



DuraLiner Trail Defender Installation & Usage Instructions

IMPORTANT

The DuraLiner Trail Defender panels and Armor Lock® attachment system utilizes highly advanced 3M™ VHB™ adhesive foam to secure the Armor Lock® bases to the surface of your vehicle. We have developed the proprietary Armor Lock® attachment system in collaboration with 3M™ to take advantage of the strength of these VHB™ foams which enables the Armor Lock® bases to be securely attached to your vehicle without the need for mechanical fasteners. This also means that the DuraLiner Trail Defender Armor panels can remain on your vehicle for both highway and off-road use (see limitations below), but can also be attached and detached to your vehicle via the Armor Lock® system at any time.

All Armor Lock® bases must be attached to all panels and all Armor Lock® fasteners must be engaged with the bases. Failure to apply all bases to the vehicle using the recommended installation process will void the warranty and may also cause damage to your vehicle, other vehicles, and property.

To ensure the 3M™ VHB™ adhesive foam achieves the design bond strength, the Armor Lock® bases must be applied to a clean dry vehicle paint surface with ambient temperature between 59°F and 95°F during initial installation. **Once the bases are attached for the first time they must remain in place, without the panels attached to the bases in a dry environment, for a minimum of 24 hours before reattaching the Armor® panels.**

Please note, this Armor Lock® base installation process is only required for the **initial installation of the Armor Lock® bases on the vehicle panel surface.**

DuraLiner Trail Defender Armor Usage Restrictions

Once installed, the Armor® system can be used on-road (not exceeding 74 mph) and off-road. Please note the panels are **NOT** suitable for on-road use in ambient temperatures above 104°F. If you are encountering vehicle speeds higher than 74 mph or ambient temperatures above 104°F, please remove the DuraLiner Trail Defender panels.



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Initial Armor Lock® Base Installation Procedure

(Approx. Time- 1.5 Hours)

Additional parts required (not supplied): Isopropyl Alcohol

We recommend that you view the video of the installation process before attempting this installation which is found on: www.penda.com/trail-defender

Step 1 Vehicle Preparation

Ensure your vehicle is clean and dry before attempting to install the DuraLiner Trail Defender panels for the first time. Installation is best done in an undercover area and in ambient temperatures between 59°F and 95°F.

Once you have cleaned the vehicle panels you must use the Isopropyl alcohol and microfiber cloth to clean the final surface of your vehicle panels and ensure the vehicle panel surface is completely clear of all grease, contaminants, and condensed moisture.



Armor Lock® Sets



Armor Lock® Security Key

Please note that for ease of installation, the DuraLiner Trail Defender system is shipped with the Armor Lock® bases already attached to the panels.



Step 2

Bonding of Armor Lock® Bases/Panel Installation

Do not peel back the 3M™ protective backing on the bottom of the base until an initial panel dry run is complete. This dry run fit process will allow you to step back and ensure you are happy with the final location of each DuraLiner Trail Defender panel before removing the 3M™ protective backing and bonding the bases to your vehicle.



5mm edge clearance requirement



Underside of bases- **do not** peel off protective red film just yet

Line up each panel (one at a time) with the corresponding panel on your vehicle. We recommend you start with the door panels as these are an easier shape to get familiar with for initial fitment. To assist with holding the panel in place during this dry run fitting process we recommend you use strips of electrical tape along the top edge of the panel to hold the panel in place.

Line up the panel with the door and ensure you leave clearance from the DuraLiner Trail Defender panel leading edge to the **front edge** of each vehicle door.

If the leading edge of the DuraLiner Trail Defender door panel is installed without a slight clearance, it may pinch and jam in the door potentially causing damage to the product and the vehicle and could negate any warranty.

Once you are happy with the position of the panel it is time to bond the bases to the vehicle surface.

Peel the red backing from the Armor Lock® bases located at the bottom corners of the DuraLiner Trail Defender panel only. It is **important to do a smaller number of bases in the corner of each panel before removing the protective backing from all bases** as the 3M™ VHB™ tape adhesive will bond quickly to the surface and cannot be adjusted when bonded.

Keeping the panel lined up correctly using the supporting electrical tape, apply strong pressure using the heel of your hand to the top of these Armor Lock® attachments for a **minimum of 30 seconds**. This process of strong pressure is required to activate the pressure sensitive 3M™ adhesive and ensure a strong bond of the Armor Lock® base to the vehicle. If the panel is moving, please use additional external tape or ask the help of a friend to support the panel in place during this base bonding step.

One point to make very clear is to make sure that you don't "smooth" the panel against the vehicle. Once you have attached the top edge fasteners, it is important to let the panel fall to its natural position, this maintains the critical air gap between the panel and the paintwork. If you "smooth" out the panel against the surface, you may introduce a touch point between the panel and the paintwork which can cause chaffing of the paint.

Before moving onto the next panel install, it is important to first remove the DuraLiner Trail Defender panel from the bases by disengaging each fastener and put each panel to the side to allow the adhesive on the bases to achieve full bond strength which will take 24 hours. Failure to take the DuraLiner Trail Defender panel off immediately after installing the bases may result in product adhesion failure and will void the warranty.

