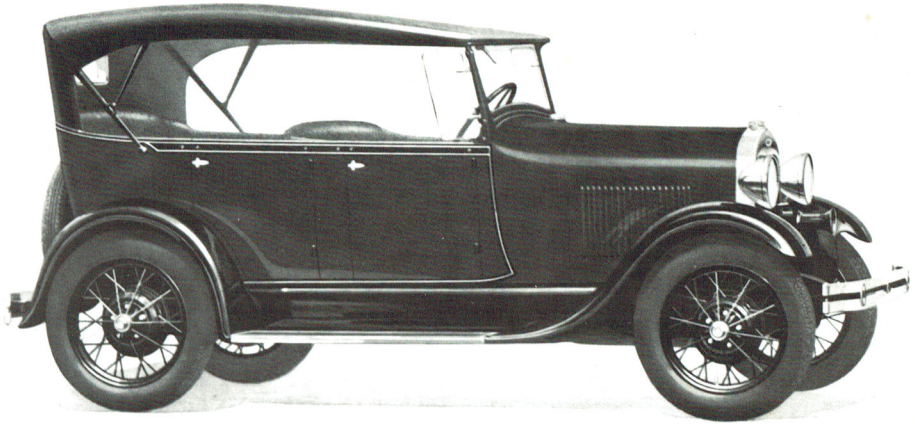
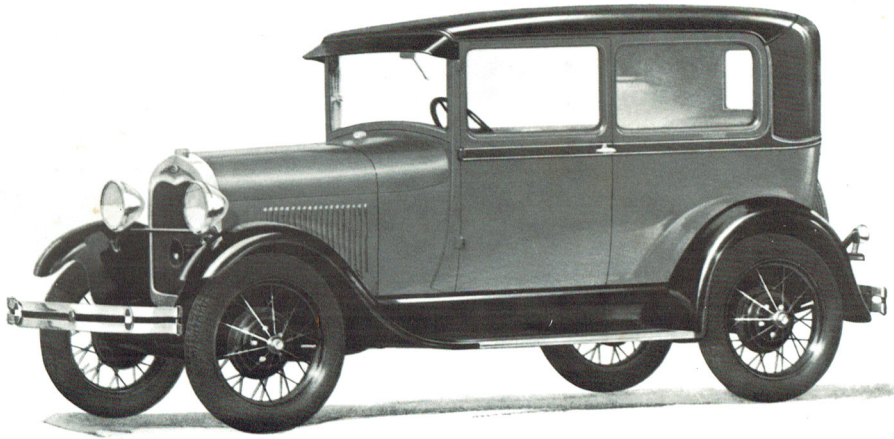
The New Ford

FORD MOTOR COMPANY

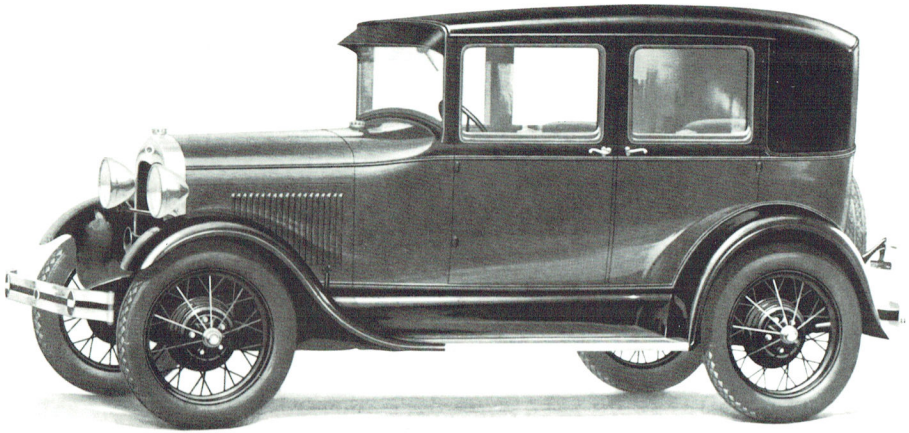
DETROIT, MICHIGAN

THE PHAETON



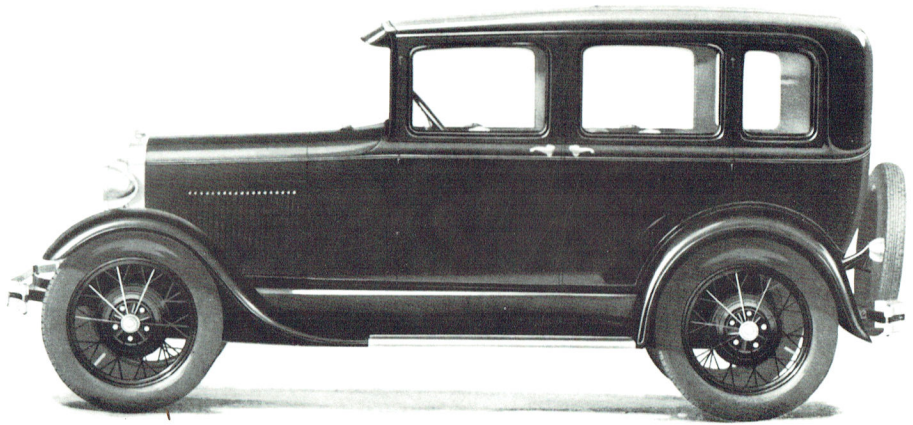


THE TUDOR SEDAN

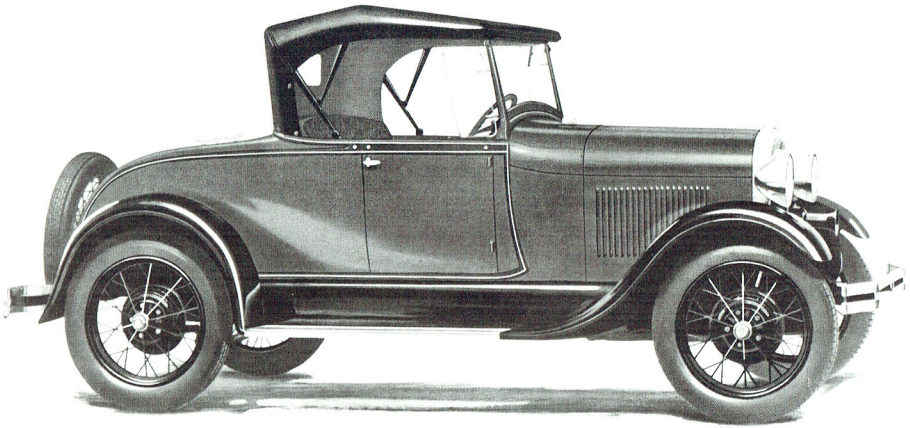


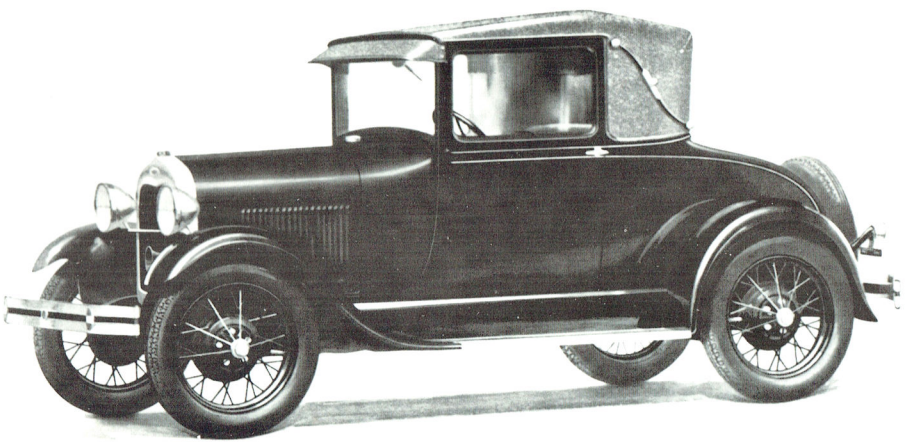
THE FORDOR SEDAN

THE FORDOR
THREE-WINDOW
SEDAN

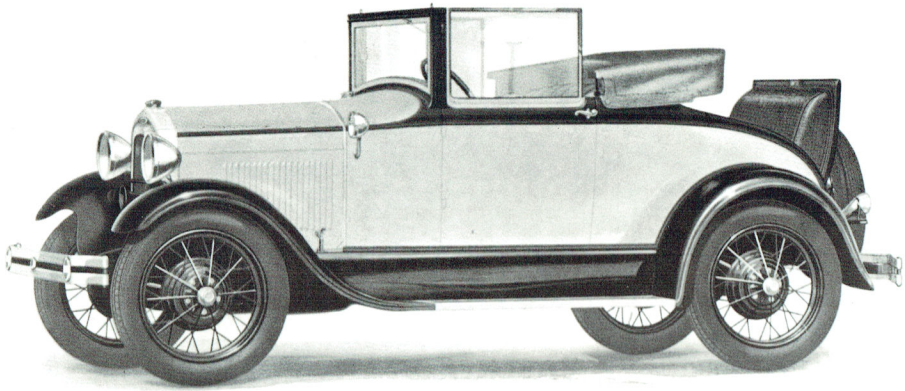


THE ROADSTER



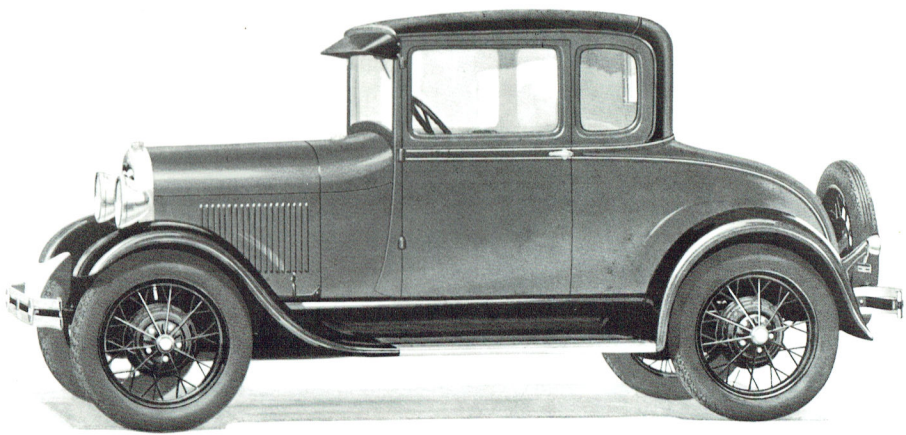


THE SPORT COUPE



THE CABRIOLET

THE COUPE



FOREWORD

HEREIN are presented the mechanical details of the Model A Ford car. Included also are the dimensions of the various passenger car bodies, the details of the Model AA Ford truck, measurements of the several standard light delivery and truck bodies, and such information regarding the commercial car and truck chassis frame as is necessary for the mounting of bodies.

These details and dimensions are offered in a simple, clear and concise form, in order that any one may quickly obtain all the information desired regarding the new Ford cars and trucks.

Simplicity and excellence of design, unique and exclusive mechanical features, care in manufacture, and sturdiness of construction are all outstanding features of the new Ford cars and trucks—all of which are fully explained and illustrated with drawings.

THE MODEL A ENGINE

THE four-cylinder, forty-horsepower engine is built to the most exacting limits and is designed to give the utmost in efficiency over a long period of years.

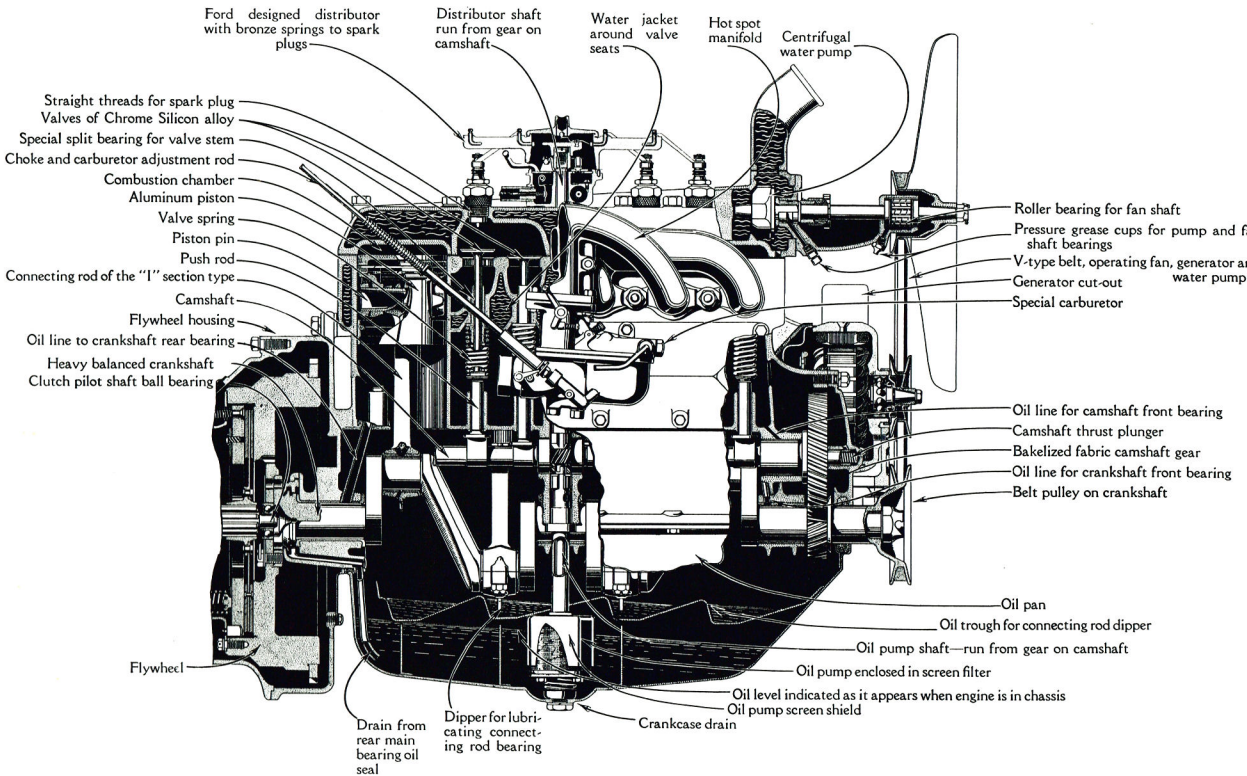
Every manufacturing operation from the casting of the cylinder block to the precise weighing of the piston and connecting rod assemblies, is carried out under constant inspection and under unusual precision requirements.

The three-bearing crankshaft is special Ford carbon manganese steel, which is exceptionally hard and strong. It is statically and dynamically balanced. The flywheel is likewise statically and dynamically balanced. The three-bearing camshaft also is of special Ford carbon manganese steel, machined to precision limits. The timing gear is of bakelized fabric, insuring quietness in operation and long wear.

Pistons are of aluminum alloy and piston pins are of the full floating type, an unusual feature. Connecting rods are carefully weighed for correct balance. Assemblies of pistons, pins and connecting rods are matched in weight to $3\frac{1}{2}$ grams, or approximately $\frac{1}{8}$ of an ounce.

Valves are of chrome silicon alloy, specially selected because of its particular resistance to the oxidizing or scaling effects of hot gases, and ability to retain its strength at high temperatures.

The combustion chamber is so designed as to allow free passage of gases through the valves, and to produce turbulence within the cylinder during compression, thoroughly mixing the fuel. As a result, when the spark comes, the flame spreads at once through the whole fuel charge, resulting in quieter and more efficient engine performance.



THE MODEL A FORD ENGINE IN DETAIL

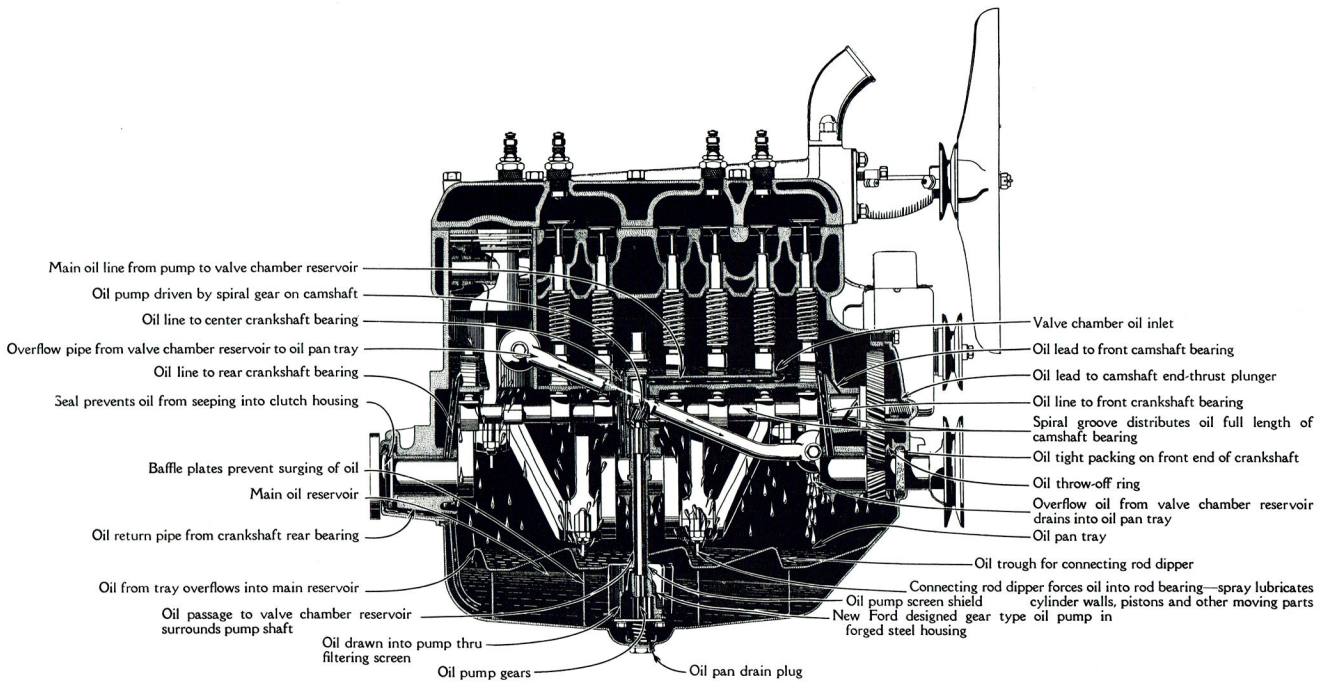
ENGINE LUBRICATION

THE engine lubrication system is an exclusive Ford development and is a combination of pump, gravity feed and splash system with oil reservoir in the valve chamber.

The pump is located in the bottom of the oil pan and is run off a gear on the camshaft on the same shaft which operates the distributor. It is enclosed in a fine mesh wire screen through which the oil filters before it is pumped up into the valve chamber. The screen is surrounded by a shield so that the oil is pulled through it. The oil flows into the valve chamber in a continuous stream whenever the engine is running, but it is in no sense a "forced feed."

The oil in the valve chamber provides direct gravity feed lubrication to the main bearings of the crankshaft and the front end camshaft bearing. Small pipe lines lead down from the valve chamber to these bearings. The bottom of the valve chamber is so designed, through the use of small inbuilt dams, to provide reservoirs of oil for each bearing.

As the engine rests in the chassis on a 3 degree angle, sloping to the rear, the oil arriving in the valve chamber flows back, filling each reservoir, the overflow oil being carried by an external pipe down to the front end of the oil pan, where it flows back over the pan, filling the troughs through which the connecting rods are lubricated and from which all other moving parts are sprayed by the splash system. From the pan the oil flows to the bottom of the case to be pumped back again.



LUBRICATION SYSTEM OF THE MODEL A FORD ENGINE

THE FUEL SYSTEM

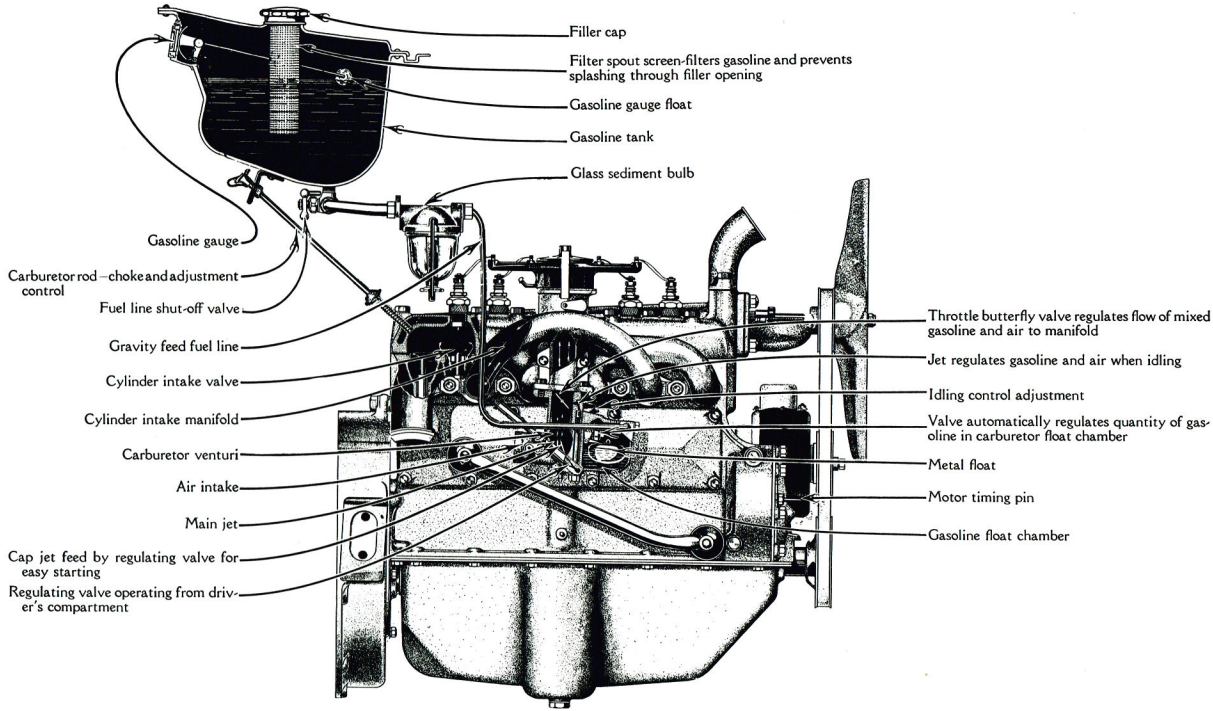
GASOLINE flowing from the tank in the Model A car follows the natural law of gravity, and is the simplest and most positive form of fuel feed.

The tank is built integral with the cowl of the car through an exclusive Ford design of construction. It is made of terne plate, a tin coated steel which is rustproof, is electrically welded into one unit, and is exceptionally sturdy.

Because of the location of the tank it is possible to provide a positive gasoline gage on the instrument panel of the car, an added convenience for the driver. The tank is filled through an opening in the center of the cowl.

The fuel outlet pipe is at the bottom of the tank. The gasoline, on its way to the carburetor, passes through a filtering screen in a glass sediment bulb, thus insuring clear fuel for the carburetor. The sediment bulb is mounted on the steel dash which separates the gasoline tank from the engine. The flow of fuel may be shut off at the tank outlet when cleaning of the system is desired.

A choke rod is provided for priming, and a specially designed carburetor and a hotspot manifold insure uniform flow of air and fuel to the combustion chamber of the engine.



FUEL SYSTEM OF THE MODEL A FORD ENGINE

THE COOLING SYSTEM

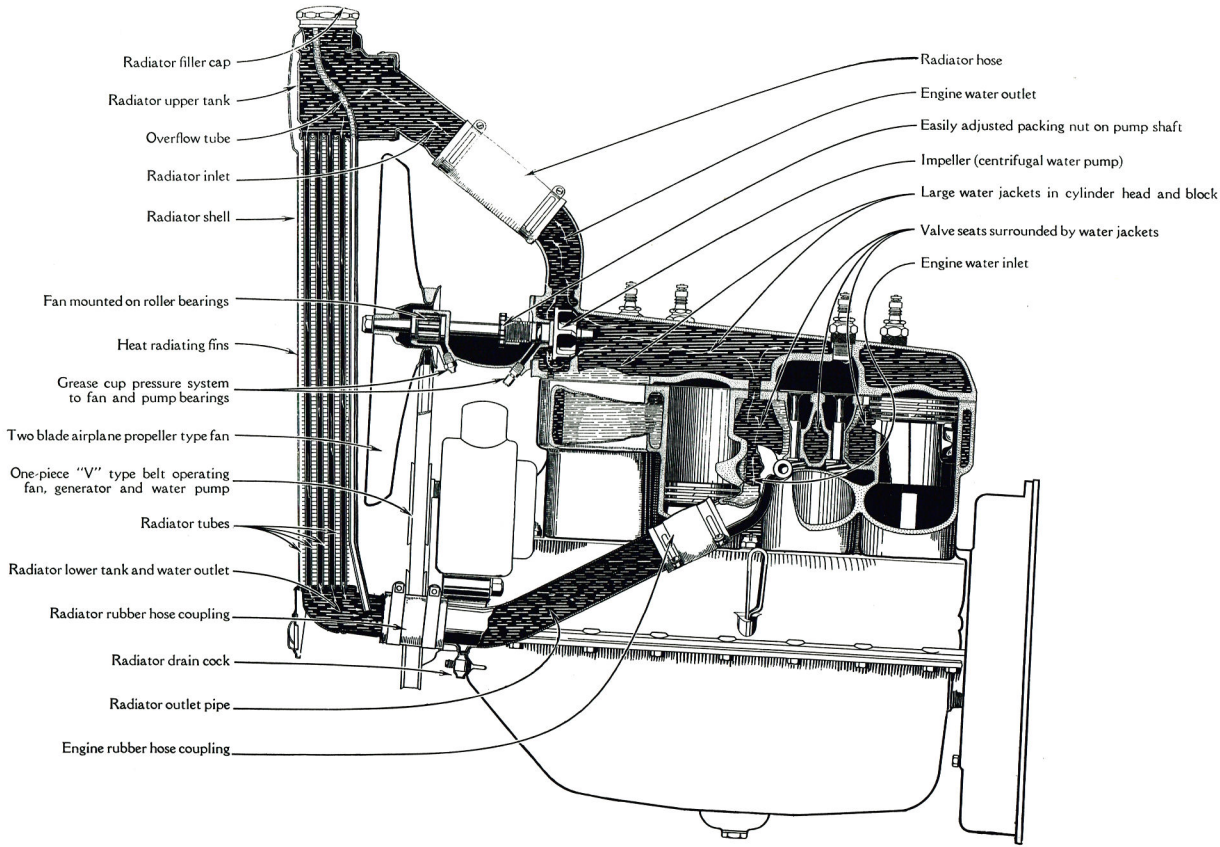
THE cooling system of the new Ford car is designed to give the utmost efficiency under all driving conditions. Construction of the engine block provides water jackets all around valve seats, the jackets being larger around the exhaust valves.

