

## LSX Concepts

### LSA Gilmer Drive High Mount Accessory Drive System (ALT,PS)

- **Install – Alternator/Power Steering Kit as per Instructions**

Alternator

Connect to your harness as per your wiring harness instructions

Power Steering Pump

Connect to your gear box using 6AN high pressure power steering hose and fittings

Connect your remote reservoir to Pump with 10AN low pressure line

- **Install – 6 Rib main accessory drive belt**
- **Install – LSA Flex Drive as per instructions**

If you have any questions or issues installing your kit, please feel free to call us and we will be happy to sort out any issues you're having with the install

LSX Concepts - 844-579-7927





# INSTALLATION AND PROCEDURE FOR BLEEDING AIR FROM POWER STEERING SYSTEMS

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## **CAREFULLY READ THESE INSTRUCTIONS BEFORE ATTEMPTING ANY MODIFICATIONS!**

Proper bleeding of the power steering pump is the responsibility of the installer. Improper modification or installation will void your warranty and may result in vehicle damage or personal injury. If you have any installation questions, refer to your factory shop manual or call our Tech Service personnel at 216-961-1800 from 7am to 4pm EDT.

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### INSTALLING POWER STEERING PUMP

We recommend you follow Original Equipment Manufacturers Remove & Replace procedure for your specific Year, Make and Model Vehicle. Follow factory torque specifications and pressure recommendations.

### BEFORE BLEEDING

Verify that the power steering hoses do not touch any part of the vehicle and that there are no leaks or loose connections. When filling the power steering pump reservoir, use only new, name brand premium quality power steering pump fluid. Do not use transmission fluid.

### BLEEDING PROCEDURE

- 1 - Do not start the engine until the power steering system is fully bled.
- 2 - Raise the front end of the vehicle so that the front wheels are free to turn left and right.
- 3 - Turn the steering wheel fully to the left.
- 4 - Fill the power steering pump reservoir to full cold level. Leave the cap off the reservoir.
- 5 - With an assistant watching the fluid level, turn the steering wheel slowly and smoothly from lock to lock until the fluid level drops in the reservoir. Once the fluid level drops, have your assistant refill the reservoir to full cold level.
- 6 - If the fluid level does not drop in the reservoir after a few lock to lock cycles, there is still air in the system. On systems with an oil cooler, you may need to turn the steering wheel slowly and smoothly from lock to lock 20 to 40 times.
- 7 - After the reservoir fluid level drops and the reservoir is refilled, turn the steering wheel slowly and smoothly from lock to lock and verify that there are no bubbles or fluid level drops.
- 8 - Disable the engine from starting, then crank the engine for a few seconds. If the reservoir fluid drops, there is air trapped in the system. Continue above steps until the fluid in the reservoir remains constant and no air bubbles are seen.
- 9 - Lower the front wheels to the ground, start the engine and verify that the power steering fluid is at the correct level. Add fluid if necessary then reinstall reservoir cap. With the engine running, turn the steering wheel lock to lock and verify that the power steering assist is working properly, that there are no system leaks and that the reservoir is at the proper level.

### NOTE

The power steering fluid level should not rise in the reservoir when the engine is turned off. If the fluid level rises, there is still air trapped in the system. Repeat the above bleeding procedure. Bubbles in the reservoir indicate a loose hose connection, a bad O-ring or a bad hose end/flare seat. A properly working power steering system has no air bubbles.

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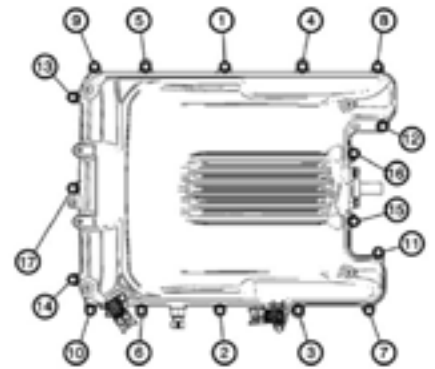
# LSX Concepts - LSA / ZL1 Supercharger Bolt Kit

[www.lsxconcepts.com](http://www.lsxconcepts.com)

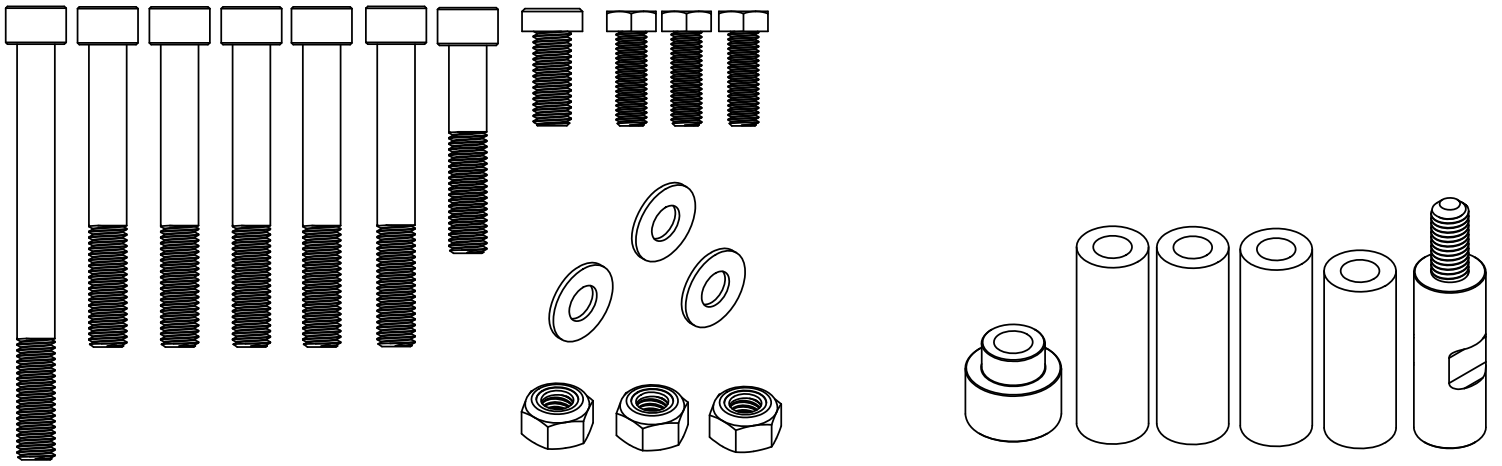
## Parts List

Qty	Desc.
5	M6x16mm (Fuel Rail)
17	M6x25mm (LSA Lid)
2	M6x25mm (Inter-Cooler Face Plate)
2	M6x30mm (Map Sensors)
2	M6x25MM (Sensors on Snout)
4	M6x40MM (Throttle Body)
32	M6 Washers

- Remove the seventeen (17) bolts from the supercharger cover. Refer to the bolt locations chart. Carefully remove the bolts, leaving the plastic Isolators in the bolt holes. The factory bolt Isolators must be re-used.
- Using hex drive socket torque each bolt down on the first pass to 44 in-lbs (5 Nm) then on a final pass of 89 in-lbs (10 Nm). Make certain to use the order shown below.
- Torque all other bolts down to 89 in-lbs (10 Nm). (Map Sensors, Intercooler Face Plate, Fuel Rail)

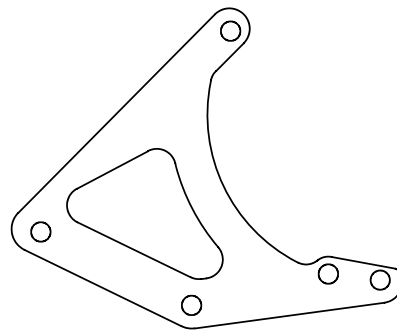
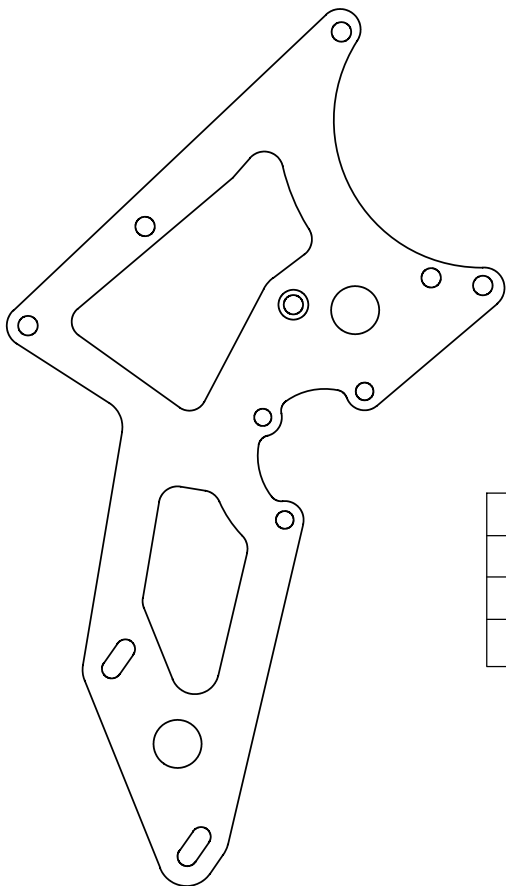




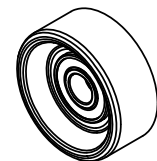


QTY.	BOLTS
1	10MM x 110MM SHA
5	10MM x 80MM SHA
1	10MM x 55MM Socket Head Allen
1	10MM x 25MM Low head Allen
3	8MM x 25MM Hex Head Bolt
3	10MM Nylon Insert Lock Nuts
3	10MM x .875" x .125" Washer

QTY.	SPACERS
1	1" x .600 Stepped Idler Spacer
3	3/4" x 2.299" Spacer
1	3/4" x 2.000" Spacer
1	3/4" x 2.000" Threaded Spacer



