
	Reserve	2.6
E4	Active	3.3
	Reserve	5.2
E5	Active	6.5
	Reserve	9.9
E6	Active	11.9
	Reserve	15.1
E7	Active	16.8
	Reserve	19.6

NOTE: Reserve includes TARs.

Time-in-Grade. As with the length of present military service, the time spent in a present enlisted grade is longer for the Reserve Component AT than for the Active Component AT. This is true for all AT enlisted grades. Table B-7 displays specific information, by grade.

TABLE B-7. AT INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.9
	Reserve	1.1
E4	Active	1.1
	Reserve	1.6
E5	Active	2.2
	Reserve	4.0
E6	Active	3.6
	Reserve	5.7
E7	Active	2.7
	Reserve	6.7

NOTE: Reserve includes TARs.

Full-Time Support. No full-time support is assigned to Naval Reserve units augmenting ashore AIMDs. However, active-duty (U.S. Navy and TARs) ATs are assigned to the ashore AIMDs in peacetime. While these technicians represent a potentially valuable source of skill and experience for the support of peacetime training of the Reserve ATs, the extent to which that support occurs is not clear in all cases. Where the AIMD Reserve augmentation unit is located near an AIMD, the U.S. Navy and TAR full-time staffs provide training support to Selected Reservists routinely. In cases where the augmentation unit is located at some distance from an AIMD, no training support by the AIMD staff is possible.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. To a great extent (given the level of prior-service-same-skill experience shown in Figure B-1), they are precisely the same sequences

followed by Selected Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the very same training strategy is applied, with the possibility of training interruptions for sailors choosing a "split-training" option.

General

The candidate for the AT rating may choose one of two paths upon completing Recruit Training ("Boot Camp"), i.e., 4-year obligation (4YO) or 6-year obligation (6YO). The difference between the two programs is the depth of the initial technical training received.

Apprentice Training

Initial technical training following completion of Recruit Training is the same for the 4YO and 6YO. This training consists of an 11-day Enlisted Basic Aviation Training (EBAT) course at the Naval Air Technical Training Center (NATTC), Naval Air Station Memphis, Millington, Tennessee, followed by a 32-day Basic Electricity and Electronics (BE&E) theory course. The BE&E course is followed by a 125-day Avionics Technician Class "A" School, which provides the trainee with the technical knowledge and skills required for the AT rating. These two latter courses are also taught at the NATTC in Millington, Tennessee. Upon completion of the Class "A" School, the 4YO has completed his/her initial technical training and is assigned to a fleet unit for duty -- additional, equipment-specific training may be completed en route to the fleet unit if the billet requires that training. The 6YO may also be assigned to a fleet unit at this time (to return in 10 to 12 months)² or remain in school for an additional 138 days in an advanced avionics course.

²Emphasis is being placed on sending the 6YO to a fleet unit at this point to gain practical job experience, thus "locking in" those skills attained up to that point.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the AT puts to practical use those skills and knowledge acquired during training. He/she works toward the attainment of journeyman skills, primarily through on-the-job training and the use of rate training manuals³ and technical publications. Any further formal training will probably depend upon the needs of the job assignment.

Master Training

There is no master-level training per se for the AT rating. The master-level status is achieved through a combination of formal training throughout a career, on-the-job training and experience, use of technical publications, and self-directed study using rate training manuals and correspondence courses.

³Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Aviation Electronics Technician; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

APPENDIX C
NAVY BOATSWAIN'S MATE

SPECIALTY: BM (Rating).

TITLE: Boatswain's Mate (BM).

QUALIFICATIONS FOR RATING

General

Successful completion of on-the-job training is the only general qualification that must be met to achieve the Boatswain's Mate (BM) rating.

THE JOB

General

The Navy BM maintains the exterior surfaces of ships, maintains deck machinery and equipment, handles cargo, operates small boats, and serves as gun-mount captain.

As an apprentice, the BM accomplishes relatively simple tasks such as assisting winchmen or cranemen, receiving cargo and vehicles, exterior surface maintenance, serving as boat coxswain, and performing preventive maintenance on ship's deck equipment.

At the journeyman level, the Navy BM directs damage control repair party subgroups; serves as gun-mount captain; supervises loading, discharging, and stowing of cargo; and orders repair parts and special tools. Increased responsibility for the operation of landing craft occurs at this level as well.

As a master BM, this specialist directs damage control repair parties; supervises the transfer of cargo; supervises the maintenance of required

logs, records, and plans; and organizes daily work assignments. Additionally, at the master level, the BM instructs personnel in all BM duties, prepares weekly schedules of preventive maintenance, and reviews completed maintenance data collection forms.

Units of Assignment

General. This review concentrates on the BM positions in assault craft units, beachmaster units, and cargo handling battalions. These activities were chosen for review because of their critical role in early, over-the-beach logistics support to forces during amphibious operations. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of BM billets in the above activities is shown in Table C-1.

TABLE C-1. AC/RC DISTRIBUTION OF BMs IN THREE SELECTED ACTIVITIES¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	8	8	0	0	100.0	0	0
E4	577	86	0	491	14.9	0	85.1
E5	303	121	0	182	39.9	0	60.1
E6	215	47	0	168	21.9	0	78.1
E7	98	64	0	34	65.3	0	34.7
Total	1,201	326	0	875	27.1	0	72.9

¹The three selected activities are: assault craft units, beachmaster units, and cargo handling battalions.

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Assault Craft Units. During an amphibious landing, assault craft units (ACUs) provide waterborne transportation for Marine Corps or Army assault echelon vehicles, cargo, and personnel. The landing craft and crews are embarked in wet-well ships preboarded with assault vehicles and cargo as specified in the amphibious landing plan. After the initial assault, these craft continue to support the combat forces ashore by providing waterborne transportation for on-call equipment and the general assault echelon shipping offload. Similarly, once the assault echelon is offloaded, these units are used in the general offloading of the assault follow-on echelon shipping. The ACU personnel and equipment interact with the sea- and shore-based components of the amphibious logistics system to move both breakbulk and containerized cargo from ship to shore either directly over the beach or via an elevated causeway system.

The Active and Reserve Component distribution of BM billets in ACUs is shown in Table C-2.

TABLE C-2. AC/RC DISTRIBUTION OF BMs IN ACUs

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	2	2	0	0	100.0	0	0
E4	87	48	0	39	55.2	0	44.8
E5	122	95	0	27	77.9	0	22.1
E6	43	20	0	23	46.5	0	53.5
E7	64	44	0	20	68.8	0	31.2
Total	318	209	0	109	65.7	0	34.3

There are seven Naval Reserve ACUs located throughout the country. Each unit has one or more landing craft of the type it would operate and maintain in wartime (except Landing Craft Air Cushioned (LCAC) vehicles). The Naval Reserve is scheduled to take delivery of seven additional landing craft in 1986. These new craft will be used to replace some of the older assets and provide additional training platforms.

Inactive Duty Training (IDT) consists of most underway operations that would be conducted in wartime except for "coming alongside" and the actual loading/unloading of the craft. This latter type of training is conducted during the annual, 2-week Active Duty for Training (ACDUTRA) period that is performed at the gaining command. In addition to operational training during IDT, the units perform maintenance on the assigned craft.

Beachmaster Units. Beachmaster units are responsible for conducting naval beach operations in direct support of amphibious assaults. Tasks include controlling the landing and movement of troops, equipment, and supplies on and near amphibious assault beaches. Specific support includes communications; operations of amphibious vehicles; control of landing ships, craft, and amphibious vehicles on and near the assault beach; removal or assistance of disabled landing craft; installation of causeways and beach markers; evacuation of casualties and prisoners of war; and reembarkation of personnel and vehicles as required.

The Active and Reserve Component distribution of BM billets in beachmaster units is shown in Table C-3.

TABLE C-3. AC/RC DISTRIBUTION OF BMs IN BEACHMASTER UNITS

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	6	6	0	0	100.0	0	0
E4	46	27	0	19	58.7	0	41.3
E5	27	16	0	11	59.3	0	40.7
E6	9	8	0	1	88.9	0	11.1
E7	26	18	0	8	69.2	0	30.8
Total	114	75	0	39	65.8	0	34.2

Beachmaster unit training provides the Reservist with opportunities to participate in naval beach operations through IDT, participation in fleet exercises, weekend-away training (WET)¹ one weekend per quarter, and ACDUTRA. IDT includes most beach party operations except for the actual controlling of the landing and movement of troops, equipment, and supplies on and near a beach. This latter type of training is conducted during the annual 2-week ACDUTRA that is performed at the gaining command.

Cargo Handling Battalions. Cargo handling battalions are quick-response combat support units of the operating forces specializing in cargo handling. They are capable of worldwide deployment as battalions or in specialized detachments. Cargo handling battalions are organized, trained, and equipped to load and offload Navy and Marine Corps cargo carried in merchant breakbulk and container ships, to operate an associated ocean cargo terminal, to load and offload Navy and Marine Corps cargo carried in military controlled

¹WET requires the movement of Selected Reservists to a location where hands-on training can be obtained. This training is done at the gaining command or at a similar activity.

aircraft, and to operate an air cargo terminal. Additionally, cargo handling battalions can establish and maintain base camps in forward areas with a limited, small arms, self-defense capability for security of their assigned storage areas.

Reserve Component Participation. The Active and Reserve Component distribution of BMs in cargo handling battalions is shown in Table C-4.

