UNITED STATES DEPARTMENT OF LABOR
Frances Perkins, *Secretary*
BUREAU OF LABOR STATISTICS
Isador Lubin, *Commissioner* (on leave)
A. F. Hinrichs, *Acting Commissioner*

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Average Hourly Earnings in the Airframe Industry, 1943

Prepared in the
DIVISION OF WAGE ANALYSIS
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Bulletin No. 790

[Reprinted from the Monthly Labor Review
May 1944, with additional data]

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., August 4, 1944.

The SECRETARY OF LABOR:

I have the honor to transmit herewith a report on average hourly earnings in the airframe industry in 1943. The report was prepared in the Bureau's Division of Wage Analysis by Theodore W. Reedy, under the supervision of Victor S. Baril.

A. F. HINRICHS, *Acting Commissioner.*

Hon. FRANCES PERKINS,
Secretary of Labor.

Bulletin No. 790 of the

United States Bureau of Labor Statistics

[Reprinted from the MONTHLY LABOR REVIEW, May 1944, with additional data]

Average Hourly Earnings in the Airframe Industry, 1943[1]

Summary

Factory workers on the first shift in the metal-airframe industry had straight-time average hourly earnings of 95.0 cents in December 1943. Over half of these workers were in occupations with average hourly earnings ranging from 85 cents to $1.00, and well over a fourth were in occupations averaging $1.00 or more an hour. Substantial additional payments were made for overtime work and for work on late shifts. The earnings of workers in 9 representative office occupations varied from 65.8 cents an hour for office boys and girls to 87.5 cents an hour for bookkeepers. These figures are based on data for 420,480 first-shift factory workers and 29,222 office workers in 50 metal-airframe plants.

General wage levels in the metal-airframe industry were much the same in three of the four broad regions into which the country was divided for purposes of the study. The average for the Eastern region, 98.2 cents, was only 2.7 cents higher than that for the Southern California region and 3 cents higher than that for the Central region. The general wage level in the Midwestern region, however, was from 8 to 11 cents below that of the other three regions.

As a group, men earned substantially more than women, the respective averages for the two groups being 98.2 and 86.7 cents an hour. The difference was due in part to the fact that women were found only in small numbers in the higher-skilled and higher-paying jobs, and in part to the fact that many women had been employed but a short time and were still receiving beginner's rates or but little more. In those occupations in which women have been employed for some time and have acquired as much experience as men, differences in wage rates were small.

Development of the Industry

The rapid development of the airframe industry during the past decade is readily appreciated when it is noted that only 7,800 workers

[1] This is one of a series of Bureau studies of wartime wages in the manufacture of airframes and in related industries. The results of earlier studies will be found in Bulletins No. 704 (Wage Rates in the California Airframe Industry, 1941); No. 728 (Earnings in Eastern and Midwestern Airframe Plants, 1942); and No. 744 (Earnings in Aircraft Parts Plants, November 1942); also reprints, Serial No. R 1505 (Earnings in Aircraft-Engine Plants, May 1942); and Serial No. R 1526 (Wages in Aircraft-Propeller Industry, October 1942). An additional bulletin, No. 746 (Wage Stabilization in California Airframe Industry, 1943), provides information on the impact of the National War Labor Board's wage order of March 3, 1943.

were known to be employed in the industry in 1933. That number of workers would constitute only a fraction of the labor force in any one of the larger airframe plants now in operation. Much of this development has taken place during the past 3 years.

The structural development of the airplane has been no less dramatic than the increase in employment. As an illustration, approximately 35 years ago, the U. S. Signal Corps asked for bids on the first military plane to be used by the Army. The specifications of this plane are worthy of note: A speed of 40 miles per hour in level flight, with a bonus of 10 percent for every mile over 40; capable of carrying two persons and a total load (including persons) of 350 pounds; and the ability to fly at least 1 hour and carry sufficient fuel for 125 miles. Even at the end of World War I, the popular plane was a wood, fabric, and wire "kite," mounting a heavy, unreliable motor which drove a laminated wood propeller of fixed pitch. The barnstorming JN–4 ("Jenny") of the early 1920's was just such a ship, powered with an OX–5 8-cylinder, 90-horsepower water-cooled motor.

The present heavy metal ships, carrying huge bomb loads and equipped with high-caliber armament, were undreamed of a few years ago, as were also the great factories from which planes now flow in continuous streams. The tremendous increase in the volume of production becomes even more noteworthy when it is realized that the earlier planes were small, custom-built, and produced at the rate of only a few per month, whereas in December 1943 almost 9,000 military planes of all types were produced.

THE LABOR FORCE

The tremendous expansion of the working force in airframe manufacturing virtually ceased late in 1943, with employment leveling off to a total of approximately 1,000,000 workers. Mass-production techniques, coupled with the increased efficiency of the large numbers of new workers, now make it possible to meet the heavy production schedules without the addition of more employees. In most plants, the present hiring schedule is for replacement only.

This decrease in new employment, combined with the provisions for automatic advancement found in most plants, has led to a material reduction in the number of learners. This, in itself, has done much to raise the general level of average hourly earnings, in addition to such factors as upgrading and promotion.

Airframe plants are primarily concerned with the assembling of thousands of parts into a complete plane. Much of the work of manufacturing the component parts of a plane and even the assembling of these parts into units is done in other plants. This no doubt accounts in part for the fact that, on the average, over half of the workers in a typical metal-airframe plant are engaged in assembly and installation work—approximately 25 percent assembling, 10 percent installing, and 11 percent riveting. Less than a fifth of the workers are engaged either in the operation of machines or in work at a bench. About 6 percent of the workers are performing any one of the many inspection jobs. Maintenance, service, and other auxiliary work account for the remainder of the labor force.

In December 1943, two of every five airframe-factory workers were women. Many of these women had limited factory experience.

As a result, they were most frequently found in the lower grades of the various occupations in which they were employed. Although some women were employed in most of the occupations, they were found in substantial numbers in comparatively few; for example, assemblers, filers and burrers, general helpers, inspectors, janitresses, riveters, sheet-metal workers, and stock and store clerks.

Of the 50 metal-airframe plants studied by the Bureau in late 1943, 17 were organized completely by unions affiliated with the C. I. O. and 9 by A. F. of L. unions. Independent unions were found in 3 plants. Two plants had both a C. I. O. and an A. F. of L. union, one plant had a C. I. O. and an independent union, and one plant had an A. F. of L. and an independent union. The C. I. O. had its principal strength in the Eastern and Central regions with 9 and 5 plants, respectively, and the A. F. of L. in the West with 5 plants. The remaining plants were not organized by any union when visited by the Bureau's field representative. Most of the nonunion establishments were in the Midwest, the Eastern, and the Central regions.

Purpose and Nature of Study

The present study of the airframe-manufacturing industry was designed to provide current basic wage data for the use of those Government agencies charged with the development of the aircraft program and with stabilizing wages in the industry, as well as to meet the needs of labor and management for such data. In addition, the survey depicted the industry's wage structure after a period of adjustment and regulation which began in March 1943, when the National War Labor Board issued a wage order affecting eight West Coast airframe companies. Wage changes resulting from this order, as well as from subsequent wage orders issued by the Board through December 1943, are reflected in the figures presented in this report.

In order to arrive at as full comparability as possible among the various establishments, only those manufacturing completed airframes were included in the study; thus, all manufacturers of engines, propellers, parts, and subassemblies were excluded. The present survey consequently differs slightly from the earlier survey of the airframe industry, which included a few subassembly plants.

Airframe plants constitute a homogeneous segment of the broad aircraft-industry group. There are relatively few plants in the industry and most of them are large, employing many thousands of workers. Wage levels in the industry are fairly well standardized, particularly in the metal-airframe group, the largest of the three groups in the industry. Most of the plants and the greater proportion of the workers are in this group. The second group includes a small number of plants engaged in the manufacture of light-weight airframes, which frequently are made largely of wood and fabric. The third group includes those plants engaged in the manufacture of gliders.

Metal-airframe plants are divided about equally among the four broad regions used in this report. The majority of the plants found in the Eastern region are in the Northeastern States, including Connecticut with 2, eastern New York with 4, New Jersey with 2, Pennsylvania with 3, Maryland with 3, and Georgia with 1. Plants in the Central region are widely distributed, Ohio having 4, western New York 2, Tennessee 2, and 6 other States one each. In the Midwest,

Kansas and Texas each have 3 plants, Louisiana and Oklahoma, 2 each, and Nebraska 1. All western plants for which wage data are included are on the Pacific Coast—principally in Southern California. Light-weight airframe plants are largely concentrated in the Central and Midwestern regions, while the plants making complete gliders are well distributed over the country.

Altogether, 73 establishments were studied. Of this number, 50 were engaged in the manufacture of metal airframes, 11 produced light-weight planes, and 12 made gliders. Wage data were obtained for 437,866 first-shift workers in selected occupations. Of this number, 96 percent were in metal-airframe plants, 2 percent in light-weight airframe plants, and 2 percent in glider plants.

METHOD OF STUDY

Occupational wage data and general background information were obtained from virtually all plants engaged in the manufacture of metal airframes, light-weight airframes, and gliders, and from a few modification centers. Field representatives of the Bureau visited each plant in the Eastern, Central, and Midwestern regions and those plants in the Western region not situated in Southern California, and obtained the desired information directly from pay rolls and other pertinent records. Although most of the visits were made during the summer of 1943, the data collected have been adjusted to include the few general wage changes which took place between the period scheduled and December 1943. The figures herein presented, therefore, depict the structure of the industry at the end of the year. Wage data for the Southern California airframe plants were compiled by the Southern California Airframe Industry and represent the situation in December 1943. Only general background information for these plants was collected by representatives of the Bureau.

Wage data were obtained for approximately half of the occupations in metal-airframe plants. This group includes all numerically important occupations as well as a substantial number of strategically important occupations in which comparatively few workers are found. More than 90 percent of the first-shift plant workers were found in the selected occupations covered in this survey. In those plants engaged in the production of light airframes and gliders, in which substantial amounts of wood or fabric are used, data were obtained for a somewhat different and more limited list of occupations. In most airframe manufacturing plants, wage data were also obtained for workers in 9 representative office occupations.

For purposes of this survey, the country was divided into four broad regions, corresponding to the original Army Air Forces procurement districts. Their boundaries extend from the northern to the southern border of the United States. No separate figures are shown for the South, since the wage levels found in the small number of southern plants do not differ materially from those found in northern plants. The Eastern region includes all Atlantic Seaboard States from Maine to Florida, plus West Virginia and minus western New York, which is included with the Central region. The Central region includes all remaining States east of the Mississippi River, plus Missouri and Arkansas. The Midwest region includes North and South Dakota, Minnesota, Nebraska, Iowa, Colorado, Kansas, Oklahoma, Louisiana, and Texas. The Western region includes the States in the Rocky

Mountain region and the three States on the Pacific Coast. Separate occupational wage-rate information is presented for each of these regions.

The wage data presented in this report for selected occupations are straight-time average hourly earnings exclusive of premium overtime and shift-differential earnings. Incentive payments are included in these earnings.

The three segments of the airframe industry are basically different. Metal-airframe plants have a much more diversified occupational structure than either light-weight airframe or glider plants. The occupational structure of modification centers follows that of metal-airframe plants and for that reason these centers have been combined with such plants. Many of these occupations do not have their counterpart in plants manufacturing light planes which include a substantial amount of wood and fabric. Glider plants are wholly different from either metal- or light-plane plants. Because of these basic differences, the occupational wage data for light-airframe and glider plants have not been combined with those for metal airframes, but are presented separately in this report.

Hourly Earnings in Metal-Airframe Manufacture

FACTORS AFFECTING AVERAGE HOURLY EARNINGS

The level of earnings in the airframe industry is influenced not only by the basic rates for the various occupations but also by entrance rates, provisions for automatic advancement, extra pay for work on late shifts and for overtime work, and incentive methods of wage payment. These factors are discussed briefly in the following paragraphs.

Entrance rates of unskilled workers in the 50 metal-airframe plants studied in this survey varied from 50 to 85 cents per hour (table 1). Of these plants, 30 had entrance rates of 60 cents per hour. The prevalence of the 60-cent entrance rate is due in large measure to the influence of National War Labor Board directives stabilizing wages in the Southern California Airframe Industry and in other airframe plants. Aside from the 60-cent rate, there are only limited concentrations of entrance rates at other levels, 6 plants having an entrance rate of 79 cents, 4 a rate of 65 cents, and 3 a rate of 62 cents.

Provisions for automatic increases, which also appear in table 1, show somewhat less variation than entrance rates. The great majority of the plants granted an initial 5-cent increase in the worker's hourly base rate after 4 weeks or 30 days, and periodic increases thereafter until the minimum classified job rate was reached. This usually occurred within 3 months. Promotion beyond this level was based upon merit in most plants, although in a few instances these increases continued until specific job rates were reached. For example, plants operating under the Southern California Airframe Industry (SCAI) job-classification system started unskilled workers at 60 cents, advancing them 5 cents every 30 days until the 75-cent classified minimum rate was reached. Beyond this rate, increases were based on merit. In some plants, automatic increases continued until the hourly rate for the job to which the worker is assigned was reached. regardless of its wage level.

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TABLE 1.—*Entrance Rates of Unskilled Workers, and Provisions for Automatic Increases, in Metal-Airframe Plants, 1943*

Number of plants	Entrance rates	Provision for automatic increases
1 plant	$0.85	5-cent increase every 2 weeks to minimum job rate.
1 plant	.825	Increase according to merit, ability, and openings in higher labor grade.
1 plant	[1].79	5-cent increase in 30 days, 10-cent increase next 30 days; then 5 cents each 30 days to minimum job rate.
5 plants	[2].79	10-cent increase in 30 days, thereafter 5-cent increase monthly to maximum job rate.
1 plant	.75	None.
1 plant	.65	5-cent increase monthly for 3 months, thereafter 5 cents each 90 days to maximum job rate.
1 plant	.65	5-cent increase monthly for 3 months, thereafter 5 cents each 90 days to minimum job rate.
1 plant	.65	5-cent increase monthly for 2 months.
1 plant	[3].65	Not available.
2 plants	.62	10-cent increase after 60 days; 5-cent increase after next 60 days.
1 plant	[4].62	6-cent increase after 4 weeks and 8 weeks, 3 cents after 13 weeks.
30 plants	[5].60	5-cent increase monthly for 3 months; then to minimum job rate.
1 plant	.55	5-cent increase after 13 weeks.
1 plant	[6].55	5-cent increase after 60 days, and advance to "learner." At end of 4 to 6 months, receive specific rate for job.
1 plant	[7].50	None.
1 plant		Entrance rate for each occupation.

