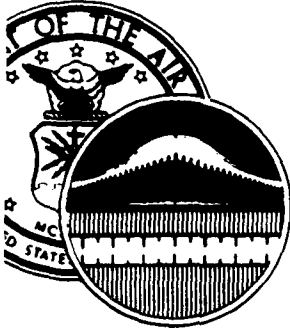


AD-A198 796



UNITED STATES AIR FORCE

2

OCCUPATIONAL SURVEY REPORT

DTIC
ELECTE
AUG 02 1988
S D

AIRBORNE COMMAND AND CONTROL
COMMUNICATIONS EQUIPMENT

AFSC 118X1

AFPT 90-118-839

JUNE 1988

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

DISTRIBUTION FOR
AFSC 118X1 OSR AND SUPPORTING DOCUMENTS

	<u>OSR</u>	<u>ANL EXT</u>	<u>TNG EXT</u>	<u>JOB INV</u>
AFHRL/MODS	2	1m	1m	1
AFHRL/ID	1	1m	1m/1h	1
AFMPC/DPMRPQ1	2			
ARMY OCCUPATIONAL SURVEY BRANCH	1			
CCAF/AYX	1			
DEFENSE TECHNICAL INFORMATION CENTER	2			
HQ AFISC/DAP	2			
HQ ATC/TTOK	2		1	
HQ TAC/DOY (ATTN: CMSGT DAVID)	1	1	1	
HQ TAC/DPATJ	3		3	
HQ TAC/TTGT	1		1	
HQ USAF/DPPE	1			
HQ USMC (CODE TPI)	1			
NODAC	1			
7 ACCS/DOOH (MSGT DRIGGERS)	1	1	1	
8 TDCS/DOE (MSGT CASE)	1	1	1	
552 AWACW/DOTMC (ATTN: TSGT McMAHON)	4	1	4	
3300 TCHTW/TTGX (KEESLER AFB MS)	3	1	3	1
3300 TCHTW/TTS (KEESLER AFB MS)	1		1	
DET 3, USAFOMC (KEESLER AFB MS)	1	1	1	1
USAFOMC/OMYXL	10	2m	5	10
3507 ACS/DPKI	1			

m = microfiche only
h = hard copy only

Accession For	
NTIS CRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and for Special
A-1	

TABLE OF CONTENTS

	PAGE NUMBER
PREFACE	iii
SUMMARY OF RESULTS	iv
INTRODUCTION	1
Background	1
SURVEY METHODOLOGY	3
Inventory Development	3
Survey Administration	3
Survey Sample	4
Task Factor Administration	4
ANALYSIS OF CAREER LADDER JOBS	
SPECIALTY JOBS (Career Ladder Structure)	7
Overview	7
Job Descriptions	9
Summary	15
ANALYSIS OF DAFSC GROUPS	15
Skill Level Descriptions	18
Summary	18
ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS	22
JOB SATISFACTION	22
TRAINING ANALYSIS	26
First-Enlistment Personnel	26
Task Difficulty (TD).	31
Training Emphasis (TE).	31
Specialty Training Standard (STS)	31
Plans of Instruction (POI).	35
Electronic Principles (EP).	38
ADDITIONAL ANALYSES	39
Analysis of Major Commands (MAJCOM)	41
Analysis of Conus versus Overseas	41
118X1 versus 116X0 Analysis	41
IMPLICATIONS	41
APPENDIX A	43
APPENDIX B	44

PREFACE

This report presents the results of a detailed Air Force occupational survey of the Airborne Command and Control Communications Equipment (AFS 118X1) specialty. The report was requested by HQ 552 Airborne Warning and Control Wing/Deputy Commander for Operations (552 AWACW/DCO). Priority was established by the Occupational Survey Report (OSR) Priorities Working Group (PWG) of the USAF Occupational Measurement Center (USAFOMC). Authority for conducting specialty surveys is contained in AFR 35-2. Computer products upon which this report is based are available for use by operations and training officials. *Keywords: Job analysis, Personnel development, Air Force training, Air Force personnel, Surveys, Careers, Career*

The survey instrument used in this project was developed by Mr Donald C. Cochran, Inventory Development Specialist. Computer programming support was provided by Mr Wayne Fruge, and administrative support was provided by Ms Linda Sutton. First Lieutenant Charles T. Jervey, Occupational Analyst, analyzed the data and wrote the final report. This report has been reviewed and approved by Lieutenant Colonel Thomas E. Ulrich, Chief, Airman Analysis Branch, Occupational Analysis Division, USAF Occupational Measurement Center.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies and computer products from which this report was produced may be obtained on request to the USAF Occupational Measurement Center, Attention: Chief, Occupational Analysis Division (OMY), Randolph AFB, Texas 78150-5000.

This report has been reviewed and approved.

RONALD C. BAKER, Colonel, USAF
Commander
USAF Occupational Measurement
Center

JOSEPH S. TARTELL
Chief, Occupational Analysis Division
USAF Occupational Measurement
Center

SUMMARY OF RESULTS

1. Survey Coverage: Inventory booklets were administered worldwide to 104 Airborne Command and Control Communications Equipment (118X1) incumbents. The 99 respondents in the survey sample represent 86 percent of all assigned Airborne Command and Control Communications Equipment personnel.
2. Career Ladder Structure: One cluster (including two jobs) and two independent job types were identified in the career ladder structure analysis. The cluster was directly involved in communications equipment maintenance duties related to the E-3A Airborne Warning and Control (AWAC) aircraft. The independent job types focused on areas of communications equipment maintenance involving the EC-135 and EC-130 aircraft. Personnel in the EC-135 job also perform protocol functions as part of their mission as air support for Headquarters Tactical Air Command Commander (HQ TAC/CC). Personnel in the EC-130 job group perform additional avionic system maintenance onboard the aircraft.
3. Career Ladder Progression: The 118X1 career ladder shows a common career progression pattern for aircrew specialties as one advances from skill level to skill level. At the apprentice level, a basically technical job is performed, expanding to a broader job at the specialist level, where incumbents perform a wider range of technical tasks and begin to perform some supervisory tasks. A high percentage of time was spent on technical tasks at the technician level, while supervisory tasks gained only slightly in percent time spent performing.
4. AFR 39-1 Specialty Descriptions: A comparison of survey data to AFR 39-1 indicates the AFR 39-1 specialty descriptions provide an adequate overview of each of the specialty groups.
5. Job Satisfaction: Overall, respondents were satisfied with their jobs. Most specialty jobs and TAFMS groups felt their talents and training were well utilized. Only one group (EC-130 Airborne Maintenance Technicians) indicated low satisfaction with the use of talents, training, and sense of accomplishment from the job. Comparative analysis with aircrew personnel surveyed in 1987 showed a somewhat lower job satisfaction for the 118X1 career ladder, while comparison with an equivalent group identified in the 1981 study of AFSC 328X0/X1, Avionic Communications/Navigation Systems, personnel showed a slightly more positive view of job satisfaction.
6. Training Analysis: Review of the matching of survey data to the AFSC 118X1 Specialty Training Standard (STS) indicates that task performance sections are well supported. Tasks not matched to the STS indicate additional areas that may deserve inclusion in any revised STS. Performance measured sections of the Plans of Instruction (POI) of the E3ABR32830 002, Avionic Communications Specialist Course, and the TAC E3000BQ0TX, E-3 Communications Technician Course, were well supported. Areas of electronic principles (EP) were identified that were performed by 50 percent or more of the AFSC 32850 career ladder when 118X1 personnel held the aircrew positions within it.

7. Additional Analysis: Analysis of MAJCOMs showed no distinct differences, other than time spent in different areas of communication system maintenance. Performance tasks associated with the E-3A aircraft in both commands are similar. CONUS and overseas groups also showed no distinct differences. Like MAJCOMs, the differences were in time spent performing communication system maintenance on various systems. By request from HQ Tactical Air Command (TAC), an analysis was done on AFSC 118X1 tasks that were identical to tasks performed by AFSC 116X0, Avionic Communications Systems, personnel, to determine what similarities, if any, there were. Data showed that, although there were high percentages of AFSC 118X1 personnel performing AFSC 116X0 tasks, the percent time spent on those tasks was only equal to or less than that of AFSC 116X0 personnel.

8. Implications: The 118X1 career ladder is very homogeneous. There were no major differences discovered between skill levels, MAJCOMs, or CONUS or overseas personnel. The AFR 39-1 job descriptions were adequate for all skill levels, and the STS and POIs were well supported by survey data. Job satisfaction was positive for the jobs identified, although one group had a significantly lower opinion on utilization of talents and training. In a comparison of AFSC 118X1 tasks against similar AFSC 116X0 tasks, it was discovered that AFSC 118X1 personnel are performing many of the operations functions that AFSC 116X0 personnel perform, although percent time spent is equal to or slightly lower than that of AFSC 116X0 personnel.

OCCUPATIONAL SURVEY REPORT
AIRBORNE COMMAND AND CONTROL COMMUNICATIONS EQUIPMENT
(AFSC 118X1)

INTRODUCTION

This is a report of the occupational survey of the Airborne Command and Control Communications Equipment Specialty completed by the Occupational Analysis Division, USAF Occupational Measurement Center, in June 1988. The 552 AWACW/DCO at Tinker AFB OK requested this project to obtain current occupational survey information for use in reviewing the effectiveness of training since the separation of this specialty from the Avionic Communications (AFSC 328X0) specialty in October 1984.

Background

Prior to its creation in October 1984, AFSC 118X1 personnel held AFSC A328X0, Avionic Communications Systems, airborne positions. Those tasks performed by A328X0 personnel were identified and removed when the separation took place. Entrance into the AFSC 118X1 career ladder can be through re-training or direct entry.

The mission of this specialty is multi-faceted. There are three primary organizations in which AFSC 118X1 personnel are assigned. The largest of these is the 552d Airborne Warning and Control Wing (552 AWACW) at Tinker AFB OK. The 552 AWACW flies the E-3A Airborne Warning and Control System (AWACS) aircraft, designed to provide high altitude "deep look" surveillance, warning interception control, and airborne battle management in a variety of tactical, strategic, and special missions. The 28th Air Division (28 AD) at Tinker AFB controls all USAF E-3A operations around the world, including the 552 AWACW at Tinker AFB, and three E-3A Sentry Squadrons located in Alaska, Iceland, and Okinawa (Japan). The 552 AWACW also consists of three operational squadrons located at Tinker AFB which are poised to carry out the diplomatic or military policy of the US. Two training squadrons at Tinker AFB provide academic training and airborne training for E-3A flight and mission crews.

The second organization is the 8th Tactical Deployment Control Squadron (8 TDCS), co-located at Tinker AFB. The unit's EC-135 aircraft provide HQ TAC, USAF Readiness Command, and Air Force Atlantic Command deployment, employment, and redeployment operations. The EC-135 aircraft serve as on-scene airborne command and control platforms for tactical air coordination and employment direction of forces. This platform also serves as an extension of, or alternate for, the fixed HQ TAC Command Post. The 8 TDCS also provides contingency transportation for HQ TAC Commander and staff in response to operations plans and orders, or as directed by the commander. The EC-135 aircraft also provide constant communications capability between HQ TAC Commander and staff, and HQ TAC and other commands.

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

The 7th Airborne Command and Control Squadron (7 ACCS) is the third organization utilizing AFSC 118X1 personnel. The 7 ACCS is the only combat unit assigned to Keesler AFB MS, and is an integral part of TAC's global strike force. The squadron's EC-130 aircraft have been modified to carry an Airborne Battlestaff Command and Control Center (ABCCC) capsule which houses a 12 member battlestaff. The battlestaff, which includes operations, intelligence, and communications personnel, provides continuous control of tactical air operations in the forward battle area and behind enemy lines. Using an unparalleled communications capability, provided by 20 radios and 2 teletype terminals, the battlestaff also exercises the vital control function of directing air strikes in support of ground force operations. The 7 ACCS trains daily and participates in major exercises throughout the world. Although its primary mission is to fly in battlefield operations, the 7 ACCS has the capability to perform in various types of crisis situations, including natural disasters.

The primary mission of the specialty is to maintain airborne communications systems, to include inspecting, removing, replacing, troubleshooting, and fixing radios, transceivers, receivers, and other related communications equipment. Other functions that AFSC 118X1 personnel perform are that of protocol functions for those assigned to the EC-135 aircraft, in support of HQ TAC/CC, and maintaining all types of avionic systems (i.e., communications, navigational) for those assigned to the EC-130 aircraft. There is typically only one communications or maintenance technician on any given aircrew. It is that member's responsibility to maintain all airborne communications systems in the event of a malfunction. The mission crew commander (MCC) is responsible for supervisory aspects of the aircrew.

Prior to entering formal technical training, all personnel entering the 118X1 career ladder attend Course 3AQR11010, Enlisted Aircrew Undergraduation Course (EAUC), 14 days in length, at Sheppard AFB, Texas. Upon completion, AFSC 118X1 personnel attend Technical Training Course E3ABR32830 002, Avionic Communications Specialist, 24 weeks, 3 days in length, taught at Keesler Technical Training Center MS. Personnel completing this course are awarded a diploma and sent to 3-skill level training. Those personnel assigned to the E-3A attend TAC Course E3000B00TX, E-3 Communications Technician, 15 weeks, 2 days in length, at Tinker AFB OK. Those assigned to the EC-135 attend unit training at Tinker AFB OK, while those assigned to the EC-130 attend TAC Course EC130MQ0TK, Airborne Maintenance Technician (AMT), 15 weeks in length, at Keesler AFB MS.

Tactical Air Command (TAC) owns roughly 89 percent of the personnel in this specialty. The remaining 11 percent are assigned to AF Elements, Europe (EUR).

