Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FAA-AM-77-21		

4. Title and Subtitle	5. Report Date
JOB ATTITUDES OF AIRWAY FACILITIES PERSONNEL	August 1977
	6. Performing Organization Code
	8. Performing Organization Report No.
7. Author(s) Roger C. Smith and Gary L. Hutto	
9. Performing Organization Name and Address FAA Civil Aeromedical Institute P. O. Box 25082 Oklahoma City, Oklahoma 73125	10. Work Unit No. (TRAIS)
	11. Contract or Grant No.
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address Office of Aviation Medicine Federal Aviation Administration 800 Independence Avenue, S. W. Washington, D.C. 20591	14. Sponsoring Agency Code FAA

15. Supplementary Notes

Work was performed under Tasks AM-C-75-PSY-52 and AM-C-76-PSY-52.

16. Abstract

A total of 2,366 employees of the Airway Facilities (AF) Service responded to a detailed questionnaire concerning job satisfaction and such factors as salary, shift schedule, workload, and geographic location. In general, AF employees reported satisfaction with employment by the AF Service, particularly in the areas judged most important by them: salary, job security, independence and personal responsibility, and achievement. Dissatisfaction was focused on various aspects of working conditions, such as shift rotation, management effectiveness, promotion opportunities, and paperwork. Detailed analyses of responses as a function of such variables as age, grade level, location, and AF program were also presented. The findings were discussed in terms of the implications for improving the job-related attitudes of AF personnel.

17. Key Words	18. Distribution Statement
Airway Facilities Job Attitudes Job Motivation Personnel Psychology	Document is available to the public through the National Technical Information Service, Springfield, Virginia 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	82	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

ACKNOWLEDGMENT

The completion of this study would not have been possible without the cooperation of many people, particularly the nearly 2,500 employees of the Airway Facilities (AF) Service who completed the questionnaires. Excellent support was also provided by personnel at all levels of AF management. While it is not possible to list all the individuals who made contributions to the study, the authors do wish to express their special appreciation to Mr. Thomas Hunt, now of AAF-200, who as chief of the Evaluation Staff (AAF-20) provided invaluable assistance throughout the conduct of this study. The authors also gratefully acknowledge the dedicated efforts of Ms. Cindy Mayes in the preparation of this manuscript for publication.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
PART ONE. OVERVIEW	1
I. Finding	1
A. Likes and Dislikes About AF Work	1
B. Job Satisfaction	2
C. Other Important Work Factors	2
D. Employee Characteristics	3
II. Conclusions	4
PART TWO. MAJOR FINDINGS	5
I. Method	5
A. Subjects	5
B. Survey Questionnaires	5
C. Procedure	5
II. Results and Discussion	7
A. Rate of Return	7
B. Likes and Dislikes of AF Work	7
C. Job Satisfaction	15
D. Attitudes Toward Certain Important Work Factors	22
III. Conclusions	32
PART THREE. AF EMPLOYEE CHARACTERISTICS	33
I. Age	34
II. Years of Service	38
III. Grade Structure	40
IV. Type of Employment	47
V. Type of Facility	58
REFERENCES	67
APPENDIX A AF Employee Attitude Survey	68
APPENDIX B Description of Herzberg Motivator-Hygiene Factors	82

JOB ATTITUDES OF AIRWAY FACILITIES PERSONNEL

Introduction.

One foundation of effective managerial and personnel programs is an understanding of the attitudes, needs, and motivations of employees. To date, assessment of these factors within the FAA work force has been limited to air traffic controllers (9,10) and to selected segments of the Airway Facilities (AF) Service (1,2,3,4,5). It is the purpose of this study to provide a comprehensive, agencywide analysis of the work-related attitudes and motivational factors present in the AF Service. This study provides (i) a more complete description of the work attitudes of the employees in all facets of AF work than was previously available, (ii) an agencywide benchmark against which future analyses of attitudes of AF personnel may be compared, (iii) a consideration of several aspects of work, such as workload and geographic location, that have not previously been evaluated in studies of FAA personnel, and (iv) a comparison of the attitudes and motivations of AF personnel with those of air traffic controllers.

This report is presented in three parts. The first part provides a short overview of the entire study. The second part presents in detail the methods employed, principal findings, and major conclusions drawn from the findings. The third part of the report contains the results of analyses conducted on each of the many employee characteristics (e.g., age, specialty) considered in this study. The reader seeking a basic understanding of AF employees will want to focus on Parts One and Two of the report. Those who have an interest in the attitudes of specific segments of the AF work force will also want to refer to the relevant portions of Part Three.

PART ONE. Overview

To determine the attitudes of AF personnel toward work in the AF system, we visited approximately 200 facilities and contacted another 200 by mail. Of 4,800 detailed questionnaires distributed, 2,366 were returned. The distribution of returns was generally proportional to the distribution of AF employees in the various regions, programs, specialties, and facilities.

I. Findings.

A. Likes and Dislikes About AF Work. The overall pattern of likes and dislikes about AF work was much the same as the pattern found in surveys of accountants, assembly line workers, scientists, janitors, and managers (7). AF employees indicated they liked those aspects of their work associated with the job tasks themselves, personal growth, and personal competence. Dislikes focused on such things as working conditions, administrative policy,

management, and supervision. The division of likes and dislikes is consistent with the Herzberg Motivator-Hygiene theory (7) of job satisfaction. It is thus clear that AF employees hold essentially the same job attitudes as do employees in other types of settings.

In terms of specifics, three areas were identified as major sources of positive feelings about AF work. These were (i) the nature of the work itself, particularly the technical character of the work and the challenge inherent in such work, (ii) the AF career including job security and retirement considerations, and (iii) the feeling of independence, personal responsibility, and freedom to work on one's own without continual supervision.

The major sources of complaint were quite specific as well. Management and management policies received a considerable share of the negative comments. This was also true of shift-rotation requirements. Working the midnight (mid) shift (2400-0800) is particularly objectionable. Paperwork was also a focus of many complaints, as was the Merit Promotion Plan and also the status of AF personnel within the FAA, particularly in comparison to employees of the Air Traffic Service.

B. Job Satisfaction. On the whole, AF employees expressed satisfaction with their work situations. More than 86 percent indicated they were satisfied or very satisfied with being employed in the AF Service, and 90 percent reported satisfaction with their choice of occupation. These percentages are 6 to 10 points higher than those typically obtained in other types of work settings (8).

At least three-fourths of the AF personnel indicated good or better satisfaction on the four factors they rated most important to job satisfaction: salary, job security, independence and personal responsibility, and achievement on the job. Generally, those factors that were rated low in adequacy of satisfaction were also rated low in relative importance (management effectiveness and recognition). The exception was the factor of promotion opportunities. This factor was rated as being of intermediate importance to satisfaction but was judged to provide adequate satisfaction by only 23 percent of the respondents. This rating indicates the promotion opportunity situation is a source of some frustration to the AF workforce.

C. Other Important Work Factors. Detailed inquiry was made about several important work factors. As noted above, shift work was a major area of discontent. However, even though the various shift-rotation schedules now employed were disliked by most of the respondents, there was no clear consensus as to the most desirable shift-rotation pattern. Only a transition to straight day shifts was endorsed by a substantial proportion of the AF employees.

When asked about salary, most of the respondents (86 percent) rated their current (1975) salaries as adequate or better. The estimates of the level of salary appropriate to AF work averaged only $320 per year higher than their current salaries.

The AF resident training program at the Academy got very high ratings, as 85 percent of the AF employees responding indicated this training was adequate or better. There were many specific comments on the excellence of the courses. Complaints concerning Academy training were usually directed at the administration of travel rather than the quality of training.

The information obtained on workload indicated that on the average, almost half (45 percent) of all workdays were rated moderate in workload, 33 percent were rated heavy workload days, and 22 percent were judged to have light workloads. In contrast, preferred workloads would be 62 percent moderate, 22 percent heavy, and 16 percent light. In other words, on the average, AF employees experience more light and more heavy workdays than they prefer. However, if the choice were to be made between a predominance of light or heavy workload days, the preference would be for heavy workloads.

Most (80 percent) of the respondents indicated satisfaction with their geographic location. While a substantial proportion (43 percent) indicated a desire to move to another location, about half these employees only wanted to move about within the same region. The desire to move was particularly prevalent among younger employees and personnel at regional offices.

D. Employee Characteristics. The AF workforce is a complex service whose employees have highly diverse characteristics. For this reason, many analyses were conducted comparing the attitudes of various groups of AF employees.

The related characteristics of age, years of service, and grade level yielded similar patterns of attitudes. As these increase, the attitudes toward the AF work situation tend to become more positive. The major exception relates to promotion opportunities, where increasing age and grade level result in decreased promotion opportunities.

There were few differences between Wage Grade (WG) and General Schedule (GS) personnel. The only major difference concerned salary, as more GS than WG employees felt their salaries to be adequate. The problem seemed related more to comparative standing than the actual amount received, as WG personnel felt that virtually all other FAA employees receive more equitable salary treatment than they. Except for this one area, WG employees seem reasonably content; they show little inclination toward mobility and have more positive feelings toward management than do GS employees.

The Facilities and Equipment (F&E), Maintenance, and other AF employees showed more similarities than differences in attitudes, although F&E personnel were somewhat more critical of their work situation than was the

remainder of the AF workforce. Similarly, there were few differences of note between AF employees in the different work specialties (e.g., navaids, communication, environmental support). The most favorable attitudes were reported by those involved in plans and programing, while the least favorable came from the environmental support group; however, the differences were not great.

Technicians and engineers held comparable attitudes toward AF work and were more favorably disposed toward their work situations than were other specialists in the AF system. The least satisfied of all AF employees were the draftsmen, who feel substantially less positive about their salary, status, and degree of independence than do most other AF employees.

The analyses also considered the different types of facilities within the AF system. The individuals at smaller facilities had the most positive outlook on their work, followed by AF employees at Air Route Traffic Control Centers, and then by those at regional offices and level III and IV towers. These differences may have been due in part to the greater degree of independence afforded workers at smaller facilities and the lack of shift rotations in those locations.

II. Conclusions.

On the basis of this sizeable cross section of the AF workforce, it can be concluded that, by and large, AF employees view their work situations in positive terms, particularly in those areas judged to have the greatest importance to them.

The areas of discontent were not particularly surprising. Management, a major focus of complaints in most settings (7), was also a principal recipient of criticism in this study. This finding underlines the need for continual upgrading of managerial/supervisory performance through improved selection and through training programs such as the Management Training School (MTS).

This survey also demonstrated that promotion and career opportunities are a significant problem for the AF Service. Clarification of the opportunities available and the procedures by which an employee can become ready for these opportunities, such as are detailed in the new Airway Facilities Career Planning Program (6), should be helpful in alleviating some aspects of this problem.

For those working rotating shifts, the selection of an appropriate shift schedule is a primary concern. As there is now no clear consensus among AF personnel as to the most appropriate schedule, it appears that further investigation concerning the effects of various schedules on employee satisfaction, efficiency, physical well-being, and general work adjustment would be appropriate.

PART TWO. Major Findings

The material presented in this part of the report primarily concerns those findings that apply to the employees of the AF Service as a whole. Discussion of differences among various segments of the AF work force are presented only when the differences are substantive. A comprehensive documentation of all the statistically significant findings derived from comparisons of the various groups of AF personnel is presented in Part Three.

I. Method.

A. Subjects. A total of 2,366 nonsupervisory AF personnel responded to the survey. These respondents were well distributed across all major elements of the AF Service (Table 1).

B. Survey Questionnaires. The questionnaire used in this survey (Appendix A) had three major divisions. First, AF employees were asked to indicate, in their own words, what they liked best and least about AF work and to rate their like or dislike of specific aspects of AF work. The second section covered various aspects of job satisfaction. The third section consisted of evaluative ratings of many specific factors associated with work in the AF Service, including management, supervision, training and development, the Merit Promotion Plan (MPP), equal employment opportunity (EEO), salary, work schedule, facility location, workload, and employee-management relations.

C. Procedure. The survey was conducted during June, July, and August of 1975. Two methods of distribution were employed: on-site and mailout. On-site distribution was undertaken by the authors at approximately 200 individual AF facilities of all sizes and types in locations that varied from urban (e.g., Seattle-Tacoma airport) to remote (e.g., Hoquiam VORTAC, Washington). During the visits to each facility, the authors explained the survey to the employees and answered questions. The questionnaires, along with written instructions, were then left with the personnel to complete on their own. Questionnaires normally were supplied only to those persons on duty at the time of the visit, although on several occasions questionnaires were left for specific individuals not present for the briefing. Mail distribution of questionnaires was used to reach AF employees in locations not readily accessible from major metropolitan areas. Each facility receiving mailed questionnaires was also supplied a list of individuals selected to receive questionnaires. The names were drawn at random from the entire complement at each facility to insure unbiased distribution of the survey forms. No record of these names was kept nor were names of any respondents asked for or recorded, as participation in the survey was entirely anonymous and voluntary. All questionnaires, from both the on-site and the mail distributions, were returned by mail directly to the authors.

TABLE 1. Demographic Characteristics of AF Survey Participants

Number of Participants		2,366
Grade Structure		
Wage Board		147[a]
WG-3/9	12	
WG-10	20	
WG-11	47	
WG-12	57	
General Schedule		2,178
GS-3/8	88	
GS-9	136	
GS-11	775	
GS-12	932	
GS-13/14	189	
Occupation		
Engineer		188
Technicians		2,063
Others		58
Program		
Facilities and Equipment		167
Maintenance		1,931
Other		74
Specialty		
Navaids/Radar/Communications		1,755
Automation		242
Environmental Support		189
Plans and Programing		72
Other		54
Type of Facility		
Regional Office		224
Major Tower (Level III/IV)		587
ARTCC		375
Small Facility		1,034
Region		
Southern		415
Great Lakes		377
Southwest		317
Eastern		312
Western		264
Rocky Mountain		189
Northwest		151
Central		135
New England		88
Alaskan		62
Pacific		20
Age		
Average	41.9 years (S.D. = 8.2 years)[b]	
Range	20 to 73 years	
Years of Service		
Average	12.1 years (S.D. = 7.1 years)	
Range	1 to 35 years	

[a] Totals under each heading will not add to 2,366, since not every respondent supplied complete demographic information.

[b] The range of values included by the standard deviation (S.D.) includes 66 percent of the respondents; e.g., 66 percent of the participants fell between the ages of 33.7 and 50.1 years.

II. Results and Discussion.

A. Rate of Return. Of the 4,800 questionnaires distributed, 2,366 were returned. This return rate of 49.3 percent is, however, a somewhat conservative estimate of the true rate because it is known that some questionnaires sent by mail did not reach the intended recipients for a variety of reasons. In any event, this rate is consistent with those for surveys previously conducted with the AF work force (1,2,3,4,5), which have produced an average return rate of 52 percent.

B. Likes and Dislikes in AF Work. The data from this section of the survey consisted of open-ended statements made concerning likes and dislikes about AF work as well as likes-dislikes ratings of specific aspects of AF work.

1. Open-ended questions. Two processes were employed to analyze these data. First, the statements were classified according to the Herzberg Motivator-Hygiene model of job satisfaction (7). This system was used to consider the relationship of the attitudes of AF employees to those of many other occupational groups previously subjected to analysis by the Herzberg approach. The second analysis was designed to sort the statements into categories of specific relevance to the AF system within the FAA.

a. Herzberg Motivator-Hygiene analyses. The Herzberg analysis consisted of sorting each individual statement into one of the 16 categories identified by Herzberg (described in Appendix B) as relevant to job satisfaction. The factors were derived from research by Herzberg and others on the job attitudes of various occupational groups (e.g., engineers, laborers, supervisors) (7). Six of the factors, Work Itself, Responsibility, Possibility for Growth, Advancement, Recognition, and Achievement, are designated "motivators" and typically account for most aspects of job satisfaction. The sources of dissatisfaction are usually associated with 10 hygiene factors: Company Policy and Administration (Management), Working Conditions, Supervision, Salary, Status, Job Security, Factors in Personal Life, and Interpersonal Relations With Peers, Supervisors, and Subordinates. These hygiene factors generally relate to the work circumstances of employees, while the motivators generally refer to the individual's actions and feelings at work. According to the Herzberg theory, the internalized, or motivator, factors have the greatest potential for providing job satisfaction, while hygiene factors have relatively little impact on satisfaction. Dissatisfaction, however, arises from defects in the hygiene aspects of work. For example, job satisfaction may be derived from the pride and sense of fulfillment (a motivator) an AF employee experiences in maintaining a piece of equipment for long periods of time with no outages. The employee is likely to feel dissatisfaction when inadequacies exist in the form of excessive heat or noise, supply problems, or management interference (all hygiene aspects). According to Herzberg, the alleviation of these hygiene

problems will not result in job satisfaction; achievement of job satisfaction requires attention to motivator factors. Attention only to motivators will not alleviate dissatisfaction when needs associated with hygiene factors remain unfulfilled. An effective program will incorporate a balance between these considerations so that all attempts to enhance employee motivation and morale are not directed exclusively to either the hygiene or motivator factors.

The sorting of statements into the 16 Herzberg classifications was accomplished by three raters, two of whom were research assistants trained by the first author. The two raters classified independently each of the statements made by the respondents. After completion of the ratings, the classifications were compared and the first author served as the third rater to resolve disagreements in ratings. Of the 17,899 statements rated, the two primary raters agreed on 81 percent of the classifications, a percentage of agreement that is very close to the agreement of raters in previous work (10).

As motivator-hygiene theory predicts, the motivators account for a clear majority (65 percent) of the statements indicating the best liked aspects of AF work in general (Figure 1). Two motivator factors, Work Itself (42 percent) and Responsibility (10 percent), accounted for more than half the likes statements. The one other factor to contribute substantially to employee likes about AF work was the hygiene factor of Working Conditions, which at 17 percent of the responses was the second most frequent type of response.

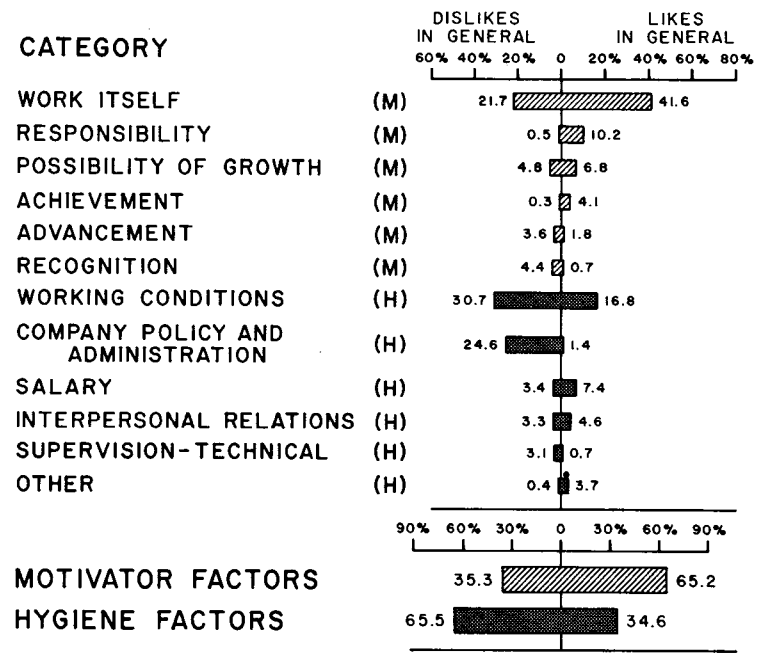

FIGURE 1. Percentage of likes and dislikes statements about AF work in general classified in each Herzberg factor.

For dislikes in general, hygiene factors accounted for most of the statements (66 percent) as expected. The two hygiene factors of Working Conditions (31 percent) and Management (25 percent) and the motivator factor of Work Itself (22 percent) contained the largest percentages of responses. Most of the negative statements in the Work Itself category concerned dislike of paperwork.

Overall, the distribution of statements about work in general made by AF technicians was similar to that found for air traffic control (ATC) personnel. AF personnel mentioned Working Conditions, Responsibility, and Salary significantly ($p < .05$ by chi square) more often in listing their likes about work than did air traffic controllers. The reverse was true for the factor of Work Itself, even though it was the most frequently cited factor for both groups. For dislikes, the two groups differed significantly on the two factors of Management, which was cited less often by AF personnel, and Work Itself, which was cited less often by air traffic controllers.

