

1956

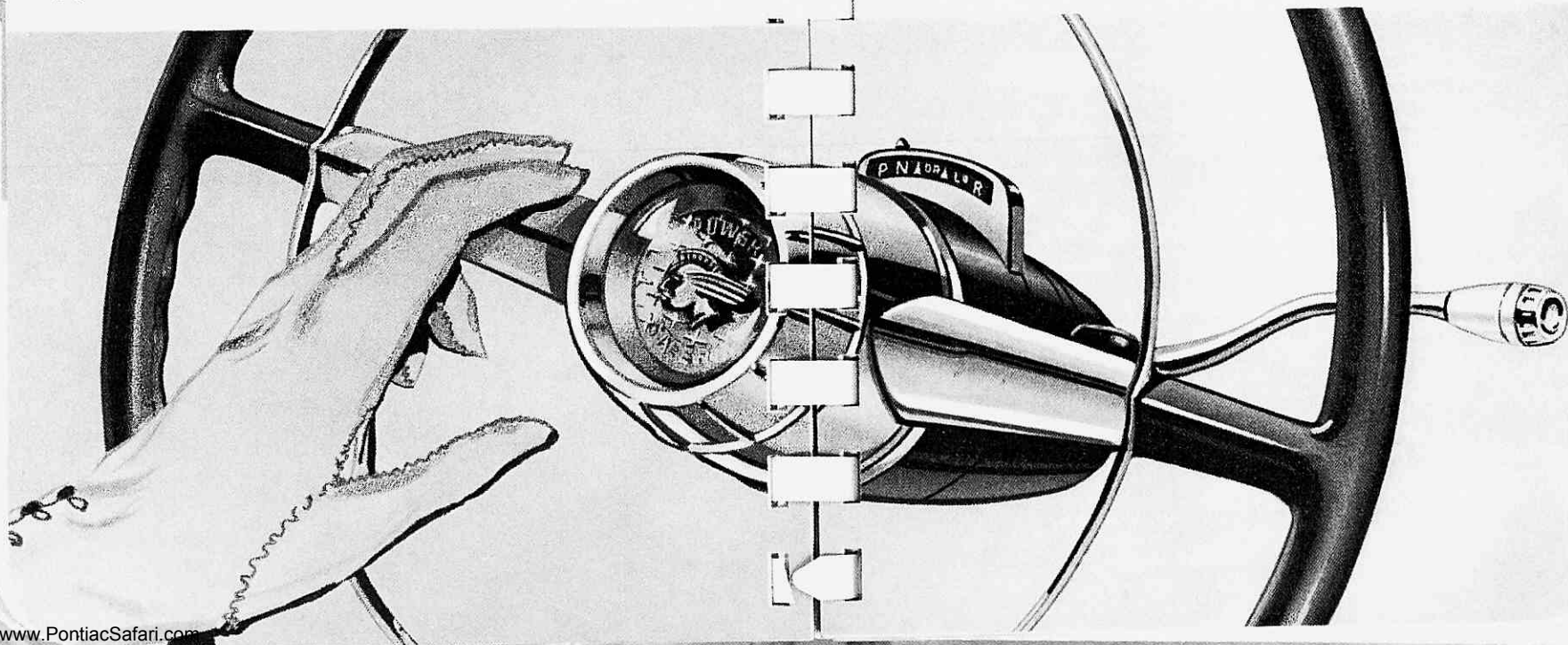
NEW STRATO -FLIGHT

HYDRA-MATIC DRIVE

Another General Motors First!

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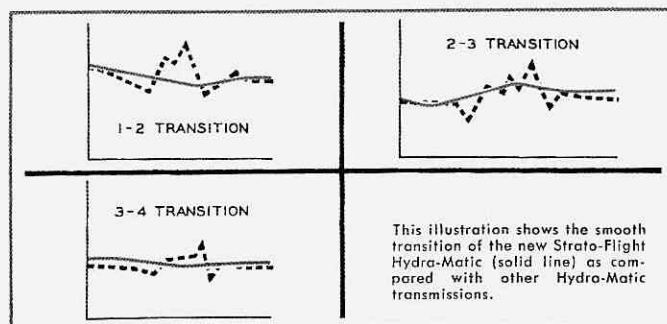


