QUALITATIVE ACCESSION REQUIREMENTS. (A REPORT ON THE QUALITATIVE ACCESSION NEEDS OF THE MILITARY SERVICES)

Central All-Volunteer Force Task Force
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QUALITATIVE ACCESSION REQUIREMENTS (A REPORT ON THE QUALITATIVE ACCESSION NEEDS OF THE MILITARY SERVICES)

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13 ABSTRACT

The purpose of this study was to determine the qualitative accession needs (male and female, non-prior service) of the Services in terms of mental ability as measured by scores on aptitude tests and the Armed Forces Qualification Test for FY 1973, FY 1974, and beyond to the extent practicable and to compare these quality requirements with the estimated supply of personnel by mental ability. In addition, the study considered the feasibility of using supplementary measures of quality. The study is subdivided into four main sub-tasks. The first determined the minimum qualitative needs for new accessions. The second estimated the recruiting capability by mental category for each Service. The third sub-task evaluated the shortages and overages by mental category and by Service. The fourth evaluated the feasibility of using alternative measures of quality for selection of military personnel.

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CENTRAL AVF TASK FORCE REPORT
TASK #5
QUALITATIVE ACCESSION REQUIREMENTS
(A REPORT OF THE QUALITATIVE ACCESSION NEEDS OF THE MILITARY SERVICE)

INTRODUCTION AND SUMMARY

PURPOSE AND SCOPE

This study was performed by the Central All-Volunteer Force Task Force in response to Task Order #5, "Qualitative Accession Requirements." The Task Force was directed to study the qualitative accession needs for each Service in terms of mental ability for FY 1973 and FY 1974, compare these needs with recruiting capability, and examine the feasibility of using supplementary measures of quality.

METHODOLOGY

The Services provided the Task Force with statements of accession requirements by occupational group, Service aptitude test score minimums for these jobs, and higher test scores needed to provide sufficient quality for flow into the career force. To provide a common language for expressing quality requirements, Service aptitude scores were converted to AFQT mental category distributions. In conducting the analysis, the Task Force identified wide differences among Services in the aptitude test score minimums for entry into similar occupations, with the Army usually requiring the lowest scores. Adjusted mental requirements were therefore computed under two different methods. In the first method

Services with higher than average mental requirements for an occupation were lowered to the average. In the second method the lowest score used by any single Service was used as the entry standard for the occupation. These adjustments resulted in deflating the mental requirements of Services which establish high aptitude scores for their jobs. The Task Force was then able to compute a range of alternative quality requirements for new accessions which can be considered by decision makers in managing All-Volunteer Force programs.

Recruiting capability by mental group was estimated based on recent experience in recruiting true volunteers. With this information the Task Force was able to compare quality requirements and supply and project quality shortages or overages.

CONCLUSIONS AND RECOMMENDATIONS

Detailed conclusions and recommendations are contained at the end of the report. Briefly, the Central All-Volunteer Force Task Force:

Concluded that

-- The Services' statements of quality requirements for accessions exceed minimum needs. Army overstates its requirements the least; Air Force overstates its requirements the most.

-- Acceptable minimum quality requirements for accessions (male and female NPS) are within the ranges shown on the table below. These distributions provide the needed quality for entry jobs and career progression.

Service Quality Requirements

FY 1973 Accessions[1/]

AFQT Mental Categories	Army	Navy	Marine Corps	Air Force
I & II	22% - 21%	33% - 24%	31% - 22%	35% - 26%
III	57% - 58%	55% - 59%	53% - 56%	54% - 58%
IV	21% - 21%	12% - 17%	16% - 22%	11% - 16%
Total	100%	100%	100%	100%

1/ Quality requirements for FY 1974 are slightly higher and are shown in the body of the report and the Conclusions section.

-- Navy, Marine Corps and Air Force should be able to meet their quality needs in FY 1973 and FY 1974.

-- In FY 1973, Army will find it necessary to accept an undesirably high proportion of mental category IV personnel if draft calls are limited to 35,000. With a draft call of 45,000, Army can meet its quality requirements.

-- In FY 1974, Army can meet its quality requirements if it can increase its current recruiting capability by about 24,000 true volunteers.

-- Service testing instruments can be simplified by adopting a common aptitude test.

-- Substantial research is underway on alternative quality measures.

Recommend that

-- Quality requirements computed by the Task Force be accepted as a criterion for evaluating quality problems.

-- Services should be permitted to exceed minimum quality requirements; however, minimum needs should be considered in approving resource allocations for recruiting, enlistment bonuses, or other incentives.

-- Armed Services Vocational Aptitude Battery be used to supplant individual Service aptitude test batteries.

-- Research on alternative tests and measures of quality should be accelerated.

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QUALITATIVE ACCESSION REQUIREMENTS
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PURPOSE

This study was performed by the Central All-Volunteer Force Task Force in response to Task Order #5, "Qualitative Accession Requirements." The Task Force was directed to study the qualitative accession needs[1/] of the Services in terms of mental ability as measured by scores on aptitude tests and the Armed Forces Qualification Test (AFQT) for FY 1973 and FY 1974 and beyond to the extent practicable and to compare these quality requirements with the estimated supply of personnel by mental ability. In addition, the Task Force was requested to consider the feasibility of using supplementary measures of quality.

This study is one of several conducted by the Task Force to evaluate alternative means for maintaining required military force levels in a zero-draft environment. Additional information on the purpose of this study is contained in Task Order #5, attached at Tab A.

SCOPE

In a zero-draft environment, there may be a decrease in the quality of manpower available to the Military Services or increased costs

1/ Male and female, non-prior service (NPS).

associated with obtaining higher than the required quality of manpower. Therefore, it is desirable to identify and quantify the quality actually needed by the Military Services to fill occupational fields, and to determine whether or not manpower supply is sufficient to meet these quality requirements.

Four main sub-tasks were accomplished by the Task Force:

-- Sub-Task #1. Minimum qualitative needs for new accessions were determined for each Service in FY 1973 and FY 1974.

-- Sub-Task #2. Recruiting capability by mental category for each Service was estimated.

-- Sub-Task #3. Shortages and overages by mental category and by Service were computed.

-- Sub-Task #4. The feasibility of using alternative measures of quality for selection of military personnel was evaluated.

The Study Plan followed, attached as Tab B, contains a detailed description of each sub-task.

METHODOLOGY AND EXPLANATION OF TABLES

A. Computation of Requirements

The Services periodically perform studies to determine the desirable or minimum quality distribution for new military personnel entering military service. In February and March 1972 the Services, in response to a request from Assistant Secretary of Defense (Systems Analysis), provided material showing their accession requirements by AFQT mental categories. In computing quality requirements, the Services use different methods. The Task Force study on quality requirements uses a common

method for all Services in order to enable manpower planners to make valid cross-Service comparisons. Tables in the Task Force study contain a column showing the February-March 1972 Service submissions to OASD(SA) to facilitate comparison with results of the Task Force study.

The Services provided the Task Force with the following information:

-- Planned occupational assignment of FY 1973-74 accessions, using Service job codes.

-- Aptitude score minimums for each occupation using Service aptitude tests.

-- Increased aptitude score minimums to provide talent for progression to the career force.

-- Experience data which related scores on Service aptitude tests with scores on the AFQT.[1/]

The Task Force grouped similar Service jobs into common two-digit DOD occupational groupings and when necessary performed computations at a more detailed occupational level. Individual Service aptitude score minimums for each occupation were converted to AFQT mental category distributions in order to provide a common language for expressing quality requirements. It is important to note that although results of the study are expressed in terms of AFQT mental categories, the basic data used in computations were scores on aptitude tests. Tab C presents the Service minimum test scores for each two-digit DOD occupational code.

1/ This empirical data was considered more valid than standard conversion tables used traditionally by the Services.

The first set of quality requirements computed by the Task Force is based on minimum aptitude scores each Service stated were needed for entry and career progression in each occupational field. The Task Force found that there was considerable variation among Services with respect to minimum aptitude scores for similar occupations. Adjusted mental requirements were therefore computed using two alternative methods:

Method One: Adjusted to the mean mental requirement.

For each occupational field represented by two or more Services, the Task Force computed an average of the mental requirements desired by the Services. Services with higher than average mental standards for the occupational field were lowered to the average mental requirement.

Method Two: Adjusted to the lowest mental requirement.

In this method, the mental requirements for each occupation were established at the lowest quality level expressed by any Service for the same occupational field.

The adjustments to the "mean" and to the "lowest" had the effect of deflating quality requirements. For most occupational fields, Army started with the lowest aptitude score requirements; therefore, the adjustments tend to lower the quality requirements of Navy, Marine Corps and Air Force but not Army.

The Task Force computed minimum quality requirements for Entry to occupational fields and then raised the quality to provide enough talented people for Career Progression. Quality requirements displayed in this report contain the loading for career needs.

B. Computation of Supply

The projections of supply by AFQT mental category were provided by the Procurement Directorate, Office Assistant Secretary of Defense (Manpower and Reserve Affairs). These projections were based on the number of "true volunteers" recruited during June-August 1972 in mental categories I-IIIf.

The quality distribution of female enlisted personnel and draftees (FY 1973) was based on experience data.

Minimum Qualitative Needs for Enlisted Accessions

(Sub-Task #1)

This section of the report displays findings of the Task Force on the minimum quality needed by each Service for incoming recruits. Each Military Service will be discussed in turn and a summary table for all Services is provided at the end of the section.

Army

The table below compares quality needs stated by Army and those computed by the Task Force.

Table I

Army Quality Requirements

FY 1973 Accessions

AFQT Mental Categories	Army Stated Requirements 1/	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
A. Entry Requirements				
I & II	Not Stated	15.3%	14.8%	14.1%
III		56.7%	56.9%	57.3%
IV		28.0%	28.3%	28.6%
Total		100.0%	100.0%	100.0%
B. Requirements for Career Progression				
I & II	19.0%	21.7%	21.6%	21.3%
III	63.0%	56.9%	57.0%	57.3%
IV	18.0%	21.4%	21.4%	21.4%
Total	100.0%	100.0%	100.0%	100.0%

1/ Army submission to OASD(SA).

Section A, Entry Requirements, should be considered as a quality "floor." These quality mixes were determined by aggregating career field by career field Army accession requirements based on minimum aptitude scores for completing training and performing satisfactorily on the job. However, each Service assigns a percentage of accessions who score above the minimum demanded for entry to various career groups. This provides the extra quality required for advanced training and advancement to supervisory positions. This policy, followed by all Services, is rational and desirable; therefore, the Task Force considers that Entry Requirement figures should not be used to determine minimum quality needs.

The Task Force believes that Section B, Requirement for Career Progression (i.e., Entry Requirements increased by a percentage factor to provide extra quality for advanced training and supervisory positions), shows the proper range of quality needs for Army.

In discussing the quality needs for other Services, the tables will deal only with Career Progression requirements; however, Tab D contains tables showing Entry Requirements for all Services.

The Task Force computed requirements based on Army aptitude scores do not change much when computed based on "mean" or "lowest" scores. There is no change because Army has the lowest entry standards of all Services for practically every occupational field. The "adjustments," therefore, do not result in lowering Army's mental requirements. The effects of adjusting Service requirements to the "mean" or "lowest" scores for an occupational field will be seen more clearly when other Services are considered.

The Task Force computed requirements are quite close to the requirements submitted by Army in March 1972. The Task Force believes Army needs a slightly higher input of mental category I and II's (21% vs. 19%) and can use a higher percentage of mental category IV's (21% vs. 18%). The Task Force results compare closely to Army Stated Requirements because the study method used by both organizations were similar. The Task Force used a more refined method of linking aptitude scores with AFQT mental categories.

Navy

The Task Force believes that Navy Stated Requirements for mental category I and II personnel are excessive. The Navy's requirement for mental category I and II personnel has probably been influenced by the availability of high quality draft motivated accessions in the past. The Task Force computations show that Navy can use many more mental category III personnel in lieu of mental category I and II personnel.

The Navy's Stated Requirement for mental category IV's (19.4%) in FY 1973 exceeds the limit computed by the Task Force (17.3%). For FY 1974, Navy believes it can only accept 14.5% mental category IV's compared to the 16.2% limit computed by the Task Force (see Table VI for FY 1974 data). Navy has subsequently established a 10% mental category IV objective for FY 1974.

Table II

Navy Quality Requirements

Fy 1973 Accessions

AFQT Mental Categories	Navy Stated Requirements 1/	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
B. Requirements for Career Progression 2/				
I & II	38.0%	36.0%	33.0%	24.0%
III	42.6%	53.7%	55.1%	58.7%
IV	19.4%	10.3%	11.9%	17.3%
Total	100.0%	100.0%	100.0%	100.0%

1/ Navy submission to OASD(SA).

2/ Entry level requirements not displayed for reasons stated under treatment of Army requirements.

Marine Corps

Marine Corps minimum aptitude scores for entry into skill training are quite high compared to Army scores for the same jobs. For this reason, the Task Force computed requirements for Marine quality drop sharply when "mean" and then "lowered" aptitude minimums are applied. The mental category mix of Marine Corps accessions during the last five years has not been rich enough to support its high standards for entry to skill training. In practice, Marine Corps waives standards to fit the supply.

Table III

Marine Corps Quality Requirements

FY 1973 Accessions

AFQT Mental Categories	Marine Corps Stated Requirements[1]	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
B. Requirements for Career Progression[2]				
I & II	26.7%	37.4%	30.7%	22.2%
III	59.0%	50.1%	53.4%	56.1%
IV	14.3%	12.5%	15.9%	21.7%
Total	100.0%	100.0%	100.0%	100.0%

1/ Marine Corps submission to OASD(SA).

2/ Entry level requirements not displayed for reasons stated under treatment of Army requirements.

Using Marine Corps aptitude scores for jobs (with a loading for career progression) results in a quality requirement that is even higher than the requirement Marine Corps submitted to OASD(SA). The Task Force believes that the quality distribution displayed in the right-hand column (based on lowest aptitude scores) provides an adequate quality mix for Marine Corps. This quality mix is similar to the Army distribution computed by the Task Force, which is consistent with the occupational similarity of the two Services.

Air Force

The Task Force found that Air Force Stated Requirements submitted to OASD(SA) call for higher quality than is even justified by their own

aptitude scores for entry into training and career progression. After adjusting Air Force aptitude scores to the "mean" or "lowest," the Task Force found that Air Force could accept a significantly lower quality mix than its Stated Requirements.

Table IV

Air Force Quality Requirements

FY 1973 Accessions

AFQT Mental Categories	Air Force Stated Requirements[1]	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
B. Requirements for Career Progression[2]				
I & II	46.0%	41.0%	34.5%	25.5%
III	49.0%	50.9%	54.2%	58.0%
IV	5.0%	8.1%	11.3%	16.5%
Total	100.0%	100.0%	100.0%	100.0%

1/ Air Force submission to OASD(SA).

2/ Entry level requirements not displayed for reasons stated under treatment of Army requirements.

Air Force Stated Requirements and its aptitude score minimums have been influenced by favorable supply conditions in the past and projected for the future. During the period October 1966 to December 1971, OSD quotas required Air Force to accept 15%-18% mental category IV personnel, but did not restrict its high input of mental category I and II personnel. Now that mental category IV quotas have been removed for all Services, it is probable that Air Force can recruit a quality mix that is similar to

the one expressed in its Stated Requirements. The Task Force analysis indicates, however, that if supply conditions are less favorable, Air Force can operate with a considerably lower quality mix.

SUMMARY

The next table summarizes and compares the Task Force findings for all Services with respect to quality requirements for FY 1973.

Table V

Service Quality Requirements[1/]

FY 1973 Accessions

Service	AFQT Mental Categories	Service Stated Rqmts	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
Army	I & II	19.0%	21.7%	21.6%	21.3%
	III	63.0%	56.9%	57.0%	57.3%
	IV	18.0%	21.4%	21.4%	21.4%
	Total	100.0%	100.0%	100.0%	100.0%
Navy	I & II	38.0%	36.0%	33.0%	24.0%
	III	42.6%	53.7%	55.1%	58.7%
	IV	19.4%	10.3%	11.9%	17.3%
	Total	100.0%	100.0%	100.0%	100.0%
Marine Corps	I & II	26.7%	37.4%	30.7%	22.2%
	III	59.0%	50.1%	53.4%	56.1%
	IV	14.3%	12.5%	15.9%	21.7%
	Total	100.0%	100.0%	100.0%	100.0%
Air Force	I & II	46.0%	41.0%	34.5%	25.5%
	III	49.0%	50.9%	54.2%	58.0%
	IV	5.0%	8.1%	11.3%	16.5%
	Total	100.0%	100.0%	100.0%	100.0%

1/ These requirements all consider career progression.

The following table shows the same kind of information for FY 1974. The Task Force computations for FY 1974 were based on planned occupational

assignment of FY 1974 accessions. Quality requirements rise slightly in FY 1974.

Table VI

Service Quality Requirements[1/]

FY 1974 Accessions

Service	AFQT Mental Categories	Service Stated Rqmts	Task Force Computation Based on: Service Aptitude Scores	Mean Aptitude Scores	Lowest Aptitude Scores
Army	I & II	19.0%	22.5%	22.5%	21.9%
	III	63.0%	57.0%	57.0%	57.8%
	IV	18.0%	20.5%	20.5%	20.3%
	Total	100.0%	100.0%	100.0%	100.0%
Navy[2/]	I & II	43.3%	36.6%	34.4%	24.8%
	III	42.2%	55.9%	55.8%	59.0%
	IV	14.5%	7.5%	9.8%	16.2%
	Total	100.0%	100.0%	100.0%	100.0%
Marine Corps	I & II	26.7%	38.4%	31.4%	23.1%
	III	59.0%	49.6%	53.4%	56.6%
	IV	14.3%	12.0%	15.2%	20.3%
	Total	100.0%	100.0%	100.0%	100.0%
Air Force	I & II	46.0%	43.1%	35.9%	26.2%
	III	49.0%	49.4%	53.6%	58.3%
	IV	5.0%	7.5%	10.5%	15.5%
	Total	100.0%	100.0%	100.0%	100.0%

1/ These requirements all consider career progression.

2/ More recent information indicates that Navy, in FY 1974, will limit mental category IV input to 10% of its accessions, rather than the 14.5% submitted previously to OASD(SA).

The Task Force computations enable manpower planners in OSD and the Services to compare Service estimates of quality requirements with those developed by the use of a standard method applied to all Services. The Task Force computations clearly show that quality requirements are driven by the aptitude score minimums each Service has unilaterally established for entry into different occupations. The Task Force analysis was based on the rationale that all Service requirements should be determined by applying the same standard measure of aptitude for training and job performance. One alternative method uses mean aptitude scores on the assumption that for like jobs no Service should require higher aptitude scores than the average score for that occupation. To provide decision makers with a lower quality bound, the Task Force also computed quality requirements in which the lowest aptitude score required for an occupation by any Service was applied to all Services. Since even this quality mix considers extra quality needs for career progression, job performance would not suffer significantly if accessions in an All-Volunteer environment were in accordance with the quality distribution shown in the last column of the above tables. It would require the Services (except Army) to adjust their minimum aptitude scores for entry into skill training.

The Task Force findings on the requirements for mental category I and II's should be useful in evaluating the need to expend funds for enlistment bonuses for high aptitude personnel. It should be recognized, however, that shortages in filling specific skills can exist in a Service even though the accession pool contains an adequate skill mix. The trend in recruiting is to guarantee assignment to specific skills. Under this

system of recruiting, shortages may occur in a wide variety of skills at all aptitude levels.

It is interesting to note that the mental category IV requirement computed by the Task Force (assuming all aptitude scores were adjusted to the lowest) is very similar to the last mental category IV quotas which were in effect just prior to the cancellation of quotas, December 1971.

Table VII

Comparison of Mental Category IV Quotas and Requirements

Service	Mental Category IV Quotas	Task Force Requirements 1/ FY 1974
Army	20%	20.3%
Navy	15%	16.2%
Marine Corps	20%	20.3%
Air Force	15%	15.5%

1/ Assuming aptitude scores adjusted to lowest level used by any Service.

During Project 100,000, the four Services accepted an even larger proportion of mental category IV personnel. (For example, Army's mental category IV input ranged from 25% - 28% during FY 1967-71.) If the supply of better qualified people is adequate, there is no advantage in taking a higher proportion of mental category IV personnel. However, the Task Force study does provide a tolerable mental category IV ceiling for periods when it may be necessary to increase the input of mental category IV's.

Recruiting Capability by Mental Group

(Sub-Task #2)

This section of the report contains an estimate of the supply of enlisted accessions by mental category that could be recruited in FY 1973 and FY 1974. The estimates are based on an analysis of the quality distribution of true volunteers, draftees, and women volunteers.[1/] Projections considered the latest seasonally adjusted recruiting trends.

In each case, the supply of male mental category IV personnel was artificially limited to match restrictions desired by each Service on mental category IV accessions. For example, for FY 1973-74 Army and Marine Corps supply was limited to 20% IV's and Air Force to 5%. Navy category IV's were limited to 10% in FY 1974. In all cases, the true supply of mental category IV's that could be recruited greatly exceeds the arbitrary limits imposed in these recruiting estimates.

Army Projections, FY 1973. Army recruiting estimates were projected under two assumptions: the 35,000 draft announced for FY 1973, and a higher, arbitrarily selected, draft of 45,000. The two cases are displayed below:

1/ The data are based on estimates provided by the Procurement Directorate, OASD(M&RA).

Table VIII

Army Projected Accessions

FY 1973 -- 35,000 Draft

(000's)

AFQT Mental Category	True Volunteers	+	Draft Motivated Volunteers	+	Draftees	+	Women[1/]	=	Total
I & II	36	+	14.3	+	11.6	+	9.3	=	71.2
III	83	+	15.3	+	16.4	+	.2	=	114.9
IV	32	+	4.4	+	7.0	+	-	=	43.4
Total	151	+	34.0	+	35.0	+	9.5	=	229.5

Table IX

Army Projected Accessions

FY 1973 -- 45,000 Draft

(000's)

AFQT Mental Category	True Volunteers	+	Draft Motivated Volunteers	+	Draftees	+	Women[1/]	=	Total
I & II	36	+	15.1	+	14.9	+	9.3	=	75.3
III	83	+	16.2	+	21.1	+	.2	=	120.5
IV	32	+	4.7	+	9.0	+	-	=	45.7
Total	151	+	36.0	+	45.0	+	9.5	=	241.5

1/ Based on current Army enlistment standards for women and FY 1972 recruiting experience.

The 45,000 draft case produces sufficient accessions to meet Army's requirement for 241,500 male and female NPS personnel. At the 35,000 draft level, it would be necessary to recruit an additional 12,000 mental

category IV's which would raise the male mental category IV proportion to 25%, which exceeds the 20% limit desired by Army and the 21% requirement computed by the Task Force.

Other Service Projections, FY 1973. Recruiting projections for Navy, Marine Corps and Air Force are shown below. The projected supply of draft motivated volunteers assumes a 35,000 draft in FY 1973.

Table X

Projected Recruiting Capability, FY 1973

(000's)

Service	AFQT Mental Category	True Volunteers	+	Draft Motivated Volunteers	+	Women[1/]	=	Total
Navy	I & II	31	+	8.5	+	2.6	=	42.1
	III	45	+	6.8	+	2.3	=	54.1
	IV	16	+	1.7	+	-	=	17.7
	Total	92	+	17.0	+	4.9	=	113.9
Marine Corps	I & II	12	+	.9	+	.5	=	13.4
	III	30	+	1.6	+	.7	=	32.3
	IV	10	+	.5	+	-	=	10.5
	Total	52	+	3.0	+	1.2	=	56.2
Air Force	I & II	32	+	8.0	+	4.9	=	44.9
	III	49	+	7.2	+	1.1	=	57.3
	IV	6	+	.8	+	-	=	6.8
	Total	87	+	16.0	+	6.0	=	109.0

1/ Based on current Service enlistment standards for women and FY 1973 enlistment experience.

