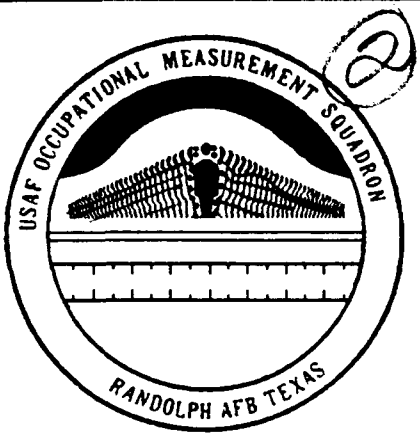

UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT

B-1B AVIONICS SYSTEMS

AFSC 457X3

AFPT 90-457-871

JANUARY 1992

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

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PREFACE

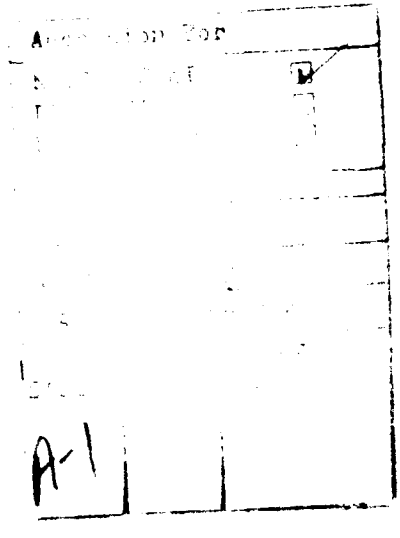
This report presents the results of an Air Force Occupational Survey of the B-1 Avionics Systems (AFSC 457X3) career ladder. Authority for conducting occupational surveys is contained in AFR 35-2. Computer products used in this report are available for use by operations and training officials.

CMSgt Bob Boerstler developed the survey instrument, Mr Wayne Fruge provided computer programming support, and Ms Tamme Lambert provided administrative support. Mr Daniel E. Dreher analyzed the data and wrote the final report. Lt Colonel Johnny M. Collins, Chief, Airman Analysis Section, Occupational Analysis Branch, USAF Occupational Measurement Squadron, reviewed and approved this report for release.

Copies of this report are distributed to Air Staff sections and other interested training and management personnel. Additional copies may be requested from the Occupational Measurement Squadron, Attention: Chief, Occupational Analysis Branch (OMY), Randolph AFB, Texas 78150-5000.

GARY R. BLUM, Lt Colonel, USAF
Commander
USAF Occupational Measurement
Squadron

JOSEPH S. TARTELL
Chief, Occupational Analysis Branch
USAF Occupational Measurement
Squadron



SUMMARY OF RESULTS

1. Survey Coverage: This report is based on data collected from 480 AFSC 457X3 respondents: 184 A-shred, 122 B-shred, 167 C-shred, and 7 AFSC 45793 members. This represents 60 percent of the total assigned population.

2. Career Ladder Structure: Survey data show a uniquely diverse and highly technical career ladder structure, with three shred-specific jobs, two non-technical jobs performed by members of all three shreds, and a cluster of supervisory jobs. This is consistent with the present classification structure described in AFR 39-1 Specialty Descriptions.

3. Career Ladder Progression: Survey data show members of the specialty, regardless of shred, progress typically through the career ladder. Three- and 5-skill level members perform technical systems maintenance tasks, 7-skill level members perform a mixture of technical and supervisory functions, while 9-skill level members perform career ladder management tasks.

4. Specialty Descriptions: AFR 39-1 Specialty Descriptions accurately describe functions and tasks performed by all AFSC 457X3 personnel.

5. Training Analysis: The A-shred STS and POI are well supported, while both documents for the B- and C-shreds need to be reviewed. Since many technical performance items are not taught in the basic course, OJT personnel need to make sure these untrained areas are included in the OJT curriculum.

6. Job Satisfaction: Overall satisfaction for A- and C- shred personnel is lower than that of B-shred members and that of members of related specialties surveyed in 1990. Members with the Support job have the lowest overall indicators.

7. Discussion: This career ladder is specialized, with specific systems being maintained by members of each shred. Training documents and current courses are generally supported using standard ATC criteria.

OCCUPATIONAL SURVEY REPORT
B-1B AVIONICS SYSTEMS CAREER LADDER
(AFSC 457X3)

INTRODUCTION

This is a report of an occupational survey of the B-1B Avionics Systems career ladder (AFSC 457X3). This AFSC was created in October 1987 when B-1B functions within AFSCs 321X1, 321X2, 325X0, and 328XX were combined to form a new career ladder under Rivet Workforce. Because of the diversity of systems maintained, the specialty has been divided into three equipment-specific shreds. A-shred personnel maintain offensive avionics, central integrated test systems, and Doppler radar systems. B-shred personnel maintain instruments and flight control systems, while C-shred personnel maintain communication, navigation, and defensive avionics systems. The present study was requested by HQ ATC/TTOA to validate the STS and entry-level POI for each shred.

Background

The AFR 39-1 Specialty Descriptions state that 3-, 5-, and 7-skill level AFSC 457X3 personnel analyze malfunctions, inspect, remove, install, modify, troubleshoot, and maintain B-1B avionics systems at the organizational level. Nine-skill level and CEM members are the superintendents of the career ladder who plan, organize, and direct advanced avionics systems maintenance.

Members enter the career ladder by attending one of three shred-specific entry-level courses conducted at Lowry AFB. The 3ABR45733A course is 19 weeks long and provides training on flightline maintenance and inspection of B-1B offensive avionics systems. Course 3ABR45733B is 23 weeks long and prepares graduates to maintain and inspect instrument and flight control systems. The 22-week-long 3ABR45733C course curriculum includes instruction on maintenance, repair, and performance tests of B-1B communications, navigation systems, and defensive avionics systems.

SURVEY METHODOLOGY

Inventory Development

Data for this survey were collected using USAF Job Inventory AFPT 90-457-871 (May 1989). The Inventory Developer reviewed pertinent career ladder documents, OSRs, and job inventories of the specialties that merged to form AFSC 457X3, and then prepared a tentative task list. This task list was refined and validated through personal interviews with 18 subject-matter experts assigned to units at the following bases:

BASE	UNIT VISITED
Lowry AFB CO	3450 Technical Training Group
Ellsworth AFB SD	28th Bomb Wing
Grand Forks AFB ND	319th Bomb Wing
Dyess AFB TX	96th Bomb Wing

The final inventory contained 665 tasks grouped under 10 duty headings and a background section asking respondents to indicate their paygrade, DAFSC, organization of assignment, MAJCOM, TAFMS, time in career ladder, plus additional background questions asking respondents to indicate the functional area they spend the most time in, work schedule, prior AFSC, and test equipment or special tools used.

Survey Administration

From July 1989 through December 1990, Consolidated Base Personnel Offices, at bases with B-1B aircraft, administered the surveys to AFSC 457X3 personnel selected from a computer-generated mailing list provided by the Armstrong Laboratory, Human Resources Directorate (AL/HRD). The survey administration phase was extended to ensure representative sampling from critical bases. Respondents were asked to complete the identification and biographical information section first, go through the booklet, and mark all tasks they perform in their current job, and then use a 9-point scale to indicate the relative amount of time they spend performing the tasks they marked. Time spent ratings range from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent).

The computer calculated the relative percent time spent on all tasks for each respondent by first totaling ratings on all tasks, dividing the rating for each task by this total, and multiplying by 100. The percent time spent ratings from all inventories were then combined and used with percent member performing values to describe various groups in the career ladder.

Survey Sample

The final sample includes responses from 480 AFSC 457X3 members: 184 with the A-shred, 122 with the B-shred, 167 with the C-shred, and 7 AFSC 45793 managers. As shown in Tables 1 and 2, the MAJCOM and paygrade representation of the sample is very close to that of the total AFSC 457X3 population.

Data Processing and Analysis

Once the job inventories were received from the field, the booklets were screened for completeness and accuracy and optically scanned to create a complete case record for each respondent. Comprehensive Occupational Data Analysis Programs (CODAP) then created a job description for each respondent, as well as composite job descriptions for members of various demographic groups. These job descriptions were used for much of the occupational analysis.

Task Factor Administration

Personnel who make decisions about career ladder documents and training programs use task factor data (training emphasis and task difficulty ratings), as well as job descriptions. The survey process provides these data by asking selected E-6 and E-7 NCOs to complete either a training emphasis (TE) or task difficulty (TD) booklet. These booklets are processed separately from the job inventories, and TE and TD data, when applicable, are considered when analyzing other issues in the study.

Training Emphasis (TE). Training emphasis is defined as the amount of structured training that first-enlistment personnel need to perform tasks successfully. Structured training is defined as training provided by resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal OJT, or any other organized training method. Fifty-two experienced AFSC 457X3A, 24 experienced AFSC 457X3B, and 43 experienced AFSC 457X3C NCOs rated tasks in the inventory on a 10-point scale ranging from 0 (no training emphasis required) to 9 (high training emphasis required). Interrater agreement for the three groups of raters was acceptable. The average A-shred TE rating is 1.06, with a standard deviation of 1.63. Consequently, tasks with an A-shred TE rating of 2.69 or greater are considered to have high training emphasis. The average B-shred TE rating is 1.95, with a standard deviation of 2.21. Tasks with a B-shred TE rating of 4.19 or greater are, thus, considered to have high training emphasis. The C-shred average TE rating is 1.65, with a standard deviation of 1.99. Inventory tasks with a C-shred TE rating of 3.64 or greater are, therefore, considered to have high training emphasis.

Task Difficulty (TD). Task difficulty is defined as an estimate of the length of time the average airman takes to learn how to perform each task listed in the inventory. Forty-one experienced AFSC 457X3A, 20 AFSC 457X3B, and 36 AFSC 457X3C NCOs rated the difficulty of the tasks in the inventory using a 9-point scale ranging from 1 (easy to learn) to 9 (very difficult to learn). Inter-

TABLE 1

MAJCOM REPRESENTATION IN SAMPLE

COMMAND	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
SAC	89	95
ATC	9	4
OTHER	2	1

TOTAL ASSIGNED = 806
TOTAL ELIGIBLE = 747
TOTAL IN SAMPLE = 480
PERCENT OF ASSIGNED IN SAMPLE = 60%
PERCENT OF ELIGIBLE IN SAMPLE = 64%

TABLE 2

PAYGRADE DISTRIBUTION OF SAMPLE

PAYGRADE	PERCENT OF ASSIGNED	PERCENT OF SAMPLE
E-1 to E-3	33	33
E-4	21	29
E-5	23	24
E-6	14	10
E-7	8	3
E-8	1	*

DISTRIBUTION OF AFSC 457X3 PERSONNEL ACROSS CAREER LADDER JOBS

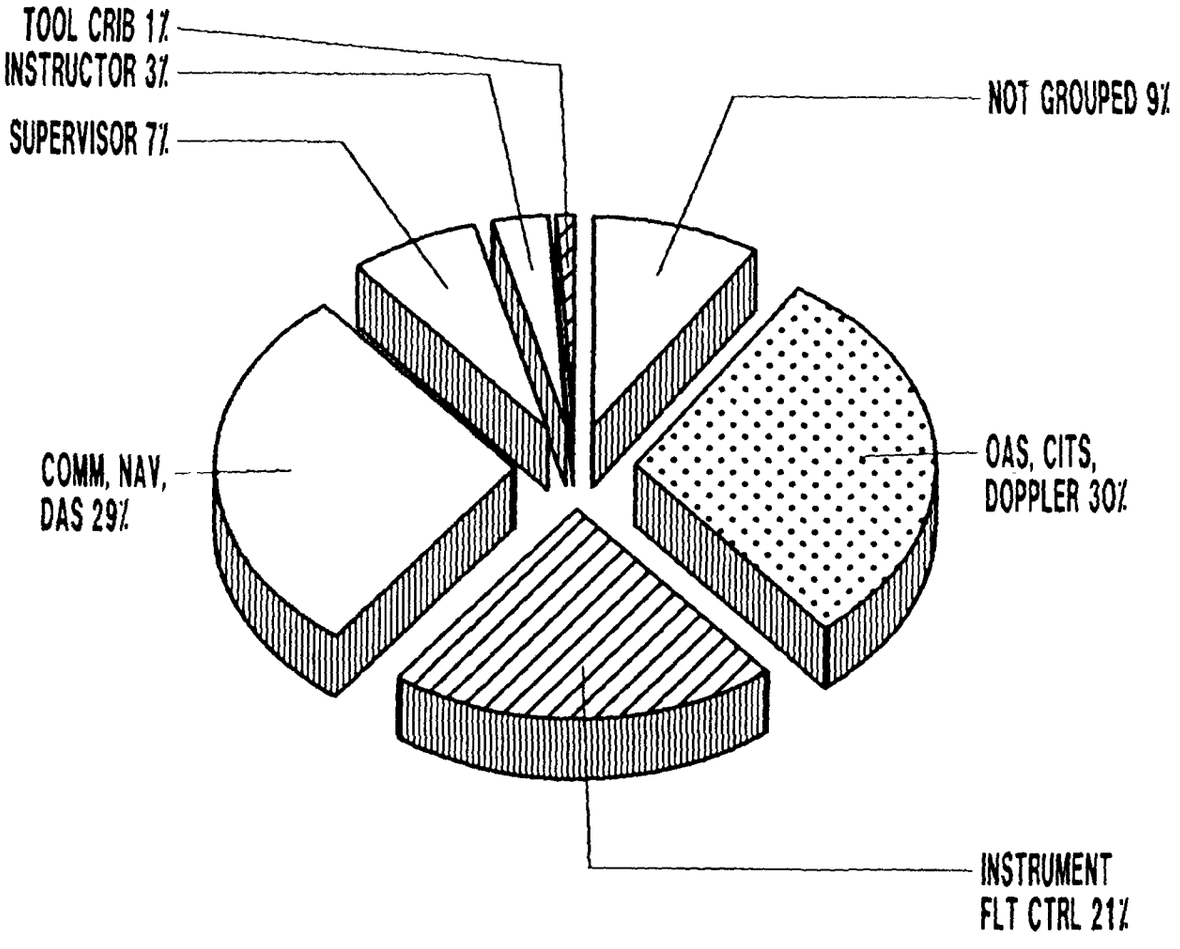


FIGURE 1

TABLE 3

SELECTED BACKGROUND DATA ON PERSONNEL IN CAREER LADDER JOBS

	OAS CITS	INSTR FLT CTRL	COMM NAV DAS	SUPV	INSTR	TOOL CRIB
NUMBER IN GROUP	144	103	139	32	14	6
PERCENT OF SAMPLE	30%	21%	29%	7%	3%	1%
DAFSC DISTRIBUTION						
45733A	21%	0	0	0	0	0
45753A	57%	0	1%	13%	7%	50%
45773A	21%	0	0	38%	29%	0
45733B	1%	43%	0	0	0	0
45753B	0	48%	0	0	14%	17%
45773B	0	9%	0	0	14%	0
45733C	0	0	13%	0	0	0
45753C	0	0	68%	6%	29%	33%
45773C	0	0	17%	28%	7%	0
45793	0	0	0	15%	0	0
PAYGRADE DISTRIBUTION						
AIRMAN	44%	35%	30%	0	0	33%
E-4	26%	39%	37%	6%	7%	67%
E-5	24%	21%	27%	22%	36%	0
E-6	6%	5%	5%	31%	57%	0
E-7	0	0	1%	34%	0	0
E-8	0	0	0	6%	0	0
E-9	0	0	0	0	0	0
AVERAGE NUMBER OF TASKS PERFORMED	118	171	167	56	42	11
AVERAGE MONTHS TAFMS	59	55	63	162	142	53
PERCENT IN FIRST ENLISTMENT	56%	54%	59%	6%	0	66%
PERCENT SUPERVISING	38%	36%	40%	78%	21%	33%

TABLE 4

DISTRIBUTION OF TIME SPENT ACROSS DUTIES BY CAREER LADDER JOBS
(RELATIVE PERCENT OF JOB TIME SPENT)

DUTIES	OAS, CITS (N=144)	INSTR, FLT CTRL (N=103)	COMM, NAV, DAS (N=139)	SUPV (N=32)	INSTR (N=14)	TOOL CRIB (N=6)
A ORGANIZING AND PLANNING	1	1	1	18	4	0
B DIRECTING AND IMPLEMENTING	2	1	2	23	6	0
C EVALUATING AND INSPECTING	2	1	2	17	6	2
D TRAINING	2	2	2	9	30	0
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	8	7	7	19	9	93
F PERFORMING GENERAL AVIONICS MAINTENANCE TASKS	19	10	12	9	6	5
G PERFORMING CROSS-UTILIZATION (CUT) DUTIES	7	3	5	2	*	0
H MAINTAINING OFFENSIVE AVIONICS SYSTEMS (OAS), CENTRAL INTEGRATED TEST SYSTEM (CITS), AND DOPPLER RADAR SYSTEMS	58	1	2	2	25	0
I MAINTAINING INSTRUMENTS AND FLIGHT CONTROL COMPUTER SYSTEMS	*	73	*	0	10	0
J MAINTAINING COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS	*	*	66	*	3	0

* Denotes less than 1 percent

rater agreement for these 3 groups of raters was also acceptable. TD ratings are normally adjusted so tasks of average difficulty have a value of 5.00 and a standard deviation of 1.00. Any task with a TD rating of 6.00 or greater is considered to be difficult to learn.

