

# Complete LT Swap Guide

## by ICT Billet LLC



For questions or to locate parts & accessories for your swap,  
please call 316-300-0833 or visit our website at  
[www.ictbillet.com](http://www.ictbillet.com)

# *Welcome to the LT Swap Guide presented by ICT Billet LLC*

Below we will be touching on some of the key parts in your LT swap to give you a better understanding of how the different components all come together. At ICT Billet, we carry everything from LS swap mounts to adapters and wiring.

## **What we'll cover in this guide:**

### ACCESSORIES

- Crank Pulley (Harmonic Balancer)
- Water Pump
- Alternator

### ENGINE

- Intake Ports
- Throttle Body
- Supercharger
- Oil Pan

If you don't find the answer to your question in this guide, please contact us at 316-300-0833 or visit our website at [www.ictbillet.com](http://www.ictbillet.com)

# LT Crank Pulley (Harmonic Balancer)

*At ICT Billet, we design our brackets based off of three basic spacing principles*

One of the most important steps of your swap is to identify the "spacing" needed. This "spacing" is determined by the crank pulley that you have, or will be getting.

## **Our spacing principles are as follows:**

- (-1) Corvette C7 LT1 crank pulleys are in this category. *(See image on following page for measurements)*
- (-2) Camaro SS LT1 crank pulleys are in this category. *(See image on following page for measurements)*
- (-3) All Truck / SUV crank pulleys are in this category. *(See image on following page for measurements)*

## **What does this mean for your swap project?**

All of our systems function around this spacing concept to ensure the kit is a direct bolt up to your application for proper functionality.

We categorize our parts by a 6 digit part # with a (-) at the end. Depending on which application the bracket was designed for would determine the last digit.

A noticeable visible difference between the two are the amount of holes there are in the face of the pulley, the Corvette LT1 has many holes, the Camaro LT1 has only 2 holes, and the Truck/SUV pulley has no holes.

# LT Harmonic Balancer Pulley Guide

**-1 Spacing**  
Corvette C7 LT1

**-2 Spacing**  
Camaro SS LT1

**-3 Spacing**  
Truck/SUV  
L82, L83, L84, L86, L87, L88

Face of Block



# LT Water Pump

*Our three basic spacing principles for crank pulleys applies to water pumps as well.*

You can **NOT** use any water pump on any LT based engine. Yes they will bolt up, but spacing is very important, just the same as pulley size, ect. However there is more adaptation for the water pumps with our water pump spacers.

For example: You can use a (-2) spacing SS water pump on a (-3) Truck/SUV engine.

## **What does this mean for your swap project?**

The ability to use different style water pumps will allow the build to be more universal. Most swaps are done to be as cost effective as possible.

Instead of buying a brand new water pump for your spacing, you can use our water pump spacers to make the one you have work! Make sure to keep in mind where the heater hose will run into the water pump when deciding on what water pump to use, what intake manifold, which ICT Billet bracket to use, etc.

It's important to note that the L82/L84/L87 water pumps are designed completely different then everything else. The LT1/LT4/L83/L86 all have water pumps with pulleys that are off center. The L82/L84/L87 water pump returns the pulley back closer to center of the accessory drive like the LS style water pumps.

# LT Gen V Water Pump Guide

## -1 Spacing

**LT1/LT4/LT5 Corvette**  
GM# 12685731



## -2 Spacing

**LT1/LT4 Camaro, GTS-V**  
GM# 12685733

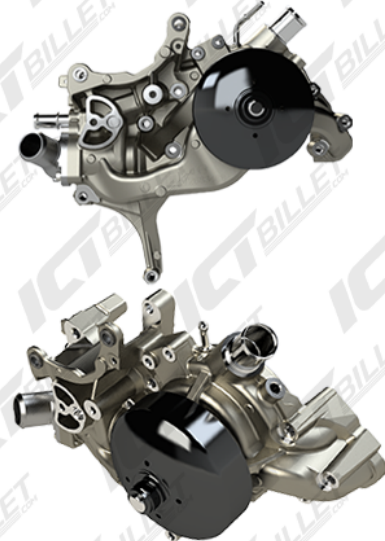


## -3 Spacing

**L83/L86 Truck**  
GM# 12681258



**L82/L84/L87 Truck**  
GM# 12687631



# LT Alternator

The alternators on LT based engines offer a very high output compared to LS based alternators. The LT truck alternator is actually the same size as the LS truck alternator and can be used with ICT Billet brackets designed for LS applications. The outputs vary from 150 amp (L82/L83/L84/L86/L87) to the Camaro and CTS-V's (LT1/LT4) whopping 215 amp.

