



Tech Note

The following Saab bulletin relates to known issues regarding 95 models equipped with the 3.0L V-6 engine from 1998-2001.

If you are pursuing a catalytic converter code, or catalyst damage and cannot easily locate the probable cause, the 3 issues herein are likely candidates.

All 3, intake leaks, fuel delivery/pressure, and evaporative issues are the largest causes of both false catalyst codes as well as real catalyst damage.

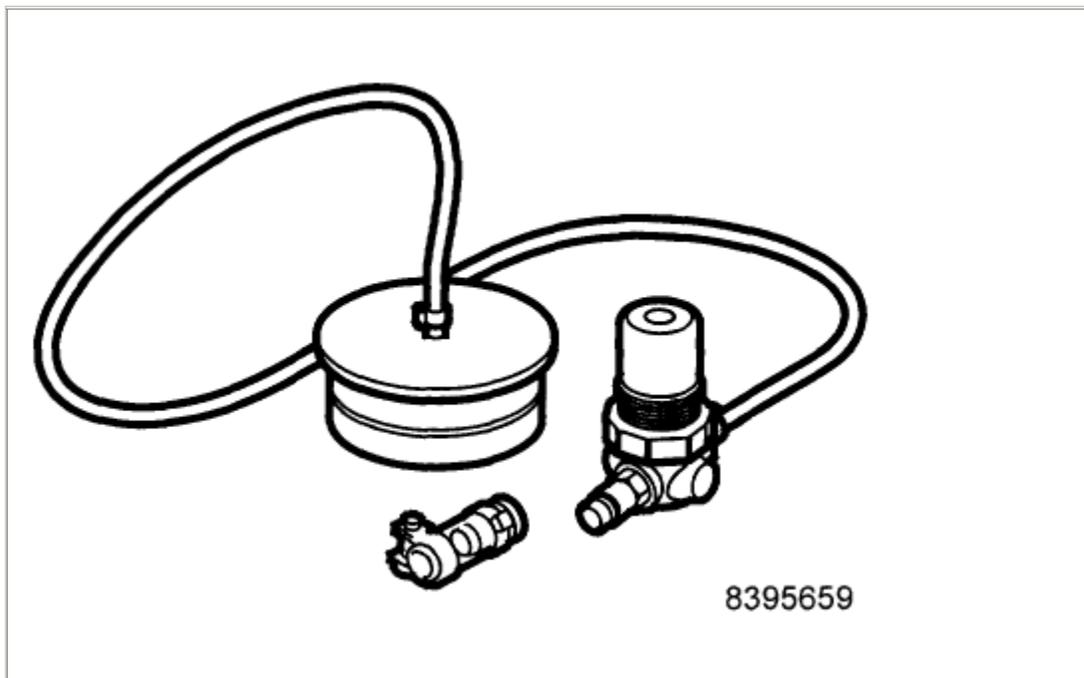
Always begin with our Tech Tri-fold troubleshooting guide located at www.deccats.com. It can be a real time saver.

SERVICE INFORMATION

Bulletin Nbr: 248-2240

Date: November 2000

Market: all



Air leak testing of intake system, Trionic T7 V6

Cars affected

Saab 9-5 with V6 engine, M98-

The car can exhibit certain fault symptoms without generating a diagnostic trouble code. This can be due to an air leak in the system or insufficient fuel pressure and flow capacity.

The fault diagnosis listed below includes checking air leaks, fuel pressure, flow capacity and adaptation procedures. If a trouble code is present the appropriate fault diagnosis procedure should be used. The method below is to be used if the problem cannot be traced with a diagnostic trouble code.