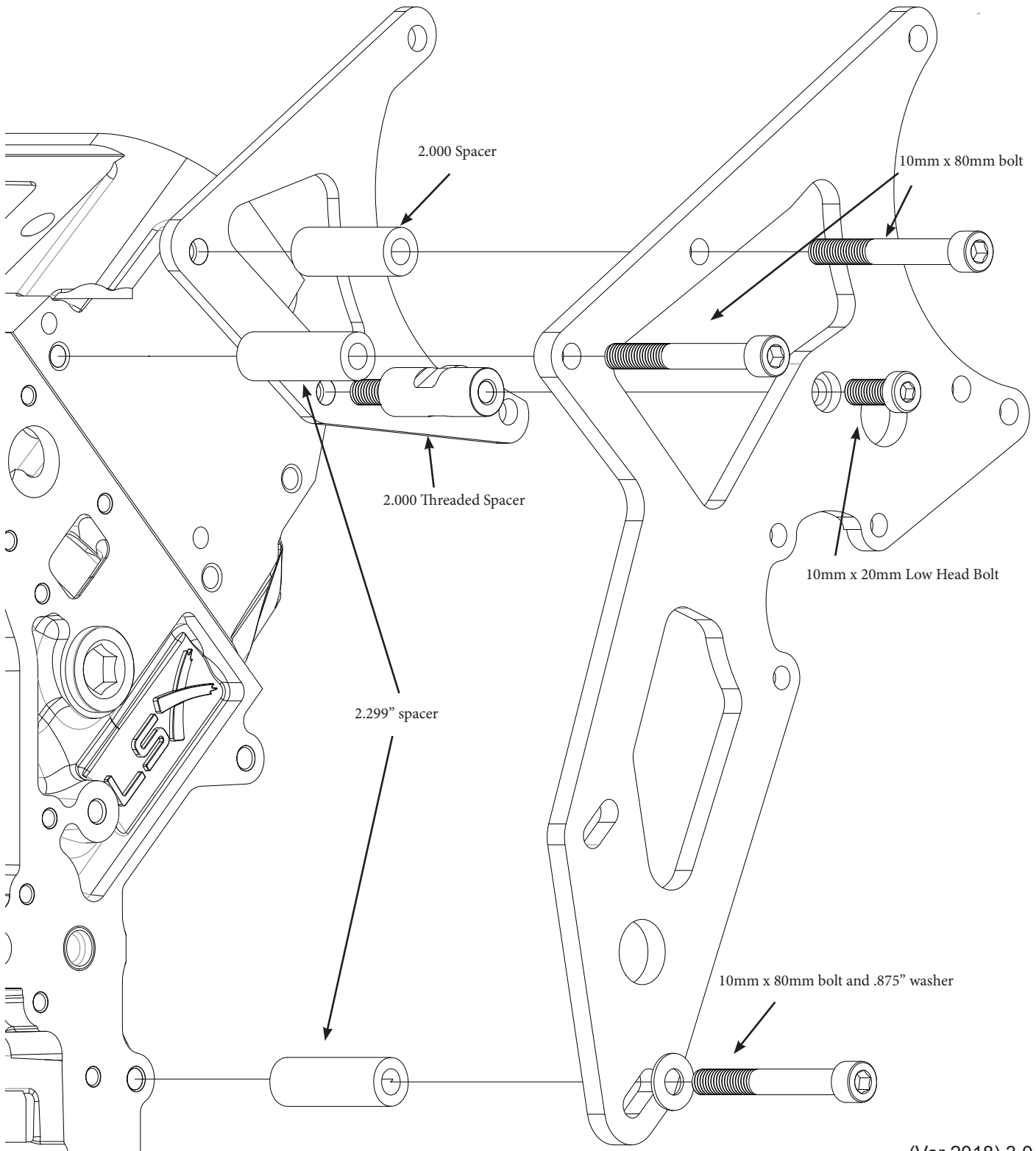
QTY.	PARTS
1	Front Bracket
1	Rear Bracket
1	60MM Smooth Idler Pulley



## Installation Notes:

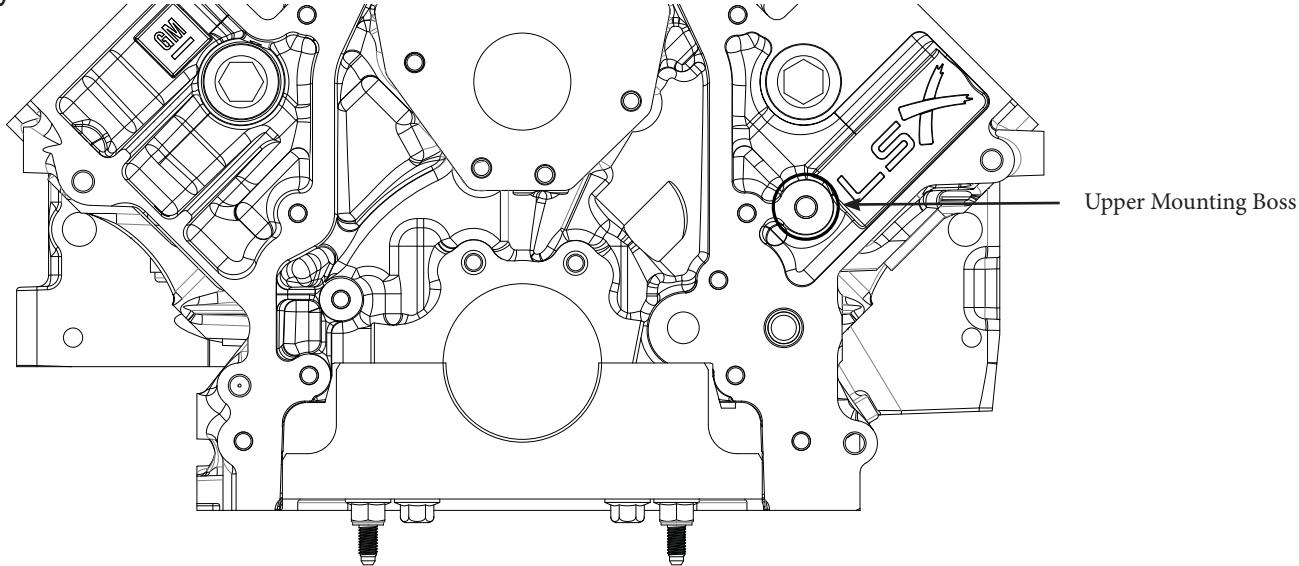
- do not torque bolts until all parts are installed
- some early LS1 blocks have only 1 mounting boss on the block, hardware is provided to mount the idler pulley if your block does not have both mounting bosses (see steps #2 and #3)

### 1: Attach the front and rear plate to the engine as shown

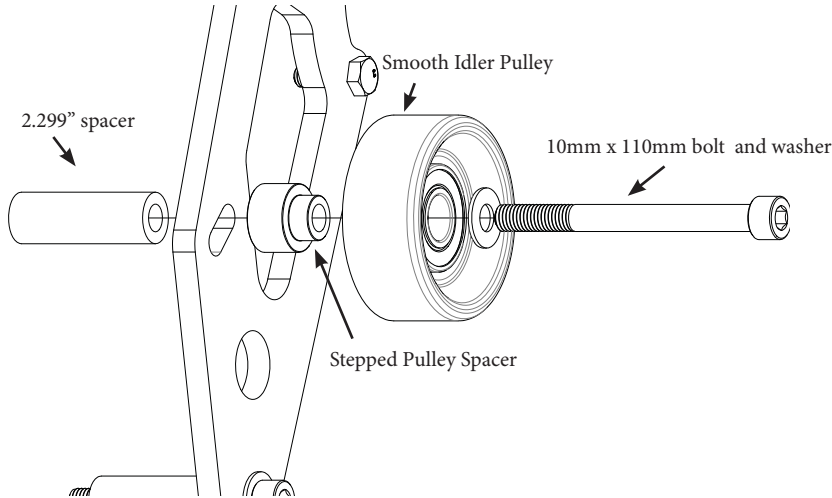




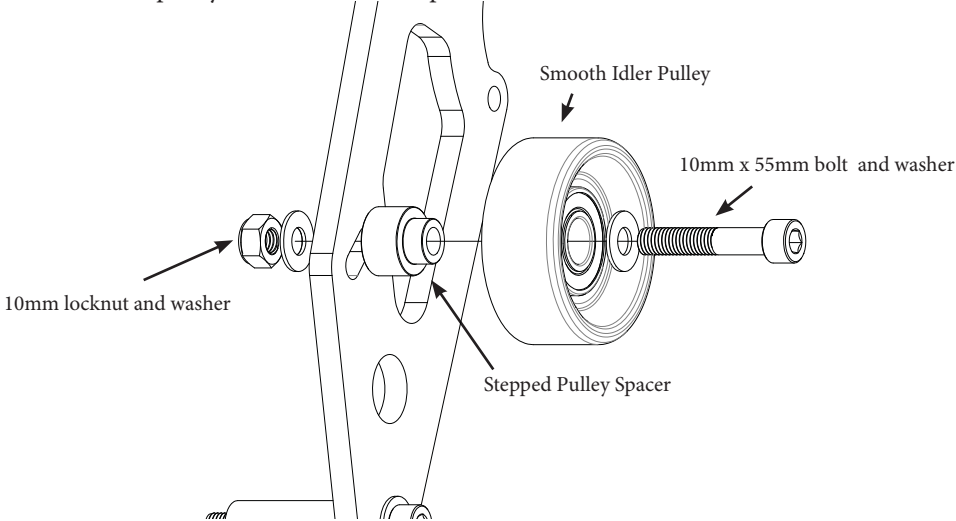
**2:** If your block has the upper mounting boss as shown the picture, mount the idler pulley using method 1, If your block does not have the mounting boss use method 2 for mounting your idler pulley



