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OCCUPATIONS OF ACTIVE AIRMEN

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OCCUPATIONS OF ACTIVE AIRMEN

I. Introduction.

Data concerning occupational prevalence in the active airman[1] population has been a subject of interest to the agency and the aviation community for some time. The prevalence of certain occupations, aeronautical and other, in the active airman population has been the subject of much conjecture as regards the economic characteristics of the "average" general aviation airman, the primary type of flying engaged in by general aviation, i.e., business or pleasure, the status of aeronautical occupation manpower, and the impact of Federal Aid programs for aviation instruction and subsequent development of aeronautical occupation manpower.

Analysis of general aviation accident experience with respect to selected professional categories has been the subject of intensive review during recent years and promises to be an area of continuing interest in the identification of factors related to accident proneness.[2]

This study is an effort to quantify occupational prevalence in the active airman population according to the broad categories utilized by the Bureau of the Census expanded somewhat by the requirements of this study. Occupational characteristics of the active airman population are compared to the occupational characteristics of the general population of the United States. Data are provided reflecting the primary type of flying engaged in by active airmen.

These data, although broad in scope, provide valuable insight with respect to the several areas of interest mentioned above.

[1] A medically certified airman is considered "active" for a maximum of 25 months after his last FAA physical examination, i.e., regardless of the class of medical certificate issued, it is valid for third class purposes for a period of time up to 25 months.

[2] *Physician Flight Accidents*, AM 66–25, September 1966, by S. R. Mohler, S. F. Freud, J. E. Veregge, and E. L. Umberger.

II. Methodology.

A. *The Problem Statement.* The estimation of occupational prevalence in the active airman population reduces to a multinominal sampling problem involving the estimation of population parameters for the following major occupation groups.[3]

1. Professional, technical and kindred workers, except aeronautical.
2. Farmers and farm managers.
3. Managers, officials, and proprietors, except farm.
4. Clerical and kindred workers.
5. Sales workers.
6. Craftsmen, foremen, and kindred workers.
7. Operatives and kindred workers.
8. Private household workers.
9. Service workers, except private household.
10. Farm laborers and foremen.
11. Laborers, except farm and mine.
12. Students.
13. Housewives.
14. Unknown, retired, or none.
15. Aeronautical occupations (civilian).

B. *Methods and Source Data.* A systematic sampling procedure was utilized to extract sample members from the active airman population as defined by the Aeromedical Certification tape file as of July 1, 1968, and the fact that the airman was issued a medical certificate within the past 25 months.[4]

[3] Bureau of the Census major occupation groups expanded to include students, housewives, and to break out civilian aeronautical occupations.

[4] The Aeromedical Certification active master tape file contains the most recent record of an airman's medical application for certification. This tape includes applications issued, pending, denied, and short records of significant pathologies (link record) retained for future reference in the event the airman decides to again exercise his flying privileges. The latter is the only instance wherein a record is maintained on the Active Master Tape for a period greater than 3 years.

From a population of 662,867 certified active airmen, 9,379 airman records were selected and extracted from the magnetic tape file for estimation of the proportions in the fifteen major occupation groups. Sample size was dictated by desired accuracy and the need to assure an appropriate usable error rate for the smaller proportions expected in some of the occupation groups. A previous study has indicated that class of medical certification issued is not indicative of occupational affiliation to the extent that stratification of the sample would be required.[5] The population was, therefore, treated as homogeneous with respect to sampling technique and the variable being measured.

Occupations are classified by the Bureau of the Census, according to a system of 296 occupation categories. An occupation category consists of a group of related occupation titles which, in effect, define a particular field of work. The 296 categories are arranged and reported by the first eleven major groups outlined in II.A (plus a classification for "Occupation Not Reported").[6]

The most recent applications submitted by the 9,379 sample members were researched to obtain occupation and employer data as provided by the airman in items 10 and 12 of the FAA Form 8500–8, "Application for Airman Medical Certificate or Airman Medical and Student Pilot Certificate".[7] Responses by the airman were classified into one of the 15 major occupation groups by reference to the *Alphabetical Index of Occupations and Industries—Bureau of the Census.*

Previous applications were referenced in some instances when the occupational classification was not obvious from the most recent application or when the item was omitted by the airman in the completion of the most recent application.

