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UNITED STATES AIR FORCE

OCCUPATIONAL SURVEY REPORT



AD-A204 290

BIOMEDICAL EQUIPMENT MAINTENANCE CAREER LADDER

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AFSC 918X0

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AFPT 90-918-799

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OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
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 Biomedical Equipment Maintenance (AFSC 918X0) 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.

Mr Don Cochran developed the survey instrument, Mr Wayne Fruge provided computer programming support, and Mr Richard G. Ramos provided administrative support. Lieutenant Ron W. Schrupp analyzed the data and wrote the final report. This report has been reviewed and approved for release by Lieutenant Colonel Charles D. Gorman, Chief, Airman Analysis Branch, Occupational Analysis Division, USAF Occupational Measurement Center.

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

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SUMMARY OF RESULTS

1. Survey Coverage: Survey results are based on responses from 440 Biomedical Equipment Maintenance personnel. This represents 74 percent of the total assigned AFSC 918X0 population. Incumbents were surveyed across all major commands and included personnel from all DAFSC skill levels.

2. Career Ladder Structure: Three clusters (including 10 jobs) and one independent job type were identified in the career ladder structure analysis. One cluster (including three jobs) contained supervisors who spent varying amounts of time performing supervisory and facilities management functions. Another cluster (4 percent of the survey sample) had two jobs specializing in x-ray equipment maintenance. These jobs differed on the amount of supervision the group members performed. Seventy-nine percent of the survey sample is contained in the third cluster (representing five jobs), in which members tend to maintain particular types of biomedical equipment. One job involves air transportable hospital functions, while another specializes in laboratory equipment maintenance. A third job involves intensive and cardiac care unit equipment maintenance tasks. A fourth job contains NCOs performing administration and supply tasks, and the largest job of this cluster has personnel maintaining the full spectrum of biomedical equipment. The one independent job type has NCOs providing technical training at Sheppard AFB TX.

3. Career Ladder Progression: The AFSC 918X0 career ladder shows an atypical career progression pattern from the 3- and 5-skill level to the 7-skill level, where the job remains primarily technical. Progression is typical, however, from the 7- to the 9-/CEM Code skill level as the job becomes mostly supervisory.

4. AFR 39-1 Specialty Descriptions: A comparison of survey data to AFR 39-1 indicates the AFR 39-1 Specialty Descriptions provide comprehensive depictions of the respective jobs. No changes are recommended.

5. Training Analysis: A match of survey data to the AFSC 918X0 Specialty Training Standard (STS) identified many STS items not supported by survey data. A similar match of data to the Plan of Instruction (POI) J3ABR91830-000 revealed many POI objectives not supported as well. Technical training personnel should carefully review these items to justify their continued inclusion in the training documents. Also, several STS 3-skill level proficiency codes were identified for possible revisions. Finally, tasks not matched to both the STS and POI indicate training areas that may deserve inclusion in any future revisions of these documents.

6. Job Satisfaction: Overall, the survey respondents reflected very good job satisfaction. Across different experience groups, members appear equally satisfied. Compared to other medical ladders surveyed in 1987, the AFSC 918X0 experience groups reflected higher satisfaction indicators, except for reenlistment intentions. A comparison of data with the previous AFSC 918X0 survey done in 1982 revealed lower satisfaction for the second-term members, but

Keep in mind: Job analysis, Air force training, Air force personnel, Skills, Technical development, Job satisfaction,

higher satisfaction for first-term and career personnel. Indicators for the specialty jobs reflected only one group of supervisors dissatisfied with their work.

: :
OCCUPATIONAL SURVEY REPORT
BIOMEDICAL EQUIPMENT MAINTENANCE CAREER LADDER
(AFSC 918X0)

INTRODUCTION

This report presents the results of an occupational survey of the Biomedical Equipment Maintenance career ladder completed by the USAF Occupational Measurement Center in December 1988. The previous survey was accomplished in June 1982. The present survey was requested by the Chief, Training Operations Division, 3790th Medical Services Training Wing, Sheppard AFB, Texas.

Background

This occupational survey report (OSR) was requested to gather data which will be used to evaluate numerous changes made to AFSC 918X0 career ladder training documents. In particular, the Specialty Training Standard (STS) has been revised several times since the previous survey to include new task and subject elements. Also, the Plan of Instruction (POI) has been rewritten to include blocks of instruction added to the J3ABR91830-000 course. These blocks cover digital and solid-state troubleshooting, mobile x-ray, and automatic film processing systems.

As outlined in the AFR 39-1 Specialty Descriptions, AFSC 918X0 personnel install, inspect, repair, calibrate, and modify a variety of biomedical equipment and supporting systems. These specialists work in various Air Force medical equipment repair centers (MERC), hospitals, and clinics, where they perform administrative duties and maintain many types of equipment, including dental, laboratory, x-ray, surgical, and inhalation therapy devices. Specialization in the field revolves around the experience level of each member and the type of equipment located at each base.

Presently, course training for the Biomedical Equipment Maintenance Specialists consists of 9 weeks of Electronic Principles (Course J3AQR30020-003), 1 week of Basic Medical Readiness (Course J3AQR90030), and 30 weeks of Biomedical Equipment Maintenance (Course J3ABR91830-000). The training program is held at Sheppard AFB TX. The bulk of instruction is on troubleshooting principles and x-ray equipment maintenance. A score of 67 on the Armed Services Vocational Aptitude Battery (ASVAB) test in the electronics category is required for entry into the career ladder.

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SURVEY METHODOLOGY

Data for this survey were collected using USAF Job Inventory AFPT 90-918-799, dated January 1988. The inventory developer reviewed pertinent career ladder documents, the previous inventory and OSR to prepare a tentative task list. This task list was then validated through personal interviews with 29 subject-matter experts in operational units at seven bases. The seven bases visited were:

<u>BASE</u>	<u>MAJCOM</u>	<u>REASON FOR VISIT</u>
England AFB	TAC	Air Transportable Hospital (ATH) functions
Keesler AFB	ATC	MERC responsible for supporting bases in the southeastern United States
Langley AFB	TAC	Fifty-bed ATH
Scott AFB	MAC	MERC responsible for supporting bases in the northwestern United States
Sheppard AFB	ATC	Technical Training Center and Regional Medical Center
Wilford Hall USAF Med Center	ATC	Largest MERC in the Air Force
Wright-Patterson AFB	AFLC	MERC responsible for supporting bases in the central United States

The resulting inventory listed 1,750 tasks grouped into 19 duty headings. There were also a number of background questions asking about duty AFSC, time in present job, time in service, job title, medical facility assigned to, equipment maintained on the job, testing equipment used, and equipment maintained by contract.

Survey Administration

From February through June 1988, Consolidated Base Personnel Offices at operational bases worldwide administered the inventory booklets to all eligible DAFSC 918X0 personnel covering all skill levels. Participants were selected from a computer-generated mailing list provided by the Air Force Human Resources Laboratory. Those not receiving booklets included those in transition for a permanent change of station (PCS), members retiring at the time of survey, those hospitalized, and those who had not been in their current job for at least 6 weeks.

All individuals who filled out an inventory booklet first completed an identification and background information section. Next, they went through the booklet and checked each task performed in their current job. After checking all tasks performed, the respondents rated each of these tasks on a 9-point scale reflecting relative time spent on each task compared to all other tasks. Ratings ranged from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent). To determine relative time spent for each task checked by a respondent, the sum of a respondent's ratings was assumed to account for 100 percent of his or her time spent on the job. All respondent's ratings were added together and then each rating was divided by the sum of all responses. Then, this quotient was multiplied by 100 to obtain the relative time spent for each task. This procedure provided a basis for comparing tasks not only in terms of percent members performing, but also in terms of relative percent time spent on tasks and groups of tasks.

Survey Sample

Participants in the survey were carefully selected to ensure there was a proportional representation across major command (MAJCOM) and paygrade groups. Table 1 shows the percentage distribution, by MAJCOM, of assigned personnel in the career ladder as of January 1988. Also shown in this table is the percentage distribution, by MAJCOM, in the final survey sample. Table 2 shows the survey sample representation across paygrades. As these tables indicate, survey representation by MAJCOM and paygrade was very good. The 440 respondents included in the final survey sample represent 74 percent of the total 598 DAFSC 918X0 personnel assigned.

Task Factor Administration

Once the survey data were processed and input into a Sperry 1100 computer, Comprehensive Occupational Data Analysis Programs (CODAP) were used to analyze the data and create job descriptions for various groupings of respondents. But job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task difficulty and training emphasis information are also useful for analysis of the career ladder. To obtain these needed task factor data, selected senior AFSC 918X0 personnel (generally those in paygrades E-6 and E-7) were asked to complete either a training emphasis (TE) or task difficulty (TD) booklet. These booklets were processed separately from the job inventories and the compiled TE and TD data are used in a number of different analyses discussed later in this report.

Training Emphasis (TE). Training emphasis is a rating of those tasks which require structured training for first-enlistment personnel. Structured training can be provided by resident technical schools, field training detachments (FTD), mobile training teams (MTT), or in-house formal on-the-job training (OJT). Training emphasis data were collected from 64 experienced 918X0 supervisors. These raters were asked to rate inventory tasks on a 10-point scale ranging from no training required (0) to extremely high training

TABLE 1
 COMMAND REPRESENTATION OF AFSC 918X0 SURVEY SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
ATC	17	15
USAFE	17	20
SAC	14	13
MAC	14	14
TAC	12	13
PACAF	7	7
JMMC	5	4
AFSC	5	5
AFLC	5	5
OTHER	4	4

TOTAL ASSIGNED*	598
TOTAL NUMBER ELIGIBLE	506
TOTAL IN SAMPLE	440
PERCENT OF ASSIGNED	74%
PERCENT OF ELIGIBLE	87%

* As of January 1988

TABLE 2
PAYGRADE REPRESENTATION OF AFSC 918X0 SURVEY SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
E-9	1	1
E-8	3	2
E-7	9	10
E-6	13	14
E-5	21	21
E-4	30	28
E-3	23	24
E-2	-	-
E-1	-	-

* As of January 1988
- Indicates less than 1 percent

emphasis (9). If the raters were to agree perfectly on which tasks were important for first-enlistment training, the interrater reliability (as assessed through components of variance of standard group means) for these raters would be 1.0. The interrater reliability for these 64 raters was .92, indicating good agreement on which tasks require some form of structured training for first-term personnel. The average TE rating was 2.13, and the standard deviation was 1.11. Thus, tasks receiving ratings of 3.24 or higher are considered to have relatively high TE.

When TE ratings are used with other information, such as TD ratings and percent members performing tasks, they can provide insight into training requirements and help validate the need for structured training for the career ladder.

Task Difficulty (TD). Task difficulty is defined as the length of time the average airman takes to learn how to perform a task. This survey had 66 experienced supervisors rate the difficulty of the tasks in the inventory on a 9-point scale ranging from 1 (extremely low difficulty) to 9 (extremely high difficulty). Ratings were adjusted so tasks of average difficulty would have a value of 5.0 and a standard deviation of 1.0. As with TE ratings, an interrater reliability of 1.0 would indicate perfect agreement. Interrater reliability (as assessed through components of variance of standard group means) for the AFSC 918X0 TD raters was .97, indicating extremely high agreement among raters on the relative degree of difficulty for each task in the inventory. Tasks with ratings of 6.00 and higher are considered difficult for first-term airmen to learn how to perform, thus requiring more time for instruction.

SPECIALTY JOBS (Career Ladder Structure)

The structure of jobs within the Biomedical Equipment Maintenance career ladder was examined on the basis of similarity of tasks performed and the percent of time spent ratings provided by job incumbents, independent of background or other factors.

For the purpose of organizing individual jobs into similar units of work, an automated job clustering program compares the job description for each individual in the sample to every other job description in terms of the tasks performed and the relative amount of time spent doing those tasks. The automated program is designed to find the two most similar job descriptions and merge them into a group. All other job descriptions are then compared to this group and those that are similar are also merged. In successive stages, new members are added to merge with groups already formed or to create new groups, until all job incumbents (and their respective job descriptions) are merged. The result is a pattern of jobs making up the AFSC 918X0 career ladder.

For this report, the career ladder structure is described in terms of clusters, job types, and independent job types. The basic identifying group is the job type. A job type is a group of individuals who perform many of the same tasks and spend similar amounts of time performing them. When different job types have a substantial degree of similarity between them, they are grouped together and labeled a cluster. In many career ladders, there are specialized job types that are too dissimilar to be grouped into any cluster. These unique groups are labeled independent job types (IJT).

Structure Overview

Based on the similarity of tasks performed and the amount of time spent performing each task, three clusters and one independent job type were identified in the examination of the Biomedical Equipment Maintenance career ladder. These major jobs, listed below, are illustrated in Figure 1 and descriptions for each are given on the following pages. The stage (STG) or group (GRP) numbers printed beside each job title are the same numerical identifiers located on the CODAP diagram. These identifiers are used during analysis of the groups to find specific information for each group. The letter N within parentheses refers to the number of personnel in the group.

- I. BIOMEDICAL SUPERVISORY CLUSTER (STG020, N=39)
 - A. Maintenance Superintendents (STG128, N=18)
 - B. First-Line Supervisors (STG105, N=6)
 - C. Facilities Managers (STG074, N=5)
- II. TECHNICAL TRAINING PERSONNEL (STG009, N=13)
- III. X-RAY MAINTENANCE CLUSTER (STG047, N=19)
 - A. X-Ray NCOICs (STG147, N=5)
 - B. X-Ray Technicians (STG148, N=8)
- IV. BIOMEDICAL MAINTENANCE SPECIALIST CLUSTER (STG021, N=348)
 - A. Core Maintenance Specialists (GRP124, N=298)
 - B. Administration and Supply NCOs (STG062, N=12)
 - C. Air Transportation Hospital Personnel (GRP125, N=27)
 - D. Laboratory Equipment Maintenance Personnel (STG211, N=6)
 - E. Intensive and Cardiac Care Unit Maintenance Personnel (STG037, N=5)

The AFSC 918X0 personnel forming these clusters and independent job type account for 95 percent of the total survey sample. The other 5 percent, referred to as isolates, did not merge with any of these identified groups because they perform tasks or sets of tasks which differ from the tasks performed by the groups above.

AFSC 918X0 SPECIALTY JOBS
(N=440)

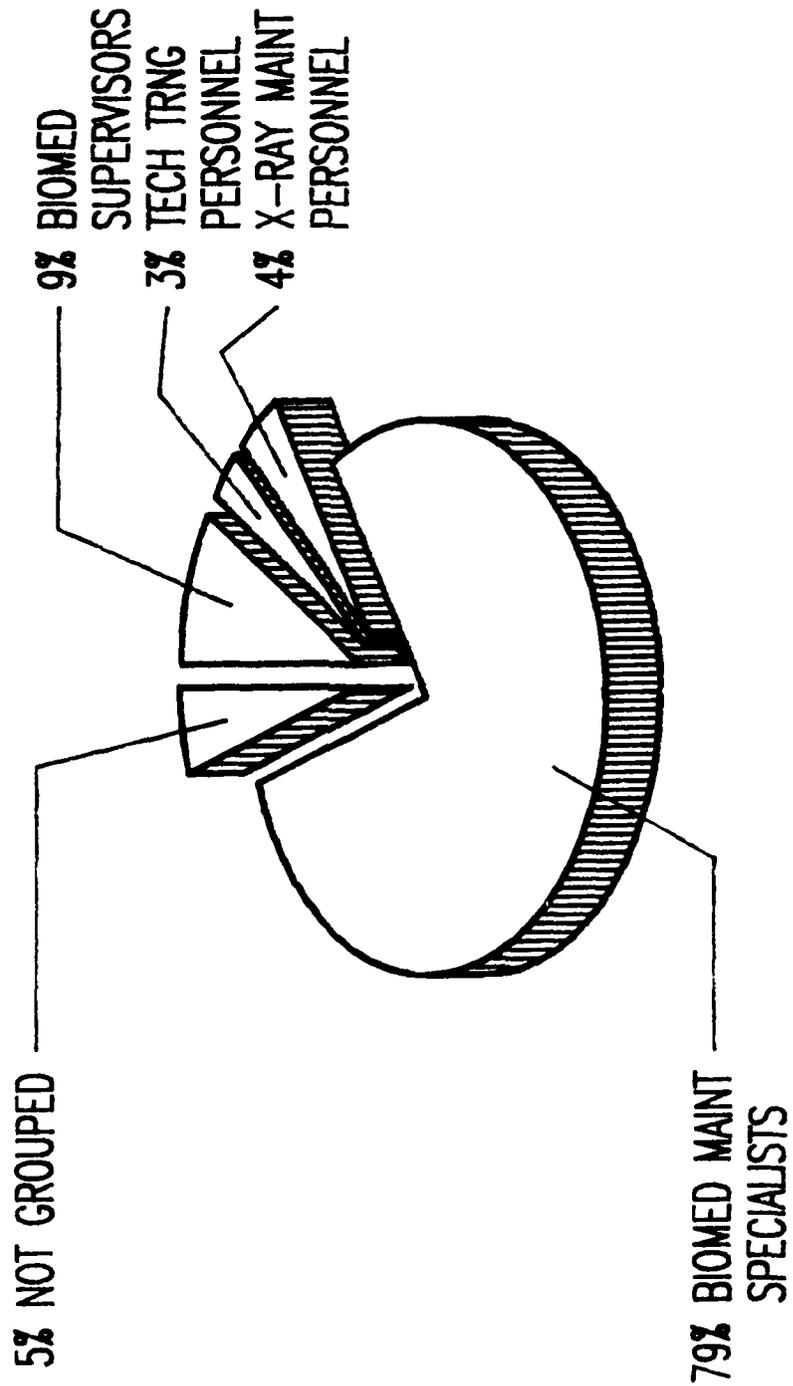


Figure 1

Two tables in this section provide background information about the clusters and independent job type listed. Table 3 displays selected background information, such as DAFSC distributions across each group, predominant grades, average months in service (i.e., TAFMS), and average number of tasks performed. For example, Table 3 shows the Biomedical Supervisory Cluster has 39 members, mostly at the 7-skill level, predominantly in paygrades E-6 and E-7, and they perform 105 tasks on average. Table 4 indicates the relative amount of time spent across each of the 19 duties for the identified job groups. The Facilities Managers, for example, spend 55 percent of their job time performing facilities management tasks (Duty S), and 9 percent of their job time involves organizing and planning (Duty A).

