1948

Hudson

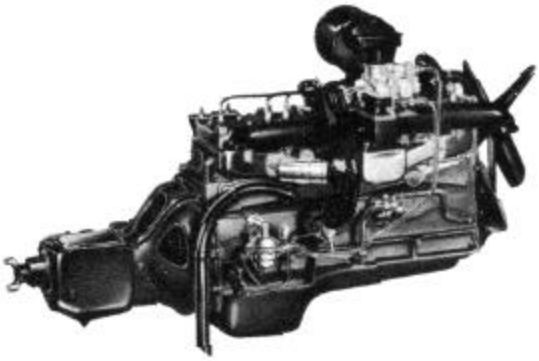


General Information

This Document
Courtesy of the John Soneff Estate

EIGHT CYLINDER ENGINE

Both the series 483 Super Eight and the Series 484 Commodore Eight are powered by the Super Eight engine of 254 cubic inch displacement. It is "L" head type, bore 3", stroke 4½" develops 128 horsepower at 4200 revolutions per minute. The standard compression ratio is 6.50:1 with a cast iron cylinder head and 7.0:1 with an aluminum cylinder head available as an option.



The maximum torque, 198 foot pounds, is developed at 1600 R.P.M. The S.A.E. horsepower rating is 28.8. The engine is carried in 3 highly resilient rubber mounts, one at each side of the front support plate and one at the rear end of clutch housing, this forming a three point suspension.

CYLINDER BLOCK

The cylinder block and crankcase are integral, of alloyed iron and is given a heat treatment following the casting which makes for a fine grain and uniform hardness throughout the entire block. The motor number is stamped on the top of cylinder block between No.1 and No.2 exhaust manifold flanges.



The rear of the crankcase section, at the flange to which the oil pan is bolted, is widened out to accommodate the increased width of the oil pan at the rear. Crankcase fumes are expelled through a breather tube, attached to valve cover plate.

CRANKSHAFT

The crankshaft is of high alloy steel, fully counterbalanced with 8 integrally forged counterweights. Following finish machining, each crankshaft is given a careful static and dynamic balance to insure smoothness and minimum vibration. It is carried in five, heavy brass backed babbitt lined main bearings finished by line reaming.



Both the upper and lower bearing halves are held in position by brass screws. The crankshaft thrust is taken on number three main bearing.

The crankshaft is not interchangeable with previous 8 cylinder shaft due to increased length between the oil thrower and flywheel flange. This was done in order to make the same clutch housing interchangeable on both the six and eight cylinder cars. This increased length necessitates wider rear main bearing oil retainers, upper and lower. The diameter of the crankshaft section, over which the vibration damper fits, is increased 1/16 of one inch.

CONNECTING RODS

Connecting rods are of high alloy drop forged steel and carefully heat treated for maximum strength and rigidity. The rod bearings are babbited directly to the rod by a spinning process.

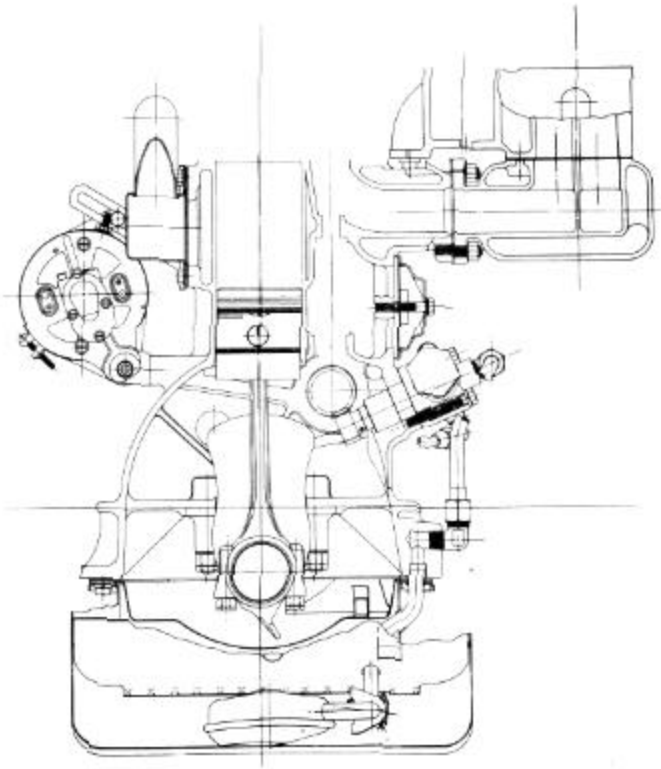
Connecting rods are off-set just above the bearing ends for compact engine design. They are listed as right hand for 1-3-5-7 cylinders, and left hand 2-4-6-8 cylinders. On right hand rods, the rod proper is off-set to the right and on left hand rods to the left of the center of the big end, when viewing the open face of the oil dipper.

The upper bearing is bronze bushing installed with oil grooves at sides. The piston pin bears in the piston directly and is free to turn in either rod or piston. Locking rings in each end of piston boss serve to hold the pin in position.

PISTONS

The pistons are "T" slot aluminum alloy. They are cam ground so that expansion does not cause distortion.

Two compression rings and one oil ring are arranged above the piston pin and one (wider) oil ring is on the skirt of piston below the piston pin. All rings are secured by a steel pin at the gap to prevent turning in the groove – this to improve ring to cylinder wall seat. Rods and pistons may be removed through the top or from the bottom of the engine.



CAMSHAFT

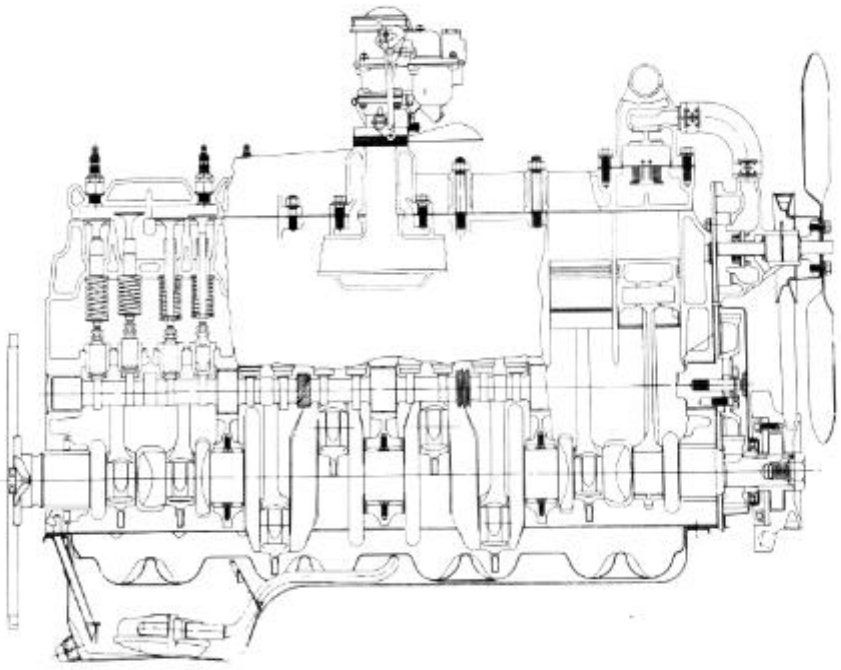
The camshaft is of electric furnace alloy iron and is treated by a process which improves lubrication and wear resisting qualities. The camshaft is carried in five steel backed babbitt bearings. Two worm gears are formed integrally on camshaft-one drives the ignition distributor, the other the oil pump. An eccentric, also integrally formed on the camshaft, operates the fuel pump.



Camshaft drive is through gears, one of aluminum alloy secured to the front end of camshaft by three cap screws and the other by a cast iron gear that is keyed on the front end of crankshaft. Both gears have helical cut teeth with a slight crown for maximum silence. Camshaft thrust is taken through a Bakelite washer between gear and crankcase and employs a spring loaded plunger in the front end of the camshaft which presses against a hardened plate in the timing gear cover.

VALVES and TAPPETS

Roller cam valve tappets are fitted in cast iron guides which in turn are held in position in the crankcase by a pressed steel clamp and cap screw. The valves are seated directly in the cylinder block, the inlet being larger than the exhaust valve. Both inlet and exhaust valves are fitted in removable valve stem guides.

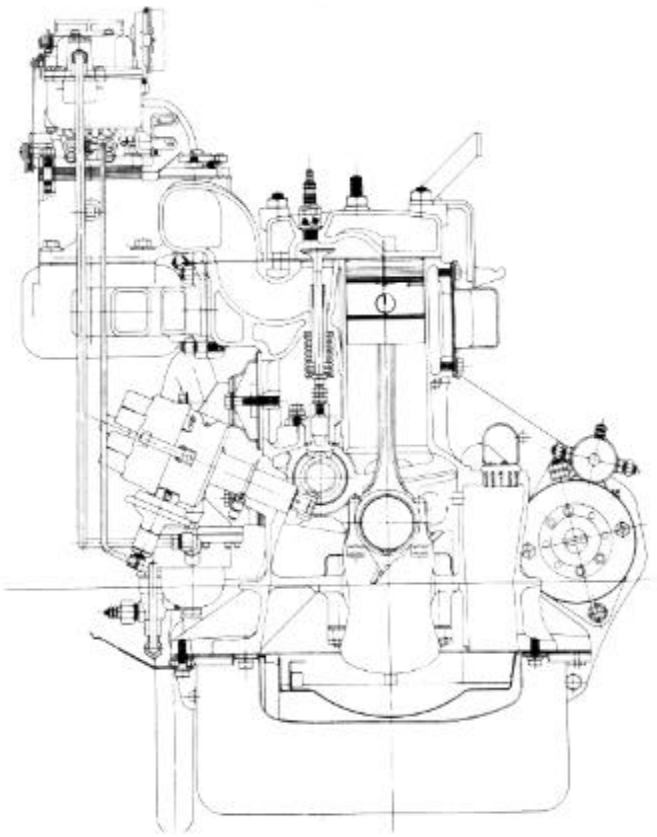


Access for adjusting valve tappets is had by removing the right front fender apron. The proper valve clearance is .006" on inlet and .008" on exhaust valves, with engine at normal operating temperature.

The upper ends of the exhaust valve guides are counter bored larger than the main guide body. This to protect the upper end of exhaust valve stem from carbon deposits and gum accumulation. Single valve springs, interchangeable on intake or exhaust valves, are held in position by steel valve retaining washers and horse shoe shaped locks.

ENGINE LUBRICATION

Engine lubrication is by the Hudson Duo-Flow oil system which delivers oil in direct ratio to engine speed to all bearing surfaces immediately from the first turn of the crankshaft. In this system the oil is drawn from the oil pan by the double acting valveless plunger type pump, driven from the camshaft.



The oil is drawn from the sump and forced thru external oil lines to the front and rear ends of the engine where it is delivered to the front and rear splash troughs formed in the oil pan upper tray. The oil conveyed by the forward pump lead is delivered to the timing gear compartment, from where it overflows into the #1 splash trough in the upper tray.

The oil is then picked up by the connecting rod dippers and vigorously distributed to the interior working surfaces through splash and a system of channels which convey it into wells over the crankshaft and camshaft bearings. Overflow oil running down the crankcase walls is diverted by drains in the oil pan tray into adjacent splash troughs until it reaches the center of the engine.

Cont.

ENGINE LUBRICATION *cont.*

At this point it is returned through the opening in the tray, then to the main oil supply where it is cooled and screened before again being used. The new design oil pan with sump at rear is provided with a floating type screened intake. This permits only the cleanest oil to be drawn off by the pump.

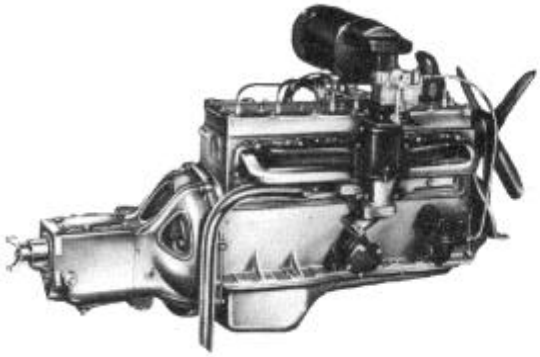
Both rear and front main bearing caps are packed to prevent oil leakage and a large oil retainer collects oil from the outside of the rear main bearing and returns it to the oil pan. The oil return tube leading from the rear main bearing to oil pan has a floating disc on "flapper valve" pinned on the lower end to prevent any oil loss on extreme grades or on quick stops.

An oil check valve is mounted at the rear right side of crankcase, through which the oil from rear lead of oil pump flows and controls a light on the instrument panel. A spring loaded, movable cup shaped plunger lies in the path of the oil flow. When oil pressure is too low, the plunger completesan electric circuit and lights the red dash signal. Normal oil pressure causes the plunger to recede and the circuit is broken.

When completely drained (as when removing oil pan) 9 quarts of oil are required to refill, two quarts of which must always be placed in the oil pan tray assembly before installing the oil pan. When drained for oil change, 7 quarts are required to refill.

SIX CYLINDER ENGINE

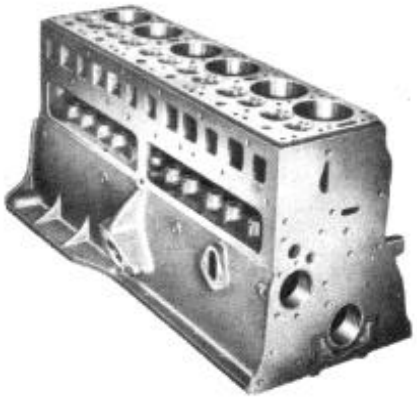
The Super Six 481 and the Commodore Six 482 series cars are powered with the new design "L" head, six cylinder engine. The bore and stroke is 3 9/16 x 4 3/8 inches, piston displacement 262 cubic inches and it develops 121 horse-power at 4,000 R.P.M. The maximum torque is 200 foot pounds at 1600 R.P.M.



The taxable horsepower is 30.4, the standard compression ratio with cast iron head is 6.50:1. An aluminum head which is optional with car order has a compression ratio of 7.0:1. The motor numbers are stamped on the right front side of cylinder block just forward of #1 exhaust port. The number is vertical, to be read from the top down.

CYLINDER BLOCK

The cylinder block and crankcase are an integral casting of chrome iron alloy which makes for density and hardness throughout and reduces wear to a minimum. The crankcase is heavily ribbed and flanged to resist distortion and vibration. The crankcase lower flange is flared or widened out at the rear to accomodate the wide oil pan sump design.



Crankcase ventilation is provided by the oil filler breather on the forward left side of engine that is fitted with a wire gauze air cleaner. Vapor and crankcase fumes are drawn from the crankcase by the suction effect of another breather opening into the right rear valve chamber, the lower end of the tube extending into the air stream below the car.

CRANKSHAFT

The crankshaft, of advance design, is a sturdy forging of high alloy steel with 7 integral counterweights. Following finish machining, each crankshaft is given a careful static and dynamic balance. A vibration damper, of the rubber weight type, is mounted on the front end of crankshaft, held in position by a large cap screw and a lip type locking washer.

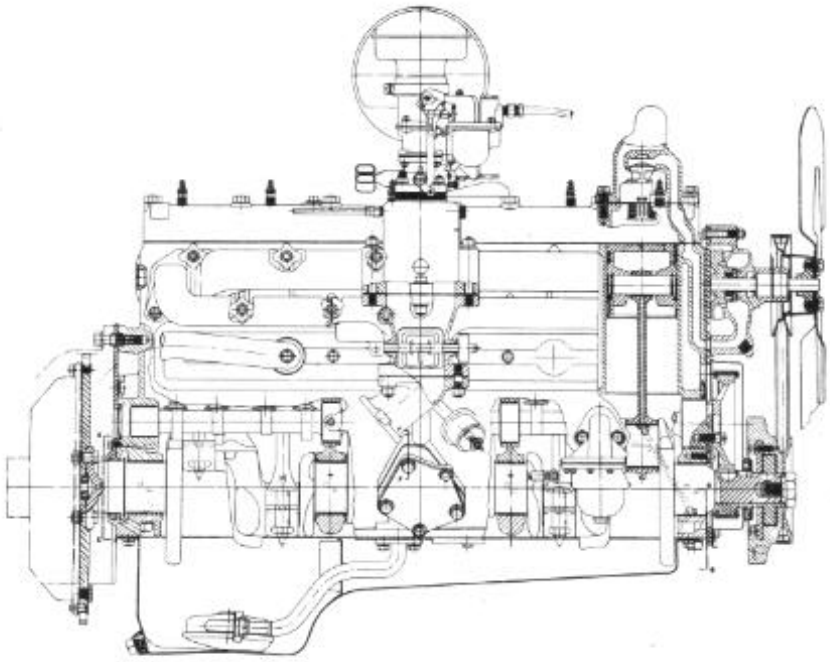


The crankshaft has four main bearing journals exceptionally large in diameter and width. The four main bearings are steel backed babbitt lined, of the precision replacement type, the upper and lower halves of each bearing being the same. They are positioned in the cap and case by a nib projecting at the parting line. The thrust is taken on number three bearing.

cont.

CRANKSHAFT *Cont.*

All main bearing caps are stepped in the crankcase and exactly positioned by protruding tubular dowels from the crankcase. Nickel steel cap screws and lockwashers secure the main bearing caps. Rectangular wood packing wedges instead of candle wicking is employed for packing both the front and rear main bearings.



The rear main bearing is protected against leak at the journal by an oil seal installed behind the oil thrower flange and just forward of the fly wheel flange. This is a graphite impregnated wick fitted in the machined grooves and wipes the crankshaft. The rear main bearing cap has a large oil return at the bottom which carries the oil to the oil pan. The crankshaft is drilled for conveying oil under pressure from the main bearing journals to the crankpins.

CONNECTING RODS

The connecting rods are drop forged of a high manganese alloy steel and heat treated for rigidity and strength. The connecting rod bearing is directly central with the center line of the rod. This makes the one connecting rod adaptable in all positions. Bearings are steel back, babbitt lined, and of the precision replacement type, the upper and lower half being the same. Small identifying nibs forged on the cap and rod must coincide when assembling. The cap bolt nuts are secured by use of a companion or "pal" nut.



The connecting rods are rifle bored for conveying oil pressure to the piston pin and also drilled at a 45° angle through the upper bearing body for cylinder wall lubrication. The connecting rod upper or piston pin bearing is of rolled steel babbitt faced. All connecting rods are selected for equal weight, also for uniformity in revolving and reciprocating mass weight.

PISTONS

"T" slot type aluminum alloy pistons are used. They are cam ground so as to avoid distortion and scuffing in operation. Pistons of uniform weight are fitted to each individual cylinder by the use of the feeler gauge.

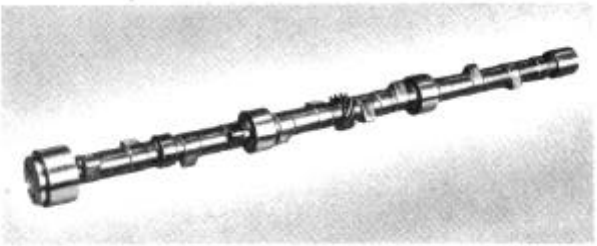


Two compression rings and an oil ring are fitted above the piston pin and one oil ring below the pin. All rings are pinned at the gap to prevent turning and thus maintain a more perfect seal between piston ring and cylinder wall.