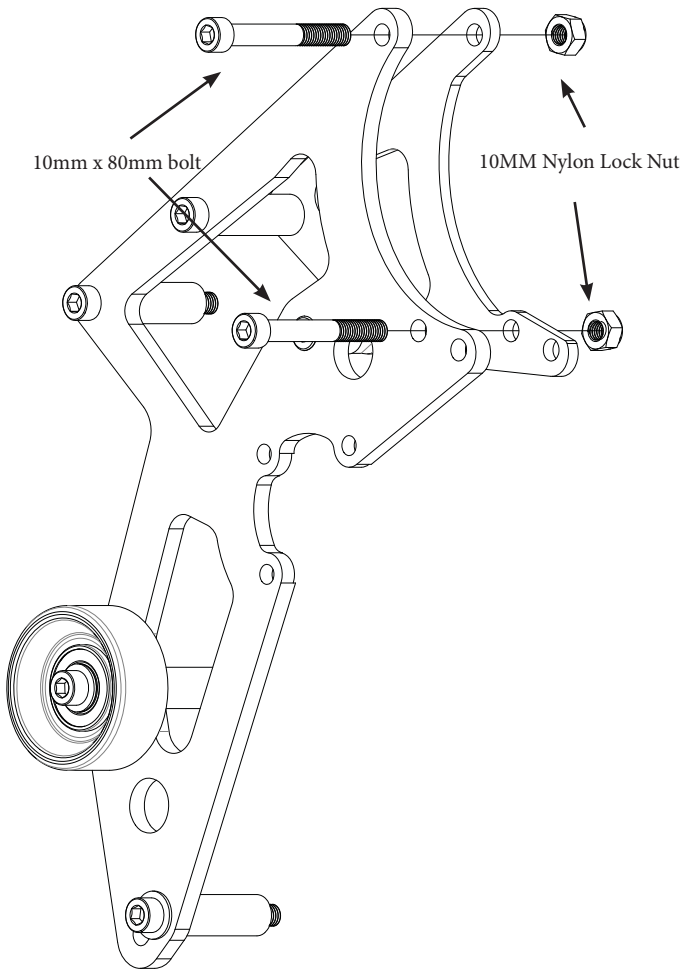
**Method 1:**



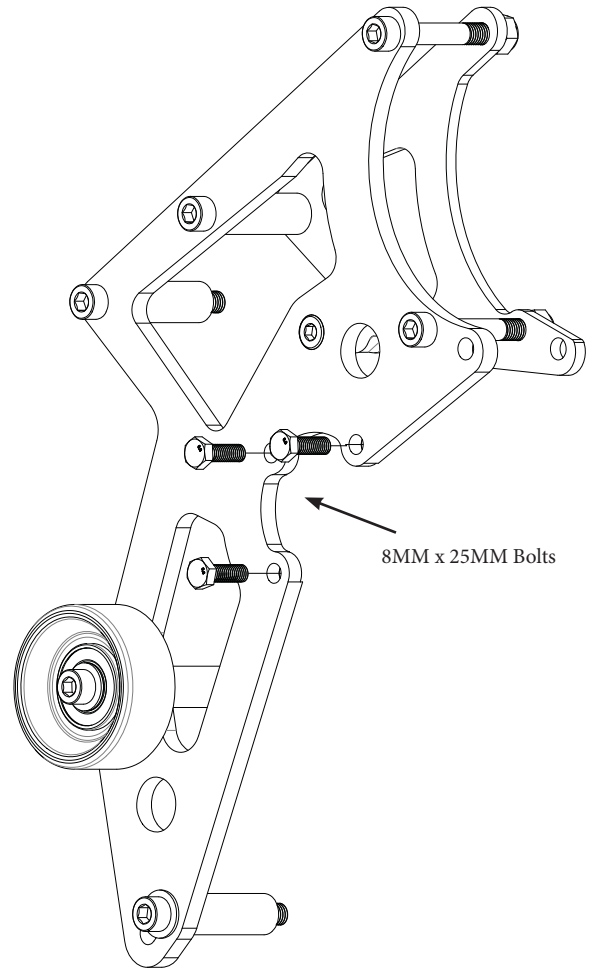
**Method 2:** Slide pulley/bolt towards the top of the slot



### 3: Attach the alternator



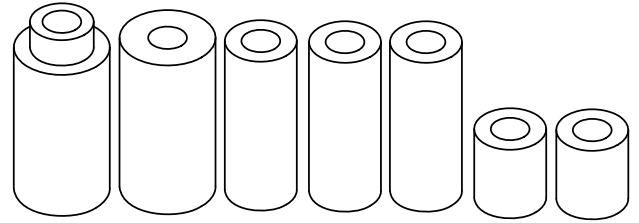
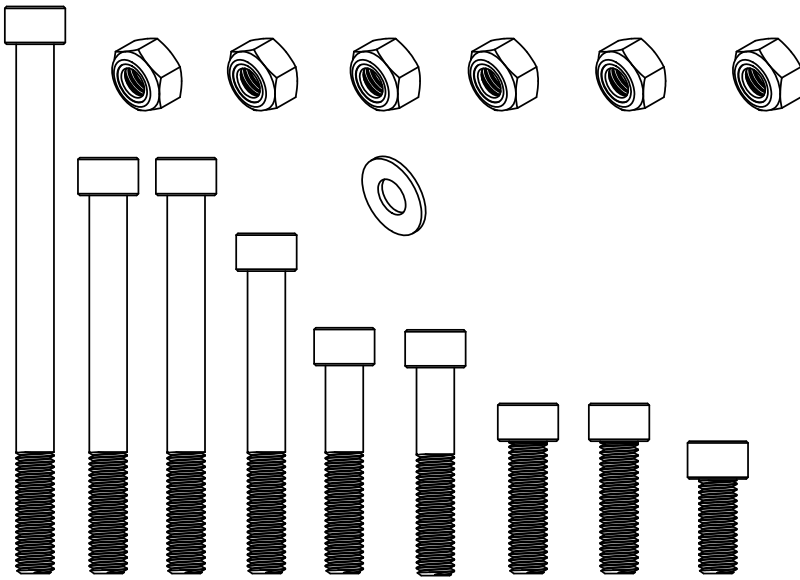
### 4: Attach the power steering pump



### 7: Torque Bolts

- torque all 10mm bolts to 25 ft-lbs (34 N-m)
- torque all 8mm bolts to 15 ft-lbs (20 N-m)

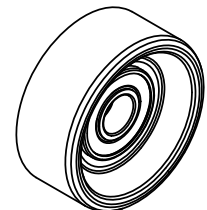
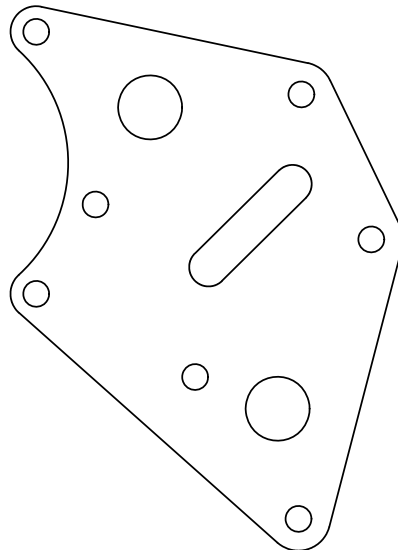
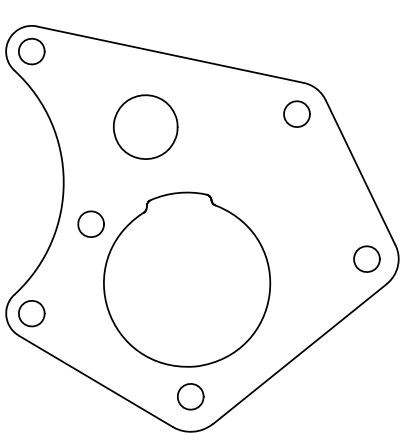
We do recommend using blue loctite 242 on all bolts threaded into the cylinder heads and block



QTY.	SPACERS
1	1" x 1.850 Stepped Idler Spacer
1	1" x 1.900" Spacer
3	3/4" x 1.900" Spacer
2	3/4" x .875" Spacer

QTY.	BOLTS
1	10MM X 140MM SHA
2	10MM X 100MM SHA
1	10MM x 80MM SHA
2	10MM x 55MM SHA
2	10MM x 35MM SHA
1	10MM X 25MM SHA
6	10MM Nylon Insert Lock Nuts
1	10MM x 1" x .125" Washer (black oxide)

QTY.	PARTS
1	Front A/C Bracket
1	Rear A/C Bracket
1	A/C Idler Pulley



## Tool/Supplies List

Loctite Threadlocker Blue 242

17mm socket/wrench

#8 Metric bit Socket / Allen Wrench

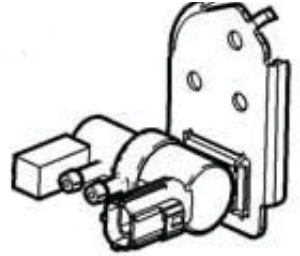
## Installation Notes:

- Do not torque bolts until all parts are installed
- Water pump will need to be removed to gain access to the lower bracket bolt
- We recommend Applying blue 242 Loctite to any bolts threaded directly into the aluminum cylinder head, it is not needed on any bolts secured with a lock nut

