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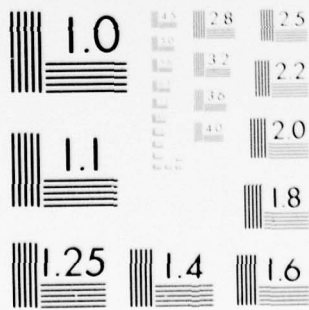
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9 OCCUPATIONAL SURVEY REPORT

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AFSC 472X4,

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AFPT 90-427-381
SEPTEMBER 1979

OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
RANDOLPH AFB TEXAS 78148

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PREFACE

This report presents the results of a detailed Air Force Occupational Survey of the Metals Processing specialty (AFSCs 42734, 42754, 42774, and 42799).

The project was directed by USAF Program Technical Training, Volume 2, dated June 1978. Authority for conducting occupational surveys is contained in AFR 35-2. Computer outputs from which this report was produced are available for use by operating and training officials.

The survey instrument was developed by Mr. Robert Alton, Inventory Development Specialist. Major William A. Tamashunas analyzed the survey data and wrote the final report. This report has been reviewed and approved by Lt Col Jimmy L. Mitchell, Chief, Airman Career Ladders Analysis Section, Occupational Survey Branch, USAF Occupational Measurement Center, Randolph AFB, Texas, 78148.

Computer programs for analyzing the occupational data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Copies of this report are available to air staff sections, major commands, and other interested training and management personnel upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Randolph AFB, Texas 78148.

This report has been reviewed and is approved.

BILLY C. McMASTER, Col, USAF
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SUMMARY OF RESULTS

1. Survey Coverage: The Metals Processing (AFS 427X4) Job Inventory was administered during the period of December 1978 through April 1979. Survey results were based on responses from 517 respondents or 66 percent of the 783 incumbents assigned to the 427X4 specialty.
2. Specialty Job Structure: Ninety-four percent of the survey respondents fell within the six job groups identified in the analysis. The largest group was identified as Welding Craftsmen; members of this job type perform the full range of metals processing tasks and spend a substantial proportion of their time in advanced welding. Other job groups include: Superintendents, Shop Supervisors, OJT Supervisors, and two additional types of welders. In one job type, members specialize in welding involving jet engines; and in the second group, incumbents perform only a limited range of basic welding tasks.
3. DAFSC Groups: Tasks performed by 5-skill level respondents were almost exclusively technical in nature. Seven-skill level respondents performed a technical and supervisory job. DAFSC 42799 and CEM Code 42700 respondents performed an exclusively supervisory job.
4. AFR 39-1 Specialty Descriptions: Only the 7-skill level specialty description fails to give a good comprehensive overview of the jobs performed by career field incumbents. The 7-skill level description does not mention the welding tasks performed by DAFSC 42774 incumbents.
5. Job Perceptions: Most Metals Processing personnel find their job interesting, although only half of those in the Jet Engine Welder group do so. Most also feel that their training is being well utilized. However, the expressed reenlistment intent varies among the different types of jobs; in the largest group (Welding Craftsmen) only 38 percent plan to reenlist. This may be a function of the large proportion of first enlistment personnel in this group or may suggest a serious problem in morale.

OCCUPATIONAL SURVEY REPORT
METALS PROCESSING CAREER LADDER
(AFSCs 42734, 42754, 42774, AND 42799)

INTRODUCTION

This is a report of an occupational survey of the Metals Processing specialty (AFS 427X4) completed by the Occupational Survey Branch, USAF Occupational Measurement Center, during August 1979. Incumbents in the 427X4 specialty weld, heat treat, cut, clean, and surface different metals and materials while repairing and fabricating components of Air Force equipment.

Historically, the Metals Processing specialty has had several AFS designations through the years: 532X0 (May 1951 - May 1975), 531X1 (May 1975 - April 1977), and 427X4 (April 1977 to the present). In October 1977, welding in support of civil engineering projects was withdrawn from this specialty and placed with the 552X2 specialty, Metals Fabrication. Thus, the current job primarily involves in-shop, aircraft-related metal processing and welding tasks. In October 1978, the Chief Enlisted Manager (CEM) Code of 42700 (Fabrication Manager) was added to the classification structure of this specialty.

Formal training is required for everyone entering this specialty. Incumbents attend the basic resident technical training course C3ABR-42734000, conducted at Chanute AFB, Illinois. The resident technical training course is 15 weeks in length and each graduate of the course is awarded a 3-skill level DAFSC.

An AFS 522X0 (now 427X4) Job Inventory, dated 15 Jul 73, collected occupational data on the specialty in 1973; however, no formal Occupational Survey Report (OSR) for the specialty was published at that time.

This report will address the following areas: (1) the development and administration of the current survey instrument; (2) the job structure identified in the 427X4 specialty and related skill level groups; and (3) a comparison of CONUS/Overseas occupational data.

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SURVEY METHODOLOGY

Inventory Development

The data collection instrument for the Metals Processing occupational survey was USAF Job Inventory AFPT 90-427-381, which was developed in part from the 1973 inventory. As a starting point, tasks from the previous inventory were reviewed and revised after thorough research of specialty publications and directives. From this process, a new tentative task list was made up. Inventory developers then conducted personal interviews with 11 subject matter specialists at three bases to update the task list for completeness and accuracy. This process resulted in a final inventory of 467 tasks grouped under 17 duty headings and a background section that included information about the respondents, such as grade, duty title, job interest, and equipment used.

Inventory Administration

During the period December 1978 through April 1979, consolidated base personnel offices in operational units worldwide administered the inventory to job incumbents holding 427X4 DAFSCs. These job incumbents were selected from a computer generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL). Each individual first completed an identification and biographical information section, then checked each task performed in their current job.

After checking all tasks performed, each incumbent rated each of these tasks on a nine-point scale showing relative time spent on that task as compared to all other tasks checked. The ratings ranged from one (very-small-amount time spent) through five (about-average time spent) to nine (very-large-amount time spent). To determine relative time spent for each task checked by a respondent, all of an incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total sum of task responses and the quotient is multiplied by 100. This procedure provides a basis for comparing tasks, not only in terms of percent members performing, but also in terms of average percent time spent.

Personnel were selected to participate in this survey so as to assure representative samples across command and DAFSC groups. Table 1 reflects the percentage distribution, by major command, of assigned personnel in the Metals Processing specialty. Also reflected is the distribution of incumbents, by command, in the final survey sample. The 517 respondents making up the final sample represent 66 percent of the 783 members assigned to the 427X4 specialty. Table 2 reflects sampled and assigned personnel distributions in terms of DAFSC groups. Table 3 presents the distribution of survey respondents by Active Federal Military Service (AFMS) groups. As Tables 1 through 3 indicate, the final survey sample provides an accurate representation of job incumbents within the 427X4 specialty.