Primary type of flying (business or pleasure) was also obtained for each sample member from his response to item 14 of the FAA Form 8500–8. Four responses were possible: (1) Business, (2) Pleasure, (3) Business and Pleasure, or (4) Not Indicated.[8]

Certain limitations are inherent in this approach to estimating the occupational classifications in the population. First, given the time frame defined by the study, the classification is static and reflects only the occupational data available from the most recent application received from the airman. The data provided on the most recent application may be up to 25 months old and, therefore, does not reflect "occupational mobility". Secondly, there is a natural tendency on the part of an individual to ascribe a more sophisticated title to his occupational affiliation when responding to any question dealing with his occupation. This tendency is partially accounted for by the *Alphabetical Index of Occupations and Industries;* however, no information is available to cross-check the "occupation" response, a characteristic usually built into a questionnaire designed specifically to measure such a response, e.g., description of duties, responsibilities, number of persons supervised, etc.

As in most samples, nonresponse is a problem, however, not to the extent normally associated with a typical questionnaire sample directed to members of the population. As mentioned previously, when relevant data elements were omitted from source material, some recourse was available by reference to previous applications. No attempt was made to assign a classification other than "Unknown" to those few for which no data could be reasonably derived by methods previously described.

Reference to Appendix A is recommended for a further detailed discussion of statistical methodology applied in this study.

III. Findings and Discussion.

A. *Sample Results.* Analysis and classification of the 9,379 sample members resulted in the summary of occupational prevalence for the sample shown in Table I.

As indicated in the footnote to Table I, the "professional, technical and kindred group, except aeronautical" included 150 physicians and

[5] *Usage of Combined Airman Certification by Active Airmen: An Active Airman Population Estimate,* AM 68–5, by C. F. Booze, Jr.

[6] *Alphabetical Index of Occupations and Industries,* Revised Edition, 1960 Census of Population, Bureau of the Census. Reference Appendix B for specific occupation categories included in the first 11 major occupation groups.

[7] The original application is maintained by the Aeromedical Certification Branch for a minimum of 3 years.

[8] Air Traffic Controllers were classified separately for "type of flying" and included in a category "ATC Duties".

Table I

OCCUPATIONS OF SAMPLE MEMBERS

Major Occupation Groups	Sample Frequency	Percent*
1. Professional, technical, and kindred workers, except aeronautical**	1,721	18.35
2. Farmers and farm managers	229	2.44
3. Managers, officials, and proprietors, except farm	1,155	12.31
4. Clerical and kindred workers	258	2.75
5. Sales workers	556	5.93
6. Craftsmen, foremen, and kindred workers***	2,158	23.01
7. Operatives and kindred workers	368	3.92
8. Private household workers	0	.00
9. Service workers, except private household	165	1.76
10. Farm laborers and foremen	4	.04
11. Laborers, except farm and mine	54	.58
12. Students	910	9.70
13. Housewives	123	1.31
14. Unknown, retired, or none	531	5.66
15. Aeronautical occupations (civilian)	1,147	12.23
TOTAL	9,379	99.99+

*Confidence intervals for the major occupation groups are provided in Appendix A (Table V).

**Group 1 includes 150 physicians and dentists.

***Group 6 includes 1,218 members of the armed forces (374 military pilots; 844 others).

+Less than 100 percent due to rounding.

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

dentists (1.6%). The *Alphabetical Index of Occupations and Industries* classifies members of the armed forces, regardless of occupational specialty, under the major group of "craftsmen, foremen, and kindred workers". The sample included 1,218 members of the armed forces, 374 military pilots and 844 in other military occupational specialities (101 of the 844 were military air traffic controllers).

Civilian airmen classified in "aeronautical occupations," to include pilots, co-pilots, flight engineers, flight navigators, air traffic controllers, and flight instructors, totaled 1,147 or 12.2 percent. Addition of the 374 military pilots and 101 military air traffic controllers results in a total of 1,622 or 17.3 percent of the active airman population classified in military or civilian aeronautical occupations.

Type of flying engaged in by sample members was as shown in Table II.

Table II

TYPE OF FLYING BY SAMPLE MEMBERS

Type of Flying	Sample Frequency	Percent
Business	2,231	23.8
Pleasure	6,008	64.0
Business and Pleasure	456	4.9
Not Indicated	387	4.1
ATC Duties	297	3.2
TOTAL	9,379	100.0

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

Exclusion of those military and civilian sample members occupationally connected with aviation would leave approximately 15 percent from all other occupational categories who expressed interest in flying in connection with business activity, ("Business"—2,231; "Business and Pleasure"—456; and "ATC Duties"—297, less 1,622 military and civilian airmen in aeronautical occupations, leaves 1,362 or 14.5%).

