

# MECHANIC'S HANDBOOK

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FORD PASSENGER CARS  
"V8" and "6"



SERVICE  
INFORMATION  
FOR DEALERS,  
INDEPENDENT  
GARAGES AND  
SERVICE STATIONS



**MECHANIC'S  
HANDBOOK  
1949**

**FORD PASSENGER CARS**

**"V-8" and "6"**

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*Ford Motor Company*

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# FOREWORD

This Handbook is intended to provide Ford service personnel, independent garage mechanics and service station employees with preliminary technical information regarding 1949 Ford passenger cars.

The material presented refers, in most instances, to changes in service procedure that are the result of improvements in design and construction.

Complete service and repair manuals for 1949 cars are being compiled and printed, and will be made available as soon as possible.

Meanwhile, this handbook will serve as a valuable source of information and guidance for all mechanics who render service to owners of new 1949 Ford cars.

FORD MOTOR COMPANY  
Service Department

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The Ford "Forty-Niner" Tudor Sedan.

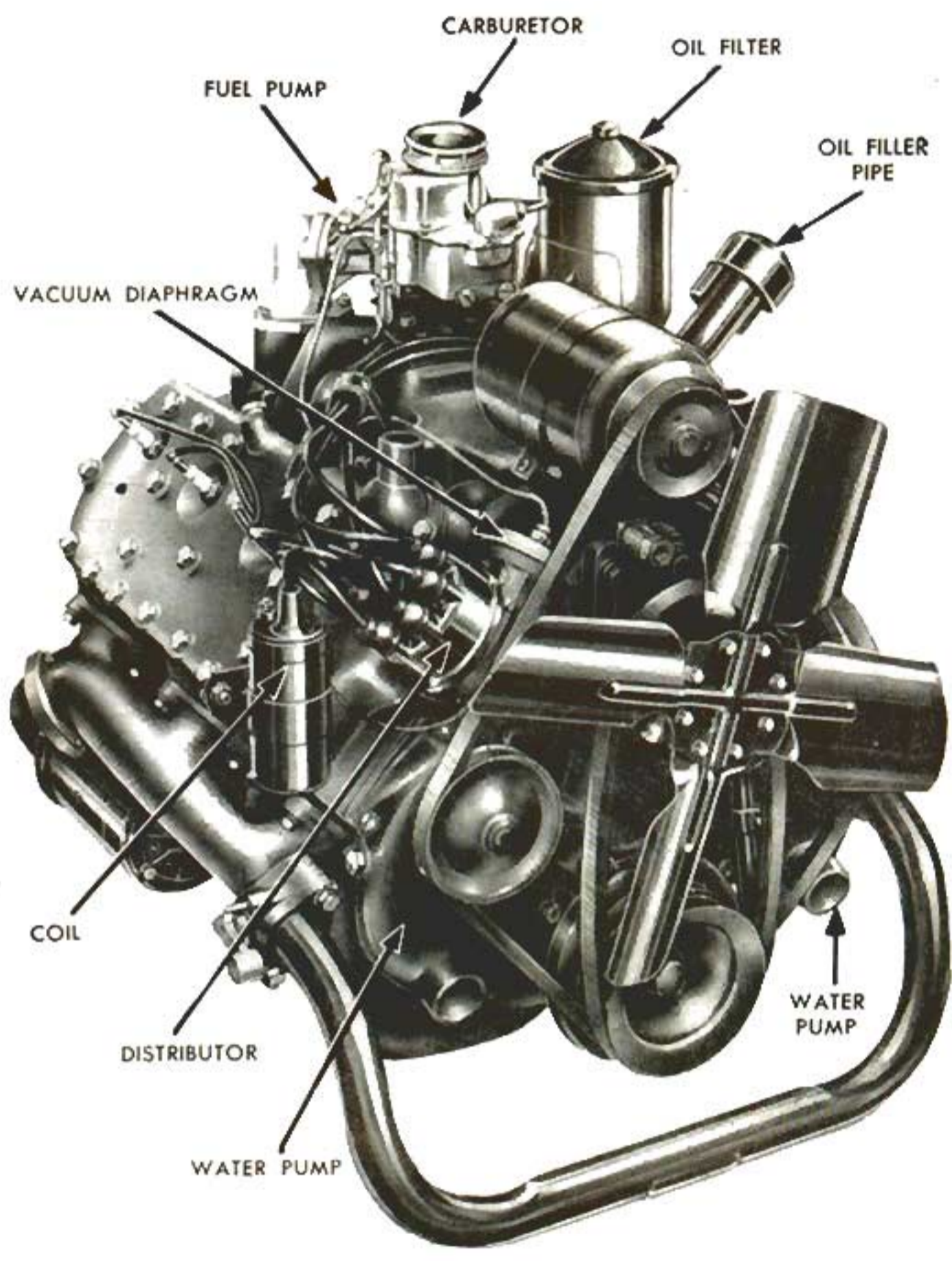
### CAPACITIES:

Fuel	17 gallons
Oil Change	4 quarts "6" and "8"
Water	21 quarts in "8", 16 quarts in "6"
Transmission	4 1/2 pints, with overdrive 4 pints, without overdrive
Differential	3 1/2 pints

### DIMENSIONS:

Wheelbase	114 inches
Tread (front and rear)	56 inches
Length, O.A.	197 1/4 inches
Width, O.A.	73 1/2 inches
Height, unloaded	63 inches
Turning Circle Diameter	41 feet

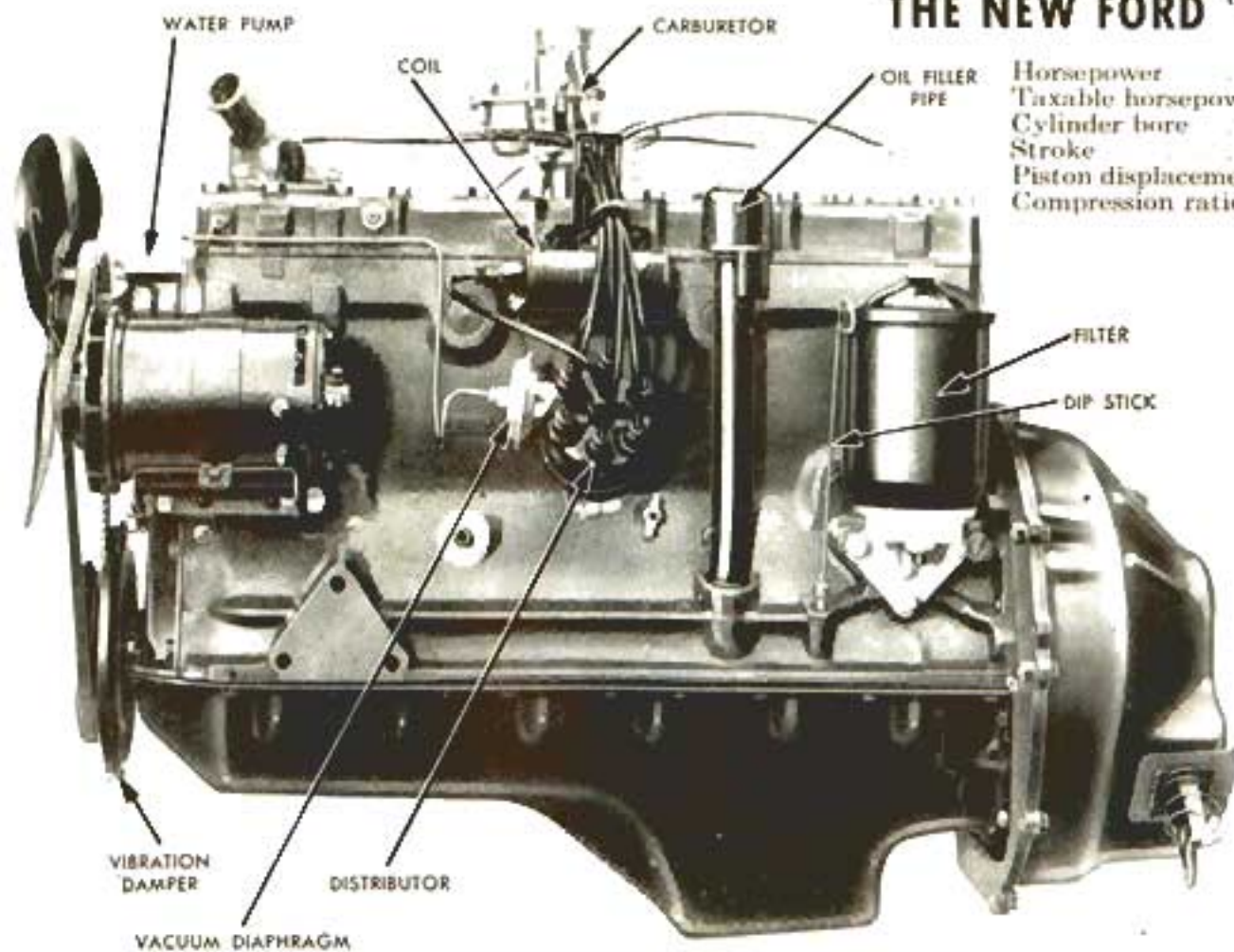




## THE NEW FORD "V-8" ENGINE

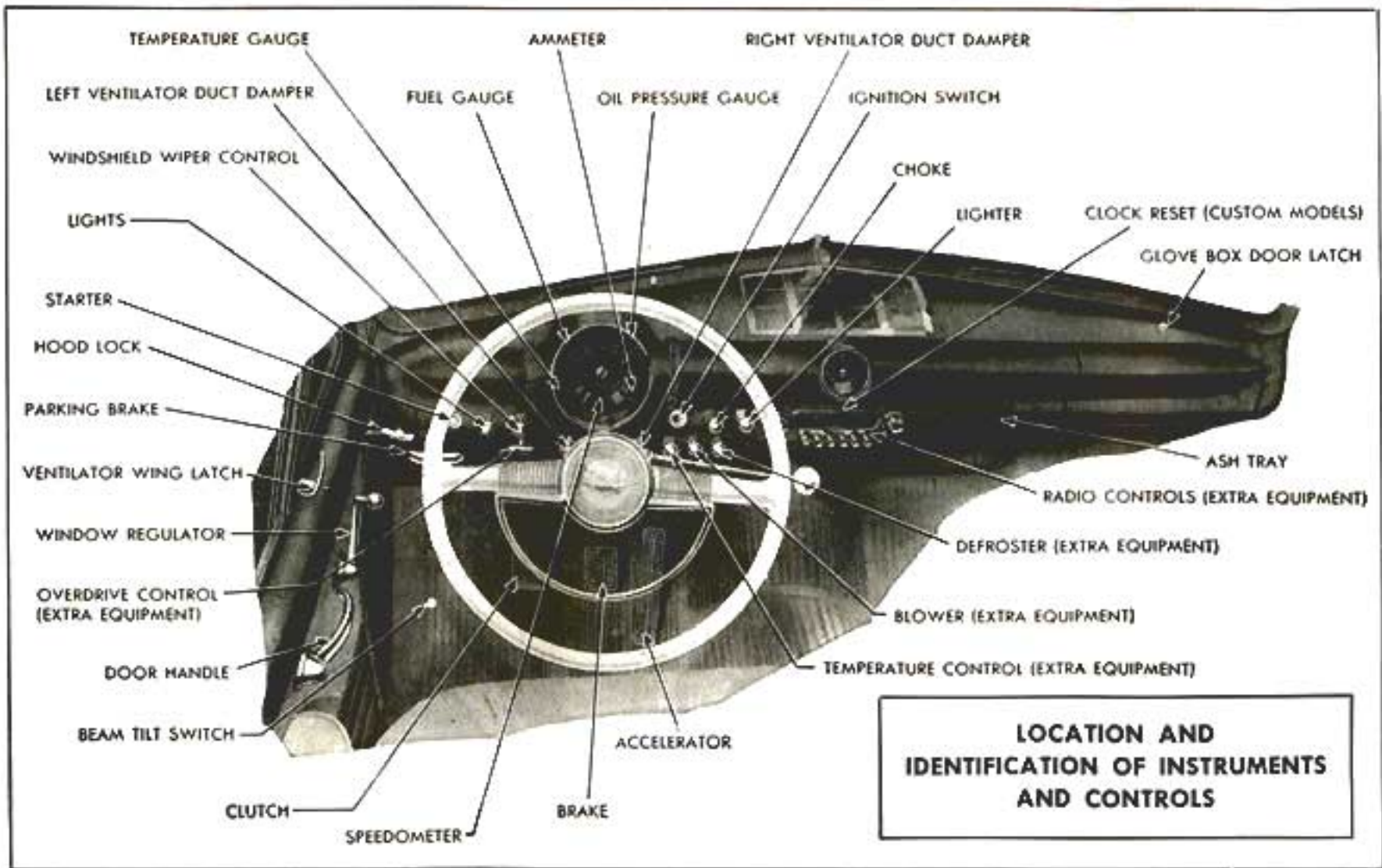
Horsepower	100 at 3600 rpm.
Taxable horsepower	32.5
Cylinder bore	3.187 inches
Stroke	3.75 inches
Piston displacement	239.4 cu. inches
Compression ratio	6.8 to 1