Also included in this report is an Appendix concerning the Biomedical Equipment Maintenance job tasks. Appendix A lists tasks commonly performed by members in each of the jobs identified. The most commonly performed tasks are selected according to high percent members performing and time spent data, though the time spent values are omitted from the appendix. Complete job descriptions for this survey, which include time spent values, can be found in a copy of the Analysis Extract.

Job Descriptions

I. BIOMEDICAL SUPERVISORY CLUSTER (STG020, N=39). The 39 members of this cluster comprise 9 percent of the survey sample. Most (64 percent) are 7-skill level personnel who draft correspondence, evaluate work programs and procedures, supervise, and counsel their subordinates. Some of their time is also spent performing facilities management tasks (see Table 4). These tasks include coordinating maintenance of facilities, conducting facilities inspections, and evaluating construction requirements. Most of these supervisors are located at USAFE and ATC units, working in Air Force regional hospitals or MERCs (see Table 3). Tasks commonly performed by group members include:

- draft outgoing correspondence
- review Air Force Medical Logistics Letters (AFMLL)
- evaluate directives or operating procedures
- write APR
- evaluate personnel for compliance with performance standards
- supervise Biomedical Equipment Maintenance Specialists (AFSC 91850)
- counsel personnel
- schedule personnel for schools, temporary duty (TDY) assignments, or nontechnical training
- determine installation and operational requirements for new equipment

TABLE 3

SELECTED BACKGROUND DATA FOR 918XO CAREER LADDER JOBS

	BIOMEDICAL SUPERVISORY CLUSTER	JOB TYPES				TECHNICAL TRAINING PERSONNEL
		MAINTENANCE SUPERINTENDENTS	FIRST-LINE SUPERVISORS	FACILITIES MANAGERS		
NUMBER IN GROUP	39	18	6	5	13	
PERCENT OF TOTAL SAMPLE	9%	4%	1%	1%	3%	
PERCENT IN CONUS	59%	67%	67%	20%	100%	
DAFSC DISTRIBUTION (PERCENT RESPONDING):						
91830	0%	0%	0%	0%	8%	
91850	8%	0%	17%	20%	38%	
91870	64%	50%	83%	80%	54%	
91890	18%	39%	0%	0%	0%	
91800	10%	11%	0%	0%	0%	
PREDOMINANT GRADES						
AVERAGE MONTHS IN CAREER LADDER	E6-E7	E7-E8	E6-E7	E5-E6	E5-E6	
AVERAGE MONTHS IN SERVICE	123	139	120	101	87	
PERCENT FIRST ENLISTMENT	206	228	200	150	120	
AVERAGE NUMBER OF TASKS PERFORMED	0%	0%	0%	0%	0%	
	105	98	183	55	61	
PREDOMINANT MAJCOM ASSIGNMENT						
	USAFE/ATC	USAFE/ATC	USAFE	USAFE	ATC	
MEDICAL FACILITY ASSIGNED TO (NUMBER RESPONDING)*:						
USAF CLINIC	7	1	3	2	0	
USAF HOSPITAL	7	1	2	3	0	
USAF REGIONAL HOSP	10	8	0	0	0	
USAF MED EQ REP CENT (MERC)	11	7	0	0	0	
NONE	2	1	0	0	6	
OTHER	2	0	1	0	7	
PERCENT SUPERVISING	82%	94%	100%	80%	15%	

* Figures not exact due to rounding

TABLE 3 (CONTINUED)

SELECTED BACKGROUND DATA FOR 918XO CAREER LADDER JOBS

	X-RAY MAINTENANCE CLUSTER	JOB TYPES	
		X-RAY NCOICs	X-RAY TECHNICIANS
NUMBER IN GROUP	19	5	8
PERCENT OF TOTAL SAMPLE	4%	1%	2%
PERCENT IN CONUS	68%	40%	88%
DAFSC DISTRIBUTION (PERCENT RESPONDING):			
91830	0%	0%	0%
91850	37%	0%	75%
91870	48%	40%	25%
91890	11%	40%	0%
91800	5%	20%	0%
PREDOMINANT GRADES			
AVERAGE MONTHS IN CAREER LADDER	E5	E7-E9	E3-E6
AVERAGE MONTHS IN SERVICE	87	143	65
PERCENT FIRST ENLISTMENT	139	215	95
AVERAGE NUMBER OF TASKS PERFORMED	11%	0%	25%
	200	271	204
PREDOMINANT MAJCOM ASSIGNMENT			
	ATC/USAFE	USAFE	ATC
MEDICAL FACILITY ASSIGNED TO (NUMBER RESPONDING)*:			
USAF CLINIC	0	0	0
USAF HOSPITAL	1	1	0
USAF REGIONAL HOSP	3	1	2
USAF MED EQ REP CENT (MERC)	9	2	5
NONE	1	0	1
OTHER	5	1	0
PERCENT SUPERVISING	58%	100%	13%

* Figures not exact due to rounding

TABLE 3 (CONTINUED)

SELECTED BACKGROUND DATA FOR 918X0 CAREER LADDER JOBS

JOB TYPES

	BIOMED		CORE		ADMIN		AIR		LAB EQUIP		INTENSIVE AND	
	MAINT SPECL CLUSTER		MAINT SPECLS		AND SUP NCOs		TRANSPORTABLE HOSP PERS		MAINT PERS		CARDIAC CARE UNIT MAINT PERSONNEL	
NUMBER IN GROUP	348		298		12		27		6		5	
PERCENT OF TOTAL SAMPLE	79%		68%		3%		6%		1%		1%	
PERCENT IN CONUS	70%		73%		58%		41%		67%		80%	
DAFSC DISTRIBUTION (PERCENT RESPONDING):												
91830	15%		16%		0%		4%		0%		20%	
91850	58%		60%		25%		59%		33%		40%	
91870	27%		23%		75%		37%		67%		40%	
91890	0%		0%		0%		0%		0%		0%	
91800	0%		0%		0%		0%		0%		0%	
PREDOMINANT GRADES												
AVERAGE MONTHS IN CAREER LADDER	E3-E4		E3-E4		E5-E6		E3-E4		E6		E3	
AVERAGE MONTHS IN SERVICE	60		56		114		67		119		63	
PERCENT FIRST ENLISTMENT	83		77		159		101		150		84	
AVERAGE NUMBER OF TASKS PERFORMED	49%		53%		8%		44%		0%		40%	
	552		559		346		511		1,037		284	
PREDOMINANT MAJCOM ASSIGNMENT												
	USAFE/MAC SAC/TAC		USAFE/MAC SAC		USAFE/SAC		USAFE/TAC		ATC		MAC	
MEDICAL FACILITY ASSIGNED TO (NUMBER RESPONDING)*:												
USAF CLINIC	40		35		3		3		0		0	
USAF HOSPITAL	146		128		9		9		0		0	
USAF REGIONAL HOSP	51		48		0		2		1		1	
USAF MED EQ REP CENT (MERC)	82		74		0		0		4		4	
NONE	9		6		0		2		0		0	
OTHER	20		7		0		11		1		0	
PERCENT SUPERVISING	37%		33%		83%		48%		100%		40%	

* Figures not exact due to rounding

TABLE 4

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

	BIOMEDICAL SUPERVISORY CLUSTER	JOB TYPES			TECHNICAL TRAINING PERSONNEL
		MAINTENANCE SUPERINTENDENTS	FIRST-LINE SUPERVISORS	FACILITIES MANAGERS	
A. ORGANIZING AND PLANNING	19	26	17	9	4
B. DIRECTING AND IMPLEMENTING	12	15	9	7	5
C. INSPECTING AND EVALUATING	17	22	11	8	3
D. TRAINING	6	7	7	1	32
E. PERFORMING GENERAL ADMINISTRATION AND SUPPLY TASKS	20	21	18	7	3
F. PERFORMING GENERAL MAINTENANCE TASKS	3	1	3	3	1
G. MAINTAINING GENERAL HOSPITAL EQUIPMENT	2	1	1	1	11
H. MAINTAINING X-RAY EQUIPMENT	2	2	2	7	8
I. MAINTAINING INHALATION THERAPY EQUIPMENT	*	0	0	0	6
J. MAINTAINING CARDIAC CARE UNIT/INTENSIVE CARE UNIT (CCU/ICU) EQUIPMENT	1	*	*	*	8
K. MAINTAINING LABORATORY EQUIPMENT	1	*	*	1	4
L. MAINTAINING SURGICAL EQUIPMENT	*	0	0	0	3
M. MAINTAINING DENTAL EQUIPMENT	1	0	2	1	3
N. MAINTAINING EYE, EAR, NOSE, AND THROAT (EENT) EQUIPMENT	*	*	1	*	2
O. MAINTAINING OBSTETRIC AND NURSERY EQUIPMENT	*	*	0	0	2
P. MAINTAINING PHYSICAL THERAPY EQUIPMENT	*	*	0	0	*
Q. MAINTAINING WARD EQUIPMENT	*	*	0	0	2
R. PERFORMING AIR TRANSPORTABLE HOSPITAL (ATH) TASKS	1	2	4	*	1
S. PERFORMING FACILITIES MANAGEMENT TASKS	13	3	25	55	*

* Indicates less than 1 percent
 NOTE: Columns may not add up to 100 percent due to rounding

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

	X-RAY MAINTENANCE CLUSTER	JOB TYPES	
		X-RAY NCOICs	X-RAY TECHNICIANS
A. ORGANIZING AND PLANNING	8	15	3
B. DIRECTING AND IMPLEMENTING	4	8	1
C. INSPECTING AND EVALUATING	6	12	2
D. TRAINING	5	4	3
E. PERFORMING GENERAL ADMINISTRATION AND SUPPLY TASKS	7	8	5
F. PERFORMING GENERAL MAINTENANCE TASKS	4	2	4
G. MAINTAINING GENERAL HOSPITAL EQUIPMENT	2	2	1
H. MAINTAINING X-RAY EQUIPMENT	59	39	80
I. MAINTAINING INHALATION THERAPY EQUIPMENT	*	*	0
J. MAINTAINING CARDIAC CARE UNIT/INTENSIVE CARE UNIT (CCU/ICU) EQUIPMENT	1	3	1
K. MAINTAINING LABORATORY EQUIPMENT	*	1	0
L. MAINTAINING SURGICAL EQUIPMENT	*	1	0
M. MAINTAINING DENTAL EQUIPMENT	*	1	0
N. MAINTAINING EYE, EAR, NOSE, AND THROAT (EENT) EQUIPMENT	*	1	*
O. MAINTAINING OBSTETRIC AND NURSERY EQUIPMENT	*	*	0
P. MAINTAINING PHYSICAL THERAPY EQUIPMENT	*	*	0
Q. MAINTAINING WARD EQUIPMENT	*	*	0
R. PERFORMING AIR TRANSPORTABLE HOSPITAL (ATH) TASKS	2	1	*
S. PERFORMING FACILITIES MANAGEMENT TASKS	1	2	*

* Indicates less than 1 percent

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

TABLE 4 (CONTINUED)

AVERAGE PERCENT TIME SPENT ON DUTIES BY CAREER LADDER JOBS

JOB TYPES

	BIOMED MAINT SPECL CLUSTER	CORE MAINT SPECLS	ADMIN AND SUP NCOs	AIR TRANSPORTABLE HOSP PERS	LAB EQUIP MAINT PERS	INTENSIVE AND CARDIAC CARE UNIT MAINT PERSONNEL
A. ORGANIZING AND PLANNING	2	2	11	2	3	1
B. DIRECTING AND IMPLEMENTING	1	1	4	1	2	1
C. INSPECTING AND EVALUATING	2	*	7	2	2	1
D. TRAINING	1	0	3	1	2	1
E. PERFORMING GENERAL ADMINISTRATION AND SUPPLY TASKS	6	6	22	6	5	5
F. PERFORMING GENERAL MAINTENANCE TASKS	4	4	5	6	3	5
G. MAINTAINING GENERAL HOSPITAL EQUIPMENT	18	19	12	15	13	13
H. MAINTAINING X-RAY EQUIPMENT	12	12	10	16	21	1
I. MAINTAINING INHALATION THERAPY EQUIPMENT	3	3	*	2	2	2
J. MAINTAINING CARDIAC CARE UNIT/ INTENSIVE CARE UNIT (CCU/ICU) EQUIPMENT	8	8	3	6	6	28
K. MAINTAINING LABORATORY EQUIPMENT	7	7	4	6	20	7
L. MAINTAINING SURGICAL EQUIPMENT	5	5	2	5	4	2
M. MAINTAINING DENTAL EQUIPMENT	12	12	8	7	5	3
N. MAINTAINING EYE, EAR, NOSE, AND THROAT (EENT) EQUIPMENT	6	6	4	3	5	5
O. MAINTAINING OBSTETRIC AND NURSERY EQUIPMENT	7	7	2	2	3	17
P. MAINTAINING PHYSICAL THERAPY EQUIPMENT	3	3	1	3	2	3
Q. MAINTAINING WARD EQUIPMENT	2	2	1	2	1	0
R. PERFORMING AIR TRANSPORTABLE HOSPITAL (ATH) TASKS	3	1	1	16	2	6
S. PERFORMING FACILITIES MANAGEMENT TASKS	1	1	1	1	*	*

* Indicates less than 1 percent
NOTE: Columns may not add up to 100 percent due to rounding

Personnel in this cluster perform an average of 105 tasks, average 206 months Total Active Federal Military Service (TAFMS), and 82 percent indicate they are supervising other Biomedical Equipment Maintenance Technicians (BMETs).

There are three job variations within this cluster, differing primarily in the amount of time spent performing facilities management tasks. The Maintenance Superintendents (STG128, N=18) work mostly as supervisors, spending only 3 percent of their job time performing facilities management tasks (Duty S). A small group of 6 people, the First-Line Supervisors (STG105, N=6), spend their job time performing facilities management (25 percent), supervisory, and technical functions. The Facilities Managers (STG074, N=5) spend a lot of time in facilities management (55 percent), working as general supervisors the rest of the time. More complete lists of tasks performed by these supervisory groups can be found in Appendix A.

II. TECHNICAL TRAINING PERSONNEL IJT (STG009, N=13). These 13 members account for 3 percent of the survey sample. They are all assigned to Sheppard AFB as ATC resources. They are predominantly 5- and 7-skill level personnel who conduct resident course training, administer and score tests, and prepare training aids for instruction. Table 4 shows these group members spend 32 percent of their job time performing training tasks, though they also spend considerable time maintaining general hospital and x-ray equipment (Duties G and H). Some tasks commonly performed are:

- conduct resident course classroom training
- administer tests
- score tests
- develop lesson plans
- counsel trainees on training progress
- write test questions
- prepare training aids

Personnel in this group average 120 months TAFMS and perform an average of 61 tasks.

III. X-RAY MAINTENANCE CLUSTER (STG047, N=19). These group members comprise 4 percent of the AFSC 918X0 survey sample. Their primary function is to maintain x-ray equipment. The rest of the time they perform mostly supervisory-related duties. All members of the cluster have at least a 5-skill level. They average 139 months TAFMS, and most are located at ATC and USAFE bases. Nine group members work at MERCs. Some tasks representative of these personnel are:

- verify calibration of x-ray photospot systems
- perform operational inspections of fluoroimaging systems
- perform operational inspections of tilt tables

- verify calibration of spot film devices
- calibrate three-phase x-ray systems
- calibrate collimator/beam limiting devices
- perform postcalibration radiation inspections (PCRI) of x-ray equipment
- perform operational inspections of mobile radiographic x-ray systems

Approximately 58 percent of the group members indicate they supervise other BMETs, and they perform an average of 200 tasks.

Within the x-ray cluster, there are two distinct jobs, varying mainly on the level of experience the group members have in their job. The X-Ray NCOICs (STG147, N=5) are the more experienced group, spending equal amounts of job time performing x-ray maintenance and supervisory-related tasks. This compares to the X-Ray Technicians (STG148, N=8) job, whose 8 members spend 80 percent of their job time maintaining x-ray equipment.

