

1956

MAJOR

OPTIONS

NEW AIR CONDITIONING

POWER BRAKES

NEW POWER STEERING

All skillfully designed and engineered to make driving the new

NEW SIX-WAY POWER FRONT SEAT

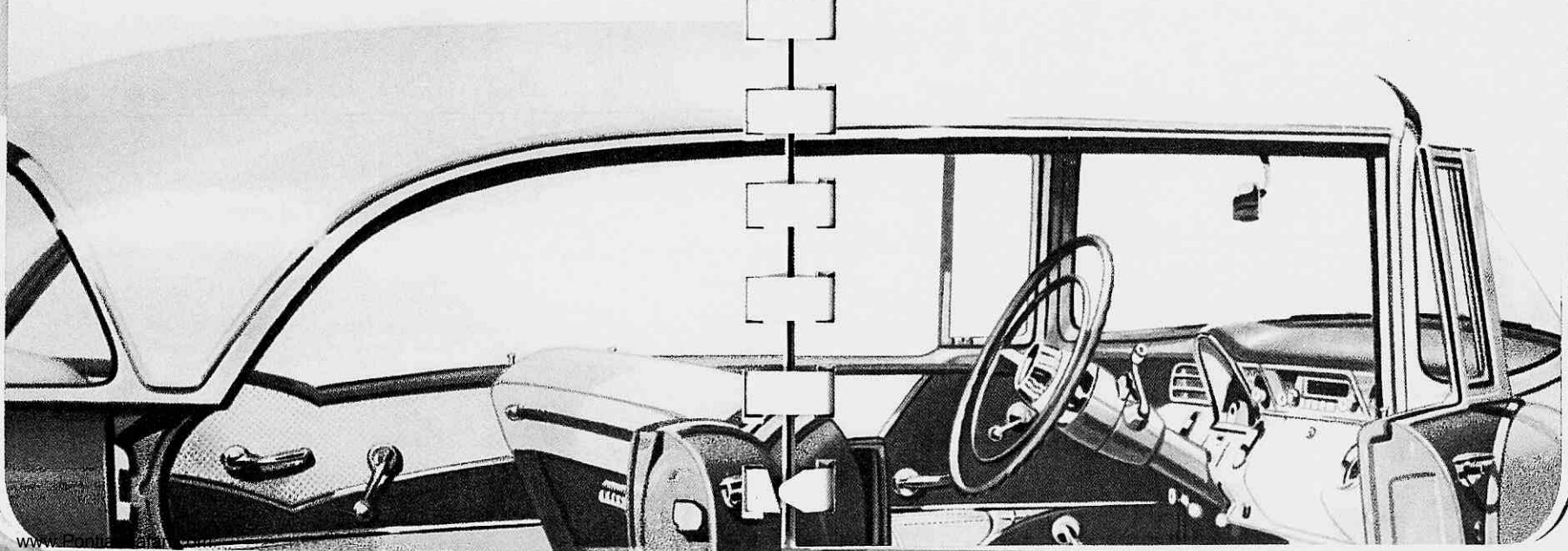
ELECTRIC WINDOW LIFTS

NEW DUAL-EXHAUST SYSTEM

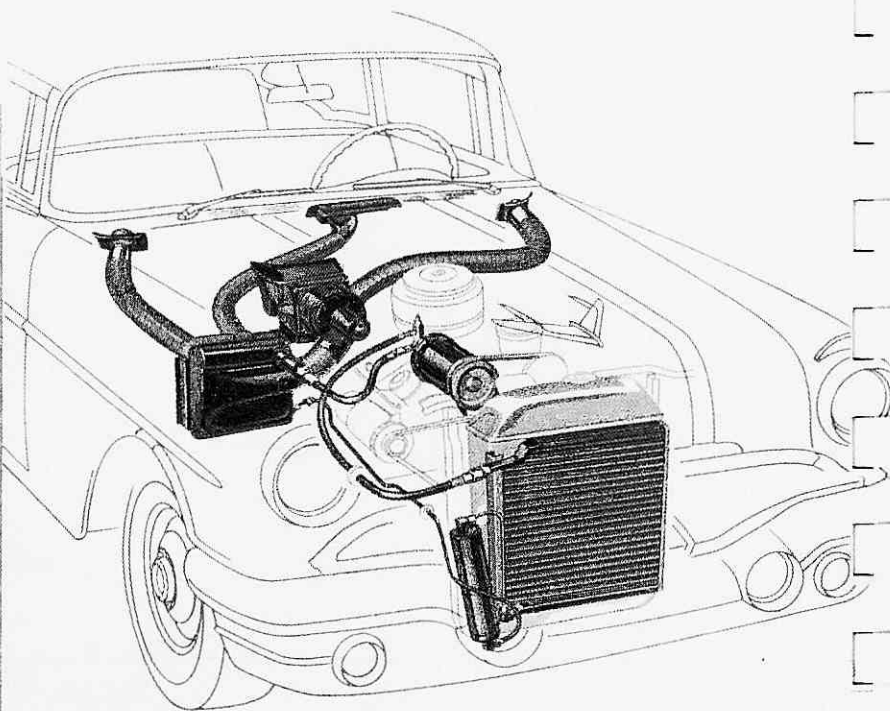
1956 Pontiac the most comfortable and enjoyable ever!

