

The Chalmers Automobile Newsletter

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Congratulations to Tom Van Meeteren (#14) for winning the "People's Choice" award at the Omaha orphan car show in May. Many of you may recall previous stories in this newsletter about his restoration from a 1916 "Chalmers pick-up truck" to this award winning 1916 Model 26-A "Six-30". Good job Tom!

CHALMERS CLASSIFIED

The Chalmers Classified listing is intended as a service for members to advertise Chalmers cars and parts that are for sale and/or wanted. Please contact me regarding items that should no longer be listed and pass-on your new wanted and for sale items.

WANTED:

- 1922/1923 hubcaps (posted 4/2000) - contact Bob DuBois (#9).
- 1912-1914 Chalmers Model 12/18 "Six" (also 1910-1912 Model "Forty", 1912-1914 Model "36", or 1914-1915 Model 24/29 "Master Six") (posted 4/2000) - contact John Lehnert (#35).
- 1914 Chalmers Model 24 "Master Six" shop manual (posted 4/2000) - contact Jim and Donna Stamper (#52).
- 1917 Chalmers headlight lens (8¾") (posted 9/2000) - contact Tommy Nelson (#4).

FOR SALE:

- 1916 Model 35-A "Six-30" parts and some sheet metal (posted 4/2000) - contact Don Ohnstad (#19).
- 1909 Model F "30" engine cooling fan assembly (includes fan, hub, pulley, and bracket) in good painted condition with no rust for \$95 or best offer (posted 9/2000) - contact Chuck Fanucci (#45).
- 1917 Chalmers 5 passenger touring body with rear end, front end, and engine block (seized) for \$500 (posted 9/2000) - contact Tommy Nelson (#4).
- 1918 engine (seized) for \$200 (posted 9/2000) - contact Tommy Nelson (#4).
- 1920 engine (free) for \$300 (posted 9/2000) - contact Tommy Nelson (#4).
- Various miscellaneous Chalmers parts (posted 9/2000) - contact Tommy Nelson (#4).

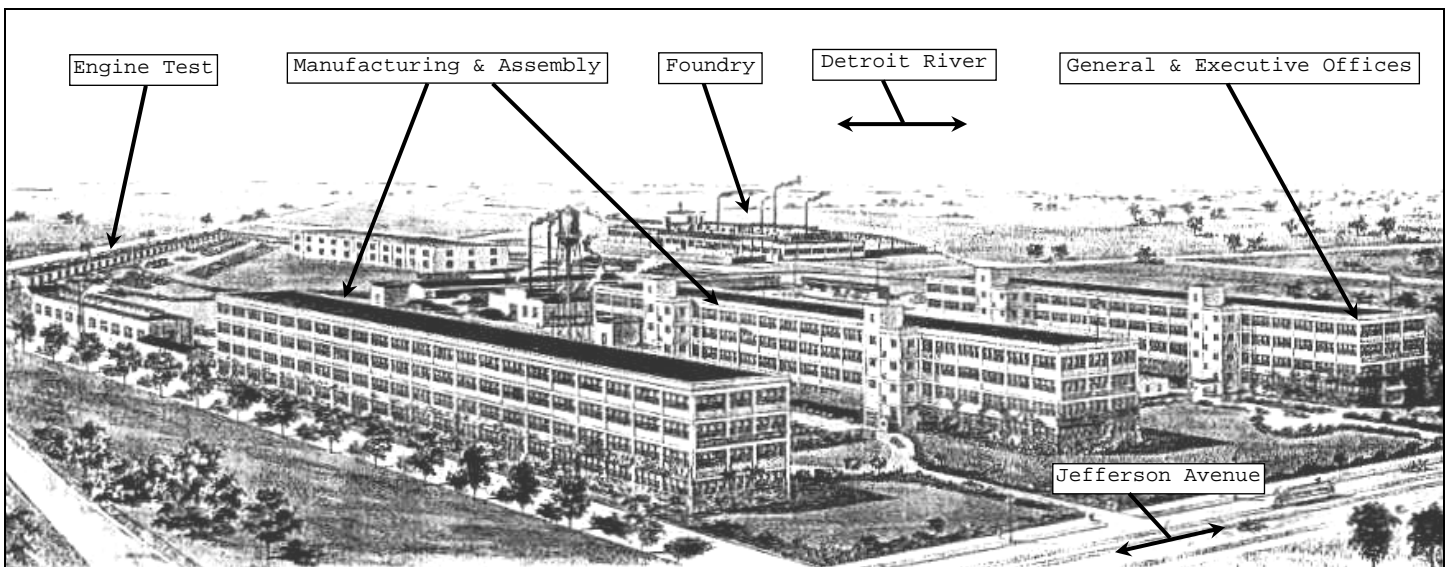
QUESTIONS FROM THE MEMBERSHIP

Henry Sorensen (#54) would like some help with the following two questions pertaining to his 1909 Model F "30":

