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THE STRANGE STORY OF THE REUTHER PLAN

BY GEORGE R. CLARK

LAST January, after Pearl Harbor had forced the tardy decision to convert the whole of the great automobile industry to war production, Detroit engaged in a murderous battle of propaganda. The CIO's United Automobile Workers Union, young and vital and far quicker off the mark than automobile management, at once jockeyed for the inside rail by claiming special foresight for its membership. It had something to go on here. For in December of 1940, which was even before the Lend-Lease bill was passed, a UAW leader, the smart, dancing-eyed Walter Reuther, had offered his famous plan for the conversion to war purposes of idle Detroit machines and know-how. As the Japanese were bombing Manila the CIO promptly magnified this plan into an "I-told-you-so" claim that labor had been for all-out war use of the automotive factories a full year before the rest of the country.

The answer of management was not very smart. For instead of admitting that Reuther had something, even though the original plan referred only to *idle* capacity, it tried to outshout the CIO's publicity bureau. A stream of columnists and commentators were invited to Detroit, where they could see that the automobile industry was burning up the factory floors in an effort to make up for lost time. The fact that war conversion was under way in January and February may have proved a good deal about the post-Pearl Harbor intentions of the industry. But it wasn't an answer to Reuther. And it did not correct the popular misconception that Reuther had anticipated Donald Nelson by a full year in urging that the automobile assembly lines be ripped up and tank and plane lines substituted for them as quickly as old machines could be converted or re-tooled.

So far as the automobile men were concerned, truth would have been the best propaganda. And the truth would have stressed the fact that no one foresaw Pearl Harbor. The Army and Navy were certainly wearing blinkers before December 7th; the proof of it lies in their failure to ask for enough war material to compel the wholesale conversion of automotive plant. The government did not guess the scope of the coming war; if it had, it would have pounded Mr. Knudsen into more drastic action than anything contemplated at OPM. The American people were certainly not on guard; if they had been, they would have ceased to ask for new cars the day after the fall of France. As for the automobile workers, most of them were like the automobile managers: they wanted car production to continue. "Priority unemployment" was the great fear in Detroit—and with layoffs staring them in the face the workers on the Michigan assembly lines wanted war conversion to proceed alongside of *some* automobile manufacturing.

Reuther was one of these. But he

was ahead of management in his thinking by just a little bit—and the leaders of the automobile industry might have helped their own public relations along by graciously giving Mr. Reuther the credit for having urged the conversion of *some* machinery. That would have deflated the CIO's more grandiose claims to a virtually Olympian insight; and by the same token it would have permitted Mr. C. E. Wilson of General Motors and Mr. K. T. Keller of Chrysler to spit on their hands and go to work to make amends in 1942 like any other surprised but honest citizen. As it is, a lot of people have absorbed the mistaken idea that the Messrs. Wilson and Keller are "appeasers," fumblers—and maybe even traitors.

The Reuther Plan was *not* a blueprint for the conversion of an entire industry to the manufacture of bombers, fighter planes, medium-sized tanks, Oerlikon anti-aircraft guns, and naval ordnance. But it was more than anyone else had to offer in Detroit at the beginning of 1941. And whatever its merits from the engineering point of view, it did serve as a vital prod when America needed prodding. As such its history should be set down before it has been completely obscured by the phantasmagoric claims of contending propagandists. It should be set down as a tribute to American labor. And it should also be put upon the record to save management from the after-war consequences of having seemed to veto a plan for all-out preparation that might have prevented or vastly limited the spread of the war in the Far East.

The history of the plan begins with the character of Walter Reuther, who was convinced as long ago as 1939 that the war against Hitler was our war, and that victory would go to the side which won the battle of production. Walter Reuther, short, reddish-haired and barrel-chested, is something special among labor leaders, a person who moves in a world of ideas that includes a concept of the general welfare as distinct from short-term labor welfare. Quite early in life Walter Reuther became labor-conscious; his father, a German immigrant who called himself a Christian Socialist, was a union organizer in the Ohio valley and a talkative radical on the order of Herman Willkie, Wendell's father. Trained as a toolmaker, Walter Reuther might have risen to a top managerial position in the automobile industry if he had toed the line. But he preferred to preach unionism wherever he went in a Detroit that couldn't even stomach the AFL, and in the early days of the depression he was fired by the Ford Motor Co.

Being placed on the unofficial Detroit blacklist was the best thing that ever happened to Reuther. For it sent him on a trip around the world with his brother. In Germany he saw a social order crumble as Hitler came in. In Russia, where he tried to teach tool- and die-making to peasants at Gorki on the Volga, he watched a bureaucratic system roll up a backlog of war production in spite of its clumsiness and injustice. He came back to the United States by way of Japan, convinced that the old world was breaking up. During the period of the sit-down strikes, when there was violence on both sides, Reuther was not too careful of the legal niceties, which explains the automobile managers' fear and distrust of him. But when Ford service men beat him up along with Richard Frankensteen, the score was more than evened. In any case, when the European war finally broke out Reuther was willing to put a damper on the class war; he saw that Hitler was the main enemy, and he began to talk and act accordingly.

Reuther prides himself on his ability to map out a strategy: the Ford strike of a year ago, which was directed from a union G.H.Q. by sound trucks, bears his imprint. As a tool- and die-maker who had been in charge of sixty skilled men at the River Rouge in 1922, Reuther saw at once that the tools behind the tools which Churchill was asking for were the

most important item in 1940. Phil Murray had already worked out a general plan for industry-wide wartime production councils of workers, managers, and the government. Taking off from here, Reuther merely applied what he knew of automobile dies, jigs, fixtures, grinders, lathes, and presses to shape up his specific plan for getting 500 engine-equipped planes a day out of the automotive industry's excess capacity. The 500-planes-a-day figure was ridiculous on the face of it, for certain key machine tools and skills that are necessary to plane production just did not exist in Detroit in late 1940. (When Ford started to manufacture Pratt & Whitney engines on license in a specially built plant in 1941 the first "green-run" tests showed how difficult a thing it is for automobile men to master the narrow tolerances of the aviation game.) But the "500 planes a day" headline was undoubtedly for attention-calling purposes.

There were three basic elements in the original Reuther plan: conversion of the idle facilities of the automobile industry to war use; pooling of the equipment and man power of the entire industry into a single, co-ordinated organization; and a voice for labor, jointly with management and government, in the managerial decisions and planning of what might be called "Detroit Incorporated." Conversion of the industry was to be achieved by designing new tools and dies, jigs and fixtures for existing basic machinery. The industry was to abandon any idea of making '42 models and would thus free its 12,000 to 15,000 skilled mechanics for the job of building the new tools and dies. Reuther spelled out his plan in terms of aircraft production because planes seemed the most vital need of the democracies at war and because, as a seasoned campaigner for new ideas, he realized the need for a dramatic approach.

Long before he was ready with the details, but already confident of the soundness of his basic principles, Reuther took the project up informally with Sidney Hillman, labor's man in the two-headed OPM high command. That was in the summer of 1940, just after the fall of France. The plan appealed to Hillman. He discussed it with his partner, Mr. Knudsen, on whose broad shoulders lay chief production responsibilities in OPM. Subsequently, Mr. Hillman reported Mr. Knudsen's verdict to the UAW plan man.

"We can't get the automobile industry to move that fast," the former president of General Motors said.

This so-called "brush-off" from Bill Knudsen did not dampen Reuther's ardor. As he puts it, the UAW might be called specialists at the job of building fires under the motor industry. UAW shop chairmen and local union officers began making a survey. They turned in data on production capacities, on idle machines, on available skilled help. Tool- and die-makers were consulted on the technical problems. Ben Blackwood, one of GM's ablest tool- and die-makers, a bluff and proud craftsman, was Reuther's chief assistant. Together they labored for months, far into the nights. By November of 1940 they felt themselves on sure ground.

In a classroom at Cass Technical High School, on Detroit's grimy West Side, an unofficial production council was convened. There were about twenty-five in the group, designing engineers, tool- and die-makers, men who had labored for years in the shops of GM, Chrysler, Ford, Murray Body, Briggs, Hudson, and Packard. At the blackboard, chalk in hand, Reuther outlined the various stages through which, he claimed, the industry could turn out hundreds of pursuit planes a day by retooling idle machinery and by adding some new machines. He argued that the first planes made in the auto industry could be flown away in six months; others in the group were conservative and held it would take at least seven months. The seminar adjourned to inspect airplane motors mounted in an

adjacent room of the high-school building where all-night vocational training classes were in progress. The Rolls Royce and other airplane motors they saw presented no apparently insurmountable difficulties, even though men from the Pratt & Whitney plant at East Hartford, Connecticut, would have told them differently.

After the inspection the group reconvened in the classroom. "Well, what do you think? Can we do it?" Reuther put the proposition.

Only two among the twenty-five dissented. One thought airplane motors were too tough "to fool around with"; the other dissenter couldn't see why "we should help the bosses run their plants more efficiently."

The UAW production experts spent the next few weeks putting the plan down on paper. They carefully documented their claim that there was idle machine capacity in the plants of the industry. Here again the men in the shops turned production experts, using the entire auto industry as their laboratory. Here the UAW had an advantage over the separate automobile companies. GM certainly knew its own plants and capacities; Ford knew his, and Chrysler knew its plants; but the UAW could cut across corporate lines and draw on the experiences of all of them, as well as of the independent tool and die shops and parts plants.

The story of the Reuther plan, as the UAW tells the story, now moves to the Washington stage. Reuther has always insisted that the attitude of Mr. Knudsen and OPM's dollar-a-year men was one of contemptuous obstruction. He contrasts this attitude with that of the larger part of the press and of a few men in government who gave Reuther encouragement enough to keep his idea from suffocation. Judge Patterson, Under-Secretary of War, and Col. Robert Lovett, in charge of the Army's aircraft production, were continuously helpful to the man from the CIO.

The proposal first reached the public on December 22, 1940, when Philip Murray, president of the Congress of Industrial Organizations, and R. J. Thomas, head of the UAW-CIO, forwarded it to President Roosevelt. The President, tossing labor a public bouquet for its constructive attitude, sent the proposal to OPM. From this point on it was several months before Mr. Knudsen got round to discussing the program across the table with Thomas, Reuther, and some of their colleagues.

II

Meanwhile, the automobile and the aircraft industries got busy with what Reuther insists was the "brush-off." The automobile industry did not speak out directly. But the UAW can cite a host of presumably inspired skeptical articles in trade publications. Then there was the well-timed article in the *Saturday Evening Post*, by Charles F. Kettering, president of the General Motors Research Corporation. Kettering pleaded for patience with the industry. "Guns are not windshield wipers," was the theme of his effort. At UAW headquarters in Detroit they interpreted this as an attempt to belittle Reuther's plan without giving it the recognition of direct mention.

"Tanks are different," said Boss Ket, "so the plants must be different. When the gong rang no tank-making plant was in existence." Kettering admitted that when the automobile industry got into mass production of war materials the amount of weapons turned out would be "staggering," but, he added, "for a long time, while we are 'making ready,' the speed is going to be anything but blinding." Like Reuther himself, Kettering was of course thinking of an industry which would continue to make some automobiles.

The airplane industry was less guarded in its criticism. The UAW gleefully quotes from the *Wall Street Journal* of Dec. 24, 1940, which announced that "Holders of aircraft shares are not par-

ticularly pleased at the prospect that the automobile industry may use some of its facilities for mass production of planes." The Aeronautical Chamber of Commerce, through its president, Col. John H. Jouett, became the most vigorously outspoken critic of the plan. He took the number of man-hours and the amount of plant space required to make a plane by *custom* or *hand-built* methods and multiplied them by five hundred a day. This produced some astronomical figures. But what Reuther was proposing was not the aircraft industry's technics but rather the automobile industry's *mass production* methods. Mass production, as everyone knows, means fewer workers, fewer man-hours, and far less plant space.

The most effective stab at the UAW's proposals was circulated by courtesy of the Associated Press. On January 1st an AP dispatch from Washington quoted "OPM experts" to the effect that the plan had been reluctantly turned down as impractical. For a year thereafter, until January, 1942, it was taken for granted that the plan had been thoroughly analyzed by OPM and found wanting. As we shall see, there were some valid objections to the Reuther plan as it related to plant capacity then idle, but the OPM's concealment behind a group of anonymous "experts" did Mr. Knudsen no good with the CIO. Following appearance of OPM's story, a concerted effort was made to bury the plan in silence.

In spite of OPM's dismissal of Reuther, news commentators thought the plan had some merit. Walter Lippmann, Dorothy Thompson, Ernest Lindley, and Raymond Clapper, among others, argued for a hearing. A wide circle of New Dealers took the same position. Jerome Frank, then chairman of the Securities and Exchange Commission, convened a Sunday morning breakfast at the capital's Cosmos Club. There for several hours Reuther outlined his program to John H. Carmody, Laughlin Currie, Paul V. McNutt, Tom Corcoran, President Dykstra of the University of Wisconsin, Leon Henderson, and several others. Henderson gave the program his enthusiastic approval; Carmody, an engineer, was satisfied with Reuther's answers to his stiffest questions. Quickly the group sensed the great difficulty that would confront adoption of the plan: how to overcome the resistance of the automobile corporations. Edward F. McGrady, with his usual bluntness, said: "It can probably be done, but who the hell will pay attention to a squirt of a labor leader?" An aide of the Secretary of the Treasury, Harry White, was so impressed he asked Reuther to meet the Secretary that very day. A Sunday afternoon conference followed at Mr. Morgenthau's home. He agreed to place the plan before the President for an extended hearing.

"There is only one thing wrong with the program," Morgenthau warned. "It comes from the 'wrong' source."

On March 1st, several weeks after the "OPM experts" had rejected the plan, Mr. Knudsen sat down with Reuther and Thomas to discuss it.

"Mr. Knudsen and I had previously met, on opposite sides of the table," Reuther said later on. "I thought on this matter of national defense we might sit on the same side. I was mistaken."

The labor leaders and automobile management's greatest production man came to grips almost immediately. On the question of production of wings and fuselage there wasn't much disagreement. But Knudsen insisted that only a very small percentage of the industry's existing plants could be adapted for making the parts of an airplane motor. Reuther dissented. He finally proposed: "Suppose we go through an auto plant with you, go over the machines, and see what we can use and what we can't use." Mr. Knudsen asserted he didn't have the authority to take Reuther through a plant. Sidney Hillman, who was also present, thought that such an expedition might be arranged without much difficulty. According to the CIO version, Mr.

Knudsen finally offered to give the UAW men a set of blueprints of a standard airplane motor. Reuther was to break down the job and indicate what available machinery could be used.

At this point the history of the Reuther plan gets bogged in a mess of contradictory claims. In the March 25, 1941, issue of *Defense*, Knudsen said:

"They [the union] wanted to go into the shop as a union committee and try to design fixtures for the present machinery. . . . We had to stall on that one and say that it couldn't be handled. He [Reuther] agreed to get us drawings and come down and study them—a set of drawings for one motor to look over and get into a little closer."

Mr. Knudsen's memories of the meeting thus flatly contradict Reuther's claim that Knudsen himself had promised to provide the drawings of the airplane motor. UAW's account of the meeting has it that Knudsen, after promising the blueprints, finally sent word that the prints were military secrets and could not be studied except at the OPM office. Reuther would be given an opportunity at some future date to come up to OPM and work on the blueprints there. When Mr. Knudsen left OPM ten months later, Reuther said he was still waiting for an invitation to see the prints.

III

Through the summer and fall of 1941 the war came closer. Britain, committed to supplying the embattled armies of the U.S.S.R., needed more and more fighting planes and war materials. Reuther kept talking of his plan through this period, but the automobile industry was off on a different tack. In general, the theory was that the automobile companies would supply the organization and the engineering to run *new* plants that were specially designed for war production. Ford got to work on his gigantic new bomber plant at Willow Run, just outside of Ypsilanti, Mich. At River Rouge, alongside the older plant, a new factory for building airplane motors was made ready for 1942 production. Chrysler built a tank arsenal for the government, and Hudson a naval ordnance plant. Alone among the Big Three, GM did some real converting; a small portion of its plant was turned over to the manufacture of Oerlikon anti-aircraft guns and other ordnance. GM, of course, had all along been making army trucks and Allison liquid-cooled airplane engines.

If the United States had managed to keep clear of "shooting war," and if Japan had been satisfied to limit her fighting to the war in China, the Reuther plan would doubtless have died a painless death. Toward the end of the summer, however, Reuther began to win some important new support. Before the forum provided by Representative John H. Tolan and his investigating committee, Donald M. Nelson and Alex Taub, one of Britain's ablest automotive engineers, revived the question: Why isn't the automobile industry doing more for national defense?

"A great deal of the present machinery can be converted to making defense materials," Mr. Nelson, then director of the Supplies, Priorities, and Allocations Board, told the committee. "When we see the size of the new [defense] program, our ideas will completely change as to what we can do with present machines rather than buying new tools."

Taub testified in October that, whereas the auto industry had insisted in December of 1940 that only 10 or 15 per cent of its facilities could be made available for defense production, "to-day, with curtailment on the premises, it is freely admitted that 50 per cent can be used for defense, with a possibility in some areas of 70 per cent."

Before long Mr. Taub's as well as Walter Reuther's views were being thrown at Mr. Knudsen in Congressional hearings and by newsmen. "Taub" and "Reuther" became names which were certain to ruffle the otherwise gentle production giant. Meanwhile a

tremendous row was brewing within the ranks of those entrusted with responsibility for national defense. There came promises of a huge "victory program" in which all-out conversion was to be a basic plank. Donald M. Nelson was its chief advocate and he was steadily gathering support among the more aggressive of the men round the President.

The morning after Pearl Harbor, the nation woke up to wonder why people like Nelson and Taub hadn't been given a green light months earlier. But the wonder was distinctly a product of hindsight: before December 7th no one in the entire country believed the Japanese could sink or disable several British and American battleships at the very onset of war. Those ships were counted on to hold the rubber country and the rubber lanes; when they were put out of commission the Indies were as good as lost. Seizing upon the disillusionment of December 8th, the UAW proceeded to use the Reuther plan as a peg upon which to hang a multitude of "I-told-you-so's." But in this the UAW was being self-righteous.

Before distributing any praise or blame for Detroit's pre-December 7th war production, let us go back to the Michigan mood of October, 1941. A very few people—Walter Reuther was one of them—were disgusted with the progress of defense activity in the Detroit area. Senator Harry Byrd had put the all-outers' criticism in pointed form when he rose in the Senate to say: "The United States in the past year succeeded in producing 5,000 combat planes and five million automobiles." In October of 1940 leading car manufacturers had resolved "to subordinate work on automotive model changes to the necessities of the defense program." Sixteen months later the Automobile Manufacturers Association made another pledge of production for defense; but in the meantime the industry had produced and sold more than 4,300,000 cars and commercial trucks, all '41 models. Civilian car production for 1941 was the second highest in the history of the industry. Profits of three large automotive companies for the first nine months of 1941 rose to $430,604,778, a tidy increase over their profit for all of 1940.

"We were sort of doing the automobile business with our left hand [in 1941] and going ahead with anything we could get to do," said C. E. Wilson, President of General Motors, at a Washington interview.

"You mean you were doing your greatest business with your left hand?"

"Yes, sir."

"That is a pretty good hand to keep in operation, isn't it?"

Left hand or not, that is the way the people of the United States wanted things up to December 7th. K. T. Keller and C. E. Wilson and Edsel Ford, as capitalists who never mind betting on a sure thing, would assuredly have taken any war production orders issued from Washington, but "guns *and* butter" was still the official philosophy of practically everybody, from the President on down. Naturally "guns *and* butter" sentiment prevailed in Michigan. The automobile industry made a show of taking on a wartime coloration by canceling its usual flossy New York exhibitions of 1942 models, but "open house" shows were staged by dealers throughout the country. The new models contained substitutes for the scarce and valuable critical and strategic materials. Cast iron had been substituted for aluminum in the pistons; horns were made of steel stampings instead of zinc. There was a good deal of "bright work" on the showroom models, but on all cars delivered after the first of the new year the industry announced that chrome and nickel would be replaced on bumpers and hubcaps with common paint, which might need retouching every thousand miles. So, whatever the criticism of the industry for having spent time and energy and skill on the jigs, dies, fixtures, and new assembly line combinations for 1942, it cannot be said that the Messrs. Keller, Wilson,

and Ford were entirely unaware of stringencies to come.

By November the Big Three managers were ready and willing to accept a 2,000,000 car year in 1942, even though they might be wistful about it. But when Leon Henderson ordered a fifty per cent cut in production, the UAW showed just as much perturbation as the automobile executives. The UAW rank and file was pretty well agreed on an aid-to-Britain program, which marked an advance over the isolationist sentiment that had pervaded the union when Homer Martin was leading it. Few, however, wanted "shooting war." In the UAW locals, faces were gloomy as the statisticians figured that the fifty per cent cut in car production would throw from 100,000 to 150,000 auto workers into the streets by January. Even the minority that was in favor of getting into the war on all fours didn't like this prospect.

With Pearl Harbor, however, the UAW, sensing the chance for a propagandistic kill, began to retouch the face of the past. The Reuther plan, which had been the baby of one wing of the UAW, suddenly became the proposal of all "labor." At union headquarters it was forgotten that the powerful George Addes group of the UAW, which had been John L. Lewis-isolationist even after Hitler's invasion of Russia, had never been particularly vociferous about war conversion. And it was also conveniently forgotten that Reuther's idea had been merely a slightly more rigorous variant of the philosophy of "guns *and* butter." Reuther had been ahead of the majority in his own union in estimating the shape of the future, and he had certainly been ahead of the automobile managers. But for all that, the Reuther plan was still pre-Pearl Harbor.

IV

Whenever a people is taken unawares, the hunger for a sustaining mythology proceeds to manufacture scapegoats and heroes out of ordinary well-meaning citizens. The UAW's particular villain is Knudsen; as the automobile companies' own representative in OPM, so Walter Reuther says, he could have forced an early wartime conversion of the industry on the President, Congress, and the War and Navy departments. The Tolan and Truman committees, also hot for the manufacture of scapegoats, have echoed the UAW latter-day sentiment. "Only a negligible part of this great capacity [of the automobile industry] is presently employed in the war effort," said a Tolan report. "Manufacturers have been reluctant to convert their production facilities from civilian to military production; and the defense agencies of the Federal government have not required such conversion." As for the Truman committee, it has been even more severe in its indictment of the automobile industry. The "you're-the-traitor" psychology reached its climax in the CIO's "Mr. OPM" open letter which appeared in all the Washington newspapers as a paid advertisement shortly after Pearl Harbor.

Now, it must be admitted that OPM fumbled the defense job. But the fault was inherent in its very structure, which placed the decisive power not in the hands of Knudsen-Hillman, but in the White House. OPM was a creature of its time, the temporizing, shilly-shallying reflection of a confused and divided people. Bernard Baruch had criticized it from the start, but to no avail. It could have been abolished or changed in a twinkling any time after the passage of Lease-Lend *if* the people of the United States, pressing upon Congress and the President, had seen fit to issue a popular order. Knudsen may fairly be blamed for not having pushed war production to dizzier speeds. But in blaming Knudsen one is also blaming a national mood. And in a democracy the mood of the people is not lightly to be ignored. Whatever may be said about Knudsen and the automobile industry prior to December 7th, the fact remains that the

people of the United States were not ready to give up new automobiles entirely until the rubber lines to the Indies had become a major war front.

To meet the public demand for action after December 7th, OPM summoned a large conference of automotive management, labor, and governmental experts. The conduct of the conference sealed OPM's doom and brought about appointment of Mr. Nelson. At the OPM gathering Walter Reuther presented a coordinated program for re-tooling, bringing his original thesis up to date. Nobody arose publicly to challenge him. Later, five spokesmen of industry met under OPM auspices with an equal number from labor, four from the UAW-CIO, and one from the AFL. Mr. Wilson questioned Mr. Reuther's right to participate in discussions of production technics. "If you are interested in production, I'll give you a job with us," Mr. Reuther was told. The offer was politely declined.

The conference ended on a dismal note, although Mr. Knudsen agreed to a compromise by which a joint sub-committee of management and labor would have the right to "assist" in converting the industry. When the first meeting of the sub-committee convened it was obvious to all concerned that it had no grant of power nor even any explicit instructions from OPM. By the time the committee sat down for its second academic discussion, OPM itself was virtually non-existent; and Mr. Nelson was indicating that he would have no use for "debating societies."

Meanwhile, the issue of conversion had been decided. "There is nothing else to do now," said Mr. Knudsen.

The UAW's second proposal, that the industry's facilities be pooled for a great co-operative defense effort, was still in the air; corporate spokesmen agreed to "pool ideas" and "information." Co-ordinated exchange of facilities and men, Mr. Wilson maintained, would be "socialization." However, Mr. Nelson soon made it plain that at least a temporary wartime socialization might have to be risked.

In the history of the battle for converting our industry to war purposes, Walter Reuther's name will hold a high place. His animus, however, should have been aimed at Congress, the Army, the Navy, and the President as Commander-in-Chief. For Congress controls military appropriations, and the chiefs of the armed forces presumably know what it takes to do a given wartime job. It was up to Congress and the chiefs of the armed forces to supply the pattern and motives and money for action which alone could have resulted in fruitful orders to Detroit's industry. As Louis Sullivan used to say, "Form follows function, function creates form." And it was not until after Pearl Harbor that the United States had a clear functional relationship to the war that could result in total conversion of the automobile industry.

The lack of a Washington plan or pattern, the lack of clear national commitments and dedication, made Walter Reuther's pre-Pearl Harbor argument that eighty-five per cent of the automobile companies' machinery was "convertible" a matter of largely empty verbiage. Convertible to what? And was he referring to tools or to machines which are the settings for tools? On the other hand, the industry, in putting out statements that only ten or fifteen per cent of its facilities could be adapted to "other uses," was just as vague and slippery as any statement in the original Reuther plan. For obviously, if the Army were in the market for millions of trucks, practically all of the automotive industry's machines could be adapted to war uses. On the other hand, conversion of automobile factories to make machine guns or cartridge brass would entail problems of much greater difficulty. The whole argument over conversion percentages made no sense whatever in default of War and Navy Department orders for definite equipment.

The vagueness of the conversion idea,

however, with its stab-in-the-dark mention of planes, was not what really killed the Reuther plan with Knudsen and the automobile managers. To uncover their real objections one must look at the second and third planks in Reuther's proposal. The pooling idea, offered in a time when the country was still officially at peace, cut squarely across the competitive lines of our most violently competitive big mass-production industry. Conversion of the factories would have dealt a quick mortal blow to dealer organizations that fight in the field for the car market. But the pooling idea seemed to portend an even worse disaster to inter-company competition. To ask Chrysler's Mr. Keller to turn over an engineering secret in peacetime to the Ford Motor Company, which is traditionally more interested in production methods than in engineering, was like asking Mr. Keller to dispense with an arm or a leg. During war of course Mr. Keller may have to deprive himself figuratively of his limbs, but in December, 1940, when Reuther was talking of pooling, the country was still half-isolationist in sentiment, and only a handful of people looked forward to total war commitments. The pooling plank in the UAW proposal, then, was a propagandistic boomerang. It could only increase the managers' general suspicion that Reuther was out to foist "socialism" on Detroit under a specious cloak of "patriotism."

To-day of course pooling of machines and know-how must be undertaken as a war measure. But in the original Reuther plan it was tied up with the third plank, that which called for industry-labor-government managerial councils. The proposal to let labor have an equal voice with industry and the government in settling problems of management impressed the automobile men as a trick by which the UAW, in cahoots with a labor-minded New Deal, would end up as boss of the factories. As Reuther shaped up his plan for councils, Detroit could see an American version of the Fascist corporative State emerging. And, indeed, the seeds of Fascist control do lurk in the industry-labor-government council plan. For under any such tripartite board, decisions would inevitably be political. Government would be forced to take the side of labor or industry. If it voted consistently with labor, the cry of "socialism" would be used to impede production or to force a coup d'état. If it voted with management, Reuther himself would be the first to yell "Fascism." With a war on our hands, it is probably just as well that management has been allowed to manage, with the War Production Board's Ernest C. Kanzler undertaking the job of pooling when pooling is necessary. All of this does not mean of course that labor should be given further "brush-offs" when it has creative ideas to offer.

Some day the impartial historian will be amazed by the history of the Reuther plan. He will be amazed that a good basic idea, fragmentary though it was, could have been made such a political football by both sides in a period of accelerating national crisis when the existence of the nation was at stake. But in distributing the blame the impartial historian will, if he is honest, be a little gentler with the United Automobile Workers than with the management of the automobile companies. For, after all, Walter Reuther *did* have a glimmering of what had to be done, and he *did* have the gumption to proselytize his idea.

Beyond this, the impartial historian won't worry very much about the labor-management ruckus that went on in Detroit from December, 1940, to December, 1941. He will be too busy trying to find out why there was no central direction in Washington, no over-all plan to make the nation ready for the biggest war in history. And he will be too busy trying to fathom the psychology of the American people, who were walking in a trance that kept Washington from doing any real functional thinking, planning, and acting.

[1942?]

