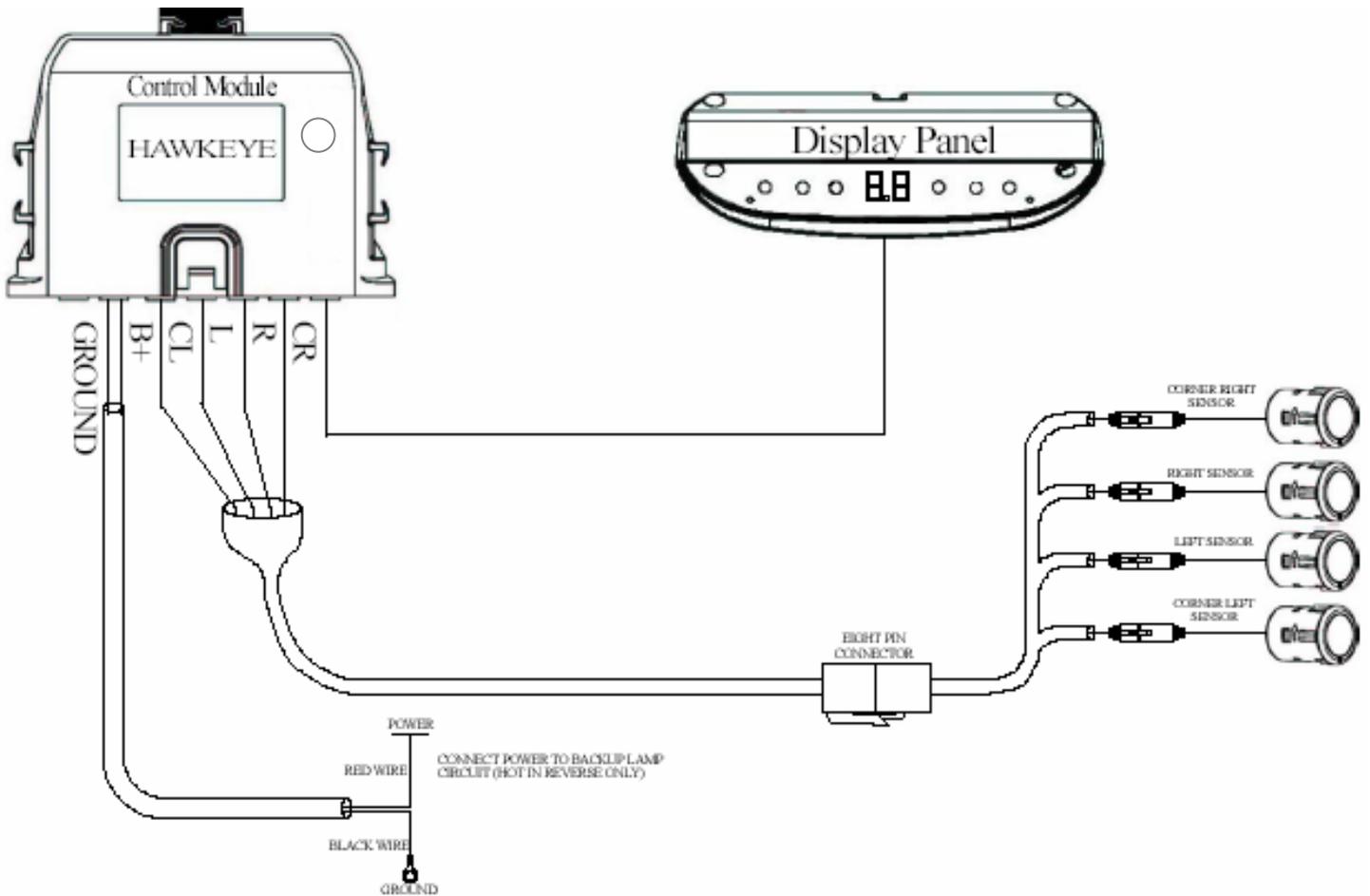


# H<sub>2</sub> Hawkeye Reverse Assistance System Diagnostics & Frequently Asked Questions



## Symptom Chart

Symptom	Possible Cause	Repair
1. LED Display does not prove-out when ignition switch is turned to "ACC" position and transmission in Reverse gear.	A. No power supply to Control Module.	<ul style="list-style-type: none"> <li>◆ Verify that the power/ground harness is securely connected to the Control Module.</li> <li>◆ Verify that the power/ground harness is securely connected to the tail-lamp harness.</li> <li>◆ Check for short-to-ground on the red power wire.</li> </ul>
	B. LED Display not connected or is faulty.	<ul style="list-style-type: none"> <li>◆ Verify that the LED Display harness is securely connected to the Control Module.</li> <li>◆ Check for short-to-ground on LED Display harness.</li> <li>◆ Verify with a known good LED Display. If system works properly, replace LED Display.</li> </ul>
2. False alarm with one or two LEDs illuminated without object in respective zone.	A. Sensor(s) are blocked by mud, snow, or ice.	<ul style="list-style-type: none"> <li>◆ Gently clear sensor(s) of any foreign material. Take care not to scratch surface of sensor(s).</li> </ul>
	B. Sensor(s) are not installed in proper orientation.	<ul style="list-style-type: none"> <li>◆ Verify that sensors are installed with small "dimple" pointed down.</li> <li>◆ Verify that the sensor is mounted at least 17" from the ground.</li> </ul>
	C. Reversing down a slope.	<ul style="list-style-type: none"> <li>◆ During reverse maneuvers, it is possible for the Hawkeye RAS to detect the ground when it levels off. This is normal.</li> </ul>
	D. Sensors are detecting the ground.	<ul style="list-style-type: none"> <li>◆ Sensitivity set too high. Refer to the section on Adjusting Control Module Sensitivity.</li> </ul>
3. LED Display blinks	A. One or more sensors are disconnected from the Control Module.	<ul style="list-style-type: none"> <li>◆ Verify that all sensor connectors are securely connected to the Control Module.</li> </ul>
	B. One or more sensors are faulty.	<ul style="list-style-type: none"> <li>◆ Verify with known good or new sensors.</li> </ul>
	C. Control Module is faulty.	<ul style="list-style-type: none"> <li>◆ Verify with known good or new Control Module.</li> </ul>

