

SPIKER ENGINEERING

ULTIMATE Lift

1996-2002 Toyota 4Runner Hood Strut Installation Instructions



NOTE: The latest version of the installation manual is on our website. Please download it and check its release date against the date of this manual (highlighted in yellow on top of page). Follow the instructions of the latest release date. Link to manual - <https://spikerengineering.com/installation>

Thank you for purchasing the Spiker Engineering *Ultimate Lift* hood strut kit. This kit uses premium OEM-quality components, and is designed for easy installation. Please follow this manual carefully to ensure a quality installation and many years of reliable service.

Although only the highest quality parts are used in this kit, the installation of these parts is beyond our control. Therefore, the only warranty provided is for the actual parts.

It is the customer's responsibility to understand all of the work involved in the installation process, and to ensure compatibility with their vehicle. No warranty is implied for the installation, and we will not be responsible for damage to your truck, engine, or other parts, labor, personal injury, or any other damage or injury resulting from use of these products.

Customer understands that all parts are aftermarket parts and have no OEM specifications.

If you have any questions or concerns at any point of the installation process, please contact us at service@spikerengineering.com before proceeding, and we'll be happy to help.

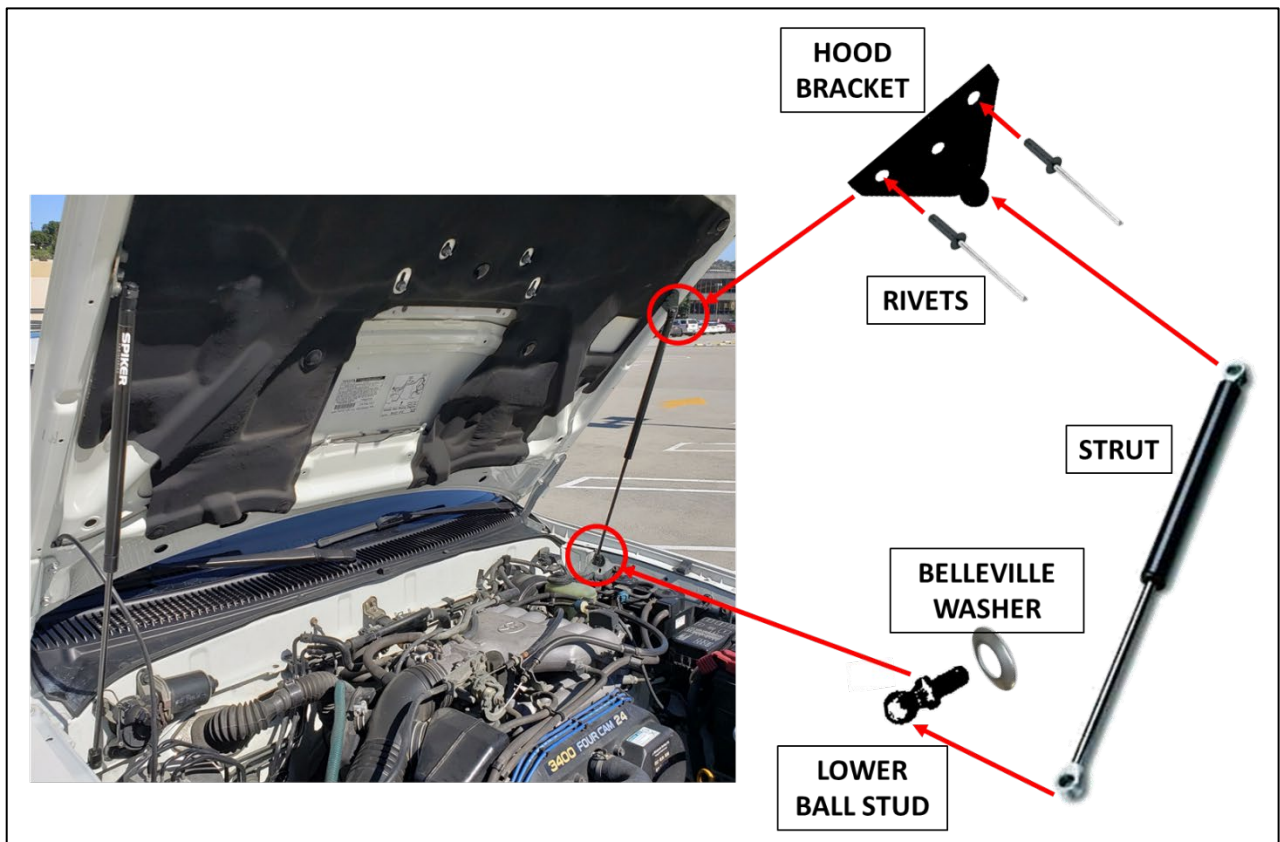
Quick Start Guide

Below is an overview of the steps involved in installation. The details of these steps are provided in the sections to follow. The typical installation should take less than 30 minutes.

Installation Overview:

- A. Preparation
- B. Install ball studs in inner fenders
- C. Install flat brackets on hood
- D. Confirm proper operation of struts and adequate clearances
- E. Enjoy a beverage of your choice to celebrate!

The figure below shows the components involved in the installation, please refer to it as you go through the steps in the following sections. Note that the exact shape of the components in your kit may vary from those shown in the figure.



A. Preparation

1. Check kit contents:

- (2) Gas Struts
- (2) Flat Brackets (Hood)
- (2) Ball Studs (Lower)
- (2) Belleville washers
- (1) Drill bit stopper
- (4) 3/16" Rivets (one spare rivet included in kit)
- (1) Window Sticker

2. Required tools:

- Tape measure
