

OWNER'S SERVICE GUIDE



for your new

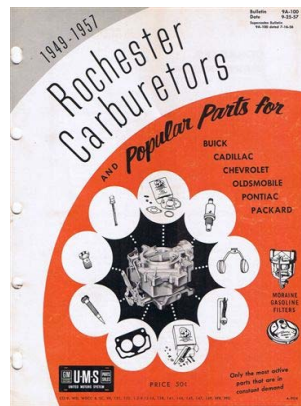


1952 PONTIAC



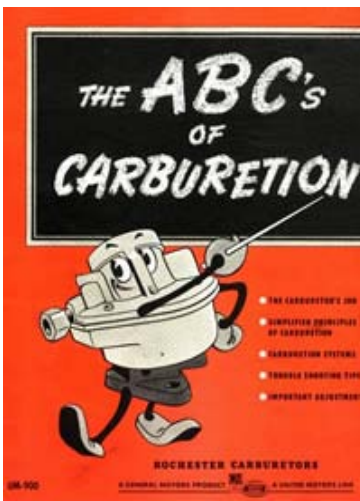
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BREAKING-IN

AND LICENSE DATA

NEW CAR BREAK-IN When starting out with your new car, you should drive moderately for 10 to 15 minutes to allow time for the engine, transmission and rear axle to warm up. Speeds can then be increased as shown below.

CAR SPEED. First 200 miles not to exceed 50 miles per hour.
Second 200 miles not to exceed 60 miles per hour.
Third 200 miles not to exceed 70 miles per hour.

After your car has warmed up, speed should be increased gradually to the maximums in the above schedule, held there for a short distance, then gradually decreased to a slower speed for a short distance.

Driving at speeds up to 50 miles per hour, even for distances greater than the 200 mile period, will not break in your car for sustained high speed driving. Sustained high speed driving should not be undertaken until the above schedule of maximum speeds (or its equivalent) is completed.

NOTE: Brakes too need "breaking in". Avoid fast stops during the first few hundred miles.

ENGINE AND CAR SERIAL NUMBER. The serial number is located on a plate which is attached to the left front pillar post on all models. The engine serial number of your car is _____. (The engine serial number is stamped on a machined pad at the top left hand front corner of the cylinder block—all models—and is the same as the car serial number.)

STYLE, PAINT, AND TRIM NUMBERS. The style, paint and trim numbers are stamped on the plate attached to the right front side of the dash. Style number _____, Paint number _____, Trim number _____.

KEY NUMBERS. There are two keys to your car. The one with an octagonal shaped handle fits the ignition and front door locks. The other key is oval in shape and fits the glove and rear luggage compartments. Ignition key number _____ Trunk key number _____.

STARTING HINTS. If you live in an area where cold weather is experienced, it might be a good idea to read "Starting the Engine" on page 21.

WHERE TO PUT YOUR SERVICE GUIDE. Slip this Service Guide into the clip in the roof of the glove compartment for ready reference. This clip is also handy for holding maps and other papers.

If it becomes necessary for you to order any parts or correspond with your dealer or the factory about your car, you can avoid any possible misunderstanding by giving the **Serial, Style, and Paint** numbers of your car.

OWNER SERVICE POLICY



Along with this Service Guide, you have received an "Owner Service Policy," which your dealer filled in for you when he delivered the car. Read this policy carefully. Most owners keep the Service Policy in the glove compartment.

There are two coupons attached to your "Owner Service Policy" which entitle you to have inspections performed on your car. These inspections are performed to correct any changes in the initial settings which may occur during the break-in period. One entitles you to certain adjustments, as specified on the back of the coupon, at the end of 1,000 miles **provided the coupon is presented within 1,500 miles of car operation.** The other provides for additional services at the end of 2,000 miles, **provided the coupon is presented within 2,500 miles of car operation.** These services will be performed for you without charge (except for chassis lubrication, engine oil and other lubricants) by the dealer from whom you purchased your car. In case you are touring or have changed your residence, any authorized Pontiac dealer in the United States or Canada will perform them for you upon presentation of the Owner Service Policy and Coupons.* By making an appointment for your inspections, much the same as you would reserve a hotel room, you can avoid rush periods and get the inspection the day you want it.

Pontiac dealers everywhere stand ready to provide you with the best possible service at all times. It is their responsibility to assure your continued satisfaction with your car. But you, too, have a responsibility to yourself as an owner—the responsibility of giving your Pontiac car the reasonable care and attention that any mechanical device deserves.

*Be sure your dealer has signed the policy as well as the coupons so that you can get your 1,000 and 2,000 mile inspections while traveling.



MANUFACTURER'S

WARRANTY

It is expressly agreed that there are no warranties, expressed or implied, made by either the dealer or the manufacturer on the Pontiac Motor vehicles, chassis or parts furnished hereunder, except the Manufacturer's warranty against defective materials or workmanship as follows:



"The Manufacturer warrants each new motor vehicle, including all equipment or accessories (except tires) supplied by the Manufacturer, chassis or part manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof which shall, within ninety (90) days after delivery of such vehicle to the original purchaser or before such vehicle has been driven 4000 miles, whichever event shall first occur, be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on its part, and it neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its vehicles.

"This warranty shall not apply to any vehicle which shall have been repaired or altered outside of an authorized Pontiac Service Station in any way so as in the judgment of the Manufacturer to affect its stability and reliability, nor which has been subject to misuse, negligence or accident."



The Manufacturer has reserved the right to make changes in design or add any improvements on motor vehicles at any time without incurring any obligations to install same on motor vehicles and chassis previously purchased.

TIRE WARRANTY

Tires are warranted by the tire manufacturer against defects in material and workmanship. If, during the life of the tire, tire failure should occur due to this cause, the tire manufacturers will either repair the tire or make a reasonable allowance on it towards the purchase of a new tire.

BATTERY WARRANTY

Your Pontiac Delco battery is guaranteed for 90 days. Be sure your Pontiac dealer has filled in the Delco Battery Service Policy which gives you protection for 18 months or 18,000 miles in accordance with the terms of the policy.

LICENSE AND

CAR DATA



NAME	NUMBER		WHEEL-BASE	OVERALL LENGTH	GAS TANK CAPACITY
	6 Cyl.	8 Cyl.			
CHIEFTAIN	51-25	51-27	120"	202.5"	17½ gal.
SEDAN DELIVERY	51-25	51-27	120"	203.0"	16 gal.
STATION WAGON	51-25	51-27	120"	203.9"	16 gal.

	SIX	EIGHT
Developed Horsepower (6.8 to 1 Compression) . . .	100.0	118.0
Developed Horsepower (7.7 to 1 Compression) . . .	102.0	122.0
S.A.E. Horsepower	30.4	36.4
Bore	3½"	3½"
Stroke	4"	3¾"
Piston Displacement	239.2 cu. in.	268.4 cu. in.
Tappet Clearance—Hot and Running011"-.013"	.011"-.013"
Spark Plug Gap025"	.025"
Breaker Point Gap022"	.016"
Cooling System Capacity	18 qts.	19¾ qts.
Cooling System Capacity with Underseat Heater .	19¾ qts.	21¼ qts.
Crankcase, Refill	5 qts.	5 qts.

GASOLINE

Synchro-Mesh equipped cars are furnished with a standard compression ratio of 6.8 to 1 for use with regular type fuels. An optional compression ratio of 7.7 to 1 is available for use with premium fuels.

Hydra-Matic equipped cars are furnished with a standard compression ratio of 7.7 to 1 which requires the use of premium fuels. The optional compression ratio for Hydra-Matic equipped cars is 6.8 to 1 for use with regular fuels.

CHOKE

No choke button to bother with—choking is automatic. See page 22.

OIL

Use 10-W oil in your engine for the first 1000 miles. You will find the whole story about engine oil on page 30.

ANTI-FREEZE SOLUTIONS

Winter driving recommendations as regards to the cooling system are carefully explained on page 51.

TIRES

It is a good idea to check the pressure every month. See page 45 for further details.

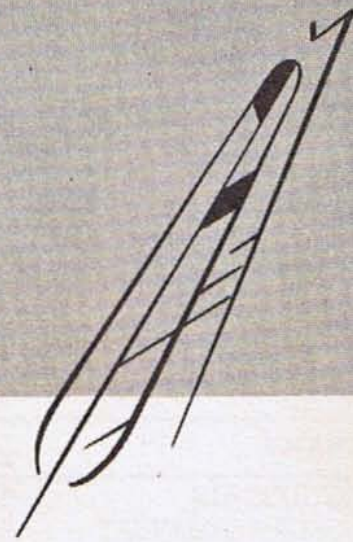
FUSES

See page 11.

LAMP SPECIFICATIONS

STANDARD EQUIPMENT	Lamp No.	C.P.
Headlight Unit—Upper	Sealed Beam	45 W
Lower	Sealed Beam	35 W
Parking Lamps	63	3
Instrument Lamp	55	1
Beam Indicator Lamp	51	1
Dome Lamp	88	15
License Lamp	63	3
Tail and Stop Lamps	1154	3-21
SPECIAL EQUIPMENT		
Hydra-Matic Indicator	51	1
Clock Dial	55	2
Glove Box	55	2
Direction Signal—Front	1154	21-3
Ind.	51	1
Fog Lamp—Dual	Sealed Beam	35 W
Safety Lamp	Sealed Beam	32
Luggage Compartment	81	6
Radio Dial	44	25 A
Back-up Lamp	1133	32
Underhood Lamp	88	15
Hood Ornament	51	1
Compass Light	51	1
Load Comp. Lamp—		
Sed. Del. Only	1133	32
Heater Panel Lamp	55	2
Catalina and Convertible		
Courtesy Light	82	6

FOREWORD



Pontiac's engineers strive continually to give you greater value in each new model Pontiac. This year we are especially proud of the advanced design and precision construction which combines comfort, economy, performance, and endurance to make your new Pontiac an even greater car than ever before. However, in order that you may be able to take full advantage of the many new features which you have in your new car, we have added this Manual, to give you the "know-how" for safe and economical operation.

Your knowledge and care of the operating parts of the car will give you greater enjoyment in driving your 1952 Pontiac Silver Streak.

Owner's Service Department
PONTIAC MOTOR DIVISION
Pontiac, Michigan

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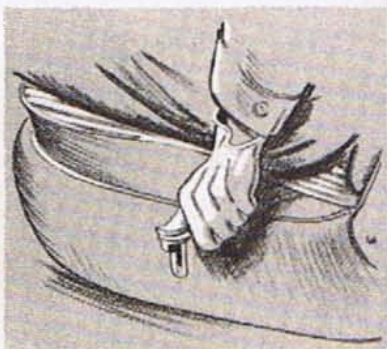


INSTRUMENTS

AND CONTROLS

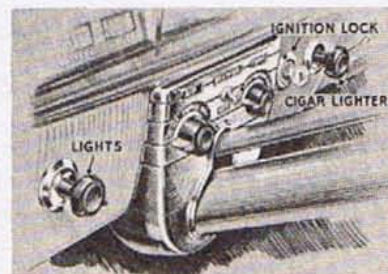


The location of the controls and instruments on your Pontiac has been planned with the idea of comfort and convenience for the driver, which also contributes to greater safety. This arrangement is the result of the latest developments in automotive engineering, research, and styling. Maybe you helped in this design and arrangement of the instrument panel and controls;* and if you have owned Pontiacs previously, you will probably be familiar with most of them. If you are a first-time Pontiac owner, however, it will be a good idea to read this section carefully.



SEAT ADJUSTMENT—The seat adjustment is easily made by pushing down the small lever on the left end of the front seat and sliding yourself back and forth until the seat is in a position that seems to suit you the best. On long trips, changing the adjustment occasionally will be found helpful in avoiding fatigue.

IGNITION AND LIGHT SWITCHES—CIGAR LIGHTER—The ignition switch, cigar lighter and light switch are conveniently located on the instrument panel, and the instrument dials are grouped for best visibility. The cigar lighter, located by the ignition switch, is operated by pushing in-



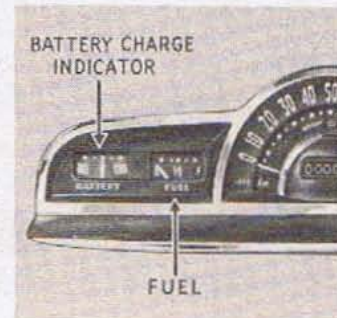
ward on the lighter, which automatically starts the element heating. When the proper temperature is reached, the lighter clicks back into position for use. It is unnecessary to hold the lighter in by hand.

As a further convenience to the owner the ignition switch is illuminated when the light switch is pulled out.

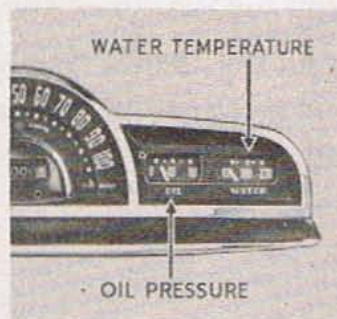
*Each year General Motors, through its Proving Ground of Public Opinion, invites well over a million motorists—owners of all makes of cars—to express their preference on various features of design—"to pool their practical experience with the technical skill of General Motors Engineers."

BATTERY CHARGE INDICATOR—GASOLINE GAUGE—The battery "charge" and "discharge" indicator located at the left end of the instrument group indicates the current flow to and from the battery. Electrical current going from the generator to the battery registers on the "charge" side. The indicator will show a "discharge" reading when more electrical energy is being consumed than is received from the generator.

The gasoline gauge is electrically operated. It indicates the quantity of gasoline in the tank only when the ignition is turned on. When the ignition is turned off, the pointer drops back beyond the "empty" mark.



OIL PRESSURE GAUGE—WATER TEMPERATURE INDICATOR—

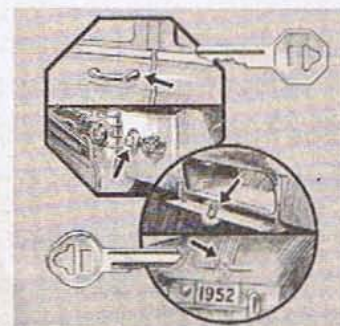


The oil gauge on the panel indicates the pressure in the engine lubrication system. This shows whether the oil pump is working. It does not show how much oil there is in the crankcase. At normal driving speeds the gauge should read approximately 40. If the indicator does not come above zero or fluctuates greatly, you should check your oil level immediately; and, if low, add oil to bring to the proper level. If the oil level is not low and fluctuations continue, you

should contact a Pontiac dealer immediately.

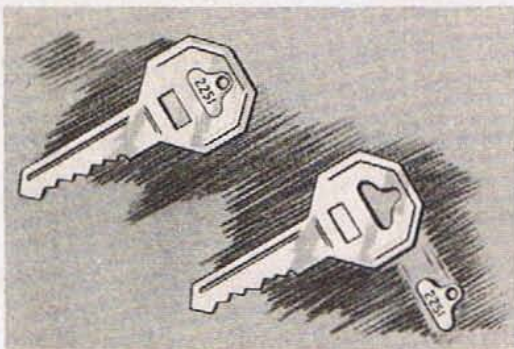
The temperature of the water in your engine is shown by the water temperature indicator. When the engine is thoroughly warmed up the indicator will indicate between 160° and 200°. If the temperature indicator needle goes to the 230° mark, you should look into the cause immediately.

LOCKS AND KEYS—Maximum protection is provided by the Pontiac system of locks and keys. Two sets of two keys each are furnished with your car. The octagonal handled key operates the front door and ignition lock. The oval handled key operates the glove and rear deck compartments.



CAUTION: Never leave keys in your car. Insurance records show over 75% of cars stolen have been left with the ignition key in the lock.

REMOVING KEY NUMBERS—To prevent unauthorized persons from securing duplicates of your keys, the key numbers do not appear

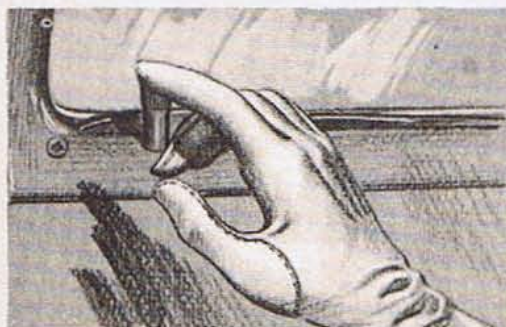


either on the keys or the face of the locks but on small metal slugs fastened in the keys. Mark these key numbers in the space provided on the inside front cover of this Service Guide and Your Owner Service Policy as soon as you take delivery of the car and have your dealer knock out these slugs and destroy

them. You will lose part of your protection if you do not do this. If you ever require duplicate keys, they should be ordered from your local Pontiac dealer, rather than from the factory. The key numbers for your car are on record at the factory, and in the event you lose your keys, the proper numbers may be secured by wiring or writing the Owners Service Department at Pontiac, Michigan, giving the serial number of your car.

DOOR LOCKS—If you want to lock the doors from the inside, push down the small button on the window moulding of each door*. Both front doors lock from the outside with a key in the usual way, but you don't have to use the key to lock your car. Simply open the door, press the button down and then close the door while pushing the outside door handle plunger in. When the door is closed, release the plunger, and the door is locked.

IMPORTANT: ALWAYS LOCK YOUR CAR WHENEVER YOU LEAVE IT UN-ATTENDED.



COMBINATION HEADLAMP AND INSTRUMENT SWITCH—Beneath the battery charge indicator and gas gauge, you will find the combination headlamp and instrument panel switch.

When the knob is pulled out to the first position, the parking lamps are turned on. When the knob is in the second position, the sealed beam headlamps are on.

*If you have a 4-door sedan and have children, you might want the rear door locks fixed so that the inside door handle is inoperative as long as the door locking button is pushed down, thereby eliminating the chance of the children opening the doors and falling out while they are in the car. It will take your Pontiac dealer just a few minutes to fix the locks.

In conjunction with the headlamp switch, there is a convenient foot switch located at the left of the clutch pedal which allows you to raise or lower the headlamp beams without removing your hands from the steering wheel. The diagram on this page explains the operation of the foot (dimmer) switch and "red light" beam indicator in the speedometer below the numeral 50 in combination with the hand switch.

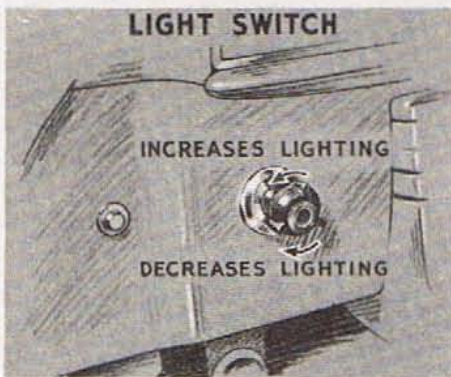
OPERATION OF PONTIAC'S SEALED BEAM HEADLAMPS—

Pontiac's "sealed beam" headlamps have been designed to insure you the maximum safety and comfort for night driving. To obtain this safety for yourself and for others, however, you must be willing and anxious to use your headlighting equipment in the manner intended. Good drivers are always courteous.

For city driving or for meeting cars in the country, there is a beam switch on the floor near your left foot. It is for use only when the light switch is pulled all the way out to the "second" position. This "beam switch" turns down the beams of the headlamps, thus preventing glare in the eyes of the approaching driver. Incidentally, it's not necessary to hold this button down when passing cars—one push of the foot snaps the lights into the "lower" position (red light off); another push snaps them back into the "upper" position (red light on).

NEVER PASS AN APPROACHING CAR WITH THE RED LIGHT BEAM INDICATOR BURNING.



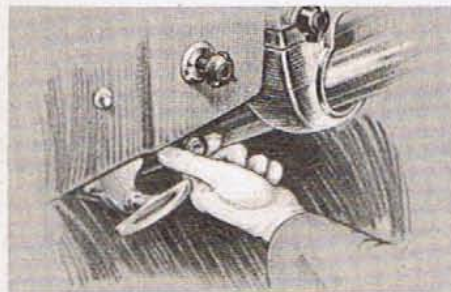


INSTRUMENT PANEL LIGHTS—

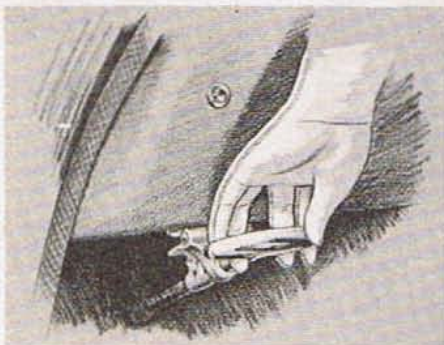
You may have noticed that the instrument lights come on when the light switch is pulled out. Turning the knob clockwise decreases the brightness of the instrument lighting and counter-clockwise increases the brightness of the lighting. When turned as far as possible in a clockwise direction, the

instrument lights are off. This enables you to adjust the brightness of the instrument panel to your visual comfort.

HOOD LOCK—Just below the light switch is the hood lock knob. As the hood is closed, it locks automatically and can only be opened when this knob below the instrument panel is pulled out. Even then, the hood safety catch out in front is still engaged and



must be released by hand before the hood can be raised. The catch is a safety feature provided to hold the hood in case the knob should be pulled out while the car is in motion. This inside hood lock gives better protection against theft of accessories on your Pontiac.