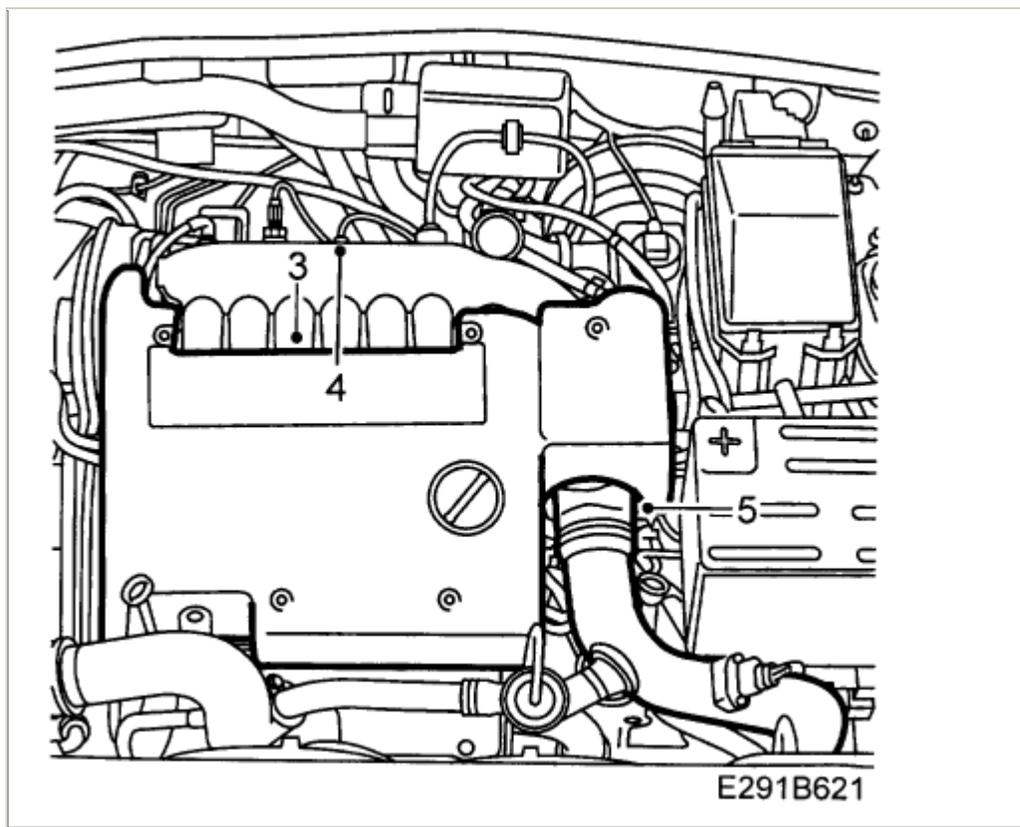
Symptom description

The car may have one or more of the following symptoms:

- ^ Poor drivability
- ^ Reduced performance
- ^ Engine has uneven or low idling speed. Surge or hesitation upon acceleration
- ^ CHECK ENGINE lamp on