[1] Entrance rate from training school. Workers enter training school at 70 cents.
[2] Employees with vocational-school training or equivalent receive 5 cents more for each 160 hours of training.
[3] Entrance rate from training school. Workers enter training school at 60 cents.
[4] Entrance rate from training school. Workers enter training school at 50 cents.
[5] Includes plants with automatic increase at 4-, 8-, and 12-week or similar intervals. One plant reported a 50-cent entrance rate for women.
[6] Plus guaranteed bonus of 24.5 percent.
[7] New plant: Plans were under consideration at time of Bureau study.

Wage differentials for work on late shifts were paid in all except 1 of the 50 metal-airframe plants scheduled (table 2). Approximately half of these plants paid either 5 or 6 cents extra per hour for work on the second shift, 7 paid 10 cents extra per hour, and 8 paid 5 percent over the base rate. A third shift was operated by 37 of the 50 plants. In 26 of these, 8 hours' pay was given for 6½ hours' work, in addition to shift differentials ranging from 5 to 10 cents per hour. In 25 of the plants, the third-shift differential paid was either 5 or 6 cents per hour. Seven plants paid a third-shift differential of 5 percent over the base rate, with 1 of these giving 8 hours' pay for 7¼ hours' work.

Practically complete uniformity was found in methods of overtime payment. All plants paid time and a half after 40 hours per week or 8 hours per day, and on the sixth consecutive day and holidays. Double time was paid on the seventh consecutive day in all but one plant.

Incentive methods of wage payments were found in only six plants. In two plants, only supervisory or administrative employees were affected; in two other plants practically all workers received production bonuses based upon percentage increases in total production. Incentive plans found in the remaining two plants affected workers in certain departments only. In one of these plants, a bonus was paid for departmental production above a fixed standard, while in the other plant both individual and group incentive plans were used. This latter plant was the only one surveyed in which an incentive system was calculated to increase the pay of the worker in direct ratio to his individual output.

TABLE 2.—*Differentials Paid for Work on Late Shifts in Metal-Airframe Plants, by Region, 1943*

Differential[1]	Number of plants in—				
	United States	Eastern region	Central region	Midwest region	Western region
Second-shift differential	50	15	14	11	10
10 cents per hour	7	2	4		1
9 cents per hour	2	2			
8 cents per hour	4	2		1	1
7.5 cents per hour	2	2			
7 cents per hour	3		3		
6 cents per hour	11		1	2	8
5 cents per hour	12	2	3	7	
5 percent over base rate	8	5	2	1	
No differential	1		1		
Third-shift differential	37	8	10	9	10
11 cents per hour	1	1			
10 cents per hour plus 8 hours' pay for 6½ hours' work	1				1
10 cents per hour	1			1	
8 cents per hour plus 8 hours' pay for 6½ hours' work	2			1	1
6 cents per hour plus 8 hours' pay for 6½ hours' work	10		1	2	7
6 cents per hour plus 8 hours' pay for 6¾ hours' work	1				1
5 cents per hour plus 8 hours' pay for 6½ hours' work	13	2	7	4	
5 cents per hour	1		1		
5 percent over base rate plus 8 hours' pay for 7¼ hours' work	1			1	
5 percent over base rate	6	5	1		

[1] 13 plants operated on 2 shifts only; 37 plants operated both second and third shifts.

EARNINGS OF FACTORY WORKERS

Wage data are presented in table 3 for a total of 145 classes or grades of workers in 57 specific occupations. It will be noted that in 42 of these 57 occupations figures are shown for three classes of workers, designated as A, B, and C, and that in 4 of the occupations figures are shown for two classes of workers, namely, A and B. A single average is shown for only 11 occupations. The refinement of the data in the 46 occupations was necessary in view of the wide variation in the nature of the duties performed within these occupations. For example, the duties of workers operating any one of the standard machine tools may vary from simple repetitive work requiring only very limited training and little or no skill to highly complicated and exacting work which only a skilled mechanic can perform. Equally wide variations are found in the many types of assembly and inspection occupations, as well as in many other processing and maintenance occupations.

The classifications within jobs used in this study were originally developed by the Southern California Airframe Industry and are now applied by many establishments in other parts of the country. The workers in factories not using this job-classification system were grouped on the basis of written definitions issued by the SCAI. In some cases—particularly in factories previously engaged in the production of automobiles—this grouping involved great difficulty and was accomplished with only approximate accuracy. The SCAI job-classification system differs somewhat from the classifications customarily employed in Bureau wage studies.

TABLE 3.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Metal-Airframe Plants, by Region, 1943*

Occupation	United States[1]		Eastern			Central			Midwest			Southern California		
	Percent of total employment	Average hourly earnings	Average hourly earnings	Plant average		Average hourly earnings	Plant average		Average hourly earnings	Plant average		Average hourly earnings	Plant average	
				Lowest	Highest		Lowest	Highest		Lowest	Highest		Lowest	Highest
Total, all occupations	100.0	$0.950	$0.982			$0.952			$0.869			$0.955		
Assemblers, electrical and radio, A	.4	.992	1.080	$1.019	$1.100	1.026	$0.900	$1.100	1.002	$0.923	$1.402	.955	$0.950	$0.960
Assemblers, electrical and radio, B	.8	.893	.954	.765	1.020	.903	.822	1.150	.842	.802	1.163	.864	.850	.870
Assemblers, electrical and radio, C	.9	.843	.883	.663	.910	.863	.760	1.100	.827	.750	1.033	.783	.770	.800
Assemblers, general, A	4.4	1.136	1.143	.924	1.304	1.126	.929	1.297	1.041	.945	1.408	1.126	1.080	1.150
Assemblers, general, B	6.5	.957	.965	.791	1.048	.972	.816	1.161	.910	.809	1.244	.957	.940	.970
Assemblers, general, C	9.9	.868	.857	.655	.914	.934	.788	1.102	.827	.754	1.104	.846	.840	.850
Assemblers, precision, bench, A	.3	1.144	1.172	.955	1.317	1.085	1.017	1.109	1.054	1.020	1.425	1.132	1.000	1.150
Assemblers, precision, bench, B	.5	.997	1.020	.825	1.257	1.032	.881	1.118	.906	.879	.942	.958	.900	.970
Assemblers, precision, bench, C	.5	.871	.906	.798	1.102	.894	.768	.910	.821	.777	.851	.863	.850	.900
Cable splicers, A	.1	.977	(2)			.984	.983	1.133	(2)			.939	.900	.950
Cable splicers, B	.1	.916	(2)			.978	.772	1.150	.858	.800	1.300	.860	.840	.870
Cable splicers, C	.1	.831				(2)			.880	.750	1.133	.791	.780	.810
Carpenters, maintenance, A	.3	1.155	1.098	.966	1.260	1.211	1.060	1.334	1.101	1.000	1.444	1.142	1.070	1.170
Carpenters, maintenance, B	.2	1.036	1.088	.897	1.180	1.102	.875	1.229	.947	.913	1.191	.964	.940	1.010
Carpenters, maintenance, C	.1	.882	(2)			(2)			.866	.831	1.047	.872	.850	.880
Clerks, stock and stores	4.9	.874	.859	.726	1.070	.886	.731	1.100	.795	.758	1.010	.893	.830	1.040
Craters, A	.2	1.037	1.043	.979	1.116	1.088	.973	1.165	.986	.943	1.075	1.009	1.000	1.050
Craters, B	.3	.925	.894	.805	.976	.987	.825	1.130	.867	.825	1.019	.899	.870	.920
Drill-press operators, A	.3	1.042	1.006	.914	1.128	1.046	.928	1.161	.961	.930	1.358	1.009	.990	1.060
Drill-press operators, B	.7	.917	.944	.783	1.075	.968	.801	1.112	.845	.820	1.141	.888	.880	.900
Drill-press operators, C	.6	.833	.895	.775	.930	.875	.750	.943	.797	.750	1.020	.784	.770	.790
Electricians, maintenance, A	.4	1.264	1.259	1.100	1.324	1.282	1.196	1.441	1.207	1.063	1.452	1.278	1.240	1.320
Electricians, maintenance, B	.3	1.105	1.143	.867	1.238	1.089	.935	1.289	1.042	.856	1.258	1.121	1.100	1.140
Electricians, maintenance, C	.1	.948	1.016	.838	1.055	.953	.834	1.127	.900	.794	1.076	.944	.930	.960
Filers and burrers, A	1.0	.861	.918	.717	.966	.921	.752	1.100	.802	.750	1.016	.752	.750	.770
Grinder operators, A	.1	1.225	1.261	1.012	1.391	1.231	1.121	1.483	1.214	1.121	1.251	1.176	1.110	1.220
Grinder operators, B	.2	1.080	1.035	.756	1.233	1.078	.924	1.292	1.013	.950	1.070	1.009	.980	1.040
Grinder operators, C	.2	.903	.882	.790	1.044	.929	.793	1.150	.877	.812	1.038	.888	.890	.900
Helpers, general	3.8	.760	.730	.565	.849	.788	.688	.957	.751	.729	.826	.752	.750	.890
Inspectors, detail, A	.3	1.132	1.096	1.017	1.206	1.189	.979	1.348	1.112	1.096	1.165	1.109	1.070	1.150
Inspectors, detail, B	.4	1.001	.985	.918	1.090	1.051	.833	1.252	.950	.913	1.056	.945	.930	.970
Inspectors, detail, C	.6	.877	.874	.812	.926	.900	.789	1.131	.853	.717	1.085	.850	.830	.860
Inspectors, final assembly, A	.4	1.229	1.178	1.005	1.300	1.189	1.066	1.360	1.195	1.080	1.264	1.255	1.180	1.290
Inspectors, final assembly, B	.6	1.094	1.111	.831	1.201	1.088	.931	1.250	1.039	.951	1.256	1.114	1.070	1.140

Inspectors, final assembly, C	.4	.907	.907
Inspectors, general assembly, A	.6	1.152	1.165
Inspectors, general assembly, B	.8	.993	1.021
Inspectors, general assembly, C	.8	.873	.872
Inspectors, machined parts, A	.1	1.240	1.297
Inspectors, machined parts, B	.2	1.024	1.081
Inspectors, machined parts, C	.2	.881	.903
Inspectors, service and flight, A	.2	1.345	1.315
Inspectors, service and flight, B	.1	1.189	1.073
Inspectors, service and flight, C	(3)	.987	1.002
Installers, controls, A	.3	1.113	1.162
Installers, controls, B	.4	1.044	.969
Installers, controls, C	.1	.852	.842
Installers, electrical, A	.5	1.118	1.159
Installers, electrical, B	.5	.959	.993
Installers, electrical, C	.5	.897	(3)
Installers, general, A	1.6	1.074	1.151
Installers, general, B	2.1	1.006	.988
Installers, general, C	2.8	.866	.867
Installers, hydraulics, A	.4	1.145	(3)
Installers, hydraulics, B	.3	.970	.916
Installers, hydraulics, C	.2	.930	(3)
Installers, power plant, A	.2	1.115	1.123
Installers, power plant, B	.2	.969	1.004
Installers, power plant, C	.2	.863	(3)
Janitors, A	2.4	.779	.765
Jig builders, A	.5	1.351	1.370
Jig builders, B	.8	1.171	1.239
Jig builders, C	.8	.979	.974
Laborers, A	.9	.774	.726
Lathe operators, engine, A	.3	1.197	1.194
Lathe operators, engine, B	.2	1.022	1.029
Lathe operators, engine, C	.1	.907	.927
Lathe operators, turret, A	.2	1.202	1.174
Lathe operators, turret, B	.3	1.041	1.084
Lathe operators, turret, C	.2	.904	.884
Learners	5.5	.689	.685
Machinists, bench, A	.2	1.172	1.212
Machinists, bench, B	.2	.990	1.036
Machinists, bench, C	.6	.848	.949
Mechanics, experimental, A	.1	1.306	1.163
Mechanics, experimental, B	.3	1.148	(3)
Mechanics, experimental, C	.3	.969	(3)
Mechanics, field and service, A	.4	1.298	1.223
Mechanics, field and service, B	.8	1.126	1.130
Mechanics, field and service, C	.4	.965	.950

See footnotes at end of table.

.885	1.090	.888	.751	1.143	.892	.833	1.108	.958	.920	.980
.950	1.237	1.154	.950	1.348	1.111	1.050	1.322	1.122	1.090	1.140
.770	1.130	.998	.823	1.244	.947	.902	1.183	.963	.930	1.000
.709	.958	.878	.723	1.131	.876	.798	1.103	.860	.850	.880
.963	1.406	1.273	1.150	1.361	1.181	1.138	1.214	1.189	1.150	1.230
.779	1.160	1.007	.955	1.252	1.022	.947	1.136	1.018	.990	1.050
.655	1.005	.826	.760	.917	.921	.821	1.092	.897	.890	.910
1.250	1.367	1.361	1.160	1.511	1.300	1.189	1.426	1.345	1.290	1.390
.958	1.158	(3)			1.111	.963	1.176	1.194	1.150	1.210
.770	1.152	1.004	.956	1.132	.970	.915	1.010	(2)		
.940	1.305	1.136	1.000	1.300	1.017	.967	1.046	1.075	1.060	1.120
.800	1.062	1.088	.775	1.118	.902	.838	.918	.957	.940	.980
.667	.958	.902	.788	.938	.819	.777	1.022	.852	.830	.860
1.063	1.165	1.177	1.018	1.256	1.034	.972	1.166	1.069	1.000	1.090
.909	1.030	.969	.835	1.200	.914	.868	1.238	.951	.950	.970
		.981	.785	1.107	.818	.770	1.073	.857	.840	.870
.900	1.173	1.015	.961	1.272	1.029	.945	1.398	1.069	1.050	1.090
.914	1.022	1.095	.842	1.155	.940	.818	1.282	.956	.940	.960
.700	.879	.900	.775	1.100	.839	.759	1.128	.848	.840	.930
		1.088	1.033	1.272	1.026	.990	1.050	1.128	1.080	1.140
.783	.924	1.052	.889	1.156	.905	.863	.937	.964	.960	.980
		1.036	.806	1.100	.817	.794	.841	.850	.850	.860
.950	1.190	1.065	1.006	1.272	1.046	.983	1.413	1.125	1.060	1.160
.800	1.121	1.030	.900	1.155	.928	.884	1.219	.960	.940	1.000
		.891	.800	.938	.850	.772	1.113	.856	.850	.870
.524	.882	.821	.565	.933	.747	.570	.912	.753	.750	.760
1.234	1.457	1.344	1.150	1.430	1.292	1.107	1.665	1.344	1.290	1.550
.900	1.362	1.192	1.010	1.323	1.071	.984	1.367	1.156	1.140	1.190
.750	1.085	.983	.866	1.106	.939	.857	1.206	.999	.990	1.030
.526	.960	.843	.504	1.020	.747	.656	.899	.764	.750	.780
.992	1.310	1.171	1.033	1.267	1.235	1.038	1.571	1.186	1.170	1.240
.773	1.295	.974	.818	1.150	1.024	.917	1.101	1.019	1.010	1.030
.835	.980	.917	.812	1.123	.887	.800	1.080	.900	.890	.920
1.008	1.372	1.188	1.043	1.348	1.214	1.057	1.279	1.192	1.150	1.230
.894	1.513	1.007	.840	1.250	1.031	.980	1.323	1.016	.990	1.030
.775	.957	.933	.818	1.200	.892	.866	1.080	.893	.870	.920
.550	.795	.708	.567	1.030	.675	.600	.860	(4)	(4)	(4)
1.075	1.301	1.188	1.089	1.461	1.136	1.000	1.500	1.129	1.110	1.140
.950	1.183	1.025	.925	1.330	.948	.898	1.281	.957	.940	.990
.811	1.000	.849	.846	.925	.847	.757	1.073	.845	.840	.890
1.060	1.293	1.305	1.122	1.503	(2)			1.322	1.260	1.340
		1.131	1.000	1.390	(2)			1.159	1.140	1.190
		.942	.805	1.266	(2)			1.017	1.010	1.050
1.028	1.331	1.301	1.148	1.411	1.204	1.110	1.483	1.318	1.260	1.350
.881	1.201	1.144	.913	1.260	1.041	.962	1.278	1.125	1.100	1.150
.848	1.021	1.005	.825	1.144	.922	.844	1.130	.969	.960	.980

