

FRANKLIN

MODEL 135 (1929) SERIAL NUMBERS 183,000 UP
 MODEL 137 (1929) SERIAL NUMBERS 183,000 UP
 PRODUCTION STARTED JANUARY 5, 1929
 DELCO-REMY GENERATING, STARTING SYSTEM
 DELCO-REMY IGNITION

BATTERY:—U.S.L. Type XY-19X-6, 6 volt. The positive (+) terminal is grounded. Starting capacity (20 minute rate) is 153 amperes for 20 minutes. Lighting capacity (5 ampere rate) is 5 amperes for 27.6 hours. Battery is mounted under the front seat on the right side.

IGNITION:—Coil Model 528-X. Coil is mounted on the back of the instrument board with the ignition switch which is in the base of the coil extending through to the face of the instrument panel. Ignition current is $1\frac{3}{4}$ amperes at 6 volts with engine running and 4 amperes at 6 volts with engine stopped.

Distributor Model 640-T. Breaker contacts separate .018-.024 inch. Set contact gap by loosening lock screw on stationary contact mounting plate directly behind the breaker arm and turning eccentric adjusting screw until correct gap is secured with breaker arm on lobe of cam. Resurface contacts when necessary with a fine flat contact file or on a medium hard oilstone. Distributor is full automatic with an auxiliary retard controlled by a button on the dash to prevent engine laboring under load and to provide retard for starting. Automatic advance begins at 400 R.P.M. of engine. Maximum automatic advance is 39 degrees reached at 2400 R.P.M. of engine. Breaker arm spring tension is 17-21 ounces.

Mounting:—Distributor is mounted on crankcase at right of engine. To remove distributor, disconnect primary lead and manual advance rod and remove distributor head with cables intact. Then loosen advance arm clamp screw and lift distributor from place.

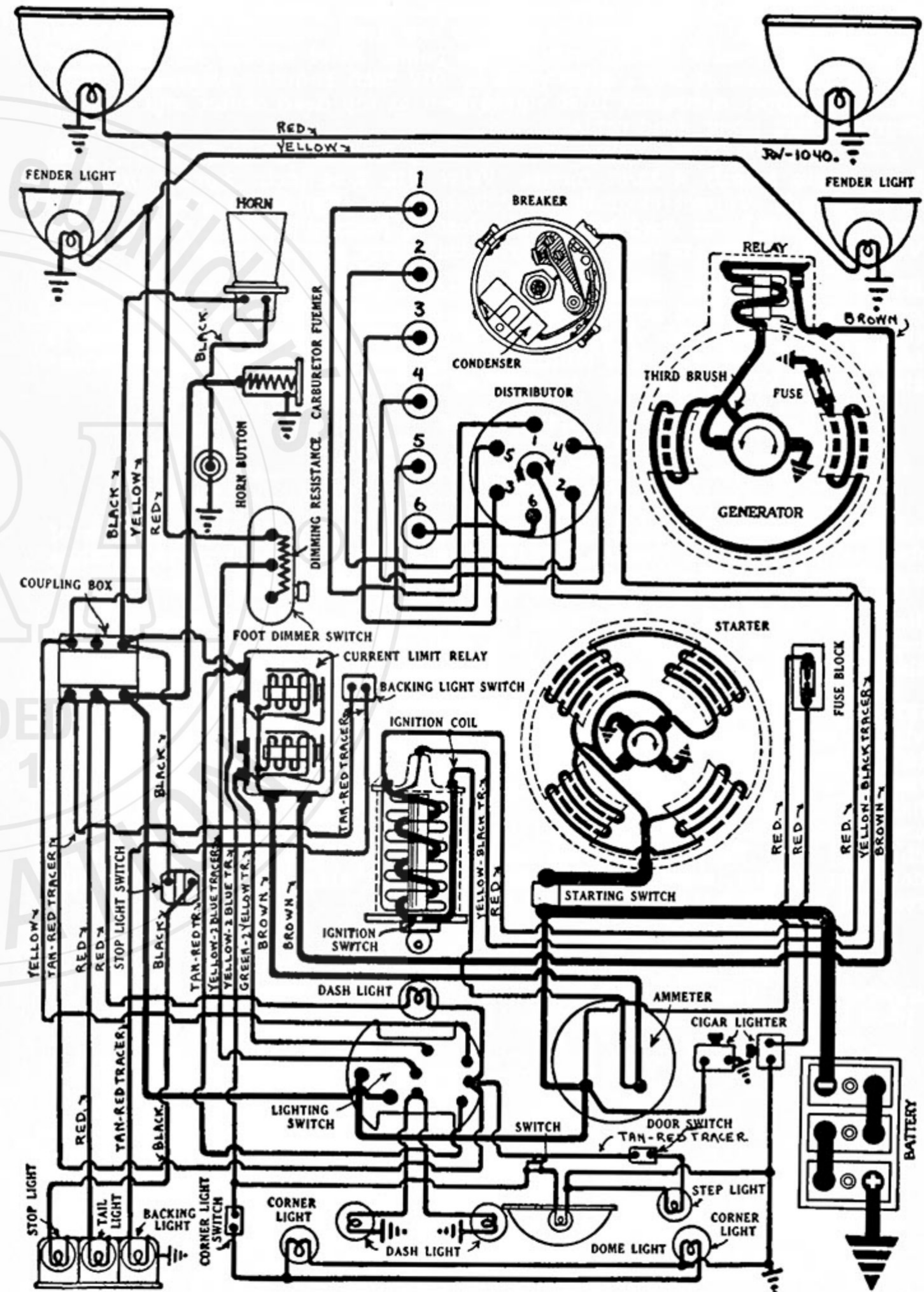
Oiling:—Fill the grease cup on the side of the shaft with medium cup grease and turn down one turn every 2000 miles. Every 1000 miles, remove the distributor head and rotor and put a few drops of light engine oil in the wick oiler in the center of the shaft. At the same time put a small bit of vaseline on the face of the breaker cam.