SENSATIONAL NEW HYDRA-MATIC DRIVE

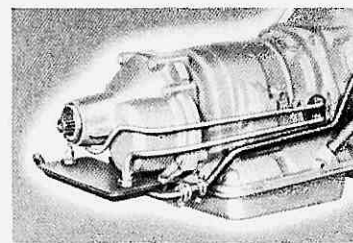
Pontiac has been using the Hydra-Matic transmission since 1948 and first introduced the "Dual-Range" principle in 1952, an improvement that has increased performance and economy of operation. And now in 1956, GM engineers have developed a completely new automatic transmission that is referred to as the "Strato-Flight" Hydra-Matic. It was a known fact that there was a smooth transition of power in the Hydra-Matic fluid coupling, so GM engineers decided to see if this smoothness could be adapted to serve as one of the transmission's clutching mechanisms as well. The result was development of a small coupling and a sprag clutch to replace the clutch-band arrangement in the Hydra-Matic transmission front unit. This coupling could transmit torque to its driven member whenever the fluid was present in the newly added coupling. The chart on the following page illustrates the remarkable transition smoothness of the new transmission.

The "part throttle downshift", introduced in 1955, has been retained for 1956. With the Strato-Flight, its speed range has been raised so that you get an automatic downshift from fourth to third gear up to 35 mph by slightly depressing the accelerator pedal. This results in a better automatic transmission, providing the best possible ratio at all times.

Other important changes also made include elimination of various pipes and reduction in the number of valves plus a 39 per cent capacity increase of the front oil pump. As a result, the possibility of inconsistent operation caused by too little oil has been greatly reduced and makes a larger oil reserve available for all transmission sub units. Gear noise has also been reduced to a minimum, which results in a quieter transmission operation.



An oil cooler, which formerly was an optional accessory, has now become standard equipment with the Strato-Flight Hydra-Matic transmission. This was done to insure the best operation of the new transmission within a narrower temperature range. Ratio transitions are thus made more uniform throughout all driving conditions.



What is DUAL-RANGE HYDRA-MATIC?



Dual-Range Hydra-Matic gives Pontiac owners two separate power ranges as opposed to the single power range of other automatic transmissions. The two ranges are Traffic Range and Cruising Range. Traffic Range includes the conventional first-second-third gear, while Cruising Range incorporates a fourth gear as well. It's like having two separate engines. When driving in Traffic Range, at a speed of less than twenty-five miles per hour, extra pressure on the accelerator pedal automatically downshifts the car from third to second. Naturally, this gives quicker, more instant power with the resultant flexibility and quick acceleration to help the driver through all traffic situations smoothly.

Cruising Range offers the ideal power for highway driving or cruising on the boulevard. The moment the fourth gear is reached, Pontiac's Economizer Rear Axle—with very low ratio of 3.08 or 3.23—allows the engine to work easily and effortlessly with substantial power and maneuverability. Worthwhile gasoline savings should result. The motor is quieted—makes for more restful, relaxed highway driving.



"LO" RANGE

With the control lever positioned at "LO", the transmission remains in the lower gear ratios. This provides maximum power and gears the engine for ideal braking assist on steep grades. What's more, because of an over-controlled valve body, with central lever set at "LO", the transmission will shift to fourth gear at approximately 48 mph. In addition to its protective feature, this item is considered to be of safety significance since, even though the shift lever is accidentally moved from "DR" to "LO" range while traveling at a high rate of speed, the transmission would remain in fourth gear and the shock or jar which otherwise might result is avoided.

REVERSE GEAR

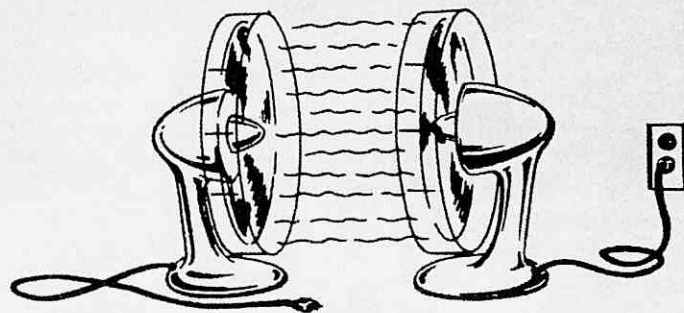
A shift into reverse gear can be accomplished from any other drive position as long as the car is not going more than 5 mph. If a driver is rocking his car in snow or mud, he need not come to a complete stop before shifting from "LO" to "R".