A three-blade centrifugal water pump draws water from the cylinder head, insuring quick diffusion through the radiator. If the pump should fail, there is sufficient clearance around the pump blades so that cooling would be effected by the thermo-syphon system.

Exceptional cooling force is exerted by the airplane propeller type fan, which delivers approximately 855 cubic feet of air per minute at 1000 r. p. m's. of the motor.

The fan and the water pump both operate on the same shaft, with the shaft driven by a "V" shaped rubber belt.

The radiator has a large cooling surface. The four rows of tubes run down between the fins in staggered position. Thus each tube receives a full blast of incoming cool air. Tubes and fins are joined with solder, and heat from the tubes is rapidly dissipated through the fins. The water inlet from the cylinder head is exceptionally large, with fan shaped opening into upper radiator tank, giving even distribution of the water through the entire cooling surface.



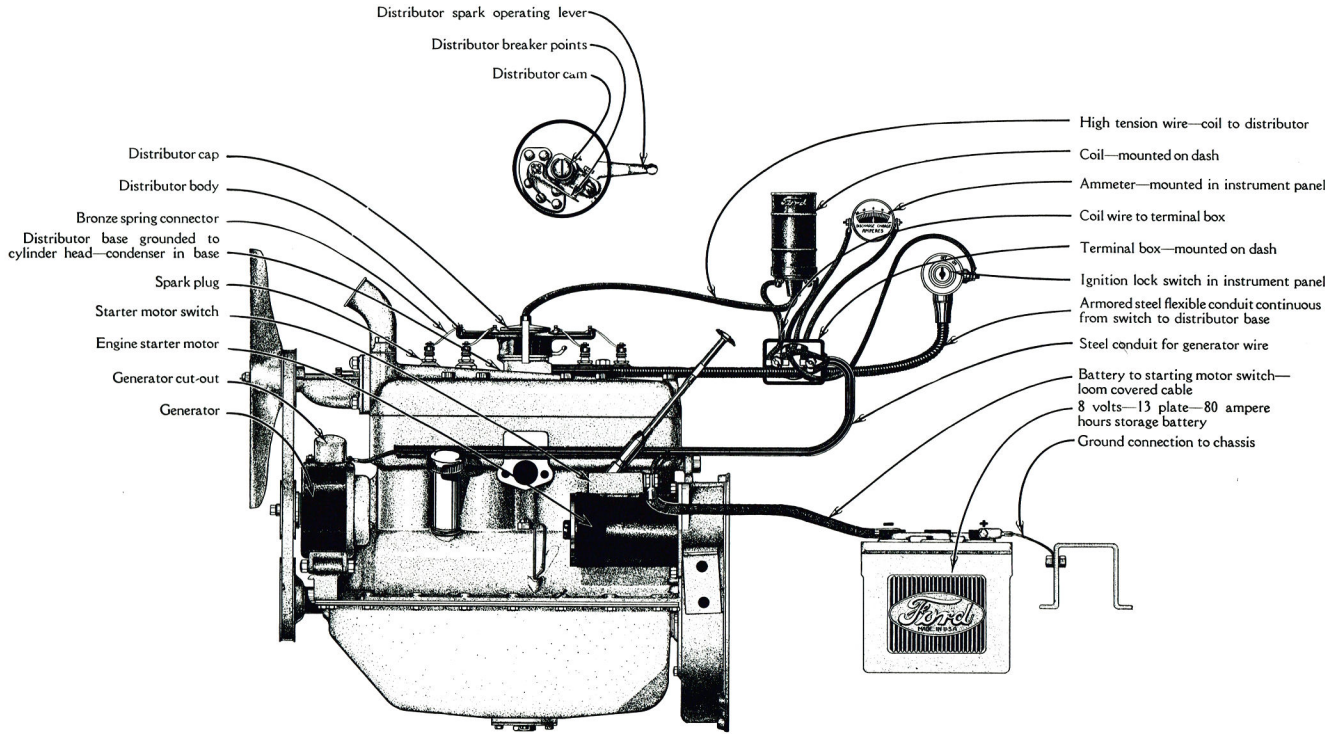
COOLING SYSTEM OF THE MODEL A FORD ENGINE

THE IGNITION SYSTEM

THE ignition system of the new Ford car is unique in mechanical design and extremely simple. A novel feature is the elimination of high tension cables from the distributor to the spark plugs, the connection being made by means of thin bronze springs. There is but one high tension cable and this connects the coil with the distributor.

The thirteen-plate Ford battery is used, similar to those used for many years past and noted for their long life and reliability.

The Ford type Electro-lock used in the ignition switch is a combination switch and theft-proof lock, affording full protection for the car. When the ignition is shut off the car is locked. The lock is placed in the ignition circuit. It not only replaces the regular ignition switch but in the "off" position grounds the entire circuit. From the switch to the distributor a steel cable protects the primary current wire, this cable being grounded to the distributor casing, thereby making it impossible to wire around the device.



IGNITION SYSTEM OF THE MODEL A FORD ENGINE

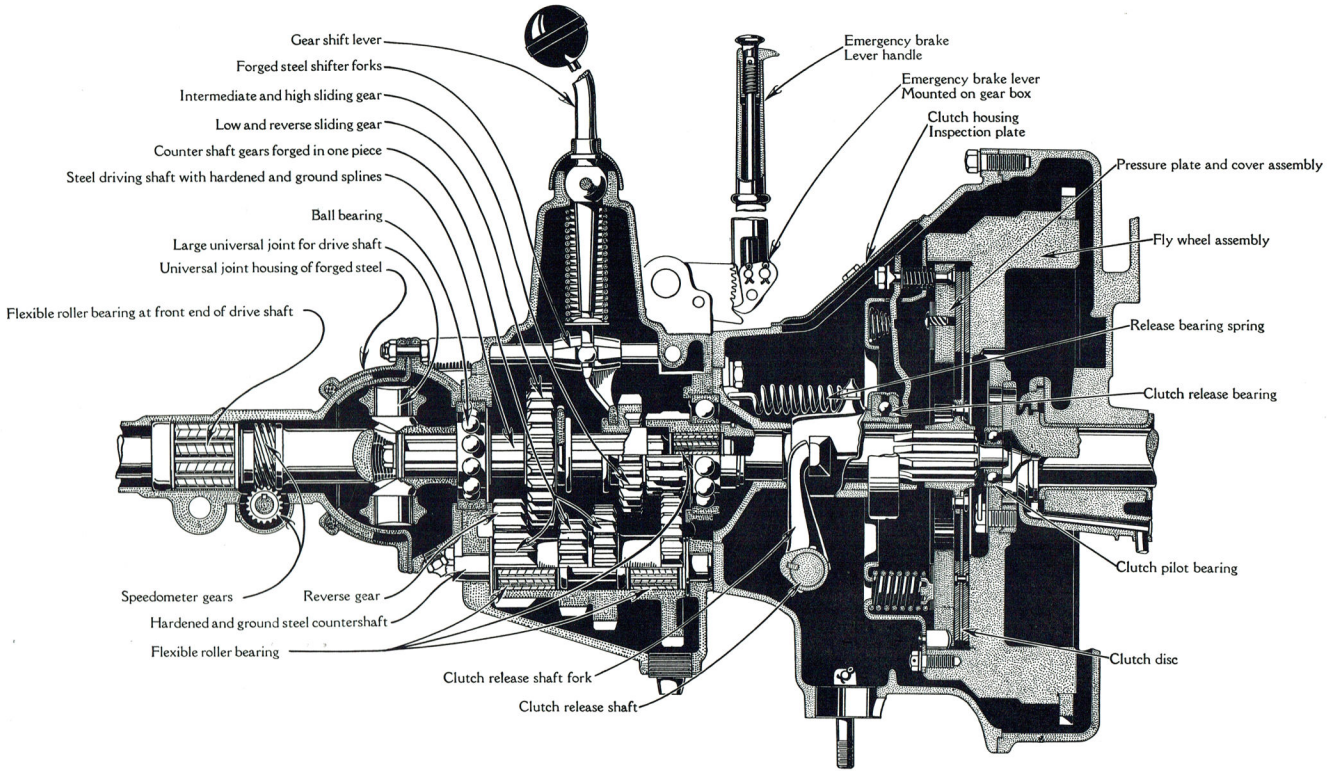
TRANSMISSION AND CLUTCH

THE new Ford car has the standard selective sliding gear shift, with three speeds forward and one reverse, and a single plate clutch. The transmission and clutch are nowhere excelled in design, quality and workmanship, and under all normal driving requirements should last the life of the car.

In the transmission the gears and shafts are of chrome alloy steel, heat treated to give hardness. The countershaft is carried on roller bearings and roller bearings also are used in the connection where the drive shaft joins the spline shaft. Ball bearings are used for the bearings on which the drive and spline shafts rotate. The reverse idler is carried in bronze bushings.

The clutch has a cover plate assembly which consists of a cast iron outer driving plate and a stamped cover plate in which are mounted twelve pressure springs and six release levers. The springs are in direct action against the pressure plate and automatically compensate for all wear of the friction facings. This is a feature that eliminates any necessity of adjusting the release levers.

The driven member or clutch disc assembly is composed of a flat steel disc and two friction facings of the moulded type, used because of their long wearing and high temperature resisting qualities. The facings are riveted to both sides of the driven disc. With this construction the outer and inner edges of the clutch disc facing start to engage first. As the clutch engages when the pedal is released, the spring pressure in the clutch flattens out the "dish" in the clutch disc and the entire lining surface picks up the load evenly. This feature insures exceptionally smooth clutch engagement.



TRANSMISSION AND CLUTCH OF THE MODEL A FORD

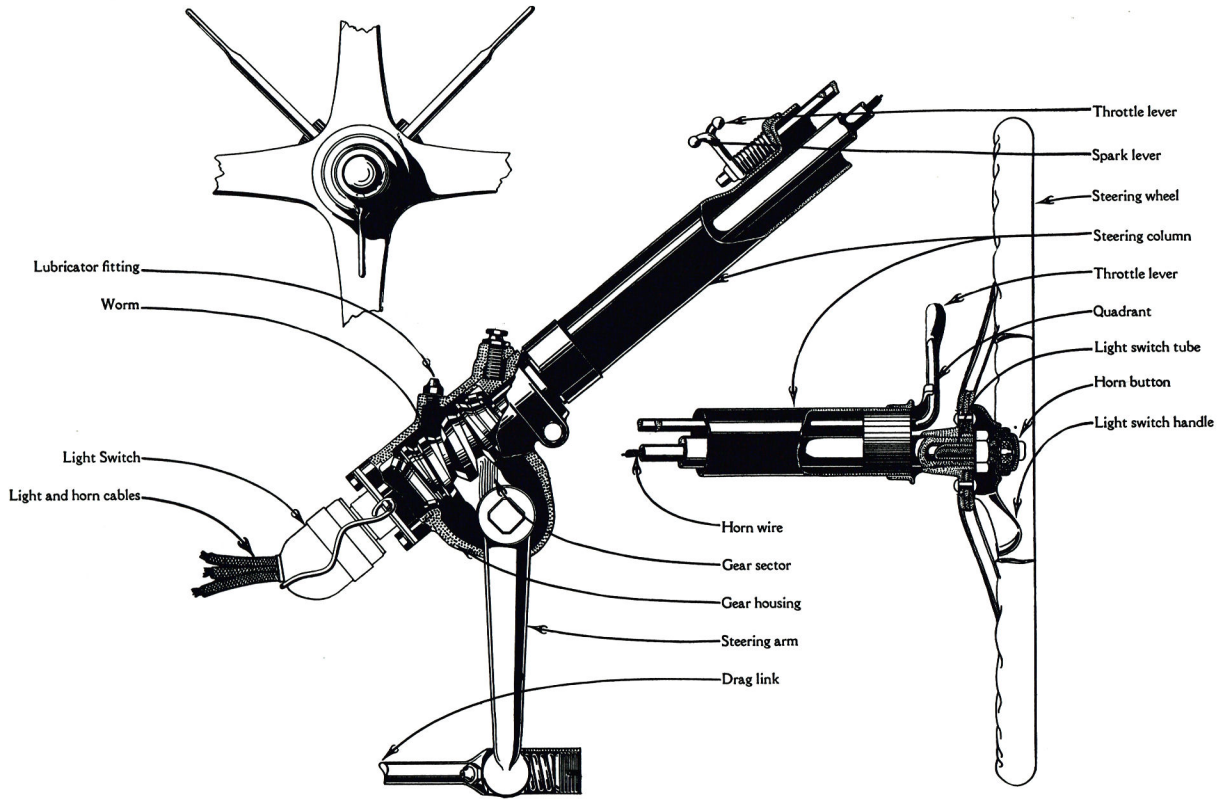
THE STEERING GEAR

THE steering gear of the new Ford is of the worm and sector type, three-quarter irreversible. This design insures the driver the utmost control, responding quickly and easily to the movements of the steering wheel in his hands, yet it preserves for him the feel of the road at all times. It is so constructed that there is no danger of the wheel being jerked from the driver's hands by ruts or bumps in the road.

The worm is mounted on two taper roller bearings which take the end thrusts as well as the radial loads. Adjustments are provided to compensate for wear on all parts of the mechanism, the adjustable upper bearing taking up both end and radial play.

The steering worm is splined to the steering worm shaft, giving much stronger construction than that in ordinary practice where a separate key is used to hold the shaft and worm together. The steering worm sector is forged and machined integral with its shaft.

The new steering wheel is of steel with a black, hard rubber covering. There are finger knobs on the upper side of the rim. The wheel is 17½ inches in diameter.



STEERING GEAR AND WHEEL OF THE MODEL A FORD

SPRINGS AND SHOCK ABSORBERS

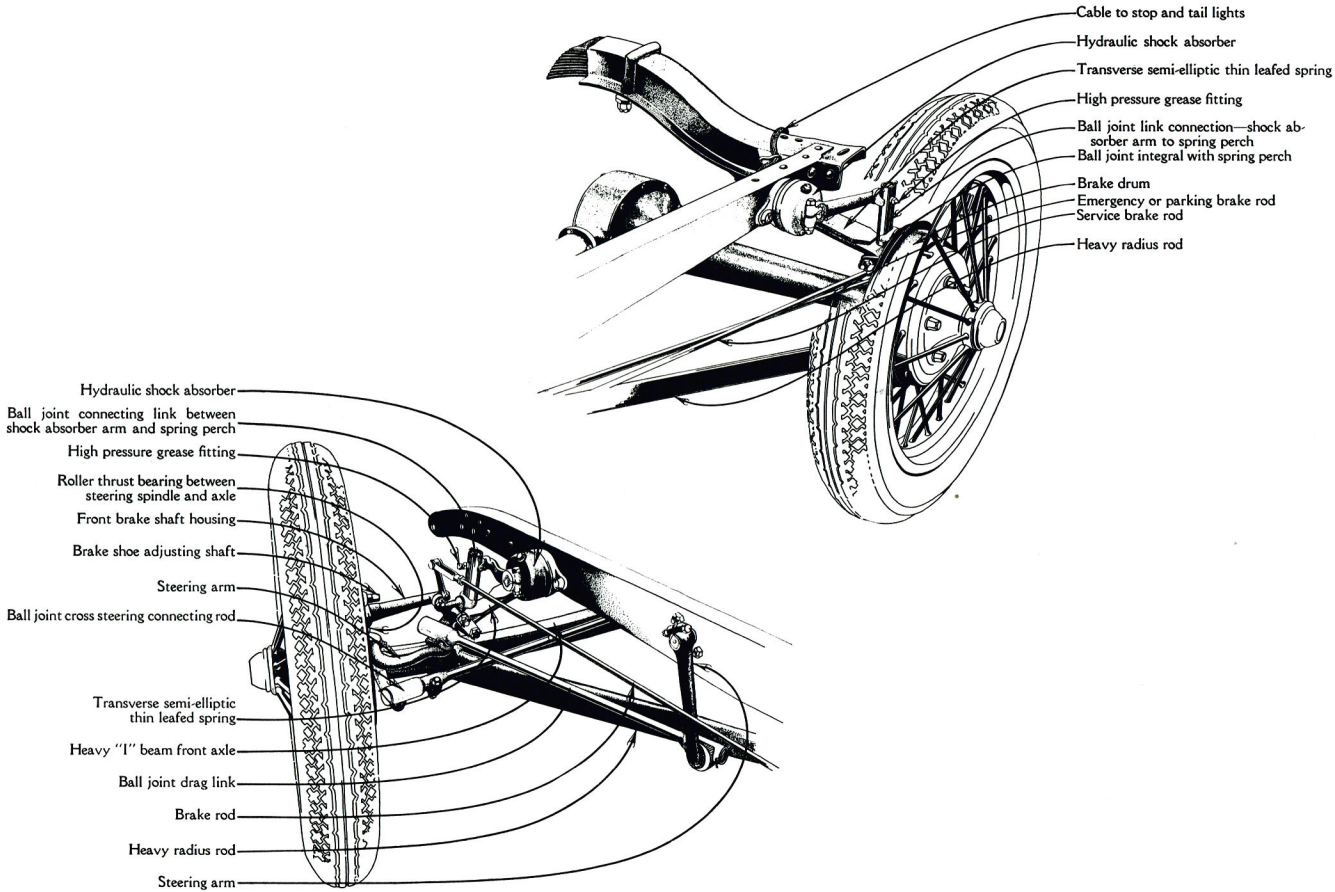
MANY features contribute to the easy riding qualities of the new Ford car, but none more than the new Ford design transverse springs and the Houdaille double acting hydraulic shock absorbers.

The new transverse springs are built of various numbers of leaves, to suit each body requirement, and the leaves are thin—in accordance with the latest design of spring construction.

There are four Houdaille shock absorbers, one at each wheel, the finest type of shock absorber manufactured. They eliminate side sway in rounding sharp curves at high speed, keep all four wheels firmly on the ground, insure positive traction and uniform braking action. It has been estimated that they give the springs 100 per cent longer life than without them. They give the springs free action over smooth highways, only affecting them when the spring movement exceeds an inch on rough or uneven roads.

The front axle is chrome alloy steel forging and the rear axle shaft housing is steel, electrically welded.

Wheels are of the steel spoke type, electrically welded into one solid unit, with drop center rims, making tire changes easy. Because of the design of the wheels, it is possible to make all the brakes on the new Ford car of the internal expanding shoe type, thus affording full protection against grease and mud and dirt of the road, an important safety factor.



FRONT AND REAR AXLES—SHOCK ABSORBERS

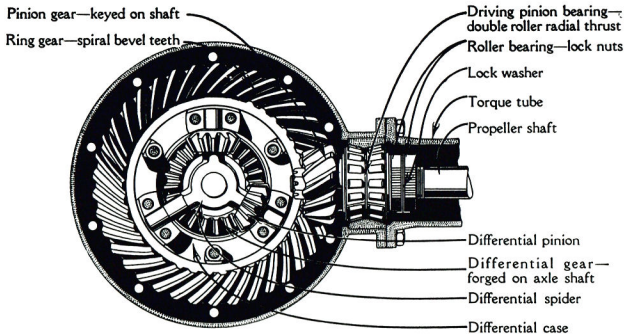
THE REAR AXLE

THE rear axle of the new Ford car is of the three-quarter floating type with spiral bevel gear. The pinion hub is exceptionally heavy and as the pinion is carried on double taper roller bearings perfect alignment of the gear is always assured.

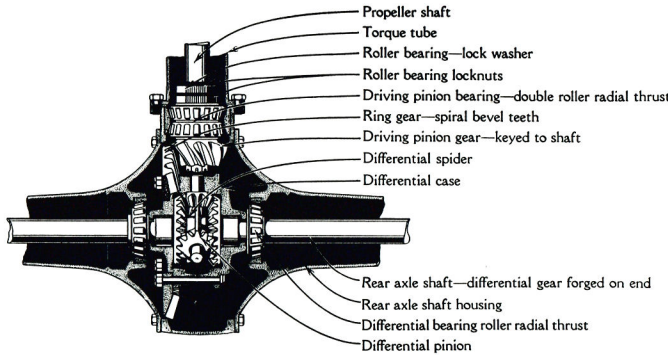
Special care is taken to insure silence in the pinion and ring gears. These are made up in sets and carefully matched, each set being lapped to eliminate all possibility of noise in operation.

The differential side gears are forged integral on the rear axle shafts and the teeth then cut. This permits lighter and more simple construction. The shafts are unusually strong and as the center line of the wheel comes over the bearings, there is no overhang of the axle shaft, and it has no weight to support.

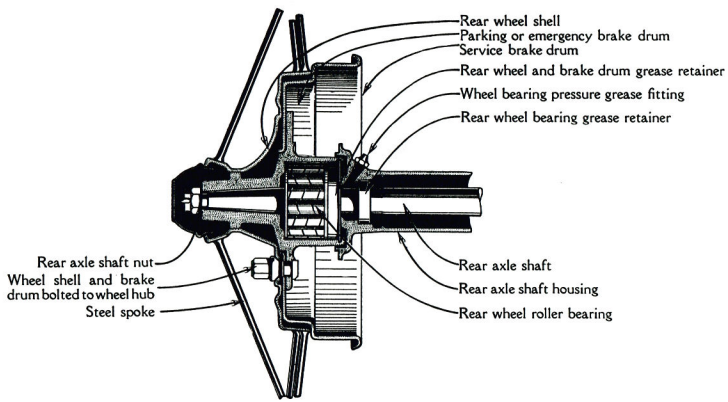
The axle shaft housing is made of steel. Bell forgings welded to steel tubing make up this housing which is bolted to the differential housing.



REAR AXLE
Sectional View Showing Gear and Pinion



REAR AXLE
Sectional View Showing Differential Mounting



REAR WHEEL HUB
Showing Three-Quarter Floating Rear Axle Shaft

THE MODEL A CHASSIS

THE Ford Model A chassis has many exclusive mechanical features, and is remarkable for the large number of steel forgings which, because of their light weight and strength, are used almost exclusively in place of castings and stampings.

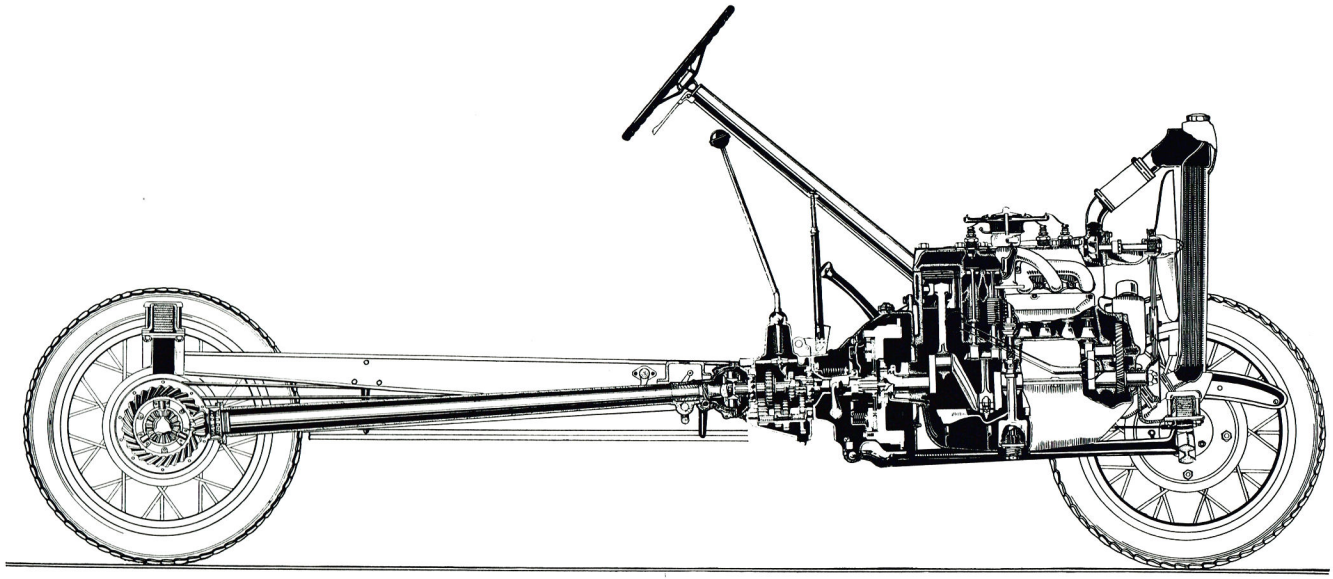
Among the distinctive features are an ignition system so simple in construction that it cannot be mis-wired even by a novice, ball and socket joints on all spark and throttle connections, self-contained and rattle proof, and front wheel brake construction that eliminates the leather boot or sliding joint customarily used in protecting the linkage between the brake rods and the mechanism of the brake plate.

There is also the simplicity of engine timing, accomplished by a timing plug in the camshaft gear cover plate, which inserted in the opening provided drops into a notch in the camshaft gear, accurately setting the upper dead center of the firing stroke of No. 1 cylinder.

The frame itself is unusually strong, with three sturdy cross-members, designed to give great rigidity.

The torque tube drive is used, a driving principle originally adapted to the automobile by the Ford Motor Company. The driving shaft is large and strong, and enclosed in an all steel tube.

Another feature is the unusual freedom from unsprung weight, for the less the unsprung weight in ratio to the sprung weight (that above the spring), the easier the riding of the car. This is accomplished chiefly through the Ford design transverse springs.