TABLE C-4. AC/RC DISTRIBUTION OF BM BILLETS
IN CARGO HANDLING BATTALIONS

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	0	0	0	0	0	0	0
E4	444	11	0	433	2.5	0	97.5
E5	154	10	0	144	6.5	0	93.5
E6	163	19	0	144	11.7	0	88.3
E7	8	2	0	6	25.0	0	75.0
Total	769	42	0	727	5.5	0	94.5

Cargo handling battalion reserve unit training is oriented on providing the Reservist with opportunities to handle cargo. This training is accomplished through participation in fleet exercises, IDT at Navy and Air Force cargo handling facilities, WET once per quarter as a full battalion, and ACDUTRA at the Navy Cargo Handling Port Group facility in Williamsburg, Virginia, where the Reservists receive formal classroom and hands-on-training in cargo handling.

The Naval Reserve and the Maritime Administration have entered into agreements whereby the Maritime Administration has made available general cargo ships in a Ready Reserve status for Selected Reserve units to use as training platforms. At the present time, Maritime Administration ships at Williamsburg, Virginia; Philadelphia, Pennsylvania; and Oakland, California are used for this purpose. Negotiations are being conducted to locate Ready Reserve status ships at Seattle, Washington; Port Hueneme, California; Pensacola, Florida; and Charleston, South Carolina.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the BM career field, examples of NECs are: BM-0114 Stevedore, BM-0164 Assault Boat Coxswain, and BM-0165 Landing Craft Utility Captain.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Of the 1,200 BM billets assigned to assault craft units, beachmaster units, and cargo handling battalions throughout the Navy, only 227 require further specialization to the NEC level of specificity. Table C-5 displays the Active/Reserve distribution of those positions.

TABLE C-5. AC/RC DISTRIBUTION OF BM BILLETS WITH NEC REQUIREMENTS
IN THREE SELECTED ACTIVITIES¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	0	0	0	0	0	0	0
E4	53	23	0	30	43.4	0	56.6
E5	82	56	0	26	68.3	0	31.7
E6	30	25	0	5	83.3	0	16.7
E7	62	50	0	12	80.6	0	19.4
Total	227	154	0	73	67.8	0	32.2

¹The three selected activities are: assault craft units, beachmaster units, and cargo handling battalions.

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserves.

Peacetime versus Wartime

Because of the basic and fundamental nature of BM work in the activities studied, there is little difference between the job demands upon a BM in peacetime and during war. On the other hand, the integrated wartime operation of moving men and materials as part of a larger organization involved in a joint or combined team presents special problems. That operation calls for increased complexity in ship-to-shore operations and requires special preparation of cargo handlers, boat crews, and beachmasters in peacetime.

Implications of Force Modernization

BMs assigned to ACUs are affected by the introduction of the LCAC vehicle into the fleet. Current planning is for the establishment of LCAC vehicle augmentation units that will have 16 BM billets (8 E7 and 8 E5). The

E5 billets require 2 days of specialized training; the E7 LCAC vehicle operator billets require 12 weeks of specialized schooling.

Career Progression/Merging

The BM serves as an apprentice through grade E4. Journeyman skills call for the grade of E5. As the BM becomes more proficient, he/she may be assigned as a hatch captain, hold boss, or officer-in-charge of a landing craft. The BM rating does not merge with any other rating.

THE INCUMBENT POPULATION

Personal Attributes

Age. Reserve BMs are older than Active Component BMs at each enlisted grade. Table C-6 displays this information.

TABLE C-6. BM INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	23.3
	Reserve	25.6
E4	Active	23.8
	Reserve	27.8
E5	Active	27.1
	Reserve	31.4
E6	Active	32.5
	Reserve	38.1
E7	Active	36.7
	Reserve	43.2

NOTE: Reserve includes TARs.

Aptitude Area Scores. There is no minimum Armed Services Vocational Aptitude Battery (ASVAB) score for the BM rating.

Civilian Education Completed. Fewer Reserve BMs are high-school-diploma graduates than are their Active Component counterparts, and more Reserve BMs hold General Education Development certificates of equivalency than their Active Component counterparts. A greater portion of the Selected Reserve BMs have also completed at least some college work. Table C-7 contains information on civilian education completed.

TABLE C-7. BM INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	16.0	0	82.6	1.4
	Reserve	19.6	0.9	77.6	1.9
E4	Active	14.9	0	83.1	2.0
	Reserve	16.0	2.1	75.3	6.6
E5	Active	21.3	0	76.5	2.2
	Reserve	17.4	2.8	67.9	11.9
E6	Active	23.6	0	73.7	2.7
	Reserve	18.0	1.6	63.8	16.6
E7	Active	20.7	0	77.7	1.6
	Reserve	16.6	1.7	65.6	16.1
Total	Active	19.1	0	78.8	2.1
	Reserve	17.0	2.1	69.7	11.2

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

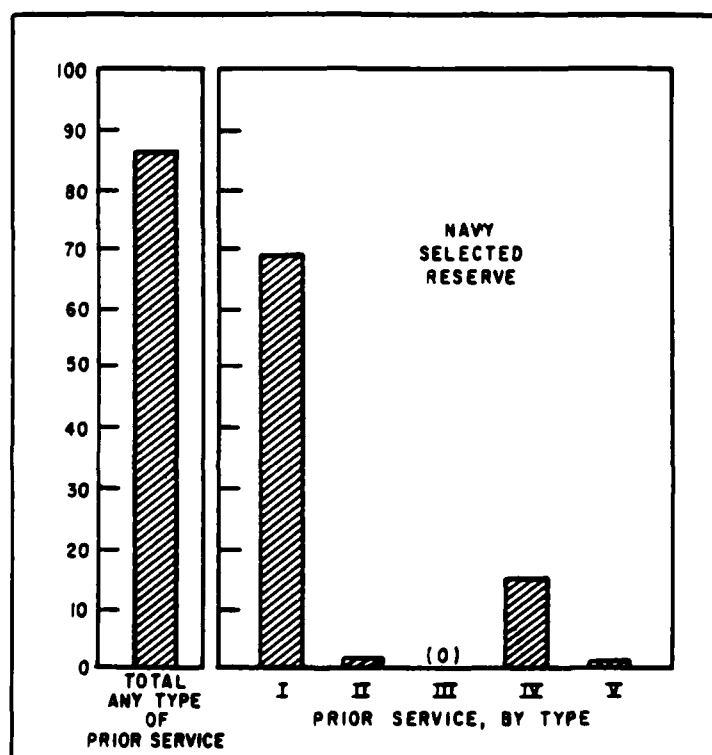
NOTE: Reserve includes TARs.

Experience

Prior Military Service. Most Selected Reserve BMs bring experience from prior active military service to their present military jobs. Our

estimate² is that 87 percent of Selected Reserve BM incumbents have this type of experience. Further, we believe that a large portion (over 70 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure C-1 displays these estimates.

FIGURE C-1. BM INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE
(Composite Estimates)



NOTE: EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY.
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD.
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD.
- I, II & III RELATED SERVICE (71%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD.
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD.
- IV & V UNRELATED SERVICE (16%)

² All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 2,152 Selected Reserve BM accessions since 1 October 1982.

Length of Service. Selected Reserve BMs at all grade levels have served longer than their Active Navy counterparts. Table C-8 shows the comparative data for Active and Selected Reserves.

TABLE C-8. BM INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	3.6
	Reserve	4.8
E4	Active	4.2
	Reserve	6.3
E5	Active	7.5
	Reserve	9.2
E6	Active	13.0
	Reserve	16.2
E7	Active	17.8
	Reserve	22.4

NOTE: Reserve includes TARs.

Time in Grade. As with length of present military service, the time spent in a present enlisted grade is longer for the Selected Reserve BM than for the Active Component counterpart. This is true for all BM enlisted grades. Table C-9 displays specific information, by grade.

TABLE C-9. BM INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.8
	Reserve	1.6
E4	Active	0.9
	Reserve	1.4
E5	Active	1.6
	Reserve	1.8
E6	Active	3.4
	Reserve	3.1
E7	Active	3.8
	Reserve	4.9

NOTE: Reserve includes TARs.

Full-Time Support. No full-time support is assigned to the Naval Reserve ACUs, beachmaster units, or cargo handling battalions. Active-duty (U.S. Navy) BMs are, however, assigned to the gaining commands of these units in peacetime. While these U.S. Navy technicians represent a potentially valuable source of skill and experience for the support of peacetime training of the Reserve BMs, the extent to which that support occurs is not clear in all cases. Where the Reserve unit is located near the gaining command, the U.S. Navy full-time staffs provide training support to Selected Reservists routinely. In cases where the Reserve unit is located at some distance from its gaining command, no training support is possible.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. To a great extent (given the level of prior-service-same-skill experience shown in Figure C-1), they are precisely the same sequences

followed by Selected Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the very same training strategy is applied, with the possibility of training interruptions for sailors choosing a "split-training" option.

General

Candidates for the BM rating come from the Navy's General Rates (Apprenticeships).³ Upon completing Recruit Training ("Boot Camp"), individuals in this category attend a 4-week apprenticeship school where they receive familiarization training in general seamanship. Upon completion of apprenticeship training, these individuals are assigned either to fleet units or to the shore establishment. In either of these assignments, they perform general detail duties. It is from the general seamanship (Seaman) rate that individuals "strike" (become candidates) for the BM rating.

Most of the training for BMs takes place at their duty station in the form of on-the-job training, supervised by sailors more experienced in the rating. This is augmented by self-directed study using rate training manuals, correspondence courses, technical publications, and some formal training.⁴

Apprentice Training

Apprentice training consists of on-the-job training under close supervision and direction of more senior BMs and self-directed study using rate training manuals and correspondence courses. Functions in which the BM

³An identification assigned to personnel at pay grades E1, E2, and E3 to indicate eligibility for entry into various ratings. There are six General Rates, of which seamanship is one.

⁴Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Storekeeper; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

candidate (striker) must become qualified include location of damage control fittings, ordnance and missile handling, operation of deck winches, securing of cargo and vehicles, preparation and application of paints and primers, basic seamanship knots, and maintenance and care of ship's deck equipment. The apprentice receives formal training if required by the job assignment.

