

**1926**

**HUDSON & ESSEX**

**Mechanical Specifications  
&  
Adjustments**

**(Part I)**

**1926**

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**Electrical Specifications  
&  
Information**

**(Part II)**

**1926**

**HUDSON & ESSEX**

**Mechanical Specifications  
&  
Adjustments**

**(Part I)**

May, 1926  
DATA FOR HUDSON AND ESSEX CARS

		No. of Doors	Weight Ship. Running <sup>1</sup>		Color of Paint	Maker of Paint	Upholstery Material	Make of Body
Hudson	- 7-Pass. Phaeton	4	3365	3585	Blue	Dibble	Leather	Briggs
	- 5- " Coach	2	3405	3605	Blue	Color	Granite weave	Briggs
	- 4- " Brougham	4	3495	3695	India Blue	Co.,	Velour	(Biddle &
	- 7- " Sedan Smart)	4	3645	3845	" "	"	Det.	Velour
Essex	- 5-Pass. Phaeton	4	2290	2430	Blue	"	Leather	Briggs
	- 5- " Coach	2	2455	2595	Blue	"	Granite weave	Briggs

<sup>1</sup> Weight of car with gasoline, water and oil.

STANDARD EQUIPMENT

- Hudson - Phaeton - Wood wheels, cowl ventilator, heat indicator, gearset lock, front and rear bumpers, windshield wiper, . stop light, Radiator shutter.
- Coach - Same as Phaeton with rear view mirror door lock, sunvisor and trunk rack added.
- Brougham - Same as Coach with side lights added.
- Sedan - Same as Brougham except trunk rack.
- Essex - Phaeton - Wood wheels, cowl ventilator, heat indicator, gearset lock front and rear bumpers, windshield wiper, stop light, radiator shutter.
- Coach - Same as Phaeton with rear view mirror door lock and sun visor added.

ENGINE, FUEL SYSTEM, COOLING SYSTEM, LUBRICATION

		<u>Hudson</u>	<u>Essex</u>
<u>Engine</u>	Make	Own	Own
	Type of head	L	L
	No. of cylinders	6	6
	Arrangement	Vertical	Vertical
	Firing order	1-5-3-6-2-4	1-5-3-6-2-4
	Bore & stroke	3-1/2x 5	2-11/16 x 4-1/4
	Displacement	288	144.67
	Taxable H. P.	29.4	17.32
	Cylinder Head	Detachable	Detachable
	Crankcase	Separate	Cast with cylinders)
	Suspension	4 point	4 point

		Hudson	Essex
<u>Pistons</u>	Material	Aluminum Alloy	Aluminum Alloy
	Type	Slotted Skirt	Slotted Skirt
	Weight	16 ounces	8 Ounces
	Clearance (skirt)	.0035	.002
	Depth of groove for rings	.164	.156
<u>Piston Rings</u>	Material	Cast iron	Cast iron
	Type of joint	Mitre	Mitre
	No. per piston.	3	3
	Width	1/8"	1/8"
	Thickness	.135	.113
	Cap clearance	.006-.008	.006-.008
<u>Piston Pins</u>	Diameter	1-3/32"	3/4"
	Length	2-11/16"	2-3/32"
	Type	Floating	Floating
<u>Piston Pin Bushing</u>	Length	1-3/16"	15/16"
	Outside diameter	1-9/32"	15/16"
	Inside	1-3/32"	3/4"
<u>Crankshaft</u>	No. of bearings	4	3
	Diameter and length No. 1 (front)	2-1/4 x 2-3/8	2-7/32 x 1-5/8
	“ “ “ 2	2-9/32 x 1-7/8	2-1/4 x 1-3/4
	“ “ “ 3	2-5/16 x 2-1/8	2-9/32 x 2
	“ “ “ 4	2-11/32 x 3-1/8	
	Crank pin diameter	2-1/4	1-13/16
	Main bearing clearance	.001	.001
	“ “ end play	.004	.004
	End thrust taken by Sprocket 21 teeth	Rear center bearing 19 teeth	Center bearing
<u>Connecting Rod Bearing</u>	Diameter	21/4	1-13/16
	Length	2-1/4	1-13/16
	Clearance - endwise	.004 to .010	.004 to .010
<u>Valves, Head Springs Stem and Tappets</u>	Diameter	1-13/16	1-1/4
	Diameter	3/8	5/16
	Length overall	6-7/8	5-1/16
	Valve guide	Removable	Removable
	Tappets	Roller	Roller
	Lift (intake)	9/32	9/32
		(exhaust)	19/64 19/64
	Tappet clearance (intake)	.002-.003	.002-.003
	“ “ (exhaust)	.004-.005	.004-.005
	Valve spring pressure	62 lbs.	40 lbs.
“ “ length valve closed	2-3/8"	2"	

