

# Smitty Conversion



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So there !

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## My Smitty Conversion

While I like originality, I also like driving. I compromised on originality in this case and now have a fully synchroed 5 speed.

I think I was one of the last folks to order the kit from Smitty before he sold the business to Pete Delaney. While I was at it I also did some other modifications:

- Rear crank oil seal
- Lightened flywheel from Bill Bolton
- Conversion to BJ8 flywheel and diaphragm clutch/pressure plate

## On with the photos

I used a round type rear oil seal. Square ones also are available. This required the removal of the rear plate and enlarging the hole with a side grinder. A bolt with the center drilled out is then screwed into the output flange used as a guide to drill then

tap four holes for the allen screws that attach the rear seal. All the instructions come with the rear oil seal kit.



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The lightened BJ8 flywheel frm Bill Bolton. I painted the non-business surfaces to inhibit rust.



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The Aluminium pilot bushing with bearing pressed in. This is supplied by Pete Delaney and is pressed in the flywheel. I "pressed" it in with a hammer and soft drift with a rubberized hunk of gasket to keep from bugging up the aluninium.





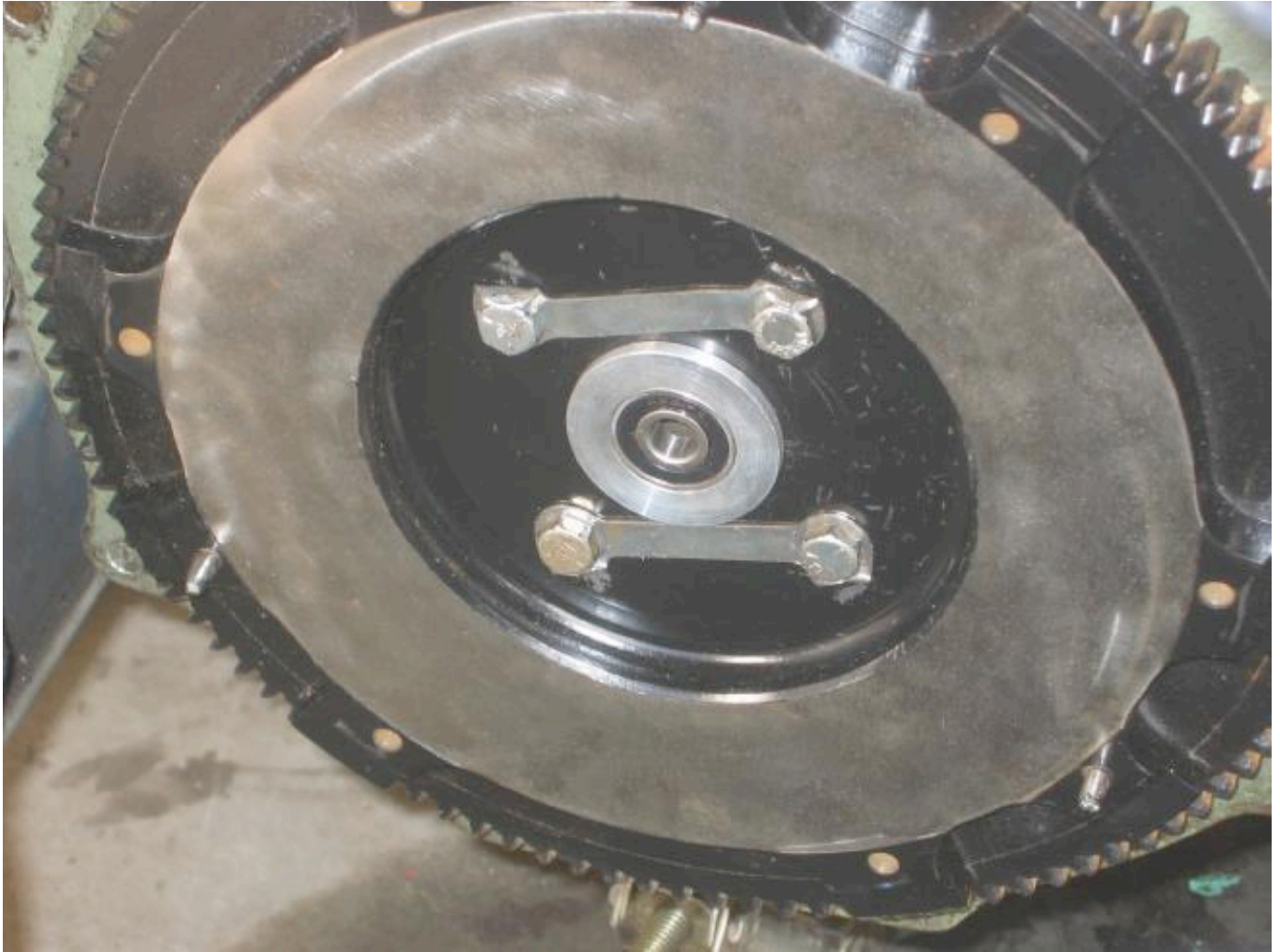
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The failed brass style pilot bush. This was the brass pilot bushing supplied by Smitty with this kit. I tried it (actually two of them) but kept spinning them out of the flywheel. What a wild squeal this makes at take off. Very disconcerting. The aluminium one with the pressed in bearing looks more promising.



