



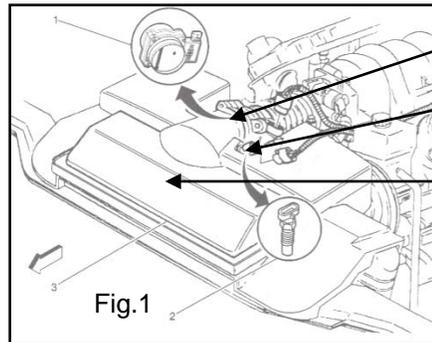
## #54039B LSX™ 92mm Intake Manifold

Thank you for your purchase of the LSX™ Gen III (LS1 and LS6), Gen IV (LS2) manifold. We are confident that you will be pleased with the performance and tuning provided by the LSX™. Please read all instructions carefully before beginning your installation. The LSX™ Manifold is designed to directly replace the stock unit including provisions for all sensors, fittings, hoses, EGR and emissions devices.

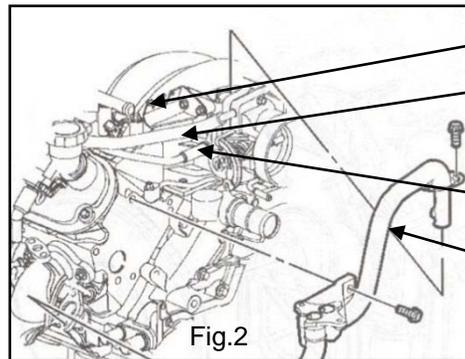
**Warning: Please review the packaging contents page to ensure you have all hardware and read the complete instructions before installation.**

### Stock Manifold Disassembly:

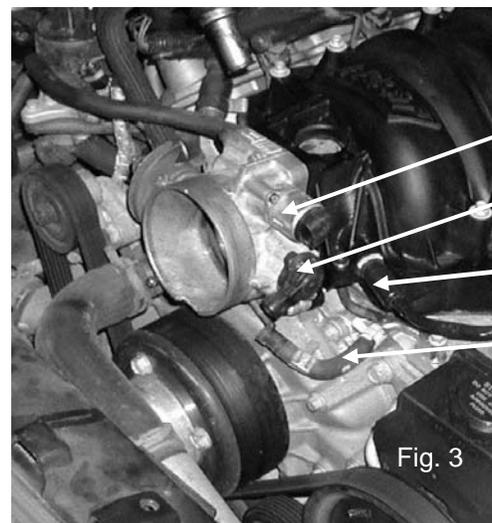
- 1) Allow engine to cool, disconnect the negative battery cable and relieve fuel pressure by depressing the Schrader valve on the end of the rail. Cover with a towel to absorb lost fuel.
- 2) Disconnect fuel line from rail by using quick-connect separator tool (J37088-A). Place shop towels around connection to catch additional gasoline.
- 3) Disconnect MAF & IAT sensors and remove induction system cover (Fig.1).
- 4) Disconnect PCV hose on manifold, PCV hose on throttle body, EGR pipe, throttle cables and set aside (Fig.2).
- 5) Disconnect coolant vent line hose, purge line, TPS & IAC connector (see Fig.3).
- 6) Unplug all 8 fuel injectors by squeezing clips with fingers and pulling up.



Mass Air Flow sensor (MAF)  
Intake Air Temp sensor (IAT)  
Air cleaner cover



Throttle cables  
Positive Crankcase Ventilation (PCV) fresh air  
PCV foul air (into manifold)  
Exhaust Gas Recirculation (EGR)



Idle Air Control (IAC)  
Throttle Position Sensor (TPS)  
Canister Purge fitting  
Coolant vent line (connects to throttle body)

**Stock Manifold Disassembly:**

- 7) Loosen all 10 intake manifold bolts (8mm hex). The five rear most bolts cannot be removed in vehicle (Camaro, Firebird). To remove manifold these must be partially lifted out of the way. A simple device (Bond sleeve) can be easily made to temporarily hold the bolts up (see Fig 4). These are made with a 1" piece of 1/4" rubber hose, slit lengthwise.
- 8) The stock manifold is ready to be removed, however there remain three hidden connections in the rear. The MAP sensor connector, a small vacuum line on the RH side & the brake boost vacuum hose on the LH side (Fig.5). On the Camaro and Firebird there is a tall oil pressure sensor that is trapped between the manifold and brake hose (see Fig 6). Carefully lift the manifold and move forward until you can reach behind and disconnect the aforementioned items.