THE MODEL A CHASSIS

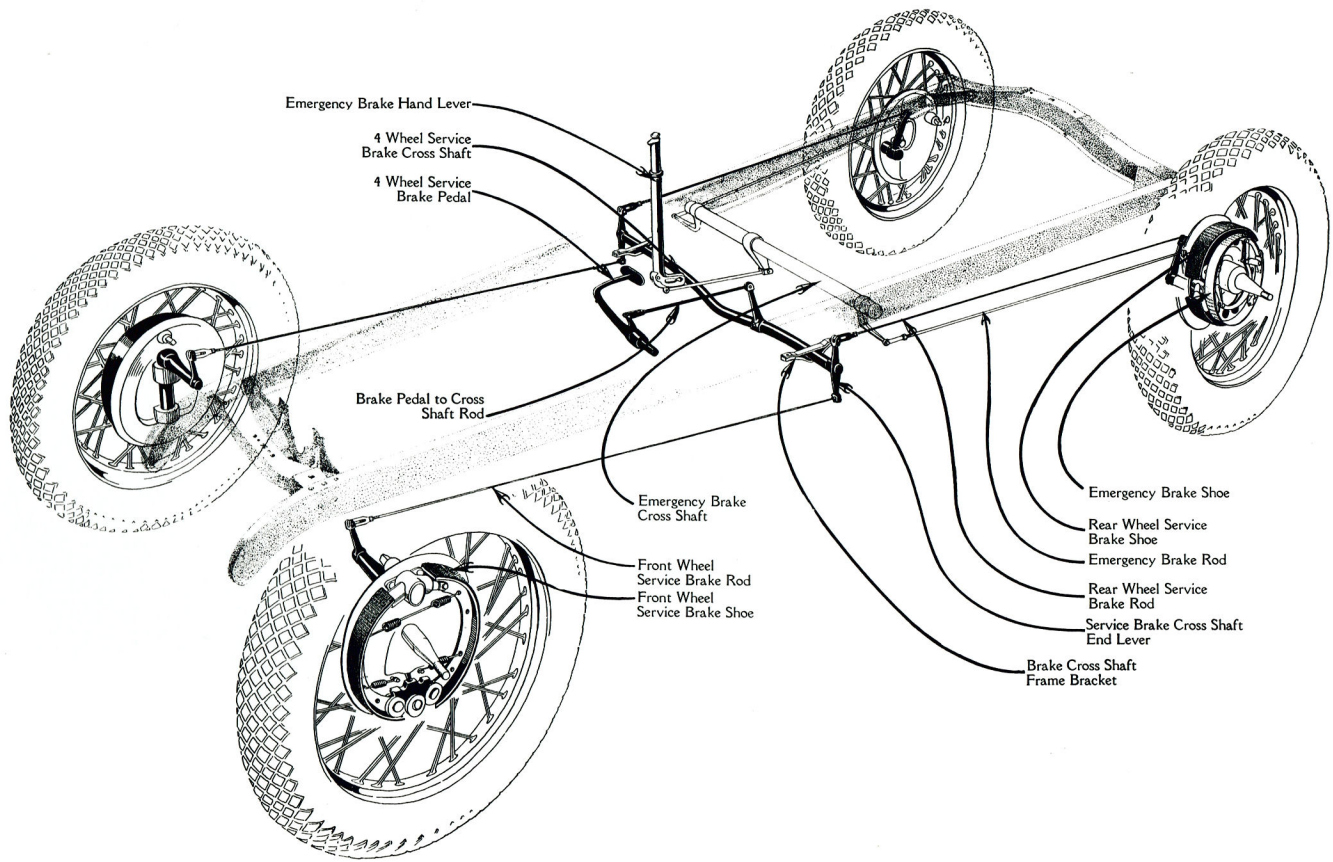
THE BRAKING SYSTEM

THE six-brake system of the new Ford is an ideal combination—internal expanding brakes on front and rear wheels, both service and emergency, with all working parts fully enclosed. This eliminates any danger of brake performance being impaired by mud, water, sand, road dirt, grease or other foreign substances entering the brake mechanism or between the bands and drum, as is the case with external contracting brakes where these parts are exposed.

The service brake system is a complete four-wheel system with internal expanding shoes on all four wheels, operated by the foot pedal. There is also a complete and distinct parking or emergency braking system. This consists of internal expanding brakes on the rear wheels operated by a hand lever and entirely independent from the four-wheel service brakes. This is made possible through the unique design of the Ford steel spoke wheels to which drums can be fitted to readily accommodate two sets of internal brakes on the rear wheels.

In this combination of two braking systems the Model A driver has a maximum safety. Both sets of brakes are of mechanical design, of simple construction, insuring positive action and highest efficiency at all times.

A specially developed two-in-one brake drum of exceptional strength has been designed for the rear wheels. The larger braking surface accommodates the brake shoes of the four-wheel system, and a separate braking surface, slightly offset from the first, accommodates the parking or emergency brakes, which are of the band or full flexible shoe type, self energizing.



MODEL A SIX-BRAKE SYSTEM

MODEL A CAR SPECIFICATIONS

Engine—Four cylinder, "L" head, cast en bloc. Piston displacement, 200.5 cubic inches. Bore, 3⅞ inches; stroke, 4¼ inches; horsepower rating S. A. E., 24.03; brake horsepower, 40 at 2200 RPM.

Transmission—Standard selective sliding gear type, three speeds forward and one reverse. Gears and shafts of chrome alloy steel, heat-treated for hardness.

Clutch—Single dry plate. Moulded asbestos composition facing. Completely enclosed and protected. Smooth and easy in action.

Brakes—Six-brake system, fully enclosed. Four-wheel mechanical, internal expanding shoe type operated by service pedal. Separate emergency brake on rear wheels, operated by hand-lever—mechanical, internal expanding band, full energizing. Total braking surface of six-brake system, 225½ square inches.

Camshaft Bearings—Three, all 1 $\frac{9}{16}$ inches in diameter. Length—front, 1¾ inches; center, 2 inches; rear, 1 inch.

Valves—Chrome silicon alloy.

Crankshaft Bearings—Carbon manganese steel. Three main bearings, all 1⅝ inches in diameter. Length, front and center, 2 inches; rear, 3⅛ inches.

Connecting Rod—Steel forging. Lower bearing babbitt, 1½ inches in diameter by 1⅝ inches long. Piston pin machined seamless steel tubing; full floating type.

Carburetor—1-inch vertical. Choke and needle adjustment rod on dash. Hotspot intake manifold.

Steering Gear—Three-quarters irreversible, worm and sector type with roller thrust bearings on worm shaft. Ratio 11¼ to 1.

Oiling System—Gear pump delivers oil to reservoir in valve chamber providing constant gravity flow on crankshaft and front camshaft bearings. Other engine lubrication by splash system. Oil pump driven from spiral gear on camshaft. Oil level indicator rod, oil filler on left side of engine. Capacity, 5 quarts.

Ignition—Battery, coil and distributor; new Ford mechanical design. Theft-proof ignition lock.

Cooling—Centrifugal water pump in cylinder head on shaft which also operates fan. Tubular radiator, two-blade airplane propeller type fan 16 inches in diameter, driven by adjustable "V" belt. Capacity, 3 gallons.

Fuel—Gravity feed from welded steel tank built integral with cowl. Capacity of tank, 10 gallons.

Springs—New transverse, Ford design, both front and rear, chrome steel.

Instrument Panel—Satin-finish nickel, mounting speedometer, gasoline gauge, ammeter, ignition lock and lamp. Choke and carburetor adjustment rod at right.

Control—Steering wheel 17½ inches in diameter. Gear shift lever in center. Emergency brake in center. Spark and throttle control under steering wheel; horn button and light switch in center of wheel. Foot accelerator.

Rear Axle—Three-quarter floating type. Axle shafts special Ford carbon manganese steel, differential gears integral with shaft. Spiral bevel gear and pinion. Roller bearings throughout. Gear ratio, 3.77 to 1.

Front Axle—Chrome alloy steel forging, "I" beam construction; adjustable taper roller bearings for wheels.

Drive—Torque tube. Exceptionally heavy radius rods.

Lights—Twolite, deflecting beam headlights, combination tail and stop light. Dash light on instrument panel.

Equipment—Houdaille hydraulic shock absorbers; Triplex shatterproof glass in windshield; speedometer; gasoline gauge; ammeter; ignition lock; dash lamp; electric windshield wiper; rear view mirror; combination tail and stop light; Alemite pressure lubrication of chassis; tool equipment; tire pump; jack; oil level indicator rod on engine; horn; spare steel-spoke wheel.

Tires—Balloons, 21 x 4.50 standard on all passenger cars. Taxicab only—21 x 4.75 balloon tires.

Wheelbase—103½ inches.

Wheels—Ford steel-spoke wheels standard on all passenger cars.

Turning Radius—17 feet; circle, 34 feet.

Tread—56 inches.

Road Clearance—9½ inches.

STRUCTURAL FEATURES

ON THE next few pages are presented in group form the structural details which contribute so largely to the strength and safety, the reliability and easy operation of the new Ford car.

They comprise the most advanced methods of automobile construction, both in chassis and body building. Indeed, many of the features are exclusive with this new car.

STEEL FORGINGS

THE unusually large number of steel forgings used in the new Ford car form another striking illustration of the quality of its construction. These forgings are formed while red hot under high pressure hammers, bringing strength combined with lightness of construction not to be attained by castings or steel stampings such as are ordinarily used.

Castings, formed by pouring molten metal into molds, have more weight than forged steel, lack its toughness, may have flaws which cannot be detected on the surface, and their use is limited to more or less bulky, compact parts.

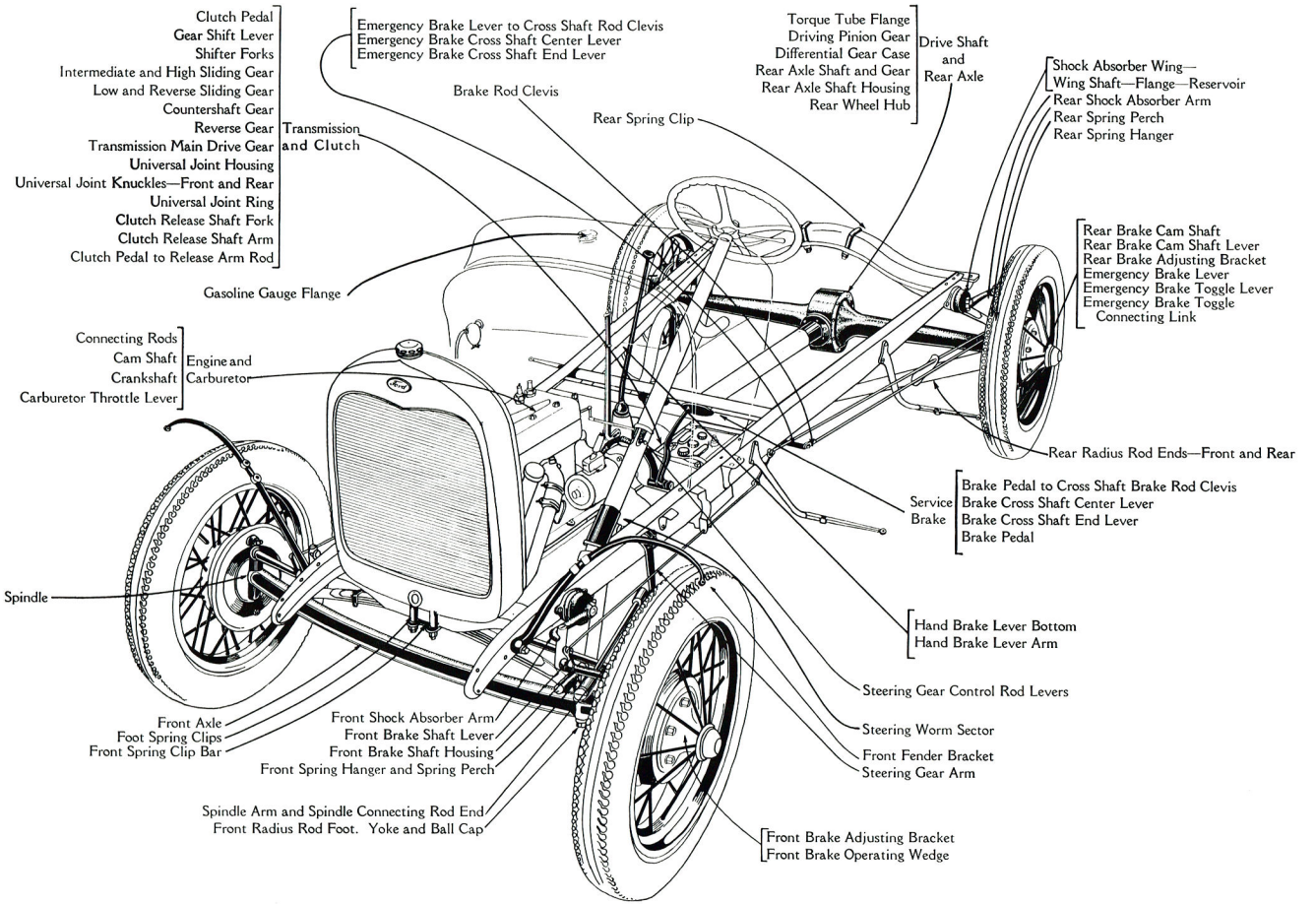
Steel stampings, while possessing light weight, are limited to shapes and designs which can readily be formed from flat stock. Beyond that, there must be a compromise between possible shape and strength.

With steel forgings there is no compromise. They may be at once designed and made to that form which most economically uses the weight of steel required. They have a known quality of strength, which insures durability and reliability. Through heat treating they may be made hard and tough to suit requirements. Thus the highest quality is obtained.

Evidence of the quality of forgings is to be found throughout the chassis of the new Ford car. It is seen in the rear axle, where bell forgings are welded to steel tubings to make up the shaft housings which in turn are bolted to the differential housing.

The value of these forgings, which immediately excites the admiration of the engineer and the mechanic, is also apparent to the layman once he has paused to investigate their structural advantages.

Some idea of the unusual number of forgings used on the new Ford car and the quality they impart through strength and reliability may be obtained by an examination of the drawing on the opposite page.



STEEL FORGINGS IN THE MODEL A FORD CHASSIS

ELECTRIC WELDING

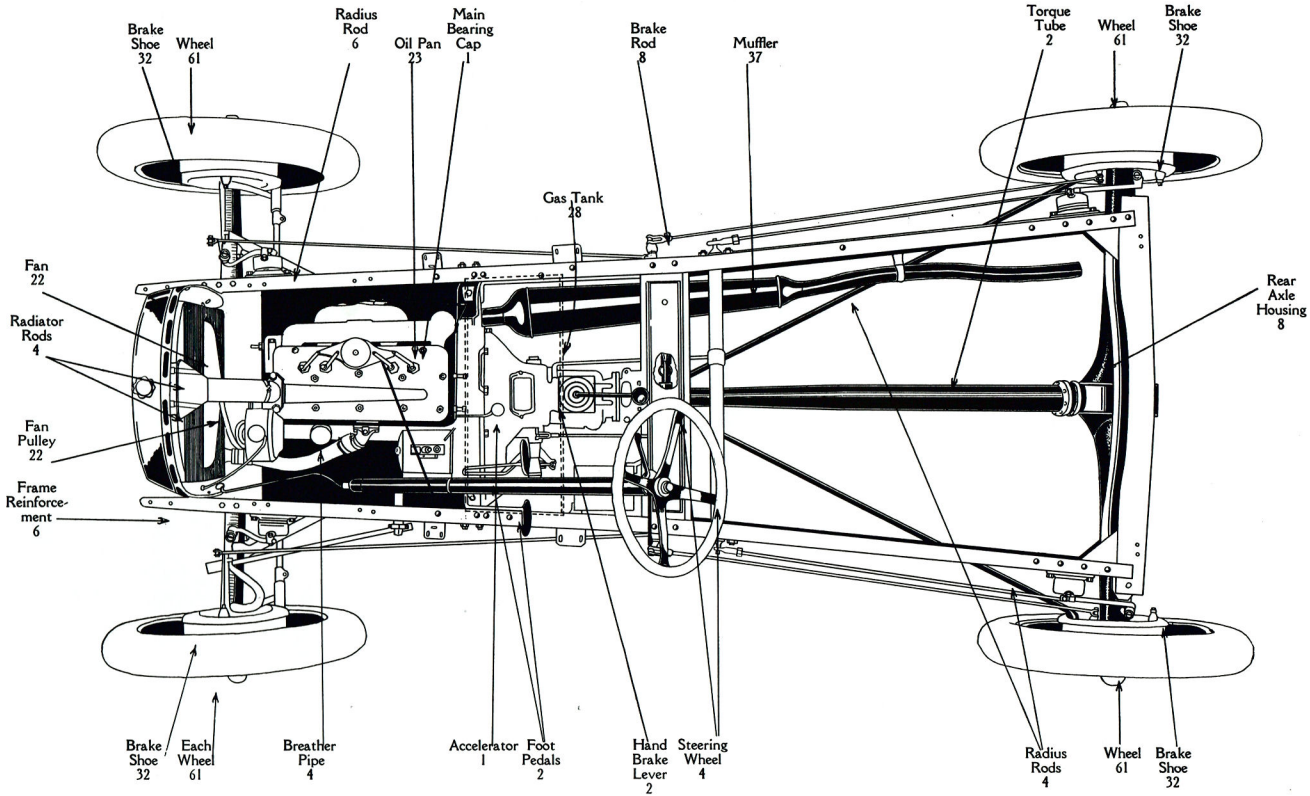
THROUGH the new art of electric resistance welding, in the use of which the Ford Motor Company stands foremost in the automotive industry, it is possible to make the new Ford car an almost wholly steel car—at once lighter, yet stronger and safer. Welding is ages old. The blacksmith first practiced it when in his charcoal forge, with bellows going, he heated two pieces of steel to a temperature he deemed proper, and then welded them into one piece under his hammer blows on the anvil.

Today science, with the aid of electricity, has made welding an important element in manufacture of steel parts. It has eliminated the guesswork, of even the most practiced blacksmith, and in the fraction of a second welds two pieces of steel into one with certain knowledge of the strength of the welded piece.

This is accomplished by the same principle used by the blacksmith—heat plus pressure. The two pieces to be welded are clamped in copper jaws. A current of electricity is conducted through the copper jaws into the pieces, generating a high heat at the points where the two pieces make contact with each other, which brings the surrounding metal to the fusing point. Then comes the application of pressure, which completes the weld, and the two pieces become one.

Nowhere has the art of electric welding been more extensively applied than in the great Ford plants. In many cases machines have been designed that are radical departures from any in existence. Tools and fixtures hitherto unheard of have been developed, built and put into use.

And the benefits of electric welding to the car owner are many. It permits the manufacture of strong single units, heretofore made up of several parts bolted or riveted together. These units are stronger, more durable and safer because they are one piece of definitely known quality. They are lighter in weight, because over-lapping material has been eliminated, and this reduction in weight is reflected in increased power through reducing car-weight haul on the engine. Then there is also the economies in manufacture through which the owner benefits in low price.



ELECTRIC WELDINGS IN THE MODEL A FORD CHASSIS

(Figures Indicate Number of Welds)

BALL AND ROLLER BEARINGS

FRICTIONLESS bearings, either ball or roller bearings, are used at every point on the Model A Ford chassis where wear is hard and where they will contribute to the easier operation and longer life of the car. Examination of the chassis will at once show the advantages of these bearings. On the rear axle pinion and differential all the taper roller bearings are held to such close limits that adjustment is unnecessary, pinion and ring gear always being held in proper mesh. This gives a rear axle that is freed from any adjustments, and insuring continued good performance.

Because of their large bearing surface and ability to carry heavy loads, spiral roller bearings are used in the rear hub. A spiral roller bearing also is used on the drive shaft at the universal joint end, assuring perfect alignment.

Taper roller bearings used in the front wheels, in accordance with the best practice for bearings of this kind, have an adjustment. This is to take care of the exceptionally heavy wear to which these bearings are subjected and which must occasionally be corrected by bearing adjustment.

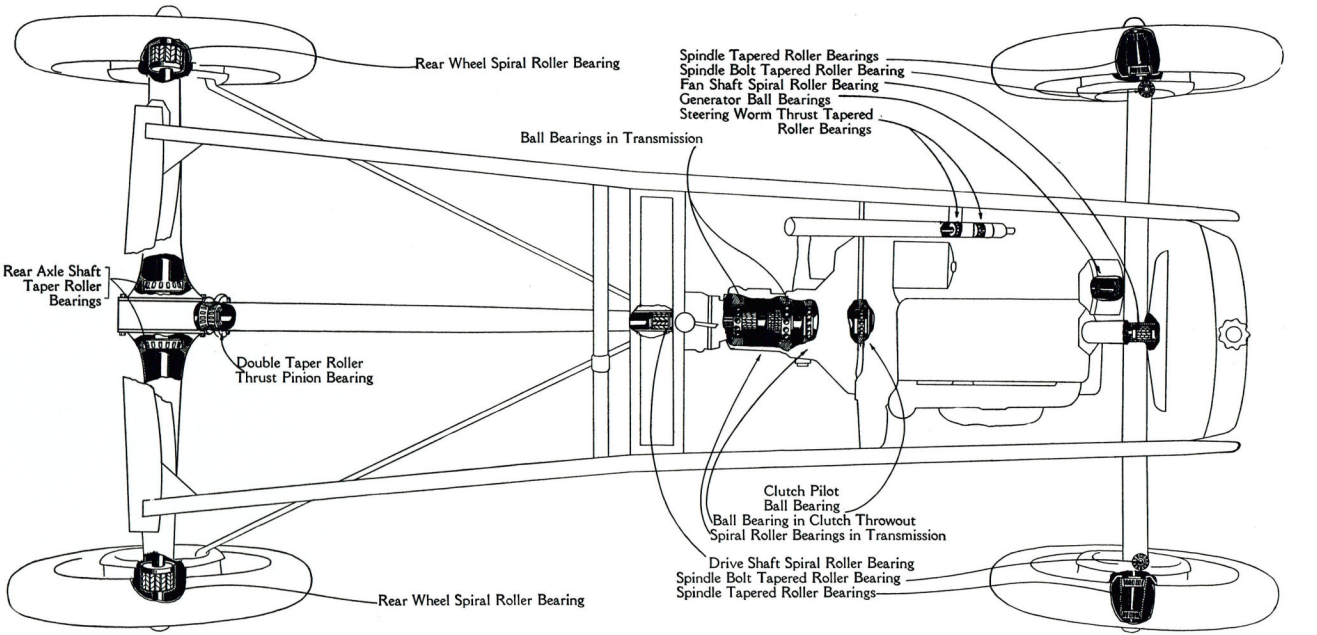
Roller thrust bearings on the spindle bolts make steering of the car easier. In the steering mechanism, two roller thrust bearings, one above and one below, take up the thrust on the steering worm.

The fan shaft operates on a roller bearing.

Efficiency and life of the generator is increased by the use of ball bearings on which the armature is carried.

In the transmission, roller bearings are used to carry the countershaft, because of their efficiency in carrying radial loads such as those to which this shaft is subjected. For the same reason a roller bearing is used in the connection between the spline and drive shafts, and these shafts in turn revolve on ball bearings, as they are most effective in carrying radial loads to which there is a certain amount of end thrust. A ball thrust bearing is used for disengaging the clutch and the front end of the clutch shaft is carried in a radial ball bearing in the flywheel.

In all, these bearings form a striking illustration of the care and engineering skill used in the building of the new Ford car.



BALL AND ROLLER BEARINGS USED IN THE MODEL A FORD CAR

QUALITY OF FORD BODIES

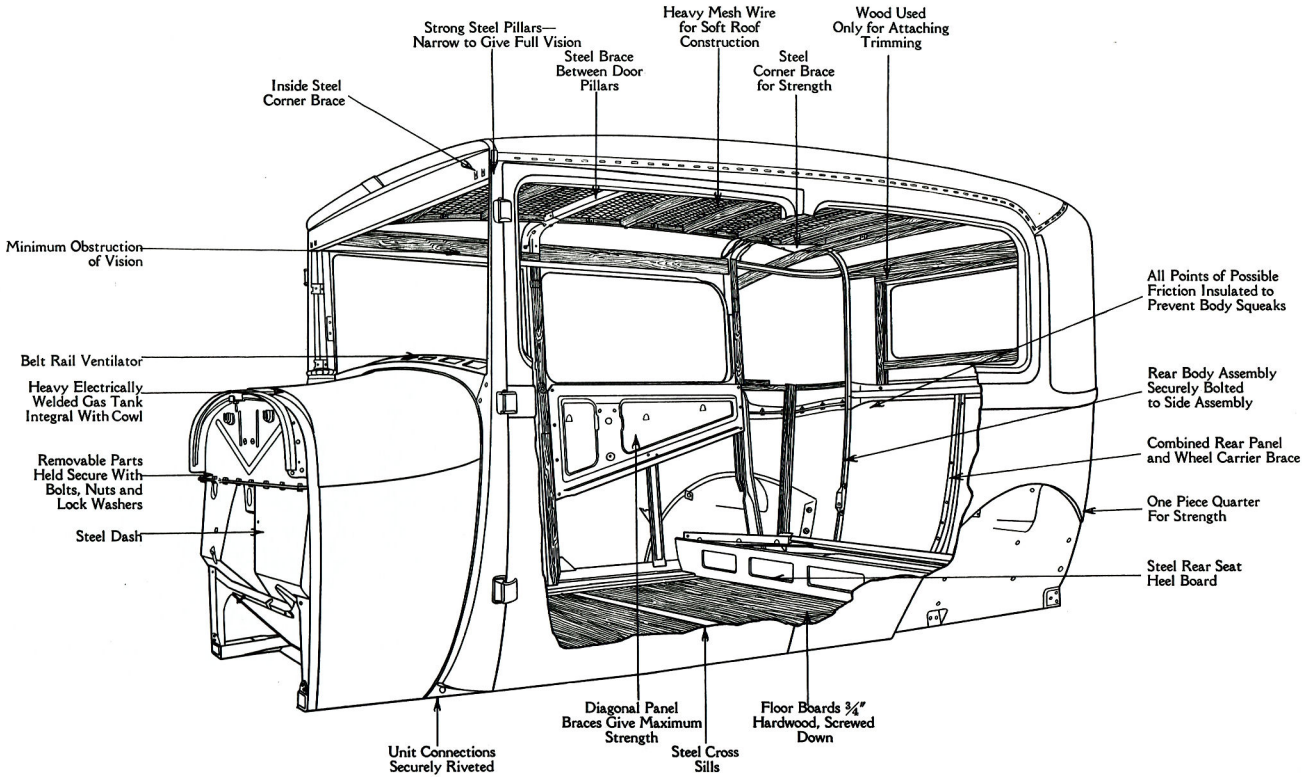
BEAUTY of design has been remarkably combined with strength and safety in the new Ford steel bodies. How well this is accomplished is shown in the Tudor Sedan body, a drawing of which appears on the opposite page. All structural material in this body is steel, the wood parts shown being used only for attaching the interior trim and roof material. If this body, mounted on a Model A chassis, were turned over resting on the roof, it would support the chassis, engine and all without even bending the narrow window pillars, such is its strength and high safety factor.

