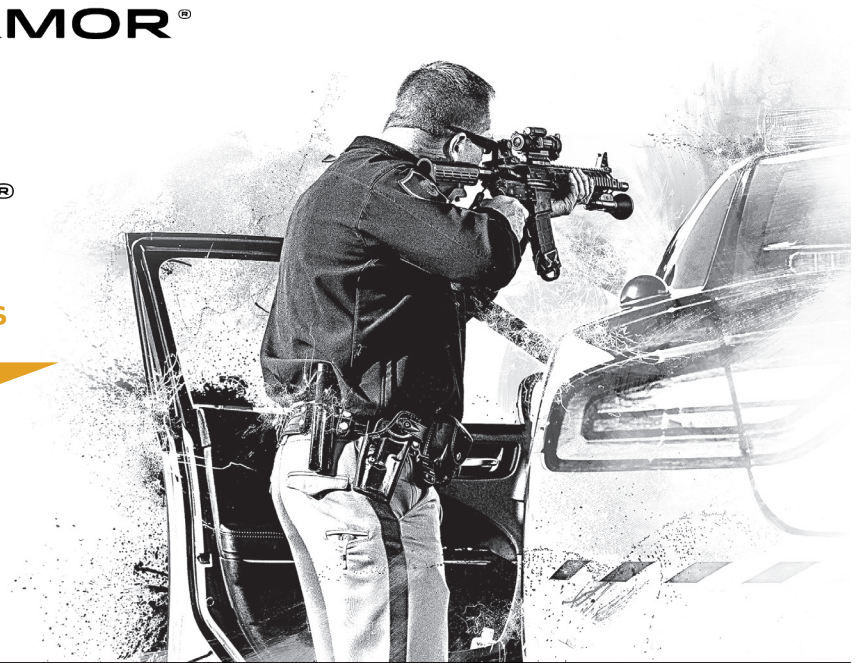




AVAIL[®]

BALLISTIC DOOR PANELS

LEVEL III + M855/M193/MSU



INSTALLATION GUIDE

for front driver and
passenger-side doors

As shown on

FORD[®] POLICE INTERCEPTOR UTILITY

(2016 - 2019)



Also compatible with

Ford Explorer

(2016 - 2019)



angelarmor.com

970 235 2961

sales@angelarmor.com

TABLE OF CONTENTS



INTRODUCTION	3-4
Product Description	3
Installation Overview	3
Warnings & Cautions	4
Legal Statements	4
PARTS & TOOLS LIST	5-7
Installation Kit Contents	5
Personal Protective Equipment	7
Required Tools	7
Recommended Tools	7
INSTALLATION	8-22
Overview	8
– General Installation Procedure	8
– Important Notes	8
Procedure	9
– Installing Check Strap	9
– Preparing for Ballistic Door Panel Installation	10
– Removing the Window Weatherstrip	10
– Removing the Vehicle Door Panel and Speaker	10
– Removing the Vehicle Window	13
– Removing the Window Track and Regulator	14
– Inserting the Door Crash Bar Mounting Bracket	15
– Inserting and Securing the Ballistic Door Panel	16
– Replacing the Window Track and Regulator	20
– Replacing the Vehicle Window	20
– Replacing the Speaker and Vehicle Door Panel	20
– Replacing the Window Weatherstrip	21
– Completing Installation	22
REMOVAL OR DECOMMISSION	22

© 2020 ANGEL ARMOR, LLC. ALL RIGHTS RESERVED.
PRINTED IN THE U.S.A.

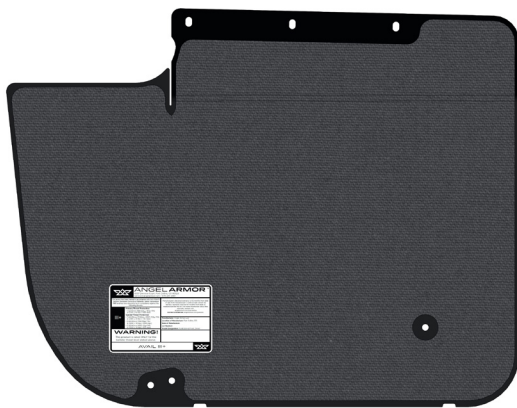
FORD® IS A REGISTERED TRADEMARK OF FORD
MOTOR COMPANY.



