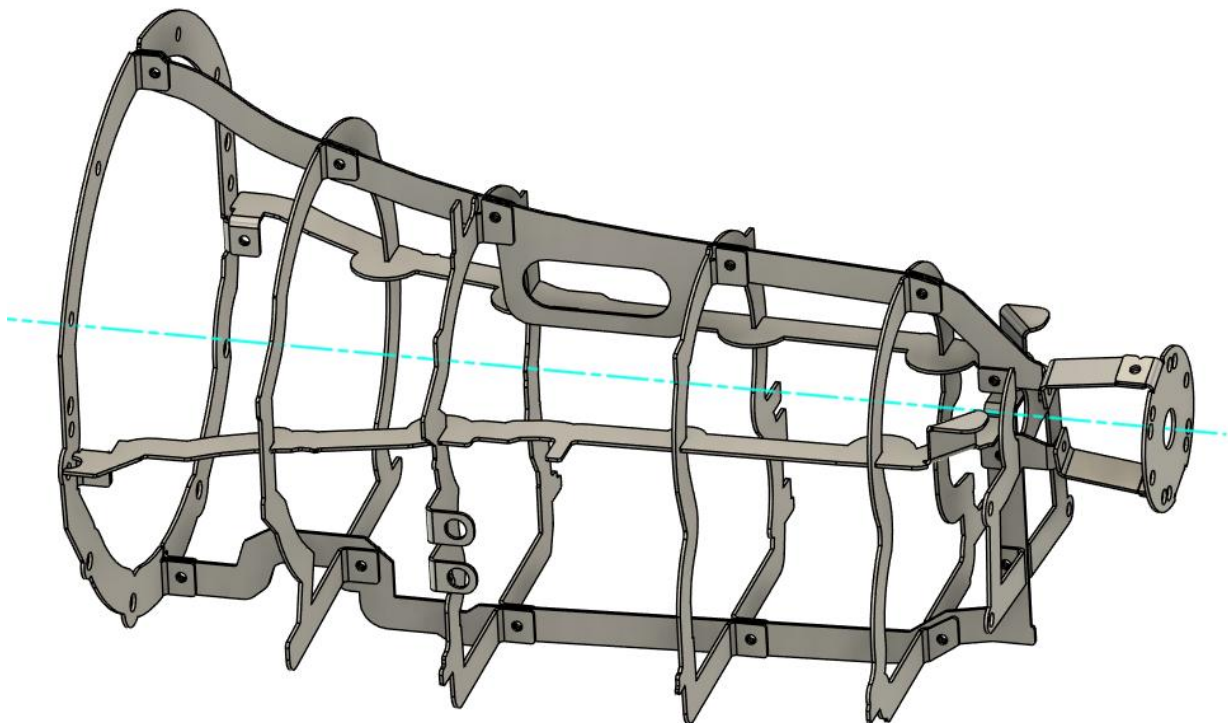




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USCT7M2096

US Car Tool ZF-8HP90 Transmission Mock-Up Skeleton Assembly Instructions



Layout parts before you begin assembly.

The US Car Tool ZF-8HP90 Transmission Mock-Up Skeleton is made up of 20 aluminum parts and is shipped in a knocked down state to save on shipping cost. Each part is laser etched so it can be identified and assembled in the proper location. You will assemble the parts using ¼-20 fasteners to create a Mockup Skeleton to be used to confirm fitment and clearance in your car before installing the actual ZF-HP90 Transmission. When you are finished with the Mockup, you can disassemble the Mockup Transmission and store it away for future use.

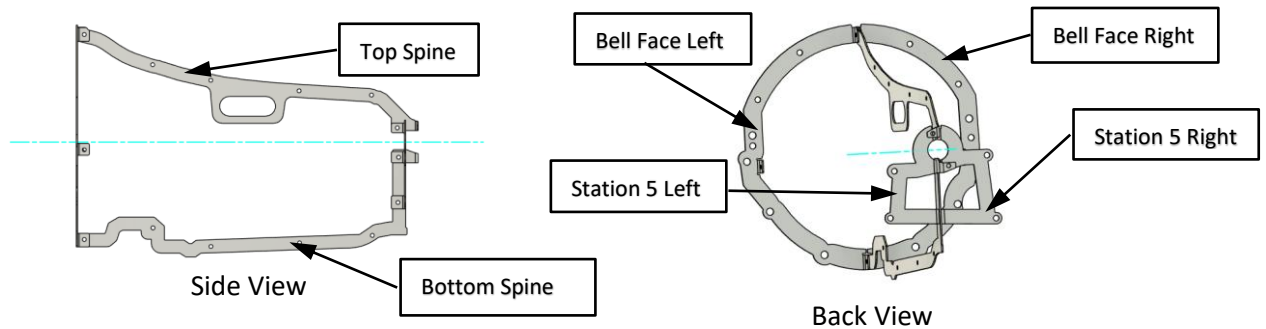
All parts that call out Left or Right refer to the side of the car the Mockup Transmission will be in. Left refers to the Drivers side of the car. Right refers to the Passenger side of the car. Front is towards the Engine and Back is the rear of the car.

