United States General Accounting Office

GAO

Report to Congressional Requesters

March 2000

MILITARY PERSONNEL

Systematic Analyses Needed to Monitor Retention in Key Careers and Occupations

GAO/NSIAD-00-60

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Abbreviations

DMDC	Defense Manpower Data Center
DOD	Department of Defense

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-284209

March 7, 2000

The Honorable Pete V. Domenici
Chairman, Committee on the Budget
United States Senate

The Honorable Ted Stevens
Chairman, Committee on Appropriations
United States Senate

Recently, Congress and the Department of Defense (DOD) have become concerned about the readiness of U.S. armed forces. Key reasons for this concern are the increasing pace (tempo) of operations due to deployments to Bosnia, Haiti, the Persian Gulf, and elsewhere; parts shortages and maintenance backlogs; and problems in recruiting and retaining quality people. Military leaders have reported significant problems with retention, particularly among pilots and other personnel with critical skills and among experienced mid-career personnel. Information about retention, however, has been largely anecdotal or based upon only segments of the force.

At your request, we assessed recent trends in retention rates among officers and enlisted personnel in the four armed services. Specifically, we identified how much information DOD has on retention trends across the services and analyzed changes in retention rates in the aggregate and by career stage and occupation from 1988 through 1998.[1] To measure retention trends, we obtained records on active duty officers and enlisted personnel from DOD's Defense Manpower Data Center. We then assessed retention using two measures recently proposed by the Office of the Secretary of Defense as standard measures of retention: an officer continuation rate and an enlisted retention rate. The officer continuation rate is the number of officers who remain in the military from one fiscal year to the next divided

[1] We recently completed several additional reviews of military personnel issues, including an analysis of how quality of life conditions may affect *retention (Military Personnel: Perspectives of Surveyed Services Members in Retention Critical Specialties* (GAO/NSIAD-99-179BR, Aug. 16, 1999)) and an examination of pilot requirements and shortages *(Military Personnel: Actions Needed to Better Define Pilot Requirements and Promote Retention (*GAO/NSIAD-99-211, Aug. 20, 1999)). We also have a review under way to assess the findings of DOD's 1999 survey of active duty personnel.

by the total number of officers in the military. The enlisted retention rate is the number of enlisted personnel who renew a service commitment divided by the number of personnel nearing completion (within 18 months) of their current obligation.

To assess whether changes in retention occurred, we focused on two periods. First, we compared average retention rates in fiscal years 1988-90 with those in fiscal years 1996-98.[2] This provided a comparison of the years before and after the drawdown, when military personnel levels were intentionally reduced by about one-third in response to the end of the Cold War. To assess more recent trends, we compared retention rates in fiscal years 1996-97with those in fiscal year 1998. We also sought to identify career stages and occupations where substantial reductions in retention occurred. (See appendix I for further details of our scope and methodology.)

Results in Brief

Widespread reductions in retention rates were not evident at the aggregate level across the services from 1988 through 1998. Aggregate measures of retention, however, mask significant reductions that occurred among specific groups of military personnel in different career stages and occupational specialties. These drops in retention were more evident among groups of enlisted personnel than among officers. Although aggregate retention rates declined to some extent in the early 1990s, enlisted and officer rates in 1996-98 (after the drawdown) were very similar to those in 1988-90 (before the drawdown). Enlisted retention rates increased in the Army and the Navy by about 2 percent and 7 percent, respectively, decreased in the Marines by about 5 percent, and remained unchanged in the Air Force. However, when examining recent trends (1998 compared with 1996-97), we found that retention rates declined for enlisted personnel in the Army, the Air Force, and the Marines by 4 to 8 percent. Among officers, retention rates changed by about 1 percent over both the long and the short term.

When examining career stages, we found that the largest reductions in retention took place among mid-career enlisted personnel (5-10 years of service). Here, enlisted mid-career retention rates decreased by 15 percent in the Army, 10 percent in the Marines, 8 percent in the Air Force, and

[2] We calculated the percentage difference between the average rates for 1996-98 and for 1988-90.

1 percent in the Navy when comparing average retention rates in 1996-98with those in 1988-90. Reductions of about 3 to 7 percent also occurred among late career enlisted personnel (11-19 years of service) and officers (15-19 years of service) in the Army, the Navy, and the Air Force. DOD officials attribute mid-career reductions in retention to a combination of factors such as the growth in job opportunities in the civilian sector, the negative effects of increased military operations overseas, and service members' concerns about eroding benefits and quality of life conditions. The reductions in late career retention rates were also associated with personnel losses resulting from the continuation of separation programs that offered early retirement to certain military personnel with at least 15 years of service.

Enlisted retention rates declined by 10 percent or more over both the long and the short term in up to one-third of enlisted occupational groups. While the types of occupational groups that saw retention declines differed somewhat in each service, the majority of them were concentrated in the areas of communications and intelligence and electrical and mechanical equipment repair. When we broke down occupational groups by career stage, we found larger retention declines among mid-career enlisted personnel in many of these technical areas. In contrast, occupational groups for officers showed relatively smaller changes in retention. Retention declined by 3 percent or more in up to one-fifth of officer occupational groups. However, these reductions were not concentrated in any particular occupational areas.

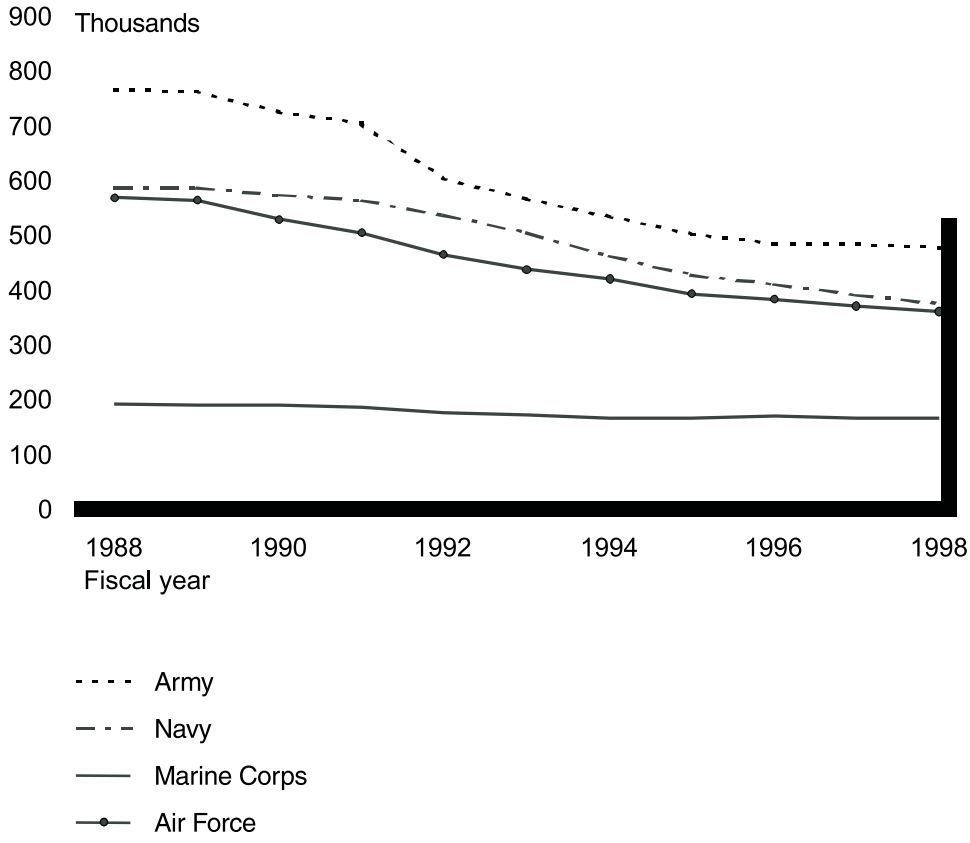
Comprehensive information on military retention trends across the services has been lacking. While all the services have ongoing efforts to track retention, they use different data and measures, thus making it difficult to interpret results and compare trends. DOD recently formed a working group to address retention issues across the services. The group issued a report to Congress in 1999 that included detailed data on retention by service, grade, years of service, and occupation; however, it did not provide any analysis or interpretation of the data. As a result, there is no clear picture of where retention problems exist and whether across-the-board or targeted policy initiatives may be needed to address them.

We are recommending that the Department of Defense conduct systematic assessments of military personnel retention on a regular basis.

Background

From fiscal year 1988 through 1998, the total number of military personnel (end strength) declined by 34 percent, from approximately 2.1 million to 1.4 million (see fig. 1). This drawdown occurred in response to the significant changes brought about by the breakup of the Soviet Union and the end of the Cold War.

Figure 1: Military Personnel End Strength Among the Armed Services, 1988-98



Source: DOD, Washington Headquarters Service, Directorate for Information Operations and Reports.

During the initial stages of the drawdown (fiscal years 1988-91), DOD achieved reductions in end strength largely by limiting accessions (the number of people entering the services). After the Persian Gulf War of 1991, DOD accelerated the drawdown by continuing to limit accessions and instituting voluntary and involuntary separation programs.[3] These programs, which were targeted at servicemembers in different career stages and occupations, included authority for early retirements, bonuses for separating from the service or transferring from active duty to the reserves, mandated retirements for people in certain areas who had more than 20 years of service, limitations on reenlistments in areas with personnel surpluses, waivers of service obligations, and reductions in force (though this last tool was used sparingly).

During the early and mid-1990s, when the services were trying to reduce personnel levels, retention was not a primary concern within DOD. However, DOD and Congress have long recognized that some servicemembers, particularly those in certain technical areas, can be difficult to retain. According to DOD officials, for example, pilots, nuclear engineers and technicians, and medical specialists are all occupations that have experienced retention problems. While nuclear technicians have had historically low retention, pilot retention has been more cyclical.

Recognizing that additional incentives were needed to help stem the loss of some specialists, Congress authorized various special pay programs, some of them predating the beginning of the all-volunteer service. Two primary examples are the Selective Reenlistment Bonus program and the Aviation Career Incentive Pay/Aviation Continuation Pay programs. The Selective Reenlistment Bonus provides enlisted personnel in eligible occupational specialties with a bonus and pay adjustment, based upon a predetermined formula, for reenlisting for a set period of time. The amount of funding for selective reenlistment bonuses has increased in recent years from about $104 million in initial payments in fiscal year 1996 to about $211 million in fiscal year 1999. The Aviation Career Incentive Pay and the Aviation Continuation Pay programs were designed to attract and retain officers in a military aviation career. The former program, authorized in 1974 as a modification of the old “flight pay” system, provides aviators continuous

[3] The major portion of the drawdown was implemented across the services through the mid-1990s and continued, at a slower pace, in the late 1990s. According to DOD officials, the drawdown was completed in 1998 in the Army and the Marines, in 1999 in the Navy, and will be completed in 2003 in the Air Force.

aviation career incentive pay regardless of whether they are assigned to flying duty. The latter program, authorized in 1981, provides qualifying officers a payment of up to 4 months' basic pay for each year the officer agrees to remain on active duty beyond the expiration of his or her obligated service. Over the years, DOD has also used other nonmonetary tools to help stimulate retention. These have included transitioning personnel into new career paths, increasing training opportunities, providing choice of duty locations, and improving promotion opportunities.

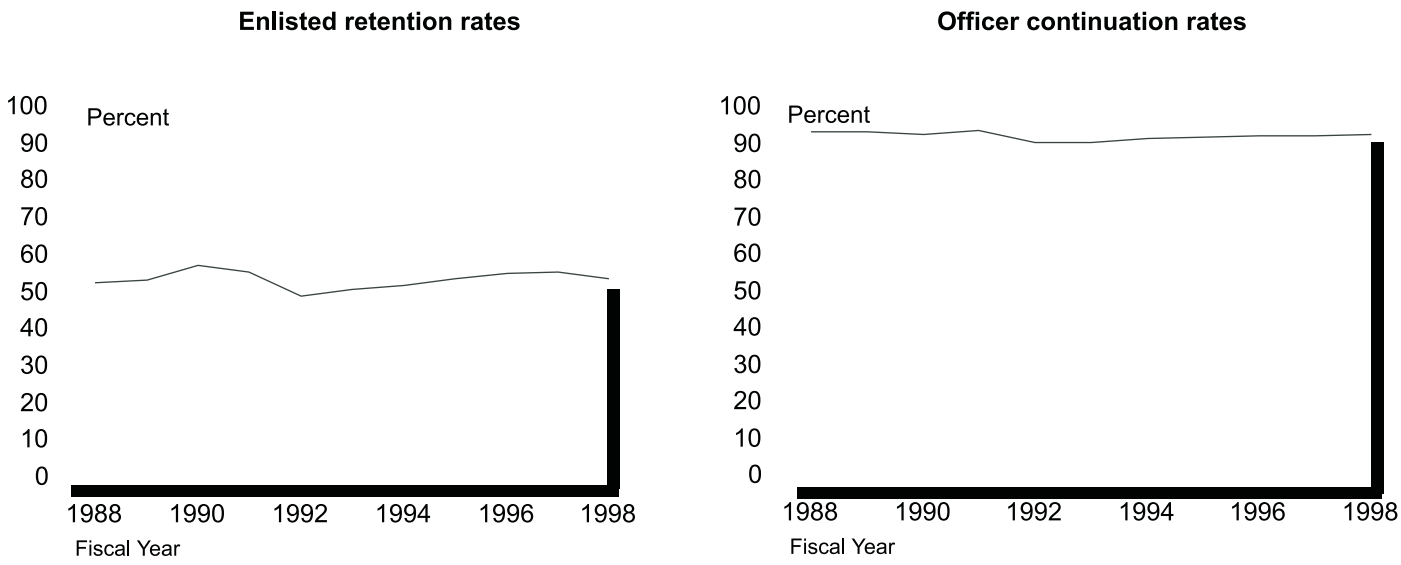
Concern with retention increased considerably in 1998, when the services began reporting problems with the readiness and quality of their forces. In September 1998, the Joint Chiefs of Staff testified before the Senate Armed Services Committee that retention had become a top concern, with rates declining both among specific critical personnel such as pilots and naval surface warfare officers and at more aggregate levels, such as among second-term enlisted personnel. This latter finding was a major concern for the services because it implied systematic losses of mid-level, noncommissioned officers. In response to these concerns, Congress passed legislation in 1999 to increase military pay and retirement benefits for servicemembers.[4] The legislation increased base pay for all military personnel, targeted additional pay increases at certain service grades, and repealed legislation providing lower retirement benefits for some personnel. It also required DOD to submit an annual report to Congress on the effects these improvements in compensation and benefits have on recruitment and retention.