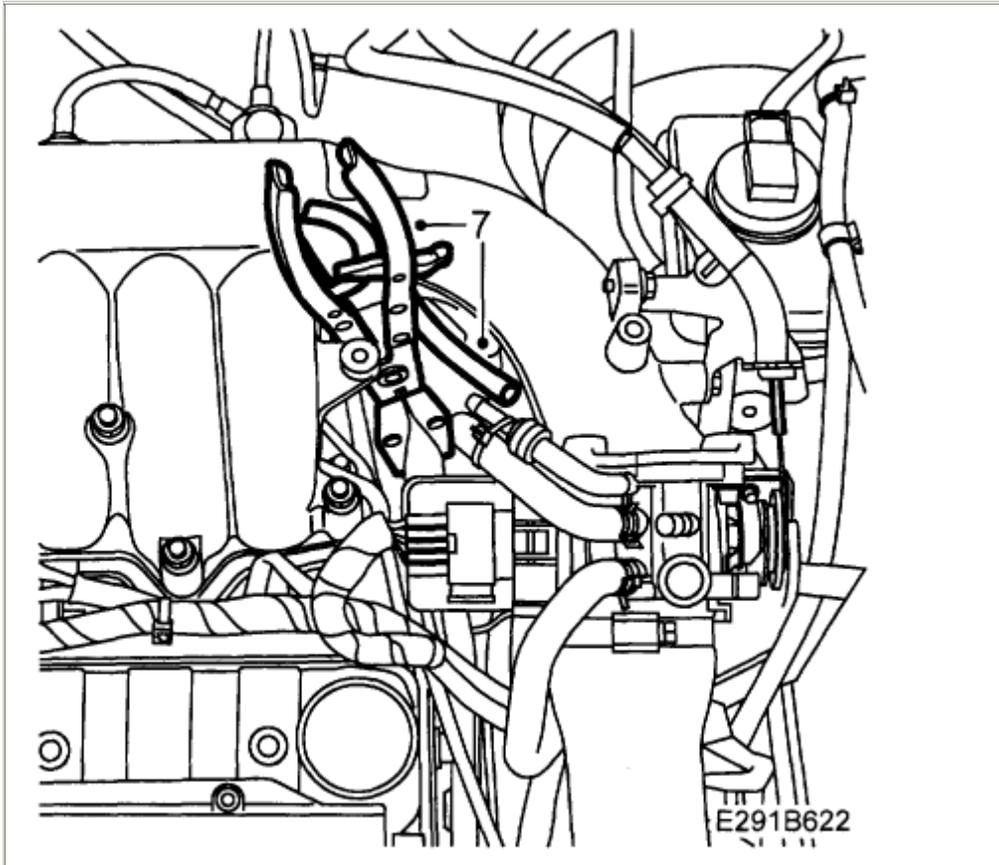
16-30 04 223 Electronics cleaner

1. Make 2 copies of the checklist at the end of this document. Fill out one of the copies before initiating diagnostic procedures.
2. Connect Tech 2.

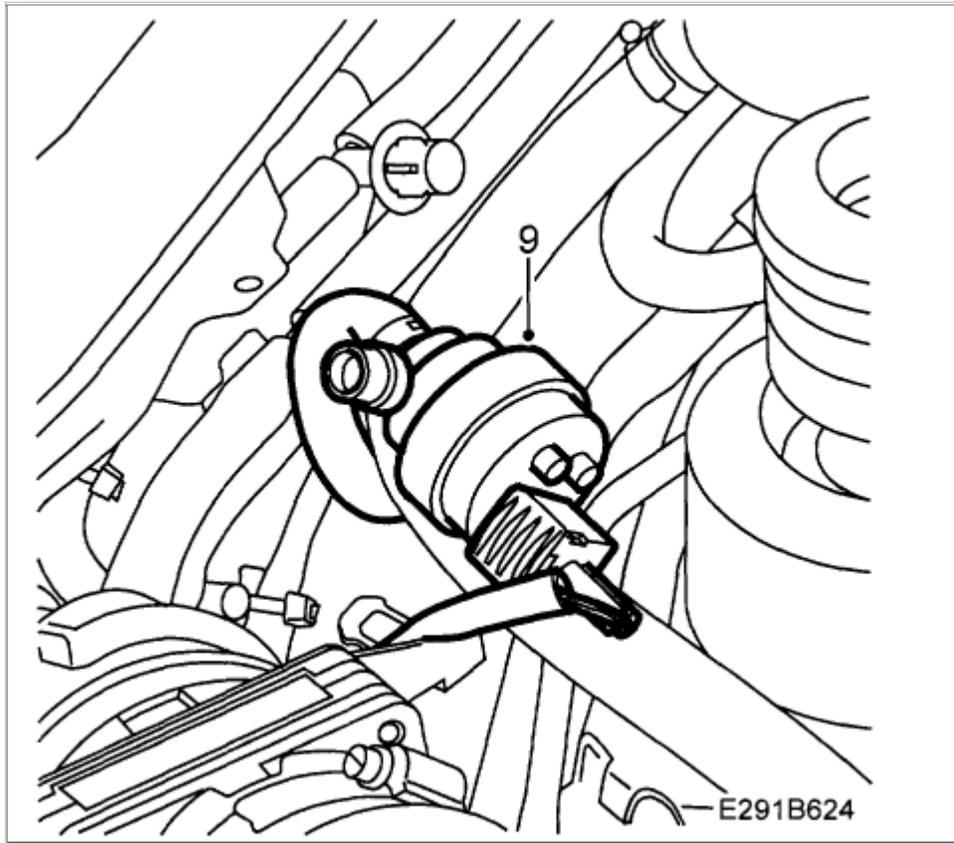


3. Remove the oil filler cap. Remove the upper engine cover. Replace the oil filler cap.
4. Connect the measurement tool for boost pressure 83 93 514 via a T-line to the intake pressure connector on the engine's intake manifold.
5. Detach the charge air pipe and wipe clean the inside of the throttle body. Moisten a lint-free rag with electronics cleaner, part number 16-30 04 223.
6. Attach the charge air hose to the throttle body. On versions with a pipe, coat the O-ring with Vaseline.