In examining the responses directed toward AF work at one's own facility, it appears that these statements focused more specifically on hygiene factors (Figure 2) than was the case for the statements about AF work in general. Hygiene factors accounted for more than half (56 percent) the likes and nearly three-fourths (72 percent) of the dislikes responses in this part of the survey. The hygiene factors of Working Conditions (31 percent), Interpersonal Factors (a combination of the three interpersonal factors

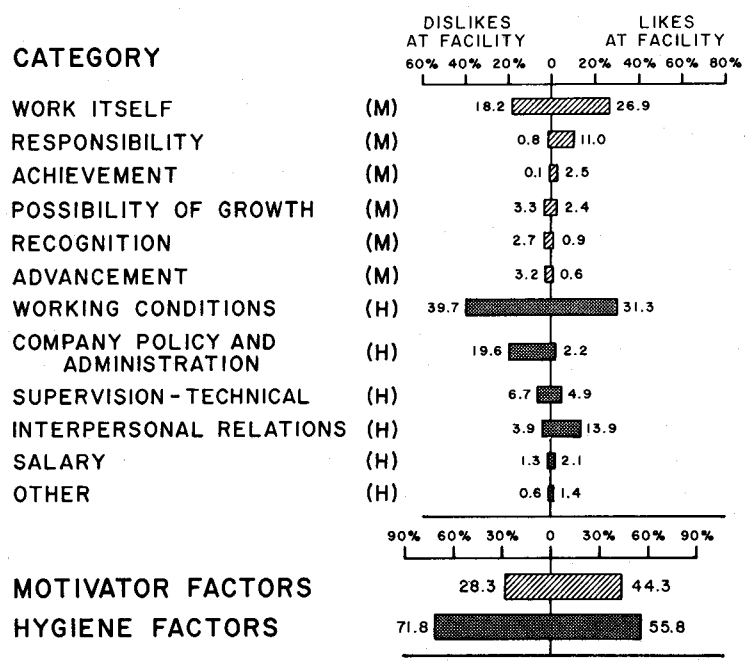

FIGURE 2. Percentages of likes and dislikes statements about work at AF facilities classified in each Herzberg factor.

established by Herzberg for Peers, Subordinates, and Superiors) (14.6 percent) and the motivator factors of Work Itself (27 percent) and Responsibility (11 percent) accounted for most of the statements concerning likes about work at the facility. On the dislikes side, the hygiene factors of Working Conditions (40 percent) and Management (20 percent) and the motivator factor of Work Itself (18 percent) were the categories that accounted for most of the statements.

The relatively low number of motivator-type statements in this part of the open-ended questionnaire was probably due to the explicit focus on the facility, which in and of itself would generally fall under the hygiene factor of Working Conditions. It is perhaps noteworthy that the interpersonal aspects of work at the facility are generally viewed quite positively by AF employees. They tend to like those with whom they work.

b. The FAA factors. To establish factors specific to the FAA, the raters evaluated each statement as to its specific content. All statements with the same specific content (e.g., like to work on radar equipment) were then tabulated and grouped into larger classifications (e.g., working on electronic equipment) as conceptually appropriate. These classifications were then arranged under major themes. In general, these major themes parallel the Herzberg factors and serve to verify the validity of the Herzberg approach to FAA data. These themes also serve to organize the more detailed findings considered below.

Looking at the individual themes (Table 2), one can see that a number of different aspects of Work Itself were frequently cited, both in general and at the facility, as sources of satisfaction. Specific tasks, variety and diversity, challenge, troubleshooting, and problem solving were all frequently mentioned as likes and rarely as dislikes. Three additional areas of the Work Itself theme were mentioned mostly as dislikes: paperwork and administration (far and away the most frequent source of complaint in this area), routine or repetitive work, and what respondents considered menial tasks, such as janitoring.

Under the Working Conditions theme, the environment for work (e.g., cleanliness, temperature control, lighting, spaciousness) brought many comments about conditions in general and at the specific facility. There were also many general references to appreciation of unelaborated "working conditions." The principal source of dislikes was rotating shifts (even more so than is apparent, as only about 35 percent of the respondents work rotating shift schedules). The related topic of "callbacks" (a call to an off-duty technician after hours to return to duty to repair some malfunction) also was a frequently cited negative working condition. Lack of support in terms of technical assistance, supply availability, and manpower was frequently mentioned. For the specific facility, the single most often mentioned "like" was the location of the facility; the most mentioned complaint was the work environment.

TABLE 2. Frequencies of AF Likes and Dislikes in General and at Facilities in Each FAA Response Category

Category	AF Work in General		AF Work at Facility	
	Likes	Dislikes	Likes	Dislikes
Work Itself				
The Work	177	28	104	39
Job Challenge	328	13	122	10
Troubleshooting	251	6	144	8
Diversity	474	42	277	39
Electronics Work	102	3	45	---
Routine Work	13	146	8	92
Paperwork/Administration	23	441	8	211
Janitorial/Menial Work	---	119	---	124
Miscellaneous Specific tasks (e.g., planning, training, etc.)	597	184	345	172
Working Conditions				
General	237	220	189	161
Workload	82	89	108	80
Working Hours	98	51	121	47
Rotating Shifts/Mid. Shifts	12	292	15	218
Callbacks	---	162	---	88
Locations (geographic, rural/urban)	48	38	291	119
Work Environment (Buildings, workspace)	132	78	257	221
Support (Technical, supply, manpower, administration)	22	175	33	203
Personal Factors				
Responsibility	125	21	88	25
Independence	375	26	343	53
Satisfaction From Work	176	17	88	11
Recognition	42	119	38	93
Importance of Work	163	---	35	---
Human Relations				
General	61	85	121	75
Peers	330	80	587	137
Management				
Management	41	616	87	471
Immediate Supervision	38	134	206	241
Personnel Policies				
General	30	150	3	52
Advancement	106	255	20	171
Benefits				
Salary	325	123	74	71
Security	141	8	20	4
Miscellaneous	83	5	12	1
Possibility of Growth	293	187	101	113
AF Equipment	97	251	125	296
Miscellaneous	97	31	45	21

Personal Factors--independence, responsibility, personal satisfaction, importance of the work, and recognition--accounted for a substantial number of positive statements but few of the negative. Respondents placed particular emphasis on the independence they felt in their work settings. The opportunity to work on their own with little interference from supervisors or managers was a very highly regarded aspect of AF work.

Management was usually mentioned in a critical fashion; however, immediate supervision at the facility was mentioned almost as often as a positive factor as it was a negative factor. In other words, those engaged in direct supervision of AF employees were seen as being a positive feature in the work setting almost as often as not.

Under Human Relations, it was apparent, as in the Herzberg analysis of facility likes and dislikes, that AF employees like and respect the people with whom they work each day.

Personnel Policies were more often than not a source of irritation, particularly with respect to advancement opportunities. Tangible working Benefits, on the other hand, were usually a source of satisfaction, as was the Possibility for Growth in the job.

In summing up the findings for the factors developed specifically for these AF employees, it is clear that they match the Herzberg categories in most respects. In addition, they provide a degree of added detail that makes the exact nature of the likes and dislikes clearer.

2. Likes-dislikes ratings. The analyses of the open-ended statements provide an indication of the factors that contribute most to whether or not AF personnel like their work. To determine how much they like or dislike specific features of their work, we found it necessary to have the respondents rate these features on a "like-dislike" scale. Thirty-two characteristics of AF work were rated on a five-point scale with end points of "like very much" and "dislike very much" (Appendix A). The average ratings for all but eight factors fell to the "like" side of the scale (Table 3). Most aspects of the work itself (e.g., working with equipment, challenge, variety) and the AF career (e.g., retirement benefits, working in Civil Service, the career itself) were highly regarded. The items that fell on the "dislike" side of the scale were usually concerned with management or working conditions, particularly shift schedules. The lowest rating of all was for working the mid shift.

The ratings of supervision and management generally followed a progression typical of these kinds of ratings. The more immediate the contact, the more positive the rating (10). Thus, the quality of immediate supervision was liked by more than 50 percent of the respondents. Quality of local management, while not rated as high as that of immediate supervision,

TABLE 3. Average Like-Dislike Ratings for Various Aspects of AF Work

Scale[a]	AF[b] Average Rating	AF % Liking	ATC[c] Average Rating	ATC % Liking
Working With Equipment	1.2	90.4	-----	-----
Retirement Benefits	1.2	89.1	0.5	59.6
Associating With Coworkers	1.2	89.1	1.3	91.2
Challenge of Work	1.2	86.8	1.7	97.5
Service to Aviation	1.1	84.2	1.4	90.2
AF Career	1.1	84.0	1.5	90.8
Working in Civil Service	1.1	81.3	0.6	53.8
Working in Aviation	1.1	80.6	1.7	97.4
AF Job Tasks	1.0	79.2	1.5	94.8
Work Variety	1.0	78.8	1.4	89.7
Working Dayshifts (0800-1600)	1.0	78.5	0.7	65.2
Difficulty of Work	0.9	75.6	1.3	83.8
Salary	0.8	72.9	0.9	81.9
Moderate Workloads	0.8	70.8	0.9	82.6
Physical Work Environment	0.6	64.8	0.3	48.9
Respect and Prestige	0.6	58.9	1.4	85.8
Number of Trained Coworkers	0.5	59.6	0.0	38.0
Quality of Supervision	0.4	56.7	-0.1	33.2
General Workload	0.4	53.4	0.8	65.7
Heavy Workloads	0.4	50.6	0.8	67.2
Established Work Procedures	0.3	45.0	0.3	42.3
Test Equipment	0.1	45.5	-----	-----
Quality of Local Management	0.1	41.7	-0.2	27.6
Working With Controllers	0.1	35.5	-----	-----
Miscellaneous Duties	0.0	31.0	-0.1	29.3
Promotion Opportunities	-0.1	38.4	-0.1	39.3
Working Evening Shifts (1600-2400)	-0.1	36.3	0.3	50.3
Light Workloads	-0.1	23.5	-0.3	20.9
National Management	-0.1	19.9	-0.6	11.5
Regional Management	-0.2	23.5	-0.4	15.0
Rotating Shifts	-0.6	21.7	0.2	53.4
Working Mid Shifts (2400-0800)	-1.1	9.2	-0.8	16.0

[a] For complete scale titles, see Appendix I.

[b] The possible rating scale values were "like very much" (+2), "like" (+1), "neither like or dislike" (0.0), "dislike" (-1), and "dislike very much" (-2). An average rating of 1.2 means the average rating fell between the "like very much" and "like" points on the scale but closer to the "like" point.

[c] Values for the air traffic controllers were obtained from an earlier study of controller attitudes. Blank spaces indicate no comparable controller scale.

was still on the "like" side of the scale. The average ratings for national and regional management were slightly on the "dislike" side. The differences between the distributions of the ratings for each of the levels of management were all significant ($p < .001$ by chi square). With the exception of the difference between the regional and national levels of management, these findings are entirely consistent with studies of social psychology (12) that show increased distance in a social sense (a function of physical, cultural, social, and psychological factors) is associated with increased incidence of negative or hostile attitudes between individuals or groups. The findings were not entirely consistent with this trend at the national and regional levels, however. As expected, respondents gave fewer "like" and more "dislike" ratings to regional management than to local management. At the national level, more than half the respondents indicated neutrality of feeling while the remainder of the ratings were distributed such that there were fewer responses for both the "like" and "dislike" sides of the scale compared to the other levels of management. This suggests that respondents see management at the national level as having relatively less impact, either bad or good, on their immediate work situations, particularly when compared to regional or local management.

The tendency of employees to feel increasingly negative toward more distant levels of management is almost certain to be mirrored in management's

view of subordinates. This raises the problem as to what might be done to improve attitudes in both directions. To the extent that these attitudes are a function of distance and inaccessibility, they should be influenced by programs to encourage management-employee contact at all levels of the AF system. The proverbial admonishment to regional and national headquarters personnel to get out in the field and talk with personnel directly is most appropriate. Establishing procedures that encourage two-way communication between employees and all levels of management should also be helpful.

The ratings for workload are interesting in that moderate and heavy workloads were more often rated as "liked" than "disliked," while the reverse was true for ratings of light workloads. These differences were highly significantly ($p < .001$) and suggest that slack time is a relatively onerous state of affairs to AF personnel.

As noted earlier, detailed analyses of the effects of such employee characteristics as age, occupation, and location are presented in Part Three of this report. Only major trends influencing the ratings are discussed in this part. In this respect, the findings for the likes-dislikes ratings were generally consistent across the characteristics considered. The overall means for these 32 rating scales tended to increase in the positive direction as a function of age, moving progressively from an average of +0.8 at age 29 and below to an average of +1.2 at age 60 and above. There was also a similar trend for GS grades at the GS-9 level and higher. Ratings for those from GS-4 through GS-8 were mixed.

The most notable effects for type and levels of grade were found for salary. GS employees liked their salaries better than WG employees liked theirs; within the GS group those persons at or above the grade of GS-7 gave higher ratings than those below that grade. Correlated with this finding was a tendency for the degree of liking of salary to increase with age and years of service. Engineers and technicians felt more positive toward their salaries than did those in other occupations (e.g., draftsmen, computer personnel). Among the specialties (e.g., radar, communications), the environmental support personnel gave comparatively low ratings on this item, as slightly less than half (45 percent) these employees, as compared to 73 percent of the employees in other AF specialties, indicated they liked their salaries. None of these differences should be too surprising, because in each case they do correlate with the relative amounts of money received by these employee groups. Perhaps most surprising was that WG levels were not associated with differences in ratings on this item.

Ratings of promotion opportunities became less positive as age, years of service, and GS grade increased--again, a not surprising finding in view of the continually decreasing promotion opportunities available to individuals as they age and move up the present AF career ladder.

It was also not surprising that as age and years of service increase, there is increasing dislike of working mid shifts. Rarely did anyone indicate that he liked working mid shifts; however, once AF employees reach 35 years of age, the percentage of individuals who like working mid shifts drops from 15 percent to 8 percent. The same break is true for years of experience after 4 years of AF service.

In keeping with the previously noted hypothesis that ratings of management become increasingly negative as managerial-employee distance increases, there was a significant difference between the ratings of management at regional and national levels by field facilities and those made by regional office personnel. The regional office employees, having more contact with both regional and national management, gave these levels of management higher ratings than did employees in field facilities.

Twenty-eight items used in this survey of AF employees had also been presented to air traffic controllers in an earlier study (10). Overall, the air traffic controllers were somewhat more extreme in their ratings than were AF employees; the highest rated items were rated higher and the lowest rated items were rated lower by controllers than by the AF respondents (with the exception of mid shifts). On almost every individual item (Table 3), the AF employees and the controllers differed significantly. Only the ratings of "Promotion Opportunities" and "Association with Coworkers" did not differ. The ratings of AF personnel were higher on 12 scales, and the ratings of controllers were higher on 14 scales. In comparison to ratings by air traffic controllers, the AF ratings were higher on all four scales relating to supervision and management and were particularly high on working for Civil Service. Controller ratings, on the other hand, were usually higher on various aspects of the work itself (variety, challenge, difficulty, etc.), shift rotation, and workload. With respect to shift rotation, it should be noted that the average age of the AF employees was 7 years greater than that of the air traffic controller sample.

C. Job Satisfaction.

1. An indirect measure. Before proceeding to the more direct measures of job satisfaction contained in this survey, let us examine the indications of relative satisfaction available from the open-ended portion of the questionnaire. Although each respondent was asked to provide three likes and three dislikes statements to the general section and again to the facility section of the open-ended questionnaire, it is common for the replies to include less than the full number of requested statements. In the 1968 study (9) of Terminal area air traffic controllers, it was found that fewer statements were made about what they liked about their work than what they disliked about it; the percentages were 49.8 percent "likes" and 50.2 percent "dislikes" statements, a small but significant difference. In 1972, the second survey (10) of air traffic controllers was conducted and the percentage of "likes" statements rose to 53.2 percent for Terminal area controllers

and 52.6 percent for Air Route Traffic Control Centers (ARTCC), Terminal, and Flight Service Station specialists considered together. The increase in the percentage of "likes" statements was significant and probably indicated some improvement in morale. Although there are no previous data on AF employees against which to compare the present sample, it is notable that the "likes" statements accounted for 52.5 percent of all the responses made in this survey. The value is obviously very close to the percentage obtained from controllers in 1972 and again shows the predominance of likes to dislikes in AF work.

2. Rating scales. Each participant was asked to rate the four aspects of job satisfaction--employment in AF, present position in AF, occupational choice, and working conditions--on five-point scales with end points of "very satisfied" and "very dissatisfied." The highest ratings were given to choice of occupation, as 90 percent of the respondents indicated they were "satisfied" or "very satisfied" with their occupation (Table 4). This figure is nearly the equivalent of the 91 percent obtained from controllers in 1972 when asked about their satisfaction in the choice of air traffic control as an occupation. Only 12 of the 2,366 AF respondents indicated that they were "very dissatisfied" with their occupational choices. In comparison to other occupations and professions, the value of 90 percent for AF employees is quite high, as typical values in industrial-organizational settings fall at the 80-percent level (11).

The percentage of respondents indicating satisfaction with being employed in the AF system was 86 percent. On this scale, there were 37 responses in the "very dissatisfied" category, still a very small proportion of the total sample of employees.

Satisfaction with working conditions was not as great as for the previous factors, although 75 percent of the statements indicated some degree of satisfaction. The actual number of "very dissatisfied" respondents was still relatively small at 68.

TABLE 4. Ratings of Job Satisfaction by AF Personnel

Item	Rating					Average Rating	% Indicating Satisfied
	Very Satisfied (1)[a]	Satisfied (2)	Indifferent (3)	Dissatisfied (4)	Very Dissatisfied (5)		
Satisfaction With Occupation	975	1,086	132	85	12	1.7	90.0
Satisfaction With Working in AF	851	1,129	170	104	37	1.8	86.4
Satisfaction With Working Conditions	371	1,343	260	235	68	2.2	75.3
Satisfaction With Present Position in AF	379	1,205	256	363	95	2.4	68.9

[a] Numbers in parentheses in this and following tables refer to assigned values for each point on rating scale that are used in determining average rating.

The fourth factor, satisfaction with one's present position in AF, received the lowest ratings of the four scales. Even so, a clear majority, 69 percent, rated themselves as at least "satisfied" on this item. A total of 95 respondents gave ratings of "very dissatisfied."

Ratings of these aspects of job satisfaction varied to some degree as a function of employee characteristics, as will be described in Part Three. However, for the most part, these were variations around the general trends discussed above and did not indicate any major discrepancies between employee groups on those measures of job satisfaction considered above.

3. Rankings of importance. It is one thing to ask individuals to tell in their own words what they like or don't like about their work or what they find satisfying or dissatisfying about their work; it is another to have the same personnel rank selected factors according to the relative importance of each factor to the individual's job satisfaction. In the first case, one determines the major sources of gratification or dissatisfaction as experienced by the employee. The second approach establishes the employee's personal priorities for job satisfaction, which may be quite different from the areas in which satisfaction is obtained in working.

The 12 factors selected for ranking represent a composite of factors used in previous AF surveys (1,2,3,4,5) and several factors thought to be important by motivational theorists (7). Each respondent was asked to rank the factors from 1 (most important) to 12 (least important). The rankings of these factors resulted in five groups (Table 5). The first, or highest, rated group included the four factors of salary, job security, freedom and responsibility, and job achievement (success at job, solving problems, seeing results of work). The

TABLE 5. Rankings of Importance of Selected Work Factors

Factor	Average Rank[a] of Importance	% Ranking First in Importance
Salary	4.3	12.9
Job Security	4.5	25.6
Responsibility for Own Work	4.5	12.7
Job Achievement	4.6	15.5
Possibility of Growth	5.2	14.8
Working Conditions	6.1	5.3
Supervision	6.4	4.3
Promotion Opportunity	6.5	4.3
Work Itself	6.8	7.2
Management	8.0	1.7
Recognition From Coworkers	8.9	0.4
Recognition From Outside	10.7	0.1

[a] Possible range of ranks is 1 to 12.

average ranks of importance for these four factors were essentially the same, although job security was ranked first by substantially more individuals than any of the other factors.

The next "group" consisted of only the one factor of possibility of growth. Although the average rank for this factor was substantially lower than the ranks of the four factors forming the first grouping, fully as many individuals rated this factor as first in importance as for each of the higher ranked factors except job security. This indicates that opportunities to acquire new skills, improve on current capabilities, and otherwise develop as an employee are of considerable importance to AF employees.

The next grouping included the factors of working conditions, supervisory competence and fairness, promotion opportunities, and the work itself. As the average rank of importance for this grouping suggests, each of these factors was usually ranked intermediate in relative importance; rarely were they designated by any respondent as of first importance.

The fourth group included the two factors of management effectiveness and recognition from coworkers. Respondents almost never cited these two factors as of first importance.

The final "group" consisted of only the single factor of recognition for work from outside of AF. Only two respondents indicated this factor to be first in relative importance, and 87 percent rated it in the lower third of the factors.

By and large, the findings for employee characteristics resulted in only modest variations on the basic themes presented above. Most noteworthy was the effect of occupation on the ratings. Engineers rated salary less important than did technicians or other employees, while technicians rated job security much higher than did engineers and others. Engineers also rated responsibility more important than did technicians, who in turn rated it more important than did other types of AF employees.

The type of facility (regional office, ARTCC, level III/IV tower, or small facility) at which the respondent was employed also had a notable effect on the ratings, particularly among the highest rated factors. Primarily, these differences were between regional office personnel and those at field facilities. Regional office respondents placed less importance on salary and job security and more importance on job achievement than did field employees.

Significantly, it might seem that there are striking inconsistencies between these data on importance of factors to satisfaction and the Herzberg Motivator-Hygiene analysis of the open-ended questionnaire. Work itself is the most-often-mentioned factor in the Herzberg analyses; it ranked ninth in this section. Management was a primary source of discontent; in relative importance to job satisfaction, it ranked 10th. However, these discrepancies may be more apparent than real. What the Motivator-Hygiene findings tell us

is that employees primarily find job satisfaction from aspects of their jobs encompassed by the motivator concepts and dissatisfaction from those aspects that are considered hygienic. This does not say that one set of factors or the other is of more importance to the worker, since creation of satisfaction is not more important than alleviating dissatisfaction. The AF employees have indicated that two hygiene factors, salary and job security, as well as two motivator factors, responsibility and job achievement, are most important to their overall well-being on the job.