TABLE 1
 COMMAND REPRESENTATION OF SURVEY SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED*</u>	<u>PERCENT OF SAMPLE</u>
TAC	31	27
SAC	23	24
MAC	13	17
USAFE	12	11
ATCOM	9	7
PACAF	5	5
OTHER	<u>7</u>	<u>9</u>
TOTAL	100	100

* NUMBER ASSIGNED - 783
 NUMBER SAMPLED - 517
 PERCENT SAMPLED - 66%

TABLE 2
 DAFSC DISTRIBUTIONS

<u>DAFSC</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
42734	8	6
42754	52	53
42774	18	22
42799	22	19

TABLE 3
 TAFMS DISTRIBUTION OF SURVEY SAMPLE

	<u>MONTHS MILITARY SERVICE</u>					
	<u>1-48</u>	<u>49-96</u>	<u>97-144</u>	<u>145-192</u>	<u>193-240</u>	<u>241+</u>
NUMBER IN SAMPLE	170	188	60	37	52	79
PERCENT OF SAMPLE	33%	23%	12%	7%	10%	15%

SPECIALTY JOB STRUCTURE

The major types of work being performed by members of the Metals Processing specialty were identified by analyzing the task descriptions and background data for all relevant job groups. This analysis is made possible by the Comprehensive Occupational Data Analysis Programs (CODAP). The CODAP programs generate a number of statistical products used in the analyses of specialties. The starting product is a hierarchical clustering diagram of all jobs based on the similarity of tasks performed and the relative time spent performing tasks. By using job structure as a starting point, it is possible to describe the existing job structure of the specialty and then analyze current utilization patterns within the specialty. This information can be used to examine related areas within or across specialties, such as job progression patterns (in terms of skill-level data), experience patterns (in terms of time in service, time in career field, or other variables), or the accuracy and completeness of specialty documents (e.g., AFR 39-1 Specialty Descriptions and Specialty Training Standards).

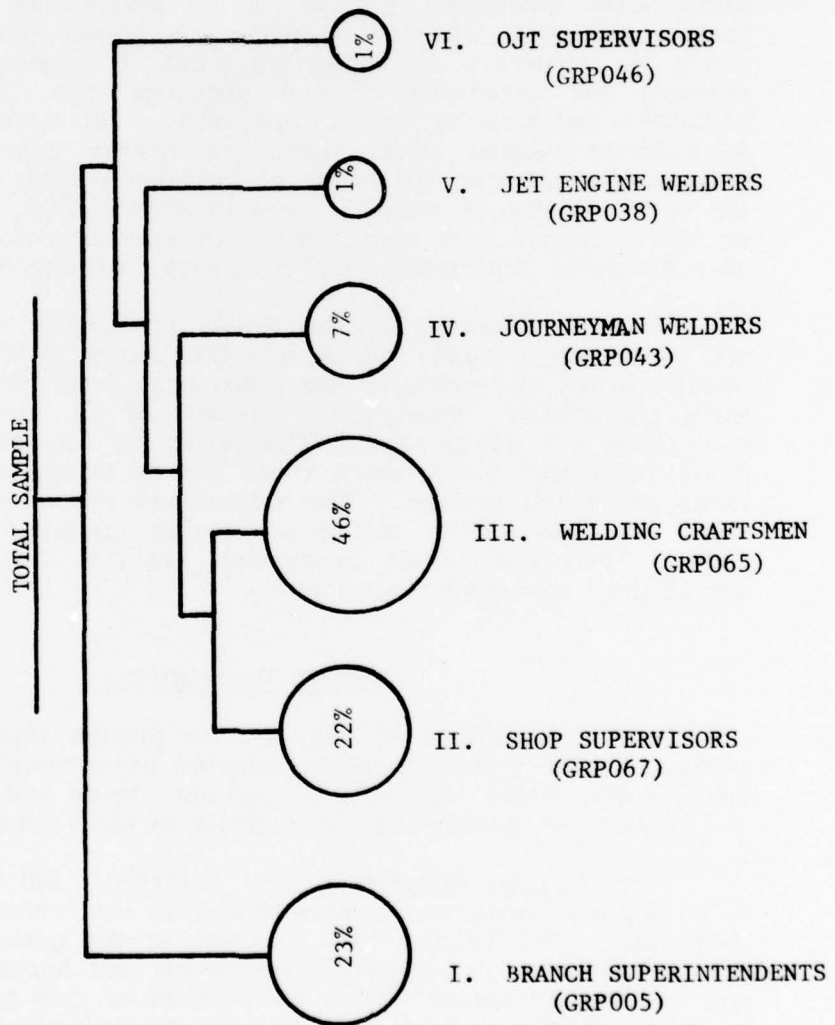
The job structure of the Metals Processing specialty consisted of six major job groups, which are illustrated in Figure 1. These job groups broke out primarily by experience level rather than the type of work performed. Ninety-four percent of all survey respondents fell into these six job groups. The remaining six percent of the respondents performed tasks which could not be specifically related to any of these major job groups. The ungrouped respondents had various job titles, such as welder, metals processing specialist and NCOIC, welding shop. Also, two metals processing resident training instructors are among the ungrouped respondents.

Group Descriptions

Brief descriptions of the six job groups identified are presented below. Tables 4 and 5 present selected background data on each of the six groups, while Appendix A includes tasks which are performed by the largest percentages of respondents in each group.

I. Branch Superintendents (N=113). All 42799 and CEM Code 42700 survey respondents were found in this relatively large group of personnel. The primary job function of the group is the management and high-level supervision of Fabrication and Accessory Branch military and civilian personnel. Over 85 percent of this group's total job time is spent on supervisory tasks, such as counseling personnel, writing APRs, interpreting policies, participating in planning meetings, and scheduling leaves or passes. These personnel, while having the highest average experience level of any of the job groups identified (an average of 153 months time in career field, see Table 4), perform very few technical tasks and reported using virtually no equipment in the field. As a whole, these members find their job most interesting and

FIGURE 1
METALS PROCESSING SPECIALTY
AFS 427X4



feel their training is well utilized (see Table 5). While 82 percent are eligible for retirement, a total of 57 percent indicated they still plan to reenlist.

II. Shop Supervisors (N=108). This group of 7- and senior 5-skill level personnel perform an extremely broad job that encompasses virtually the total spectrum of technical and supervisory tasks. The group members perform an average of 228 tasks and approximately 30 percent of their job time in spent performing supervisory, management, and administrative duties. The remaining 70 percent of their time is spent performing strictly technical tasks. Technical tasks performed by the group include setting up for metal cutting, operating grinding equipment, and setting up for lead or silver soldering. Forty-nine percent of their time is spent operating welding equipment, planning and setting up metal processing projects, operating auxiliary equipment or tools, and testing and classifying metals. The group members also reported high usage of band cutoff saws; bench, pedestal and rotary grinders; and hand drilling machines.

Only 10 percent of the members in this group are in their first enlistment. Approximately 76 percent reported supervising other individuals. As shown in Table 5, 85 percent of the group find their job interesting and 86 percent feel their training is well utilized. As for reenlistment intentions, 70 percent intend to reenlist.

III. Welding Craftsmen (N=221). Constituting 46 percent of the survey sample, these personnel essentially form the technical work force of the Metals Processing specialty. The group as a whole averages 42 months time in the career field. As shown in Table 4, 82 percent are 5-skill level personnel and 57 percent are in their first enlistment. While the majority of the group find their job interesting and feel their training is being utilized well (83 and 91 percent respectively), only 38 percent intend to reenlist. This very low reenlistment intent may be due to the large percentage of first enlistment personnel in the group. However, since this group is the major work group in the specialty, this low reenlistment intent may suggest a serious specialty problem.