- Temporary prop (2"x4", or painter's pole)
- Painter's tape
- Permanent marker
- Center punch
- Power drill
- #9 indexed or 3/16" drill bit
- Rivet gun (3/16" nose piece)
- Touchup primer and paint
- Standard mechanics tool set

3. It is recommended that you watch the videos on our website at <https://spikerengineering.com/installation> for an overview of the installation process. However, this manual contains additional steps, tips and details, so please follow the manual carefully. In case of any conflict between the videos and this manual, follow the instructions in **this manual**.

4. Confirm clearance for the struts. When the hood is closed, the struts are stowed along the inside of the fenders. Stock 4Runners have the required clearance, but those with aftermarket add-ons along the fenders, or some 3RZ (4 cyl) models with a tall cruise control module, may need to be modified to provide the clearance, as shown in Step 22. Contact us at service@spikerengineering.com if you have questions about potential interference, we can recommend solutions for some common issues.

5. Determine the desired hood open height. This kit was designed to accommodate **any** hood open position between the stock prop rod height and up to 8" higher (**Fig 1**). Once the open position is chosen, and the brackets are permanently installed, this will be the height to which the hood will always open, so make sure you'll be satisfied with the chosen hood height. Be sure to consider any add-on items, such as ditch lights, or low overhead objects, that may limit the open hood height.

NOTE: The hood height **MUST be between 0" and 8"** above stock prop rod height, as shown in **Fig 1** – otherwise damage to struts may result.

6. Prop the hood in the chosen open position using a 2"x4" cut to length, an extension pole, or other suitable means (**Fig 2**). It is recommended that a prop tool be used instead of relying on a helper to hold the hood, because it is important to have the hood stay in the same position throughout the installation process.



B. Ball Stud Installation

7. Install a Belleville washer onto a threaded ball stud. The concave end must face away from the ball, as shown in **Fig 3**.



8. Thread the ball stud and Belleville washer into the driver side tapped M8 hole in the body, circled in orange in **Fig 4**.

NOTE: If the tapped hole is rusty, chase it with a tap first.

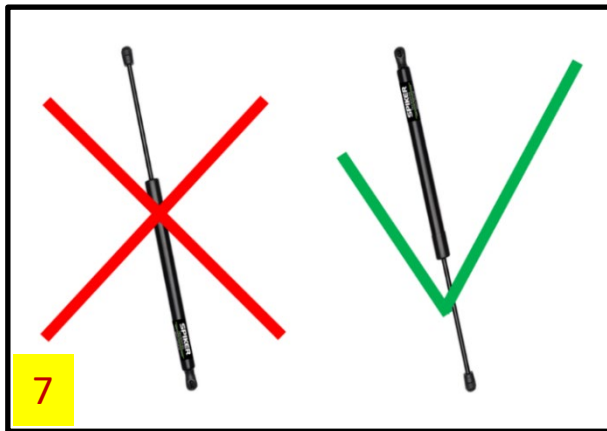
Tighten the ball stud securely with a 12mm socket (**Fig 5**).