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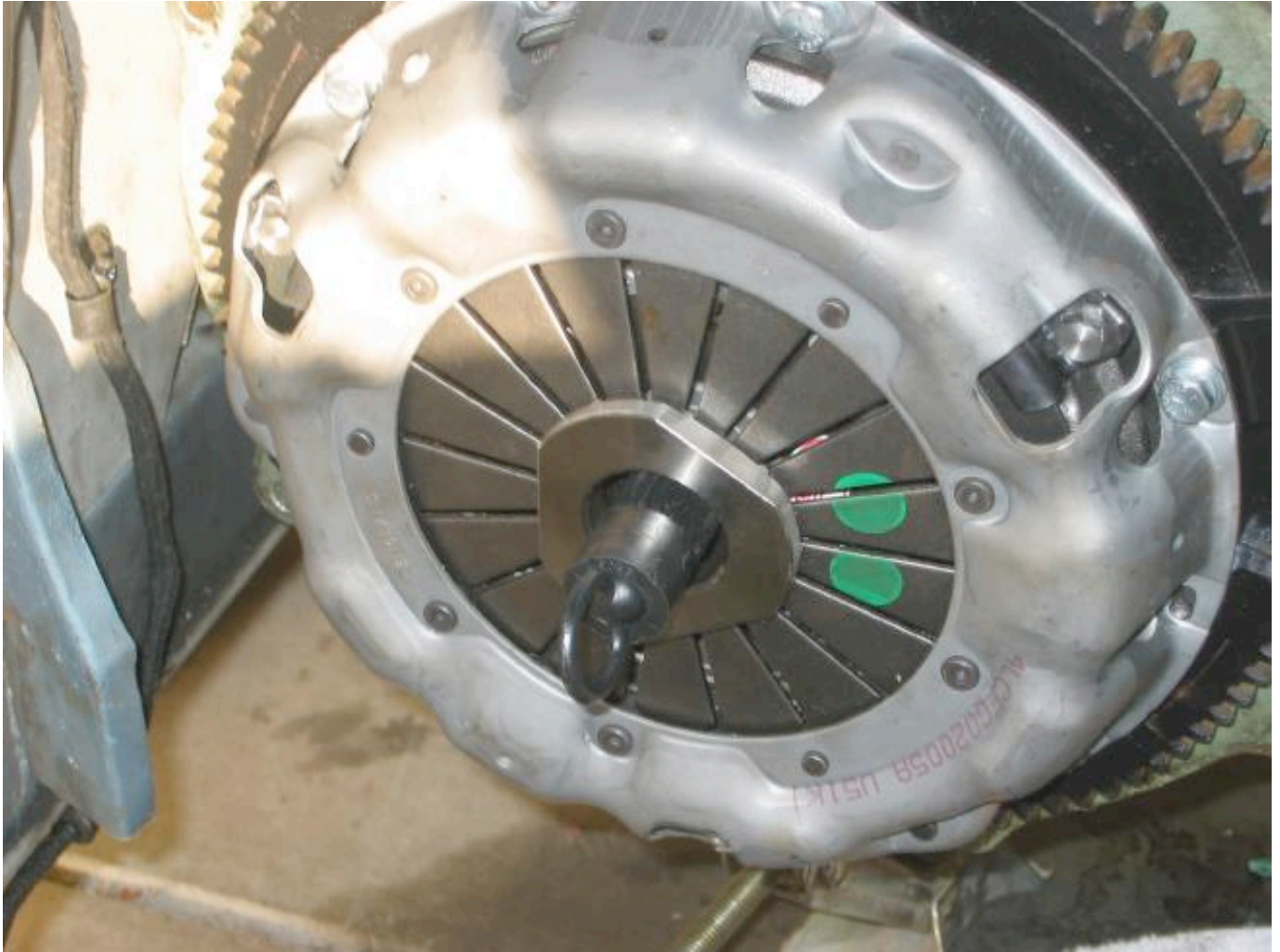
The flywheel with pilot bushing adapter and bearing on the car. It is really pretty much mandatory to use the flywheel bolt lockdown tabs.



