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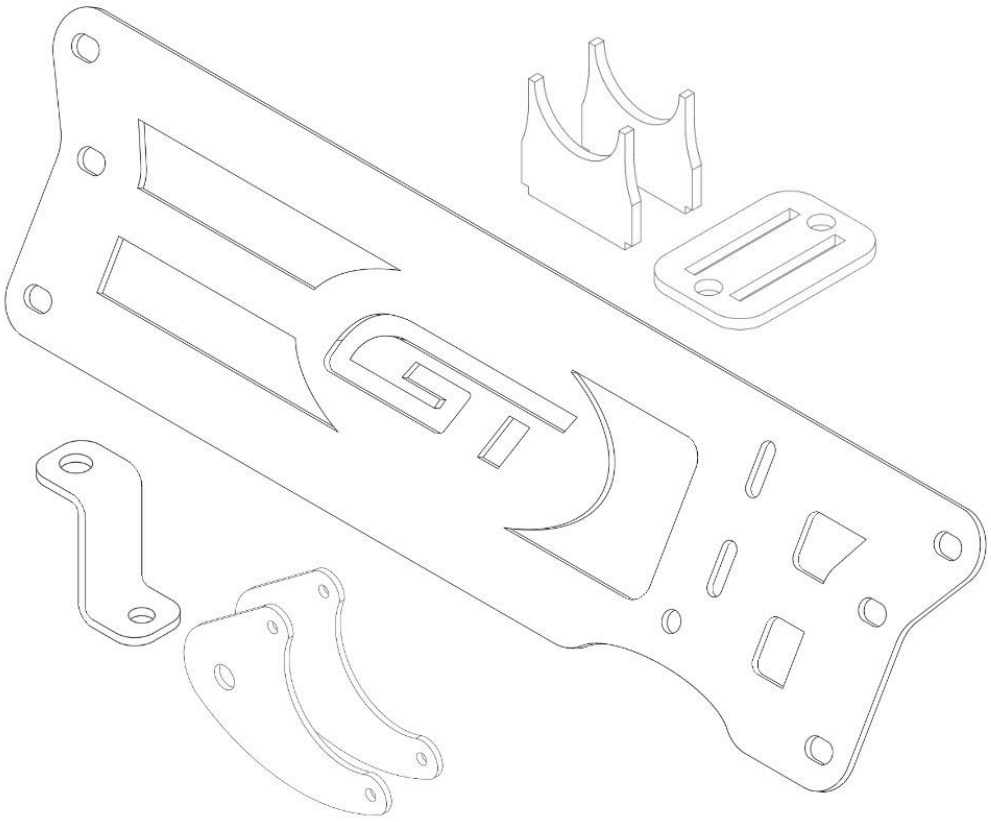
DIY Rear Cross Member Guide



Materials Needed:

1. Metal
2. Mount Tubing
3. Mount Polyurethane Bushing
4. Mount Inner Sleeve
5. Hardware

Introduction

To make this cross member you will need to have the supplied DXF Files cut by a CNC machine. This can be done locally to you or by online services like SendCutSend. The Material you choose is up to you but I do include my recommendations if you are unsure.

If you choose to make the cross member only, no welding or bending is involved. Once cut the cross member is ready for paint and installation.

If you choose to make the lower mount and transmission brackets, the mount will need to be welded. A welder capable of welding the material thickness and type you choose will be required. I typically welded the mount in 3/16 Steel with a Miller 252 Welder. The mount will require a small length of tubing and a Polyurethane bushing The bushing and its inner sleeve will require trimming which may be difficult for the inexperienced. The mount will require additional hardware to attach it to the engine.The transmission brackets will reuse the hardware on the transmission in the location they mount to.

1. Metal

DXF Files: Cross Member, Mount and Brace

The cross members I cut are from A36 Steel 3/16” (.190) Thickness, this has proven adequate although thicker materials can be used. Thinner material is not advised.

Thicker material can be used on the cross member up to ½”. Aluminum can be substituted for weight savings however anything below ¼” (.250) in Aluminum is not advised.

DXF Files: Transmission Brackets

The Transmission Adapter brackets I cut are from 5052 Aluminum ⅛ (.125) Thickness. This has proven adequate although thicker materials can be used. Thinner material is not advised. The bolt holes in this file are smaller in diameter to allow final boring after the material has been prepped.

After Cutting Preparation: As mentioned above, the hole size in these brackets will need to be increased before mounting to the vehicle. This was done so that these holes can be precise.

1. Bushing Tubing:

If you have chosen to make the lower mount it will require a length of tubing to weld to the mount that can house the polyurethane bushing.

The following tubing size is needed to hold the bushing:

- Material: ERW Steel or DOM Steel
- OD: 1.75"
- ID: 1.50"
- WALL: .120WA
- LENGTH: 1.50"

ERW or DOM Tubing can be used. ERW holds the bushing tighter, DOM is much stronger and pleasant to weld.

2. Polyurethane Bushing:

The bushing you will need is from **Prothane Polyurethane Bushings, Part# 19-605 (19605)** Your choice of red or black. Alternatively this bushing can be sourced from energy suspension in its equivalent dimension.

Specs of Bushing:
OD 1.5 in
ID .752 in
Tube Length 2 in

IMPORTANT NOTE: This bushing will be too long to fit inside the tube of your lower mount. The butt end of each bushing half will need to be trimmed approx .250". This can be done with: A hot knife, grinder with cutoff disc, utility knife,etc.
How I did it: I made a fixture to hold bushing in a lathe and trim it with a parting tool. This provided the cleanest cut with and was much safer then above options.

3. Bushing Inner Sleeve:

The prothane bushing you buy will come with an inner sleeve, however it will be too long to use with your lower mount and will require trimming so that it fits flush with each bushing end.
This can be done with a: Lathe, grinder, hack saw, band saw, etc.
How I did it: I trimmed the sleeve in a lathe with a parting tool.

5.Hardware

You will need the following hardware to mount the bushing:

- ½” x 3” Bolt with 2 washers and a nylon nut.

The remaining hardware needed can be sourced in the sizes you prefer. ⅜” x 1” and 7/16” x 1” sizes bolts fit nicely for the mounting surface.