## THE NEW FORD "6" ENGINE



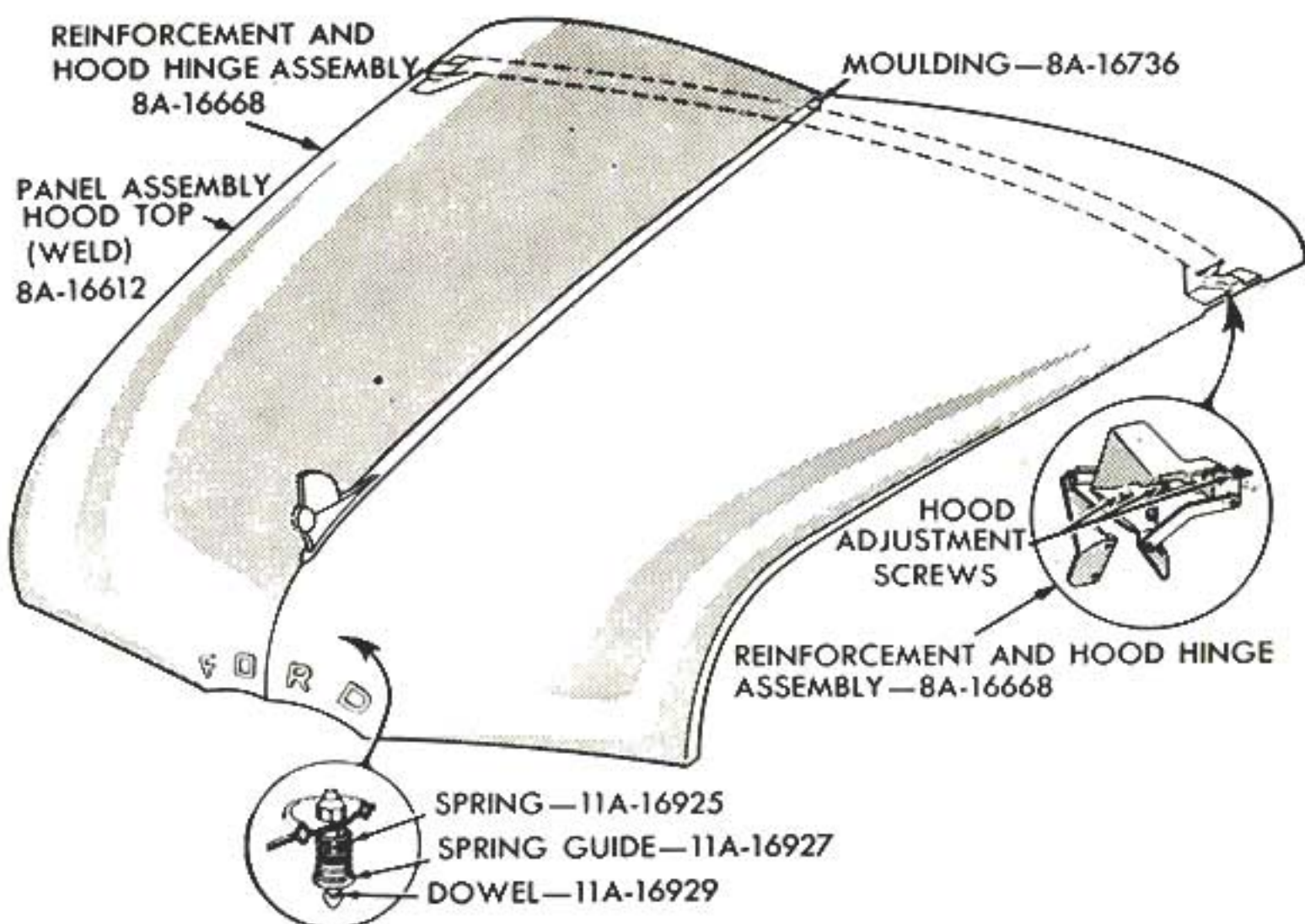
Horsepower	95 at 3300 rpm.
Taxable horsepower	26.13
Cylinder bore	3.30 inches
Stroke	4.40 inches
Piston displacement	226 cu. inches
Compression ratio	6.8 to 1





**LOCATION AND IDENTIFICATION OF INSTRUMENTS AND CONTROLS**





Methods of aligning hood.

## BODY INFORMATION

**Hood Alignment.** Two adjustments are provided to align the hood. One is the latch dowel at the front of the hood, and the other is at each hood hinge.

To adjust the fore and aft movement of the hood, loosen the three screws at each hood hinge bracket, leaving the screws just tight enough to hold the hinge in position.

Lower the hood carefully, and move it backward or forward, until it is in the desired position. Then raise the hood carefully so as not to disturb the alignment and tighten the three screws at each hinge.

The auxiliary hood catch should be checked after making the above adjustment to make sure it will latch properly. If necessary, bend the auxiliary latch to obtain proper alignment.

To adjust the up and down movement of the hood, loosen the lock nut located at the top of the latch dowel. Turn the dowel with a screwdriver until the proper fit is obtained.

If the front of the hood fits too tight, or if hard slamming is required to lock the hood, turn the dowel outward.

If the hood has excessive clearance or is loose on the dowel, turn the dowel inward. Tighten lock-nut after adjustment is obtained.



**Deck Lid Alignment.** Serious misalignment due to an injury can be corrected only by replacing the deck lid, or restoring the shape of the assembly by straightening.

**Deck Lid Striker Plate Adjustment.** The striker plate may be moved up or down as required by loosening the two fastening screws.

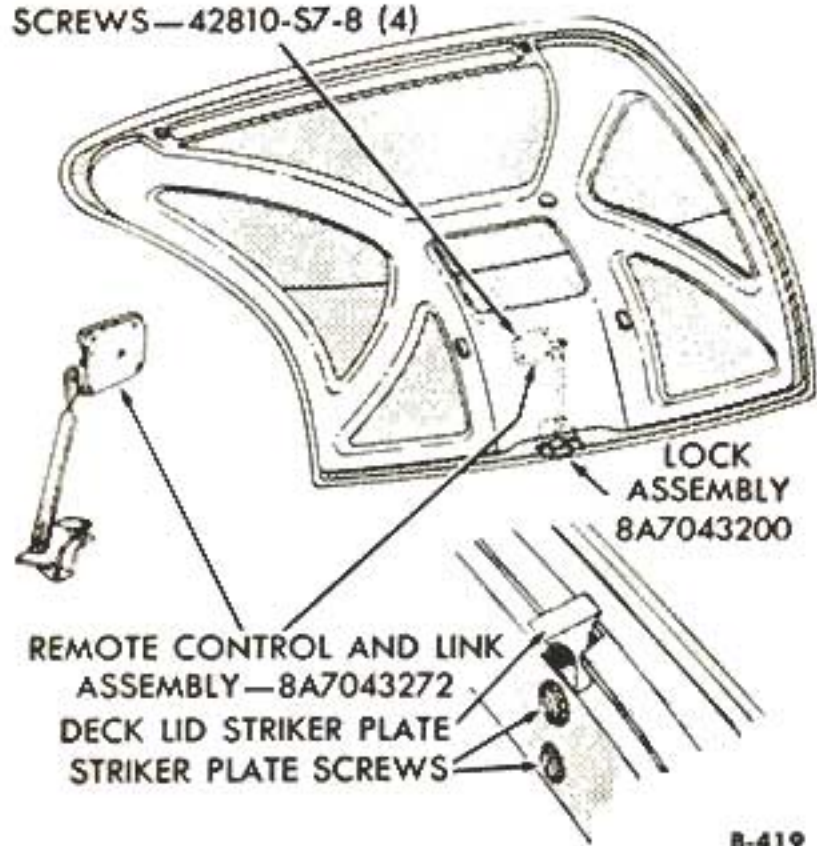
**Deck Lid Lock Assembly.** In order to remove the lock assembly, first take off the handle and remove the four screws that hold the remote control assembly to the deck lid. This will permit the remote control assembly to drop and free the link so that enough clearance is obtained to take off the lock assembly.

**Door Striker Plate Adjustment.** By loosening the four screws that fasten the plate to the pillar, an up and down adjustment can be made to aid in aligning the top of the door. The door should be lined up first, and then the striker plate adjusted up or down until the bottom of the latch housing will rest on the bottom of the striker plate.

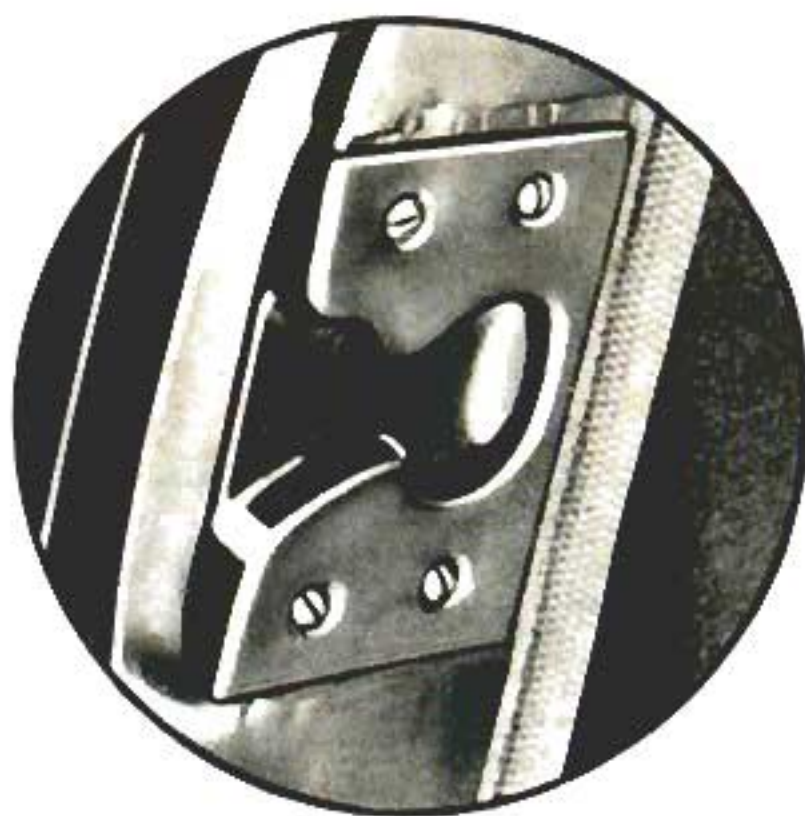
**Replacing Windshield Glass.** In 1949 Ford cars, windshield glass is removed and replaced from the outside. The procedure is as follows: remove the screws holding the garnish moulding around the glass. Remove the vertical center strip moulding screws. The removal of these screws will release the center strip on the front of the windshield. Remove the wiper blades and arms. Starting at the edge of the glass nearest the car door, lift the rubber lip of the moulding over the retaining flange of the body with a screwdriver.

When the outer edge of the rubber moulding is released, press the

SCREWS—42810-S7-8 (4)

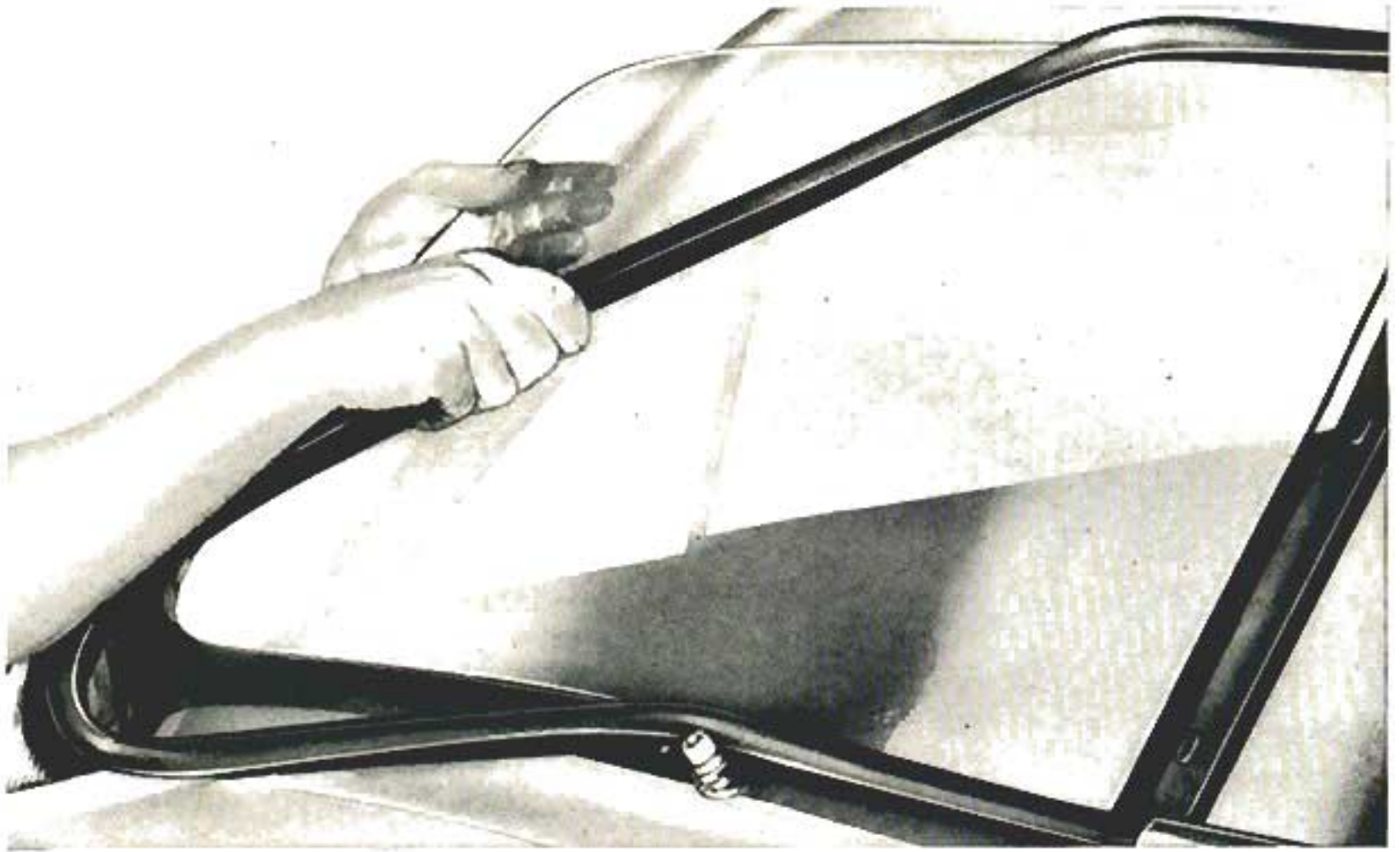


Adjusting Screws for Deck Lid Striker Plate.



Adjusting Screws for Door Striker Plate.





**Windshield Glass is Removed and Replaced from the Outside.**

glass outward with the palm of the hand. If the glass will not press out, it may be necessary to lift the rubber lip of the moulding over the body flange around the complete outer edge of the glass. The chrome trim moulding and windshield glass can now be removed from the rubber moulding.

**Windshield Glass Installation.** Clean the glass channel and the body flange channel of the rubber moulding and coat them with a suitable sealing compound.

