
UNITED STATES DEPARTMENT OF LABOR

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BUREAU OF LABOR STATISTICS

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Earnings in Eastern and Midwestern Airframe Plants, 1942



By LOUIS M. SOLOMON and N. ARNOLD TOLLES

of the

Bureau of Labor Statistics



Bulletin No. 728

*[Reprinted from the MONTHLY LABOR REVIEW, July,
August, and October, 1942, with additional data]

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., December 17, 1942.

The SECRETARY OF LABOR:

I have the honor to transmit herewith a report on earnings in eastern and midwestern airframe plants, 1942, by Louis M. Solomon and N. Arnold Tolles, of the Bureau's Working Conditions and Industrial Relations Branch. The authors are indebted to Toivo Kaninen, of the Division of Wage Analysis, for his assistance in the compilation of the statistical material.

A. F. HINRICHS, *Acting Commissioner.*

HON. FRANCES PERKINS,
Secretary of Labor.

PREFACE

This bulletin has been compiled from three articles which appeared in the *Monthly Labor Review* in July, August, and October 1942. Another article, *Wage Rates in the California Airframe Industry, 1941*, has been printed separately as Bulletin No. 704 of the Bureau of Labor Statistics.

Only relatively minor changes have been made in the text for each of the three regions represented. Interregional comparisons between wages in the regions discussed in this bulletin and wages in the California area are given in the last section of the bulletin. Caution is urged in the use of these comparisons because of the different periods to which the data in the various regions relate. The rapid expansion of the airframe industry has made for frequent changes in rates and earnings which, while probably insufficient to alter regional comparability from month to month, may affect comparisons over longer periods. So far as is known, however, no changes of sufficient magnitude to alter the broad relationships shown occurred during the months between December 1941, the period to which the California data relate, and June 1942, the latest period covered in this bulletin.

The absence of data on average earnings in the industry as a whole is accounted for in part by the difficulty of presenting wage information for the northwestern region of the United States. The distribution of the industry in that area is such that data cannot be shown without disclosure of information for an individual plant.

Substantial variations in wage rates exist from plant to plant and from region to region, although fairly well defined wage levels for workers of different degrees of skill are found. While complete standardization of wage rates for experienced workers appears to be far off, the recent wage stabilization conferences in California may mark the beginning of a comprehensive effort toward standardization. Moreover, a 60-cent starting rate for beginners was rather generally adopted early in 1942 in all except the Michigan area, where the rate is 75 cents.

Some of the plants represented in this bulletin were scheduled before the dates for which regional information is presented. Thus, data for a plant in the eastern region, scheduled in August 1941, would appear in this bulletin as of April 1942. In this and similar cases, wage data were revised on the basis of information on wage rate changes which occurred between the time at which the plant was actually scheduled and the period used in combining the data for this and other plants in the region. This procedure had to be employed in a number of cases, and sufficient plants were revisited by field representatives to determine that the corrections made were reasonably accurate.

A. F. HINRICHS,
Acting Commissioner, Bureau of Labor Statistics.

Bulletin No. 728 of the

United States Bureau of Labor Statistics

[Reprinted from the MONTHLY LABOR REVIEW, July, August, and October 1942, with additional data]

**EARNINGS IN EASTERN AND MIDWESTERN
AIRFRAME PLANTS, 1942**

SCOPE OF REPORT

The wage data for airframe plants on which this report is based were obtained in the course of a comprehensive Nation-wide study which embraces three major divisions of the industry—airframes, aircraft engines, and propellers. An earlier report¹ dealt with earnings of airframe workers in California. Subsequent reports will present data for workers in aircraft-engine and propeller plants.

The wage data used in the present report were obtained through visits by the Bureau's staff of trained representatives, who transcribed the information directly from pay rolls or other records. The Bureau's representatives obtained wage data for first-shift workers in each of a selected group of occupations. These selected occupations, although representing less than half of the very numerous jobs found in the industry, do account for all of the important ones and include about 75 percent of the workers. This method of obtaining information was adopted as a means of expediting the collection and tabulation of the data.

In the eastern area, material was originally obtained for a pay period in the autumn of 1941 but, because of the fluid nature of the wage structure, it was found necessary to secure more recent information. Representatives revisited and rescheduled three establishments which had experienced broad and irregular rate changes since the original period surveyed. The remaining companies had held wages constant or had applied a general and uniform adjustment. From these latter plants, information on the nature of the changes was obtained and, where necessary, corrections of the original data were made. The wage data as revised now reflect the wage structure of the industry in April 1942.

Wage data for one pay-roll period in May 1942 were obtained from the Michigan plants. Information covering a February period was secured for the Buffalo establishments, but a later check with officials of these plants disclosed no change in entrance or occupational rates since the schedule date. Hence, the Buffalo data, as well as those for Michigan, may be accepted as reflecting the wage structure in May 1942. In the Midcontinent area, information for most of the establishments was obtained for one pay-roll period in June; in the remainder, a May pay-roll period was covered.

¹ Monthly Labor Review, March 1942; reprinted as Bulletin No. 704.

THE EASTERN REGION—APRIL 1942

The Atlantic coast of the United States, the scene of man's first controlled flight, no longer dominates, as it once did, the aircraft industry of the Nation. New areas of production have been created. Names famous in aircraft history have moved westward. Dramatic conversions of other facilities to aircraft have captured attention.

The eastern aircraft industry, however, remains a potent force. Despite the focusing of the spotlight on other regions, the East has recently increased in importance as a source of supply for the air arms. Thousands of workers find their livelihood in the seaboard plants now producing trainers, fighters, and bombers.

Many of these workers are new to the industry. Many indeed have come directly from school or home and are without previous industrial experience. What do these workers earn? What can new employees expect in the way of compensation? How do earnings in the East compare with those for similar work in other areas? These questions the Bureau of Labor Statistics has sought to answer in its present report.

The field of inquiry of this report is the earnings of employees in airframe plants (establishments producing complete aircraft) located along the Atlantic seacoast north of the Potomac. The eastern airframe industry, defined here to exclude the Buffalo (N. Y.) area, is made up of eight establishments of widely varying characteristics. The plants are scattered from Maryland to Connecticut. They vary in size in the ratio of 1 to 20. Some are in rural areas, others in large metropolitan districts. The product ranges from small primary trainers, through speedy fighters, to huge, complex bombers. And yet, because of present-day labor mobility, and the relatively small distances involved, it is not unrealistic to consider these plants as falling within a competitive labor market.

There is some direct evidence to support this conclusion. A study of the employees in two of the companies covered by the report shows that workers at these plants were drawn from every one of the Eastern States containing an airframe plant. Among the remaining establishments, although no detailed analysis was made, examination reveals a widespread recruitment of labor from throughout the eastern area.

Recent History of Wage Rates

The average hourly earnings of workers in eastern aircraft-frame plants have exhibited a steady and continuous increase during the last 18 months. In December 1940, the average hourly wage stood at 71.3 cents. The average had increased to 74.2 cents by March 1941, and in June 1941 had advanced to 79.3 cents. The level of earnings in September 1941 was 83.7 cents, in December of that year, 85.8 cents. A larger increase took place over the next 3 months, so that by March 1942 the average had reached 93.3 cents. This figure, to be sure, included substantial payments for overtime at penalty rates; without such payments the increase in hourly earnings would be less pronounced.

The increase in the regional average did not result from an area-wide uniform adjustment of rates. Establishments which had been compensating employees at rates above the average tended to grant

larger and more frequent increases than the lower-wage plants, although without exception every eastern establishment did adjust wages upward during the period in question. This lack of uniformity in wage adjustments, however, had the effect of exaggerating the differences in plant averages referred to below.

Plant average hourly earnings in each month since June 1941 are available for six of the eight plants included in the study. In June 1941, the spread in earnings between the highest- and lowest-average plants was 15.4 cents. The differential had increased to 34.8 cents by November 1941, but has since narrowed slightly, falling to 30.1 cents in March 1942. It should be recognized at the outset that this rather wide dispersion reflects other factors besides the level of basic wage rates. The amount of overtime worked, the proportion of employees on extra shifts, the number of beginners at lower rates of pay, all play a role in determining the over-all average pay.

Over and above these influences, however, it is obvious that considerable variation exists in basic earnings. The average earnings in April 1942 of first-shift workers in selected occupations, representing roughly three-fourths of plant employment, varied by 25.8 cents as between the highest- and lowest-paying establishments. As will be shown later, plant averages for workers in identical occupations generally display somewhat less divergence. Hence, it appears that part of the difference in the plant over-all averages results from a variation in the composition of the respective labor forces.

There is some reason to believe that earnings from plant to plant will display less dispersion in the near future. In the early part of 1942, the eastern airframe producers adopted a nearly uniform scale of entrance rates. Except in one plant, new workers are hired at 60 cents and progress by regular and automatic adjustment of rates to 75 cents per hour. Generally the adjustment takes the form of a 5-cent increase for each month of service, the 75-cent scale thus being attained after 3 months, corresponding with the entrance-wage schedule introduced at North American Aviation some 9 months earlier. In two of the plants, workers advance to 70 cents after 2 months' service and receive the remaining 5-cent increase after 2 more months, making the total period of adjustment 4 months. In the company representing the exception to the 60-cent entrance rate, workers are hired at 50 cents² and advance in 5-cent monthly increases until 65 cents is attained.

Inasmuch as beginners represent a large proportion of the present-day total working force, the application recently of these nearly uniform entrance scales will undoubtedly result in a narrowing of the spread in plant averages. As yet, there has been no move toward stabilizing the rates for the larger group of workers who have progressed beyond the learning period. As will be shown later, earnings of experienced workers in specific occupations vary considerably from one plant to the next.

² Applicants with previous experience receive 55 cents.

Average Hourly Earnings

FACTORS AFFECTING AVERAGE EARNINGS

As has been stated earlier, the gross pay of wage earners is influenced by at least two other determinants than that of base hourly rate—the amount of time worked on extra shifts for which additional pay is granted and the amount of overtime worked at extra rates of pay.

The shift differentials now in effect among eastern airframe manufacturers exhibit little uniformity. Table 1 presents the provisions for such extra compensation.

TABLE 1.—*Scale of Wages for Second and Third Shifts, by Company*

Company	Number of shifts worked	Second shift	Third shift
Company A.....	3	110 percent of base wage plus 5 percent of total earnings.	110 percent of base wage plus 5 percent of total earnings.
Company B.....	3	Base rate plus 5 cents an hour.....	114 percent of base rate.
Company C.....	2	Base rate plus 8 cents an hour.....	
Company D.....	2	Base rate plus 9 cents an hour.....	
Company E.....	2	Base rate plus 10 cents an hour.....	
Company F.....	2	Base rate plus 10 cents an hour.....	
Company G.....	2	118 percent of base rate.....	
Company H.....	2	Base rate plus 5 cents an hour.....	

The limitations imposed by the method used in collecting the wage data do not permit a comparison of earnings between first- and second- and third-shift workers. The study of the California area indicated that second-shift employees average about 6 percent more and third-shift workers about 20 percent more than first-shift employees in identical occupations. Inspection of the data above suggests that eastern employees working the extra shifts would average roughly 10 percent more than first-shift workers in the same occupations. However, because of the tendency for the more highly skilled workers to be disproportionately represented on the first shift, the average earnings of all second- and third-shift workers are somewhat less than might be expected from the provisions established for their compensation.