Pressure test the system as follows:

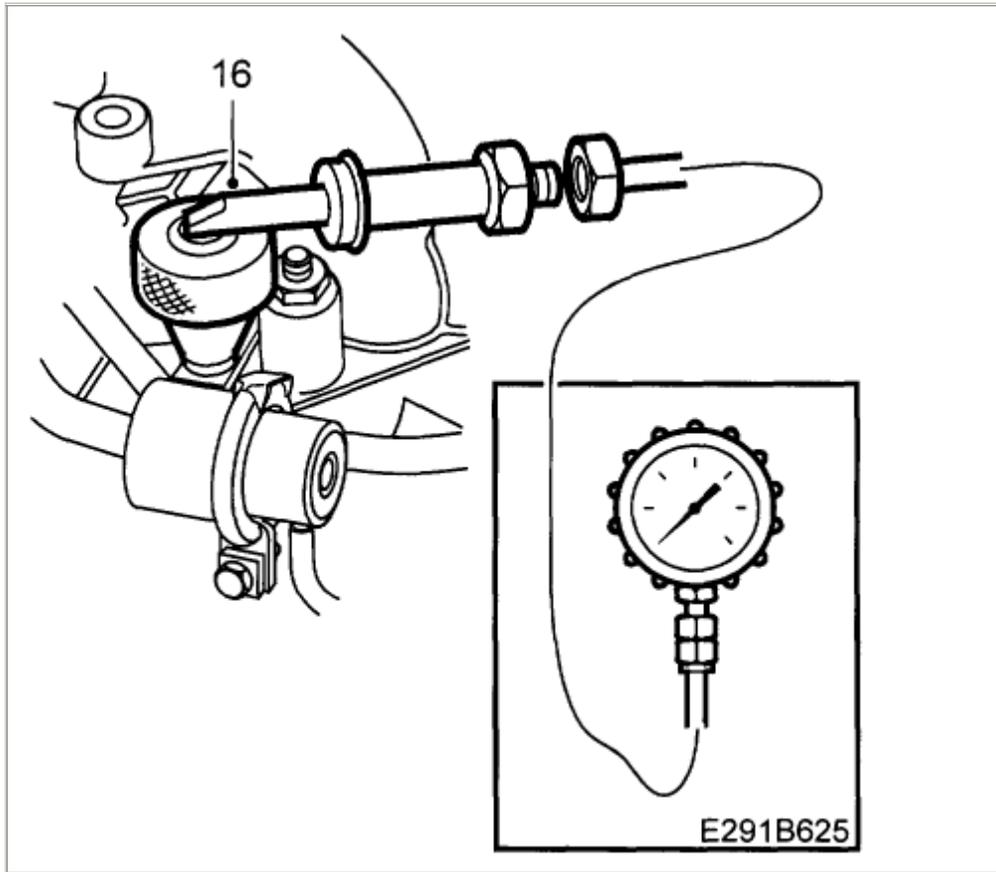


7. Detach and plug the hose from the check valve and plug the crankcase ventilation hose with pinch-off pliers 30 07 739.
8. Detach the hose from the mass air flow sensors. Mount plug kit 83 95 659 in the hose and connect the accompanying pressure regulator to an external air pressure outlet.



9. Detach the hose from the evap canister purge valve.
10. Pressurize the intake system by carefully turning the pressure regulator until a maximum 0.6 bar of overpressure is attained. The value should be monitored using the pressure measurement tool 83 93 514.
11. This pressurizes the entire intake system allowing leaks to be located by use of leak detecting spray or soapy water. Check all components, hoses and connections. Fix any leaks that can be heard.
12. Remove the plugs and connect the hoses to the mass air flow sensor.
13. Connect the hose to the evap canister purge valve.
14. Remove the pinch-off pliers from the crankcase ventilation and check valve hoses. Connect the hose to the check valve.
15. Check the control module's software version in Tech 2. If there is a more recent version in WIS it should be programmed in to the control module.