The piston pin is of cold drawn, high alloy steel and is free to turn in either the piston or connecting rod upper bushing. A steel locking ring fitted in the end of each piston pin boss, holds the pin in position. The connecting rods and pistons may be removed or installed only from the top of the cylinder bores.

CAMSHAFT

The camshaft is of nickel-chrome and molybdenum iron alloy, with heat treated cam surfaces and special finish to improve lubrication and wear on cam and bearing surfaces. The camshaft has four steel backed babbitt lined bearings.



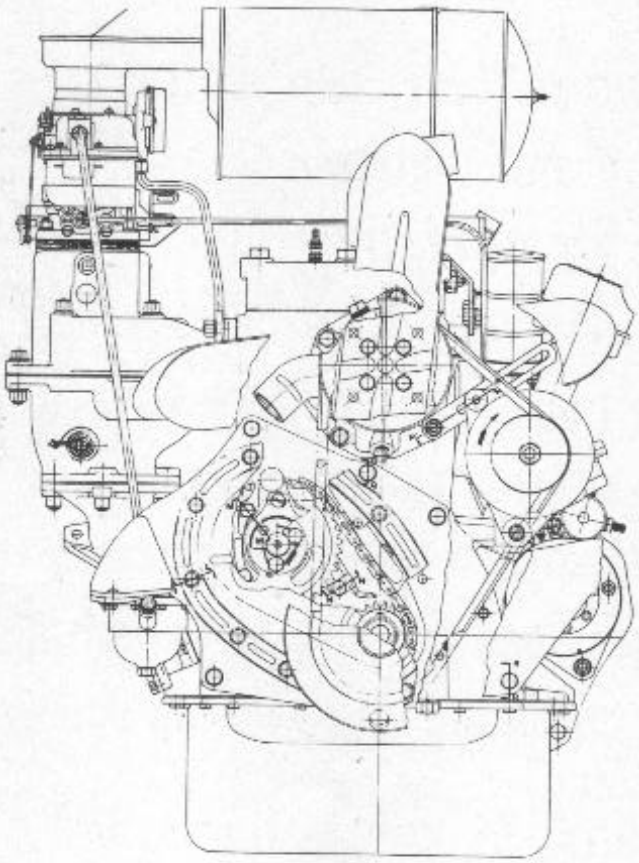
A worm gear for driving oil pump and distributor and eccentric for operating fuel pump are integral with the camshaft. All cams are angle ground to make for positive rotation of tappets; this to reduce wear and improve action. Camshaft thrust is taken through a steel thrust washer at front end, fitted between the end of camshaft and sprocket. It is held to the crankcase by two cap screws.

Camshaft drive is by a 60 link 3/8 pitch hardened steel chain which operates over sprockets, one of 21 teeth keyed on the front end of crankshaft and one of 42 teeth held to front flange of the camshaft by three cap screws.

cont.

CAMSHAFT *cont.*

The valve timing is properly set when the chain is installed so the two holes in the outer or guide links are directly opposite the "O" marks on sprockets with number 1 cylinder on firing center. The keyway in crankshaft is in line with numbers 1 and 6 crankpin.

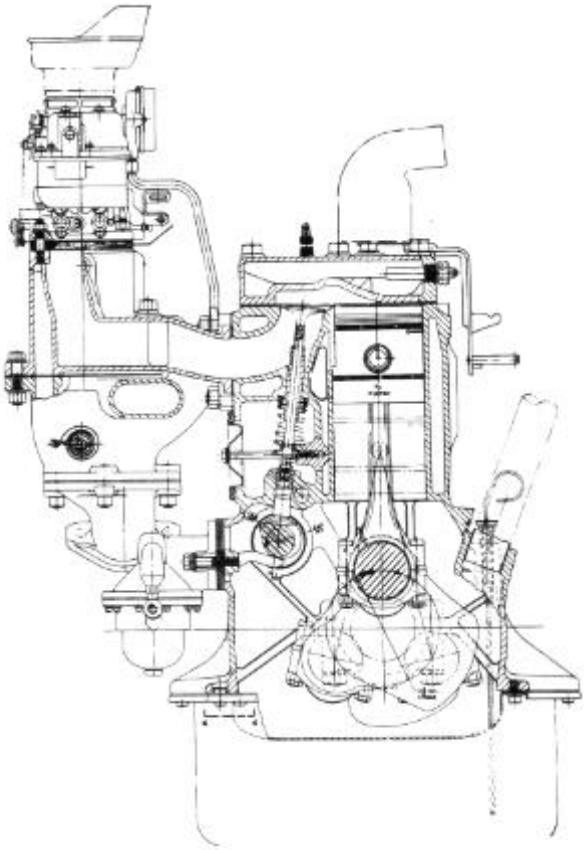


Mounted inside the timing chain cover at the top is a chain tension shoe of fibre construction and backed by a synthetic rubber plunger which holds chain in close mesh with sprockets and prevents whip. No provision is made for adjusting or removing a link from the chain, as under normal usage it will render service during the life of the engine.

An oil retainer is fitted in the timing chain cover to safeguard against oil leak from the front end of crankshaft. Oil delivered under pressure to the crankshaft sprocket teeth furnishes lubrication.

VALVES and TAPPETS

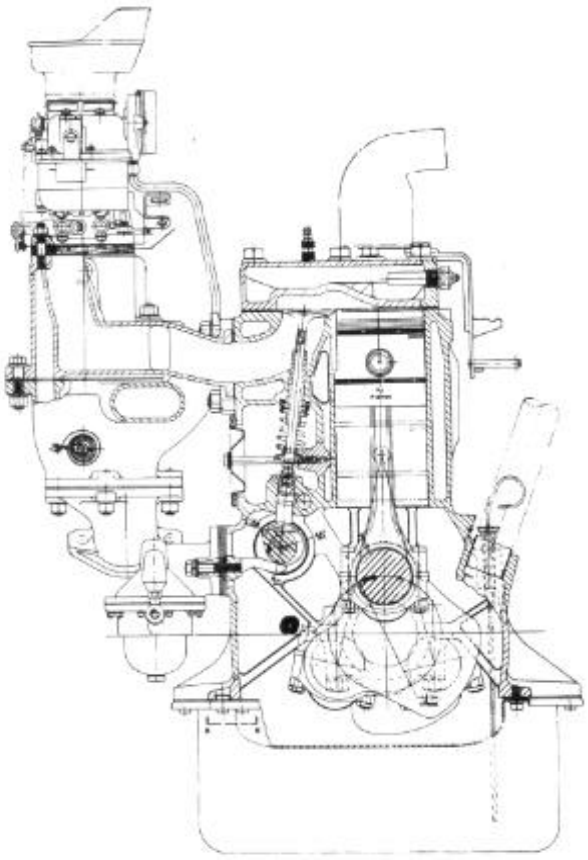
Valve tappets are of the mushroom type, slightly convex on the base, and due to the angle ground cams rotate with each contact of the cam. The tappet adjusting screw is made self locking by a different thread pitch on the screw from that within the tappet body, therefore, only two wrenches are necessary when making adjustment. Access for tappet adjustment is had by the removal of the right front fender apron.



The valve tappets are fitted directly in the crankcase; and can be removed only from the bottom of crankcase after the camshaft has been taken out. The valve clearance is .010" on inlet valves and .012" on exhaust, engine at normal operating temperature.

Cont.

VALVES and TAPPETS *Cont.*



Exhaust valves are of the heat resisting type of high nickel-chrome alloy steel. The valves are inclined inward toward the top of cylinders at an angle of 7°. This makes for easy flow, smaller and more compact combustion chamber, also improves cooling.

The valve seats are directly in the block and have a 45° seat. The intake valves have a larger head diameter than the exhaust, while the stem diameters are the same. The valves operate in removable cast iron guides. The upper ends of the exhaust valve guides are counterbored to reduce gum and carbon formation at this point.

The inlet and exhaust valve heads have neither slots or holes for attaching valve grinding tool. A vacuum cup type valve tool must be used for valve grinding.

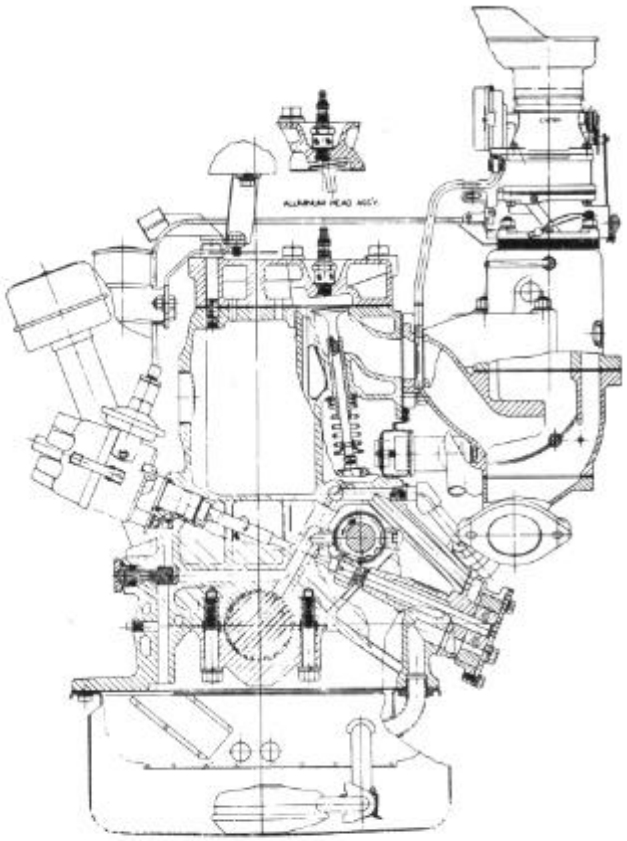
Valve springs are cadmium plated and secured in position by two half round tapered locks that seat in the tapered bore of a retaining washer and the inner rib engaging a groove in the lower end of valve stem.

★ ★ ★

ENGINE LUBRICATION

Full pressure lubrication to 40 bearing points of the engine is maintained by a rotor type oil pump, angle mounted on the right side of lower crankcase and driven from a worm gear on the camshaft. Oil is drawn by the suction side of the pump through a pipe connecting with a floating screen in the sump.

This pump is composed of an inner and outer rotor, shaft, body and cover. Outstanding characteristics of this pump are longer life, higher pressure maintained at lower speeds, low driving power required and quiet operation over a wide speed range.

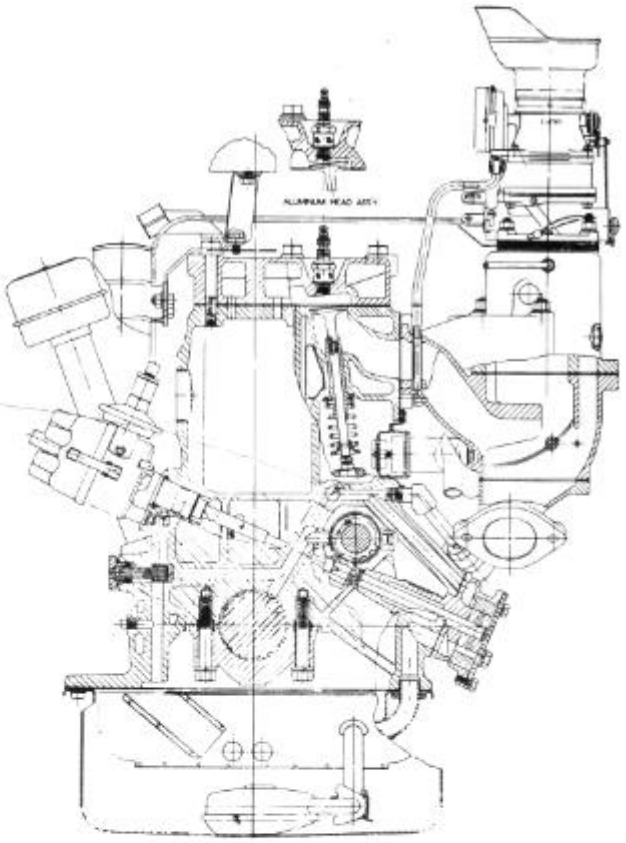


Oil pressure is regulated by a built in non-adjustable release valve and spring accessible through a plug at the left rear side of the engine. When starting the engine the release valve has moved to a position that closes the oil passageway to the oil filter and allows full pump flow direct through the main oil gallery extending the full length of the crankase . This oil gallery is intersected by drilled leads to main and camshaft bearings and valve lifters.

Cont.

ENGINE LUBRICATION *Cont.*

Oil pressure is supplied to the connecting rod bearings through the drilled crankshaft and the rifle bored rods convey the oil to piston pins. The angular hole drilled through the connecting rod supplies lubricant to the thrust side of pistons and cylinder walls. A tube fitted in the front end of main oil gallery directs a small pressure stream of oil at the point where chain meshes with crankshaft sprocket. Returned oil flows over the wide shallow portion of oil pan where it is cooled before reaching the sump.

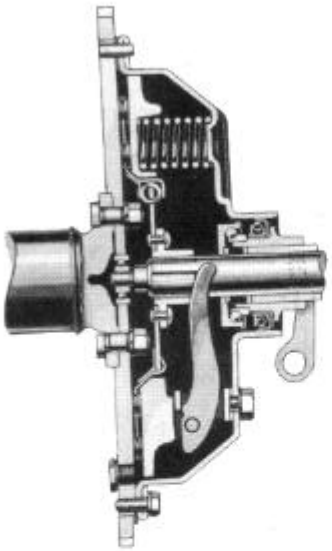


The oil measuring gauge seats on a tube pressed in the crankcase at left rear side. A sealed pressure type oil signal switch mounted just above the oil pump and connected with the main oil gallery is wired to the dash oil signal light. Should oil pressure drop below approximately 13 pounds the circuit is completed and lights the red dash oil pressure signal. Capacity of the oil pan is 7 quarts for refill and 7½ quarts when pan is removed.

CLUTCH

The Hudson Fluid cushioned, single plate clutch in the 10 inch size is standard on six and eight cylinder models. It has a single driving plate fitted with cork inserts for frictional contact and its driving hub is mounted in coil springs to dampen vibration.

The corks in the driving plate are held in contact with the smoothly finished surfaces of the flywheel and pressure plate by the action of the engaging springs and all operating parts are continually bathed in lubricant which is retained by efficient sealing. This oil cushion insures smooth starting and long life for all working parts.





The driving plate has 108 cork inserts, and the light weight of this unit facilitates gearshifting by its reduced tendency to spin. Both the clutch pressure plate and the driven disc are balanced to very close limits. The clutch pressure plate is fitted with 12 outer and 3 inner engaging springs.

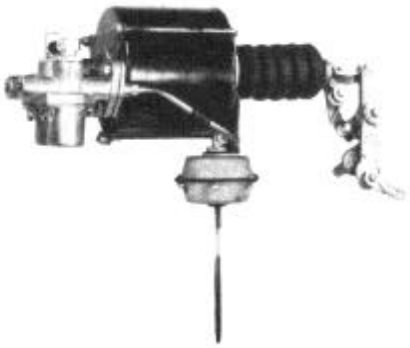
and

A marked improvement in the vibration dampening characteristics has been secured through a manufacturing change by which a continuous frictional load is maintained between the driven disc proper and its inner member. This results in better torsional vibration control and quieter transmission operation.

Clutch release finger heigth must be held uniform within .010. The clutch throwout bearing is a ball thrust type and is lubricated by a grease fitting on the right side of transmission case. An overcenter or assist spring in connection with clutch pedal increases ease of operation. An oil seal is fitted to the throwout bearing to prevent loss of Hudsonite from the housing. The clutch should be drained and refilled with ⅓ pint of Hudsonite every 5,000 miles. Clutch pedal clearance at the floor board is 1½ inches. The clutch housing is located by two tubular dowels extending through the rear support plate into the crank case, one at the upper section and one at the lower right.

VACUMOTIVE DRIVE

Vacumotive Drive or automatic clutch control is available as a factory option. This device provides means of engaging and disengaging the clutch automatically, dispensing with the use of the left foot when driving. It utilizes engine vacuum and is operated by momentarily lifting the foot from the accelerator pedal to disengage the clutch and depressing the accelerator pedal to engage it.



A centrifugally operated governor driven by the transmission functions to electrically control Vacumotive Drive which prevents automatic disengagement and free wheeling when the foot is lifted from the accelerator at speeds above 19 miles per hour.

A switch on the instrument panel permits the driver to change from conventional operation to automatic operation by merely turning the button. To revert to conventional control the button is turned to the left. This can be done at any time. It permits full manual clutch control when free wheeling and automatic operation is not desirable as when driving on slippery pavements and descending steep grades.

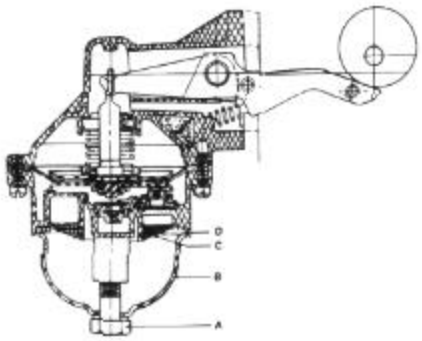
TANK

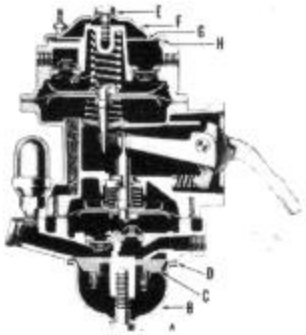
The 20 gallon fuel tank of heavy gauge terne plate is mounted in two steel straps beneath rear compartment floor. It is ventilated from the dome or high point at left side through an outside 3/8" diameter tube passing up through the inside and to the top of filler neck.

The filler neck opening is in compartment of left rear fender. Filler cap is of bayonet vented type. The tank outlet and gauge units are held in position by screws and are accessible from the top front side. The fuel line incorporates a flexible connection between the tank and fuel pump.

FUEL PUMP *and* CARBURETOR

A diaphragm type fuel pump mounted on right side of crankcase is operated by an eccentric on the camshaft. It has a screen for filtering the gasoline and maintains a pressure of 3½ lbs. minimum to 4½ lbs. maximum when operated at 1800 R.P.M. A multiple layer asbestos gasket between the fuel pump and crankcase is used to insulate it from the engine heat. A combination type fuel and vacuum pump is optional.

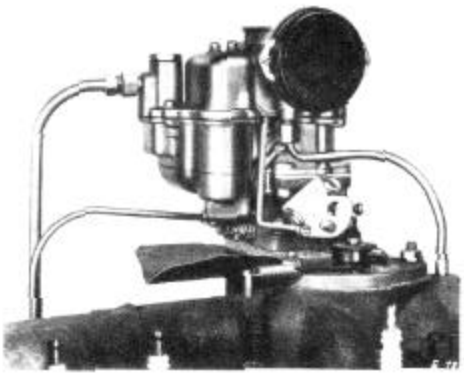




Carter Dual Down-Dratt Climatic Control Carburetors of the 1¼" size are on 6 and 8 cylinder models. The dual carburetor is virtually two carburetors in a single housing with a single float chamber. On 6 cylinder engines, one barrel feeds the front three cylinders and the other feeds the rear three cylinders.

FUEL PUMP *and* CARBURETOR *cont.*

In the eight cylinder engine, one barrel feeds the two front and two rear cylinders; the other barrel the four center cylinders.



Both carburetors incorporate the Climatic Control or automatic choke feature, dual vacuum controlled metering rods for governing fuel flow, fast idle mechanism for quick warm up, and anti-percolating valve to reduce vapor pressure and the possibility of vapor lock. Heat deflecting shields and special thick insulating gaskets are used between the carburetor and manifold to reduce the heat transferred to the carburetor.

