

**UNITED STATES
AIR FORCE**

OCCUPATIONAL SURVEY REPORT



FLIGHT ENGINEER, PERFORMANCE QUALIFIED

AFSC 1A1X1C

OSSN: 2477

JUNE 2002

**OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
1550 5th STREET EAST
RANDOLPH AFB, TEXAS 78150-4449**

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PREFACE

This report presents the results of an Air Force Occupational Survey of the Flight Engineer, Performance Qualified career ladder (AFSC 1A1X1C). Authority for conducting an occupational survey is contained in AFI 36-2623. Copies of this report and pertinent computer printouts are distributed to the Air Force Career Field Manager, technical training school, all major using commands, and other interested operations and training officials.

Second Lieutenant Toni L. Agnew, Inventory Development Specialist, developed the survey instrument. Christine (Chris) G. Garcia, Occupational Analyst, analyzed the data and wrote the final report. Ms. Karen Tilghman provided computer-programming support and Ms. Dolores Navarro provided administrative support. Major Jose Caussade, Chief, Airman Analysis Section, reviewed and approved this report for release.

Additional copies of this report may be obtained by writing to AFOMS/OMYXI, 1550 5th Street East, Randolph AFB TX 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our website at <https://www.omsq.af.mil/>.

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**OCCUPATIONAL SURVEY REPORT (OSR)
FLIGHT ENGINEER, PERFORMANCE QUALIFIED
(AFSC 1A1X1C)**

EXECUTIVE SUMMARY

1. **Survey Coverage**: The Flight Engineer, Performance Qualified career ladder was surveyed to obtain current task data for use in evaluating current training programs. The data will also be used to support Specialty Knowledge Test (SKT) development. Surveys were sent to 1,166 Active Duty (AD), 863 Air Force Reserve Command (AFRC), and 384 Air National Guard (ANG) personnel. Survey results were based on 848 total members.
2. **Specialty Jobs**: One job was identified in the career ladder analysis. The job identified was the Flight Engineer Job.
3. **Career Ladder Progression**: Skill-level progression for members of this AFSC is not typical of most career ladders. Personnel at the 5- and 7-skill-levels perform many tasks in common, and both groups spend the vast majority of their relative job time performing general flight engineer activities. Although 7-skill-level members still spend a substantial amount of time on technical tasks, a slight shift toward supervisory functions is evident.
4. **Training Analysis**: In order to support the merger of the Flight Engineers, Helicopter (1A1X1B) and the Flight Engineers, Performance Qualified (1A1X1C), a comprehensive review of the major aircraft specific courses that Flight Engineers attend is under analysis. This data will be reported in an annex to this report upon completion.
5. **Job Satisfaction Analysis**: Job satisfaction for the Flight Engineer, Performance Qualified career ladder is good. The job satisfaction ratings for the three time-in-career field (TICF) groups improved or remained the same from the previous survey. The first-assignment group (1-48 mos TICF) had the higher job satisfaction ratings. Reenlistment intentions for the three TICF groups remain relatively low.
6. **Retention Dimensions**: Members in all three TICF groups agreed on several factors potentially influencing their decision to reenlist or separate. Top factors for reenlistment include retirement benefits, military lifestyle, pay and allowance, and job security. The common top factor agreed upon by the TICF groups influencing their decision to separate was pay and allowances.

INTRODUCTION

Air Force Occupational Measurement Squadron (AFOMS)

Occupational Analysis Program

Simply put, our mission is to provide occupational data for decision makers, allowing them to make informed personnel, training, and education decisions based not on opinion and conjecture, but on empirical, quantitative data.

Survey Development Process

An occupational survey begins with a job inventory (JI) -- a list of all the tasks performed by members of a given Air Force Specialty Code (AFSC) as part of their actual career field work (that is, additional duties and the like are not included.) We strive to ensure that every function career field members perform is included by working very closely with technical training personnel, the Air Staff, and operational subject-matter experts (SMEs) to produce a task list that is complete and understandable to the typical job incumbent filling out the survey. The SMEs also ensure the task list is written to the same level of specificity across duty areas and that each task is mutually exclusive, that it is not covered in the task list more than once.

In addition to this comprehensive task list, job inventories include a number of background questions that deal with demographic information, job satisfaction, equipment usage, and any other area that our customers may desire to focus on.

Furthermore, the JI is only one of the surveys that AFOMS produces. The JI task list is used in creating several other surveys that are important for developing and refining career field training programs and for developing career field promotion tests; these surveys and how their results are used will be described shortly.

Survey Administration

The sample of members who receive the JI primarily depends on the size of the career ladder. We typically survey 100% of all eligible members in career ladders numbering 3,000 members or less. For career ladders larger than 3,000 assigned members, we typically select a random sample of half of the eligible members. Return rates (the percentage of surveys we receive back from the field) generally run 70% or greater. All this combines to produce very large and very representative samples in almost every study we conduct, compared for example to the samples obtained by private commercial surveying and marketing firms, and this in turn leads to highly accurate information about the work and demographics of the career field.

When the number of tasks is large, responding to the JI can be somewhat time-consuming for the Air Force member, but it is a simple process. Respondents are asked to examine each task and indicate whether they do or do not perform that task in their current job. They are then asked to rate each task they marked on a scale of 1 to 9 based on how much relative time they spend performing that task in their present job.

Survey Analysis

Survey responses are processed using a set of computer programs called the Comprehensive Occupational Data Analysis Programs (CODAP). We are able to calculate some important basic information about each task from the information that respondents provide in the JI: the Percent Members Performing (PMP) and the Percent Time Spent (PTS). CODAP groups survey respondents according to their similarity of task performance, and our analysts study these groupings to identify distinct jobs. Further, we can provide PMP and PTS information for any subgroup. For example, we can easily determine the percent of E-5s or 3-skill-level or first-term airmen who perform each task, and estimate the average amount of job time they spend performing it. This is important because many of the applications of our data target particular subgroups within the career ladder.

Uses of Survey Data

Survey results are formally reported in an **Occupational Survey Report (OSR)** -- what you are currently reading -- but the OSR is by no means the only product of an occupational survey study. The OSR provides a high-level "snapshot" of an entire AFSC in a compact package, but it is not intended to provide the comprehensive information needed to support important decisions about a career field. That is the purpose of "data extracts", which are comprehensive, detailed sets of CODAP-generated reports designed for particular applications.

The Training Extract -- AFOMS survey data are essential to technical training professionals. The Training Extract provides information about what career ladder incumbents are actually doing in their jobs at each stage of their career, along with supporting information regarding when and how members should be trained to perform their jobs. The data found in the Training Extract regarding first-job, first-term, and 3-skill-level members are the *primary source of empirical information* available to support such decisions.

In addition to the JI, AFOMS produces two other surveys that directly support the training community. Depending on the size of the career ladder, a sample of at least 50 and frequently 100 or more 7-skill-level craftsmen is selected to complete a Training Emphasis (TE) survey. A similar-sized sample of other 7-skill-level craftsmen is selected to complete a Task Difficulty (TD) survey.

The TE survey, like the JI, contains the complete career ladder task list, and, like the JI, respondents are asked to rate tasks on a 0 to 9 scale. Unlike the JI, however, respondents are asked to rate tasks based on how much emphasis they believe should be placed on that task for entry-level structured training. A "0" indicates the respondent's belief that no structured training is required for that task, while

a "1" indicates the respondent's belief that very little emphasis be placed on providing structured training on that task. A rating of "9" indicates that it is essential to provide structured training on the task. Structured training is defined as resident technical schools; field training detachments, mobile training teams, formal on-the-job training (OJT), or any other organized training method. The responses of the entire sample of raters are averaged for each task resulting in a TE rating for each task.

The TD survey also contains the full task list and requests that respondents rate each task on a scale of 1 to 9 ("1" is low, "9" is high); but this time, respondents are asked to rate the amount of time needed to learn to perform that task satisfactorily. In other words, as the name implies, TD is an indicator of how difficult the task is to learn to do. The sample's *average* TD for each task in the inventory is standardized with a mean rating of 5.0 and a standard deviation of 1.0.

When used in conjunction with the PMP and PTS for first-enlistment members, average TE and TD ratings provide insight into the appropriate training requirements for new personnel in the career ladder. These four indices (PMP, PTS, TE, and TD) are used to compute a composite index, the Automated Training Indicator (ATI), for each task. The ATI expresses in a single number between 1 and 18 ("1" is low, "18" is high) the importance of including training for that task in the initial resident technical course. ATIs allow training developers to quickly focus attention on those tasks that are most likely to qualify for resident course consideration. Further information concerning TE and TD ratings and ATIs for the entire task list can be found in the Training Extract that accompanies this OSR.

