

**1930**

Hudson-Essex

**REFERENCE SHEETS**

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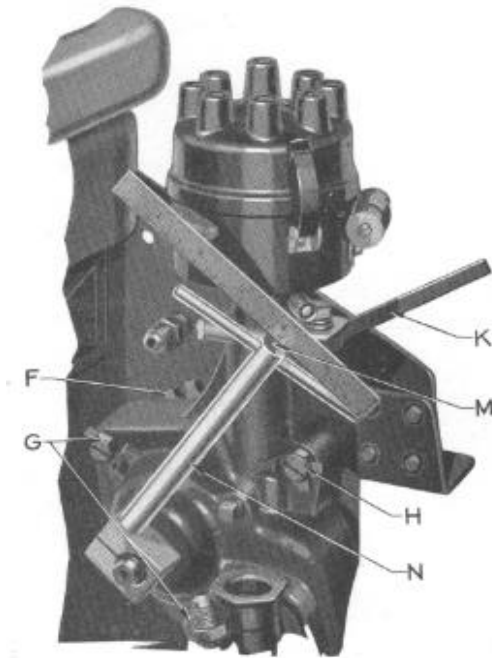
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## Hudson "8" and Essex Super Six Chain Front End Drive

The silent chain used to drive the cam shaft and generator drive shaft, is adjustable for quiet operation and also to compensate for wear.

### Inspection :

The chain should be inspected and adjusted if necessary after the first 1,000 miles of use and thereafter at intervals of 4,000 miles. **This inspection should be made even if noise has not developed.**



The inspection is made by removing the generator drive coupling and sliding the special feeler wrench N (HE-330, shown in the illustration) onto the generator drive shaft. Crank the engine slowly by hand approximately one-quarter revolution to be sure all slack in the chain is between the crankshaft sprocket and the generator drive shaft sprocket. **This is necessary to obtain an accurate test.**

Tighten the wrench on the shaft by turning the handle and test the chain adjustment by moving the wrench back and forth as far in each direction M as the slack in the chain will permit. The total movement of the end of the wrench should be from A" to A". This can be measured by use of a scale held over the end of the wrench and steadied by resting one end against the engine block. The punch mark M in the end of the wrench shank serves as a point from which the measurement can be taken. If the movement of the wrench is over A" or under h", an adjustment is necessary.

### Adjustment:

To adjust the chain, loosen the cap screw "H" and remove the two cap screws "G." Insert the adjusting tool "K" in one of the slots in the eccentric adjusting flange "F" and draw outward to tighten chain or push toward engine to loosen.

After proper adjustment has been obtained according to instructions in the preceding article, replace the cap screws "G" and tighten them together with cap screw "H." If the cap screws "G" cannot be inserted after the adjustment has been made, turn the eccentric slightly to permit these cap screws to pass through the slots in the adjusting flange. This turning should be in the loosening direction.

### Inspection and Shortening of the Chain:

The chain will always show considerable to and fro movement when laid on a flat surface due to the clearance allowed at each link pin and wear which also develops at these points. This, however, is of no consequence unless the total length of the chain is too great to permit

proper adjustment. In this case it is possible to shorten the chain one link and bring it within the limits of adjustment.

Examination of the chain will disclose the so-called "hunting-link," which is a thin leafed section shown in the illustration at H. L. To remove this link split the washers "A" and "B" with a sharp chisel and then remove the pins which will release this link. By putting the ends of the chain together and installing the rocker pin, a new seat pin and washers, the chain is again in serviceable condition and one link shorter.

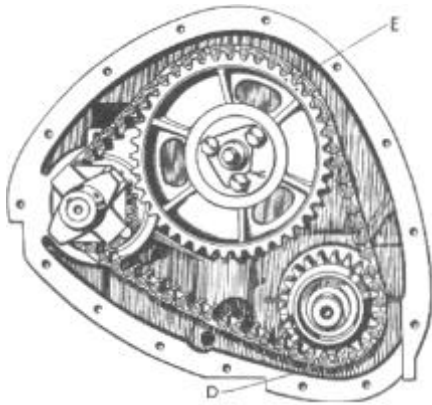
When installing the seat pin and rocker pin be sure the rib of the seat pin is pointing in the direction of travel as shown by the flying arrows on the side of the links, and that the pointed side of the rocker pin rests against the flat side of the seat pin.

### Timing:

Proper timing is obtained by turning the crankshaft so that the D. C. 1 & 8 mark on the Hudson (D. C. 1 & 6 on Essex) is exactly in line with the pointer on the inspection hole in the right rear motor support. The camshaft should then be turned until the exhaust valve of number one cylinder has just closed and the intake valve is just about to open. Turn the generator drive sprocket until the distributor rotor arm is pointing straight toward the back of the car on the Hudson "8," and directly toward the engine on the Essex Super Six.

### Installation :

With the crank, cam and generator drive shafts in the proper position as indicated under "Timing," and the eccentric in the position of minimum adjustment, put the chain on the crankshaft and generator drive sprocket so that the punch mark on the end of the pin "D" lies between the two punch marks on the teeth of the crankshaft sprocket. Now slip the camshaft sprocket into the chain so that the punch mark on the chain pin lies between the two punch marks on the teeth of the sprocket and install sprocket on camshaft. This may require a slight turning of the camshaft to align the holes so that the cap screws can be inserted.



### Important:

With the chain properly installed, the flying arrows should be visible pointing in the direction in which the chain moves, and the punch marks "D" and "E" on the pins coincide with similar marks on the crank and camshaft sprockets. There are 20 pins (as when measuring distance) between these points.

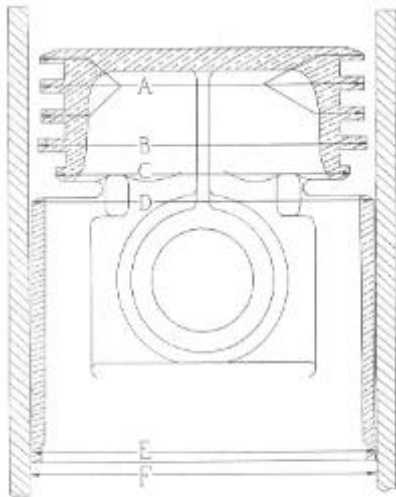
The distributor should be set so that the points are just breaking when the crankshaft is in the position indicated under "Timing" and the final ignition timing made on the road test.

**NOTE: H. E. - 330 Timing Chain Adjustment Feeler Wrench can be obtained from the Miller Tool & Manufacturing Company, 1725 - 16th Street, Detroit, Michigan.**

## Hudson and Essex Pistons

Hudson and Essex pistons are designed and manufactured to the strictest limits, but careless installation will offset the accuracy of manufacture and greatly reduces the life of the parts and will probably result in noisy operation.

The design of the piston is unusual, as is shown by the illustration. It will be noticed that the piston is smallest at the top where heat and expansion are greatest and increases in diameter, not only to the bottom of the rings, but the skirt also is tapered to compensate for the uneven temperature. This permits fitting to closer limits than have been possible with former types and gives more uniform clearances; therefore, better bearing of the piston in the cylinder under normal operating temperatures. This results in longer life and quieter operation.



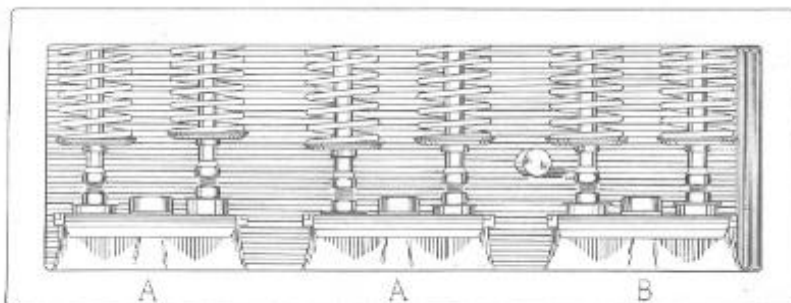
### PISTON CLEARANCES

- A—.016" less than cylinder bore.
- B—.012" less than cylinder bore.
- C—.041" less than cylinder bore.
- D—.002"-.0025" less than cylinder bore.
- E—.001"-.0015" less than cylinder bore.
- F—Cylinder bore.

The clearance at the top of the skirt should be .002" to .0025" and at the bottom .001" to .0015". (This is total clearance as measured with feeler stock.) It will be noted that the maximum allowable variation of clearance is .0005". It is obvious that this limit cannot be obtained if the cylinder is not true throughout its entire length. It is therefore essential that the cylinder bore be tested with an accurate gauge, and if found out of round or tapered, it must be reconditioned before attempting to select a piston for it.

By referring to the table of piston sizes available, which also shows the size of the cylinder bore to which each should be fitted, the proper pistons can be readily selected. It will be noted that the difference between the diameter of the and the piston is .002" to .0025" in each case. This is due to all pistons being stocked according to the diameter at the top of the skirt.

The code letters stamped on the cylinder block along the lower edge of the valve chamber, as shown in the illustration, designate the original size of each cylinder, and will be a help in determining the size of the piston required where no cylinder reconditioning is required. The code letters and piston weight in ounces, stamped on the heads of the pistons, will help in selecting correct pistons from stock. Always select a complete set of pistons carrying the same



### CYLINDER BORE AND PISTON MARKINGS

The letter on the lower face of the valve chamber indicates the size of the cylinder opposite which it is located.

The letter on the head of the piston indicates the piston size.

The number on the piston head indicates the weight of the piston in ounces and quarter ounces--7<sup>3</sup> indicating that the piston weighs 7<sup>3</sup>/<sub>4</sub> ounces

weight stamp, as uneven piston weight will cause rough motor operation. After selecting the pistons, test each for size in the cylinder in which it is to be used. Place the piston in the cylinder with a piece of .0015" feeler stock lying along the entire length of the piston, and directly opposite the split in the piston skirt. If the piston is the correct size, the feeler can be pulled out with the use of the thumb and first finger but should not withdraw easily, as .0015" is the maximum clearance allowable at the bottom of the skirt.

The piston boss should be reamed .001" smaller than the piston pin to be used. With the piston heated to 200 degrees F., the pin can just be pushed into the piston with the palm of the hand.

The bushing in the upper end of the connecting rod should be reamed, so that when the piston pin is inserted and held rigid, the connecting rod will just turn on the pin, due to its own weight.

All rods, regardless of whether they have been in use or are new parts from stock, should be checked on a good aligning fixture and straightened if necessary. The piston pin must be parallel in all directions with the big end bearing, and the upper end of the rod must have the proper offset, so that it gives equal clearance with both piston bosses.

The piston should be heated to 200 degrees F., either in an electric furnace or in boiling water (do not use an open flame, such as a blow torch, as it will heat the piston unevenly and cause it to warp), to permit the insertion of the pin. Assemble the piston so that the split in the skirt is on the side opposite the opening of the connecting rod dipper.

Place each piston ring in the cylinder in which it is to be used, and push it down 2 or 3 inches with the head of the piston, to be sure it is square in the bore. Measure the gap with feeler stock. The gap should be filed to .006" to .008" on all rings. The rings should be fitted to the piston with .001" up and down clearance. If the rings bind, dress them by rubbing on fine emery cloth supported by a flat surface.

Standard Equipment on Hudson Great "8" Motors Numbered 1044 upward  
and Essex Super "6" Motors Numbered 1236603 upward

*Symbol*

- BM 33148—Piston.
- BM 65800—Piston ring—compression—(furnished standard—.005"—.010"—.015"—.020" and .030" oversize).
- BM 65896—Piston ring—upper compression—Essex only, (furnished standard—.005"—.010"—.015"—.020" and .030° oversize).
- BM 33149—Piston ring—oil retaining (furnished standard—.005"—.010"—.015"—.020" and .030" oversize).
- BM 33331—Piston pin (furnished standard—.001"—.002"—.005"—.010"—.015" and .020" oversize).

NOTE: Fit piston rings with .006" to .008" gap

SELECTION OF PISTONS

All piston sizes are measured at the top of the skirt. Selection of this table gives .002' to .0025' clearance at this point.

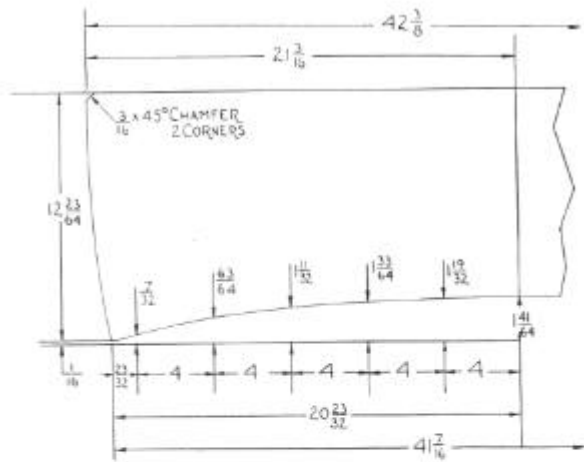
<i>Cylinder Size</i>	<i>Cylinder Code</i>		<i>Piston Code</i>	<i>Stock Piston Sizes</i>	<i>Cylinder Sizes</i>	<i>Special Piston Sizes</i>
2.7500	A	Use	B	2.748	2.753	2.751
2.7505	B				2.755	2.753
2.7510	C	Use	D	2.749	2.756	2.754
2.7515	D				2.757	2.755
2.7520	E	Use	F	2.750	2.758	2.756
2.7540					2.752	2.759
2.7600	AO	Use	BO	2.758	2.763	3.761
2.7605	BO					2.765
2.7610	CO	Use	DO	2.759	2.766	2.764
2.7615	DO					2.767
2.7620	EO	Use	FO	2.760	2.768	2.766
2.7640					2.762	2.769
2.7700		Use	BB	2.768	2.773	2.771
2.7710				DD	2.769	2.774
2.7720		Use	FF	2.770	2.775	2.773

# Glass Specifications Covering Hudson Great Eight Essex The Challenger 1930

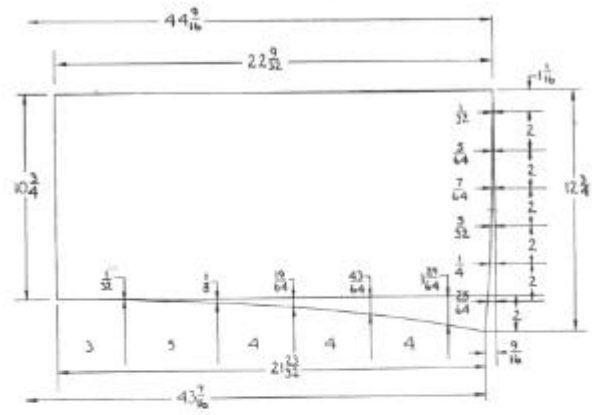
	Wind- Shield	Page	Door Glass Front	Page	Door Glass Rear	Page	Window Rear	Page	Window Quarter	Page
<i>Essex</i>										
BROUGHAM	87419	2	86010	3	86010	3	86098	4	.....	3
COACH	87419	2	86010	3	.....	..	86013	3	86010	3
COUPE	87419	2	86010	3	.....	..	86012	3	.....	..
PHAETON	87596	2	.....		.....		87466	4	.....	..
ROADSTER	87596	2	.....		.....		87466	4	.....	..
STANDARD SEDAN	87419	2	86010	3	86010	3	86013	3	.....	..
SUNSEDAN	87472	2	87524	3	.....	..	87466	4	87467	4
TOURING SEDAN	87419	2	86010	3	86010	3	86013	3	86011	4
 <i>Hudson-119"</i>										
COACH	87420	2	86010	3	.....	..	86013	3	86010	3
COUPE	87420	2	86010	3	.....	..	86012	3	.....	..
PHAETON	87597	2	.....		.....	..	87466	4	.....	..
ROADSTER	87597	2	.....		.....	..	87466	4	.....	..
STANDARD SEDAN	87420	2	86010	3	86010	3	86013	3	86011	4
SUNSEDAN	87473	2	87524	3	.....	..	87466	4	87467	4
 <i>Hudson-126"</i>										
BROUGHAM	87420	2	86010	3	86010	3	86098	4	.....	3
PHAETON-7 PASS.	87597	2	.....		.....	..	87466	4	.....	..
SEDAN-7 PASS	87420	2	87471	3	87469	3	86013	3	87468	4
TOURING SEDAN	87420	2	86010	3	86010	3	86013	5	86011	4

Essex Cars numbered. . . . . 1165674  
 119" Hudson Cars numbered. . . . . 893402  
 126" Hudson Cars numbered. . . . . 46999

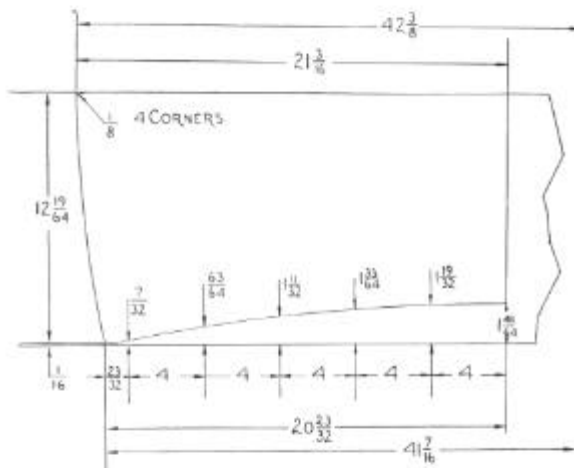
Hudson Motor Car Company  
 Detroit, Michigan



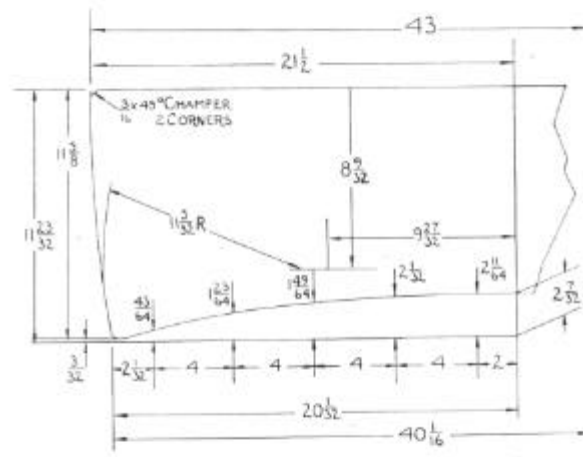
Windshield Glass No. 87419



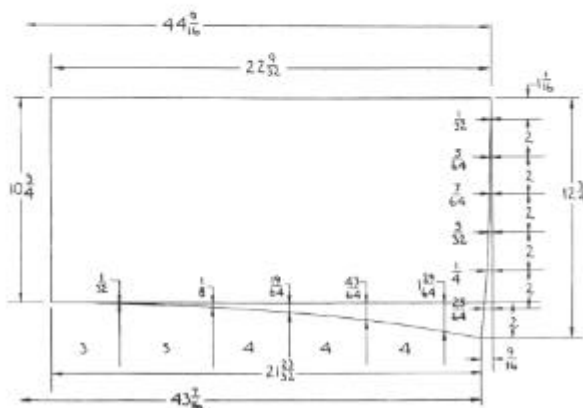
Windshield Glass No. 87473  
(Duplate)



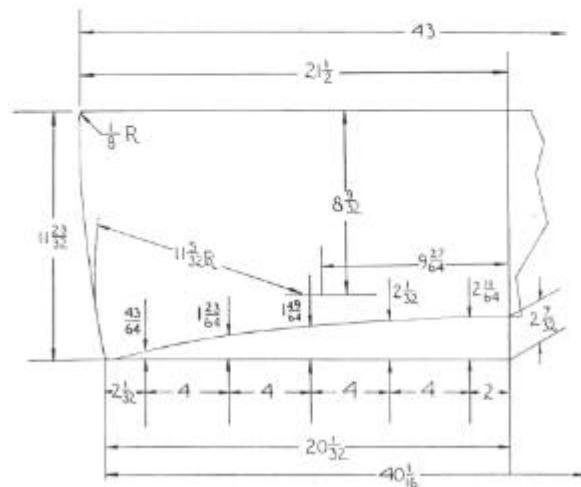
Windshield Glass No. 87420



Windshield Glass No. 87596

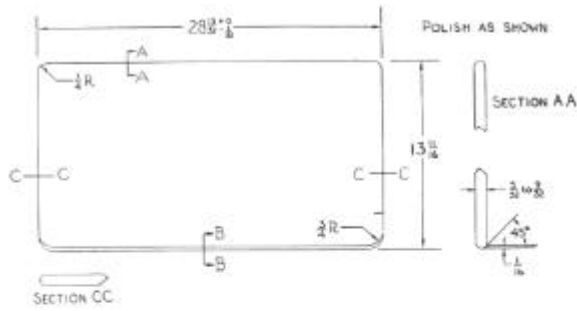


Windshield Glass No. 87472  
(Plate)