## ZL1/LSA Notes:

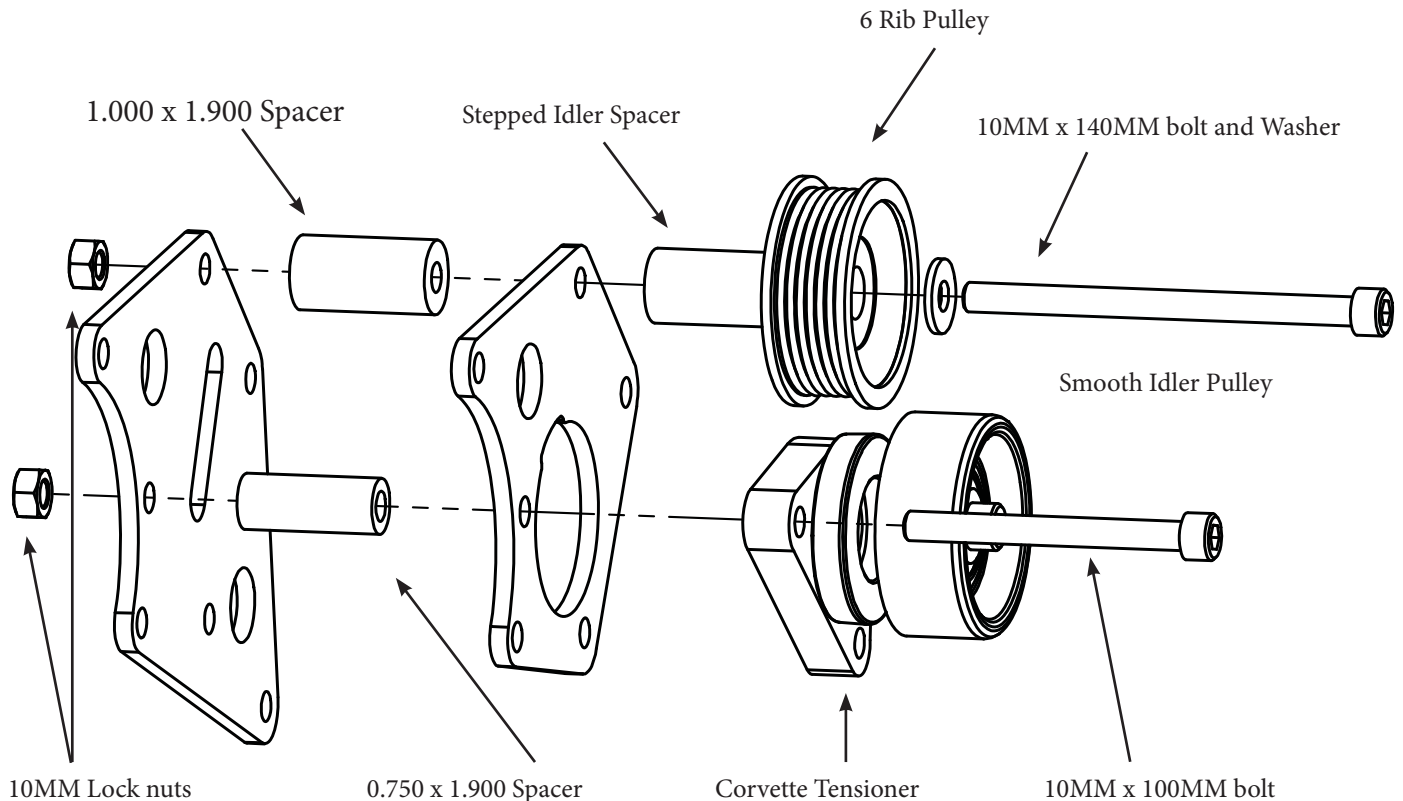
If this is a LSA/LZ1 Engine, please carefully unhook and remove the bypass solenoid and bracket as seen in the diagram to the right. the stock location interferes with the A/C idler pulley location. we recommend taking pictures and noting the original hose routing for relocation.

\*See our LSA / ZL1 Supercharger Accessory Drive kit instructions for alternate mounting locations

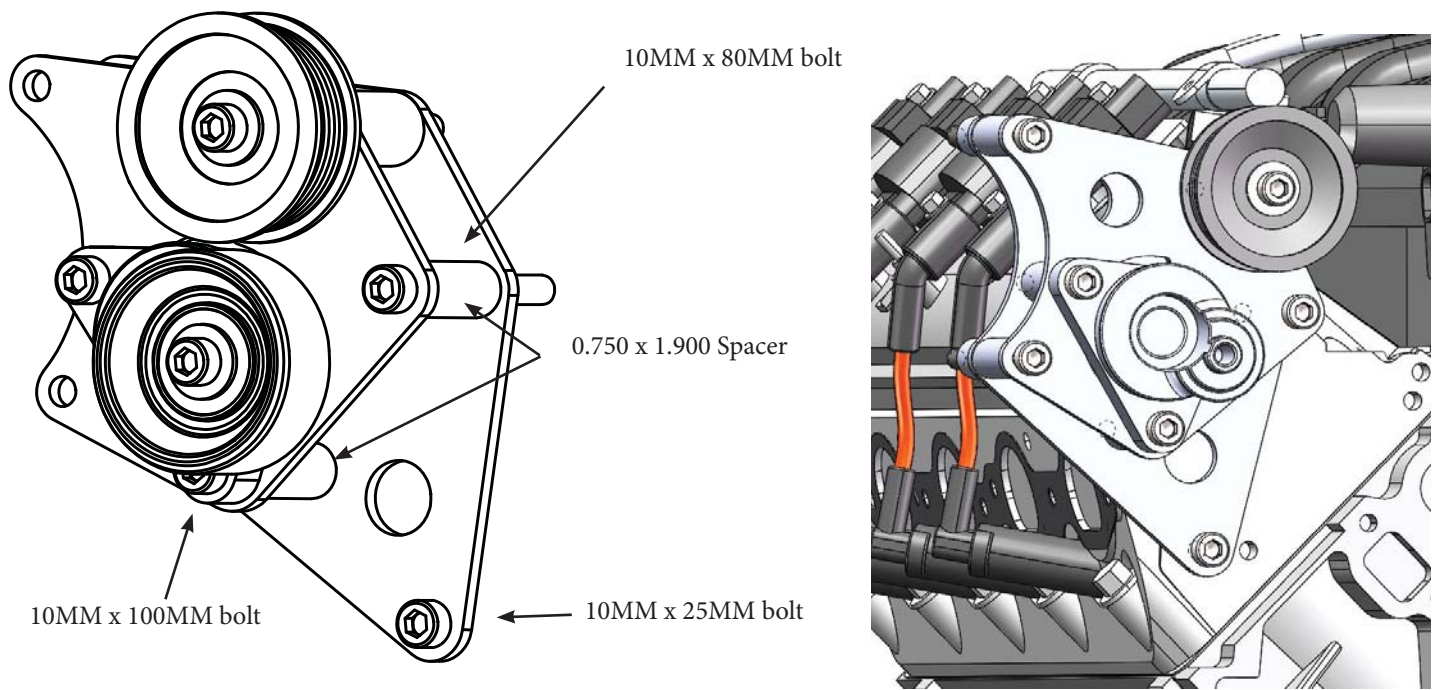


1: Remove the 6 rib pulley from the Corvette belt tensioner

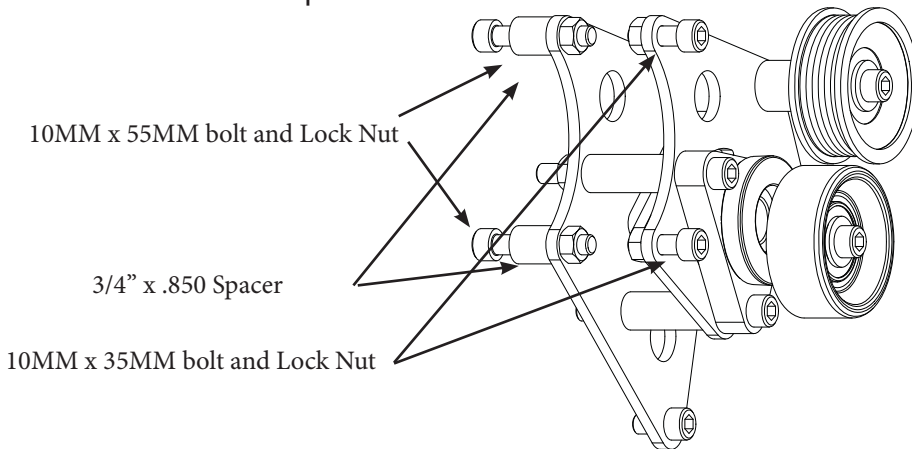
2: bench assemble the front and rear bracket as shown, leave bolts loose



3: Attach the bracket assembly to the passenger side cylinder head



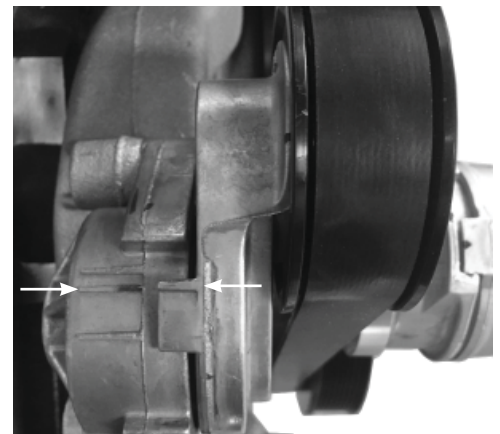
4: Attach the A/C compressor



5: Torque all 10mm bolts to 25ft-lbs (34 N-m)

6: Install Serpentine Belt

Due to variations beyond our control some applications may require a shorter or longer belt. use a belt length that will put the belt tensioner indicator in the mid travel position as shown in the picture to the left.