Part name	Qty
USCT7M2096 Bell Face Left	1
USCT7M2096 Bell Face Right	1
USCT7M2096 Station 1 Left	1
USCT7M2096 Station 1 Right	1
USCT7M2096 Station 2 Left	1
USCT7M2096 Station 2 Right	1
USCT7M2096 Station 3 Left	1
USCT7M2096 Station 3 Right	1
USCT7M2096 Station 4 Left	1
USCT7M2096 Station 4 Right	1
USCT7M2096 Station 5 Left	1
USCT7M2096 Station 5 Right	1
USCT7M2096 Top Spine	1
USCT7M2096 Bottom Spine	1
USCT7M2096 Left Spine	1
USCT7M2096 Right Spine	1
USCT7M2096 Yoke Face	1
USCT7M2096 Yoke Arm	2
¼-20 Cap Screw, 5/8" long	18
¼-20 Cap Screw, 1" long	1
¼-20 Nut	19

Assembling the Mockup Transmission

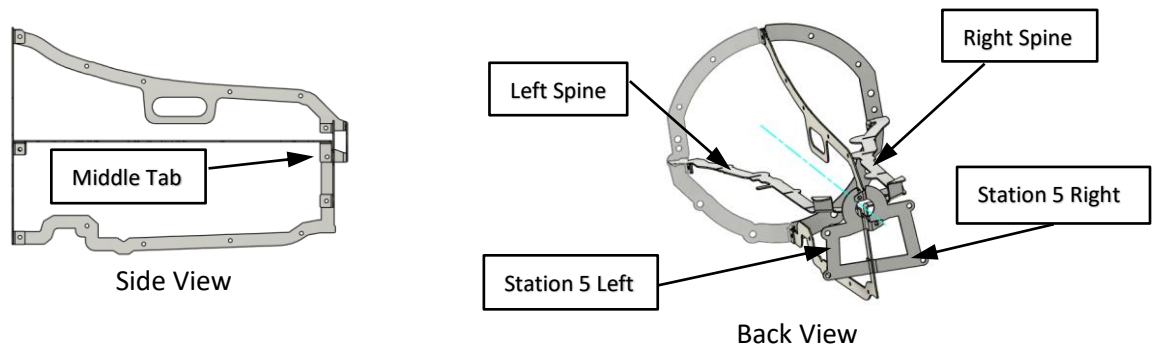
1. Place the Left and Right Bell housing face parts on a table, tabs facing upwards.
2. Attach the front of the Top spine and the front of the Bottom spine to the Bell Face's. The top and bottom spine go in between the bell face halves and are attached using a 5/8" long 1/4-20 cap screw and 1/4-20 nut through the hole in the tab. Make all hardware finger tight until the entire Mockup is assembled.
3. Attach the Station 5 left and right parts at the rear of the Mockup. There are 3 tabs with holes, use the top tab and the bottom tab to attach the Station 5 parts to the top and bottom spines. Do not use the center mounting hole on Station 5 parts yet, you will use it on the next step to attach the left and right spines.

Tip: The handle on the Top Spine is towards the inside of the Transmission.

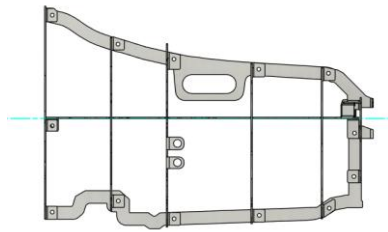


Tip: There are three tabs with mounting holes on the Station 5 ribs, use only the top and bottom tab holes at this time to attach to the Top and Bottom Spine. The Middle Tab hole will be used to attach the Left and Right Spines.