Welding Craftsmen have a very broad and highly technical job, performing an average of 134 tasks. As a whole, they perform almost every technical task in the survey, spending over 90 percent of their job time on these tasks. The three most time-consuming tasks are arc-welding low, medium, or high carbon steels; welding aluminum or aluminum alloys with TIG equipment; and setting up for welding in the flat position. These personnel generally do not specialize; rather, they appear to perform whatever metal processing tasks are at hand. High percentages also reported using the same types of equipment as shop supervisors.

IV. Journeyman Welders (N=33). Members of this group have the least experience of any job group identified. Only three of the 33 incumbents in the job group have been in the career field more than 48 months. Sixty-four percent of the group are in their first enlistment

and 94 percent hold 3- or 5-skill level DAFSCs. The group performs an average of only 79 tasks and spends over 99 percent of their time on technical tasks. While the group members perform the same tasks as the welding craftsmen job group, smaller percentages perform the more complicated tasks, such as welding heat corrosion resistant steels with TIG equipment; setting up for welding in the vertical position or for corner or edge joints; and operating powered metal cutting equipment. Likewise, except for the equipment used in complicated metal processing tasks, there are virtually no differences in the types of equipment journeyman welders reported using as compared to the welding craftsmen. Only 30 percent of these personnel intend to reenlist. However, 82 and 79 percent of the group, respectively, find their job interesting and feel their training is well utilized.

V. Jet Engine Welders (N=6). This very small group of 5- and 7-skill level personnel is highly specialized in the area of jet engine welding. The most characteristic tasks performed by this group involve welding or repairing various jet engine components, such as turbines, exhausts, and compressors. Also common are tasks associated with the special metals or alloys related to jet or aircraft engines. However, the group does not perform the broad range of technical tasks performed by most career field incumbents. Jet Engine Welders, however, use virtually the same equipment as other 427X4 incumbents. The vast majority of the jet engine welders are assigned to SAC, TAC, and ATC and all are assigned to CONUS bases. Only 50 percent of the group feel their job is interesting and only 50 percent plan to reenlist. The job interest figure is the lowest identified in the survey. The low job interest may be a further indication of a serious career field problem when viewed in light of the low reenlistment intentions of the welding craftsmen and journeyman welders job groups. All members of the group did feel their training was well utilized, however.

VI. OJT Supervisors (N=7). This small group of 7-skill level personnel perform a job that is very close in nature to that of the Shop Supervisors. However, the distinguishing difference between two groups is the emphasis placed by members of this group on OJT functions, such as assigning trainers, determining training requirements, counseling trainees and demonstrating various work techniques and procedures. Compared to Shop Supervisors, this small group is generally more experienced, is higher in grade, and performs more supervisory functions and less "hand-on" technical functions.

Seventy-two percent of the group feel their job is interesting, and 86 percent feel their training is well utilized and plan to reenlist.

Summary

In general, the 427X4 career field is highly homogeneous up through the 7-skill level. Most incumbents perform the full range of technical tasks for which the career field is responsible. Generally, job structure groups reflect different experience levels and different emphasis in either technical or supervisory duties, rather than specialized workcenters within the career field. With the exception of the very small group of jet engine welders, there were no other job groups that specialized in one area or another. While senior 5-skill level and 7-skill level personnel assume a broad range of supervisory duties in addition to their technical jobs, the nature of the 427X4 job does not change substantially until the superintendent level is reached. At that point, few, if any, technical functions are performed, and the job becomes primarily managerial, supervisory, and administrative. These findings strongly support the current single ladder structure through the 7-skill level, with a common 427XX superintendent (DAFSC 42799 and CEM Code 42700). Felt utilization of training is uniformly high across the career field. Job interest for the career field is also high except for the Jet Engine Welders group. The reenlistment intentions across the career field are markedly low especially in the welding craftsmen, journeyman welders, and jet engine welders job groups. The low reenlistment intentions of these job groups may indicate a serious career field problem.

TABLE 4
SELECTED BACKGROUND DATA ON SPECIALTY FUNCTIONAL GROUPS

	BRANCH SUPERINTENDENTS	SHOP SUPERVISORS	WELDING CRAFTSMEN	JOURNEYMAN WELDERS	JET ENGINE WELDERS	OJT SUPERVISORS
NUMBER IN SAMPLE	113	108	221	33	6	7
PERCENT OF SAMPLE	23%	22%	46%	7%	1%	1%
PERCENT IN CONUS/OVERSEAS	80/20%	72/28%	80/20%	85/15%	100/0%	86/14%
PERCENT OF GROUPS BY DAFSC:						
42734	0	2	8	30	0	0
42754	2	37	82	64	67	0
42774	7	60	9	6	33	100
42799	77	0	0	0	0	0
42700	11	0	0	0	0	0
NO RESPONSE	3	1	1	0	0	0
AVERAGE GRADE						
AVERAGE TIME IN CAREER FIELD (MONTHS)	7.6	5.3	3.9	3.6	3.7	6.4
AVERAGE TIME MILITARY SERVICE (MONTHS)	152.8	105.8	42.4	25.4	65.3	121.7
PERCENT IN FIRST ENLISTMENT	203.9	122.9	53.3	41.9	68.7	155.2
	0%	10%	57%	64%	50%	0%
PERCENT SUPERVISING						
AVERAGE NUMBER OF SUBORDINATES	84%	76%	15%	6%	17%	86%
AVERAGE NUMBER OF TASKS PERFORMED	7	4	2	2	4	5
	69	228	134	79	73	145

TABLE 5
COMPARISON OF JOB SATISFACTION INDICES BY FUNCTIONAL GROUPS
(BY PERCENT MEMBERS RESPONDING)

	BRANCH SUPERINTENDENTS	SHOP SUPERVISORS	WELDING CRAFTSMEN	JOURNEYMAN WELDERS	JET ENGINE WELDERS	OJT SUPERVISORS
<u>I FIND MY JOB:</u>						
NO RESPONSE	2	2	1	0	0	14
DULL	2	4	6	3	0	0
SO-SO	4	9	10	15	50	14
INTERESTING	92	85	83	82	50	72
<u>MY JOB USES MY TALENTS:</u>						
NO RESPONSE	3	2	1	3	17	14
VERY LITTLE OR NOT AT ALL	7	13	10	9	0	0
FAIRLY WELL TO PERFECTLY	90	85	89	88	83	86
<u>MY JOB USES MY TRAINING:</u>						
NO RESPONSE	1	1	1	0	0	0
VERY LITTLE OR NOT AT ALL	11	13	8	21	0	14
FAIRLY WELL TO PERFECTLY	88	86	91	79	100	86
<u>PLANS TO REENLIST:</u>						
NO RESPONSE	2	1	3	0	0	0
NO OR PROBABLY NO	41	29	59	70	50	14
YES OR PROBABLY YES	57	70	38	30	50	86

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the specialty job structure, forms a part of each occupational analysis. The DAFSC analysis allows for the identification of differences between skill levels. DAFSC data also aids in the analysis of career field documents, such as the AFR 39-1 Specialty Descriptions and the Specialty Training Standard (STS).

Table 6 presents the relative time spent by skill level groups on tasks within duties listed in the job inventory. Generally, as AFS 427X4 respondents progress from the 5- through the 9-skill levels, group members reported performing more supervisory and management tasks and spending more time performing them.