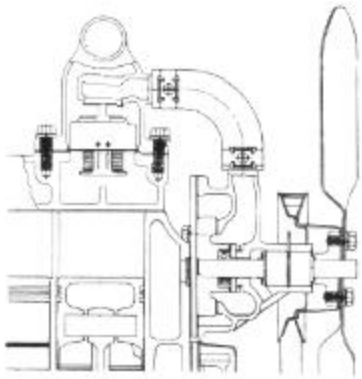
A thermostatically controlled heat valve in the exhaust manifold automatically regulates the correct amount of exhaust gas flow through the intake hot spot for efficient carburetion Mounted outside on the heat valve shaft on the 6 cylinder valve is a counterweight which balances the damper in all positions and minimizes flutter.

Oil wetted metal guaze type air cleaners are standard with oil bath type air cleaners available as optional equipment on all models.

COOLING SYSTEM

The cooling system of the six and eight cylinder engines are of the centrifugal pressure pump type, incorporating thermostatic control and cylinder by-pass.

A "V" belt driven by the vibration damper pulley operates the fan, water pump and generator. Belt tension adjustment is made by moving generator outward. The water pump is a new improved design, having a large impeller and corresponding large delivery at comparatively low speeds. The pump shaft is cadmium plated to prevent corrosion, and is carried in a sturdy duplex ball bearing, that is prelubricated and sealed.



A bellows type seal, with spring tension against both hub and thrust washer, is of synthetic rubber suitable to withstand heat or anti-freeze. The thrust washer is of special alloy impregnated with graphite for lubrication. There are no provisions for adjusting or lubricating the water pump as none are required

Cont.

COOLING SYSTEM *cont.*

The radiator, of cellular tubular type, having both greater capacity and increased flow rate, makes for increased cooling efficiency. Two bolts, through rubber insulated brackets, at each side secure it to the cradle uprights. The overflow pipe is mounted high in the filler neck so that a sealed cooling type cap may be used.

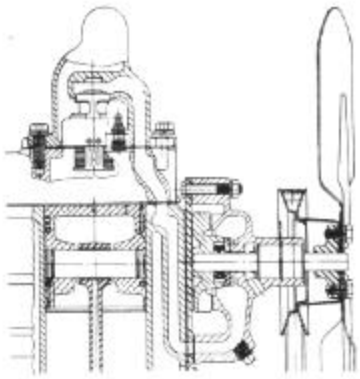
A thermostatic water temperature regulator is housed within the water outlet at front of cylinder head. Arranged with a by-pass, the thermostat restricts circulation through the radiator but allows water to recirculate through the cylinder block until a temperature of 150 to 155 degrees is reached. Then it begins to opens gradually and is fully open to radiator circulation at 180 degrees and the by-pass is closed. On 8 cylinder models, the cooled water from the radiator enters the manifold on the left side of the cylinder block and through a graduated baffle plate is distributed evenly throughout the entire length of the block

cont.

COOLING SYSTEM *cont.*

On six cylinder engines, the cooled water from the radiator is forced through a brass distributing duct that extends the full length of the cylinder block and is so drilled to direct streams of water on hottest points around valve seats and exhaust passage-ways. There is complete water circulalion around each cylinder wall.

Water openings in the top of cylinder block and cylinder head have been carefully arranged for size and position to provide uniform and adequate cooling.



The new four blade fan is 18 inches from tip to tip and has larger blade area and varied angle spacing for increased efficiency and silent operation. It is held to the fan hub by four cap screws; the hub and pump impeller are pressed on the pump shaft but not peened. The fan should not be set up closer than 5/8" from the radiator core.

The cooling system may be completely drained by a drain valve at the right lower side of radiator core and a plug at left rear side of cylinder block water jacket. The pump must be drained by removal of a plug at the bottom of pump body on 6 cylinder models.

The capacity of cooling system is 17 qts. on 6 cylinder and 18 qts. on 8 cylinder models. The radiator, fan and thermostat are interchangeable on the six and eight cylinder models.

IGNITION

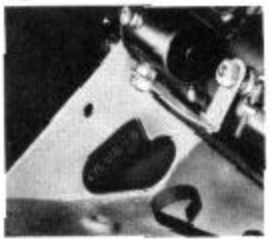
The ignition distributors of the six and eight cylinder models have both centrifugal and vacuum spark controls. The centrifugal spark advance is controlled by a mechanical governor within the distributor, regulating the advance for proper spark timing in relation to engine speed. A spark advance range of 17½ degrees on eight cylinder and 12 degrees on six cylinder models is provided by this mechanism.

The vacuum advance, operated by the intake manifold vacuum, supplements the centrifugal control of the spark so as to obtain maximum benefits of early ignition and at the same time eliminate objectionable spark knock. The degree of throttle opening and engine load controls the manifold vacuum which operates a diaphram that advances or retards the spark by rotating the breaker point mounting plate around the cam. The vacuum control affords an additional range of 8½ degrees for spark advance on both six and eight models.

cont.

IGNITION - *Cont.*

Correct spark setting is at the top dead center on both the six and eight cylinder engines with distributor set at midway position on quadrant. Advancing or retarding of the ignition should be done by loosening the holding cap screw on the quadrant and turning the distributor housing. Distributor rotation is clockwise. The distributor contact point setting is .017" and the cam dwell angle is 27 degrees on the eight cylinder engine. The point gap is .020" and the cam dwell angle is 38 degrees on the six cylinder engine.

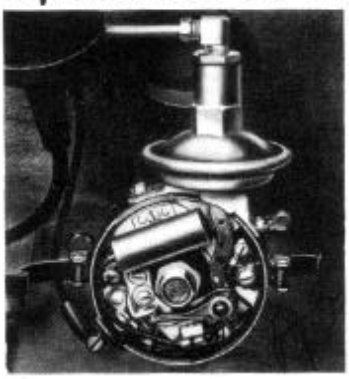


The distributor point adjustment is made by first loosening the stationary point plate holding screw, then turn the eccentric screw adjacent to it, to either increase or decrease the point gap. Following tightening of the holding screw, the point gap should be rechecked.

On eight cylinder engines the distributor is driven by a gear mounted on the shaft which meshes with a drive worm integral with the camshaft. *cont.*

IGNITION – *Cont.*

On six cylinder engines the distributor is driven by the oil pump which in turn is operated by a gear meshing with the camshaft gear. The ends of the oil pump and distributor shaft are machined to provide a tongue and groove drive coupling which is offset to insure replacement of the distributor in the correct position.



Distributor lubrication is by engine oil at oil cup on housing and wick in upper end of shaft and a high temperature grease on cam lobes.

The ignition coil is mounted on the engine close to the distributor, which increases spark efficiency and reduces radio or television interference. Mounting the coil in an inverted position serves to protect it against water and moisture.

The J-9 Champion spark plug is standard equipment with the cast iron cylinder head having a compression ratio of 6.5:1. The aluminum alloy cylinder head which is optional equipment on both sixes and eights has a 7.0:1 compression ratio and requires the H-10 type plug.

These spark plugs are of the 14 millimeter size and the correct gap setting is .032".

ELECTRICAL EQUIPMENT
GENERATOR

The generator is of the bi-polar belt driven fully ventilated high out-put type, with third brush and voltage regulator current control. The front end of the armature carries a fan for forced ventilation and is supported in an annular ball bearing.

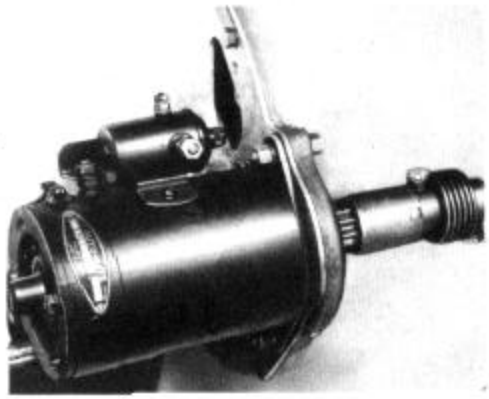
The rear bearing is of the bronze sleeve type; both are fitted with an oil cup and wick for lubrication. The mounting of the generator is a swinging hinge type to permit easy belt adjustment.



One type generator is used for all models. The current out-put is 44 amperes when cold and 37 amperes at normal operating temperature. Maximum output is attained at a car speed of approximately 35 miles per hour. The current regulator is mounted on the dash.

STARTER MOTOR

The large starter used on 6 and 8 cylinder models is of the 4 pole, 4 brush, high torque design. The armature is carried in oilless sleeve bearings mounted in the front and rear cover plates. Oil cups are provided for lubricating both bearings. A new improved, inboard type Bendix starter drive is used. When the starting circuit is closed, the Bendix pinion engages directly with the heat treated ring gear that is pressed on the flywheel. The starter pinion has 9 teeth and the flywheel ring gear has 134-approximately 15:1 ratio.



Starter operation is by means of a solenoid switch mounted on the starter, which is actuated electrically when the circuit is closed by pressing the starter button on the instrument panel. A small push button located at the rear end of the solenoid switch is provided for use in cranking the engine when checking timing, changing clutch compound, or when performing work requiring the engine to be turned over.

BATTERY

The high type, 17 plate battery, located under the hood at the left side has a larger plate area and provides a high current flow for cranking the engine in cold weather.



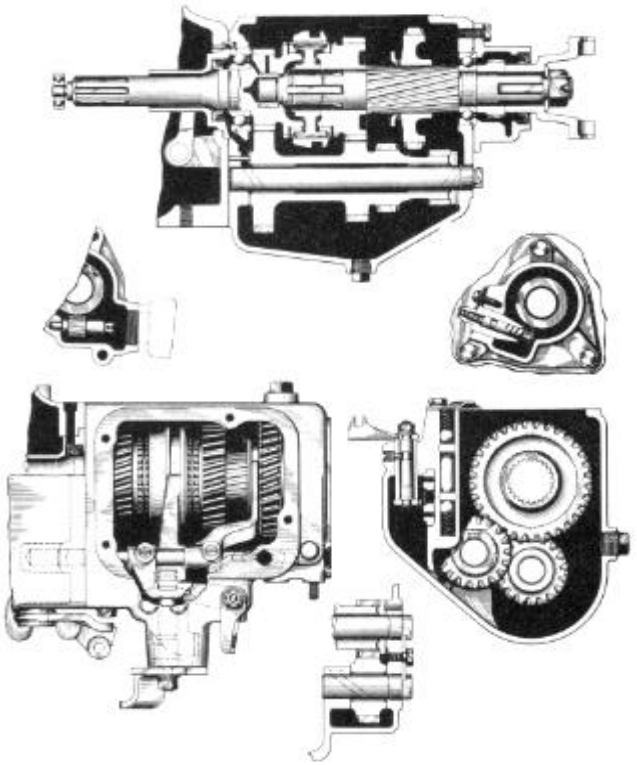
The new battery has ample storage capacity to supply the electrical equipment, is protected against overcharge by the voltage regulator.

The battery capacity is 120 ampere hours at the 20 hour discharge rate. There are eight positive plates and nine negative plates. The positive terminal is grounded to both frame and engine by a single continuous ground strap.

TRANSMISSION

Two transmissions are employed in the 480 series six and eight cylinder cars, both of the same basic design as the unit previously used and differing from each other only in the number of teeth in the mainshaft drive gear and the countershaft drive gear. The difference in the number of teeth in these gears affects the ratios in low, second and reverse gear.

On all cars equipped with Drive-Master, the lower ratio transmission is used. This has a second speed ratio of 1.82:1, the same as used on all models during 1947. The unit used on cars without Drive-Master has the higher second speed ratio of 1.65:1 A metal tag attached by a cover bolt screw identifies the ratio of each transmission.



Gear Ratios are as follows:

	WITHOUT DRIVE MASTER	WITH DRIVE MASTER
LOW	2.61:1	2.88:1
SECOND	1.65:1	1.82:1
HIGH	1:1	1:1
REVERSE	3.17:1	3.5:1

Cont—

TRANSMISSION *cont.*

All gears have helical cut teeth for quiet operation in all speeds. The main drive gear is supported by annular ball bearings located in the fly-wheel and the front of the transmission and is fitted with a needle roller bearing in which the front end of the main shaft operates. The mainshaft is spirally splined to receive the low and reverse sliding gear and is supported in a large ball bearing in the rear of the transmission case.

The countershaft gear is a unit forged gear cluster which is fitted with steel-backed babbitt lined bushings operating on a stationary countershaft. Bronze and steel washers located at both ends of the countershaft absorb end thrust. The reverse idler gear is also fitted with a bushing which operates on the stationary reverse idler gear shaft.

Hydraulic leather oil seals located at the main drive gear and rear end of the mainshaft prevent loss of lubricant and a breather in the cover maintains an atmospheric condition inside the transmission.

TRANSMISSION OVERDRIVE

Overdrive is available as a factory installed equipment option for all models. This device provides 4th. speed operation by means of planetary gears, an overrunning roller clutch and electrically operated solenoid control. The overdrive reduces engine speed 28 percent in relation to car speed. This reduction in engine speed at a given car speed is reflected in quieter operation, reduced engine wear and greater fuel and oil economy.

When the overdrive control, located beneath the instrument panel, is pushed in, overdrive is placed in operation, by momentarily releasing the accelerator pedal at car speeds above 22 miles per hour. When the speed drops to 19 miles per hour or lower, the solenoid control disengages overdrive and the overrunning clutch then provides 'free wheeling' thus permitting the propeller shaft to turn faster than the crankshaft.

To obtain fast acceleration when passing other vehicles and climbing short, steep hills while in overdrive, it is only necessary to depress the accelerator pedal beyond the wide open throttle position. This "fast acceleration" feature cuts out overdrive and by reverting to direct drive, maximum power is available for such occasions.

When the control is pulled out, overdrive and free wheeling become inoperative. This is desirable when it is necessary to use the engine as a brake in descending steep grades or when driving on icy or slippery pavements.

HUDSON DRIVE MASTER

Hudson Drive-Master, which is available as a factory installed option only, provides automatic gear shifting in forward speeds under normal conditions, yet permits shifting in the conventional manner at ANY time. Hudson Drive-Master allows the driver to have COMPLETE CONTROL of the transmission in every speed at all times.

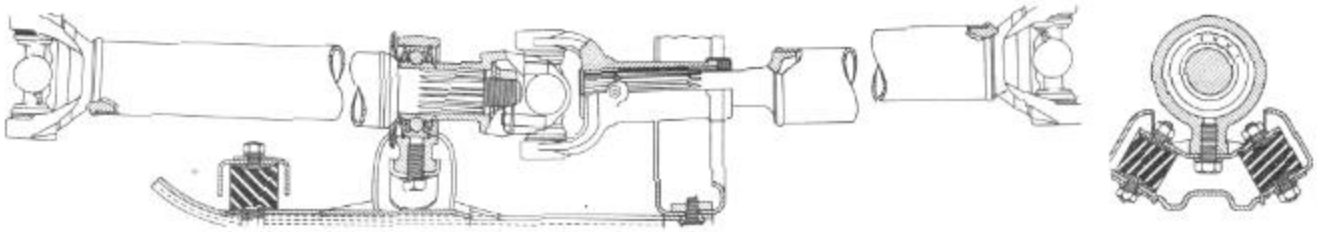
When the Drive-Master switch knob on the instrument panel is turned to the right, the operation of the clutch and gear shifting in forward speeds is automatic. When the switch is turned to the left, the clutch is operated automatically, but the transmission gears must be shifted in the conventional manner. When the knob is in the center or "off" position, both transmission and clutch are operated manually.

Final rear axle ratios when overdrive is used:

Actual Axle Ratio	Ratio in Overdrive
4 5/9 : 1	3.28 : 1
4 1/10 : 1	2.96 : 1

PROPELLER SHAFT

Final drive is through two propeller shafts supported by a center bearing which permits low center of gravity.

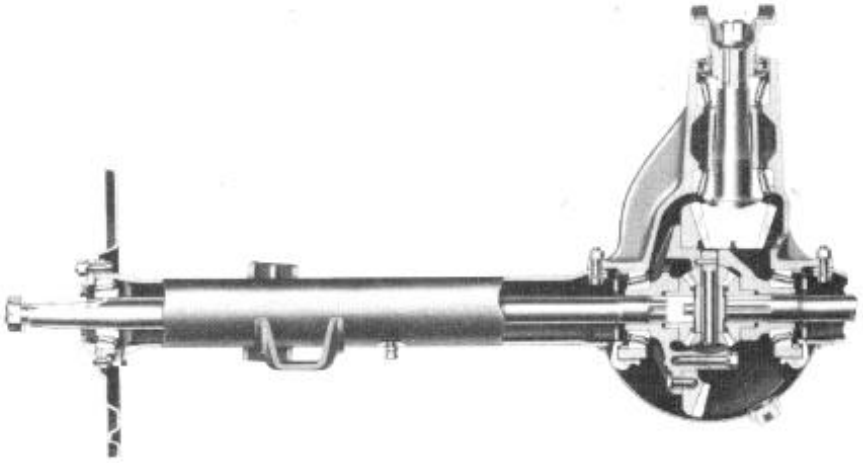


The front propeller shaft is fitted with a needle bearing universal joint at the front end while at the rear a plain coupling flange is mounted on the splined end of shaft. The front or longer shaft is supported just forward of the rear flange by a prelubricated sealed annular ball bearing, fitted in a cast steel housing and mounted on a support attached to cross members. Three rubber cushions arranged between the bearing, the support and under body frame members cushion shock and absorb vibration.

The rear propeller shaft, shorter than the front, has a needle bearing universal joint at both ends and is also splined at the front end for the sleeve yoke. Lubrication is by pressure fittings to the three sets of needle rollers and to the sleeve yoke.

REAR AXLE

The rear axle is of the semi-floating type with improved fully adjustable Hypoid driving gears of chrome molybdenum steel. Advantage of the Hypoid design lies in permitting a lower propeller shaft, is stronger because of greater area of tooth contact and increased silence of operation. An air vent at the upper left side of housing maintains a uniform atmospheric condition within.



An independent, self contained carrier assembly is mounted in a sturdy pressed steel banjo type housing. Roller bearings carry both the differential case and pinion shaft with provision for adjustment. *cont.*

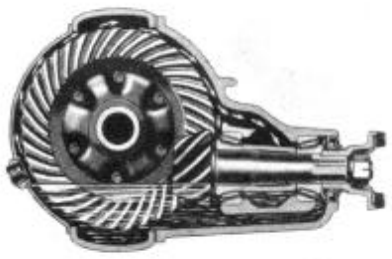
REAR AXLE *Cont.*

The drive gear is adjusted by adjusting nuts and the pinion by means of shims. A hydraulic leather seal is fitted at the front end of the pinion housing. The universal companion flange is held against pinion spacer by a Marsden lock nut.

The drive gear is secured to the differential case flange by eight alloy steel cap screws. Two differential pinions are carried on a hardened and ground shaft which is locked in the differential case. The two side gears are splined to receive the splined ends of axle shafts, the inner ends of which thrust against a hardened block that is carried on the pinion gear shaft.

The outer ends of the axle shafts are mounted in large tapered roller bearings provided with shim adjustment for end play. Grease retainers are fitted at both the inner and outer sides of these bearings.