To assist technical school personnel, USAFOMS developed a computer program which incorporates these secondary factors and the percentage of first-enlistment personnel performing each task into a computed value, the Automated Training Indicator (ATI). ATI values correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 1, ATCR 52-22. ATI values allow course personnel to quickly focus their attention on tasks which are most likely to qualify for inclusion in the entry-level course.

PART 1

SPECIALTY JOBS
(Career Ladder Structure)

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. CODAP assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on the tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, new members are added to this initial group, or new groups are formed based on the similarity of tasks and time spent ratings. This process continues until all respondents possible are included in a group.

The basic group used in the hierarchical clustering process is the Job. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a Cluster. The structure of the career ladder is then defined in terms of jobs and clusters of jobs.

Overview

Survey data show there are five jobs and a cluster of supervisors in this study, shown in Figure 1 and in the listing provided below. The Stage (STG) or Group (GRP) number listed by the job title is a reference number assigned by CODAP, while the letter "N" refers to the number of respondents performing the job. The three systems maintenance jobs are quite clearly shred specific; Instructor and Support jobs are performed by members of all three shreds; and jobs in the Supervisor cluster are performed by only A- and C-shred and

9-skill level members (see Table 3). The time members spend on duties, shown in Table 4, also clearly shows the three technical jobs are shred specific. Brief descriptions of the various jobs are presented below, while representative tasks performed are listed in Appendix A.

I.	OFFENSIVE AVIONICS SYSTEMS (OAS), CENTRAL INTEGRATED TEST SYSTEM (CITS), AND DOPPLER RADAR SYSTEMS JOB	(STG050, N=144)
II.	INSTRUMENT AND FLIGHT CONTROL COMPUTER SYSTEMS JOB	(STG051, N=103)
III.	COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS JOB	(STG068, N=139)
IV.	SUPERVISOR CLUSTER	(STG016, N=32)
V.	INSTRUCTOR JOB	(GRP153, N=14)
VI.	TOOL CRIB JOB	(STG044, N=6)

I. OFFENSIVE AVIONICS SYSTEMS (OAS), CENTRAL INTEGRATED TEST SYSTEMS (CITS), AND DOPPLER RADAR SYSTEMS JOB (STG050, N=144). Ninety-nine percent of the respondents performing this job have the A-shred. In addition, 78 percent hold either the 3- or 5-skill level. Members performing this job spend 77 percent of their duty time maintaining the three systems on the flightline and performing general avionics maintenance tasks. This is a technical job which involves removing and installing various line replacement units, troubleshooting the systems, and isolating faults on components of the systems. Typical tasks include:

load avionics control unit complexes (ACUC)
perform aircraft safe for maintenance inspections
remove or install offensive avionics CD system video recorder magazines
troubleshoot ORSs
perform CITS fault isolations using parameter monitor or CITS maintenance codes
align inertial navigation system (INS)

II. INSTRUMENT AND FLIGHT CONTROL COMPUTER SYSTEMS JOB (ST0051, N=103). AFSC 457X3 airmen with the B-shred maintain instrument and flight control computer systems. This job includes maintaining the auto flight control system (autopilot), various sensors, and computers. These airmen report spending 73 percent of their time removing and installing instruments and related components, performing operational checks and fault isolation, and troubleshooting instrument systems. Forty-three percent hold the 3-skill level, 48 percent hold the 5-skill level, and only 9 percent hold the 7-skill level. Examples of tasks reflecting the specialized nature of the work performed include:

perform operational check of vertical situation display (VSD) indicators
remove or install FCS rack mounted components
troubleshoot FCGMSs
perform FCGMS high/low tests
perform operational check of FCS flap/slats
troubleshoot FCSs
perform operational check of FCS pitch controls
perform operational check of FCS roll controls

III. COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS JOB (STG068, N=139). All but one respondent performing this job have the C-shred. Sixty-eight percent hold the 5-skill level and spend 72 percent of their relative time on tasks related to removing and installing components of, performing operational checks on, and troubleshooting subsystems of avionics, communication, and navigation systems. Examples of tasks which distinguish members with this job from all the others include:

remove or install active subsystem band 8 driver-transmitters
perform operational check of AN/ALQ-161 defensive avionics systems
remove or install active subsystem band 8 repeaters, RF sources, and digital RF memories
remove or install active subsystem band 7 transmitters
troubleshoot active subsystems
remove or install active subsystem band 7 repeaters/RF sources
perform operational check of ICS-150 interphone system crew intercoms

IV. SUPERVISOR CLUSTER (STG016, N=32). This cluster of supervisory jobs is performed by personnel in paygrades E-6 through E-8. Sixty-six percent hold the 7-skill level, and 16 percent hold the 9-skill level. Personnel with these jobs perform common supervisory and evaluative tasks, as well as planning and directing. It is interesting to note only A- and C-shred personnel report having these jobs. The following are typical tasks performed by members of this cluster:

determine work priorities
coordinate maintenance work with appropriate personnel or agencies
inspect personnel for compliance with military standards
write EPRs
assign maintenance and repair work
direct maintenance activities
dispatch maintenance crews

Survey data show there are four job variations within the cluster, differing primarily by the number of tasks members perform, time spent on common supervisory tasks, or emphasis on unique tasks. Members of the first variation perform an average of only 19 tasks, most of which deal with

supervising 3- and 5-skill level members of all three shreds, as well as airmen with other AFSCs. Members with the second variation report having the titles of Flight Chief and Shift Supervisor and perform an average of 80 tasks. The third variation is a group of five members who spend more time on equipment management tasks. The final variation is comprised of 5 respondents who perform an average of 35 tasks and spend more time supervising 7-skill level members.

V. INSTRUCTOR JOB (GRP153, N=14). Ten of the fourteen respondents in this job are instructors at the technical school at Lowry AFB, 2 are FTD instructors at Grand Forks AFB, and the last 2 are FTD instructors at Dyess AFB. As instructors, these airmen report spending 30 percent of their time performing purely training tasks and another 25 percent performing technical tasks related to maintaining the OAS, CITS, and Doppler radar systems, which they teach. Tasks which depict the Instructor job are:

conduct resident or field training course classroom training
develop resident or field training course training materials
score tests
write test questions
administer tests
develop performance tests
evaluate progress of trainees

VI. TOOL CRIB JOB (STG044, N=6). Members performing this job maintain tool rooms, inventory and order supplies, and handle the paperwork associated with tools and supplies. Predominantly 5-skill level personnel, these airmen are distinguished by the time they spend performing the following tasks:

maintain tool cribs
perform periodic inspection of tools
perform shift security checks of tools and equipment
inventory equipment or supplies
inventory tools, such as consolidated tool kits (CTK) and tool room chits
maintain Technical Order files
complete DD Forms 1348-6 (DOD Single Line Item Requisition System Document)

Summary

There are three technical, shred-specific jobs in the career ladder, two nontechnical jobs performed by members of all three shreds, and a cluster of supervisory jobs. Most respondents indicated they only maintain systems related to their specific shred.

CAREER LADDER PROGRESSION

Analysis of DAFSC groups, together with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed by members of the various skill level groups, which in turn may be used to determine how well career ladder documents, such as AFR 39-1 Specialty Descriptions and the Specialty Training Standard (STS), reflect how members of the various skill-level groups are being used.

The distribution of skill-level members across the various jobs, shown in Table 5, and relative amounts of time members of the various skill-level groups spend on duties, shown in Table 6, again show the highest percentage of 3- and 5-skill level members have shred-specific jobs. Seven-skill level members are first-line supervisors performing a mixture of both shred-specific and supervisory tasks. Nine-skill level members spend the highest amount of time on administrative and managerial duties.

The major jobs performed in this specialty are shred specific and deal with separate systems. There is, therefore, a separate STS and POI for each shred. The first 12 paragraphs of the 3 STSs deal with common material, but differ with respect to the 3-level course training codes. Because of these differences, the skill-level descriptions and training analysis portions of this report will be separated by shred.

PART 2

AFSC 457X3A SKILL-LEVEL DESCRIPTIONS

DAFSC 45733A/53A. Survey data show 88 percent of all AFSC 4573A/53A personnel have essentially the same technical job of maintaining OAS, CITS, and Doppler Radar systems. This job involves spending most duty time performing maintenance tasks on the three systems, such as fault isolation, troubleshooting, and removing and replacing components. Representative technical tasks performed by most 3- and 5-skill level A-shred personnel are listed in Table 7. As shown by figures in Table 5, a few AFSC 45733A/53A respondents also have the Supervisor and Support jobs, and one individual maintains communication, navigation, and offensive avionics systems, the C-shred job.

DAFSC 45773A. AFSC 45773A personnel are first-line supervisors, performing a mixture of both technical systems maintenance and supervisory tasks (see Table 8). Figures listed in Table 6 show 7-skill level A-shred personnel spend half of their time performing supervisory and administrative duties, and half perform systems maintenance. The supervisory role of 7-skill level members is shown by tasks which best distinguish between AFSC 45733A/53A and 45773A members, listed in Table 9. Higher percentages of AFSC 45773A perform the typical supervisory tasks listed in the lower half of the table.

TABLE 5

DISTRIBUTION OF SKILL-LEVEL MEMBERS ACROSS CAREER LADDER JOBS
(PERCENT)

JOB	45733A/53A (N=127)	45733B/53B (N=107)	45733C/53C (N=128)	45773A (N=57)	45773B (N=14)	45773C (N=38)	45793 (N=7)
OAS, CITS, DOPPLER RADAR	88	2	0	53	0	0	0
INSTRUMENTS, FLIGHT CONTROL	0	87	0	0	64	0	0
COMMUNICATION, NAVIGATION, DAS	*	0	88	0	0	63	0
SUPERVISOR	3	0	2	21	0	24	71
INSTRUCTOR	*	2	3	7	14	3	3
TOOL CRIB	2	*	2	0	0	0	0
NOT GROUPED	7	9	5	19	22	10	26

TABLE 6

TIME SPENT ON DUTIES BY MEMBERS OF SKILL LEVEL GROUPS
(RELATIVE PERCENT OF JOB TIME)

DUTIES	45733A/53A (N=127)	45733B/53B (N=107)	45733C/53C (N=128)	45773A (N=57)	45773B (N=14)	45773C (N=38)	45793 (N=7)
A ORGANIZING AND PLANNING	1	1	1	10	6	9	21
B DIRECTING AND IMPLEMENTING	2	1	1	9	4	13	19
C EVALUATING AND INSPECTING	2	1	1	11	6	10	29
D TRAINING	3	2	3	7	11	7	3
E PERFORMING GENERAL ADMINISTRATIVE AND SUPPLY TASKS	12	8	9	13	16	13	13
F PERFORMING GENERAL AVIONICS MAINTENANCE TASKS	18	11	12	15	10	9	10
G PERFORMING CROSS UTILIZATION (CUT) DUTIES	6	4	6	4	2	2	3
H MAINTAINING OFFENSIVE AVIONICS SYSTEMS (OAS), CENTRAL INTEGRATED TEST SYSTEM (CITS), AND DOPPLER RADAR SYSTEMS	54	3	2	31	1	1	1
I MAINTAINING INSTRUMENTS AND FLIGHT CONTROL COMPUTER SYSTEMS	*	69	*	*	44	0	*
J MAINTAINING COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS	1	*	64	0	*	36	*

* Denotes less than 1 percent

TABLE 7

REPRESENTATIVE TASKS PERFORMED BY AFSC 45733A/53A PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=127)
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	89
H280	REMOVE OR INSTALL EMUX SYSTEM CENTRAL EQUIPMENT BAY PCAs	88
H253	PERFORM GRT OF CITSs	88
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	87
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	87
H296	REMOVE OR INSTALL OFFENSIVE AVIONICS CD SYSTEM VIDEO RECORDER MAGAZINES	87
H255	PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	87
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	87
H306	REMOVE OR INSTALL ORS RADAR SIGNAL PROCESSORS (RSP)	87
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	87
H288	REMOVE OR INSTALL INS INERTIAL NAVIGATION UNITS (INU)	87
H251	PERFORM CITS COMPUTER MEMORY LOADS	87
H261	REMOVE OR INSTALL ACUC AVIONICS COMPUTER CONTROLS (ACC)	87
H284	REMOVE OR INSTALL EMUX SYSTEM FORWARD EQUIPMENT BAY PCAs	87
H321	TROUBLESHOOT EMUX SYSTEMS	86
H319	TROUBLESHOOT CITSs	86
H318	TROUBLESHOOT ACUCs	86
H322	TROUBLESHOOT INSs	86
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	85
H324	TROUBLESHOOT ORSs	85
H304	REMOVE OR INSTALL ORS RADAR RECEIVER-TRANSMITTERS (RRT)	85
H286	REMOVE OR INSTALL EMUX SYSTEM PCA SUBASSEMBLIES	83
H273	REMOVE OR INSTALL CITS MAINTENANCE RECORDER (CMR) MAGNETIC TAPE TRANSPORTS	83
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	80
H317	SERVICE VIDEO RECORDER MAGAZINES	80
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	68

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY AFSC 45773A PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=57)
C86	WRITE EPRs	77
A8	DETERMINE WORK PRIORITIES	74
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	74
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	72
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	68
D91	ANNOTATE TRAINING RECORDS	68
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	68
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	68
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	65
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	65
A1	ASSIGN MAINTENANCE AND REPAIR WORK	65
D94	CONDUCT OJT	65
H324	TROUBLESHOOT ORSs	63
H318	TROUBLESHOOT ACUCs	63
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	61
F197	DEBRIEF AIRCREWS	61
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	61
D97	COUNSEL TRAINEES ON TRAINING PROGRESS	61
H322	TROUBLESHOOT INSs	61
D109	MAINTAIN TRAINING RECORDS	60
A20	PLAN OR SCHEDULE WORK ASSIGNMENTS	60
B58	SUPERVISE OFFENSIVE AVIONICS SYSTEMS, CITS, AND DOPPLER RADAR SYSTEMS SPECIALISTS (AFSC 45753A)	59
B52	SUPERVISE APPRENTICE OFFENSIVE AVIONICS SYSTEMS, CITS, AND DOPPLER RADAR SYSTEM SPECIALISTS (45733A)	58
F224	RESEARCH TECHNICAL ORDERS	58

TABLE 9

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 45733A/53A AND DAFSC 45773A PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		54733A/53A (N=127)	45773A (N=57)	DIFFERENCE
F220	REMOVE OR INSTALL MAIN CAUTION PANELS	54	7	47
H281	REMOVE OR INSTALL EMUX SYSTEM CONTROLLERS	83	44	39
H267	REMOVE OR INSTALL CITS COMPUTERS	85	47	38
H280	REMOVE OR INSTALL EMUX SYSTEM CENTRAL EQUIPMENT BAY PCAs	87	49	38
H286	REMOVE OR INSTALL EMUX SYSTEM PCA SUBASSEMBLIES	88	51	37
H268	REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	83	47	36
A8	DETERMINE WORK PRIORITIES	13	74	-61
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	17	74	-57
C86	WRITE EPRs	24	77	-53
A20	PLAN OR SCHEDULE WORK ASSIGNMENTS	9	60	-51
A1	ASSIGN MAINTENANCE AND REPAIR WORK	18	65	-47
A21	PLAN OR SCHEDULE WORK PRIORITIES	8	54	-46

Summary

Survey data show A-shred personnel progress typically through the skill levels, with 3- and 5-skill level personnel performing the technical systems maintenance tasks and 7-skill level members performing a mixture of supervisory and technical tasks.

AFR 39-1 SPECIALTY JOB DESCRIPTION ANALYSIS

The current AFR 39-1 Specialty Descriptions for the career ladder were compared to the job descriptions for each job identified and for each DAFSC group. Survey data suggest the jobs and tasks included in the current AFR 39-1 Specialty Descriptions accurately reflect the work being done by A-shred personnel in the field.

TRAINING ANALYSIS

Occupational survey data are a source of information which can be used to assist in the development of relevant training programs for first-enlistment personnel. Factors which may be used to evaluate training include jobs being performed by first-enlistment personnel, the overall distribution of first-enlistment personnel across career ladder jobs, percent first-job (1-24 month TAFMS) and first-enlistment (1-48 month TAFMS) members performing specific tasks or using certain equipment, ratings of how much training emphasis (TE) tasks should receive in formal training, and ratings of relative task difficulty (TD). A detailed explanation of TE and TD ratings can be found under Task Factor Administration in the Survey Methodology section of this report.

A sample of tasks with the highest A-shred TE ratings, with accompanying percent first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) percent members performing, is listed in Table 10. Tasks with the highest TD ratings, along with percent first-job, first-enlistment, and 5- and 7-skill level members performing, are listed in Table 11. As expected, tasks with the highest A-shred TE ratings deal with maintaining the OAS, CITS, and radar systems, and are performed by high percentages of first-job and first-enlistment A-shred members. Most tasks with high TD ratings, on the other hand, are supervisory and administrative functions, are performed by quite low percentages of first-job, first-enlistment, 5- and 7-skill level members, and have low TE ratings. The few technical tasks with high TD ratings also have high TE ratings and are performed by high percentages of A-shred respondents.