1. How are the splash aprons attached to the chassis? *"The old ones that I have show riveted on tabs that look like they attach to the bolts that hold the running boards on and there are elongated holes through the panels at the frame edge. These holes seem to be located behind the supports for the running boards but I do not see what or how they are used to attach the splash aprons."*
2. How is the tail light attached to the car? *"I have what I assume is the proper tail light but can find no indication of how or where it is attached to the car."*

A SHORT HISTORY OF THE CHALMERS PLANT

The Chalmers factory was one of the most modern and comprehensive automobile manufacturing plants of the time. Located on East Jefferson Avenue, between Clairpointe and Terminal Streets on the East Side of Detroit, it had ready access to both railroad and Detroit River/Great Lakes ship transportation. Famous Detroit architect, Albert Kahn, designed the plant; he was responsible for introducing many new and innovative building techniques and styles to the motor city in the early 1900's. Construction actually began in 1907 under the Thomas-Detroit name and continued for several years after the name change to Chalmers Detroit in 1908. In 1914, the \$6,000,000 facility consisted of 30 acres with 16 buildings constructed in a park like setting. The three main buildings (seen in the illustration below) were made of concrete and steel with 5,000 windows creating a window wall effect; a Kahn trademark. A fourth main building was added later boosting total manufacturing space to 1,000,000 square feet. Maximum production capacity for the Chalmers plant was 40 automobiles per day; not the highest for plants of similar size in this era.



Chalmers Jefferson Avenue Plant (circa 1914)

Yearly heating of the Chalmers factory consumed 9,000 tons of coal. In spite of the Kahn's fire resistant construction, fire prevention was a very high priority. Automobiles seemed to be particularly associated with the risk of fire. Safe use and storage of gasoline was a new concept not fully developed in the early years of automobile manufacturing. In 1901, the nearby Oldsmobile plant was almost completely destroyed by fire. Consequently, fire inspections were conducted on a daily, weekly and monthly basis by Chalmers, the city of Detroit, and the insurance company respectively. Fifty-two fire alarm boxes connected directly to the Detroit Fire Department. Automatic high-pressure sprinklers were incorporated into the building designs. A total of 125,000 gallons of water was stored for fire fighting purposes and the fire fighting pumps were capable of delivering 1,000 gallons per minute. Between 4,000 and 5,000 men worked in the factory and the cafeteria could handle 800 at a time. Total water consumption for normal operations was 250,000,000 gallons per year.

Maximum capacity of the telephone switchboard was 500 telephone lines. Under ground tanks stored 36,000 gallons of gasoline and 12,000 gallons of lubricating oil. The main buildings shown in the illustration are surrounded by lawn, flower beds and shrubbery. Tennis courts, park benches, and a baseball field were near by to complete the park-like setting.

One of the things that made the Chalmers plant so advanced was the self-sufficient approach to building automobiles. For example, raw pig iron was shipped in and processed by the on-site foundry and machine shop to become complete engines, transmissions, and axles that were needed for the finished car. Another example of Chalmers self-sufficiency were the automatic screw machines in the machine shop. These machines produced the nuts, bolts, screw fasteners, and other small parts needed to manufacture an automobile. Many of the other automobile manufacturers bought these items from outside suppliers and simply "assembled" their cars. Dependence on outside suppliers was known as the peripheral method of manufacturing. Chalmers did practice peripheral manufacturing on a limited basis when necessary, but the underlying philosophy was to bring as many manufacturing processes as possible inside the plant. In-plant manufacturing was called "integrated manufacturing" and this approach was something new to Detroit that Chalmers helped pioneer.

The Chalmers plant was organized into 8 major departments; Engineering, Material, Inspection, Factory, Finance, Selling, Technical, and Employment. Design ideas for Chalmers cars began in the Engineering Department where drawings, models, and experimental cars were made and tested. All of the parts and materials that went into the new designs were thoroughly tested in the Physical Laboratory and the Chemical Laboratory. Iron, brass, bronze, and aluminum were tested for tensile strength and hardness. Vital components such as carburetors, magnetos, and engines were tested for proper function and durability.

