

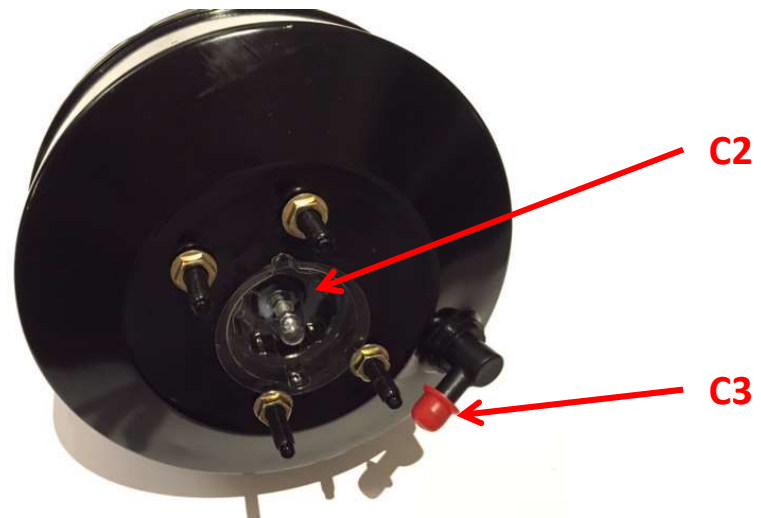
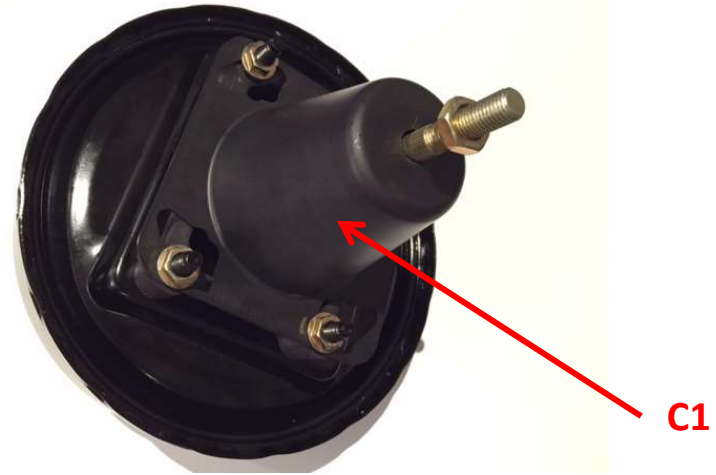
City Racer Brake Booster
Installation Guide
For 7/'70-'75 Toyota Land Cruiser FJ40

City Racer LLC

Time Estimate: 1 hour

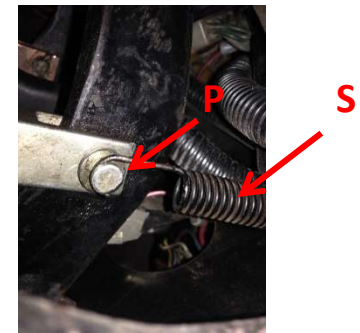
Task 0: Unpacking

1. Remove protective cover (C1) from the back of the booster
2. Remove protective cap (C2) from the front of the booster
3. Remove protective cap (C3) from the Check valve



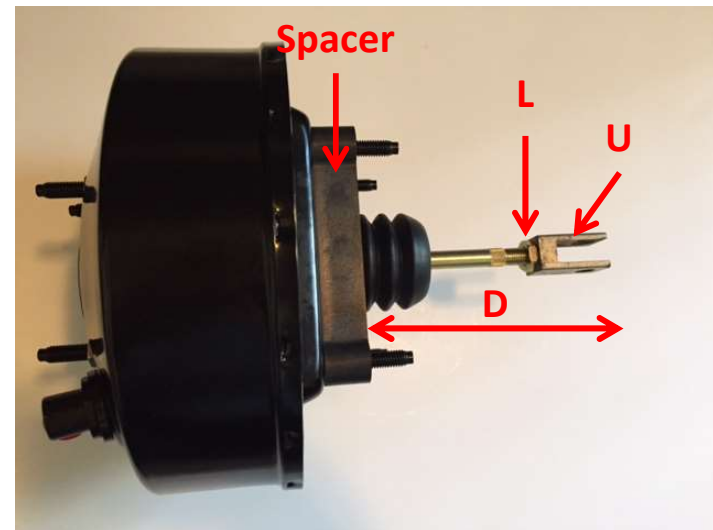
Task 1: Remove old booster

1. In the engine compartment, remove 4 bolts (M) holding the Master Cylinder to the brake booster
2. Pull the master cylinder away from the booster, and support it with a long screwdriver underneath. You do not need to disconnect the fluid lines from the master cylinder
3. Loosen the hose clamp to the booster vacuum hose (H), and pull off the hose
4. In the cabin, remove the spring (S) from the brake pedal
5. Remove the cotter pin on the opposite side of the spring
6. Push out the retaining pin (P)
7. Remove four 12mm nuts (N) in the footwell holding the booster in place
8. Lift out the booster from the engine compartment



