MISC-01, Camera Bar Construction

Introduction

This is a procedure which describes how to construct a camera bar for a 944. This bar mounts to the rear seat shoulder belt mounting points. I did this hastily so, the details will be a little sketchy. I will come back and add more detailed instructions at a later date. I ended up using reinforcement plates in several locations on the aluminum channel as it bends very easily when the fasteners are torqued down.

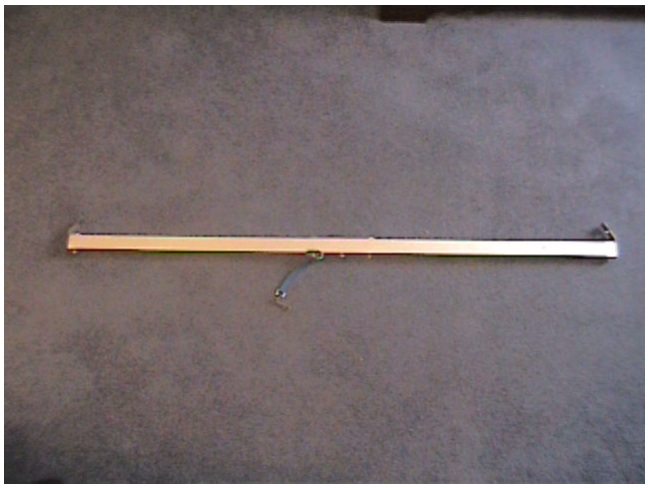
Realize that these instructions may need to be modified based on the type of camera you have. So, study the instructions before you start and take some measurements of your own video camera to ensure that they will work.

Tools

- Hack Saw
- Drill and Drill Bits

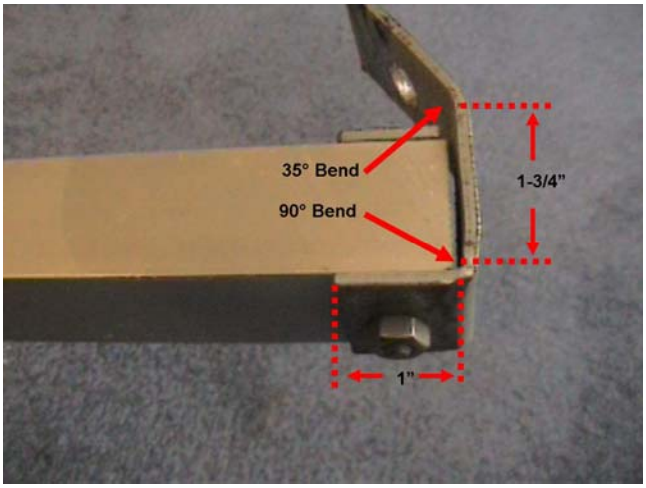
Materials

- 1-1/4" aluminum channel 49-1/4" long
- 2 pieces of 1/8" thick galvanized steel plate 1-1/4" wide x 4-1/2" long
- 1 piece of 1/8" thick galvanized steel plate 1-1/4" wide 6" long
- 2 pieces of 1/8" thick galvanized steel plate 1-1/4" wide by 1" long
- 5 - 1/4" bolts x 1-3/4" long (standard thread)
- 4 - 1/4" nuts
- 2 - 7/16" fine thread bolts (don't know the exact pitch)
- 1 - 1/4" C-clip
- Rubber padding to go between camera and camera bar.