All of the 8 eastern airframe plants pay one and one-half times the regular rate for daily hours in excess of 8 and for weekly hours over 40. Three of the establishments pay time and one-half for Saturday and double time for Sunday work. Another company pays double time for the seventh consecutive day of work. In the remaining four plants no special provisions for compensating for Saturday and Sunday work have been established.

The hours worked by employees of the eastern plants average more than 53 a week. As a consequence, a considerable proportion of the total pay of these workers represents the extra payment due to overtime. The effect of overtime compensation and shift differentials on average earnings can be seen in the following tabulation, which presents the difference between straight-time earnings of first shift

workers in April 1942 and the gross average pay of all workers including extra-shift and overtime compensation in each of four plants:

	<i>Difference in earnings (cents)</i>
Company I.....	3. 8
Company II.....	9. 2
Company III.....	10. 3
Company IV.....	13. 1

It will be seen that the average "take-home" in three of the plants was considerably higher than the straight-time earnings of the workers. Even in company I, where a very small amount of overtime was worked, overtime and shift premiums served to raise hourly pay by an average of nearly 4 cents. It is estimated that for the region as a whole, gross average earnings were about 9 cents higher than the straight-time average for first-shift workers.

Like the west coast industry, the eastern airframe producers pay most of their workers a straight hourly or daily wage. In only one plant was there any departure from this rule; in that establishment a small proportion of the total working force was paid a production bonus in addition to the base hourly rate. The wage data presented in this report include the premium earnings of these bonus workers.

STRAIGHT-TIME EARNINGS IN THE REGION AS A WHOLE

The average hourly earnings exclusive of overtime payment of first-shift workers in eastern airframe plants were 84.1 cents in April 1942. These earnings may be compared with average straight-time pay of 82.9 cents earned by first-shift workers in California plants in December 1941.

Except for establishing the relation of the general wage level in one area to that in effect in another, or as an instrument for comparison with other industries, a single figure such as that cited above has little utility. Earnings within a single region not only vary substantially, from plant to plant, but also mirror differences in skill and experience from occupation to occupation. Table 2 illustrates the influence exerted upon earnings by varying degrees of skill. Employees have been classified according to the length of training and experience that would normally be required for a given occupation and grade. It should be pointed out, however, that the demands of a vastly increased production schedule have forced employers to assign workers to occupations ordinarily requiring considerable training much sooner than would normally be the case.

TABLE 2.—Average Hourly Earnings of First-Shift Workers in Eastern Airframe Industry by Length of Required Training, April 1942

Length of training required for occupation	Percent of employees	Average hourly earnings
Less than 6 months.....	19. 1	\$. 681
6 months and under 1 year.....	25. 5	. 772
1 year and under 2 years.....	21. 8	. 849
2 years and under 3 years.....	8. 4	. 927
3 years and under 4 years.....	8. 3	. 975
4 years and over.....	11. 9	1. 075
All workers.....	100. 0	. 841

As shown by table 2, earnings ranged from 68.1 cents for workers in jobs normally requiring less than 6 months' experience to \$1.075 averaged by employees in occupations demanding 4 years or more experience. It will be noted that the increases in earnings accompanying each successive experience level are consistent and fairly regular. From the clear-cut differences in earnings among the various classes, it might appear that each comprises a coherent, homogeneous group of workers. Such, however, is not the case. A very considerable variation in earnings exists even within a single skill class.

**AVERAGE HOURLY EARNINGS BY LENGTH OF REQUIRED TRAINING PERIOD,
OCCUPATION, GRADE, AND PLANT**

Table 3 presents the average straight-time hourly earnings of first-shift workers in the eastern airframe industry by length-of-service class and occupational grade for the region as a whole and for each plant separately. The plant averages have been arranged in descending order; the data within one column do not relate to the same establishment. Regional averages have been presented for each selected occupation in which 50 wage earners distributed over at least two establishments were found. Individual plant averages are shown only for three or more workers. These limitations were imposed to avoid statistical instability in the data.

As shown by table 3, average earnings of workers are determined not alone by degree of skill, but by the specific occupation at which they work as well. Thus, among the 16 occupational grades for which 4 years' or more experience is required, average earnings ranged from \$1.252 for tool and die makers, grade A, to 79.6 cents for service and flight inspectors, grade C. In the 12 occupations requiring between 3 and 4 years of experience the range was from \$1.076 to 83.4 cents. The 2-to-3-year group varied from 81.8 cents to \$1.116, the 1-to-2-year occupations from 75.8 to 95.2 cents, and the 6-months-to-1-year group from 74.2 to 90.2 cents. The wage earners in occupations demanding less than 6 months' experience had average earnings ranging from 61.4 to 79.2 cents.

Table 3 also shows the variation in occupational averages from plant to plant. Here, too, the differences in earnings are quite substantial. Among tool and die makers, grade A, for example, the range was from \$1.05 to \$1.29, a difference of 24 cents. General assemblers, grade A, ranged from 80 cents to \$1.045, a 24.5-cent differential. Inspection will reveal that these are not extreme cases; rather, the entire tabulation is characterized by a very considerable dispersion in plant averages for each of the occupations studied.

A noteworthy feature of the plant occupational averages is their lack of consistency. Establishments with relatively high wage levels may pay rather low wages to some occupational groups. Conversely, low-wage establishments pay some occupations well above the average. This is typified by the experience of one plant selected at random. It will be noted that there are 10 occupational grades in which all of the plants are represented. The relative position of the selected company in these 10 grades is as follows: first in one occupation, second in one occupation, fourth in four occupations, fifth in three occupations, and sixth in one occupation. Thus, in these 10 occupations the relative rank of the workers in the selected company ranged from first to next to last.

TABLE 3.—Average Hourly Earnings of First-Shift Workers in Eastern Airframe Plants, by Length of Training Period and Occupation, April 1942

Length of training period and occupation	Percent of total selected employees	Average hourly earnings, all plants	Individual plant averages in descending order of average						
<i>4 years or more</i>									
Tool and die makers, grade A.....	0.5	\$1.252	\$1.290	\$1.281	\$1.275	\$1.220	\$1.158	\$1.050	-----
Pattern makers, wood, grade A.....	.2	1.188	1.252	1.140	1.067	-----	-----	-----	-----
Inspectors, templates, tools and dies, grade A.....	.2	1.162	1.288	1.275	1.237	.976	-----	-----	-----
Milling-machine operators, grade A.....	.2	1.135	1.230	1.118	1.108	-----	-----	-----	-----
Turret-lathe operators, grade A.....	.2	1.124	1.253	1.105	1.043	-----	-----	-----	-----
Jig builders, assembly, metal, grade A.....	.5	1.123	1.275	1.183	1.136	1.111	1.071	1.056	-----
Tool and die makers, grade B.....	.3	1.087	1.164	1.142	1.106	.983	-----	-----	-----
Working supervisors, productive.....	5.8	1.081	1.220	1.199	1.188	1.120	1.049	1.046	\$0.918
Electricians, maintenance, grade A.....	.2	1.063	1.075	1.048	1.044	-----	-----	-----	-----
Bench machinists, grade A.....	.6	1.052	1.203	1.138	1.030	.999	-----	-----	-----
Engine-lathe operators, grade A.....	.2	1.043	1.235	.994	.943	-----	-----	-----	-----
Sheet-metal workers, bench, grade A.....	1.3	1.039	1.086	1.086	1.045	.972	.875	-----	-----
Carpenters, maintenance, grade A.....	.2	1.010	1.023	1.016	.973	-----	-----	-----	-----
Mechanics, maintenance, grade A.....	.2	.999	1.072	1.043	.930	-----	-----	-----	-----
Tool and die makers, grade C.....	.2	.940	1.017	.958	.912	-----	-----	-----	-----
Inspectors, service and flight, grade C.....	.2	.796	.798	.775	-----	-----	-----	-----	-----
<i>3 and under 4 years</i>									
Metal fitters, grade A.....	.6	1.076	1.087	1.077	-----	-----	-----	-----	-----
Assemblers, precision, bench, grade A.....	.4	1.058	1.075	1.052	-----	-----	-----	-----	-----
Inspectors, assembly, general, grade A.....	.3	1.010	1.130	1.117	1.076	1.056	.957	-----	-----
Assemblers, general, grade A.....	2.2	.995	1.045	1.040	1.039	1.032	.875	.875	.800
Milling-machine operators, grade B.....	.4	.972	1.079	1.000	.975	.953	-----	-----	-----
Inspectors, assembly, final, grade B.....	.2	.965	.967	.930	.918	-----	-----	-----	-----
Turret-lathe operators, grade B.....	.2	.963	.917	-----	-----	-----	-----	-----	-----
Loftsmen.....	.6	.952	1.275	1.112	.990	.817	-----	-----	-----
Engine-lathe operators, grade B.....	.2	.939	1.085	.975	.933	.833	-----	-----	-----
Lay-out men.....	.7	.926	1.118	1.117	.930	.886	-----	-----	-----
Jig builders, assembly, metal, grade B.....	1.3	.897	1.075	1.000	.995	.960	.960	.864	.713
Inspectors, machined parts, grade C.....	.2	.834	.900	.826	-----	-----	-----	-----	-----
<i>2 and under 3 years</i>									
Installers, electrical, grade A.....	.3	1.116	1.175	1.070	1.063	1.032	-----	-----	-----
Welders, gas (aluminum and steel), grade A.....	.6	1.093	1.159	1.140	1.106	1.083	-----	-----	-----
Installers, power plant, grade A.....	.3	.985	1.057	.975	-----	-----	-----	-----	-----
Field and service mechanics, grade B.....	.2	.969	1.075	.918	-----	-----	-----	-----	-----
Installers, general, grade A.....	1.0	.948	1.093	.930	.922	.767	-----	-----	-----
Mechanics, maintenance, grade B.....	.2	.928	.976	.938	.936	-----	-----	-----	-----
Inspectors, assembly, general, grade B.....	.4	.910	.975	.938	.901	.840	-----	-----	-----
Punch-press operators, grade A.....	.3	.911	.985	.951	.929	.917	-----	-----	-----
Sheet-metal workers, bench, grade B.....	1.7	.903	.939	.931	.927	.856	.692	-----	-----
Bench machinists, grade B.....	.9	.876	1.064	.911	.903	.865	.813	-----	-----
Painters, aircraft, grade A.....	.4	.865	1.078	1.033	.975	.971	.940	.693	-----
Electricians, maintenance, grade B.....	.2	.851	.973	.937	.900	.790	-----	-----	-----
Inspectors, detail, grade B.....	.2	.831	.933	.938	.844	.717	-----	-----	-----
Inspectors, assembly, final, grade C.....	.4	.818	.842	.815	-----	-----	-----	-----	-----
<i>1 year and under 2 years</i>									
Craters, grade A.....	.2	.952	1.007	.950	-----	-----	-----	-----	-----
Metal fitters, grade B.....	.4	.931	.975	.937	.936	-----	-----	-----	-----
Assemblers, precision, bench, grade B.....	1.8	.916	.921	.825	-----	-----	-----	-----	-----
Power-shear operators, grade A.....	.2	.913	.993	.941	.934	.886	-----	-----	-----
Riveters, grade A.....	2.7	.904	.994	.949	.887	.809	.804	.804	-----
Welders, gas (aluminum and steel), grade B.....	.3	.891	.955	.945	.875	-----	-----	-----	-----
Drill-press operators, grade A.....	.2	.887	.957	.926	.844	-----	-----	-----	-----
Assemblers, general, grade B.....	7.3	.884	.934	.834	.825	.798	.880	.786	.682
Coverers, fabric, grade A.....	.2	.860	.823	.805	.850	.779	-----	-----	-----
Installers, power plant, grade B.....	.2	.859	.916	.825	-----	-----	-----	-----	-----
Installers, general, grade B.....	1.5	.847	.899	.895	.781	.688	-----	-----	-----
Power-brake operators, grade B.....	.2	.843	.916	.883	.825	.813	-----	-----	-----
Tool-crib attendants, grade A.....	.3	.841	.971	.970	.872	.850	.739	-----	-----
Milling-machine operators, grade C.....	.5	.830	.830	.883	.835	-----	-----	-----	-----
Painters, aircraft, grade B.....	.4	.815	.822	.930	.890	.876	.600	-----	-----
Inspectors, assembly, general, grade C.....	.9	.814	.876	.833	.818	.742	.702	-----	-----
Jig builders, assembly, metal, grade C.....	1.1	.809	.877	.876	.825	.820	.796	-----	-----
Spot welders, grade B.....	.3	.809	.897	.832	.764	-----	-----	-----	-----
Punch-press operators, grade B.....	.4	.802	.833	.820	.814	.720	-----	-----	-----
Sheet-metal workers, bench, grade C.....	2.3	.794	.848	.832	.809	.811	.572	-----	-----
Inspectors, receiving, grade C.....	.3	.790	.857	.820	.691	-----	-----	-----	-----
Clerks, shipping and receiving.....	.4	.783	.842	.820	.812	.775	.774	-----	-----
Inspectors, detail, grade C.....	.4	.766	.832	.830	.825	.813	.638	-----	-----
Field and service mechanics, grade C.....	.2	.760	.825	.767	-----	-----	-----	-----	-----
Clerks, stock and stores.....	2.5	.758	.881	.820	.795	.752	.750	.750	.671