TABLE 3.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Metal-Airframe Plants, by Region, 1943*—Continued

Occupation	United States [1]		Eastern			Central			Midwest			Southern California		
	Percent of total employment	Average hourly earnings	Average hourly earnings	Plant average		Average hourly earnings	Plant average		Average hourly earnings	Plant average		Average hourly earnings	Plant average	
				Lowest	Highest		Lowest	Highest		Lowest	Highest		Lowest	Highest
Mechanics, maintenance, A	0.4	$1.220	$1.201	$1.029	$1.354	$1.190	$1.056	$1.341	$1.150	$1.062	$1.508	$1.275	$1.240	$1.330
Mechanics, maintenance, B	.4	1.077	1.124	.900	1.243	1.072	.867	1.175	.973	.876	1.241	1.107	1.090	1.160
Mechanics, maintenance, C	.2	.940	.937	.779	1.088	.927	.853	.985	.917	.829	1.038	.955	.940	1.000
Metal fitters, A	.3	1.137	1.125	.931	1.253	1.165	1.063	1.178	1.118	1.066	1.403	1.135	1.100	1.150
Metal fitters, B	.3	.987	1.017	.788	1.082	1.038	.900	1.178	.937	.900	1.248	.961	.950	.990
Metal fitters, C	.5	.838	.804	.729	.898	.827	.794	.944	.838	.804	1.085	.845	.830	.860
Milling-machine operators, A	.3	1.202	1.164	.978	1.315	1.202	1.115	1.433	1.221	1.100	1.265	1.179	1.160	1.230
Milling-machine operators, B	.5	1.053	1.048	.796	1.150	1.063	.827	1.332	1.024	.964	1.331	1.025	1.000	1.080
Milling-machine operators, C	.5	.892	.891	.750	1.008	.892	.764	1.175	.880	.810	1.120	.896	.890	.920
Oilers, maintenance, A	.2	.907	.840	.737	.948	.980	.750	1.105	.805	.744	.893	.911	.880	.930
Painters, aircraft, A	.4	1.093	1.090	.923	1.270	1.104	.950	1.244	1.054	1.000	1.409	1.080	1.040	1.090
Painters, aircraft, B	.3	.971	1.016	.788	1.149	.963	.813	1.150	.923	.841	1.227	.957	.940	.970
Painters, aircraft, C	.4	.853	.882	.757	.942	.830	.772	1.080	.848	.777	1.045	.855	.830	.860
Painters, maintenance, A	.1	1.064	1.019	.955	1.280	1.085	1.000	1.206	1.045	.970	1.100	1.079	1.050	1.100
Painters, maintenance, B	.1	1.066	1.097	.929	1.146	1.233	.950	1.305	.894	.831	1.106	.960	.950	.980
Painters, maintenance, C	(2)	.892	.918	.800	1.020	(2)			.829	.798	.981	(2)		
Plant protection	1.6	.901	.847	.729	.949	.927	.759	1.047	.855	.770	1.054	.966	.840	1.040
Plumbers, maintenance, A	.1	1.178	1.159	1.031	1.238	1.246	1.010	1.386	1.150	1.050	1.168	1.167	1.131	1.180
Plumbers, maintenance, B	(2)	1.038	1.027	.965	1.085	1.116	1.013	1.233	.957	.917	1.175	(2)		
Plumbers, maintenance, C	(2)	.880	(2)			(2)			.859	.800	1.069	(2)		
Power-shear operators, A	.1	1.045	1.065	.804	1.342	1.044	.896	1.229	(2)			1.022	.980	1.040
Power-shear operators, B	.2	.914	.913	.783	1.067	.960	.809	1.150	.877	.820	1.181	.894	.880	.920
Power-shear operators, C	.1	.813	.872	.826	.951	.852	.750	.873	.806	.755	.983	.788	.780	.810
Punch-press operators, A	.3	1.074	1.054	.857	1.285	1.136	.971	1.232	.997	.832	1.375	1.026	1.020	1.050
Punch-press operators, B	.4	.946	.954	.769	1.117	1.010	.850	1.180	.872	.800	1.238	.889	.860	.910
Punch-press operators, C	.2	.925	.883	.789	.994	1.027	.763	1.112	.815	.777	1.069	.786	.780	.790
Riveters, A	1.6	1.056	1.088	.900	1.177	1.003	.866	1.328	.864	.813	1.369	1.021	.990	1.030
Riveters, B	6.6	.958	1.059	.763	1.120	.918	.768	1.161	.866	.788	1.158	.886	.880	.890
Riveters, C	2.3	.840	.902	.690	.949	.834	.750	.914	.834	.767	1.026	.786	.760	.820
Saw operators, A	.3	1.000	1.033	.814	1.126	1.008	.846	1.214	.947	.871	1.140	.968	.930	.980
Saw operators, B	.3	.911	.872	.814	.981	1.019	.782	1.144	.820	.780	1.013	.855	.840	.870
Sheet-metal workers, bench, A	.5	1.120	1.134	.978	1.430	1.097	1.008	1.400	1.149	.975	1.495	1.120	1.100	1.160
Sheet-metal workers, bench, B	1.0	.971	.968	.784	1.151	.969	.850	1.250	.992	.871	1.346	.967	.950	.980
Sheet-metal workers, bench, C	1.4	.874	.833	.715	.972	.914	.792	1.150	.855	.800	1.140	.846	.820	.860

Spot welders, A	.2	1.073	1.072	.960	1.109	1.109	.888	1.205	1.033	.900	1.125	1.015	.990	1.040
Spot welders, B	.2	.900	.914	.848	1.064	.965	.850	1.116	.889	.800	1.169	.885	.880	.900
Spot welders, C	.2	.871	(2)			.960	.750	1.150	.812	.759	1.020	.782	.780	.800
Template makers, A	.2	1.211	1.290	1.130	1.422	1.187	1.041	1.300	1.108	1.003	1.523	1.176	1.150	1.190
Template makers, B	.2	1.031	1.130	.933	1.300	.994	.901	1.047	.992	.880	1.333	1.010	.990	1.030
Template makers, C	.2	.888	.900	.805	1.197	.913	.853	.970	.871	.777	1.207	.885	.870	.900
Tool and die makers, A	.5	1.404	1.442	1.288	1.547	1.387	1.231	1.573	1.332	1.130	1.684	1.403	1.360	1.450
Tool and die makers, B	.3	1.210	1.235	.988	1.422	1.181	1.008	1.455	1.150	1.109	1.450	1.178	1.130	1.230
Tool and die makers, C	.1	1.039	1.049	.800	1.150	1.057	.825	1.319	.958	.923	1.017	1.009	.970	1.020
Tool-crib attendants, A	.3	.976	.968	.808	1.079	1.032	.878	1.200	.936	.807	1.305	.951	.950	.970
Tool-crib attendants, B	.5	.856	.872	.667	1.089	.869	.782	1.150	.829	.780	1.120	.855	.840	.870
Tool-crib attendants, C	.4	.911	.802	.650	.957	1.043	.750	1.072	.804	.736	1.038	.774	.760	.780
Truck-crane operators	.1	.966	.945	.880	1.021	.935	.836	1.151	.857	.821	.898	1.017	.900	1.180
Truck drivers, A	.2	1.013	.952	.799	1.150	.989	.813	1.338	.940	.911	.990	1.010	.970	1.020
Truck drivers, B	.2	.893	.944	.800	1.070	.826	.650	.965	.843	.600	.995	.907	.850	.920
Truckers, power, A	.4	.938	.935	.735	1.088	1.025	.783	1.100	.839	.667	.913	.885	.840	.950
Truckers, power, B	.1	.824	(2)			.842	.778	.951	.783	.737	.852	.793	.760	.820
Tube benders, bench, A	.1	.999	1.031	.970	1.176	1.013	.863	1.321	.982	.925	1.343	.969	.950	1.030
Tube benders, bench, B	.2	.874	.827	.760	.908	.903	.795	1.158	.852	.796	1.113	.865	.860	.880
Tube benders, bench, C	.2	.839				.896	.750	1.100	.836	.757	1.009	.787	.780	.800
Welders, aluminum, A	.1	1.210	1.148	1.028	1.373	1.187	1.020	1.278	1.342	1.225	1.590	1.236	1.160	1.260
Welders, aluminum, B	.1	1.066	.959	.900	1.000	1.072	.875	1.239	1.076	.808	1.375	1.061	1.030	1.090
Welders, aluminum, C	(3)	.889	(2)			(2)			.887	.817	1.193	.877	.860	.950
Welders, gas, A	.3	1.248	1.216	1.211	1.286	1.154	1.037	1.345	1.272	1.092	1.603	1.300	1.250	1.320
Welders, gas, B	.2	1.078	1.057	.911	1.118	.910	.820	.985	1.118	.930	1.248	1.103	1.080	1.120
Welders, gas, C	.1	.901	.916	.750	.983	.895	.800	.977	.883	.822	1.069	.893	.860	.930
Welders, jig and fixtures, A	.3	1.264	1.213	1.083	1.300	1.236	1.000	1.448	1.216	1.082	1.613	1.296	1.275	1.314
Welders, jig and fixtures, B	.1	1.139	1.115	.925	1.240	1.214	.850	1.326	1.123	.925	1.300	1.089	1.064	1.131
Welders, jig and fixtures, C	(3)	.952	1.059	.825	1.157	.862	.823	.946	.935	.875	1.099	.910	.880	.980
Working supervisors, maintenance	.2	1.110	1.106	.934	1.326	1.179	1.138	1.463	(2)			(4)	(4)	(4)
Working supervisors, production	2.2	1.192	1.222	1.016	1.246	1.149	1.058	1.302	1.146	1.076	1.180	(4)	(4)	(4)

[1] Data for Boeing Aircraft Co. of Seattle included in United States totals but omitted from regional figures to avoid disclosure of individual operations.
[2] Insufficient number of plants and/or employees to justify presentation of averages.
[3] Less than a tenth of 1 percent.
[4] Adequate data unavailable.

Of necessity the criteria employed in establishing classes within occupations vary from job to job. Common criteria which apply to many metalworking-machine operations will not apply to inspection or assembly operations. In a machine-tool operation, such as an engine-lathe operation, a class A operator would be called upon to perform complicated and diversified work, to work to close tolerances, to perform difficult set-ups, and to assume a high degree of responsibility; a class B operator, although working to close tolerances, would have less diversity of work and less complicated set-ups; and a class C operator would normally perform highly repetitive operations and would be not much more than a machine tender. It should be pointed out that the A, B and C classifications used are not comparable from occupation to occupation, owing to wide differences in the levels of skill represented. For example, a class A tool and die maker is a much more skilled worker than class A operators in many other occupations.

The straight-time average hourly earnings of factory workers in the metal-airframe industry in the United States amounted to 95.0 cents an hour in December 1943. These earnings are based on data for first-shift workers in the 57 representative occupations. More than 90 percent of all first-shift workers were employed in these occupations.

The wide dispersion in the occupational average hourly earnings indicates, among other things, widely different skill levels in the industry. Earnings varied from 68.9 cents an hour for learners to $1.404 for class A tool and die makers. Of the 145 classes of workers for which figures are presented 67, in which 29.8 percent of the workers were employed, averaged $1.00 or more an hour. Another 65 occupational classes, accounting for 52.2 percent of the workers, averaged between 85 cents and $1.00 an hour. Only 13 occupations, with less than a fifth of the workers, had average hourly earnings under 85 cents.

Much the same general wage levels were found in three of the four broad geographic regions. The average for the Eastern region, 98.2 cents, was only 2.7 cents higher than that for the Southern California region[2] and 3 cents higher than that for the Central region. In all three regions the averages for more than three-fourths of the occupational classifications were distributed over the 35-cent range from 85 cents to $1.20. The general wage level in the Midwest was substantially lower (from 8 to 11 cents) than in the other three broad regions. In this region, workers in nearly two-thirds of the occupational classes averaged less than $1.00 an hour. In the Eastern and Central regions workers in less than 45 percent of the occupational classes had average hourly earnings below $1.00. In Southern California, 56 percent of the workers were in occupations averaging less than that amount.

Some idea of the variations in occupational average hourly earnings within regions may be had from the high and low plant averages shown in table 3 for each of the four regions. These figures are based on data for all workers in all occupations. It should be pointed out that

[2] It should be noted that the average for all occupations for the Southern California region excludes learners and working supervisors, data for whom were not available. The net effect of these important exclusions has probably been to overstate the average slightly. In the following figures, data for learners and working supervisors have been omitted from all regions: Eastern region, $0.977; Central, $0.967; Midwest, $0.902; and Southern California, $0.955.

the figures appearing in these two columns in any one region relate to a number of different establishments and not to the same establishment, as no single plant in any one region pays the lowest or the highest wages in all occupations.

The range in plant averages was influenced by many factors. Important among these were incentive-wage systems; these were in use in too few plants to affect the average in any region materially, but they had, nevertheless, a material effect in many occupations upon the upper limit of the range. Lower limits in plant averages were influenced by a few low-wage plants. In most cases these were small plants which exercised little effect on the occupational averages. The range in earnings for individual workers was, of course, much greater than the range in plant averages.