Body panels are made of the finest grades of steel, pillar construction is exceptionally narrow to reduce vision obstruction to a minimum, lower rear panels, including the wheel housing, are made in one piece, a rather unusual feature on body construction, giving additional strength. Heavy reinforcing beads give light weight but strong parts.

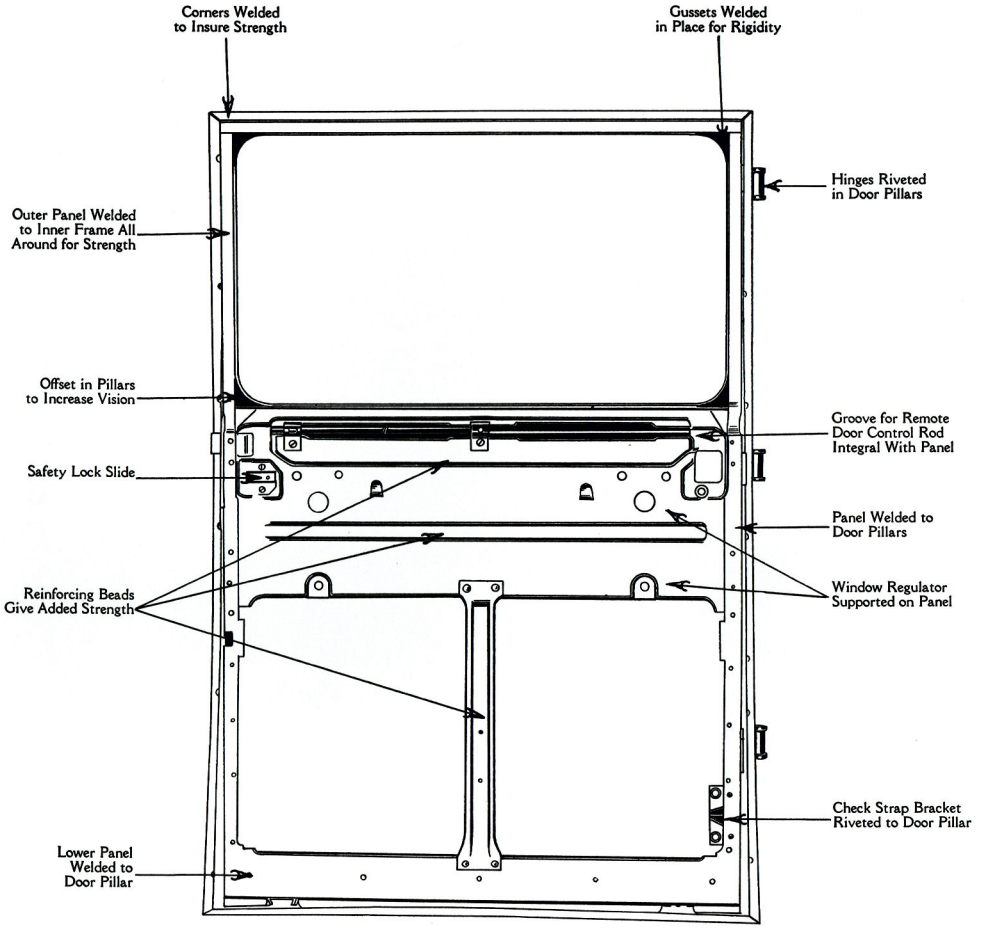
Many parts are electrically welded to give greater strength and rigidity. Electrical welding also is used extensively in the door construction, and while giving the door all the necessary "safety factor," still leaves it flexible enough to weave with the body under extreme torque.

Every precaution also has been taken to prevent squeaks and rattles developing in the body. Panels and frame sections are welded or riveted together wherever there is a possibility of the body weaving due to uneven conditions of the road, thus eliminating all chance of metallic squeaks of this nature. In the final assembly of the large units where bolts are necessary, strips of anti-squeak material are used between the sections.

Before the interior of the car is upholstered and trimmed sound-deadening material is utilized in all places where noises might develop. Soft roof construction, of heavy padding over a heavy galvanized mesh wire, also provides an additional element of quietness.



STRUCTURAL DETAILS OF THE FORD TUDOR SEDAN BODY

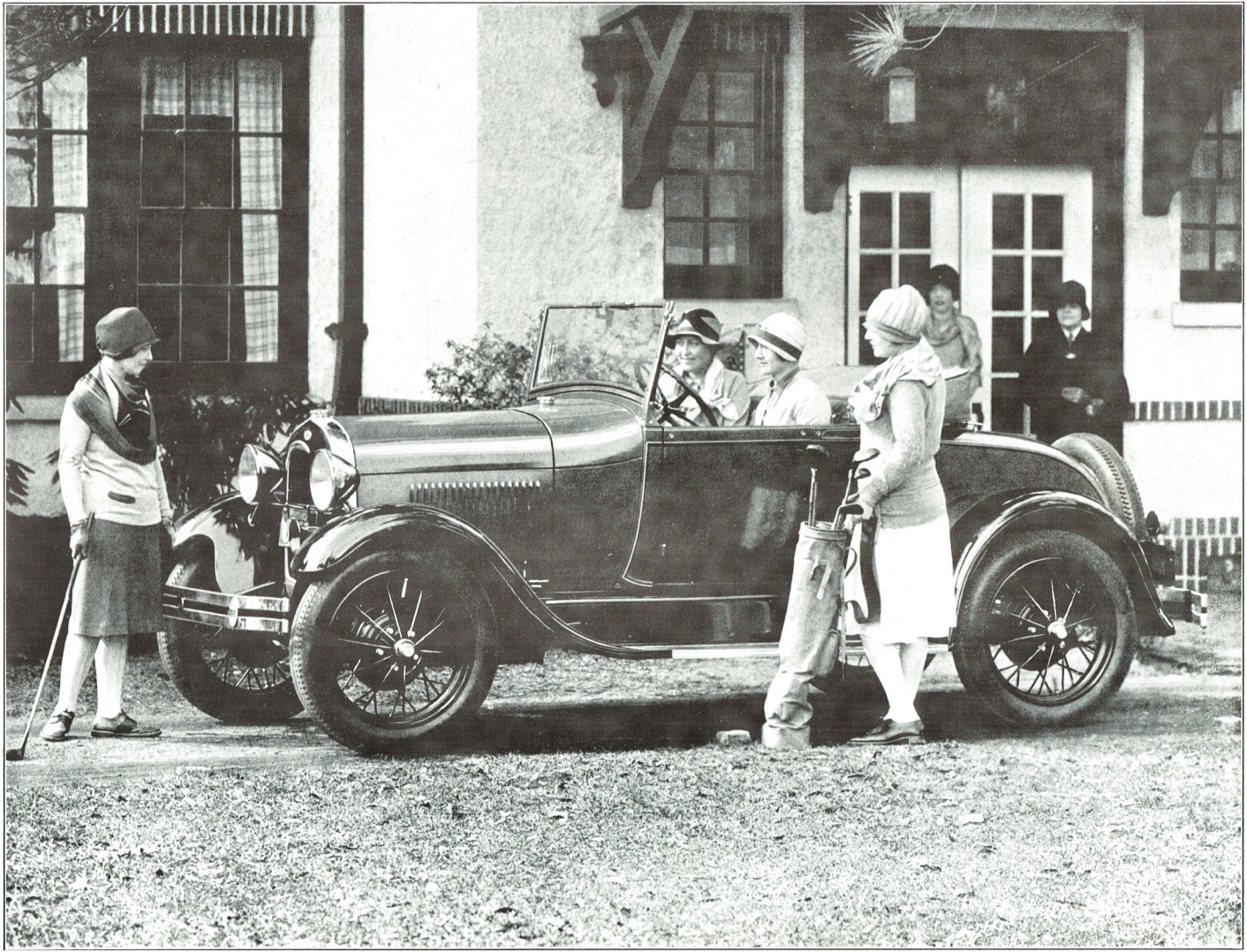


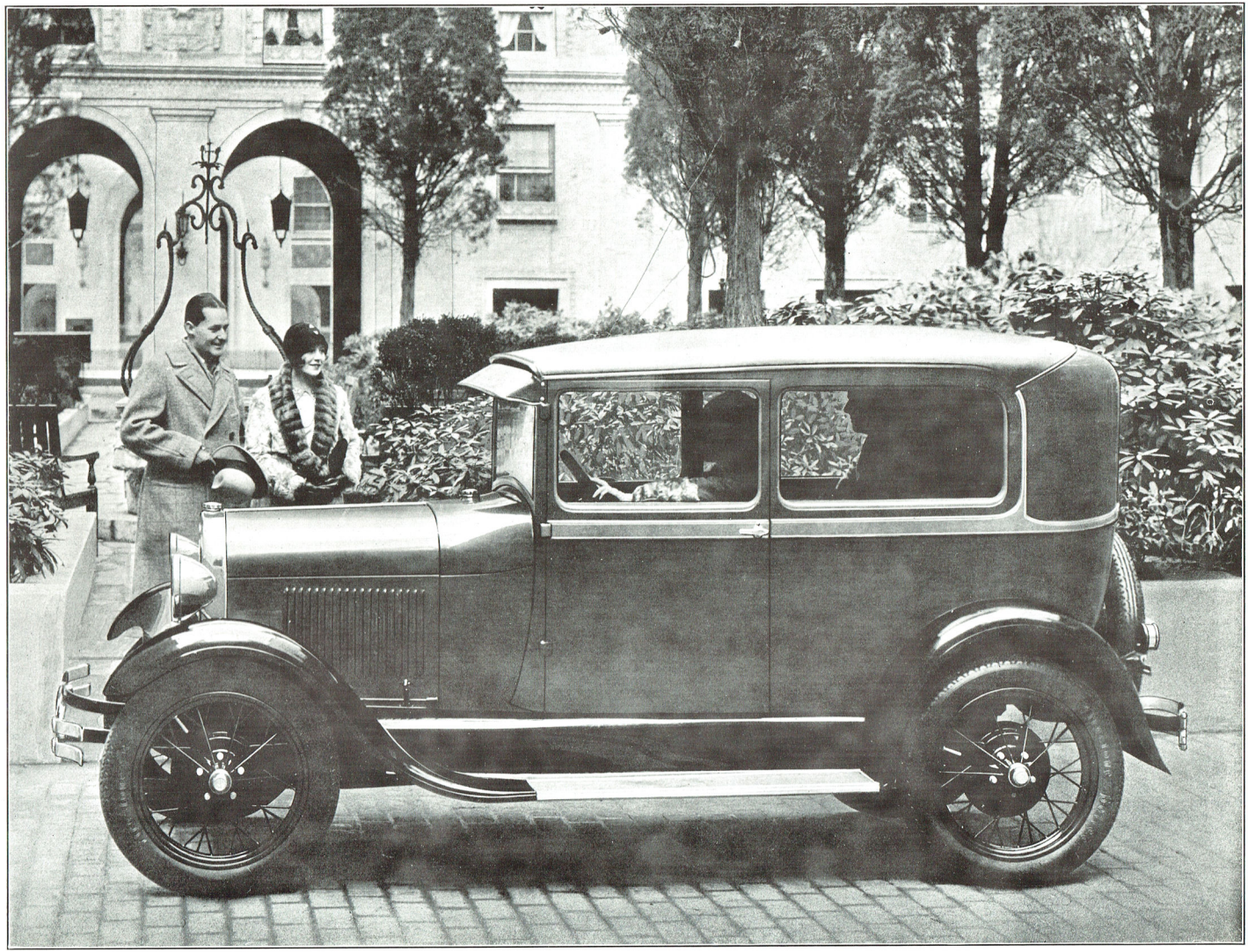
THE ALL-STEEL DOOR

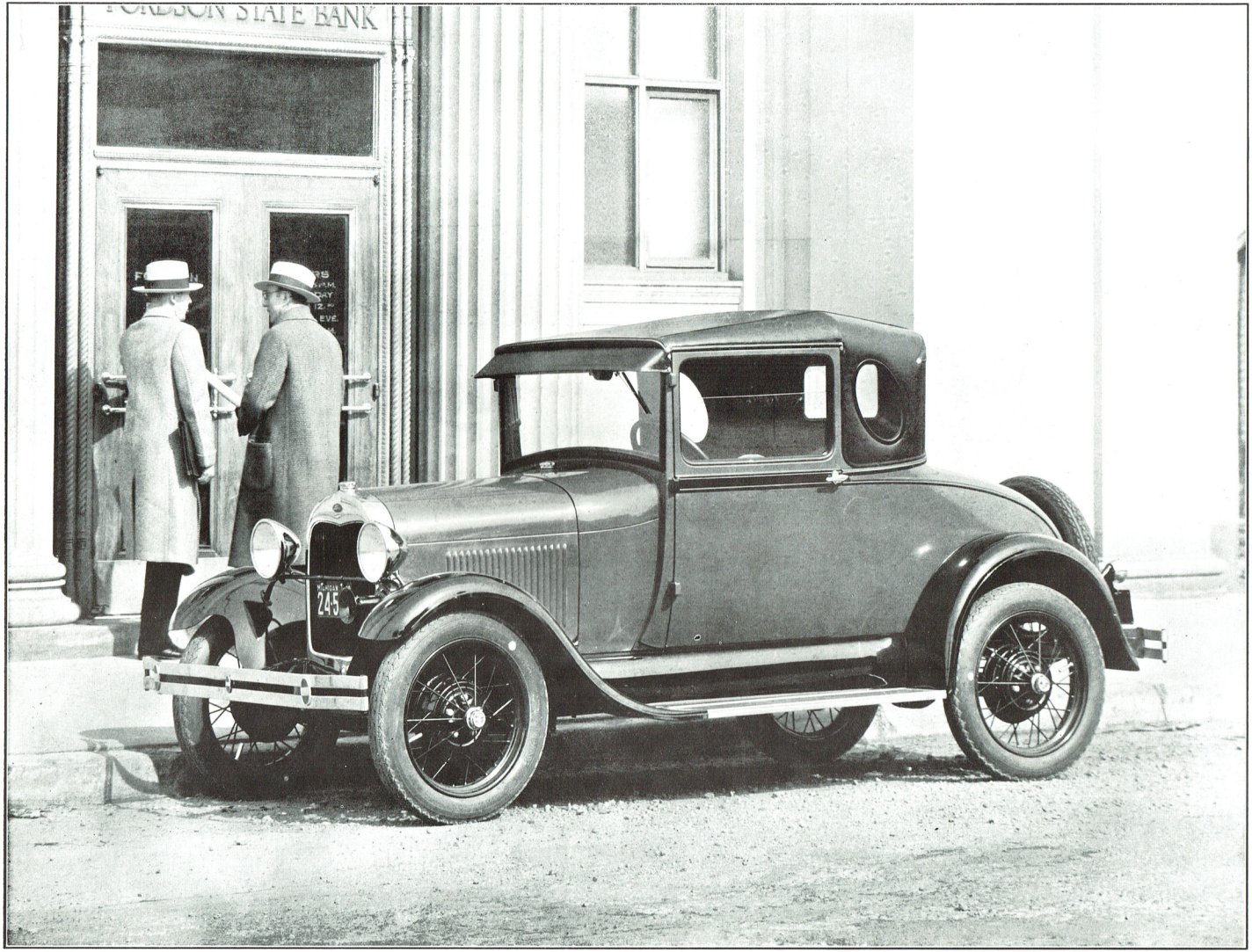
PASSENGER CAR BODIES

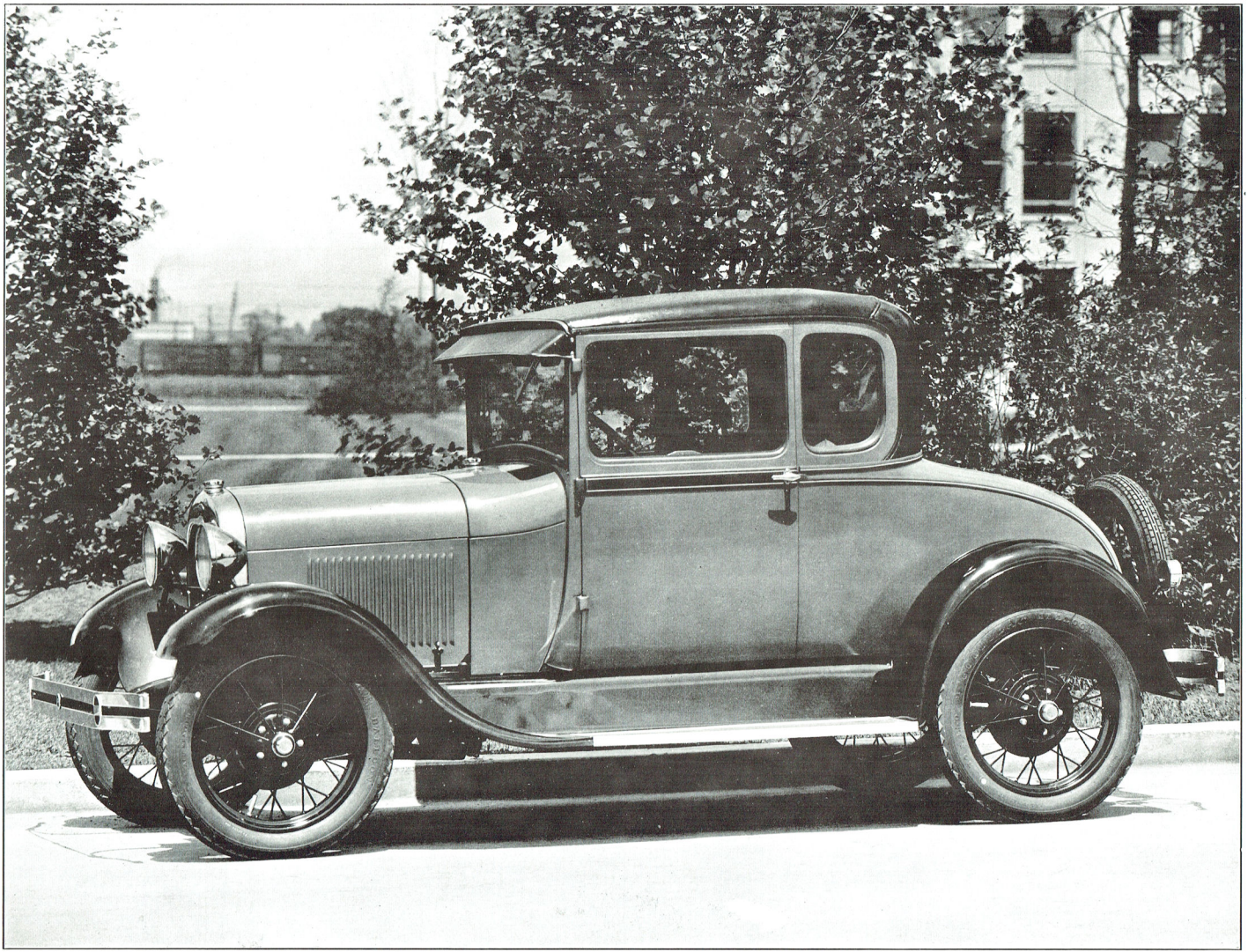
WHEN plans for the Model A Ford car were first considered the matter of wheelbase was not fixed until after the body engineers had determined upon the length of body necessary to provide for proper leg room and full comfort, both in front and rear seats. As a result the cars are roomy. Driver and passengers alike ride restfully.

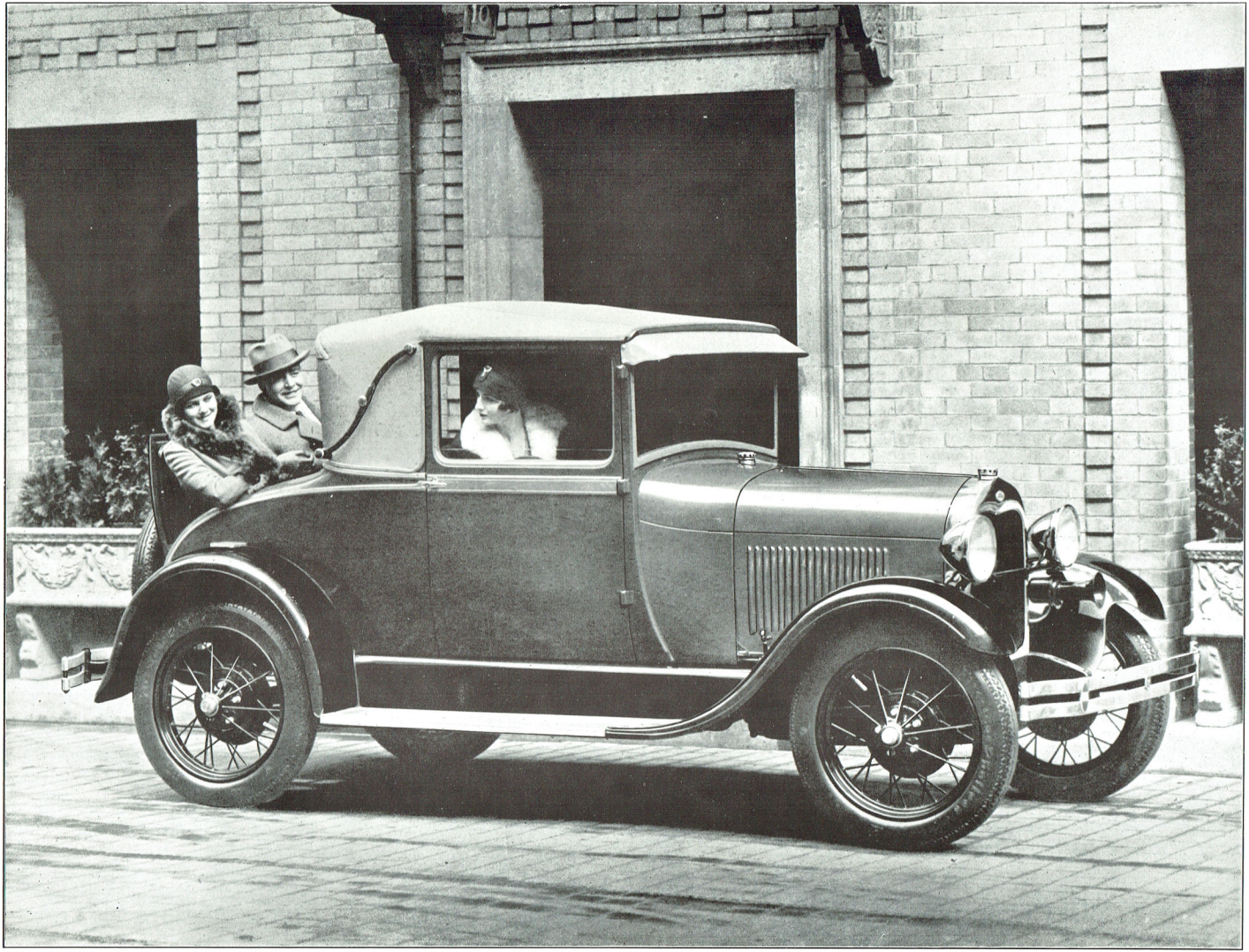
How effectively this has been worked out is shown in the illustrations and dimensions of the various passenger car bodies given in the following pages.

