

# **VERUS**

## **ENGINEERING**

### Hyundai Veloster (JS) Hood Louver Kit

#### Install Manual



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#### Document Revisions

Rev	Date	Author	Description
01	2022/2/2	T. Lang	Initial release of install manual

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## Hyundai Veloster (JS) Hood Louver Kit – Install Manual

## 1. Introduction

**1.1. Overview:** Detailed instructions on installing the hood louver kit for the JS chassis Hyundai Veloster.

**1.2. Difficulty:** Moderate to Hard

**1.3. Time Required:** 3-4 hours

**1.4. Tools Needed:**

- 1.4.1. Drill
- 1.4.2. Painter's Tape
- 1.4.3. 1/8" drill bit
- 1.4.4. 3/16" drill bit
- 1.4.5. Step Drill Bit
- 1.4.6. Electric or pneumatic die grinder
- 1.4.7. Cut-off wheel or air saw
- 1.4.8. Sanding discs
- 1.4.9. Center Punch
- 1.4.10. Hammer
- 1.4.11. Blow Gun
- 1.4.12. Ratchet/Impact
- 1.4.13. 10mm Socket
- 1.4.14. 12mm Socket
- 1.4.15. 11/32 socket
- 1.4.16. Tape measure
- 1.4.17. Marker
- 1.4.18. Touch-Up Paint
- 1.4.19. Scissors
- 1.4.20. Needle Nose Pliers
- 1.4.21. Countersink
- 1.4.22. Clip removal tool
- 1.4.23. Two blocks of wood, preferably 2x4's



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**1.5. Hood Louver Components**

- 1.5.1. Left-hand louver
- 1.5.2. Right-hand louver
- 1.5.3. Left-hand wicker
- 1.5.4. Right-hand wicker
- 1.5.5. Template
- 1.5.6. Hardware Bag
  - 1.5.6.1. (34) 8-32 Serrated Stainless Nuts
  - 1.5.6.2. (1) Warning for over torquing of nuts
  - 1.5.6.3. Verus Logo Sticker

**2. Hood Louver Kit Install**

- 2.1. Verus Engineering is not responsible for damage to you or your vehicle by following this manual and/or installing Verus Engineering products.
- 2.2. Before we begin, it should be noted that we performed this install without removing the hood; however, removing the hood may be easier for some. You may choose which ever method suits you best, but this installation manual with not cover removal of the hood.
- 2.3. We begin by popping the hood to gain access to the under-hood insulation panel.
- 2.4. Prior to removing the under-hood insulation, place some fender covers / blankets over the engine bay. Please, make sure the engine is cold before doing so. This will help catch any metal that you do not catch during removal, and generally keep the engine bay clean while cutting the hood.

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- 2.5. Using the clip removal tool, remove the push clips holding the under-hood insulation panel, and discard as necessary. We will not be using this after the louvers are installed



- 2.6. Ultimately, louver location is up to you. However, we have outlined in this manual placement for good evacuation based on our CFD analysis. Essentially, they should be placed as forward as possible while within the body lines on the hood.

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- 2.7. The general method for centering the louvers outlined here can be used regardless of where you decide to place them.
- 2.8. We will start by cutting out the templates for both hood louvers, and placing them on the hood where you want them.