## **What does this mean for your swap project?**

The LT engine alternators offer a bigger selection of amperage needs for your build. If you have a simple set up that does not have a lot of electrical components, that's perfect. If you have a set up that has a ton of electronics or a wall of subwoofers, these alternators should provide you plenty of juice. Check them out and integrate them into your build!

# LT Alternator Guide

## L82/L83/L84/L86/L87

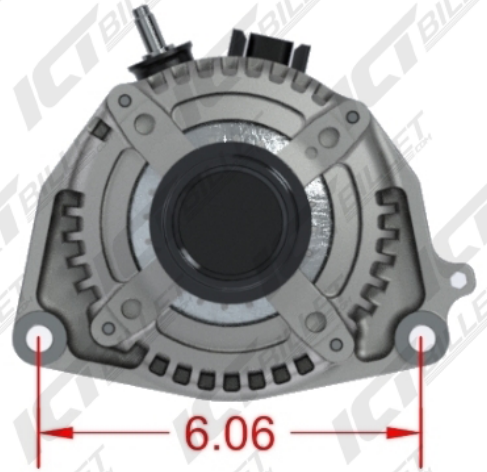
GM# 84143543 (150 amp)  
GM# 84143540 (170 amp)

## LT1/LT4 Camaro And CTS-V

GM# 84332808 (170 amp)  
GM# 84347903 (215 amp)

## LT1/LT4/LT5 Corvette

GM# 84331091 (150 amp)





# LT Intake Port

There isn't a lot of difference when it comes to the heads on the Gen V engines, but perhaps the most noticeable difference would be where the bolt holes are for the intake manifold.

The non-supercharged LT1, L82, L83, L84, L86, and L8B have a "mid bolt" location, meaning the bolt holes for the intake are at about the middle of the intake port on the heads.

The supercharged LT4 and LT5 have raised bolt holes. These holes are located above the intake port on the head and are what the blowers will bolt into.

## **What does this mean for your swap project?**

You must be careful when purchasing the engine you need for your swap. There are many similarities of the Gen V engines in comparison to one another, but it's subtle details like this that can throw your entire build off.

When fitting an LT4 to a non-LT4 head, there are a few steps to take to get you ahead of the game. At ICT Billet, we have designed an adapter for two ways. The first is to allow you to bolt an LT4 blower to a non-LT4 head. What that means is you can mount the LT4/LT5 blower to your Gen V truck engine!

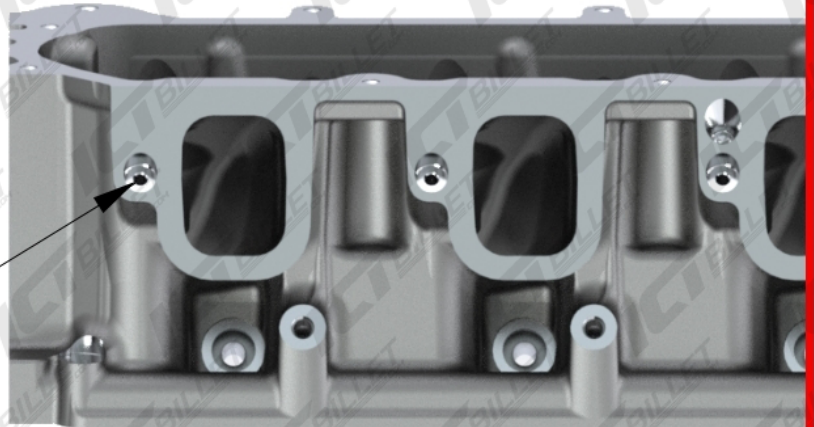
The next adapter we made was the opposite. It allows you to convert from an LT4 head to a non-supercharged setup. That means you can put a regular car intake on your LT4 engine. This setup is mainly used in other forced induction applications where an intake mounted blower will not work.

# LT Engine Intake Port Guide

## **MID BOLT**

**LT1, L82, L83, L84, L86, L87, L8B**

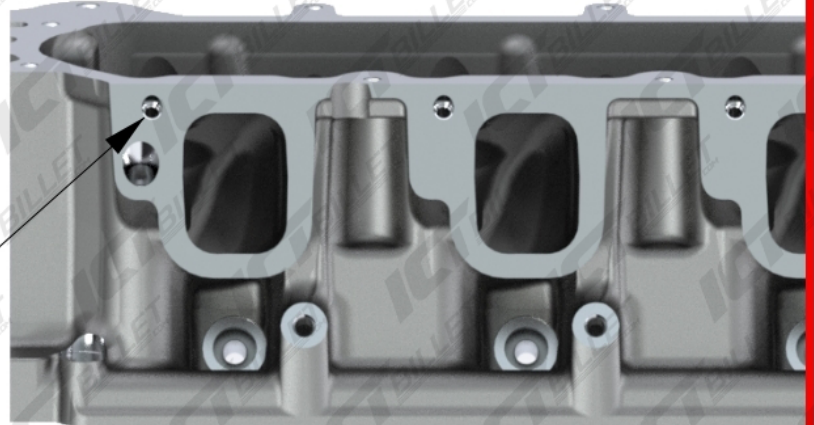
**BOLT HOLES  
CENTER OF PORT**



## **RAISED BOLT**

**LT4, LT5**

**BOLT HOLES TOWARDS  
TOP OF PORT**



# LT Throttle Body

General Motors really outdid themselves with the throttle bodies on the new Gen V engines. There is a wide variety and variation to select from. We have 5 different options ranging from a 72mm to a 95mm bore. They have different dimensions as well.

