

REVISED JANUARY, 1931.

Mechanical Specifications for Hudson Great Eight, 1931 Models

ENGINE

Make	Hudson	Piston displacement	233.7
Model	Great-Eight	Suspension	4 Point
No. of cylinders	8	Type of head	L
Cylinder arrangement	Vertical	Cylinder heads (2)	Detachable
Bore	2 ⁷ / ₈ "	Cylinders cast	En bloc
Stroke	4 ¹ / ₂ "	Crankcase	Integral
Rated H. P.	26.4	Upper half	Cast iron
Firing order	1-6-2-5-8-3-7-4	Oil pan	Pressed steel

CAMSHAFT DRIVE

Type of drive	Chain	No. of links	57
Make	Morse	Pitch	1/2"
Type	No. 28	Adjustment	Adjustable eccen.
Width of chain	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 (frt.) diameter	2 ¹ / ₃₂ "	No. 3 length	1 ¹ / ₂ "
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 ⁵ / ₁₆ "	5 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	Crankpin diameter	1 ¹⁵ / ₁₆ "
No. 1 (fir) diameter	2 ⁹ / ₃₂ "	Main bearing material	Bronze & babbitt
No. 1 length	1 ⁵ / ₈ "	Main bearing end play	.006"-.012"
No. 2 diameter	2 ⁵ / ₁₆ "	Main bearing clearance	.001"-.0015"
No. 2 length	1 ³ / ₈ "	End thrust on	Center bearing
No. 3 diameter	2 ¹¹ / 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 clearance	.001"-.0015"
Weight	1.7 lbs.	Length	1 ³ / ₈ "
Length C. to C.	8 ³ / ₁₆ "	Clearance (endwise)	.006"-.010"
Lower end bearing diameter	1 ¹⁵ / ₁₆ "	Material	Spun babbitt

PISTON

Type	T slot trunk	Pin center to top	1 ¹¹ / ₁₆ "
Material	Aluminum Alloy	Distance between bosses	1 ¹ / ₈ "
Weight	9 ounces	Clearance at skirt	.002" .0025"
Length	3 ³ / ₁₆ "	Depth of grooves	3 5 2 ,
Lower center groove	Drilled radially	8 holes	1 ¹ / ₈ " diameter
Lower groove	Drilled radially	8 holes	1 ¹ / ₈ " diameter

PISTON RINGS

Material	Cast iron	Gap clearance	.007"-.009"
Type of joint	Mitre	No. oil rings	2
No. Comp. rings	2	Width upper oil ring	1 ¹ / ₈ "
Width Comp. rings	3 ³ / ₃₂ "	Width lower oil ring	3 ³ / ₁₆ "

PISTON PIN

Type	Floating	Bushing outside diameter	1 ⁵ / ₁₆ "
Diameter	3 ³ / ₄ "	Bushing inside diameter	3 ³ / ₄ "
Length	2 ³ / ₁₆ "	Bushing length	1 ⁵ / ₁₆ "

LUBRICATING 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

Type	Centrifugal pump	Radiator hose — lower — diameter	1½"
Radiator make	Harrison	Radiator hose — lower — length	5"
Core type	Ribbon cellular	Fan belt	"V" type
Capacity of cooling system	4¼ gallons	Fan make	Hudson
Radiator hose — upper — diameter	1 ⁵ / ₁₆ "	Fan hearing type	Plain
Radiator hose — upper — length	9 ³ / ₈ "		

FUEL SYSTEM

Carburetor make	Marvel	Make of vacuum tank	Stewart
Carburetor model	XH-4	Air cleaner	A. C.
Carburetor size	1½	Gasoline tank capacity	16 gallons
Fuel feed type	Vacuum tank	Method of heating mixture	Marvel heat control

EXHAUST SYSTEM

Muffler make	Hudson	Exhaust pipe diameter	2"
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IGNITION SYSTEM

Make	Auto-Lite Corporation
Distributor	IGH-4009-A
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
Ignition Coil Model	CE-4015
Spark plug make	A. C.
Spark plug type	G 10
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
Model	MAB-4034
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
Models	GAM-4102
Normal charging rate — hot	10 amperes
Normal charging rate — cold	13.5 amperes

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

BATTERY

Make	Exide	Terminal grounded	Neg.
Type	3-X 1-13-1-G	Length — overall	9"
Voltage	6	Width-overall	7 ¹ / ₈ "
No. of plates	13	Height of box	7 ⁷ / ₈ "
		Height over terminal	91,