Journeyman Training/Sustainment Training

As with the apprentice, journeyman training consists of on-the-job training under the supervision of more senior BMs.

Master Training

There is no master-level training per se for the BM rating. The master-level status is achieved through a combination of on-the-job training and experience, use of technical publications, self-directed study using rate training manuals, and perhaps some formal training.⁵

⁵"Formal training" here refers to any of the three training courses available to BMs for the acquiring of equipment-specific skills or job-specific skills.

APPENDIX D

NAVY BOILER TECHNICIAN

SPECIALTY: BT (Rating).

TITLE: Boiler Technician (BT).

QUALIFICATIONS FOR RATING

General

The following general qualifications must be met to achieve the Boiler Technician (BT) rating:

- Successful completion of Class "A" School (see section on the Training Program);
- A total score of 94 or higher on the Mathematics Knowledge and Automotive Information Aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB); and
- Male gender.

THE JOB

General

Navy BTs operate and perform organizational and intermediate maintenance on marine boilers, pumps, forced draft blowers, and heat exchangers; they perform tests, transfers, and inventory of fuels and water; and they maintain records and prepare reports. BTs also stand rating-related fireroom watches (e.g., burnerman, messenger, console operator) when underway.

As an apprentice, this specialist works under the supervision of others with more experience. Principal duties involve the use of blueprints and drawings; testing of boilerwater, feedwater, fuel oil, and lubricating oil; normal lighting of boilers; manufacture of gaskets, tubing, and flexible

hose assemblies; operation of emergency fuel shutoff systems; performance of preventive maintenance; and the taking of inventories -- all according to technical directives and manuals.

The journeyman supervises the apprentice and performs more complex and independent work than the apprentice; he inspects boilers, maintains logs and records, conducts quality assurance inspections, overhauls ancillary equipment (pumps, valves, and burners), and prepares water treatment chemicals.

At the master level, the BT conducts emergency drills, prepares maintenance schedules, calibrates sight gauges, overhauls safety valves, and instructs personnel.

Units of Assignment

This study is focused upon the BT positions in Tenders, Shore Intermediate Maintenance Activities (SIMAs), Repair Ships, and Yard Repair Barges. These activities were chosen for review because of their key role in making ready for deployment the first increment of additional combatants in time of war. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of BT billets in the above activities is shown in Table D-1.

TABLE D-1. AC/RC DISTRIBUTION OF BT BILLETS
IN FOUR SELECTED ACTIVITIES OF INTEREST¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	79	60	8	11	75.9	10.2	13.9
E4	464	299	31	134	64.4	6.7	28.9
E5	642	338	76	228	52.6	11.8	35.6
E6	472	255	42	175	54.0	8.9	37.1
E7	264	135	26	103	51.2	9.8	39.0
Total	1,921	1,087	183	651	56.6	9.5	33.9

¹The four activities of interest are: SIMAs, Repair Ships, Tenders, and Yard Repair Barges.

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the BT career field, examples of NECs are: BT-4501 Automated Propulsion Control System Operator, BT-4502 Boiler Repair Technician, and BT-4511 Automatic Combustions Control Maintenceman.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Almost 540 of the 1,900 BT billets in Tenders, SIMAs, Repair Ships, and Yard Repair Barges require further specialization to the NEC level of specificity. Table D-2 displays the distribution of those positions.

TABLE D-2. AC/RC DISTRIBUTION OF BT BILLETS WITH NEC REQUIREMENTS
IN FOUR SELECTED ACTIVITIES¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	0	0	0	0	0	0	0
E4	41	36	0	5	87.8	0	12.2
E5	173	97	16	60	56.1	9.2	34.7
E6	203	118	26	59	58.1	12.8	29.1
E7	114	63	8	43	55.3	7.0	37.7
Total	531	314	50	167	59.1	9.4	31.5

¹The four activities of interest are: SIMAs, Repair Ships, Tenders, and Yard Repair Barges.

Peacetime versus Wartime

For those Selected Reserve BTs whose augmentation units are located close to the activities to be augmented during war, the move from peace to war should have little impact. These specialists are now able to train and to practice routinely with tools and equipment they will be expected to use upon mobilization. Those Reservists who do not have ready access to Active Component facilities for hands-on training will have greater difficulty. The Navy has lessened this training deficiency by providing weekend-away training (WET)¹ one weekend per quarter. The 2-week Active Duty for Training (ACDUTRA) period is also conducted at similar locations.

¹WET requires the movement of Selected Reservists to a location where hands-on training can be obtained. This training is done at the gaining command or at a similar activity.

Implications of Force Modernization

The modernization of the force has little or no bearing on BTs assigned to the activities studied.

Career Progression/Merging

The Navy BT serves as an apprentice through grade E4. Journeyman skills call for the grade of E5. As the BT becomes more proficient and experienced, he is given ever-increasing, more demanding tasks. The master level is reached at E6. The BT rating does not merge with any other rating.

THE INCUMBENT POPULATION

Personnel Attributes

Age. Reserve Component BTs are older than their Active Component counterparts. Table D-3 displays this information.

TABLE D-3. BT INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	22.1
	Reserve	23.8
E4	Active	23.9
	Reserve	27.5
E5	Active	26.2
	Reserve	33.1
E6	Active	30.1
	Reserve	38.3
E7	Active	34.9
	Reserve	43.7

NOTE: Reserve includes TARs.

Aptitude Area Scores. Navy BTs are required to achieve a combined score of at least 94 on the Mathematical Knowledge and Automotive Information aptitude areas of the ASVAB. The average aptitude scores on the ASVAB 5, 6, and 7 test series (data were not available for the ASVAB 8, 9, and 10 series) are shown in Table D-4. Test scores by grade are not available.

TABLE D-4. BT INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE
Active	107.4
Reserve	107.7

NOTE: Reserve includes
TARs.

Civilian Education Completed. Comparison of the civilian education of the Active and Reserve Component BT populations on a grade-by-grade basis shows an uneven relationship. The two populations are quite similar when compared overall. Table D-5 contains information on civilian education completed.

TABLE D-5. BT INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	10.6	0	87.7	1.7
	Reserve	21.0	0.7	77.6	0.7
E4	Active	10.9	0	86.8	2.3
	Reserve	14.0	0.5	78.5	7.0
E5	Active	17.6	0	79.5	2.9
	Reserve	10.7	1.8	78.3	9.2
E6	Active	25.0	0	69.1	5.9
	Reserve	12.0	2.7	72.7	12.6
E7	Active	17.6	0	79.4	3.0
	Reserve	18.2	1.3	69.5	11.0
Total	Active	15.0	0	82.1	2.9
	Reserve	14.2	1.4	76.1	8.3

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

NOTE: Reserve includes TARs.

Experience

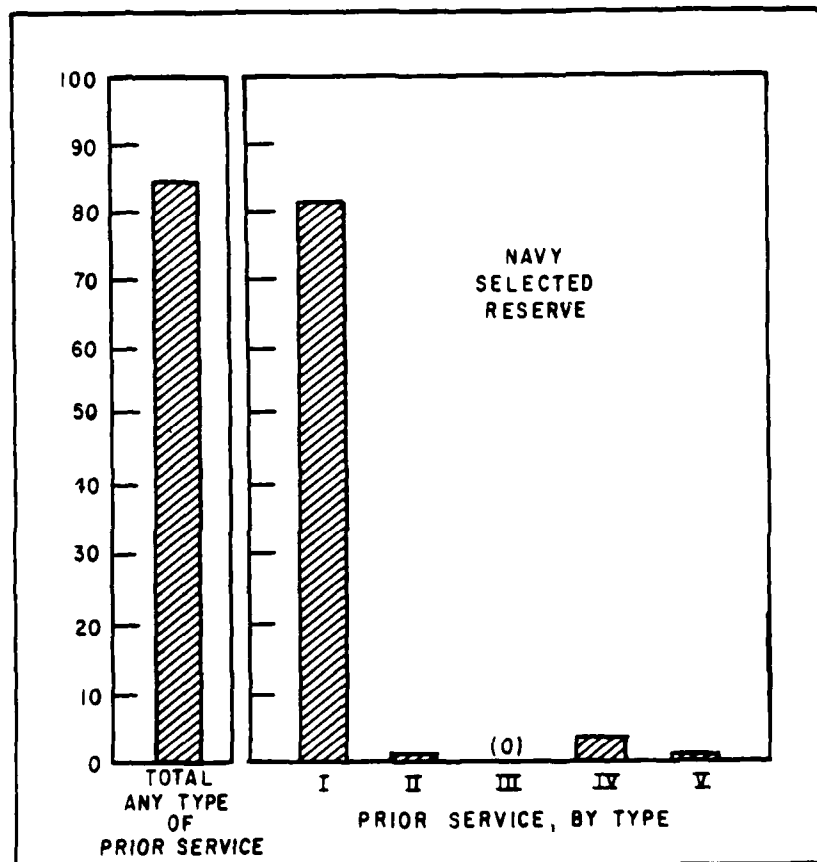
Prior Military Service. Most Selected Reserve BTs bring experience from prior active military service to their present military jobs. Our estimate² is that 84 percent of Selected Reserve BT incumbents have this type

²All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 865 Selected Reserve BT accessions since 1 October 1982.

of experience. Further, we believe that a very large proportion (over 80 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure D-1 displays these estimates.

FIGURE D-1. BT INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE

(Composite Estimates)



NOTE: EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD
- I, II & III RELATED SERVICE (86%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD
- IV & V UNRELATED SERVICE (4%)

Length of Service. Reserve BTs at all grade levels have served longer than their Active Component counterparts. Table D-6 shows the comparative data for the Active Navy and Naval Reserve.