		Hudson	Essex
<u>Valve Timing</u>	Intake opens “ closes Exhaust opens “ closes	7° after T.D.C. 42° “ B.D.C. 55° before B. D. C. 8° after T.D.C.	7° after T.D.C. 50° “ B.D.C. 55° before B. D. C. 8° after T. D. C.
<u>Cam Shaft</u>	No. of bearings No. 1 bearing (front) dia & length No. 2 “ “ “ “ No. 3 “ “ “ “ No. 4 “ “ “ “ Sprocket	4 2--19/32 x 1-5/8 2-11/32 X 1-1/16 2-5/16 x 1-1/16 1-1/2 x 1-3/4 42 teeth	3 2 x 1-1/6 1-31/32 x 1-1/16 1-1/2 x 15/16 38 teeth
<u>Front End Drive</u>	Type Width of chain No. of links Pitch Adjustment Generator Drive Sprocket	Morse chain 1-1/2 63 1/2 Adjustable Eccentric 16 teeth	Morse chain 1-1/4 57 1/2 Adjustable Eccentric 16 teeth
<u>Muffler</u>	Exhaust pipe dia.	2-1/4	1-3/4
<u>Fuel System</u>	Carburetor - Make “ size Fuel feed Gasoline tank make “ “ capacity Method of heating mixture	Stewart 1-1/2 Stewart Vacuum tank Own 19 gallons Exhaust stove and hot spot	Steviar 1 Stewart Vacuum tank Own 11-1/2 gallons Exhaust stove and hot spot
<u>Valve Timing</u>	Intake opens “ closes Exhaust opens “ closes	7° after T.D.C. 42° “ B.D.C. 55° before B. D. C. 8° after T.D.C.	7° after T.D.C. 50° “ B.D.C. 55° before B. D. C. 8° after T. D. C.
<u>Cooling System</u>	Type Radiator - make “ type Capacity of system Upper radiator hose dia. & length Lower radiator hose dia. & length Fan belt type “ “ width “ “ length	Centrifugal pump Harrison Ribbon cellular 4 gallons 1-1/2 x 7 1-1/2 x 10-1/2 Flat 1” 35	Thermo-syphon Harrison Ribbon cellular 4-3/4 gallons 2-1/14 X 5-1/2 2-1/4 x 14-1/2 Flat 1” 36
<u>Lubri-cation</u>	Type Type of pump Capacity of oil reservoir only “ “ “ “ & troughs Mesh of screen Stroke of oil pump - motor idling Grade of oil	Circulating splash Plunger 7 quarts 9 “ 50 3/32” min. - 1/8” max. Medium heavy - use low cold test in Winter.	Circulating splash Plunger 5 quarts 5-1/2 “ 50 Medium heavy – use low cold test in Winter.

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CLUTCH, TRANSMISSION SPEEDOMETER DRIVE

		Hudson	Essex
<u>Clutch</u>	Driving members	6	4
	Driven	6	3
	Cork inserts in driving plate	52 per plate	42 per plate
	Lubrication	(Mixture 1/4 pt. (Kerosene 1/4 pint motor oil	(Mixture 1/4 pt. (Kerosene pint motor oil
	Throwout	5/16"	5/16"
	Clearance at floor board	3/8"	3/8"
<u>Trans- mission</u>	Location	Unit	Unit
	Speeds	3 Forward, 1 Reverse	3 Forward, 1 Reverse
	Gear ratio low	3.04 to 1	3.244 to 1
	“ “ second	1.81 to 1	1.961 to 1
	“ “ reverse	3.69 to 1	4.170 to 1
	Oil capacity (approx)	1-1/2 quarts	1 quart
<u>Speedo- meter</u>	Make Stewart Warner	Stewart Warner	
	Gear - No. of teeth	6	4
	Pinion “ “ “	16	14