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PONTIAC'S NEW AIR CONDITIONING

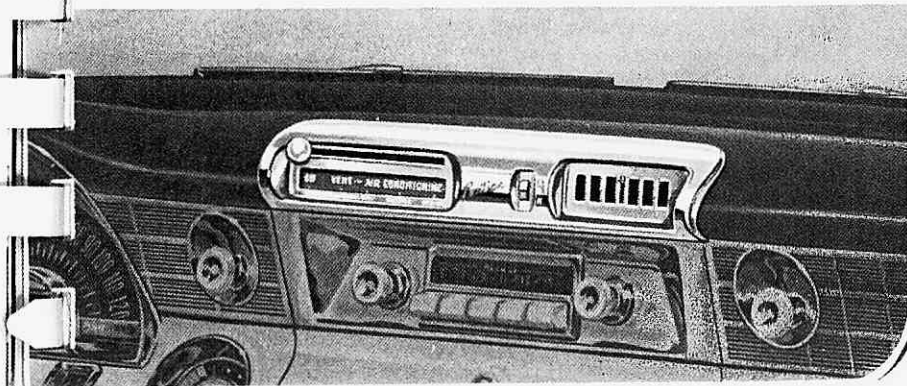


- ***Provides greater cooling on demand***
- ***Removes moisture (humidity) in the air***
- ***Leaves trunk area free for maximum carrying capacity***

Pontiac's front-discharge air conditioning system (not available with Synchronesh Transmission) with components located forward of the dash is again available for 1956, completely revised and with many important improvements. This new 1956 air conditioning unit is capable of providing greater cooling on demand, better durability, easier operation, more compactness and simplified installation which result in easier service, if required. The basic purpose of air conditioning, of course, is to provide cooled air within the car for the added comfort of the driver and his passengers. An indirect advantage, however, is the reduction of wind whistle and traffic noise, dust and pollen entry, and other discomforts in general since windows may be kept closed with comfort even in the warmest weather. The air conditioner may be used to lower breathing level temperature even when it is necessary to employ the car heater for warming the floor and, as a consequence, spring and fall season use in temperate climates may be appreciated. In warm climates year-round use is assured. As compared to other types of air conditioning systems, in Pontiac's system refrigerant lines are shorter and therefore less subject to deterioration; the trunk compartment is left free for luggage transport; ducting in the body of the car is eliminated; and servicing is simplified. What's more, all air is filtered before it enters the interior of the car.

From an operation standpoint, one of the features of Pontiac air conditioning for 1956 is the fact that all controls are centrally located for quick and easy operation. The separate recirculation knob which replaced the right-hand ventilator control in 1955 has been eliminated, its function having been combined with a unitary lever which is part of the new

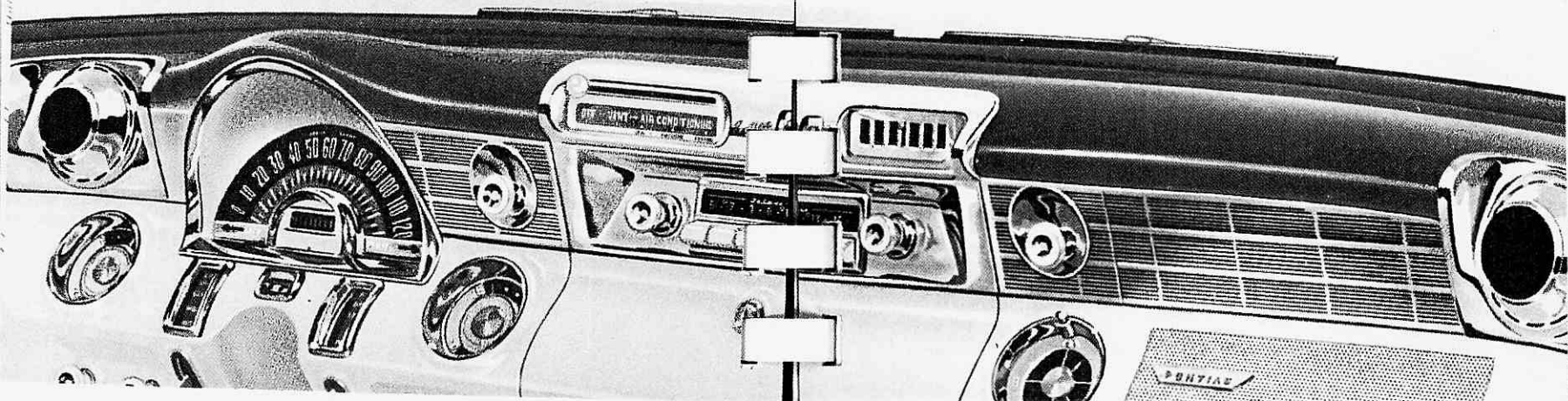
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control panel. Thus both standard air ventilators are now available for use, if desired.