## Adjusting Control Module Sensitivity

Sensitivity of the Control Module is pre-set at the factory. Under some conditions, the sensitivity may need to be adjusted. This is accomplished by making SMALL adjustments to the sensitivity trim potentiometer. The trim pot is accessible on the Control Module through an access hole in the plastic housing. Using a small screw driver, turn the trim pot up or down in SMALL INCREMENTS (usually only 5-10 degrees). Turning the trim pot more than 25 degrees can cause the system to operate erratically or possibly damage the unit.

## Malfunction Indicators

<u>Sensor Malfunction</u>	<u>LED Display Status</u>
Left (L) Sensor	••• - ] ◦◦◦
Right (R) Sensor	◦◦◦ [ - •••
Corner Left (CL) Sensor	••• - - ◦◦◦
Corner Right (CR) Sensor	◦◦◦ - - •••
Corner Left (CL) & Left (L) Sensors	••• - Π ◦◦◦
Corner Right (CR) & Right (R) Sensors	◦◦◦ Π - •••

◦ = LED on     • = LED off

*All combinations above will be blinking except the “- -“ display and there will be no audible tones.*

### CAUTION!

**This system is not designed to prevent contact with small or moving objects. This system is designed to provide a warning to assist the driver in detecting large stationary objects when moving in reverse at “parking speeds” of approximately 4 mph. The Reverse Assistance System may have reduced performance or be activated in inclement weather.**

**To help avoid personal injury, always use caution when in reverse and when using the Reverse Assistance System.**

# **Hawkeye R.A.S**

## **Frequently Asked Questions**

1. How do the sensors read or give feedback?

**The Hawkeye Reverse Assistance System (RAS) utilizes 3<sup>rd</sup> Generation, asymmetrical sensors using an ultrasonic energy wave.**

2. What does the system have the ability to detect?

**The Hawkeye RAS is designed to detect an object that can reflect the sound waves back to the receiver (large, stationary objects like poles, walls, vehicles, etc).**

**Ultrasonic detection systems do not excel in detecting people or animals (soft tissue absorbs sound energy). The system is designed to aid drivers while moving in reverse on a flat surface at “parking speeds” of approximately four (4) miles per hour or less.**

3. What type of warranty is associated with this product?

**Two (2) year, unlimited mileage from purchase date.**

4. What is its resistance to cleaners? Fuels? Etc?

**The sensors used in the Hawkeye RAS are the same type used by Mercedes Benz, BMW, Ford, General Motors, etc. They are designed to be used on the exterior of passenger vehicles and thus are fairly tolerant of normal cleaners, fuels, etc.**

**However, abrasive mediums should not be used on the sensor surfaces to avoid scratching the sensor.**

5. Does it have problems performing in tough weather conditions or when something is on the sensor such as rain, snow or dirt?

**Inclement weather can have an adverse effect on the function of Hawkeye. Some snow or “road grime” does not usually give a false alarm, but heavy rain or snowfall can cause the system to trigger. If false triggering occurs, simply clean the sensors.**

6. What is the operating temperature range it can withstand?

**-20°C ~ 70°C (-4°F ~ 158°F)**

7. What is the greatest amount of force it can withstand?

**The HAWKEYE integrated sensors have successfully passed multiple impacts at 5.5 mph with an impact force of 11g.**

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8. How does the system detect a “bad” sensor?

**The Hawkeye RAS utilizes self diagnostic software to continuously monitor the performance of the sensors and the Control Module. See Symptom Chart for more details.**

9. Can the sensors be painted?

**The sensors are only available in black. They can be painted to match vehicle (bumper) color with automotive-based paints. However, do not scuff the sensors prior to applying paint.**

10. What are the viewing angles of the sensors?

**The Hawkeye sensors have an extra-wide horizontal detection zone of 160° and a vertical detection zone of 60°.**

11. Are there different types of sensors? If so, what are their differences?

**Yes. There are unique sensors for plastic/composite bumpers and steel/metal bumpers. The difference is in the thermal isolation surrounding the sensor itself (more isolation for steel/metal bumpers). This also requires a different control module (unique signature pattern from these sensors).**

12. When locating the sensor, what is the acceptable tolerance for the vertical position?

**Sensor height should be between 17” – 24” from the ground.**

13. Can individual sensors be replaced?

**Yes. Individual sensors can be purchased directly from InterMotive Products. They arrive as an assembly of the sensor and HAWKEYE sensor housing.**

#### **InterMotive Products**

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