From United Automobile Workers, CIO
411 West Milwaukee Avenue,
Detroit TR 1-6600

STANDARDIZATION OF TANK ENGINE BY U.S. ARMY FIRST URGED BY UAW-CIO

LEADER A YEAR AGO: REUTHER SUGGESTED FORD ENGINE BE USED

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Brig. Gen. Alfred R. Glancy, chief of the Detroit-Tank Automotive Center, announced December 11, 1942, that the army had decided to install a standard engine in all medium tanks. Gen. Glancy did not state which engine had been decided upon; however, the press has suggested and other sources have indicated that the Ford engine will be used in all M-4s being produced by Ford, General Motors and Chrysler. An announcement to this effect is expected shortly.

The United Automobile Workers, CIO, through Walter P. Reuther, one of its vice-presidents, a year ago first urged standardization of tank engines. In an address at Town Hall, New York City, on January 13, 1942, Reuther urged that a "tank pool" be created; that competitive lines in the production of tanks and tank engines be forgotten for the duration in the interest of the speediest possible production of the most effective tanks.

Reuther, on March 31st, 1942, in a joint press conference at which he and C. E. Wilson, president of General Motors Corporation, debated the merits of the "Reuther Plan", elaborated his tank pool idea and spelled it out in terms of production of tank engines. He urged that the ARMY STANDARDIZE ON ONE ENGINE FOR ALL M-4s AND THAT THAT ENGINE BE THE FORD ENGINE.

DEBATE QUOTED

Here are some excerpts from the Reuther-Wilson debate taken from the proceedings as issued in mimeographed form by General Motors Corporation:

"Mr. Walter Reuther: I would like to say that until we get the overall production effort coordinated and planned on an industry-wide basis, America is not going to achieve the maximum production that is possible.

"I want to cite some specific examples of what I mean:

"We are going into the production of the M-4 tank in the auto industry. Ford, Chrysler and General Motors are all going to build

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the same tank. It is the latest design of the M-3 which is now in production at Chrysler. One of the things that is most important about tanks is the maintenance problem. The British experience has been that a tank will hold up about 300 hours under actual operations in battle, and they have more difficulty with the problem because they had lack of standardization, -- they have 57 varieties of tanks.

"One of the things we ought to be thinking about is how we can get standardization in order to minimize the maintenance problem, and yet here is what is going on in the auto industry today because of lack of this overall coordination and planning that we are proposing. Chrysler has been putting a Continental Wright motor in their tank. It is an aircraft motor. On their M-4 they will, however, not have these motors available, and they are putting in the M-4, when they get into production, several Chrysler automobile engines. All the engineers that I have talked to, and I have talked to some people who are very high in the organization, have said that this is the worst technical abortion that has come out of the automobile industry to date.

"Ford has developed a V-8 motor which has been cut down from a 12-cylinder V motor he developed for an aircraft engine, and he is trying his tank with this special tank engine he has developed.

"General Motors is putting two Diesel engines in their M-4 tank.

"So here we are. We are going to have three tanks built in the Detroit area, one with automobile engines, one with Diesel engines, and the third with the Ford tank engine.

EDSEL FORD AGREED

"I took the problem up with a number of people in Washington, and they asked me to develop it. I talked to Mr. Donald M. Nelson about it, and other people. I went to Mr. Edsel Ford and discussed it with him. Mr. Edsel Ford told me that the Ford Motor Company could use 90% of the Lincoln tooling equipment; they would have to augment certain tight spots on their line; with ten percent new tooling they could turn out, in the Lincoln plant, all the tank engines needed for Ford production, Chrysler production and General Motors production, plus all the required replacement motors. We could get complete standardization. I asked why that wasn't done. They said, 'Well, there is a lot of resistance against it. Everybody wants to put their own motor in.'

"Now, these are the kind of things that are happening.

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"If Ford can build all the tank engines, and that engine has been approved under test, then why aren't the Ford engines put in all the tanks; General Motors and Chrysler can then concentrate on some other aspects of defense production.

"On the engineering, there is duplication after duplication. Engineers in the Ex-cell-o plant, where they are doing work for Chrysler on the tank job, for General Motors on the tank job, and Ford on the tank job, are duplicating three times the drawings of this engineering work. If we had centralized planning, and centralized engineering, they would make one set of drawings for the same tank that would go to each tooling shop or each plant involved in that particular problem...

THE FORD ENGINE

"Mr. C. E. Wilson: I would like to ask Mr. Reuther which one of these tanks would be the best job, and which kind of engine he thinks ought to be standardized?

"Mr. Walter Reuther: If we were in a position to be able to pick the motor, the one we could get enough of, and that being the best motor, that would be fine, but we are in a period now where you have got to take the motor you can get enough of to supply everyone, and get it into production.

"The Ford people are the only people in a position to do that. Their motor is more powerful than the two Diesel engines, it has more horsepower than the combined Chrysler automobile engines, it is simple in design. A fellow who knows how to repair an automobile will be more familiar with the Ford engine than the Diesel. It burns the same kind of fuel as a truck. The Diesel requires special fuel and therefore the maintenance problem is more complicated. I think the Army ought to pick the Ford engine, and put it in all the tanks, and have a uniform, standardized motor.

"Mr. Wilson: I would like to say a little more about that. I am not selling General Motors Diesel engines, nor opposing the use of Ford engines.

"I think that we all ought to realize the great difficulties of arming our country suddenly, when we don't know exactly what is the best thing to do. Many times you have to try out some things. We have to put first things first.

"The services are quite able, at any time they are sure of what should be done, to ask the manufacturers to do it and have the manufacturers do it. I don't personally know how good the Ford engine is or is not. I

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know it is a new engine. I have been told that the first one has been in a tank for a couple of weeks, maybe longer, and that production might come along by about October. In the meantime, what are we going to put in the tanks?

"I think also the services are entitled to have some of these tanks and find out which ones are the best for the purpose.

"This question of product is a difficult one, but it must come first.

"Mr. Reuther: On the question of whether the Ford engine is a good engine, if it is not a good engine it should not be put in the tanks at all. Yet every Ford tank that is going to be built is going to be powered by a Ford engine.

"The Ford people are in a position, because they are able to use the Lincoln tooling 90% where it is, (and this has been confirmed by Mr. Edsel Ford, by Mr. Shelldrake, who is the Chief Engineer; by Mr. Roush, who is assistant to Mr. Sorenson, in numerous conferences) to be able to get in production on the tank engine, and therefore to produce motors in the Lincoln plant quicker, and in a larger volume than anybody else in the country at the present time. Their tank engine has proven successful; it has more horsepower, and having a bigger reserve means there will be less strain on the engine in actual operation."

WHAT GLANCY SAID LAST SUMMER

Before the Boston convention of the CIO, on Nov. 11, 1942, Reuther again urged standardization of tank engines. He brought up to date his efforts to convince the Army of the desirability of the step. He said, in part:

"We went to Washington and talked to Robert Patterson, Under Secretary of War. He was very friendly and sympathetic. If all the men in Washington were as decent and cooperative as Secretary Patterson, the war effort would be much farther along than it is today. But he was not a technical man. He sent us along the line and we talked to half a dozen generals, and they said it sounded good, but there was one more fellow we would have to convince.

"We went over to Army headquarters and they introduced us to a man I had never seen before. They said: 'He is the man you will have to sell. He is the civilian expert in charge of tank engines.'

"After we told him our story, how he could get complete standardization, how the Ford Motor Company could do this job and get the

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other facilities used for other war production facilities, this gentleman, whom we were unable to convince, said to me: 'You don't know, Reuther, I was a vice president of General Motors Corporation'...

"His name is Glancy. He is now General Glancy, in charge of tank production in the Detroit area."

REUTHER CONTENTIONS UPHELD

Business Week for Dec. 19, 1942, carries a story to the effect that the Army has decided to standardize on the Ford engine. The Army's reasons for this choice, as outlined in Business Week, uphold all the contentions made by Reuther in his debate with Wilson and at other times during the past year when he had a chance to discuss tank engines.

Here is what Business Week says:

"At least a month ago, Ordnance engineers had eliminated the diesel engine from future plans in order to provide a power plant that will operate on the fuel universally available...

"Standardization upon the Ford liquid-cooled power plant evidently springs from these basic factors: (1) The engine has passed all tests satisfactorily; (2) it is easy to service; (3) Ford can realize production levels more quickly <u>in the converted Lincoln plant</u> than a competitor could increase the output of air-cooled motors; and (4) the additional horsepower supplied by the Ford engine can be used handily in realizing the Army's objective of an 'ideal' medium tank."

POSTSCRIPT: Under Secretary of War Robert P. Patterson told the Truman committee on December 17, 1942, that 23,000 tanks would be produced by American war plants in 1942 -- only a little more than half the goal of 45,000 tanks set by President Roosevelt last January.

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	GROUND GEAR	SHAVED GEAR
	SOFT	
CUTTING	20 mins.	20 mins.
GRINDING	30 "	
SHAVING		1.5 mins.
TOTAL	50 mins.	21.5 mins.
	HARDENED	
CUTTING	20	20
GRINDING	30	
SHAVING		1.5
LAPPING		2
TOTAL	50	23.5

COST OF GEAR GRINDING MACHINE -------	$14,000.00
COST OF GEAR SHAVER ----------	6,500.00
COST OF GEAR LAPPER ----------	3,500.00

LSS/lpc

Get delivery dates on

Building machines

Get copy of minutes

of OPM Conference

on Bear Island

Pratt & Whitney machine tool

we always ground Gears

RESEARCH DEPARTMENT, UAW-CIO
281 West Grand Boulevard
Detroit, Michigan
April 28, 1941

CADILLAC & ALLISON DIV. (GM)
Detroit Local #174

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
41820	Adjuster Pyrometer & Heat Control Instruments	1.00	1.15
02310	Apprentice First Year		
02340	Apprentice Fourth Year		
02320	Apprentice Second Year		
02330	Apprentice Third Year		
27200	Assembler Experimental	1.10	1.20
02601	Assembly Bench Jig & Fixtures Machine Shop (Where the speed of the operator is not controlled by the speed of the conveyor)	.95	1.05
03001	Assembly Conveyor (Where the speed of the operator is controlled by the speed of the conveyor)	*.95 **1.00	1.10
03007	Assembly conveyor body mount	*.95 **1.00	1.10
00401	Assistant Foreman		
27480	Attendant Garage Experimental	1.00	1.10
02760	Auto truck & Trailer repairman	1.05	1.15
04060	Balancer Helper	.90	1.00
04000	Balancing crankshafts flywheels and clutch	1.05	1.15
04200	Balancing Miscellaneous	1.00	1.10
04420	Baler Operator Metal	.90	1.00
04440	Baler Operator Metal Feeder	.85	.90
04460	Baler Operator Paper	.90	1.00
69600	Blacksmith	1.05	1.20
69610	Blacksmith Helper	.90	1.05
40220	Blacksmith Maintenance Helper	.90	1.05
05201	Blast Sand Operator	1.00	1.10
05600	Blast Shot and Rattle	1.00	1.10
05800	Blast Wheelabrator	.90	1.00
06400	Boring Cylinder Blocks	1.00	1.10
69800	Boring Mill Operators	1.20	1.35
69801	Boring Mill Operators (Engineering Machine Shop)	1.20	1.35
06460	Boring or Reaming Machine Oper. precision or heavy including set up	1.05	1.15
06603	Boring other diamond	1.00	1.10
06601	Boring other special and heavy	1.00	1.10
06720	Brazing	.95	1.05
31440	Break corners gear teeth polishing wheel	.90	1.00
03220	Briquetter machine operator	.90	1.00
06800	Broaching	.95	1.05
07200	Buffing automatic machine	1.05	1.15
07400	Buffing Hand Skilled (Skilled on all types of work includes brass parts before plate and all parts after plate - see also 55600 polishers for plating)	1.05	1.15
07401	Buffing Large Parts	1.10	1.20
07600	Bullard Multimatics and Continumatics (See also 10100 chucking machines and 63800 automatic screw machine)	1.00	1.10
38002	Camshaft Lathes	1.00	1.10
40600	Carpenters	1.05	1.15
40650	Carpenter Helper	.85	1.00
09000	Centering	.90	1.00
09200	Chamfering and rounding gears only	.95	1.05
09920	Checker receiving shipping processing	.90	1.00
09900	Checker Work in Process (Visual check for quality by other than regular classified inspectors)	.95	1.10
09520	Chip Equipment Operator	.90	1.00
09500	Chip Handler	.85	.85
09600	Chippers Air Heavy	1.00	1.10
09800	Chippers Air Light	1.00	1.10
10000	Chippers hand light	.90	1.00
10105	Chucking Machine Operator (Multiple Spindle Automatic Cone)	1.10	1.20
10104	Chucking Machine Operator (Multiple Spindle Fay Lathe)	1.00	1.10

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
10103	Chucking Machine Operator (Multiple Spindle Potter & Johnson Set up)	1.05	1.15
10102	Chucking Machine Operator (Multiple Spindle Potter & Johnson Operator Includes Natco Fox Cincinnati Gisholt Goss DeLower New Britain - see also 07600 Bullards and 63800 Screw Machine Automatic)	1.00	1.10
10200	Clampers	.90	1.00
10600	Cleaner Booth Machine Exhaust Stack and conveyor	.85	.90
10880	Clerk Inventory	.90	1.05
10840	Clerk Maintenance	.95	1.10
10750	Clerk Production Planning	1.00	1.10
10920	Clerk Purchase Requisition	.95	1.10
10860	Clerk R.R. Yard	1.00	1.15
57310	Clerk Receiving and or shipping	.90	1.05
10730	Clerk Record	.85	1.10
10670	Clerk Superintendent's	1.00	1.15
10940	Clerk Tool Inspection	.85	1.00
74800	Cleaners Windows	.95	1.05
03310	Conveyor Attendant line feeder	.90	1.00
03330	Conveyor Attendant Stock Laborer	.85	.95
11202	Core assemblers Cylinder Blocks Including Leading	.90	1.00
11400	Core Cleaners Cylinder Blocks (Includes Body Cores Clean Mud Gauge & Paste)	.90	1.00
11500	Core Cleaners Other	.90	1.00
12800	Core Makers Bench Light	1.00	1.10
13200	Core Makers Blowing Others	1.00	1.10
13800	Core Makers Jobbing	1.05	1.15
13400	Core Makers Machine Heavy	1.05	1.15
13600	Core Makers Machine Light	1.00	1.10
14800	Core Setters Heavy	1.00	1.10
15200	Core Setters Light	1.00	1.10
19900	Crane Hooker or fireman not tool & Die	.95	1.05
20000	Crane Operator Bridge Electric	1.00	1.10
15600	Crane Operator Charging	1.00	1.10
16000	Crane Operator Hot Metal	1.00	1.10
16400	Crane Operator Locomotive	1.10	1.20
16650	Crane Repairman	1.05	1.20
03400	Crib Attendant general stores	.95	1.05
03380	Crib Attendant leader general stores	1.00	1.10
03180	Crib attendant leader tool die & layout depts.	1.00	1.10
03200	Crib attendant tool die & layout depts.	.95	1.05
17000	Cupola chargers & loaders	.90	1.00
17200	Cupola Liners	1.00	1.10
17800	Cupola Tappers	1.00	1.10
19680	Die Maker Graduate Apprentice	1.20	1.35
19700	Die Maker Helper Temporary	1.05	1.20
19400	Die Maker Leader	1.45	
19600	Die Maker Sheet Metal Dies	1.25	1.40
23201	Die Setters Heavy	1.05	1.20
23200	Die Setters Light	1.05	1.20
75830	Die Welder	1.20	1.35
23600	Dingmen Finish Paint	1.25	1.35
19550	Dispatcher Material	.95	1.10
19510	Dispatcher outside truck	.90	1.00
20400	Door Tenders	.85	.85
23751	Draftsman Checker and Estimator Die	1.35	
23750	Draftsman Checker and Estimator Tool	1.35	
23801	Draftsman Designer Die	1.25	1.40
23800	Draftsman Designer Tool	1.25	1.40
23850	Draftsman Detailer Tool	1.00	1.15
25000	Drilling General	*.90**.95	1.05
24800	Drilling Special & Heavy (Heavy parts or extremely close limit work with possible high scrap loss)	1.00	1.10
68820	Drivers licensed trucks passenger cars	.95	1.05
25800	Driver Licensed Trucks & Passengers cars Engineering	.90	1.00
44600	Drivers Power Truck Inside	.90	1.00
57600	Driver Proving Ground non-resident	1.00	1.10
25200	Driver Unlicensed Cars	.90	1.00
23750	Draftsman Checker and Estimator Tool	1.35	
23751	Draftsman Checker and Estimator Die	1.35	

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
23801	Draftsman Designer Die	1.25	1.40
23800	Draftsman Designer Tool	1.25	1.40
23850	Draftsman Detailer Tool	1.00	1.15
25000	Drilling General	*.90**.95	1.05
24800	Drilling Special & Heavy (Heavy parts or extremely close limit work with possible high scrap loss)	1.00	1.10
25960	Duplicator operator-Allison	1.05	1.15
41402	Electricians Construction	1.10	1.25
27440	Electrician Experimental	1.00	1.15
41600	Electrician Helpers	.90	1.05
40950	Electrician Leaders	1.30	
41403	Electricians Maintenance	1.10	1.25
26400	Elevator Operator	.85	.85
30100	Filing and Burring	.85	.95
30120	Fire Prevention Men	1.00	1.15
00200	Foreman		
30230	Gage Lapper	1.00	1.15
27400	Garage Mechanic and Repairman Experimental	1.05	1.15
27420	Garage Mechanic and Repairman Helper Experimental	.95	1.05
30501	Gear Cutter-Transmission Finish	1.05	1.15
30600	Gear Cutting Finish-Axle	1.05	1.15
30200	Gear Cutting Motor Gears Finish	1.05	1.15
30201	Gear Cutting Motor Gears Rough	1.00	1.10
30400	Gear Cutting Rough-Axle	1.00	1.10
30803	Gear Mating and Lapping (Matching Rear Axle Gears)	1.05	1.15
30802	Gear Mating and Lapping (Matching Transmission Gears)	1.05	1.15
30500	Gear Cutter-Transmission rough	1.00	1.10
30801	Gear Mating and Lapping Transmission Gear Teeth (Lapping)	1.05	1.15
30502	Gear Tooth Grinder	1.10	1.20
31001	General Labor Productive (Foundry) (Includes clean and handle dryers, clean up, handle sand blast sand, pick scrap, and wires from belts, unload cores from racks to foundry, sort stars, door tenders, clean oven pits)	.85	.90
10106	Gisholt Operator	1.00	1.10
10107	Gisholt Set up	1.00	1.10
70250	Grinder Operators	1.15	1.30
70251	Grinder Operators (Engineering machine shop)	1.15	1.30
32601	Grinding all other blanchard	1.00	1.10
32602	Grinding all other centerless	1.00	1.10
32603	Grinding all other internal and external	1.05	1.15
32604	Grinding all other surface	1.00	1.10
32606	Grinding all other thread miscellaneous	1.05	1.15
31200	Grinding camshaft	1.05	1.15
31403	Grinding crankshaft bearings	1.10	1.20
31401	Grinding crankshaft crankpin	1.10	1.20
32002	Grinding Snag & Disc	.90	1.00
32200	Grinding Stand	.90	1.00
32400	Grinding Swing Cylinder Block Only	.95	1.05
37700	Hand Lap Flat Surfaces	1.00	1.10
60200	Hand Ream Aircraft Parts	.90	1.00
07001	Hand Scuffing Sheet Metal	1.00	1.10
34060	Hardeners	1.15	1.30
34600	Heat Treat all others furnace loaders and unloaders	.95	1.05
35721	Helpers-Plater	.90	1.00
35720	Helpers-Polishers	.90	1.00
35750	Hoist Operator - Body Drop	1.00	1.10
35803	Honing and Lapping (cams, crankshafts and bolt holes)	1.05	1.15
35801	Honing and Lapping (Cylinder Bore)	1.05	1.15
35802	Honing and Lapping (Valve Seating)	.95	1.05
25961	Hydrotel Operator	1.05	1.15
36022	Inspector Assembly and Repair excluding Body (Chassis)	1.00	1.10
36021	Inspector Assembly and Repair excluding Body (final car)	1.00	1.10
36023	Inspector Assembly and Repair excluding body (Motor line)	1.00	1.10
36020	Inspector Assembly and Repair excluding body (Pit)	1.00	1.10
36120	Inspector Block and Silent Test	1.00	1.10
36080	Inspector Body Trim and Hardware	1.00	1.10
36140	Inspector Car Loading Autos	1.05	1.15
35980	Inspector Castings	.95	1.10

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
36320	Inspector Final Body	1.05	1.15
36260	Inspector Gear Laboratory	1.00	1.10
36280	Inspector Heat Treat	.95	1.05
36340	Inspector Layout	1.15	1.30
36350	Inspector Layout helper	1.00	1.15
36040	Inspector Machining Bench and Floor	.95	1.10
36041	Inspector Machining Bench and Floor (Magnaflux)	.95	1.10
36690	Inspector New Car	1.05	1.15
36420	Inspector Paint	1.00	1.10
27600	Inspector Parts Experimental	1.15	1.30
36440	Inspector Plating	1.00	1.10
36480	Inspector Receiving	.90	1.00
36500	Inspector Road or Roll Test	1.05	1.15
36520	Inspector Salvage	.95	1.10
36580	Inspector Sheet Metal Finish	1.10	1.20
36581	Inspector Sheet Metal Finish (Miscellaneous)	.95	1.10
36560	Inspector Sheet Metal Mechanical	1.00	1.10
36620	Inspector Special Assignment		
36310	Inspector Specifications	.95	1.10
36300	Inspector Standard Tool	1.05	1.20
36400	Inspector Tool Die and Fixture	1.20	1.35
36390	Inspector Tool Die fixture Leader	1.40	
36640	Inspector Utility	1.00	1.15
36760	Instrument repair miscellaneous helper	.90	1.00
36800	Janitor	.85	.85
36810	Janitor Leader	.85	.90
23260	Job Setter automatic screw machine	1.15	1.30
37000	Job setters - productive (Sets up and adjusts feeds and speeds on machines or arranges tools for productive employees. See also 23200, die setters and 23260, job setter - automatic screw machine	- -	- -
25962	Keller Operator Productive	1.05	1.15
45860	Laboratory (Metallurgical physicists)	1.10	1.25
37480	Laboratory assistant	.90	1.00
45840	Laboratory Chemists	1.00	1.15
47240	Laboratory Metal Testers Foundry	.95	1.05
43800	Laborer yard maintenance	.85	.85
37800	Lathes Crankshaft	1.05	1.15
38000	Lathes general heavy or close limits	1.00	1.10
38200	Lathes General Light	.95	1.05
70600	Lathe Operators	1.15	1.30
70601	Lathe Operators (Engineering Machine Shop)	1.15	1.30
38300	Laundry Worker	.90	1.00
99930	Learner	.85	.85
38340	Line Feeders Stock Men	.90	1.00
38650	Loaders and Unloaders automatic polish and buff machine	.90	1.00
38820	Loading and Boxing autos expert	*.95 **1.00	1.10
38800	Loading and Shipping automobiles freight car	.95	1.05
38730	Loading and Unloading bodies motor transport	.90	1.00
38860	Locksmith	.95	1.05
39600	Machine repair helper	.95	1.10
39200	Machine repair leaders	1.35	
39520	Machine repair machine operator general	1.10	1.25
39400	Machine repair machinists	1.15	1.30
45600	Magee Wiring and Flanging	1.00	1.10
44100	Marker Panel (Band saw rotary shear and center punch)	.90	1.00
05401	Masking Preparatory to Shot Blast	.85	.95
44780	Material Handling gang leader	1.00	1.10
46020	Messenger tool die and engineering departments	.80	.85
46400	Metal discing and grinding (Rough grind before metal finishing)	.95	1.05
46608	Metal finishing and bumping (finish discing sheet metal)	1.15	1.25
46601	Metal finishing and bumping (front fender finisher) (Covers removing of bumps, dents, die marks, die stretcher strains, and weld marks from sheet metal)	1.15	1.25
46602	Metal finishing and bumping (Hood finishers)	1.15	1.25
46605	Metal finishing and bumping (Miscellaneous sheet metal finisher)	1.10	1.20

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
46604	Metal finishing and bumping (rear fender finisher)	1.15	1.25
46609	Metal finishing and bumping (rough discing front fender)	1.15	1.25
46607	Metal finishing and bumping (sheet metal sample)	1.15	1.25
46606	Metal finishing and bumping (touch up front fender finish)	1.15	1.25
46800	Metal polishing front fender	1.15	1.25
46802	Metal polishing Hoods	1.10	1.20
46803	Metal Polishing (Miscellaneous)	1.05	1.15
46801	Metal Polishing (Rear Fender)	1.10	1.20
47000	Metal Pouring Hand	.95	1.05
47600	Milling Heavy Work	1.00	1.10
70800	Milling machine vertical horizontal	1.15	1.30
70801	Milling machine vertical and horizontal (Engineering machine shop)	1.15	1.30
47800	Milling other (Includes key-seating and key-slotting when done on milling machine)	*.90**.95	1.05
42000	Millwrights	1.05	1.20
42020	Millwright Helper	.85	1.00
48200	Mold finishers Heavy	1.05	1.15
48800	Molders jobbing floor	1.05	1.15
49003	Molders machine operators (Heavy molding machine set up men)	1.05	1.15
49002	Molders machine operators heavy (sand slinger)	1.05	1.15
50000	Molders machine operators helper light	.95	1.05
49600	Molders machine operators helper medium	.95	1.05
49400	Molders machine operators light	1.05	1.15
50204	New car conditioning (car washers and blow off)	.90	1.00
50202	New car conditioning (Kennite Polisher)	.95	1.05
50201	New Car conditioning (Trim Cleaner)	.95	1.05
50203	New car conditioning (trim repairman)	1.15	1.30
42200	Oilers Machinery and equipment	.95	1.05
50601	Paint mixers and control men (check and deliver paint)	.95	1.05
50602	Paint mixers and control men	1.10	1.20
51120	Paint sprayer and skiver (radiator grilles)	1.00	1.10
50802	Paint sprayers chassis and motor (Covers spraying of frames, axles, transmissions, motors similar sundry rough spray jobs)	1.00	1.10
51005	Paint sprayers sheet metal and wheels (dulux)	1.10	1.20
51002	Paint sprayers sheet metal and wheels (lacquer)	1.10	1.20
51003	Paint sprayers sheet metal and wheels (Prime)	1.10	1.20
51004	Paint sprayers sheet metal and wheels (repair)	1.10	1.20
51200	Paint stripers hand and machine	1.10	1.20
51400	Paint touch up men	1.10	1.20
42400	Painter and Glazier	1.05	1.15
52800	Pattern maker helper	.90	1.05
52000	Pattern maker metal bench	1.25	1.40
52200	Pattern maker metal machine	1.20	1.35
52600	Pattern maker wood bench	1.25	1.40
52400	Pattern maker wood leader	1.40	
42460	Pipe Fitters	1.05	1.20
42480	Pipe fitters helpers	.85	1.00
53600	Plant layout men	1.10	1.35
54000	Platers copper, nickle, chrome (Conveyor and still tank)	1.00	1.10
53800	Platers responsible for solution	1.00	1.10
54200	Plating Cadmium Zinc and Barrel	1.00	1.10
54800	Plating Conveyor Men and Rackers	.90	1.00
53980	Plating solution attendant	.95	1.05
54600	Platers strippers	.95	1.00
55300	Polish and surface (Allison)	.70	.90
55301	Polish and surface leader (Allison)	.90	1.00
55601	Polishers automatic plating	1.10	1.20
55800	Polishers for surface finish (Includes metal polishing such as bearing surfaces used in lieu of grinding)	*.95**1.00	1.10
55650	Polishers hand plating (Includes polish before plate see 07200 - 07400 Buffing)	1.10	1.20
55400	Polishers lacquer (Applies to polish after paint or lacquer)	1.10	1.20

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
55651	Polishing large parts	1.15	1.25
55652	Polishing plating Hi-Cycle	.95	1.05
55420	Polishing wheel set up	1.00	1.10
55920	Porcelain Enamel Spraying and dipping	.95	1.05
27700	Power Hammer Metal Forming	1.30	
57000	Power house helper	.90	1.00
56800	Power house boiler operator	1.05	1.15
56860	Power house repairmen	1.10	1.20
57100	Press Operator Hydraulic or Screw (Coin Press) (Press for assembling and fitting not a punch press or forging machine)	1.00	1.10
57200	Process man	1.20	1.35
57250	Product Handler (Direct Labor)	.90	1.00
57800	Proving ground mechanic	1.05	1.15
59200	Punch press helpers medium and small	.90	1.00
58600	Punch press operator medium (double cranks and large single crank includes cold trimmer at forge plant)	1.00	1.10
58800	Punch press operator small	1.00	1.10
58400	Punch press operator toggle 2 & 3 slide	1.10	1.20
59700	Rack making and repair plating	1.00	1.15
70020	Radial drill operator	1.10	1.25
60602	Repair light and heavy (block test repairs)	1.05	1.15
60606	Repair light and heavy (door shimmer)	1.05	1.15
60601	Repair light and heavy (final car)	1.05	1.15
60607	Repair light and heavy (repairing cylinder blocks)	1.05	1.15
60604	Repair light and heavy (transmission repairman)	1.05	1.15
61880	Salvage mechanics	1.00	1.10
61940	Salvage sorter	.85	.90
61920	Salvage sorter leader	.90	1.00
62000	Sand conditioners	.90	1.00
62200	Sand mixers facing mill	.90	1.00
62802	Sand tenders tramrail operator (Includes crane loading, mix blackening, bucket loaders, tend basement elevators, tend rotary sand feeders, flight man)	.90	1.00
62220	Sand tunnel men	.85	.95
63000	Sanding wet and oil	1.10	1.20
63200	Saw band operator	1.00	1.10
63800	Screw machine automatic (See also 10102 chucking machines)	1.10	1.20
64000	Screw machine hand	1.00	1.10
80020	Service parts dept. checkers (Parts orders)	.95	1.10
80022	Service parts dept. checkers (receiving clerk)	1.00	1.15
80021	Service parts dept. checkers (shipping clerk)	.95	1.10
80040	Service parts dept. chief clerk	1.10	1.25
80120	Service parts dept. inspectors	.95	1.10
80121	Service parts dept. inspectors (radio)	1.00	1.10
80460	Service parts dept. leaders	1.05	1.15
80140	Service parts dept. material handler	.90	1.00
80260	Service parts dept. stock keeper	.95	1.10
80280	Service parts dept. stock packers	.95	1.05
80300	Service parts dept. stock pickers	.90	1.00
80380	Service parts dept. unitizors	.90	1.00
64600	Shakeout men heavy	.95	1.05
65000	Shakeout men light	.95	1.05
71400	Shaper Operators	1.10	1.25
71401	Shaper Operators (Engineering machine shop)	1.10	1.25
65100	Sharpener drill and tool	1.05	1.20
65600	Shears Helper Rotary and Square	.90	1.00
65400	Shears Square Operator	.95	1.05
65200	Shears Rotary	1.05	1.15
28460	Sheet Metal helper experimental	.95	1.05
28401	Sheet Metal worker dingman experimental	1.25	
28402	Sheet Metal worker large samples experimental	1.25	1.40
28403	Sheet metal worker small samples experimental	1.25	1.40
65802	Soldering hand small parts	1.00	1.10
66610	Stock chaser	.95	1.10
57500	Stock chaser experimental	.90	1.05
66630	Stock keeper	.95	1.10
66690	Stock pickers counters bundlers and packers	.90	1.00
67000	Straightening and checking all other	.95	1.05
66800	Straightening camshafts crankshafts I Beams	1.00	1.10
31020	Students General Motors Tech.		