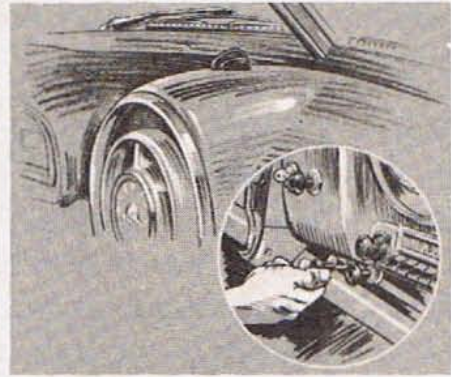
CANE HANDLE HAND BRAKE—

The hand brake lever, generally referred to as "Cane Handle", is located on the left hand side of the steering column below the instrument panel. Pull handle to apply the brake and release with a counter-clockwise twist.

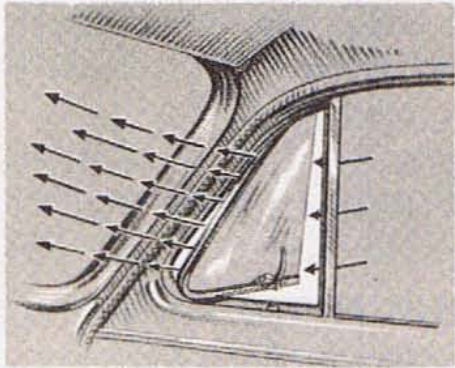
WINDSHIELD WIPER CONTROL BUTTON—The windshield wiper control button is located at the bottom of the vertical bar that divides the windshield. Turning the button to the left regulates wiper speed. If the car is equipped with a windshield washer, turn the button slightly to the right, and hold for a few seconds to operate the washer, then back to the left for wiper operation.

VENTILATION SYSTEM—Duct type ventilators controlling the amount of outside air coming into the car are located on both the right and left hand side bringing air through the dash panel. The

ducts are controlled by two knobs located centrally below the instrument panel to the right of the steering column and identified with a large "V" in the center of the knob. The amount that either the right or left knob is pulled out will regulate the amount of air entering for that particular duct.



The ventilating panes in the front door windows can be pivoted to secure any degree of ventilation with a minimum of drafts.

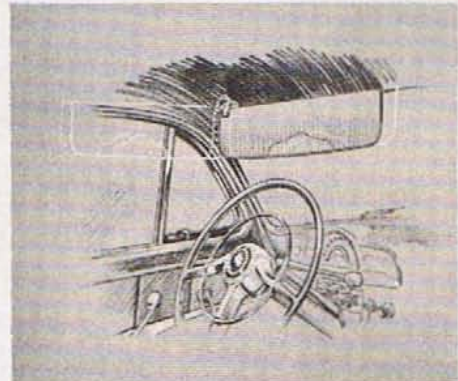


In cold weather, rain or snow, they can be opened slightly to provide just enough air circulation to prevent windows and windshield steaming or fogging. (If you have an underseat heater, refer to page 17 for more detailed information on ventilation.)

In extremely hot weather the front ventilator can be turned almost completely around to a position that will scoop air into the car.

You will note that the ventilators lock when the little lever is turned down. Thumb pressure on the button will release the lever for opening the ventilator.

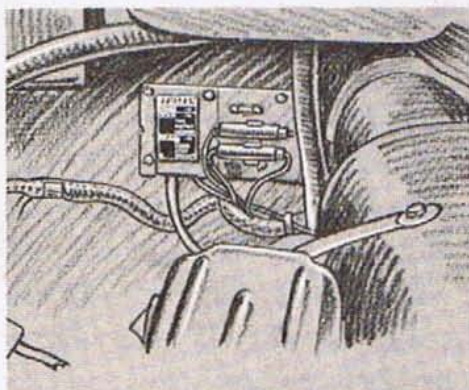
SUN VISORS—Folded up against the top directly in front of the driver and passenger are two sun visors. The visors may be moved toward the center of the car, as well as swung around to either the right or left to protect your eyes when the sun is at either side.



FUSES—The headlight wiring system on your Pontiac is protected from damage in case of short circuits by a thermostatic circuit breaker mounted on the light control switch. The circuit breaker opens and closes intermittently, thereby reducing the current load sufficiently to protect the wiring from damage. This action will continue until the cause is eliminated and is usually noticed due to a snapping sound at approximately 3 to 5 second intervals. If you are driving at night, the action of the Thermo Circuit Breaker will be noticed by the headlamps burning intermittently. When this

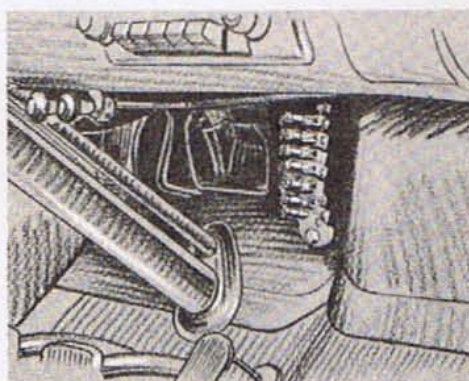
happens, it is an indication of trouble which should be corrected immediately.

MAIN FUSES—A fuse block is mounted on the engine side of the dash panel, just above the steering column, to carry the fuses which protect the main wiring. Tail lamp circuit which includes rear license lamps, instrument cluster lamps, ignition switch lamp, clock lamp, Hydra-Matic control lamp and heater panel lamp requires 14 ampere fuse in gold colored line fuse holder.



Stop lamp circuit, which includes rear corner lamps on Catalina, courtesy lamps on Convertible and Catalina, dome lamp and trunk lamp, requires 14 ampere fuse in gray colored line fuse holder.

Spare fuse for both the above circuits and radio power is mounted in clip adjacent to line fuse holders.

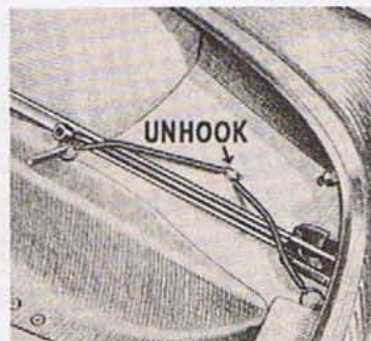


ACCESSORY FUSES—The accessory fuses are carried on a block on the passenger side of the dash. Like your fuse box in your home all fuses are visible upon removal of the cover. Fuse identification is printed inside the cover. This makes it easy to locate a blown fuse and replace with a spare fuse which is conveniently clipped at the bottom of the terminal assembly.

All accessories use 20 ampere fuses with the exception of the radio which uses a 14 ampere fuse, a spare for which is located on the engine side of the dash in the main wiring fuse block, and the electric power antenna which uses a 30 ampere AGC fuse (located in the line holder above the fuse block).

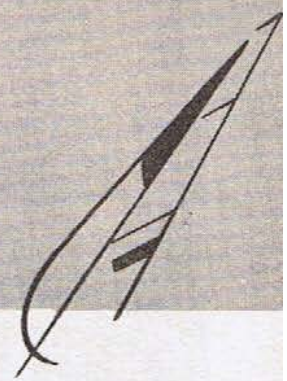
A cigar lighter has a special replaceable fuse attached to rear end of lighter socket.

RATTLE PROOF TOOL STORAGE—The annoying rattles often caused by loose car tools in the trunk, are completely eliminated by proper use of the tool anti-rattle spring. When removing tools it is only necessary to remove the connecting ring on the right side from the hook on the floor.



DUAL-RANGE

HYDRA-MATIC DRIVE



The Hydra-Matic Drive is an automatic means of transmitting the engine power to the vehicle propeller shaft, through which it is transferred to the rear axle and wheels in the conventional manner.

The Hydra-Matic Drive consists of a fluid coupling, which replaces the conventional clutch and is combined with a hydraulically-controlled automatic transmission having four speeds forward and one reverse. Gear changing is accomplished automatically by the transmission in accordance with the performance demands of the road conditions encountered and the wish of the car driver.

HOW TO OPERATE THE HYDRA-MATIC DRIVE—This transmission simplifies driving beyond belief. The small control lever located just below the steering wheel is used to select neutral, one of three forward speed ranges, or reverse. These positions are all shown on the indicator segment and are plainly visible in daylight. They are also illuminated when the instrument lights are turned on. These positions are designated as follows:

N = Neutral and starting.

▲DR = For all normal forward driving and improved fuel economy.

DR▲ = For faster acceleration and driving in congested traffic.

LO = For controlled power. (Note: Control lever must be lifted to change from DR to LO.)

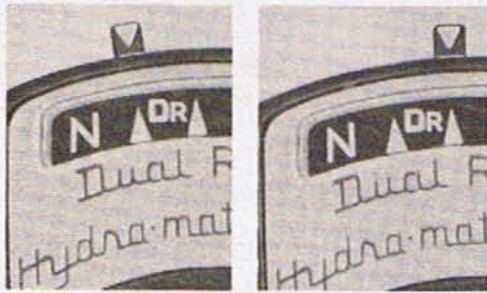
R = For Reverse and parking.

TO START ENGINE—Place Hydra-Matic control lever in N (neutral) position. **The starting circuit is wired so the starter will not operate unless the lever is in neutral;** press accelerator pedal to toe-board once, and release (in order to set the AUTOMATIC CHOKE); turn the ignition switch on and press starter button. Release starter button as soon as engine starts.

NOTE: When starting a warm or hot engine hold accelerator pedal down half way while pressing starter button.

CAUTION: Do not "pump" the accelerator pedal at any time. Avoid racing the engine during the warm-up period.

NOTE: Should the car fail to start in five to ten seconds, it is possible that the engine is flooded. In that case, press the accelerator slowly to the floor and hold it there when starting. This renders the choke inoperative and relieves the flooded condition.



OPERATING IN DRIVE RANGE

—In cold weather the engine must idle with the control lever in the N position until the engine and transmission are nearly or completely warmed up.

After the engine is started, move the control lever from N to either one of the two arrows in the desired DR position. When the engine is cold and running at fast idle, the car will tend to creep forward after the control lever is moved to either of the two DR positions. A slight application of the foot brake or hand brake will hold the car under these conditions. After releasing the brakes the car will move forward when the accelerator is depressed.

The position marked by the left hand arrow is provided for all normal forward driving; it reduces engine speed, provides better driving comfort and improves fuel economy. The position indicated by the right hand arrow is provided for better acceleration and is very useful when driving in congested traffic. It is also effective when climbing or descending long mountain grades. The control lever can be moved from one arrow to the other when driving at any car speed on dry roads.

Acceleration—The shift events from first speed to second, second speed to third, and third to fourth (direct drive) will occur at progressively higher speed ranges depending upon the amount of pressure on the accelerator pedal. With a slight accelerator pedal pressure, the shift events will be at lower speeds. As accelerator pressure is increased, the shift event will occur at higher car speeds.

Forced Downshift—To obtain an extra burst of speed needed for passing when driving in either of the two DR ranges, depress the accelerator pedal completely. The drive will then change to a lower speed for rapid pickup and will return to a higher speed automatically as car speed is increased.

Caution Against Coasting in Neutral—Do not coast with the control lever in the N (neutral) position. This procedure is unlawful in many states and under some conditions is harmful to the transmission.

Stopping the Car—To stop the car, merely release the accelerator pedal. Leave the control lever in the DR position you've selected;

the engine is then "in gear" and helps to slow down the car. For further retarding effort apply the brakes in the conventional manner.

CAUTION: Under no circumstances should the control lever remain in any other position except N when the driver leaves car, with the engine still running. For additional safety, apply parking brake when opening garage doors or removing mail from rural mail box, etc.



This precaution prevents movement of the vehicle, should the accelerator pedal be accidentally depressed by a passenger.



LO RANGE POSITION—The LO range position (second speed) is provided for pulling through deep sand or snow and ascending or descending steep grades where traffic signs call for placing the transmission in first or second gear. It is

also best for getting the car in motion on icy roads.

The change from either of the two DR positions to LO is made by lifting the control lever and moving it to the LO position. This change can be made at any car speed; however, LO range will not engage until the car speed is reduced to below 50 MPH.

CAUTION: The change from either of the two DR positions to LO should only be made on dry roads where traction is good. It is not recommended to change to LO on slippery roads since this change could induce a skid. On slippery roads, safety demands that the car speed be reduced by judicious use of your brakes.

Release the accelerator pedal when moving the selector lever from either of the two DR positions to LO.

Forced Downshift—When driving in the LO range position at a car speed of less than 10 MPH, the transmission will shift down to the first speed when the accelerator pedal is completely depressed. The transmission will automatically shift to second speed at a higher car speed.

REVERSE—It is not necessary to bring this 1952 Pontiac to a complete stop before engaging reverse; simply raise the control lever and move it to the R position. Moving the lever between LO and R with light accelerator pressure permits rocking the car



when required to get out of deep snow, mud or sand. Avoid engaging reverse at speeds above 5 MPH.

NOTE: The control lever will stop at the left drive position when moved from reverse towards neutral with the lever raised. This prevents unwanted "over-selecting" into neutral.

Parking—For additional safety while parking, turn off ignition key and move selector lever to R position. This permits engagement of transmission parts thereby providing "in gear" parking ability. When parking on an incline, hold the car with foot brake a few seconds to permit engagement of transmission parts.

TO START ENGINE BY PUSHING CAR—If it becomes necessary to start engine by pushing the car for a short distance due to a low battery, move control lever to N position. When a speed of approximately 25 MPH is attained, turn ignition switch on and move the control lever to either DR position.

TOWING THE CAR

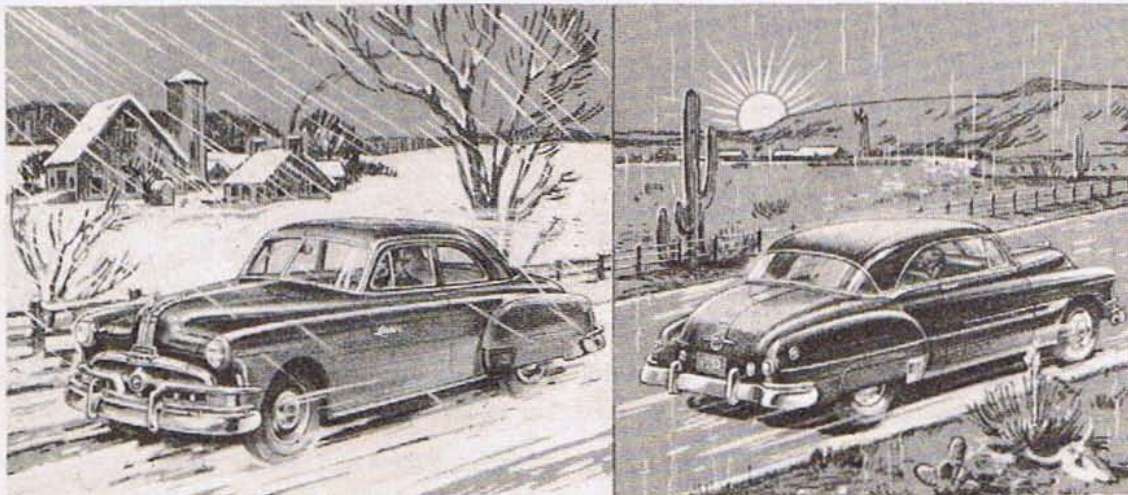
For Transmission Not Functioning Properly—Disconnect the propeller shaft at the rear universal joint and remove from the car by sliding the front universal joint and shaft assembly backwards or raise the rear wheels off the ground to prevent possible damage to the transmission.

For Mechanical Failures Other Than Transmission—Propeller shaft need not be disconnected if transmission has been operating normally providing that car has been driven a minimum of 1,000 miles and that towing speeds of not more than 25 miles per hour are maintained. When towing, place selector lever in neutral.

GM HYDRA-MATIC DRIVE FLUID—The Hydra-Matic transmission should be drained and refilled every 25,000 miles. Use only "GM Hydra-Matic Drive Transmission Fluid" (available at all authorized Pontiac Dealers), or "Automatic Transmission Fluid (Type A)" from containers bearing the marking "AQ-ATF" followed by a series of numbers. (No special additives to these fluids are required or recommended.) Total refill capacity is approximately 11 quarts. In case of emergency, it is possible to use any good grade of 20W engine oil; replace with the specified fluid as soon as possible. Ordinarily flushing of the unit is not necessary; however, if it is flushed for any reason, use only GM Hydra-Matic Drive Fluid.

ALL WEATHER

COMFORT CONTROL



Pontiac engineers have developed certain features that make your car usable and comfortable at all times, be the weather clear or cloudy, rainy or snowy, hot or cold. For example, the Pontiac Unisteel Body with Turret Top is completely insulated with a layer of insulating material that serves to keep out heat in summer and cold in winter.

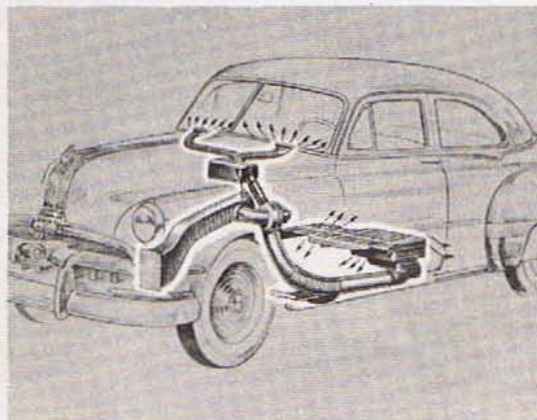
The Fisher Controlled Ventilation (C.V.) system also promotes your comfort by facilitating the proper ventilation of the car. The C. V. window (in the door) may be adjusted in any position to suit weather conditions and provide circulation of outside air in the car. Controlled Ventilation is also useful in preventing fogging of the windows in cold weather.

Duct type ventilators controlled by two knobs under the dash, are also useful in cooling the inside of the car on warm days. The ducts, bringing outside air in each side of the front compartment, are equipped with screens to prevent insects from being drawn into the car.

In addition to these, Pontiac has added some new features on its "Venti-Heat" system. With this system you are afforded the luxury of an atmosphere in your car as comfortable as a well heated, well ventilated modern home but with additional provisions for driving ease and safety.

"Venti-Heat"—Even distribution of heat is provided by the use of a heater distribution manifold running crosswise of the body under the front seat. Heated air entering the manifold is discharged through two pairs of openings on the floor under the front seat; one pair located beneath the driver, the other beneath the right hand front seat passenger. Each pair of openings directs air to both the front and the rear of car, giving four openings for equalized distribution of air.

The "TEMP" control (knob at right hand side of heater control panel) is similar in operation to the thermostatic controls found on automatic oil or gas hot air furnaces. **The heat source automatically turns on and off as the air TEMPERATURE in the car falls below or above the control setting.**



Thus, once the "TEMP" knob is adjusted to produce a comfortable temperature in the car, it is unnecessary to change the setting. This is true even when the car has been standing in the cold because this setting will produce as much heat as an extreme "HIGH" setting to warm up the car.

The air that is heated and circulated through the car is outside air drawn into the car; the Venti-Heat does not recirculate stale air. The "AIR" control (knob at left hand side of heater control panel) regulates the entry of outside air through the under seat unit and defroster unit. Turning the knob to the "OFF" position merely closes the air valves. Turning the knob to "NORMAL" or "DE-ICE" opens the air valve. The "AIR" knob is always left in the "NORMAL" position both in summer and winter. When de-icing the windshield turn air knob to "DE-ICE".

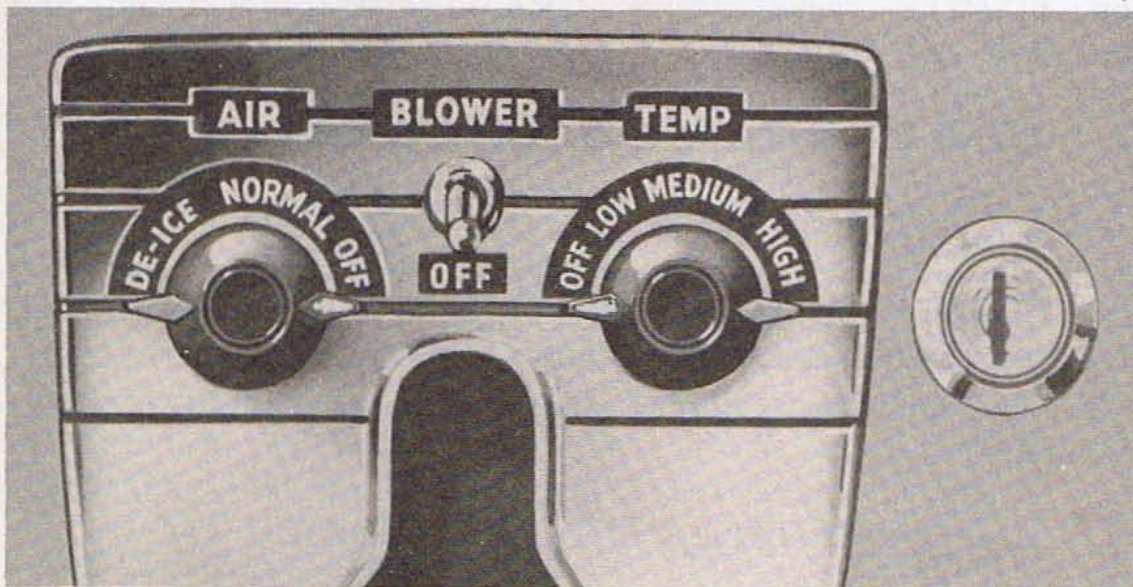
For Offensive Odors Turn "AIR" Knob to "OFF" Position.