LIGHTING SYSTEM

Head side and tail lamps — make	C. M. Hall Lamp Co.
Head side reflector — make	C. M. Hall Lamp Co.
Head and side lamp type	Spheroidal
Head lamp lens — type	Depress beam
Head lamp lens — dimensions	Oval 9 ¹¹ / ₁₆ " x 10 ³ / ₁₆ "
Head lamp dimmer method	Separate filament
Dash and tail lights connected	Separate
Ammeter make	Motometer Gauge & Equip't. Co.
Lighting, switch control	On steering wheel
Ignition switch type	Electrolock

LAMP BULB SPECIFICATIONS

	Make	Mazda No.	CP	Base	Voltage
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	15	S. C.	6-8
Dome	Mazda	63	3	S. C.	6-8

HORN

Motovox — Vibrator type

CHASSIS

Wheelbase	119"	126"
Lubricating system	Alemite	Alemite
Overall length with bumpers	182 ¹ / ₂ "	189"
Location of serial number	On right hand side member — at rear end of front spring.	

TRANSMISSION

Make	Hudson	Pocket bearing	Bronze bush.
Location	Unit	Reverse idler	Bronze bush.
Speeds	3 forward 1 reverse	Main shaft — front	N. D. 1207
Gear ratio — low	2. 921 to 1	Main shaft-rear	Hyatt No. NC 306
Gear ratio-second	1. 924 to 1	Countershaft gear — front	Bronze bush.
Gear ratio-high	1 to 1	Countershaft gear — rear	Bronze bush.
Gear ratio — reverse	3. 469 to 1	Countershaft — stationary	
Type of lubricant		Light transmission oil	
Oil capacity (approx.)		1 ³ / ₄ " lbs.	
Pilot bearing in crankshaft		N. D. No. 1202	

CLUTCH

Make	Hudson	Facing material	Cork inserts
Type	Single disc in oil	Throwout bearing	Nice No. 0210
No. cork inserts	88	Throwout	1/8"
Lubrication	1/8 pt. light motor oil and 1/8 pt. kerosene.	Clearance at floor board	3/4"

UNIVERSALS

Front — make	Spicer	Rear — make	Spicer
Front - type	Metal	Rear — type	Metal

TYPE OF DRIVE

Hotchkiss - Propulsion through rear springs.

REAR AXLE

Make	Hudson	{No. of teeth in pinion	11 (4-3 /11 to 1)
Type	Semi-floating	{No. of teeth in pinion	11 (4-7/11 to 1)
Gear ratio (4-3/11 1 4-7/11 and 5-1/ 10 to 1)		{No. of teeth in pinion	10 (5-1/10 to 1)
Type of drive	Spiral bevel	No. of teeth in gear	47 and 51
Min. road clearance	711	Pinion	Adjustable
Clearance for jack	9 /1	Pinion bearing	Adjustable
Differential- make	Hudson	Oil capacity (approx.)	3 lbs.
Pinion bearing	Front	Type of lubricant	Diff. oil
Pinion bearing	Rear	Timken	26112 and 26283
Differential bearing	Right	Timken	3188 and 3120
Differential bearing	Left	Timken 336 and	322
		Timken 336 and	322

FRONT AXLE

Make	Hudson	Toe in — zero to	
Section type	I-beam	Castor angle	1°
End — type	Rev. Elliott	Min. road clearance	8"
King pin thr. bearing	Ball thrust	Clearance for jack	811
King pin transverse inclination		7°	
Spindle transverse inclination		1°	

STANDARD BRAKES

Type of standard brakes Bendix 4-wheel brakes (2 shoe)

SERVICE BRAKE

Location	Front and Rear wheels	Lining length per wheel 2 pieces, 26 ⁷ / ₈ "	
Make	Bendix	Width of lining	1 1/2"
Type	Internal	Thickness of lining	5/32"
Total braking area	162 sq. in.	Clearance of lining	.010"
Drum diameter	Front and Rear 12"	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 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	Gernmer
Type	Worm and sector
Ratio	15 to 1
Steering wheel turns	2½ (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 ¹ / ₈ "
Width	2 ff	Width	2½"
No. of leaves	9	No. of leaves	9
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	Depth	119" W.B. — 7" — 126" W.B. — 7 ¹ / ₁₆ "
Material	Steel	Thickness	119" W.B. — ⁵ / ₃₂ " — 126" W.B. — ³ / ₁₆ "
		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**

Multiply the car speed in miles per hour by the "Conversion Factor" corresponding to the rear axle ratio with which the car is equipped. (See Conversion Table for "Conversion Factor").

Example. - What is the motor R. P. M. when a Hudson 8 equipped with 4-7/11 to 1 rear axle ratio is traveling at a speed of 40 miles per hour.

"Conversion Factor" for 4-7/11 to 1 rear axle ratio 53.7. (See Conversion Table).
Answer - 40 multiplied by 53.7 = 2148 R. P. M. (Approximately).