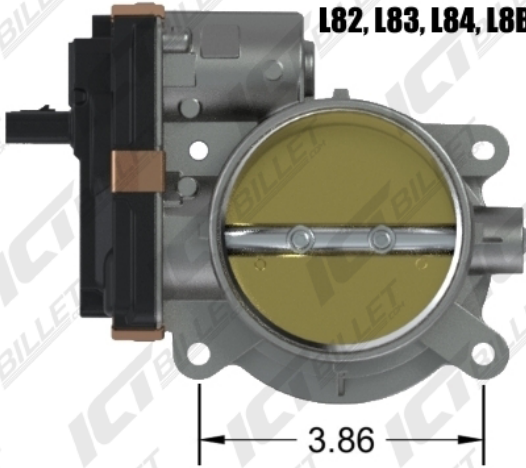
The location of the throttle position sensor varies as well. Some are on the left, some on the right. Depending on which engine you have will determine the type of throttle body and orientation you need. Refer to the image on the next page for the exact measurements of the throttle body assembly and to see what throttle body you need.

## **What does this mean for your swap project?**

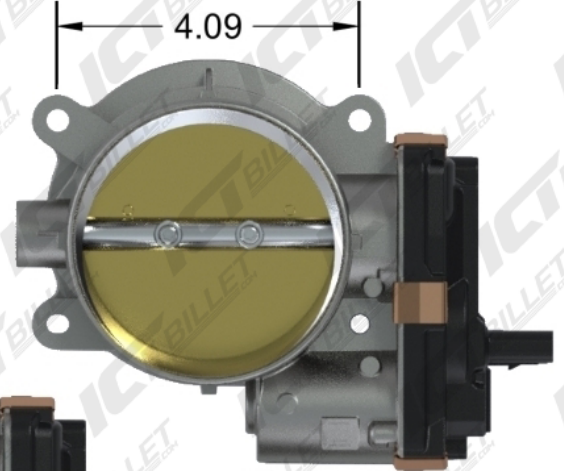
When purchasing the engine, intake, and harness that you want for your swap, you will need to keep in mind the throttle body that will go with that intake. Be mindful of the size of the opening and also the diameter of the holes. Where the throttle position sensor would plug in is also a key factor. You would hate to get everything installed and find out the harness will not reach and that you then need a wire harness extension. At ICT Billet, we make adapters, extensions, throttle body rotation adapters, you name it. We can help ease the pain of finding the throttle body for your needs.

# LT Throttle Body Guide

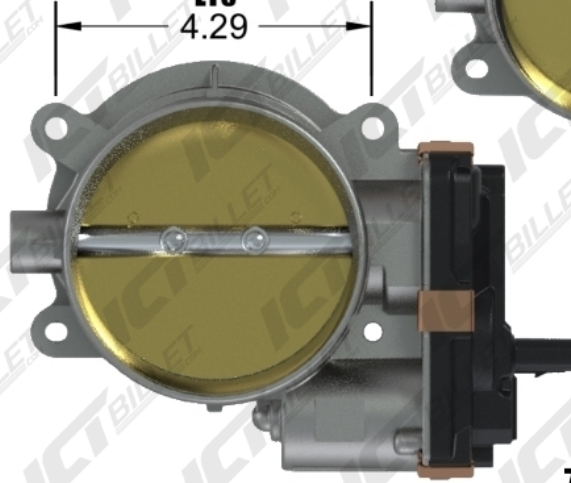
**80MM THROTTLE BODY**  
**L82, L83, L84, L8B**