The remainder of this report will focus upon (1) survey methodology, (2) job structure within the specialty, (3) analysis of skill level (DAFSC) and first-enlistment (TAFMS) groups, (4) comparisons of findings to AFR 39-1, (5) job satisfaction, (6) training issues, and (7) additional analyses (comparisons of MAJCOMs, CONUS versus overseas, and 118X1 and 116X0 tasks).

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory AFPT 90-118-839, dated August 1987. A tentative task list was formulated in visits with AFSC 118X1 personnel at Keesler AFB MS to include tasks suggested by the specialty training standard (STS) and other career ladder documents. The tentative task list was refined and validated by subsequent visits to the two operational CONUS sites listed below:

Keesler AFB, Mississippi

-- 7th Airborne Command and Control Squadron (7 ACCS)

Tinker AFB, Oklahoma

-- 552d Airborne Warning and Control Wing (552 AWACW)

-- 8th Tactical Deployment Control Squadron (8 TDCS)

From these visits, a final task list was developed containing 402 tasks organized in 21 duties. The background section in the job inventory included questions about job satisfaction, primary job title, aircraft currently assigned to, and equipment maintained.

Survey Administration

Prior to the mailing of survey booklets, it was determined that a return rate of 95 to 100 percent was needed in order to provide the best possible data analysis (based on the low numbers of personnel in the career ladder). For this reason, the 552 AWACW/DO at Tinker AFB OK provided a list of points of contact (POC) for administering the job surveys. From October 1987 through February 1988, surveys were mailed to the POCs in operational units worldwide in order to ensure the best possible return of surveys. Surveys were administered to personnel holding Airborne Command and Control Communication Equipment DAFSCs (118X1). Personnel holding 118X1 AFSCs were selected from a mailing list generated from Uniform Airman Record (UAR) data tapes maintained by the Air Force Human Resources Laboratory (AFHRL). Each individual responding to the survey completed an information and background section, then checked each task performed in his or her job. After checking the tasks performed, the respondent then rated each task checked on a 9-point scale indicating relative time spent on that task. Ratings ranged from 1 (very small amount of time spent) through 5 (average amount of time spent) to 9 (very large amount of time spent). To determine relative time spent for each task checked by a respondent, all of the respondent's ratings were assumed to account for 100 percent of his or her time spent on the job. These ratings were then summed, divided by the number of total responses, and the quotient multiplied by 100. This procedure provided a basis for comparing tasks not only in terms of percent members performing, but also in terms of average percent time spent on tasks and groups of tasks.

Survey Sample

Eligible personnel were administered survey booklets. Personnel who had been in their present job at least 6 weeks and not in permanent change of station (PCS) status, retirement, or hospital status were considered eligible for the survey. Table 1 shows the percentage distribution, by major command, (MAJCOM) groups of assigned personnel in the career ladder as of September 1987, while Table 2 shows the percentage distribution by paygrade groups. Representation by MAJCOM and paygrade was fairly good. While the percent of airman in the final sample was low, as compared to the assigned population (see Table 2), the overall results of the analysis were not affected. The 99 respondents in the final survey sample represent 86 percent of assigned AFSC 118X1 personnel.

Task Factor Administration

In addition to completing the job inventory, selected senior Airborne Command and Control Communications Equipment personnel were also asked to complete a second booklet for either task difficulty or training emphasis ratings. Task difficulty and training emphasis information are used in a number of different analyses discussed in more detail within this report.

Task Difficulty: Each senior NCO completing a task difficulty booklet was asked to rate each task in the inventory on a 9-point scale from extremely low to extremely high difficulty relative to the other tasks. Difficulty was defined as the length of time required for an average member to learn to perform that task. Interrater reliability between the 30 DAFSC 118X1 raters (as assessed through components of variance of standard group means) is .94, indicating high agreement. Task difficulty ratings were adjusted so tasks of average difficulty would have ratings of 5.00 and a standard deviation of 1.00. The resulting data are essentially a rank ordering of tasks indicating the degree of difficulty for each task in the inventory.

Training Emphasis: Individuals selected to complete training emphasis booklets were asked to rate all of the tasks on a 10-point scale from zero (indicating that no training is required), to nine (indicating that extremely high training emphasis was recommended). Training emphasis is a rating of tasks indicating which areas should receive emphasis in structured training for first-enlistment personnel. Structured training was defined as training provided through resident technical schools, Field Training Detachments (FTD), Mobile Training Teams (MTT), formal on-the-job training (OJT), or any other organized training method. The interrater reliability for the 30 DAFSC 118X1 raters of .97 was good. The average training emphasis rating was 2.63, and the standard deviation was 2.12. Tasks receiving ratings of 4.75 or higher may be considered to have relatively high training emphasis.

The computer uses the TD and TE ratings for each task in the inventory, percent of first-enlistment respondents performing, and the training decision

TABLE 1
118X1 MAJCOM DISTRIBUTION OF SURVEY SAMPLE
(Assigned Manning as of September 1987)

<u>MAJCOM</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
TACTICAL AIR COMMAND (TAC)	88	89
AF ELEMENTS EUROPE (EUR)	12	11

Total 118X1 Personnel Assigned: 115
 Total 118X1 Personnel Eligible for Survey: 104
 Total 118X1 Personnel in Survey Sample: 99
 Percent of Assigned in Sample: 86%
 Percent of Eligible in Sample: 95%

NOTE: Personnel projected for PCS, retirement, or discharge; those in hospital status; and those with less than 6 weeks in their present job are not eligible for survey

TABLE 2

118X1 PAYGRADE DISTRIBUTION OF SURVEY SAMPLE
(Assigned Manning as of September 1987)

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
AIRMAN	12	4
E-4	23	21
E-5	40	34
E-6	12	28
E-7	12	10
E-8	1	3

table found in AFR 52-22 to compute an Automated Training Indicator (ATI) value for each task. This ATI, the TD and TE values, as well as percent of various groups of respondents performing, can provide insight into the training requirements of a specialty. This may help validate decisions of training personnel to lengthen or shorten specific units of instruction to refine various training programs.

ANALYSIS OF CAREER LADDER JOBS

SPECIALTY JOBS (Career Ladder Structure)

The structure of jobs within the Airborne Command and Control Communications Equipment career ladder was examined on the basis of similarity of tasks performed and the percent time spent ratings provided by job incumbents, independent of background or specialty factors.

For the purpose of organizing individual jobs into similar units of work, an automated job clustering program is used. Each individual job description in the sample is compared to every other job description in terms of tasks performed and the relative amount of time spent on each task in the job inventory. The automated system is designed to locate the two jobs with the most similar tasks and percent time ratings and combine them to form a composite job description. In successive stages, new members are added to initial groups or new groups are formed based on the similarity of tasks and percent of time ratings in each individual job description. This procedure is continued until all individuals and groups are combined to form a single composite representing the total survey sample.

The basic identifying group used in the job structuring process is the Job Type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When there is a substantial degree of similarity between different job types, they are grouped together and labeled as Clusters. In many career ladders, there are specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are labeled Independent Job Types.

Overview

An analysis of the tasks performed and time spent on those tasks by the 99 respondents resulted in identifying one cluster of jobs and two independent job types within the Airborne Command and Control Communications Equipment Specialty. Figure 1 is a graphic representation of the way these three groups were organized. The cluster performed maintenance functions related to communications equipment onboard the E-3A Airborne Warning and Control (AWAC) aircraft, while the two independent job types performed communications maintenance functions onboard the EC-135 and the Airborne Battlestaff Command and

AFSC 118X1 SPECIALTY JOBS (N=99)

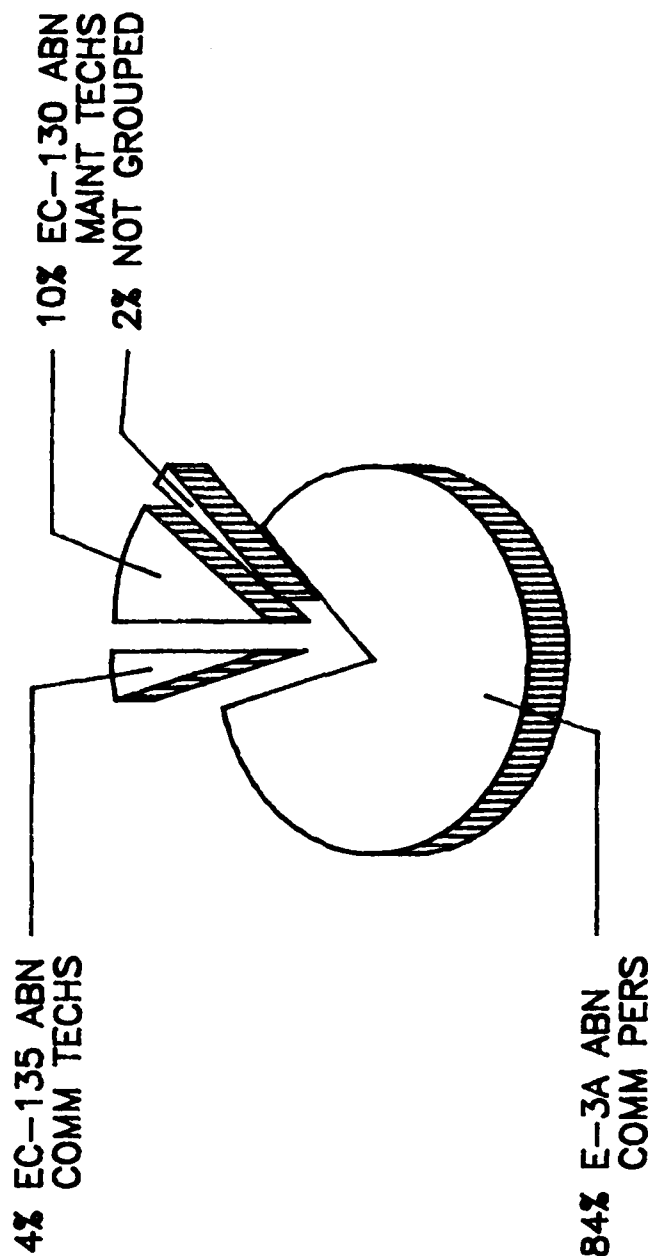


Fig. 1

Control Center (ABCCC) capsule in the EC-130 aircraft. The jobs in the following list are discussed in detail in the following pages.

- I. E-3A AIRBORNE COMMUNICATIONS MAINTENANCE PERSONNEL CLUSTER (STG008, N=83)
 - A. Tactical Air Command (TAC) E-3A Airborne Communications Technicians (CT) (STG010, N=73)
 - B. NATO E-3A Airborne Communications Technicians (CT) (STG015, N=8)
- II. EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (STG005, N=4)
- III. EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (STG006, N=10)

The above jobs account for 97 respondents (98 percent of the sample). The remaining 2 percent did not group with the cluster or independent job groups because of either the unique job they performed or the manner in which they perceived their jobs.

Table 3 provides selected background information, such as DAFSC distribution, average time in career field (TICF), and average number of tasks performed. Table 4 provides data on the relative time spent on each of the 21 duties by personnel in each of the major jobs. Also included in this report is an appendix concerning the Airborne Command and Control Communications Equipment specialty jobs. Appendix A provides various background information for all the jobs identified in the career ladder structure analysis, including the jobs within the identified cluster. This appendix also lists tasks commonly performed by each of the jobs identified.

Job Descriptions

I. E-3A AIRBORNE COMMUNICATIONS MAINTENANCE PERSONNEL CLUSTER (STG008, N=83). The 83 members of this group comprise 84 percent of the survey sample. Communications Technicians monitor, troubleshoot, repair, and replace various components of communications systems onboard the E-3A aircraft. Forty-five percent of their job time is spent in general airborne maintenance and specific system maintenance functions (see Table 4). Twenty-five percent of these personnel are located overseas. Tasks most commonly performed include:

- Monitor displays and indicators for equipment status during system operation
- Isolate malfunctions within high frequency (HF) radio systems
- Isolate malfunctions within UHF radio systems

TABLE 3

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	JOB TYPES		
	E-3A AIRBORNE COMMUNICATIONS MAINTENANCE CLUSTER (STG008)	TAC E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (STG010)	NATO E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (STG015)
NUMBER IN GROUP	83	73	8
PERCENT OF SAMPLE	84%	74%	8%
PERCENT IN CONUS	75%	72%	0%
DAFSC DISTRIBUTION (PERCENT):			
11831	11%	11%	0%
11851	49%	51%	37%
11871	40%	38%	63%
PREDOMINATE PAYGRADES (DESCENDING)			
	E-5/4/6	E-5/4/7	E-6/5/7
AVERAGE MONTHS IN PRESENT JOB	32	32	29
AVERAGE T1CF (MOS)	59	61	46
AVERAGE TAFMS (MOS)	116	116	130
PERCENT IN FIRST ENLISTMENT	17%	15%	13%
PERCENT SUPERVISING			
AVERAGE NUMBER OF TASKS PERFORMED	22% 207	20% 211	50% 185

TABLE 3 (CONTINUED)
SELECTED BACKGROUND DATA FOR SPECIALTY JOBS

	EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (STG005)**	EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (STG006)**
NUMBER IN GROUP	4	10
PERCENT OF SAMPLE	4%	10%
PERCENT CONUS	100%	100%
DAFSC DISTRIBUTION (PERCENT):		
11831	0%	0%
11851	75%	60%
11871	25%	40%
PREDOMINANT PAYGRADES (DESCENDING)		
	E-5/6	E-5/6/4
AVERAGE MONTHS IN PRESENT JOB	66	31
AVERAGE TICF (MOS)	70	94
AVERAGE TAFMS (MOS)	117	136
PERCENT IN FIRST ENLISTMENT	0%	0%
PERCENT SUPERVISING	0%	10%
AVERAGE NUMBER OF TASKS PERFORMED	114	168

