

## Service

<b>Chassis ID</b>	<b>Path</b> 2584/Technical service bulletins//Aftertreatment Fuel Injectors (AFI) Service
<b>Model</b>	<b>Identity</b> 164556922
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# Aftertreatment Fuel Injectors (AFI) Service

M-258-001

June 2022

## Valid for

US07 emission compliant MP7 and MP8 engines

## Case description

US07 emission compliant MP7 and MP8 engines utilize an aftertreatment fuel injector (AFI) mounted to the diffuser pipe at the rear of the turbocharger to raise the temperature inside the diesel particulate filter so that the system can regenerate to clean the accumulated soot from the filter. Failure of the system to regenerate (as evidenced by high levels of soot or diagnostic trouble codes PSID 47 FMI 1, Failed Regen or FMI 12, Faulty Unit or component) can indicate that the AFI is plugged with soot. If a failure to regenerate condition is encountered, the AFI should be cleaned as the first action in the diagnostic procedure. The AFI can be cleaned without completely removing it from the vehicle as outlined below. Should replacement of the AFI become necessary due to a defect or other condition that cannot be resolved by cleaning, removal and installation procedures are outlined at the end of this bulletin.

## AFTERTREATMENT FUEL INJECTOR CLEANING PROCEDURES

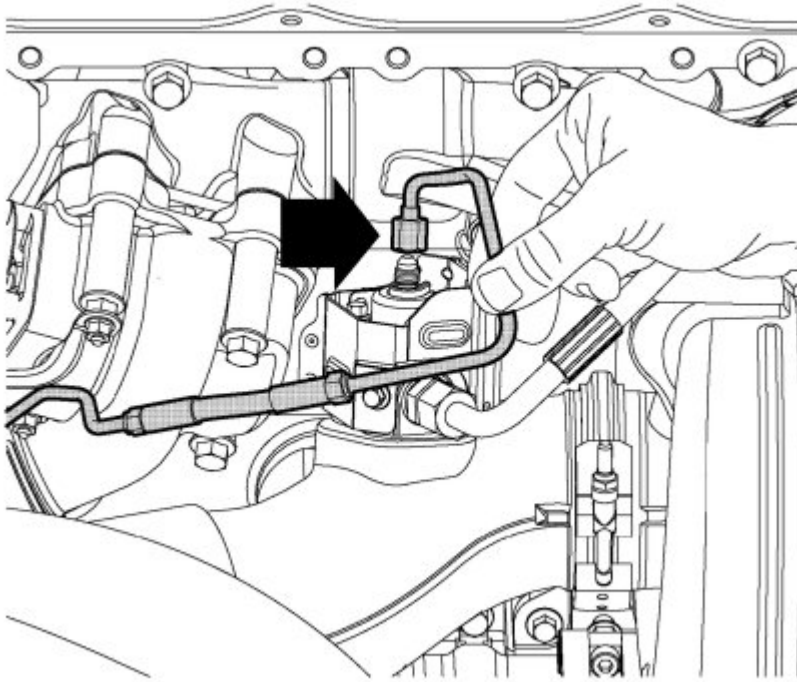
*Note: DO NOT drain the coolant from the engine or disconnect the coolant lines or electrical connector from the AFI. The injector can be cleaned without complete removal from the vehicle.*

- Secure the chassis for service, apply the parking brake and place the shift lever in neutral.
- To prevent personal injury from electrical shock, disconnect the batteries by disconnecting the negative battery cable(s) first, and then the positive battery cable(s). If equipped with dual battery boxes, disconnect the batteries in both boxes.
- Remove P-clamp bolts securing the AFI harness and fuel supply line.
- Disconnect the AFI fuel supply line. Collect any residual fuel that might be in the fuel line in a suitable container.



### Caution

Do not kink the fuel or coolant lines. Kinking the lines may result in leakage of coolant or fuel.