The major users of Training Extract information are attendees at Utilization and Training Workshops (U&TWs). The U&TW is a summit of representative career ladder, training, and classification leaders whose purpose is to evaluate current training efficiency and effectiveness in order to propose and approve changes to the Specialty Training Standard (STS) or Course Training Standard (CTS), particularly with regard to 3-skill level training, and to address utilization issues. The AFSC's job description in Attachment 6 of AFMAN 36-2108, *Enlisted Classification*, is reviewed in light of the survey data and appropriately revised to reflect the jobs being performed by the career ladder members.

Part of the process of compiling the Training Extract involves the *STS matching* process, during which technical school personnel match JI tasks to STS elements; that is, they tell us what particular task or tasks correspond to each STS element when it is covered in training. This is especially useful when STS performance codes are being reviewed for the 3-skill-level course. For example, the U&TW attendees might be asked to consider adding a task performance code to an STS element that has only been trained to a knowledge level previously. Occupational survey data are an important input in determining the appropriate proficiency code. Separate Training Extracts are produced for AD, ANG, and AFRC component members.

The Specialty Knowledge Test (SKT) Extract -- AFOMS survey data are key to ensuring that SKTs are valid. SKTs are an important part of the Weighted Airman Promotion System (WAPS). Because an airman's test score is frequently the deciding factor in determining who is promoted, SKTs must be valid, fair, and credible.

In terms of SKTs, *valid* means that every question on the test is tied to a task which has been shown to be important to successful performance in the specialty. This tie is crucial to documenting the validity of SKT content.

AFOMS surveys provide test writers with information on what percentage of airmen are performing tasks (PMP), an estimate of how much job time they spend performing tasks (PTS), how difficult tasks are to master (TD), and the importance of formal training on tasks (TE). This information is combined to produce a composite index called the Predicted Testing Importance (PTI). Those tasks that are rated highest in PTI are ones that are high in all four of our primary indices -- PMP, PTS, TD, and TE - - exactly the kinds of tasks that one would consider job-essential and critical for incumbents to know and thus be tested on. PTI information is used for minor test revisions; how it is used will be explained shortly.

Field-validated testing importance (FVTI) data are produced for major test revisions. Approximately 6 months before the start of test development, a sample of 100 senior career field NCOs are sent a survey containing a list of tasks rated highest in PTI. Respondents are asked to provide a 1-7 rating ("1" is low, "7" is high) of how important they believe it is to include a question concerning that task on the SKT. The responses are averaged for each task, yielding the FVTI index -- a direct measure of the opinions of career field experts as to what constitutes "job-essential" knowledge.

PTI and FVTI information is included in the SKT Extract which is specifically tailored for use by the SKT teams who come to AFOMS to write the promotion examinations. Two sets of reports are prepared -- one set uses only data for E-5s and the other uses combined data for E-6s and E-7s. Each report gives the SKT team information on every task's PMP, PTS, and PTI, and, for major test revisions, FVTI data. Occupational survey data are thus the only objective source of information available to the team regarding how to make the test they write meet legal requirements for validity and fairness.

The Analysis Extract -- The Analysis Extract is an archive of all the data collected in the course of a study that are not incorporated in one of the other extracts. We typically produce separate Analysis Extracts for AD and ANG/AFRC members. The Analysis Extract is usually an enormous document, a compilation of the many reports that "slice and dice" the data in virtually every potentially useful way. Just about any question anyone has regarding career ladder work, personnel, or training and utilization issues can be answered by consulting one or another of the reports in the Analysis Extract.

The OSR -- This document, the OSR, captures survey data and analysis both in breadth and depth. For ease of reading, the first half of the OSR concentrates on breadth with compelling factors and implications across the specialty. The ensuing appendices show depth with regard to these factors and implications primarily in tabular format. Where appropriate, highlights of the tables are contained in the body. The reader will find tables in their entirety in the appendices.

**OCCUPATIONAL SURVEY REPORT (OSR)
FLIGHT ENGINEER, PERFORMANCE QUALIFIED
(AFSC 1A1X1C)**

This is a report of an occupational survey of the Flight Engineer, Performance Qualified career ladder, conducted by the Occupational Analysis Flight, AFOMS. The OSR reports the findings of current data that are available for use in guiding the development and evaluation of training and support planned changes within this career ladder. In addition, the data are used to support SKT development. The previous OSR was completed in June 1999.

Career Ladder Background

As described in the AFMAN 36-2108, *Enlisted Classification*, dated 31 October 1998, Flight Engineer personnel in this career ladder perform aircraft visual inspections and in-flight duties. They operate and monitor engine and aircraft systems controls, panels, indicators, and devices. They compute and apply aircraft weight, balance, and performance data. They determine and verify passenger, cargo, fuel, and emergency and special equipment distribution and weight. They organize flight engineering standardization, qualification, and other required flight engineer logs, reports, and records for accuracy, completeness, format, and compliance with current directives. Further responsibilities include evaluation of flight engineer activities and technical problems encountered by operating units.

Primary entry into the career ladder is lateral after achieving the 5- or 7-skill-level in the following specified AFSCs: 1A0, 1A2, 1A5, 2A1, 2A3X1/X3, 2A4X1/2, 2A5, 2A6, 2A7, or 2M0; or by possession of a valid Federal Aviation Administration (FAA) Flight Engineer certificate with a jet or turboprop rating, or valid FAA aircraft and power plant license. Initial 3-skill-level training for AFSC 1A1X1C personnel is currently provided through the Basic Flight Engineer (BFE) Course taught at Altus AFB OK. This course is 5 weeks, 4 days in length and provides the airman with ground instruction on mathematics, atmosphere and physics, aerodynamics, aircraft performance and performance log, engine theory, weight and balance, basic chart reading, winds, critical field length, and inflight and nonstandard landing data.

Entry into AFSC 1A1X1C requires a General Armed Services Vocational Aptitude Battery (ASVAB) "General" score of 55 and a Strength requirement of "K" (weight lift of 70 lbs).

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2477, dated August 2001. During the development of the comprehensive task list, 42 subject-matter experts were interviewed from six operational bases and two training units. In addition to the standard background questions, the survey requested the following information: base of assignment; command of assignment; standard background questions, including job satisfaction and reenlistment intentions; number of deployments and days TDY; job title; types of flying missions, and aircraft qualification ratings. The inventory listed 674 tasks grouped under 22 duty headings and a background section. (The complete task list is available on the CD-ROM containing the products from this study.)

<u>BASE</u>	<u>REASON FOR VISIT</u>
Altus AFB OK	Basic Flight Engineer apprentice-level training
Little Rock AFB AR	Training for C-130 ANG Basic Flight Engineer (ANGBFE) Course
Tinker AFB OK	Airborne training for E-3
Hurlburt Field FL	Operates and maintains the AC-130H and the MC-130E Combat Talon I
McGuire AFB NJ	Operates and maintains C-141 and KC-10 aircraft
MacDill AFB FL	Unique mission; Central Command (CENTCOM) Operators

1A1X1C Survey Administration

From August 2001 to January 2002, the survey control monitors at the technical training school and operational bases administered the inventory to all eligible DAFSC 1A151C and 1A171C AD, AFRC, and ANG personnel. Members ineligible to take the survey included the following: (1) hospitalized members; (2) members in transition for a permanent change of station; (3) members retiring within the time the inventories were administered to the field; and (4) members who had been in their present jobs for less than 6 weeks. Participants were selected from a computer-generated mailing list obtained from data tapes maintained by the Air Force Personnel Center, Randolph AFB TX.

Survey Sample

The data on survey returns were examined to ensure that the final sample reflected an accurate representation across major commands (MAJCOMs) and paygrades. [Table 1](#) shows the distribution of the survey sample by MAJCOM, while [Table 2](#) reflects the survey distribution by paygrade groups. [Table 3](#) reveals the final sample distribution by skill level. Table 4 displays the component characteristics for the AD, ANG, and AFRC members in the final sample.

TABLE 1

MAJCOM REPRESENTATION OF TOTAL SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
AETC	5	7
AMC	30	27
ACC	6	9
AFMC	1	1
USAFE	1	3
PACAF	1	4
AFSOC	5	4
AFRC	32	27
ANG	16	17
EUR	1	0
TOTAL ASSIGNED*		2,684
TOTAL ELIGIBLE		2,335
TOTAL SURVEYS MAILED		2,335
TOTAL IN SAMPLE		848
PERCENT OF ASSIGNED IN SAMPLE		32
PERCENT OF ELIGIBLE IN SAMPLE		36
PERCENT OF MAILED IN SAMPLE		36
* As of Aug 01		
Note: Columns may not add to 100 percent due to rounding		

TABLE 2

PAYGRADE DISTRIBUTION OF SAMPLE		
PAYGRADE	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
E-4	6	2
E-5	40	41
E-6	31	31
E-7	22	24
E-8	1	2

TABLE 3

TOTAL SKILL-LEVEL DISTRIBUTION OF SAMPLE		
SKILL LEVEL	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
1A131C	*	0
1A151C	46	49
1A171C	53	51

* Indicates less than 1 percent

TABLE 4

COMPONENT CHARACTERISTICS			
	<u>AD</u>	<u>AFRC</u>	<u>ANG</u>
ASSIGNED	1,389	863	432
SURVEYED	1,166	814	384
SAMPLE	470	231	147
% OF SURVEYED	40	28	38

The Command, Paygrade, and Skill-Level distributions of the survey sample are close to the percent assigned indicating that the sample is a true representation of the career ladder population assigned to the MAJCOMs.