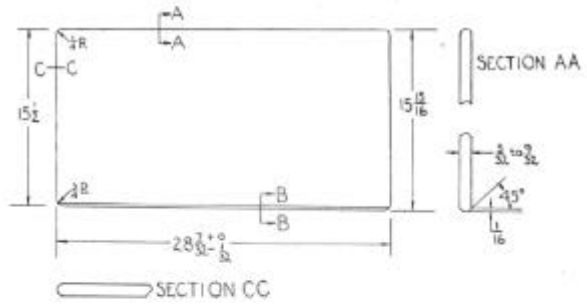


Windshield Glass No. 87597

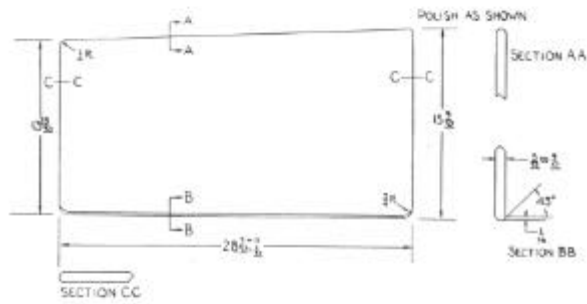




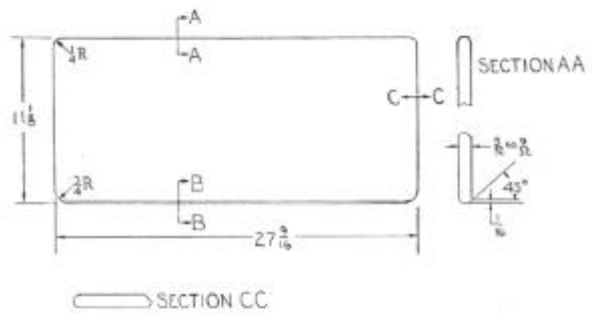
Door Glass Front No. 86010



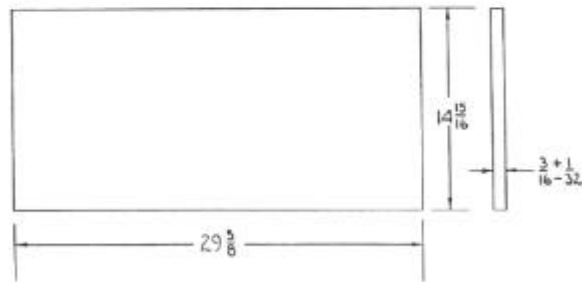
Door Glass Rear No. 87469



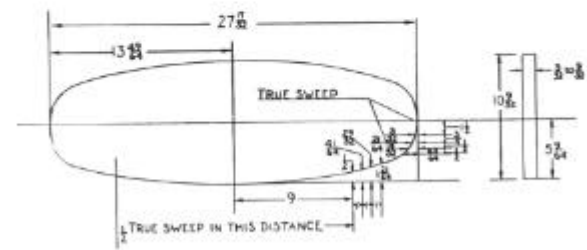
Door Glass Front No. 87471



Rear Window Glass No. 86012



Door Glass Front No. 87524



Rear Window Glass No. 86013



REVISED FEBRUARY, 1930.

## Mechanical Specifications for Essex Super Six-1930 Model

### ENGINE

Make	Hudson	Piston displacement	160.38
Model	Essex Super Six	Suspension	4 Point
No. of cylinders	6	Type of head	L
Cylinder arrangement	Vertical	Cylinder head	Detachable
Bore	2-3/4"	Cylinders in block	6
Stroke	4-1/2"	Crankcase	Integral
Rated H. P.	18.15	Material	Cast iron
Firing order	1-5-3-6-2-4	Lower half	Pressed steel

### CAMSHAFT DRIVE

Type of drive	Chain	No. of links	57
Make	Morse	Pitch	1/2"
Type	No. 28	Adjustment	Adjustable eccen.
Width	1-1/4"	Sprocket material	Cast iron
Camshaft sprocket	38 Teeth		

### CAMSHAFT BEARINGS

Number of bearings	3	No. 2 diameter	1-21/32"
No. 1 front--diam.	2"	No. 2 length	1-1/16"
No. 1 length	1-1/16"	No. 3 diameter	1-1/2"

### VALVES

	<u>Inlet</u>	<u>Exhaust</u>
Head material	Silicon Steel	Silicon Steel
Head diameter (outside)	1-3/8"	1-3/8"
Head diameter (opening)	1-1/4"	1-1/4"
Stem length	5-1/32"	5-1/32"
Stem diameter	5/16"	5/16"
Stem type of end	Grooved	Grooved
Tappet—type	Roller	Roller
Tappet clearance	.003"-.005"	.005"-.007"
Valve lift	5/16"	21/64"
Valve stem guides	Removable	Removable
Spring pressure	50 lbs.	50 lbs.

## CRANKCASE AND CRANKSHAFT

No. of main bearings	3	Crank pin diameter	1-15/16"
No. 1 (front)—diameter	2-11/32"	Main bearing material	Bronze & babbitt
No. 1 length	1-5/8"	Main bearing clearance	.001"-.0015"
No. 2 diameter	2-3/8"	Main bearing end play	.006"-.012"
No. 2 length	1-3/4"	End thrust on	Center bearing
No. 3 diameter	2-13/32"	Sprocket	19 teeth
No. 3 length	1-3/4"	Material	Steel

## CONNECTING ROD

Material	D. F. Steel	Lower end bearing clear.	.001"
Weight	1.7 lbs.	Length	1-3/8"
Length C. to C.	8-3/16"	Clearance (endwise)	.006"-.010'
Lower end bearing Dia.	1-15/16"	Type Material	Spun Babbitt

## PISTON

Type	Slotted Skirt	Distance between bosses	1-1/8"
Material	Aluminum Alloy	Clearance—top of skirt	.002"-.0025"
Weight	8 ounces	Clearance—bottom of skirt	.001"-.0015"
Length	3-1/16"	Depth of grooves	.156"
Pin center to top	1-11/16"	Lower grooves (2)	Drilled radially
		Number of holes	4 and 8
		Diameter of holes	3/32"

## PISTON RINGS

Material	Cast Iron	No. of oil rings	2
No. per piston	4 (above pin)	Type of joint	Mitre
Width	1/8"	Gap clearance	.006"-.008"
No. of comp. rings	2	Make	Piston Ring Co.

## PISTON PIN

Type	Floating	Bushing—outside diam.	15/16"
Diameter	3/4"	Bushing—inside diam.	3/4"
Length	2-1/8"	Bushing—length	15/16"

## LUBRICATION SYSTEM

Type	Circulating splash
Oil pump type	Oscillating Plunger
Stroke of pump	Not adjustable
Capacity—Oil reservoir only	5 quarts
Capacity—Oil reservoir and troughs	6 quarts
Mesh of screen	50
Oil recommended	Medium heavy—Use low cold test in winter.

## COOLING SYSTEM

Type	Thermo. syphon
Radiator—make	Harrison
Core—type	Ribbon cellular
Radiator shutter—type	Pressed steel—Vertical

## COOLING SYSTEM—Continued

Radiator shutter—make	Hudson
Shutter control—type	Manual
Capacity of cooling system	4-3/4 gallons
Radiator hose, upper, diameter	2-1/4"
Radiator hose, upper, length	7-1/2"
Radiator hose, lower, diameter	2-1/4"
Radiator hose, lower, length	14-1/2"
Fan belt	"V" type
Fan—make	Hudson
Fan bearing type	Plain

## FUEL SYSTEM

Carburetor—make	Marvel
Carburetor—size	1-1/4"
Method of heating mixture	Marvel Heat Control
Make of vacuum tank	Stewart
Gasoline tank capacity	11-1/2" gallons
Fuel feed—type	Vacuum tank
Air Cleaner	A. C.

## EXHAUST

Muffler—make Hudson	Exhaust pipe diameter—2"
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## IGNITION SYSTEMS

Make	Auto-Lite Corporation
Current source	Battery and generator
Spark control type	Full automatic
Firing order	1-5-3-6-2-4
Timing	D. C.
Breaker point gap	.020
Ignition coil—make	Auto-Lite Corporation
Spark plug—make	A. C.
Spark plug—type	No. 100
Spark plug—size	Metric-18 m/m, 1.5 m/m thread
park plug—gap	.022"

Note: Any other information must be obtained from the manufacturer.

## STARTER MOTOR

Make	Auto-Lite Corporation Bendix
Drive—type	107
No. of teeth on flywheel	3/8"
Width of tooth face	Rear of flywheel
Pinion meshes from	

Note: Any other information must be obtained from the manufacturer.

## GENERATOR

Make	Auto-Lite Corporation
Normal charging rate—hot	10 Amps.
Normal charging rate—cold	13.5 Amps

Note: Any other information must be obtained from the manufacturer

**BATTERY**

Make	Exide	Terminal grounded	Negative
Type	3-X1-13-1-G	Length—overall	9
Voltage	6	Width—overall	7-1/8"
No. of Plates	13	Height of box	7-7/8"
Where mounted	Under driver's seat	Height over terminals	9"

**LIGHTING SYSTEM**

Head and tail lamps—make	John Brown Lamp Company
Head lamp reflector—make	John Brown Lamp Company
Head lamp—type	Bullet
Side lamp—type	Bullet
Head lamp lens—type	Stabilite
Head lamp lens—diameter	8-11/16"
Head lamp dimmer method	Separate filament
Dash and tail lights connected	Separately
Ammeter—make	Motometer Gauge & Equipment Co.
Dash light—make	Motometer Gauge & Equipment Co.
Lighting switch control	On steering wheel

**LAMP BULB SPECIFICATIONS**

	<i>Make</i>	<i>Mazda No.</i>	<i>C. P.</i>	<i>Base</i>	<i>Voltage</i>
Head	Mazda	1110	21-21	D.C.	6-8
Side	Mazda	63	3	S.C.	6-8
Tail	Mazda	63	3	S.C.	6-8
Dash	Mazda	63	3	S.C.	6-8
Stop	Mazda	87	12	S.C.	6-8
Dome	Mazda	63	3	S.C.	6-8

**HORN**

E. A. Horn	Motor Type
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**CHASSIS**

Wheelbase	113"
Lubricating system	Alemite
Overall length with bumpers	14'-6-3/8"
Location of serial number	On right hand side member—at rear end of front spring.

**TRANSMISSION**

Make	Hudson	Pocket bearing	Bronze bushing
Location	Unit	Reverse idler	Bronze bushing
Speeds	3 forward 1 rev.	Main shaft—front	N. D. No. 1207
Gear ratio—low	3.244 to 1	Main shaft—rear	Hyatt No. N. C. 306
Gear ratio—sec.	1.961 to 1	Countershaft	Stationary
Gear ratio—high	1 to 1		
Gear ratio—rev.	4.170 to 1		
Type of lubricant	Light trans. oil 1-3/4 lb.		
Oil capacity (approx.)	N. D. No. 1202		

**CLUTCH**

Make	Hudson	Throwout bearing	Annular & thrust
Type	Single disc in oil	Throwout	5/32"
Facing material	Cork inserts	Clearance at F/B	3/4"
No. of cork inserts	88		

LUBRICATION—½ pint light motor oil

UNIVERSALS

Front	<i>Make</i> Spicer	<i>Type</i> Metal	Rear	<i>Make</i> Spicer	<i>Type</i> Metal
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TYPE OF DRIVE

Propulsion through rear springs.

REAR AXLE

Make	Hudson	Wheel bearing	Timken 415TV and 412A
Type	Semi-floating	Pin. bearing—front	Timken 2691V and 2620
Gear ratio	5 4/10 or 5 1/10	Pin. bearing—rear	Timken 3188 and 3120
Type of drive	Spiral bevel	Differential bearing—right	Timken 336 and 3320
Min. road clear.	7-1/2"	Differential bearing—left	Timken 336 and 3320
Clear. for jack	9-1/2"	No. of teeth in pinion	10
Differential—make	Hudson	No. of teeth in gear	54 or 51
Pinion	Adjustable	Oil capacity (approx.)	4 pounds
Pinion bearing	Adjustable	Type of lubricant	—Diff. oil

FRONT AXLE

Make	Hudson	Toe in—zero to 1/8"	
Section—type	I beam	Castor angle	1°
End—type	Rev. Elliott	Min. road clearance	8"
King pin thrust brg.	Ball brg.	Clearance for jack	8"
King pin transverse		Spindle transverse	
Inclination	7°	Inclination	1°

STANDARD BRAKES

Type	Bendix 4-wheel brakes
------	-----------------------

SERVICE BRAKES

Location	Frnt. and Rr. wheels	Lining length per wheel; 2 pieces,	24-1/2"
Make	Bendix	Width of lining	1-1/2"
Type	Internal	Thickness of lining	5/32"
Total braking area	147 sq. inches	Clearance of lining	.010"
Drum diameter	11"	Method of application	Foot pedal

HAND BRAKE

The hand lever operates the front and rear wheel brakes independently of the foot pedal, and should be used for parking, especially when car is standing on an incline.

WHEELS

Type	Wood-steel felloe
Make	Motor Wheel Corporation
Front wheel inner bearing	Timken No. 2554 and 2520
Front wheel outer bearing	Timken No. 2382 and 3320

RIMS

Type	Split	Diameter	19"
Make	Jaxon	Width	4"

TIRES

Size	29" x 5 balloon, straight side
Make	Goodyear
Number of plies	4
Recommended pressure	Front 40 lbs., rear 40 lbs.

STEERING GEAR

Make	Gemmer
Type	Worm and sector
Ratio	15 to 1
Steering wheel turns	2% (full swing left to right)
Turning radius	20 feet
Lubricant	Steam cylinder oil

SPRINGS

Front spring Type	Semi-elliptic	Rear spring Type	Semi-elliptic
Length	36"	Length	54-5/8 "
Width	2"	Width	2"
No. of leaves	8	No. of leaves	7, 8 or 10
Material	Alloy Steel	Material	Alloy steel
Front bushing	5/8" diameter	Front bushing	5/8" diameter
Rear bushing	5/8" diameter	Rear bushing	5/8" diameter
Bushing material	Phosphor bronze	Bushing material	Phosphor bronze
Shackle—type	Adjustable		

FRAME

Make	Hudson	Thickness	1/8"
Material	Steel	Width of flange	2"
Depth	7-1/6"		



ESSEX SUPER SIX

**Gear Ratios and Rules for Comparing Speed**

**in Miles per Hour with Motor R. P. M.**

TO OBTAIN MOTOR R. P. M. FOR ANY DESIRED SPEED IN MILES PER HOUR

*Note:* The following rule No. 1 is good only for a gear ratio of 5 4/10 to one and with wheeldiameter of 29 inches.

*Rule No. 1*—M. P. H. multiplied by 62.5 = Motor R. P. M. (approx.)  
 Example—What is the R. P. M. of motor at 40 miles per hour?  
 Answer-40 multiplied by 62.5-2500 R. P. M. (approx.)

The following rule No. 2 is good only for a gear ratio of 5 1/10 to one and with wheel diameter of 29 inches.

*Rule No. 2*—M. P. H. multiplied by 59 = Motor R. P. M. (approx.)

TO OBTAIN SPEED IN MILES PER HOUR FOR ANY DESIRED MOTOR R. P. M.

*Note:* The following rule No. 3 is good only for a gear ratio of 5 4/10 to one and with wheel diameter of 29 inches.

*Rule No. 3*—R. P. M. divided by 62.5 =Speed in miles per hour (approx.)  
 Example—what is the speed at 2400 R. P. M.?  
 Answer-2400 divided by 62.5 =38.4 M. P. H. (approx.)

The following rule No. 4 is good only for a gear ratio of 5 1/10 to one and with wheel diameter of 29 inches.

*Rule No. 4*—R. P. M. DIVIDED by 59 =Speed in miles per hour (approx.)

*Gear Ratios*—To obtain the number of revolutions of the motor required for one revolution of the rear wheel, multiply the transmission ratio by the rear axle ratio.

Example-3.244 (low gear ratio) multiplied by 5.4 (rear axle ratio) equals 17.517 revolutions of the motor to one revolution of rear wheel.

The following list shows the various motor to wheel ratios worked out as above for Essex Super Six cars with rear axle gear ratio 5 4/10:

	Trans. Ratio	Rear Axle Ratio	Motor Revs	Wheel Revs
With transmission in low	3.244	5 4/10	17.517	1
With transmission in sec.	1.961	5 4/10	10.589	1
With transmission in high	1	5 4/10	5.4	1
With transmission in rev.	4.17	5 4/10	22.518	1

REVISED FEBRUARY, 1930.

## Essex Super Six Standard Equipment

		<i>Rumble</i>	<i>Sun-</i>		<i>Std.</i>	<i>Touring</i>		<i>2 Pass.</i>	
	<i>Phaeton</i>	<i>Road.</i>	<i>Coupe</i>	<i>sedan</i>	<i>Coach</i>	<i>Sedan</i>	<i>Sedan</i>	<i>Brougham</i>	<i>Coupe</i>
	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.
Windshield cleaner —make	Trico	Trico	Trico	Trico	Trico	Trico	Trico	Trico	Trico
Windshield cleaner —type	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
Trunk Rack	None	None	None	None	None	None	None	None	None
Cowl ventilator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Engine heat indicator	On instrument board.....								ALL MODELS
Gasoline and oil level gauge location	Instrument board.....								ALL MODELS
Gasoline and oil level gauge— type	Electric.....								ALL MODELS
Wheels—type	Wood wheels.....								ALL MODELS
Sun visor	No	No	Yes	No	Yes	Yes	Yes	No	Yes
Radiator shutters	Yes .....								ALL MODELS
Rear traffic signal	Yes.....								ALL MODELS
Comb. tail and stop light—make	John Brown Lamp Co. ....								ALL MODELS
Cowl lights	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dome light	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Speedometer— make	Stewart-Warner.....								• ALL MODELS
Ignition electrolock	.....								ALL MODELS
Spare rim	One.....								ALL MODELS
Horn—make	E. A. ....								ALL MODELS
Headlamps— make	Stabilite—John Brown Lamp Co.....								ALL MODELS
Tire carrier— make	Hudson .....								ALL MODELS
Storage battery— make	"Exide".....								ALL MODELS
Shock absorber— make	Monroe .....								ALL MODELS
Shock absorber— type	Double Acting Hydraulic .....								ALL MODELS

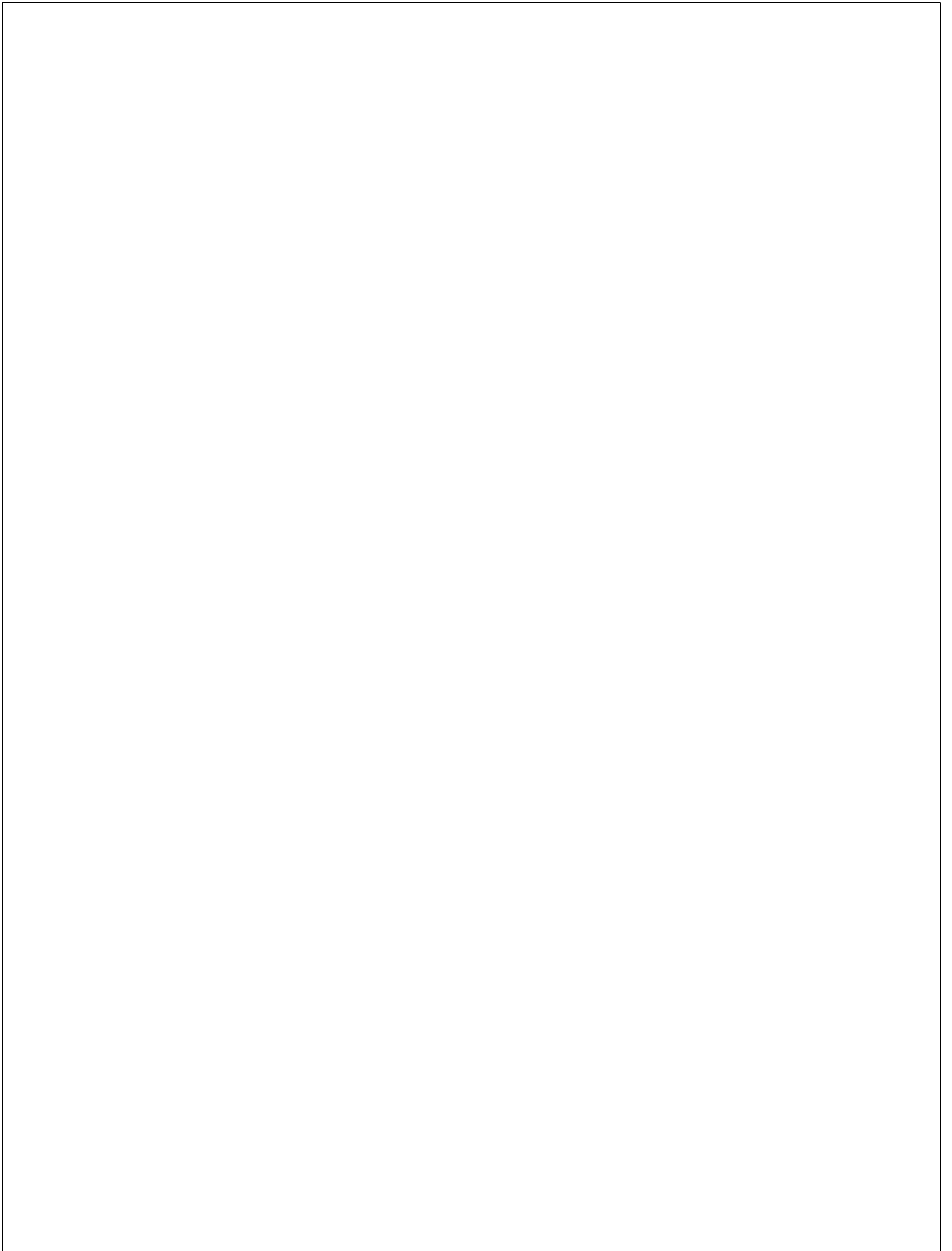
### EXTRA EQUIPMENT

Bumpers—	
Front and Rear .....	ALL MODELS
Tire Cover.....	ALL MODELS

REVISED FEBRUARY, 1930.