NOTE: To keep out offensive odors and exhaust gases when traveling in congested traffic or when parked behind a car having its motor running turn the "AIR" knob on the heater control panel to the "OFF" position and keep blower turned off. Exhaust gases contain carbon monoxide.

"DE-ICE" position on "AIR" control knob forces heated outside air through the windshield defroster and defroster ducts to clear the windshield of ice. With the "AIR" CONTROL KNOB ON "DE-ICE" position there is also a sufficient amount of warm air from the under-seat heater to maintain the desired temperature inside the car.

After de-icing operation is completed turn "AIR" control knob to "NORMAL". In this position, fogging of the windshield and car windows is prevented and cool outside air at the breathing level is supplied. This adds to passenger comfort when the underseat heater is on or when it is necessary to keep the car windows closed.

The "BLOWER" switch in the "ON" position assists in circulating air for both the heater and defroster. (Use of the blower is unnecessary for normal driving conditions because ample air is forced into the system by the forward motion of the car.) It is used when the car is driven slowly or is stopped, to speed up de-icing of the windshield, to prevent fogging of the windows when carrying several passengers, or to provide forced air ventilation when it is necessary to keep the car windows closed while driving in a summer rainstorm.



NORMAL DRIVING WINTER OR SUMMER

To get the best results from your Venti-Heat, make the following settings on the control panel:

"AIR"Set knob at "NORMAL".

"TEMP"Set knob for temperature desired in car.

"BLOWER"Switch "OFF".

The above settings should not be changed except for abnormal driving conditions. It should be noted that when a window ventilator is opened it will draw heat from other parts of the car.

Following are examples of how settings are changed for comfort at the demand of special driving conditions.

TO DE-ICE WINDSHIELD

"AIR" Turn knob to "DE-ICE".
"TEMP" Raise to "HIGH" position.
"BLOWER" Switch "ON".

FOR SUMMER RAIN STORMS OR SLOW CITY TRAFFIC

"AIR" Normal.
"TEMP" See that knob is set to "OFF".
"BLOWER" Switch "ON".

The "AIR" Knob is left at NORMAL which permits the free flow of outside air into the car and helps prevent that moist, sticky feeling formerly experienced in such weather. For ordinary summer driving, the "BLOWER" switch should be left off to conserve current and motor life.

TO KEEP OUT UNPLEASANT OUTSIDE ODORS

"AIR" Turn knob to "OFF".
"BLOWER" Switch "OFF".

The "BLOWER" switch should be left "OFF" to conserve motor life, and the "TEMP" knob can be left in its set position.

The Heater Control Panel is illuminated when instrument cluster lights are on.

WARNING: CARBON MONOXIDE

"Avoid inhaling exhaust gases when any concentration of these are present in the air, i.e., in a garage, in congested traffic, or when stopped closely behind a vehicle with its motor running. Exhaust gases may have strong odors which normally should give warning of their presence. However, the exhaust gases from some vehicles may not be so noticeable under certain conditions and the senses of people react differently. Exhaust gases contain a percentage of carbon monoxide which is a poisonous gas that, by itself, is tasteless, colorless, and odorless".

CAUTION TO STATION WAGON OWNERS

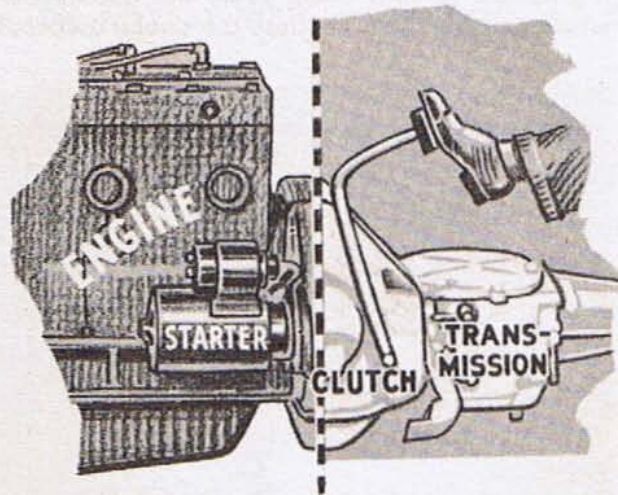
Station Wagons operated with the tail gates open have a tendency to pull exhaust gases into the car. Whenever it is necessary to operate a Station Wagon in this manner the car should be well ventilated. This can be accomplished by opening the ventilators and windows.

STARTING THE ENGINE



Please refer to page 13 for information on starting Hydra-Matic equipped cars.

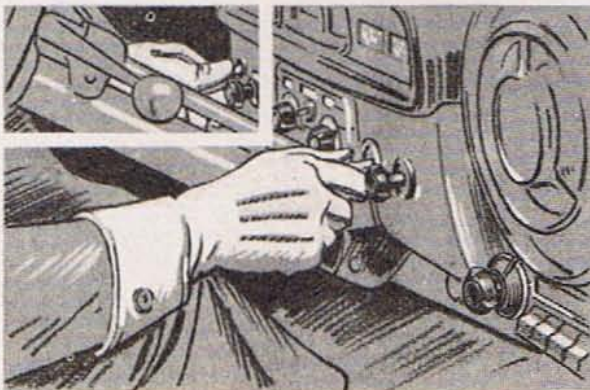
As is true of all cars, it is good practice to hold the clutch pedal down while starting engine. It's the safe thing to do, since there's always a chance that the person who drove the car last may have left it in gear. With the clutch disengaged there is no chance of the car plunging ahead when the engine starts. Besides, disengaging the clutch relieves the starter of the task of turning the transmission gears. This is an important advantage in cold weather starting.



Depressing clutch pedal allows starter to turn engine without turning parts on right side of dotted line.

There is no need for a choke button on your Pontiac. The automatic choke which has been built into your carburetor regulates the adjustment of the gas mixture for you much better than anyone has been able to do by hand.

Also, since a fast idle feature is built into the carburetor, you are relieved of the task of manipulating a hand throttle when starting in cold weather. For this reason, the throttle has been omitted. The engine will run faster just after starting in cold weather, but will slow down automatically as the engine reaches normal operating temperature.

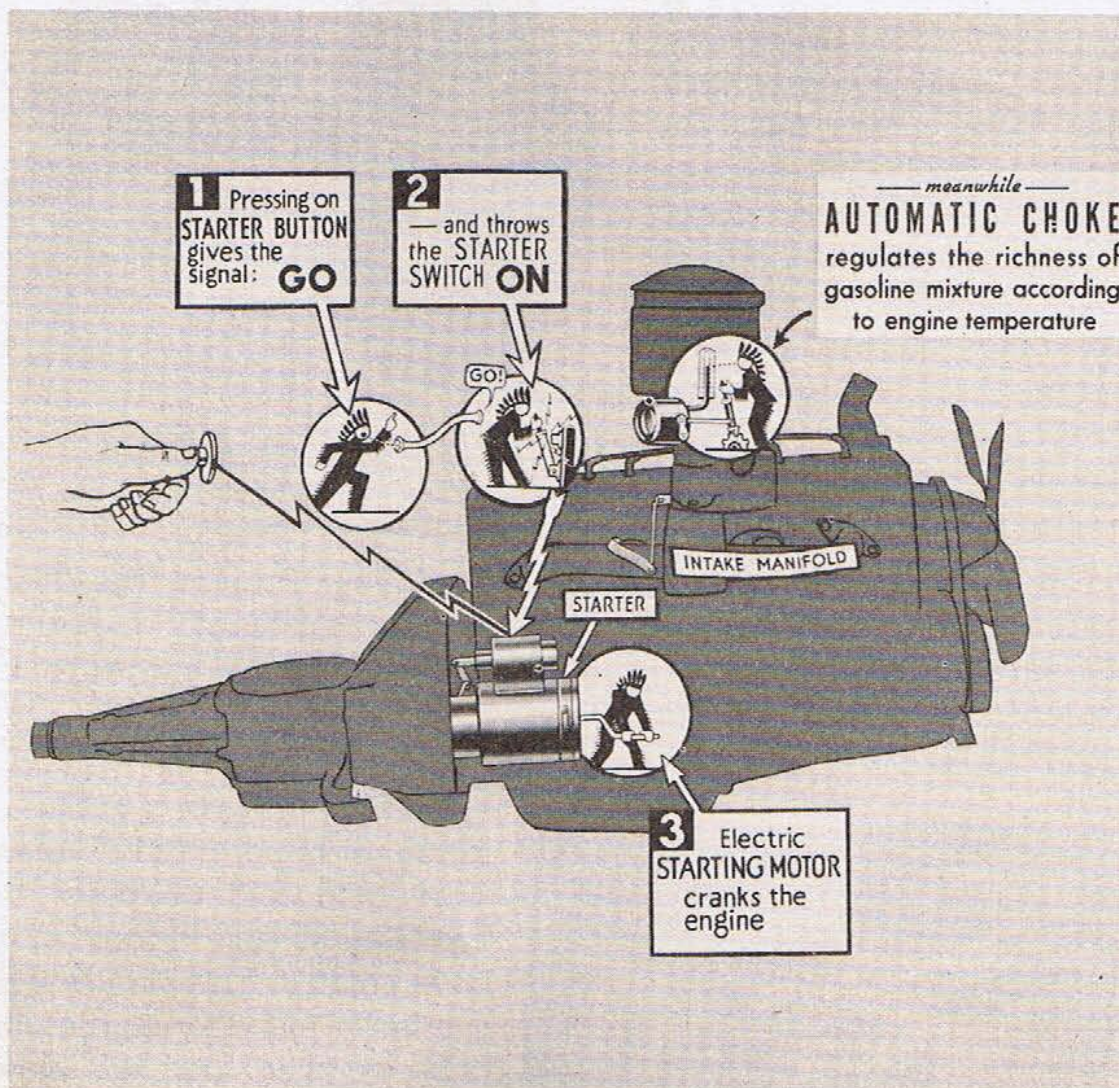


The starter push button is located to the left of the headlamp switch, so in this car all you have to do is (1) depress clutch pedal; (2) press accelerator pedal to the toe-board once and release (in order to set automatic choke); (3) turn on ignition switch and press starter button.

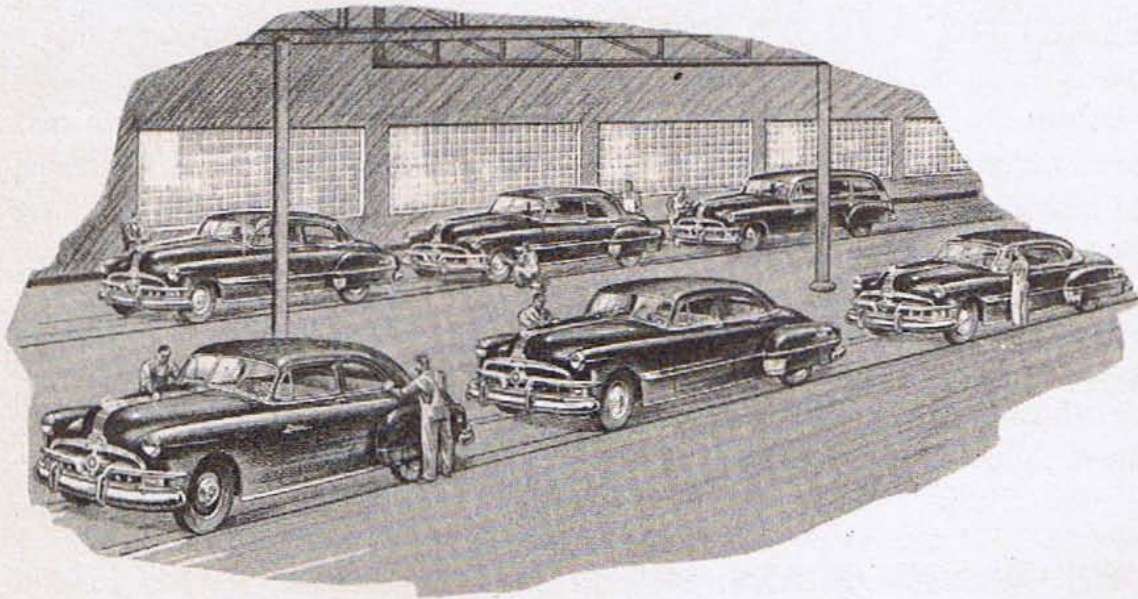
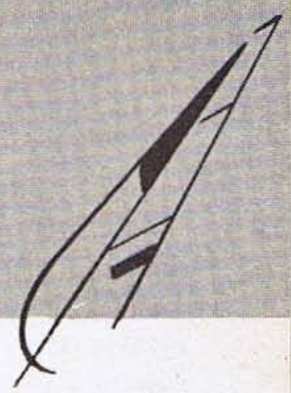
NOTE: When starting a warm or hot engine hold accelerator pedal down half way while pressing starter button.

CAUTION: Do not "pump" the accelerator pedal at any time. Avoid racing the engine during the warming-up period.

NOTE: Should the car fail to start in five to ten seconds, it is possible that the engine is flooded. In that case, press the accelerator slowly to the floor and hold it there when starting. This renders the choke inoperative and relieves the flooded condition.



TAKING CARE OF YOUR PONTIAC



One of the wonders of mass production is that thousands of automobiles can be built—as much alike as peas in a pod.

But even though cars are mechanical "twins", it's very unlikely that they'll need the same service. For drivers vary . . . and so do driving conditions.

One driver races up to stop lights and slams on the brakes; another slows down gradually. An inexperienced motorist may "ride" the clutch; his neighbor doesn't. Perhaps some of your friends "race" their car engines after starting, while you let your Pontiac idle a few moments to give the oil time to circulate. Such differences in driving habits mean different service needs.

. . . And the same holds true of driving conditions. The rural salesman who drives continuously on rough roads won't need the same service as the school teacher who drives almost entirely in the city. Likewise, the motorist in a small town is likely to need different upkeep on his car than the owner who does most of his driving in and around large metropolitan areas.

SOME OF THE FACTORS GOVERNING YOUR CAR'S SERVICE NEEDS



DRIVING HABITS

STARTING AND STOPPING—The driver who beats everyone away from traffic lights and stops by jamming on the brakes at the last minute has to pay for his fun. Rapid starts and stops waste gas and oil and place undue wear on even the best engine parts, brakes and tires.

CRUISING SPEED—Services needed by your car will also depend to some extent on the speeds at which you drive. The motorist who habitually drives over 60 to 70 miles an hour on the open road will need different service than one who cruises at 45 or 50.

USE OF LOW GEARS—At one time or another, you've ridden with drivers who took a couple of blocks to get their cars into high after starting. Low and second gears use far more gas than high gear. The owner who drives in first only long enough to get started and shifts into high at 20 to 25 MPH, saves on both gasoline and service expense.

HANDLING THE CAR—It's easy to see how varying skill in handling a car brings about different service needs. The car owner who bumps into curbs or scrapes fenders when parking naturally requires more service than the motorist who drives carefully.

WARM-UP—Racing the motor or driving at high speeds before the car is warmed up causes unnecessary wear, since the cold oil needs time to circulate fully and efficiently between moving parts. It's a good idea to let the engine run a moment after starting and to drive at moderate speeds for at least ten minutes. This is particularly true in cold weather.

DRIVING CONDITIONS

ROADS—The type of roads over which you drive can make a surprising difference in the service needs of your car. A car driven on rough or stone-surfaced highways, for instance, will need tire replacement and steering and wheel adjustment more often than under ordinary conditions.

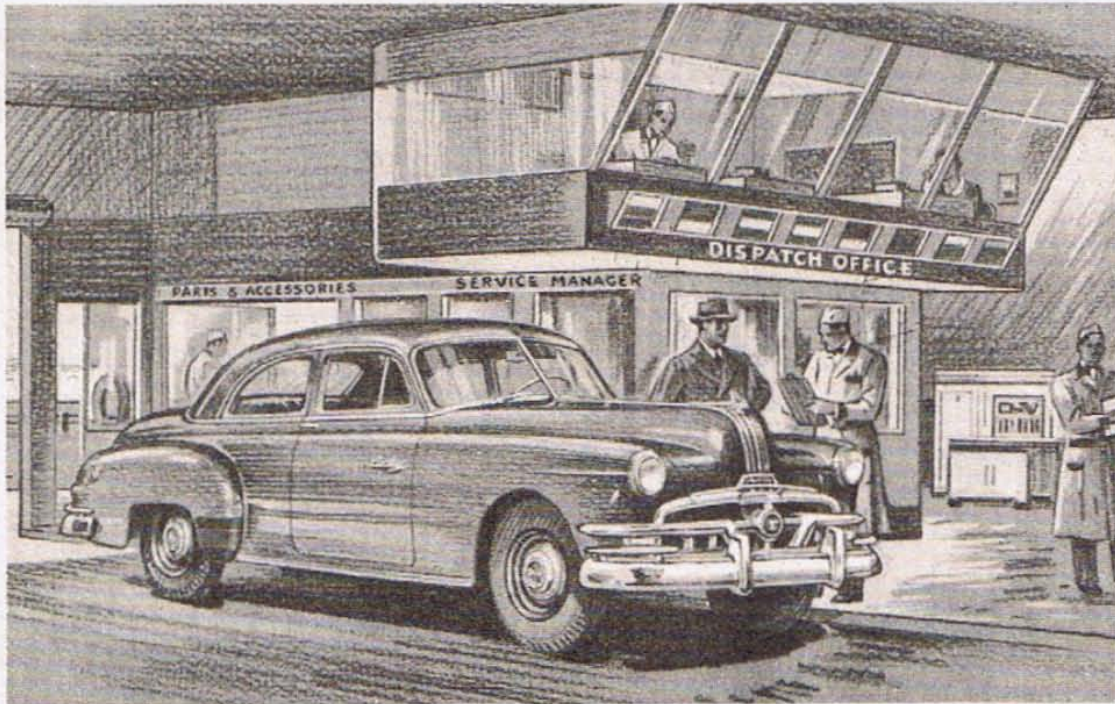
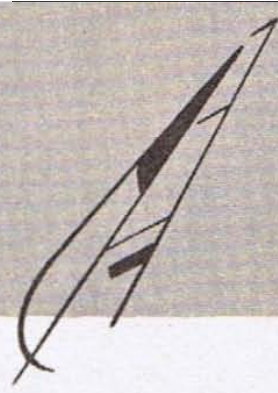
CLIMATE—Owners living in hot climates may need to replace tires somewhat sooner than those who live in the north, since heat is one of the determining factors in tire life. Conversely, those living in cooler areas may find they need more ignition, carburetor, and battery service to maintain good gas mileage and quick, easy starting.

"LAY-OF-THE-LAND"—Lay-of-the-land (scientists call it "topography") also causes variations in service needs. Altitude and the number of hills or mountains your car has to climb make a difference in the up-keep required to keep it in good running order.

CITY vs. COUNTRY—It would be hard to say whether country or city driving is "healthier" for your car. Open highways may lead to engine wear from driving long distances at sustained high speeds, while the restrictions and heavier traffic of city areas cause more stop-and-go driving, with accompanying wear on such items as brakes and tires.

SEASHORE vs. DESERT—A driver whose car is subjected to damp, salt air near the ocean might have to give more than average attention to body and appearance services. On the other hand, motorists driving in desert country have to contend with problems of avoiding engine overheating and excessive wear from dust and sand particles.

HOW TO DECIDE WHAT SERVICE TO BUY FOR YOUR PONTIAC



On the preceding pages, we decided that your Pontiac's service needs will depend on how you drive and the conditions you drive under. If that is true—and no two cars require exactly the same care—how are you to know what service your particular car needs?

The remainder of this booklet will partially answer your question. It tells how often you need many services, based on your individual driving conditions. For example, you will learn that under average driving conditions you can drive 2,000 miles between lubrications and 3,000 miles to 4,000 miles between oil changes. You will also find that you can make simple tests yourself to find out whether you need certain services, such as brake and clutch adjustments.

Even with this information, however, there'll probably be times when you want advice from someone who has a thorough knowledge of both your car and your driving habits. And that's where your Pontiac dealer comes in.

By learning the type of driving you do, your dealer's service manager or service salesman is in a better position than anyone

else to tell what your car needs. Likewise, your dealer's mechanics have everything at their disposal to do the best work at the least possible cost—a specialized knowledge of Pontiac, information on the latest service methods, and time-saving, accurate equipment.

With few exceptions, the only way to determine what your car needs is through your own observation of the way it runs, plus visual inspection or testing by mechanics trained on Pontiac diagnosis.

Most of us must limit to some extent the amount we spend for upkeep on our cars. With that in mind, both this Service Guide and your Pontiac dealer try to let you choose between "plus service" the kind which maintains your car in as nearly perfect condition as possible, and "keep-it-running" service, which aims at securing transportation at absolute minimum cost.