Air conditioning temperature regulating controls, conveniently located above the radio panel, have been skillfully restyled for new appearance and to accommodate changes which have been made in the unit's operation. This control panel is equipped with lights to facilitate the operation of the air conditioning unit while driving at night. The 1956 temperature control lever moves in a horizontal plane from left to right

until the desired amount is reached. The next indication is labeled "OUTSIDE", at which point the air being circulated is coming from outside the car only. As the lever is pushed on to the right toward the indication, "INSIDE", the amount of outside air admitted is progressively reduced and the amount of recirculated or inside air admitted to the cooling unit is increased. When this is done (assuming that the system has been operating for some time), temperature differential is less and the cooling unit can therefore lower inside air temperature more than would otherwise be possible.



to provide all stages of performance, depending on the amount of cooling desired. The first station on the control panel is "OFF" which means that when the control lever is at this position, no cool air will be brought into the car interior. Moving on, the next station is "VENT". When the control lever is at this position, the blower will automatically go on and uncooled air will be admitted through air conditioning outlets located at each end and at the center of the instrument panel. The next position is "ON", which activates the air conditioning compressor and the unit is operating for minimum cold. When the control lever is moved farther to the right, more and more coldness is progressively provided,

So you can see that at maximum cooling, most of the air being cooled is recirculated air, although a small amount of outside air is mixed with the recirculated air at all times. This last provision not only prevents the infiltration of hot, outside air, but also minimizes any chance of window fogging, which might occur under some atmospheric conditions. And whether the air comes from inside or outside, it is filtered before it enters the evaporator.

A blower switch, which is located just to the right of the control lever, has two positions, "LOW" and "HIGH", and may be turned to whichever speed is desired. The blower,

by the way, comes on automatically whenever the air conditioning system is operating.

There are three outlets within the car. One, in the right side of the air conditioning control panel, contains a valve deflector plate which may be moved to shut off air or to change the direction of air flow in a vertical position. The others consist of neat, adjustable nozzles which are mounted in recessed ball sockets at each end of the instrument panel. These may be moved to direct the air in many directions—along the inside roof line, downward, directly at the passengers or sidewise.

In the engine compartment, most apparent are the changes made for 1956 in the air circulation system. An air inlet assembly, which includes the air selector valve and filter, is mounted on the dash below the right-hand section of the cowl air inlet: the blower is mounted immediately forward of this assembly. Outside air is admitted to the system through the cowl inlet that is also used for the ventilators located on either side of the front passenger compartment. Recirculated air, however, enters the cooling system through an elongated entrance in the dash. This arrangement thus permits the use of the single selector valve to control the amount of outside air mixed with inside air.

After passing through the blower, air is next admitted to the evaporator assembly. The evaporator core, new for 1956, is larger and as a result provides greater cooling capacity and lower temperatures on demand.

The main components of the refrigeration portion of Pontiac's air conditioner are the same as those used in most household refrigeration systems; that is, refrigerant, compressor, condenser, liquid receiver, and the evaporator or cooling element.

The refrigerant used is Freon 12, a nontoxic, nonflammable, practically odorless gas having a very low boiling point. This gas operates in a closed system and by various changes in state—from gas to liquid to gas—cools the air coming in contact with the evaporator or refrigerating core. The cooling cycle works like this: Freon gas under pressure is drawn into the new compressor. From there it is delivered, under high pressure and temperature, to the condenser. Mounted in the front of the radiator and, therefore, subject to cooling

air from the engine fan or car motion, the condenser cools the gas as it travels from top to bottom in the core, at which point it becomes a liquid under high pressure. This liquid then passes into the receiver and dehydrator, which act as a reservoir, and from there to the thermostatic expansion valve which is controlled by a temperature-sensitive control.

As the Freon leaves the thermostatically controlled expansion valve, it enters the evaporator (which is actually the cooling unit) as a liquid at a low temperature and under low pressure.

Passage of warm air over the evaporator causes the liquid Freon to boil and return to a gaseous state. In changing from a liquid to a gas, the Freon absorbs heat from the air passing through the evaporator, thereby cooling the air. The cool air is discharged into the car, while the Freon gas is drawn into the compressor to repeat the cycle.

Compression is accomplished by a new, more durable axial type, five-cylinder compressor located on the right front corner of the engine. As compared with 1955, this compressor has a heavier crankshaft, a larger main bearing and modified clutch. It is equipped with an oil pump which takes oil from a built-in reservoir to provide desired lubrication. For 1956, a new compressor mounting will also be used.

A magnetic type clutch is an integral part of the compressor drive. When the instrument panel control lever is moved to "ON", the electrical circuit is energized and a new thermostat, if refrigeration is required, will energize electrical windings at the front of the compressor, causing engagement of two drive plates, and the compressor will start to operate. If the cooling situation is such that no refrigeration is required, the new temperature-sensitive thermostat will cause the clutch to disengage. This thermostat may be adjusted by the instrument panel control lever in accordance with the degree of cooling desired. This permits the clutch to run only when refrigeration is required. As previously noted, the compressor cannot operate until control lever is moved to "ON".

Pontiac's condenser for 1956 has an improved finning construction to increase efficiency. It consists of four tubes in parallel, serpentine to make twenty-six horizontal passes across the face of the core and is located in front of the



radiator for maximum cooling effect. To the right and separate from the condenser is a cylindrical dehydrator and receiver. The evaporator is located inside the housing, which is mounted to the dash on the right-hand side of the engine compartment. Other elements of the refrigerant system include a sight gauge in the main liquid refrigerant line, near the thermostatic expansion valve, which permits easy inspection of refrigerant charge condition through a glass-covered opening.

