Clutch Stop Mod by moremonkey's Stan

Here is a new, simple mod that feels great, measurably speeds up shifting, costs nothing and installs in seconds. And it comes with a free set of steak knives, operators are standing by! A Clutch Stop. See pics below.

Version 1 (Quick/Easy): The clutch stop described here uses a Home Depot sourced door knob stop, or comparable. Shepherd PN 9573. The idea is to reduce or eliminate the extra travel of the clutch pedal beyond that needed to disengage the clutch. This is a simple, experimental, cheap-n-dirty design...a fancier adjustable one might come out later.

By attaching the self-adhesive plastic pad on the back of the clutch pedal level, the lever can no longer go down as far as usual since the pad hits the black metal steering rack mount. Clutch action or life is not affected, only the wasted travel element beyond full disengagement is cut. I placed my pad at the apex of a triangle on the lever, See PICs. Each car may vary a bit, and I've only tried this on '05s. Ideally, you just plug and play here, the height of this stop is near perfect as-is in my case. Once you've plopped it on, start the car, and select 1st. If the stop is too high you'll feel resistance and a crunch if you press on. Assuming you get it in (ahhh..), notice how much you need to lift your clutch foot before the clutch starts engaging. You can vary this a bit by repositioning the stop.

Personally I like a clutch that starts engaging right as you lift your foot. This cuts wasted leg movement and the time to do that. And it allows you to time things better. Since your clutch engagement action occurs just after the lever starts moving up when you lift off the pedal.

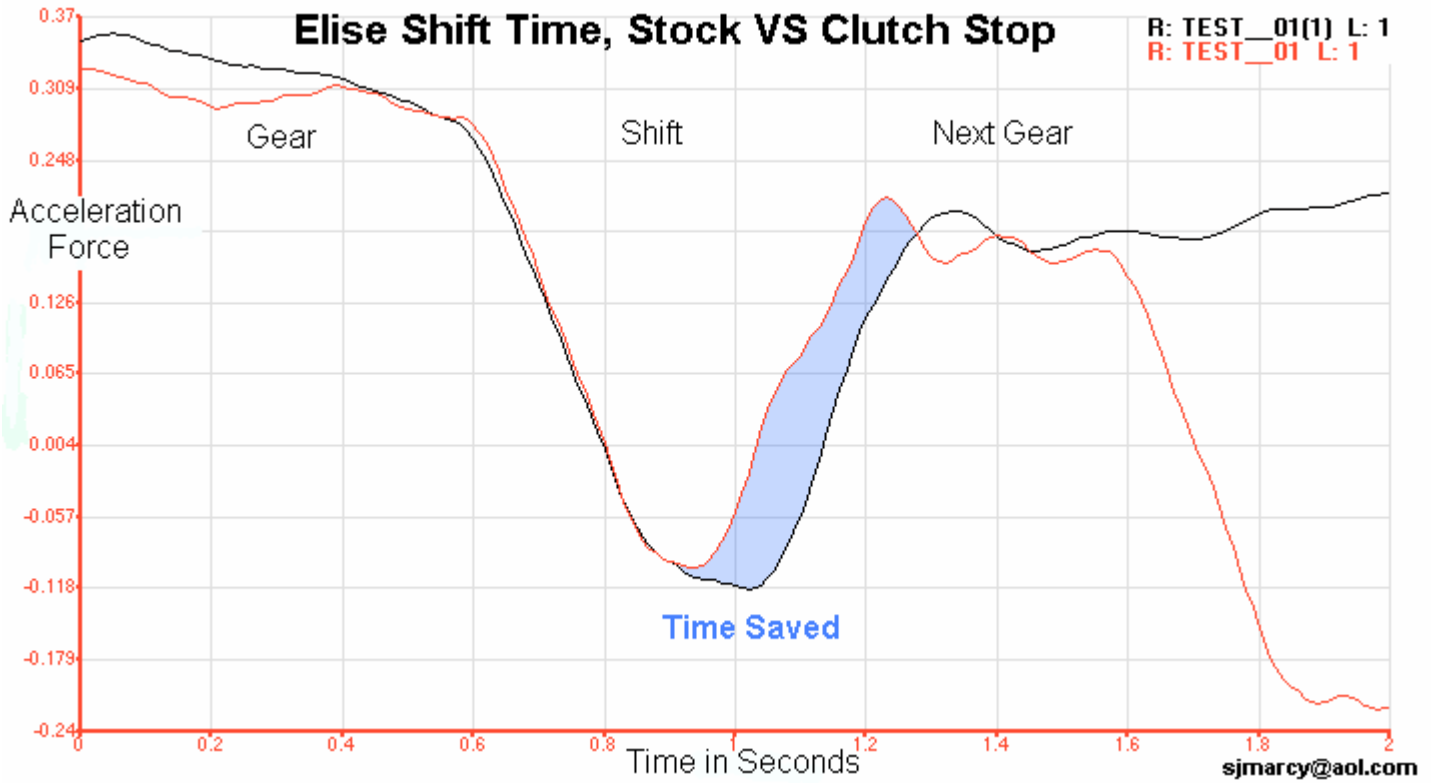
See the datalog showing shift time? It's hard to measure this exactly. You need to look at a few trials. I saved 0.05-0.1 seconds per shift comparing three trials with to 3 trials without (from my data archives, so no bias on the without shifts). On a 0-60 this would directly cut that amount of time, as you spend less time out of gear. And of course it' easier to up and downshift when your clutch action is more consistent and immediate. Some drivers only partially press the clutch and enjoy the same benefits...personally I can't do that very well...once in awhile I wont go down quite enough - crunch. A clutch stop gets you to just the right spot each time.