Insert the glass into the center section of the rubber moulding and stretch it around the glass. Be certain the glass is well imbedded in the rubber channel. Install the chrome trim moulding. Insert a strong cord completely around the outer channel of the rubber moulding, into which the retaining flange of the body will fit. A light application of liquid soap on the rubber moulding will facilitate installation. Do not use oil or grease. Press the glass firmly into the body frame. Hold the glass in position with one hand, and reach through the door window and pull the cord with the other hand.

When the cord has been withdrawn, strike the glass with the palm of the hand to seat the rubber moulding firmly over the retaining flange. Install the vertical center mouldings. Have an assistant hold the outer moulding in place while the inner moulding and screws are installed. Do not tighten screws excessively.

Install the garnish mouldings, again being careful not to tighten screws excessively.



# IGNITION SYSTEMS

Six-cylinder and eight-cylinder engines are equipped with a new type of distributor, located to provide for easy accessibility. This distributor can be timed on the engine. Automatic spark advance is accomplished by a vacuum diaphragm which moves the breaker plate assembly, advancing the spark. No centrifugal governor or vacuum brake is used.

The vacuum employed is not manifold vacuum; in fact, if the distributor were inadvertently connected directly to the manifold, damage may occur to the diaphragm.

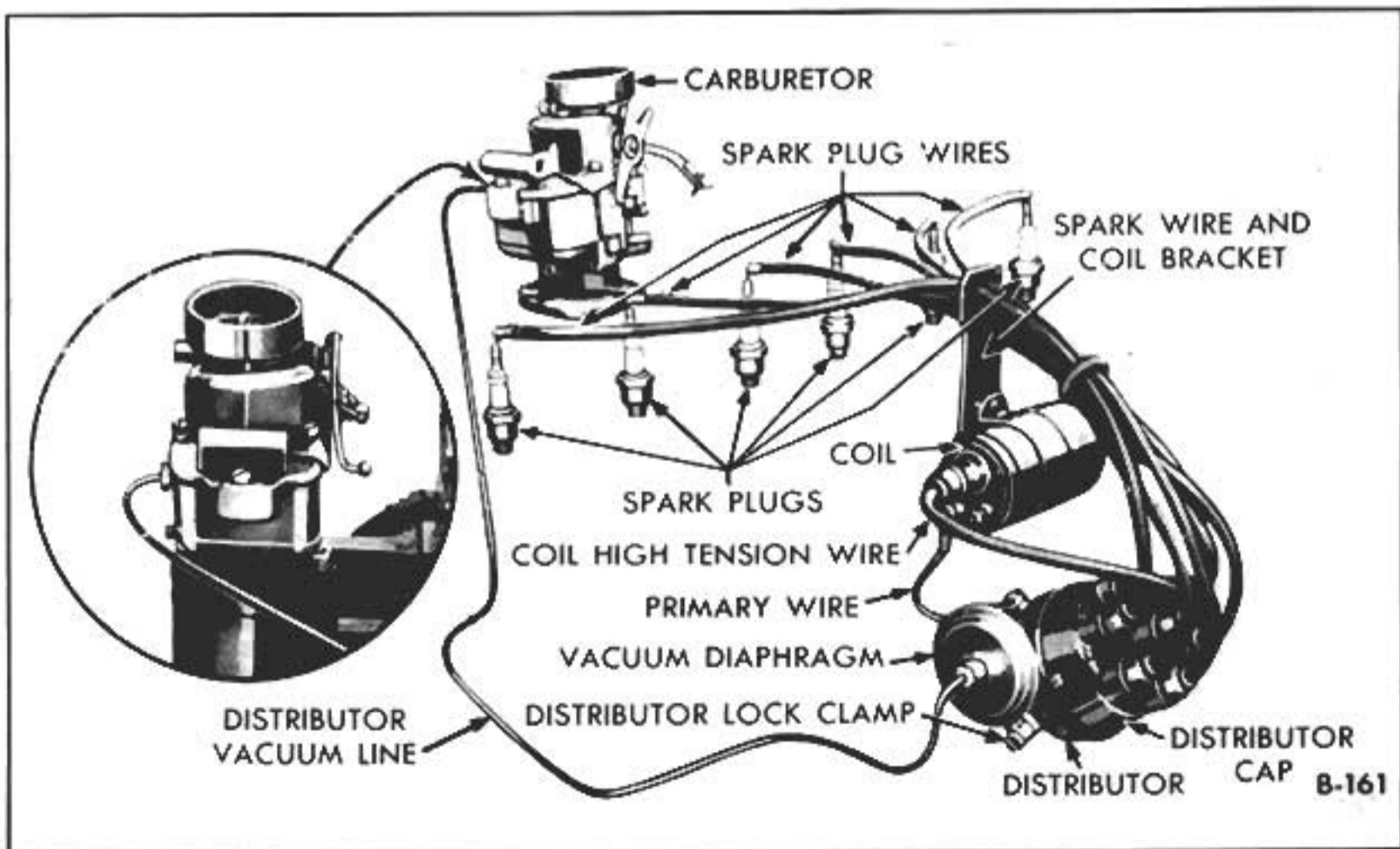
During part throttle operation at any speed, the spark will become fully advanced at 18 to 35 miles per hour.

The degree of retard at any vacuum is controlled by two springs, which are adjusted in manufacture to obtain the desired characteristics.

These springs should not be changed in service except with the aid of a distributor stroboscope.

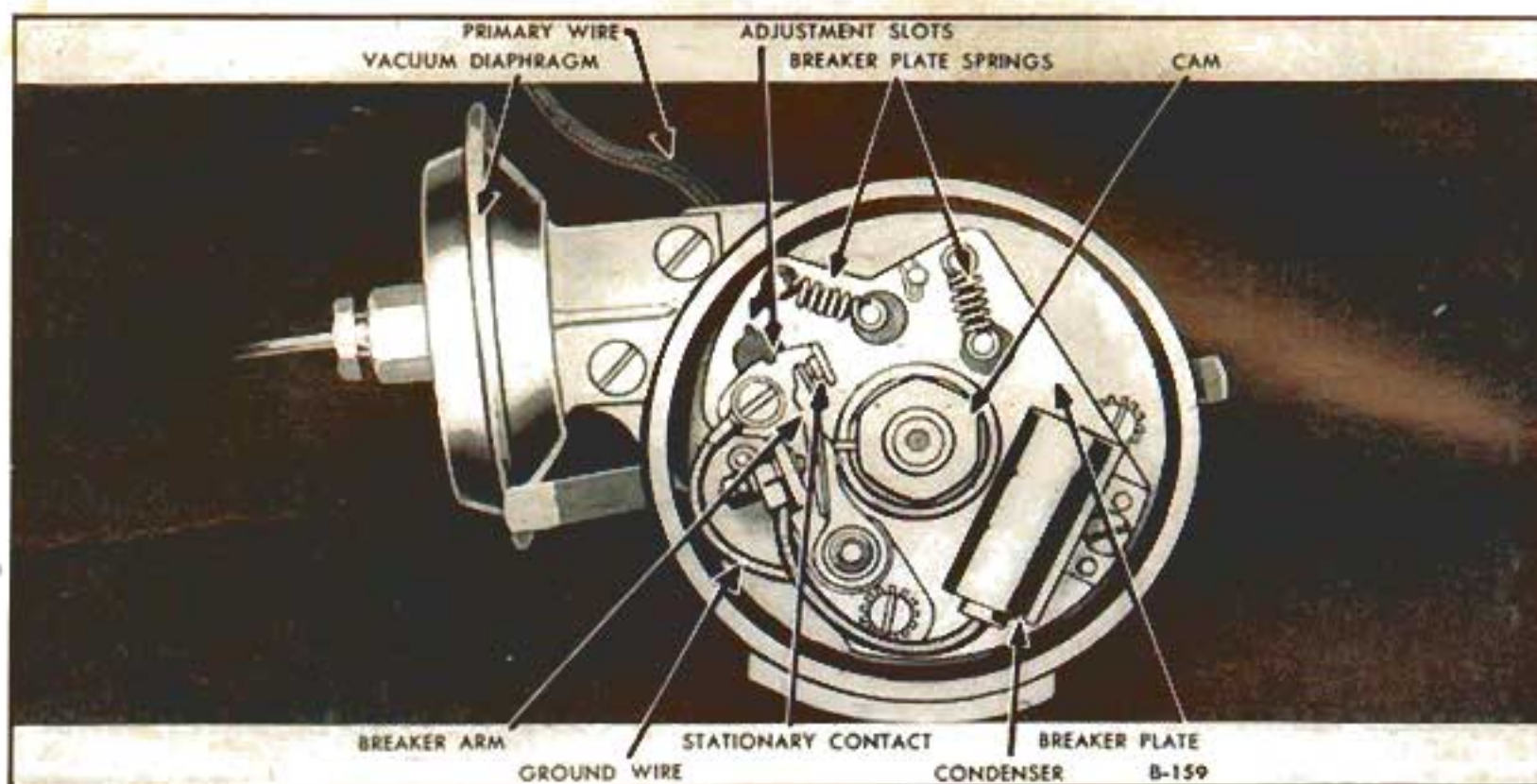
## TIMING

The vibration damper on the "6" has a grooved timing mark. On the "V-8", there is a spherical mark on the crank shaft pulley. When the mark is in line with the pointer, either No. 1 or No. 6



Ignition System for 6-cylinder Engine.





**Distributor for 6-cylinder Engine.**

piston is in the position at which ignition should occur. This is true of both engines.

To time the engine, switch off the ignition and turn the engine until the timing mark is at the pointer. This may be done by turning the fan.

Loosen the distributor lock plate screw, and turn the entire distributor counter-clockwise approximately 15 degrees. Remove No. 1 and No. 6 spark plug wires and lay them on the cylinder head.

Switch on the ignition, and slowly rotate the distributor clockwise until a spark occurs at one or the other of these wires. Lock the distributor in this position.

**CAUTION:** Do not hold wires to spark plugs. This might cause the engine to fire.

**Contact Spacing and Distributor Dwell.** Correct contact spacing and distributor dwell are as follows:

Part Number	Spacing (Inches)	Dwell (Per Cent)	
		Minimum	Maximum
(6-cyl.) 7HA-12127	0.024 to 0.026	57	62
(8-cyl.) 7RA-12127	0.014 to 0.016	60	65

**Adjusting Contact Gap.** To adjust the contact gap, loosen the stationary contact lock screws slightly, and insert a screwdriver blade of the proper width in the adjusting slot. Turn the screwdriver to move the contacts to the desired spacing, and tighten the lock screws. Always retune the ignition after changing the contact gap.

**Spark Plug Wires.** These are supported by the coil bracket, and are not encased in a conduit. When installing, always have the



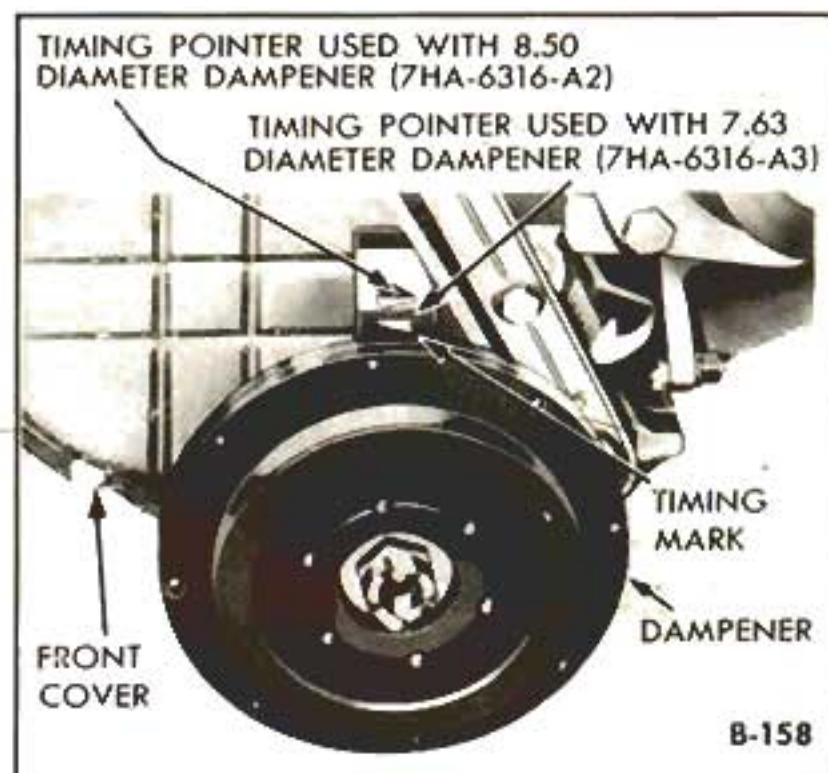
longest wires at the top of the slots to provide the maximum support for them.