INTRODUCTION

Congratulations on your purchase of the Angel Armor® Avail Ballistic Door Panel (Level III+) for Ford Police Interceptor Utility (2016 – 2019)! It's our honor to provide advanced protection to those who put their lives on the line in the name of law and order.

Your vehicle will soon be upfitted with the finest ballistic technology available. With optimized coverage area, a seamless design and powerful protection from NIJ Level III rifle threats, Avail elevates vehicle protection to a higher level.



▲ Figure 1. Angel Armor Avail Ballistic Door Panel (Level III+) for Ford Police Interceptor Utility (2016 & Newer Models)

Product Description

The Avail Level III+ armor panel is made of a premium steel plate packed with superior protective capabilities. This high-strength solution features discreet, seamless coverage in a single-piece design and a weatherproof

coating to help resist environmental wear and corrosion. The alloy steel crash bar brackets and door mounting bracket secure the armor in place to help prevent rattling and shifting within the door and a nylon check strap is included to preserve door functionality and hinder over-extension.

When fully installed, the complete Avail Level III+ ballistic armor package gives officers the ability to use their door as a tactical shield against rifle-round threats without compromising the integrity/functionality of the vehicle door.

Avail exceeds NIJ Level III Standard 0108.01 protocol for multi-round protection and offers a five-year express limited warranty.

Installation Overview

The ballistic door panel installation shown in this guide was performed on the front driver-side door of the Ford Police Interceptor Utility (2016 – 2019). The installation process is the same for front passenger-side doors of the Ford Police Interceptor Utility (2016 – 2019).

Avail Level III+ armor features a simple installation starting with applying the door hinge check strap. Door disassembly is required to install the crash bar brackets and door mounting bracket. Once this is completed, the armor is secured in place and the vehicle door panel is reassembled. Installation takes approximately 2-3 hours per vehicle door.









**Watch an installation in action
at angelarmor.com.**

Warnings and Cautions

Please adhere to the following guidelines to prevent personal injury, equipment damage and unnecessary difficulty during installation.



DISCONNECT THE VEHICLE BATTERY AFTER THE WINDOW IS ADJUSTED FOR REMOVAL/ INSTALLATION TO AVOID ACCIDENTAL AIRBAG DEPLOYMENT. ACCIDENTAL DEPLOYMENT OF THE AIRBAG MAY CAUSE SERIOUS PERSONAL INJURY.

-  Read this guide in its entirety before beginning installation.
-  Wear appropriate protective gear, including eye, hand and foot protection.
-  Use extreme caution when transporting the ballistic door panel. The armor panel is very heavy and impact may result in serious injury.
-  To avoid muscle strain or back injury, use lifting aids and proper lifting techniques when transporting the ballistic door panel.
-  Avoid excessive force when inserting the armor into the car door. Excessive force may damage the weatherstripping or scratch finished surfaces.
-  Avoid puncturing speakers with screws, push-snaps, fasteners or other sharp pieces during door disassembly, panel insertion and door re-assembly.



Do not drop screws or other assembly components inside the door, as they may be difficult to retrieve. If possible, use magnetic tools during installation.



Use only plastic trim removal/prying tools on finished surfaces to help prevent scratching.



Discard and replace any door components that are inadvertently damaged during the installation process. Proper installation according to the instructions in this guide should not cause damage to any vehicle or window armor parts or components.



Use caution when removing parts that may have sharp edges, such as the outer window weatherstrip.

Legal Statements

See Warranty and Terms and Conditions for important legal information on angelarmor.com. These instructions are provided for your convenience only, and Angel Armor expressly disclaims any liability for any damage to personal property or personal injury that occurs as a result of either installation or removal of panels.

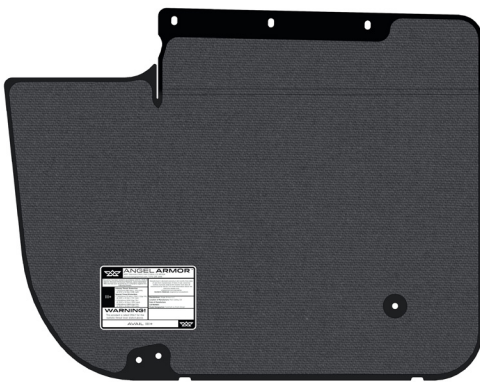


PARTS & TOOLS LIST

This section lists the parts included in the installation kit and the tools recommended for installation. Installation kit contents are for one door panel.