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Pressure plate installed using the Smitty supplied clutch disk (thicker than stock Toyota) centered using a alignment tool (supplied in kit but available from Toyota)





Now it is time for the test fit. Good thing I did this or I would have had to pull the transmission. Note that the clutch fork touches the bellhousing. There is not enough clearance with the BJ8 diaphragm clutch. There was with the old spring type clutch.



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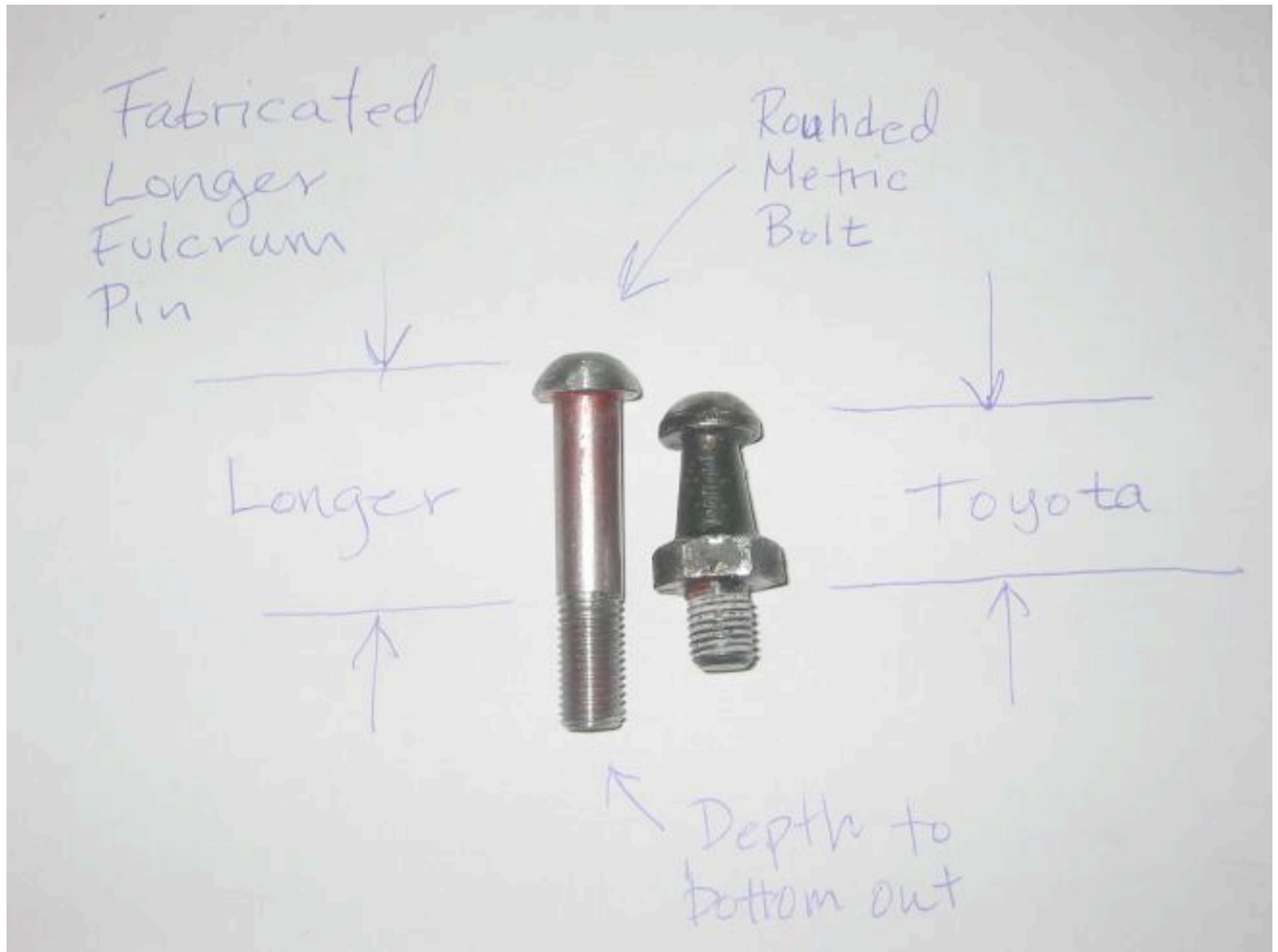
Here is a close up of the problem. This makes the bellhousing act as the fulcrum, which makes the clutch hard to operate and the slave rod to over extend.





