

Z1 350Z / G35 TILTON CLUTCH MASTER CYLINDER UPGRADE INSTALLATION MANUAL



This Installation Manual is intended for the following models:	
2003-2008	Nissan 350Z
2003-2006	Infiniti G35 Sedan
2003-2007	Infiniti G35 Coupe

PROLOGUE:

Study these instructions completely before proceeding to assembly. The installer must have a thorough knowledge of automotive systems operation. If unfamiliar with any of the concepts outlined in this instruction, we recommend the installation be completed by a qualified professional.

WARNING!

Extreme caution should be taken when performing maintenance or performance upgrades to your vehicle. Please observe and abide by any Warning or Caution labels placed on the various components and tools used when servicing your vehicle. If you have any questions regarding installation or the various components included with the Z1 Motorsports 350Z / G35 Tilton Clutch Master Cylinder Upgrade, consult with a Professional Mechanic or contact Z1 Motorsports for more information.

WARNING!

Clutch fluid will damage any painted surface very quickly. If any clutch fluid gets on any painted surface, wipe it up immediately and clean/rinse area with water.

PARTS INCLUDED:

Item	Quantity	Description
1	1	Z1 Tilton Clutch Master Cylinder Bracket
2	1	Modified Tilton Clutch Master Cylinder
3	1	Tilton Master Cylinder Clevis
4	4	M8 Flange Nut
5	1	5/16-24 Jam Nut
6	1	-8AN Push on 60° Fitting
7	1	Z1 Single Piece Stainless Steel Upper Clutch Line
8	1	Cushioned P-Clamp for Clutch Line

TOOLS REQUIRED:

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet
- Ratchet Extension(s)
- 8mm Wrench/Flare Nut Wrench
- 10mm Wrench
- In-Lb Torque Wrench
- Pliers
- -8AN Wrench or Crescent Wrench

SAFETY REQUIREMENTS:

- Always wear safety glasses and any necessary protective garments. If using any fluids, chemicals, or solvents, a respirator is recommended.
- Always turn the ignition to the OFF position and disconnect the NEGATIVE battery terminal.
- Always use properly rated jack stands when working under your vehicle.
- Always keep limbs and parts away from moving drivetrain parts.
- Only operate drivetrain in safe space and well-ventilated areas.

BEFORE YOU BEGIN:

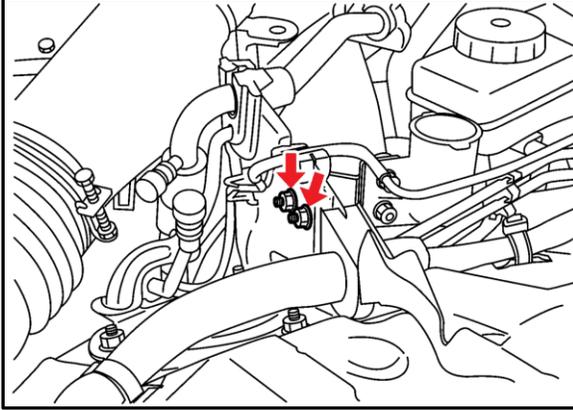
Remove contents from the Z1 Motorsports 350Z / G35 Tilton Clutch Master Cylinder Upgrade and verify that ALL necessary hardware is present.

PROCEDURE:

