

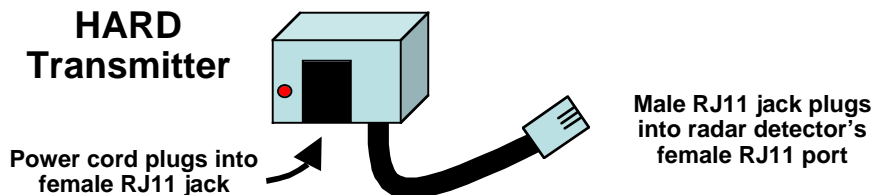
Installation and Usage

Helmet Assisted Radar Detection (HARD) System

One of the primary benefits of the **HARD** System is the ease of installation. No modifications to your radar detector are required. In most cases, no modifications are required of your helmet. Following are installation guidelines and usage tips for the **HARD** System.

Installing the HARD Transmitter:

- The **HARD** transmitter has a female and male RJ11 jack. Unplug the power cord from the radar detector. Plug the male RJ11 jack found at the end of the transmitter's cord directly into the radar detector's female RJ11 port. The power cord that originally plugged into the radar detector now plugs into the female RJ11 jack on the transmitter and powers both the detector and the **HARD** transmitter. See figure below for details. There are also pictures on the LEGAL SPEEDING website (www.legalspeeding.com) showing different mounting positions.



- The red light located next to the female RJ11 jack will flash at the same rate as the LED light found on the receiver unit. The flash rate indicates the strength of the radar signal. This flashing also indicates a properly functioning transmitter.
- Mounting of the transmitter has been made easy by the design of the cord. You can attach the transmitter to either the top or bottom of your detector using the piece of Velcro enclosed with your system. Mounting the transmitter on top of the detector can in some cases help the overall reception of the **HARD** System.
- The **HARD** System does not have an external antenna. You should find a 10-foot radius around the transmitter that is the zone for reception. Each installation is unique so some minor adjustments in transmitter and receiver box location may be required to find the optimal location for your installation.

Installing the HARD Receiver:

- The **HARD** receiver can be installed in your helmet using any one of the methods outlined below:
 - Fit inside the helmet between the cheek or side padding (some helmets have removable helmet padding making this installation process easy)
 - Attached to the bottom 'shelf' of the helmet via Velcro
 - Attached to the outside of the helmet via Velcro
- When locating the LED enclosure found at the end of the cord, remember that any LED light is best seen when looking directly at the top of the bulb. The **HARD** System LED light has a wider viewing angle (85 degrees) than other LED lights. This wider angle assists in seeing the LED light if the LED enclosure moves during riding.
- The LED light turns red when illuminated. It is very bright in order to be seen during daytime riding. At night, moving the LED enclosure off to the side may be necessary.
- A switch can be found on the receiver case. When the switch is in the forward position, closest to the cord, it is in the 'off' position. When moved away from the cord opening and placed next to the green dot, it is in the 'on' position. **The green dot is a painted dot and does not illuminate when the receiver is in the 'on' position.**
- When mounting the LED light in your helmet, it should extend from the 'port-hole shelf' like a miniature stop sign. The term 'port-hole shelf' refers to the opening in a full-face helmet that you look out. Around this opening, or port-hole, you find a shelf that is anywhere from 1 1/2 inches to 2 1/2 inches wide (depending on helmet type). The bulb can extend from anywhere around the port-hole opening. The preferred mounting point is the lower, or bottom, position.
- Most helmets allow the cord to slip behind the cheek padding which permits the LED enclosure to be placed comfortably in the peripheral vision area of the port-hole opening.