Service Projections, FY 1974. Recruiting capability projections for all Services, in the absence of any draft, for FY 1974 are shown below. The projections for Navy and Air Force exceed their FY 1974 accession requirements. The Army recruiting projection assumes that Army will be able to increase the recruitment of mental category III male true volunteers from 83,000 to 107,000 because of:

-- Incentives in the Uniformed Services Special Pay Act.

-- Recruitment of mental category III personnel surplus to Navy and Air Force needs. If this assumption proves to be incorrect, it will be necessary for Army to accept more than 20% category IV personnel.

Table XI

Projected Recruiting Capability, FY 1974

(000's)

Service	AFQT Mental Category	True Volunteers	+	Women	=	Total
	I & II	36	+	11.7	=	47.7
Army	III	107	+	.3	=	107.3
	IV	35	+	-	=	35.0
	Total	178	+	12.0	=	190.0
	I & II	35	+	4.2	=	39.2
Navy	III	48	+	3.8	=	51.8
	IV	8	+	-	=	8.0
	Total	91	+	8.0	=	99.0
	I & II	12	+	.5	=	12.5
Marine Corps	III	30	+	.8	=	30.8
	IV	11	+	-	=	11.0
	Total	53	+	1.3	=	54.3
	I & II	35	+	5.7	=	40.7
Air Force	III	46	+	1.3	=	47.3
	IV	3	+	-	=	3.0
	Total	84	+	7.0	=	91.0

Comparison of Quality Requirements and Recruiting Capability

(Sub-Task #3)

The Task Force next compared the results of Sub-Tasks #1 and #2 to identify potential quality shortages if any in FY 1973 and FY 1974. The tables below compare quality requirements and projected recruiting capability. For purposes of this comparison, the Task Force used the minimum quality needs required for entry with a loading for career progression.

A plus (+) in the difference column indicates that the recruiting capability exceeds the requirement. A minus (-) indicates a shortage. Excesses in mental categories I and II will be used by the Service to offset deficits in lower mental groups.

Table XII

Comparison of Quality Requirements and Recruiting Capability[1/]

FY 1973 -- 35,000 Draft

(000's)

Service	AFQT Mental Category	Recruiting Capability	Quality Requirements[2/]	Difference
Army	I & II	71.2	51.4	+ 19.8
	III	114.9	138.6	- 23.7
	IV	43.4	51.5	- 8.1
	Total	229.5	241.5	- 12.0
Navy	I & II	42.1	27.3	+ 14.8
	III	54.1	66.9	- 12.8
	IV	17.7	19.7	- 2.0
	Total	113.9	113.9	0
Marine Corps	I & II	13.4	12.5	+ .9
	III	32.3	31.5	+ .8
	IV	10.5	12.2	- 1.7
	Total	56.2	56.2	0
Air Force	I & II	44.9	27.8	+ 17.1
	III	57.3	63.2	- 5.9
	IV	6.8	18.0	- 11.2
	Total	109.0	109.0	0

1/ All data include male and female non-prior service personnel. Navy 2x6 reservists are excluded.

2/ Based on "lowest" aptitude scores with loading for career progression.

The above table shows that in FY 1973 the four Services should be able to draw on the surplus of upper mental category (I and II) accessions to fill jobs requiring individuals in the average mental category (III). All Services, except Army, should be able to recruit enough people of sufficient quality to meet their occupational requirements.

In the case of Army, there is a projected shortage of 12,000 accessions, assuming Army adheres to its objective of 20% mental category IV's for male accessions. We estimate that this 12,000 accession shortage can be overcome by increasing male mental category IV input to 25% for FY 1973. This alternative is undesirable because it would require mental category IV inputs of about 30% during the last half of FY 1973. This would have the effect of raising Army's category IV personnel inventory, already the highest of any Service at 22 percent (Navy has 10 percent, Marine Corps 12 percent, and Air Force 8 percent -- see Tab E for Service inventories).

Under Sub-Task #2, the Task Force developed a set of projected accessions based on an assumed draft call of 45,000. The higher draft call would eliminate the 12,000 accession shortage (10,000 draftees plus 2,000 draft motivated enlistments). There would be no quality shortage because the overage in mental category I and II personnel would be available to fill jobs suitable for those with lower mental capacity.

Table XIII

Comparison of Quality Requirements and Recruiting Capability[1/]

FY 1973 -- 45,000 Draft

(000's)

AFQT Mental Category	Recruiting Capability	Quality Requirements[2/]	Difference
I & II	75.3	51.4	+ 23.9
III	120.5	138.6	- 18.1
IV	45.7	51.5	- 5.8
Total	241.5	241.5	0

1/ All data include male and female non-prior service personnel.

2/ Based on "lowest" aptitude scores with loading for career progression.

The next table compares FY 1974 recruiting capability and quality requirements without the draft.

Table XIV

Comparison of Quality Requirements and Recruiting Capability[1/]

FY 1974 -- Zero-Draft

(000's)

Service	AFQT Mental Category	Recruiting Capability	Quality Requirements[2/]	Difference
Army	I & II	47.7	41.8	+ 5.9
	III	107.3	109.6	- 2.3
	IV	35.0	38.6	- 3.6
	Total	190.0	190.0	0
Navy	I & II	39.2	22.3	+ 16.9
	III	51.8	53.1	- 1.3
	IV	8.0	14.6	- 6.6
	Total	99.0	90.0	+ 9.0
Marine Corps	I & II	12.5	12.5	0
	III	30.8	30.7	+ .1
	IV	11.0	11.1	- .1
	Total	54.3	54.3	0
Air Force	I & II	40.7	19.7	+ 21.0
	III	47.3	43.7	+ 3.6
	IV	3.0	11.6	- 8.6
	Total	91.0	75.0	+ 16.0

1/ All data include male and female non-prior service personnel. Navy 2x6 reservists are excluded.

2/ Based on lowest aptitude scores with loading for career progression.

The above table shows that for FY 1974:

-- Air Force should experience no difficulty in meeting its quality requirements. The recruiting estimate assumed 4% mental category IV accessions. Air Force can meet its accession needs without accepting any mental category IV's and will have an excess of mental category I and II personnel for assignment to jobs which can be performed by mental category III personnel.

-- Navy will not have any difficulty in meeting its minimum quality needs. The recruiting estimate assumed a 10% limit on mental category IV personnel. Navy should be able to meet its accession needs with less than 10% mental category IV's and will have an excess of mental category I and II personnel for assignment to jobs which can be performed by mental category III personnel.

-- Marine Corps accessions will meet minimum quality requirements, assuming they accept 20% mental category IV's. The match is quite close however, therefore seasonal quality shortages could occur.

-- Army should be able to meet its quality needs in FY 1974; however this conclusion is based on an optimistic estimate of Army's recruiting capability. The Task Force assumed Army could recruit more true volunteers in FY 1974 than in FY 1973 by recruiting men surplus to the needs of Navy and Air Force and by using incentives included in the Uniformed Services Special Pay Act.[1/] If the improvement in recruiting capability does not occur, Army will experience a quality shortage.

1/ It is assumed that the enlistment bonus would increase the supply of true volunteers and the reenlistment bonus would have the same effect by decreasing accession requirements.

In summary, the Sub-Task #3 analysis indicates that there will not be a massive quality shortage in FY 1974. Enlistment and reenlistment bonus authority in the Uniformed Services Special Pay Act will definitely be needed by Army but should be applied on a highly selective basis for Navy and Air Force. Although Navy and Air Force quality requirements are met in the aggregate, there could be shortages in certain occupational areas, e.g., Navy nuclear technicians. It may also be cost-effective to award bonuses for longer enlistment terms. Also enlistment bonuses will continue to be effective in attracting adequate numbers of volunteers for certain types of arduous or less desirable jobs. The analysis being conducted by OASD(M&RA) on the cost-effectiveness of the combat arms bonus should prove useful in managing the use of enlistment bonuses to overcome shortages in other occupational fields.

The Task Force does not believe enlistment bonuses should be used for the purpose of decreasing mental category IV enlistments below the proportions identified in its requirements analysis. During Project 100,000, the four Services accepted and used a higher proportion of lower quality personnel than is recommended by this report. A recent study prepared for OASD(SA) found that the increased cost (e.g., training failures, remedial instruction, and higher disciplinary rates) of lower mental category IV personnel averaged only $220 a man.[1/] However, the Task Force considers it would be undesirable to exceed the mental category IV limits it computed for any prolonged period. The additional costs of

1/ Hix, W. M. and Lawron, G. C., Majors, USA, "The Costs of Increasing Category IV Accessions in the U.S. Army." The Defense Systems Analysis Program of the University of Rochester, 1972.

utilizing mental category IV personnel are modest when they are assigned to jobs they can perform. The costs will rise and unit effectiveness will decrease if mental category IV personnel are assigned to more complex jobs for which they are unsuited.

Feasibility of Alternative Measures of Quality

(Sub-Task #4)

General Considerations

Throughout this report quality has been defined in terms of scores on Service aptitude tests which were converted to scores on the Armed Forces Qualification Test (AFQT) to provide a common quality yardstick. These tests play a crucial role in determining an applicant's eligibility for military service and his assignment to an occupation.

Tests are used for the purpose of minimizing attrition in training and selecting personnel who will perform well on the job. The manpower planner is interested in having tests which perform these functions at a high rate of success and at the same time avoid undue restriction of the available supply of volunteers. In a no-draft environment, the Armed Forces cannot afford the luxury of tests which achieve predictive validity by disqualifying a high proportion of enlistment applicants.

Unfortunately, tests are imperfect predictors and are subject to criticism by organizations which use them, civil-rights groups, and even the courts. The March 8, 1971 Griggs vs. Duke Power Company Supreme Court Decision (9)[1/] placed testing under legal scrutiny. Chief Justice Warren Burger stated that "any tests used must measure the person for the job and not the person in abstract." Employment practices which are unrelated to success on the job are illegal. Overt job discrimination as well as practices "fair in form but discriminatory in operation" are

1/ Numbers in parentheses refer to the bibliography.

banned. Testing is permitted, but only when it is directly related to job performance. It is the responsibility of the employer to demonstrate the relationship of the test to job performance. If no relationship is shown between the test and job performance, the employer must demonstrate that the use of the test is not discriminatory in any way (9), (50), (55).

Validity of Department of Defense Tests.

Validity is an index of how well a test predicts what it is supposed to measure, e.g., how well military tests predict success in occupational training and successful performance on the job. Validity is usually expressed by a correlation coefficient between -1.0 and +1.0. A correlation of zero indicates that there is no relationship between the test and performance; 1.0 indicates perfect prediction, minus correlation values indicate a negative relationship. Perfect prediction never occurs. Tests usually predict performance better than other selection methods. Maier and Fuchs of Army Behavior and Systems Research Laboratory (35) explain the usefulness of validity coefficients in terms of the results of using a test with no validity at one extreme and using a test with perfect or partial validity. Assume that 1,000 men are administered a test in order to select 500 men for training:

-- If the correlation coefficient is zero, 250 of the men selected would achieve above average course grades and 250 below average grades.

-- If the correlation coefficient is 1.0, all 500 men would have above average grades in the course.

-- If the correlation coefficient is .6, 352 of the men selected would be above average and 148 below average. Thus, a test with a

validity of .6 would result in training performance improvement of 40% over selection by chance.

The improvement achieved by the test would be less if the test were used to select 800 students out of 1,000 available men. Therefore, the benefit achieved by a test is affected both by its validity coefficient and the proportion of men excluded by the test. Expectancy Tables are available which can be used to determine the benefit achieved by the use of tests with a given validity coefficient.

The average correlations between the Armed Forces Qualification Test (AFQT) and training performance are .50. Correlations between Service aptitude tests and training performance are approximately .60 for Army (35), between .40 and .86 for Navy, and between .40 and .75 for Air Force (59). Marine Corps uses Army tests. Service aptitude tests are far better in predicting training course grades than subsequent on-the-job performance. Navy studies show validities with on-the-job performance in the range of .20 - .30 (53). Army reports validities of .20 or .30 between the tests and job performance (50). Tab F discusses the tests currently used for enlisted selection and classification.

Test score correlations with job performance are lower than those with training performance for several reasons:

-- An individual's job performance is affected by his motivation, loyalty, diligence, adaptability to change, and ability to get along with his supervisor and co-workers, and a myriad of other factors as well as learning capacity and job knowledge (8), (35). Tests have not been successful in predicting all the facets of job performance.

-- Validity studies measuring how well tests predict job performance usually use supervisory ratings. Supervisory ratings do not correlate well with more precise measures of job proficiency (8). Development of precise measures of job performance is difficult and expensive. We need better measures of job performance if we hope to develop tests which are better predictors of job performance.

-- Aptitude tests correlate well with training performance because paper and pencil tests are used as measures of proficiency in training. Aptitude tests and training tests place greater emphasis on verbal and arithmetic skills than do most jobs (35), (37).

Maier and Fuchs at the Army Behavior and Systems Research Laboratory conclude that the lower prediction results "in part from limitations in assessing job performance and in part from different demands placed on the worker or felt by him on the job -- demands not measured by the tests" (35).

Effect of Supreme Court Decision.

The Supreme Court decision in the Griggs vs. Duke Power Company Case was based on an interpretation of Title VII of the Civil Rights Act of 1964. This act did not apply to the Federal Government as an employer, so technically the decision did not affect the Department of Defense (27), (31). The Equal Employment Opportunity Act of 1972 (PL 92-261, March 24, 1972) extends the coverage of the Civil Rights Act of 1964 to the Federal Government as a civilian employer. The legislative history provides no indication that Congress intended to apply the Act to employment practices affecting military personnel. However, the Department of Defense pol-

expressed in DOD Directive 1100.15 requires that equal opportunity and treatment shall be accorded all military and civilian employees. In reviewing the Griggs vs. Duke Power Company case, the Assistant General Counsel (Manpower, Reserve Affairs, Health and Environment) recommended an orderly examination of testing and educational requirements to determine whether they can withstand the kind of scrutiny applied by the Supreme Court in the Griggs case (31).

Personnel managers should be aware of the direction taken by the Equal Employment Opportunity Commission, the Justice Department and the Courts in examining discriminatory employment practices.

-- All hiring and promotion practices which exclude a disproportionate share of minority group members are under scrutiny. The selection devices which are examined include all types of tests, educational requirements, interview practices and seniority provisions.

-- The employer is required to prove that the selection test measures the person for the job.

-- The employer must also prove that the test is a valid predictor of job performance. Employers should have validity studies to support the use of a test which excludes a disproportionate proportion of minority members. The Courts and the Equal Employment Opportunity Commission have not defined what is an acceptable level of validity for a test.

The Military Services have examined their selection and classification procedures in light of the Griggs decision and believe that their approach to testing is far different than that of Duke Power Company. Military tests are not tests of "abstract" intelligence, unrelated to

successful performance on the job as was ostensibly the case with Duke Power Company. Military tests are designed to predict success in technical schools which provide skills requisite for job performance (17), (50).

The guidelines prepared by the Equal Employment Opportunity Commission indicate that tests should be validated against job performance rather than success in training. However, the Military Services believe that training performance will serve as a criteria for military tests because military training courses are practical and job related.

Recent research has been directed toward determining if military aptitude tests predict training performance equally well for whites and blacks. Results of Army (35), Navy (62), and Air Force (26) studies show that blacks and whites who score the same on the aptitude test also perform the same in training. Currently, there is no information available on how well military tests predict job performance for whites compared to blacks.

Alternative Measures of Quality

The Military Services have conducted research for more than twenty years to improve the validity of tests used in selection and assignment. New forms of the AFQT and Service aptitude tests are issued periodically.

With the advent of Project 100 000, the Office Assistant Secretary of Defense (M&RA) provided research funds for the development of alternative measures of quality. The Military Services are investigating a variety of new measures which may prove to be better predictors of performance for individuals who have poor academic ability. The research is exploring

the use of so-called culture-free or culture-fair tests. The experimental tests include measures of attitude, and interest; biographical inventories; mazé and pattern tests; tests of coding ability; and digit span tests. Other research efforts are focusing on the use of job learning or job sample measures to predict both success in training and job performance. Tab G describes the research efforts.

Some of the research now being conducted may prove useful in improving selection and assignment of men in the Armed Forces but none of the preliminary findings indicates that a breakthrough in the art of testing is near. There have been many unsuccessful attempts in both the military and civilian research communities to find alternative measures to paper and pencil aptitude tests.

Some alternatives such as the Navy and Marine Corps "Odds for Effectiveness Tables" achieve better predictive ability by using supplementary measures (e.g., school performance, family stability, age, etc.) in addition to military tests. These additional measures improve validity by screening out more people. In a no-draft environment it may be uneconomical to achieve better predictive ability by becoming more selective.

Based on review of ongoing research, the Task Force does not believe that a significant change in military testing will occur in the next few years.

Conclusions

The Task Force concludes that currently used military aptitude tests adequately predict training performance. They predict job performance

less well. Correlations between aptitude tests and training and job performance in the Military Service are in the range reported in civilian life. Military tests predict training performance of whites and blacks about equally well. At this time, no alternatives are available to tests currently employed by the Military Services which will predict performance in training and on-the-job more precisely. Research is being conducted which may provide alternative measures of measuring quality for the future.

The Services are currently using both the Armed Forces Qualification Test and aptitude tests to determine acceptability for service and enlistment guarantees. The different Service aptitude tests predict performance in training for similar occupations about equally well. The Armed Services Vocational Aptitude Battery (ASVAB) was developed from items on Service aptitude tests. The ASVAB meets testing needs for entrance into each military service, both for acceptability for service and for most guarantees of school training and specific assignments. There are advantages to the use of the ASVAB as a single entrance screening instrument in lieu of the use of individual Service aptitude tests:

-- Young people wishing to enter military service would not be subjected to multiple testing as they compare options available to them in different Military Services.

-- It would simplify the referral of applicants from one Service to another thereby broadening the recruiting market.

-- Those people administered ASVAB in the high school testing program would not be required to take additional tests for enlistment into the military service.

-- Use of ASVAB, as a common aptitude battery, would facilitate cross-Service comparisons of the quality of accessions in an all-volunteer environment.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

-- There is considerable variation in qualifying scores on aptitude tests that each Service requires for entry into similar occupations. In most instances Army requires the lowest scores. The differences in qualifying scores affect the Service views as to the quality they need for incoming personnel.

-- All Services state quality requirements for accessions in excess of those necessary to fill jobs adequately and provide for career progression. Army overstates its requirements the least; Air Force overstates its requirements the most.

-- Acceptable minimum quality requirements for accessions (male and female NPS) in FY 1973 and FY 1974 are within the ranges shown on the tables below. These distributions provide the needed quality for entry jobs and career progression.

Table XV

Service Quality Requirements

FY 1973 Accessions

AFQT Mental Categories	Army	Navy	Marine Corps	Air Force
I & II	22% - 21%	33% - 24%	31% - 22%	35% - 26%
III	57% - 58%	55% - 59%	53% - 56%	54% - 58%
IV	21% - 21%	12% - 17%	16% - 22%	11% - 16%
Total	100%	100%	100%	100%

Table XVI

Service Quality Requirements

FY 1974 Accessions

AFQT Mental Categories	Army	Navy	Marine Corps	Air Force
I & II	23% - 22%	34% - 25%	31% - 23%	36% - 26%
III	57% - 58%	56% - 59%	54% - 57%	54% - 58%
IV	20% - 20%	10% - 16%	15% - 20%	10% - 16%
Total	100%	100%	100%	100%

The Task Force compared the quality requirements of each Service developed by the Task Force with an estimate of service recruiting capability and found that:

In FY 1973

-- The quality of Air Force accessions will be considerably higher than its minimum requirements.

-- Navy and Marine Corps will meet minimum quality requirements.

-- With the draft limited to 35,000, Army will find it necessary to accept an undesirably high proportion of mental category IV personnel. With a draft call of 45,000, Army can meet its quality requirements.

In FY 1974

-- Navy and Air Force should be able to recruit personnel in excess of their minimum quality needs. These two Services should be able to meet their self-imposed objective of limiting mental category IV accessions -- 5% for Air Force and 10% for Navy.

-- Marine Corps should be able to meet its minimum quality needs. Mental category IV accessions will be about 20%.

-- Army will be able to meet its minimum quality needs if it can improve its recruiting capability in FY 1974 by about 20,000 true volunteers compared to FY 1973. To improve its recruiting capability it will be necessary for Army to use the enlistment bonus provisions of the Uniformed Services Special Pay Act and attract personnel who originally planned to enlist in the Air Force and Navy.

Note: The above conclusions are sensitive to changes in accession goals and estimates of recruiting capability. Recomputations should be made periodically to take into account changes in these basic assumptions.

-- Research is being conducted by the Services on alternative measures of quality as substitutes for the Service aptitude tests. No feasible alternatives have been developed at this time. Continued research should be supported.

-- Use of a single interchangeable aptitude test, the Armed Services Vocational Aptitude Battery (ASVAB) would be more efficient and desirable for applicants and recruiters than continuing the present use of different aptitude tests for each Service. The ASVAB can be used for enlistment screening, assignment to training and the high school testing program. The use of a single test will also facilitate the comparison of quality needs across all Services and elimination of the wide variance in entry requirements for similar jobs.

Recommendations

The Task Force makes the following recommendations:

-- Recommendation One. The range of quality requirements computed by the Task Force should be used as a criterion for judging whether the Services are facing a quality problem. These quality requirements are shown on Tables XV and XVI. The low end of the range (right-hand column of the tables) should be considered minimum quality requirements.

-- Recommendation Two. The Services should be permitted to exceed the minimum quality requirements computed by the Task Force if they have the recruiting capability to attract better personnel. However, the Assistant Secretary of Defense (M&RA) should take cognizance of these minimum requirements when making decisions on using enlistment bonuses, increasing recruiting and advertising resources, and allocating other resources aimed at improving quality for individual Services.

-- Recommendation Three. The Assistant Secretary of Defense (M&RA) should maintain the staff capability to periodically compute quality requirements compared to recruiting capability because the quality mix changes when accession goals and recruiting capability are revised.

-- Recommendation Four. The Assistant Secretary of Defense (M&RA) should instruct the Services to begin using the Armed Services Vocational Aptitude Battery (ASVAB) as their primary entrance and classification test by January 1, 1973 or soon thereafter. Additional tests may still be administered for selected occupational fields, e.g., infantry, radio code.

-- Recommendation Five. The Assistant Secretary of Defense (M&RA) should support accelerated research on tests which would replace or supplement the current aptitude tests.

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TAB A

TASK ORDER

10 February 1972

TASK ORDER #5 TO

CENTRAL TASK FORCE STAFF FOR ALL VOLUNTEER FORCE

Task Assigned

Study the qualitative accession needs of the Services in terms of mental ability as measured by scores on aptitude tests and AFQT for FY 1973 and FY 1974 and beyond to the extent practical. Evaluate the feasibility of using supplementary measures of quality such as educational level, mental stability, civilian record and motivation.

Coverage of the Study

1. Quantify the accession needs of each Military Service expressed in AFQT mental categories: I and II; upper III; lower III and IV. This task will involve determining the mental requirements by job categories based on aptitude scores for entering training.

2. Estimate the supply of personnel for each Service by mental ability.

3. Compare quality requirements and supply estimates for new accessions:

   a. Estimate the cost of reducing any predicted shortage by a high aptitude enlistment bonus

   b. The alternative cost of accepting qualitative shortfalls

4. Evaluate the feasibility of using supplementary measures of quality as a means of improving the predictive power of aptitude tests and AFQT.