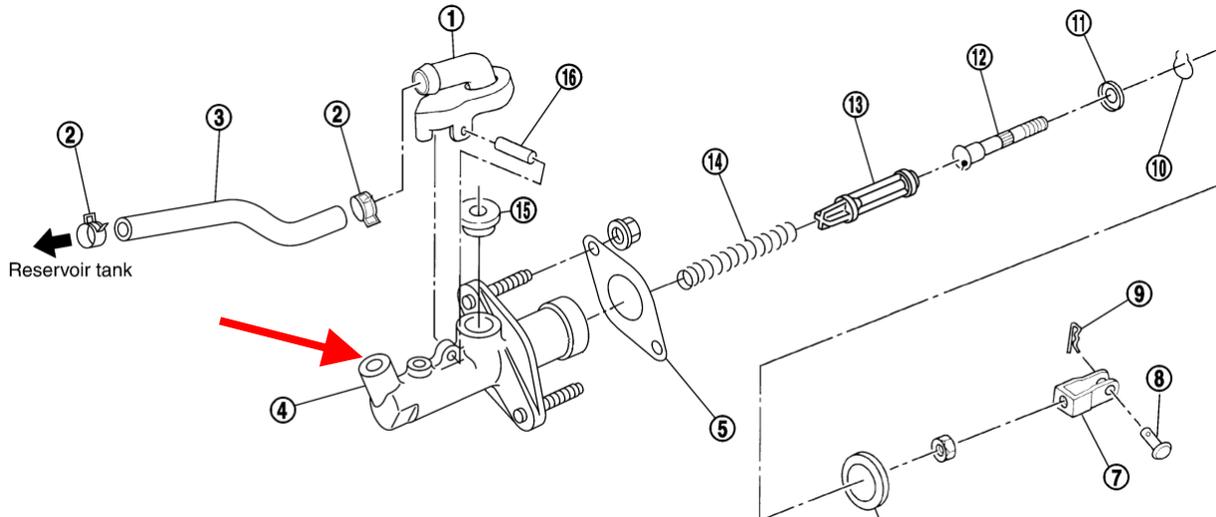
1. Place the transmission in Park position (or in Reverse gear if equipped with a manual transmission). Apply the parking brake.
2. Loosen tension on driver front lug nuts but DO NOT remove them. Locate proper jacking points on vehicle's chassis (refer to vehicle's Owner Manual). Raise and support vehicle using jack & jack stands.
3. It is recommended to drain the old clutch fluid from the clutch fluid reservoir before removing the clutch master cylinder, open the hood and remove the cap from the reservoir.
4. Place a tube or hose on the clutch slave cylinder bleeder valve. The cylinder is located under the car on the driver side of the transmission. Bleeder valve is shown with arrow at right.



- Once a hose is attached, with an 8mm flare nut wrench (or regular wrench) crack open the bleeder valve and depress the clutch pedal a few time to drain the fluid. Once all the fluid is drained, retighten the clutch bleeder valve.
- It is recommended to place some rags or paper towels underneath the OE clutch master cylinder to catch any extra fluid that may leak out.
- With a 10mm socket/wrench remove the (2) nuts securing the clutch fluid reservoir to the brake compartment partition (shown below).



- Remove the hose clamp and disconnect the hose from the OE clutch master cylinder. Then remove the reservoir and hose out of the way for increased access to the flare nut on the top of the OE clutch master cylinder reservoir.
- Using an 8mm flare nut wrench, remove the OE clutch hardline on the top of the OE clutch master cylinder. Location of hardline is shown below with an arrow.

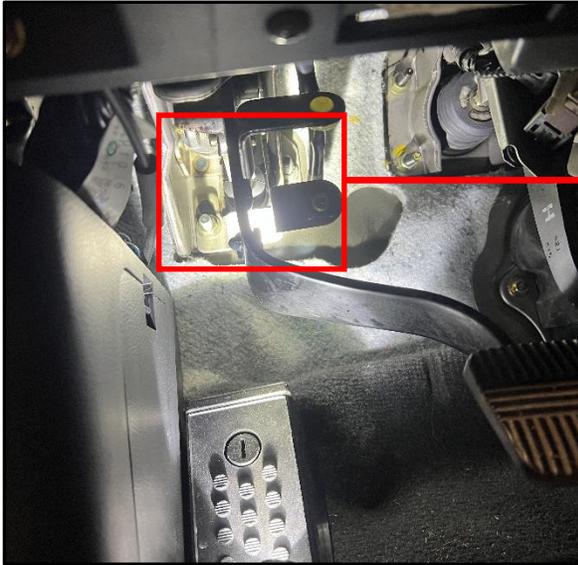


- It is now time to disconnect the clevis (7) from the clutch pedal on the inside of the vehicle. On the inside of the car underneath the driver's side of the dashboard, use some small pliers or a pick to remove the snap/cotter pin (9) underneath the steering column that secures the clutch clevis to the clutch pedal (shown at right).

