

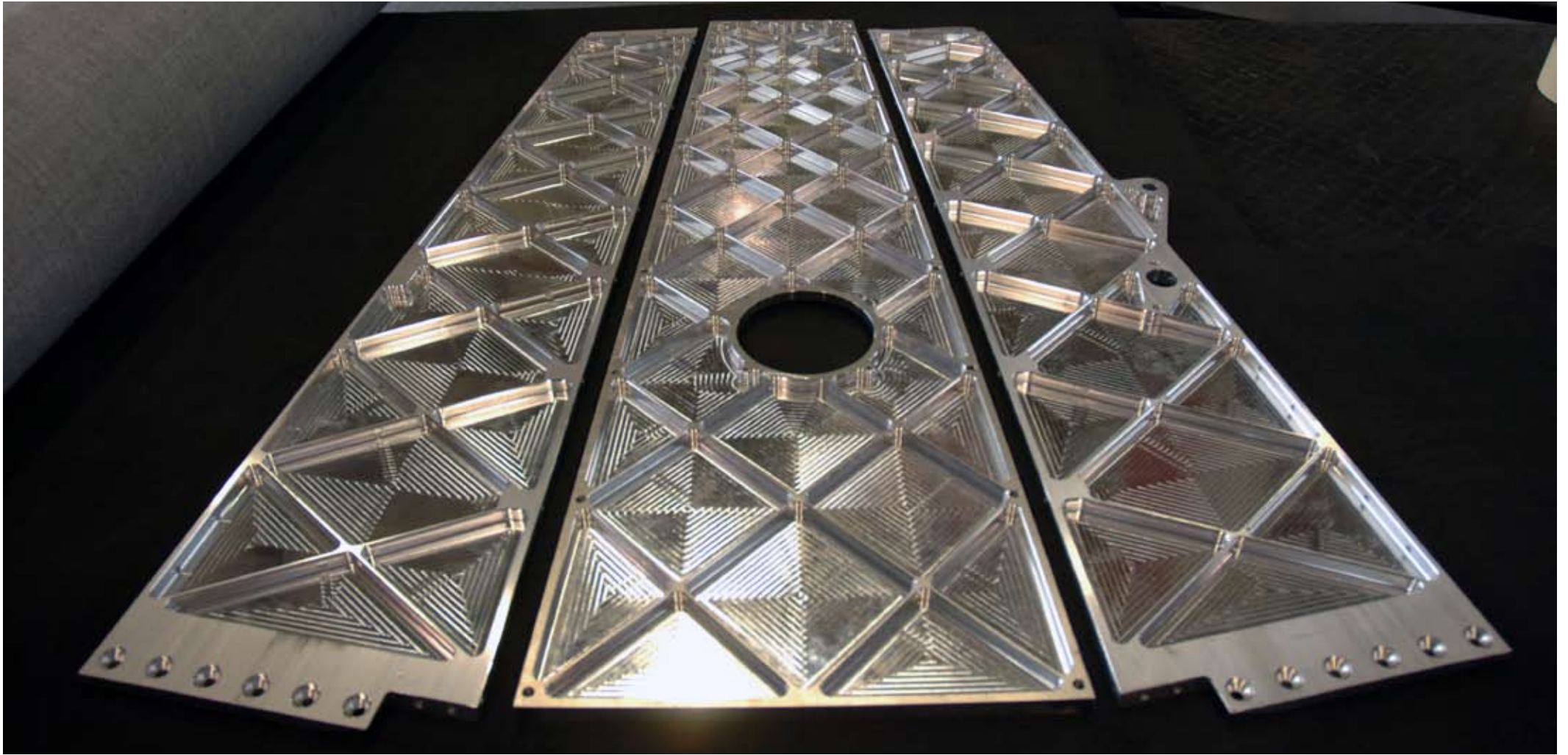
TUNNEL

One man's "magic" is another man's engineering.

Robert Heinlein

The transmission tunnel is a critical structure affecting the stiffness of the chassis. The tunnel must resist twisting and bending of the chassis. The chassis has to transfer the load from the rear suspension (which moves the car forward) to the front suspension (which steers the car) and vice versa.

