

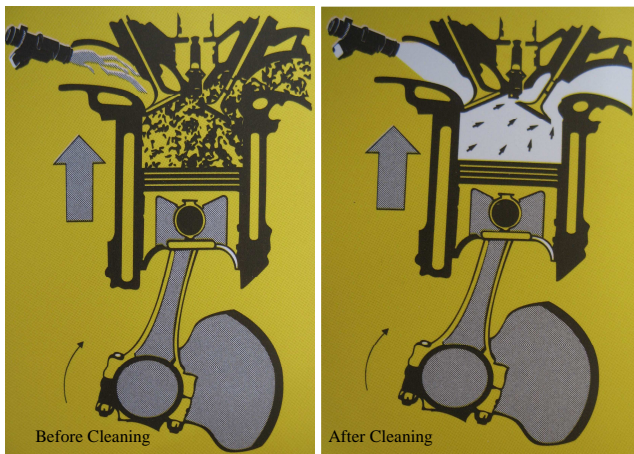
CIM: Injector & Carburetor System Cleaning Device

CIM is an innovative device, designed to cleanse inside of engine, injector, carburetor and the entire passage from air intake through to the combustion chamber and to the exhaust. With this device, there is no need for dismantling injectors off the engine.

The CIM device is useful for:

1. Removing silts from internal passages, and cleaning injector and carburetor of a car without dismantling any major part.
2. Cleaning the intake manifold, inside of injectors or carburetors where applicable and all the accessories.
3. Cleaning the air intake sensors.
4. Removing sediments off internal walls of a petrol-based internal combustion engine chamber, pistons and areas surrounding the throttles (see schematics below).
5. Cleansing the catalytic converters in cars equipped with such systems.

Engitech recommendations: Apply only our recommended solutions. Every engine incorporating injector or carburetor requires silt removal from the air intake to exhaust manifold every 2 years or after every 35,000 km travel.



Benefits of the silts removal by CIM:

1. Reduce fuel consumption.
2. Increase engine acceleration and power.
3. Restore orderly function of the engine hence reduce noise and vibration.
4. Assist in start of the engine with ease.
5. Decrease air pollution.
6. Assist with trouble-shooting injectors including leakage fault; and, rectify the defect up to 95%.

Note: engines with carburetor may need re-tuning the air and fuel mixture after the silts removal. In limited cases where the engine valves are manually adjusted, it may be necessary to re-tune filler gauging in the valves such as in vehicles used as freight couriers, travelling very long distances ~200,000km and above.

Engitech Pty Ltd provides training on CIM and its application free of charge to its customers. You must attend a CIM training course run by Engitech before using the CIM device; after assessment, a certificate will be issued at conclusion of your training.

Mandatory preparatory procedures prior to an engine silts removal are as follows:

1. Ensure you have attended the training course on the CIM device application.
2. The cleansing process using CIM must be in an open environment and must not be conducted in an enclosed space or near building air intakes.
3. Open the fuel tank cap and leave the tank open until the whole CIM process is completed.
4. Isolate the engine from the fuel supply and return lines. This is by firstly disabling the petrol pump function within the fuel circulation circuit. The fuel pump must not be pumping fuel during the CIM application. Remove the pump fuse, relay or disconnect the pump wiring. Then connect the hose supplying fuel from the pump to injectors onto the hose returning fuel to the fuel tank using appropriate couplings. This ensures any residual fuel in the fuel circuit reticulated back to the tank and not leak out into the engine or externally. If you do not understand this procedure, do not hesitate to

contact and consult Engitech engineers prior to continuing the process.

5. Detach hose connecting the fuel pump to the engine/injectors and blank off the fuel supply path (i.e. only de-plumb fuel pump from engine).
6. Disconnect the injector fuel inlet and outlet.
7. Applying only the recommended solution. Using non-standard or miscellaneous substances may harm the injector and accessories and destroy your engine and the CIM.