It works surprisingly well, by all means try it out...

A packaged stop, along with a quarter, loose stop and bottle cap for scale:

Installed Stop:

Comparing the time required to complete a shift, it's easier to get speedy gear changes:



Version 2 (Adjustable): Okay here is the advanced adjustable version. It is Chapmanesque as the bolt simultaneously retains the steering rack while acting as an adjustable Clutch Stop. Colin would love it! Elegant, simple, light, cheap.

All you need is an 8mm bolt with the standard 1.25mm thread pitch. It needs to be 50mm long which is commonly available.
M8x1.25x50mm (you don't use the doorstop in this instance, it's one approach or the other).

I used a fully threaded stainless steel bolt from the local hardware store. See picture. You need an 8mm nut, and can reuse the stock washer or spring a few cents for a new one.

* Remove the lower steering rack bolt using a 13mm tool. No, your alignment is not changed.

* Replace the stock bolt with the 50mm bolt (Thread the nut onto it about like in the first photo...)

* Adjust the length of the 50mm bolt until you are happy with the clutch avtion, then tighten the nut. This locks the clutch stop, and retains the steering rack.

* You adjust the stop iteratively. Start the car in neutral, e-brake on hard. Step on the clutch and gently see if you can select a gear with normal effort and no lurch or crunch. Don't force anything. High effort => reset the stop lower by turning the bolt (with loose nut) clockwise about one turn. Repeat. If the lever easily selects a gear...observe how much your foot can be raised before the clutch starts engaging. Decide if that is okay, if not then back off the bolt (counter clockwise) to cut wasted travel. Make sure that you have at least one + bolt diameter threaded into the rack. Tighten the nut to factory torque or about 1/8 turn past contact.