B. *Current Population Estimates by Occupation.*[9] Extrapolation of sample results to the current active airman population as of January 1, 1969, is presented in Table III.

C. *Occupational Comparison of Active Airmen and United States Populations.* Modification of Table I is necessary in order to compare occupational prevalence in the active airman population with available data for the United States population. The last four groups of Table I are excluded for comparison purposes since summary data for the United States is in terms of employed persons and since the "aeronautical" oc-

[9] The reader is reminded that the precision of any estimate from a sample depends on statistical methodology and "sampling error" as defined in the sampling plan. Such estimates should thus be viewed as point estimates within an acceptable range of accuracy. Reference Appendix A for a further discussion of desired accuracy and confidence intervals. Further reference concerning "point estimates" is provided in Chapter 1 of *Statistical Methods* by George W. Snedecor.

Table III

CURRENT POPULATION ESTIMATES BY OCCUPATION

January 1, 1969

Major Occupation Groups	Estimated Population Frequency
1. Professional, technical, and kindred workers, except aeronautical	125,541
2. Farmers and farm managers	16,704
3. Managers, officials, and proprietors, except farm	84,250
4. Clerical and kindred workers	18,819
5. Sales workers	40,557
6. Craftsmen, foremen, and kindred workers	157,414
7. Operatives and kindred workers	26,843
8. Private household workers	0
9. Service workers, except private household	12,035
10. Farm laborers and foremen	292
11. Laborers, except farm and mine	3,939
12. Students	66,379
13. Housewives	8,972
14. Unknown, retired, or none	38,734
15. Aeronautical occupations (civilian)	83,667
TOTAL	684,146

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

cupation group is normally classified under "professional and technical workers," (see Table IV).

Predominance of "White Collar Workers" in the active airman population is obvious from Table IV. A considerable change in the percent distribution for "White Collar Workers" is apparent when civilian aeronautical occupations are excluded from Group 1. The exclusion of military aeronautical occupations from Group 6 does not have the same effect. "White Collar Workers" plus Craftsmen and Foremen from the "Blue Collar Workers" category make up 85–90 percent of the total active airman population regardless of whether "aeronautical occupations" are excluded. With the exception that White and Blue Collar Workers also comprise the majority of the United States population, comparisons of individual groups reflect considerable difference.

Table IV

OCCUPATIONAL COMPARISON OF ACTIVE AIRMEN AND UNITED STATES POPULATIONS BY PERCENT

Major Occupation Group	Total Active Airman Population* (1)	1967 United States Population** (2)	Active Airman Population less Aeronautical Occupations*** (3)
White Collar Workers	61.9	48.8	59.6
Professional and technical workers	36.7	14.0	27.8
Managers, officials, and proprietors	14.8	11.0	18.6
Clerical workers	3.3	17.2	4.2
Sales workers	7.1	6.6	9.0
Blue Collar Workers	33.0	36.0	34.0
Craftsmen and foremen	27.6	13.9	27.2
Operatives	4.7	18.1	5.9
Nonfarm laborers	0.7	4.0	0.9
Service Workers	2.1	10.5	2.7
Private household workers	0.0	1.4	0.0
Other service workers	2.1	9.1	2.7
Farm Workers	2.9	4.7	3.7
Farmers and farm managers	2.9	2.8	3.7
Farm laborers	0.0+	1.9	0.0+
TOTAL	100.0	100.0	100.0

*Obtained by merging Group 15 with Group 1 and re-computing the percent distribution based on the new total realized by subtraction of nonemployed Groups 12, 13, and 14 from 9,379. (9,379–910–123–531=7,815).

**United States population data was obtained from the *1968 Statistical Abstract of the United States*, Table No. 325, pp 226.

***Obtained by subtracting civil and military aeronautical occupations in Groups 1 and 6 respectively from column 1 and re-computation of percent distribution based on the adjusted total of 6,193.

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

IV. Summary.

The preceding analysis has served to grossly quantify occupational prevalence in the active

airman population. The relative importance of the major groups "Craftsmen and Foremen" and "Students" is the most apparent deviation from empirical expectations.