Skill Level Comparisons

DAFSC 42754. The 5-skill level respondents spend 90 percent of their time performing technical tasks. Tasks most common to DAFSC 42754 respondents include changing oxygen or acetylene bottles, operating metal grinding equipment, and disposing of trash or waste materials. Table 7 presents additional tasks which were performed by the largest percentages of 5-skill level respondents. Large percentages of DAFSC 42754 respondents are found in both the welding craftsmen and journeyman welders job groups.

DAFSC 42774. In addition to performing technical tasks, the 7-skill level respondents spend 35 percent of their time performing supervisory, training and administrative tasks. Although many of these group members appeared in the supervisory job groups of the Specialty Structure section, the job of the 7-skill level members appears to be primarily technical in nature. Among the most common tasks performed by these respondents are operating metal grinding equipment, inspecting oxyacetylene equipment, brazing metals, counseling personnel, and writing APRs. Table 8 presents representative tasks performed by DAFSC 42774 incumbents. DAFSC 42774 respondents perform an average of 183 tasks and have the broadest job of any 427X4 skill level group. The groups with the largest percentages of DAFSC 42774 respondents are the shop supervisors, jet engine welders, and OJT supervisors groups.

Five- and 7-skill level personnel contrast most in the performance of supervisory tasks. While both groups of incumbents perform technical tasks, the job of the 7-skill level incumbent includes many supervisory tasks not performed by DAFSC 42754 respondents. Table 9 presents tasks which most distinguish between DAFSC 42754 and DAFSC 42774 respondents. Table 9 clearly reflects the differences between the technical 5-skill level job and the technical and supervisory nature of the 7-skill level job.

DAFSC 42799. Fabrication Superintendents (DAFSC 42799) who supervise 427X4 personnel spend 93 percent of their time performing tasks related to management, supervision, training, and administration. Moreover, five tasks account for more than 12 percent of the 9-skill level respondents' job time; these five tasks are coordinating work with maintenance activities, counseling personnel, supervising airframe repair personnel (AFSC 427X5), interpreting policies, and evaluating or endorsing APRs. Table 10 portrays those tasks performed by the greatest percentages of Fabrication Superintendents. DAFSC 42799 respondents are found exclusively in the Branch Superintendents job group identified in the specialty structure analysis.

Tasks distinguishing 7- and 9-skill level groups are depicted in Table 11. Essentially, the job of DAFSC 42774 respondents is more technical in nature while the job of DAFSC 42799 respondents is almost exclusively supervisory and managerial in nature.

CEM Code 42700. Task performance data was also gathered for 12 Fabrication Managers (CEM Code 42700) and Table 12 presents a sampling of the tasks performed by these managers. Table 13 lists tasks best differentiating between DAFSC 42799 and CEM Code 42700 respondents. As Tables 12 and 13 show, the job of the CEM Code 42700 respondents is exclusively supervisory in nature.

Summary

Five-skill level respondents perform a technical job while 7-skill level members perform a broader technical and supervisory job. Both DAFSC 42799 and CEM Code 42700 groups perform jobs which are almost exclusively supervisory and managerial. The DAFSC analysis reflects a normal progression from worker to supervisor in the 427X4 career field.

TABLE 6

PERCENT TIME SPENT ON TASKS IN DUTIES BY DAFSC GROUPS

DUTIES	DAFSC 42754 (N=267)	DAFSC 42774 (N=114)	DAFSC 42799 (N=87)	CEM CODE 42700 (N=12)
<u>SUPERVISORY, TRAINING, AND ADMINISTRATIVE</u>				
A ORGANIZING AND PLANNING	1	6	21	24
B DIRECTING AND IMPLEMENTING	2	6	25	25
C INSPECTING AND EVALUATING	1	5	22	26
D TRAINING	2	6	7	6
E PERFORMING ADMINISTRATION AND SUPPLY FUNCTIONS	4	12	18	14
<u>TECHNICAL</u>				
F PLANNING AND SETTING UP METAL PROCESSING PROJECTS	14	10	1	1
G CLEANING METALS	4	2	1	*
H TESTING AND CLASSIFYING METALS	7	6	2	1
I OPERATING AND MAINTAINING AUXILIARY EQUIPMENT AND TOOLS	15	10	*	*
J ANODIZING, HEAT TREATING, OR ELECTROPLATING METALS	4	5	*	*
K OPERATING OXYACETYLENE WELDING EQUIPMENT	16	12	*	*
L OPERATING METALLIC INERT GAS (MIG) AND TUNGSTEN INERT GAS (TIG) SHIELDED WELDING EQUIPMENT	11	8	*	*
M OPERATING ARC WELDING EQUIPMENT	5	4	*	*
N OPERATING RESISTANCE WELDING EQUIPMENT	1	*	*	*
O PERFORMING REPAIRS ON AIRCRAFT OR MISSILE STRUCTURES AND COMPONENTS	6	4	1	*
P PERFORMING STRUCTURAL OR EQUIPMENT WELDING AND FABRICATION	3	2	*	*
Q MAINTAINING WORK AREAS	4	2	1	*

* INDICATES LESS THAN ONE PERCENT

TABLE 7
 TASKS PERFORMED BY THE LARGEST PERCENTAGES OF
 DAFSC 42754 RESPONDENTS

TASKS	PERCENT MEMBERS PERFORMING (N=267)
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	96
I226 OPERATE METAL GRINDING EQUIPMENT	95
Q463 DISPOSE OF TRASH OR WASTE MATERIAL	94
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	94
Q466 SWEEP, MOP, OR WAX FLOORS	94
F148 SET UP FOR WELDING IN THE FLAT POSITION	94
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	94
K275 ASSEMBLE OR DISASSEMBLE OXYACETYLENE PORTABLE EQUIPMENT	94
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	93
K281 CLEAN WELDING TIPS ON OXYACETYLENE EQUIPMENT	93
M369 ARC-WELD LOW, MEDIUM, OR HIGH CARBON STEELS	92
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	92
F149 SET UP FOR WELDING IN THE HORIZONTAL POSITION	92
F146 SET UP FOR WELDING BUTT JOINTS	92
F151 SET UP FOR WELDING IN THE VERTICAL POSITION	91

TABLE 8
 TASKS PERFORMED BY THE LARGEST PERCENTAGES OF
 DAFSC 42774 RESPONDENTS

TASKS	PERCENT MEMBERS PERFORMING (N=110)
I226 OPERATE METAL GRINDING EQUIPMENT	88
K300 INSPECT OXYACETYLENE EQUIPMENT FOR SERVICEABILITY	87
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	87
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	87
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	86
B23 COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	85
I222 MAINTAIN EYE PROTECTION SHIELDS OR FACE MASKS	85
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	85
A3 COORDINATE WORK WITH RELATED MAINTENANCE ACTIVITIES	85
K305 PERFORM SOAP AND WATER LEAK TEST ON OXYACETYLENE WELDING EQUIPMENT	85
K303 PERFORM OPERATOR MAINTENANCE ON PORTABLE OXYACETYLENE EQUIPMENT	85
F148 SET UP FOR WELDING IN THE FLAT POSITION	85
I231 OPERATE POWER OPERATED WIRE BRUSHING, BUFFING, OR SANDING EQUIPMENT	85
F146 SET UP FOR WELDING BUTT JOINTS	85
C61 WRITE AIRMAN PERFORMANCE REPORTS (APR)	84