** Independent Job Type (IJT)

TABLE 4

RELATIVE PERCENT TIME SPENT ON DUTIES BY MAJOR SPECIALTY JOBS

DUTIES	JOB TYPES		
	E-3A AIRBORNE COMMUNICATIONS MAINTENANCE CLUSTER (STG008)	TAC E-3A AIRBORNE COMMUNICATIONS (CT) TECHNICIANS (STG010)	NATO E-3A AIRBORNE COMMUNICATIONS (CT) TECHNICIANS (STG015)
A ORGANIZING AND PLANNING	1	1	1
B DIRECTING AND IMPLEMENTING	2	2	1
C INSPECTING AND EVALUATING	1	1	1
D TRAINING	4	4	4
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	3	3	4
F PERFORMING CROSS UTILIZATION TRAINING (CUT) TASKS	*	*	*
G PERFORMING GENERAL AIRBORNE MAINTENANCE TASKS	6	6	7
H MAINTAINING AUDIO DISTRIBUTION SYSTEMS (ADS)/ INTERPHONE SYSTEMS AND SWITCHING SYSTEMS	4	4	4
I MAINTAINING VERY HIGH FREQUENCY (VHF)/ HIGH FREQUENCY (HF) SYSTEMS	8	8	5
J MAINTAINING ULTRAHIGH FREQUENCY (UHF) SYSTEMS	7	7	5
K MAINTAINING SECURE VOICE SYSTEMS	6	6	5
L MAINTAINING TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	5	5	5
M MAINTAINING ANTIJAM COMMUNICATION SYSTEMS	6	6	4
N MAINTAINING MISCELLANEOUS COMMUNICATIONS AND SUPPORT SYSTEMS	3	3	1
O PERFORMING PREMISSION TASKS	6	6	1
P PERFORMING PREFLIGHT AND ENROUTE OUTBOUND TASKS	9	9	8
Q PERFORMING ONSTATION TASKS	10	10	11
R PERFORMING ENROUTE INBOUND, BEFORE LEAVING AIRCRAFT, AND POSTMISSION TASKS	1	1	1
S PERFORMING MOBILITY TASKS	5	5	7
T PERFORMING ALERT DUTY TASKS	2	2	2
U PERFORMING RELATED AIRBORNE COMMUNICATIONS SYSTEMS TASKS	2	2	3
	9	8	14

* Denotes less than .5 percent

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

TABLE 4 (CONTINUED)

RELATIVE PERCENT TIME SPENT ON DUTIES BY MAJOR SPECIALTY JOBS

DUTIES	EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (STG005)**	EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (STG006)**
A ORGANIZING AND PLANNING	*	3
B DIRECTING AND IMPLEMENTING	*	3
C INSPECTING AND EVALUATING	1	2
D TRAINING	3	0
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	4	6
F PERFORMING CROSS UTILIZATION TRAINING (CUT) TASKS	1	2
G PERFORMING GENERAL AIRBORNE MAINTENANCE TASKS	9	8
H MAINTAINING AUDIO DISTRIBUTION SYSTEMS (ADS)/ INTERPHONE SYSTEMS AND SWITCHING SYSTEMS	5	6
I MAINTAINING VERY HIGH FREQUENCY (VHF)/HIGH FREQUENCY (HF) SYSTEMS	12	9
J MAINTAINING ULTRAHIGH FREQUENCY (UHF) SYSTEMS	6	6
K MAINTAINING SECURE VOICE SYSTEMS	4	6
L MAINTAINING TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	0	0
M MAINTAINING ANTIJAM COMMUNICATION SYSTEMS	2	2
N MAINTAINING MISCELLANEOUS COMMUNICATIONS AND SUPPORT SYSTEMS	3	2
O PERFORMING PREMISSION TASKS	9	5
P PERFORMING PREFLIGHT AND ENROUTE OUTBOUND TASKS	13	11
Q PERFORMING ONSTATION TASKS	8	8
R PERFORMING ENROUTE INBOUND, BEFORE LEAVING AIRCRAFT, AND POSTMISSION TASKS	10	6
S PERFORMING MOBILITY TASKS	5	4
T PERFORMING ALERT DUTY TASKS	5	7
U PERFORMING RELATED AIRBORNE COMMUNICATIONS SYSTEMS TASKS	0	1

* Denotes less than .5 percent

** Independent Job Type (IJT)

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

- Identify faulty system components
- Monitor communications links for malfunctions
- Perform operational checks of UHF radio systems
- Verify UHF radio system configurations

Communications maintenance personnel average 59 months TICF and perform an average of 207 tasks.

Two jobs were identified within this cluster. The 73 TAC E-3A Airborne Communications Technicians (CT) (STG010) primarily perform system maintenance of high frequency (HF) and ultrahigh frequency (UHF) radio systems (15 percent, see Table 4). This group comprises 74 percent of the sample, are predominately E-5, and average 211 tasks. The second job, NATO E-3A Airborne Communications Technicians (CT) (STG015), with eight members, perform maintenance associated with joint tactical information distribution systems (JTIDS) and tactical data information link (TADIL) A systems. Predominately 7-skill level (63 percent) and averaging 185 tasks, 100 percent of this group are located overseas.

II. EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) STG005, N=4. Accounting for only 4 percent of the total sample, this group spends the majority of their job time (18 percent) maintaining very high frequency (VHF)/high frequency (HF) radio systems, and ultrahigh frequency (UHF) radio systems (see Table 4). Members of this group also perform protocol functions related to their mission as air support for HQ TAC/CC. Some of the most representative tasks performed by the four members of this specialty job include:

- Perform safety practices, such as when working with high voltage equipment or radio frequency radiation
- Identify faulty system components
- Replace HF radio system LRU
- Isolate malfunctions within very high frequency (VHF)/amplitude modulated (AM) radio systems
- Isolate malfunctions within high frequency (HF) radio systems
- Debrief ground maintenance personnel
- Isolate malfunctions within UHF radio systems

Personnel in this job perform an average of 114 tasks, average 70 months TICF, and are predominately 5-skill level personnel with an average paygrade of E-5.

III. EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (STG006, N=10). Operating from the ABCCC capsule, this independent job type consists of 10 members whose jobs focus primarily on general airborne maintenance, VHF/HF system maintenance, and alert duty functions (see Table 4). Job performance extends beyond the normal communication system maintenance to include other

avionic systems, such as navigational systems, onboard the EC-130 aircraft. Members of this group perform an average of 168 tasks, have 94 months TICF, and are predominately 5-skill level. Some of the most common tasks performed include:

- Inspect aircraft communications systems for electrical integrity
- Inspect aircraft exterior for physical integrity
- Identify faulty system components
- Replace ADS/interphone system LRU
- Isolate malfunctions within ADS/interphone systems
- Isolate malfunctions within UHF radio systems
- Determine cause of radio interferences

Summary

One cluster (including two jobs) and two independent job types were identified in the career ladder structure analysis. The cluster was directly involved with functions associated with communications maintenance onboard the E-3A aircraft. The two independent jobs were involved with communications maintenance on the EC-135 aircraft, including protocol-related duties, and communications maintenance of the ABCCC capsule, including maintenance of other avionic systems onboard the EC-130 aircraft. These three groups, combined, present a clear picture of the Airborne Command and Control Communications Equipment Specialty.

ANALYSIS OF DAFSC GROUPS

DAFSC analysis identifies similarities and differences in task and duty performance at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as AFR 39-1 Specialty Descriptions and the STS, reflect what career ladder personnel are actually doing in the field.

Comparison of the duty and task performance between DAFSCs 11831 and 11851 indicated that, while there are some minor differences, the jobs they perform are essentially the same; evidenced by the fact that there is an 85 percent similarity in the tasks they perform. Therefore, they will be discussed as a combined group in this report. Survey data, if desired, will also be available for each separate skill level.

The distribution of skill-level groups across major specialty jobs is shown in Table 5, while Table 6 shows the relative time spent on each duty across the two skill-level groups being discussed.

The 118X1 career ladder shows a typical career progression pattern seen in most aircrew specialties as one advances from the 3-skill level through the

TABLE 5
DISTRIBUTION OF 118X1 DAFSC GROUP MEMBERS
ACROSS MAJOR SPECIALTY JOBS
(PERCENT RESPONDING)

<u>MAJOR SPECIALTY JOBS</u>	<u>DAFSC 11831/51 (N=60)</u>		<u>DAFSC 11871 (N=39)</u>	
	<u>Nmbr</u>	<u>Pct</u>	<u>Nmbr</u>	<u>Pct</u>
I. E-3A AIRBORNE COMMUNICATIONS MAINTENANCE CLUSTER (N=83)	50	83%	33	85%
a. TAC E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=73)	45	75%	28	72%
b. NATO E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=8)	3	5%	5	13%
II. EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=4)	3	5%	1	3%
III. EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (N=10)	6	10%	4	10%
IV. PERCENT NOT GROUPED	1	2%	1	3%

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

TABLE 6

RELATIVE PERCENT TIME SPENT ON DUTIES BY 118X1 DAFSC GROUPS

DUTIES	DAFSC 11831/51 (N=60)	DAFSC 11871 (N=39)
A ORGANIZING AND PLANNING	1	2
B DIRECTING AND IMPLEMENTING	1	3
C INSPECTING AND EVALUATING	1	2
D TRAINING	3	6
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	3	5
F PERFORMING CROSS UTILIZATION TRAINING (CUT) TASKS	*	*
G PERFORMING GENERAL AIRBORNE MAINTENANCE TASKS	7	6
H MAINTAINING AUDIO DISTRIBUTION SYSTEMS (ADS)/ INTERPHONE SYSTEMS AND SWITCHING SYSTEMS	4	4
I MAINTAINING VERY HIGH FREQUENCY (VHF)/HIGH FREQUENCY (HF) SYSTEMS	9	7
J MAINTAINING ULTRAHIGH FREQUENCY (UHF) SYSTEMS	7	6
K MAINTAINING SECURE VOICE SYSTEMS	6	6
L MAINTAINING TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	5	4
M MAINTAINING ANTIJAM COMMUNICATION SYSTEMS	5	5
N MAINTAINING MISCELLANEOUS COMMUNICATIONS AND SUPPORT SYSTEMS	3	3
O PERFORMING PREMISSION TASKS	6	5
P PERFORMING PREFLIGHT AND ENROUTE OUTBOUND TASKS	10	8
Q PERFORMING ONSTATION TASKS	10	10
R PERFORMING ENROUTE INBOUND, BEFORE LEAVING AIRCRAFT, AND POSTMISSION TASKS	6	5
S PERFORMING MOBILITY TASKS	3	2
T PERFORMING ALERT DUTY TASKS	2	2
U PERFORMING RELATED AIRBORNE COMMUNICATIONS SYSTEMS TASKS	8	9

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

7-skill level. As shown in Table 6, personnel in all skill levels are spending the majority of their job time on technical tasks. Even at the 7-skill level, only 13 percent of their time is spent on the supervisory duties A-D (see Table 6). Table 7 presents representative tasks of and differences across skill-level groups, while Tables 8 and 9, respectively, present job descriptions for the 11831/51 and 11871 skill levels.

Skill Level Descriptions

DAFSC 11831/51: As in most career ladders, the job performed by 3- and 5-skill level respondents is largely technical in nature. The 60 airmen in the 3- and 5-skill level group (representing 61 percent of the survey sample) perform an average of 182 tasks, with 84 of the total 402 survey tasks accounting for 50 percent of their job time. Twenty percent of their job time is spent in premission/enroute outbound and onstation tasks (see Table 6). The average TICF is 46 months, with an average TAFMS of 81 months. Eighty-three percent of this group work as E-3A Communications Technicians (see Table 5).

DAFSC 11871: Seven-skill level personnel comprise 39 percent of the survey sample. This group averages 89 months TICF, 178 months TAFMS, and performs an average of 222 tasks. Most 7-skill level personnel work as E-3A Communications Technicians (85 percent, see Table 5). The majority of job time for 7-skill level personnel is spent in related airborne communications systems duties, or in specialized communications system maintenance (see Table 6). Unlike many other career ladders, supervisory tasks only account for 13 percent of the job time at the 7-skill level. This trend is supported by Table 9, where tasks performed by the highest percentages of 7-skill level personnel are primarily maintenance oriented. Because there is typically only one communications technician for each aircrew, supervisory responsibilities tend to be centered around activities other than airborne communications maintenance; responsibility for airborne supervision primarily falls under the MCC.

Summary

Career ladder progression in this specialty is typical of most aircrew career ladders through all skill levels. As one progresses from the 3- and 5-skill levels to the 7-skill level, technical tasks continue to account for a large proportion of job time. At the 7-skill level, percent time spent in managerial areas increases only slightly. Representation of skill levels across specialty jobs shows the majority performing as E-3A Communications Technicians.

