GENERAL CONSIDERATIONS AND INSTRUCTIONS FOR INSTALLATION OF ECO SYSTEMS

SAFETY FIRST: Safety instructions must be provided to all Global Distributor's technicians at least once a quarter. New employees shall be pre-instructed to the installation of ECO SYSTEMS in all types of gasoline or diesel vehicles and will be accompanied by an experienced person for a period of time set by the Supervisor prior to employment/installation. It is prohibited to train a new employee or employee to practice installing ECO SYSTEMS without safety training inductions.

NO REPAIR: The ECO SYSTEMS does not repair any damaged parts of the engine, such as Spark plug, Injectors, Injection fuel pump, DPF filter, carburetor, catalyst convertor etc… However, ECO SYSTEMS helps to extend the life of the mentioned parts and components.

WARRANTY: Above mechanical damages do not affect the quality and warranty of the ECO SYSTEMS. Regularly remind the customers that the user is 100% responsible for the costs associated with maintenance of engine parts and that ECO SYSTEMS do not affect these parts negatively.

INSTALLATION STEPS: The ECO SYSTEMS needs to be installed in a careful order such as following:

1. The employee or installer must sign the Safety booklet each day and be checked prior to the commencement of the installation. it is prohibited to start installation if the Safety booklet is not signed and not checked.
2. The employee is responsible for installing the ECO SYSTEMS at high-quality level to ensure there is no leak or whilst installing, technicians don't manually damage any other wires or hoses of the vehicle.
3. Prior to installation, there must be an inspection of the vehicle and identification of the right place to fit in the ECO SYSTEMS. In case there is any mechanical damage prior to installation, the customer shall be explained kindly and offered to use the service later again when the vehicle does not present any damage.
4. The type of ECO SYSTEMS (ECO # 2, ECO # 4, ECO # 5, ECO # 6, ECO # 7) shall be specified depending on the engine capacity of the vehicle. Note: A car with a CRDi engine and a German car must be installed with ECO # 4. Choose ECO # 5 for all type of Mercedes models.

Type	Engine size	Application
	Any engine under 5 Liters/5,000cc/	All types of cars, SUVs and jeeps
	Any engine under 400 horse power /5,000cc-13,000cc/	All types of Jeeps and haul trucks
	Any engine between 400-825 horse power	HGV, bus, coach, Generator, Crane, Tractor, Agriculture machines, Mercedes, CAT, Volvo etc..,
	Fuel lines up to ½ inches in diameter	All types of HHP engines, mining machines
	Fuel lines of 3/4" in to 1 and 1/2" inches in diameter.	

5. After identifying the right ECO SYSTEMS for the vehicle, connect the installation kits to the ECO SYSTEMS and check that it is fully tightened. When making the connection, make sure that the gasoline /diesel Teflon tape is sufficiently wrapped around the thread. If the Teflon tape is not wrapped enough, tread is killing and there is a risk of gasoline / diesel leakage.

- The figure shows a real case example of Teflon tape being insufficiently wrapped and the thread being killed due to over-tightening.

- M14 connection fittings use for Mercedes Benz cars.

- If don't use the push lock quick disconnectors, Another option is to use NPT (1/4 inch) on one side and JIC (3/8 inch) fittings

i. **CAUTION:** Do not use a 90-degree connector on either side of the ECO SYSTEMS in a diesel vehicle. If necessary, a 90-degree fitting on one side can be used.

ii. **CAUTION:** Do not use 90 degree connectors on either side of the ECO SYSTEMS in the race car. 90s degree connectors are reduce fuel flow pressure.

6. Open the fuel tank lid to release the air first. / There is a risk of radiation to the eyes of the employee who is making the ECO SYSTEMS installation/
7. Do not cause any flaming related activities such as smoking or put a fire nearby during the installation process. This is because during the installation, the vehicle will be disconnected from the gasoline / diesel hose and a certain amount of gasoline / diesel will be spilled.
8. The engine must be switched off completely before installing the ECO SYSTEMS. Double check engine is completely turned off. In some cases, during the installation process some gasoline / diesel is lost (leaking), the ECU / Engine Control Unit / may indicate an error and ENGINE CHECK flashes on. error. At this point, disconnect the negative side cable on battery for 15 minutes.

9. Correctly determine the location of ECO SYSTEMS installation. The ECO SYSTEMS goes between your fuel filters and the fuel intake. The fuel return hose does not apply.
10. The location of the ECO SYSTEMS shall be immovable, free of damage and no damage to the other parts of the vehicle. Use a gasket when necessary.
11. When selecting the location of the ECO SYSTEMS for a diesel vehicle, install it below, in parallel or lower with the fuel filter. If the ECO SYSTEMS is installed higher than fuel line system (fuel injection pump), the air keeps rolling back and forth in SYSTEMS and restricts the fuel flow (Put ECO SYSTEMS lower and air goes to highest point allowing the air to escape. No more restriction.) if the ECO SYSTEMSS is higher they have air bubble and will lose engine power due to air in the fuel line. An example is shown in the figure. ***/2 things to always look for is make sure there is no Kink in fuel lines to restrict fuel. And second make sure unit is always at same level as fuel filter or lower. If it is higher than fuel filter it will get air bubble and restrict fuel that restricts power/***