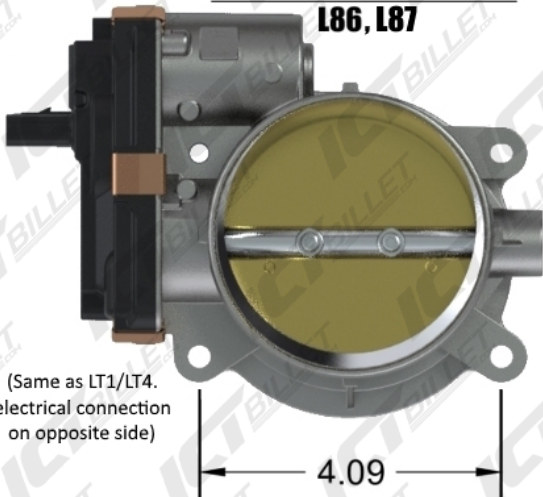
**87MM THROTTLE BODY**  
**LT1, LT4**



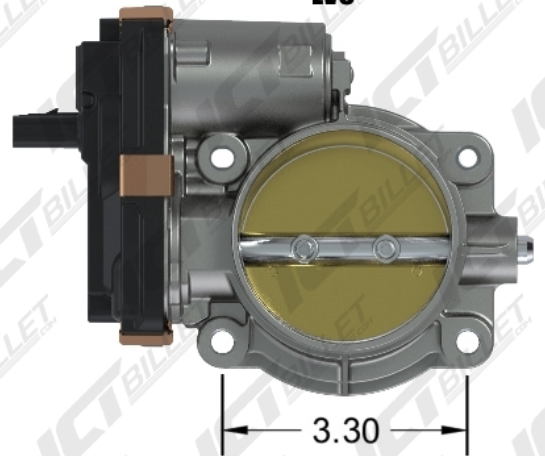
**95MM THROTTLE BODY**  
**LT5**



**87MM THROTTLE BODY**  
**L86, L87**



**72MM THROTTLE BODY**  
**LV3**



# Supercharger

The exciting part of any swap is deciding how you are going to power it. Either keep it naturally aspirated, or nitrous, or forced induction. The ideas will constantly be tossed around your mind until you settle on one.

If you decide to go with forced induction, it's easier than ever with LT4 blowers. The LT4 blower is a 1.7L intake mounted supercharger that comes factory on the Z06 Corvette, ZL1 Camaro, and Cadillac CTS-V. We've made a way to mount these LT4 blowers onto your LT truck engine. The difference is the mounting locations on your heads from the non-supercharged truck block to the LT4 blower.

The LT4 off of the Camaro and Cadillac are preferable because they have the proper spacing needed to introduce your blower into the serpentine drive system. The snout on the Corvette blower is recessed.

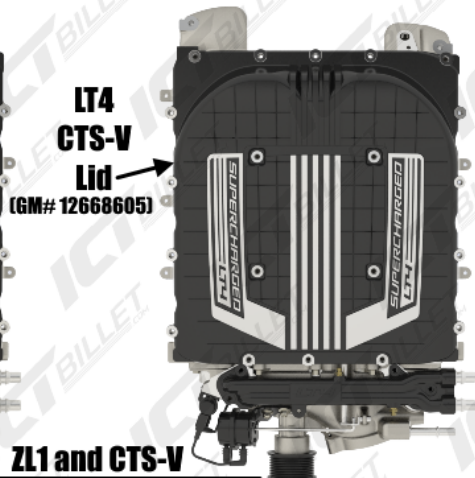
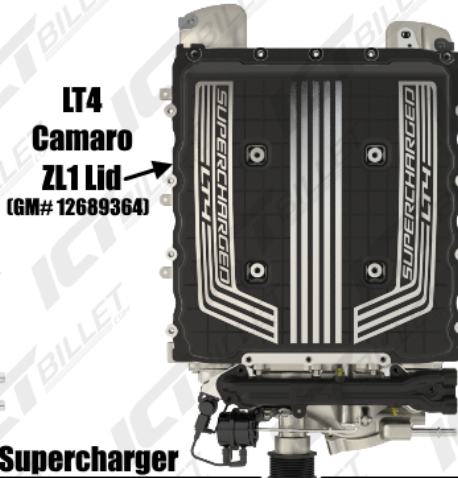
At ICT Billet, we also have accessory drives that will include the idlers to make sure everything stays tight. Please refer to the image on the next page for more information and specifications on LT4 and LT5 blowers.

# LT4 Supercharger Guide

## Corvette Z06

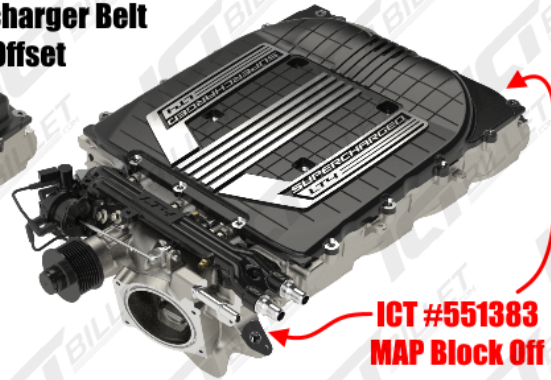
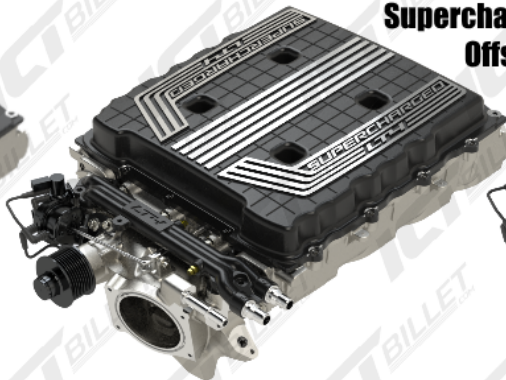
## LT4 (1.7L) Camaro ZL1

