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16. Abstract

Attrition from an active airman status amounts to approximately 17% annually. Summary data presented have served to quantify, to some extent, the characteristics of airmen medically certified during 1968 subsequently becoming attrition during 1970. The contribution of medical factors to attrition has been considered as well as experience, occupation, usage, and geographic characteristics. Population comparisons and prevalence rates are also presented for the various medical factors considered. Disenchantment and/or economic considerations appear to be the most important factors associated with attrition. Medical factors do not contribute substantially to attrition.

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# ATTRITION FROM ACTIVE AIRMAN STATUS DURING 1970

## I. Introduction

Attrition from an active airman status amounts to approximately 17% annually. Many theories have been advanced concerning possible reasons for attrition, most of which seem empirically sound, i.e., economic influences, disenchantment, geographically associated weather and congestion conditions, occupational mobility, medical factors and, of course, death to name a few.

With a potential for airman population turnover about one out of six annually, it appears important that the aviation community know as much as possible concerning characteristics of the attrition group. The impact of a trend in either direction could have rather profound implications with respect to future planning.

At present, the FAA has no follow-up on the majority of individuals falling into the attrition group. Failure to renew medical certification required to exercise flying privileges serves as the only indicator of inactivity and reasons are not apparent unless death occurred as a result of aircraft accident or FAA medical certification was denied. The extent to which most of the above-mentioned factors contribute to attrition can only be surmised. One might rank these factors and receive general agreement; however, very little more would be known concerning attrition. Considerable information is available concerning medical causes for denial; however, this factor contributes less than 1% to the overall attrition rate.[1]

This study has served to quantify, to some extent, the characteristics of airmen medically certified during 1968 subsequently becoming inactive during 1970 for reasons other than denial of FAA medical certification. Specific factors are not identified, as such, but the summary data does serve to validate some of the factors mentioned.

Of particular interest with respect to medical certification is the extent to which observed medical factors on last examination may have contributed to attrition. A considerable portion of the study is devoted to the medical and biologic characteristics of airmen in the attrition group. Experience, occupation, usage, and geographic characteristics are also included.

This study, therefore, focuses on some of the more obvious characteristics of those airmen who become inactive for unknown reasons.

## II. Methods and Source

The Aeromedical Certification automated medical record files maintained in Oklahoma City, Oklahoma, provided the source for identification and extraction of relevant summary data concerning the characteristics of airmen becoming inactive during 1970. The "active master tape file" contains the most recent record of an airman's medical application for certification. The tape file includes applications issued, pending and denied certification, and abbreviated records of significant pathology cases retained for future medical reference in the event an airman decides to again exercise his flying privileges following a period of inactivity. The latter being the only instance when a record is maintained on the active master tape file for a period of time greater than 3 years from the date of application. After 3 years, providing that a record has not been superseded by a more current examination from the airman, the record is either converted to an abbreviated record (if significant pathology is present or if the airman was denied medical certification) or it is transferred to a historical tape file.

In this study, a medically certified airman is considered "active" for a maximum of 24 calendar months following his last FAA medical examination, i.e., regardless of the class of medical certificate originally issued, it is valid for third class purposes for a period of time up to 24 calendar months.

Using this definition as a basis for determining activity, those airmen whose last FAA examina-

tion exceeded the 24 calendar month criteria at any time during 1970 were selected for the study. Essentially, this amounts to selection of those airmen whose most recent FAA examination was performed during 1968. The number of airmen identified by this procedure amounted to 151,917. Population comparative data represents those airmen medically certified as of 1 January 1971 under the 24 calendar month definition. The active population totaled 727,430 as of 1 January 1971.

Data from the last medical record was selected and extracted from the master tape file for construction of the various frequency tables presented in this study. Airman applicants denied medical certification, whether new applicants or renewals, were not considered in the study since denial is an obvious reason for attrition. Denied applicants have been considered in detail elsewhere.[1] As previously stated, denied airmen amount to less than 1% of total applicants.

Data presented are descriptive in nature with appropriate population comparisons via conventional statistical methodology where compatible data exists and statistical treatment would be meaningful. Data limitations, where pertinent, are discussed in footnotes to the various tables.

## III. Findings and Discussion

### A. *Medical and Biologic Characteristics*

**1.** Pathology Prevalence on Last Examination.

**a.** Critical Pathology by Body System. While many diseases are potentially critical in the mortality or morbidity sense, the Office of Aviation Medicine has identified several which are considered "critical" to the flight environment. The primary consideration in the FAA definition of "critical pathology" is related to potential of the disease for sudden incapacitation or inability to respond to the flight environment. Many of the listed diseases are, of course, critical regardless of the environment. Others may appear less critical in the classical sense; however, the unique definition must be recalled.

Federal Aviation Regulations, Part 67, specify that a medical certificate will be denied if an applicant has an established medical history or clinical diagnosis of any of the following conditions:

(1) A character or behavior disorder that is severe enough to have repeatedly manifested itself by overt acts.
(2) A psychotic disorder.
(3) Chronic alcoholism.
(4) Drug addiction.
(5) Epilepsy.
(6) Disturbance of consciousness without satisfactory explanation of the cause
(7) Myocardial infarction.
(8) Angina pectoris or other evidence o coronary disease.
(9) Diabetes, requiring insulin or ora hypoglycemics.

However, some 800 airmen (approximatel 400 of which are still active) have been exempte from the regulations and certified through th appeal procedure since 1961 in recognition o the existence of an above noted medical condi tion, following extensive medical review by th agency and consultant specialists. History, prog nosis, and potential risk of sudden incapacitatio are the primary considerations in such cases. ] is appropriate to note, however, that airmen i sued medical certificates with one of the nir conditions mentioned are often given speci medical and operational restrictions that allo for control of risk.

Reference to Table I indicates that tl total prevalence rate of critical pathology w lower among the attrition group than among tl active airman population as of 1 January 197 Prevalence was higher among the attrition grou for Ear, Nose, Throat, and Mouth pathologic conditions but not statistically significant.[2]

**b.** All Pathology by Body System. Pre alence of all pathology by body system for t active airman population and the attrition grou is shown in Table II. The prevalence rate amo the attrition group exceeded that of the acti airman population for respiratory pathol cardiovascular pathology, abdominal pathol neuropsychiatric pathology, and other misc laneous pathological conditions, which inclu alcohol, drugs, endocrinopathies, and gene systemic conditions. The total "all pathol prevalence rate for the attrition group also ceeded that of the active airman populati Statistical significance was observed at the or .001 levels for all rate differences exc cardiovascular.

Reference to Table II suggests, however, that the influence of all medical factors recognized on the last examination contributed little to total attrition in terms of quantitative magnitude. There were 12,610 recognized pathological conditions from a total of 151,917 airmen involved in attrition (some airmen have more than one pathology). Therefore, approximately 8% of the attrition group had recognized pathology.

