

Directional Signals, Automobile Encyclopedia Article

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Directional Signals, Automobile

As long ago as 1889, E. Martin worked on a rudimentary signal system that would enhance automobile and road safety. He thought of using a board mounted to the back of his vehicle with a set of flaps that would conceal the word STOP. When the brakes were applied, the flaps would open to reveal the message to those following him. With the development of four-wheel braking systems and electrical systems, a switch was connected to a brake rod in such a way that, when the brakes were applied, a red lamp at the rear would light. Later, the use of hydraulic brakes changed the system so that the switch was made sensitive to pressure in the brake line.

Features were added to this system to enable the driver to denote turns as well as stops. In 1893, J. B. Freeman employed a roller at the back of the car which was attached to a cord and could indicate STOP, LEFT, and RIGHT. Other inventors created mechanical arms that swung out on either side of the car when the driver operated a control. Just after the turn of the century, such signals were pneumatically operated and self-canceling, thanks to F. Berger. In 1908, Alfredo Barrachini used separate semaphore arms that were lit by small electric bulbs.

The next step was the use of flashing lights to indicate turns. Several designers used flashing lights in semaphores and other early indicators. H. G. Wheeler devised a small motor to make the lights blink, while a Vermont company used a pneumatic device that worked from engine suction to flash the lights. Inventors at a Delaware corporation realized, in 1935, that a device called a thermal interrupter switch could also be used to trigger flashing car lights. In this switch, a tension wire heats up as electricity flows through it; it then expands and allows current to pass to the bulb. This short-circuits the wire, which then cools off enough to shrink and break off the contact to the bulb. In 1962, John Ridout and Frank Hill made a flasher circuit that used transistors for the first time. Microprocessors activate brake lights and directional signals in cars of the 1990s; sizes and locations of these safety devices have been modified to include a centrally located and elevated brake light and turn, reverse, and brake lights that are generally larger than those of earlier models.