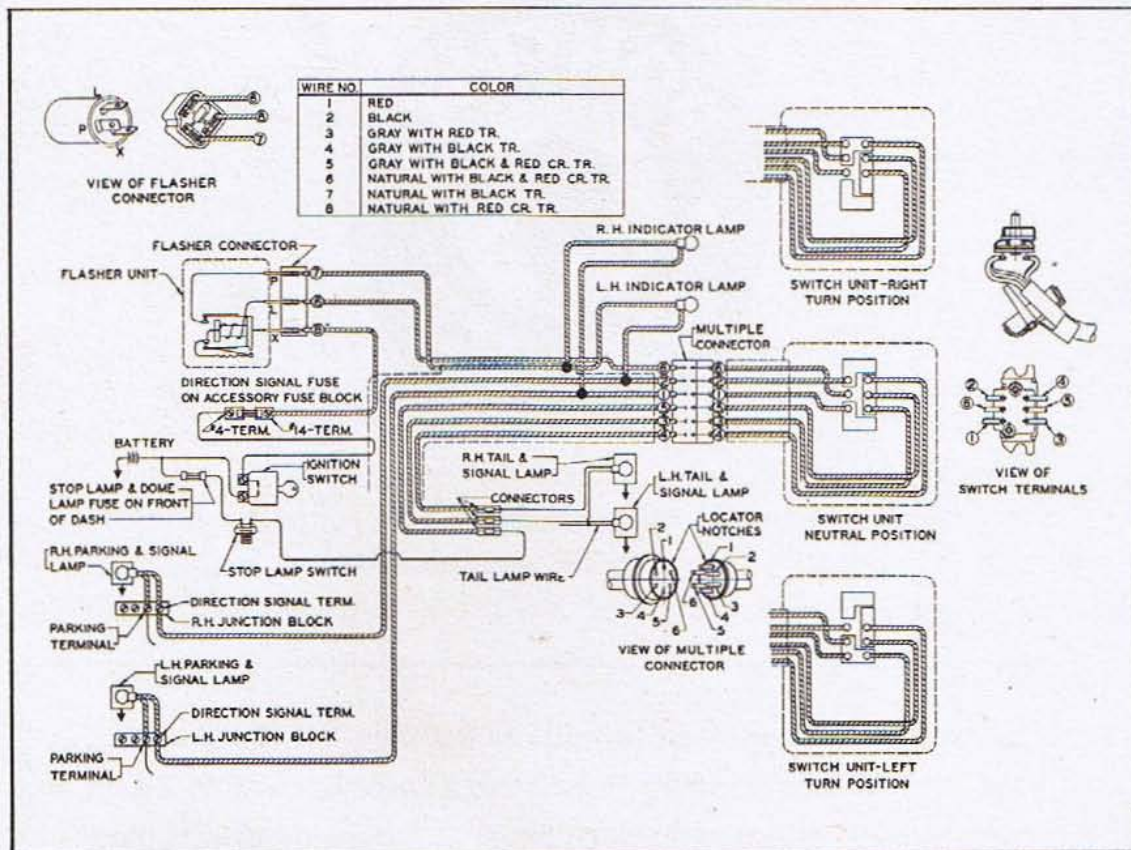
The goal of Pontiac dealers is to provide the finest service at the least cost to the owner. To help do this they maintain a corps of factory trained mechanics working with specially designed service equipment, who attend to all the items of maintenance that keep a car in first class running condition.

WIRING DIAGRAMS

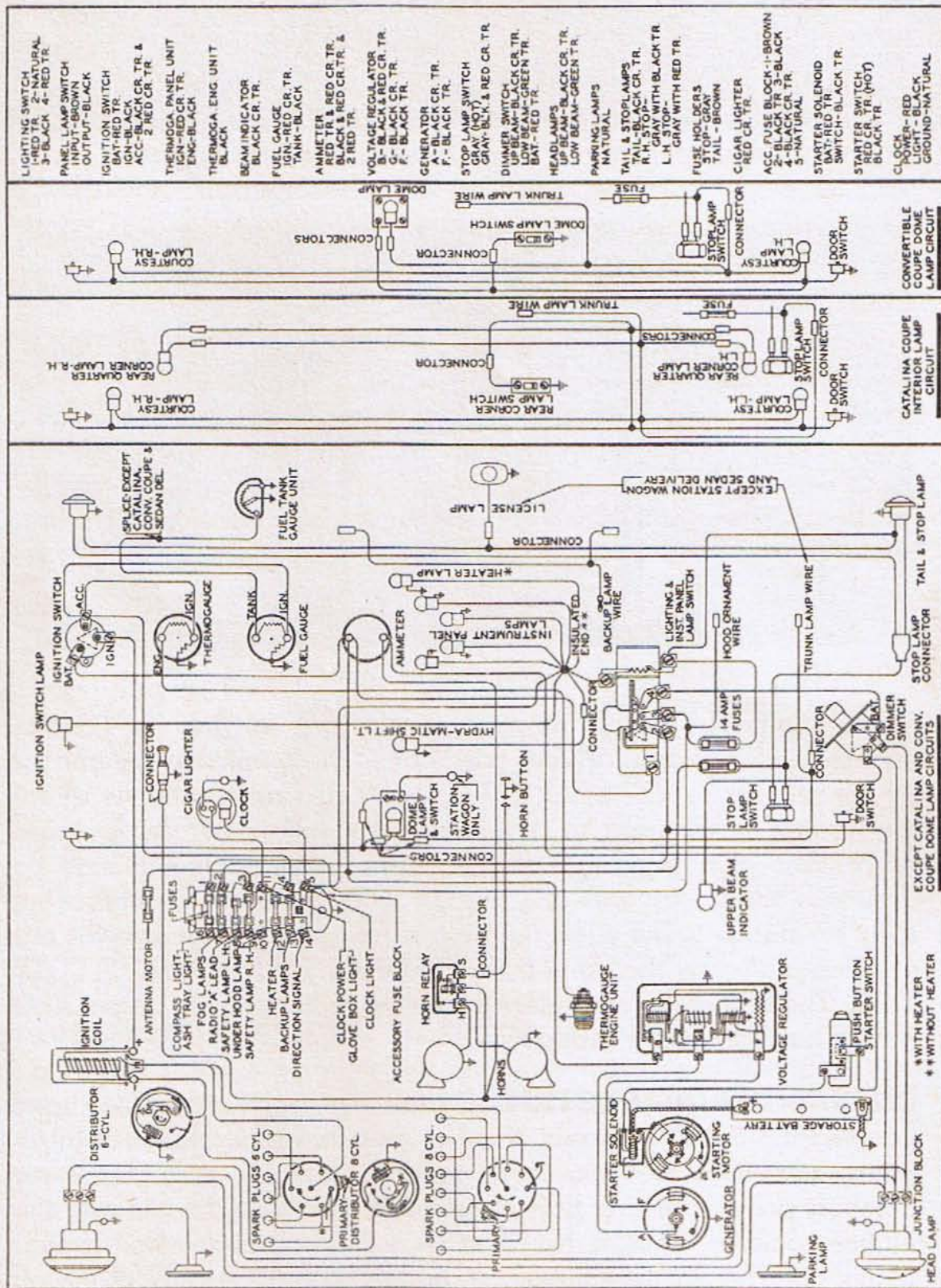


We don't like to burden you with technical details, but so many owners have asked for wiring diagrams that they are included for those who may want to know more about the intricate "nervous system" which makes up the electrical system in your Pontiac.

These diagrams are schematic. That means that they are arranged so that you can see which wires inter-connect each switch, lamp, etc. In a schematic diagram the wires are shown separately, while on the car some are enclosed in looms. The legend on the diagrams refer to the color of the wires which should be connected to each terminal.

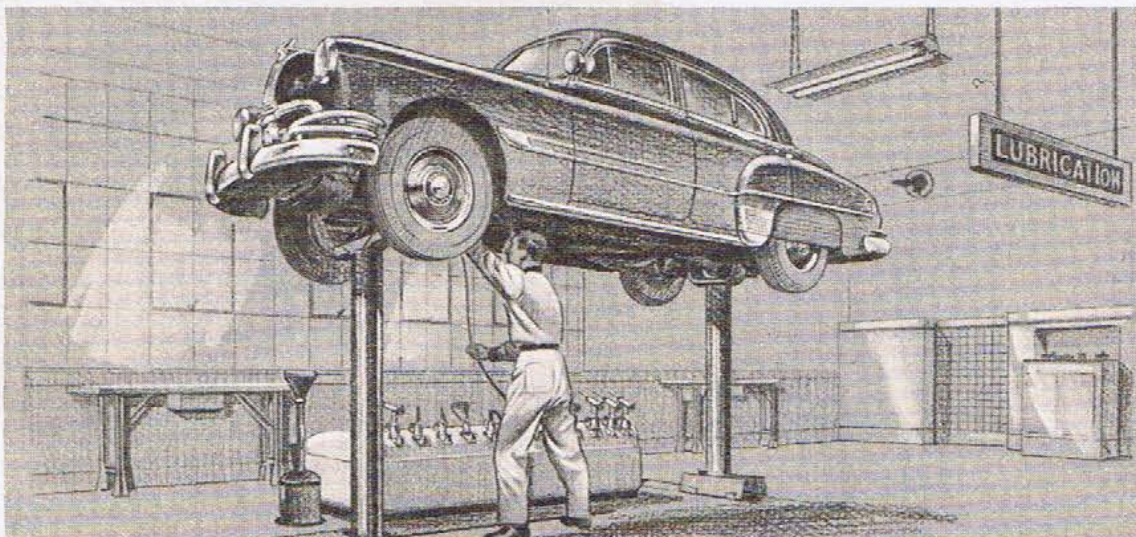
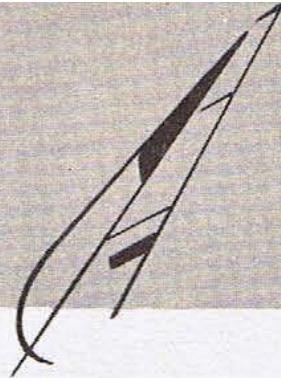


DIRECTION SIGNAL WIRING DIAGRAM



WIRING DIAGRAM—1952 MODELS

ENGINE LUBRICATION

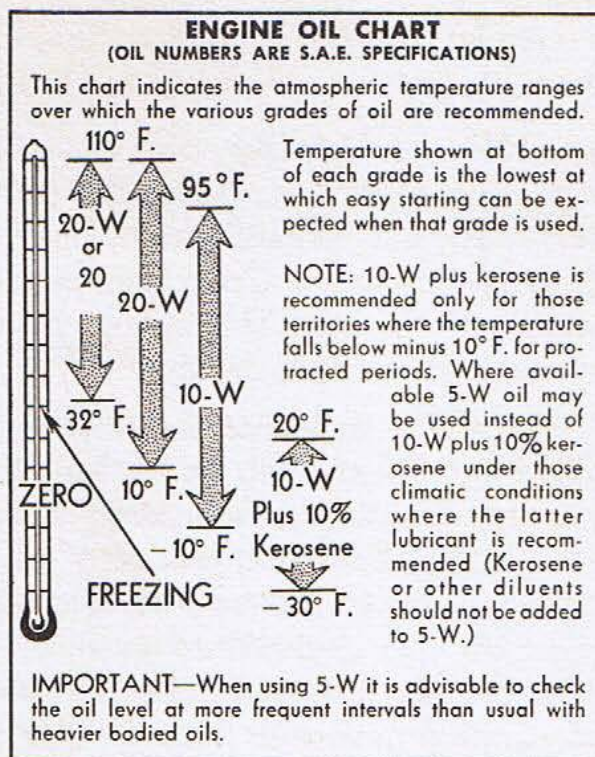


Straight mineral motor oils are satisfactory for use in Pontiac engines under normal driving conditions. These oils are designated by the refiners as REGULAR TYPE. Under driving conditions where the engine is required to develop nearly full power for a large percentage of time as in sustained high-speed driving, it may be desirable to use mineral oils treated with additives for improving their resistance to the effects of high temperatures. These motor oils are designated by the refiners as PREMIUM TYPE or HEAVY DUTY TYPE. The refiners or marketers supplying motor oils are responsible for the quality of their products.

OIL NUMBERING SYSTEM—Practically all oil companies have adopted the S.A.E. Viscosity Number System which classifies lubricants according to viscosity or fluidity. The oils with the lower numbers are lighter and flow more readily than do the oils with the higher numbers. Thus, a No. 10 oil is a light oil and a No. 40 is a heavy oil. The S.A.E. number refers only to the viscosity of the oil and has no reference to any other characteristic or properties. "W" indicates an oil adapted for cold weather starting.

SELECTING OIL WITH THE PROPER NUMBER (VISCOSITY)

—It is important to use oil of the proper number suitable for the climatic conditions you expect to encounter during the period the oil is to be in the engine. The oil chart shown here makes this selection easy since the atmospheric temperature range over which each oil should be used is shown graphically.



ENGINE OIL IN YOUR NEW CAR—During the first 1,000 miles, use the oil in the crankcase as received from the dealer. (Special "break-in" oils are unnecessary. They should not be used under any circumstances unless the manufacturer can furnish satisfactory proof that the compound contains no harmful substances.) At the end of the first 1,000 miles, the crankcase should be drained and refilled to the proper level with an oil suitable for your individual climatic and driving conditions. Should it be necessary to add or change engine oil during the first 1,000 miles, an oil not heavier than 10-W should be used.

WHEN TO CHANGE OIL—For normal driving conditions, an oil change is recommended every 3,000 to 4,000 miles. This applies to all owners with the exception of those driving under conditions shown below.

It is always advisable to drain the crankcase only after the engine is thoroughly warmed. The benefit of draining is lost, to a large extent, if the crankcase is drained when the engine is cold as cold oil will not drain thoroughly.

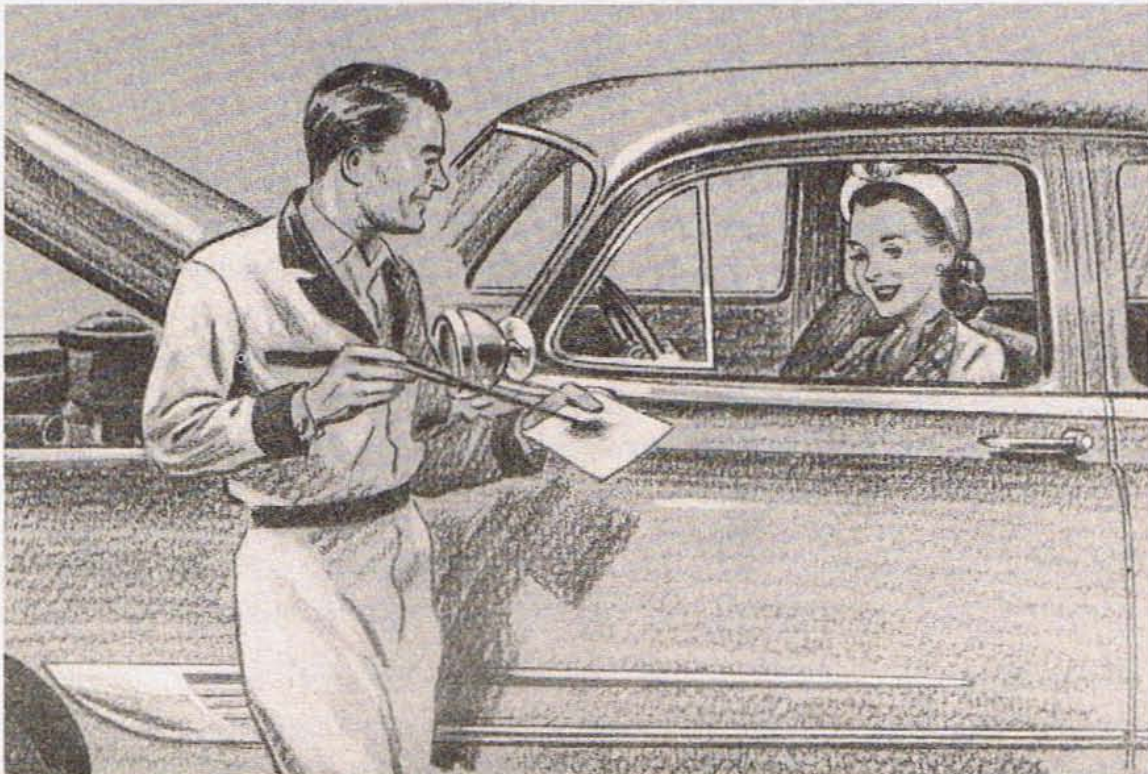
Driving in Dust—When the car is generally operated in dusty territory, consideration should be given to more frequent oil changes.

Short Runs in Cold Weather—Short runs in cold weather (freezing temperatures or lower) such as city driving does not permit the thorough warming up of the engine, and water may accumulate in

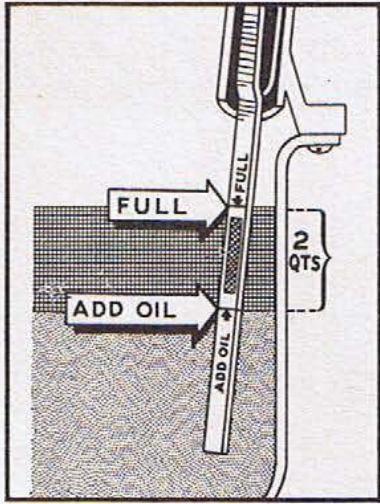
the crankcase from condensation of moisture. Under these conditions, it may be advisable to change oil at 1,000 mile intervals.

High Mileage Driving—For the exceptional person who is operating his car 500* to 1,000 miles per week and using premium or heavy duty oils, consideration may be given to greater mileage between oil changes. On continuous high-speed driving, oils have a tendency to thicken. This should be kept in mind when preparing cars for cold weather driving.

Year-to-year improvements that have been made in the Pontiac lubricating system such as the built-in Pontiac Oil Cleaner and the improved crankcase ventilating system have extended the period over which lubricating oils may be used. In order to protect the working parts of the engine and prolong engine life, engine oil should be changed whenever it becomes contaminated. This will insure continuation of the best performance with low maintenance cost. Contamination is usually due to the accumulation of water, dust or dirt, or the breakdown products of the oil itself. Outside of making a laboratory test, it is practically impossible for anyone to tell the amount of contamination in an oil by either looking at it or feeling it. Experience has shown that the degree of contamination is largely dependent on the conditions under which a car is operated, and, accordingly such conditions must be taken into consideration in deciding when to change oil.



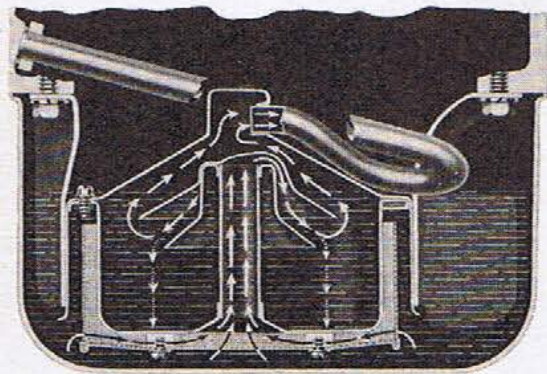
ADDING OIL BETWEEN CHANGES—Since the lubrication system in a Pontiac is a full pressure system, it is not necessary to keep oil level up to the "full" mark. It is only necessary to keep oil level above the "add oil" mark. As shown in the illustration, it takes two quarts to bring the oil level from "add oil" to "full". Each time the gas tank is filled, the oil level should be checked. However, it is good economy to let the oil level approach the "add oil" mark before having your oil changed. (Always be sure the crankcase is up to the "full" mark before starting out on a long drive.)



OIL CLEANER—An oil cleaner is built into the crankcase of your engine to prolong the life of the car.

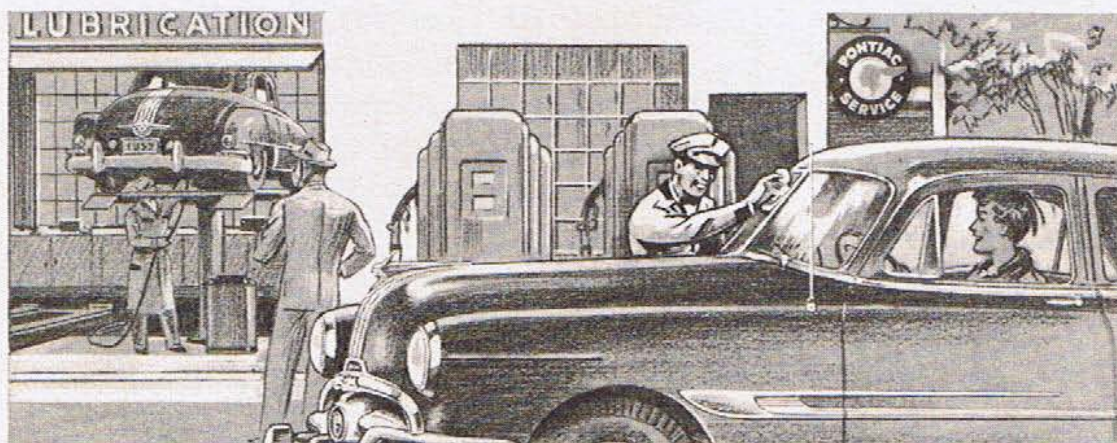
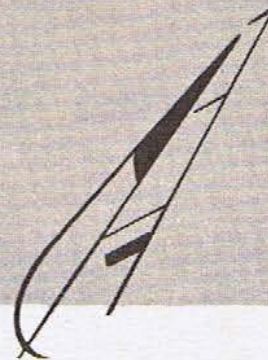
1. Being a precipitation type cleaner, **there is no filter element to replace** and the cleaner is built into the crankcase of the engine at the factory. However, the sediment bowl and screen of the oil cleaner can be removed for cleaning.
2. **All** the oil passes through the cleaner **before** reaching the oil pump and other working parts.
3. Particles of grit and metal that are harmful to bearings are very effectively removed.