TABLE 7

REPRESENTATIVE TASKS FOR 118X1 DAFSC GROUPS
WITH DIFFERENCES BETWEEN THE GROUPS
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 11831/ 11851 (N=60)	DAFSC 11871 (N=39)	DIFFERENCE
T346 PERFORM ALERT CREW CHANGEOVERS	73	51	+22
T348 PRACTICE ALERT (FAST) REACTION PROCEDURES	55	33	+22
T345 PERFORM ALERT AIRCRAFT CHANGEOVERS	62	41	+21
*****	*****	*****	*****
U367 OBTAIN AND COORDINATE FLIGHT INFORMATION WITH THE FLIGHT CREW	47	67	-20
G147 EVALUATE EQUIPMENT PERFORMANCE TESTS	67	87	-20
R312 PERFORM DESCENT PROCEDURES	72	92	-20
U353 AUTHENTICATE STATIONS USING CHALLENGE AND REPLY SYSTEMS	28	49	-21
B25 DIRECT DEVELOPMENT OR MAINTENANCE OF STATUS INDICATORS, SUCH AS BOARDS, CHARTS, AND GRAPHS	5	26	-21
C43 EVALUATE INSPECTION REPORT FINDINGS	5	26	-21
U356 COORDINATE AIR-TO-GROUND MESSAGE TRAFFIC	38	59	-21
L220 REPLACE TADIL A SYSTEM LRU	53	74	-21
E107 MAINTAIN PUBLICATION LIBRARIES	20	41	-21

TABLE 8
REPRESENTATIVE TASKS PERFORMED BY AFSC 11831/11851
SKILL LEVEL PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
0251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
0260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
I180 SET HF RADIO SYSTEM CIRCUIT BREAKERS	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
J199 VERIFY UHF RADIO SYSTEM CONFIGURATIONS	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	100
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	98
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	98
0259 REVIEW FLIGHT CREW INFORMATION FILES (FCIF)	98
J192 PERFORM OPERATIONAL CHECKS OF UHF RADIO SYSTEMS	98
0255 DETERMINE AIRCRAFT STATUS	98
0257 PARTICIPATE IN SUMMARY MISSION BRIEFINGS	98
I179 RESEAT HF RADIO SYSTEM SUBASSEMBLIES	98
J197 SET UHF RADIO SYSTEM CIRCUIT BREAKERS	98
J196 RESEAT UHF RADIO SYSTEM LRU	98
I181 SET VHF/AM RADIO SYSTEM CIRCUIT BREAKERS	98
I171 ISOLATE MALFUNCTIONS WITHIN VERY HIGH FREQUENCY (VHF)/AMPLITUDE MODULATED (AM) RADIO SYSTEMS	98
I174 PERFORM OPERATIONAL CHECKS OF VHF/AM RADIO SYSTEMS	98
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	97
G145 CONDUCT TESTING OF AIRCRAFT COMMUNICATIONS EQUIPMENT	97
P265 INSPECT AIRCRAFT SAFETY EQUIPMENT	97
R311 PERFORM BEFORE LEAVING AIRCRAFT PROCEDURES	97
H163 PERFORM OPERATIONAL CHECKS OF ADS/INTERPHONE SYSTEMS	97
Q282 DETERMINE CAUSE OF RADIO INTERFERENCES	97
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	95

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY AFSC 11871
SKILL LEVEL PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	100
J192 PERFORM OPERATIONAL CHECKS OF UHF RADIO SYSTEMS	100
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
J197 SET UHF RADIO SYSTEM CIRCUIT BREAKERS	100
G146 CONFIGURE AIRCRAFT SWITCHES AND CONTROLS	100
O251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
O260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
R310 PERFORM BEFORE LANDING PROCEDURES	100
I180 SET HF RADIO SYSTEM CIRCUIT BREAKERS	100
R311 PERFORM BEFORE LEAVING AIRCRAFT PROCEDURES	100
K212 SET CRYPTOGRAPHIC SYSTEM CIRCUIT BREAKERS	100
Q282 DETERMINE CAUSE OF RADIO INTERFERENCES	100
O259 REVIEW FLIGHT CREW INFORMATION FILES (FCIF)	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100
O255 DETERMINE AIRCRAFT STATUS	100
K201 ISOLATE MALFUNCTIONS WITHIN KY-58 CRYPTOGRAPHIC SYSTEMS	100
K207 PERFORM OPERATIONAL CHECK OF KY-58 CRYPTOGRAPHIC SYSTEMS	100
I171 ISOLATE MALFUNCTIONS WITHIN VERY HIGH FREQUENCY (VHF)/ AMPLITUDE MODULATED (AM) RADIO SYSTEMS	100
P276 POWER UP EQUIPMENT FOR MISSIONS	97
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	97
R309 PARTICIPATE IN OPERATIONS DEBRIEFINGS	97
K213 VERIFY CRYPTOGRAPHIC SYSTEM CONFIGURATIONS	97
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	97
P265 INSPECT AIRCRAFT SAFETY EQUIPMENT	97
G157 SAFEGUARD CLASSIFIED MATERIALS OR DOCUMENTS	97

ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

The results of the skill level and job structure analyses were compared with the AFR 39-1 Specialty Descriptions, dated 1 February 1988, for the Airborne Command and Control Communications Equipment specialty. The descriptions in AFR 39-1 describe, in broad terms, the tasks and duties performed by members of the various skill-level groups of a career ladder. There are two descriptions applicable to this study. One describes the jobs of AFSCs 11811, 11831, and 11851; the second describes the jobs of AFSC 11871.

The descriptions for the 3-, 5-, and 7-skill levels were well supported by the findings of this survey. The descriptions depict the highly technical aspect of the job, with only a slight increase in supervisory responsibilities, previously described in the DAFSC analysis. The descriptions also capture the primary responsibilities of members of most of the three major job groups identified by the job structure analysis process.

JOB SATISFACTION

An important part of analysis within any OSR involves the job satisfaction of members and how their responses compare with the responses of members of similar Air Force specialties. Reported job interest, perceived utilization of talents and training, satisfaction with sense of accomplishment gained from jobs, and expressed reenlistment intentions for AFSC 118X1 specialty jobs are presented in Table 10. Table 11 presents the job satisfaction data for the 118X1 respondents, broken down into three groups (first-enlistment, second-enlistment, and career). A comparative sample of aircrew personnel surveyed by the USAF Occupational Measurement Center during 1987 also appear in Table 11. These career fields included AFSCs 116X0 and 117X0.

The responses of members in most jobs were fairly positive. NATO E-3A Communications Technicians showed the highest job interest and received the greatest sense of accomplishment from the job (100 percent, see Table 10). The one group showing low job interest was the small group of EC-130 Airborne Maintenance Technicians. The nature and scope of their jobs could account for the low percentages; other factors, however, may contribute. Overall, personnel across all career ladder jobs generally find their work interesting, the use of their talents and training fairly well utilized, and gain a sense of accomplishment from their work.

In a comparative study of experience groups of the AFSC 118X1 career ladder and aircrew personnel surveyed by OMC in 1987, data indicate that AFSC 118X1 personnel are slightly lower across most job satisfaction indicators (see Table 11). The biggest differences are seen for the 1-48 months TAFMS groups, where 118X1 personnel show a much lower satisfaction with their use of talents, but a much higher percentage of those members likely to reenlist.

TABLE 10

**JOB SATISFACTION INDICATORS BY MAJOR SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)**

	JOB TYPES		
	E-3A AIRBORNE COMMUNICATIONS MAINTENANCE CLUSTER (N=83)	TAC E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=73)	NATO E-3A AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=8)
<u>EXPRESSED JOB INTEREST:</u>			
INTERESTING	81	78	100
SO-SO	11	12	0
DULL	8	10	0
<u>PERCEIVED USE OF TALENTS:</u>			
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	80 19	81 19	75 25
<u>PERCEIVED USE OF TRAINING:</u>			
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	85 13	86 12	75 25
<u>SENSE OF ACCOMPLISHMENT FROM WORK:</u>			
SATISFIED	73	70	100
NEUTRAL	5	5	0
DISSATISFIED	22	25	0
<u>REENLISTMENT INTENTIONS:</u>			
WILL/PROBABLY WILL REENLIST	83	82	88
WILL NOT/PROBABLY WILL NOT REENLIST	11	11	13
WILL RETIRE	6	7	0

* Columns may not add to 100 percent due to nonresponse and rounding

TABLE 10 (CONTINUED)

JOB SATISFACTION INDICATORS BY MAJOR SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	EC-135 AIRBORNE COMMUNICATIONS TECHNICIANS (CT) (N=4)**	EC-130 AIRBORNE MAINTENANCE TECHNICIANS (AMT) (N=10)**
<u>EXPRESSED JOB INTEREST:</u>		
INTERESTING	75	70
SO-SO	0	20
DULL	25	10
<u>PERCEIVED USE OF TALENTS:</u>		
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	50 50	50 50
<u>PERCEIVED USE OF TRAINING:</u>		
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	100 0	60 40
<u>SENSE OF ACCOMPLISHMENT FROM WORK:</u>		
SATISFIED	75	40
NEUTRAL	0	20
DISSATISFIED	25	40
<u>REENLISTMENT INTENTIONS:</u>		
WILL/PROBABLY WILL REENLIST	75	70
WILL NOT/PROBABLY WILL NOT REENLIST	0	10
WILL RETIRE	25	20

* Columns may not add to 100 percent due to nonresponse and rounding
 ** Independent Job Type (IJT)

TABLE 11

COMPARISON OF TAFMS GROUP JOB SATISFACTION INDICATORS
(PERCENT MEMBERS RESPONDING)*

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	118X1 (N=14)	1987 COMP SAMPLE** (N=130)	118X1 (N=27)	1987 COMP SAMPLE** (N=194)	118X1 (N=58)	1987 COMP SAMPLE** (N=439)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	86	92	81	85	76	86
SO-SO	7	6	11	10	14	9
DULL	7	2	7	5	10	5
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	71 29	86 14	78 22	87 11	76 24	83 16
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	93 7	94 5	85 15	89 10	79 21	87 12
<u>SENSE OF ACCOMPLISHMENT FROM WORK:</u>						
SATISFIED	79	79	78	76	64	74
NEUTRAL	14	12	0	9	7	9
DISSATISFIED	7	8	22	14	29	16
<u>REENLISTMENT INTENTIONS:</u>						
WILL/PROBABLY WILL REENLIST	93	78	78	89	81	82
WILL NOT/PROBABLY WILL NOT REENLIST	7	20	22	10	5	5
WILL RETIRE	0	0	0	0	14	11

* Columns may not add to 100 percent due to nonresponse and rounding
 ** Comparative Sample is composed of all aircrew career ladders surveyed in 1987
 (includes AFSC 116X0 and 117X0)

This study is the first occupational survey conducted by the USAF Occupational Measurement Center of the Airborne Command and Control Communications Equipment Specialty. In a 1981 survey of the AFSC 328X0 career ladder, a job resembling the Airborne Command and Control Communications Equipment career ladder was identified and is used for comparative purposes here (see Table 12). The biggest differences were noted in figures for reenlistment intentions and perceived use of training. The percent planning to reenlist was substantially higher for the 1988 sample (82 percent) than for the 1981 sample (62 percent). Members in the 1988 sample perceiving excellent use of training (83 percent) was also greater than that of the 1981 sample (68 percent).

TRAINING ANALYSIS

Occupational survey data provide several sources of information which can be used to make training programs more relevant and meaningful to students. The three most commonly used types of occupational survey information are the percent of first-enlistment personnel performing tasks covered in the job inventory, ratings of relative difficulty of tasks, and the ratings of relative emphasis which should be placed on tasks for first-enlistment training. These data can be used in evaluating training documents, such as the Specialty Training Standard (STS) and the Plan of Instruction (POI).

The primary issue for conducting this study was to provide occupational survey information for use in reviewing training for AFSC 118X1 since its separation from AFSC 32830 in October 1984.

First-Enlistment Personnel

Analysis of tasks performed by first-enlistment respondents is generally useful to training personnel. Table 13 presents the relative percent time spent on duties by first-enlistment Airborne Command and Control Communications Equipment personnel, while Table 14 contains examples of tasks performed by these personnel. Most of the tasks involved airborne maintenance on specialized communications systems. This is consistent with previous findings that these duties account for a substantial percent of job time for 3- and 5-skill level personnel (49 percent). Figure 2 reflects the distribution of first-enlistment respondents across career ladder jobs. Over 80 percent of the 1-48 months TAFMS respondents grouped with the E-3A Communications personnel cluster, indicating that most first-term airman are assigned to this particular aircraft. Within this cluster, it is seen that 79 percent of first-enlistment personnel are TAC E-3A Airborne Communications Technicians and another 7 percent are NATO E-3A Airborne Communications Technicians. Therefore, maintenance on E-3A communications systems should receive a substantial degree of emphasis during first-enlistment training. Fourteen percent of first-enlistment personnel did not group with any of the identified jobs because of the way in which they answered the survey or perceived their jobs.