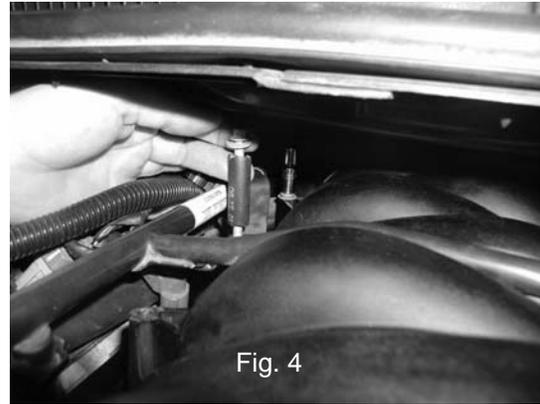


Fig. 4

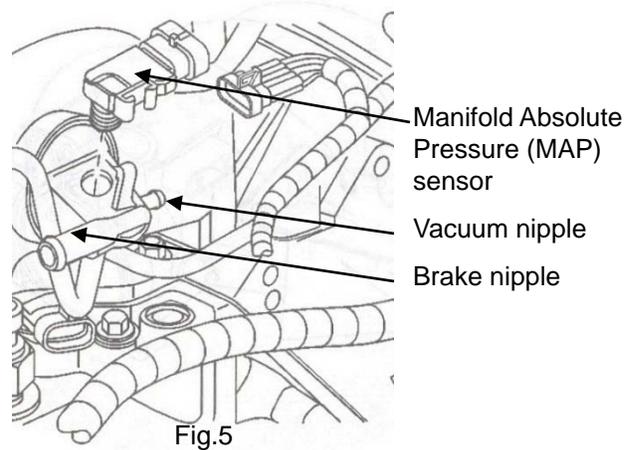


Fig.5



Fig.6

This oil pressure sending unit can be broken if the manifold is pulled straight out without lifting up to clear it first!



Top view of the LS1 in fourth gen. Camaro



### Required Modifications:

- 1) **Warning: Do NOT install this manifold without replacing the valley cover bolts (supplied), as this will result in damage to your new manifold.**
- 2) The rear coolant vent line on 1997-2000 Corvette and 1998-2000 Camaro/Firebird, located in the valley, must be replaced to clear your new high performance manifold. Replace with GM Part #12602544 front only crossover, and (2) #12602540 plugs. Torque vent pipe bolts to 12 N/m (106 in/lbs).
- 3) Remove plastic clips from knock sensor wire harness by unwrapping tape. Discard (Fig.11).
- 4) For EGR use (1998-2002 Camaro/Firebird) you must open the hole in your new manifold. Use a large diameter drill and Dremel type tool to modify polymer (30mm hole). Be careful not to damage the upper diameter where the o-ring seals (Fig.12).
- 5) Remove and discard purge solenoid bracket. There is no provision on new manifold for this bracket (Fig. 13).