The Pontiac Oil Cleaner will not clarify oil by removing discoloration formed chemically within the oil itself, and which experience has shown is not harmful to bearings or other moving parts.



EXTERNAL OIL CLEANER—External type oil filters or cleaners are not necessary or desirable on Pontiac cars and no provision has been made for their installation.

CHASSIS AND BODY LUBRICATION



The average Pontiac owner of today knows that his car should be lubricated periodically to obtain all the value built into it. However, as with changing engine oil, experience has shown that the need for this vital service varies according to the conditions under which the car is driven.

WHEN TO LUBRICATE—For normal driving conditions, lubrication is recommended every 2,000 miles. This applies to all owners with exception of those driving under the conditions described below.

Driving Over Rough and Dusty Roads—When the car is driven over rough and dusty roads, more frequent lubrication might be necessary.

Driving in Slush, Water or Muddy Roads—Cars driven through slush (melting snow), water or on muddy roads should be lubricated at more frequent intervals, due to the washing effect of the water on the lubricant in front suspension parts and the clutch and brake pedal shafts.

Low Mileage Driving—Some few owners drive their cars very little and accumulate mileage slowly. It is good practice for these owners to have their cars lubricated every 1,000 miles.

High Mileage Driving—For the person who operates his car over 500 miles per week under favorable conditions, lubrication once a month is suggested.

MISCELLANEOUS LUBRICATION—The following items should be checked and lubricated as indicated. For more complete and detailed information refer to the lubrication chart enclosed with this manual.

Manifold Heat Valve Shaft Bushing—Check for freedom of movement of manifold heat control valve and lubricate with graphite in alcohol if sticking.

Brake Cables—Lubricate yearly (preferably in the Fall) or when the rear wheels and drums are off to replace brake linings or to make a major brake adjustment. Use Lubriplate, Delco Brake Lubricant or Bendix Brake Lubricant.

Universal Joints—Lubricate Universal Joints every 30,000 miles unless the car is driven at high speeds in hot climates, under which conditions, lubrication at 20,000 mile intervals is recommended. Use high melting point wheel bearing grease.

Steering Gear—If there is evidence of leakage, the leak should be corrected and lubricant added if needed. Check lubricant level once yearly and change the lubricant only if unit is disassembled for repairs. Use all-season steering gear grease.

Rear Axle and Transmission—The rear axle and transmission should be checked for leaks at each lubrication. If there is evidence of leakage, the leak should be corrected and lubricant added if needed. Check the lubricant level once yearly (preferably in the fall) and add lubricant if needed. It is not necessary to change the lubricant unless the unit is disassembled for repairs. Hydra-Matic fluid level should be checked every 2,000 miles and fluid changed every 25,000 miles

It is a pretty good idea to watch your garage floor for signs of leaks as they will show up under the units which might be leaking.

When adding lubricant or refilling, use S.A.E. 80 or 90* "extreme pressure gear lubricant" for Synchro-Mesh transmissions, use GM Hydra-Matic Drive Fluid for Hydra-Matic transmissions, and S.A.E. 90 Hypoid Lubricant* (suitable for passenger car duty) for the rear axle.

*NOTE: "Multi-purpose Gear Lubricants" may be used in the transmission, but should not be used in the differential except on the responsibility of the lubricant supplier, and only after the unit is thoroughly broken in.

Brake Master Cylinder—If there is evidence of leakage in the brake hydraulic system, the leak should be corrected and fluid added if needed; otherwise, it should be checked at the time of brake adjustment. (When adding brake fluid GM or Delco Super 9 Brake Fluid is recommended.)

Front Wheel Bearings—Should be lubricated only when it is necessary to remove the wheels and drums for other work such as brake relining. The amount of high quality lubricant used at the time of manufacture is entirely adequate for this period. If the wheel bearings are found to be discolored (turning blue or straw colored) it does not mean that they have been heated due to lack of lubricant. This discoloration is merely a chemical reaction of substances in the lubricant and does not affect the serviceability of the bearing in any manner. When lubricating, the bearing should be cleaned and packed with high melting point wheel bearing grease. The importance of properly adjusting wheel bearings after lubrication should not be overlooked.

Rear Springs—Lubricate by repacking spring covers with chassis lubricant when squeaks develop. Rubber bushings are used in the rear spring shackles AND ARE NOT TO BE LUBRICATED.

Steering Column Gear Shift Controls—The steering column gear shift control linkage is lubricated at assembly and requires further lubrication with Lubriplate only when the parts become dry and sticky.

Hydra-Matic Linkage—Lubricate with light engine oil every 2,000 miles.

Shock Absorbers—Front and rear shock absorbers should be checked for leaks and their operation tested by jouncing the car at each lubrication. If inoperative, or leaks are found, the unit must be replaced.

Speedometer Drive Cable—To be lubricated when dry—usually noticeable by a wavering of the speedometer needle. A very dry cable, of course, will be noisy. Use a suitable speedometer cable grease which will not become hard and stiff when cold.

Door and Rear Deck Locks—Whenever it becomes difficult to insert the key in the lock, a small amount of powdered graphite can be blown into the lock cylinder.

Station Wagon—Apply light oil to lower rear gate hinges every 2,000 miles.

Battery—The level of the solution in your battery should be kept at least to the bottom of the vent well. Check this level at regular lubrication intervals, and more frequently in extremely warm weather. Add distilled water to bring the battery solution to proper level whenever necessary.

CAUTION: Battery fumes are inflammable and toxic.

LUBRICATION WITH SPRING AND FALL TUNE-UP—OR EVERY 10,000 MILES—The units of your car discussed below should be lubricated every Spring and Fall—or every 10,000 miles. This service is included in your Pontiac Dealer's Tune-up Diagnosis. The lubrication of these units is just as important to long car life as those items receiving the regular 2,000 mile lubrication. Since these units do not require frequent lubrication, they are often missed or forgotten entirely as they require "getting into" your engine mechanically.

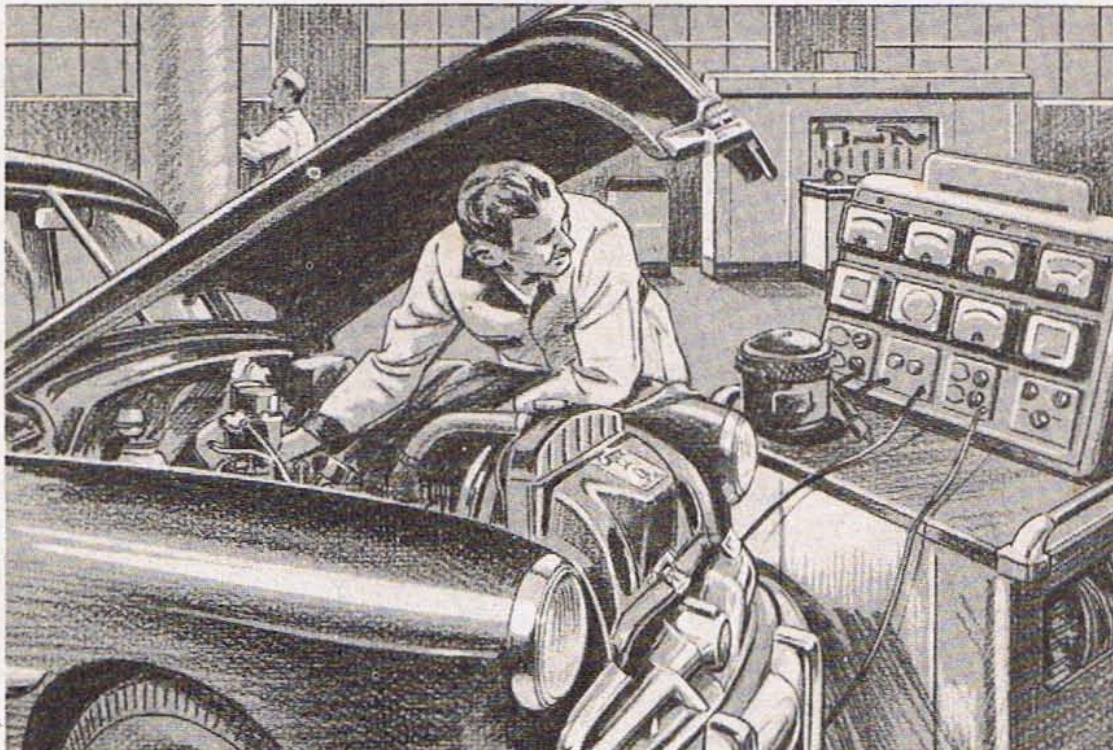
Distributor Lubrication—There are four places to lubricate inside the distributor. They include the cam, rotor wick, breaker-point pivot, and breaker plate felt. They do not require much attention, but as with your home appliances, they do need some lubrication to give maximum service. Every spring or fall, or 10,000 miles, apply a trace of petrolatum on the cam, a drop of light engine oil on the rotor wick, and breaker-point pivot, and 4 or 5 drops to the movable breaker plate felt. (Add at edge of plate so oil runs down on felt between movable and fixed breaker plates.)

Carburetor Accelerator Pump Arm—Use light engine oil on eight cylinder carburetor pump arm. No lubrication is required on the six cylinder carburetor.

Cleaning Oil Filler Cap and Carburetor Air Cleaner—Cleaning of the carburetor air cleaner and the crankcase ventilator inlet, which is built into the oil filler cap, is included in the Tune-up Diagnosis which should be performed in the Spring and Fall or every 10,000 miles. If the Heavy Duty air cleaner is used, the crankcase breather outlet should also be cleaned. However, if the car is operated in areas where dust conditions are bad, clean the carburetor air cleaner and oil filler cap every 2,000 miles.

Underseat Heater Air Valve Lever Trunnion—Lubricate trunnion on defroster air valve shaft outer lever (mounted on defroster on engine side of dash) with light engine oil every 2,000 miles.

TUNE-UP DIAGNOSIS



Engine tune-up has long been the term used to indicate almost any group of service operations covering repairs and adjustments of the ignition, compression, and carburetion systems on automobile engines. Many car owners in the past years have had, at times, the experience of having their cars "tuned up" only to find that the trouble they were experiencing was not corrected.

In trying to avoid this difficulty, tune-ups which included just about every service that could be done on an engine were recommended. While these complete tune-ups were successful in correcting many troubles, they were expensive and owners sometimes paid for a lot of service they didn't need.

To assist owners in getting what they need and avoiding unnecessary expense, many Pontiac dealers are offering a specialized Tune-Up Diagnosis Service. This includes: First, the few minor adjustments to the ignition, compression and carburetion systems needed at regular intervals; Second, a group of minor lubrication, and maintenance jobs on the electrical system needed twice yearly

or every 10,000 miles; and finally a complete test and diagnosis to tell you the condition of the entire ignition, compression, and carburetion systems.

This service may be obtained at a nominal cost. While it is not intended as a "cure-all", it will help eliminate guesswork in locating potential causes of engine trouble and prevent future trouble.

WHEN TO HAVE A TUNE-UP DIAGNOSIS JOB—Due to the differences in driving habits and driving conditions, it is rather hard to set a definite schedule for this service. Generally speaking, it is good practice for the average driver to have a Tune-Up Diagnosis in the Spring and again in the Fall. If you use your car in your work and put on a lot of miles, you may want to have this job performed every 10,000 miles.

On the other hand, some owners may prefer to get a tune-up only when some irregularity such as hard starting or missing at low speeds indicates that some service is needed. This is not a bad rule when a car is fairly new, but as mileage increases the possibility of failures in the ignition, compression, and carburetion systems increases. Furthermore, failures experienced on the road might prove costly, particularly if they happen at night or on a Sunday drive when service stations are closed. Your Pontiac dealer's Tune-Up Diagnosis service will help find deficiencies in the ignition, compression, and carburetion systems before they occur, thus saving you inconvenience and expense.

SERVICES INCLUDED IN THE TUNE-UP DIAGNOSIS—The services of the Tune-Up Diagnosis can be segregated into three groups of operations. The first group includes the adjustments which are recommended as necessary every Spring and Fall or every 10,000 miles. The second group has the lubrication of those engine units which do not require attention every 2,000 miles. The last part of the Tune-Up Diagnosis covers checking and testing the ignition, compression, and carburetion systems for indications of trouble.

TUNE-UP ADJUSTMENT GROUP—

1. Clean and space spark plugs, (spark plug gap .025").
2. Clean and space distributor points (breaker contact gap .022" on six cylinder and .016" on eight.)
3. Set timing.
4. Adjust carburetor idle.

MINOR MAINTENANCE AND LUBRICATION GROUP

1. Add water to battery.
2. Wipe external parts of spark plugs distributor cap, coil terminal and ignition wires.

3. Lubricate distributor rotor wick, cam, breaker-point pivot, breaker plate felt.
4. Lubricate carburetor pump arm (on 8 cylinder cars only).
5. Clean fuel pump sediment bowl.
6. Clean and re-oil carburetor air cleaner and oil filler and ventilator cap.

NOTE: When heavy duty oil bath air cleaner and ventilator equipment is used, ventilator outlet should also be cleaned.

DIAGNOSIS GROUP

1. Tests and checks on the engine as shown on the sample Tune-Up Diagnosis Sheet reproduced on page 44.

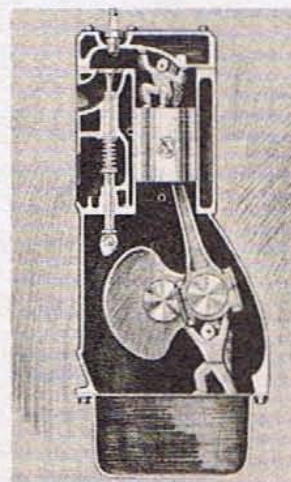
By purchasing the complete tune-up diagnosis rather than having the individual operations performed at separate times, a saving is achieved by eliminating over-lapping or duplicating operations. Then you only pay for having each operation performed once—and in the most efficient order.

The Tune-Up Diagnosis checks and tests eliminate "guesswork" errors in diagnosis. These tests also help avoid starting difficulty in cold weather or trouble on the road by finding indications of impending trouble before it occurs.

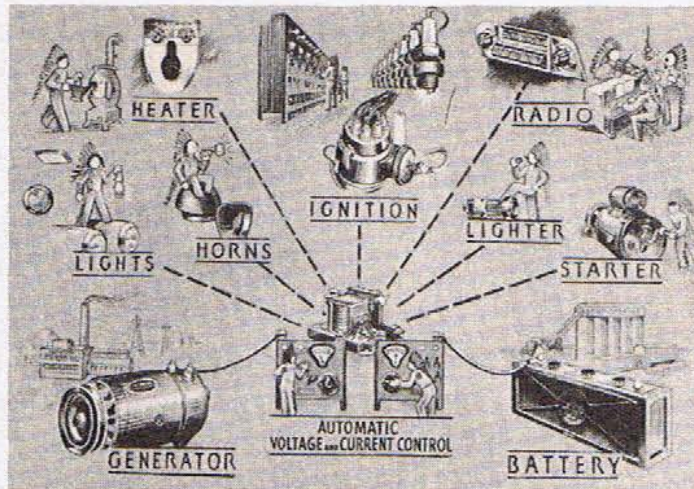
If at all possible, we recommend that you stay and watch as the service man makes these tests.

THE TUNE-UP DIAGNOSIS TESTS—The Tune-Up Diagnosis tests are performed as shown on the test sheet reproduced on page 44. While this test sheet may look complicated, with such items as Vacuum Reading, Cylinder Balance, Starting Motor Amperage Draw, and Distributor Resistance, the tests are actually very simple. In order to understand some of the tests and checks, they have been divided into three fundamental sections—compression, ignition, and carburetion, each having an individual function in the operation of the engine. We will explain briefly the three sections and how they must work together to give you a good operating engine.

COMPRESSION—Compression in your motor is the squeezing of the air-fuel mixture in the cylinder. If you drove cars in the days when hand cranking was common, you'll remember that the newer the engine was, the higher the compression, or the harder it was to "turn-over". Keeping compression at its maximum and equalized in all cylinders insures smooth powerful operation. The tests in the compression section check the compression in each cylinder and tell you the condition of the piston rings and valves.



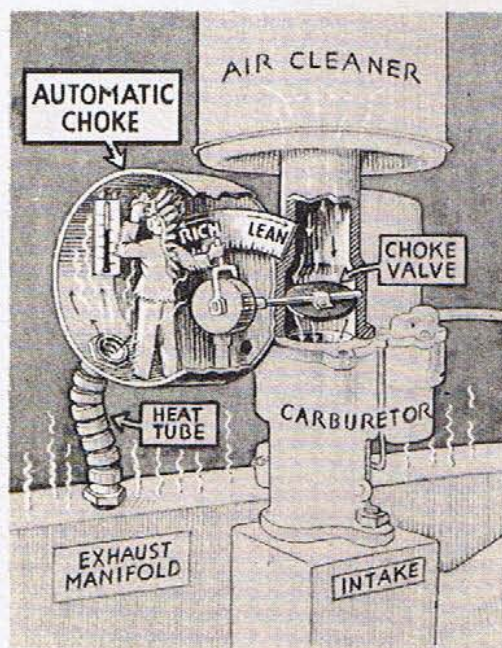
ELECTRICAL—In the early days of the automobile industry, electricity was used only for the ignition. Later the electrical equipment was expanded to take over the starting and lighting of the car. Then as time went on, the discriminating motorist began to expect



conveniences in his automobile rivaling those of the modern home. Electricity came to play a more and more vital role, until today the electrical system is called upon to take care of such equipment as radios, heaters, spotlights, horns, cigar lighters, and even electric fans.

The electrical system in your car is like a miniature electrical plant that serves a city. The generator and charging circuit is like a central power house with the battery as an electrical storage tank. From the generator some of the main feed wires go to the distributor, which can be thought of as the central switchboard of the ignition system because it intermittently and automatically connects each spark plug with the electrical current so that ignition of the gas in the cylinder occurs at exactly the right time. Other feed wires go to the lights, horns and electrical accessories.

The tests on the electrical system check each of the three electrical circuits; the starting, the ignition, and the charging circuits.



CARBURETION—Carburetion is the automatic mixing of gasoline with air in the proper proportions at all engine speeds and temperatures. This is done by the carburetor and the built-in automatic choke.

In the carburetor all the openings through which fuel and air travel are fixed, excepting the idling jets which are controlled by the idling adjusting screws. All other mixtures of gasoline and air are automatically controlled in relation to the needs of the engine by metering rods.

As you probably know, a fuel-air mixture which contains a large proportion of gasoline is called a "rich" mixture. One that contains relatively little gas is called "lean" mixture. The proper richness or leanness of the mixture depends not only on the speed of the engine, but also on the temperature of the engine. The carburetor takes care of the former—automatic choke takes care of the latter.

The choke controls the choking of your engine automatically—better than even the most expert driver could do with the old-style hand equipment. A thermostatic arrangement lets the temperature of the air under the hood control the richness of the mixture. A linkage is also provided which is connected with the carburetor throttle and causes the engine to operate in "fast idle" during the warm-up period.

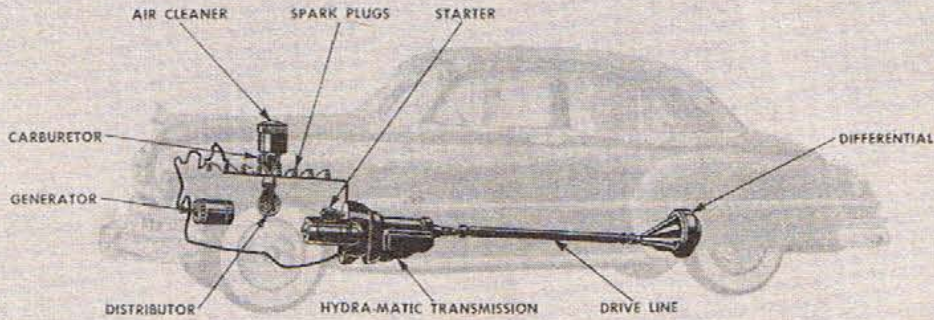
As the engine warms up, richness is decreased. When normal operating temperature is reached, the choking mechanism automatically shuts off and engine slows down to the proper idle speed.

A carburetor is like a man's appendix; it gets blamed for everything. It takes the blame for hard starting, slow pick-up, poor acceleration, balky engine or low gas mileage. The trouble can be in the carburetor, of course, but all these symptoms can also be caused by irregularities in the ignition or compression systems.

The checks made on the carburetion system will show what adjustments, if any, are needed.

PONTIAC

TUNE-UP DIAGNOSIS REPORT



PRESERVE PERFORMANCE AND PROTECT YOUR INVESTMENT

One of the most important things we can do to protect your investment in your Pontiac is to maintain its performance. Our Pontiac Tune-Up Diagnosis presents a true picture of the

condition of your car. This scientific analysis with special Pontiac test equipment permits us to accurately recommend needed services before real repair problems develop.

Remember keeping your car in top condition will Preserve Performance and Protect Your Investment

Name	Address	Phone <input type="checkbox"/> Home <input type="checkbox"/> Bus.
City	State	Date
Model	License	R. O. No.

Here's what we found out about your Car

RECOMMENDED SERVICES	LABOR	PARTS	TOTAL

NOTE: Items checked (✓) need attention now. Ask our Service Inspector for further information.