NEW PARKING POSITION

New for 1956, a park position has been included on the shift indicator as part of the new Strato-Flight Hydra-Matic transmission. When the shift lever is in the "P" position, the car may be parked on an incline with minimum danger of having the car roll backwards. Another feature is the fact that the engine may be started in the "park" position as well as in "neutral" so you don't lose the "park" advantages. A mechanical lock prevents accidental movement of shift lever when in "park" position. Cars not equipped with Strato-Flight transmission should use "reverse" for their "park" position as was the case in the 1955 models.

WHAT IS HYDRA-MATIC DRIVE?

Hydra-Matic Drive consists of a fluid coupling and an automatic transmission. To simplify the idea for easy understanding, a fluid coupling may be likened to two electric fans facing each other. When one fan is turned on, the force of the air circulating between the two will cause the other fan to rotate. Duplicate these fans in metal, place them face to face without quite touching in an oil-filled, enclosed chamber and you have a fluid coupling. Both fans, or halves of the fluid coupling, are provided with shafts—one attached to the engine crankshaft, the other to the transmission. When one fan or "torus" member is rotated by the engine, it acts as a giant oil pump, circulating the oil in the passage between



the blades. This circulating oil rotates the other "torus" member, which in turn drives the transmission. Because engine power is transmitted this way through a liquid, it is called fluid coupling.

In back of the fluid coupling is your Dual-Range Hydra-Matic transmission. When the car is in motion, the transmission "feels" its respective car speed by means of a governor which makes sure the shift points occur in sequence according to car speed and engine power.

HERE'S WHAT DUAL-RANGE HYDRA-MATIC DRIVE CAN DO FOR YOU!

SIMPLIFY CAR DRIVING—With Pontiac's Dual-Range Hydra-Matic Drive, you just step on the gas and go! No more clutch pedal to worry about! The only controls on the floorboard are the accelerator and brake pedal. You can give all your attention to the road and traffic conditions, letting Dual-Range Hydra-Matic choose the correct gear for car speed. With Pontiac's Dual-Range Hydra-Matic, even inexperienced drivers can make smooth starts, smooth shifts and stops . . . and even more important, can concentrate entirely on manipulating the car safely.

GIVE YOU TOP-NOTCH PERFORMANCE—With the two separate power ranges of Dual-Range Hydra-Matic, you can select instant acceleration in Traffic Range, or smooth, floating power for the highway in Cruising Range. And when the car is in the fourth gear in Cruising Range, Pontiac's Economizer Rear Axle takes over to reduce engine revolutions and delivers extra-efficient, extra-economical engine operation. Dual-Range Hydra-Matic always knows how fast the car is going and selects the correct gear for best performance.

If a sudden burst of speed is needed in either Traffic or Cruising Range, Dual-Range Hydra-Matic automatically downshifts—within certain top speed limits—when the accelerator pedal is pushed to the floor.

The power slippage between the driving and driven members of the fluid coupling is practically negligible at all speeds with Dual-Range Hydra-Matic.

This means that you get all the power of which your Pontiac is capable with maximum efficiency. This efficiency may be markedly contrasted with power and fuel squandering slippage of some other automatic transmissions.

OFFERS EXTRA SAFETY—With manual operations cut to a minimum, Pontiac's Dual-Range Hydra-Matic reduces driver effort and the resultant driver fatigue. Because you

have only to guide the car and concentrate on where you're going without the necessity of constant shifting, you're more relaxed and a safer driver, too.

And with power slippage reduced to a minimum, you realize greater safety in other ways. Should you have to move your car quickly or need instant acceleration, your Pontiac Hydra-Matic whisks you away from a standing start in a jiffy. Should you need a burst of speed to pass on the highway, depressing the gas pedal—at speeds less than seventy miles an hour—will make Dual-Range Hydra-Matic automatically shift down and deliver a surge of speed.

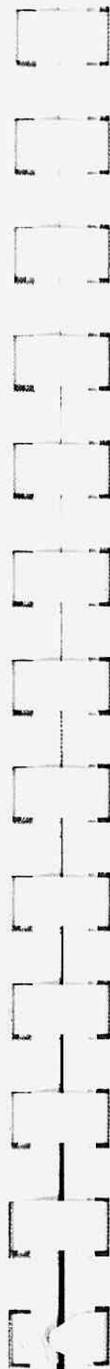
The danger of skidding on a slippery surface is also reduced with Pontiac's Dual-Range Hydra-Matic. Because the engine is always linked to the wheels, the car is always in gear.

And for greater safety on long grades or steep mountain roads, positive engine braking power can be supplied by the engine. A quick shift into Traffic Range or "LO" causes the engine to furnish braking power, minimizing constant foot braking as well as brake wear.