TABLE D-6. BT INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	2.4
	Reserve	4.0
E4	Active	3.8
	Reserve	6.5
E5	Active	6.5
	Reserve	10.3
E6	Active	10.4
	Reserve	15.9
E7	Active	15.6
	Reserve	21.2

NOTE: Reserve includes TARs.

Time-in-Grade. As with the length of total military service, the time spent in a present enlisted grade is longer for the Reserve Component BT than for the Active Component BT. Table D-7 displays this information by grade.

TABLE D-7. BT INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.7
	Reserve	1.6
E4	Active	1.1
	Reserve	2.5
E5	Active	1.9
	Reserve	3.7
E6	Active	2.2
	Reserve	4.4
E7	Active	3.0
	Reserve	5.1

NOTE: Reserve includes TARs.

Full-time Support. No full-time support is assigned to Naval Reserve units augmenting the activities chosen for study. However, active-duty (U.S. Navy and TARs) BTs are assigned to these activities in peacetime. While these technicians represent a potentially valuable source of skill and experience for the support of peacetime training for the Reserve BTs, the extent to which that support occurs is not clear in all cases. Where the SIMA, Tender, Repair Ship, or Yard Repair Barge augmentation unit is located near a maintenance facility, the U.S. Navy and TAR full-time staffs provide training support to Selected Reservists routinely. In cases where the augmentation unit is located at some distance from a maintenance facility, no training support by the full-time staff is possible.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. To a great extent (given the level of prior-service-same-skill experience shown in Figure D-1), they are precisely the same sequences

followed by Selected Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the identical training strategy is applied, with the possibility of training interruptions for sailors choosing a "split-training" option.

General

The candidate for the BT rating may choose either of two paths upon completing Recruit Training ("Boot Camp"), based on the length of active duty enlistment: 4-year obligation (4YO) or 6-year obligation (6YO). The difference between the two programs is the depth of the initial technical training received.

Apprenticeship Training

Initial technical training following completion of Recruit Training is the same for both the 4YO and the 6YO sailor. This training consists of a 30-day propulsion engineering basics course, followed by the 54-day Boiler Technician Class "A" School. These courses are taught at the Navy Services Schools Command, Naval Training Center, Great Lakes, Illinois. Upon completion of this training, both the 4YO and 6YO BTs are assigned to the fleet. Upon completion of a 2-year sea tour, the 6YO technician will receive advanced training lasting from 4 to 19 weeks (length of training is dependent upon needs of the Navy). The initial technical training received provides the new BT with the knowledge and skills to perform entry-level tasks associated with the BT rating.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the BT puts to practical use those skills and knowledge learned during training. He works toward the attainment of journeyman skills primarily through on-the-job training and the

use of rate training manuals³ and technical publications. Additional formal training will depend upon the needs of the specific job assignment.

Master Training

There is no master-level training per se for the BT rating. The master-level status is achieved through a combination of occasional formal training, on-the-job training and experience, exposure to technical publications, and self-directed study using rate training manuals and correspondence courses.

³Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Boiler Technician; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

APPENDIX E

NAVY ELECTRONICS TECHNICIAN

SPECIALTY: ET (Rating).

TITLE: Electronics Technician (ET).

QUALIFICATIONS FOR RATING

General

The following qualifications must be met to achieve the Electronics Technician (ET) rating:

- Successful completion of Class "A" School (see section on the Training Program);
- A total score of 218 or higher on the Arithmetic Reasoning, Mathematics Knowledge, Electronic Information, and General Science aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB);
- Accept a 6-year obligation;
- Normal color perception;
- Normal hearing;
- U.S. citizen;
- Eligible for security clearance; and
- High school graduate or General Education Development equivalency.

THE JOB

General

Navy ETs perform organizational and intermediate maintenance on electronic equipment used for communications, detection, tracking, recognition and identification, and aids to navigation.¹

¹Exceptions: airborne equipment, data processing systems, interior communications systems, teletypewriters, sonar, dual reckoning analyzer indicators, weapon control systems, and electronic warfare systems.

As an apprentice, the ET works under the supervision of more experienced ETs, employing test equipment in troubleshooting and repair of electronics equipment. This technician uses schematics to trace and troubleshoot circuits, and uses system block diagrams and data flow charts to maintain electronics equipment. The apprentice ET also installs modifications and performs material preservation functions.

At the journeyman level, the ET isolates problems to subsystems and components and repairs those subsystems and components. In addition, the ET aligns transmitters and receivers; tests and repairs general-purpose test equipment; manufactures electrical and electronic cable assemblies; and tests, adjusts, and repairs coolant systems and heat exchangers.

As a master technician, this specialist tests and repairs special-purpose test equipment, administers training to subordinates, performs quality assurance inspections, and prepares preventive maintenance schedules.

Units of Assignment

This study concentrates on the ET positions in Tenders, Shore Intermediate Maintenance Activities (SIMAs), Repair Ships, and Yard Repair Barges. These types of activities were chosen for review because of their key role in making ready for deployment the first increment of additional combatants in time of war. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of ET billets in the above activities is shown in Table E-1.

TABLE E-1. AC/RC DISTRIBUTION OF ET BILLETS
IN FOUR SELECTED ACTIVITIES¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	126	80	10	36	63.5	7.9	28.6
E4	551	367	27	157	66.6	4.9	28.5
E5	798	562	54	182	70.4	6.8	22.8
E6	679	496	29	154	73.0	4.3	22.7
E7	263	164	15	84	62.4	5.7	31.9
Total	2,417	1,669	135	613	69.1	5.5	25.4

¹The four activities of interest are: SIMAs, Repair Ships, Tenders, and Yard Repair Barges.

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the ET career field, examples of NECs are: ET-1418 Digital Microwave Technician, ET-1588 Electronics Standards Specialist, and ET-1502 Radar Technician.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Almost 1,550 of the 2,400 ET billets assigned to SIMAs, Tenders, Repair Ships, and Yard Repair Barges require specialization to the NEC level of specificity. Table E-2 displays the Active/Reserve distribution of those positions.

TABLE E-2. AC/RC DISTRIBUTION OF ET BILLETS WITH NEC REQUIREMENTS
IN FOUR SELECTED ACTIVITIES¹

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	1	1	0	0	100.0	0	0
E4	300	216	21	63	72.0	7.0	21.0
E5	590	415	54	121	70.3	9.2	20.5
E6	469	340	26	103	72.5	5.5	22.0
E7	180	132	11	37	73.3	6.1	20.6
Total	1,540	1,104	112	324	71.7	7.3	21.0

¹The four activities of interest are: SIMAs, Repair Ships, Tenders, and Yard Repair Barges.

Peacetime versus Wartime

For those Selected Reserve ETs whose augmentation units are located close to the activities to be augmented during war, the move from peace to war should have little impact. These specialists are now able to train and to practice routinely with tools and equipment they will be expected to use upon mobilization. Those Reservists who do not have ready access to Active Component facilities for hands-on training will have greater difficulty. The Navy has lessened this training deficiency by providing weekend-away training (WET)² one weekend per quarter. The 2-week Active Duty for Training (ACDUTRA) period is also conducted at similar locations.

²WET requires the movement of Selected Reservists to a location where hands-on training can be obtained. This training is done at the gaining command or at a similar activity.

Implications of Force Modernization

To the extent the ETs in the Selected Reserve attend the appropriate courses (and maintain skills learned there) in the quantities required for appropriate unit wartime performances, the impact of force modernization upon the ET rating will be minimized.

Career Progression/Merging

The ET serves as an apprentice through grade E4. Journeyman skills call for the grade of E5. As the ET becomes more proficient, he may be assigned as a quality assurance inspector at the E6 level and, later, as a work-center supervisor as an E7. The ET rating does not merge with any other rating.

THE INCUMBENT POPULATION

Personnel Attributes

Age. ETs in the Reserve Component are older than their Active Component counterparts. Table E-3 displays this information.

TABLE E-3. ET INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	23.0
	Reserve	24.6
E4	Active	22.5
	Reserve	30.3
E5	Active	24.7
	Reserve	34.8
E6	Active	29.1
	Reserve	36.2
E7	Active	34.9
	Reserve	40.3

NOTE: Reserve includes TARs.

Aptitude Area Scores. Navy Reserve ETs achieve modestly higher combined score (minimum acceptable score is 218) in the Arithmetic Reasoning, Mathematics Knowledge, Electronics Information, and General Science aptitude areas of the ASVAB than their Active Component counterparts. These data are displayed in Table E-4. Test scores by grade are not available.

TABLE E-4. ET INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE
Active	244.4
Reserve	249.3

NOTE: Reserve includes
TARs.

Civilian Education Completed. Fewer Reserve Component ETs are high-school-diploma graduates than are their Active Navy counterparts. On the other hand, more Reserve Component ETs have completed some college work. Table E-5 contains information on civilian education completed. The reason for the high percentage of Reserve E1-E3s who are not high school graduates cannot be determined.

TABLE E-5. ET INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	2.6	0	92.2	5.2
	Reserve	27.9	0	65.1	7.0
E4	Active	0.5	0	90.9	8.6
	Reserve	4.9	2.0	63.8	29.3
E5	Active	1.2	0	89.8	9.0
	Reserve	4.5	0.2	58.6	36.7
E6	Active	1.3	0	88.2	10.5
	Reserve	4.4	0.2	59.0	36.4
E7	Active	0.9	0	85.3	13.8
	Reserve	5.1	0.6	52.4	41.9
Total	Active	1.0	0	89.6	9.4
	Reserve	5.1	0.6	58.7	35.6

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

NOTE: Reserve includes TARs.