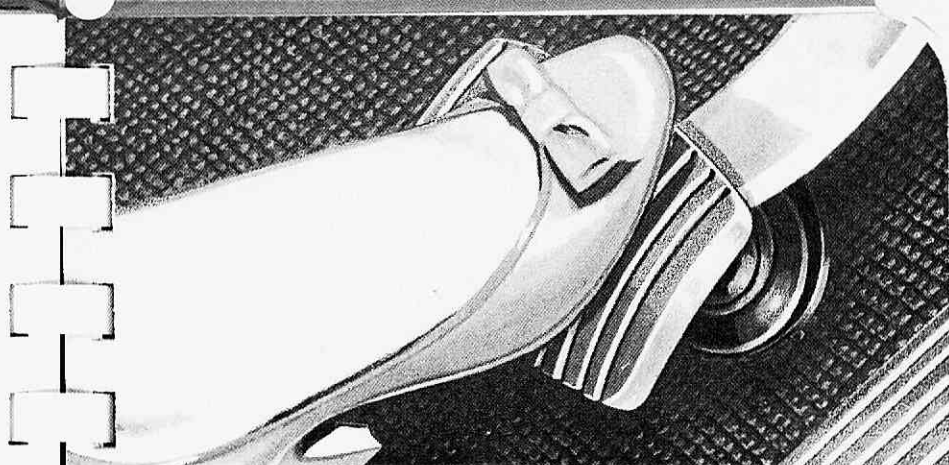
With this installation, front springs are of heavy-duty design. Engine and other chassis modifications include use of a five-bladed fan (instead of the four-bladed type); high output generator and regulator; a special radiator assembly and modified harmonic balancer; a special intake manifold and heavy-duty air cleaner (accessory) as well as water pump pulley; heavy-duty fan belt and fan pulley. A baffle installed above the radiator improves radiator cooling effectiveness by insuring the passage of a larger volume of air through the radiator.

PONTIAC'S

POWER BRAKES

***Reduce fatigue . . . make brake application
almost effortless!***

For 1956, two power braking systems will be installed at the factory. The Moraine unit, as described and illustrated here, differs in some technical aspects from the Bendix, but basically has the same over-all braking effect. For a thorough explanation of the Bendix system, please see your service manual.



Power brakes utilize atmospheric pressure, assisted by engine vacuum, to provide much of the force needed to apply the brakes. Driving is easier, more pleasant, less tiring. As the brake pedal, which is suspended from the steering column, is closer to the toe board and pedal travel is less than with conventional brakes, the amount of necessary foot and leg movement is minimized. Reaction time is decreased and stopping distance is proportionately shortened—an important safety factor. Sufficient application force has been retained in the system to provide a desirable amount of brake pedal “feel”, however. Briefly, those are the very great advantages of Pontiac’s Power Braking System. Here is how it works.

Fundamentally, the Pontiac Power Brake is a self-contained hydraulic vacuum braking device utilizing engine intake manifold vacuum and atmospheric pressure for its operation. It consists of two main sections:

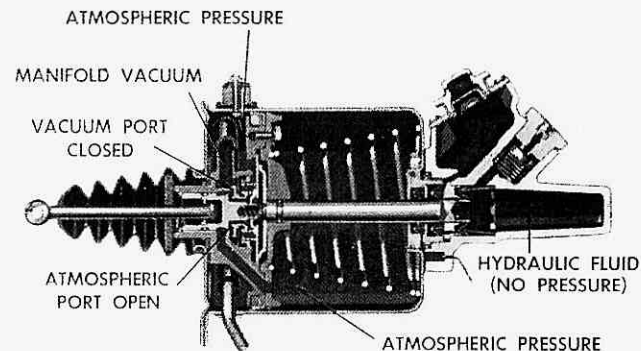
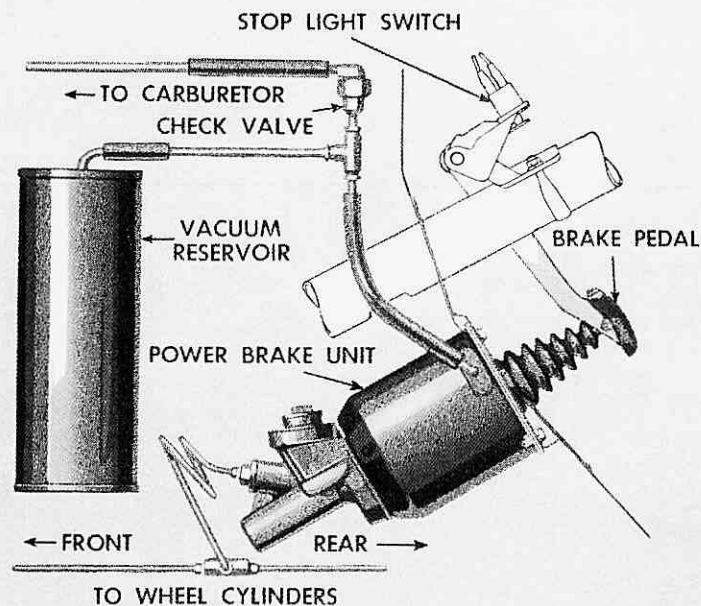
1. A vacuum power cylinder which contains the power piston including the control valve with reaction mechanism, piston return spring, and hydraulic plunger.
2. A hydraulic master cylinder which contains a cylinder plug assembly, a compensating valve, a conventional check valve, and a fluid reservoir. The hydraulic master cylinder plunger projects through the cylinder plug assembly being free to slide in the power piston and is secured to a hydraulic piston reaction plate.

DIAGRAM OF POWER BRAKE INSTALLATION

As shown below, Pontiac's Power Brake replaces the conventional brake master cylinder and is rigidly attached to the toe board. It is operated from a brake pedal which is suspended from the steering column and connects directly to the valve push rod. Two external line connections are necessary: one to connect the power brake with the intake manifold (for a vacuum source), and one to connect the power brake into the hydraulic brake system.

