



FC LSX Mounting and Trans Install Instructions

Joel Payne
Revision D

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Full Kit Includes:

- 2 Ronin C5 Corvette pedestals
 - 2 Ronin Engine Mounts
 - 1 Ronin Trans Mount
 - 2 Trans Mount Capture Plates
 - 2 Biscuit Mounts w/ associated hardware
 - 1 Prothane polyurethane mount w/ associated hardware
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- 10 m10 x 1.5 x 25 mm allens (8 for pedestal to block & 2 for poly mount to tailshaft)
 - 3 m10 x 1.5 x 20 mm allens (trans mount to capture plate)
 - 1 m10 x 1.5 x 65 mm allens (trans mount to capture plate)
 - 14 m10 washers
 - 2 m12 x 1.75 x 25 mm hex head (Engine mount to subframe)
 - 2 m12 x 1.75 lock nuts
 - 4 m12 washers

Note: piece parts orders may only have part of these instructions applicable.



Torque Specs

- All specs assume these are torqued with anti-seize
 - m10 to block 34 ft-lbf
 - biscuit mounts hardware 5/32" rack clearance (snug tight ~5-7 ft lbs)
 - m10 trans mount to capture plates 34 ft-lbf
 - m10 poly mount to tailshaft 34 ft-lbf
 - m12 engine mounts to subframe 54 ft-lbf

Compatibility

The Ronin mounting kit is compatible with any of the LS family of motors, including the truck blocks (IE LQ4, LQ9, L33, etc). However, some car based accessories will be required for fitment.

- Only the F-body (97-02 Camaro/TransAm) oil pan is sufficiently narrow up front to clear the steering rack. If you're starting with a different engine, you will need an F-body pan, windage tray, and pickup tube. Holley makes an F-body replacement pan (p/n 302-2) that works as well.
- Front end accessories: AKA combined set of harmonic balancer, powersteering, alternator, etc. Note, these come in three offset belt spacings: Corvette is closest to the block, F-body/GTO has a mid spacing, and the truck offset protrudes the furthest. Car based accessories are required and we tend to prefer the F-body/GTO pieces for the low mount alternator placement.
- Intake manifold and TB needs to be car based (any GM cars) to clear the hood. Truck manifolds won't clear. Fast 90s generally work, Fast 102 may require clearancing or hood modifications.

Mating Pieces

The scope of this document covers only the mounting gear for the physical engine and transmission. For details on just about any topic and options on configuration check out www.norotors.com. If you're not already on that forum, it's by far the number one RX7 swap resource on the web. This has since further branched in the the "NoRotors.com V8 Rx7 Forum" Facebook group that is useful as well.

A few of the more common questions and recommendations:

- A c4 corvette driveshaft from an automatic equipped car is about the perfect driveshaft to mate our kit to a T2 rx7 rear, you do need an adaptor u-joint to mate a T2 DS flange. You'll want at least a T2 rear for a v8 powered car as the NA rear ends won't hold up for long. Ronin also offers a conversion kit to install a Ford 8.8 IRS diff, available in standard and "grande" configurations.
http://www.roninspeedworks.net/index.php?route=product/product&path=59&product_id=70
- The simplest cooling setup would be from Jags that Run. You can mate their radiator setup to a Volvo s80 fan with good results. Several universal radiators are also options.
- Ronin long tube headers are an excellent compliment to this kit and are available here:
http://www.roninspeedworks.net/index.php?route=product/product&path=59&product_id=110

- We recommend you consider oiling upgrades, it's the most obvious weakness of the LS engines. We recommend and run the trap door equipped baffle from Improved Racing on our personal cars. <http://www.improvedracing.com/oil-pan-baffles/ls1-camaro-firebird-body-racing-oil-pan-baffle-p-30.html> An accusump is also a very good idea.
- FAST 90 and 92 intake manifolds will fit with a little firewall clearancing. The FAST 102 is much more challenging to package.
- For powersteering, we recommend Turn One Power Steering. They have a flow adaptor which is perfect for stock pumps and a significantly reworked pump which is the hot ticket for road racing or drift. http://www.turnone-steering.com/Mazda-RX7-LS1-Conversion-Pump_p_16.html
- With the emergence of more standalone options, Ronin has now discontinued our wiring services. For what it's worth, we've been hearing good things about PSI. <http://www.psiconversion.com>

Installation:

- Remove rotary (and repurpose as boat anchor, clock, or goldfish tank)
- Note: Ronin engine mounts install in factory mount locations
- Orientation is as shown (front bumper toward the top of the picture)



- Pedestals use the forward most 4 holes on each side of the block.
- The Driver's side mount uses an asymmetric placement of the biscuit on the top surface.