CODE NO.	DESCRIPTION	MINIMUM	MAXIMUM
67300	Sweeper factory	.85	.85
57560	Templet and Model checker	1.10	1.25
67720	Test Equipment construction and Maintenance	.85	.95
67800	Thread and tap general	.95	1.05
67600	Thread and tap heavy	1.00	1.10
68300	Timekeepers	.95	1.05
43350	Tinsmith leader	1.25	1.40
43400	Tinsmiths Maintenance	1.05	1.20
71610	Tool and die maker helper	1.00	1.15
72200	Tool gauge and fixture repair	1.20	1.35
69401	Tool Maker	1.20	1.35
69440	Tool Maker - Graduate Apprentice	1.15	1.30
69500	Tool Maker Helper temporary	1.00	1.15
69200	Tool Maker Leader	1.40	
69201	Tool Maker Leader (Engineering machine shop)	1.40	
69403	Tool Maker Machine Hand (Engineering machine shop)	1.20	1.35
70060	Tool markers and follow up	.90	1.00
40150	Tool repair portable power driven-air	1.00	1.15
69541	Tool room floor helper (Engineering machine shop)	.90	1.00
57330	Tool trouble man	1.25	1.40
28800	Trimmer experimental	1.10	1.25
73120	Truck repair gas and electric	1.05	1.15
33910	Trucker hand and stock laborer	.85	.95
73200	Tumbling mill operators medium	.90	1.00
74400	Utility Men (Potential foreman who have the ability to work on a number of different jobs)	1.00	1.25
74600	Washers automobile experimental	.90	1.00
75002	Washing machines metal cleaning (Gasoline washer)	.95	1.05
75001	Washing machines metal cleaning (production parts)	.90	1.00
75200	Water testers radiator and cylinder block	.95	1.05
75931	Welder Arc and Gas layout (Engineering machine shop)	1.05	1.15
29000	Welder Experimental	1.10	1.25
76200	Welder machine butt seam projection and electric tube	1.00	1.10
76201	Welder machine (flash welder)	1.05	1.15
76400	Welders machine gun	1.00	1.10
76800	Welders machine helpers	.95	1.05
76801	Welders machine helpers (Acetylene welders helper)	.90	1.00
76600	Welders Machine spot	1.00	1.10
43600	Welders maintenance gas and arc	1.15	1.30
75600	Weld Acetylene and arc	1.10	1.20
75601	Welding acetylene rough and heavy (Atomic Welder)	1.10	1.20
75400	Welding arc finish bore	1.10	1.20
77800	Wire Benders hand	.90	1.00
78400	Wire pullers heavy	.95	1.05
78800	Wire pullers light	.95	1.05
29201	Woodworker or Model maker experimental	1.25	1.40
29220	Woodworker or model maker helper experimental	.95	1.10
29200	Woodworker or model maker Kellerform exp.	1.25	1.40
29180	Woodworker or model maker leader experimental	1.45	

* Hiring Rate
** 60 Day Rate

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PRATT & WHITNEY GEARS WITH GROUND TEETH

Part No.	Name	Type of Machine
GB-32205	Adapter Accessory Drive Shaft	Single Wheel P&W
40160	Gear Oil Pressure Pump	" " "
32455	Gear Reduction Driving Small	" " "
37747	Hub reduction Driving Gear	" " "
49358	Gear Generator Drive	" " "
37731	Gear Reduction Drive Fixed	" " "
38250	Gear 9.45:1 Blower inter. High Ratio	" " "
37767	Gear Crankshaft Rear	" " "
37400	Gear Fuel Pump Drive	" " "
40416	Gear Oil Suction Pump Drive	" " "
47335	Gear Distributor Drive	" " "
31221	Gear Generator Drive Intermediate	" " "
27040	Pinion Distributor Driver	Double Wheel P&W
26617	Gear Crankshaft Front	" " "
38229	Shaft Impeller (2 Gears)	" " "
37331	Gear 7.6:1 Blower Interlow Ratio	" " "
37134	Shaft accessory drive (2 Gears)	Fitchburg Grinder

PRATT & WHITNEY GEARS WITHOUT GROUND TEETH

Part No.	Name
GB-11338	Rear Gun Control Gear
11347	Coupling Magneto
26419	Gear-Vacuum Pump Drive
29618	Gear-Driven Propeller-Governor
31247	Gear-Gun Drive Intermediate
31398	Shaft-Gun Drive Generator-Drive
31780	Adapter Vacuum Pump Drive
31786	Gear-Vacuum Pump Driven
31787	Generator and Vacuum Pump Drive
32863	Gear-Magneto Drive Bevel
32864	Gear-Magneto Drive Bevel
34903	Adapter-Crankshaft to C'Balance Drive
35104	Gear-Prop. Governor Driver
37748	Gear-Front Oil Pump & Prop. Governor Drive
37749	Shaft-Front Oil Pump Driven
37762	Counterbalance Front
37763	Counterbalance Rear
38311	Shaft-Intermediate Blower Drive
38560	Gear-Vacuum Pump Driven
40568	Gear-Distributor Driven
45581	Gear-Distributor Driven
46078	Shaft-Intermediate Blower Drive
49580	Plate-Spring Drive-Fixed
52039	Adapter-Generator Drive

9-6-41

PRATT & WHITNEY GEARS PURCHASED WITH GROUND TEETH

Part No.	Name
GB-37731	Gear Reduction Drive-Fixed (Internal)
32455	Gear Reduction Driving Small
37098	Pinion Blower Intermediate
44715	Gear-Cam Reduction-Front
40471	Gear-Cam Reduction and Mag. Drive
33912	Gear-Counterbalance Drive Intermediate
32772	Gear-Countershaft Drive
32456	Gear-Reduction Driver
37137	Gear-Accessory Drive Floating
32384	Gear-Reduction Driving Large (In Assy.)

PRATT & WHITNEY GEARS PURCHASED WITHOUT GROUND TEETH

Part No.	Name
GB-34069	Shaft-Tachometer Drive (Helical)
26507	Gear-Rear Cam Reduction
32869	Gear-Mag. Drive Spur

GB	PCS SET	NAME	TYPE	ORDER	SKETCH	SKETCH
11338	2	GEAR GUN CONTCL	PWA 187ST	35		
11347	1	COUPLING MAGNETO	SAE 6150 ST	17		
26419	2	GEAR VACUM PUMP DRIVE	PWA 815ST	43		
26617	1	GEAR CRANSHAFT FRONT	PWA 815ST	44		
27040	2	PINION DISTRIBUTOR DRIVER	PWA 815ST	57		
27618	1	GEAR DRIVEN PROPELLER-GOVENERNOR	PWA 815ST	41		
31221	2	GEAR-GENERATOR DRIVE INTEMEDIATE	PWA 815ST	61		
31247	2	GEAR GUN DRIVE INTERMEDIATE	PWA 815ST	4-5		
31398	2	SHAFT-GUN DRIVE GENERATOR DRIVE	PWA 187ST	44		
31780	2	ADAPTER VACUM PUMP DRIVE	PWA 190ST	37		
31786	1	GEAR-VACUM PUMP-DRIVEN	PWA 815ST	42		
32205	1	ADAPTER-ASSESSORY DRIVE SHAFT	PWA 815ST	36		
32384	6	GEAR-RED DRIVING LARGE	PWA 32384	28		
32455	6	GEAR-REDUCT DRIVING SMALL	PWA 248ST	28		
32863	1	GEAR-MAGNETO DRIVE BEVEL	PWA 815ST	47		
32864	1	GEAR-MAGNETO DRIVE BEVEL	PWA 815ST	44		
34903	1	ADAPTER CR'SHAFT TO C'BALANCE DRIVE	PWA 1495	19		
35104	1	GEAR-PROP GOVENOR-DRIVER	PWA 815ST	53		
37134	1	SHAFT ASSESSORY DRIVE	PWA 248ST	57		
37135	1	PLATE-FIXED SPRING DRIVE FRONT	PWA 815ST	32		
37331	2	GEAR 7.6:1 BLOWER INTERLOW RATIO	PWA 815ST	46		
37400	1	GEAR FUEL PUMP DRIVE	PWA 139ST	52		
37643	2	CONE LOW RATIO CLUTCH	PWA 815ST	23		
37644	2	CONE HIGH RATIO CLUTCH	PWA 815ST	24		
37731	1	GEAR-REDUCTION DRIVE-FIXED	PWA 248ST	3		
37747	1	HUB RED DRIVING GEAR	PWA 815ST	41		

GB	PCS REQ'D	NAME	TYPE	OPER	SKETCH	SKETCH
37748 ✓	1	GEAR FRONT OIL PUMP & PROD GOUENERNOR DRIVE	PWA 815ST	49		
37749 ✓	1	SHAFT-FRONT OIL PUMP DRIVEN	PWA 815ST	55		
37762 ✓	1	COUNTER BALANCE FRONT	PWA 815ST	24		
37763 ✓	1	COUNTER BALANCE REAR	PWA 815ST	24		
37767 ✓	1	GEAR CRANKSHAFT REAR	PWA 815ST	33		
38229 ✓	1	SHAFT IMPELLER	PWA 9.5ST	61		
38250 ✓	2	GEAR 9.45:1 BLOWER INTER HIGH RATIO	PWA 815ST	42		
38311 ✓	2	SHAFT-INTERMEDIATE BLOWER DRIVE	PWA 815ST	58		
38313	1	GEAR-INTERMEDIATE BLOWER 7.6:1	PWA 815ST	42		
38431	1	GEAR-INTERMEDIATE BLOWER 7.6:1	PWA 815AST	42		
38560 ✓	2	GEAR-VACUM PUMP DRIVEN	PWA 815ST	42		
40160 ✓	1	GEAR-OIL PRESSURE PUMP	PWA 815ST	37		
40161	1	GEAR-DRIVE PRESSURE PUMP SHAFT	PWA 815ST	36		
40416 ✓	1	GEAR OIL SUCTION PUMP DRIVE	PWA 815ST	43		
40562 ✓	2	GEAR DISTRIBUTOR DRIVEN	PWA 815ST	50		
40874	6	BUSHING REDUCTION GEAR PINION	PWA 17-4 ST			
45581 ✓	2	GEAR-DISTRIBUTOR DRIVEN	PWA 815ST	46		
46078 ✓	2	SHAFT-INTER BLOWER DRIVEN	PWA 815ST	70		
47335 ✓	2	GEAR DISTRIBUTOR DRIVE	PWA 815ST	37		
49358 ✓	2	GEAR GENERATOR DRIVE	PWA 139ST	40		
49580 ✓	1	PLATE SPACING DRIVE FIXED	AMS 6294 ST	40		
52039 ✓	2	ADAPTER GENERATOR DRIVE	PWA 139ST	24		

RESEARCH DEPARTMENT, UAW-CIO
281 West Grand Boulevard
Detroit, Michigan
October 20, 1941

FORD - AIRCRAFT NEGOTIATED RATES

Local #600

DEPARTMENT 2857

Transportation		
Aircraft General Transportation Drivers	$1.10	1.20
Aircraft Transportation Dispatcher	1.20	1.30
Finished Parts Stores		
Aircraft Stock & Record	1.15	1.25
Conveyor Loaders	1.00	1.10
Utility 5¢ above top rate		
Oil Stock		
Aircraft Oil Crib Attendant	1.10	1.15
Aircraft Oil Checker	1.05	1.15
Tool Stock - Department N - 650		
Badge Crib Attendant	1.20	1.20
Division Stock Room Head	1.25	1.25
General Tool Crib Attendant	1.00	1.10
Grinder Wheel Mounter	1.15	1.25
Head Crib Attendant	1.20	1.20
Head Tool Crib Attendant	1.20	1.20
Main Tool Crib Attendant	1.15	1.20
Tool Chaser	1.20	1.30
Tool, Die & Machine Cribs (Others may be added by Negotiations)	1.10	1.15
Tool Stock Checker	1.10	1.20
Tool Stock Ledger Clerk	1.10	1.25
Tool Trouble Man	1.30	1.45
Utility Crib Attendant	1.15	1.15
Receiving Department		
Aircraft Receiving Auditor	1.15	1.25
Aircraft Receiving Adjuster	1.25	1.35
Aircraft Steel Checker	1.20	1.30
Aircraft Stockman Receiving	1.05	1.15
Checker	1.10	1.20
Conveyor Stock Loaders & Unloaders	1.00	1.10
File Clerk	.95	1.05
Machine Checker	1.15	1.25
Utility 5¢ above top rate		
Shipping Department		
Aircraft Biller	1.05	1.15
Aircraft Carloader - Heavy - Light	1.05	1.15
Aircraft General Shipping Checkers	1.20	1.25
Aircraft Stock Packer	1.00	1.10
Conveyor Stock Loaders & Unloaders	1.00	1.10

DEPARTMENT 2806 (Cont'd)

Paint Sprayers	$1.25	1.40
Quality Men	.05 Hour More	
Relief Man	.05 Hour More	
Utility Men	.05 Hour More	
Working Leaders	.05 Hour More	

AIRCRAFT BUILDING - DEPARTMENT 2804

Back Spot Face	1.10	1.25
Bench Work Tool & Die Maker	1.20	1.45
Clerk	1.05	1.15
Burring Bench	1.15	1.30
Gear Shaper Operator & Set Up	1.20	1.35
Heald Diamond Bore Operator & Set Up	1.20	1.35
Internal Grinding	1.20	1.35
Lapping Machine Operator	1.20	1.35
Lathe Operator	1.20	1.35
Radial Drill Operator Bore & Tap	1.20	1.35
Rotaslides Drill Operator	1.10	1.25
Special Multi-Drill Operator & Set Up	1.20	1.35
Tapping Machine Operator	1.20	1.35
Vertical Turret Lathe	1.20	1.45
Working Leader	.05 & Up	
5 Way Natco Work Leader	1.20	1.35
Milling Machine Operator	1.20	1.35

DEPARTMENT 2855

Build Up & Tear Down	1.20	1.40
Clerks Operator	1.05	1.15
Crank & Prop Shaft Semi-Finish	1.20	1.35
Crank & Prop Finish	1.40	
Dynamometer Operator - Same as Layout inspection		
Follow Up Men	1.20	1.35
Gage Inspection	1.50	Minimum
Gear Inspection #1 Worker	1.30	1.40
Gear Inspection #2 Worker	1.15	1.25
Heat Treat Inspection	1.20	1.35
Heat Treat Inspection Leaders	.05	Up
Hot Test Operator - Same as Layout Inspection		
Layout Inspection - New Man First 6 months	1.15	1.30
#2 Worker	1.35	1.50
#1 Worker	1.50	Minimum
Machine Shop Inspection #2 Worker	1.15	1.25
Machine Shop Inspection #1 Worker	1.30	1.40
Magnaflux Inspection #2 Worker	1.20	1.35
Magnaflux Inspection #1 Worker	1.35	1.45
Magnesium Foundry	1.15	1.30
Magnetic Analysis Operator - Same as Magnaflux		
Plating Inspection	1.20	1.35
Receiving Inspection Non-Productive	1.20	1.35
Receiving Inspection #1 Worker	1.30	1.40
Receiving Inspection #2 Worker	1.15	1.25
Salvage Inspection	1.30	1.50
Tool & Fixture	1.50	Minimum
Ledger Men	1.10	1.25

ROLLING MILL AIRCRAFT DIVISION - DEPARTMENT 2851

ROLLING MILL AIRCRAFT DIV. - DEPARTMENT 2851 (Cont'd)

Natco Gun Bore (Hydraulic)	$1.20	1.35
Racine Power Saw	1.10	1.25
Springfield Lathe	1.20	1.35
Sundstrand Lathe	1.20	1.35
Upsetter Operator (1 Job)		1.40
Utility Man Working Leaders	.05 & Up - No Maximum	
Wickes Lathe	1.20	1.35

DEPARTMENT 2813

	Minimum
Cold Test Operator #1	$1.30
Cold Test Operator #2	1.25
Dynamometer Operator #1	1.45
Dynamometer Operator #2	1.40
Dynamometer Operator Assistant #1	1.35
Dynamometer Operator Assistant #2	1.30
Equipment Maintenance #1	1.35
Equipment Maintenance #2	1.30
Hot Test Operator #1	1.35
Hot Test Operator #2	1.30
Hot Test Operator Assistant #1	1.25
Hot Test Operator Assistant #2	1.20
Mechanic #1	1.15
Mechanic #2	1.10
Mechanic Assistant	1.00
Propeller Test Operator #1	1.45
Propeller Test Operator #2	1.40
Propeller Test Operator Assistant #1	1.35
Propeller Test Operator Assistant #2	1.30

AIRCRAFT BUILDING DEPARTMENT 2807

Bench Assembly	1.10	1.25
Bullard	1.20	1.35
Cincinnati Centerless	1.20	1.35
Cincinnati Vertical & Horizontal Mills	1.20	1.35
Clerk	1.05	1.15
Cone Automatic Screw Machine	1.20	1.35
Clearing House Follow Up	1.20	1.35
Clearing House Stock & Record	1.15	1.25
Drill Presses	1.10	1.30
Dural Welder & Silver Solder	1.30	1.45
Excello Heald Borematic	1.20	1.35
External & Internal Grinder	1.20	1.35
Filling & Burring Barbers	1.10	1.25
Polishers General	1.20	1.35
Polishers Precision	1.20	1.45
Radial Drill	1.15	1.30
Special Snyder Mills	1.15	1.30
Sundstrand	1.20	1.35
Thread Grinder	1.20	1.35
Surface Grinder	1.20	1.35
Thread Mill	1.20	1.35
Turret & Engine Lathes	1.20	1.35
Tool Follow Up	1.20	1.35
Tool Trouble Man	1.30	1.45
Warner Swasey Screw Machine	1.20	1.35
Working Leader	.05 & Up - No Maximum	

AIRCRAFT BUILDING - DEPARTMENT 2812 (cont'd)

Clerk	$1.05	1.15
Climtool Burring	1.20	1.35
Colonial Broach	1.20	1.35
Etcher & Stamper Clearing House	1.10	1.25
Fellows Gleason Gear Shaper	1.20	1.35
Gisholt Lathe	1.20	1.35
Heald Grinder	1.20	1.35
Landis Grinder	1.20	1.35
Monarch American Lathe	1.20	1.40
Morton (P.W. Thread Grinder)	1.20	1.35
Sketchman Clearing House	1.25	1.40
Special Lathes Potter Johnson	1.20	1.40
Springfield Lo-Swings Lathe	1.20	1.35
Surface Grinder	1.20	1.35
Warner Swasey #4 Lathe	1.20	1.35
Warner Swasey #5 Lathe	1.20	1.35
Working Leader	.05 & Up	
X-Lo Gear Lapper	1.15	1.30
X-Lo #70 Center Lapper		
Tool Follow Up	1.15	1.30
Tool Trouble	1.30	1.45

DEPARTMENT 2811

Automatic Lathes Fay	1.20	1.355
Barber Coleman Spline Mill	1.20	1.35
Bench Assembly Men	1.10	1.25
Blanchard Grinder	1.20	1.35
Bryant I.D. Grinder	1.20	1.35
Borematic Diabore Finish Heald	1.25	1.40
Borematic Diamond Bore Rough Heald	1.20	1.35
Bullard Operators	1.20	1.35
Bullard Vertical Turret Lathe	1.20	1.35
Cincinnati Centerless Grinder	1.20	1.35
Cincinnati Hydrotel Mill	1.20	1.35
Cincinnati Mill	1.20	1.35
Contour Miller Van Norman	1.20	1.45
Department Clerk	1.05	1.15
Drill Presses	1.10	1.25
Excello Thread Special (1 Job)	1.20	1.40
Follow Up Man	1.20	1.35
Fay Automatic Lathe	1.20	1.35
Fitchburg Spline Grinder	1.20	1.35
Hanson Whitney Thread Mill	1.20	1.35
Heald I.D. Grinder	1.20	1.35
Heald I.D. Special (2 Jobs)	1.20	1.40
Internal Grinders Bryant	1.20	1.35
Jones & Lamson Automatic Thread Grinder	1.20	1.35
Landis I.D. Grinder	1.20	1.35
Landis O.D. Grinder	1.20	1.35
Landis O.D. Special (3 Jobs)	1.20	1.40
Kent Owens Mill	1.20	1.35
Lathe Hands Lodge & Shipley	1.20	1.35
Lathe Hand Springfield Special	1.40	1.45
Lodge & Shipley Lathe	1.20	1.35
Milling Machines Cincinnati	1.20	1.35
Milling Machines Milwaukee	1.20	1.35
Miscellaneous Surface Grinder	1.20	1.35

DEPARTMENT 2811 (cont'd)

Warner & Swasey Special Lathe	$1.20	1.40
Wiches Lathe	1.20	1.35
Working Leader	.05 Up - No Maximum	
4' Vertical Turret Lathe Finish Bullard	1.40	1.45
4' Vertical Turret Lathe Rough Bullard	1.20	1.35
Bryant I.D. Special (1 Job)	1.20	1.40
Van Norman Contour Mill	1.20	1.35

AIRCRAFT BUILDING - DEPARTMENT 2810

Assembler Pin	1.10	1.25
Automatic Lathe Operator	1.20	1.35
Automatic Screw Machine	1.20	1.35
Bench Man Assistant Rocker Arm	1.20	1.40
Borematic Operator	1.20	1.35
Bullard Operator	1.20	1.35
Cam Contour Grinder	1.20	1.35
Centerless Grinder	1.20	1.35
Centerless Lapper	1.20	1.40
Cleveland Operator	1.20	1.30
Conomatic Operator	1.25	1.40
Floor Inspection Operator	1.20	1.35
Gear Grinder Operator	1.25	1.40
Gear Lapper	1.20	1.35
Gear Shaper	1.20	1.35
Internal Grinder	1.20	1.35
Lathe Operator	1.20	1.35
Micro Hone Operator	1.20	1.35
Multi Spindle Drill Operator	1.25	1.35
Multiple Drill	1.20	1.35
O.D. Grinder	1.20	1.35
Polisher General	1.20	1.35
Polisher Precision	1.20	1.45
Rotary Grinder	1.20	1.35
Speed Lathe Operator	1.20	1.35
Surface Grinder Operator	1.20	1.35
Turret Lathe	1.20	1.35

DEPARTMENT 2809

Automatic Screw Machine	1.20	1.35
Bench Man	1.10	1.40
Blanchard Grinder	1.20	1.35
Borematic Machine	1.20	1.35
Broach Machine	1.20	1.30
Degreaser Operator	1.15	1.30
Fellows Gear Shaper	1.20	1.35
Horizontal Mill	1.20	1.35
Hydramatic Mills	1.20	1.35
Hydrotel Mills	1.20	1.35
Internal Grinder	1.20	1.35
Keller Profile Mill Control	1.30	1.45
Micr. Honing Machine	1.20	1.35
Multi Spindle Drill Press Special	1.20	1.35
Polishers General	1.20	1.35
Polishers Precision	1.20	1.45
Potter & Johnson Automatic Turret Lathe	1.20	1.40
Rotary Grinder	1.20	1.35
Single Spindle Drill	1.10	1.35
Sub. Assistant	1.10	1.40

DEPARTMENT 2808 (cont'd)

Cylinder Head Metal Spray	$1.20	1.45
Degreasing Machine	1.15	1.25
Drill Press	1.10	1.25
Drill & Tap Operator	1.20	1.35
Grinding Internal & External	1.20	1.35
Head Assembly Furnace	1.25	1.40
Heald Borematic Rough & Finish	1.20	1.40
Lathe Operator	1.20	1.35
Mill Operator	1.20	1.35
Natco Operator	1.20	1.35
Polishing Lathe	1.10	1.25
Radial & L & G Special Drill	1.20	1.35
Screw Machine	1.20	1.35
Silver Solder Welder	1.20	1.40
Thread Grinding	1.20	1.35
Tool Follow Up Man	1.20	1.35
Tool Trouble Man	1.30	1.45
Valve Seat Grinding	1.20	1.35
Working Leader	.05 Up - No Maximum	

DEPARTMENT 2801

Assemblers #1 Man	1.15	1.35
Assemblers #2 Man	1.10	1.25
Baffle Plate Assembly	1.10	1.20
Blount Speed Operator Lathe	1.20	1.35
Cam Assemblers	1.15	1.25
Clerks on Engine Records	1.05	1.10
Clerks on General Work	1.10	1.20
Crane Operator	1.10	1.25
Clutch Assemblers	1.15	1.25
Clutch Test Operator	1.15	1.25
Cylinder Assemblers	1.10	1.20
Drill Press Operator	1.10	1.25
Engine Change Men	1.20	1.45
Heald Grinder Operator	1.20	1.35
Intake Pipe Assembly	1.10	1.20
Leaders - Working	.05 & Up	
Master Rod Assemblers	1.15	1.25
Plugs & Pressure Testing	1.05	1.15
Power Sec. Disassemblers	1.15	1.35
Pre. Oiling Machine	1.15	1.30
Push Rod Assemblers	1.10	1.20
Pre-Fitting - Diffusers	1.05	1.15
Pressure Test Operator	1.05	1.15
Stud Driver	1.05	1.15
Pump Assemblers	1.15	1.25
Repair Men	1.15	1.35
Stone Man on Scrapping & Honing	1.10	1.20
Sunnen Lapping Machine Operator	1.15	1.25
Tappet Guide Assembly & Liquid	1.15	1.25
Tool & Equipment Maintenance Men	1.40	1.50
Tool Follow Up Men	1.20	1.35
Tool Trouble Man	1.30	1.45
Washer Operator	1.05	1.15
Wire Man	1.10	1.20

AIRCRAFT BUILDING - DEPARTMENT 2803

Band Saw	$1.15	1.30
Bench Assembly	1.20	1.40
Bench Burring	1.10	1.25
Borematics	1.25	1.40
Bullard Single Spindle	1.20	1.45
Clerk	1.05	1.15
Degreaser Control	1.10	1.30
General Plater	1.20	1.35
Lappers	1.15	1.30
Layout	1.20	1.40
Milling Machine	1.20	1.35
Multiple Drills	1.15	1.30
Planitary Bore Mill	1.25	1.35
Plater	1.10	1.30
Platers Helper	1.00	1.10
Rack Builder	1.20	1.35
Radial Drills	1.15	1.30
Single Spindle Drills	1.10	1.25
Single Spindle Tapper	1.20	1.35
Surface Finisher	1.10	1.30
Taft Single Spindle Back Spotters	1.15	1.30
Working Leaders	1.35	1.45

Unemployment Benefit Claims as released by the Michigan Unemployment Compensation Commission - Week of February 8, 1942

21,254 claims filed.