Two rear axle ratios are available as standard and optional equipment on all models. They are 4 5/9 : 1 and 4 1/10 : 1. Hypoid #90 lubricant is used for summer and winter operation. Capacity is 3½ pints.



REAR SPRINGS

The semi-elliptical rear springs are 54 inches in length, and 1¾ inches wide. The front end mounting is through a rubber bushed bolt, the rear end being attached to the frame through threaded self-adjusting shackles of the silent "U" type.

Rubber cushions in metal retainers are employed above and below the spring, where it is secured to the axle housing, to dampen out road noise and vibration. Both drive and braking torque are taken through the rear springs which are also "Splay" mounted with the greater spring width at the rear. This design gives better riding qualities and improves stability.



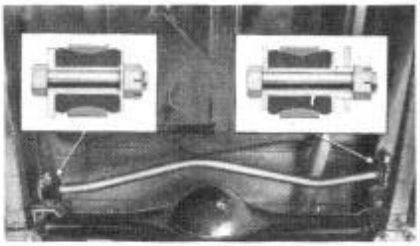
Metal spring covers are standard equipment on all rear springs. They serve to retain the lubricant and prevent dirt and water from entering between the leaves. Lubrication is by "C" clamp, a special tool for this purpose.

REAR SHOCK ABSORBERS



Direct double acting "Airplane" type shock absorbers serve to control rear spring action. Both ends are mounted in rubber bushings, the lower end is bolted to the extension of the spring bed plate and the upper end to a stout under body member. The shock absorbers are of the welded case, sealed for life type and cannot be disassembled.

REAR LATERAL STABILIZER



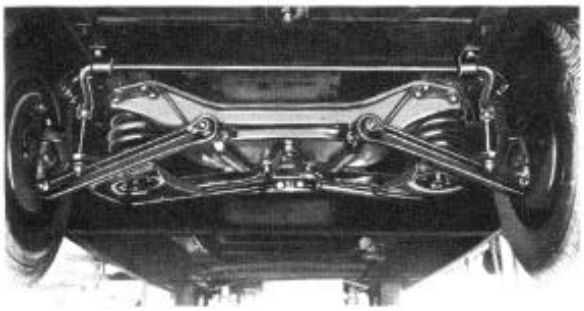
The function of the rear lateral stabilizer is to control side or lateral movement between body and rear axle. This not only improves steering control and riding comfort, but also eliminates spring noise due to side motion. The stabilizer is of high alloy steel and designed to allow adequate clearance through the entire range of spring action.

One end is rubber mounted in a sturdy steel bracket that is securely welded to the left top of axle housing just inside of spring clips. The other end, also mounted in rubber, is secured to a bracket that is welded to an underbody member at the right side. The stabilizer bar is of fixed length and no adjustment is provided. Rubber bushings compensate for installation and length correction.

FRONT SUSPENSION

The angularly set, wishbone type, front suspension has been modified to suit the needs of the 480 series cars. Large diameter coil springs and direct acting low pressure shock absorbers, mounted inside the springs, support and control the front end.

Rubber silencers are fitted at the upper end of spring to dampen out road noise and spacers between the silencers and frame are available to provide means for controlling the front end height. At each extreme range of spring movement, large conical rubber bumpers are mounted to cushion spring action.



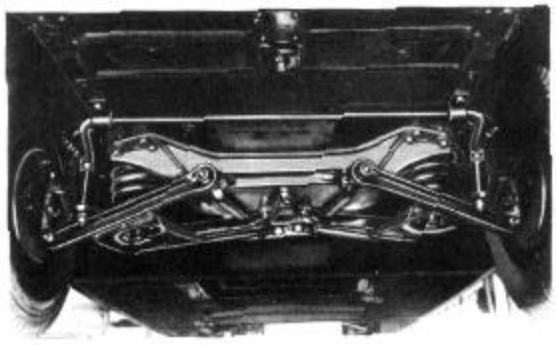
The upper and lower suspension arms, also the spindle support assemblies are fitted with threaded bushings to provide for adjustment. These are protected against road splash by rubber covers. Connecting the upper suspension arm to the top of steering spindle support are threaded eccentric bushings which also provide necessary adjustment to obtain caster and camber settings.

Cont.—

FRONT SUSPENSION

Two identical tie rods connect the center steering arm with the right and left steering spindle arms. The ends of these rods have automatic take up joints and each has a right and left hand thread for toe-in adjustment. The center pivot is carried on a hardened shaft that operates in two needle bearings and is mounted in a malleable casting. End thrust is taken through hardened and ground washers. Pressure grease fittings are provided for lubrication of tie rod ends and needle bearings.

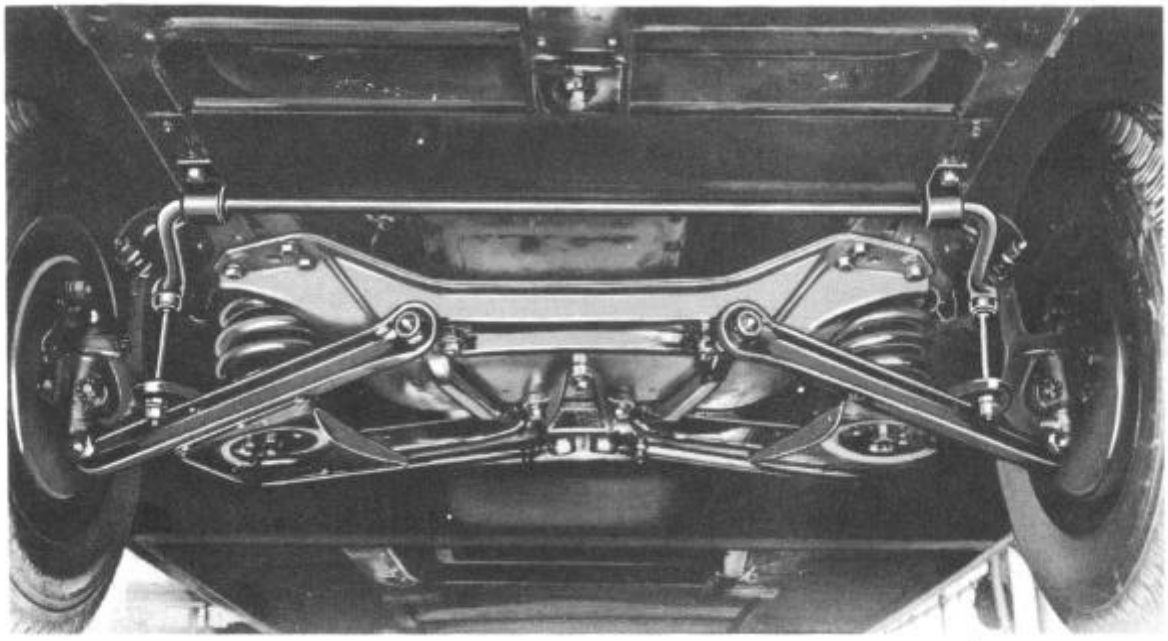
THE FRONT WHEEL ALIGNMENT SPECIFICATIONS ARE AS FOLLOWS:



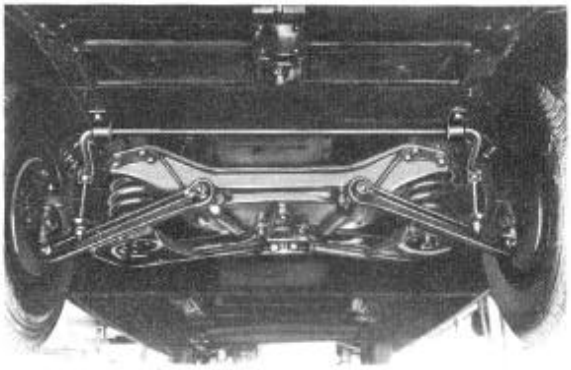
CASTER ½ to 1-½ DEGREES
CAMBER ½ to 1-½ DEGREES
PIVOT PIN INCLINATION 3-½ DEGREES
TOE-IN 1/32" PLUS OR MINUS 1/32"

FRONT LATERAL STABILIZER

The front stabilizer bar is mounted in rubber bushings under the front frame side members. Rubber bushed links are fitted and the lower ends are attached to plates that are riveted to lower support arm. The front stabilizer functions in maintaining control and reducing sway to a minimum on turns.



FRONT SPRINGS

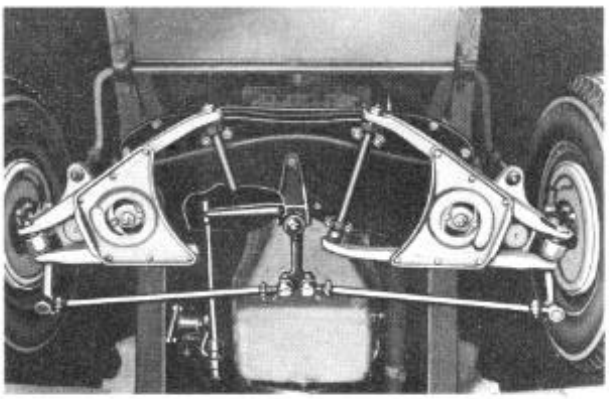


The front springs are of the large diameter, soft acting coil type made of a special steel which permits of better heat treatment control for uniformity. This results in consistent spring performance and durability over the life of the car. Of interest in connection with the springs is the shot peening process used in manufacture which raises their endurance greatly.

The standard spring, part *300442, has a free height of 15 1/16 and a deflection rate of 386 pounds per inch. The part *301621 heavy scale spring has a free height of 14 5/16" with a rate of 450 pounds. For identification, a daub of pink paint is used on the two center coils of the *300442 spring and red paint on the *301621 spring. An additional identification in the form of a white paint mark on the bottom coil indicates a light limit spring while a red paint mark at this point denotes a heavy limit spring.

STEERING

Hudson center point steering provides steering stability under all speed and road conditions, exceptionally short turning radius, and accurate steering geometry. The heavy drag link connects the steering pitman arm to the center steering arm from which point the individual tie rods directly control the movement of both front wheels. This gives equalized control of each front wheel and helps to overcome road roughness without transmitting shock to the steering wheel.



The worm and triple tooth roller design steering gear is used, having the pitman arm mounted on the inner end of roller shaft for Hudson center point steering. The triple tooth roller is a new improved design that makes for reduced wear and in conjunction with the new 20.4 : 1 ratio, easier steering.

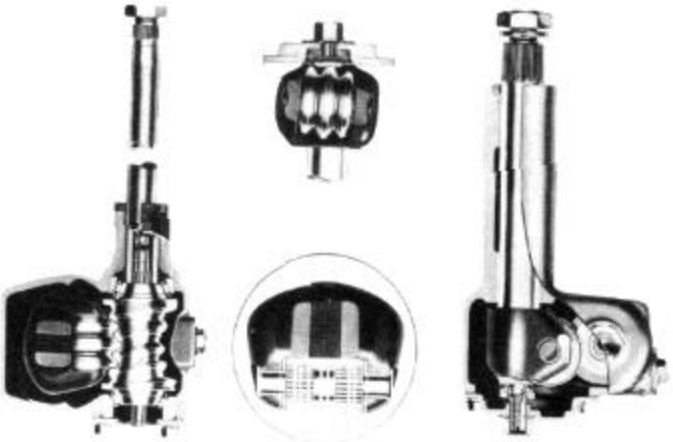
The worm and main steering column are mounted in taper roller bearings, with provision for adjustment by shims to compensate for wear

Cont.

STEERING *cont.*

A ball bearing is mounted between the main column and the jacket tube at the upper end. The cross shaft is carried in two bronze bushings, finished by burnishing which produces a hard, dense bearing surface. The triple tooth roller is mounted on a large needle bearing each side of which are hardened and ground steel thrust washers.

A thrust button and provision for adjustment are incorporated in the housing side cover to take up end play in the cross shaft as well as control the play between the worm and roller.

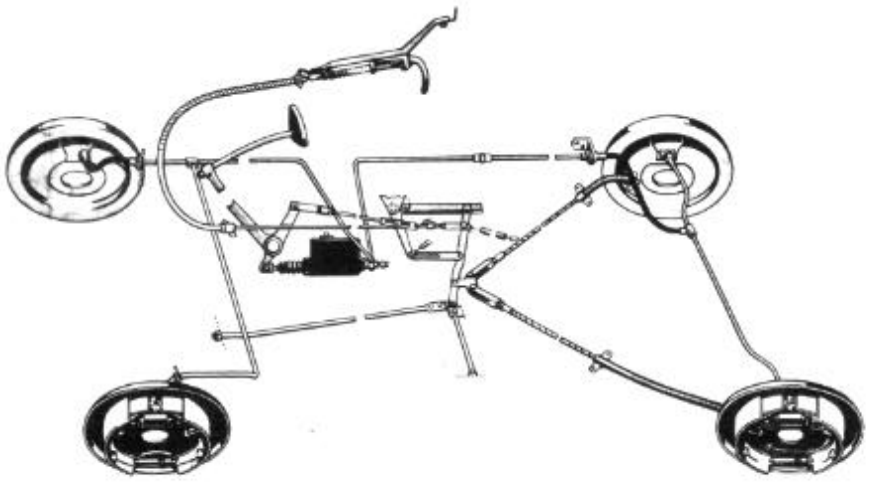


The upper gear shift tube bracket is doweled to steering jacket tube to prevent shifting. Mounted on the lower part of the steering gear housing is a bell crank, for transmitting movement from the control lever to the transmission. A grease fitting in the end of shaft provides lubrication.

A special design, two spoke steering wheel of 17 inch diameter is standard; and an 18 inch wheel is available as optional equipment. Lubricant for steering gear is E.P. 90 for summer and winter, applied through plug at upper side of housing.

BRAKES

Servo-action, hydraulic, four wheel brakes of 11 inch drum diameter on all models is standard. The rear brake cylinders are 15/16" diameter, the front 1 1/8". Moulded brake lining is riveted on both the primary and secondary shoes of front and rear brakes



Brake lining width on the front is 2 1/4, the rear is 1 3/4. This arrangement is cylinder size and brake lining width distributes the braking effort at front and rear, ideal for maximum braking efficiency. The standard clearance adjustment at both ends of brake shoe is .010".

The master cylinder and supply tank are an integral casting mounted beneath the front compartment floor. The supply tank should be kept at least 1/2 to 2/3 full of Hudson Hydraulic Brake Fluid. Due to its position and drilled connections, the master cylinder is self-compensating at all times. The brake pedal to floor board clearance is 1/4 of one inch.

Cont—

BRAKES *cont.*

The hand brake is applied through a pull type, pistol grip, self locking control and is located under the instrument panel to the left of steering column. The hand brake can be applied or released much easier by applying pressure on the brake pedal at the same time. This also eliminates the possibility of vacuum being created behind the rear wheel cylinders and pocketing of air in the lines.

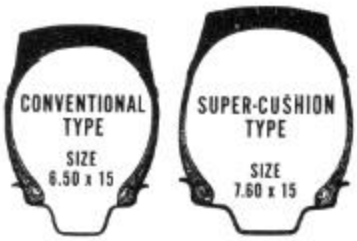
Brake drums are of the centrifuse type-a composite construction of alloy iron at the area of lining contact which is spun into a steel shell by centrifugal force. This makes for a drum of excellent frictional and heat dissipating qualities, and free from distortion.

Incorporated in the braking system is Hudson's patented reserve mechanical follow-up feature which brings the rear brakes in operation through direct cable connection, should the brake pedal travel beyond a predetermined point. This reserve action is effected through a slip toggle in the brake linkage. This should have a free movement of 1¼ inches before engaging the mechanical brakes.

WHEELS and TIRES

The new super cushion rib tread tires, specially designed for easier riding and employing a larger cross section and lower air pressure are standard on all models. This is now 24 pounds for front and rear tires. The tread contact of the tire with the pavement has not been increased.

Four ply, 15 × 7.10 tires are standard on all models with 15 × 7.60 tires available as optional equipment. White sidewall tires in both sizes as well as 6 ply tires, are also available as options.



The wheels are of the new wide base rim drop center type designed to accomodate the Super cushion tire. The size 15 × 5.00 wheel is used with the 15 × 7.10 tire. 15 × 5.50 wheels are used with the optional equipment 15 × 7.60 size tire. The spare wheel and tire are mounted horizontally on the rear floor of baggage compartment.

BODY and FRAME

The Hudson all steel Monobuilt body and frame is a sturdy all welded unit in which the frame members form a box-like foundation of steel girders. Vertical structural members and panels are joined to this foundation to form a single welded together unit of body and frame.

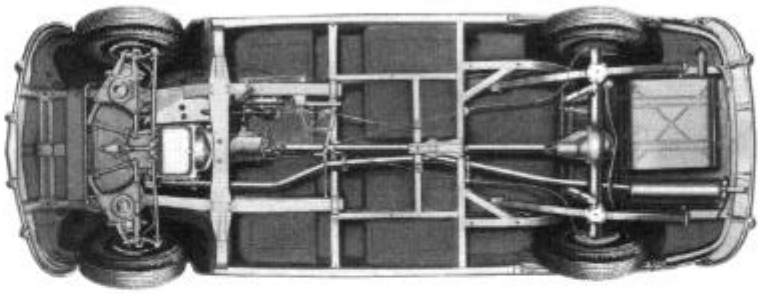


The foundation side and cross members are joined by a heavy box member which is continuous around the outside at both sides and the rear of the body. The rear bumper mounting supports are welded to this member.

The front frame section on which the engine and transmission are mounted is composed of two side rails the rear ends of which extend under the body. These members are joined together with three cross members, the second one being an exceptionally heavy stamping which forms a support for the front suspension system.

Cont.

BODY *and* FRAME *Cont.*



The #3 cross member is of box section, the ends of which are closely fitted to matching supports formed in the body frame. In assembly, these points are joined together by riveting and welding thus making the front frame and the body frame an integral unit. The rearward extending front frame side members terminate at the #4 body cross member to which they are joined by clamp plates, bolts, and welding.

In the Hudson Monobilt body and frame, all panels and stampings have been designed where possible to contribute structural strength in addition to such other functions for which they are intended. As an example, the roof drain trough is of unusually heavy construction and adds materially to the superstructure strength. The full, separate housings for the rear wheels which are made of heavy stampings welded together also add greatly to body strength.

Cont.

BODY and **FRAME** *cont.*

In the process of manufacture, bodies are given a thorough cleaning and rust proofing by a chemical process. A silicon base asphalt sound deadening material is applied to the body under-panel from the rear of the front seat to the extreme rear end. It is also applied to both top and bottom of the rear wheel housings. Panels are sound deadened with felt or other sound insulating material.

ENGINE TUNE UP

Engine tune up is one of the most important operations falling within the category of our maintenance service and more than any other determines the satisfaction the owner derives from the operation of his car.

Today's high compression engines and high speeds demand accurate settings of the ignition and fuel systems for maximum performance and operating economy. It is essential therefore that the engine be maintained continually in a good state of tune and adjustment. Only by doing the operations covered in the following procedure and staying within the limits and specifications given, is it possible to get the performance and economy built into Hudson engines.

Make it a point to sell every owner on the importance and advantages of having a complete engine tune up performed on his car twice a year or every 5,000 miles.