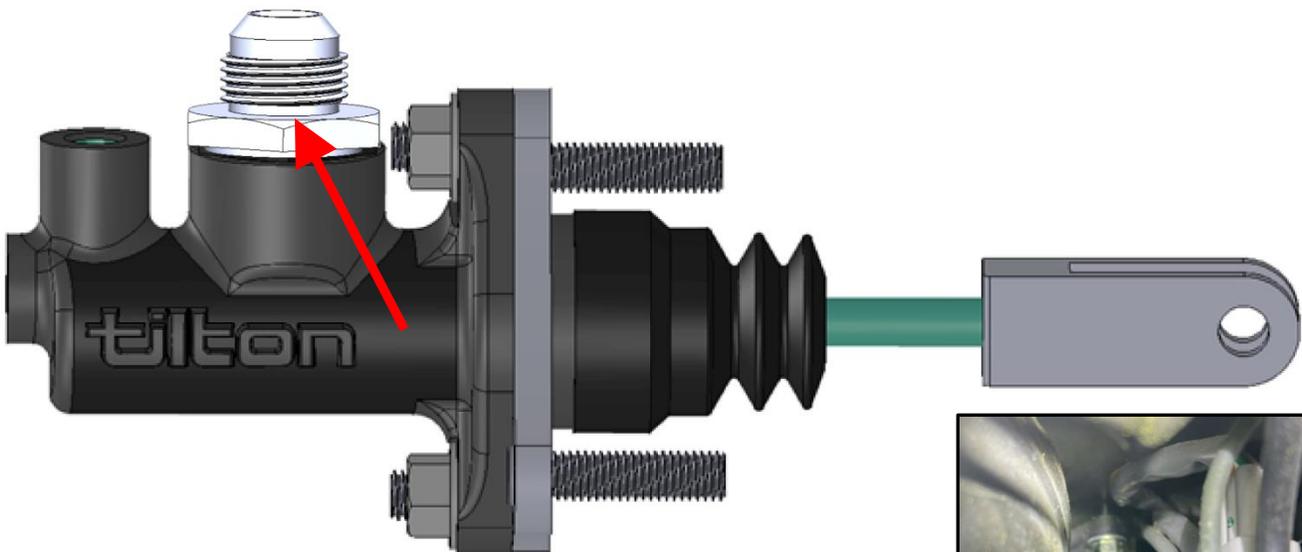
- Once the cotter pin is removed, remove the pin (8) from the clevis.



12. Using a 12mm socket/wrench, remove the (2) nuts securing the OE clutch master cylinder to the firewall (shown below). You may need to use a combination of some extensions and a universal swivel socket for easier access.



13. Go back to the brake compartment and fully remove the OE clutch master cylinder and reservoir assembly.
14. Locate the Z1 clutch master cylinder bracket, modified Tilton clutch master cylinder, -8AN - push on 60° fitting, and (2) M8 flange nuts.
15. Install the Z1 bracket onto the Tilton master cylinder using the end with the shorter studs and securing the (2) M6 flange nuts (as shown below).

