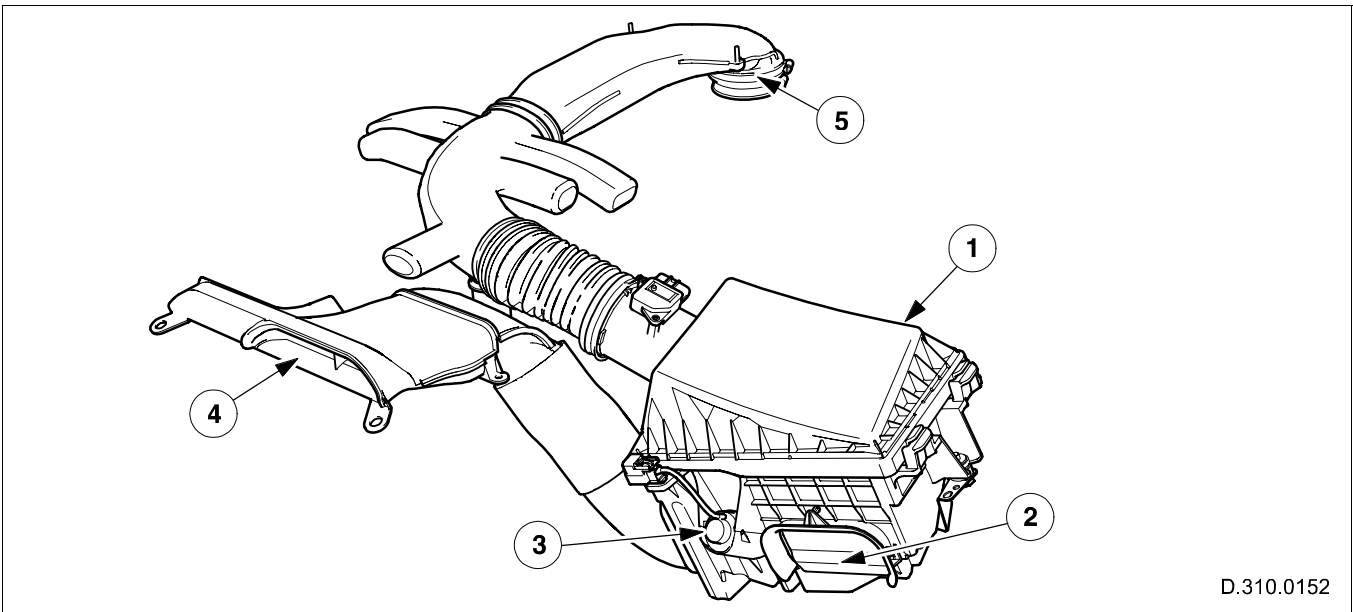


The intake manifold, refer to **Fig. 43**, is designed to optimize torque across the engine speed and load range. The air-charge enters the intake manifold from the throttle body and passes through a plenum chamber for distribution to the cylinders. The function of the plenum chamber is to provide a resonance (or maximizing) effect so that large pulses of charge air will arrive at the inlet ports at the correct time for induction into the cylinders. This ram charging action is only effective over a restricted speed and load range for a particular plenum chamber volume and geometry. To extend the effect over the whole engine speed range, the manifold geometry can be set to three different configurations, by the ECM individually switching the intake manifold tuning valves (IMT valves) between fully open and fully closed at calibrated engine speeds. Each of these configurations modifies the geometry of the manifold plenum chamber, maximizing the tuning effect over different parts of the engine range. The resulting optimized volumetric efficiency, provides optimized engine torque output throughout the engine's entire speed range. Optimized plenum volume also acts to improve transient response where required.

V8 supercharged engine

The introduction of the V8 SC engine into the S-TYPE, introduces a revised air intake and supercharger unit for Jaguar, refer to **Fig. 45**. The revised unit improves performance by increasing supercharger speed by 5%. Improvements made to the unit include:

- Supercharger rotors driven by helical-cut gears in place of spur-cut gears.
- Rotors having a more efficient coating.
- High-density fin intercoolers.
- More efficient air-flow through the air-intake trunking.
- Low loss supercharger outlet ducts.
- Twin intake into the air cleaner housing, refer to **Fig. 42**.
 - The ECM directly controls the solenoid, to open and close the air intake control-flap in the air-cleaner housing. The control flap is opened at high engine speeds and loads to satisfy engine air-charge requirements.



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Fig. 42 V8 SC air intake assembly

- | | |
|--------------------------|--------------------------------|
| 1. Air cleaner housing | 4. Air intake |
| 2. Control flap | 5. Air outlet to throttle body |
| 3. Control flap solenoid | |