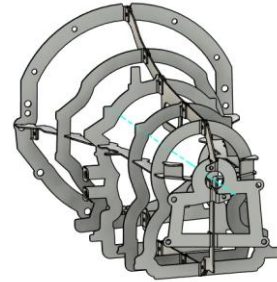
4. With the station 5 left and right installed, add the Left Spine and the Right Spine, from the Bell face at the front to the Top and Bottom Spine at the back of the Mockup. The Left and Right Spine share the middle tab on the Station 5 parts at the back of the Mockup. Use a 1" long 1/4-20 cap screw to go through all the tabs to attach the Left & Right Spines, Bottom Spine and Station 5 parts together at this Middle Tab.



- Continue adding the left and right parts of Stations 4, 3, 2 and 1, back to front. Each pair attach to the Top and Bottom Spine and slide into slots in the Left and Right Spines. Use a ¼-20 cap screw and nut at the tabs.

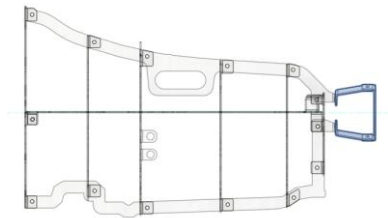


Side View

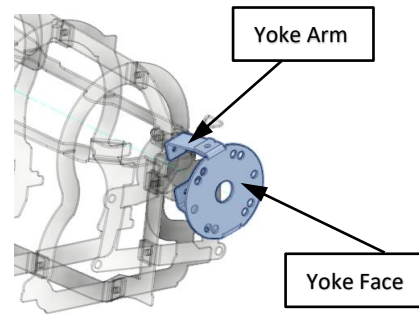


Back View

- Assemble the Yoke Face to the two Yoke Arms and then Attach the Yoke Assembly to the ends of the Top and Bottom Spines.



Side View



Back View

Tip: The Yoke is rotated slightly to align with the offset tabs of the Top and Bottom Spine.

- Tighten all the ¼-20 fasteners on the Mockup Transmission, lubricate each fastener with a drop of oil and then tighten to 4 lb/ft. This is not very tight, so do not overdo it or you may strip the threads off a fastener.

Using the Mockup Transmission

The USCT7M2096 Mockup ZF-HP90 Transmission is made of 5052 Alloy Aluminum and will last a lifetime with minimal care. Aluminum is not as strong as steel and can be bent by hand or by dropping the mockup, so use care when moving the Mockup Transmission into position. If you accidentally bend one of the Aluminum parts, it can be carefully unbent without any adverse effect. In an extreme case where a part is cracked or broken, we have replacement parts available.

The Mockup Transmission bolts to a Gen3 Hemi Block Bellhousing using 3/8-16 fasteners and is used to confirm you have enough clearance in the transmission tunnel for the your ZF-HP90 Transmission. We have included many of the protrusions and contact points from the transmission, but as with any mockup, if clearance is very tight, do a final mockup with the actual transmission to confirm final fit.

Station 2 has a tab that sticks upwards, this is the location of the factory vent on the ZF-HP90. Some customers relocate the vent as it can be in the way. If you plan to relocate your vent, you can trim the tab using a hacksaw or a coping saw – the Aluminum is easy to cut.

Station 5 has the OEM mounting bolt pattern and can be used during your transmission mount mockup. We suggest any mount fabrication work is done with tack welds and final welding not done until after a final check with the actual transmission.

You can use the Mockup Transmission to confirm your Driveline angles (transmission shaft/crankshaft centerline) and Driveshaft U-Joint working angles. Factory Gen3 Hemi cars used a 2 degree downward driveline angle, yours may vary depending on the motor mounts and transmission mounts you are installing or fabricating. Assuming you are using a Live Axle setup (IRS setups are quite different) Rear end Pinion centerline should be parallel to the Driveline angle and U-joint working angles from a minimum of 1 degree to a max of 3 degree's to minimize the chance of vibration.

Attempt to keep the working angles at each U-joint within 1 degree of each other. Rear end pinion angle will be set depending on your rear suspension, 4 link suspensions may have 1 degree of downward pinion angle, factory leaf Spring suspensions may require 6-7 degree of downward pinion angle.

Questions or comments?

Call your dealer or call us – we'll help!

US Car Tool
www.uscartool.com
919-855-8200