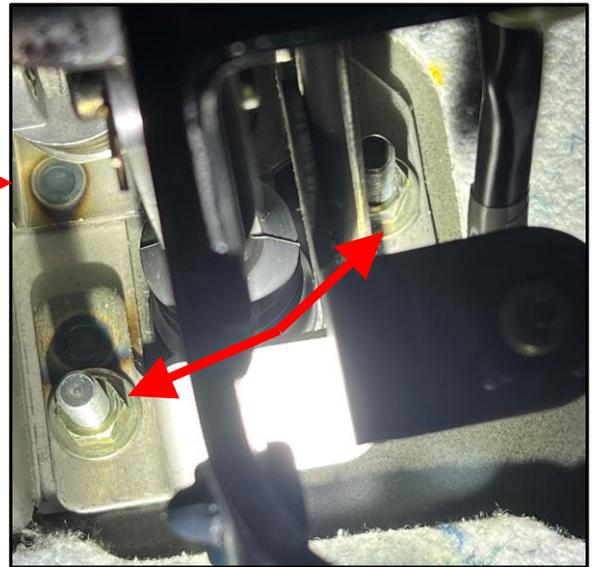
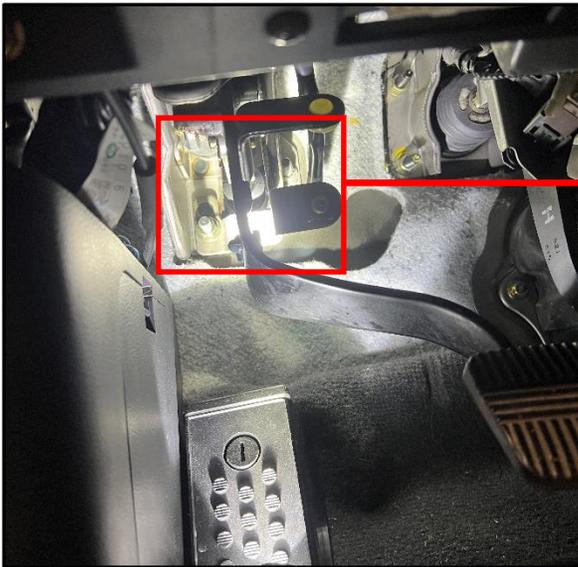


16. Install the -8AN push on 60° fitting onto the fitting installed in the master cylinder (shown with arrow above). Do not fully tighten the line yet, but leave it snug. Reference the picture at right for the angle the fitting will sit at once fully installed, it will be turned to right around the 7 o'clock position.
17. Set the Tilton cylinder next to the OE one that was removed. Unthread the clevis on the Tilton cylinder until it is the same length as the OE cylinder, measure from the center of the clevis hole to the flange that meets the firewall. Leave the jam nut loose on the rod.



18. Install the assembled Z1 Tilton Clutch Master Cylinder into the vehicle with the (2) studs on the bracket going through the OEM holes in the firewall that the OE cylinder was removed from in step # 13.

19. On the inside of the car underneath the driver's side of the dashboard, secure the studs on the Z1 bracket to the vehicle using (2) supplied 12mm flange nuts. Torque nuts to 79in-lbs (~6.5ft-lbs).



20. Position the clevis of the Tilton clutch cylinder onto the clutch pedal. You may need to rotate the rod in order to thread the clevis in or out a few millimeters to get a perfect alignment.

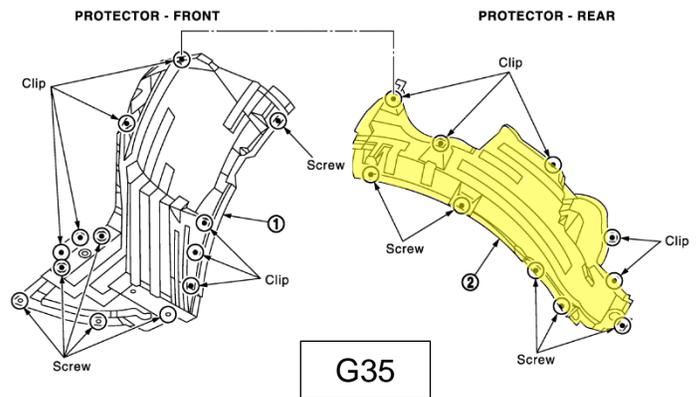
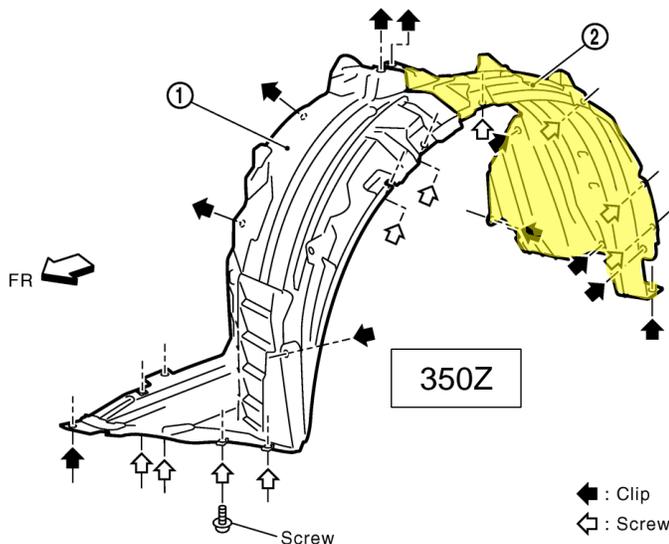
21. Once the clevis is lined up with the clutch pedal, tighten the jam nut against the clevis.