Little Change in Aggregate Retention Levels Has Occurred Over Time

Aggregate retention and continuation rates in1996–98 (after the drawdown) were not significantly different from those before the drawdown (1988-90, see fig. 2). Rates were relatively stable before the drawdown, then declined in the early 1990s, when the services implemented various separation programs, but rose again in 1996-98 to about the same levels as in the pre-drawdown period. (See app. III for actual rates by service and fiscal year.)

[4] National Defense Authorization Act for Fiscal Year 2000, title VI (P.L. 106-65, Oct. 5, 1999).

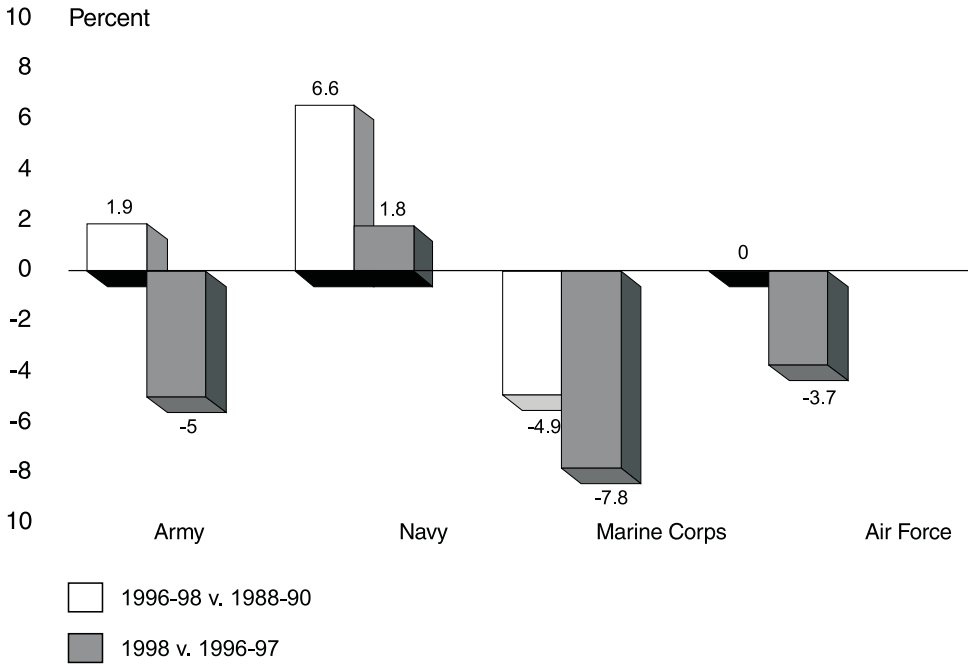
Figure 2: Overall Enlisted Retention and Officer Continuation Rates (All Services Combined), Fiscal Years 1988-98



Source: Defense Manpower Data Center, Active Duty Master File.

Our comparison of the pre- and post-drawdown periods (fig. 3) showed that the Marine Corps was the only service that experienced a reduction (4.9 percent) in the enlisted personnel retention rate. However, according to Marine Corps officials, this reduction was probably due to a "stop loss" policy instituted in late fiscal year 1990, when Operation Desert Shield began. This policy temporarily delayed separations and artificially increased the retention rate for that year. When comparing 1998 with 1996-97, however, we found that three of the four services (Army, Air Force, and Marines) had reductions of between 4 and 8 percent in enlisted personnel retention rates (see app. III).

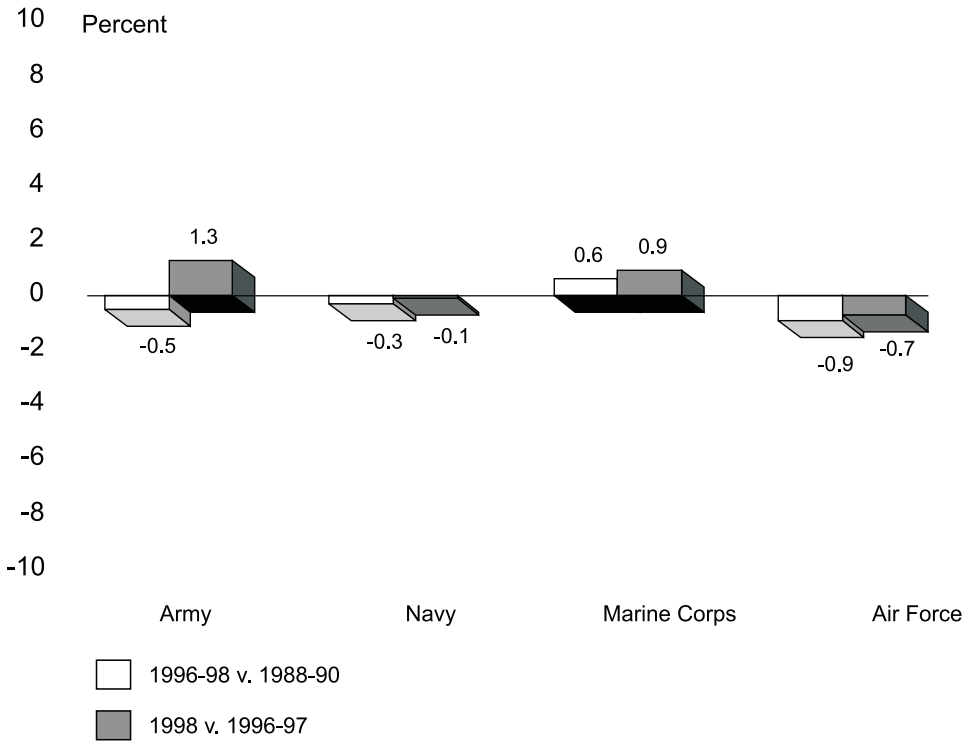
Figure 3: Relative Percentage Change in Average Enlisted Retention Rates, by Service, Between 1996-98 and 1988-90 and Between 1998 and 1996-97



Source: Defense Manpower Data Center, Active Duty Master File.

The aggregate officer continuation rates showed a relative percentage change of less than 1 percent for each service when comparing the pre- and post-drawdown periods (see fig. 4). In addition, we found little change in officer continuation rates when comparing 1998 with 1996-97. Navy and Air Force rates declined less than 1 percent, while Army and Marine Corps rates increased about 1 percent (see app. III).

Figure 4: Relative Percentage Change in Average Officer Continuation Rates, by Service, Between 1996-98 and 1988-90 and Between 1998 and 1996-97



Source: Defense Manpower Data Center, Active Duty Master File.

Assigned and Required Personnel

Reductions in retention rates may not be a problem for services with enough personnel to meet their needs but may present problems for services that are understaffed. We compared retention and continuation rates with the ratio of the total number of personnel assigned in each service at the end of a fiscal year to the total number of personnel each service reported it required that year.[5] This ratio, often called the manning rate, can be expressed with the following equation:

[5] Assigned is the number of personnel assigned to units and organizations and paid with appropriated funds. Required is the number of funded and unfunded billets, or positions, that make up the total personnel requirements for units and organizations in the programmed force structure. The force structure is based on what is necessary to support the national military strategy.

Manning rate = (no. personnel assigned/no. personnel required) x 100%

As shown in table 1, assigned enlisted personnel levels exceeded requirements in the Marine Corps, nearly matched requirements in the Army and the Navy, and fell short of requirements in the Air Force. In the Air Force, the assigned number of enlisted personnel fell below requirements at the same time that enlisted retention rates declined (fig. 3). Assigned officer levels in the Army and the Air Force were consistently below requirements from 1996 through 1998; however, officer continuation rates within these services showed no appreciable change.

Table 1: Percentage Differences Between the Number of Reported Assigned and Required Active Duty Personnel, Fiscal Years 1996-98

	Army		Navy		Marine Corps		Air Force	
Fiscal year	Enlisted	Officers	Enlisted	Officers	Enlisted	Officers	Enlisted	Officers
1996	2.1	-2.0	-0.6	0.8	10.8	10.0	-2.7	-1.4
1997	2.2	-5.3	-1.4	0.7	10.7	7.4	-5.6	-4.5
1998	1.8	-4.0	1.6	1.1	12.3	11.6	-4.6	-4.4

Note: A positive number indicates that personnel assignment levels exceeded requirements; a negative number means that assignment levels fell below requirements.

Source: GAO analysis of Defense Manpower Data Center, Billet Master File.

Aggregate Retention Measures Mask Changes Within Career Stages

While aggregate retention rates among the services changed very little over the long and the short term, considerably larger reductions in retention occurred among certain career stage groups, particularly among enlisted personnel. Reductions of 3 percent or more occurred most consistently among mid- and late career enlisted personnel and late career officers.[6] Our comparison of the pre- and post-drawdown periods showed retention rates declined among mid-career enlisted personnel by 15 percent in the Army, 10 percent in the Marine Corps, and 8 percent in the Air Force (see table 2 and app. III). When comparing 1998 with 1996-97, we found reductions of 3 percent or more among mid-career enlisted personnel in the Navy, the Marine Corps, and the Air Force. In our pre- and post-drawdown comparison, we also found reductions of 3 percent or more among late career enlisted personnel in the Army, the Navy, and the Air Force and among early career enlisted personnel in the Marine Corps and the Air Force. Officers experienced relatively small reductions in early or mid-career continuation rates over either time period. However, rates for Army, Navy, and Air Force late career officers decreased by more than 3 percent in the comparison of the pre- and post-drawdown periods.

[6]In some cases, comparing aggregate enlisted retention rates to career stage rates shows an apparent inconsistency. That is, significant declines in retention rates occur in several career stage categories, while aggregate retention rates remain relatively stable. For example, while rates in the early, mid- and late career groups in the Air Force dropped substantially (17 percent, 7.7 percent, and 3.5 percent, respectively) between the pre- and post-drawdown periods, there was no change overall among enlisted personnel. This appears to be due to changes over time in the relative weight of each career group to the overall rate. In the Air Force, early career enlisted personnel eligible to reenlist accounted for 41.5 percent of the force in 1988-90, compared with 28.8 percent in 1996-98. Conversely, late career Air Force enlisted personnel increased from 24.5 to 35.7 percent of the total force during the same time period. Thus, the changes in the relative proportion of enlisted personnel in each career stage, along with the changes in the corresponding retention rates by career stage, resulted in no difference in the overall enlisted retention rate in the Air Force.

Table 2: Relative Changes in Enlisted Retention and Officer Continuation Rates Between the Pre- and Post-drawdown Periods, and Within the Post-drawdown Period, by Service and Career Stage

	1996–98 compared with 1988–90		1998 compared with 1996–97	
Service				
Career stage	**Enlisted personnel**	**Officers**	**Enlisted personnel**	**Officers**
Army				
Early career	4.1	1.0	-1.5	0.5
Mid-career	**-15.3**	-0.3	-0.3	0.3
Late career	**-6.7**	**-3.7**	**-7.2**	**-5.9**
Navy				
Early career	0.5	2.3	-1.1	-0.2
Mid-career	-0.9	-0.5	**-3.6**	-1.7
Late career	**-6.8**	**-3.0**	0.3	3.5
Marine Corps				
Early career	**-13.3**	3.0	0.8	1.7
Mid-career	**-9.7**	-1.1	**-3.2**	0.7
Late career	-1.5	-0.1	-1.9	0.3
Air Force				
Early career	**-17.0**	0.6	**-4.6**	-0.1
Mid-career	**-7.7**	-0.1	**-7.9**	-1.8
Late career	**-3.5**	**-4.8**	-1.4	1.1

Note: Reductions greater than 3 percent appear in bold.

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

The separation programs associated with the drawdown may help explain some of the rate reductions, particularly among late career enlisted personnel and officers. While many of these programs ended by 1996, the Temporary Early Retirement Authority Program continued—although at reduced levels—through the late 1990s in some of the services. This program provided some military personnel with 15-19 years of service an opportunity to retire early and receive reduced retirement benefits. For example, almost 6,000 enlisted Navy sailors and about 3,000 Air Force servicemembers separated under the program during fiscal years 1996-98. To examine the relationship between the early retirement and reductions in retention rates, we further disaggregated our late career enlisted personnel

grouping into two subgroups: those with 11-14 years of service and those with 15-19 years of service. In doing so, we found that the latter group had a greater retention rate decline. For example, retention rates decreased between the pre- and post-drawdown periods among enlisted personnel in the second subgroup by about 14 percent in the Army, 13 percent in the Navy, and 5 percent in the Air Force (compared with drops of 4 percent, 1 percent, and 2 percent, respectively, in the first subgroup). Thus, at least for the Navy and the Air Force, there seems to be a link between decreases in retention rates among late career personnel and the early retirement program.

Another initiative that may account for some of the decline in retention rates among Army late career enlisted personnel was a 1996 policy that reduced the proportion of noncommissioned officers (sergeants) in the force to pre-drawdown levels. According to Army officials, the number of noncommissioned officers was reduced from about 50 percent of the enlisted force in fiscal year 1995 to about 47 percent, the same level as in 1989. This reduction was largely achieved through separations and limited advancement opportunities (promotions were frozen or reduced). Another factor that may have affected retention at the time, according to Army officials, was a 28-percent reduction in the amount of initial payments provided to personnel through the Selective Reenlistment Bonus Program in 1996. The timing of these cuts in noncommissioned officers and bonus funding corresponds with the decrease in retention rates in our analysis.

In addition to these initiatives, a number of other factors are likely to have affected mid- and late career retention rates. Service officials we spoke with also attributed the rate reductions to factors such as the attraction of a strong civilian economy, the effects of high operational tempo, and concerns about various quality of life conditions.[7] Air Force officials told us that initiatives such as the separation programs did not account for the decline in retention rates among early career enlisted personnel. Officials from the Marine Corps indicated that the stop-loss policy implemented during the Gulf War probably did account for the reduction in retention among early career enlisted personnel.