Three major groups comprise approximately 80 percent of the active airman population when nonemployed categories are excluded (see Table IV). In order of relative importance they are: Professional and Technical Workers; Craftsmen and Foremen; and Managers, Officials and Proprietors. The same three groups account for approximately 75 percent when "aeronautical occupations" are excluded. Approximately 15 percent of all airmen in nonaeronautical categories expressed a business motivation for their interest in flying.

APPENDIX A

Statistical Methodology

I. General.

As mentioned in the introductory remarks, the sampling problem in this study amounted to an estimation of $\hat{\pi}_i$ for 15 major occupation groups via determination of p_i where $p_i = \frac{n_i}{n}$ and n_i denotes the observed frequencies in a major occupation group from a sample size of n. Estimates of $\hat{\pi}_i$ for the 15 parameters provided the basis for the extrapolation of estimates for $\hat{N}_i$ from the population N, where N_i is the population equivalent of n_i.

II. The Multinomial Estimation Model.

The following definitive relationships exist with respect to the study:

$$n = n_1 + n_2 + n_3 + \ldots n_{15}$$

Where,

n_1 = The observed frequency of sample members classified as professional, technical, and kindred workers, except aeronautical.

n_2 = The observed frequency of sample members classified as farmers and farm managers.

n_3 = The observed frequency of sample members classified as managers, officials, and proprietors, except farm.

n_4 = The observed frequency of sample members classified as clerical and kindred workers.

n_5 = The observed frequency of sample members classified as sales workers.

n_6 = The observed frequency of sample members classified as craftsmen, foremen, and kindred workers.

n_7 = The observed frequency of sample members classified as operative and kindred workers.

n_8 = The observed frequency of sample members classified as private household workers.

n_9 = The observed frequency of sample members classified as service workers, except private household.

n_{10} = The observed frequency of sample members classified as farm laborers and foremen.

n_{11} = The observed frequency of sample members classified as laborers, except farm and mine.

n_{12} = The observed frequency of sample members classified as students.

n_{13} = The observed frequency of sample members classified as housewives.

n_{14} = The observed frequency of sample members classified as unknown, retired, or none.

n_{15} = The observed frequency of sample members classified as aeronautical occupation (civilian).

Therefore,

$$p_i = \frac{n_i}{n} = \hat{\pi}_i \ (i=1, 2, \ldots, 15)$$

And,

$$\hat{N}_i = \hat{\pi}_i \ (N) \ (i=1, 2, \ldots, 15)$$

III. Sample Size.

Extracting from multinomial sampling theory as presented by Quesenberry and Hurst (1964)[10] and Goodman (1965)[11], sample size was arrived at as follows:

$$(p_i - \pi_i)^2 = A \ \pi_i \ (1 - \pi_i)/n \ (i=1, 2, \ldots, 15)$$

[10] Quesenberry, C. P., and Hurst, D. C. 1964. Large sample simultaneous confidence intervals for multinomial proportions. Technometrics, 6, 191–5.

[11] Goodman, Leo A., On Simultaneous Confidence Intervals for Multinomial Proportions, Technometrics, Vol. 7, No. 2, May 1965.

Where, $p_i = n_i/n$ and A equals the upper α x 100th percentile of the chi-square distribution with 14 degrees of freedom.

Therefore,

$$n = \frac{A\ \pi_i\ (1-\pi_i)}{(p_i-\pi_i)^2}$$

Or substituting,

$$n = \frac{A\ p_i\ (1-p_i)}{(p_i-\pi_i)^2}$$

Assuring adequate sample size for $p_i = 0.01$ with a sampling error of ± 0.005 and $\alpha = 0.05$ yields,

$$n = \frac{23.685\ (0.01)\ (0.99)}{(0.005)^2}$$

$$n = \frac{23.685\ (0.0099)}{0.000025}$$

$$n = \frac{0.2344815}{0.000025}$$

$$n = 9{,}379.26 \text{ or } 9{,}379$$

This sample size results in a sampling error of ± 0.0251 (2.51%) when $p_i = 0.50$.

$$\hat{\pi}_i = p_i \pm \left[\frac{A\ p_i\ (1-p_i)}{n}\right]^{1/2}$$

$$= 0.50 \pm \left[\frac{23.685\ (0.50)\ (1-0.50)}{9{,}379}\right]^{1/2}$$

$$= 0.50 \pm \left[\frac{23.685\ (0.25)}{9{,}379}\right]^{1/2}$$

$$= 0.50 \pm \left[\frac{5.92125}{9{,}379}\right]^{1/2}$$

$$= 0.50 \pm \left[\ 0.00063\ \right]^{1/2}$$

$$= 0.50 \pm\ 0.0251$$

The decision was made to assure an appropriate, usable error rate at the smaller p_i. This choice defines an increasing absolute error rate as the sample p_i increases but a decreasing relative error rate as sample p_i increases. The 2.51% sample error at $p_i = 0.50$ is acceptable for purposes of this study.