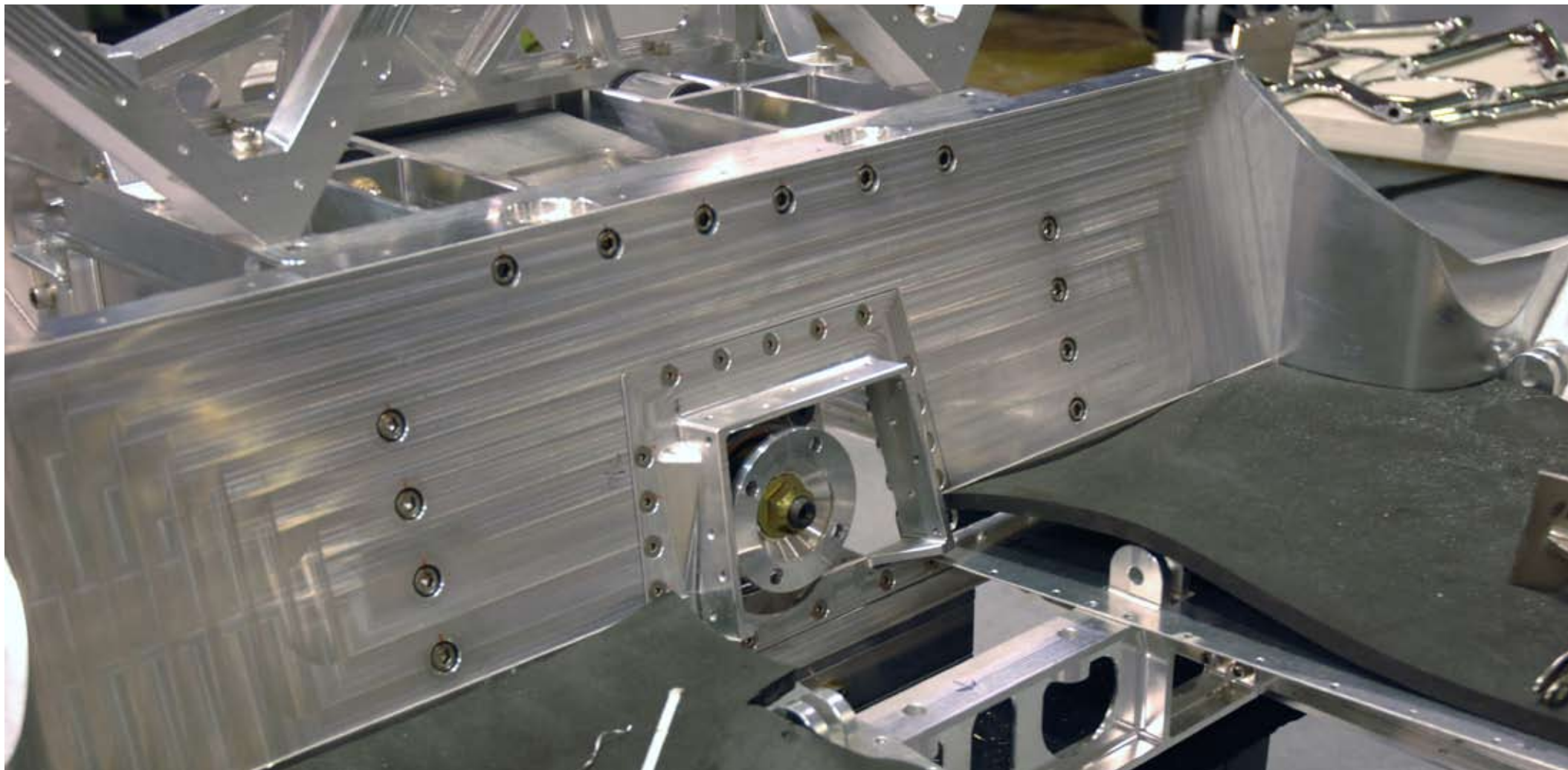
We made the tunnel from 1/2 inch plate to be stiff enough to carry the loads from the rear bulkhead to the footboxes. We hollowed out the inside of the tunnel to remove weight. Finally, the outer surface “sheet metal” of the tunnel was milled directly into the part to make it as light—and stiff—as possible.



Inside of the tunnel showing the machined pockets to reduce weight.

Every pocket on the inside of the tunnel was filled with individually cut out Aerogel-impregnated insulation. Aerogel is an amazing insulator.