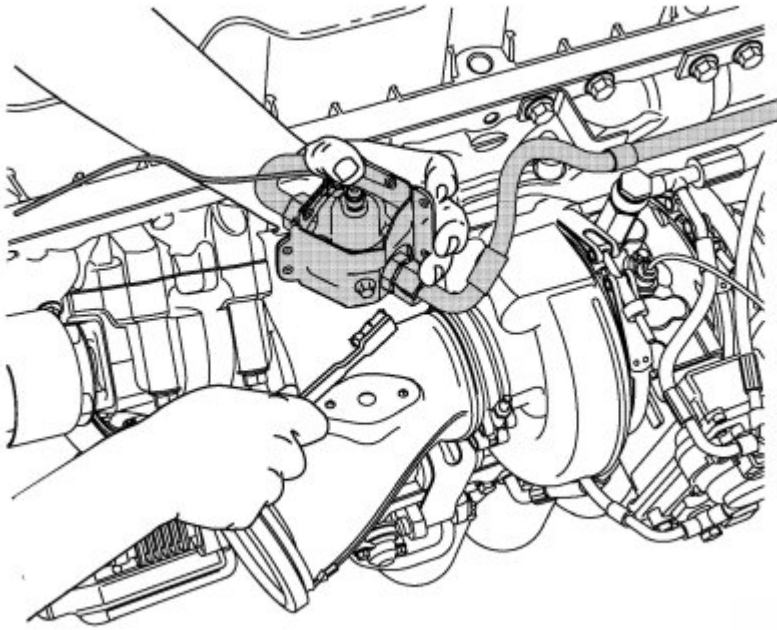


- . Remove and discard the aftertreatment fuel injector mounting bolts and spacers, and then remove the injector from the diffuser pipe.
- . Cover the opening in the diffuser pipe to prevent dirt and cleaning fluid from entering the exhaust system.
- . Remove and discard the high-temperature gasket and steel plate gasket from the bottom of the injector.
- . Turn the AFI body to allow the injector tip to be sprayed with carburetor cleaning solution. Brush the injector tip with a stiff bristled nylon "tooth" brush. Repeat two or three times.

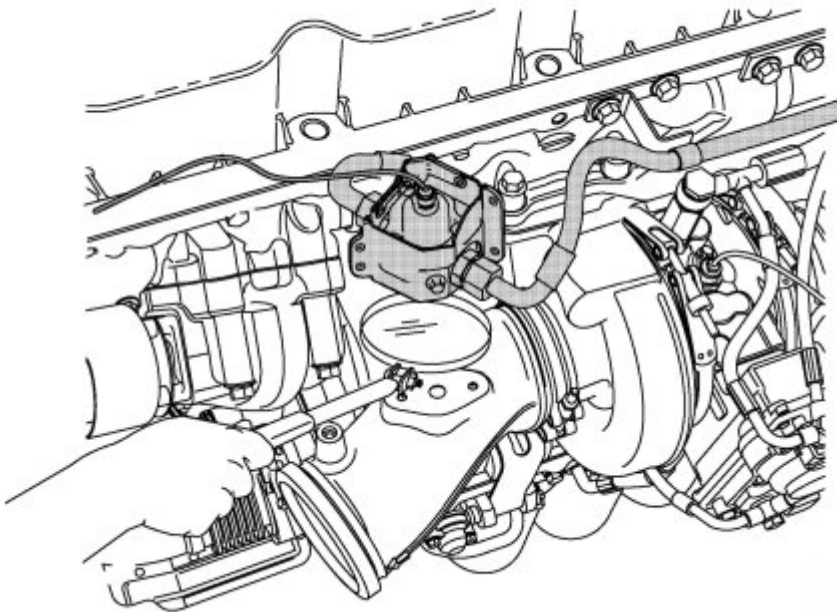
 **Caution**

Only high quality carburetor cleaner should be used to clean the injector. Other cleaners, such as brake cleaner products, do not work and may contain chlorine, which could damage the catalyst if they enter the exhaust system.