IV. Sample Design.

Following a scheme of systematic sampling, every k th item was selected as dictated by the sample size and the population size.

Therefore,

$$k = \frac{N}{n} = \frac{662{,}867}{9{,}379} = 70.68 \text{ or } 70$$

From a table of random numbers, a starting point of 63 was selected within the interval 1–70. Hence, starting with the 63rd certified active airman record on the tape file, every 70th record was selected for the sample, i.e., 63, 133, 203, 273, etc.

A systematic sampling plan was utilized in view of the economies to be realized in sampling from a sequential tape file, particularly since there is no reason to suspect the introduction of bias in this instance due to the alphabetic arrangement of the tape file.[12]

V. Confidence Interval for the π_i.

Utilizing the formula,

$$\hat{\pi}_i \pm = p_i \pm \left[\frac{A\ p_i\ (1-p_i)}{n}\right]^{1/2}$$

confidence intervals for the π_i (i=1, 2, . . . 15) are as follows:

Table V

CONFIDENCE INTERVALS FOR THE MAJOR OCCUPATION GROUP PROPORTIONS

Major Occupation Group	$\hat{\pi}_i-$	$\hat{\pi}_i$	$\hat{\pi}_i+$
1. Professional, technical, and kindred workers, except aeronautical	.1641	.1835	.2029
2. Farmers and farm managers	.0166	.0244	.0322
3. Managers, officials, and proprietors, except farm	.1066	.1231	.1396
4. Clerical and kindred workers	.0193	.0275	.0357
5. Sales workers	.0474	.0593	.0712
6. Craftsmen, foremen, and kindred workers	.2089	.2301	.2513
7. Operatives and kindred workers	.0294	.0392	.0490
8. Private household workers	.0000	.0000	.0000
9. Service workers, except private household	.0110	.0176	.0242
10. Farm laborers and foremen	.0000	.0004	.0014
11. Laborers, except farm and mine	.0020	.0058	.0096
12. Students	.0829	.0978	.1127
13. Housewives	.0074	.0131	.0188
14. Unknown, retired, or none	.0450	.0566	.0682
15. Aeronautical occupations (civilian)	.1058	.1223	.1388

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

[12] Cochran, W. G., (1953), *Sampling Techniques;* John Wiley and Sons, New York, Second Edition, Chapter 8.

APPENDIX B

Occupation Groups

1. *Professional, Technical, and Kindred Workers*
   - Accountants and auditors
   - Actors and actresses
   - Architects
   - Artists and art teachers
   - Athletes
   - Authors
   - Chemists
   - Chiropractors
   - Clergymen
   - College presidents, professors, and instructors (not elsewhere classified)
     - College presidents and deans
     - Professors and instructors, agricultural sciences
     - Professors and instructors, biological sciences
     - Professors and instructors, chemistry
     - Professors and instructors, economics
     - Professors and instructors, engineering
     - Professors and instructors, geology and geophysics
     - Professors and instructors, mathematics
     - Professors and instructors, medical sciences
     - Professors and instructors, physics
     - Professors and instructors, psychology
     - Professors and instructors, statistics
     - Professors and instructors, natural sciences (not elsewhere classified)
     - Professors and instructors, social sciences (not elsewhere classified)
     - Professors and instructors, nonscientific subjects
     - Professors and instructors, subject not specified
   - Dancers and dancing teachers
   - Dentists
   - Designers
   - Dietitians and nutritionists
   - Draftsmen
   - Editors and reporters
   - Engineers, aeronautical
   - Engineers, chemical
   - Engineers, civil
   - Engineers, electrical
   - Engineers, industrial
   - Engineers, mechanical
   - Engineers, metallurgical, and metallurgists
   - Engineers, mining
   - Engineers, sales
   - Engineers (not elsewhere classified)
   - Entertainers (not elsewhere classified)
   - Farm and home management advisors
   - Foresters and conservationists
   - Funeral directors and embalmers
   - Lawyers and judges
   - Librarians
   - Musicians and music teachers
   - Natural scientists (not elsewhere classified)
     - Agricultural scientists
     - Biological scientists
     - Geologists and geophysicists
     - Mathematicians
     - Physicists
     - Miscellaneous natural scientists
   - Nurses, professional
   - Nurses, student professional
   - Optometrists
   - Osteopaths
   - Personnel and labor relations workers
   - Pharmacists
   - Photographers
   - Physicians and surgeons
   - Public relations men and publicity writers
   - Radio operators
   - Recreation and group workers
   - Religious workers
   - Social and welfare workers, except group
   - Social scientists
     - Economists
     - Psychologists
     - Statisticians and actuaries
     - Miscellaneous social scientists
   - Sports instructors and officials
   - Surveyors
   - Teachers, elementary schools
   - Teachers, secondary schools
   - Teachers (not elsewhere classified)
   - Technicians, medical and dental
   - Technicians, electrical and electronic
   - Technicians, other engineering and physical sciences
   - Technicians (not elsewhere classified)
   - Therapists and healers (not elsewhere classified)
   - Veterinarians
   - Professional, technical, and kindred workers (not elsewhere classified)
2. *Farmers and Farm Managers*
   - Farmers (owners and tenants)
   - Farm managers
3. *Managers, Officials, and Proprietors, Except Farm*
   - Buyers and department heads, store
   - Buyers and shippers, farm products