Note that using chemicals, fluids or any cleaning agent not recommended by Engitech Pty Ltd will void the CIM warranty and harm your vehicle. Steps 1 to 7 above are compulsory and part of essential safety procedures and must be strictly followed.

Silts Removal Procedure:

Injectors Cleansing:

1. Wear Personal Protection Equipment (PPE), mask and goggles. Samples have been provided in the CIM carry bag. If there are trainees, assistants or observers, they must also be wearing PPE.
2. Open the CIM cylindrical container by holding centre of the top fittings and twisting the cylinder anti-clockwise. Carefully fill the container with recommended solution (**Fuel Injector Cleaner**) and close up to securely seal the container (Figure 1).

Figure 1



3. Reconnect the container to the CIM and tighten it by twisting it clockwise.

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4. Connect outlet of the CIM to the hose leading (inlet) to the injector.

5. Close input and output valves of the CIM container and connect the CIM intake to an air-compressor from the side that has a regulator as shown in Figure 2. The CIM device is now in the fuel circulation path (Figure 3).



Figure 2



Figure 3

6. The desired pressure (approx. 3.5 Bar) can be regulated using the in-line regulator (Figure 4).



Figure 4

7. First open the CIM inlet valve and then open the outlet valve. This sequence is essential to ensure no leakage within the CIM (Figure 5 and Figure 6).



Figure 5



Figure 6

8. Prior to starting the engine, close the CIM outlet valve. This condition is maintained for few minutes to sustain pressure at the engine fuel inlet circuit.

9. Maintain the system under pressure for about 5 minutes, check to see whether the pressure gauge on

the CIM outlet indicates any reduction in pressure, pinpointing to an injector leak problem.

Note: Steps 1 to 9 above are to trouble-shoot the injector for leakage problems.

10. Open the CIM outlet valve and start the engine and rev the engine to as high as 2000 RPM. Run the engine for about 10 to 15 minutes till the solution flow (visible through the intake hose) appears to be finishing. As soon as you notice that the solution is running out as indicated via the flow visible through the clear hose, immediately turn the engine off (Figure 6).

11. Shut the CIM outlet valve (Figure 6) and wait for about 5 minutes. As pointed out earlier, after conducting the cleansing operation and removing the silts, in most cases and even up to 95% of leakage faults will automatically remedy. However, if you observe a pressure drop at the outlet gauge, this will indicate a leakage problem still exists in the injector hence non-recoverable and, the injector may need replacing.

12. Open the CIM outlet valve. Turn ignition on to start and run the engine till the cleaning fluid runs out.

13. Turn the engine ignition off.

14. Shut the device's inlet valve and disconnect the air from the device's regulator end. Then open the device's inlet and outlet valves to release air from the CIM components and the engine injectors.

15. When the silt elimination procedure completed, disconnect and take out the CIM from the fuel circulation path, and re-plumb the injector and pump as per the original connections. The fuel pump should be put back in the fuel supply line both electrically and mechanically.

16. Close the fuel tank's cap.

17. Start-up the engine again and check you reconnected the hoses properly and safely and no leaks.

Note: According to Engitech Automotive experts' advice, all petrol-based internal combustion engines require silt removal from the air intake channel to the exhaust every 2 years or every 35,000 kilometers travel.

Carburetor, Catalyzer, Sensors and Exhausts

1. Prepare the CIM set-up as per the injector silts removal procedure described above noting that this time you use the Engitech recommended **Carburetor and Manifold Cleaner** (Figure 7).



Figure 7



Figure 8

2. Connect the **spraying nozzle** onto the outlet hose (Figure 8).

3. Point the sprayer onto the carburetor intake and throttle plate for the silt removal of the sensors. Depending on type of the vehicle, the sensor may need to be removed for carrying out this procedure (Figure 9).

Figure 9



4. Re-install the sensors or valve in their original location and start the engine and rev the engine to about 2,000RPM. Insert the **spraying nozzle** onto the air intake chamber and open the **spraying nozzle** valve allowing solution flow through. After 10 to 15 minutes the solution will run out and the silt removal operation is completed.



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