Checking fuel pressure / flow capacity



16. Connect the fuel pressure measurement tool 83 93 852 using adapter 83 94 744 to the connector nipple on the fuel-injection rail. Pull the signal hoses with the manometers for fuel pressure and intake pressure into the passenger compartment via the side window. Be sure that the hoses are not pinched.

Pressure, intake manifold	Fuel pressure
-0.6 to -0.4 bar	2.4-2.6 bar
0 bar (atmospheric pressure)	3.0 bar
0.6 bar	3.6 bar

17. Measure fuel pressure while driving with as high a load as possible. Read the measurements on the manometers. The pressure differential should always be 3 bar of fuel pressure according to the table shown.

Drive thereafter with varying load and engine speed. Check that the fuel pressure follows the pressure in the intake manifold.

If the pressure differential is wrong, check the fuel pressure regulator, the fuel pump and the fuel lines - inflow and return. Check that the tank purge valve functions. See WIS - Engine - Evaporative emission system ORVR - Adjustment/replacement -

Leakage check in evaporative emission system.

18. Check the fuel adaptation with the help of Tech 2. Carry out the adaptation as follows:
 - 18.a. Turn off the A/C or ACC.
 - 18.b. Engine temperature should be over 80°C and the engine should have been running for at least 3.5 minutes. The adaptation must be completed within 10 minutes of engine start-up.
 - 18.c. Drive on a flat road at between 1500 - 2750 rpm in 5th or 4th gear, attempting to keep the accelerator pedal completely still for approximately 2 minutes.
 - 18.d. Stop the car and let the engine idle.
 - 18.e. Read "multiplicative adaptation" on Tech 2.
 - 18.f. Read "additive adaptation" on Tech 2. If the value does not change within 10 minutes, turn off the engine and start it up again and repeat steps 18b - 18f. If the value still does not change, go to step 23.
19. Carry out the adaptation of the throttle opening.
 - 19.a. Coolant temperature should be over 80°C. Turn off the A/C or ACC.
 - 19.b. Let the engine idle for 2 minutes. Turn off the engine.
 - 19.c. Repeat step 19b 3 times.
20. Fill out the second copy of the checklist.
21. Disconnect the pressure measurement tools and Tech 2.
22. Refit the upper engine cover and oil filler cap.
23. If the problems have not been solved, contact the importer's technical support. Have the checklists that were filled out ready.

Checklist

1. Describe the fault symptom:
 2. Connect Tech 2.
 3. Turn off A/C or ACC and let the engine idle. Coolant temperature should be over 80°C.
- Note** Diagnostic trouble codes may not be erased.
4. Read and note any diagnostic trouble codes:

	Unit	Turn Ignition On	Idle	Desired value
Engine speed	rpm	-----		800-850
Air mass/Combustion	mg/c	-----		
Coolant temperature	°C			85-100
Variation from measured air mass	%	-----		max 10
Intake air temperature.	°C			40-60
Atmospheric absolute pressure	kPa			90-115

	Unit	Turn Ignition On	Idle	Desired value
Charge air absolute pressure	kPa			95-110
Intake manifold absolute pressure	kPa			25-60
Additive adaptation	mg/c			max 0.6
Multiplicative adaptation	%			max 6
Charge air adaptation	%			max 10

	Number of knockings	Number of missfires
Cylinder 1		
Cylinder 2		
Cylinder 3		
Cylinder 4		
Cylinder 5		
Cylinder 6		

5. Choose "Engine" - "Trionic" - "Read value I Activate" in Tech 2. Read and note the following values:

Chassis number	
Software version (obligatory)	

Under "system information" you will find information on chassis and version numbers for Trionic T7

The plate with the engine number is placed on the cylinder block according to WIS - Engine - Basic engine, V6- Technical data - Engine number.

Engine number	
Fuel injector, colour	

To see the color of the injectors, remove the upper engine cover.

In the case of customer complaint and if the car is within the warranty period, use the following information to fill out the claim:

Failed Object: 24810

Fault/Reason code: 08

Location code: 09 (US=9)

Warranty Type (US): 01

Repair/Action code: 08

Labor Operation (US): Straight time 1.5 hours

Time: 1.5 hrs.