TABLE 3.—Average Hourly Earnings of First-Shift Workers in Eastern Airframe Plants, by Length of Training Period and Occupation, April 1942—Continued

Length of training period and occupation	Per- cent of total select- ed em- ploy- ees	Aver- age hour- ly earn- ings, all plants	Individual plant averages in descending order of average							
<i>6 months and under 1 year</i>										
Assemblers, electrical and radio, bench, grade B	0.3	\$0.902	\$0.927	\$0.820						
Anodizers, grade A	.2	.887	.917	.889	\$0.883					
Tube benders, bench, grade B	.2	.859	.890	.871						
Saw operators, grade A	.3	.859	1.084	.964	.900	\$0.863	\$0.775			
Router operators, grade A	.2	.835	.937	.911	.825	.817	.750			
Installers, electrical, grade C	.3	.833	.844	.825						
Drill-press operators, grade B	.4	.828	.857	.826	.817					
Welders, gas (aluminum and steel), grade C	.2	.822	.827	.817						
Electricians, maintenance, grade C	.2	.817	.835	.807						
Craters, grade B	.3	.814	.839	.810	.808					
Drop-hammer operators, grade C	.3	.799	.798							
Riveters, grade B	4.6	.789	.857	.832	.826	.805	.775	\$0.767	\$0.583	
Tool-crib attendants, grade B	.6	.772	.855	.831	.830	.775	.752			
Metal fitters, grade C	.9	.769	.867	.847	.778	.872				
Painters, aircraft, grade C	.8	.767	.880	.829	.789	.763	.763			
Bench machinists, grade C	1.4	.762	.882	.867	.816	.775	.756	.753	.620	
Assemblers, precision, bench, grade C	2.4	.757	.775	.755						
Assemblers, general, grade C	8.2	.755	.852	.841	.806	.775	.748	.554		
Carpenters, maintenance, grade C	.2	.750	.838	.803	.718					
Guards and watchmen	1.2	.746	.836	.805	.794	.775	.756	.705	.538	
Installers, general, grade C	1.4	.742	.804	.775	.723	.563				
<i>Less than 6 months</i>										
Saw operators, grade B	.4	.792	.798	.797	.778					
Anodizers, grade B	.2	.783	.807	.800	.767	.736				
Janitors	1.5	.729	.768	.760	.752	.750	.735	.727	.529	
Laborers	1.3	.727	.803	.788	.733	.712	.707	.517		
Helpers, general	1.8	.717	.800	.775	.775	.741	.686	.613	.544	
Punch-press operators, learner	.3	.709	.700	.660						
Drill-press operators, grade C	.3	.706	.783	.700	.662					
Jig builders, assembly, metal, learner	.3	.705	.750	.675						
Truckers, hand and warehousemen	1.0	.702	.744	.719	.700	.698	.667			
Craters, grade C	.3	.681	.667							
Assemblers, general, learner	4.0	.663	.710	.667	.663	.656	.644			
Sheet-metal workers, bench, learner	.7	.662	.676	.653	.627					
Drill-press operators, learner	.4	.658	.708	.615						
Inspectors, assembly, general, learner	.2	.653	.660	.667	.633					
Tube benders, bench, learner	.2	.652	.670	.638						
Installers, general, learner	1.1	.645	.648	.641						
Riveters, learner	1.4	.629	.711	.641	.634	.627	.600	.500		
Painters, aircraft, learner	.2	.614	.627	.612	.610	.600				

THE MICHIGAN AND BUFFALO (N. Y.) REGIONS— MAY 1942³

The lake cities of Buffalo and Detroit constitute central points in two increasingly important aircraft production areas. Even in World War I, Buffalo was an important source of supply to the air services; today its planes claim an enviable reputation in all the theaters of war. Detroit and its adjacent territory long have been recognized as the source of an almost unlimited stream of goods flowing from highly efficient conveyor lines. It was only natural that, in the face of an immediate need for tremendous quantities of arms, the vast productive equipment of this area should be looked to for the tools of war.

³ Two areas of the airframe industry are treated here for reasons of editorial convenience and not on account of any decision as to the appropriate grouping of airframe plants for official purposes.

To those unfamiliar with the mechanical processes involved, the conversion of automobile plants to the production of tanks, aircraft, and ordnance seemed an altogether logical and simple development. Actually, of course, such a diversion of facilities and manpower requires a long period of preparation and adjustment. It is noteworthy, therefore, that thousands of former automotive industry workers are actively engaged in the production of military matériel.

This report is concerned with the earnings of the Michigan and Buffalo workers who are producing airframes and frame subassemblies. The airframe plants in these two areas differ in their origin, the Michigan plants having been converted largely from the production of automobiles and the Buffalo plants having been originally designed for aircraft. Nevertheless, each constitutes a homogeneous group in many respects. All of the units, for example, are in large metropolitan districts—areas with long histories of heavy-industry production and with adequate reservoirs of skilled workers. All are large employers of labor, although in the case of several of the Michigan plants, the number of wage earners working on aircraft is relatively small. With but one exception, all of the plants have entered into agreements with the United Automobile Workers, a C. I. O. affiliate. Finally, as will be shown later, the wage rates in effect in both areas are substantially above the levels prevailing in other sections of the country.

From the standpoint of product, however, the two States display less uniformity. The majority of the operations in Michigan consist of subassemblies, although a limited amount of final assembly work is performed; the plants in western New York are producing complete aircraft, even to the provision of machine guns and service insignia.

To date, both regions have enjoyed a reasonably adequate labor supply. The automobile plants, still in the process of conversion, have not yet absorbed all of their former workers. The Buffalo plants likewise have had a reserve of former automobile workers to draw upon and have also instituted an effective pre-service training program. Women constitute a fairly large proportion of the total working force in the Michigan plants, accounting for about 10 percent of the total. The number of women appearing on the Buffalo pay rolls is much smaller, representing less than 1 percent of the labor force.

Average Hourly Earnings

FACTORS AFFECTING AVERAGE EARNINGS

The amount of money received by a wage earner is influenced by several variable factors in addition to his basic wage. These factors include such items as the amount of work performed on late shifts for which extra compensation is paid, the number of overtime hours worked at extra rates of pay, and the productivity (if a piece or bonus worker) of the employee himself.

In several of these particulars a pronounced difference is apparent between the Detroit and Buffalo areas. The minimum entrance rate in effect in Michigan for inexperienced male adult workers is 75 cents. This rate, which is found in 5 of the 9 Michigan establishments, is increased automatically in 4 of these plants to 85 cents after 6 months' service and in one to \$1.15 after 5 weeks' employment. In one other Michigan company, males hired for productive work receive a mini-

imum of \$1.02, which is increased to \$1.07 after 30 days. In the 3 remaining plants, new workers are hired at rates 10 cents lower than the going job rate in the occupation, resulting in an effective minimum of about \$1 an hour. The entrance rate prevailing in the Buffalo area is much lower. Two of the plants have a minimum of 65 cents which, after 60 days, is advanced to 75 cents. The third Buffalo establishment hires new inexperienced workers at 60 cents and raises them 5 cents at monthly intervals until a 75-cent rate is attained. An additional 5 cents is paid at the end of 6 months' service.

Shift differentials effective in the Buffalo region are somewhat more liberal than those found in the Michigan area. All of the Buffalo establishments pay second-shift workers 5 cents more than is paid to daylight workers on identical jobs; third-shift employees work only 6½ hours but are paid for 8 hours at second-shift rates. Two of the Michigan plants also pay 5 cents additional to second-shift workers; third-shift workers, however, receive the same rates as those on the second shift. The remaining seven Michigan plants pay second- and third-shift workers 5 percent above basic day rates.

Almost complete uniformity is found in the provisions for compensating for overtime and Sunday work. Workers in all of the establishments receive time and a half for all hours in excess of 8 a day or 40 a week, and for work on Saturday or on the sixth consecutive day. Employees working on Sunday (in one plant, the seventh consecutive day) receive twice their regular rate.

Like airframe plants in other sections, the majority of the North central establishments pay their employees a straight hourly wage. However, a small proportion of the employees in two Michigan plants are paid on a piece-work basis, and workers in one Buffalo plant receive a production bonus in addition to their basic rate. These premium earnings are included in the wage data here presented.

EARNINGS IN THE MICHIGAN AREA

Earnings in Michigan airframe plants display less dispersion than is typical of other sections of the industry. The average earnings of all first-shift workers in selected occupations varied by only 16.6 cents as between the highest- and lowest-paying establishments. These general averages are influenced by the composition of the labor force, some of the plants being represented by only a few occupations, and other more complete units having nearly all occupations on the pay roll.

As would be expected, employees in the highly skilled occupations earned considerably more than those in the less skilled jobs. Earnings ranged from \$1.471, paid to form and model builders, to the 89.2 cents received by laborers (table 4). Over 90 percent of the workers were in occupations averaging \$1.00 or more, and about one-seventh (14.1 percent) were in jobs paying \$1.25 or more.