IV. BIOMEDICAL MAINTENANCE SPECIALIST CLUSTER (STG021, N=348). These 348 members comprise the core job within the Biomedical Maintenance career ladder, accounting for 79 percent of the survey sample. Group members are predominantly 5-skill level specialists who perform maintenance tasks on the whole spectrum of biomedical equipment. Table 4 indicates they spend most of their time maintaining general hospital, x-ray, and dental equipment (Duties G, H, and M). Most specialists are located across a variety of MAJCOMs. They work in all types of facilities, with the largest number working in USAF hospitals (see Table 3). They average 83 months TAFMS, and almost half (49 percent) are in their first-enlistment. Tasks commonly performed by group members include:

- perform electrical safety tests on hospital equipment
- perform initial inspections of new medical equipment
- locate stock numbers or components in manufacturers' parts manuals or supply publications
- solder electrical connections
- remove or replace batteries
- isolate malfunctions within sterilizers
- calibrate infusion pumps
- perform preventive maintenance on defibrillators
- repair dental operating units

Personnel in this cluster perform an average of 552 tasks, and 37 percent indicate they supervise other BMETs.

Within the cluster there are five job variations, resulting from differences in levels of experience or specialization on particular types of biomedical equipment. The first of these five jobs is the Core Maintenance Specialists (GRP124, N=298), representing 86 percent of the entire cluster.

They perform the same job as that already described for the cluster, working mostly with sterilizers, defibrillators, and infusion pumps. A second job identified within the cluster is the Administration and Supply NCOs (STG062, N=12). These 12 members have more experience than the other groups in the cluster, spending most of their job time performing administration and supply tasks including historical record and publications maintenance, making entries on forms, and serving on safety committees.

The last three jobs in this cluster varied according to the particular types of equipment maintained by each job group. Specialization in these jobs is mostly a function of where the individuals are assigned in the Air Force, and what equipment the incumbents have to maintain at their base. One of these jobs is the Air Transportable Hospital Personnel (GRP125, N=27). These 27 members work in contingency hospitals occasionally participating in mobility exercises. Tasks they perform include inspecting, calibrating, and installing field medical equipment and setting up mobile hospital units. Most of their time, however, is spent maintaining the same types of equipment maintained by other cluster members. The Laboratory Equipment Maintenance Personnel (STG211, N=6) are general supervisors specializing in maintaining laboratory equipment (Duty K), but as Table 4 indicates, they also spend more time maintaining x-ray equipment compared to other jobs in the cluster. This group is also unique in that they perform an average of 1,037 tasks, twice as many as any other group in the sample. The last job of the cluster, the Intensive and Cardiac Care Unit Maintenance Personnel (STG037, N=5), includes five members working at the MERCs. They specialize in cardiac care unit (CCU) and intensive care unit (ICU) equipment maintenance. Examples of this type of equipment include heart rate monitors, blood pressure transducers, and electrocardiograph (EKG) systems. Much of the group's job time is also spent maintaining obstetric and nursery equipment (Duty O), but minimal time is spent maintaining x-ray equipment (see Table 4). Appendix A lists tasks performed by each of the job groups described.

Comparison of Specialty Jobs

Three clusters and one IJT were identified in the AFSC 918X0 career ladder structure analysis. Each of these jobs involved performance of general hospital and x-ray equipment maintenance, and administrative tasks. The jobs varied according to the amount of experience each member had in the career ladder, and the base to which the individual was assigned. Each hospital or medical clinic uses particular types of equipment, causing the incumbent to specialize on the equipment located at his or her base.

The Biomedical Supervisory cluster contained three jobs, accounting for 9 percent of the AFSC 918X0 survey sample. Each job involved performance of general supervisory and facilities management tasks. These jobs varied by the amount of time spent on facilities management versus supervision. The Technical Training Personnel group was the only IJT identified in the survey. These 13 members (3 percent of the survey sample) are training instructors located at the Technical Training Center at Sheppard AFB TX. The X-Ray Maintenance cluster was comprised of two jobs, one having more experienced members than the other. This group specializes in maintenance of x-ray equipment, and

accounts for 4 percent of the sample. The last cluster identified was the Biomedical Maintenance Specialist cluster. These 348 members (79 percent of the sample) perform the primary biomedical equipment maintenance functions in the career ladder. This cluster contained five jobs. The largest job covered all types of equipment maintenance. Another job specialized in administrative and supply tasks. The other three jobs specialized in performance of either air transportable hospital tasks, laboratory equipment maintenance tasks, or CCU/ICU equipment maintenance tasks.

Comparison of Current Survey to Previous Survey

The results of the specialty job analysis for this survey were compared to those of the previous AFSC 918X0 OSR AFPT 990-403-438, dated June 1982. In that OSR, one cluster and eight IJTs were identified. Table 5 shows comparisons of jobs identified in both surveys. A matching of the tasks performed by personnel in each job showed only a few differences. The current survey identified three supervisory groups not found in the 1982 survey. The First-Line Supervisors and Facilities Managers were not identified in the 1982 survey, because these groups perform facilities management tasks which just recently became part of the supervisor's job. Also, the X-Ray NCOICs were not identified in 1982. However, this group performs tasks similar to those previously performed by the Superintendents and X-Ray Equipment Repair and Calibration Specialist groups. Finally, the current Air Transportable Hospital Personnel and Intensive and Cardiac Care Unit Maintenance Personnel groups are similar to the former Unscheduled Maintenance and Electronic Equipment Repairmen groups, respectively.

The 1982 survey identified three technical groups not specifically identified in the current OSR. A review of the tasks performed by these groups did reveal some similarities to present survey groups. The X-Ray Equipment Repair Instructors (of the previous survey) performed some tasks currently performed by the X-Ray Technicians. Also, the Preventive Maintenance and General Repair Personnel jobs showed similarities to the job now performed by the Core Maintenance Specialists.

In summary, the job structure for the AFSC 918X0 career ladder has undergone few changes since 1982. The addition of facilities management duties has caused some changes within the supervisory jobs, and some of the smaller specialized jobs identified in the previous survey have grouped together in a larger, more general job (i.e., the Core Maintenance Specialists). Any other apparent differences can be explained by variations in the construction of the job inventory booklets for the two surveys.

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. DAFSC analysis identifies similarities and differences in task and duty

TABLE 5

JOB SPECIALTY COMPARISONS BETWEEN CURRENT AND 1982 SURVEY

CURRENT SURVEY (N=440)	PERCENT OF SAMPLE*	1982 SURVEY (N=377)	PERCENT OF SAMPLE*
MAINTENANCE SUPERINTENDENTS (N=18)	4	SUPERINTENDENTS (N=22)	6
X-RAY NCOICs (N=5)	1	BIOMEDICAL EQUIPMENT REPAIR INSTRUCTORS (N=5)	1
TECHNICAL TRAINING PERSONNEL (N=13)	3	X-RAY EQUIPMENT REPAIR AND CALIBRATION SPECIALISTS (N=11)	3
X-RAY TECHNICIANS (N=8)	2	X-RAY EQUIPMENT REPAIR INSTRUCTORS (N=9)	2
CORE MAINTENANCE SPECIALISTS (N=298)	68	UNSCHEDULED MAINTENANCE (N=164)	44
AIR TRANSPORTATION HOSPITAL PERSONNEL (N=27)	6	PREVENTIVE MAINTENANCE PERSONNEL (N=38)	10
ADMINISTRATION AND SUPPLY NCOs (N=12)	3	GENERAL REPAIR PERSONNEL (N=16)	4
INTENSIVE AND CARDIAC CARE MAINTENANCE PERSONNEL (N=5)	1	SUPPLY NCOs (N=7)	2
LABORATORY EQUIPMENT MAINTENANCE PERSONNEL (N=6)	1	ELECTRONIC EQUIPMENT REPAIRMEN (N=8)	2
FIRST-LINE SUPERVISORS (N=6)	1	NOT IDENTIFIED	-
FACILITIES MANAGERS (N=5)	1	NOT IDENTIFIED	-

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

Comparisons of the duties and tasks performed across DAFSCs 91830 and 91850 revealed minimal differences between the two skill levels. Though the 3-skill level members spend more time performing general maintenance tasks (Duty G), and the 5-skill level members do more x-ray maintenance (Duty H), these are very slight differences. Also, with the exception of a few more 5-skill level members working as X-Ray Technicians, the specialty jobs performed by both DAFSC groups are identical. In terms of equipment maintained on the job, a higher percentage of 3-skill level members maintain incubators, fetal heart monitors, and vital sign monitors. In comparison, higher percentages of the 5-skill level group maintain x-ray equipment. Because these differences are considered minimal, the 3- and 5-skill level groups are combined in this report.

Duty and task comparisons were also made between DAFSCs 91890 and 91800. No appreciable differences could be found to distinguish these groups, so they have also been combined for this OSR. Table 6 displays the distribution of DAFSC group members across specialty jobs, while Table 7 shows the time spent by skill-level groups across duties. Further discussion of these data is given below.

Current OSR data indicate the AFSC 918X0 career ladder has an atypical pattern of progression as the incumbents move from the 3- to the 7-skill level. The 3-/5-skill level members perform a primarily technical job. At the 7-skill level, there is a marginal increase in the amount of time spent performing supervisory functions. Table 6 confirms that most of the 7-skill level members (66 percent) work in the primary technical job (Biomedical Maintenance Specialists) of the AFSC 918X0 career ladder. Table 7 shows the 7-skill level personnel spend only a small portion of their job time performing supervisory (Duties A thru D) and facilities management (Duty S) functions. Clearly, the 7-skill level group is actively involved in the technical aspects of the career ladder.

Progressing from the 7- to the 9-/CEM Code skill level, a more typical pattern of progression is noted. The 9-/CEM Code personnel spend a significantly greater amount of time performing supervisory and facilities management functions (see Table 7). Table 6 further indicates the 9-/CEM Code group works exclusively in the Supervisory and X-Ray Maintenance clusters.

Skill-Level Descriptions

DAFSC 91830/91850. The 282 members of the 3- and 5-skill level group comprise 64 percent of the survey sample. Their job is almost exclusively technical, as they spend 94 percent of their job time performing the full range of technical duties (Duties E thru R). Approximately 90 percent of the group is concentrated in the Biomedical Maintenance Specialist cluster (see Table 6). Group members perform an average of 493 tasks, with 347 tasks accounting for

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS CAREER LADDER JOB GROUPS
(AS A PERCENTAGE OF DAFSC GROUPS)*

JOB GROUPS	DAFSC 91830/ 91850 (N=282)	DAFSC 91870 (N=144)	DAFSC 91890/ 91800 (N=14)
I. BIOMEDICAL SUPERVISORY CLUSTER (N=39)	1	17	79
A. Maintenance Superintendents (N=18)	(0)	(6)	(64)
B. First-Line Supervisors (N=6)	(*)	(3)	(0)
C. Facilities Managers (N=5)	(*)	(3)	(0)
II. TECHNICAL TRAINING PERSONNEL (N=13)	2	5	0
III. X-RAY MAINTENANCE CLUSTER (N=19)	2	6	21
A. X-ray NCOICs (N=5)	(0)	(1)	(21)
B. X-ray Technicians (N=8)	(2)	(1)	(0)
IV. BIOMEDICAL MAINTENANCE SPECIALIST CLUSTER (N=348)	90	66	0
A. Core Maintenance Specialists (N=298)	(81)	(47)	(0)
B. Administration and Supply NCOs (N=12)	(1)	(6)	(0)
C. Air Transportation Hospital Personnel (N=27)	(6)	(7)	(0)
D. Laboratory Equipment Maintenance Personnel (N=6)	(1)	(3)	(0)
E. Intensive and Cardiac Care Maintenance Personnel (N=5)	(1)	(1)	(0)
V. NOT GROUPED (N=21)**	5	5	0

* Columns may not add up to 100 percent due to rounding
 ** Those incumbents not grouping in any of the above job groups
 () Indicates a group within a cluster

TABLE 7

AVERAGE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

JOB GROUPS	DAFSC 91830/ 91850 (N=282)	DAFSC 91870 (N=144)	DAFSC 91890/ 91800 (N=14)
A. ORGANIZING AND PLANNING	2	7	23
B. DIRECTING AND IMPLEMENTING	1	4	13
C. INSPECTING AND EVALUATING	1	5	21
D. TRAINING	1	6	5
E. PERFORMING GENERAL ADMINISTRATION AND SUPPLY TASKS	6	10	18
F. PERFORMING GENERAL MAINTENANCE TASKS	4	4	1
G. MAINTAINING GENERAL HOSPITAL EQUIPMENT	18	11	*
H. MAINTAINING X-RAY EQUIPMENT	12	14	11
I. MAINTAINING INHALATION THERAPY EQUIPMENT	3	2	*
J. MAINTAINING CARDIAC CARE UNIT/INTENSIVE CARE UNIT (CCU/ICU) EQUIPMENT	8	5	1
K. MAINTAINING LABORATORY EQUIPMENT	7	5	0
L. MAINTAINING SURGICAL EQUIPMENT	5	3	*
M. MAINTAINING DENTAL EQUIPMENT	12	7	0
N. MAINTAINING EYE, EAR, NOSE, AND THROAT (EENT) EQUIPMENT	5	3	*
O. MAINTAINING OBSTETRIC AND NURSERY EQUIPMENT	6	4	*
P. MAINTAINING PHYSICAL THERAPY EQUIPMENT	3	2	*
Q. MAINTAINING WARD EQUIPMENT	2	1	*
R. PERFORMING AIR TRANSPORTABLE HOSPITAL (ATH) TASKS	3	3	1
S. PERFORMING FACILITIES MANAGEMENT TASKS	1	4	5

* Indicates less than 1 percent

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

50 percent of their job time. Group members maintain many pieces of technical equipment, usually more so than other skill-level groups. Table 8 displays representative tasks performed by this group, and Table 10 shows tasks which differentiate the 3- and 5-skill level personnel from the 7-skill level members.

DAFSC 91870. This group of 144 members accounts for 33 percent of the survey sample. Table 7 clearly shows their job is mostly technical, as they spend 74 percent of their job time performing technical tasks (Duties E thru R). Group members work in all the various specialty jobs, but mostly in the Biomedical Maintenance Specialist cluster. They perform 431 tasks on average, and 269 tasks account for over 50 percent of their job time. These personnel maintain the same pieces of equipment maintained at the lower skill levels, though there are comparatively fewer 7-skill level members performing maintenance tasks. Table 9 shows tasks representative of the group, and Table 12 displays differentiating tasks between the 7- and 9-/CEM Code skill level groups.

DAFSC 91890/91800. Having only 14 members, this group comprises 3 percent of the survey sample. As mentioned previously, group members perform mostly a supervisory job, which includes facilities management activities. Approximately 79 percent are members of the Biomedical Supervisory cluster (see Table 6). On average, group members perform 131 tasks, with 52 tasks accounting for over 50 percent of their job time. Surprisingly, high percentages of this group maintain a variety of biomedical equipment. Tasks commonly performed by group members are found in Table 11.

Summary

As members in the AFSC 918X0 career ladder progress to the 7-skill level, the job remains highly technical in nature. There is a marginal increase in performance of supervisory functions from the 3-/5- to the 7-skill level, but technical tasks continue to dominate these skill level groups. A sharper increase in performance of supervisory tasks is seen as members progress to the 9-/CEM Code skill level. At this level, 85 percent of the member's job time involves supervision and facilities management functions. A wide variety of equipment is maintained by members at all skill levels, though the 3-/5-skill level group has the highest percentages of personnel maintaining equipment.

ANALYSIS OF AFR 39-1 SPECIALTY DESCRIPTIONS

The results of the specialty job structure and skill-level analyses were compared to the AFR 39-1 Specialty Descriptions (dated 1 February 1988) for the Biomedical Equipment Maintenance specialty. A review of each specialty description indicates they are all supported by survey data. The technical, administrative, and supervisory aspects of each skill-level job are adequately covered.