(SERVICE INSPECTOR)



Look on the Reverse Side for further Information →

Here's the report form many Pontiac dealers use in performing the Tune-Up Diagnosis. The tune-up work and tests performed in this operation, which appear on the reverse side of this form, are shown on the next page.

PONTIAC TUNE-UP DIAGNOSIS



INSTRUCTIONS TO MECHANIC

Operations and tests printed in black are to be performed on all cars. Tests printed in green are to be performed only when additional facts are necessary. Recommendations for any additional needed service should be listed on the reverse side.

- 1 **Specific Gravity**
Cell No. 1 _____ Cell No. 2 _____ Cell No. 3 _____
- 2 **Add Water to Battery and Inspect General Condition**
- 3 **Battery Capacity**
Should read above 4.5 volts with 500 amp discharge for 15 seconds.
- 4 **Starting Circuit Voltage:**
Cranking should read 5 volts or more for 15 seconds.
Starting motor condition: _____
Brakes, Hoses, cables, grease or dirt, bearings, commutator: _____
Washer System: _____ Battery Cables: _____
Starting motor electrical circuit: _____
- 5 **Oil Starter Pedal Shaft (1948 and earlier models)**
- 6 **Wipe External Surfaces of Ignition Wires, Distributor Cap and Coil Terminals**
- 7 **Lubricate Distributor Wick, Cam, Breaker Point Pivot (all models), Balls and Races (1948 and earlier models)**
Distributor Cap _____ Rotor _____
Ignition Cables _____ Suppressor _____
Distributor Points _____
- 8 **Distributor Condition Check:**
Condenser Condition _____
Resistance _____ Capacity _____
Insulation _____
Distributor Resistance _____
Should read in black band on dwell track. If not, check:
Points _____ Gaps _____
Vacuum Advance _____ Automatic Advance _____
Breaker Point spring tension _____
Breaker Plate and Housing _____
Wickling _____ Cam _____
Space Distributor Points (Distributor in engine and new points)
4 Cyl.—22° and 31° to 37° Dwell Angle
6 Cyl.—18° and 25° to 29° Dwell Angle
NOTE: If owner reports trouble indicating difficulty in the ignition system which is not remedied by the above work, perform the following tests:
Coil Condition _____
Primary Circuit _____ Ignition Switch _____
Secondary Resistance _____ Ammeter _____
- 9 **Clean and Re-Oil Air Cleaner, Crankcase Ventilator Inlet and Outlet**
- 10 **Remove and Discard Choke Screen (if present), Test Freedom of Valve**
- 11 **Lubricate Accelerator Pump Arm Shaft**
- 12 **Check Throttle Cracker Opening (1948 and earlier models)**
- 13 **Clean Fuel Pump Bowl**
NOTE: If owner reports trouble indicating difficulty in fuel pump, perform the following test:
Fuel Pump Vacuum _____ Fuel Pump Pressure _____
At 1800 RPM 4.5 to 6.0 inches vacuum
Fuel Pump Capacity _____
1 gal in 45 seconds at 500 RPM
REVISED 3-5-61

- 14 **Inspect Manifold Heat Control for Freedom of Movement**
- START ENGINE**
- Inspect items 15 through 18 while engine is warming up to operating temperature.
- 15 **Lights** _____ **Horns** _____ **Heater** _____ **Defroster** _____
Radio _____ **Cigar Lighter** _____ **Instruments** _____
 - Accessories _____
 - 16 **Windshield Wiper** _____ **Clutch Pedal** _____
Cooling System _____ **Oil Leaks** _____
 - 17 **Inspect for Unusual Tire Wear**
 - 18 **Inspect Exhaust System for Leaks**
(Exhaust pipe, muffler, tail pipe.)
 - 19 **Set Engine RPM—Idle Speed**
450, 475 RPM 7 to 8 MPH
High Speeds—345 to 365 RPM
 - 20 **Set Ignition Timing**
Set to 0° advance mark.
 - 21 **Vacuum Reading**
Should read 18 to 21 inches steady. If steady and low, re-check ignition timing.
Cylinder Evaluation _____
Lean poor distribution, uneven mixture, no timing _____
Vacuum at 1/2 throttle _____ Idle vacuum _____
Cylinder Evaluation (see page 1) _____
1 _____ 2 _____ 3 _____ 4 _____
5 _____ 6 _____ 7 _____ 8 _____
At cylinder dead end mark 4 or 10 inches advance _____
Piston and ring condition _____
Valve condition _____
 - 22 **Clean and Regap Spark Plugs**
Gap should be .025". Wipe external surfaces of plugs.
 - 23 **Inspect Generator Condition**
Beads, Hoses, cables, grease or dirt, bearings, commutator.
Generator circuit connections _____
If owner reports trouble indicating difficulty in generator circuit, perform the following tests with the car at operating temperature:
Circuit Breaker _____
Check and charge voltage _____
13.2-13.7 V. 1948 and earlier 13.4-13.7 V. 1949-50-51 models
Generator Output _____
RPM (tachometer) _____
37.24 amps 1178 in-coupled 72-73 amps 1948-50 models 40-45 amps 1951 Model _____
Voltage Regulator _____
Check voltage at each system terminal _____
7.5-8.5 V. 1948 models 9.5-12 V. 1949-50-51 models
Examine regulator cover with plate _____
 - 24 **Milliamper Current at Spark Plugs**
Should read uniform at each spark plug (1949 and earlier models). 1950 and later Models see pages 13-24, 1949-50 Shop Manual.
 - 25 **Combustion Test:**
Idle Speed System _____
Should read approximately 70% of idle speed + or - 3%
High Speed System _____
Should read approximately 65% at 2000 RPM + or - 3%
Accelerating System _____
Should read 70% to 20% rich when accelerated at 2000 RPM.
- ROAD TEST**
- 26 **Set Ignition to Borderline Detonation**
 - 27 **Test Operation and Adjustment of:**
Brakes (foot and hand) _____
Clutch _____ Steering _____



TIRES

INFLATION PRESSURE should be checked every month when tires are cold. If one or more tires are consistently lower than others, look for a puncture or slow leak. Inflation pressure should be checked before the car has been driven any considerable distance, that is, before the tires get warm. Tires should be at atmospheric temperature when they are inflated. Remember that inflation pressure will drop or raise approximately one pound per square inch (or 4%) with each ten degrees fall or rise in atmospheric temperature.

All Models except Station Wagon and Sedan Delivery

TIRE SIZE	INFLATION PRESSURE—LBS. (COLD)
Standard.....	7.10-15 24
Optional at Extra Cost..	7.60-15 22 front 20 rear

Station Wagon and Sedan Delivery

Standard.....	7.10-15 (6 ply rating)	28 front 30 rear
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Over Inflation



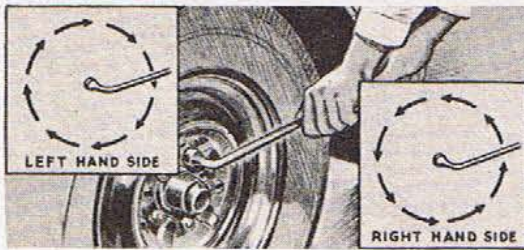
Under Inflation



Proper Inflation

Do not bleed air to reduce pressure when tires are warm.

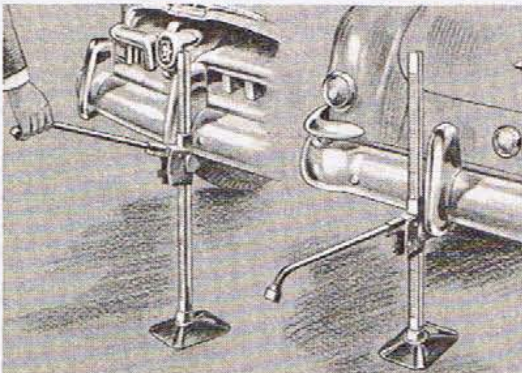
You can get the most from your tires by keeping them inflated to the recommended pressures when cold. Actual tests show that 30% under-inflation reduced tire life by one-half. Likewise, over-inflation reduces tire life and decreases comfort and safety. However, do not bleed air from tires when they are warm or hot even though the gauge reading is higher than the recommendation, since this could lead to under-inflation.



*Direction for Loosening
Wheel Lock Nuts*

CHANGING TIRES—In changing tires, first loosen the nut and clamp which hold the spare tire in place and remove the spare tire from the compartment. It's a good idea to get the spare out before doing anything else.

1. Set the hand brake securely (block front wheels if rear end is to be raised) and remove the hub cap. Barely loosen the nuts which hold the wheel in place, using the socket end of the jack handle. The wheel nuts on the left side of the car loosen by turning in a clockwise direction, and those on the right side by turning in a counter-clockwise direction. See illustration above.)
2. Set the small lever on side of jack to "UP" position and place jack under the bumper, in vertical position, about 18" from center on front bumper or 24" from center on rear bumper. Pump jack handle until tire is clear of the road.



NOTE: If the lifter on the jack is too high on the stand to slip under the bumper, set the small lever on side of lifter to "DOWN" position, lift up on the socket handle and slide the lifter down.

3. Turn off the nuts which hold the wheel in place, using the socket end of the jack handle. Slide wheel from hub and replace with spare, replacing the nuts. Tighten the hub nuts all around gradually.
4. To lower the car, set the small lever on side of lifter to "DOWN" position, lower the jack and tighten the hub nuts with the wheel on the ground. Replace the hub cap. Although you may never need to use your jack, it might be a good idea to try it out at your convenience by going through the above instructions.
5. Replace tools in trunk. (See page 12.)

REMOVING AND REPLACING REAR FENDER PANELS—The rear fender panel is removed by lifting the locking lever (located at the bottom center of the panel) up and in towards the wheel to disengage the lever from the panel. Then pull down and out rotating the lever until it is straight out from the panel. Pull lever down to disengage the top of the panel from the fender. Pull the top of the panel out and disengage the panel from the end hook hangers.

Rear fender panels are replaced by placing the panel on the end hook hangers, fitting the top of the panel against the fender and lifting the lever up as far as it will go. Then rotate the locking lever in towards the wheel and reset the locking lever.

TIRE BALANCE—Tires are marked at the factory with a red mark on the sidewall near the bead denoting the light point of the casing.

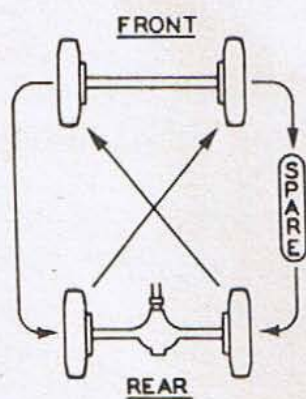
The valve stem is the heavy point of the tube and should always be placed at this mark.

All tires and tubes vary somewhat in their individual amounts of off-balance and are, therefore, matched at the factory to counter-balance each other.

Due to irregularities in tread wear caused by sudden brake applications, misalignment, low inflation pressures, tube or tire repairs, etc., a tire and tube assembly can lose its original balance.

If a disturbance is felt in the steering wheel due to the action of the front wheels, or if pounding, tramping, or shimmying is experienced while driving, one of the first items to check is the static balance of tires and wheels.

TO CLEAN WHITE SIDEWALLS—Use soap, warm water and stiff brush to remove road grime and curb dirt from white sidewall tires. Use a fine grade of steel wool for severe cases. Do not use gasoline, kerosene, or any oil product that will discolor the sidewalls or rot the rubber.



TIRE SWITCHING—Switching tires from one position to another on the car usually prolongs tire life. If you have four good tires, you might consider switching at regular intervals by cross-changing them from right front to left rear and left front to right rear. With five good tires, however, tire switching as shown in the diagram saves tires by equalizing wear and "exercising" the spare. By having your tires switched every 4,000 miles and using the

spare, you can drive 20,000 miles and only put 16,000 miles wear on each of the tires.

SAVING TIRES WHEN YOU DRIVE—Maximum tire life can be secured by careful attention to driving habits and a few essential details of service. We have listed below the most important points to help you secure this maximum.

1. Keep tires properly inflated at all times.
2. Avoid spinning wheels when starting.
3. Avoid sudden stops.
4. Turn corners at moderate speeds.
5. Steer around bumps, ruts, or minor obstructions in the road.
6. Keep out of car tracks.
7. Do not bump or scrape the curb.
8. Keep the front wheels in proper alignment. (See page 55.)
9. Keep brakes adjusted. Uneven brake adjustment causes uneven tire wear.
10. Don't forget to check the pressure of the spare tire once in a while.
11. Interchange tires every 4,000 miles. (See above.)

COOLING SYSTEM

COOLING SYSTEM CAPACITIES

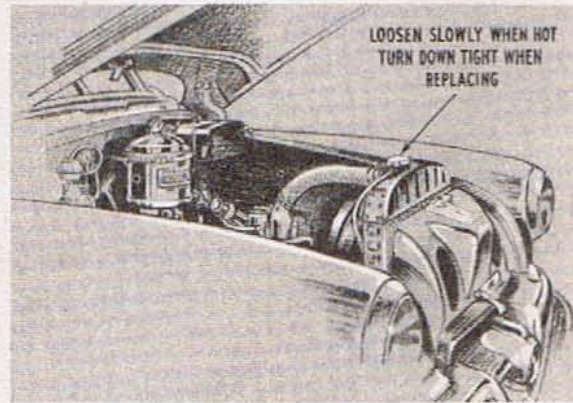
6 cylinder engine 18 qts.—with underseat heater, 19 $\frac{3}{4}$ qts.

8 cylinder engine 19 $\frac{1}{2}$ qts.—with underseat heater, 21 $\frac{1}{4}$ qts.

SEALED COOLING RADIATOR CAP AND THERMOSTAT—

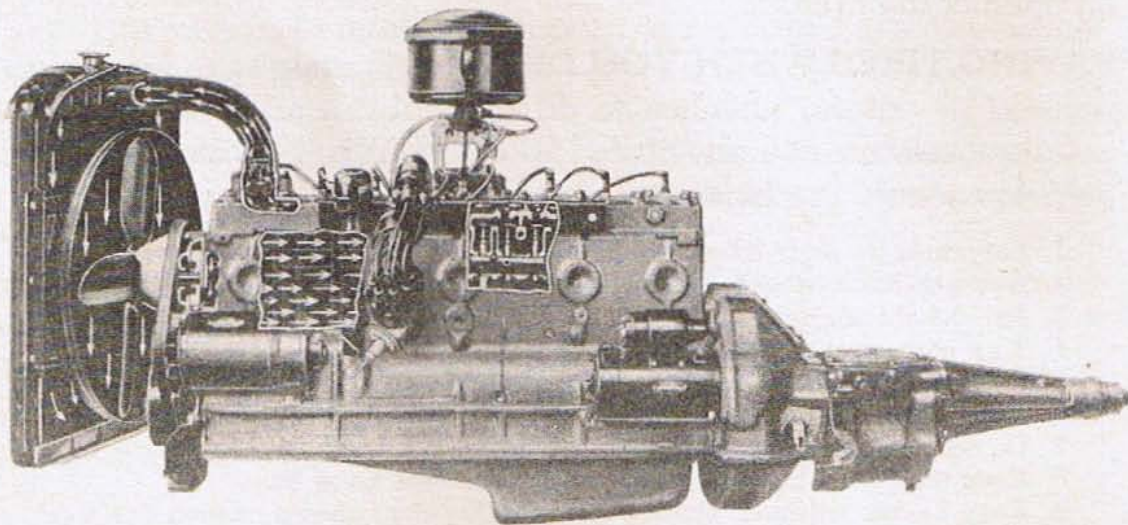
A 7 lb. per sq. in. radiator pressure cap is used to provide better cooling.

Water temperature is controlled by a thermostat built into the water outlet elbow on the cylinder head. In cold weather, this thermostat is closed during the large part of the time, preventing the water from circulating through the radiator core and thus shortening the warm-up period. This also shortens the length of time



required to get heat to your hot water heater. When the engine reaches operating temperature, the thermostat opens, allowing the water to pass through the radiator as usual.

On initial warm up of the engine from a cold start the radiator pressure cap will cause the engine temperature to rise to about 180° with the standard 151° thermostat. The temperature will drop as the car continues in operation after the thermostat has once opened completely.



Due to this characteristic of the higher pressure system, the use of a 160° or 170° thermostat with alcohol or methanol base anti-freeze solution may cause the coolant to boil under certain conditions. Therefore, only the 151° thermostat should be used with these types of anti-freeze. A noticeable hissing or singing noise resulting from the valve in the sealed cooling cap opening and closing may be from engine overheating.

CHECKING COOLANT LEVEL—It should not be necessary to check coolant level unless temperature gauge shows overheating, and then not until engine is stopped and allowed to cool to normal.

CAUTION: Extreme care must be taken when removing radiator pressure cap while engine is hot because relieving the pressure will cause the cooling system to boil, if alcohol is used for anti-freeze, with resultant loss of water or anti-freeze solution. When removing filler cap, rotate cap toward left very slowly; if hissing of vapor is encountered, tighten cap immediately and wait for system to cool sufficiently to allow removal of cap. After pressure in the system has been relieved, turn cap more forcibly to left and remove. Turn cap all the way to the right when installing. This caution should not be taken lightly since severe injury and fire (if alcohol and other inflammable vapors are present) are possible if the radiator cap is removed while there is pressure in the cooling system.

NOTE: If through some mischance the water in the radiator should get extremely low and the engine very hot, let it cool off for ten or fifteen minutes before adding water, then add it slowly, with the engine running. Cold water on hot surfaces might crack the cylinder head or block.

BLOWING INSECTS FROM RADIATOR CORE—Excessive accumulation of insects may block the air passages of the radiator core and cause overheating of the cooling system. This condition can be easily corrected by having the radiator air passages blown out with compressed air at your Pontiac dealer. Or if you prefer, you can do it yourself by using the garden hose to force water through the radiator (from the engine side to the grille) thereby removing the insects from the front of the core.

TIGHTENING COOLING SYSTEM CONNECTIONS AND CYLINDER HEAD BOLTS—Before installing anti-freeze in the fall, be sure that all the cooling system connections and cylinder head bolts are properly tightened to prevent leaks. This is a minor service and costs very little, but it can easily save you the price of a new charge of anti-freeze later in the winter.

USING RUST PREVENTIVE—Nearly all the anti-freezes on the market today contain chemicals to inhibit rust formation in the cooling system. Since rust forms more rapidly in the higher temperatures common in summer driving, you may want to continue this protection after draining anti-freeze in the spring.

This may be done by adding a can of GM Radiator Rust Preventive or a suitable substitute to your cooling system solution at the time you have anti-freeze removed. (Avoid the use of any rust preventive which might include petroleum oils, because of possible harmful effects on radiator and heater hose.)

FLUSHING—When you will actually need this service depends to a great extent on whether you keep a rust preventive in the cooling system as described above and also on the amount of "scale" the water in your community deposits in the cooling system. If you want to make sure your cooling system is always in the best shape, however, it's a good idea to have it flushed every fall before you install anti-freeze. Radiator flushing is performed by disconnecting the hose between the radiator and engine block and "pressure flushing" the radiator unit to remove all rust, rubber particles and other foreign matter.

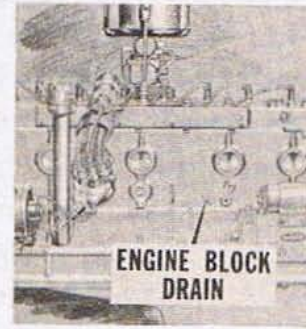
If reverse flow flushing facilities for cleaning your cooling system are not convenient, you might run the engine until it is warm; then, stop the engine, back off or remove radiator filler cap, and open the two drain valves for the cooling system. (See Storing Car, Page 51.) Both valves and radiator filler must be open to drain the engine completely. After the liquid has drained off, refill the cooling system with hot water, run the engine for a few minutes and again drain the system. Repeat this operation until the water is clean when it is drained.

In cases where the accumulation of rust and scale is so great that this method does not clean the system adequately, the system can be flushed out using GM Cooling System Cleaner, or other suitable cleaner—follow the directions on the cleaner container. After this operation, the system must again be thoroughly flushed to remove all traces of the cleaning solution. Do not allow any of the solution to reach the car finish.



STORING THE CAR—If the car is to be stored during cold weather, back off or remove radiator filler cap then open the two drain valves. One is located on the front of the radiator core in the lower right-hand corner and one on the left-hand side of the engine block. Both are easily reached when the hood is open.

The underseat heater should be drained by disconnecting both hose at the heater.



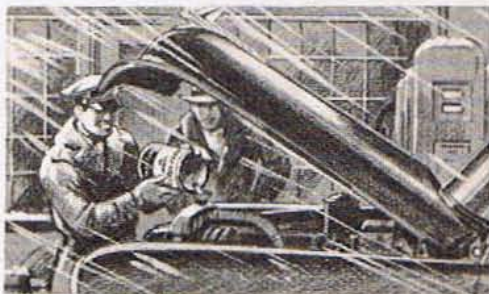
ANTI-FREEZE

In pouring alcohol or GM Anti-Freeze (volatile type solution) in the radiator, be careful not to get any on the Duco finish of your car. If some should be accidentally spilled on the Duco surface, rinsing it off at once with cold water will prevent any damage.

Here is a table showing the amount of alcohol, GM Anti-Freeze (volatile type solution) and GM Ethylene Glycol (non-evaporating Anti-Freeze) required to protect your car down to the temperatures indicated on cars equipped with underseat heaters.

