



# Installation Instructions

## Back-up Alarm

### General Information:

Congratulations! You have purchased the finest back-up alarm product available on the market today. Back-up alarms are designed to provide a warning sound in hazardous environments associated with vehicles or mobile equipment. To realize this products' full value, it must be installed in conformance with the instructions provided in this guide. People's lives depend on the proper installation of this product and it is necessary for you to read, understand and follow these instructions. In addition, we have outlined below some important safety instructions and precautions you should follow.



**Failure to install this back-up alarm in accordance with manufacturer's recommendations for installation may result in property damage, serious injury, and/or death to those you are seeking to protect !!!**

Selection and installation of an alarm should meet the requirements of SAE J1446 (May.89) "On-Machine Alarm Test & Evaluation Procedure for Construction & General Purpose Industrial Machinery", and all applicable codes. Operation of a vehicle in noisy environments may require an alarm that is louder than indicated in SAE J1446 (May.89). Install an alarm that will be audible on the noisiest job site on which the vehicle will be used. Ground guidance should be provided to the driver when backing a vehicle in a job environment where the audibility of the alarm is in question.

Back-up alarms are intended for commercial use. Proper installation of a back-up alarm requires a good understanding of truck and heavy equipment electrical systems and procedures, along with proficiency in the installation and use of safety warning equipment.

When installing an alarm product, be sure to verify that both sides of the mounting surface are clear of anything that could be damaged.

Place the back-up alarm so it will operate properly under adverse conditions. The location must provide protection from impact and poor weather conditions while allowing unobstructed sound projection to the target hazard area.

The back-up alarm system must be inspected each work day at the beginning of each shift to ensure that it is audible, operating properly, and securely attached to the vehicle. Inspect more often when: 1) The vehicle is operating in an adverse environment; 2) The vehicle is operating in foul weather conditions; 3) The operator has reason to believe the alarm has been damaged or is not working properly; and/or 4) Increased background noise interferes with the ability of workers to recognize when the alarm is sounding.

**Note: Back-up alarms should be used for BACK-UP WARNING applications only. The back-up alarm sound is generally recognized as a warning for reversing vehicles/mobile equipment. Alarm products with different sound tones are available for non-reversing applications.**

### Installation Instructions & Sound Level:

This product is designed to concentrate its audible alarm in the target hazard area. **NOTE:** This product is a safety device. It must be connected to the vehicle's fused back-up lamp circuit or its own separate fused power point to assure its continued operation. For proper sound dispersion, it must be mounted approximately 4 feet above ground level with the sound opening facing the target hazard area (see SMART-ALARMS below). The label on each alarm describes the sound output level in decibels (dB).

1. Select a mounting location at the rear of the vehicle that will provide protection from flying objects, debris, and foul weather conditions while allowing unobstructed sound projection from the vehicle.
2. Using the alarm's housing as a template, mark location for the mounting holes. Drill holes at location marks.
3. Secure alarm on the vehicle.
4. This unit requires a reliable power and ground connection for operation. Complete the wiring according to the wiring diagram shown in figure 1. Use 18 gauge wire (minimum) and observe correct polarity. **WARNING!!** Anytime the Backup Alarm is in operation, continuity must be maintained between the positive voltage of the power source and the positive terminal (+) of the Backup Alarm as well as between the negative terminal (-) of the Backup Alarm and the common ground (the machine member to which all wire grounds are connected). During operation the voltage differential between the positive voltage of the power source and the positive terminal (+) of the Backup Alarm shall not exceed 150mV. During operation the voltage differential between the common ground and the negative terminal (-) of the Backup Alarm shall not exceed 150mV. Route wire in a protected manner in accordance with vehicle manufacturer recommendations. **NOTE:** The back-up alarm is sensitive to polarity and will not operate when its power connections are reversed unless the product is a manually adjustable alarm (see below).