[7] In our earlier study on quality of life conditions and retention *(Military Personnel:* GAO/NSIAD-99-179BR, Aug. 16, 1999), we found that servicemembers in selected specialties were dissatisfied with many work related factors such as lack of equipment and materials to successfully complete their jobs, understaffing of units, frequency of deployments, and lack of personal time for family.

Substantial Reductions in Retention Occurred in Technical Occupations

Our analysis of enlisted retention rates at the occupational level showed that reductions in retention rates of 10 percent or more occurred among certain segments of the enlisted population.[8] In contrast, reductions in continuation rates among officers were considerably smaller. In general, retention and continuation rates did not decrease uniformly across occupations and services. However, two occupational areas involving technical skills—communications and intelligence and electrical and mechanical equipment repair—accounted for the majority of occupations with substantial enlisted retention rate reductions.

Reductions Were Concentrated in Specific Enlisted Occupational Areas

Our comparison of the mean retention rates before and after the drawdown showed that between 8 and 31 percent of all enlisted personnel occupational groups in all four services had reductions in retention rates of 10 percent or more (see table 3 and app. IV). While the types of occupational groups with large retention rate declines in each of the services differed, four groups--intelligence, data processing, infantry, and air crew—had reductions of more than 10 percent in two or more services (see table 4).

[8] For this analysis, we identified reductions that occurred in the lowest quarter of the range of rate changes across all occupations. On average, this corresponded to reductions of 10 percent or more and 3 percent or more, respectively, among enlisted personnel and officers.

Table 3: Number and Percent of Enlisted Occupational Groups With a 10-Percent or More Reduction in Retention Rates

		1996-98 compared with 1988-90		1998 compared with 1996-97	
Service	Total number of occupational groups[a]	Number	Percent	Number	Percent
Army	44	5	11	15	34
Navy	49	4	8	6	12
Air Force	47	8	17	8	17
Marine Corps	29	9	31	10	34

[a] To some extent, the number and type of occupational groups in each service differs due to the different missions of the services. We examined retention rate changes for 56 Army, 60 Navy, 53 Air Force, and 48 Marine Corps enlisted occupational groups. However, for reporting purposes, we did not include occupational groups with less than 100 individuals per year or with missing years of data. Occupational groups with less than 100 individuals per year are listed in appendix IV.

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

Table 4: Enlisted Occupational Groups With Retention Rate Reductions of 10 Percent or More Among Two or More Services, Comparing 1996-98 With 1988-90

Occupational group	Army	Navy	Air Force	Marines
Intelligence	-16		-11	
Data processing	-10	-11	-15	
Infantry		-12		-10
Air crew		-20	-14	

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

When we compared 1998 with 1996-97, we found that 12-34 percent of all occupational groups in the services showed reductions in retention rates of 10 percent or more (see table 3). However, unlike the long-term findings, we found that two technical areas—communications and intelligence and electrical and mechanical repair—accounted for a major portion of all occupational groups with lower retention rates (see table 5).

Table 5: Enlisted Occupational Groups With Retention Rate Reductions of 10 Percent or More Among Two or More Services, Comparing 1998 With 1996-97

Occupational area Occupational group	Army	Navy	Air Force	Marines
Communications and intelligence specialists				
Signal intelligence	-23		-15	-20
Intelligence	-12		-19	
Communications center operations	-16	-13		
Radio and radio code		-11	-12	
Electrical and mechanical repairers				
Aircraft and aircraft related		-10		-11
Automotive			-11	-10
Wire communications	-13			-12
Other				
Data processing	-19	-19	-11	
Infantry		-10	-12	
Missile guidance control	-11			-13
Armor and amphibious	-11			-18

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

We compared retention rates with the ratio of personnel reported as assigned and required in each enlisted occupational group to determine whether recent reductions in retention rates were associated with under- or over-staffing (see table 6). We used the total number of assigned and required personnel reported by the Army and the Air Force in fiscal year 1998. Comparable data for the Navy and the Marines was unavailable. Of the 15 enlisted occupational groups in the Army with a 10-percent or greater reduction in retention rates between 1998 and 1996-97, 4 fell short of requirements (intelligence, signal intelligence, ancillary medical support, and wire communications). In the Air Force, six of the eight occupational groups with a 10-percent or more reduction in retention rates fell below requirements (infantry, radar and air traffic control, radio and radio code, data processing, automotive repair, and law enforcement).

Table 6: Comparison of Army and Air Force Enlisted Occupational Groups With a 10-Percent or More Reduction in Retention Rates and the Reported Differences Between Assigned and Required Personnel

	Army		Air Force	
Occupational area Occupational group	**Occupational groups with a 10-percent or more reduction in retention rates, 1998 vs. 1996-97**	**Percentage differences in personnel assigned and reported as required in 1998**	**Occupational groups with a 10-percent or more reduction in retention rates, 1998 vs. 1996-97**	**Percentage differences in personnel assigned and reported as required in 1998**
Infantry, gun crews, and seamanship specialists				
Infantry			-12	**-65**
Armor and amphibious	-11	14		
Electronic equipment repairers				
Missile guidance, control and checkout	-11	0		
Other electronic equipment	-14	10		
Communications and intelligence specialists				
Signal intelligence/ectronic warfare	-23	**-8**	-15	14
Communication center operations	-16	3		
Combat operations control	-12	10		
Intelligence	-12	**-24**	-19	0
Radar and air traffic control			-15	**-19**
Radio and radio code			-12	**-10**
Health care specialists				
Ancillary medical support	-11	**-4**		
Dental care	-10	16		
Other technical and allied specialists				
Musicians	-14	4		
Ordnance disposal and diving	-11	7		
Functional support and administration				
Data processing	-19	1	-11	**-16**
Electrical/mechanical equipment repairers				
Wire communications	-13	**-6**		
Automotive			-11	**-7**
Craftsworkers				
Metalworking	-15	8		

Continued

Occupational area Occupational group	Army		Air Force	
	Occupational groups with a 10-percent or more reduction in retention rates, 1998 vs. 1996-97	Percentage differences in personnel assigned and reported as required in 1998	Occupational groups with a 10-percent or more reduction in retention rates, 1998 vs. 1996-97	Percentage differences in personnel assigned and reported as required in 1998
Service and supply handlers				
Forward area equipment support	-15	3		
Law enforcement			-15	**-13**

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Source: GAO analyses of Defense Manpower Data Center, Active Duty File, and Billet Master File.

Because of the differences in retention reductions associated with certain career stages, we broke down our analysis of occupational specialties by career stages and focused on retention rate changes among mid-career enlisted personnel. We found 22 Army, 3 Navy, 11 Air Force, and 5 Marine Corps occupational groups with reductions of 10 percent or more in retention rates when comparing the pre- and post-drawdown periods. (See app. IV for information on the early and late career groups). In three of the services, about half of these groups were in the areas of (1) communications and intelligence and (2) electrical and mechanical equipment repair. While Army mid-career enlisted personnel also had substantial retention rate declines in these two occupational areas, they also showed declines in the areas of (1) health care and (2) functional support and administration (administrative, clerical, data processing, and personnel specialists). We also found several mid-career occupational groups that had higher retention rate reductions than were evident when all career stages were aggregated. For example, rates among mid-career enlisted personnel in 12 occupational groups declined between 20 and 32 percent (see table 17).

When comparing 1998 with 1996-97, we found 6 Army, 11 Navy, and 10 Air Force occupational groups with retention reductions of 10 percent or more. No occupational groups in the Marine Corps experienced such reductions. Most of the reductions across the services occurred in (1) communications and intelligence, (2) electrical and mechanical equipment repair, and (3) electronic equipment repair (see app. IV).

Reductions in Officer Continuation Rates Were Lower

Occupational groups for officers showed relatively smaller continuation rate changes, both over the long term and in more recent years. Over the long term, about 10 to 20 percent of all occupational groups in the services showed continuation rate reductions of 3 percent or more. However, these reductions generally were not concentrated in particular occupational groups within or across the services.[9] The only exceptions were three Army occupational groups in the health care area (nurses, dentists, and health service administrators) and the electrical/electronic occupational groups (within the engineering and maintenance area) in the Navy, the Air Force, and the Marine Corps. Comparisons of 1998 with 1996-97 revealed one noticeable difference: two of the four groups with continuation rate decreases of 3 percent or more in the Air Force were fixed-wing fighter/bomber pilots and other fixed-wing pilots (see table 7 and app. IV).

Table 7: Number of Percent Officer Occupational Groups With Continuation Rate Reductions of 3 Percent or More

		1996-98 compared with 1988-90		1998 compared with 1996-97	
Service	Total number of occupational groups	Number	Percent	Number	Percent
Army	30	6	20	0	0
Navy	28	3	11	5	18
Air Force	32	6	19	4	13
Marine Corps	19	4	21	1	5

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

When we disaggregated occupational groups by career stages in the periods before and after the drawdown, we found more occupational groups with higher continuation rate reductions among late career officers (33 different groups across the services with reductions of 3 to 13 percent) than we did among mid-career personnel (14 different groups across the

[9] On the basis of the DOD occupation conversion index, all officer occupational groups could be aggregated into seven broad occupational areas: tactical operations officers; intelligence officers; engineering and maintenance officers; scientists and professionals; health care officers; administrators; and supply, procurement and allied officers. See appendix IV.

services with reductions of 3 to 6 percent). Among late career officers, occupational groups with substantial continuation rate reductions were generally spread among different officer occupational areas. The one exception was the Navy, where occupations in the tactical operations area covered one-half of all occupational groups that showed continuation rate reductions of 3 percent or more (see app. IV).

Comparing occupational groups in 1998 with those in 1996-97, we found little change in continuation rates for mid-career officers in the Army or the Marine Corps. Among Navy and Air Force mid-career personnel, however, we identified six occupational groups with continuation rate reductions of between 3 and 5 percent. Two of the six groups were fixed-wing fighter/bomber pilots and other fixed-wing pilots.

Analysis of Continuation Rates Among Pilots

Because the services have recently reported growing retention problems among pilots, we conducted a more detailed analysis of the pilot community. The Air Force reported that the cumulative continuation rate among pilots (the likelihood that pilots who complete 6 years of service would go on to complete 11 years) dropped 41 percent from 1995 through 1998 (from 87 to 46 percent). Similarly, the Navy reported that cumulative aviation continuation rates decreased from about 50 percent in 1996 to about 32 percent in 1998.[10] While the cumulative continuation rates for Air Force and Navy pilots dropped considerably in recent years, they are somewhat higher when viewed over the long term. The Air Force cumulative continuation rate was higher in 1998 (46 percent) than it was in 1989-91 (36 percent), while the Navy's rate was slightly lower over the same time period (32 percent in 1998 and 37 percent in 1989-91). In contrast to what the services have reported, we found that continuation rates among mid-career pilots decreased 5 percent in the Air Force and 2 percent in the Navy when comparing 1998 with 1996–97 (see table 8).

[10] The Navy uses a slightly different method for calculating the cumulative continuation rate, focusing on the 7th and 12th years of service. See *Military Personnel* (GAO/NSIAD-99-211, Aug. 20, 1999).

Table 8: Percentage Changes in Mid-career Pilot Continuation Rates, by Type of Pilot

	1996-98 compared with 1988-90				1998 compared with 1996-97			
Type of pilot	Army	Navy	Air Force	Marine Corps	Army	Navy	Air Force	Marine Corps
All pilots	1	3	5	3	0	-2	-5	2
Fixed-wing fighter and bomber pilots	NA	5	3	3	NA	0	-5	0
Other fixed-wing[a] pilots	4	6	8	12	-4	-1	-5	2
Helicopter pilots	1	-1	-2	3	0	-3	-1	3

NA = Not applicable.

[a] Other fixed-wing includes transport and reconnaissance.

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

We further disaggregated career stage groupings and examined pilot continuation rates by individual years of service and type of aircraft. In doing so, we found much higher rate reductions among those with specific years of service. For example, while the average rate reduction in the category known as other fixed-wing pilots in the Air Force was 5 percent when comparing 1998 with 1996-97, rate reductions climbed to 21 and 24 percent among pilots with 9 and 10 years of service (see table 9).[11] There were pockets of similar rate changes in the other services. In the Navy and the Marine Corps, higher rate reductions occurred among pilots with 11 years of service; in the Army, among pilots with 10 years of service.[12] It should be noted, however, that some groups experienced considerable continuation rate increases.

[11] For fixed-wing fighter, bomber, and helicopter pilots, see appendix IV.

[12] Because the Army and the Marine Corps have very few pilots in this pilot group, a small change in the number of pilots continuing service can greatly affect the continuation rate from one year to the next.

Table 9: Percentages of Continuation Rate Changes Among Other Fixed-wing Pilots, by Years of Service

	1996-98 compared with 1988-90				1998 compared with 1996-97			
Years of service	Army[a]	Navy	Air Force	Marine Corps	Army[a]	Navy	Air Force	Marine Corps
6	-2	7	1	16	-5	1	1	-2
7	0	29	29	50	0	0	1	4
8	-1	38	36	53	-8	16	9	-7
9	15	-7	-1	16	-6	0	-21	14
10	12	-13	3	-2	-20	-1	-25	0
11	-4	-8	7	-37	7	-12	-5	-33
12	5	-8	-3	13	0	-2	-1	-13
13	-2	-1	-5	-18	-11	-7	-2	47
14	5	1	-2	-8	0	-8	-6	-12

[a]Less than 100 individuals.

Source: GAO analysis of Defense Manpower Data Center, Active Duty File.

Some of these continuation rate changes may be associated with personnel policies implemented in the late 1980s. In 1987, for example, the Air Force changed the initial active duty service commitment for pilots from 6 to 7 years and changed it again the following year to 8 years. Thus, pilots who entered service in 1988 would have completed their initial service commitment in 1996, after 8 years. This would explain why the largest reductions in Air Force continuation rates in the 1996-98 comparison occurred among those with 9 and 10 years of service. Air Force officials attribute pilot losses to increased hiring by the commercial air industry, the increased pace of military operations, and pilots' concerns about various quality of life issues.

