



Parking-E

by **The Stratus Group Inc.**

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Information on Reversing Detection Abilities

There are some confusion and misrepresentation on the ability of backup alert systems. Our collision avoidance systems use 'echolocation', same as the most sophisticated sonar used by marine, navy, and military applications. In each application the sonar is calibrated for the most likely and effective purpose for which it was designed to perform.

No other system can actually 'see' 3 dimensional objects other than echolocation sonar in its various forms, one of which is our collision avoidance system. Our system's miniature acoustic detector transmits a modulated beam signal. This beam signal is capable seeing through fog, rain, smoke and snow, most types of weather day and night. When the signal strikes a stationary or moving target "directly", it bounces back to the receiver and instantaneously sends the signal to the microprocessor.

The microprocessor programmed with our exclusive software processes the feedback signals automatically and continuously calculates the "vehicle to obstacle distance". The computed results are transmitted to a digital readout processor or a speaker alerting the driver of the distance to obstacle. If the microprocessor determines that a particular condition requires the driver to take precaution, special emergency sounds are generated to assist the driver to take corrective action.

The most important differences of our Vehicle Reversing Aid to other backup alert technologies are:

1. Accuracy – our system is accurate to +/- 2 inches.
2. Digital/auditable warning or Voice Warning – our system is the only one to "tell" you the driver the distance of obstacles behind you.
3. Object Detection – our system detects both stationary and moving objects continuously.
4. Distance Detection – our system has the largest detection range from 8 inches to 8 feet.
5. Flexibility – our system can be installed on most types of vehicles.

Other backup systems have claimed that its system can function through mud or dirt. However if mud, being a very dense matter, were not being detected, then certainly a human being would not be seen at all!

HOW IT WORKS

The sensors radiate ultrasonic beams covering the area behind the vehicle. The beams are reflected by obstructions behind the vehicle, and re-enter the sensors. The reflected beam information is processed to calculate the distance of the obstruction.

The system is activated when reverse gear is engaged. As the vehicle is reversed, the digital display counts down the distance from an obstruction. When the vehicle is less than 1.5 metres from the obstruction the alarm sounder will emit intermittent beeps. As the vehicle gets closer to the obstruction the display indicates the reduction in distance and the frequency of the beeps increases. At 35 centimetres (approx 12 inches) from the obstruction the beeps become a continuous tone.

SOME USEFUL MEASUREMENT INFORMATION (measurements are approximate and not guaranteed)	
Size of Display / Audio Unit	79mm x 28mm x 18mm
Size of Processor	129mm x 79mm x 25mm
Length of cabling from Sensors to Processor	3.8M
Length of cabling from Display /Audio Unit to Processor	6.5M
Length of power wire from Processor to Reversing Light feed	1.4M
Length of earthing wire from Processor	1M

WARNING METHOD		
DISTANCE FROM OBSTACLE	DIGITAL DISPLAY	AUDIO SIGNAL
8ft. - 5ft/2.5m - 1.50m	displays actual distance	no sound
5ft - 3ft/1.50m - 1.15m	displays actual distance	1 bleep per second
5ft - 2ft/1.15m - 0.75m	displays actual distance	2 beeps per second
2ft - 12in./0.75m - 0.35m	displays actual distance	5 beeps per second
less than 12in./ 0.35m	displays 0.00	continuous bleep

TREND TOWARD VEHICLE SAFETY

There are clear trends across motor vehicle and trucking industries and state and local DOT's towards increased vehicle safety. With more than 150 million automobiles (excluding trucks, vans and other motorized vehicles) nationwide, the public along with their elected officials have begun to realize transportation is one of the few elements of our national infrastructure that is used by virtually every American everyday. Over the past twenty years, motor vehicle collisions have accounted for over 90 percent of all

transportation fatalities and an even greater percentage of transportation accidents and injuries. Moreover, 40,000 people die each year in motor vehicle crashes with the total estimated economic loss to U.S. society at over \$150 billion annually. Driver error has been cited as the primary cause in about 90 percent of all police-reported crashes involving passenger vehicles, trucks and buses.

On going and recently completed research conducted by the National Highway Traffic Safety Administration (NHTSA), indicated that collision avoidance systems offer the potential for significantly reducing motor vehicle crashes by approximately 70 percent. Recognizing that driver aids potentially offer major benefits, the U.S. Department of Transportation (DOT) is embarking on a joint program called the Intelligent Vehicle Initiative (IVI). The primary goal of the IVI is to accelerate the development, introduction and commercialization of driver assistance products to reduce motor vehicle crashes and incidents.

The U. S. Department of Transportation has identified Obstacle/Pedestrian Detection as, one of several Platform Specific Services for improvement through application of advanced in-vehicle or cooperative technology. The IVI defines Obstacle/ Pedestrian Detection as follows: "This service would warn the driver when pedestrians, vehicles or obstacles are in close proximity to the driver's intended path. This could be accomplished with on-board sensors or infrastructure-based sensors communicating to vehicles." The category was identified as a candidate because it: 1) improves safety; 2) may impact safety; 3) provides platform-specific functions and/or 4) provides supporting capabilities for other future services.



The bottom line: Driver error is the predominant cause of accidents. One way of reducing driver error is to help drivers avoid crashes. New technologies, like our Reversing Aid are available and affordable to help drivers operate more safely and efficiently and potentially reduce the number of fatalities, injuries and economic costs resulting

from motor vehicle crashes.



3 Parking-E Sensors on bumper



Preventable

Facts Sheet

- ✓ There are more than 500 million registered vehicles worldwide with approximately 250 million in North America.
- ✓ The National Highway Traffic Safety Administration reported collision avoidance systems can potentially reduce motor vehicle crashes by approximately 70%.
- ✓ An estimated 20% of accidents are backing related.
- ✓ Failure, by the driver, to see a vehicle, object or person is the number one cause of backing accidents.
- ✓ The National Highway Traffic Safety Association reports an estimated 390 people die each year from being backed over.
- ✓ Children aged 1-4 are most at risk.

Every 1.6 minutes, another driver backs into trouble.

Other Technologies

There are 3 other technologies, Infrared, Microwave & Laser, have been applied to vehicle backup warning system, but each technology has serious limitations as outlined below:

Infrared Technology

- Can become temporarily 'blinded' by bright sun-light.
- Can fail to differentiate heavy clothing from land-scape during low temperature situations.
- Average distance accuracy.

Laser Radar

- Heavily dependent upon the light reflectivity of the object it is designed to detect.
- Average distance accuracy.

Microwave Technology

- Functions only when either the obstacle or vehicle is moving. Does not detect if both vehicle and obstacles are stationary.

5 MPH Crash Test Results: 1998

	Rear Into Flat Barrier	Rear Into Pole
Lexus LS400	\$345	\$445
BMW 5 Series	\$364	\$1,055
Mercedes E Class	\$1,052	\$2,460
Pontiac Sunfire	\$206	\$709
Ford Taurus	\$305	\$2,216
Toyota Sienna	\$132	\$863
Dodge Caravan	\$366	\$1,825
Ford Explorer	\$1,323	\$1,068
GMC Jimmy	\$882	\$1,161
Jeep Cherokee	\$1,521	\$1,761
Land Rover	\$2,145	\$1,197
Toyota 4Runner	\$2,026	\$2,473
Nissan Pathfinder	\$1,497	\$2,914
Ford Ranger XLT	\$312	\$1,089