**Spark Plugs.** Spark plugs are 14 MM, Ford Part No. 7RA-12405, or equivalent. Gap setting is .030".

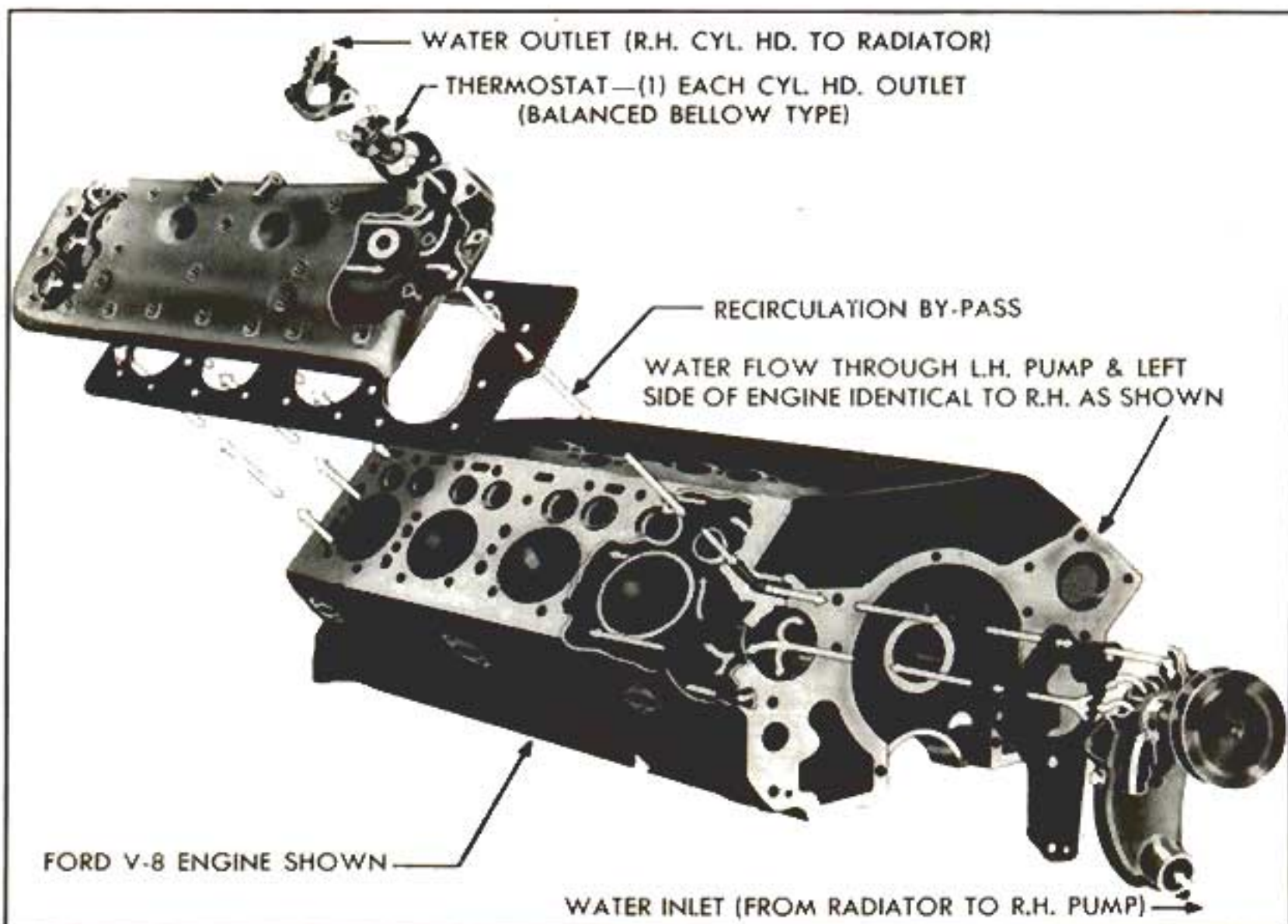
## COOLING SYSTEM

Both 6-cylinder and 8-cylinder engines in 1949 Ford cars have "full-flow" cooling. In this system, water circulates from the pumps at the front through the entire length of the cylinder block, thence upward into the cylinder head, and back through the head to the radiator. A recirculation bypass is located near the water outlet.

The 6-cylinder engine is equipped with one pump of the ball bearing type with sealed-in lubrication. This eliminates the need for greasing.



Timing mark and pointer on 6-cylinder Engine.



The "V-8" Full-Flow Cooling System.



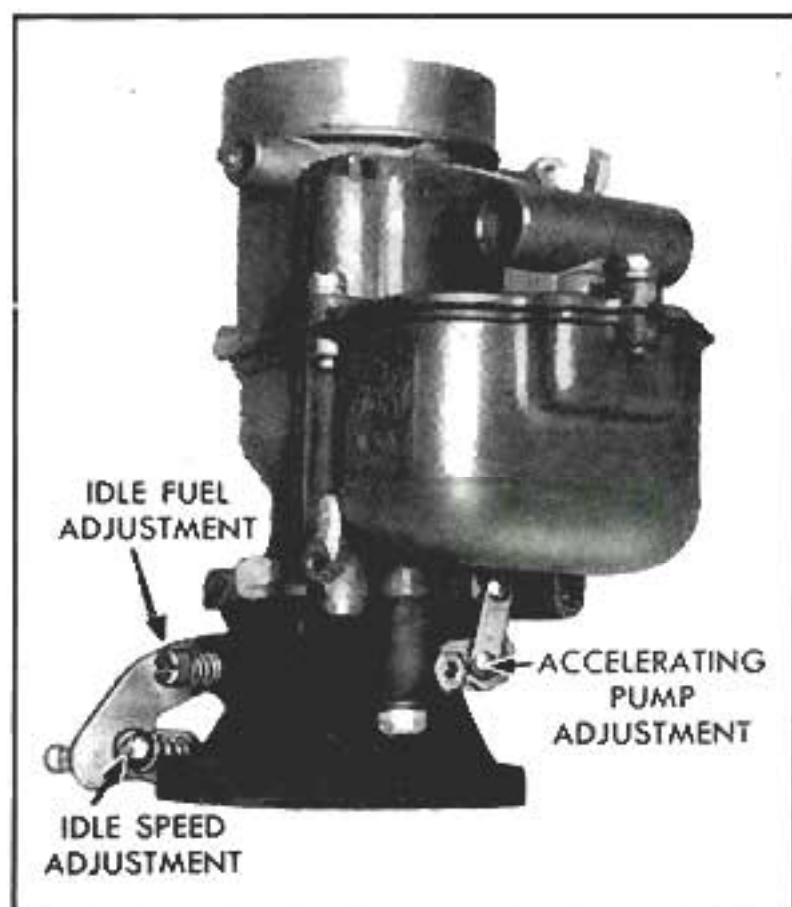
The 8-cylinder engine has two pumps, one serving each bank of cylinders. These pumps are also of the ball bearing type, but in addition, there is a bushing located ahead of the seal. An oil cup is provided for lubricating this bushing.

## CARBURETION

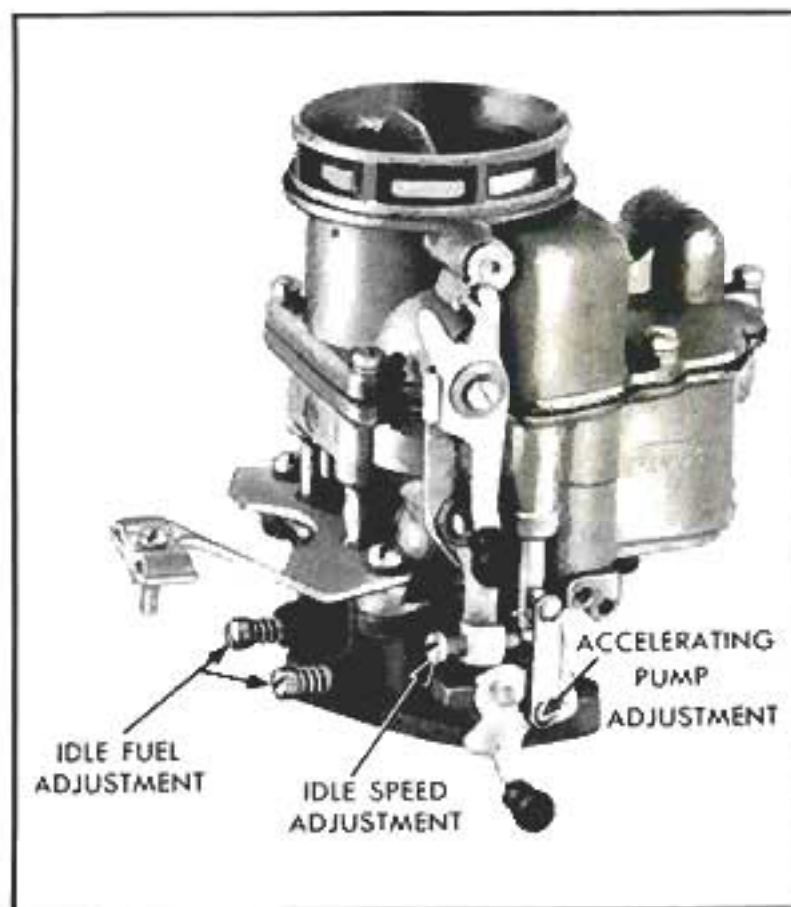
**Idle Fuel Adjustment.** Make the initial fuel adjustment with the engine stopped. Turn the idle fuel adjusting screws clockwise until they seat lightly. Then turn them out approximately one turn. Note: The 6-cylinder carburetor has only one idle fuel adjustment screw.

Start the engine and run it at idle speed until it reaches normal operating temperature. Adjust the idling speed stop screw until the engine runs at approximately 500 revolutions per minute. Adjust one fuel adjusting screw at a time.

Turn the adjusting screw slowly until the engine begins to run unevenly; then slowly turn the screw out again until the engine begins to "roll". Finally, turn the adjusting screw in again just enough so that the engine runs smoothly. This adjusts the mixture for one side of the 8-cylinder engine. Follow the same procedure for the opposite side. Reset the idle speed adjustment, if necessary.



Carburetor Adjustments—(6-cyl.)



Carburetor Adjustments—(V-8).



## ACCELERATING PUMP

The accelerating pump is provided with an adjustment for varying the quantity of the accelerating charge. This adjustment is made by changing the position of the pump link. The center hole is the average setting. The inner hole nearest the shaft is the hot weather setting, and the outer hole is the setting for extremely cold weather.

## FUEL SYSTEM

The fuel pump operating pressure on the "6" is 4 to 5 pounds. On the "V-8", it is 3½ to 4½ pounds. This increased pressure, together with large (5/16") gasoline lines, reduces the possibility of vapor lock. A removable floor plate is provided in the floor of the luggage compartment to give access to the gasoline tank gage.

## ENGINE OILING SYSTEM

The engine oiling system supplies oil under pressure to the main bearings, lower connecting rod bearings and camshaft bearings. Timing gears and the distributor drive gear on the "V-8" engine are lubricated through an oil passage in the forward end of the camshaft. On the 6-cylinder engine, the timing gears receive oil sprayed through the camshaft thrust plate.

Other parts on both engines are lubricated by splash and oil vapor.

Engine oil should be changed according to the conditions under which the car is used, rather than according to mileage. If operating conditions are such that the engine is kept at normal operating temperature for sustained periods, only occasional changes of oil may be necessary.

However, if average driving involves mostly short trips, during which the normal engine operating temperature is not long sustained, it is advisable to change oil frequently.

### ENGINE OIL SPECIFICATIONS

Summer weather (above freezing)	SAE 20 or No. 20W
Winter (below freezing)	SAE 10 or No. 10W
Colder than 10 below zero	SAE No. 10W plus 1 pint of kerosene.

The oil filter cartridge should be replaced whenever the presence of black, dirty oil on the dip stick indicates that the filter is clogged with impurities. After replacing cartridge, run engine, check for leaks at filter and recheck oil level.



# BATTERY, GENERATOR AND REGULATOR

The battery is a 17 plate, 100 ampere hour unit, located under the hood at left side of engine.

The generator is of the 2-brush type with an output of 30 amperes, 7.0 volts at 1850 revolutions per minute. A universal mounting is provided so that generators of higher rating can be installed easily.

The generator regulator consists of two vibrators that interrupt the generator field circuit when predetermined maximum voltage or current is reached.

Testing, adjustment and repair of the generator regulator should not be undertaken by anyone but a qualified electrical mechanic who has access to the special tools and equipment necessary for doing this work.

At normal engine operating temperature, the following limits are recommended.

Current control unit . . . . .	30—34 amperes
Voltage control unit . . . . .	7.2—7.6 volts (domestic) 7.0—7.4 volts (tropical)
Cut-out unit . . . . .	Closing . . . . . 6.6—7.0 volts Opening . . . . . 8 Amp. Maximum Reverse current @ 6.7 volt

## STARTING SYSTEM

The starting motor has two field coils parallel to each other and in series with the armature.

It is characteristic of such a motor that, as the speed increases, current consumption decreases and less power is developed.

The starter is actuated through a relay by a starter button on the instrument panel.

**Starting Motor Spins But Does Not Crank Engine.** To correct this condition, remove the starting motor and clean the starter drive, and/or replace worn or damaged parts as required. Caution: Do not oil the starter. Clean the drive in a solvent; it should work freely when dry.



**Engine Cranks Slowly With the Clutch Released.** Check to make certain that the viscosity of the engine oil is correct for the prevailing temperature.

Test the state of charge and condition of the battery. If this is found satisfactory, remove the cable from one side of the starter relay and contact the loose end of the cable against the terminal on the other side of the relay.

If the cranking speed is now normal, replace the starter relay. If the cranking speed is still slow, repair or replace the starting motor.

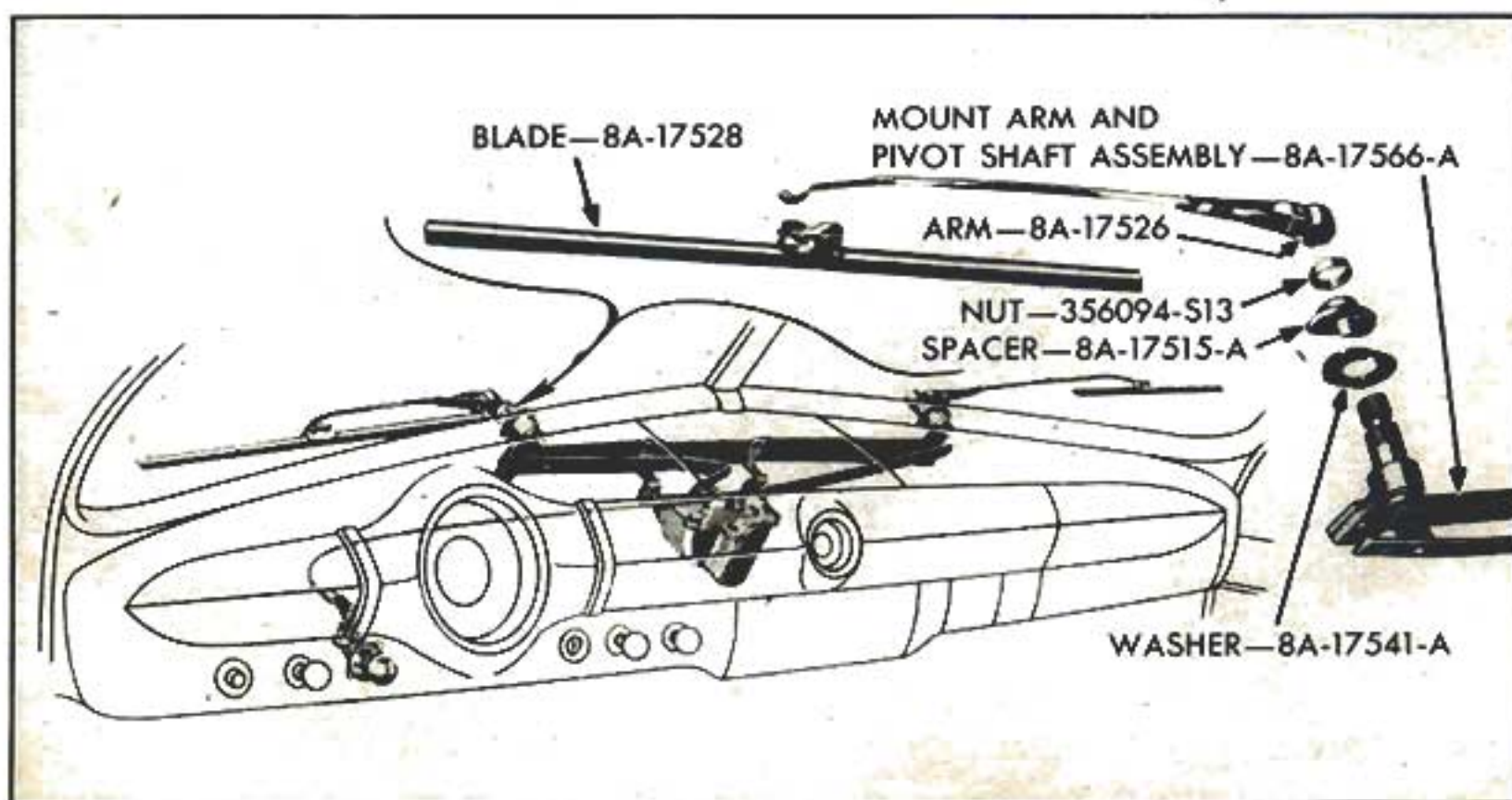
## WINDSHIELD WIPERS

Windshield wipers are operated by a vacuum type motor mounted under the cowl, where it is accessible from the driver's compartment for service. The two wiper blades are operated by link arms, so that their movements are always synchronized.