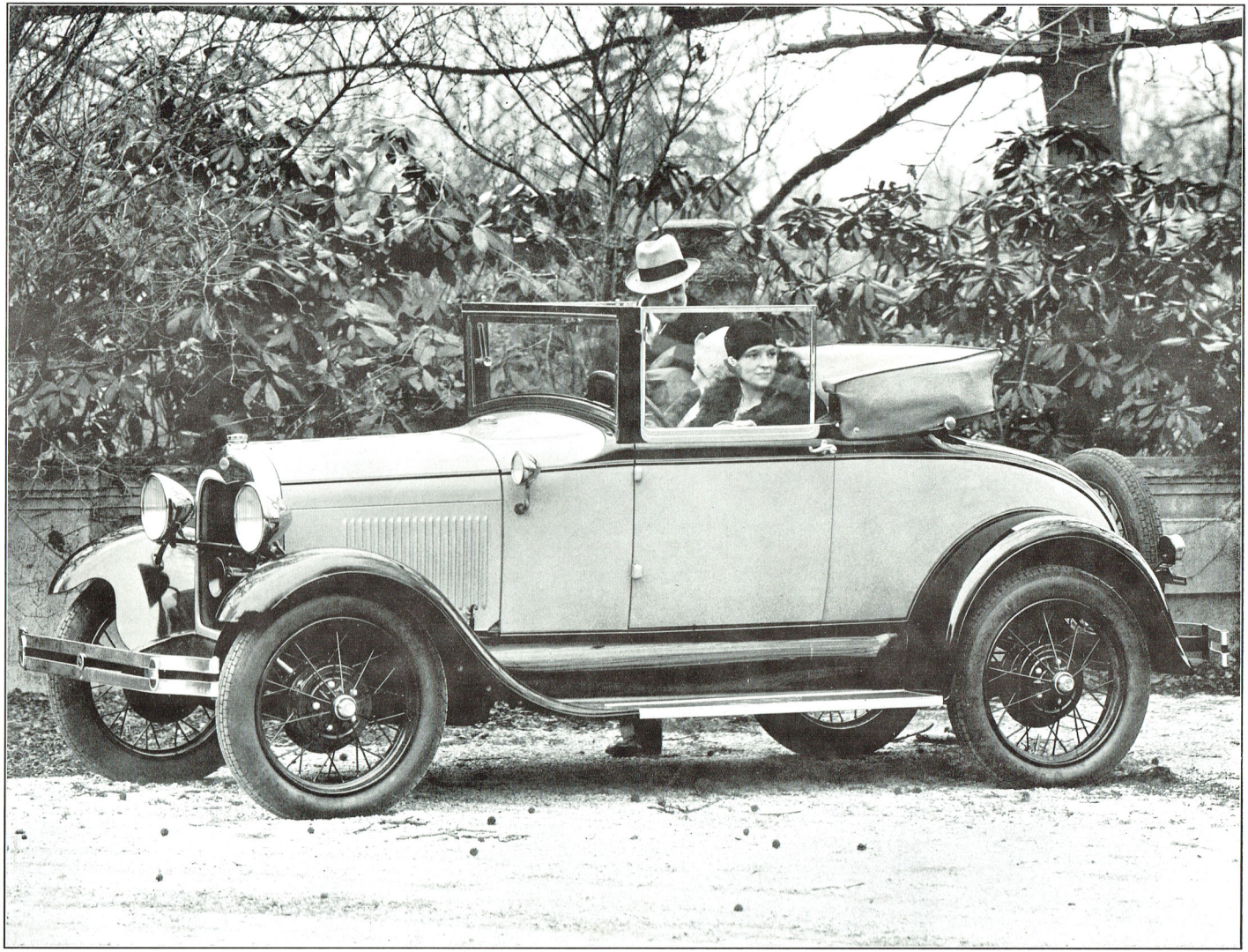


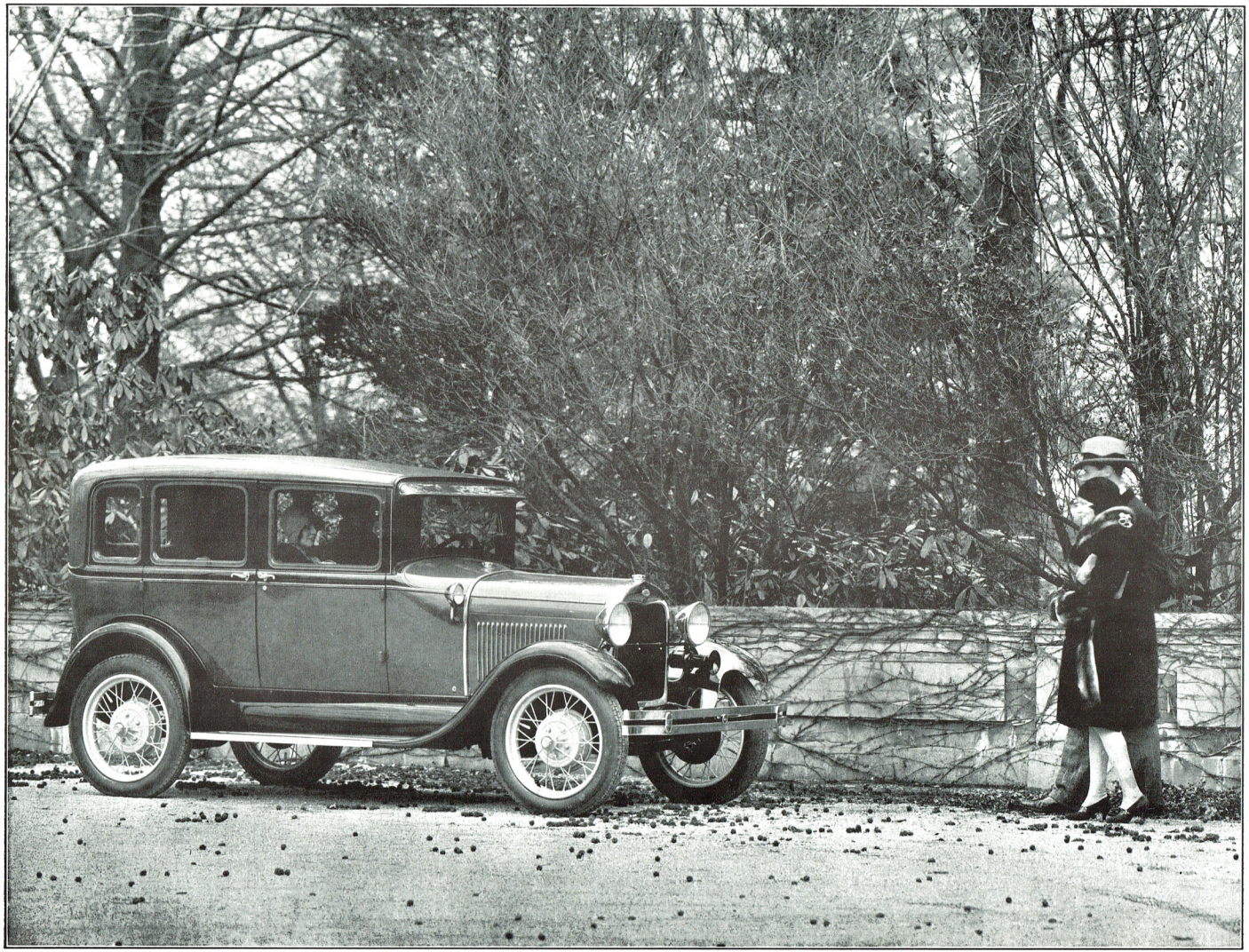


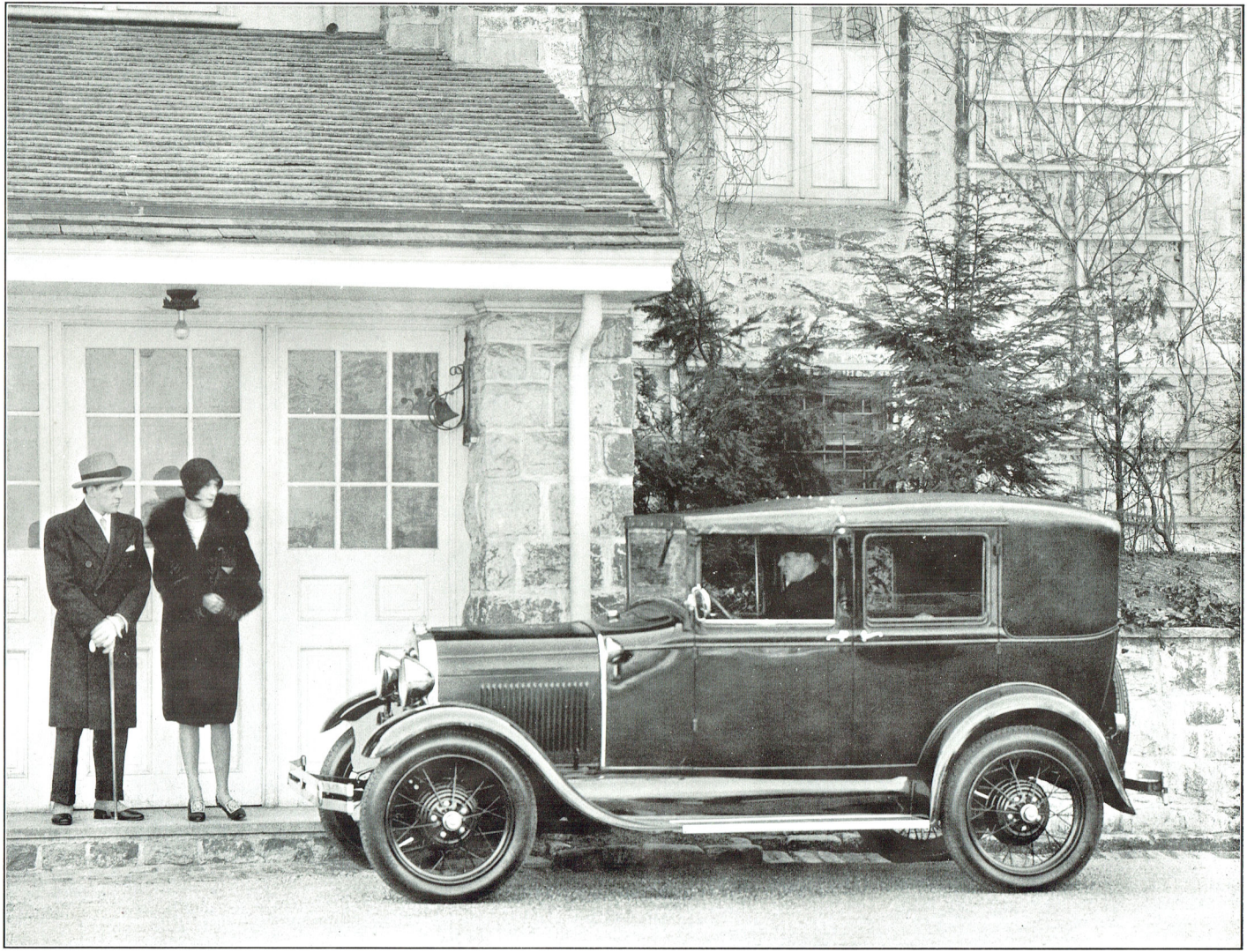

STATE BANK
245

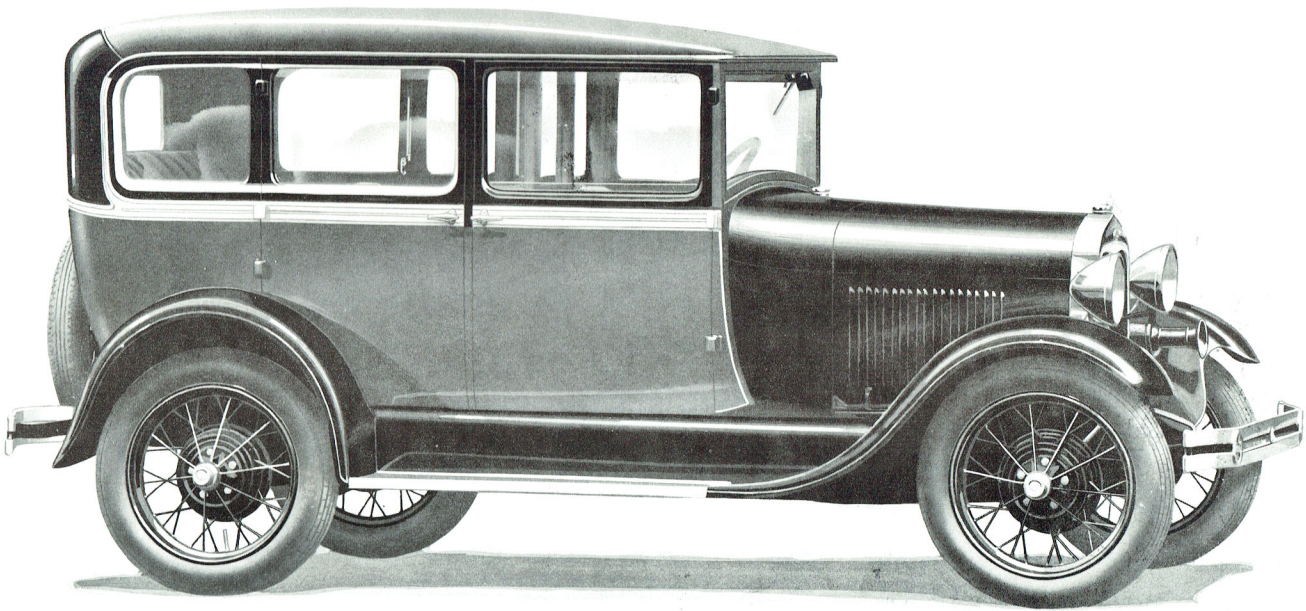


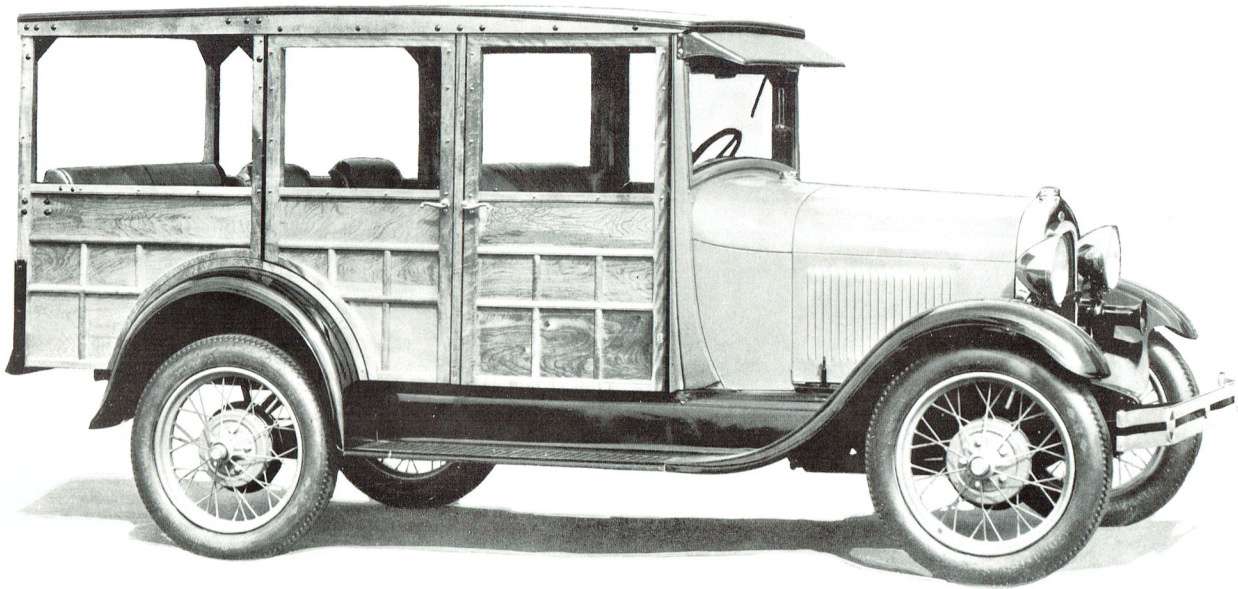


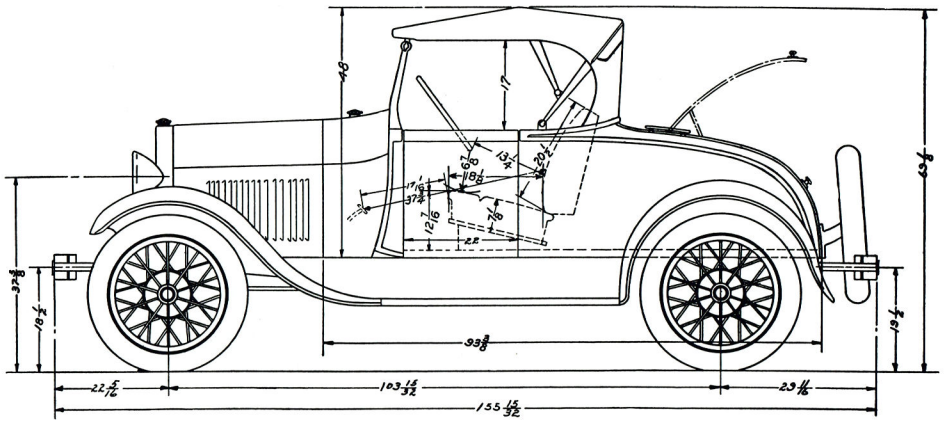


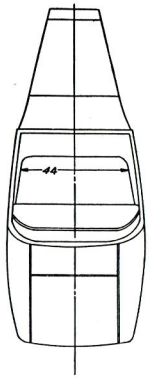




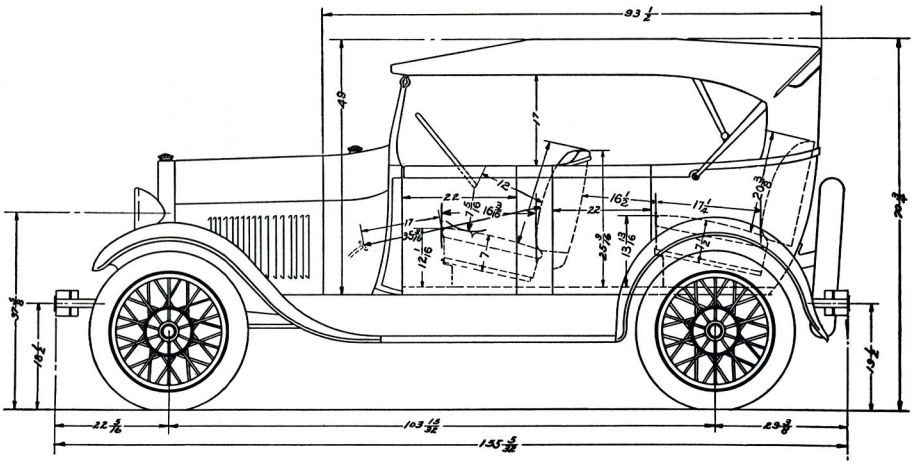


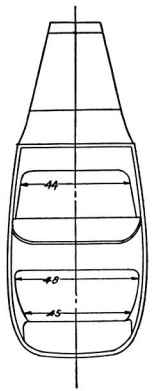




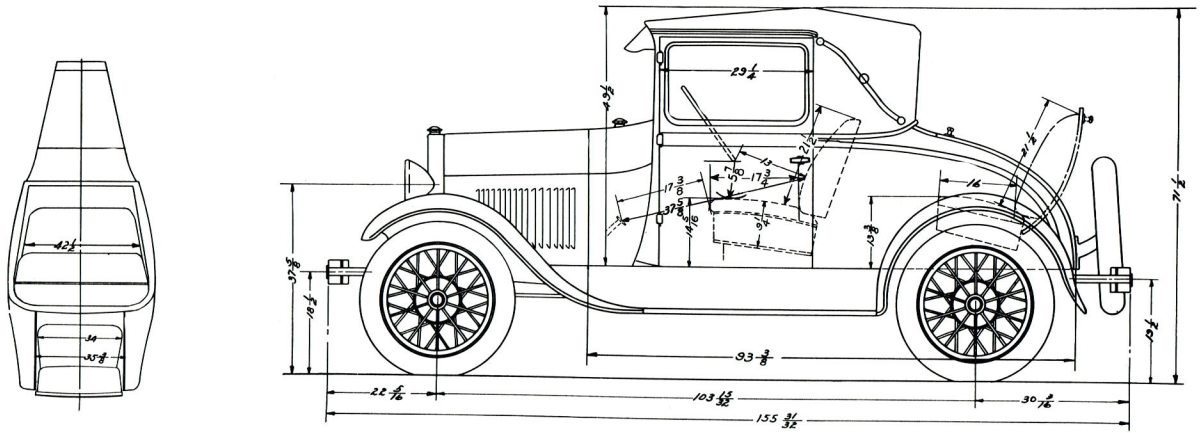


ROADSTER

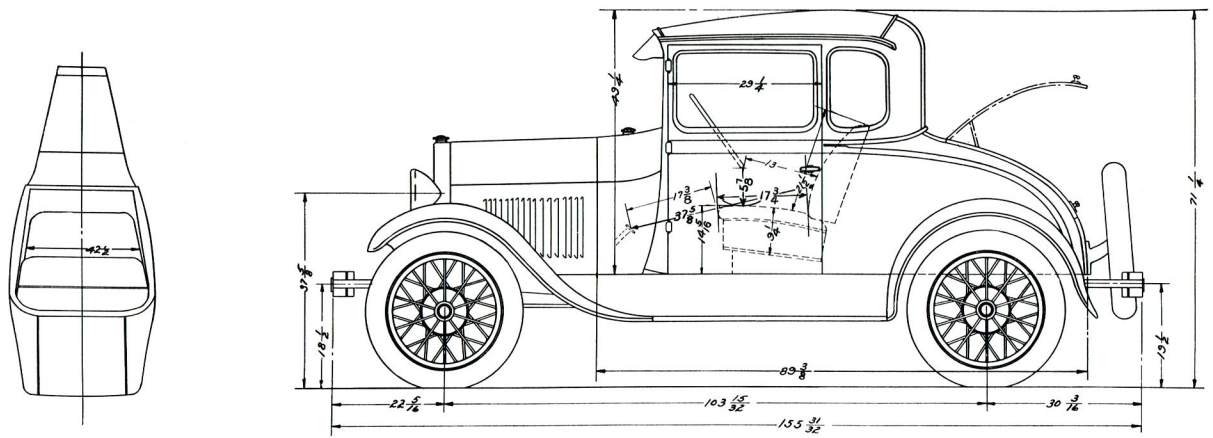




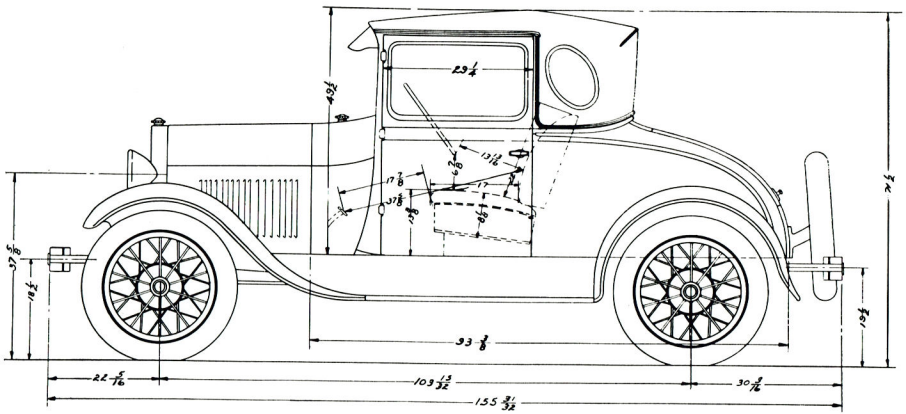
PHAETON

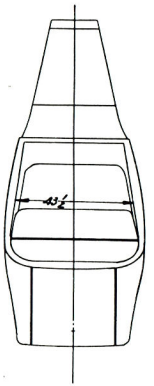


SPORT COUPE WITH RUMBLE SEAT

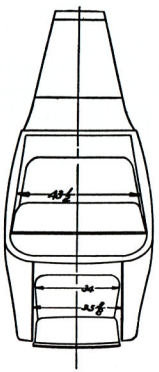


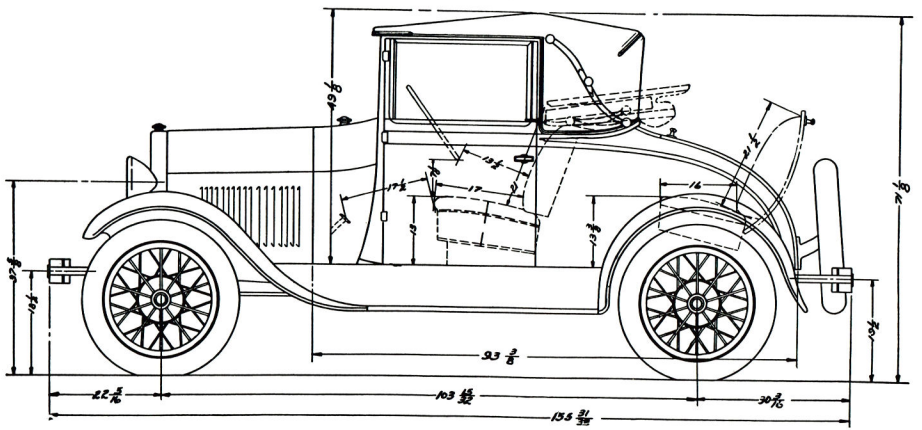
COUPE



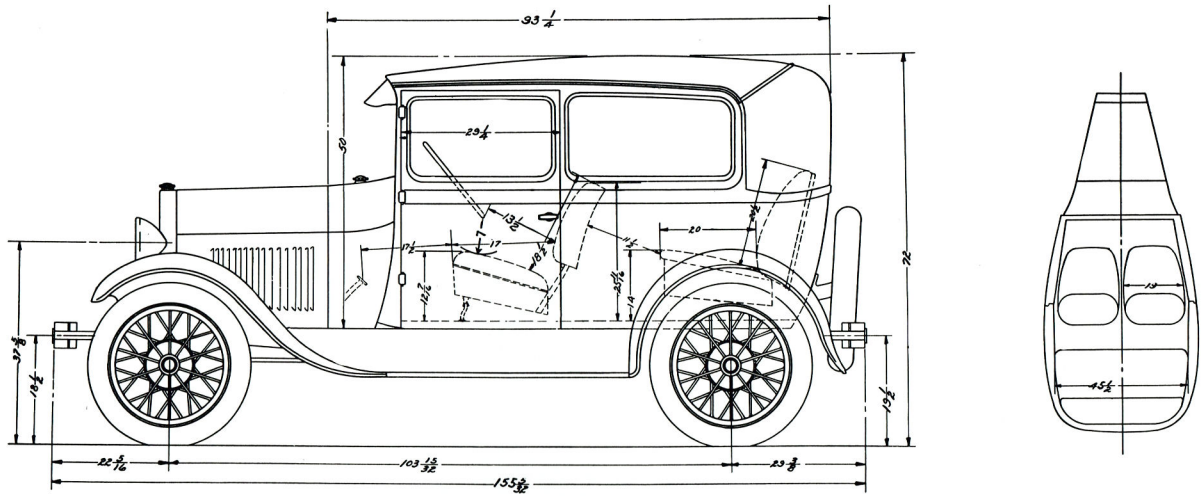


BUSINESS COUPE

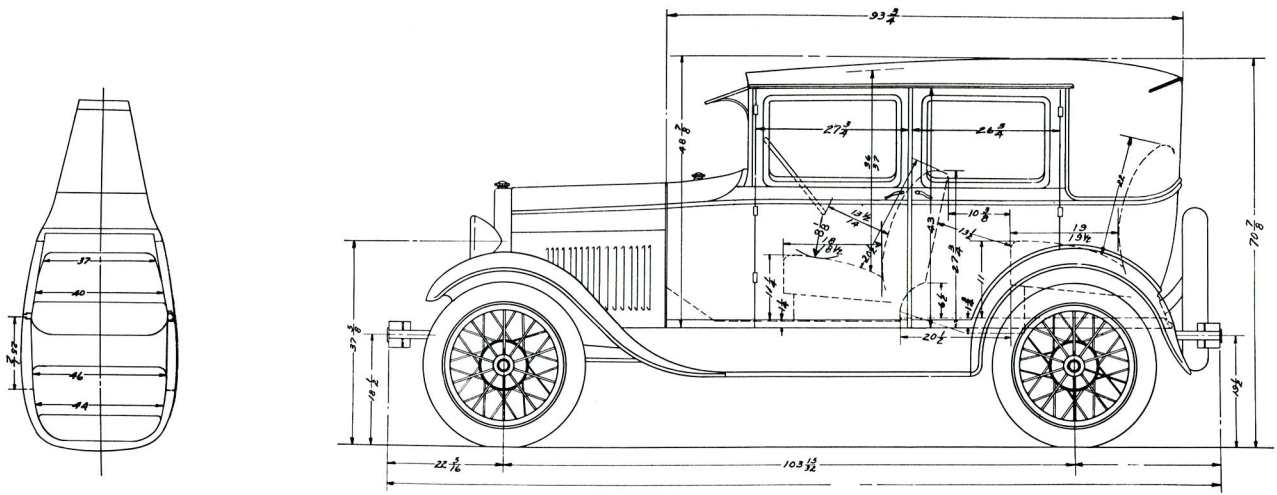




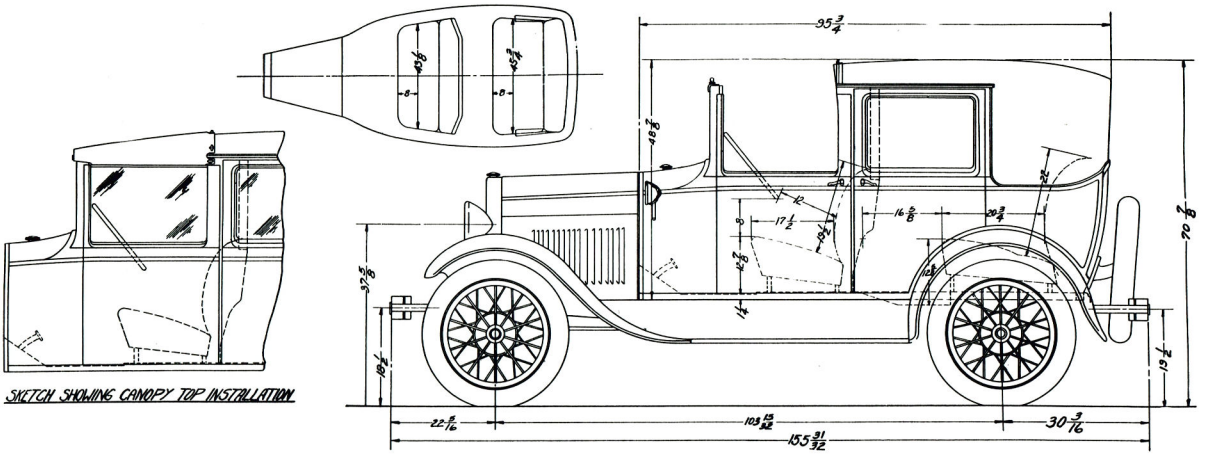
CABRIOLET

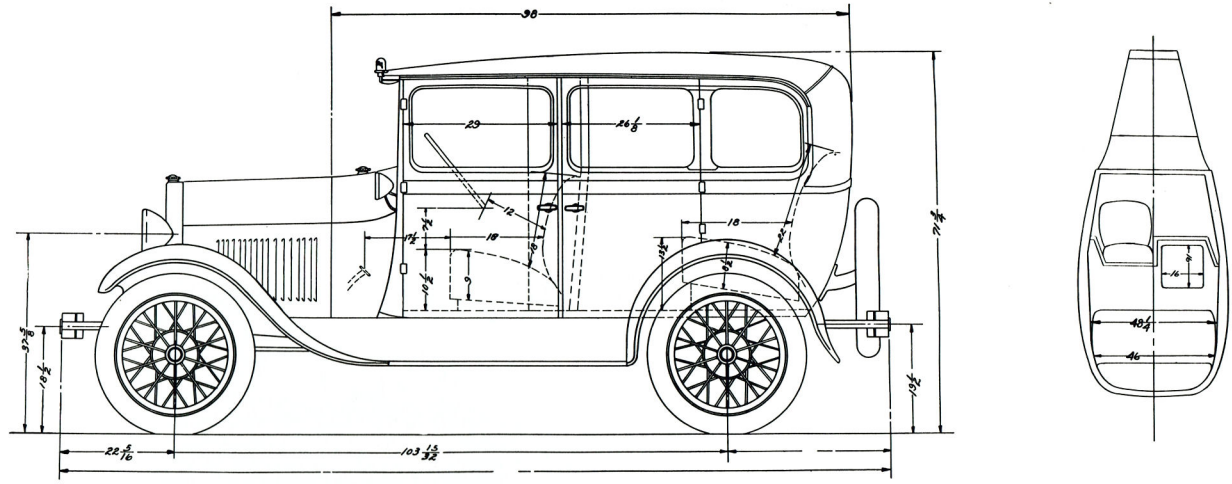


TUDOR SEDAN

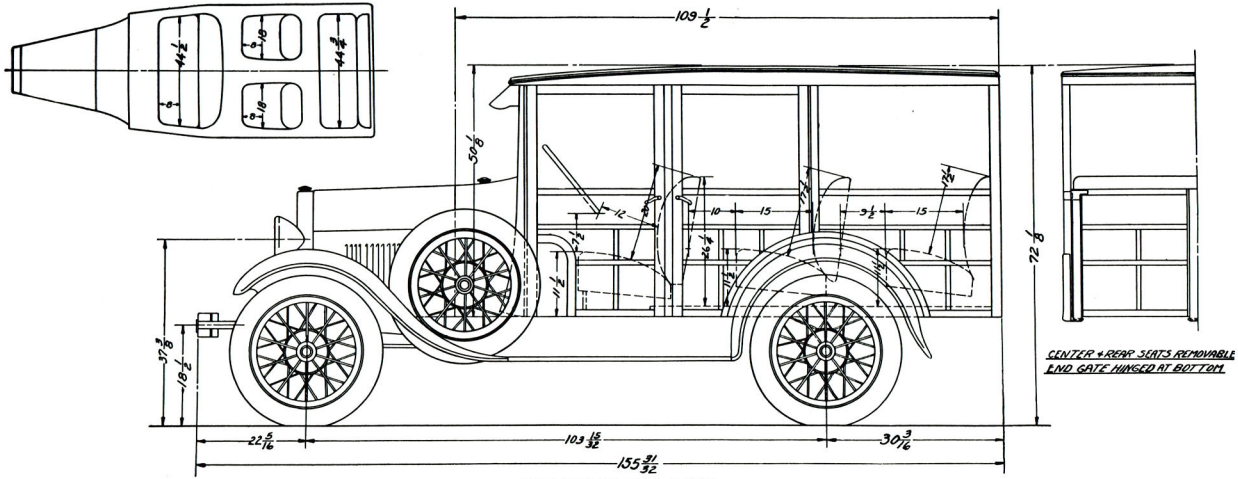


FORDOR SEDAN


95 3/4
SKETCH SHOWING CANOPY TOP INSTALLATION
TOWN CAR
96 1/2
51 1/4
40
46 1/2
TOWN SEDAN



TAXICAB



STATION WAGON

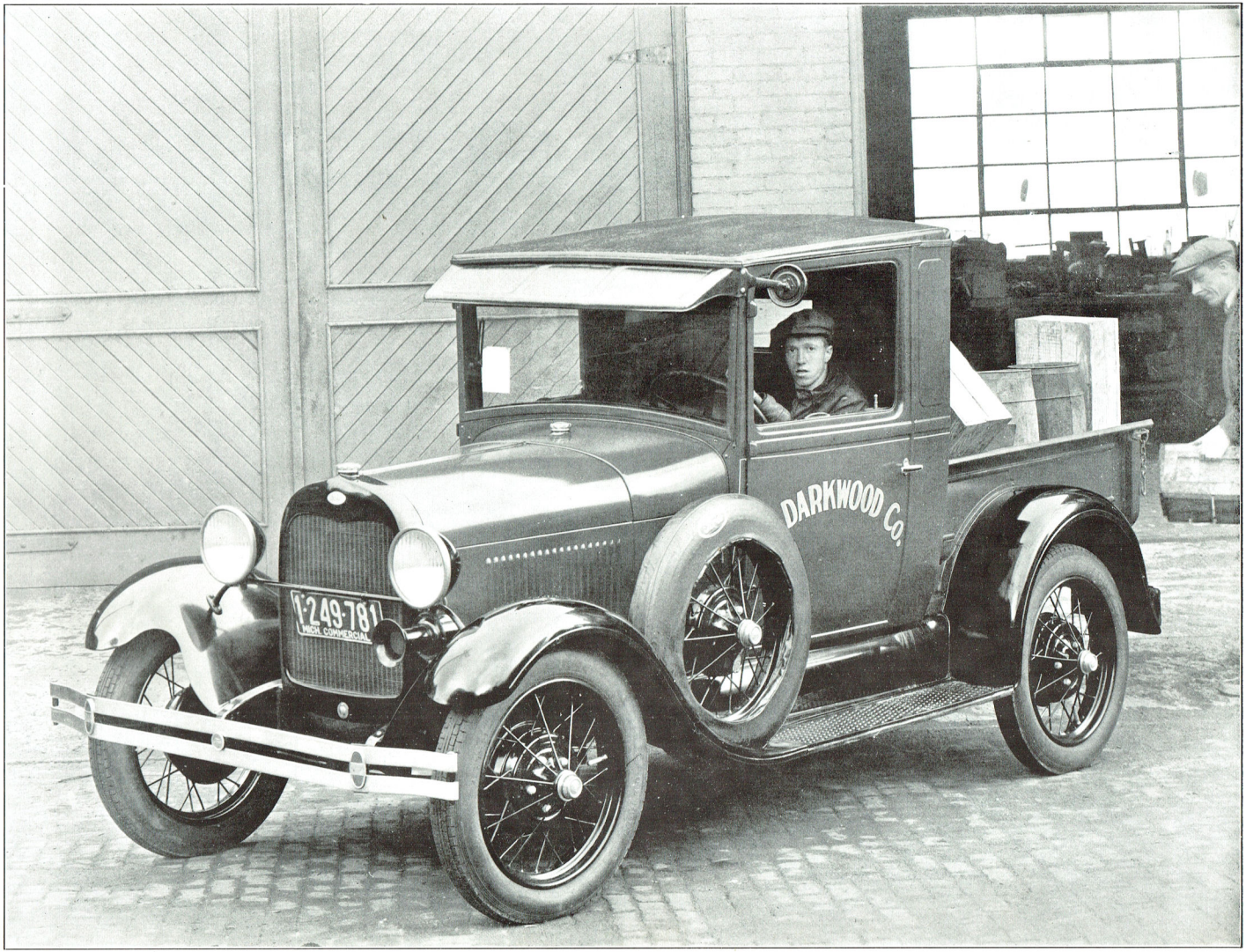
LIGHT COMMERCIAL CARS

TO MEET the requirements of the users of light commercial units, where quick delivery of small loads is essential, the Ford Motor Company has designed a variety of body types to be used on the Model A chassis. These include both open and closed cabs, a pick-up body, similar to the express body type, a panel body which is fully enclosed, and a de luxe delivery car, another fully enclosed unit of attractive appearance and particularly adapted to use by florists, exclusive stores and smart shops.

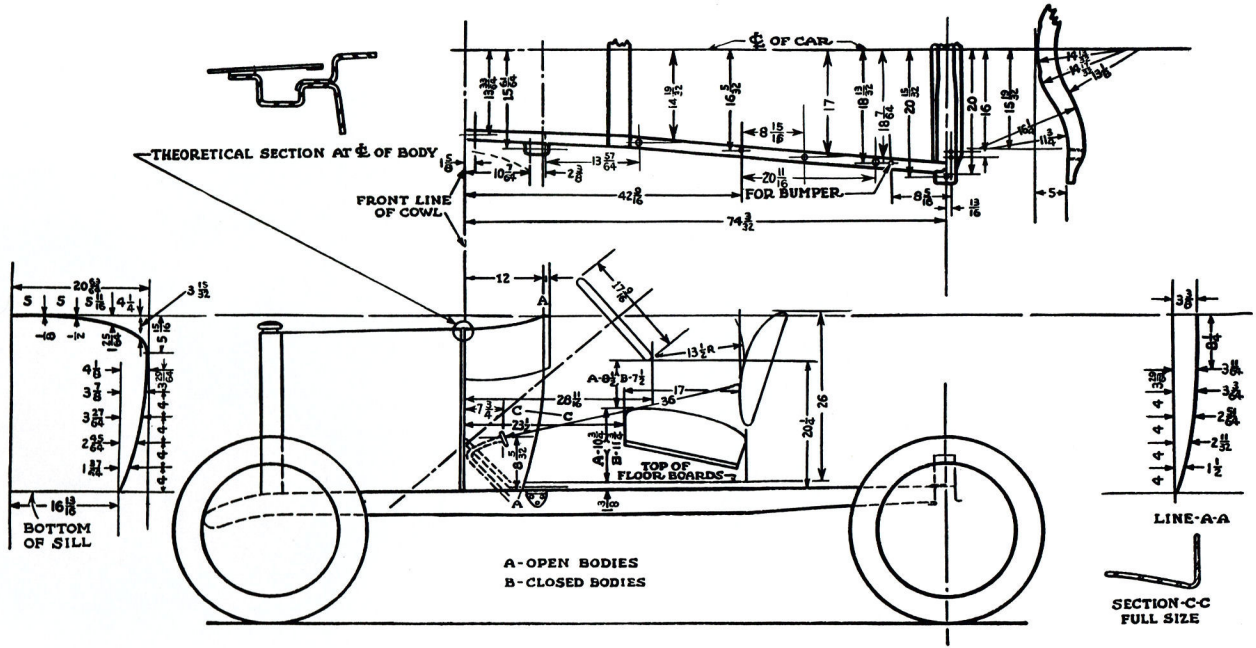