Looking at these data in this fashion, we see that management is not one of the most important factors in evaluating the AF work settings; it is, however, a prime contributor to dissatisfaction, as shown in the analysis of the likes-dislikes data. Similarly, the factor of work itself is judged of intermediate importance but is the single largest contributor to job satisfaction according to the open-ended survey.

The managerial implications of these findings are clear: Attention must be directed to both motivator and hygiene aspects of the work situation in attempting to improve employee morale. A simplistic reliance on either set of factors is not likely to result in overall improvement in employee attitudes toward AF work.

4. Adequacy of satisfaction. After ranking the 12 factors as described above, the respondents then indicated on a five-point scale how adequately their employment in AF provided satisfaction on each of the factors. The scale points ran from "very good" to "very poor" (Appendix A).

The rank order of the factors from most to least adequacy of satisfaction (Table 6) is similar to the rankings of importance. The rank-order correlation was 0.69 ($p < .05$), a value that confirms a general correspondence between the two orderings. It is noteworthy that the four factors judged most important to job satisfaction were also the four factors that received the highest ratings of adequacy of satisfaction. The ratings were remarkably high for job security, as more than 90 percent of the respondents indicated good or better adequacy of satisfaction for this factor. Approximately three-fourths of the ratings for the other three top factors were also at this level.

At nearly the same level of satisfaction as the top four factors was the factor of work itself. About 71 percent of these ratings were at the "good" or "very good" end of the rating scale.

The next grouping of factors--recognition from peers, working conditions, and supervisory competence--were rated very similarly to and at a notably lower level than the previous five factors. Still, adequacy of satisfaction for these factors was judged good or better by more than half the respondents.

The ninth factor in order of adequacy of satisfaction was possibility of growth. The ranking of this factor on this dimension was considerably below its rank of importance to satisfaction. Slightly less than half the respondents

TABLE 6. Ratings of Adequacy of Satisfaction for Selected Work Factors

Factor	Average Rating[a]	% Indicating Good or Better Satisfaction
Job Security	1.6	90.2
Job Achievement	2.0	77.5
Responsibility for Own Work	2.0	77.4
Salary	2.1	74.0
Work Itself	2.2	70.9
Recognition From Coworkers	2.4	58.7
Supervision	2.5	57.9
Working Conditions	2.5	55.5
Possibility of Growth	2.7	48.8
Management Effectiveness	3.1	28.9
Recognition From Others	3.2	30.4
Promotion Opportunities	3.4	22.9

[a] The possible rating scale values were "very good" (1), "good" (2), "fair" (3), "poor" (4), and "very poor" (5). An average rating of 2.7 means that the average rating fell between "good" and "fair" points on the scale but nearer "fair" than "good."

considered that satisfaction in this area was good or better. Considering its relative importance to satisfaction, this area should be given careful attention in any program designed to upgrade morale and job satisfaction.

The remaining three factors (recognition from outside AF, management, and promotion opportunities) were the only factors for which less than one-third of the respondents indicated good or better adequacy of satisfaction. With the exception of promotion opportunities, these factors were also low in relative importance. However, promotion opportunities, like possibility for growth, received very low adequacy-of-satisfaction ratings compared to its ranking of importance. This finding is consistent with other responses to this survey and with findings from earlier AF studies (1,2,3,4,5) that indicate limited promotion potential is a continuing source of discontent for AF employees.

Of the 12 factors ranked and rated in this study, eight are directly comparable to factors used in previous AF evaluations. As noted above, the findings for the promotion opportunity factor are consistent in all the studies. This is true for the other seven factors as well (Table 7). While the percentages of respondents indicating good or better satisfaction are consistent across the studies, in this study the percentages did seem to be higher for the three top-rated factors of job security, responsibility, and job achievement.

Several employee characteristics were associated with substantive differences in the adequacy-of-satisfaction ratings. Judged adequacy of

TABLE 7. Percentages of AF Participants Indicating Good or Better Adequacy of Satisfaction on Selected Work Factors Evaluated in the Present and Past AF Employee Surveys

Factor	Present Survey (1976)	NE[a] Maintenance (1975)	SO F&E (1974)	GL F&E) (1973)	Agency-Wide F&E (1972)	SW Maintenance (1971)	Average of (1971-1975)
Job Security	90	85	83	69	76	79	78
Job Achievement	78	68	54	69	72	69	66
Responsibility	77	63	44	73	73	66	64
Salary	74	85	48	68	78	86	73
Working Conditions	56	60	41	61	54	67	57
Management	29	26	13	41	32	41	30
Recognition From Others	30	30	20	41	32	33	31
Promotion Opportunities	23	24	12	34	17	37	25

[a] Regions are designated as follows: New England, NE; Southern, SO; Great Lakes, GL; Southwest SW.

satisfaction with salary was higher for GS than for WG employees, engineers and technicians gave higher ratings than other occupational groups, environmental support personnel gave low ratings compared to other specialties, and degree of satisfaction increased with GS-grade level, age, and years of service.

Ratings of adequacy of satisfaction for promotion opportunities were lower as age, years of service, and GS grade increased. Ratings of satisfaction for possibility for growth also decreased as these variables increased. For both these variables, age 35, grade GS-9, and 3 years of service appeared to be principal demarcation lines in terms of notable changes in ratings.

There were some other notable differences. Personnel in the WG system reported substantially more adequacy of satisfaction for recognition from peers than did GS employees. Employees in the Facilities and Equipment program reported less adequacy of satisfaction with respect to possibility of growth than did AF personnel in other programs. Finally, employees located at ARTCC's and regional offices found more satisfaction in their working conditions than did major-tower or small-facility personnel.

D. Attitudes Toward Certain Important Work Factors.

1. Salary. In addition to the open-ended comments, likes-dislikes ratings, ratings of importance, and adequacy of satisfaction ratings, the respondents were asked several detailed questions about salary matters.

On the whole, most respondents (86 percent) rated their salaries as adequate or better (Table 8). The average rating of 2.4 fell between the "good" and "adequate" points on the scale. Only 47 of the respondents (2 percent) felt their salaries were "very inadequate."

When asked to indicate an appropriate salary level for their work in AF, the respondents' average estimate was $21,210. This amount is essentially the equivalent of a GS-13, step 4, in salary level (according to 1975 pay scales). Two-thirds of the estimates were between $16,490 and $25,930 (the standard deviation was $4,720), or ranged from approximately the amount paid a GS-11, step 2, to that paid a GS-13, step 5. These estimates were, on the average, approximately $320 higher than present salary levels. It is interesting to note that 105 respondents indicated that a decrease averaging $331 would be appropriate.

As these ratings and estimates suggest, the majority of the respondents (60 percent) felt their salaries were "fair" or "very fair." The average rating of 2.5 falls between the "fair" and "neither fair nor unfair" points on the rating scale. This judgment of fairness was confirmed by the assessments of salary relative to other employee groups; a clear majority of the respondents felt they were treated at least as favorably as other AF employees (75 percent), employees in private industry (68 percent), and

TABLE 8. Evaluation of Salary Issues

Adequacy of Present Salary	Very Good (1)	Good (2)	Adequate (3)	Inadequate (4)	Very Inadequate (5)
Distribution of Ratings	482	827	621	364	47

Average Rating 2.4
Percentage Rating Adequate or Better 85.5

Appropriate Salary for Work
Average Estimate--$21,210 (S.D. = $4,720)
Average Increase-- $320 (S.D. = $175)

Fairness of Salary	Very Fair (1)	Fair (2)	Neither Fair nor Unfair (3)	Unfair (4)	Very Unfair (5)
Distribution of Ratings	360	1,027	353	439	111

Average Rating. 2.5
Percentage Rating Fair or Very Fair 60.5

Salary Comparisons
Percentage of Respondents Rating:
Other AF Personnel Treated More Favorably. 24.7
ATC Personnel Treated More Favorably 64.3
Other FAA Personnel Treated More Favorably 13.5
Personnel in Private Industry Treated More Favorably . . . 31.5

other FAA employees excluding air traffic controllers (86 percent). The only group perceived as receiving preferential salary treatment was, not surprisingly, the employees of the Air Traffic service. Of the AF respondents, 64 percent felt that controllers received more favorable salary consideration than did AF personnel.

In terms of employee characteristics, the responses to this part of the survey paralleled those for the like-dislike and adequacy-of-satisfaction ratings. For adequacy of salary, significant effects were found for GS grade, years of service, WG versus GS employment, engineers and technicians versus AF employees in other occupations, and environmental support personnel. The effects of these characteristics on the other ratings and comparisons of salary fairness fit the same pattern: Those with lower pay generally feel less fairly treated than those with higher pay. The main point to be remembered is that most AF employees, no matter what their particular employment circumstances, feel reasonably well compensated for their work.

2. Personnel programs.

a. Training. Overall, the AF training and employee development programs were judged adequate or better by most of the AF employees (Table 9). Approximately two-thirds of the respondents indicated that the quality of on-the-job training, planning for training, consideration of employee development needs, and consideration of employee skills were generally acceptable.

TABLE 9. Evaluation of Personnel Programs

Program	Average[a] Rating	% Indicating Adequate or Better
Training		
Quality of Resident (Academy) Training	3.1	85.3
Consideration of Employee Training Needs	4.0	65.3
Consideration of Employee Skills	4.0	65.3
Quality of on-the-job Training	4.1	62.5
Planning for Training	4.1	62.0
Merit Promotion Plan (MPP)		
Concept of MPP	3.6	74.3
Fairness of MPP Concept	4.3	56.7
Administration of MPP	4.9	41.9
Fairness of MPP Administration	4.9	40.0
Equal Employment Opportunity (EEO)		
Concept of EEO	3.5	78.4
Fairness of EEO Concept	4.2	61.4
Administration of EEO	4.4	58.2
Fairness of EEO Administration	4.5	54.2

[a] The possible rating scale values were "excellent" (1), "very good" (2), "good" (3), "adequate" (4), "poor" (5), "very poor" (6), and "totally inadequate" (7).

There was one aspect of training that received even higher marks than those discussed above: resident training at the FAA Academy. More than 85 percent of the respondents indicated this program was adequate or better, and the average rating was in the "good" range. These marks were also supported by numerous comments in the open-ended portion of the questionnaire that praised the quality of the training. Although no specific rating of the administration of Academy training was obtained, it should be noted that almost all the complaints about the Academy elicited by the earlier open-ended questions referred to perceived inequities and mismanagement of travel and per diem pay for Academy training rather then the quality of the training itself.

The findings for employee characteristics were generally consistent with the overall trends reported above. The most noteworthy effects were obtained in an analysis of occupation and type of facility. Technicians rated the quality of Academy resident training better than did engineers or those in other occupations, not a surprising finding in view of the more extensive educational experiences often found in the latter two groups. In addition, engineers felt less positive about consideration of needs and skills in training plans than did the technicians and others.

Employees at the regional offices were less positive than were personnel in field facilities in their judgments about quality of on-the-job and resident instruction, consideration of needs and skills in training,

and planning for training. This finding is probably related to the differences observed for engineers, since most engineers work in regional office settings.

b. Merit Promotion Plan. The Merit Promotion Plan (MPP) received rather low ratings, except in terms of the concept of the plan itself (Table 9). Nearly three-fourths of the respondents felt the concept of the MPP is at least adequate; however, less than half felt it has been administered adequately or fairly. The average rating was "poor" on both these scales.

Employee characteristics had relatively little effect on these ratings. Employees in grades GS-9 through -12 rated the fairness of the concept of the MPP lower than did personnel in both lower and higher grades. Also employees at grade GS-9 and higher were much more critical of the administration and fairness of administration of the MPP than those in lower grades. Engineers seemed to feel the MPP is a fairer concept than did technicians or those in other occupations.

c. Equal employment opportunity. The equal employment opportunity (EEO) programs were rated adequate or better by a majority of the respondents as to concept (78 percent), fairness (61 percent), and administration (54 percent) (Table 9). Thus, there seems to be a solid core of acceptance of the EEO notion with less approval of the administration of the program. The mean scale values fall between "adequate" and "poor" and reflect the observation that while the majority may accept the program and its administration, those with the strongest feelings tend to be opposed to it.

As might be expected, support for the EEO concept tends to diminish with increasing age. Of those below age 30, almost 85 percent describe the concept as adequate; between the ages of 30 and 60, more than three-fourths accept the adequacy of the concept; while of those age 60 and older about 60 percent feel this way. WG employees tended to rate the administration and the fairness of administration of EEO programs more positively than did GS employees.

3. Management and Supervision.

a. Effectiveness. The ratings on the items concerned with various aspects of supervisory effectiveness were for the most part in the adequate or better range (Table 10) with all of the average ratings in the "adequate" to "good" range. Based on the percentage of responses in at least the adequate range, the highest rated aspect was the freedom the respondents felt to discuss work problems with supervisors (84 percent). Utilization of personal skills and abilities was next at 83 percent. Approximately three-fourths of the respondents felt their work tasks and goals were clearly defined (78 percent) and that their immediate supervisors adequately acknowledged ideas and suggestions put forth by employees (74 percent). The judgments were somewhat lower concerning the degree to which management is helpful in resolving technical problems (68 percent) and the adequacy of

TABLE 10. Evaluation of Management and Supervision

Factor	Average[a] Rating	% Indicating Adequate or Better
Managerial/Supervisory Effectiveness		
Freedom to Discuss Work Problems	3.0	83.7
Use of Employee Skills	3.3	82.6
Acknowledgment by Supervisor	3.4	74.0
Clarity of Task Explanation	3.6	77.5
Helpfulness With Technical Problems	3.7	68.2
Acknowledgment by Managers	3.9	64.6
Performance Evaluation		
Accuracy	3.3	82.8
Fairness	3.3	82.0
Thoroughness	3.5	78.1
Indication of Needed Improvements	3.6	78.2
Detailing of Work Standards	3.7	77.1
Helpfulness in Improving Work	3.8	69.3

Managerial/Supervisory Concern	Distribution of Ratings			% Indicating	
	High	Moderate	Low	High or Moderate	Score[b]
Level					
Immediate Supervisor	952	745	483	77.8	61
Unit (e.g., Sector Field Office)	526	762	457	73.8	52
Sector	405	921	747	64.0	42
Region	157	934	1,097	49.9	29
Agency	148	967	943	54.2	30

[a] The possible rating scale values were "excellent" (1), "very good" (2), "good" (3), "adequate (4), "poor" (5), "very poor" (6), and "totally inadequate" (7).

[b] Score calculated by multiplying high ratings by 1.0 and moderate ratings by 0.5, dividing the sum of these values by the total number of ratings, then multiplying by 100.

managerial acknowledgment of ideas and recommendations from subordinates (65 percent).

None of the ratings differed significantly as a function of the employee variables.

b. Performance evaluation. One of the more difficult tasks of supervisors is the evaluation of performance; the clear majority of AF employees feel this is done at least adequately with respect to both accuracy (83 percent) and fairness (82 percent) (Table 10). Most also feel that the thoroughness (78 percent), detailing of work standards (77 percent), and indications of areas of needed improvement (78 percent) are also adequately handled. As for helpfulness in improving work, 69 percent felt the reviews were adequate or better.

Ratings were reasonably uniform across employee characteristics, as no dramatic departures from the general trends were noted in any of the specific employee groups.

c. Concern. The ratings of perceived management concern for AF employees decreased as distance of management from the employee increased (Table 10), a finding parallel to other ratings of management discussed previously.

Almost three-fourths of the respondents (74 percent) felt that immediate supervisors had a moderate-to-high degree of interest in the well-being of their subordinates. Fifty-nine percent felt there was at least moderate concern for employee well-being at the unit or sector field office level and at the sector level. Only about one-half the respondents felt that management at the regional and national levels showed moderate or high concern for employees (48 percent and 50 percent respectively).

There were some notable differences among groups of employees on their ratings. WG personnel gave management higher ratings of concern at each level above immediate supervision than did GS employees. Technicians were found to rate unit- and sector-level management as having more concern for employees than did employees in other occupations. Compared to employees in field facilities, personnel in the regional offices gave relatively lower ratings on concern for employees shown at the unit and sector levels.

In previous studies of AF personnel, ratings were translated into a scale from 0 to 100 by giving each rating of high concern a value of 1, each rating of moderate concern a value of 0.5, and each rating of low concern a 0, then dividing the sum of those values by the number of ratings and multiplying by 100 to give whole number results. The scale values for this evaluation (Table 10) are relatively close to the average obtained in the previous studies at the sector, regional, and national levels. At the immediate supervisory and the unit levels, the current values appear lower than those obtained earlier.

4. Work schedule. Of the 38 percent of the respondents who were on rotating-shift schedules, 41 percent reported satisfaction and 39 percent reported dissatisfaction with their current rotation schedules (Table 11). These relatively equal degrees of satisfaction and dissatisfaction reflect the great difficulty in arriving at a rotation schedule satisfactory to all, or even most, of the AF personnel on rotating-shift schedules. Furthermore, there was no clear consensus among the respondents as to a preferred work schedule, outside the fact that 45 percent wanted to go on a straight-days work shift. Some 11 different types of shift rotation schedules (e.g., rotation by week, flex-shift rotation, rotation by month, rapid turnaround) in addition to straight shifts were given as preferred schedules, with numerous specific variations in each type. The rotation schedule that received the endorsement of the highest percentage of the respondents was the 2-2-1 schedule (two day shifts, two evening shifts, and one mid shift in succession, or a variant thereof), as 15 percent of the participants indicated this as a preferred schedule. In a previous study (10), this schedule was endorsed by more than 60 percent of the controllers asked their preference, which indicates a clear difference in attitude between the two employee groups.

One variable considered particularly important in assessing the impact of shift rotation schedules is age. In this study there were no differences in reported satisfaction with shift rotation schedule as a function of age,

TABLE 11. Evaluation of Work Schedule

Satisfaction With	Very Satisfied (1)	Satisfied (2)	Neither (3)	Dissatisfied (4)	Very Dissatisfied (5)
Work Schedule	86	289	188	214	147
Average Rating.					3.1
Percentage Indicating Satisfied or Very Satisfied					40.6

nor were there any pronounced shifts in preference for the various schedules as a function of age. Dislike for any type of rotating-shift schedule was pervasive at all ages among AF personnel.

When the effect on job satisfaction of working rotating shifts was evaluated in terms of satisfaction in choice of occupation or working in the AF Service, no trends were noted. However, those who indicated dissatisfaction with their present position in AF were more often working rotating-shift schedules (43 percent) than those who reported satisfaction (37 percent).

5. Workload. On the average, 45 percent of the workdays were rated moderate, 33 percent were rated heavy, and 22 percent were rated light in workload (Table 12). However, the respondents indicated preferences for

TABLE 12. Evaluation of Workload

Amount of Workload	Estimated % of Workdays	Preferred % of Workdays
Light	21.7	16.3
Moderate	45.0	61.8
Heavy	33.3	21.8

Shifts and Amount of Workload	Estimated Percentage of Shifts: Day Shift (0800-1600)	Evening Shift (1600-2400)	Mid Shift (2400-0800)
Light	19.9	24.6	38.0
Moderate	41.3	49.4	35.2
Heavy	38.8	26.1	26.8

Percentage of Respondents Indicating Staffing to Handle	Light Workloads	Moderate Workloads	Peak Workloads
	16.1	57.9	26.0

Staffing Sufficient for Workload	Always (1)	Usually (2)	Sometimes (3)	Rarely (4)	Never (5)
	232	1,329	474	216	63
Average Rating.					2.4
Percentage Indicating Usually or Always					67.7

workloads that would be moderate about 62 percent of the time, heavy 22 percent of the time, and light 16 percent of the time. In other words, AF employees would prefer a more even distribution of the workload than is now the case.

There were significant differences between shifts in terms of workload (Table 12), according to those who work rotating-shift schedules. Heaviest workloads were reported for day shifts, the lightest were for mid shifts. The evening shifts were judged to have the most even workload distribution.

The average respondent felt his/her time was well used 76 percent of the time, and two-thirds of the replies fell between 54 and 98 percent. A total of 39 percent of the respondents indicated that 90 percent or more of their time was used effectively, another 52 percent felt that somewhere between 50 and 80 percent of their time was productive, and only 9 percent felt that less than half their working hours were well used by the agency. The most important factor contributing to nonproductive time (Table 13) was erratic workloads, due in large part to the nature of maintenance on basically reliable equipment (29 percent of all comments made). Management and supervision were the next most frequently cited reasons for reduced productivity (13 percent). These were followed by paperwork (11 percent) and travel time to facilities and remote sites (10 percent). The remainder of the responses were diverse and were related to such factors as weather, air traffic personnel, meetings, and equipment deficiencies.