Assumptions

1. If additional incentives are needed to reduce shortfalls, they will be authorized.

Due Dates

1. Study plan will be submitted by February 22, 1972.

2. Completed study to be submitted by June 30, 1972.

TAB B

STUDY PLAN

CENTRAL AVF TASK FORCE

Study Plan for Task Order # 5

QUALITATIVE ACCESSION REQUIREMENTS

In a zero draft environment, it has been assumed that there will be a decrease in the quality of manpower available to the military services. The purpose of this task is to identify and quantify the quality needed by the Military Services to fill occupational fields, and to determine whether or not these quality requirements are likely to be met. If qualitative shortfalls are predicted, the cost of a high aptitude enlistment bonus will be examined in comparison with the costs of other alternatives for meeting this shortfall. The feasibility of using measures of quality to supplement existing measures (AFQT, aptitude scores) will also be evaluated.

1. QUANTIFY THE ACCESSION NEEDS OF EACH MILITARY SERVICE BY AFQT MENTAL CATEGORIES

A. The Approach: The object is to determine the minimum qualitative needs for each Service for its entry level jobs based on the aptitude score for entering training. First it is necessary to divide the non prior service (NPS) accessions for each Service into occupational fields. Then the minimum aptitude score requirement for entry into each occupational field will be collected from the services. Service differences in aptitude requirements for comparable occupations will be reviewed and adjustments will be made if necessary. By weighting the minimum aptitude requirements by the number of accessions into each skill area, a minimum quality profile will be developed for broad career fields. A

second profile to account for quality requirements at advanced job levels will then be developed and weighted by number of accessions. Requirements by aptitude scores for the minimum quality profiles and the career quality profiles (which take into account advance job levels) will then be converted to AFQT categories for each career field and aggregated into Service totals. The two skill area quality profiles for each service will be that Service's demand for quality.

B. Each Military Service will provide gross NPS accession requirements* for FY 1973, 1974, 1975 based upon end strengths stated in the Jan. 24, 1972 update to the FYDP. These accession requirements will be allocated by skill area expressed in terms of occupational field (e.g., 68 allocated to MOS 34D), or the largest grouping which meaningfully encompasses minimum aptitude requirements for the entry level into occupations:

Army - First 3 digits of MOS (e.g., 34D)

Navy - Rating (e.g., ET)

Air Force - First 2 digits of AFSC (e.g., 27) except when 2 digits are not sufficiently discrete. (e.g., 271, 272)

Marine Corps - First 2 digits (e.g., 01) of MOS except when 2 digits are not sufficiently discrete.

*To include Navy Reservists on active duty for two years but identified separately.

1. For each skill area as designated above, each Military Service will furnish the minimum aptitude requirement for entry. The aptitude requirements will be specified in terms of standard scores on the Army Classification Battery (ACB) or the Army Qualification Battery (AQB) for the Army; the ACB for the Marine Corps; the Navy Basic Test Battery (NBTB) for the Navy; and the Airman Qualifying Exam (AQE) for the Air Force. When there is more than one aptitude score prerequisite for a specific occupation, the highest score should be the governing score.

2. The Navy should subdivide each rating into school trainees, and on-the job trainees, with a minimum qualifying score assigned to each group.

C. In order to ensure sufficient quality entering the career force, the above minimum aptitude should be increased by some factor. In order to determine this factor, it is necessary to know the minimum aptitude requirements for each grade level in each skill area. The Military Services will:

1. Furnish a distribution of minimum aptitude scores for all pay grades within each skill area. The entry level score should be used for pay grades E-1 through E-9 except where advanced schooling or job difficulty requires a higher aptitude. Each service will describe in detail the rationale and parameters used in determining these minimum aptitude scores.

2. Distribute projected NPS accessions for FY 73, FY 74, and FY 75 in each skill area by the aptitude scores required for a viable career force (e.g., 65% ACB GT 90, 0% GT 95, 35% GT 100, 0% GT 105, and 0% GT 110). This will be the career skill area quality profile.

It will probably not be practical to use less than the three digit occupational code to derive this profile. In addition, the profile should also be summarized at the two digit level.

3. Furnish the aptitude distribution for each pay grade for personnel currently assigned to each skill area. This distribution will be used to substantiate projected requirements. The aptitude data for the current personnel inventory should be presented in terms of the aptitude score relevant to the skill area. This distribution should be for the "on board" strength as of 30 June 1971.

D. The Central AVF Task Force will compare the minimum and skill area quality profiles to note, resolve, and/or level differences in quality (aptitude) requirements for skill areas similar across the four Services.

1. If required, alternative quality profiles will be constructed in addition to those submitted by the Military Services.

2. In order to facilitate this comparison, a table which converts the aptitude scores of one service into that of another will be used (e.g., ACB mechanical X, equates to an AQE mechanical of Y, etc.).

E. The Central AVF Task Force will then aggregate total aptitude requirements for accessions (both minimum and career requirements) by Service, and convert them to the measure of quality utilized in supply projections, i.e., the Armed Forces Qualification Test (AFQT) Categories.

1. To create a conversion table based on empirical data, each military service will furnish a distribution of AFQT scores for all accessions July 1, 1971 through September 30, 1971. Input will be in the format of Attachment 1.

2. The Central AVF Task Force will aggregate and then convert the aptitude requirements in the quality profiles to AFQT requirements to arrive at the estimate for each Service's demand for quality.

F. The specific data requirements from the Services are shown in Attachment 2.

II. ESTIMATE THE SUPPLY OF PERSONNEL FOR EACH SERVICE BY MENTAL CATEGORY

A. The Approach: To estimate the supply of true volunteers to each Service by mental category will require projections of the annual supply for at least three years into the future. The projections should be able to take the effects of pay increases, bonuses, and population growth into consideration.

1. In addition, the projections should reflect the following types of issues:

a. Differing assumptions of the responsiveness of manpower supply to changes in income levels.

b. Differing pay elasticities for each Service and for mental category.

c. The existence or non-existence of a queue of volunteers, etc.

2. The projections should also include a range of estimates to reflect the uncertainty inherent in the estimates.

B. The Central AVF Task Force will address the above.

III. COMPUTE QUALITY SHORTFALLS AND ALTERNATIVE SOLUTIONS

A. The Approach: The Services' quality demands will be compared

to the forecasts of supply to determine whether there will be shortfalls, and if so, the extent and location of the shortfall. Alternative methods and costs of accepting the shortfalls, paying an enlistment bonus, or paying a higher reenlistment bonus will be computed.

B. The Central AVF Task Force will compare the Services' quality demand to the forecasts of supply quality. This will give an indication of the severity of the quality problem and in what specific areas it lies.

C. The estimated costs of implementing a high aptitude enlistment bonus can then be quantified using the shortfall estimates and pay elasticities of different mental categories. Further, the Task Force will measure the cost trade off between increasing enlistments of high aptitude men versus increasing the supply of reenlistments by use of bonuses. Another alternative would be to accept the qualitative shortfalls. The impact of this alternative on training, disciplinary, and other costs along with on-the-job performance and quality of the career force will be examined.

1. The lower mental categories can be assessed on the above criteria utilizing the New Mental Standards data.

2. For higher mental categories, Service experience data (from their personnel research groups or training commands) which demonstrate changes in attrition rates in training courses for different quality requirements will be examined.

IV. EVALUATE THE FEASIBILITY OF USING ALTERNATIVE MEASURES OF QUALITY

A. The Approach: To evaluate the feasibility of using alternative methods for selecting personnel, it is first necessary to examine

the development/improvement of existing measures.

B. Discussion with service personnel research groups should reveal whether improvement of predictive power or supplementary measures of quality are feasible alternatives given the present state of the art.

1. Necessary dimensions to be predicted would be training success, disciplinary problems, and job performance. Further, the measure(s) should be of low cost, and feasible for use in the mass screening of incoming personnel.

2. If a promising measure is found, a detailed plan for further study will be submitted.

Attachment 3 contains the tentative time schedule for this work plan.

Distribution of AFQT Scores by Aptitude Scores

Area* Score GT	AFQT SCORE																	
	10-15		16-20		21-30		31-49		50-64		65-92		93-99		UNK		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0-44																		100%
45-49																		100%
50-54																		100%
55-59																		100%
60-64																		100%
65-69																		100%
70-74																		100%
75-79																		100%
80-84																		100%
85-89																		100%
90-94																		100%
95-99																		100%
100-104																		100%
105-109																		100%
110-114																		100%
115-119																		100%
120-124																		100%
125-129																		100%
130 and above																		100%

services should array each aptitude score in five point intervals

Attachment 1

CENTRAL AVF STAFF TIMETABLE
TASK # 5

	DATA REQUIREMENT	STUDY PLAN REFERENCE	COMPLETION DATE
1.	Received Service Input	Attachment 2	April 3, 1972
2.	Note, resolve, and/or level differences in requirements for skill areas similar across the four services.	(I.D.)	May 1, 1972
3.	Aggregate total aptitude requirements by service, and convert them to AFQT.	(I.E.)	May 29. 1972
4.	Estimate the supply of personnel for each service by mental category.	(II)	March 24, 1972
5.	Compute quality shortfalls and alternative solutions.	(III)	June 30, 1972
6.	Evaluate the feasibility of using alternative measures of quality.	(IV)	June 30, 1972 (Concurrent)

Attachment 3

DATA REQUIRED FROM THE SERVICES

DATA REQUIREMENT	STUDY PLAN REFERENCE
1. Provide gross NPS accession requirements for FY 1973, 1974, 1975 based upon end strengths stated in the Jan. 1972 update to the FYDP.	I.B.
2. Provide the minimum aptitude requirement for entry to each skill area.	I.B.I.
3. Furnish a distribution of minimum aptitude for all pay grades within each skill area.	I.C.I.
4. Distribute projected NPS accession for FY 73, FY 74 and FY 75 in each skill area by the aptitude scores required for a viable career force.	I.C.2
5. Furnish the current aptitude distribution for each pay grade within a skill area.	I.C.3
6. Furnish a distribution of AFQT scores for each aptitude score for all accessions 1 July 1971 through 30 September 1971.	I.E.1

TAB C

MINIMUM TEST SCORES FOR ENTRY INTO

OCCUPATIONS BY DOD OCCUPATIONAL

CODE AND MILITARY SERVICE

MINIMUM TEST SCORES FOR ENTRY INTO OCCUPATIONS

BY DOD OCCUPATIONAL CODE AND MILITARY SERVICE

Instructions to the Services required them to submit the entry aptitude test score minimums for Service occupational codes. In order to accomplish its analysis, the Task Force aggregated occupational fields (in terms of MOS, ratings, or AFSC to the significant digit) into 66 two-digit Department of Defense occupational groupings. This allowed the Task Force to compare like skills and associated aptitude test score minimums. The Task Force developed grouping is attached.

While the Task Force recognizes that exact job equivalency is not always assured by using the DOD Occupational Conversion Table, the Table is based on careful analysis of duties in each specialty in each Service. Where use of the Conversion Table led to an obviously non-comparable grouping, the Task Force adjusted the grouping to improve the validity of its analysis.

By examining Army and Marine Corps entry test score minimums for similar jobs, one can quickly see the higher quality requirements stated by Marine Corps. However, it is not possible to compare Navy and Air Force quality requirements with each other or with Army and Marine Corps because different tests are used. The quality requirements can be compared across Services, however, when the Service test scores have been converted to AFQT.

MINIMUM TEST SCORES FOR ENTRY INTO OCCUPATIONS BY DOD OCCUPATIONAL CODE AND MILITARY SERVICE

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
01	Infantry	Army	11B,11C,11H	IN 90
		Marine Corps	03	IN 100
		Air Force	753	MECH 60
02	Armor & Amphibious	Army	11E	AE 90
		Marine Corps	18	AE 90
03	Combat Engineering	Army	12A	AE 90
			54A	GM 80
		Marine Corps	13(42%)	AE 90
04	Artillery/Gunnery, Rockets & Missiles	Army	13A,15F,15B,15D	AE 90
			15E,16B,16D,16P	AE 90
			16R	AE 90
			16C,16E	AE 100
		Navy	GMG	GCT+M+SP=163
		Marine Corps	67(5%)	GT 110
			08(79%)	AE 100
			08(21%)	GT 100
05	Combat Air Crew	Marine Corps	60(1%)	GT 120
			67(4%)	GT 110
		Air Force	327	ELEC 80
06	Seamanship	Navy	BM	-
			QM	GCT+ARI=105
			SM	GCT+CLER=110
		Army	61A,61B,61D	MM 100
		Air Force	591	MECH 40
10	Radio/Radar	Army	26V,26L,31B,31D,32A,	EL 100
			32B,32C,32D,32E,27F,	EL 100
			26Y,35K,35L,35M,35N,	EL 100
			23S,23T,23U,24B,24P,	EL 100
			26B,26C,26D,26H,26K,	EL 100
			26M,26N,23N,35R	EL 100
		Navy	AT,ET,AX,CTM	ARI+2 ETST=171
		Marine Corps	59(52%),28(73%),67(14%)	GT 110
			62(43%)	GT 120
		Air Force	304,307,325,328,329,	ELEC 80
			303	ELEC 80
11	Fire Control Electronic Systems (Non-Missile)	Army	35J,34G	EL 100
		Navy	AQ	ARI+2 ETST=171
		Marine Corps	59(3%)	GT 110
		Air Force	321,322	ELEC 80
			323	ELEC 60

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
12	Missile Guidance, Control & Checkout	Army	21G,21M,21S,21T,22G,	EL 100
			22K,22L,22M,23Q,24D,	EL 100
			24F,24M,24N,24Q,24U,	EL 100
			27B,27D,27E,27H,24C,	EL 100
			24E,24G,24H,24J,24K,	EL 100
			27G,21L,21R	EL 100
			46D	GM 100
		Navy	FT,MT	ARI+2 ETST=171
			TM	GCT+ARI=110
		Marine Corps	59(17%),67(5%)	GT 110
			62(18%)	GT 120
		Air Force	316,317	ELEC 80
13	Sonar Equipment	Navy	ST	ARI+2 ETST=171 +SONAR=55
14	Nuclear Weapons Equipment	Army	35F	EL 100
		Air Force	463	ELEC 80
15	ADP Computers	Army	25K,34B,34D	EL 100
		Navy	DS	ARI+2 ETST=171
		Marine Corps	59(28%)	GT 110
		Air Force	305	ELEC 80
16	Teletype & Cryptographic Equipment	Army	31J,31S,31T,32G	EL 100
			32F	EL 110
		Marine Corps	28(10%)	GT 110
		Air Force	306	ELEC 80
			363	ELEC 60
19	Other Electronic Equipment	Army	26T,26P,35B,35G,35D,	EL 100
			35E	EL 100
			35H	EL 110
			84D,93D	GT 100
			41E,41F,41G,31R	GM 100
		Navy	TD	ARI+2 ETST=171
		Marine Corps	62(3%)	GT 120
			28(5%)	GT 110
		Air Force	341,342,343,344,302,	ELEC 80
			324,325,326	ELEC 80
			402,403,404	ELEC 60
20	Radio & Radio Code	Army	05B,05E,05F	CL 100
			31M	EL 100
		Navy	RM	GCT+ARI=100
		Marine Corps	25(53%),67(6%)	GT 110
		Air Force	293	ADMIN 60
21	Sonar	Navy	AW	ARI+2 ETST=171 +SONAR=55
			OT	GCT+MECH+ETST 156

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
22	Radar & Air Traffic Control	Army	16J,17A,17K,17L,17B	AE 100
			93H,93J,93K	GT 105
		Navy	RD	GCT+ARI=110
			AC	GCT+ARI=110
		Marine Corps	67(65%)	GT 110
		Air Force	276,272	GEN 60
23	Signal Intelligence/ Electronic Warfare	Army	05D,05H,05K	RC 100
			98Z,05G,98G,98B,	GT 110
			98C,98J	GT 110
		Navy	EW	GCT+ARI=110
			CTR,CTT	GCT+ARI=100 +RADIO=60
			CTI	GCT+ARI+CLER= 155+FLAT=18
		Marine Corps	25(10%)	GT 110
		Air Force	292	ADMIN 60
			202,294	GEN 80
24	Military Intelligence	Army	96B,96C,96D	GT 100
			97B,97C,97D	GT 110
		Navy	PT	GCT+ARI=105
		Marine Corps	02	GT 100
		Air Force	203,206	GEN 80
			204	GEN 60
25	Combat Operations Control	Army	11D,16H	AE 90
			13E	AE 100
		Air Force	274	GEN 60
30	Medical Care	Army	91A,91U,91D,91F,	GT 100
			91G,91J	GT 100
		Navy	HM	GCT+ARI=100
		Air Force	901,902,912,913,914	GEN 60
31	Technical Medical Services	Army	91Q,91P,92B	GT 100
			42E	GM 100
		Air Force	903,904,905	GEN 60
32	Related Medical Services	Army	91R,91S,91T	GT 100
		Air Force	907,908,911	GEN 60
33	Dental Care	Army	42D	GM 100
			91E	GT 100
		Navy	DT	GCT+ARI=100
		Air Force	981,982	GEN 60
40	Photography	Army	84B,84C,84G	GT 90
			84E	GT 100
			84F	GT 95
		Navy	PH	GCT+ARI=105
		Marine Corps	46	GT 100
			62(3%)	GT 120
		Air Force	233,236,237,	GEN 40
			234,235	GEN 60

DOD Code	Occupation Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
41	Drafting, Surveying & Mapping	Army	81C	GT 90
			81D,81B,81A	GT 95
			82C,82A,82D,82E,82B,	GT 100
			81E	GT 100
			17C	AE 100
		Navy	EA	GCT+ARI=100
			DM	-
		Marine Corps	14	GT 95
		Air Force	221,222,223	GEN 60
			553	GEN 65
42	Weather	Army	93E,93F	GT 100
		Navy	AG	GCT+ARI=100
		Marine Corps	68	CL 110
		Air Force	252	GEN 80
43	Ordnance Disposal & Diving	Army	55D,00B	GM 100
		Marine Corps	23	MM 100
		Air Force	464	MECH 60
44	Scientific & Engineering Aids	Air Force	991	MENTAL GROUP I
45	Musicians	Army	02B-02Z	GT 100
		Navy	MU	-
		Marine Corps	55	-
		Air Force	871	GEN 40
49	Technical Specialists, NEC	Army	92C,92D	GT 100
			57F	GM 90
			51G	GM 100
			54E	GM 110
50	Personnel	Navy	PN	GCT+ARI=110
		Air Force	732	ADMIN 60
51	Administration	Army	71B-E,71L,71G,71N	CL 100
			71P	GT 100
			71F	CL 95
		Navy	CTA,YN	GCT+CLER=110
			AZ	GCT+ARI=105
			PC	GCT+ARI=100
		Marine Corps	01(74%),44	CL 110
			31(46%)	CL 90
			60(6%)	GT 120
			70(34%)	GM 100
		Air Force	702,602,271	ADMIN 40
			906,391	GEN 60
			605	MECH 50
52	Clerical Personnel	Marine Corps	01(26%)	CL 110
53	Data Processing	Army	71U,71F,74F	CL 110
			74C,74D,74E,74G	CL 100
		Navy	DP	GCT+CLER=110
		Marine Corps	40	GT 105
			60(2%)	GT 120
		Air Force	511,691	GEN 60

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
54	Accounting, Finance & Disbursing	Navy	DK	GCT+ARI=105
		Marine Corps	34	CL 120
			41(14%)	CL 100
		Air Force	671	ADMIN 80
55	Supply & Logistics	Army	76A,76V,76Y	CL 90
			76J,76P,76S,76T	CL 95
		Navy	AK,SK	GCT+ARI=105
		Marine Corps	04	CL 100
			30(63%)	CL 105
		Air Force	645,915	GEN 60
			651	ADMIN 70
56	Religious, Morale, & Welfare	Army	03B,03C,03D	GT 90
		Air Force	701	ADMIN 60
			741	ADMIN 40
57	Information & Education	Army	71Q,71R	CL 110
		Navy	JO	GCT+CLER=110
		Marine Corps	43	CL120
		Air Force	751	GEN 60
			791	GEN 80
58	Communications Center Operations	Army	72B,72F,72G	CL 100
			72C	CL 90
		Navy	CTO	GCT+ARI=105
		Marine Corps	25(16%)	GT 110
		Air Force	291	ADMIN 60
60	Aircraft	Army	67A,68A,68D,68H,68G	MM 100
			68B,68E,68F	MM 100
		Navy	AD,AM,AS,PR	GCT+M+SP=156
			AE	ARI+2 ETST=160
		Marine Corps	60(78%),61,62(33%)	GT 120
		Air Force	421,423,424,534,432	MECH 40
			422,425	ELEC 40
			431	MECH 50
61	Automotive	Army	62B,63A,63B	MM 90
			63F,63G,63H	MM 95
		Navy	CM	GCT+M+SP=150
		Marine Corps	35(30%)	MM 90
			60(6%)	GT 120
			13(21%)	MM 100
			21(54%)	GM 100
		Air Force	472,473	MECH 40
62	Wire Communications	Army	36C,36K,36E	EL 90
			36G	EL 95
			36H	EL 100
		Navy	IC	GCT+M+SP=156
		Marine Corps	25(21%),28(12%)	GT 110
		Air Force	361	MECH 40
			362	ELEC 60

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
63	Missile Mechanical & Electrical	Army	46N,46A	GM 100
			62C	MM 100
		Navy	GMM	GCT+M+SP=163
		Air Force	441,541	ELEC 50
			442,443	MECH 50
64	Armament & Munitions	Army	45A,55A	GM 90
			45B,55C,45K	GM 95
			45L,45M,55B,45J	GM 100
			55G	GM 105
		Navy	GMT	GCT+M+SP=163
			AO,MN	GCT+M+SP=156
		Marine Corps	21(35%),13(2%)	GM 100
			23	MM 100
			65	GT 120
		Air Force	461,462	MECH 60
65	Shipboard Propulsion	Army	61C,61E	MM 100
		Navy	MM,EN,BT	GCT+M+SP=156
66	Power Generating Equipment	Army	52H,52J,52K,52L	EL 110
			65F,52E,65C	MM 90
			52B	GM 100
		Navy	EM	GCT+M+SP=156
		Air Force	543	MECH 50
67	Precision Equipment	Army	41B,41C	GM 100
			41J	GM 90
		Navy	IM,OM	GCT+M+SP=163
		Marine Corps	21(4%)	GM 100
			32(16%)	GM 90
68	Aircraft Launch Equipment	Navy	AB	GCT+M+SP=156
		Marine Corps	70(22%)	GM 100
69	Other Mechanical & Electrical Equipment	Army	54D	GM 100
			63J,63K,65A,65B	MM 90
			41K	GM 90
70	Metalworking	Army	44A,44B,44C	GM 90
			44E	GM 100
			44K	MM 100
		Navy	MR	GCT+M+SP=156
		Marine Corps	13(5%)	GM 100
			21(7%)	MM 100
			35(1%)	GM 90
			60(4%)	GT 120
		Air Force	531,532,473,533	MECH 40
			536	GEN 50
71	Construction	Army	51A,51B,51C	GM 90
		Navy	BU,SW	GCT+M+SP=150
		Air Force	551	MECH 40
			552	MECH 50

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
72	Utilities	Army	51J,51L	GM 100
			51K,51N,51R	GM 90
			52A	MM 90
		Navy	UT	GCT+M+SP=150
			CE	GCT+M+SP=156
		Marine Corps	11	GM 100
			1141/2	EL 110
			60(1%)	GT 120
		Air Force	542,545	ELEC 50
			546	MECH 50
			547,563	MECH 40
			566	GEN 60
73	Construction Equipment Operation	Army	62F,62H,62J,62K,62L,	MM 90
			62M,62D,62E,62G	MM 90
		Navy	EO	GCT+M+SP=150
		Marine Corps	13(14%)	MM 100
		Air Force	551	MECH 40
74	Lithography	Army	83A,83D,83E,83F	GT 90
		Navy	LI	-
		Marine Corps	15	GT 90
		Air Force	711,713	GEN 40
75	Industrial Gas & Fuel Production	Army	53B,53C	GM 100
		Marine Corps	60(1%)	GT 120
		Air Force	544	MECH 50
76	Fabric, Leather & Rubber	Army	43A,43J,43K,43L	GM 80
			57C	GM 90
		Air Force	582	MECH 40
78	Firefighting & Damage Control	Army	51M	GM 100
		Marine Corps	70(44%)	GM 100
		Air Force	571	GEN 40
79	Other Craftsmen, NEC	Navy	HT,PM,ML	GCT+M+SP=156
		Marine Corps	32(47%)	GM 90
		Air Force	535	MECH 50
80	Food Service	Army	00H, 94D	GT 100
			94A,94B,94C	GT 80
		Navy	CS	GCT+ARI=100
			SD	-
		Marine Corps	33	GT 90
		Air Force	621,622	GEN 40
81	Motor Transport	Army	64C,65J,65K.65H	MM 90
		Marine Corps	35(69%)	GT 90
		Air Force	603	MECH 40
82	Material Receipt, Storage & Issue	Army	76W,76X	CL 90
			57H	GM 100
		Navy	SH	-
		Marine Corps	13(16%)	AE 90
			30(37%)	CL 105
			31(54%)	CL 90
			41(86%)	CL 100
		Air Force	601,631,647	GEN 40
			611	ADMIN 40

DOD Code	Occupational Code Title	Military Service	Service Occupational Code	Entry Test Score Minimum
83	Military Police	Army	95B	GT 100
		Marine Corps	58	GT 90
		Air Force	811	GEN 40
			812	GEN 50
84	Personal Service	Army	57E	GM 80
		Marine Corps	32(37%)	GM 90
85	Auxiliary Labor	Army	05G	MM 90
			57A	GM 80
86	Forward Area Equipment Support	Army	43E	GM 90
		Marine Corps	60(5%)	GT 120
		Air Force	581	MECH 40
			607	MECH 50
			922	GEN 40

TAB D

QUALITY DISTRIBUTION SUMMARIES AND COMPUTER PROGRAMS USED FOR ANALYSIS

QUALITY DISTRIBUTION SUMMARIES AND COMPUTER PROGRAMS USED FOR ANALYSIS

Summaries of the quality distributions for the different alternatives are shown on the following pages. There are six alternatives presented for each Service:

-- Minimum Service entry aptitude requirements.