TABLE 8
 REPRESENTATIVE TASKS PERFORMED BY DAFSC 91830/91850 AIRMEN
 (PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 91830/ 91850 (N=282)	
F188	SOLDER ELECTRICAL CONNECTIONS	91
F184	REMOVE OR REPLACE BATTERIES	91
G245	PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	90
F181	PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	87
F166	CLEAN SHOP, HAND, OR POWER TOOLS	86
E123	LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	85
F176	PACK OR UNPACK MEDICAL EQUIPMENT	85
G234	ISOLATE MALFUNCTIONS WITHIN STERILIZERS	85
G341	REPAIR STERILIZERS	85
G307	PERFORM PREVENTIVE MAINTENANCE ON STERILIZERS	85
G273	PERFORM OPERATIONAL INSPECTIONS OF STERILIZERS	85
E116	ATTACH EQUIPMENT WARRANTY OR SAFETY TAGS OR LABELS TO EQUIPMENT	83
E133	MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	82
J713	PERFORM OPERATIONAL INSPECTIONS OF DEFIBRILLATORS	82
J736	PERFORM PREVENTIVE MAINTENANCE ON DEFIBRILLATORS	81
G301	PERFORM PREVENTIVE MAINTENANCE ON INFUSION PUMPS	81
G198	CALIBRATE INFUSION PUMPS	79
F175	OPERATE GOVERNMENT VEHICLES, SUCH AS PICKUP TRUCKS AND VANS	78
G358	VERIFY CALIBRATION OF INFUSION PUMPS	78
G266	PERFORM OPERATIONAL INSPECTIONS OF INFUSION PUMPS	78
J783	VERIFY CALIBRATION OF DEFIBRILLATORS	78
J669	CALIBRATE DEFIBRILLATORS	78
E130	MAKE ENTRIES IN WORK ORDER LOGS	76
E148	REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	74
G334	REPAIR INFUSION PUMPS	74
G227	ISOLATE MALFUNCTIONS WITHIN INFUSION PUMPS	74
M1141	ISOLATE MALFUNCTIONS WITHIN DENTAL OPERATING UNITS	73
M1229	REPAIR DENTAL OPERATING UNITS	71
E156	UPDATE HISTORICAL MAINTENANCE RECORD (HMR) LISTINGS	68
E127	MAINTAIN HISTORICAL MAINTENANCE RECORDS	66

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY DAFSC 91870 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 91870 (N=144)
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	85
A9 DETERMINE WORK PRIORITIES	85
B35 COUNSEL PERSONNEL	83
C80 WRITE APR	78
A24 PLAN EQUIPMENT INSTALLATIONS OR MODIFICATIONS	77
E123 LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	75
F181 PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	74
E133 MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	74
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	72
E127 MAINTAIN HISTORICAL MAINTENANCE RECORDS	71
B50 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALISTS (AFSC 91850)	70
A29 SCHEDULE CORRECTIVE OR PREVENTIVE MAINTENANCE	70
A28 PLAN WORK ASSIGNMENTS	69
C64 EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS	68
F176 PACK OR UNPACK MEDICAL EQUIPMENT	67
E156 UPDATE HISTORICAL MAINTENANCE RECORD (HMR) LISTINGS	67
E118 DRAFT OUTGOING CORRESPONDENCE	66
E126 MAINTAIN GENERAL CORRESPONDENCE AND SUSPENSE FILES	63
C55 ANALYZE WORKLOAD REQUIREMENTS	62
E117 COMPILE DATA FOR REPORTS	59
D90 DETERMINE TRAINING REQUIREMENTS	49
D91 DEVELOP LESSON PLANS	24

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 91830/91850 AND 91870 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 91830/ 91850 (N=282)	DAFSC 91870 (N=144)	DIFFERENCE
G294	70	40	+30
01443	53	23	+30
M1166	69	39	+30
M1194	73	44	+29
G258	79	49	+30
G301	81	53	+28
M1164	72	44	+28
G298	70	43	+27
G313	60	33	+27
G193	68	42	+26
*****	*****	*****	*****
C80	15	78	-63
B46	14	72	-58
B50	16	70	-54
C64	19	68	-49
A30	15	60	-45
D88	13	57	-44
C59	16	60	-44
A28	25	69	-44
A3	16	59	-43
A1	10	51	-41

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY DAFSC 91890/91800 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 91890 91800/ (N=14)
A31 SCHEDULE PERSONNEL FOR SCHOOLS, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	100
E117 COMPILE DATA FOR REPORTS	93
C82 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	93
E118 DRAFT OUTGOING CORRESPONDENCE	93
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	93
C59 EVALUATE INSPECTION REPORTS FINDINGS	93
C64 EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS	93
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	93
A8 DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	93
C79 SELECT INDIVIDUALS FOR SPECIALIZED TRAINING	93
C58 EVALUATE DIRECTIVES OR OPERATING PROCEDURES	86
C57 EVALUATE CONTRACT MAINTENANCE PROGRAMS	86
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	86
C80 WRITE APR	86
C74 INDORSE AIRMAN PERFORMANCE REPORTS (APR)	86
C56 EVALUATE BUDGET REQUIREMENTS	79
B52 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE TECHNICIANS (AFSC 91870)	79
B42 IMPLEMENT QUALITY CONTROL PROGRAMS	79
A17 DRAFT BUDGET REQUIREMENTS	79
A23 PLAN CONTRACT MAINTENANCE PROGRAMS	79
A20 ESTABLISH PERFORMANCE STANDARDS	79
A24 PLAN EQUIPMENT INSTALLATIONS OR MODIFICATIONS	71
A16 DEVELOP WORK METHODS OR PROCEDURES, OTHER THAN REPAIR OR MAINTENANCE	71

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 91870 AND 91890/91800 AIRMEN
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 91870 (N=144)	DAFSC 91890/ 91800 (N=14)	DIFFERENCE
G245	72	7	+65
F184	70	7	+63
G234	69	7	+62
G273	67	7	+60
G257	60	0	+60
M1105	59	0	+59
M1106	59	0	+59
F166	66	7	+59
G219	58	0	+58
E116	65	7	+58
*****	*****	*****	*****
A7	32	93	-61
C82	34	93	-59
A31	49	100	-51
A12	28	79	-51
C79	42	93	-51
B52	31	79	-48
C74	42	86	-44
B45	28	71	-43
B41	28	71	-43
A2	44	86	-42
C60	31	71	-40

TRAINING ANALYSIS

Occupational survey data provide one of several sources of information which can be used to make training programs more relevant and meaningful to first-term personnel. Factors useful for evaluating training include the description of the job being performed by first-enlistment members and their overall distribution across career ladder jobs, percentages of first-enlistment (1-48 months TAFMS) personnel performing specific tasks or using certain types of equipment, as well as TE and TD ratings (previously explained in the SURVEY METHODOLOGY section).

To assist in the evaluation of the STS and the POI, technical school personnel from Sheppard Technical Training Center matched tasks from the AFSC 918X0 job inventory to appropriate sections of the STS and POI for Course J3ABR91830-000. This matching process allowed data comparisons to those documents to be made. Computer listings displaying STS and POI matchings, percent members performing tasks, TE, and TD ratings for each task, have been sent to the technical school for review. Some of this information is presented in the pages that follow.

First-Enlistment Personnel

There were 182 members in their first-enlistment, representing 41 percent of the survey sample. Group members perform all of the technical kinds of jobs in the career ladder, with the exception of the Laboratory Equipment Maintenance Personnel job. They primarily perform maintenance on general hospital, x-ray, and dental equipment. The group performs very few supervisory-type tasks (Duties A thru D, and S). A list of tasks commonly performed by group members is shown in Table 13, and Table 14 displays a list of equipment used by significant numbers of the group. The technical nature of the job performed by first-enlistment members is depicted by the large variety of equipment they use in the field.

The distribution of first-term personnel across the specialty jobs is displayed in Figure 2. The bulk of the group is concentrated in the Biomedical Maintenance Specialist cluster. In particular, the first-term members grouped in the Core Maintenance Specialists and Air Transportable Hospital Personnel groups within the cluster. One percent of the group indicates they are X-Ray Maintenance Technicians (within the X-Ray Maintenance cluster), and another 1 percent grouped with the Technical Training Personnel. Approximately 3 percent of first-enlistment personnel did not group with any identified specialty job (shown as NOT GROUPED in Figure 2). There were no first-termers who grouped within any supervisory jobs. Overall, these data indicate that Biomedical Maintenance Specialist cluster activities should be emphasized during first-enlistment training.

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY DAFSC 918XO AIRMEN WITH 1-48 MONTHS TAFMS
(AT LEAST 70 PERCENT MEMBERS PERFORMING)

TASKS	PERCENT MEMBERS PERFORMING (N=182)	
G245	PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	94
F184	REMOVE OR REPLACE BATTERIES	94
F188	SOLDER ELECTRICAL CONNECTIONS	93
G307	PERFORM PREVENTIVE MAINTENANCE ON STERILIZERS	90
G273	PERFORM OPERATIONAL INSPECTIONS OF STERILIZERS	90
F181	PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	89
F176	PACK OR UNPACK MEDICAL EQUIPMENT	88
G234	ISOLATE MALFUNCTIONS WITHIN STERILIZERS	88
G341	REPAIR STERILIZERS	88
G301	PERFORM PREVENTIVE MAINTENANCE ON INFUSION PUMPS	87
E123	LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	86
G198	CALIBRATE INFUSION PUMPS	86
G266	PERFORM OPERATIONAL INSPECTIONS OF INFUSION PUMPS	86
J713	PERFORM OPERATIONAL INSPECTIONS OF DEFIBRILLATORS	86
G257	PERFORM OPERATIONAL INSPECTIONS OF EXAMINATION LAMPS	86
J736	PERFORM PREVENTIVE MAINTENANCE ON DEFIBRILLATORS	85
G281	PERFORM OPERATIONAL INSPECTIONS OF VITAL SIGN MONITORS	85
E116	ATTACH EQUIPMENT WARRANTY OR SAFETY TAGS OR LABELS TO EQUIPMENT	84
E133	MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	83
G358	VERIFY CALIBRATION OF INFUSION PUMPS	82
G334	REPAIR INFUSION PUMPS	81
J783	VERIFY CALIBRATION OF DEFIBRILLATORS	81
J669	CALIBRATE DEFIBRILLATORS	81
G227	ISOLATE MALFUNCTIONS WITHIN INFUSION PUMPS	80
F175	OPERATE GOVERNMENT VEHICLES, SUCH AS PICKUP TRUCKS AND VANS	80
M1141	ISOLATE MALFUNCTIONS WITHIN DENTAL OPERATING UNITS	76
M1229	REPAIR DENTAL OPERATING UNITS	73

TABLE 14

EQUIPMENT MAINTAINED BY AT LEAST 35 PERCENT OF FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

EQUIPMENT MAINTAINED	PERCENT MEMBERS RESPONDING (N=182)
Sterilizers	97
Defibrillators	96
Vacuum Suction Pumps	94
Dental Systems	94
Electrocardiograph (EKG) Monitors	92
Examination Lights	92
Hospital Beds	91
X-Ray Film Processors	89
Vital Sign Monitors	88
Electrocardiogram (ECG) Monitors	87
Hypo/Hyperthermia Units	85
Incubators	85
Audiometer Systems	84
Blood Pressure Monitors, Automatic	81
Fetal Heart Monitors	80
X-Ray Systems	79
Oxygen Meters	78
Sphygmomanometers	77
Scales	75
Ventilators	74
Optical Microscopes	74
Cardiopulmonary Resus (CPR) Training Mannequins	73
Spirometers	69
X-Ray Illuminators	68
Ophthalmoscopes	68
Ultrasonic Stethoscopes	67
Amalgamators	66
Apnea Monitors	66
Cell Counters	66
Blood Gas Analyzers	65
X-Ray Film Identifiers	65
Slide Stainers	64
Coagulators	61
Spectrophotometers	60
Ethylene Oxide (ETO) Sterilizers	59
Image Intensification Systems	59
Anesthesia Systems	58
Densitometers	57
Lensometers	57
Tonometers	57
Arrhythmia Monitors	55

TABLE 14 (CONTINUED)

EQUIPMENT MAINTAINED BY AT LEAST 35 PERCENT OF FIRST-ENLISTMENT PERSONNEL
(1-48 MONTHS TAFMS)

EQUIPMENT MAINTAINED	PERCENT MEMBERS RESPONDING (N=182)
Diagnostic Ultrasound Imaging Systems	55
Mixing Vibrators	54
Cell Washers	53
Phoropters	52
X-Ray Tube Assemblies	51
Bilirubinometers	49
Oxygen Blenders	48
Surgical Microscopes	48
pH Measuring Systems	46
Sigmoidoscopes	45
High Pressure Gas Regulators	44
Chemistry Analyzers	43
Television (TV) X-Ray Systems	42
Individual Pill Packaging Systems	41
Flame Photometers	40
Laryngoscopes	40
Cardiac Output Computers	39
Chemical Analysis Systems, Automatic	38
Phrophylactic Units	38

918X0 FIRST TERM DISTRIBUTION
ACROSS SPECIALTY JOBS
(N=182)

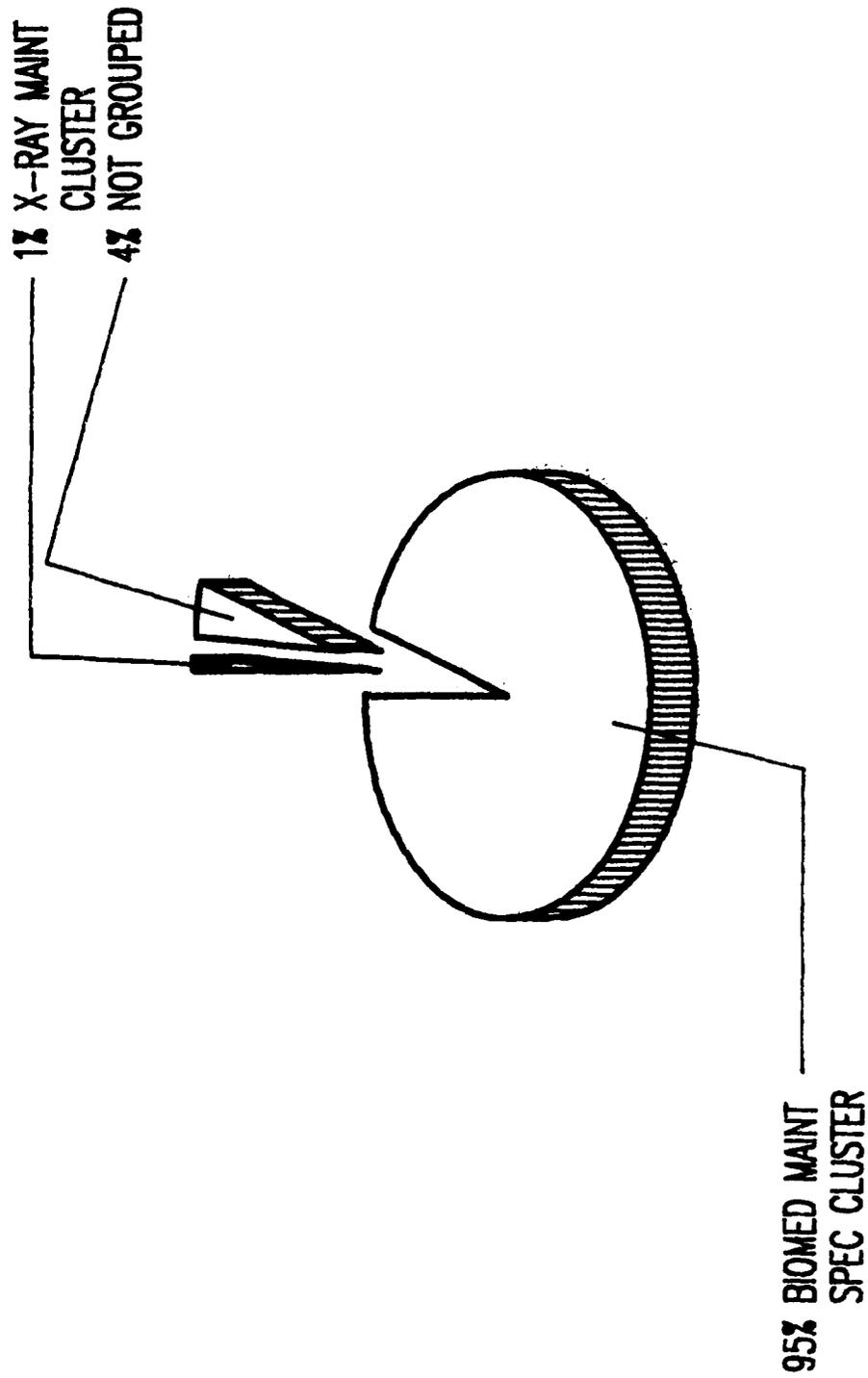


Figure 2

Training Emphasis and Task Difficulty Data

Training Emphasis (TE) and Task Difficulty (TD) ratings are based on the judgments of experienced career ladder NCOs working in Air Force operational units. TE ratings provide training personnel with a rank ordering of tasks considered important for first-term airman training. TD ratings measure the relative learning difficulty of each job inventory task. These TE and TD ratings, combined with percentages of first-enlistment personnel performing tasks, serve as a basis for determining whether training adjustments should be made. To help in this determination, an Automated Training Indicator (ATI) is computed for each task in the inventory. ATI combines first-enlistment percent members performing, TE, and TD data to compute training decisions based on ATCR 52-22, Atch 1. The computed ATI is numbered on a 1 to 18 scale, with an 18 being the highest level of training indicated. An ATI of 8 or less, leads to a training decision of OJT only. To illustrate how the ATI is computed; if a task has received high TE and TD ratings, and also has a high percentage of first-term members performing, then a high ATI rating is assigned to the task. With a high ATI rating, strong recommendations can be made to emphasize training that task. For a more complete description of the TE and TD ratings, see the Task Factor Administration section in SURVEY METHODOLOGY.

In this OSR, the TE ratings were collected through the responses of 64 experienced career ladder NCOs. These ratings provided a rank-ordering of tasks from high degree of training emphasis to no training required. The average emphasis rating was 2.13, with a standard deviation of 1.11, so tasks receiving ratings higher than 3.24 were considered to require high emphasis in training.

The tasks having the highest TE ratings covered repairing, calibrating, and isolating malfunctions of a variety of general hospital, x-ray, and CCU/ICU equipment. A complete listing of the highest TE rated tasks is found in Table 15. Many of these tasks were performed by higher numbers of first-job personnel, compared to first-enlistment personnel. However, the percentages for both groups are closely matched, which suggests they perform the same job and no provision for separate training programs is necessary for these two groups.