When the new designs were ready for production, the Factory Department started the manufacturing process. In the foundry, Chalmers workers performed all of the mold building, casting, drop forging, and heat-treating. Iron, brass, bronze, and aluminum were processed by the foundry to make the raw parts needed in the machine shop. The machine shop was equipped with \$2,000,000 worth of machine tools to produce gears, pistons, valves, crankshafts, and engine blocks. These tools consisted of large automatic multi-station machines such as milling machines, drill presses, lathes, and grinders. One machine, which was one of the largest types in the U.S., finished three sides of a cylinder block in one pass and transferred ten complete blocks at a time. Three hundred tons of metal cuttings were created by the machine shop each month. Critical parts were checked for balance. Piston sets were matched to within 0.25 pound and all rotating parts were spin balanced. Material for the seat covers, cushions, tops, and storm curtains was cut, stitched and fitted by the upholstery and top shop. All manufactured parts were finished, inspected, and made ready for final assembly.

Final assembly evolved from simple stationary workstations into a moving line of progressive assembly. Moving line experiments conducted by a Chalmers colleague, Charles Sorensen, at the Ford Highland Park factory in 1913 led to the development of the moving assembly line and mass production. The moving assembly line was essentially a powered chain driving multiple workstations along a track. Years earlier, in 1909, Chalmers had developed two new assembly devices known as the overhead trolley system and the compartmentalized transfer truck. The overhead trolleys transported heavy pieces like completed engines, transmissions,

axles, and bodies; delivering them to stationary workstations. The hand powered compartmentalized transfer trucks, likewise, delivered all the small parts needed for a complete car. In 1917, Chalmers adopted the assembly conveyor system becoming one the first large (or mid-priced) car manufacturers to employ mass production. Chalmers also developed a "Ferris-wheel" transfer/turn-over system for their moving assembly line in 1917. This device transferred the completed chassis, which had been assembled in an upside down position, to the floor above in an upright position ready for the topside components such as engine and body. The evolution of mass production created interchangeable parts for Chalmers cars and improved production efficiency in the Chalmers factory.

The Inspection Department's responsibilities began with the incoming raw material and other parts bought from outside suppliers. As the manufacturing process proceeded, inspections continued on all parts, subassemblies, and final assemblies. Inspection was considered one of the most important functions in the Chalmers plant. Consequently, this department enjoyed a kind of autocratic authority over the manufacturing and assembly operations. Moving parts had to match the specification to within 0.001 of an inch and gears were gauged to 0.0005-inch tolerance. Engines were tested under load for 10 hours prior to installation. The engine test building handled 52 engines at a time. Each car had to pass a final road test (200 miles) before it was tagged for delivery. The Inspection Department consumed approximately 75,000 gallons of gasoline, 12,000 gallons of lubricating oil and 500 tires per year.

Annual production in the early years amounted to a few thousand automobiles. Each year the production increased until the peak in 1916 when slightly over 21,000 automobiles were shipped out of the Chalmers plant. Then production started to fall-off, and in 1919 an agreement with Maxwell Motors was made to use the under utilized manufacturing space. Business under this joint venture continued to decline and, in 1920, creditors moved in Walter P. Chrysler to rescue both companies. Production of the proud Chalmers ceased in late 1923 and the first Chrysler was rolled out of the plant in early 1924; Maxwell continued production until 1925. Thirty two thousand Chryslers were produced that first year.

Chrysler continued to operate the old Chalmers Jefferson Avenue plant through the late 1980's; some notable models produced during this period included the 1934 "Airflow", 1969 "300", and 1981 "K series". Finally, in 1990, the plant was closed; ending with the "Omni" and "Horizon" production (these cars are credited for being the first U.S. made front wheel drive transverse engine subcompact). The plant closing concluded a period of 82 years of automobile production at the Jefferson Avenue site; the longest of any other U.S. automobile manufacturer. Sometime after 1994 the venerable Kahn designed buildings were demolished.

Today, the old Chalmers factory location is a fenced-in lot consisting of paved parking areas and grass; it is still owned by the Chrysler Corporation (now known as DaimlerChrysler). The property serves as a material and production storage site to support the North Jefferson Avenue DaimlerChrysler plant built after 1990.

That's all for now! Send me your comments and subjects for the next newsletter.

Dave Hammond