22. Slide the OE pin through the pedal and clevis, and then secure with the OE cotter pin. Reference the diagram on page 3 .

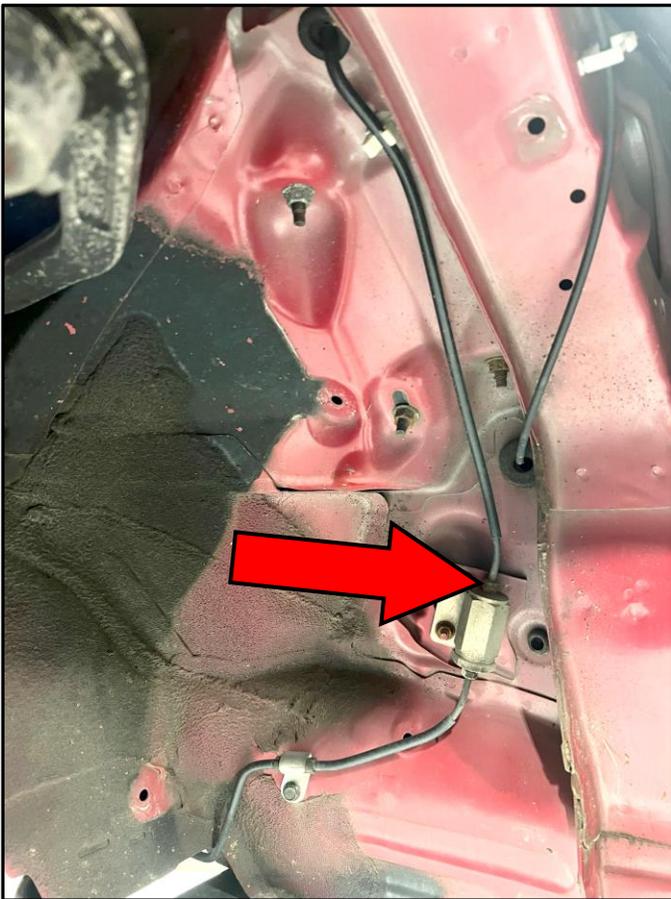
23. Remove driver front lug nuts and wheel.



24. Remove the rearward driver front fender liner. Refer to the diagrams below. Fasteners will be a combination of philips head screws, 10mm (M6) screws, and plastic pop clips.



25. Separate the OE clutch hardline at the clutch damper (shown below). Remove the nuts and then remove the bottom half of the hardline/damper that connects to a soft line on the inside of the driver frame rail that is secured in place with a metal clip (shown below). The metal clip will need to be removed and then the hardline can be unscrewed from the soft line.