Certainly, some medical problems develop subsequent to the last examination; however, assuming an incidence rate of double the current prevalence rate, medical factors would account for less than one-fifth of the total attrition group.

**2.** Critical Electrocardiographic Defects. The FAA requires applicants for first class medical certification to submit electrocardiographic evidence of absence of myocardial infarction on the first examination after age 35 and annually after age 40. Some other airmen are required to submit EKGs in connection with follow-up cardiovascular evaluations for certification; however, the results are usually not coded for computer input.

As with pathology, the EKG defect categories are differentiated into "critical" and so called "non-critical". Non-critical categories are omitted in this analysis since many non-critical codes reflect technical problems instead of medical problems and since policy regarding the capture and input of these non-critical defects changed during the time period under study thus making comparisons inappropriate.

Table III, therefore, considers critical EKG defect prevalence, by broad interpretive categories, among first class airmen required to submit EKGs from the attrition group and the active population. Prevalence rates were greater in all critical defect areas among the attrition group and statistical significance was observed at the .001 and .05 levels for all defect areas except "Disturbances in Rhythm". Some medical attrition is surely realized from this area; however, total possible contribution to the attrition group in terms of magnitude (165 airmen) would be small.

**3.** Restrictions. Restrictions and limitations requiring observance of certain medically related precautions are placed on the certificates of approximately one-third of the active airmen. Table IV compares the prevalence of restrictions/limitations among active airmen and the attrition group. Results indicated greater prevalence among the attrition group for: Oxygen Required When Flying Above 7,999 Feet; Passenger Carrying Prohibited; Not Valid for Night Flying or by Color Signal Control (Color Vision); Not Valid for Night Flying (Glaucoma Restriction); Not Valid for Flying Where Radio Use Is Required; Valid for Flight Test Only; Limited to Military Control Tower Operator Duties; and Valid for Student Pilot Purposes Only. Statistical significance existed at the .001 level for Not Valid for Night Flying or by Color Signal Control (Color Vision) and at the .20 level for Valid for Student Pilot Purposes Only.

**4.** Waivers. Statements of Demonstrated Ability (Waivers) are also issued in certain instances. Disqualifying organic conditions are not waived, but applicants may receive individual consideration through special medical evaluation when significant medical deficiencies exist. Table V compares the prevalence of waivers by defect cause for active airmen and the attrition group. Attrition group prevalence exceeded active population prevalence for 3 defects only with no statistical significance observed.

**5.** Previous Examination Status. Table VI shows the distribution of the attrition group by age, class of medical certificate issued, and whether a previous medical examination was recorded on FAA files, i.e., whether the airman was a new applicant at the time of certification in 1968. It is apparent from Table VI that slightly more than half (52.5%) of the attrition group had no previous record of FAA medical examination, compared to an approximate 20% representation of new applicants in the population. Two-thirds of the attrition group came from general aviation categories requiring third class medical certification, compared to a 51% representation in the population. Higher classes of medical certification, i.e., class one and two normally associated with commercial usage, contributed the remaining one-third, compared to 11.3% and 37.7% representation respectively in the population.[3] Table VI also shows the majority of attrition to occur among airmen less than 40 years of age with a record of previous FAA examination; whereas, most attrition occurred prior to age 30 for those without previous FAA medical examination.

**6.** Age and Sex. Table VII shows the age distribution by class and sex for the attrition group. Population comparison for average age is also provided.

Average age was slightly less among the attrition group (34.2 years) as compared to the active population (35.3 years). The greatest difference between mean age comparison existed for First Class airmen (30.9 years for attrition versus 35.1 years for the population). Table XII, however, shows that 80% of the first class attrition was not occupationally connected to aviation as compared to only 33% showing non-aeronautical occupations in the active population (this category does include a small number of airmen who did not indicate their occupation on the application).[4] Thus, it appears that the average age of the first class attrition group was affected considerably by airmen not requiring first class medical certification, possibly young men anticipating an airline pilot career.

As of 1 January 1971, female representation in the population amounted to 29,832 (4.1%) of the total 727,430 active airmen.[4] Reference to Table VII indicates 9,321 (6.1%) of the total 151,917 airmen in the attrition group were females. Such a difference in sex representation is obviously statistically significant.

**7.** Height and Weight. The height distribution by class and sex for the attrition group is shown in Table VIII. Table IX shows the weight distribution by class and sex for the attrition group. Neither table is particularly remarkable.

B. *Experience, Occupation, Usage, and Geographic Charactertistics*

**1.** Flight Time. Flight time during the past six months and total to date, broken down by civilian and military flight time, is a required item of information on the application for medical certification. Validity of the data is subject to question as concerns accuracy since individual recall is relied upon to respond to this item. However, the purpose for requiring the response is not affected to any extent since the interest concerns rather gross breakdowns of how much total experience and the recency of experience. To this extent, the data are useful for purposes of this study.

**a.** Flight Time During the Past Six Months. Recency of experience data reflected by Table X clearly indicate that the majority of airmen in the attrition group had done very little flying during the 6 months prior to their last FAA medical examination. Almost three-fourths of this group had less flight time than what would be considered minimum for proficiency purposes.

**b.** Total Flight Time to Date. Consistent with the results of the recency of experience data, Table XI shows about 62% of the attrition group to have 50 hours or less total experience. Most of these individuals, therefore, probably did not complete requirements for a private pilot rating. Equally important with respect to the total experience is the second less pronounced peak among individuals with 100–500 hours total experience.

**2.** Occupations of Airmen in the Attrition Group. Table XII shows attrition to be proportionally higher among non-aeronautical occupations. With the single exception of aircraft mechanics and fixed base operators without commercial ratings, attrition from aeronautical occupations was proportionally less than the corresponding population representation by occupation.

**3.** Stated Usage of Flying Privileges in the Attrition Group. Proportionally fewer airmen among the attrition group indicated business as a reason for flying on their last FAA medical examination when compared to the general population as seen in Table XIII. This is, of course, consistent with findings with respect to occupation and flying time. Pleasure flyers represented a larger proportion of the attrition group than their representation in the general population.

**4.** Geographic Distribution of Airmen in the Attrition Group. Proportional comparison of the attrition group by state versus the total active airman population by state shows the attrition group to be slightly higher in 13 of the states. Both military and international airmen in the attrition group were also slightly greater than population representation. However, no particular geographic pattern emerged and the net effect was not remarkable. The influence of geographically associated weather and congestion factors on attrition appears less significant than might be expected. Table XIV shows distribution by state for the attrition group and the total population as of 1 January 1971.