Installation Kit Contents

- One Avail Ballistic Door Panel (Level III) for Ford Police Interceptor Utility (2016 - 2019)



▲ Figure 2. Avail Ballistic Door Panel for Ford Police Interceptor Utility

- One Avail Crash Bar Bracket



▲ Figure 3. Crash Bar Bracket

- One Avail Upper Mounting Bracket



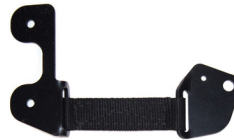
▲ Figure 4. Upper Door Mounting Bracket

- One Avail Lower Mounting Bracket



▲ Figure 5. Lower Door Mounting Bracket

- One Avail Check Strap



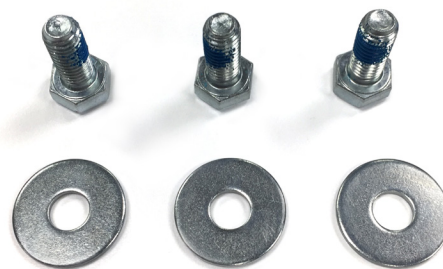
▲ Figure 6. Check Strap

- Two Avail Nylon Installation Straps



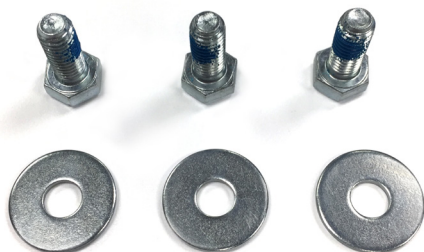
▲ Figure 7. Installation Straps

- 3 Crash Bar Bracket Mounting Bolts and 3 Washers



▲ Figure 8. Crash Bar Bracket Mounting Bolts and Washers

- 3 Upper Mounting Bracket Bolts and 3 Washers



▲ Figure 9. Upper Mounting Bracket Bolts and Washers

- 3 Upper Mounting Bracket Sheet Metal Screws



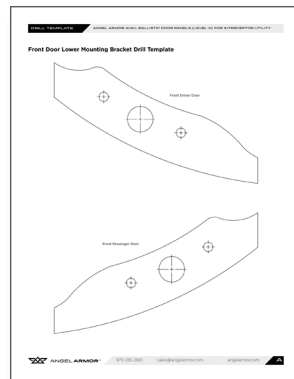
▲ Figure 10. Upper Mounting Bracket Sheet Metal Screws

- 2 Lower Mounting Bracket Bolts and 2 Washers



▲ Figure 11. Lower Mounting Bracket Bolts and Washers

- One Drill Template Appendix A (appended to the end of the guide)



▲ Figure 12. Drill Template Appendix A (appended to the end of this guide)

- One Isopropyl Alcohol Wipe



▲ Figure 13. Isopropyl Alcohol Wipe

- One Brand Label



▲ Figure 14. Angel Armor Brand Label

Personal Protective Equipment

- Protective Gloves
- Protective Eyewear
- Steel-Toe Boots

Required Tools

- Plastic Door Pry Tools
- Impact Driver
- Electric Drill Screwdriver
- Needle Nose Pliers
- Socket Wrench
- 3/8" Universal Socket Joint
- 6" Socket Extension
- 7, 8, 10 and 13mm Sockets, and 1/2" Sockets and/or Ratchet Wrenches
- T25 Torx Driver and T20 Torx Driver
- 7mm Drill Bit
- Torque Wrench
- Marker
- Magnetic Parts Tray

Recommended Tools

- De-burring Tool
- Touch-up Paint
- Magnetic Retrieval Tool
- Headlamp or Flashlight



INSTALLATION

This section provides instructions for installing Angel Armor Avail Ballistic Door Panels (Level III+) into the Ford Police Interceptor Utility (2016 – 2019).