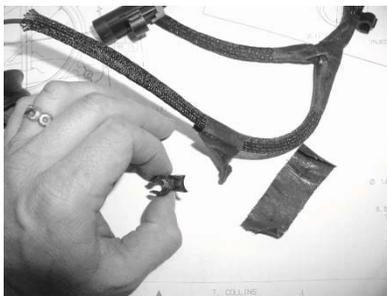


Fig.11

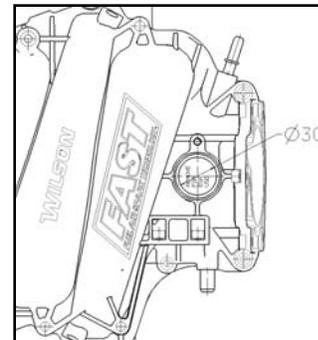


Fig.12

**EGR Plug**

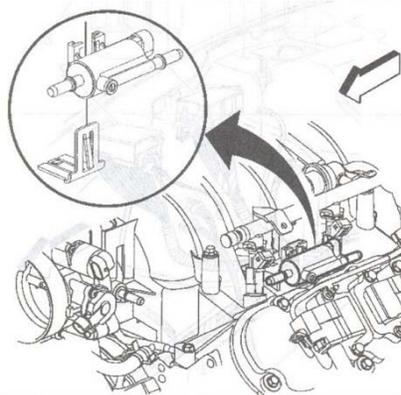


Fig.13



### **Manifold Sub Assembly:**

Your new FAST™ LSX™ Manifold is shipped with the inner piece sealed and pre-assembled to lower. The upper is loosely attached with (14) M6 bolts. Remove bolts and upper shell. Inspect cord seal to ensure it is still in place in perimeter groove and runner grooves as shown (Fig.14), and re-assemble upper shell using the (6) shorter bolts.

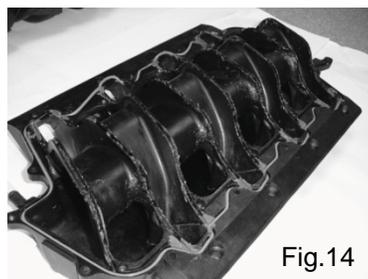


Fig.14

With both manifolds off the engine, transfer the following components from the stock manifold.

- Fuel rail and injectors (Fig.15). The injectors should remain in the fuel rail. Undo the four studs (10mm hex) and carefully unseat each injector from manifold.

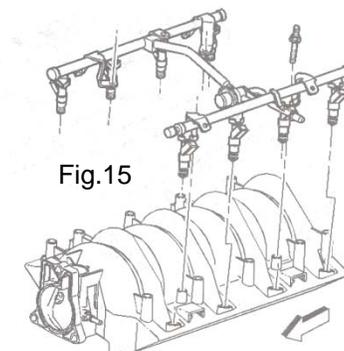


Fig.15

- Lubricate o-rings with clean engine oil. Inspect o-rings for damage. The OEM recommends new injector o-rings after disassembly. Carefully start all injectors in pockets, then firmly seat one side at a time. Add thread lock to M6 studs and tighten to 10 N/m (89 in/lbs). **NOTE:** OEM LS1/LS6 injectors and fuel rails are a direct bolt on. OEM LS2 injectors and fuel rails require FAST™ Part #54026 adapter kit.

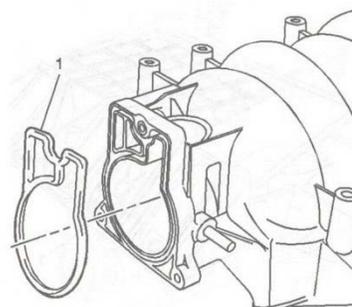


Fig.16

- On FAST™ 92mm Intake, install new, provided throttle body seal (FAST™ Part #54041) to new manifold (Fig.16).

- The OEM recommends new port seals after disassembly. On FAST™ 92mm Intake, install 8 new port seals (FAST™ Part #54009-8, not included). Make sure the small orientation tabs line up with the manifold.

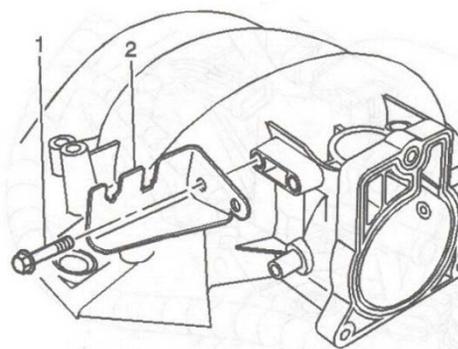


Fig.17

- MAP sensor – remove the sensor from the stock manifold and inspect seal. Reconnect to the wire harness in vehicle. It is easier to push in the connected sensor after installing the manifold than to reconnect the wire with the new manifold in position.