**Important!! DO NOT wire in parallel with a solenoid or relay coil. DO NOT spray any coating material, e.g. paint, undercoatings, etc., over the sound opening. DO NOT install the alarm or its wiring in proximity to ignition wires. Failure to observe these conditions may have an adverse effect on the alarm's performance.**

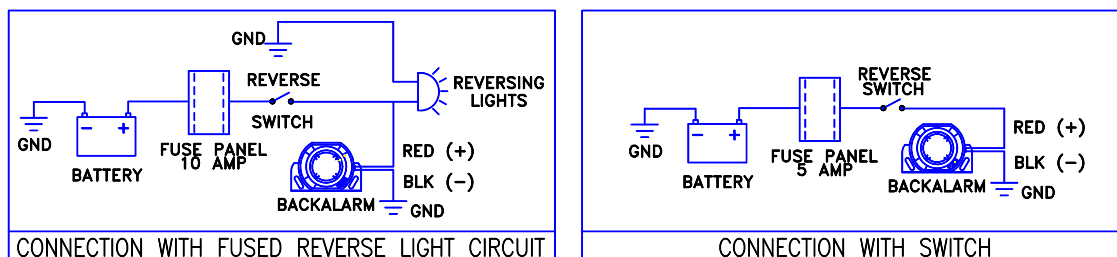


Figure 1

5. Test the alarm for proper operation. If alarm does not sound, review step 4. After confirming proper operation, affix the provided Warning Label to the dash board of the vehicle in plain view of the operator. **Do not operate this vehicle if the back-up alarm is not functioning properly.**
6. Add requirement to “test back-up alarm system before operating vehicle” to the daily maintenance log and notify your supervisor or team leader that people operating this vehicle **MUST** confirm proper alarm operation at the beginning of each work shift. **Do not operate this vehicle if the back-up alarm is not functioning properly.**

SMART-ALARMS have a self-adjusting feature which automatically changes their sound output level to be a minimum of five (5) db(A) above the surrounding noise levels within a range of outputs. This sound output adjustment diminishes as surrounding noise levels approach the maximum output of the alarm. **Note:** SMART-ALARMS must not be confined in internal compartments or enclosed spaces where echo effects may interfere with the self-adjusting volume mechanism. If this occurs the alarm will automatically adjust to its highest sound output level.

MANUALLY ADJUSTABLE ALARMS provide two (2) sound output levels. To produce the high sound output, connect the red wire with the black trace (power wire) to the positive (+) lead and connect the black wire (ground wire) to the negative (-) lead or ground. To produce the low sound output, connect the red wire with the black trace (power wire) to the negative (-) lead or ground and the black wire (ground wire) to the positive (+) lead.

NON-ADJUSTABLE ALARMS have a fixed sound output level. Observe correct polarity.

### **Specifications:**

This alarm conforms to the operating specifications detailed in SAE J994 (Aug.93) and SAE J1211 (Nov.78). A listing of product specifications is available upon request.

### **Vehicle Operations:**

As the operator of a vehicle, you should always know when the alarm is sounding and when it is not sounding. Should the alarm become inoperative, discontinue vehicle operation and notify your supervisor or team leader. Operating a vehicle with an alarm that is not functioning properly could endanger the lives and/or property of those who depend on the alarm signal for safety.

Back-up alarm testing must be itemized on the daily maintenance log. An alarm on an operating vehicle must be tested prior to the vehicle's use at the beginning of each work shift. Check the daily maintenance log to confirm acceptable results of this testing before operating the vehicle/mobile equipment.

- More frequent testing may be necessary if the vehicle is operating in adverse conditions.

- Ground guidance should be provided to the driver when backing a vehicle in a job environment where the audibility of the alarm is in question.

### **Maintenance:**

Preventive maintenance procedures must specify an alarm safety system inspection. This check should include a thorough examination of the electrical connections and the sound opening. The sound opening must be kept clear of dust, mud, or any other foreign material that may prevent the alarm from sounding properly. Should this inspection reveal an alarm that is not functioning properly, place a “Do Not Use” sign on the equipment and notify your supervisor or team leader.

### **Manufacturer Limited Warranty and Limitation of Liability:**

Manufacturer warrants that on the date of purchase this product will conform to Manufacturer's specifications for this product (which are available from the Manufacturer upon request), and Manufacturer further warrants that this product is free from defects in materials and workmanship. This Limited Warranty extends for twenty-four (24) months from the date of manufacture. Other warranties may apply, call Manufacturer for details. Manufacturer will, at its discretion, replace or repair any product found by the Manufacturer to be defective and subject to this Limited Warranty.

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### **LAB-101 Rev. E**

**For additional assistance please call ECCO Customer Service team at:**

**ECCO, Boise, ID : 1-800-635-5900**

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