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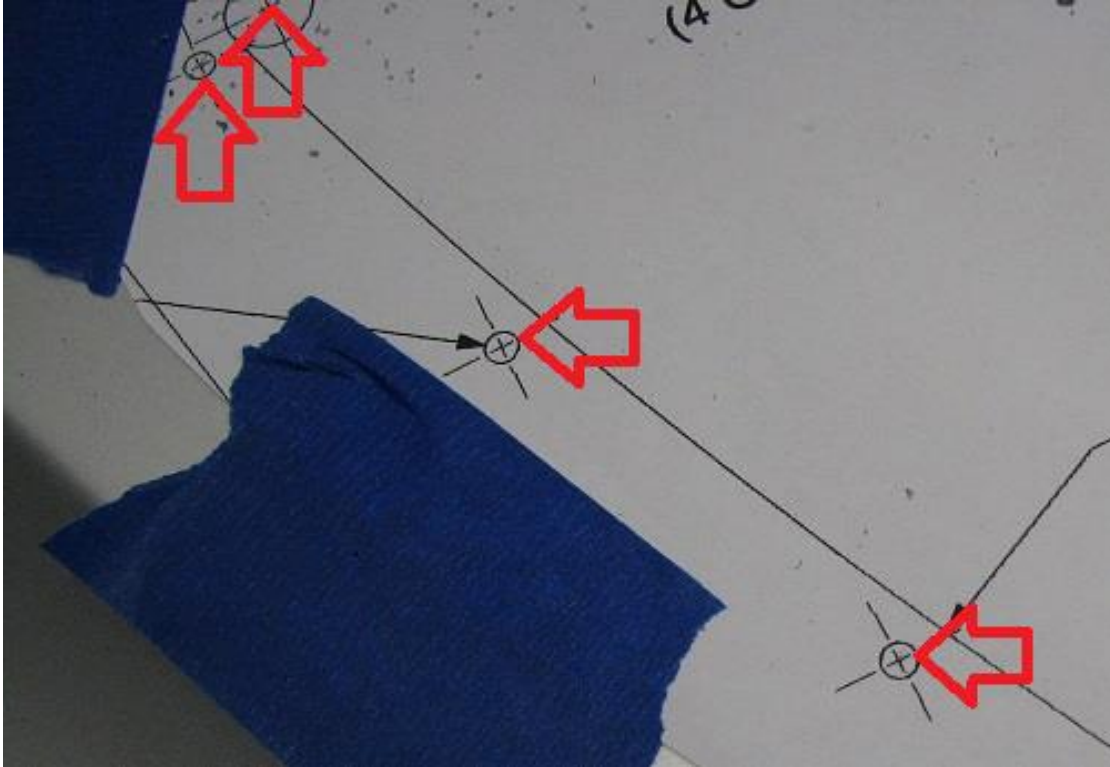
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- 2.9.** Next, lay some painters tape on the hood where you want to make your reference points, so you are not marking your paint. These are the points where you will measure from in order to center the louvers. The distances from these reference points to the center of the bolt holes on the templates should be the same for BOTH louvers.
- 2.10.** Once you confirm the templates are in the exact same spot on either side of the hood...measure it again, there is no turning back after you start drilling. Be absolutely sure they are in the correct spot.
- 2.11.** At this point, the louver placement is figured out and we can tape the templates to the hood. The biggest thing to ensure is that the templates stay flat to the hood to reduce discrepancies during drilling.

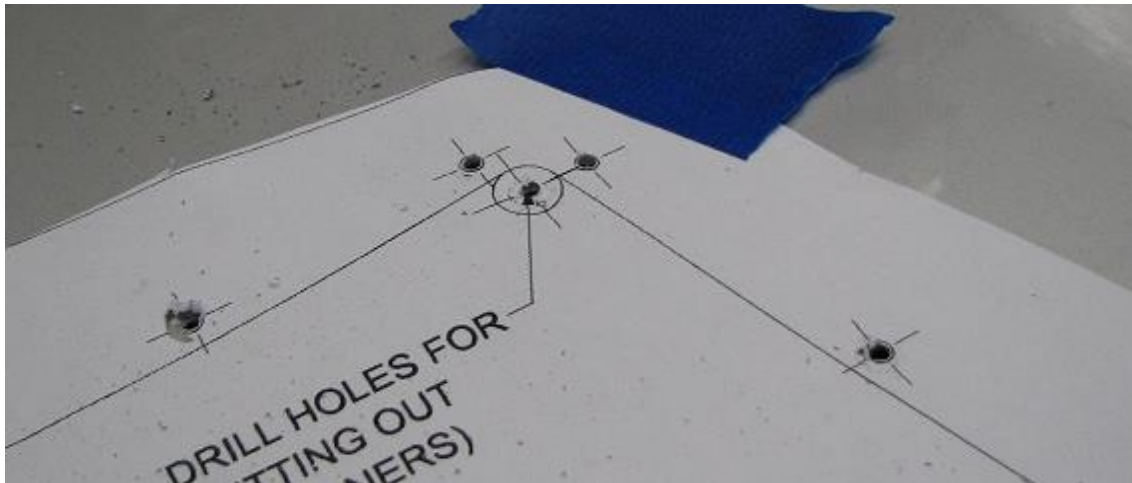


- 2.12.** Take a second with the louvers taped down to ensure everything still looks correct and even.
- 2.13.** Next, take two blocks of wood and place them between the hood and the fenders. This will keep you drilling into any components in the engine bay. Use a blanket or fender cover to keep the wood from scratching the paint.
- 2.14.** Center punch the center of each of the holes, as well as the holes on the inside of the template. \*\*The following pictures are not specific to the Veloster, and are just for reference\*\*