Comprehensive Information on Retention Trends Across the Services Has Been Lacking

It is difficult to combine information and obtain a clear picture of retention trends across DOD. Until recently, efforts to track retention have been conducted separately by each of the services as part of their force structure management process. In assessing retention, however, the services often use different data and methods. They use different retention rate measures (see app. II), time periods, career stage groups, and occupation codes.

DOD established a Retention Working Group in 1998 to address increased concerns about retention. The Group, consisting of service retention

personnel and staff from DOD's Office of Force Management Policy, provides a forum for discussing and addressing retention problems across the services. A major goal of the Group has been to develop standard data and measures so that retention trends can be monitored more consistently across the services. The Group has proposed using two standard measures of retention—the officer continuation rate and the enlisted retention rate that we used for our study. In addition, the Group has become a central source of DOD-wide retention analyses and reports, including monthly reports to the Secretary of Defense and other reports to organizations such as Congress.

In response to a requirement of the Strom Thurmond National Defense Authorization Act of 1999, the Office of Force Management Policy, in conjunction with the Retention Working Group, issued a report in January 1999 to the House and Senate Armed Services Committees that was intended to provide a comprehensive picture of retention trends in the armed forces.[13] The report was one of the first systematic efforts by DOD to examine retention rates across the services. It used a central data source (Defense Manpower Data Center Active Duty Master File) and standard measures of retention. However, although the report included detailed data on retention by enlisted and officer grades, selected occupations, and years of service, it provided no analysis and interpretation of the data and no findings or conclusions. As a result, the report was not very useful for understanding where retention problems exist within the armed services and whether policies are needed to address them. Since April 1999, the Office of Force Management Policy has also conducted monthly assessments of recruiting, retention, and end strength that are presented internally to top officials in DOD and the services. However, the Office has not published reports to Congress or others that provide comprehensive DOD-wide analyses of retention.

Conclusions

Although concerns in DOD and Congress about military retention problems have increased considerably in recent years, few studies have been conducted to systematically assess where reductions in retention have occurred across the services, whether across-the-board or targeted policy initiatives are needed to address problems, and whether initiatives that are implemented are effective and produce the greatest return on investment. The services track retention rates but they use different data and measures, thus making it difficult to combine information and determine what is happening to retention DOD-wide. Recent efforts by DOD's Retention Working Group and Office of Force Management Policy to establish standard data and measures and to monitor retention trends have begun to fill this information gap. However, we believe that further systematic assessments of military retention are needed on a regular basis to ensure that accurate and timely information is available to congressional decision makers. Having retention information available on a regular basis can help decision-makers identify problems early on and tailor policy initiatives to areas that need it the most and thus avoid having to make reactive

[13] Section 551 of Public Law 105-261, October 17, 1998.

decisions that may be too late to effectively correct problems. The framework and analysis we presented in this report could serve as a useful model of the type of work that needs to be conducted.

Recommendation

In order to have timely and useful data on military retention, we recommend that the Secretary of Defense direct the Office of Force Management Policy to expand its ongoing efforts to monitor retention by conducting more systematic and comprehensive assessments of military personnel retention on an annual basis. Such assessments should examine overall retention across the services among enlisted personnel and officers as well as by key units and career and occupational groups. It is important that the assessments use consistent and reliable data and measures and appropriate time periods to identify long- and short-term changes in retention. In addition, information on accessions, attrition, and end strength (total personnel assigned) should be incorporated into the assessments to provide a more comprehensive picture of gains and losses in personnel. Furthermore, information on requirements is needed to provide a context to determine whether changes in retention are meeting established goals. Finally, findings and conclusions about retention problems should be well supported and clearly communicated to Congress and other decisionmakers in a timely and consistent manner.

Agency Comments

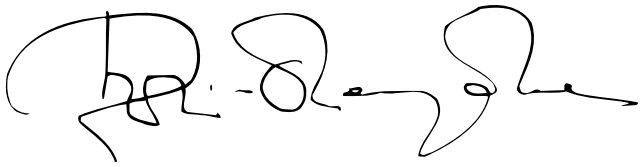
In written comments on a draft of this report, DOD partially concurred with our recommendation. DOD indicated that it will review our framework for assessing retention and integrate the framework, where appropriate, into its ongoing assessments. DOD also noted that it has established a retention working group to discuss retention challenges and potential solutions, and initiated monthly analyses of retention, recruiting, and end strength levels for the Secretary of Defense and the secretaries of the services. We recognize that DOD has improved its efforts to monitor retention in the past year in response to increased interest in retention and other personnel issues. However, while the Office of Force Management Policy's monthly analyses of retention provide a useful snapshot of retention trends, they are reported through internal briefings to DOD leadership and have not been presented to Congress or others. Furthermore, when the Office did present detailed information on retention to Congress in a formal report in January 1999, it lacked meaningful interpretation of the data as well as findings and conclusions. We therefore continue to believe that DOD should increase its

efforts to monitor and report on retention trends in a more systematic and comprehensive manner and believe that our recommendation is still valid.

DOD also provided technical comments on our report that we incorporated where appropriate. DOD comments are reproduced in their entirety in appendix V.

We are sending copies of this report to the Honorable William S. Cohen, Secretary of Defense; the Honorable Alphonso Maldon, Jr., Assistant Secretary of Defense for Force Management Policy; the Honorable Louis Caldera, Secretary of the Army; the Honorable Richard Danzig, Secretary of the Navy; the Honorable F. Whitten Peters, Secretary of the Air Force; and General James L. Jones, Commandant of the Marine Corps. We will also make copies available to others upon request.

If you or your staff have any questions about this report, please contact me at (202) 512-3652 or Dr. John Oppenheim at (202) 512-3111. Other key contributors to this assignment were Sam Bernet and Yeewan Tom.



Kwai-Cheung Chan
Director
Special Studies and Evaluations

Objectives, Scope, and Methodology

Objectives and Scope

Our objectives were to assess recent trends in retention rates among officers and enlisted personnel in the four armed services for changes in overall retention rates and to measure retention rates by career stage and occupational specialty.

We collected and analyzed military personnel data from two databases maintained by the Defense Manpower Data Center (DMDC). In addition, we gathered information on programs and policies affecting retention; attended retention briefings given by the Army, the Navy, the Marine Corps, and the Air Force; reviewed retention literature published by the services and the Office of the Secretary of Defense; and interviewed retention experts in the Office of the Secretary of Defense, the services, and the Office of Management and Budget.

Data Sources

For our primary analysis of retention and continuation trends, we collected data from the DMDC's Active Duty Master File, which provides a standardized and centralized database within the Department of Defense (DOD) of all enlisted personnel and officers on active duty in a given fiscal year. Data from the Master File have been widely used by various DOD offices as input for active duty reports and other personnel related analyses. The data we collected for our study was essentially the same data used by the Office of the Assistant Secretary of Defense for Force Management Policy in its report on personnel retention to the House and Senate Armed Services Committees.[1] The data covers fiscal year 1988 through 1998.

To compare personnel inventories with requirements, we collected information from DMDC's Forces Readiness and Manpower Information System, covering fiscal years 1996-98. This is an on-line personnel database containing descriptive personnel characteristics from the DMDC Active Duty Master File, Reserve Master File, and Civilian Master File, unit descriptor information from the DMDC Unit Master File, and the required, authorized and assigned personnel totals found in the DMDC Billet Master File. The personnel requirements data was developed by the services and submitted to DMDC. Specifically, the data represents the services' assessments of positions assigned to, and needed for, units and

[1] *Report on Personnel Retention: Report to the Committees on Armed Services of the United States Senate and House of Representatives* (January 1999).

organizations in the programmed force structure. In the past, we have reported on the inadequacies of the processes the services use to determine occupational requirements.

Aggregate Retention and Continuation Analyses

Data from the Active Duty Master File was divided into two databases for analyses: one for officers and warrant officers and one for enlisted personnel. We measured officer retention by determining the annual continuation rate. Specifically, this measure is the proportion of all commissioned officers and warrant officers (which were combined for this analysis) serving at the beginning of a given fiscal year who remained in the service at the end of the same fiscal year (see app. II). The enlisted database contained all enlisted personnel in a given fiscal year who were within 18 months of their "expected termination of service" date at the beginning of the fiscal year. We measured enlisted retention by dividing the total number of individuals who reenlisted in the service or extended their current term of service by the total of those approaching the end of their term of service. This is the measure DOD and some of the services term the "retention rate," or "keep rate," and was the only enlisted retention rate we could use because we could not determine whether separations were for voluntary or involuntary reasons (see app. II).

We developed two analyses to examine aggregate changes in officer continuation and enlisted personnel retention rates over time. First, we compared the mean of the continuation/retention rates for fiscal years 1996 through 1998 (the post-drawdown period) with the rates for fiscal years 1988 through 1990 (before the drawdown). This analysis provided a historical perspective of retention/continuation rate changes over the 1988-98 period. The second analysis, designed to show recent retention trends, compared the mean continuation/retention rate in fiscal year 1998 with the mean rate in fiscal years 1996 and 1997. We calculated both measures as relative percentages, or the difference between two periods over the base (earlier) period.

Career Stage Analysis

When analyzing military retention by years of service, DOD and the services group individual years of service into career stage categories, generally along the lines of initial-term, second-term or mid-career, and career stage. However, the definitions of these categories can vary both among the services and between analyses conducted by a single service. Because we were interested in analyzing retention by career stage, we

found it necessary to develop a taxonomy that was consistent across the services and factored in the services' major concern: retention of experienced, mid-grade personnel in the mid-career years.

The services have numerous programs designed to entice both officers and enlisted personnel to continue pursuing a military career. These programs generally involve the payment of a monetary bonus and/or a commensurate pay increase in return for an agreement to serve a specific number of years. For enlisted personnel, the programs generally target those who have completed their initial obligation but have not yet completed their 10th year of service. For officers, they generally target those between their 6th and 14th year of service. While some programs for enlisted personnel and officers allow participation beyond the 10th and 14th years, respectively, the majority of spending is usually aimed at enlisted personnel with 5-10 years of service and officers with 6-14 years of service–the critical years for retention. We therefore set the lower and upper bounds of our mid-career stage at 5 and 10 years for enlisted personnel and 6 and 14 years for officers.

We defined officers and enlisted personnel in their early career stages as those with less than 6 and 5 years of service, respectively. Officers with more than 14 years of service and enlisted personnel with more than 10 years of service were divided into two separate groups: those eligible to retire (20 or more years of service) and those with less than 20 years of service. We formed distinct groups for these categories because their retention behaviors are very different. Officers with 15 to 19 years of service and enlisted personnel with 11 to 19 years of service have very high continuation and retention rates. Retention among enlisted personnel and officers with more than 20 years of service, however, declines rapidly because individuals become eligible to retire, and the services have less interest in retaining them. Combining the "over 20" and "under 20" groups is a disservice to both demographic groups because the high rates of the latter group are diluted by the low rates of the former group, which the services are not interested in retaining.

Table 10 shows the career stage groupings created for this analysis. For the purposes of presentation in this report, we omitted the category of those eligible for retirement, and aggregate totals reflect this elimination.

Table 10: Career Stage Groupings, by Years of Service

Career stage	Enlisted personnel	Officers
Early	1-4 years	1-5 years
Middle	5-10 years	6-14 years
Late	11-19 years	15-19 years
Retirement eligible	20 or more years	20 or more years

Source: GAO.

Occupational Specialties Analysis

To examine the levels of change in enlisted retention rates and officer continuation rates over the 1988-98 period by occupational specialty and career stage, we focused on the servicemembers' primary occupational specialty (the area in which they received their principal training) even though servicemembers are sometimes assigned to occupations outside their primary training. We focused on the primary occupational specialty because DMDC's database does not have complete information on the assigned duties of military personnel. Thus, our analysis focused upon the capabilities or skills of the military rather than the number of people filling billets. Moreover, we excluded fiscal year 1988 from our analysis of Navy officers because the Navy completed a major reclassification of its coding system in 1989 that rendered prior years incomparable.

Because each of the four services has a unique occupational coding scheme, we used a system, created by DMDC, that links the services' codes into a single scheme of common occupations. For example, the Occupational Conversion Index, an index for the occupational crosswalk designed by DMDC, classifies aircraft pilots into three types: fixed-wing fighter/bomber pilots, "other" fixed-wing pilots (such as for transport or reconnaissance aircraft), and helicopter pilots. In DMDC's coding system, an Air Force F-16 pilot would receive the same classification as a Navy F-18 pilot, namely "fixed-wing, fighter/bomber pilot," thus allowing easier comparisons of occupations across services.

The DMDC coding scheme is organized into three levels of detail: an aggregate level (one digit) called "occupational area," a middle level (two digits) called "occupational group," and a more detailed level (three digits) called "occupational subgroup." Our analysis focused predominantly on the two-digit occupational groups because a more detailed analysis resulted in

many (three-digit) occupational subgroups with less than 50 people, while (one-digit) aggregate occupational areas were overly broad and mixed occupations that we felt were too distinct to combine. For example, artillery officers and "other" fixed-wing pilots are classified in the same occupational area (tactical operations officers).

We conducted our review from September 1998 through December 1999 in accordance with generally accepted government auditing standards.

Retention Measures Used by DOD and the Services

DOD and the services commonly use six measures to ascertain military personnel retention. Four are used specifically for enlisted personnel and examine different portions of the population that are about to complete a term of service (see table 11). The other two are used to analyze the rate at which all individuals in a given population continue serving over time. While these last two measures can be used for enlisted personnel, they are most often associated with officers and warrant officers.