TABLE 13. Causes of Nonproductive Time

Causes	Number Endorsing	% of Respondents
Erratic Workload	473	29.1
Management/Supervision	211	13.0
Paperwork	172	10.6
Travel to Sites	169	10.4
Miscellaneous (Meetings, Coordination, Supplies, Air Traffic, Weather, Training, Equipment)	616	37.9

Staffing levels were generally seen as adequate for moderate workloads, as 58 percent of the respondents felt there were sufficient personnel available for such coverage. About one-fourth (26 percent) felt staffs were adequate for peak workloads as well. Only 16 percent felt the numbers of available personnel were insufficient for all but light workloads. When asked to rate to what extent staffing is sufficient for the workload within the unit, two-thirds (68 percent) of the respondents indicated the number of personnel was usually or always sufficient to handle the required work. Only 12 percent felt that rarely or never were there enough workers available.

Employee characteristics had relatively little influence on most of the items concerning workload; however, the type of facility did make a difference in that a greater proportion of personnel at ARTCC's indicated they felt adequately staffed to handle peak loads (34 percent and 24 percent respectively) and that they usually or always had enough personnel to handle the workload in the unit (76 percent and 66 percent respectively) than did personnel at other types of facilities.

6. Location. When asked if they were satisfied with the location of their employment, 80 percent of the respondents responded affirmatively (Table 14). Even though generally satisfied with their location, many (43 percent) still expressed a desire to move. Of those wishing to move, 30 percent wanted to move only within their present region, 32 percent wanted

TABLE 14. Evaluation of Present Location

Satisfaction With	Very Satisfied (1)	Satisfied (2)	Neither (3)	Dissatisfied (4)	Very Dissatisfied (5)
Location	941	919	206	190	77

Average Rating. 1.9
Percentage Indicating Satisfied or Very Satisfied 79.7

Areas of Preferred Location	Number Endorsing	% of Those Responding
Relocate Within Region	220	29.6
West (RM, NW, WE)	241	32.5
South (SO, SW)	109	14.7
Other	172	23.2

Incentives to Move	Number Endorsing	% of Respondents Endorsing
Promotion With More Pay	1,734	73.5
Higher Pay	1,470	62.2
Increased Promotion Opportunities	1,144	48.5
Better Geographical Location	1,123	47.5
Change of Work	816	34.4
Promotion With Same Pay	469	19.5
Other	249	10.5

to move to the west (to the Rocky Mountain, Northwest, and Western Regions) and 15 percent wanted to move south (to the Southern and Southwest Regions).

The major incentives to move focused on promotion and pay increases. However, many also would move for the opportunity to work in what they consider a more attractive geographical area.

Among the employee variables, several were related to satisfaction with location and desire to move. Respondents over age 35 were more likely to express satisfaction with location (82 percent) than were their younger coworkers (71 percent) and WG personnel, more so (89 percent) than GS employees (79 percent). Similarly, 58 percent of the respondents under 35 indicated a desire to move, 42 percent of those 35 to 55 years old wanted to move, and only 24 percent of those older than 55 expressed an interest in changing location. GS employees were much more inclined to want to move (44 percent) than were WG employees (32 percent). Not surprisingly, since they tend to be younger and seeking upgrade possibilities, GS employees below grade GS-11 were more desirous of moving (56 percent) than were those persons in the upper grades (42 percent). WG level had no effect on desire to move. Desire to move was also related to type of facility; 50 percent of those employed in regional offices wanted to move, while 40 of those at smaller facilities expressed this desire.

7. Employee-management relations. It is surprising that the respondents were more aware of FAA policies than union policies concerning employee-management relations (Table 15), as 77 percent of the respondents indicated at

TABLE 15. Evaluation of Employee-Management Relations

Knowledge of Employee-Management Policies	Ratings					Average Rating	% Some or More
	Thorough (1)	Considerable (2)	Some (3)	Little (4)	None (5)		
Knowledge of FAA Policies	73	617	1,100	448	91	2.9	76.8
Knowledge of Union Policies	53	326	840	718	386	3.5	52.5

Quality of FAA Employee-Management Relations at:	Ratings					Average Rating	% Acceptable or More
	Very Good (1)	Good (2)	Acceptable (3)	Poor (4)	Very Poor (5)		
Unit Level	376	658	654	412	211	2.8	73.2
Regional Level	56	412	938	571	245	3.2	63.3
National Level	40	354	1,033	493	249	3.2	65.8

FAA Fairness in Employee-Management Relations	Ratings					Average Rating	% Acceptable or More
	Very Good (1)	Good (2)	Acceptable (3)	Poor (4)	Very Poor (5)		
	79	443	988	515	218	3.2	67.3

least some awareness of the FAA policies while 52 percent were aware to some degree of union policies.

The ratings of the quality of employee-management relations in the FAA were generally positive at all three levels questioned, as ratings of acceptable or better were made by 73 percent of the respondents when asked about the quality in their work settings, 63 percent when queried on relations at the regional level, and 66 percent at the national level.

Approximately two-thirds (67 percent) of the respondents indicated that the FAA has performed at least acceptably in the fairness with which employee-management relations have been managed.

Knowledge of FAA and union policies tended to increase with age, years of service, and GS grade; otherwise, employee characteristics showed little relationship to responses on this section of the questionnaire.

III. Conclusions.

In view of the large, diverse sample of AF employees who participated in this survey, it is reasonable to conclude that the opinions and attitudes sampled are representative of the feelings of the AF workforce as a whole. These feelings indicate that, by and large, AF employees view their work situations in positive terms. They report generally high levels of job satisfaction, particularly in those areas they judge most important.

On the other side of the picture, the areas of primary discontent yielded no particular surprises. Management, a major target of complaints in most employee surveys (7), was also a major focus of criticism in this study. That the evaluation of management by AF personnel was relatively less negative than similar evaluations by other employee groups is a good sign. This does not, however, negate the importance of the need for upgrading managerial/supervisory performance as indicated by the many criticisms of management obtained in this survey.

This survey confirmed also that providing promotion and career opportunities is a significant problem for the AF service. Part of the problem is intrinsic to the pyramidal structure of most employment careers; little can be done about this aspect of the AF work settings. Clarification of the types of opportunities available, the requirements for taking advantage of the opportunities, and a detailing of what may be expected in terms of typical career development would probably be useful in reducing dissatisfaction. The newly developed Airway Facilities Career Planning Program (6), with its detailed presentation of the various AF career trades in terms of both the nature and the developmental requirements of the career, should be directly relevant to this need.

For those employees who work rotating shifts, the selection of an appropriate shift schedule is a primary area of concern. Unfortunately, there was no consensus among employees as to the best schedule, as even those schedules selected by a majority at a facility often lead to substantial dissatisfaction among the minority. More data in this area are needed, particularly concerning the effects of various schedules on employee efficiency, physical well-being, and general work adjustment. On the basis of research in other types of settings (8), the rule that the longer the interval between shift rotation, the better, is probably as appropriate for AF as elsewhere.

Before we proceed to the third part of this report, it should be noted that these findings emphasize that the principles that should guide programs designed to enhance employee motivation and morale remain relatively constant in spite of the diversity of employment circumstances. The major themes of the motivator-hygiene system are applicable throughout the AF system; to wit, attention must be directed to both types of factors in planning motivational programs. Solution of significant hygiene problems, even in such areas as management or work schedule, will not alone generate well-motivated employees. Programs that deal with the more complex issues of the "motivators," such as career development, job enrichment, and advanced training programs, must be included along with measures designed to solve "hygiene" problems.

PART THREE. AF Employee Characteristics

As noted at the outset of this paper, the division of the report into parts was designed to facilitate reader understanding of the findings by presenting an analysis of the general trends in the data first, then detailed analyses in terms of the varied characteristics of AF employees. Some of the findings presented in this part have already been noted in Part One; this duplication occurs when an analysis resulted in trends sufficiently different from the general pattern to require elaboration of the basic results. As the reader will see in progressing through these analyses of employee characteristics, there are a great many statistically significant findings that reflect shades of differences in response tendencies (due to the large size of the sample) rather than radical departures from the general pattern of the AF data. Many of these differences add to a more complete understanding of the various aspects of AF work; however, one should be cautious not to become so attentive to the differences discussed herein that one loses sight of the general pattern about which almost all these differences fall.

In the presentation that follows, the findings from the analyses concerned with each employee characteristic are presented, followed by a brief discussion of the meaning of the findings for that characteristic.

I. Age.

A. Likes and Dislikes Ratings of AF Work. As age increased, there tended to be an increasingly positive attitude toward AF work. The average rating on all 32 scales went from 0.8 on the five-point scale for the 25- to 29-year-olds to 1.2 for those 60 or more years old (Table 16). For the specific items on which there were age differences, ratings concerning Civil Service and retirement benefits tended to be rated more positively by the senior age groups. This was also true of the judgments about quality of the test equipment and about management at the regional and national levels. Increasing age was associated with increasingly negative ratings for promotion opportunities and working mid shifts.

B. Job Satisfaction. Only one of the four job satisfaction ratings showed any variation as a function of age (Table 16). The ratings on the scale concerning satisfaction with one's present position in AF showed greater satisfaction with increasing age.

Although age did not relate to the ranking of importance of job satisfaction factors to any significant degree, the rating of adequacy of satisfaction for the factor of salary increased while the ratings for possibility of growth and promotion opportunities decreased with age.

C. Salary. Salary ratings were relatively uniform across ages, with the exception that respondents younger than 34 have a lower estimate of the amount of an adequate salary than do more senior personnel (Table 16). There was also a trend for respondents 30 to 39 years of age to rate the fairness of the salary less favorably than did both older and younger respondents.

D. Personnel Programs. Training generally received high ratings; this was especially true of the ratings of Academy instruction made by respondents younger than 25 (Table 16). Older respondents (55 or more years old) felt better about the planning for training and consideration of training needs for personnel than did the rest of the participants.

As age increased, appreciation for the MPP diminished substantially. This was also true of judgments about the administration of MPP; in this case, respondents 25 to 29 years of age were considerably more critical than those older or younger.

There was also a clear age trend with respect to EEO programs. Of the total sample, 78 percent believed the EEO concept was at least adequate; of those 60 and older, 61 percent believed this to be true.

E. Management and Supervision. Age effects on the management and supervision ratings were confined to judgments about the degree of concern shown by different levels of management (Table 16). In the 35- to 39-year

TABLE 16. Response Patterns of AF Employees as a Function of Age and FAA Experience

Questionnaire Items	Significance[a]	Age: 21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-70	Significance[a]	Years of Experience: 1	2	3	4	5-9	10-14	15-19	20 or more
Likes-Dislikes Ratings																			
Working With Equipment[b]		No effect									No effect								
Retirement Benefits	.05	85	88	86	86	90	92	90	90	92	No effect								
Associating With Coworkers		No effect									No effect								
Challenge of Work		No effect									No effect								
Service to Aviation		No effect									No effect								
AF Career		No effect									No effect								
Working in Civil Service	.01	74	74	84	75	82	82	86	86	89	.05	79	78	83	83	85	79	80	83
Working in Aviation		No effect									No effect								
AF Job Tasks		No effect									No effect								
Work Variety		No effect									No effect								
Working Dayshifts (0800-1600)		No effect									No effect								
Difficulty of Work		No effect									.01	69	69	65	79	71	76	81	75
Salary	.05	53	72	71	70	76	74	73	75	76	.01	63	63	69	76	72	76	76	72
Moderate Workloads		No effect									No effect								
Physical Work Environment		No effect									.05	68	62	73	75	64	63	62	68
Respect and Prestige		No effect									No effect								
Number of Trained Coworkers		No effect									.05	72	65	50	58	62	58	56	60
Quality of Supervision		No effect									.001	79	60	59	55	56	67	54	52
General Workload		No effect									.01	66	52	56	61	52	51	52	52
Heavy Workloads		No effect									No effect								
Established Work Procedures		No effect									No effect								
Test Equipment	.001	32	41	33	40	58	49	52	71	60	.05	44	37	42	34	39	48	48	55
Quality of Local Management		No effect									No effect								
Working With Controllers		No effect									No effect								
Miscellaneous Duties		No effect									.01	37	33	37	35	32	26	31	25
Promotion Opportunities	.001	82	66	52	35	32	33	36	36	53	.001	81	65	51	50	40	33	28	33
Working Evening Shifts (1600-2400)		No effect									No effect								
Light Workloads		No effect									No effect								
National Management	.05	29	18	18	17	20	20	26	20	33	.001	34	20	24	21	22	17	16	23
Regional Management	.05	32	21	22	21	23	25	27	22	38	.001	36	28	20	24	24	19	21	24
Rotating Shifts		No effect									No effect								
Working Mid Shifts (2400-0800)	.05	18	18	14	10	7	7	9	8	24	.001	21	14	5	17	9	5	8	11
Job Satisfaction[c] Ratings																			
Satisfaction With Occupation		No effect									.001	89	82	83	94	91	87	92	90
Satisfaction With Working in AF		No effect									.05	92	82	80	87	86	85	87	85
Satisfaction With Working Conditions		No effect									.05	84	78	83	80	75	76	73	73
Satisfaction With Precut Position in AF	.001	62	60	65	66	71	72	74	75	79	No effect								
Rankings of Importance/Ratings of Adequacy of Satisfaction																			
Job Security		No effect									No effect								
Job Achievement		No effect									No effect								
Responsibility for Own Work		No effect									.05/	4.9/--	5.1/--	4.5/--	4.6/--	4.4/--	4.2/--	4.4/--	4.3/--
Salary	--/.001	--/52	--/66	--/71	--/72	--/77	--/79	--/72	--/76	--/83	--/.001	--/56	--/61	--/52	--/75	--/75	--/77	--/79	--/75
Work Itself		No effect									No effect								
Recognition From Coworkers		No effect									No effect								
Supervision		No effect									--/.05	--/79	--/59	--/52	--/55	--/58	--/60	--/55	--/56
Working Conditions		No effect									No effect								
Possibility of Growth	--/.001	--/51	--/59	--/56	--/49	--/48	--/42	--/49	--/47	--/56	.001/.001	3.4/84	3.7/63	4.9/47	4.4/50	5.2/50	5.7/48	5.5/44	6.0/44
Management Effectiveness		No effect									--/.001	--/48	--/30	--/31	--/30	--/28	--/30	--/27	--/26
Recognition From Others		No effect									--/.05	--/39	--/30	--/29	--/24	--/26	--/25	--/31	--/39
Promotion Opportunities	--/.001	--/67	--/42	--/32	--/23	--/16	--/19	--/23	--/22	--/23	.001/.001	4.9/73	5.7/44	5.9/34	5.4/36	6.2/24	7.0/18	6.9/14	7.0/18

TABLE 16. (Continued)

Questionnaire Items	Significance[a]	Age: 21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-70	Significance[a]	Years of Experience: 1	2	3	4	5-9	10-14	15-19	20 or more
Salary																			
Adequacy of Present Salary[c]	.001	76	73	78	81	86	85	82	87	89	.001	71	72	59	80	81	86	87	83
Appropriate Amount[f]	.001*	12.9	16.8	19.4	22.2	22.6	21.8	21.1	20.8	22.1	Not evaluated								
Fairness of Salary[g]	.05	68	63	56	57	61	63	61	68	73	No effect								
Comparisons[h]																			
Other AF Personnel	No effect										.05	16	35	38	19	27	23	23	26
ATC Personnel	No effect										No effect								
Other FAA Personnel	.01	6	21	16	15	11	10	19	6	22	.001	11	19	29	18	17	14	11	12
Private Industry	No effect										.05	39	42	35	35	33	27	29	33
Personnel Programs																			
Training[e]																			
Quality of Resident (Academy) Training	.01	91	81	84	85	88	84	86	82	83	.01	94	84	76	82	83	86	86	82
Consideration of Employee Training Needs	.01	65	59	62	62	70	64	67	77	49	.001	72	63	52	66	62	67	68	62
Consideration of Employee Skills	No effect										.01	76	66	64	69	62	68	65	62
Quality of on-the-job Training	No effect										.001	68	65	46	59	61	62	61	66
Planning for Training	.01	56	57	61	57	67	57	65	73	62	.001	71	55	55	66	57	62	65	60
Merit Promotion Plan (MPP)[e]																			
Concept of MPP	.05	81	73	81	77	75	69	68	67	68	.01	91	84	69	81	75	73	74	64
Fairness of MPP Concept	No effect										.001	84	66	56	68	58	52	53	49
Administration of MPP	.05	77	48	44	39	43	38	41	42	56	.001	70	50	38	53	39	39	39	39
Fairness of MPP Administration	No effect										.001	67	55	32	48	37	37	36	38
Equal Employment Opportunity (EEO)[e]																			
Concept of EEO	.05	82	84	76	77	82	74	81	81	61	.01	87	80	79	80	76	80	80	77
Fairness of EEO Concept	No effect										.05	74	61	54	63	58	61	62	64
Administration of EEO	No effect										No effect								
Fairness of EEO Administration	No effect										.05	64	60	29	55	52	56	53	58
Management and Supervision																			
Managerial/Supervisory Effectiveness[e]																			
Freedom to Discuss Work Problems	No effect										.05	89	82	78	82	85	86	84	80
Use of Employee Skills	No effect										No effect								
Acknowledgment by Supervisor	No effect										No effect								
Clarity of Task Explanation	.05	88	74	83	72	79	76	77	82	79	.001	85	78	64	82	77	77	77	76
Helpfulness With Technical Problems	No effect										.001	85	62	52	77	68	68	64	66
Acknowledgment by Managers	No effect										No effect								
Performance Evaluation[e]																			
Accuracy	No effect										.05	96	84	76	82	84	84	81	82
Fairness	No effect										No effect								
Thoroughness	No effect										No effect								
Indication of Needed Improvements	No effect										.01	90	79	81	83	76	80	76	77
Detailing of Work Standards	No effect										.05	85	80	66	76	74	79	77	76
Helpfulness in Improving Work	No effect										.01	83	78	58	74	68	72	65	69
Managerial/Supervisory Concern[i]																			
Level																			
Immediate Supervisor	No effect										.001	86	74	70	80	79	82	76	75
Unit (e.g., Sector Field Office)	.001	90	84	81	66	72	71	79	81	90	.001	80	84	77	79	74	70	72	75
Sector	.01	92	64	66	85	60	61	67	77	70	.001	77	73	50	72	66	61	62	62
Region	No effect										.001	67	56	48	60	49	49	46	50
Agency	No effect										.001	67	62	52	65	54	49	51	54
Work Schedule																			
Satisfaction With Schedule[c]	No effect										No effect								

TABLE 16. (Continued)

Questionnaire Items	Significance[a]	Age: 21-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-70	Significance[a]	Years of Experience: 1	2	3	4	5-9	10-14	15-19	20 or more
Workload																			
Amount of Workload[j]																			
Light		No effect									Not evaluated								
Moderate		No effect									Not evaluated								
Heavy		No effect									Not evaluated								
Preferred Workload[j]																			
Light		No effect									Not evaluated								
Moderate		No effect									Not evaluated								
Heavy		No effect									Not evaluated								
Percent of Time Well Used[k]		No effect									No effect								
Causes of Nonproductive Time[k]																			
Erratic Workload		No effect									No effect								
Management/Supervision		No effect									No effect								
Paperwork		No effect									No effect								
Travel to Sites		No effect									No effect								
Miscellaneous		No effect									No effect								
Staffing																			
To Handle[k]																			
Light Workloads		No effect									No effect								
Moderate Workloads		No effect									No effect								
Peak Workloads		No effect									No effect								
Sufficient for Workload		No effect									No effect								
Location																			
Satisfaction With																			
Present Location[c]	.01	74	70	69	79	83	80	82	86	86	.001	75	67	68	76	75	82	85	84
Would Like to Move[m]	.001	55	56	60	47	41	41	36	24	24	.001	52	61	51	60	51	39	37	37
Incentives to Move[k]																			
Promotion With More Pay	.001	88	78	80	78	76	74	63	62	43	.01	76	77	80	85	74	70	74	64
Higher Pay	.001	71	76	78	67	62	61	51	54	51	.001	72	73	74	77	65	60	61	58
Increased Promotion Opportunities	.001	65	61	60	54	45	46	40	43	24	.001	56	61	60	64	52	47	43	43
Better Geographical Location	.001	68	53	62	51	52	42	42	34	35	.001	63	60	57	59	53	48	44	40
Change of Work	.001	29	50	42	40	33	33	29	29	16	.001	34	42	46	47	40	35	32	28
Promotion With Same Pay	.05	18	15	25	25	20	20	19	14	11	No effect								
Other		No effect									No effect								
Employee-Management Relations																			
Knowledge of FAA Policies[n]	.001	73	66	69	74	81	79	80	80	94	.001	70	69	54	68	75	79	81	82
Knowledge of Union Policies	.001	38	35	38	54	58	55	57	53	49	.001	36	33	31	38	49	58	61	58
Quality of Employee-Management Relations at:																			
Unit Level[o]		No effect									.01	65	81	60	73	71	75	73	72
Regional Level		No effect									.05	74	70	55	66	64	59	62	64
National Level	.05	72	62	67	64	66	67	66	64	87	.001	76	69	62	74	64	64	65	63
Fairness in Employee-Management Relations[g]		No effect									.05	81	78	62	72	65	69	61	71

[a] Refers to significance level of chi-square analyses except where an asterisk is shown in which case the value refers to the significance level of an analysis of variance.
[b] Percentage liking.
[c] Percentage satisfied.
[d] First number indicates ranking; number following slash indicates percentage rating good or better.
[e] Percentage rating adequate or better.
[f] Dollars in thousands.
[g] Percentage rating fair.
[h] Percentage reporting others treated more favorably.
[i] Percentage rating high or moderate concern.
[j] Percentage of workdays.
[k] Percentage of respondents endorsing.
[l] Percentage indicating usually or always.
[m] Percentage wanting to move.
[n] Percentage indicating some or more knowledge.
[o] Percentage indicating acceptable or better.

range, 55 percent of the individuals rate concern at the unit (sector field office) level as moderate or high, compared to 66 percent in the other age groups. Ratings of management concern for employees at the sector levels followed a similar pattern, except that the range of relatively lower ratings extended from age 25 to 54; 58 percent of the respondents in this age range rated sector-level concern as moderate or high. No level of management received predominately negative judgments about their level of concern from AF personnel of any age.