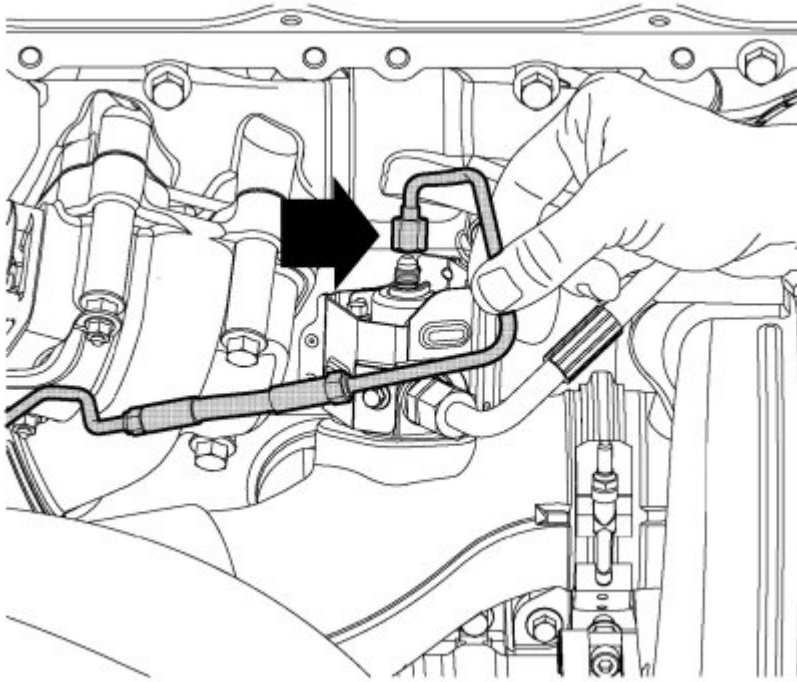
Only use a nylon brush to clean the injector tip. Do not use a brass or steel brush. Damage to the injector tip may result.



- Inspect the injector tip to make sure it is thoroughly clean and all soot has been removed. Use a mirror if a clear view of the tip is not possible.



- Position the new high-temperature gasket and steel plate gasket included in the installation kit onto the bottom of the AFI.
- Apply Permatex® high-temperature nickel-graphite anti-seize compound (part No. 5166-77124) to the threads of the new injector mounting bolts included in the AFI installation kit (part No. 21003270), and then insert the bolts into the spacers. Position the injector onto the diffuser pipe and hand start the bolts with spacers into the mounting bolt holes in the AFI.
- Tighten the AFI mounting bolts to  $14 \pm 0.5 \text{ N}\cdot\text{m}$  ( $125 \pm 4.5 \text{ lb}\cdot\text{in}$ ).
- Connect the aftertreatment fuel injector fuel supply line and tighten the line end nut to  $15 \pm 0.5 \text{ N}\cdot\text{m}$  ( $135 \pm 5 \text{ lb}\cdot\text{in}$ ).



- . Install P-clamp bolts securing the AFI harness and fuel line.
- . Reconnect the batteries by connecting the positive battery cable(s) first, and then the negative cable(s).
- . Using Premium Tech Tool™, reset AFI adaptive factor, clear any logged diagnostic trouble codes and perform a complete service regeneration.