First-Enlistment AFSC 457X3A Personnel

Eighty-four A-shred respondents indicated they are in their first enlistment. Eighty work in the technical OAS, CTIS, and Doppler Radar Maintenance job; 1 is a Supervisor; 1 works in the Tool Crib job, and 2 were not

TABLE 10

SAMPLE OF TASKS WITH HIGHEST A-SHRED TRAINING EMPHASIS RATINGS

TASKS		TNG EMP*	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIFF
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	7.08	69	79	6.87
H324	TROUBLESHOOT ORSs	6.65	94	93	7.89
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	6.54	91	92	6.30
H321	TROUBLESHOOT EMUX SYSTEMS	6.50	88	92	8.23
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	6.35	88	87	7.58
H318	TROUBLESHOOT ACUCs	6.31	91	93	7.03
H319	TROUBLESHOOT CITSs	6.23	91	93	6.91
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	6.19	94	92	4.48
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	6.17	63	68	5.86
H322	TROUBLESHOOT INSs	5.83	91	93	5.64
H325	TROUBLESHOOT RAs	5.79	72	79	6.06
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	5.67	72	80	7.70
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	5.67	97	93	4.18
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	5.65	69	69	4.61
H323	TROUBLESHOOT OFFENSIVE AVIONICS CD SYSTEMS	5.63	84	88	6.25
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	5.62	97	94	4.58
H320	TROUBLESHOOT DVSs	5.56	63	72	5.33
H303	REMOVE OR INSTALL ORS ANTENNAS	5.44	94	94	8.35
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	5.31	91	83	6.23
H250	PERFORM ACUC DATA ERASURES, SUCH AS SECURE DATA ERASURES	5.19	81	81	4.01

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 10 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST A-SHRED TRAINING EMPHASIS RATINGS

TASKS		PERCENT A-SHRED MEMBERS PERFORMING			
		TNG EMP*	1ST JOB	1ST ENL	TSK DIFF
H286	REMOVE OR INSTALL EMUX SYSTEM PCA SUBASSEMBLIES	5.19	84	89	6.41
H251	PERFORM CITS COMPUTER MEMORY LOADS	5.10	91	92	3.62
H252	PERFORM GROUND READINESS TEST (GRT) OF ACUCs	5.10	84	88	5.02
F223	REPAIR CABLE ASSEMBLIES, SUCH AS REPLACING PINS, WIRES, OR HARDWARE	5.02	50	65	7.86
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	4.96	94	94	7.18
H255	PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	4.88	94	94	3.70
H306	REMOVE OR INSTALL ORS RADAR SIGNAL PROCESSORS (RSP)	4.85	97	95	5.37
H253	PERFORM GRT OF CITSs	4.83	94	93	4.20
E124	ANNOTATE, INITIATE, OR COMPLETE AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	4.79	63	65	4.22
F201	INSPECT AIRCRAFT SYSTEMS FOR SAFE AND SECURE INSTALLATION	4.79	63	56	5.59

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 11

SAMPLE OF TASKS WITH HIGHEST A-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
A14	DRAFT BUDGET REQUIREMENTS	8.47	0	0	1	2	.02
H303	REMOVE OR INSTALL ORS ANTENNAS	8.35	94	94	84	53	5.44
H321	TROUBLESHOOT EMUX SYSTEMS	8.23	88	92	86	60	6.50
D99	DEVELOP CAREER DEVELOPMENT COURSE (CDC) MATERIALS	8.14	0	0	0	0	.37
D102	DEVELOP RESIDENT OR FIELD TRAINING COURSE TRAINING MATERIALS	7.93	0	1	2	5	.15
H324	TROUBLESHOOT ORSs	7.89	94	93	84	63	6.65
F223	REPAIR CABLE ASSEMBLIES, SUCH AS REPLACING PINS, WIRES, OR HARDWARE	7.86	50	65	68	51	5.02
I500	TROUBLESHOOT AFCSS	7.75	0	1	0	0	.40
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	7.70	72	80	77	65	5.67
C59	ANALYZE RECURRING TROUBLES ON EQUIPMENT IDENTIFIED BY DEFICIENCY, SERVICE, OR STATUS REPORTS	7.60	9	8	14	26	1.52
H311	REMOVE OR INSTALL ORS WAVEGUIDE SWITCHING ASSEMBLIES	7.59	44	64	67	35	4.23
C63	EVALUATE EQUIPMENT MODIFICATION DATA	7.58	0	0	5	7	.63
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	7.58	88	87	86	68	6.35
C89	WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	7.57	3	1	1	7	.02
B54	SUPERVISE CIVILIANS	7.52	0	0	4	2	.08
D115	WRITE TEST QUESTIONS	7.45	0	0	2	2	.13

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 11 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST A-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
C70	EVALUATE PERSONNEL FOR PROMOTION, DEMOTION, OR RECLASSIFICATION	7.33	3	1	5	23	.92
C62	EVALUATE CAUSES OF MISSION OPERATIONAL DISCREPANCIES	7.30	0	1	4	19	.92
C88	WRITE RECOMMENDATIONS FOR AWARDS AND DECORATIONS	7.27	3	2	11	53	.94
D100	DEVELOP NEW EQUIPMENT TRAINING PROGRAMS	7.26	0	1	3	0	.17
A6	DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, OR EQUIPMENT	7.20	3	1	4	25	.33
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	7.18	94	94	84	51	4.96
H299	REMOVE OR INSTALL ORS ANTENNA BEAM STEERING CONTROLLERS (BSC)	7.16	47	63	59	23	4.12
C61	EVALUATE BUDGET REQUIREMENTS	7.12	0	0	1	4	.00
H300	REMOVE OR INSTALL ORS ANTENNA PHASE CONTROL MODULE POWER SUPPLIES (PCMPS)	7.04	44	49	47	19	3.79
C60	ANALYZE WORKLOAD REQUIREMENTS	7.03	3	1	4	19	.40
H318	TROUBLESHOOT ACUCs	7.03	91	93	85	63	6.31

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

grouped. Survey data show first-enlistment A-shred personnel spend most of their time removing and installing components and troubleshooting the various A-shred systems (see Table 12).

AFSC 457X3A Specialty Training Standard

For the purposes of reviewing training documents for the A-shred, USAFOMS personnel met with 3450th Technical Training Group personnel at Lowry AFB and matched tasks listed in the job inventory to sections and subsections of the A-shred Specialty Training Standard (STS) and to the ABR45733A Plan of Instruction (POI). Listings of the STS and POI were then produced, showing tasks matched, percent A-shred members performing the tasks, and TE and TD ratings for each matched task. These listings are included in the A-shred Training Extract sent to the school for review. Criteria set forth in AFR 8-13, AFR 8-13/ATC Supplement 1 (Attachment 1, paragraph A1-3c(4)), and ATCR 52-22 Attachment 1, were used to review the relevance of each STS element that had inventory tasks matched to it. Any element with matched tasks performed by 20 percent or more first-job, first-enlistment, 5-, or 7-skill level A-shred members is considered to be supported and should be part of the STS.

AFSC 457X3A STS. Paragraphs 1 through 12 and 24 deal with general topics of career ladder progression, security, AFOSH, publications, supply discipline, supervision and training, maintenance inspection systems and forms, fundamentals of avionics systems maintenance--on equipment, general organizational maintenance, central integrated test system (CITS), electrical multiplexing systems (EMUX), and graduate evaluation. Because paragraphs 1 through 8 and 24 deal with general topics, they were not reviewed. Paragraphs 9 through 12 cover the common aspects of the career ladder, while paragraphs 13 through 23 deal with maintaining offensive avionics and Doppler radar equipment. These paragraphs include 133 individual line items, 102 of which have tasks matched.

Using standard ATC criteria and percentages of first-job, first-enlistment, 5-, and 7-skill level A-shred members performing matched tasks, all but three line items are supported by survey data. The three unsupported line items deal with maintaining tool cribs (line item 10m), performing proximity switch control covering and uncovering (line item 10r), and installing pitch, roll, and yaw rig pins (line item 10s). These three unmatched line items, with accompanying survey data, are listed in Table 13.

Many STS line items deal with removing and installing components of the various systems. These are matched to tasks performed by very high percentages of criterion group members and have high TE and ATI ratings, but have a dash (-) training code, meaning students in the entry-level course are not taught how to remove and replace these items. Because these functions are not taught in the entry-level course, but are performed by high percentages of personnel, training personnel need to ensure they are covered by the OJT curriculum.

There are several technical tasks performed by more than 20 percent of all respondents that are not matched to STS elements (see Table 14). These tasks deal with several systems and more than one maintenance function. School personnel should review these to determine if they suggest topics that should be included in the STS.

TABLE 12

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT AFSC 457X3A PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=84)
H306	REMOVE OR INSTALL ORS RADAR SIGNAL PROCESSORS (RSP)	95
H280	REMOVE OR INSTALL EMUX SYSTEM CENTRAL EQUIPMENT BAY PCAs	95
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	94
H255	PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	94
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	94
H288	REMOVE OR INSTALL INS INERTIAL NAVIGATION UNITS (INU)	94
H304	REMOVE OR INSTALL ORS RADAR RECEIVER-TRANSMITTERS (RRT)	94
H261	REMOVE OR INSTALL ACUC AVIONICS COMPUTER CONTROLS (ACC)	94
H284	REMOVE OR INSTALL EMUX SYSTEM FORWARD EQUIPMENT BAY PCAs	94
H267	REMOVE OR INSTALL CITS COMPUTERS	94
H303	REMOVE OR INSTALL ORS ANTENNAS	94
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	93
H296	REMOVE OR INSTALL OFFENSIVE AVIONICS CD SYSTEM VIDEO RECORDER MAGAZINES	93
H324	TROUBLESHOOT ORSs	93
H319	TROUBLESHOOT CITSs	93
H318	TROUBLESHOOT ACUCs	93
H308	REMOVE OR INSTALL ORS RADAR TRANSMITTERS (RT)	93
H322	TROUBLESHOOT INSs	93
H268	REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	93
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	92
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	92
H321	TROUBLESHOOT EMUX SYSTEMS	92
H251	PERFORM CITS COMPUTER MEMORY LOADS	92
H253	PERFORM GRT OF CITSs	92
H273	REMOVE OR INSTALL CITS MAINTENANCE RECORDER (CMR) MAGNETIC TAPE TRANSPORTS	90
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	87
H317	SERVICE VIDEO RECORDER MAGAZINES	85

TABLE 13

AFSC 457X3A STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5- LVL	7- LVL	TSK DIF
10M. MAINTAIN TOOL CRIB						
E173 MAINTAIN TOOL CRIBS	.46	0	5	7	0	6.16
10R. PERFORM PROXIMITY SWITCH CONTROL COVERING/UNCOVERING						
F213 PERFORM PROXIMITY SWITCH CONTROL COVERINGS OR UNCOVERINGS	.63	9	8	10	4	4.95
10S. INSTALL PITCH, ROLL, AND YAW RIG PINS						
F205 INSTALL PITCH, ROLL, AND YAW RIG PINS	.33	3	2	3	2	4.63

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 14

TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE A-SHRED PERSONNEL AND NOT REFERENCED TO THE STS

TASKS		TNG EMP*	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5- LVL	7- LVL	TSK DIF
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	5.67	72	80	77	65	7.70
F203	INSPECT WAVEGUIDES	3.85	66	67	60	54	4.95
F204	INSTALL OR REMOVE RADOME STRUTS	3.04	88	87	75	42	3.56
F222	REMOVE OR INSTALL WAVEGUIDES	3.67	79	76	76	42	4.98
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	5.62	97	94	84	56	4.58
H246	INSPECT CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSORS	2.12	47	42	36	21	5.46
H247	LOAD CITS GROUND PROCESSORS	2.69	59	43	34	32	5.04
H298	REMOVE OR INSTALL OFFENSIVE AVIONICS DLTs	3.77	66	73	73	47	4.08
H316	REMOVE OR INSTALL SIGNAL DATA CONVERTERS (SDC)	3.88	81	85	77	47	4.59
H317	SERVICE VIDEO RECORDER MAGAZINES	4.10	81	85	79	49	4.80

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

Plan of Instruction

The same 3450th TCHTG personnel matched inventory tasks to learning objectives of the ABR45733A Plan of Instruction (POI), dated July 1990. A computer product was created for the POI, listing each learning objective, tasks matched, percent first-job and first-enlistment members performing, TE and TD ratings, and ATI. Learning objectives with tasks matched were reviewed using criteria found in ATCR 52-22, Attachment 1 (Feb 89). Any objectives having matched tasks performed by 30 percent or more first-job or first-enlistment members are considered to be supported and should be part of the entry-level course.

ABR45733A POI. Block I of the course is the Electronic Fundamentals and Applications curriculum. Blocks II and III of the skill-level awarding course deal with introductory information and were not reviewed. Blocks IV through IX include 34 technical learning objectives, half of which are taught to the knowledge level and only require students to identify functions, principles, or procedures. Eleven of the seventeen knowledge-level objectives and 16 of the 17 performance-level objectives have tasks matched. All objectives with tasks matched are well supported.

There are many tasks from Duty H (Maintaining OAS, CITS, and Doppler Radar Systems) that are performed by high percentages of all first-job and first-enlistment respondents and have high TE and TD, but are not matched to learning objectives (see Table 15). These tasks deal with removing and installing system components and subassemblies. Because of the high percentages of respondents performing these tasks and high TE and TD ratings, school personnel need to determine if they are appropriate for the entry-level course.

ELECTRONIC PRINCIPLES

The Electronic Fundamentals STS (dated February 1987) and Block I of the entry-level course can be reviewed using data from the Electronic Principles Inventory (EPI). The EPI is a knowledge-based inventory which asks 5-skill level respondents to indicate which of the 712 electronic principles, skills, and equipment they use in their jobs. Responses suggest the range of electronic principles A-shred members must understand to perform successfully.

Table 16 lists the principles used by 50 percent or more of AFSC 45753A personnel. The Training Extract contains a complete listing of the EPI in inventory order and the STS, with percent AFSC 45753A personnel responding "Yes" to each question. Training personnel need to review these documents to determine if the EPI course teaches what members are actually using.

TABLE 15

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
A-SHRED PERSONNEL NOT MATCHED TO THE ABR45733A POI

TASKS		TNG EMP*	PERCENT A-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	5.62	97	94	4.58
H286	REMOVE OR INSTALL EMUX SYSTEM PCA SUBASSEMBLIES	5.19	84	89	6.41
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	4.96	94	94	7.18
H255	PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	4.88	94	94	3.70
H284	REMOVE OR INSTALL EMUX SYSTEM FORWARD EQUIPMENT BAY PCAs	4.62	94	94	4.87
H280	REMOVE OR INSTALL EMUX SYSTEM CENTRAL EQUIPMENT BAY PCAs	4.54	97	95	4.81
H261	REMOVE OR INSTALL ACUC AVIONICS COMPUTER CONTROLS (ACC)	4.50	97	94	4.03
H279	REMOVE OR INSTALL EMUX SYSTEM AFT EQUIPMENT BAY POWER CONTROL ASSEMBLIES (PCA)	4.44	81	86	5.55
H282	REMOVE OR INSTALL EMUX SYSTEM DIGITAL REMOTE TERMINALS (DRT)	4.40	81	89	4.48
H267	REMOVE OR INSTALL CITS COMPUTERS	4.27	94	94	3.92
H268	REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	4.27	94	93	4.00
H281	REMOVE OR INSTALL EMUX SYSTEM CONTROLLERS	4.27	88	92	4.30
H265	REMOVE OR INSTALL ACUC MEMORY STORAGE UNITS (MSU)	4.25	91	92	4.10
H269	REMOVE OR INSTALL CITS DATA ACQUISITION UNITS (DAU)	4.25	91	93	4.03
H262	REMOVE OR INSTALL ACUC DATA TRANSFER UNIT (DTU) COMPLEX CARTRIDGES	4.15	88	88	2.94

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 15 (CONTINUED)

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
A-SHRED PERSONNEL NOT MATCHED TO THE ABR45733A POI

TASKS		PERCENT A-SHRED MEMBERS PERFORMING			
		TNG EMP*	1ST JOB	1ST ENL	TSK DIF
H270	REMOVE OR INSTALL CITS DATA CONVERSION UNITS (DCU)	4.15	81	85	3.96
H263	REMOVE OR INSTALL ACUC DTU COMPLEX CONTROLS	4.13	78	81	4.34
H272	REMOVE OR INSTALL CITS INTERFACE BOXES	4.10	72	85	4.14
H264	REMOVE OR INSTALL ACUC DTU COMPLEX MOUNTS	4.02	78	85	4.75
H278	REMOVE OR INSTALL DOPPLER DATA ANTENNA RECEIVER-TRANSMITTERS (DDART)	3.98	66	67	6.06
H283	REMOVE OR INSTALL EMUX SYSTEM DLTs	3.94	75	82	4.36
H271	REMOVE OR INSTALL CITS DATA LINK TERMINALS (DLT)	3.92	75	85	3.93
H260	PERFORM OPERATIONAL CHECKOUT OF OAS TRANSFORMERS	3.90	56	63	5.51
H285	REMOVE OR INSTALL EMUX SYSTEM PANELS	3.88	78	86	4.11
H275	REMOVE OR INSTALL CMR RECORDER CONTROL UNITS	3.79	72	82	4.26
H273	REMOVE OR INSTALL CITS MAINTENANCE RECORDER (CMR) MAGNETIC TAPE TRANSPORTS	3.77	91	90	2.85
H276	REMOVE OR INSTALL CMR RECORDER MOUNTING BASES	3.62	66	77	4.74
H249	LOAD CITS AIRBORNE PRINTER TAPES	3.60	53	63	3.67
H266	REMOVE OR INSTALL CITS AIRBORNE PRINTERS (AP)	3.50	72	83	3.79
H277	REMOVE OR INSTALL CMR RECORDER TRANSFORMERS	3.42	59	63	4.93
H274	REMOVE OR INSTALL CITS TRANSFORMERS	3.31	59	64	4.79
H247	LOAD CITS GROUND PROCESSORS	2.69	59	43	5.04
H246	INSPECT CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSORS	2.12	47	42	5.46

* A-SHRED TE MEAN = 1.06 S.D. = 1.63
TD MEAN = 5.00 S.D. = 1.00

TABLE 16

ELECTRONIC PRINCIPLES USED BY 50 PERCENT
OR MORE OF AFSC 457X3A PERSONNEL

DIRECT/ALTERNATING CURRENT

SOLDERING OR SOLDERLESS CONNECTIONS

TEST EQUIPMENT

POWER SUPPLY CIRCUITS

DIGITAL LOGIC NUMBERING SYSTEMS AND FUNCTIONS

COMPUTERS

Summary

Both the STS and POI are well supported by survey data, with all but three STS line items and all learning objectives in the ABR45733A course supported by tasks performed by more than the required percentages of criterion group members. Electronic Principles and Applications data are provided for review.