Task 2: Install U-bolt

1. Measure and record the distance from the back of the old booster to the end of the U-bolt.
2. Transfer the U-bolt (U) from the old booster to the new booster. Ensure that on the new booster, the distance (D) from the top of spacer (S) to the end of the U-bolt is identical to the distance recorded in step 1
3. Tighten the locknut (L)



Task 3: Install new booster

1. Install the new booster onto the firewall. Be sure the supplied spacer is sandwiched between the booster and the firewall.
2. Reverse the steps in Task 1.
3. If Task 2 was accurately performed, your pedal play and height should be identical to the way it was before. Refer to Appendix 1 if you'd like to re-check your pedal geometry.
4. Important: Check master cylinder side push rod clearance and adjust if necessary. See appendices 2 and 3 for procedures.

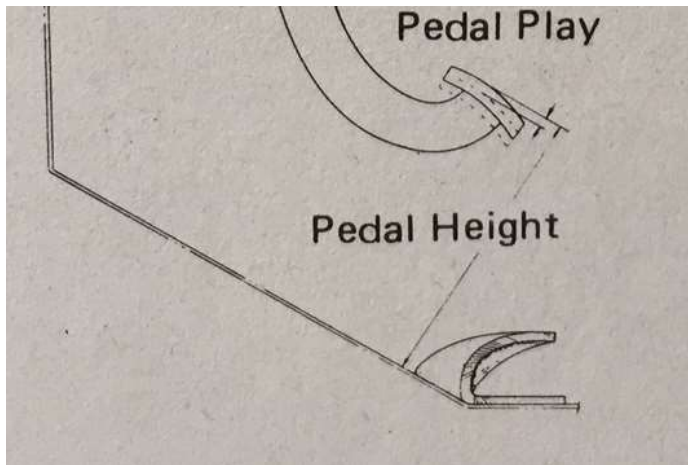


Troubleshooting Tips

#	Symptom	Potential Causes	Potential Solutions
1	Brake pedal has long travel before the brake engages	<ol style="list-style-type: none">1. Pedal play and/or pedal height is incorrect2. Clearance between the booster push rod and master cylinder piston is too large3. Master cylinder has an internal leak	<ol style="list-style-type: none">1. Check and adjust pedal height and play. See Appendix 12. Adjust push rod clearance. See Appendices 2 and 33. Replace master cylinder
2	Brakes appear to be dragging	Clearance between the booster push rod and Master Cylinder piston is too small	Adjust push rod clearance. See Appendices 2 and 3
3	Lack of power assist / hard pedal	Booster hose is not connected or has a vacuum leak	Ensure booster hose is connected. Check for vacuum leaks

Appendix 1:

Checking Pedal Height and Play



Pedal Height

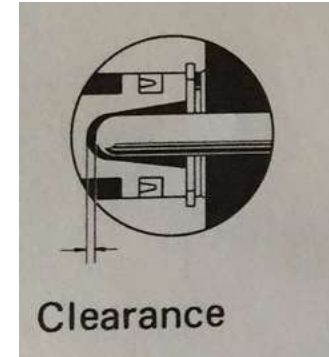
1. FJ40's spec for pedal height is **215mm (8.46")** from the bare floor
2. Adjusting the pedal height requires rotating the U-bolt on the booster's pedal rod either in or out. This can only be accomplished with the U-bolt disconnected from the pedal

Pedal Play

1. Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster
2. Press down the pedal with fingers until initial resistance is felt. The amount of play should be within **3 – 6 mm (0.12-0.23")**
3. If the pedal play is not in spec, adjust the pedal height so as to provide the proper amount of pedal play

Appendix 2: Checking Master Cylinder Side Push Rod Clearance

1. Per Toyota spec, the clearance between the booster's master cylinder side push rod and the master cylinder's piston should be between 0.1 to 0.5mm (0.004 to 0.02 inch)
2. The most accurate way to set the clearance is with an adjustment tool - Toyota SST 09737-00010 or aftermarket equivalent (search for "brake booster adjustment tool" on eBay or Amazon)