-- These same entry aptitude requirements computed using an adjustment to the mean mental requirement.

-- These same entry aptitude requirements computed using an adjustment to the lowest mental requirement.

-- Service entry aptitude minimum with quality raised to provide enough talented people for career progression.

-- Entry aptitude requirements loaded for career needs adjusted to the mean mental requirement.

-- Entry aptitude requirements loaded for career needs adjusted to the lowest mental requirement.

The AFQT mental category distributions are shown in more detail than was used in the body of the report. The distribution, from highest mental category to lowest, is I (AFQT scores 93-100), II (65-92), IIIa (50-64), IIIb (31-49), IVa (21-30), IVb (16-20), and IVc (10-15). (A complete analysis by DOD occupational groups is available to the Services upon request.)

Also included in this tab is a listing of the complete computer program that was used in preparing this study. Pages D-10 through D-45 contain the master program with the sub-programs for each Service following.

Army

Quality Requirements

FY 1973

Task Force Computations of Quality	AFQT Mental Category I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	.2	15.2	21.7	34.9	17.1	9.3	1.6	100%
2. Entry Mean Aptitude Score	.2	14.6	21.6	35.4	17.0	9.4	1.8	100%
3. Entry Lowest Aptitude Score	.2	13.9	21.3	36.0	16.9	9.7	2.0	100%
4. Career Service Aptitude Score	.7	21.0	24.2	32.7	13.6	6.8	1.0	100%
5. Career Mean Aptitude Score	.7	20.9	24.3	32.7	13.6	6.8	1.0	100%
6. Career Lowest Aptitude Score	.7	20.6	24.6	32.8	13.4	6.8	1.1	100%

Navy

Quality Requirements

FY 1973

Task Force Computations of Quality	AFQT Mental Category I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	1.7	34.3	31.7	22.0	5.1	3.1	2.1	100%
2. Entry Mean Aptitude Score	1.0	25.1	27.7	30.6	9.8	4.2	1.6	100%
3. Entry Lowest Aptitude Score	.3	14.7	23.3	37.7	15.9	6.6	1.5	100%
4. Career Service Aptitude Score	1.7	34.3	31.7	22.0	5.1	3.1	2.1	100%
5. Career Mean Aptitude Score	1.7	31.3	29.4	25.7	7.1	3.2	1.6	100%
6. Career Lowest Aptitude Score	.9	23.1	26.7	32.0	11.9	4.6	.8	100%

Marine Corps

Quality Requirements

FY 1973

Task Force Computations of Quality	AFQT Mental Category							
	I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	.7	21.1	26.2	33.3	9.0	7.7	2.0	100%
2. Entry Mean Aptitude Score	.6	18.1	25.0	34.1	11.1	8.6	2.5	100%
3. Entry Lowest Aptitude Score	.3	13.5	21.6	35.9	15.6	10.4	2.7	100%
4. Career Service Aptitude Score	3.7	33.7	26.3	23.8	6.0	5.1	1.4	100%
5. Career Mean Aptitude Score	2.3	28.4	25.7	27.7	8.6	5.6	1.7	100%
6. Career Lowest Aptitude Score	.9	21.3	24.3	31.8	12.6	7.4	1.7	100%

Air Force

Quality Requirements

FY 1973

Task Force Computations of Quality	AFQT Mental Category							
	I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	1.4	24.3	25.0	34.7	9.8	2.7	2.1	100%
2. Entry Mean Aptitude Score	.9	20.3	25.3	36.1	11.3	3.9	2.2	100%
3. Entry Lowest Aptitude Score	.4	15.1	23.3	37.6	15.4	6.5	1.7	100%
4. Career Service Aptitude Score	3.8	37.2	25.2	25.7	5.8	1.2	1.1	100%
5. Career Mean Aptitude Score	2.5	32.0	26.7	27.5	7.6	2.6	1.1	100%
6. Career Lowest Aptitude Score	1.0	24.5	26.7	31.3	11.1	4.5	.9	100%

Army

Quality Requirements

FY 1974

Task Force Computations of Quality	AFQT Mental Category							
	I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	.2	15.5	22.2	35.0	16.8	8.9	1.4	100%
2. Entry Mean Aptitude Score	.2	14.9	21.9	35.4	16.7	9.2	1.7	100%
3. Entry Lowest Aptitude Score	.2	14.1	21.6	36.1	16.6	9.4	2.0	100%
4. Career Service Aptitude Score	.7	21.8	24.7	32.3	13.2	6.4	.9	100%
5. Career Mean Aptitude Score	.7	21.8	24.7	32.3	13.1	6.4	1.0	100%
6. Career Lowest Aptitude Score	.7	21.2	25.4	32.4	12.9	6.4	1.0	100%

Navy

Quality Requirements

FY 1974

Task Force Computations of Quality	AFQT Mental Category							
	I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	1.3	35.3	34.1	21.8	4.1	2.1	1.3	100%
2. Entry Mean Aptitude Score	1.0	27.8	28.9	29.2	8.6	3.4	1.1	100%
3. Entry Lowest Aptitude Score	.4	15.6	28.3	37.5	15.0	5.8	1.4	100%
4. Career Service Aptitude Score	1.3	35.3	34.1	21.8	4.1	2.1	1.3	100%
5. Career Mean Aptitude Score	1.7	32.7	30.7	25.1	6.3	2.6	.9	100%
6. Career Lowest Aptitude Score	.9	23.9	27.5	31.5	11.3	4.2	.7	100%

Marine Corps

Quality Requirements

FY 1974

Task Force Computations of Quality	AFQT Mental Category I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	.9	23.6	26.3	31.8	8.4	7.2	1.8	100%
2. Entry Mean Aptitude Score	.7	19.6	25.1	33.4	10.8	8.1	2.3	100%
3. Entry Lowest Aptitude Score	.3	13.7	22.0	36.3	15.4	9.7	2.6	100%
4. Career Service Aptitude Score	3.8	34.6	26.5	23.1	5.8	4.9	1.3	100%
5. Career Mean Aptitude Score	2.3	29.1	26.1	27.3	8.3	5.4	1.5	100%
6. Career Lowest Aptitude Score	.9	22.2	24.9	31.7	12.0	6.7	1.6	100%

Air Force

Quality Requirements

FY 1974

Task Force Computations of Quality	AFQT Mental Category							
	I	II	IIIa	IIIb	IVa	IVb	IVc	Total
1. Entry Service Aptitude Score	1.6	26.3	25.1	33.4	9.1	2.5	2.0	100%
2. Entry Mean Aptitude Score	1.0	21.7	25.7	35.2	10.8	3.6	2.0	100%
3. Entry Lowest Aptitude Score	.5	16.0	23.9	37.2	14.8	6.0	1.6	100%
4. Career Service Aptitude Score	4.1	39.0	24.9	24.5	5.4	1.1	1.0	100%
5. Career Mean Aptitude Score	2.7	33.2	26.9	26.7	7.2	2.4	.9	100%
6. Career Lowest Aptitude Score	1.0	25.2	27.8	31.0	10.7	4.0	.8	100%

FUNLEV

```
10        DIMENSION MOC(6,4),INPUT(9),ID(70),MAT(6,4,30,9),
20&       AVGPCT(8),PCT(4,8),TOT(6,4,9),CUM(4,9),LEVEL(8),
30&       SAVMOS(6,4,30),SERV(4),OFIL(8),OCUM(4,9)
40         DIMENSION HEAD(2,2),SERTL(6)
50       COMMON PCT,AVGPCT,TOT,CAT1,CAT4,AVG1,AVG4,HOL1,HOL4,SERTL
60        INTEGER DOD,SVC,TOT,CUM,SAVMOS,PIT
70        REAL ISPF,NON
80        DATA HEAD/4HLEVE,4HLED ,4HSERV,4HICE /
90        DATA ID/
100&        01,02,03,04,10,05,11,13,21,12,14,15,
110&         16,19,20,22,23,24,25,30,31,32,33,40,
120&         41,42,43,44,45,49,50,51,53,54,55,06,
130&        56,57,58,60,600,61,62,621,63,64,644,645,646,
140&        66,65,68,67,69,70,79,71,72,73,74,75,
150&        76,78,80,81,82,83,84,85,86/
160       DATA SERV/3HAF ,3HARM,3HMAR,3HNAV/,CAR/3HCAR/,
170&           ENT/3HENT/,NON/4HDONE/
180       DATA YES/3HYES/,XNO/2HNO/
190 1000  PRINT 15
200 1111  READ(50,,ERR=1122) ANS
210       GO TO 1133
220 1122  PRINT, "INVALID INPUT; INPUT AGAIN"
230       GO TO 1111
240 1133  IF (ANS.EQ.YES) GO TO 1144
250       IF (ANS.NE.XNO) GO TO 1122
260       ISTAT=1
270       GO TO 1155
280 1144  ISTAT=2
290 1155  PRINT, "INPUT 1 IF YOU WANT ONLY TOTALS PRINTED:"
300       PRINT, "OTHERWISE INPUT 0"
310       READ(50,) IFBIN
320  PRINT, "INPUT DOD STARTING SEQUNCE NUMBER"
330   READ(50,) INIT
340       PRINT 12
350       PRINT 13
360 1010  READ(50,,ERR=1999) ISPF
370       GO TO 1030
380 1999  PRINT, "ERROR IN INPUT;  INPUT AGAIN"
390       GO TO 1010
400 1030  IF (ISPF.EQ.ENT) GO TO 1015
410       IF (ISPF.EQ.CAR) GO TO 1016
420       IF (ISPF.EQ.NON) GO TO 5555
430       PRINT, "INVALID REQUEST;  INPUT AGAIN"
440       GO TO 1010
450 1015  PIT=0
460       PRINT 10
470       GO TO 1020
480 1016  PIT=3
490       PRINT 11
500 1020  PRINT 16
```

FUNLEV CONTINUED

```
      PRINT 9
      CALL OPENF(1,"FUNFL")
      DO 1021 I=1,3
1021  READ(1,) OFIL(I)
      CALL CLOSEF(1)
      DO 1018 IJ=1,4
      DO 1018 KL=1,9
      OCUM(IJ,KL)=0
1018  CUM(IJ,KL)=0
      DO 700 I=INIT,70,6
      DO 20 IJ=1,6
      DO 20 KL=1,4
      MOC(IJ,KL)=0
      DO 20 MN=1,9
      TOT(IJ,KL,MN)=0
      DO 20 KZ=1,30
20    MAT(IJ,KL,KZ,MN)=0
      DO 400 J=1,4
      MJK=J+PIT
      FIL=OFIL(MJK)
      CALL OPENF(1,FIL)
      DO 300 K=1,400
30    READ(1,,END=410,ERR=9999) DOD,SVC,MOS,(INPUT(II),II=1,9)
      IF (DOD.EQ.0) GO TO 410
      IF (SVC.EQ.0) SVC=4
      GO TO 40
9999  PRINT, "RECORD WITH MOS",MOS," IS INVALID"
      GO TO 30
40    DO 200 L=1,6
      LL=L+I-1
      IF (LL.GT.70) GO TO 300
      IF (DOD.NE.ID(LL)) GO TO 200
      MOC(L,SVC)=MOC(L,SVC)+1
      MM=MOC(L,SVC)
      SAVMOS(L,SVC,MM)=MOS
      DO 100 NN=1,9
      MAT(L,SVC,MM,NN)=INPUT(NN)
100   TOT(L,SVC,NN)=TOT(L,SVC,NN)+INPUT(NN)
200   CONTINUE
300   CONTINUE
410   CALL CLOSEF(1)
400   CONTINUE
      DO 600 L=1,6
      SERTL(L)=TOT(L,1,9)+TOT(L,2,9)+TOT(L,3,9)+TOT(L,4,9)
      LL=L+I-1
      IF (LL.GT.70) GO TO 700
      IDOUB=0
      IF (IPRIN.EQ.1) GO TO 1356
      PRINT 1, ID(LL)
1356  IF ((ID(LL).EQ.06).OR.(ID(LL).EQ.13)) IDOUB=1
```

FUNLEV CONTINUED

```
1010       IF ((ID(LL).EQ.21).OR.(ID(LL).EQ.65)) IDOUB=1
1012      IF ((ID(LL).EQ.05).OR.(ID(LL).EQ.11)) IDOUB=1
1014      IF ((ID(LL).EQ.65).OR.(ID(LL).EQ.68)) IDOUB=1
1015      IF (ID(LL).EQ.79) IDOUB=1
1020      IF (IDOUB.EQ.1) GO TO 71717
1030        DO 450 IM=1,8
1040   450 AVGPCT(IM)=0.0
1050 71717 CNT=0
1060        DO 505 J=1,4
1070        IF (TOT(L,J,9).EQ.0) GO TO 505
1080        PCTOL=TOT(L,J,9)/SERTL(L)
1090          IF (PCTOL.LT.0.10) GO TO 81818
1100        CNT=CNT+1
1110 81818 DO 500 NN=1,8
1120        PCT(J,NN)=FLOAT(TOT(L,J,NN))/FLOAT(TOT(L,J,9))
1130        IF (PCTOL.LT.0.10) GO TO 500
1140       IF (IDOUB.EQ.1) GO TO 500
1150        AVGPCT(NN)=AVGPCT(NN)+PCT(J,NN)
1160 500 CONTINUE
1170   505 CONTINUE
1180        IF (CNT.EQ.0) GO TO 600
1190       IF ((IDOUB.NE.1).OR.(IIN.EQ.1)) GO TO 61616
1200        DO 51515 IJL=1,8
1210 51515 AVGPCT(IJL)=AVGPCT(IJL)/100.
1220       GO TO 1133
1230 61616 IF (IDOUB.EQ.1) GO TO 1185
1240        GO TO (1166,1177),ISTAT
1250 1177  CALL MINLEV(L)
1260        GO TO 1188
1270 1166 DO 502 NN=1,8
1280   502 AVGPCT(NN)=AVGPCT(NN)/CNT
1290 1133 AVG1=AVGPCT(2)+AVGPCT(3)
1300        AVG4=AVGPCT(6)+AVGPCT(7)+AVGPCT(8)
1310        DO 550 J=1,4
1320        IF (TOT(L,J,9).EQ.0) GO TO 550
1330        CAT1=PCT(J,2)+PCT(J,3)
1340        CAT4=PCT(J,6)+PCT(J,7)+PCT(J,8)
1350       LIND=0
1360       IF ((CAT1.LE.AVG1).AND.(CAT4.GE.AVG4)) GO TO 520
1370        IF ((CAT1.GE.AVG1).AND.(CAT4.LE.AVG4)) GO TO 510
1380        HOL1=CAT1-AVG1
1390        HOL4=CAT4-AVG4
1400        IF (HOL1.GT.HOL4) GO TO 510
1410        HOL1=AVG1-CAT1
1420        HOL4=AVG4-CAT4
1430        IF (HOL1.GE.HOL4) GO TO 520
1440   510 LIND=1
1450        DO 515 MN=1,8
1460        LEVEL(MN)=AVGPCT(MN)*TOT(L,J,9)+0.5
1470   515 CUM(J,MN)=CUM(J,MN)+LEVEL(MN)
```

FUNLEV CONTINUED

```
1430       CUM(J,9)=CUM(J,9)+TOT(L,J,))
1490       GO TO 5432
1500   500 DO 525 KD=1,9
1510       OCUM(J,KD)=OCUM(J,KD)+TOT(L,J,KD)
1520   525 CUM(J,KD)=CUM(J,KD)+TOT(L,J,KD)
1530       GO TO 530
1540  5432 DO 6543 KD=1,9
1550  6543 OCUM(J,KD)=OCUM(J,KD)+TOT(L,J,KD)
1560   530 IF (IPRIN.EQ.1) GO TO 550
1570       PRINT 8, SERV(J)
1580       ISTP=MOC(L,J)
1590       DO 630 MM=1,ISTP
1600       IF ((J.EQ.1).OR.(J.EQ.3)) GO TO 610
1610       PRINT 2, SAVMOS(L,J,MM),(MAT(L,J,MM,MN),MN=1,9)
1620       GO TO 630
1630   610 PRINT 3, SAVMOS(L,J,MM),(MAT(L,J,MM,MN),MN=1,9)
1640   630 CONTINUE
1650       PRINT 4, (TOT(L,J,NN),NN=1,9)
1660       DO 632 JE=1,8
1670   632 PCT(J,JE)=100.0*PCT(J,JE)
1680       PRINT 19, (PCT(J,KM),KM=1,8)
1690       IF (LIND.EQ.0) GO TO 550
1700       PRINT 5, (LEVEL(NN),NN=1,8)
1710   550 CONTINUE
1720       IF (IPRIN.EQ.1) GO TO 600
1730       DO 512 MK=1,8
1740   512 AVGPCT(MK)=AVGPCT(MK)*100.0
1750       IF (ISTAT.EQ.2) GO TO 9922
1760       PRINT 14, (AVGPCT(MN),MN=1,8)
1770       GO TO 9933
1780  9922 PRINT 9944, (AVGPCT(MJ),MJ=1,8)
1790  9933 PRINT, "-----------------------------------"
1800   600 CONTINUE
1810   700 CONTINUE
1820 91919 LIND=0
1830  8765 IJK=LIND+1
1840       PRINT 6, (HEAD(KT,IJK),KT=1,2)
1850       DO 800 J=1,4
1860   800 PRINT 7, SERV(J),(CUM(J,KL),KL=1,9)
1870       PRINT 9955, (HEAD(KT,IJK),KT=1,2)
1880       DO 950 J=1,4
1890       DO 900 I=1,8
1900   900 PCT(J,I)=100.0*FLOAT(CUM(J,I))/FLOAT(CUM(J,9))
1910   950 PRINT 17, SERV(J),(PCT(J,K),K=1,8)
1920       DO 960 J=1,4
1930       DIV=CUM(J,9)-CUM(J,1)
1940       AVGPCT(1)=(FLOAT(CUM(J,2))+FLOAT(CUM(J,3)))/DIV
1950       AVGPCT(2)=(FLOAT(CUM(J,4))+FLOAT(CUM(J,5)))/DIV
1960   AVGPCT(3)=(FLOAT(CUM(J,6))+FLOAT(CUM(J,7))+FLOAT(CUM(J,8)))/DIV
1970       AVGPCT(1)=100.0*AVGPCT(1)
```

FUNLEV CONTINUED

```
1980      AVGPCT(2)=100.0*AVGPCT(2)
1990      AVGPCT(3)=100.0*AVGPCT(3)
2000  960 PRINT 18, SERV(J),(AVGPCT(K),K=1,3)
2010      IF(LIND.EQ.1) GO TO 1000
2020      LIND=1
2030      DO 9876 KM=1,4
2040      DO 9876 JN=1,9
2050 9876 CUM(KM,JN)=0CUM(KM,JN)
2060      GO TO 8765
2070    1 FORMAT(///,I3)
2080    2 FORMAT(12X,A3,9I6)
2090    3 FORMAT(11X,I4,9I6)
2100    4 FORMAT(/,10X,"TOTAL",9I6)
2110    5 FORMAT(/,7X,"***LEVEL",8I6)
2120    6 FORMAT(/////,26X,2A4,"TOTALS")
2130    7 FORMAT(/,A3,2X,9I7)
2140    9 FORMAT(///,"DOD",3X,"SVC",3X,"MOS",3X,"UNK",5X,"I",4X,"II",
2150&             2X,"IIIA",2X,"IIIB",3X,"IVA",3X,"IVB",3X,"IVC",1X,
2160&             "TOTAL")
2170    8 FORMAT(/,6X,A3)
2180   10 FORMAT(/////,30X,"ENTRY LEVEL")
2190   11 FORMAT(/////,30X,"CAREER FORCE")
2200   12 FORMAT(/,"SPECIFY IF THIS IS CAREER, ENTRY, OR YOU ARE DONE")
2210   13 FORMAT("ENT FOR ENTRY;  CAR FOR CAREER;  DONE FOR FINISHED")
2220   14 FORMAT(/,2X,"DOD MEAN %",3X,8F6.1)
2230   15 FORMAT("DO YOU WANT TO LEVEL TO LOWEST ?",/,"**ANSWER YES/NO")
2240   16 FORMAT(14X,"AFQT DISTRIBUTION BY DOD CODE, SERV, & MOS")
2250   17 FORMAT(A3,12X,8F6.1)
2260   18 FORMAT(A3,14X,F6.1,7X,F6.1,11X,F6.1)
2270   19 FORMAT(10X,"PERCT",8F6.1)
2280 9944 FORMAT(/,3X,"MINIMUM %",3X,8F6.1)
2290 9955 FORMAT(/////,25X,2A4,"PERCENTAGES",//)
2300 5555 STOP
2310      END
2320      SUBROUTINE MINLEV(L)
2330      COMMON PCT(4,8),AVGPCT(3),TOT(6,4,9),CA1,CA4,
2340&             AM1,AM4,HL1,HL4,SERTL(6)
2350      INTEGER TOT
2360      DO 100 J=1,4
2370      IF (TOT(L,J,9).EQ.0) GO TO 100
2380      PCTOL = TOT(L,J,9)/SERTL(L)
2390      IF (PCTOL.LT.0.10) GO TO 100
2400      IK=J
2410      AM1=PCT(J,2)+PCT(J,3)
2420      AM4=PCT(J,6)+PCT(J,7)+PCT(J,8)
2430      GO TO 150
2440  100 CONTINUE
2450  150 IST=J
2460      DO 200 J=IST,4
2470      IF (TOT(L,J,9).EQ.0) GO TO 200
```