TD ratings for this survey were assessed through the responses of 66 experienced career ladder NCOs. These ratings were standardized to provide a rank-ordered task list with an average difficulty of 5.00 and a standard deviation of 1.00. A listing of those tasks having the highest TD ratings is found in Table 16. These tasks mostly involve installing, repairing, and calibrating various types of x-ray equipment, and they have correspondingly low first-enlistment percent members performing and TE data. Areas rated low in TD included performing inspections of general hospital and dental equipment.

TABLE 15

TASKS RATED HIGHEST IN TRAINING EMPHASIS (TE)

TASKS	TNG EMP*	PERCENT MEMBERS PERFORMING		TSK DIF**
		1ST JOB (N=43)	1ST ENL (N=182)	
G245	6.16	93	94	3.61
G234	6.11	93	88	5.83
J760	5.77	81	81	6.15
G341	5.66	91	88	6.13
J691	5.66	81	80	6.60
F188	5.61	93	93	4.06
G227	5.58	86	80	5.84
G198	5.55	91	86	5.24
J669	5.52	84	81	5.69
J713	5.50	88	86	4.78
G192	5.45	81	84	5.18
J673	5.45	67	80	5.65
J696	5.40	63	70	6.45
01401	5.34	67	66	5.36
J783	5.30	88	81	5.42
G242	5.27	65	69	6.21
L1025	5.20	42	53	6.39
G236	5.19	77	70	5.50
01416	5.19	72	70	5.02
01399	5.17	67	66	6.52
J736	5.16	91	85	4.84
J765	5.13	95	68	6.07
G273	5.09	58	90	4.42
G334	5.05	86	81	5.97
H431				
G203	4.98	44	51	5.80
	4.95	70	79	5.12

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 16

TASKS RATED HIGHEST IN TASK DIFFICULTY (TD)

TASKS	TSK DIF*	PERCENT MEMBERS PERFORMING				TNG EMP**
		FIRST ENLIST (N=182)	DAFSC 91850 (N=228)	DAFSC 91870 (N=144)		
H418	7.87	6	6	6	.88	
H401	7.77	3	8	28	1.38	
H448	7.67	3	4	3	1.11	
H459	7.67	14	24	30	3.36	
H381	7.66	17	18	10	2.78	
H432	7.61	19	20	13	3.08	
H393	7.55	4	5	2	1.09	
H462						
H450	7.50	9	11	18	1.13	
H587	7.44	27	39	43	4.84	
H416	7.43	14	21	28	2.14	
H395	7.40	3	4	2	.86	
H399	7.35	27	30	28	4.00	
H408	7.35	10	12	9	2.08	
H561	7.33	5	6	6	.84	
D92	7.32	14	18	12	2.59	
H417	7.30	0	1	5	.06	
H373	7.28	3	4	3	.77	
H435	7.28	14	21	31	2.48	
H415	7.26	22	31	39	3.55	
K829	7.25	7	7	6	.94	
H445	7.25	15	21	19	3.53	
H384	7.23	3	3	3	1.13	
H449	7.21	21	27	28	3.42	
H460	7.21	1	1	0	.80	
H397	7.20	6	9	9	2.22	
H394	7.19	15	18	22	2.91	
H578	7.18	4	2	2	.70	
H403	7.18	25	35	38	4.42	
S1745	7.17	1	1	1	.52	
	7.17	2	4	10	.55	

* Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

** Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

Specialty Training Standard (STS)

A comprehensive review of STS 918X0, dated October 1987, allowed STS items to be compared with survey data. The review was made with the assistance of the previously mentioned Technical Training personnel from Sheppard AFB. STS paragraphs and subparagraphs containing subject-matter knowledge or general knowledge requirements were not examined.

The normal criterion for inclusion of STS items is that tasks matched to the STS item be performed by at least 20 percent of the first-job, first-enlistment, 5-skill level, or 7-skill level DAFSC personnel. Based upon this criterion, the STS was found to provide fairly comprehensive coverage of the work performed by personnel in the field. However, several exceptions were noted.

Table 17 lists examples of STS elements that have inventory tasks matched to them with less than 20 percent members performing the tasks. Due to the low performance of these tasks, the corresponding STS items should be considered for deletion. This recommendation is further supported by below average TE and TD ratings for some matching tasks. STS items 2d, 21(2), and 2q(2) relate to areas primarily performed by members of the Air Transportable Hospital Personnel job. The other items concern electronic particle counters and pathological microtomes. Career ladder training personnel should closely examine these and other unsupported items to decide if they should be retained in the STS. In making such decisions, all factors should be considered. Tasks that are critical elements of the career ladder, or those that are performed by certain specialty jobs may be justified for retention, even though they are not supported by survey data. For instance, most of the items relating to pathological microtomes are performed specifically by members of the Laboratory Equipment Maintenance Personnel job discussed previously. This fact may serve as justification for retaining these particular items in the STS.

Many areas of the AFSC 918X0 STS were identified for review of 3-skill level proficiency coding by training personnel and subject-matter experts. Table 18 shows some examples of these STS items. Items 2f, 5h(3), and 17e(4) are coded "2b", indicating they have task knowledge and performance proficiency requirements. However, the corresponding percent members performing tasks data only support these items to a task knowledge level (proficiency code "b"). Items 6f(4) and 17a(6) are currently coded for task knowledge and OJT respectively. But, the high percent members performing tasks data indicate these items have both task knowledge and performance requirements, and may be appropriately coded with a "1a" or "2b". Item 13h(2), Tools and Test Equipment, has a task knowledge code though the data indicate this item should be dashed and trained through OJT. The last example item is 17g(2), which is currently coded for OJT. However, this item is supported by data to a task knowledge level.

Table 19 displays tasks not matched to the STS having greater than 20 percent members performing them. The TE and TD ratings for some of these tasks are also significantly high. Data for these unreferenced tasks suggest they should be included in the STS. These tasks may already fit under an STS

TABLE 17

STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS	TASKS	PERCENT MEMBERS PERFORMING					TNG EMP*	TSK DIF**
		FIRST JOB (N=43)	FIRST ENLIST (N=182)	DAFSC 91850 (N=228)	DAFSC 91870 (N=144)			
0024 2d.	PERFORM TRIAGE	16	15	11	9	.78	5.93	
R1592	ASSIST IN TRIAGE							
0075 21(2).	PERFORM OPERATIONAL INSPECTION OF MEDICAL READINESS ASSEMBLAGE MANAGEMENT SYSTEMS (MEDRAMS)	0	3	3	6	1.28	5.73	
R1664	PERFORM OPERATIONAL INSPECTION OF MEDICAL READINESS ASSEMBLAGE MANAGEMENT SYSTEMS (MEDRAMS)							
0099 2q(2).	PERFORM OPERATIONAL INSPECTION OF STEAM GENERATORS	2	2	1	3	1.78	4.76	
R1660	PERFORM OPERATIONAL INSPECTIONS OF FIELD STEAM GENERATORS							
0695 20e(3).	PERFORM PREVENTIVE MAINTENANCE INSPECTION ON ELECTRONIC PARTICLE COUNTERS	12	9	16	16	3.08	5.57	
K914	PERFORM PREVENTIVE MAINTENANCE ON ELECTRONIC PARTICLE COUNTERS	9	13	15	8	2.02	4.60	
K903	PERFORM PREVENTIVE MAINTENANCE ON AUTODILUTION SYSTEMS	2	9	13	7	1.86	5.27	
K977	VERIFY CALIBRATION OF AUTODILUTION SYSTEMS							

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 17 (CONTINUED)

STS PERFORMANCE ELEMENTS REFLECTING
LOW PERCENT MEMBERS PERFORMING TASKS
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENTS	TASKS	PERCENT MEMBERS PERFORMING						TSK DIF**
		FIRST JOB (N=43)	FIRST ENLIST (N=182)	DAFSC 91850 (N=228)	DAFSC 91870 (N=144)	TNG EMP*		
0726 20j(2).	PERFORM OPERATIONAL INSPECTION OF PATHOLOGICAL MICROTOME	0	7	10	8	2.00	4.79	
K874	PERFORM OPERATIONAL INSPECTIONS OF CRYOSTATS							
K892	PERFORM OPERATIONAL INSPECTIONS OF PATHOLOGICAL MICROTOMES	7	16	16	8	1.72	4.54	
0727 20j(3).	PERFORM PREVENTIVE MAINTENANCE INSPECTION ON PATHOLOGICAL MICROTOME	0	6	8	6	1.69	4.70	
K911	PERFORM PREVENTIVE MAINTENANCE ON CRYOSTATS							
K929	PERFORM PREVENTIVE MAINTENANCE ON PATHOLOGICAL MICROTOMES	9	16	14	9	1.70	4.56	
0728 20j(4).	ISOLATE MALFUNCTIONS WITHIN PATHOLOGICAL MICROTOMES	2	5	9	5	1.77	5.63	
K836	ISOLATE MALFUNCTIONS WITHIN CRYOSTATS							
K854	ISOLATE MALFUNCTIONS WITHIN PATHOLOGICAL MICROTOMES	7	12	12	7	1.86	5.33	
0729 20j(5).	REPAIR MALFUNCTIONS WITHIN PATHOLOGICAL MICROTOMES	0	4	8	6	1.61	5.22	
K948	REPAIR CRYOSTATS							
K966	REPAIR PATHOLOGICAL MICROTOMES	9	13	14	7	1.81	5.40	

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 18

STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENT (WITH SELECTED SAMPLE TASKS)	PROF CODE	PERCENT MEMBERS PERFORMING		TE RATING*	TD RATING**
		1ST JOB (N=43)	1ST ENL (N=182)		
0034 2f. TRANSPORT THE SICK AND INJURED					
R1636 LOAD PATIENTS IN OR UNLOAD PATIENTS FROM PATIENT TRANSPORTATION VEHICLES	2b	40	35	.91	4.39
R1710 TRANSFER LITTER PATIENTS		35	32	.92	3.99
R1711 TRANSPORT EQUIPMENT OR PATIENTS		16	18	.84	3.83
0136 5h(3). MEASURE FLOW RATE					
I0660 VERIFY CALIBRATION OF FLOWMETERS	2b	23	41	2.31	4.44
0151 6f(4). INSPECT EQUIPMENT FOR COMPRESSED GAS HAZARDS					
G269 PERFORM OPERATIONAL INSPECTIONS OF OXYGEN REGULATORS	c	56	58	2.47	3.60
G304 PERFORM PREVENTIVE MAINTENANCE ON OXYGEN REGULATORS		51	54	1.81	3.66
G250 PERFORM OPERATIONAL INSPECTIONS OF COMPRESSED GAS OUTLETS		40	32	2.23	3.35
F179 PERFORM EQUIPMENT AND EQUIPMENT INTERFACE INSPECTIONS FOR HAZARDS, SUCH AS IONIZING RADIATION AND HAZARDOUS GASES		21	20	1.78	5.71
0237 13h(2). TOOLS AND TEST EQUIPMENT					
A8 DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	a	16	13	.55	6.17
A17 DRAFT BUDGET REQUIREMENTS		0	4	.41	6.78
C56 EVALUATE BUDGET REQUIREMENTS		0	3	.73	6.70

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 18 (CONTINUED)

STS ELEMENTS REQUIRING REVIEW OF 3-SKILL LEVEL PROFICIENCY CODES

STS ELEMENT (WITH SELECTED SAMPLE TASKS)	PROF CODE	PERCENT MEMBERS PERFORMING			TE RATING*	TD RATING**
		1ST JOB (N=43)	1ST ENL (N=182)			
0284 17a(6). INSTALL DENTAL OPERATING SYSTEMS	-	56	57		2.91	5.54
M1120 INSTALL DENTAL EQUIPMENT		30	41		2.95	5.84
M1121 INSTALL DENTAL OPERATING DEVICES		7	5		2.08	4.94
R1607 INSTALL FIELD DENTAL OPERATING UNITS						
0311 17e(4). PERFORM SYSTEM CALIBRATION OF INHALATION THERAPY UNITS	2b	23	32		3.13	6.06
I618 CALIBRATE INHALATION THERAPY EQUIPMENT		28	34		2.47	5.74
I619 CALIBRATE OXYGEN BLENDERS		23	41		2.31	4.44
I660 VERIFY CALIBRATION OF FLOWMETERS		26	32		2.95	5.48
I661 VERIFY CALIBRATION OF INHALATION THERAPY EQUIPMENT		23	35		2.88	4.85
I662 VERIFY CALIBRATION OF OXYGEN BLENDERS		7	8		1.34	5.53
I617 CALIBRATE ASSISTOR CONTROLLERS		5	7		1.50	5.28
I659 VERIFY CALIBRATION OF ASSISTOR CONTROLLERS						
0335 17g(2). PERFORM OPERATIONAL INSPECTION OF HYDROTHERAPY UNITS	-	21	34		1.98	3.93
P1500 PERFORM OPERATIONAL INSPECTIONS OF HYDROTHERAPY SYSTEMS		12	21		1.55	4.26
P1538 VERIFY CALIBRATION OF HYDROTHERAPY SYSTEMS						

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 19

TASKS WITH MORE THAN 20 PERCENT MEMBERS PERFORMING NOT MATCHED TO STS ELEMENTS
(PERCENT MEMBERS PERFORMING)

TASKS	PERCENT MEMBERS PERFORMING					TNG EMP*	TSK DIF**
	FIRST JOB (N=43)	FIRST ENLIST (N=182)	DAFSC 91850 (N=228)	DAFSC 91870 (N=144)			
C63	37	52	56	61	3.41	5.05	
F187	63	60	60	50	3.69	5.05	
G195	81	79	78	63	3.53	4.07	
G203	70	79	77	65	4.95	5.12	
J683	51	52	46	35	3.44	5.18	
M1150							
M1236	53	52	54	44	3.38	5.28	
O1384	60	60	58	46	3.39	4.97	
O1385	63	66	57	41	4.92	6.14	
O1387	49	58	51	37	4.48	5.61	
O1389	56	64	56	37	3.97	5.02	
O1420	49	59	55	36	3.50	4.85	
O1424	53	58	51	26	4.11	4.98	
E148	56	57	54	32	3.77	3.97	
F169	72	69	75	85	3.03	3.82	
G202	70	63	63	43	2.16	3.25	
I620	81	79	78	59	3.13	3.31	
I640	47	52	49	34	3.16	5.25	
J752	47	52	44	30	3.14	4.71	
K894	58	55	45	31	2.78	4.39	
K931	51	52	48	33	2.47	4.34	
K935	63	54	48	32	2.42	4.23	
K999	60	50	46	33	2.56	4.35	
L1010	44	52	45	24	2.33	4.64	
L1033	49	62	58	40	2.86	5.25	
L1042	65	60	55	43	2.77	4.51	
L1056	53	66	59	34	3.13	4.35	
	67	72	68	45	2.33	3.70	

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

paragraph but simply were not referenced to one, or they may be functions not currently reflected in any STS element. The data indicates a review of the STS is necessary for the possible inclusion of these tasks in the next STS revision.

Plan of Instruction (POI)

The POI for Course J3ABR91830-000, dated 12 January 1988, was reviewed with the assistance of the technical school personnel at Sheppard Technical Training Center. Job inventory tasks were matched to the POI to provide data on TE, TD, and percent first-job and first-enlistment personnel performing tasks. In accordance with ATCR 52-22, and for cost-effectiveness reasons, if the probability of first-enlistment performance for a POI objective falls below 30 percent, then that objective should not be taught in a resident training course without further justification. For example, it may be justifiable to retain a POI objective having less than 30 percent members performing tasks, based upon high TE and TD ratings for those tasks matched to the objective. Critical or safety items may also be justified for formal training. The ATI may assist training personnel in evaluating POI objectives. For a more complete explanation of ATI, see the Training Emphasis and Task Difficulty section in TRAINING ANALYSIS.