PART 3

AFSC 457X3B SKILL-LEVEL DESCRIPTIONS

DAFSC 45733B/53B. Survey data show 87 percent of all AFSC 45733B/53B respondents have the Instrument and Flight Control Computer job; two individuals maintain OAS, CITS, and Doppler radar systems, and two are instructors. Members who maintain instrument and flight control computer systems spend 80 percent of their duty time performing operational checks of various indicators and controls, removing and replacing components, troubleshooting instrument and control systems and components, and performing general avionic tasks (see Table 6). Representative tasks 3- and 5-skill level B-shred personnel perform are listed in Table 17.

DAFSC 45773B. AFSC 45773B personnel are also first-line supervisors performing a mixture of technical systems maintenance, administrative, and supervisory tasks (see Table 18). Figures listed in Table 6 show 7-skill level B-shred personnel spend less time performing supervisory and administrative duties than their A-shred counterparts, but more time training and performing technical tasks. Tasks which best distinguish between 3-, 5-, and 7-skill level B-shred members are listed in Table 19.

Summary

Survey data show B-shred personnel progress typically through the skill levels, with 3- and 5-skill level personnel performing the technical systems maintenance tasks and 7-skill level members performing a mixture of supervisory and technical tasks.

AFR 39-1 SPECIALTY JOB DESCRIPTION ANALYSIS

The current AFR 39-1 Specialty Descriptions for B-shred members of the career ladder were compared to the job descriptions for each of the DAFSC groups. The jobs and tasks included in the current AFR 39-1 Specialty Descriptions accurately reflect the work being done by B-shred personnel in the field.

TABLE 17

REPRESENTATIVE TASKS PERFORMED BY AFSC 45733B/53B PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=107)
I376	PERFORM OPERATIONAL CHECK OF VERTICAL SITUATION DISPLAY (VSD) INDICATORS	93
I381	PERFORM FCGMS HIGH/LOW TESTS	91
I411	PERFORM OPERATIONAL CHECK OF FCS FLAP/SLATS	88
I495	REMOVE OR INSTALL VSD INDICATOR DISPLAY ELECTRONICS UNITS (DEU)	87
I496	REMOVE OR INSTALL VSD INDICATORS	86
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	85
I446	REMOVE OR INSTALL FCGMS INTERMEDIATE DEVICES	85
I421	REMOVE OR INSTALL ADS CADCs	85
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/SLAT CONTROLLERS	84
I477	REMOVE OR INSTALL HYDRAULIC QUANTITY SCDUs	83
I429	REMOVE OR INSTALL ADS VERTICAL AIRSPEED MACH INDICATORS	83
I470	REMOVE OR INSTALL GSS GYRO REFERENCE UNITS	83
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	82
I412	PERFORM OPERATIONAL CHECK OF FCS PITCH CONTROLS	82
I502	TROUBLESHOOT FCGMSs	81
I432	REMOVE OR INSTALL AFCS RACK MOUNTED COMPONENTS	81
I506	TROUBLESHOOT HYDRAULIC QUANTITY/PRESSURE INDICATING SYSTEMS	80
I388	PERFORM GRT OF FCGMSs	80
F197	DEBRIEF AIRCREWS	79
I503	TROUBLESHOOT FCSs	79
I500	TROUBLESHOOT AFCSs	79
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	78
I436	REMOVE OR INSTALL EIS SIGNAL CONDITIONING AND DISTRIBUTING UNITS	78
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	76
G233	OPERATE AEROSPACE GROUND EQUIPMENT (AGE), SUCH AS POWER UNITS, HEATERS, OR LIGHT CARTS	74
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	70
E124	ANNOTATE, INITIATE, OR COMPLETE AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	70
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	63

TABLE 18

REPRESENTATIVE TASKS PERFORMED BY AFSC 45773B PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=14)
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	79
I361	PERFORM OPERATIONAL CHECK OF FCGMS FUEL QUANTITY PROBES	79
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	71
I388	PERFORM GRT OF FCGMSs	71
E129	COMPLETE AF FORMS 2005 (ISSUE/TURN-IN REQUEST)	71
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	71
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	71
I503	TROUBLESHOOT FCSs	71
I502	TROUBLESHOOT FCGMSs	71
I500	TROUBLESHOOT AFCSs	71
I501	TROUBLESHOOT EISs	71
I360	PERFORM OPERATIONAL CHECK OF FUEL/CENTER OF GRAVITY MANAGEMENT SYSTEM (FCGMS) FUEL COMPENSATOR PROBES	71
I381	PERFORM FCGMS HIGH/LOW TESTS	71
I414	PERFORM OPERATIONAL CHECK OF FCS YAW CONTROLS	71
E148	INITIATE OR REVIEW TECHNICAL ORDER SYSTEM IMPROVEMENT FORMS, SUCH AS AFTO FORMS 22 AND 27	64
E140	INITIATE AF FORMS 1297 (TEMPORARY ISSUE RECEIPT)	64
C86	WRITE EPRs	64
D97	COUNSEL TRAINEES ON TRAINING PROGRESS	64
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	64
F201	INSPECT AIRCRAFT SYSTEMS FOR SAFE AND SECURE INSTALLATION	64
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	64
E122	ANNOTATE OR COMPLETE AF FORMS 2413 (SUPPLY CONTROL LOG)	57
B51	SUPERVISE APPRENTICE INSTRUMENT AND FLIGHT CONTROL COMPUTER SPECIALISTS (AFSC 45733B)	57
B56	SUPERVISE INSTRUMENT AND FLIGHT CONTROL COMPUTER SPECIALISTS (AFSC 45753B)	57
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	57
B45	INITIATE ACTION TO CORRECT SUBSTANDARD PERFORMANCE OF PERSONNEL	57
D107	EVALUATE PROGRESS OF TRAINEES	50
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	43
A2	ASSIGN PERSONNEL TO DUTY POSITIONS	36

TABLE 19

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 45733B/53B AND DAFSC 45773B PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		54733B/53B (N=107)	45773B (N=14)	DIFFERENCE
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	72	43	29
I376	PERFORM OPERATIONAL CHECK OF VERTICAL SITUATION DISPLAY (VSD) INDICATORS	93	64	29
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/SLAT CONTROLLERS	84	57	27
I411	PERFORM OPERATIONAL CHECK OF FCS FLAP/SLATS	88	64	24
I495	REMOVE OR INSTALL VSD INDICATOR DISPLAY ELECTRONICS UNITS	87	64	23
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	10	57	-47
D97	COUNSEL TRAINEES ON TRAINING PROGRESS	21	64	-43
E148	INITIATE OR REVIEW TECHNICAL ORDER SYSTEM IMPROVEMENT FORMS, SUCH AS AFTO FORMS 22 AND 27	22	64	-42
C86	WRITE EPRs	27	64	-37
B45	INITIATE ACTION TO CORRECT SUBSTANDARD PERFORMANCE OF PERSONNEL	21	57	-36

TRAINING ANALYSIS

Occupational survey data are a source of information which can be used to assist in the development of relevant training programs for first-enlistment personnel. Factors which may be used to evaluate training include jobs being performed by first-enlistment personnel, the overall distribution of first-enlistment personnel across career ladder jobs, percent first-job (1-24 month TAFMS) and first-enlistment (1-48 month TAFMS) members performing specific tasks or using certain equipment, ratings of how much training emphasis (TE) tasks should receive in formal training, and ratings of relative task difficulty (TD). A detailed explanation of TE and TD ratings can be found under Task Factor Administration in the Survey Methodology section of this report.

A sample of tasks given the highest TE ratings by B-shred NCOs with accompanying percent first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) members performing, is listed in Table 20. Tasks with the highest TD ratings, along with percent first-job, first-enlistment, and 5- and 7-skill level members performing, are listed in Table 21. Tasks with the highest TE ratings deal with troubleshooting various instrument and flight control systems and performing various checks and tests and are performed by high percentages of first-job and first-enlistment B-shred members. Most tasks with high TD ratings also deal with troubleshooting and adjusting components and systems, but only a few have high TE ratings and are performed by high percentages of first-job, first-enlistment, 5- and 7-skill level members.

First-Enlistment AFSC 457X3B Personnel

Sixty-six respondents with the B-shred indicated they are in their first enlistment. Fifty-six have the Instrument and Flight Control Computer job; 1 maintains OAS, CITS, and Doppler radar systems, and 1 has the Support job. Survey data show first-enlistment B-shred personnel spend most of their time removing and installing components of the various systems, performing checks of instruments, and troubleshooting instrument and flight control systems (see Table 22).

AFSC 457X3B Specialty Training Standard

For the purposes of reviewing training documents for the specialty, USAFOMS personnel met with 3450th Technical Training Group personnel at Lowry AFB and matched tasks listed in the job inventory to sections and subsections of the B-shred Specialty Training Standard (STS) and to the ABR45733B Plan of Instruction (POI). Listings of the STS and POIs were then produced, showing inventory tasks matched, percent B-shred members performing tasks, TE and TD ratings, and ATI for each matched task. These listings are included in the B-shred Training Extract sent to the school for review. Criteria set forth in AFR 8-13, AFR 8-13/ATC Supplement 1 (Attachment 1, paragraph A1-3c(4)), and

TABLE 20

SAMPLE OF TASKS WITH HIGHEST B-SHRED TRAINING EMPHASIS RATINGS

TASKS		TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	7.42	77	76	5.73
I503	TROUBLESHOOT FCSs	7.08	57	70	7.90
I508	TROUBLESHOOT PITOT STATIC SYSTEMS	7.00	57	67	7.03
I504	TROUBLESHOOT FLIGHT DIRECTOR COMPUTER/MONITOR SYSTEMS	6.96	57	67	7.22
I337	PERFORM ADJUSTMENT OF FCS STABILITY CONTROL AUGMENTATION SYSTEM (SCAS) CONTROLLERS	6.88	67	73	6.10
I509	TROUBLESHOOT SURFACE POSITION COMMAND INDICATING SYSTEMS	6.83	60	70	6.39
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	6.75	90	86	4.20
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	6.75	77	73	6.31
I500	TROUBLESHOOT AFCSs	6.71	60	70	7.89
I499	TROUBLESHOOT ADSs	6.67	57	68	7.63
I502	TROUBLESHOOT FCGMSs	6.67	67	76	7.52
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/SLAT CONTROLLERS	6.58	80	82	6.27
I382	PERFORM FCGMS SAFETY OF FLIGHT TESTS	6.54	47	59	4.72
I383	PERFORM FCGMS TARGET CENTER OF GRAVITY (CG) TESTS	6.54	57	67	4.62
I505	TROUBLESHOOT GSSs	6.54	57	70	6.54
I506	TROUBLESHOOT HYDRAULIC QUANTITY/PRESSURE INDICATING SYSTEMS	6.54	63	74	6.29
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	6.50	87	86	6.60
I356	PERFORM ADS CADC SYSTEM TESTS	6.50	53	70	5.32
I361	PERFORM OPERATIONAL CHECK OF FCGMS FUEL QUANTITY PROBES	6.50	67	71	5.80

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 20 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST B-SHRED TRAINING EMPHASIS RATINGS

TASKS		TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	6.46	70	67	6.85
I376	PERFORM OPERATIONAL CHECK OF VERTICAL SITUATION DISPLAY (VSD) INDICATORS	6.46	97	94	4.46
I336	PERFORM ADJUSTMENT OF FCS HINGE MOVEMENT LIMITING/OVERWING FAIRING CONTROLLERS	6.38	53	58	6.30
I360	PERFORM OPERATIONAL CHECK OF FUEL/CENTER OF GRAVITY MANAGEMENT SYSTEM (FCGMS) FUEL COMPENSATOR PROBES	6.25	77	77	5.76
I381	PERFORM FCGMS HIGH/LOW TESTS	6.25	87	89	4.25
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	6.17	57	55	5.69
I501	TROUBLESHOOT EISs	6.17	53	68	6.94
I334	PERFORM ADJUSTMENT OF AUTO FLIGHT CONTROL SYSTEM (AFCS) LOGIC/STRUCTURAL MODE CONTROL SYSTEM (SMCS) CONTROLLERS	6.08	6.	58	5.66

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 21

SAMPLE OF TASKS WITH HIGHEST B-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
H318	TROUBLESHOOT ACUCs	8.24	3	3	0	0	.00
H319	TROUBLESHOOT CITs	8.24	3	3	0	0	.13
H320	TROUBLESHOOT DVSS	8.24	0	2	0	0	.00
H321	TROUBLESHOOT EMUX SYSTEMS	8.24	3	3	2	0	.00
I345	PERFORM ADJUSTMENT OF GYRO STABILIZATION SYSTEMS (GSS) AIRCRAFT ELECTRICAL COMPASS SWINGS	7.91	27	32	47	36	5.50
I503	TROUBLESHOOT FCSs	7.90	57	70	94	71	7.08
I500	TROUBLESHOOT AFCSs	7.89	60	70	91	71	6.71
I346	PERFORM ADJUSTMENT OF GSS INDEX AND ALIGN MAGNETIC AZIMUTH DETECTORS	7.85	17	27	49	36	5.50
D102	DEVELOP RESIDENT OR FIELD TRAINING COURSE TRAINING MATERIALS	7.68	0	0	6	14	.38
I499	TROUBLESHOOT ADSs	7.63	57	68	89	64	6.67
I502	TROUBLESHOOT FCGMSs	7.52	67	76	94	71	6.67
D93	ASSIGN RESIDENT OR FIELD TRAINING COURSE INSTRUCTORS	7.37	0	0	4	0	.38
H323	TROUBLESHOOT OFFENSIVE AVIONICS CD SYSTEMS	7.30	0	2	0	0	.00
H324	TROUBLESHOOT ORSs	7.30	0	2	0	0	.00
H325	TROUBLESHOOT RAs	7.30	0	2	0	0	.00
I504	TROUBLESHOOT FLIGHT DIRECTOR COMPUTER/MONITOR SYSTEMS	7.22	57	67	89	64	6.96
A14	DRAFT BUDGET REQUIREMENTS	7.18	0	0	0	21	.38
C87	WRITE CIVILIAN PERFORMANCE APPRAISALS	7.14	0	0	0	0	.38
D99	DEVELOP CAREER DEVELOPMENT COURSE (CDC) MATERIALS	7.13	0	0	0	7	.38
I508	TROUBLESHOOT PITOT STATIC SYSTEMS	7.03	57	67	89	64	7.00
I501	TROUBLESHOOT EISs	6.94	53	68	94	71	6.17

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 21 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST B-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
I459	REMOVE OR INSTALL FCS SCAS STICK/PEDAL POSITION TRANSDUCERS	6.93	37	47	66	57	4.58
I347	PERFORM ADJUSTMENT OF HORIZONTAL STABILIZER POSITION SENSORS	6.90	33	41	57	50	5.04
I326	ADJUST OR RIG PITOT STATIC ANGLE-OF-ATTACK (AOA) PROBE MOUNTS	6.85	40	47	66	57	4.71
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	6.85	70	67	72	64	6.46
I338	PERFORM ADJUSTMENT OF FCS SCAS STICK/PEDAL POSITION TRANSDUCERS	6.65	43	50	66	57	5.88
D100	DEVELOP NEW EQUIPMENT TRAINING PROGRAMS	6.60	0	0	4	21	.38
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	6.60	87	86	85	71	6.50

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 22

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT AFSC 457X3B PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=66)
I376	PERFORM OPERATIONAL CHECK OF VERTICAL SITUATION DISPLAY (VSD) INDICATORS	94
I381	PERFORM FCGMS HIGH/LOW TESTS	89
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	86
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	86
I495	REMOVE OR INSTALL VSD INDICATOR DISPLAY ELECTRONICS UNITS (DEU)	85
I411	PERFORM OPERATIONAL CHECK OF FCS FLAP/SLATS	85
I496	REMOVE OR INSTALL VSD INDICATORS	83
F197	DEBRIEF AIRCREWS	83
I446	REMOVE OR INSTALL FCGMS INTERMEDIATE DEVICES	83
I429	REMOVE OR INSTALL ADS VERTICAL AIRSPEED MACH INDICATORS	82
I470	REMOVE OR INSTALL GSS GYRO REFERENCE UNITS	82
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/SLAT CONTROLLERS	82
I421	REMOVE OR INSTALL ADS CADCs	82
I367	PERFORM OPERATIONAL CHECK OF HYDRAULIC QUANTITY/PRESSURE INDICATING SYSTEMS	82
I388	PERFORM GRT OF FCGMSs	80
I477	REMOVE OR INSTALL HYDRAULIC QUANTITY SCDUs	80
I432	REMOVE OR INSTALL AFCS RACK MOUNTED COMPONENTS	79
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	76
I502	TROUBLESHOOT FCGMSs	76
I506	TROUBLESHOOT HYDRAULIC QUANTITY/PRESSURE INDICATING SYSTEMS	74
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	73
I436	REMOVE OR INSTALL EIS SIGNAL CONDITIONING AND DISTRIBUTING UNITS	73
I457	REMOVE OR INSTALL FCS RACK MOUNTED COMPONENTS	73
G233	OPERATE AEROSPACE GROUND EQUIPMENT (AGE), SUCH AS POWER UNITS, HEATERS, OR LIGHT CARTS	71
F196	CLEAN SHOP FACILITIES	70
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	70
F194	ANALYZE CENTRAL INTEGRATED TEST SYSTEM (CITS) GROUND PROCESSOR DATA	67
E124	ANNOTATE, INITIATE, OR COMPLETE AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	64
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	55

ATCR 52-22 Attachment 1, were used to review the relevance of each STS element that had inventory tasks matched to it. Any element with matched tasks performed by 20 percent or more first-job, first-enlistment, 5-, or 7-skill level B-shred members is considered to be supported and should be part of the STS.