F. Work Schedule. No significant effects associated with age were observed.

G. Workload. No significant effects associated with age were observed.

H. Location. Satisfaction with one's location tended to increase with age (Table 16), particularly when those 35 and older are compared with those under 35. Of those over 35, 82 percent indicated satisfaction with their current location; of those under 35, the percentage was 71. The desire to move decreased with age, as more than half (58 percent) of the respondents under 35 wanted to shift locations while no more than a fourth (24 percent) of those over 55 indicated this desire. It was also found that each of the incentives to move listed in the questionnaire was less frequently endorsed as age increased.

I. Employee-Management Relations. Respondents 40 and older tended to know more about FAA policies in the area of employee-management relations than did their younger counterparts (Table 16). The group most knowledgeable about union policies towards employee-management relations ranged in age from 35 to 59 years.

J. Discussion. The variations in ratings associated with age were generally those that accompany the aging process. Increased attention to career and retirement benefits, the desire to stay located in one place, and the increased dislike of working mid shifts all seem to fit with the kinds of attitudes that may typically be expected from individuals as they mature. By the same token, the opportunities to grow, change jobs, and get promotions diminish with age. These findings point out that the sources of dissatisfaction for older persons may differ somewhat from those for younger employees and that motivational programs should take these age-related differences into account.

II. Years of Service.

The findings for years of service correlated highly with the findings for age, as would be expected. There were also many additional significant effects resulting largely from rather marked differences between the attitudes of employees who are new to AF (1 or 2 years) and those with more AF experience.

A. Likes and Dislikes Ratings. Although several of the trends noted for age were also apparent in the likes and dislikes ratings, it was also noted that employees with only a year of experience indicated a greater liking for workload, supervisory quality, regional management quality, and national management quality than did more experienced personnel (Table 16).

B. Job Satisfaction. New employees reported somewhat more satisfaction with AF employment and AF working conditions than did those with more experience (Table 16). On the other hand, individuals with 4 or more years of experience as well as new employees indicated higher satisfaction with occupational choice than did those workers with 2 to 3 years of FAA employment.

In rating the importance of various factors to job satisfaction, employees with very few years of experience rated possibility of growth and promotion opportunities as more important than did those with more FAA experience.

The ratings of the adequacy with which various factors are satisfied in AF follow the findings reported for age, with the added note that newer employees reported more adequacy of satisfaction for the factors of management effectiveness and recognition from others than did the more experienced respondents.

C. Salary. The only trends related to salary concerned equality of treatment with other employee groups (Table 16). As experience increased, there was a decrease in the proportion of respondents who felt that other personnel in AF, the FAA, and industry receive better salary benefits.

D. Personnel Programs. Ratings of training indicated that relatively new employees tend to evaluate more positively the quality of on-the-job and Academy training, planning for training, and consideration of needs and skills than do those with more than 1 or 2 years of experience (Table 16).

The same trend was true for each of the ratings concerning MPP and EEO except for the rating of the administration of the EEO program. In the latter instance, FAA experience was not related to the ratings.

E. Management and Supervision. Beyond the 4-year level, there was some reduced feeling that management was helpful in solving technical problems or provided clear task and goal definitions (Table 16). After the first year there was also some moderate reduction in the belief that work-related problems could be freely discussed with supervisors.

Management and supervisory concern at all levels was rated higher the first year than thereafter.

In rating performance evaluation, a similar trend was apparent; after 1 or 2 years of experience, the degree of positive reaction was reduced somewhat from earlier levels.

F. Work Schedule. No significant effects other than those noted for age were observed.

G. Workload. No significant effects associated with length of service were observed.

H. Location. As with age, satisfaction with one's current location increased with experience, while the inclination to move, and the value of incentives to move, diminished (Table 16).

I. Employee-Management Relations. The findings for employee-management relations also generally follow the age results, with the addition of the finding that relations at the regional level, as well as the unit and national levels, were judged as better by the relatively new employees than by employees with more than 1 or 2 years of experience (Table 16). There was also some decline in the belief that relations of this sort within the FAA are fair.

J. Discussion. It is clear that there is a demarcation in attitudes between first-year, and sometimes second-year, employees and those who have been in the FAA long enough for the "new" to wear off. It should be noted, however, that this decline (i) is an expected and normal reaction and (ii) doesn't reflect any drastic reduction in morale. These changes are not of the magnitude to suggest that AF employees move from extreme enthusiasm to displeasure at their circumstances in AF; instead, there is a relatively moderate shift of feeling away from early enthusiasm to a more subdued, but generally positive, attitude toward work in AF.

III. Grade Structure.

Three sets of analyses are considered in this section: a comparison of responses of Wage Grade (WG) to General Schedule (GS) employees and analyses of grade levels within each of these two groups.

A. Wage Grade/General Schedule. AF employees in the WG and GS groups generally had very similar attitudes toward their work; although, interestingly enough, when differences were noted, it was generally the WG employees who reported the more favorable attitudes (Table 17).

1. Likes and dislikes ratings. Of the 13 items for which significant differences were found between these two groups of employees, WG personnel gave the higher rating on nine (Table 17). The one item on which GS employees indicated a far greater degree of approval than WG personnel was that of salary. GS respondents also reported a somewhat greater degree of liking for working in aviation, the AF career, and working evening shifts than did WG participants. WG employees liked all levels of management, the variety of job tasks, established working procedures, being in the Civil Service, the quality of test equipment, and working day shifts more so than did GS employees.

TABLE 17. Response Patterns of AF Employees as a Function of Salary Schedule and GS Level

Questionnaire Items	Significance[a]	Salary Schedule: WG	Salary Schedule: GS	Significance[a]	GS Level: GS-4/5	GS-6/7	GS-8/9	GS-11	GS-12	GS-13/14
Likes-Dislikes Ratings										
Working With Equipment[b]	No effect			No effect						
Retirement Benefits	No effect			No effect						
Associating With Coworkers	No effect			No effect						
Challenge of Work	No effect			.05	81	76	78	87	88	94
Service to Aviation	No effect			.05	82	85	80	85	85	85
AF Career	.05	80	84	No effect						
Working in Civil Service	.001	91	80	No effect						
Working in Aviation	.05	79	81	.001	88	85	80	81	80	83
AF Job Tasks	No effect			No effect						
Work Variety	.001	89	78	No effect						
Working Dayshifts (0800-1600)	.05	87	78	No effect						
Difficulty of Work	.001	41	75	No effect						
Salary	No effect			.001	44	65	67	69	71	89
Moderate Workloads	No effect			.01	72	80	69	71	71	67
Physical Work Environment	No effect			.001	78	76	64	66	61	68
Respect and Prestige	No effect			No effect						
Number of Trained Coworkers	No effect			No effect						
Quality of Supervision	No effect			No effect						
General Workload	No effect			.001	68	68	55	55	50	60
Heavy Workloads	No effect			No effect						
Established Work Procedures	.05	54	44	.001	62	52	45	49	40	43
Test Equipment	.001	62	44	No effect						
Quality of Local Management	.01	50	41	No effect						
Working With Controllers	No effect			No effect						
Miscellaneous Duties	No effect			.01	51	32	31	30	31	28
Promotion Opportunities	.01	41	38	.001	71	70	66	38	30	49
Working Evening Shifts (1600-2400)	.01	24	37	No effect						
Light Workloads	No effect			No effect						
National Management	.001	33	19	.01	46	27	18	20	15	29
Regional Management	.001	36	23	.001	49	29	29	22	29	37
Rotating Shifts	No effect			No effect						
Working Mid Shifts (2400-0800)	No effect			No effect						
Job Satisfaction[c] Ratings										
Satisfaction With Occupation	No effect			No effect						
Satisfaction With Working in AF	No effect			No effect						
Satisfaction With Working Conditions	No effect			.001	90	78	76	77	72	78
Satisfaction With Precut Position in AF	No effect			.05	60	70	56	67	71	77
Rankings of Importance/Ratings of Adequacy of Satisfaction										
Job Security	No effect			No effect						
Job Achievement	.001/--	5.5/--	4.6/--	No effect						
Responsibility for Own Work	.05/--	5.1/--	4.4/--	No effect						
Salary	--/.001	--/43	--/76	--/.001	--/41	--/50	--/60	--/73	--/82	--/91
Work Itself	.001/--	8.1/--	6.7/--	No effect						
Recognition From Coworkers	--/.01	--/70	--/58	No effect						
Supervision	.05/--	5.5/--	6.5/--	No effect						
Working Conditions	No effect			No effect						
Possibility of Growth	--/.05	--/50	--/49	--/.01	--/68	--/69	--/60	--/48	--/45	--/57
Management Effectiveness	.05/.01	7.3/36	8.1/28	--/.01	--/60	--/42	--/36	--/27	--/25	--/38
Recognition From Others	No effect			--/.001	--/47	--/32	--/27	--/32	--/26	--/37
Promotion Opportunities	No effect			.001/.001	4.5/72	5.0/58	5.5/45	6.5/24	6.6/15	5.2/25

TABLE 17. (Continued)

Questionnaire Items	Significance[a]	Salary Schedule: WG	Salary Schedule: GS	Significance[a]	GS Level: GS-4/5	GS-6/7	GS-8/9	GS-11	GS-12	GS-13/14
Salary										
Adequacy of Present Salary[e]	.001	66	84	.001	54	70	70	80	89	95
Appropriate Amount[f]	Not evaluated			Not evaluated						
Fairness of Salary[g]	No effect			.001	55	74	56	55	66	77
Comparisons[h]										
Other AF Personnel	.001	47	23	.001	22	19	32	34	14	19
ATC Personnel	No effect			No effect						
Other FAA Personnel	.001	36	12	.05	17	19	24	15	8	9
Private Industry	.001	61	30	No effect						
Personnel Programs										
Training[e]										
Quality of Resident (Academy) Training	.05	89	85	No effect						
Consideration of Employee Training Needs	.001	77	64	.01	74	62	53	65	65	70
Consideration of Employee Skills	.01	68	65	.001	76	71	57	65	64	78
Quality of on-the-job Training	No effect			.001	76	72	58	65	57	73
Planning for Training	.001	73	61	.05	69	64	48	62	62	65
Merit Promotion Plan (MPP)[e]										
Concept of MPP	.05	61	75	No effect						
Fairness of MPP Concept	No effect			.001	72	87	61	58	52	72
Administration of MPP	.001	50	42	.001	80	61	52	42	41	57
Fairness of MPP Administration	.001	52	39	.001	72	56	50	39	33	57
Equal Employment Opportunity (EEO)[e]										
Concept of EEO	No effect			No effect						
Fairness of EEO	.05	65	61	.001	79	68	55	62	59	69
Administration of EEO	.001	69	57	.001	79	63	50	60	53	71
Fairness of EEO Administration	.001	66	53	No effect						
Management and Supervision										
Managerial/Supervisory Effectiveness[e]										
Freedom to Discuss Work Problems	.05	85	84	.001	93	88	80	82	85	91
Use of Employee Skills	.01	89	82	.001	76	72	77	85	81	88
Acknowledgment by Supervisor	No effect			No effect						
Clarity of Task Explanation	No effect			.05	86	87	77	79	76	76
Helpfulness With Technical Problems	.001	75	68	No effect						
Acknowledgment by Managers	.01	72	64	No effect						
Performance Evaluation[e]										
Accuracy	No effect			No effect						
Fairness	No effect			No effect						
Thoroughness	.05	79	78	No effect						
Indication of Needed Improvements	.05	84	78	.001	86	84	84	79	76	80
Detailing of Work Standards	No effect			No effect						
Helpfulness in Improving Work	.05	77	69	.001	77	74	80	70	66	69
Managerial/Supervisory Concern[i]										
Level										
Immediate Supervisor	No effect			No effect						
Unit (e.g., Sector Field Office)	.001	87	73	.001	90	81	74	73	71	81
Sector	.001	78	63	.001	86	72	67	62	61	80
Region	.001	66	49	.001	69	50	52	50	45	60
Agency	.05	66	53	No effect						
Work Schedule										
Satisfaction With Schedule[c]	.05	56	40	No effect						

TABLE 17. (Continued)

Questionnaire Items	Salary Schedule: Significance[a]	Salary Schedule: WG	Salary Schedule: GS	GS Level: Significance[a]	GS Level: GS-4/5	GS-6/7	GS-8/9	GS-11	GS-12	GS-13/14
Workload										
Amount of Workload[j]										
Light	Not evaluated			Not evaluated						
Moderate	Not evaluated			Not evaluated						
Heavy	Not evaluated			Not evaluated						
Preferred Workload[j]										
Light	Not evaluated			Not evaluated						
Moderate	Not evaluated			Not evaluated						
Heavy	Not evaluated			Not evaluated						
Percent of Time Well Used[k]	.01	81	75	No effect						
Causes of Nonproductive Time										
Erratic Workload	.001	5	31	No effect						
Management/Supervision	No effect			.01	5	10	9	14	12	17
Paperwork	No effect			No effect						
Travel to Sites	.001	26	9	No effect						
Miscellaneous	No effect			No effect						
Staffing										
To Handle[k]										
Light Workloads	No effect			.01	00	13	20	17	15	14
Moderate Workloads	No effect			.01	51	55	53	56	60	64
Peak Workloads	No effect			.01	49	32	27	27	25	22
Sufficient for Workload[e]	.001	53	68	.05	74	77	63	61	68	65
Location										
Satisfaction With										
Present Location[c]	.05	89	79	.001	75	83	65	84	78	79
Would Like to Move[m]	.05	32	44	.01	51	48	59	38	45	47
Incentives to Move[k]										
Promotion With More Pay	.01	64	74	No effect						
Higher Pay	No effect			No effect						
Increased Promotion Opportunities	No effect			No effect						
Better Geographical Location	.05	39	49	.05	59	46	57	43	52	51
Change of Work	No effect			No effect						
Promotion With Same Pay	.001	5	21	.001	12	15	15	15	26	35
Other	No effect			No effect						
Employee-Management Relations										
Knowledge of FAA Policies[n]	.01	74	77	.001	71	70	69	76	77	92
Knowledge of Union Policies	.05	47	53	.001	42	30	27	48	59	68
Quality of Employee-Management Relations at:										
Unit Level[o]	No effect			No effect						
Regional Level	No effect			.01	50	60	68	62	59	79
National Level	No effect			No effect						
Fairness in Employee-Management Relations[d]	No effect			.001	80	81	67	68	62	90

[a] Refers to significance level of chi-square analyses except where an asterisk is shown in which case the value refers to the significance level of an analysis of variance.
[b] Percentage liking.
[c] Percentage satisfied.
[d] First number indicates ranking; number following slash indicates percentage rating good or better.
[e] Percentage rating adequate or better.
[f] Dollars in thousands.
[g] Percentage rating fair.
[h] Percentage reporting others treated more favorably.
[i] Percentage rating high or moderate concern.
[j] Percentage of workdays.
[k] Percentage of respondents endorsing.
[l] Percentage indicating usually or always.
[m] Percentage wanting to move.
[n] Percentage indicating some or more knowledge.
[o] Percentage indicating acceptable or better.

2. Job satisfaction. The ratings of job satisfaction for these two groups did not differ. However, the judged importance of certain factors to job satisfaction were rated differently by the two groups (Table 17). GS respondents rated independence on the job, job achievement, and the work itself as more important than did WG participants, while the reverse was true for the factors of supervisory and management effectiveness. There were also some differences in the perceived adequacy of satisfaction for salary, as only 43 percent of the WG personnel reported good or better adequacy of satisfaction on this item as opposed to the 76 percent approval indicated by GS employees. The WG group reported more satisfaction, however, in possibility of growth, management effectiveness, and recognition from peers.

3. Salary. As would be expected on the basis of the findings discussed above, GS respondents rated satisfaction with salary substantially higher than did WG employees, as 84 percent of the GS and 66 percent of the WG employees judged their salaries to be at least adequate (Table 17). The WG group was also considerably more inclined to see other employee groups (other AF, other FAA, and outside industry personnel) as receiving better salary consideration than they.

4. Personnel programs. Respondents from the WG group gave higher ratings to management's planning for training and consideration of training needs than did the GS group (Table 17). WG personnel rated administration and fairness of administration of the MPP program higher than did GS personnel. The reverse was true for ratings of the concept of MPP.

WG respondents rated the administration and fairness of administration of the EEO program in more positive terms than did the GS group.

5. Management and supervision. Effectiveness in terms of use of talent, helpfulness in solving technical problems, and acknowledgment of employee suggestions and contributions were rated higher by WG than by GS respondents (Table 17). The same was true for judgments of concern at the unit, sector, regional, and national management levels. WG employees also gave higher ratings on the items concerning the effectiveness of supervisors in indicating areas of needed improvement and helpfulness in the performance evaluation process.

6. Work schedule. WG personnel indicated greater acceptance of their work hours than did GS respondents, as 56 percent of the WG respondents indicated such approval as opposed to 40 percent of the GS employees (Table 17).

7. Workload. WG respondents felt a greater proportion of their time was well used than did GS personnel. GS personnel felt that the sometimes erratic nature of their workload was a greater contributor to nonproductive time than did the WG group. The WG respondents were more likely to attribute nonproductive time to travel, delay in supplies, and weather.

8. Location. Satisfaction with location was rated somewhat higher by WG personnel, as was the intent to stay in their present locale (Table 17). GS personnel were more likely than WG employees to endorse the listed incentives as enticements to move.

9. Employee-management relations. The only significant difference among the ratings for this section resulted from GS employees' rating themselves higher in terms of knowledge of union policies than did the WG group.

10. Discussion. In sum, these data suggest that in many respects, WG employees are more satisfied with the status quo than are GS personnel. Only in the area of salary do WG employees consistently respond with ratings less positive than those given by employees under the GS system. This finding would suggest that with exception of salary, WG personnel are likely to be less interested than GS employees in programs calling for changes to the AF system, particularly if such changes involve increased requirements for mobility.

B. WG Grades. The only item that yielded a significant effect for grade levels with the WG group was the rating of liking for promotion opportunities; predictably, those at the lower grades were more favorable in their ratings than were those at higher levels. The major difference was between those at the WG-10 level and below and those at the higher grades. Seventy-two percent of the former and 33 percent of the latter indicated they liked their opportunities for promotion.

C. GS Grades. Unlike WG employees, whose attitudes were invariant across grade levels, GS employees in almost every aspect of this study had differences of opinion associated with GS level.

1. Likes and dislikes ratings. Eleven of the 32 items yielded differences in ratings as a function of grade level (Table 17). Employees at the GS-11 level and higher liked the challenge of their work and their salary levels better, but their promotion opportunities less, than did those at lower grades. Those in grades GS-8 and lower also indicated a higher degree of liking for their workload, work environment, miscellaneous duties, and national management. Comparing those at the GS-6 level and lower with those at the GS-7 level and higher showed a greater appreciation of working in aviation, work procedures, and regional management for those in the lower grades.

2. Job satisfaction. Those at the GS-11 level and higher expressed more satisfaction with their present AF position than did those lower in grade, while those at the GS-8 level and lower appeared to be more satisfied with their working conditions (Table 17).

In terms of importance to satisfaction, those at or above the GS-11 level felt the factor of promotion opportunities was less important to their satisfaction than did those in lower grades.

Ratings of adequacy of satisfaction again revealed a discontinuity between those at or above and those below the GS-11 level. Salary was rated higher, and possibility of growth, management effectiveness, and promotion opportunities were rated lower, by the personnel with higher grades. Those at the GS-8 level and below also reported more adequate satisfaction in the area of recognition from others than did respondents with higher grades.

3. Salary. The ratings of satisfaction with salary followed the same general trend; those at and above the GS-11 level reported more satisfaction than did those at lower levels (Table 17). When rating salary fairness, however, the findings were more complicated. Those at the GS-7 level and below and at the GS-12 level and higher rated fairness higher than did an intermediate group of GS-8, -9, and -11 personnel.

The ratings of AF pay in comparison with that of other employee groups indicated that persons at the GS-11 level and lower were more likely than GS-12 and -13 employees to feel other AF and other FAA personnel receive more favorable salary consideration than they.

4. Personnel programs. Personnel at or below the GS-8 level evaluated the quality of training more positively than did those with higher grades. Similarly, those at the GS-6 level and below rated planning for training better than did personnel with higher grades (Table 17). Respondents at the GS-7 level and below and at the GS-11 level and above rated consideration of both individual training needs and skills higher than did GS-8 and -9 participants.