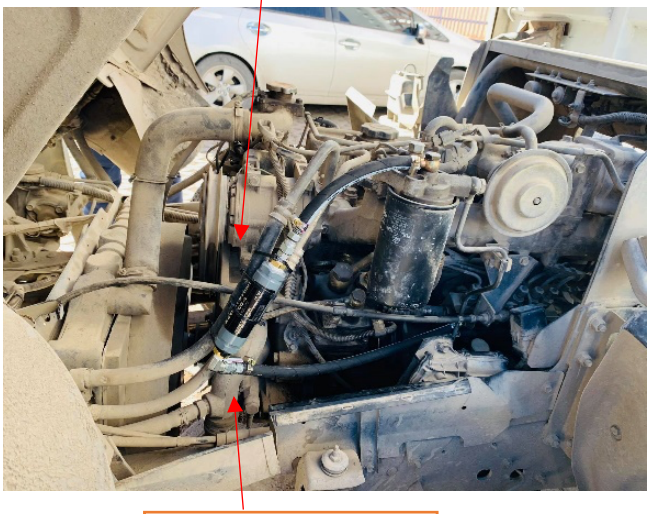
<u>Some of the Installation Examples below:</u>

Diesel Land Cruiser 200

ECO#2 Location

Diesel Hauling Truck

Diesel Hyundai Engine/Fuel filter/

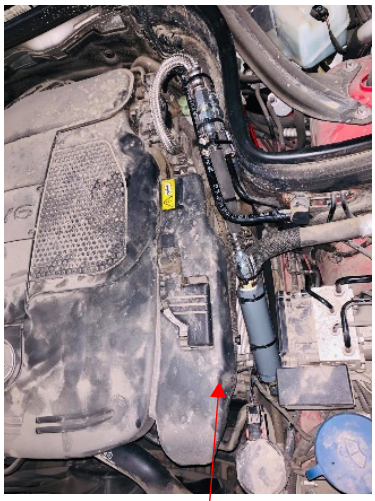


ECO#4 Location

Fuel Filter

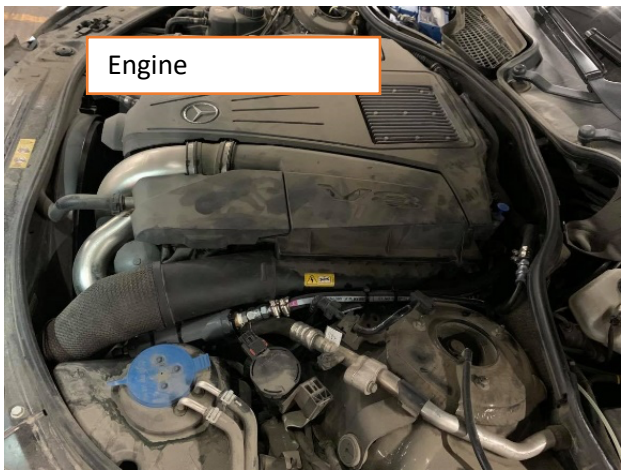
Mercedes GLK350/Gasoline/

Engine



ECO#5 Location

Mercedes S550/Gasoline/



Engine

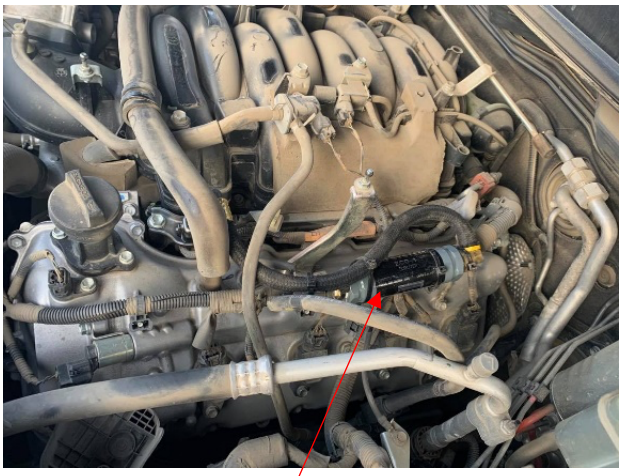
Mercedes G500/Gasoline/

Engine

ECO#5 Location

Lexus 570

Engine



ECO#4 location

12. Tighten the fuel hose with crimps on diesel vehicles. Switch on the ignition after the fuel pump is fully engaged. Therefore there is a risk in air absorption.
13. There is a risk of damage to the ECO SYSTEMS, kits and other vehicle parts, due to forced installation. Therefore, the installation must be taken in consideration with care and accuracy.
14. When installing ECO SYSTEMS on some gasoline/diesel vehicles, the fuel (hose/pipe) line of the vehicle may need to be cut. Also, depending on the location point of the ECO SYSTEMS, a meter hose will be used. When cutting the hose, be careful to make sure to cut your fingers by pointing the blade of the knife outwards.
15. In case of using metric hose, use gasoline/diesel 2-wire hose **(28BAR or 400PSI pressure resistant hose)**
16. The ECO SYSTEMS installation point will vary depending on the vehicle type of selected. Check that the lifting mechanism is locked, the machine is completely switched off and the jack is used. it must be dismantled under the jack If the ECO SYSTEMS is installed under the vehicle.
17. Once the ECO SYSTEMS is installed and connected to the fuel line, check everything well and make sure that no keys or towels are pinched near the fan pre-engine start.
18. Observe for 3-5 minutes after starting the engine. This is because it is necessary to check that no gasoline/diesel leaks from each connection points.
19. After installing the ECO SYSTEMS and starting the engine, hold the engine speed at 2,000 rpm for 30 seconds.
20. When the engine is idling, the standard engine speed is between 625-750 rpm, and if there is a car with normal idling height, it is reduced to the standard level.
21. When installing and testing ECO SYSTEMS on large mining equipment and machineries, it is necessary to obtain instructions and recommendations from the immediate supervisor. If to install an ECO SYSTEMS on a machine that has never been installed with an ECO SYSTEMS before, the approval from the supervisor must be obtained.
22. In the event that the ECO SYSTEMS is installed in-person at large mining companies' equipment, the organization's HSE staff will be briefed on the work to be performed and the safety instructions, rules and regulations will be instructed for trainings to ensure safe operation.

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