AFSC 457X3B STS. Paragraphs 1 through 12 and 27 cover the topics of career ladder progression, security, AFOSH, publications, supply discipline, supervision and training, maintenance inspection systems and forms, fundamentals of avionics systems maintenance--on equipment, general organizational maintenance, central integrated test systems (CITS), electric multiplexing systems (EMUX), and graduate evaluation. Because these paragraphs deal with general topics, they were not reviewed. Paragraphs 9 through 12 contain topics common to all 3 STSs, while paragraphs 13 through 26 cover maintenance functions of instrument and flight control systems. There are 278 technical line items, 236 of which have tasks matched. Most unmatched line items deal with general knowledge.

Using standard ATC criteria and percentages of first-job, first-enlistment, 5-, and 7-skill level B-shred members performing, line items having matched tasks were reviewed. Three of the twenty-one line items in paragraph 10, 15 of the 20 line items in paragraph 11, all 15 line items in paragraph 12, and 1 in paragraph 13 are not supported by survey data. These line items deal with general maintenance functions, removing and installing CITS units, removing and installing EMUX system components, and performing ground readiness test of ACUCs. The tasks matched to these line items are performed by a very low or 0 percent criterion group members and have a .00 TE rating. The only unsupported STS line item taught in the entry-level course is 11f - Use CITS Data Snapshots. The subject matter of all other unsupported STS line items is taught through OJT. Because there are so many unsupported STS line items, only a sample is listed in Table 22. Training personnel need to review the complete STS listing found in the B-Shred Training Extract to determine if unsupported topics need to be included in the STS or continue to be taught on the job.

There are several technical tasks performed by more than 20 percent of B-shred respondents that are not matched to STS elements (see Table 24). These tasks were reviewed to determine if they deal with one of the systems or one particular function. Most of these unmatched tasks involve removing and replacing components, troubleshooting, and performing operational checks. They are performed by high percentages of criterion group members and have high TE. School personnel should review these to determine if they suggest topics that should be included in the STS.

Plan of Instruction

The same 3450th TCHTG personnel matched inventory tasks to learning objectives of the A3R457833B Plan of Instruction (POI), dated July 1990. A computer product was created for the POI, listing each learning objective, tasks matched, percent first-job and first-enlistment members performing, TE and TD ratings, and ATI. Learning objectives with tasks matched were reviewed

TABLE 23

SAMPLE OF AFSC 457X3B STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5-LVL	7-LVL	TSK DIF
10g. REMOVAL AND INSTALLATION OF RADAR ABSORPTION MATERIAL (RAM).						
F221 REMOVE OR INSTALL RADAR ABSORPTION MATERIAL (RAM)	.25	0	2	0	0	6.35
10l. PERFORM AIRCRAFT PHASE						
F207 PERFORM AIRCRAFT PHASE INSPECTIONS	2.00	0	6	8	0	5.22
10m. MAINTAIN TOOL CRIB						
E173 MAINTAIN TOOL CRIBS	1.38	0	2	2	0	5.81
11d. PERFORM GROUND READINESS TEST (GRT)						
H253 PERFORM GRT OF CITs	.67	13	8	4	7	5.13

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 23 (CONTINUED)

SAMPLE OF AFSC 457X3B STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5-LVL	7-LVL	TSK DIF
11f. USE CITS DATA SNAPSHOTS						
H319 TROUBLESHOOT CITS	.13	3	3	0	0	8.24
11i. LOAD CITS AIRBORNE PRINTER WITH TAPE						
H249 LOAD CITS AIRBORNE PRINTER TAPES	.38	3	3	2	0	4.87
11j. TROUBLESHOOT (CITS)						
H319 TROUBLESHOOT CITS	.13	3	3	0	0	8.24
11k. REMOVE AND INSTALL	----	--	--	--	--	----
11k(1). CITS CONTROL AND DISPLAY PANEL (CCD)						
H268 REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	.00	3	3	0	0	4.75

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 23 (CONTINUED)

SAMPLE OF AFSC 457X3B STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5- LVL	7- LVL	TSK DIF
11k(2). DATA ACQUISITION UNIT (DAU)						
H269 REMOVE OR INSTALL CITS DATA ACQUISITION UNITS (DAU)	.00	7	5	0	7	4.75
11k(3). DATA CONVERSION UNIT (DCU)						
H270 REMOVE OR INSTALL CITS DATA CONVERSION UNITS (DCU)	.00	0	3	0	0	4.47
11k(4). DATA LINK TERMINAL (DLT)						
H271 REMOVE OR INSTALL CITS DATA LINK TERMINALS (DLT)	.00	0	2	0	0	4.20
11k(5). CITS COMPUTER						
H267 REMOVE OR INSTALL CITS COMPUTERS	.00	0	2	0	0	4.47

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 23 (CONTINUED)

SAMPLE OF AFSC 457X3B STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5-LVL	7-LVL	TSK DIF
11k(6). CITS TRANSFORMER						
H274 REMOVE OR INSTALL CITS TRANSFORMERS	.00	0	2	0	0	5.41
11k(7)(a). RECORDER CONTROL UNIT						
H275 REMOVE OR INSTALL CMR RECORDER CONTROL UNITS	.00	0	2	0	0	5.41
11k(7)(b). RECORDER MOUNTING BASE						
H276 REMOVE OR INSTALL CMR RECORDER MOUNTING BASES	.00	0	2	0	0	5.41

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
ID MEAN = 5.00 S.D. = 1.00

TABLE 24

TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
B-SHRED PERSONNEL AND NOT REFERENCED TO THE STS

TASKS		TNG EMP*	PERCENT B-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5- LVL	7- LVL	TSK DIF
I504	TROUBLESHOOT FLIGHT DIRECTOR COMPUTER/MONITOR SYSTEMS	6.96	57	67	89	64	7.22
I505	TROUBLESHOOT GSSs	6.54	57	70	89	64	6.54
I507	TROUBLESHOOT STRUCTURAL DATA COLLECTOR/CRASH DATA RECORDER SYSTEMS	5.79	47	62	85	64	5.94
I385	PERFORM GRT OF AFCSs	5.29	57	50	55	64	5.52
I421	REMOVE OR INSTALL ADS CADCs	4.63	73	82	92	64	4.40
I431	REMOVE OR INSTALL AFCS CONTROL PANELS	4.63	60	70	79	64	5.06
I459	REMOVE OR INSTALL FCS SCAS STICK/PEDAL POSITION TRANSDUCERS	4.58	37	47	66	57	6.93
I404	PERFORM OPERATIONAL CHECK OF ADS FLIGHT INSTRUMENT TEST/MODE PANELS	4.54	47	65	83	64	4.65
I417	REMOVE OR INSTALL ADS ADTs	4.50	57	68	83	64	5.33
I405	PERFORM OPERATIONAL CHECK OF ADS FLIGHT PARAMETER INDICATORS	4.46	40	64	87	64	4.39
I487	REMOVE OR INSTALL RATE-OF-TURN GYROS	4.46	57	64	79	64	5.64
I430	REMOVE OR INSTALL AFCS ACCELEROMETERS	4.42	43	55	74	64	4.92
I479	REMOVE OR INSTALL INDICATING/RECORDING SYSTEM STRUCTURAL DATA COLLECTORS	4.38	43	62	77	50	3.86
I457	REMOVE OR INSTALL FCS RACK MOUNTED COMPONENTS	4.21	70	73	83	64	3.85
I491	REMOVE OR INSTALL STANDBY ATTITUDE INDICATORS	4.17	47	59	77	64	4.41
I328	INSPECT AIR DATA SYSTEM (ADS) AIR DATA TRANSDUCER (ADT) DRAIN VALVES	4.13	30	36	51	36	4.27
I433	REMOVE OR INSTALL AFCS SMCS PROXIMITY SWITCH ELECTRONICS PACKAGES	4.08	43	52	66	64	4.24

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

using criteria found in ATCR 52-22, Attachment 1 (February 1989). Any objective matched to tasks performed by 30 percent or more first-job or first-enlistment members is considered supported and should be part of the entry-level course.

ABR45733B POI. Block I of the course is the Electronic Fundamentals and Applications curriculum. Blocks II and III of the skill-level awarding course deal with introductory information and were not reviewed. Blocks IV through XI include 51 technical learning objectives, 15 of which are taught to the knowledge level, which only requires students to identify func principles, or procedures. The 15 knowledge-level objective all 36 performance-level objectives have tasks matched and are we ported by survey data.

There are many tasks from Duty I (Maintaining Instruments and Flight Control Computer Systems) performed by high percentages of first-job and first-enlistment B-shred respondents, which have high TE and TD, but are not matched to learning objectives (see Table 25). These tasks deal with inspecting the pitot static system, performing adjustments, and performing operational checks of various components. OJT personnel should review these tasks to ensure they are taught by OJT.

Summary

There are a number of STS line items that are not supported by survey data. Even though the material is not taught in the entry-level course, school personnel need to review the unsupported line items to determine if they should remain in the STS. The POI is well supported by survey data. There are a substantial number of tasks not matched to the STS and POI that should be reviewed.

Electronic Principles

There are no EPI data available for B-shred personnel. At the time the Electronic Principles Inventory was administered, there were insufficient 5-skill level B-shred personnel available to provide a representative sample. Only A- and C-shred personnel were surveyed.

PART 4

AFSC 457X3C SKILL-LEVEL DESCRIPTIONS

DAFSC 45733C/53C. Survey data show 113 of the 128 AFSC 45733C/53C respondents maintain communication, navigation, and defensive avionics systems, the basic C-shred job. Three others have the Supervisor job; four are instructors; three have the Support job, and five were not grouped. Representative tecn-

TABLE 25

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
B-SHRED PERSONNEL NOT MATCHED TO THE ABR45733B POI

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
I326	ADJUST OR RIG PITOT STATIC ANGLE-OF-ATTACK (AOA) PROBE MOUNTS	4.71	40	47	6.85
I328	INSPECT AIR DATA SYSTEM (ADS) AIR DATA TRANSDUCER (ADT) DRAIN VALVES	4.13	30	36	4.27
I329	INSPECT ADS TOTAL AIR TEMPERATURE PROBES	4.75	27	44	4.56
I332	INSPECT PITOT STATIC SYSTEM PITOT TUBES AND STATIC PORTS	5.71	60	74	4.76
I333	INSPECT PITOT STATIC SYSTEM PNEUMATIC PRESSURE LINES	5.58	37	55	4.39
I334	PERFORM ADJUSTMENT OF AUTO FLIGHT CONTROL SYSTEM LOGIC/STRUCTURAL MODE CONTROL SYSTEM (SMCS) CONTROLLERS	6.08	63	58	5.66
I338	PERFORM ADJUSTMENT OF FCS SCAS STICK/PEDAL POSITION TRANSDUCERS	5.88	43	50	6.65
I339	PERFORM ADJUSTMENT OF FCS SLAT SWITCHES	5.92	57	61	6.04
I340	PERFORM ADJUSTMENT OF FCS SPOILER ELECTRONIC CONTROLLERS	6.08	53	64	5.99
I341	PERFORM ADJUSTMENT OF FCS YAW COMMON FEEDBACK TRANSDUCERS	4.42	33	41	6.10
I347	PERFORM ADJUSTMENT OF HORIZONTAL STABILIZER POSITION SENSORS	5.04	33	41	6.90
I348	PERFORM ADJUSTMENT OF LEFT WING SWEEP POSITION SENSORS	5.54	57	65	6.05
I349	PERFORM ADJUSTMENT OF LOWER RUDDER POSITION SENSORS	4.79	33	41	6.20
I350	PERFORM ADJUSTMENT OF RIGHT WING SWEEP POSITION SENSORS	5367	53	64	6.03
I351	PERFORM ADJUSTMENT OF SPOILER POSITION SENSORS	5.50	37	48	5.99
I352	PERFORM ADJUSTMENT OF SPOILER POSITION SWITCHES	5.33	53	58	5.92
I354	PERFORM ADJUSTMENT OF WING SWEEP COMMAND POSITION SENSORS	5.50	50	58	5.86
I355	PERFORM ADS CENTRAL AIR DATA COMPUTER (CADC) SELF-TESTS	5354	60	68	3.89
I356	PERFORM ADS CADC SYSTEM TESTS	6.50	53	70	5.32

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 25 (CONTINUED)

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
B-SHRED PERSONNEL NOT MATCHED TO THE ABR45733B POI

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
I357	PERFORM OPERATIONAL CHECK OF AFT ATTITUDE INDICATORS	5.29	53	70	4.21
I359	PERFORM OPERATIONAL CHECK OF ATTITUDE DIRECTOR INDICATIONS	5.21	40	59	4.25
I360	PERFORM OPERATIONAL CHECK OF FUEL/CENTER OF GRAVITY MANAGEMENT SYSTEM (FCGMS) FUEL COMPENSATOR PROBES	6.25	77	77	5.76
I361	PERFORM OPERATIONAL CHECK OF FCGMS FUEL QUANTITY PROBES	6.50	67	71	5.80
I362	PERFORM OPERATIONAL CHECK OF FCS CONTROL STICK GRIPS	5.33	47	58	5.30
I364	PERFORM OPERATIONAL CHECK OF FLIGHT DIRECTOR COMPUTER (FDC) COMPONENTS	5.67	57	65	4.92
I365	PERFORM OPERATIONAL CHECK OF HORIZONTAL SITUATION INDICATOR (HSI) TRANSFORMERS	5.00	33	38	5.12

* B-SHRED TE MEAN = 1.95 S.D. = 2.21
TD MEAN = 5.00 S.D. = 1.00

TABLE 26

REPRESENTATIVE TASKS PERFORMED BY AFSC 45733C/53C PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=128)
J556	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 DRIVER-TRANSMITTERS	91
J555	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 TRANSMITTERS	91
J553	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 REPEATERS/RF SOURCES	91
J550	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 DRIVERS	90
J559	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 REPEATERS, RF SOURCES, AND DIGITAL RF MEMORIES	89
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	88
J540	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM CREW INTERCOMS	88
J534	PERFORM OPERATIONAL CHECK OF AN/ARC-171 ULTRAHIGH FREQUENCY (UHF) SYSTEMS	88
J635	REMOVE OR INSTALL DMS JAMMERS LOGIC A (JLA)	88
J663	TROUBLESHOOT ICS-150 INTERPHONE SYSTEMS	88
J636	REMOVE OR INSTALL DMS JAMMERS LOGIC B (JLB)	87
J645	REMOVE OR INSTALL ICS-150 INTERPHONE SYSTEM CREW STATION CONTROLS	86
J541	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM MAINTENANCE STATION INTERCOMS	86
J665	TROUBLESHOOT WARNING SUBSYSTEMS	86
F221	REMOVE OR INSTALL RADAR ABSORPTION MATERIAL (RAM)	86
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	85
J561	REMOVE OR INSTALL ACTIVE SUBSYSTEM BANDS 4/5 RF SOURCES	85
J535	PERFORM OPERATIONAL CHECK OF AN/ARC-190 HIGH FREQUENCY (HF) SYSTEMS	85
J538	PERFORM OPERATIONAL CHECK OF AN/ASC-19 AIR FORCE SATELLITE COMMUNICATIONS (AFSATCOM) SYSTEMS	85
J511	KEY AN/APX-101 IDENTIFICATION FRIEND OR FOE (IFF) KIT-1A SECURE COMPUTERS	84
J610	REMOVE OR INSTALL DETECTION SUBSYSTEM BAND 7 ANALYSIS ANTENNAS	84
J651	TROUBLESHOOT ACTIVE SUBSYSTEMS	82
G231	OPEN OR CLOSE RADOMES	82
J612	REMOVE OR INSTALL DETECTION SUBSYSTEM BAND 8 ANALYSIS ANTENNAS	82
F197	DEBRIEF AIRCREWS	81
J661	TROUBLESHOOT DEFENSIVE MANAGEMENT SUBSYSTEMS	81
G233	OPERATE AEROSPACE GROUND EQUIPMENT (AGE), SUCH AS POWER UNITS, HEATERS, OR LIGHT CARTS	79
J662	TROUBLESHOOT DETECTION SUBSYSTEMS	77
F222	REMOVE OR INSTALL WAVEGUIDES	76
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	76

nical tasks performed by 3- and 5-skill level C-shred personnel are listed in Table 26. These include removing and installing communications components, troubleshooting systems and subsystems, and performing operational checks of the three C-shred systems.