Table 4 also shows variation by plant in the wages paid to workers in identical occupations. It should be emphasized that in table 4 the individual plant averages are arranged in descending order and that the data within a single column do not relate to the same establishment. Occupations, likewise, have been arranged in descending order of average earnings. In a few occupations, notably hydraulic installers and electricians, the variation in earnings is relatively small. In most cases, however, the spread in earnings is considerably higher, ranging up to 40 cents and averaging about 20 cents.

TABLE 4.—Average Straight-Time Hourly Earnings of First-Shift Workers in Michigan Airframe Plants, by Occupation, May 1942

Occupation	Percent of total employ-ees studied	Average hourly earnings, all plants	Individual plant averages, in descending order of average						
Form and model builders, wood....	0.4	\$1.471	\$1.516	\$1.480	\$1.470	\$1.442	\$1.430		
Lay-out men.....	.4	1.394	1.450	1.400	1.390	1.350			
Pattern makers, wood.....	.4	1.383	1.510	1.420	1.360				
Tool and die makers.....	2.4	1.343	1.530	1.430	1.405	1.400	1.365	\$1.310	\$1.234
Inspectors—templates, tools, and dies.	1.3	1.334	1.550	1.530	1.467	1.450	1.308	1.300	1.280
Template makers.....	.4	1.329	1.420	1.400	1.370	1.320	1.270	1.200	
Form block makers, metal and wood.	.2	1.328	1.510	1.340	1.248				
Welders, maintenance and jig.....	.3	1.307	1.400	1.330	1.300	1.273	1.250	1.230	
Jig builders, assembly, metal.....	2.6	1.279	1.490	1.430	1.380	1.340	1.285	1.260	1.234
Inspectors, assembly, final.....	.6	1.271	1.390	1.250	1.224	1.130			
Working supervisors, productive.....	4.5	1.261	1.550	1.505	1.400	1.220	1.180	1.180	1.130
Welders, gas (aluminum and steel).....	.6	1.258	1.280	1.270	1.268	1.250	1.230	1.120	
Electricians, maintenance.....	.9	1.242	1.280	1.240	1.230	1.226	1.220	1.210	
Inspectors, assembly, general.....	1.6	1.228	1.283	1.250	1.250	1.244	1.228	1.120	1.080
Small-tool repairmen.....	.3	1.225	1.270	1.230	1.200	1.139			
Mechanics, maintenance.....	1.6	1.202	1.300	1.253	1.230	1.216	1.200	1.199	1.050
Engine-lathe operators.....	.2	1.193	1.350	1.280	1.250	1.173	1.087		
Inspectors, machined parts.....	.6	1.170	1.550	1.290	1.221	1.120	1.117	1.080	
Inspectors, detail.....	1.9	1.168	1.250	1.217	1.186	1.185	1.170	1.133	1.060
Carpenters, maintenance.....	.9	1.161	1.180	1.170	1.166	1.150	1.100		
Saw operators.....	.6	1.147	1.230	1.230	1.140	1.130	1.107	1.080	1.000
Inspectors, receiving.....	1.0	1.146	1.250	1.242	1.196	1.111	1.111	1.060	1.030
Power-brake operators.....	.8	1.138	1.180	1.180	1.140	1.090	1.080	1.020	
Heat treaters (alum., alloy, and steel).	0.2	1.136	1.230	1.200	1.080	1.070	1.012		
Metal fitters.....	.4	1.132	1.200	1.160	1.080				
Sheet-metal workers, bench.....	4.0	1.132	1.270	1.200	1.199	1.080	1.055	0.980	
Milling-machine operators.....	1.6	1.121	1.350	1.230	1.190	1.171	1.165	1.084	1.070
Tube benders, bench.....	.7	1.120	1.180	1.139	1.050	.924			
Installers, controls.....	.6	1.115	1.170	1.120	1.080	1.070			
Installers, hydraulic.....	.9	1.114	1.120	1.118	1.080				
Painters, aircraft.....	.9	1.104	1.230	1.130	1.080	1.052	1.050		
Router operators.....	.5	1.102	1.130	1.130	1.130	1.100	1.080	1.080	.984
Riveters.....	18.3	1.101	1.150	1.118	1.101	1.064	1.005	.980	.950
Guards and watchmen.....	2.5	1.101	1.151	1.093	1.093	1.093	1.019	1.007	.993
Spot welders.....	.8	1.099	1.148	1.090	1.080	1.078	1.060	1.050	1.040
Installers, general.....	1.8	1.092	1.145	1.120	1.080	1.070			
Assemblers, precision, bench.....	.4	1.087	1.140	1.100	1.060	1.020			
Installers, electrical.....	.7	1.085	1.250	1.080	1.070	1.070	1.054		
Bench machinists.....	.4	1.068	1.171	1.010					
Power-shear operators.....	.7	1.068	1.130	1.110	1.100	1.060	1.047	1.030	1.020
Truckers, power.....	.9	1.068	1.170	1.100	1.100	1.070	.988	.980	.980
Punch-press operators.....	1.7	1.063	1.157	1.090	1.080	1.043	1.030	.942	
Clerical, shipping and receiving.....	2.3	1.041	1.073	1.060	1.000	.990	.990	.980	.960
Assemblers, general.....	16.8	1.037	1.117	1.046	1.035	1.024	1.004	.970	.900
Hydro-press operators.....	.2	1.032	1.130	1.130	1.030	.980			
Tool-crib attendants.....	1.8	1.025	1.100	1.051	1.050	.988	.980	.960	.946
Drill-press operators.....	1.2	1.017	1.142	1.111	1.080	1.077	1.050	.978	.925
Clerical, stock and stores.....	3.8	1.008	1.060	1.030	1.030	.990	.980	.951	.930
Craters.....	.9	1.005	1.120	1.025	.956	.950	.920		
Anodizers.....	.7	.974	1.130	1.030	.996	.980	.949	.930	
Hydro-press loaders (parts handlers).	.1	.965	1.030	.980	.820				
Truckers, hand and warehousemen.....	3.4	.961	1.060	1.030	.980	.970	.930	.900	.850
Coverers, fabric.....	.4	.959	1.238	.888					
Assemblers, electrical and radio, bench.....	1.4	.950	1.109	1.057	.920	.841			
Janitors.....	2.4	.909	.970	.890	.872	.850	.850	.850	.850
Laborers.....	.6	.892	.970	.970	.930	.855	.850		

EARNINGS IN THE BUFFALO AREA

The single average of 98.2 cents, cited earlier as prevailing in the Buffalo region, conceals a considerable variation in earnings from plant to plant, and from one occupation to another. As shown by table 5, which presents occupational averages grouped on the basis of the length of training and experience normally required to achieve competence,⁴ earnings in specific occupations ranged from 62.5 cents to \$1.307. Considerable variation exists even within a single length-of-

⁴ The estimates of required training and experience were prepared by a representative group of western airframe companies. The recent increase in production schedules, however, has necessitated the assignment of workers to tasks normally requiring considerable experience much sooner than is indicated by table 5.

training group. Thus, in the group of occupations normally requiring 4 years or more of service, average earnings varied from 88.3 cents received by tool and die workers, grade C, to \$1.304 paid to grade A workers in the same occupation. Workers in occupations requiring between 3 and 4 years' experience received earnings ranging from 95.1 cents to \$1.237. An even greater spread in earnings is apparent in the group of jobs for which 2 to 3 years' experience is necessary, the averages ranging from 88.0 cents to \$1.307. Earnings in occupations requiring 1 to 2 years' experience extend from 83.9 cents to \$1.039, those in jobs demanding 6 months' to a year's training from 82.8 cents to \$1.066, and among occupations calling for less than 6 months' training, from 62.5 to 93.5 cents.

TABLE 5.—Average Straight-Time Hourly Earnings of First-Shift Workers in Buffalo-Area Airframe Plants, by Length of Training Period and Occupation, June 1942

Length of training period and occupation	Percent of total employees studied	Average hourly earnings	Length of training period and occupation	Percent of total employees studied	Average hourly earnings
<i>4 years or more</i>			<i>1 year and under 2 years</i>		
Tool and die makers, grade A.....	1.1	\$1.304	Drill-press operators, grade A.....	0.5	\$1.039
Working supervisors, productive	2.5	1.242	Painters, aircraft, grade B.....	.5	1.034
Inspectors, assembly, final, grade			Tube benders, bench, grade A.....	.3	1.031
A.....	.5	1.218	Assemblers, general, grade B.....	7.3	1.020
Pattern makers, wood, grade A.....	.3	1.206	Riveters, grade A.....	3.9	1.014
Grinder operators, grade A.....	.3	1.180	Punch-press operators, grade B.....	.4	1.011
Jig builders, assembly, metal,			Installers, hydraulic, grade B.....	.4	.980
grade A.....	.5	1.163	Installers, power plant, grade B.....	.5	.967
Sheet-metal workers, bench, grade			Installers, controls, grade B.....	.3	.964
A.....	1.5	1.144	Installers, electrical, grade B.....	1.8	.962
Carpenters, maintenance, grade A.....	.4	1.112	Spot welders, grade B.....	.3	.946
Electricians, maintenance, grade			Milling-machine operators, grade		
A.....	.4	1.109	C.....	.7	.943
Milling-machine operators, grade			Installers, general, grade B.....	2.5	.939
A.....	.7	1.073	Tool-crib attendants, grade A.....	.5	.938
Tool and die makers, grade B.....	1.1	1.049	Welders, gas (aluminum and steel),		
Tool and die makers, grade C.....	.8	.883	grade B.....	.4	.929
<i>3 and under 4 years</i>			Clerical, shipping and receiving.....	.9	.925
Loftsmen.....	.3	1.237	Sheet-metal workers, bench, grade		
Assemblers, general, grade A.....	2.8	1.115	C.....	1.1	.924
Assemblers, precision, bench,			Assemblers, precision, bench,		
grade A.....	.8	1.103	grade B.....	1.0	.913
Inspectors, receiving, grade A.....	.3	1.085	Inspectors, assembly, general,		
Inspectors, assembly, general,			grade C.....	1.6	.905
grade A.....	.6	1.034	Grinder operators, grade C.....	.2	.848
Jig builders, assembly, metal,			Clerical, stock and stores.....	3.0	.839
grade B.....	.7	1.024	<i>6 months and under 1 year</i>		
Lay-out men.....	.8	1.013	Spot welders, grade C.....	.2	1.066
Metal fitters, grade A.....	.2	.958	Craters, grade B.....	.8	1.052
Grinder operators, grade B.....	.4	.951	Router operators.....	.6	1.000
<i>2 and under 3 years</i>			Drill-press operators, grade B.....	.7	.972
Welders, maintenance and jig,			Assemblers, general, grade C.....	13.8	.969
grade A.....	.2	1.307	Assemblers, electrical and radio,		
Painters, aircraft, grade A.....	.3	1.196	bench, grade B.....	.3	.949
Welders, gas (aluminum and steel),			Painters, aircraft, grade C.....	1.3	.932
grade A.....	.6	1.164	Riveters, grade B.....	8.2	.923
Installers, general, grade A.....	.9	1.155	Truckers, power.....	.3	.901
Punch-press operators, grade A.....	.7	1.147	Metal fitters, grade C.....	.5	.899
Installers, electrical, grade A.....	.5	1.076	Assemblers, precision, bench,		
Sheet-metal workers, bench, grade			grade C.....	1.1	.891
B.....	2.3	1.025	Tube benders, bench, grade B.....	.2	.891
Welders, arc, grade A.....	.3	1.008	Bench machinists, grade C.....	.3	.875
Assemblers, electrical and radio,			Installers, general, grade C.....	1.7	.855
bench, grade A.....	.4	.965	Tool-crib attendants, grade B.....	.4	.830
Mechanics, maintenance, grade B.			Guards and watchmen.....	1.4	.828
Field and service mechanics, grade			<i>Less than 6 months</i>		
B.....	.2	.918	Drill-press operators, grade C.....	1.0	.935
Inspectors, receiving, grade B.....	1.0	.913	Helpers, general.....	1.3	.915
Inspectors, assembly, precision,			Saw operators, grade B.....	.3	.894
grade B.....	.4	.905	Laborers.....	1.4	.849
Inspectors, assembly, general,			Janitors.....	1.4	.796
grade B.....	1.6	.880	Assemblers, general, learner.....	.4	.654
			Milling-machine operators, learner.....	.3	.625