FRONT AXLE, FRONT SPRINGS, STEERING GEAR

<u>Front axle</u>	Section	I	I
	Type of end	Elliott	Elliott
<u>Front Springs</u>	Type	Semi-elliptic	Semi-elliptic
	Length	39"	36"
	Width	2-1/4"	2"
	Bolts - diameter	11/16"	5/8"
	Bushings	Phosphor Bronze	Phosphor Bronze,
<u>Steer- Make ing Gear</u>	Gemmer	Own	
	Type	Worm & Sector	Worm & Wheel

REAR AXLE, DIFFERENTIAL, BRAKES REAR SPRINGS

<u>Rear axle</u>	Type	Semi-floating	Semi-floating
	Propulsion through	Springs	Springs
<u>Differential</u>	Type of drive	Spiral bevel	Spiral 'bevel
	No. of teeth in gear	49	56
	“ “ “ “ pinion	11	10
	Gear ratio	4-5/11 to 1	5.6 to 1
	Pinion adjustment	Screw	Shims
<u>Service Brakes</u>	Location	Rear wheels	Rear wheels
	Type	External	External
	Operated by	Foot pedal	Foot pedal
	Drum diameter (Internal)	15-1/2"	14"
	Lining per brake	44-1/2"	39-3/8"

REAR AXLE, DIFFERENTIAL, BRAKES, REAR SPRINGS

(Continued)

		Hudson	Essex
<u>Service Brakes</u>	Lining width	2-1/2"	1-3/4"
	Lining thickness	3/16"	3/16"
<u>Emergency Brakes</u>	Location	Rear Wheels	Rear wheels
	Type	Internal	Internal
	Operated by	Hand lever	Hand lever
	Drum diameter (Internal)	15-1/2	14
	Lining per brake - length	40	35
	" width	2-1/2	1-1/2
" thickness	3/16"	3/16"	
<u>Rear Springs</u>	Type	Semi-elliptic	Semi-elliptic
	Length	57-11/16"	54-7/8"
	Width	2-1/4	2
	Front end bolt - diameter	3/4"	5/8"
	Bushings	Phosphor Bronze	Phosphor Bronze
	Shackle bolts - diameter	11/16"	5/8"
<u>WHEELS, TIRES</u>			
<u>Wheels</u>	Type	Wood - Steel felloe	Wood-steel felloe
	Make of rims	Firestone	Jaxon
	Toe-in of front wheels	None (or not over 1/8"	None (or not over 1/8"
<u>Tires</u>	Make	Goodyear & U.S.	Goodyear & U.S.
	Size	33X6.00 balloon	30X4.75 balloon
<u>Tire Pressures</u>	Sedan	26 lbs front	
	"	34 " rear	
	Brougham	26 " front	
	"	34 " rear	
	Coach	26 " front	28 lbs front
	"	30 " rear	34 " rear
	Phaeton	26 " front	28 " front
	"	30 " rear	34 " rear
<u>BEARINGS</u>			
<u>Trans-Mis0</u>	Mainshaft - front	Hyatt No. 47026	Hyatt N.C .306
	Pilot ball bearing in crankshaft	N. D. No. 1205	N. D. No. 1202
<u>Clutch</u>	Throwout bearing	Nice No. S.K. 2157	Nice No. S.K. 2156
<u>Front Wheels</u>	Inner	Timken No. 412A & 415	Timken 2520 & 2554
	Outer	"    " 312 & 315	2320 & 2382
	Thrust	Nice 4984	Nice 607
<u>Rear Wheel Bearing</u>		Timken 454 & 458T	Timken 412A & 415TV

BEARINGS (Continued)