TABLE 9

TASKS DISTINGUISHING DAFSC 42754 AND DAFSC 42774 SKILL LEVEL GROUPS
(BY PERCENT MEMBERS PERFORMING)

TASKS	DAFSC	DAFSC	DIFFERENCE
	42754 (N=267)	42774 (N=110)	
C61	20	84	-64
B23	24	85	-61
A2	11	68	-57
A18	11	67	-56
D75	13	66	-53
E117	22	75	-53
B33	21	74	-53
D86	13	65	-52
C54	11	63	-52
E125	13	64	-51
F147	90	79	+11
K324	83	72	+11
L355	77	67	+10
F157	80	72	+ 8
L331	91	84	+ 7

TABLE 10
 TASKS PERFORMED BY THE LARGEST PERCENTAGES OF
 DAFSC 42799 RESPONDENTS

TASKS	PERCENT MEMBERS PERFORMING (N=87)
B23 COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	95
C61 WRITE AIRMAN PERFORMANCE REPORTS (APR)	94
B33 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	92
A3 COORDINATE WORK WITH RELATED MAINTENANCE ACTIVITIES	91
C54 EVALUATE OR INDORSE AIRMAN PERFORMANCE REPORTS (APR)	89
A10 PARTICIPATE IN PLANNING OR SCHEDULING MEETINGS	87
A18 SCHEDULE LEAVES OR PASSES	87
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	86
A4 DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT,	85
C50 EVALUATE INDIVIDUALS FOR AWARDS, DEMOTION, OR RECLASSIFICATION	85
C51 EVALUATE INSPECTION REPORTS OR PROCEDURES	82
A8 ESTABLISH OR UPDATE ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDING OPERATING PROCEDURES (SOP)	82
C49 EVALUATE COMPLIANCE WITH WORK STANDARDS	79
C58 EVALUATE WORK SCHEDULES	79
B35 SUPERVISE AIRFRAME REPAIR PERSONNEL (AFSC 427X5)	78

TABLE 11

TASKS DISTINGUISHING DAFSC 42774 AND DAFSC 42799 SKILL LEVEL GROUPS
(BY PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 42774 (N=110)	DAFSC 42799 (N=84)	DIFFERENCE
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	87	0	+87
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	86	0	+86
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	87	1	+86
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	85	0	+85
F148 SET UP FOR WELDING IN THE FLAT POSITION	85	0	+85
K303 PERFORM OPERATOR MAINTENANCE ON PORTABLE OXYACETYLENE EQUIPMENT	85	0	+85
K305 PERFORM SOAP AND WATER LEAK TEST ON OXYACETYLENE WELDING	85	0	+85
K300 INSPECT OXYACETYLENE EQUIPMENT FOR SERVICEABILITY	87	3	+84
K281 CLEAN WELDING TIPS ON OXYACETYLENE EQUIPMENT	84	0	+84
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	84	0	+84
B41 SUPERVISE MACHINIST PERSONNEL (AFSC 427X0)	18	63	-47
A10 PARTICIPATE IN PLANNING OR SCHEDULING MEETINGS	44	87	-43
A16 PREPARE JOB DESCRIPTIONS	38	56	-28
A11 PLAN OR PREPARE BRIEFINGS	64	86	-22
C53 EVALUATE MAINTENANCE OR USE OF WORKSPACE, EQUIPMENT, OR SUPPLIES	55	71	-16

TABLE 12
 TASKS PERFORMED BY THE LARGEST PERCENTAGES OF
 CEM CODE 42700 RESPONDENTS

TASKS	PERCENT MEMBERS PERFORMING (N=12)
C54 EVALUATE OR INDORSE AIRMAN PERFORMANCE REPORTS (APR)	100
C51 EVALUATE INSPECTION REPORTS OR PROCEDURES	100
A3 COORDINATE WORK WITH RELATED MAINTENANCE ACTIVITIES	100
B23 COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	100
B33 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
C61 WRITE AIRMAN PERFORMANCE REPORTS (APR)	100
C49 EVALUATE COMPLIANCE WITH WORK STANDARDS	100
C50 EVALUATE INDIVIDUALS FOR AWARDS, DEMOTION, OR RECLASSIFICATION	100
A5 DETERMINE WORK PRIORITIES	100
B30 IMPLEMENT SAFETY PROGRAMS OR PROCEDURES	100
C45 ANALYZE WORK LOAD REQUIREMENTS	100
A4 DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	100
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	100
C56 EVALUATE SAFETY OR SECURITY PROGRAMS	100
C58 EVALUATE WORK SCHEDULES	100

TABLE 13

TASKS DISTINGUISHING DAFSC 42799 AND CEM CODE 42700 SKILL LEVEL GROUPS
(BY PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 42799 (N=87)	CEM CODE 42700 (N=12)	DIFFERENCE
B40 SUPERVISE FABRICATION SUPERINTENDENTS (AFSC 42799)	20	83	-63
C62 WRITE CIVILIAN PERFORMANCE RATINGS OR SUPERVISORY APPRAISALS	39	100	-61
A14 PLAN OR UPDATE SECURITY PROGRAMS	41	92	-51
A17 REVIEW UNIT EMERGENCY OR DISASTER PLANS	52	100	-48
A20 SERVE ON JOB EVALUATION BOARDS	22	67	-45
A19 SERVE ON AIRMAN CLASSIFICATION BOARDS	41	83	-42
E103 MAINTAIN CORRESPONDENCE FILES	68	42	+26
D66 ASSIGN OR MONITOR ON-THE-JOB TRAINING (OJT) TRAINERS	48	33	+15
D82 EVALUATE PROGRESS OF RESIDENT COURSE STUDENTS	53	42	+11
E112 PERFORM CERTIFICATION PROCESSING	8	0	+ 8
E92 ANNOTATE MAN-HOUR ACCOUNTING FORMS	36	33	+ 3

CONUS VERSUS OVERSEAS GROUP DIFFERENCES

A comparison of the tasks performed and background data for DAFSC 427X4 respondents assigned to CONUS and overseas locations was made as part of the report. No major differences between the CONUS and overseas groups were identified. A minor difference found was overseas personnel performed, on the average, slightly more tasks than CONUS personnel (157 tasks versus 136 tasks). Table 14 presents those tasks which have the greatest difference between CONUS and overseas respondents in terms of the percentages of members performing tasks. Again, the contrast between groups is relatively small. Tasks performed by higher percentages of overseas respondents include repairing jet engine components, storing cleaning materials, and performing certification processing.

When comparing the background data of CONUS and overseas groups, overseas respondents averaged more months in military service (59 months versus 50 months for CONUS) and more time in the career field (52 months versus 38 months). Responses to equipment used and job satisfaction items in the job inventory were essentially the same for both groups. In general, very few differences exist between CONUS and overseas groups.