Table 6 presents averages for the 14 occupations found in all 3 Buffalo-area plants. As in table 4, the plant averages are arranged in descending order and the data within a column do not relate to the same establishment. It may be seen that even in this small homogeneous group of plants considerable variation in plant occupational averages exists. Averages for grade A general installers, for example, vary by 21.2 cents as between the high- and low-paying plants. The majority of the differences, however, are somewhat smaller, averaging about 14 cents.

TABLE 6.—Average Straight-Time Hourly Earnings of First-Shift Workers in Buffalo-Area Airframe Plants, by Length of Training and Selected Occupation, June 1942

Length of training period and occupation	Average, all plants	Individual plant averages in descending order of average			
3 and under 4 years:					
Assemblers, general, grade A.....	\$1.115	\$1.163	\$1.105	\$1.025	
2 and under 3 years:					
Installers, general, grade A.....	1.155	1.304	1.175	1.092	
Inspectors, assembly, general, grade B.....	.880	.893	.889	.861	
1 year and under 2 years:					
Assemblers, general, grade B.....	1.020	1.120	.895	.889	
Riveters, grade A.....	1.014	1.098	.933	.932	
Installers, electrical, grade B.....	.962	1.027	.870	.844	
Installers, general, grade B.....	.939	1.035	.901	.900	
Clerical, stock and stores.....	.839	.901	.806	.740	
6 months and under 1 year:					
Assemblers, general, grade C.....	.969	.991	.836	.832	
Painters, aircraft, grade C.....	.932	.982	.808	.792	
Riveters, grade B.....	.923	.965	.855	.849	
Installers, general, grade C.....	.855	.909	.838	.832	
Guards and watchmen.....	.828	.852	.808	.805	
Less than 6 months:					
Janitors.....	.796	.817	.808	.767	

THE MIDCONTINENT REGION—JUNE 1942

No region of the country has been more greatly affected by the war production program than has the great drainage basin of the Missouri and Mississippi Rivers. Huge "black-out" plants⁵ have sprung up from the empty plains. Thousands of workers are learning new phrases—stress, tolerance, vernier, camber—the language of production. They are learning the uses of micrometers, of welding torches, and of riveting guns, and are learning to shape and cut the duralumin, the plexiglass, the steel, and other materials of production.

Most of these workers are new to industry; they have been drawn from home, school, farm, and office. The wages paid by airframe companies to these new workers and the relationship of their earnings to the wage level of similar workers in other regions are particulars which the Bureau of Labor Statistics has endeavored to determine in its present study.

The 11 airframe plants covered by this report are in an area (referred to here as the Midcontinent region) the limits of which are Nebraska on the northwest, Texas on the southwest, Ohio on the northeast, and Tennessee on the southeast. It is readily seen that the establishments are widely scattered geographically.

Four of the 11 establishments surveyed have contracts with the International Association of Machinists, an A. F. of L. affiliate. A fifth has entered into an agreement with the United Automobile

⁵ I. e., plants without windows.

Workers, affiliated with the C. I. O. The remaining 6 plants have no agreement with any union organization. There is considerable variation also in the product of these establishments. Although all except one of the plants are producing complete aircraft, the product ranges from small trainers to huge bombers. The remaining plant is manufacturing large-unit subassemblies.

The establishments surveyed are all of about the same size, measured by number of employees. All of them are new plants, situated at a considerable distance from both the Atlantic and Pacific coasts. Most of them are branches of or affiliates of parent companies well established in the industry. All have been faced with the necessity of training large numbers of inexperienced workers (including many women, who at present constitute more than 10 percent of the total employment). All of them pay their workers a straight hourly rate, although employees of one establishment participate in the firm's earnings, under a profit-sharing plan. Finally, as will be shown later, the provisions for overtime pay, the shift differentials, and the entrance rates in effect exhibit a considerable degree of uniformity.

Recent History of Wage Rates

The airframe industry in the Midcontinent region is a new industry; no long historical pattern of rates can be established. There are available in the Bureau of Labor Statistics, however, data on gross average hourly earnings of a sufficient number of plants in the area to trace the movement of earnings there since July 1941. At that time, the hourly earnings of airframe workers averaged 69.2 cents, including overtime pay. In each month thereafter, until January 1942, the average rose, as indicated below:

	1941	Average hourly earnings (cents)
July		69.2
August		72.1
September		72.9
October		74.0
November		79.7
December		83.2
	1942	
January		87.0

The level of earnings since January has remained fairly stable, the average in May 1942 standing at 86.7 cents.

Several factors have contributed to the increase of 17.5 cents an hour in the average since July 1941. Of prime importance was the upward adjustment in basic hourly rates since that date made by each of the plants in the area. A second important influence was the adoption by one company of a profit-sharing bonus. Instituted in November 1941, this factor alone was sufficient to raise the regional average in a recent month by 5 cents. The third element contributing to the rise in the average since July 1941 was the increase in weekly hours worked (from 45.0 to 46.9), with a corresponding increase in the number of overtime hours paid for at punitive rates.

The relatively homogeneous structure of the Midcontinent industry is reflected in a comparatively small variation in general plant average hourly earnings. In July 1941, the spread in earnings between the

highest- and lowest-paying establishments was 16.0 cents an hour. The amount of the plant-average difference has declined since that time, resting at 12.2 cents in May 1942.⁶

Part of this difference in the plant averages may be charged to variations in the composition of the working force, to differences in the number of overtime hours worked at extra rates of pay, and to the varying proportion of workers on late shifts commanding differential rates. It is apparent, however, that the principal element contributing to the variation in earnings is the difference in basic hourly rates. The average hourly earnings (excluding overtime compensation) of first-shift workers in selected occupations embracing about three-fourths of the employees, varied by 11.4 cents as between the high- and low-paying establishments.

Average Hourly Earnings

FACTORS AFFECTING AVERAGE EARNINGS

The elements determining the gross weekly pay of any worker are his basic hourly rate, the total hours worked, the number of overtime hours paid for at extra rates, and the number of hours worked on late shifts for which a differential is paid. The midcontinent airframe plants exhibit considerable uniformity in the minimum entrance rate paid to inexperienced male adult workers. Eight of the establishments pay new male workers on the "North American" pattern, now generally adopted in all sections of the country except Michigan. This scale provides for an entrance rate of 60 cents, which is increased automatically in 5-cent monthly stages until earnings reach 75 cents. The ninth establishment also pays new workers a minimum of 60 cents, but has no provision for automatic increases. The two remaining establishments start new workers at 55 cents. This rate advances in one plant to 60 cents after 2 months and to 65 cents upon the completion of 6 months' service. In the remaining plant, employees are increased 5 cents for each 60 days' service until a 70-cent rate is attained.

Somewhat more variation is found in the provisions for compensating work performed on extra shifts. The data contained in table 7, which show the provisions in effect, indicate that workers on the second shift average about 9 percent more and workers on the third shift about 15 percent more than the earnings received by daylight-shift workers in identical occupations.

TABLE 7.—*Scale of Wages for Second and Third Shifts, in Midcontinent Airframe Plants*

Number of plants	Differential paid for—	
	Second shift	Third shift
3.....	5 cents an hour.....	10 cents an hour.
2.....	do.....	5 cents an hour.
2.....	do.....	8 hours' pay, at second-shift rates, for 6¼ hours' work.
1.....	6 cents an hour.....	9 cents an hour.
1.....	7 cents an hour.....	8 hours' pay, at second-shift rates, for 6¾ hours' work.
1.....	8 cents an hour.....	8 hours' pay, at second-shift rates, for 6¼ hours' work.
1.....	5 percent of base rate, plus pay for ¾ hour.	5 percent of base rate, plus pay for ¾ hour.

⁶ For the purposes of this comparison, the plant with the profit-sharing bonus has been included.

All but one of the establishments in the area pay time and a half for hours in excess of 8 per day or 40 per week. The exception likewise pays time and a half after 40 hours a week, but begins payment of this extra rate after only 7½ hours a day. Eight plants paid time and a half for Saturday work and three others paid at that rate for work done on the sixth consecutive day. Sunday work was paid for at double the regular rates by 4 of the plants and at time and a half by the remaining establishments. One of the latter paid double time for the seventh consecutive day of work.

Wage earners in the area were working an average of 46.9 hours a week in June 1942, and as a consequence, overtime earnings represent a considerable proportion of the total pay. The cumulative effect of overtime pay and shift differentials on earnings can be seen in the following tabulation which presents the difference between average straight-time hourly earnings and the average gross hourly earnings, including overtime and shift premiums, in each of the 7 plants for which data were available at the time this report was prepared:

	<i>Difference in earnings (cents)</i>
Company I.....	2.1
Company II.....	5.2
Company III.....	8.4
Company IV.....	11.1
Company V.....	11.3
Company VI.....	12.7
Company VII.....	15.3

It will be seen that, in most of the establishments, extra overtime and shift compensation increased average earnings by substantial amounts. Even in companies I and II, where little overtime was worked, these extra payments were sufficient to raise average hourly earnings by 2.1 and 5.2 cents, respectively. For the region as a whole, it is estimated that the average gross earnings of workers on all three shifts were about 8 cents higher than equivalent first-shift straight-time earnings.

As stated earlier, all midcontinent establishments, except one, pay their workers a straight hourly rate. However, the profit-sharing bonus paid to the workers of one company represents a substantial increment to their earnings and this bonus has been included in the wage data presented in this report.

STRAIGHT-TIME EARNINGS IN THE REGION AS A WHOLE

Straight-time hourly earnings of first-shift workers in the 10 midcontinent plants making complete aircraft 80.3 cents an hour. These averages conceal a very considerable variation in the earnings of individual workers.