A review of the tasks matched to the POI revealed a few unmatched areas, mostly in blocks I through IV. For those blocks and units of instruction with matching tasks, the majority were supported by high TE, TD, and percent members performing data. However, analysis did show many POI blocks not supported by survey data, particularly in units III 4, VI 4, and VII 3. Table 20 displays examples of POI objectives that have less than 30 percent members performing tasks for first-job and first-enlistment personnel. These example objectives are listed below:

- I 7m. Select correct responses about repair of basic medical systems two out of three times
- III 4m. Given an electronic particle counter and manufacturer's literature, repair one instructor inserted malfunction
- V 7b. Identify requirements for tools and test equipment with 70 percent accuracy
- VI 1b. Identify facts about the completion of preprocurement survey with 70 percent accuracy
- VI 4n. Given an x-ray tilt table, necessary test equipment and procedures, adjust selected components to specifications stated in the adjust procedures

TABLE 20

TASKS REFERENCED TO POI WITH LESS THAN 30% MEMBERS PERFORMING

TASKS	<u>TE*</u>	<u>ATI</u>	<u>1ST JOB</u>	<u>1ST ENL</u>	<u>TSK DIF**</u>
I 7m. SELECT CORRECT RESPONSES ABOUT REPAIR OF BASIC MEDICAL SYSTEMS TWO OUT OF THREE TIMES	2.75	7	19	24	5.92
K974 REPAIR TISSUE PROCESSORS					
III 4m. GIVEN AN ELECTRONIC PARTICLE COUNTER AND MANUFACTURER'S LITERATURE, REPAIR ONE INSTRUCTOR-INSERTED MALFUNCTION					
K951 REPAIR ELECTRONIC PARTICLE COUNTERS	3.23	7	9	7	6.97
V 7b. IDENTIFY REQUIREMENTS FOR TOOLS AND TEST EQUIPMENT WITH 70 PERCENT ACCURACY					
A8 DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	.55	2	16	13	6.17
VI 1b. IDENTIFY FACTS ABOUT THE COMPLETION OF PREPROCUREMENT SURVEY WITH 70 PERCENT ACCURACY					
H401 COMPLETE X-RAY PREPROCUREMENT SURVEYS	1.38	2	0	3	7.77

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 20 (CONTINUED)

TASKS REFERENCED TO POI WITH LESS THAN 30% MEMBERS PERFORMING

TASKS	TE*	ATI	1ST JOB	1ST ENL	TSK DIF**
VI 4n. GIVEN AN X-RAY TILT TABLE, NECESSARY TEST EQUIPMENT AND PROCEDURES, ADJUST SELECTED COMPONENTS TO SPECIFICATIONS STATED IN THE ADJUST PROCEDURES	2.98	7	21	25	5.55
H371 ADJUST TILT TABLES					
VI 6b. GIVEN A MOBILE FLUOROSCOPY UNIT AND MANUFACTURER'S LITERATURE, CALIBRATE SELECTED CIRCUITS ACCORDING TO MANUFACTURER'S SPECIFICATIONS	2.28 2.20	7 7	5 5	9 8	7.14 6.50
VII 3h. GIVEN AN ANESTHESIA UNIT AND MANUFACTURER'S LITERATURE, REPAIR ONE INSTRUCTOR-INSERTED MALFUNCTION	2.98	7	19	24	5.99
L1079 REPAIR ANESTHESIA SYSTEMS, OTHER THAN DENTAL OR FIELD					
VII 3t. GIVEN A PEDIATRIC VENTILATOR AND MANUFACTURER'S LITERATURE, REPAIR ONE INSTRUCTOR-INSERTED MALFUNCTION	3.19	7	9	20	5.96
01457 REPAIR PEDIATRIC VENTILATORS					

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

- VI 6b. Given a mobile fluoroscopy unit and manufacturer's literature, calibrate selected circuits according to manufacturer's specifications
- VII 3h. Given an anesthesia unit and manufacturer's literature, repair one instructor-inserted malfunction
- VII 3t. Given a pediatric ventilator and manufacturer's literature, repair one instructor-inserted malfunction

The examples shown involve repairing basic medical systems and electronic particle counters, identifying tools and test requirements, completing preprocurement surveys, calibrating and adjusting x-ray systems, and repairing anesthesia and ventilator systems. These objectives have low (below 8) ATI ratings (see Table 20), based upon low percent members performing tasks or TE data. These low ratings suggest that these items should be trained by OJT, and deleted from the POI. It is recommended that these and other unsupported objectives be reviewed for substantiation.

Further review of the data revealed several tasks not referenced to the POI having more than 30 percent members performing tasks and high TE ratings. Some of these tasks are:

- evaluate operator maintenance
- perform electrical outlet ground loop impedance and integrity tests
- calibrate suction/pressure systems
- isolate malfunctions within suction/pressure systems
- isolate malfunctions within ultrasonic cleaning systems, other than dental
- perform preventive maintenance on sterilizers

The combination of high TE and percent members performing data, and correspondingly high ATI ratings, suggest that these tasks should be considered for inclusion in formal school training. A more comprehensive list of these unreferenced tasks can be found in Table 21.

JOB SATISFACTION ANALYSIS

An important part of the OSR process involves the analysis of job satisfaction data. These data can be used by career ladder managers to gain a better understanding of those factors affecting job performance of AFSC 918X0 personnel. This survey compared job satisfaction indicators on three levels. Table 22 displays job satisfaction indicators for AFSC 918X0 TAFMS groups and

TABLE 21

TASKS NOT REFERENCED TO POI WITH GREATER THAN 30% MEMBERS PERFORMING

TASK	TE*	ATI	1ST JOB	1ST ENL	TSK DIF**
C63	3.41	18	37	52	5.05
F177	3.64	18	67	63	4.17
F187	3.69	18	63	60	5.05
G195	3.53	18	81	79	4.07
G203	4.95	18	70	79	5.12
G204	3.36	18	67	75	4.05
G235	3.77	18	74	73	4.39
G238					
G246	3.97	18	44	53	5.44
G255	3.58	18	72	69	4.07
G277	3.38	18	93	88	3.01
G307	3.27	18	58	60	4.05
G326	4.94	18	88	90	4.96
G332	3.47	18	77	79	4.87
G343	3.36	18	49	64	5.60
G363	4.23	18	67	68	5.59
	4.72	18	84	81	4.82

* Training Emphasis (TE) has an average of 2.13 and a Standard Deviation of 1.11 (High TE = 3.24)

** Task Difficulty (TD) has an average of 5.0 and a Standard Deviation of 1.0

TABLE 22

COMPARISON OF JOB SATISFACTION INDICATORS FOR 918X0 AND COMPARATIVE
SAMPLE GROUP
(PERCENT MEMBERS RESPONDING)*

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	1988 (N=182)	COMP SAMPLE** (N=618)	1988 (N=68)	COMP SAMPLE** (N=181)	1988 (N=190)	COMP SAMPLE** (N=375)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	88	86	82	79	89	76
SO-SO	9	9	9	14	6	15
DULL	2	4	9	5	5	7
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	97	87	88	83	90	82
LITTLE OR NOT AT ALL	3	12	12	17	8	18
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	93	90	91	83	87	82
LITTLE OR NOT AT ALL	5	9	9	17	13	18
<u>SENSE OF ACCOMPLISHMENT:</u>						
SATISFIED	85	77	84	77	81	65
NEUTRAL	8	9	6	7	6	10
DISSATISFIED	7	13	10	19	13	25
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	52	60	53	67	65	70
NO, OR PROBABLY NO	48	38	46	32	11	9
PLAN TO RETIRE	1	0	0	0	23	19

* Columns may not add up to 100 percent due to rounding

** Comparative sample of Medical career ladders surveyed in 1987 (Includes AFSCs 902X2, 912X5/A, and 919X0)

a comparative sample of other medical career ladders surveyed in 1987. Table 23 compares the expressed job interest, utilization of talents and training, and reenlistment intentions for the current survey and the previous survey done in 1982. And finally, job satisfaction data for the identified specialty jobs are shown in Table 24.

Overall, these tables reflect very high satisfaction within the AFSC 918X0 career ladder. Across the three TAFMS groups, indicators did not vary significantly. This suggests that personnel who currently have low experience in their job, should remain satisfied as they become more experienced NCOs. When compared to a comparative sample of medical career ladders surveyed in 1987, AFSC 918X0 personnel reflect higher job satisfaction indicators for all TAFMS groups, except for one indicator. The reenlistment intentions of the AFSC 918X0 personnel were somewhat less favorable than those of other medical career ladders (see Table 22). A comparison of data with the 1982 survey showed an increase in positive responses for first-enlistment and career (97 months TAFMS) groups. The indicators for the second-enlistment members showed a slight increase in perceived utilization of training, and a slight decrease for the other satisfaction indicators (see Table 23). Job satisfaction data found in Table 24 reflects high satisfaction for all specialty job groups, except for the Maintenance Generalists. Of the six members in this group, three of them (50 percent) reported low job interest and perceived utilization of talents and training.

An interesting trend was noted when examining the reenlistment intentions for the TAFMS and specialty job groups. Table 22 indicates that 48 percent of the first-enlistment group, and 46 percent of the second-enlistment group, do not plan to reenlist. These low reenlistment figures correspond to reenlistment data for the Core Maintenance Specialists job, where most of the first and second-term personnel were grouped together. Career ladder training managers have suggested that these reenlistment figures are low due to exceptional job opportunities being available outside the Air Force. With the exception of reenlistment indicators, AFSC 918X0 personnel appear to be satisfied with their work.

TABLE 23

COMPARISON OF JOB SATISFACTION INDICATORS FOR CURRENT SURVEY
AND 1982 SURVEY ACROSS TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)**

	1-48 MONTHS TAFMS		49-96 MONTHS TAFMS		97+ MONTHS TAFMS	
	1988 (N=182)	1982 (N=117)	1988 (N=68)	1982 (N=87)	1988 (N=190)	1982 (N=174)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	88	86	82	90	89	85
SO-SO	9	8	9	5	6	5
DULL	2	4	9	5	5	8
<u>PERCEIVED UTILIZATION OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY	97	90	88	93	90	90
LITTLE OR NOT AT ALL	3	9	12	7	8	10
<u>PERCEIVED UTILIZATION OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY	93	90	91	86	87	90
LITTLE OR NOT AT ALL	5	9	9	14	13	10
<u>REENLISTMENT INTENTIONS:</u>						
YES, OR PROBABLY YES	52	44	53	61	65	55
NO, OR PROBABLY NO	48	55	46	39	11	10
PLAN TO RETIRE	1	*	0	*	23	35

* Data was not available on the retirement plans of those personnel surveyed in 1982.

** Columns may not add up to 100 percent due to rounding.

TABLE 24

JOB SATISFACTION DATA FOR CLUSTERS AND INDEPENDENT JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	BIOMEDICAL SUPERVISORY CLUSTER	JOB TYPES			TECHNICAL TRAINING PERSONNEL
		MAINTENANCE SUPERINTENDENTS	FIRST-LINE SUPERVISORS	FACILITIES MANAGERS	
<u>EXPRESSED JOB INTEREST:</u>					
INTERESTING	79	89	50	80	77
SO-SO	8	6	17	0	23
DULL	10	0	33	20	0
<u>PERCEIVED UTILIZATION OF TALENTS:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	82 15	100 0	50 50	80 20	82 8
<u>PERCEIVED UTILIZATION OF TRAINING:</u>					
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	82 18	100 0	50 50	60 40	82 8
<u>REENLISTMENT INTENTIONS:</u>					
YES, OR PROBABLY YES	54	50	50	60	85
NO, OR PROBABLY NO	13	17	0	40	0
PLAN TO RETIRE	31	28	50	0	15

* Columns may not add up to 100 percent due to rounding or a lack of response

TABLE 24 (CONTINUED)

JOB SATISFACTION DATA FOR CLUSTERS AND INDEPENDENT JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	JOB TYPES		
	X-RAY MAINTENANCE CLUSTER	X-RAY NCOICs	X-RAY TECHNICIANS
<u>EXPRESSED JOB INTEREST:</u>			
INTERESTING	89	80	100
SO-SO	11	20	0
DULL	0	0	0
<u>PERCEIVED UTILIZATION OF TALENTS:</u>			
FAIRLY WELL TO PERFECTLY	100	100	100
LITTLE OR NOT AT ALL	0	0	0
<u>PERCEIVED UTILIZATION OF TRAINING:</u>			
FAIRLY WELL TO PERFECTLY	84	80	100
LITTLE OR NOT AT ALL	16	20	0
<u>REENLISTMENT INTENTIONS:</u>			
YES, OR PROBABLY YES	63	40	75
NO, OR PROBABLY NO	11	0	13
PLAN TO RETIRE	26	60	12

* Columns may not add up to 100 percent due to rounding or a lack of response

TABLE 24 (CONTINUED)

JOB SATISFACTION DATA FOR CLUSTERS AND INDEPENDENT JOB TYPES
(PERCENT MEMBERS RESPONDING)*

	BIOMED MAINT SPECL CLUSTER	JOB TYPES							
		CORE MAINT SPECLS	ADMIN AND SUP NCOS	AIR TRANSPORTABLE HOSP PERS	LAB EQUIP MAINT PERS	INTENSIVE AND CARDIAC CARE UNIT MAINT PERSONNEL			
<u>EXPRESSED JOB INTEREST:</u>									
INTERESTING	91	92	83	81	100	60			
SO-SO	6	5	8	11	0	20			
DULL	3	2	8	7	0	20			
<u>PERCEIVED UTILIZATION OF TALENTS:</u>									
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	95 5	95 4	100 0	93 7	100 0	80 20			
<u>PERCEIVED UTILIZATION OF TRAINING:</u>									
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	93 6	93 6	100 0	89 11	83 17	100 0			
<u>REENLISTMENT INTENTIONS:</u>									
YES, OR PROBABLY YES	57	55	75	74	67	40			
NO, OR PROBABLY NO	36	39	0	19	0	60			
PLAN TO RETIRE	7	6	25	7	17	0			

* Columns may not add up to 100 percent due to rounding or a lack of response

IMPLICATIONS

Except for the addition of facilities management duties, the Biomedical Equipment Maintenance career ladder has not significantly changed in tasks and jobs performed since the previous survey in 1982. Career ladder progression is atypical up to the 7-skill level, where the job remains very technical. However, the 9- and CEM Code skill-level members perform a great deal of supervision reflecting a more typical progression pattern. With few exceptions, the AFR 39-1 Specialty Descriptions are comprehensive of the various jobs being performed at each skill level. Overall, the career ladder members indicate very high job satisfaction, though the reenlistment intentions reflect some problem areas that should be addressed.

Analysis of both the STS and POI training documents showed many areas not supported by survey data. Some items may be supportable if they are critical to job performance, or if they are performed by particular job groups within the career ladder. There were some STS 3-skill level proficiency codes identified for possible revisions. Also, some tasks well supported by survey data were not matched to the STS or POI, suggesting they should be included in future revisions of the training documents.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY
CAREER LADDER STRUCTURE GROUPS

TABLE A1

REPRESENTATIVE TASKS PERFORMED BY BIOMEDICAL
SUPERVISORY CLUSTER PERSONNEL
(STG020)

GROUP SIZE: 39
 PREDOMINATE PAYGRADES: E6-E7
 PERCENT OF SAMPLE: 9%

AVERAGE TICF: 123 MONTHS
 AVERAGE TAFMS: 206 MONTHS
 AVERAGE # TASKS PERFORMED: 105

TASKS	PERCENT MEMBERS PERFORMING
B35 COUNSEL PERSONNEL	87
E118 DRAFT OUTGOING CORRESPONDENCE	85
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	85
C59 EVALUATE INSPECTION REPORTS FINDINGS	85
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	82
A9 DETERMINE WORK PRIORITIES	82
C80 WRITE APR	82
A5 COORDINATE MAINTENANCE FUNCTIONS WITH CIVIL ENGINEERING OR OTHER MAINTENANCE ACTIVITIES	82
C64 EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS	79
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	77
E117 COMPILE DATA FOR REPORTS	74
C58 EVALUATE DIRECTIVES OR OPERATING PROCEDURES	74
A19 ESTABLISH ORGANIZATIONAL POLICIES	72
A31 SCHEDULE PERSONNEL FOR SCHOOLS, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	72
B43 IMPLEMENT SAFETY OR SECURITY PROGRAMS	69
E149 REVIEW OR MAKE ENTRIES ON AF FORMS 601 (EQUIPMENT ACTION REQUEST)	69
A28 PLAN WORK ASSIGNMENTS	69
B50 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALISTS (AFSC 91850)	67
E141 PARTICIPATE IN HOSPITAL SAFETY COMMITTEE ACTIVITIES	67
B42 IMPLEMENT QUALITY CONTROL PROGRAMS	67
C61 EVALUATE MAINTENANCE OR USE OF WORKSPACE, EQUIPMENT, OR SUPPLIES	67
C82 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	64
A22 ESTABLISH WORK METHODS OR CONTROLS	64
A24 PLAN EQUIPMENT INSTALLATIONS OR MODIFICATIONS	64
C55 ANALYZE WORKLOAD REQUIREMENTS	64
C68 EVALUATE SAFETY OR SECURITY PROGRAMS	62
E126 MAINTAIN GENERAL CORRESPONDENCE AND SUSPENSE FILES	62
B52 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE TECHNICIANS (AFSC 91870)	54

TABLE A2

REPRESENTATIVE TASKS PERFORMED BY MAINTENANCE SUPERINTENDENTS
(STG128)

GROUP SIZE: 18
 PREDOMINATE PAYGRADES: E7-E8
 PERCENT OF SAMPLE: 4%

AVERAGE TICF: 139 MONTHS
 AVERAGE TAFMS: 228 MONTHS
 AVERAGE # TASKS PERFORMED: 98

TASKS	PERCENT MEMBERS PERFORMING
E118 DRAFT OUTGOING CORRESPONDENCE	100
C80 WRITE APR	100
A31 SCHEDULE PERSONNEL FOR SCHOOLS, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	100
C59 EVALUATE INSPECTION REPORTS FINDINGS	100
A35 COUNSEL PERSONNEL	100
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	94
E117 COMPILE DATA FOR REPORTS	94
A19 ESTABLISH ORGANIZATIONAL POLICIES	94
C64 EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS	94
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	94
A30 SCHEDULE LEAVES	94
B52 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE TECHNICIANS (AFSC 91870)	89
C82 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	89
C58 EVALUATE DIRECTIVES OR OPERATING PROCEDURES	89
C74 INDORSE AIRMAN PERFORMANCE REPORTS (APR)	89
A9 DETERMINE WORK PRIORITIES	89
C56 EVALUATE BUDGET REQUIREMENTS	89
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	89
A3 COORDINATE EQUIPMENT PROCUREMENT WITH DIRECTOR OF MEDICAL LOGISTICS MANAGEMENT OR BASE PROCUREMENT OFFICE	89
B42 IMPLEMENT QUALITY CONTROL PROGRAMS	89
A5 COORDINATE MAINTENANCE FUNCTIONS WITH CIVIL ENGINEERING OR OTHER MAINTENANCE ACTIVITIES	89
A8 DETERMINE LOGISTICS REQUIREMENTS, SUCH AS SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	89
E149 REVIEW OR MAKE ENTRIES ON AF FORMS 601 (EQUIPMENT ACTION REQUEST)	83
C55 ANALYZE WORKLOAD REQUIREMENTS	83
A17 DRAFT BUDGET REQUIREMENTS	83
E141 PARTICIPATE IN HOSPITAL SAFETY COMMITTEE ACTIVITIES	83
B50 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALISTS (AFSC 91850)	72

