



Installation Manual

GM LS Fabricated Intake Manifold Kits (EFI and Carburetted)

Tunnel Ram and Hi-Ram Intakes

SKU	Description
PFEM63232	Supermax EFI Fabricated Intake Manifold Hi-Ram 102mm LS1/LS2
PFEM63242	Supermax EFI Fabricated Intake Manifold Hi-Ram 102mm LS3/L92
PFEM63252	Supermax EFI Fabricated Intake Manifold Hi-Ram 102mm LS7
PFEM67122	Supermax EFI Fabricated Intake Manifold Low Profile 102mm LS1/LS2
PFEM67322	Supermax EFI Fabricated Intake Manifold Low Profile 102mm LS3/L92
PFEM67121	Supermax EFI Fabricated Intake Manifold Low Profile 92mm LS1/LS2
PFEM67321	Supermax EFI Fabricated Intake Manifold Low Profile 92mm LS3/L92
PFEM63238	Supermax EFI Fabricated Tunnel Ram Intake Manifold LS1/LS2
PFEM63248	Supermax EFI Fabricated Tunnel Ram Intake Manifold LS3/L92
PFEM63258	Supermax EFI Fabricated Tunnel Ram Intake Manifold LS7
PFEM63237	Supermax Carburetted Tunnel Ram Intake Manifold LS1/LS2
PFEM63247	Supermax Carburetted Tunnel Ram Intake Manifold LS3/L92
PFEM63257	Supermax Carburetted Tunnel Ram Intake Manifold LS7

WARNING: PLEASE READ ALL INSTRUCTIONS BEFORE PROCEEDING. PROFLOW WILL NOT BE RESPONSIBLE FOR ANY DAMAGE AS A RESULT OF THE INCORRECT INSTALLATION OF THIS PRODUCT. IT IS RECOMMENDED THAT A QUALIFIED AUTOMOTIVE TECHNICIAN PERFORMS THIS INSTALLATION.

Description

Proflow Supermax manifold series are designed for GM LS Gen III and Gen IV engine platforms, available in all 3 OEM LS cylinder head types from LS1/LS2, LS3 and LS7. All of these manifolds are designed to work with OEM or aftermarket cylinder heads as long as the head is configured with the same intake flange bolt pattern and the correct intake port opening as the OEM hardware. Please ensure you have purchased the correct intake for your vehicle before installation (Australian and American LS2 engines have differing intake ports).

These Supermax Hi-Ram, Low profile and Tunnel Ram intake manifolds are designed for high performance engine applications with engine speeds of 6800-7400 RPM (EFI) and 7000-7500 RPM (Carburetted) depending on the engine combination. These are intended for maximum performance applications and will work best with upgraded engine components (eg. Cylinder heads, camshafts) and hardware. Modification of the bonnet may be required for most vehicle applications.

Installation Kit Contents (All Versions)

- ✓ 8x Intake O-ring gaskets
- ✓ Intake manifold to cylinder head mounting kit (screws + washers)
- ✓ 4x NPT to barb fittings

EFI Versions

- ✓ 2x Fuel Rails with -08AN ORB Ports
- ✓ Fuel Rail mounting hardware kit (Socket head cap screws, washers, and brackets)
- ✓ Braided steel cross-over fuel line with -08AN fittings configured
- ✓ 4x Fuel Rail fittings -08AN ORB
- ✓ 1x Fuel Rail block off plug -08AN

Installation of the Intake Manifold

1. Before installing the intake manifold, perform a test fit of the intake manifold without the o-rings installed. Make sure that the mounted studs supplied can thread freely into the cylinder heads. The mounted flange should seat properly and be completely flat.
2. Check the port opening alignment. Test fit the fuel and vacuum plumbing, throttle linkage and wiring. Ensure there are no clearance issues before beginning installation.
3. Once you have checked clearances and are ready to do the final installation, install the 8 o-rings provided into the mounting flange o-ring grooves. Ensure you apply a light coat of lubrication to these o-rings.
4. Put the intake manifold into place on the cylinder head. Be sure that all of the o-rings are still in their grooves and not being accidentally crushed or pinched.
5. Install the supplied socket head cap screws into the cylinder heads with flat washers. Apply light lubrication to the threads and hand tighten all screws working side to side and out from the centre (refer to figure 1) until the manifold is fully seated on the mounting flanges and the o-rings have been compressed.

Manifold Tightening Sequence

6. In two steps, tighten the mounting bolts first to 5 Nm and then to 10 Nm following the recommended factory bolt tightening sequence shown below.