Conductors, railroad
Credit men
Floor men and floor managers, store
Inspectors, public administration
Managers and superintendents, building
Officers, pilots, pursers, and engineers, ship
Officials and administrators (not elsewhere classified), public administration
Officials, lodge, society, union, etc.
Postmasters
Purchasing agents and buyers (not elsewhere classified)
Managers, officials, proprietors (not elsewhere classified)

4. *Clerical and Kindred Workers*

Agents (not elsewhere classified)
Attendants and assistants, library
Attendants, physician's and dentist's office
Baggagemen, transportation
Bank tellers
Bookkeepers
Cashiers
Collectors, bill and account
Dispatchers and starters, vehicle
Express messengers and railway mail clerks
File clerks
Insurance adjusters, examiners, and investigators
Mail carriers
Messengers and office boys
Office machine operators
Payroll and timekeeping clerks
Postal clerks
Receptionists
Secretaries
Shipping and receiving clerks
Stenographers
Stock clerks and storekeepers
Telegraph messengers
Telegraph operators
Telephone operators
Ticket, station, and express agents
Typists
Clerical and kindred workers (not elsewhere classified)

5. *Sales Workers*

Advertising agents and salesmen
Auctioneers
Demonstrators
Hucksters and peddlers
Insurance agents, brokers, and underwriters
Newsboys
Real estate agents and brokers
Stock and bond salesmen
Salesmen and sales clerks (not elsewhere classified)

6. *Craftsmen, Foremen, and Kindred Workers*

Bakers
Blacksmiths
Boilermakers
Bookbinders
Brickmasons, stonemasons, and tile setters
Cabinetmakers
Carpenters
Cement and concrete finishers
Compositors and typesetters
Cranemen, derrickmen, and hoistmen
Decorators and window dressers
Electricians
Electrotypers and sterotypers
Engravers, except photoengravers
Excavating, grading, and road machinery operators
Foremen (not elsewhere classified)
Forgemen and hammermen
Furriers
Glaziers
Heat treaters, annealers, and temperers
Inspectors, scalers, and graders, log and lumber
Inspectors (not elsewhere classified)
Jewelers, watchmakers, goldsmiths, and silversmiths
Job setters, metal
Linemen and servicemen, telegraph, telephone, and power
Locomotive engineers
Locomotive firemen
Loom fixers
Machinists
Mechanics and repairmen, air conditioning, heating, and refrigeration
Mechanics and repairmen, airplane
Mechanics and repairmen, automobile
Mechanics and repairmen, office machine
Mechanics and repairmen, radio and television
Mechanics and repairmen, railroad and car shop
Mechanics and repairmen (not elsewhere classified)
Millers, grain, flour, feed, etc.
Millwrights
Molders, metal
Motion picture projectionists
Opticians, and lens grinders and polishers
Painters, construction and maintenance
Paperhangers
Pattern and model makers, except paper
Photoengravers and lithographers
Piano and organ tuners and repairmen
Plasterers
Plumbers and pipe fitters
Pressmen and plate printers, printing
Rollers and roll hands, metal
Roofers and slaters
Shoemakers and repairers, except factory
Stationary engineers
Stone cutters and stone carvers
Structural metal workers
Tailors and tailoresses
Tinsmiths, coppersmiths, and sheet metal workers
Toolmakers, and die makers and setters
Upholsterers