TABLE 12

CURRENT AND PREVIOUS JOB SATISFACTION INDICATORS
(PERCENT MEMBERS RESPONDING)*

	<u>1988</u> <u>(N=99)</u>	<u>1981</u> <u>(N=34)</u>
<u>EXPRESSED JOB INTEREST:</u>		
INTERESTING	79	74
SO-SO	12	18
DULL	9	6
<u>PERCEIVED USE OF TALENTS:</u>		
FAIRLY WELL TO PERFECTLY	76	77
LITTLE OR NOT AT ALL	24	24
<u>PERCEIVED USE OF TRAINING:</u>		
FAIRLY WELL TO PERFECTLY	83	68
LITTLE OR NOT AT ALL	16	32
<u>SENSE OF ACCOMPLISHMENT FROM WORK:</u>		
SATISFIED	70	65
NEUTRAL	6	12
DISSATISFIED	24	24
<u>REENLISTMENT INTENTIONS:</u>		
WILL/PROBABLY WILL REENLIST	82	62
WILL NOT/PROBABLY WILL NOT REENLIST	10	27
WILL RETIRE	8	12

* Columns may not add to 100 percent due to nonresponse and rounding

TABLE 13

RELATIVE PERCENT TIME SPENT ON DUTIES BY AFSC 118X1
FIRST-ENLISTMENT PERSONNEL

DUTIES	PERCENT TIME SPENT
A ORGANIZING AND PLANNING	*
B DIRECTING AND IMPLEMENTING	*
C INSPECTING AND EVALUATING	*
D TRAINING	1
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	2
F PERFORMING CROSS UTILIZATION TRAINING (CUT) TASKS	0
G PERFORMING GENERAL AIRBORNE MAINTENANCE TASKS	7
H MAINTAINING AUDIO DISTRIBUTION SYSTEMS (ADS)/ INTERPHONE SYSTEMS AND SWITCHING SYSTEMS	3
I MAINTAINING VERY HIGH FREQUENCY (VHF)/HIGH FREQUENCY (HF) SYSTEMS	9
J MAINTAINING ULTRAHIGH FREQUENCY (UHF) SYSTEMS	8
K MAINTAINING SECURE VOICE SYSTEMS	7
L MAINTAINING TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	5
M MAINTAINING ANTIJAM COMMUNICATION SYSTEMS	6
N MAINTAINING MISCELLANEOUS COMMUNICATIONS AND SUPPORT SYSTEMS	3
O PERFORMING PREMISSION TASKS	6
P PERFORMING PREFLIGHT AND ENROUTE OUTBOUND TASKS	10
Q PERFORMING ONSTATION TASKS	11
R PERFORMING ENROUTE INBOUND, BEFORE LEAVING AIRCRAFT, AND POSTMISSION TASKS	6
S PERFORMING MOBILITY TASKS	3
T PERFORMING ALERT DUTY TASKS	3
U PERFORMING RELATED AIRBORNE COMMUNICATIONS SYSTEMS TASKS	8

* Denotes less than .5 percent

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

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY AFSC 118X1
FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

TASKS	PERCENT MEMBERS PERFORMING (N=14)
Q285 MONITOR DISPLAYS AND INDICATORS FOR EQUIPMENT STATUS DURING SYSTEM OPERATION	100
G149 INSPECT AVIONICS EQUIPMENT, SUCH AS BONDING STRAPS, COMMUNICATIONS CABINETS, AND CONNECTORS	100
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
I179 RESEAT HF RADIO SYSTEM SUBASSEMBLIES	100
J199 VERIFY UHF RADIO SYSTEM CONFIGURATIONS	100
G145 CONDUCT TESTING OF AIRCRAFT COMMUNICATIONS EQUIPMENT	100
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
P265 INSPECT AIRCRAFT SAFETY EQUIPMENT	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
P272 PERFORM JTIDS INITIALIZATION PROCEDURES	100
P276 POWER UP EQUIPMENT FOR MISSIONS	100
O251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
R316 POWER DOWN MISSION EQUIPMENT	100
J197 SET UHF RADIO SYSTEM CIRCUIT BREAKERS	100
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	100
J196 RESEAT UHF RADIO SYSTEM LRU	100
I180 SET HF RADIO SYSTEM CIRCUIT BREAKERS	100
L215 ISOLATE MALFUNCTIONS WITHIN TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	100
O257 PARTICIPATE IN SUMMARY MISSION BRIEFINGS	100
M234 VERIFY JTIDS CONFIGURATIONS	100
O255 DETERMINE AIRCRAFT STATUS	100
O260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
L222 SET TADIL A SYSTEM CIRCUIT BREAKERS	100
I181 SET VHF/AM RADIO SYSTEM CIRCUIT BREAKERS	100
O250 ANNOTATE MISSION PLANNING FORMS	100
M235 VERIFY JTIDS VOICE SYSTEM CONFIGURATIONS	100
Q301 RECONFIGURE UHF RADIO SYSTEMS	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100

DISTRIBUTION OF FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N=14)

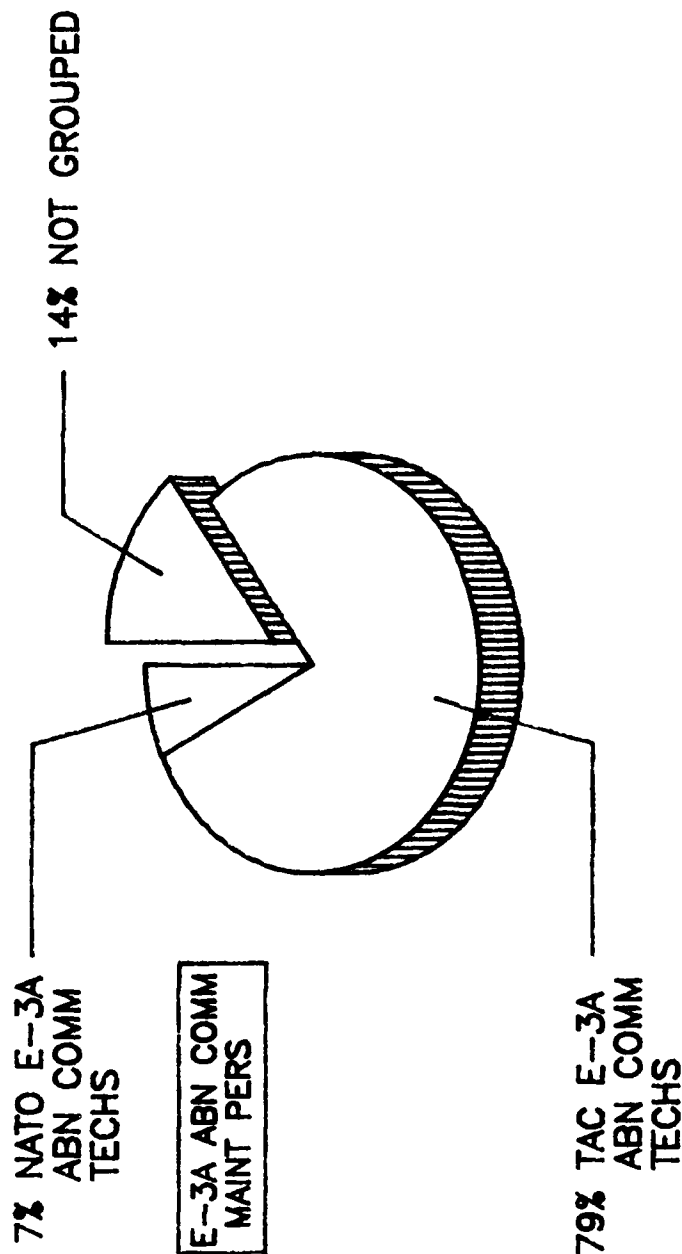


Fig. 2

One area of analysis that is useful to training personnel is the type of equipment maintained or operated by various first-enlistment personnel. This analysis can be useful in determining what types of equipment to train students on in technical school or as part of OJT. There were 15 pieces of equipment that were maintained by 50 percent or more of first-enlistment Airborne Command and Control Communications Equipment personnel. Table 15 presents those pieces of equipment and the percent members responding.

Task Difficulty (TD)

The relative difficulty of each task in the inventory was assessed through ratings by 30 experienced Airborne Command and Control Communications Equipment NCOs. Their ratings were processed to produce an ordered listing of all tasks in terms of their relative difficulty, and were standardized to have an average difficulty of 5.00 with a standard deviation of 1.00. For a more complete description of these ratings, see the Task Factor Administration section in SURVEY METHODOLOGY.

In looking at tasks with the highest difficulty ratings (see Table 16), data indicate that most of the tasks deal with performing maintenance functions related to the various communications systems onboard the aircraft. Most of these tasks were performed by high percentages of first-enlistment (1-48 months TAFMS) personnel.

Training Emphasis (TE)

Thirty senior NCOs in the Airborne Command and Control Communications Equipment specialty reviewed the job inventory, rating the degree of emphasis that should be placed on each task in first-enlistment training. Their ratings were processed to provide a rank order listing of tasks from high degree of training emphasis to no training required. The average rating was 2.63 and the standard deviation was 2.12, so tasks receiving ratings of 4.75 or higher were considered to have high training emphasis. For a more complete description of these ratings, see the Task Factor Administration section in SURVEY METHODOLOGY.

Of those tasks with highest TE ratings, most were performed by high percentages of first-enlistment personnel (see Table 17). Most of these tasks involved communications maintenance functions on specific communications systems.

Specialty Training Standard (STS)

A comprehensive review of the STS for AFSC 118X1, dated August 1984, compared STS items to survey data. The matching was accomplished with the help of training personnel from the 3300 Technical Training Wing (TCHTW) at Keesler AFB MS, and 552 AWACW, Tinker AFB OK. STS paragraphs containing performance information were evaluated. Overall, the STS provides comprehensive coverage of the work performed by personnel in the field, with survey data supporting

TABLE 15

EQUIPMENT MAINTAINED BY 50 PERCENT OR MORE
118X1 FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

<u>EQUIPMENT MAINTAINED</u>	<u>PERCENT MEMBERS RESPONDING</u>
AN/AYC-1 DIGITAL DATA SET	100
KG-40 ELECTRONIC KEY GENERATOR	100
KGV-8 SECURE DATA UNIT	100
KY-28 SECURE SPEECH UNIT	100
KY-58 SECURE SPEECH UNIT	100
KY-75 SECURE SPEECH UNIT	100
SB-4082 UHF BASEBAND DISTRIBUTION	100
URQ-31 UNIFORM MESSAGE ELEMENT (UME)	100
URQ-33 JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM	100
AN/AIC-28 AUDIO DISTRIBUTION SYSTEM (ADS)	93
SB-4083 VHF/HF BASEBAND DISTRIBUTION	93
AN/ARA-50 AUTOMATIC DIRECTION FINDING (ADF) SYSTEM	86
AN/ARC-166 VHF/AM RADIO	86
AN/ARC-165 HF RADIO	79
AN/ARC-173 VHF/FM RADIO	79

TABLE 16

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	PMP*		
	1ST ENL (N=14)	TNG EMP**	TASK DIF***
M226 ISOLATE MALFUNCTIONS WITHIN JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEMS (JTIDS)	100	5.40	7.87
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100	6.83	6.78
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100	6.63	6.72
L215 ISOLATE MALFUNCTIONS WITHIN TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	100	5.23	6.66
N238 ISOLATE MALFUNCTIONS WITHIN ELECTRONIC SUPPORT SYSTEMS (ESS)	93	4.20	6.59
G156 RESEARCH WIRING OR BLOCK DIAGRAMS	93	5.70	6.53
J188 ISOLATE MALFUNCTIONS WITHIN SATELLITE COMMUNICATIONS (SATCOM) SYSTEMS	86	5.40	6.51
P272 PERFORM JTIDS INITIALIZATION PROCEDURES	100	5.50	6.50
M228 PERFORM OPERATIONAL CHECKS OF JTIDS	100	4.93	6.43
Q289 OPERATE JTIDS COMMUNICATIONS LINKS	93	5.30	6.36
G151 MODIFY OR RECONFIGURE AIRCRAFT COMMUNICATIONS EQUIPMENT	100	4.50	6.34
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	93	6.57	6.32
M225 ISOLATE MALFUNCTIONS WITHIN HAVE-QUICK SYSTEMS	93	5.90	6.30
Q303 RESPOND TO AIRCRAFT EMERGENCIES	71	6.23	6.19
Q287 OPERATE ESS EQUIPMENT	93	4.00	6.15
G147 EVALUATE EQUIPMENT PERFORMANCE TESTS	79	4.83	6.14
N237 ISOLATE MALFUNCTIONS WITHIN ELECTRICAL POWER DISTRIBUTION SYSTEMS	43	3.50	6.12
J187 ISOLATE MALFUNCTIONS WITHIN AUTOMATIC DIRECTION FINDING (ADF) SYSTEMS	86	4.57	6.03

* Percent Members Performing

** Training Emphasis has an average of 2.63 and a standard deviation of 2.12 (High TE=4.75)

*** Average TD rating is 5.00 and the standard deviation is 1.00

TABLE 17

TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS	PMP*		
	1ST ENL (N=14)	TNG EMP**	TASK DIF***
G152 PERFORM SAFETY PRACTICES, SUCH AS WHEN WORKING WITH HIGH VOLTAGE EQUIPMENT OR RADIO FREQUENCY RADIATION	86	7.13	5.32
Q286 OPERATE EMERGENCY EQUIPMENT	93	7.07	4.99
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100	6.83	6.78
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100	6.63	6.72
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	93	6.57	6.32
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100	6.43	5.79
I171 ISOLATE MALFUNCTIONS WITHIN VERY HIGH FREQUENCY (VHF)/AMPLITUDE MODULATED (AM) RADIO SYSTEMS	93	6.27	5.68
Q303 RESPOND TO AIRCRAFT EMERGENCIES	71	6.23	6.19
J192 PERFORM OPERATIONAL CHECKS OF UHF RADIO SYSTEMS	93	6.13	4.76
O260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100	6.13	3.71
G146 CONFIGURE AIRCRAFT SWITCHES AND CONTROLS	79	6.10	5.01
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100	6.10	5.04
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100	5.97	4.06
G157 SAFEGUARD CLASSIFIED MATERIALS OR DOCUMENTS	93	5.93	4.38
M225 ISOLATE MALFUNCTIONS WITHIN HAVE-QUICK SYSTEMS	93	5.90	6.30

* Percent Members Performing

** Training Emphasis has an average of 2.63 and a standard deviation of 2.12 (High TE=4.75)

*** Average TD rating is 5.00 and the standard deviation is 1.00

the significant paragraphs or subparagraphs. Generally, technical tasks matched to elements of the STS showed high percentages of first-enlistment and 5- and 7-skill level personnel performing those tasks. First-enlistment personnel tended to have a consistently higher percentage of members performing those tasks, followed by 5-skill level personnel.