18,974 checks paid out that week. Many had not registered.

March 7th:

16,486 claims filed

15,394 checks paid out

Memo from Research Department, UAW-CIO:

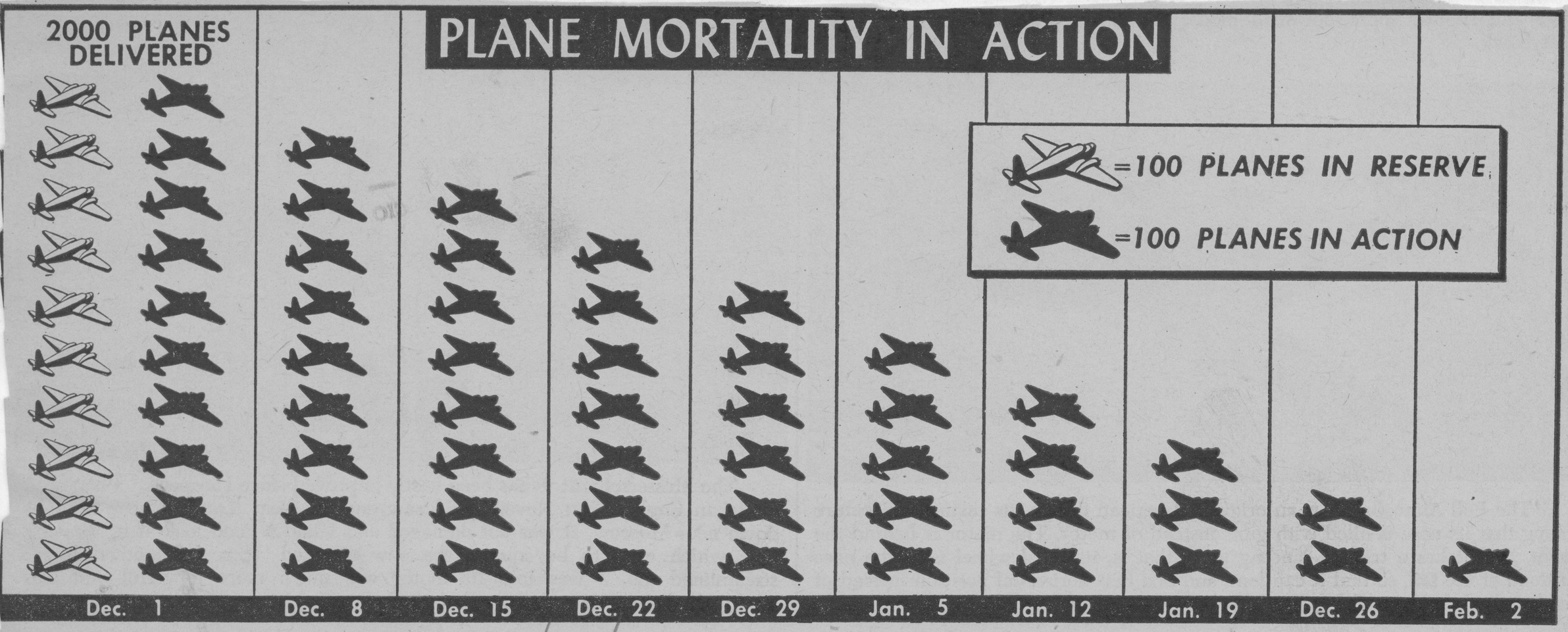
I enclose employment figures gathered by this Department for G.M. plants in Flint. Employment reports here cover the week of March 9-14. Even more recent information indicates that no substantial change of any kind has taken place in current employment levels since the report was made for the week of March 9-14.

J. WISHARD
RESEARCH DIRECTOR

EMPLOYMENT IN GENERAL MOTORS PLANTS IN FLINT MICHIGAN, March 9-14, 1942

PLANT	NO. EMPLOYED "	NO. UNEMPLOYED
Fisher 1	1,000	5,000
Fisher 2	50	1,110
Buick	7,000	7,400
Chevrolet	4,000	8,053
TOTAIS	12,550	21,653

PLANE MORTALITY IN ACTION



11/17/41 — P.M. —

INTERNATIONAL UNION

United Automobile Workers of America-CIO

AFFILIATED WITH THE CONGRESS OF INDUSTRIAL ORGANIZATIONS
LOCAL 226

LOCAL OFFICE
241 WEST MARYLAND ST.
INDIANAPOLIS, IND.
LINCOLN 5826

Air Mail
Special

March 24, 1942

Mr. Edward Levinson
Director of Publication and Publicity
281 West Grand Blvd.
Detroit, Michigan

Following in brief form is affadavit containing information requested in your communication of March 23, 1942.

I received your telegram later advising to disregard communication but thought the following affadavit might be of some benefit to the confernee to which you have reference.

Clarence Lyons

Clarence Lyons, Chairman Chev. Unit

A F F I D A V I T

We, the undersigned, have seen the Indianapolis Star of Wednesday, December 31, 1941, a photograph of a Hamilton Press which, according to the caption, was stamping metal for ambulances and other bodies for U.S. Army vehicles in the Chevrolet Body Plant of Gneral Motors in Indianapolis.

As employees of this plant, we are in a position to state from our own observations, that this Hamilton Press was not producing any defense parts on December 31, and had not operated on any parts for some time prior to December 31, 1941. The Hamilton Press referred to above, has only operated intermittently since December 31, to the extent of approximately 20% of one eight-hour working shift based on four days per week.

Sworn to and subscribed before me
this 24th day of March, 1942.
Agatha M. Hodes, Notary Public
My Commission Expires February 26, 1946

Clarence Lyons

Wayne K. Fuller

INTERNATIONAL UNION

United Automobile Workers of America-CIO

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Subscribed to and sworn before me this 24th day of March, 1942
Cyrilla M. Rhodes, Notary Public
My Commission Expires February 26, 1946

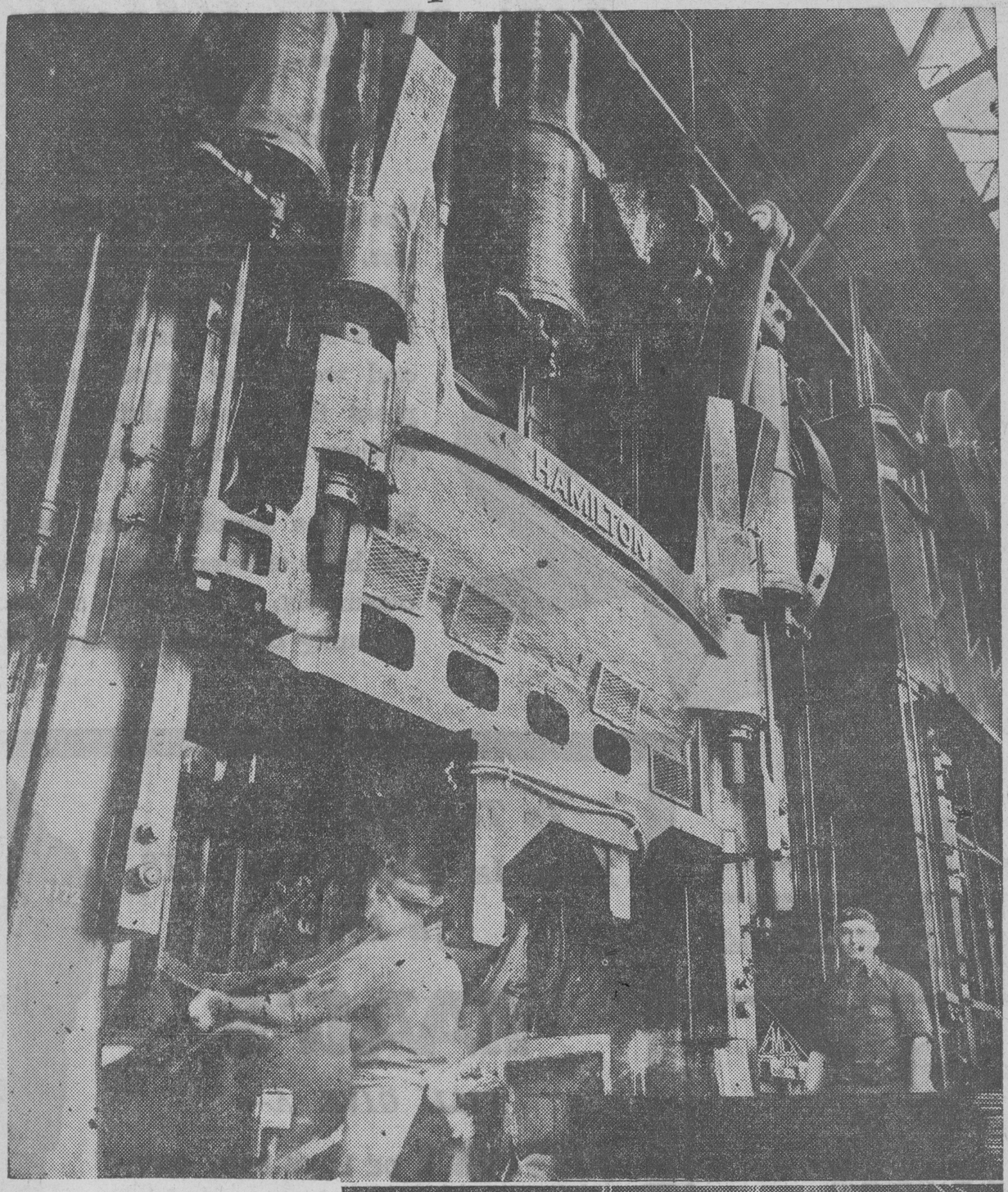
Clarence Lyons

Wayne H. Fullen

[12/31/41]

nsibility to Keynote Ind

Local Industries Speed Defense Work





A sample of what Indianapolis industry is doing for national defense is found in these pictures of operations at the Chevrolet body plant of General Motors Corporation. Top: This huge press shapes sheets of metal for ambulance and other type truck bodies for the army. Floyd Patterson (left) and Merle Young are shown drawing a shell for a cab-over-engine type truck. Below (left to right): William A. Green, William B. Phillips, Joseph Jolly, Eddie Evans, Fred Bradford and Anthony Mayer are working on a conveyor line assembling platform panel bases for army truck cabs.

D Indiana Committee

Chev Commercial Body.

working less than 30% pack capacity
Management claims they cant get military truck
orders — have civilian truck orders but
cant fill them due to rubber shortage.

Plant should be converted to War Production

Klausmeyer said they had an order but they
cant locate it.

(Ex A)

Picture of 500, ton press - Chev Com Body.
Picture of the press appeared in Indianapolis
paper — date — "Capture Round the Clock"
for defense — press had not
worked in 2 or 3 months

2) Delco Remy — Anderson

Check being made on details

Was Work down - cowlin ~~to~~ product running.

"

On Friday - March 13th

Dept 887 - Plant 8 - Delco Remy Anderson

Field Girls for Barber - Stark + many Boat
for Bendix)

No one was working in Dept (normal force 75 employes)

Foreman Roy Wiley said they were not absorbed 7
motored - they were down because they ~~had~~
were ahead on orders. — Only 3-4 weeks
ago they had to fly these parts to Cely because
~~the~~ product was big held up

"

Plant 7 - Foundry - supplying Allison with Castings.
because of strikes of Iron Lines.

"

Moving machinery from DR Plant to
storage in old Lib Plant.

3) Con Body - Tool Room :

At Peak employed often 400 men on 2 shifts

at present 80 men employed on one shift

working 8-10 hrs per day —

Men claim very little work — Cope is just

holding on to these men —

Complete tool room —

Conversion —

85% can be used —

Motors

Ford Aircraft

Crankshaft - Lathes —

Press Room Capacity in Excess

"

Department # 52 Metal shop

Here the production or fabrication of all metal products start. The introduction of material is made by a Shaw overhead crane which unloads the metal from transport trucks or railroad cars whichever the case might be, the plant being equipped with rail road sidings right into the plant. Size of crane on this job 25 ton.

From the metal storage space in this dept. the sheet metal flows through the toggle or hydrolic presses which is commonly referred to as the first draw or the original form of the metal. All large metal sheets are conditioned by what is known as rolling a process which breaks the hard grain of the metal and thereby makes it more flexable.

The toggles or hydrolic presses are herein described in detail as follows:

# 646 2650 150 " Clearing	#647 2650 150" Clearing
500 tons	650 tons
26" stroke outside ram	26" stroke
37" " inside	" 37" inside ram
60" by 72" die space	60" by 72" die space
80" by 150" bed area	80" by 150" bed area
7 strokes per minute	7 strokes per minute max. assignment 73 hrs. per
Max. assignment 195 hrs.	week, two shifts.
per week two shifts	Potential assignment 480 hours per week, 3 shifts.
Potential assignment	
480 hrs per week 3	
shifts.	

648 4900 -- 208" Clearing 700 tons 26" outside stroke 37" inside stroke.
60" by 72" die space 90" by 208" bed area. 7 strokes per minute.
max. assignment 106 hrs. per week, # two shifts, Potential assignment 480 hours per week three shifts.

1172 DA-15013 Hamilton 900 tons 26" stroke outside ram 37" stroke inside ram.
71½" by 73½" die space 80" by 150" bed area 12 strokes per minute.
max. assignment 120 hours per week two shifts. Potential assignment 480 hours per week three shifts.
From the toggle or hydrolic presses the parts whose fabrication has thus been started goes through the necessary operations to complete the production of that particular part or product. The dies for the many smaller presses which perform the operations succeeding the toggle draw are moved and exchanged by two overhead shaw cranes 25 ton and 35 ton respectively, which haul the dies from both the storage spaces where unused dies are kept and from the tool and die department where new dies are made.

Conn Bailey

From department # 52,tops,bows,roof rails and assembly parts,for the assembly of tops,flow to department #58.These parts are loaded on platform trucks and moved by inside power trucks.

Included in this department are 2 moving conveyors,6 spot welding machines,2 staple stitchers and jigs for hinge assembly.Equipment includes 15 hand spot welding guns and two gas torches.

The present production of this department is 111 tops in 8 hours.The peak production was 216 tops complete,in 8 hrs.The potential production is 216 tops per 8 hr shift.

Cab over engine is metal finished here also.Present production is 66 per 8 hrs. Potential production is 152.

Fenders are finished here also.Present production is 46 fenders.Pote ntial production is 200 fenders per 8 hrs.Metal finishers finding their work eliminated have transferred to other departments,and their is ample supply of finishers within the plant.

Fenders and cab over engine are finished on jigs.Tops are finished on a moving conveyor.

1 conveyor is composed of jigs.Here is laid roof rails and welded together. Bows are added and welded.The top panel is then added and weled to the frame.The top is then edge transferred to a second conveyor.Travelling along this conveyor the top is metal finished,washed and putty glazed,then transferred to the paint conveyor line, travelling through spray booths and into a heated oven.

Included in the paint department are 5 spray booths.Capacity of this department including the oven is far in excess of capacity of other assembly departments.

From dept #52 flows the side panels and parts for the complete assembly of body sides,to dept #54.

This department is composed of jigs where the various parts are welded together. The bare metal side is placed on a jig,then the inner parts are added,and all is welded together.The panels are then placed on a moving conveyor where they are metal finished. They are then transferred to a seperate paint conveyor and go through spray booths and into the oven.

Present production of this dept is 224 side panels in 8 hrs.Peak production was 376 panels in 8 hrs.This is potential production except both dept 54 and 58 are able to add 3 shifts if necessary.

Included in dept 54 are door and endgate assembly.Upper doors,present production 12 pr.,in 8 hrs.Potential production 48.End gates present production 12.Potential production 48 in 8 hrs.This job would only require 2 metal finishers on doors and end gates at full capacity.

[redacted]

54 cont.

Stock racks; Present production 57 complete jobs 5 men
Have produced 130 jobs 17 "
Can produce 150 jobs 20 "

The above is based on one shift of 8 hours per day producing four different models.

[redacted]

Comm Body

R E P O R T

O N

DEFENSE PRODUCTION AND CONVERSION IN THE AUTO INDUSTRY

A S A P P L I E D T O

THE ENGINEERING FIELD

H.T.McCreedy
Society of Designing Eng's.

This report is based upon the findings derived from questionnaires filled out and personal conversations with designing engineers, process engineers, plant engineers, and plant layout men in the automobile field. The specific aspects of the engineering field covered were: Tool, Die, Jig, Fixture, Body, (now mostly transferred to surface drafting on tanks, planes, and trucks) and plant layout, and covers work on planes, tanks, guns, trucks, marine engines and parts. The Companies surveyed include General Motors, Ford, Chrysler, Hudson, Briggs, Murray, Packard, Vickers, Ex-Cell-O, as well as smaller companies in the area, allied to the auto industry.

This report is submitted for the purpose of (1) Indicating deficiencies within the industry which retard the conversion process and slow up production, and (2) Suggesting remedial measures which would both speed up conversion and bring about the fullest possible utilization of the productive resources of the industry.

- I -

PRESENT DEFICIENCIES

From the point of view of the full and efficient utilization of the engineering resources on an Industry-wide basis, the deficiencies revealed from our survey can be listed under the following headings:

1. The attitude of the Companies is one of "Business as Usual". Preceeding December 7th, this expressed itself in refusal to convert the automobile facilities to defense production, except where the competitive position of a given company made such conversion necessary.
2. The present methods of utilizing the personnel and skill of the engineering field is anarchistic and wasteful, and so long as they prevail it is a safe estimate that we lack from 25 to 50% of the engineering personnel necessary to do the job.

After the Government's order to cease automobile production on February 1st, the "Business as usual" policies expressed themselves in over-bidding on Contracts, retention of the hampering aspects of the competitive process, and perspectives limited to corporate interests.

3. Within the engineering field itself, anarchistic methods prevail. Competition between firms and trade secrets result in incalcuable loss in time and production.

4. The survey indicates:

   A. A large degree of administrative deficiencies within given companys.

   B. Unnecessary duplication of work resulting in waste of time and materials which could readily be eliminated.

   C. Unnecessary duplication of inspection which results in lost time and confusion.

   D. Many techniques, and steps in the production process could be eliminated.

   E. There is a great lack of standardization of procedures, methods, techniques, and in many instances, parts.

Illustrations of the above summary are revealed by excerpts from our questionnaire which are cited in Appendix "A" attached

5. There are certain general conditions which are a decided detriment to efficient production.

   A. It has been a long established practice for relatives of Company Executives to be placed in the Engineering departments as a stepping stone to better positions. In the majority of such cases, these individuals are not the most efficient in this field. However, because of 'connections' they are too rapidly advanced to supervisory capacities. Thereby weakening the administrative organization. Something should be done to abolish these 'red apple clubs'.

   B. Another practice which is unsound, costly, and in many instances highly questionable, is that which we term 'Moonlight engineering'.

A large corporation will divide its engineering program between the Company's engineering department and an outside job shop. Men from a Company's engineering department will be requested to work at night in the Job Shop doing part of the Company's program. Many evils have arisen from this practice. Not only is there a duplication of work which has been mentioned above, but in many instances there is conniving and shady practices which increase costs terrifically. In many instances the Executives of a Company drafting room have a financial interest in a given Job Shop, so it is quite easy to understand why the Company does a small amount of designing and the greater amount turned over to the Job Shops. One case has been reported to me where the practice of 'moonlight engineering' went so far that the Company's employees regularly working in the Company's engineering department, and also working nightly in a job shop, on part of the Company's work, took their prints from the Job Shop back into the Company's department during the day and spent most of their time working on them. On this particular job, some $10,000 worth of engineering was charged up to the Government when only about $3,000 worth of prints would be found. In the same case, the Supervision of the Company's department cleaned out the files preceeding the inspection by Government officials.

C. Dies which cost $150 to $250 to produce a year or two ago, are now being charged for at the rate of $400 to $600. It has been a common practice for many months for Companies to make excessive write-ups on estimated costs. Such write-ups have been reported to run as high as 70%

On the basis of our findings, we conclude that engineering costs could be reduced by one-half providing steps are taken to eliminate the existing deficiencies. This does not include the lowering of wages. Rather it presupposes wage increases in those sections at least where wages are now below the average level.

- II -

WHAT SHOULD BE DONE

In order to bring some organization and efficiency into the existing chaotic situation within the engineering field, certain steps should be taken. They can be divided into two parts: (1) The unification of administration outside the industry, treating industry as a unit, probably by the Government establishing the mechanism. (2) The elimination of wasteful practices and antiquated techniques within the engineering field itself.

A brief summary of recommendations follow:

1. The standardization of general methods, of the use of prints and of parts which adapt themselves to standardization.
2. Establish a central agency for the distribution of engineering programs.
3. Eliminate duplication inspection.
4. Eliminate duplicate work.
5. Wherever possible, have the engineering done at the point of production in order that corrections can be quickly and efficiently made.
6. Stabilize the hiring and the transfer of engineering personnel.
7. Centralize the responsibility for the designing of any program.
8. Eliminate 'frills', i.e. - the unnecessary time being taken in making the drawings to scale; the too-close adherence to tolerances where such adherence counts for nothing.
9. Stabilize wage rates - eliminate the differential between job and captive shops.

The above recommendations cannot be investigated as to their soundness, and if sound put into practice, so long as the only avenue of expression on the part of men doing the work remains in the hands of the corporation. The capacity of the worker on the job to increase the efficiency of production is tremendous if an instrumentality is provided through which his suggestions can be brought to the attention of an authoritative agency. Therefore, if the Government is to tap the resources of the people in the present emergency, a new machinery must be established.

It is our recommendation that Labor be given a channel independent of Industry, through which its knowledge, experience, and recommendations can be easily made accessible to the Government. Such a machinery will have to provide for two avenues of Labor's expression. (1) That of the worker in the plant functioning on a volunteer basis and formulating his suggestions, and (2) men from the Engineering field being placed on full-time jobs to coordinate, investigate, and recommend to the Government.

Submitted by:

H. T. McCreedy

Herbert T. McCreedy,
Regional Organizer
Society of Designing Engineers
Local #201 - F.A.E.C.T. - CIO.

APPENDIX "A"

The following quotations are taken at random from the many reports, and serve to verify the summary analysis in I.

(A) "There is a lack of cooperation between companies regarding pooling of information on production techniques and inprovements in tooling. Each company guards its processing from its competitor instead of pooling the discoveries of all for the common good. ..... Company improved the tooling on two New-Britain Chuckers, which it had purchased and tooled for specific operations on Wright valve seats, and increased production of these parts several-fold, (two or three times) yet, when the representatives of the New-Britain Company were in the ..... plant, this new tooling was removed from the machine and the original tooling was put back so as to conceal the improvements from the machine manufacturer."

(B) "The Job Shops are interested in profits only, at the expense of everything else. Their competition with each other results in taking jobs away from one another causing a continuous movement of personnel from one job shop to another, thus cutting down the total efficiency. ..... The Engineering programs from one Company is split up among many job shops, resulting in duplicate designing, duplicate drawings and waste of time and money."

(C) "Management refused and is still refusing to get work for men of our skill. Various plans have been suggested for the best and most efficient use of our department, but have been received with indifference by management. On this defense work, management is apparently lacking perspective as to the importance of speed."

(D) "Management has consistently followed a plan of paying wages lower than elsewhere obtainable and as a result, the labor turnover is high and a lack of skilled operators shows up in a high percentage of scrapped parts."

(E) "..... Company's process men have instructions to keep available at all times, machinery and tools to produce 500 motors per day. ..... drafting room and process department policies, are impairing the output of engineering work from the ..... tool design department. It is also reported that jig and fixture manufacturing have ..... tool room, on a very slim margin and not comparable with the amount of work that could be produced there. The drafting room personnel has been so depleted (because of sending work out to job shops) that the morale of those remaining is undermined by continual underpayment, causing an actual reduction in production from the skilled help involved. We should abolish the practice of having the process departments do a lot of useless estimating on parts that are eventually given to some other company to manufacture. Since this other company will re-design the work,a saving of nearly 50% in time would result."

(F) "Too often on rush work, the men who plan and design the tools, have to wait for an O.K. for the money to pay for same, from a Comptroller, who doesn't know a screw machine from a drill press, for as much as two weeks. 'Do this job, but do not disturb our automobile set-up' has been ordered in the presence of this writer."

(G) "Time is lost through office deficiencies because of the lack of system. The Management has tried to install several systems, but because of the slow change-over from auto to airplane production, they hesitate to employ or transfer key men to whip things into shape. There is a great deal of time losses, by "Martin's" system and governmental approval and changes."

(H) "Rubber dies for forming plane parts which are very simple and cheap, were used for some time before being used here. When they did start, they were told to run those parts in a slow press on which they guessed on the strength of the die required, and the operator was killed by the die 'blowing-up'. ..... I have been told by men who have worked in plane plants that if some dies were designed in

plane plants as we design them here, the men would be discharged. Many changes have been made in the design or dies since we started this work, but I feel much time and money has been wasted because of the attitude of management. The difference in dies for automobile and airplane parts is so much, that someone should have been sent to the plane plants to study their methods in order to avoid so much experimenting and changing. ..... Our pattern shop laid off men having 8 to 10 years seniority. Many of these men were expert pattern makers. We only handle the die patterns here; most of the tool and fixture pattern work is sent out. The pattern shop is only working 40 hours per week. The superintendent has a farm and doesn't like to work overtime. The pattern shopnormally employs 60 men, and sometimes as high as 120 men. At the present time there is only about 12 to 14 men working. A great deal of pattern work is being sent out which could be done here by working these men overtime or by re-hiring some of the first class men who were laid off. There has been too much lost motion and guess work. Until recently, the management's attitude was that no work should be done that would in any way, upset their automobile production lines. In the past, only 'juicy contracts' were accepted."

(I) "Work is being sent out to the job shops at a higher cost than would prevail if it were done in the department. After being returned from the job shops, the ..... Company's engineering department has to make changes in order to get the work out. One supervisor reported that the wastage was 25% on many jobs. Also many jobs are re-designed before being put into production, after the Government has paid $3.00 per hour for having it designed on the outside."

(J) "There is much time lost in doing the work in job shops and having the designs approved in the plants where the work is to be done..... Lack of standardization and coordination of design which would eliminate much designing work and speed up in the production of tools."

(K) "Due to the fact that we produce machines, tooling for these machines is also required by us. When the customer purchases said tooling, some of them require it redrawn on their paper (Chrysler, General Motors, Ford, etc.) (Example:) Ford Motor produces part AA-1 for Airplane motor. Chrysler does the same - also G.M. The Tooling has to be drawn first on Ford paper, which is then sent to their offices. It then has to be duplicated twice on the other customers paper and then sent to their offices. The Government has to pay for all the time and material, plus a profit, on all of this. It seems to methat the time is wasted in duplication which would be used for new ideas and development, not to mention the money it costs to reproduce said drawings."

(L) "There is a lack of labor skill and inadequate supervision. Also the contractors inspection takes a lordly attitude with the sub-contractors supervision. They take their time about passing important parts. Any attempt to rush them causes them to knock down anything. The result is that the sub-contractor management hestates to offend them. Every part has to pass three inspections. (1) the Army, (2) the Contractor, (3) the Subpcontractor. .....Important assemblies are held up waiting for parts that are held in salvage bins, --- but have to receive Contractor's O.K. The Contractor's inspectors pass them just when they feel like it. If the parts are passed by the Army inspectors, they should be O.K. to use. The Customer's inspection should be dispensed with. The Engineering designers, who laid out the assemblies, should be given more authority to untangle snarls in production and get the lines moving. ..... Supervision should be made up of qualified men and not exeautive pets."

(M) "Agreat deal is lost through Government and Management red-tape. Government's tolerances are too close and too rigid for dimensions that don't mean anything. We agree that dimensions which count for something cannot be too closely and rigidly adhered to. The practice of grinding gears is outmoded, too expensive and cumbersome. Practical gear men shave their gears for close limit work.

Management has too many men in executive positions who don't know what it's all about."

(N) "Remove all supervisors not capable of handling machine-shop work and replace with men with that type of experience and background. .....Loosen up on some of the close limits on gun, airplane and tank production parts which are not too particular."

(O) "We have men in supervisory capacities in our production departments who have little or no machining experience, With men who work under them, knowing the job better than the supervisors. ..... We also have a condition where equipment is set up to run production and remains idle 50% of the time due to deficiencies in schedules."

(P) "Production could be speeded up by standardizing designs. We should eliminate the Management and Government red-tape by centralizing authority. Give the Engineer the right to design and alter the production system to suit the requirements."

This appendix reveals situations which are symptomatic of the condition thruout the industry. It is an open secret that flagrant violations of sound and ethical proceedures and practices exist everywhere. An investigation would reveal much more of the same deficiencies described above and probably uncover others. The writer will be more than glad to cooperate in any way to improve this situation and eliminate the bottle-neck in the engineering field.

KEY TO ENGINEERING REPORT.

II

5.