Craftsmen and kindred workers (not elsewhere classified)

Members of the armed forces

7. *Operatives and Kindred Workers*

Apprentice auto mechanics
Apprentice bricklayers and masons
Apprentice carpenters
Apprentice electricians
Apprentice machinists and toolmakers
Apprentice mechanics, except auto
Apprentice plumbers and pipe fitters
Apprentices, building trades (not elsewhere classified)
Apprentices, metalworking trades (not elsewhere classified)
Apprentices, printing trades
Apprentices, other specified trades
Apprentices, trade not specified
Asbestos and insulation workers
Assemblers
Attendants, auto service and parking
Blasters and powdermen
Boatmen, canalmen, and lock keepers
Brakemen, railroad
Bus drivers
Chairmen, rodmen, and axmen, surveying
Checkers, examiners, and inspectors, manufacturing
Conductors, bus and street railway
Deliverymen and routemen
Dressmakers and seamstresses, except factory
Dyers
Filers, grinders, and polishers, metal
Fruit, nut, and vegetable graders and packers, except factory
Furnacemen, smeltermen, and pourers
Graders and sorters, manufacturing
Heaters, metal
Knitters, loopers, and toppers, textile
Laundry and dry cleaning operatives
Meat cutters, except slaughter and packing house
Milliners
Mine operatives and laborers (not elsewhere classified)
Motormen, mine, factory, logging camp, etc.
Motormen, street, subway, and elevated railway
Oilers and greasers, except auto
Packers and wrappers (not elsewhere classified)
Painters, except construction and maintenance
Photographic process workers
Power station operators
Sailors and deck hands
Sawyers
Sewers and stitchers, manufacturing
Spinners, textile
Stationary firemen
Switchmen, railroad
Taxicab drivers and chauffeurs
Truck and tractor drivers
Weavers, textile
Welders and flame-cutters

Operatives and kindred workers (not elsewhere classified)

8. *Private Household Workers*

Baby sitters, private household
Housekeepers, private household
Laundresses, private household
Private household workers (not elsewhere classified)

9. *Service Workers, Except Private Household*

Attendants, hospital and other institutions
Attendants, professional and personal service (not elsewhere classified)
Attendants, recreation and amusement
Barbers
Bartenders
Bootblacks
Boarding and lodging house keepers
Chambermaids and maids, except private household
Charwomen and cleaners
Cooks, except private household
Counter and fountain workers
Elevator operators
Hairdressers and cosmetologists
Housekeepers and stewards, except private household
Janitors and sextons
Kitchen workers (not elsewhere classified), except private household
Midwives
Porters
Practical nurses
Protective service workers
  Firemen, fire protection
  Guards, watchmen, doorkeepers
  Marshals and constables
  Policemen and detectives
  Sheriffs and bailiffs
  Watchmen (crossing) and bridge tenders
Ushers, recreation and amusement
Waiters and waitresses
Service workers, except private household (not elsewhere classified)

10. *Farm Laborers and Foremen*

Farm foremen
Farm laborers, wage workers
Farm laborers, unpaid family workers
Farm service laborers, self-employed

11. *Laborers, Except Farm and Mine*

Carpenters' helpers, except logging and mining
Fishermen and oystermen
Garage laborers, and car washers and greasers
Gardeners, except farm, and groundkeepers
Longshoremen and stevedores
Lumbermen, raftsmen, and woodchoppers
Teamsters
Truck drivers' helpers
Warehousemen (not elsewhere classified)
Laborers (not elsewhere classified)

12. *Students*

Highschool students
College or university students

13. *Housewives*

Housewives
Homemakers

14. *Unknown, Retired, or None*

Occupation not given
Occupation unclassifiable
Retired
Unemployed

15. *Aeronautical Occupation—(Civilian)*

Pilot, scheduled and non-scheduled airlines only (includes captain, co-pilot, second officer, etc.)
Flight engineer
Flight navigator and flight radio operator
Business or executive pilot
Commercial pilot, self-employed
Commercial pilot, not self-employed
Aero application (agriculture)
Air Traffic Controller
Flight instructor