## IV. Summary

Several attrition factors were considered, including economic reasons, geographically associated weather and congestion conditions, occupational mobility, and disenchantment with aviation. However, a primary focus of this study has been to quantify the extent to which medical factors might contribute to unknown causes for attrition. Prevalence of various medical conditions on last examination among the attrition group was examined and compared with corresponding active population prevalence for those conditions.

The total prevalence of "critical" pathology was lower for the attrition group than for the active population. Prevalence for Ear, Nose, Throat, and Mouth pathological conditions was higher among the attrition group but not statistically significant.

Considering all pathology, critical and so called non-critical, prevalence among the attrition group exceeded that of the active population overall and for 5 of the 9 body systems used for classification purposes by the Office of Aviation Medicine.

Prevalence rates were greater for all EKG defect areas among the first class certified attrition group when compared to the corresponding active population group.

However, in terms of percentage contribution to the total attrition group, medical factors appear to be ruled out as a significant cause for attrition on the basis of medical findings on the last examination.

More than half (52.5%) of the attrition group had no previous FAA medical examination, compared to about 20% in the population. Approximately two-thirds (67.5%) of all attrition was among general aviation categories which require third class medical certification, as compared to a 51% representation in the population.

The female attrition group was larger than expected based on population representation.

72.6% of the attrition group indicated less than 10 hours flight time during the six months prior to their last FAA medical examination. Total flight experience was less than 50 hours for 62% of the attrition group.

95% of the 1970 attrition group were airmen with non-aeronautical occupations as compared to 83% with non-aeronautical occupations in the population.

The geographic distribution of the attrition group was proportionally comparable to the active population distribution, thus negating the influence of presumed weather and congestion factors associated with certain geographic areas.

Empirical expectations have been quantified to some extent by this study. With approximately three-fourths of the attrition group indicating less than 10 hours flying time during the six months prior to the last FAA medical examination, the majority of which were from general aviation categories, the most significant causes for attrition appear to be economic influence and disenchantment with aviation.

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Table I

PREVALENCE OF CRITICAL PATHOLOGY BY BODY SYSTEM
ACTIVE AIRMEN VERSUS THE 1970 ATTRITION GROUP

| | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| Critical Pathology/Body System | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| Eye | 2,792 | 65.96 | 1837.85 | 15,925 | 63.30 | 2189.21 |
| Ears, Nose, Throat, and Mouth | 9 | .21 | 5.92* | 33 | .13 | 4.54 |
| Cardiovascular | 424 | 10.02 | 279.10 | 2,794 | 11.11 | 384.09 |
| Abdominal | 129 | 3.05 | 84.91 | 624 | 2.48 | 85.78 |
| Neuropsychiatric | 40 | .94 | 26.33 | 269 | 1.07 | 36.98 |
| Other Miscellaneous Conditions | 839 | 19.82 | 552.28 | 5,512 | 21.91 | 757.74 |
| TOTAL | 4,233 | 100.00 | 2786.39 | 25,157 | 100.00 | 3458.34 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Critical pathology as recorded on the most recent examination or carried forward as historical data from previous examinations. The total active airman population was 727,430 as of 1 January 1971; and the total attrition population was 151,917. Point prevalence data presented in this table was obtained by the following formula:

$$\text{Prevalence per } 100{,}000 = \frac{\text{Cell Frequency}}{\text{Population or Attrition Total}} \times 100{,}000$$

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence with no statistical significance.

Since a primary interest of this study was the extent to which medical factors contribute to attrition, statistical significance was determined for only those medical factors where attrition group prevalence exceeded population prevalence.

Table II

PREVALENCE OF ALL PATHOLOGY BY BODY SYSTEM
ACTIVE AIRMEN VERSUS THE 1970 ATTRITION GROUP

| Body System | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| | Frequency of Pathology Occurrence | Percent | Prevalence Per 100,000 | Frequency of Pathology Occurrence | Percent | Prevalence Per 100,000 |
| Eye | 3,467 | 27.49 | 2282.17 | 18,615 | 31.50 | 2559.01 |
| Ears, Nose, Throat, and Mouth | 523 | 4.15 | 344.27 | 2,959 | 5.01 | 406.77 |
| Respiratory | 366 | 2.90 | 240.92** | 1,359 | 2.30 | 186.82 |
| Cardiovascular | 2,111 | 16.74 | 1389.57* | 10,014 | 16.95 | 1376.63 |
| Abdominal | 3,052 | 24.20 | 2008.99** | 13,093 | 22.16 | 1799.90 |
| Neuropsychiatric | 929 | 7.37 | 611.52** | 3,473 | 5.88 | 477.43 |
| Bones and Joints | 842 | 6.68 | 554.25 | 4,258 | 7.20 | 585.35 |
| Muscles | 121 | .96 | 79.65 | 673 | 1.14 | 92.52 |
| Other Miscellaneous Conditions | 1,199 | 9.51 | 789.25** | 4,642 | 7.86 | 638.14 |
| TOTAL | 12,610 | 100.00 | 8300.58*** | 59,086 | 100.00 | 8122.57 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: All pathology as recorded on the most recent examination. Only critical pathology is carried forward as historical data from previous examinations. The total active airman population was 727,430 as of 1 January 1971; the total attrition population was 151,917. Point prevalence data presented in this table was obtained by the following formula:

$$\text{Prevalence per } 100{,}000 = \frac{\text{Cell Frequency}}{\text{Population or Attrition Total}} \times 100{,}000$$

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence with no statistical significance.

Since a primary interest of this study was the extent to which medical factors contribute to attrition, statistical significance was determined for only those medical factors where attrition group prevalence exceeded population prevalence.

**Indicates statistical significance at .001.

***Indicates statistical significance at .05.

Table III

PREVALENCE OF CRITICAL ELECTROCARDIOGRAPHIC DEFECT
AMONG FIRST-CLASS AIRMEN REQUIRED TO SUBMIT EKGS -
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| EKG Defect | Frequency of Occurrence | Percent | First Class Prevalence Per 100,000 | Frequency of Occurrence | Percent | First Class Prevalence Per 100,000 |
| Disturbances in Rhythm | 6 | 3.64 | 381.44* | 77 | 3.70 | 211.87 |
| Conduction Defects | 62 | 37.58 | 3941.51*** | 932 | 44.74 | 2564.46 |
| T and ST Changes | 80 | 48.48 | 5085.82** | 878 | 42.15 | 2415.87 |
| EKG Evidence of Myocardial Infarction | 17 | 10.30 | 1080.74*** | 194 | 9.31 | 533.80 |
| Dextrocardia | - | - | - | 2 | .10 | 5.50 |
| TOTAL | 165 | 100.00 | 10489.51** | 2,083 | 100.00 | 5731.50 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Critical EKG defect status as of most recent examination, including history. The number of first class airmen requiring electrocardiograms as of 1 January 1971 equaled 36,343. The first class attrition group requiring electrocardiograms equaled 1,573. Point prevalence data presented in this table was obtained by the following formula:

$$\text{Prevalence per } 100{,}000 = \frac{\text{Cell Frequency}}{\text{Population or Attrition Total Requiring EKGs}} \times 100{,}000$$

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence with no statistical significance.