Table 11: Principal Measures Used by DOD and the Services to Measure Retention

	Measurement name in each service				
Measurement formula	**DOD**	**Army**	**Navy**	**Marine Corps**	**Air Force**
(Reenlistments + extensions) / (Reenlistments + extentions + all separations)	Retention rate		Retention rate		Keep rate
(Reenlistments + extensions) / (Reenlistments + extensions + voluntary separations)[a]			Reenlistment rate	Reenlistment rate (first term only)	Reenlistment rate
Reenlistments / (Reenlistments + extensions + voluntary separations)	Reenlistment rate				
Reenlistments / (Reenlistments + all separarations)		Retention rate			
Number of personnel at end of FY / Number of personnel at beginning of FY	Continuation rate	Continuation rate	Continuation rate	Continuation rate	Continuation rate
$C_n * C_{(n+1)} * C_{(n+2)} * C_{(n+3)} * C_{(n+4)} * C_{(n+5)}$ Where C_n is the annual continuation rate for a year of service cohort			Cumulative continuation rate (for pilots, the 7th through 12th year cohorts)		Cumulative continuation rate (for pilots, the 6th through 11th year cohorts)

[a]Voluntary separations include those who are eligible to reenlist or extend, but chose to separate from the service. Those who separate due to retirement are not considered voluntary separations.

Measurements of Continuation Rates

DOD and the services use two classes of measures when analyzing retention ("continuation rates" and "retention rates") because of differences in personnel systems for officers and enlisted personnel. Both officers and enlisted personnel serve a set term of service under their initial

obligation. Officers may continue serving for an indefinite period of years and may resign their position any time after completing the initial service requirement. Therefore, to determine whether an officer continues serving, it is necessary to compare whether the officer served the military at two discrete points in time. Aggregating this data across the population of officers results in a continuation rate.

The services commonly use two kinds of continuation rates: an annual continuation rate that focuses on all individuals in a population serving from one point of time to the next and a cumulative continuation rate that focuses on the combined continuation rates of a cross section of personnel in different year of service cohorts. The first is most commonly used to determine the proportion of individuals at the beginning of a fiscal year that are still serving at the end of the same fiscal year. DOD used this measure to assess officer continuation rates in its January 1999 report to the House and Senate Armed Services Committees. The cumulative continuation rate is used to estimate the likelihood that a particular group of individuals will stay in the military for a specific number of additional years. It is calculated by taking the annual continuation rates of groups of individuals by different years of service and multiplying the rates. This measure is most often associated with Air Force and Navy analyses of pilot continuation patterns, with the former focusing on pilots with 6-11 years of service and the latter on pilots with 7-12 years of service.

Retention Measures for Enlisted Personnel

Enlisted personnel retention measures are different than those used for officer continuation. Rather than continuing to serve for an indefinite period of time upon completing a term of service (whether the initial or a subsequent term), enlisted personnel must formally renew their commitment either by reenlisting for a period of up to 4 years or by extending their current term of service for up to 2 years. Once enlistees renew their commitment, they are ineligible to separate until they complete that term of service. While enlisted personnel retention can be measured using a measure based in continuation, the resulting rates are artificially high because they include all enlisted personnel who are ineligible to separate from the service (about 75 percent of the enlisted force in any given year). Thus, enlisted personnel retention is generally measured as a proportion only of those who are approaching the end of their current service obligation.

The terminology that DOD and the services use for the four common enlisted retention measures can be confusing. Sometimes different terms

are used for the same measure, other times the same term is used for different measures. For example, the term "retention rate" refers to two different measures, depending on who is using it. DOD and the Navy use this term to refer to the proportion of all individuals completing a term of service who remain in the military. This measure requires information on the number of individuals who reenlist, extend their obligation, or leave the service (whether voluntarily or not). The Army, on the other hand, refers to "retention rate" as the proportion of individuals who are eligible for reenlistment and who actually reenlist. This measure includes only reenlistments in the numerator and the sum of reenlistments and all separations in the denominator.

The differences between enlisted personnel retention measures are subtle. The measure DOD and the Navy call "retention rate" and that the Air Force calls the "keep rate" (the measure we used to assess enlisted retention) contains more information than other measures because it uses all individuals approaching the end of a service obligation as the base population. This differs from the "reenlistment rate" the Navy, the Marine Corps, and the Air Force use, which excludes those who are involuntarily separated from the service (for example, for medical reasons). But each of the two measures, while different, has strengths and weaknesses. The "retention rate" will yield lower rates than the "reenlistment rate" and will provide a "bottom line" or lowest possible resultant rate. However, the "retention rate" also includes those who are ineligible to reenlist or to extend their service obligation (i.e., involuntary separations); thus, the results may not be indicative of the population the services wish to retain. By focusing solely on those who are eligible to reenlist or to extend their current term of service, the "reenlistment rate" more accurately depicts the retention of enlisted personnel. But to use the latter measure, reliable information on why individuals leave the service is necessary.

The remaining method often used for measuring the retention of enlisted personnel, the "reenlistment rate" used by DOD, focuses on reenlistment by those eligible to reenlist (it excludes those who separate involuntarily or retire). Like the Army's "retention rate," this measure excludes those who extend their current term of service from the numerator yet differs from the Army's measure by retaining those who extend their obligation in the denominator.

Proxy Retention Measures

The services use two additional measures to analyze retention trends, but they are not retention measures in the strict sense of the word. The first is

the ratio of the actual personnel inventory to personnel requirements, sometimes called the "manning rate." Although this measure is designed to assess readiness, it can be applied to retention by comparing, for example, the number of reenlistments with the number of reenlistments needed to meet personnel requirements. This measure is sensitive to two factors: the number of individuals who are expected to separate and the number of expected accessions.

The second measure assesses the success of specific retention incentive programs, such as Aviation Career Continuation Pay, by examining the rate at which individuals participate in the programs. The measure, called "take rate" or "initial take rate," is the percentage of individuals eligible to enroll in an incentive pay program who actually enroll in such a program. These rates are highly correlated with programmatic changes. When bonus payments increase, take rates also rise, and vice versa. Thus, when reporting take rates, one should also report the programmatic changes that may have affected the rates. The Air Force often uses the Aviation Career Continuation Pay take rate as a proxy measure for pilot retention but tends to neglect reporting programmatic changes that may explain changes in the take rate.

Enlisted Retention and Officer Continuation Rates, Aggregate and by Career Stage

This appendix presents the results of our analyses of aggregate enlisted personnel retention and officer continuation rates and of retention and continuation rates by career stage. The results are given for all officers and enlisted personnel with less than 20 years of service by career stage in fiscal years 1988 through 1998.

Table 12 shows the total number of enlisted personnel within 18 months of completing a term of service in a given fiscal year, the number of enlisted personnel who either reenlisted or extended their term of service, and the retention rate for the given fiscal year. The retention rate represents the percentage of all enlisted personnel nearing the end of a term of service who reenlisted or extended their current obligation so that their new expected termination of service date was changed to a subsequent fiscal year. Short-term extensions within a single fiscal year were excluded from those reenlistments or extensions because the data we analyzed maintained only one record per fiscal year per service member. Career stage categories used for this analysis were:

Early career: 1-4 years of service;
Mid-career: 5-10 years of service; and
Late career: 11-19 years of service.

Table 13 shows the total combined number of officers and warrant officers serving at the beginning of a given fiscal year, the number of those continuing through the end of the fiscal year, and the continuation rate for the fiscal year. The continuation rate is the proportion of all officers who began a fiscal year still serving on the last day of the fiscal year, expressed as a percentage. Career stage categories for officers used for this analysis were:

Early career: 1-5 years of service;
Mid-career: 6-14 years of service; and
Late career: 15-19 years of service.

Table 12: Retention Rates Among Non-retirement Eligible Enlisted Personnel (1 to 19 Years of Service), by Service and Career Stage, Fiscal Years 1988-98

Service / Career stage	Fiscal year 1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Army											
All non-retirement											
Total eligible	**210,590**	**219,680**	**189,257**	**165,105**	**191,929**	**150,859**	**134,914**	**143,562**	**144,793**	**128,167**	**107,290**
Number reenlisted	106,769	113,151	108,406	84,318	83,477	75,743	70,106	79,156	77,274	72,184	55,799
Retention rate (%)	50.7	51.5	57.3	51.1	43.5	50.2	52.0	55.1	53.4	56.3	52.0
Early career											
Total eligible	**123,948**	**125,946**	**95,971**	**76,442**	**94,467**	**77,432**	**63,357**	**58,415**	**57,333**	**47,710**	**45,671**
Number reenlisted	43,620	46,361	41,748	25,021	28,370	29,162	24,816	23,508	22,059	19,796	17,918
Retention rate (%)	35.2	36.8	43.5	32.7	30.0	37.7	39.2	40.2	38.5	41.5	39.2
Mid-career											
Total eligible	**54,727**	**60,175**	**60,487**	**54,855**	**62,356**	**49,331**	**48,044**	**52,465**	**54,796**	**52,146**	**40,708**
Number reenlisted	36,252	38,915	39,219	31,884	31,281	27,833	27,762	30,503	29,078	30,044	22,448
Retention rate (%)	66.2	64.7	64.8	58.1	50.2	56.4	57.8	58.1	53.1	57.6	55.1
Late Career											
Total eligible	**31,915**	**33,559**	**32,799**	**33,808**	**35,106**	**24,096**	**23,513**	**32,682**	**32,664**	**28,311**	**20,911**
Number reenlisted	26,897	27,875	27,439	27,413	23,826	18,748	17,528	25,145	26,137	22,344	15,433
Retention rate (%)	84.3	83.1	83.7	81.1	67.9	77.8	74.5	76.9	80.0	78.9	73.8
Navy											
All non-retirement											
Total eligible	**155,644**	**154,437**	**149,854**	**143,007**	**147,803**	**142,221**	**132,257**	**115,347**	**114,542**	**119,119**	**105,023**
Number reenlisted	83,759	85,090	85,759	86,429	82,402	75,593	70,004	65,980	67,425	69,745	62,739
Retention rate (%)	53.8	55.1	57.2	60.4	55.8	53.2	52.9	57.2	58.9	58.6	59.7
Early career											
Total eligible	**66,534**	**65,305**	**61,367**	**57,138**	**63,557**	**60,778**	**50,368**	**34,063**	**34,178**	**41,033**	**29,242**
Number reenlisted	23,144	23,512	23,709	24,077	23,086	19,062	15,342	11,400	12,766	14,837	10,611
Retention rate (%)	34.8	36.0	38.6	42.1	36.3	31.4	30.5	33.5	37.4	36.2	36.3
Mid-career											
Total eligible	**57,581**	**56,815**	**55,737**	**51,398**	**50,082**	**48,212**	**48,296**	**46,417**	**44,577**	**41,373**	**39,104**
Number reenlisted	33,195	33,328	33,110	31,444	30,100	27,765	26,961	26,635	25,998	24,469	22,141
Retention rate (%)	57.6	58.7	59.4	61.2	60.1	57.6	55.8	57.4	58.3	59.1	56.6

Continued

Service / Career stage	Fiscal year 1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Late career											
Total eligible	**31,529**	**32,317**	**32,750**	**34,471**	**34,164**	**33,231**	**33,593**	**34,867**	**35,787**	**36,713**	**36,677**
Number reenlisted	27,420	28,250	28,940	30,908	29,216	28,766	27,701	27,945	28,661	30,439	29,987
Retention rate (%)	87.0	87.4	88.4	89.7	85.5	86.6	82.5	80.1	80.1	82.9	81.8
Marine Corps											
All non-retirement											
Total eligible	**53,753**	**45,376**	**44,651**	**49,444**	**56,370**	**51,169**	**46,997**	**47,243**	**51,572**	**50,986**	**48,912**
Number reenlisted	20,732	18,638	22,069	19,522	20,038	17,382	17,295	19,220	21,893	20,888	18,802
Retention rate (%)	38.6	41.1	49.4	39.5	35.5	34.0	36.8	40.7	42.5	41.0	38.4
Early career											
Total eligible	**31,406**	**24,692**	**23,244**	**23,596**	**27,882**	**24,553**	**24,918**	**23,885**	**26,689**	**28,262**	**28,069**
Number reenlisted	6,670	5,429	7,565	4,162	4,816	3,922	4,945	5,241	5,695	6,074	6,060
Retention rate (%)	21.2	22.0	32.5	17.6	17.3	16.0	19.8	21.9	21.3	21.5	21.6
Mid-career											
Total eligible	**14,285**	**12,844**	**12,893**	**16,888**	**19,365**	**17,810**	**13,220**	**13,134**	**12,671**	**11,349**	**12,163**
Number reenlisted	7,593	6,829	7,431	8,101	8,627	7,407	5,821	5,925	6,365	5,603	5,864
Retention rate (%)	53.2	53.2	57.6	48.0	44.5	41.6	44.0	45.1	50.2	49.4	48.2
Late career											
Total eligible	**8,062**	**7,840**	**8,514**	**8,960**	**9,123**	**8,806**	**8,859**	**10,224**	**12,212**	**11,375**	**8,680**
Number reenlisted	6,469	6,380	7,073	7,259	6,595	6,053	6,529	8,054	9,833	9,211	6,878
Retention rate (%)	80.2	81.4	83.1	81.0	72.3	68.7	73.7	78.8	80.5	81.0	79.2
Air Force											
All non-retirement											
Total eligible	**117,579**	**94,092**	**112,244**	**103,383**	**98,294**	**86,089**	**77,475**	**82,160**	**75,818**	**71,867**	**69,493**
Number reenlisted	72,989	59,310	69,904	66,866	57,791	52,072	48,269	46,627	48,468	44,851	42,304
Retention rate (%)	62.1	63.0	62.3	64.7	58.8	60.5	62.3	56.8	63.9	62.4	60.9
Early career											
Total eligible	**47,539**	**40,548**	**46,279**	**32,980**	**26,754**	**22,470**	**17,954**	**17,321**	**21,247**	**20,351**	**20,979**
Number reenlisted	21,463	18,863	21,129	14,290	10,313	8,905	7,151	7,186	8,407	7,631	7,720
Retention rate (%)	45.1	46.5	45.7	43.3	38.5	39.6	39.8	41.5	39.6	37.5	36.8
Mid-career											
Total eligible	**40,838**	**29,916**	**39,409**	**40,640**	**39,103**	**33,040**	**33,263**	**33,203**	**29,215**	**25,313**	**22,533**
Number reenlisted	25,680	19,202	25,181	26,148	21,628	20,956	21,573	19,377	18,266	14,482	12,465
Retention rate (%)	62.9	64.2	63.9	64.3	55.3	63.4	64.9	58.4	62.5	57.2	55.3