To remove the DuraLiner Trail Defender panel from the bases, engage the Armor Lock® security key with the fastener and turn a quarter turn in a counter-clockwise direction. Once all fasteners are disengaged, you can remove the panel from the vehicle.

For best results, **take you time to ensure the panels are aligned before pressing the base against the vehicle and only attempt to secure one base at a time.**

After panels are installed, it is **CRITICAL** that you push along all parts of the panel to ensure that the air gap between the panel itself and the paintwork has been maintained. The best way to do this is to push using your index finger on the plastic panel and make sure there is some flex and give for the panel to move before it touches the paintwork. If you find you have a spot where the panel has been "smoothed" out or "stretched" during installation and there is no give in the panel you can either:

1. Reinstall the panels again with new base Armor Locks®

or

2. Place an Armor Pad directly to the panel surface at the point where the panel is touching the paintwork, this will ensure that there is a shock absorbing pad between the panel and the paintwork, so that the panel will not chaff the paint.

The Armor Pads can also be used for high impact areas such as the center of doors and door handle areas, you can add additional shock absorption to these areas by applying the Armor Pads to the vehicle in these areas if you wish. To install the Armor Pads, first peel off the Armor Pads backing from the foam circle.



DuraLiner Trail Defender Panel Installation Procedure

(Approx. Time 10 Minutes)

Step 3 Panel Installation

Having secured all Armor Lock® bases to your vehicle and waited the minimum 24hrs (see steps 1-2) for the base adhesive to achieve full strength you are now ready to install the DuraLiner Trail Defender panels.

Offer each panel up to the corresponding panel on your vehicle. Line up the Armor Lock® fasteners on the panel with the corresponding base on your vehicle. Engage the security key into the head of the fastener and turn the fastener in a clockwise direction until the fastener will engage with the base (1/4 turn only is required). When installed correctly, the fastener will engage with a positive "click" feel and the fastener will sit flush in the top washer.

Take your time and do not over torque or force the fastener into place, allow it to naturally engage with the base plate pin. Do not force the fastener into place, allow it to naturally engage with the pin and then quarter turn. It may be easier to turn the fastener in a counter-clockwise direction until you feel the fastener "drop" onto the base pin before making the clockwise direction turn to engage it. Forcing the fasteners to engage with the bases may result in damage to the bases from the fastener itself.

Engage each Armor Lock® fastener with all bases on a panel and repeat the process above for each panel. The Armor Lock® fastener may sit flush with the top washer and look like it is engaged, but you **MUST** quarter turn the fastener clockwise until you feel it *click* into the final position to correctly engage it.

DO NOT DRIVE your vehicle unless **ALL** panels are correctly engaged with their respective Armor Lock® bases.

DuraLiner Trail Defender Post Trip/Weekly Checks & Cleaning

(Approx. Time 5 Minutes)

DuraLiner Trail Defender panels can be used as a permanent fixture on your vehicle, they still require routine inspections and checks. After a long off-road adventure (or at least on a weekly basis) you should disengage the Armor Lock® fasteners and remove the panels and clean any dust or debris between the vehicle surface and panels and around the Armor Lock® bases.

DuraLiner Trail Defender panels will get dirty on off-road trips and from use in general. It is easiest to wash the panels while still on the vehicle as the Armor Lock® components are made from strong, resilient and waterproof materials.

Please note the polycarbonate materials may react with citrus cleaners. Citrus cleaning solvents are therefore to be avoided on the DuraLiner Trail Defender Panels.

Armor Lock® Base Options

Please note that after the first installation of Armor Lock® bases are designed to remain on the vehicle, even when the DuraLiner Trail Defender panels have been removed.

If you require additional bases or components, visit www.penda.com/trail-defender

Removing Armor Lock®

(Approx. Time 45 Minutes)

If required, Armor Lock® can be easily removed by cutting through the 3M™ foam tape using a short piece of strong fishing line as shown in the base removal video: www.penda.com/trail-defender



With the panels removed, take the fishing line firmly between both hands and place the line between the vehicle surface and the Armor Lock® base at the top of the base. Pull down firmly sliding the fishing line from side to side to cut through the 3M™ foam.

Once you have cut through the foam on each base you can now remove the base from the vehicle surface. The remaining residue of the 3M™ foam and adhesive on the vehicle surface can be easily removed from the vehicle using your thumb to roll up the residue. Any small remaining foam fragments can be removed using a conventional car surface cleaner.

Please note that the Armor Lock® bases are not designed to be re-used once they have been taken off the vehicle. To ensure correct fitment and secure bonding of the bases we recommend you do not use any other adhesives or alternative adhesive foams. Original components, must be used that have the correct materials and surface primers.

A new set of Armor Lock® bases can be purchased from the website as required.

The DuraLiner Trail Defender is covered under warranty for a period of 12 months from the original purchase date. Terms and conditions apply.