Timing:—Breaker contacts begin to separate when the piston entering power stroke reaches a position $1\frac{5}{8}$ inches (on the fanwheel) before top dead center with the spark control button fully advanced or pushed in toward the dash as far as possible. To set timing, crank engine over until piston No. 1 enters compression stroke (the upstroke with both valves closed). Place spark control button in the fully advanced position and make certain that the distributor is rotated counter-clockwise as far as possible. Then continue to crank engine over until the triangular mark on the fanwheel rim (visible after the upper air housing is removed) is $1\frac{5}{8}$ inches before or to the right of the vertical dead center mark on the inside of the fanwheel housing. Loosen advance arm clamp screw and rotate distributor housing until contacts begin to open. Tighten the clamp screw and connect the terminal directly opposite the rotor to the spark plug in cylinder No. 1. Connect the remaining spark plugs in order 4-2-6-3-5 clockwise around the distributor head.

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

Spark Plugs:—Spark plugs are Metric 18 MM. Champion. Gaps are .025 inch.

VALVE TIMING:—INLET VALVES:—Head diameter, 1.63 inches. Stem diameter, .3725 inch. Stem length, $4\frac{1}{2}$ inches. Valve lift, $\frac{5}{32}$ inch. Spring pressure, 40-42 pounds. Tappet clearance, .012 inch (cold) running clearance and .031 inch for valve timing. Inlet valves open at top dead center (with .031 inch tappet clearance) and close 57 degrees after lower dead center.



FRANKLIN

MODEL 135 (1929) SERIAL NUMBERS 183,000 UP
MODEL 137 (1929) SERIAL NUMBERS 183,000 UP
PRODUCTION STARTED JANUARY 5, 1929
DELCO-REMY GENERATING, STARTING SYSTEM
DELCO-REMY IGNITION

EXHAUST VALVES:—Head diameter, 1.63 inches. Stem diameter, .3725 inch. Stem length, $4\frac{5}{8}$ inches. Valve lift, $\frac{9}{64}$ inch. Spring pressure, 40-42 pounds. Tappet clearance, .012 inch. Exhaust valves open $43\frac{1}{2}$ degrees before lower dead center and close 25 degrees after top dead center. Valve stem guides are removable. Oversize valves are not made.

Valve Timing:—To set valves, first set tappet clearance of piston No. 1 inlet valve at .031 inch. Then crank engine over until fanwheel triangular mark is opposite the vertical dead center mark on the inside of the fanwheel housing. Inlet valve for cylinder No. 1 should open at this point. After setting valve timing, reset inlet valve tappet clearance to .012 inch running clearance.

