

REVISED JANUARY, 1931.

## Mechanical Specifications for Essex Super Six - 1931 Model

### ENGINE

Make	Hudson	Piston displacement	175.28
Model	Essex Super Six	Suspension	4 Point
No. of cylinders	6	Type of head	L
Cylinder arrangement	Vertical	Cylinder head	Detachable
Bore	2 7/8"	Cylinders in block	6
Stroke	4 1/2"	Crankcase	Integral
Rated H. P.	19.8	Material	Cast iron
Firing order	1-5-3-6-2-4	Oil pan	Pressed steel

### CAMSHAFT DRIVE

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

### CAMSHAFT BEARINGS

Number of bearings	3	No. 2 diameter	1 31/32"
No. 1 front - diameter	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 Silicon steel	Exhaust 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 clearance	.001"
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"	Type	Spun
		Material	Babbitt

**PISTON**

Type	T Slot Trunk	Distance between bosses	1-1/8"
Material	Aluminum Alloy	Clearance at skirt	.002" -.0025"
Weight	9 ounces	Depth of grooves	.156"
Length	3-1/16"	Lower grooves (2)	Drilled radially
Pin center to top	1-11/16"	Number of holes	8 and 8
		Diameter of holes	1/8" and 3/32"

**PISTON RINGS**

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

**PISTON PIN**

Type	Floating	Bushing - outside diameter	15/16"
Diameter	3/4"	Bushing - inside diameter	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

**COOLING SYSTEM - (Cont'd)**

Capacity of cooling system	4-5/8 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	1-1/8"
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"
-----------------------	--------------------------

**IGNITION SYSTEM**

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	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	MAJ-4009
Drive-type	Bendix
No. of teeth on flywheel	107
Width of tooth face	3/8"
Pinion meshes from	Rear of flywheel

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

**GENERATOR**

Make - Auto-Lite Corporation	GAM-4102
Normal charging rate - hot	10 Amps.
Normal charging rate-cold	13.5 Amps.

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



**CLUTCH**

Make	Hudson	Throwout bearing	Annular & thrust
Type	Single disc in oil	Throwout	1/8"
Facing material	Cork inserts	Clearance at F/B	3/4"
No. of cork inserts	88		

LUBRICATION – ½ pint light motor oil & 1/8 pint kerosene

**UNIVERSALS**

	<u>Make</u>	<u>Type</u>		<u>Make</u>	<u>Type</u>
Front	Spicer	Metal	Rear	Spicer	Metal

**TYPE OF DRIVE**

Propulsion through rear springs.

**REAR AXLE**

Make	Hudson	Wheel bearing	Timken 415TV and 412A
Type	Semi-floating	Pinion bearing - front	Timken 2691V and 2620
Gear ratio	5 4/10 or 5 1/10	Pinion bearing - rear	Timken 3188and 3120
Type of drive	Spiral bevel	Differential bearing - right	Timken 336 and 3320
Minimum road clearance	7-1/2"	Differential bearing - left	Timken 336 and 3320
Clearance 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.)	3 pounds
Pinion bearing	Adjustable	Type of lubricant	Differential oil

**FRONT AXLE**

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

**STANDARD BRAKES**

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

**SERVICE BRAKES**

Location	Front and Rear 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	Front wheel inner bearing	Timken No. 2554 and 2520
Make	Motor Wheel Corporation	Front wheel outer bearing	Timken No. 2382 and 2320

**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	2-1/2 (full swing left to right)
Turning radius	20 feet
Lubricant	Steam cylinder oil

**SPRINGS**

	<u>Front Spring</u>		<u>Rear Spring</u>
Type	Semi-elliptic	Type	Semi-elliptic
Length	36"	Length	54-1/8"
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	6-15/16"		

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

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 an Essex Super Six equipped with 5.4 to 1 rear axle ratio is traveling at a speed of 40 miles per hour.

“ Conversion Factor” for 5.4 to 1 rear axle ratio 62.5 (See Conversion Table).

*Answer* - 40 multiplied by 62.5 = 2500 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 an Essex Super Six with 5.1 to 1 rear axle ratio when the motor is turning at 2400 R. P. M.

“ Conversion Factor” for 5.1 to 1 rear axle ratio 59.0 (See Conversion Table).

*Answer* - 2400 divided by 59.0 = 40.7 Miles per Hour (approximately).

CONVERSION TABLE  
(Cars equipped with 29' Tires)

<u>Rear Axle Ratio</u>	<u>Conversion Factor</u>
5.1	59.0
5.4	62.5

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 5.4 to 1 rear axle with the transmission in low gear?

*Answer* - 2.921 (low gear ratio) x 5.4 (rear axle ratio) = 15.773 revolutions of motor to one revolution of rear wheels.

The following tabulation shows the various motor to wheel ratios worked out as above for Essex Super Six cars with 5.4 to 1 rear axle ratios:

Transmission Gear Revs.	Transmission Ratio	Rear Axle Ratio	Motor Revs.	Wheel
Low	2.921	5.4	15.773	1
Second	1.924	5.4	10.390	1
High	1.	5.4	5.4	1
Reverse	3.469	5.4	18.732	1

REVISED JANUARY, 1931

Essex Super Six – Standard Equipment

Cowl lights	ALL MODELS
Cowl ventilator	ALL MODELS
Dome light	ALL CLOSED MODELS
Gasoline and oil level gauge Electric - on instrument board	ALL MODELS
Headlamps-John Brown Lamp Co. - Stabilite	ALL MODELS
Heat Indicator-On instrument board	ALL MODELS
Horn-E. A. motor driven	ALL MODELS
Ignition lock-Electrolock	ALL MODELS
Rear Traffic Signal - John Brown Lamp Co	ALL MODELS
Shock absorber-Monroe Two Way Hydraulic	ALL MODELS
Spare Rim-One	ALL MODELS
Speedometer-Stewart-Warner	ALL MODELS
Storage Battery-Exide	ALL MODELS
Sun visor	ALL CLOSED MODELS
Tire carrier-Rear	ALL MODELS EXCEPT SPORT ROADSTER
Tire Carrier-On Fender	SPORT ROADSTER
Wheels--Wood	ALL MODELS
Windshield cleaner--Trico vacuum	ALL MODELS

EXTRA EQUIPMENT

Bumpers ---Front and rear	ALL MODELS
Tire Cover	ALL MODELS



REVISED JANUARY, 1931

### Essex Super Six - Body Details 1931 Models

	Std. Sedan	Coach	Rumble Coupe	2-Pass. Coupe	Sport Roadster	Touring Sedan
Wheelbase	113	113	113	113	113	113
No. of doors	4	2	2	2	2	4
No. of passengers	5	5	4	2	4	5
Seating arrangement	Std.	Std.	Std.	Std.	Std.	Std.
Gear ratios	5 4/10	5 4/10	5 1/10	5 1/10	5 1/10	5 4/10
Windshield-type	One piece swing type				ALL MODELS	
Windshield - make	Motor Products				ALL MODELS	
Wheels - type	Wood				ALL MODELS	
Tires - size	19 x 5.00				ALL MODELS	
Weight	2750	2690	2645	2595	2400	2815