Overview

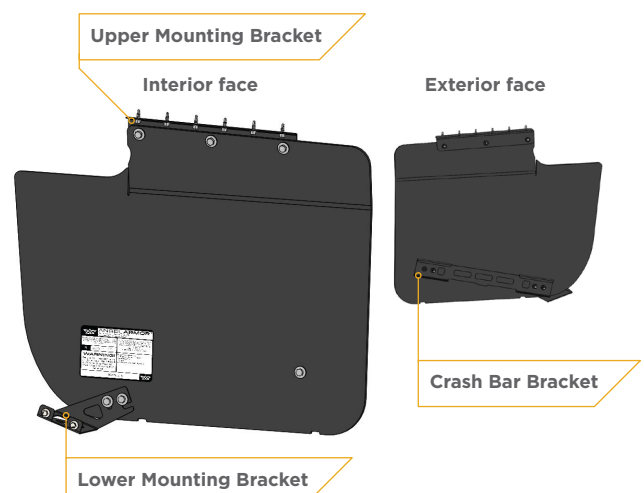
Installation of the Angel Armor Avail Ballistic Door Panel (Level III) into a Ford Police Interceptor Utility is simple and starts with applying the door hinge check strap. Door disassembly is required to install the crash bar brackets and armor mounting bracket. Once this is completed, the armor is secured in place and the vehicle door panel is quickly reassembled. See page 9 for detailed instructions.

General Installation Procedure

- 1** Install the check strap.
- 2** Remove the weatherstrip, vehicle door panel, speaker and window.
- 3** Install Crash Bar Bracket.
- 4** Insert the Avail ballistic panel.
- 5** Secure the Avail ballistic panel by installing Door Upper and Lower Mounting Brackets.
- 6** Re-assemble the door.

Important Notes

- The directions, photographs and illustrations in this guide depict an installation performed on the driver's side. The same installation procedure applies to the passenger door.
- Note the location of screws, fasteners, wires and door components before disassembling to aid proper re-assembly after panel installation.
- Place all removed hardware and components in a safe place or magnetic tray during installation.
- The Avail Level III+ armor panel is made of a premium steel plate. This protective material is heavy and extra caution should be taken when transporting, handling and installing the armor.
- Firm pressure may be needed to clear minor obstructions during insertion of the ballistic panels but never use excessive force. Excessive force may damage internal door components.



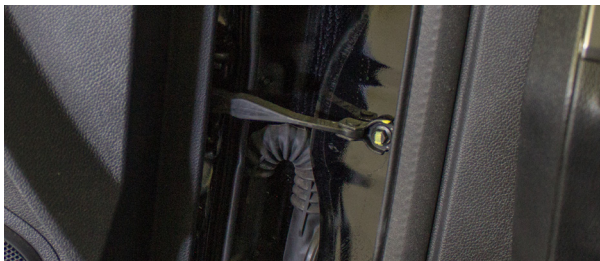
▲ Figure 15. Rendering of assembled ballistic panel and mounting brackets (driver's side shown).

PROCEDURE

Complete the following steps to properly install Angel Armor Avail Ballistic Door Panels (Level III+) for Ford Police Interceptor Utility (2016 & Newer Models).

Installing Check Strap

- 1** Open the vehicle door to its fully opened position.
- 2** Locate the OEM (Original Equipment Manufacturer) check strap that connects the front, middle of the door to the A-pillar of the vehicle cabin.



▲ Figure 16. OEM check strap.

- 3** Using a 10mm socket, remove the bolt from the check strap on the cab side of the vehicle. It may help to have an extension to access the bolt head.
- 4** Next, remove the two nuts securing the OEM check strap assembly to the door frame.
- 5** Pre-bend the nylon webbing check strap so that when the door closes, the

nylon bends outward. Pre-bending the check strap gives the nylon material a “memory” to ensure it does not affect door closure.

- 6** Install the nylon check strap / bracket assembly by placing the bracket with two mounting holes over the threaded studs that mount the OEM check strap to the door frame. Use the OEM nuts to secure the bracket in place.
- 7** Next, insert the other bracket on the opposite end of the nylon webbing under the OEM check strap mount at the A-pillar of the vehicle. The two mounting holes should align and the small locating pin on the OEM check strap mount should align with the small locating hole on the new bracket. Use the original bolt to securely fasten the two check strap mounts to the A-pillar.

⚠ NOTE: The installed strap helps prevent over-extension of the vehicle door. Adjustments to the door hinge will be made after armor is installed for proper alignment due to the added weight of the armor. Nut torqueing will occur after final adjustment.