- Transfer the throttle body cable bracket, if present, using bolts and nuts provided. Torque to 10 N/m (89in/lbs).

**Manifold to Engine Assembly:**

- 1) Place manifold in valley but do not place all the way rearward. Attach brake boost hose, push in MAP sensor and slide in small vacuum nipple.
- 2) Add thread lock to all intake bolt threads and place rear most 5 in manifold with bond sleeves under head.
- 3) Move manifold into position by lifting slightly while moving rearward until brake nipple clears oil pressure sender (ref. Fig. 6). **DO NOT SLIDE MANIFOLD ON CYLINDER HEAD** because seals could be damaged. Once in correct position, the bolt bosses will find counter bores in cylinder heads.
- 4) Remove temporary bolt spacers on five rear most bolts and hand start all 10 fasteners. Don't forget the fuel rail stop bracket on RH rear (Fig.18).
- 5) Using two passes in the sequence shown (Fig. 19). First pass (45 in/lbs), final pass (89 in/lbs). **Caution: Over-torquing will damage the manifold and cause improper sealing!**
- 6) Throttle Body Installation: Using (4) M6 bolts provided, position to manifold, apply a dab of thread lock to M6 bolts and tighten to (50 in/lbs). **NOTE:** OEM LS1/LS6 throttle bodies require FAST<sup>™</sup> Part #146029-KIT adapter kit. OEM LS2 throttle bodies are a direct bolt on.
- 7) Reconnect coolant vent line hose, purge line, TPS & IAC connectors.
- 8) Reconnect PCV hose on manifold, PCV hose on throttle body and throttle cables.
- 9) If EGR is used, there is a self tapping screw provided for attaching to manifold.
- 10) Reconnect MAF & MAT sensors and induction system.
- 11) Reconnect all 8 fuel injector wire connectors.
- 12) Reconnect fuel line to rail. Add a few drops of clean engine oil to the male end, then reconnect.

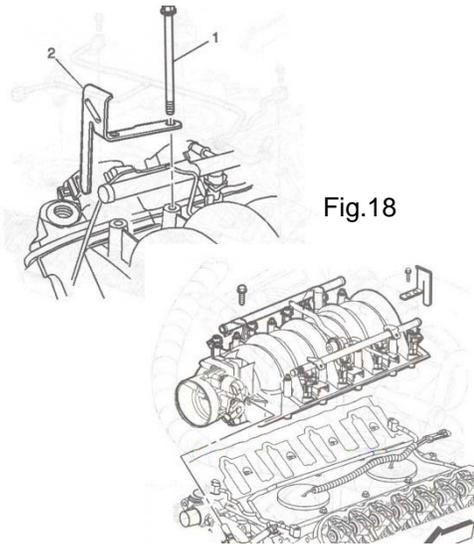


Fig.18

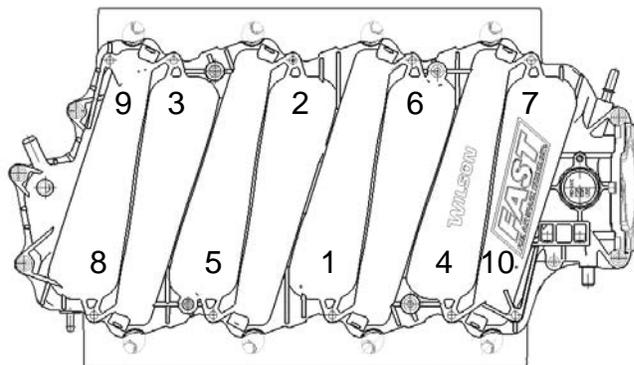


Fig.19

**Torque Sequence  
 89 in/lbs Maximum**



**Related Parts:**

Your FAST™ LSX™ Manifold can be purchased in individual components:

FAST™ (Part Number)	Description
54007	Inner Shell
54009-1	Cylinder Head Port Seal
54009-8	Set of (8) Cylinder Head Port Seals
54018C-KIT	Complete LSX™ Manifold Hardware Kit (Includes TB mounting hardware)
54018M-KIT	LSX™ Manifold Only Hardware Kit
54026	LS2 Injector / Fuel Rail Adapter Kit
54035	Lower Shell (Base) Rev J
54040	Upper Shell – 92mm Bore
54041	Throttle Body Seal – 92mm
146029-KIT	LS1 Throttle Body Adapter Kit

**Carb Executive Order**

This vehicle is equipped with:



**LSX™, LSX<sub>R</sub>™ & LSX<sub>RT</sub>™ MANIFOLDS**  
**PART# 146102, 146202,**  
**146302, 146602, 54039B**

The manufacturer certifies that these products are exempted by  
**CARB EXECUTIVE ORDER D-279-9**

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 www.fuelairspark.com



**Part #54039B 92mm LSX™ Intake Manifold Package Contents**

<b>Hardware Included In Packet</b>	
4	M6 x 22mm Socket Head Cap Screws (for mounting throttle body)
2	M6 x 20mm Socket Head Cap Screws (for throttle cable bracket)
6	6mm x 12mm O.D. x 6.4mm I.D. x 1.8mm Thick Flat Washer (4 for throttle body mounting screws, 2 for throttle cable bracket screws)
2	M6 x 10mm Wide x 5mm Tall Hex Nuts, 2 for throttle cable bracket
2	M6 x 110mm Socket Head Cap Screws (Bolts manifold to cylinder heads)
2	M6 x 16.5mm O.D. x 6.5mm I.D. x 3.5mm Thick Flat Washer (Manifold to cylinder head bolts)
10	M8 x 30mm Button Head Cap Screws (Replacement OEM valley plate bolts)
1	K60 x 20 PT Type Self Tapping Screw (For EGR)
1	92mm Throttle Body O-ring Seal
<b>Hardware Pre-Installed In LSX™ Manifold #54039B</b>	
6	M6 x 16mm Socket Head Cap Screws (Bolts upper shell to lower shell)
8	M6 x 110mm Socket Head Cap Screws
10	K40 x 20mm PT Type Self Tapping Screws (Inner shell)
8	M6 x 16.5mm O.D. x 6.5mm I.D. x 3.5mm Thick Flat Washer
14	M6 x 10mm Wide x 5mm Tall Hex Nuts for (M6 cap screws)
14	6mm x 12 O.D. x 6.4mm I.D. x 1.8mm Thick Flat Washer for (M6 cap screws)



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## FAST™

### LIMITED LIFETIME WARRANTY AND LIMITED WARRANTY

FAST™ warrants that its EZ-EFI™ products are free from defects in material and workmanship for the lifetime of the product. This **Limited Lifetime Warranty** shall cover **only** the original purchaser. All other FAST™ products are covered by a **Limited Warranty** which covers defects in material and workmanship for a period of **one year** from the date of purchase.

**FAST's obligation under this warranty is limited to the repair or replacement of its product.** To make a warranty claim, the part must be returned directly to FAST™ at the address listed below with a valid Return Merchant Authorization Number (RMA), freight prepaid. Items covered under warranty will be returned to you freight collect. To obtain an RMA, call 877-334-8355 to report the issue you are experiencing. At that time, FAST™ will attempt to trouble shoot your issue.

**It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection or installation.**

**There is absolutely no warranty on the following:**

- A. Any parts used in racing applications or subject to excessive wear;**
- B. Any product used in marine applications, unless that product is listed by FAST™ as a specific marine product;**
- C. Any product that has been physically altered improperly installed or maintained;**
- D. Any product used in improper applications, abused, or not used in conjunction with the proper parts.**

**There are no implied warranties of merchantability or fitness for a particular purpose.** There are no warranties which extend beyond the description of the face hereof. **FAST™ will not be responsible for incidental and consequential damages, property damage or personal injury damages.** Where required by law, implied warranties or merchantability and fitness are limited to terms outline above.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.



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