## Essex Super Six\_\_Body Details 1930 Models

	<i>Phaeton</i>	<i>2-Pass Coupe</i>	<i>Sun- sedan</i>	<i>Coach</i>	<i>Std. Sedan</i>	<i>Touring Sedan</i>	<i>Roadster</i>	<i>Brougham</i>	<i>Rumble Coupe</i>
Model	1930	1930	1930	1930	1930	1930	1930	1930	1930
Wheelbase	113	113	113	113	113	113	113	113	113
Weight	2620		2760	2730	2805	2850	2550	2850	2700
No. of doors	4	2	2	2	4	2	4	4	2
No. of passengers	5	2	5	5	5	4	5	5	4
Seating Arrangement	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Gear Ratios	5 1/20	5 1/10	5 4/10	5 4/10	5 4/10	5 1/10	5 4/10	5 4/10	5 1/10
Make of body	Biddle & Smart	Own	Biddle & Smart	Own	Own	Own	Biddle & Smart	Own	Own
Windshield—type									
Windshield—make	One piece swing type								ALL MODELS
Wheel—tyoe	Wood products								ALL MODELS
Tires—size	19 x 5.00								ALL MODELS
									ALL MODELS



REVISED FEBRUARY, 1930.

## Mechanical Specifications for Hudson Great Eight, 1930 Models

### ENGINE

Make	Hudson	Piston displacement	213.8
Model	Great Eight	Suspension	4 Point
No. of cylinders	8	Type of head	L
Cylinder arrangement	Vertical	Cylinder heads (2)	Detachable
Bore	2-3/4"	Cylinders cast	En bloc
Stroke	4-1/2"	Crankcase	Integral
Rated H. P.	24.2	Material	Cast iron
Firing order	1-6-2-5-8-3-7-4	Lower half	Pressed steel

### CAMSHAFT DRIVE

Type of drive	Chain	No. of links	57
Make	Morse	Pitch	1/2"
Type	No. 28	Adjustment	Adjustable eccen.
Width	1-1/4"	Sprocket material	Cast iron
Camshaft sprocket	38 Teeth		

### CAMSHAFT BEARINGS

No. of bearings	5	No. 3 diameter	1-31/32"
No. 1 front—diam.	2-1/32"	No. 3 length	1-1/4"
No. 1 length	1-3/8"	No. 4 diameter	1-15/16"
No. 2 diameter	2"	No. 4 length	1-1/16"
No. 2 length	1-1/16"	No. 5 diameter	1-1/2"
		No. 5 length	1-1/2"

### VALVES

	<i>Inlet Valve</i>	<i>Exhaust Valve</i>
Head material	Silicon steel	Silicon steel
Head diameter (outside)	1-1/2"	1-3/8"
Head diameter (opening)	1-3/8"	1-1/4"
Stem length	5-1/32"	5-1/32"
Stem diameter	5/16"	5/16"
Stem type of end	Grooved	Grooved
Tappet—type	Roller	Roller
Tappet clearance	.003"-.005"	.005"-.007"
Valve lift	.312"	.327"
Valve stem guides	Removable	Removable
Spring pressure	50 lbs.	50 lbs.

## CRANKCASE AND CRANKSHAFT

No. of main bearings	5	Crank pin diameter	1-15/16"
No. 1 (frt) diameter	2-9/32"	Main bearing material	Bronze & babbitt
No. 1 length	1-5/8"	Main bearing end play	.006"-.0012"
No. 2 diameter	2-5/16	Main bearing clearance	.001"-.015"
No. 2 length	1-3/8"	End thrust on	Center bearing
No. 3 diameter	211/32"	Sprocket	19 teeth
No. 3 length	1-7/8"	Material	Steel
No. 4 diameter	2-3/8"		
No. 4 length	1-3/8"		
No. 5 diameter	2-13/32"		
No. 5 length	2"		

## CONNECTING ROD

Material	D. F. Steel	Lower end bearing clear.	.001"-.015"
Weight	1.7 lbs.	Length	1-3/8"
Length C. to C.	8-3/16"	Clearance (endwise)	.006"-.010"
Lower end bearing Dia.	1-15/16"	Type Material	Spun Babbitt

## PISTON

Type	Slotted Skirt	Distance between bosses	1-1/8"
Material	Aluminum Alloy	Clearance—top of skirt	.002"-.0025"
Weight	8 ounces	Clearance—bottom of skirt	.001"-.0015"
Length	3-1/16"	Depth of grooves	5/32"
Pin center to top	1-11/16"		
Lower center groove	Drilled radially	4 holes	3/32"
Lower groove	Drilled radially	8 holes	3/32"

## PISTON RINGS

Material	Cast Iron	No. of oil rings	4
No. per piston	4	Type of joint	Mitre
Width	1/8"	Gap clearance	.006"-.008"
No. of comp. rings	2	No. of oil control rings	2

## PISTON PIN

Type	Floating	Bushing—outside diam.	15/16"
Diameter	3/4"	Bushing—inside diam.	3/4"
Length	2-1/8"	Bushing—length	15/16"

## LUBRICATION SYSTEM

Type	Circulating splash
Oil pump type	Oscillating Plunger
Stroke of pump	Not adjustable
Capacity—Oil reservoir only	8 quarts
Capacity—Oil reservoir and troughs	9-1/2 quarts
Mesh of screen	50
Oil recommended	Medium heavy—Use low cold test in winter.

## COOLING SYSTEM—Continued

Type	Centrifugal pump
Radiator—make	Harrison
Core type	Ribbon cellular
Radiator shutter—type	Pressed steel—Vertical
Shutter control type	Manual
Capacity of cooling system	4-1/2 gallons
Radiator hose—upper—diameter	1-5/16"
Radiator hose—upper—length	9-3/8"
Radiator hose—lower—diameter	1-5/16"
Radiator hose—lower—length	5"
Fan belt	"V" type
Fan—make	Hudson
Fan bearing type	Plain

## FUEL SYSTEM

Carburetor—make	Marvel
Carburetor—size	1-1/2"
Fuel feed—type	Vacuum tank Stewart
Make of vacuum tank	A. C.
Air cleaner	16 gallons
Gasoline tank capacity	Marvel heat control
Method of heating mixture	

## EXHAUST SYSTEM

Muffler—make	Hudson	Exhaust pipe diameter 2"
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## IGNITION SYSTEM

Make	Auto-Lite Corporation
Current source	Battery and generator
Spark control type	Full automatic
Firing order	1-6-2-5-8-3-7-4
Timing	D. C.
Breaker point gap	.020"
Ignition coil—make	Auto-Lite Corporation
Spark plug—make	A. C.
Spark plug—type	No. 100
Spark plug—size	Metric-18 m/m, 1.5 m/m thread
Spark plug—gap	.022"

Note: Any other information must be obtained from the manufacturer.

## STARTER MOTOR

Make	Auto-Lite Corporation
Drive—type	Bendix
No. of teeth on flywheel	107
Width of tooth face	3/8"
Pinion meshes from	Back of flywheel

Note: Any other information must be obtained from the manufacturer.

## GENERATOR

Make	Auto-Lite Corporation
Normal charging rate—hot	10 Amps.
Normal charging rate—cold	13.5 Amps

Note: Any other information must be obtained from the manufacturer

## BATTERY

Make	Exide	Terminal grounded	Negative
Type	3-X1-13-1-G	Length—overall	9"
Voltage	6	Width—overall	7-1/8"
No. of Plates	13	Height of box	7-7/8"
		Height over terminals	9"

## LIGHTING SYSTEM

Head and tail lamps—make	C. M. Hall Lamp Co.
Head lamp reflector—make	C. M. Hall Lamp Co.
Head and side lamp—type	Bullet
Head lamp lens—type	Depress beam
Head lamp lens—diameter	10"
Head lamp dimmer method	Separate filament
Dash and tail lights connected	Separate
Ammeter—make	Motometer Gauge & Equipment Co.
Lighting switch control	On steering wheel
Ignition switch—type	Electrolock

## LAMP BULB SPECIFICATIONS

	<i>Make</i>	<i>Mazda No.</i>	<i>C. P.</i>	<i>Base</i>	<i>Voltage</i>
Head	Mazda	1110	21-21	D.C.	6-8
Side	Mazda	63	3	S.C.	6-8
Tail	Mazda	63	3	S.C.	6-8
Dash	Mazda	63	3	S.C.	6-8
Stop	Mazda	87	12	S.C.	6-8
Dome	Mazda	63	3	S.C.	6-8

## HORN

E. A. Horn	Vibrator type
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## CHASSIS

Wheelbase	119"	126"
Lubricating system	Alemite	Alemite
Overall length with bumpers	15-1/2"	16-1/2"
Location of serial number	On right hand side member—at rear end of front spring.	

## TRANSMISSION

Make	Hudson	Pocket brg.	Bronze bush.
Location	Unit	Reverse idler	Bronze bush.
Speeds	3 forward 1 rev.	Main shaft—frt.	N. D. 1207
Gear ratio—low	3.244 to 1	Main shaft—rear	Hyatt No. NC 306
Gear ratio—sec.	1.961 to 1	Countershaft gear—frt.	Bronze bush.
Gear ratio—high	1 to 1	Countershaft gear—rear	Bronze bush.
Gear ratio—rev.	4.170 to 1	Countershaft—stationary	
Type of lubricant		Light transmission oil	
Oil capacity (approx.)		1-3/4 lbs.	
Pilot brg. in crankshaft		N. D. No. 1202	





## WHEELS

Type	Wood-steel fellow
Make	Motor Wheel Corp.
Front wheel inner bearing	Timken No. 14274 and 14132
Front wheel outer bearing	Timken No. 1775 and 1729
Rear wheel bearing	Timken No. 3381 and 3329

## RIMS

Type	Split	Diameter	18"
Make	Cleveland	Width	4"

## TIRES

Size	29 x 5.50
Make	Goodyear
Number of plies	(4)
Recommended pressure	Front 40 lbs. Rear 40 lbs.

## STEERING GEAR

Make	Gemmer
Type	Worm and sector
Ratio	15 to 1
Steering wheel turns	2-1/2 (full swing left to right)
Turning radius	21 feet
Lubricant	Heavy bodied gear oil

## SPRINGS

<i>Front Spring</i>		<i>Rear Spring</i>	
Type	Semi-elliptic	Type	Semi-elliptic
Length	36"	Length	54-5/8"
Width	2"	Width	2"
No. of leaves	9	No. of leaves	9
Material	Alloy steel	Material	Alloy steel
Front bushing	5/8" dia.	Front bushing	5/8" dia.
Rear bushing	5/8" dia.	Rear bushing	5/8" dia.
Bushing material	Phosphor bronze	Bushing material	Phosphor bronze
Shackle—type	Adjustable		

## FRAME

Make	Hudson	Depth	7-1/8"
Material	Steel	Thickness	5/32"
		Width of flange	2"

## HUDSON GREAT EIGHT

### Gear Ratios and Rules for Comparing Speed in Miles per Hour with Motor R. P. M.

#### TO OBTAIN MOTOR R. P. M. FOR ANY DESIRED SPEED IN MILES PER HOUR

Note: The following rule No. 1 is good only for a gear ratio of  $4 \frac{7}{11}$  to one and with wheel diameter of 29 inches.

*Rule No. 1*—M. P. H. Multiplied by 53.7 = Motor R. P. M. (approx.)

Example—what is the R. P. M. at 40 miles per hour?

Answer—40 multiplied by 53.7 = 2148 R. P. M. (approx.)

The following rule No. 2 is good only for a gear ratio of  $4 \frac{3}{11}$  to one and with wheel diameter of 29 inches.

*Rule No. 2*—M. P. H. multiplied by 49.5 = Motor R. P. M. (approx.)

#### TO OBTAIN SPEED IN MILES PER HOUR FOR ANY DESIRED MOTOR R. P. M.

Note: The following rule No. 3 is good only for a gear ratio of  $4 \frac{7}{11}$  to one and with wheel diameter of 29 inches.

*Rule No. 3*—R. P. M. divided by 53.7 = Speed in miles per hour (approx.)

Example—what is the speed at 2400 R. P. M.?

Answer—2400 divided by 53.7 = 44.7 M. P. H. (approx.)

The following rule No. 4 is good only for a gear ratio of  $4 \frac{3}{11}$  to one and with wheel diameter of 29 inches.

*Rule No. 4*—R. P. M. DIVIDED by 49.5 = Speed in miles per hour (approx.)

**Gear Ratios**—To obtain the number of revolutions of the motor required for one revolution of the rear wheel, multiply the transmission ratio by the rear axle ratio.

Example —3.244 (low gear ratio) x 4.636 (rear axle ratio) = 15.039. Revolutions of the motor to one revolution of rear wheel.

The following list shows the various motor to wheel ratios worked out as above for Great Eight cars with rear axle gear ratio 4.636 to 1:

	Trans. Ratio	Rear Axle	Motor Revs	Wheel
	Ratio	Ratio	Revs.	Revs.
With transmission in low	3.244	4.636	15.039	1
With transmission in second	1.961	4.636	9.091	1
With transmission in high	1.	4.636	4.636	1
With transmission in reverse	4.170	4.636	19.332	1

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## Hudson Great Eight Standard Equipment 1930 Models

	<i>Std.</i>	<i>Sun-</i>	<i>Phae-</i>	<i>Road-</i>	<i>Touring</i>	<i>7-Pass.</i>	<i>Broug-</i>	<i>Phae-</i>	<i>7-Pass.</i>			
	<i>Coupe</i>	<i>Coach</i>	<i>Sedan</i>	<i>Sedan</i>	<i>ton</i>	<i>ster</i>	<i>Sedan</i>	<i>Sedan</i>	<i>ham</i>	<i>ton</i>	<i>ton</i>	
W/S Cleaner											Trico vacuum	ALL MODELS
Cowl Ventilator												ALL MODELS
Heat indicator on instrument board												ALL MODELS
Gasoline and oil level Gauge Electric—on instrument board												ALL MODELS
Wheels Wood												ALL MODELS
Sun visor	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No		
Radiator Shutters												ALL MODELS
Rear traffic signal												ALL MODELS
Cowl lights	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes		
Rear vision mirror												ALL MODELS
Ignition lock Electrolock												ALL MODELS
Speedometer Stewart Warner												ALL MODELS
Spare rim One—Carried in R. H. front fender												ALL MODELS
Horn E. A.	ALL MODELS											
Headlamps C. M. Hall Lamp Co.-- Depress beam												ALL MODELS
Shock Absorbers Wahl Hydraulic—Double action												ALL MODELS
Trunk Rack	ALL MODELS											
Wheelbase	119"	119"	119'	119"	119"	119"	126"	126"	126"	126"		

### EXTRA EQUIPMENT

Bumpers—Front and Rear ALL MODELS  
 Tire Cover ALL MODELS

REVISED FEBRUARY, 1930.

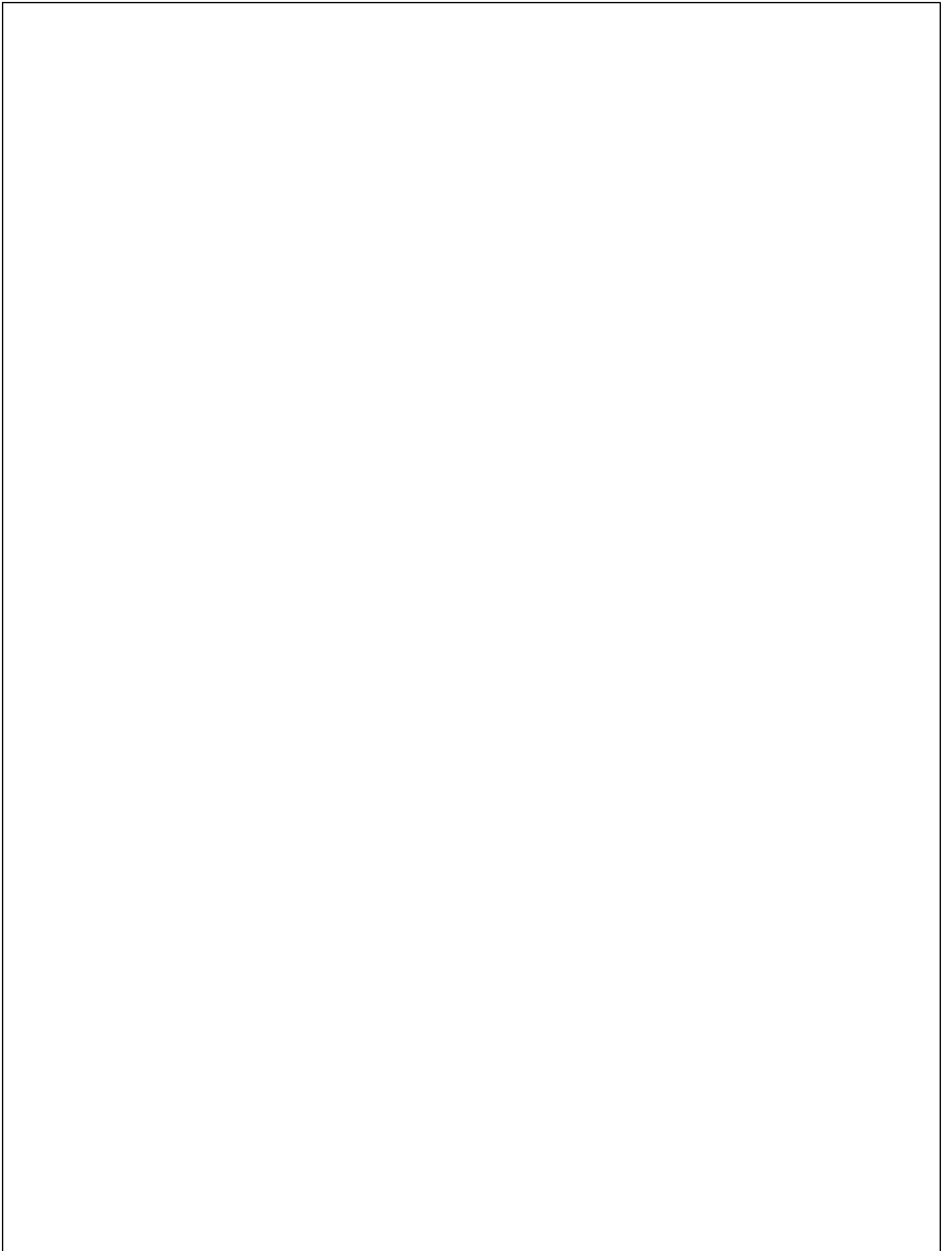
## Hudson Great Eight Body and Chassis Details 1930 Models