TABLE 14

THE BEST DIFFERENTIATING TASKS PERFORMED BY DAFSC 42754 CONUS AND OVERSEAS GROUPS
(BY PERCENT MEMBERS PERFORMING)

TASKS	CONUS (N=218)	OVERSEAS (N=49)	DIFFERENCE
0441 WELD REPAIR JET ENGINE COMPRESSOR SECTION COMPONENTS	44	71	-27
G176 STORE OR DISPOSE OF CLEANING MATERIALS	22	49	-27
E112 PERFORM CERTIFICATION PROCESSING	11	37	-26
E97 FORWARD TEST PLATES TO DEPOT FOR RECERTIFICATION	11	35	-24
L333 PERFORM OPERATOR MAINTENANCE ON PORTABLE TIG EQUIPMENT	59	82	-23
G169 CLEAN RECIPROCATING AIRCRAFT ENGINE PARTS USING SOLVENTS	17	39	-22
K314 TURN-IN, PICK UP, OR DELIVER OXYACETYLENE CYLINDERS	58	80	-22
K313 SUBMERGE TEST OXYACETYLENE HOSES	48	67	-19
H212 VISUALLY INSPECT METAL SURFACES USING MAGNIFICATION	34	53	-19
P448 FABRICATE HEAT AND CORROSION RESISTANT STEEL WORKING AREAS, SINKS, OR OTHER FACILITIES	24	43	-19
0443 WELD REPAIR JET ENGINE TURBINE SECTION COMPONENTS	53	71	-18
E110 ORDER OR RECEIVE MATERIAL OR SUPPLIES	45	63	-18
0417 INSPECT AIRCRAFT RECIPROCATING ENGINE PARTS FOR DAMAGE	9	27	-18
F145 SET UP FOR SPOT WELDING	35	53	-18
M388 CUT LOW, MEDIUM, OR HIGH CARBON STEELS WITH METALLIC ARC WELDING EQUIPMENT	38	55	-17
J256 HARDEN NONFERROUS METALS	59	43	+16
J261 NORMALIZE NONFERROUS METALS	39	29	+10
J260 NORMALIZE FERROUS METALS	53	45	+9
L354 WELD LOW, MEDIUM, OR HIGH CARBON STEELS WITH TIG EQUIPMENT	25	18	+7
H209 TEST METALS USING SPARK-STREAM METHODS	64	59	+5
G168 CLEAN METALS WITH SOLVENTS	60	57	+3

AFR 39-1 SPECIALTY DESCRIPTIONS

The AFR 39-1 specialty description analysis compares survey data to the 427X4 specialty descriptions dated 1 June 1977 and the 42799 specialty description dated 15 September 1978. The descriptions give broad overviews of the duties and tasks various skill level personnel perform in the field.

The specialty descriptions for the metals processing specialist (DAFSCs 42754, 42734, or 42714) and the fabrication superintendents/managers (DAFSC 42799 or CEM Code 42700) give an accurate and comprehensive overview of all jobs performed by career ladder members. However, the specialty description for the metals processing technician does not give an accurate overview of the job of the DAFSC 42774 incumbents. The duties and responsibilities section of the DAFSC 42774 specialty description centers around duties like testing metals, heat or surface treating metals, and supervising personnel. No mention is made of any specific welding duties and responsibilities. Survey data shows that DAFSC 42774 respondents spend almost 20 percent of their job time operating oxyacetylene or inert gas welding equipment. The performance of welding tasks by metals processing technicians may warrant, in future DAFSC 42774 specialty descriptions, a reduction of emphasis on treating metals and the addition of a substantial reference to the welding performed by DAFSC 42774 incumbents.

ANALYSIS OF TASK DIFFICULTY

From the listing of airmen identified to participate in the occupational survey inventory, incumbents from various commands and locations who held a 7- or 9-skill level DAFSC and PAFSC were identified to also receive a task difficulty booklet. This booklet contained only the duty/task list section of the original occupational survey inventory. The survey respondent was instructed to rate all of the tasks on a nine-point scale from extremely low difficulty to extremely high difficulty, with difficulty being defined as the length of time it requires an average incumbent to learn to do the task. Interrater agreement (as assessed through components of variance of standardized group means) among the 32 raters who returned booklets was .88. Ratings were adjusted so that tasks of average difficulty have ratings of 5.00.

Generally, tasks associated with analyzing, heat treating, or electroplating metals and with performing structural or equipment welding and fabrication were rated as above average in difficulty. Of the 48 tasks in these duty areas, 44 were rated above average in difficulty. Conversely, duty sections like planning and setting up metal processing projects; testing and classifying metals; operating and maintaining auxiliary equipment and tools; and maintaining work areas included many tasks which were rated as below average in difficulty. Table 15 presents those 15 tasks rated as most difficult while Table 16 portrays those 15 tasks rated as least difficult. Thus, these two tables illustrate the range of tasks performed by Metals Processing personnel and clearly distinguish those tasks which are difficult. The more difficult tasks are performed primarily by welding craftsmen, jet engine welders, and shop supervisors.

Training Emphasis

In addition to collecting task difficulty data, the occupational survey branch now collects data which can be used by training managers to determine or refine initial training requirements. This "training emphasis" data is obtained from experienced 7- and 9-skill level incumbents who are asked to check those tasks in a job inventory booklet which require some type of structured training. Structured training is defined as training provided at resident technical schools, Field Training Detachments (FTD), Mobile Training Teams (MTT), or formal OJT. After checking all applicable tasks, incumbents then rate each of these tasks in terms of how much training emphasis should be placed on that task. Each task is rated on a 10-point scale, ranging from zero (no structured training needed) to nine (extremely high training emphasis).

Forty-three respondents returned training emphasis booklets for the 427X4 inventory tasks. Interrater agreement among the 43 raters, however, was extremely low. Due to the low rater agreement, training emphasis data for this career ladder, in its present form, will not be released for operational use. The data has been referred to the Air Force Human Resources Laboratory (AFHRL), Brooks AFB, for their continuing research into causes of low rater agreement.

TABLE 15

FIFTEEN TASKS RATED AS MOST DIFFICULT BY DAFSC 427X4 RESPONDENTS

TASK	TASK DIFFICULTY INDEX	PERCENT MEMBERS PERFORMING (N=517)
J265 PREPARE PLATING SOLUTIONS	7.83	5
J250 ASSEMBLE OR DISSASSEMBLE HEAT TREATING FURNACES	7.38	10
J264 PERFORM OPERATOR MAINTENANCE ON INFRARED HEAT TREATING EQUIPMENT	7.25	5
G173 PREPARE ACID CLEANING SOLUTIONS	7.13	7
K316 WELD ALUMINUM OR ALUMINUM ALLOYS WITH OXYACETYLENE EQUIPMENT	7.07	8
M364 ARC-WELD ALUMINUM OR ALUMINUM ALLOYS	7.06	25
A7 DRAFT BUDGET OR FINANCIAL REQUIREMENTS	7.02	21
L361 WELD TITANIUM OR TITANIUM ALLOYS WITH TIG EQUIPMENT USING TRAILING SHIELDS	6.99	48
L362 WELD TITANIUM OR TITANIUM ALLOYS WITH TIG EQUIPMENT USING CONTROLLED ATMOSPHERE CHAMBERS	6.86	20
L350 WELD HIGH PRESSURE OR CRYOGENIC SYSTEM ALUMINUM OR ALUMINUM ALLOY PIPE USING TIG EQUIPMENT	6.82	11
Q427 RESHAPE AIRCRAFT TUBULAR MEMBERS	6.80	3
L351 WELD HIGH PRESSURE OR CRYOGENIC SYSTEM STAINLESS STEEL PIPE JOINTS USING TIG EQUIPMENT	6.75	10
K326 WELD NICKEL OR NICKEL ALLOYS WITH OXYACETYLENE EQUIPMENT	6.75	6
L360 WELD TITANIUM AND TITANIUM ALLOYS WITH TIG EQUIPMENT	6.73	3
J245 ANALYZE PLATING SOLUTIONS	6.73	6