1A1X1C JOB STRUCTURE

The first step in the analysis process is to identify the career ladder structure in terms of the jobs performed by the respondents. CODAP creates an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group or forms new groups based on the similarity of tasks and time spent ratings. Human analysis of the final output, aided by additional measures of similarities and differences between groups, determines the final job structure of the career field as described here.

The basic group used in the hierarchical clustering process is the ***Job***. The job structure resulting from this grouping process can be used to evaluate the changes that have occurred in the AFSC since the previous OSR. It can also be used to guide future changes in the AFSC. The above terminology will be used in the discussion of the AFSC 1A1X1C career ladder.

Specialty Job

Based on the analysis of tasks performed and the amount of time spent performing each task, one job was identified within the Flight Engineer, Performance Qualified career ladder. Figure 1 shows this job structure. A written outline of the Flight Engineer Job (STG10, N=831) follows. The stage (STG) number shown below beside the job title refers to computer printed information. The letter “N” indicates the number of persons in the group. Table 5 provides a detailed job description, including demographic information and a listing of representative tasks for this job.

FLIGHT ENGINEER JOB (STG 10, N=831)

Table 6 displays average time spent on duties by Flight Engineer Job personnel.

Listed below are the MAJCOMs represented within the Flight Engineer Job:

<u>USAFE</u>	<u>PACAF</u>	<u>ACC</u>	<u>AFMC</u>	<u>ANG</u>	<u>AETC</u>	<u>AFSOC</u>	<u>AMC</u>	<u>AFRC</u>
3%	4%	9%	1%	18%	7%	4%	27%	27%

**AFSC 1A1X1C CAREER LADDER SPECIALTY JOB
TOTAL SURVEY SAMPLE
(N=848)**

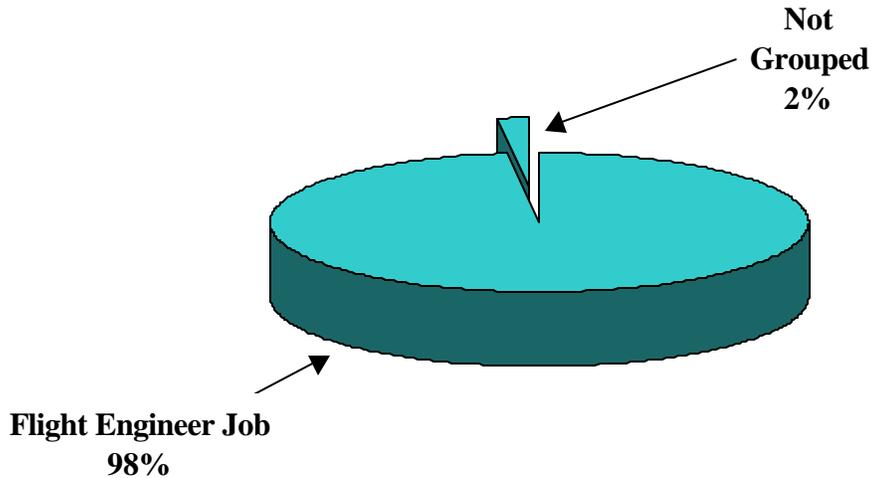


FIGURE 1

Members Not Grouped

- The remaining 16 members (2% of survey sample) did not group with any job
 - Eight of these members are AD
 - Seven are these members are AFRC
 - One of these members is ANG
- Survey respondents sometimes do not fall into an identified job because they perform fewer tasks or mark the same tasks but give considerably different time spent ratings for those tasks
- In addition, there may not have been enough individuals performing the same combination of tasks to warrant identification of a job
- Members not grouped into this job held job titles such as Special Air Mission Flight Engineer and Flight Engineer Scheduler

Comparison of Current Specialty Jobs to Previous Survey

The current job structure was compared with the previous OSR (January 1999). This is a very homogenous career ladder, with no new jobs identified. The job description of the Flight Engineer in this report is essentially the same as in the previous report.

SKILL AND EXPERIENCE ANALYSIS

An analysis of DAFSC groups in conjunction with the analysis of the career ladder structure is an important part of each OSR. This information may be used to evaluate how well career ladder documents, such as AFMAN 36-2108 *Enlisted Classification*, reflect what career ladder personnel are actually doing in the field.

TOTAL SAMPLE

Job

[Table 7](#) – Displays the distribution of 5- and 7-skill-level DAFSC group members across the Flight Engineer Job

[Table 8](#) – Displays the DAFSCs of 16 members not grouped within the Flight Engineer Job

Duties

[Table 9](#) – Time spent on duties by members of 5- and 7-skill-level groups for the total survey sample

- Members spend the largest percentage of their job time performing General Aircrew Activities (Duty H), Performing Environmental or Cooling Systems Activities (Duty H), and Performing Power Plant Systems Activities (Duty N), regardless of their skill-level

[Table 10](#) – Time spent on duties by component skill-level groups

- The three components on average spend approximately the same amount of job time on duties

AD

Duties

[Table 10](#) – Time spent on duties by skill-level groups

- There is no substantial differences between AD skill-level groups
Tasks

[Table 11](#) – Tasks performed by AD 1A151C members

[Table 12](#) – Tasks performed by AD 1A171C members

- AD 5-skill-level member perform 305 tasks in comparison to 351 performed by their 7-skill-level counterparts
- Tasks which best differentiate between 5- and 7-skill-level members are dealing with supervisory and management activities

AFRC and ANG

Duties

[Table 10](#) – Members of the AFRC and ANG 5- and 7-skill-level groups spend similar amount of time on duties

Tasks

[Table 12](#) – 15 Representative tasks performed by AFRC and ANG skill-level groups

- AFRC 5- and 7-skill-level members “on average” perform approximately the same number of tasks
- Like their AD counterparts, tasks which best differentiate between 5- and 7-skill-level members deal with supervisory and management activities

TRAINING ANALYSIS

Occupational survey data are a source of information that can assist in the development or evaluation of training programs for both entry-level and advanced members. In particular, the factors used to evaluate entry-level member training include the jobs that are being performed by first-assignment personnel (1-48 months’ TICF), the overall distribution of first-assignment personnel across career ladder jobs, the percent of first-assignment members who perform specific tasks, and ratings of relative training emphasis (TE) and task difficulty (TD). (TE and TD ratings are discussed in the Task Factor Administration section of this OSR.)

WHAT ENTRY-LEVEL MEMBERS NEED TO KNOW

First-Assignment Personnel (1–48 months' TICF)

N=169 (20% of sample)

Job

[Figure 1](#) – All first-assignment personnel work in the Flight Engineer Job

Duties

[Table 16](#) – Relative time spent on duties by AD first-assignment personnel

- First-assignment personnel spent the largest amount of job time on the same duties as the other members of the specialty: Performing Environment or Cooling Activities (Duty H), Performing General Aircrew Activities (Duty A), and Performing Power Plant System Activities (Duty N)

Tasks

[Table 17](#) – Representative tasks performed by first-assignment personnel

- Reflects technical nature of jobs being performed

Mission(s) and Aircraft Qualification

[Table 18](#) – Best description of mission(s) flown by first-assignment personnel

- Transport Cargo had the largest percentage of first-assignment performing (63%)

[Table 19](#) – Aircraft for which first-assignment members hold primary qualification rating

- The aircraft for which first-assignment personnel primary hold qualification for is the C-130 (46%)

TASK FACTOR SURVEYS

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information, along with data from the Specialty Training Standard (STS), Course Training Standard (CTS), and Plan of Instruction (POI), is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected DAFSC 1A1X1C members (generally E-6 or E-7 craftsmen) completed either a training emphasis (TE) or task difficulty (TD) survey. To obtain the needed STS, CTS, and POI data, STS 1A1X1C was reviewed by comparing survey data to STS elements.

Task Factor Administration

TE and TD data can help training development personnel decide which tasks to emphasize for entry-level, structured training (resident technical schools, field training detachments, mobile training teams, formal OJT, or any other organized training method). For example, tasks receiving high TE and TD ratings generally warrant resident training if they are also performed by a moderate-to-high percentage of first-assignment members. Tasks receiving high TE and/or TD ratings but being performed by relatively low percentages of first-assignment members may be more appropriately planned for structured OJT programs within the career ladder. Low TE and/or TD ratings may highlight tasks best omitted from training for new personnel. These task factors are, of course, not the only ones to weigh in making training decisions; the percentages of personnel performing the tasks, command concerns, the criticality of the tasks, and other important factors must also be carefully considered.