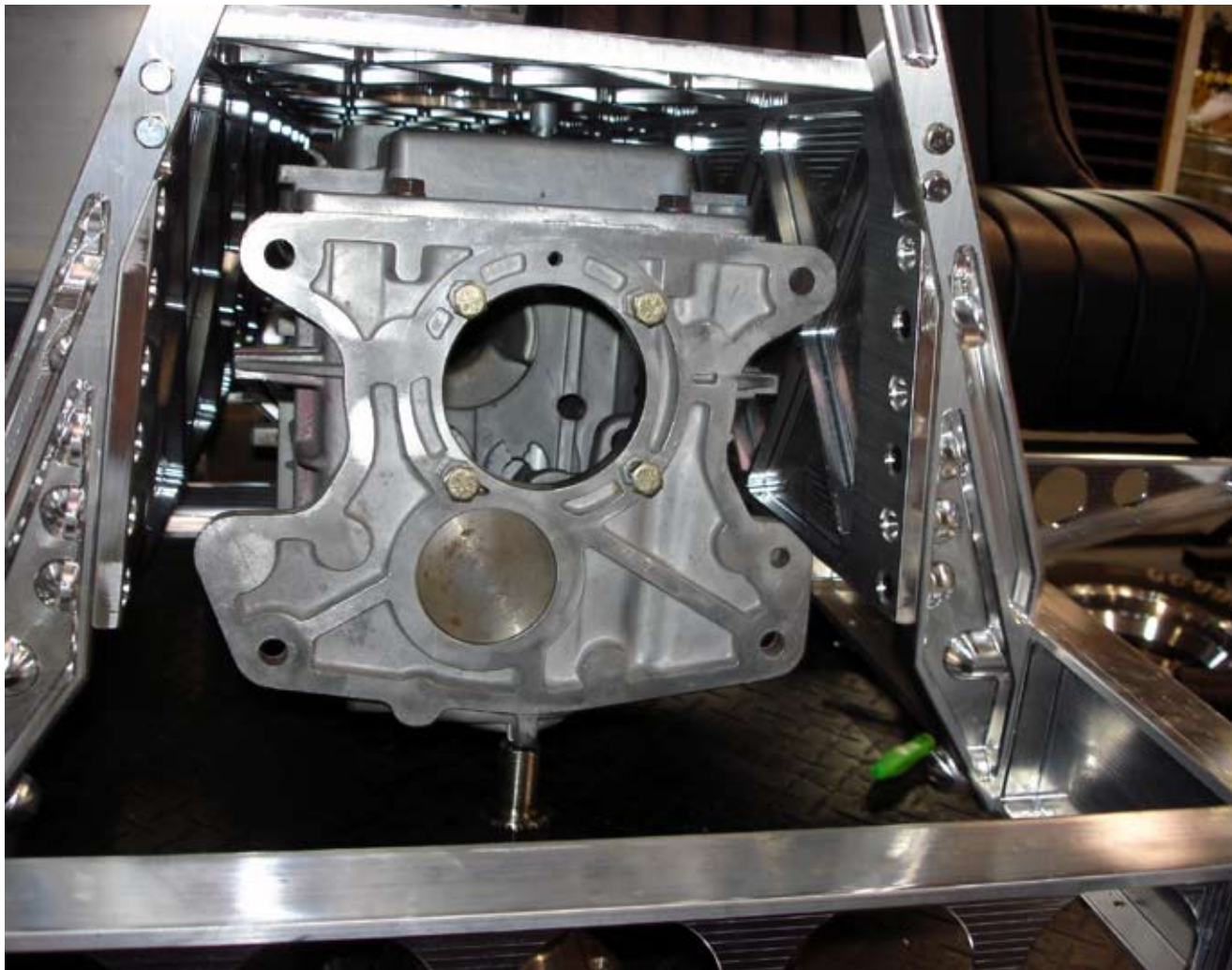




Above: You can see the special plate we machined to attach the tunnel to the rear bulkhead. You can see the round pinion flange of the differential peeking out. The pinion flange is noticeably shifted to one side because the pinion is offset on the differential. All the stainless bolts are countersunk for a nice, clean appearance. Also, notice all the holes in the floor pan. The tunnel bolts to the floor pan to dramatically increase the stiffness of the chassis.