The MPP program was more highly evaluated as to fairness of the concept, administration, and fairness of administration by those at the GS-8 level and below than by those above this grade level.

The EEO findings indicated that personnel below the GS-6 level and at the GS-13 level felt the EEO concept was fairer and better administered than did respondents in the intervening grades.

5. Management and supervision. Management and supervisory effectiveness in terms of use of talent was seen as better by respondents above the GS-8 level. The group with lower grades felt that clarity of explanation of tasks was better accomplished than did the respondents with higher grades. Personnel at the GS-7 level and below and at the GS-13 level felt more able to discuss work problems with their superiors than did the other respondents.

Generally, managerial and supervisory concern was rated higher by the participants with lower grades than by those with higher grades. This was

true at the unit level for those at the GS-8 grade and below and at the sector field office for those at the GS-5 level. The evaluation of regional office concern for employees was judged higher by respondents below the GS-7 level and by those at the grade of GS-13 (who perhaps were more often employed in regional offices) than by those in the middle grades.

There were two areas concerning performance evaluation that yielded effects associated with grade level. These were the items concerning indication of areas of needed improvement and helpfulness of the evaluation. For both items, personnel in the lower grades gave the higher ratings.

6. Work schedule. GS grade level made no difference in the ratings given with respect to work schedules.

7. Workload. The principal finding on items concerning workload was that personnel at the GS-8 level or lower felt staffing levels were better in terms of workload than did personnel in other grades (Table 17).

8. Location. Satisfaction with location was lowest for those in the GS-9 grade. Those at grade GS-9 and below reported a greater desire to move than did those above that level, particularly for the incentive of moving to a more preferred geographical location. Those at high grade levels were more likely to respond to a promotional opportunity independent of pay than were those at lower levels.

9. Employee-management relations. Employees above the GS-9 level rated their own level of knowledge of FAA and union policies higher than did personnel in the higher grades.

10. Discussion. The findings for GS-grade level roughly paralleled those for age and experience. However, there was a particularly marked division of feeling between the GS-8 and -9 levels and those above and below. The respondents at the GS-8 and -9 levels seemed considerably less positive in their outlook toward AF work. Although the precise reasons for this are not clear, it may be that personnel in these levels feel some frustration in being close to, but not quite at, full journeyman status in AF.

IV. Type of Employment.

This heading includes three different sets of analyses. The first set is concerned with the AF program under which an individual is employed, the two primary classifications being Maintenance and Facilities and Equipment (F&E). The second set is considered the general occupation of the employee; again, there are two major groups, the engineers and the technicians. The third set is concerned with specialty, and there are several different categories at this level.

A. AF Program. Most of the employees surveyed fell into the two major AF programs, Maintenance and F&E. Those not employed directly in these two

programs were considered as a third group; this group included those working primarily in training, administration, and computers.

1. Likes and dislikes ratings. Maintenance personnel gave higher ratings than did F&E or other AF respondents to the items concerning the AF career and working evening shifts (Table 18). The Maintenance group also indicated more liking for working with equipment than did those in F&E programs. Maintenance and F&E respondents both liked the quality of test equipment more than did those in other AF programs. F&E participants gave higher ratings for promotion opportunities than did the Maintenance and other AF respondents and gave higher ratings of the quality of regional office management than did the Maintenance group.

2. Job satisfaction. Compared with F&E personnel, there was a tendency for those in Maintenance and other programs to express a greater degree of satisfaction with being employed by AF and with the working conditions in AF.

In terms of the judged importance of various factors to job satisfaction, the Maintenance group rated both salary and job security as more important than did the F&E and other AF employees.

In assessing adequacy of satisfaction, F&E employees indicated a lower degree of satisfaction with the factors of independence and possibility of growth than did the other respondents.

3. Salary. When asked to indicate an appropriate salary level, both the F&E and other AF employees indicated a value approximately $1,000 less than the amount indicated by the Maintenance group (Table 18).

In comparison to Maintenance employees, F&E personnel were also more likely to feel that other AF and other FAA employees received better salary treatment than they.

4. Personnel programs. Training was the only item under this heading to show any effects of AF programs (Table 18). F&E respondents indicated less positive reactions to quality of Academy training, planning for training, and consideration of employee needs for training than did the Maintenance and other AF employees.

5. Management and supervision. The only significant findings on this topic related to managerial concern for employees (Table 18). F&E and Maintenance personnel rated the level of concern of their immediate supervisors higher than did other AF employees. At the unit level, the Maintenance group perceived a higher level of concern on the part of management than did the F&E group.

TABLE 18. Response Patterns of AF Employee as a Function of Specialty, Occupation, and AF Program

Questionnaire Items	Significance[a]	Specialty: Plans & Programs	Communications	Radar	Navaids	Automation	Environmental Support	Other	Significance[a]	Occupation: Engineers	Technicians	Drafters	Other	Significance[a]	Program: F&E	Maintenance	Other
Likes-Dislikes Ratings																	
Working With Equipment[b]	.001	81	88	93	93	91	91	67	.001	72	92	78	86	.001	76	92	90
Retirement Benefits	.05	91	90	89	89	89	88	90	No effect					.05	89	90	92
Associating With Coworkers	.01	93	89	88	90	90	91	86	No effect					No effect			
Challenge of Work	.001	96	85	87	89	88	83	79	.001	83	88	36	87	No effect			
Service to Aviation	.001	91	86	83	87	79	82	73	.001	81	84	77	85	No effect			
AF Career	No effect								No effect					.05	76	85	79
Working in Civil Service	.001	80	83	82	77	83	87	75	.01	73	73	79	89	No effect			
Working in Aviation	.001	88	85	78	81	75	79	76	.001	85	80	86	79	.001	83	80	83
AF Job Tasks	.001	81	78	80	80	78	77	83	.001	81	79	62	69	No effect			
Work Variety	.001	86	73	76	74	75	87	81	.05	80	78	57	71	.05	78	80	82
Working Dayshifts (0800-1600)	.001	76	84	74	87	70	79	77	No effect					No effect			
Difficulty of Work	.001	81	71	76	78	81	72	67	.001	71	76	43	79	No effect			
Salary	.001	80	72	80	72	77	50	64	.001	77	73	36	58	No effect			
Moderate Workloads	.001	77	71	73	73	67	64	62	.001	63	72	64	62	No effect			
Physical Work Environment	.001	74	65	60	63	77	70	58	.05	60	65	71	82	No effect			
Respect and Prestige	No effect								.05	50	60	21	53	No effect			
Number of Trained Coworkers	No effect								No effect					No effect			
Quality of Supervision	No effect								No effect					No effect			
General Workload	No effect								No effect					No effect			
Heavy Workloads	No effect								No effect					No effect			
Established Work Procedures	.05	46	47	45	46	35	42	53	.05	30	46	50	65	.05	41	45	47
Test Equipment	.001	37	41	47	42	52	54	48	.001	39	46	22	51	.001	35	47	41
Quality of Local Management	No effect								No effect					No effect			
Working With Controllers	No effect								No effect					No effect			
Miscellaneous Duties	No effect								.05	16	32	43	44	No effect			
Promotion Opportunities	.01	36	42	35	39	31	39	51	.001	50	37	7	39	.05	46	38	38
Working Evening Shifts (1600-2400)	.001	58	28	45	22	52	28	23	.01	22	37	17	22	.001	27	37	23
Light Workloads	.01	9	26	25	23	21	25	15	.001	16	24	15	29	No effect			
National Management	.001	24	20	20	19	14	27	38	No effect					No effect			
Regional Management	.001	44	23	23	22	13	31	38	No effect					.05	32	22	26
Rotating Shifts	.001	18	17	28	14	21	21	20	No effect					No effect			
Working Mid Shifts (2400-0800)	No effect								No effect					No effect			
Job Satisfaction[c]																	
Ratings																	
Satisfaction With Occupation	No effect								.05	90	90	71	84	No effect			
Satisfaction With Working in AF	No effect								No effect					.01	84	86	83
Satisfaction With Working Conditions	.001	77	74	75	76	77	74	78	.05	68	76	64	88	.01	70	75	74
Satisfaction With Precut Position in AF	No effect								No effect					No effect			
Rankings of Importance/Ratings of Adequacy of Satisfaction																	
Job Security	.001/.01	3.6/88	3.1/90	3.1/90	3.2/91	3.6/94	3.2/86	4.2/88	.001/--	5.8/--	4.3/--	5.5/--	5.7/--	.05/--	5.2/--	4.4/--	5.1/--
Job Achievement	No effect								--/.01	--/69	--/78	--/57	--/83	No effect			
Responsibility for Own Work	.05/--	2.4/--	2.6/--	2.6/--	2.6/--	2.5/--	2.6/--	4.1/--	.01/.05	3.8/68	4.5/78	5.9/57	4.6/91	--/.05	--/71	--/78	--/73
Salary	.001/.001	3.1/82	2.6/70	2.7/81	3.0/76	3.0/77	3.0/52	5.0/72	.01/.001	5.4/82	4.2/74	3.3/31	5.3/65	.01/.05	5.0/73	4.3/75	5.0/73
Work Itself	No effect								--/.01	--/67	--/71	--/21	--/84	No effect			
Recognition From Coworkers	--/.01	--/69	--/56	--/58	--/62	--/52	--/62	--/51	--/.05	--/55	--/59	--/54	--/61	No effect			
Supervision	No effect								No effect					No effect			
Working Conditions	--/.001	--/70	--/50	--/54	--/51	--/77	--/54	--/58	.001/.05	7.0/60	6.0/55	7.0/50	6.0/74	No effect			
Possibility of Growth	No effect								--/.001	--/41	--/50	--/21	--/44	--/.001	--/36	--/50	--/53
Management Effectiveness	--/.05	--/44	--/28	--/28	--/28	--/26	--/30	--/44	.05/.001	7.8/36	8.1/28	7.7/29	7.6/57	No effect			
Recognition From Others	--/.001	--/39	--/33	--/25	--/32	--/26	--/33	--/48	No effect					--/.05	--/31	--/31	--/34
Promotion Opportunities	No effect								--/.01	--/28	--/23	--/00	--/24	No effect			

TABLE 18. (Continued)

Questionnaire Items	Significance[a]	Specialty: Plans & Programs	Communications	Radar	Navaids	Automation	Environmental Support	Other	Significance[a]	Occupation: Engineers	Technicians	Drafters	Other	Significance[a]	Program: F&E	Maintenance	Other
Salary																	
Adequacy of Present Salary[c]	.001	88	80	87	84	84	66	80	.001	89	82	36	71	No effect			
Appropriate Amount[f]	Not evaluated								Not evaluated								
Fairness of Salary[g]	.01	71	58	67	60	64	41	61	.01	72	60	29	57	.01*	20.1	21.5	20.5
Comparisons[h]														No effect			
Other AF Personnel	.001	23	26	16	30	11	51	29	.05	26	24	54	44	.05	33	24	22
ATC Personnel	.001	73	66	65	59	71	68	57	No effect					No effect			
Other FAA Personnel	.001	9	13	10	12	9	36	14	.01	10	13	31	27	.05	19	12	17
Private Industry	.001	30	33	28	30	19	54	32	No effect					No effect			
Personnel Programs																	
Training[c]																	
Quality of Resident (Academy) Training	.001	75	84	87	89	79	86	80	.001	70	87	40	80	.001	73	87	82
Consideration of Employee Training Needs	.001	60	59	66	71	66	65	69	.001	50	67	15	70	.01	53	67	65
Consideration of Employee Skills	.01	41	64	67	67	64	58	74	.05	63	66	23	61	No effect			
Quality of on-the-job Training	No effect								No effect					No effect			
Planning for Training	.01	63	57	63	67	62	61	58	.001	48	63	15	72	.01	53	63	63
Merit Promotion Plan (MPP)[c]																	
Concept of MPP	No effect								.05	79	64	38	66	No effect			
Fairness of MPP Concept	No effect								.05	71	56	31	54	No effect			
Administration of MPP	.05	53	42	40	44	36	46	47	No effect					No effect			
Fairness of MPP Administration	.01	52	40	37	41	35	47	48	.05	49	39	15	54	No effect			
Equal Employment Opportunity (EEO)[c]																	
Concept of EEO	No effect								No effect					No effect			
Fairness of EEO	No effect								No effect					No effect			
Administration of EEO	.05	64	57	55	60	51	68	67	No effect					No effect			
Fairness of EEO Administration	.05	62	54	52	56	49	64	61	No effect					No effect			
Management and Supervision																	
Managerial/Supervisory Effectiveness[c]																	
Freedom to Discuss Work Problems	No effect								No effect					No effect			
Use of Employee Skills	.001	76	82	82	83	78	84	82	.01	79	84	21	75	No effect			
Acknowledgment by Supervisor	.05	75	72	71	76	81	69	81	No effect					No effect			
Clarity of Task Explanation	.05	73	74	78	81	79	72	86	No effect					No effect			
Helpfulness With Technical Problems	.05	74	68	66	69	68	71	77	No effect					No effect			
Acknowledgment by Managers	No effect								No effect					No effect			
Performance Evaluation[c]																	
Accuracy	No effect								No effect					No effect			
Fairness	No effect								No effect					No effect			
Thoroughness	No effect								No effect					No effect			
Indication of Needed Improvements	No effect								No effect					No effect			
Detailing of Work Standards	.05	69	76	76	78	76	74	74	No effect					No effect			
Helpfulness in Improving Work	No effect								No effect					No effect			
Managerial/Supervisory Concern[i]																	
Level																	
Immediate Supervisor	No effect								No effect								
Unit (e.g., Sector Field Office)	.001	53	73	71	77	68	83	49	.001	76	74	43	81	.05	79	78	74
Sector	.001	66	64	63	62	60	78	50	.001	84	67	40	63	.001	77	74	73
Region	.001	58	48	50	52	37	58	52	.001	56	50	10	70	.001	73	63	72
Agency	.001	50	52	57	55	43	62	47	No effect					No effect			
														No effect			
Work Schedule																	
Satisfaction With Schedule[c]	No effect								No effect					No effect			

TABLE 18. (Continued)

Questionnaire Items	Significance[a]	Specialty: Plans & Programs	Communications	Radar	Navaids	Automation	Environmental Support	Other	Significance[a]	Occupation: Engineers	Technicians	Drafters	Other	Significance[a]	Program: F&E	Maintenance	Other
Workload																	
Amount of Workload[d]																	
Light	Not evaluated								Not evaluated					.01*	17	22	19
Moderate	Not evaluated								Not evaluated					No effect			
Heavy	Not evaluated								Not evaluated					.01*	40	33	36
Preferred Workload[d]																	
Light	Not evaluated								Not evaluated					No effect			
Moderate	Not evaluated								Not evaluated					No effect			
Heavy	Not evaluated								Not evaluated					No effect			
Percent of Time Well Used[e]	.05	24				25		26	.001	68	77	70	82	.001*	69	76	77
Causes of Nonproductive Time[k]																	
Erratic Workload	.001	21	28	38	24	43	12	5	No effect					.001	21	31	17
Management/Supervision	No effect								No effect					.001	21	11	23
Paperwork	No effect								No effect					No effect			
Travel to Sites	No effect								No effect					No effect			
Miscellaneous	No effect								No effect					No effect			
Staffing																	
To Handle[k]																	
Light Workloads	.01	19	18	15	16	11	20	17	No effect					No effect			
Moderate Workloads	No effect								No effect					No effect			
Peak Workloads	.01	20	23	22	29	34	22	33	.05	23	26	31	39	No effect			
Sufficient for Workload[e]	.001	59	65	68	71	78	52	66	.001	63	68	69	68	.05	61	67	71
Location																	
Satisfaction With																	
Present Location[c]	No effect								No effect					No effect			
Would Like to Move[k]	No effect								No effect					No effect			
Incentives to Move[m]									.05	77	74	79	62	No effect			
Promotion With More Pay	No effect								No effect					No effect			
Higher Pay	No effect								.05	53	48	64	58	.01	60	48	56
Increased Promotion Opportunities	.05	51	50	46	48	46	58	46	No effect					No effect			
Better Geographical Location	No effect								No effect					No effect			
Change of Work	.05	46	39	36	34	33	31	28	No effect					No effect			
Promotion With Same Pay	.01	28	18	23	18	29	13	18	No effect					No effect			
Other	No effect								No effect					No effect			
Employee-Management Relations																	
Knowledge of FAA Policies[n]	.001	85	75	75	78	77	78	38	.001	77	77	50	78	No effect			
Knowledge of Union Policies	.05	66	52	54	50	59	47	12	.001	44	54	14	49	.001	41	54	51
Quality of Employee-Management Relations at[i]																	
Unit Level	No effect								No effect					No effect			
Regional Level	.01	70	62	62	65	56	67	74	.05	70	63	36	67	No effect			
National Level	.05	75	62	68	68	59	66	76	.01	73	65	43	67	No effect			
Fairness in Employee-Management Relations[o]	.01	79	63	66	73	73	58	77	.01	77	66	46	74	No effect			

[a] Refers to significance level of chi-square analyses except where an asterisk is shown in which case the value refers to the significance level of an analysis of variance.
[b] Percentage liking.
[c] Percentage satisfied.
[d] First number indicates ranking; number following slash indicates percentage rating good or better.
[e] Percentage rating adequate or better.
[f] Dollars in thousands.
[g] Percentage rating fair.
[h] Percentage reporting others treated more favorably.
[i] Percentage rating high or moderate concern.
[j] Percentage of workdays.
[k] Percentage of respondents endorsing.
[l] Percentage indicating usually or always.
[m] Percentage wanting to move.
[n] Percentage indicating some or more knowledge.
[o] Percentage indicating acceptable or better.

6. Work schedule. Judgments on work schedule were not influenced by AF program.

7. Workload. F&E personnel reported more heavy and fewer light workdays than did other AF employees (Table 18), who in turn reported more heavy and fewer light days than did those in Maintenance. However, both Maintenance and other AF personnel felt a higher percentage of their time was well used than did F&E people.

Judgments concerning the most important factors for nonproductive time showed that Maintenance personnel were more likely to attribute nonproductive time to erratic workloads and less likely to fault management or supervision than were those in F&E or other AF programs.

8. Location. None of the responses to items under this topic varied as a function of AF program.

9. Employee-management relations. The only finding of note in this portion of the questionnaire indicated that Maintenance and other AF employees reported a greater awareness of union policies than did F&E employees (Table 18).

10. Discussion. While these findings reveal only what appear to be relatively minor variations in ratings between employees in the different AF programs, there does seem to be a general trend that orders three groups of employees. With respect to the two major programs, it appears that, overall, Maintenance employees seem more satisfied and less critical then employees in the F&E program. While the difference is not great, it does show that when effects were noted, Maintenance employees responded with higher ratings than did F&E personnel.

The employees outside these two programs were more variable in terms of relative standing. Although rarely more laudatory in their ratings, often their ratings were at an equal level to the Maintenance ratings or at an intermediate level between the Maintenance and F&E programs. Such variability precludes a simple statement of their relative standing in terms of job satisfaction and morale in comparison to that of the employees of Maintenance and F&E programs.

B. Occupation. The findings concerning occupation revealed several differences between AF personnel employed as engineers and technicians and those in other occupations.

1. Likes and dislikes ratings. The ratings for engineers and technicians were generally similar except for the four items of work procedures, working with equipment, working evening shifts, and light workload days, each of which received a higher rating from the technicians (Table 18). Both engineers and technicians gave higher ratings than did

the respondents in other occupations to the items concerning specific job tasks, variety of the work, prestige of AF work, promotion opportunities, salary, and moderate workloads. The reverse was true for ratings of work procedures, miscellaneous duties, working in the Civil Service, the working environment, and quality of the testing equipment.

One relatively small group of employees, the drafters (formerly called draftsmen), responded quite differently from other employees to some of these items and to several other parts of the questionnaire. Drafters gave very low ratings relative to the other occupational groups on the items concerning challenge of the work, difficulty of the work, service to aviation, working in the Civil Service, and working evening shifts.

2. Job satisfaction. Engineers and technicians reported a higher degree of satisfaction in occupational choice than did other AF occupational groups (Table 18). Drafters reported less satisfaction with working conditions than did the engineers, technicians, and other AF occupational groups.

In rating the importance of various work factors to job satisfaction, technicians indicated that salary and job security were more important than did engineers, while engineers assigned more importance to personal independence on the job and to the work itself (Table 18). Both engineers and technicians rated independence as more important than did employees in other occupations. These other groups rated working conditions and promotion possibilities as more important than did engineers or technicians. Finally, drafters rated salary as more important to satisfaction than did any of the other groups of AF employees.

Technicians and engineers gave essentially the same ratings to all adequacy-of-satisfaction items. They differed from other AF occupational groups in that they were better satisfied with salary and promotion opportunities and less adequately satisfied with working conditions, management effectiveness, and recognition. Again, drafters yielded very low ratings for adequacy of satisfaction in comparison with all other AF employees on the factors of independence, job achievement, work itself, and possibility of growth.

3. Salary. Ratings of salary followed a fairly predictable line, with engineers providing the highest ratings of satisfaction and fairness of salary followed by technicians, then those in other AF occupational groups, and finally drafters (Table 18). Personnel in the drafting and other AF occupations were twice as likely as technicians or engineers to indicate that other AF or other FAA employees received better salary consideration than they.