# LSX Concepts - LSA Bypass Solenoid Placement

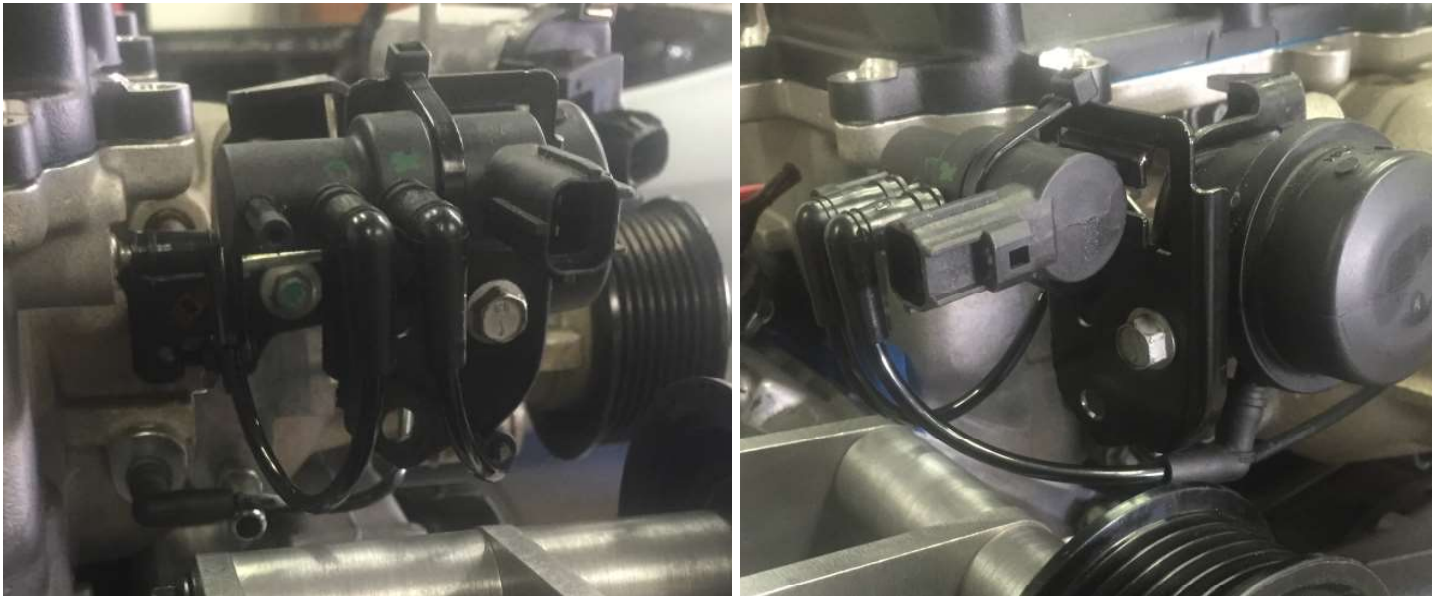
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## ***LSA Bypass Solenoid***

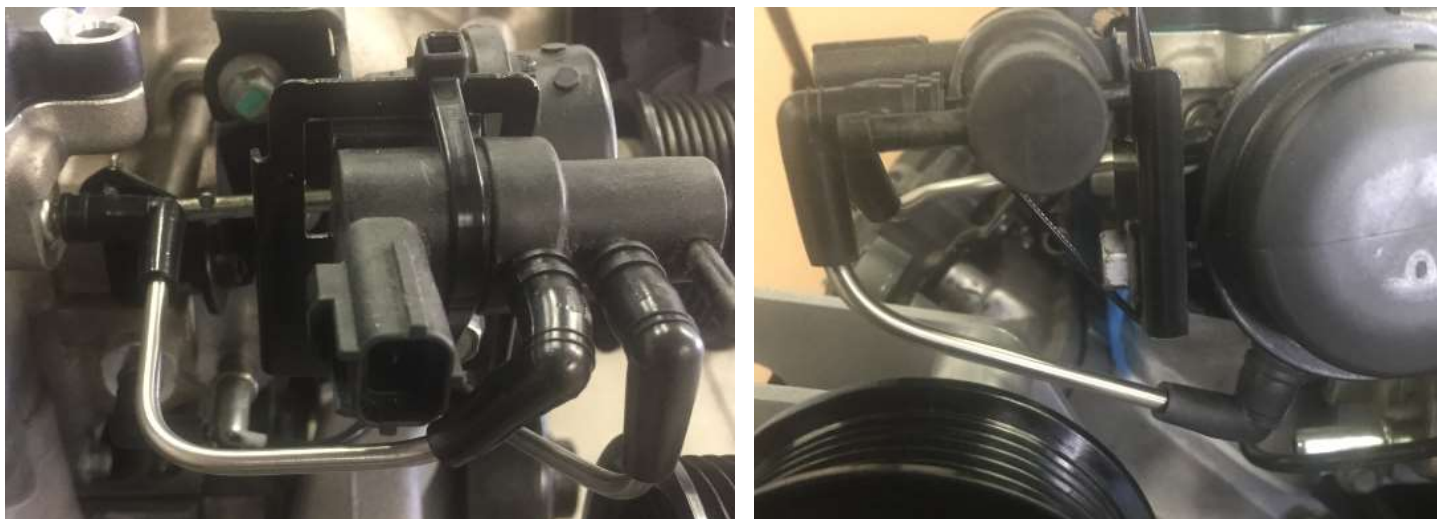
Most overdriven boosted application and after-market ECM's do not use the bypass solenoid, however if you are running the bypass solenoid in your application it will need to be modified to clear the upper idler pulley on the High Mount A/C kit. Pictured below are two examples.

NOTE: Both examples use 4MM tubing which can be purchased from Amazon for under 10.00

**Example 1 :** this example shows the stock bracket flipped and trimmed, using all the original hosing end with the factory tubing removed and replaced with Black 4mm x 2.5mm Pneumatic Polyurethane PU Air Hose Tube



**Example 2:** this example is the same orientation as the last example but this one is shown using custom bent Stainless Steel 304 Capillary Tubing 4mm OD





LSX Concepts - LSA / ZL1 Gilmer Drive  
Part Number # LSX-GILMER  
www.lsxconcepts.com

**Parts List**

**Qty Desc.**

- 1 Upper Gilmer Pulley
- 1 Lower Gilmer Pulley
- 1 2.5" Smooth Idler Pulley
- 1 8MM HTD Timing Belt
- 1 Rear Idler Plate
- 1 Front Idler Plate
- 2 Idler Pulley Spacers
- 1 Water Pump Offset Standoff Bracket
- 1 8MM Threaded Water Pump Standoff
- 1 Short Water Pump Boss Aluminum Spacer
- 3 Threaded Idler Plate Spacers with Studs (8MM)
- 1 10MM T-Nut with Stud
- 2 10MM Nylon Lock Nut for T-Nut Stud (1 spare)
- 1 10MM Black Oxide Flange head Nut (for mock-up)
- 10 M4X16MM Socket Head Allen Bolts
- 2 M4X20MM Socket Head Allen Bolts
- 1 8MMx40MM Flat Head Allen Bolt
- 3 8MMx50MM Flat Head Allen Bolts
- 1 Water Pump Main Idler Plate Bracket
- 2 8MMx90MM Socket Head Allen Bolts with Washers
- 6 8MM Nylon Lock Nuts (3 spare)
- 3 8MMx20MM Button Head Allen Bolts
- 2 8MMx20MM Flat Head Allen Bolts
- 1 Large Dia. Stainless Steel Washer
- 3 3/8-16 12pt. ARP Crank Pulley Bolts with Washers

**Tool/Supplies List**

- Loctite Threadlocker Blue 242
- Ft. Lbs Torque Wrench
- In. Lbs Torque Wrench
- Metric Allen Socket Set / Allen Wrenches
- 12pt Metric Socket Set



## ***Installation Requirements:***

The following items are required to install the LSX Concepts LSA Gilmer Drive Kit

- **Lingenfelter CTS-V Camaro ZL1 LSA LS9 10 bolt Supercharger Pulley Hub**  
The Upper pulley is designed to bolt directly to a “Lingenfelter CTS-V Camaro ZL1 LSA LS9 10 bolt Supercharger Pulley Hub”. if your supercharger is already upgraded with the blower hub you will not need to make any additional changes to install the upper Gilmer pulley. (Lingenfelter Part Number #L250150309)
- **ATI LSA/ZL1 Super Damper**  
you will need an after market Damper that will accept a bolt on supercharger pulley to the front of the damper using corvette spacing (ATI Part Number #918854, #917266 10% UD, or #917278) NOTE: 3 counterbored holes on the damper shell may need modification to allow the 3/8 bolt to pass through the outer shell to the main hub

**1:** If your supercharger does not have the Lingenfelter 10 Bolt Supercharger Pulley Hub Kit installed. Please take it to a trusted local machine shop to have it installed as per Lingenfelter’s instructions.

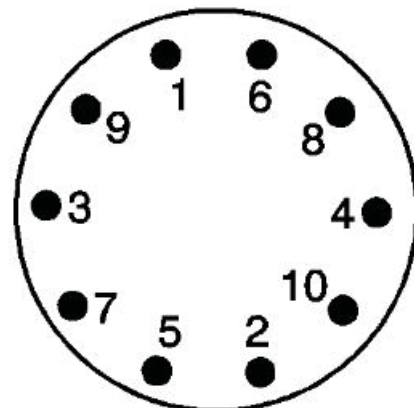
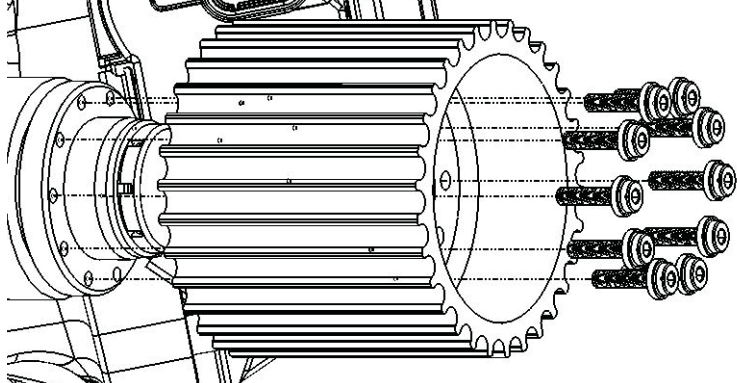
**2:** Discard the 10 M4X12MM socket head allen bolts included with the Ligenfelter Pulley Hub. The bolts are too short to be used with the LSX Gilmer Drive pulley.

