

HIGH TECHNOLOGY

FROM BUICK

BUICK WILDCAT:
ELECTRONICS



CENTER INSTRUMENT DISPLAY CONT'D

Calling up the Spark Map page brings up a three dimensional spark map that uses engine RPM, distributor advance in degrees, and manifold vacuum in inches of mercury as variables. A floating cursor indicates the position of the spark output on the map at any given time.

The Tire Slippage page is divided into quadrants, each representing one of the tires on the vehicle. A segmented bar graph in each quadrant increases in height, directly proportional to the amount of tire slippage. Readings represent tire slippage resulting from acceleration and deceleration, not lateral slippage. Information used for the function is obtained by tapping into the microprocessor in the Anti-lock Brake System.

Selecting the Tire Pressure page brings up a display with four rectangles representing the tires on the vehicle, the top of the page being the front of the vehicle.

A transmitter is attached to each wheel, inside the tire, which emits a specific signal corresponding to its location. Sensors in the vehicle receive the signal and transmit the information for display. If the pressure in a tire falls below a preset minimum setting, the corresponding tire on the display changes from the outline of a rectangle with the letters "OK" inside, to a flashing, filled-in rectangle with the word "LOW" in the center.

Calling up the Compass page displays a representation of a two lane road in front of the vehicle, and terminating at a horizon. Directly above the horizon, centered over the road, is a letter corresponding to the exact point on the compass to which the vehicle is traveling.

At each side of the letter is another letter or letters corresponding to the previous and the next 45 degree sector of the compass. As the vehicle turns, the letter display also changes so that the true direction of travel is always centered over the road display.

Controls for driving functions are located on a series of switches on the steering wheel hub periphery. They are mechanical, and are backlit. At the 12 o'clock position, the Start switch is used to start the engine. Going in a clockwise direction, the next switch is the Right Turn control, followed by the Horn at three o'clock, and at the five o'clock position, a switch that toggles between Season and Trip Odometer.

At the bottom position, is an Engine Off switch, followed by the MPH/KPH switch, which controls all speed and temperature displays, and toggles between English and Metric. Another Horn switch at nine o'clock is followed by the Left Turn signal control. Information from the switches goes through the same bi-directional data line that the HUB display information passes through, and is channeled to the controls.

At each side of the steering wheel are pods which contain mechanical switches for vehicle functions. At the top left is the Head Light control, and immediately below it a switch to turn on the High Beams.



VECTOR GRAPHICS DISPLAY PANEL



CENTER INSTRUMENT DISPLAY

The instrument display located in the center of the instrument panel utilizes next generation technology. It is of the dot matrix vacuum-fluorescent type, and only three inches deep. It measures 95.85 by 95.85 millimeters, and is a high level graphics flat panel with full vector graphics capability. Unlike conventional CRT displays, this technology does not employ a scanner.

Instead, the X and Y coordinates are specified, and the vector graphics fill in the points between. The center instrument display receives signals from a second BCM, used specifically for this purpose, at a rate of 9600 baud. Display color is Buick's blue-green.

Upon entry, a logo appears on the screen. When the vehicle is started, the logo is displayed on the screen, until one of several display pages is selected. They include oil temperature, "G" meter, horse power and a "call-up" function which allows a detailed and instantaneous display of engine torque, a spark map, tire slippage, tire pressure, and directional compass.

The control switch for the instrument displays is located on the center console, below the Heater Ventilation, Air Conditioner(HVAC) system controls. It is square in shape, and pressing the front, rear, left or right, causes a mechanical switch located underneath each sector to select the various functions.

The engine oil temperature gage is a segmented bar scale with the temperature indicated in numerals at intervals along the bar. A series of dots form the column that the temperature bar will follow as oil temperature increases and the segments become visible. If the temperature exceeds 250 degrees Fahrenheit, the telltale on the gage flashes. The temperature is also displayed in numerals at the lower right of the screen.

Pressing the "G" Force portion of the center instrument display switch causes the "G" meter to appear on the screen. It appears as a series of concentric circles with the smallest having a value of .1g, and increasing by two to the outermost ring, which has a value of .9g. The top of the gage cor-

responds to the front of the vehicle, the bottom to the rear, and left and right respectively.

As the vehicle is driven, a floating cursor corresponding to the acceleration and deceleration values of the vehicle and the proper position on the scale is displayed.

Pressing the Horsepower switch brings up a graph which displays RPM as the X axis, and HP as the Y axis. A line representing the HP curve at normal operating speeds is on the graph, and a floating cursor indicates the specific output of the engine at any given time.

The detailed "call-up" page function "wraps around" when the choice of five displays is exhausted. Pressing the switch may call up the Torque Curve, which uses engine RPM as the X axis, and pounds-feet as the Y axis. As with the Horsepower page, a curve representing torque at normal operating speeds is displayed, and a floating cursor indicates the specific output at any given time.



One switch below is the Parking light switch, and a switch to activate the Hazard flashers is at the bottom.

At the top of the right pod there is a switch for activating the Windshield Washers, followed by the Wiper switch. A Mist/Off switch turns the wipers off, and functions as a momentary wiper control. The wiper Delay control is at the bottom of the right pod.

Located just inboard of the left pod is a control for dimming the intensity of the HUB display. On the right inboard side is a control for adjusting the position of the spoiler, or wing on the rear of the vehicle. It is connected to electric motors which adjust it to the up or down position.

The center console extension, below the center instrument panel display, contains the HVAC controls. A small screen displays two digits corresponding to the desired setting for the cabin temperature. Below and to the left of the screen are switches for increasing or decreasing the fan speed. To the right are two other vertically

arranged switches, "Warm" and "Cool", which are used to set the cabin temperature. The switches increment up or down, and skew if held.

The control switch for the center instrument panel display is toward the rear of the console. Next in line is the eight-way seat adjustment control, integrated into one switch.

The last item on the console, and placed in an ergonomically correct position is the shifter, which was specifically built for the Wildcat. When the shifter handle is moved, an electronic contact is made, and a signal is sent to the actuator that is linked to the transmission. This unit electro-mechanically executes the shifting. Pressing down on the handle executes downshifts, lifting executes upshifts.

The transmission has been redesigned to be shifted manually. As a safeguard, when engine speed approaches maximum RPM, electronic sensors cause it to automatically upshift to prevent damage. In addition, the transmission has a built-in program which prevents downshifts that would result in excessive engine speed. The rev lock-out will not allow fourth to third gear downshifts at 5200 RPM and above, no third to second gear downshifts at 4600 RPM and above, and no second to first gear downshifts at 4000 RPM and above.

Applying the Parking brake causes the transmission to go into Park. It is located on the left side of the console, next to the driver. Pressing the Neutral switch at any time will cause the transmission to shift into Neutral.

Wildcat is unique, designed and built as a concept vehicle that will be driven and evaluated. As with powertrain technology, the electronic content of the Wildcat is another example of Buick's role as a leader in the development and application of vehicle information and control systems.