A. Prevails thruout the industry.
B. Ford Motor Co.
C. Dodge Division- Chrysler Corp.

Appendix

A. Excello Corp.

B. Job Shop Summary Report

C. Packard Motor Co.

D. Excello Corp.

E. Buick Motor

F. Packard

G. Hudson Motor

H. Briggs Mfg.

I. Buick

J. Job Shop Summary Report

K. Excello Corp.

L. Murray Corp.

M. Packard

N. Hudson Motor

O. Hudson Motor

P. " "

Copy & return to

Cote at 330 Livernois.

TERNSTEDT MANUFACTURING DIVISION
GENERAL MOTORS CORPORATION

6307 WEST FORT STREET

DETROIT, MICHIGAN

To Employes:

It has always been the policy of the Fisher Body Division, General Motors Corporation, to accept suggestions from any employe for improving working conditions and increasing production. This Division now wishes to announce the formation of a New Suggestion Plan which will focus the interest of all employes on increasing War Production.

Awards under this Plan will be made in the form of Defense Stamps and Bonds to those employes who submit suggestions which are adopted; and which will increase production on their own jobs, improve quality, save material, reduce waste or improve working conditions.

We are attaching a copy of the Suggestion Plan Rules. Your foreman, superintendent or personnel office will furnish you with additional information or help if desired.

Very truly yours,

TERNSTEDT MANUFACTURING DIVISION
General Motors Corporation

J. W. Jackson

J. W. Jackson
General Manager

SUGGESTION PLAN RULES

The Fisher Body Ternstedt Division announces a Suggestion Plan incorporating substantial awards to employes who make suggestions for improving and increasing production of war products.

This plan is now in effect in this plant and will be operated under the rules indicated below:

SUGGESTION BOXES

Suitable suggestion boxes are to be placed in the plant at convenient places.

SUGGESTION FORMS

Forms upon which suggestions can be made will be available to all employes thru the foremen, superintendents, or personnel office. While it is desirable that all suggestions should be made on these forms, it is not mandatory, however, all suggestions must be in writing.

SUGGESTION COMMITTEE

The Resident Manager will appoint a Suggestion Committee which will consist of at least three men for the smaller plants and not more than five men for larger plants.

DUTIES OF SUGGESTION COMMITTEE

1. Will collect and acknowledge receipt of all suggestions.

2. The Committee will meet regularly at least once each week and review all suggestions which have been received to date or on which final action has not been taken.

3. Final action on each suggestion must be taken, if at all possible, within one month after receipt. If it is impractical or impossible to pass finally on a suggestion within one month, the employe who made the suggestion must be fully advised as to why his suggestion is being studied further.

4. The Committee will notify employe of the adoption or rejection of his suggestion. If the suggestion is adopted employe will be notified of the amount of his award. If the suggestion is rejected, he is to be notified by personal interview of the reasons for rejection. In either event, the employe will be given formal written notification of final action.

DUTIES OF SUGGESTION COMMITTEE - (Cont'd)

5. The Suggestion Committee is to have full authority over all cases in which the Committee is in unanimous agreement. In the event of substantial disagreement on specific suggestions, the case may be referred to the plant manager, who is to have final authority.

ELIGIBLE EMPLOYES

All employes of this plant who are on Production work are eligible to awards under this Plan.

Members of the supervisory forces, employes of Engineering Departments, Processing Department, Tool & Fixture Designing Department, Production Planning Department, or any other department with similar activities which have as their regular responsibilities improvement of design, processing, working conditions, etc., are not eligible.

AWARDS

Awards will be made in the form of Defense Stamps, or Bonds. These awards will fall in one of the following three classes:

A. Suggestions adopted which relate to the employe's own job and which result in increased production above the standards established for the job at the time the suggestion was made.

In such cases the employe will be given an award equal to the value of the increased production figured in hours saved at the employe's earned rate. For example, if the employe's suggestion increases the production 25% and the employe's rate is $1.00 per hour, then the total award to be paid would be on the basis of 25¢ per hour for each productive hour that the employe would have worked on the particular job on which the suggestion was made for the succeeding two months' period.

Assuming the employe works 40 hours per week, he should receive payment equivalent to --
40 x 4 1/3 x 2 = 347 hours x 25¢ per hour or a total award of $86.75.

B. Suggestions adopted which result in increased production on the employe's own job as outlined in "A" above, and in addition result in increased production by other employes on duplicate operations on the same or on other shifts or by a measured increase in the productive standards of the employe's own pay group.

AWARDS - (Cont'd)

B. In such cases, the employe will be given an award equal to the value of the increased production figured in hours saved at the employe's rate --

(1) Over a period of two months -- on his own job, plus

(2) The saving on other jobs affected -- over a period of one month.

In (1) and (2) combined the maximum Defense Bond award to the employe making the suggestion shall not exceed $750 ($1,000 face value).

In addition, an award equal to one month's actual saving by such other employes on duplicate operations or in the employe's own pay group as a direct result of the suggestion may be divided among such employes in a manner to be determined in each case by the Suggestion Committee.

C. Suggestions resulting in improving the quality of production, improved safety conditions or relating to matters not directly concerned with a productive operation.

In such cases, the employe who made the suggestion will be given an award ranging from $7.50 in Defense Stamps to an $18.75 ($25 face value) Defense Bond. The specific amount to be determined by the Committee according to its judgment in each individual case.

Awards in class "A" and "B" will be considered for suggestions received applying only to jobs or operations where standards have already been set.

Suggestions of any nature are welcomed, but it should be clearly understood that operations which are in experimental stages or where tooling has not been completed are under constant study by various engineering departments. Consequently, neither the adaptability nor value of such suggestions can be fairly determined until the engineering work has been completed and standards have been established.

All employes are requested to offer any suggestions which they may think will be of value in improving our war production effort.

All suggestions will be acknowledged and the author will be personally interviewed by a representative of management before final decision on the adaptability of the suggestion is reached.

MEMO FROM ED COTE ON TERNSTEDT:

There are, at present, at Ternstedts, 53 automatic Screw Machines
(Gridley and Davenport)

38 are idle all week (168 hour week)

9 are in full use (" " ")

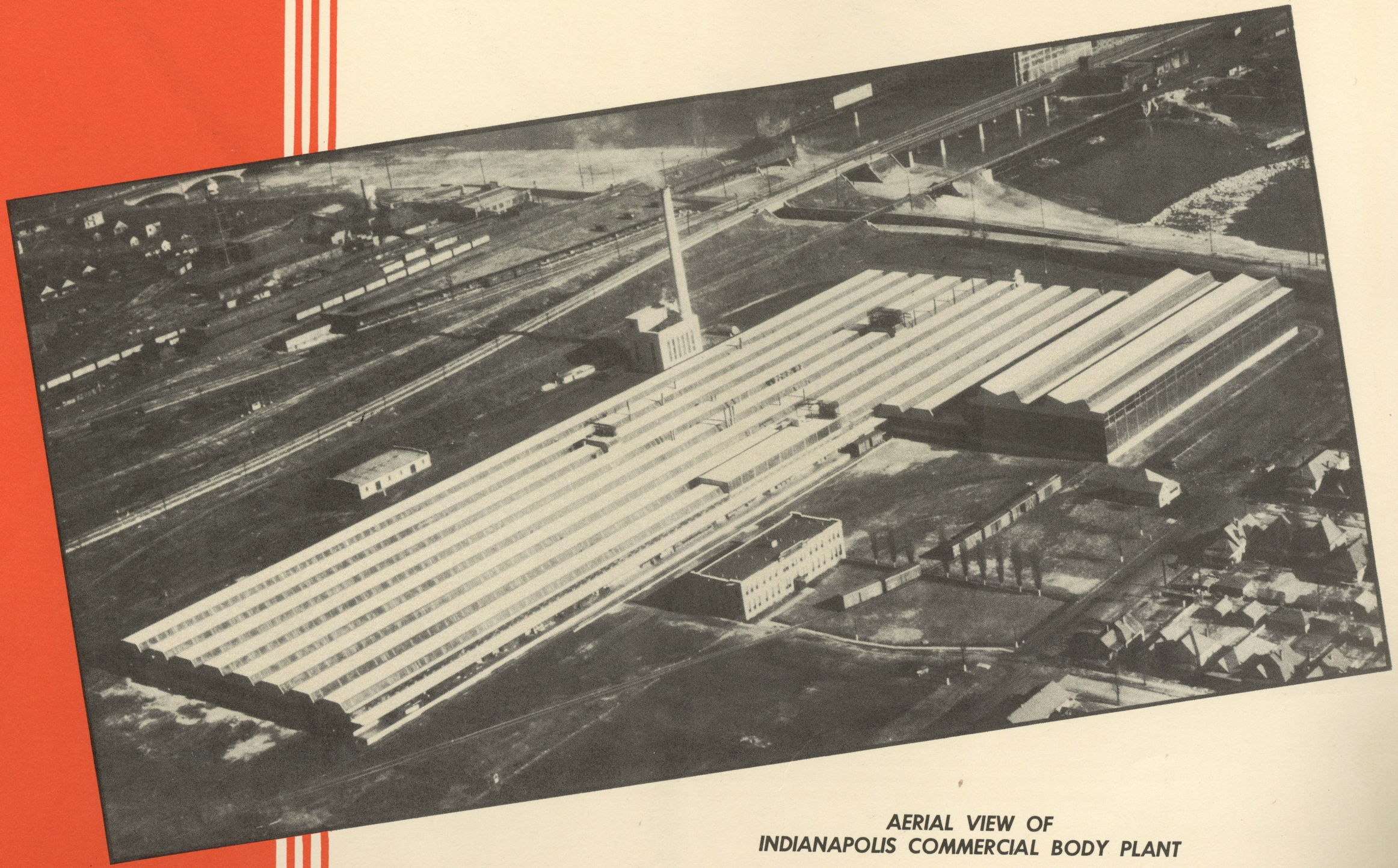
6 idle 48 hours of the week.

A trip through

THE INDIANAPOLIS COMMERCIAL BODY PLANT

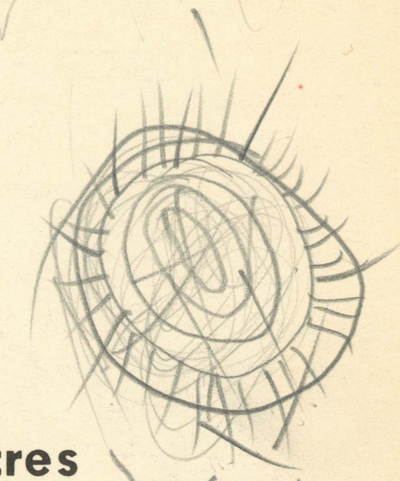
677,250
sq ft.

1,125
602
2250
67500
677,250



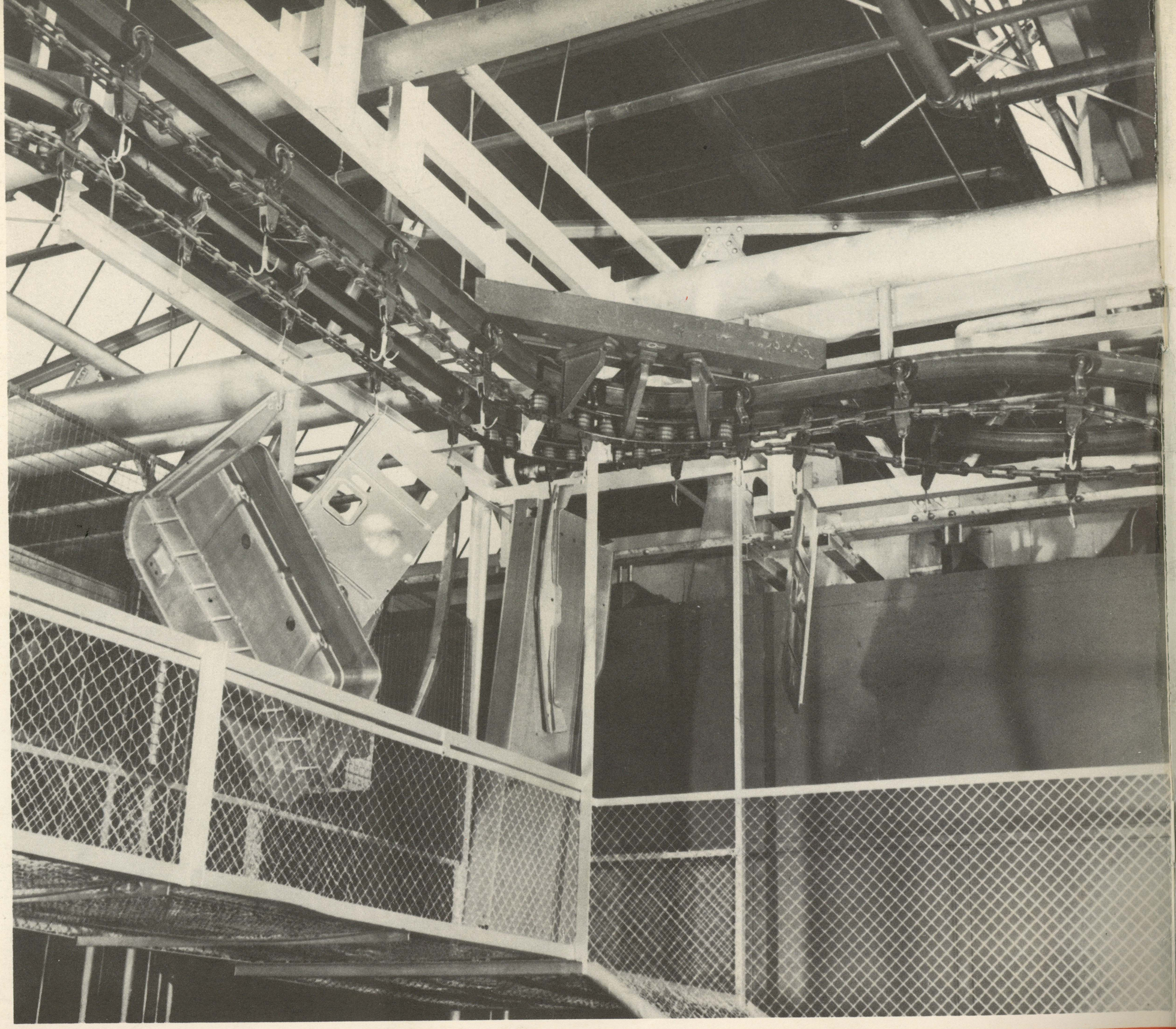
AERIAL VIEW OF
INDIANAPOLIS COMMERCIAL BODY PLANT

43,560 Sq. ft.
39.9
392040
392040
130680
1,738,044



Area of Plant Property	**39.9 Acres**
Floor Area of Buildings (Production)	**499728 Sq. Ft.**
Length of Railway Siding	**1.4 Miles**
Annual Consumption of Coal	**8,000 Tons**
Annual Consumption of Fuel Oil	**200,000 Gal.**
Annual Consumption of Electricity	**2,888,000 K.W.H.**
Annual Consumption of Water	**4,800,000 Gal.**
Annual Consumption of Compressed Air	**1,258,000 Cu. Ft.**

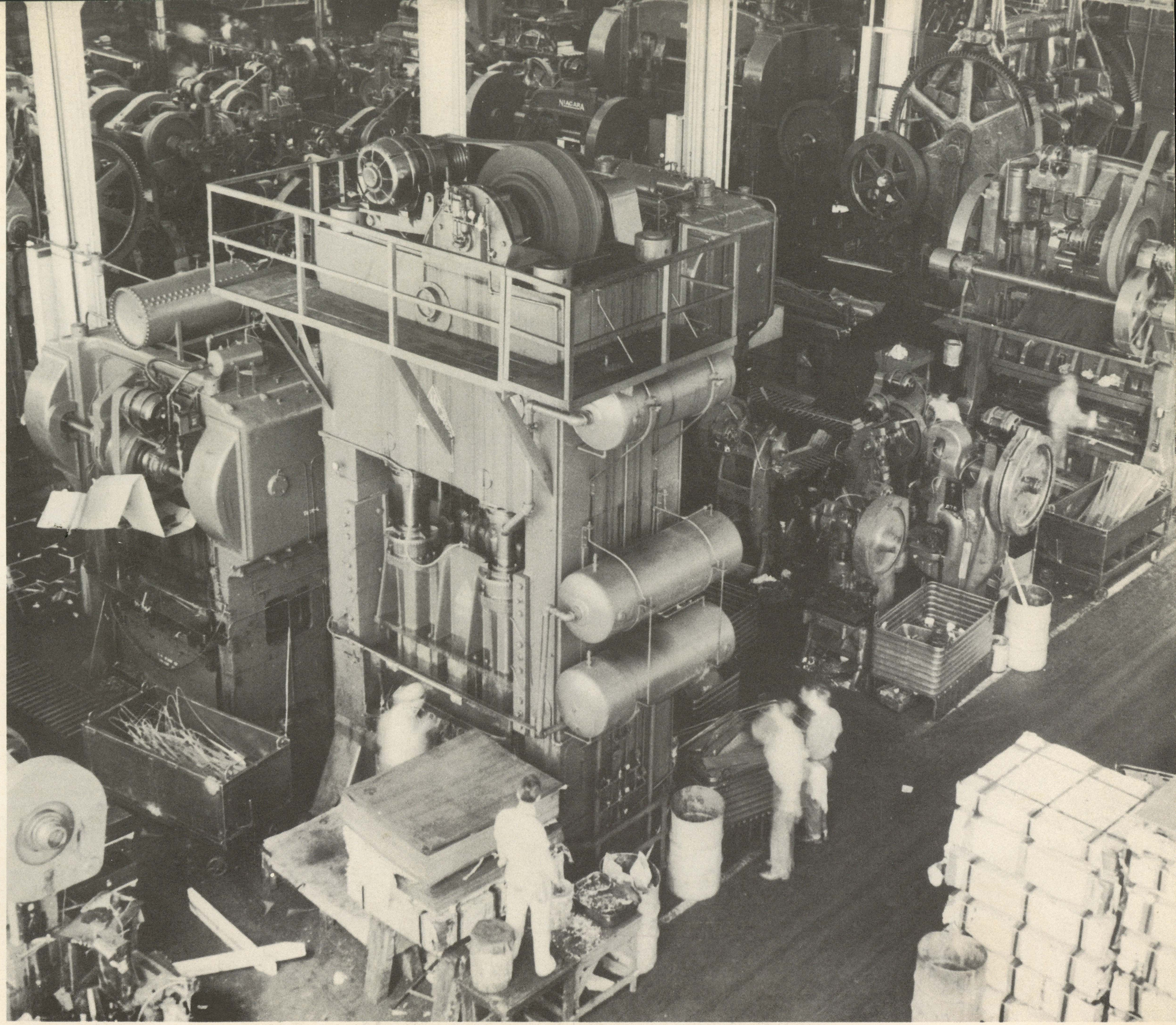
1. On entering the plant you see the overhead conveyor, which is approximately two miles in length, which handles the material from the Pressed Metal Department to other points of fabrication within the plant and to the shipping points. This conveyor travels at the rate of 52 feet per minute.



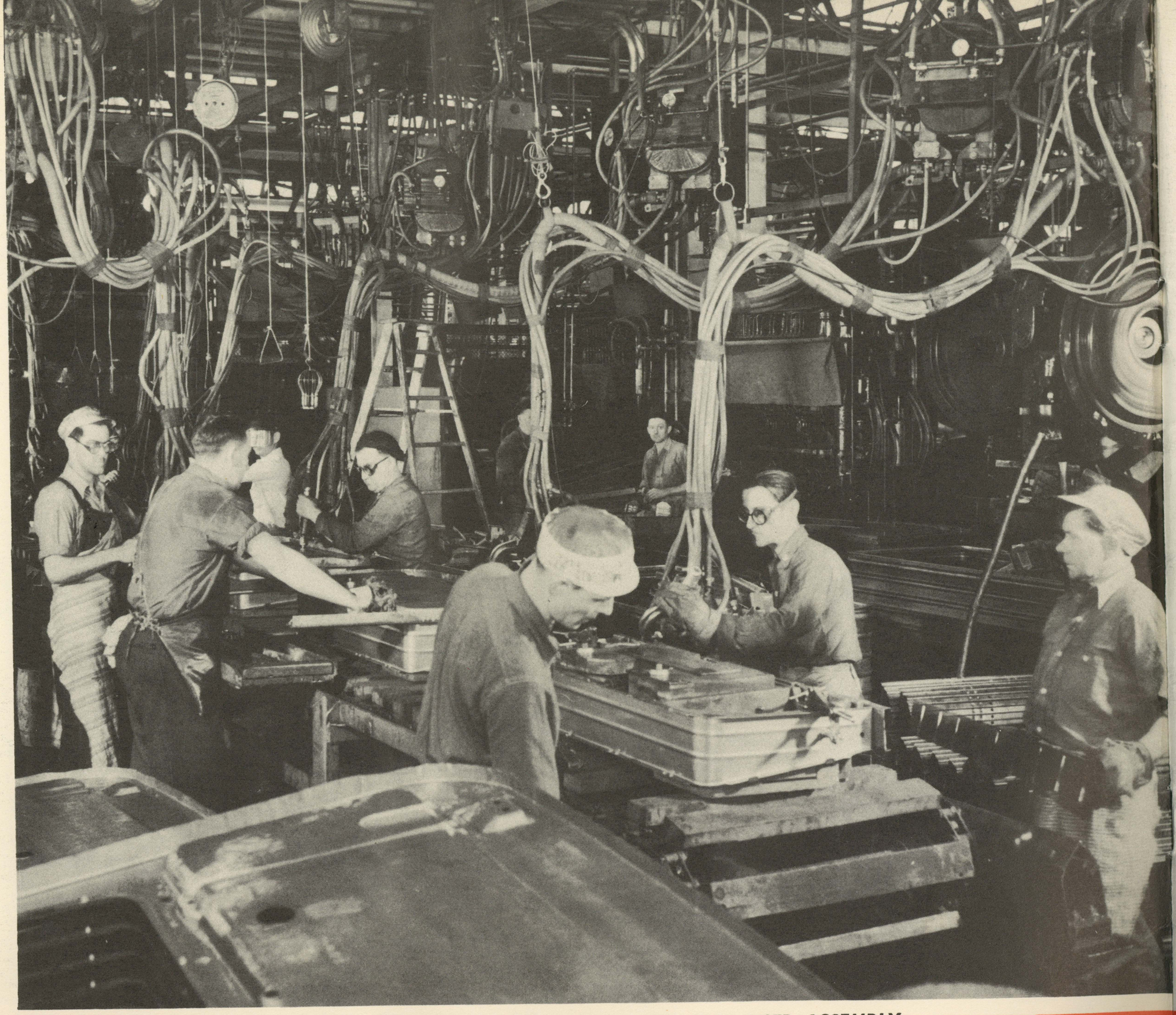
1A • *VIEW OF CONVEYOR*

2. The first eight rows of presses are used primarily for fabricating Cab Stampings. Welders and other equipment are in place for the completion of such Sub Assemblies as we are manufacturing at this plant. The raw material is passed from one press to another until it is completed, either as a part of an assembly, or as a detail, and then is hung onto the conveyor for delivery to other departments for continued fabrication or to the Shipping Department.

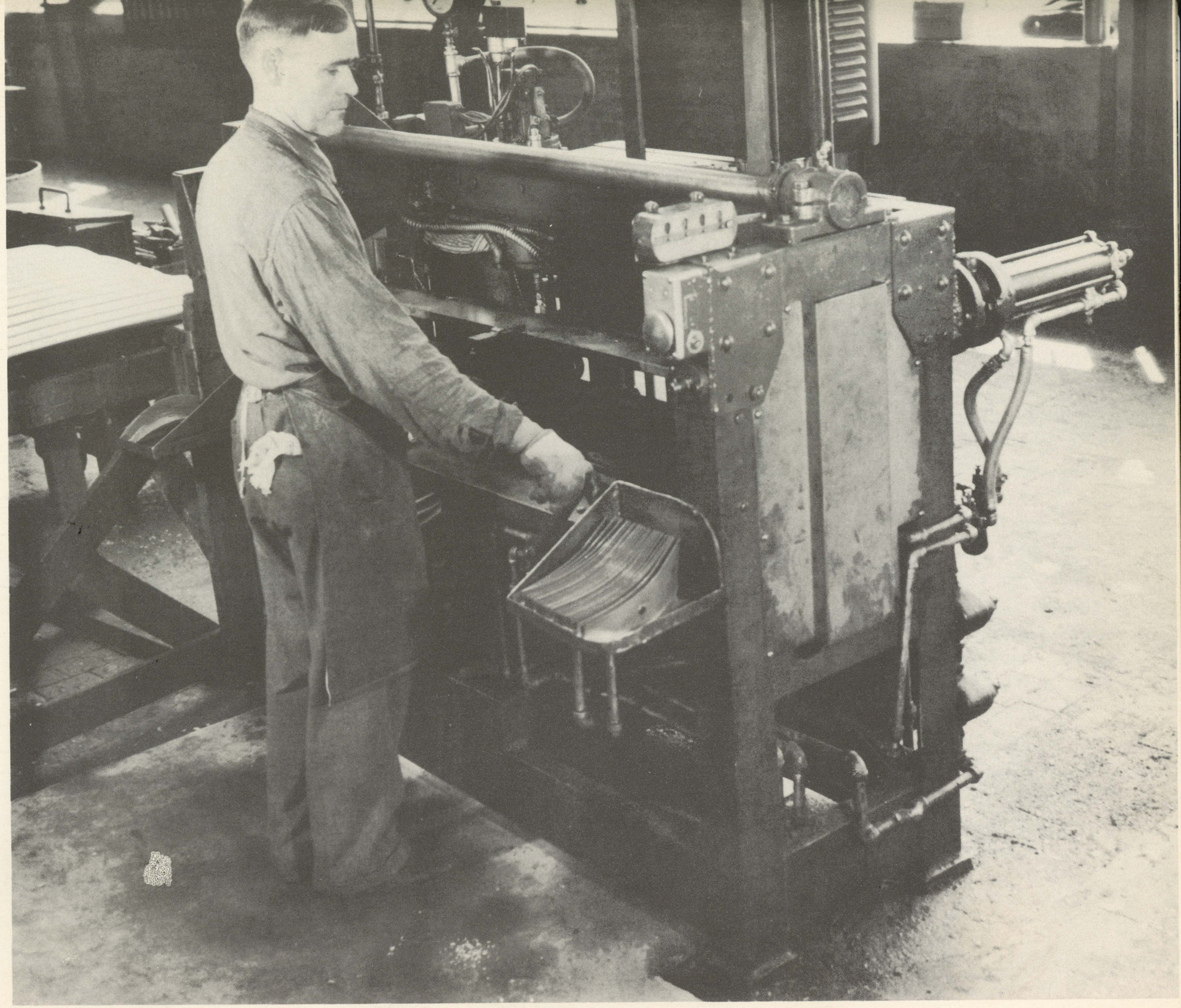
Ex - A



2A • *BIRD'S EYE VIEW OF COMPLETE PRESS DEPARTMENT AS VIEWED FROM OVERHEAD CRANE*



2B • *VIEW OF CAB PLATFORM AND SEAT RISER ASSEMBLY BEING WELDED INTO A UNIT*



2C • CAB BELT RAIL ASSEMBLY BEING WELDED IN HYDROMATIC WELDER

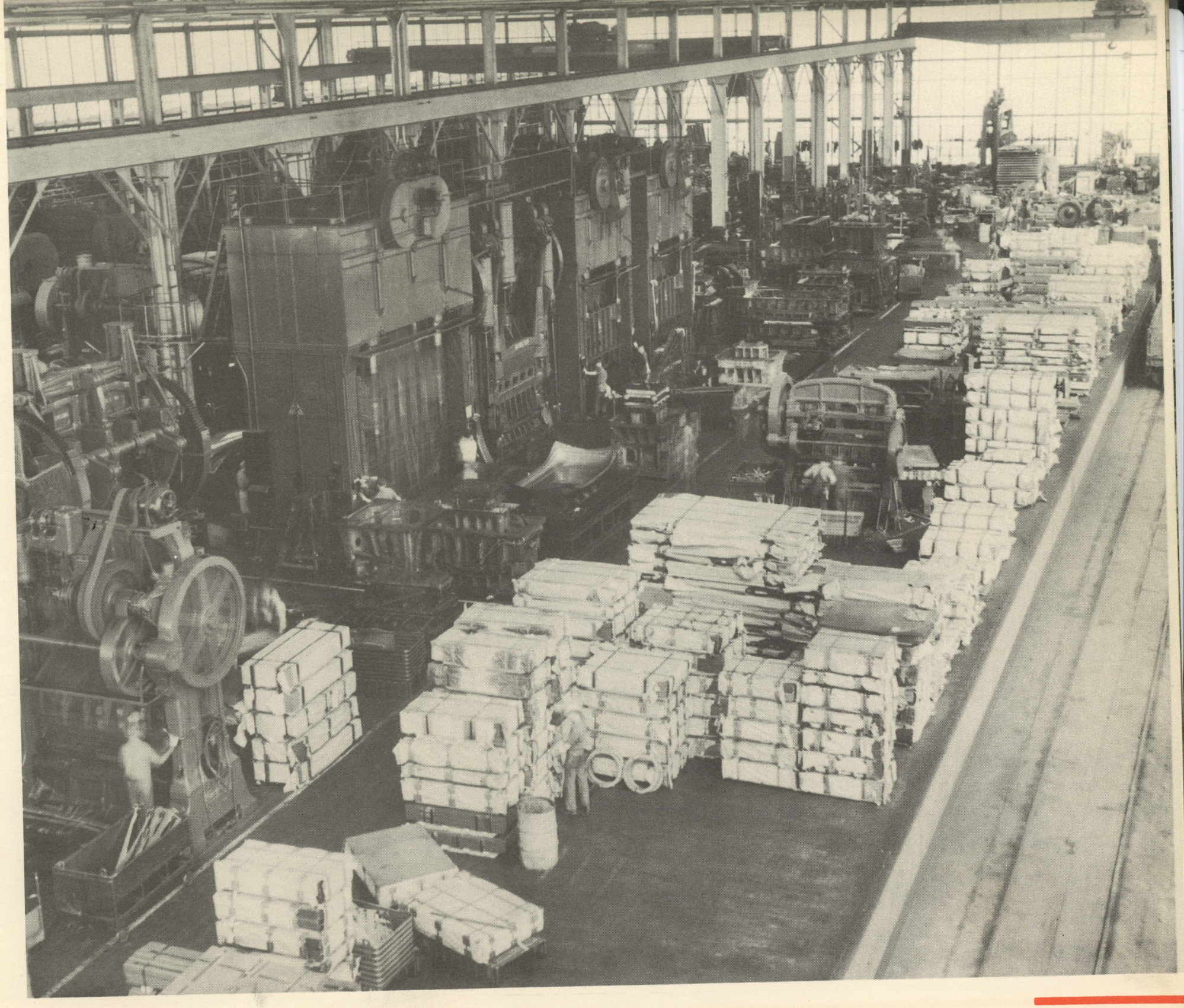
3. As you move further along, you see the overhead cranes which handle the steel used in the fabrication of body parts. Two of these cranes, one of which is 25-ton and one 35-ton capacity, handle steel from gondola cars or trucks, either directly to the position at presses for immediate use, or set this material off in storage. Approximately 18 cars of steel can be handled in an 8-hour day. These cranes handle approximately 50,000 tons of steel in a model year. An additional crane in the center bay is used primarily for the moving of dies and the handling of material within this bay.