The wiper control button is mounted on the instrument panel at the left of the steering column.

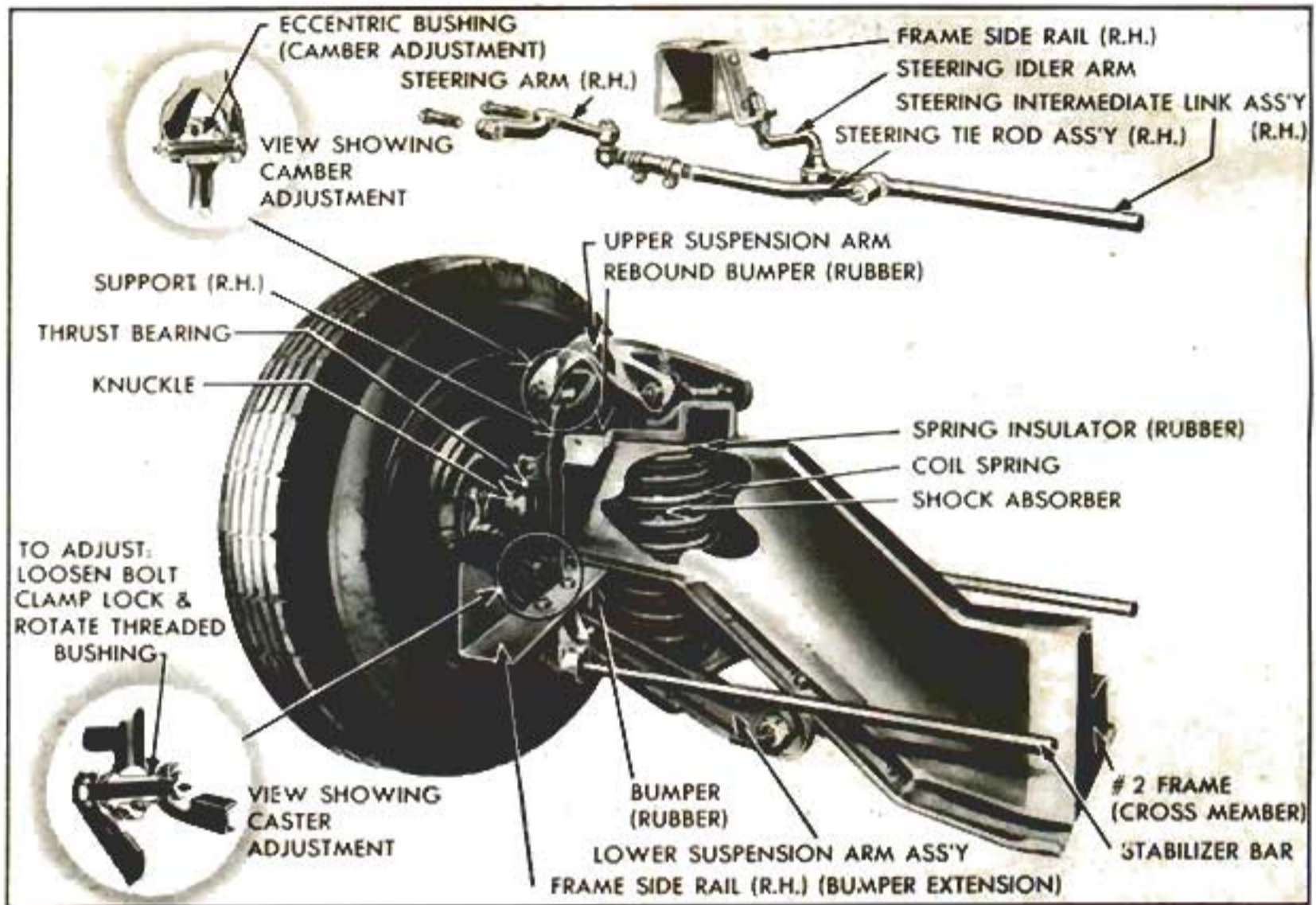
**Wipers Do Not Operate.** Check the vacuum hose for leakage at the manifold connection and the wiper motor connection. If the hose is deteriorated at these points, cut off the damaged portion, and reconnect. Make sure that the link arms are on the crank pins and properly locked in position.

If this does not correct the trouble, repair or replace the motor.



Windshield Wiper Assembly.





**Independent Front Suspension with Coil Springs.**

## FRONT SUSPENSION

The 1949 Ford is equipped with independent front suspension of the "wishbone" type, equipped with coil springs. Front shock absorbers are mounted inside the coil springs.

Camber is adjusted by means of an eccentric bushing at the upper pivot pin. To increase or decrease camber, loosen the bolt clamp and turn bushing as may be required. Then tighten bolt clamp. A special tool (Part No. 3046-N) will help to perform this operation.

Caster is adjusted by means of a threaded bushing at the lower pivot pin. To adjust, loosen bolt clamp and rotate bushing as required. Be sure to tighten bolt clamp after adjustment. A special tool (Part No. 3089-N) will help to perform this operation.

Toe-in is adjusted by means of turnbuckles on the right hand and left hand steering tie rods. To adjust, loosen clamps and turn as may be required to equally lengthen or shorten tie rods. Be sure to tighten clamps when correct adjustment is obtained.

### STANDARDS

Camber—Minus  $\frac{1}{4}$  to minus  $\frac{3}{4}$  degrees.

Caster—Zero to minus  $\frac{3}{4}$  degrees.

Toe-in— $\frac{1}{16}$  inch to  $\frac{1}{8}$  inch.

King Pin Inclination—5 degrees.



**IMPORTANT:** Special precision equipment is essential for checking wheel alignment, and the adjustments outlined above should not be attempted unless such equipment is available.

Front shock absorbers may be dismantled by removing the nut at the top of the absorber housing, and taking out two cap screws in the bottom retainer plate. The shock absorber then may be withdrawn through the bottom. It is not necessary to jack up the car, and no adjustments are disturbed.

To remove the coil spring, first dismount the shock absorber. Then place a jack under the frame cross member and raise car until wheel is free. Place another jack under the lower pivot shaft, and remove the four bolts that fasten it to the cross member. Take out one bolt at each end and use drifts in the holes while the other two bolts are removed.

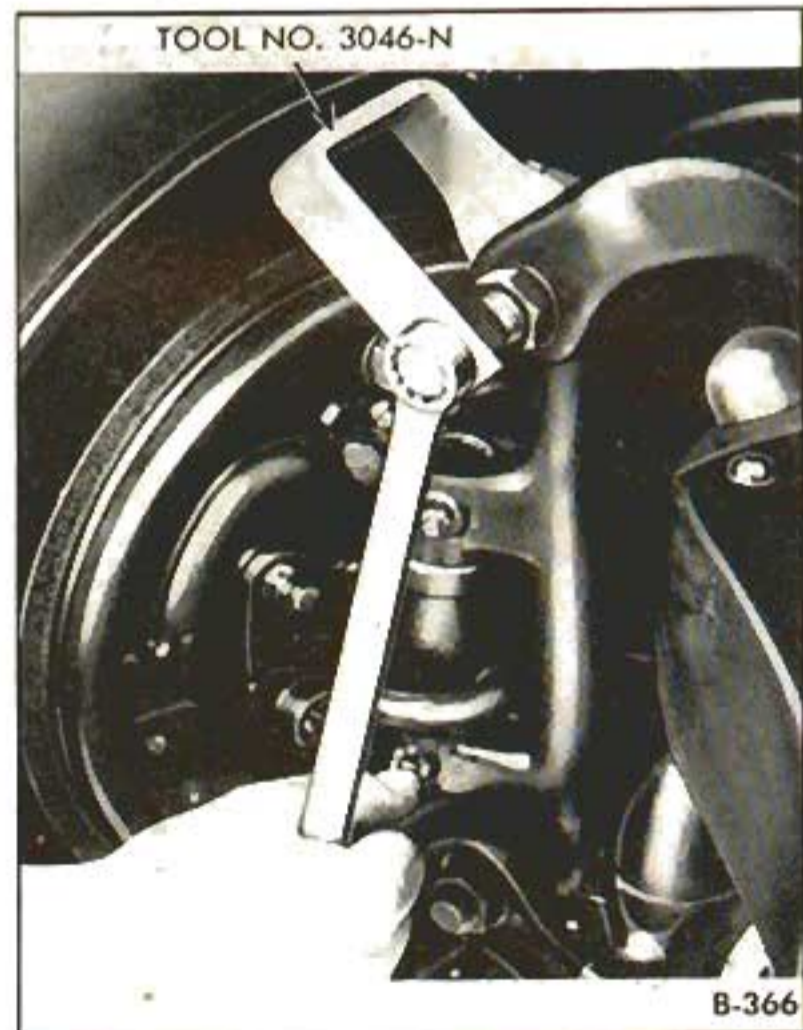
Remove the clip at the end of the stabilizer bar, and pry the bar free from the channel of the lower suspension arm. Carefully lower jack under pivot shaft until compression of coil spring is relieved sufficiently to remove it.

When reinstalling a coil spring, be sure that the flattened end is at the top against the rubber spring insulator.

**CAUTION:** If a coil spring is replaced because of a sagging condition, wheel alignment should be checked and adjusted afterward.

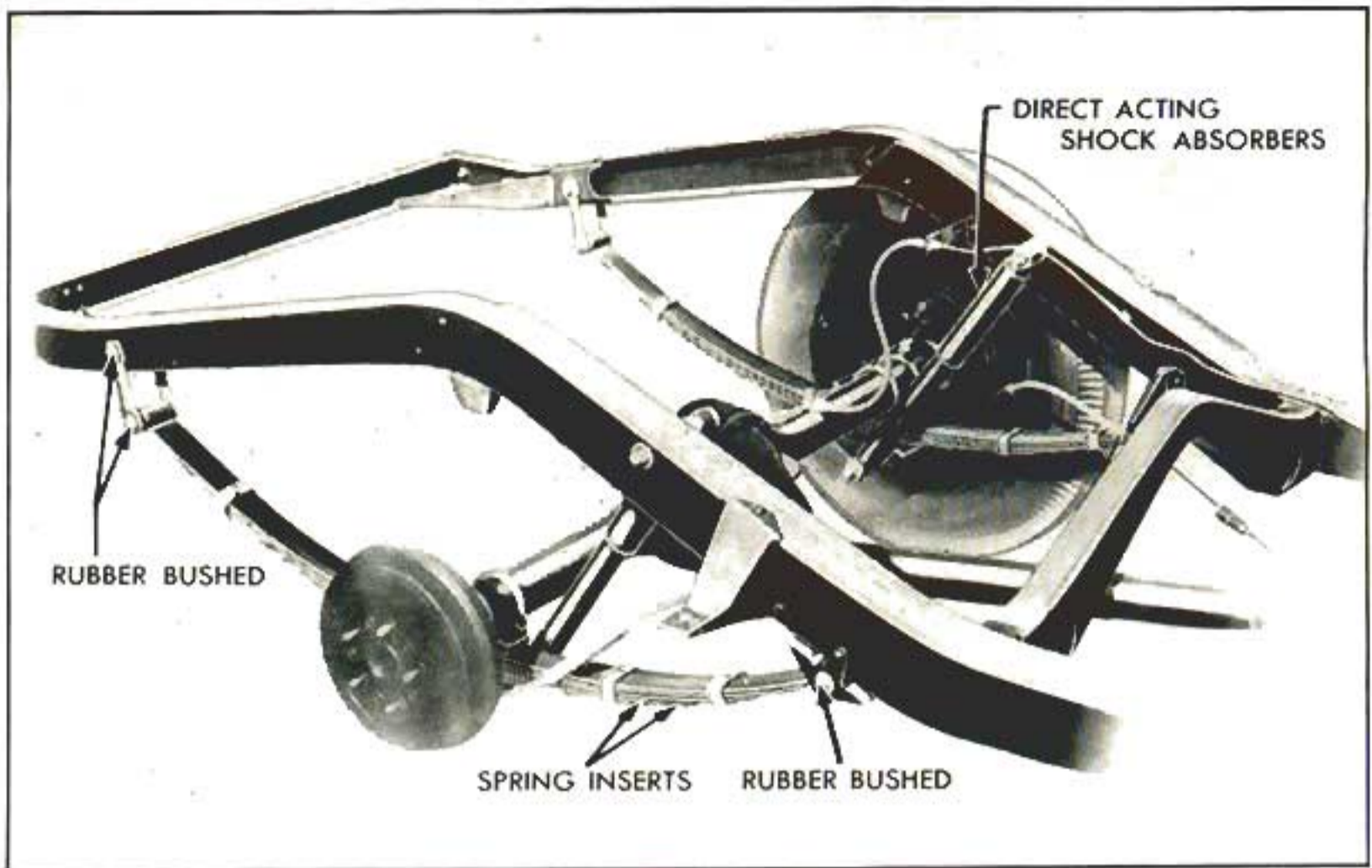


Method of Adjusting Caster.