		Hudson	Essex
<u>Differential</u>	Right	Timken 3720 & 377	Timken 3320 & 336
	Left	“ 3720 & 377	“ 3320 & 336
<u>Drive Pinion</u>	Front	“ 3120 & 3196	“ 2620 & 2690
	Rear	“ 432 & 439T	“ 3320 & 346

ELECTRICAL EQUIPMENT

Separate Motor, Generator and Ignition units

<u>Starting Motor</u>	Make (American Bosch)	949	964 (Early 1926) <sup>1</sup>
	Drive	Manual - sliding gear	Bendix

<sup>1</sup> Later 1926 models used Auto-Lite MU-4001A starter.

<u>Generator</u>	Make (American Bosch)	1282	1067 (early 1926) <sup>1</sup>
	Regulation	Third Brush	Third Brush

<sup>1</sup> Later 1926 models used Auto-Lite GAA-4001 generator.

<u>Ignition System</u>	Make	American Bosch	American Bosch
	Spark Control	Semi-Automatic	
	“ Timing	Time 10° before D.C.	
	(Lever fully advanced)	(Fully retarded)	
	Breaker points - material	Tungsten	Tungsten
	“ “ - gap	.020	.020
Distributor gear - teeth	21	19	
Drive gear - teeth	8	8	

<u>Spark Plugs</u>	Make	A.C. Titan	
	Size	Metric 18 M/M	
	Type	Short Short	
	Gap	.025 - .028	.025 - .028

<u>Storage Battery</u>	Make	Prest-o-Lite	Prest-o-Lite
	Type	6-15-J.F.K.	6-13-J.F.K.
	Voltage	6	6
	No. of plates	15	13
	Rating	120 Amp. hours	105 Amp. hours
	Terminal grounded	Neg.	Neg.
	Length overall	10-1/4”	9”
	Width “	7-1/2”	7-1/2”
	Height of box	8”	8”
	“ over terminals	9”	9”
	Terminals	Std. clamp type	Std. clamp type

<u>Horn</u>	Make	E.A.	E.A.
	Type	Motor	Motor

LAMPS	Headlight voltage	6-8	6-8
	“ C.P.	21	21
	“ contact	Single	Single
	“ lens - make	Spreadlight	Spreadlight
	“ “ - diameter	9” 8”	
	Dash and tail - voltage	3-4	3-4
	“ “ “ - C.P.	2	2
	“ “ Contact	Single	Single
	“ “ connected	In series	In series
	Stop light voltage	6-8	6-8
	“ “ C.P.	15	15
	“ “ Contact	Single	Single

MISCELLANEOUS

Wheel Base	127-3/8"	110-1/2
Turning radius	24-1/2 feet	23 feet
Frame - depth	7"	4-1/2"
" - width of flange	2-1/4"	1-7/8"

Overall length including bumpers	15' - 6"	14' - 6"
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To obtain motor RPM in relation to car speed, use the following formula:

$$\frac{\text{Car speed (M.P.H.)} \times \text{Rear axle gear ratio} \times 336}{\text{Wheel diameter in inches}} = \text{Motor R.P.M.}$$

Example - What is the R. P. M. of the Super-Six Motor at 10 miles per hour?

$$\text{Answer - } \frac{10 (\text{car speed}) \times 4.45 (\text{gear ratio}) \times 336}{453 \text{ R.P.M.}} = \frac{14962}{33} = 453 \text{ R.P.M.}$$

To obtain the number of revolutions of the motor required for one revolution of the rear wheel:

Multiply the rear axle ratio by the transmission ratio.

Example: 4.45 (rear axle ratio) multiplied by 3.04 (low gear ratio)  
equals 13.528 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 Super-Six. and Essex-Six cars.