3A • *VIEW SHOWING STEEL BEING UNLOADED FROM TRUCK BY CRANE*

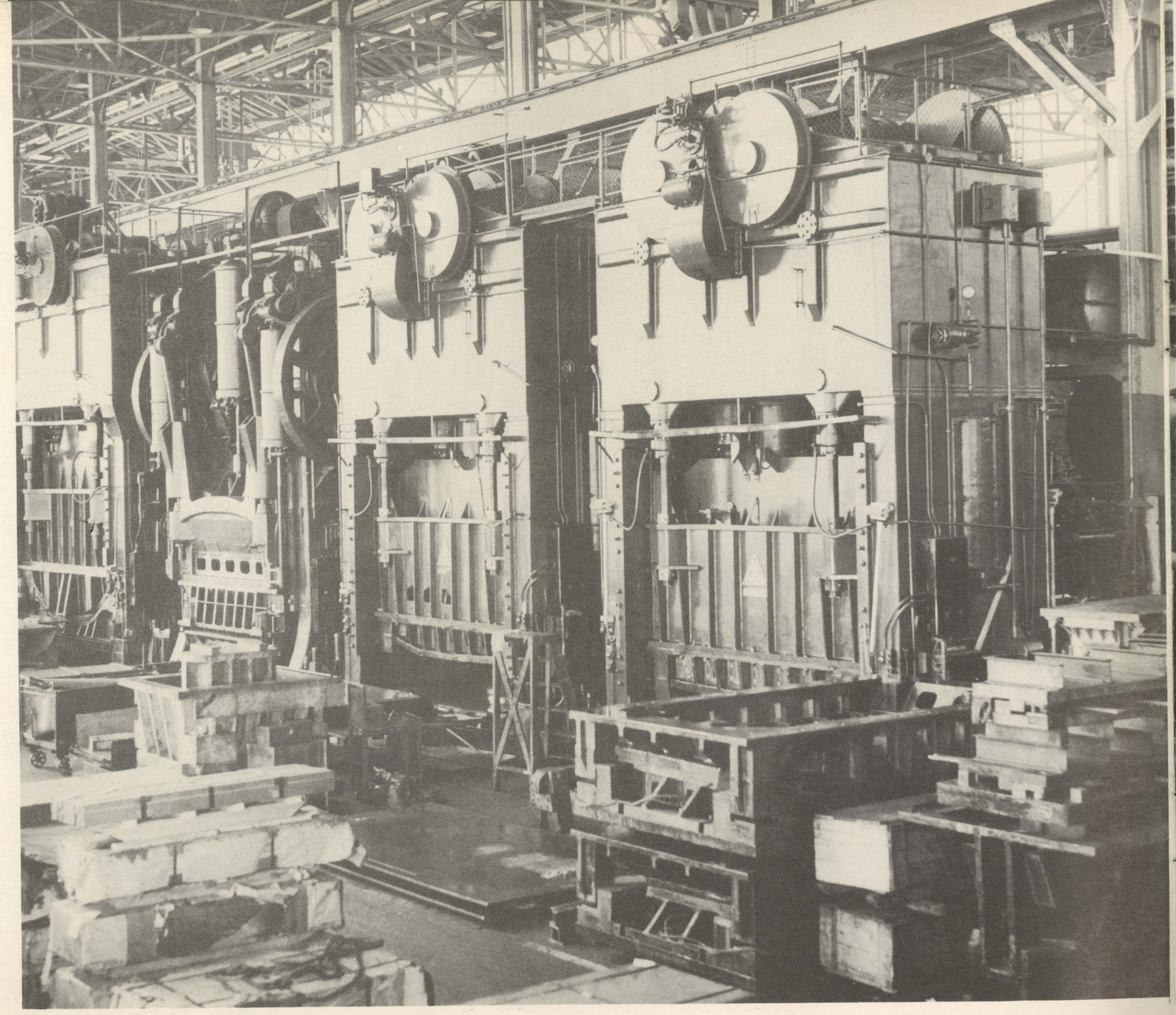
Press from left to Right
750 ton, 900 ton
+ 2 700 ton press

Tank production



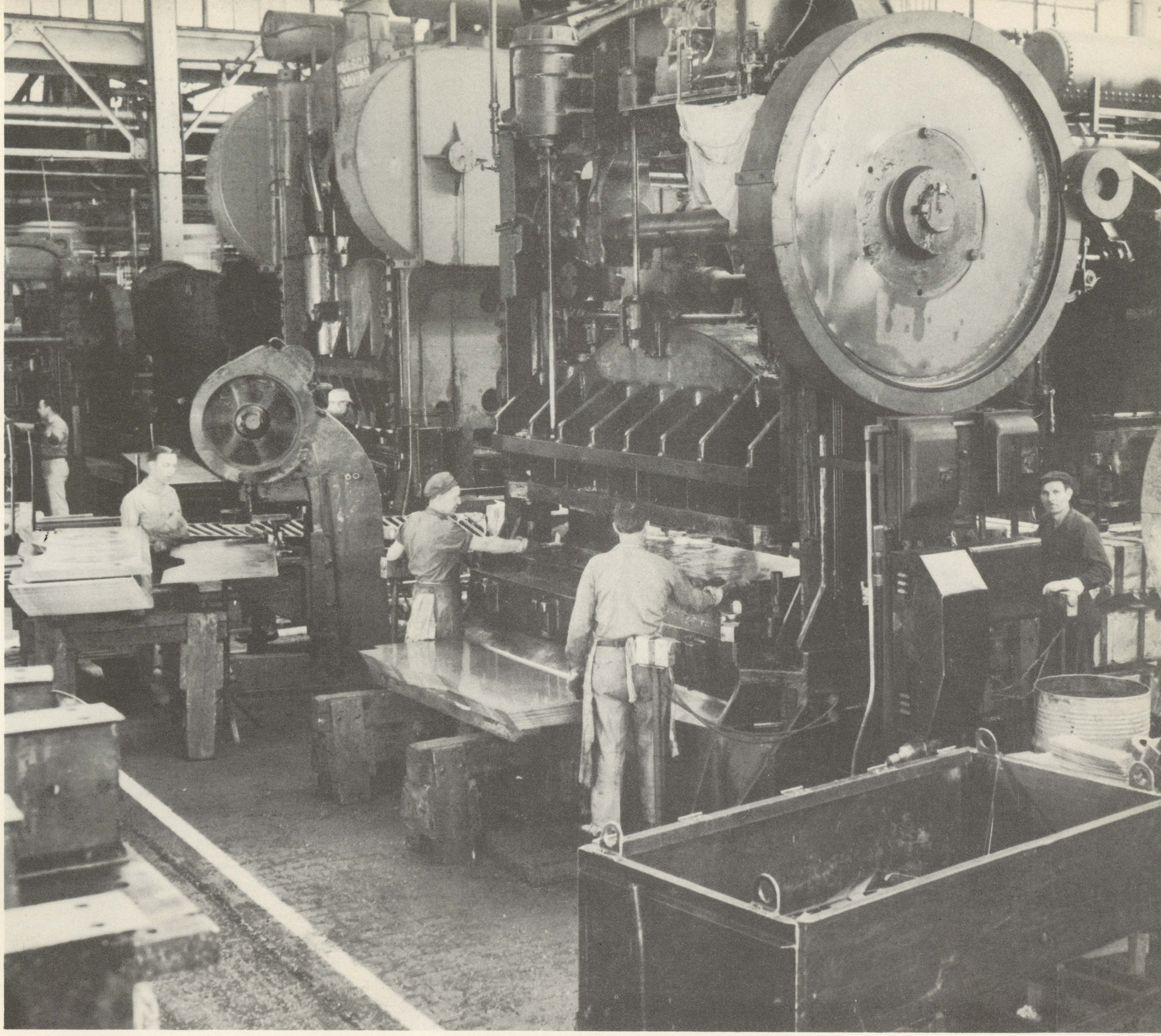
3B • *VIEW OF STEEL STORAGE*

4. The next bank of presses are used primarily for the fabricating of Panel Body Stampings and includes some of the largest presses in the world. The first press in this group is used for drawing our One-piece All-Steel Tops. It has an inside length of 208 inches, inside width of 90 inches and exerts a force of approximately 900 tons.

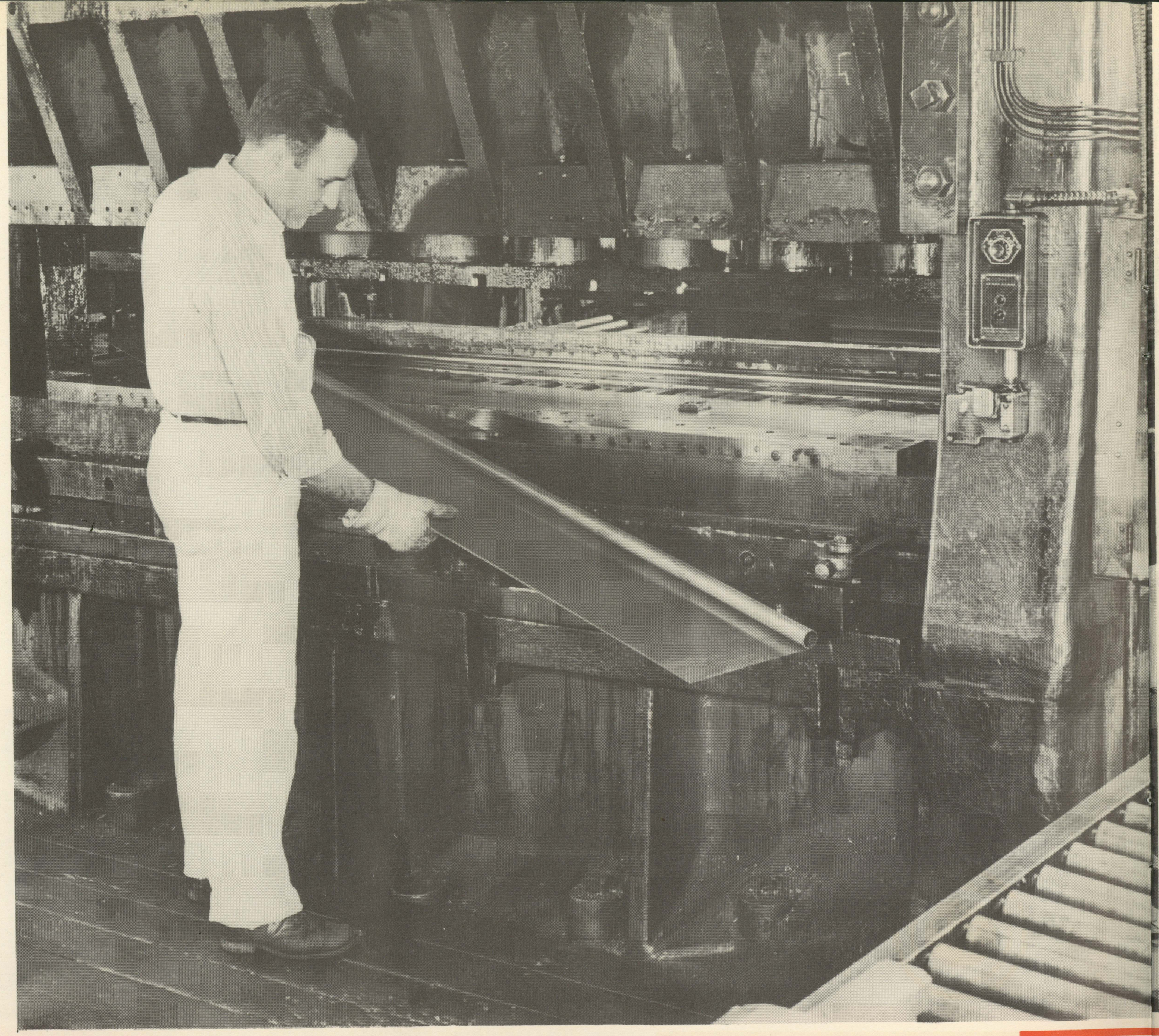


4A • *VIEW OF TOGGLE AND HYDROMATIC PRESSES DRAWING TOP AND SIDE PANELS*

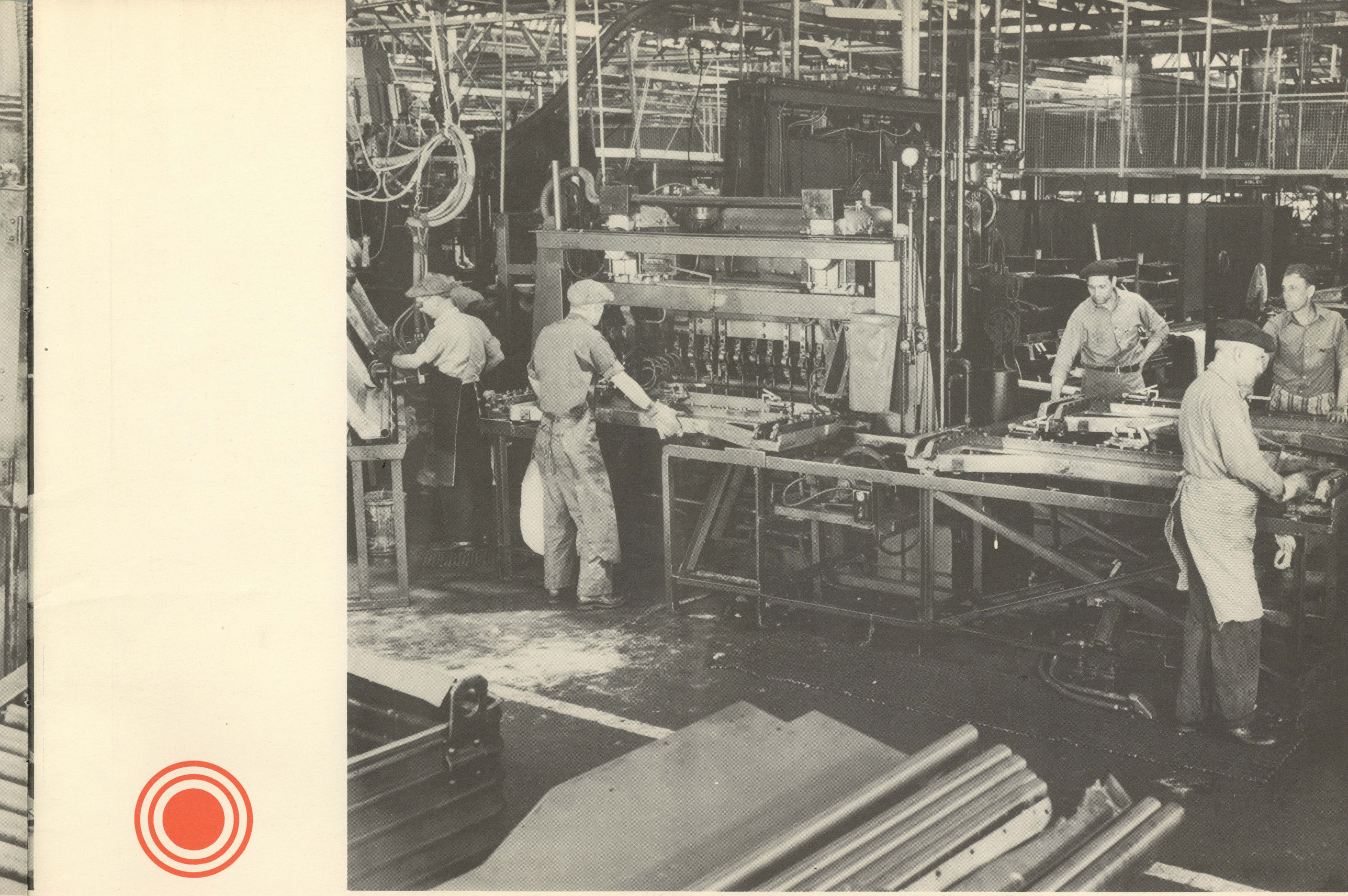
5. The next group of presses is used for making Chevrolet Pick-up and Stake Body parts. At the end of the line these are welded into units and hung on the conveyor.



5A • *PRESSES STAMPING THE PICK-UP SIDE PANELS*

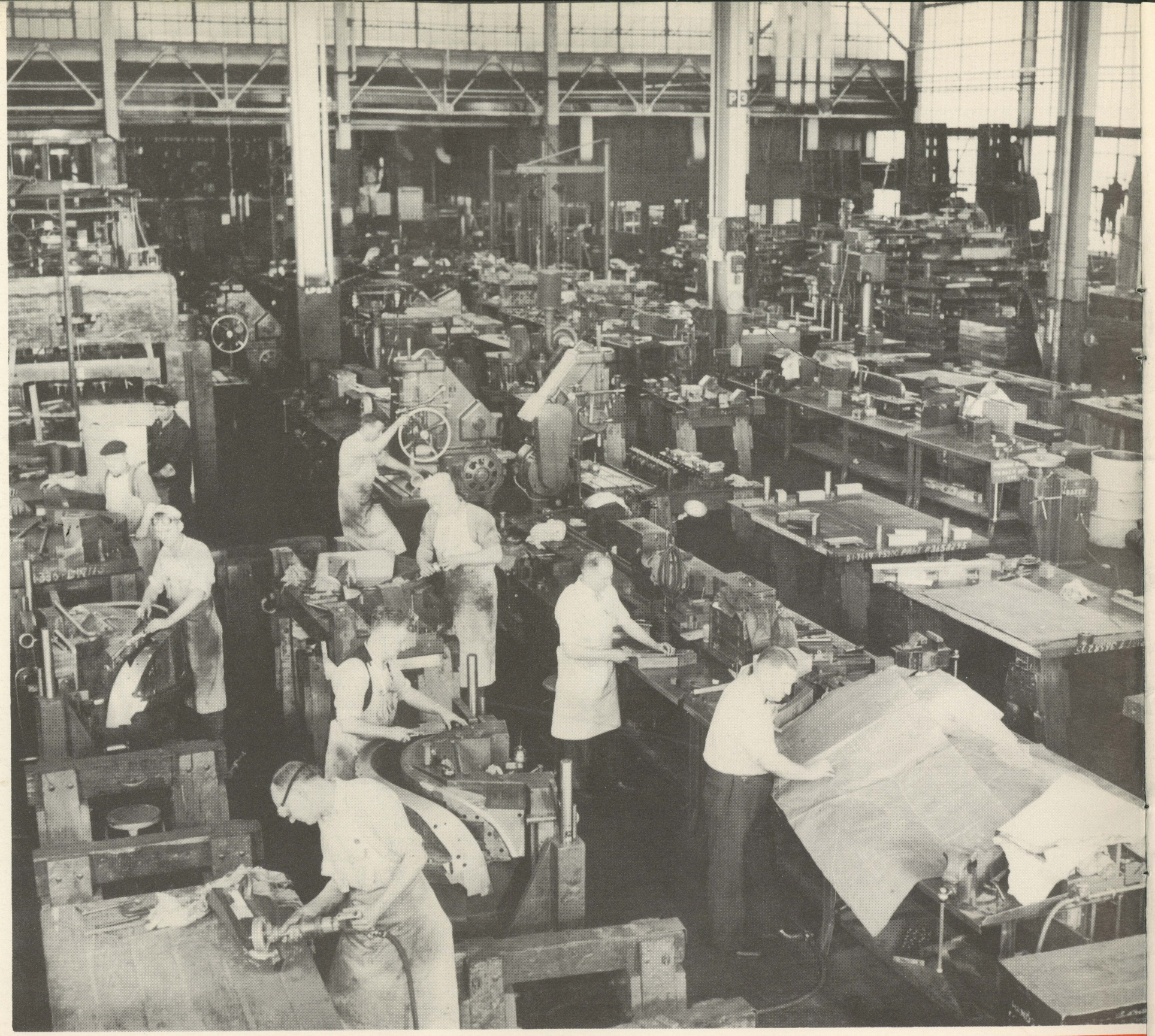


5B • *PRESS USED FOR ADDING CURL TO SIDE PANELS*

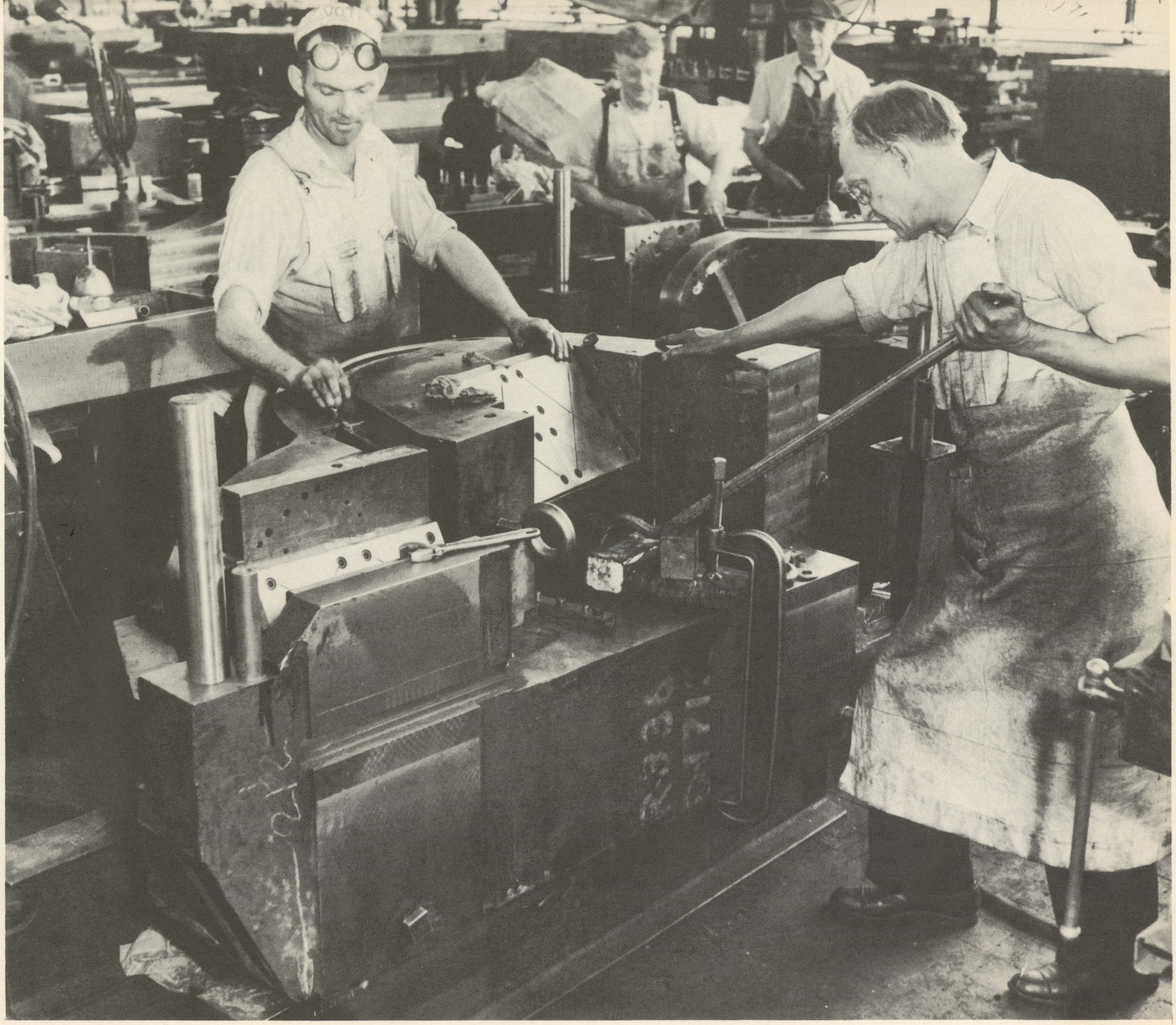


5C • *HYDROMATIC WELDER USED FOR WELDING ON ATTACHING ANGLES, STAKE POCKETS ON PICK-UP SIDE PANEL ASSEMBLY*

6. Beyond the Pressed Metal Department to the East is our Tool and Die Department where the dies necessary for the fabrication of Panel Body and Cab Parts are made. All the latest types of equipment for performing this work can be seen in this department.