TABLE A3

REPRESENTATIVE TASKS PERFORMED BY FIRST-LINE SUPERVISORS
(STG105)

GROUP SIZE: 6
 PREDOMINATE PAYGRADES: E6-E7
 PERCENT OF SAMPLE: 1%

AVERAGE TICF: 120 MONTHS
 AVERAGE TAFMS: 200 MONTHS
 AVERAGE # TASKS PERFORMED: 183

TASKS	PERCENT MEMBERS PERFORMING
E141 PARTICIPATE IN HOSPITAL SAFETY COMMITTEE ACTIVITIES	100
S1749 REVIEW PROJECT DRAWINGS OR SPECIFICATIONS FOR MEDICAL CONSTRUCTION PROJECTS	100
A5 COORDINATE MAINTENANCE FUNCTIONS WITH CIVIL ENGINEERING OR OTHER MAINTENANCE ACTIVITIES	100
B43 IMPLEMENT SAFETY OR SECURITY PROGRAMS	100
S1719 ASSIST BCE IN MEDICAL MILITARY CONSTRUCTION PROGRAM ITEM FORMULATION	100
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	100
S1729 COORDINATE PROJECT ALTERATION REQUIREMENTS WITH MEDICAL AND BCE PERSONNEL	100
E140 PARTICIPATE IN HOSPITAL EQUIPMENT REVIEW ALLOWANCE AND AUTHORIZATION (ERAA) ACTIVITIES	100
S1727 COORDINATE MAINTENANCE OF FACILITIES WITH OTHER AGENCIES	100
S1723 CONDUCT FOLLOWUP INSPECTIONS OF MAINTENANCE OR REPAIR OF MEDICAL ACTIVITIES	100
A19 ESTABLISH ORGANIZATIONAL POLICIES	100
S1728 COORDINATE ON CONSTRUCTION DRAWINGS TO INSURE THEY MEET MTF NEEDS	100
S1720 COMPILE WORK REVISION DESCRIPTIONS OR JUSTIFICATIONS	100
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
F172 INSPECT FACILITIES FOR ADEQUATE UTILITIES	100
S1718 ADVISE HOSPITAL EXECUTIVE STAFF OF FACILITY EQUIPMENT REQUIREMENTS	100
C82 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	100
E139 MAKE EQUIPMENT REPLACEMENT RECOMMENDATIONS BASED ON EQUIPMENT REPLACEMENT SCHEDULE LISTINGS	100
C68 EVALUATE SAFETY OR SECURITY PROGRAMS	83
E118 DRAFT OUTGOING CORRESPONDENCE	83
S1739 MAINTAIN SERVICE OR MINOR CONSTRUCTION REQUEST LOGS	83
A27 PLAN SAFETY OR SECURITY PROGRAMS	83
S1736 EVALUATE MAINTENANCE OR REPAIR REQUESTS RECEIVED FROM WORKCENTERS	83
S1721 CONDUCT FACILITY FIRE SAFETY AND SECURITY INSPECTIONS	83

TABLE A4

REPRESENTATIVE TASKS PERFORMED BY FACILITIES MANAGERS
(STG074)

GROUP SIZE: 5
 PREDOMINATE PAYGRADES: E5-E6
 PERCENT OF SAMPLE: 1%

AVERAGE TICF: 101 MONTHS
 AVERAGE TAFMS: 150 MONTHS
 AVERAGE # TASKS PERFORMED: 55

<u>TASKS</u>	<u>PERCENT MEMBERS PERFORMING</u>
S1737 MAINTAIN APPROVED WORK REQUEST STATUS LOGS	100
S1750 TRANSMIT SERVICE CALLS TO BCE	100
S1727 COORDINATE MAINTENANCE OF FACILITIES WITH OTHER AGENCIES	100
S1721 CONDUCT FACILITY FIRE SAFETY AND SECURITY INSPECTIONS	100
S1741 PERFORM SERVICE CALL FOLLOWUPS	100
S1723 CONDUCT FOLLOWUP INSPECTIONS OF MAINTENANCE OR REPAIR OF MEDICAL ACTIVITIES	100
S1734 DIRECT MAINTENANCE OF MEDICAL FACILITY GROUNDS	100
S1738 MAINTAIN MEDICAL FACILITY GROUND SAFETY STATISTICS	100
S1748 REVIEW AND VERIFY EXPENDITURES IN CIVIL ENGINEERS (CE) REIMBURSABLES	100
S1731 DETERMINE FACILITY CUSTODIAL SERVICE REQUIREMENTS	100
S1740 PERFORM INSPECTIONS OF CUSTODIAL SERVICES	100
S1718 ADVISE HOSPITAL EXECUTIVE STAFF OF FACILITY EQUIPMENT REQUIREMENTS	100
S1717 ADVISE BASE CIVIL ENGINEERS (BCE) REGARDING AVAILABILITY OF PROJECT FUNDS	100
S1736 EVALUATE MAINTENANCE OR REPAIR REQUESTS RECEIVED FROM WORKCENTERS	80
S1747 PREPARE TELECOMMUNICATIONS WORK ORDERS	80
S1739 MAINTAIN SERVICE OR MINOR CONSTRUCTION REQUEST LOGS	80
S1725 COORDINATE ACCIDENT PREVENTION PROGRAMS WITH MEDICAL FACILITY COMMANDER AND BASE GROUND SAFETY OFFICE	80
S1722 CONDUCT FIRE DRILLS	80
S1724 CONTACT APPROPRIATE AGENCIES TO CORRECT FIRE HAZARD DISCREPANCIES	80
S1746 PREPARE SINGLE LINE DRAWINGS TO ACCOMPANY WORK ORDER REQUESTS	60

TABLE A5

REPRESENTATIVE TASKS PERFORMED BY TECHNICAL TRAINING PERSONNEL
(STG009)

GROUP SIZE: 13
 PREDOMINATE PAYGRADES: E5-E6
 PERCENT OF SAMPLE: 3%

AVERAGE TICF: 87 MONTHS
 AVERAGE TAFMS: 120 MONTHS
 AVERAGE # TASKS PERFORMED: 61

TASKS	PERCENT MEMBERS PERFORMING
D83 ADMINISTER TESTS	92
D110 SCORE TESTS	92
D91 DEVELOP LESSON PLANS	85
D88 COUNSEL TRAINEES ON TRAINING PROGRESS	85
D114 WRITE TEST QUESTIONS	85
D86 CONDUCT RESIDENT COURSE CLASSROOM TRAINING	77
B35 COUNSEL PERSONNEL	69
D107 PREPARE TRAINING AIDS	69
D109 PROCURE TRAINING AIDS, SPACE, OR EQUIPMENT	46

TABLE A6

REPRESENTATIVE TASKS PERFORMED BY X-RAY MAINTENANCE CLUSTER
(STGO47)

GROUP SIZE: 19
 PREDOMINATE PAYGRADE: E5
 PERCENT OF SAMPLE: 4%

AVERAGE TICF: 87 MONTHS
 AVERAGE TAFMS: 139 MONTHS
 AVERAGE # TASKS PERFORMED: 200

TASKS	PERCENT MEMBERS PERFORMING
H610 VERIFY CALIBRATION OF X-RAY GENERATORS	100
H396 CALIBRATE X-RAY GENERATORS	100
H477 PERFORM OPERATIONAL INSPECTIONS OF FLUOROIMAGING SYSTEMS	100
H496 PERFORM OPERATIONAL INSPECTIONS OF X-RAY GENERATORS	100
H493 PERFORM OPERATIONAL INSPECTIONS OF TILT TABLES	100
H488 PERFORM OPERATIONAL INSPECTIONS OF SPOT FILM DEVICES	100
H499 PERFORM OPERATIONAL INSPECTIONS OF X-RAY TABLES	100
H454 ISOLATE MALFUNCTIONS WITHIN X-RAY GENERATORS	95
H605 VERIFY CALIBRATION OF SPOT FILM DEVICES	95
H380 CALIBRATE COLLIMATOR/BEAM LIMITING DEVICES	95
H481 PERFORM OPERATIONAL INSPECTIONS OF MOBILE RADIOGRAPHIC X-RAY SYSTEMS	95
H500 PERFORM OPERATIONAL INSPECTIONS OF X-RAY TUBE SUSPENSION SYSTEMS	95
H504 PERFORM POSTCALIBRATION RADIATION INSPECTIONS (PCRI) OF X-RAY EQUIPMENT	89
H435 ISOLATE MALFUNCTIONS WITHIN FLUOROIMAGING SYSTEMS	89
H471 PERFORM OPERATIONAL INSPECTIONS OF COLLIMATOR/BEAM LIMITING DEVICES	89
H457 ISOLATE MALFUNCTIONS WITHIN X-RAY TABLES	89
H387 CALIBRATE MOBILE RADIOGRAPHIC X-RAY SYSTEMS	89
H557 REPAIR COLLIMATOR/BEAM LIMITING DEVICES	89
H447 ISOLATE MALFUNCTIONS WITHIN SPOT FILM DEVICES	89
H428 ISOLATE MALFUNCTIONS WITHIN COLLIMATOR/BEAM LIMITING DEVICES	84
H582 REPAIR X-RAY GENERATORS	84
H384 CALIBRATE FLUOROIMAGING SYSTEMS	84
H513 PERFORM PREVENTIVE MAINTENANCE ON COLLIMATOR/BEAM LIMITING DEVICES	84
H579 REPAIR TILT TABLES	84
H451 ISOLATE MALFUNCTIONS WITHIN TILT TABLES	84
H539 PERFORM PREVENTIVE MAINTENANCE ON X-RAY GENERATORS	84
H575 REPAIR SPOT FILM DEVICES	84
H542 PERFORM PREVENTIVE MAINTENANCE ON X-RAY TABLES	84
H592 VERIFY CALIBRATION OF BATTERY-OPERATED MOBILE DIAGNOSTIC X-RAY SYSTEMS	84
H395 CALIBRATE THREE-PHASE X-RAY SYSTEMS	79
H450 ISOLATE MALFUNCTIONS WITHIN THREE-PHASE X-RAY SYSTEMS	79
H609 VERIFY CALIBRATION OF THREE-PHASE X-RAY SYSTEMS	79

TABLE A7

REPRESENTATIVE TASKS PERFORMED BY X-RAY NCOICs
(STG147)

GROUP SIZE: 5	AVERAGE TICF: 143 MONTHS
PREDOMINATE PAYGRADES: E7-E9	AVERAGE TAFMS: 215 MONTHS
PERCENT OF SAMPLE: 1%	AVERAGE # TASKS PERFORMED: 271

TASKS	PERCENT MEMBERS PERFORMING
E118 DRAFT OUTGOING CORRESPONDENCE	100
A6 COORDINATE MEDICAL EQUIPMENT REPAIR CENTER (MERC) ACTIVITIES WITH OTHER MEDICAL FACILITIES	100
C55 ANALYZE WORKLOAD REQUIREMENTS	100
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	100
A9 DETERMINE WORK PRIORITIES	100
C80 WRITE APR	100
C72 EVALUATE WORK SCHEDULES	100
B46 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
C59 EVALUATE INSPECTION REPORTS FINDINGS	100
C74 INDORSE AIRMAN PERFORMANCE REPORTS (APR)	100
C58 EVALUATE DIRECTIVES OR OPERATING PROCEDURES	100
A26 PLAN OR PREPARE BRIEFINGS	100
B52 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE TECHNICIANS (AFSC 91870)	100
C67 EVALUATE QUALITY CONTROL PROCEDURES	100
C68 EVALUATE SAFETY OR SECURITY PROGRAMS	100
H384 CALIBRATE FLUOROIMAGING SYSTEMS	100
H396 CALIBRATE X-RAY GENERATORS	100
A28 PLAN WORK ASSIGNMENTS	100
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	100
A31 SCHEDULE PERSONNEL FOR SCHOOLS, TEMPORARY DUTY (TDY) ASSIGNMENTS, OR NONTECHNICAL TRAINING	100
A20 ESTABLISH PERFORMANCE STANDARDS	100
C64 EVALUATE PERSONNEL FOR COMPLIANCE WITH PERFORMANCE STANDARDS	100
A22 ESTABLISH WORK METHODS OR CONTROLS	100
C82 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS, OTHER THAN TRAINING REPORTS	100
H387 CALIBRATE MOBILE RADIOGRAPHIC X-RAY SYSTEMS	100
A25 PLAN LAYOUT OF FACILITIES	100
H391 CALIBRATE SPOT FILM DEVICES	100
B34 CONDUCT STAFF MEETINGS	80

TABLE A8

REPRESENTATIVE TASKS PERFORMED BY X-RAY TECHNICIANS
(STG148)

GROUP SIZE: 8
 PREDOMINATE PAYGRADES: E3-E6
 PERCENT OF SAMPLE: 2%

AVERAGE TICF: 65 MONTHS
 AVERAGE TAFMS: 95 MONTHS
 AVERAGE # TASKS PERFORMED: 204

TASKS	PERCENT MEMBERS PERFORMING
H450 ISOLATE MALFUNCTIONS WITHIN THREE-PHASE X-RAY SYSTEMS	100
H435 ISOLATE MALFUNCTIONS WITHIN FLUOROIMAGING SYSTEMS	100
H395 CALIBRATE THREE-PHASE X-RAY SYSTEMS	100
H609 VERIFY CALIBRATION OF THREE-PHASE X-RAY SYSTEMS	100
H454 ISOLATE MALFUNCTIONS WITHIN X-RAY GENERATORS	100
H457 ISOLATE MALFUNCTIONS WITHIN X-RAY TABLES	100
H578 REPAIR THREE-PHASE X-RAY SYSTEMS	100
H428 ISOLATE MALFUNCTIONS WITHIN COLLIMATOR/BEAM LIMITING DEVICES	100
H610 VERIFY CALIBRATION OF X-RAY GENERATORS	100
H447 ISOLATE MALFUNCTIONS WITHIN SPOT FILM DEVICES	100
H380 CALIBRATE COLLIMATOR/BEAM LIMITING DEVICES	100
H492 PERFORM OPERATIONAL INSPECTIONS OF THREE-PHASE X-RAY SYSTEMS	100
H582 REPAIR X-RAY GENERATORS	100
H477 PERFORM OPERATIONAL INSPECTIONS OF FLUOROIMAGING SYSTEMS	100
H496 PERFORM OPERATIONAL INSPECTIONS OF X-RAY GENERATORS	100
H579 REPAIR TILT TABLES	100
H501 PERFORM OPERATIONAL INSPECTIONS OF X-RAY TV SYSTEMS	100
H456 ISOLATE MALFUNCTIONS WITHIN X-RAY RARC SYSTEMS	100
H451 ISOLATE MALFUNCTIONS WITHIN TILT TABLES	100
H396 CALIBRATE X-RAY GENERATORS	100
H493 PERFORM OPERATIONAL INSPECTIONS OF TILT TABLES	100
H471 PERFORM OPERATIONAL INSPECTIONS OF COLLIMATOR/BEAM LIMITING DEVICES	100
H613 VERIFY CALIBRATION OF X-RAY TV SYSTEMS	100
H499 PERFORM OPERATIONAL INSPECTIONS OF X-RAY TABLES	100
H488 PERFORM OPERATIONAL INSPECTIONS OF SPOT FILM DEVICES	100
H612 VERIFY CALIBRATION OF X-RAY RARC SYSTEMS	100
H575 REPAIR SPOT FILM DEVICES	100
H557 REPAIR COLLIMATOR/BEAM LIMITING DEVICES	100
H498 PERFORM OPERATIONAL INSPECTIONS OF X-RAY RARC SYSTEMS	100
H440 ISOLATE MALFUNCTIONS WITHIN MOBILE RADIOGRAPHIC X-RAY SYSTEMS	88
H434 ISOLATE MALFUNCTIONS WITHIN FILM PROCESSING SYSTEMS, OTHER THAN DENTAL	88
H399 CALIBRATE X-RAY VIDEO RECORDING SYSTEMS	88
H384 CALIBRATE FLUOROIMAGING SYSTEMS	88

TABLE A9

REPRESENTATIVE TASKS PERFORMED BY BIOMEDICAL MAINTENANCE
SPECIALIST CLUSTER
(STG021)