Workers in the 10 plants manufacturing complete airframes have been classified on the basis of the length of training and experience normally required to achieve competence at their tasks.⁷ As shown by table 8, average hourly earnings ranged from 67.7 cents for workers in occupations normally requiring less than 6 months' training to \$1.096 for workers in occupations for which 4 years' or more experience

⁷ The estimates of necessary training and experience were prepared by a representative group of airframe manufacturers. The demands of the war program, however, have forced employers to assign workers to occupations normally requiring considerable training much sooner than would ordinarily be the case.

is necessary. It will be noted that average earnings progress regularly and consistently with each increase in the length of training period. From this it might appear that each class comprises a homogeneous group of employees. Actually, however, considerable variation in earnings exists even among workers with similar skills.

TABLE 8.—Average Hourly Earnings of First-Shift Workers in Midcontinent Airframe Industry, by Length of Required Training, June 1942

Length of training required for occupation	Percent of employees in specified training group	Average hourly earnings
Less than 6 months.....	30.5	\$0.677
6 months and under 1 year.....	22.4	.759
1 year and under 2 years.....	25.8	.840
2 years and under 3 years.....	8.3	.883
3 years and under 4 years.....	5.0	.978
4 years and over.....	8.0	1.098
All workers.....	100.0	.803

AVERAGE HOURLY EARNINGS BY LENGTH OF REQUIRED TRAINING PERIOD, OCCUPATION, GRADE, AND PLANT

Table 9 presents the average hourly earnings of first-shift workers in 10 midcontinent frame plants by length-of-service class, occupation, and plant; the occupational pattern in the remaining plant, a subassembly producer, did not lend itself to combination with the others. In table 9 the occupational and plant averages have been arranged in descending order; the data within any one column do not relate to the same establishment.

Examination of table 9 reveals that earnings of airframe workers are determined largely by the specific job at which they work, rather than by the length of training declared to be a normal requirement. The considerable extent to which earnings of workers in the several length-of-service groups overlap is immediately apparent. Among the group of occupations requiring 4 years' or more training, average earnings ranged from 88.0 cents to \$1.298, a spread of more than 40 cents. A similar range in earnings is found in each of the other length-of-training classes: in the 3 to 4 year group, from 83.5 cents to \$1.203; in the 2 to 3 year group, from 76.6 cents to \$1.070; in the 1 to 2 year class, from 72.0 cents to \$1.017; in the 6 months to 1 year group, from 70.0 to 86.5 cents; and in the occupations requiring less than 6 months' training, from 60.3 to 86.8 cents.

Table 9 reveals also the considerable variation in wages paid by the several establishments to workers in identical occupations. The differences in earnings for given occupations between the low- and high-paying establishments are substantial, in some instances running to more than 40 cents, and averaging about 20 cents. However, there is little consistency in the relative position occupied by the rates in any given establishment. A plant with wages above the regional average may pay workers in some of its occupations at levels well below the regional average for those jobs. Conversely, some low-paying establishments may pay a few occupations a relatively high scale of wages. This is exemplified by the occupational rates in one establishment selected at random. The selected plant is one whose average earnings are slightly below the area average. However, in one occupa-

tion, its rate was the highest in the region. Among the 19 occupations in which the selected plant and at least 6 other establishments were represented, the rates paid by the selected company had the following rankings: First in one occupation, second in one occupation, third in 2 occupations, fourth in one occupation, fifth in 2 occupations, sixth in 6 occupations, and seventh in 6 occupations.

TABLE 9.—Average Straight-Time Hourly Earnings of First-Shift Workers in Mid-continent Airframe Plants, by Training Period and Occupation, June 1942

[Letters, A, B, and C, indicate occupational grade]

Length of training period and occupation	Percent of total employees studied	Average hourly earnings, all plants	Individual plant averages in descending order of average									
<i>4 years or more</i>												
Tool and die makers, A	0.7	\$1.298	\$1.340	\$1.319	\$1.308	\$1.273	\$1.210	\$1.200	\$1.183	-----	-----	-----
Pattern makers, wood, A	.1	1.278	1.200	1.050	-----	-----	-----	-----	-----	-----	-----	-----
Jig builders, assembly, metal, A	.3	1.235	1.425	1.214	1.175	1.128	1.087	-----	-----	-----	-----	-----
Milling-machine operators, A	.3	1.194	1.214	1.195	1.170	-----	-----	-----	-----	-----	-----	-----
Inspectors, assembly, final, A	.2	1.117	1.125	1.110	1.100	1.060	-----	-----	-----	-----	-----	-----
Turret-lathe operators, A	.3	1.099	1.198	1.110	1.033	1.000	-----	-----	-----	-----	-----	-----
Electricians, maintenance, A	.4	1.088	1.278	1.117	1.088	1.047	1.080	1.000	1.000	-----	-----	-----
Tool and die makers, B	.5	1.085	1.164	1.135	1.130	1.108	1.096	1.063	1.025	\$0.938	-----	-----
Engine-lathe operators, A	.3	1.084	1.222	1.150	1.130	1.075	.970	-----	-----	-----	-----	-----
Form and model builders, wood, A	.1	1.061	1.088	1.050	.938	-----	-----	-----	-----	-----	-----	-----
Inspectors, machined parts, A	.1	1.060	1.200	1.150	1.100	1.100	-----	-----	-----	-----	-----	-----
Working supervisors, productive	2.7	1.051	1.297	1.042	1.040	1.025	.932	-----	-----	-----	-----	-----
Bench machinists, A	.2	1.026	1.117	1.000	1.000	-----	-----	-----	-----	-----	-----	-----
Carpenters, maintenance, A	.1	1.012	1.135	1.116	-----	-----	-----	-----	-----	-----	-----	-----
Mechanics, maintenance, A	.2	1.009	1.070	1.065	1.010	1.010	.950	-----	-----	-----	-----	-----
Sheet-metal workers, bench, A	.7	.948	.963	.903	.850	-----	-----	-----	-----	-----	-----	-----
Inspectors, machined parts, B	.2	.924	1.133	.997	.980	.867	.767	-----	-----	-----	-----	-----
Inspectors, templates, tools and dies, C	.1	.884	.950	.917	.854	-----	-----	-----	-----	-----	-----	-----
Tool and die makers, C	.3	.880	.950	.918	.862	.833	-----	-----	-----	-----	-----	-----
<i>3 and under 4 years</i>												
Inspectors--												
Receiving, A	.1	1.203	1.307	1.113	-----	-----	-----	-----	-----	-----	-----	-----
Assembly, general, A	.4	1.057	1.394	1.017	.970	.925	-----	-----	-----	-----	-----	-----
Detail, A	.1	1.020	1.025	-----	-----	-----	-----	-----	-----	-----	-----	-----
Jig builders, assembly, metal, B	1.0	1.009	1.132	1.105	.985	.982	.937	.877	.875	-----	-----	-----
Field and service mechanics, A	.1	.997	1.083	1.014	.950	-----	-----	-----	-----	-----	-----	-----
Assemblers, general, A	1.0	.982	1.169	1.000	.988	.980	.938	.918	.818	-----	-----	-----
Inspectors, assembly, final, B	.3	.981	1.040	1.014	.975	.975	.966	.950	-----	-----	-----	-----
Turret-lathe operators, B	.4	.955	1.010	1.009	.896	.783	-----	-----	-----	-----	-----	-----
Milling-machine operators, B	.3	.921	1.000	.967	.953	.883	-----	-----	-----	-----	-----	-----
Engine-lathe operators, B	.3	.908	1.005	.880	.840	-----	-----	-----	-----	-----	-----	-----
Grinder operators, B	.1	.897	1.000	.997	.835	-----	-----	-----	-----	-----	-----	-----
Small-tool repairmen, A	.1	.875	.890	.883	.829	-----	-----	-----	-----	-----	-----	-----
Lay-out men	.2	.858	.950	.867	.850	.823	-----	-----	-----	-----	-----	-----
Inspectors, machined parts, C	.1	.835	.890	.760	-----	-----	-----	-----	-----	-----	-----	-----

TABLE 9.—Average Straight-Time Hourly Earnings of First-Shift Workers in Mid-continent Airframe Plants, by Training Period and Occupation, June 1942—Continued

[Letters, A, B, and C, indicate occupational grade]

Length of training period and occupation	Per- cent of total employ- ees stud- ied	Ave- rage hourly earn- ings, all plants	Individual plant averages in descending order of average									
<i>2 and under 3 years</i>												
Welders, maintenance and jig, A.....	0.1	\$1.070	\$1.150	\$1.097	\$1.000	.....	.....	.....	.....	.....	.....	.....
Template makers, B.....	.1	1.062	1.071	.883	.....	.....	.....	.....	.....	.....	.....	.....
Welders, gas (aluminum and steel), A.....	.7	1.039	1.243	1.127	1.041	\$1.017	\$0.970	.....	.....	.....	.....	.....
Installers, controls, A.....	.2	.971	.950	.816	.....	.....	.....	.....	.....	.....	.....	.....
Inspectors, receiving, B.....	.1	.915	.921	.900	.....	.....	.....	.....	.....	.....	.....	.....
Painters, aircraft, A.....	.4	.915	.930	.921	.917	.900	.867	\$0.842	.....	.....	.....	.....
Inspectors, assembly, general, B.....	.3	.890	.894	.891	.879	.838	.....	.....	.....	.....	.....	.....
Field and service mechanics, B.....	.1	.887	.940	.896	.831	.....	.....	.....	.....	.....	.....	.....
Mechanics, maintenance, B.....	.3	.874	.938	.909	.876	.866	.833	.....	.....	.....	.....	.....
Bench machinists, B.....	.4	.872	1.015	.885	.850	.846	.840	.784	.....	.....	.....	.....
Installers, electrical, A.....	.2	.867	.917	.836	.808	.....	.....	.....	.....	.....	.....	.....
Carpenters, maintenance, B.....	.3	.862	.900	.792	.....	.....	.....	.....	.....	.....	.....	.....
Electricians, maintenance, B.....	.4	.861	.925	.911	.898	.892	.892	.700	.....	.....	.....	.....
Assemblers, electrical and radio, bench, A.....	.1	.854	.872	.830	.....	.....	.....	.....	.....	.....	.....	.....
Sheet-metal workers, bench, B.....	2.7	.845	1.063	.950	.950	.868	.810	.761	\$0.759	\$0.742	\$0.700	.....
Installers, general, A.....	.3	.843	.950	.932	.900	.800	.....	.....	.....	.....	.....	.....
Inspectors—												
Assembly, final, C.....	.4	.824	.868	.833	.816	.806	.793	.....	.....	.....	.....	.....
Detail, B.....	.5	.811	.950	.890	.887	.733	.....	.....	.....	.....	.....	.....
Form and model builders, wood, C.....	.1	.766	.775	.730	.....	.....	.....	.....	.....	.....	.....	.....
<i>1 year and under 2 years</i>												
Welders—												
Arc, B.....	.2	1.017	1.073	1.052	.830	.....	.....	.....	.....	.....	.....	.....
Gas (aluminum and steel), B.....	.9	1.012	1.132	1.050	1.017	1.000	.981	.922	.850	.....	.....	.....
Maintenance and jig, B.....	.2	1.012	1.075	1.043	.995	.983	.915	.....	.....	.....	.....	.....
Drop-hammer operators, B.....	.1	1.000	1.120	.925	.875	.....	.....	.....	.....	.....	.....	.....
Riveters, A.....	.4	.940	1.087	.883	.850	.833	.810	.....	.....	.....	.....	.....
Assemblers, general, B.....	6.9	.918	1.032	.892	.876	.859	.849	.815	.802	.776	.769	\$0.720
Power-brake operators, B.....	.2	.915	1.050	.850	.767	.750	.....	.....	.....	.....	.....	.....
Assemblers, precision, bench, B.....	.2	.914	.876	.850	.....	.....	.....	.....	.....	.....	.....	.....
Drill-press operators, A.....	.2	.865	.873	.783	.....	.....	.....	.....	.....	.....	.....	.....
Shaper operators, metal, B.....	.1	.863	.863	.843	.....	.....	.....	.....	.....	.....	.....	.....
Assemblers, general, wood, B.....	.8	.852	1.078	.824	.819	.....	.....	.....	.....	.....	.....	.....
Painters, aircraft, B.....	.4	.850	.856	.853	.850	.838	.788	.743	.720	.....	.....	.....
Coverers, fabric, A.....	.1	.840	.830	.700	.....	.....	.....	.....	.....	.....	.....	.....
Tool-crib attendants, A.....	.3	.837	.960	.923	.750	.700	.....	.....	.....	.....	.....	.....
Form-block makers, metal and wood, B.....	.1	.833	.823	.....	.....	.....	.....	.....	.....	.....	.....	.....
Punch-press operators, B.....	.3	.829	.830	.802	.745	.742	.....	.....	.....	.....	.....	.....
Installers, general, B.....	.9	.824	.861	.850	.817	.816	.800	.800	.792	.....	.....	.....