Tasks not matched to any element of the STS are listed at the end of the STS computer listing included in the Training Extract. These were reviewed to determine if there were any tasks concentrated around any particular functions or jobs. There were 86 tasks not referenced to the STS but performed by 20 percent or more respondents of the STS target groups. The only trend noted was that performing alert duty, mobility functions, and related airborne communications systems tasks had the greatest percentage of unreferenced tasks. Many of the unreferenced tasks are managerial or supervisory in nature and are difficult to reference because that area of this STS, like most STSs, tended to be somewhat restricted in the scope of coverage. Examples of technical tasks performed by 20 percent or more respondents of the STS target groups, but which are not referenced to any STS element, are displayed in Table 18. Training personnel and subject-matter experts should review these and other eligible unreferenced tasks to determine if inclusion in the STS is warranted.

Plans of Instruction (POI)

The POI for Course E3ABR32830 002, dated 1 May 1985, was reviewed using tasks matched by training personnel to the criterion objectives (CO), plus task difficulty, training emphasis, and percent first-enlistment personnel performing information. The occupational survey data generally supported COs requiring task performance of students. This is a generalized course, teaching basic avionic communication system maintenance. AFSC 118X1 personnel piggy-back this course since there is no basic course for their career ladder. This course is being phased out and TAC and ATC are currently in discussion of what direction to take for training 118X1 personnel.

There were 135 tasks not matched with COs of the POI that were performed by 30 percent or more first-enlistment personnel and considered to be directly related to airborne communications maintenance. Sixty-two of these 135 tasks received above average TE ratings (4.75 or higher), but only 47 tasks were rated as having average or above average difficulty for first-enlistment personnel. Examples of technical tasks performed by 30 percent or more first-enlistment personnel, but which are not referenced to any POI element, are displayed in Table 19. Unreferenced tasks to the POI may be taught in other follow-on training and are best not taught in this course. Training personnel should look at these unreferenced tasks to determine the feasibility of inclusion in this POI.

The POI for TAC Course E3000BQ0TX, dated 1 May 1985, was reviewed using tasks matched by operational and training personnel from the 552 AWACW at Tinker AFB OK to the COs and task difficulty, training emphasis, and percent first-enlistment personnel performing information. The occupational survey data supported COs requiring task performance of students. The complete

TABLE 18

EXAMPLES OF TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
GROUP MEMBERS AND NOT REFERENCED TO THE STS

TASKS	PERCENT MEMBERS PERFORMING			TNG EMP*	TASK DIF**
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)		
R315 PERFORM PERMISSION READINESS PROCEDURES (PMRP)	50	59	67	3.77	5.01
T345 PERFORM ALERT AIRCRAFT CHANGEOVERS	71	59	41	2.07	4.21
T352 PRACTICE STANDBY ALERT PROCEDURES	50	55	59	1.67	3.86
S323 IDENTIFY SUSPECTED ORDNANCE	29	35	33	1.90	5.38
T348 PRACTICE ALERT (FAST) REACTION PROCEDURES	71	49	33	2.07	4.32
T349 PRACTICE ALERT FORCE EXERCISES	50	39	49	1.63	4.02
T341 IDENTIFY KLAXON OUT PROCEDURES	36	22	18	1.13	3.64
U393 REPAIR IFF SYSTEMS	36	18	28	1.00	5.96
S325 OPERATE PORTABLE (FIELD) RADIOS	21	25	41	.60	3.96
U358 DECODE MESSAGES MANUALLY	7	24	54	1.63	5.81
U402 TROUBLESHOOT MALFUNCTIONS WITHIN SERVICE INTERPHONE SYSTEMS	29	41	28	1.80	5.17
U375 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE CIRCUIT BREAKER PANELS	0	22	15	1.30	3.64
U398 TRANSMIT AND RECEIVE MESSAGES BY RADIO TELETYPE SYSTEMS	0	8	21	.87	5.17

* Training Emphasis has an average of 2.63 and a standard deviation
of 2.12 (High TE=4.75)

** Average TD rating is 5.00 and the standard deviation is 1.00

TABLE 19

EXAMPLES OF TASKS NOT REFERENCED TO E3ABR32830 002 POI BLOCKS
(30 PERCENT OR MORE RESPONDING)

TASKS	PMP*	1ST ENL (N=14)	TNG EMP**	TASK DIF***
G157 SAFEGUARD CLASSIFIED MATERIALS OR DOCUMENTS	93	5.93	4.38	
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100	6.43	5.79	
H166 REPLACE ADS/INTERPHONE SYSTEM LINE REPLACEABLE UNITS (LRU)	86	5.77	4.84	
I177 REPLACE VHF/AM RADIO SYSTEM LRU	86	5.37	4.63	
J191 PERFORM OPERATIONAL CHECKS OF SATCOM SYSTEMS	93	5.27	5.04	
J199 VERIFY UHF RADIO SYSTEM CONFIGURATIONS	100	5.87	4.72	
K202 ISOLATE MALFUNCTIONS WITHIN KY-75 CRYPTO-GRAPHIC SYSTEMS	93	5.77	5.85	
L224 VERIFY TADIL A SYSTEM CONFIGURATIONS	93	4.87	4.97	
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100	5.73	4.76	
Q298 RECONFIGURE HF RADIO SYSTEMS	93	5.03	4.92	
L219 REPLACE KG-40 CRYPTOGRAPHIC SYSTEM LRU	57	4.03	4.22	
M232 SET JTIDS CIRCUIT BREAKERS	100	4.40	3.47	
H167 REPLACE AUDIO SWITCHING SYSTEM LRU	14	3.93	4.51	
N244 PERFORM OPERATIONAL CHECKS OF EMERGENCY LOCATOR RECORDER SYSTEMS	21	2.90	4.93	
N248 REPLACE SPECIAL SUPPORT EQUIPMENT INFLIGHT	14	1.80	4.81	

* Percent Members Performing

** Training Emphasis has an average of 2.63 and a standard deviation of 2.12 (High TE=4.75)

*** Average TD rating is 5.00 and the standard deviation is 1.00

course trains the maintenance of E-3A flight and mission crew communication and cryptographic equipment in an airborne environment. This portion of the course is classroom oriented. Upon completion of this portion, students receive hands-on training onboard the E-3A aircraft. There currently is no POI for the airborne portion of the course.

There were 78 tasks not matched with COs of the POI that were performed by 30 percent or more first-enlistment personnel and considered to be directly related to airborne communications maintenance. Twenty-two of these 78 tasks received above average TE ratings (4.75 or higher), but only 21 tasks were rated as having average or above average difficulty for first-enlistment personnel. Examples of technical tasks performed by 30 percent or more first-enlistment personnel, but which are not referenced to any POI element, are displayed in Table 20. Unreferenced tasks to the POI may be taught in other follow-on training and are best not taught in this course. Training personnel should look at these unreferenced tasks to determine the feasibility of inclusion in this POI.

Training personnel are encouraged to review the computer printouts of the POIs matched with survey data as they undertake future revisions of the POI. Particular emphasis should be placed on reviewing the tasks not referenced to COs to determine if new areas should be added to the basic courses.

Electronic Principles (EP)

The Electronic Fundamentals paragraph of the STS and the electronic principles taught in the basic course can be evaluated using data from the Electronic Principles Inventory (EPI). The EPI is a knowledge-based inventory containing 1,366 questions in 63 electronic-related subject areas. It identifies the range of electronic principles personnel must understand to perform any electronics-related job.

At the time of the last EPI (administered between December 1982 and July 1983), current AFSC 118X1 personnel comprised the aircrew positions within the AFSC 328X0 career ladder. Three hundred thirty-two AFSC 328X0 5-skill level airmen completed the EPI. A comprehensive EPI Report for those AFSCs taught at Keesler AFB was published in April 1984. Since the AFSC 118X1 career ladder was created after the EPI Report, the areas of electronic principles may or may not be accurate. AFSC 118X1 personnel are being included in a new EPI due out in 1989. Table 21 lists those electronic areas where 50 percent or more 32850 airmen responded "yes" to performing these functions in their job. This data, as well as the complete data package for Keesler AFB AFSCs, can be useful to subject-matter experts when evaluating those portions of the STS and POI concerning electronic fundamentals or principles.

TABLE 20

EXAMPLES OF TASKS NOT REFERENCED TO E3000BQOTX POI BLOCKS
(30 PERCENT OR MORE RESPONDING)

TASKS	PMP*		
	1ST ENL (N=14)	TNG EMP**	TASK DIF***
H166 REPLACE ADS/INTERPHONE SYSTEM LINE REPLACEABLE UNIT (LRU)	93	5.77	4.84
I179 RESEAT HF RADIO SYSTEM SUBASSEMBLIES	100	5.47	4.60
J195 REPLACE UHF RADIO SYSTEM LRU	86	5.60	4.65
K211 REPLACE KY-75 CRYPTOGRAPHIC SYSTEM LRU	100	5.10	4.41
P262 INSPECT AIRCRAFT COMMUNICATIONS SYSTEMS FOR ELECTRICAL INTEGRITY	93	4.93	4.85
Q282 DETERMINE CAUSES OF RADIO INTERFERENCES	93	4.97	5.89
I178 REPLACE VHF/FM RADIO SYSTEM LRU	64	4.50	4.34
L221 RESEAT TADIL A SYSTEM COMPONENTS	93	4.27	4.06
R312 PERFORM DESCENT PROCEDURES	71	4.53	3.81
U384 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ADVISORIES	50	3.10	5.03
U393 REPAIR IFF SYSTEMS	36	1.00	5.96
H161 ISOLATE MALFUNCTIONS WITHIN AUDIO SWITCHING SYSTEMS	29	4.30	5.80
N248 REPLACE SPECIAL SUPPORT EQUIPMENT INFLIGHT	14	1.80	4.81
U370 OPERATIONALLY CHECK AIRCRAFT IDENTIFICATION FRIEND OR FOE (IFF) SYSTEMS	29	1.60	4.14
U402 TROUBLESHOOT MALFUNCTIONS WITHIN SERVICE INTERPHONE SYSTEMS	29	1.80	5.17

* Percent Members Performing

** Training Emphasis has an average of 2.63 and a standard deviation of 2.12 (High TE=4.75)

*** Average TD rating is 5.00 and the standard deviation is 1.00

TABLE 21

ELECTRONIC PRINCIPLES USED BY 50 PERCENT
OR MORE OF AFSC 32850 PERSONNEL

MATHEMATICS

DIRECT CURRENT

RESISTANCE AND RESISTIVE CIRCUITS

METERS AND MULTIMETERS

ALTERNATING CURRENT

INDUCTORS AND INDUCTIVE REACTANCE

CAPACITORS AND CAPACITIVE REACTANCE

TRANSFORMERS

RCL CIRCUITS

FILTERS

COUPLING

SOLDERING OR SOLDERLESS CONNECTIONS

RELAYS

MICROPHONES AND SENSING DEVICES

SPEAKERS

OSCILLOSCOPES

SEMICONDUCTOR DIODES

TRANSISTORS

TRANSISTOR AMPLIFIERS

SOLID-STATE SPECIAL PURPOSE DEVICES

POWER SUPPLIES

ELECTRON TUBES

HETERODYNING AND MODULATION-DEMODULATION
(MODEMS)

AM SYSTEMS

FM SYSTEMS

USE OF SIGNAL GENERATORS

METER MOVEMENTS

SINGLE OR INDEPENDENT SIDEBAND SYSTEMS

ANTENNAS

TRANSMISSION LINES

CABLE FABRICATION

ADDITIONAL ANALYSES

Analysis of Major Commands (MAJCOM)

An analysis of the tasks and duties performed by MAJCOM groups can highlight important differences. AFSC 118X1 personnel are assigned to either TAC or Air Force Elements, Europe (EUR). For those AFSC 118X1 personnel assigned to EUR, the E-3A is the only aircraft on which they maintain communication systems. TAC, on the other hand, consists of the E-3A, EC-135, and EC-130 aircraft. Aside from the types of aircraft, the only difference between MAJCOMs is in percent time spent maintaining the various types of communications systems. TAC personnel spend a greater percentage of their job time maintaining HF, VHF, and UHF radio systems, while EUR personnel spend more time maintaining JTIDS and TADIL A systems.

Analysis of Conus versus Overseas

A comparison was made between the tasks performed and the background data for DAFSC 11851 personnel assigned within the CONUS versus those assigned to an overseas location. Overall, the jobs performed by the two groups are similar with respect to the tasks performed and the time spent on those tasks. As in the MAJCOM analysis, no distinguishable differences were noted, other than aircraft assigned to and percent time spent maintaining the various types of communications systems.

118X1 versus 116X0 Analysis

HQ TAC/DOY was interested in determining what AFSC 116X0, Airborne Communications System, tasks are performed by AFSC 118X1 personnel. Duty U, Performing Related Airborne Communications Systems, contains tasks identical to tasks in the 1987 AFSC 116X0 job inventory. An analysis was done on percent members performing and percent time spent for first-enlistment, 5-, and 7-skill level personnel. Analysis showed that, for many of the tasks, AFSC 118X1 personnel in one or more of the target groups, were performing those tasks, although the percent time spent by those performing was not any greater than the percent time spent by AFSC 116X0 personnel. Appendix B presents the data for this analysis.

IMPLICATIONS

This survey was conducted primarily to provide training personnel with current information on the Airborne Command and Control Communications Equipment specialty since its separation from the AFSC 328X0 specialty in October 1984.

The impact of these findings for training are minimal. Analysis of career ladder documents indicates the STS and POIs are well supported by survey data, although subject-matter experts should review these training documents, paying particular attention to those tasks not referenced to the documents.

The findings of this survey suggest the Airborne Command and Control Communications Equipment specialty is a stable, highly technical career ladder. All the survey respondents are homogeneously organized around maintenance of airborne communications systems, with two groups having additional duties to include protocol functions onboard the EC-135 aircraft, in support of HQ TAC/CC, and maintenance of other avionic systems onboard the EC-130 aircraft. The present classification structure, as described by the AFR 39-1 Specialty Descriptions, accurately portrays the jobs in this study.