TABLE 16

FIFTEEN TASKS RATED AS LEAST DIFFICULT BY DAFSC 427X4 RESPONDENTS

TASK	TASK DIFFICULTY INDEX	PERCENT MEMBERS PERFORMING (N=517)
K280 CLEAN OXYACETYLENE EQUIPMENT OTHER THAN WELDING TIPS	2.87	61
I216 CLEAN OR STORE MACHINE FIXTURES, JIGS, OR ATTACHMENTS	2.68	64
K305 PERFORM SOAP AND WATER LEAK TEST ON OXYACETYLENE WELDING EQUIPMENT	2.58	69
K313 SUBMERGE TEST OXYACETYLENE HOSES	2.57	43
K281 CLEAN WELDING TIPS ON OXYACETYLENE EQUIPMENT	2.57	73
I219 CUT MATERIALS WITH HAND HACKSAWS	2.51	72
I217 CLEAN, SCRAPE, OR PAINT MACHINES	2.46	65
I218 CLEAN, SCRAPE, OR PAINT WORK TABLES	2.43	64
I223 MAINTAIN HAND TOOLS	2.40	69
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	2.34	75
I222 MAINTAIN EYE PROTECTION SHIELDS OR FACE MASKS	1.95	72
Q462 CLEAN LATRINES OR WASHROOMS	1.28	49
Q466 SWEEP, MOP, OR WAX FLOORS	.95	71
Q467 WASH SHOP WINDOWS, DOORS, OR HARDWARE	.86	56
Q463 DISPOSE OF TRASH OR WASTE MATERIAL	.86	70

ANALYSIS OF TRAINING DOCUMENTS

Training personnel at the 3ABR42734 course at Chanute AFB Illinois, matched 427X4 inventory tasks to the 427X4 Specialty Training Standard (STS) and 3ABR42734 Plan of Instruction (POI). However, due to delays in the production of computer products for this analysis, the STS and POI matchings were not available for inclusion in this report. Upon completion of the training document analysis, the results of the analysis and the accompanying computer products will be forwarded to training personnel.

DISCUSSION

The Metals Processing specialty appears to be a homogeneous, technically-oriented career ladder. Most jobs in the specialty are very similar; all involve technical welding and related metals processing tasks. For example, most welding craftsmen perform the full range of technical tasks appropriate to the career ladder.

Job interest, incumbents attitudes about use of their talent, and attitudes about the utility of their training are generally high, as might be expected in a technically-oriented skilled craftsman trade. However, job interest for the jet engine welders was somewhat low. Also, expressed interest to reenlist was low for the large welding craftsmen group as well as for the journeyman welders and jet engine welders job groups. This could be a function of the proportion of first term personnel in these groups or it may suggest that there are major problems in career motivation for the specialty. Data in the present survey are not sufficiently detailed to identify the causes of this lack of career motivation.

When job progression was reviewed in terms of tasks performed by various skill level or time-in-service groups, little specialization was evident. Five- and 7-skill level groups perform essentially the same technical tasks although 7-skill level personnel also perform additional supervisory and management tasks. Nine-skill level personnel have a substantially different job; Senior Metals Processing NCOs report performing few technical tasks. Their jobs appear to be almost exclusively managerial and supervisory in nature as is the case for the CEMs sampled.

In general, metals processing personnel appear to have a distinct career ladder structure which is very technically-oriented up through the 7-skill level. At the 9-skill level, this specialty is grouped with other Fabrication specialties and this appears very appropriate since the 9-skill level job is essentially managerial rather than technical in nature.

APPENDIX A

TABLE 17

GRP005 - BRANCH SUPERINTENDENTS

GROUPS CHARACTERISTIC TASKS:

<u>TASK</u>	<u>PERCENT MEMBERS PERFORMING</u>
B23 COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	95
C61 WRITE AIRMAN PERFORMANCE REPORTS (APR)	94
A3 COORDINATE WORK WITH RELATED MAINTENANCE ACTIVITIES	92
B33 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	92
C54 EVALUATE OR INDORSE AIRMAN PERFORMANCE REPORTS (APR)	89
A10 PARTICIPATE IN PLANNING OR SCHEDULING MEETINGS	88
A4 DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	87
A18 SCHEDULE LEAVES OR PASSES	85
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	85
C50 EVALUATE INDIVIDUALS FOR AWARDS, DEMOTION, OR RECLASSIFI- CATION	83
C51 EVALUATE INSPECTION REPORTS OR PROCEDURES	82
A8 ESTABLISH OR UPDATE ORGANIZATIONAL POLICIES, OFFICE INSTRUCTIONS (OI), OR STANDING OPERATING PROCEDURES (SOP)	82
C49 EVALUATE COMPLIANCE WITH WORK STANDARDS	80
B24 DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	79
C58 EVALUATE WORK SCHEDULES	78
B30 IMPLEMENT SAFETY PROGRAMS OR PROCEDURES	78
C57 EVALUATE SUGGESTIONS	78
A2 ASSIGN SPONSORS FOR NEWLY ASSIGNED PERSONNEL	76
B35 SUPERVISE AIRFRAME REPAIR PERSONNEL (AFSC 427X5)	73
C56 EVALUATE SAFETY OR SECURITY PROGRAMS	73

TABLE 18

GRP067 - SHOP SUPERVISORS

GROUPS CHARACTERISTIC TASKS:

TASK	PERCENT MEMBERS PERFORMING
I222 MAINTAIN EYE PROTECTION SHIELDS OR FACE MASKS	100
F142 SET UP FOR METAL CUTTING	100
F148 SET UP FOR WELDING IN THE FLAT POSITION	100
I226 OPERATE METAL GRINDING EQUIPMENT	99
F141 SET UP FOR LEAD OR SILVER SOLDERING	99
F146 SET UP FOR WELDING BUTT JOINTS	99
I223 MAINTAIN HAND TOOLS	98
I231 OPERATE POWER OPERATED WIRE BRUSHING, BUFFING, OR SANDING EQUIPMENT	98
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	98
F149 SET UP FOR WELDING IN THE HORIZONTAL POSITION	98
F151 SET UP FOR WELDING IN THE VERTICAL POSITION	98
I234 PERFORM OPERATOR MAINTENANCE ON METAL GRINDING EQUIPMENT	98
K300 INSPECT OXYACETYLENE EQUIPMENT FOR SERVICEABILITY	97
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	97
I215 CLEAN OR STORE HAND TOOLS	97
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	97
K305 PERFORM SOAP AND WATER LEAK TEST ON OXYACETYLENE WELDING EQUIPMENT	97
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	97
K303 PERFORM OPERATOR MAINTENANCE ON PORTABLE OXYACETYLENE EQUIPMENT	97
I216 CLEAN OR STORE MACHINE FIXTURES, JIGS, OR ATTACHMENTS	97