▲ Figure 17. Proper placement of the secured check straps.

Preparing for Ballistic Door Panel Installation

- 1 Open the front driver-side door and lower the window glass completely.
- 2 Turn off the vehicle ignition switch, and remove the key.

Removing the Window Weatherstrip

- 1 Using a T20 driver, remove the window weatherstrip screw at the back of the door.



▲ Figure 18. Removing the back window weatherstrip screw.

- 2 Lift up on the outer window weatherstrip to remove it from the door.



▲ Figure 19. Removing the outer window weatherstrip.

Removing the Vehicle Door Panel and Speaker

- 1 Using a trim pry tool, remove the plastic trim cover behind the interior door handle.



▲ Figure 20. Remove the interior door handle trim cover.

- 2 Remove the 10mm hex bolt from behind the interior door handle.



▲ Figure 21. Removing the interior door handle bolt.



Removing the Vehicle Door Panel and Speaker CONTINUED

- 3** Using a trim pry tool, remove the plastic trim cover in the armrest pocket.



▲ Figure 22. Removing the armrest pocket trim cover.

- 4** Remove the two 10mm hex bolts from the armrest pocket.



▲ Figure 23. Removing the armrest pocket bolts.

- 5** Locate the two 9/32" hex bolts from below the map pocket and remove.



▲ Figure 24. Removing the door panel bolts.

- 6** Using a trim pry tool, lift and remove the window control panel from the door panel.



▲ Figure 25. Prying up the window control panel.

- 7** Disconnect the wiring harnesses from the window control panel.

- 8** Using a trim pry tool remove the side mirror interior trim panel.



▲ Figure 26. Prying the side mirror interior trim panel away from the door.



Removing the Vehicle Door Panel and Speaker CONTINUED

- 9** Starting at the lower back corner, pry the interior vehicle door panel away from the door to disengage the plastic snaps. Work your way along the bottom edge and both sides of the door panel to disengage all the snaps.



▲ Figure 27. Prying the door panel away from the door skin.

- 10** Once all snaps have been released, hold the vehicle door panel at the base and lift it over the door lock pin.

- 11** Tilt the top edge of the door panel toward yourself while supporting the bottom with your legs.



▲ Figure 28. Tilting the door panel away from the door skin.

- 12** Disconnect all wiring harness clips. There are two on the driver side and three on the passenger side (possibly more depending on the vehicle trim package).
- 13** Disconnect the door handle cable by squeezing the two prongs on the black plastic collar with a pair of needle nose pliers.

Removing the Vehicle Door Panel and Speaker CONTINUED

- 14** Pull the black plastic collar out of the bracket and swing the door handle cable away from yourself.
- 15** Lift the metal cylinder out of its socket (located at the end of the door handle cable).
- 16** Set the door panel aside.
- 17** Use a 9/32" driver to remove the four 9/32" hex screws that mount the speakers.



▲ Figure 29. Removing the speaker screws.

- 18** Pull the speaker out of the door frame, and press the release tab to disconnect the power plug. Set aside.

Removing the Vehicle Window

- 1** Lower the window.
- 2** Remove the internal plastic weather seal.
- 3** Use a 10mm socket to remove the two window mounting bolts at the bottom of the window to release it from the regulator bracket.



▲ Figure 30. Removing the window mounting bolts.

- 4** Carefully slide the window glass up and out of the door window channel to remove it and set aside.



▲ Figure 31. Removing the window glass.

- 5** Disconnect the vehicle battery to avoid accidental airbag deployment.



Removing the Lower Front Window Track

- 1 Locate the front window track inside the front of the door. Use a 10mm socket to remove the 10mm hex bolt that secures the track to the inner door sheet metal.



▲ Figure 32. Removing the window track bolt.

- 2 Gently pull the window track down to disconnect it from the upper front window track and set aside.



▲ Figure 33. Removing the window track.

Removing the Front Door Window Regulator

- 1 Disconnect the wiring harness from the window regulator.



▲ Figure 34. Disconnecting window regulator wiring harness.