Freezing Point Temperature	ALCOHOL		GM ANTI-FREEZE			
	Quarts		Volatile Type Quarts		Ethylene Glycol Quarts	
	"6"	"8"	"6"	"8"	"6"	"8"
0°....	7.....	7½	5½...6		6½...7	
-10°....	8½.....	9	6½...7		8....8½	
-20°....	9½.....	10½	7½...8		9....9½	
-30°....	11.....	11½	8½...9		10...10½	

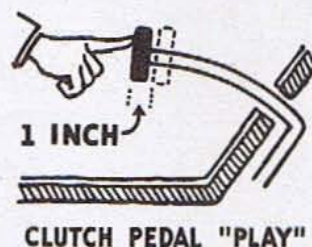
NOTE: When using an anti-freeze other than the above, follow the manufacturer's directions. Kerosene, calcium chloride, sodium silicate, honey, sugar and like materials are not satisfactory to use in the cooling system.



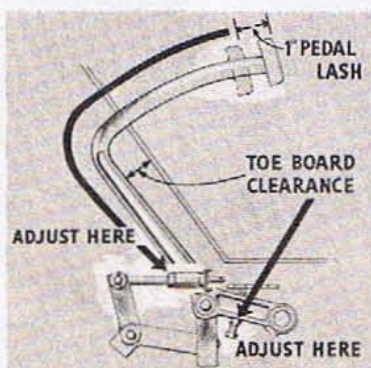
Anti-Freeze mixtures are expensive so it is important not to lose them through loose water connections. Before putting them in your radiator it is a good idea to have the cylinder head gasket and hose connections inspected and carefully tightened, or, if necessary, replaced.

CLUTCH

PROLONGING CLUTCH LIFE—The clutch in your Pontiac will not require much attention due to the use of a clutch throwout ball bearing which is lubricated for life at the factory. However, normal wear in the clutch facings will result in a gradual change in the pedal "play". Excessive wear may be caused by "riding" the clutch, the habit some drivers have of resting the left foot on the clutch, thus keeping the releasing parts in contact but not disengaging. Excessive wear can also be caused by rough usage. Letting the clutch up "with a bang" is not only hard on the clutch itself but also on tires and the entire car.



Another practice which puts needless wear on the clutch is "holding" your car on a hill by partially releasing the clutch instead of using the brake.

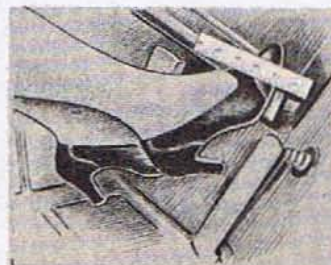


CLUTCH PEDAL ADJUSTMENT—The clutch pedal should be adjusted from time to time so that it has some free travel before the clutch actually begins to disengage. The pressure of one finger should be enough to push the pedal in about an inch before the resistance of the clutch springs is felt. If there is little or no "play" or free travel, the clutch may be slipping somewhat, which will cause it to wear out

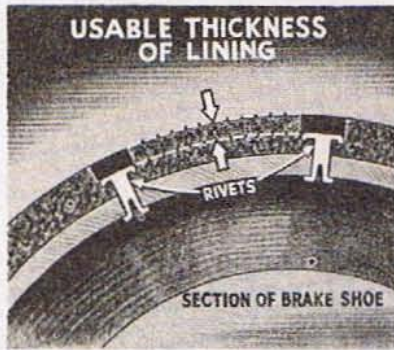
faster. If there is too much "play", the clutch may not disengage completely and cause gear shifting trouble. When free travel is less than $\frac{3}{4}$ inch or more than $1\frac{1}{8}$ inch, an adjustment should be made.

BRAKES

WHEN TO ADJUST BRAKES—Engineers agree that the brakes on your car need adjustment when the pedal goes within one inch of the floorboard in making an ordinary stop. You need this one inch brake pedal reserve to make emergency stops, since the heat generated in making a fast stop expands the brake drums and allows the pedal to go closer to the floor.



WHEN TO RELINE* BRAKES—New brake linings are usually necessary after three or four adjustments, when the brake lining is worn down to the rivets which fasten the lining to the brake shoe.



Exposed rivets will score brake drums and lead to expensive repairs.

Inspection of the lining after a wheel has been removed is the only way to tell when a brake reline is necessary. You can save by asking your service man to inspect the brake shoes at the third adjustment, so you can see for yourself if relining is necessary.

OTHER BRAKE SERVICE—As a general rule, the only brake service you will need will be brake adjustments and relining at high mileages. However, if you notice anything unusual about your brakes (squeaks, grabbiness, springy pedal, pulling to one side or one tire sliding ahead of the others when brakes are applied), it's a good safety precaution to take your car to a Pontiac Service Station immediately and locate the cause.

PROLONGING THE LIFE OF YOUR BRAKES—Here are a few suggestions to give you safe brakes at a minimum of expense:

1. When your car is new or when new linings have been installed, apply brakes carefully the first few hundred miles until the lining surfaces have acquired a smooth finish.
2. In mountainous country, use a lower gear going downhill. This allows the engine to do part of the braking and saves on your brakes.
3. Have your brakes adjusted when you can push the brake pedal within one inch of the floorboard.
4. If you want to get the maximum service out of your brake lining, have the wheels removed and all dust and dirt blown out of the drums and the brake shoe mechanisms lubricated every time the brakes are adjusted. It is poor economy to have brakes adjusted without performing this simple extra service. Removing the drums also permits examination of the brake lining.
5. Leave the car in gear in ordinary traffic stops until the car is practically stopped. This lets the engine do a good share of the braking job and adds miles to brake life.

*When it is necessary to reline your brakes, it is a good idea to have Genuine Pontiac Brake Shoe sets installed to make sure you get linings engineered for your car and correctly ground and riveted to the shoes.

6. Anticipate traffic stops so you can slow down gradually. Sudden stops make your passengers uncomfortable and also wear brakes out faster and decrease gas mileage and tire life.
7. Have the brake master cylinder checked for leaks at each chassis lubrication.
8. Don't accept substitute brake fluid for refills. Fluid containing mineral oils will ruin the braking system and result in expensive repairs.
9. Remember that cleanliness is extremely important to proper brake operation. Pontiac Service men realize this and are extremely careful to keep brake parts clean.
10. Low tire pressures or unequal tire pressures will sometimes cause brakes to work unevenly. Therefore, check tire pressures regularly.

STEERING GEAR

TAKING THE "PLAY" OUT OF THE STEERING GEAR—

"Play" may be a great thing on a baseball field or golf course, but it's nothing to brag about when it gets in the steering gear.



You don't have to be an engineer to understand this, either. Any time you feel play in the steering gear, you can be pretty sure that some part of the steering mechanism has become loose.*

Chances are you may not even notice steering wheel play. Pontiac steering gears are sturdily constructed; and, when play does develop, it frequently occurs so gradually that most motorists unconsciously adjust their driving to it without knowing it is there. It may not come to your attention until you happen to drive on a particularly rough road or in a stiff cross-wind.

The steering gear is one of the easiest parts of your Pontiac to take care of. The lubricant never has to be changed unless the gear is disassembled. An inspection for possible lubricant leaks at chassis lubrication periods is all that is necessary.

*Play can also occur in the steering linkage and front wheels. See Front Wheel Alignment.

WHEN TO ADJUST THE STEERING GEAR—No specific mileage can be set up for taking the play out of the steering gear. This will vary with the conditions under which your car is operated. An adjustment should be made, however, whenever you have to turn the wheel several inches before the front wheels turn or when the steering seems loose when driving on dirt or gravel roads.

FRONT WHEEL ALIGNMENT—Car handling ease, good riding qualities, easy steering and driving comfort are some of the qualities built into the Tru-Arc Steering on your Pontiac. You can do much to preserve these qualities by keeping front wheels properly aligned.

While natural wear in steering linkage and knee action parts may cause misalignment at high mileage, you can make the need for this service less frequent by having your car lubricated at recommended intervals.

WHEN TO HAVE FRONT WHEEL ALIGNMENT CHECKED—

Despite the mysterious sound of such terms as camber, caster, toe-in and front-end geometry, it really isn't hard to tell when your car needs front wheel alignment. Whenever you find that your car is losing its "roadability" or handling ease, it is advisable to have the front wheel alignment checked. Your Pontiac service men will be glad to do this at any time, using special equipment designed for this purpose.



PONTIAC

APPROVED ACCESSORIES



If your new Pontiac is "ACCESSORIZED" with any of the Pontiac Factory-Installed accessories . . . you're in for some real driving satisfaction! Satisfaction that comes from tying in your basic driving requirements with Pontiac's outstanding engineering and quality production. Always remember that every Pontiac approved accessory is engineered with the same exacting methods as your fine Pontiac car.

Pontiac's new 1952 accessories are styled to match your pride in your Silver Streak Pontiac. From the interior, where the Electric Clock has the unique setting in the distinctive radio speaker grille . . . to the exterior where the Fender Panels form a continuous sweep with the low body style . . . your Pontiac, "ACCESSORIZED" to conform with your subtle taste in added beauty . . . new comfort . . . sound safety . . . and deluxe utility will fit your individual driving requirements.

Among the 1952 Pontiac accessories is the Chieftain Radio with sparkling performance and amazingly sensitive long distance reception . . . and an individual rheostat Volume Control Rear Seat Speaker, which gives you radio-lovers the feeling of riding right in sound. The Direction Signal, Tissue Dispenser, Fog Lights, Grille Guards, Rear Deck Guards, Back-up Lights, Trim Rings, Portable Refrigerator, Auto-Home Electric Shaver, and Safti Spot Light with Rear View Mirror attached, are some of the many approved Pontiac accessories which are available to "ACCESSORIZE" your new Pontiac to your individual driving requirements.

Check your Glove Box "CDS" folder . . . it will explain the benefits of the accessories that are checked as installed on your car and will also aid you in selecting additional accessories that you desire. These accessories are available only from your Pontiac dealer.

"Accessorize"
FOR
"MIGHTY ENJOYABLE DRIVING"

PONTIAC WASHABLE NYLON SLIP COVERS

One of the most down to earth applications of Nylon in the past years of its existence, is for automobile slip covers. The qualities of nylon provide you, the Pontiac owner, with the finest covers you may obtain. The outstanding feature of Pontiac's Nylon Slip Covers is the ease with which they can be removed, washed and replaced.

When your covers become dirty or stained, you may use one of two methods to clean them; they may be washed either on or off the seats. Prior to washing in either manner, you should check the cover first for stubborn stains like grease or chocolate syrup. If a grease stain is found, use an accepted spot remover or naphtha directly on the spot. Chocolate may be removed by applying soap or detergent directly to the stain—a few brisk rubs will have it clean in a jiffy. Then proceed in washing the covers.

If the covers are only dusty, you may sponge wash them on the car. Just take a sponge or cloth soaked in soap and water or detergent and wipe the whole cover section seam to seam. Then take your sponge or cloth and rinse your seat covers with clean water to remove all trace of soap or detergent. Rub briskly with a bath towel and allow the covers to dry. Should you desire to remove the seat covers to wash them, slip the covers off, place them in a washing machine or laundry tub and wash them. Rinse the covers thoroughly with clear water, wring out and replace them on the cushions wet. (Wet covers will not harm the upholstery). In a short time (usually less than an hour) the covers will dry to a tight glove fit ready for use.

WINDSHIELD WASHER ALL-SEASON SOLVENT

GM Windshield Washer All-Season Solvent, for year around use in GM windshield washers, is available. This solvent, when mixed with water, acts as a wetting agent, decreasing the surface tension of the water on the outside of the glass. The wetting action enables the solution to remove road splash, oil, grime and dust that has accumulated on the windshield thereby improving vision and eliminating eyestrain.

For spring, summer and early fall use, pour one oz. of the All-Season Solvent into the windshield washer jar and fill washer jar with water.

During late fall and winter months to prevent jar breakage due to freezing, pour two ozs. of solvent into jar and fill with water to $\frac{3}{4}$ level as indicated on bracket label. The windshield washer should not be used during sub-freezing weather as the solution will freeze on windshield.

GM Windshield Washer All-Season Solvent is not injurious to car finish, metal or rubber parts when used as directed.

PONTIAC ELECTRIC CLOCK

The Pontiac electric clock in your car operates on direct current from the car battery. Because electricity is the source of power in the operation of the clock in your car, as well as the common household electric clock, many people assume that they are similar in their functioning as time-pieces.

With the automobile clock, due to its direct current drive, any error in time keeping, the same as any pocket watch, is accumulative; that is, each day's error is added to the previous day's. For this reason, it is necessary to reset your automobile clock the same as you do your watch in order to provide satisfactory time keeping.

Although every Pontiac Clock is carefully regulated by the manufacturer before leaving the factory, its operation is affected by the operating characteristics of the car in which it is installed.

It is possible that your clock may require further regulation adjustment to adapt it to your car. If your clock shows a consistent tendency to gain or lose time, making the periods of resetting too frequent to provide satisfactory time keeping, then adjustment should be made with the "regulator" provided, according to instructions under "Regulating Your Pontiac Electric Clock".

REGULATING YOUR 1952 CLOCK—The regulator screw is located at the top of the bezel. If the clock is running consistently slow turn the regulator by inserting a small screw driver in the slot and turn towards (F) or to the right. If running fast turn towards (S) or to the left. Approximately a quarter turn of the regulator adjusting screw is equivalent to about five minutes, gain or loss, per day.

It is suggested after making an adjustment that the clock be allowed to run for approximately one week at which time it should be checked and readjusted if necessary.

TO RESET THE CLOCK—Pull out on reset stem to engaged position and turn hands to correct time and release stem. It is well to push in on stem at time it is released to make certain that it fully disengages.

TO START THE CLOCK—Resetting the hands will automatically start the clock.

THE CHIEFTAIN RADIO

Push Button Set-Up—Tuning your Chieftain radio may be accomplished with either the manual tuning knob (right-hand knob) or the push buttons, both of which are located on the Radio Control Panel. Push button tuning is practically automatic but this does not mean that they cannot go out of adjustment. They will, however, tune properly only if they have been set up correctly, and will tune to the center of the station. If they tune into the edge of the station, the program will sound high pitched or you will have distorted reception.

If the tone quality of a program can be improved by touching up the tuning with the manual tuning knob, reset the push buttons in the following manner:

1. Turn the radio on and let it play for ten or fifteen minutes letting all metal parts expand to operating temperature.
2. Select the push button to be adjusted and pull it to the right and out as far as it will go.
3. Tune in the desired station using the manual tuning knob. Tune it back and forth through the station until the point of clearest reception is found.
4. Push the push button being adjusted all the way in and release. The push button should now be set up.
5. Try the push button several times. If the station can be tuned in more clearly with the manual tuning knob than with the push button, the set-up should be repeated until the push button tunes the station as accurately as manual tuning.

For greatly improved listening pleasure, check with your dealer on the installation of a Pontiac Rear Seat Speaker. You'll ride right in the sound!

THE MOTOR OPERATED ANTENNA

The electric antenna operating switch is located to the right of the steering column below the cigar lighter. To raise antenna sections, lift operating switch lever up. To lower the sections, push switch lever down. When lever is released it returns automatically to the "Off" position. Antenna sections can be raised or lowered to any intermediate height by releasing switch lever when desired position is reached.

CAUTION: Do not hold switch in operating position beyond full travel of antenna (up or down) any longer than necessary to make sure antenna has reached the end of its travel. Such practice would result in motor overload and excessive wear of the drive mechanism.

For best operating results, keep antenna sections clean by wiping occasionally with a damp cloth to remove road film or dirt which may accumulate.

' 'HOUSEKEEPING

YOUR CAR'



The glossy exterior, luxurious interior and fine appearance details of your 1952 Silver Streak Pontiac deserve the same care and attention that you give the furniture in your home.



Washing and Polishing—

One of the best ways to preserve the original beauty of your Pontiac's finish and to protect the value of your investment, is to keep it as clean as possible. Frequent washing is helpful, especially if you live near the seashore where salt air may come in contact with the finish. Tree sap, road tar, excretion from insects, and smoke from factory chimneys, also contain harmful chemicals and other foreign matter that may permanently damage the finish of your car. (Dead insects can easily be removed by saturating the area with a mild solution of water and baking soda.) Washing is also important in winter-time if you drive a lot where salt or calcium chloride is used to melt snow or ice on the streets.

ALWAYS USE COLD WATER IN WASHING A CAR. NEVER WASH IT IN THE DIRECT RAYS OF THE HOT SUN, AND ALWAYS WAIT UNTIL THE SHEET METAL SURFACES ARE COOLED OFF.

If you find that the finish has become slightly dulled by the presence of "spent pigment," you may want to have your Pontiac Service man polish it to bring back its original glossiness. This operation consists of washing the car thoroughly and following up with application of a mild liquid polish. This will remove "spent pigment" and restore a high luster without harming the finish.

It's well to remember that the polishes and cleaners which do the job fastest and easiest aren't necessarily the best. A polish containing harmful amounts of abrasive will do the job quicker, but it may also remove some of the good finish as well as the dull oxidized color. A polish requiring a little more time and "elbow grease" is desirable. If you plan on polishing your car yourself, you will find GM Body



Pontiac bodies are carefully and scientifically finished, so as to assure the beautiful appearance of the car and protect its steel.



Extremely long exposure to weather causes the finish to break down. Polishing your car removes spent pigment and restores original luster.

Polish, or Pontiac's Clintone Spray Wax Cleaner a safe and efficient product to use.

Polishing your car isn't recommended at any specific time. If you are planning on giving your car this service, probably the best plan is to have the job done every three or four months, depending on the time the finish begins to be dulled.

Special Polish and Wax Jobs—Many Pontiac dealers offer various types of polishing or wax jobs to their owners. Properly performed with materials of known quality, these services will help maintain the good appearance of your car. Pontiac's Porcelainize has proven a real value in maintaining a good finish to the paint on the car.

Other Ways to Preserve the Finish—Moisture and sunlight are the chief enemies of car finish, so it stands to reason that your Pontiac will maintain its beauty longer if you keep it in a garage at night and park it in the shade as much as possible in the daytime. It's wise to avoid parking under trees which discharge drops of sap, or under eave troughs or drains of buildings. And, if possible, avoid parking near factories producing acids or alkalis.

Chrome Plated Parts—The destructive forces of salt, calcium chloride, salt air and corrosive atmospheres can be eliminated if chromium plated parts are washed frequently. It is well to apply a protective coating to the plated surfaces. Air-Dry Clear Enamel or a similar preparation, available at your Pontiac Dealer, is quite satisfactory. Periodic application of this material provides an excellent protective coating for all chrome plated parts.

IMPORTANT FACTS ON CARE OF CLEAR ENAMEL COATED CHROME ON YOUR CAR

Material restrictions that are caused by the national defense program have required a change in the plating process of some of the bright work* on your new Pontiac.

DO NOT SCOUR OR USE CLEANING COMPOUNDS ON THESE PLATED PARTS—WASH ONLY WITH WATER

A protective coating of a special clear finish has been baked on some of the bright metal parts and no supplementary coatings should be used. MAINTENANCE INSTRUCTIONS MUST BE FOLLOWED to prevent damage to the protective coating. Abrasives and strong cleaning agents are harmful to this finish; therefore, conventional methods of chrome cleaning and polishing MUST BE AVOIDED.

MAINTENANCE INSTRUCTIONS—All chrome parts can best be maintained by frequent washing. Conventional car washing procedures are satisfactory where mild soaps or detergents are employed as cleaning agents.

Repairs to SCRATCHES OR ABRASIONS that occur on parts having the protective coating must be performed within a reasonably short time to prevent further deterioration to the finish. It is our recommendation that repairs be made only by those who are familiar with proper repair procedures and who use approved refinishing materials.

Your authorized Pontiac dealer has complete instructions regarding this procedure and is well qualified to handle any repairs that may be necessary.

*Bumpers and door handles are functional parts and are not affected at the present time.

HOUSEKEEPING INSIDE YOUR CAR

General Instructions for the Care and Removal of Ordinary Soilage from Cloth Upholsteries

Dust and dirt particles that accumulate on the upholstery of your car should be removed every few weeks—and oftener, if your car is given constant, hard use. This is done with a whisk broom, beater, or vacuum cleaner. For general cleaning and dusting, seat cushions should be removed. This permits dirt along the sides and rear of the cushions to fall to the bottom where it can easily be wiped off. If a whisk broom or vacuum cleaner is used, it is not absolutely necessary, but preferable, to remove the cushions.

Before attempting to remove spots and stains from upholstery fabric, determine, as accurately as possible:

- 1 The type of fabric or trim material.
- 2 The nature and age of the stain.
- 3 The effect of stain-removing agents on the color, structure, and general appearance of the fabric.

For best results, stains should be removed from upholstery as soon as possible after they have been made. If they are allowed to stand for some time, they very often become set, and removal becomes more difficult—frequently impossible.

There are two basic types of popular cleaners available to car owners: (1) Volatile Cleaners, colorless liquids, generally having carbon-tetrachloride or naphtha as a base. (2) Alkaline Cleaners, which have a soap base.

The Volatile Cleaners are recommended since they have great solvent powers for grease, oil and road grime. Alkaline Cleaners generally loosen up stains satisfactorily, but their use involves a possible risk of damaging the color or finish of the fabric.