### 119 Wheel Base"

	<i>5-Pass. Phaeton</i>	<i>Rumble Coupe</i>	<i>Sun- Sedan</i>	<i>Std. 5-Pass. Sedan</i>	<i>Roadster</i>	<i>Coach</i>
Weight	2940	3060	3100	3200	2870	3080
No. of doors	4	2	2	4	2	2
No. of passengers	5	4	5	5	4	5
Seat arrangements			Right front seat folding			Right front seat folding
Gear ratio	Std. 4 3/11	Std. 4 3/11	4 7/11	Std. 4 7/11	Std. 4 3/11	4 7/11
Make of body	Smart	Hudson	Smart	Hudson	Smart	Hudson
Frame work material	Wood	Steel	Wood	Steel	Wood	Steel
Body panel material	Steel	Steel	Steel	Steel	Steel	Steel
Wheels type	Wood		Biddle &		Biddle &	ALL MODELS
Tire size	29 x 5.50					ALL MODELS
Tire type	4 ply					ALL MODELS

### 126" Wheel Base

	<i>Brougham</i>	<i>Touring Sedan</i>	<i>7-Pass. Sedan</i>	<i>7-Pass. Sedan</i>
Weight	3210	3270	3885	3080
No. of doors	4	4	4	4
No. of passengers	5	5	7	7
Seat arrangement	Std.	Std.	Std.	Std.
Gear ratio	4 7/11			ALL MODELS
Make of body	Hudson	Hudson	Smart	Smart
Frame work material	Steel	Steel	Wood	Wood
Body panel material	Steel	Steel	Steel	Steel
Wheels type	Wood	Wood	Wood	Wood
Tire size	29 x 5.50			ALL MODELS
Tire type	4 ply	4 ply	4 ply	4 ply



# Paint Specifications Covering Hudson Great Eight Essex The Challenger

## 1930

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Essex Coach		3
Essex Coupe (2 and 4 Pass.)		4
Essex Phaeton		4
Essex Roadster		5
Essex Standard Sedan		5
Essex Touring Sedan		6
Hudson Coach	119"	7
Hudson Coupe {2 and 4 Pass.}	119"	7
Hudson Phaeton	119"	8
Hudson Roadster	119"	8
Hudson Standard Sedan	119"	9
Hudson Sunsedan	119"	9
Hudson Brougham	126"	10
Hudson Phaeton (7 Pass.)	126"	10
Hudson Sedan (7 Pass.)	126"	11
Hudson Touring Sedan	126"	11

There is no standard color designated for any type. It is necessary, on your shipping specifications, to indicate the color combination wanted for each model specified.

Hudson Motor Car Company  
Detroit, Michigan

## Source of Supply of All Paint Used in Manufacturing Hudson and Essex, 1930 Models

Armitage & Co., 245 Thomas St., Newark, N. J.  
 Dibble Color Co., 1497 E. Grand Blvd., Detroit, Michigan  
 Ditzler Color Co., 8000 W. Chicago Blvd., Detroit, Michigan  
 Glidden Co., W. Madison Ave., Cleveland, Ohio  
 Jones-Dabney Co., 2208 Fisher Bldg., Detroit, Michigan  
 Rinshed-Mason, 5935 Milford Ave., Detroit, Michigan  
 Standard Varnish Co., Bloom and Nevada Sts., Detroit, Michigan  
 V. E. P. Co., 555 Going St., Pontiac, Michigan

Color Name	Manufacturer	Color Number	Color Name	Manufacturer	Color Number
ABBOTT GRAY	Rinshed-Mason	1	HUDSON GRAY	Dibble	12B
ABBOTT GRAY	Dibble	1B	HUDSON GREEN	Rinshed-Mason.	13
ALCAZAR RED	Jones & Dabney	2A	HUDSON GREEN	Dibble	13B
ALCAZAR RED	Dibble—V.E.P	2C	IVORY JET BLACK	Jones & Dabney	14
ALUMINUM	Hudson Motor Car Co.	25A	IVORY JET BLACK	Jones & Dabney	14A
BIRKENDALE BLUE	Jones & Dabney	3	IVORY JET BLACK	Dibble	14B
BIRKENDALE BLUE	Dibble	3B	IVORY JET BLACK	V.E.P	14C
BLACK	Glidden	4	IVORY JET BLACK	Standard Varnish Co.	14D
BRIGHTWOOD GREEN	Dibble	5	LABRADOR GRAY	Jones & Dabney	15
BRIGHTWOOD GREEN	Dibble	5B	LABRADOR GRAY	Dibble	15B
BRIGHT BLUE	Jones & Dabney	6A	MALAGA MAROON	Rinshed-Mason	16
BRIGHT BLUE	V.E.P. Dibble	6C	MALAGA MAROON	Dibble	16B
COPPER	Hudson Motor Car Co.	26C	PEACOCK BLUE	Ditzler	17
DEEP CREAM	Jones & Dabney	7A	PEACOCK BLUE	Dibble	17B
DEEP CREAM	V.E.P.—Dibble	7C	RADIUM BLUE	Armitage	18
EMERALD GREEN	Jones & Dabney	8A	RADIUM BLUE	Dibble	18B
EMERALD GREEN	V.E.P. Dibble	8C	ROSEWOOD BROWN	Ditzler	19
ENSEMBLE BLUE	Hudson Motor Car Co.	26	ROSEWOOD BROWN	Dibble	19B
			SILVER	Hudson Motor Car Co.	20C
FRENCH BLUE	Jones & Dabney	9	THORNE BROWN	Jones & Dabney.	21
FRENCH BLUE	Dibble	9B	THORNE BROWN	Dibble	21B
HAWTHORNE GREEN	Rinshed-Mason	10	TWILIGHT BLUE	Rinshed-Mason	22
HAWTHORNE GREEN	Dibble	10B	TWILIGHT BLUE	Dibble	22B
HUDSON BLUE	Jones & Dabney	27	TWILIGHT BLUE	Dibble	22B
HUDSON BROWN	Dibble	11	TYROLIAN GREEN	Rinshed-Mason	23
HUDSON BROWN	Dibble	11B	TYROLIAN GREEN	Dibble	23B
HUDSON GRAY	Dibble 12	12	WHITE ENAMEL	VEP—Dibble	24C

Color Numbers refer to Color Chart  
Color Letters Show Color Classification

Example: No. 14 —Ivory Jet Black used on body, bonnet, panels, etc.

14A—Ivory Jet Black used on wire wheels

14B—Ivory Jet Black used on wood wheels and shutters

14C—Ivory Jet Black used for striping

14D—Ivory Jet Black used on chassis, gasoline tank and wire:wheel brake drums



## Essex Brougham

CAR NUMBER	OPTION "K" 1226697 and up		OPTION "P" 1227047 and up		OPTION "J" 1226990 and up	
UPPER BODY	Ivory Jet		Hawthorne		Twilight	
	Black	14	Green	10	Blue	22
LOWER BODY	Ivory Jet		Hawthorne		Twilight	
	Black	14	Green.	10	Blue	22
BELT PANEL	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14	Black	14	Black	14
PANEL STRIPE	Deep					
	Cream	7C	Silver	20C	Silver	20C
BONNET	Ivory Jet		Hawthorne		Twilight	
	Black	14	Green	10	Blue	22
WOOD WHEELS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
WHEEL STRIPE	Deep					
	Cream.	7C	Silver	20C	Silver	20C
WIRE WHEELS	Deep					
	Cream	7A	Aluminum	25A	Aluminum.	25A
WIRE WHEEL DRUMS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14D	Black.	14D	Black	14D
SHUTTER ASSY.	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
FENDERS AND SPLASH GUARDS	Black	4	Black	4	Black	4
COLOR COMBINATION	Black		Dark Green		Light Blue	

## Essex Coach

CAR NUMBER	OPTION "R" 1226618 and up		OPTION "M" 1226629 and up		OPTION "W" 1226613 and up	
UPPER BODY	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14	Black	14	Black	14
	Tyrolian		Ensemble		Malaga	
	Green	23	Blue	26	Maroon	16
LOWER BODY	Tyrolian		Ensemble		Malaga	
	Green	23	Blue	26	Maroon.	16
BELT PANEL	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14	Black	14	Black	14
PANEL STRIPE	Silver	20C	Silver	20C	Deep Cream	7C
BONNET	Tyrolian		Ensemble		Malaga	
	Green	23	Blue	26	Maroon	16
WOOD WHEELS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
WHEEL STRIPE	Silver	20C	Silver	20C	Deep Cream	7C
WIRE WHEELS	Aluminum	25A	Aluminum	25A	Deep Cream	7A
WIRE WHEEL DRUMS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14D	Black	14D	Black	14D
SHUTTER ASSY.	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
FENDERS AND SPLASH GUARDS	Black	4	Black	4	Black	4
COLOR COMBINATION	Medium Green		Medium Blue		Dark Red	

Additional color information and key to color chart on Page Two.

### Essex Coupe—2 and 4 Pass.

CAR NUMBER	OPTION "K" <i>1226614 and up</i>	OPTION "H" <i>12266120 and up</i>	OPTION "R" <i>12266121 and up</i>	<i>1201217 to 1224199</i>
UPPER BODY	Ivory Jet Black 14	Hudson Std Blue 27	Hawthorn Green 10	Thorne Brown 21
LOWER BODY	Ivory Jet Black 14	Hudson Std Blue 27	Tyrolian Green 23	Malaga Maroon 16
BELT PANEL	Deep Cream 7	Radium Blue 18	Hawthorne Green 10	Thorne Brown 21
PANEL STRIPE	Ivory Jet Black 14C	Silver 20C	Deep Cream 7C	Alcazar Red 2C
BONNET	Ivory Jet Black 14	Hudson Std Blue 27	Tyrolian Green 23	Malaga Maroon 16
WOOD WHEELS	Ivory Jet Black 14B	Radium Blue Sil- 14B	Hawthorne Green 10B	Thorne Brown 21B
WHEEL STRIPE	Deep Cream 7C	ver 20C	Deep Cream 7C	Alcazar Red 2C
WIRE WHEELS	Deep Cream 7A	Aluminum 25A	Deep Cream 7A	Alcazar Red 2A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY.	Ivory Jet Black 14B	Ivory Jet Black 14B	Ivory Jet Black 14B	Ivory Jet Black 14B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4	Black 4
COLOR COMBINATION	Black	Dark Blue	Medium Green	Dark Brown

### Essex Phaeton

CAR NUMBER	OPTION "N" <i>1166363 and up</i>	OPTION "V" <i>1193526 and up</i>	OPTION "Q" <i>1169349 and up</i>	OPTION "N" <i>1179802 and up</i>
UPPER BODY	Peacock Blue 17	Rosewood Brown 19	Hudson Brown 11	Labrador Gray 15
LOWER BODY	Peacock Blue 17	Rosewood Brown 19	Hudson Brown 11	Labrador Gray 15
BELT PANEL	Ivory Jet Black 14	Hudson Brown 11	Ivory Jet Black 13	Ivory Jet Black 14
PANEL STRIPE	Copper 26C	Deep Cream 7C	Copper 26C	Deep Cream 7C
BONNET	Peacock Blue 17	Rosewood Brown 19	Hudson Brown 11	Labrador Gray 15
WOOD WHEELS	Peacock Blue 17B	Hudson Brown 11B	Ivory Jet Black 14B	Labrador Gray 15B
WHEEL STRIPE	Copper 26C	Deep Cream 7C	Copper 26C	Deep Cream 7C
WIRE WHEELS	Ivory Jet Black 14A	Deep Cream 7A	Ivory Jet Black 14A	Ivory Jet Black 14A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY	Ivory Jet Black 14B	Ivory Jet Black 14B	Ivory Jet Black 14B	Ivory Jet Black 14B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4	Black 4
COLOR COMBINATION	Medium Blue	Light Brown	Medium Brown	Dark Gray

Additional color information and key to color chart on Page Two.

## Essex Roadster

CAR NUMBER	OPTION "V" <i>1173257 and up</i>		OPTION "U" <i>1188691 and up</i>		OPTION "G" <i>1166937 and up</i>	
UPPER BODY	Rosewood		Peacock		French	
	Brown	19	Blue	17	Blue	9
LOWER BODY	Rosewood		Peacock		French	
	Brown	19	Blue	17	Blue	9
BELT PANEL	Hudson		Ivory Jet		French	
	Brown	11	Black	14	Blue	9
PANEL STRIPE	Deep Cream	7C	Deep Cream	7C	Alcazar Red	2C
BONNET	Rosewood		Peacock		French	
	Brown	19	Blue	17	Blue	9
WOOD WHEELS	Hudson		Peacock		French	
	Brown	11B	Blue	17B	Blue	9B
WHEEL STRIPE	Deep Cream	7C	Deep Cream	7C	Alcazar Red	2C
WIRE WHEELS	Deep Cream	7A	Deep Cream	7A	Alcazar Red	2A
WIRE WHEEL DRUMS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14D	Black	14D	Black	14D
SHUTTER ASSY	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
FENDERS AND SPLASH GUARDS	Black	4	Black	4	Black	4
COLOR COMBINATION	Light Brown		Medium Blue		Light Blue	

## Essex Standard Sedan

CAR NUMBER	OPTION "K" <i>1226633</i>		OPTION "S" <i>1226619</i>		OPTION "P" <i>1226649</i>	
UPPER BODY	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14	Black	14	Black	14
			Thorne		Hawthorne	
			Brown	21	Green	10
LOWER BODY	Ivory Jet		Thorne		Hawthorne	
	Black	14	Brown	21	Green	10
BELT PANEL	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14	Black	14	Black	14
PANEL STRIPE	Silver	20C	Silver	20C	Deep Cream	7C
BONNET	Ivory Jet		Thorne		Hawthorne	
	Black	14	Brown	14	Green	10
WOOD WHEELS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
WHEEL STRIPE	Silver	20C	Silver	20C	Deep Cream	7C
WIRE WHEELS	Aluminum	25A	Aluminum	25A	Ivory Jet	
				Black	14A	
WIRE WHEEL DRUMS	Ivory Jet		Ivory Jet		Black	14D
	Black	14D	Black	14D		
SHUTTER ASSY	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
FENDERS AND SPLASH GUARDS	Black	4	Black	4	Black	4
COLOR COMBINATION	Black		Dark Brown		Dark Green	

Additional color information and key to color chart on Page Two.

## Essex Touring Sedan

CAR NUMBER	OPTION "H" <i>1226612 and up</i>		OPTION "R" <i>1226622 and up</i>		OPTION "S" <i>1226611 and up</i>	
UPPER BODY	Hudson Std.		Tyrolian		Thorne	
	Blue	27	Green	23	Brown	21
LOWER BODY	Hudson Std.		Tyrolian		Thorne	
	Blue	27	Green	23	Brown	21
BELT PANEL	Ivory Jet		Hawthorne		Ivory Jet	
	Black	14	Green	10	Black	14
PANEL STRIPE	Deep Cream	7C	Deep Cream	7C	Silver	20C
BONNET	Hudson Std.		Tyrolian		Thorne	
	Blue	27	Green	23	Brown	21
WOOD WHEELS	Ivory Jet		Hawthorne		Ivory Jet	
	Black	14B	Green	10B	Black	14B
WHEEL STRIPE	Deep Cream	7C	Deep Cream	7C	Silver	20C
WIRE WHEELS	Deep Cream	7A	Deep Cream	7A	Aluminum	25A
WIRE WHEEL DRUMS	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14D	Black	14D	Black	14D
SHUTTER ASSY.	Ivory Jet		Ivory Jet		Ivory Jet	
	Black	14B	Black	14B	Black	14B
FENDERS AND SPLASH GUARDS	Black	4	Black	4	Black	4
COLOR COMBINATION	Dark Blue		Medium Green		Dark Brown	

Additional color information and key to color chart on Page Two.

## Hudson Coach 119"

CAR NUMBER	OPTION "T" <i>912818 and up</i>	OPTION "P" <i>912812 and up</i>	OPTION "S" <i>912805 and up</i>
UPPER BODY	Hudson Std Blue 27 Radium Blue 18	Ivory Jet Black 14 Hawthorne Green 10	Ivory Jet Black 14 Thorne Brown 21
LOWER BODY	Radium Blue 18	Hawthorn Green 10	Thorne Brown 21
BELT PANEL	Hudson Std Blue 27	Ivory Jet Black 14	Ivory Jet Black 14
PANEL STRIPE	Deep Cream 7C	Silver 20C	Deep Cream 7C
BONNET	Radium Blue 18	Hawthorne Green 10	Thorne Brown. 21
WOOD WHEELS	Hudson Std Blue 27B	Ivory Jet Black 14B	Ivory Jet Black 14B
WHEEL STRIPE	Deep Cream 7C	Silver 20C	Deep Cream 7C
WIRE WHEELS	Deep Cream 7A	Aluminum 25A	Deep Cream 7A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY	Radium Blue 18B	Hawthorne Green 10B	Thorne Brown 21B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4
COLOR COMBINATION	Medium Blue	Dark Green	Dark Brown

## Hudson Coupe—2 and 4 Pass. 119"

CAR NUMBER	OPTION "K" <i>912800 and up</i>	OPTION "P" <i>912803 and up</i>	OPTION "W" <i>912810 and up</i>
UPPER BODY	Ivory Jet Black 14	Ivory Jet Black 14 Hawthorne Green 10	Ivory Jet Black 14 Malaga Maroon 16
LOWER BODY	Ivory Jet Black 14	Hawthorne Green 10	Malaga Maroon 16
BELT PANEL	Ivory Jet Black 14	Ivory Jet Black 14	Ivory Jet Black 14
PANEL STRIPE	Silver 20C	Deep Cream 7C	Silver 20C
BONNET	Ivory Jet Black 14	Hawthorne Green 10	Malaga Maroon 16
WOOD WHEELS	Ivory Jet Black 14B	Ivory Black 14B	Ivory Jet Black 14B
WHEEL STRIPE	Silver 20C	Deep Cream 7C	Silver 20C
WIRE WHEELS	Aluminum 25A	Ivory Jet Black 14A	Aluminum 25A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY.	Ivory Jet Black 14B	Hawthorne Green 10B	Malaga Maroon 16B
FENDERS AND SPLASH GUARDS .	Ivory Jet Black 14	Hawthorne Green 10	Black 4
COLOR COMBINATION	Black	Dark Green	Dark Red

Additional color information and key to color chart on Page Two.

## Hudson Phaeton 119"

CAR NUMBER	OPTION "Y" 8934202 and up		OPTION "N" 907914 and up	
UPPER BODY	Birkendale Blue	3	Labrador Gray	15
LOWER BODY	Birkendale Blue	3	Labrador Gray	15
BELT PANEL	Ivory Jet Black	14	Ivory Jet Black	14
PANEL STRIPE	White	24C	Deep Cream	7C
BONNET	Birkendale Blue	3	Labrador Gray	15
WOOD WHEELS	Birkendale Blue	3B	Labrador Gray	15B
WHEEL STRIPE	White	24C	Deep Cream	7C
WIRE WHEELS	Ivory Jet Black	14A	Ivory Jet Black	14A
WIRE WHEEL DRUMS	Ivory Jet Black	14D	Ivory Jet Black	14D
SHUTTER ASSY.	Birkendale Blue	3B	Labrador Gray	15B
FENDERS AND SPLASH GUARDS	Black	4	Black	4
COLOR COMBINATION	Dark Blue		Dark Gray	

## Hudson Roadster 119"

CAR NUMBER	OPTION "G" 908945 and up		OPTION "V" 9909070 and up		OPTION "F" 908023 and up	
UPPER BODY	French Blue	9	Rosewood Brown	19	Hudson Green	10
LOWER BODY	French Blue	9	Rosewood Brown	19	Hudson Green	10
BELT PANEL	French Blue	9	Hudson Brown	11	Hudson Green	10
PANEL STRIPE	Alcazar Red	2C	Deep Cream	7C	Silver	20C
BONNET	French Blue	9	Rosewood Brown	19	Hudson Green	10
WOOD WHEELS	French Blue	9B	Hudson Brown	11B	Hudson Green	10B
WHEEL STRIPE	Alcazar Red	2C	Deep Cream	7C	Silver	20C
WIRE WHEELS	Alcazar Red	2A	Deep Cream	7A	Aluminum	25A
WIRE WHEEL DRUMS	Ivory Jet Black	14D	Ivory Jet Black	14D	Ivory Jet Black	14D
SHUTTER ASSY.	French Blue	9B	Rosewood Brown	19B	Hudson Green	10B
FENDERS AND SPLASH GUARDS .	French Blue	9	Rosewood Brown	19	Hudson Green	10
COLOR COMBINATION	Light Blue		Light Brown		Medium Green	

Additional color information and key to color chart on Page Two.