No serious job satisfaction problems appear to exist within this specialty, although EC-130 AMTs felt their talents and training weren't utilized as well as they could be. Overall, the job satisfaction responses were slightly lower than that of a comparative sample of Air Force personnel in 1987 and exceeded those responses of the comparative sample of a similar job group in a 1981 study.

The findings of this OSR come directly from survey data collected from Airborne Command and Control Communications Equipment members worldwide. These data are readily available to training and utilization personnel, functional managers, and any other interested parties having a need for such information. Much of the data are compiled into extracts, which are an excellent tool in the decision-making process. These data extracts should be used whenever a training or utilization decision is made.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY
CAREER LADDER SPECIALTY JOB GROUPS

TABLE I

GROUP ID NUMBER AND TITLE: STG008, E-3A AIRBORNE COMMUNICATIONS MAINTENANCE CLUSTER

GROUP SIZE: 83

PREDOMINATE PAYGRADES: E-5/4/6

PERCENT OF SAMPLE: 84%

AVERAGE TIME IN JOB: 32 MONTHS

AVERAGE TAFMS: 116 MONTHS

AVERAGE TICF: 59 MONTHS

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS	PERCENT MEMBERS PERFORMING
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100
P276 POWER UP EQUIPMENT FOR MISSIONS	100
I179 RESEAT HF RADIO SYSTEM SUBASSEMBLIES	100
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
M234 VERIFY JTIDS CONFIGURATIONS	100
L215 ISOLATE MALFUNCTIONS WITHIN TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
I180 SET HF RADIO SYTEM CIRCUIT BREAKERS	100
R316 POWER DOWN MISSION EQUIPMENT	100
O251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
O260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
O255 DETERMINE AIRCRAFT STATUS	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100
K212 SET CRYPTOGRAPHIC SYSTEM CIRCUIT BREAKERS	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100
Q301 RECONFIGURE UHF RADIO SYSTEMS	100
L222 SET TADIL A SYSTEM CIRCUIT BREAKERS	100
M226 ISOLATE MALFUNCTIONS WITHIN JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEMS (JTIDS)	100
M232 SET JTIDS CIRCUIT BREAKERS	100
L223 VERIFY KG-40 CRYPTOGRAPHIC SYSTEM CONFIGURATIONS	100
M235 VERIFY JTIDS VOICE SYSTEM CONFIGURATIONS	100
K205 LOAD CODES IN KY-75 CRYPTOGRAPHIC SYSTEMS	100
Q285 MONITOR DISPLAYS AND INDICATORS FOR EQUIPMENT STATUS DURING SYSTEM OPERATION	99

TABLE I-A

GROUP ID NUMBER AND TITLE: STG010, TACTICAL AIR COMMAND (TAC) E-3A AIRBORNE
COMMUNICATIONS TECHNICIANS (CT)

GROUP SIZE: 73

AVERAGE TIME IN JOB: 32 MONTHS

PREDOMINATE PAYGRADES: E-5/4/7

AVERAGE TAFMS: 116 MONTHS

PERCENT OF SAMPLE: 74%

AVERAGE TICF: 61 MONTHS

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS	PERCENT MEMBERS PERFORMING
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	100
J192 PERFORM OPERATIONAL CHECKS OF UHF RADIO SYSTEMS	100
I179 RESEAT HF RADIO SYSTEM SUBASSEMBLIES	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	100
P276 POWER UP EQUIPMENT FOR MISSIONS	100
I180 SET HF RADIO SYSTEM CIRCUIT BREAKERS	100
L215 ISOLATE MALFUNCTIONS WITHIN TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	100
M234 VERIFY JTIDS CONFIGURATIONS	100
R316 POWER DOWN MISSION EQUIPMENT	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
Q260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100
K212 SET CRYPTOGRAPHIC SYSTEM CIRCUIT BREAKERS	100
P272 PERFORM JTIDS INITIALIZATION PROCEDURES	100
I181 SET VHF/AM RADIO SYSTEM CIRCUIT BREAKERS	100
Q255 DETERMINE AIRCRAFT STATUS	100
Q251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
Q282 DETERMINE CAUSE OF RADIO INTERFERENCES	100
L214 ISOLATE MALFUNCTIONS WITHIN KG-40 CRYPTOGRAPHIC SYSTEMS	100
Q301 RECONFIGURE UHF RADIO SYSTEMS	100
L222 SET TADIL A SYSTEM CIRCUIT BREAKERS	100
L223 VERIFY KG-40 CRYPTOGRAPHIC SYSTEM CONFIGURATIONS	100
M232 SET JTIDS CIRCUIT BREAKERS	100

TABLE I-B

GROUP ID NUMBER AND TITLE: STG015, NATO E-3A AIRBORNE COMMUNICATIONS
TECHNICIANS (CT)

GROUP SIZE: 8	AVERAGE TIME IN JOB: 29 MONTHS
PREDOMINATE PAYGRADES: E-6/5/7	AVERAGE TAFMS: 130 MONTHS
PERCENT OF SAMPLE: 8%	AVERAGE TICF: 46 MONTHS

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS	PERCENT MEMBERS PERFORMING
M228 PERFORM OPERATIONAL CHECKS OF JTIDS	100
M235 VERIFY JTIDS VOICE SYSTEM CONFIGURATIONS	100
M234 VERIFY JTIDS CONFIGURATIONS	100
G149 INSPECT AVIONICS EQUIPMENT, SUCH AS BONDING STRAPS, COMMUNICATIONS CABINETS, AND CONNECTORS	100
Q284 MONITOR COMMUNICATIONS LINKS FOR MALFUNCTIONS	100
Q251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
Q289 OPERATE JTIDS COMMUNICATIONS LINKS	100
J199 VERIFY UHF RADIO SYSTEM CONFIGURATIONS	100
Q281 COORDINATE MISSION ACTIONS WITH CREWMEMBERS	100
M226 ISOLATE MALFUNCTIONS WITHIN JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEMS (JTIDS)	100
I183 VERIFY HF RADIO SYSTEM CONFIGURATIONS	100
G157 SAFEGUARD CLASSIFIED MATERIALS OR DOCUMENTS	100
J197 SET UHF RADIO SYSTEM CIRCUIT BREAKERS	100
G146 CONFIGURE AIRCRAFT SWITCHES AND CONTROLS	100
P276 POWER UP EQUIPMENT FOR MISSIONS	100
Q290 OPERATE VOCODER EQUIPMENT	100
Q285 MONITOR DISPLAYS AND INDICATORS FOR EQUIPMENT STATUS DURING SYSTEM OPERATION	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
L215 ISOLATE MALFUNCTIONS WITHIN TACTICAL DATA INFORMATION LINK (TADIL) A SYSTEMS	100
Q250 ANNOTATE MISSION PLANNING FORMS	100
I173 PERFORM OPERATIONAL CHECKS OF HF RADIO SYSTEMS	100
S335 PREPARE PERSONAL CLOTHING AND EQUIPMENT FOR DEPLOYMENT	100

TABLE II

GROUP ID NUMBER AND TITLE: STG005, EC-135 AIRBORNE COMMUNICATIONS
TECHNICIANS (CT)

GROUP SIZE: 4

AVERAGE TIME IN JOB: 66 MONTHS

PREDOMINATE PAYGRADES: E-5/6

AVERAGE TAFMS: 117 MONTHS

PERCENT OF SAMPLE: 4%

AVERAGE TICF: 70 MONTHS

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS	PERCENT MEMBERS PERFORMING
G152 PERFORM SAFETY PRACTICES, SUCH AS WHEN WORKING WITH HIGH VOLTAGE EQUIPMENT OR RADIO FREQUENCY RADIATION	100
O251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
P268 LOAD, UNLOAD, OR STOW BAGGAGE, CARGO, AND FOOD	100
P265 INSPECT AIRCRAFT SAFETY EQUIPMENT	100
O259 REVIEW FLIGHT CREW INFORMATION FILES (FCIF)	100
P263 INSPECT AIRCRAFT EXTERIOR FOR PHYSICAL INTEGRITY	100
P264 INSPECT AIRCRAFT INTERIOR FOR PHYSICAL INTEGRITY	100
O260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100
P269 PERFORM BEFORE STARTING ENGINE, ENGINE, BEFORE TAXI, AND AFTER TAKE OFF PROCEDURES	100
R310 PERFORM BEFORE LANDING PROCEDURES	100
R311 PERFORM BEFORE LEAVING AIRCRAFT PROCEDURES	100
R314 PERFORM POSTMISSION REQUIREMENTS	100
O257 PARTICIPATE IN SUMMARY MISSION BRIEFINGS	100
R309 PARTICIPATE IN OPERATIONS DEBRIEFINGS	100
I171 ISOLATE MALFUNCTIONS WITHIN VERY HIGH FREQUENCY (VHF)/ AMPLITUDE MODULATED (AM) RADIO SYSTEMS	100
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
O255 DETERMINE AIRCRAFT STATUS	100
R306 DEBRIEF GROUND MAINTENANCE PERSONNEL	100
I177 REPLACE VHF/AM RADIO SYSTEM LRU	100
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100

TABLE III

GROUP ID NUMBER AND TITLE: STG006, EC-130 AIRBORNE MAINTENANCE
TECHNICIANS (AMT)

GROUP SIZE: 10
PREDOMINATE PAYGRADES: E-5/6/4
PERCENT OF SAMPLE: 10%

AVERAGE TIME IN JOB: 31 MONTHS
AVERAGE TAFMS: 136 MONTHS
AVERAGE TICF: 94 MONTHS

THE FOLLOWING ARE IN DESCENDING ORDER BY PERCENT MEMBERS PERFORMING:

TASKS	PERCENT MEMBERS PERFORMING
P262 INSPECT AIRCRAFT COMMUNICATIONS SYSTEMS FOR ELECTRICAL INTEGRITY	100
P263 INSPECT AIRCRAFT EXTERIOR FOR PHYSICAL INTEGRITY	100
P264 INSPECT AIRCRAFT INTERIOR FOR PHYSICAL INTEGRITY	100
P265 INSPECT AIRCRAFT SAFETY EQUIPMENT	100
P269 PERFORM BEFORE STARTING ENGINE, ENGINE, BEFORE TAXI, AND AFTER TAKE OFF PROCEDURES	100
P266 INSPECT OR VISUALLY CHECK SWITCHES, VALVES, CONTROLS, PANELS, DOORS, AND MISCELLANEOUS EQUIPMENT	100
P277 REVIEW AFTO FORMS 781 SERIES FOR AIRCRAFT STATUS	100
R311 PERFORM BEFORE LEAVING AIRCRAFT PROCEDURES	100
P268 LOAD, UNLOAD, OR STOW BAGGAGE, CARGO, AND FOOD	100
G148 IDENTIFY FAULTY SYSTEM COMPONENTS	100
R314 PERFORM POSTMISSION REQUIREMENTS	100
0259 REVIEW FLIGHT CREW INFORMATION FILES (FCIF)	100
H166 REPLACE ADS/INTERPHONE SYSTEM LINE REPLACEABLE UNITS (LRU)	100
0251 ASSEMBLE PROFESSIONAL AND PERSONAL FLIGHT GEAR	100
H160 ISOLATE MALFUNCTIONS WITHIN ADS/INTERPHONE SYSTEMS	100
0260 VERIFY CURRENCY OF PERSONAL FLIGHT PUBLICATIONS	100
J189 ISOLATE MALFUNCTIONS WITHIN UHF RADIO SYSTEMS	100
I170 ISOLATE MALFUNCTIONS WITHIN HIGH FREQUENCY (HF) RADIO SYSTEMS	100
G145 CONDUCT TESTING OF AIRCRAFT COMMUNICATIONS EQUIPMENT	100
Q282 DETERMINE CAUSE OF RADIO INTERFERENCES	100
G152 PERFORM SAFETY PRACTICES, SUCH AS WHEN WORKING WITH HIGH VOLTAGE EQUIPMENT OR RADIO FREQUENCY RADIATION	100
I172 ISOLATE MALFUNCTIONS WITHIN VHF/FREQUENCY MODULATED (FM) RADIO SYSTEMS	100
I171 ISOLATE MALFUNCTIONS WITHIN VERY HIGH FREQUENCY (VHF)/AMPLITUDE MODULATED (AM) RADIO SYSTEMS	100

APPENDIX B

COMPARISON OF TASK SIMILARITY FOR
118X1 AND 116X0 PERSONNEL

TABLE I

COMPARISON OF COMMON TASK PERFORMANCE BETWEEN
118X1 AND 116X0 PERSONNEL

TASKS	118X1			116X0		
	PERCENT MEMBERS PERFORMING			PERCENT MEMBERS PERFORMING		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U353 AUTHENTICATE STATIONS USING CHALLENGE AND REPLY SYSTEMS	29	29	49	77	81	78
U354 CONFIGURE BASEBAND DISTRIBUTION PANEL	93	76	90	8	19	19
U355 CONFIGURE PROGRAMMING DISPLAY PANEL	93	78	87	8	19	17
U356 COORDINATE AIR-TO-GROUND MESSAGE TRAFFIC	29	41	59	57	58	55
U357 COORDINATE WITH OFFICE OF PRIMARY RESPONSIBILITY (OPR) TO OBTAIN DOCUMENTS, SUCH AS ORDERS, PASSPORTS, AND VISAS	0	12	54	5	8	22
U358 DECODE MESSAGES MANUALLY	7	24	54	50	59	54
U359 IDENTIFY CHARACTERISTICS OF ELECTRONIC EMISSIONS BY AURAL MEANS	21	22	46	5	6	11
U360 IDENTIFY INCOMING CALLS USING CALL SIGN LIST	29	35	59	71	65	61
U361 INITIATE PHONE PATCHES	36	47	67	58	67	77
U362 INVENTORY COMMUNICATION KITS	50	47	49	67	65	71
U363 INVENTORY COMMUNICATIONS (CONSEC) MATERIALS	71	45	56	66	78	81