Since a primary interest of this study was the extent to which medical factors contribute to attrition, statistical significance was determined for only those medical factors where attrition group prevalence exceeded population prevalence.

**Indicates statistical significance at .001.

***Indicates statistical significance at .05.

Table IV

PREVALENCE OF CERTIFICATE RESTRICTIONS
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| Certificate Restrictions | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| Must Have Available Glasses for Near Vision While Flying | 6,957 | 13.85 | 4579.48 | 50,136 | 18.91 | 6892.21 |
| Must Wear Glasses for Distant Vision While Flying | 36,874 | 73.42 | 24272.47 | 185,105 | 69.83 | 25446.44 |
| Must Wear Glasses for Near and Distant Vision While Flying | 1 | .00 | .66 | 7 | .00 | .96 |
| Must Wear Prismatic Correction While Flying | 5 | .01 | 3.29 | 49 | .02 | 6.74 |
| May Wear Contact Lenses While Flying | 275 | .55 | 181.02 | 1,570 | .59 | 215.83 |
| May Wear Contacts While Flying: Glasses Must Be Available | 1,178 | 2.33 | 775.42 | 6,738 | 2.54 | 926.27 |
| Must Wear Hearing Aid While Flying | 49 | .10 | 32.25 | 297 | .11 | 40.83 |
| Must Wear Artificial Limb While Flying | 7 | .01 | 4.61 | 209 | .08 | 28.73 |
| Oxygen Required When Flying Above 7,999 Feet | 8 | .02 | 5.27* | 21 | .01 | 2.89 |
| Passenger Carrying Prohibited | 4 | .01 | 2.63* | 17 | .01 | 2.34 |
| Not Valid for Pilot In Command | - | - | - | 7 | .00 | .96 |
| Not Valid for Control Tower Operator Duties | 63 | .12 | 41.47 | 515 | .19 | 70.80 |
| Not Valid for Air Transport Duties | 1 | .00 | .66 | 11 | .01 | 1.51 |
| Flying of Jet Aircraft Prohibited | - | - | - | 1 | .00 | .14 |
| Not Valid for Night Flying or By Color Signal Control (Color Vision) | 2,561 | 5.10 | 1685.79** | 9,657 | 3.64 | 1327.55 |

Table IV (Continued)

PREVALENCE OF CERTIFICATE RESTRICTIONS
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| Certificate Restrictions | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| Not Valid for Night Flying (Glaucoma Restriction) | 43 | .09 | 28.30* | 202 | .08 | 27.77 |
| Not Valid for Flying Where Radio Use Is Required | 14 | .03 | 9.22* | 54 | .02 | 7.42 |
| Flying Limited to Remote Areas | - | - | - | 1 | .00 | .14 |
| Valid for Flight Test Only | 15 | .03 | 9.87* | 60 | .02 | 8.25 |
| Second Class Privileges Limited To Crop Dusting | - | - | - | 2 | .00 | .27 |
| Second Class Privileges Limited To Flight Engineer Duties | 6 | .01 | 3.95 | 51 | .02 | 7.01 |
| Second Class Privileges Limited To Flight Navigator Duties | 1 | .00 | .66 | 18 | .01 | 2.47 |
| Second Class Privileges Limited To Control Tower Operator Duties | 39 | .08 | 25.67 | 239 | .09 | 32.86 |
| Valid for Air Traffic Controller Duties Only | 8 | .02 | 5.27 | 1,171 | .44 | 160.98 |
| Limited to Military Control Tower Operator Duties | 28 | .06 | 18.43* | 121 | .05 | 16.63 |
| Valid for Control Tower Duties When Second Controller on Duty | - | - | - | 11 | .01 | 1.51 |
| Valid Only when Accompanied by Another Qualified Pilot | 1 | .00 | .66 | 8 | .00 | 1.10 |
| Valid for Student Pilot Purposes Only | 1,183 | 2.36 | 778.71**** | 3,343 | 1.26 | 459.56 |

Table IV (Continued)

PREVALENCE OF CERTIFICATE RESTRICTIONS
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| Certificate Restrictions | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| Second Class Privileges Limited To Cargo Operations | - | - | - | 2 | .00 | .27 |
| Time Limitation Restrictions | 602 | 1.20 | 396.27 | 3,337 | 1.26 | 458.74 |
| Panel Restrictions (Time Limitation) | 55 | .11 | 36.20 | 459 | .17 | 63.10 |
| Miscellaneous Restrictions | 244 | .49 | 160.61 | 1,681 | .63 | 231.09 |
| TOTAL | 50,222 | 100.00 | 33058.84 | 265,100 | 100.00 | 36443.37 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section and the 1970 Aeromedical Certification Statistical Handbook.

NOTE: Restriction status as of latest examination. The total active airman population was 727,430 as of 1 January 1971; the total attrition population was 151,917. Point prevalence data presented in this table was obtained by the following formula:

$$\text{Prevalence per } 100{,}000 = \frac{\text{Cell Frequency}}{\text{Population or Attrition Total}} \times 100{,}000$$

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence with no statistical significance.

Since a primary interest of this study was the extent to which medical factors contribute to attrition, statistical significance was determined for only those medical factors where attrition group prevalence exceeded population prevalence.

**Indicates statistical significance at .001

****Indicates statistical significance at .20.

Table V

PREVALENCE OF WAIVERS BY DEFECT CAUSE
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| Waiver Cause | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| External Eye Problem | 42 | 1.27 | 27.65 | 279 | 1.06 | 38.35 |
| Internal Eye Problem | 14 | .42 | 9.21 | 116 | .44 | 15.95 |
| Glaucoma | - | - | - | 5 | .02 | .69 |
| Deficient Distant Vision | 1,217 | 36.79 | 801.09 | 12,074 | 46.01 | 1659.82 |
| Deficient Near Vision | 3 | .09 | 1.97 | 23 | .09 | 3.16 |
| Deficient Color Vision | 399 | 12.06 | 262.64 | 3,494 | 13.31 | 480.32 |
| Contact Lenses | 1,368 | 41.35 | 900.49 | 7,804 | 29.74 | 1072.82 |
| Field of Vision (Visual Field Deficiency) | 2 | .06 | 1.32 | 15 | .06 | 2.06 |
| Deficient Hearing | 142 | 4.29 | 93.47 | 1,376 | 5.24 | 189.16 |
| Ear | 2 | .06 | 1.32* | 4 | .02 | .55 |
| Throat | - | - | - | 1 | .00 | .14 |
| Mute | 2 | .06 | 1.32* | 3 | .01 | .41 |
| Respiratory System | - | - | - | 5 | .02 | .69 |
| Heart Disease-General | - | - | - | 7 | .03 | .96 |
| Heart Disease-Valvular | - | - | - | 1 | .00 | .14 |
| Heart Disease-Vascular | - | - | - | 1 | .00 | .14 |
| Electrocardiogram Abnormalities | 1 | .03 | .66* | 1 | .00 | .14 |
| Neurological | 2 | .06 | 1.32 | 55 | .21 | 7.56 |