**3:** Install the upper pulley with the short side having the lettering away from the hub and align the pulley onto your supercharger hub using the **M4x20MM Socket Head Bolts** provided in the LSX Concepts Kit. Pull the pulley onto the Ligenfelter hub about 1/4 inch. Now remove the **M4x20MM Socket Head Bolts**.

**4:** Install the ten **M4X16 Socket Head Bolts** and sequentially tighten the bolts to fully draw the pulley on to the hub.

**5:** Remove the bolts and apply a small amount of 242 Blue Loctite and, using a 3 mm Allen wrench or socket, secure the pulley to the hub with these screws. Use the pattern to the right and torque the bolts to 2.3 Nm (20.7 lb-in).

Source: <http://www.lingenfelter.com/PDFdownloads/L250150309.pdf>



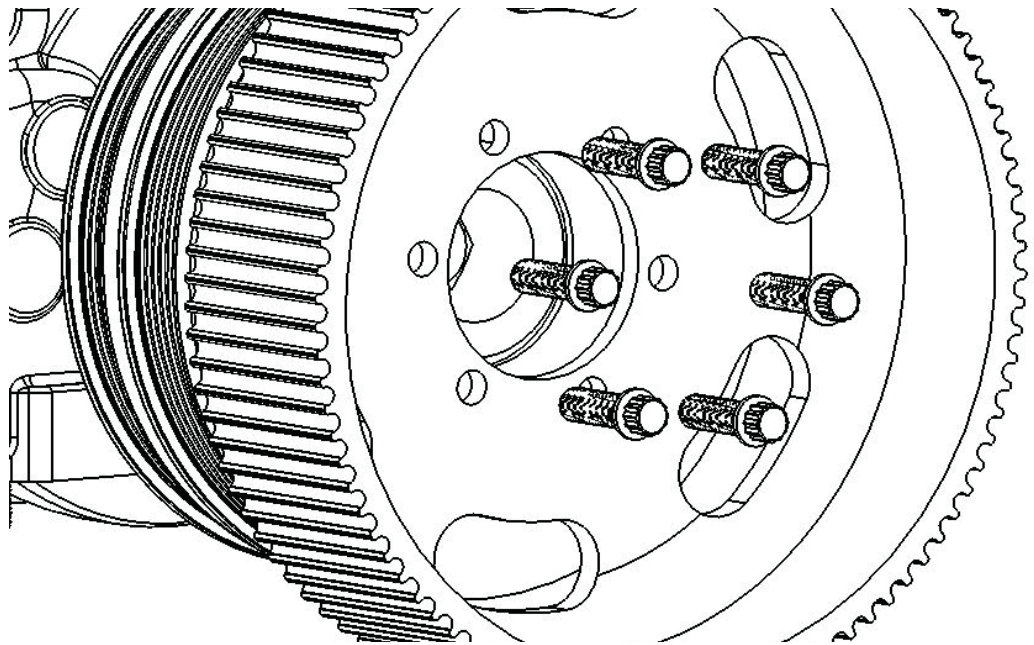
**6:** The lower Gilmer drive pulley is designed to use six 3/8-16 12 point stainless steel bolts with washers. Three bolts are included with the ATI crank pulley and three are included with the LSX Gilmer Drive Kit. If your crank pulley kit from ATI does not include the three 3/8-16 12 point bolts with washers, you will need to purchase 3 additional bolts from ATI to attach the lower crank pulley. (a minimum of three bolts is required, however we do recommend 6 bolts be used )

**Note:** Three of the countbored holes that line up with the holes on the dampner shell may need to be drilled out to allow the 3/8 threaded bolt to thread into the main hub assembly. please inspect you dampner before installing the shell onto the hub. On Engines running low mount A/C you may only use three bolts to hold the crank pulley on since 3 countersunk 5/16 bolts are required to hold on the rear A/C pulley on the ATI dampner and they occupy the same sapce as the additional 3 bolts

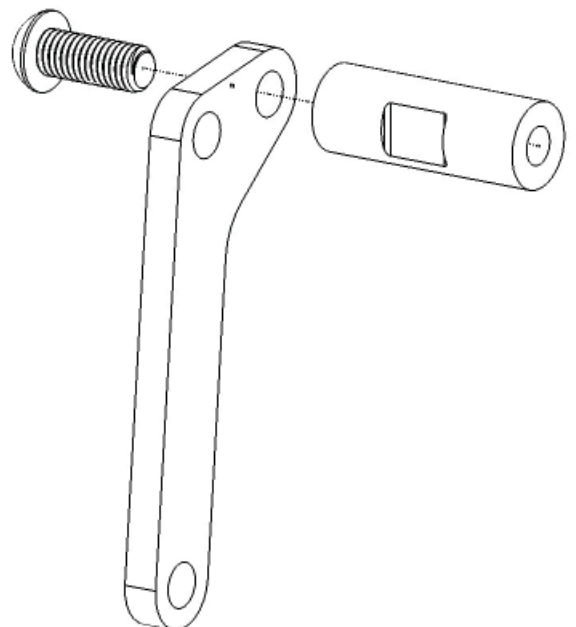
if you have any questions fell free to give us a call.

**8:** Use 242 Blue Loctite on all 3/8 bolts and torque bolts to 28-30 ft/lbs

Source: <http://www.atiracing.com/instructions/LS1-LS7-Damper.pdf>

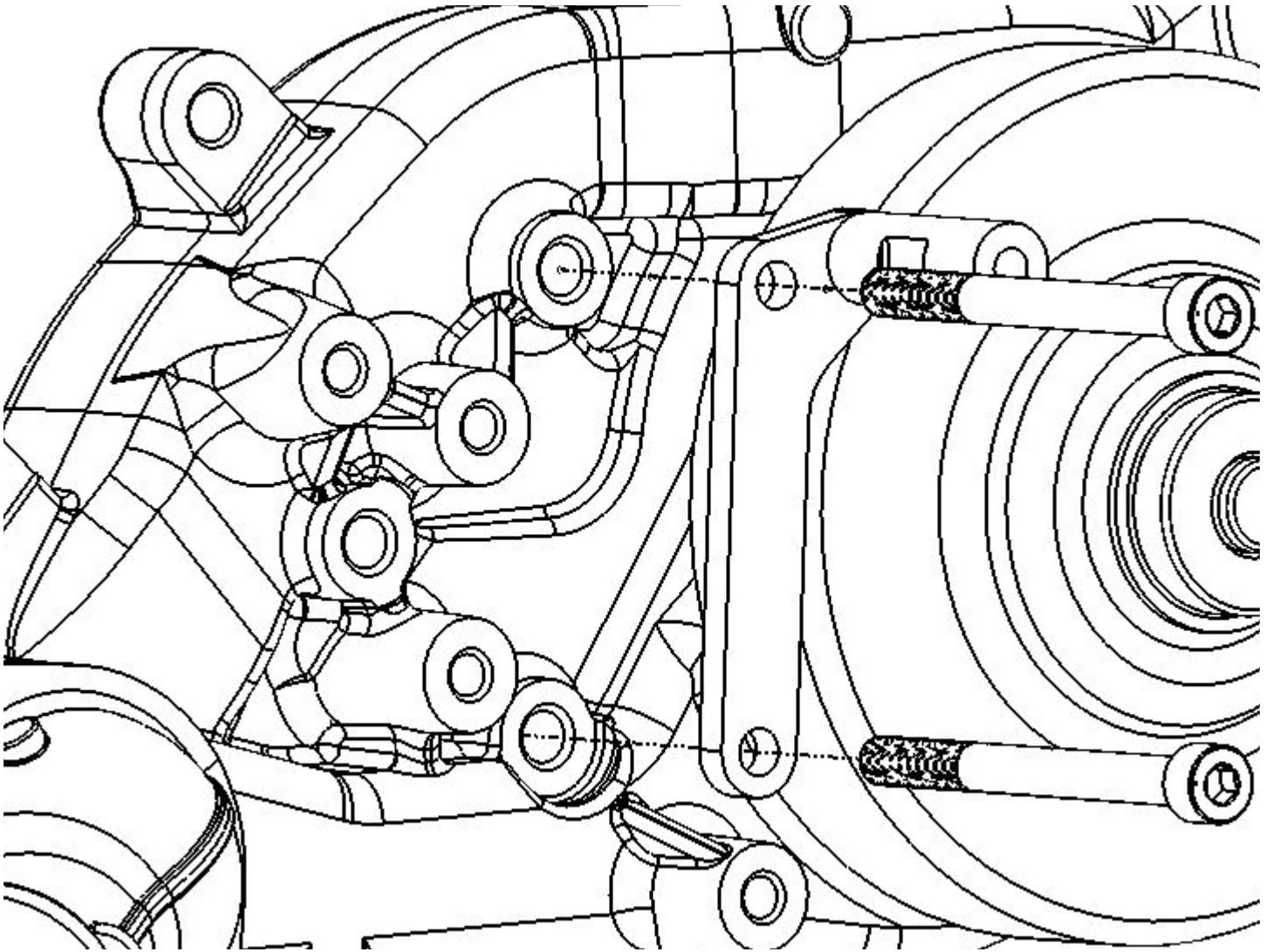


**9:** Assemble the *Water Pump Standoff Bracket* using one **8MMx20MM Button Head Allen Bolt** and the **8MM Threaded Water Pump Standoff**. apply a small amount of 242 Blue Loctite to the bolt before assembly and torque to 12 ft. lbs