Air for operation is supplied through an air filter. Should failure occur in the vacuum power system, brake application can still be made, although greater effort is then required. A vacuum reserve tank is included in the system to retain vacuum assist for a time if the engine stalls.

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POWER BRAKE RELEASED

A vacuum check valve is connected to the engine intake manifold to prevent loss of vacuum when the manifold vacuum falls below that in the power brake system. A tube leads from this vacuum check valve to a vacuum reservoir and then to the vacuum inlet tube inside the housing; a coiled rubber hose leads to the power piston where a drilled passage communicates with the valve chamber. At this point the vacuum is stopped by an annular rubber seat on the floating control valve.

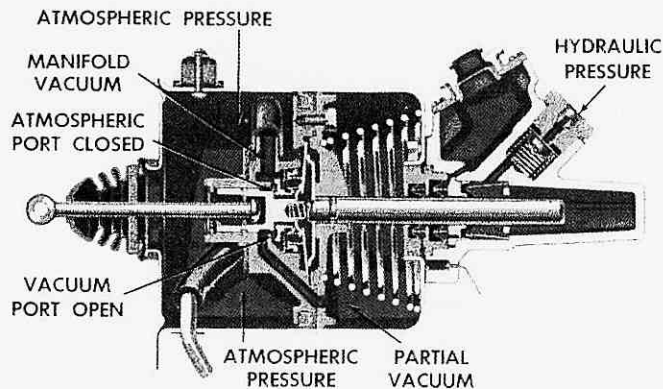
Atmospheric pressure comes through the air filter and through small holes in the power piston. From here it can flow around the open annular seat on the air valve and through the passages that lead to the space ahead of the power piston. The air valve is held away from the floating control valve by the valve return spring. Under these conditions, the power piston is balanced by atmospheric pressure on both sides and is held against the rubber stop washer by the large coil return spring.

In this position the radial holes in the end of the hydraulic master cylinder plunger are open and the fluid can flow freely in either direction between the hydraulic cylinder and the fluid reservoir. Desired amount of residual pressure is maintained in the brake lines by the check valve and spring.

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POWER BRAKE APPLYING

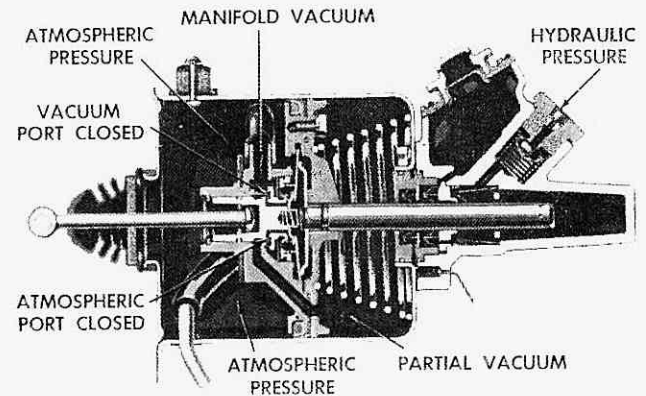
As the brake pedal is depressed, the atmospheric pressure is sealed off, and the space to the vacuum source is subsequently opened. Since the air valve remains closed during this operation, the air is exhausted from the space in front of the power piston and the atmospheric pressure in back of the power piston moves the piston to the right. As this is done, hydraulic pressure is built up in the hydraulic system which in turn forces fluid through the hydraulic lines into the wheel cylinders to apply the brakes. Mechanical reaction is provided to insure that the operator experiences application "feel" proportional to the degree of brake application.



POWER BRAKE HOLDING

When desired pressure on the brake pedal is reached, the power piston at this point has moved down until it rests on annular rubber seat of the floating control valve. When the power piston is in this position, the air valve and floating

control valve are closed—atmospheric as well as vacuumatic openings are closed—and no further movement takes place until the load on the pedal is either increased or decreased.



POWER BRAKE RELEASING

As the pressure on the pedal is released, the valve return spring forces the air valve to the left. The floating control valve remains seated on the power piston, shutting off the vacuum to space and the air valve moves away from the floating control valve, allowing air to flow into the space. Since both sides of the power piston are now open to atmospheric pressure, the spring forces the piston back against the rubber stop. As power piston and hydraulic master cylinder move back, fluid from the wheel cylinders flows back into the hydraulic master cylinder through the check valve and into the reservoir through radial holes in the counterbored end of the hydraulic master cylinder piston.