Table V (Continued)

PREVALENCE OF WAIVERS BY DEFECT CAUSE
ACTIVE AIRMAN POPULATION VERSUS THE 1970 ATTRITION GROUP

| Waiver Cause | 1970 Attrition Group | | | Active Airman Population | | |
|---|---|---|---|---|---|---|
| | Frequency of Occurrence | Percent | Prevalence Per 100,000 | Frequency of Occurrence | Percent | Prevalence Per 100,000 |
| Mental and Nervous | - | - | - | 2 | .01 | .27 |
| Bone and Joint | 29 | .88 | 19.09 | 209 | .80 | 28.73 |
| Muscles | 29 | .88 | 19.09 | 161 | .61 | 22.13 |
| Miscellaneous Conditions | 33 | 1.00 | 21.72 | 337 | 1.28 | 46.33 |
| Malignancy | - | - | - | 3 | .01 | .41 |
| Amputation | 23 | .70 | 15.14 | 269 | 1.03 | 36.98 |
| TOTAL | 3,308 | 100.00 | 2177.50 | 26,245 | 100.00 | 3607.91 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section and the 1970 Aeromedical Certification Statistical Handbook.

NOTE: Waiver status as of latest examination. The total active airman population was 727,430 as of 1 January 1971; the total attrition population was 151,917. Point prevalence data presented in this table was obtained by the following formula:

$$\text{Prevalence per } 100{,}000 = \frac{\text{Cell Frequency}}{\text{Population or Attrition Total}} \times 100{,}000$$

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence with no statistical significance.

Since a primary interest of this study was the extent to which medical factors contribute to attrition, statistical significance was determined for only those medical factors where attrition group prevalence exceeded population prevalence.

Table VI

AGE, MEDICAL CERTIFICATE ISSUED, AND PREVIOUS
FAA EXAMINATION STATUS OF THE 1970 ATTRITION GROUP

| | First Class | | Second Class | | Third Class | | Total | |
|---|---|---|---|---|---|---|---|---|
| Age | Prev. Exam. | No Prev. Exam. | Prev. Exam. | No Prev. Exam. | Prev. Exam. | No Prev. Exam. | Prev. Exam. | No Prev. Exam. |
| < 20 | 13 | 132 | 23 | 260 | 65 | 4,861 | 101 | 5,253 |
| 20-24 | 727 | 1,122 | 2,435 | 3,494 | 3,362 | 16,908 | 6,524 | 21,524 |
| 25-29 | 1,382 | 1,000 | 5,086 | 4,206 | 4,867 | 13,903 | 11,335 | 19,109 |
| 30-34 | 1,143 | 400 | 4,567 | 2,085 | 5,305 | 8,791 | 11,015 | 11,276 |
| 35-39 | 536 | 177 | 4,435 | 1,377 | 5,778 | 6,573 | 10,749 | 8,127 |
| 40-44 | 278 | 72 | 3,206 | 842 | 7,076 | 5,182 | 10,560 | 6,096 |
| 45-49 | 309 | 81 | 3,882 | 1,033 | 5,906 | 3,496 | 10,097 | 4,610 |
| 50-54 | 234 | 35 | 2,493 | 531 | 3,649 | 1,833 | 6,376 | 2,399 |
| 55-59 | 96 | 12 | 831 | 114 | 2,165 | 799 | 3,092 | 925 |
| 60-64 | 93 | - | 299 | 22 | 1,051 | 283 | 1,443 | 305 |
| 65-69 | 4 | 1 | 151 | 11 | 465 | 99 | 620 | 111 |
| 70-74 | 1 | - | 38 | 1 | 133 | 18 | 172 | 19 |
| 75-79 | - | - | 9 | 1 | 47 | 7 | 56 | 8 |
| 80-84 | - | - | - | 1 | 10 | 1 | 10 | 2 |
| > 84 | - | - | - | - | 3 | - | 3 | - |
| TOTAL | 4,816 | 3,032 | 27,455 | 13,978 | 39,882 | 62,754 | 72,153 | 79,764 |
| PERCENT OF TOTAL | 3.2 | 2.0 | 18.1 | 9.2 | 26.2 | 41.3 | 47.5 | 52.5 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Age at last birthday as of 1 January 1971. Previous examination status determined internally by computer comparison.

Table VII

AGE, MEDICAL CERTIFICATE ISSUED, AND SEX OF THE 1970 ATTRITION GROUP

| Age | First Class | | Second Class | | Third Class | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| Less than 15 | - | - | 1 | - | - | - | 1 | - |
| 15 - 19 | 143 | 2 | 268 | 14 | 4,418 | 508 | 4,829 | 524 |
| 20 - 24 | 1,820 | 29 | 5,707 | 222 | 18,672 | 1,598 | 26,199 | 1,849 |
| 25 - 29 | 2,363 | 19 | 9,118 | 174 | 17,030 | 1,740 | 28,511 | 1,933 |
| 30 - 34 | 1,529 | 14 | 6,537 | 115 | 12,779 | 1,317 | 20,845 | 1,446 |
| 35 - 39 | 710 | 3 | 5,718 | 94 | 11,258 | 1,093 | 17,686 | 1,190 |
| 40 - 44 | 343 | 7 | 3,962 | 86 | 11,339 | 919 | 15,644 | 1,012 |
| 45 - 49 | 386 | 4 | 4,846 | 69 | 8,729 | 673 | 13,961 | 746 |
| 50 - 54 | 267 | 2 | 2,974 | 50 | 5,151 | 331 | 8,392 | 383 |
| 55 - 59 | 108 | - | 924 | 21 | 2,834 | 130 | 3,866 | 151 |
| 60 - 64 | 93 | - | 310 | 11 | 1,285 | 49 | 1,688 | 60 |
| 65 - 69 | 5 | - | 160 | 2 | 547 | 17 | 712 | 19 |
| 70 - 74 | 1 | - | 39 | - | 146 | 5 | 186 | 5 |
| 75 - 79 | - | - | 10 | - | 53 | 1 | 63 | 1 |
| 80 - 84 | - | - | 1 | - | 9 | 2 | 10 | 2 |
| Greater than 84 | - | - | - | - | 3 | - | 3 | - |
| TOTAL | 7,768 | 80 | 40,575 | 858 | 94,253 | 8,383 | 142,596 | 9,321 |
| Average Age (Attrition) | 30.9 | | 35.2 | | 34.0 | | 34.2 | |
| Average Age (Population) | 35.1 | | 35.1 | | 35.4 | | 35.3 | |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Age at last birthday as of 1 January 1971.