4. Personnel programs. Ratings of training indicated that technicians were more positive toward quality of training, planning for training, and

consideration of needs than were engineers (Table 18). Drafters were particularly less approving of the consideration given to employee training needs than were all others employed by AF. Both engineers and technicians felt more positively about the consideration given to employee skills in training programs than did those in other occupations.

Engineers and technicians generally agreed on their assessment of the concept of MPP and the fairness with which MPP has been administered (Table 18). In both cases their ratings were higher than those of drafters and, in the evaluation of the concept, were higher than the ratings of those in other occupations as well. In the evaluation of the fairness of the MPP concept, the ordering was engineers, then technicians, then all others.

There were no differences in the assessments of EEO programs as a function of occupation.

5. Management and supervision. Following the trend in the other areas, drafters were much more critical of management/supervisory effectiveness than were all other AF employees, at least on the items concerning use of talent and acknowledgment of employee suggestions and contributions by management (Table 18).

Technicians gave higher ratings to managerial concern at the unit and sector field office level than did engineers or other occupational AF groups, with the engineers giving the lowest ratings (Table 18). At the regional office level, where most engineers are employed, the engineers gave the highest ratings of concern followed by technicians and then others. Again, the social distance hypothesis seems to account for this effect.

6. Work schedule. Occupational status had no effect on the evaluation of work schedules.

7. Workload. Technicians reported higher percentages of time well used than did engineers; however, neither of these groups reported as high a percentage as did those with other occupational identifications (Table 18). The only factor cited more often by one occupational group than by another as contributing to nonproductive time was the need for coordination of activities. Engineers cited this factor more than did technicians, but neither of these groups referred to this problem as much as did those in other groups. Judgments concerning staffing revealed that engineers and technicians were less likely to rate their units as being staffed to handle peak loads than were those in other occupations.

8. Location. Occupation had little effect on the responses to items concerning location. The only noteworthy differences concerned the incentives to move for promotion opportunities and to move for increased pay with promotion (Table 18); both of these were endorsed more often by AF employees in occupations other than engineering or the technical fields.

9. Employment-management relations. The most informed group, according to their own ratings, were those in the occupations other than the engineering or technician groups, at least with respect to knowledge of FAA employee-management policies (Table 18). The same was generally true for ratings of knowledge of union policies, except that drafters provided the lowest ratings on this item. Drafters also gave lower ratings to the quality of employee-management relations at the regional and national levels than did the rest of the AF workforce. Drafters also judged fairness in these relationships to be lower than did those in other occupations.

10. Discussion. It is clear from the foregoing that the two major occupational groups differed little in attitude or satisfaction; those moderate discrepancies that were noted seemed appropriate to the differences in job tasks and settings for the two groups. However, the drafters presented a far different picture. This occupational group was the singularly most dissatisfied employee group within all of AF.

C. Specialty. The various specialties considered included plans and programing, communications, radar, navaids, automation, and environmental support. The remaining employees were grouped in a miscellaneous category that included such areas as training, engineering support, and equipment and/or facility design.

1. Likes and dislikes ratings. The findings for these ratings were fairly complex, but certain trends did appear (Table 18). Employees engaged in plans and programing rated their liking of the challenge, difficulty, and variety of the jobs as well as the aspect of working in aviation more highly than did other respondents. They also provided some of the highest ratings given to salary and working environment. The only item for which plans and programing ratings were notably lower than the others was that of light workload days.

Environmental support personnel responded with ratings higher than those of other specialties on the items concerning variety of work. However, the same group gave much lower ratings to salary than did the other respondents.

Compared to personnel in other specialties, those represented in the miscellaneous specialty group gave higher ratings to their liking of established work procedures, promotion opportunities, and both regional and national management and lower ratings to job challenge, job difficulty, service to aviation, working in the Civil Service, working with equipment, and light and moderate workloads. There was one other specific finding of note in their ratings: the percentage of positive responses for working rotating shifts and evening shifts was substantially higher (28 percent and 48 percent respectively) for those in the radar specialty than for any other specialty group.

2. Job satisfaction. The only rating of job satisfaction to be influenced by specialty was that of working conditions in AF; on this item, personnel in the miscellaneous group gave ratings higher than those of any of the other specialty groups (Table 18).

The ratings of importance of factors to job satisfaction were generally uniform across specialties except for the responses of the plans and programing group (Table 18). These persons rated salary and job security as less important, and independence on the job as more important, than did workers in any of the other specialty groups. Those in the miscellaneous specialty group also tended to rate the importance of salary low in relation to other respondents.

The degree to which various job factors received adequate satisfaction ratings was variable across specialty groups. Only 52 percent of the environmental support group rated their salaries as adequate or better, compared to more than 76 percent giving such ratings in most of the other groups. The environmental support group was also not quite as well satisfied with respect to job security as were the rest of the AF employees. Those in the miscellaneous group also rated adequacy of satisfaction relatively low for the factors of job security and recognition from peers. Personnel both in plans and programing and in automation rated adequacy of satisfaction with working conditions higher than did other AF employees. Plans and programing ratings and the ratings from the miscellaneous group were relatively high on the management effectiveness items, while the miscellaneous specialty group also rated recognition from others higher than was typical for the majority of the participants.

3. Salary. As would be expected on the basis of the findings described above, those in the environmental support specialty differed considerably from other AF employees in their judgments about salary. These respondents reported less satisfaction in the amount of salary received and more negative feelings about the fairness of the salary structure than did any other group (Table 18). Only two-thirds (66 percent) of the environmental support employees felt their salaries were adequate compared to more than 80 percent in the other specialties. The environmental support personnel were also considerably more likely to feel that others in AF, others in the FAA, and others in industry received more equitable salary treatment than they.

4. Personnel programs. Evaluations of training were relatively consistent across specialties, except that those in plans and programing and in communications judged consideration of needs in training less positively than did other AF personnel (Table 18). On the other hand, those in the miscellaneous specialty group had a higher opinion of the consideration given to the skills of the individual in training than was found for most AF employees.

Judgments concerning the MPP were generally about the same for all specialties, with the exception that the employees in the environmental support group and the miscellaneous specialty group rated both the administration and fairness of administration of the MPP programs higher than did other respondents.

Ratings of the EEO program indicated that those in plans and programing and in the miscellaneous specialty group rated the concept, administration, and fairness of administration of EEO more positively than did other specialty groups. Those in the environmental support group also rated both EEO administration and fairness of EEO administration at the same level as did those employees in plans and programing.

5. Management and supervision. The miscellaneous specialty group rated managerial/supervisory helpfulness, clarity of goal setting, and acknowledgment of employees more positively than did other specialty groups (Table 18).

The evaluation of supervisory/managerial concern revealed that those in the miscellaneous group rated immediate supervision and regional-level management more highly in this regard than did other groups. Those in the plans and programing specialty rated unit- and sector-level concern less favorably than did others.

Assessments of performance evaluation were similar for all specialties.

6. Work schedule. No differences in work schedule ratings were noted as a function of specialty.

7. Workload. Indications of the amount of worktime well used by the agency were slightly higher for those in the miscellaneous group than for others (Table 18).

The principal causes of nonproductive time were seen somewhat differently by the various groups. Plans and programing personnel felt coordination requirements were a principal source of wasted time, more so than did those in other specialties. The environmental support group was more likely to indicate difficulties with supplies than were members of other specialties, while personnel concerned with automation or radar cited the erratic nature of the workload somewhat more often than did other types of employees.

Ratings of staffing levels revealed that automation personnel were more likely to feel that their units were staffed to handle peak loads and that there were usually enough individuals on hand to accomplish the required tasks than were the respondents from other specialties.

8. Location. There were no differences in satisfaction with location or desire to move that were associated with specialty. There were some

differences in the attractiveness of certain incentives. Promotion to more responsibility was less frequently endorsed by environmental support employees and more often by plans and programing and automation personnel than by those in other specialties (Table 18). The plans and programing group also was more likely than most to indicate changing to different work as an incentive to move. Those in environmental support more often endorsed promotion opportunities as a reason for moving than did other AF employees.

9. Employee-management relations. As in several of the preceding sections, the plans and programing group differed from the other specialty groups on several of these items (Table 18). These respondents rated their own knowledge of FAA and union policy concerning employee-management relations higher than did those in other specialties. They also tended to give somewhat higher ratings to the quality of relations at the regional and national levels, although these ratings were equaled or exceeded by those of employees in the miscellaneous specialty group. These trends were also found in the ratings of fairness of FAA employee-management relations.

10. Discussion. Clearly, the two specialty groups that differ most from the typical AF pattern are the plans and programing and the environmental support groups. Most of the differential effects associated with the plans and programing group are probably related to their principal location in regional offices and to the differences in their job tasks in comparison with most other AF employees. In most respects they seem to be upwardly mobile, management oriented, and somewhat more satisfied--or at least somewhat more optimistic--in their outlook than are other specialty groups in AF.

On the other hand, the environmental support group was notable in being particularly more negative about one aspect of AF employment, salary, than were other groups of personnel. However, with the exception of salary matters, the environmental support personnel responded very similarly to most other AF employees. Thus, it does not appear that this group has an unusually low level of morale or job satisfaction; they appear to have generally good feelings about their work, with the exception of the salary area.

V. Type of Facility.

A. Likes and Dislikes Ratings. Of the four groupings of facility types, regional office personnel tended to give more extreme ratings than did those in other kinds of facilities; regional office employees had either the highest or the lowest average ratings on 10 of the 17 items for which significant differences were obtained (Table 19). The ratings by regional office personnel indicated the greatest degree of liking for heavy workloads, promotion opportunities, regional management, and national

TABLE 19. Response Patterns of AF Employees as a Function of Type of AF Facility

Questionnaire Items	Significance[a]	Facility			
		Regional Office	Major Tower	ARTCC	Small Facility
Likes-Dislikes Ratings					
Working With Equipment[b]	.001	74	92	91	92
Retirement Benefits	.05	88	88	89	90
Associating With Coworkers	No effect				
Challenge of Work	No effect				
Service to Aviation	No effect				
AF Career	No effect				
Working in Civil Service	No effect				
Working in Aviation	.001	84	82	77	81
AF Job Tasks	No effect				
Work Variety	.05	81	76	79	79
Working Dayshifts (0800-1600)	.001	84	78	69	83
Difficulty of Work	No effect				
Salary	No effect				
Moderate Workloads	.05	62	71	70	73
Physical Work Environment	.001	63	58	77	66
Respect and Prestige	No effect				
Number of Trained Coworkers	.01	60	54	66	61
Quality of Supervision	No effect				
General Workload	.01	55	48	57	54
Heavy Workloads	.05	60	48	56	48
Established Work Procedures	.01	37	44	40	49
Test Equipment	.001	37	44	51	45
Quality of Local Management	No effect				
Working With Controllers	.01	28	43	32	34
Miscellaneous Duties	.001	23	31	38	30
Promotion Opportunities	.001	44	32	37	41
Working Evening Shifts (1600-2400)	.001	19	41	49	29
Light Workloads	.001	15	24	22	25
National Management	.01	28	18	17	21
Regional Management	.001	38	19	17	25
Rotating Shifts	No effect				
Working Mid Shifts (2400-0800)	No effect				
Job Satisfaction[c] Ratings					
Satisfaction With Occupation	No effect				
Satisfaction With Working in AF	No effect				
Satisfaction With Working Conditions	.001	72	70	80	77
Satisfaction With Precut Position in AF	.05	67	66	70	71
Rankings of Importance/Ratings of Adequacy of Satisfaction					
Job Security	.001/--	5.8/--	4.3/--	4.7/--	4.3/--
Job Achievement	.05/--	3.9/--	4.8/--	4.7/--	4.6/--
Responsibility for Own Work	--/.05	--/67	--/78	--/82	--/78
Salary	.001/--	5.4/--	4.1/--	4.3/--	4.3/--
Work Itself	.05/--	5.9/--	7.0/--	6.7/--	6.8/--
Recognition From Coworkers	No effect				
Supervision	--/.05	--/62	--/54	--/63	--/57
Working Conditions	.01/.001	7.1/61	6.1/50	6.1/72	5.9/52
Possibility of Growth	--/.001	--/41	--/48	--/52	--/50
Management Effectiveness	--/.05	--/38	--/26	--/28	--/29
Recognition From Others	--/.01	--/35	--/30	--/24	--/33
Promotion Opportunities	.05/.001	5.9/23	6.4/18	6.2/21	6.8/26

TABLE 19. (Continued)

Questionnaire Items	Significance[a]	Facility			
		Regional Office	Major Tower	ARTCC	Small Facility
Salary					
Adequacy of Present Salary[e]	No effect				
Appropriate Amount[f]	.01*	21.9	22.1	21.8	20.4
Fairness of Salary[g]	No effect				
Comparisons[h]					
Other AF Personnel	.001	31	22	18	27
ATC Personnel	.001	68	69	67	60
Other FAA Personnel	No effect				
Private Industry	.01	34	31	23	34
Personnel Programs					
Training[e]					
Quality of Resident (Academy) Training	.001	69	88	81	88
Consideration of Employee Training Needs	.001	46	65	63	70
Consideration of Employee Skills	.05	57	63	63	69
Quality of on-the-job Training	.001	52	59	57	68
Planning for Training	.001	49	60	61	66
Merit Promotion Plan (MPP)[e]					
Concept of MPP	No effect				
Fairness of MPP Concept	.01	65	50	54	60
Administration of MPP	No effect				
Fairness of MPP Administration	.01	45	34	36	43
Equal Employment Opportunity (EEO)[e]					
Concept of EEO	No effect				
Fairness of EEO Concept	No effect				
Administration of EEO	No effect				
Fairness of EEO Administration	No effect				
Management and Supervision					
Managerial/Supervisory Effectiveness[e]					
Freedom to Discuss Work Problems	No effect				
Use of Employee Skills	.001	77	82	77	86
Acknowledgment by Supervisor	.05	74	69	78	75
Clarity of Task Explanation	No effect				
Helpfulness With Technical Problems	No effect				
Acknowledgment by Managers	No effect				
Performance Evaluation[e]					
Accuracy	.01	83	78	86	84
Fairness	No effect				
Thoroughness	.05	76	74	81	80
Indication of Needed Improvements	.05	70	76	80	80
Detailing of Work Standards	.05	71	75	75	80
Helpfulness in Improving Work	.05	62	66	73	71
Managerial/Supervisory Concern[i]					
Level					
Immediate Supervisor	.001	75	77	83	77
Unit (e.g., Sector Field Office)	.001	70	70	74	76
Sector	.001	70	61	65	65
Region	.001	55	48	39	53
Agency	No effect				
Work Schedule					
Satisfaction With Schedule[c]	.001	50	39	31	57

TABLE 19. (Continued)

Questionnaire Items	Significance[a]	Facility: Regional Office	Major Tower	ARTCC	Small Facility
Workload					
Amount of Workload[j]					
Light	.001*	15	22	25	22
Moderate	.01*	41	43	46	47
Heavy	.001*	44	35	29	31
Preferred Workload[j]					
Light	.001*	10	19	15	17
Moderate	.05*	59	60	63	64
Heavy	.001*	32	21	22	20
Percent of Time Well Used[k]	.001*	71	78	73	76
Causes of Nonproductive Time[k]					
Erratic Workload	.001	20	33	38	26
Management/Supervision	.001	21	15	11	10
Paperwork	.001	13	9	5	14
Travel to Sites	.001	6	8	1	17
Miscellaneous	No effect				
Staffing					
To Handle[k]					
Light Workloads	.001	16	18	11	16
Moderate Workloads	.001	64	61	55	56
Peak Workloads	.001	20	21	34	28
Sufficient for Workload[e]	.001	61	62	76	69
Location					
Satisfaction With					
Present Location[c]	.05	79	78	74	82
Would Like to Move[m]	.05	50	44	48	40
Incentives to Move[k]					
Promotion With More Pay	No effect				
Higher Pay	No effect				
Increased Promotion Opportunities	No effect				
Better Geographical Location	No effect				
Change of Work	No effect				
Promotion With Same Pay	.001	24	24	27	15
Other	No effect				
Employee-Management Relations					
Knowledge of FAA Policies[n]	No effect				
Knowledge of Union Policies	.001	40	60	58	50
Quality of Employee-Management Relations at:					
Unit Level[o]	.01	74	69	73	75
Regional Level	.001	71	60	56	66
National Level	.05	71	64	59	68
Fairness in Employee-Management Relations[o]	.001	74	61	60	72

[a] Refers to significance level of chi-square analyses except where an asterisk is shown in which case the value refers to the significance level of an analysis of variance.
[b] Percentage liking.
[c] Percentage satisfied.
[d] First number indicates ranking; number following slash indicates percentage rating good or better.
[e] Percentage rating adequate or better.
[f] Dollars in thousands.
[g] Percentage rating fair.
[h] Percentage reporting others treated more favorably.
[i] Percentage rating high or moderate concern.
[j] Percentage of workdays.
[k] Percentage of respondents endorsing.
[l] Percentage indicating usually or always.
[m] Percentage wanting to move.
[n] Percentage indicating some or more knowledge.
[o] Percentage indicating acceptable or better.

management. They provided the lowest average ratings on the items concerning miscellaneous duties, working in AF, working with equipment, working evening shifts, light workloads, and moderate workloads. (It should be remembered that this discussion refers to relative ratings and that the ratings generally were to the "like" side of the scale; the concern here is the standing of the rating relative to other groups.) An examination of the characteristics of these items suggests that they reflect many of the differences between regional office and field employment circumstances; those in the regional offices probably have more promotion options than do those in the field (and quite probably seek out regional office positions in part for that reason), they work less with equipment, and they are closer in most respects to regional and national managers. The preference for heavy workloads may reflect some of the ambitiousness that may be characteristic of those seeking promotional opportunities through the regional office setting.

Employees at ARTCC's provided the highest ratings on five items: miscellaneous duties, the working environment, the quality of test equipment, number of trained coworkers, and working evening shifts. They provided the lowest ratings on the items of working in aviation and working day shifts. They also gave a relatively low rating to the item concerning promotion opportunities, but not so low as did personnel from major towers (level III and IV towers). The relatively high approval of the items concerning environment, test equipment, and staffing by these employees would seem to match well with the relative newness of the ARTCC facilities, in terms of the physical plants and equipment, and the large AF staffs in each. The remote contact with aviation associated with work at an ARTCC is reflected in the rating of work in aviation.

Personnel at major towers gave the highest rating of the four groups on the single item of working in AF. They were lowest on liking for their overall workload and promotion opportunities. They were also relatively high in their ratings of liking of established work procedures and evening shifts but not as high as personnel from small facilities and ARTCC's respectively. On the item concerning day shifts they gave ratings lower than all but those of the ARTCC group.

The ratings by personnel at small facilities were generally at an intermediate level with the exception of the item concerning established work procedures, to which they gave a higher rating than did employees at other types of facilities. Their ratings did tend to be higher for promotion opportunities, regional management, and national management; in each of these cases, only regional office employees gave higher ratings. They also gave a relatively low rating to working evening shifts but, again, not as low as that of the regional office groups.

B. Job Satisfaction. There were differences between employees at the four types of facilities on two of the four scales concerning general

satisfaction (Table 19). On the rating of satisfaction with one's present position in AF, personnel at small facilities and ARTCC's reported more satisfaction than did those at regional offices and major towers. Satisfaction with working conditions was greatest for ARTCC employees, followed by those at small facilities, who were in turn followed by those at regional offices, and finally by employees at major towers.

In terms of importance to satisfaction, most of the ratings were very similar. The significant exceptions were ratings by regional office personnel of the importance of salary, job security, and working conditions, each of which was rated as less important by them than by field facility personnel, and the factors of job achievement and work itself, which were rated as more important by the regional office group. It is also important to note that compared to the other groups, personnel at small facilities rated promotion opportunities as less important to satisfaction.

In reference to ratings of adequacy of satisfaction, the regional office employees were again the most discriminating of the facility groups; they rated adequacy of satisfaction greater than did the others on freedom to do one's own work and management effectiveness and somewhat lower than the others on possibility of growth. The regional office group also rated adequacy of satisfaction for working conditions and promotion opportunities relatively high but not so high as did ARTCC employees for the former and small facility personnel for the latter. Those at ARTCC's rated the satisfaction from recognition lowest of all the groups and rated promotion opportunities next to lowest of the groups. Those at major towers gave the lowest ratings relative to the others on supervisory effectiveness and on promotion opportunities.

C. Salary. Although, the four facility groups gave very similar ratings to adequacy of salary (Table 19), they did differ to some degree on the appropriate amount of salary for their work. Those at major towers indicated on the average an appropriate annual salary that was $200 higher than that indicated by those at regional offices, who in turn were $100 higher in their estimates than were those at ARTCC's. However, the largest difference was between the ARTCC's and small facilities, as small facility employees reported a value $1,400 lower than that of the ARTCC group.

The responses to the items concerning equity of salary showed that more regional office employees felt others in AF are treated more fairly in salary than they. At the other end, ARTCC personnel were least likely to indicate this. Employees at small facilities were somewhat less inclined than other AF respondents to indicate that air traffic personnel receive preferential treatment, although approximately 60 percent of this group still held that belief. The only other difference obtained on these items related to comparisons with outside industry; the ARTCC group was less likely to report better salary treatment outside the FAA than were employees at the other types of facilities.