TABLE I (CONTINUED)
COMPARISON OF COMMON TASK PERFORMANCE BETWEEN
118X1 AND 116X0 PERSONNEL

TASKS	118X1			116X0		
	PERCENT MEMBERS PERFORMING			PERCENT MEMBERS PERFORMING		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U364 ISOLATE LOCATION OF SIGNALS	21	27	51	5	8	8
U365 MAINTAIN FREQUENCY STANDARDS OF STATIONS ON NET	43	43	44	36	31	28
U366 MAINTAIN OPERATIONAL FORMS	71	61	74	21	28	37
U367 OBTAIN AND COORDINATE FLIGHT INFORMATION WITH THE FLIGHT CREW	43	47	67	28	42	57
U368 OBTAIN TIME CHECKS	57	41	62	45	48	56
U369 OPERATE PORTABLE TRANSCEIVERS	7	20	33	2	7	10
U370 OPERATIONALLY CHECK AIRCRAFT IDENTIFICATION FRIEND OR FOE (IFF) SYSTEMS	29	33	44	5	11	26
U371 PERFORM MISSION MAINTENANCE CHECK OF INTERCOM AND GALLEY CHIMES	100	82	82	11	22	24
U372 PERFORM PHONE PATCHES	21	41	62	51	61	70
U373 PERFORM POSTFLIGHT INSPECTIONS OF AIRCRAFT OXYGEN SYSTEMS	7	41	56	56	49	53
U374 PERFORM PREFLIGHT INSPECTIONS OF AIRCRAFT OXYGEN SYSTEMS	86	82	77	81	77	79

TABLE I (CONTINUED)

COMPARISON OF COMMON TASK PERFORMANCE BETWEEN
118X1 AND 116X0 PERSONNEL

TASKS	118X1			116X0		
	PERCENT MEMBERS PERFORMING			PERCENT MEMBERS PERFORMING		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U375 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE CIRCUIT BREAKER PANELS	0	22	15	15	9	8
U376 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE EMERGENCY EQUIPMENT	0	18	18	10	6	4
U377 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE POWER SUPPLIES	0	10	10	8	6	3
U378 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE TAPE RECORDING SYSTEMS	0	12	10	5	5	4
U379 PERFORM PREFLIGHT INSPECTIONS OF EMERGENCY SURVIVAL EQUIPMENT	43	75	82	16	30	30
U380 PERFORM PREFLIGHT INSPECTIONS OF OXYGEN EQUIPMENT	86	84	85	82	82	84
U381 PRACTICE NORMAL AND EMERGENCY DESTRUCTION PLANS OF COMSEC MATERIAL	43	75	82	46	50	45
U382 PROCESS REQUESTS FROM OTHER AIRCRAFT	14	29	51	42	39	38
U383 PROVIDE TIME CHECKS	50	37	54	23	23	31

TABLE 1 (CONTINUED)

COMPARISON OF COMMON TASK PERFORMANCE BETWEEN
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT MEMBERS PERFORMING			116X0 PERCENT MEMBERS PERFORMING		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U384 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ADVISORIES	50	47	64	8	15	13
U385 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ALARMS	50	47	69	21	26	22
U386 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ALERTS	50	49	72	16	22	17
U387 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND AIRCRAFT	43	47	51	57	49	41
U388 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND FORWARD OPERATION BASE (FOB)	7	24	36	14	15	13
U389 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND MOBILE STATIONS	7	25	26	16	15	14
U390 RELAY COMMUNICATIONS TRAFFIC BETWEEN MOBILE STATIONS AND AIRCRAFT	7	24	26	21	18	18
U391 REMOVE AND REPLACE ASSEMBLIES OF IFF SYSTEMS	29	22	31	0	1	11
U392 REMOVE AND REPLACE ASSEMBLIES OF TELETYPE COMMUNICATION SYSTEMS	0	18	5	6	5	10

TABLE I (CONTINUED)

COMPARISON OF COMMON TASK PERFORMANCE BETWEEN
118X1 AND 116X0 PERSONNEL

TASKS	118X1			116X0		
	PERCENT MEMBERS PERFORMING		PERFORMING	PERCENT MEMBERS PERFORMING		PERFORMING
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U393 REPAIR IFF SYSTEMS	36	18	28	0	0	4
U394 REPAIR TELETYPE COMMUNICATION SYSTEMS	0	14	8	1	2	4
U395 REQUEST PHONE PATCHES	43	41	64	60	66	74
U396 RESEARCH COMMUNICATION REQUIREMENTS FOR OPS PLANS	21	18	33	5	15	24
U397 TRANSMIT AND RECEIVE INFORMATION USING TADIL C	14	22	26	6	16	16
U398 TRANSMIT AND RECEIVE MESSAGES BY RADIO TELETYPE SYSTEMS	0	8	21	37	30	28
U399 TRANSMIT AND RECEIVE MESSAGES USING CURRENT CALL SIGN LIST	29	29	54	66	62	58
U400 TRANSMIT POSITION REPORTS	14	22	31	23	40	61
U401 TRANSMIT TELETYPE COMMUNICATION TRAFFIC THROUGH HF EQUIPMENT	7	12	23	44	37	36
U402 TROUBLESHOOT MALFUNCTIONS WITHIN SERVICE INTERPHONE SYSTEMS	29	41	28	3	3	10

TABLE II
COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT			116X0 PERCENT TIME SPENT		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U353 AUTHENTICATE STATIONS USING CHALLENGE AND REPLY SYSTEMS	*	*	*	1	1	1
U354 CONFIGURE BASEBAND DISTRIBUTION PANEL	1	1	*	1	1	1
U355 CONFIGURE PROGRAMMING DISPLAY PANEL	1	1	*	1	1	1
U356 COORDINATE AIR-TO-GROUND MESSAGE TRAFFIC	*	*	*	1	1	1
U357 COORDINATE WITH OFFICE OF PRIMARY RESPONSIBILITY (OPR) TO OBTAIN DOCUMENTS, SUCH AS ORDERS, PASSPORTS, AND VISAS	0	1	*	1	1	*
U358 DECODE MESSAGES MANUALLY	1	*	*	1	1	*
U359 IDENTIFY CHARACTERISTICS OF ELECTRONIC EMISSIONS BY AURAL MEANS	1	*	*	*	1	*
U360 IDENTIFY INCOMING CALLS USING CALL SIGN LIST	*	*	*	1	1	1
U361 INITIATE PHONE PATCHES	1	*	*	1	1	1
U362 INVENTORY COMMUNICATION KITS	1	*	*	1	1	1
U363 INVENTORY COMMUNICATIONS (COMSEC) MATERIALS	1	1	*	1	1	1

* Denotes less than .5 percent

TABLE II

COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT			116X0 PERCENT TIME SPENT		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U353 AUTHENTICATE STATIONS USING CHALLENGE AND REPLY SYSTEMS	*	*	*	1	1	1
U354 CONFIGURE BASEBAND DISTRIBUTION PANEL	1	1	*	1	1	1
U355 CONFIGURE PROGRAMMING DISPLAY PANEL	1	1	*	1	1	1
U356 COORDINATE AIR-TO-GROUND MESSAGE TRAFFIC	*	*	*	1	1	1
U357 COORDINATE WITH OFFICE OF PRIMARY RESPONSIBILITY (OPR) TO OBTAIN DOCUMENTS, SUCH AS ORDERS, PASSPORTS, AND VISAS	0	1	*	1	1	*
U358 DECODE MESSAGES MANUALLY	1	*	*	1	1	*
U359 IDENTIFY CHARACTERISTICS OF ELECTRONIC EMISSIONS BY AURAL MEANS	1	*	*	*	1	*
U360 IDENTIFY INCOMING CALLS USING CALL SIGN LIST	*	*	*	1	1	1
U361 INITIATE PHONE PATCHES	1	*	*	1	1	1
U362 INVENTORY COMMUNICATION KITS	1	*	*	1	1	1
U363 INVENTORY COMMUNICATIONS (COMSEC) MATERIALS	1	1	*	1	1	1

* Denotes less than .5 percent

TABLE II (CONTINUED)

COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT			116X0 PERCENT TIME SPENT		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U364 ISOLATE LOCATION OF SIGNALS	*	*	*	1	1	1
U365 MAINTAIN FREQUENCY STANDARDS OF STATIONS ON NET	*	*	*	1	*	*
U366 MAINTAIN OPERATIONAL FORMS	*	*	*	1	1	1
U367 OBTAIN AND COORDINATE FLIGHT INFORMATION WITH THE FLIGHT CREW	1	1	*	1	1	1
U368 OBTAIN TIME CHECKS	*	*	*	1	1	1
U369 OPERATE PORTABLE TRANSCEIVERS	*	*	*	1	*	*
U370 OPERATIONALLY CHECK AIRCRAFT IDENTIFICATION FRIEND OR FOE (IFF) SYSTEMS	*	*	*	1	1	1
U371 PERFORM MISSION MAINTENANCE CHECK OF INTERCOM AND GALLEY CHIMES	1	1	1	1	1	1
U372 PERFORM PHONE PATCHES	1	*	*	1	1	1
U373 PERFORM POSTFLIGHT INSPECTIONS OF AIRCRAFT OXYGEN SYSTEMS	1	1	*	1	1	1
U374 PERFORM PREFLIGHT INSPECTIONS OF AIRCRAFT OXYGEN SYSTEMS	1	1	1	1	1	1

* Denotes less than .5 percent

TABLE II (CONTINUED)

COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT				116X0 PERCENT TIME SPENT			
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)		1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)	
U375 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE CIRCUIT BREAKER PANELS	0	1	1		1	1	1	
U376 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE EMERGENCY EQUIPMENT	0	1	1		1	1	1	
U377 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE POWER SUPPLIES	0	1	1		1	1	*	
U378 PERFORM PREFLIGHT INSPECTIONS OF CAPSULE TAPE RECORDING SYSTEMS	0	1	1		1	1	1	
U379 PERFORM PREFLIGHT INSPECTIONS OF EMERGENCY SURVIVAL EQUIPMENT	*	1	*		1	1	1	
U380 PERFORM PREFLIGHT INSPECTIONS OF OXYGEN EQUIPMENT	1	1	1		1	1	1	
U381 PRACTICE NORMAL AND EMERGENCY DESTRUCTION PLANS OF COMSEC MATERIAL	1	*	*		1	1	1	
U382 PROCESS REQUESTS FROM OTHER AIRCRAFT	*	*	*		1	1	*	
U383 PROVIDE TIME CHECKS	*	*	*		1	1	*	
U384 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ADVISORIES	*	*	*		1	1	1	

* Denotes less than .5 percent

TABLE II (CONTINUED)

COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT				116X0 PERCENT TIME SPENT			
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)		1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)	
U385 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ALARMS	*	*	*		1	1	1	
U386 RECOGNIZE AND RESPOND TO COMPUTER GENERATED ALERTS	*	*	*		1	1	1	
U387 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND AIRCRAFT	*	*	*		1	1	*	
U388 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND FORWARD OPERATION BASE (FOB)	1	*	*		1	1	*	
U389 RELAY COMMUNICATIONS TRAFFIC BETWEEN FIXED STATIONS AND MOBILE STATIONS	1	*	*		1	1	*	
U390 RELAY COMMUNICATIONS TRAFFIC BETWEEN MOBILE STATIONS AND AIRCRAFT	1	*	*		1	*	*	
U391 REMOVE AND REPLACE ASSEMBLIES OF IFF SYSTEMS	*	*	*		0	1	*	
U392 REMOVE AND REPLACE ASSEMBLIES OF TELETYPE COMMUNICATION SYSTEMS	0	*	*		1	1	*	

* Denotes less than .5 percent

TABLE II (CONTINUED)

COMPARISON OF TIME SPENT ON COMMON TASKS OF
118X1 AND 116X0 PERSONNEL

TASKS	118X1 PERCENT TIME SPENT			116X0 PERCENT TIME SPENT		
	1ST ENL (N=14)	DAFSC 11851 (N=51)	DAFSC 11871 (N=39)	1ST ENL (N=101)	DAFSC 11650 (N=250)	DAFSC 11670 (N=202)
U393 REPAIR IFF SYSTEMS	*	*	*	0	0	*
U394 REPAIR TELETYPE COMMUNICATION SYSTEMS	0	*	*	*	*	*
U395 REQUEST PHONE PATCHES	*	*	*	1	1	1
U396 RESEARCH COMMUNICATION REQUIREMENTS FOR OPS PLANS	*	*	*	1	1	1
U397 TRANSMIT AND RECEIVE INFORMATION USING TADIL C	*	*	*	1	*	1
U398 TRANSMIT AND RECEIVE MESSAGES BY RADIO TELETYPE SYSTEMS	0	*	*	1	1	1
U399 TRANSMIT AND RECEIVE MESSAGES USING CURRENT CALL SIGN LIST	*	*	*	1	1	1
U400 TRANSMIT POSITION REPORTS	1	*	*	1	1	1
U401 TRANSMIT TELETYPE COMMUNICATION TRAFFIC THROUGH HF EQUIPMENT	1	*	*	1	1	1
U402 TROUBLESHOOT MALFUNCTIONS WITHIN SERVICE INTERPHONE SYSTEMS	*	*	*	1	1	*

* Denotes less than .5 percent

END

DATE

FILMED

DTIC

11-88