- 2 Locate the two 10mm hex nuts and one 10mm hex bolt (the two hex nuts are located at the bottom, center of the door and the hex bolt is located at the top center of the door behind a small patch of adhesive-backed foam). Remove the fasteners and pull the window regulator bracket from the door cavity and set aside.



▲ Figure 35. Location of the three window regulator fasteners.



Inserting the Door Crash Bar Mounting Bracket

- 1 Locate the forward hole on the crash bar and make a mark ~2 inches toward the rear of the door from the center of the hole. This will mark location of the forward edge of the Crash Bar Mounting Bracket shown below once installed.

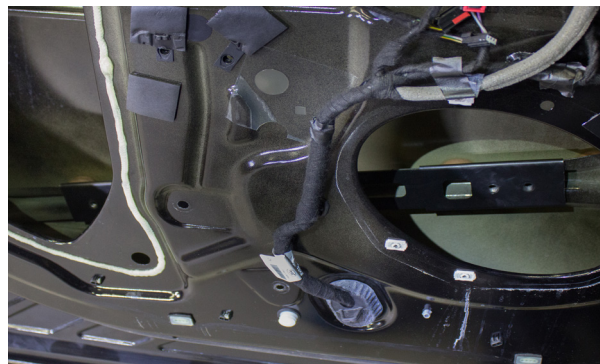


▲ Figure 36. Marking 2 inches toward the rear of the vehicle from the center of the forward crash bar hole.



▲ Figure 37. Rendering of the Crash Bar Mounting bracket showing location on crash bar.

- 2 Insert the Crash Bar Mounting Bracket into the door cavity via the large access hole and position the bracket such that the bent tabs of the bracket hook onto the top of the crash bar flange and the forward edge meets the mark made in the previous step.



▲ Figure 38. Crash Bar Mounting bracket placed on crash bar.

Inserting and Securing the Ballistic Door Panel

- 1** Locate the two nylon installation straps. These adjustable straps are included to help support the weight of the steel armor while installing it into the door.
- 2** Loop the installation straps around the door with the adjustment feature of the straps easily accessible to the inner side of the door. The straps should create a cradle in the center in the window channel of the door, between the inner and outer skin. Direct the male side of the clip facing down for ease of adjustment. See Figures below.



▲ Figure 39. Looping the installation straps around the door.



▲ Figure 40. Strap path through buckle and buckle direction.

- 3** Hold the ballistic door panel so the product label faces the interior of the vehicle.

- ⚠ Use extreme caution when transporting the ballistic door panel. The armor panel is very heavy and impact may result in serious injury.**
- ⚠ To avoid muscle strain or back injury, use lifting aids and proper lifting techniques when transporting the ballistic door panel.**
- ⚠ Wear appropriate protective gear, including eye, hand and foot protection. Protective gloves are highly recommended when handling the steel armor.**



Inserting and Securing the Ballistic Door Panel CONTINUED

- 4 Carefully insert the armor through the window opening and into the cradle created by the installation straps. Ensure the straps align with the slots on the bottom of the armor panel to prevent the panel from slipping while lowering into the door.



▲ Figure 41. Placing the armor into the door.

- 5 Slowly adjust the left and right installation straps to begin to lower the armor into the door. Stop when the lower bolt holes align with the holes in the crash bar bracket.

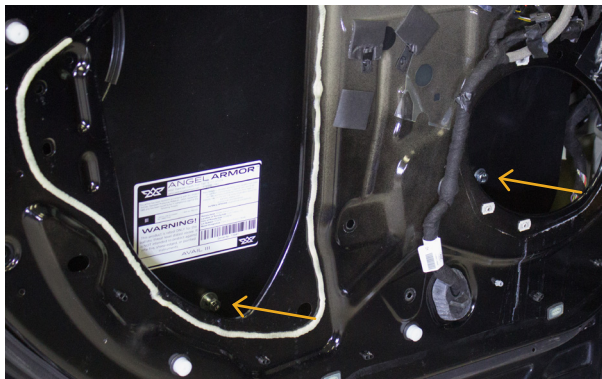


▲ Figure 42. Using the cradle created by the installation straps to lower the armor into the door.



Inserting and Securing the Ballistic Door Panel CONTINUED

- 6 With the armor aligned with the crash bar, loosely install the front crash bar M8x30mm bolt with washer through the slotted hole at the front portion of the armor. Then place a second M8x30mm bolt and washer into the right-most slotted hole in the rear portion of the armor and loosely thread into the crash bar bracket, leaving approximately 1/4" (6mm) of threads showing. These bolts will be tightened later in this installation.