## Hudson Standard Sedan 119"

CAR NUMBER	OPTION "M" 912795 and up	OPTION "K" 993165 and up	OPTION "K" 912798 to 913164	OPTION "K" 912794 and up
UPPER BODY	Ensemble Blue 26	Ivory Jet Black 14	Thorne Brown 21	Hawthorne Green 10
LOWER BODY	Ensemble Blue 26	Ivory Jet Black 14	Thorne Brown 21	Hawthorne Green 10
BELT PANEL	Ivory Jet Black 14	Ivory Jet Black 14	Malaga Maroon 16	Ivory Jet Black 14
PANEL STRIPE	Deep Cream 7C	Silver 20C	Silver 20C	Deep Cream 7C
BONNET	Ensemble Blue 26	Ivory Jet Black 14	Thorne Brown 21	Hawthorne Green 10
WOOD WHEELS	Ivory Jet Black 14B	Ivory Jet Black 14	Malaga Maroon 16B	Ivory Jet Black 14B
WHEEL STRIPE	Deep Cream 7C	Silver 20C	Silver 20C	Deep Cream 7C
WIRE WHEELS	Deep Cream 7A	Aluminum 25A	Aluminum 25A	Deep Cream 7A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY.	Ensemble Blue 26B	Ivory Jet Black 14B	Thorne Brown 21B	Hawthorne Green 10B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4	Black 4
COLOR COMBINATION	Medium Blue	Black	Dark Brown	Dark Green

## Hudson Sunsedan 119"

CAR NUMBER	OPTION "U" 912019
UPPER BODY	Peacock Blue 17
LOWER BODY	Peacock Blue 17
BELT PANEL	Ivory Jet Black 14
PANEL STRIPE	Alcazar Red 2C
BONNET	Peacock Blue 17
WOOD WHEELS	Peacock Blue 17B
WHEEL STRIPE	Ivory Jet Black 14C
WIRE WHEELS	Alcazar Red 2A
WIRE WHEEL DRUMS	Ivory Jet Black 14D
SHUTTER ASSY.	Ivory Jet Black 14B
FENDERS AND SPLASH GUARDS	Peacock Blue 17
COLOR COMBINATION	Medium Blue

Additional color information and key to color chart on Page Two.

## Hudson Brougham 126"

CAR NUMBER	<b>OPTION "T"</b> <i>56056 and up</i>	<b>OPTION "P"</b> <i>56061 and up</i>	<b>OPTION "S"</b> <i>56051 and up</i>
UPPER BODY	Ivory Jet Black 14	Malaga Maroon 16	Radium Blue 18
LOWER BODY	Ivory Jet Black 14	Malaga Maroon 16	Radium Blue 18
BELT PANEL	Ivory Jet Black 14	Ivory Jet Black 14	Hudson Std. Blue 27
PANEL STRIPE	Silver 20C	Deep Cream 7C	Deep Cream 7C
BONNET	Ivory Jet Black 14	Malaga Maroon 16	Radium Blue 18
WOOD WHEELS	Ivory Jet Black 14D	Malaga Maroon. 16D	Hudson Std. Blue 27D
WHEEL STRIPE	Silver 20C	Deep Cream 7C	Deep Cream 7C
WIRE WHEELS	Aluminum 25A	Ivory Jet Black 14A	Ivory Jet Black 14A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY	Ivory Jet Black 14B	Malaga Maroon 16B	Radium Blue 18B
FENDERS AND SPLASH GUARDS	Black 4	Malaga Maroon 16	Radium Blue 18
COLOR COMBINATION	Black	Dark Red	Medium Blue

## Hudson Phaeton—7 Pass. 126"

CAR NUMBER	<b>OPTION "L"</b> <i>47164 and up</i>	<b>OPTION "J"</b> <i>46721 and up</i>	<b>OPTION "Y"</b> <i>51218 and up</i>
UPPER BODY	Hudson Gray 12	Twilight Blue 22	Birkendale Blue 3
LOWER BODY	Hudson Gray 12	Twilight Blue 22	Birkendale Blue 3
BELT PANEL	Ivory Jet Black 14	Twilight Blue 22	Ivory Jet Black 14
PANEL STRIPE	Silver 20C	Silver 20C	White 24C
BONNET	Hudson Gray 12	Twilight Blue 22	Birkendale Blue 3
WOOD WHEELS	Hudson Gray 12B	Twilight Blue 22B	Birkendale Blue 3B
WHEEL STRIPE	Ivory Jet Black 14C	Silver 20C	White 24C
WIRE WHEELS	Ivory Jet Black 14A	Ivory Jet Black 14A	Ivory Jet Black 14A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY.	Hudson Gray 12B	Twilight Blue 22B	Birkendale Blue 3B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4
COLOR COMBINATION	Medium Gray	Light Blue	Dark Blue

Additional color information and key to color chart on Page Two.



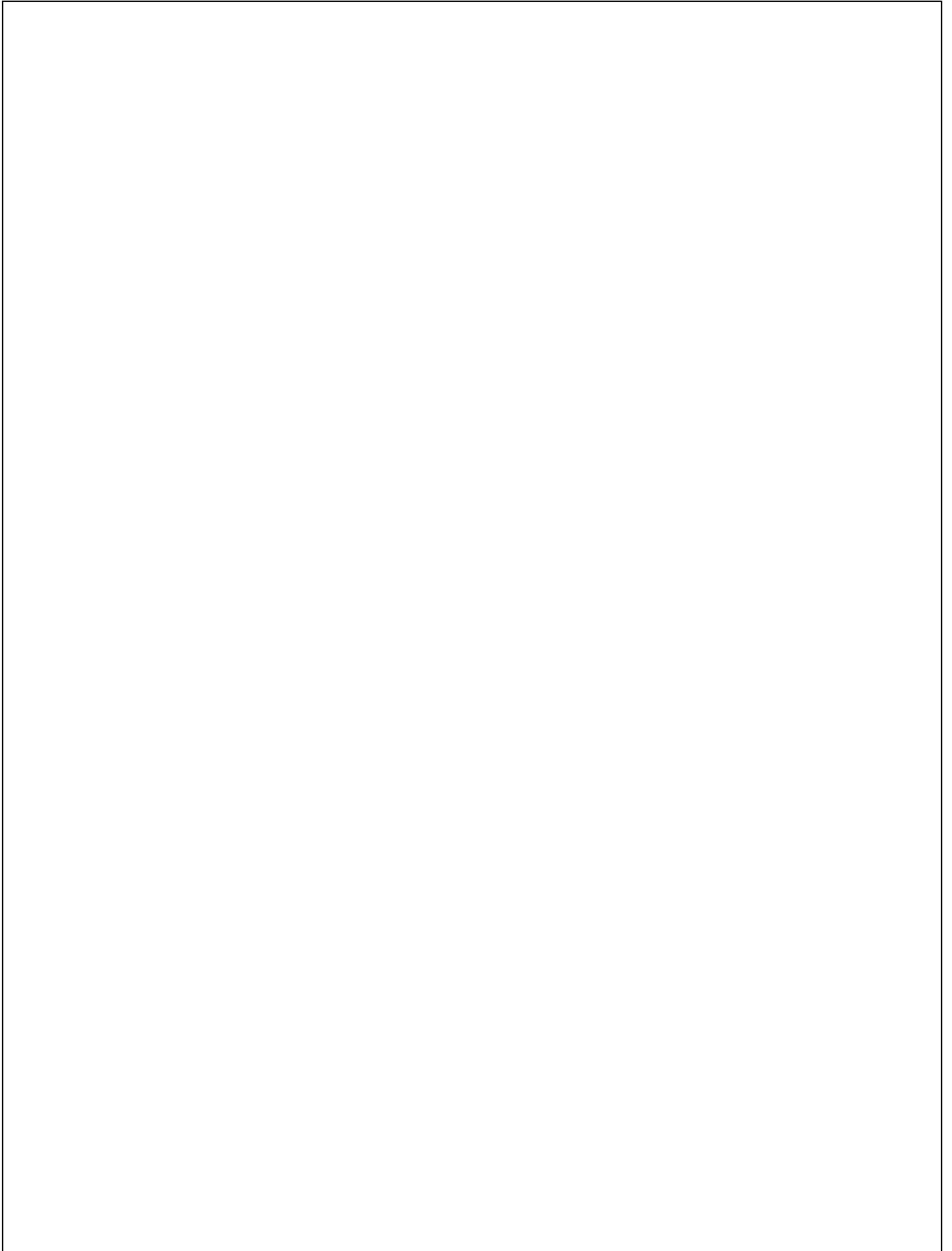
## Hudson —7 Pass. Sedan 126"

CAR NUMBER	OPTION "Y" <i>47941 and up</i>	OPTION "K" <i>46072 and up</i>	OPTION "S" <i>46979 and up</i>
UPPER BODY	Birkendale Blue 3	Ivory Jet Black 14	Thorne Brown 21
LOWER BODY	Birkendale Blue 3	Ivory Jet Black 14	Thorne Brown 21
BELT PANEL	Ivory Jet Black 14	Ivory Jet Black 14	Ivory Jet Black 14
PANEL STRIPE	White 24C	Silver 20C	Copper 26C
BONNET	Birkendale Blue 3	Ivory Jet Black 14	Thorne Brown 21
WOOD WHEELS	Birkendale Blue 3B	Ivory Jet Black 14B	Thorne Brown 21B
WHEEL STRIPE	White 24C	Silver 20C	Copper 26C
WIRE WHEELS	Ivory Jet Black 14A	Ivory Jet Black 14A	Ivory Jet Black 14A
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Ivory Jet Black 14D	Ivory Jet Black 14D
SHUTTER ASSY	Birkendale Blue 3B	Ivory Jet Black 14B	Thorne Brown 21B
FENDERS AND SPLASH GUARDS	Black 4	Black 4	Black 4
COLOR COMBINATION	Dark Blue	Black	Dark Brown

## Hudson Touring Sedan 126"

CAR NUMBER	OPTION "L" <i>56049 and up</i>	OPTION "J" <i>56060 and up</i>	OPTION "Y" <i>56047 and up</i>
UPPER BODY	Ivory Jet Black 14	Ivory Jet Black 14	Hawthorne Green 10
LOWER BODY	Ivory Jet Black 14	Malaga Maroon 16	Tyrolian Green 23
BELT PANEL	Ivory Jet Black 14	Malaga Maroon 16	Tyrolian Green 23
PANEL STRIPE	Silver 20C	Ivory Jet Black 14	Hawthorne Green 10
BONNET	Ivory Jet Black 14	Silver 20C	Deep Cream 7C
WOOD WHEELS	Ivory Jet Black 14B	Malaga Maroon 16	Tyrolian Green 23
WHEEL STRIPE	Silver 20C	Ivory Jet Hawthorne Black 14B	Green 10B
WIRE WHEELS	Aluminum 25A	Silver 20C	Deep Cream 7C
WIRE WHEEL DRUMS	Ivory Jet Black 14D	Aluminum. 25A	Deep Cream 7A
SHUTTER ASSY.	Ivory Jet Black 14B	Ivory Jet Black 14D	Ivory Jet Black 14D
FENDERS AND SPLASH GUARDS .	Black 4	Malaga Maroon 16B	Tyrolian Green 23B
COLOR COMBINATION	Black	Black 4 Dark Red	Tyrolian Green 23 Medium Green

Additional color information and key to color chart on Page Two.



REVISED FEBRUARY, 1930.  
**Mechanical Specifications for Essex  
 Super Six-1930 Model**

ENGINE

Make	Hudson	Piston displacement	160.38
Model	Essex Super Six	Suspension	4 Point
No. of cylinders	6	Type of head	L
Cylinder arrangement	Vertical	Cylinder head	Detachable
Bore	2-3/4"	Cylinders in block	6
Stroke	4-1/2"	Crankcase	Integral
Rated H. P.	18.15	Material	Cast iron
Firing order	1-5-3-6-2-4	Lower half	Pressed steel

CAMSHAFT DRIVE

Type of drive	Chain	No. of links	57
Make	Morse	Pitch	1/2"
Type	No. 28	Adjustment	Adjustable eccen.
Width	1-1/4"	Sprocket material	Cast iron
Camshaft sprocket	38 Teeth		

CAMSHAFT BEARINGS

Number of bearings	3	No. 2 diameter	1-21/32"
No. 1 front—diam.	2"	No. 2 length	1-1/16"
No. 1 length	1-1/16"	No. 3 diameter	1-1/2"
		No. 3 length	15/16"

VALVES

Head material	Inlet	Exhaust
Head diameter (outside)	Silicon steel	Silicon steel
Head diameter (opening)	1-3/8"	1-3/8"
Stem length	1-1/4"	1-1/4"
Stem diameter	5-1/32"	5-1/32"
Stem type of end	5/16"	5/16"
Tappet—type	Grooved	Grooved
Tappet clearance	Roller	Roller
Valve lift	.003"-.005"	.005"-.007"
Valve stem guides	5/16"	21/64"
Spring pressure	Removable	Removable
	50 lbs.	50 lbs.

## CRANKCASE AND CRANKSHAFT

No. of main bearings	3	Crank pin diameter	1-15/16"
No. 1 (front)—diameter	2-11/32"	Main bearing material	Bronze & babbitt
No. 1 length	1-5/8"	Main bearing clearance	.001"-.0015"
No. 2 diameter	2-3/8"	Main bearing end play	.006"-.012"
No. 2 length	1-3/4"	End thrust on	Center bearing
No. 3 diameter	2-13/32"	Sprocket	19 teeth
No. 3 length	1-3/4"	Material	Steel

## CONNECTING ROD

Material	D. F. Steel	Lower end bearing clear.	.001"
Weight	1.7 lbs.	Length	1-3/8"
Length C. to C.	8-3/16"	Clearance (endwise)	.006"-.010'
Lower end bearing Dia.	1-15/16"	Type Material	Spun Babbitt

## PISTON

Type	Slotted Skirt	Distance between bosses	1-1/8"
Material	Aluminum Alloy	Clearance—top of skirt	.002"-.0025"
Weight	8 ounces	Clearance—bottom of skirt	.001"-.0015"
Length	3-1/16"	Depth of grooves	.156"
Pin center to top	1-11/16"	Lower grooves (2)	Drilled radially
		Number of holes	4 and 8
		Diameter of holes	3/32"

## PISTON RINGS

Material	Cast Iron	No. of oil rings	2
No. per piston	4 (above pin)	Type of joint	Mitre
Width	1/8"	Gap clearance	.006"-.008"
No. of comp. rings	2	Make	Piston Ring Co.

## PISTON PIN

Type	Floating	Bushing—outside diam.	15/16"
Diameter	3/4"	Bushing—inside diam.	3/4"
Length	2-1/8"	Bushing—length	15/16"

## LUBRICATION SYSTEM

Type	Circulating splash
Oil pump type	Oscillating Plunger
Stroke of pump	Not adjustable
Capacity—Oil reservoir only	5 quarts
Capacity—Oil reservoir and troughs	6 quarts
Mesh of screen	50
Oil recommended	Medium heavy—Use low cold test in winter.

## COOLING SYSTEM

Type	Thermo. syphon
Radiator—make	Harrison
Core—type	Ribbon cellular
Radiator shutter—type	Pressed steel—Vertical

## COOLING SYSTEM—Continued

Radiator shutter—make	Hudson
Shutter control—type	Manual
Capacity of cooling system	4-3/4 gallons
Radiator hose, upper, diameter	2-1/4"
Radiator hose, upper, length	7-1/2"
Radiator hose, lower, diameter	2-1/4"
Radiator hose, lower, length	14-1/2"
Fan belt	"V" type
Fan—make	Hudson
Fan bearing type	Plain

## FUEL SYSTEM

Carburetor—make	Marvel
Carburetor—size	1-1/4"
Method of heating mixture	Marvel Heat Control
Make of vacuum tank	Stewart
Gasoline tank capacity	11-1/2" gallons
Fuel feed—type	Vacuum tank
Air Cleaner	A. C.

## EXHAUST

Muffler—make Hudson	Exhaust pipe diameter—2"
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## IGNITION SYSTEMS

Make	Auto-Lite Corporation
Current source	Battery and generator
Spark control type	Full automatic
Firing order	1-5-3-6-2-4
Timing	D. C.
Breaker point gap	.020
Ignition coil—make	Auto-Lite Corporation
Spark plug—make	A. C.
Spark plug—type	No. 100
Spark plug—size	Metric-18 m/m, 1.5 m/m thread
park plug—gap	.022"

Note: Any other information must be obtained  
from the manufacturer.

## STARTER MOTOR

Make	Auto-Lite Corporation Bendix
Drive—type	107
No. of teeth on flywheel	3/8"
Width of tooth face	Rear of flywheel
Pinion meshes from	

Note: Any other information must be obtained  
from the manufacturer.

## GENERATOR

Make	Auto-Lite Corporation
Normal charging rate—hot	10 Amps.
Normal charging rate—cold	13.5 Amps

Note: Any other information must be obtained  
from the manufacturer

## BATTERY

Make	Exide	Terminal grounded	Negative
Type	3-X1-13-1-G	Length—overall	9
Voltage	6	Width—overall	7-1/8"
No. of Plates	13	Height of box	7-7/8"
Where mounted	Under driver's seat	Height over terminals	9"

## LIGHTING SYSTEM

Head and tail lamps—make	John Brown Lamp Company
Head lamp reflector—make	John Brown Lamp Company
Head lamp—type	Bullet
Side lamp—type	Bullet
Head lamp lens—type	Stabilite
Head lamp lens—diameter	8-11/16"
Head lamp dimmer method	Separate filament
Dash and tail lights connected	Separately
Ammeter—make	Motometer Gauge & Equipment Co.
Dash light—make	Motometer Gauge & Equipment Co.
Lighting switch control	On steering wheel

## LAMP BULB SPECIFICATIONS

	<i>Make</i>	<i>Mazda No.</i>	<i>C. P.</i>	<i>Base</i>	<i>Voltage</i>
Head	Mazda	1110	21-21	D.C.	6-8
Side	Mazda	63	3	S.C.	6-8
Tail	Mazda	63	3	S.C.	6-8
Dash	Mazda	63	3	S.C.	6-8
Stop	Mazda	87	12	S.C.	6-8
Dome	Mazda	63	3	S.C.	6-8

## HORN

E. A. Horn	Motor Type
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## CHASSIS

Wheelbase	113"
Lubricating system	Alemite
Overall length with bumpers	14'-6-3/8"
Location of serial number	On right hand side member—at rear end of front spring.

## TRANSMISSION

Make	Hudson	Pocket bearing	Bronze bushing
Location	Unit	Reverse idler	Bronze bushing
Speeds	3 forward 1 rev.	Main shaft—front	N. D. No. 1207
Gear ratio—low	3.244 to 1	Main shaft—rear	Hyatt No. N. C. 306
Gear ratio—sec.	1.961 to 1	Countershaft	Stationary
Gear ratio—high	1 to 1		
Gear ratio—rev.	4.170 to 1		
Type of lubricant	Light trans. oil 1-3/4 lb.		
Oil capacity (approx.)	N. D. No. 1202		

## CLUTCH

Make	Hudson	Throwout bearing	Annular & thrust
Type	Single disc in oil	Throwout	5/32"
Facing material	Cork inserts	Clearance at F/B	3/4"
No. of cork inserts	88		

LUBRICATION—½ pint light motor oil

UNIVERSALS

Front	<i>Make</i> Spicer	<i>Type</i> Metal	Rear	<i>Make</i> Spicer	<i>Type</i> Metal
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TYPE OF DRIVE

Propulsion through rear springs.