EQUIPMENT

For properly diagnosing and completing a major tune up, it is necessary to employ a master type motor tester or analyzer or its equivalent in portable units. These consist of:

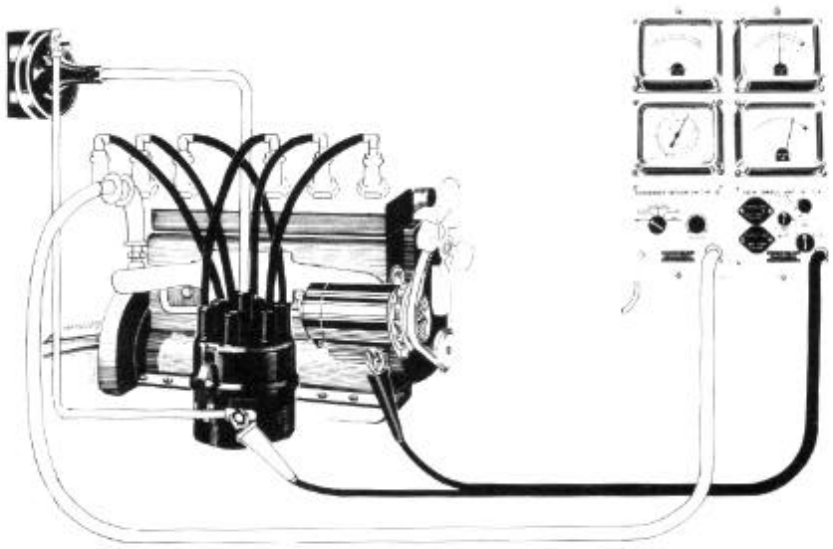
1. Vacuum and Fuel Pump Pressure Gauge
2. Compression Gauge
3. Cylinder Balance Tester
4. Power Timing Light
5. Volt-Ampere Tester
6. Coil Tester
7. Condenser Tester
8. Dwell-Tach Meter
9. Battery Starter Tester
10. Combustion Tester

A Distributor Tester is also essential to properly check Distributor operation.

VACUUM AND CYLINDER TEST

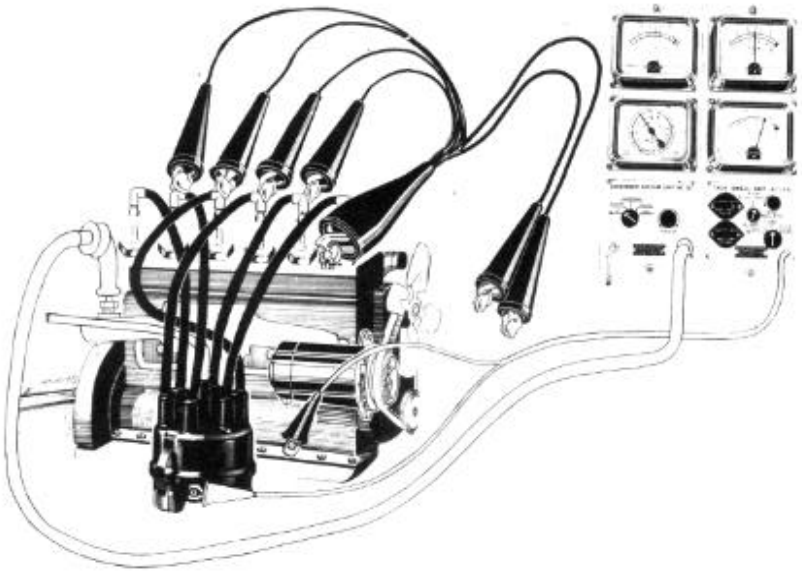
NOTE: If Engine has a combination fuel and vacuum pump, disconnect the booster line and plug the manifold connection opening.

1. Attach vacuum gauge to wiper hose connection. Carburetor and intake manifold nuts must be tight.
2. Adjust idle mixture for smooth idling.



3. Adjust throttle stop screw to obtain engine speed of 550 to 575 RPM. If Drive Master equipped idle at 575 to 600 RPM, use tachometer.
4. Vacuum gauge reading now should be 18 to 21 inches, hand holding steady or very slight flutter.
5. If gauge is not steady, engine is not in tune and other adjustments will be required.

CYLINDER BALANCE TEST



1. Set engine throttle until engine is running at about 1500 RPM.

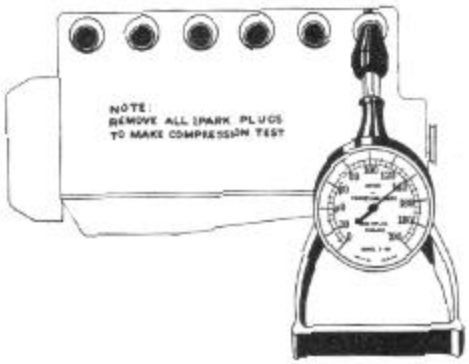
2. Connect vacuum gauge hose and cylinder balance tester as shown in diagram.

3. With the engine running on number one and six cylinders, note the reading on vacuum gauge. Then make the same test on all other cylinders by moving number two clip to number one and number five to number six. This will permit running the engine on number two and number five cylinders. Next move number three clip to number two and number four to number five. The engine will then be running on number three and four cylinders. Follow the same procedure on 8 cylinder engines, making 4 tests instead of 3.

4. In running the engine in banks of two cylinders at a time as outlined, the vacuum gauge should read the same on each bank without more than one inch difference between any two pairs of cylinders. If one pair of cylinders reads lower than the other pair it indicates either a spark plug that is missing or unequal compression in a cylinder.

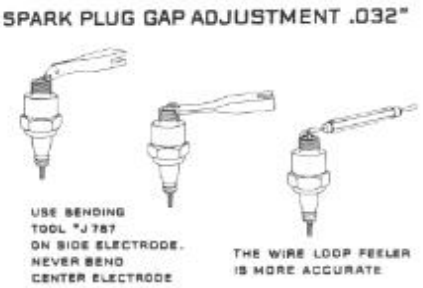
COMPRESSION TEST

1. Remove spark plugs and open carburetor throttle fully.
2. Record compression reading at each cylinder at cranking speed.
3. Minimum reading should be not less than 100 pounds and variation not over 10 pounds.
4. NOTE: If gauge goes up in jerky steps of 10 or 20 pounds at a time, it generally indicates sticky or leaky valves. If two adjacent cylinders show low compression readings, check head gasket for leaks.



To determine if major trouble is in pistons, rings or valves, inject small quantity of oil on top outer edges of piston (3 squirts of hand oiler) and make second compression test. If reading is uniform with other cylinders, it indicates leaking rings, if not, valves are not seating or piston may be cracked or damaged.

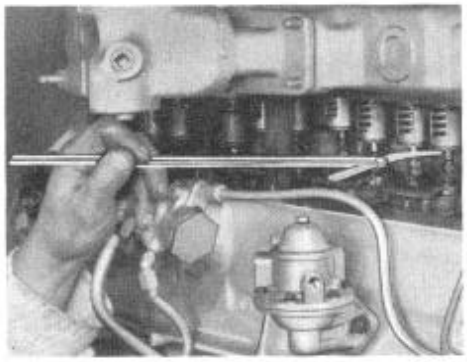
SPARK PLUGS





Inspect, clean, and adjust the spark plugs. If visual inspection indicates that the porcelains are burned, blistered, or cracked, or if the electrodes are burned excessively, the spark plugs should be replaced with new ones of the same type. Champion J-9 type plugs are used with cast iron and H-10 type plugs with aluminum cylinder heads. Adjust plugs to .032". They should fire without missing under 75 pounds in tester. Use new gaskets and tighten spark plugs with a torque of from 20 to 25 foot pounds on both aluminum and cast iron heads.

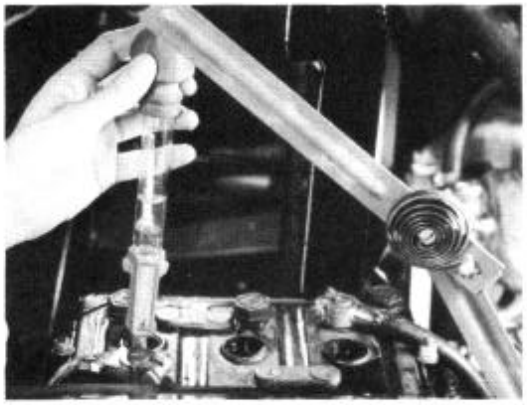
VALVES AND VALVE TAPPETS



Check tappet clearance, Engine at normal operating temperature. Intake clearance should be .010" and exhaust .012" on six cylinder engine.
Intake .006" and exhaust .008" on eight cylinder engine.

BATTERY VISUAL INSPECTION

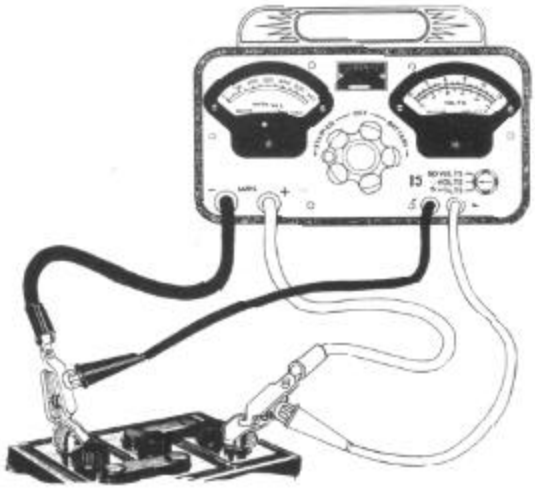
Water should be added if necessary to bring the electrolyte to proper level above the top of the plates. The battery cable clamps should be tight on the battery terminals so that a good contact area is maintained. The cables should be in good condition without broken strands or defective insulation. If the terminals and cable clamps are corroded, the cables should be disconnected so that the clamps and terminals can be cleaned separately. A coating of petroleum jelly on the cable clamps before replacement and tightening will help retard corrosion. Carefully check battery ground strap at points where bolted to frame and motor support.



BATTERY SPECIFIC GRAVITY

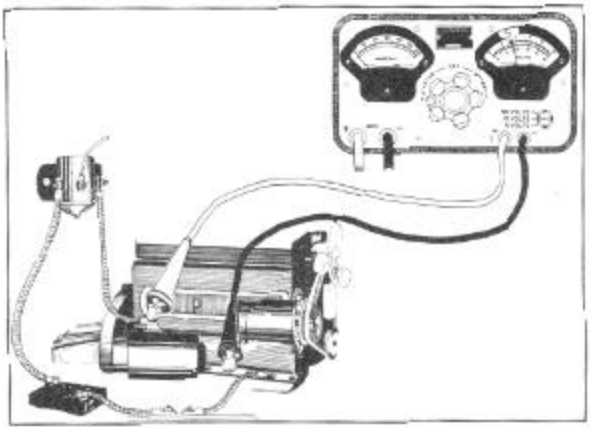
Test the specific gravity of the battery with a hydrometer. If the hydrometer reading is below 1.225 at 70 degrees Fahrenheit the battery should be recharged. A variation in the specific gravity readings between cells should not exceed 25 gravity points. If the gravity varies more than 25 points between cells, this could be due to the low cell being shorted, to loss of electrolyte, or to the fact that the battery is old.

BATTERY DISCHARGE TEST



Connect the positive ammeter and positive voltmeter leads to the positive battery post. Connect the negative ammeter and negative voltmeter leads to the negative post of the battery. Turn the voltmeter to the 15 volt position. Turn the handle of the Battery-Starter Tester to the battery position until the ammeter shows a 300 ampere discharge. Quickly note the voltmeter reading. With the ammeter reading a 300 ampere discharge the voltmeter should read four volts or more for satisfactory battery capacity. If less than four volts the battery should be recharged or replaced if necessary.
After completing the battery test turn the handle to the 'OFF' position before disconnecting the clips from the battery.

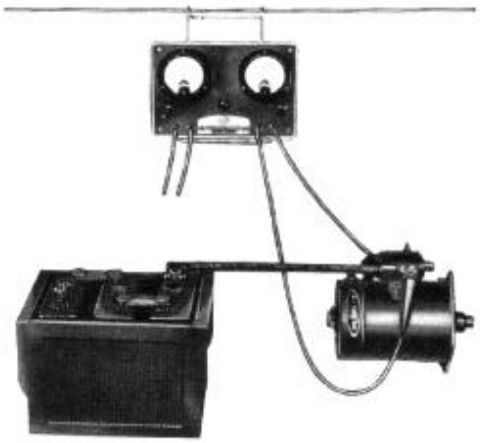
CRANKING VOLTAGE



Connect the negative voltmeter lead of the BATTERY-STARTER TESTER to the starting switch terminal on the starter. Connect the positive voltmeter lead to a good ground on the engine. Turn the voltmeter selector switch to the 15 volt position. With the ignition key turned off engage the starter and note the reading on the voltmeter. The cranking voltage should read 5 volts or more. *CAUTION*— **DO NOT CRANK THE ENGINE WITH THE STARTER FOR MORE THAN THIRTY SECONDS TO PREVENT THE STARTING MOTOR FROM BECOMING OVER HEATED.)** If the voltmeter reading is less than 5 volts it will be necessary to make the following checks :—

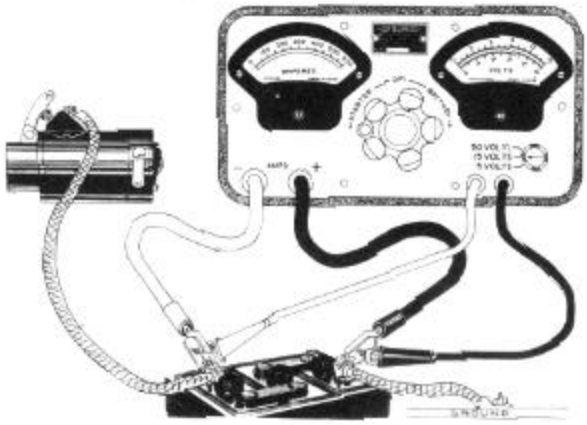
CABLES AND GROUND STRAPS
STARTER SWITCH TEST

1. Connect the positive voltmeter lead to the grounded post of the battery.
2. Move the negative voltmeter lead to a ground on the engine.
3. Crank the engine (ignition off) and note voltmeter reading. Reading should not be more than 0.25. If more, check positive cable connection at battery and all engine ground straps. If the result is still unsatisfactory, make the following checks.
4. Connect positive voltmeter lead to "BAT" terminal of starter, and negative voltmeter lead to negative battery post.
5. Crank engine (ignition off). If reading is still more than 0.25, check battery to switch cable .... also battery terminal connections and terminals at starter switch. If reading is still more than 0.25, make the next test.



6. Connect negative lead to "BAT" terminal of solenoid switch positive lead to starting motor terminal of solenoid switch. Cranking the engine (ignition off) should not show more than 0.2 volts. If more, replace solenoid switch.

STARTING MOTOR AMPERAGE DRAW TEST

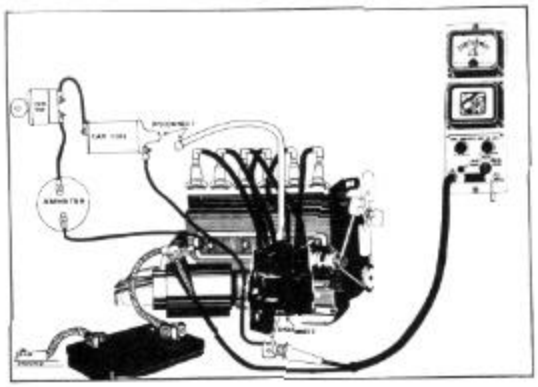


1. Turn Battery Starter tester Knob to "OFF" position.
2. Turn "Voltmeter Selection Switch" to 15 volt position, and connect test leads as shown.
3. Close starting motor switch and crank engine for 15 seconds.
4. While starting motor is cranking engine note the "EXACT" reading on voltmeter.
5. Open starting motor switch. Now turn Battery Starter Tester control knob clockwise until voltmeter reads "EXACTLY" as with starting motor cranking engine.
6. Read "Test Ammeter" for starting motor amperage draw.
7. After completing starting motor amperage Draw test turn control knob to off position.

This reading indicates the amount of current required to crank the engine. This reading should be approximately 160 amperes at 150 R.P.M. Engine broken in and at operating temperature. An excessively high reading will indicate a short in the starting motor circuit or an excessive drag on the starting motor due to a bent armature shaft, field shoes riding on the armature, et cetera. A low reading indicates excessive resistance in the starting motor circuit, which could be caused by loose connections, worn starting motor brushes, dirty commutator or weak brush spring tension.

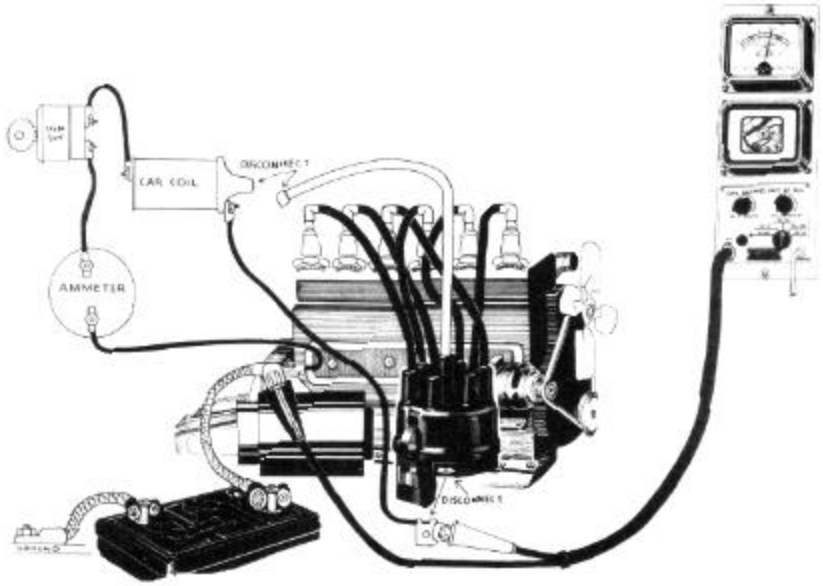
Lubrication···add 3 to 5 drops of medium engine oil to the oilers every 5000 miles.

COIL TEST (Sun Coil Tester No. 30 A)



1. Connect test leads as shown in diagram.
2. Turn Car ignition switch ON.
3. Turn Master switch ON.
4. Turn switch to COIL SET and adjust COIL SET REGULATOR until the meter reads on Set Line. (Line I for Auto-Lite coils.)
5. Turn switch to Coil Test position, meter reading must be within the GOOD COIL BAND AND HOLD STEADY for good coil. A reading outside the GOOD COIL BAND or an erratic reading of 3 to 5 divisions INSIDE the Good Coil Band indicates a bad coil.
6. Turn ignition switch OFF.
7. Turn tester switch to MILLIAMP position.
   If the coil meter does not read in the Good Coil Band, before condemning the coil, remove the coil cap to get directly to both primary connections on the coil. After making direct connections to the coil, RETEST, and if the meter does not read in the Good Coil Band, replace the coil.

COIL SECONDARY RESISTANCE CHECK



1. Connect GROUND (Blue) and POSITIVE PRIMARY (red insulator) test leads together.

2. Turn Master switch ON.

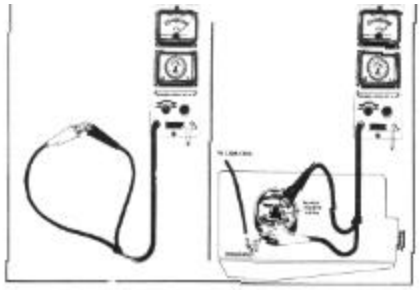
3. Turn Tester switch to DWELL-OHM position, and adjust DWELL-OHM REGULATOR until meter reads on SET LINE.