These bodies have been carefully designed as to carrying space and constructed in conformity with the high standards which characterize all Ford products.

In the accompanying drawings dimensions of all these bodies are given, as well as measurements of the Model A chassis frame for those who desire special bodies. With the chassis is the complete ignition system, including instrument panel.

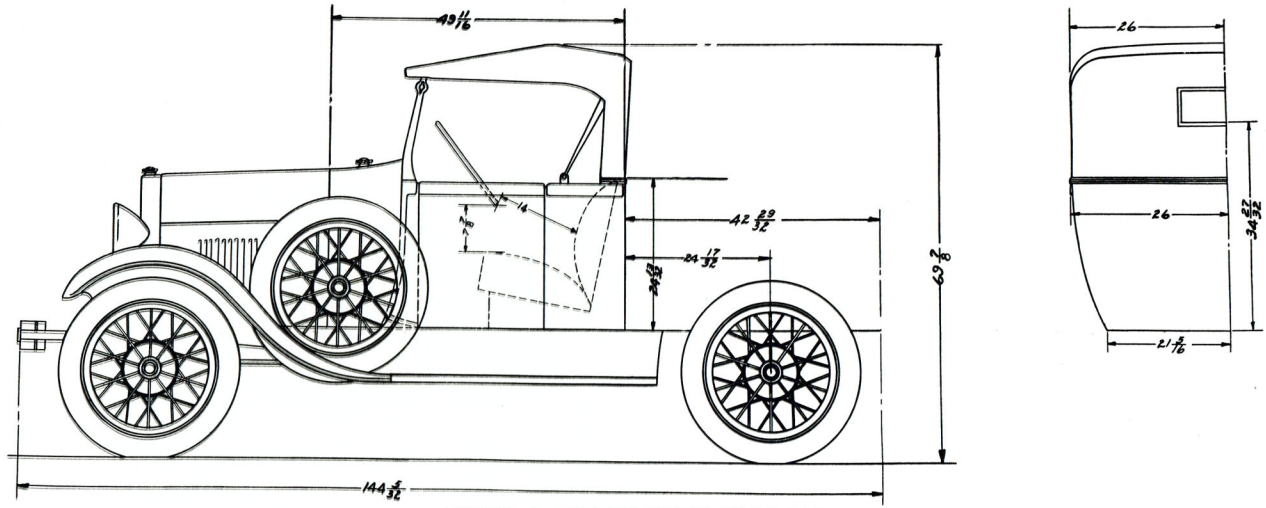

JEWEL
COFFEES
always
fresh!
JEWEL TEA CO., INC.
JEWEL
SERVICE DIRECT
TO THE HOME
A-1642


DARKWOOD Co.
1-249-781
1931 COMMERCIAL

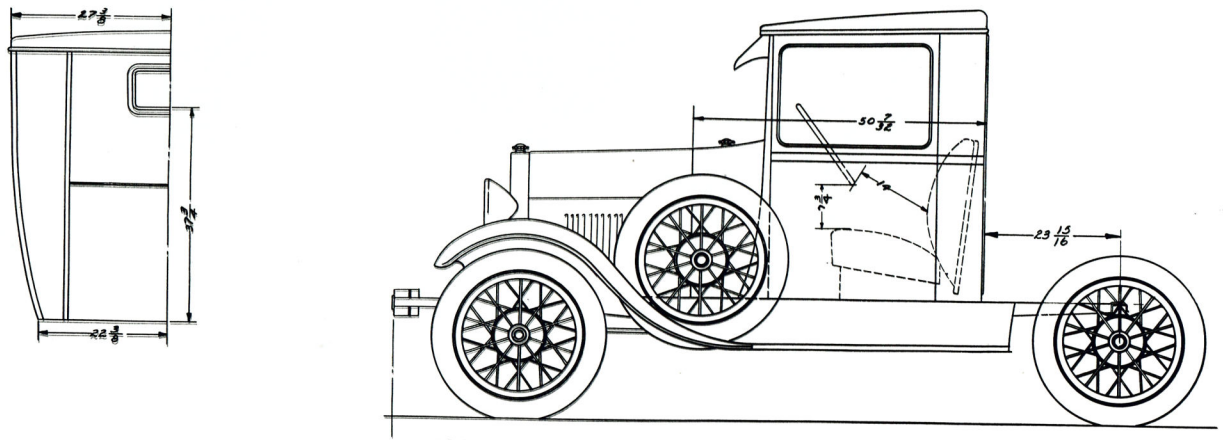

SAY IT WITH FLOWERS
W.L.PALMER
FLORIST
W.L.PALM
FLORIS
W.L.PALMER
Florist
SAY IT WITH FLOWERS
BROADWAY at 25th
SHAW. 796
Flowers by Wire



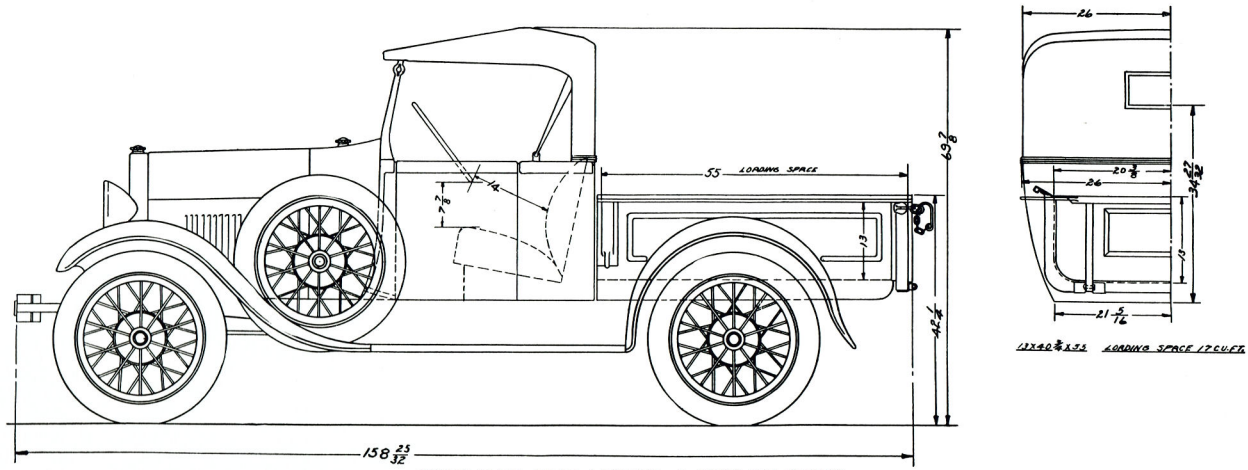
MODEL A CHASSIS SHOWING IMPORTANT DIMENSIONS FOR MOUNTING BODIES



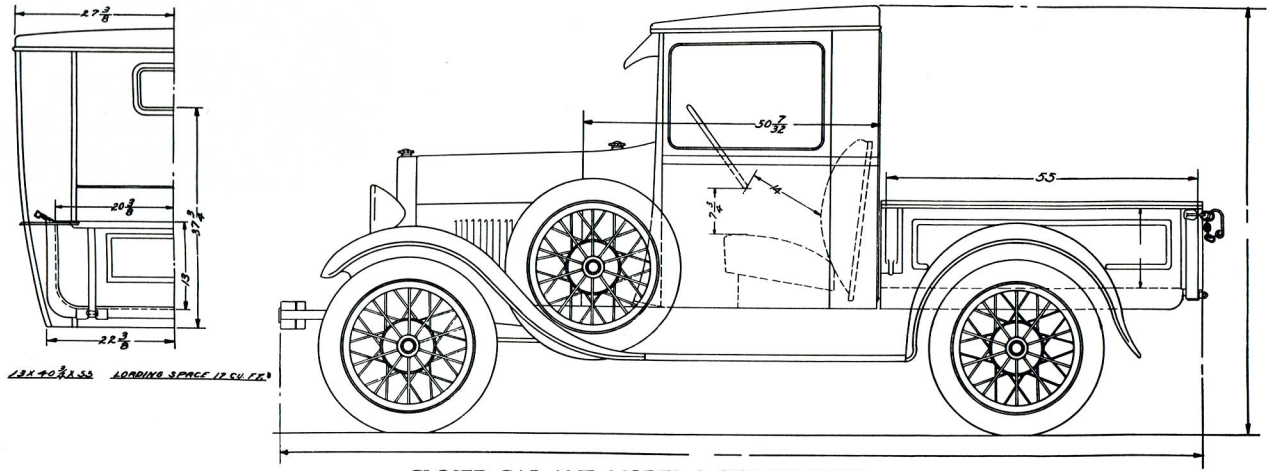
MODEL A CHASSIS WITH OPEN CAB



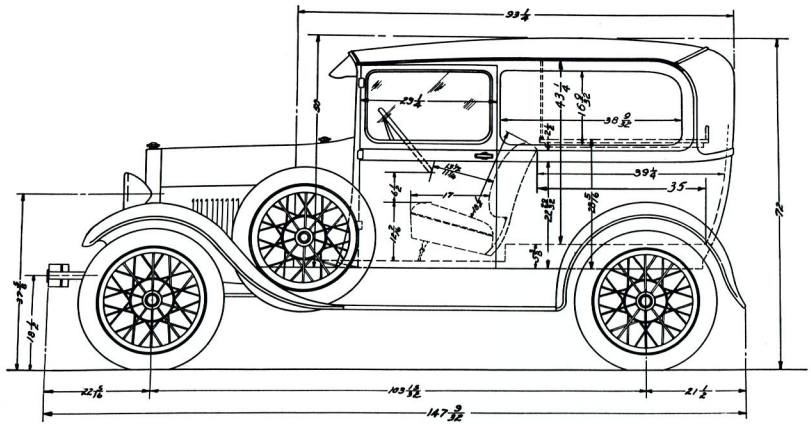
MODEL A CHASSIS WITH CLOSED CAB

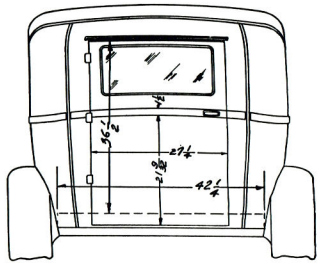


OPEN CAB AND MODEL A PICK-UP BODY

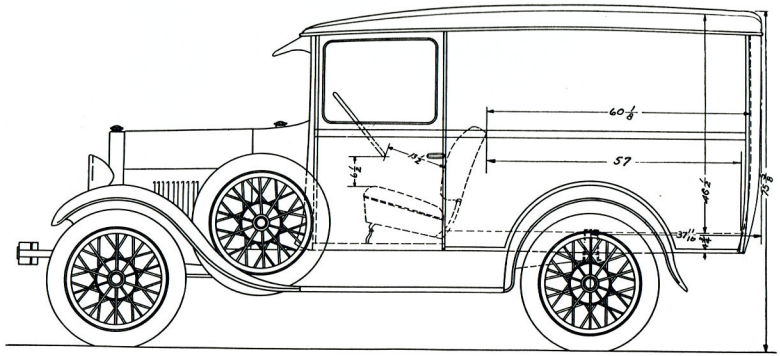


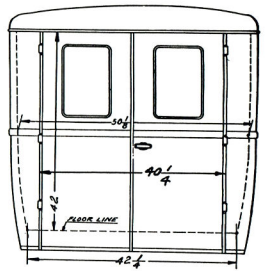
CLOSED CAB AND MODEL A PICK-UP BODY





MODEL A DE LUXE DELIVERY CAR





MODEL A PANEL BODY

THE MODEL AA TRUCK

THE Model AA truck, powered by the Model A four-cylinder, forty-horsepower engine, is rated as a 1½-ton truck. It is a remarkably efficient unit, designed to give an unusual range of performance at economical cost.

It has all the mechanical features that distinguish the Model A with the added strength of chassis construction necessary to meet a wide variety of hauling requirements.

Its gear ratios have been fixed to meet many haulage demands, and to these have been added the option of a dual drive transmission for use where additional pulling power is necessary.