9. Take one gas strut, and check to make sure that both end fittings are threaded tightly onto the tube and rod ends. Push down on the strut against the floor until it is nearly fully compressed. Repeat this a couple of times. This relieves the initial high stiction that is commonly found in brand new struts.

10. Push the rod end fitting of the strut (the smaller diameter rod) onto the driver side ball stud (**Fig 6**).

NOTE: Do **NOT** push the tube end fitting of the strut (with the SPIKER sticker) onto the fender ball bracket. See **Fig 7** for correct strut orientation.



11. Repeat Steps 7-10 for the passenger side.

NOTE: '99+ model 4Runners have a door buzzer mounting bracket bolted to the passenger side tapped M8 hole location – in those cases, remove the bolt, and install the Belleville washer/ball stud combination over the bracket, as shown in **Fig 8**.



C. Hood Bracket Installation

12. Take one flat bracket, and push its ball stud into the tube end fitting (the larger diameter tube) of the driver strut (Fig 9).



13. Raise the strut and bracket up until the bracket meets the inside of the hood reinforcement as shown in Fig 10. Do not push the bracket all the way up into the corner. Apply some painter's tape on the hood reinforcement behind the bracket.

14. Make sure the bracket is flat against the hood reinforcement. If it is not, lower the bracket slightly. Use a permanent marker to mark the location of the outer bracket hole (red arrow in Fig 10) on the painter's tape.



NOTE: The location of the bracket along the length of the hood may be different from these pictures, depending on the chosen hood height. To answer a question we sometimes get, no measurements are needed for locating the bracket – as long as the hood is at the desired position during bracket installation, simply install the bracket where it meets the hood when the strut is raised, as stated in Steps 13-14.

15. Lower the strut and bracket. Double check that the hood is still open to the correct height and is level. Center punch the marked location.

16. Install a #9 indexed or 3/16" drill bit into a drill, and place the included drill bit stopper next to the drill bit (note - #9 drill bit is preferred and is available on our website). Mark the stopper with a permanent marker about 3/8" short of the drill bit tip (Fig 11), then cut the stopper with a utility knife at that location (Fig 12). Slip the drill bit stopper over the drill bit, and confirm that no more than ~3/8" is protruding. This will limit the drill bit's reach during drilling.



17. Place a large piece of cardboard over the engine bay prior to drilling, to catch the metal chips. Drill through the hood reinforcement at the marked location, using a slow speed and steady pressure on the bit (Fig 13). Apply WD-40 as needed to cool the bit. Remove the tape.

18. Touch up the drilled hole with primer and paint.



19. Raise the strut and bracket, and line up the bracket hole with the drilled hole. Use a 3/16" rivet to attach the bracket to the hood (Fig 14). You may have to remove the strut from the bracket to gain access for rivet installation (see step 26).



20. Using the bracket as a guide, drill the second hole, and install the second rivet to complete the bracket installation (Fig 15).

Note: The third hole in the bracket is not used.

21. If you removed the strut from the bracket in Step 19, push the strut tube end fitting back onto the bracket. Push the spring clip on the back of the fitting into place.