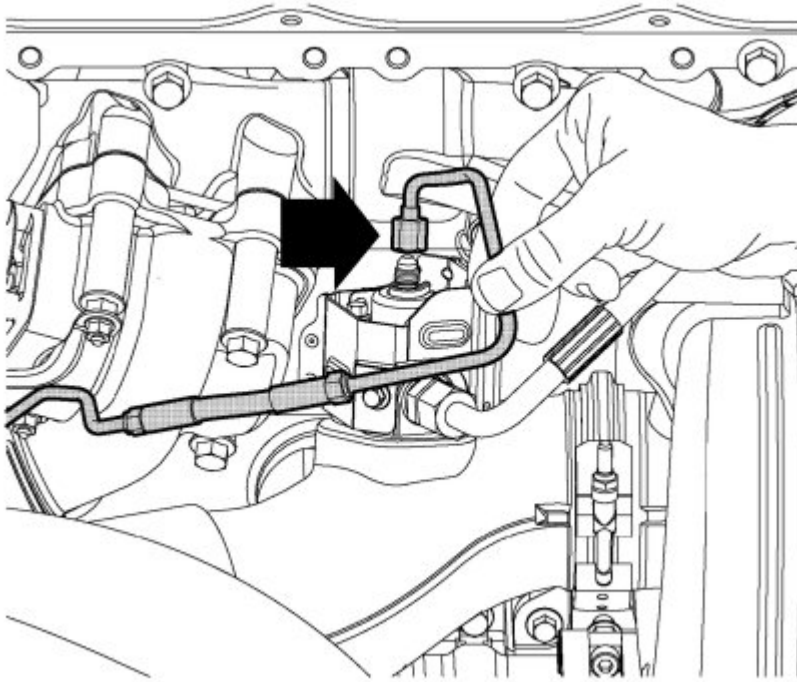
## AFTERTREATMENT FUEL INJECTOR REMOVAL AND INSTALLATION

### Remove the AFI as follows:

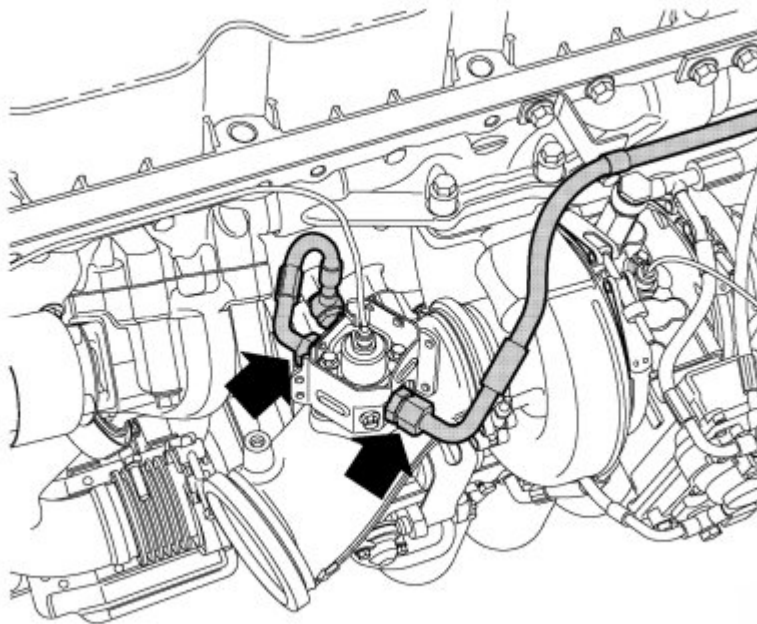
- . Secure the chassis for service, apply the parking brake and place the shift lever in neutral.
- . To prevent personal injury from electrical shock, disconnect the batteries by disconnecting the negative battery cable (s) first, and then the positive cable(s).
- . Connect coolant extraction tool DBT2V700 to the drain fitting located at the bottom of the radiator on CXU models or the lower radiator pipe on CHU and GU models. Drain the coolant.

*Note: An alternative method is to use drain hose 9996049 to drain coolant into a suitable container, and cover the container to prevent the entry of contaminants, as the same coolant will be used to refill the system.*

- . Disconnect the aftertreatment fuel injector fuel supply line. Collect any residual fuel that might be in the fuel line in a suitable container.



- Disconnect both the inlet and outlet coolant lines from the aftertreatment fuel injector fittings.



- Disconnect the aftertreatment fuel injector wiring harness connector. Remove all clips and tie straps to allow the harness to hang free.
- Remove and discard the aftertreatment fuel injector mounting bolts and spacers, and then remove the injector from the diffuser pipe.

*Note: Mark the AFI orientation relationship to the diffuser. The higher side of the AFI heat shield faces the turbocharger.*

- Remove and discard the high-temperature gasket and steel plate gasket from the bottom of the injector.