Experience

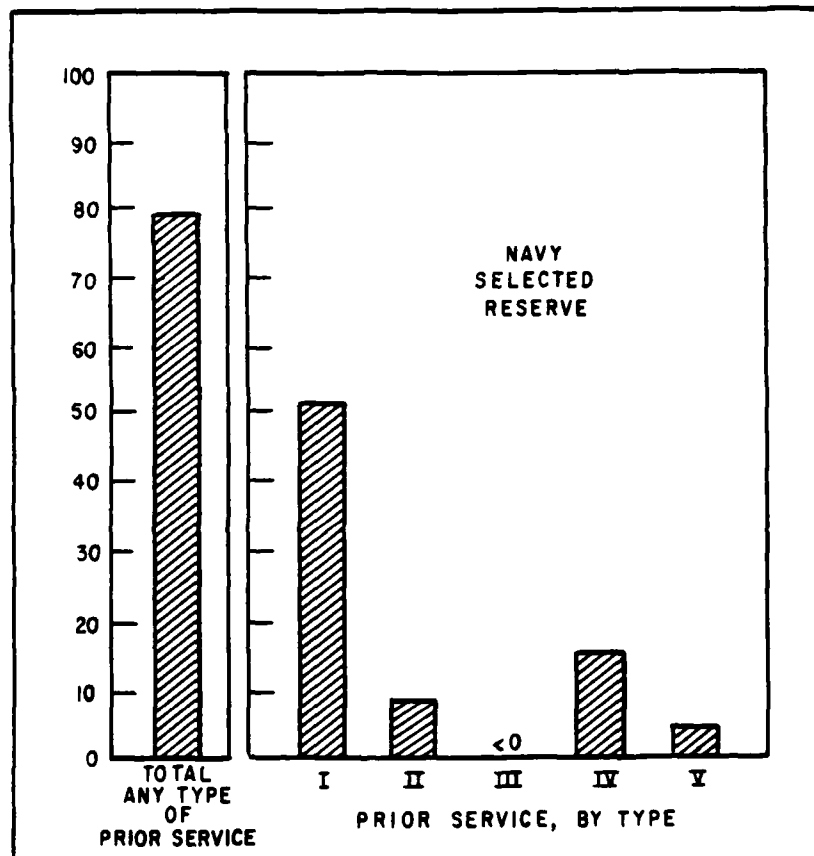
Prior Military Service. Most Selected Reserve ETs bring experience from prior active military service to their present military jobs. Our estimate³ is that over 79 percent of Selected Reserve ET incumbents have this

³All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 1,198 Selected Reserve ET accessions since 1 October 1982.

type of experience. Further, we believe that a sizeable portion (over 59 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure E-1 displays these estimates.

FIGURE E-1. ET INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY EXPERIENCE

(Composite Estimates)



NOTE: EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY.
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD.
- I, II & III RELATED SERVICE (59%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD.
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD.
- IV & V UNRELATED SERVICE (20%)

Length of Service. Reserve ETs at all grade levels have more total service than their Active Navy counterparts. Table E-6 shows the comparative data for the Active Navy and Naval Reserve.

TABLE E-6. ET INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	3.2
	Reserve	4.3
E4	Active	2.7
	Reserve	6.5
E5	Active	5.0
	Reserve	10.0
E6	Active	9.5
	Reserve	13.4
E7	Active	15.3
	Reserve	18.7

NOTE: Reserve includes TARs.

Time in Grade. The time spent in a present enlisted grade is longer for the Reserve Component ET than for the Active Component ET. This is true for all ET enlisted grades. Table E-7 displays specific information, by grade.

TABLE E-7. ET INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.5
	Reserve	1.5
E4	Active	1.2
	Reserve	1.5
E5	Active	1.4
	Reserve	3.3
E6	Active	2.5
	Reserve	4.5
E7	Active	2.9
	Reserve	5.3

NOTE: Reserve includes TARs.

Full-Time Support. No full-time support is assigned to Naval Reserve units augmenting the activities chosen for this study. However, active-duty (U.S. Navy and TARs) ETs are assigned to these activities in peacetime. While these technicians represent a potentially valuable source of skill and experience for the support of peacetime training for the Reserve ETs, the extent to which that support occurs is not clear in all cases. When the SIMA, Tender, Repair Ship, Yard Repair Barge augmentation unit is located near a maintenance facility, the U.S. Navy and TAR full-time staffs of those activities provide training support to Selected Reservists routinely. In cases where the augmentation unit is located at some distance from a maintenance facility, no routine training support by the full-time staff is possible.

THE TRAINING PROGRAM

Apprentice Training

Following successful completion of Recruit Training ("Boot Camp"), the ET candidate attends a 95-day Basic Electricity and Electronics (BE&E)

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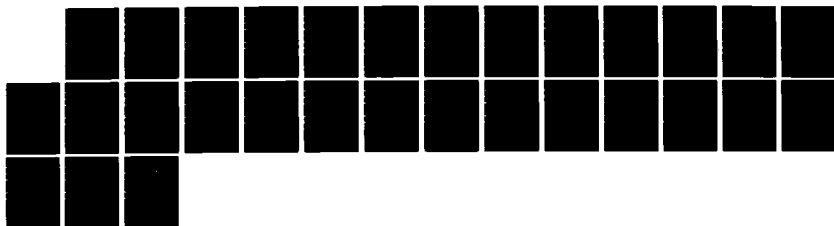
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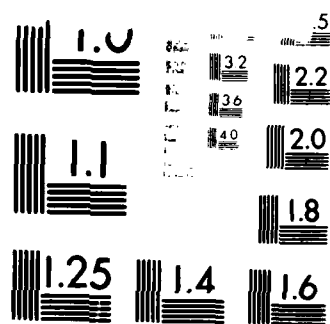
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Molecular Biology

theory course at the Service School Command, Naval Training Center, Great Lakes, Illinois. This course is followed by a 201-day Electronics Technician Class "A" Advanced Electronics course (also taught at Great Lakes, Illinois) that provides the ET candidate with a basic knowledge of electronic fundamentals and develops troubleshooting skills. At this time, the individual is awarded the ET designation and is assigned to a fleet unit for duty. In all probability, additional equipment-specific training will be received en route to this assignment.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the ET puts to practical use those skills and knowledge learned during the earlier formal training. This specialist works toward the attainment of journeyman skills primarily through on-the-job training and the use of rate training manuals⁴ and technical publications. Further, formal training normally depends upon future job assignments.

Master Training

There is no master-level training per se for the ET rating. Master-level status is achieved through a combination of formal training throughout the career, on-the-job training and experience, use of technical publications, and self-directed study using rate training manuals and correspondence courses.

⁴Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Electronics Technician; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

APPENDIX F

NAVY MACHINERY REPAIRMAN

SPECIALTY: MR (Rating).

TITLE: Machinery Repairman (MR).

QUALIFICATIONS FOR RATING

General

The following qualifications must be met to achieve the Machinery Repairman (MR) rating:

- Successful completion of Class "A" School (see section on the Training Program) or on-the-job training;
- A total score of 155 or higher on the Arithmetic Reasoning, Mechanical Comprehension, and Shop Information or Auto and Shop Information aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB); and
- Visual acuity of 20/100 correctable to 20/20.

THE JOB

General

The Navy MR is a skilled machine tool operator. They make replacement parts and repair or overhaul ships engines and auxiliary equipment. The MR also works on deck equipment, winches, hoists, condensers, and heat exchange devices. On occasion, they operate main propulsion machinery in addition to performing machine-shop and -repair duties.

As an apprentice, the MR works under the supervision of more experienced MRs, operating various equipment found in a machine shop repairing and maintaining ships machinery.

At the journeyman level, the MR performs similar tasks to those of the apprentice, but journeyman tasks routinely have more stringent tolerances than those of the apprentice.

As a master technician, the MR performs heat treatment of metals; grinds valves in place; manufactures various gears, splines, and sprockets; conducts quality assurance inspections; and aligns and balances machine shop equipment.

Units of Assignment

This study concentrates on the MR positions in Tenders, Shore Intermediate Maintenance Activities (SIMAs), Repair Ships, and Yard Repair Barges. These types of activities were chosen for review because of their key role in making ready for deployment the first increment of additional combatants in time of war. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of MR billets in the above activities is shown in Table F-1.

**TABLE F-1. AC/RC DISTRIBUTION OF MR BILLETS
IN FOUR SELECTED ACTIVITIES¹**

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	215	176	6	33	81.9	2.8	15.3
E4	727	536	19	172	73.7	2.6	23.7
E5	700	479	19	202	68.4	2.7	28.9
E6	511	307	24	180	60.1	4.7	35.2
E7	217	114	9	94	52.5	4.2	43.3
Total	2,370	1,612	77	681	68.0	3.3	28.7

¹The four activities of interest are: SIMAs, Repair Ships, Tenders, and Yard Repair Barges.

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). The MR rating does not have any NECs assigned.

Peacetime versus Wartime

Because of the basic and fundamental nature of the MR's work, there is little difference between the job demands in peacetime and those that occur during war. Unit of assignment and types of equipment supported during war should have little effect upon performance in this specialty. Improvisation and substitution due to material shortages are to be expected during war. It is difficult to estimate the extent to which these or similar problems occur during peacetime.

Implications of Force Modernization

Of the seven technical Navy skills selected for this study, the MR is least affected by the introduction of new systems into the force.

Career Progression/Merging

The MR serves as an apprentice through grade E4. Journeyman skills call for the grade of E5. As the MR becomes more proficient, he/she instructs personnel in operating and maintenance procedures, conducts quality assurance inspections, aligns and balances machine shop equipment at the E6 (master) level, and serves as a work-center supervisor as an E7. The MR rating does not merge with any other rating.

