The

Cadillac - Engineered

HYDRA-MATIC

DRIVE

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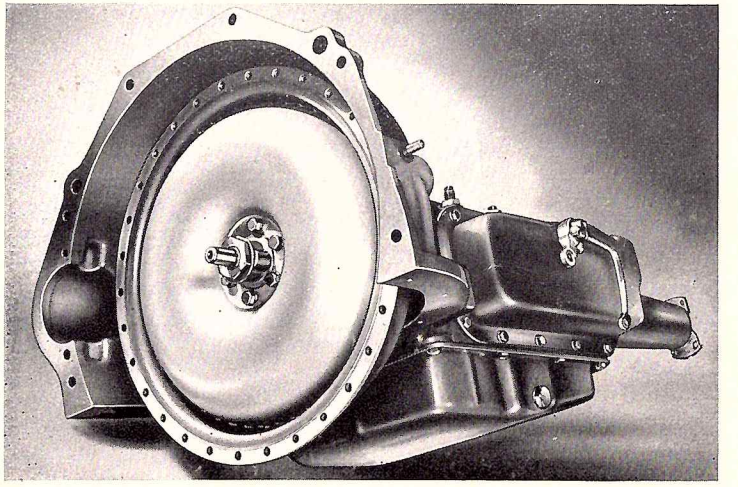
The Cadillac Hydra-Matic Drive is a new and vastly improved method of transmitting power from the engine to the wheels of the car. It consists of a highly efficient hydraulic coupling combined with an automatic hydraulic controlled transmission having four forward speeds (and reverse). It takes the place of the clutch, transmission, and shifting mechanism of the conventional car.

With Hydra-Matic Drive, there is no gear shifting—the gear ratio in which the car is operating at any time is selected automatically by the mechanism itself, in accordance with the performance demands being made upon the car by the driver and the road conditions. The gear selected always provides maximum efficiency under any combination of conditions.



The Hydra-Matic Drive simplifies driving almost beyond belief. The only control relating to power transmission is the small lever which is used to select forward or reverse. Once the car is started, the driver is concerned only with the steering wheel, accelerator, and brake pedal.

The simplicity of Hydra-Matic driving is most readily appreciated by comparing the three steps which constitute Hydra-Matic driving with the fifteen steps required in conventional cars.

With Hydra-Matic, you	*Without it, you must*
Start the engine	Start the engine
Select your direction	Depress the clutch pedal
Depress the accelerator	Shift into low
	Release the clutch pedal
	Depress the accelerator
	Release the accelerator
	Depress the clutch pedal
	Shift into second
	Release the clutch pedal
	Depress the accelerator
	Release the accelerator
	Depress the clutch pedal
	Shift into high
	Release the clutch pedal
	Depress the accelerator

Observe particularly that with Hydra-Matic there is nothing new to learn, and that the natural thing to do is always the correct thing. To start or to increase speed, press on the accelerator; to slow down or stop, press on the brake pedal. The Hydra-Matic Unit always provides the proper gear ratio for every circumstance.

The following brief outline reveals how the Hydra-Matic Drive functions under various conditions, and also emphasizes the few precautions with which every driver should be familiar.

Driving with Hydra-Matic

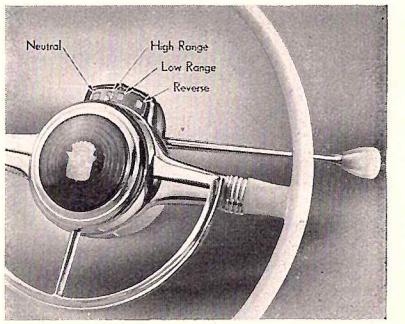
The Hydra-Matic control lever, illustrated on this page, has four positions. The position marked "Hi" is used for all normal driving. The position "Lo" is used only when it is desirable to keep the car in low gear, as when descending steep hills.

For night driving, a soft light indicates the position in which the lever is set whenever the driving or parking lamps are lighted.

Starting the Engine—The control lever should be moved to the neutral (or reverse) position when the car is parked, and kept there until the engine is started. *The lever must always be moved to neutral before starting the engine. In fact, the starting circuit is so arranged that the starting motor will not crank the engine unless this lever is in neutral.* Starting the engine is otherwise the same as on conventional Cadillac cars.

When starting a cold engine, the carburetor is on fast idle for a short time, and the higher engine speed may cause the car to "creep" slightly. A very light pressure on the brake pedal will stop this, and it will correct itself automatically after the engine has been running a minute or two.