22. Repeat steps 17 through 25 for the passenger side with the following notes:

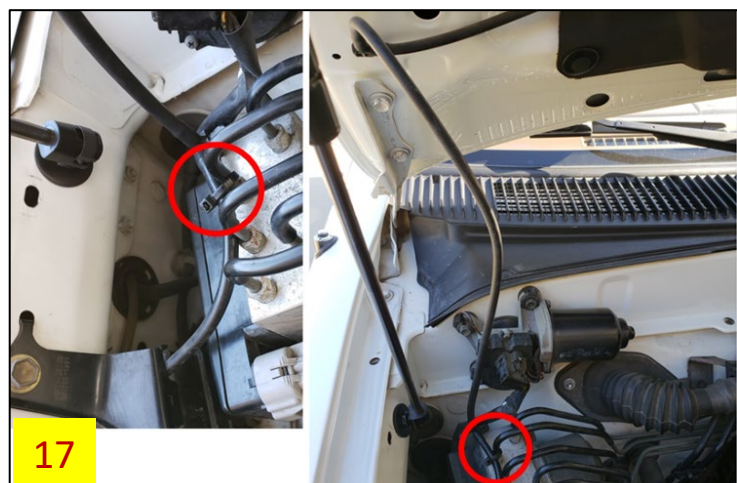
a. Do NOT assume that the location of the passenger side hood bracket will be identical to the driver side. Instead of measuring, use the same procedure for installing the bracket on the passenger side as you did for the driver side.

NOTE: Prior to drilling holes for the passenger side hood bracket, double check that the driver strut is still fully extended (i.e. has not sagged). Otherwise, the two struts will be out of sync and one will reach its end of travel before the other.

b. Remove the windshield washer hose connector from the passenger side (Fig 16), to avoid interference with the strut during closing.



c. Tie the windshield washer hose to a secure location away from or behind the passenger side ball stud with a zip tie or other means (ABS module is a convenient tie down location, see Fig 17). If you have the buzzer bracket on the passenger side, you can drill a hole in that bracket and snap the washer tube connector into it, as shown in Fig 8. In high lift configurations, you may need to extend or replace the existing washer vacuum tube with a longer section of 3/16" vacuum tubing.



d. Some 3RZ (4 cyl) models with a tall cruise control module may need to have the module relocated downward to provide the clearance for the struts. One simple approach is shown in **Fig 18**, using flat brackets to relocate the module down.



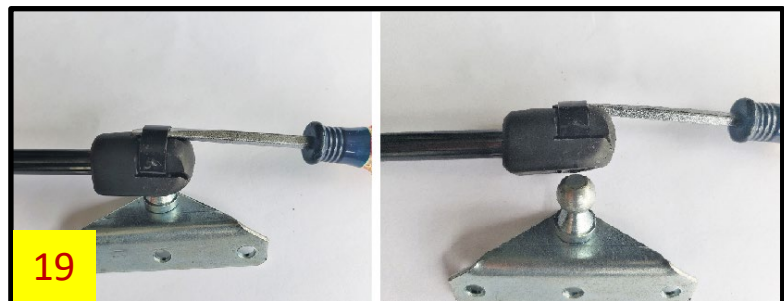
D. Wrapping Up

23. At this point you can remove the temporary prop and marvel at the improved access to your engine compartment. But don't slam your hood closed yet.

24. During the first closing, watch the struts carefully as you are closing the hood slowly, especially in the last few inches, to ensure that clearance is maintained throughout travel. Check for any potential interferences, and make adjustments as required.

25. Once you've confirmed proper operation, have a beverage of your choice to celebrate your accomplishment!

26. If you ever need to remove a strut from a ball bracket, use a flat blade screwdriver to lift the semi-circular clip at the back of the strut end fitting, until the fitting can be removed from the bracket. Do not fully remove the clip (**Fig 19**).



E. Additional Notes

After installation, open and close the hood a few times to break in the struts for consistent operation.

During normal operation, you will need to open the hood by hand about 10-15" until the struts take over and fully open the hood.

In some situations, such as when the truck is raised on a jack inside a garage, the high lift configuration may be too tall to clear objects overhead. In those cases, you can use the original hood prop rod to limit the hood opening to the stock opening height.

Once you've installed this kit, we'd love to see a picture of your truck with the hood open, showing off the newly installed hood struts and the open hood. Please email us photos of your truck to service@spikerengineering.com, and let us know if it's OK to post them on the website or social media.

Finally, please post a product review at our webpage - https://spikerengineering.com/product/96-02_4runner#reviews

Thank you again for purchasing this kit, we hope you enjoy it for many years to come!