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Here is how I solved the problem. The fulcrum pin is too short so I fabricated a longer one using a metric bolt cut to length, rounded the head and threaded to depth.



Here is a photo of the fabricated fulcrum pin installed.



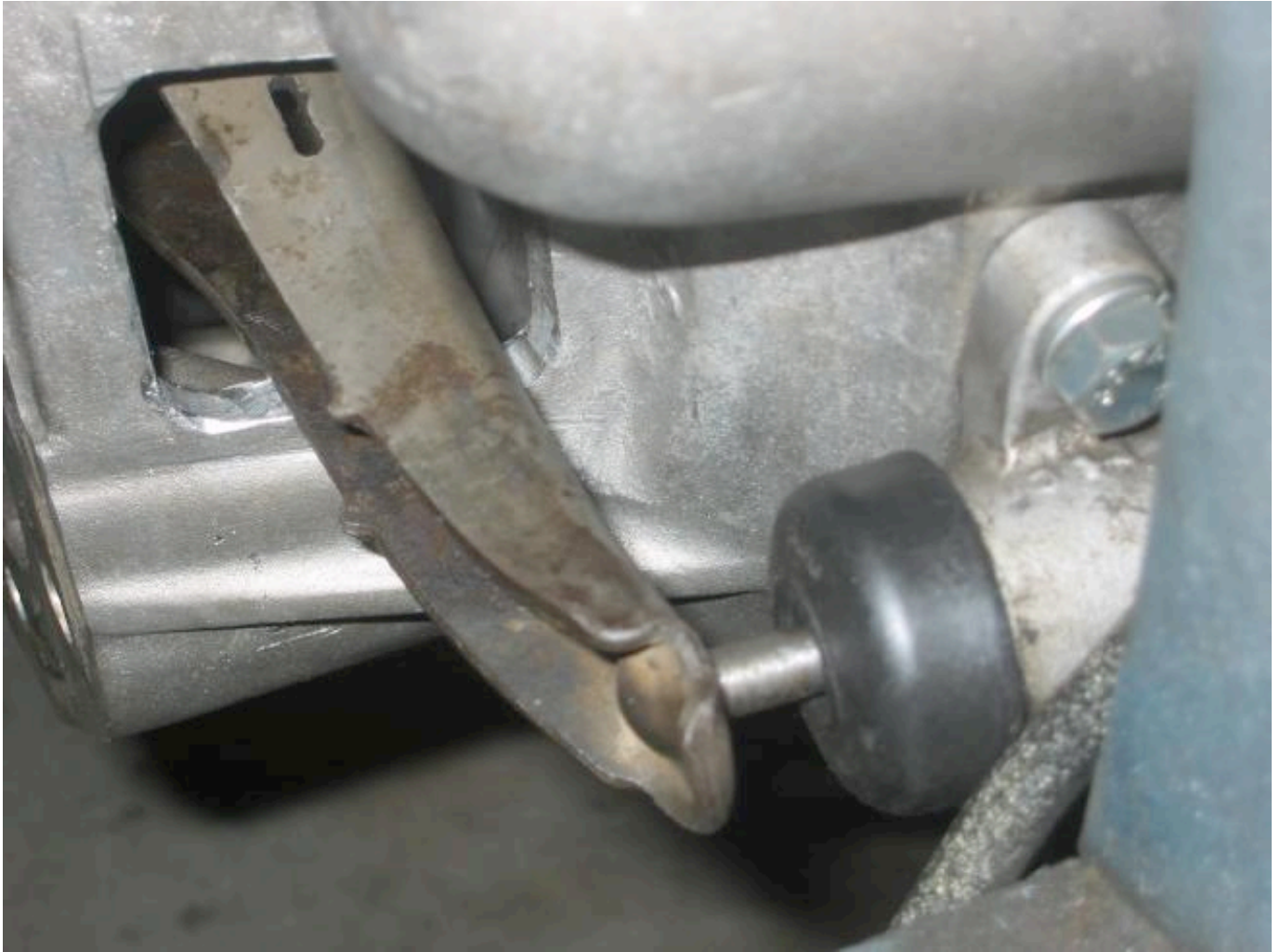
Now the test fit goes much better. Note the clutch fork is centered in the square bellhousing cutout and the slave push rod is not extended way out. It is the rod that came with the Smitty kit.