GROUP SIZE: 348
 PREDOMINATE PAYGRADES: E3-E4
 PERCENT OF SAMPLE: 79%

AVERAGE TICF: 60 MONTHS
 AVERAGE TAFMS: 83 MONTHS
 AVERAGE # TASKS PERFORMED: 552

TASKS	PERCENT MEMBERS PERFORMING	
F188	SOLDER ELECTRICAL CONNECTIONS	97
F184	REMOVE OR REPLACE BATTERIES	97
G245	PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	95
G234	ISOLATE MALFUNCTIONS WITHIN STERILIZERS	93
G273	PERFORM OPERATIONAL INSPECTIONS OF STERILIZERS	93
F181	PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	92
G307	PERFORM PREVENTIVE MAINTENANCE ON STERILIZERS	92
G255	PERFORM OPERATIONAL INSPECTIONS OF ELECTRONIC THERMOMETERS	92
G341	REPAIR STERILIZERS	91
E123	LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	90
G355	VERIFY CALIBRATION OF ELECTRONIC THERMOMETERS	90
J736	PERFORM PREVENTIVE MAINTENANCE ON DEFIBRILLATORS	89
E116	ATTACH EQUIPMENT WARRANTY OR SAFETY TAGS OR LABELS TO EQUIPMENT	89
F176	PACK OR UNPACK MEDICAL EQUIPMENT	89
G192	ADJUST STERILIZERS	89
J713	PERFORM OPERATIONAL INSPECTIONS OF DEFIBRILLATORS	88
E133	MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	86
G198	CALIBRATE INFUSION PUMPS	85
J669	CALIBRATE DEFIBRILLATORS	85
G301	PERFORM PREVENTIVE MAINTENANCE ON INFUSION PUMPS	85
G202	CALIBRATE SPHYGMOMANOMETERS	85
G266	PERFORM OPERATIONAL INSPECTIONS OF INFUSION PUMPS	84
J783	VERIFY CALIBRATION OF DEFIBRILLATORS	84
G358	VERIFY CALIBRATION OF INFUSION PUMPS	83
E130	MAKE ENTRIES IN WORK ORDER LOGS	81
M1141	ISOLATE MALFUNCTIONS WITHIN DENTAL OPERATING UNITS	79
M1229	REPAIR DENTAL OPERATING UNITS	77
E127	MAINTAIN HISTORICAL MAINTENANCE RECORDS	75
E124	MAINTAIN EQUIPMENT SAFETY AND INSPECTION, MODIFICATION, AND WARRANTY FILES	75
E156	UPDATE HISTORICAL MAINTENANCE RECORD (HMR) LISTINGS	74

TABLE A10

REPRESENTATIVE TASKS PERFORMED BY CORE MAINTENANCE SPECIALISTS
(GRP124)

GROUP SIZE: 298
 PREDOMINATE PAYGRADES: E3-E4
 PERCENT OF SAMPLE: 68%

AVERAGE TICF: 56 MONTHS
 AVERAGE TAFMS: 77 MONTHS
 AVERAGE # TASKS PERFORMED: 559

TASKS	PERCENT MEMBERS PERFORMING
F188 SOLDER ELECTRICAL CONNECTIONS	97
G245 PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	96
F184 REMOVE OR REPLACE BATTERIES	96
G255 PERFORM OPERATIONAL INSPECTIONS OF ELECTRONIC THERMOMETERS	95
G234 ISOLATE MALFUNCTIONS WITHIN STERILIZERS	94
G273 PERFORM OPERATIONAL INSPECTIONS OF STERILIZERS	94
G341 REPAIR STERILIZERS	93
G307 PERFORM PREVENTIVE MAINTENANCE ON STERILIZERS	93
G355 VERIFY CALIBRATION OF ELECTRONIC THERMOMETERS	93
F181 PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	92
G301 PERFORM PREVENTIVE MAINTENANCE ON INFUSION PUMPS	92
J736 PERFORM PREVENTIVE MAINTENANCE ON DEFIBRILLATORS	91
E116 ATTACH EQUIPMENT WARRANTY OR SAFETY TAGS OR LABELS TO EQUIPMENT	90
J713 PERFORM OPERATIONAL INSPECTIONS OF DEFIBRILLATORS	90
E123 LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	89
G198 CALIBRATE INFUSION PUMPS	89
G266 PERFORM OPERATIONAL INSPECTIONS OF INFUSION PUMPS	89
G195 CALIBRATE ELECTRONIC THERMOMETERS	89
G192 ADJUST STERILIZERS	89
E133 MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	88
G358 VERIFY CALIBRATION OF INFUSION PUMPS	88
G202 CALIBRATE SPHYGMOMANOMETERS	88
F176 PACK OR UNPACK MEDICAL EQUIPMENT	88
J669 CALIBRATE DEFIBRILLATORS	87
G334 REPAIR INFUSION PUMPS	87
J783 VERIFY CALIBRATION OF DEFIBRILLATORS	86
G227 ISOLATE MALFUNCTIONS WITHIN INFUSION PUMPS	86
E130 MAKE ENTRIES IN WORK ORDER LOGS	83
M1141 ISOLATE MALFUNCTIONS WITHIN DENTAL OPERATING UNITS	82
M1229 REPAIR DENTAL OPERATING UNITS	80

TABLE A11

REPRESENTATIVE TASKS PERFORMED BY ADMINISTRATION AND
SUPPLY NCOs
(STG062)

GROUP SIZE: 12
 PREDOMINATE PAYGRADES: E5-E6
 PERCENT OF SAMPLE: 3%

AVERAGE TICF: 114 MONTHS
 AVERAGE TAFMS: 159 MONTHS
 AVERAGE # TASKS PERFORMED: 346

TASKS	PERCENT MEMBERS PERFORMING
E156 UPDATE HISTORICAL MAINTENANCE RECORD (HMR) LISTINGS	100
E127 MAINTAIN HISTORICAL MAINTENANCE RECORDS	100
A9 DETERMINE WORK PRIORITIES	100
E123 LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	100
E128 MAINTAIN PUBLICATIONS AND TECHNICAL REFERENCE FILES	100
E141 PARTICIPATE IN HOSPITAL SAFETY COMMITTEE ACTIVITIES	100
E146 PROCESS EQUIPMENT TURN-INS	100
E133 MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	92
E162 UPDATE WORK ORDER REGISTER LISTINGS	92
E154 UPDATE BENCH STOCK BALANCE LISTINGS	92
E137 MAKE ENTRIES ON MEDICAL MAINTENANCE WORK ORDER LISTINGS	92
E124 MAINTAIN EQUIPMENT SAFETY AND INSPECTION, MODIFICATION, AND WARRANTY FILES	92
A4 COORDINATE MAINTENANCE ACTIVITIES WITH OTHER HOSPITAL AGENCIES	92
A3 COORDINATE EQUIPMENT PROCUREMENT WITH DIRECTOR OF MEDICAL LOGISTICS MANAGEMENT OR BASE PROCUREMENT OFFICE	92
E140 PARTICIPATE IN HOSPITAL EQUIPMENT REVIEW ALLOWANCE AND AUTHORIZATION (ERAA) ACTIVITIES	92
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	92
C62 EVALUATE NEW EQUIPMENT	92
F181 PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	92
A24 PLAN EQUIPMENT INSTALLATIONS OR MODIFICATIONS	92
E139 MAKE EQUIPMENT REPLACEMENT RECOMMENDATIONS BASED ON EQUIPMENT REPLACEMENT SCHEDULE LISTINGS	92
E161 UPDATE WORK ORDER RECYCLE CARDS	83
E155 UPDATE EDIT LISTINGS	83
E125 MAINTAIN FILES OF AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	83
E118 DRAFT OUTGOING CORRESPONDENCE	83
E117 COMPILE DATA FOR REPORTS	83
A5 COORDINATE MAINTENANCE FUNCTIONS WITH CIVIL ENGINEERING OR OTHER MAINTENANCE ACTIVITIES	83
E119 ESTABLISH BENCH STOCK OR SPECIAL SUPPLY LEVEL REQUIREMENTS	83
E152 UPDATE ACTIVITY BACK ORDER REPORT LISTINGS	75
E130 MAKE ENTRIES IN WORK ORDER LOGS	75

TABLE A12

REPRESENTATIVE TASKS PERFORMED BY AIR TRANSPORTABLE
HOSPITAL PERSONNEL
(STG125)

GROUP SIZE: 27
 PREDOMINATE PAYGRADES: E3-E4
 PERCENT OF SAMPLE: 6%

AVERAGE TICF: 67 MONTHS
 AVERAGE TAFMS: 101 MONTHS
 AVERAGE # TASKS PERFORMED: 511

TASKS	PERCENT MEMBERS PERFORMING
F181 PERFORM INITIAL INSPECTIONS OF NEW MEDICAL EQUIPMENT	100
F176 PACK OR UNPACK MEDICAL EQUIPMENT	100
F175 OPERATE GOVERNMENT VEHICLES, SUCH AS PICKUP TRUCKS AND VANS	100
F184 REMOVE OR REPLACE BATTERIES	100
F188 SOLDER ELECTRICAL CONNECTIONS	100
G307 PERFORM PREVENTIVE MAINTENANCE ON STERILIZERS	100
E123 LOCATE STOCK NUMBERS OR COMPONENTS IN MANUFACTURERS' PARTS MANUALS OR SUPPLY PUBLICATIONS	96
F166 CLEAN SHOP, HAND, OR POWER TOOLS	96
G308 PERFORM PREVENTIVE MAINTENANCE ON SUCTION/PRESSURE SYSTEMS	96
G274 PERFORM OPERATIONAL INSPECTIONS OF SUCTION/PRESSURE SYSTEMS	96
G273 PERFORM OPERATIONAL INSPECTIONS OF STERILIZERS	96
G245 PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	93
G367 VERIFY CALIBRATION OF VITAL SIGN MONITORS	93
E148 REVIEW AIR FORCE MEDICAL LOGISTICS LETTERS (AFMLL)	93
G207 CALIBRATE VITAL SIGN MONITORS	93
G281 PERFORM OPERATIONAL INSPECTIONS OF VITAL SIGN MONITORS	93
G315 PERFORM PREVENTIVE MAINTENANCE ON VITAL SIGN MONITORS	93
J673 CALIBRATE ELECTROCARDIOGRAPHS (EKG)	93
F173 INSPECT WAR RESERVE MATERIEL (WRM)	89
G204 CALIBRATE SUCTION/PRESSURE SYSTEMS	89
F183 PREPARE MEDICAL EQUIPMENT FOR PACKING	89
R1604 INSPECT FIELD MEDICAL EQUIPMENT	85
E127 MAINTAIN HISTORICAL MAINTENANCE RECORDS	85
E128 MAINTAIN PUBLICATIONS AND TECHNICAL REFERENCE FILES	85
G267 PERFORM OPERATIONAL INSPECTIONS OF INTERMITTENT SUCTION UNITS	85
R1589 ASSEMBLE OR DISASSEMBLE FIELD MEDICAL EQUIPMENT	81
G199 CALIBRATE INTERMITTENT SUCTION UNITS	81
R1641 OPERATE FORKLIFTS	78
R1682 PERFORM PREVENTIVE MAINTENANCE ON FIELD X-RAY SYSTEMS, OTHER THAN FIELD DENTAL	78
F182 PERFORM OPERATOR MAINTENANCE ON GOVERNMENT VEHICLES	78

TABLE A13

REPRESENTATIVE TASKS PERFORMED BY LABORATORY EQUIPMENT
MAINTENANCE PERSONNEL
(STG211)

GROUP SIZE: 6	AVERAGE TICF: 119 MONTHS
PREDOMINATE PAYGRADE: E6	AVERAGE TAFMS: 150 MONTHS
PERCENT OF SAMPLE: 1%	AVERAGE # TASKS PERFORMED: 1,037

TASKS	PERCENT MEMBERS PERFORMING
B50 SUPERVISE BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALISTS (AFSC 91850)	100
E135 MAKE ENTRIES ON EQUIPMENT CONDITION TAGS	100
E130 MAKE ENTRIES IN WORK ORDER LOGS	100
E146 PROCESS EQUIPMENT TURN-INS	100
B49 SUPERVISE APPRENTICE BIOMEDICAL EQUIPMENT MAINTENANCE SPECIALISTS (AFSC 91830)	100
E133 MAKE ENTRIES ON AF FORMS 1763 (MEDICAL MAINTENANCE WORK ORDER)	100
E137 MAKE ENTRIES ON MEDICAL MAINTENANCE WORK ORDER LISTINGS	100
A28 PLAN WORK ASSIGNMENTS	100
A9 DETERMINE WORK PRIORITIES	100
H504 PERFORM POSTCALIBRATION RADIATION INSPECTIONS (PCRI) OF X-RAY EQUIPMENT	100
H397 CALIBRATE X-RAY PHOTOSPOT SYSTEMS	100
H395 CALIBRATE THREE-PHASE X-RAY SYSTEMS	100
H396 CALIBRATE X-RAY GENERATORS	100
H450 ISOLATE MALFUNCTIONS WITHIN THREE-PHASE X-RAY SYSTEMS	100
H384 CALIBRATE FLUOROIMAGING SYSTEMS	100
H386 CALIBRATE MOBILE FLUOROSCOPIC X-RAY SYSTEMS	100
H387 CALIBRATE MOBILE RADIOGRAPHIC X-RAY SYSTEMS	100
H391 CALIBRATE SPOT FILM DEVICES	100
H398 CALIBRATE X-RAY RAPID ACCELERATION ROTOR CONTROLLERS (RARC)	100
H380 CALIBRATE COLLIMATOR/BEAM LIMITING DEVICES	100
H390 CALIBRATE PANORAMIC X-RAY SYSTEMS	100
H392 CALIBRATE STATIONARY DENTAL X-RAY SYSTEMS, OTHER THAN PANORAMIC X-RAY	100
K806 CALIBRATE BLOOD GAS ANALYZERS	100
K863 ISOLATE MALFUNCTIONS WITHIN TITRATION METERS	100
K826 CALIBRATE TITRATION METERS	100
K815 CALIBRATE GLUCOSE ANALYZERS	100
K1003 VERIFY CALIBRATION OF TISSUE PROCESSORS	100
K823 CALIBRATE REFRIGERATED CENTRIFUGES	100
K825 CALIBRATE SPECTROPHOTOMETERS	100
K921 PERFORM PREVENTIVE MAINTENANCE ON INFRARED PHOTOMETERS	100
K919 PERFORM PREVENTIVE MAINTENANCE ON GLUCOSE ANALYZERS	100
K952 REPAIR ELECTROPHORESIS UNITS	100

TABLE A14

REPRESENTATIVE TASKS PERFORMED BY INTENSIVE AND CARDIAC CARE
UNIT MAINTENANCE PERSONNEL
(ST0037)

GROUP SIZE: 5
 PREDOMINATE PAYGRADES: E3
 PERCENT OF SAMPLE: 1%

AVERAGE TICF: 63 MONTHS
 AVERAGE TAFMS: 84 MONTHS
 AVERAGE # TASKS PERFORMED: 284

TASKS	PERCENT MEMBERS PERFORMING
J760 REPAIR DEFIBRILLATORS	100
F188 SOLDER ELECTRICAL CONNECTIONS	100
J713 PERFORM OPERATIONAL INSPECTIONS OF DEFIBRILLATORS	100
01466 VERIFY CALIBRATION OF NEONATAL MONITORS	100
01462 VERIFY CALIBRATION OF FETAL HEART MONITORS	100
G281 PERFORM OPERATIONAL INSPECTIONS OF VITAL SIGN MONITORS	100
01435 PERFORM PREVENTIVE MAINTENANCE ON NEONATAL MONITORS	100
01447 REPAIR FETAL HEART MONITORS	100
01431 PERFORM PREVENTIVE MAINTENANCE ON FETAL HEART MONITORS	100
01470 VERIFY CALIBRATION OF ULTRASONIC FETAL DOPPLERS	100
J721 PERFORM OPERATIONAL INSPECTIONS OF HEART RATE MONITORS	100
J691 ISOLATE MALFUNCTIONS WITHIN DEFIBRILLATORS	100
G353 VERIFY CALIBRATION OF AUTOMATIC BLOOD PRESSURE MONITORS	100
G367 VERIFY CALIBRATION OF VITAL SIGN MONITORS	100
J717 PERFORM OPERATIONAL INSPECTIONS OF EEG SYSTEMS	100
J715 PERFORM OPERATIONAL INSPECTIONS OF ECG MONITORS	100
01451 REPAIR NEONATAL MONITORS	100
J689 ISOLATE MALFUNCTIONS WITHIN BLOOD PRESSURE TRANSDUCERS	100
J699 ISOLATE MALFUNCTIONS WITHIN HEART RATE MONITORS	100
J768 REPAIR HEART RATE MONITORS	100
J762 REPAIR ECG MONITORS	100
J686 ISOLATE MALFUNCTIONS WITHIN ARRHYTHMIA MONITORS	100
J688 ISOLATE MALFUNCTIONS WITHIN BLOOD PRESSURE MONITORS, OTHER THAN AUTOMATIC	100
J764 REPAIR EEG SYSTEMS	100
01399 ISOLATE MALFUNCTIONS WITHIN FETAL HEART MONITORS	100
J693 ISOLATE MALFUNCTIONS WITHIN ECG MONITORS	100
J696 ISOLATE MALFUNCTIONS WITHIN EKG SYSTEMS	100
G245 PERFORM ELECTRICAL SAFETY TESTS ON HOSPITAL EQUIPMENT	80
01469 VERIFY CALIBRATION OF TRANSCUTANEOUS PO2 MONITORS	80
J669 CALIBRATE DEFIBRILLATORS	80
G355 VERIFY CALIBRATION OF ELECTRONIC THERMOMETERS	80
J783 VERIFY CALIBRATION OF DEFIBRILLATORS	80