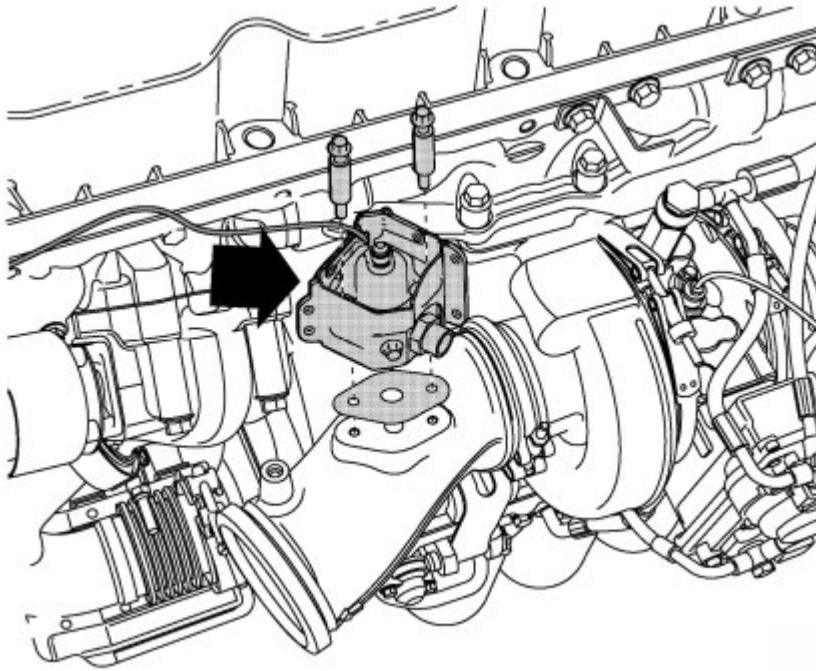
### Install the AFI as follows:

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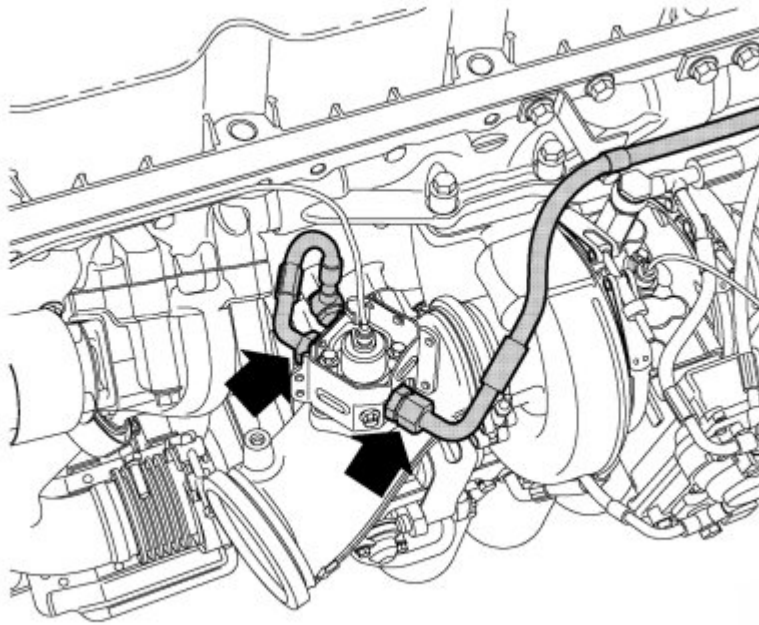
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- . Remove the plastic caps that retain the mounting bolts, spacers and gaskets to the replacement AFI, and then apply Permatex® high-temperature nickel-graphite anti-seize compound (part No. 5166-77124) to the threads of the new mounting bolts.
- . Position the AFI, mounting bolts, spacers, high-temperature gasket and steel plate gasket assembly onto the mounting surface of the diffuser pipe.