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Service / Career stage	Fiscal year 1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Late career											
Total eligible	**29,202**	**23,628**	**26,556**	**29,763**	**32,437**	**30,579**	**26,258**	**31,636**	**25,356**	**26,203**	**25,981**
Number reenlisted	25,846	21,245	23,594	26,428	25,850	22,211	19,545	20,064	21,795	22,738	22,119
Retention rate (%)	88.5	89.9	88.8	88.8	79.7	72.6	74.4	63.4	86.0	86.8	85.1

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Table 13: Continuation Rates Among Non-retirement Eligible Commissioned and Warrant Officers (Combined), by Service and Career Stage, Fiscal Years 1988-98

	Fiscal year										
Service Career stage	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Army											
All non-retirement											
Total officers	**91,766**	**90,019**	**90,191**	**87,715**	**85,755**	**79,040**	**73,950**	**71,349**	**69,481**	**67,057**	**65,985**
Number continuing	85,488	84,434	83,306	82,943	76,259	70,674	67,792	66,047	63,992	62,004	61,659
Continuation rate (%)	93.2	93.8	92.4	94.6	88.9	89.4	91.7	92.6	92.1	92.5	93.4
Early career											
Total officers	**32,592**	**31,463**	**31,581**	**29,536**	**27,682**	**25,219**	**24,118**	**22,579**	**21,605**	**20,950**	**20,535**
Number continuing	29,446	28,942	27,938	27,043	23,986	22,631	21,845	20,870	19,797	19,064	18,664
Continuation rate (%)	90.3	92.0	88.5	91.6	86.6	89.7	90.6	92.4	91.6	91.0	90.9
Mid-career											
Total officers	**40,139**	**40,079**	**40,341**	**39,910**	**39,957**	**36,321**	**32,923**	**32,585**	**32,569**	**31,919**	**31,581**
Number continuing	37,341	37,302	37,372	37,859	34,855	31,351	29,980	29,933	30,034	29,661	29,332
Continuation rate (%)	93.0	93.1	92.6	94.9	87.2	86.3	91.1	91.9	92.2	92.9	92.9
Late career											
Total officers	**19,035**	**18,477**	**18,269**	**18,269**	**18,116**	**17,500**	**16,909**	**16,185**	**15,307**	**14,188**	**13,869**
Number continuing	18,701	18,190	17,996	18,041	17,418	16,692	15,967	15,244	14,161	13,279	13,663
Continuation rate (%)	98.2	98.4	98.5	98.8	96.1	95.4	94.4	94.2	92.5	93.6	98.5
Navy											
All non-retirement											
Total officers	**58,534**	**57,259**	**56,506**	**58,234**	**57,821**	**56,389**	**53,993**	**50,448**	**48,255**	**46,698**	**45,185**
Number continuing	54,657	53,119	52,246	54,168	53,436	51,979	48,139	45,870	44,721	43,244	41,833
Continuation rate (%)	93.4	92.8	92.5	93.0	92.4	92.2	89.2	90.9	92.7	92.6	92.6
Early career											
Total officers	**21,936**	**20,883**	**20,595**	**21,915**	**20,853**	**19,660**	**17,795**	**15,803**	**14,477**	**13,684**	**13,118**
Number continuing	20,374	19,319	18,939	20,215	19,178	18,032	16,128	14,601	13,719	12,930	12,383
Continuation rate (%)	92.9	92.5	92.0	92.2	92.0	91.7	90.6	92.4	94.8	94.5	94.4
Mid-career											
Total officers	**24,440**	**24,769**	**24,449**	**24,842**	**25,157**	**24,879**	**24,502**	**23,973**	**23,056**	**22,631**	**21,818**
Number continuing	22,251	22,346	21,986	22,629	22,596	22,329	21,769	21,150	20,902	20,413	19,393
Continuation rate (%)	91.0	90.2	89.9	91.1	89.8	89.8	88.8	88.2	90.7	90.2	88.9

Continued

Service / Career stage	Fiscal year 1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Late career											
Total officers	**12,158**	**11,607**	**11,462**	**11,477**	**11,811**	**11,850**	**11,696**	**10,672**	**10,722**	**10,383**	**10,249**
Number continuing	12,032	11,454	11,321	11,324	11,662	11,618	10,242	10,119	10,100	9,901	10,057
Continuation rate (%)	99.0	98.7	98.8	98.7	98.7	98.0	87.6	94.8	94.2	95.4	98.1
Marine Corps											
All non-retirement											
Total officers	**17,345**	**17,046**	**17,009**	**16,672**	**16,407**	**16,033**	**15,298**	**14,574**	**14,233**	**14,309**	**14,226**
Number continuing	16,190	15,796	15,795	15,623	15,163	14,737	13,979	13,637	13,271	13,338	13,380
Continuation rate (%)	93.3	92.7	92.9	93.7	92.4	91.9	91.4	93.6	93.2	93.2	94.1
Early career											
Total officers	**6,075**	**5,661**	**5,770**	**5,785**	**5,640**	**5,582**	**5,067**	**4,869**	**4,829**	**4,995**	**4,889**
Number continuing	5,549	5,112	5,238	5,354	5,113	5,088	4,675	4,453	4,442	4,698	4,628
Continuation rate (%)	91.3	90.3	90.8	92.5	90.7	91.2	92.3	91.5	92.0	94.1	94.7
Mid-career											
Total officers	**7,546**	**7,719**	**7,475**	**6,951**	**6,735**	**6,462**	**6,386**	**6,133**	**6,116**	**6,166**	**6,280**
Number continuing	6,948	7,064	6,850	6,393	6,103	5,796	5,589	5,643	5,584	5,537	5,728
Continuation rate (%)	92.1	91.5	91.6	92.0	90.6	89.7	87.5	92.0	91.3	89.8	91.2
Late career											
Total officers	**3,724**	**3,666**	**3,764**	**3,936**	**4,032**	**3,989**	**3,845**	**3,572**	**3,288**	**3,148**	**3,057**
Number continuing	3,693	3,620	3,707	3,876	3,947	3,853	3,715	3,541	3,245	3,103	3,024
Continuation rate (%)	99.2	98.7	98.5	98.5	97.9	96.6	96.6	99.1	98.7	98.6	98.9
Air Force											
All non-retirement											
Total officers	**90,417**	**88,288**	**87,234**	**83,090**	**80,326**	**74,924**	**69,606**	**68,020**	**65,633**	**63,814**	**61,911**
Number continuing	85,617	83,581	81,982	78,636	73,769	68,081	66,081	63,388	61,646	59,732	57,649
Continuation rate (%)	94.7	94.7	94.0	94.6	91.8	90.9	94.9	93.2	93.9	93.6	93.1
Early career											
Total officers	**30,974**	**29,568**	**28,914**	**25,967**	**24,516**	**22,968**	**21,408**	**19,889**	**19,853**	**19,389**	**18,730**
Number continuing	29,025	27,896	26,939	24,327	22,839	21,509	20,444	19,070	18,797	18,231	17,658
Continuation rate (%)	93.7	94.3	93.2	93.7	93.2	93.6	95.5	95.9	94.7	94.0	94.3
Mid-career											
Total officers	**40,011**	**39,948**	**40,285**	**39,926**	**38,570**	**35,340**	**31,666**	**32,707**	**31,748**	**31,067**	**30,188**
Number continuing	37,333	37,081	37,166	37,219	34,242	30,486	30,260	30,325	29,728	28,868	27,645
Continuation rate (%)	93.3	92.8	92.3	93.2	88.8	86.3	95.6	92.7	93.6	92.9	91.6

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Service / Career stage	Fiscal year 1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Late career											
Total officers	**19,432**	**18,772**	**18,035**	**17,197**	**17,240**	**16,616**	**16,532**	**15,424**	**14,032**	**13,358**	**12,993**
Number continuing	19,259	18,604	17,877	17,090	16,688	16,086	15,377	13,993	13,121	12,633	12,346
Continuation rate (%)	99.1	99.1	99.1	99.4	96.8	96.8	93.0	90.7	93.5	94.6	95.0

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Analyses of Enlisted Retention and Officer Continuation Rates, by Occupational Specialty

This appendix shows the results of our retention rate and continuation rate analyses by occupational specialty.[1] Table 14 lists the one- and two-digit occupational coding scheme in the DOD Occupational Conversion Index. There are 69 two-digit enlisted occupational groups grouped under 9 one-digit occupational areas and 64 two-digit officer occupational groups grouped under 7 one-digit occupational areas.[2]

Tables 15 through 19 contain the two-digit occupational groups that showed a 10-percent or more relative decrease in enlisted retention rates. Table 15 shows the changes in retention rates among occupational groups of enlisted personnel with less than 20 years of service, while tables 16, 17, and 18 show the changes in retention rates among occupational groups among enlisted personnel in their early careers (1-4 years of service), mid-careers (5-10 years of service), and late careers (11-19 years of service), respectively. Tables 15 through 18 include only those occupational groups with 100 or more individuals serving in every comparison year.[3] Table 19 shows the changes in enlisted retention rates among occupational groups with fewer than 100 individuals in any one single analysis year. Fiscal years in which an occupational group had no data were excluded from the calculations for table 19.

Tables 20 through 24 contain the two-digit occupational groups that showed a 3-percent or more relative decrease in officer continuation rates. Table 20 shows the changes in continuation rates among occupational groups of officers with less than 20 years of service, while tables 21, 22, and 23 show the changes in continuation rates among occupational groups of officers in their early careers (1-5 years of service), mid-careers (6-14 years of service), and late careers (15-19 years of service), respectively. Tables 21 through 23 include only those occupational groups with 100 or more officers serving in every comparison year.[4] Table 24 shows the changes in officer continuation rates among occupational groups with fewer than 100 officers in any one single analysis year. Fiscal years in which an

[1] The coding of occupational specialties for Navy officers changed in 1989 rendering previous years incomparable. Thus, 1988 was excluded from our analysis of Navy officer occupational specialties.

[2] General officers and nonoccupationally qualified enlisted personnel and officers were excluded from our analysis.

[3] Fiscal years 1988-90 and 1996-98.

[4] Fiscal years 1988-90 and 1996-98.

occupational group had no data were excluded from the calculations for table 24.

For the presentation of the results, we narrowed the list of all occupational groups to enlisted occupational groups with a 10-percent or more decrease in enlisted retention rates and occupational groups with a 3-percent or more decrease in officer continuation rates. While there were many other groups that showed declines in retention and continuation rates, these two cut-off points were based on a rank ordering of rate changes that roughly represent the lowest quartile of the distribution.

Tables 16 through 18 should not to be viewed as breakdowns of table 15, nor should tables 21 though 23 be viewed as breakdowns of table 20. Retention and continuation analyses in the aggregate and by career stage for occupational groups were conducted separately. Focusing the career stage analyses solely on occupational groups with reductions in the aggregate would have excluded occupational groups with substantial changes among specific career stages but without changes in aggregate rates that met the 10-percent threshold. For example, table 15 shows that no occupational groups within the Army's infantry occupational area had a 10-percent or greater change in enlisted retention rates when comparing the pre- and post-drawdown periods. However, tables 16 and 17 show two occupational groups within the Army's infantry occupational area–infantry and artillery/gunnery, rockets, and missiles repairers–among early and mid-career enlisted soldiers. The latter would not have been found had we focused the analysis of career stages only on groups with substantial changes in retention rates among all enlisted personnel with less than 20 years of service.

Tables 25 and 26 present percentage changes in continuation rates by specific years of service for mid- and late career fixed-wing fighter/bomber pilots and helicopter pilots, respectively. These tables complement the analysis of "other" fixed-wing pilots we presented in the text of our report.

Table 14: Occupational Areas and Occupational Groups As Outlined in DMDC Occupational Coding Scheme

Enlisted	Officers
Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)	**Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)**
Infantry, gun crews and seamanship specialists	**General officers and executives, not elsewhere classified**
Infantry	General and flag officers
Armor and amphibious	Executives, not elsewhere classified
Combat engineering	**Tactical operations officers**
Artillery/gunnery, rockets, and missiles	Fixed-wing fighter and bomber pilots
Air crew	Other fixed-wing pilots
Seamanship	Helicopter pilots
Installation security	Aircraft crews
Electronic equipment repairers	Ground and naval arms
Radio/radar	Missiles
Fire control electronic systems (non-missile)	Operations staff
Missile guidance, control and checkout	Civilian pilots
Sonar equipment	**Intelligence officers**
Nuclear weapons equipment	Intelligence, general
ADP computers	Communications intelligence
Teletype and cryptographic equipment	Counterintelligence
Other electronic equipment	**Engineering and maintenance officers**
Communications and intelligence specialists	Construction and utilities
Radio and radio code	Electrical/electronic
Sonar	Communications and radar
Radar and air traffic control	Aviation maintenance and allied
Signal intelligence/electronic warfare	Ordnance
Intelligence	Missile maintenance
Combat operations control	Ship construction and maintenance
Communications center operations	Ship machinery
Health care specialists	Safety
Medical care	Chemical
Ancillary medical support	Automotive and allied
Biomedical sciences and allied health	Surveying and mapping
Dental care	Other

Continued

Enlisted	Officers
Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)	**Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)**
Medical administration and logistics	**Scientists and professionals**
Other technical and allied specialists	Physical scientists
Photography	Meteorologists
Mapping, surveying, drafting, and illustrating	Biological scientists
Weather	Social scientists
Ordnance disposal and diving	Psychologists
Musicians	Legal
Technical specialists, not elsewhere classified	Chaplains
Functional support and administration	Mathematicians and statisticians
Personnel	Educators and instructors
Administration	Research and development coordinators
Clerical/personnel	Community activities officers
Data processing	Scientists and professionals, not elsewhere classified
Accounting, finance, and disbursing	**Health care officers**
Other functional support	Physicians
Religious, morale, and welfare	Dentists
Information and education	Nurses
Electrical/mechanical equipment repairers	Veterinarians
Automotive	Biomedical sciences and allied health officers
Aircraft and aircraft related	Health services administration officers
Wire communications	**Administrators**
Missile mechanical and electrical	Administrators, general
Armament and munitions	Training administrators
Shipboard propulsion	Manpower and personnel
Power generating equipment	Comptrollers and fiscal
Precision equipment	Data processing
Other mechanical and electronic equipment	Pictorial
Craftsworkers	Information
Metalworking	Police
Construction	Inspection
Utilities	