Variations in Earnings, by Sex

Separate occupational averages for men and women factory workers in the Eastern, Central, and Midwestern regions are shown in table 4. Similar information is not available, however, for Southern California.

As a group, men earned substantially more per hour than women. For the Eastern, Central, and Midwestern regions combined, men averaged 98.2 cents an hour, or 11.5 cents more than women. Much of this advantage is undoubtedly due to the fact that women either are not found or are found only in small numbers in many of the higher-skilled and higher-paying occupations. When the comparison is confined to the 35 occupational classifications in which both men and women are employed in all regions, the men's advantage is reduced from 11.5 to 4.1 cents. The latter difference, which represents lower pay for women apparently doing the same work as men, is due in part to variations among regions in the ratio of women in the occupations and in part to the fact that the large majority of women have not worked a sufficient length of time to have received the same proportion of automatic and merit increases as men. In those occupations in which women have been employed over a long period of time and have acquired as much experience as men, the differences in the earnings of men and women are undoubtedly very small.

TABLE 4.—*Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Occupations in Eastern, Central, and Midwestern Regions, by Sex, 1943*

Occupation	Eastern region		Central region		Midwestern region	
	Men	Women	Men	Women	Men	Women
All occupations	$1.019	$0.900	$0.997	$0.899	$0.912	$0.779
Assemblers, electrical and radio, A	1.064	(1)	1.035	(1)	1.067	(1)
Assemblers, electrical and radio, B	.892	.975	.913	.894	.898	.823
Assemblers, electrical and radio, C	(1)	.885	.858	.866	.841	.822
Assemblers, general, A	1.144	1.133	1.138	1.110	1.044	.988
Assemblers, general, B	.973	.924	.966	.989	.934	.872
Assemblers, general, C	.859	.855	.910	.952	.838	.816
Assemblers, precision, bench, A	1.172	(1)	1.086	(1)	1.055	(1)
Assemblers, precision, bench, B	1.034	(1)	1.030	1.050	.908	.904
Assemblers, precision, bench, C	.971	.871	.890	.895	.833	.810
Cable splicers, A	(1)	(1)	1.013	(1)	(1)	(1)
Cable splicers, B	(1)	(1)	.969	.988	.887	.834
Cable splicers, C			(1)	(1)	(1)	(1)

[1] Insufficient number of plants and/or workers to justify presentation of an average.

TABLE 4.—*Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Occupations in Eastern, Central, and Midwestern Regions, by Sex, 1943*—Con.

Occupation	Eastern region		Central region		Midwestern region	
	Men	Women	Men	Women	Men	Women
Carpenters, maintenance, A	$1.098		$1.211		$1.101	
Carpenters, maintenance, B	1.088		1.102		.947	
Carpenters, maintenance, C	(1)		(1)		.866	
Clerks, stock and stores	.901	$0.822	.913	$0.852	.818	$0.762
Craters, A	1.043	(1)	1.088	(1)	.986	
Craters, B	.896	(1)	.988	(1)	.868	(1)
Drill-press operators, A	1.013	(1)	1.048	1.021	.968	(1)
Drill-press operators, B	.936	.948	.980	.949	.849	.841
Drill-press operators, C	.921	.884	.885	.870	.801	.794
Electricians, maintenance, A	1.259		1.281	(1)	1.207	
Electricians, maintenance, B	1.143		1.089		1.042	
Electricians, maintenance, C	1.016		.951	(1)	.906	.855
Filers and burrers, A	.923	.916	.917	.921	.810	.798
Grinder operators, A	1.261		1.231		1.214	
Grinder operators, B	1.167	(1)	1.103	(1)	1.014	(1)
Grinder operators, C	.882		.942	.912	.881	.862
Helpers, general, A	.718	.741	.790	.787	.758	.744
Inspectors, detail, A	1.103	(1)	1.202	1.104	1.121	(1)
Inspectors, detail, B	.997	.971	1.109	1.001	.963	.935
Inspectors, detail, C	.905	.855	.914	.893	.868	.847
Inspectors, final assembly, A	1.176	(1)	1.206	(1)	1.199	(1)
Inspectors, final assembly, B	1.133	.974	1.091	1.068	1.050	.976
Inspectors, final assembly, C	.921	.883	.897	.878	.906	.865
Inspectors, general assembly, A	1.167	1.160	1.157	(1)	1.108	(1)
Inspectors, general assembly, B	1.027	.986	.996	1.003	.961	.916
Inspectors, general assembly, C	.902	.840	.840	.905	.904	.854
Inspectors, machined parts, A	1.303	(1)	1.277	(1)	1.182	(1)
Inspectors, machined parts, B	1.111	(1)	1.056	.957	1.026	(1)
Inspectors, machined parts, C	.921	.841	.832	.824	.951	.887
Inspectors, service and flight, A	1.315		1.361		1.300	
Inspectors, service and flight, B	1.073		(1)	(1)	1.111	(1)
Inspectors, service and flight, C	(1)	(1)	.998	(1)	.969	(1)
Installers, controls, A	1.162	(1)	1.136		1.017	(1)
Installers, controls, B	.996	.893	1.088	1.076	.905	(1)
Installers, controls, C	(1)	(1)	.912	.891	.814	(1)
Installers, electrical, A	1.159		1.177		1.039	(1)
Installers, electrical, B	1.009	(1)	.955	1.018	.915	.910
Installers, electrical, C	(1)	(1)	.946	1.000	.829	.803
Installers, general, A	1.152	(1)	1.015		1.031	(1)
Installers, general, B	.994	.936	1.096	1.093	.942	.919
Installers, general, C	.870	.864	.892	.908	.850	.813
Installers, hydraulics, A	(1)	(1)	1.088		1.027	(1)
Installers, hydraulics, B	.905	(1)	1.049	(1)	.906	(1)
Installers, hydraulics, C	(1)		1.003	1.064	.819	.814
Installers, power plant, A	1.123		1.065		1.047	(1)
Installers, power plant, B	1.005	(1)	1.033	.998	.930	(1)
Installers, power plant, C	(1)	(1)	.890	.892	.859	.829
Janitors, A	.767	.760	.815	.829	.747	.742
Jig builders, A	1.370		1.344		1.292	(1)
Jig builders, B	1.239		1.192		1.071	
Jig builders, C	.974		.983		.940	.906
Laborers, A	.725	.728	.812	.866	.748	.734
Lathe operators, engine, A	1.192	(1)	1.171	(1)	1.235	
Lathe operators, engine, B	1.033	(1)	.983	(1)	1.026	(1)
Lathe operators, engine, C	.930	(1)	.925	.891	.890	(1)
Lathe operators, turret, A	1.169	(1)	1.188		1.214	
Lathe operators, turret, B	1.092	(1)	1.028	.844	1.032	(1)
Lathe operators, turret, C	.887	.880	.923	.942	.895	.879
Learners	.701	.676	.724	.691	.677	.674
Machinists, bench, A	1.212		1.188		1.137	(1)
Machinists, bench, B	1.036		1.022	(1)	.952	(1)
Machinists, bench, C	.974	(1)	.853	.846	.852	.804
Mechanics, experimental, A	1.163		1.305		(1)	
Mechanics, experimental, B	(1)		1.132	(1)	(1)	
Mechanics, experimental, C	(1)		.946	(1)	(1)	
Mechanics, field and service, A	1.223		1.301		1.205	(1)
Mechanics, field and service, B	1.130		1.144	(1)	1.041	(1)
Mechanics, field and service, C	.949	(1)	1.002	1.047	.921	(1)
Mechanics, maintenance, A	1.201		1.190		1.150	(1)
Mechanics, maintenance, B	1.124		1.072	(1)	.973	
Mechanics, maintenance, C	.937		.928	(1)	.917	(1)

[1] Insufficient number of plants and/or workers to justify presentation of an average.

TABLE 4.—*Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Occupations in Eastern, Central, and Midwestern Regions, by Sex, 1943*—Con.

Occupation	Eastern region		Central region		Midwestern region	
	Men	Women	Men	Women	Men	Women
Metal fitters, A	$1.127	(1)	$1.165	----	$1.120	(1)
Metal fitters, B	1.026	$0.956	1.039	(1)	.942	(1)
Metal fitters, C	.804	.804	.829	$0.823	.831	$0.862
Milling-machine operators, A	1.160	(1)	1.202	----	1.222	(1)
Milling-machine operators, B	1.050	(1)	1.069	1.000	1.025	(1)
Milling-machine operators, C	.913	.855	.891	.893	.889	.847
Oilers, maintenance, A	.837	(1)	.980	.982	.806	(1)
Painters, aircraft, A	1.099	1.012	1.104	----	1.054	(1)
Painters, aircraft, B	1.024	1.004	.944	(1)	.954	.868
Painters, aircraft, C	.912	.843	.820	.835	.856	.836
Painters, maintenance, A	1.019	----	1.085	----	1.045	----
Painters, maintenance, B	1.097	----	1.233	----	.924	(1)
Painters, maintenance, C	.918	----	(1)	----	.829	----
Plant protection	.853	.801	.930	.913	.858	.821
Plumbers, maintenance, A	1.159	----	1.246	----	1.150	----
Plumbers, maintenance, B	1.027	----	1.116	----	.957	(1)
Plumbers, maintenance, C	(1)	----	(1)	(1)	.859	----
Power-shear operators, A	1.059	(1)	1.045	(1)	(1)	----
Power-shear operators, B	.926	(1)	1.016	.878	.888	.827
Power-shear operators, C	.922	(1)	.857	.842	.807	.799
Punch-press operators, A	1.053	(1)	1.136	----	1.007	(1)
Punch-press operators, B	.914	.984	1.060	.913	.877	.856
Punch-press operators, C	(1)	(1)	1.066	.963	.831	.792
Riveters, A	1.075	1.120	1.028	.907	.954	.823
Riveters, B	1.070	1.049	1.032	.887	.911	.815
Riveters, C	.910	.895	.852	.827	.837	.831
Saw operators, A	1.034	1.026	1.039	.880	.942	(1)
Saw operators, B	.876	.869	1.071	.858	.825	.797
Sheet-metal workers, bench, A	1.139	(1)	1.097	(1)	1.149	(1)
Sheet-metal workers, bench, B	.978	.921	1.016	.840	.994	.960
Sheet-metal workers, bench, C	.829	.835	.948	.884	.869	.836
Spot welders, A	1.072	(1)	1.108	(1)	1.046	(1)
Spot welders, B	.878	.957	.980	.936	.901	.869
Spot welders, C	(1)	(1)	1.022	.935	.843	.799
Template makers, A	1.290	----	1.187	----	1.108	----
Template makers, B	1.130	----	.994	----	1.009	(1)
Template makers, C	.900	(1)	.913	----	.895	.832
Tool and die makers, A	1.442	----	1.387	----	1.332	----
Tool and die makers, B	1.235	----	1.181	----	1.150	----
Tool and die makers, C	1.049	----	1.057	----	.958	----
Tool-crib attendants, A	.971	(1)	1.044	.974	.948	.891
Tool-crib attendants, B	.902	.813	.877	.863	.828	.830
Tool-crib attendants, C	.822	.771	.960	1.000	.844	.778
Truck-crane operators, A	(1)	----	.973	(1)	(1)	(1)
Truck-crane operators, B	(1)	----	.851	----	(1)	----
Truck drivers, A	.952	----	.991	(1)	.940	(1)
Truck drivers, B	.948	(1)	.828	(1)	.846	.807
Truckers, power, A	.939	(1)	1.026	(1)	.840	(1)
Truckers, power, B	(1)	----	.842	----	.787	.756
Tube benders, bench, A	1.036	(1)	1.018	.983	.990	(1)
Tube benders, bench, B	.836	(1)	.943	.865	.882	.831
Tube benders, bench, C	----	----	.875	.890	.846	.822
Welders, aluminum, A	1.146	(1)	1.188	(1)	1.365	(1)
Welders, aluminum, B	(1)	(1)	1.102	1.019	(1)	(1)
Welders, aluminum, C	(1)	(1)	(1)	(1)	.931	.866
Welders, gas, A	1.208	(1)	1.158	(1)	1.272	(1)
Welders, gas, B	1.062	1.037	.949	(1)	1.158	1.000
Welders, gas, C	.948	.881	.912	.884	.903	(1)
Welders, jig and fixtures, A	1.206	(1)	1.237	(1)	1.217	(1)
Welders, jig and fixtures, B	1.121	(1)	1.222	(1)	1.133	(1)
Welders, jig and fixtures, C	1.088	(1)	(1)	(1)	.941	(1)
Working supervisors, maintenance	1.119	(1)	1.179	----	(1)	(1)
Working supervisors, production	1.227	1.080	1.149	(1)	1.150	(1)

[1] Insufficient number of plants and/or workers to justify presentation of an average.

Earnings in Plants of Aircraft and Other-Than-Aircraft Origin

The tremendous expansion in the airframe industry in recent years was accomplished in part by enlarging and streamlining the facilities of firms already in the field and in part by converting to the manufacture of airframes some of the facilities of other mass-production industries. As a result, there are within the industry two general types of airframe plants—those of "aircraft" origin (i. e., which were already in the industry or which were developed solely for the purpose of airframe assembly) and those of "other than aircraft" origin (which were converted to airframe manufacture or which are operated by companies normally engaged in other types of production). Predominant in the latter group are factories operated by automobile manufacturers; other industries are also represented.

A limited comparison of wage levels in these two general types of airframe plants can be made for the Central region. This comparison is limited to 29 broad occupations. Because of the difficulty encountered in classifying jobs in certain plants operated by the automobile industry, and also because of the small number of plants available for such a comparison, figures are presented only for the broad occupations and not for classes of workers within these jobs.