4. Separate the Positive Primary and Ground test leads, connect the Positive Primary lead to the Primary ignition wire which was removed from the Distributor.

5. Insert the short test lead into the High Tension post of the coil and connect the Ground lead directly to the short test lead.

6. Meter should read from 2000 to 10,000 OHMs resistance, if the meter reads outside this range replace coil.

CONDENSER TEST



Testing condenser on the car. Remove the distributor cap and block the contact points open with a piece of fiber placed between the rubbing block and the distributor cam. Disconnect the primary lead at the distributor. Now connect the two condenser test lead clips together.
Turn the condenser switch to the "Microhm" position. Allow the tester to heat for one minute. Turn the regulator knob until the pointer reads on the "set" line.

Condenser resistance test. Connect the red condenser test lead to the distributor primary terminal. Connect the black condenser test lead to the condenser shell. With the condenser switch turned to the "Microhm" position the meter should read in the "blue" bar marked "MIC" at the right end of the scale for satisfactory condenser circuit resistance.

Condenser capacity test. Turn the condenser switch to the "Microfarad" position. The meter should read 25 to 28 microfarads for the Hudson Six, and 20 to 25 for the Hudson Eight.

Condenser insulation test. Turn the condenser switch to the "Megohm" position. The meter should read in the "blue" bar at the left end of the scale marked "MEG" for satisfactory condenser insulation. If the meter reads in the "red" bar, or over to the extreme right end of the scale, replace the condenser.

Note. When making the above tests the condenser should be at operating temperature. Always check condenser lead and the contact point wires in Distributor head to see that they are not chafed, broken or interfere with the free movement of the Contact breaker plate, also that vacuum advance arm does not interfere at diaphram bracket.

DISTRIBUTOR RESISTANCE TEST

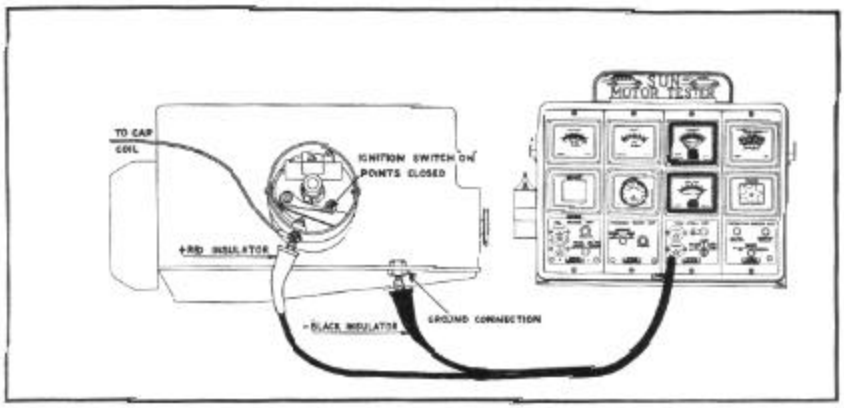


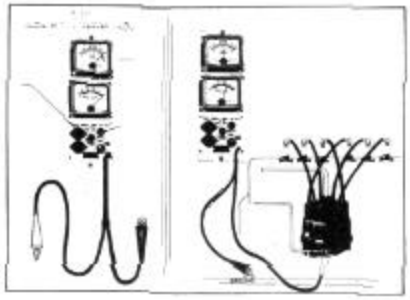
Figure 21

DISTRIBUTOR RESISTANCE

Connect the negative tach-dwell lead to the distributor primary terminal. Connect the positive tach-dwell lead to the ground. With the distributor contact points closed and the dwell switch knob turned to the '6' lobe position (Sun Tach-Dwell Unit No. 10), and the ignition key turned on the meter should read in the 'bar' marked 'Point Resistance' on the right hand side of the dwell scale for normal distributor resistance.

This test will indicate the condition of the breaker contacts and internal distributor and ground connections. Where the Sun Tach-Dwell Unit Number 10-A is used the above check is made with the dwell switch knob turned to the 'CALIBRATE' position.

DISTRIBUTOR CAM DWELL ANGLE TEST



Turn switch to 'Calibrate' position and adjust Dwell Regulator until meter reads to 'Set Line'.

Connect the negative tach-dwell lead to the distributor primary terminal. Connect the positive tach-dwell lead to ground. Turn the dwell switch knob to the 6 lobe position for the Hudson Six and the 8 lobe position for the Hudson Eight. Turn on ignition switch and start engine. Note the reading on the Dwell Meter. The dwell angle on the Hudson Six is 38 degrees, breaker points set at .020," and the dwell angle on the Hudson Eight is 27 degrees, breaker points set at .017."

NOTE: Contact point adjustment is made by first loosening the clamp screw holding the stationary contact plate, then turn the eccentric adjusting screw that will move the stationary contact point. Tighten clamp screw.

This test will indicate:

(1) The breaker contact opening
(2) The condition of the breaker cam.
(3) The condition of the distributor shaft and bearings
(4) The condition of the breaker plate bearing and support.

If the dwell angle is too great, this will indicate that the contact point gap is set too close. If the dwell angle is too small it will indicate that the contact gap is too wide.

An erratic reading of the dwell angle meter will indicate faulty contacts, a faulty breaker cam, or a worn distributor shaft and bearings.

A change of dwell angle when accelerating or decelerating the engine will indicate a faulty breaker plate, bearing, or support.

VACUUM ADVANCE ADJUSTMENT



Vacuum advance should be checked on a distributor test fixture that has a controlled source of vacuum and a vacuum gauge.

TEST PROCEDURE :—

1. Place distributor in the distributor clamp and tighten securely with the hand wheel at the right side of clamp.
2. Adjust the vertical screw so distributor shaft fits down into the drive chuck.
3. Use special wrench to tighten the distributor shaft into the drive chuck.
4. Connect red tipped distributor lead to primary binding post at the side of the distributor.
5. Attach vacuum pump connection.
6. Turn cam lobe switch to BATTERY CHECK position. Tachometer indicating hand should read in bar at right end of scale, if flashlight batteries are O.K. for use.
7. Test distributor point spring tension with spring tension scale. The spring tension is 17 to 20 ounces on both the six and eight cylinder distributors.
8. Turn on battery switch at left side of tester head.
9. With the cam lobe switch in the 6 lobe position and distributor contact points closed the dwell meter indicating hand must read in the Black Bar for satisfactory point resistance. If the reading is in the Red Band it indicates dirty contact points, loose connections, or resistance within the distributor circuit.
10. Turn the motor drive switch to left or right hand rotation as indicated by the specifications for the distributor being tested.
11. Adjust the speed control crank until the Tachometer reads 200 R.P.M's.
12. Adjust the distributor contact points until proper degree of dwell is indicated.
13. Turn graduated degree ring until the arrow flash appears at O.
14. Then check to see if all flashes appear at 60 degree intervals for the Hudson Six. and at 45 degree intervals for the Hudson Eight. If the flashes do not appear to within 1 degree of the respective angles it indicates an inaccurate cam.

Cont.

VACUUM ADVANCE ADJUSTMENT *Cont.*

15. Turn vacuum switch to the "ON" position.
16. Set degree ring so arrow will be on zero at a most convenient point to read.
17. Adjust vacuum regulator to obtain correct reading on vacuum gauge to correspond with the specifications given to start vacuum advance.
18. Watch the arrow on the degree ring as you slowly adjust the vacuum regulator for the exact point the vacuum advance starts to operate, and compare with specifications. Adjust the vacuum regulator to each specification and check the arrow flash on the degree ring.
19. If degree indicated on ring is more than specifications the unit is advancing too quickly, showing the return spring is weak.
20. If the degree indicated on the ring is less than the specifications the unit is advancing too slowly showing the return spring is too strong.
21. Vacuum advance characteristics are varied by changing the spring pressure or by inserting or removing washers under the end of the spring in the vacuum chamber.

CHECKING THE AUTOMATIC ADVANCE CURVE

1. Adjust speed control so distributor will rotate at the lowest R.P.M.
2. Set degree ring so arrow flash will be at zero at a point most convenient to read.
3. Increase distributor R.P.M. to correspond with specifications marked: "START."
4. Check the number of R.P.M.'s required to advance the arrow flash to the specifications given.
5. Be sure the advance is opposite the rotation of the distributor shaft.
6. Continue to check the advance curve number of R.P.M.'s against degree of advance and compare with specifications.
7. If the degree of advance on the degree ring is more than specifications call for at the same R.P.M., it indicates that the governor spring tension is too weak and the advance is too rapid.
8. If the degree of advance on the degree ring is less than specifications call for at the same R.P.M., the spring tension is too stiff and the advance is too slow.
9. Check the advance both up and down the speed range so that any sluggish action of the governor mechanism will be indicated and may be corrected by cleaning and lubrication.

Lubricate every 2000 miles - contact arm pivot, wick top of shaft, cam lobes, and 3 to 5 drops of medium oil at oiler.

IGNITION TIMING



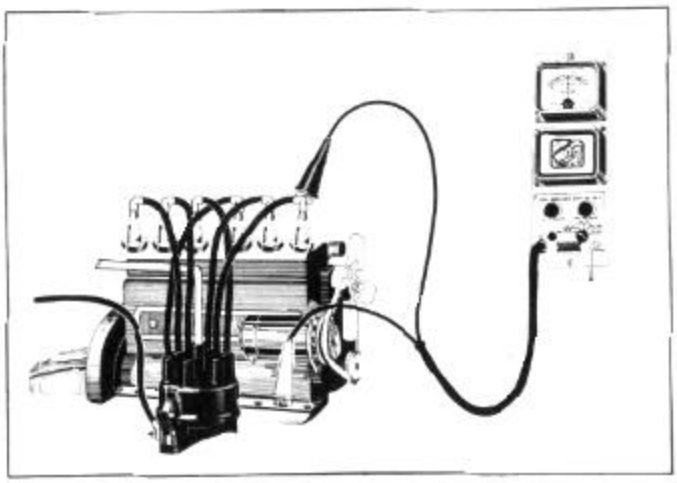
The same procedure and timing applies on both the six and eight cylinder engines. Connect the power timing light to #1 spark plug and the battery as shown in diagram. With the engine idling properly the spark should occur when the dead center mark (long line) on the flywheel is in line with the pointer at the opening of the rear engine support plate.

If the timing is off, make the necessary correction by first loosening the distributor advance arm screw (on octane selector) and rotate head clockwise for retard and counter clockwise to advance.

Increase engine speed. The vacuum advance should be at full retard position but advance readily when the engine speed is increased.

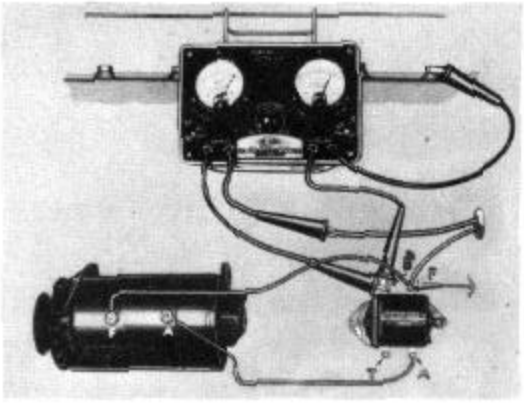
The spark setting may be advanced during continuous operation at altitudes above 3000 feet or with the use of a fuel, the octane rating of which is 80 or higher. MAXIMUM PERFORMANCE IS ATTAINED ONLY WITH THE PROPER SPARK SETTING.

MILLIAMPERE CURRENT TEST AT SPARK PLUGS



1. Connect test leads as shown in diagram.
2. Start engine running at idle speed.
3. Turn switch to MILLIAMP position.
4. Read the Coil Meter Milliampere Scale.
5. The reading should be the same at each spark plug. A low reading (established on a comparative basis) might indicate a weak coil, excessive resistance either in the primary or secondary circuit, corroded terminals or poor connections.

GENERATOR OUTPUT TEST



Disconnect "BAT" lead at "B" terminal of Voltage Regulator.

Connect positive ammeter lead to wire just disconnected, negative to the regulator "B" terminal.

Connect negative voltmeter lead to the "B" regulator terminal and positive to ground.

Ground the "F" terminal on the regulator with jumper wire.

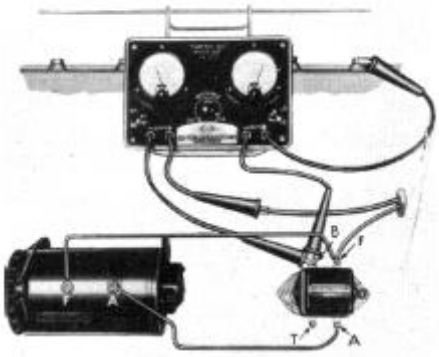
Start engine and warm-up.

Engine running at 1500-1700 RPM- resistance turned "out" at 8 volts should show 37 to 41 (maximum) amperes

(To increase output, move 3rd brush anti-clockwise)

Lubrication - Add 3 to 5 drops of medium engine oil to the oilers in end heads every 5000 miles.

VOLTAGE REGULATOR TEST



Remove the jumper wire from regulator to ground.

Run engine at 1500 to 1800 R.P.M. Turn "in" resistance until ammeter reads 10 amperes. At 70 degrees F. the voltmeter reading must not be less than 7.1 volts or more than 7.4 volts. If not within this range, replace regulator. Do not try to adjust.

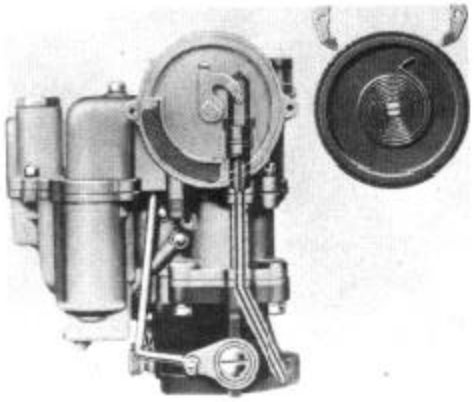
FUEL PUMP TEST



The fuel pump should be tested to make certain that it will draw an adequate supply of fuel from the tank and deliver it to the carburetor at a constant pressure under the widely varying conditions of fuel consumption and engine speed.

1. Clean the sediment bowl and screen.
2. Replace the screen if damaged. If the combination fuel and vacuum pump is used, remove and clean air filter screen under the cover at the top of the pump.
3. Make sure all connections and cover screws are tight.
4. Disconnect the fuel line at the carburetor and connect the fuel pump gauge.
5. Start the engine and run 1500 to 1800 R.P.M. The fuel pump pressure requirement of the standard and combination pump is the same.
6. Normal pressure is 3½ to 4½ pounds. If below this, examine the fuel line for dents or Kinks which would restrict the flow of the fuel.
7. If the fuel lines are satisfactory, but the pressure is too low or too high, or varies materially at different speeds, the fuel pump should be removed for repairs.

CLIMATIC CARBURETOR CONTROL



1. Remove cover and clean screen or remove.
2. Check heat tube for leaks or obstruction.
3. Check choke valve for free movement. Should open of its own weight when cover is removed.
4. Re-install cover and set to center graduation.

AIR CLEANER GAUZE-TYPE

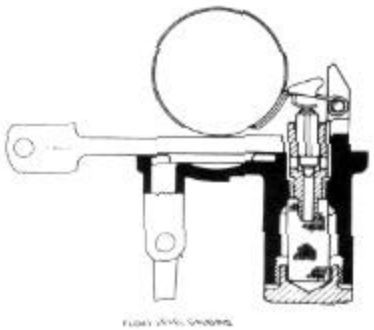


1. Remove wing nut and cover. Wash gauze in gas and blow dry.
2. Re-oil with engine oil and let drain – re-install.

AIR CLEANER OIL BATH TYPE

1. Remove from engine. Remove cover and filter unit.
2. Wash filter unit in kerosene and blow until partially dry.
3. Clean old oil and sediment from sump.
4. Refill to oil level line with engine oil and re-assemble.

FLOAT SETTING TEST

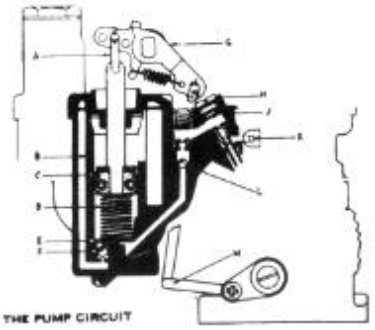


1. Remove float chamber cover and remove gasket from cover. With assembly held upside down, the distance from nearest face of float to cover should be 3/16 inch on 6 cylinder carburetor (647-S) and 13/64 inch on 8 cylinder (648-S).

2. Adjust by bending lip which contacts needle valve.

3. Draw on inlet. If leakage exists, replace needle valve and seat.

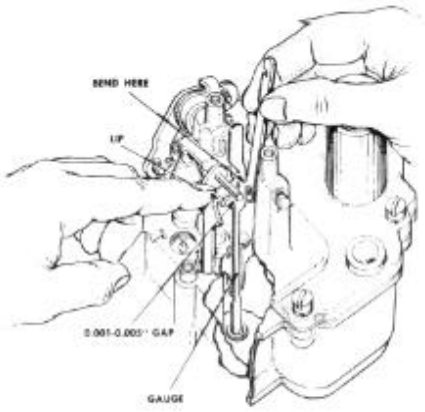
PUMP TRAVEL TEST



THE PUMP CIRCUIT

Check pump travel before setting metering rods. With pump connector in outer hole (long stroke) in pump arm, throttle stop screw backed out, the accelerator pump plunger travel from the full down to full top position should be 7/32 of one inch on 8 cylinder carburetor (648-S) and 9/32 of one inch on 6 cylinder carburetor (647-S). Adjustment can be made by bending the throttle connector rod at the lower angle.

METERING ROD SETTING



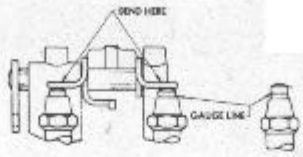
The following applies to 6 and 8 cylinder carburetors.

1. To set metering rods, remove carburetor air horn and the metering rods from the carburetor. Insert gauge T-109-113-S (2.280), re-install clevis pin and spring.

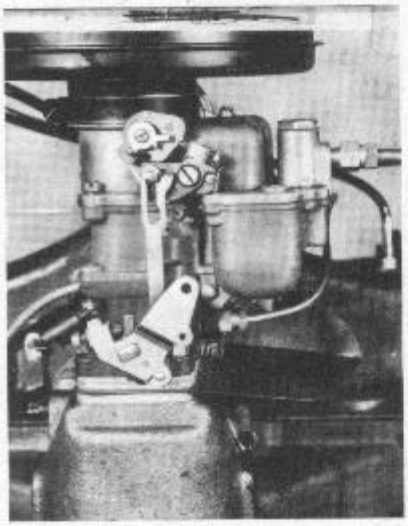
2. With throttle stop screw out, hold throttle in closed position. Hold gauge vertical to insure proper seating in metering jet. Press down lightly on vacuum piston link.

3. There should be less than .005 of one inch gap between metering rod clevis pin and seat on shoulder of gauge. Any correction is made by bending the lip or tongue on pump arm. Use tool T-109-105.