TABLE 9.—Average Straight-Time Hourly Earnings of First-Shift Workers in Mid-continent Airframe Plants, by Training Period and Occupation, June 1942—Continued

[Letters, A, B, and C, indicate occupational grade]

Length of training period and occupation	Per- cent of total em- ploy- ees stud- ied	Ave- rage hourly earn- ings, all plants	Individual plant averages in descending order of average									
<i>1 year and under 2 years—Continued</i>												
Jig builders, assembly, metal, C	1.3	\$0.823	\$0.855	\$0.842	\$0.821	\$0.817	\$0.790	\$0.781	-----	-----	-----	-----
Mechanics, maintenance, C	.2	.822	.925	.783	.778	.776	.761	-----	-----	-----	-----	-----
Spot welders, B	.1	.818	.827	.800	.750	-----	-----	-----	-----	-----	-----	-----
Installers, electrical, B	.6	.817	.971	.906	.862	.824	.823	.739	\$0.717	-----	-----	-----
Power-shear operators, B	.3	.813	.792	.780	.787	-----	-----	-----	-----	-----	-----	-----
Turret-lathe operators, C	.4	.810	.869	.800	.710	-----	-----	-----	-----	-----	-----	-----
Grinder operators, C	.2	.809	.875	.813	.783	-----	-----	-----	-----	-----	-----	-----
Field and service me- chanics, C	.1	.807	.925	.825	.817	.750	-----	-----	-----	-----	-----	-----
Installers, power plant, B	.3	.805	.868	.850	.725	.714	-----	-----	-----	-----	-----	-----
Milling-machine opera- tors, C	1.0	.797	.875	.831	.830	.805	.775	.726	.713	\$0.713	-----	-----
Installers, controls, B	.4	.793	.838	.823	.809	.763	.740	-----	-----	-----	-----	-----
Inspectors, receiving, C	.4	.789	.806	.795	.775	.750	-----	-----	-----	-----	-----	-----
Engine-lathe operators, C	.2	.789	.875	.875	.800	.725	-----	-----	-----	-----	-----	-----
Inspectors—												
Assembly, general, C	.4	.786	.806	.800	.779	.775	.750	-----	-----	-----	-----	-----
Detail, C	.2	.781	.806	.788	.779	.765	-----	-----	-----	-----	-----	-----
Sheet-metal workers, bench, C	1.8	.772	.857	.827	.817	.782	.761	.728	.700	.694	\$0.669	-----
Metal fitters, B	.2	.762	.930	.867	.750	.731	-----	-----	-----	-----	-----	-----
Clerks, stock and stores	3.5	.738	.847	.761	.758	.736	.720	.712	.711	.707	.695	-----
Inspectors, assembly, precision, C	.1	.729	.845	.675	-----	-----	-----	-----	-----	-----	-----	-----
Clerks, shipping and re- ceiving	1.0	.720	.767	.763	.746	.730	.728	.688	.680	.670	-----	-----
<i>6 months and under 1 year</i>												
Welders, arc, C	.1	.865	.892	.800	-----	-----	-----	-----	-----	-----	-----	-----
Router operators, A	.2	.858	.802	.770	.750	-----	-----	-----	-----	-----	-----	-----
Assemblers, precision, bench, C	.2	.814	.800	.800	-----	-----	-----	-----	-----	-----	-----	-----
Drill-press operators, B	1.1	.804	1.050	.850	.810	.800	.750	.715	-----	-----	-----	-----
Saw operators, A	.2	.804	.826	.813	.714	-----	-----	-----	-----	-----	-----	-----
Craters, B	.1	.802	.800	.700	-----	-----	-----	-----	-----	-----	-----	-----
Welders, gas (aluminum and steel), C	.6	.800	.960	.903	.815	.791	.740	.713	-----	-----	-----	-----
Assemblers, electrical and radio, bench, B	.7	.789	.956	.838	.814	.783	.754	.700	.700	-----	-----	-----
Tube benders, bench, B	.4	.786	1.000	.827	.783	.725	.710	.700	-----	-----	-----	-----
Carpenters, maintenance, C	.2	.784	.794	.788	.749	-----	-----	-----	-----	-----	-----	-----
Drop-hammer operators, C	.1	.783	.800	.782	.723	-----	-----	-----	-----	-----	-----	-----

TABLE 9.—Average Straight-Time Hourly Earnings of First-Shift Workers in Mid-continent Airframe Plants, by Training Period and Occupation, June 1942—Continued

[Letters, A, B, and C, indicate occupational grade]

Length of training period and occupation	Percent of total employees studied	Average hourly earnings, all plants	Individual plant averages in descending order of average									
<i>6 months and under 1 year—Continued</i>												
Installers, electrical, C	0.5	\$0.762	\$0.882	\$0.795	\$0.775	\$0.750	\$0.681	\$0.650				
Tool-crib attendants, B	.7	.762	.865	.760	.758	.750	.750	.747	\$0.710			
Bench machinists, C	.5	.761	.840	.821	.777	.762	.760	.740	.725	\$0.717	\$0.700	
Assemblers, general, C	6.3	.754	.861	.800	.783	.764	.757	.725	.715	.713	.673	\$0.671
Riveters, B	5.2	.752	.975	.788	.764	.753	.750	.731	.696			
Installers—												
General, C	1.4	.751	.783	.775	.759	.758	.700					
Hydraulic, C	.1	.743	.775	.700								
Power plant, C	.3	.738	.850	.800	.790	.734	.700	.600				
Painters, aircraft, C	.7	.737	.800	.758	.750	.733	.713	.675				
Form-block makers, metal and wood, C	.2	.736	.800	.750	.750	.717						
Truckers, power	.3	.735	.773	.756	.700	.700	.672					
Electricians, maintenance, C	.1	.734	.767	.758	.743							
Metal fitters, C	.1	.728	.793	.700	.683							
Guards and watchmen	1.4	.725	.759	.742	.733	.730	.704	.700				
Installers, controls, C	.2	.700	.759	.750	.675	.642						
<i>Under 6 months</i>												
Saw operators, B	.1	.868	1.003	.733	.667							
Coverers, fabric, B	.4	.784	.961	.756	.750	.725						
Tool and die makers, learner	.2	.765	.770	.767	.743							
Drill-press operators, C	1.3	.737	.750	.721	.663							
Assemblers, general, wood, C	.5	.732	.750	.716								
Craters, C	.3	.722	.750	.700	.638	.625						
Anodizers, B	.1	.720	.742	.671								
Inspectors, machined parts, learner	.1	.718	.744	.650								
Punch-press operators, learner	.2	.718	.745	.700								
Router operators, learner	.1	.709	.750	.680	.640							
Sheet-metal workers, bench, learner	1.7	.702	.747	.690	.670	.662	.625	.600				
Helpers, general	4.9	.685	.748	.734	.733	.717	.714	.704	.669	.632		
Assemblers, general, learner	4.6	.685	.796	.747	.700	.672	.633	.600	.590			
Laborers	1.4	.684	.773	.750	.723	.710	.703	.654	.600	.600		
Assemblers, electrical and radio, bench, learner	.4	.679	.706	.663	.600							
Jig builders, assembly, metal, learner	.9	.675	.775	.738	.655	.626						
Assemblers, general, wood, learner	.4	.672	.771	.683	.646							
Inspectors, detail, learner	.1	.670	.700	.660	.650							
Riveters, learner	2.4	.670	.708	.698	.696	.669	.624	.600				
Installers, general, learner	2.5	.667	.690	.674	.606							

TABLE 9.—Average Straight-Time Hourly Earnings of First-Shift Workers in Mid-continent Airframe Plants, by Training Period and Occupation, June 1942—Continued

[Letters, A, B, and C, indicate occupational grade]

Length of training period and occupation	Per- cent of total em- ploy- ees stud- ied	Aver- age hourly earn- ings, all plants	Individual plant averages in descending order of average									
<i>Under 6 months—Con.</i>												
Tube benders, bench, learner	0.8	\$0.665	\$0.743	\$0.641	-----	-----	-----	-----	-----	-----	-----	-----
Assemblers, precision, bench, learner	.3	.664	.747	.648	-----	-----	-----	-----	-----	-----	-----	-----
Field and service mechanics, learner	.1	.664	.735	.638	-----	-----	-----	-----	-----	-----	-----	-----
Janitors	2.1	.662	.784	.722	\$0.722	\$0.686	\$0.681	\$0.610	\$0.600	\$0.600	\$0.574	\$0.565
Painters, aircraft, learner	.3	.661	.746	.683	.636	.600	.550	-----	-----	-----	-----	-----
Installers, electrical, learner	.5	.659	.702	.659	.615	-----	-----	-----	-----	-----	-----	-----
Pattern makers, plaster, learner	.2	.659	.767	.694	.675	.600	-----	-----	-----	-----	-----	-----
Inspectors—												
Assembly, general, learner	.3	.656	.680	.655	.650	.633	-----	-----	-----	-----	-----	-----
Receiving, learner	.2	.655	.700	.650	.650	.645	-----	-----	-----	-----	-----	-----
Installers—												
Power plant, learner	.3	.646	.750	.650	.649	.625	-----	-----	-----	-----	-----	-----
Controls, learner	.2	.644	.649	.583	-----	-----	-----	-----	-----	-----	-----	-----
Hydraulic, learner	.2	.643	.646	.635	-----	-----	-----	-----	-----	-----	-----	-----
Craters, learner	.3	.641	.679	.679	.550	-----	-----	-----	-----	-----	-----	-----
Tool-crib attendants, learner	.2	.637	.660	.653	.600	-----	-----	-----	-----	-----	-----	-----
Truckers, hand, and warehousemen	.1	.625	.625	-----	-----	-----	-----	-----	-----	-----	-----	-----
Heat treaters (aluminum alloy and steel), learner	.2	.620	.640	.617	.583	-----	-----	-----	-----	-----	-----	-----
Milling-machine operators, learner	.1	.616	.633	.633	-----	-----	-----	-----	-----	-----	-----	-----
Form-block makers, metal and wood, learner	.5	.604	.650	.603	-----	-----	-----	-----	-----	-----	-----	-----
Bench machinists, learner	.1	.603	.600	.600	-----	-----	-----	-----	-----	-----	-----	-----

COMPARISON OF AVERAGE HOURLY EARNINGS, BY REGION

Average hourly earnings in the various regions were as follows: Midcontinent, 80.3 cents (June 1942); southern California, 82.9 cents (December 1941); East Coast, 84.1 cents (April 1942); Buffalo, 98.2 cents and Michigan \$1.093 (May 1942). The average in southern California is believed to have advanced to approximately 84 cents by May 1942, leaving the Midcontinent region about 3½ cents below the California average.