- Passenger side mount places the biscuit in the center of the top surface



- Both sides utilize the factory front subframe mount locations.

- Prior to beginning engine installation you'll want to remove both of the OEM transmission mount humps from either side of the tunnel.
 - The mounts may be trimmed flat with an angle grinder
 - If you're looking for an exceptionally clean job a spot weld cutter may be used to aid in the removal. The pattern is as shown below.



- You may also wish to remove/fold flat the portion of the firewall lip immediately behind the intake manifold.
- Install engine mounts snug tight but do not torque yet
- Install pedestals to block (and torque)
- Drop in the motor and transmission combination
 - It's recommended this be done without radiator, shifter, exhaust or intake manifolds installed.
 - A load leveler is useful for the install and it's easiest done with the hood removed as well. The leveler may be mounted using the m8 bolt pattern for the intake valley cover. Use longer than normal bolts to ensure good engagement.

- Support the tail end of the transmission with a mechanics jack or other means to an approximate correct elevation.
- Assemble biscuit mounts as shown (nut end can be oriented up or down as you prefer) again, just snug tight.



- Install and torque the Prothane polyurethane to the transmission tailshaft.
- Install the bent Ronin transmission mount snug tight.
- Raise the tail end of the transmission until both sides of the bent Ronin trans mount are contacting each side of the tunnel.
 - You may wish to squeeze this slightly upward.
- Double check alignment of the mount, fit against both sides of the tunnel, and overall centering of the transmission.
 - You may wish to push and pull the assembly around slightly (hence the reason several components were only installed snug tight during trial fitment)
- Mark hole locations to drill for hardware in the tunnel.
- Remove seats and lift carpet in anticipation of drilling
- Disassemble and/or lower the motor and trans assembly to allow drilling of the tunnel.
 - Use of a step drill will result in an especially clean hole.
 - A 7/16" to 1/2" drill size will give you plenty of space for the m10 hardware.

- Remove all sound deadening from the affected area in a large enough area to not affect the internal plates. A hammer and chisel works well for this, cold helps it stay brittle.
 - Some tweaking of internal plates may help to ideally match your transmission tunnel.
- We need to secure the capture plates to the interior walls of the transmission tunnel.
 - This may be done via the user's choice of RTV, epoxy, rivets, extra hardware or spot welding. Given the clamp load should carry the transmission forces we simply want to secure the inner hardware in place such that it won't fall out when the trans mount is removed.
 - For simplicity, RTV silicon gasket maker is recommended. It will stay flexible and really spread out the load nicely. Add a thin coat on both surfaces on the tunnel and inside plates and clamp it down before it dries.
- Once everything has been test fit with snug tight hardware and capture plates installed motor may be fully installed and everything torqued.

Added Fitment Notes:

- This kit is intended to place the engine and trans fairly far aft (allows better weight distribution, clearance for the radiator and fan, as well as an optimal location for shifter vs. tunnel hole location). However, some additional clearancing for exhaust manifolds and/or headers may be required.
- We recommend you maintain at least 5/32" clearance to the steering rack. If you're running power steering this may require shimming. If so, it is recommended that this be accomplished between the pedestals and top surface of the biscuits via fender washers.

Finally, if you want a much longer winded read about all things related to LS FC RX7's here's a link to my build thread on norotors: <http://www.norotors.com/index.php?topic=1274.0>

I started playing with these cars and writing this thread back in 2005, long before Ronin ever existed. We launched Ronin partly because the other principals and I were dissatisfied with the offerings on the market and we wanted to make something better. We believe in these vehicles and we're proud to be part of this community.

Good luck and happy wrenching... Drop us a line if you need help
roninspeedworks@gmail.com

-Joel Payne
(for Ronin Speedworks, LLC)

Ronin Speedworks, LLC