Maintenance of your HARD System:

- The receiver printed circuit board (PCB) has been coated with a protective layer in order to resist dirt and moisture. However, care should be exercised when using and maintaining the **HARD System**. **The HARD System is not waterproof.**
- The only items that need to be maintained are the two batteries inside the receiver. In motorcycle miles, the battery life is approximately 4500 miles. Battery life is affected by the number of radar signals detected. Filtering modes on each detector can be set to maximize battery life. **It is highly recommended that the receiver be turned off after each use to maximize battery life. By turning the system on and off between uses, this allows a certain amount of "battery recovery" and will provide up to 30% more life when compared to a receiver that has been left 'on' continuously.**
- To replace the batteries, remove the single screw from the back of the receiver. Remove the back cover of the receiver case. Gently lift the PCB from the case. This procedure is best accomplished by lifting the side away from the switch-side first. The round 'boss' or mounting pillar that extends through the PCB may try to 'hold' the PCB inside the case due to friction. Gently work the PCB out of the case being careful not to damage the electronics. Once the PCB (or the guts of the receiver) has been removed, the batteries are found on the bottom of the PCB. Take a non-conductive item (a toothpick or plastic item) and push the battery out from behind. Do not use a metal object such as a knife end or small screwdriver for this may cause the unit to short out and fail to operate. **The type of battery used is a CR 2032.** This type can be found at Radio Shack and most department stores that carry lithium watch batteries. The receiver requires two (2) batteries. The battery holders have been marked with a positive (+) sign indicating proper placement of the batteries.
- When cleaning the exterior of the system remember it is an electronic device. Even a small amount of moisture or cleaner reaching the circuit board can cause the system to function improperly or not at all.

HARD System usage tips:

- The **HARD System** is activated by an electronic signal from the radar detector. On the Escort detector, the **HARD System** alert parallels the signal that would cause the red light on the SmartCord to illuminate. On the Valentine detector, the signal that would cause an audible alert parallels the **HARD System** alert. On the Valentine detector, the audible alert **DOES NOT** always parallel the arrows found on the face of the detector. The audible alert sounds when the initial radar is detected and when there is a change in the status of the radar threat. It is possible to ride around with lighted arrows on the Valentine without the audible alert being sounded, hence the **HARD System** not being activated. **Do not interpret this as the HARD System not functioning properly.** To overcome this situation, we have extended the LED lighting for an extra half second whenever receiving a signal from the detector. This extended feature works on both the Escort and Valentine **HARD Systems**.
- When you power up your radar detector the device goes through an initialization process or a 'boot up' similar to that of a computer. This boot up also sends a signal that triggers the **HARD System** and provides confirmation the system is up and running. On the Valentine detector, a user can also quickly press the control knob (as if muting the detector) and this will also trigger the **HARD System**.
- The **HARD System** has two built in safety alerts to notify the user if the radar detection system is not 100% functional. If either of the below two scenarios exist, the LED light will continuously flash:
 1. If there is power going to the **HARD** transmitter but the radar detector is in the 'off' position. This eliminates the chance of riding with the **HARD System** on but forgetting to turn the detector on.
 2. If there is power going to the **HARD** transmitter but it comes unplugged from the detector. This eliminates the chance of the transmitter accidentally becoming unplugged during riding.
- The **HARD System**, possibly your first introduction to military type Heads Up Display usage, could take some getting used to. It was designed to give you an immediate notification that your detector is going off without the rider having to take their eyes off the road. This design is known as 'Line of Sight' warning. When first using the system, you may find yourself moving the LED enclosure 'tighter' within your peripheral vision. As you become familiar with the system, the LED enclosure can be moved to the outer edge of your peripheral vision.
- Everyone has different peripheral vision capabilities much like everyone has different vision and hearing capabilities. Experiment with the placement of the LED light to find the optimal location for your particular use. This position will be unique to you and your helmet.

REMEMBER: MISPLACEMENT OF THE LED ENCLOSURE COULD CAUSE FACIAL DAMAGE. WHEN THE LED ENCLOSURE IS INSTALLED, MOVE YOUR HELMET AROUND AS IF YOU WERE TRYING TO PULL IT OFF. THE LED ENCLOSURE SHOULD NOT COME WITHIN ONE (1) INCH OF YOUR FACE.