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Enlisted	Officers
Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)	**Occupational Area (one-digit MOS) Occupational Group (two-digit MOS)**
Lithography	Morale and welfare
Industrial gas and fuel production	**Supply, procurement and allied officers**
Fabric, leather and rubber	Logistics, general
Other craftsworkers, not elsewhere classified	Supply
Service and supply handlers	Transportation
Food service	Procurement and production
Motor transport	Food Service
Material receipt, storage, and issue	Exchange and commissary
Law enforcement	Other
Personal service	**Non-occupational**
Auxiliary labor	Patients
Forward area equipment support	Students
Other services, not elsewhere classified	Other
Non-occupational	
Patients and prisoners	
Officer candidates and students	
Undesignated occupations	
Not occupationally qualified	

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Table 15: Enlisted Personnel Occupational Groups With Retention Rate Decreases 10 Percent or More

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army (N=44)	**Electronic equipment repairers**	**Infantry, guncrews, and seamanship specialists**
	1. Other electronic equipment (-15)	1. Armor and amphibious (-11)
	Communications and intelligence specialists	**Electronic equipment repairers**
	2. Intelligence (-16)	2. Other electronic equipment (-14)
	3. Communications center operations (-13)	3. Missile guidance, control and checkout (-11)
	Functional support and administration	**Communications and intelligence specialists**
	4. Data processing (-10)	4. Signal intelligence/electroinc warfare (-23)
	Service and supply handlers	5. Communication center operations (-16)
	5. Forward area equipment support (-12)	6. Combat operations control (-12)
		7. Intelligence (-12)
		Health care specialists
		8. Ancillary medical support (-11)
		9. Dental care (-10)
		Other technical and allied specialists
		10. Ordnance disposal and diving (-11)
		11. Musicians (-14)
		Functional support and administration
		12. Data processing (-19)
		Electrical/mechanical equipment repairers
		13. Wire communications (-13)
		Craftsworkers
		14. Metalworking (-15)
		Service and supply handlers
		15. Forward area equipment support (-15)
Navy (N=49)	**Infantry, gun crews, and seamanship specialists**	**Infantry, gun crews, and seamanship specialists**
	1. Air crew (-20)	1. Infantry (-10)
	2. Infantry (-12)	**Communications and intelligence**
	Craftsworkers	2. Communication center operations (-13)
	3. Industrial gas and fuel production (-13)	3. Radio and radio code (-11)
	Functional support and administration	4. Aircraft and aircraft related (-10)
	4. Data processing (-11)	F**unctional support and administration**
		5. Data processing (-19)

Continued

Percent change

	1996-98 compared with 1988-90	1998 compared with 1996-97
		Electrical/mechanical equipment repairers
		6. Precision equipment (-25)
Air Force (N=47)	**Infantry, gun crews, and seamanship specialists**	**Infantry, gun crews, and seamanship specialists**
	1. Air crew (-14)	1. Infantry (-12)
	Communications and intelligence specialists	**Communication and intelligence specialists**
	2. Intelligence (-11)	2. Intelligence (-19)
	Other technical and allied specialists	3. Radar and air traffic control (-15)
	3. Technical specialists (-12)	4. Signal intelligence/electronic warfare (-15)
	Functional support and administration	5. Radio and radio code (-12)
	4. Clerical/personnel (-15)	**Functional support and administration**
	5. Data processing (-15)	7. Data processing (-11)
	6. Information and education (-11)	**Electrical/mechanical equipment repairers**
	Electrical/mechanical equipment repairers	8. Automotive (-11)
	7. Power generating equipment (-16)	**Service and supply handlers**
	Service and supply handlers	9. Law enforcement (-15)
	8. Law enforcement (-18)	
Marine Corps (N=29)	**Infantry, gun crews, and seamanship specialislts**	**Infantry, gun crews, and seamanship specialists**
	1. Infantry (-10)	1. Armor and amphibious (-18)
	2. Combat engineering (-10)	**Electronic equipment repairers**
	Communications and intelligence specialists	2. Missile guidance, control and checkout (-13)
	3. Radar and air traffic control (-16)	**Communications and intelligence specialists**
	4. Intelligence(-14)	3. Signal intelligence/electronic warfare (-20)
	Other technical and allied specialists	4. Aircraft and aircraft related (-11)
	5. Technical specialists (-14)	**Functional support and administration**
	Functional support and administration	5. Accounting, finance, and disbursing (-14)
	6. Accounting, finance, and distribution (-12)	6. Clerical/personnel (-11)
	Craftsworkers	**Electrical/mechanical equipment repairers**
	7. Utilities (-18)	7. Wire communications (-12)
	8. Construction (-15)	8. Armament and munitions (-11)
	Service and supply handlers	9. Automotive (-10)
	9. Motor transport (-13)	**Service and supply handlers**
		10. Food service (-12)

Continued from Previous Page

N = the total number of occupational groups for the given service.

Table 16: Enlisted Personnel Occupational Groups With Retention Rate Decreases of 10 Percent or More, Early Career

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Infantry, gun crews, and seamanship specialists**	**Communications and intelligence specialists**
	1. Artillery/gunnery, rockets, and missiles (-11)	1. Intelligence (-14)
	Communications and intelligence specialists	**Functional Support and administration**
	2. Intelligence (-17)	2. Personnel (-14)
		3. Administration (-11)
Navy	**Electrical/mechanical equipment repair**	**Electronic equipment repairers**
	1. Armament and munitions (-19)	1. Radio/radar (-13)
	Craftsworkers	**Communications and intelligence specialists**
	2. Other craftsworkers (-14)	2. Radio and radio code (-11)
		Electrical/mechanical equipment repairers
		3. Armament and munitions (-13)
		4. Aircraft and aircraft related (-11)
		Service and supply handlers
		5. Food service (-12)
Air Force	**Infantry, gun crews, and seamanship specialists**	**Electronic equipment repairers**
	1. Installation security (-35)	1. Radio/radar (-16)
	Electronic equipment repairers	**Electrical/mechanical equipment repairers**
	2. Other electronic equipment (-13)	2. Aircraft and aircraft related (-10)
	Health care specialists	**Functional support and administration**
	3. Medical care (-18)	3. Data processing (-12)
	4. Medical administration and logistics (-13)	
	Functional support and administration	
	5. Data processing (-21)	
	6. Other functional support (-14)	
	7. Administration (-12)	
	Electrical/mechanical equipment repairers	
	8. Armament and munitions (-24)	
	9. Aircraft and aircraft related (-12)	
	Craftsworkers	
	10. Utilities (-19)	
	Service and supply handlers	
	11. Law enforcement (-38)	
	12. Food service (-12)	

Continued

Percent change

	1996-98 compared with 1988-90	1998 compared with 1996-97
Marine Corps	**Infantry, gun crews, and seamanship specialists**	**Supply and service handlers**
	1. Infantry (-27)	1. Food service (-16)
	2. Combat engineering (-23)	
	3. Artillery/gunnery, rockets, and missiles (-18)	
	Communications and intelligence specialists	
	4. Radio and radio code (-19)	
	Functional support and administration	
	5. Other functional support (-16)	
	Electrical/mechanical equipment repairers	
	6. Armament and munitions (-22)	
	7. Automotive (-16)	
	Service and supply handlers	
	8. Materiel receipt, storage (-18)	
	9. Motor transport (-16)	

Continued from Previous Page

Table 17: Enlisted Personnel Occupational Groups With Retention Rate Decreases of 10 Percent or More, Mid-career

Percent change		
	1996-98 Compared with 1988-90	**1998 Compared with 1996-97**
Army	**Infantry, gun crews, and seamanship specialists**	**Communications and intelligence specialists**
	1. Artillery/gunnery, rockets, and missiles (-17)	1. Signal intelligence/electronic warfare (-23)
	2. Infantry (-15)	2. Intelligence (-12)
	Electronic equipment repairers	**Health care specialists**
	3. Radio/radar (-23)	3. Ancillary medical care (-14)
	Communications and intelligence specialists	4. Dental Care (-12)
	4. Intelligence (-19)	F**unctional support and administration**
	5. Communications center operations (-19)	5. Data processing (-22)
	6. Combat operations control (-19)	**Electrical/mechanical equipment repairers**
	7. Signal intelligence/electronic warfare (-14)	6. Wire communications (-19)
	Health care specialists	
	8. Ancillary medical support (-24)	
	9. Medical administration and logistics (-15)	
	10. Biomedical sciences and allied health (-15)	
	11. Medical care (-11)	
	Functional support and administration	
	12. Data processing (-22)	
	13. Other functional support (-12)	
	14. Administration (-11)	
	Electrical/mechanical equipment repairers	
	15. Aircraft and aircraft related (-25)	
	16. Armament and munitions (-20)	
	17. Wire communications (-20)	
	18. Power generating equipment (-15)	
	19. Automotive (-11)	
	Craftsworkers	
	20. Construction (-17)	
	Service and supply handlers	
	21. Law enforcement (-32)	
	22. Materiel receipt, storage, and issue (-13)	
Navy	**Infantry, gun crews, and seamanship specialists**	**Electronic equipment repairers**
	1. Air crew (-12)	1. Radio/radar (-16)
	Communications and intelligence specialists	2. Missile guidance, control and checkout(-16)

Continued

Percent change

	1996-98 Compared with 1988-90	1998 Compared with 1996-97
	2. Sonar (-24)	3. Other electronic equipment (-13)
	Electrical/mechanical equipment repairers	4. Fire control electronic equipment (-12)
	3. Power generating equipment (-10)	5. Sonar equipment (-10)
		Communications and intelligence specialists
		6. Signal intelligence/electronic wafare (-15)
		7. Communications center operations (-13)
		Functional support and administration
		8. Accounting, finance (-17)
		Electrical/mechanical equipment repairers
		9. Wire communications (-15)
		10. Power generating equipment (-14)
		Service and Supply Handlers
		11. Forward area equipment support (-10)
Air Force	**Infantry, gun crews, and seamanship specialists**	**Electronic equipment repairers**
	1. Air crew (-13)	1. Other electronic equipment (-22)
	Communications and intelligence specialists	2. ADP computers (-19)
	2. Radio and radio code (-21)	3. Radio/radar (-16)
	3. Combat operations control (-14)	**Communications and intelligence specialists**
	4. Radar and air traffic control (-11)	4. Radar and air traffic control (-30)
	5. Signal intelligence/electronic warfare(-10)	5. Radio and radio code (-20)
	Other technical and allied specialists	6. Signal intelligence/electronic warfare (-17)
	6. Technical specialists (-22)	**Health care specialists**
	Functional support and administration	7. Ancillary medical support (-18)
	7. Data processing (-22)	8. Medical administration and logistics (-15)
	8. Administration (-11)	**Other technical and allied specialists**
	Electrical/mechanical equipment repairers	9. Technical specialists (-14)
	9. Armament and munitions (-14)	**Functional support and administration**
	Craftsworkers	10. Data processing (-16)
	10. Utilities (-10)	
	Service and supply handlers	
	11. Law enforcement (-15)	
Marine Corps	**Infantry, gun crews, and seamanship specialists**	
	1. Infantry (-11)	
	Electronic equipment repairers	
	2. Radio/radar (-29)	

Continued from Previous Page

Percent change

1996-98 Compared with 1988-90	1998 Compared with 1996-97
Communications and intelligence specialists	
3. Radio and radio code (-18)	
Electrical/mechanical equipment repairers	
4. Aircraft and aircraft related (-15)	
5. Armament and munitions (-12)	

Continued from Previous Page

Table 18: Enlisted Personnel Occupational Groups With Retention Rate Decreases of 10 Percent or More, Late Career

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Electronic equipment repairers**	**Communications and intelligence specialists**
	1. Radio/radar (-16)	1. Signal intelligence /electronic warfare (-14)
	Communications and intelligence specialists	2. Communications center operations (-13)
	2. Signal intelligence/electronic warfare (-11)	3. Intelligence (-10)
	3. Intelligence (-10)	**Functional support and administration**
	Health care specialists	4. Administration (-10)
	4. Biomedical sciences and allied health (-11)	**Electrical/mechanical equipment repairers**
	Electrical/mechanical equipment repairers	5. Power generating equipment (-13)
	5. Power generating equipment (-18)	**Service and supply handlers**
	6. Armament and munitions (-11)	6. Law enforcement (-16)
	Functional support and administration	
	7. Accounting, finance, and disbursing (-12)	
	Service and supply handlers	
	8. Law enforcement (-14)	
Navy	**Electronic equipment repairers**	**Functional support and administration**
	1. Sonar equipment (-10)	1. Data processing (-11)
	Communications and intelligence specialists	
	2. Sonar (-11)	
	Functional support and administration	
	3. Data processing (-11)	
	Electrical/mechanical equipment repairers	
	4. Power generating equipment (-15)	
	5. Precision equipment (-13)	
	6. Shipboard propulsion (-10)	
	Craftsworkers	
	7. Metalworking (-10)	
Air Force	**Service Supply and Handlers**	
	1. Law enforcement (-10)	
Marine Corps		**Electrical/mechanical equipment repairers**
		1. Armament and munitions (-10)

Table 19: Enlisted Personnel Occupational Groups With Fewer Than 100 Individuals

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Electronic equipment repairers**	**Functional support and administration**
	1. ADP computers (-23)	1. Information and education (-24)
	2. Teletype and cryptographic equipment (-11)	**Electrical/mechanical equipment repairers**
	Other technical and allied specialists	2. Missile mechanical and electrical (-14)
	3. Weather (-19)	
	Electrical/mechanical equipment repairers	
	4. Shipboard propulsion (-19)	
	Craftsworkers	
	5. Fabric, leather, and rubber (-12)	
Navy	**Craftsworkers**	**Craftsworkers**
	6. Lithography (-14)	7. Lithography (-15)
Air Force	**Infantry, gun crews, and seamanship specialists**	
	1. Seamanship (-43)[a]	
	Electrical/mechanical equipment repairers	
	2. Shipboard Propulsion (-52)[a]	
Marine Corps	**Infantry, gun crews, and seamanship specialists**	**Electronic equipment repairers**
	1. Air crew (-19)	1. Teletype and cryptographic equipment (-34)
	Electronic equipment repairers	2. ADP computers (-22)
	2. Other electronic equipment (-18)	3. Other electronic equipment (-19)
	Other technical and allied specialists	**Other technical and allied specialists**
	3. Weather (-24)	4. Photography (-43)
	4. Photography (-24)	5. Mapping, surveying, drafting, and illustrating (-20)
	5. Mapping, surveying, drafting, and illustrating (-13)	**Craftsworkers**
	Electrical/mechanical equipment repairers	6. Fabric, leather, and rubber (-41)
	6. Precision equipment (-11)	**Service and supply handlers**
	Craftsworkers	7. Personal service (-10)
	7. Fabric, leather, and rubber (-18)	
	8. Industrial gas and fuel production (-16)	
	9. Metalworking (-13)	
	10. Lithography (-12)	
	Service and supply handlers	
	11. Personal service (-15)	

[a] There is no data for one or more years of analysis. Mean retention rate includes only years where data is available.