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And a closeup showing proper clearance and sane slave pushrod length and throw.

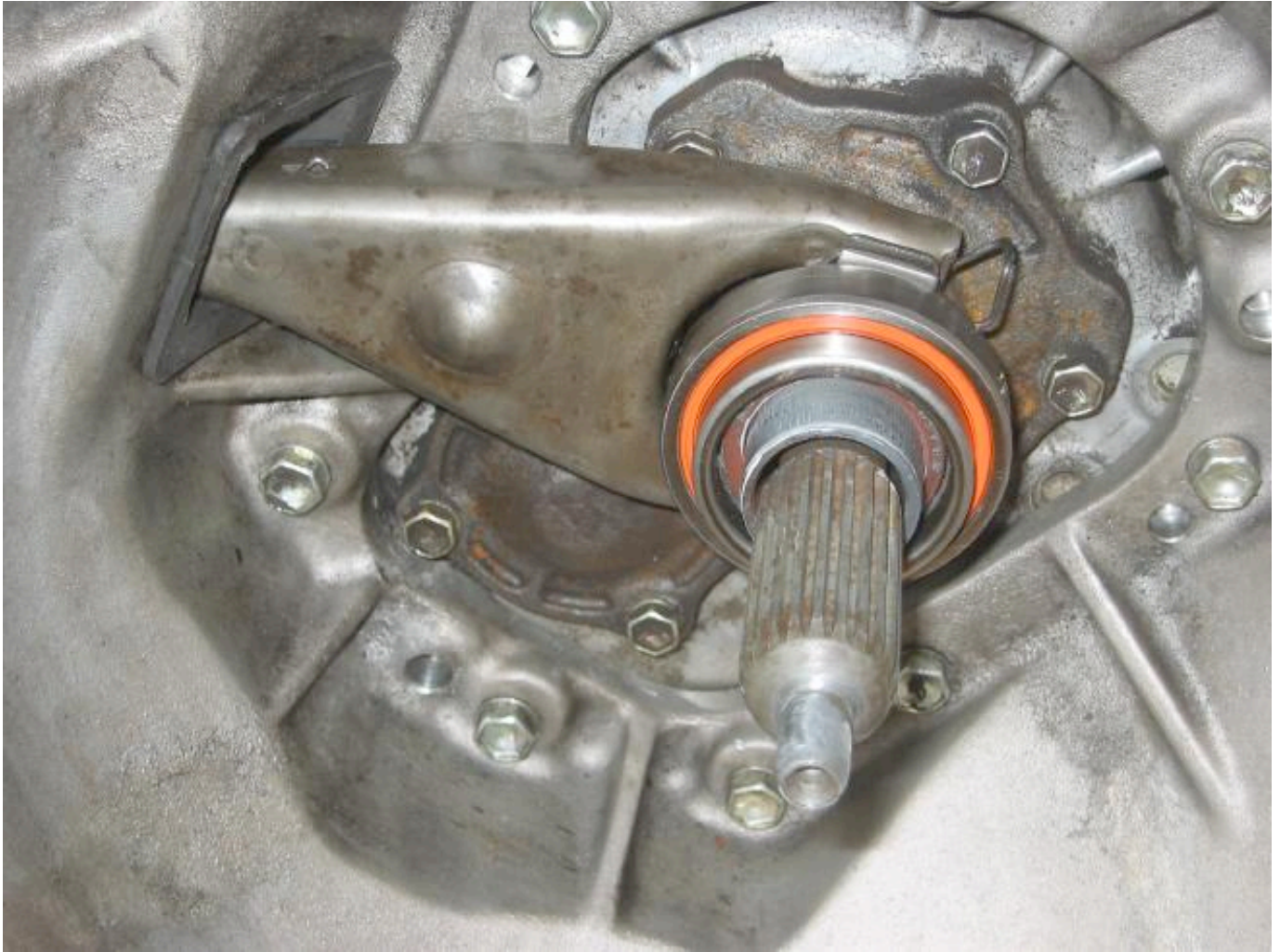


Here is a photo of the bellhousing mounted on the 1987 Toyota 2WD 4Cyl 5 speed transmission. I used a small torch to heat and melt the original Toyota stickshift extension for removal. I then removed a bit of material from the top of the shifter lever and threaded it with a die for threads the same as a Healey. I also replaced the shifter bushing both seat and end. I replaced the transmission rear seal. The bellhousing just bolts right up slick as snot. Heck it even has a reverse switch so I could add a backup light if I desired.



Here is a photo showing the fork, Toyota throwout bearing and Toyota rubber dust boot.