FUNLEV CONTINUED

```
2480      PCTOL = TOT(L,J,9)/SERTL(L)
2490      IF (PCTOL.LT.0.10) GO TO 200
2500      CA1=PCT(J,2)+PCT(J,3)
2510      CA4=PCT(J,6)+PCT(J,7)+PCT(J,8)
2520      IF ((CA1.LE.AM1).AND.(CA4.GE.AM4)) GO TO 175
2530      IF ((CA1.GE.AM1).AND.(CA4.LE.AM4)) GO TO 200
2540      HL1=CA1-AM1
2550      HL4=CA4-AM4
2560      IF (HL1.GT.HL4) GO TO 200
2570      HL1=AM1-CA1
2580      HL4=AM4-CA4
2590      IF (HL1.LT.HL4) GO TO 200
2600  175 IK=J
2610      AM1=CA1
2620      AM4=CA4
2630  200 CONTINUE
2640      DO 300 I=1,8
2650  300 AVGPCT(I)=PCT(IK,I)
2660      RETURN
2670      END
```

AVF01

```
10$0VR,AIRQQ
20$0VR,ARMQQ
30$0VR,NAVQQ
40$0VR,MARQQ
50C       C0URTESY  CUST0MIZED S0FTWARE INC
60C       THIS IS N0 RUBE G0LDBERG
70C       BUT A  GENUINE  IRV GREENBERG
80C       ALL SUBR0UTINES UPDATE EXTERNAL FILES
90C       AIRF0RCE            AIRV1  AND AIRV2
100C       ARMY                 ARMV1  AND ARMV2
110C       NAVY                 NAVV1
120C       1 FILES ARE CAREER
130C       2 FILE$ ARE ENTRY
140C       NAVY FILE SUMS SCH00L AND 0JT
150C             AND D0DN--F0R ENTRY
160C       D0D# REC0RD F0RMAT IS
170C       (D0D C0DE,SVC,M0S,UNK,I,II,IIIA,IIIB,IVA,IVB,IVC,T0TAL)
180C       EXTERI0R FILES ARE RAND0MIZED USING RANSIZ
190C       EACH I/0 PICKS 38-24 BIT W0RDS
200C      INPUT FILE F0RMATS ARE
210C      SERVICE HEADERS***LINE # "SVC"  AF/AR/NA/MA
220C         THEN SERVICE F0RMATS
230C      F0R THE ARMY
240C      LINE # "M0S",7 INTEGERS(QTY IN Z0NES 80/85/90/95/100/110)
250C           LAST ARMY LINE  LINE # "END",0,0,0,0,0,0,0
260C      NAVY F0RMAT
270C        LINE # "RATE",#SCH00L,#0JT
280C           LAST LINE  LINE#  "END",0,0
290C      MARINE F0RMAT
300C        LINE# M0S,"TEST",0TY,MIN ENTRY SC0RE,6 % SPLITS
310C           LAST LINE  LINE# "END","A",0,0,0,0,0,0,0,0
320C      AIR F0RCE F0RMAT
330C        LINE#  M0S,QTY
340C           LAST LINE   LINE# "END",0
350C                T0 END THE RUN ADD A FINAL SERVICE HEADER 0F
360C           LINE# "END".
370C        F0R MARINE DATA THERE IS A SPECIAL N0TE
380C       ****************************************
390C      F0R M0S 8,11,13,21,AND 35 USE TEST "XX" JUST BECAUSE
400C      ****************************************
410C        F0R M0S 8,11,13,21,AND 35 USE TEST "XX"  JUST BECAUSE
420 C0MM0N MXY,IHJ(7),FLY3
430 DIMENSI0N SVC(4)
440 DATA SVC/2HAF,2HAR,2HNA,2HMA/
450 DATA QUIT/3HEND/
460C      OK  GET THE FIRST INPUT FILE
470 25 PRINT 30
480 30 F0RMAT(17HGIVE ME FILE NAME)
490 40 READ(50,,ERR=50) FILX
500 G0T0 100
```

AVFC1 CONTINUED

```
510 50 PRINT 55
520 55 FORMAT(16HUSE QUOTES DUMMY)
530 GOTO 40
540 100 CALL OPENF(1,FILX)
550 101 READ(1,)AX
560 IF(AX.EQ.QUIT) GOTO 500
570 DO 105 I=1,4
580 IF(AX.EQ.SVC(I)) GOTO 120
590 105 CONTINUE
600 PRINT 110,FILX,AX
610 110 FORMAT(4HFILE,2X,A4,2X,13HHAS A BAD SVC,2X,A2)
620 GOTO 25
630 120 KING=I
640 GOTO(150,200,250,300),KING
650 150 CALL LINK(5,"OAIRCC")
660 CALL AIRCC
670 GOTO 101
680 200 CALL LINK(5,"OARMCC")
690 CALL ARMCC
700 GOTO 101
710 250 CALL LINK(5,"ONAVCC")
720 CALL NAVCC
730 GOTO 101
740 300 CALL LINK(5,"OMARCC")
750 CALL MARCC
760 GOTO 101
770 500 CALL CLOSEF(1)
780 1000 PRINT 1005
790 1005 FORMAT(6HTHATS IT)
800 END
```

```
ARMØØ


0,173,126,63
10 SUBRØUTINE ARMØØ
20C       ARMY GETS CALLED BY AVFØØ WHEN **AR** IS READ ØN FILE 1
30C       THE ARMY EXTERIØR FILE FØRMAT IS:
40C       LINE #  MØS,7 INTEGERS( QTY PEØPLE IN ZØNES
50C         80/85/90/95/100/105/110
60C       THE LAST MØS DATA LINE MUST READ
70C         LINE # "END",0,0,0,0,0,0,0
80C       A MØS ENTRY ØF END SENDS PRØGRAM BACK TØ AVFØØ
90C       MØSAR HØLDS(MØS,TEST TYPE,TEST MIN,DØD CØDE) FØR 100 MØS
100 DIMENSIØN IHAVE(7),FINK(8,7,8),TRIP(8),IØUT(12)
110 DIMENSIØN MØSAR(4,314)
120 DIMENSIØN IKEEP(8)
130 CØMMØN MØS,IHAVE,FIL73
140 INTEGER TEST,TRIP
150 DATA YES/3HYES/,XNØ/2HNØ/
160 DATA IQUIT/3HEND/,TØP/.001/
170 DATA TRIP/2HAE,2HEL,2HGM,2HMM,2HCL,2HGT,2HRC,2HIN/
180C  FINK AE FIRST
190 DATA FINK/.01,.00,.06,.13,.34,.27,.16,.03,
200&  .01,.00,.08,.15,.35,.25,.14,.02,
210&  .01,.00,.11,.19,.36,.20,.11,.02,
220&  .01,.00,.18,.23,.35,.15,.07,.01,
230&  .01,.01,.26,.26,.31,.11,.03,.01,
240&  .01,.02,.35,.27,.26,.07,.02,.00,
250&  .01,.04,.45,.25,.20,.04,.01,.00,
260C  EL
270& .01,.00,.10,.16,.34,.24,.13,.02,
280& .01,.00,.10,.18,.35,.22,.12,.02,
290& .01,.00,.12,.20,.36,.20,.09,.02,
300& 2*.01,.17,.23,.35,.16,.06,.01,
310& 2*.01,.23,.27,.32,.12,.04,.00,
320& 2*.01,.33,.28,.27,.08,.02,.00,
330& .01,.02,.42,.27,.21,.05,.02,.00,
340C GM
350& 2*.01,.09,.13,.32,.25,.16,.03,
360& .01,.00,.09,.14,.35,.25,.14,.02,
370& .01,.00,.10,.15,.37,.22,.11,.01,
380& .01,.00,.14,.23,.38,.18,.06,.00,
390& 2*.01,.21,.28,.34,.12,.03,.00,
400& 2*.01,.32,.30,.28,.07,.01,.00,
410& .01,.02,.43,.30,.19,.04,.01,.00,
420C M
430& .01,.00,.09,.15,.32,.25,.14,.04,
440& .01,.00,.10,.15,.34,.23,.14,.03,
450& .01,.00,.12,.19,.35,.20,.12,.01,
460& .01,.00,.17,.22,.34,.17,.08,.01,
470& .01,.00,.25,.25,.31,.13,.05,.00,
480& .01,.01,.34,.26,.27,.08,.03,.00,
490& .01,.03,.41,.26,.22,.06,.01,.00,
```

ARMGC CONTINUED

```
500C CL
510& .01,.00,.05,.08,.34,.26,.20,.06,
520& .01,.00,.05,.11,.34,.26,.19,.04,
530& .01,.00,.07,.13,.36,.24,.15,.03,
540& .01,.00,.10,.17,.37,.22,.11,.01,
550& .01,.00,.15,.22,.36,.17,.08,.01,
560& .01,.01,.22,.26,.32,.13,.05,.00,
570& .01,.02,.31,.28,.27,.09,.02,.00,
580C GT
590& .01,.00,.04,.09,.34,.30,.19,.03,
600& .01,.00,.05,.12,.38,.28,.15,.01,
610& .01,.00,.08,.17,.41,.23,.10,.01,
620& .01,.00,.12,.22,.41,.17,.06,.00,
630& .01,.00,.19,.28,.36,.12,.03,.00,
640& .01,.01,.29,.32,.29,.07,.02,.00,
650& .01,.02,.41,.31,.21,.03,.01,.00,
660C RC
670& .01,.00,.10,.15,.36,.23,.13,.02,
680& .01,.01,.13,.19,.34,.20,.11,.01,
690& .01,.01,.14,.22,.33,.19,.09,.01,
700& .01,.01,.17,.22,.32,.18,.09,.00,
710& .01,.01,.20,.24,.32,.15,.07,.00,
720& .01,.01,.24,.26,.31,.13,.04,.00,
730&  .01,.01,.32,.28,.27,.09,.02,.00,
740C     IN
750&  .02,.005,.11,.19,.34,.14,.15,.055,
760&  .015,.005,.125,.205,.32,.135,.14,.06,
770&  .015,.005,.145,.22,.325,.125,.125,.045,
780&  .015,.01,.16,.23,.34,.105,.11,.03,
790&  .015,.01,.185,.24,.345,.09,.085,.025,
800&  .015,.015,.23,.27,.32,.075,.055,.02,
810&  .015,.02,.29,.305,.275,.055,.035,.01/
820C     MOSMOS,TEST,TEST MIN,DOD CODE
830 DATA MOSAR/"00B","GM",100,43,"00H","GT",100,80,
840&  "02B","GT",100,45,"02Z","GT",100,45,
850&  "03B","GT",90,56,"03C","GT",90,56,"03D","GT",90,56,
860C     05 SERIES
870&  "05B","CL",100,20,"05E","CL",100,20,"05F","CL",100,20,
880&  "05D","RC",100,23,"05H","RC",100,23,"05K","RC",100,23,
890&  "05E","GT",110,23,
900C     11 SERIES
910&  "11B","IN",90,1,"11C","IN",90,1,"11H","IN",90,1,
920&  "11E","AE",90,2,"11D","AE",90,25,
930C     12-13
940&  "12A","AE",90,3,"13A","AE",90,4,"13E","AE",100,25,
950C     15
960&  "15B","AE",90,4,"15D","AE",90,4,"15F","AE",90,4,
970&  "15E","AE",90,4,
980C     16
990&  "16B","AE",90,4,"16D","AE",90,4,"16F","AE",90,4,
```

ARMCO CONTINUED

```
1000&  "16R","AE",90,4,"16C","AE",100,4,"16E","AE",100,4,
1010&  "16J","AE",100,22,"16H","AE",90,25,
1020&  "17A","AE",100,22,"17K","AE",100,22,"17L","AE",100,22,
1030&  "17C","AE",100,41,
1040&  "21G","EL",100,12,"21M","EL",100,12,"21S","EL",100,12,
1050&  "21T","EL",100,12,
1060&  "22G","EL",100,12,"22K","EL",100,12,
1070&  "22L","EL",100,12,"22M","EL",100,12,
1080&  "23S","EL",100,10,"23T","EL",100,10,"23U","EL",100,10,
1090&  "23Q","EL",100,12,
1100&  "24B","EL",100,10,"24P","EL",100,10,"24D","EL",100,12,
1110&  "24F","EL",100,12,"24M","EL",100,12,"24N","EL",100,12,
1120&  "24Q","EL",100,12,"24U","EL",100,12,"24C","EL",100,12,
1130&  "24E","EL",100,12,"24G","EL",100,12,"24H","EL",100,12,
1140&  "24J","EL",100,12,"24K","EL",100,12,
1150&  "25K","EL",100,15,
1160&  "26V","EL",100,10,"26L","EL",100,10,"26Y","EL",100,10,
1170&  "26B","EL",100,10,"26C","EL",100,10,"26D","EL",100,10,
1180&  "26H","EL",100,10,"26K","EL",100,10,"26M","EL",100,10,
1190&  "26M","EL",100,10,"26N","EL",100,10,"26T","EL",100,19,
1200&  "26P","EL",100,19,
1210&  "27F","EL",100,10,"27B","EL",100,12,"27D","EL",100,12,
1220&  "27E","EL",100,12,"27H","EL",100,12,"27G","EL",100,12,
1230&  "31B","EL",100,10,"31D","EL",100,10,"31J","EL",100,16,
1240&  "31S","EL",100,16,"31T","EL",100,16,"31R","EL",100,19,
1250&  "31M","EL",100,20,
1260&  "32A","EL",100,10,
1270&  "32B","EL",100,10,"32C","EL",100,10,"32D","EL",100,10,
1280&  "32E","EL",100,10,"32G","EL",100,16,"32F","EL",100,16,
1290&  "34G","EL",100,11,
1300&  "35K","EL",100,10,"35L","EL",100,10,"35M","EL",100,10,
1310&  "35N","EL",100,10,"35J","EL",100,11,"35F","EL",100,14,
1320&  "35B","EL",100,19,"35G","EL",100,19,"35D","FL",100,19,
1330&  "35E","EL",100,19,"35H","EL",110,19,
1340&  "36C","EL",90,621,"36K","EL",90,621,"36G","EL",95,62,
1350&  "36H","EL",100,62,
1360&  "41A","GM",90,70,"41B","GM",90,67,"41C","GM",90,67,
1370&  "41F","GM",100,19,"41F","GM",100,19,"41G","GM",100,19,
1380&  "41B","GM",100,67,"41C","GM",100,67,"41J","GM",90,67,
1390&  "41K","GM",90,69,
1400&  "42F","GM",100,31,"42D","GM",100,33,
1410&  "43A","GM",80,76,"43J","GM",80,76,"43K","GM",80,76,"43L","GM",80,7
,                                    6.
1420&  "43E","GM",90,86,
1430&  "44F","GM",100,70,
1440&  "45A","GM",90,64,"45E","GM",95,64,"45K","GM",95,64,
1450&  "45L","GM",100,64,"45M","GM",100,646,
1460&  "46D","GM",100,12,"46N","GM",100,63,"46A","GM",100,63,
1470&  "51G","GM",100,49,"51A","GM",90,71,"51E","GM",90,71,
1480&  "51C","GM",90,71,"51J","GM",100,72,"51L","GM",100,72,
1490&  "51K","GM",90,72,"51N","GM",90,72,"51R","GM",90,72,
```

ARMCO CONTINUED

```
1500&  "51M","GM",100,73,
1510&  "52H","EL",110,66,"52J","EL",110,66,"52K","EL",110,66,
1520&  "52L","EL",110,66,"52E","MM",90,66,"52B","GM",100,66,
1530&  "52A","MM",90,72,
1540&  "54A","GM",80,3,"54E","GM",110,49,"54D","GM",100,69,
1550&  "55D","GM",100,43,"55A","GM",90,645,"55C","GM",95,645,
1560&  "55F","GM",100,645,"55G","GM",105,644,
1570&  "57A","GM",80,85,
1580&  "61A","MM",100,6,"61B","MM",100,6,"61D","MM",100,6,
1590&  "61C","MM",100,65,"61E","MM",100,65,
1600&  "62B","MM",90,61,"62C","MM",100,63,"62F","MM",90,73,
1610&  "62H","MM",90,73,"62J","MM",90,73,"62K","MM",90,73,
1620&  "62L","MM",90,73,"62M","MM",90,73,
1630&  "63A","MM",90,61,"63B","MM",90,61,"63F","MM",95,61,
1640&  "63G","MM",95,61,"63H","MM",95,61,"63J","MM",90,69,
1650&  "63K","MM",90,69,
1660&  "64C","MM",90,81,
1670&  "65F","MM",90,66,"65A","MM",90,69,"65J","MM",90,81,
1680&  "65K","MM",90,81,"65G","MM",90,85,
1690&  "67A","MM",100,600,
1700&  "68A","MM",100,600,"68D","MM",100,60,"68H","MM",100,60,
1710&  "68G","MM",100,60,
1720&  "71E","CL",100,51,"71C","CL",100,51,"71D","CL",100,51,
1730&  "71B","CL",100,51,"71L","CL",100,51,"71G","CL",100,51,
1740&  "71N","CL",100,51,"71P","CL",100,51,"71F","CL",95,51,
1750&  "71U","CL",110,53,"71Q","CL",110,57,"71R","CL",110,57,
1760&  "72E","CL",100,58,"72F","CL",100,58,"72C","CL",90,58,
1770&  "74C","CL",100,53,"74D","CL",100,53,"74E","CL",100,53,
1780&  "74G","CL",100,53,"74F","CL",110,53,
1790&  "76A","CL",90,55,"76V","CL",90,55,"76Y","CL",90,55,
1800&  "76J","CL",95,55,"76P","CL",95,55,"76S","CL",95,55,
1810&  "76T","CL",95,55,"76W","CL",90,82,
1820&  "76X","CL",90,82,
1830&  "81C","GT",90,41,"81D","GT",95.41,"81B","GT",95,41,
1840&  "81A","GT",95,41,"81E","GT",100,41,
1850&  "82C","GT",100,41,"82A","GT",100,41,"82D","GT",100,41,
1860&  "82E","GT",100,41,"82B","GT",100,41,
1870&  "83A","GT",90,74,"83D","GT",90,74,"83E","GT",90,74,
1880&  "83F","GT",90,74,
1890&  "84D","GT",100,19,"84B","GT",90,40,"84C","GT",90,40,
1900&  "84G","GT",90,40,"84E","GT",100,40,"84F","GT",95,40,
1910&  "91A","GT",100,30,"91U","GT",100,30,"91D","GT",100,30,
1920&  "91F","GT",100,30,"91G","GT",100,30,"91J","GT",100,30,
1930&  "91C","GT",100,31,"91P","GT",100,31,"91R","GT",100,32,
1940&  "91S","GT",100,32,"91T","GT",100,32,"91E","GT",100,33,
1950&  "92B","GT",100,31,"92C","GT",100,49,"92D","GT",100,49,
1960&  "93H","GT",105,22,"93J","GT",105,22,"93K","GT",105,22,
1970&  "93E","GT",100,42,"93F","GT",100,42,
1980&  "94D","GT",100,80,"94A","GT",80,80,"94B","GT",80,80,
1990&  "94C","GT",80,80,
```

ARMCC CONTINUED

```
2000&  "95E","GT",100,33,
2010&  "96E","GT",100,24,"96C","GT",100,24,"96D","GT",100,24,
2020&  "97E","GT",110,24,"97C","GT",110,24,"97D","GT",110,24,
2030&  "98E","GT",110,23,"98C","GT",110,23,"98E","GT",110,23,
2040&  "98C","GT",110,23,"98J","GT",110,23,
2050&  "76L","CL",100,40,"53E","GM",100,75,
2060&  "53C","GM",100,75,"44A","GM",90,70,
2070&  "93D","GT",100,19,"23N","EL",100,10,
2080&  "63E","MM",100,60,"63E","MM",100,60,
2090&  "63F","MM",100,60,"76G","CL",100,53,
2100&  "62D","MM",90,73,"62E","MM",90,73,
2110&  "44E","GM",90,70,"44EC","GM",90,70,
2120&  "05G","GT",110,23,"57H","GM",100,82,
2130&  "62G","MM",90,73,"34B","EL",100,15,
2140&  "34D","EL",100,15,"35R","EL",100,10,
2150&  "36E","EL",90,621,"21L","EL",100,12,
2160&  "21R","EL",100,12,"45J","GM",100,646,
2170&  "57C","GM",90,76,"44K","MM",100,70,
2180&  "65B","MM",90,69,"65C","MM",90,66,
2190&  "65H","MM",90,81,"17B","AE",100,22,
2200&  "57E","GM",60,84,"57F","GM",90,49/
2210 PRINT 10
2220 10 FORMAT(18HARMY ROUTINE IS IN)
2230 PRINT 1
2240 1 FORMAT("IS THIS RUN FOR FY74",/,"**ANSWER YES/NO")
2250 3456 READ (50,,ERR=1234) REP
2260 GO TO 2345
2270 1234 PRINT, "INVALID INPUT; INPUT AGAIN"
2280 GO TO 3456
2290 2345 IF (REP.EQ.YES) GO TO 4567
2300   IF (REP.NE.XNO) GO TO 1234
2310 ISTAT=0
2320 GO TO 5678
2330 4567 ISTAT=1
2340 PRINT, "INPUT ARMY FY73 FILENAME"
2350 6677 READ(50,,ERR=5566) FIL73
2360 GO TO 5678
2370 5566 PRINT, "INVALID INPUT; INPUT AGAIN"
2380 GO TO 6677
2390C       CLEAR DISK AREA
2400 5678 DO 100 I=1,2
2410 100 IOUT(I)=0
2420 CALL OPENF(2,"ARMV1")
2430 CALL OPENF(3,"ARMV2")
2440 DO 110 I=1,325
2450 WRITE(3,)IOUT
2460 110 WRITE(2,)IOUT
2470 END FILE 2
2480 END FILE 3
2490 CALL RANSIZ(2,325,33)
```