**TO OBTAIN CAR SPEED IN MILES PER HOUR FOR A GIVEN MOTOR
SPEED IN R. P. M.**

Divide the motor R. P. M. by the "Conversion Factor" corresponding to the rear axle ratio with which car is equipped. (See Conversion Table for "Conversion Factor").

Example - What is the car speed of a Hudson 8 equipped with 4-3/11 to 1 rear axle ratio when the motor is turning at 2400 R. P. M.

"Conversion Factor" for 4-3/11 to 1 rear axle ratio 49.5 (See Conversion Table).
Answer - 2400 divided by 49.5 = 50.5 Miles per Hour (approximately).

CONVERSION TABLE
(Cars equipped with 29" Tires)

<u>Rear Axle Ratio</u>	<u>Conversion Factor</u>
4-3/11	49.5
4-7/11	53.7
5-1/10	59.0

Gear Ratio-To obtain the number of revolutions of the motor required for one revolution of the rear wheel, multiply the rear axle ratio by the ratio of the transmission in the gear desired.

Example - How many revolutions does the motor make for one revolution of the rear wheels with a car equipped with 4-7/11 to 1 rear axle with the transmission in low gear.

Answer - 2.921 (low gear ratio) x 4.636 (rear axle ratio) - 13.542 . Revolutions of motor to one revolution of rear wheels.

The following tabulation shows the various motor to wheel ratios worked out as above for Hudson Great Eight cars with 4-7/11 to 1 rear axle ratio:

<i>Transmission</i>	<i>Transmission</i>	<i>Rear</i>	<i>Motor</i>	<i>Wheel</i>
<i>Gear</i>	<i>Ratio</i>	<i>Axle Ratio</i>	<i>Revs.</i>	<i>Revs.</i>
Low	2.921	4.636	13.542	1
Second	1.924	4.636	8.919	1
High	1.	4.636	4.636	1
Reverse	3.469	4.636	16.082	1

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Hudson Great Eight Standard Equipment

Cowl lights	ALL MODELS
Cowl ventilator	ALL MODELS
Gasoline and oil level gauge Electric — on instrument board	ALL MODELS
Headlamps — Hall — Depress beam	ALL MODELS
Heat indicator — on instrument board	ALL MODELS
Horn — Vibrator type	ALL MODELS
Ignition Switch — Electrolock	ALL MODELS
Rear Traffic Signal	ALL MODELS
Rear vision mirror	ALL MODELS
Shock absorbers (4) — Gabriel triple hydraulic	ALL MODELS
Speedometer — Stewart Warner	ALL MODELS
Spare rim — One	ALL MODELS
W/S Cleaner — Trico vacuum	ALL MODELS
Wheels — Wood	ALL MODELS
SUN VISOR — Inside Type Brougham — Club Sedan. Outside Type — All other Closed Models.	
TIRE CARRIER — On Rear All 119" WB. Except Sport Roadster. On Fender All 126" WB. and Sport Roadster.	
TRUNK RACK — All 126" WB.	

. EXTRA EQUIPMENT

BUMPERS — Front and Rear	ALL MODELS
TIRE COVER	ALL MODELS

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Hudson Great Eight Body and Chassis Details 1931 Models

119" Wheel Base

	Std. 5-Pass. Sedan	Coach	Rumble Coupe	2-Pass. Coupe	Sport Road- ster	Town Sedan	5-Pass. Phaeton
No. of doors	4	2	2	2	2	2	4
No. of passengers	5	5	4	5	4	5	5
Seat arrangements		Front Seats folding					
	Std.		Std.	Std.	Std.	Std.	Std.
Gear ratio	4-7/11	4-7/11	4-3/11	4-7/11	4-3/11	4-7/11	4-3/11
Frame work material	Steel	Steel	Steel	Steel	Wood	Steel	Wood
Body panel material	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Wheels type	Wood						ALL MODELS
Tire Size	29 x 5.50						ALL MODELS
Tire type	4 ply						ALL MODELS
Weight	3115	2975	2955	28615	2675	3055	

126" Wheel Base

	Brougham	Touring Sedan	Family Sedan	Club Sedan	7-Pass. Phaeton
No. of doors	4	4	4	4	4
No. of passengers	5	5	7	5	7
Seat arrangement	Std.	Std.	Std.		Std.
Gear ratio	4-7/11	4-7/11	5-1/10	4-7/11	4-7/11
Frame work material	Steel	Steel	Steel	Wood	Wood
Body panel material	Steel	Steel	Steel	Steel	Steel
Wheels type	Wood				ALL MODELS
Tire Size	29 x 5.50				ALL MODELS
Tire type	4 ply				ALL MODELS
Weight	3190	3190	3230	3235	