Table VIII

HEIGHT, MEDICAL CERTIFICATE ISSUED, AND SEX OF THE 1970 ATTRITION GROUP

| Height In Inches | First Class | | Second Class | | Third Class | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| Less than 59 | 60 | 1 | 194 | 12 | 460 | 92 | 714 | 105 |
| 59 | 11 | - | 53 | 5 | 128 | 24 | 192 | 29 |
| 60 | 16 | 2 | 89 | 17 | 187 | 209 | 292 | 228 |
| 61 | 5 | 5 | 36 | 29 | 85 | 291 | 126 | 325 |
| 62 | 6 | 3 | 49 | 73 | 151 | 887 | 206 | 963 |
| 63 | 13 | 9 | 67 | 95 | 235 | 954 | 315 | 1,058 |
| 64 | 32 | 6 | 221 | 109 | 627 | 1,315 | 880 | 1,430 |
| 65 | 83 | 17 | 491 | 152 | 1,278 | 1,268 | 1,852 | 1,437 |
| 66 | 254 | 9 | 1,322 | 141 | 3,452 | 1,284 | 5,028 | 1,434 |
| 67 | 464 | 14 | 2,366 | 98 | 5,537 | 884 | 8,367 | 996 |
| 68 | 725 | 4 | 4,140 | 66 | 9,836 | 635 | 14,701 | 705 |
| 69 | 891 | 3 | 4,820 | 32 | 10,703 | 297 | 16,414 | 332 |
| 70 | 1,188 | 5 | 6,217 | 13 | 14,292 | 127 | 21,697 | 145 |
| 71 | 1,175 | 1 | 6,178 | 4 | 14,554 | 54 | 21,907 | 59 |
| 72 | 1,269 | 1 | 6,826 | 7 | 15,155 | 32 | 23,250 | 40 |
| 73 | 646 | - | 3,219 | 1 | 7,499 | 10 | 11,364 | 11 |
| 74 | 543 | - | 2,435 | - | 5,540 | 4 | 8,518 | 4 |
| 75 | 253 | - | 1,054 | 3 | 2,567 | 6 | 3,874 | 9 |
| Greater than 75 | 134 | - | 798 | 1 | 1,967 | 10 | 2,899 | 11 |
| TOTAL | 7,768 | 80 | 40,575 | 858 | 94,253 | 8,383 | 142,596 | 9,321 |
| Average Height (Attrition) | 68.6 | | 68.5 | | 68.1 | | 68.2 | |
| Average Height (Population) | | | | | | | 68.4 | |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Height rounded to nearest inch.

Table IX

WEIGHT, MEDICAL CERTIFICATE ISSUED, AND SEX OF THE 1970 ATTRITION GROUP

| Weight In Pounds | First Class | | Second Class | | Third Class | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| Less than 90 | 20 | 1 | 49 | 4 | 100 | 29 | 169 | 34 |
| 90 - 99 | - | 2 | - | 10 | 19 | 122 | 19 | 134 |
| 100 - 109 | 4 | 3 | 8 | 64 | 93 | 747 | 105 | 814 |
| 110 - 119 | 24 | 19 | 76 | 182 | 408 | 1,814 | 508 | 2,015 |
| 120 - 129 | 117 | 27 | 431 | 227 | 1,465 | 2,127 | 2,013 | 2,381 |
| 130 - 139 | 358 | 13 | 1,371 | 175 | 4,164 | 1,670 | 5,893 | 1,858 |
| 140 - 149 | 711 | 3 | 3,106 | 98 | 7,996 | 848 | 11,813 | 949 |
| 150 - 159 | 1,123 | 4 | 5,317 | 47 | 12,196 | 461 | 18,636 | 512 |
| 160 - 169 | 1,367 | 3 | 7,050 | 23 | 15,390 | 250 | 23,807 | 276 |
| 170 - 179 | 1,342 | 1 | 7,119 | 9 | 15,557 | 131 | 24,018 | 141 |
| 180 - 189 | 1,111 | 2 | 6,315 | 4 | 13,361 | 82 | 20,787 | 88 |
| 190 - 199 | 715 | 1 | 4,350 | 5 | 9,266 | 40 | 14,331 | 46 |
| 200 - 209 | 421 | - | 2,444 | 4 | 5,737 | 22 | 8,602 | 26 |
| 210 - 219 | 219 | 1 | 1,438 | 2 | 3,557 | 12 | 5,214 | 15 |
| 220 - 229 | 114 | - | 770 | 3 | 2,104 | 11 | 2,988 | 14 |
| 230 - 239 | 62 | - | 367 | 1 | 1,229 | 5 | 1,658 | 6 |
| 240 - 249 | 25 | - | 174 | - | 690 | 4 | 889 | 4 |
| Over 249 | 35 | - | 190 | - | 921 | 8 | 1,146 | 8 |
| TOTAL | 7,768 | 80 | 40,575 | 858 | 94,253 | 8,383 | 142,596 | 9,321 |
| Average Weight (Attrition) | 170.1 | | 172.6 | | 168.5 | | 169.7 | |
| Average Weight (Population) | | | | | | | 172.5 | |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Weight rounded to nearest pound.