ARMCC CONTINUED

```
2500 CALL FANSIZ(3,365,33)
2510C     ZERO THINGS AWAY
2520 KOUNT=0
2530 JQUIT=0
2540 115 DO 120 I=1,7
2550 120 IHAVE(I)=0
2560C    OK GET DATA FROM FILE 1
2570 IF (ISTAT.EQ.0) GO TO 130
2580 CALL FY74
2590 GO TO 6789
2600 130 READ(1,,ERR=141)MOS,(IHAVE(I),I=1,7)
2610 6789 IF (MOS.EQ.IQUIT) GO TO 2000
2620 DO 140 I=1,314
2630 IF(MOS.EQ.MOSAR(1,I)) GOTO 149
2640 140 CONTINUE
2650 PRINT 145,MOS
2660 145 FORMAT(3HMOS,2X,A3,2X,26HDOESNT MATCH FILE**SKIPPED)
2670 GOTO 130
2680 141 PRINT 142,MOS
2690 142 FORMAT(12HBAD MOS READ,2X,A3,2X,14HRECORD SKIPPED)
2700 GOTO 130
2710 149 KING=I
2720 TEST=MOSAR(2,KING)
2730 DO 150 I=1,8
2740 IF(TEST.EQ.TRIP(I)) GOTO 160
2750 150 CONTINUE
2760 PRINT 5555, MOS
2770 5555 FORMAT("MOS",A4," HAS INVALID TEST; PROCESSING CONTINUES")
2780 GO TO 130
2790 160 KK=I
2800 KDOD=MOSAR(4,KING)
2810C     CAREER
2820 DO 165 I=1,8
2830 IKEEP(I)=0
2840 DO 165 J=1,7
2850 165 IKEEP(I)=IKEEP(I)+INT(FLOAT(IHAVE(J))*FINK(I,J,KK)+.5)
2860 KTOT=0
2870 KSTAR=0
2880 DO 170 I=1,8
2890 170 KTOT=KTOT+IKEEP(I)
2900 DO 180 I=1,7
2910 180 KSTAR=KSTAR+IHAVE(I)
2920 KF=KSTAR-KTOT
2930 JF=IABS(KF)
2940 FEEL=FLOAT(JF)/FLOAT(KSTAR)
2950 IF(FEEL.LE.TOP) GOTO 250
2960 K=1
2970 IF(KF.LT.0) K=-1
2980 NSTAR=0
2990 DO 200 I=1,8
```

```
ARMCC  CONTINUED


3000 UP=FLOAT(IKEEP(I))/FLOAT(KTOT)
3010 KUP=INT(UP*FLOAT(JF)+.5)
3020 IKEEP(I)=IKEEP(I)+K*KUP
3030 200 NSTAR=NSTAR+IKEEP(I)
3040 KTOT=NSTAR
3050 250 IOUT(1)=KDOD
3060 IOUT(2)=2
3070 IOUT(3)=MOS
3080 DO 260 I=1,8
3090 260 IOUT(I+3)=IKEEP(I)
3100 IOUT(12)=KTOT
3110 KOUNT=KOUNT+1
3120 CALL FINDRR(2,KOUNT)
3130 WRITE(2,)IOUT
3140C     ENTRY
3150 JTEST=MOSAR(3,KING)/5-15
3160 IF(JTEST.GT.0.AND.JTEST.LT.8) GOTO 280
3170 PRINT 265,MOS,MOSAR(3,KING)
3180 265 FORMAT(17HMIN SCORE BAD-MOS,2X,A3,2X,5HSCORE,2X,I3,2X,
3190&  13HSKIPPED ENTRY)
3200 GOTO 115
3210 280 KTOT=0
3220 DO 300 I=1,8
3230 IKEEP(I)=INT(FLOAT(KSTAR)*FINK(I,JTEST,KK)+.5)
3240 300 KTOT=KTOT+IKEEP(I)
3250 KF=KSTAR-KTOT
3260 JF=IABS(KF)
3270 FEEL=FLOAT(JF)/FLOAT(KSTAR)
3280 IF(FEEL.LE.TOP) GOTO 330
3290 K=1
3300 IF(KF.LT.0)K=-1
3310 NSTAR=0
3320 DO 290 I=1,8
3330 UP=FLOAT(IKEEP(I))/FLOAT(KTOT)
3340 KUP=INT(UP*FLOAT(JF)+.5)
3350 IKEEP(I)=IKEEP(I)+K*KUP
3360 290 NSTAR=NSTAR+IKEEP(I)
3370 KTOT=NSTAR
3380 330 DO 340 I=1,8
3390 340 IOUT(I+3)=IKEEP(I)
3400 IOUT(12)=KTOT
3410 JOUNT=JOUNT+1
3420 CALL FINDRR(3,JOUNT)
3430 WRITE(3,)IOUT
3440 GOTO 115
3450 2000 PRINT, "THE NUMBER OF ARMY RECORDS IS:",JOUNT
3460 CALL CLOSEF(2)
3470 CALL CLOSEF(3)
3480 RETURN
3490 END
```

ARMOS CONTINUED

```
3500 SUBROUTINE FY74
3510 COMMON MOS,IHAVE(7),FIL73
3520 DATA IND/3HEND/
3530 20 READ(1,,ERR=9999) MOS,NUM
3540 GO TO 30
3550 9999 PRINT 111, MOS
3560  111 FORMAT("BAD MOS READ",A4," RECORD SKIPPED")
3570 GO TO 20
3580 30 IF (MOS.EQ.IND) GO TO 600
3590 CALL OPENF(4,FIL73)
3600 40 READ(4,,ERR=8888)KMOS,(IHAVE(I),I=1,7)
3610 GO TO 80
3620 8888 PRINT 222, KMOS
3630  222 FORMAT("BAD MOS",A4," ON FY73 FILE")
3640 GO TO 40
3650 80 IF (KMOS.EQ.MOS) GO TO 50
3660 IF (KMOS.NE.IND) GO TO 40
3670  PRINT 333, MOS
3680  333 FORMAT("MOS",A4," IS NOT ON FY73 FILE")
3690 CALL CLOSEF(4)
3700 GO TO 20
3710 50 TOT=0
3720 DO 60 I=1,7
3730 60 TOT=TOT+IHAVE(I)
3740 DO 70 I=1,7
3750 70 IHAVE(I)=FLOAT(NUM)*FLOAT(IHAVE(I))/TOT +0.5
3760 CALL CLOSEF(4)
3770 600 RETURN
3780 END
```

NAV00

```
10  SUBROUTINE NAV00
20C         CALLED BY AVF01 WHEN "NA" IS READ ON FILE 1
30C         NAVC0 INPUT FORMAT IS
40C         LINE # "RATE",#SCH00L,#0JT
50C           LAST LINE MUST BE
60C         LINE # "END",0,0
70C         NAV00 OUTPUTS ONLY ONE EXTERIOR FILE
80C         SCH00LS AND 0JT ARE SUMMED
90C          EXTERIOR FILE IS NAMED     AVV1
100  DIMENSION IRATE(4,74),GL0P(8,11),0JT(9,60)
110 DIMENSION L0JT(60)
120 DIMENSION I0UT(12),KEEP(12)
130 DATA IQUIT/3HEND/,T0P/.001/
140C        GL0P HOLDS ENTRY LEVEL MINS FOR SCH00L
150C        ALL LINES ARE--  UNK,I,II,IIIA,IIIB,IVA,IVB,IVC
160C        LINE 1--  ARI+2ETST MIN 160
170C        LINE 2--ARI+2ETST MIN 171
180C        LINE 3--GCT+MECH+ETST MIN 156
190C        LINE 4--GCT+ARI+CLER  MIN 155
200C        LINE 5--GCT+CLER  MIN 110
210C        LINE 6--GCT+ARI  MIN 100
220C        LINE 7--GCT+ARI  MIN 105
230C        LINE 8--GCT+ARI  MIN 110
240C      LINE 9--GCT+MECH+SP  MIN 150
250C      LINE 10-GCT+MECH+SP  MIN 156
260C      LINE 11-GCT+MECH+SP  MIN 163
270 DATA GL0P/.014,.01,.359,.306,.270,.030,.006,.002,
280&  .013,.018,.503,.308,.139,.012,.003,.00,
290&  .012,.001,.238,.425,.286,.030,.004,.002,
300&  .021,.008,.311,.336,.272,.038,.008,.001,
310&  .013,.037,.443,.278,.171,.037,.010,.002,
320&  .014,.001,.217,.405,.299,.046,.014,.001,
330&  .010,.003,.377,.371,.214,.018,.003,.00,
340&  .017,.010,.455,.353,.147,.014,.00,.00,
350&  .016,.00,.218,.385,.304,.050,.016,.005,
360&  .014,.001,.344,.397,.214,.023,.003,.002,
370&  .003,.001,.496,.366,.119,.005,.00,.001/
380C      IRATE HOLDS RATE,TEST CODE,TEST MIN,DOD CODE
390C      TEST CODES ARE*
400C        ARI+2ETST-------1
410C        GCT+MECH+ETST---2
420C        GCT+ARI+CLER----3
430C        GCT+CLER--------4
440C        GCT+ARI---------5
450C        GCT+MECH+SP-----6
460 DATA IRATE/"GMG",6,163,4,"EM",0,0,6,"CM",5,105,6,
470&  "SM",4,110,6,"AT",1,171,10,"ET",1,171,10,
480&  "AX",1,171,10,"CIM",1,171,10,"AC",1,171,11,
490&  "ET",1,171,12,"MT",1,171,12,"TM",5,110,12,
500&  "ST",1,171,13,"DS",1,171,15,"TD",1,171,15,
```

NAVCC CONTINUED

```
510&  "BM",5,100,20,"AW",1,171,21,"BT",2,156,21,
520&  "ED",5,110,22,"AC",5,110,22,"EN",5,110,23,
530&  "CTR",5,100,23,"CTI",3,155,23,"AE",1,160,60,
540&  "CM",6,150,61,"IC",6,156,62,"GMM",6,163,63,
550&  "GMT",6,163,644,"AG",6,156,646,"MN",6,156,646,
560&  "MM",6,156,65,"EN",6,156,65,"ET",6,156,65,
570&  "EM",6,156,66,"IM",6,163,67,"OM",6,163,67,
580&  "AF",6,156,68,"MR",6,156,70,"EU",6,150,71,
590&  "SN",6,150,71,"UT",6,150,72,"CE",6,156,72,
600&  "FC",6,150,73,"LI",0,0,74,"HT",6,156,79,
610&  "PM",6,156,79,"ML",6,156,79,"CS",5,100,30,
620&  "PT",5,105,24,"HM",5,100,30,"DT",5,100,33,
630&  "PH",5,105,40,"EA",5,100,41,"DM",0,0,41,
640&  "AG",5,100,42,"MI",0,0,45,"PN",5,110,50,
650&  "CTA",4,110,51,"YN",4,110,51,"AZ",5,105,51,
660&  "PC",5,100,51,"DP",4,110,53,"DK",5,105,54,
670&  "AK",5,105,55,"SK",5,105,55,"JØ",4,110,57,
680&  "CTØ",5,105,58,"AD",6,156,60,"AM",6,156,60,
690&  "AS",6,156,60,"PR",6,156,60,
700&  "SD",0,0,80,"SH",0,0,82,"CTT",5,100,237
710C      ØJT HØLDS RATE AND ØJT BREAKS
720C       NØTE ØRDER IS I,II,IIIA,IIIB,IVA,IVB,IVC,UNK
730C      SINCE ØJT IS REAL THE RATES ARE USELESS
740C       LØJT PROVIDES A DICTIONARY TØ ØJT  THE ØRDER IS THE SAME
750 DATA ØJT/"BM",.0196,.2590,.2429,.2334,.0804,.0622,.0438,.0526,
760&  "CM",.0475,.3997,.2376,.1643,.0436,.0275,.0178,.0621,
770&  "SM",.0246,.3099,.2508,.2171,.0722,.0481,.0311,.0461,
780&  "RD",.0513,.4324,.2421,.1528,.0339,.0180,.0101,.0595,
790&  "ST",.0650,.4300,.2374,.1314,.0230,.0106,.0055,.0471,
800&  "ØT",.0819,.4891,.2126,.1117,.0219,.0149,.0106,.0573,
810&  "TM",.0399,.3699,.2428,.1887,.0549,.0347,.0225,.0411,
820&  "GMM",.0313,.3292,.2635,.2214,.0658,.0345,.0164,.0345,
830&  "GMT",.0451,.3441,.2424,.1841,.0477,.0253,.0146,.0967,
840&  "GMG",.0250,.2986,.2457,.2167,.0738,.0506,.0345,.0552,
850&  "FT",.0475,.4485,.2507,.1530,.0317,.0163,.0092,.0431,
860&  "MN",.0437,.5693,.2520,.1024,.0060,.0010,.000,.0206,
870&  "ET",.0697,.4725,.2231,.1226,.0233,.0134,.0085,.0669,
880&  "DS",.0794,.4476,.1885,.0934,.0175,.0129,.0120,.1506,
890&  "IM",.0445,.3633,.2630,.1965,.0475,.0215,.0102,.0536,
900&  "ØM",.0251,.3650,.2700,.2146,.0586,.0291,.0129,.0187,
910&  "RM",.0570,.4472,.2405,.1467,.0311,.0166,.0091,.0512,
920&  "YN",.0417,.3726,.2469,.1846,.0519,.0317,.0199,.0509,
930&  "DF",.0557,.4208,.2189,.1283,.0261,.0167,.0131,.1205,
940&  "SK",.0276,.3001,.2359,.2092,.0761,.0589,.0456,.0467,
950&  "DK",.0283,.2684,.2180,.2144,.0900,.0761,.0602,.0445,
960&  "CS",.0166,.2198,.2186,.2292,.1002,.0897,.0788,.0471,
970&  "SH",.0164,.2258,.2304,.2380,.0973,.0781,.0609,.0530,
980&  "JØ",.1185,.5227,.1928,.0389,.0113,.0057,.0036,.0560,
990&  "PC",.0258,.2989,.2483,.2168,.0710,.0458,.0295,.0638,
1000&  "LI",.0268,.3067,.2534,.2163,.0679,.0423,.0265,.0601,
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NAVCC CONTINUED

```
1010&  "DM",.0424,.4315,.2527,.1617,.0360,.0181,.0092,.0
1020&  "MU",.1410,.5756,.1323,.0673,.0036,.0006,.0000,.0396,
1030&  "YM",.0245,.2322,.2444,.2204,.0778,.0543,.0379,.0530,
1040&  "EN",.0207,.2713,.2431,.2274,.0835,.0618,.0456,.0465,
1050&  "MR",.0207,.2755,.2367,.2162,.0783,.0576,.0453,.0671,
1060&  "BT",.0191,.2647,.2464,.2334,.0845,.0601,.0415,.0500,
1070&  "EM",.0239,.2965,.2379,.2137,.0765,.0565,.0405,.0489,
1080&  "IC",.0338,.2839,.2435,.1722,.0481,.0236,.0173,.0556,
1090&  "HT",.0183,.2451,.2399,.2361,.0901,.0610,.0505,.0519,
1100&  "FM",.0183,.2548,.2339,.2152,.0869,.0443,.0199,.0177,
1110&  "ML",.0254,.3537,.2647,.1928,.0460,.0226,.0125,.0322,
1120&  "EA",.0433,.3324,.2371,.1691,.0433,.0244,.0139,.0810,
1130&  "CE",.0175,.2639,.2368,.2307,.0916,.0720,.0540,.0335,
1140&  "EO",.0202,.2685,.2462,.2303,.0834,.0602,.0408,.0504,
1150&  "CM",.0353,.3456,.2138,.1693,.0573,.0471,.0377,.0333,
1160&  "BU",.0241,.2353,.2342,.2080,.0768,.0640,.0546,.0529,
1170&  "SM",.0359,.3301,.2303,.1972,.0741,.0615,.0496,.0187,
1180&  "UT",.0189,.2716,.2277,.2181,.0891,.0734,.0523,.0488,
1190&  "AE",.0251,.3039,.2454,.2129,.0741,.0546,.0400,.0389,
1200&  "AT",.0652,.4904,.2292,.1163,.0176,.0093,.0063,.0657,
1210&  "AX",.0679,.5706,.2375,.0951,.0055,.0009,.0000,.0225,
1220&  "AO",.0270,.3270,.2466,.1976,.0599,.0395,.0276,.0749,
1230&  "AC",.0663,.5106,.2302,.1038,.0132,.0062,.0042,.0605,
1240&  "AC",.0695,.5538,.2390,.1037,.0089,.0022,.0004,.0226,
1250&  "AB",.0216,.2830,.2406,.2211,.0813,.0622,.0461,.0435,
1260&  "AE",.0555,.4206,.2395,.1556,.0353,.0187,.0106,.0641,
1270&  "AM",.0229,.2966,.2450,.2157,.0747,.0539,.0383,.0529,
1280&  "AG",.0667,.4472,.2336,.1363,.0244,.0112,.0067,.0739,
1290&  "TD",.0721,.4933,.2257,.1176,.0209,.0136,.0103,.0464,
1300&  "AK",.0217,.2626,.2122,.2039,.0934,.0877,.0771,.0365,
1310&  "AZ",.0384,.3526,.2359,.1843,.0597,.0442,.0315,.0529,
1320&  "AS",.0272,.2355,.2252,.2059,.0798,.0662,.0525,.0578,
1330&  "FH",.0581,.4324,.2343,.1480,.0241,.0200,.0128,.0604,
1340&  "SD",.0020,.0480,.1030,.2072,.1652,.2170,.2339,.0134
1350 DATA LOJT/"EN","GM","SM","ED","ST","OT","TM","GMM","GMT","GMO",
1360&  "FT","MN","ET","DS","IM","MM","RM","YN","DP","SK",
1370&  "DK","CS","SH","JO","PC","LI","LM","MU","MM","EN",
1380&  "MR","BT","EM","IC","HT","FM","ML","EA","CE","EO",
1390&  "CM","BU","SM","UT","AE","AT","AX","AO","AC","AC",
1400&  "AB","AE","AM","AG","TD","AK","AZ","AS","FH","SD"/
1410 PRINT 50
1420 50 FORMAT(18HNAVY ROUTINE IS IN)
1430C    CLEAR THE DISK AREA AND ZERO COUNTERS
1440 JOUNT=0
1450 CALL OPENF(3,"NAVV1")
1460 DO 100 I=1,12
1470 100 IOUT(I)=0
1480 DO 110 I=1,200
1490 110 WRITE(3,)IOUT
1500 END FILE 3
```

NAVCC CONTINUED

```
      CALL RANSIZ(3,200,38)
C     GET THE DATA
150   READ(1,,ERR=160)KILL,NSCH,NOUT
      IF(KILL.EQ.IQUIT) GOTO 1000
      GOTO 170
160   PRINT 165,KILL
165   FORMAT(8HBAD READ,2X,A6,2X,14HRECORD SKIPPED)
      GOTO 150
C     FIND THE IRATE INDEX
170   DO 200 I=1,74
      IF(KILL.EQ.IRATE(1,I)) GOTO 220
200   CONTINUE
      PRINT 210,KILL
210   FORMAT(4HRATE,2X,A6,2X,37HDOESNT MATCH RATE FILE*RECORD SKIPPED)
      GOTO 150
220   KRATE=I
      IOUT(1)=IRATE(4,KRATE)
      IOUT(2)=4
      IOUT(3)=KILL
      DO 225 I=4,10
225   IOUT(I)=0
C     DETERMINE SCHOOL TEST MATRIX
      JEQ=IRATE(2,KRATE)
      MIN=IRATE(3,KRATE)
      IF(JEQ.EQ.0) GOTO 230
      GOTO (250,260,270,280,290,300),JEQ
C     THE CASE OF NO TESTS   SHOULD BE CHANGED
230   PRINT 240,KILL
240   FORMAT(4HRATE,2X,A6,2X,28HHAS NO TEST*KILL PROCESS OUT)
      GOTO 700
250   KGLOP=2
      I=MIN-170
      IF(I.LT.0)KGLOP=1
      GOTO 500
260   KGLOP=3
      GOTO 500
270   KGLOP=4
      GOTO 500
280   KGLOP=5
      GOTO 500
290   KGLOP=MIN/5-14
      GOTO 500
300   KGLOP=MIN/5-21
500   KTOT=0
      DO 510 I=1,6
      IOUT(I+3)=INT(PCT(I,KGLOP)*FLOAT(NSCH)+.5)
510   KTOT=KTOT+IOUT(I+3)
      JA=NSCH-KTOT
      JB=IABS(JA)
      FI=FLOAT(JB)/FLOAT(NSCH)
```

NAVGG CONTINUED

```
2010 IF(FIX.LE.TOP) GOTO 560
2020 K=1
2030 IF(JA.LE.0)K=-1
2040 JTOT=0
2050 FIX=FLOAT(JP)
2060 FOX=FLOAT(KTOT)
2070 DO 500 I=1,8
2080 UP=FLOAT(IOUT(I+3))/FOX
2090 IUP=INT(UP*FIX+.5)
2100 IOUT(I+3)=IOUT(I+3)+K*IUP
2110 500 JTOT=JTOT+IOUT(I+3)
2120 KTOT=JTOT
2130 560 IOUT(12)=KTOT
2140C     NOW THE OUT
2150 700 DO 710 I=1,12
2160 710 KEEP(I)=0
2170C     FIND OUT MATRIX INDEX
2180 DO 720 I=1,60
2190 IF(KILL.EQ.LOUT(I)) GOTO 740
2200 720 CONTINUE
2210 PRINT 730,KILL
2220 730 FORMAT(4HBAIF,2X,A6,2X,34HDOESNT MATCH OUT TABLE*OUT DEGRADED)
2230 GOTO 820
2240 740 KOUT=I
2250 KTOT=0
2260 FIX=FLOAT(NOUT)
2270 DO 750 I=2,9
2280 KEEP(I+2)=INT(OUT(I,KOUT)*FIX+.5)
2290 750 KTOT=KTOT+KEEP(I+2)
2300 JA=NOUT-KTOT
2310 JP=IABS(JA)
2320 FIX=FLOAT(JP)/FLOAT(NOUT)
2330 IF(FIX.LE.TOP) GOTO 800
2340 K=1
2350 IF(JA.LT.0)K=-1
2360 JTOT=0
2370 FIX=FLOAT(JP)
2380 FOX=FLOAT(KTOT)
2390 DO 770 I=4,11
2400 UP=FLOAT(KEEP(I))/FOX
2410 IUP=INT(UP*FIX+.5)
2420 KEEP(I)=KEEP(I)+K*IUP
2430 770 JTOT=JTOT+KEEP(I)
2440 KTOT=JTOT
2450C     REVERSE KEEP 4811  OUT MATRIX FIRST AND LAST SWITCH
2460 800 JA=KEEP(11)
2470 DO 5511 JL1=4,10
2480 JK=15-JL1
2490 5511 KEEP(JK)=KEEP(JK-1)
2500 KEEP(4)=JA
```

NAVQQ CONTINUED

```
2510 IOUT(12)=IOUT(12)+KTOT
2520 DO 810 I=4,11
2530 810 IOUT(I)=IOUT(I)+KEEP(I)
2540 820 JOUNT=JOUNT+1
2550 CALL FINDRR(3,JOUNT)
2560 WRITE(3,)IOUT
2570 GOTO 150
2580 1000 PRINT, "THE NUMBER OF NAVY RECORDS IS:",JOUNT
2590 CALL CLOSEF(3)
2600 RETURN
2610 END
```

MAROC

```
      SUBROUTINE MAFCO
      DIMENSION IFIL(2,200),JFIL(2,200),JOUT(12)
      DIMENSION IDICT(2,5),IOUT(12),AFTER(153)
      DIMENSION MARDOD(192),MMOS(2,50),TEST(8,6,7)
      DIMENSION KDEX(50),KEEP(12,10)
      DIMENSION AIN(6),CHECK(7),MEN(8),IMEN(8,6)
      DIMENSION JMEN(8),JEEP(12,10)
      DIMENSION ENTR(180),KETR(7)
      LOGICAL OK,OH,AK
      DATA CHECK/2HCL,2HGM,2HIN,2HGT,2HEL,2HMM,2HAE/
      DATA IEND/3HEND/,TOP/.001/
      DATA IDIC1/8,1,11,19,13,37,21,91,35,127/
      DATA ZAP/2HXX/
C     MARDOD(DOD CODE,% SPLIT-AS INT) IN MMOS SEQ
C     MMOS(#DOD CODES,MAR MOS) CAN CALC  MARDOD INDEX
C     IDICT(MOS,AFTER INDEX)
C     AFTER(MOS,TEST,6 SPLITS,MIN SCORE)
C     KDEX(MARDOD INDEX)
C     LOAD THE DATA
C     MARDOD STARTS WITH MARINE MOS 01
C       AND OCCUPIES RECORD INDICS  1-4
      DATA MARDOD/51,74,50,26,24,100,1,100,55,100,
C     MOS 08-11
     &  4,79,4,21,72,50,72,50,
C     MOS 13
     &  3,42,61,21,644,2,70,5,73,14,82,16,
C     MOS 14-18
     &  41,100,74,100,2,100,
C     MOS 21
     &  61,54,64,35,67,4,70,7,
C     MOS 23-25
     &  645,100,20,53,23,10,58,16,62,21,
C     MOS 28-30
     &  10,73,16,10,19,5,62,12,55,63,82,37,
C     MOS 31-32
     &  51,46,82,54,67,16,79,47,84,37,
C     MOS 33-43
     &  80,100,54,100,81,69,61,30,70,1,53,100,54,14,82,86,57,100,
C     MOS 44-58
     &  51,100,40,100,45,100,49,100,83,100,
C     MOS 59
     &  10,52,11,3,12,17,15,28,
C     MOS 60
     &  5,1,51,6,53,2,60,54,61,6,70,4,72,1,75,1,86,5,
C     MOS 61-62
     &  60,59,10,43,12,13,19,3,40,3,60,33,
C     MOS 65-66
     &  646,100,10,100,
C     MOS 67
     &  04,5,5,4,12,5,20,6,22,65,10,14,
```

MAROC CONTINUED