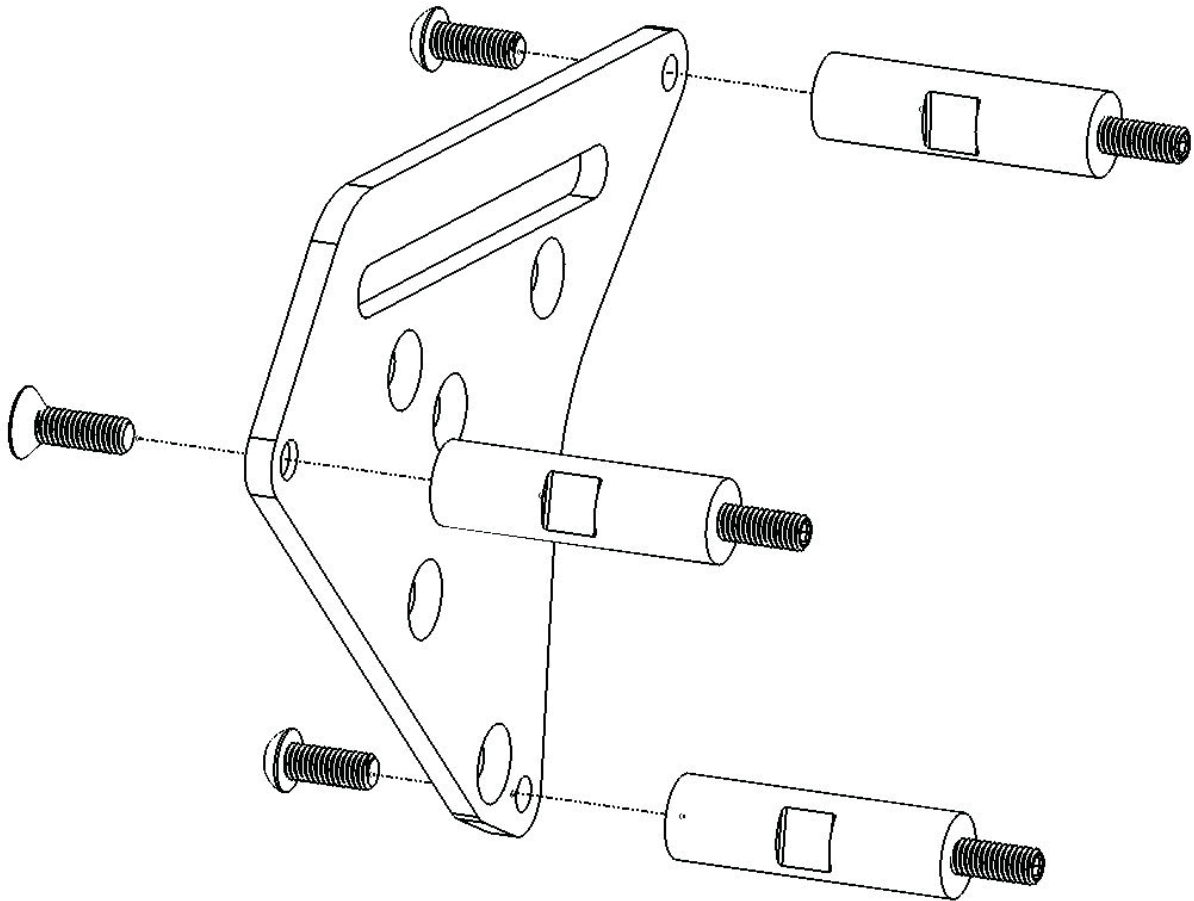


**10:** Remove the two inner water pump bolts on the passenger side as show in the image below.

**11:** Install the *Water Pump Standoff Bracket* using the two *8MMx90MM Socket Head Allen Bolts with Washers* and torque to (22 ft lbs).



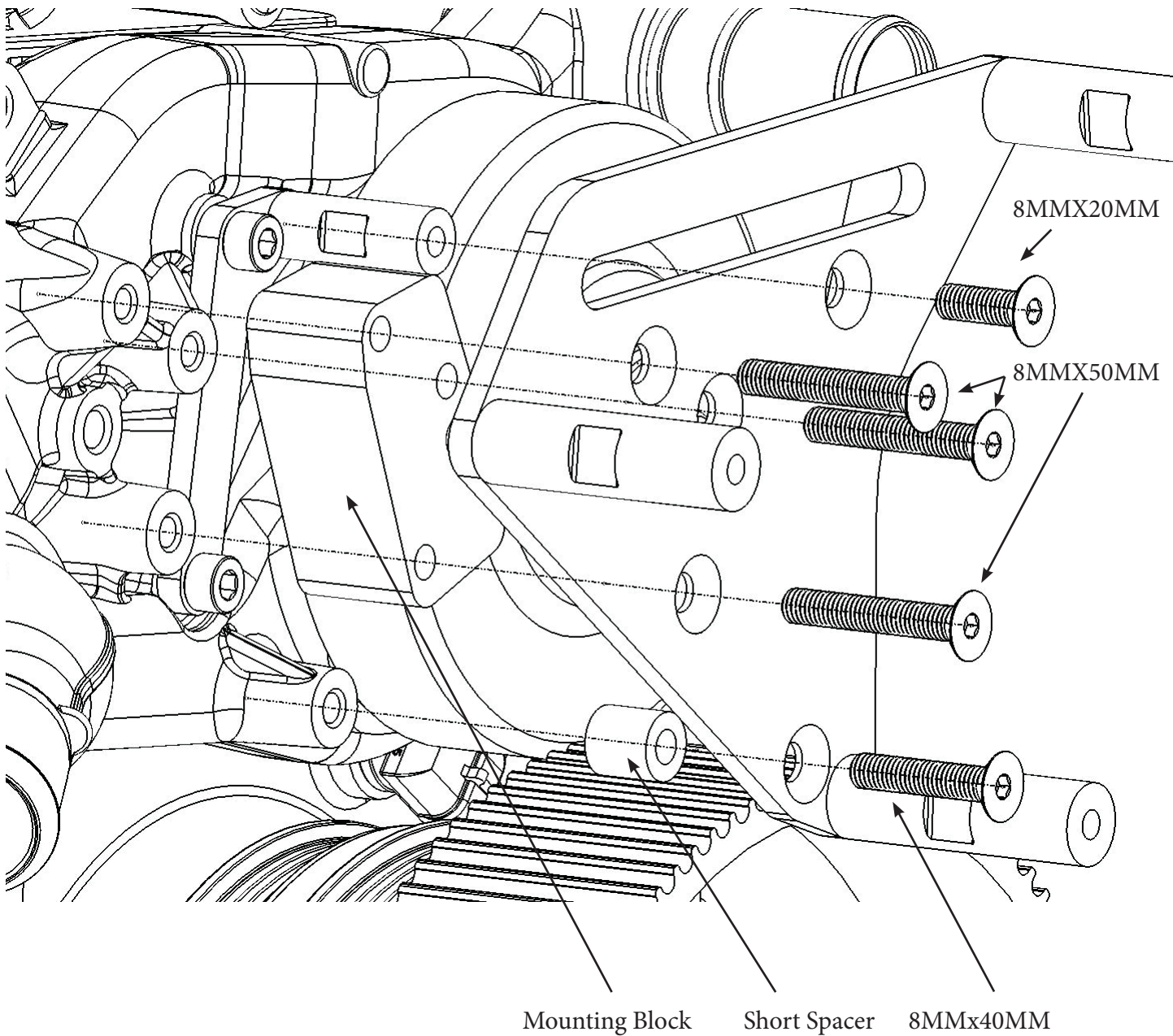
**12:** Assemble the *Rear Idler Plate* by attaching the three *Threaded Idler Plate Spacers with Studs* with two *8MMX20MM Button Head Allen Bolts* and one *8MMx20MM Flat Head Allen Bolt* as shown. Apply a small amount of blue Loctite to the bolts before assembly and torque to 12 ft. lbs



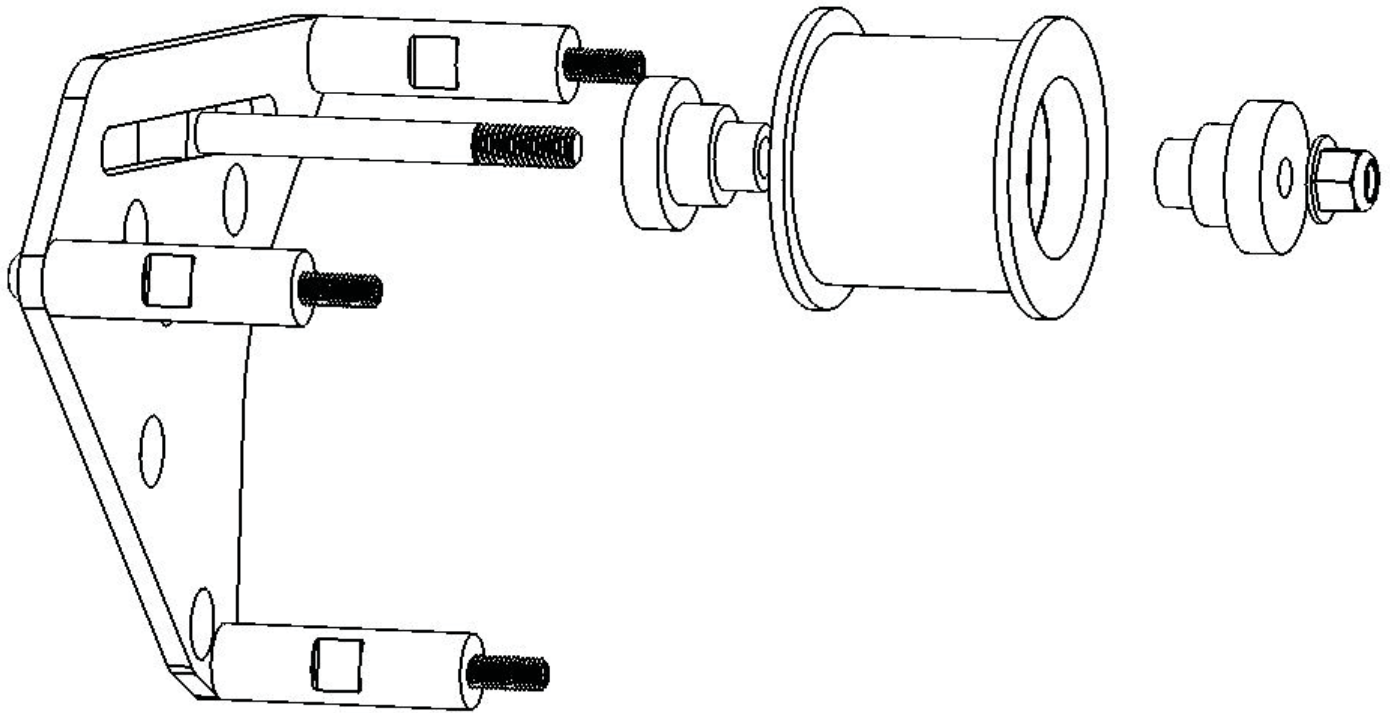
13: Attach the *Rear Idler Plate* to the water pump using the following parts