Training Emphasis (TE) — degree of emphasis that should be placed on each task for structured training of entry-level members

- Thirty DAFSC 1A1X1C senior noncommissioned officers (NCOs) rated tasks in inventory on a scale from 0 (no training required) to 9 (extremely high training emphasis)
- Average TE rating was 3.58 with a standard deviation of 1.70
 - If a task has a TE rating at least one standard deviation above the mean, that is, of at least 5.28, it is probably important to provide new personnel with formal training on that task

[Table 20](#) – Tasks with highest TE ratings

One hundred and forty-four tasks had high TE ratings

- Most tasks with high TE ratings are from Duty N (Performing Power Plant Systems Activities), Duty H (Performing Environmental or Cooling Systems Activities) and Duty E (Performing Auxiliary Power Unit or Gas Turbine Compressor Systems Activities)

Task Difficulty (TD) – amount of time needed to learn to perform that task satisfactorily

- Twenty-nine DAFSC 1A1X1C senior NCOs rated difficulty of tasks in inventory using a scale from 1 (extremely low difficulty) to 9 (extremely high difficulty)
- TD ratings are normally adjusted so that tasks have an average difficulty of 5.00 and a standard deviation of 1.00
 - Any task with a difficulty of 6.00 or greater is therefore considered difficult to learn

Table 21 – Tasks with highest TD ratings

- Also lists percent members performing these tasks by groups of 1-48 months' TICF members, 5- and 7-skill-level groups
- High TD ratings were spread throughout the duties, with the largest percent in Duty N (Performing Power Plant Systems Activities), 17 percent
- Twenty-four tasks had both high TE and TD ratings
 - Of these tasks, 58 percent were in Duty N (Performing Power Plant Systems Activities)
 - These tasks also had a high percentage of first-assignment members performing; therefore, they should be considered for inclusion into the 3-skill-level course

Flight Engineer Utilization and Training Workshop (U&TW)

Data from this occupational survey were used to support a Flight Engineer U&TW in February 2002. The purpose of this U&TW was to discuss pipeline management of the specialty, updating the Career Field Education and Training Plan (CFETP) and the merger of the Flight Engineer, Helicopter (AFSC 1A1X1B) and Flight Engineer, Performance Qualified (AFSC 1A1X1C) career ladders.

Survey data compiled in the form of a special U&TW Extract was provided to workshop participants. This U&TW Extract included information relating to survey sample, job structure, skill level progression, first job and first-assignment utilization, job satisfaction, reenlistment and separation factor analysis.

The decision to merge the two specialties was made. The 1A1X1 STS was revised to address only the generic items that would apply to both the helicopter (B-shred) and fixed wing (C-shred) flight engineers.

The AETC Training Manager CMSgt Michael Jolly requested that AFOMS help support the merger by providing additional analysis on aircraft specialty courses. This would be accomplished by performing a comprehensive review of these courses (C-130 Initial, C-130 Mission, C-141, C-5, E-3, E-4B, E-8, EC-130, and KC-10). Technical school SMEs with the help of the OMS occupational analyst will conduct a match of the JI tasks to the objectives within each aircraft course syllabus. This analysis will help identify such items as duplication of training within courses, and course objectives that may need to be added, strengthened or eliminated.

JOB SATISFACTION ANALYSIS

An examination of job satisfaction indicators can give career ladder managers a better understanding of factors that may affect the job performance of career ladder airmen. The survey included attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions.

Job Satisfaction

Overall = Good

Table 22 – Job satisfaction data for the Flight Engineer Job identified in the 1A1X1C JOB STRUCTURE

Results are summarized below:

- Overall job satisfaction is good
- Over 95% of the all members rated “Perceived Use of Talents” and “Perceived Use of Training” as “Excellent to perfect”
- Lower satisfaction ratings were in the area of reenlistment intention

[Table 23](#) – Comparison of job satisfaction indicators for AD AFSC 1A1X1C TICF groups

Results are summarized below:

- The 1-48 months TICF group had the highest job satisfaction ratings
- Higher job satisfaction indicators were in the area of “Expressed Job Interest”

[Table 24](#) – displays job satisfaction data between the current study and the previous 1A1X1C study by TICF groups

- Overall, job satisfaction ratings for the current 1A1X1C survey were slightly higher than those of the previous 1A1X1C survey

RETENTION DIMENSIONS

JIs also routinely collect information about factors that affect reenlistment and separation decisions. That is, respondents who say that they are likely to reenlist at the end of their present term (and those not eligible for retirement) are asked to indicate whether each of 31 different factors will have any effect on their intended decision and, if so, the degree to which each factor may influence their decision to reenlist. Respondents who indicate that they are likely to separate at the end of their present term (and those not eligible for retirement) are asked to indicate whether each of 31 different factors will have any effect on their intended decision and, if so, the degree to which each factor may influence their decision to separate. The degree is indicated on a 3-point scale ranging from “slight influence” to “strong influence”.

Reenlistment

[Table 25](#) – Lists the 31 factors in the order they appeared in the survey. The percent selecting each factor and the average rating for each factor by TICF group based on how much each factor may influence their decision to reenlist are also shown.

- Top 5 reasons members may choose to reenlist based on the highest percentages selecting each factor are listed below Table 25
- Retirement benefits, military lifestyle, pay and allowances and job security were identified by each of the TICF groups as influencing their decision to reenlist

Separation

[Table 26](#) – Displays the percentage of the members for each TICF group indicating that their plans to separate may be influenced by each factor as well as the average ratings by TICF group for the 31 factors based on the influence each factor may have on the respondents’ decisions to separate

- Top 5 reasons members in each TICF group may choose to separate based on the highest percentages selecting each factor are listed below Table 27
 - Pay and allowances were major influences identified by each of the three TICF groups

TABLE 5

**FLIGHT ENGINEER JOB (STG 10)
N=831 (98% of TOTAL SAMPLE)**

DEMOGRAPHICS

Average Time in Present Job	43 months	
Average Time in Career Field	85 months	
Average TAFMS	174 months	
Paygrades	E-5	28%
	E-6	35%
	E-7	34%
	E-8	2%
Skill Levels	1A151C	32%
	1A171C	68%

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	349	PERCENT MEMBERS PERFORMING
A0042	Perform preflight inspections of cockpit or cabin compartments		99
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records		99
N0447	Monitor engine instrument systems operations		98
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners		98
N0453	Operate or monitor bleed-air systems		98
H0266	Operate or monitor pressurization systems		98
A0025	Participate in maintenance debriefings		98
B0060	Coordinate maintenance requirements with crew chiefs		98
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers		97
N0456	Operate or monitor engine fuel systems		97
A0003	Brief aircraft commanders or maintenance personnel or aircraft systems malfunctions		98
N0460	Perform preflight inspections of bleed air systems		96
H0280	Perform preflight inspections of oxygen systems		96
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations		97
H0258	Operate or monitor air-conditioning systems		97
A0039	Perform preflight inspections of aircraft for fluid leakage		97
N0446	Monitor engine fire or overheat detection systems operations		97
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight		97
E0148	Operate or monitor APU or GTC bleed-air systems		97

TABLE 6

AVERAGE PERCENT TIME SPENT ON DUTIES
BY FLIGHT ENGINEER JOB PERSONNEL

<u>DUTIES</u>	<u>STG 10</u> <u>(N=831)</u>
A PERFORMING GENERAL AIRCREW ACTIVITIES	10
B PERFORMING GENERAL MAINTENANCE ACTIVITIES	4
C PERFORMING MISSION PLANNING AND PERFORMANCE DATA COMPUTATIONS	4
D PERFORMING AUXILIARY SYSTEMS ACTIVITIES	3
E PERFORMING AUXILIARY POWER UNIT (APU) OR GAS TURBINE COMPRESSOR (GTC) SYSTEMS ACTIVITIES	7
F PERFORMING COMMUNICATION OR NAVIGATION SYSTEMS ACTIVITIES	7
G PERFORMING ELECTRICAL SYSTEMS ACTIVITIES	5
H PERFORMING ENVIRONMENTAL OR COOLING SYSTEMS ACTIVITIES	11
I PERFORMING FLIGHT CONTROL SYSTEMS ACTIVITIES	4
J PERFORMING FUEL SYSTEMS ACTIVITIES	7
K PERFORMING LANDING GEAR (LDG) AND BRAKE SYSTEMS ACTIVITIES	8
L PERFORMING MALFUNCTION ANALYSIS DETECTION AND RECORDING (MADAR) SYSTEMS ACTIVITIES	1
M PERFORMING PNEUDRAULIC OR HYDRAULIC SYSTEMS ACTIVITIES	3
N PERFORMING POWER PLANT SYSTEMS ACTIVITIES	10
O PERFORMING PROPELLER SYSTEMS ACTIVITIES	2
P PERFORMING SPECIAL MISSION ACTIVITIES	1
Q PERFORMING EMERGENCY PROCEDURE ACTIVITIES	6
R PERFORMING EVALUATION ACTIVITIES	1
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	*
U PERFORMING TRAINING ACTIVITIES	2
V PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	3