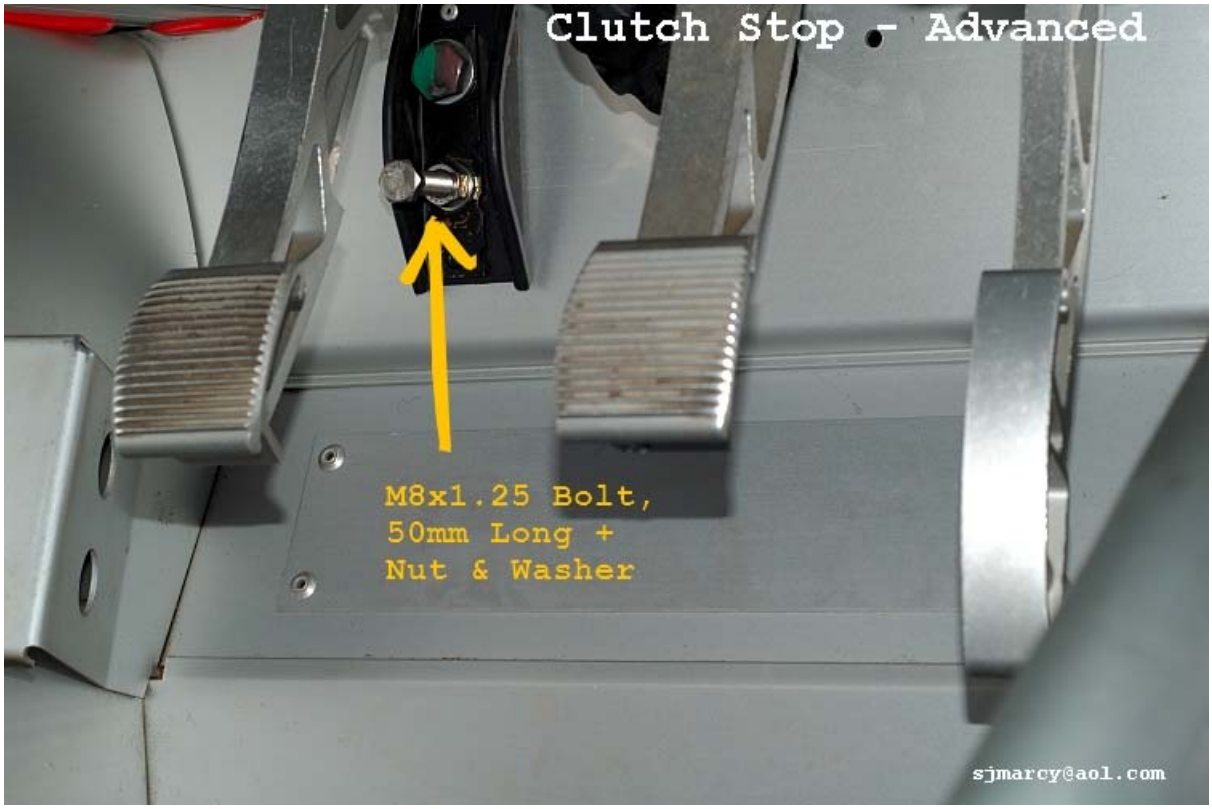
* You can choose clicks or no clicks....as in that sound the clutch pedal can make at the bottom. Add/remove the stock rubber pad, use a bolt head cap (see pic), etc. Make sure you adjust the bolt *after* you have set the stop as any cushioning takes up space.

* This setup will allow zero wasted travel whatever you want.

* If you set it for very low slop, be prepared to have others who drive your car stall it a bunch of times...

* I'll adjust these notes as I go along...