THE MODEL AA TRUCK CHASSIS

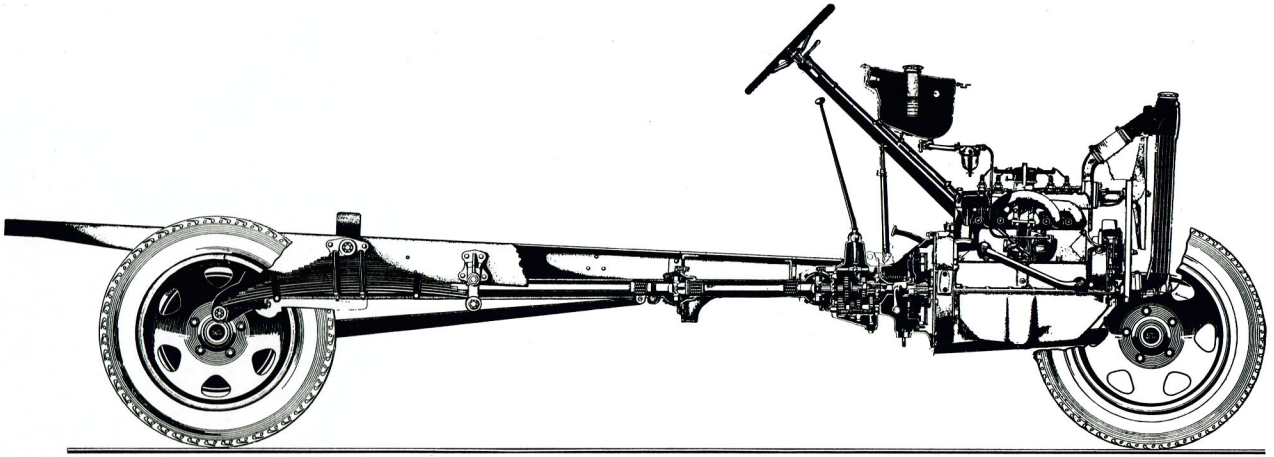
THE truck chassis is a powerful, sturdy and compact haulage unit, combining many of the features found in the Model A car. These include the engine assembly with clutch and transmission, front radius rods, front fenders and dust shield, hood and cowl, steering gear, cooling system, fuel system, and a complete ignition system which needs no additional wiring for truck bodies.

The chassis frame is exceptionally strong and has five strong cross members. Due to the use of full cantilever springs on the rear wheels, the frame may be shortened as much as 27 inches to accommodate special bodies, such as dump bodies.

The truck has the torque tube drive principle, the same as the Model A car, the tube being supported by sturdy radius rods.

The extensive use of steel forgings, because of their strength and light weight, is another feature of the chassis construction.

The four-wheel braking system on the truck is of the mechanical expanding shoe type, fully inclosed, front and rear, exactly similar to that of the Model A car, with larger brake shoes and drums on the rear wheels. This system is operated by the foot pedal. A separate braking system with enclosed expanding band is provided on the rear wheels and operated by the emergency hand lever.



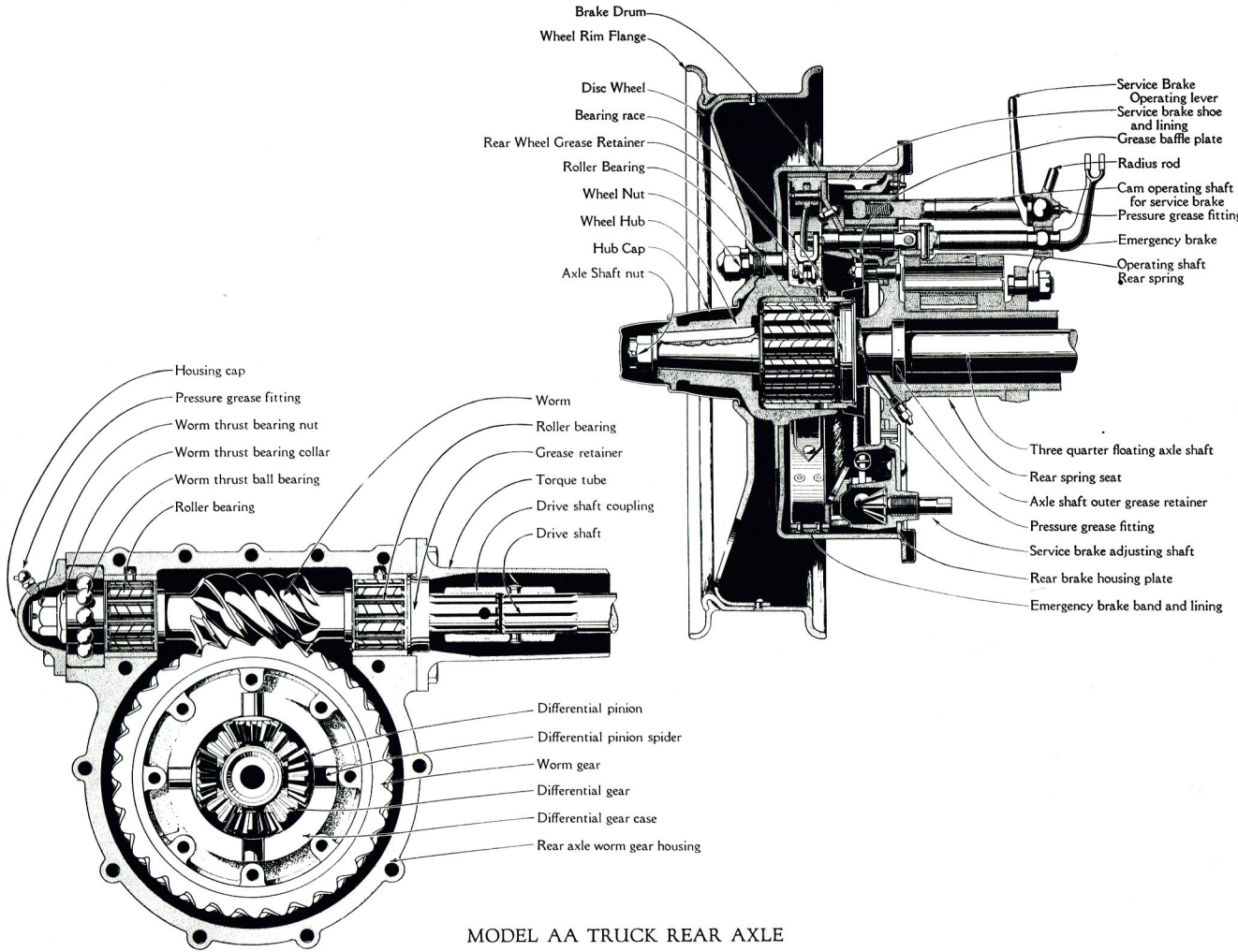
MODEL AA TRUCK CHASSIS

THE REAR AXLE

THE rear axle of the Model AA truck is the three-quarter floating type. With this construction, the shaft serves only to turn the wheels and none of the weight of the truck comes on it. The truck weight is transmitted from the wheel hub through the roller bearings directly to the axle housing.

The axle housing, itself, is hardened by a special heat-treating process at the end portion and ground to a smooth and true surface. A hardened and ground sleeve pressed into the wheel hub forms the outer raceway of the roller bearing.

The axle is heavily constructed, with large worm gear to withstand hard usage and give long service. The ratio is designed to meet all requirements of service expected from a truck unit of the Model AA size.



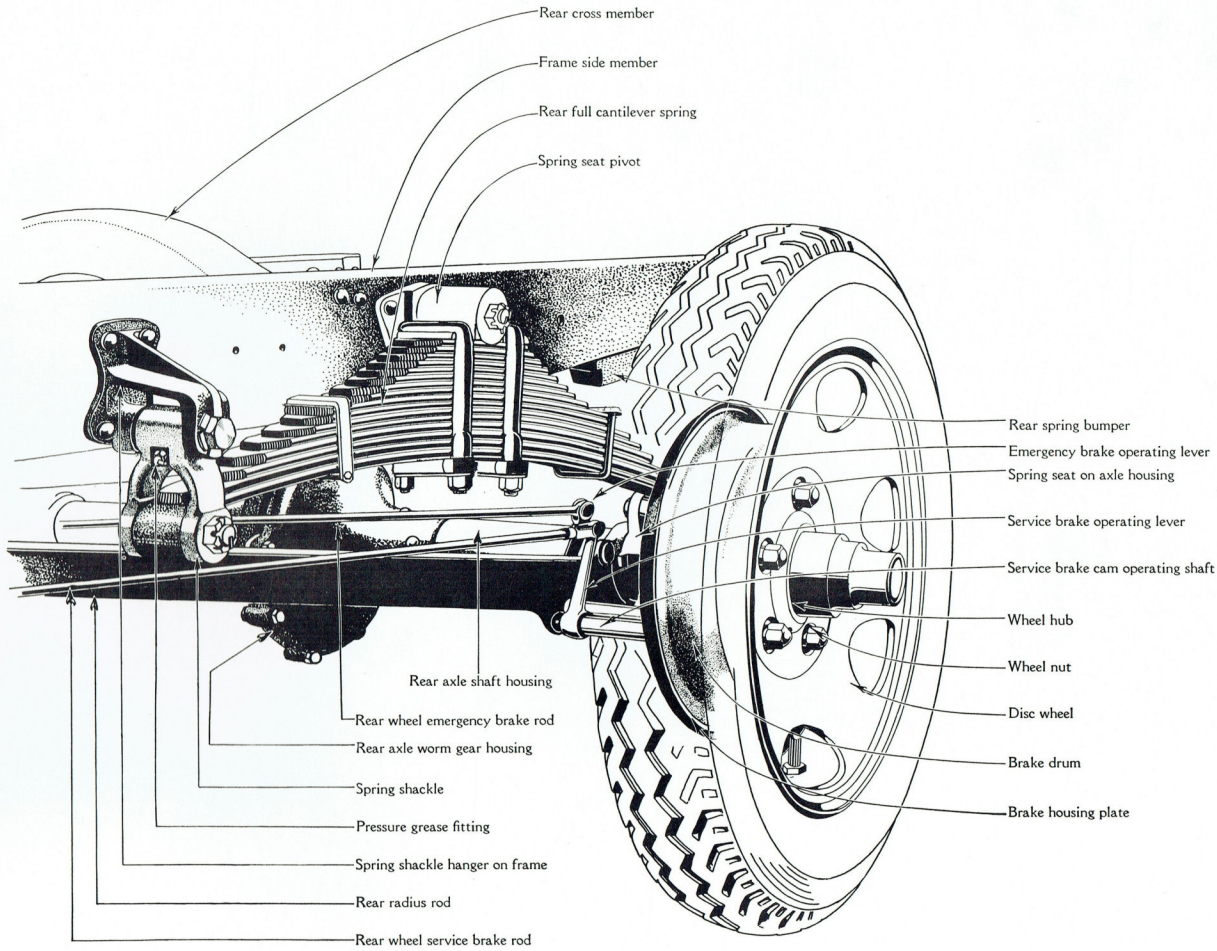
MODEL AA TRUCK REAR AXLE

SPRINGS AND WHEELS

THE front spring of the Model AA truck is of the transverse type, Ford design, specially constructed for heavy service. In addition, the front wheels are equipped with the Houdaille hydraulic double acting shock absorbers, the finest and best type of shock absorber.

The full cantilever springs on either side at the rear are an innovation in rear spring suspension on trucks. These springs improve riding qualities by lessening unsprung weight, a very desirable feature. Another advantage with this type of spring is that most any length of body can be mounted on the frame, due to the fact that the springs do not extend back beyond the rear axle.

The truck is equipped with steel disc wheels of Ford design, embodying open construction to allow ample ventilation for brakes. Nuts are cadmium plated and of acorn style to prevent rusting. A spare wheel is provided.



MODEL AA TRUCK REAR CANTILEVER SPRINGS—STEEL DISK WHEELS

DUAL DRIVE

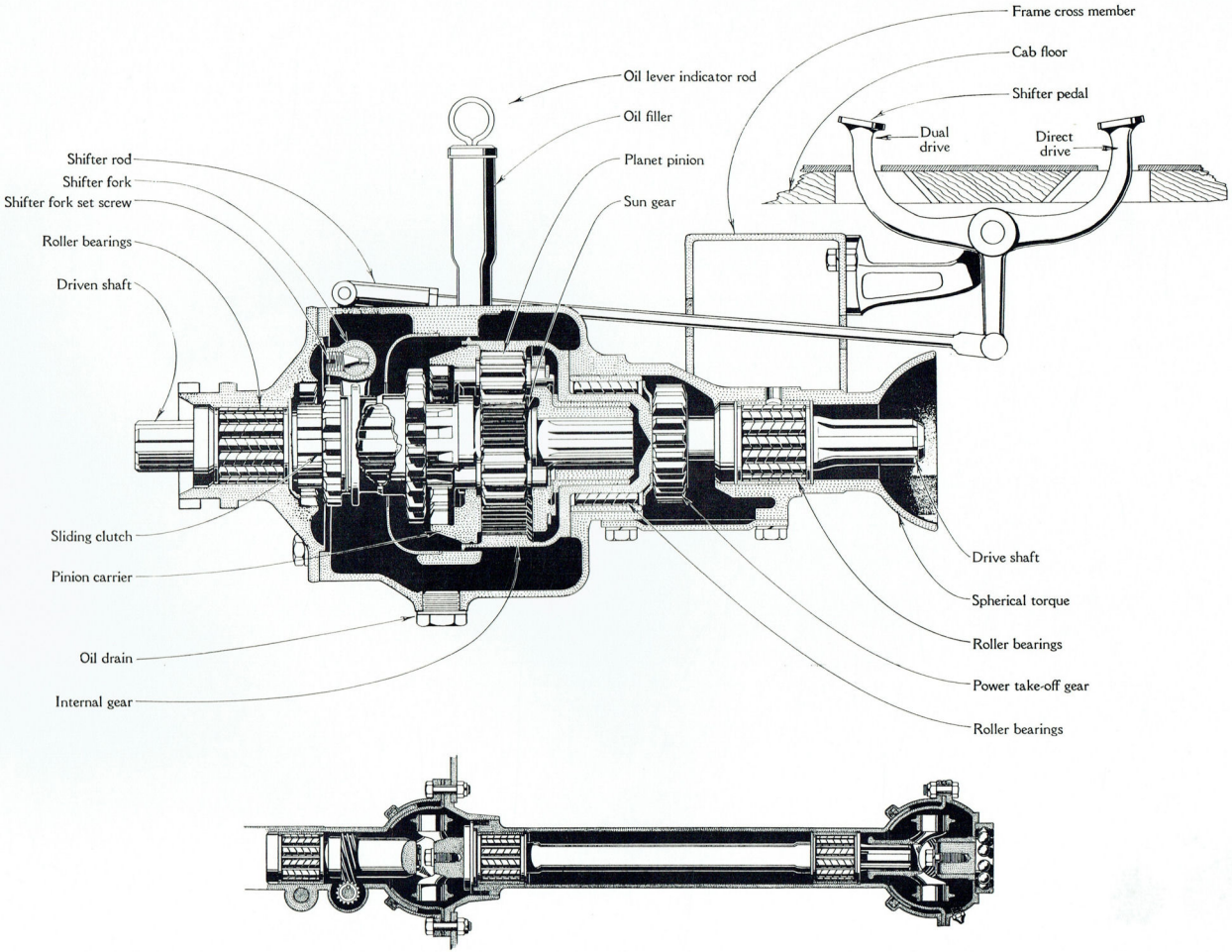
THE standard Ford truck is equipped with a coupling shaft which connects the rear end of the transmission drive shaft and the universal joint. It is installed between the two center cross members of the chassis frame and is enclosed in a steel tube and supported by roller bearings at each end.

Installation of this coupling shaft in the standard truck was made specially to permit the use of a dual drive by truck users requiring special pulling power for their haulage units.

Removal of the shaft permits quick and easy installation of the dual drive between the two center cross members.

The dual drive is an auxiliary transmission connected behind the regular three-speed sliding gear transmission. It gives the truck six speeds forward and two reverse speeds. As a result, the driver has a slow heavy pulling truck for heavy loads and poor roads, and a fast truck for less severe conditions.

This transmission is operated by foot controls projecting above the floor in easy reach of the driver's feet.



DUAL DRIVE AND COUPLING SHAFT

MODEL AA TRUCK SPECIFICATIONS

Engine—Four cylinder, "L" head, cylinders cast en bloc. Bore, 3⅞ inches; stroke, 4¼ inches. Piston displacement, 200.5 cubic inches. Horsepower rating, S. A. E., 24.03. Horsepower brake, 40 at 2200 RPM.

Transmission—Standard sliding selective gear type, three speeds forward, one reverse. Gears and shafts chrome alloy steel, heat treated for hardness. Main shafts in ball bearings, countershaft in roller bearings and reverse in bronze bushings.

Dual Transmission—Constant mesh planetary type. Gives 68 per cent as much speed and 147 per cent as much pulling capacity as standard truck. Applies on all gears, giving six speeds forward and two reverse. Optional at extra cost.

Clutch—Single dry plate. Moulded asbestos composition facing. Completely enclosed and protected. Smooth and easy in action.

Brakes—Six-brake system, fully enclosed. Four-wheel mechanical, internal expanding shoe type operated by service pedal. Separate emergency brake on rear wheels, operated by hand-lever—mechanical, internal expanding band, full energizing. Total bearing surface of six-brake system—348¾ square inches.

Camshaft Bearings—Three, all $1\frac{3}{16}$ inches in diameter. Length, front, 1¾ inches; center, 2 inches; rear, 1 inch.

Valves—Chrome silicon alloy.

Crankshaft—Special carbon manganese steel. Three main bearings, all 1⅝ inches in diameter. Length, front and center, 2 inches; rear, 3⅛ inches.

Connecting Rod—Steel forging, "I" section design. Lower bearing babbitt, 1½ inches in diameter by 1⅝ inches long. Piston pin machined seamless steel tubing, full floating type.

Carburetor—1 inch vertical. Choke and needle adjustment rod on dash. Hotspot intake manifold.

Steering Gear—Three-quarter irreversible. Worm and sector type with roller thrust bearings on worm shaft. Ratio—11¼ to 1.

Oiling System—Gear pump, splash system and gravity flow from valve chamber reservoir to main crankshaft and front camshaft bearings. Oil level indicator and filler on left side of motor. Capacity, 5 quarts.

Ignition—Battery, coil and distributor. New Ford mechanical design. Theft-proof ignition lock.

Cooling—Centrifugal water pump in top of cylinder head on shaft which also operates fan. Tubular radiator. Two-blade airplane propeller type fan, 16 inches in diameter; adjustable "V" belt. Capacity, 3 gallons.

Control—Steering wheel 17½ inches in diameter. Gear shift lever in center. Emergency brake in center. Spark and throttle control under steering wheel; horn button and light switch in center of wheel. Foot accelerator.

Lights—Twolite, deflecting beam headlights, combination tail and stop light. Dash light on instrument panel.

Fuel—Gravity feed from welded steel tank built integral with cowl. Capacity 10 gallons.

Rear Axle—Worm gear, three-quarter floating. Gear ratio, 5.17 to 1—7.25 to 1.

Front Axle—Chrome alloy steel forging, "I" beam construction, adjustable taper roller bearings for wheels.

Drive—Torque tube. Heavy radius rods.

Springs—Front, transverse, Ford design, 12 leaves. Rear, Cantilever, 16 leaves.

Wheels and Tires—Ford steel disc wheels. Tires, front, standard 30 x 5, 6-ply. Rear, standard 32 x 6, 8-ply.

Equipment—Hydraulic shock absorbers on front springs, gasoline gauge, ammeter, ignition lock, dash lamp, windshield wiper, rear view mirror, combination tail and stop light, Alemite pressure lubrication of chassis, tool equipment, tire pump, jack, oil level indicator rod on engine, horn, spare disc wheel, speedometer.

Wheelbase—131½ inches.

Tread—Front, 55½ inches; rear, 57⅝ inches.

Turning Circle—46 feet.

Turning Radius—23 feet.

Frame—Length, $171\frac{5}{16}$ inches. Depth, 6 inches. Width, $2\frac{3}{4}$ inches.

Frame Cross Members

	DEPTH	WIDTH	LENGTH
1	$2\frac{1}{2}$ inches	$6\frac{5}{8}$ inches	$25\frac{13}{16}$ inches
2	$3\frac{11}{32}$ inches	2 inches	$30\frac{7}{16}$ inches
3	$5\frac{7}{16}$ inches	$2\frac{1}{2}$ inches	$31\frac{1}{2}$ inches
4	$5\frac{11}{32}$ inches	$5\frac{1}{8}$ inches	$35\frac{5}{8}$ inches
5	$3\frac{13}{16}$ inches	$3\frac{1}{8}$ inches	38 inches

Frame may be shortened as much as 27 inches to accommodate dump bodies.

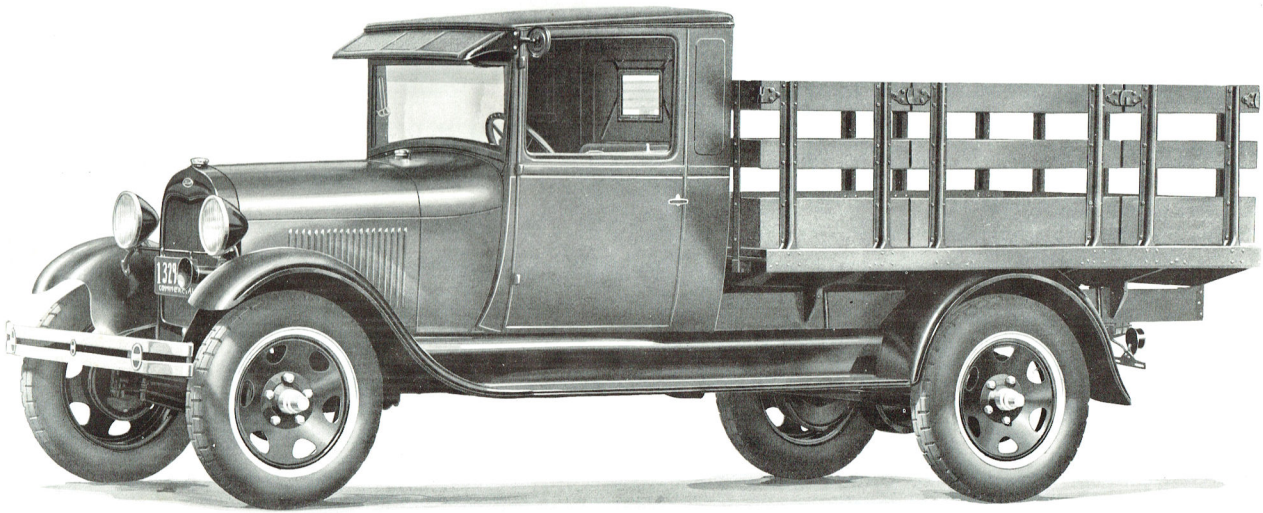
Road Clearance—9½ inches.

TRUCK BODIES

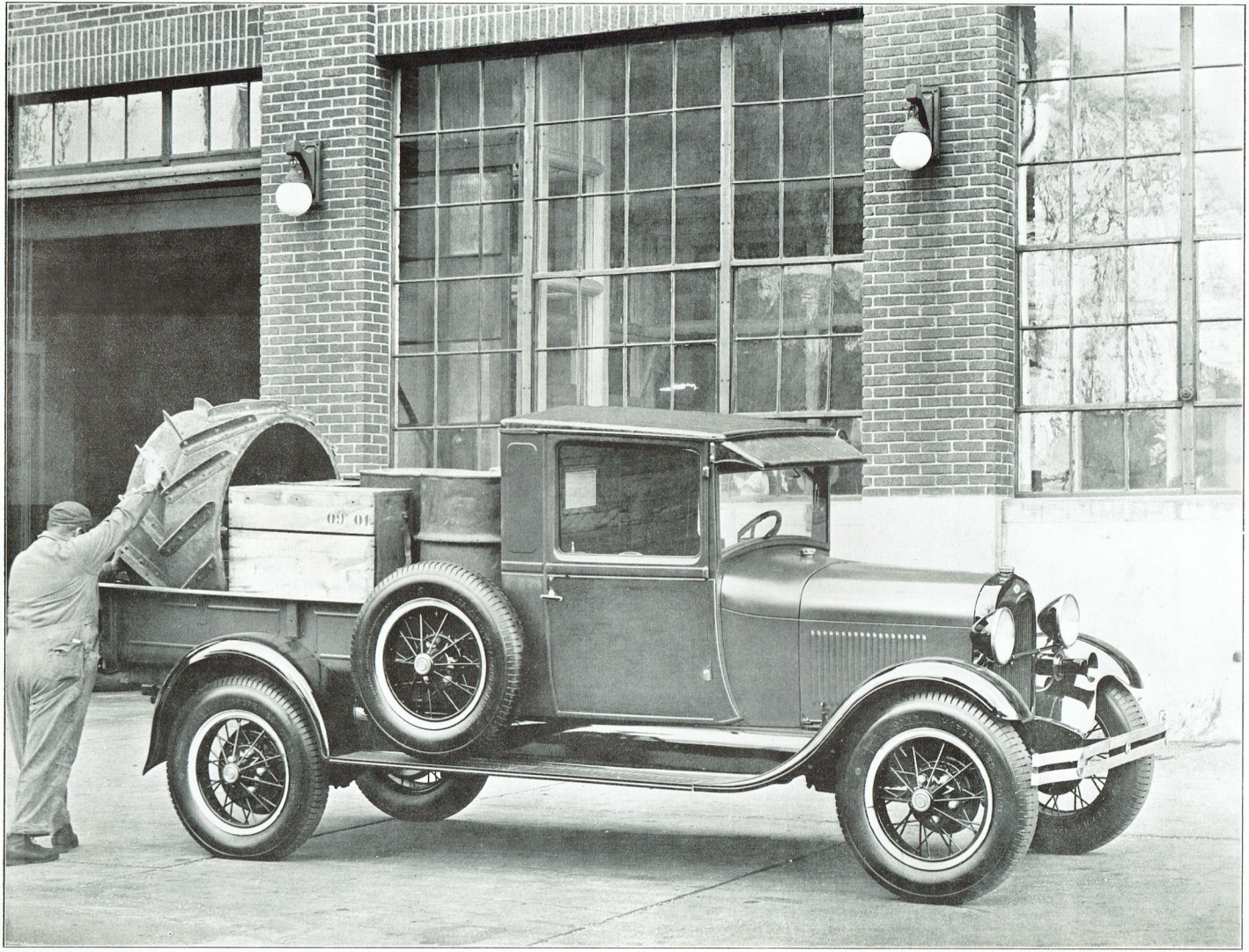
 TANDARD truck bodies, designed in the Ford Engineering Laboratory, will meet practically every hauling requirement.

Dimensions have been carefully studied. Every loading necessity has been considered. As a result, it will be found that these bodies have been designed to meet agricultural and gardening needs as well as commercial haulage demands. This is at once apparent by an examination of the dimensions.