ANTI-PERCOLATOR VALVES



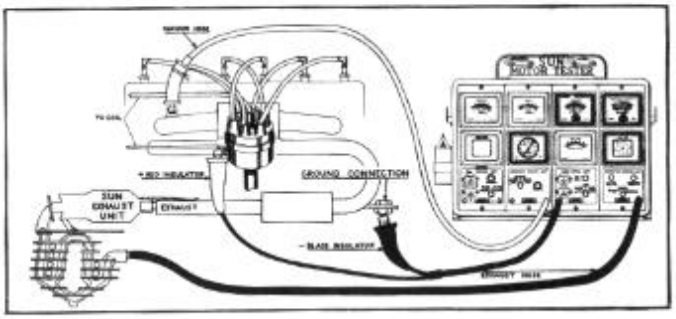
The following applies to 6 and 8 cylinder carburetors. With throttle screw backed out. throttle is in closed position. indicator lines should be just flush with the tops of the plugs. To adjust. bend lips on operating arm.



FAST IDLE SETTING

The following applies to 6 and 8 cylinder carburetors. Close the choke valve tightly and place the upper step of fast idle cam under the fast idle screw. Turn the fast idle screw in or out until there is .054 of one inch clearance between the edge of the throttle valve and bore of the carburetor on the side opposite the idle port.

COMBUSTION ANALYSIS TEST



1. Start the engine and warm up to normal operating temperature.
2. Calibrate combustion tester with exhaust unit away from the tail pipe.
3. Attach tachometer wires to distributor and ground. Attach vacuum gauge.
4. Insert exhaust unit in tail pipe.
5. For combustion efficiency and performance at idling speed, the combustion meter hand should read 70 plus or minus 3%. If not, re-adjust idle screws on carburetor.
6. Increase carburetor throttle opening until engine speed is 2000 RPM. (This corresponds to a road speed of about 40 miles per hour.) The combustion meter should read 80 plus or minus 5%. If mixture shows rich, remove air cleaner. If upon removing air cleaner, the reading shows normal, it indicates some restriction in the cleaner. If mixture shows rich with air cleaner removed, it indicates some trouble in the carburetor.
7. With the engine running at about 2000 RPM, push the throttle to the floor board quickly and release. The combustion meter should move toward the rich hand 10% or more. No movement towards rich, indicates that the acceleration system of the carburetor is not working properly.

HUDSON NEW CAR INSPECTION PROGRAM and PROCEDURE

The subject is of the first importance. All Distributors and Dealers, in their Sales Agreements have agreed to .....

1. Inspect and condition every new automobile before retail delivery in accordance with factory recommendations and as outlined on Hudson's Inspection Card.
2. Remove the governor at 500 miles.
3. Inspect the new Owner's car at 1,000 miles, in accordance with the Hudson 1,000 Mile Inspection Card.
4. Inspect the new Owner's car again at 2,000 miles, in accordance with the Hudson 2,000 Mile Inspection Card.

The Inspection Cards to be used in the Pre-Delivery, 1,000 Mile, and 2,000 Mile Inspections are furnished by the Factory.

This New Car Inspection Procedure is generally used in the Automobile Industry, and is not an individual requirement by Hudson of its Dealers.

HUDSON *must*, and *will* insist that every new car is so handled.

HUDSON

NEW CAR PRE-DELIVERY INSPECTION SERVICE

Date _____ Body Type _____

Owner _____ Door and Ignition Key No. _____

Address _____ Locker Box and Deck Key No. _____

Serial No. _____ Color _____

INSPECTION PROCEDURE

1.	Overdrive Operation	☐
2.	Vacumotive Drive Operation	☐
3.	Drive-Master (See Drive Master Card)	☐
4.	Hand and Foot Brake Operation	☐
5.	Front Seat Adjustment	☐
6.	Operation of Windshield Wiper	☐
7.	Operation of Windows	☐
8.	Operation of Doors, Locks and Keys	☐
9.	Instruments and Signals	☐
10.	Cowl Ventilator	☐
11.	Radio and Accessories	☐
12.	Operation of All Lights	☐
13.	Clutch and Brake Pedal Clearance	☐
14.	Generator Charging Rate	☐
15.	Fan Belt Adjustment	☐
16.	Battery and Connections	☐
17.	Water, Oil and Gasoline Leaks	☐
18.	Inspect Coolant (Anti-Freeze in Winter)	☐
19.	Tighten Cylinder Head Stud Nuts	☐
20.	Tighten Manifold Stud Nuts	☐
21.	Tappet Adjustment	☐
22.	Engine Tune-up	☐
23.	Oil, Oil Bath Air Cleaner and Filler Pipe Cap	☐
24.	Wheel Bearing Adjustment and Lubrication	☐
25.	Front Wheel Alignment	☐
26.	Wheel Hub Bolts	☐
27.	Rear Spring Mounting Clips	☐
28.	Pitman Arm for Tightness	☐
29.	Clean Interior and Glass	☐
30.	Wash Car	☐

ROAD TEST REPORT

LUBRICATION

ENGINE OIL

1.	Check Engine Oil Level		☐
2.	Door Hinges	4 or 8 Points	☐
3.	Gasoline Filler Door Hinge and Spring	3 Points	☐
4.	Rear Compartment Door Striker	4 Points	☐
5.	Rear Compartment Latch Rod	2 Points	☐
6.	Hood Hinges	8 Points	☐
7.	Windshield Wiper Pulleys	4 Points	☐
8.	Hood Prop Anchor Bolts	4 Points	☐

WATER RESISTANT LUBRICANT

9.	Door Check Arms	2 or 4 Points	☐
10.	Courtesy Light Switch	2 or 4 Points	☐
11.	Door Lock Bolt and Slide	2 or 4 Points	☐
12.	Door Striker	2 or 4 Points	☐
13.	Rear Compartment Door Hinge	2 Points	☐
14.	Rear Compartment Door Clamping Lever	2 Points	☐
15.	Hood Prop Spring	2 Points	☐
16.	Hood Upper Lock	1 Point	☐
17.	Hood Lower Lock and Control Wire	2 Points	☐
18.	Windshield Cables at Pulleys	4 Points	☐

VISCOUS CHASSIS LUBRICANT

19.	Drag Link—Front End	1 Point	☐
20.	Upper Support Arm Rear Bushing L. H.	1 Point	☐
21.	Upper Support Arm Rear Bushing R. H.	1 Point	☐
22.	Rear Spring Shackle L. H.	2 Points	☐
23.	Rear Spring Shackle R. H.	2 Points	☐
24.	Universal Joint Spline	1 Point	☐
25.	Universal Joint Needle Rollers	3 Points	☐
26.	Clutch Pedal Bearing	1 Point	☐
27.	Clutch Throwout Bearing	1 Point	☐
28.	Drag Link—Rear End	1 Point	☐
29.	Gear Shift—Bell Crank	1 Point	☐
30.	Tie Rod Ends—Center	2 Points	☐
31.	Center Steering Arm	1 Point	☐
32.	Lower Support Arm Bushing Front L. H.	1 Point	☐
33.	Lower Support Arm Bushing Rear L. H.	1 Point	☐
34.	Lower Support Arm Support Bushing L. H.	1 Point	☐
35.	Tie Rod End L. H.	1 Point	☐
36.	Spindle Pivot Pin L. H.	1 Point	☐
37.	Upper Support Arm Bushing—Front L .H.	1 Point	☐
38.	Upper Support Arm Eccentric Bushing L. H.	1 Point	☐
39.	Lower Support Arm Bushing Front R. H.	1 Point	☐
40.	Lower Support Arm Bushing Rear R. H.	1 Point	☐
41.	Lower Support Arm Support Bushing R. H.	1 Point	☐
42.	Tie Rod End R. H.	1 Point	☐
43.	Spindle Pivot Pin R. H.	1 Point	☐
44.	Upper Support Arm Bushing Front R. H.	1 Point	☐
45.	Upper Support Arm Eccentric Bushing R. H.	1 Point	☐

S. A. E. 80 E. P. WINTER OR S. A. E. 90 E. P. SUMMER

46.	Transmission	Check Level	☐
47.	Overdrive	Check Level	☐
48.	Steering Gear	Check Level	☐

HYPOID LUBRICANT—S. A. E. 90

49.	Rear Axle	Check Level	☐

HUDSON HYDRAULIC BRAKE FLUID

50.	Master Cylinder	Check Fluid Level	☐

DISTILLED WATER

51.	Check Battery Water Level	☐

WATER OR ANTI-FREEZE

52.	Check Coolant Level and Anti-Freeze	☐
53.	Check Tire Pressures	☐

The lubricants used by the Factory are of the highest grade and should not be replaced until the specified mileage has been reached. During new car inspection simply check the units and add lubricant when necessary to bring it up to the recommended level.

Owner _____ Service Manager _____

FORM 11213 - REV. 12-47.
PRINTED IN U.S.A.

FILE FOR FUTURE REFERENCE

HUDSON

1000 - MILE INSPECTION
ADJUSTMENT AND LUBRICATION SERVICE

Date _____ Serial No. _____

Owner _____ Mileage _____

Address _____ Repair Order No. _____

INSPECTION AND ADJUSTMENT

1. Hand and Foot Brake Operation ☐
2. Drive-Master (See Drive-Master Card) ☐
3. Operation of All Locks ☐
4. Signals and Instruments ☐
5. Operation and Aiming of Lights ☐
6. Clutch Pedal Clearance ☐
7. Battery and Connections ☐
8. Tighten Cylinder Head Stud Nuts ☐
9. Tighten Manifolds ☐
10. Cooling System and Coolant ☐
11. Check Tightness of Rear Wheel Hubs ☐
12. Wheel Hub Bolts ☐
13. Rear Spring Mounting Clips ☐
14. Road Test ☐

There is no charge for this Inspection and Adjustment Service when performed by the Dealer who sold the car. **When performed by a Hudson Dealer other than the one who sold the car, a charge of not more than $5.00 is made for this service.**

Road Test Report _____

LUBRICATION

ENGINE OIL

1.	Check Engine Oil Level		☐
2.	Door Hinges	4 or 8 Points	☐
3.	Gasoline Filler Door Hinge and Spring	3 Points	☐
4.	Rear Compartment Door Striker	4 Points	☐
5.	Rear Compartment Latch Rod	2 Points	☐
6.	Hood Hinges	8 Points	☐
7.	Windshield Wiper Pulleys	4 Points	☐
8.	Hood Prop Anchor Bolts	4 Points	☐

WATER RESISTANT LUBRICANT

9.	Door Check Arms	2 or 4 Points	☐
10.	Courtesy Light Switch	2 or 4 Points	☐
11.	Door Lock Bolt and Slide	2 or 4 Points	☐
12.	Door Striker	2 or 4 Points	☐
13.	Rear Compartment Door Hinge	2 Points	☐
14.	Rear Compartment Door Clamping Lever	2 Points	☐
15.	Hood Prop Spring	2 Points	☐
16.	Hood Upper Lock	1 Point	☐
17.	Hood Lower Lock and Control Wire	2 Points	☐
18.	Windshield Cables at Pulleys	4 Points	☐

VISCOUS CHASSIS LUBRICANT

19.	Drag Link—Front End	1 Point	☐
20.	Upper Support Arm Rear Bushing L. H.	1 Point	☐
21.	Upper Support Arm Rear Bushing R. H.	1 Point	☐
22.	Rear Spring Shackle L. H.	2 Points	☐
23.	Rear Spring Shackle R. H.	2 Points	☐
24.	Universal Joint Spline	1 Point	☐
25.	Universal Joint Needle Rollers	3 Points	☐
26.	Clutch Pedal Bearing	1 Point	☐
27.	Clutch Throwout Bearing	1 Point	☐
28.	Drag Link—Rear End	1 Point	☐
29.	Gear Shift Bell Crank Pivot	1 Point	☐
30.	Tie Rod Ends—Center	2 Points	☐
31.	Center Steering Arm	1 Point	☐
32.	Lower Support Arm Bushing Front L. H.	1 Point	☐
33.	Lower Support Arm Bushing Rear L. H.	1 Point	☐
34.	Lower Support Arm Support Bushing L. H.	1 Point	☐
35.	Tie Rod End L. H.	1 Point	☐
36.	Spindle Pivot Pin L. H.	1 Point	☐
37.	Upper Support Arm Bushing—Front L. H.	1 Point	☐
38.	Upper Support Arm Eccentric Bushing L. H.	1 Point	☐
39.	Lower Support Arm Bushing Front R. H.	1 Point	☐
40.	Lower Support Arm Bushing Rear R. H.	1 Point	☐
41.	Lower Support Arm Support Bushing R. H.	1 Point	☐
42.	Tie Rod End R. H.	1 Point	☐
43.	Spindle Pivot Pin R. H.	1 Point	☐
44.	Upper Support Arm Bushing Front R. H.	1 Point	☐
45.	Upper Support Arm Eccentric Bushing R. H.	1 Point	☐

S. A. E. 80 E. P. WINTER OR S. A. E. 90 E. P. SUMMER

46.	Transmission	Check Level	☐
47.	Overdrive	Check Level	☐
48.	Steering Gear	Check Level	☐

HYPOID LUBRICANT—S. A. E. 90

49.	Rear Axle	Check Level	☐

HUDSON HYDRAULIC BRAKE FLUID

50.	Master Cylinder	Check Fluid Level	☐

DISTILLED WATER

51.	Check Battery Water Level	☐

WATER OR ANTI-FREEZE

52.	Check Coolant Level and Anti-Freeze	☐
53.	Check Tire Pressures	☐

Engine oil, lubricants and chassis lubrication are maintenance items for which owner is expected to pay.
Charge for engine oil, lubricants and chassis lubrication _____

Owner _____ Service Manager _____

The lubricants used by the Factory are of the highest grade and should not be replaced until the specified mileage has been reached. During new car inspection simply check the units and add lubricant when necessary to bring it up to the recommended level.

FORM 11214 - REV. 12-47
PRINTED IN U.S.A.

FILE COPY—File for future reference

HUDSON

2000 - MILE INSPECTION
ADJUSTMENT AND LUBRICATION SERVICE

Date_____ Serial No._____

Owner_____ Mileage_____

Address_____ Repair Order No._____

INSPECTION AND ADJUSTMENT

1.	Hand and Foot Brake Operation	☐	
2.	Drive-Master (See Drive-Master Card)	☐	
3.	Signals and Instruments	☐	
4.	Operation of all Lights	☐	
5.	Operation of Windshield Wipers	☐	
6.	Battery and Connections	☐	
7.	Generator Charging Rate	☐	
8.	Cooling System and Connections	☐	
9.	Adjust Tappets—Engine Hot	☐	
10.	Tune-up Engine	☐	
11.	Wheel Hub Bolts	☐	
12.	Road Test	☐	

There is no charge for this Inspection and Adjustment Service when performed by the Dealer who sold the car. When performed by a Hudson Dealer, other than the one who sold the car, a charge of not more than $5.00 is made for this service.

Road Test Report_____

LUBRICATION

ENGINE OIL

1.	Door Hinges	4 or 8 Points	☐
2.	Gasoline Filler Door Hinge and Spring	3 Points	☐
3.	Rear Compartment Door Striker	4 Points	☐
4.	Rear Compartment Latch Rod	2 Points	☐
5.	Hood Hinges	8 Points	☐
6.	Windshield Wiper Pulleys	4 Points	☐
7.	Hood Prop Anchor Bolts	4 Points	☐
8.	Generator	2 Points	☐
9.	Distributor	4 Points	☐
10.	Air Cleaner—Standard	Wash and Re-oil	☐
11.	Air Cleaner—Oil Bath	Wash and add New Oil	☐
12.	Oil Filler Pipe Cap (6 cylinder)	Wash and re-oil	☐
13.	Drain Oil Reservoir and Refill		☐
14.	Throttle Linkage	All Joints	☐
15.	Brake Linkage	All Joints	☐
15.	Drive-Master Linkage	All Joints	☐
17.	Vacumotive Drive Linkage	All Joints	☐

WATER RESISTANT LUBRICANT

18.	Door Check Arms	2 or 4 Points	☐
19.	Courtesy Light Switch	2 or 4 Points	☐
20.	Door Lock Bolt and Slide	2 or 4 Points	☐
21.	Door Striker	2 or 4 Points	☐
22.	Rear Compartment Door Hinge	2 Points	☐
23.	Rear Compartment Door Clamping Lever	2 Points	☐
24.	Hood Prop Spring	2 Points	☐
25.	Hood Upper Lock	1 Point	☐
26.	Hood Lower Lock and Control Wire	2 Points	☐
27.	Windshield Cables at Pulleys	4 Points	☐

VISCOUS CHASSIS LUBRICANT

28.	Drag Link—Front End	1 Point	☐
29.	Upper Support Arm Rear Bushing L. H.	1 Point	☐
30.	Upper Support Arm Rear Bushing R. H.	1 Point	☐
31.	Rear Spring Shackle L. H.	2 Points	☐
32.	Rear Spring Shackle R. H.	2 Points	☐
33.	Universal Joint Spline	1 Point	☐
34.	Universal Joint Needle Rollers	3 Points	☐
35.	Clutch Pedal Bushing	1 Point	☐
36.	Clutch Throwout Bearing	1 Point	☐
37.	Drag Link—Rear End	1 Point	☐
38.	Gear Shift Bell Crank Pivot	1 Point	☐
39.	Tie Rod Ends—Center	2 Points	☐
40.	Center Steering Arm	1 Point	☐
41.	Lower Support Arm Bushing Front L. H.	1 Point	☐
42.	Lower Support Arm Bushing Rear L. H.	1 Point	☐
43.	Lower Support Arm Support Bushing L. H.	1 Point	☐
44.	Tie Rod End L. H.	1 Point	☐
45.	Spindle Pivot Pin L. H.	1 Point	☐
46.	Upper Support Arm Bushing—Front L. H.	1 Point	☐
47.	Upper Support Arm Eccentric Bushing L. H.	1 Point	☐
48.	Lower Support Arm Bushing Front R. H.	1 Point	☐
49.	Lower Support Arm Bushing Rear R. H.	1 Point	☐
50.	Lower Support Arm Support Bushing R. H.	1 Point	☐
51.	Tie Rod End R. H.	1 Point	☐
52.	Spindle Pivot Pin R. H.	1 Point	☐
53.	Upper Support Arm Bushing Front R. H.	1 Point	☐
54.	Upper Support Arm Eccentric Bushing R. H.	1 Point	☐

S. A. E. 80 E. P. WINTER OR S. A. E. 90 E. P. SUMMER

55.	Transmission	Check Level	☐
56.	Overdrive	Check Level	☐
57.	Steering Gear	Check Level	☐

HYPOID LUBRICANT—S. A. E. 90

58.	Rear Axle	Check Level	☐

HUDSON HYDRAULIC BRAKE FLUID

59.	Master Cylinder	Check Fluid Level	☐

DISTILLED WATER

60.	Check Battery Water Level		☐

WATER OR ANTI-FREEZE

61.	Check Coolant Level and Anti-Freeze		☐
62.	Check Tire Pressures		☐

Engine oil, lubricants and chassis lubrication are maintenance items for which owner is expected to pay.
Charge for engine oil, lubricants and chassis lubrication_____

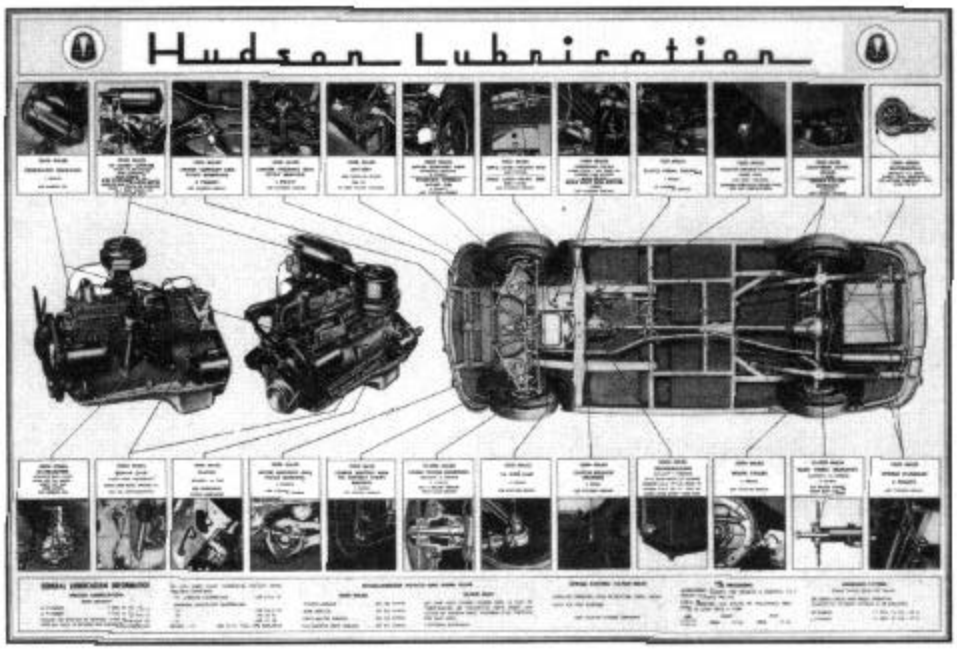
Owner_____ Service Manager_____

The lubricants used by the Factory are of the highest grade and should not be replaced until the specified mileage has been reached. During the new car inspection simply check the units and add lubricant when necessary to bring it up to the recommended level.