```
500C     MOS 68-80
510&   42,100,51,34,68,22,78,44,86,100,5,100,
520C     MOS 82-86
530&   57,100,57,100,50,100,1,100,1,100,
540C     MOS 87-99
550&   25,100,78,100,85,100,32,100,45,100,52,100/
560  DATA MMOS/2,1,1,2,1,3,1,4,2,8,
570&   2,11,6,13,1,14,1,15,1,18,
580&   4,21,1,23,4,25,4,28,2,30,
590&   2,31,3,32,1,33,1,34,3,35,
600&   1,40,2,41,1,43,1,44,1,46,
610&   1,55,1,57,1,58,4,59,9,60,
620&   1,61,5,62,1,65,1,66,6,67,
630&   1,68,3,70,1,71,1,80,1,82,
640&   1,83,1,84,1,85,1,86,1,87,
650&   1,88,1,89,1,90,1,98,1,99/
660C   CL
670  DATA TEST/.017,.0,.027,.10,.328,.163,.245,.12,
680&  .02,.0,.08,.17,.39,.15,.15,.04,
690&  .01,.005,.17,.285,.35,.09,.07,.015,
700&  .01,.02,.35,.32,.23,.05,.02,.0,
710&  .01,.07,.50,.25,.15,.02,.0,.0,
720&  .02,.14,.61,.16,.07,.0,.0,.0,
730C   GM
740&  .011,0.,.033,.128,.333,.18,.224,.09,
750&  .015,.0,.10,.23,.42,.115,.10,.02,
760&  .015,.005,.25,.34,.31,.05,.03,.005,
770&  .015,.025,.470,.305,.155,.015,.005,.0,
780&  .02,.11,.68,.16,.03,.005,.0,.0,
790&  .01,.34,.59,.05,.01,.0,.0,.0,
800C   IN
810&  .015,.004,.109,.189,.331,.139,.154,.059,
820&  .015,.01,.16,.23,.34,.105,.11,.03,
830&  .015,.015,.23,.27,.32,.075,.055,.02,
840&  .015,.02,.38,.305,.22,.035,.02,.0,
850&  .015,.08,.525,.25,.11,.01,.005,.0,
860&  .02,.18,.59,.15,.06,.0,.0,.0,
870C   GT
880&  .014,.0,.026,.102,.324,.196,.244,.094,
890&  .02,.0,.065,.235,.045,.115,.095,.02,
900&  .01,.0,.22,.365,.32,.05,.03,.005,
910&  .015,.015,.47,.30,.165,.02,.005,.0,
920&  .015,.075,.615,.215,.07,.005,.005,.0,
930&  .02,.23,.61,.11,.02,.0,.0,.0,
940C   EL
950&  .013,.0,.067,.18,.364,.146,.17,.06,
960&  .01,.0,.17,.28,.35,.1,.07,.02,
970&  .01,.02,.31,.32,.26,.05,.02,.01,
980&  .02,.03,.52,.27,.13,.02,.01,.0,
990&  .01,.12,.66,.15,.05,.01,.0,.0,
```

MAF0C CONTINUED

```
1000& .01,.38,.56,.04,.01,.0,.0,.0,
1010C  MM
1020& .011,.002,.063,.155,.349,.157,.191,.071,
1030& .02,.0,.15,.27,.36,.1,.03,.02,
1040& .01,.01,.31,.32,.26,.05,.03,.01,
1050& .01,.04,.45,.28,.19,.02,.01,.0,
1060& .02,.1,.56,.22,.09,.0,.01,.0,
1070& .02,.19,.62,.12,.04,.0,.0,.0,
1080C  AE
1090& .01,.002,.043,.137,.349,.168,.211,.077,
1100& .01,.0,.13,.26,.37,.11,.09,.03,
1110& .01,.01,.27,.31,.30,.05,.04,.01,
1120& .02,.03,.44,.3,.18,.02,.01,.0,
1130& .02,.11,.6,.19,.03,.0,.0,.0,
1140& .02,.24,.6,.11,.03,.0,.0,.0/
1150C    AFTER STARTS WITH M0S 8
1160 DATA AFTER/4,"AE",.09,.26,.29,.21,.11,.03,100,
1170&  4,"GT",.04,.07,.22,.30,.26,.11,100,
1180C    M0S 11
1190&  72,"GM",.05,.08,.32,.31,.17,.07,100,
1200&  72,"EL",.04,.03,.25,.26,.30,.12,110,
1210C    M0S 13
1220&  3,"AE",.27,.30,.24,.12,.05,.02,90,
1230&  61,"MM",.04,.13,.36,.30,.13,.03,100,
1240&  64,"GM",.08,.10,.33,.25,.20,.03,100,
1250&  70,"GM",.08,.10,.33,.25,.20,.03,100,
1260&  73,"MM",.04,.13,.36,.30,.13,.03,100,
1270&  82,"AE",.27,.30,.24,.12,.05,.02,90,
1280C    M0S 21
1290&  61,"GM",.01,.05,.29,.33,.24,.09,100,
1300&  64,"GM",.01,.05,.29,.33,.24,.09,100,
1310&  67,"GM",.01,.05,.29,.33,.24,.09,100,
1320&  70,"MM",.01,.03,.32,.35,.21,.08,100,
1330C    M0S 35
1340&  31,"GT",.11,.48,.26,.10,.03,.01,90,
1350&  61,"MM",.02,.13,.35,.29,.15,.06,90,
1360&  70,"GM",.01,.35,.34,.21,.13,.06,90/
1370C    GL
1380 DATA FUTR/90,.015,.0,.05,.13,.375,.155,.205,.07,
1390&  100,.015,.0,.11,.23,.39,.13,.10,.025,
1400&  105,.01,.005,.17,.29,.35,.09,.07,.015,
1410&  110,.01,.01,.25,.32,.29,.07,.04,.01,
1420&  120,.02,.04,.425,.285,.19,.03,.01,.0,
1430C    GM
1440&  90,.01,.0,.055,.185,.39,.16,.155,.045,
1450&  100,.015,.0,.16,.295,.385,.08,.055,.01,
1460C    LN
1470&  100,.015,.01,.185,.24,.35,.09,.085,.025,
1480C    GT
1490&  90,.02,.0,.04,.17,.42,.16,.15,.04,
```

MARCO CONTINUED

```
1500&  95,.02,.0,.065,.235,.45,.115,.095,.02,
1510&  100,.015,.0,.125,.32,.40,.075,.055,.01,
1520&  105,.01,.0,.22,.365,.32,.05,.03,.005,
1530&  110,.02,.005,.335,.34,.25,.035,.015,.0,
1540&  115,.015,.02,.47,.30,.17,.02,.005,.0,
1550&  120,.01,.035,.575,.26,.105,.01,.005,.0,
1560C    EL
1570&  110,.02,.02,.415,.305,.19,.03,.015,.005,
1580C    MM
1590&  90,.015,.0,.105,.22,.375,.12,.125,.04,
1600&  100,.015,.005,.225,.31,.31,.08,.045,.01,
1610C    AE
1620&  90,.01,.0,.03,.20,.38,.14,.15,.04,
1630&  100,.015,.005,.20,.305,.33,.08,.05,.015/
1640 DATA KETR/1,46,64,73,136,145,163/
1650C    CALCULATE MARDD INDICES
1660 KDEX(1)=1
1670 KOUNT=0
1680 JOUNT=0
1690 DO 2 I=2,50
1700 2 KDEX(I)=KDEX(I-1)+2*(MMOS(1,I-1))
1710C    CLEAR THE DISK
1720 DO 4 I=1,12
1730 4 IOUT(I)=0
1740 CALL OPENF(2,"MARV1")
1750 CALL OPENF(3,"MARV2")
1760 DO 6 I=1,200
1770 WRITEF(3,)IOUT
1780 6 WRITEF(2,)IOUT
1790 END FILE 2
1800 END FILE 3
1810 CALL RANSIZ(2,200,38)
1820 CALL RANSIZ(3,200,33)
1830C    ZERO IFIL  THE INDEX TO THE DISK
1840 DO 3 I=1,2
1850 DO 3 J=1,200
1860 3 IFIL(I,J)=0
1870C    OK HERE WE GO
1880C    FILE 1 WAS OPENED BY EXEC
1890 10 FORMAT(1X,MMARINE ROUTINE)
1900 PRINT 10
1910 15 DO 100 I=1,3
1920 MEN(I)=0
1930 DO 100 J=1,6
1940 100 IMEN(I,J)=0
1950 140 READ(1,)IOF,REST,NUM,MIN,(AIN(I),I=1,6)
1960 OK=.FALSE.
1970 IF(IOF.EQ.IEND) GOTO 300
1980 DO 150 I=1,7
1990 IF(REST.EQ.CHECK(I)) GOTO 200
```

MARCO CONTINUED

```
2000 150 CONTINUE
2010 IF(BEST.EQ.ZAP) GOTO 165
2020 155 FORMAT(10HBAD RECORD,2X,I3,2X,A3)
2030 160 PRINT 155,IOF,BEST
2040 GOTO 140
2050 165 OH=.TRUE.
2060 DO 167 I=1,5
2070 IF(IOF.EQ.IDICT(1,I)) GOTO 169
2080 167 CONTINUE
2090 GOTO 160
2100 169 KA=I
2110 DO 170 I=1,50
2120 IF(IOF.EQ.MMOS(2,I)) GOTO 172
2130 170 CONTINUE
2140 172 KF=I
2150 KTIM=MMOS(1,KF)
2160 INUM=NUM
2170 MOP=KDEX(KF)
2180 KKK=-2
2190 L=IDICT(2,KA)-9
2200 DO 700 KLING=1,KTIM
2210 L=L+9
2220 M=L+1
2230 DO 174 I=1,6
2240 N=M+I
2250 174 AIN(I)=AFTER(N)
2260 BEST=AFTER(L+1)
2270 MIN=INT(AFTER(L+8))
2280 KKK=KKK+2
2290 MMM=MOP+KKK
2300 FF=FLOAT(MAPDOD(MMM+1))/100.
2310 NUM=INT(FLOAT(INUM)*FF+.5)
2320 DO 176 J=1,7
2330 IF(BEST.EQ.CHECK(J)) GOTO 178
2340 176 CONTINUE
2350 178 LING=I
2360 200 KING=I
2370 IF(OH) KING=LING
2380 DO 210 I=1,7
2390 IF(BEST.EQ.CHECK(I)) GOTO 212
2400 210 CONTINUE
2410 212 KIP=I
2420 KIP=ENTR(KIP)
2430 MIP=INT(ENTR(KIP))
2440 215 LIP=INT(ENTR(KIP))
2450 IF(LIP.EQ.MIN) GOTO 217
2460 IF(LIP.LT.MIP) GOTO 216
2470 KIP=KIP+9
2480 IF(KIP.GE.180) GOTO 216
2490 MIP=LIP
```

MARCC CONTINUED

```
2500 GOTO 215
2510 216 PRINT 2160,IOF,BEST
2520 2160 FORMAT(3HM0S,2X,I3,2X,4HTEST,2X,A3,2X,21HDR0PPED*MIN SC0RE BAD:
2530 G0T0 700
2540 217 D0 240 I=1,8
2550 LIP=KIP+I
2560 JMEN(I)=INT(ENTR(LIP)*FL0AT(NUM)+.5)
2570 D0 240 J=1,6
2580 240 IMEN(I,J)=INT(TEST(I,J,KING)*AIN(J)*FL0AT(NUM)+.5)
2590 241 FORMAT(X,2(I2,X),X,I4,2X,2(F3.2,2X),I4)
2600 D0 250 I=1,8
2610 MEN(I)=0
2620 D0 250 J=1,6
2630 250 MEN(I)=MEN(I)+IMEN(I,J)
2640 KK=0
2650 II=0
2660 D0 270 I=1,8
2670 II=II+JMEN(I)
2680 270 KK=KK+MEN(I)
2690 KDIFF=IABS(NUM-KK)
2700 MDIFF=NUM-II
2710 LDIFF=IABS(MDIFF)
2720 F=FL0AT(KDIFF)/FL0AT(NUM)
2730 G=FL0AT(LDIFF)/FL0AT(NUM)
2740 0K=.FALSE.
2750 AK=.FALSE.
2760 IF(F.GT.T0P)0K=.TRUE.
2770 IF(G.GT.T0P)AK=.TRUE.
2780 IF(.NOT.0K) G0TO 310
2790 IDIFF=NUM-KK
2800 K=1
2810 IF(IDIFF.LT.0)K=-1
2820 IDIFF=IABS(IDIFF)
2830 FIX=FL0AT(KK)
2840 KK=0
2850 D0 300 I=1,8
2860 PCT=FL0AT(MEN(I))/FIX
2870 IUP=INT(PCT*FL0AT(IDIFF)+.5)
2880 MEN(I)=MEN(I)+K*IUP
2890 300 KK=KK+MEN(I)
2900 310 IF(.NOT.AK) G0T0 350
2910 K=1
2920 IF(MDIFF.LT.0)K=-1
2930 FIX=FL0AT(II)
2940 II=0
2950 D0 330 I=1,8
2960 PCT=FL0AT(JMEN(I))/FIX
2970 IUP=INT(PCT*FL0AT(LDIFF)+.5)
2980 JMEN(I)=JMEN(I)+K*IUP
2990 320 II=II+JMEN(I)
```

MAR00 CONTINUED

```
3000 350 IF(0H) 30T0 385
3010 D0 360 I=1,50
3020 IF(I0F.EQ.MM0S(2,I)) G0T0 380
3030 360 C0NTINUE
3040 PRINT 365,I0F
3050 365 F0RMAT(3HM0S,2X,I3,2X,39HD0ESNT MATCH MM0S DICT * REC0RD DR0PPED

3060 30T0 15
3070 380 KING=I
3080 367 F0RMAT(9(X,I4))
3090 J0B=XDEX(KING)
3100 ITIME=MM0S(1,KING)
3110 383 F0RMAT(5HITIME,2X,I3)
3120 385 D0 390 I=1,10
3130 D0 390 J=1,12
3140 KEEP(J,I)=0
3150 390 KEEP(J,I)=0
3160 IF(.N0T.0H) G0T0 396
3170 KEEP(1,1)=MARD0D(MMM)
3180 JEEP(1,1)=MARD0D(MMM)
3190 KEEP(2,1)=3
3200 JEEP(2,1)=3
3210 KEEP(3,1)=I0F
3220 JEEP(3,1)=I0F
3230 D0 394 I=4,11
3240 JEEP(I,1)=JMEN(I-3)
3250 394 KEEP(I,1)=MEN(I-3)
3260 JEEP(12,1)=II
3270 KEEP(12,1)=KK
3280 G0T0 4400
3290 396 K=-2
3300C     ITIME NEVER>9
3310 D0 405 I=1,ITIME
3320 K=K+2
3330 M=J0B+K
3340 KEEP(1,I)=MARD0D(M)
3350 JEEP(1,I)=MARD0D(M)
3360C     USE 4 F0R MARINE SVC
3370 JEEP(2,I)=3
3380 KEEP(2,I)=3
3390 JEEP(3,I)=MM0S(2,KING)
3400 KEEP(3,I)=MM0S(2,KING)
3410 KJ=J0B+K+1
3420 F=FL0AT(MARD0D(KJ))/100.
3430 JD0=0
3440 LD0=0
3450 D0 400 J=4,11
3460 KEEP(J,I)=INT(F*FL0AT(MEN(J-3))+.5)
3470 JEEP(J,I)=INT(F*FL0AT(JMEN(J-3))+.5)
3480 LD0=LD0+JEEP(J,I)
3490 400 JD0=JD0+KEEP(J,I)
```

MAPCC CONTINUED

```
3500 JEEP(12,I)=LDO
3510 405 KEEP(12,I)=JDO
3520      IF (IDF.NE.60) GO TO 72727
3530      JDO=60
3540      F=0.24
3550      GO TO 62626
3560 72727  IF (IDF.NE.61) GO TO 92929
3570      JDO=61
3580      F=0.41
3590 62626 I=ITIME+1
3600      KEEP(1,I)=600
3610      JEEP(1,I)=600
3620      KEEP(2,I)=3
3630      JEEP(2,I)=3
3640      KEEP(3,I)=JDO
3650      JEEP(3,I)=JDO
3660      JDO=0
3670      LDO=0
3680      DO 82828 J=4,11
3690      KEEP(J,I)=F*FLOAT(MEN(J-3))+0.5
3700       JEEP(J,I)=F*FLOAT(JMEN(J-3))+0.5
3710      JDO=JDO+JEEP(J,I)
3720 82828 LDO=LDO+KEEP(J,I)
3722      JEEP(12,I)=JDO
3724      KEEP(12,I)=LDO
3726     GO TO 4400
3730 92929 KDO=0
3740       LDO=0
3750 DO 410 I=1,ITIME
3760 LDO=LDO+JEEP(12,I)
3770 410 KDO=KDO+KEEP(12,I)
3780 MDIFF=NUM-LDO
3790 IDIFF=NUM-KDO
3800 LDIFF=IABS(MDIFF)
3810 JDIFF=IABS(IDIFF)
3820 G=FLOAT(LDIFF)/FLOAT(NUM)
3830 F=FLOAT(JDIFF)/FLOAT(NUM)
3840 IF(F.LE.TOP) GOTO 440
3850 K=1
3860 IF(IDIFF.LT.0) K=-1
3870 FIX=FLOAT(KDO)
3880 DO 435 I=1,ITIME
3890 IF(KEEP(12,I).EQ.0) GOTO 435
3900 SIX=FLOAT(JDIFF)/FIX
3910 DO 430 J=4,11
3920 KEEP(J,I)=KEEP(J,I)+INT(FLOAT(KEEP(J,I))*SIX+.5)*K
3930 430 CONTINUE
3940 KDO=0
3950 DO 432 J=4,11
3960 432 KDO=KDO+KEEP(J,I)
```

MARCC CONTINUED

```
3970 KEEP(12,I)=KDO
3980 435 CONTINUE
3990 440 IF(G.LT.TOP) GOTO 4400
4000 K=1
4010 IF(MDIFF.LT.0)K=-1
4020 FIX=FLOAT(LDO)
4030 DO 4350 I=1,ITIME
4040 IF(JEEP(12,I).EQ.0) GOTO 4350
4050 SIX=FLOAT(LDIFF)/FIX
4060 DO 4300 J=4,11
4070 4300 JEEP(   )=JEEP(J,I)+INT(FLOAT(JEEP(J,I))*SIX+.5)*K
4080 LDO=0
4090 DO 4320 J=4,11
4100 4320 LDO=LDO+JEEP(J,I)
4110 JEEP(12,I)=LDO
4120 4350 CONTINUE
4130C    OK KEEP IS DONE **  NOW LOAD THE FILES
4140 4400 DO 445 I=1,10
4150 IF(KEEP(1,I).EQ.0) GOTO 500
4160 KOUNT=KOUNT+1
4170 IF(KOUNT.GT.200) GOTO 735
4180 CALL FINDER(2,KOUNT)
4190 DO 450 K=1,12
4200 450 IOUT(K)=KEEP(K,I)
4210 WRITE(2,)IOUT
4220 IFIL(1,KOUNT)=KEEP(3,I)
4230 445 IFIL(2,KOUNT)=KEEP(1,I)
4240 500 DO 650 I=1,10
4250 IF(JEEP(1,I).EQ.0) GOTO 700
4260 JOUNT=JOUNT+1
4270 IF(JOUNT.GT.200) GOTO 740
4280 CALL FINDER(3,JOUNT)
4290 DO 470 K=1,12
4300 470 JOUT(K)=JEEP(K,I)
4310 WRITE(3,)JOUT
4320 JFIL(1,JOUNT)=JEEP(3,I)
4330 650 JFIL(2,JOUNT)=JEEP(1,I)
4340 700 CONTINUE
4350 730 GOTO 15
4360 735 PRINT 737,IOF,BEST
4370 GOTO 500
4380 737 FORMAT(17HKOUNT EXCEEDS 200,2X,4HIOF=,2X,I3,2X,4HTEST,2X,A3)
4390 740 PRINT 742,IOF,BEST
4400 742 FORMAT(17HJOUNT EXCEEDS 200,2X,4HIOF=,2X,I3,2X,4HTEST,2X,A3)
4410 800 CALL CLOSEF(2)
4420 CALL CLOSEF(3)
4430 RETURN
4440 END
```

AIRCO

```
10 SUBROUTINE AIRCO
20       DIMENSION INFO(4,130),NUM(6),TEST(4),EDISTR(8),CDISTR(8),
30&      EPCT(3,6,4),CPCT(8,6,4),TEMP(8),FAC(2),PCT65(8),
40&      KZERO(12),SPRD(6,5)
50       REAL NUM
60       INTEGER TEST,EDISTR,CDISTR,SUM,AF,FLAG1
70       DATA IND/3HEND/,TEST/"A","E","G","M"/,AF/1/,FAC/0.5,0.8/,
80&      PCT65/.002,.015,.393,.317,.233,.036,.002,.003/
90C XXXXX  ENTRY LEVEL PERCENTAGES
100        DATA EPCT/
110C   ADMIN
120&         .001,.002,.144,.221,.42 ,.124,.044,.043,
130&         .001,.010,.256,.264,.338,.098,.021,.012,
140&         .003,.025,.342,.283,.273,.055,.008,.006,
150&        .004,.056,.488,.237,.179,.030,.002,.004,
160&        .002,.115,.541,.194,.129,.016,.002,.001,
170&        .008,.162,.569,.163,.087,.010,.000,.001,
180C   ELEC
190&        .005,.000,.046,.180,.533,.162,.048,.024,
200&        .002,.001,.140,.306,.438,.037,.015,.011,
210&        .002,.006,.291,.379,.230,.037,.001,.004,
220&        .003,.015,.462,.346,.132,.017,.001,.002,
230&        .004,.043,.637,.218,.089,.007,.001,.001,
240&        .005,.135,.753,.083,.023,.001,.000,.000,
250C   GEN
260&        .005,.001,.040,.167,.473,.182,.074,.058,
270&        .001,.001,.141,.279,.420,.115,.026,.017,
280&        .002,.007,.252,.314,.323,.058,.007,.007,
290&        .002,.028,.497,.283,.164,.020,.002,.004,
300&        .002,.069,.603,.205,.106,.010,.000,.000,
310&        .004,.156,.690,.121,.029,.000,.000,.000,
320C   MECH
330&        .003,.003,.076,.221,.436,.180,.047,.029,
340&        .003,.004,.154,.289,.420,.097,.017,.016,
350&        .001,.010,.364,.328,.254,.035,.004,.004,
360&        .003,.028,.564,.242,.142,.018,.002,.001,
370&        .004,.063,.691,.169,.064,.009,.000,.000,
380&        .002,.240,.671,.063,.019,.003,.001,.001/
390C XXXXX  CAREER FORCE PERCENTAGES
400        DATA CPCT/
410C   ADMIN
420&         .001,.004,.172,.236,.329,.122,.036,.031,
430&          .001,.012,.293,.278,.316,.031,.017,.009,
440&         .003,.030,.332,.270,.255,.047,.007,.006,
450&         .004,.065,.497,.239,.163,.025,.002,.003,
460&         .002,.124,.667,.152,.117,.014,.002,.002,
470&         .005,.187,.583,.139,.075,.009,.000,.001,
480C   ELEC
490&         .002,.000,.067,.217,.511,.143,.039,.022,
500&         .002,.002,.170,.383,.408,.073,.013,.010,
```

AIRQQ CONTINUED