▲ Figure 43. The front, top crash bar bracket loosely installed.

- 7 With the front and rear crash bar bolts loosely in place, lower the installation straps so that the full weight of the armor panel rests on the bolts. Remove the two installation straps and discard them. (The clips on the straps will need to be removed so the straps can be pulled out of the door skin.)

- 8 Locate the lower mounting bracket drilling template that came with the kit (Appendix A appended to the end of this guide). Cut out the template and holes within for the corresponding door (driver or passenger side). Position the template over the hole in the lower rear corner of the inner door skin as shown and use the profile to align the position of the two holes to be drilled and use a marker to mark the holes.



▲ Figure 44. Marking the hole locations using the template provided (appended to the end of this guide).

- 9 Center punch the hole locations. Using a 7mm drill bit, drill the two holes and use a deburring tool to deburr the edges. Apply a thin coat of black touch-up paint to each hole to prevent corrosion.

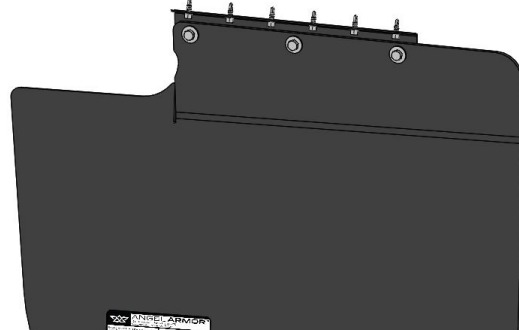
Inserting and Securing the Ballistic Door Panel CONTINUED

- 10** Insert the lower mounting bracket into the door cavity and position into place in the lower rear corner of the door. Manipulate the bracket so the slotted cutout in the bracket hooks around the protruding crash bar bolt and the two 6mm bolt holes align with the recently drilled holes in the inner sheet metal. Once in place, insert the third and final M8x30mm bolt and washer through the lower mounting bracket and loosely thread into the crash bar. Finally, insert the two M6x20dmm bolts and washers through the drilled holes in the sheet metal and into the lower mounting bracket. Tighten into place (Torque to 9 ft-lbs).



▲ Figure 45. Lower mounting bracket loosely installed.

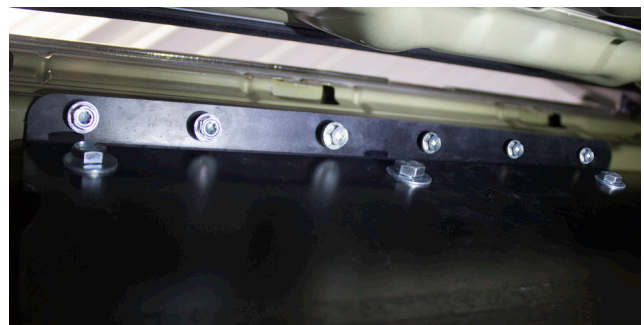
- 11** At the top of the armor, use a 1/2" socket to loosely attach the door mounting bracket to the armor as shown using the three 8mmx20mm bolts. Ensure the bracket presses up against the top of the door frame.



▲ Figure 46. Rendering of the armor and upper mounting bracket showing relative location and placement.

- 12** Using a 10mm socket and impact driver, insert six sheet metal screws through the six holes at the top half of the upper door mounting bracket to attach the bracket to the door frame.

⚠ NOTE: The sheet metal screws will drill six cavities into the metal portion of the door frame and will not show through the outside of the door skin. Ensure the screws are drilled into flat areas of sheet metal by shifting the loosened armor panel left or right as necessary. **DO NOT OVERTIGHTEN** these screws as it could strip out the sheet metal.



▲ Figure 47. The top bracket loosely installed. Looking up from the bottom of the door.



Inserting and Securing the Ballistic Door Panel

CONTINUED

- 13** With the screws in place, the upper mounting bracket and crash bar bracket bolts can be firmly tightened (Torque to 18 ft-lbs).
- 14** Confirm the armor is in its final position by checking the following:
 - The armor sits flush to the crash bar.
 - The bottom mounting bracket sits flush with the armor panel and mounts tightly to the inner side of the door frame.
 - The door handle wiring harness connector sits freely and is not pinched by the upper edge of the armor panel.
 - Firmly grip the armor panel and attempt to shake – there should be no movement of the armor panel.
 - Check that all bolts are torqued appropriately.