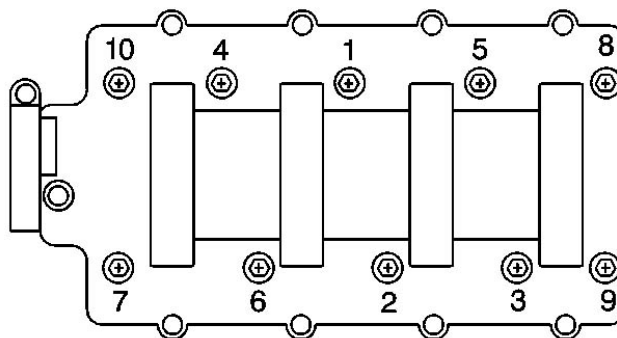


Figure 1: Recommended factory tightening sequence.

7. On the underside of the intake manifold, there are 4 holes tapped; 1x 1/4" NPT and 3x 3/8" NPT ports. These ports will provide ample vacuum port sources for both EFI and carburetted applications. Any of these ports can be used depending on what your vehicle requires. Any unused ports will need to be plugged with the appropriate NPT fitting plug (sold separately).

Fuel Rail Installation (EFI Intakes Only)

1. Insert the 8 fuel injectors into the o-ring bosses on the intake manifold by gently applying downwards pressure. Apply a coat of lubrication to the o-rings of the injector prior, to ensure you do not damage or pinch them.
2. Install the fuel rails by positioning them above the injectors on the intake and pressing down firmly until the injector is fully seated into the fuel rail. The Proflow logo should be facing outwards.
3. Install the 6x stainless steel fuel rail brackets into the intake manifold with the supplied button head screws. Do not fully tighten them yet.
4. Fasten the brackets to the fuel rail by putting the socket head cap screws through the holes in the fuel rails and into the bracket. Place the washers and nut on the other side of the rail and tighten the bracket to the fuel rail by fastening the nuts. Repeat this process for the other 5 brackets.
5. Install the supplied -08AN ORB fittings with o-rings to the ends of the rails and connect them with the stainless braided crossover tube (if suitable for your fuel system).
6. Finally, tighten the button head screws securing the bracket to the intake. Rotate the injectors so the plugs are facing outwards and reconnect them to the wiring harness.

Fuel Rail Plumbing Notes:

- The supplied fuel rail is designed to provide enough flow and volume to dampen fuel pressure oscillations and variations at the inlet of the fuel injectors (-08AN ports).
- For engine power levels below 700HP, -06AN (3/8") plumbing will suffice.
- For engine power levels above 700HP, -08AN (1/2") plumbing is recommended.
- It is recommended to feed the fuel rails by splitting the supply line with a 'Y' type distribution block and feed each end of the fuel rails individually. The other ends of the fuel rails would then need to connect to the inlet port of a fuel pressure regulator using another 'Y' type distribution block, combining both fuel rails into a single return line.

Carburettor and Throttle Body Installation

1. When installing carburetors or throttle bodies, check that all throttle levers and linkage components have adequate clearance from the intake manifold and other components that may interfere. Proflow Tunnel Ram intakes have both 4150 and 4500 bolt patterns pre-drilled.
2. Proflow Tunnel Ram intake manifolds do not have mounting boss provision for throttle linkages, so a custom bracket may need to be fabricated.
3. If connecting two Proflow throttle bodies together, you must also use # PFEM6950 to connect the linkages to operate simultaneously.

Installation on Modified Engines

Proflow Supermax intake manifolds are designed to provide maximum performance for LS racing engines. These intake manifolds will have the best fitment when the engine block and cylinder heads are machined to OEM dimensions. If the engine block or cylinder head deck surfaces have been machined significantly, the alignment of the mounting bolt holes and the port flange openings may be shifted and may not match up satisfactorily.

These steps may have to be undertaken if your block or deck surfaces have been machined:

- The bolt holes may have to be slotted in the intake manifold to allow the fastener to pass through the manifold mounting holes.
- Any material removal required to align the intake port flange openings should be removed from the cylinder head and not the intake manifold. Removing material from the intake manifold will jeopardise the sealing power of the o-rings.
- The intake mounting surfaces on the cylinder heads should be in good condition and free of scratches or burs. If not, these defects may impede the sealing ability of the intakes o-rings.

Proflow Service Parts/Accessories

Fuel Rail Kits

PFEM62217 – Suit manifold PFEM63258 / PFEM63252

PFEM62218 – Suit manifold PFEM63232 / PFEM63238

PFEM62219 – Suit Manifold PFEM63242 / PFEM63248

Replacement Intake O-Rings & Bolt Kit

PFEM6901 – Suit cathedral port manifolds (LS1/LS2)

PFEM6902 – Suit rectangle port manifolds (LS3)

Throttle Body Linkage Kit

PFEM6950 – Suits Proflow quad throttle bodies

Throttle Body Cable Bracket

PFETBN81013 –LS throttle cable and cruise control bracket

Throttle Body Elbow

PFEM65500 – 25 degree throttle body elbow