TABLE 5.—*Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Occupations in Central Region, by Plant Origin, 1943*

Occupation	Total, all airframe plants	Plant origin		Occupation	Total, all airframe plants	Plant origin	
		Aircraft	Other than aircraft			Aircraft	Other than aircraft
Assemblers, electrical and radio	$0.883	$0.848	$1.039	Jig builders	$1.162	$1.098	$1.274
Assemblers, general	.968	.915	1.061	Laborers	.843	.834	.921
Carpenters, maintenance	1.171	1.146	1.218	Lathe operators, engine	1.050	1.045	1.073
Clerks, stock and stores	.886	.840	.964	Lathe operators, turret	1.020	.868	1.131
Craters	1.017	1.000	1.084	Machinists, bench	.970	.951	1.053
Drill-press operators	.936	.918	1.021	Milling-machine operators	1.007	.977	1.185
Electricians, maintenance	1.175	1.128	1.248	Painters, aircraft	.978	.930	1.077
Filers and burrers	.921	.846	.995	Power-shear operators	.977	.950	1.044
Grinder operators	1.070	1.043	1.181	Punch-press operators	1.055	.968	1.133
Inspectors, general assembly	.983	.933	1.163	Riveters	.913	.874	.957
Inspectors, machined parts	1.004	.938	1.187	Sheet-metal workers	.960	.926	1.040
Installers, electrical	1.014	.982	1.085	Template makers	1.055	1.002	1.190
Installers, general	.985	.956	1.057	Tool and die makers	1.271	1.221	1.414
Janitors	.821	.794	.874	Truckers, power	1.009	.888	1.094
				Tube benders, bench	.912	.870	.986

In all 29 occupations, workers in plants of other than aircraft origin averaged more per hour than did similar workers in plants of aircraft origin. The difference varied from 2.8 cents for engine-lathe operators to 26.3 cents an hour for turret-lathe operators (table 5). In 22 of the occupations, the difference was 10 cents or more and in 5 it was 20 cents or more. The average difference in favor of plants of other than aircraft origin amounted to 13.1 cents.[3] The greatest differences between the two groups of plants were in the earnings of

[3] This figure represents the difference between the weighted averages for each group of plants for the 29 selected occupations only. The averages in each case were arrived at by using as a weight for each occupation the total number of workers in that occupation in the region, rather than the actual number in each group of plants. Thus, variations in occupational structure between the two groups of plants were not reflected in the comparison.

workers in the intermediate and lower classes within occupations. Differences in the earnings of workers in the upper classes were quite limited. The higher earnings in plants of other than aircraft origin are due largely to the level of earnings in plants either converted from automobile production or operated by former automobile manufacturers. These plants pay automotive wages, which are, on the whole, considerably higher than those paid in plants of aircraft origin.

Trend of Factory Workers' Hours and Earnings

Wage rates in this industry have risen rapidly since the outbreak of the war. Hourly earnings for aircraft and parts plants averaged only 78 cents in January 1941, while the somewhat more restricted airframe industry paid an average of $1.12 in December 1943 (table 6). These figures indicate an increase of almost 45 percent. Little of this rise was due to increased overtime payments, since average weekly hours of work rose but slightly. On the other hand, shift differentials have exercised an influence of increasing importance. Drastic changes in occupational structure have also occurred.

Dependable information regarding changes in average wage rates is not available for this entire period. On the basis of available information, it appears that wage changes resulting from general wage increases accounted for less than half of the over-all increase. Since these do not take into account merit increases and other adjustments affecting individual workers or small groups, it must be considered as a minimum estimate of the wartime increase in wage rates in the airframe industry.

TABLE 6.—*Weekly Hours and Hourly Earnings in Manufacture of Aircraft and Parts, 1941 and 1942, and Airframes, 1943*

Industry and date	Weekly hours	Hourly earnings	
		Unadjusted [1]	Adjusted [2]
Aircraft and parts			
1941:			
January	44.7	$0.78	$0.73
February	45.5	.78	.73
March	45.2	.78	.73
April	45.1	.79	.73
May	45.4	.79	.74
June	45.0	.80	.74
July	44.8	.81	.76
August	45.6	.85	.79
September	45.5	.85	.79
October	45.2	.87	.81
November	44.4	.90	.85
December	46.3	.92	.85
1942:			
January	48.7	.96	.88
February	47.7	.95	.87
March	47.6	.96	.88
April	47.3	.97	.89
May	47.7	.98	.90
June	47.2	.99	.91
July	46.6	.99	.92
Aircraft and parts—Con.			
1942—Continued.			
August	46.7	$0.99	$0.92
September	46.3	1.01	.94
October	46.3	.99	.92
November	46.6	1.00	.92
December	46.9	1.00	.92
Airframes			
1943:			
January	46.5	.99	.91
February	46.0	1.00	.93
March	46.1	.99	.92
April	47.1	1.04	.96
May	46.6	1.05	.97
June	46.4	1.06	.98
July	45.4	1.06	.99
August	45.6	1.07	.99
September	46.4	1.11	1.03
October	46.6	1.10	1.02
November	46.6	1.11	1.03
December	45.6	1.12	1.04

[1] Gross earnings including both premium-overtime and shift-differential earnings.
[2] Net earnings-excluding premium-overtime earnings but including shift-differential earnings.

Changes in Occupational Rates, 1942–43

Information regarding changes in hourly wage rates is available for a period of approximately 1½ years. Table 7 presents occupational wage rates reported in an earlier study by the Bureau of Labor Statistics and applying to the spring and fall of 1942. These are compared with data for the same occupations and classes as of December 1943. Comparable figures are available for 72 classifications within 30 occupations. The comparison in both years is confined to establishments engaged in the manufacture of metal airframes.

TABLE 7.—*Comparison of Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Occupations in the United States, 1942 and 1943*

Occupation	Average hourly earnings		Percent of increase	Occupation	Average hourly earnings		Percent of increase
	1942	1943			1942	1943	
Assemblers, general, A	$1.026	$1.122	9.4	Lathe operators, turret, A	$1.153	$1.191	3.3
Assemblers, general, B	.909	.955	5.1	Lathe operators, turret, B	.975	1.025	5.1
Assemblers, general, C	.802	.870	8.5	Lathe operators, turret, C	.827	.904	9.3
Assemblers, precision, bench, A	1.047	1.137	8.6	Machinists, bench, B	.889	.990	11.4
Assemblers, precision, bench, B	.903	.995	10.2	Machinists, bench, C	.780	.849	8.8
Assemblers, precision, bench, C	.783	.870	11.1	Mechanics, field and service, A	1.107	1.289	16.4
Carpenters, maintenance, A	1.068	1.151	7.8	Mechanics, field and service, B	.950	1.115	17.4
Carpenters, maintenance, B	.904	1.027	13.6	Mechanics, field and service, C	.825	.963	16.7
Drill-press operators, A	.915	1.000	9.3	Mechanics, maintenance, A	1.080	1.217	12.7
Drill-press operators, B	.821	.910	10.8	Mechanics, maintenance, B	.953	1.068	12.1
Drill-press operators, C	.769	.829	7.8	Mechanics, maintenance, C	.846	.939	11.0
Electricians, maintenance, A	1.140	1.263	10.8	Milling-machine operators, A	1.156	1.185	2.5
Electricians, maintenance, B	.948	1.100	16.0	Milling-machine operators, B	.967	1.045	8.1
Grinder operators, A	1.169	1.210	3.5	Milling-machine operators, C	.828	.890	7.5
Grinder operators, B	.951	1.042	9.6	Painters, aircraft, A	.957	1.085	13.4
Grinder operators, C	.819	.896	9.4	Painters, aircraft, B	.849	.970	14.3
Helpers, general, A	.747	.754	.9	Painters, aircraft, C	.805	.851	5.7
Inspectors, detail, A	1.034	1.128	9.1	Riveters, A	.888	1.044	17.6
Inspectors, detail, B	.874	1.000	14.4	Riveters, B	.809	.954	17.9
Inspectors, final assembly, A	1.135	1.217	7.2	Saw operators, A	.857	.990	15.5
Inspectors, final assembly, B	.987	1.094	10.8	Saw operators, B	.804	.907	12.8
Inspectors, general assembly, A	1.040	1.147	10.3	Sheet-metal workers, bench, B	.905	.970	7.2
Inspectors, general assembly, B	.909	.993	9.2	Sheet-metal workers, bench, C	.806	.873	8.3
Inspectors, general assembly, C	.834	.873	4.7	Tool and die makers, A	1.312	1.397	6.5
Installers, electrical, A	1.014	1.092	7.7	Tool and die makers, B	1.067	1.190	11.5
Installers, electrical, B	.882	.957	8.5	Tool and die makers, C	.887	1.028	15.9
Installers, general, A	.938	1.060	13.0	Tool-crib attendants, A	.863	.976	13.1
Installers, general, B	.844	1.006	19.2	Tool-crib attendants, B	.789	.856	8.5
Installers, general, C	.791	.867	9.6	Tube benders, bench, A	.924	.984	6.5
Janitors, A	.744	.776	4.3	Tube benders, bench, B	.818	.870	6.4
Jig builders, A	1.199	1.342	11.9	Welders, aluminum and gas, A	1.148	1.233	7.4
Jig builders, B	.982	1.158	17.9	Welders, aluminum and gas, B	.992	1.073	8.2
Jig builders, C	.838	.978	16.7	Welders, aluminum and gas, C	.825	.898	8.8
Laborers, A	.750	.772	2.9	Welders, jig and fixtures, A	1.216	1.255	3.2
Lathe operators, engine, A	1.154	1.190	3.1	Welders, jig and fixtures, B	1.003	1.135	13.2
Lathe operators, engine, B	.952	1.009	6.0				
Lathe operators, engine, C	.821	.907	10.5				

It is apparent from this table that wage rates were materially higher in 1943 than in 1942. The increases ranged from 0.9 percent for general helpers to 19.2 percent for general installers, class B. In 32 instances the increases exceeded 10 percent, in 31 instances they varied from 5 to 10 percent, and in 9 cases they amounted to less than 5 percent. However, these gains were not Nation-wide in all

occupations, decreases in certain occupational averages occurring within specific regions. These decreases, as well as the variations in the amount of increase in earnings among the remaining occupations, are due largely to changes in the distribution of workers within the rate ranges in given occupations. An increased concentration of workers at the lower limits of the rate range as a result of labor turnover would obviously result in a lower average without a decrease in the wage rate of any individual worker.

EARNINGS OF OFFICE WORKERS

Wage data were collected during the course of the survey of the metal-airframe manufacturing industry for 29,222 office workers in 9 occupations. Data for these occupations, all of which are below the executive and administrative levels, are presented in table 8. All but 8 percent of the employees are women and, as a result, it is not feasible to show separate figures by sex. Although some plants recognize A, B, and C grades in these occupations, many more do not recognize these divisions; hence, the averages shown for each occupation are for all employees combined.

Average earnings of office workers varied from 65.8 cents for office boys and girls to 87.5 cents an hour for bookkeepers. Most of the workers were concentrated in 3 of the 9 occupations, namely, general clerks, stenographers, and typists. Earnings were somewhat higher in the Western region than in the other regions. The greatest variation in earnings among occupations was found in the Eastern region where earnings varied from 58.6 cents an hour for office boys and girls to 93.9 cents an hour for bookkeepers. The least variation in earnings was found in the Central region, where there was a spread of only 21.8 cents between the lowest average (57.4 cents for office boys and girls) and the highest average (79.2 cents an hour for bookkeepers).

TABLE 8.—*Straight-Time Average Hourly Earnings of Metal-Airframe Workers in Selected Office Occupations, by Region, 1943*

Occupation	United States	Eastern region	Central region	Midwest region	Western region
Accounting clerks	$0.852	$0.838	$0.738	$0.856	$0.905
Bookkeepers	.875	.939	.792	.906	.906
Calculating-machine operators	.780	.731	.763	.753	.836
File clerks	.733	.684	.727	.724	.777
General clerks	.748	.759	.712	.795	.776
Office boys and girls	.658	.586	.574	.692	.777
Stenographers	.838	.781	.742	.788	.929
Switchboard operators	.796	.701	.719	.789	.861
Typists	.728	.691	.709	.746	.773

Appendix A.—Wage Stabilization in the Airframe Industry

DEVELOPMENTS SINCE 1938

Prior to 1938, the wage structure in the airframe industry was completely unstandardized. Such wage data as are available for that period indicate wide variations in the wages paid in the various plants in the industry.[1]

The first attempt at wage stabilization in the industry was directed toward the establishment of minimum rates. In December 1938, the Secretary of Labor established a 50-cent minimum rate for the aircraft industry under the authority of the Public Contracts Act. This rate remained in effect until after the beginning of the National Defense Program. Then, in 1940, as a result of wage negotiations between employers and employees, minima above the 50-cent rate were established. Finally, late in 1941, under the leadership of the Labor Division of the Office of Production Management, a beginners' scale of 60 cents per hour, with provisions for automatic advancement to 75 cents per hour, was put into effect in all but one of the Southern California airframe plants—and this plant adopted the same scale in January 1942.

This standardization of minimum-wage rates in the California plants did not prevent the continuance of marked differences in the wages of experienced workers in various classified occupations. It was to be expected that these plants, having taken the first steps toward stabilization, should look toward the possibility of further adjustment, particularly since maladjustments in the wage scales raised problems of labor turnover and worker morale.

In July 1942, a wage-stabilization conference was held under the sponsorship of the Labor Production Division of the War Production Board. No conclusion was reached at this conference, owing in part to the belief that the Government would not approve any general wage increase as part of an agreed plan of wage stabilization. In September 1942, the National War Labor Board took jurisdiction over all of the West Coast airframe cases.[2] Hearings were held in Los Angeles in October and recommendations were submitted to the Board in January 1943.[3] After a hearing, the Board issued its wage order on March 3, 1943, which aimed at stabilized wages in the airframe industry in Southern California.

Approval of the Southern California plan by the Board encouraged the submission of new wage proposals by individual plants in other sections of the country. Many unions and firms had been waiting for the Board's California decision before requesting approval of similar plans for their own plants. During the early summer, the National War

[1] United States Department of Labor, Exhibit I, Proceedings before the Public Contracts Board. Data collected by the Aeronautical Chamber of Commerce of America.

[2] Cases Nos. 174, 307, 557, 558, 608, 609, 610, and 673.

[3] In the matter of West Coast Airframe Companies: Report and recommendations of Paul R. Porter, chairman of wage hearings held in Los Angeles, October 12–17, 1942.

Labor Board approved in quick succession the establishment of job-evaluation labor-grade systems in a number of airframe plants in the Midwest and the South. The basic approach was generally in accord with that used in the case of the Southern California plants. As a result, by mid-1943 well over four-fifths of the employees in the airframe industry were in plants operating under job-evaluation labor-grade plans.

In a case involving the Boeing Aircraft Co. of Seattle, Wash., the Board in September 1943 altered somewhat the decision made in connection with the Southern California plan. First of all, the Boeing decision eliminated the learner brackets found in the Southern California plan; and, second, it set up a single rate for each of the 10 labor grades instead of a range of rates. Wage rates were also established at a somewhat higher level than in Southern California plants, in order to enable that company to secure and hold the necessary workers.

The War Labor Board also approved the proposal of the Grumman Aircraft Corporation in September 1943 for a company-wide incentive plan, designed to bring about a rapid increase in plane output. The incentive plan adopted at that time provided for a percentage increase according to production in excess of 0.48 pounds of airframe per man-hour actually worked. A 2-percent increase in production resulted in a 1-percent increase in earnings of all those employees subject to the plan. In addition, 5 cents per hour was added to the base pay of each employee entitled to participate in the plan.