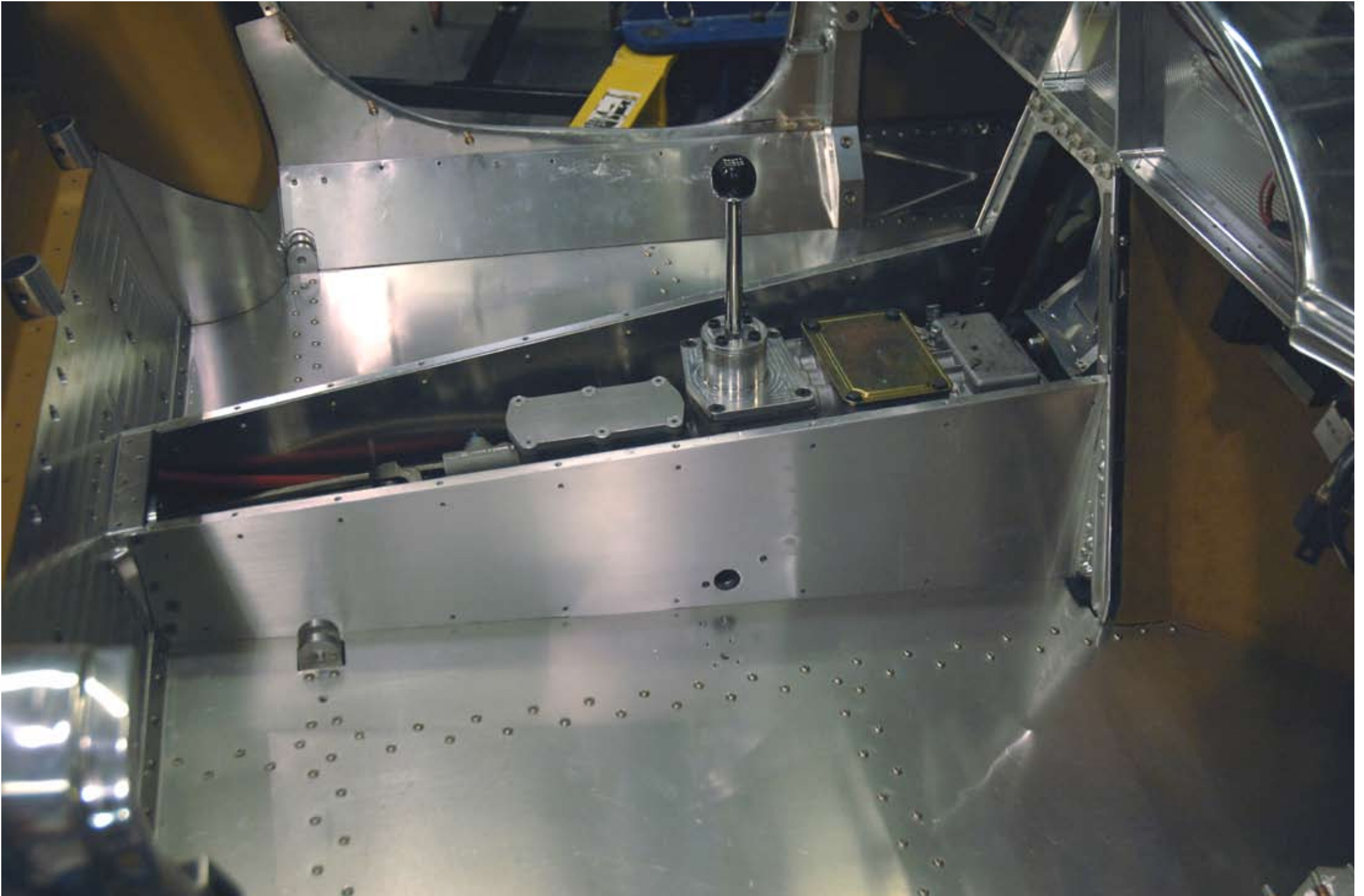
Left: All bolts in the interior were either counter sunk or had a rounded head. The tunnel was not orthogonal to the chassis so all the tunnel parts required multiple setups and fixtures to get the bolt holes at the right angles.