	<u>Super-Six</u>	<u>Essex-Six</u>
With transmission in low	3.523 to 1	18.166 to 1
"        "        " second	8.054 to 1	10.981 to 1
"        "        " high	4.46 to 1	5.6 to 1
"        "        " reverse	16.420 to 1	23.352 to 1

## 1926 Hudson

### Electrical Specifications & Information

**1926 (Early) HUDSON Super-Six**  
 AMERICAN BOSCH GENERATING, STARTING, AND LIGHTING SYSTEM  
 AMERICAN BOSCH IGNITION

**BATTERY:** - Prest-O-Lite, Type 6-15-JFK, 6 volts. Negative terminal grounded

**STARTER:** - Rotation, R. H., Commutator End - American Bosch, Type 949

**Connection to Engine:** - Thru reduction gears and manually shifted pinion.

**Running Free:** - 40 amps. at 6 volts, 5000 R. P. M.

**Cranking Engine:** - 160-200 amps. at 5.2 volts.

**Lock Torque:** - 12-15 lb. ft., 450-500 amps., 3½-4 volts.

**Brush Spring Tension:** - 1¾-2 lbs. on each.

**Starting Switch:** - Located side starter sub-frame.

NOTE: On cars having trouble with starter gears refusing to release after engine starts. Trouble may be overcome by lining up actuating rod (which carries reduction gears and switch contact) in slot; that it may be free when not in use. Usually requires to be bent down. See insert on drawing.

**IGNITION**

**Rotation:** - R. H., Top View American Bosch, Distributor Type T-6202

**Breaker:** - Contact separation .018 to .020 inch.

**Firing Order:** - 1-5-3-6-2-4.

**Manual Advance:** - 25 degrees (on Flywheel).

**Automatic Advance:** - 4 degrees (on Flywheel).

R.P.M.	Degrees Flywheel Advance
400	Start
600	4
1000	6-7
1500	10- 11
2000	12
2800	14

**Coil:** - American Bosch, TC-30.

**GENERATOR:** - Rotation, L. H., Commutator end - American Bosch, Type 1281

**Note:** Superseded Type 1274 August 1925. Same electrical characteristics as types 1238-1252-1274. Differs in that drive end bearing is smaller.

**Performance Data:** - Generator cold.

Amps.	R. P. M.
0	550
10	800
17	1200
15	1600

**Motoring Freely:** - 6 amps. at 6 volts.

**Max. Stall Current:** - 20-23 amps. at 6 volts.

**Field Test:** - 6.6 amps. at 6 volts directly across field coils in series.

**Field Fuse:** - 7½ amps.

**Brush Spring Tension:** - 1¼ lbs. on each.

**Third Brush Adjustment:** - Loosen Cover Band.

NOTE: - Drive block and lock ring holding ring made in one piece.