DAFSC 45773C. AFSC 45773C personnel spend more time performing supervisory and administrative duties than maintaining communication, navigation, and defensive avionics systems (see Table 6), even though a majority of 7-skill level respondents report performing the C-shred systems maintenance job (Table 5). The role of AFSC 45773C members as first-line supervisors is clearly seen in the representative tasks 7-skill level members perform (see Table 27) and in the tasks which best differentiate between AFSC 45733C/53C and 45773C members (see Table 28).

Summary

Survey data show C-shred personnel progress typically through the skill levels, with 3- and 5-skill level personnel performing the technical systems maintenance tasks and 7-skill level members performing a mixture of supervisory and technical tasks.

AFR 39-1 SPECIALTY JOB DESCRIPTION ANALYSIS

The current AFR 39-1 Specialty Descriptions for C-shred members of the career ladder were compared to the job descriptions for the DAFSC groups. Jobs and tasks included in the current AFR 39-1 Specialty Descriptions accurately reflect the work being done by C-shred personnel in the field.

TRAINING ANALYSIS

Occupational survey data are a source of information used to review training documents for the specialty. The three most commonly used types of data are: (1) percent of first-enlistment personnel performing tasks, (2) ratings of how much training emphasis tasks should receive in the basic resident course, and (3) ratings of relative task difficulty.

A sample of tasks given the highest TE ratings by C-shred NCOs, with accompanying percent first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) members performing, is listed in Table 29. Tasks with the highest TD ratings, along with percent first-job, first-enlistment, and 5- and 7-skill level members performing, are listed in Table 30. Tasks with the highest TE ratings deal with troubleshooting defensive avionics and communication systems and performing checks of the various systems. These tasks are performed by high percentages of first-job and first-enlistment C-shred members, and most have high TD ratings. Most tasks with high TD ratings deal with adjusting sensors, have very low TE, and are performed by very few first-job, first-enlistment, 5- and 7-skill level members.

TABLE 27

REPRESENTATIVE TASKS PERFORMED BY AFSC 45773C PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=38)
A8	DETERMINE WORK PRIORITIES	79
B55	SUPERVISE COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS SPECIALISTS (AFSC 45753C)	74
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	71
D91	ANNOTATE TRAINING RECORDS	71
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	68
D109	MAINTAIN TRAINING RECORDS	68
B50	SUPERVISE APPRENTICE COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS SPECIALISTS (AFSC 45733C)	66
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	66
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	66
F224	RESEARCH TECHNICAL ORDERS	66
C86	WRITE EPRs	66
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	63
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	63
E146	INITIATE OR COMPLETE AFTO FORMS 350 (REPARABLE ITEM PROCESSING TAG)	63
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	61
B31	COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	61
F201	INSPECT AIRCRAFT SYSTEMS FOR SAFE AND SECURE INSTALLATION	58
A1	ASSIGN MAINTENANCE AND REPAIR WORK	55
B47	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	55
F198	DISPATCH MAINTENANCE CREWS	53
C69	EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS OR TECHNICAL ORDERS	53
A21	PLAN OR SCHEDULE WORK PRIORITIES	53
A5	COORDINATE MAINTENANCE WORK WITH APPROPRIATE PERSONNEL OR AGENCIES	50
C74	EVALUATE WORK PERFORMANCE OF SUBORDINATE PERSONNEL	50
A20	PLAN OR SCHEDULE WORK ASSIGNMENTS	50
D106	EVALUATE PERSONNEL FOR TRAINING NEEDS	50
B33	DIRECT MAINTENANCE ACTIVITIES	45
B40	IMPLEMENT SAFETY OR SECURITY PROGRAMS	42
C76	IDENTIFY PROBLEM AREAS USING DEFICIENCY OR SERVICE REPORTS	37

TABLE 28

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 45733C/53C AND DAFSC 45773C PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		54733C/53C (N=128)	45773C (N=38)	DIFFERENCE
G231	OPEN OR CLOSE RADOMES	82	45	37
F207	PERFORM AIRCRAFT PHASE INSPECTIONS	73	37	36
J587	REMOVE OR INSTALL AN/ARC-190 HF SYSTEM RECEIVER-TRANSMITTERS	83	50	33
J559	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 REPEATERS, RF SOURCES, AND DIGITAL RF MEMORIES	89	58	31
J567	REMOVE OR INSTALL AN/APX-101 IFF RECEIVER-TRANSMITTERS	84	53	31
J556	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 DRIVER-TRANSMITTERS	91	61	30
A8	DETERMINE WORK PRIORITIES	19	79	-60
B55	SUPERVISE COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS SPECIALISTS (AFSC 45753C)	17	74	-57
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	9	61	-52
C69	EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS OR TECHNICAL ORDERS	8	53	-45
B47	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	11	55	-44
A21	PLAN OR SCHEDULE WORK PRIORITIES	9	53	-44

TABLE 29

SAMPLE OF TASKS WITH HIGHEST C-SHRED TRAINING EMPHASIS RATINGS

TASKS		TNG EMP*	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	6.95	81	88	7.69
J662	TROUBLESHOOT DETECTION SUBSYSTEMS	6.91	81	78	7.78
J651	TROUBLESHOOT ACTIVE SUBSYSTEMS	6.74	86	83	7.67
J661	TROUBLESHOOT DEFENSIVE MANAGEMENT SUBSYSTEMS	6.70	86	84	7.67
J664	TROUBLESHOOT PASSIVE SUBSYSTEMS	6.65	81	74	7.36
J665	TROUBLESHOOT WARNING SUBSYSTEMS	6.60	57	58	7.43
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	6.53	95	92	4.58
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	6.42	76	67	5.61
J530	PERFORM OPERATIONAL CHECK OF AN/APX-101 IFFs	6.30	95	88	5.53
J534	PERFORM OPERATIONAL CHECK OF AN/ARC-171 ULTRAHIGH FREQUENCY (UHF) SYSTEMS	6.30	95	91	4.87
J535	PERFORM OPERATIONAL CHECK OF AN/ARC-190 HIGH FREQUENCY (HF) SYSTEMS	6.21	86	89	4.77
J538	PERFORM OPERATIONAL CHECK OF AN/ASC-19 AIR FORCE SATELLITE COMMUNICATIONS (AFSATCOM) SYSTEMS	6.21	90	88	5.22
J537	PERFORM OPERATIONAL CHECK OF AN/ARN-118 TACANs	6.19	86	86	5.18
J655	TROUBLESHOOT AN/ARC-171 UHF RADIOS	6.16	86	89	5.41
J536	PERFORM OPERATIONAL CHECK OF AN/ARN-108 INSTRUMENT LANDING SYSTEMS (ILS)	6.14	71	77	5.08
J656	TROUBLESHOOT AN/ARC-190 HF SYSTEMS	6.14	71	85	5.36
F223	REPAIR CABLE ASSEMBLIES, SUCH AS REPLACING PINS, WIRES, OR HARDWARE	6.12	71	70	6.80
J659	TROUBLESHOOT AN/ASC-19 AFSATCOM SYSTEMS	6.12	76	84	6.06
J663	TROUBLESHOOT ICS-150 INTERPHONE SYSTEMS	6.12	95	92	5.13

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 29 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST C-SHRED TRAINING EMPHASIS RATINGS

TASKS		TNG EMP*	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	6.05	52	67	4.32
J657	TROUBLESHOOT AN/ARN-108 ILSs	6.05	57	65	5.25
F227	TRACE DIAGRAMS, SUCH AS WIRING, SYSTEM, AND INTERFACE	6.02	62	68	6.11
J532	PERFORM OPERATIONAL CHECK OF AN/ARC-171 COMMUNICATIONS AND TRAFFIC CONTROL (CTC) SYSTEMS	6.02	67	69	5.10
J652	TROUBLESHOOT AN/APX-101 IFFs	6.00	71	80	5.83
J540	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM CREW INTERCOMS	5.98	95	93	4.26
J658	TROUBLESHOOT AN/ARN-118 TACANs	5.98	62	74	5.59
J533	PERFORM OPERATIONAL CHECK OF AN/ARC-171 KY-58 SECURE VOICE SYSTEMS	5.91	67	72	5.20
J541	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM MAINTENANCE STATION INTERCOMS	5.91	90	90	4.23
J654	TROUBLESHOOT AN/ARC-171 KY-58 SECURE VOICE SYSTEMS	5.91	52	64	5.66

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 30

SAMPLE OF TASKS WITH HIGHEST C-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
I348	PERFORM ADJUSTMENT OF LEFT WING SWEEP POSITION SENSORS	8.50	0	0	0	0	.23
I346	PERFORM ADJUSTMENT OF GSS INDEX AND ALIGN MAGNETIC AZIMUTH DETECTORS	8.42	0	0	0	0	.21
I360	PERFORM OPERATIONAL CHECK OF FUEL/CENTER OF GRAVITY MANAGEMENT SYSTEM (FCGMS) FUEL COMPENSATOR PROBES	8.23	0	0	0	0	.26
I349	PERFORM ADJUSTMENT OF LOWER RUDDER POSITION SENSORS	8.05	0	0	0	0	.21
I334	PERFORM ADJUSTMENT OF AUTO FLIGHT CONTROL SYSTEM (AFCS) LOGIC/STRUCTURAL MODE CONTROL SYSTEM (SMCS) CONTROLLERS	7.96	0	0	0	0	.26
I337	PERFORM ADJUSTMENT OF FCS STABILITY CONTROL AUGMENTATION SYSTEM (SCAS) CONTROLLERS	7.96	0	0	0	0	.28
I345	PERFORM ADJUSTMENT OF GYRO STABILIZATION SYSTEMS (GSS) AIRCRAFT ELECTRICAL COMPASS SWINGS	7.87	0	0	0	0	.21
J662	TROUBLESHOOT DETECTION SUBSYSTEMS	7.78	81	78	76	58	6.91
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	7.69	81	88	86	63	6.95
I339	PERFORM ADJUSTMENT OF FCS SLAT SWITCHES	7.68	0	0	0	0	.21
I347	PERFORM ADJUSTMENT OF HORIZONTAL STABILIZER POSITION SENSORS	7.68	0	0	0	0	.21
I350	PERFORM ADJUSTMENT OF RIGHT WING SWEEP POSITION SENSORS	7.68	0	1	1	0	.23
J661	TROUBLESHOOT DEFENSIVE MANAGEMENT SUBSYSTEMS	7.67	86	84	80	63	6.70
J651	TROUBLESHOOT ACTIVE SUBSYSTEMS	7.67	86	83	81	53	6.74
C61	EVALUATE BUDGET REQUIREMENTS	7.58	0	0	0	3	.00

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 30 (CONTINUED)

SAMPLE OF TASKS WITH HIGHEST C-SHRED TASK DIFFICULTY RATINGS

TASKS		TSK DIFF	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	45753	45773	TNG EMP*
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/ SLAT CONTROLLERS	7.50	0	0	0	0	.26
I336	PERFORM ADJUSTMENT OF FCS HINGE MOVEMENT LIMITING/ OVERWING FAIRING CONTROLLERS	7.50	0	0	0	0	.26
I338	PERFORM ADJUSTMENT OF FCS SCAS STICK/PEDAL POSITION TRANSDUCERS	7.50	0	0	0	0	.21
I341	PERFORM ADJUSTMENT OF FCS YAW COMMON FEEDBACK TRANSDUCERS	7.50	0	0	0	0	.21
I343	PERFORM ADJUSTMENT OF FCS YAW SENSORS	7.50	0	0	0	0	.21
J665	TROUBLESHOOT WARNING SUBSYSTEMS	7.43	57	58	56	45	6.60
I361	PERFORM OPERATIONAL CHECK OF FCGMS FUEL QUANTITY PROBES	7.41	0	0	0	0	.26
J664	TROUBLESHOOT PASSIVE SUBSYSTEMS	7.36	81	74	71	55	6.65
I340	PERFORM ADJUSTMENT OF FCS SPOILER ELECTRONIC CONTROLLERS	7.22	0	0	0	0	.21
I342	PERFORM ADJUSTMENT OF FCS YAW LIMITER ACTUATORS	7.22	0	0	0	0	.21
I344	PERFORM ADJUSTMENT OF YAW TRIM PROXIMITY SWITCHES	7.22	0	0	0	0	.21
I351	PERFORM ADJUSTMENT OF SPOILER POSITION SENSORS	7.22	0	0	0	0	.21
I352	PERFORM ADJUSTMENT OF SPOILER POSITION SWITCHES	7.22	0	0	0	0	.21
I353	PERFORM ADJUSTMENT OF UPPER RUDDER POSITION SENSORS	7.22	0	0	0	0	.21
B54	SUPERVISE CIVILIANS	7.07	0	0	1	5	.00

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

First-Enlistment AFSC 457X3C Personnel

There are 88 C-shred respondents in their first enlistment. Eighty-one have the Communication, Navigation, and Defensive Avionics Systems job; 1 is a supervisor; 2 have the Tool Crib job, and 4 are not grouped. Survey data show first-enlistment C-shred personnel spend most of their time removing and installing various communication components, performing checks of communications systems, and troubleshooting communications system and subsystems (see Table 31).

AFSC 457X3C Specialty Training Standard

AFSC 457X3C STS. Paragraphs 1 through 12 and 18 cover the topics of career ladder progression, security, AFOSH, publications, supply discipline, supervision and training, maintenance inspection systems and forms, fundamentals of avionics systems maintenance--on equipment, general organizational maintenance, central integrated test system (CITS), electrical multiplexing systems (EMUX), and graduate evaluation. Because paragraphs 1 through 8 and 18 deal with general topics, they were not reviewed. Paragraphs 9 through 12 cover topics common to all 3 shreds, while paragraphs 13 through 17 deal with maintaining communication, navigation, and defensive avionics systems. These paragraphs include 276 individual line items, 224 of which have tasks matched. Most STS line items have a dash (-) in the 3-skill level course column, meaning the topics are not taught in the entry-level course.

Standard ATC criteria and percentages of first-job, first-enlistment, 5-, and 7-skill level C-shred members performing were used to review the line items having matched tasks. Unsupported line items are in paragraphs 11 and 12, which deal with the common CITS functions and EMUX system components. Five of the twelve line items in paragraph 13 are also unsupported and deal with removing and installing ACUC components. Tasks matched to the unsupported line items are performed by a very low or 0 percent criterion group members and have low TE ratings. Because of the number of unsupported STS line items, only a sample is listed in Table 32. Training personnel need to review the complete STS listing found in the C-Shred Training Extract to determine if unsupported topics need to be included in the STS or continue to be taught on the job.

There are several technical tasks performed by more than 20 percent of C-shred respondents that are not matched to STS elements (see Table 33). These unmatched tasks involve removing and replacing components, are performed by high percentages of criterion group members, and have high TE. School personnel should review these to determine if they suggest topics that should be included in the STS.