Replacing the Lower Front Window Track

- 1** Replace the front window track inside the front of the door. Gently push the window track up to reconnect it to the upper front window track mount.
- 2** Replace and secure the 10mm hex bolt.

Replacing the Front Door Window Regulator

- 1** Replace the window regulator bracket within the door cavity reconnecting to the fasteners. Replace and secure the two 10mm hex nuts and one 10mm hex bolt (and replace small patch of adhesive-backed foam).
- 2** Reconnect the wiring harness to the window regulator.

Replacing the Front Door Window

- 1** Carefully insert the window glass from outside the door into the window channel and lower into the door cavity.
- 2** Align the two mounting holes in the plastic tabs on the bottom of the window with the corresponding holes in the regulator bracket. Attach using the original hardware using a 10mm socket.

Replacing the Speaker and Vehicle Door Panel

- 1** Re-attach the internal plastic weather seal around the rear access hole.
- 2** Place the speaker in the door frame and mount to the door using the four 9/32" hex screws and connect the power plug.
- 3** Hold the door panel near the door frame and tilt the top toward yourself while supporting the bottom edge with your legs.
- 4** Connect all wiring harness clips. There are four on the driver side and three on the passenger side.



Replacing the Speaker and Vehicle Door Panel

CONTINUED

- 5** Replace the metal cylinder back in its socket in the interior door handle.
- 6** Pull the black plastic collar away from the bracket and place the metal cable into the bracket.
- 7** Slide the black plastic collar into the bracket until the two plastic prongs snap securely in place.
- 8** Align the door lock post with the hole at the upper rear corner of the door panel.
- 9** Lower the door panel onto the lip at the top of the metal door frame and press firmly until seated.
- 10** Line up the white plastic snaps and the black plastic peg on the back of the door panel with their corresponding holes in the metal door frame.
- 11** Firmly tap on the snaps along the bottom edge and both sides of the door panel.
- 12** Use a 10mm socket to replace the bolts behind the interior door handle and armrest pocket.
- 13** Snap the black plastic trim covers back into their locations behind the door handle and inside the armrest pocket.
- 14** Install the two 9/32" hex bolts below

the map pocket of the door panel.

- 15** Connect the window control panel wiring harness.
- 16** Replace the window control panel.
- 17** Reconnect the vehicle battery.
- 18** Roll the window all the way down.

Replacing the Window Weatherstrip

- 1** Press down on the front end of the weather strip and move backward. Pressing the entire length of the weatherstripping into the window frame to ensure proper snap engagement.
- 2** Using a T20 driver, replace the weatherstripping screw at the back of the door.



Completing Installation

- 1** Verify that all trim and window components are properly re-installed and that the window, door locks and mirrors function as intended.
- 2** Once armored, the vehicle door may require additional adjustment at the hinges for proper closing and matching of body lines. Conduct final door adjustment by completing the following steps:
 - A** Gently close door to check alignment.
 - B** Loosen the door side hinge nuts.
 - C** With the help of an assistant or door lift, apply gentle upward pressure on bottom of door and move in/out at top and bottom of door as required.
 - D** Re-torque bolts, gently close the door and inspect closure/alignment.
 - E** Repeat as necessary.
- 2** Attach the Angel Armor brand label toward the top of the interior door panel by completing the following procedure:
 - A** Clean the attachment area on the door with the supplied isopropyl alcohol wipe.

- B** Allow the door surface to dry completely.
- C** Remove the backing from the brand label.
- D** Apply the brand label to the door, pressing for at least 30 seconds to ensure proper adhesion.



▲ Figure 48. Applying the Angel Armor brand label.

REMOVAL OR DECOMMISSION

If removing the armor for decommission or transfer to another vehicle, contact Angel Armor for additional support as needed.

INSTALLATION COMPLETE:

Your vehicle is now equipped with Avail Level III+ — advanced ballistic protection from Angel Armor.



Front Door Lower Mounting Bracket Drill Template