Soap and water may be used in cleaning pile fabrics, if the instructions which follow are observed closely. A neutral, non-alkaline soap should be used with lukewarm water. The suds should be frothy, not watery. Suds only should be applied in moderate quantities with a damp cloth, sponge, or soft brush. Rub with the pile, not against it. Soapsuds should be removed with a clean, damp cloth or sponge. Then wipe the surface several times with a dry cloth. While still damp, brush lightly with a whisk broom or medium stiff brush. Permit air to circulate freely over the wet upholstery. When dry, brush again, against the pile.

Soap and water, regardless of the basic type of soap, is not recommended for cleaning flat cloths, particularly broadcloths.

Broadcloth finishes are produced by multiple pressing and other operations which produce the high "face" or glossy finish that distinguishes this particular type of fabric. Water has great destructive powers on these finishes, causes the nap to curl and roughen to such an extent that the finish is destroyed or made very unsightly.

Method of Applying Volatile Cleaners

- 1** Extreme care should be taken not to use too much solvent and to apply it only with clean cloths. It is the solvent that does the work—so only a minimum of pressure should be applied. This is most important with inflammable cleaners.
- 2** Brush away all loose particles of dirt and soil.
- 3** Dip small cloth swatch in cleaning solution, wring out thoroughly, open cloth and allow medium evaporation of solution.
- 4** Place cloth on soil, using no friction and only slight tapping pressure, several times. This will pick up particles which are too deeply embedded to be removed by brushing. This whole operation should be repeated several times—each time using a fresh, clean part of the cloth.
- 5** Dip a new cloth in cleaner, wring out thoroughly, open and allow solution to evaporate until cloth is barely damp. Rub soiled area with a backward and forward motion. The cleaning cloth should be reversed several times in this operation.
- 6** Immerse third cloth, wring out, allow evaporation and apply to both the soil and the surrounding area, using a light, brisk motion.
- 7** Repeat brushing operation.
- 8** If a ring should form on the cloth as you remove a spot or stain, the entire area of the trim assembly involved should be thoroughly brushed and gone over lightly with the solvent.

Safety Precautions for Cleaning Fabrics

- 1** Do not use as a cleaning solvent any gasoline which is colored or which contains tetraethyl lead.
- 2** Do not use such bleaches or reducing agents as the following: Chloride of lime, Javelle water, Hydrogen peroxide, Sodium hydrosulphite, Potassium permanganate, Chlorine or chlorine water, Sulphurous acid (sulphur dioxide), Sodium thiosulphate (Photographers' hypo). The use of these agents tends to weaken fabric and to change its color.

3 Carbon tetrachloride is non-inflammable. Most other types of cleaning solvents are inflammable; every precaution and care must be exercised in handling these inflammable cleaners.

4 Do not permit cleaning solvents to come in contact with the skin on the upper arms or the body. Such contacts sometimes produce local irritation, which is unpleasant, if not serious.

5 Do not breathe the fumes of carbon tetrachloride or other cleaning solvents since they are usually toxic in large quantities. Every precaution should be taken to insure that all car windows and garage doors are open when such cleaners are being used.

6 Keep oxalic acid out of reach of children and away from the mouth. It is a deadly poison.

7 At the present time there are on the market a great number of inexpensive, slow-drying cleaners of the clear type. These are not recommended. Care should be taken, in the selection of a cleaner for the upholstery in your car, to obtain a product of proved reputation and quality.

8 Don't use too much cleaning fluid; some interior trim assemblies are padded with rubber, and volatile cleaners are generally solvents for rubber. The application of too much cleaner may destroy these rubber pads or cause the rubber itself to penetrate the upholstery fabric and soil it.

DESCRIPTION AND CLEANING METHODS for Genuine Leathers

Some closed car models and all Catalina convertible, and de luxe station wagon styles are trimmed in genuine leather.

Genuine leathers have a natural tendency to wrinkle. Such wrinkles or creases occurring in service do not detract from the wearing qualities of the leather, but serve to keep active the oils incorporated in the leather, for softness and pliability, when it was tanned. A cushion in this condition is simply described as having "comfort wrinkles."

The best cuts of leather have certain scars, horn marks, and briar scratches. These likewise do not detract from quality or durability but indicate that the hide carrying these "blemishes" is of the top cut grade with entirely natural markings.

Care of genuine leather is a relatively simple but important matter. If dirt accumulates on the surface, this develops into a hard grit which under pressure will cut the finish and cause the leather to

crack or bleed color. The surface should be gone over occasionally with a dry cloth and whenever dirt accumulates, the following cleaning instructions should be used:

- 1 Lukewarm water and a neutral soap should be used. Apply a thick suds, worked up on a piece of gauze or cheesecloth, to the surface.
- 2 The operation should be repeated, using only a damp cloth and no soap.
- 3 The leather should then be wiped dry with a soft cloth.

Polishes and cleaners used for auto body finishes, volatile and other clear cleaners, naphtha, furniture polishes, oils, varnishes or household cleansing and bleaching agents should never be used.

DESCRIPTION AND CLEANING METHODS for Imitation Leathers

Imitation leather fabrics are used for auxiliary trimming in conjunction with both fabric and genuine leather upholsteries. Qualities used vary with the particular wear required of them. Recommended cleaning instructions for imitation leathers are the same as are outlined above for genuine leather. However, in the case of persistent oil, grease, tar spots, etc., which do not respond to the soap and water treatment, a volatile cleaner may be used. Cheesecloth or gauze should be dipped lightly in the cleaner and rubbed gently against the soiled area. The area should then be wiped with a clean, damp cloth, without soap, and dried with a soft cloth.

DESCRIPTION AND CLEANING METHODS for Convertible Cabriolet Top Materials

Generally, soilage can be removed with art gum or crude rubber. If dirt is heavily embedded in the fabric, the top should be thoroughly brushed with a whisk broom. In this brushing a minimum of pressure should be applied to those areas of the assembly which cover the metal bows of the top structure; heavy abrasion will disturb the surface of the material appreciably, causing an unsightly appearance. After brushing, the top should be washed thoroughly with a neutral soap suds and lukewarm water; a cloth or brush with soft bristles should be used. Generous quantities of clear water should then be applied over the surface to remove any traces of soap which might remain. Volatile and other clear cleaners, naphtha, gasoline or household cleansing and bleaching agents should never be used.

After cleaning, always be sure that the top is thoroughly dry before it is collapsed and folded down. Folding the top while still wet or damp may cause mildew and unsightly wrinkles.

After being wet by rain, the top should be allowed to dry out thoroughly before being collapsed; the dampness, in addition to causing mildew and wrinkles, may shrink the top material to such a degree as to make it impossible to return the top structure to its normal upright position.

CARE OF THE BACK WINDOW

The back curtain on this Convertible Coupe is provided with a "flexible" plastic window of large dimensions to allow greater visibility at the rear of the Convertible top. This pliable, flexible plastic window allows the back curtain in conjunction with the folding of the top to be lowered into and raised from top compartment without danger of glass breakage which would be possible if glass of equal dimension was used instead of plastic. Due to its texture, this plastic window is susceptible to scratches and abrasions and caution must be used in its cleaning and care.

1 When removing road dust, do not use a dry cloth. Use a soft cotton cloth moistened with water and wipe cross-wise of the window to remove superficial dust.

2 To clean the back window use cold or tepid (not hot) water and a mild (not caustic) neutral soap suds. After washing, rinse with clear water and wipe with a slightly moistened clean soft cloth.

CAUTION: Never use solvents or cleaners of alcoholic or other chemical content. These liquids may possibly have deteriorating effect on the plastic and if spilled, might spot the Duco finish on the rear body panels directly below the back window.

3 In removing frost, snow, or ice from the plastic back window DO NOT USE A SCRAPER. In an emergency, warm water may be used. Use care that this warm water does not contact the actual glass windows or windshield.

DESCRIPTION AND CLEANING METHODS for Carpet Floor Coverings

Carpets are either cemented or tacked down securely in place and should not be removed unless it is definitely necessary to do so. If the carpet is removed, it should not be forcibly pulled loose; this may cause the nap to pull through the warp of the carpet and

ruin its appearance. A corner of the carpet should be turned back and a wide-bladed putty knife or similar tool should be used to separate the carpet from its cemented foundation.

To clean these floor coverings, first, brush thoroughly. If soil remains, the use of a volatile type cleaner is recommended. The cleaning operation should be repeated for heavily embedded stains.

Extreme care should be taken by the owner to make certain that the carpets are not "soaked" with the cleaner. This may cause deterioration of the rubber compound used in the backing construction of some carpets.

Neutral soap and water may also be used, at risk of color removal, but the owner is cautioned to make certain that the carpets are thoroughly dry before closing all window and door openings; this will prevent possible mildewing of the carpet.

GENERAL INSTRUCTIONS **for the Removal of Specific Types of Stains** **from Flat Cloths and Pile Fabrics**

Some types of stains and spots possibly cannot be successfully removed from upholstery by the methods previously outlined. These stains could be classified as "emergency" ones; blood, paint, ink, nausea, etc., are typical of this classification.

For these, and other stains, specific instructions are outlined in succeeding paragraphs. It must be expected, however, in some cases, particularly where water treatment is specified, that discoloration and finish disturbance may occur.

In such "emergency" cases it is likely that any possible fabric disturbance may be considered preferable to the stain itself. With normal care and caution in application of the methods outlined, reasonably satisfactory results can be expected.



Battery Acids—Apply ordinary household ammonia water by means of a brush or cloth to the spot, saturating it thoroughly. Permit the ammonia water to remain on the spot about a minute, so that it will have ample time to neutralize the acid. Then rinse the spot by rubbing with a clean cloth thoroughly wet with cold water.

This treatment will suffice for both old and new stains. However, no type of treatment will repair damage to fibres resulting from the action of the acids on the fibres—particularly after the spot has dried. It is therefore imperative that the spot be treated as quickly as possible. If so much as a day elapses between the time the acid

was spilled on the cloth and the time of its treatment with ammonia, a hole will probably have formed in the material.



Blood—Rub the stain with a clean cloth wet with cold water until no more of the stain will come out. Care must be taken so that clean portions of cloth are used for rubbing the stain.

This treatment should remove all of the stain. If it does not, then apply a little household ammonia water to the stain by means of a cloth or brush. After a lapse of about one minute, continue to rub the stain with a clean cloth dipped in clear water.

If the stain remains after the use of water and ammonia, a thick paste of corn starch and cold water may be applied to the stained area. Allow the paste to remain until it has dried and absorbed the stain. Then pick off the dry starch. Brush the surface to remove starch particles that remain. For bad stains, several applications of starch paste will be necessary.

Hot water or soap and water must not be used on blood stains since they will set the stain, thereby making its removal practically impossible.

Candy—Candy stains, other than candy containing chocolate, can be removed by rubbing with a cloth soaked with very hot water. If the stain is not completely removed, rubbing it lightly (after drying) with a cloth wet with a volatile cleaner will usually remove it.



Candy stains resulting from cream and fruit-filled chocolates can be removed more easily by rubbing with a cloth soaked in lukewarm soapsuds and scraping, while wet, with a dull knife. This treatment is followed with a rinsing by rubbing the spot with a cloth dipped in cold water.

Stains resulting from chocolate or milk chocolate can be removed by rubbing the stain with a cloth wet with lukewarm water. After the spot is dry, rub it lightly with a cloth dipped in a volatile cleaner.



Chewing Gum—Moisten the gum with a volatile cleaner and work the gum off from the fabric with a dull knife, while still moist.

Enamel, Paint and Lacquer—These substances are made by compounding two or more of the following types of materials: drying oils, driers, gums, resins, organic and inorganic pigments, organic solvents, and possibly a few other materials. It is therefore obvious that the quality and



color of the paint, enamel, or lacquer are important factors governing the ease with which these materials may be removed from fabrics. Some pigments, gums, and oils are much more easily removed than others. The older the stain, the harder it will be to remove; therefore, it is important that the stain be removed as quickly as possible.

An excellent method for removing stains of this type is as follows: If the stain is not dry, remove as much as possible by rubbing with a clean cloth wet with turpentine. This may be the only treatment necessary. If not, then proceed with the following method which is also recommended for dry stains. Saturate with a solvent mixture of one part denatured alcohol and one part benzene.

Then work out as much of the paint as possible with a dull knife.

After repeating the above treatment several times, saturate the stain with the paint remover solvent and immediately rub the spot vigorously with a clean cloth saturated with strong, lukewarm soap-suds. Finally rinse the cloth by sponging it with cold water.



Fruits—Fruit stains of practically all kinds can be removed by treatment with very hot water. Wet the stain well by applying a little hot water to the spot with a clean cloth. Scrape all excess pulp, if any, off the fabric with a dull knife. Then rub vigorously with a cloth wet with very hot water. (If the stain is very old or deep, it may be necessary to pour a little very hot water directly on the spot, following this treatment with the scraping and rubbing mentioned above. This treatment is not recommended for general use, because some discoloration usually results from the direct application of hot water to fabrics.) If this treatment does not suffice, rubbing lightly after drying with a clean rag dipped in a volatile cleaner is the only further treatment recommended.

Soap and water are not recommended as they will more than likely set the stain and thereby cause a permanent discoloration which is worse than the original stain. Drying the cloth by means of heat (such as the use of an iron) also is not recommended for the same reason.

Grease and Oil—If an excessive amount of grease has been spilled on the material, as much as possible should be removed by scraping with a dull knife or spatula before any further treatment is attempted.



Grease and oil stains may be removed by rubbing lightly with a clean cloth wet with any one of several solvents, such as volatile cleaners, benzene, ether, or motor gasoline (free from

tetraethyl lead). In general, a volatile cleaner is the best grease remover.

Care should be taken to use a clean piece of cloth to rub the stain. Several cloths may be necessary.

(To avoid the possibility of ring formation and to confine the grease or oil to as small an area as possible, the following procedure may also be employed: Pour a small amount of the solvent directly on the spot and immediately press a white blotter firmly on the spot. Repeat this procedure, using clean sections of blotting paper until the blotting paper no longer absorbs any grease.)

If, after repeated treatments with the solvent, a dirty stain remains, due to particles of dirt contained in the grease, the following treatment will probably be helpful:

Rub the spot with a clean rag saturated with lukewarm suds. Rinse off the soap by sponging with a clean cloth wet with cold water.



Ice Cream—The same procedure is recommended for the removal of ice cream stains as that used in removing fruit stains.

If the stain is persistent, rubbing the spot with a cloth wet with warm soapsuds may be used to some advantage after the initial treatment with hot water. This soap treatment should be followed by a rinsing, by rubbing with a clean cloth wet with cold water. After this dries, rubbing lightly with a volatile cleaner will clear up the last of the stain, by removing fatty or oily matter.

Ink (Writing)—The composition of writing inks varies; therefore, it is impossible to find agents which are equally effective in removing all ink spots. In general, no ink spot can be completely removed from velvets and flat fabrics without injuring the goods. The following methods are recommended and are listed according to their relative efficiency:



1 Iron Rust Soap. Rub the soap into the stain with the fingers. Let stand about a minute and wipe off with dry cloth. Repeat the process until the wiping cloth no longer shows a stain. Then rinse by rubbing spot with cloth dipped in cold water.

2 Ink Eradicator Solution No. 1 (Solution No. 2 cannot be used; since it changes the color of fabrics).

Apply No. 1 Solution to the spot with eye dropper and then blot with blotting paper. Repeat process until a clean portion of blotting paper shows no stain. Then rinse by rubbing with clean cloth dipped in cold water.

3 Saturated solution of oxalic acid. Use as outlined in 2.

4 Two per cent solution of sodium acid fluoride (Sodium bifluoride). Use same as 2.



Iron Rust—Rub the spot with a clean cloth saturated with warm soapsuds; rinse by rubbing with a cloth dipped in cold water. After the fabric has dried, treat the remaining stain as if it were an ink spot, using methods outlined for the removal of ink spots.

Lipstick—The composition of different brands of lipsticks varies; therefore, some lipstick stains may be removed more easily than others.

Apply a little volatile cleaner to the stain by means of a saturated cloth and immediately press a blotter firmly on the spot. Repeat this procedure, using



new sections of blotting paper until the blotter no longer shows stain.



Liquor and Wine—Treat liquor and wine stains exactly the same as fruit stains.

Mildew—Fresh mildew stains can be removed by rubbing vigorously with a cloth soaked in warm soapsuds; then rinse by rubbing with a cloth dipped in cold water. Old mildew growths can also be removed with the above soap and water treatment, but the discoloration caused by the growth probably cannot be removed. The only treatment recommended for removing discoloration caused by old mildew growths is an oxalic acid treatment as follows: (Pour enough 10 per cent oxalic acid solution on cloth to completely cover stain. Allow to stand a minute.) Then remove acid by alternate blotting with dry blotting paper and pouring cold or hot water on stain.



Nausea—Before the stain has had a chance to dry, sponge with a clean cloth, dipped in clear cold water. After most of the stain has been removed in this way, wash lightly with soap, using a clean cloth and lukewarm water. Then rub with another clean cloth dipped in cold water. Should any stain remain after this treatment, gently rub clean with a cloth moistened with a volatile cleaner.



(White)

Shoe Polish and Dressings—Allow the polish to become dry. Then brush the spot vigorously with a brush. This will probably be all the treatment that is necessary.

If not, then moisten the spot with cold water and after it has again dried repeat the brushing operation.

This method applies particularly to types of white shoe dressings which contain only starch or dextrine or some water soluble vehicle. In cases where water insoluble vehicles are used in shoe dressings, the methods of treatment will vary. Where the vehicle is wax, as in the case of black and tan polishes or dressings, the method described using a volatile cleaner will usually suffice. Rub the stain gently with a cloth wet with the cleaner until removed. Use a clean portion of the cloth for each rubbing operation.



(Black or Tan)



Tar—Moisten the spot slightly with a volatile cleaner, benzene, or gasoline (not ethyl) and then remove as much of the tar as possible with a dull knife. Follow this operation by rubbing the spot lightly with a cloth wet with one of the aforementioned solvents until it is removed.

Urine—Sponge the stain with a clean cloth wet with lukewarm soapsuds and then rinse well by rubbing the stain with a clean cloth dipped in cold water. Then apply to the spot, using a saturated cloth, a mixture composed of one part household ammonia water and five parts water. Allow to remain for a minute. Then rinse by rubbing with clean wet cloth.



Water Spots—Water spots can be removed as follows: Sponge entire panel showing the stain with a clean cloth wet with cold water. Allow to dry and rub spot lightly with a cloth wet with a volatile cleaner.

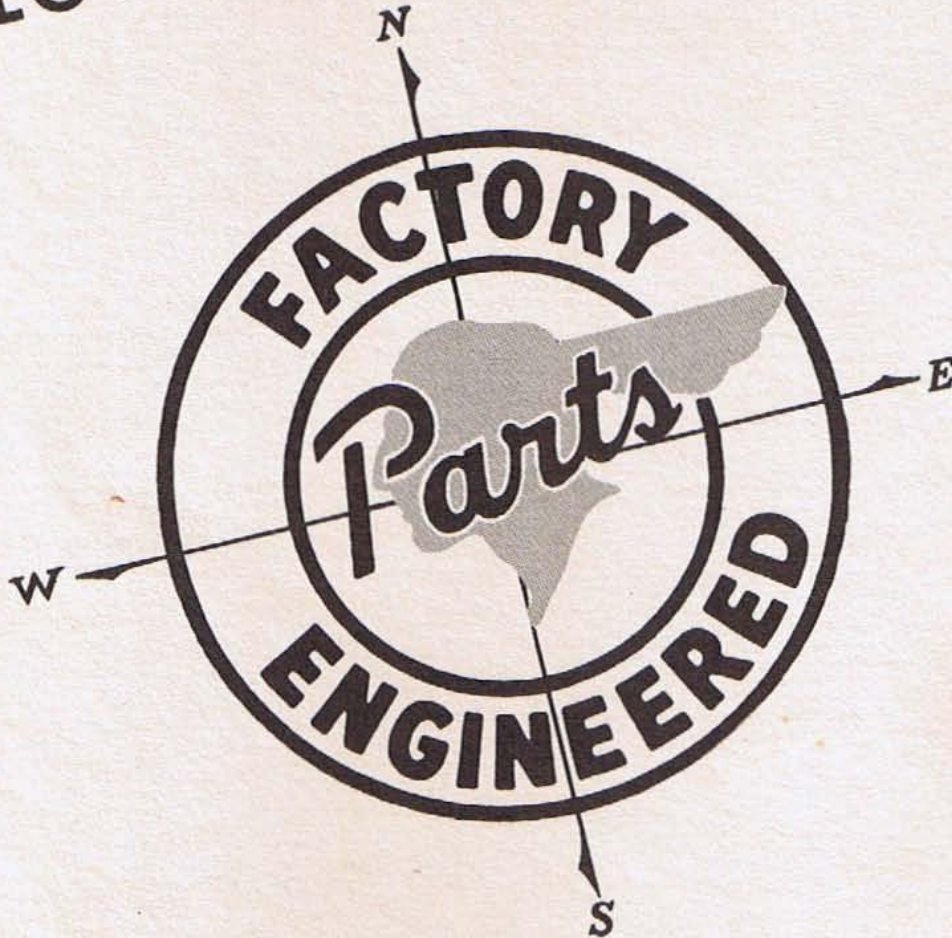
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