* Indicates less than 1 percent

TABLE 7

DISTRIBUTION OF 5- AND 7-SKILL-LEVEL DAFSC GROUP MEMBERS ACROSS
FLIGHT ENGINEER JOB

(PERCENT MEMBERS PERFORMING)

(N=831)

AD 1A151C (N=230)	AD 1A171C (N=240)	AFRC 1A151C (N=42)	AFRC 1A171C (N=189)	ANG 1A171C (N=146)
48	52	18	82	99

TABLE 8

DAFSC OF MEMBERS **NOT GROUPED** (NUMBER)

	AD (N=7)	AFRC (N=8)	ANG (N=1)
<u>5-SKILL-LEVEL</u>	6	1	
<u>7-SKILL-LEVEL</u>	1	7	1

TABLE 9

TIME SPENT ON DUTIES BY MEMBERS OF AFSC 1A1X1C SKILL-LEVEL GROUPS
TOTAL SAMPLE
(PERCENT RESPONDING)

<u>DUTIES</u>	1A151C (N=273)	1A171C (N=575)
A PERFORMING GENERAL AIRCREW ACTIVITIES	11	11
B PERFORMING GENERAL MAINTENANCE ACTIVITIES	4	4
C PERFORMING MISSION PLANNING AND PERFORMANCE DATA COMPUTATIONS	5	5
D PERFORMING AUXILIARY SYSTEMS ACTIVITIES	2	3
E PERFORMING APU OR GTC SYSTEMS ACTIVITIES	7	7
F PERFORMING COMMUNICATION OR NAVIGATION SYSTEMS ACTIVITIES	6	6
G PERFORMING ELECTRICAL SYSTEMS ACTIVITIES	5	5
H PERFORMING ENVIRONMENTAL OR COOLING SYSTEMS ACTIVITIES	11	11
I PERFORMING FLIGHT CONTROL SYSTEMS ACTIVITIES	4	4
J PERFORMING FUEL SYSTEMS ACTIVITIES	7	7
K PERFORMING LANDING GEAR (LDG) AND BRAKE SYSTEMS ACTIVITIES	7	7
L PERFORMING MADAR SYSTEMS ACTIVITIES	1	1
M PERFORMING PNEUDRAULIC OR HYDRAULIC SYSTEMS ACTIVITIES	3	3
N PERFORMING POWER PLANT SYSTEMS ACTIVITIES	11	10
O PERFORMING PROPELLER SYSTEMS ACTIVITIES	3	2
P PERFORMING SPECIAL MISSION ACTIVITIES	1	1
Q PERFORMING EMERGENCY PROCEDURE ACTIVITIES	6	6
R PERFORMING EVALUATION ACTIVITIES	*	1
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1	2
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	*	*
U PERFORMING TRAINING ACTIVITIES	1	2
V PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	3

* Indicates less than 1 percent

Note: Columns may not add to 100% due to rounding

TABLE 10

TIME SPENT ON DUTIES BY **COMPONENT** SKILL-LEVEL GROUPS
(PERCENT RESPONDING)

<u>DUTIES</u>	AD 1A151C (N=230)	AD 1A171C (N=240)	AFRC 1A151C (N=42)	AFRC 1A171C (N=189)	ANG 1A171C (N=146)
A PERFORMING GENERAL AIRCREW ACTIVITIES	11	11	11	11	10
B PERFORMING GENERAL MAINTENANCE ACTIVITIES	4	4	4	4	5
C PERFORMING MISSION PLANNING AND PERFORMANCE DATA COMPUTATIONS	5	5	4	4	4
D PERFORMING AUXILIARY SYSTEMS ACTIVITIES	2	2	3	3	3
E PERFORMING AUXILIARY POWER UNIT (APU) OR GAS TURBINE COMPRESSOR (GTC) SYSTEMS ACTIVITIES	7	6	7	6	8
F PERFORMING COMMUNICATION OR NAVIGATION SYSTEMS ACTIVITIES	6	6	8	8	5
G PERFORMING ELECTRICAL SYSTEMS ACTIVITIES	5	5	5	4	5
H PERFORMING ENVIRONMENTAL OR COOLING SYSTEMS ACTIVITIES	11	10	12	11	12
I PERFORMING FLIGHT CONTROL SYSTEMS ACTIVITIES	4	4	4	4	4
J PERFORMING FUEL SYSTEMS ACTIVITIES	7	7	8	8	7
K PERFORMING LANDING GEAR (LDG) AND BRAKE SYSTEMS ACTIVITIES	7	7	8	8	7
L PERFORMING MALFUNCTION ANALYSIS DETECTION AND RECORDING (MADAR) SYSTEMS ACTIVITIES	1	1	2	3	*
M PERFORMING PNEUDRAULIC OR HYDRAULIC SYSTEMS ACTIVITIES	3	3	3	4	2
N PERFORMING POWER PLANT SYSTEMS ACTIVITIES	11	10	9	10	11
O PERFORMING PROPELLER SYSTEMS ACTIVITIES	3	2	1	1	4
P PERFORMING SPECIAL MISSION ACTIVITIES	1	1	1	1	1
Q PERFORMING EMERGENCY PROCEDURE ACTIVITIES	6	6	6	6	6
R PERFORMING EVALUATION ACTIVITIES	*	1	*	*	1
S PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEMS ACTIVITIES	1	2	1	1	1
T PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	*	*	*	*	1
U PERFORMING TRAINING ACTIVITIES	1	3	1	1	1
V PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	5	1	2	2

* Indicates less than 1 percent

Note: Columns may not add to 100% due to rounding

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 1A151C PERSONNEL

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	PERCENT MEMBERS PERFORMING (N=230)
A0042	Perform preflight inspections of cockpit or cabin compartments	98
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners	98
A0025	Participate in maintenance debriefings	98
A0003	Brief aircraft commanders or maintenance personnel on aircraft systems malfunctions	98
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records	97
B0060	Coordinate maintenance requirements with crew chiefs	97
H0266	Operate or monitor pressurization systems	96
C0092	Compute aircraft emergency performance data	96
N0447	Monitor engine instrument systems operations	95
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations	95
N0456	Operate or monitor engine fuel systems	95
H0258	Operate or monitor air-conditioning systems	95
N0453	Operate or monitor bleed-air systems	95
H0259	Operate or monitor anti-ice systems	95
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight	95
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers	94
A0039	Perform preflight inspections of aircraft for fluid leakage	94
N0446	Monitor engine fire or overheat detection systems operations	94
C0096	Compute climb, cruise, or descent data	94
J0320	Monitor fuel consumption	92
H0262	Operate or monitor environmental bleed-air systems	90
N0448	Monitor engine thrust or torque indicating systems operations	88
F0184	Operate or monitor interphone systems	86
F0188	Operate or monitor radios	83

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY AD DAFSC 1A171C PERSONNEL

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	PERCENT MEMBERS PERFORMING (N=240)
	351	
A0042	Perform preflight inspections of cockpit or cabin compartments	99
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records	99
A0025	Participate in maintenance debriefings	99
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners	98
H0258	Operate or monitor air-conditioning systems	98
H0266	Operate or monitor pressurization systems	98
B0060	Coordinate maintenance requirements with crew chiefs	98
A0003	Brief aircraft commanders or maintenance personnel on aircraft systems malfunctions	98
E0148	Operate or monitor APU or GTC bleed-air systems	98
A0039	Perform preflight inspections of aircraft for fluid leakage	97
N0447	Monitor engine instrument systems operations	97
N0456	Operate or monitor engine fuel systems	97
N0446	Monitor engine fire or overheat detection systems operations	97
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers	96
N0453	Operate or monitor bleed-air systems	96
A0026	Participate in pre-mission briefings	95
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations	95
F0184	Operate or monitor interphone systems	93
H0262	Operate or monitor environmental bleed-air systems	93
F0188	Operate or monitor radios	91
C0092	Compute aircraft emergency performance data	97
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight	96
J0325	Operate or monitor fuel flow or transfer systems	95
J0320	Monitor fuel consumption	92
E0149	Operate or monitor APU or GTC electrical systems	97
K0362	Monitor LDG position indicators	96
H0270	Perform preflight inspections of air-conditioning systems	95