## CTS-V



**Z06 Supercharger Belt is Offset Back**

**ZL1 and CTS-V Have the Same Supercharger Belt Offset**



**Z06 Uses a Different Crank Pulley**  
8-Rib Supercharger Belt  
6-Rib Alternator, A/C Compressor, and Water Pump Belt

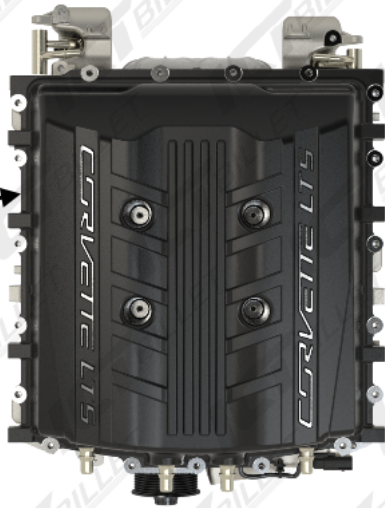


**ZL1 and CTS-V Use the Same Crank Pulley**  
8-Rib Supercharger Belt  
6-Rib Alternator, and Water Pump Belt  
4-Rib A/C Compressor Belt

# LT Supercharger Guide

**LT5 (2.65L)  
Corvette ZR1**

**LT5  
Corvette  
ZR1 Lid**  
(GM# 12685979)



**LT5  
Corvette ZR1  
Supercharger**  
(GM# 12688671)



**11-Rib Supercharger Belt  
6-Rib Alternator, A/C Compressor,  
and Water Pump Belt**



**LT5  
Corvette ZR1  
Crank Pulley**  
(GM# 12682015)



# LT Oil Pan

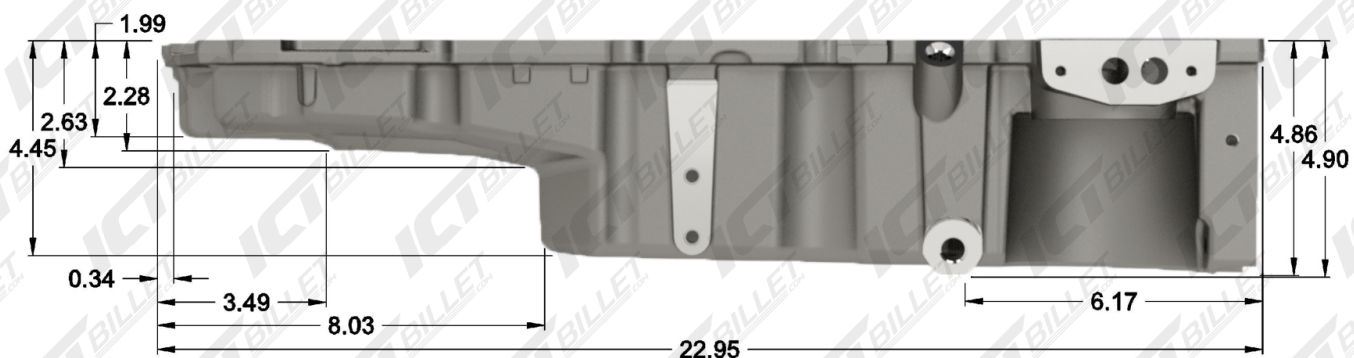
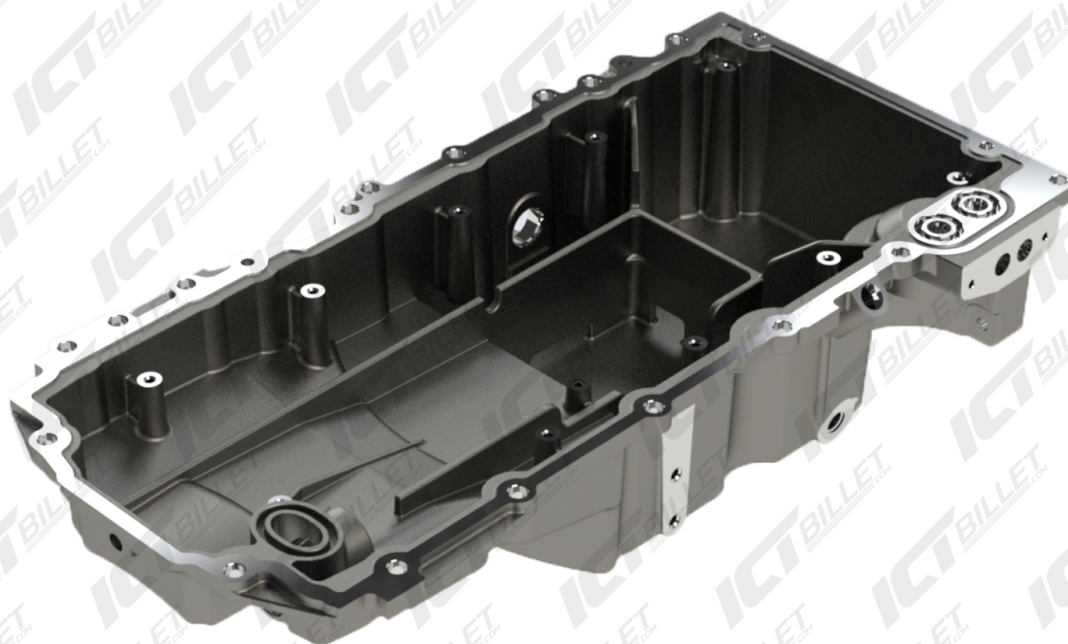
The oil pan will be one of the most difficult pieces to spec for your build. There is no great way to have a universal one-size-fits-all oil pan. With the number of vehicles receiving these LT swaps growing, the dimensions of the engine compartment are constantly changing.