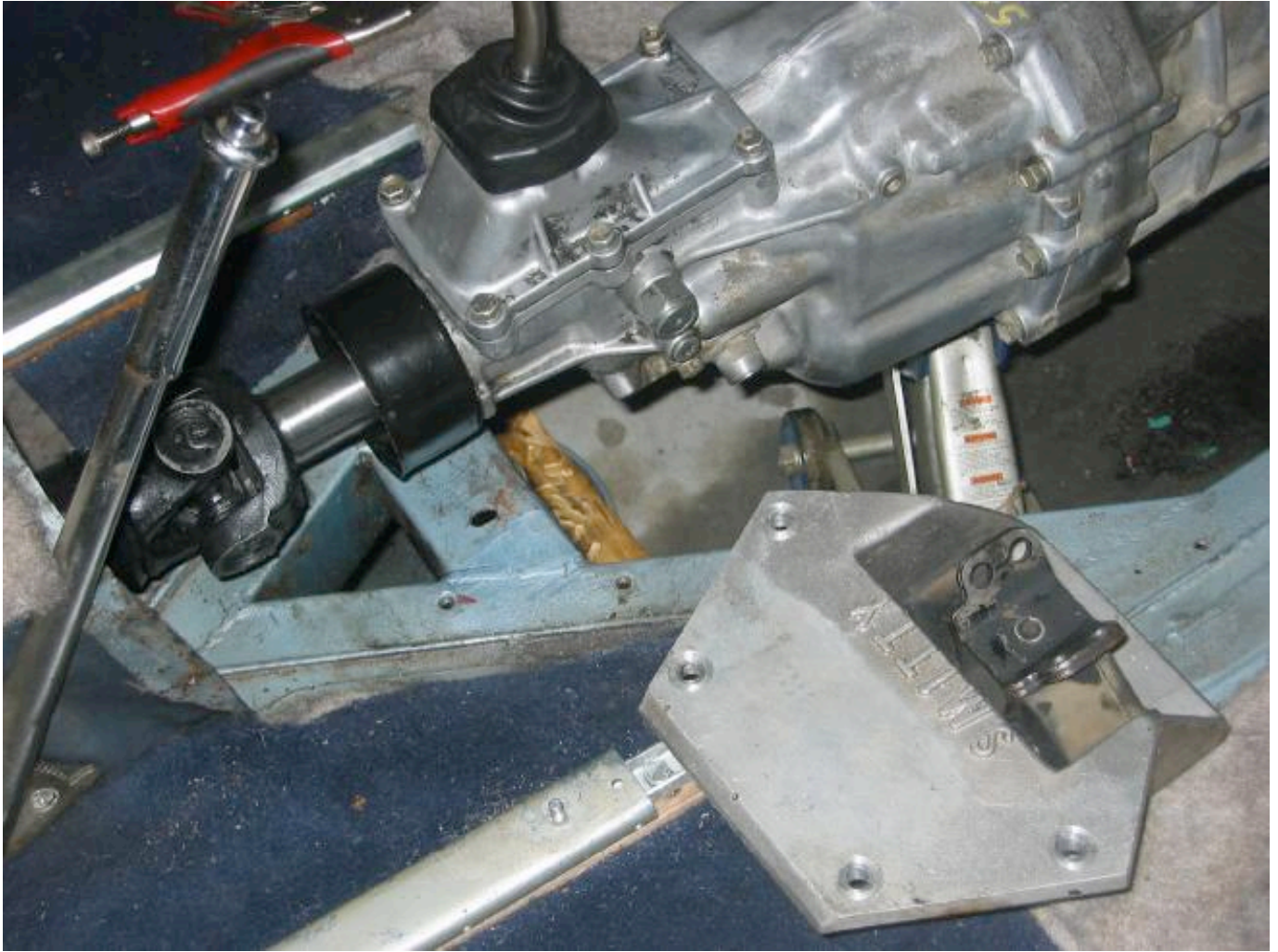


The entire thing then bolts right up to the motor. Alignment is key here. Do not allow the transmission to sag on the clutch and pilot bearing. I recommend using a tranny jack and a buddy although I do these alone with a roller floor jack so I know it can be done. Be careful I use some long bolts (5 inch) to guide the mating ritual of motor and tranny. Slow and steady here. It is one of the few times you will hear classical music coming from my garage.



After the transmission is mounted up front I jacked up the rear of the transmission to get enough clearance to install the rear mounting adapter supplied by Smitty. Be careful as you do this as your throttle linkage will bind. You may want to remove the front linkage mount or at least keep an eye on this as you jack to keep from straining it.





I had the driveshaft fabricated and balanced locally. Measure length as per Smitty's installation instructions after the tranny is in. The rear mounting brackets go on after the tranny and motor mating ritual is complete. Note that I also chose to use the optional angle adapter from Toyota for the speedometer cable to reduce stress from kinking on the cable.





The transmission tunnel was modified for the new shifter location, to close the old hole and give clearance up front on the bell housing. I have not spoken to anyone else who needed to get clearance up front but I did. I removed the insulation and measured carefully for the shifter hole using an MGB shifter boot beauty ring as a pattern. I marked this, then glassed up the ashtray hole and old shifter holes using a fiberglass patch kit. After all that set I measured for the new hole again and cut it out. It is hard to see from the photo but I cut about a 3 inch banana shaped area from the front of the tunnel and made a hump to give clearance. I made corresponding cut and reflanged the firewall to match. This may vary from car to car and tunnel to tunnel. Oh and the carpet hole came in handy to fill the hole

left in the sideshifter carpet kit. I considered making a cupholder or ashtry there. Humm.....



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I then had my buddy weld some nuts to the back of an old MGB shifter boot beauty ring. I drilled four holes in the beauty ring and rivited it to the inside of the tunnel. Presto, captured nuts for the final beauty ring. (Note: these captured nuts have nothing to do with the Tranny/Motor mating ritual, don't get confused on me here)



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The test drive went wonderful. The BJ8 clutch feels excellent, less seepage of oil, quieter and it shifts much easier and smoother than the old sideshifter. I will post a few final photos once I put the interior back in. Note the nice fit of the MGB rubber boot and beauty ring. Nice to have the captured nuts.





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I hope this helps someone.



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