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 1A151C PERSONNEL

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	PERCENT MEMBERS PERFORMING (N=42)
H0258	Operate or monitor air-conditioning systems	100
H0266	Operate or monitor pressurization systems	100
I0303	Perform preflight inspections of primary flight control systems	100
J0325	Operate or monitor fuel flow or transfer systems	100
I0302	Perform preflight inspections of auxiliary flight control systems, such as flaps, spoilers, or slats	100
K0372	Perform preflight inspections of LDG brake or antiskid systems	100
K0358	Monitor brake antiskid systems operations	100
F0184	Operate or monitor interphone systems	98
I0304	Perform preflight inspections of secondary flight control systems, such as trim systems	98
A0003	Brief aircraft commanders or maintenance personnel on aircraft systems malfunctions	98
J0320	Monitor fuel consumption	98
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners	98
A0031	Perform aircrew scanning duties	98
H0262	Operate or monitor environmental bleed-air systems	98
B0060	Coordinate maintenance requirements with crew chiefs	98
I0296	Monitor auxiliary flight control systems operations, such as flaps, spoilers, or slats	98
F0188	Operate or monitor radios	95
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers	95
A0042	Perform preflight inspections of cockpit or cabin compartments	95
N0447	Monitor engine instrument systems operations	95
A0024	Participate in crew operations debriefings	95
A0026	Participate in pre-mission briefings	95
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight	95
N0453	Operate or monitor bleed-air systems	95
H0280	Perform preflight inspections of oxygen systems	100
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records	98
E0149	Operate or monitor APU or GTC electrical systems	98

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY AFRC DAFSC 1A171C PERSONNEL

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	377	PERCENT MEMBERS PERFORMING (N=189)
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers		98
A0042	Perform preflight inspections of cockpit or cabin compartments		98
A0025	Participate in maintenance debriefings		98
C0096	Compute climb, cruise, or descent data		98
C0092	Compute aircraft emergency performance data		97
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners		97
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records		97
B0060	Coordinate maintenance requirements with crew chiefs		97
N0453	Operate or monitor bleed-air systems		97
A0003	Brief aircraft commanders or maintenance personnel on aircraft systems malfunctions		97
I0303	Perform preflight inspections of primary flight control systems		97
A0039	Perform preflight inspections of aircraft for fluid leakage		96
N0447	Monitor engine instrument systems operations		96
H0266	Operate or monitor pressurization systems		96
I0304	Perform preflight inspections of secondary flight control systems, such as trim systems		96
C0101	Compute time, distance, or fuel using performance data formulas, charts, or graphs		96
A0031	Perform aircrew scanning duties		95
A0024	Participate in crew operations debriefings		95
J0320	Monitor fuel consumption		95
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations		95
H0258	Operate or monitor air-conditioning systems		95
A0026	Participate in pre-mission briefings		95
N0460	Perform preflight inspections of bleed-air systems		95
N0456	Operate or monitor engine fuel systems		94
H0262	Operate or monitor environmental bleed-air systems		94
M0415	Operate or monitor hydraulic systems to include emergency systems, other		93

	than cooling systems	
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers	98

TABLE 15

REPRESENTATIVE TASKS PERFORMED BY ANG DAFSC 1A171C PERSONNEL

TASKS	AVERAGE NUMBER OF TASKS PERFORMED	347	PERCENT MEMBERS PERFORMING (N=146)
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers		99
A0042	Perform preflight inspections of cockpit or cabin compartments		99
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records		99
C0096	Compute climb, cruise, or descent data		99
N0453	Operate or monitor bleed-air systems		98
N0456	Operate or monitor engine fuel systems		98
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations		98
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight		98
E0149	Operate or monitor APU or GTC electrical systems		98
E0148	Operate or monitor APU or GTC bleed-air systems		98
N0447	Monitor engine instrument systems operations		97
N0448	Monitor engine thrust or torque indicating systems operations		97
H0266	Operate or monitor pressurization systems		97
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners		97
A0039	Perform preflight inspections of aircraft for fluid leakage		97
E0151	Perform operational checks on APU or GTC bleed-air systems		97
N0460	Perform preflight inspections of bleed-air systems		97
E0152	Perform operational checks on APU or GTC electrical systems		97
N0446	Monitor engine fire or overheat detection systems operations		96
J0320	Monitor fuel consumption		95
G0221	Operate or monitor electrical systems, other than APU or GTC electrical systems or special system buses		92
E0154	Perform preflight inspections of APU or GTC bleed-air systems		97
H0258	Operate or monitor air-conditioning systems		95
H0267	Operate or monitor underfloor heating systems		95
A0041	Perform preflight inspections of aircraft structures for erosion, corrosion, damage, or cracks		95
H0262	Operate or monitor environmental bleed-air systems		94
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers		99

TABLE 16

PERCENT TIME SPENT ON DUTIES BY **AD** FIRST-ASSIGNMENT PERSONNEL
(1-48 MONTHS' TICF)

		1-48 MONTHS' TICF (N=169)
A	PERFORMING GENERAL AIRCREW ACTIVITIES	11
B	PERFORMING GENERAL MAINTENANCE ACTIVITIES	4
C	PERFORMING MISSION PLANNING AND PERFORMANCE DATA COMPUTATIONS	5
D	PERFORMING AUXILIARY SYSTEMS ACTIVITIES	2
E	PERFORMING APU OR GTC SYSTEMS ACTIVITIES	7
F	PERFORMING COMMUNICATION OR NAVIGATION SYSTEMS ACTIVITIES	6
G	PERFORMING ELECTRICAL SYSTEMS ACTIVITIES	5
H	PERFORMING ENVIRONMENTAL OR COOLING SYSTEMS ACTIVITIES	12
I	PERFORMING FLIGHT CONTROL SYSTEMS ACTIVITIES	4
J	PERFORMING FUEL SYSTEMS ACTIVITIES	7
K	PERFORMING LANDING GEAR (LDG) AND BRAKE SYSTEMS ACTIVITIES	8
L	PERFORMING MALFUNCTION ANALYSIS DETECTION AND RECORDING SYSTEMS ACTIVITIES	1
M	PERFORMING PNEUDRAULIC OR HYDRAULIC SYSTEMS ACTIVITIES	3
N	PERFORMING POWER PLANT SYSTEMS ACTIVITIES	11
O	PERFORMING PROPELLER SYSTEMS ACTIVITIES	3
P	PERFORMING SPECIAL MISSION ACTIVITIES	1
Q	PERFORMING EMERGENCY PROCEDURE ACTIVITIES	7
R	PERFORMING EVALUATION ACTIVITIES	*
S	PERFORMING GENERAL ADMINISTRATIVE AND TECHNICAL ORDER (TO) SYSTEM ACTIVITIES	1
T	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	*
U	PERFORMING TRAINING ACTIVITIES	1
V	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2

* Indicates less than 1%

Note: Columns may not add to 100% due to rounding

TABLE 17

REPRESENTATIVE TASKS PERFORMED BY **AD** AFSC 1A1X1C
FIRST-ASSIGNMENT PERSONNEL (1-48 MONTHS TICF)

TASKS	<i>Average number of tasks performed 321</i>	PERCENT MEMBERS PERFORMING (N=169)
A0042	Perform preflight inspections of cockpit or cabin compartments	99
A0025	Participate in maintenance debriefings	99
N0456	Operate or monitor engine fuel systems	98
H0266	Operate or monitor pressurization systems	98
A0040	Perform preflight inspections of aircraft panels, locks, or fasteners	98
N0447	Monitor engine instrument systems operations	97
H0258	Operate or monitor air-conditioning systems	97
A0053	Review AFTO Forms 781-series, Aircraft Discrepancy, Inspection, and Maintenance Records	97
N0453	Operate or monitor bleed-air systems	97
B0060	Coordinate maintenance requirements with crew chiefs	97
C0100	Compute takeoff and landing data (TOLD) using charts, fuel savings advisory systems (FSAS), or computers	96
N0446	Monitor engine fire or overheat detection systems operations	96
H0259	Operate or monitor anti-ice systems	96
A0058	Verify safety pins and streamers are removed prior to flight or installed after flight	96
N0460	Perform preflight inspections of bleed-air systems	96
C0096	Compute climb, cruise, or descent data	96
E0148	Operate or monitor APU or GTC bleed-air systems	96
A0039	Perform preflight inspections of aircraft for fluid leakage	95
N0445	Monitor engine exhaust gas temperatures (EGTs) or turbine inlet temperature (TIT) sections operations	95
H0265	Operate or monitor oxygen systems	95
J0320	Monitor fuel consumption	93
J0325	Operate or monitor fuel flow or transfer systems	93
H0262	Operate or monitor environmental bleed-air systems	92
J0326	Operate or monitor fuel indicating systems, to include	92