On the oil pan guide on the following page, we have laid out the dimensions of the oil pans commonly used. Hopefully this information will prove beneficial to you during your swap.

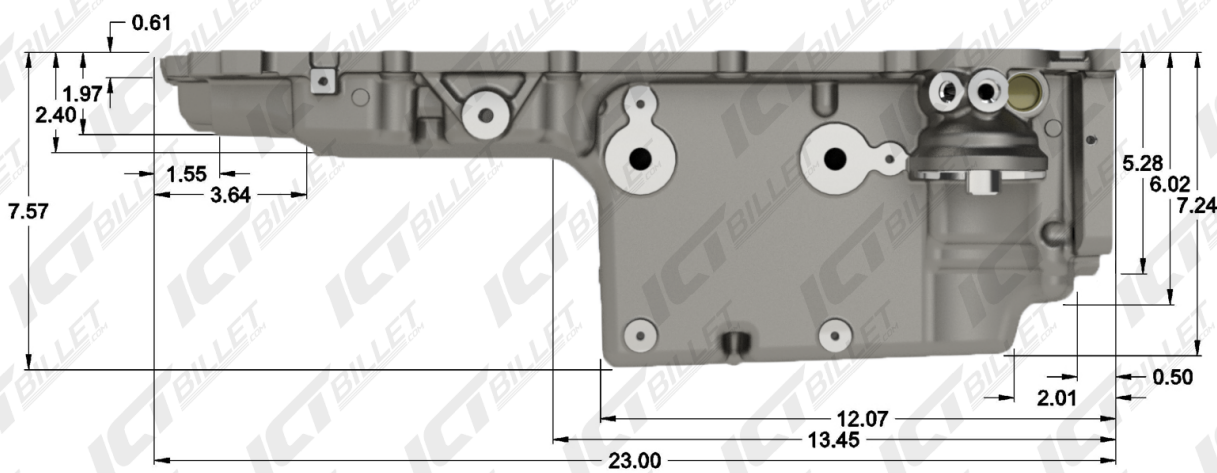
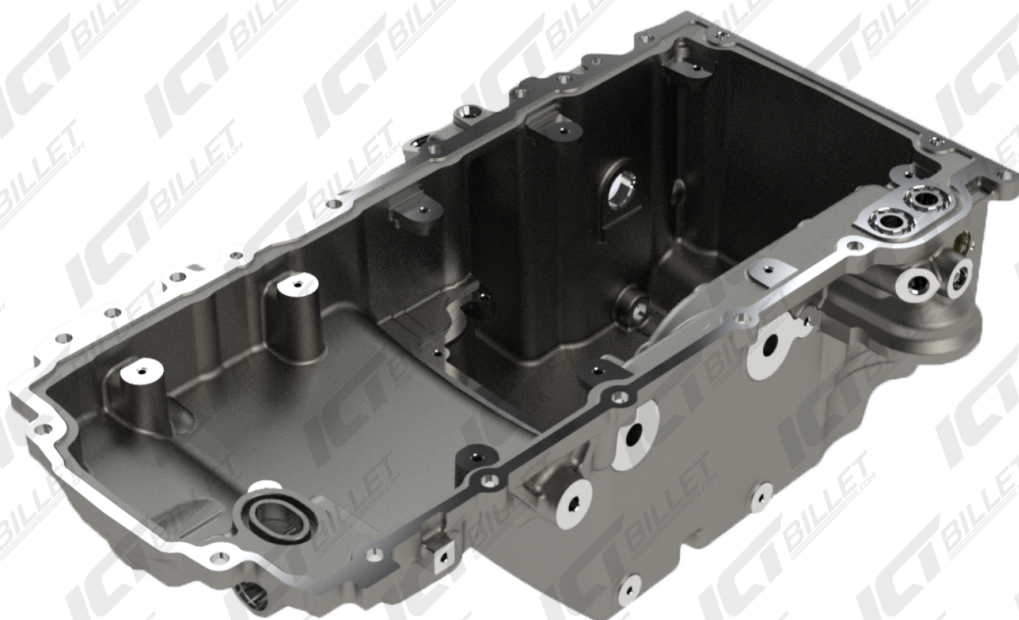
Take these measurements and make a game plan on which of these oil pans will work for you. At ICT Billet, we want your LT swap to be as painless as possible.



