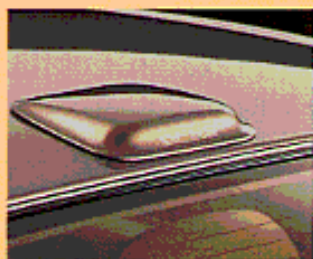


CCS Makes Mazda an Office On Wheels



Imagine an office that's only six feet long and four feet wide. The ceiling is just inches above and a desk won't even fit in front of your chair. Sounds like the cubicle you had for your first job.

But more and more professionals in Japan are opting for these cramped confines. The appeal: This office is mobile, and it goes from 0 to 60 in six seconds.

It's Mazda's Eunos Cosmo equipped with the Car Communication System (CCS). Not only does CCS help the driver take advantage of otherwise idle travel time, but it can help him find his way if he should get lost.

CCS, located snugly in the middle of the Eunos dash, links the vehicle to outside information sources with features like a hands-free cellular telephone, a satellite or radio navigation system, a TV and an AM/FM radio. Combined with automatic climate control and a compact disc (CD) which stores the system's software, it makes a Mazda an office on wheels.

But that's just the beginning. Within a few years CCS will collect and analyze traffic, road and weather data, providing safer, more efficient travel.

The highlight of CCS is the built-in navigation system that draws signals from the United States Military's Global Positioning System (GPS) satellites. It's the first commercial application of GPS—which U.S. pilots used to find their way during the Gulf War—on automobiles.

The navigation system receives the satellite data, computes the car's position within about 50 meters and marks it on digital maps displayed on the unit's TV. Map software, including area points of interest, is stored on a CD. So not only does the mini-monitor reveal where you are at a given second, but it can show you alternative routes around traffic snarls, tell you the names and numbers of hotels and restaurants ahead and pinpoint exactly the distance to a programmed destination. An integrated radio automatically tunes in information on traffic and parking availability.

The system does have limitations. Although the GPS' 15 satellites operate nearly 24 hours a day, their orbital positions affect signal reception. And so does traveling through a tunnel.

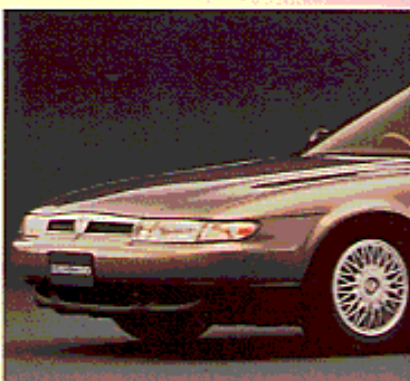
It beats the alternative, though. Before deciding to use GPS, Mazda engineers studied the idea of radio navigation from the ground, using roadside beacons. The closer the beacons, they found, the more precise the position-locating would be. But to achieve an acceptable level of accuracy, it would have taken 180,000 beacons installed a kilometer apart—not a feasible consideration right now.

The engineers also knew simplicity should be the name of the game in designing the CCS controls. Drivers can't afford to fumble around for switches, buttons or knobs. It's too distracting. So the controls are set up like an automated teller machine. Each feature is controlled by one of eight main buttons. Once the driver makes a selection, more options appear on the monitor. Two-layer screens are assigned to some features, but no more than 30 switches are needed for any one.

A conventional design would have meant about 200 separate buttons.

Other features are coming on the CCS that will make traveling by car an extension rather than an interruption of work time. An information retrieval system will become available in Japan by the mid-1990s, offering traffic information digitally. That means when the CCS is connected, it will display the details continuously on the monitor, instead of just tuning them on the radio. In addition, the system will be able to make recommendations about the fastest routes, reducing mileage by up to 10 percent.

The CCS will go on-line soon with another network—similar to "Prodigy" in the United States—that makes a car a veritable information terminal for the external world. A word-pro-





cessor package is on the drawing board too, and with a chauffeur, business people can handle their affairs on their way to and from the office.

One last advantage: safety. In a heavy snow-storm or dense fog, for example, the CCS will be able to retrieve and study data on road width, curves and oncoming cars in order to safely guide the vehicle.

Information like this can help make your office on wheels as safe as sitting behind your desk.

The CCS controls are set up like an automated teller machine, with each feature controlled by one of eight main buttons. Mazda's Eunos Cosmo offers the CCS as optional equipment. The nine-inch screen fits snugly in the Cosmo's dash and displays the variety of functions, like a city map with the car's exact location AC touch controls.