Method of Adjusting Camber.





**Rear Suspension Employs Hotchkiss Drive.**

## **REAR SUSPENSION**

Rear suspension on the 1949 Ford is of the Hotchkiss drive type, replacing the single, transverse cantilever spring used on past models.

The new design employs two, 50" longitudinal springs, 2" wide, with wax impregnated fabric inserts between leaves to eliminate the need for greasing or spraying with lubricant.

The fixed end shackles and the compression shackles at the rear of the springs are equipped with flanged type rubber bushings, which require no lubrication.

It is important that these rubber spring mountings be kept tight. Squeaks are a sign of looseness, and if tightening does not eliminate the condition, the mountings should be replaced. Do not lubricate the spring leaves or the shackles.

## **REAR SHOCK ABSORBERS**

Rear shock absorbers are of the direct acting type. They are attached to the spring plate and tilted forward to the frame kick-up ahead of the axle center. They may be dismantled for service or replacement by removing one nut at each end of the shock absorber.



## REAR AXLE

A new, low-weight, carrier-type gear set is used in 1949 Ford cars. The axle housing is of the banjo type, with rear cover welded in place for extreme rigidity.

This new design employs hypoid gears, with a ring gear approximately 8¼" in diameter, and a two-pinion differential with moulded fibre thrust washers. The drive pinion is mounted on tapered roller bearings with a take-up sleeve between them.

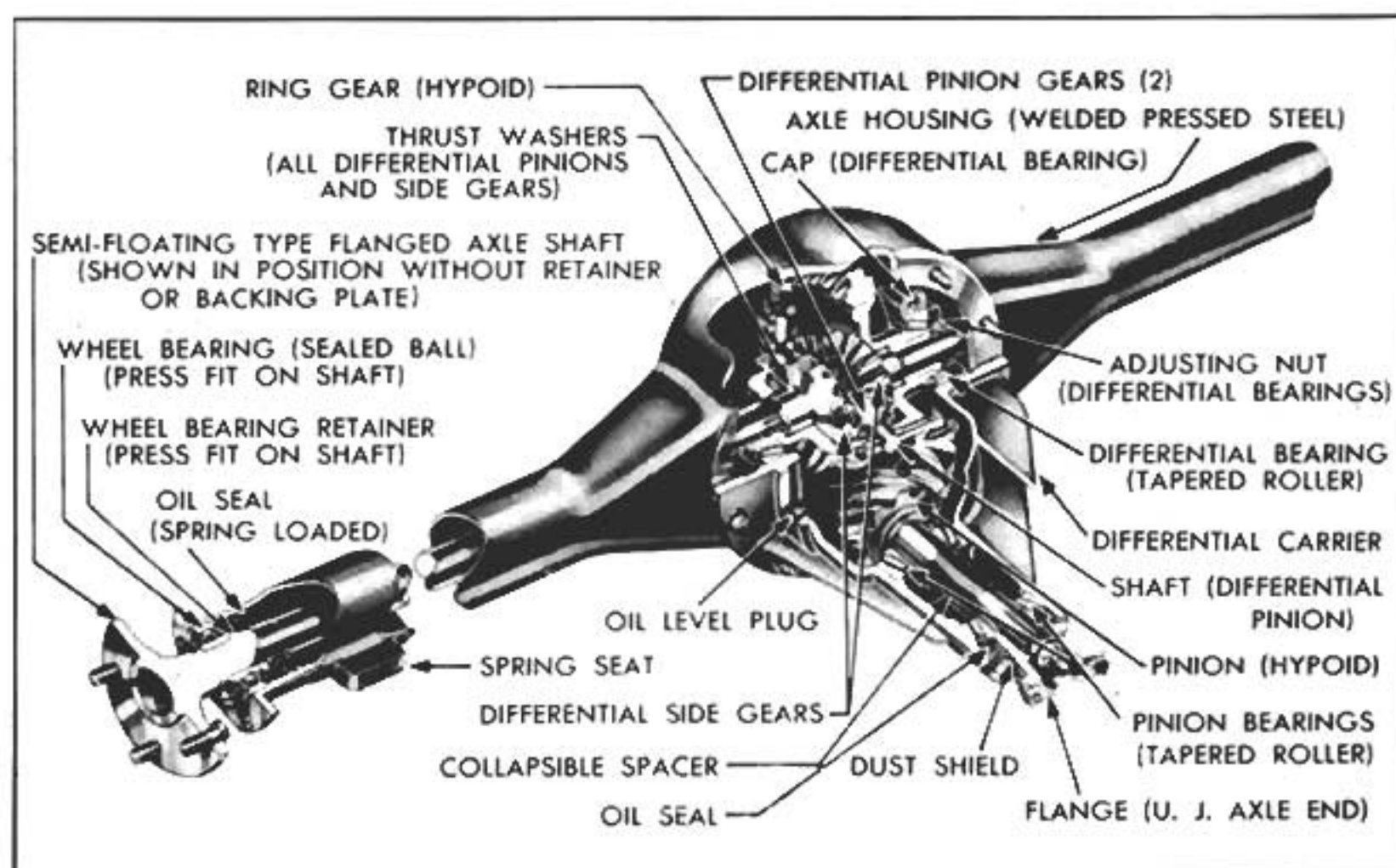
The gear set can be serviced by disengaging the drive shaft at the rear universal, pulling the axle shafts, and removing the carrier from the housing.

The rear axle shaft and hub are an integral forging, which eliminates the need for fitting hubs on a taper with a key. Wheel bearings are of the sealed-in type, and require no lubrication.

### GEAR RATIO

Standard	. . . . .	3.73 to 1
Optional	. . . . .	3.54 to 1
Optional	. . . . .	4.1 to 1

**IMPORTANT:** Hypoid lubricant must be used in the rear axle of 1949 Ford cars. The use of any other lubricant, not specifically designed for Hypoid gears, will result in serious damage to the final drive assembly.



Exploded View of Hypoid Rear Axle.

For summer and winter, use Hypoid Gear Oil, SAE 90, except for temperatures lower than 10 degrees F. below zero, when Hypoid Gear Oil SAE 80 should be used.

### **DRIVE SHAFT AND UNIVERSAL JOINTS**

The drive shaft, which is 56 inches long and  $2\frac{3}{4}$  inches in diameter, has standard needle bearing universal joints at each end. There is a splined slip yoke inside the transmission extension, and a flanged coupling on the rear axle pinion shaft.

The drive shaft may be removed by taking out the four cap screws at the flanged coupling, and sliding the forward end of the shaft free of the splines in the transmission extension.

## **CLUTCH**

If the clutch slips, adjust the clutch pedal to obtain 1.0 inch free travel. This adjustment is made by removing the clevis pin and turning the release arm rod clockwise or counterclockwise, as may be required, to increase or decrease the amount of clutch pedal free travel.

If, after this adjustment has been made, the trouble persists, the clutch assembly should be removed from the car for necessary repairs and replacements. In 1949 Ford cars, the clutch may be removed without raising the engine.

## **TRANSMISSION**

The design of 1949 Ford cars makes it possible to dismount the transmission quickly and easily. First, the drive shaft is removed by uncoupling the rear universal joint and sliding the shaft out of the transmission extension. Next, the transmission, clutch and speedometer linkage are disconnected.

Place a jack or other suitable support under the rear end of the engine pan. Remove the two cap screws that anchor the transmission extension to the frame cross member. Finally, the four cap screws that mount the transmission on the clutch housing are removed, permitting the transmission to be taken out of the chassis.

**Adjustment of Shift Lever.** Adjustments of the transmission operating rods to center the shift lever in neutral are provided at the steering column ends of the rods.

After disconnecting the clevises from the shift levers, the clevises are turned clockwise or anticlockwise, as may be required, to obtain the desired position of the shift lever.



# BRAKES

Service brakes are Hydraulic Duo-Servo type, with hydraulic lines  $\frac{3}{16}$ " in diameter.

The independent parking brake operates by means of flexible cables to the rear brake shoes. An intermediate lever is provided to secure the desired pull-travel ratio, and also to adjust slack in the flexible cables.

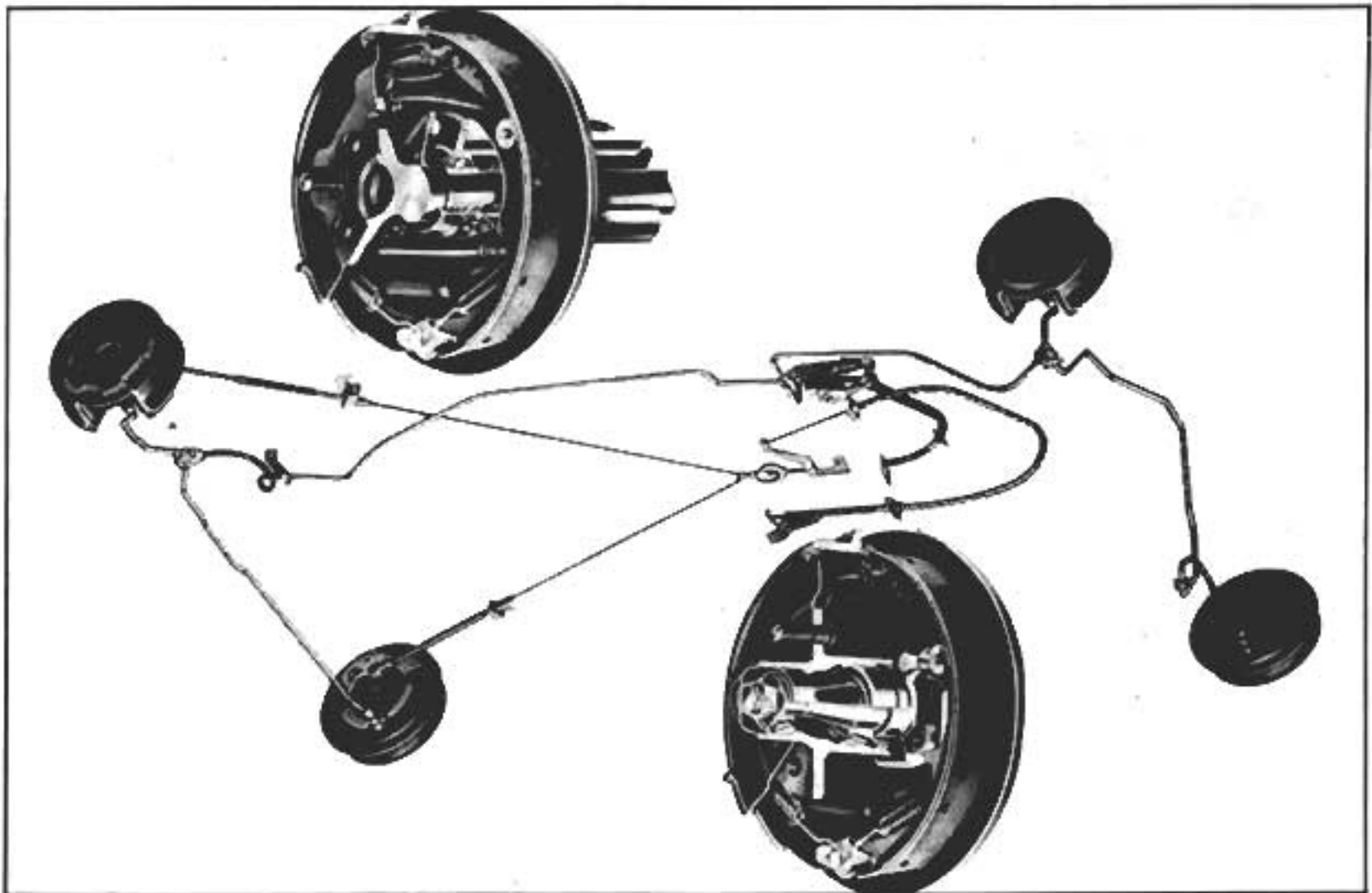
## MINOR BRAKE ADJUSTMENT

To determine if a minor adjustment is adequate, remove one front wheel, and examine for the following conditions:

- (1) Brake drum scored, out-of-round, or bell-mouthed.
- (2) Lining oil soaked.
- (3) Lining worn to less than  $\frac{1}{32}$  inch from the rivet heads.
- (4) Lining not making full contact with drum.

If any of these conditions exist, a major adjustment is necessary. It may be assumed that the condition of the linings and drums at the other wheels is approximately the same as the wheel examined.

If the linings and drums are satisfactory, proceed as follows for a minor adjustment. Reinstall the wheel that was removed, and raise all four wheels free of the floor.



Hydraulic Brake System and Cable Operated Parking Brake.



Pry off the adjustment hole cover, and insert an adjustment tool through the adjustment hole until it contacts the notched wheel. Turn the notched wheel down by moving the tool upward until the drum can just be turned by hand. Then back off the notched wheel 14 notches. A click can be heard each time it is turned one notch. Turn the car wheel to make sure there is no drag. Follow the same procedure at each of the other wheels. Finally, check the brake pedal.

**Checking Brake Pedal.** If the pedal feels spongy, bleed the air from the hydraulic system. If the pedal has less than  $\frac{1}{4}$ " or more than  $\frac{1}{2}$ " free travel before master piston starts to move (measured at the pedal pad) adjust the pedal rod. This is done by turning the eccentric bolt which attaches the brake pedal to the piston rod of the master cylinder.

Unnecessary slack in the parking brake flexible cables can be adjusted on the intermediate lever directly under the transmission case extension.



Method of Adjusting Brakes.



## HEADLIGHTS

It is important that the sealed beam headlights used on 1949 Ford cars be correctly aimed at all times.