- *Mounting Block*
- *Short Spacer (.690)*
- 3 - *8MMX50MM Flat Head Allen Bolts*
- 1 - *8MMX40MM Flat Head Allen Bolt*
- 1 - *8MMX20MM Flat Head Allen Bolt*

Apply a small amount of blue Loctite to the bolts before assembly and torque to 15 ft. lbs

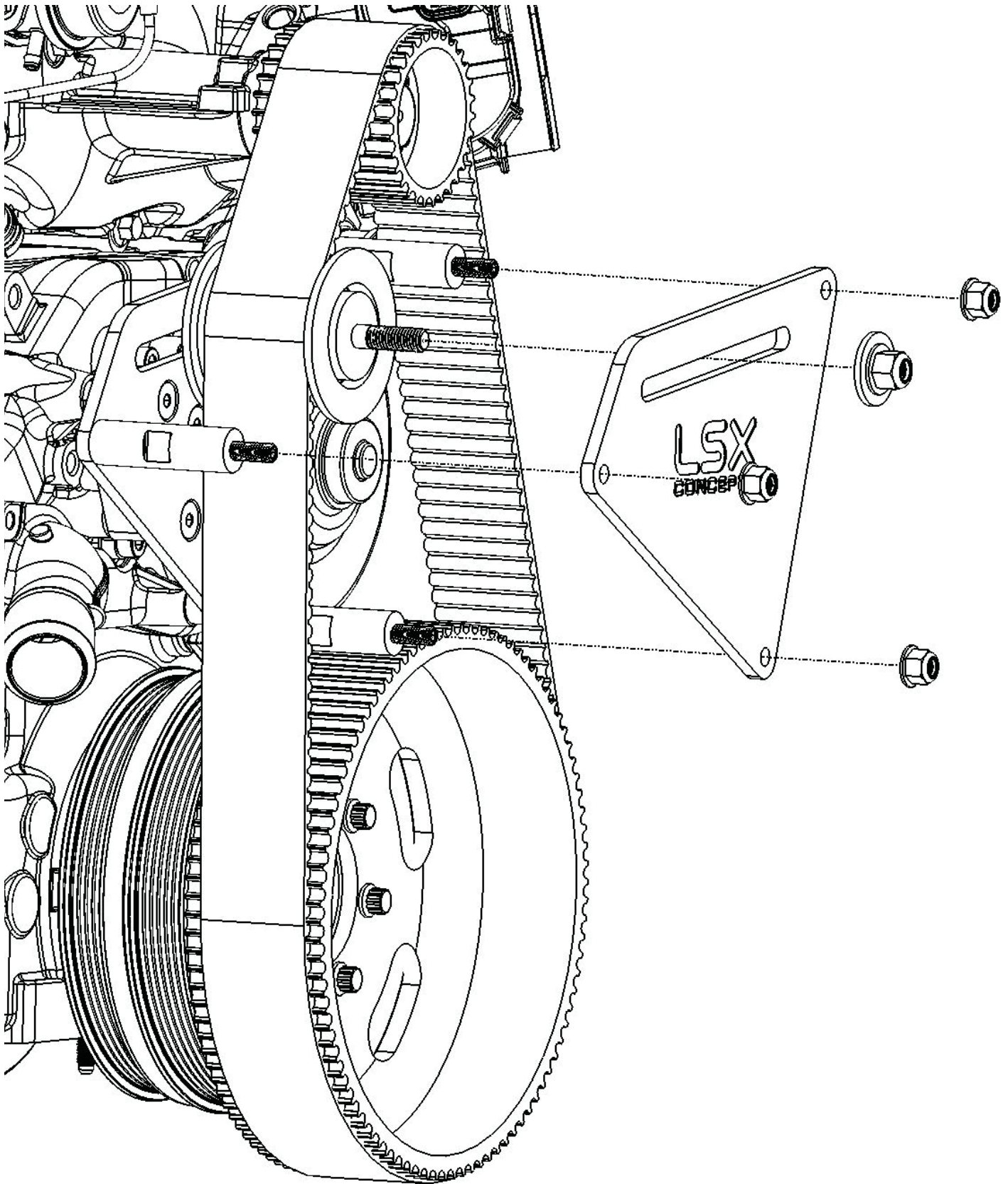


**14:** Slide the **10MM T-Nut with Stud** in from the back side of the **Rear Idler Plate** into the slot and slide on the **2.5" Smooth Idler Pulley** with the **Idler Pulley Spacers**. you can hold the idler pulley on using the black **10MM Flange Nut** included in the kit (no nylon insert) to hold the idler pulley in place



15: Install the belt with the **2.5" Smooth Idler Pulley** to the inside of the belt

16: Install the **Front Idler Plate** using three **8MM Nylon Lock Nuts** and one **10MM Lock Nut with Steel Washer**, hand tighten the 8MM and 10MM nuts



## Gilmer Belt Adjustment and Break In

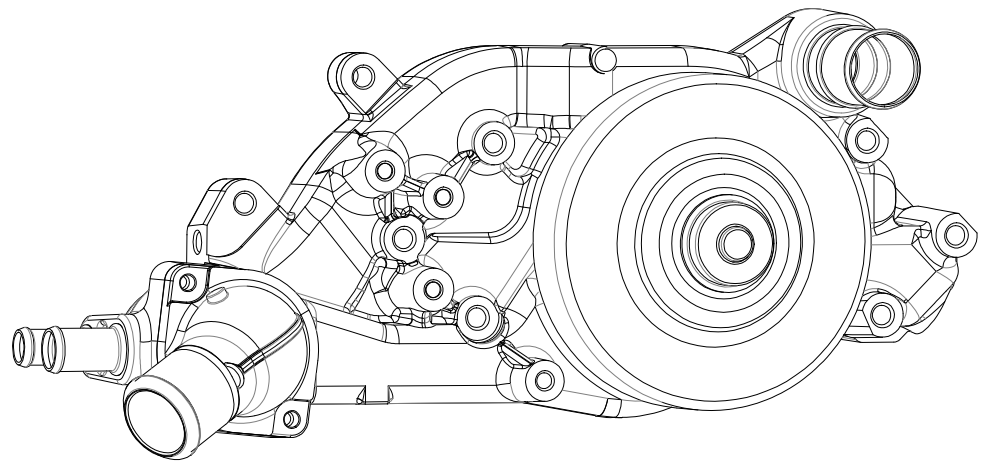
**1:** Grab the belt halfway between the upper and lower gilmer pulley on the driver's side of the engine and move it in and out. When the belt is properly tensioned on a cold engine, you should be able to move this belt approximately one inch (1/2" in, 1/2" out). When warm, you should be able to move the belt 1/4 to 1/2 inch. Do not allow the belt to be overly tight.

**2:** Tighten the idler pulley nut to 45 ft lbs.

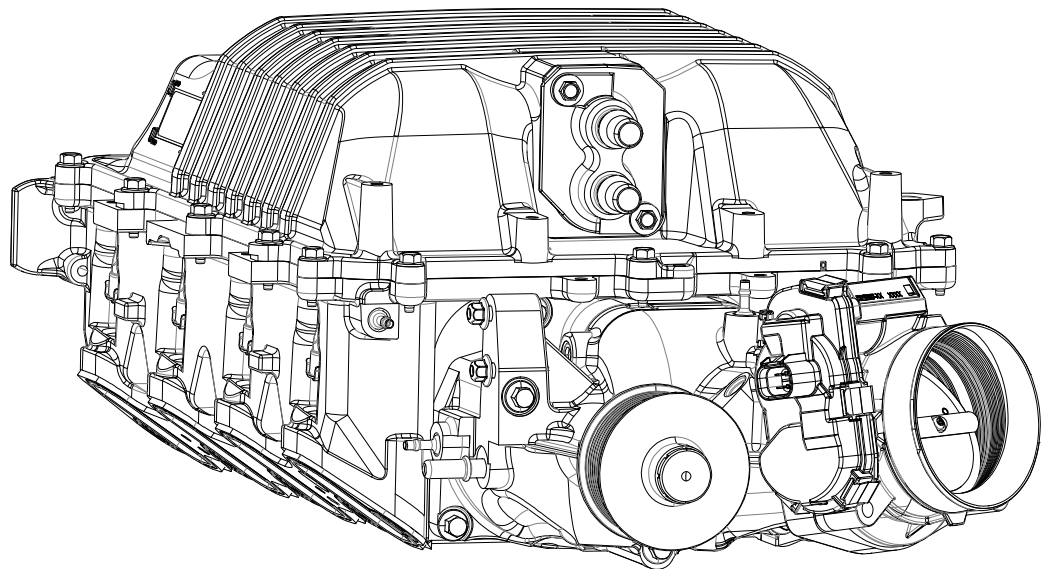
**Note:** Expansion occurs as the engine gets to operating temperature and the belt will get tighter. If it gets too tight, it can snap off the crank snout or the blower snout if not properly tensioned



Compatible LSA/ZL1 ACDelco Water Pump



Compatible LSA/ZL1 Supercharger Accessories



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