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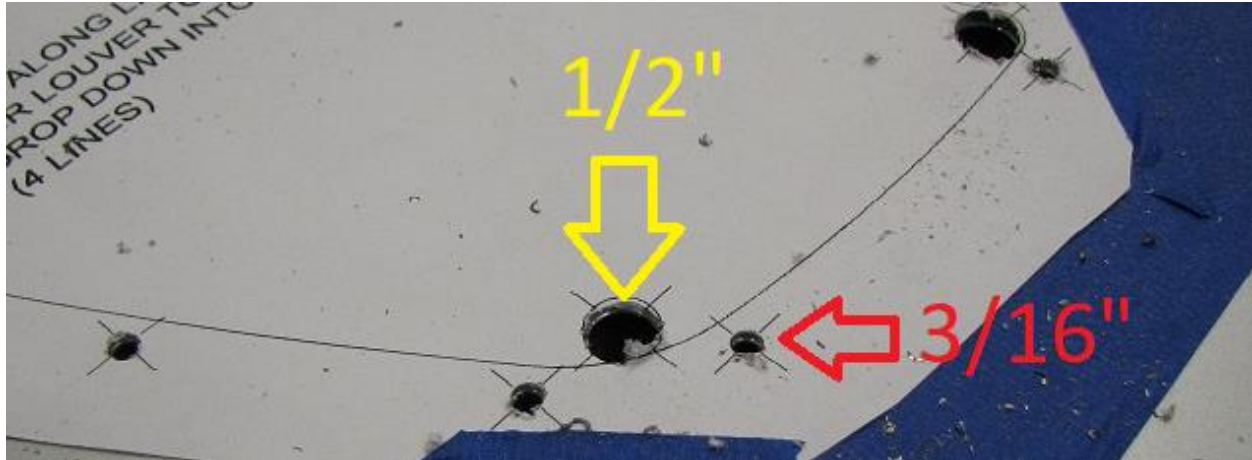
- 2.15.** Using the smallest drill bit, 1/8", drill through the hood as shown below. Use high speed and light pressure to not break the bit or go plummeting through the hood and scratching it.



- 2.16.** Enlarge the inside holes to ~1/2". Enlarge the mounting holes to 3/16" initially.



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- 2.17.** Using the template as a guide, cut out the section marked “cut out”. The hood is steel and the paint is very easily burnt! This is normal and will be covered up with the flange of our hood louver.



- 2.18.** Remove the hood skin from the hood with needle nose pliers if necessary. The below image is what you will be left with.

- 2.19.** Perform the same operations on the bottom side of the hood.

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- 2.20. On the bottom side of the hood, you will see the mounting holes through the structural metal. We will use these holes as guides for cutting of the structural sheet metal. Placing painters tape around the mounting holes will provide a good visual aid for where you should make your cuts.



- 2.21. Using the cutoff wheel again, remove all of this material while giving ample room to tighten the nut on. This is shown below. ***\*Be sure that you do not cut through the hood's skin.\* This is likely the most difficult portion of the entire install! On areas close to the hood's skin, use light pressure and go slowly!***



- 2.22. Using sanding discs/roll-locs, sand the edges of the skin and structural metal to avoid cuts and remove all sharp edges.

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- 2.23.** The hood's cuts **NEED** to be coated as the hood is some form of steel and it will rust in time. If you have touch up paint and want to coat the exposed edges, do so now and let it dry.

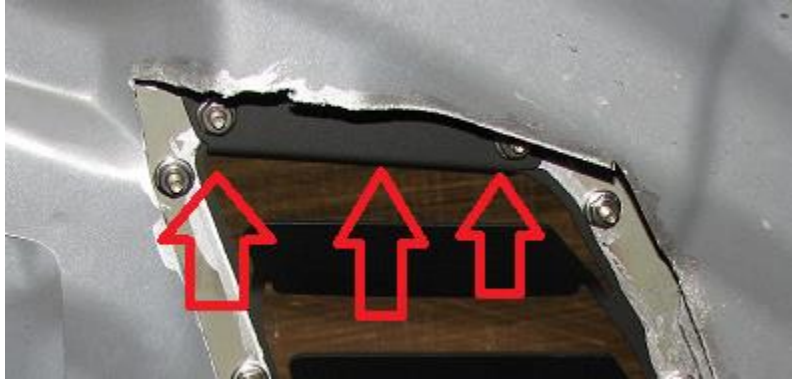


- 2.24.** Test fit the louver on the hood. **If the louver does not go into the holes cleanly and without hesitation, pull the louver back off and enlarge the holes that are causing trouble!**
- 2.25.** Once the hood louver fits in the holes well, begin to tighten the nuts on the louver from the bottom side. **Only use your fingers to tighten the nuts at this point!**
- 2.26.** When all nuts are **finger tight**, use the 11/32" socket to add approximately 1/8 turn to each of the nuts. Watch the top of the hood louver to ensure you are not pulling the stud down through the material. **MAXIMUM TORQUE IS 17 IN.LBS!** The nuts are serrated and resist backing off, they do not need significant torque.
- 2.27.** The wickers are installed from the bottom side of the hood louver. These increase evacuation of under hood pressure and temperature. (Note: Below picture is an FRS/BRZ install.)



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- 2.28. Congratulations, you have successfully installed the Verus Engineering hood louvers. The car now benefits from reduced under hood pressure and reduction in underhood temperature. Please contact Verus Engineering with any questions, comments, concerns, and feedback via [sales@verus-engineering.com](mailto:sales@verus-engineering.com).



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