The correct vertical aim for the country beam is when the center of the high intensity is 3 inches below the horizontal centerline of the bulb on the screen of the Ford headlight tester, or a wall type screen placed 25 feet in front of the light at right angles to the centerline of the car. Horizontal aim should be straight ahead.

The bulbs are prefocused and require no attention in this respect. The country beam pattern is flat, but the traffic beam pattern is nearly round, and is directed downward and to the right.

The deflection of the traffic beam from the country beam amounts to 8 inches to the right and 6 inches down on the screen of the Ford headlight tester or on a wall screen 25 feet ahead of the light.

The accompanying illustrations show the simple method by which vertical and horizontal aim may be adjusted.

### CIRCUIT BREAKER

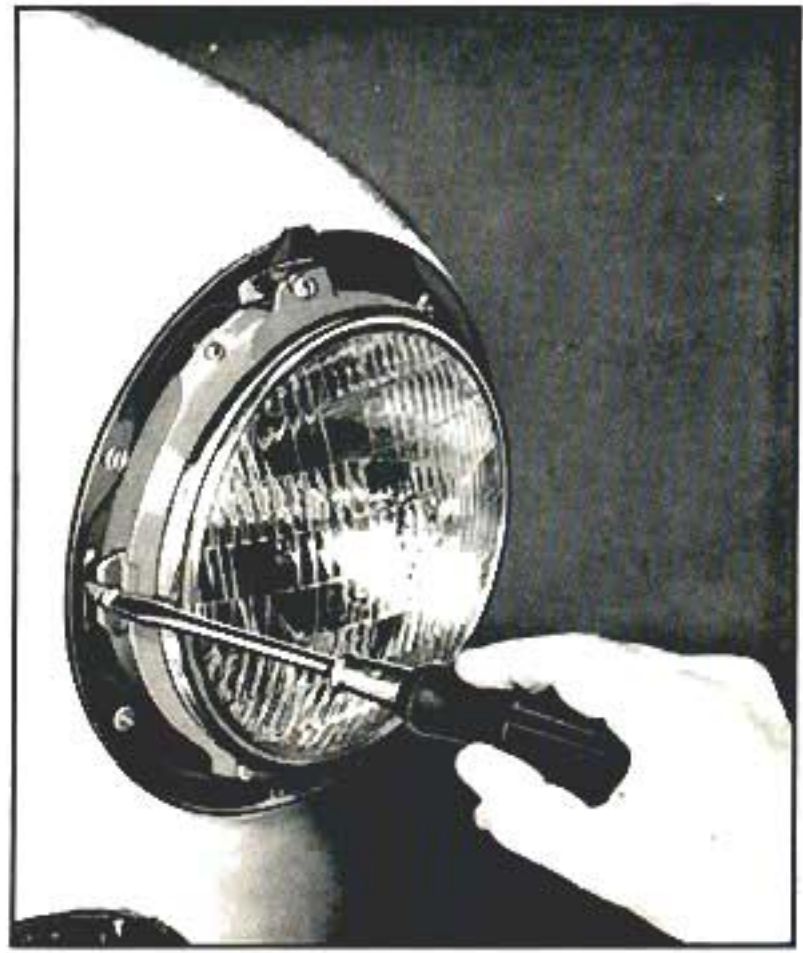
The lighting circuit is protected by a circuit breaker, located directly behind the light switch on the instrument panel.

If lights flicker from bright to dim, it indicates that the circuit breaker is responding to a ground or short in the lighting circuits.

Pull the light switch to each of its positions to determine which circuit is at fault. Check all wires in that circuit for worn insulation, and make corrections as required.

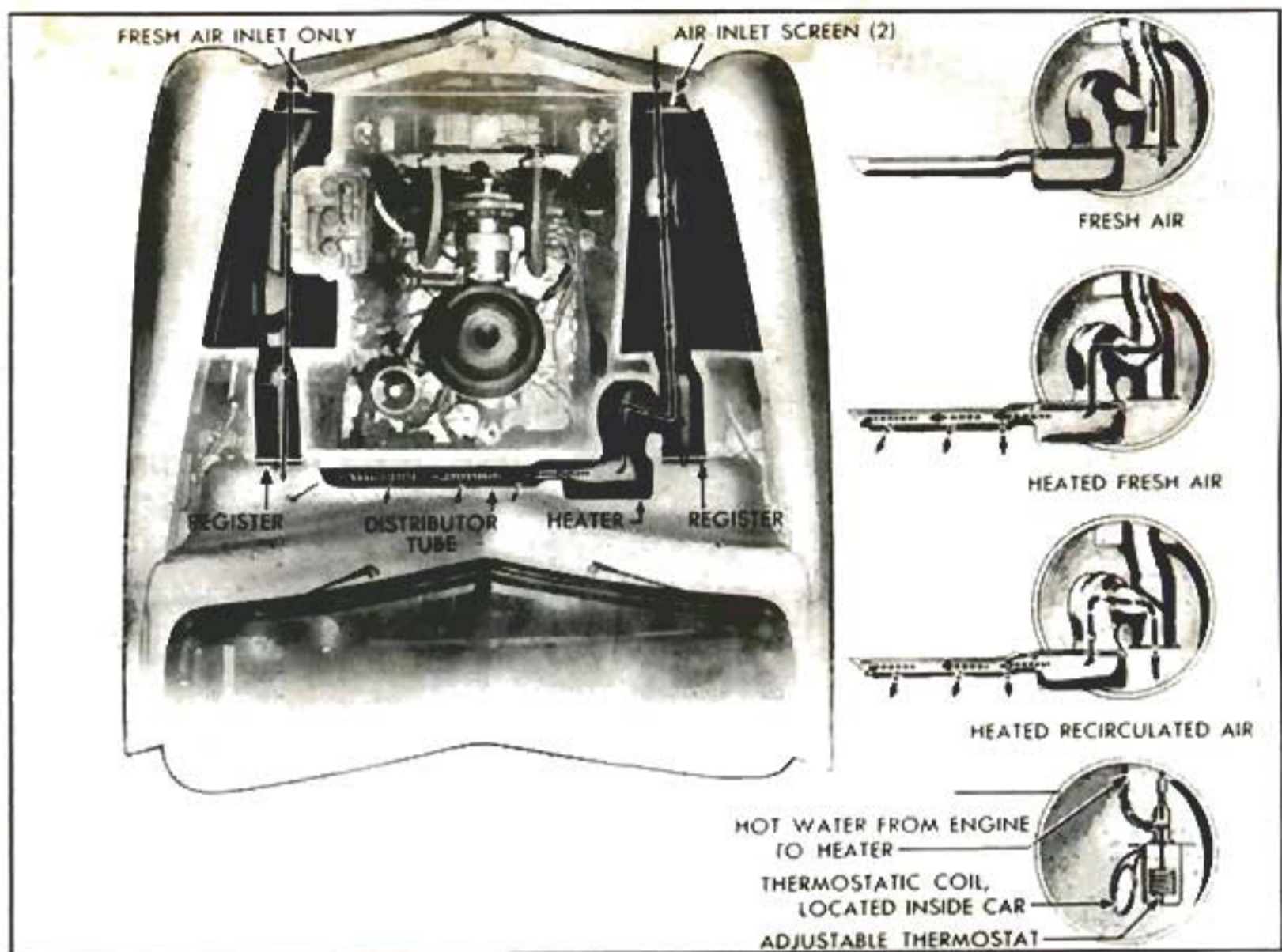


Adjusting Headlight Vertical Aim.



Adjusting Headlight Horizontal Aim.





**Built-in Ventilating System and Ford Fresh Air Heater.**

## VENTILATION SYSTEM

Ford cars for 1949 are equipped with a new type of interior ventilating system.

Screened openings at the front of the car, between the radiator core and fenders, admit fresh air to two large diameter ducts leading to the driver's compartment. The outlet end of each of these ducts is provided with a hinged register. Each duct also has a control valve operated by means of a Bowden wire control on each side of the steering column. The control knob at the right functions to set its valve at any one of three positions, as shown in the illustration: (a) to admit fresh air directly into the body—(b) to direct fresh air through the heater fan—(c) to re-circulate heated air in the body.

The Ford fresh air heater, when installed as an integral part of the ventilation system, is equipped with an adjustable thermostat to regulate the flow of hot water to the heater.

Controls for turning the heater on and off, and also for adjusting the thermostat to provide the desired temperature, are located on the instrument panel, together with the defroster control.

The thermostatic heat control valve is separately mounted just above the heater, and may be removed as a unit for service or replacement.



## RADIATOR GRILLE

1949 Ford passenger cars are equipped with a radiator grille composed of large, rugged, steel stampings assembled in such a manner that service work is greatly facilitated.

The center portion of the grille, comprising the large ornamental ring, the center ornament, medallion and wing bars, may be removed as a unit.

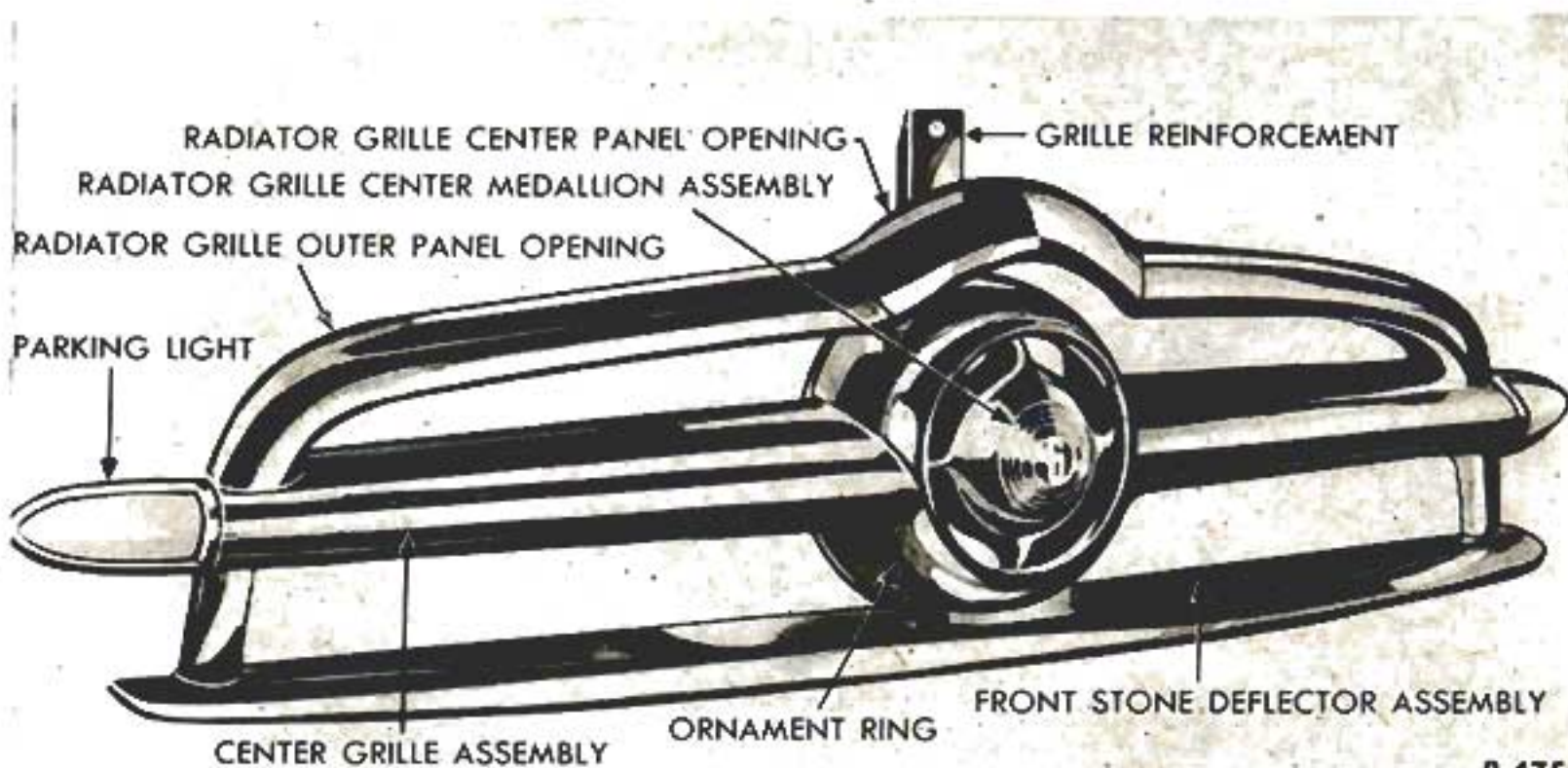
Remove the two bolts that fasten the ornamental ring to the vertical body brace behind it. Take out the screws that attach the wing bars to the parking lights. Remove the nuts that fasten the wing bars to the chrome garnish moulding, and the assembly can be lifted free.

The ornamental ring and wing bars are welded or bolted together. The center ornament and medallion can be removed by taking out the four bolts that hold this assembly in the ring, and the medallion can be removed from the center ornament by unfastening a snap nut inside.

The chrome garnish moulding that outlines the radiator opening is made in two sections that may be dismantled separately. By removing the bolts which fasten it to the hood lock plate and fenders, the upper, three-piece section may be taken off.

The lower section is mounted on the stone shield behind the bumper by means of studs and spring fasteners.

Repairs and replacements made necessary by accidental damage to the grille are greatly simplified by its design and construction.



B-475

Radiator Grille Assembly.

UNDER SIDE - FRONT SUSPENSION

1000 MILES - Steering tie rods  
PRESSURE GUN GREASE

1000 MILES - Suspension lower arm  
PRESSURE GUN GREASE

1000 MILES - King pin upper and lower fittings  
PRESSURE GUN GREASE

10,000 MILES - Front wheel bearings  
Repack with FORD WHEEL BEARING  
LUBRICANT - M-4664 once a year, or  
at least every 10,000 miles.

1000 MILES - Steering idler arm  
PRESSURE GUN GREASE

1000 MILES - Suspension lower arm  
PRESSURE GUN GREASE

1000 MILES - King pin upper and lower fittings  
PRESSURE GUN GREASE

10,000 MILES - Front wheel bearings  
Repack with FORD WHEEL BEARING  
LUBRICANT - M-4664 once a year, or  
at least every 10,000 miles.