**RELAY**

**Closes:** - 500 R.P.M., 6-8 M.P.H., 6.5 to 7 volts

**Opens:** - 450 R.P.M., 5-6 M.P.H., 0-2 ampere discharge.

**Contact Gap:** - .030 inch.

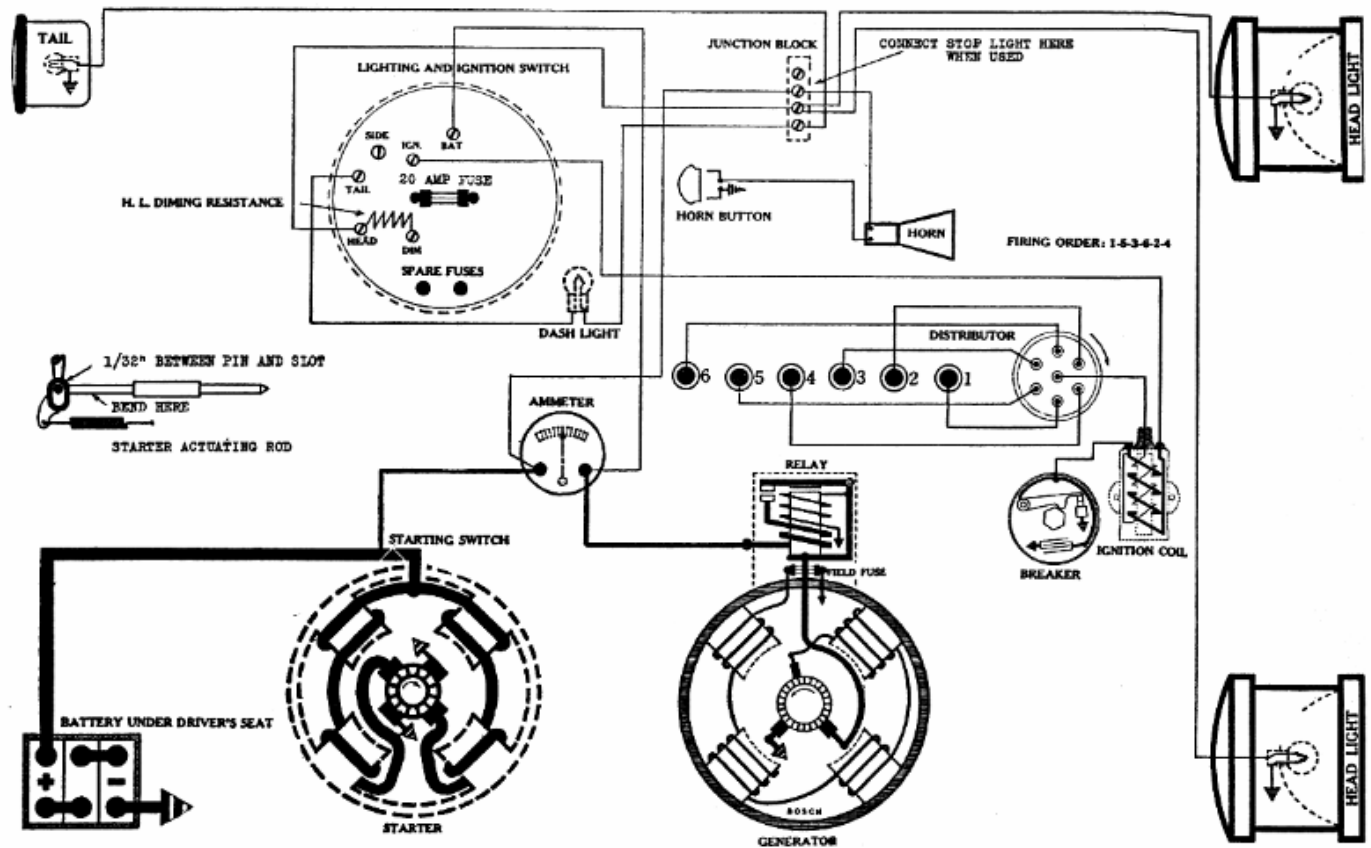
**Core Gap:** - .010 inch, contacts closed.

**LIGHTING**

**Switch:** - American Bosch, Type S-119 (single 20 amp. fuse in rear with two spares).

**Lamps:** - HEAD - 1129; DASH, TAIL - 61; SIDE, DOME - 81.

1926 (Early) Hudson  
Super-Six



1926 (Late) HUDSON Super-Six  
AMERICAN BOSCH GENERATING, STARTING, AND LIGHTING SYSTEM  
AMERICAN BOSCH IGNITION

**BATTERY:** - Prest-O-Lite 6-15-JFK, 6 volt, negative terminal grounded.

**STARTER;** - American Bosch 949. Rotation R.H. commutator end.

**Connection to engine:** - Thru reduction gears and manually shifted pinion.

**Running free:** - 40 amps at 6 volts, 5000 R.P.M.

**Cranking engine:** - 160-200 amps at 5.2 volts.

**Lock torque:** - 12-15 lb. ft., 450-500 amps., 3½-4 volts

**Brush spring tension:** - 1¼-3 lbs. on each.

**Starting Switch:** - Located under starter sub-frame

NOTE: Sub-frame changed from casting with switch in side, to pressed steel construction with switch in center, about October 1925.

**IGNITION:** - **Distributor** – American-Bosch Type T-6202. Rotation, R.H. Top view.

**Firing order:** - 1-5-3-6-2-4

**Manual Advance:** - 25 degrees (on Flywheel)

**Automatic Advance:** - 14 degrees (on Flywheel)

R.P.M.	Degrees Flywheel Advance
400	Start
600	4
1000	6-7
1500	10-11
2000	12
2800	14

**Coil:** - American-Bosch TC-30

**E S S E X**  
**SIX (LATE 1926) (Early 1927)**  
**AUTO-LITE GENERATING, STARTING AND LIGHTING SYSTEM**  
**AUTO-LITE IGNITION**

**BATTERY:** - Pres-0-Lite, Type 6.13-JFK, 6 volt. Starting capacity is 102 amperes for 20 minutes. Lighting capacity is 5 amperes for 17 hours. The negative (-) terminal is grounded.