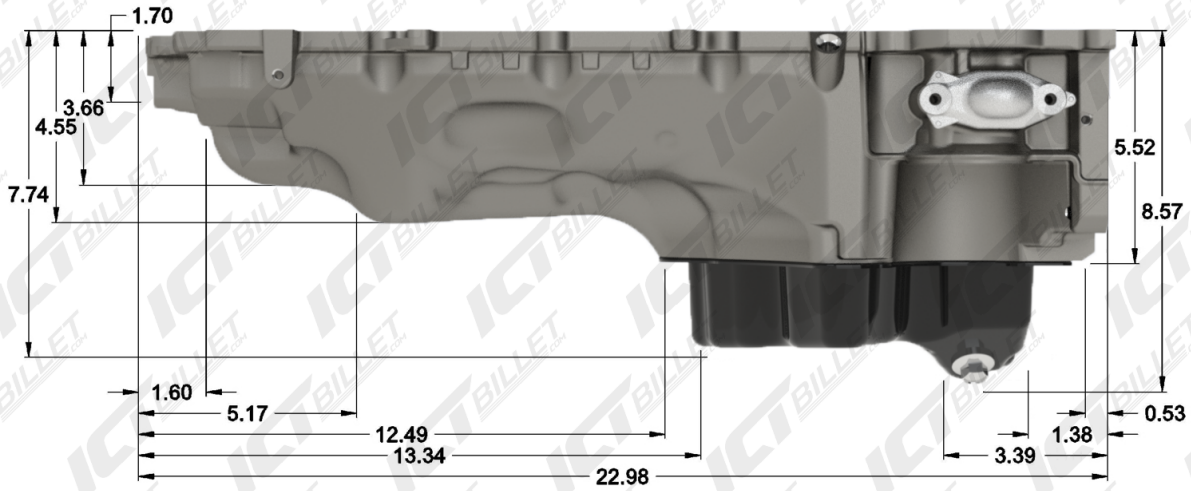
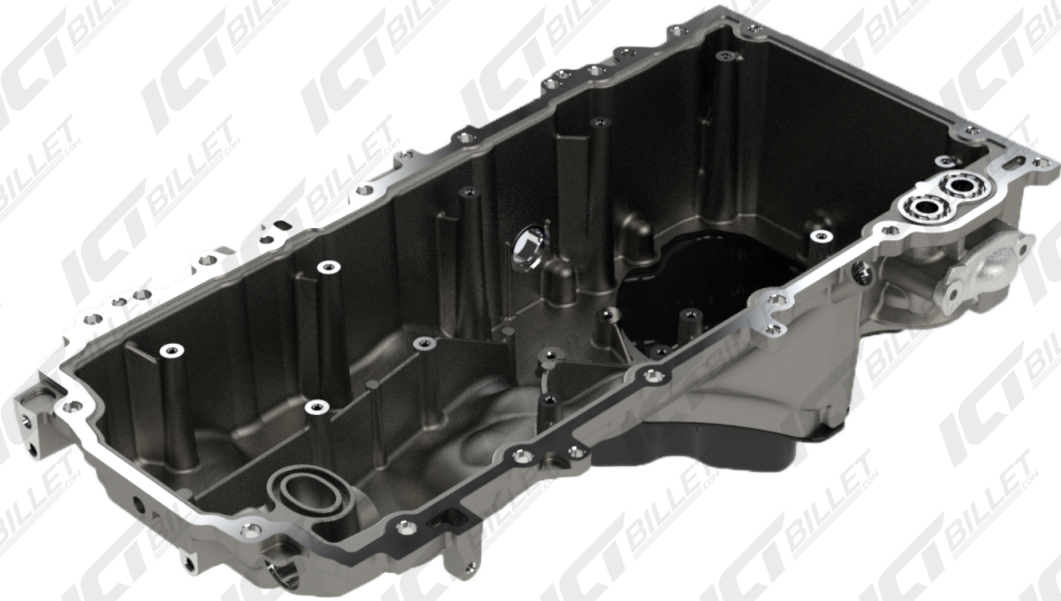
# Corvette C7 LT1