REAR AXLE

Make	Hudson	Wheel bearing	Timken 415TV and 412A
Type	Semi-floating	Pin. bearing—front	Timken 2691V and 2620
Gear ratio	5 4/10 or 5 1/10	Pin. bearing—rear	Timken 3188 and 3120
Type of drive	Spiral bevel	Differential bearing—right	Timken 336 and 3320
Min. road clear.	7-1/2"	Differential bearing—left	Timken 336 and 3320
Clear. for jack	9-1/2"	No. of teeth in pinion	10
Differential—make	Hudson	No. of teeth in gear	54 or 51
Pinion	Adjustable	Oil capacity (approx.)	4 pounds
Pinion bearing	Adjustable	Type of lubricant	—Diff. oil

FRONT AXLE

Make	Hudson	Toe in—zero to 1/8"	
Section—type	I beam	Castor angle	1°
End—type	Rev. Elliott	Min. road clearance	8"
King pin thrust brg.	Ball brg.	Clearance for jack	8"
King pin transverse Inclination	7°	Spindle transverse Inclination	1°

STANDARD BRAKES

Type	Bendix 4-wheel brakes
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SERVICE BRAKES

Location	Frnt. and Rr. wheels	Lining length per wheel; 2 pieces,	24-1/2"
Make	Bendix	Width of lining	1-1/2"
Type	Internal	Thickness of lining	5/32"
Total braking area	147 sq. inches	Clearance of lining	.010"
Drum diameter	11"	Method of application	Foot pedal

HAND BRAKE

The hand lever operates the front and rear wheel brakes independently of the foot pedal, and should be used for parking, especially when car is standing on an incline.

WHEELS

Type	Wood-steel felloe
Make	Motor Wheel Corporation
Front wheel inner bearing	Timken No. 2554 and 2520
Front wheel outer bearing	Timken No. 2382 and 3320

RIMS

Type	Split	Diameter	19"
Make	Jaxon	Width	4"

TIRES

Size	29" x 5 balloon, straight side
Make	Goodyear
Number of plies	4
Recommended pressure	Front 40 lbs., rear 40 lbs.

STEERING GEAR

Make	Gemmer
Type	Worm and sector
Ratio	15 to 1
Steering wheel turns	2% (full swing left to right)
Turning radius	20 feet
Lubricant	Steam cylinder oil

SPRINGS

Front spring Type	Semi-elliptic	Rear spring Type	Semi-elliptic
Length	36"	Length	54-5/8 "
Width	2"	Width	2"
No. of leaves	8	No. of leaves	7, 8 or 10
Material	Alloy Steel	Material	Alloy steel
Front bushing	5/8" diameter	Front bushing	5/8" diameter
Rear bushing	5/8" diameter	Rear bushing	5/8" diameter
Bushing material	Phosphor bronze	Bushing material	Phosphor bronze
Shackle—type	Adjustable		

FRAME

Make	Hudson	Thickness	1/8"
Material	Steel	Width of flange	2"
Depth	7-1/6"		



ESSEX SUPER SIX

**Gear Ratios and Rules for Comparing Speed**

**in Miles per Hour with Motor R. P. M.**

TO OBTAIN MOTOR R. P. M. FOR ANY DESIRED SPEED IN MILES PER HOUR

*Note:* The following rule No. 1 is good only for a gear ratio of 5 4/10 to one and with wheeldiameter of 29 inches.

*Rule No. 1*—M. P. H. multiplied by 62.5 = Motor R. P. M. (approx.)  
 Example—What is the R. P. M. of motor at 40 miles per hour?  
 Answer-40 multiplied by 62.5-2500 R. P. M. (approx.)

The following rule No. 2 is good only for a gear ratio of 5 1/10 to one and with wheel diameter of 29 inches.

*Rule No. 2*—M. P. H. multiplied by 59 = Motor R. P. M. (approx.)

TO OBTAIN SPEED IN MILES PER HOUR FOR ANY DESIRED MOTOR R. P. M.

*Note:* The following rule No. 3 is good only for a gear ratio of 5 4/10 to one and with wheel diameter of 29 inches.

*Rule No. 3*—R. P. M. divided by 62.5 =Speed in miles per hour (approx.)  
 Example—what is the speed at 2400 R. P. M.?  
 Answer-2400 divided by 62.5 =38.4 M. P. H. (approx.)

The following rule No. 4 is good only for a gear ratio of 5 1/10 to one and with wheel diameter of 29 inches.

*Rule No. 4*—R. P. M. DIVIDED by 59 =Speed in miles per hour (approx.)

*Gear Ratios*—To obtain the number of revolutions of the motor required for one revolution of the rear wheel, multiply the transmission ratio by the rear axle ratio.

Example-3.244 (low gear ratio) multiplied by 5.4 (rear axle ratio) equals 17.517 revolutions of the motor to one revolution of rear wheel.

The following list shows the various motor to wheel ratios worked out as above for Essex Super Six cars with rear axle gear ratio 5 4/10:

	Trans. Ratio	Rear Axle Ratio	Motor Revs	Wheel Revs
With transmission in low	3.244	5 4/10	17.517	1
With transmission in sec.	1.961	5 4/10	10.589	1
With transmission in high	1	5 4/10	5.4	1
With transmission in rev.	4.17	5 4/10	22.518	1

REVISED FEBRUARY, 1930.

## Essex Super Six Standard Equipment

		<i>Rumble</i>	<i>Sun-</i>		<i>Std.</i>	<i>Touring</i>		<i>2 Pass.</i>	
	<i>Phaeton</i>	<i>Road.</i>	<i>Coupe</i>	<i>sedan</i>	<i>Coach</i>	<i>Sedan</i>	<i>Sedan</i>	<i>Brougham</i>	<i>Coupe</i>
	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.	Mfg. Co.
Windshield cleaner —make	Trico	Trico	Trico	Trico	Trico	Trico	Trico	Trico	Trico
Windshield cleaner —type	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum	Vacuum
Trunk Rack	None	None	None	None	None	None	None	None	None
Cowl ventilator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Engine heat indicator	On instrument board.....								ALL MODELS
Gasoline and oil level gauge location	Instrument board.....								ALL MODELS
Gasoline and oil level gauge— type	Electric.....								ALL MODELS
Wheels—type	Wood wheels.....								ALL MODELS
Sun visor	No	No	Yes	No	Yes	Yes	Yes	No	Yes
Radiator shutters	Yes .....								ALL MODELS
Rear traffic signal	Yes.....								ALL MODELS
Comb. tail and stop light—make	John Brown Lamp Co. ....								ALL MODELS
Cowl lights	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dome light	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Speedometer— make	Stewart-Warner.....								• ALL MODELS
Ignition electrolock	.....								ALL MODELS
Spare rim	One.....								ALL MODELS
Horn—make	E. A. ....								ALL MODELS
Headlamps— make	Stabilite—John Brown Lamp Co.....								ALL MODELS
Tire carrier— make	Hudson .....								ALL MODELS
Storage battery— make	"Exide".....								ALL MODELS
Shock absorber— make	Monroe .....								ALL MODELS
Shock absorber— type	Double Acting Hydraulic .....								ALL MODELS

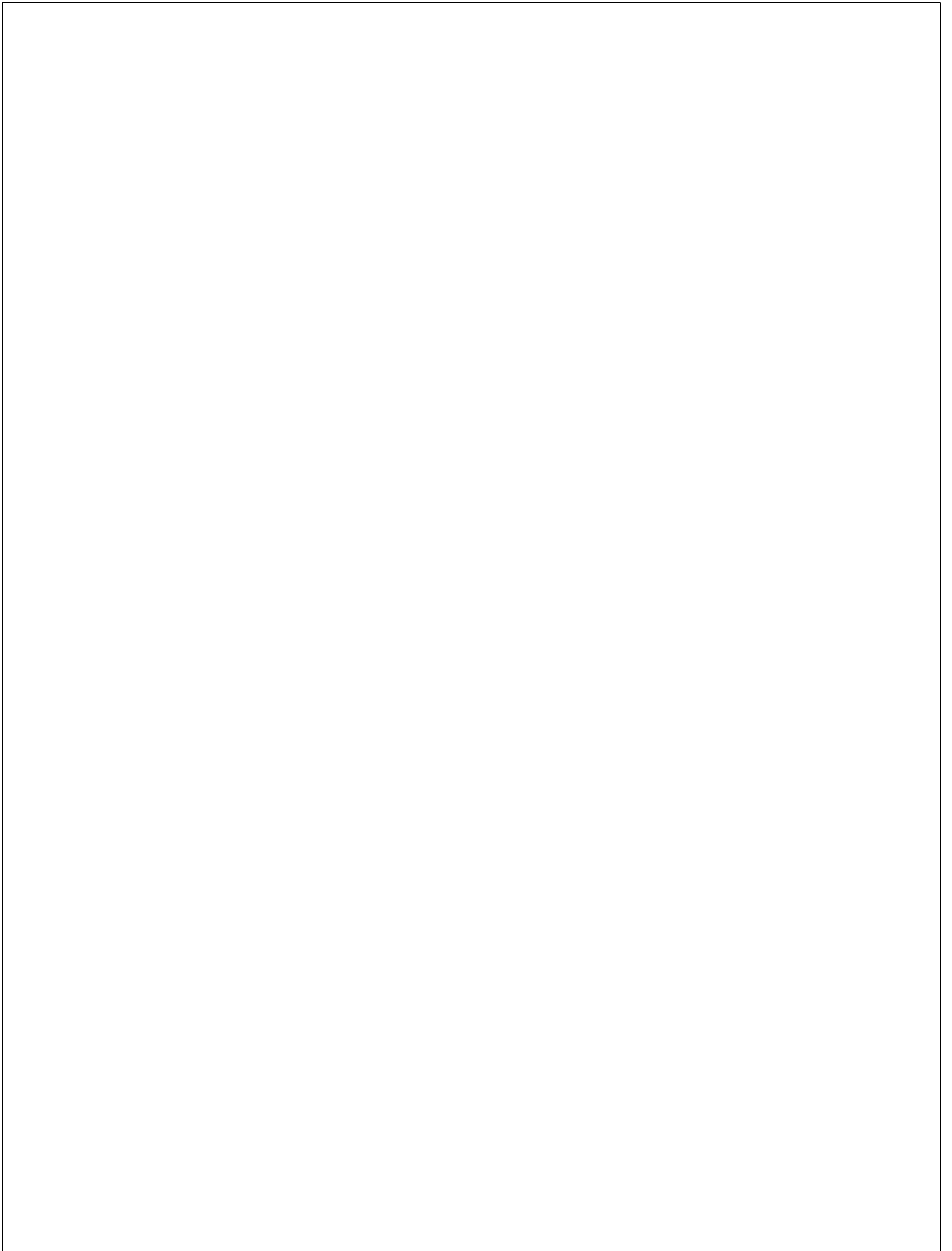
### EXTRA EQUIPMENT

Bumpers—	
Front and Rear .....	ALL MODELS
Tire Cover.....	ALL MODELS

REVISED FEBRUARY, 1930.

## Essex Super Six\_\_Body Details 1930 Models

	<i>Phaeton</i>	<i>2-Pass Coupe</i>	<i>Sun- sedan</i>	<i>Coach</i>	<i>Std. Sedan</i>	<i>Touring Sedan</i>	<i>Roadster</i>	<i>Brougham</i>	<i>Rumble Coupe</i>
Model	1930	1930	1930	1930	1930	1930	1930	1930	1930
Wheelbase	113	113	113	113	113	113	113	113	113
Weight	2620		2760	2730	2805	2850	2550	2850	2700
No. of doors	4	2	2	2	4	2	4	4	2
No. of passengers	5	2	5	5	5	4	5	5	4
Seating Arrangement	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.	Std.
Gear Ratios	5 1/20	5 1/10	5 4/10	5 4/10	5 4/10	5 1/10	5 4/10	5 4/10	5 1/10
Make of body	Biddle & Smart	Own	Biddle & Smart	Own	Own	Own	Biddle & Smart	Own	Own
Windshield—type									
Windshield—make	One piece swing type								ALL MODELS
Wheel—tyoe	Wood products								ALL MODELS
Tires—size	19 x 5.00								ALL MODELS
									ALL MODELS

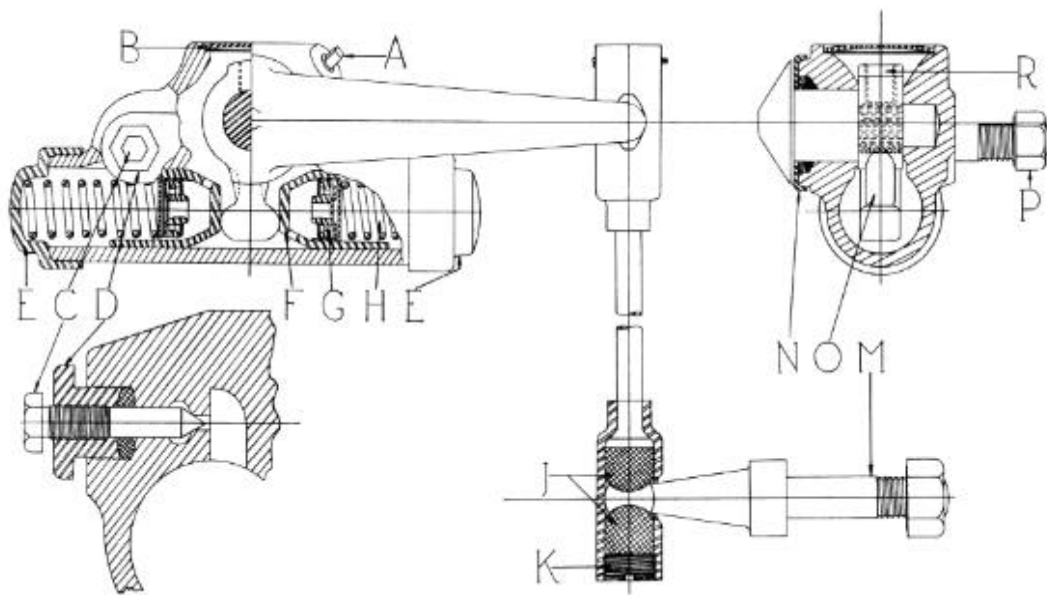


## Monroe Two-Way Hydraulic Shock Eliminators

The spring control of the 1930 Essex Super "6" is obtained by the use of 4 Monroe Two-Way Hydraulic Shock Eliminators. These units are sturdy and simple in design and should require very little attention.

Refilling: These units should be refilled every 5000 miles. The interval between refilling not to exceed one year. Monroe Cushion Oil—a special preparation for this purpose—should always be used.

To refill, disconnect the axle anchor "M" and remove the filler plug "A". Move the arm up and down while adding oil until all air is expelled and the oil overflows at the plug hole. When only a small amount



of oil is required, it is not necessary to disconnect the axle anchor. Always wipe off plug before removing it, to be sure no dirt enters housing.

Oil Leaks: In cases of excessive leaking around the arm packing, the eliminator must be removed and packing replaced. Proceed as described under "Rebuilding of Eliminators".

To correct leakage around the Welch Plug "B", drive the plug tighter in its seat with a peen hammer. Care should be taken not to drive the center of the plug below the level of the outer edges of the plug.

Leakage around the adjusting screw "C" can be corrected by first turning the screw down to the seat to determine its present setting, then backing it out one revolution and tighten nut "D" and reset adjusting screw "C" to its original opening.

Tightening of the end caps "E" with a large socket wrench will correct any tendency for leaks at these points.

Caution: When checking the adjusting screw "C" for setting, draw screw down to its tapered seat lightly,

Noise: It is very unlikely that any noise will be caused by the Monroe Two-Way Shock Eliminators, unless the mounting bolts become loose or the rubber plugs in the connecting rod joints become worn. Tighten mounting bolt nuts and tighten plugs in ends of joints. If the rubber plugs "J" are found to be badly worn, replace them.

To replace the rubber plugs, first disconnect the lower axle bracket; second, remove cotter pin, then remove the end plug with a screwdriver; third, turn the connector so that the flattened end of the arm or axle bracket can be withdrawn through the elongated hole; fifth, remove rubber plugs. The assembly can be made by reversing these operations.

Riding Qualities of Car: The following items influence the riding qualities of the car: spring lubrication, shackle adjustment and lubrication, and tire pressure. If these are all found correct and spring action is too free, check to see that eliminators are full of oil.

If the above operations do not give sufficient control, turn the adjusting screw down to its seat and then back it off exactly  $\frac{1}{2}$  turns on the front units and turns on the rear units. These are the normal settings, and all adjustments should be started from these positions. Turning the valve in will increase the control, while backing off will decrease it. Do not change position more than  $\frac{1}{6}$  turn at a time without testing the riding qualities. Do not change the adjustment on both the front and rear units at the same time.

Rebuilding: Remove the instrument from the car by removing the axle anchor and mounting stud nuts. Drain all oil possible from the filler plug hole.

Fasten unit in vice by the studs. Pull arm down as far as possible and remove cap from end of cylinder to which arm points. Let arm come back slowly, so that the valve and piston can be taken out. The parts in the other end of the unit can be removed in a like manner with the arm pushed up to its extreme position.

Remove Welch Plug "B" by driving a chisel through it and prying upward. Remove the cam screw "R" with an Allen wrench. The cam "O" and arm may be disassembled by gently tapping the arm and pulling outward. Remove the cam from the case and loosen the packing cap, "N" arm springs, arm ring and arm gasket with a screwdriver.

Place new arm packing ring, gasket and springs on arm shaft in their respective positions. Hold the cam in its proper place and force arm in with the tapered hole, provided for the cam screw, pointing directly upward. After the serrations on the cam and arm are interlinked properly, start both the small and large bearings into their respective holes. With a C clamp, force the arm and packing into place, making sure that the packing is guided squarely into the recess provided for it. Screw up the C clamp until the hole provided for the cam screw is directly in line with the hole in the cam. Insert the cam screw and tighten securely. Set screw in place with a center punch. Remove C clamp and insert a new Welch plug gasket, and drive a new Welch plug in place with a peen hammer.

Replace pistons, valves and springs, and end caps in the reverse order of their removal. It will be noted that all valves are stamped, the first part of the number indicating the valve type, and the second the pressure required to operate it. For example: 67-2 indicates a type 67 valve, while the 2 designates the pressure required to open the valve. When reassembling, be sure that the valve having the higher pressure designation is placed in the cylinder at the end where the adjusting screw "A" is located.

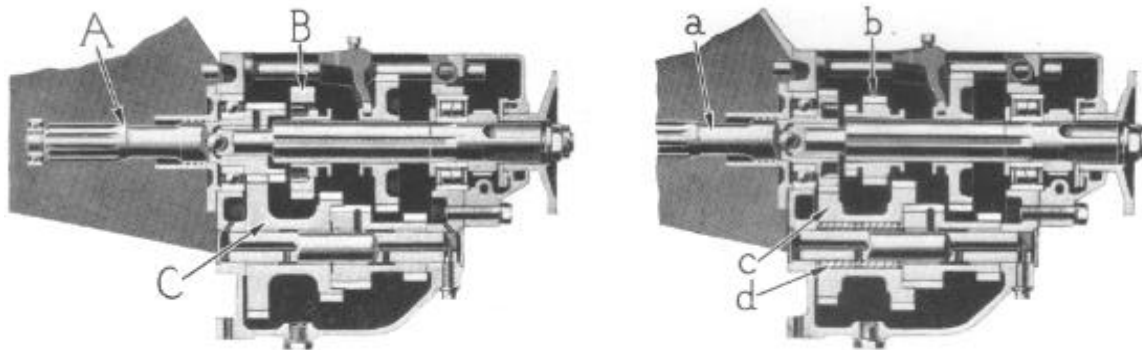
Fill the unit with clean Monroe Cushion Oil, while working the arm up and down to expel all air. Replace plug and install unit on car.

Always use new gaskets and packings when rebuilding Shock Eliminators.

# Transmission

Although the overdrive transmission is supplied as standard only on the roadsters this feature can be incorporated in any Hudson or Essex of 1930 production by making very few parts changes and no machine alterations.