Table X

RECENCY OF FLIGHT EXPERIENCE IN THE 1970 ATTRITION GROUP

| | Flight Time Last Six Months (Hours) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 0-10 | 10-49 | 50-99 | 100-149 | 150-199 | 200-249 | 250-299 | 300-349 | 350-399 | 400-449 | 450-499 | >499 | Total |
| Less than 20 | 4,619 | 721 | 11 | 3 | - | - | - | - | - | - | - | - | 5,354 |
| 20 - 24 | 23,304 | 3,888 | 549 | 184 | 58 | 22 | 13 | 11 | 2 | 3 | 4 | 10 | 28,048 |
| 25 - 29 | 23,710 | 5,082 | 947 | 295 | 115 | 77 | 35 | 54 | 21 | 31 | 10 | 67 | 30,444 |
| 30 - 34 | 15,914 | 4,623 | 975 | 273 | 130 | 117 | 51 | 55 | 30 | 50 | 11 | 62 | 22,291 |
| 35 - 39 | 13,186 | 4,046 | 935 | 242 | 100 | 92 | 42 | 78 | 27 | 48 | 23 | 57 | 18,876 |
| 40 - 44 | 11,042 | 3,953 | 1,011 | 234 | 109 | 97 | 44 | 52 | 25 | 40 | 19 | 30 | 16,656 |
| 45 - 49 | 9,319 | 3,670 | 914 | 296 | 136 | 100 | 47 | 74 | 40 | 44 | 21 | 46 | 14,707 |
| 50 - 54 | 5,455 | 2,131 | 656 | 210 | 87 | 50 | 38 | 53 | 19 | 33 | 14 | 29 | 8,775 |
| 55 - 59 | 2,303 | 1,113 | 345 | 97 | 44 | 35 | 13 | 20 | 11 | 18 | 5 | 13 | 4,017 |
| 60 - 64 | 931 | 500 | 157 | 46 | 22 | 19 | 9 | 18 | 12 | 17 | 8 | 9 | 1,748 |
| 65 - 69 | 387 | 225 | 68 | 20 | 15 | 7 | 1 | 4 | 1 | 2 | - | 1 | 731 |
| 70 - 74 | 83 | 71 | 24 | 8 | 4 | 1 | - | - | - | - | - | - | 191 |
| 75 - 79 | 34 | 20 | 4 | 2 | 2 | 1 | - | - | - | 1 | - | - | 64 |
| 80 - 84 | 8 | 3 | - | 1 | - | - | - | - | - | - | - | - | 12 |
| Over 84 | 1 | 1 | 1 | - | - | - | - | - | - | - | - | - | 3 |
| TOTAL | 110,296 | 30,047 | 6,597 | 1,911 | 822 | 618 | 293 | 419 | 188 | 287 | 115 | 324 | 151,917 |
| PERCENT | 72.6 | 19.8 | 4.3 | 1.3 | 0.5 | 0.4 | 0.2 | 0.3 | 0.1 | 0.2 | 0.1 | 0.2 | 100.0 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Age at last birthday as of 1 January 1971. Flight time last six months from item 17, FAA Form 8500-8, rounded to nearest hour.

Table XI

TOTAL FLIGHT EXPERIENCE IN THE 1970 ATTRITION GROUP

| Age | Total Flight Time (Hours) 0-50 | 50-100 | 100-500 | 500-1000 | 1000-2000 | 2000-5000 | >5000 | Total |
|---|---|---|---|---|---|---|---|---|
| Less than 20 | 5,297 | 42 | 13 | 1 | - | - | 1 | 5,354 |
| 20 - 24 | 24,613 | 1,684 | 1,644 | 73 | 27 | 7 | - | 28,048 |
| 25 - 29 | 23,533 | 2,727 | 3,601 | 326 | 176 | 74 | 7 | 30,444 |
| 30 - 34 | 14,262 | 2,431 | 4,492 | 560 | 313 | 185 | 48 | 22,291 |
| 35 - 39 | 10,282 | 1,852 | 4,752 | 963 | 484 | 373 | 170 | 18,876 |
| 40 - 44 | 7,117 | 1,465 | 5,073 | 1,445 | 749 | 542 | 265 | 16,656 |
| 45 - 49 | 4,870 | 1,104 | 4,524 | 1,652 | 1,091 | 918 | 548 | 14,707 |
| 50 - 54 | 2,604 | 557 | 2,472 | 1,065 | 781 | 781 | 515 | 8,775 |
| 55 - 59 | 938 | 220 | 1,112 | 530 | 440 | 419 | 358 | 4,017 |
| 60 - 64 | 331 | 68 | 434 | 250 | 209 | 213 | 243 | 1,748 |
| 65 - 69 | 115 | 19 | 160 | 117 | 100 | 123 | 97 | 731 |
| 70 - 74 | 29 | 3 | 32 | 23 | 35 | 38 | 31 | 191 |
| 75 - 79 | 9 | 1 | 12 | 6 | 11 | 12 | 13 | 64 |
| 80 - 84 | 2 | - | 1 | 2 | 3 | 3 | 1 | 12 |
| Over 84 | - | - | - | - | - | 1 | 2 | 3 |
| TOTAL | 94,002 | 12,173 | 28,322 | 7,013 | 4,419 | 3,689 | 2,299 | 151,917 |
| PERCENT | 61.9 | 8.0 | 18.7 | 4.6 | 2.9 | 2.4 | 1.5 | 100.0 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section.

NOTE: Age at last birthday as of 1 January 1971. Flight time total to date from item 16, FAA Form 8500-8, rounded to nearest hour.

Table XII

OCCUPATIONS OF THE 1970 ATTRITION GROUP

| Occupation | First Class | Second Class | Third Class | Total | Percent Attrition | Percent Population |
|---|---|---|---|---|---|---|
| Pilot, Scheduled and Non-Scheduled Airlines Only (includes captain, co-pilot, first and second officer) | 750 | 20 | 2 | 772 | .51 | 5.18 |
| Flight Engineer | 20 | 149 | 9 | 178 | .12 | .66 |
| Flight Navigator/Flight Radio Operator | 3 | 26 | 2 | 31 | .02 | .06 |
| Commercial, Busniess, Executive, or Self-Employed Pilot (First Class) | 471 | 21 | 6 | 498 | .33 | 1.55 |
| Commercial Pilot, Self-Employed (Second Class) | 2 | 215 | 7 | 224 | .15 | .43 |
| Commercial Pilot, Not Self-Employed (Second Class) | 11 | 577 | 7 | 595 | .39 | 1.37 |
| Aero Application, Crop Duster, Spray Pilot | 2 | 127 | 4 | 133 | .09 | .32 |
| Air Traffic Controller | 19 | 3,517 | 31 | 3,567 | 2.34 | 5.34 |
| Flight Instructor | 109 | 222 | 2 | 333 | .22 | .93 |
| Aircraft Mechanic and Fixed Base Operators (who are not commercial pilots) | 205 | 569 | 474 | 1,248 | .82* | .79 |
| Not Given or Non-Aeronautical | 6,256 | 35,990 | 102,092 | 144,338 | 95.01* | 83.37 |
| TOTAL | 7,848 | 41,433 | 102,636 | 151,917 | 100.00 | 100.00 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section; and, 31 December 1970 distribution of airman occupations from the 1970 Aeromedical Certification Statistical Handbook.

NOTE: Occupation as recorded by the airman in item 10, FAA Form 8500-8.

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence.

Table XIII

STATED USAGE OF FLYING PRIVILEGES
IN THE 1970 ATTRITION GROUP

| Type Of Flying | Attrition Group | | General Population | |
|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent |
| Business | 28,075 | 18.5 | 207,462 | 28.5 |
| Pleasure | 123,842 | 81.5* | 519,968 | 71.5 |
| TOTAL | 151,917 | 100.0 | 724,430 | 100.0 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section and 1970 Aeromedical Certification Statistical Handbook.

NOTE: Type of flying as recorded by the airman in item 14, FAA Form 8500-8.

*Asterisk indicates area where attrition group prevalence exceeds population prevalence.