Table 10 presents a comparison of average hourly earnings of workers grouped according to the indicated necessary length of training for each of 4 regions. A similar tabulation for the Michigan workers cannot be presented because the converted automobile plants have not adopted the grade classification within an occupation which is typical of the remainder of the industry. Occupational averages in the Michigan area vary from 89.2 cents per hour to \$1.471, with over 90 percent of the workers earning \$1 per hour or more. The average of all workers is \$1.093.

It will be seen that almost without exception the midcontinent average for a specific length-of-training group is lower than the average

for comparable workers in the other areas. Of equal importance, however, is the large proportion of midcontinent workers found in less-skilled categories. This, of course, is a reflection of the newness of the industry in the area. It is still expanding at a rapid rate, and many of the workers have not yet achieved the skill necessary for assignment to more complex tasks. Class for class, it may be seen that earnings of midcontinent workers were nearly on a par with, and in fact were higher in one class than, the wages of east-coast workers. Most of the 4-cent difference between the midcontinent and east-coast averages can therefore be attributed to the larger proportion of new workers in the midcontinent plants. A similarity in this respect with the California data may be noted. Information for the California workers was obtained at a time when employees were being added in large numbers. In contrast, the smaller proportions of less-skilled workers in the Buffalo and East Coast areas mirror a lower accession rate in these regions at the time of the study.

TABLE 10.—*Straight-Time Average Hourly Earnings of First-Shift Workers in Airframe Industry, by Length of Required Training and Area*

Length of training required for occupation	Midcontinent, June 1942		Buffalo, May 1942		East Coast, April 1942		California, December 1941	
	Per- cent of em- ployees	Aver- age hourly earn- ings	Per- cent of em- ployees	Aver- age hourly earn- ings	Per- cent of em- ployees	Aver- age hourly earn- ings	Per- cent of em- ployees	Aver- age hourly earn- ings
Less than 6 months.....	30.5	\$0.677	7.2	\$0.826	19.1	\$0.681	34.0	\$0.702
6 months and under 1 year.....	22.4	.759	32.1	.940	25.5	.772	24.7	.771
1 year and under 2 years.....	25.8	.840	29.7	.965	26.8	.849	19.3	.827
2 and under 3 years.....	8.3	.883	11.3	1.020	8.4	.927	5.4	.987
3 and under 4 years.....	5.0	.978	8.3	1.061	8.3	.973	5.4	.970
4 years and over.....	8.0	1.096	11.4	1.153	11.9	1.075	11.2	1.128
All workers.....	100.0	.803	100.0	.982	100.0	.841	100.0	.829

Table 11 shows the average earnings for specific occupations in the four regions. As would naturally follow from the similarity in the general regional averages, the earnings received by midcontinent workers parallel closely those paid to workers in the same occupations in the California and East Coast areas. For most occupations, however, the midcontinent averages are considerably below the wages paid to the workers in Buffalo.

TABLE 11.—*Straight-Time Average Hourly Earnings of First-Shift Employees in Selected Occupations in Airframe Industry, by Occupation and Region*

Occupation	Midcontinent, June 1942	Buffalo, May 1942	East Coast, April 1942	California, December 1941
Assemblers, general, grade A	\$0.982	\$1.115	\$0.995	\$0.992
Assemblers, general, grade B	.918	1.020	.884	.845
Assemblers, general, grade C	.754	.969	.755	.770
Assemblers, general, learner	.685	.664	.663	.711
Assemblers, precision, bench, grade B	.914	.913	.916	.890
Assemblers, precision, bench, grade C	.814	.891	.767	.808
Bench machinists, grade C	.761	.875	.762	.775
Carpenters, maintenance, grade A	1.012	1.112	1.010	1.059
Clerks, shipping and receiving	.720	.925	.783	.732
Clerks, stock and stores	.738	.839	.758	.765
Drill-press operators, grade A	.865	1.039	.887	.761
Drill-press operators, grade B	.804	.972	.828	.818
Drill-press operators, grade C	.737	.935	.706	.698
Electricians, maintenance, grade A	1.088	1.109	1.063	1.169
Field and service mechanics, grade B	.887	.918	.969	.907
Guards and watchmen	.725	.828	.746	.764
Helpers, general	.685	.915	.717	.698
Inspectors, assembly, general, grade A	1.057	1.034	1.010	1.039
Inspectors, assembly, general, grade B	.890	.880	.916	.939
Inspectors, assembly, general, grade C	.786	.905	.814	.835
Installers, general, grade A	.843	1.155	.948	.966
Installers, general, grade B	.824	.939	.847	.834
Installers, general, grade C	.751	.855	.742	.759
Installers, power plant, grade B	.805	.967	.859	.861
Janitors	.662	.796	.729	.734
Jig builders, assembly, metal, grade A	1.285	1.163	1.123	1.103
Jig builders, assembly, metal, grade B	1.009	1.024	.897	.960
Laborers	.684	.849	.727	.713
Lay-out men	.858	1.013	.925	.747
Mechanics, maintenance, grade B	.874	.928	.928	.951
Metal fitters, grade C	.728	.899	.769	.836
Milling-machine operators, grade A	1.194	1.073	1.135	1.153
Milling-machine operators, grade C	.797	.943	.830	.792
Painters, aircraft, grade A	.915	1.196	.865	.972
Painters, aircraft, grade B	.850	1.034	.815	.783
Painters, aircraft, grade C	.737	.932	.767	.771
Pattern makers, wood, grade A	1.278	1.206	1.188	1.352
Punch-press operators, grade B	.829	1.011	.802	.857
Riveters, grade A	.940	1.014	.904	.841
Riveters, grade B	.752	.923	.789	.772
Saw operators, grade B	.868	.894	.792	.810
Sheet-metal workers, bench, grade A	.948	1.144	1.039	1.047
Sheet-metal workers, bench, grade B	.845	1.025	.903	.904
Sheet-metal workers, bench, grade C	.772	.924	.794	.806
Spot welders, grade B	.818	.946	.809	.833
Tool and die makers, grade A	1.298	1.304	1.252	1.281
Tool and die makers, grade B	1.085	1.049	1.087	1.042
Tool and die makers, grade C	.880	.883	.940	.918
Tool-crib attendants, grade A	.837	.938	.841	.862
Tool-crib attendants, grade B	.762	.830	.772	.699
Tube benders, bench, grade B	.786	.891	.859	.785
Welders, gas (aluminum and steel), grade A	1.039	1.164	1.093	1.262
Welders, gas (aluminum and steel), grade B	1.012	.929	.891	1.012
Working supervisors	1.051	1.242	1.081	1.119

A special comparison can be made between earnings in the Michigan plants and the Midcontinent establishments. Table 12 presents the average wage paid by Michigan plants to all workers within the various occupations shown in the table, and the average wage paid by Midcontinent plants to grade A workers and to all workers found in an occupation. It will be recalled that Michigan plants have not adopted the grade break-down found in the remainder of the industry. For these plants, therefore, only the all-worker average has been presented. The table thus permits of a dual comparison, each of which has considerable justification for its use.

The Michigan establishments have so far been manned almost entirely by the more skilled workers formerly employed by them before the conversion of their facilities. Consequently, a comparison of the Michigan average with the midcontinent grade A average has a considerable degree of validity. On the other hand, it should be noted that the Michigan averages also reflect the earnings of many workers who are performing operations comparable to those performed by grade B or grade C workers in the other area.

The table reveals a very substantial earnings differential between "all workers" in the midcontinent plants and the wage earners in the Michigan establishments. These differences, which without exception are all in favor of the Michigan region, extend to more than 50 cents in some occupations, and average about 30 cents. However, the spread between the averages of the grade A workers and the Michigan employees is much smaller. In several occupations, the midcontinent average is even higher than the Michigan wage level, and in others only a few cents separate the two.

TABLE 12.—Average Straight-Time Earnings of First-Shift Workers in Midcontinent and Michigan Airframe Plants, by Occupation and Region

Occupation	Midcontinent, June 1942		Michigan, May 1942
	All workers	Grade A workers	All workers
Tool and die makers.....	\$1.089	\$1.298	\$1.343
Working supervisors, productive.....	1.051	1.051	1.261
Inspectors, templates, tools, and dies.....	.873	1.255	1.334
Welders, maintenance and jig.....	.972	1.070	1.307
Pattern makers, wood.....	.958	1.278	1.383
Welders, gas (aluminum and steel).....	.951	1.039	1.253
Electricians, maintenance.....	.950	1.088	1.242
Mechanics, maintenance.....	.906	1.009	1.202
Engine-lathe operators.....	.902	1.084	1.193
Carpenters, maintenance.....	.857	1.012	1.161
Jig builders, assembly, metal.....	.870	1.235	1.279
Inspectors, assembly, final.....	.924	1.117	1.271
Inspectors, machined parts.....	.891	1.060	1.170
Milling-machine operators.....	.874	1.194	1.121
Lay-out men.....	.858	.858	1.394
Form and model builders, wood.....	.852	1.061	1.471
Inspectors, assembly, general.....	.862	1.057	1.228
Inspectors, receiving.....	.832	1.203	1.146
Saw operators.....	.827	.804	1.147
Inspectors, detail.....	.812	1.020	1.168
Bench machinists.....	.813	1.026	1.068
Assemblers, general.....	.810	.982	1.037
Sheet-metal workers, bench.....	.802	.948	1.132
Router operators.....	.798	.838	1.102
Small-tool repairmen.....	.777	.875	1.225
Installers, controls.....	.777	.971	1.115
Painters, aircraft.....	.785	.915	1.104
Installers, general.....	.729	.843	1.092
Drill-press operators.....	.773	.865	1.017
Installers, electrical.....	.761	.867	1.085
Tool-crib attendants.....	.755	.837	1.025
Assemblers, electrical and radio, bench.....	.755	.854	.950
Truckers, power.....	.735	.735	1.068
Clerks, stock and stores.....	.738	.738	1.008
Guards and watchmen.....	.725	.725	1.101
Coverers, fabric.....	.738	.840	.959
Clerks, shipping and receiving.....	.720	.720	1.041
Riveters.....	.737	.940	1.101
Janitors.....	.662	.662	.909
Laborers.....	.684	.684	.892