FORM 11215 - REV. 12-47..
PRINTED IN U.S.A.

FILE COPY—File for future reference

LUBRICATION Too often the lubrication of the car, the market for which the Dealer created when he made the sale, is left to others who have neither the owner's interest or first hand factory information on requirements. The prepared lubricating charts of both chassis and body cover complete lubrication recommendation, showing points of application, body or character of lubricant and how often to be applied. The Hudson Lubrication Agreement, backed up with adequate lubrication equipment and know-how, is the best means of keeping the owner coming to you not only for this profitable business, but also for his other service needs. Make it a point to sell a Lubrication Agreement to every owner when he takes delivery of his new car or not later than the time he receives his 2000 mile inspection. Impress him with your facilities and the fact that factory recommended materials and methods are used which insures maximum protection to his car.



The lubricants necessary are engine oil, viscous chassis lubricant, water resistant lubricant sodium soap base lubricant, E.P. gear lubricant, Hypoid gear lubricant and Hudsonite. Regular Engine Oil is a mineral oil that is suitable under moderate driving conditions. Premium Engine Oil is one having proved oxidation, stability and bearing corrosion preventative properties. This oil is suitable for use where operating conditions are such that regular oils do not give satisfactory service. Heavy Duty Engine Oil in addition to having all the properties of the Premium oil also contains detergent-dispersent characteristics designed for extreme operation in gasoline and high speed, diesel engines, is not necessary or recommended for use in the Hudson engines. New in Hudson lubrication is S.A.E. 90 Hypoid for rear axle gears. New Cars as received from the factory contain Hypoid gear lubricant which is satisfactory for both summer and winter.
This initial lubricant is NECESSARY for the first, 5,000 miles.

ENGINE	Super Six and Commodore Six	Super Eight and Commodore Eight
Series	481-482 - 6 cylinder	483-484 - 8 cylinder
Arrangement	L Head.	L Head
Bore and Stroke	3-9/16 x 4-3/8	3 x 4-1/2
Piston Displacement	262 Cu. In.	254 Cu. In.
Horsepower - Taxable	30.4	28.8
Actual	121 at 4000 RPM.	128 at 4200 RPM
Compression Ratio - Standard.	6.50:1	6.50:1
Optional (Alum. Head)	7.00:1	7.00:1
Engine Mounting	3 - Rubber.	3 - Rubber
Camshaft - Drive	Morse Chain.	Gears
Engine Timing		
Inlet opens	7^{o} - 18' BUDC	10^{o} - 40' BUDC
Inlet closes.	53^{o} - 42' ALDC	60^{o} - ALDC
Exhaust opens.	53^{o} - 18' BLDC	50^{o} - BLDC
Exhaust closes	7^{o} - 42' AUDC	18^{o} - 44' AUDC
Timing Indication.	On Sprockets and chain	On Gears
Timing chain	60 Links 3/8 pitch	None
Number bearings	4-steel backed babbitt	5-steel backed babbitt
Bearing sizes		
#1	2-3/8 x 1-3/16	2-1/32 x 1-3/8
#2	2 x 15/16.	2 x 1-1/16
#3	1-31/32 x 15/16	1-31/32 x 1-1/4
#4	1-1/2 x 1-5/16	1-5/16 x 1-1/16
#5	None	1-1/2 x 1-5/16
Crankshaft - Type.	Compensated.	Compensated
*Type and number bearings	4-Steel backed Babbitt Lined.	5-Bronze backed Babbitt Lined
Diameter and Length -		
#1	2-1/2 x 1-7/16	2-9/32 x 1-5/8
#2	2-1/2 x 1-3/8.	2-5/16 x 1-3/8
#3	2-1/2 x 1-5/8.	2-11/32 x 1-7/8
#4	2-1/2 x 1-3/4.	2-3/8 x 1-3/8
#5	None	2-13/32 x 2
Thrust and End Play	No. 3 - .003 to .009	No. 3 - .006 to .012
Radial Clearance.	.0005 to .0015.	.001
Adjusting shims	None	None
Connecting Rods -		
Material	Drop-Forged Steel.	Drop-Forged Steel
Weight	34.23 oz. No bearings	31.36 oz. with bearings
Length-Center to Center	8 1/8"	8-3/16"
Lower end bearing.	Replaceable	Integral
Type and Material	Precision-Babbitt Stl. Back	Spun-Babbitt
Diameter and Length	2-1/8" x 1-5/8"	1-15/16" x 1-3/8"
End Play	.007 to .013	.007 to .013
Radial Clearance.	.0005 to .0015.	.0003 to .0006
Upper end bearing -		
Material	1 pc. steel back babbitt	1 pc. bronze
Diameter and Length	31/32 x 1-1/8"	3/4 x 29/32
Radial Clearance (fit).	.0000 to .0003 at 70^{o} F	.0000 to .0003 at 70^{o} F
Pistons - Type	Cam Ground	Cam Ground
Material	Aluminum Alloy.	Aluminum Alloy
Weight and Length	18-1/8 oz. - 3-3/4".	10-1/4 oz. - 3-3/16"

ENGINE (Cont'd)	Super Six and Commodore Six	Super Eight and Commodore Eight
Pin Center to top	2-1/16"	1-11/16"
Clearance	.0005 to .001	.0005 to .001
Ring groove depth	.195	.148
Piston Pin - Type and Length.	Floating - 2-15/16"	Floating - 2-7/16"
Diameter	31/32"	3/4"
Fit in Piston.	.0000 to .0003 at 70° F	.0000 to .0003 at 70° F
Fit in Rod	Hand push fit at 70° F	Hand push fit at 70° F
Piston Rings - Material	4-Cast Iron - Pinned	4-Cast Iron - Pinned
Joint	Pinned	Pinned
Compression Rings	2	2
Width	5/64	3/32
Oil Rings	2-1 below pin	2-1 below pin
Width - upper	3/16"	3/16"
lower	5/32"	5/32"
Gap Clearance-All rings	.007 to .012	.004 to .009
Valves -		
Intake -		
Head outside diameter	1-53/64"	1-1/2"
Port Diameter.	1-11/16"	1-3/8"
Lift	11/32"	11/32"
Length & Stem Diameter	5-47/64 - 11/32	5-3/32 - 11/32
Stem to guide clearance.	.0015 to .003	.0015 to .003
Operating clearance - Hot	.010	.006
Exhaust -		
Head outside diameter	1-9/16	1-3/8
Port Diameter.	1-3/8	1-7/32
Lift	11/32	11/32
Length & Stem Diameter	5-47/64 - 11/32	5-3/32 - 11/32
Stem to guide clearance.	.002 to .004	.003 to .005
Operating clearance - Hot	.012	.008
Valve angle	7 degrees	Vertical
Valve guide - Length	Removable - 3-5/32	Removable - 2-9/16
Valve spring pressure	77 lbs. at 2-3/16"	46 lbs. at 2 inches
Valve Tappets		
Type	Mushroom.	Roller Cam
Guides	Integral with block	Removable
Lubricating Method	Full Pressure	Du-Flo
Pump Type	Rotor	Oscillating Plunger
Pump Drive	Worm on Camshaft	Worm on camshaft
Oil Capacity - qts.	Dry 7-1/2 qts. Refill 7 qts.	Dry 9 qts. Refill 7 qts.

CLUTCH

Type	10" single plate in oil	10" single plate in oil
Facing	Cork Inserts	Cork Inserts
Pilot Bearing	Ball	Ball
Throw-out bearing	Ball	Ball
Pedal Lash	1-1/2"	1-1/2"
Clutch Lubricant	1/3 Pt. Hudsonite	1/3 Pt. Hudsonite
Location Lubricating Plug.	Front of Flywheel	Front of Flywheel
Vibration Neutralizer	6 Springs	6 Springs
Throwout bearing lubricant	Viscous Chassis lub.	Viscous chassis lub.
Fitting and Location.	Zerk-Right-side clutch hsg.	Zerk-Right-side clutch hsg.

TRANSMISSION

	Super Six and Commodore Six	Super Eight and Commodore Eight
Type	Synchro-Mesh	Synchro-Mesh
Speeds	3 forward - 1 reverse	3 forward - 1 reverse
Gears	All Helical	All Helical
Gear Ratios - without HDM-Low	2.61:1	2.61:1
Second	1.65:1	1.65:1
High	1:1	1:1
Reverse	3.17:1	3.17:1
Gear Ratios - with HDM - Low.	2.88:1	2.88:1
Second	1.82:1	2.82:1
High	1:1	1:1
Reverse	3.5:1	3.5:1
Lubrication - Summer	90 E.P. - Mild	90 E.P. - Mild
Winter	80 E.P. - Mild	80 E.P. - Mild
Capacity - Without Overdrive	2 pts.	2 pts.
With Overdrive	3-1/4 pts.	3-1/4 pts.

PROPELLER SHAFT

Front Shaft - Universals	1	1
Type	Needle	Needle
Rear Shaft - Universals	2	2
Center Bearing	Annular Ball	Annular Ball
Bearing Lubrication	Prelubricated and Sealed	Prelubricated & Sealed
Spline Lubrication	Zerk Fitting	Zerk Fitting
Universal Lubrication.	Zerk Fitting	Zerk Fitting

REAR AXLE

Type	Semi-floating	Semi-floating
Gear Type	Hypoid	Hypoid
Ratios	4.1 and 4-5/9	4.1 and 4-5/9
Pinion Bearings	Taper Roller	Taper Roller
Adjustment	Shim	Shim
Differential Bearings	Taper Roller	Taper Roller
Adjustment	Adjusting nut	Adjusting nut
Wheel bearings	Taper Roller	Taper Roller
Adjustment	Shim	Shim
End Play - Axle Shaft	.001 to .004	.001 to .004
Pinion and Gear back lash	.004 to .006	.004 to .006
Lubricant	S.A.E. 90 Hypoid 3 1/2 Pts.	S.A.E. 90 Hypoid 3-1/2 Pts.
Quantity	3-1/2 Pts.	3-1/2 Pts.
Road Clearance - Rear	8"	8"

FRONT SUSPENSION

Type	Independent coil spring	Independent coil spring
Camber	1/2° to 1-1/2°	1/2° to 1-1/2°
Caster	1/2° to 1-1/2°	1/2° to 1-1/2°
Toe-in	1/32 plus or minus 1/32	1/32 plus or minus 1/32

	Super Six and Commodore Six	Super Eight and Commodore Eight
Spindle pin inclination	3° - 36'	3° - 36'
Spindle pin thrust bearing	Ball	Ball
Wheel bearing - Type	Adjustable tapered roller	Adj-tapered roller
End Play	.001 to .003	.001 to .003
Tie Rod End - Type	Plain Bearing	Plain Bearing
Tie Rod End Adjustment	(As seen from right side of car.)	
To Lengthen	Turn clockwise	Turn clockwise
To Shorten	Turn anti-clockwise	Turn anti-clockwise
Road Clearance - Front	8"	8"

SPRINGS

Front - Type	Coil (Heavy duty available)	Coil
Free Height	16-5/16"	16-5/16"
Height under curb weight	9-9/16	9-9/16
Rear - Type	Semi-elliptic (Heavy Duty Avail.)	Semi-elliptic
Length and width	54" - 1-3/4"	54" - 1-3/4"
No. Leaves	8	8
Covers	Metal	Metal
Shackles	Silent "U" Threaded	Silent "U" Threaded
Lubricant - Shackles and Leaves	Viscous chassis lub.	Viscous chassis lub.

STEERING GEAR

Type	Worm & triple tooth roller	Worm & triple tooth roller
Ratio	20.4:1	20.4:1
Steering wheel diameter	17" and 18"	17" and 18"
Adjustments: WormShaft	Shim	Shim
Cross Shaft	Set Screw	Set Screw
Gear Mesh	Set Screw	Set Screw
Lubricant - Summer & Winter	S.A.E. 90 E.P.	S.A.E. 90 E.P.

BRAKES

Type	Bendix-Duo-Automatic	Bendix-Duo-Automatic
Drum Diameter	11"	11"
Material	Centrifuse	Centrifuse
Lining-Type	Moulded	Moulded
Width	Front 2-1/4" Rear 1-3/4"	Front 2-1/4" Rear 1-3/4"
Length - per wheel	20.87	20.87
Pieces - per wheel	2	2
Braking Area - Total	158.7 sq. in.	158.7 sq. in.
Adjustments - Anchor Pin	Radially	Radially
Front and Rear Shoe	Screw	Screw
Clearance - Both ends of shoe	.010	.010
Mechanical follow-up	1-1/4	1-1/4
Pedal to floor board	1/4	1/4

TIRES AND WHEELS

Make	Goodyear-Super Cushion	Goodyear-Super Cushion
Standard Size	7.10 x 15.00 - 4 ply	7.10 x 15.00 - 4 ply.

	Super Six and Commodore Six	Super Eight and Commodore Eight
Standard Wheel Rim	5.00 x 15.00	5.00 x 15.00
Optional Tire	7.60 x 15.00 - 4 ply	7.60 x 15.00 - 4 ply.
Optional Wheel	5.50 x 15.00	5.50 x 15.00
Inflation Pressure	24 front and rear	24 front and rear

COOLING SYSTEM

Capacity in quarts	17 qts.	18 qts.
Circulation	6 Vane impeller pump	6 Vane impeller pump
Temperature Control	Thermostat - by pass	Thermostat - by pass
Pump and fan drive	V belt	V belt
Fan	4 Blade	4 Blade
Belt Adjustment	Generator Mounting	Generator Mounting
Pump Bearing	2 Sealed Ball	2 Sealed Ball
Lubrication	None - Pre-lubricated	None - Pre-lubricated

FUEL SYSTEM

Carburetor - Make	Carter WDO 647-S	Carter WDO-648-S
Type	Dual Down-Draft 1-1/4"	Dual Down-Draft 1-1/4"
Choke and Heat Control	Automatic-Thermostatic	Automatic-Thermostatic
Fuel Delivery	Pressure Pump	Pressure Pump
Pump Driven from	Camshaft	Camshaft
Air Cleaner and Silencer	Dry Std. Oil Bath-Optional	Dry Std. Oil Bath-Optional
Fuel Tank Capacity	20 US Gallons	20 US Gallons

ELECTRIC EQUIPMENT

Make	Auto-Lite	Auto-Lite
Coil Location	Right side cyl. block	On intake manifold
Distributor - Rotation	Clockwise	Clockwise
Drive	Camshaft	Camshaft
Advance	Automatic-Vacuum	Automatic-Vacuum
Point Gap	.020	.017
Breaker Points Open	T.D.C.	T.D.C.
Spark Advance--Dist. Degrees Centrifugal at.	400 - 0°	300 - 0°
	535 - 1°	335 - 1°
	1200 - 6°	400 - 3°
	1870 - 11°	1025 - 10°
	2000 - 12°	1700 - 17-1/2°
Inches Vacuum (Hg)	9-1/2 - 0°	9-1/2 - 0°
	10 - 1°	10 - 1°
	11-5/8 - 4°	11-5/8 - 4°
	13-1/8 - 7°	13-1/8 - 7°
	14 - 8-1/2°	14 - 8-1/2°
Firing Order	1-5-3-6-2-4	1-6-2-5-8-3-7-4
Lubrication	Light Motor Oil and High Temperature Grease	
Generator - Type	Third Brush Volt. Reg.	Third Brush Volt. Reg.
Drive	V Belt	V Belt

	Super Six and Commodore Six	Super Eight and Commodore Eight
Charging Rate-Cold	43 amperes at 8 volts	43 amperes at 8 volts
Charging Rate-Hot	37 amperes at 8 volts	37 amperes at 8 volts
Lubrication - Both ends	Motor Oil	Motor Oil
Starting Motor - Drive	Bendix	Bendix
Control Switch	Solenoid	Solenoid

ELECTRIC EQUIPMENT (Cont'd)

Battery - Make	National 6 Volt	National 6 Volt
Plates and Capacity	51-120 amp. @20 Hr. Rate	51-120 amp. @20 Hr. Rate
Dimensions	W-7 1/8 L-10 9/16 H-9 1/16	W-7 1/8 L-10 9/16 H-9 1/16
Terminal Grounded	Positive	Positive
Location	Under bonnet left side	Under bonnet left side
Spark Plugs-Cast Iron Head	Champion J-9 14 M/M	Champion J-9 14 M/M
Aluminum Head	Champion H-10	Champion H-10
Gap	.032	.032

LAMP BULBS

	No.	C.P.	BASE
Headlight (Sealed beam type)	4030	Sealed	Sealed
Bonnet Light	55	2	Single
Parking Light with Direction Indicator	1154	21-3	Double
Tail and Stop Light	1154	21-3	Double
License Light	63	3	Single
Dome Light - Front	87	15	Single
Rear Quarter Lights (2)	81	7	Single
Clock	55	2	Single
Speedometer	55	2	Single
Instrument Cluster	55	2	Single
Direction Indicator	55	2	Single
Radio	55	2	Single
Headlight Beam Indicator	55	2	Single
Ignition Lock	55	2	Single
Courtesy Light	87	15	Single
Fog Light - Sealed Beam	4015A	Sealed	Sealed
Spot Light - Sealed Beam	4535	Sealed	Sealed
Parking Light	63	3	Single
Generator and Oil Indicator	55	2	Single

The following fuses are used in accessory circuits:

Weather control	14 Ampere -- On Heater
Ratio	14 Ampere -- In lead wire
Hudson Drive Master	10 Ampere -- Attached to HDM switch
Directional Signal	10 Ampere -- On Dir. Sig. Harness under dash
Electric Clock	3 Ampere -- In back of clock
Horn not fused	Connected direct to B terminal on regulator

Circuit breakers protect the following circuits:

Headlamp	30 Ampere -- Attached to lighting switch
Miscellaneous Lighting	20 Ampere -- On steering support bracket left side under instrument panel
Convertible Top	20 Ampere -- Same as above