By replacing the parts designated by the arrows in the illustration of the standard transmission with those similarly indicated in the overdrive transmission illustration the overdrive feature can be obtained.



### STANDARD TRANSMISSION

- A.65116—Main Drive Gear Assy.
- B.65119—Main Shaft Second and High Gear
- C.65122—Countershaft Drive and Intermediate Gear Assy
- E.65126—Reverse Idler Shaft Assy. (Not shown)

### OVERDRIVE TRANSMISSION

- a.65413—Main Drive Gear Assy.
- b.65416—Main Shaft High and Overdrive Gear
- c.65415—Countershaft Drive and Overdrive Gear
- d.70615—Bearing (Two required)
- e.65555—Reverse Idler Shaft Assy. (Not shown)

STANDARD TRANSMISSION	TRANS RATIO	TOTAL	REDUCTION	(TRANS. and AXLE)	
		4-3/11 TO 1 AXLE RATIO	4-7/11 TO 1 AXLE RATIO	5-1/10 TO 1 AXLE RATIO	5-4/10 TO 1 AXLE RATIO
LOW	3.244	13.861	15.040	16.544	17.518
INTERMEDIATE	1.961	8.379	9.092	10.001	10.589
HIGH (DIRECT)	1.000	4.273	4.636	5.100	5.400
REVERSE	4.170	17.817	19.333	21.267	22.518

### OVERDRIVE TRANSMISSION

LOW	1.947	8.219	9.027	9.929	10.514
HIGH (DIRECT)	1.000	4.273	4.636	5.100	5.400
OVERDRIVE	0.781	3.337	3.621	3.983	4.217
REVERSE	2.503	10.794	11.605	12.765	13.516

### MOTOR REVOLUTIONS PER MILE

HIGH (DIRECT)	2978	3231	3554	3763
OVERDRIVE	2326	2523	2776	2939

The tabulation of the total reductions available by using the various combinations of transmission and axle ratios will serve as a guide where it is desired to change from the standard equipment.

It will be noted that for a particular axle ratio, approximately the same total reduction is obtained by using intermediate with a standard transmission and low of an overdrive transmission. The high (Direct drive) is the same with both transmissions.

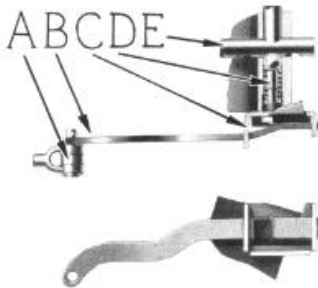
In cases where it is desired to install an overdrive transmission and it is found that intermediate gear in the standard is not sufficient, it being necessary at times to use low for starting or because of adverse road conditions, sufficient reduction may be obtainable by changing the axle ratio so that the low with the overdrive transmission will give sufficient power and the reduced engine speed will still be available by the use of the overdrive for fast driving.

As an example of such a change, we may take an Essex Coupe which has a standard transmission and 5.1 axle ratio. If low gear is necessary in some instances or if greater acceleration is desired for driving in heavy traffic and it is desired to obtain the overdrive feature the use of the 5.4 axle ratio and the overdrive transmission will probably give the desired performance.

This change will increase the total reduction from 10.001 in intermediate to 10.514 in low with the overdrive and also change the reduction in high from 5.1 to 5.4. This will give increased acceleration and greater pulling power. This will also reduce the engine revolutions per mile from 3554 in high with the standard equipment to 2937 when using the overdrive gear with the 5.4 axle gears, giving considerable advantage for high speed driving.

### Transmission Shifting Lock

This device consists of a latch bar, operated by the clutch pedal, controlling the movement of the high and intermediate shifting bar locking plunger.



In the position shown in the illustration the latch bar B is in contact with the outer end of the locking plunger D so that it can not move outward. The ball is therefore locked in the notch in the shifting bar E and movement of the bar is impossible.

When the clutch pedal is depressed the clutch pedal lever A moves backward, moving the latch bar with it which, due to its shape, moves away from the locking plunger. The ball is then held in the notch only by the pressure of the spring so that the shifting bar can be moved and gear change is possible.

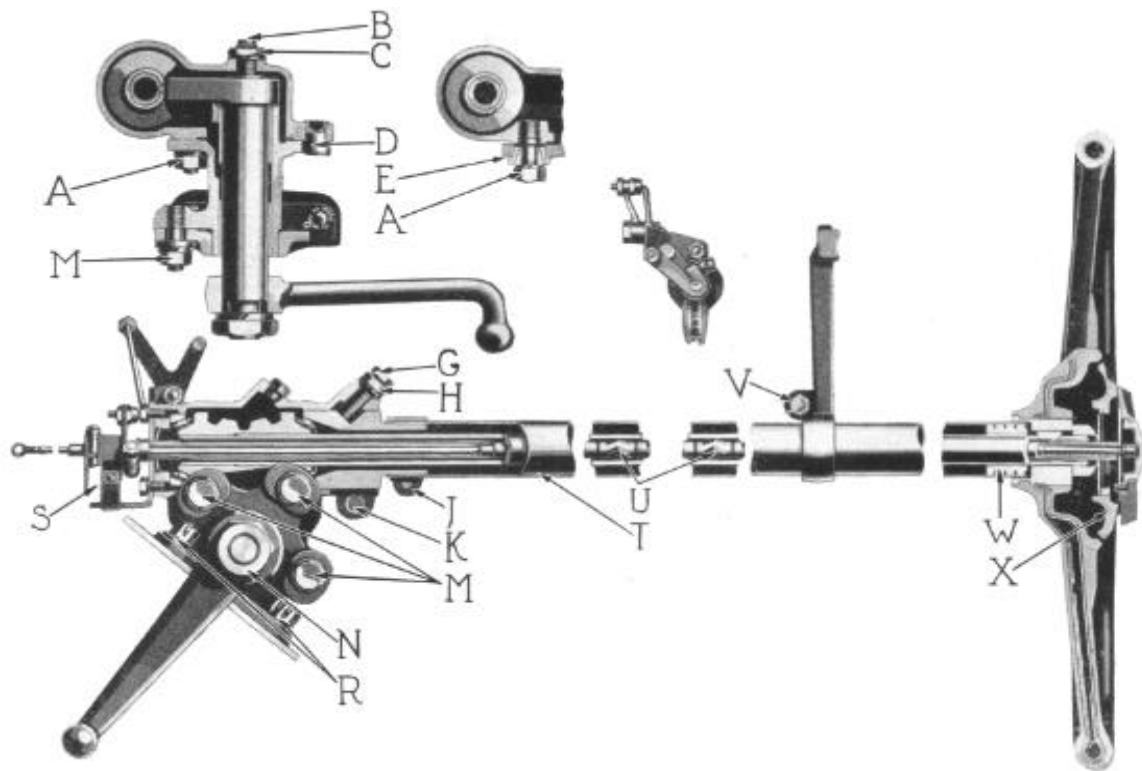
This device controls only the left hand shifting bar which carries the high and intermediate shifting fork in the standard transmission and the high and overdrive shifting fork in the overdrive transmission.



## Steering Gear

The adjustments of the steering gear should be made very carefully as ease of handling the car is largely dependent on the condition of this unit. Regardless of the adjustment at fault, proceed as follows in all cases until the necessary adjustment has been completed :

1. Remove the drag link from the steering gear ball arm.
2. Loosen frame bracket stud nuts "M" and jacket tube bracket to dash clamp bolt "X" and turn steering wheel from extreme right to extreme left to connect any misalignment which may exist at the supports. Tighten frame bracket stud nuts and jacket tube bracket to dash clamp bolt securely.
3. Tighten cross shaft adjusting screw "B" as much as possible with an ordinary screw driver after having loosened screw lock nut "C."



4. Back off screw "B" slightly until steering gear arm can be moved freely within the limit of the clearance in the worm and tighten lock nut "C" securely.

### *Adjust End Play in Worm Shaft:*

5. Loosen clamp bolt nut "K" and worm shaft bearing adjusting screw lock nut "H."
6. Tighten adjusting screw "G" as much as possible without stiffening action of gear when turned through its entire movement.

*Important:* The last motion of the adjusting screw must be clockwise (tightening) to insure contact of the screw with the adjusting sleeve. If the screw is tightened too much back off and turn steering wheel through entire range and pull up on wheel at same time. Readjust as above.

7. Tighten adjusting screw nut "C" and clamp bolt nut "K" securely.

*Adjust Mesh at Worm and Sector.*

8. Turn steering wheel to midposition of its complete travel or turning limits. The steering wheel keyway should point directly upward toward the roof of car.

9. Loosen the three housing cover stud nuts "A" one-quarter turn. This is enough to permit adjustment. If loosened more, adjustment may be disturbed when tightening nuts.

10. Turn eccentric sleeve "E" in a clockwise direction in very gradual stages and check clearance by shaking steering arm. Be careful that eccentric sleeve is turned only enough to remove clearance and no further. The final movement of the eccentric sleeve should be in a clockwise direction. If it should be necessary to back up on the eccentric sleeve, do so in excess of the amount required and proceed to readjust as described and tighten nuts "A."

11. Test freedom of gear throughout complete range by turning steering wheel. If tight at any point recheck adjustments.

12. It will be noted that the clearance between the worm and sector is set at the midpoint of travel only. Since the relation between the worm and sector is definitely set by the manufacturer, this one adjustment will give equal clearance of mesh at both extremes of travel unless the eccentric rivet "D" which guides the lower end of the housing cover has been turned.

Should it be found, however, that there is considerable difference in the clearance when one-eighth turn from the extreme right and one-eighth turn from the extreme left limit of motion of the steering wheel, equalization can be obtained by turning the eccentric rivet "D." Turning the rivet clockwise increases the clearance on a left turn while turning counter-clockwise increases the clearance on a right turn.

This gear is designed to give a minimum clearance in the "straight ahead" position with increasing clearance on both turns. It must, therefore, be understood that equal clearance cannot be maintained throughout the turning range. For this reason, it is also important that clearance be tested at equal distances from the straight ahead position to determine if any adjustment of the eccentric rivet is necessary. If necessary to change the rivet position, rivet to be sure that the new setting is held.

*Adjust Height of Steering Wheel:*

A. Loosen frame bracket studs nuts "M."

B. Loosen dash support clamp.

C. Move steering wheel to desired position.

D. Tighten dash support clamp.

E. Turn steering wheel right and left and test to be sure column is not sprung causing binding. If binding loosen frame bracket stud nuts further to permit column to align itself.

F. Tighten frame bracket stud nuts "M."

*Throttle Disc Friction*

The friction controlling the movement of the throttle disc "X" is adjusted by the screw "S." Tightening the screw increases the friction while loosening reduces it.

*Noise:*

Noise may be caused by end play in main shaft or cross shaft. See paragraphs 1 to 11.

See that nuts "A," "K," "M," "N," and "R" are tight.

Loosen clamp bolts "J" and "V" and push jacket tube down as far as possible on steering gear case to insure sufficient clearance between upper end of tube and wheel hub. Tighten clamp bolts securely. Any other column noises are in most cases due to wear of bushing "W" or loss of tension of the silencing springs "V." Replace these parts to correct condition.

# Trimming Specifications

## Hudson Great Eight

## Essex The Challenger

### 1930

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Hudson Motor Car Company  
Detroit, Michigan

## Essex Brougham

Car No. 1166087 to

	<i>Color</i>	<i>Material</i>	<i>Manufacturer</i>	<i>Mfgr's No.</i>
HEADLINING	Wood	Napped Cloth	Carolina Cotton & Wool Mills	1235H
SIDE WALLS, DOOR PANELS AND BACKS OF FRONT SEATS	Wood	Velour	E. F. Timme & Sons	1250
SEAT CUSHIONS AND BACKS	Wood	Velour	Collins & Aikman	2223A
CARPET	Gray H. P.	Velour	C. H. Masland & Sons	V76C
WINDLACE	Beige	Imitation Leather	.....	1763
CURTAIN	Gray		Adams & Westlake Company	Rex No. 3

## Essex Coach

Car No. 1165675 to

HEADLINING	Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H
SIDE WALLS, DOOR PANELS AND BACKS OF FRONT SEATS	Gray and Taupe	Velour	E. F. Timme & Sons	1255
SEAT CUSHIONS AND BACKS	Gray and Taupe	Velour	E. F. Timme & Sons	1256
CARPET	Gray H. P.	.....	C. H. Masland & Sons	V76C
WINDLACE	Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H
CURTAIN	Gray	Rex Quality No. 3	Adams & Westlake Company	.....

## Essex Coupe

Car No. 1168629 to

HEADLINING	Fawn Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H
SIDE WALLS AND DOOR PANELS	Mottled Fawn	.....		
CURTAIN	Gray	Velour	E. F. Timme & Sons	S1184
	Gray	.....	Curtain Supply Company	3S23
	Striped Fawn			
SEAT CUSHIONS, BACKS, CARPET (RUMBLE)	Gray	Velour	E. F. Timme & Sons	S1185
WINDLACE	Mottled		W. J. Sloane	V75C
	Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H

## Essex Phaeton

Car No. 1166363 to

SEAT CUSHIONS, BACKS	Tan	Leather No. 1 D. B.	American Oak Leather Company	970
DOOR PANELS—SIDE WALLS, SEAT ARMS, ETC	Tan	Imitation Leather	.....	V76C
CARPET	Wood			

## Essex Roadster

Car No. 1166937 to

FRONT SEAT CUSHION AND BACK	Tan	Leather No. 1 D. B.	American Oak Leather Company	970
RUMBLE SEAT CUSHION AND BACK	Tan	Imitation Leather	.....	.....
SIDE WALLS, ETC.	Tan	Imitation Leather	.....	.....
CARPET	Wood	.....	C. H. Masland & Sons	V76C

## Essex Standard Sedan

Car No. 1165675 to

HEADLINING	Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H
SIDE WALLS, DOOR PANELS, AND BACKS OF FRONT SEATS	Mottled Gray	Velour	E. F. Timme & Sons	125
SEAT CUSHIONS AND BACKS	Gray and Taupe	Velour	E. F. Timme & Sons	125
CARPET	Gray	.....	C. H. Masland & Sons	V76C
WINDLACE	Gray	Napped Cloth	Carolina Cotton & Wool. Mills	1235H
CURTAINS	Gray	Rex Quality No. 2	Adams & Westlake Company	.....

## Essex Sunsedan

Car No. 1167211 to

	<i>Color</i>	<i>Material</i>	<i>Manufacturer</i>	<i>Mfgr's No.</i>
SEAT CUSHIONS AND BACKS	Gray and Black			
	Mottled	Leather No. 1 D. B.	Cleveland Tanning Co.	1801-91
DOOR PANELS AND SIDE WALLS	Gray and Black	Imitation Leather	Textile Leather Co.	4B954
CARPET	Gray	.....	C. H. Masland & Sons	V76C
WINDLACE	Gray and Black	Imitation Leather	.....	.....

## Essex Touring Sedan

Car No. 1165677 to

HEADLINING	Wood	Napped Cloth	Carolina Cotton & Wool. Mills	1235H000
SIDE WALLS, DOOR PANELS AND BACKS OF FRONT SEATS	Wood	Velour	E. F. Timme & Sons	1250
SEAT CUSHIONS AND BACKS	Wood	Velour	E. F. Timme & Sons	1251
CARPET	Wood	Velour	C. H. Masland & Sons	V76C
WINDLACE	Beige	Imitation Leather	.....	.....
CURTAIN	Gray	.....	Adams & Westlake Company	Rex No. 3

## Hudson Coach (119")

Car No. 893862 to

HEADLINING	Grey	Napped Cloth	Carolina Cotton & Wool. Mills	1235H000
SIDE WALLS AND DOOR PANELS	Wood	Velour	E. F. Timme & Sons	1250
CURTAIN	Wood	Velour	Collins & Aikman	1251
SEAT CUSHIONS, BACKS, CARPET (RUMBLE)	Gray	.....	C. H. Masland & Sons	V76C
WINDLACE	Beige	Imitation Leather	.....	.....
	Gray	.....	Adams & Westlake Co.	Rex No. 3

## Hudson Coupe (119") (2 and 4 Pass.)

Car No. 893862 to

HEADLINING	Gray	Cloth	Carolina Cotton & Wool. Mills	1235
SIDE WALLS, DOOR PANELS AND FRONT SEAT CUSHION AND BACK	Brown	Mohair and Wool	L. C. Chase & Co.	6102
RMBL. SEAT CUSHION AND BACK	Brown	Leather D. B. No. 2	American Oak Leather Co.	29
CARPET	Gray	.....	W. & J. Sloane	HP4151
WINDLACE	Gray	Worsted	Vogt Fast Needle Weave	.....
CURTAINS	Gray	.....	Excel Curtain Co.	X2657B1

## Hudson Phaeton (119")

Car No. 893589 to

SEATS AND BACKS	Two-tone Gray	Leather D. B. No. 1	Eagle Ottawa Co.	850771
SIDE WALLS, DOOR PANELS, ETC.	Gray	Imitation Leather	.....	.....
CARPET	Gray	.....	C. H. Masland & Sons	B76C

## Hudson Roadster (119")

Car No. 893603 to

SEAT CUSHIONS AND BACKS	Gray and Black	Leather D. B. No. 1	Cleveland Tanning Co.	1801-92
SIDE WALLS, ETC.	Gray and Black	Imitation Leather	.....	.....
CARPET—RUMBLE	Gray	.....	C. H. Masland & Sons	V76C

## Hudson Standard Sedan (119")

Car No. 893408 to

	<i>Color</i>	<i>Material</i>	<i>Manufacturer</i>	<i>Mfgr's No.</i>
HEADLINING	Tan	Napped Cloth	Amoskeag Mfg. Co.	2508
SIDE WALLS, DOOR PANELS				
SEAT CUSHION AND BACKS, BACKS OF FRONT SEAT	Tan	Mohair "A"	Collins & Aikman	534
CARPET	Gray	.....	W. & J. Sloane	V76C
WINDLACE	Tan	Rayon	Bridgeport Coach Lace Co.	5-581RA
CURTAIN	Gray	.....	Adams & Westlake	Rex No. 3

## Hudson Sunsedan (119")

Car No. 893685

SEAT CUSHIONS AND BACKS, SIDE WALLS, ETC	Brown and Gray Stripe	Bedford Cord	Rockanum Mills C. H. Masland & Sons	6006.5 V76C
CARPET	Gray	.....	.....	
WINDLACE	Brown	Imitation Leather		

## Hudson Brougham (126")

46599 to

HEADLINING	Gray	Napped Cloth	Amoskeag Mfg. Co.	.....
UPPER SIDE WALLS .	Gray	Plain Broadcloth	Wm. Wiese & Co.	3797
LOWER SIDE WALLS, SEAT CUSHIONS, BACKS, ETC.	Gray	Two-tone Cloth	Wm. Wiese & Co.	3796
CARPET	Gray		W. & J. Sloane	V76C
WINDLACE .	Beige	Imitation Leather	.....	.....
CURTAINS	Gray		Adams & Westlake	Rex No. 3

## Hudson Phaeton—7 Pass. (126")

Car No. 46721 to

SEATS AND BACKS (ALL)	Two-tone Gray	Leather D. B. No. 1	Eagle Ottawa Co.	3-50771
SIDE WALLS, DOOR PANELS	Two-tone Gray	Imitation Leather	.....	.....
CARPET	Gray	.....	C. H. Masland & Sons	V76C

## Hudson Sedan—7 Pass. (126")

Car No. 4702 to 47129

HEADLINING	Fawn	Napped Cloth	Amoskeag Mfg. Co.	2424
SIDE WALLS, DOOR PANELS, BACKS OF FRONT SEATS	Fawn	Broadcloth	Wm. Wiese Co.	3371
SEAT CUSHIONS, BACKS	Fawn	Broadcloth	Wm. Wiese Co.	3370
CARPET	Fawn	Wool	Bigelow-Hartford	223-4
WINDLACE	Fawn	Worsted	Vogt	3034
CURTAINS	Fawn	.....	Adams-Westlake	.....