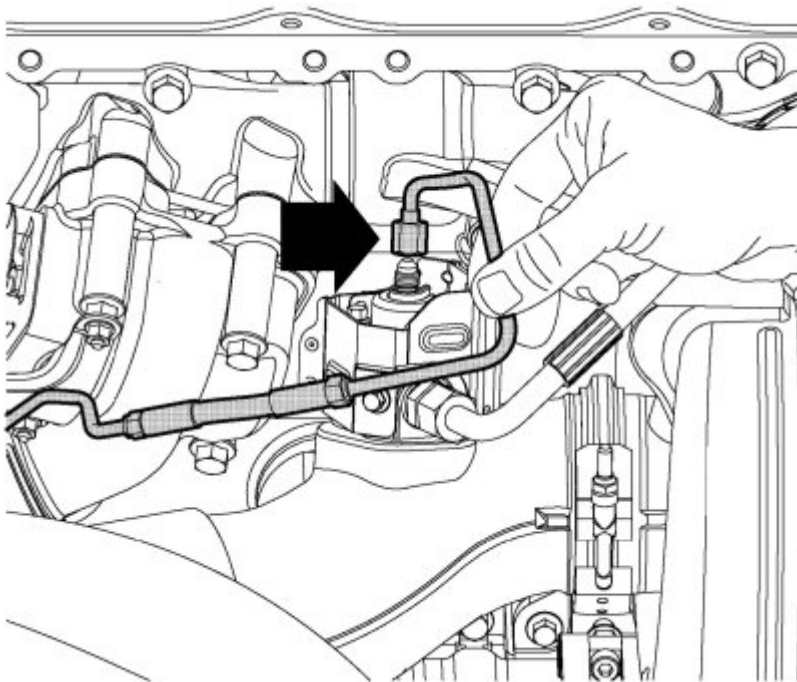
*Note: Be sure to position the AFI as marked at disassembly, with the higher side of the heat shield toward the turbocharger.*



- . Tighten the bolts to  $14 \pm 0.5 \text{ N}\cdot\text{m}$  ( $125 \pm 4.5 \text{ lb-in}$ ).
- . Reconnect the aftertreatment fuel injector wiring harness connector. Secure the injector wiring harness with clips and tie straps.
- . Transfer the coolant line fittings from the original AFI to the replacement unit, and then connect the coolant supply and return lines. Tighten the lines to  $48 \text{ N}\cdot\text{m}$  ( $35 \text{ lb-ft}$ ).



- Connect the aftertreatment fuel injector fuel supply line and tighten the line end nut to  $15 \pm 0.5 \text{ N}\cdot\text{m}$  ( $135 \pm 5 \text{ lb}\cdot\text{in}$ ). Reinstall the P-clamp that secures the fuel line to the diffuser pipe.



- Using the coolant extractor, refill the engine cooling system with the same coolant that was drained originally.
- Reconnect the batteries by connecting the positive battery cable(s) first, and then the negative cable(s).
- Start the engine, check for leaks and proper operation. After shutdown, replenish fluids as necessary.
- Using Premium Tech Tool™, reset AFI adaptive factor, clear any logged diagnostic trouble codes and perform a complete service regeneration.

## Warranty information

### Reimbursement

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<p>This repair may be eligible for reimbursement if a product failure was experienced within time and mileage limits of the applicable Warranty coverage. Reimbursement is obtained via the normal claim handling process.</p>	<p>UCHP Reimbursement</p>
<p>Claim Type (used only when uploading from the Dealer Bus. Sys.)</p>	<p>W</p>
<p>Labour Code</p>	
<p>234 7A 00 80 – 1.3 hrs</p>	<p>Time allowed to clean the aftertreatment fuel injector, reset adaptive factor, clear codes and perform complete service regeneration. Does not include “take-charge” time.</p>
<p>234 7B 00 80 – 1.8 hrs</p>	<p>Time allowed to remove and replace aftertreatment fuel injector, reset adaptive factor, clear codes and perform complete service regeneration. Does not include “take-charge” time.</p>

## Issued by

Technical Service

Mack Trucks, Inc. engages in a continuous program of testing and evaluating to provide the best possible product. Mack Trucks, Inc., however, is not committed to, or liable for updating existing chassis.