THE INCUMBENT POPULATION

Personnel Attributes

Age. MRs in the Reserve Component are older than their Active Component counterparts. Table F-2 displays this information.

TABLE F-2. MR INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	21.4
	Reserve	24.2
E4	Active	23.1
	Reserve	29.1
E5	Active	26.3
	Reserve	33.9
E6	Active	33.5
	Reserve	41.8
E7	Active	37.3
	Reserve	45.6

NOTE: Reserve includes TARs.

Aptitude Area Scores. Naval Reserve MRs achieve moderately higher combined scores (minimum acceptable score is 155) on the Arithmetic Reasoning, Mechanical Comprehension, and Shop Information aptitude areas of the ASVAB 5, 6, and 7 test series (data were not available for the ASVAB 8, 9, and 10 series). The average aptitude scores are shown in Table F-3. Test scores by grade are not available.

TABLE F-3. MR INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE
Active	167.5
Reserve	172.3

NOTE: Reserve includes TARs.

Civilian Education Completed. Across all enlisted grades, a smaller proportion of Reserve Component MRs are high-school-diploma graduates than is the case with their Active Navy counterparts. On the other hand, a greater percentage of Reserve MRs have completed some college work. Table F-4 contains information on civilian education completed.

TABLE F-4. MR INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	5.8	0	91.4	2.8
	Reserve	8.3	0	83.4	8.3
E4	Active	6.5	0	88.6	4.9
	Reserve	11.2	2.5	75.1	11.2
E5	Active	8.4	0	86.3	5.3
	Reserve	10.4	1.8	71.4	16.4
E6	Active	6.6	0	78.7	14.7
	Reserve	8.7	1.4	69.5	20.4
E7	Active	3.8	0	90.8	5.4
	Reserve	13.5	0	67.4	19.1
Total	Active	6.6	0	86.8	6.6
	Reserve	10.4	1.6	71.6	16.4

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

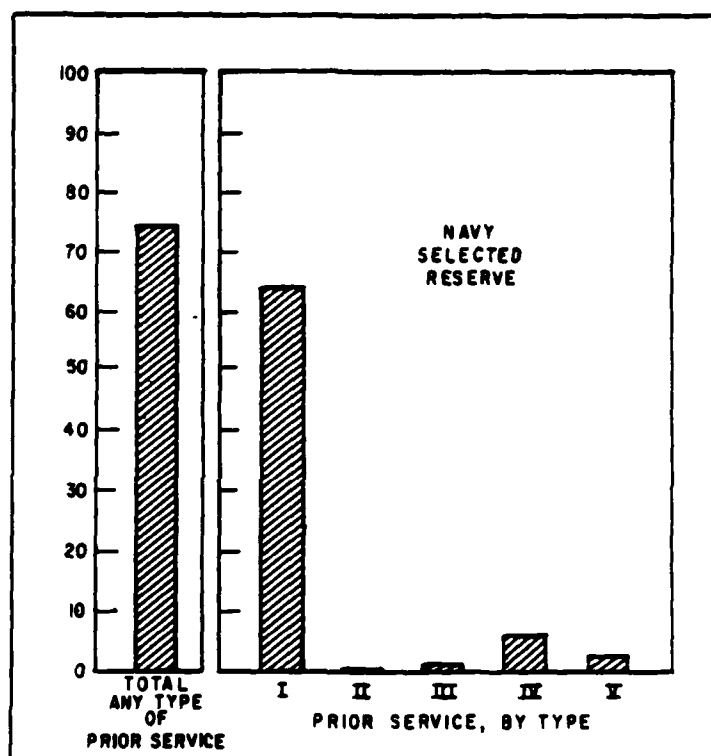
NOTE: Reserve includes TARs.

Experience

Prior Military Service. Most Selected Reserve MRs bring experience from prior active military service to their present military jobs. Our

estimate¹ is that over 74 percent of Selected Reserve MR incumbents have this type of experience. Further, we believe that a large proportion (65 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure F-1 displays these estimates.

FIGURE F-1. MR INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE
(Composite Estimates)



NOTE: EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD
- I, II & III RELATED SERVICE (65%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD
- IV & V UNRELATED SERVICE (9%)

¹ All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 530 Selected Reserve MR accessions since 1 October 1982.

Length of Service. Reserve MRs at all grade levels have served longer than their Active Navy counterparts. Table F-5 shows the comparative data on length of total service for the Active Navy and Naval Reserve.

TABLE F-5 MR INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	1.7
	Reserve	4.8
E4	Active	3.2
	Reserve	6.1
E5	Active	6.0
	Reserve	10.0
E6	Active	12.3
	Reserve	16.8
E7	Active	16.8
	Reserve	22.0

NOTE: Reserve includes TARs.

Time-in-Grade. The time spent in present grade is longer for the Selected Reserve MR than it is for the Active Component MR. This is true for all enlisted grades. Table F-6 displays specific information, by grades.

TABLE F-6. MR INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.3
	Reserve	1.6
E4	Active	0.4
	Reserve	1.6
E5	Active	1.3
	Reserve	3.7
E6	Active	4.0
	Reserve	6.1
E7	Active	3.5
	Reserve	6.1

NOTE: Reserve includes TARs.

Full-Time Support. No full-time MR support is assigned to Naval Reserve units augmenting activities selected for this study. However, active-duty (U.S. Navy and TARs) MRs are assigned directly to these activities in peacetime. While these technicians represent a potentially valuable source of skill and experience for the support of peacetime training for the Reserve MRs, the extent to which that support occurs is not clear in all cases. Where the SIMA, Tender, Repair Ship, or Yard Repair Barge augmentation unit is located near a maintenance facility they serve, the U.S. Navy and TAR full-time staffs provide training support to Selected Reservists routinely. In cases where the augmentation unit is located at some distance from a maintenance facility, no routine training support by the full-time staff is possible.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. They are the same sequences followed by most Selected

Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the very same training strategy is applied, with the possibility of interruptions in the training sequence for those choosing "split-training" options.

Apprentice Training

Following successful completion of Recruit Training ("Boot Camp"), the MR candidate may attend a 68-day Class "A" School at the Service Schools Command, Naval Training Center, San Diego, California. This course is designed to train the candidate for the MR rating for general machine shop operations on various surface ships and at shore installations. Upon completion of the course, the individual is awarded the MR designation and is assigned to a fleet unit for duty. It is highly unlikely that any additional training will be received en route to this assignment.

The MR rating also may be achieved by on-the-job training, beginning immediately after completion of Recruit Training.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the MR puts to practical use those skills and knowledge learned during the earlier formal training. This specialist works toward the attainment of journeyman skills through on-the-job training and use of rate training manuals,² technical publications, and correspondence courses. Further formal training normally depends upon the needs of future job assignments.

²Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Machinery Repairman; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

Master Training

There is no master-level training per se for the MR rating. Master-level status is achieved through a combination of formal training as required, on-the-job training and experience, exposure to technical publications, and self-directed study using rate training manuals and correspondence courses.

APPENDIX G
NAVY STOREKEEPER

SPECIALTY: SK (Rating).

TITLE: Storekeeper (SK).

QUALIFICATIONS FOR RATING

General

The following general qualifications must be met to achieve the Storekeeper (SK) rating:

- Successful completion of Class "A" School (see section on the Training Program) or on-the-job training; and
- A score of 104 or higher on the Verbal and Arithmetic Reasoning aptitude areas of the Armed Services Vocational Aptitude Battery (ASVAB).

THE JOB

General

Navy SKs account for and issue supplies and material. In addition, SKs perform a wide variety of related jobs, including fiscal management, stock control, warehousing, inventory management, and physical distribution of supplies. They also maintain complex fiscal records.

As an apprentice, this specialist works under the supervision of others with more experience. Principal duties involve the preparation and submission of requisitions, operation of materials handling equipment, identification and storing of material, and preparation of items for shipment.

At the journeyman level, the SK establishes and maintain files; processes and reconciles financial records; prepares operating target reports; requisitions equipage, repair parts, consumables, forms, and publications;

supervises working parties handling stores; prepares documents for open purchase; and analyzes and adjusts high and low limits of stock records.

At the master level, the SK prepares correspondence and messages, instructs others in supply-related matters, implements and supervises prescribed accounting procedures, processes vendors' bills for payment, and carries out procedures for returning material for repair or overhaul.

Units of Assignment

This study focuses upon the SK positions in Supply Centers and Supply Depots. These activities were chosen for review because of their key role in sustaining deployed forces. The Active Component/Reserve Component (referred to in the tables as AC/RC) distribution of SK billets in the above activities is shown in Table G-1. The SK rating represents the largest group of logistics technicians reviewed in this study.

**TABLE G-1. DISTRIBUTION OF SK BILLETS
IN SUPPLY CENTERS AND SUPPLY DEPOTS**

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	7	7	0	0	100.0	0	0
E4	803	33	0	770	4.1	0	95.9
E5	818	74	0	744	9.0	0	91.0
E6	481	51	0	430	10.6	0	89.4
E7	269	34	0	235	12.6	0	87.4
Total	2,378	199	0	2,179	8.4	0	91.6

NOTE: USN = U.S. Navy; TAR = Training and Administration of the Reserves; and SELRES = Selected Reserve.

Navy Enlisted Classification

The Navy Enlisted Classification (NEC) Structure supplements the Enlisted Rating Structure by providing more specific job or specialty information than is provided by rates and ratings (enlisted grades and career fields). For the SK career field, examples of NECs are: SK-2813 Independent Duty Ashore Storekeeper, SK-2816 Supply and Accounting Analyst, and SK-2821 Air Transportation Specialist.

NECs may be awarded as a result of formal training, on-the-job training, or through a combination of on-the-job training and formal training. Some NECs are prerequisites for others.