STARTER:—Model 723-C. Starter is connected to the engine through a set of reduction gears and an inboard Bendix drive. The direction of rotation (armature shaft) is clockwise, viewed from the commutator end. Starter switch is Model 404-W. Brush spring tension is 24-28 ounces. Starter cranks the engine at 125 R.P.M. drawing 145 amperes at 5.1 volts.

Starter Data			
Torque	R.P.M.	Volts	Amperes
0 lb. ft.	3500	5	70
22 "	Lock	3	600

Mounting:—Starter is flange mounted at right of engine on forward side of flywheel housing. To remove starter, disconnect cable and remove 3 flange mounting cap screws. Then pull starter forward and lift from place.

Oiling:—Put 8 or 10 drops of light engine oil in each of the starter bearing oilers every month or each 1000 miles. Once each year remove the plug in the reduction gear case and repack the gears with graphite grease.

GENERATOR:—Model 945-Y. The direction of rotation is counter-clockwise, viewed from the commutator end. Generator current regulation is by third brush shunt field. To adjust generator output, loosen the small round headed screw on the generator end plate and remove the commutator cover band. Then shift the third brush by hand in a counter-clockwise direction to increase the charging rate and in the opposite direction to decrease the charging rate. Tighten the screw after making the adjustment. With standard car setting, the maximum charging rate is 18 amperes (cold) at 8 volts reached at 1700 R.P.M. or 27 miles per hour.

Generator Data					
Cold Test			Hot Test		
Amperes	Volts	R.P.M.	Amperes	Volts	R.P.M.
16-18	8.82	1650	11-13	7.5-7.8	1800

Stalled, generator draws 30 amperes at 6 volts. Shunt field current is

2.8-3.5 amperes at 6 volts. Brush spring tension is 14-18 ounces. A 5 ampere field fuse mounted on the generator end plate is accessible after the plug over the fuse mounting is removed.

Mounting:—Generator is flange mounted on the right of the engine at the rear of the timing chain case. To remove generator, disconnect the lead and remove the two flange mounting cap screws and the nut on the lower stud. Do not disturb the nut on the forward end of the stud. Then pull generator to the rear and lift from place.

Adjustment of Timing Chain:—Timing chain is adjusted by shifting generator. Loosen the two flange mounting cap screws and the nut on the front side of the flange at the bottom. Loosen the adjusting screw lock nut. Remove the chain inspection hole plug and insert a hook made of a stiff wire bent at right angles $\frac{1}{2}$ inch from the end. This should be worked under chain. To tighten the chain, screw out the generator adjusting screw until there is $\frac{3}{8}$ inch to $\frac{1}{2}$ inch up and down play in the wire. Tighten the lock nut on the adjusting screw and the cap screws and nut holding the generator.

Oiling:—Put 8 or 10 drops of light engine oil in the oiler on the commutator end of the generator every month or each 1000 miles. The drive end bearing is in the engine and is oiled from the chain case.

RELAY:—Model 265-B. Relay is mounted on the generator. Relay contacts close at 570 R.P.M. or 8 M.P.H. when the generator voltage reaches 7.5 volts and open at 510 R.P.M. or 7 M.P.H. with a discharge current of 1-2.5 amperes. Relay contacts separate .015-.025 inch. Air gap is .014 inch with contacts closed. Charging current is approximately 2 amperes at closing of contacts.

LIGHTING:—Soreng Manegold Switch Model 5150. Delco-Remy Dimmer Switch Model 465-C. Lighting switch is mounted on the instrument panel. Dimming is by resistance on the dimmer switch mounted on the toeboard. Headlights are 6-8 volt, 21 cp. S.C. Mazda 1129. Side, dash, dome and corner lights are each 6-8 volt, 3 cp. S.C. Mazda 63. Stop and backing lights are 6-8 volt, 21 cp. S.C. Mazda 1129. Ignition switch light and tail light are in series and are each 3-4 volt, 2 cp. S.C. Mazda 61. Step light on Model 137 is 6-8 volt, 3 cp. S.C. Mazda 63.

CURRENT LIMIT RELAY:—Model 410-B. This device is a vibrating circuit breaker mounted on the dash and connected in the lighting lines. It begins to operate when the current reaches 25-30 amperes and continues limiting the current to 2-15 amperes. Circuit breaker contact gap is .012-.030 inch. Air gap is .019-.025 inch.

FUSES:—Generator field fuse is 5 ampere capacity. Accessory fuses are 10 ampere capacity.