SST 09737-00010

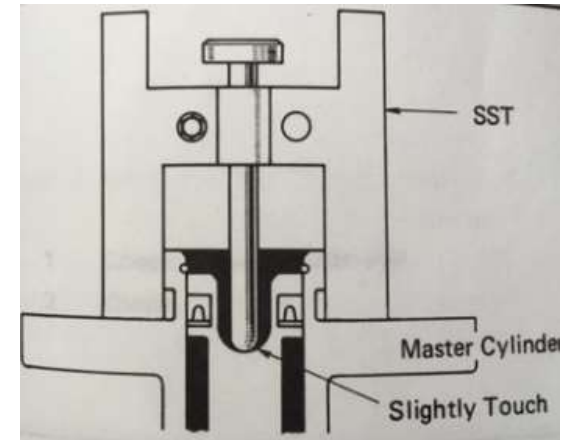


Aftermarket

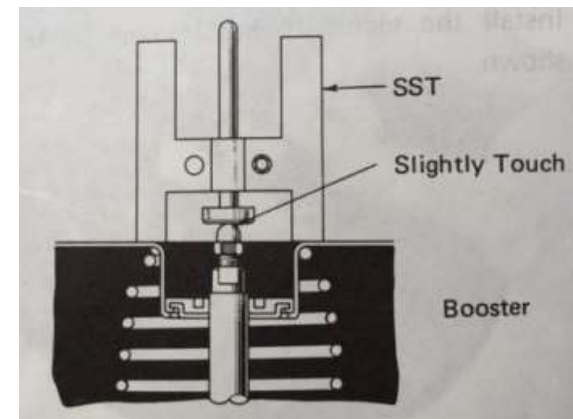


Appendix 2 (Continued): Checking Master Cylinder Side Push Rod Clearance

Set the tool on the master cylinder, and lower the pin until its tip comes in light contact with the piston.



Turn the tool upside down and set it on the booster. Then adjust the booster push rod length (see Appendix 3) until the rod end is in light contact with the pin head.



Appendix 2 (Continued): Checking Master Cylinder Side Push Rod Clearance

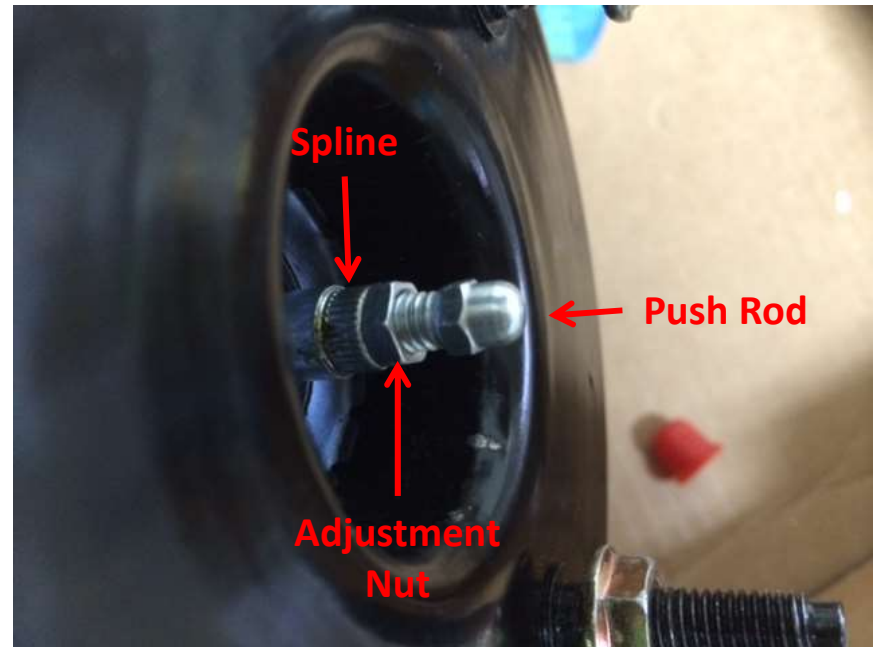
Alternate methods to set the clearance between the booster rod and the Master Cylinder (MC) piston without using a tool*:

- 1) Remove the four nuts holding the MC to the Booster. Hold the MC in position with your hand. Have an assistant push on the pedal until the push rod moves the MC away from the booster. If the MC moves immediately, you have no gap. Shorten the push rod slightly until you can move the pedal slightly before the MC is pushed away from the booster
- 2) Use a ruler to measure: 1) The protrusion of the push rod beyond the booster shell 2) The depth of the MC cavity. The difference will be the clearance / gap. Refer to video aid in Appendix 3.

* Note: These methods are less accurate and may not always achieve the desired result

Appendix 3: Adjusting Master Cylinder Side Push Rod Clearance

To adjust booster rod, hold the spline portion of the push rod with a plier or vice grip, and turn the adjustment nut to either lengthen or shorten the push rod.



Recommended video aid (relevant section starts at the 30 minute mark):
<https://www.youtube.com/watch?v=rYYzPIGoxfY&t=1919s>

Disclaimers

1. This document should be considered a complement and not a substitute to the Toyota or Haynes Service Manual.
2. Professional installation is recommended unless you have the aptitude to undertake such task.
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