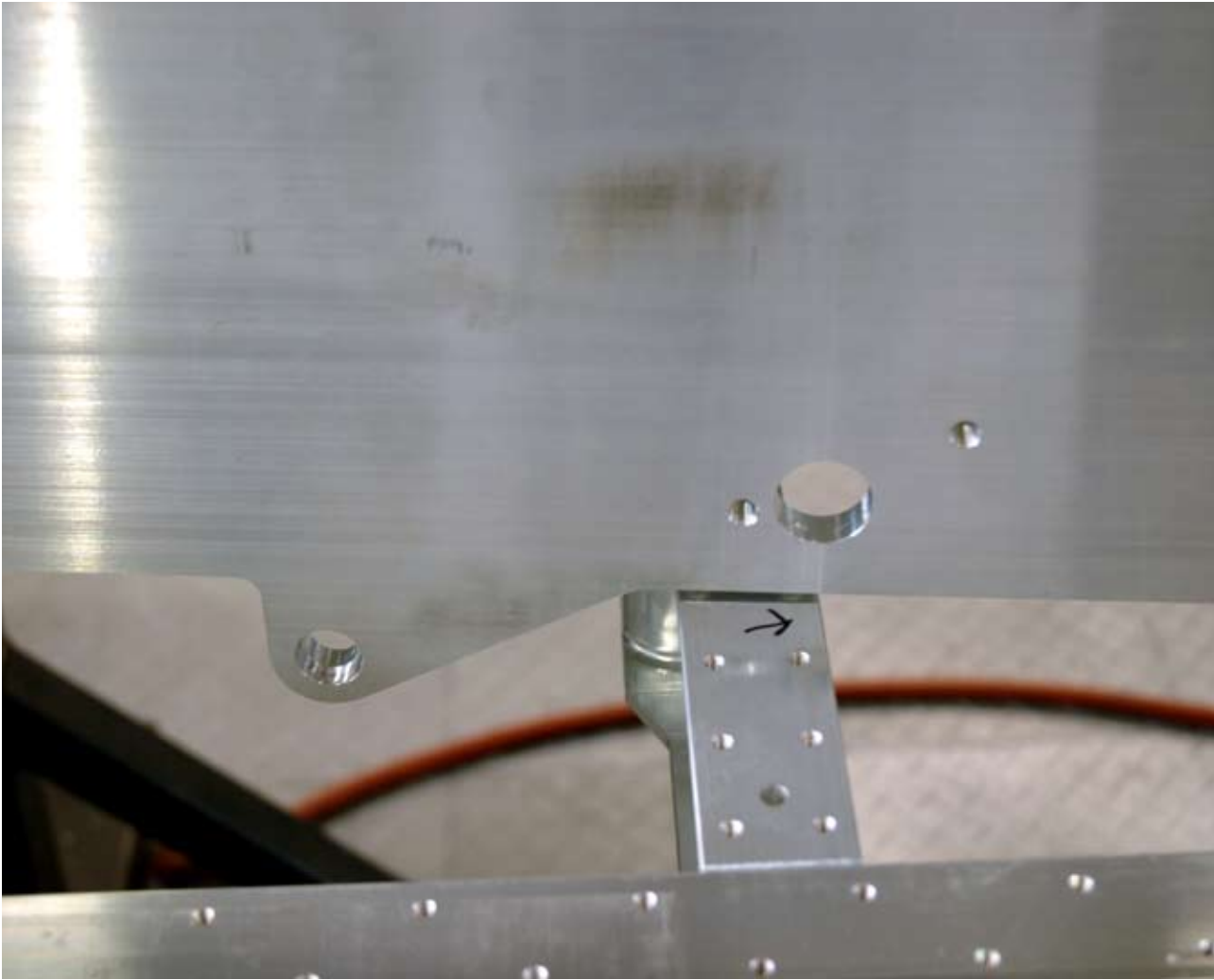
To make the tunnel look right (and not intrude on the driver) we inclined the sides inboard. We had to design braces to carry the load from the tunnel to the footboxes. We made the tunnel fit as tightly as possible around the transmission to give the interior as much room as possible.

Below: The rear of the tunnel bolts directly to the rear bulkhead.





It is critical to connect the rear bulkhead to the footboxes to make the structure as stiff as possible. On the inside of the tunnel, we covered the Aerogel with a sheet of aluminum.



The small gap between the tunnel and the main chassis is supposed to be there. The floor pans have not been installed yet. Notice that the emergency brake mounting structure was machined directly into the tunnel plate so we could save weight.

Below: The drive shaft is extremely short in the car because the engine was moved back by 6 inches so we could enhance the weight distribution of the chassis. Also, notice the billet drive shaft safety loop surrounding the drive shaft.