```
510&        .001,.007,.358,.362,.238,.031,.001,.002,
520&        .004,.017,.545,.306,.115,.013,.001,.001,
530&        .003,.067,.673,.184,.066,.007,.000,.002,
540&        .005,.242,.676,.059,.017,.001,.000,.000/
550C  GEN
560&        .003,.002,.059,.189,.477,.165,.059,.046,
570&        .002,.002,.170,.294,.399,.098,.021,.015,
580&        .002,.011,.337,.315,.278,.047,.005,.005,
590&        .004,.033,.536,.259,.147,.019,.001,.003,
600&        .003,.104,.631,.176,.079,.007,.000,.000,
610&        .004,.250,.637,.088,.020,.000,.000,.000,
620C  MECH
630&        .006,.003,.093,.224,.448,.156,.040,.037,
640&        .002,.004,.209,.310,.368,.081,.013,.012,
650&        .002,.012,.413,.311,.223,.031,.004,.004,
660&        .005,.038,.594,.229,.117,.015,.001,.001,
670&        .004,.090,.697,.149,.054,.006,.000,.000,
680&        .004,.354,.572,.051,.015,.003,.001,.000/
690       DATA INF0/
700C XXXXX  D0D C0DE, M0S, TEST, MINIMUM SC0RE
710&        01,753,"M",60,
720&        05,327,"E",80,
730&.       06,591,"M",40,10,304,"E",80,
740&        10,307,"E",80,10,325,"E",80,
750&        10,328,"E",80,10,329,"E",80,
760&        10,303,"E",80,11,321,"E",80,
770&        11,322,"E",80,11,323,"E",60,
780&        12,316,"E",80,12,317,"E",80,
790&        14,463,"E",80,15,305,"E",80,
800&        16,306,"E",80,19,341,"E",80,
810&        19,342,"E",80,19,343,"E",80,
820&        19,344,"E",80,19,302,"E",80
830&        19,324,"E",80,19,326,"E",80,
840&        19,402,"E",60,19,403,"E",60,
850&        19,404,"E",60,20,293,"A",60,
860&        22,276,"G",60,22,272,"G",60,
870&        23,292,"A",60,23,202,"G",80,
880&        23,294,"G",80,24,203,"G",80,
890&        24,206,"G",80,24,204,"G",60,
900&        30,901,"G",60,30,902,"G",60,
910&        30,912,"G",60,30,913,"G",60,
920&        30,914,"G",60,31,903,"G",60,
930&        31,904,"G",60,31,905,"G",60,
940&        32,907,"G",60,32,908,"G",60,
950&        32,911,"G",60,33,981,"G",60,
960&        33,982,"G",60,40,233,"G",40,
970&        40,236,"G",40,40,237,"G",40,
980&        40,234,"G",60,41,221,"G",60,
990&        41,222,"G",60,41,223,"G",60,
1000&         41,553,"G",60,42,252,"G",80,
```

AIRØQ CØNTINUED

```
1010&        43,464,"M",60,45,871,"G",40,
1020&        50,732,"A",60,51,702,"A",40,
1030&        51,602,"A",40,51,271,"A",40,
1040&        51,906,"G",60,51,391,"M",50,
1050&        51,605,"M",50,53,511,"G",60,
1060&        53,691,"G",60,54,671,"A",80,
1070&        55,645,"G",60,55,915,"G",60,
1080&        55,651,"A",70,56,701,"A",60,
1090&        56,741,"A",40,57,751,"G",60,
1100&        57,791,"G",80,58,291,"A",60,
1110&        60,421,"M",40,60,423,"M",40,
1120&        60,424,"M",40,60,534,"M",40,
1130&        60,432,"M",40,60,422,"E",40,
1140&       60,425,"E",40,600,431,"M",50,
1150&       61,472,"M",40,61,473,"M",40,
1160&       621,361,"M",40,62,362,"E",60,
1170&       63,441,"E",50,63,541,"E",50,
1180&       63,442,"M",50,63,443,"M",50,
1190&      645,461,"M",60,646,462,"M",60,
1200&       66,543,"M",50,70,531,"M",40,
1210&       70,532,"M",40,70,536,"G",50,
1220&       71,551,"M",40,71,552,"M",50,
1230&       72,542,"E",50,72,545,"E",50,
1240&       72,546,"M",50,72,547,"M",40,
1250&       72,563,"M",40,72,566,"G",60,
1260&       74,711,"G",40,74,713,"G",40,
1270&       75,544,"M",50,76,582,"M",40,
1280&       78,571,"G",40,79,535,"M",50,
1290&       80,621,"G",40,80,622,"G",40,
1300&       81,603,"M",40,82,601,"G",40,
1310&       82,631,"G",40,82,647,"G",40,
1320&       82,611,"A",40,83,811,"G",40,
1330&       83,812,"G",50,86,581,"M",40,
1340&       86,607,"M",50,86,922,"G",40,
1350&       40,235,"G",60,25,274,"G",60,
1360&       16,363,"E",60,70,533,"M",40/
1370C XXXXX PERCENTAGES USED TO SPREAD TOTALS BY TEST SCØRE
1380      DATA SPRD/
1390&       .40,.30,.20,.05,.05,.00,
1400&       .00,.60,.30,.05,.03,.02,
1410&       .00,.00,.60,.30,.05,.05,
1420&       .00,.00,.00,.75,.15,.10,
1430&       .00,.00,.00,.00,.80,.20/
1440      PRINT 6
1450C XXXXX ZERØ ØUTPUT FILE
1460      DØ 30 J=1,12
1470   30 KZERØ(J)=0
1480 CALL ØPENF(2,"AIRV2")
1490 CALL ØPENF(3,"AIRV1")
1500      DØ 35 J=1,200
```

AIPCC CONTINUED

```
1510      WRITE(2,) (XZERO(K),K=1,12)
1520   35 WRITE(3,) (XZERO(K),K=1,12)
1530      END FILE 2
1540      END FILE 3
1550      CALL RANSIZ(2,200,38)
1560      CALL RANSIZ(3,200,38)
1570      IREC=0
1580      FLAG1=0
1590   50 DO 55 N=1,9
1600   55 TEMP(N)=0.0
1610   57 READ(1,,ERR=9999) MOS,SUM
1620      GO TO 60
1630 9999 PRINT 2, MOS
1640      PRINT 3
1650      GO TO 57
1660   60 IF (MOS.EQ.IND) GO TO 500
1670      DO 100 I=1,130
1680      IF (MOS.EQ.INFO(2,I)) GO TO 110
1690  100 CONTINUE
1700      IF (MOS.EQ.991) GO TO 121
1710      PRINT 1, MOS
1720      PRINT 3
1730      GO TO 57
1740  121 IDOD=44
1750      DO 122 MM=1,3
1760      EDISTR(MM)=0
1770  122 CDISTR(MM)=0
1780      EDISTR(2)=SUM
1790      CDISTR(2)=SUM
1800      GO TO 180
1810  110 II=I
1820      IDOD=INFO(1,II)
1830      IF (MOS.NE.325) GO TO 112
1840      IISAV=19
1850      FLAG1=1
1860      GO TO 114
1870  112 IF (MOS.NE.551) GO TO 118
1880      IISAV=73
1890      FLAG1=1
1900      GO TO 114
1910  118 IF (MOS.NE.473) GO TO 119
1920      FLAG1=2
1930      IISAV=70
1940  114  SUM=FAC(FLAG1)*SUM+0.5
1950  119 DO 120 K=1,4
1960      IF (INFO(3,II).EQ.TEST(K)) GO TO 130
1970  120 CONTINUE
1980      PRINT 4, MOS
1990      PRINT 3
2000      GO TO 57
```

AIR0C CONTINUED

```
2010 130 KK=K
2020      JJ=(INFO(4,II)-30)/10
2030      IF ((JJ.GT.0).AND.(JJ.LT.6)) GO TO 135
2040      PRINT 5, MOS
2050      PRINT 3
2060 135 DO 140 L=1,6
2070 140 NUM(L)=SPRD(L,JJ)*SUM
2080C XXXXX COMPUTE AFQT DISTRIBUTION FOR ENTRY LEVEL
2090      DO 150 I=1,8
2100 150 EDIST(I)=EPCT(I,JJ,KK)*SUM+0.5
2110C XXXXX COMPUTE AFQT DISTRIBUTION FOR CAREER FORCE
2120      DO 160 J=1,6
2130      DO 160 I=1,8
2140 160 TEMP(I)=TEMP(I)+CPCT(I,J,KK)*NUM(J)
2150      DO 170 I=1,8
2160 170 CDIST(I)=TEMP(I)+0.5
2170 180 IREC=IREC+1
2180 CALL FINDRR(2,IREC)
2190      WRITE(2,)  IDOD,AF,MOS,(EDIST(I),I=1,8),SUM
2200 CALL FINDRR(3,IREC)
2210      WRITE(3,) IDOD,AF,MOS,(CDIST(I),I=1,8),SUM
2220      IF (FLAG1.EQ.0) GO TO 50
2230      IF (FLAG1.NE.1) GO TO 190
2240      IDOD=IISAV
2250      FLAG1=0
2260      GO TO 180
2270 190 SUM=0.25*SUM+0.5
2280      FLAG1=0
2290      IDOD=IISAV
2300      DO 195 N=1,8
2310 195 TEMP(N)=0.0
2320      GO TO 135
2330 500 PRINT 8, IREC
2340      CALL CLOSEF(2)
2350      CALL CLOSEF(3)
2360      PRINT 7
2370    1 FORMAT(//,"*** AIR FORCE MOS,",I4,", IS NOT IN DICT. .")
2380    3 FORMAT(1H ,"***PROCESSING CONTINUES WITH NEXT MOS.")
2390    2 FORMAT(//,"*** RECORD CONTAINING AIR FORCE MOS,",I4," IS BAD")
2400    4 FORMAT(//,"MOS,",I4,", HAS INVALID TEST IN DATA BLK.")
2410    5 FORMAT(//,"*** MOS,",I4,", HAS INVALID MN SCORE IN DATA BLK.")
2420    6 FORMAT(/," AIRFOR HAS TAKEN OVER.")
2430    7 FORMAT(/," AIRFOR HAS FINISHED.")
2440    8 FORMAT(/," THE NUMBER OF AIR FORCE RECORDS SAVE =",I4)
2450 RETURN
2460      END
```

TAB E

CURRENT SERVICE INVENTORIES BY MENTAL CATEGORY

CURRENT SERVICE ENLISTED INVENTORIES BY MENTAL CATEGORY

Military Service	Mental Category		
	I & II	III	IV
Army	32.3%	45.4%	22.3%
Navy	53.9%	36.1%	10.0%
Marine Corps	39.0%	49.5%	11.5%
Air Force	47.7%	44.5%	7.8%

Source: Service submissions to Central AVF Task Force. Inventories include male and female enlisted personnel in active forces, except that Navy inventory excludes 2 x 6 reservists on active duty.

TAB F

MILITARY APTITUDE TESTS

MILITARY APTITUDE TESTS

Department of Defense Tests

Armed Forces Qualification Test. The Armed Forces Qualification Test (AFQT) is the primary screening test used by all Services to determine mental acceptability of applicants for enlistment and selective service registrants. The concept of a common instrument for screening inductees and enlistees for all Services was suggested in the late 1940s. The tests were initiated in 1950 as a result of Congressional legislation (4).

The subtests of the AFQT are:

Word Knowledge -- 25 items which require the substitution of a synonym for an underlined word in a sentence.

Arithmetic Reasoning -- 25 reasoning problems.

Tool Knowledge -- 25 picture questions.

Pattern Analysis -- 25 items using two-dimensional patterns.

Percentile scores which are grouped into mental categories:

I	93-100
II	65-92
III	31-64
IV	10-30
V	0-10 (currently considered unacceptable for military service)

Test time: 50 minutes

Armed Services Vocational Aptitude Battery. The Armed Services Vocational Aptitude Battery (ASVAB) is a uniform test battery developed by a Joint Services Committee from items on interchangeable service tests. The battery consists of nine tests (5), (68) as follows:

Coding Speed (100 items) evaluates the examinee's ability to quickly and accurately assign coded numbers by relating them to specific words.

Word Knowledge (25 items) is a test of verbal ability involving the definition of words; this is a classical vocabulary test involving non-technical terms.

Arithmetic Reasoning (25 items) evaluates the examinee's ability to think through mathematical problems presented in verbal form. It involves the discovery and application of the general mathematical principles required to arrive at a correct solution to each problem, as well as performance of the necessary calculations to attain that solution.

Tool Knowledge (25 items) is a pictorial test which requires the examinee to identify pictured tools and determine related items with which they are used.

Space Perception (25 items) involves visualizing the folding of flat patterns into three-dimensional objects.

Mechanical Comprehension (25 items) evaluates the ability of the examinee to determine from pictures of mechanical devices their operating characteristics.

Shop Information (25 items) determines the examinee's previous knowledge about shop practices and the use of tools in specific situations.

Automotive Information (25 items) is designed to evaluate specific knowledge about automobiles and automobile motors.

Electronics Information (25 items) involves the ability to apply previously acquired knowledge in the areas of electricity and electronics toward the solution of problems in practical situations.

It is possible to derive easily most Service aptitude test composites using elements of ASVAB in various combinations as shown below:

Service Aptitude Test Composites

Derived from ASVAB Elements

Military Service	Aptitude Area	Applicable ASVAB Elements
Army and Marine Corps	Electronics EL	$\frac{MC + 2\ EI}{3}$
	General Maintenance GM	$\frac{SP + 2\ SI}{3}$
	Motor Maintenance MM	$\frac{MC + 2\ AI}{3}$
	Clerical CL	$\frac{WK + CS}{2}$
	General Technical GT	$\frac{WK + AR}{2}$
Navy	General Technical	WK + AR
	Electronics	WK + AR + EI
	Clerical	WK + CS
	Mechanical	WK + TK + MC + SI
Air Force	General GEN	2 WK + AR
	Mechanical MECH	TK + MC + SI + AI
	Administrative ADMIN	CS + WK
	Electronics ELEC	AR + SP + EI

Different Score Scales for Each Service

Test Time: 140 minutes

ARMY TESTS

Army Classification Battery

The Army Classification Battery (ACB) consists of eleven tests which are combined into eight aptitude area scores. The eleven tests are (35), (40):

Verbal, VE (50 items). Examinee selects the correct synonym for the underlined word in a short sentence.

Arithmetic Reasoning, AR (40 items). Each item is a reasoning problem involving selection and application of arithmetic processes.

Pattern Analysis, PA (50 items). A two-dimensional pattern with numbered lines is presented along with the corresponding three-dimensional figure made by folding the pattern along indicated lines. Examinee is required to identify the lettered edge of the figure corresponding to a numbered line in the pattern.

Mechanical Aptitude, MA (45 items). Each item uses a picture to present a question based on some physical principle.

Army Clerical Speed, ACS, PART I, Number Reversal (60 items). Each item consists of two numbers. Examinee indicates whether second number is the reverse of the first.
PART II, Coding (50 items). The examinee uses an explanation key to match words and numbers.

Shop Mechanics, SM (40 items). Each item uses a drawing to present a question on some mechanical principle or tool usage.

Automotive Information, AI (40 items). Each item is a question about the identification or operation of automobile parts.

Electronic Information, ELI (40 items). Picture items require examinee to associate objects in terms of how they function electronically. Verbal items require demonstration of knowledge of electronics principales.

Classification Inventory, CI (125 items). The tests consist of self-description items in which the examinee indicates which choice most closely reflects his personal background, attitudes etc.

General Information, GIT (50 items). Questions cover objective items of information about various avocational pursuits.

Army Radio Code, ARC. An auditory test, recorded on tape. Examinee is taught code signals and then tested on 150 items.

Army Aptitude Areas (AA) scores are derived from the elements of the ACB as shown below:

Derivation of Army Aptitude Area Scores

Aptitude Area	Symbol	Applicable ACB Elements	Score Range
Infantry - Combat	IN	$\frac{AR + 2\ CI}{3}$	43-160
Armor, Artillery, Engineers - Combat	AE	$\frac{GIT + AI}{2}$	57-155
Electronics	EL	$\frac{MA + 2\ ELI}{3}$	40-160
General Maintenance	GM	$\frac{PA + 2\ SM}{3}$	45-154
Motor Maintenance	MM	$\frac{MA + 2\ AI}{3}$	50-153
Clerical	CL	$\frac{VE + ACS}{2}$	50-151
General Technical	GT	$\frac{VE + AR}{2}$	50-156
Radio Code	RC	$\frac{VE + ARC}{2}$	50-151

Standard Scores: Mean = 100

Standard deviation = 20

Test Time: 300 minutes

Army Qualification Battery. Men scoring in mental category IV, AFQT 10-30, are also administered the Army Qualification Battery (AQB), or the Airman Qualification Examination (AQE), as an additional screening device. The AQB is a 90 minute test battery which yields aptitude area composites comparable to those derived from the Army Classification Battery (minus radio code).

Subtests of the AQB are:

Infantry

Armor, Combat Engineering & Artillery

Clerical

Electronics

Motor Maintenance

General Maintenance

General Technical

Standard Scores:

Mean = 100

Standard deviation = 20

Test time: 90 minutes

AIR FORCE TESTS

Airman Qualifying Examination

The Airman Qualifying Examination (AQE) yields four aptitude composites -- General, Administrative, Mechanical, and Electronics. The content of the current subtests is shown below:

Arithmetic Computation (60 items) consists of simple items involving addition, subtraction, multiplication, and division of whole numbers. Administered as a separately timed test, it is designed to measure the ability to manipulate numbers rapidly and accurately.

Arithmetic Reasoning (16 items) evaluates the examinee's ability to think through mathematical problems presented in verbal form. It involves the discovery and application of the general mathematical principles required to arrive at a correct solution to each problem, as well as performance of the necessary calculations to attain that solution.

Data Interpretation (10 items) is designed to measure the ability to draw conclusions or make interpretations from data presented in the form of graphs, charts, and tables. Two or three items are based on each presentation.

Electrical Information (15 items) involves the ability to apply previously acquired knowledge in the areas of electricity and electronics toward the solution of problems in practical situations.

General Mechanics (15 items) consists of verbal items relating to the understanding and application of basic techniques required for the trouble-shooting and repair of various mechical devices.

Hidden Figures (16 items) requires the examinee to determine which one of five simple line drawings is contained in a more complex arrangement of geometric figures. These items appear within the test in sets of four items per page with the five simple line drawings at the top of the page.

Mechanical Principles (15 items) requires the examinee to determine from pictures of mechanical devices their operating characteristics.

Pattern Comprehension (18 items) involves visualizing the folding of flat patterns into three-dimensional objects and subsequently determining the location of specific points which are common to both the pattern and the solid figure. These items appear within the test in groups of three items for each pattern.

Shop Practices (15 items) is a pictorial test which requires the examinee to identify pictured tools and determine their proper use in a specific situation or the selection of the proper tool for use in a given task.

Word Knowledge (30 items) is a test of verbal ability involving the definition of words; this is a classical vocabulary test of non-technical terms.

The composites are:

Mechanical, MECH = General Mechanics, Hidden Figures, Mechanical Principles, Shop Practices

Administrative, ADMIN = Arithmetic Computation, Arithmetic Reasoning, Word Knowledge

General, GEN = Arithmetic Reasoning, Hidden Figures, Word Knowledge

Electronics, ELEC = Arithmetic Reasoning, Data Interpretation, Electrical Information, Pattern Comprehension

Standard Scores: Each of the four composite scores is converted to a 20-point scale (01, 05, 10,...95) so that 5 percent of the original baseline group (military eligibles during World War II) would score at each point on this scale.

Test Time: 120 minutes

NAVY TESTS

Navy Basic Test Battery

The Navy Basic Test Battery includes six tests which are combined into various composites for making school assignment. The tests are (62):

General Classification (GCT) consists of 60 verbal analogy and 40 sentence completion items with a single 35 minute time limit.

Arithmetic Reasoning (ARI) consists of 30 arithmetic reasoning items with a 35 minute time limit.

Mechanical (MECH) consists of two separately timed 50 item subtests yielding a single score. The tool knowledge section has a 10 minute time limit and the mechanical comprehension section has a 25 minute time limit.

Clerical Test (CLER) consists of 100 number matching items. This is a highly speeded test with a 5 minute time limit.

Shop Practices Test (SP) consists of 30 items with a 17 minute time limit.

Electronics Technician Selection Test (ETST) consists of three separately timed sections: mathematics (20 items in 25 minutes); science (20 items in 15 minutes); and electricity and radio (30 items in 20 minutes).

Selector composites are:

ARI + 2 ETST

GCT + MECH + ETST

GCT + ARI + CLER

GCT + CLER

GCT + ARI

GCT + MECH + SP

Standard Scores: Mean = 50

Standard deviation = 10

Test Time: 133 minutes

Short Basic Test Battery

The Navy also administers a Short Basic Test Battery (SBTB) of approximately 60 minutes which is composed of GCT, ARI, and MECH subtests.

MARINE CORPS TESTS

The Marine Corps uses the Army tests.

TAB G

ALTERNATIVE MEASURES OF QUALITY

Alternative Measures of Quality

OASD(M&RA) has supported a sustained research effort since 1968 seeking more valid screening instruments. The hypothesis was that culture-free or culture-fair tests would be more valid predictors of success, especially for the less educated and for minority groups.

One research effort is being conducted at the Naval Personnel and Training Research Laboratory. Approximately 20 experimental tests designed to measure practical abilities have been administered to large numbers of Navy recruits. The tests include a readministration of the AFQT, digit span, hand skills, a checklist of job duties, biographical information forms, dominoes, mazes, listening skills, recruit attitude questionaire, the Strong Vocational Interest Blank, performance inventory, word finding, mechanical principles, card patterns, coding, life experiences inventory, following instructions, visual memory, activities record, number comparison, line tracing, shortest lines, Navy Vocational Interest Inventory, and puzzle parts. Scores on these tests are being evaluated against actual on-the-job performance tests. This project is scheduled for completion in July 1973.

The Air Force has a contract with the University of Alabama to study the use of perceptual psychomotor tests to improve selection of men for electronics maintenance jobs. Preliminary results show that the use of psychomotor tests in addition to the Airman Qualification Examination would improve selection for men with AFQT scores of less than 59, but would not improve selection for men with higher AFQT scores.

To date the civilian sector has not found a substitute for traditional aptitude measures. Bray and Moses (8) state that the culture-fair test fad appears over in the civilian sector. One factor hastening its demise was the finding that non-verbal tests did not create additional fairness for disadvantaged group members. Non-verbal tests were considered culture-fair until several studies demonstrated that non-verbal tests enhance differences between groups. O'Leary, Farr, and Bartlett (41) in a study sponsored by the office of Naval Research pointed out that 75% of the time non-verbal tests were associated with unfairness. They concluded that the use of less traditional predictors did not result in an improvement in validity or in a reduction of unfairness.

Another area of research has focused on job learning tests. The Army Behavior and System Research Laboratory is now experimenting with an assessment center approach which enables them to test and observe the applicant for several days. Performance tests ("hands on" performance) are being developed and evaluated as a possible supplement to written tests in screening enlisted personnel. The performance tests are geared to men who score low on the AFQT and are being designed to assure that men are not rejected based on written tests alone, unless it is found that the men also lack sufficient performance potential to be successful in the Army. Work commenced at Fort Dix in March 1972 to develop performance tests such as: a practice session on erection of two-man tents to assess cooperativeness, opportunity to complete a task when not under pressure to do so to assess dependability, etc.

The Office of Naval Research has a contractor developing miniaturized job learning situations as predictors of success for low aptitude recruits in a Navy rating. The philosophy is that recruits who can learn a sample of the job requirements in a brief on-the-job training situation will demonstrate the same ability on the job (55).

The Navy Personnel and Training Research Laboratory is developing a series of modular work samples, or Job Learning Tests, and administering them to incoming students at Navy schools. It is hoped that these work samples will predict school performance and on-the-job behavior. A concurrent part of this research effort will be the development and evaluation of prototype assessment criteria, procedures, instruments and materials for evaluating the performance of military personnel in a variety of job situations.

Another area being explored by both the civilian and military research communities is that of evoked responses potential research. A machine is used to gauge a subject's information processing capacity by measuring reaction time to flashing-light stimuli. The Naval Personnel and Training Research Laboratory under the sponsorship of the Office of Naval Research is exploring the relationship of this information processing capacity with aptitude, performance, and delinquency.