TABLE 19

GRP065 - WELDING CRAFTSMEN

GROUPS CHARACTERISTIC TASKS:

TASK	PERCENT MEMBERS PERFORMING
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	99
F148 SET UP FOR WELDING IN THE FLAT POSITION	98
I226 OPERATE METAL GRINDING EQUIPMENT	98
K281 CLEAN WELDING TIPS ON OXYACETYLENE EQUIPMENT	98
I219 CUT MATERIALS WITH HAND HACKSAWS	98
F146 SET UP FOR WELDING BUTT JOINTS	97
F149 SET UP FOR WELDING IN THE HORIZONTAL POSITION	97
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	97
K275 ASSEMBLE OR DISASSEMBLE OXYACETYLENE PORTABLE EQUIPMENT	97
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	97
F151 SET UP FOR WELDING IN THE VERTICAL POSITION	96
Q466 SWEEP, MOP, OR WAX FLOORS	96
Q463 DISPOSE OF TRASH OR WASTE MATERIAL	96
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	96
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	95
M369 ARC-WELD LOW, MEDIUM, OR HIGH CARBON STEELS	95
F147 SET UP FOR WELDING CORNER OR EDGE JOINTS	95
F150 SET UP FOR WELDING IN THE OVERHEAD POSITION	95
L331 INSPECT TIG WELDING EQUIPMENT FOR SERVICEABILITY	94
K309 SHAPE METALS BY HEATING WITH OXYACETYLENE EQUIPMENT	94

TABLE 20

GRP043 - JOURNEYMAN WELDERS

GROUPS CHARACTERISTIC TASKS:

TASK	PERCENT MEMBERS PERFORMING
K279 CHANGE OXYGEN OR ACETYLENE BOTTLES	100
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	97
Q463 DISPOSE OF TRASH OR WASTE MATERIAL	97
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	97
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	97
Q466 SWEEP, MOP, OR WAX FLOORS	94
K275 ASSEMBLE OR DISASSEMBLE OXYACETYLENE PORTABLE EQUIPMENT	94
I226 OPERATE METAL GRINDING EQUIPMENT	91
K281 CLEAN WELDING TIPS ON OXYACETYLENE EQUIPMENT	91
M369 ARC-WELD LOW, MEDIUM, OR HIGH CARBON STEELS	88
F148 SET UP FOR WELDING IN THE FLAT POSITION	88
K309 SHAPE METALS BY HEATING WITH OXYACETYLENE EQUIPMENT	88
K324 WELD LOW, MEDIUM, OR HIGH CARBON STEELS WITH OXYACETYLENE EQUIPMENT	88
I231 OPERATE POWER OPERATED WIRE BRUSHING, BUFFING, OR SANDING EQUIPMENT	85
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	85
F149 SET UP FOR WELDING IN THE HORIZONTAL POSITION	85
I215 CLEAN OR STORE HAND TOOLS	82
F146 SET UP FOR WELDING BUTT JOINTS	82
I225 OPERATE METAL DRILLING EQUIPMENT	79
F151 SET UP FOR WELDING IN THE VERTICAL POSITION	79

TABLE 21

GRP038 - JET ENGINE WELDERS

GROUPS CHARACTERISTIC TASKS:

TASK	PERCENT MEMBERS PERFORMING
0445 WELD REPAIR POWERED OR NON-POWERED AGE	100
L341 WELD ALUMINUM OR ALUMINUM ALLOYS WITH TIG EQUIPMENT	100
0443 WELD REPAIR JET ENGINE TURBINE SECTION COMPONENTS	100
0441 WELD REPAIR JET ENGINE COMPRESSOR SECTION COMPONENTS	100
M369 ARC-WELD LOW, MEDIUM, OR HIGH CARBON STEELS	100
L328 ADJUST WATERFLOW, GAS FLOW, OR AMPERAGE WHEN WELDING WITH TUNGSTEN INERT GAS (TIG) EQUIPMENT	100
K290 CUT LOW, MEDIUM, OR HIGH CARBON STEEL WITH OXYACETYLENE EQUIPMENT	100
L335 PERFORM OPERATOR MAINTENANCE ON STATIONARY TIG EQUIPMENT	100
Q467 WASH SHOP WINDOWS, DOORS, OR HARDWARE	100
L331 INSPECT TIG WELDING EQUIPMENT FOR SERVICEABILITY	100
Q463 DISPOSE OF TRASH OR WASTE MATERIAL	100
K310 SILVER SOLDER FERROUS METALS WITH OXYACETYLENE EQUIPMENT	100
K305 PERFORM SOAP AND WATER LEAK TEST ON OXYACETYLENE WELDING EQUIPMENT	100
K277 BRAZE FERROUS METALS WITH OXYACETYLENE EQUIPMENT	100
Q466 SWEEP, MOP, OR WAX FLOORS	100
L347 WELD HASTELLOY METALS WITH TIG EQUIPMENT	83
0440 WELD REPAIR JET ENGINE COMBUSTION SECTION COMPONENTS	83
0442 WELD REPAIR JET ENGINE EXHAUST SECTION COMPONENTS	83
L349 WELD HEAT AND CORROSION RESISTANT STEELS WITH TIG EQUIPMENT	83
G164 CLEAN METALS MECHANICALLY	83

TABLE 22

GRPO46 - SUPERVISORS

GROUPS CHARACTERISTIC TASKS:

<u>TASK</u>	<u>PERCENT MEMBERS PERFORMING</u>
E95 COORDINATE METAL PROCESSING SHOP ACTIVITIES WITH OTHER SHOPS	100
H213 VISUALLY INSPECT WELDS FOR DEFECTS	100
A3 COORDINATE WORK WITH RELATED MAINTENANCE ACTIVITIES	100
A12 PLAN OR SCHEDULE WORK ASSIGNMENTS	100
A5 DETERMINE WORK PRIORITIES	100
E98 IDENTIFY OR TAG SERVICEABLE OR NONSERVICEABLE EQUIPMENT	100
I240 PERFORM ROUTINE INSPECTIONS OF SAFETY EQUIPMENT	100
L331 INSPECT TIG WELDING EQUIPMENT FOR SERVICEABILITY	100
B23 COUNSEL PERSONNEL ON PERSONAL OR MILITARY RELATED PROBLEMS	100
E117 PRESENT SHOP BRIEFINGS ON TOPICS SUCH AS SAFETY OR FOREIGN OBJECT DAMAGE (FOD)	100
B24 DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	100
E110 ORDER OR RECEIVE MATERIAL OR SUPPLIES	100
B36 SUPERVISE APPRENTICE METALS PROCESSING SPECIALISTS (AFSC 42734)	100
C61 WRITE AIRMAN PERFORMANCE REPORTS (APR)	100
D66 ASSIGN OR MONITOR ON-THE-JOB TRAINING (OJT) TRAINERS	100
C49 EVALUATE COMPLIANCE WITH WORK STANDARDS	100
K300 INSPECT OXYACETYLENE EQUIPMENT FOR SERVICEABILITY	100
D74 DEMONSTRATE METAL PROCESSING TECHNIQUES	100
D72 COUNSEL TRAINEES ON TRAINING PROGRESS	100
E102 INVENTORY MATERIAL OR SUPPLIES	100