D. Personnel Programs. Ratings of training and planning for training tended to be low for regional office employees relative to employees at field facilities (Table 19). This was true for assessments of on-the-job and Academy training; it was also true for planning and for consideration of employee needs and skills. On the other hand, personnel at small facilities gave relatively higher ratings to the items concerning on-the-job training, planning, and consideration of needs and skills than did other respondents.

There were also differences in the evaluation of MPP; regional office and small facility employees indicated greater approval of the fairness of both the concept and administration of MPP than did employees at major towers and ARTCC's.

Judgments of the EEO program did not differ as a function of the type of facility.

E. Management and Supervision. Ratings for all levels of supervisory/managerial concern except the national level differed as a function of facility type (Table 19). Regional office employees rated sector- and unit-level concern lower than did field facility employees; ARTCC personnel rated immediate supervisory concern higher and regional concern lower than did the other employees at other locations. Those at small facilities provided the highest ratings of unit-level concern.

Two items concerning management effectiveness yielded differences between facility types. Both small-facility and major-tower personnel felt their talents were better used than did regional office or ARTCC employees. On the other hand, respondents from major towers reported less acknowledgment by supervisors than did those in other facilities.

Ratings of performance evaluation reveal that regional office and major-tower employees are more critical of management than are other employees. Regional office personnel gave the lowest ratings of the four groups to items concerning the presentation of areas of needed improvement, detailing of job expectations, and helpfulness of the evaluation process. Those at major towers gave relatively lower ratings on accuracy of evaluation and also on helpfulness of the evaluation, although regional office employees had an even lower average rating on this item.

F. Work Schedule. Regional office and small-facility employees were substantially more satisfied with their work schedules than were those employed at major towers and ARTCC's (Table 19). These differences almost certainly reflect the higher incidence of rotating schedules at the latter two types of facilities.

G. Workload. The estimates of workload were different for each of the four types of facilities (Table 19). The regional office estimates were

heaviest of the four, followed at some distance by those of major-tower employees, then by those at small facilities estimates, and finally by those at ARTCC's. In terms of preferred workload, the regional office personnel again gave the heaviest estimates, followed by ARTCC and small-facility employees, and then by those at the major towers.

When asked what percentage of their time was well used, both major-tower and small-facility respondents reported higher values than did the AF employees at ARTCC's and regional offices; however, the differences were not particularly large.

The indications of causes of nonproductive time varied considerably as a function of facility type. Those in regional offices endorsed the items concerning coordination requirements and management/supervision more often, and erratic workload less often, then did those at field facilities.

Employees at small facilities indicated travel as a major factor more often than did those employed elsewhere. Also, those at ARTCC's felt less inclined than other AF employees to cite paperwork as a cause of lost time.

Estimates of staffing levels were generally similar, except that personnel at ARTCC's reported somewhat higher staffing levels than did those at other types of facilities.

H. Location. Employees at small facilities tended to be more satisfied than other AF employees with their locations, while those at ARTCC's were clearly less satisfied (Table 19). Conversely, small-facility employees were least likely to want to move. The regional office group was most desirous of change of location, followed by ARTCC and then major-tower employees.

There were almost no differences between types of facilities in terms of the attractiveness of various incentives to move. The only significant difference noted concerned the incentive of promotion to more responsibility at the same pay; a generally not-too-attractive proposition, it was seen as particularly less attractive by small-facility personnel.

I. Employee-Management Relations. Awareness of FAA policies in the area of employee-management relations was highest at ARTCC's and major towers, the types of facilities that are most interested in these matters (Table 19). Regional office personnel, who may have little occasion to be involved in such matters, appeared to be least aware of these policies.

The quality of employee-management relations at the unit level was judged lowest by major-tower respondents. These respondents also made relatively low assessments of such relationships at the regional and national levels but not as low as those of ARTCC employees. Regional office

employees, as expected on the basis of social distance, again gave higher ratings to regional- and national-level relations than did employees at field facilities.

Overall fairness of employee-management relations was judged best by regional office personnel, followed by small-facility employees, who were followed by employees at major towers and ARTCC's.

J. Discussion. The findings for facility types are among the most interesting of the survey. The pattern of responses of regional office employees suggests they are more typically upwardly mobile, striving, and ambitious than are those at field facilities. They pay less attention to security and more to seeking out situations that offer opportunity for advancement and work variety than is typical of others in AF. They are more interested in moving and in general seem to be the most willing to take risks in order to advance. On the other hand, those at small facilities seem to have a considerably different view. They show little inclination to move and less interest in advancement, and they have a greater investment in "their" facility. This "pride of ownership" may be a factor in the attitudes of ARTCC and major-tower employees as well, in that the larger staffs and rotating shifts may serve to lessen investment in the facility itself. Thus, particularly for employees at ARTCC's, there seems to be less allegiance to the facility and a greater willingness to move to other locations than for other AF employees. It should be noted that these tendencies do not necessarily represent lower job satisfaction on the part of ARTCC employees; rather, the findings are suggestive of the nature of their identification with specific facilities.

References

1. Federal Aviation Administration: Summary Report on Systems Maintenance Program Evaluation Conducted in Southwest Region, 1971.

2. Federal Aviation Administration: Report on a Special Agencywide Evaluation of Airway Facilities F&E Program Activities and Functions, Report No. AAF-73-1, 1973.

3. Federal Aviation Administration: Summary Report on Airway Facilities F&E Program Evaluation Conducted in the Great Lakes Region, 1974.

4. Federal Aviation Administration: Summary Report on Airway Facilities F&E Program Evaluation Conducted in the Southern Region, Report No. AAF-74-3, 1974.

5. Federal Aviation Administration: Summary Report on Airway Facilities Maintenance Program Evaluation Conducted in the New England Region, Report No. AAF-75-5, 1975.

6. Federal Aviation Administration: Airway Facilities Career Planning Program, Order No. 3410.12.

7. Herzberg, F.: Work and the Nature of Man, Cleveland, World Publishing Co., 1966.

8. Mott, P. E., F. C. Mann, Q. McLoughlin, and D. P. Warwick: Shift Work, Ann Arbor, University of Michigan Press, 1965.

9. Smith, R. C., B. B. Cobb, and W. E. Collins: Attitudes and Motivations of Air Traffic Controllers in Terminal Areas, AEROSPACE MEDICINE, 43:1-5, 1972.

10. Smith, R. C.: Job Attitudes of Air Traffic Controllers: A Comparison of Three Air Traffic Control Specialties. FAA Office of Aviation Medicine Report No. FAA-AM-73-2, 1973.

11. Tifflin, J., and E. McCormick: Industrial Psychology, Englewood Cliffs, New Jersey, Prentice Hall, Inc., 1965.

12. Young, K.: Social Psychology, 3d Ed., New York, Appleton-Century-Crofts, 1956.

Appendix A

Questionnaire

Instructions

AF Employee Attitude Survey

The purpose of this survey is to determine the overall attitudes of Airway Facilities employees toward their work in the FAA.

Your name was selected randomly, along with many others to receive this survey; however, participation on your part is entirely voluntary. No record of participants will be kept; therefore,

1. DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE. Since we are interested in your frank and candid answers to these questions, the survey is entirely confidential and anonymous.
2. Please read the instructions for each part of the questionnaire carefully.
3. Work quickly, do not spend a long time on any one item--use your first impression to answer each item. It is important that you complete as much as possible of the questionnaire; however, you may omit questions you prefer not to answer.
4. When you are through, seal the questionnaire in the preaddressed envelope and mail it directly to the Civil Aeromedical Institute.
5. In order to insure timely completion of the survey project, please return this questionnaire within 10 days.

Upon completion of the survey, the results will be analyzed, and a report prepared. Copies of the report will be available to all AF installations.

Basic Information--AF Employee Attitude Survey

Age_____

Grade: WG_____ GS_____

Years FAA/CAA service _____

Occupation (please check)

engineer_____

technician_____

other (specify) _____

What percent of your work time do you spend in

F&E

program engineering_____

installation _____

planning_____

Maintenance

program planning _____

engineering _____

operation _____

Other (specify) _____

Your usual work location

Regional office _____

Field

Major Terminal area (Level III or IV)_____

ARTCC _____

FSS, Combined Tower/ Station, other towers, etc. _____ (one or more smaller facilities)

Primary specialty (check one)

Plans & programming _____

Communications _____

Radar _____

Navaids _____

Automation _____

Environmental support _____

Other (specify) _____

In which FAA Region are you located?

NE___ EA___ GL___ SO___

CE___ SW___ RM___ WE___

NW___ AL___ PC___

Please indicate your likes and dislikes about AF work. List your comments in rank order, the most important first and so on. Please make your comments BRIEF and LEGIBLE. Answer first for AF work in general, then for this facility.

----------AF WORK IN GENERAL----------

A. Cite three specific aspects of AF work in GENERAL which you like BEST.

(1) _____

_____

(2) _____

_____

(3) _____

_____

B. Cite three specific aspects of AF work in GENERAL which you like LEAST.

(1) _____

_____

(2) _____

_____

(3) _____

_____

----------AF WORK AT THIS FACILITY----------

A. Cite three specific aspects of AF work which you like BEST at this FACILITY.

(1) _____

_____

(2) _____

_____

(3) _____

_____

B. Cite three specific aspects of AF work which you like LEAST at this FACILITY.

(1) _____

_____

(2) _____

_____

(3) _____

_____

Job Satisfaction Questionnaire

On the following four questions, please check the mark on each scale that most closely represents your feelings.

1. How satisfied are you with being employed in the AF system?

very satisfied	satisfied	indifferent	dissatisfied	very dissatisfied
____	____	____	____	____

2. How satisfied are you with your present position in AF?

very satisfied	satisfied	indifferent	dissatisfied	very dissatisfied
____	____	____	____	____

3. How satisfied are you with your choice of occupation in general; that is, with being an electronic technician, engineer, inspector, or whatever?

very satisfied	satisfied	indifferent	dissatisfied	very dissatisfied
____	____	____	____	____

4. In general, how satisfactory are your working conditions in AF?

very satisfactory	satisfactory	neither	unsatisfactory	very unsatisfactory
____	____	____	____	____

a. What about your working conditions is most satisfactory?

_____

b. What about your working conditions is most unsatisfactory?

_____

5. In the left-hand column please rank the following factors according to their order of importance in making a job satisfying to you (rank the most important factor with a 1, the next with a 2, the next with a 3 and so on, giving the least important factor an 11--use each rank only once). After ranking all factors, then rate each factor in the right-hand columns by placing a check in the column which most closely indicates the degree to which your present AF position provides adequate satisfaction for each of the factors.

		Adequacy of Satisfaction				
Rank	Factor	very good	good	fair	poor	very poor
____	possibility for growth through improvement of skills, acquisition of new skills, self-development	____	____	____	____	____
____	job security	____	____	____	____	____
____	management effectiveness and competence	____	____	____	____	____
____	working conditions (physical conditions, workload, environment, adequate equipment, etc.)	____	____	____	____	____
____	salary	____	____	____	____	____
____	competence and fairness of immediate supervisor	____	____	____	____	____
____	promotion opportunities	____	____	____	____	____
____	job achievement (success at job, solving problems, seeing results of work)	____	____	____	____	____
____	freedom to use own judgment, responsibility for own work, opportunity to use initiative	____	____	____	____	____
	recognition for work					
____	(a) from fellow workers	____	____	____	____	____
____	(b) from those outside AF	____	____	____	____	____
____	the work itself (job tasks, job challenge, variety)	____	____	____	____	____

Rating AF Work

Please rate each of the following aspects of working in AF in terms of whether it is a work factor which you like or dislike. Place a check mark in the column which most closely indicates your feeling for each factor.

	Like Very Much	Like	Neither Like Nor Dislike	Dislike	Dislike Very Much
1. Challenge of AF work---------	____	____	____	____	____
2. Difficulty of AF work--------	____	____	____	____	____
3. AF job tasks (radar installation, communications maintenance, etc.)----------	____	____	____	____	____
4. Variety of your job tasks----	____	____	____	____	____
5. Established work procedures--	____	____	____	____	____
6. Working in aviation----------	____	____	____	____	____
7. Amount of workload----------	____	____	____	____	____
8. Miscellaneous duties (paper work, training, etc.)------	____	____	____	____	____
9. Working with controllers-----	____	____	____	____	____
10. Career in AF----------	____	____	____	____	____
11. Respect and prestige of being in AF as technician, engineer, etc.----------	____	____	____	____	____
12. The service performed for aviation----------	____	____	____	____	____
13. Being in civil service-------	____	____	____	____	____
14. Retirement benefits----------	____	____	____	____	____
15. Promotion opportunities------	____	____	____	____	____
16. Level of salary----------	____	____	____	____	____
17. Association with fellow workers----------	____	____	____	____	____

	Like Very Much	Like	Neither Like Nor Dislike	Dislike	Dislike Very Much
18. Physical working environments----------	____	____	____	____	____
19. Working with the equipment---	____	____	____	____	____
20. Quality of test equipment----	____	____	____	____	____
21. Number of trained coworkers--	____	____	____	____	____
22. If you worked rotating shifts					
a. Changing work shifts---	____	____	____	____	____
b. Working day shifts (approximately 8:00-4:00)	____	____	____	____	____
c. Working evening shifts (approximately 4:00-12:00)	____	____	____	____	____
d. Working night shifts (approximately 12:00-8:00)	____	____	____	____	____
23. Workdays with light workload-	____	____	____	____	____
24. Workdays with moderate workload----------	____	____	____	____	____
25. Workdays with high workload--	____	____	____	____	____
26. Quality of immediate supervision----------	____	____	____	____	____
27. Quality of local management--	____	____	____	____	____
28. Quality of regional management----------	____	____	____	____	____
29. Quality of national management----------	____	____	____	____	____

Various Work Factors

I. Please rate the unit you work in on the following factors:

	Excellent	Very Good	Good	Adequate	Poor	Very Poor	Totally Inadequate
A. Evaluation of your performance by your Supervisor							
accuracy of ratings	____	____	____	____	____	____	____
thoroughness of evaluation	____	____	____	____	____	____	____
fairness	____	____	____	____	____	____	____
indication of areas of needed improvement	____	____	____	____	____	____	____
detailing of specific work standards	____	____	____	____	____	____	____
helpfulness in improving work	____	____	____	____	____	____	____
B. Training and Development							
quality of on-job training	____	____	____	____	____	____	____
quality of resident training (for example, at the FAA Academy or other school)	____	____	____	____	____	____	____
planning for training opportunities	____	____	____	____	____	____	____
consideration of employee training and development needs	____	____	____	____	____	____	____
consideration of employee skills and potential	____	____	____	____	____	____	____

II. Please rate

	Excellent	Very Good	Good	Adequate	Poor	Very Poor	Totally Inadequate
A. The Merit Promotion Plan (MPP)							
concept of MPP	___	___	___	___	___	___	___
fairness of MPP concept	___	___	___	___	___	___	___
administration of MPP	___	___	___	___	___	___	___
fairness of administration of MPP	___	___	___	___	___	___	___
B. The Equal Employment Opportunity Program (EEO)							
concept of EEO	___	___	___	___	___	___	___
fairness of EEO concept	___	___	___	___	___	___	___
administration of EEO	___	___	___	___	___	___	___
fairness of administration of EEO	___	___	___	___	___	___	___
C. Miscellaneous Items							
use of my personal skills and abilities (talent)	___	___	___	___	___	___	___
managerial helpfulness in solving my technical problems	___	___	___	___	___	___	___
clarity with which work tasks and goals are explained to me	___	___	___	___	___	___	___
freedom to discuss work-related problems with supervisors and management	___	___	___	___	___	___	___
acknowledgment by immediate supervisor of input by employees	___	___	___	___	___	___	___
acknowledgment by management of input from employees and subordinate supervisors	___	___	___	___	___	___	___

III. Salary

In terms of the work you now do, please check how you would rate your present salary.

Very Good	Good	Adequate	Inadequate	Very Inadequate
____	____	____	____	____

What do you feel is an appropriate salary for your present position? $_____

Approximately how much of a change is this from what you now make? $_____increase or $_____decrease

Please check the term which indicates how you feel about the fairness of the FAA salary structure for AF employees.

Very Fair	Fair	Neither Fair nor Unfair	Unfair	Very Unfair
____	____	____	____	____

Please place a check mark in the column that best describes your feelings about the salary you receive in comparison to the salaries paid to members of other employee groups.

With Respect to Salary	More Favorably	Equally Favorably	Less Favorably
(a) other AF specialty groups are treated	____	____	____
(b) personnel in air traffic control work are treated	____	____	____
(c) other FAA employees in general are treated	____	____	____
(d) personnel doing similar jobs in private industry are treated	____	____	____

IV. Work Schedule

Do you work a rotating shift schedule? Yes_____ No_____

If yes--

(a) What is your shift rotation schedule? _____

(b) How satisfied are you with this schedule?

Very Satisfied	Satisfied	Neither	Dissatisfied	Very Dissatisfied
____	____	____	____	____

(c) What shift rotation schedule would you prefer and why?

_____

_____

V. Supervisory/Managerial Factors

Please rate (by checking the appropriate column) the degree of interest you feel each level of FAA management has in your well being as an AF employee. Be sure to rate your immediate supervisor, then the next highest level and so on. Mark levels that do not apply by checking the "Does not Apply" column (e.g., if you are in the regional office you would rate your immediate supervisor, then regional management and agency management; if you are in a sector you would rate all levels).

Rating of	High	Moderate	Low	Does not Apply
immediate supervisor	____	____	____	____
unit, SFO, etc.	____	____	____	____
sector	____	____	____	____
region	____	____	____	____
agency (headquarters)	____	____	____	____

VI. Location

The following questions refer to the general geographic area in which you work, and not to a specific FAA facility or installation. Please check the term which best describes your satisfaction with the geographic location in which you now work.

Very Satisfied	Satisfied	Neither	Dissatisfied	Very Dissatisfied
____	____	____	____	____

Would you like to move to another location? Yes _____ No _____

If so, where would you like to be located? _____

Which of the following incentives would encourage you to move (check as many as apply to you)?

move to a better geographic area _____

higher pay _____

promotion to a position of more responsibility without a pay change _____

promotion to a position of more responsibility with an increase in pay _____

opportunity to do different work _____

to a position with greater promotion opportunity _____

other (please specify) _____

_____

VII. Workload

A. What percentage of your workdays would you classify as

light workload _____%

moderate workload _____%

heavy workload _____%

B. What percentage of your workdays would you like to be of light, heavy, or moderate workload?

light _____%

moderate _____%

heavy _____%

C. If you work on a rotating shift schedule, how do you classify your work experience on each of the various shifts?

	Light	Moderate	Heavy
Day shifts (approximately 8-4)	____%	____%	____%
Evening shifts (approximately 4-12)	____%	____%	____%
Mid shifts (approximately midnight to 8)	____%	____%	____%

D. What percentage of your time do you feel is well used by the agency?_____%

E. What is the most important cause of non-productive or free time in your job?

_____

F. In terms of the staffing (number of people in the unit) of your unit do you feel your unit is (check the most applicable statement)

____ staffed to handle light workloads but inadequate for peak workloads

____ staffed to handle moderate workloads but inadequate for peak workloads

____ staffed to handle peak workloads

G. Please check the term that best describes how often you have enough personnel to handle the workload in your unit.

never	rarely	sometimes	usually	always
_____	_____	_____	_____	_____

VIII. Employee-Management Relations

	Thor-ough	Consid-erable	Some	Little	None
To what extent do you have personal knowledge of FAA policies regarding employee-management relations?	____	____	____	____	____
To what extent do you have personal knowledge of union policies regarding employee-management relations in the FAA?	____	____	____	____	____

	Very Good	Good	Accept-able	Poor	Very Poor
How do you feel about the quality of FAA employee-management relations:					
1. at your work setting	____	____	____	____	____
2. at the Regional level	____	____	____	____	____
3. at the national level	____	____	____	____	____
How do you feel about the fairness with which the FAA deals with employee-management relations?	____	____	____	____	____

Appendix B

Description of Herzberg Motivator-Hygiene Factors

Motivators	
Work Itself	Job tasks, challenge, difficulty, variety.
Achievement	Success on the job, solving problems, seeing the results of one's work, vindication of ideas.
Responsibility	Responsiblity for own work, new responsibilities, responsibility for safety.
Recognition	Recognition from peers, supervision, management, public for work.
Advancement	Change in status by promotion.
Possibility of Growth	Opportunity for development of skills and interests, potential for self-development, acquisition of new skills.
Hygiene	
Company Policy and Administration	Management, personnel policies, management quality and competence, organization, goals.
Working Conditions	Physical conditions, workload, adequacy of facilities available to accomplish work, environmental characteristics of job.
Supervision--Technical	Supervision competence, delegation of work, understanding of work, fairness, attitude.
Interpersonal Relations	Cooperation between AF personnel, like or dislike of peers, honesty, friendliness of supervisors, working relationships with trainees.
Salary	Compensation levels, salary increments.
Other	Effects on family relationships, job security, status.