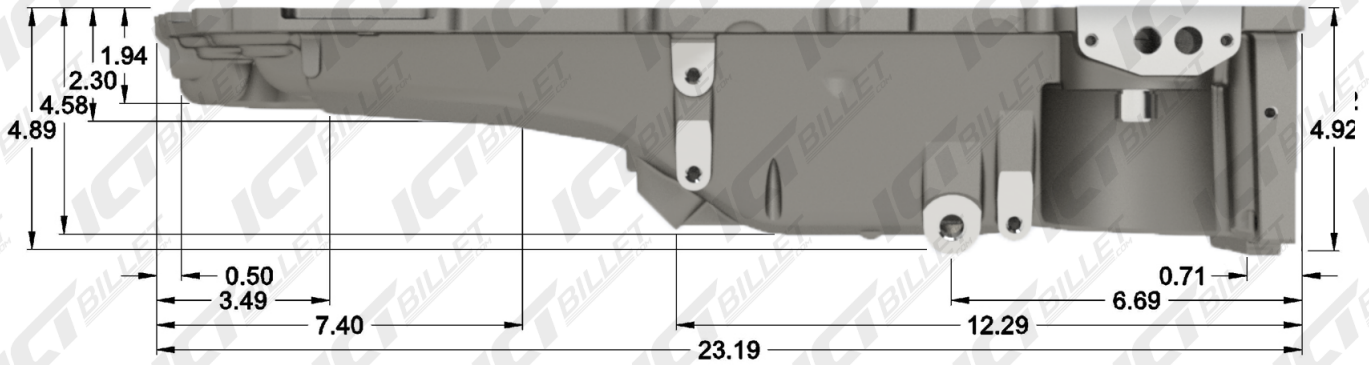
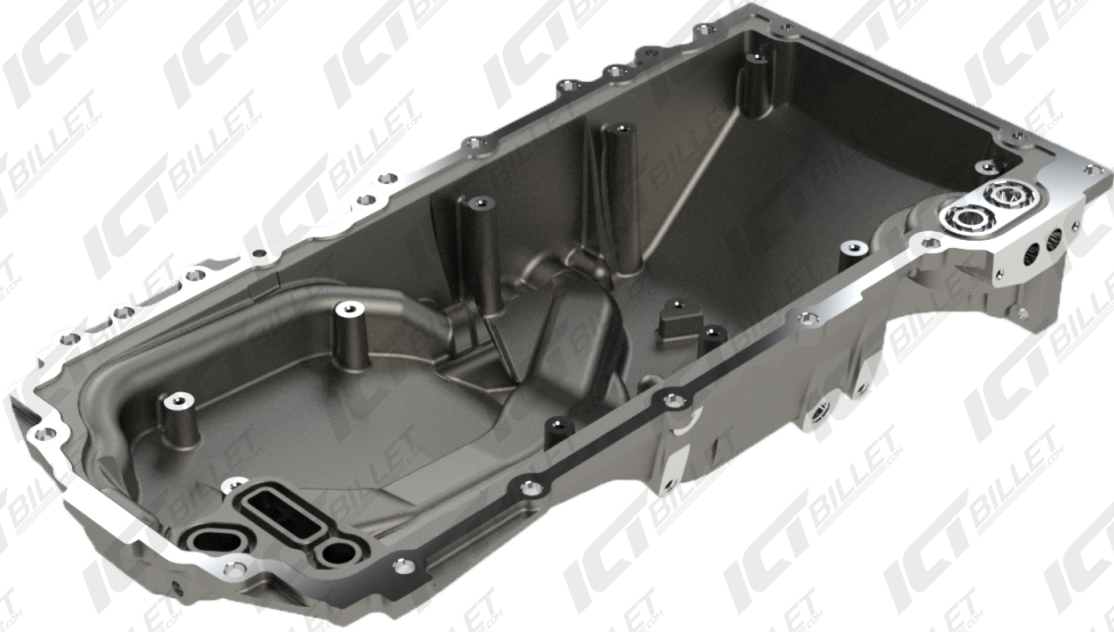
# Camaro SS LT1



**Truck/SUV L83, L86**



**Corvette Z06/ZR1, Camaro Z11, CTS-V LT4, LT5**



**Truck/SUV L82, L84, L87**