In other decisions, the National War Labor Board directed the installation of labor-grade systems for office and technical workers, completing the stabilization program for the entire plant and office.

An airframe panel was established by the Board in September 1943 to handle all wage cases arising in the industry. On January 1, 1944, the jurisdiction of this panel was limited to a specified list of companies. At the time of this writing, the panel had not been in operation a sufficient length of time to indicate the trend of its decisions. However, it appears that much of the work remaining to be done by the Board lies in adjustments within the scope of the wage pattern, which now includes a large part of the industry.

JOB EVALUATION

Virtually all airframe manufacturing plants have job-evaluation plans. These plans attempt to rationalize wage differentials among jobs by means of a systematic study of job requirements. Depending on its requirements of skill and effort and certain other qualities, each job is classified in an appropriate "labor grade" carrying a predetermined wage or wage range. Somewhat more than four-fifths of the workers in this industry are in plants which have labor-grade systems along the lines either of the Southern California Airframe Industry (SCAI) plan or of the National Electrical Manufacturers Association (NEMA) plan. Converted automobile plants retain the plan developed in the automobile industry, while most of the remaining plants operate under various other plans. Less than 1 percent of the workers are found in plants which have no factory-wide plan whatever.

The Southern California Airframe Industry (SCAI) plan, under which fully one-half of the workers in the industry are now working, provides for a list of 116 titles for factory occupations.[4] Counting the A, B, and C classes which are provided for in most of these occupations, there are 291 job classifications in all. This represents a consolidation and redefinition of over 1,150 occupational titles which were in use as late as the year 1941.

Job evaluation under the SCAI plan involves a quantitative appraisal of the importance of each of seven factors related to every job: Skill, mentality, equipment and material responsibility, mental application, physical application, job conditions, and unavoidable hazards. The requirements of each job are expressed in terms of a scale of points which varies according to the relative importance of each factor and the degree to which that factor is judged to be involved. The factor of skill carries the greatest weight, with point values based upon the length of training and experience normally required to qualify the worker for the occupation. Other factors are evaluated in terms of 5 degrees, with a weight ranging from 20 to 100 points for "mentality" and from 5 to 45 points for "unavoidable hazards." As an illustration, the factor of mentality in the occupation of laborer requires that he "must be able to follow simple written or verbal instructions only"—this comes within the first degree and earns 20 points out of a possible 100 toward the total rating score. Toward the other end of the scale is the tool and die maker, who must develop and make a tool solely from a drawing, and have the ability to use shop mathematics, including trigonometry, and to interpret complicated blue prints. This ability earns a tool and die maker a total of 100 points to apply toward the total job rating. In the occupation of laborer, less than 3 months' experience is normally required, which is good for only 15 points; while 6 years' experience is given as the normal requirement for a tool and die maker, with a point value of 345. The highest total point value actually given on any job is 655 for service and flight inspectors, and the lowest, 125 points, for janitors. Eight of the ten labor grades have a spread of 50 evaluation points; for example, from 200 to 250 for labor grade IX and from 550 to 600 for labor grade II. Labor grade X has a spread of 75 points—from 125 to 200; and labor grade I includes occupations evaluated at 600 points or more.

The 291 factory occupational classifications established under the SCAI plan are classified under 10 labor grades, the evaluation points of each classification determining the grade into which it falls. The specific rates and evaluation points for each labor grade as established by the National War Labor Board for shop occupations in the Southern California Airframe Industry are found in table 9.

Labor grade X, which includes the least-skilled occupations, is divided into two parts. A flat rate of 75 cents an hour is set for certain of the lowest-rated jobs, such as that of janitor, while a wage range of 75 to 80 cents is set for other jobs coming within this labor grade, such as that of class B anodizer and class C electrical assembler. Labor grades X–B and X–C thus consist of jobs in which the individual worker is subject to upgrading as his experience on the job becomes greater. Labor grades V, VI, VII, VIII and IX have a

[4] A separate SCAI evaluation plan has been established for supervisory, technical, and office occupations, providing for 14 labor grades with wage rates ranging from $0.75 to $1.75 per hour. It follows the factory plan in principle of operation.

10-cent range in rates; labor grades II, III, and IV, a 15-cent range in rates; and labor grade I a 20-cent range in rates. These ranges overlap, except in the case of labor grade X.

TABLE 9.—*Evaluation Points and Hourly Wage Rates by Labor Grades, Southern California Airframe Industry, as Established by National War Labor Board, March 3, 1943*

Labor grades	Evaluation points	Hourly wage rates		
		Minimum	Maximum	Specialist
Grade X-A	125–200	$0.75	$0.75	
Grade X-B and C	125–200	.75	.80	
Grade IX	200–250	.80	.90	
Grade VIII	250–300	.85	.95	
Grade VII	300–350	.90	1.00	
Grade VI	350–400	.95	1.05	
Grade V	400–450	1.00	1.10	
Grade IV	450–500	1.05	1.20	$1.30
Grade III	500–550	1.10	1.25	1.35
Grade II	550–600	1.20	1.35	1.45
Grade I	600 and over	1.25	1.45	1.60

Specialist rates are provided for not more than 10 percent of the workers in labor grades I to IV, to provide rates somewhat above the ordinary level for especially skilled workers; and, for class A and B welders, to permit the continued payment of rates, established by certain collective agreements, at a level higher than would have been provided under an automatic application of evaluation points.

The National Electrical Manufacturers Association (NEMA) plan was formulated earlier than the SCAI plan. It has been adopted by the National Metal Trades Association, and has had wide acceptance among eastern plants. In terms of numbers of employees affected, it is second in importance to the SCAI plan, accounting for a third of the factory workers in the industry. The basic concepts of job evaluation and the payment of wage rates according to labor grades under the NEMA plan are practically identical with those of the SCAI plan. Under the NEMA plan, evaluation is made for each occupation in terms of 11 factors under 4 broad categories, namely, skill, effort, responsibility, and job conditions. Only 7 factors, it will be remembered, were considered under the SCAI plan. The principal differences between the 2 plans in the items on which the job is rated consist of the substitution of education, experience, initiative, and ingenuity under the NEMA plan for 2 groups, skill and mentality, under the SCAI plan. Responsibility for the safety of others and for the work of others, which are not rated under the SCAI plan, are included by the NEMA plan. Point values range from 162 to 381 in the 10 grades for male employees. A distinctive feature of this plan, as it is used in some plants, is the establishment of 5 separate labor grades for women. Two of these grades lie below the tenth labor grade for men, with evaluation points under 140 for the lowest, and from 140 to 161 for the next lowest. The remaining 3 grades correspond to labor grades X, IX, and VIII for men.

The plan found in plants operated by automobile manufacturers does not provide for classes within occupations and for that reason is not convertible to the SCAI or the NEMA plans. Less than 10 percent of the workers in plants manufacturing completed airframes are employed in such plants.

VARIATIONS IN EARNINGS, BY LABOR GRADE

As has been indicated, job-evaluation labor-grade wage systems have become common in all sections of the country. An analysis of wage rates by labor grades for those plants in which such systems are found is consequently of considerable interest.

Earnings data for each of the 10 labor grades are presented in tables 10 and 11 for the country as a whole, and for each of 4 regions. In these tables, data representing the SCAI and NEMA plans and certain of the minor plans have been combined. Plants of automotive origin, however, and plants not operating under labor-grade systems, have been excluded from these tabulations. As previously indicated, job requirements and wage levels range downward from grade I, the highest under the plan, to grade X, the lowest classified grade. No figures are shown for learners, stock and store clerical employees, plant protection workers, and working supervisors, as these occupations do not come within the 10 labor grades.

TABLE 10.—*Percent of Employment and Straight-Time Average Hourly Earnings in Metal-Airframe Plants, by Labor Grade and Region, 1943* [1]

Labor grades	United States [2]		Eastern		Central		Midwest		Southern California	
	Percent of employment	Average hourly earnings	Percent of employment	Average hourly earnings	Percent of employment	Average hourly earnings	Percent of employment	Average hourly earnings	Percent of employment	Average hourly earnings
All grades	100.0	$0.948	100.0	$0.945	100.0	$0.932	100.0	$0.910	100.0	$0.959
Grade I	1.5	1.352	1.1	1.335	1.6	1.342	1.1	1.312	1.9	1.355
Grade II	1.5	1.256	.8	1.205	.9	1.217	2.0	1.181	2.1	1.296
Grade III	3.8	1.183	3.2	1.161	3.3	1.168	3.6	1.140	4.3	1.181
Grade IV	10.8	1.137	13.3	1.139	5.1	1.121	8.9	1.064	13.8	1.134
Grade V	3.7	1.087	2.8	1.128	2.9	1.054	4.1	1.035	4.2	1.076
Grade VI	7.2	1.025	7.3	1.032	7.4	1.004	6.6	.978	7.1	1.023
Grade VII	19.6	.968	28.3	.973	16.8	.991	21.4	.934	18.0	.961
Grade VIII	10.9	.889	7.6	.883	18.3	.875	6.8	.872	9.6	.891
Grade IX	25.6	.856	16.7	.854	26.8	.875	28.1	.837	28.5	.850
Grade X	15.4	.785	18.9	.742	16.9	.812	17.4	.777	10.5	.767

[1] Excludes establishments of automotive origin and establishments not operating under job-evaluation plans.

[2] Data for Boeing Aircraft Co. of Seattle included in United States totals but omitted from regional figures to avoid disclosure of individual operations.

TABLE 11.—*Straight-Time Average Hourly Earnings of Workers in Metal-Airframe Plants, by Labor Grade, Occupation, and Region, 1943* [1]

Labor grade and occupation	Percent of employment	Average hourly earnings				
		United States [2]	Eastern	Central	Midwest	Southern California
All labor grades	100.0	$0.948	$0.945	$0.932	$0.910	$0.959
Grade I:						
Inspectors, service and flight, A	.2	1.333	1.315	1.300	1.300	1.345
Jig builders, A	.6	1.338	1.314	1.312	1.292	1.344
Mechanics, experimental, A	.2	1.306	1.163	1.305	(3)	1.322
Tool and die makers, A	.6	1.385	1.375	1.371	1.332	1.403
Grade II:						
Electricians, maintenance, A	.5	1.250	1.241	1.230	1.207	1.278
Mechanics, field and service, A	.5	1.294	1.205	1.248	1.204	1.318
Mechanics, maintenance, A	.5	1.217	1.143	1.188	1.150	1.275

See footnotes at end of table.

TABLE 11.—*Straight-Time Average Hourly Earnings of Workers in Metal-Airframe Plants, by Labor Grade, Occupation, and Region, 1943*—Continued

Labor grade and occupation	Percent of employment	Average hourly earnings				
		United States [2]	Eastern	Central	Midwest	Southern California
Grade III:						
Grinder operators, A	0.2	$1.205	$1.158	$1.202	$1.214	$1.176
Inspectors, final assembly, A	.5	1.221	1.147	1.157	1.195	1.255
Inspectors, machined parts, A	.2	1.238	1.297	1.281	1.181	1.189
Inspectors, service and flight, B	.1	1.164	1.073	[3]	1.111	1.194
Jig builders, B	.9	1.150	1.155	1.150	1.071	1.156
Lathe operators, engine, A	.3	1.194	1.175	1.170	1.235	1.186
Lathe operators, turret, A	.3	1.201	1.165	1.188	1.214	1.192
Mechanics, experimental, B	.4	1.146	[3]	1.125	[3]	1.159
Milling-machine operators, A	.4	1.203	1.155	1.197	1.221	1.179
Template makers, A	.2	1.198	1.225	1.172	1.108	1.176
Tool and die makers, B	.3	1.185	1.144	1.158	1.150	1.178
Grade IV:						
Assemblers, general, A	4.9	1.137	1.143	1.147	1.041	1.126
Assemblers, precision, bench, A	.4	1.142	1.169	1.085	1.054	1.132
Carpenters, maintenance, A	.4	1.139	1.056	1.182	1.101	1.142
Electricians, maintenance, B	.3	1.084	1.109	1.029	1.042	1.121
Inspectors, detail, A	.2	1.117	1.106	1.102	1.112	1.109
Inspectors, general assembly, A	.6	1.142	1.166	1.138	1.111	1.122
Installers, hydraulics, A	.5	1.145	[3]	1.088	1.026	1.128
Installers, power plant, A	.3	1.114	1.117	1.065	1.046	1.125
Machinists, bench, A	.3	1.166	1.212	1.171	1.136	1.129
Mechanics, field and service, B	.9	1.111	1.081	1.066	1.041	1.125
Mechanics, maintenance, B	.5	1.074	1.109	1.069	.973	1.107
Metal fitters, A	.3	1.138	1.105	1.165	1.118	1.135
Plumbers, maintenance, A	.1	1.162	1.158	1.119	1.150	1.167
Sheet-metal workers, bench, A	.6	1.115	1.121	1.091	1.149	1.120
Welders, gas, A	.3	1.243	1.179	1.149	1.272	1.300
Welders, jig and fixtures, A	.3	1.251	1.170	1.139	1.216	1.296
Grade V:						
Installers, controls, A	.3	1.093	1.061	1.136	1.017	1.075
Installers, electrical, A	.6	1.118	1.159	1.177	1.034	1.069
Installers, general, A	2.1	1.074	1.151	1.014	1.029	1.069
Painters, aircraft, A	.5	1.078	1.060	1.061	1.054	1.080
Painters, maintenance, A	.2	1.061	1.008	1.077	1.045	1.079
Welders, aluminum, A	.1	1.206	1.129	1.175	[3]	1.236
Grade VI:						
Craters, A	.2	1.033	1.021	1.088	.986	1.009
Drill-press operators, A	.4	1.041	1.006	1.041	.961	1.009
Grinder operators, B	.3	1.055	.873	1.044	1.013	1.009
Inspectors, final assembly, B	.6	1.075	1.091	1.036	1.039	1.114
Inspectors, machined parts, B	.3	1.017	1.081	.993	1.022	1.018
Inspectors, service and flight, C	[4]	.975	1.002	[3]	.970	[3]
Jig builders, C	1.0	.978	.965	.981	.939	.999
Lathe operators, engine, B	.2	1.020	1.017	.972	1.024	1.019
Lathe operators, turret, B	.3	1.031	1.085	.978	1.031	1.016
Mechanics, experimental, C	.3	.963	[3]	.932	[3]	1.017
Milling-machine operators, B	.6	1.040	1.049	1.026	1.024	1.025
Power-shear operators, A	.2	1.035	1.035	1.035	[3]	1.022
Punch-press operators, A	.3	1.050	1.049	1.091	.997	1.026
Riveters, A	1.6	1.031	1.032	.992	.864	1.021
Spot welders, A	.2	1.055	1.070	1.024	1.033	1.015
Template makers, B	.2	1.021	1.070	.994	.992	1.010
Tool and die makers, C	.2	1.024	1.047	1.022	.958	1.009
Truck drivers, A	.3	1.009	.922	.981	.940	1.010
Grade VII:						
Assemblers, electrical and radio, A	.4	.978	1.033	1.026	1.001	.955
Assemblers, general, B	8.2	.954	.963	.957	.910	.957
Assemblers, precision, bench, B	.7	.994	1.009	1.032	.906	.958
Carpenters, maintenance, B	.2	1.005	1.059	1.010	.947	.964
Electricians, maintenance, C	.1	.934	.993	.928	.900	.944
Inspectors, detail, B	.4	.951	.961	.938	.950	.945
Inspectors, general assembly, B	.9	.965	1.006	.941	.947	.963
Installers, controls, B	.5	1.043	.890	1.088	.902	.957
Installers, electrical, B	.6	.958	.993	.965	.914	.951
Installers, general, B	2.5	.990	.988	1.072	.940	.956
Installers, hydraulics, B	.3	.970	.916	1.049	.905	.964
Installers, power plant, B	.3	.967	.997	1.030	.928	.960
Machinists, bench, B	.3	.987	1.026	1.021	.948	.957
Mechanics, field and service, C	.4	.952	.912	.974	.922	.969
Mechanics, maintenance, C	.3	.937	.916	.927	.917	.955
Metal fitters, B	.4	.985	1.016	1.038	.937	.961
Painters, aircraft, B	.4	.949	.981	.919	.923	.957
Painters, maintenance, B	.1	.987	1.012	.938	.894	.960

See footnotes at end of table.