TABLE 18

BEST DESCRIPTION OF MISSION (S) FLOWN BY
AD FIRST-ASSIGNMENT AFSC 1A1X1C PERSONNEL
 (PERCENT MEMBERS PERFORMING)

<u>TYPES OF MISSION</u>	<u>(N=169)</u>
Aerial Reconnaissance	4
Aerial Recovery	1
Aeromedical or Medival	33
Air or Inflight Refueling	17
Air Training and Testing	9
Airborne Command and Control Center	8
Airborne Command Post	3
Airborne Surveillance and weapons Control	11
Aircrew Instructor Training	6
Combat Rescue and Recovery	5
Drug Interdiction	13
Electronic Countermeasures	4
Executive Support	22
Functional Check Flight	8
Inflight Refueling	21
Missile Support	3
Range Support	2
Special Airlift Mission	37
Special Operations	8
Strategic Airlift	28
Strategic Deployment Support	17
Tactical Airlift or Airdrop	50
Tactical Deployment Support	30
Transport Cargo	63

TABLE 19

AIRCRAFT FOR WHICH FIRST-ASSIGNMENT **AD** AFSC 1A1X1C
PERSONNEL HOLD PRIMARY QUALIFICATION RATING

<u>AIRCRAFT</u>	<u>PERCENT QUALIFIED (N=169)</u>
AC-130	2%
C-130	46%
C-141	2%
C-20	3%
C-37	1%
C-5	19%
C-9	1%
E-3	13%
E-4	1%
EC-130	5%
KC-10	4%
MC-130	1%
NONE	2%

TABLE 20

AFSC 1A1X1C TASKS WITH HIGHEST TRAINING EMPHASIS RATINGS

TASKS	TNG EMP	PERCENT MEMBERS PERFORMING		TSK DIF
		1-24 MOS TICF	1-48 MOS TICF	
C0100 Compute takeoff and landing data using charts, fuel sayings advisory systems, or computers	7.00	98	96	7.12
A0020 Operate emergency equipment, such as parachutes, oxygen bottles, fire extinguishers, first aid kits, crash axes. or ropes	6.83	98	97	3.60
A0021 Operate emergency escape hatches	6.70	91	91	2.60
A0053 Review AFTO Forms 781 series, Aircraft Discrepancy, Inspections, and Maintenance Records	6.47	93	97	4.51
Q0548 Report emergency conditions	6.47	78	80	5.19
I0303 Perform preflight inspections of primary flight control systems	6.30	93	90	5.36
E0154 Perform preflight inspections of APU or GTC bleed air systems	6.27	96	88	4.98
E0155 Perform preflight inspections of APU or GTC electrical systems	6.23	93	97	5.07
B0078 Perform inflight inspections of aircraft	6.23	87	82	4.50
H0258 Operate or monitor air conditioning systems	6.23	96	96	5.09
C0098 Compute maximum endurance, loiter, or holding data, other than orbit data	6.23	83	85	5.75
C0093 Compute aircraft performance data for nonstard configurations	6.17	85	89	6.48
A0047 Perform preflight inspections of or position emergency, life support, survival, or personal equipment, such as parachutes, oxygen bottles, fire extinguishers, first aid kits, crash axes, or ropes	6.17	89	90	3.80
C0096 Compute climb, cruise, or descent data	6.17	100	96	5.37
A0039 Perform preflight inspections of aircraft for fluid leakage	6.13	96	95	3.10
A0045 Perform preflight inspections of liferaft release mechanisms	6.10	83	80	3.64

TE MEAN = 3.58; S.D. = 1.70; HIGH = 5.28

TABLE 21

AFSC 1A1X1C TASKS WITH HIGHEST TASK DIFFICULTY RATINGS

TASKS	TSK DIF	PERCENT MEMBERS PERFORMING				TNG EMP
		1-24 MOS TICF	1-48 MOS TICF	5- SKL LVL	7- SKL LVL	
A0033 Perform functional check flight duties	7.75	9	19	24	45	2.30
C0100 Compute takeoff and landing data using charts, fuel savings advisory systems, or computers	7.12	98	96	94	96	7
O0474 Analyze propeller governor systems malfunctions	7.04	63	52	56	45	3.93
O0476 Analyze propeller pitchlock systems malfunctions	7.00	63	52	56	45	4.03
B0068 Interpret wiring or system schematic diagrams	6.96	70	78	71	84	4.83
O0475 Analyze propeller negative torque systems malfunctions	6.83	63	52	56	45	3.97
R0555 Evaluate inspection report findings or inspection procedures	6.80	9	6	5	14	.93
N0442 Analyze temperature-datum systems malfunctions	6.73	63	56	64	51	4.50
R0554 Evaluate contractor developed programs	6.66	4	7	3	17	.93
U0601 Develop training program, plans, or procedures	6.66	4	17	14	43	1.47
C0101 Compute time, distance, or fuel using performance data formulas, charts, or graphs	6.61	89	90	85	85	6.03
C0108 Evaluate aircraft performance	6.60	80	75	73	79	5.93
R0552 Conduct inflight or ground evaluations	6.58	15	13	15	39	1.90
R0553 Evaluate aircraft engineering change proposals	6.55	7	5	3	13	.97
U0606 Evaluate effectiveness of training programs, plans, or procedures	6.49	7	13	9	46	1.53
B0076 Perform hostile environment repairs	6.49	54	49	47	45	3.47
C0093 Compute aircraft performance data for nonstandard configurations	6.48	85	89	85	89	6.17
N0440 Analyze engine starter systems malfunctions	6.46	93	90	91	93	5.43

TD MEAN = 5.00; S.D. = 1.00; HIGH = 6.00

TABLE 22

JOB SATISFACTION INDICATORS FOR FLIGHT ENGINEER JOB GROUP
(PERCENT MEMBERS RESPONDING)

	(N=462) (STG 10)
<u>EXPRESSED JOB INTEREST</u>	
INTERESTING	91
SO-SO	6
DULL	3
<u>PERCEIVED USE OF TALENTS</u>	
EXCELLENT TO PERFECT	36
FAIRLY WELL TO VERY WELL	60
NONE TO VERY LITTLE	4
<u>PERCEIVED USE OF TRAINING</u>	
EXCELLENT TO PERFECT	45
FAIRLY WELL TO VERY WELL	51
NONE TO VERY LITTLE	4
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>	
SATISFIED	87
NEUTRAL	5
DISSATISFIED	8
<u>REENLISTMENT INTENTIONS</u>	
YES OR PROBABLY YES	63
NO OR PROBABLY NO	9
WILL RETIRE	27

Note: Columns may not add to 100% due to rounding

TABLE 23

COMPARISON OF JOB SATISFACTION INDICATORS FOR **AD** AFSC 1A1X1C TICF GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS' TICF (N=169)	49-96 MONTHS' TICF (N=142)	97+ MONTHS' TICF (N=159)
<u>EXPRESSED JOB INTEREST</u>			
INTERESTING	95	89	88
SO-SO	4	10	5
DULL	1	1	7
<u>PERCEIVED USE OF TALENTS</u>			
EXCELLENT TO PERFECT	39	37	33
FAIRLY WELL TO VERY WELL	60	59	60
NONE TO VERY LITTLE	1	4	7
<u>PERCEIVED USE OF TRAINING</u>			
EXCELLENT TO PERFECT	49	46	40
FAIRLY WELL TO VERY WELL	50	52	52
NONE TO VERY LITTLE	1	2	8
<u>SENSE OF ACCOMPLISHMENT FROM JOB</u>			
SATISFIED	90	89	84
NEUTRAL	6	4	4
DISSATISFIED	4	7	13
<u>REENLISTMENT INTENTIONS</u>			
YES OR PROBABLY YES	75	68	47
NO OR PROBABLY NO	12	11	6
WILL RETIRE	12	21	47

Note: Columns may not add to 100% due to rounding

TABLE 24
COMPARISON OF CURRENT SURVEY AND PREVIOUS SURVEY BY AD TICF GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TICF		49-96 MOS TICF		97+ MOS TICF	
	2002 1A1X1C (N=169)	1999 1A1X1C (N=215)	2002 1A1X1C (N=142)	1999 1A1X1C (N=176)	2002 1A1X1C (N=159)	1999 1A1X1C (N=356)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	95	94	89	89	88	85
SO-SO	4	4	10	8	5	9
DULL	1	1	1	3	7	6
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
EXCELLENT TO PERFECT	39	36	37	28	33	29
FAIRLY WELL TO VERY WELL	60	58	59	63	60	62
NONE TO VERY LITTLE	1	5	4	9	7	10
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
EXCELLENT TO PERFECT	49	51	46	35	40	36
FAIRLY WELL TO VERY WELL	50	47	52	60	52	57
NONE TO VERY LITTLE	1	2	2	6	8	8
<u>SENSE OF ACCOMPLISHMENT GAINED FROM WORK:</u>						
SATISFIED	90	90	89	82	84	78
NEUTRAL	6	6	4	7	4	7
DISSATISFIED	4	5	7	11	13	15
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	75	70	68	65	47	47
NO, OR PROBABLY NO	12	25	11	24	6	7
PLAN TO RETIRE	12	6	21	11	47	46