Table 20: Officer Occupational Groups With Continuation Rate Decreases 3 Percent or More

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army (N=41)	**Engineering and maintenance officers**	
	1. Automotive and allied (-3)	
	Health care officers	
	2. Nurses (-5)	
	3. Dentists (-3)	
	4. Health services administration officers (-3)	
	Administrators	
	5. Comptrollers and fiscal (-3)	
	6. Data processing (-3)	
Navy (N=40)	**Engineering and maintenance officers**	**Engineering and maintenance officers**
	1. Ordnance (-3)	1. Missile maintenance (-4)
	2. Electrical/electronic (-3)	2. Electrical/electronic (-3)
	Supply, procurement, and allied officers	**Health care officers**
	3. Other (-4)[a]	3. Biomedical sciences and allied health (-3)
		Supply, procurement, and allied officers
		4. Supply (-4)
		5. Other (-3)
Air Force (N=37)	**Tactical operations officers**	**Tactical operations officers**
	1. Helicopter pilots (-3)	1. Other fixed-wing pilots (-4)
	Intelligence officers	2. Fixed-wing fighter and bomber pilots (-3)
	2. Counterintelligence (-5)	**Scientists and professionals**
	Engineering and maintenance officers	3. Meteorologists (-3)
	3. Electrical/electronic (-5)	4. Educators and instructors (-3)
	4. Missile maintenance (-3)	
	Scientists and professionals	
	5. Psychologists (-5)	
	Administrators	
	6. Comptrollers and fiscal (-3)	
Marine Corps (N=32)	**Tactical operations officers**	**Administrators**
	1. Aircraft crew (-4)	Police (-3)

Continued

Percent change

1996-98 compared with 1988-90	1998 compared with 1996-97
Intelligence officers	
2. Intelligence, general (-4)	
Engineering and maintenance officers	
3. Electrical/electronic (-3)	
Supply, procurement, and allied officers	
4. Supply (-3)	

Continued from Previous Page

N = the total number of occupational groups for the given service.

[a] Includes printing and publications, housing , and other supply service officers.

Table 21: Officer Occupational Groups With Continuation Rate Decreases of 3 Percent or More, Early Career

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Intelligence officers**	**Intelligence officers**
	1. Intelligence, general (-3)	1. Intelligence, general (-5)
	Engineering and maintenance officers	**Engineering and maintenance officers**
	2. Ordnance (-4)	2. Ordnance (-3)
	Health care officers	**Health care officers**
	3. Nurses (-6)	3. Health services administration (-4)
	4. Health services administration (-4)	4. Veterinarians (-3)
	5. Veterinarians (-3)	
	A**dministrators**	
	6. Comptrollers and fiscal (-7)	
	Supply, procurement, and allied officers	
	7.Logistics (-9)	
Navy		**Engineering and maintenance officers**
		1. Construction and utilities (-3)
		Health care officers
		2. Dentists (-3)
		Administrators
		3. Administrators, general (-4)
Air Force		**Engineering and maintenance officers**
		1. Construction and utilities (-3)
		Scientists and professionals
		2. Meteorologists (-3)
		Health care officers
		3. Health services administration officers (-3)
		Administrators
		4. Police (-5)
		5. Comptrollers and fiscal (-4)
Marine Corps		

Table 22: Officer Occupational Groups With Continuation Rate Decreases of 3 Percent or More, Mid-Career

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Health care officers**	
	1. Nurses (-4)	
	2. Health service administration officers (-3)	
Navy	**Tactical operations officers**	**Tactical operations officers**
	1. Ground and naval arms (-3)	1. Ground and naval arms (-4)
	Health care officers	2. Helicopter pilots (-3)
	2. Dentists (-3)	**Engineering and maintenance officers**
	Supply, procurement, and allied officers	3. Aviation maintenance and allied officers (-3)
	3. Supply (-6)	**Health care officers**
	4. Other (-4)	4. Health service administrator (-3)
		Supply, procurement, and allied officers
		5. Supply (-5)
		6. Other (-3)
Air Force	**Intelligence officers**	**Tactical operations officers**
	1. Counterintelligence (-6)	1. Other fixed-wing pilots (-5)
	Engineering and maintenance officers	2. Fixed-wing fighter and bomber pilots (-5)
	2. Construction and utilities (-4)	**Intelligence officers**
	Scientists and professionals	3. Counterintelligence (-5)
	3. Physical scientists (-4)	**Administrators**
	Administrators	4. Comptrollers and fiscal (-4)
	4. Comptrollers and fiscal (-3)	5. Information (-3)
	5. Police (-3)	**Supply, procurement, and allied officers**
		6. Other (-3)
Marine Corps	**Tactical operations officers**	**Administrators**
	1. Ground and naval arms (-3)	1. Administrators, general (-5)
	Engineering and maintenance officers	**Supply, procurement, and allied officers**
	2. Communications and radar (-4)	2. Supply (-3)
	Scientists and professionals	
	3. Legal (-3)	
	Supply, procurement, and allied officers	
	4. Supply (-5)	

Table 23: Officer Occupational Groups With Continuation Rate Decreases of 3 Percent or More, Late Career

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Tactical operations officers**	
	1. Operations staff (-4)	
	2. Ground and naval arms (-4)	
	3.Helicopter pilots (-3)	
	In**telligence officers**	
	4. Intelligence, general (-3)	
	Engineering and maintenance officers	
	5. Ordnance (-4)	
	6. Communications and radar (-4)	
	Health care officers	
	7. Nurses (-8)	
	8. Health services administration officers (-5)	
	9. Physicians (-4)	
	Scientists and professionals	
	10. Chaplains (-5)	
	Administrators	
	11. Comptrollers and fiscal (-5)	
	12. Manpower and personnel (-3)	
	13. Police (-3)	
	Supply, procurement, and allied officers	
	14. Transportation (-4)	
	15. Supply (-3)	
Navy	**Tactical operations officers**	**Health care officers**
	1. Aircraft crew (-5)	1. Physicians (-3)
	2. Helicopter Pilot (-4)	
	3. Ground and naval arms (-4)	
	4. Fixed-wing fighter and bomber pilots (-4)	
	5. Other fixed-wing pilots (-3)	
	Intelligence officers	
	6. Intelligence, general (-7)	
	Engineering and maintenance officers	
	7. Construction and utilities (-3)	
	Health care officers	

Continued

Percent change

	1996-98 compared with 1988-90	1998 compared with 1996-97
	8. Nurses (-3)	
	Administrators	
	9. Administrators, general (-4)	
	S**upply, procurement, and allied officers**	
	10. Other (-3	
Air Force	**Tactical operations officers**	**Scientists and professionals**
	1. Operations staff (-4)	1. Meteorologists (-4)
	Intelligence officers	2. Physical scientists (-3)
	2. Intelligence, general (-4)	**Administrators**
	Engineering and maintenance officers	3. Police (-3)
	3. Electrical/electronic (-13)	
	4. Construction and utilities (-8)	
	5. Aviation maintenance and allied officers (-6)	
	Scientists and professionals	
	6. Meteorologists (-9)	
	7. Physical scientists (-7)	
	8. Chaplains (-6)	
	Health care officers	
	9. Nurses (-6)	
	10. Dentists (-4)	
	11. Biomedical sciences and allied health (-3)	
	Administrators	
	12. Comptrollers and fiscal (-8)	
	13. Manpower and personnel (-6)	
	14. Police (-4)	
	Supply, procurement, and allied officers	
	15. Procurement and production (-6)	
	16. Logistics, general (-5)	
Marine Corps		

Continued from Previous Page

Table 24: Officer Occupational Groups With Fewer Than 100 Individual

Percent change		
	1996-98 compared with 1988-90	**1998 compared with 1996-97**
Army	**Engineering and maintenance officers**	**Tactical operations officers**
	1. Ship machinery (-4)	1. Missiles (-4)
	2. Electrical/electronic (-3)	2. Scientists and professionals
	Scientists and professionals	
	3. Research and development (-10)	
	4. Physical scientists (-4)	
Navy	**Scientists and professionals**	**Administrators**
	1. Meteorologists (-5)	1. Pictorial (-12)
	Administrators	2. Morale and welfare (-7)
	2. Police (-9)	3. Police (-6)
	3. Comptrollers and fiscal (-9)	**Supply, procurement, and allied officers**
	4. Data processing (-5)	4. Exchange and commissary (-9)
	Supply, procurement and allied officers	
	5. Transportation (-13)	
	6. Exchange and commissary (-10)	
	7. Logistics, general (-6)	
	8. Food service (-4)	
Air Force	**Engineering and maintenance officers**	**Administrators**
	1. Ordnance (-7)	1. Training administrators (-11)
	2. Communications and radar (-3)	
	Health care officers	
	3. Veterinarians (-39)	
Marine Corps	**Engineering and maintenance officers**	**Intelligence officers**
	1. Missile maintenance (-7)	1. Counterintelligence (-3)
	2. Surveying and mapping (-6)	**Engineering and maintenance officers**
	3. Construction and utilities (-6)	2. Missile maintenance (-12)
	Intelligence officers	3. Surveying and mapping (-11)
	4. Counterintelligence (-7)	**Scientists and professionals**
	5. Communications intelligence (-4)	4. Meteorologists (-11)
	Administrators	**Administrators**
	6. Information (-6)	5. Information (-4)
	7. Pictorial (-4)	
	8. Data processing (-3)	

Continued

Percent change	
1996-98 compared with 1988-90	**1998 compared with 1996-97**
9. Training administrators (-3)	
Supply, procurement, and allied officers	
10. Other (-44)[a]	
11. Exchange and commissary (-3)	

Continued from Previous Page

[a] There is no data for one or more of the years of analysis. Mean retention rate includes only years where data is available.

Table 25: Percentage Changes in Fixed-wing Fighter and Bomber Pilot Continuation Rates

	1996-98 compared with 1988-90			1998 compared with 1996-97		
Years of service	Navy	Air Force	Marine Corps	Navy	Air Force	Marine Corps
6	1	0	2	2	0	1
7	21	13	37	-2	-1	-2
8	33	15	21	2	10	-4
9	2	0	-1	4	-17	5
10	-13	5	-9	1	-17	3
11	-10	8	-6	-6	-4	-2
12	-2	2	-10	2	3	2
13	13	-3	-9	-3	0	6
14	0	-7	-6	-2	-11	-5
15	-5	-4	-3	0	-5	-5
16	-3	-2	-2	4	1	3
17	-8	-2	0	0	1	-3
18	1	-1	0	-3	-1	-3
19	-1	0	-1	1	0	-2

Note: the Army maintains no fighters or bombers in its air fleet. Data for 1988 was excluded for the Navy.

Table 26: Percentage Change in Helicopter Pilot Continuation Rates

	1996-98 compared with 1988-90				1998 compared with 1996-97			
Years of service	Army	Navy	Air Force	Marine Corps	Army	Navy	Air Force	Marine Corps
6	13	1	1	9	2	0	-4	0
7	2	11	8	18	-3	1	2	4
8	0	8	2	-2	-3	3	1	4
9	-2	-11	-16	-4	-1	-7	-12	1
10	-2	-7	-6	-1	1	-5	-6	2
11	2	0	-3	1	4	-7	10	3
12	-2	-14	3	-6	2	-5	4	7
13	0	-2	-5	-4	0	-5	4	9
14	0	ND	-1	-3	-1	ND	-1	1
15	-2	0	-2	-1	3	0	-7	2
16	-3	-8	0	-1	6	12	3	-1
17	-4	ND	-4	0	8	ND	-3	2
18	-4	-3	0	0	8	6	0	0
19	-1	-1	0	0	3	0	0	1

ND = no data.

Note: Data for 1988 was excluded for the Navy.

Comments From the Department of Defense

ASSISTANT SECRETARY OF DEFENSE
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WASHINGTON, DC 20301-4000

FORCE MANAGEMENT POLICY

FEB 1 2000

Mr. Kwai-Cheung Chan
Director, Special Studies and Evaluations
National Security and International Affairs Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Chan:

This is the Department of Defenses (DoD) response to the General Accounting Office (GAO) draft report, "MILITARY PERSONNEL: Retention Rates Have Declined for Some Career and Occupational Groups," dated January 5, 2000 (GAO Code 713031/OSD Case 1857). The Department partially concurs with the report's recommendation.

Since August 1998 OSD has chaired a Retention Working Group providing Service retention personnel a forum in which to discuss retention challenges and potential solutions. Additionally, since April 1999 the Office of Military Personnel Policy (MPP) has presented a detailed monthly analysis to the Under Secretary of Defense for Personnel and Readiness. This brief details current execution, future projections, and historical trend analysis covering: accessions, attrition, enlisted retention, officer continuation and endstrength. This monthly assessment has been presented to the Secretary of Defense and the Secretaries of the Military Departments and has become a "guidepost" for internal Department decision making relating to personnel.

The Department recognizes there is no "one size fits all" solution to the complex challenges associated with retaining our valuable personnel. We will carefully review GAO's proposed methodology and, where appropriate, integrate it into ongoing systematic assessments. Technical corrections were provided directly to your staff.

The Department appreciates the opportunity to comment on the draft report.

Sincerely,

Alphonso Maldon, Jr.

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