TABLE 11.—*Straight-Time Average Hourly Earnings of Workers in Metal-Airframe Plants, by Labor Grade, Occupation, and Region, 1943*—Continued

Labor grade and occupation	Percent of employment	Average hourly earnings				
		United States [2]	Eastern	Central	Midwest	Southern California
Grade VII—Continued.						
Plumbers, maintenance, B	0.1	$1.034	$1.035	$1.031	$0.957	$0.988
Saw operators, A	.3	.977	1.004	.923	.947	.968
Sheet-metal workers, bench, B	1.2	.953	.942	.939	.992	.967
Tool-crib attendants, A	.4	.941	.966	.915	.936	.951
Truck crane operators, A	.1	1.003	1.039	.969	.903	1.017
Tube benders, bench, A	.1	.993	1.011	.986	.982	.969
Welders, aluminum, B	.1	1.000	.946	.937	1.076	1.061
Welders, gas, B	.2	1.075	1.032	.910	1.118	1.103
Welders, jig and fixtures, B	.1	1.096	1.060	1.006	1.123	1.089
Grade VIII:						
Cable splicers, A	.1	.977	[3]	.984	[3]	.939
Craters, B	.3	.911	.880	.956	.867	.899
Drill-press operators, B	.9	.896	.888	.926	.845	.888
Grinder operators, C	.3	.894	.836	.907	.877	.888
Inspectors, final assembly, C	.4	.892	.902	.855	.892	.958
Inspectors, machined parts, C	.3	.880	.903	.824	.921	.897
Lathe operators, engine, C	.1	.900	.920	.904	.887	.900
Lathe operators, turret, C	.3	.898	.876	.916	.892	.893
Milling-machine operators, C	.7	.884	.881	.871	.880	.896
Oilers, maintenance, A	.2	.886	.814	.935	.805	.911
Power-shear operators, B	.3	.895	.882	.905	.877	.894
Punch-press operators, B	.4	.905	.897	.910	.872	.889
Riveters, B	6.1	.884	.879	.867	.866	.886
Spot welders, B	.2	.894	.885	.945	.889	.885
Template makers, C	.3	.887	.886	[3]	.871	.885
Truck drivers, B	.2	.892	.940	.817	.843	.907
Grade IX:						
Assemblers, electrical and radio, B	1.0	.887	.845	.902	.842	.864
Assemblers, general, C	11.9	.851	.855	.877	.827	.846
Assemblers, precision, bench, C	.6	.871	.902	.894	.821	.863
Cable splicers, B	.1	.877	[3]	.905	.858	.860
Carpenters, maintenance, C	.1	.876	[3]	[3]	.866	.872
Inspectors, detail, C	.7	.856	.846	.864	.853	.850
Inspectors, general assembly, C	.9	.850	.860	.829	.876	.860
Installers, controls, C	.1	.846	[3]	.902	.819	.852
Installers, electrical, C	.6	.851	[3]	.868	.818	.857
Installers, general, C	3.5	.859	.867	.885	.839	.848
Installers, hydraulics, C	.2	.847	[3]	.888	.817	.850
Installers, power plant, C	.3	.862	[3]	.891	.850	.856
Machinists, bench, C	.8	.848	.942	.849	.847	.845
Metal fitters, C	.6	.838	.799	.827	.838	.845
Painters, aircraft, C	.5	.850	.863	.826	.848	.855
Painters, maintenance, C	[4]	.885	.850	.905	.829	.827
Plumbers, maintenance, C	[4]	.859	.825	.883	.859	.858
Saw operators, B	.3	.861	.850	.876	.820	.855
Sheet-metal workers, bench, C	1.7	.863	.830	.890	.855	.846
Truck crane operators, B	.1	.928	.898	.851	.820	1.017
Tool-crib attendants, B	.6	.843	.850	.833	.829	.855
Truckers, power, A	.4	.896	.859	.903	.839	.885
Tube benders, bench, B	.2	.870	.823	.885	.852	.865
Welders, aluminum, C	[4]	.889	[3]	[3]	.887	.877
Welders, gas, C	.1	.881	.847	.895	.883	.893
Welders, jig and fixtures, C	[4]	.923	[3]	[3]	.935	.910
Grade X:						
Assemblers, electrical and radio, C	1.0	.805	.753	.803	.827	.783
Cable splicers, C	.1	.831	----------	[3]	.880	.791
Drill-press operators, C	.7	.828	.865	.875	.797	.784
Filers and burrers, A	1.0	.801	.840	.835	.802	.752
Helpers, general, A	4.8	.760	.730	.787	.751	.752
Janitors, A	2.8	.763	.728	.795	.747	.753
Laborers, A	1.1	.767	.717	.833	.747	.764
Power-shear operators, C	.1	.809	[3]	.852	.806	.788
Punch-press operators, C	.2	.822	[3]	.848	.815	.786
Riveters, C	2.5	.821	.817	.834	.834	.786
Spot welders, C	.2	.811	[3]	.849	.812	.782
Tool-crib attendants, C	.3	.819	.790	.793	.804	.774
Truckers, power, B	.2	.820	[3]	[3]	.783	.793
Tube benders, bench, C	.2	.812	----------	.818	.836	.787

[1] Plants of automotive origin and other establishments not operating under job-evaluation plans are not included in these averages.
[2] Data for Boeing Aircraft Co. of Seattle included in United States totals but omitted from regional figures to avoid disclosure of individual operations.
[3] Averages withheld to avoid disclosure of individual operations.
[4] Less than a tenth of 1 percent.

It is important to emphasize that the occupational wage data presented in table 11 by labor grade are not comparable with the occupational data presented in table 3. First of all, the two sets of figures are based on substantially different groups of plants, as only those plants having labor-grade systems or job-evaluation plans readily convertible to labor grades are represented in the labor-grade data shown in table 11; whereas all plants studied, regardless of job evaluation systems used, are represented in the occupational wage-rate data presented in table 3. Learners are not included in table 10 or table 11.

Earnings for all workers in the occupations for which labor-grade figures are presented varied from 91.0 cents in the Midwestern region to 95.9 cents in Southern California. Earnings in the Eastern and Central regions were 94.5 and 93.2 cents, respectively. The omission from the labor-grade tabulation for the Eastern and Central regions of plants operated by automobile manufacturers, which have somewhat higher wage levels than regular airframe plants, accounts very largely for the fact that in these two regions the averages shown by labor grades (table 11) are somewhat lower than the averages shown for the corresponding occupations for all plants combined (table 3). The differences between the two sets of occupational averages for Southern California are small, owing to the fact that virtually all plants covered in this area are represented in the labor-grade tabulation.

The distributions of factory workers by labor grades shown in table 10 indicate a very heavy concentration of workers in the four lowest grades. Thus, 71.5 percent of the workers were found in labor grades VII, VIII, IX, and X. The proportion of workers employed in these four grades varied from 66.6 in Southern California, where stabilization has been in effect the longest, to 78.8 percent in the Central region. More than one-fifth of the workers were found in the intermediate labor grades IV, V, and VI. The proportion of workers in these grades varied from 15.4 percent in the Central region to 25.1 percent in Southern California. Only 6.8 percent of all factory workers were found in the three labor grades with the highest job evaluations. The relative number of such workers varied from 5.1 in the Eastern region to 8.3 percent in Southern California.

An examination of the averages for the country as a whole (table 10) reveals a spread of 56.7 cents between the straight-time hourly earnings of workers in the lowest labor grade (78.5 cents) and those of workers in the highest labor grade ($1.352). The differences in earnings between labor grades vary somewhat, the least difference (3.3 cents) occurring between the earnings of workers in labor grades VIII and IX, and the greatest difference (9.6 cents) between the earnings of workers in labor grades I and II. Similar variations in earnings between labor grades are found in each of the four regions. These variations are due in part to differences in the width of the range in rates provided for in the various labor grades and in part to the distribution of workers within these ranges.

Detailed information is presented in table 11, by labor grade, for 51 specific occupations and 134 job classifications within these occupa-

tions. For 39 of the 51 occupations, figures are shown for three levels of skill—A, B, and C; for 5 occupations, figures are shown for two levels—A and B; while a single figure is shown for 7 occupations. It should be pointed out that the A, B, and C designations used relate to widely different levels of skill; for example, occupations designated "A" are found in most of the labor grades. Within any one labor grade, however, there is comparatively little variation in the level of skill and, for that reason, the SCAI plan provides for a single rate range for the group of occupational classes assigned to each labor grade.

Appendix B.—Hourly Earnings in Light-Airframe Manufacture

Among the 11 light-airframe manufacturers included in the Bureau's survey are found several of the names heard in connection with private flying before the beginning of the war. Many of these firms are manufacturing substantially the same planes as they did before the war, having simply adapted their lower-powered, relatively slow planes to military use. These are the "hedgehopping" observation planes that can land on any field, or drop messages to the artillery or other ground forces.

Plants in this segment of the airframe industry are small by comparison to metal-airframe plants. Total employment in the 11 light-plane plants, 17,220 workers, is substantially smaller than that in any one of several large metal-airframe plants. Three of the 11 plants studied employed less than 1,000 workers and only 2 employed more than 2,000 workers. Eight of the plants are located in the Central and Midwestern regions, 2 in the Eastern region, and 1 in the Western region.

As pointed out earlier, the manufacture of light planes is substantially different from that of heavy all-metal planes. The occupational structure of a typical light-plane plant is on the whole somewhat simpler than that of a metal-plane plant. Among other things, there are proportionately fewer assemblers and installers, and one-half of the former are wood assemblers. Few riveters, but a substantial number of welders, are found in light-plane plants. A number of other occupations which are found in metal-plane plants either do not have their counterpart in light-plane plants or are unimportant. On the other hand, woodworking-machine operations are important in light-plane plants, owing to the amount of lumber used in these planes, but are unimportant in metal-plane plants. Figures are shown in table 12 for 51 specific occupations, and for 117 classifications of workers within these occupations.

In light-plane plants, as in metal-plane plants, the job classifications used are those originally developed by the Southern California Airframe Industry. Six of the 11 plants had either the SCAI plan or a plan readily convertible to the SCAI plan. In the remaining 5 plants, the grouping of workers presented certain problems and was accomplished with only approximate accuracy. The occupational data presented for light planes are comparable to the metal-airframe data in table 3.

Entrance rates of unskilled workers in light-airframe plants varied from 50 to 70 cents per hour, with six plants paying 60 cents, two plants paying 50 cents, two paying 55 cents, and one paying 70 cents. All but two of the plants had provisions for automatic advancement from the entrance rate. Eight plants granted an initial 5-cent increase after 30 days, and six of these gave an additional 5-cent increase every 30 days until the 75-cent rate was reached.

Ten of the eleven plants studied operated a second shift and seven operated a third shift. All but one of the plants operating a second

shift paid a differential, seven paying 5 cents per hour in addition to the base rate, one paying 8 cents, and one paying 5 percent. On the third shift, four plants paid a differential of 5 cents, 2 paid 10 cents, and one paid 10 percent in addition to the base rate.

Provisions for overtime pay are uniform in all plants. These provisions are the same as those found in metal-airframe manufacture, i. e., time and a half after 40 hours per week or 8 hours per day, and on the sixth consecutive day and holidays. Double time is paid on the seventh consecutive day.

Eight of the eleven plants are unionized, five having agreements with unions affiliated with the A. F. of L., two with C. I. O. unions, and one with an independent union. Of the three plants which were nonunion at the time of the survey, two had contracts under negotiation.

OCCUPATIONAL AVERAGE HOURLY EARNINGS

The straight-time average hourly earnings of factory workers in the light-plane industry in the United States were 88.9 cents in December 1943 (table 12). This figure is 6.1 cents below that for workers in metal-airframe plants. Although occupational averages for light airframes tend to be lower on the whole than for metal airframes, there are plants in the light-plane group which compare favorably with many of those in the metal-airframe group.