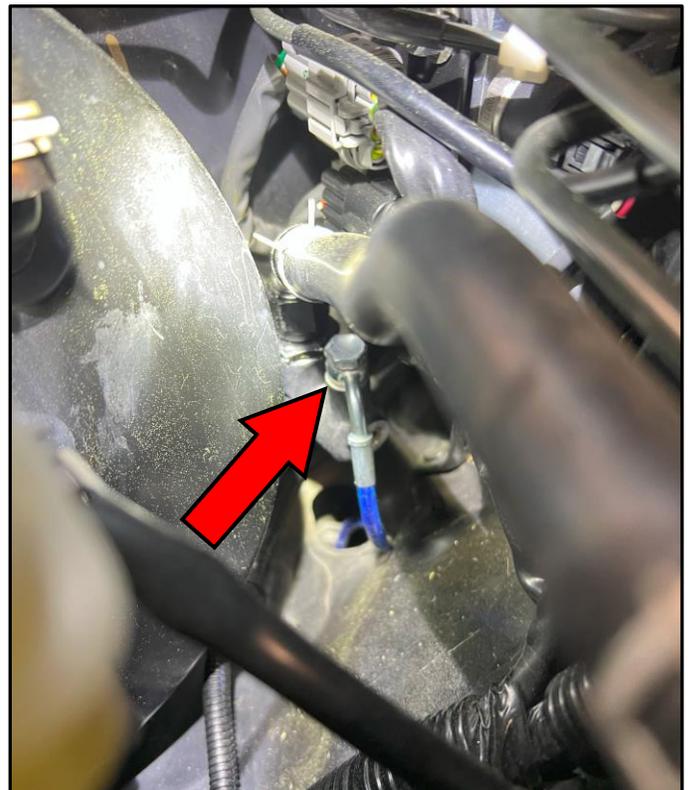
26. Remove the upper half of the hardline by twisting/wiggling the line to pull it out of the brake compartment. The rubber grommet on the wheel-well will likely get removed with the hardline, if so remove the rubber grommet to transfer over to the new Z1 clutch line.

27. Locate the new Z1 Single Piece Stainless Steel Upper Clutch Line, banjo bolt, (2) crush washers, and the supplied cushioned P-clamp. The line will come with 2 different sized banjo bolts, the longer one will be used for this Tilton cylinder.

28. If the rubber grommet in the wheel-well was removed, transfer it over to the new Z1 clutch line.

29. Push the banjo fitting end of the line through the hole in the top of the wheel-well towards the clutch master cylinder.

30. With the banjo bolt and (2) crush washers, install the banjo fitting into the top-rear port on the Tilton clutch master cylinder (as shown at right).



31. If applicable, install the new Z1 clutch line into the OE clips in the wheel-well. Then using the OE screw that was removed in step # 25 secure the bracket on the Z1 line to the wheel well (shown below).



32. Using the supplied cushioned P-clamp and OE nut that was removed in step # 25, secure the line to the stud in the wheel well that held the OE damper (shown above).
33. Route the rest of the line on the inside of the frame rail and up to the bracket where it will connect to the last part of the clutch line.
34. Thread the clutch lines together through the bracket and secure with the metal clip that was removed in step # 25.



35. Reconnect the OE clutch reservoir hose to the push-on fitting on the Tilton clutch master cylinder, secure with hose clamp.
36. Reconnect the OE clutch reservoir to the brake compartment partition using the (2) nuts removed in step # 7.

37. Once the hose is connected, hold the fitting centered between the brake booster and the electrical connectors on the other side and tighten the fitting down. Refer to image at right for where the line should sit once tightened.
38. Ensure the clutch bleed valve on the slave cylinder (located on the side of the transmission) and all other clutch line connections are tight.
39. Fill the clutch fluid reservoir with clutch fluid and using the bleed valve on the clutch slave cylinder, bleed the clutch system. Make sure to check for any leaks at all clutch line connection points during this process.
40. Reinstall the rearward driver front fender liner that was removed in step # 24.
41. Reinstall the driver front wheel and lug nuts.
42. Properly lower vehicle off jackstands.
43. Torque lug nuts.
44. Check vehicle for loose tools/items.
45. Take vehicle for a final test drive.



END

Additional Technical Support:
Contact Z1 Motorsports at info@z1motorsports.com
Or call 770-838-7777 between 9am and 6pm ET