Only 40 of the nearly 2,400 SK billets assigned to Supply Centers and Supply Depots throughout the Navy require further specialization to the NEC level of specificity. All 40 billets are U.S. Navy billets. (See Table G-2.)

TABLE G-2. AC/RC DISTRIBUTION OF SK NEC REQUIREMENTS
IN SUPPLY CENTERS AND SUPPLY DEPOTS

GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
E1-E3	0	0	0	0	0	0	0
E4	0	0	0	0	0	0	0
E5	20	20	0	0	100.0	0	0
E6	10	10	0	0	100.0	0	0
E7	10	10	0	0	100.0	0	0
Total	40	40	0	0	100.0	0	0

Peacetime versus Wartime

For those Selected Reserve SKs whose augmentation units are located close to the activities to be augmented during war, the move from peace to war should have little impact on job performance. These specialists are now able to practice routinely the tasks they will be expected to perform upon mobilization. Those Reservists who do not have ready access to Active Component facilities for hands-on training will have greater difficulty. The Navy has lessened this training deficiency by providing weekend-away training (WET)¹ one weekend per quarter. The 2-week Active Duty for Training (ACDUTRA) period is also conducted at similar locations.

Implications of Force Modernization

Force modernization has an impact on the work of SKs assigned to Supply Centers and Supply Depots, primarily in the areas of packaging and preservation of supplies and material. Additionally, advancements in the handling of material resulting from automation in Navy Supply Centers and Supply Depots will affect the work of SKs. The impact of modernization, however, appears to be minimal for the Selected Reserve SK because of the routine practice and training received in those tasks they will be expected to perform in wartime.

Career Progression/Merging

The SK serves as an apprentice through E4. Journeyman skills call for the grade of E5. As the SK becomes more proficient, he/she is assigned greater responsibilities in the areas of financial control and logistics support at the master (E6) level. The SK rating does not merge with any other rating.

¹WET requires the transportation of an entire unit to a location where hands-on training can be obtained. This training is performed at the gaining command or at a similar activity.

THE INCUMBENT POPULATION

Personal Attributes

Age. Reserve Component SKs are older than their Active Component counterparts. Table G-3 displays this information.

TABLE G-3. SK INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE AGE

GRADE	COMPONENT	MEAN AGE (YEARS)
E1-E3	Active	21.8
	Reserve	24.6
E4	Active	24.2
	Reserve	32.4
E5	Active	27.2
	Reserve	35.3
E6	Active	33.0
	Reserve	39.6
E7	Active	37.3
	Reserve	42.9

NOTE: Reserve includes TARs.

Aptitude Area Scores. SKs are required to achieve a combined score of at least 104 on the Verbal and Arithmetic Reasoning aptitude area of the ASVAB. The average aptitude scores are shown in Table G-4. Test scores by grade are not available.

TABLE G-4. SK INCUMBENT PERSONAL ATTRIBUTES --
AVERAGE ASVAB SUBSCORES

COMPONENT	MEAN SCORE
Active	107.0
Reserve	110.1

NOTE: Reserve includes
TARs.

Civilian Education Completed. The Reserve SK population generally contains a lower proportion of high school graduates, but it also contains a greater proportion of specialists who have completed some college work, when compared to the Active Component SK population. Table G-5 contains information on civilian education completed.

TABLE G-5. SK INCUMBENT PERSONAL ATTRIBUTES --
CIVILIAN EDUCATION COMPLETED

(Percentage of Total)

GRADE	COMPONENT	NONGRADUATE ¹	GED ²	HSDG ³	SOME COLLEGE ⁴
E1-E3	Active	6.6	0	85.6	7.8
	Reserve	12.7	2.1	74.1	11.1
E4	Active	6.8	0	82.3	10.9
	Reserve	7.3	2.1	64.2	26.4
E5	Active	9.1	0	82.2	8.7
	Reserve	8.7	0.9	60.6	29.8
E6	Active	6.2	0	74.5	19.3
	Reserve	8.6	0.6	55.1	35.7
E7	Active	5.4	0	84.3	10.3
	Reserve	10.8	0.6	48.7	39.9
Total	Active	7.0	0	81.5	11.5
	Reserve	8.6	1.2	60.2	30.0

¹Incumbents who have not graduated from high school.

²Incumbents who have completed high school through General Education Development (GED) equivalency.

³Incumbents who are high-school-diploma graduates (HSDG) but have no college work.

⁴Incumbents who have completed at least some college or university work.

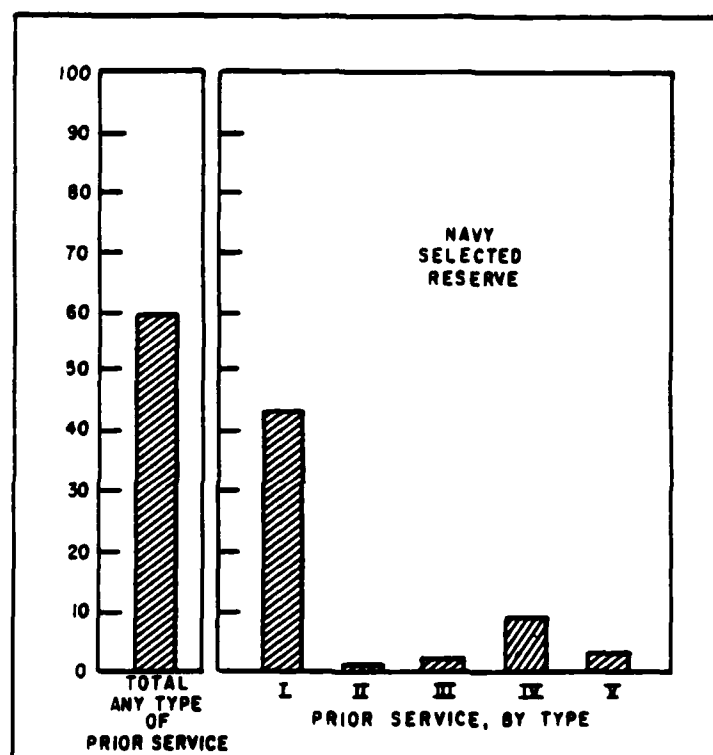
NOTE: Reserve includes TARs.

Experience

Prior Military Service. A substantial proportion of Reserve SKs bring experience from prior active military service to their present military

jobs. Our estimate² is that over 59 percent of Selected Reserve SK incumbents have this type of experience. Further, we believe that a sizeable proportion (over 46 percent) of incumbents have served in identical or related military jobs during that earlier active service. Figure G-1 displays these estimates.

FIGURE G-1. SK INCUMBENT EXPERIENCE -- PRIOR ACTIVE MILITARY SERVICE
(Composite Estimates)



NOTE: EXPLANATION OF TYPES OF PRIOR SERVICE:

- I PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, SAME SPECIALTY.
- II PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE, NOT IN THE SAME SPECIALTY BUT IN THE SAME CAREER FIELD
- III PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE AND IN SAME CAREER FIELD.
- I, II & III RELATED SERVICE (46%)
- IV PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN THE SAME SERVICE BUT NOT IN THE SAME CAREER FIELD.
- V PERCENTAGE OF INCUMBENTS HAVING PRIOR SERVICE IN ANOTHER SERVICE BUT NOT IN SAME CAREER FIELD.
- IV & V UNRELATED SERVICE (13%)

² All prior military service estimates discussed in this section are based upon a comparative analysis of (1) prior active military service data supplied by the Defense Manpower Data Center (DMDC) and derived from cumulative duty loss records, by specialty, since 1971; and (2) a report from the Naval Reserve Forces Recruiting Office on the prior active military service histories of 2,212 Selected Reserve SK accessions since 1 October 1982.

Length of Service. Selected Reserve SKs have greater length of total service than do their Active Navy counterparts, as shown in Table G-6.

TABLE G-6. SK INCUMBENT EXPERIENCE --
LENGTH OF TOTAL MILITARY SERVICE

GRADE	COMPONENT	MEAN LENGTH OF SERVICE (YEARS)
E1-E3	Active	1.5
	Reserve	2.4
E4	Active	3.6
	Reserve	5.7
E5	Active	6.7
	Reserve	9.2
E6	Active	12.3
	Reserve	14.2
E7	Active	17.1
	Reserve	19.6

NOTE: Reserve includes TARs.

Time in Grade. Within the SK rating, the amount of time spent within each enlisted grade varies between components. At the lower grades, Active Navy SKs show lower time-in-grade experience. At the E6 and E7 levels, it is the Selected Reserve SKs who exhibit lower time-in-grade experience. Table G-7 displays these data.

TABLE G-7. SK INCUMBENT EXPERIENCE -- TIME IN GRADE

GRADE	COMPONENT	TIME IN GRADE (YEARS)
E1-E3	Active	0.4
	Reserve	0.8
E4	Active	0.8
	Reserve	1.3
E5	Active	2.0
	Reserve	2.7
E6	Active	3.4
	Reserve	2.9
E7	Active	4.0
	Reserve	3.6

NOTE: Reserve includes TARs.

Full-Time Support. No full-time support for Selected Reserve SKs is assigned to Supply Centers and Supply Depots.

THE TRAINING PROGRAM

Active versus Reserve

The training sequences outlined in this section are the sequences of the Active Navy. To a great extent, they are precisely the same sequences followed by Selected Reservists. For those sailors now entering the Selected Reserve via the Sea and Air Mariner (SAM) program, the identical training strategy is applied, with the possibility of interruptions in the training sequence for those sailors choosing a "split-training" option.