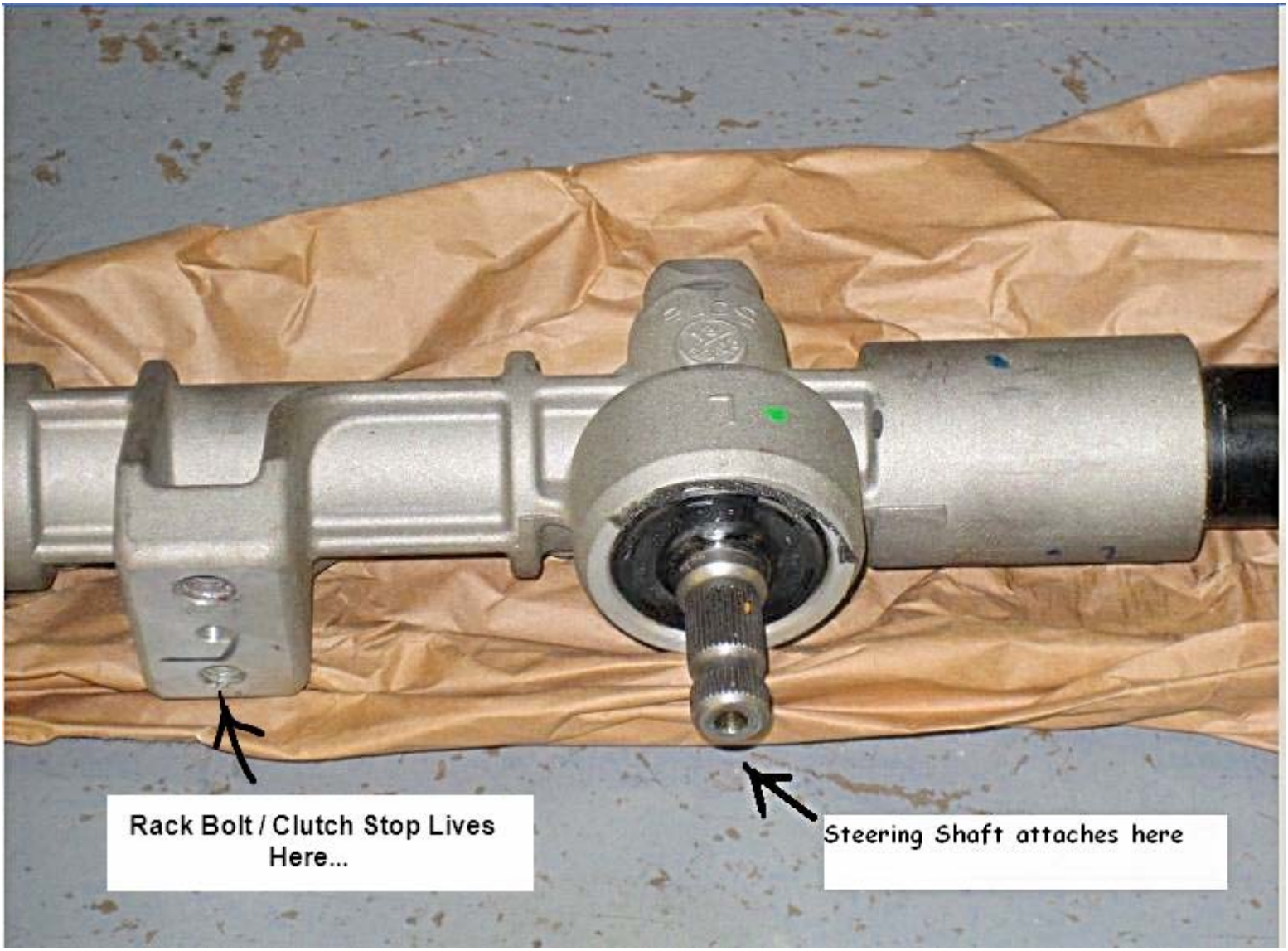
* I hope that many of you find this mod useful and helpful.


Clutch Stop - Advanced
M8x1.25 Bolt,
50mm Long +
Nut & Washer
sjmarcy@aol.com

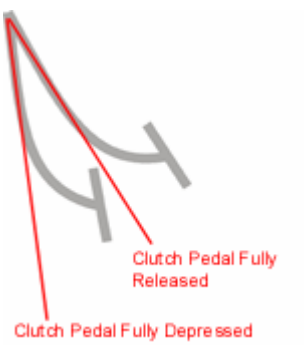

Clutch Stop - Advanced
Tightening
The Locknut...
sjmarcy@aol.com

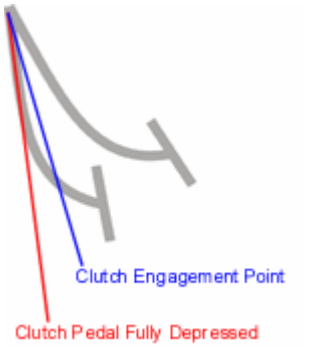
Additional Information:

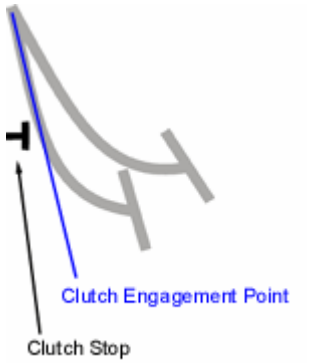
Here is a view of the aluminum/steel tube steering rack variation. The other style is all alloy. You can see that the bolt threads into the rack and can only go so far, since it will run into the rack. Also note that you should always tighten things down after you've made an adjustment. Don't drive around with no or a loose bolt here!