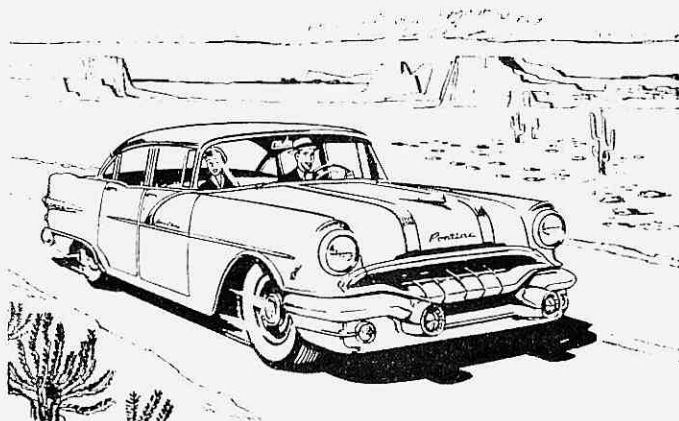
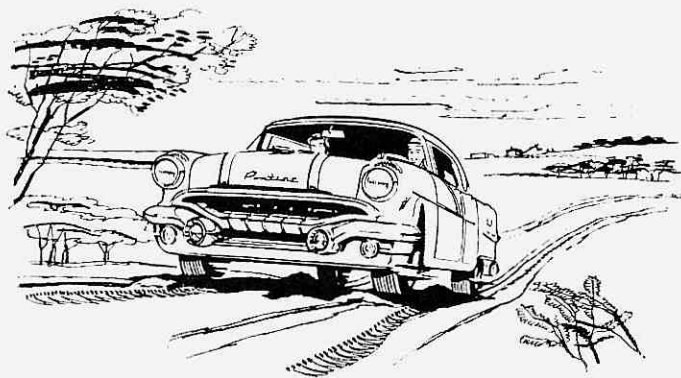
OFFERS EXCELLENT ECONOMY—Pontiac's Dual-Range Hydra-Matic automatically chooses the most efficient gear ratio for any kind of performance—usually more correctly than could the most experienced driver. This efficiency assures the very best economy that can be had with an automatic transmission.

The "fourth" speed of Dual-Range Hydra-Matic in Cruising Range takes advantage of a low rear axle ratio—3.08 or 3.23—which reduces engine revolutions, letting the engine work easily and effortlessly while delivering all of its power to the rear wheels. This results in improved gasoline mileage and, as Pontiac dealers know, great owner satisfaction. It also means longer engine life.

The elimination of the clutch and the smooth power flow of Pontiac's Dual-Range Hydra-Matic also prolong tire life, as they eliminate the tire wear incident with clutch application in conventional transmissions. So you see that whether you



new 1956 Pontiac has the Strato-Flight or the regular Dual-Range Hydra-Matic transmission, you know that you're going to get all the power, performance and safety that Dual-Range Hydra-Matic has long been noted for. Millions of miles driven by thousands and thousands of happy Pontiac owners throughout the world attest to the superiority and economy of the Dual-Range Hydra-Matic Drive.



HYDRA-MATIC TRANSMISSION SPECIFICATIONS

	56-27	56-28
Hydra-Matic Transmission	Accessory	Accessory
Safety Start Ignition	Yes	Yes
Dual-Range Drive	Yes	Yes
"LO" Range Start and Drive in Second Gear	Yes*	No
Four Forward Speeds—One Reverse	Yes	Yes
Planetary Gearing	Yes	Yes
Gear Ratio (Except Station Wagons)	3.08	3.23
Gear Ratio (Station Wagons)	3.23	None
Transmission Ratio—First	4.10:1*	3.97:1
Transmission Ratio—Second	2.63:1*	2.55:1
Transmission Ratio—Third	1.55:1	1.55:1
Transmission Ratio—Fourth	1.00:1	1.00:1
Transmission Ratio—Reverse	4.62:1*	4.31:1
Cone Clutch Reverse	Yes	Yes
Locked Gear Parking with Selector Lever in	Reverse	Parking
	Position	Position
Forced Downshift Response up to	65 mph	70 mph
Part Throttle Forced Downshift Speed—mph	28 Max.*	35 Max.
Lubricant Capacity—Dry Refill (Pt.)	21.0*	21.9
Wet Refill (Pt.)	19.0*	18.7
Type Lubricant Recommended Year 'Round	GM Hydra-Matic	Drive Fluid AQ-ATF
		Type A

*Except Safari which is same as 56-28 model.