Plan of Instruction

The same 3450th TCHTG personnel matched inventory tasks to learning objectives of the ABR457833B Plan of Instruction (POI), dated July 1990. A computer product was created for the POI, listing each learning objective, tasks matched, percent first-job and first-enlistment members performing, and

TABLE 31

REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT AFSC 457X3C PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=88)
J556	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 DRIVER-TRANSMITTERS	94
J555	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 TRANSMITTERS	93
J553	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 REPEATERS/ RF SOURCES	93
J540	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM CREW INTERCOMS	93
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	92
J559	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 RFPEATERS, RF SOURCES, AND DIGITAL RF MEMORIES	92
J550	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 DRIVERS	92
J663	TROUBLESHOOT ICS-150 INTERPHONE SYSTEMS	92
J534	PERFORM OPERATIONAL CHECK OF AN/ARC-171 ULTRAHIGH FREQUENCY (UHF) SYSTEMS	91
F221	REMOVE OR INSTALL RADAR ABSORPTION MATERIAL (RAM)	91
J541	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM MAINTENANCE STATION INTERCOMS	90
J635	REMOVE OR INSTALL DMS JAMMERS LOGIC A (JLA)	89
J535	PERFORM OPERATIONAL CHECK OF AN/ARC-190 HIGH FREQUENCY (HF) SYSTEMS	89
J655	TROUBLESHOOT AN/ARC-171 UHF RADIOS	89
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	88
G231	OPEN OR CLOSE RADOMES	88
J645	REMOVE OR INSTALL ICS-150 INTERPHONE SYSTEM CREW STATION CONTROLS	88
J538	PERFORM OPERATIONAL CHECK OF AN/ASC-19 AIR FORCE SATELLITE COMMUNICATIONS (AFSATCOM) SYSTEMS	88
J511	KEY AN/APX-101 IDENTIFICATION FRIEND OR FOE (IFF) KIT-1A SECURE COMPUTERS	86
J561	REMOVE OR INSTALL ACTIVE SUBSYSTEM BANDS 4/5 RF SOURCES	86
J636	REMOVE OR INSTALL DMS JAMMERS LOGIC B (JLB)	86
F197	DEBRIEF AIRCREWS	85
J661	TROUBLESHOOT DEFENSIVE MANAGEMENT SUBSYSTEMS	84
J651	TROUBLESHOOT ACTIVE SUBSYSTEMS	83
F222	REMOVE OR INSTALL WAVEGUIDES	83
G233	OPERATE AEROSPACE GROUND EQUIPMENT (AGE), SUCH AS POWER UNITS, HEATERS, OR LIGHT CARTS	82
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	78
G238	POSITION NONPOWERED OR POWERED AGE TO AIRCRAFT	76
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	68
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	67

TABLE 32

SAMPLE OF AFSC 457X3C STS ELEMENTS REQUIRING REVIEW
(Less than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5-LVL	7-LVL	TSK DIF
10s. INSTALL PTICH, ROLL, AND YAW RIG PINS						
F205 INSTALL PITCH, ROLL, AND YAW RIG PINS	.33	0	5	3	3	4.98
11d. PERFORM GROUND READINESS TEST (GRT)						
H253 PERFORM GRT OF CITs	.72	19	17	11	5	3.95
11i. LOAD CITS AIRBORNE PRINTER WITH TAPE						
H249 LOAD CITS AIRBORNE PRINTER TAPES	.35	0	0	1	8	4.54
11k(1). REMOVE AND INSTALL CITS CONTROL AND DISPLAY PANEL (CCD)						
H268 REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	.14	0	3	2	0	5.32

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 32 (CONTINUED)

SAMPLE OF AFSC 457X3C STS ELEMENTS REQUIRING REVIEW
(Less Than 20 Percent Members Performing)

ELEMENTS	TNG EMP*	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5-LVL	7-LVL	TSK DIF
12d. PERFORM GROUND READINESS TEST (GRT)						
H255 PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	.37	0	0	0	0	3.92
12f(1). REMOVE AND INSTALL EMUX CONTROLLER						
H281 REMOVE OR INSTALL EMUX SYSTEM CONTROLLERS	.16	0	0	0	0	4.09
13f. PERFORM GROUND READINESS TEST (GRT)						
H252 PERFORM GROUND READINESS TEST (GRT) OF ACUCs	1.23	5	17	17	13	4.08

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 33

TECHNICAL TASKS PERFORMED BY 20 PERCENT OR MORE
C-SHRED PERSONNEL AND NOT REFERENCED TO THE STS

TASKS	TNG EMP*	PERCENT C-SHRED MEMBERS PERFORMING 1ST JOB	1ST ENL	5- LVL	7- LVL	TSK DIF
J543 REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 4 TRANSMITTING ANTENNAS	4.65	71	80	78	53	5.18
J545 REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 5 TRANSMITTING ANTENNAS	4.44	57	73	72	50	5.01
J548 REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 6 TRANSMITTER ANTENNAS	4.35	48	63	66	45	4.95
J581 REMOVE OR INSTALL AN/ARC-171 SECURE RELAYS	3.95	52	60	62	45	4.40
J601 REMOVE OR INSTALL AN/ASC-19 AFSATCOM SYSTEM LIGHTING DISPLAY COMPONENTS	4.00	71	69	68	50	3061
J606 REMOVE OR INSTALL AURAL TONE GENERATOR SYSTEM LRUS	4.14	81	84	83	55	3.47
J637 REMOVE OR INSTALL DMS MDUs	4.21	67	59	61	37	4.39

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TD ratings. Learning objectives with tasks matched were reviewed using criteria found in ATCR 52-22, Attachment 1 (Feb 89). Any objective matched to tasks performed by 30 percent or more first-job or first-enlistment members is considered supported and should be part of the entry-level course.

ABR45733C POI. Block I of the course is the Electronic Fundamentals and Applications curriculum. Blocks II and III of the skill-level awarding course deal with introductory information and were not reviewed. Blocks IV through XV include 66 technical learning objectives, 24 of which are taught to the knowledge level and only require students to identify functions, principles, or procedures. Only 16 of the objectives taught to the performance level have tasks matched, but are well supported by survey data.

There are many tasks from Duty J (Maintaining Communication, Navigation, and Defensive Avionics Systems) performed by high percentages of first-job and first-enlistment C-shred respondents, which have high TE and moderate to high TD, but are not matched to learning objectives. A sample of these tasks is presented in Table 34. These tasks deal with performing operational checks on communications systems and components, removing and installing systems and components, and performing some troubleshooting of these components. OJT personnel should review these tasks to ensure they are taught by OJT.

ELECTRONIC PRINCIPLES

The Electronic Fundamentals STS (dated February 1987) and Block I of the entry-level course can be reviewed using data from the Electronic Principles Inventory (EPI). The EPI is a knowledge-based inventory which asks 5-skill level respondents to indicate which of the 712 electronic principles, skills, and equipment they use in their jobs. Responses suggest the range of electronic principles C-shred members must understand to perform successfully.

Table 35 lists the principles used by 50 percent of more of AFSC 45753C personnel. The Training Extract contains a complete listing of the EPI in inventory order and the STS, with percent AFSC 45753C personnel responding "Yes" to each question. Training personnel need to review these documents to determine if the EPI course teaches what members are actually using.

Summary

There are a number of STS line items not supported by survey data. Even though the material is not taught in the entry-level course, school personnel need to review the unsupported line items to determine if they should remain in the STS. About half the performance objectives in the POI have tasks matched and are supported by survey data. A substantial number of tasks are not matched to the STS and POI and require review.

TABLE 34

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
C-SHRED PERSONNEL NOT MATCHED TO THE ABR45733C POI

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	6.95	81	88	7.69
J530	PERFORM OPERATIONAL CHECK OF AN/APX-101 IFFs	6.30	95	88	5.53
J534	PERFORM OPERATIONAL CHECK OF AN/ARC-171 ULTRAHIGH FREQUENCY (UHF) SYSTEMS	6.30	95	91	4.87
J535	PERFORM OPERATIONAL CHECK OF AN/ARC-190 HIGH FREQUENCY (HF) SYSTEMS	6.21	86	89	4.77
J538	PERFORM OPERATIONAL CHECK OF AN/ASC-19 AIR FORCE SATELLITE COMMUNICATIONS (AFSATCOM) SYSTEMS	6.21	90	88	5.22
J537	PERFORM OPERATIONAL CHECK OF AN/ARN-118 TACANs	6.19	86	86	5.18
J536	PERFORM OPERATIONAL CHECK OF AN/ARN-108 INSTRUMENT LANDING SYSTEMS (ILS)	6.14	71	77	5.08
J532	PERFORM OPERATIONAL CHECK OF AN/ARC-171 COMMUNICATIONS AND TRAFFIC CONTROL (CTC) SYSTEMS	6.02	67	69	5.10
J540	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM CREW INTERCOMS	5.98	95	93	4.26
J533	PERFORM OPERATIONAL CHECK OF AN/ARC-171 KY-58 SECURE VOICE SYSTEMS	5.91	67	72	5.20
J541	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM MAINTENANCE STATION INTERCOMS	5.91	90	90	4.23
J531	PERFORM OPERATIONAL CHECK OF AN/APX-105 RENDEZVOUS BEACONS	5.86	81	78	5.84
J539	PERFORM OPERATIONAL CHECK OF AURAL TONE GENERATOR SYSTEMS	5.77	90	88	4.45
J521	PERFORM GRT OF DMS DSO INTEGRATED KEYBOARDS (IKB)	5.02	71	76	4.65
J522	PERFORM GRT OF DMS DSO POWER PANELS	4.95	67	65	4.69
J523	PERFORM GRT OF DMS GRAPHICS GENERATOR/ELECTRONIC DISPLAY UNITS NUMBER 1 (GG/EDU1)	4.79	48	57	4.73

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 34 (CONTINUED)

SAMPLE OF TECHNICAL TASKS PERFORMED BY 30 PERCENT OR MORE
C-SHRED PERSONNEL NOT MATCHED TO THE ABR45733C POI

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB	1ST ENL	TSK DIF
J524	PERFORM GRT OF DMS GRAPHICS GENERATOR/ELECTRONIC DISPLAY UNITS NUMBER 2 (GG/EDU2)	4.79	48	55	4.71
J526	PERFORM GRT OF DMS RADIO FREQUENCY SURVEILLANCE/ELECTRONIC COUNTERMEASURES (RFS/ECM) PANELS	4.77	57	60	4.69
J511	KEY AN/APX-101 IDENTIFICATION FRIEND OR FOE (IFF) KIT-1A SECURE COMPUTERS	4.70	86	86	3.16
J543	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 4 TRANSMITTING ANTENNAS	4.65	71	80	5.18
J542	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 4 TRANSMITTERS	4.53	86	84	4.77
J544	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 5 TRANSMITTERS	4.53	90	86	4.77
J545	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 5 TRANSMITTING ANTENNAS	4.44	57	73	5.01
J510	ADJUST AN/ARN-118 TACTICAL AIR NAVIGATION (TACAN) DIGITAL-TO-ANALOG CONVERTERS	4.21	67	56	4.93

* C-SHRED TE MEAN = 1.65 S.D. = 1.99
TD MEAN = 5.00 S.D. = 1.00

TABLE 35

ELECTRONIC PRINCIPLES USED BY 50 PERCENT
OR MORE OF AFSC 457X3C PERSONNEL

DIRECT/ALTERNATING CURRENT

SOLDERING OR SOLDERLESS CONNECTIONS

TEST EQUIPMENT

POWER SUPPLY CIRCUITS

DIGITAL LOGIC NUMBERING SYSTEMS AND FUNCTIONS

COMPUTERS

TRANSMISSION/RECEPTION CIRCUITS, DEVICES, AND SYSTEMS

ANTENNAS

PART 5

AFSC 45793

DAFSC 45793. There are seven 9-skill level respondents in the sample. Four have the Supervisor job, and three are not grouped. These are the most senior personnel averaging 222 months TAFMS. As shown by figures in Table 6, they spend a majority of their time performing the administrative and supervisory duties. Representative tasks 9-skill level members perform are listed in Table 36 and deal with directing work, evaluating, and planning activities.

PART 6

JOB SATISFACTION

Respondents were asked to indicate how interested they are in their jobs, if they feel their talents and training are being used, and if they intend to reenlist. Satisfaction indicators for TAFMS groups of each shred in the present study were compared to those of TAFMS members of 13 similar mission equipment maintenance AFSCs surveyed in 1990 (see Table 37). Generally, AFSC 457X3A and 457X3C personnel have lower overall indicators than B-shred personnel In addition, A- and C-shred personnel have lower overall indicators than members of related AFSCs, while B-shred personnel have similar or somewhat higher indicators. Reenlistment intentions appear to increase with time in the service, especially for senior A-shred personnel.

Satisfaction indicators for members performing the various jobs are shown in Table 38. Members with the Tool Crib job have the lowest overall satisfaction indicators, reporting they find their job dull, feeling their training and talents are not well used, and all not planning to reenlist. This can be expected as the job involves maintaining a tool crib and is not related to any technical aspects of the specialty. Less than half the members performing the C-shred job find their job interesting, and less than half of those performing the B-shred job plan to reenlist. Higher percentages of personnel performing the B-shred job, however, find the work interesting and feel their training and talents are used.

Summary

Overall satisfaction indicators of A- and C-shred personnel are lower than those of B-shred members and those of members of related AFSCs surveyed in 1990. Members with the B-shred have similar satisfaction as members of related specialties. Members with most jobs are satisfied, except those performing the Tool Crib job, who have the lowest overall indicators.

TABLE 36

REPRESENTATIVE TASKS PERFORMED BY AFSC 45793 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=7)
A5	COORDINATE MAINTENANCE WORK WITH APPROPRIATE PERSONNEL OR AGENCIES	86
A6	DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, OR EQUIPMENT	86
C62	EVALUATE CAUSES OF MISSION OPERATIONAL DISCREPANCIES	86
C59	ANALYZE RECURRING TROUBLES ON EQUIPMENT IDENTIFIED BY DEFICIENCY, SERVICE, OR STATUS REPORTS	71
C66	EVALUATE CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS)	71
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	71
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	71
C63	EVALUATE EQUIPMENT MODIFICATION DATA	71
F201	INSPECT AIRCRAFT SYSTEMS FOR SAFE AND SECURE INSTALLATION	71
C69	EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS OR TECHNICAL ORDERS	71
A8	DETERMINE WORK PRIORITIES	57
A1	ASSIGN MAINTENANCE AND REPAIR WORK	57
B33	DIRECT MAINTENANCE ACTIVITIES	57
F198	DISPATCH MAINTENANCE CREWS	57
C60	ANALYZE WORKLOAD REQUIREMENTS	57
C64	EVALUATE MAINTENANCE AND INSPECTION REPORTS OR CHARTS	57
B53	SUPERVISE B-1B AVIONICS SYSTEMS TECHNICIANS (AFSC 45773)	57
F224	RESEARCH TECHNICAL ORDERS	57
B38	DRAFT RECOMMENDATIONS FOR CHANGES IN EQUIPMENT OR PERSONNEL REQUIREMENTS	57
A21	PLAN OR SCHEDULE WORK PRIORITIES	43
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	43
C71	EVALUATE SAFETY OR SECURITY PROGRAMS	43
C73	EVALUATE TECHNICAL ORDER IMPROVEMENT REPORTS	43
A20	PLAN OR SCHEDULE WORK ASSIGNMENTS	43
A19	PLAN LAYOUT OF FACILITIES	43
C89	WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	43
E193	VERIFY MISSION CAPABILITY (MICAP) CONDITIONS	43

TABLE 37

COMPARISON OF JOB SATISFACTION INDICATORS FOR 457X3A/B/C TAFMS GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE (PERCENT MEMBERS RESPONDING)

	1-48 MONTHS TAFMS				49-96 MONTHS TAFMS				97+ MONTHS TAFMS			
	457X3A (N=84)	457X3B (N=66)	457X3C (N=88)	COMP SAMPLE (N=5,136)	457X3A (N=42)	457X3B (N=34)	457X3C (N=30)	COMP SAMPLE (N=3,559)	457X3A (N=57)	457X3B (N=22)	457X3C (N=48)	COMP SAMPLE (N=5,029)
EXPRESSED JOB INTEREST:												
INTERESTING	58	78	45	68	60	70	57	67	54	81	52	73
SO-SO	24	11	27	19	19	24	3	19	26	14	38	17
DULL	17	11	28	13	21	6	40	14	19	5	10	10
PERCEIVED USE OF TALENTS:												
FAIRLY WELL TO GOOD	70	77	61	74	62	79	50	75	61	82	63	82
LITTLE OR NOT AT ALL	30	23	39	26	38	21	50	25	39	18	27	18
PERCEIVED USE OF TRAINING:												
FAIRLY WELL TO GOOD	79	74	59	83	71	76	57	83	56	91	65	78
LITTLE OR NOT AT ALL	21	26	41	17	29	24	43	17	44	9	35	22
REENLISTMENT INTENTIONS:												
WILL REENLIST	43	45	56	56	57	41	60	56	80	64	70	75
WILL NOT REENLIST	57	55	44	44	43	59	40	44	11	18	17	11
WILL RETIRE	0	0	0	0	0	0	0	0	9	18	13	14

COMPARATIVE DATA ARE FROM 13 MISSION EQUIPMENT MAINTENANCE AFSCs SURVEYED IN 1990

TABLE 38

COMPARISON OF JOB SATISFACTION INDICATORS FOR
AFSC 457X3A/B/C RESPONDENTS ACROSS JOBS
(PERCENT MEMBERS RESPONDING)

	OAS, CITS DOPPLER (N=144)	INSTR FLT CTRL (N=103)	COMM, NAV, DAS (N=139)	SUPV (N=32)	INSTR (N=14)	TOOL CRIB (N=6)
EXPRESSED JOB INTEREST:						
INTERESTING	56	77	48	63	71	33
SO-SO	26	16	24	25	21	0
DULL	18	8	27	13	7	67
PERCEIVED USE OF TALENTS:						
FAIRLY WELL TO GOOD	65	77	61	72	79	33
LITTLE OR NOT AT ALL	35	23	39	28	21	67
PERCEIVED USE OF TRAINING:						
FAIRLY WELL TO GOOD	74	77	61	80	71	50
LITTLE TO NOT AT ALL	26	23	39	50	29	50
REENLISTMENT INTENTIONS:						
WILL REENLIST	55	47	60	62	79	0
WILL NOT REENLIST	43	51	36	22	14	100
WILL RETIRE	1	2	4	16	7	0

PART 7

DISCUSSION

Survey results suggest the B-1B Avionics Systems career ladder is uniquely diverse and highly technical. Most respondents are organized according to the specific systems they maintain, with very few working on systems not related to their specific shred. This is consistent with the present classification structure as described by the AFR 39-1 Specialty Descriptions.