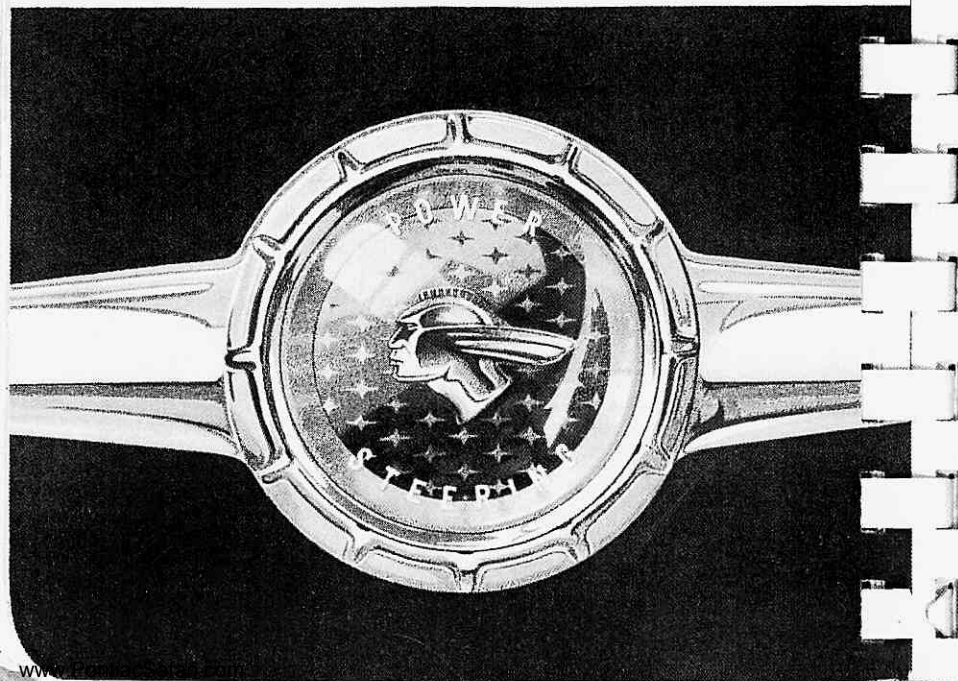
PONTIAC'S

NEW POWER STEERING

gives instant response with minimum of effort!

Pontiac's Power Steering gear for 1956 is a completely new unit. Operating on a hydraulic principle similar to that used heretofore, the gear is now of in-line type and incorporates innovations which importantly improve its performance, durability and serviceability. Drivers will particularly appreciate the fact that the maximum effort required to turn the car under the most difficult turning conditions has been reduced 34 per cent, while "road feel" has been retained.

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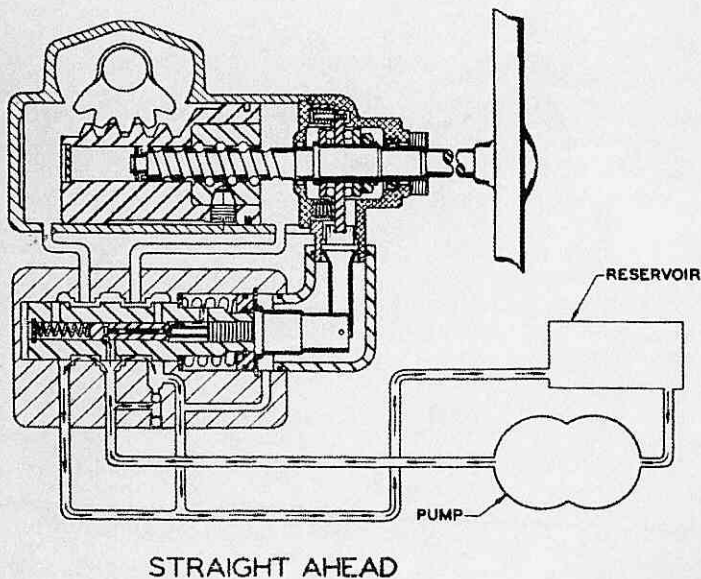


To distinguish models equipped with this device, the name "Power Steering" is added to the horn button of the 870 and Star Chief model's steering wheels. As illustrated, the name is in gold letters above and below the Indian head emblem. This identification will inform all drivers of the car that it is equipped with power steering, and to watch for the pleasures of driving this almost effortless way.

The mechanical element of this new steering gear is similar to that used in Pontiac's manual gear and consists of a recirculating ball type nut in which a number of steel balls act as a highly efficient rolling thread between the steering worm and the ball nut. This ball nut is assembled as a rigid part of the piston and rack assembly which is geared to a sector on the pitman shaft. Here, briefly, is how the new system functions:

In neutral or straight-ahead position, oil flows from a pump, through open center valve and back to the pump reservoir without circulating in the power cylinder. It should be understood that the power cylinder is full of oil at all times, but in the straight-ahead position the pressure on both sides of the piston is equal and very low. When the steering wheel is turned, however, the steering worm tends to screw into the ball nut. This sets off a series of reactions which ultimately force oil into the upper or lower half of the pressure cylinder, while oil is forced out of the opposite portion. Since the pressure on either side of the piston is now unequal, the power rack applies turning effort to the pitman shaft, which results in the wheels being turned in the desired direction with a minimum of effort. When the driver stops applying steering pressure, the valve spool is forced back to a neutral position, unequal pressure on the piston is stopped and the wheels, by virtue of steering geometry, return to the neutral or straight-ahead position. Calibration of this unit is such that it only requires about five pounds effort on the steering wheel to turn the car when parking—the most difficult of turning conditions. This represents a 34 per cent decrease over that formerly required. By considerably reducing the physical effort of driving, Pontiac Power Steering adds more pleasure and relaxation to every trip. When you realize that approximately thirty-nine pounds of pressure are required under some circumstances with conventional steering, you can see just how much easier Pontiac Power Steering makes it for the driver. As illustrated, next page, the steering shaft,

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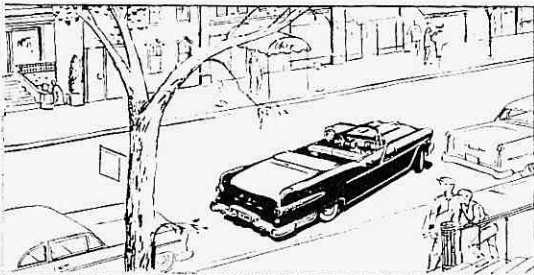
worm and ball nut, power piston and rack, and the power cylinder are all in-line. Since the valve is mounted on the top side of the gear housing, external oil passages between the valve and the cylinders are no longer necessary. Therefore, all external lines and hoses, except the pressure and return hoses between the pump and the valve, are eliminated and possibility of oil leakage due to line breakage is minimized.