Driving in High Range—After the engine is started, the lever is moved to the "Hi" position and left there for all normal forward driving. Moving the lever to "Hi" does not shift any gears; it simply opens an oil control valve which automatically puts the transmission in first speed. The car will not move forward, however, until the accelerator is depressed and the engine speed increased above normal idling.



When the accelerator is depressed, the car moves forward, slowly under slight throttle opening, or rapidly under greater throttle opening. The car picks up speed from a standing start far more swiftly and smoothly than is normally possible with a foot-operated conventional clutch and manually shifted transmission, selecting first, second, third and fourth speeds automatically and choosing whichever one is most suitable for the conditions of speed, load and acceleration demanded.

There is no need for any act on the part of the driver to change gears. There is no pre-selecting of gears required and no necessity for releasing the accelerator and waiting several seconds to allow a gear-changer to operate. No gears are shifted at any time.

These advantages are particularly evident when driving under difficult conditions—in crowded traffic or behind slow moving trucks on long hills. With the Hydra-Matic Drive, it is only necessary to slow down and follow along—no gears to shift, no chance of stalling the engine by engaging the clutch too quickly.

Again, when driving on the open highway at speeds below 55 miles per hour, an extra burst of speed for passing can be secured by pressing all the way down on the accelerator. The drive then changes to third speed for rapid pick-up, and returns to direct drive automatically at some higher speed depending on how soon and to what extent the accelerator is released. If the accelerator is held all the way down, the drive returns to direct drive at 65 miles per hour.

Stopping the Car—To stop the car, it is necessary merely to release the accelerator and apply the brakes. The engine is "in gear" and helps to slow down the car until the speed reaches a few miles per hour, when the slippage of the hydraulic coupling is sufficient to prevent the engine from stalling. It is impossible to stall the engine by imposing too heavy a load.

Reverse—To drive the car in reverse, first bring it to a *full stop*, raise the end of the lever slightly to disengage the "lock-out", and move it on into reverse with a firm, continuous motion. When shifting into reverse from neutral, move the lever first into either "Hi" or "Lo," pause a moment and then shift on into reverse. Pausing in one of the forward ranges is particularly important when the mechanism is cold.

Starting and stopping in reverse are the same as in forward speeds.

Parking on Hills—One of the many advantages of Hydra-Matic Drive not shared by other types of fluid drives is that it permits locking the car in gear. When the car is parked on a hill or other steep incline, the car can be locked in gear by placing the lever in reverse. This locks the transmission in two gears simultaneously when the engine is shut off, making it impossible to turn the rear wheels until the engine is started again, or the lever shifted into neutral.

Low Range—In the "Lo" position of the lever the transmission operates only in first and second gears; it will not change to third and fourth. This range is provided for three specialized uses: descending steep hills where the maximum braking power of the engine is desirable; climbing hills that are so steep that third gear gives insufficient power; and pulling through deep sand or mud.

The change from "Hi" to "Lo" range at speeds below 45 miles per hour is accomplished simply by moving the lever. If the lever is moved at speeds above 45, the transmission will not go into "Lo" range until the speed is reduced below 45.

Towing to Start—If it should ever be necessary to start the engine by pushing or towing the car, this can easily be done by towing with the car in neutral until a speed of 15 to 20 miles per hour is reached. Then the control lever should be moved to the "Hi" position (not to "Lo") and the engine will ordinarily start within a few seconds.

Care Required

The Hydra-Matic Drive requires almost no care or attention. There is only one thing about which the driver need be concerned and that is the use of the proper Hydra-Matic Fluid.

The operation of the Hydra-Matic Drive depends upon the use of a fluid of very exacting specifications. This fluid is compounded especially for the Cadillac Hydra-Matic Drive and is not procurable on the open market. It is distributed only by Authorized Cadillac Service Stations and for your protection is dispensed only in the container illustrated on this page. This is an all-season fluid. Any other fluid will fail to give satisfactory results, and may even cause serious damage.

The fluid level should be checked every 1,000 miles, at the same time that the car is lubricated, and fluid added to bring the level up to the "Full" mark on the plunger type gauge.

In addition, the entire unit should be drained and fresh fluid added at the end of the first 6,000 miles and at 12,000 mile intervals thereafter (i.e. at 6,000, 18,000, 30,000, etc.) Two drain plugs are provided, one in the front face of the flywheel, the other in the bottom of the case. Both plugs must be removed to drain the unit completely.

When fresh fluid is installed, approximately 11½ quarts are required to refill to the correct level. The correct level is determined by the mark on the gauge plunger rather than by the quantity installed. After 8 quarts have been added, the engine should be started, run for 3 or 4 minutes and stopped, and then the level should be checked and sufficient fluid added to bring it up to "Full."

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