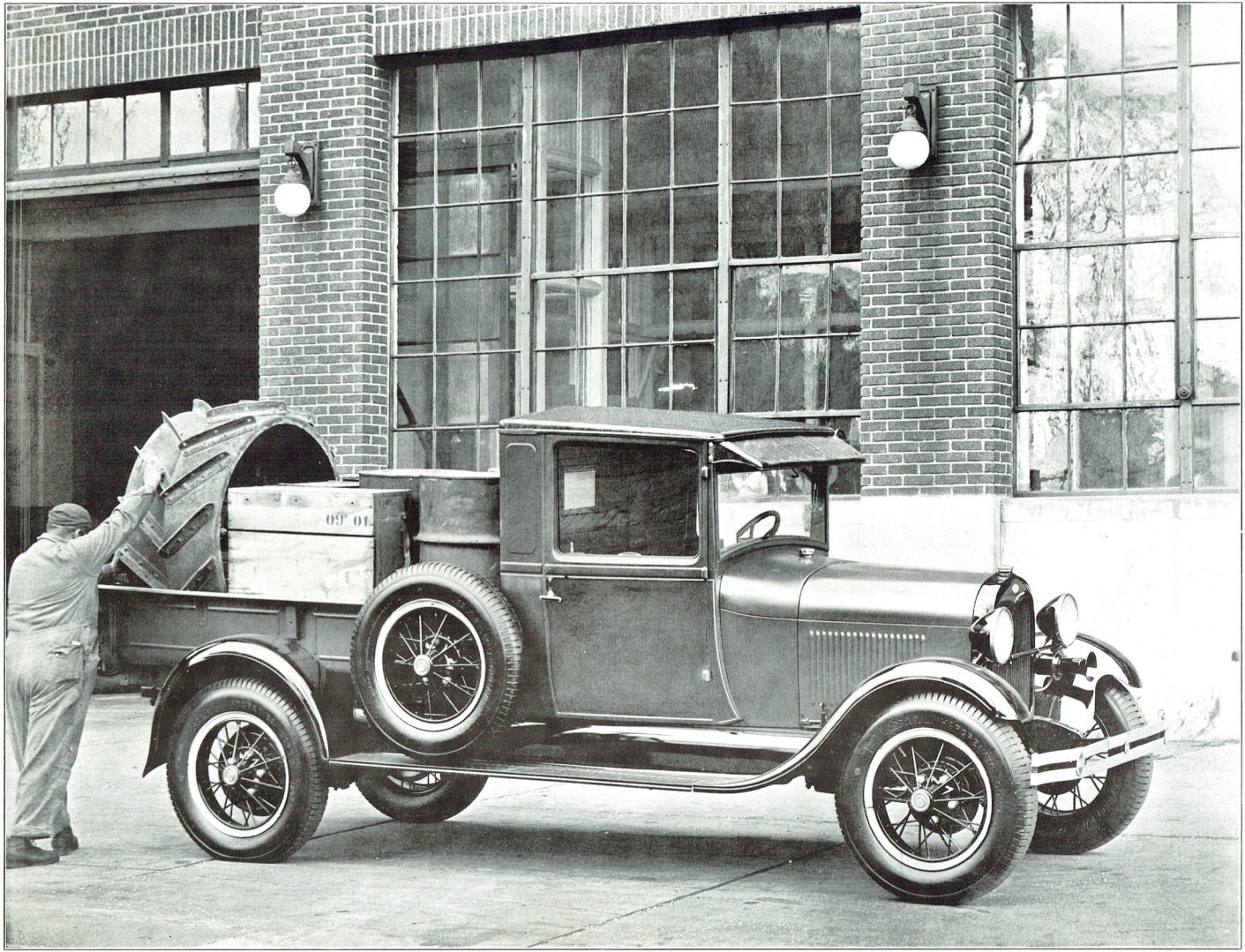
In other words, Ford truck bodies have been designed to give all-around service, in the fullest measure—added to which is the high degree of manufacture and steel construction, the economy of service and the high efficiency for which Ford products are noted.




E FLEISCHMANN CO.
SERVICE
DIAMALT
THE
FLEISCHMANN CO.
SERVICE
FLEISCHMANN'S
YEAST
Eat it for health
FLEISCHMANN'S
YEAST
Eat it for health

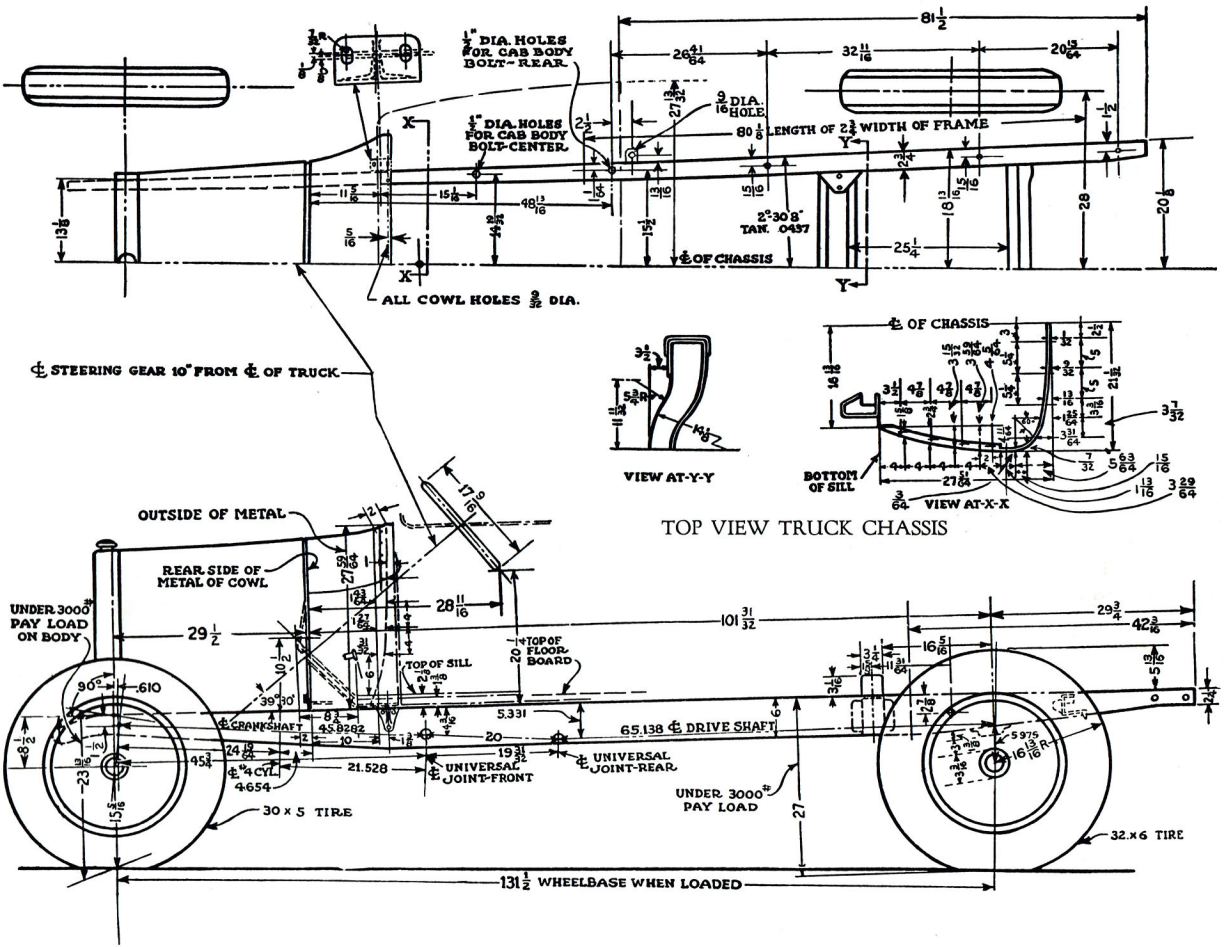



RADIATES
The Better Way
CLEANLINESS
NORTH SIDE
LAUNDRY CO.
Laundry
HOM-STYL
SERVICE
MAKES HAPPY HOMES



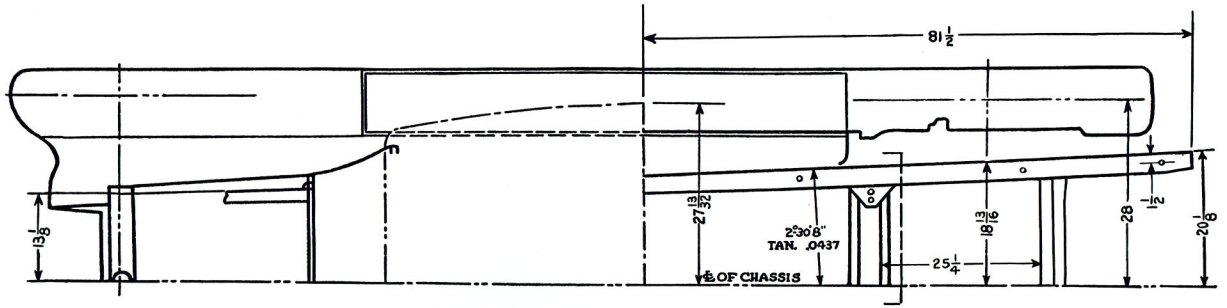

414M


414M

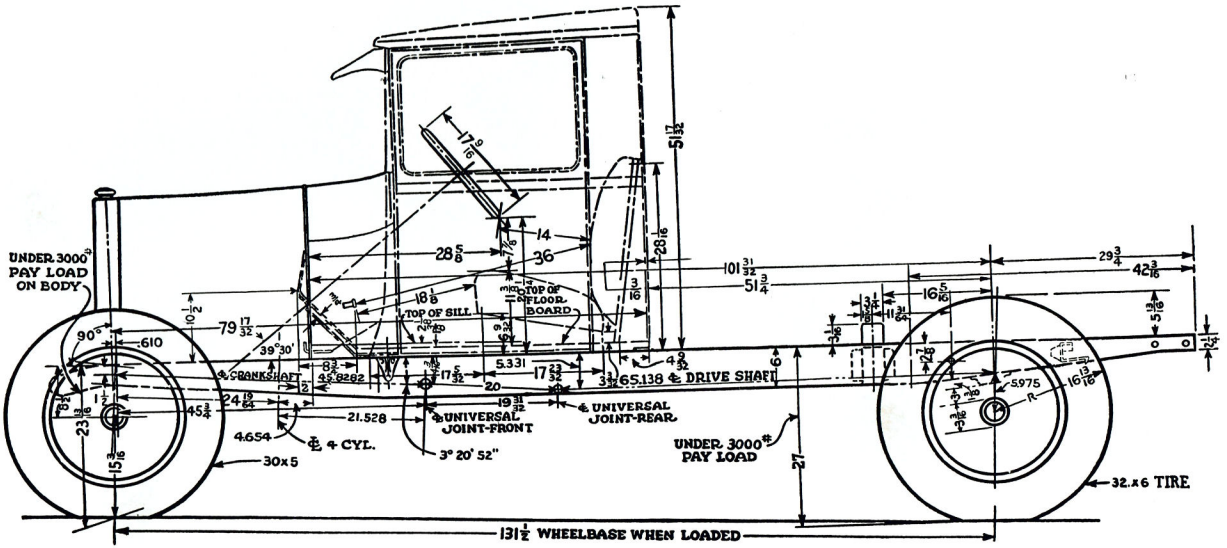


TOP VIEW TRUCK CHASSIS

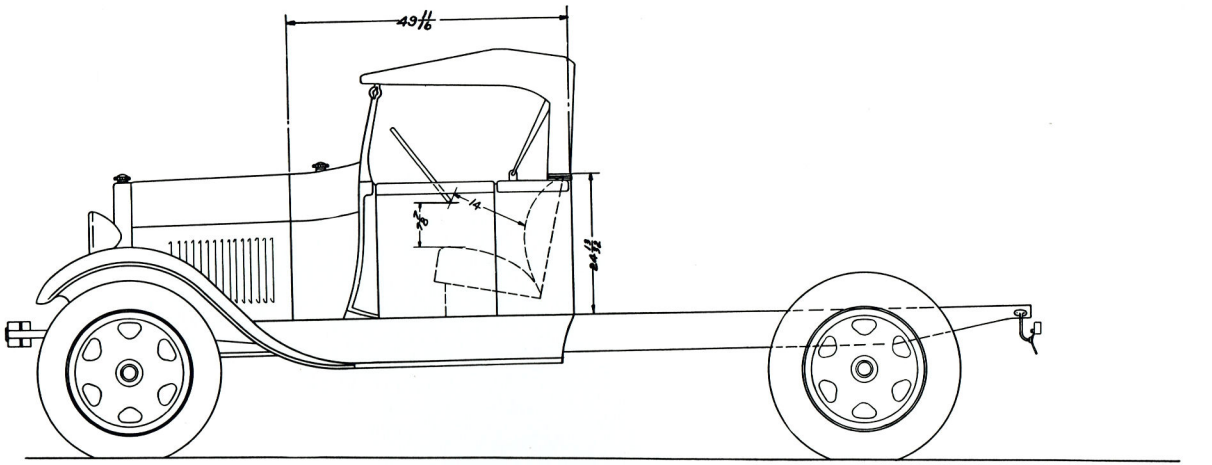
MODEL AA TRUCK CHASSIS SHOWING IMPORTANT DIMENSIONS FOR MOUNTING BODIES



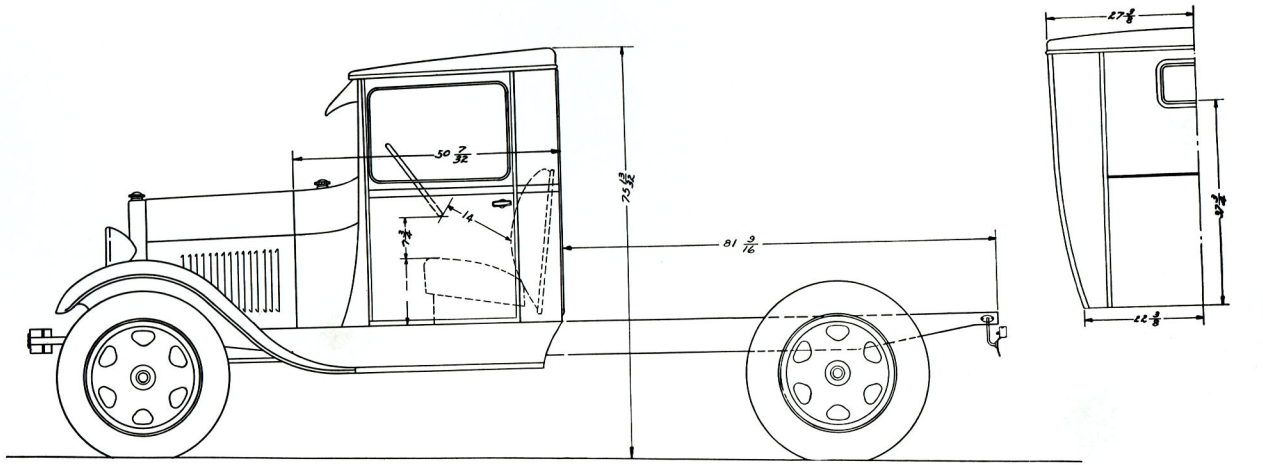
TOP VIEW TRUCK CHASSIS WITH CAB AND FENDERS



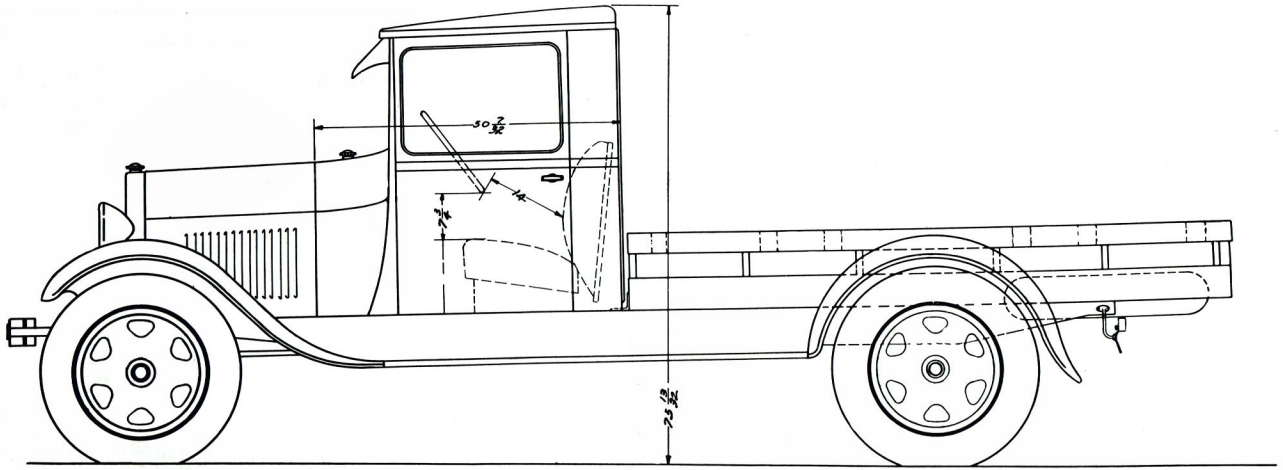
MODEL AA TRUCK CHASSIS WITH CAB SHOWING IMPORTANT DIMENSIONS FOR MOUNTING BODIES



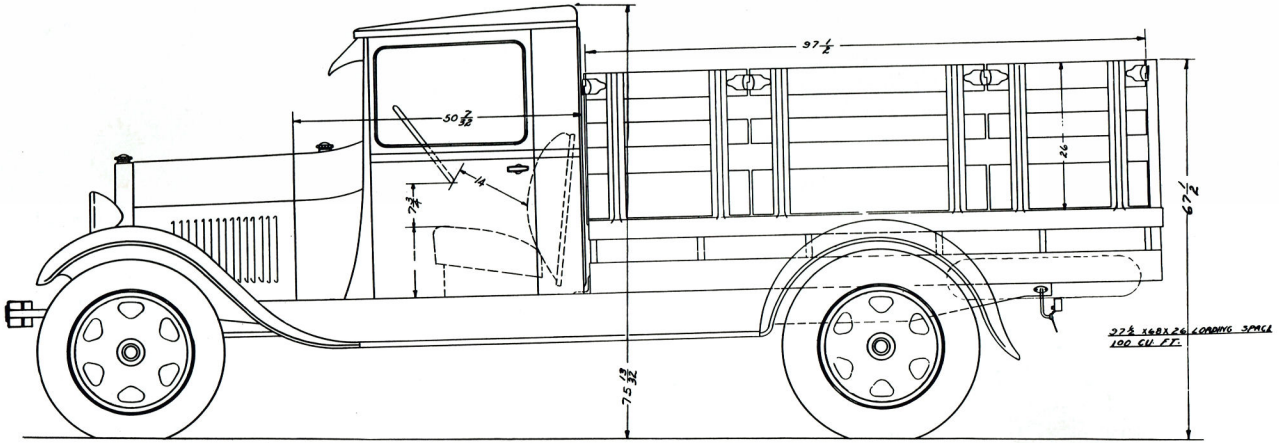
MODEL AA CHASSIS WITH OPEN CAB



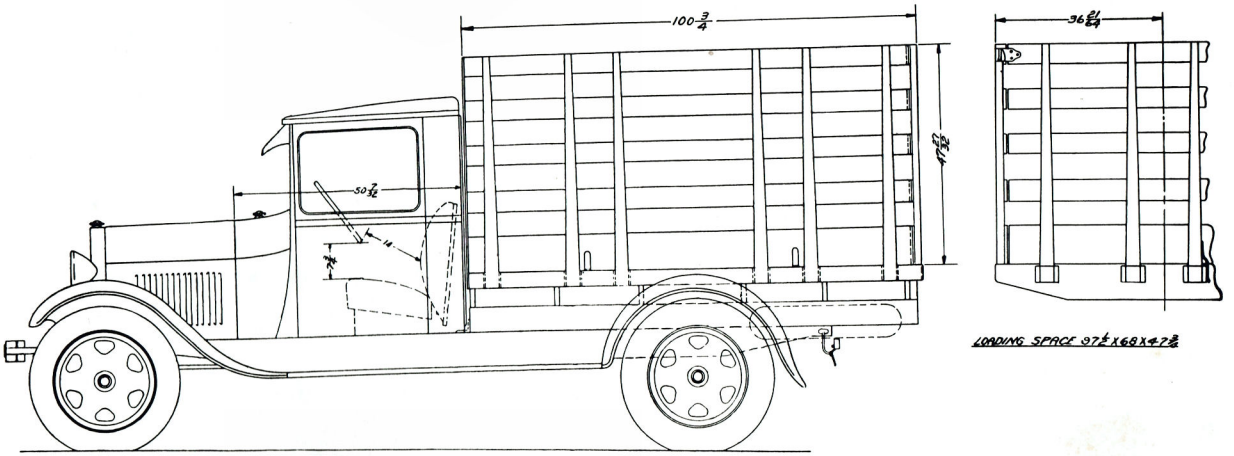
MODEL AA CHASSIS WITH CLOSED CAB



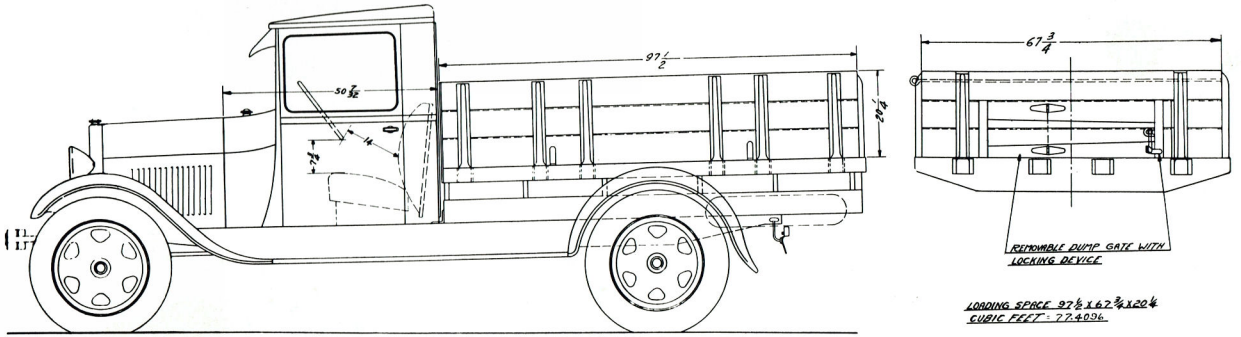
MODEL AA TRUCK, CLOSED CAB AND PLATFORM BODY



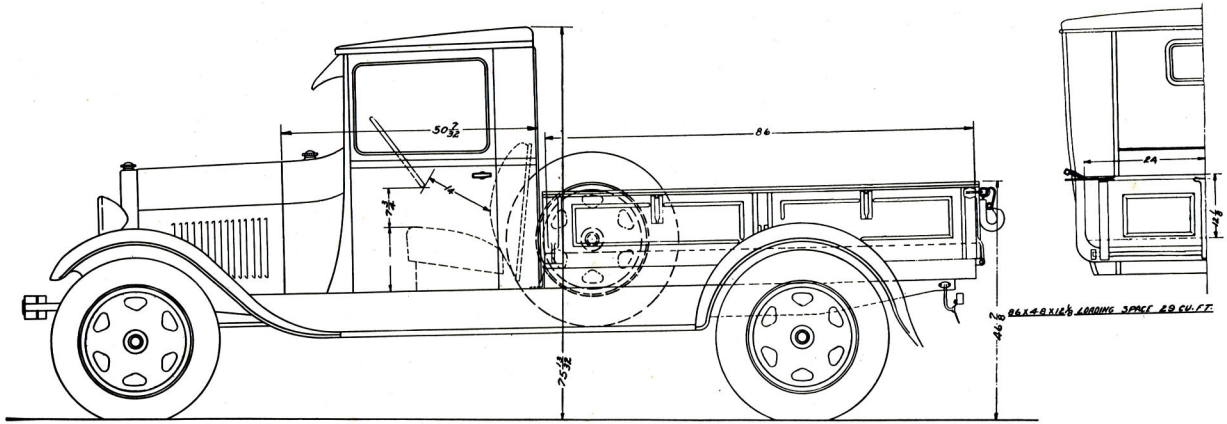
MODEL AA TRUCK, CLOSED CAB AND STAKE BODY



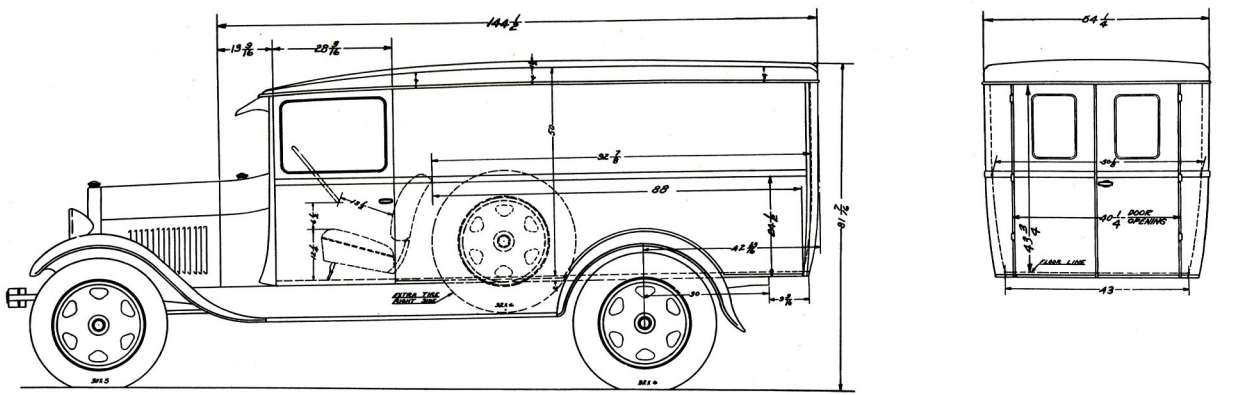
MODEL AA TRUCK, CLOSED CAB AND CATTLE RACKS



MODEL AA TRUCK, CLOSED CAB AND GRAIN BODY



MODEL AA TRUCK, CLOSED CAB AND EXPRESS BODY



MODEL AA TRUCK WITH PANEL BODY