Note: Columns may not add to 100 percent due to rounding

TABLE 25

COMPARISON OF REENLISTMENT FACTORS BY AD TICF GROUPS
(AVERAGE RESPONSE SCORE)

31 FACTORS LISTED IN ORDER OF APPEARANCE IN SURVEY

Scale: 1 = Slight Influence; 2 = Moderate Influence; 3 = Strong Influence

	1-48 MOS TICF (N=127)		49-96 MOS TICF (N=97)		97+ MOS TICF (N=74)	
	Percent Selecting	Average	Percent Selecting	Average	Percent Selecting	Average
MILITARY LIFESTYLE	51	2.28	56	2.30	50	2.30
PAY AND ALLOWANCES	48	2.43	44	2.60	55	2.39
BONUS OR SPECIAL PAY	39	2.26	42	2.59	9	2.33
RETIREMENT BENEFITS	54	2.68	68	2.74	78	2.69
MILITARY RELATED EDU & TANG OPPORTUNITIES	43	2.13	39	2.16	45	2.27
OFF-DUTY EDU OR TRAINING OPPORTUNITIES	35	2.22	39	2.24	47	2.26
MEDICAL OR DENTAL CARE FOR AD MEMBER	41	2.50	41	2.53	49	2.39
MEDICAL OR DENTAL CARE FOR FAMILY MEMBERS	36	2.54	48	2.53	39	2.59
BASE HOUSING	12	1.87	8	2.50	12	1.67
BASE SERVICES	9	1.73	8	2.47	8	1.83
CHILDCARE NEEDS	3	2.50	5	2.60	4	2.33
SPOUSE'S CAREER	7	2.67	8	2.50	11	2.62
CIVILIAN JOB OPPORTUNITIES	21	2.33	19	2.61	15	2.45
EQUAL EMPLOYMENT OPPORTUNITIES	6	2.00	7	2.43	9	1.86
NUMBER OF PCS MOVES	9	1.91	10	2.50	7	2.20
LOCATION OF PRESENT ASSIGNMENT	24	2.37	27	2.56	49	2.61
NUMBER/DURATION OF TDYS OR DEPLOYMENTS	24	2.35	28	2.48	24	2.28
WORK SCHEDULE	28	2.11	28	2.33	28	2.29
ADDITIONAL DUTIES	8	1.90	19	2.22	14	2.00
JOB SECURITY	44	2.62	53	2.73	47	2.57
ENLISTED EVALUATION SYSTEM	4	2.00	8	2.50	4	2.00
PROMOTION OPPORTUNITIES	17	2.41	23	2.36	28	2.38
TRAINING/EXPERIENCE OF UNIT PERSONNEL	9	2.18	11	2.45	11	1.88
UNIT MANNING	4	1.60	8	2.25	5	1.50
UNIT RESOURCES	2	2.00	5	2.20	5	1.75
UNIT READINESS	2	1.00	5	2.60	7	2.00
RECOGNITION OF EFFORTS	20	2.15	13	2.14	18	2.31
ESPRIT DE CORPS/MORALE	33	2.50	26	2.40	30	2.23
LEADERSHIP OF IMMEDIATE SUPERVISOR	14	2.56	14	2.86	16	2.25
LEADERSHIP AT UNIT LEVEL	18	2.52	14	2.29	15	2.09
SENIOR AIR FORCE LEADERSHIP	8	2.70	8	2.25	7	1.20

TOP 5 REASONS FOR MEMBERS REENLISTING BY TICF GROUPS

1-48 MONTHS' TICF (N=127)	49-96 MONTHS' TICF (N=97)	97+ MONTHS' TICF (N=74)
RETIREMENT BENEFITS	RETIREMENT BENEFITS	RETIREMENT BENEFITS
MILITARY LIFESTYLE	MILITARY LIFESTYLE	PAY AND ALLOWANCES

PAY AND ALLOWANCES	JOB SECURITY	MILITARY LIFESTYLE
JOB SECURITY	MEDICAL OR DENTAL CARE FOR FAMILY MEMBERS	LOCATION OF PRESENT ASSIGNMENT
BONUS OR SPECIAL PAY	PAY AND ALLOWANCES	JOB SECURITY

TABLE 26

COMPARISON OF SEPARATION FACTORS BY AD TICF GROUPS
(AVERAGE RESPONSE SCORE)

31 FACTORS LISTED IN ORDER OF APPEARANCE IN SURVEY

Scale: 1 = Slight Influence; 2 = Moderate Influence; 3 = Strong Influence

	1-48 MOS TICF (N=21)		49-96 MOS TICF (N=15)		97+ MOS TICF (N=10)	
	Percent Selecting	Average	Percent Selecting	Average	Percent Selecting	Average
MILITARY LIFESTYLE	43	1.78	67	2.00	30	1.67
PAY AND ALLOWANCES	86	2.28	93	2.36	50	2.60
BONUS OR SPECIAL PAY	43	2.00	60	2.78	40	2.25
RETIREMENT BENEFITS	38	2.50	33	2.60	40	2.75
MILITARY RELATED EDU & TRNG OPPORTUNITIES	24	1.33	20	2.67	0	0
OFF-DUTY EDU OR TRAINING OPPORTUNITIES	29	2.50	20	1.67	30	2.00
MEDICAL OR DENTAL CARE FOR AD MEMBER	5	1.00	13	2.50	20	1.50
MEDICAL OR DENTAL CARE FOR FAMILY MEMBERS	9	2.50	40	2.50	30	2.00
BASE HOUSING	19	2.00	7	2.00	10	3.00
BASE SERVICES	10	1.00	13	2.50	10	3.00
CHILDCARE NEEDS	10	2.00	7	2.00	10	3.00
SPOUSE'S CAREER	14	2.00	13	1.50	0	0
CIVILIAN JOB OPPORTUNITIES	38	2.75	47	2.29	40	2.75
EQUAL EMPLOYMENT OPPORTUNITIES	5	1.00	7	1.00	20	3.00
NUMBER OF PCS MOVES	24	2.40	13	2.50	30	2.00
LOCATION OF PRESENT ASSIGNMENT	48	2.30	27	2.50	20	3.00
NUMBER/DURATION OF TDYS OR DEPLOYMENTS	43	2.22	27	1.75	20	1.50
WORK SCHEDULE	24	2.00	27	2.50	40	2.00
ADDITIONAL DUTIES	23	1.71	13	3.00	70	2.71
JOB SECURITY	5	1.00	7	3.00	20	2.00
ENLISTED EVALUATION SYSTEM	24	1.40	20	2.67	50	2.40
PROMOTION OPPORTUNITIES	38	2.62	20	2.33	30	2.33
TRAINING/EXPERIENCE OF UNIT PERSONNEL	14	1.67	7	3.00	0	0
UNIT MANNING	24	2.20	13	3.00	40	3.00
UNIT RESOURCES	9	2.00	7	2.00	10	3.00
UNIT READINESS	5	1.00	0	0	0	0
RECOGNITION OF EFFORTS	43	2.44	40	2.17	50	2.40
ESPRIT DE CORPS/MORALE	33	2.00	7	1.00	30	2.67
LEADERSHIP OF IMMEDIATE SUPERVISOR	10	2.00	40	2.67	20	3.00
LEADERSHIP AT UNIT LEVEL	19	2.00	20	2.67	30	2.33
SENIOR AIR FORCE LEADERSHIP	19	2.25	13	3.00	40	2.25

TOP RATED REASONS FOR MEMBERS SEPARATING BY TICF GROUPS

1-48 MONTHS' TICF (N=21)	49-96 MONTHS' TICF (N=15)	97+ MONTHS' TICF (N=10)
PAY AND ALLOWANCES	PAY AND ALLOWANCES	ADDITIONAL DUTIES
LOCATION OF PRESENT ASSIGNMENT	MILITARY LIFESTYLE	PAY AND ALLOWANCES

1-48 MONTHS' TICF (N=21)	49-96 MONTHS' TICF (N=15)	97+ MONTHS' TICF (N=10)
RECOGNITION OF EFFORTS	BONUS OR SPECIAL PAY	ENLISTED EVALUATION SYSTEM
NUMBER/DURATION OF TDYS OR DEPLOYMENTS	CIVILIAN JOB OPPORTUNITIES	RECOGNITION OF EFFORTS
BONUS OR SPECIAL PAY	LEADERSHIP OF IMMEDIATE SUPERVISOR	UNIT MANNING