**IGNITION:** - Coil Model CE-4001. Distributor Model IB-4001. Breaker contacts separate .018 - .022 inch. They are made of tungsten. Resurface contacts with a fine, flat jeweler's file or on a medium hard oilstone. Distributor is automatic. Advance starts at 500 engine R.P.M. and reaches maximum of 9.6deg at 2800 R.P.M.

**Oiling:** - Put 6 or 8 drops of light engine oil in the oiler on the side of the distributor housing every two weeks or each 500 miles if the car is driven more than 500 miles in two weeks. Put one drop of light engine oil on the breaker arm pivot pin every week or each 250 miles and place a small bit of Vaseline on the face of the breaker cam under the fiber bumper every 5000 miles.

**Timing:** - Breaker contacts begin to separate when piston No. 1 on compression stroke reaches top dead center. At this point the flywheel marking will be opposite the indicator on the flywheel case.

**Firing Order:** - The firing order is 1-5-3-6-2-4

**Spark Plugs:** - Spark plugs are Metric Standard. Gap is .025 inch.

**STARTER:** - Model MU-4001A. Starter is connected to the engine through a special Bendix drive. The direction of rotation is counter-clockwise, looking at the commutator end. Starter brush tension is 1¾ - 2¼ pounds each. Starter cranks the engine at 125 R.P.M., taking 150 amperes at 5.6 volts.

**Starter Data**

Torque	R.P.M.	Volts	Amperes
0 lb. ft	6000	6	50
2 "	1500	5.2	160
4 "	900	4.8	240
6 "	450	4.4	320
10 "	Lock	3.6	500

**Starter switch** model is MU-2208

**Oiling:** - Starter bearings are oilless graphite-bronze. They require no attention.

**GENERATOR:** - Model GAA-4001. The direction of rotation is counter-clockwise looking at the commutator end. Generator current regulation

is by the third brush system. To adjust charging rate, remove the commutator cover hand and shift the third brush mounting bracket by tapping on the mounting lug with a screwdriver. Shift the third brush in a counter-clockwise direction to increase the charging rate and in the opposite direction to decrease the charging rate. The mounting bracket is held in any desired position by friction between the mounting lug and the generator end plate. The maximum charging rate of 12.5 amperes is reached at 1450 R.P.M. of the generator.

**Generator Data**

Cold Test (68°F)			Hot Test (203° F)		
Amps	Volts	R.P.M.	Amps	Volts	R.P.M.
2	6.9	470	2	7.0	680
6	7.3	815	6	7.4	880
10	7.5	1080	10	7.5	1500
12.5	7.5	1450	9	7.4	2250
10	7.5	2380			

Motoring freely at 350-405 R.P.M. generator draws 4.5-4.6 amperes at 6.0 volts.

Shunt field test current is 3.5-4 amperes at 6 volts. Each coil when tested separately draws 14-16 amperes at 6 volts. Generator brush tension is 1½ - 1¾ pounds each.

**Oiling:** - Put 4 or 5 drops of light engine oil in each of the generator bearing oilers every two weeks or each 500 miles if the car is driven more than 500 miles in two weeks.

**RELAY:** - No relay is used. The generator is connected directly to the battery through the ignition switch when the ignition is "on." With engine off and ignition switch open the generating circuit is broken up, preventing the battery discharging through the generator windings.

**LIGHTING:** - Clum Switch Model XA-319. Head and stop lamps are each 6-8 volt, 21 cp. S.C. Dash and tail lamps are connected in series. They are each 34 volt, 2 cp.

**FUSES:** - Lighting fuse mounted on switch is 20 amperes.

1926 (Late) – 1927 (Early) Essex  
Autolite System