Members of the specialty progress typically through the skill levels, with 3- and 5-skill level members performing technical systems maintenance tasks, 7-skill level members performing a mixture of technical and supervisory functions, and 9-skill level members performing more career ladder management tasks.

Overall, A- and C-shred personnel expressed lower satisfaction than both B-shred personnel and members with related AFSCs surveyed in 1990. AFSC 457X3 personnel performing the Tool Crib job have lower indicators than members with any other job in the specialty.

The A-shred STS and POI are supported by survey data, while both documents for the B- and C-shreds need to be reviewed. While most line items of the three STSs have a dash (-) in the 3-level course column, the low percentage of members performing matched tasks suggests some items may not be appropriate for the STSs. School personnel need to review these documents. Training personnel responsible for OJT need to make sure material suggested by unmatched tasks performed by high percentages of respondents is included in the formal OJT curriculum.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY MEMBERS OF CAREER LADDER JOBS

TABLE A1

OFFENSIVE AVIONICS SYSTEMS, CENTRAL INTEGRATED TEST SYSTEM (CITS), AND DOPPLER RADAR SYSTEMS (STG050)

NUMBER IN GROUP: 144 AVERAGE TIME IN JOB: 24 MONTHS

PERCENT OF SAMPLE: 30% AVERAGE TAFMS: 59 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
H245	ALIGN INERTIAL NAVIGATION SYSTEM (INS)	99
H306	REMOVE OR INSTALL ORS RADAR SIGNAL PROCESSORS (RSP)	99
H255	PERFORM GRT OF ELECTRICAL MULTIPLEXING (EMUX) SYSTEMS	99
H288	REMOVE OR INSTALL INS INERTIAL NAVIGATION UNITS (INU)	99
H280	REMOVE OR INSTALL EMUX SYSTEM CENTRAL EQUIPMENT BAY PCAs	99
H261	REMOVE OR INSTALL ACUC AVIONICS COMPUTER CONTROLS (ACC)	99
H296	REMOVE OR INSTALL OFFENSIVE AVIONICS CD SYSTEM VIDEO RECORDER MAGAZINES	98
H287	REMOVE OR INSTALL EMUX SYSTEM WHEEL WELL PCAs	98
H304	REMOVE OR INSTALL ORS RADAR RECEIVER-TRANSMITTERS (RRT)	98
H284	REMOVE OR INSTALL EMUX SYSTEM FORWARD EQUIPMENT BAY PCAs	98
H268	REMOVE OR INSTALL CITS CONTROL AND DISPLAY (CCD) PANELS	98
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	97
F210	PERFORM CITS FAULT ISOLATIONS USING PARAMETER MONITOR OR CITS MAINTENANCE CODES	97
H251	PERFORM CITS COMPUTER MEMORY LOADS	97
H308	REMOVE OR INSTALL ORS RADAR TRANSMITTERS (RT)	97
H253	PERFORM GRT OF CITSs	97
H318	TROUBLESHOOT ACUCs	96
H322	TROUBLESHOOT INSs	96
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	95
H324	TROUBLESHOOT ORSs	95
H321	TROUBLESHOOT EMUX SYSTEMS	94
H273	REMOVE OR INSTALL CITS MAINTENANCE RECORDER (CMR) MAGNETIC TAPE TRANSPORTS	94
H319	TROUBLESHOOT CITSs	94
H286	REMOVE OR INSTALL EMUX SYSTEM PCA SUBASSEMBLIES	94
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	92
H317	SERVICE VIDEO RECORDER MAGAZINES	92
F212	PERFORM NUCLEAR HARDNESS MAINTENANCE OR INSPECTIONS	89
G233	OPERATE AEROSPACE GROUND EQUIPMENT (AGE), SUCH AS POWER UNITS, HEATERS, OR LIGHT CARTS	85

TABLE A2

INSTRUMENTS AND FLIGHT CONTROL COMPUTER SYSTEMS
(STG051)

NUMBER IN GROUP: 103 AVERAGE TIME IN JOB: 20 MONTHS

PERCENT OF SAMPLE: 21% AVERAGE TAFMS: 55 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
I376	PERFORM OPERATIONAL CHECK OF VERTICAL SITUATION DISPLAY (VSD) INDICATORS	99
I421	REMOVE OR INSTALL ADS CADCS	98
I381	PERFORM FCGMS HIGH/LOW TESTS	97
I411	PERFORM OPERATIONAL CHECK OF FCS FLAP/SLATS	97
I495	REMOVE OR INSTALL VSD INDICATOR DISPLAY ELECTRONICS UNITS (DEU)	96
I367	PERFORM OPERATIONAL CHECK OF HYDRAULIC QUANTITY/ PRESSURE INDICATING SYSTEMS	96
I496	REMOVE OR INSTALL VSD INDICATORS	95
I412	PERFORM OPERATIONAL CHECK OF FCS PITCH CONTROLS	95
I432	REMOVE OR INSTALL AFCS RACK MOUNTED COMPONENTS	94
I446	REMOVE OR INSTALL FCGMS INTERMEDIATE DEVICES	94
I413	PERFORM OPERATIONAL CHECK OF FCS ROLL CONTROLS	94
I429	REMOVE OR INSTALL ADS VERTICAL AIRSPEED MACH INDICATORS	94
I335	PERFORM ADJUSTMENT OF FLIGHT CONTROL SYSTEM (FCS) FLAP/SLAT CONTROLLERS	94
I474	REMOVE OR INSTALL HYDRAULIC PRESSURE SIGNAL CONDITIONING AND DISTRIBUTION UNITS (SCDU)	92
I477	REMOVE OR INSTALL HYDRAULIC QUANTITY SCDUS	92
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	91
I502	TROUBLESHOOT FCGMSS	91
I506	TROUBLESHOOT HYDRAULIC QUANTITY/PRESSURE INDICATING SYSTEMS	91
I337	PERFORM ADJUSTMENT OF FCS STABILITY CONTROL AUGMENTATION SYSTEM (SCAS) CONTROLLERS	91
I414	PERFORM OPERATIONAL CHECK OF FCS YAW CONTROLS	89
I505	TROUBLESHOOT GSSS	89
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	88
I457	REMOVE OR INSTALL FCS RACK-MOUNTED COMPONENTS	88
I503	TROUBLESHOOT FCSS	88
I436	REMOVE OR INSTALL EIS SIGNAL CONDITIONING AND DISTRIBUTING UNITS	87

TABLE A3

COMMUNICATON, NAVIGATION, AND DEFENSIVE
AVIONICS SYSTEMS
(STG068)

NUMBER IN GROUP: 139 AVERAGE TIME IN JOB: 25 MONTHS

PERCENT OF SAMPLE: 29% AVERAGE TAFMS: 62 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
J556	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 DRIVER-TRANSMITTERS	99
J555	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 TRANSMITTERS	99
J553	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 REPEATERS/ RF SOURCES	99
J550	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 7 DRIVERS	98
F208	PERFORM AIRCRAFT SAFE FOR MAINTENANCE INSPECTIONS	97
J540	PERFORM OPERATIONAL CHECK OF ICS-150 INTERPHONE SYSTEM CREW INTERCOMS	97
J663	TROUBLESHOOT ICS-150 INTERPHONE SYSTEMS	97
J559	REMOVE OR INSTALL ACTIVE SUBSYSTEM BAND 8 REPEATERS, RF SOURCES, AND DIGITAL RF MEMORIES	96
J623	REMOVE OR INSTALL DETECTION SUBSYSTEM FREQUENCY CHANNELIZERS	96
J635	REMOVE OR INSTALL DMS JAMMERS LOGIC A (JLA)	96
J655	TROUBLESHOOT AN/ARC-171 UHF RADIOS	96
J645	REMOVE OR INSTALL ICS-150 INTERPHONE SYSTEM CREW STATION CONTROLS	95
J529	PERFORM OPERATIONAL CHECK OF AN/ALQ-161 DEFENSIVE AVIONICS SYSTEMS	94
J534	PERFORM OPERATIONAL CHECK OF AN/ARC-171 ULTRAHIGH FREQUENCY (UHF) SYSTEMS	94
J636	REMOVE OR INSTALL DMS JAMMERS LOGIC B (JLB)	94
J535	PERFORM OPERATIONAL CHECK OF AN/ARC-190 HIGH FREQUENCY (HF) SYSTEMS	94
J610	REMOVE OR INSTALL DETECTION SUBSYSTEM BAND 7 ANALYSIS ANTENNAS	94
J612	REMOVE OR INSTALL DETECTION SUBSYSTEM BAND 8 ANALYSIS ANTENNAS	94
J561	REMOVE OR INSTALL ACTIVE SUBSYSTEM BANDS 4/5 RF SOURCES	93
F197	DEBRIEF AIRCREWS	91
J511	KF AN/APX-101 IDENTIFICATION FRIEND OR FOE (IFF) KI. IA SECURE COMPUTERS	91
J661	TROUBLESHOOT DEFENSIVE MANAGEMENT SUBSYSTEMS	91
J651	TROUBLESHOOT ACTIVE SUBSYSTEMS	90
G231	OPEN OR CLOSE RADOMES	88

TABLE A4

SUPERVISOR CLUSTER
(STG016)

NUMBER IN GROUP: 32 AVERAGE TIME IN JOB: 25 MONTHS

PERCENT OF SAMPLE: 7% AVERAGE TAFMS: 162 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	84
C86	WRITE EPRs	84
A8	DETERMINE WORK PRIORITIES	81
B53	SUPERVISE B-1B AVIONICS SYSTEMS TECHNICIANS (AFSC 45773)	75
A5	COORDINATE MAINTENANCE WORK WITH APPROPRIATE PERSONNEL OR AGENCIES	69
B31	COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	69
D91	ANNOTATE TRAINING RECORDS	66
A 6	DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, OR EQUIPMENT	66
B45	INITIATE ACTION TO CORRECT SUBSTANDARD PERFORMANCE OF PERSONNEL	66
B47	INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	63
E176	PERFORM CORE AUTOMATED MAINTENANCE SYSTEMS (CAMS) FUNCTIONS	59
C74	EVALUATE WORK PERFORMANCE OF SUBORDINATE PERSONNEL	59
A20	PLAN OR SCHEDULE WORK ASSIGNMENTS	59
A21	PLAN OR SCHEDULE WORK PRIORITIES	59
C75	EVALUATE WORK SCHEDULES	59
A16	ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	56
E126	ANNOTATE, INITIATE, OR REVIEW AIRCRAFT OR MAINTENANCE RECORDS, SUCH AS AFTO FORMS 781 SERIES	53
B58	SUPERVISE OFFENSIVE AVIONICS SYSTEMS, CITS, AND DOPPLER RADAR SYSTEMS SPECIALISTS (AFSC 45753A)	50
A1	ASSIGN MAINTENANCE AND REPAIR WORK	50
B33	DIRECT MAINTENANCE ACTIVITIES	50
F198	DISPATCH MAINTENANCE CREWS	47
C79	INSPECT FLIGHTLINE MAINTENANCE ACTIONS	47
B52	SUPERVISE APPRENTICE OFFENSIVE AVIONICS SYSTEMS, CITS, AND DOPPLER RADAR SYSTEM SPECIALISTS (45733A)	44
B55	SUPERVISE COMMUNICATION, NAVIGATION, AND DEFENSIVE AVIONICS SYSTEMS SPECIALISTS (AFSC 45753C)	38

TABLE A5

INSTRUCTOR
(GRP153)

NUMBER IN GROUP: 14 AVERAGE TIME IN JOB: 32 MONTHS

PERCENT OF SAMPLE: 3% AVERAGE TAFMS: 141 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
D114	SCORE TESTS	100
D90	ADMINISTER TESTS	100
D95	CONDUCT RESIDENT OR FIELD TRAINING COURSE CLASSROOM TRAINING	93
D97	COUNSEL TRAINEES ON TRAINING PROGRESS	86
E170	MAINTAIN TECHNICAL ORDER FILES	79
D102	DEVELOP RESIDENT OR FIELD TRAINING COURSE TRAINING MATERIALS	79
D115	WRITE TEST QUESTIONS	79
D101	DEVELOP PERFORMANCE TESTS	64
D107	EVALUATE PROGRESS OF TRAINEES	64
H248	LOAD AVIONICS CONTROL UNIT COMPLEXES (ACUC)	64
H253	PERFORM GRT OF CITSs	64
H250	PERFORM ACUC DATA ERASURES, SUCH AS SECURE DATA ERASURES	64
C81	INSPECT PERSONNEL FOR COMPLIANCE WITH MILITARY STANDARDS	64
D91	ANNOTATE TRAINING RECORDS	64
F196	CLEAN SHOP FACILITIES	57
F206	INTERPRET DIAGRAMS, SUCH AS FAULT ISOLATION, SYSTEM, OR SCHEMATIC	50
F224	RESEARCH TECHNICAL ORDERS	50
H252	PERFORM GROUND READINESS TEST (GRT) OF ACUCs	43
D100	DEVELOP NEW EQUIPMENT TRAINING PROGRAMS	43
H256	PERFORM GRT OF INS	36
H254	PERFORM GRT OF DOPPLER VELOCITY SENSORS (DVS)	36
H259	PERFORM GRT OF RADAR ALTIMETERS (RA)	36
H249	LOAD CITS AIRBORNE PRINTER TAPES	36
H251	PERFORM CITS COMPUTER MEMORY LOADS	36
H257	PERFORM GRT OF OFFENSIVE AVIONICS CONTROL AND DISPLAY (CD) SYSTEMS	36
H258	PERFORM GRT OF OFFENSIVE RADAR SYSTEMS (ORS)	36

TABLE A6

TOOL CRIB JOB
(STG044)

NUMBER IN GROUP: 6 AVERAGE TIME IN JOB: 13 MONTHS

PERCENT OF SAMPLE: 1% AVERAGE TAFMS: 53 MONTHS

THE FOLLOWING TASKS ARE IN DESCENDING ORDER OF PERCENT MEMBERS PERFORMING

TASKS		PERCENT MEMBERS PERFORMING
E173	MAINTAIN TOOL CRIBS	
E177	PERFORM PERIODIC INSPECTION OF TOOLS	100
E178	PERFORM ROUTINE INSPECTION OF TOOLS	100
E151	INVENTORY EQUIPMENT OR SUPPLIES	100
E177	PERFORM PERIODIC INSPECTION OF TOOLS	83
E152	INVENTORY TOOLS, SUCH AS CONSOLIDATED TOOL KITS (CTK) AND TOOL ROOM CHITS	67
F196	CLEAN SHOP FACILITIES	67
E170	MAINTAIN TECHNICAL ORDER FILES	50
E129	COMPLETE AF FORMS 2005 (ISSUE/TURN-IN REQUEST)	50
E140	INITIATE AF FORMS 1297 (TEMPORARY ISSUE RECEIPT)	33
E122	ANNOTATE OR COMPLETE AF FORMS 2413 (SUPPLY CONTROL LOG)	33
E135	COMPLETE DD FORMS 1348-6 (DOD SINGLE LINE ITEM REQUISITION SYSTEM DOCUMENT)	33
E167	MAINTAIN STATUS INDICATORS, SUCH AS BOARDS, GRAPHS, OR CHARTS	33
E168	MAINTAIN SUPPLY CROSS REFERENCE LISTS	33
E172	MAINTAIN TIME COMPLIANCE TECHNICAL ORDER (TCTO) FILES	33
E153	MAINTAIN AF FORMS 2005 SUSPENSE FILES	17
E134	COMPLETE DD FORMS 1348-1 (DOD SINGLE LINE ITEM RELEASE/ RECEIPT DOCUMENT)	17
E191	VALIDATE BENCHSTOCK LISTINGS	17
C86	WRITE EPRs	17
E181	PROCESS DAMAGED TOOLS FOR DISTRIBUTION AND REPLACEMENT	17
F195	CLEAN AND LUBRICATE EQUIPMENT COMPONENTS	17
E180	PREPARE INITIAL ISSUE OR BYPASS LETTERS FOR REPAIR CYCLE TURN-INs	17
E149	INITIATE OR REVIEW TECHNICAL ORDER SYSTEM MAINTENANCE FORMS, SUCH AS AFTO FORMS 110, 110A, 110B, AND 187	17
E142	INITIATE DD FORMS 362 (STATEMENT OF CHARGES FOR GOVERNMENT PROPERTY LOST, DAMAGED, OR DESTROYED)	17
E154	MAINTAIN BENCHSTOCK LISTINGS	17
E169	MAINTAIN SUPPLY TRANSACTION LISTINGS, SUCH AS D04, D18, D19, D23, AND M30	17