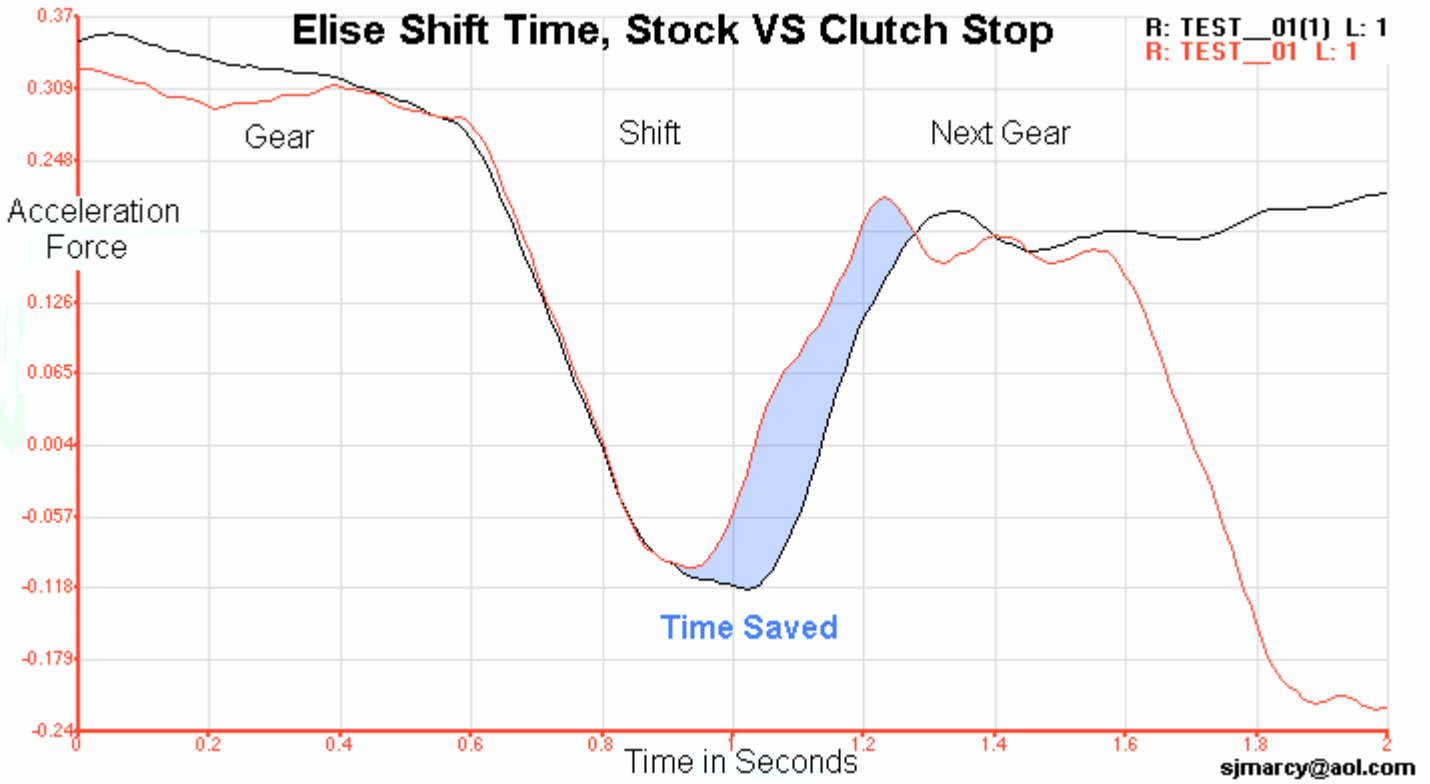


Here is how the mod works:








Elise Shift Time, Stock VS Clutch Stop
R: TEST__01(1) L: 1
R: TEST__01 L: 1
Gear
Shift
Next Gear
Acceleration Force
Time Saved
Time in Seconds
0.37
0.309
0.248
0.126
0.065
0.004
-0.057
-0.118
-0.179
-0.24
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
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