Apprentice Training

Following successful completion of Recruit Training ("Boot Camp"), the sailor who is to become an SK may attend a 59-day SK Class "A" course at the Naval Technical Training Center (NTTC), Meridian, Mississippi. The designated SK then proceeds to his/her first duty station. In all probability, no

additional training will be received en route to this assignment. Attendance at Class "A" School is not required to achieve the SK rating. The rating may be attained through on-the-job training commencing at the first duty station following the completion of Recruit Training.

Journeyman Training/Sustainment Training

Upon reaching the unit of assignment, the SK puts to practical use the skills and knowledge learned en route to his/her assignment. He/she works toward the attainment of journeyman skills primarily through on-the-job training and the use of rate training manuals³ and technical publications. Any further formal training will probably depend upon the needs of the job assignment.

Master Training

There is no master-level training per se for the SK rating. Master-level status is achieved through a combination of formal training throughout a career, on-the-job training and experience, use of technical publications, and self-directed study using rate training manuals and correspondence courses.

³Rate training manuals are designed to aid Navy enlisted personnel in preparing for advancement in grade. There are two general types of rate training manuals: rating manuals that provide information directly related to the occupational standards of a specific rating, e.g., Storekeeper; and subject-matter manuals or basic manuals that give information that applies to more than one rating, e.g., Basic Electronics, Military Requirements for E6 and E7.

APPENDIX H
THE SEA AND AIR MARINER PROGRAM

GENERAL

The Navy's Sea and Air Mariner (SAM) program provides for direct enlistment of non-prior-service men and women into the Naval Reserve. Authority for enlistment is provided in Title 10, U.S. Code, Section 511(d).

This program was established in 1984 to meet increasing requirements for junior enlisted personnel (E4 and below) in the Navy's Selected Reserve. The Navy plan is to recruit 10,000 SAMs per year through a comprehensive program using enlistment bonuses (\$2,000 payable over 6 years), tuition assistance (\$4,000 maximum), and a "split-training" option allowing high school and college students to complete Navy training during summer vacation periods. The Navy's dependence on members of the Selected Reserve in grades E4 and below, in the activities and ratings considered in this study, is displayed in Table H-1. The terms referred to in the table are USN (U.S. Navy), TAR (Training and Administration of the Reserves), and SELRES (Selected Reserve).

**TABLE H-1. NAVY DEPENDENCE ON APPRENTICE (E4 AND BELOW)
SELECTED RESERVISTS IN ACTIVITIES OF INTEREST**

RATING/ GRADE	QUANTITY				PERCENT OF TOTAL		
	Total	USN	TAR	SELRES	USN	TAR	SELRES
<u>AD</u>							
E1-E3	306	268	5	33	87.6	1.6	10.8
E4	504	369	39	96	73.2	7.7	19.1
Total	810	637	44	129	78.6	5.5	15.9
<u>AT</u>							
E1-E3	256	205	2	49	80.1	0.8	19.1
E4	494	264	85	145	53.4	17.2	29.4
Total	750	469	87	194	62.5	11.6	25.9
<u>BM</u>							
E1-E3	8	8	0	0	100.0	0	0
E4	577	86	0	491	14.9	0	85.1
Total	585	94	0	491	16.1	0	83.9
<u>BT</u>							
E1-E3	79	60	8	11	75.9	10.2	13.9
E4	464	299	31	134	64.4	6.7	28.9
Total	543	359	39	145	66.1	7.2	26.7
<u>ET</u>							
E1-E3	126	80	10	36	63.5	7.9	28.6
E4	551	367	27	157	66.6	4.9	28.5
Total	677	447	37	193	66.0	5.5	28.5
<u>MR</u>							
E1-E3	215	176	6	33	81.9	2.8	15.3
E4	727	536	19	172	73.7	2.6	23.7
Total	942	712	25	205	75.6	2.6	21.8
<u>SK</u>							
E1-E3	7	7	0	0	100.0	0	0
E4	803	33	0	770	4.1	0	95.9
Total	810	40	0	770	4.9	0	95.1
E1-E3	997	804	31	162	80.6	3.2	16.2
E4	4,120	1,954	201	1,965	47.5	4.8	47.7
Total	5,117	2,758	232	2,127	53.9	4.5	41.6

Subprograms

"A" School Program. Men and women applicants may be enlisted with assignment to a Class "A" School. Upon completion of Recruit Training ("Boot Camp"), Class "A" School training, and other qualifying training, these SAMs are assigned to Naval Reserve air and surface units (including Naval Reserve Force (NRF) ships), to serve as drilling Reservists.

Apprenticeship Training Program (ATP). Men and women applicants may be enlisted with a period of Initial Active Duty for Training (IADT), consisting of Recruit Training and a period of apprenticeship training lasting at least 12 weeks. Upon completion of IADT, members are assigned to Naval Reserve air and surface units (including NRF ships) to perform as drilling Reservists.

Options. Within these subprograms, the following options are available:

- Advanced Pay Grade (APG)/Designated Striker. SAM enlistees who have attended an approved vocational/technical/trade/apprenticeship program beyond the high-school level, in a field related to a U.S. Navy rating, may be enlisted at an APG (E2 or E3) and may be enlisted as a designated striker.¹ These applicants will normally attend ATP and are not normally eligible for assignment to a Class "A" School.
- Split-Training Option. IADT is performed in two separate periods. The first period will consist of approximately 8 weeks of Recruit Training, followed by a minimum of 4 weeks at either a Class "A" School or ATP at some later date. This option is available to high-school students; college, vocational, and technical training program students; and applicants engaged in seasonal work.

¹ A term that designates the rating in which a general apprentice (E1, E2, E3) has significant skills as a result of on-the-job experience or formal classroom training.

APPENDIX I

NAVY ADVANCED TECHNICAL/ELECTRONICS FIELD TRAINING

GENERAL

The Advanced Technical Field (ATF) and Advanced Electronics Field (AEF) programs are essentially incentives for the enlistment and reenlistment of men and women¹ into the Regular Navy. These programs provide Class "A" School, accelerated advancement to pay grades E2 and E4, and advanced training of various lengths. Because of the Navy's investment, which is a part of extended periods of advanced training, these programs require a 6-year service obligation (4-year U.S. Navy enlistment plus a voluntary 2-year extension).

PROGRAM TRAINING

The ATF/AEF program training is conducted in two phases:

- Phase I. Phase I is initial skill training. It includes any appropriate preliminary/prerequisite training (e.g., Enlisted Basic Aviation Training (EBAT), Basic Electricity and Electronics (BE&E)). This is followed by Class "A" School training. These "A" school curricula are basic to the rating and are not specialized (i.e., equipment-specific). To remain in the ATF/AEF program, the sailor must successfully complete Phase I training. Accelerated advancement to pay grade E4 is authorized upon completion of Phase I.
- Phase II. Phase II is the advanced training portion of the ATF/AEF programs, the specific nature of which is determined by the needs of the Navy.

As a general rule, temporary assignments to general duty for 1 to 24 months² (usually in fleet units) are served prior to entry into advanced training. If the sailor is otherwise qualified, accelerated advancement to pay grade E4 occurs prior to the temporary duty assignment.

¹The Boiler Technician (BT) rating is closed to females.

²BTs will usually be assigned to a sea-duty-experience tour for a period of up to 2 years prior to attending advanced training.

APPENDIX J

NAVAL RESERVE OVERVIEW

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GENERAL

The responsibility for the organization, administration, training, and equipping of the Naval Reserve and for the mobilization planning to reinforce and augment the Active forces rests with the Chief of Naval Operations (CNO). The Naval Reserve command structure that supports the CNO is headed by a Rear Admiral who holds the positions of Director of Naval Reserve (DIRNAVRES) and Commander, Naval Reserve Force (COMNAVRESFOR). He also holds the title of Chief of Naval Reserve (CNAVRES), which identifies the single flag officer responsible for the Navy's Reserve Program.

COMMAND

COMNAVRESFOR, whose headquarters is in New Orleans, Louisiana, is responsible for administration of Naval Reserve programs under policies prescribed by the CNO, for management of Naval Reserve activities, and for operational control of all assigned Naval Reserve units.

COMNAVRESFOR reports to the two fleet Commanders¹ and to the Commander-in-Chief, U.S. Naval Forces Europe, on an "additional-duty" basis.

There are two subordinate flag commands colocated with COMNAVRESFOR in New Orleans, Louisiana: Commander, Naval Surface Reserve Force (COMNAVSURFRESFOR) and Commander, Naval Air Reserve Force (COMNAVAIRESFOR), who are responsible for their respective portions of the Naval Reserve Force. The senior of these two commanders is also the Deputy COMNAVRESFOR.

¹ Commander-in-Chief, Pacific Fleet (CINCPACFLT), and Commander-in-Chief, Atlantic Fleet (CINCLANTFLT).

STRUCTURE

To perform its assigned mission, the Naval Reserve is structured into the following types of units:

- Commissioned Units -- Those units with organic equipment such as ships, aircraft squadrons, or construction battalions tasked to deliver a complete operational entity to the operating force.
- Reinforcing Units -- Those units that augment active Navy commissioned units and operating staffs (and some Marine Corps combat commands) with trained personnel to provide the capability for combat forces to operate at the highest level of wartime activity for an indefinite period of time.
- Sustaining Units -- Those units that augment fleet and force support activities with the trained personnel necessary to provide a surge capability and to sustain the high level of activity required to support the deployed forces adequately.

Reinforcing and sustaining units are commonly referred to as "Augment Units."

SUPPORT PERSONNEL

The Naval Reserve is supported by a combination of full-time, active-duty military and civilian personnel. The active-duty portion includes Regular Navy personnel, a limited number of Reserve officers who voluntarily enter active duty for a specific assignment, and Ready Reservists in a special Navy active-duty career program designed for Training and Administration of the Reserves (TARs). Full-time support personnel are discussed further in Chapter 3.

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