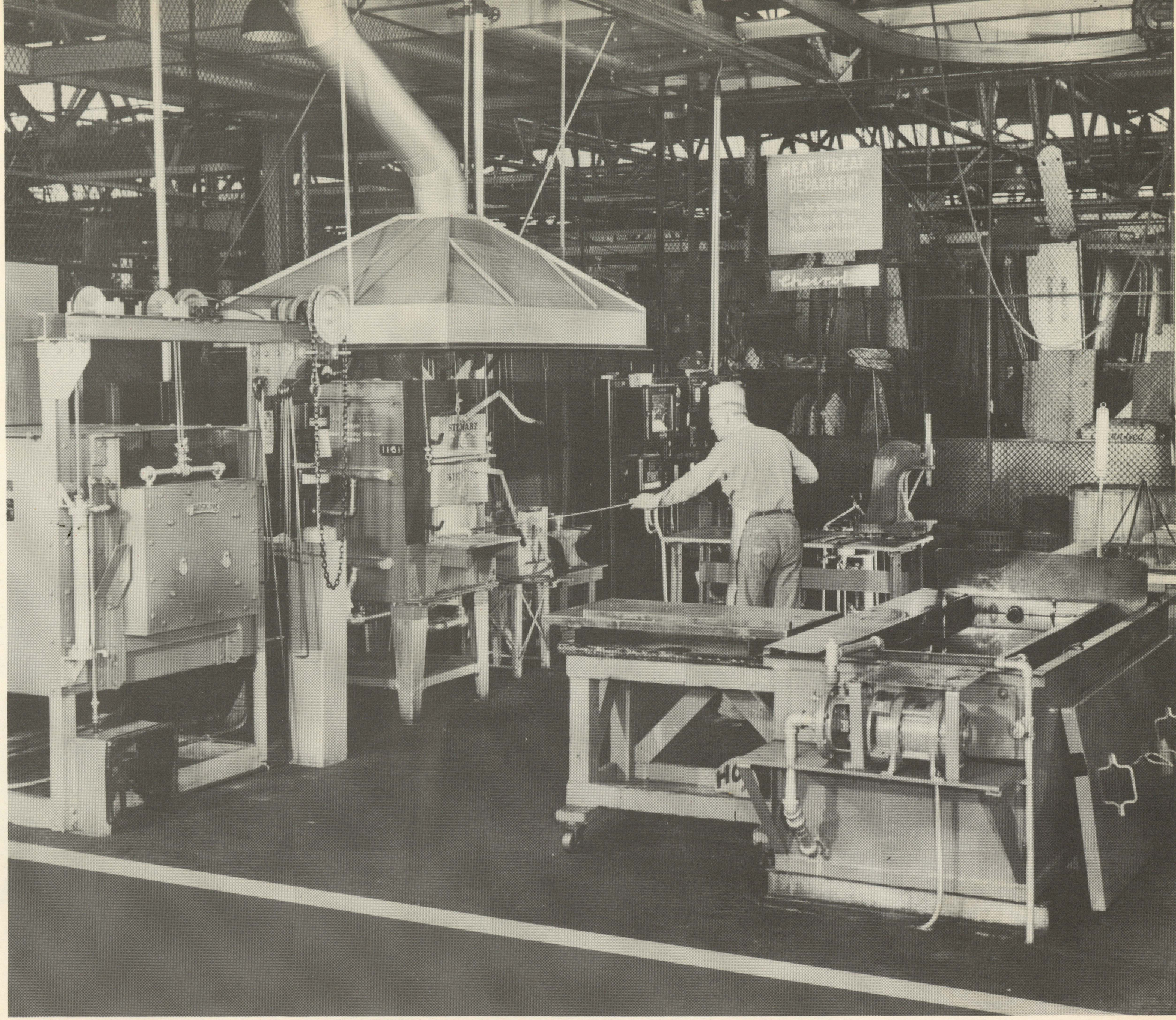
6A • *VIEW OF TOOL AND DIE DEPARTMENT*



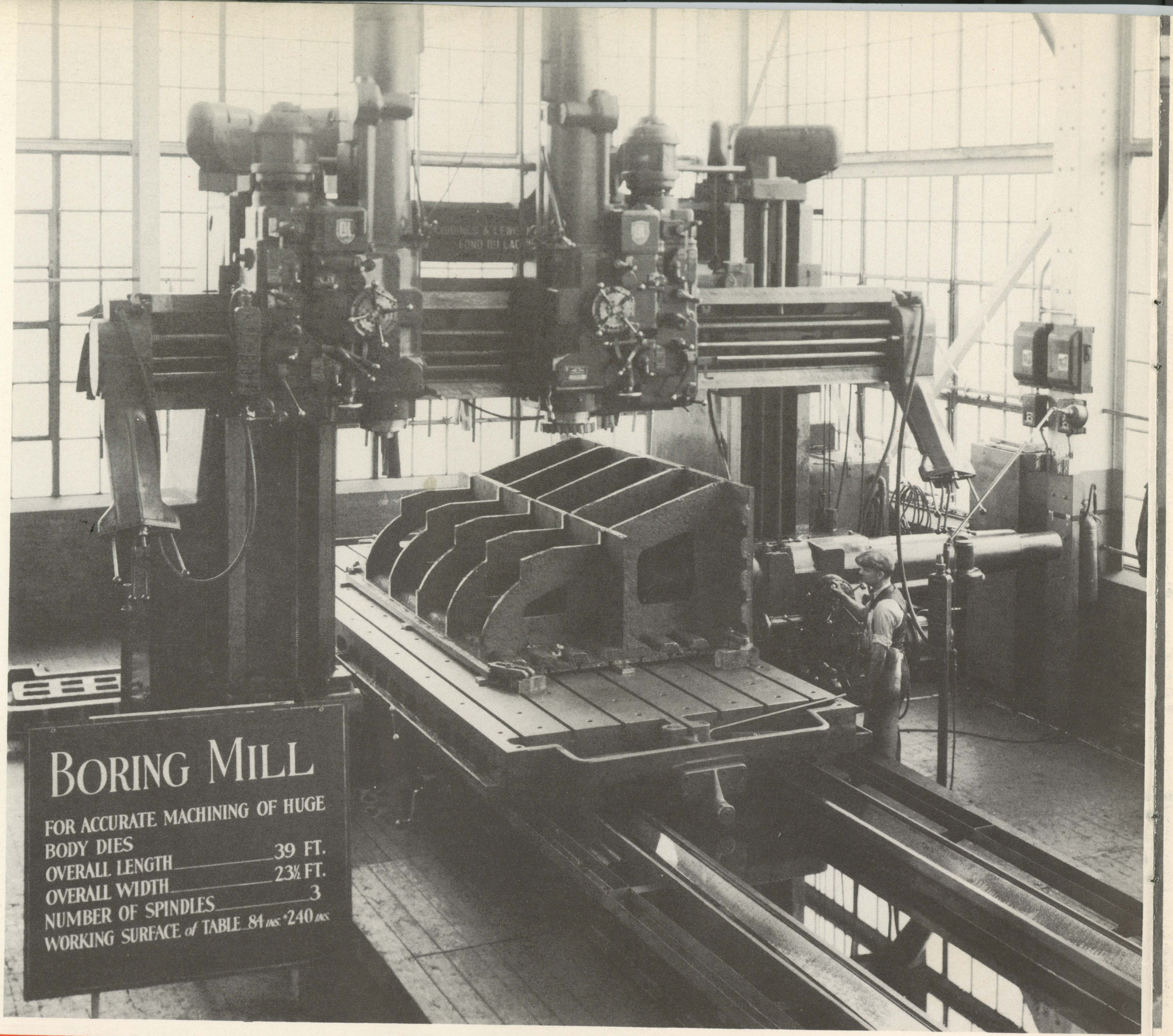
6B • *MEN WORKING ON FRONT FENDER DIE.*



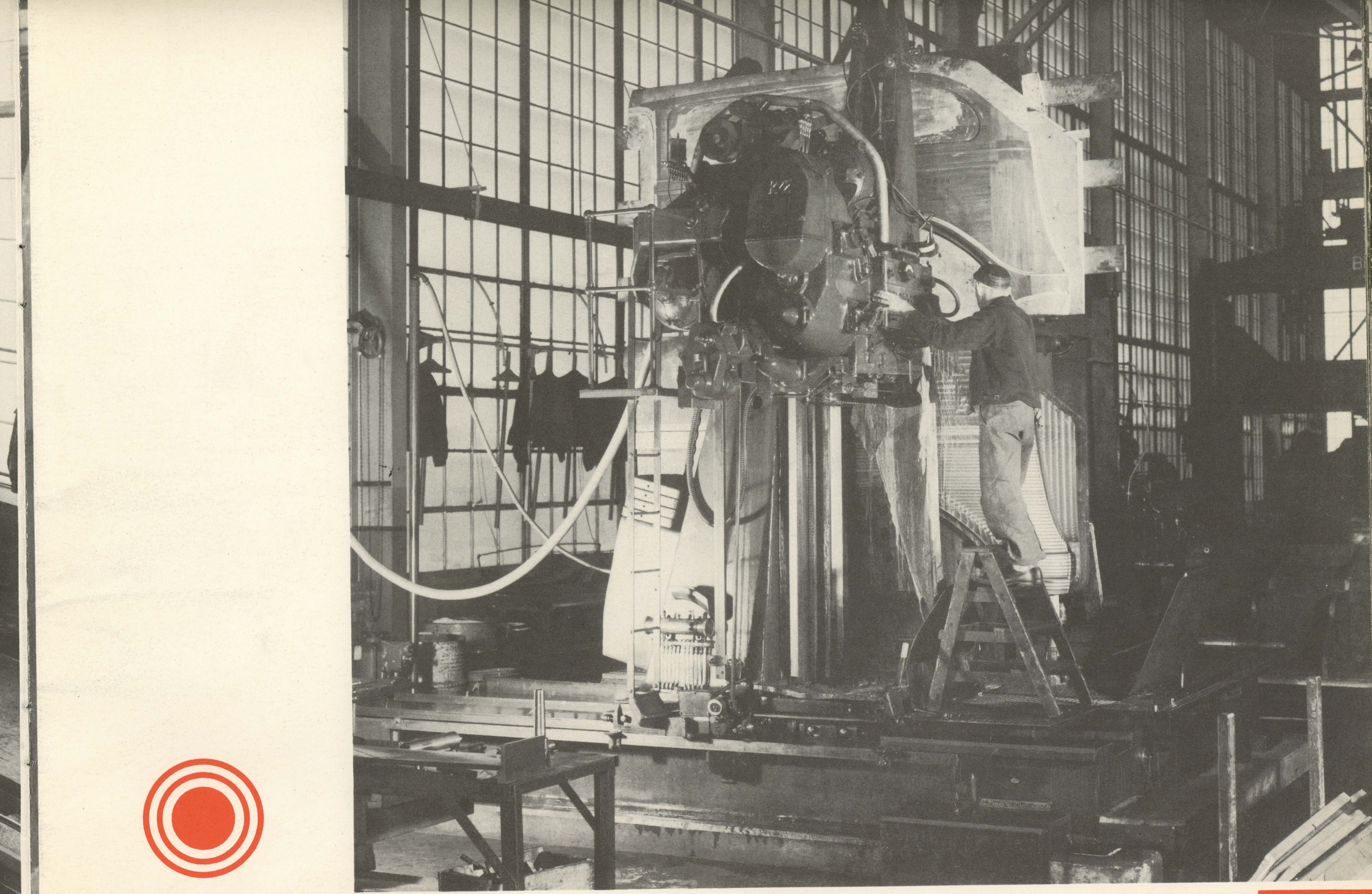
6C • *TOOL CRIB FOR THE STORAGE OF SMALL TOOLS AND MATERIALS USED FOR PRODUCING DIES*



6D • *HEAT TREAT DEPARTMENT WHERE PARTS AND DIES ARE TEMPERED OR HARDENED*

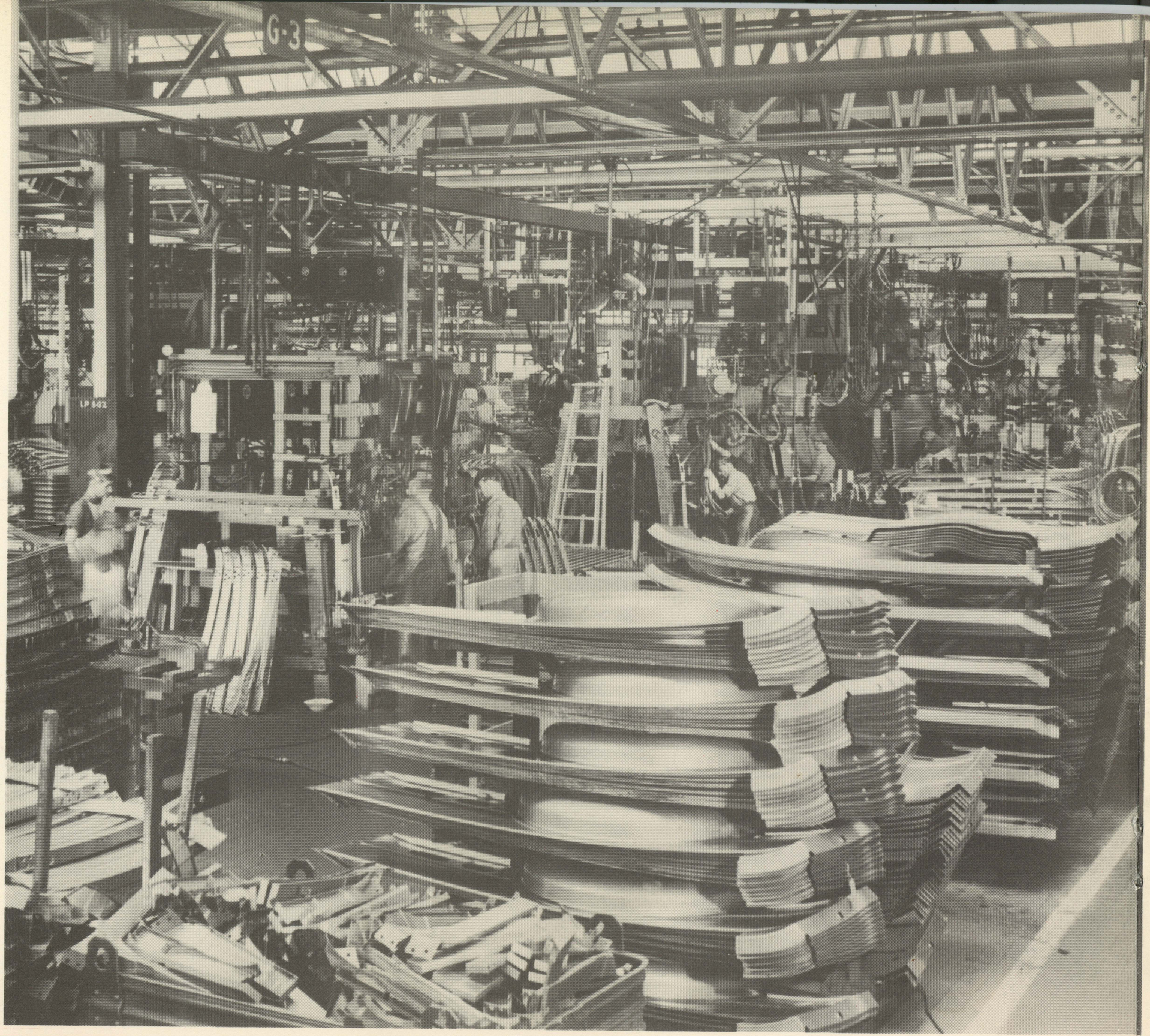


6E • *VIEW OF GIANT BORING MILL*

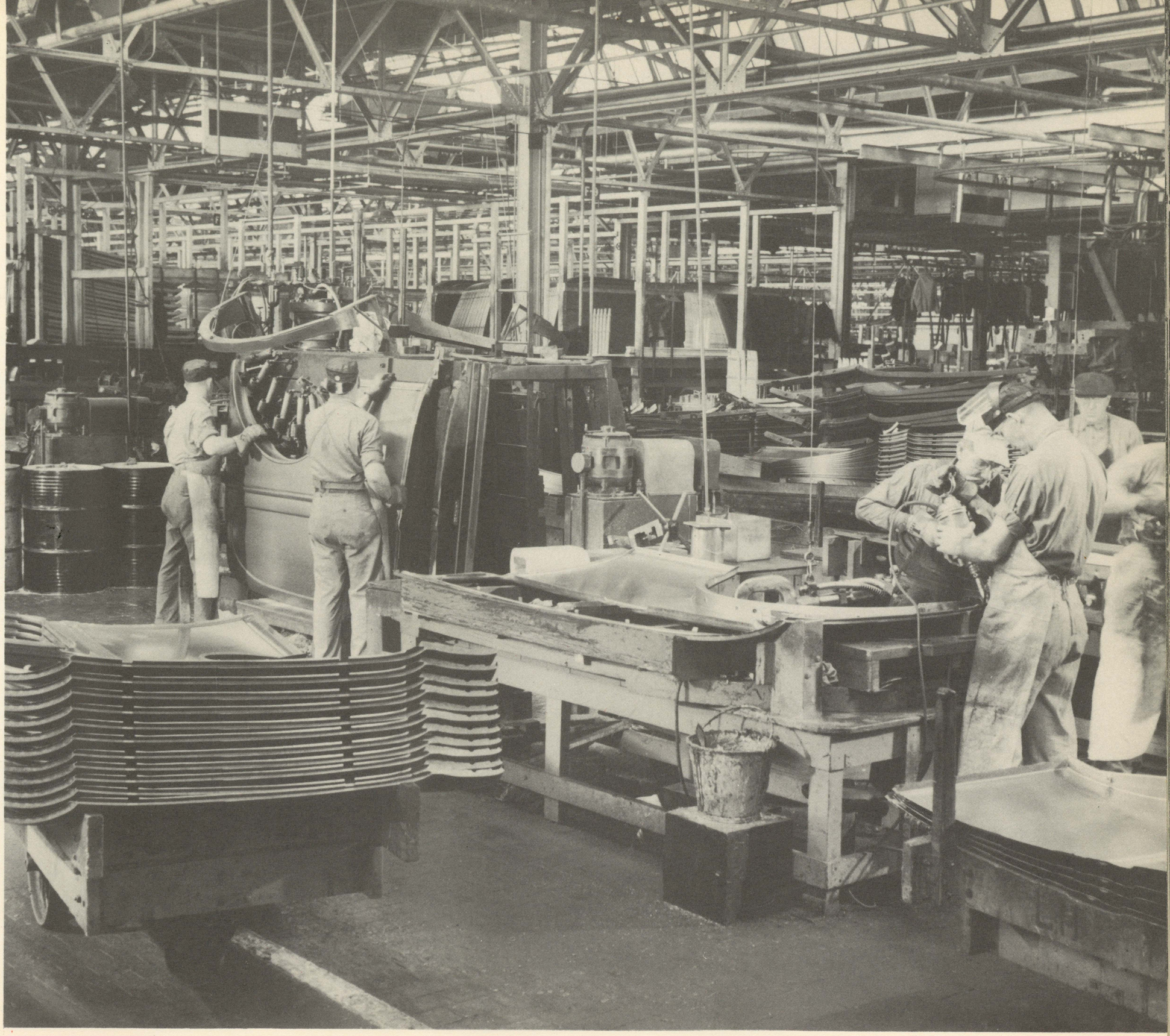


6F • *KELLER MACHINE WHICH FACES CONTOUR OF CASTING TO THE SHAPE OF WOOD MODEL*

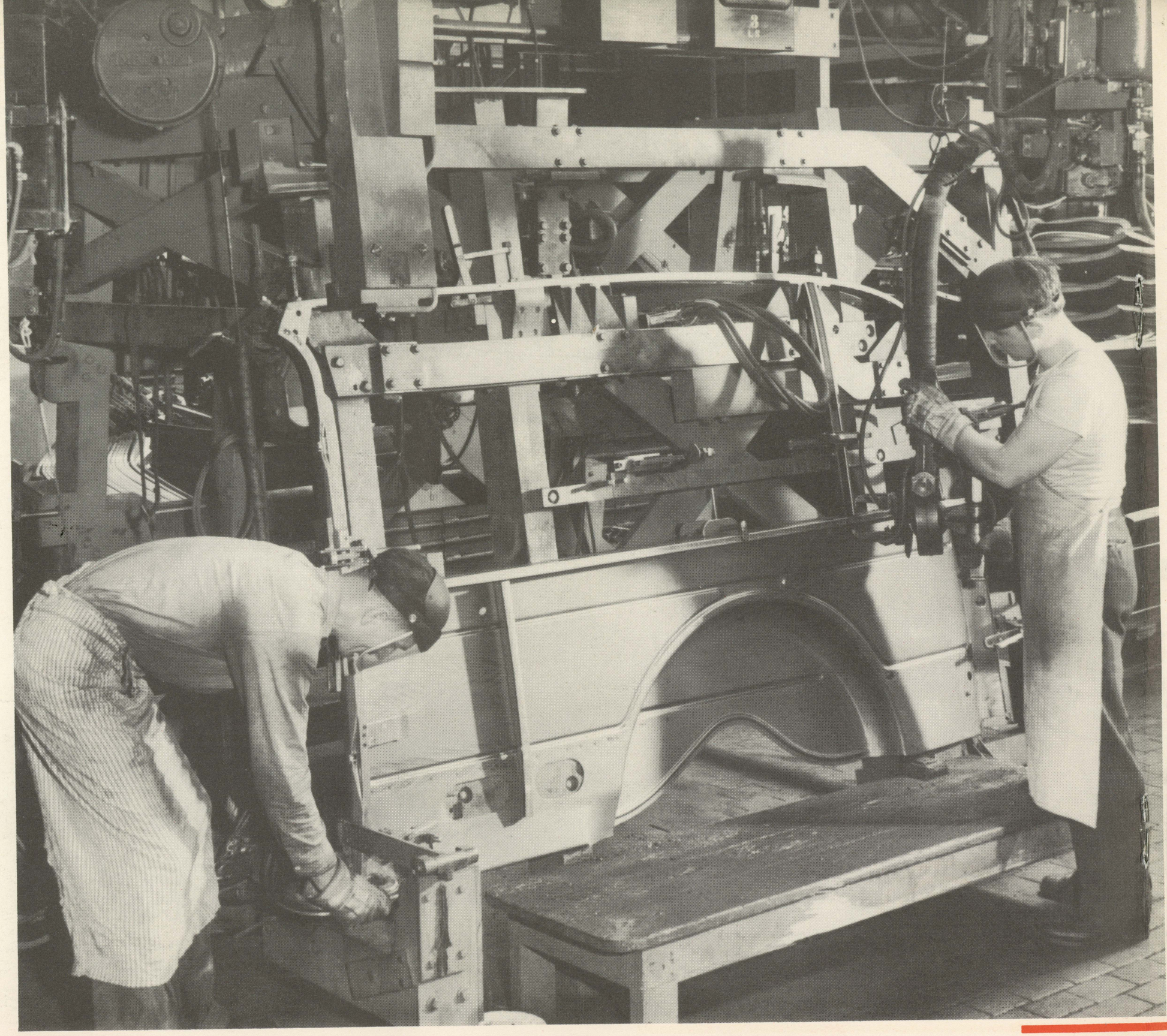
7. You will then pass on to our Commercial Body Assembling Departments where you will see the body units accurately located and welded in huge welding jigs. The welding is so controlled by Automatic Timers, which assure our having good welds under all circumstances. These Timers can be seen overhead. This equipment is the secret of the public acceptance of all steel spot-welded units. These units are inspected and metal finished on conveyor lines, hung on overhead conveyors, thoroughly cleaned, and then passed on to the water wash paint booths, which remove overspray when parts are spray painted. The paint drying ovens operating at a controlled temperature of 270°, thoroughly bake the prime.



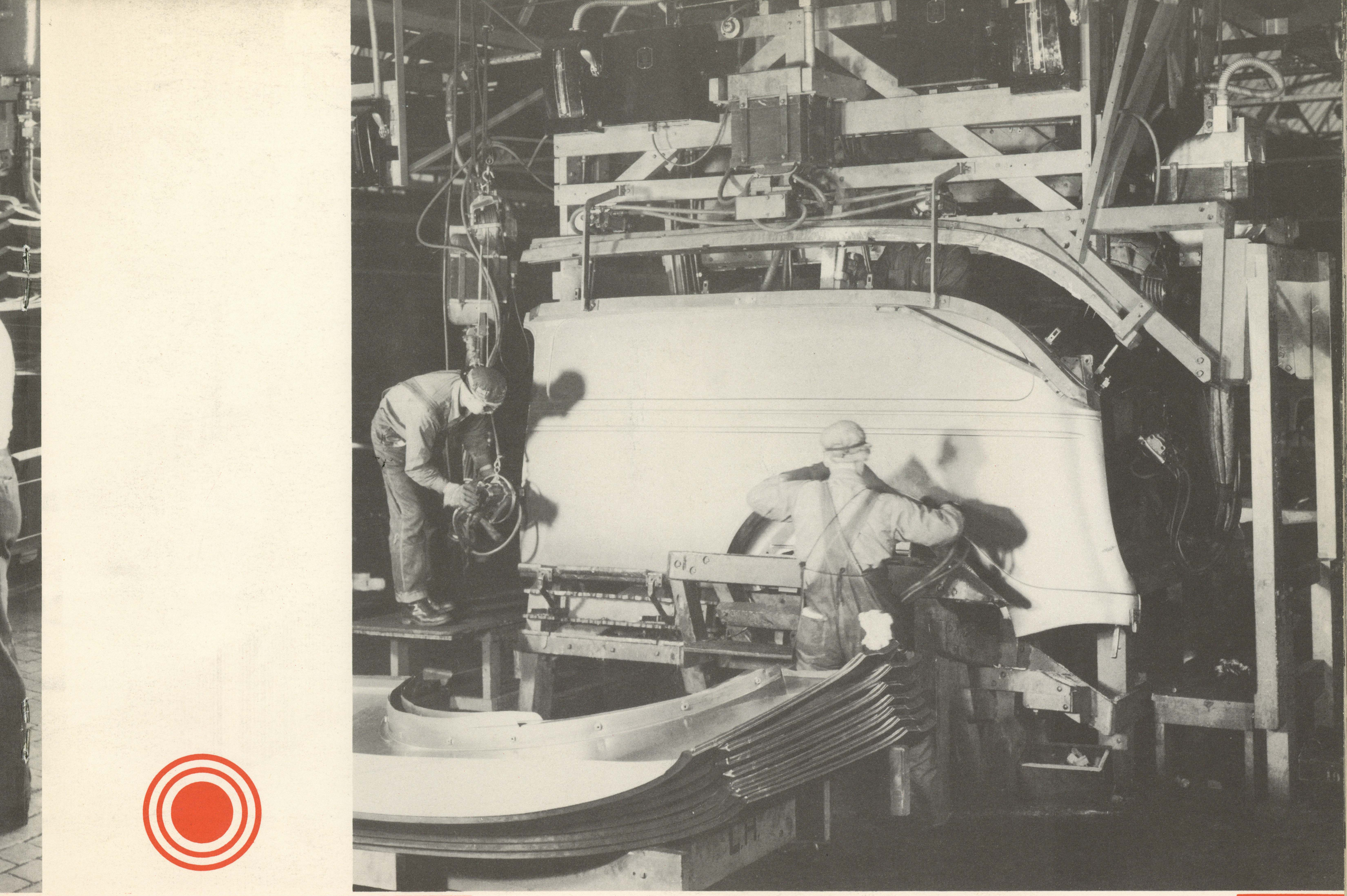
7A • *VIEW OF PANEL BODY FRAMING AND PANELING WELDING FIXTURES*



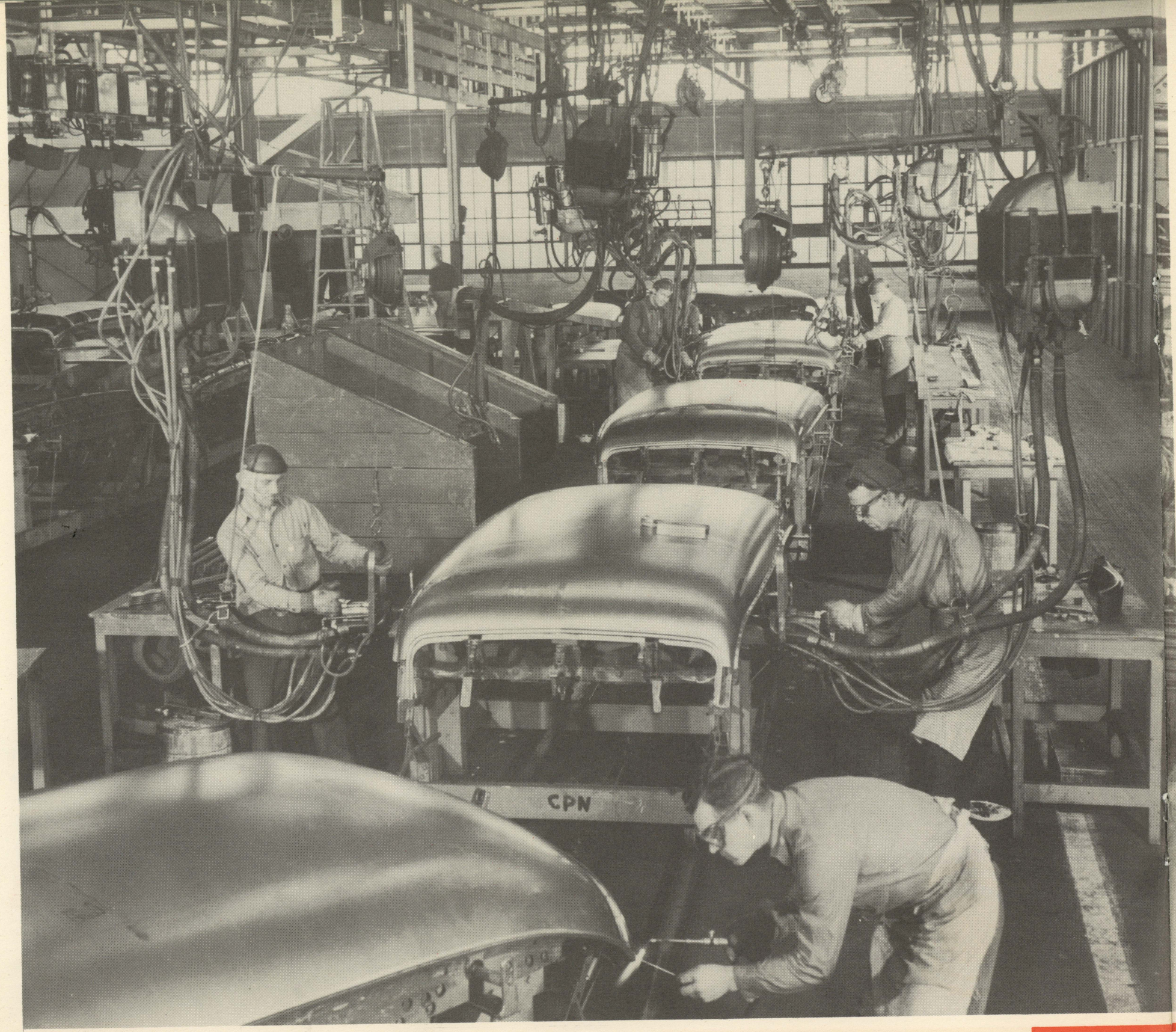
7B • *VIEW OF HYDROMATIC PUNCHING FIXTURE, PIERCING HOLES FOR WHEELHOUSE NUTS AND CLINCHING TOOLS FOR APPLYING THESE NUTS*