## Hudson Sedan—7 Pass. (126")

Car No. 47129

HEADLINING	Gray	Napped Cloth	Amoskeag Mfg. Co.	2589
SIDE WALLS, DOOR PANELS, BACKS OF FRONT SEATS, SEAT CUSHIONS, BACKS	Gray	Broadcloth	Glenside Woolen Mills	101
CARPET	Gray	Wool	W. & J. Sloane	M140C
WINDLACE	Gray	Rayon	Superior Felt Products Co.	10140
CURTAINS	Gray	.....	Adams & Westlake	Rex No. 3

## Hudson Touring Sedan (126")

Car No. 46600

HEADLINING	Gray	Napped Cloth	Amoskeag Mfg. Co.	2515
SEAT CUSHIONS, BACKS, SIDE WALLS, DOOR PANELS, ETC	Gray	Mohair "A"	Collins & Aikman	533
CARPET	Gray	Wool	W. & J. Sloane	V76C
WINDLACE	Gray	Rayon	Bridgeport Coach Lace Co.	283WRA
CURTAINS	Gray	.....	Adams & Westlake	Rex No. 3

## Essex Marvel Carburetor

The carburetor is of the automatic air valve type, incorporating advanced designs which provide proper gasoline mixture under all operating conditions yet it is simple, having only one adjustment.

### *Starting and Warming Up Operation:*

When the engine is cold the Choker Control on the dash should be pulled out to its extreme position. This gives the condition in the carburetor as shown at Fig. 1. The Choker Valve is closed and the By-Pass Valve is turned so that the hole in the side is exactly in line with the passage in the carburetor body which enters the mixing chamber above the throttle valve.

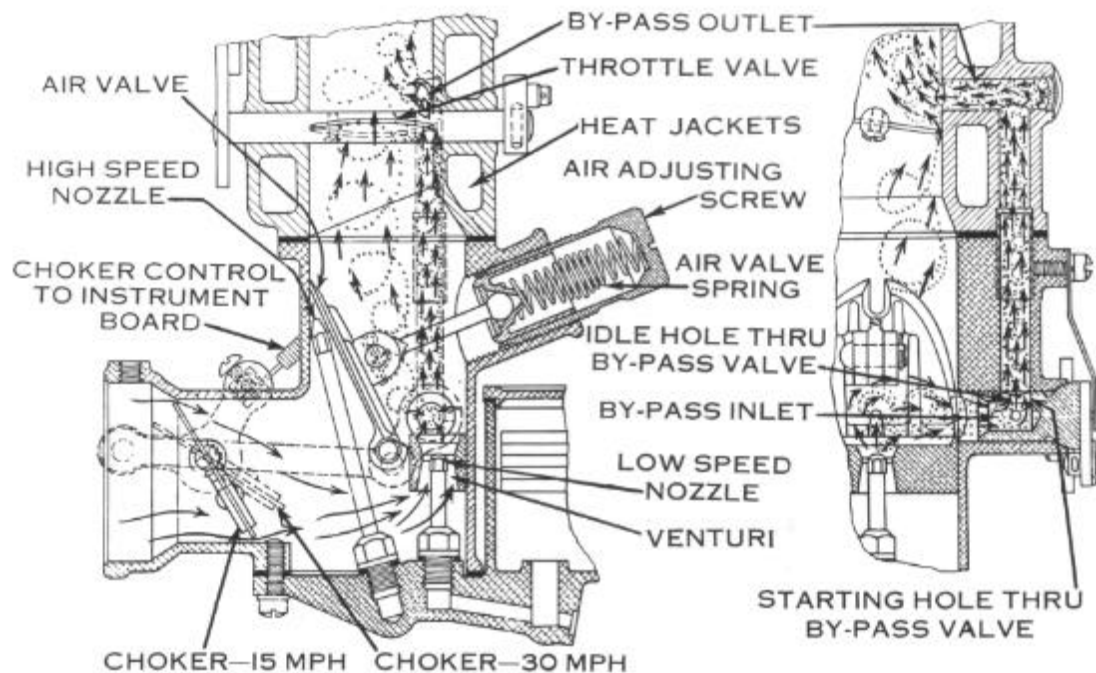


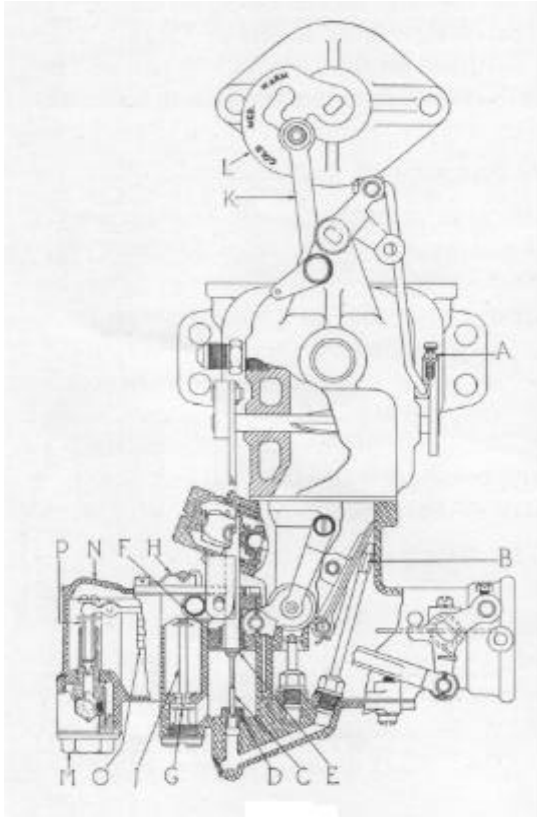
Fig. 1

When the engine is turned the vacuum created by the pistons extends down into the mixing chamber and due to the throttle being practically closed (in idling position), exerts its force through the By-Pass onto the gasoline in the Low Speed Nozzle. With the Choker Valve closed, very little air is admitted so that a rich mixture of gasoline is drawn into the cylinders.

This rich mixture gives easy starting but if the Choker Valve is left in this position the cylinders will become "flooded." It is, therefore, necessary to push the Choker Control in about 1/4" as soon as the motor fires. The outer portion of the Choker Valve Shaft is turned about 30° but the Valve itself is held closed under spring tension. This is made possible by constructing the Choker Valve Shaft in two parts, the motion of the outer part, to which the operating linkage is connected, being transferred to the inner part of the shaft, on which the valve is carried, by a wide groove in the tubular end of the outer

shaft fitting over the edge of the valve. The width of this groove determines the movement of the linkage without affecting the valve. The spring tension on the valve tends to hold it closed at all times.

When the engine gains speed the suction acting on the lower portion of the Choker Valve, which is larger in area than the upper portion, due to the shaft being set above center, opens the valve against the spring pressure. The width of the slot in the tubular end of the outer shaft previously described restricts



varied by setting the screw "A" Figure 2.

### *High Speed Operation*

As the engine speed increases the volume of air which can pass through the Venturi becomes insufficient and a partial vacuum is formed in the mixing chamber. This acts on the Air Valve and opens it against the pressure of the spring in the Air Adjusting Screw. The exact opening of this valve depends on the speed of the engine and the pressure of the spring which is adjustable.

The air entering the mixing chamber through the Air Valve picks up gasoline from the High Speed Nozzle. Figure 2 shows the gasoline passage from the Float Chamber to the High Speed Nozzle "B." It will be noted that there is a metering pin "C" in this passage to regulate the flow of gasoline through the Metered Orifice "D." When the Throttle is less than half open the heavy portion of the Metering Pin restricts the passage

the opening of the valve to the position shown in dotted lines in the illustration and this is sufficient to attain a car speed of about 30 M. P. H. This acts as a governor so that the engine cannot be raced excessively while cold. The By-Pass delivers sufficient mixture for a speed of 15 M. P. H. with the throttle in the idling position removing the necessity of advancing the throttle control to prevent the motor from stalling while cold. The mixture supplied by the By-Pass is slightly rich so that the motor will perform well during the "warming-up" period.

### *Running Operation—Low Speed*

After the engine has reached a sufficient temperature to operate smoothly the Choker Control can be pushed in. This turns the Choker Valve into the horizontal position so that the intake passage is unrestricted and the By-Pass Valve is turned so that the By-Pass is closed completely.

At low speeds the air passes through the Venturi picking up gasoline from the Low Speed Nozzle and the mixture passes through the mixing chamber to the motor. The volume of mixture is determined by the position of Fig. 2 the throttle and the minimum amount, which determines the idling speed, can be



allowing just enough flow for economical operation. As the throttle is opened wider the Metering Pin moves down so that the small portion of the Pin is in the orifice, thus allowing a greater flow of gasoline to provide full power for high car speeds, acceleration or hill climbing.

#### *Accelerating Pump*

It will also be noted that there is a two-piece plunger mounted on the rod above the Metering Pin. This acts as an accelerating pump but is very different in operation from pumps previously used.

The lower disk "E" is fastened to the rod and has seven calibrated holes in it while the heavy plunger "F" above the washer is free to slide on the shaft. When the Throttle is opened rapidly the shaft moves down carrying the Washer and Metering Pin with it. The movement of the Metering Pin increases the opening to the High Speed Nozzle while the movement of the washer pumps gasoline through the passage giving the rich mixture from the High Speed Nozzle necessary for quick acceleration. The quantity of gasoline pumped by the movement of the Washer is small as a large portion of the gasoline contained in the plunger cylinder passes through the holes in the Washer and floats the weighted Piston so that it does not follow the movement of the washer. The weight of the Piston is sufficient to force the remainder of the gasoline in the cylinder to the High Speed Nozzle. This maintains a rich mixture of proper quality for approximately three seconds, the time required for the weighted Piston to fall to the Washer. This operation is a sharp contrast to the conventional accelerator pump which gives a rich mixture only while the throttle is being opened and a quality of mixture varying with the speed with which the throttle is opened.

The disc check valve "G" in the passage between the Float Chamber and Metering Pin prevents the gasoline from flowing from the Accelerating Pump Cylinder back to the Float Chamber instead of going to the High Speed Nozzle when the Pump is operated.

The small Pointer "H" on the top of the Float Chamber is fastened to the pin "J" which extends down through the Float Chamber and terminates just above the Disc Check Valve. When this Pointer is turned to "Winter" the pin is held up so that the Check Valve is free to operate. When it is turned to the "Summer" position the pin drops and holds the Check Valve down. This permits the gasoline to flow back to the Float Chamber when the Accelerating Pump is operated instead of being forced to the High Speed Nozzle. This prevents the rich mixture for accelerating and is necessary only in extremely hot weather when the engine may hesitate due to too rich a mixture when the Throttle is opened rapidly.

#### *Heat Control*

The heat control consists of a passage extending from the exhaust manifold down around the carburetor riser to a point below the throttle valve and then up to the exhaust manifold. A Damper Valve is located in the exhaust manifold between the two ends of the passage just described. When this valve is closed the exhaust gas from cylinders Nos. 1, 2 and 3 must all pass down around the carburetor riser and up again to the manifold to escape through the exhaust pipe. The heat from this gas is transferred to the gasoline mixture and serves to give quick "warming up" and complete vaporization.

The Damper Valve is connected to the Throttle Linkage "K" so that it is closed when the Throttle is closed. As the Throttle is opened the valve is opened, allowing part of the exhaust gas to pass decreasing the amount of heat applied to the carburetor, preventing overheating of the gasoline mixture at high engine speeds.

There are three positions in the Valve Lever L in which the link "K" can be set to vary the opening of the Damper Valve for a given Throttle opening. The "Warm" position gives the greatest amount of heat and most efficient operation under most operating conditions. The "Medium" position gives less heat and can be used when operating in hot weather when the temperature is consistently over 90°. The "Cool" position giving the least heat to the incoming gasoline mixture is necessary only when the atmospheric temperature is consistently over 100°.

### *Adjusting*

If the adjustment has been entirely lost turn the Air Adjusting Screw until the end is just flush with the end of the tension spring rubbing on the knurled portion of the screw. Start the engine and let it run until it is warm. See that the Choker Valve is in the horizontal position. With the Throttle closed to the idling position turn the Air Adjusting Valve out until the engine hesitates, then turn in three or four notches at a time until the engine runs evenly. If the engine idles too slowly turn the screw (A) clockwise to increase the throttle opening.

### *Servicing*

If the engine will not run smoothly and the compression is good and the ignition system functioning properly, the carburetor probably requires cleaning. Remove the sediment chamber from the vacuum tank, clean and leave off as this prevents the tank from being drained while working on the carburetor.

Remove the plug "M" Figure 2 and clean the screen attached to it.

Remove the Float Chamber Cover "N", the Float "O" and Float Valve "P." Clean parts and see that Float Valve seat is clean and that Valve is seating properly to prevent float chamber overflowing.

Remove Air Adjusting Screw. Clean plunger and check for easy operation in cylinder. Polish but do not oil.

Clean nozzles by flushing with gasoline or blowing with air pressure.

Replace Air Adjusting Screw, Spring and Plunger in proper position turning screw down until the end is flush with the end of the tension spring. See that spring is exerting a light pressure on the Air Valve holding it closed. If the Air Valve is not closed with the Adjusting Screw in this position the plunger is either sticking or the spring has lost its tension. Clean the plunger and replace the spring.

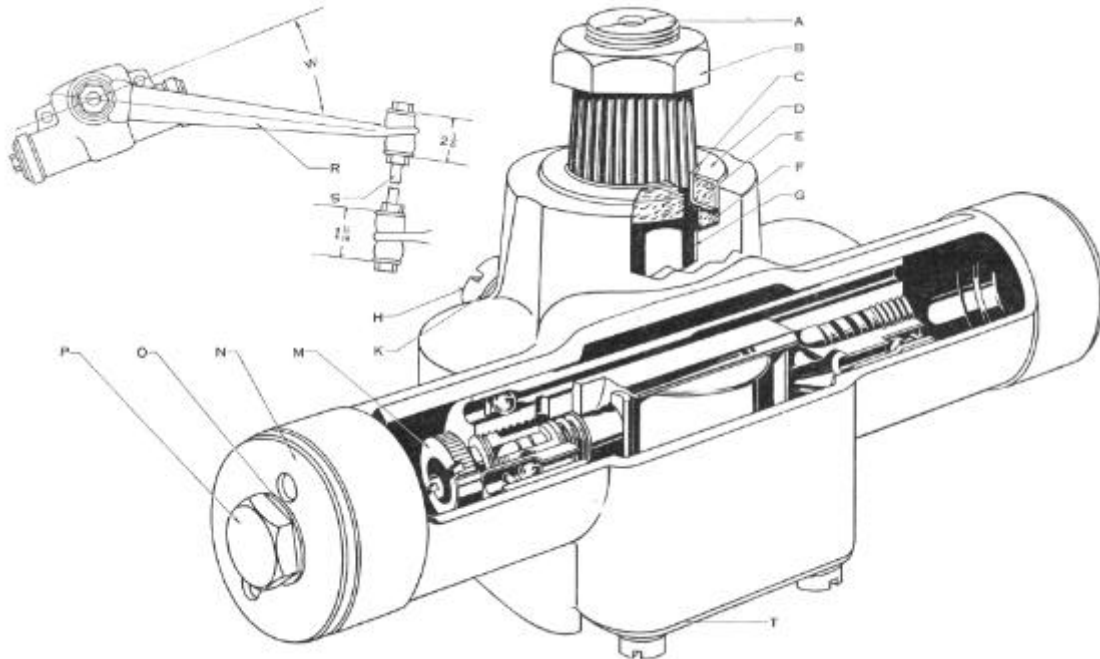
Check Choker Valve to see that it is in the horizontal position.

Check all gaskets for air leaks—Replace if necessary.

## Wahl Two-Way Hydraulic Shock Absorbers

The spring control of the Hudson Great Eight is obtained by the use of 4 Wahl Two-Way Hydraulic Shock Absorbers. These units are sturdy and simple in design and should require very little attention other than periodic refilling.

**Refilling:** These units should be refilled every 5,000 miles. The interval between refillings should not exceed one year. Wahl Hydraulic Fluid—a special preparation for this purpose should always be used.



To refill, disconnect the lower end of the tie rod S from the axle anchor and remove filler hole plug H and gasket K. Always wipe dirt and oil from unit before removing filler plug so that no dirt will get into the oil.

While adding Wahl Hydraulic Fluid through the filler hole, work the arm R up and down. Add fluid until resistance to the arm movement is felt throughout the piston travel and the fluid overflows at the filler hole.

Replace filler plug H and gasket K, using a new gasket if necessary, and shellacking it on both sides. Recouple tie rod to axle anchor.

**Oil Leaks:** In cases of excessive leaking around the arm packing it is necessary to remove the unit from the car and replace the inner packing F and outer packing E as well as the packing sleeve D and packing retainer C. (Proceed as described under reassembling.)

Tightening the end caps N with a special spanner wrench after shellacking or replacing the gaskets will overcome leakage at the ends of the housing.

Leakage at the end plug P or the filler plug H can be corrected by shellacking or replacing the gasket and tightening the plug.

Leakage at the rear cover plate T can usually be corrected by tightening the cap screws while in some cases the replacement of the cover plate gasket is necessary. Before replacing the cover plate be sure the rocker shaft thrust spring and thrust spring button are in place.

**Noise:** It is very unlikely that any noise will be caused by the Wahl Two-Way Shock Absorber unless the mounting bolts become loose. **It is important that the mounting bolts be kept tight at all times.**

**Riding Qualities of Car:** The following items, in addition to the shock absorbers, influence the riding qualities of the car : Spring lubrication, shackle adjustment and lubrication and tire pressure. Do not over lubricate springs —use only penetrating oil— never motor oil. Test tires weekly and maintain a pressure of 40 pounds in front and rear tires. Adjust shackles for minimum side play and lubricate regularly.

If the spring action is too free after checking the above points, see that the shock absorbers are full of Wahl Hydraulic Fluid.

If the above operations do not give proper spring control adjust the shock absorbers as follows: Clean the outside housing thoroughly so that no dirt will get into the oil. Disconnect the tie rod S from the axle anchor bracket and pull the arm R down as far as possible.

Remove the end plug P and gasket O and catch the small quantity of oil which will drain out. Insert a screw driver into end plug hole engaging slot in piston adjustment valve sleeve M.

To increase the resistance of the instrument turn the piston adjustment valve sleeve in a clockwise direction and in a counter clockwise direction to decrease resistance. Do not turn the adjustment more than one-half turn before testing the riding of the car. Never adjust one front or one rear without making a similar adjustment on the other.

If the original adjustment has been lost turn the adjusting sleeve clockwise to its seat, then counter clockwise exactly one turn. This gives the normal control.

**Disassembling:** Remove the instrument from the car by disconnecting the tie rod S from the axle anchor bracket and removing frame bolts. Drain all oil possible through the filler plug hole.

When clamping the Wahl Hydraulic Shock Absorber in the vise it should be clamped at the shoulders containing the frame bolt holes Never clamp over the cylinders.

Remove the rocker shaft nut B and remove arm R. The arm may be removed by use of a puller or by passing a drift through the rear frame bolt hole and striking it sharply with a hammer.

Remove rear cover plate T being careful to remove the rocker shaft thrust button and spring and withdraw the rocker shaft A through the opening in the rear of the housing.

Remove the end caps N and withdraw the piston assembly.

Remove rocker shaft packing and retainer and rocker shaft bushing G.

**Reassembling:** Install rocker shaft bushing G. Install piston assembly and rocker shaft. Place tapered cork packing in housing, then assemble outer packing in packing sleeve and retainer and place assembly over end of rocker shaft. Put arm on shaft and tighten nut to force packing in place. A washer should be used under arm so that packing will be forced into its seat and not rub on arm during operation. Remove arm and washer.

Install rocker arm spring thrust button and rear cover being careful to get cover gasket properly installed.

Install cylinder end caps being sure that the gaskets are in good condition.

Install arm. The front arms should be installed as shown at W so that its center line is one serration from alignment with the line on the end of shaft. The rear arms should be installed so that their centerlines are three serrations from the line on the end of the shaft as shown at W. This places the line on the end of the shaft parallel to the centerline of the cylinders so that the piston is in the center of its permissible travel when the car is standing with the springs in their normal position. This position is important.

The arm should always be installed pointing in the direction of the end of the housing on which the arrow is cast. The piston should be installed with the adjusting sleeve in the end opposite the one on which the arrow is cast.

Refill housing with Wahl Hydraulic Fluid and install on car. Connect tie rod to axle anchor bracket. Tighten the nuts on the tie rod so that the overall measurement of the tie rod rubbers and washers is 2-1/8" at the upper end of the rod and 1-11/16" at the lower end.

Always use new gaskets when rebuilding shock absorbers and refill with Wahl Hydraulic Fluid.