The new in-line hydraulic steering gear assembly is inherently more durable. Cylinder, piston and rack are now of unitary construction, and design of the pitman shaft sector is such that load required on the teeth to obtain desired pitman shaft rotation has been reduced. Also, loading of the ball nut and worm is more uniform because of this new arrangement. From a fabrication standpoint, the housing of the in-line gear is treated to provide an extremely durable bearing surface between the piston and housing.

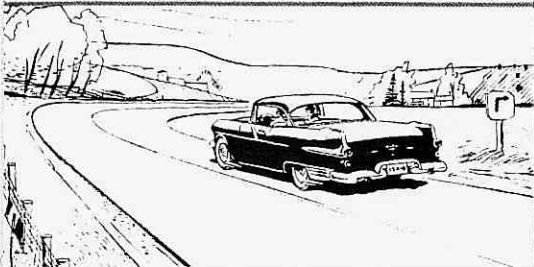
Also, because of changes in worm design (lead) and adoption of the valve actuating lever, less wheel movement is required to actuate the valve of the in-line gear. This allows the driver to maintain better control of the car.

Although mounted in the same position as in 1955, the pump which supplies hydraulic pressure to the gear is also entirely new and importantly improved, which will result in better efficiency and performance. Over-all steering ratio of the new Power Steering installation is 22.5:1 as compared to 24:1 ratio used in 1955. This reduces the amount of steering wheel turn necessary to obtain desired amount of front wheel steer. With all these new changes and improvements, Pontiac's Power Steering is sure to give even more pleasure to your Pontiac driving.

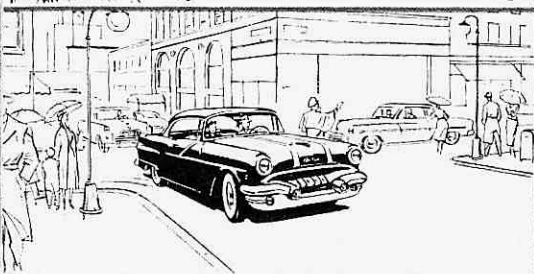
**PONTIAC POWER STEERING OFFERS MORE EASE
AND COMFORT UNDER ALL DRIVING CONDITIONS**



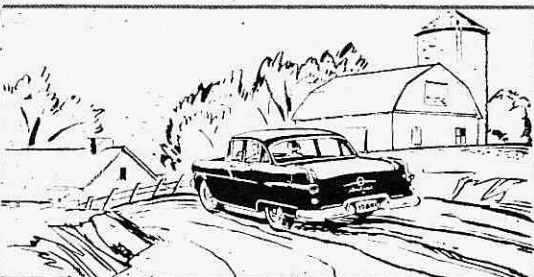
PARKING or pulling away from the curb is accomplished with ease when you have Pontiac Power Steering. Wheels turn easily even when car is standing still.



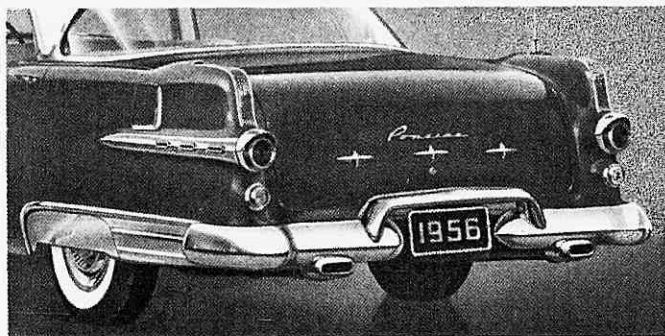
TURNING tight corners or curves requires comparatively little more effort than a gesture. Even while in the process of turning, Pontiac Power Steering maintains "road feel".



RECOVERY from a turn is the same as in conventional steering. The wheels tend to straighten themselves normally on all types of turns.

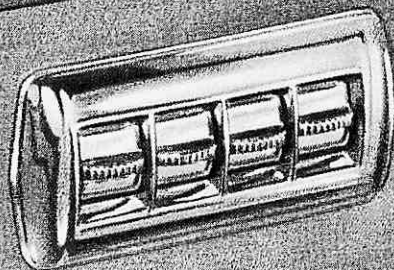


SAFETY is important, and Pontiac Power Steering absorbs road shock and wheel kicking on rough roads and helps the driver maintain control even in case of a blow-out.



**PONTIAC'S NEW DUAL-EXHAUST SYSTEM
OFFERS BEAUTY AND PRACTICALITY, TOO!**

Optional equipment for 1956, this completely new Pontiac dual-exhaust system will be available for all of the new models (except on the 860 4-Door Station Wagon). It consists of new pipes, mufflers and adapters, and various other attachments to conform with design requirements. This unit not only offers the sporting element of dual exhausts, but also has a very practical side, too, for it has the added advantage of improved engine performance because of back pressure reduction resultant from the use of this new accessory. Muffler capacity is increased since the dual mufflers are of basically the same construction as the single type, so that the capacity to pass exhaust gases (with heat-control valve open) is, in effect, doubled. Cleverly designed chrome-plated bezels (for use on sedan and coupe models), attached to the lower edge of the bumper, serve as exhaust deflectors; and new supports and brackets assure sturdy, rattle-free attachment of all components. With the chrome-plated bezels blending so well with the rear bumper, it gives the exhaust outlets a "built-in" look. Station Wagons with dual exhausts use two deflectors similar to that used as an accessory on the single-exhaust system.