7C • *VIEW OF BODY SIDE FRAME WELDING FIXTURE*



7D • *WELDING THE OUTER PANEL TO THE FRAME*



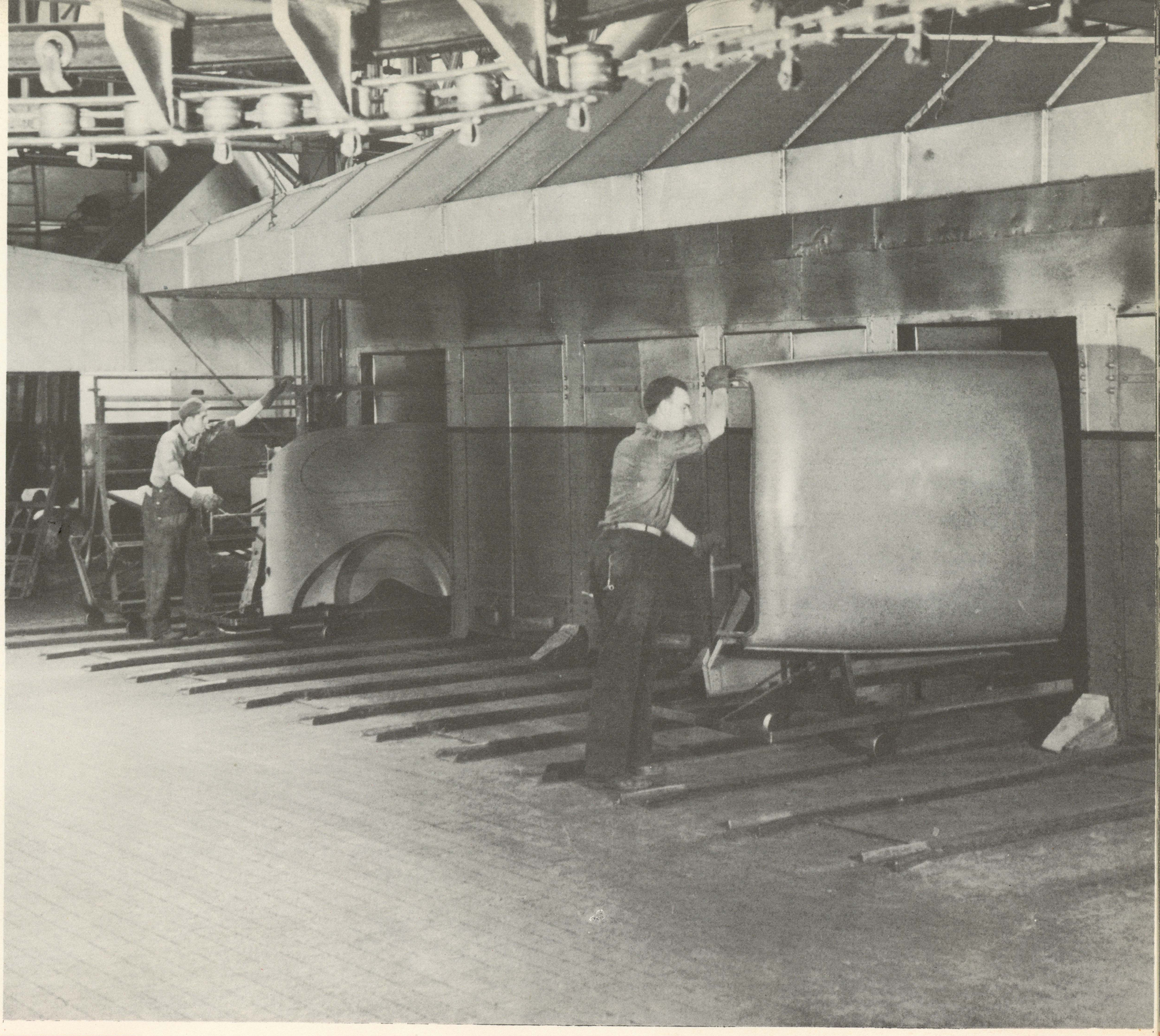
7E • *VIEW SHOWING THE FRAMING AND WELDING OF THE TURRET TOPS*



7F • CONVEYOR LINE FOR METAL FINISHING AND CLEANING OF TOP ASSEMBLIES AND SIDE ASSEMBLIES

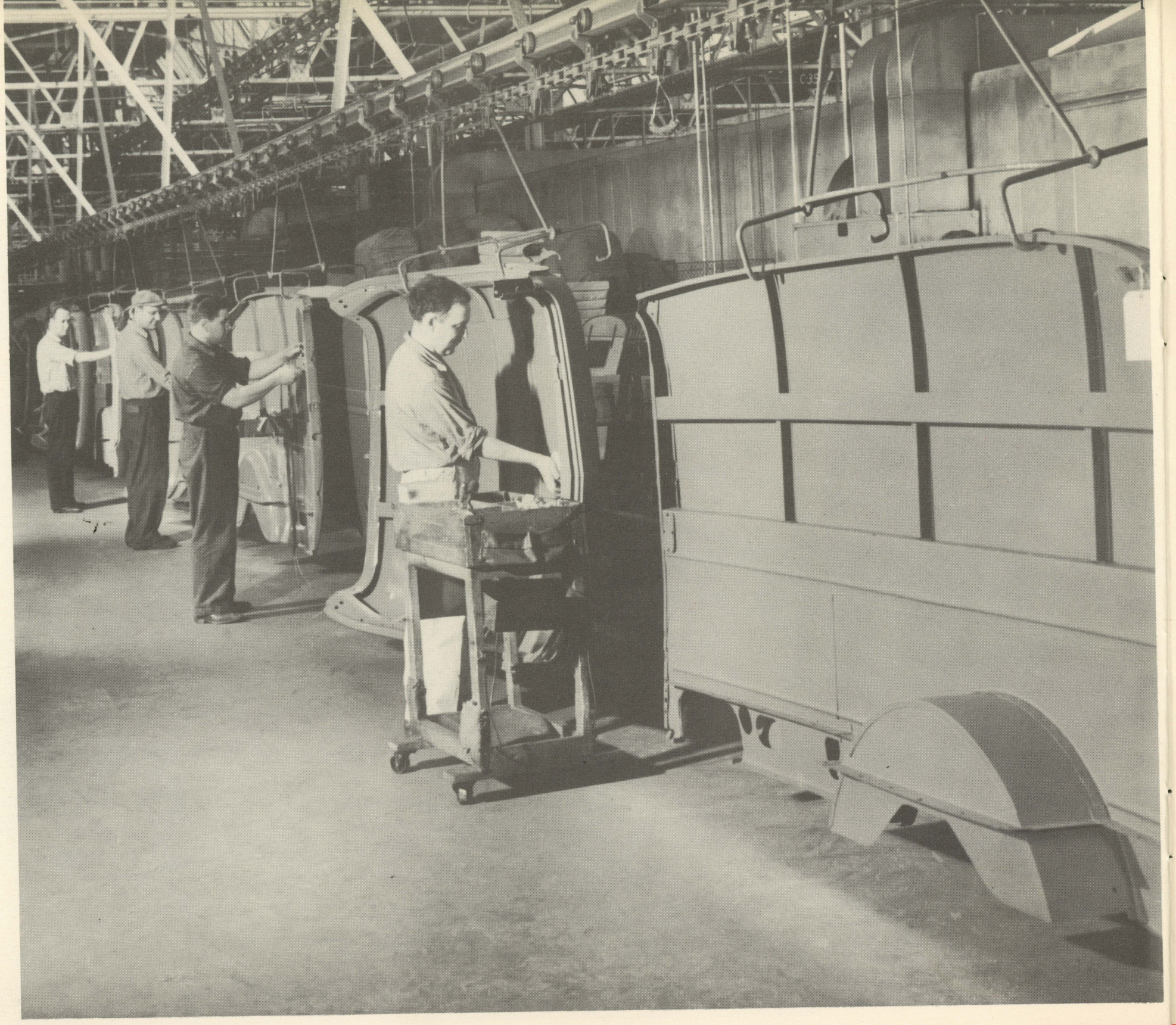


7G • UNITS ENTERING THE SPRAY BOOTH TO RECEIVE PRIME COAT



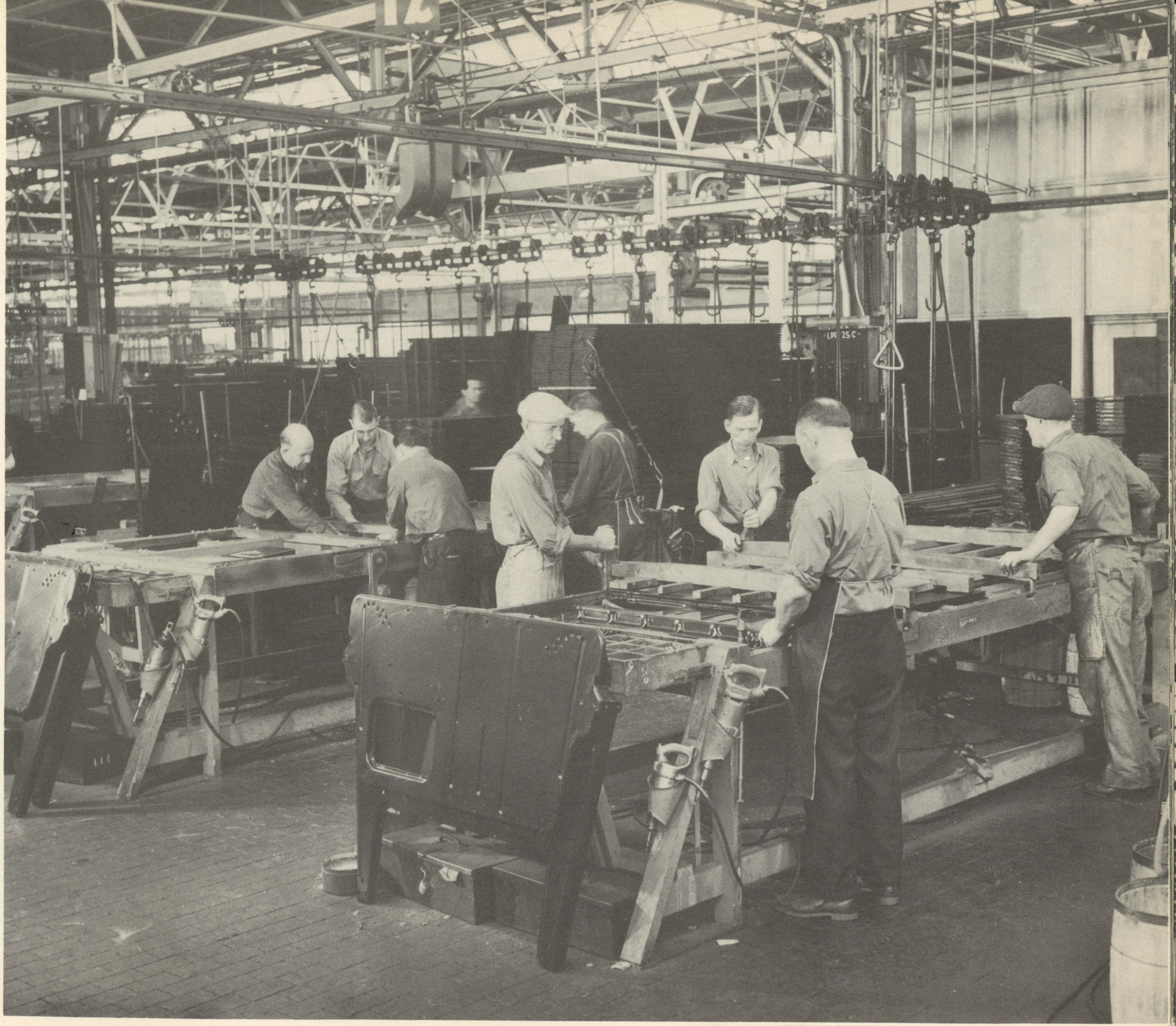
7H • *OVENS WHICH BAKE PRIME AT 270°*

8. After leaving the ovens, all units are placed on another conveyor for the final assembly of hardware and final inspection and are now ready to ship to the Assembly Plants.

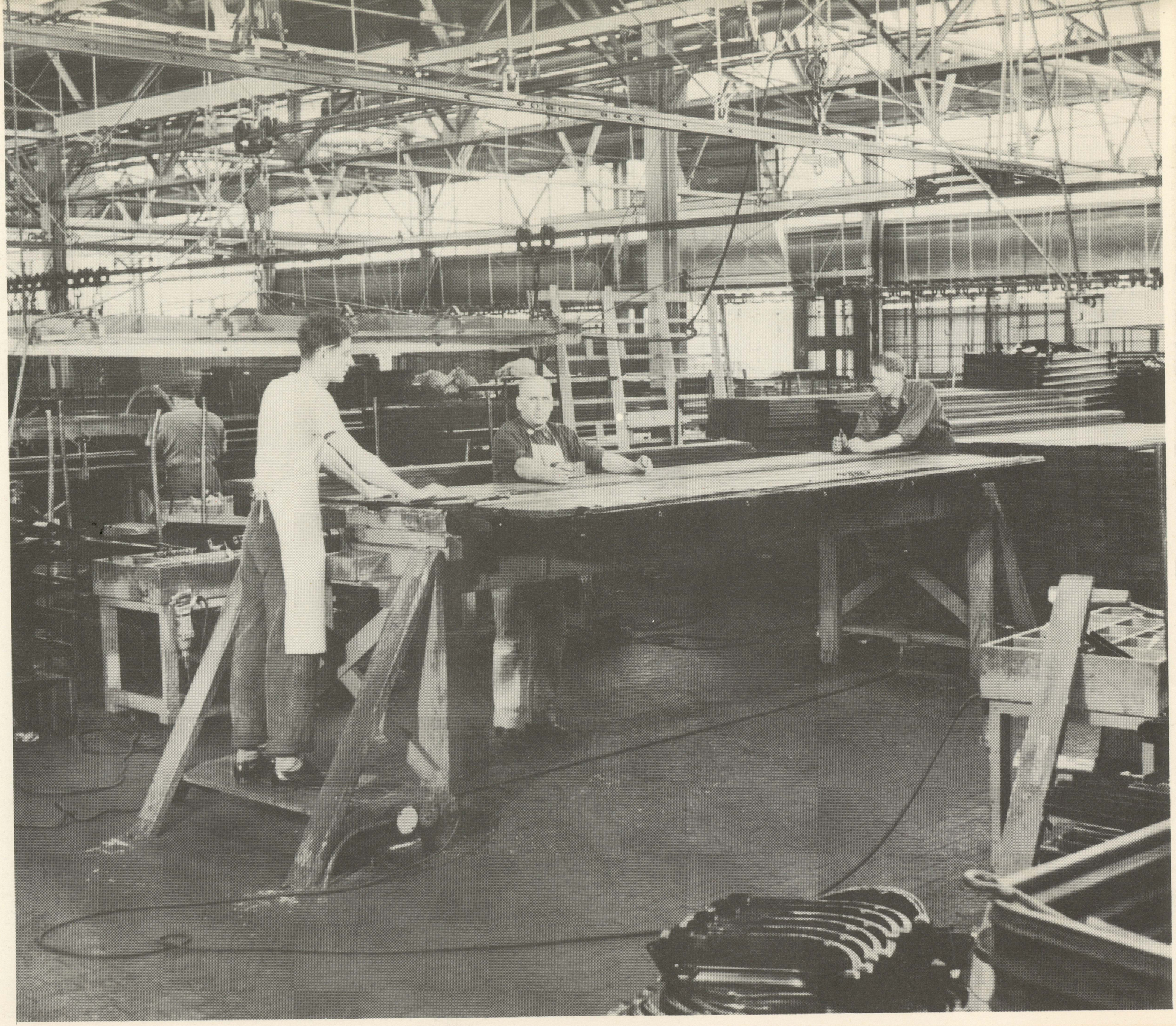


8A • *VIEW OF FINAL ASSEMBLY LINE*

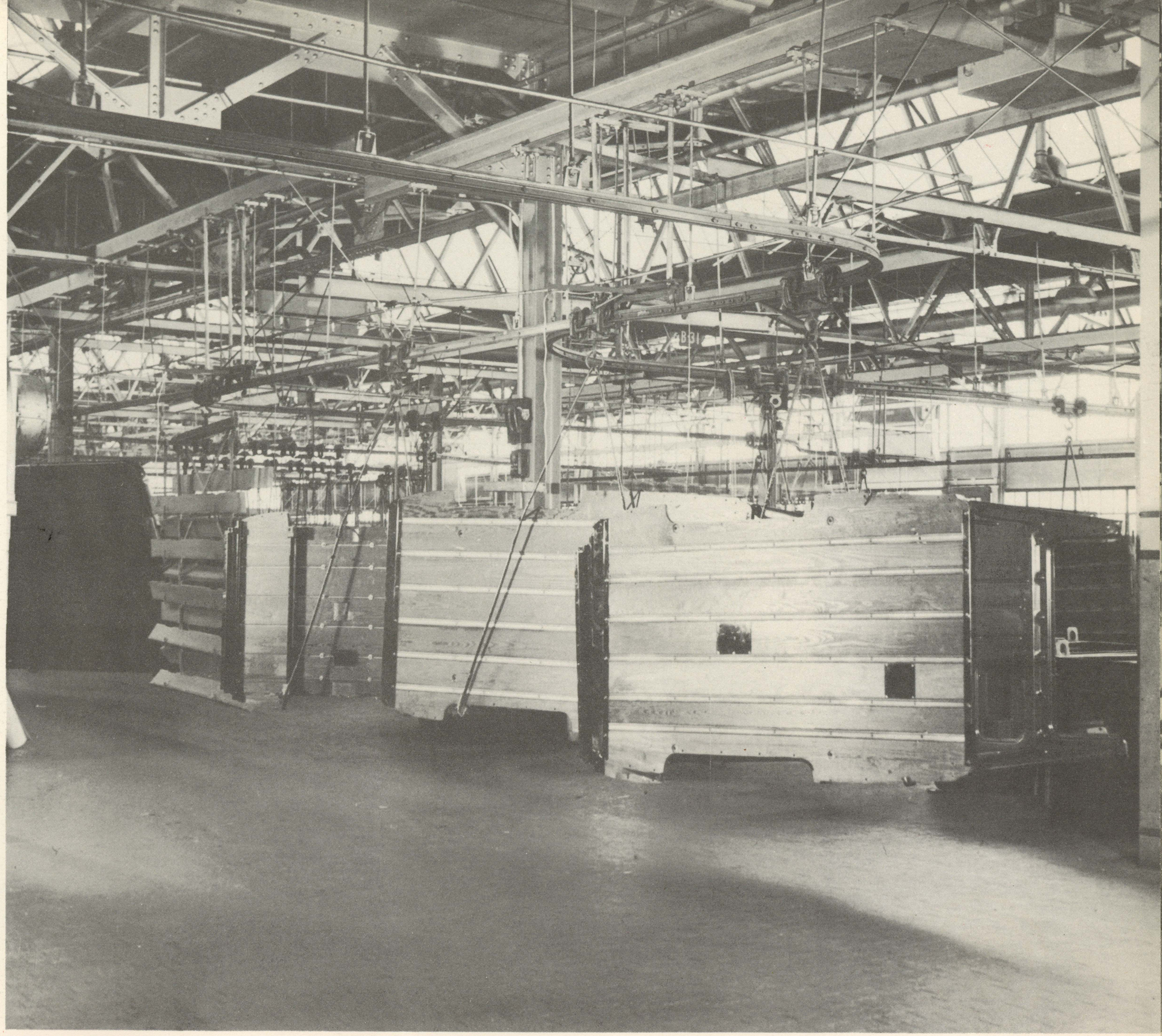
9. To the right of the Drying Ovens is the department for Assembling Platforms and Racks for all commercial and truck units. Accurate jigs maintain uniformity on all of these units.



9A • *VIEW OF PANEL BODY PLATFORM ASSEMBLY FIXTURES*



9B • *VIEW OF PLATFORM ASSEMBLY FIXTURES FOR PLATFORM BODIES*



9C • CONVEYOR FOR HANDLING PLATFORM ASSEMBLIES INTO SPRAY BOOTHS AND OVENS



9D • *VIEW SHOWING STAKE RACK ASSEMBLY LINE*

10. A very large Trim Department is maintained, where all trim units are cut and sewed for all commercial cars and trucks. The assembly of all cushions and backs for commercial units is made in this department.



10A • *VIEW OF SEWING ROOM AND CUTTING TABLE*



10B • *VIEW SHOWING THE TRIMMING OF SEAT CUSHIONS AND BACKS*

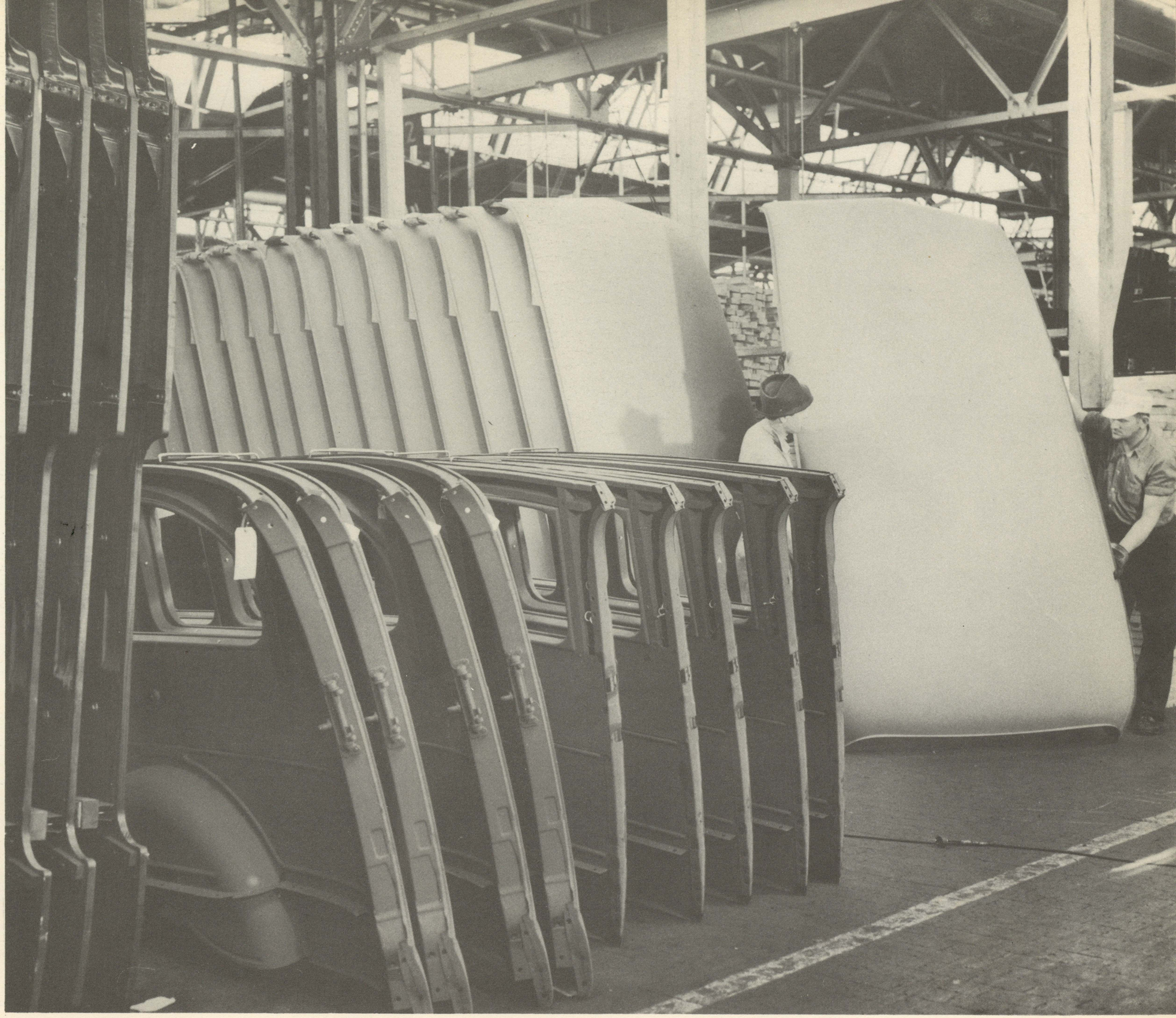


10C • *VIEW SHOWING CUTTING OF GENUINE LEATHER AND LEATHER STORAGE*

11. In our Shipping Department where the units are set off in separate stalls for each day's shipment, we are capable of handling about 12 cars of commercial bodies each day. This would mean the shipping of approximately 650 to 700 units per day.



11A • *VIEW OF CONVEYOR LINE HANDLING COMPLETED ASSEMBLIES IN SHIPPING DEPARTMENT*

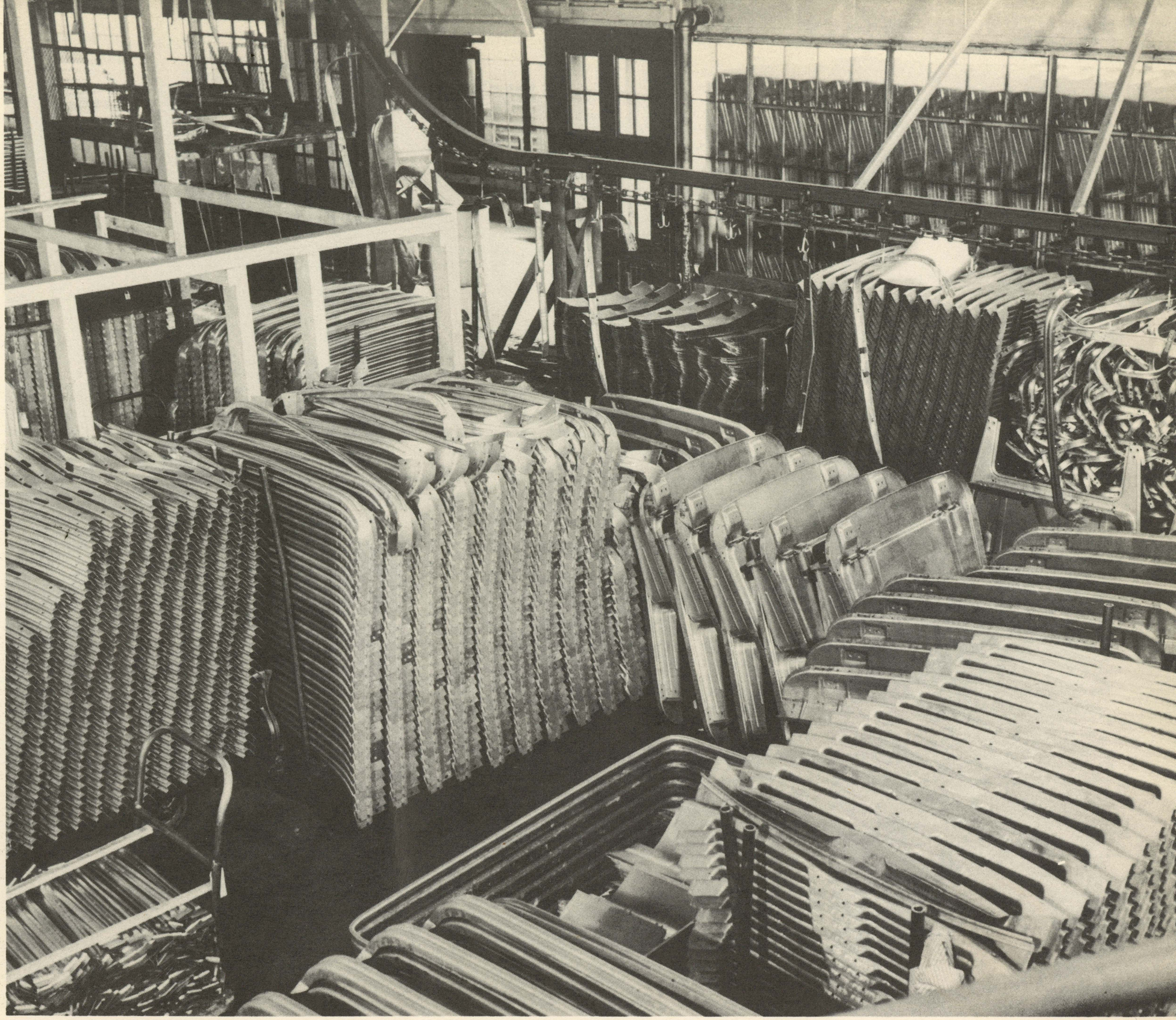


11B • *VIEW OF BINS LOADED WITH COMPLETE UNITS READY FOR THE NEXT DAY'S CAR LOADING*



11C • ***PERMANENT-EQUIPPED CARS SHOWING COMPLETED UNITS BEING LOADED 32 COMPLETE BODIES PER CAR***

12. Our shipping of Cab Parts takes place on the south side of the plant, and we have a capacity for handling 6 cars per day. This means that we can ship approximately 1800 sets of Cab Stampings to our Assembly Plants.



12A • *VIEW OF CAB PARTS IN STORAGE*



12B • *VIEW OF PARTLY LOADED EQUIPPED CAR FOR SHIPPING CAB STAMPINGS—320 SETS PER CAR*



D. M. KLAUSMEYER
Plant Manager

P. D. BALDAUF
Chief Engineer