1000 MILES - Steering intermediate link  
PRESSURE GUN GREASE

1000 MILES - Water pumps (8 cylinder only)  
ENGINE OIL

1000 MILES - Distributor cover  
Few drops of ENGINE OIL

2500 MILES, or at oil change - Oil filler pipe cap  
Wash screen in gasoline - wet with ENGINE OIL when  
dry. Install cap with deflector to rear.

5000 MILES - Distributor cam  
Light coating of FORD DISTRIBUTOR GREASE -  
M-4601

1000 MILES - Suspension upper arm  
PRESSURE GUN GREASE

1000 MILES - Generator  
ENGINE OIL - S.A.E. 20

1000 MILES - Suspension upper arm  
PRESSURE GUN GREASE

2500 MILES - Engine  
Check oil level when refueling, replenish as required  
Drain oil pan and refill with ENGINE OIL, four times a  
year, or at least every 2500 miles. Capacity 4 qts. (5 qts.  
when changing filter)  
Temp. above 32° F. - S.A.E. 20 or No. 20W  
Temp. below 32° F. to -10° F. - S.A.E. 10 or No. 10W  
Below -10° F. No. 10W plus 10% KEROSENE.

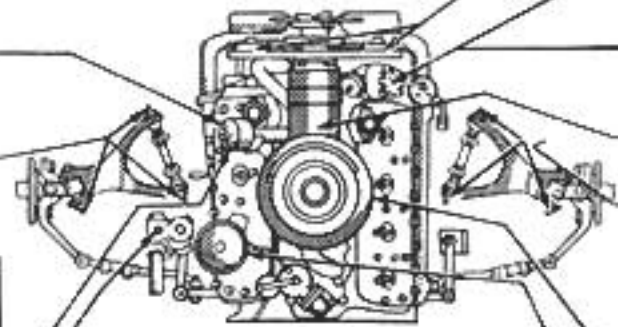
1000 MILES - Oil bath air cleaner  
Remove cover and inspect oil. If sump is more than half full  
of sediment, remove cleaner - clean and refill sump to level  
mark with ENGINE OIL (same grade as used in engine)  
Service more frequently under severe dust conditions.  
Occasionally wash filter assembly in cleaning fluid.  
Dry air cleaner filter pack  
Wash filter assembly in cleaning fluid. Wet with ENGINE  
OIL when dry.

1000 MILES - Door hinges, outside door handles  
and decklid hinges  
DRIPLESS PENETRATING OIL.

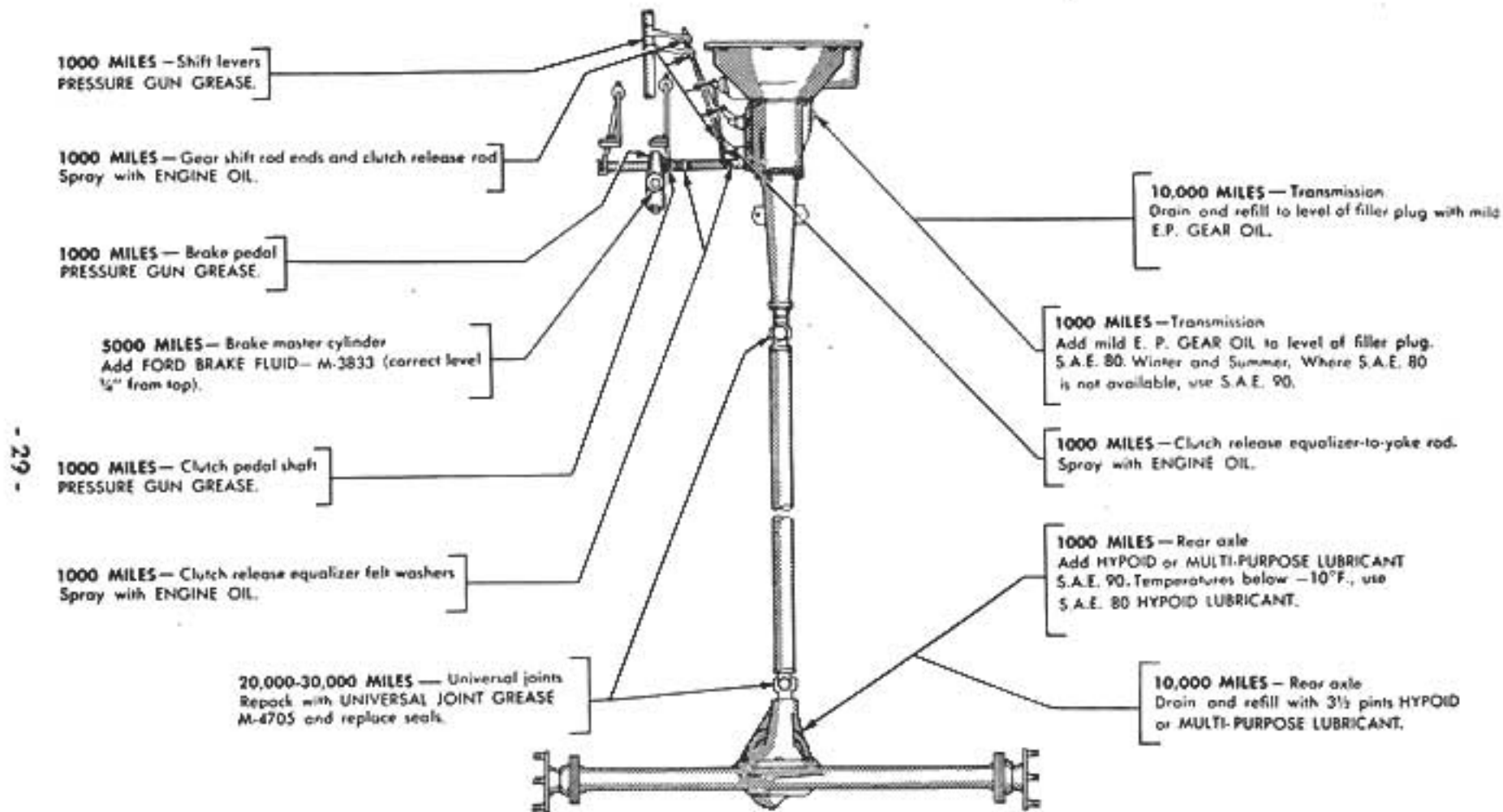
1000 MILES - Door striker plates, dovetails and  
hood latch  
WAX STICK.

1000 MILES - Steering gear case  
Add, as required, E.P. GEAR OIL - S.A.E. 140 for  
all seasons.

5000 MILES, or when dipstick shows dirty oil  
Oil filter  
Replace FILTER CARTRIDGE, run engine and check  
for leaks at filter. Recheck oil level.







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Lubrication Chart (V-8 and 6)



## **ENGINE TUNE-UP**

The following procedure is recommended for engine tune-up:

1. Check the state of charge of the battery and replenish the water. Recharge battery, if necessary.
2. Remove and clean the battery terminal connections and terminals. Install the terminal connections, and tighten securely. Coat lightly with grease. Replace cables or ground strap if required.
3. Tighten the battery hold-down frame if required.
4. Install a new oil filter cartridge.
5. If the engine oil has been drained, refill oil pan to proper level with recommended grade of oil.
6. Remove all spark plugs and clean them with a sand blast cleaner. Set the gaps at 0.030 inch. Replace any plugs that have broken or chipped porcelain or burned electrodes.
7. Test the compression of each cylinder. Cylinders with compression below normal indicate valves or rings are leaking. Higher than normal compression indicates an excessive accumulation of carbon.
8. Install spark plugs and check all cylinder head cap screws. Tighten to 50—60 pounds torque.
9. Check manifold nuts and cap screws. Tighten to 35—40 pounds torque.
10. Remove and clean fuel pump sediment chamber.
11. Clean and lubricate distributor. Examine contacts and replace if burned and pitted. Adjust contact gap. "V-8" .014" to .016". "6" .024" to .026".
12. Retime engine.
13. Clean the carburetor air cleaner element. Clean the oil reservoir and fill it to the level mark with the specified oil.
14. Clean the crankcase breather cap.



15. Adjust fan and generator belts. Replace belts if cracked or badly worn.
16. Check generator pulley for looseness and tighten if required.
17. Check the condition of all hose and tighten connections (including heater hose). Replace any hose that shows signs of deterioration.
18. Tighten the wire connections at the generator, generator regulator, coil and starting motor relay.
19. Tighten wire connections at the circuit breaker and ignition switch.
20. Adjust the carburetor idle speed to approximately 500 revolutions per minute. Adjust the idle fuel adjustment. Adjust the accelerating pump stroke to suit the season.
21. If proper equipment is available, check fuel pump pressure and vacuum.
22. Test the action of the generator regulator and adjust or replace it if required.
23. Test the length of spark from each spark plug wire. Spark should jump a  $\frac{1}{4}$ " gap.
24. Road test the car.



The Ford Diagnosis Test Set Aids in Engine Tune-up.



# SPECIFICATIONS

(Condensed)

## GENERAL

### Models and wheelbase:

Model 8BA, 8-cylinder engine . . . . .	114 in.
Model 8HA, 6-cylinder engine . . . . .	114 in.
Over-all length (bumper to bumper) . . . . .	197¼ in.

### Tread:

Front and rear . . . . .	56 in.
Tire size . . . . .	6.00 x 16—4 ply
Turning circle diameter . . . . .	41 ft.

## CAPACITIES

Fuel Tank . . . . .	17 gals.
Engine oil pan (less filter absorption) . . . . .	5 qts.

### Cooling System:

6-cylinder . . . . .	16 qts.
8-cylinder . . . . .	21 qts.
Transmission (with overdrive) . . . . .	4½ pts.
(without overdrive) . . . . .	4 pts.
Tire pressure . . . . .	Front 28 lbs. Rear 25 lbs.

## ENGINE (6-cylinder)

Horsepower . . . . .	95 at 3300 rpm.
Taxable horsepower . . . . .	26.13
Cylinder bore . . . . .	3.30 in.
Stroke . . . . .	4.40 in.
Piston displacement . . . . .	226 cu. in.
Compression ratio . . . . .	6.8 to 1
Compression pressure at cranking speed (sea level) . . . . .	



## ENGINE (8 cylinder)

Horsepower . . . . .	100 at 3600 rpm.
Taxable horsepower . . . . .	32.5
Cylinder bore . . . . .	3.187 in.
Stroke . . . . .	3.75 in.
Piston displacement . . . . .	239.4 cu. in.
Compression ratio . . . . .	6.8 to 1
Compression pressure at cranking speed (sea level)	

## IGNITION SYSTEM (6 cylinder)

### Distributor:

Firing order . . . . .	1-5-3-6-2-4
Automatic spark advance . . . . .	Vacuum diaphragm
Initial timing (degrees of crankshaft) . . . . .	0° B.T.C.
Maximum advance (degrees of crankshaft) . . . . .	22° B.T.C.
Breaker contact spacing . . . . .	.024 to .026 in.
Breaker arm spring tension . . . . .	17 to 20 ozs.
Spark plugs . . . . .	14 MM
Gap . . . . .	0.030 in.

## IGNITION SYSTEM (8 cylinder)

### Distributor:

Firing order . . . . .	1-5-4-8-6-3-7-2
Automatic spark advance . . . . .	Vacuum diaphragm
Initial timing (degrees of crankshaft) . . . . .	2° B.T.C.
Maximum advance (degrees of crankshaft) . . . . .	19° B.T.C.
Breaker contact spacing . . . . .	.014 to .016 in.
Breaker arm spring tension . . . . .	17 to 20 ozs.
Spark plugs . . . . .	14 MM
Gap . . . . .	0.030 in.

## FUEL SYSTEM

### Carburetor adjustments:

#### Idle fuel adjustment:

6-cylinder . . . . .	1 screw
8-cylinder . . . . .	2 screws
Idle speed adjustment . . . . .	1 screw
Accelerating pump stroke . . . . .	Link



## FUEL SYSTEM—Continued

### Fuel pump pressure:

6-cylinder . . . . .	4 to 5 lbs.
8-cylinder . . . . .	3½ to 4½ lbs.

## COOLING SYSTEM

### Thermostats:

6-cylinder . . . . .	1
8-cylinder . . . . .	2
Starts to open . . . . .	160° F.
Fully open . . . . .	175° F. to 180° F.

## ELECTRICAL SYSTEM

### Generator:

Rating . . . . .	30 amperes at 7 volts
Capacity . . . . .	220 watts

### Generator Regulator:

Cutout closing voltage . . . . .	6.6 to 7.0 volts
Voltage regulator (domestic) . . . . .	7.2 to 7.6 volts
Voltage regulator (tropical) . . . . .	7.0 to 7.4 volts
Current limitation amperage . . . . .	30—34 amperes

### Lights:

#### Candle power:

Parking . . . . .	3
Body . . . . .	3
Tail and stop . . . . .	3 and 21
License plate . . . . .	3
Instrument panel . . . . .	1 and 3
Luggage compartment . . . . .	3

### Clutch:

Type . . . . .	Single plate
Release bearing (pre-lubricated) . . . . .	Ball bearing
Clutch pedal free travel . . . . .	1.0 in.

Rear Axle:

Gear Ratio:

Standard . . . . .	3.73 to 1
Optional . . . . .	3.54 to 1
Optional . . . . .	4.1 to 1

Brakes:

Type of service brake . . . . .	Internal expanding
Control . . . . .	Hydraulic
Adjustment at each wheel . . . . .	Notched wheel
Brake pedal free play . . . . .	$\frac{1}{4}$ in.
Type of hand brake . . . . .	Mechanically operated internally
Control . . . . .	Cable to service brakes in rear wheels

Steering Gear:

Type . . . . .	Worm and roller
Ratio . . . . .	17.7 to 1

Wheel Alignment:

Caster:

Maximum . . . . .	minus $\frac{3}{4}$ degrees
Minimum . . . . .	zero

Camber:

Maximum . . . . .	minus $\frac{3}{4}$ degrees
Minimum . . . . .	minus $\frac{1}{4}$ degrees

Toe-in:

Maximum . . . . .	$\frac{1}{8}$ in.
Minimum . . . . .	$\frac{1}{16}$ in.
King pin inclination . . . . .	5 degrees