PONTIAC'S ELECTRIC WINDOW LIFTS FOR 1956

- ***Raise or lower windows at a touch of a lever***
- ***Can be operated without first turning on ignition***
- ***All windows may be raised or lowered from driver's seat***

Another optional equipment provision, in Pontiac's strides toward the ultimate in automatic driving, is electric window lifts for use on all vertical-moving windows of all models. With the pressure of one finger on a handsomely built-in control switch, the driver or passengers can command windows up or down—smoothly and effortlessly.

All other operational parts of this equipment are hidden from view. Window cranks, being unnecessary, are replaced by neat, chrome toggle switches. Moving the switch up raises the window. Moving the switch down lowers the window. Four switches are mounted on the left front door; thus, the driver can raise or lower windows without moving from his driving position—a definite safety advantage. Along with the driver's controls, front and rear seat passengers may control their windows from individual switches located directly below each vertical-moving window.

Power for the movement of each window comes from a direct-current, reversible electric motor. A worm gear at the end of the motor's armature shaft—and a gear train consisting of an intermediate nylon spur gear and a smaller pinion gear—increases turning power to operate the crank sector. This sector, in turn, moves the window by a linkage arrangement. The related mechanism, in effect, is much the same as the conventional window-moving assembly, with the exception that an electric motor does the work formerly done by rotation of the window crank.

As was the case in 1955, Pontiac's Electric Window Lifts may be operated with or without the ignition's being turned on. Each motor is also equipped with an internal circuit breaker in order to prevent overheating. There is also another circuit breaker mounted on the shroud inner panel that protects associated wiring.

NEW

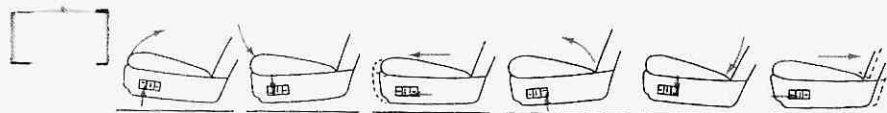
PONTIAC 6-WAY POWER SEAT

FOR 1956

In keeping with the adoption of a greater number of power units to provide greater driving ease and riding comfort, Pontiac introduces for 1956 a 6-way adjustable power-operated front seat. Providing approximately 5" fore-or-aft adjustment and 2" vertical rise, this new unit also permits tilting the front seat forward or backward through a total angle of 15°. Since six different modes of travel are thereby available, drivers of practically all sizes will be able to automatically "tailor" seat position for their particular build and desires. Design of the unit is such that an infinite number of different positions are possible since no locking teeth are required.

For operation of the power unit, three toggle switches are located on the left side of the front seat and are easily manipulated by the driver. Move the front switch down and the front part of the seat tilts down; move it up and the front part of the seat tilts up. Move the center switch forward and the entire seat moves forward; move it back and the seat moves to the rear. By moving the rear switch down, the back of the seat tilts down; move this rear switch up and the back of the seat tilts up. Use of both front and rear controls provides vertical raising or lowering of seat as desired within established limits.

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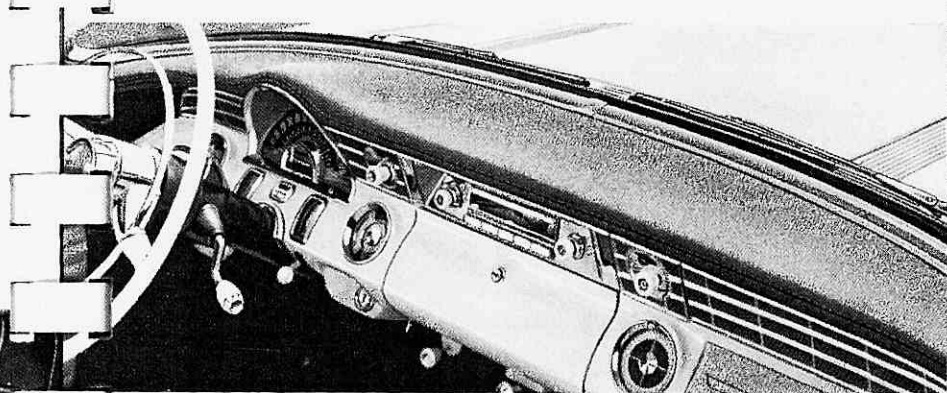


During the operation of the 6-way power seat, a "click" will indicate to the operator that travel limit has been reached, thus preventing unnecessary motor wear.

PONTIAC'S MECHANICAL 6-WAY SEAT

Also available for those who prefer it is the mechanically operated 6-way seat. Like the power seat, it has three controls: front lever, center button and rear lever. By the simple manipulation of the three controls, the seat may be adjusted to 360 different positions.

INSTRUMENT PANEL SAFETY CUSHION



Available factory-installed or dealer-installed, this safety cushion provides a shock-absorbing surface through the use of fiber glass molded to fit the contour of the instrument panel. It is then trimly covered with durable Morrokide in a range of colors that harmonize with the instrument panel. It not only increases driving safety, but also cuts down reflected sun glare. Not available in cars with air conditioning.

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