Table XIV

STATE OF RESIDENCE - ACTIVE AIRMEN VERSUS THE 1970 ATTRITION GROUP

| State | Attrition Group | | | | | Active Population | |
|---|---|---|---|---|---|---|---|
| | First Class | Second Class | Third Class | Total | Percent | Total | Percent |
| Alabama | 49 | 387 | 1,194 | 1,630 | 1.1* | 7,257 | 1.0 |
| Alaska | 31 | 247 | 881 | 1,159 | .8 | 6,172 | .8 |
| Arizona | 75 | 459 | 1,393 | 1,927 | 1.3* | 8,908 | 1.2 |
| Arkansas | 15 | 302 | 837 | 1,154 | .8* | 4,911 | .7 |
| California | 1,704 | 4,613 | 12,627 | 18,944 | 12.5 | 93,215 | 12.8 |
| Colorado | 239 | 759 | 1,522 | 2,520 | 1.7 | 12,119 | 1.7 |
| Connecticut | 87 | 309 | 1,122 | 1,518 | 1.0 | 8,336 | 1.1 |
| Delaware | 8 | 54 | 211 | 273 | .2 | 1,436 | .2 |
| District of Columbia | 24 | 37 | 132 | 193 | .1 | 851 | .1 |
| Florida | 935 | 1,542 | 3,941 | 6,418 | 4.2 | 30,667 | 4.2 |
| Georgia | 271 | 573 | 1,885 | 2,729 | 1.8 | 13,879 | 1.9 |
| Hawaii | 62 | 93 | 166 | 321 | .2 | 2,052 | .3 |
| Idaho | 19 | 179 | 603 | 801 | .5 | 3,470 | .5 |
| Illinois | 243 | 1,110 | 4,712 | 6,065 | 4.0 | 30,161 | 4.1 |
| Indiana | 78 | 505 | 2,646 | 3,229 | 2.1* | 14,703 | 2.0 |
| Iowa | 19 | 356 | 1,786 | 2,161 | 1.4 | 10,060 | 1.4 |
| Kansas | 123 | 477 | 1,986 | 2,586 | 1.7* | 12,010 | 1.6 |
| Kentucky | 19 | 210 | 909 | 1,138 | .7 | 4,993 | .7 |
| Louisiana | 56 | 510 | 1,312 | 1,878 | 1.2 | 8,368 | 1.2 |
| Maine | 12 | 106 | 413 | 531 | .3 | 2,348 | .3 |
| Maryland | 63 | 300 | 1,218 | 1,581 | 1.0 | 7,789 | 1.1 |
| Massachusetts | 184 | 437 | 1,617 | 2,238 | 1.5 | 10,770 | 1.5 |
| Michigan | 82 | 785 | 3,784 | 4,651 | 3.1 | 22,304 | 3.1 |
| Minnesota | 257 | 642 | 2,294 | 3,193 | 2.1 | 16,381 | 2.2 |
| Mississippi | 20 | 253 | 946 | 1,219 | .8* | 4,544 | .6 |
| Missouri | 199 | 666 | 2,323 | 3,188 | 2.1* | 14,540 | 2.0 |
| Montana | 21 | 225 | 753 | 999 | .6 | 4,226 | .6 |
| Nebraska | 13 | 234 | 1,023 | 1,270 | .8 | 6,053 | .8 |
| Nevada | 25 | 208 | 465 | 698 | .5 | 3,332 | .5 |
| New Hampshire | 26 | 105 | 277 | 408 | .3 | 2,433 | .3 |
| New Jersey | 219 | 578 | 2,157 | 2,954 | 1.9 | 15,825 | 2.2 |
| New Mexico | 19 | 217 | 815 | 1,051 | .7 | 4,953 | .7 |

Table XIV (Continued)

STATE OF RESIDENCE - ACTIVE AIRMEN VERSUS THE 1970 ATTRITION GROUP

| State | Attrition Group | | | | | Active Population | |
|---|---|---|---|---|---|---|---|
| | First Class | Second Class | Third Class | Total | Percent | Total | Percent |
| New York | 422 | 1,182 | 4,285 | 5,889 | 3.9 | 29,443 | 4.0 |
| North Carolina | 62 | 364 | 1,487 | 1,913 | 1.3 | 9,389 | 1.3 |
| North Dakota | 5 | 110 | 583 | 698 | .5* | 3,059 | .4 |
| Ohio | 128 | 989 | 4,383 | 5,500 | 3.6 | 26,889 | 3.7 |
| Oklahoma | 65 | 521 | 1,743 | 2,329 | 1.5 | 11,260 | 1.5 |
| Oregon | 59 | 544 | 1,478 | 2,081 | 1.4* | 9,257 | 1.3 |
| Pennsylvania | 146 | 682 | 3,082 | 3,910 | 2.6 | 20,145 | 2.8 |
| Rhode Island | 14 | 53 | 184 | 251 | .2 | 1,179 | .2 |
| South Carolina | 49 | 249 | 688 | 986 | .6 | 4,031 | .6 |
| South Dakota | 11 | 69 | 466 | 546 | .4 | 2,694 | .4 |
| Tennessee | 69 | 400 | 1,266 | 1,735 | 1.1 | 8,785 | 1.2 |
| Texas | 393 | 2,108 | 6,832 | 9,333 | 6.1* | 43,325 | 6.0 |
| Utah | 48 | 231 | 592 | 871 | .6* | 3,928 | .5 |
| Vermont | 5 | 53 | 143 | 201 | .1 | 1,033 | .1 |
| Virginia | 135 | 470 | 1,431 | 2,036 | 1.3 | 10,710 | 1.5 |
| Washington | 349 | 881 | 2,385 | 3,615 | 2.4* | 16,554 | 2.3 |
| West Virginia | 6 | 101 | 326 | 433 | .3 | 2,019 | .3 |
| Wisconsin | 67 | 389 | 1,643 | 2,099 | 1.4 | 10,832 | 1.5 |
| Wyoming | 4 | 82 | 328 | 414 | .3* | 1,794 | .2 |
| U. S. CIVILIAN TOTAL | 7,234 | 26,956 | 91,275 | 125,465 | | 605,392 | |
| Military | 8 | 13,973 | 10,496 | 24,477 | 16.1* | 113,554 | 15.6 |
| International | 606 | 504 | 865 | 1,975 | 1.3* | 8,484 | 1.2 |
| TOTAL AIRMEN | 7,848 | 41,433 | 102,636 | 151,917 | 100.0 | 727,430 | 100.0 |

Source: Civil Aeromedical Institute, Aeromedical Certification Branch, Medical Statistical Section and 1970 Aeromedical Certification Statistical Handbook.

NOTE: State of residence as recorded by the airman in item 2A, FAA Form 8500-8.

*Asterisks indicate those areas where attrition group prevalence exceeds population prevalence.



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