TABLE 12.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Light-Airframe Plants, 1943*

Occupation	Percent of employment	Average hourly earnings	Plant average	
			Lowest	Highest
All occupations	100.0	$0.889		
Assemblers, electrical and radio, A	.2	1.056	$1.000	$1.097
Assemblers, electrical and radio, B	.9	.875	.809	.886
Assemblers, electrical and radio, C	.8	.762	.600	.792
Assemblers, general, A	1.5	1.064	.988	1.088
Assemblers, general, B	2.8	.906	.780	.979
Assemblers, general, C	3.3	.746	.698	.828
Assemblers, precision, bench, A	.2	1.001	.930	1.142
Assemblers, precision, bench, B	.7	.912	.775	.990
Assemblers, precision, bench, C	.3	.744	.687	.791
Assemblers, wood, major, A	2.3	1.000	.890	1.020
Assemblers, wood, major, B	3.3	.872	.780	.917
Assemblers, wood, major, C	2.0	.739	.657	.833
Assemblers, wood, sub, A	.7	1.088	.908	1.118
Assemblers, wood, sub, B	2.4	.873	.770	.929
Assemblers, wood, sub, C	1.1	.715	.641	.785
Cable splicers, A	.4	.929	.914	.982
Cable splicers, B	.2	.823	.800	.867
Carpenters, maintenance, A	.2	1.023	.850	1.125
Carpenters, maintenance, B	.4	.928	.836	1.031
Carpenters, maintenance, C	.2	.831	.750	.917
Clerks, stock and stores	6.4	.781	.670	1.080
Craters, A	.5	.837	.738	.950
Craters, B	.6	.727	.648	.879
Drill-press operators, A	.2	.974	.910	1.095
Drill-press operators, B	.7	.859	.750	.927
Drill-press operators, C	.6	.752	.663	.884
Electricians, maintenance, A	.1	1.089	1.063	1.133
Electricians, maintenance, B	.5	1.009	.852	1.182
Filers, burrers, and sanders, A	.2	.682	.605	.783
Helpers, general, A	1.3	.751	.746	.850
Inspectors, detail, A	.5	.991	.941	1.100
Inspectors, detail, B	.7	.881	.795	1.051
Inspectors, detail, C	.5	.754	.686	.896

TABLE 12.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Light-Airframe Plants, 1943*—Continued

Occupation	Percent of employment	Average hourly earnings	Plant average	
			Lowest	Highest
Inspectors, final assembly, A	0.4	$1.156	$1.061	$1.400
Inspectors, final assembly, B	.6	1.009	.800	1.181
Inspectors, final assembly, C	.2	.886	.823	1.032
Inspectors, general assembly, A	.5	1.003	.914	1.150
Inspectors, general assembly, B	.6	.869	.735	1.080
Inspectors, machined parts, A	.2	1.105	.850	1.300
Inspectors, machined parts, B	.3	.892	.773	1.167
Inspectors, machined parts, C	.4	.855	.650	1.041
Inspectors, service and flight, A	.4	1.272	1.130	1.416
Inspectors, service and flight, B	.2	1.106	1.067	1.258
Inspectors, service and flight, C	.2	1.063	.913	1.123
Inspectors, wood, A	.4	1.105	.875	1.197
Inspectors, wood, B	.2	1.083	.850	1.140
Installers, controls, A	.2	.957	.938	1.000
Installers, controls, B	.4	.957	.771	1.074
Installers, electrical, A	.2	1.079	.900	1.267
Installers, electrical, B	.3	.926	.800	.968
Installers, electrical, C	.2	.764	.717	.783
Installers, general, A	.5	1.022	.937	1.100
Installers, general, B	3.3	.924	.800	1.033
Installers, general, C	1.8	.774	.720	.908
Installers, power plant, A	.4	1.060	.917	1.175
Installers, power plant, B	.9	.956	.870	.975
Installers, power plant, C	.2	.779	.750	.850
Janitors, A	3.7	.734	.595	.895
Jig builders, metal and wood, A	.3	1.300	1.284	1.377
Jig builders, metal and wood, B	.6	1.068	.935	1.117
Jig builders, metal and wood, C	.5	.897	.743	.954
Laborers, A	1.9	.730	.589	.980
Lathe operators, engine, A	.3	1.141	.989	1.313
Lathe operators, engine, B	.3	1.025	.870	1.140
Lathe operators, engine, C	.1	.844	.767	.867
Lathe operators, turret, A	.4	1.175	1.140	1.217
Lathe operators, turret, B	.2	.975	.810	1.010
Lathe operators, turret, C	.2	.923	.850	1.025
Learners	5.0	.625	.500	.800
Machine operators and mill men, woodworking, A	.5	1.008	.933	1.155
Machine operators and mill men, woodworking, B	.8	.861	.814	.873
Machine operators and mill men, woodworking, C	.7	.766	.762	.771
Machinists, bench, A	.1	1.070	1.050	1.100
Machinists, bench, B	.2	.919	.906	.933
Machinists, bench, C	.4	.805	.773	.894
Mechanics, field and service, A	.2	1.121	1.040	1.150
Mechanics, field and service, B	.5	1.082	.870	1.283
Mechanics, field and service, C	1.0	.964	.750	1.032
Mechanics, maintenance, A	.1	1.095	1.000	1.200
Mechanics, maintenance, B	.2	.893	.804	.955
Metal-fitters, A	.1	.918	.918	.918
Metal-fitters, B	.5	.844	.799	.870
Metal-fitters, C	.4	.743	.700	.783
Milling-machine operators, A	.2	1.126	.979	1.360
Milling-machine operators, B	.3	1.001	.806	1.103
Milling-machine operators, C	.3	.876	.708	.991
Painters and dopers, aircraft, A	.9	1.127	.900	1.185
Painters and dopers, aircraft, B	1.1	.915	.800	1.055
Painters and dopers, aircraft, C	1.1	.768	.680	.850
Painters, maintenance, A	.2	.986	1.053	1.075
Plant protection	4.9	.793	.638	1.026
Plumbers, maintenance, A	.1	.936	.823	1.000
Power-shear operators, A	.1	1.038	1.000	1.060
Power-shear operators, B	.2	.915	.817	1.042
Power-shear operators, C	.1	.879	.775	.920
Punch-press operators, A	.2	1.003	.880	1.163
Punch-press operators, B	.5	.938	.750	.950
Punch-press operators, C	.2	.795	.713	.864
Saw operators	.9	.866	.688	.931
Sheet-metal workers, bench, A	.7	1.066	.963	1.231
Sheet-metal workers, bench, B	.9	.929	.810	1.023
Sheet-metal workers, bench, C	1.8	.814	.667	.907
Tool and die makers, A	1.0	1.391	1.042	1.561
Tool and die makers, B	.6	1.163	.985	1.293
Tool and die makers, C	.3	1.076	.820	1.174

TABLE 12.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Light-Airframe Plants, 1943*—Continued

Occupation	Percent of employment	Average hourly earnings	Plant average	
			Lowest	Highest
Tool-crib attendants, A	0.1	$0.963	$0.917	$1.107
Tool-crib attendants, B	.6	.908	.750	1.074
Tool-crib attendants, C	.3	.668	.583	.717
Truck drivers, A	.6	.863	.706	.973
Truckers, power, A	.5	.751	.748	.765
Welders, gas, A	4.6	1.139	1.000	1.200
Welders, gas, B	3.5	.899	.816	1.042
Welders, gas, C	1.2	.821	.692	.965
Welders, jig and fixtures, A	.6	1.281	1.033	1.360
Welders, jig and fixtures, B	.6	1.100	.883	1.171
Working supervisors, maintenance	.1	1.179	1.100	1.300
Working supervisors, production	1.8	1.155	.911	1.379

Average hourly earnings of workers in light-plane plants ranged from 62.5 cents, paid to learners, to $1.409, paid to class A tool and die makers. One-half of the workers were in 56 occupational classifications with earnings ranging from 70 to 95 cents, and one-fifth were in 42 occupational classifications with average earnings varying from 95 cents to $1.15. Less than 5 percent of the workers were in occupational groups which averaged less than 70 cents an hour; most of these workers were learners.

The lowest and highest plant average hourly earnings,[5] which are also presented in table 12, indicate rather wide variations among light-plane plants in occupational average hourly earnings. Incentive methods of wage payment, however, are not responsible for these contrasts, as all workers in light-plane plants were paid on a time basis.

Women, who accounted for approximately a fourth of the labor force, averaged somewhat less per hour than men. In 27 occupational classifications in which both men and women were employed in three or more of the light-plane plants, women averaged 83.3 cents an hour, or 2.2 cents less than men. In 11 of the 27 classifications the earnings of women were higher than those of men and in 16 they were lower, generally by small amounts.

Straight-time average hourly earnings for workers in nine office occupations in light-airframe plants in 1943 are given below. Eighty-five percent of the office employees in these plants are women. Earnings range from 56.9 cents for office boys and girls to 83.9 cents for general clerks. These averages are not materially below those reported for metal-airframe plants.

	Average hourly earnings
Accounting clerks	$0.726
Bookkeepers	.822
Calculating-machine operators	.729
File clerks	.676
General clerks	.839
Office boys and girls	.569
Stenographers	.750
Switchboard operators–receptionists–typists	.752
Typists (general)	.623

[5] The figures appearing in the two "plant average" columns relate to a number of different establishments, as no single plant pays the lowest or the highest wages in all occupations. In each case the plant averages are based on data for all workers in an occupational classification in the given plant.

Appendix C.—Hourly Earnings in the Glider Industry

Gliders play a vital role in modern warfare. They are used extensively in any offensive to land men and materials far behind enemy lines. Today a small number of plants are actively engaged in manufacturing gliders for the armed forces. In the current survey, data were obtained for 12 plants engaged in the manufacture of complete gliders.[1]

INTEGRATED GLIDER PLANTS

The 12 plants making complete gliders are widely scattered. Four are located in the East, three in the Central region, four in the Midwest, and one on the West Coast. These plants compare in size with plants manufacturing light planes. Four plants had less than 1,000 workers and only 3 had more than 2,000 workers. Five of the 12 plants are organized by C. I. O. and 2 by A. F. of L. unions. Another plant had a contract under negotiation at the time of the Bureau survey.

Entrance rates for inexperienced workers varied from 50 cents to 75 cents per hour in 11 of the 12 glider plants for which such information is available. Four plants had a rate of 50 cents an hour and 5 a rate of 60 cents an hour.

All 12 plants worked a second shift, and all but 1 paid shift differentials which varied from 3 to 10 cents an hour; one-half of the plants paid a 5-cent differential. Third-shift operations were carried on in only 6 of the plants, and shift differentials were paid in all but 1 of these plants. One plant paid 3 cents an hour, 2 paid 5 cents an hour, 1 paid 10 cents an hour, and 1 paid 5 cents an hour and also allowed 8 hours of pay for 6¾ hours of work.

The occupational structure of an integrated glider plant is quite different from that found in plants manufacturing either metal or light planes. Many of the occupations found in the latter plants either are not found or are relatively unimportant in glider plants. Assemblers and installers account for over a fourth of the factory workers in a glider plant. The next most important occupation is that of general woodworker. Comparatively few workers are engaged in metal-working operations, but 6.7 percent of the workers are dopers, tapers, and fabric workers. Wage data are presented in table 13 for 35 representative occupations, which accounted for approximately three-fifths of all factory workers. No averages are presented for classes or grades within the various occupations because of the limited number of employees represented, and also because of the lack of comparable grade classifications between plants.

One-fourth of the labor force in glider plants was made up of women. They were found in most of the processing occupations.

[1] Eleven furniture plants in Grand Rapids, Mich., have pooled their facilities to produce glider parts. Data for these plants are not presented in this report, but are available upon request.

One-third of the women were engaged in assembly and installation work, one-eighth were working as welders, a tenth were operating machine tools or other metal-working machines, and another tenth were doing clerical work in the stock and store rooms. Slightly over 6 percent of the women were inspectors.

TABLE 13.—*Straight-Time Average Hourly Earnings of Workers in Selected Occupations in Plants Making Complete Gliders, 1943*

Occupation	Percent of employment	Average hourly earnings	Plant average	
			Lowest	Highest
All occupations	100.0	$0.855		
Assemblers, final	22.5	.826	$0.731	$1.004
Assemblers, sub	2.6	.791	.679	.873
Assemblers, and installers, electrical and radio	.7	.885	.797	.960
Carpenters, maintenance	.8	.933	.685	1.083
Clerks, stock and stores	5.3	.773	.550	.889
Craters and packers	4.8	.830	.792	1.030
Dopers and tapers	3.7	.841	.724	.867
Electricians, maintenance	.6	.947	.675	1.125
Fabric workers	3.1	.767	.636	.894
Glue men	.1	.807	.775	.813
Helpers, general	.2	.656	.617	.717
Inspectors, detail	.8	.910	.717	1.002
Inspectors, final assembly	2.1	.934	.810	1.183
Inspectors, general assembly	1.8	.948	.788	1.062
Inspectors, machined parts	.6	.985	.888	1.250
Inspectors, wood	.3	.972	.923	1.066
Installers, cable	1.2	.876	.775	1.000
Installers, glass	.4	.729	.724	.734
Janitors	3.4	.682	.553	.798
Jig and form builders	2.0	1.052	.859	1.205
Laborers	1.5	.767	.580	.939
Learners, productive	6.2	.601	.526	.750
Machine operators	1.0	.859	.720	.975
Machinists, all-round	.9	.998	.918	1.270
Machinists, bench	1.0	.876	.806	.890
Material handlers	1.0	.801	.750	.850
Mechanics, maintenance	.5	.883	.725	1.000
Metal fitters	1.2	.894	.757	.908
Painters	4.0	.878	.708	1.013
Painters, maintenance	.1	.967	.825	1.033
Plant protection	4.5	.814	.713	.908
Plumbers, maintenance	.1	.985	.910	1.075
Saw operators	.1	.898	.885	.963
Sheet-metal workers	2.0	.933	.721	1.043
Tool and die makers	.6	1.269	1.226	1.450
Tool-crib attendants	.9	.772	.664	.925
Truck drivers	.4	.836	.713	.978
Welders, arc and gas	5.5	1.076	.755	1.286
Woodworkers, general	8.9	.957	.814	.997
Working supervisors, production	2.6	1.051	.916	1.400

The straight-time average hourly earnings of factory workers in glider plants were 85.5 cents in December 1943 (table 13). The lowest hourly earnings, 60.1 cents, were for learners and the highest, $1.269, for tool and die makers. Roughly, four-fifths of the workers were in 28 occupations with average hourly earnings ranging from 75 cents to $1.00. One-tenth of the workers were in three occupations with average earnings below 70 cents an hour.

The highest and lowest plant averages, which also appear in table 13, indicate widely different wage levels among glider plants. In 25 of the 35 occupations, the difference between the highest and lowest plant averages was 20 cents or more, and in 8 occupations it was

35 cents or more. None of these differences are due to incentive methods of wage payment, as all workers in the selected occupations studied were paid on a time basis.

The wage rates paid to office workers in glider plants compare favorably with those paid in airframe plants. These earnings ranged from 56.4 cents an hour for file clerks to 92.9 cents an hour for bookkeepers. Straight-time average hourly earnings of workers in selected office occupations in plants making complete gliders, in 1943, were as follows:

	Average hourly earnings
Accounting clerks	$0.827
Bookkeepers	.929
Calculating-machine operators	.719
File clerks	.564
General clerks	.673
Office boys and girls	.495
Stenographers	.712
Switchboard operators–receptionists–typists	.639
Typists (general)	.604

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