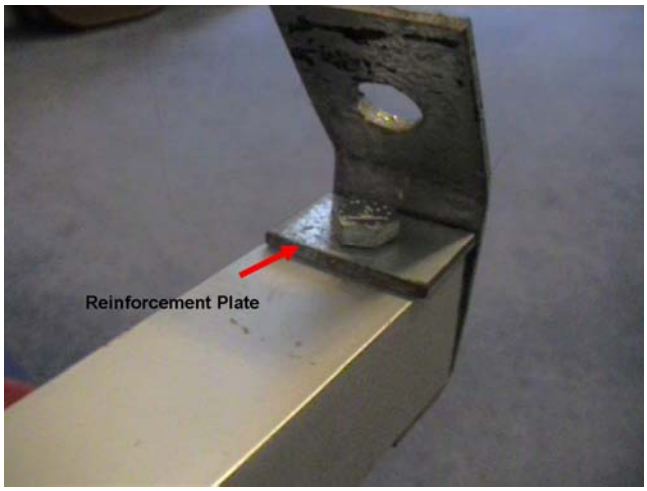


Construction

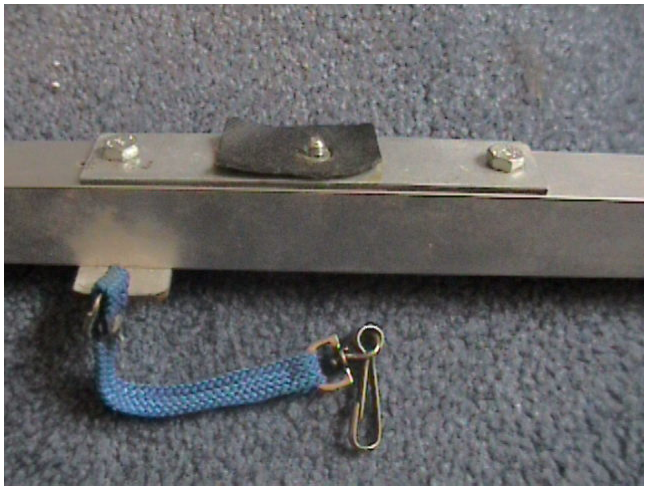
1. Take a piece of 1-1/4" aluminum channel and cut it to 49-1/4".
2. Cut two pieces of 1/8" thick galvanized steel plate to 1-1/4" wide x 4-1/2" long. These will be for the bracket mounting bars.
3. From the two pieces of steel cut above, make the bar mounting brackets as follows:
    a. Make a 90° bend approximately 1" from the end of the plate. The camera bar will rest on these part of the plate.
    b. Approximately 1-3/4" from the inside of the 90° bend made in the step above, make a 35° bend in the same direction as the 90° bend (see picture below).



    c. Drill a 1/2" hole in the part of the bar that was bent to the 35° angle.
    d. Drill a 3/8" hole in the part of the bar that was bent to the 90° angle.
4. Cut two pieces of 1/8" galvanized plate 1-1/4" wide x 1" long. These will be used for a reinforcement plate where the brackets are bolted to the 1-1/4" aluminum channel.
5. Drill a 3/8" hole in the center of the reinforcing plate.



6. Drill a 3/8" hole through each end of the aluminum channel. Before you drill, mark the hole location using the 3/8" hole you drilled in the end bracket you constructed to determine the exact location of the hole.
7. Attach the bracket and reinforcing plates to each end of the aluminum channel using a 1/4" x 1-3/4" bolt and nut.
8. Fabricate a 1-1/4" x 6" reinforcing plate from 1/8" thick galvanized steel plate.
9. Drill 3/8" mounting holes through the reinforcing plate and aluminum channel so that the plate will be centered on the camera bar. Attach the reinforcing plate to the bar top of the camera bar using two 1/4" x 1-3/4" bolts and nuts.

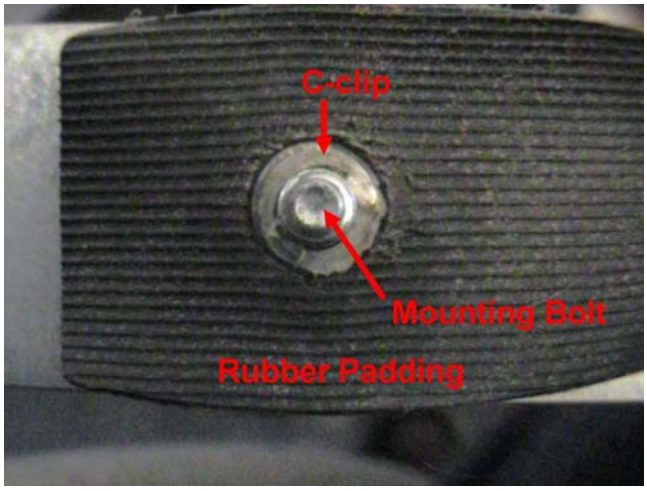


10. For mounting the camera, most camera mounts use a standard 1/4" standard thread. However, you may need a different mounting bolt depending on your camera.

11. Drill a 3/8" hole for the camera mounting bolt through the center of the reinforcing plate and aluminum channel. Insert a 1/4" bolt x 1-3/4" bolt from the bottom side of the camera bar and check the amount of penetration through the top side of the bar. If the bolt penetrates too far through the bar, you won't be able to tighten it enough to get the camera to sit flush with the bar. I ended up using two flat washers between the bolt and the bottom of the bar to provide enough spacing.
12. The mounting bolts for the bar are a bit difficult to locate. The bar mounts to the rear seat shoulder belt mounting points. If your car is equipped with rear shoulder belts (early cars are not, later cars are), you can simply use the shoulder harness mounting bolts. If the car is not equipped with shoulder harnesses, the mounting points with have plasitc plug inerts. These can NOT be used to mount the bar as they are not strong enough. Personally, I had trouble locating the correct size bolt to fit the mounting point. It appears that it is approximately an 11 mm bolt with a fine thread. I ended up using a 7/16" fine thread bolt approximately 1" long which worked well.

13. The next part isn't critical but, it's a nice feature which you may want to take the time to add.

14. I wanted to leave the camera mounting bolt in the bar all the time. So, I cut a channel around the part of the bolt where it penetrates the top of the bar and installed a C-clip to hold it in the bar. However, if you do this, you'll also have to install some rubber padding on the reinforcing bar to provide spacing for the C-clip so the camera will sit flush.



15. Another feature I added was a security strap for the camera. I simply added another plate on the bottom side of one of the reinforcing plate bolts for the strap to attach to. In most track events, the governing sponsor of the event normally requires a safety strap for the camera.
