Group Index, Alphabetical

Section	Section Number
Exhaust System	49.00
Catalytic Converter Muffler	49.01

General Description (See Fig. 1 or Fig. 2)

The exhaust system routes hot exhaust gas away from the cab, and reduces engine exhaust noise. Vehicles (except FL112s) have a horizontally mounted muffler on either the left or right side of the vehicle, and are available with either a horizontal outlet or vertical exhaust stack.

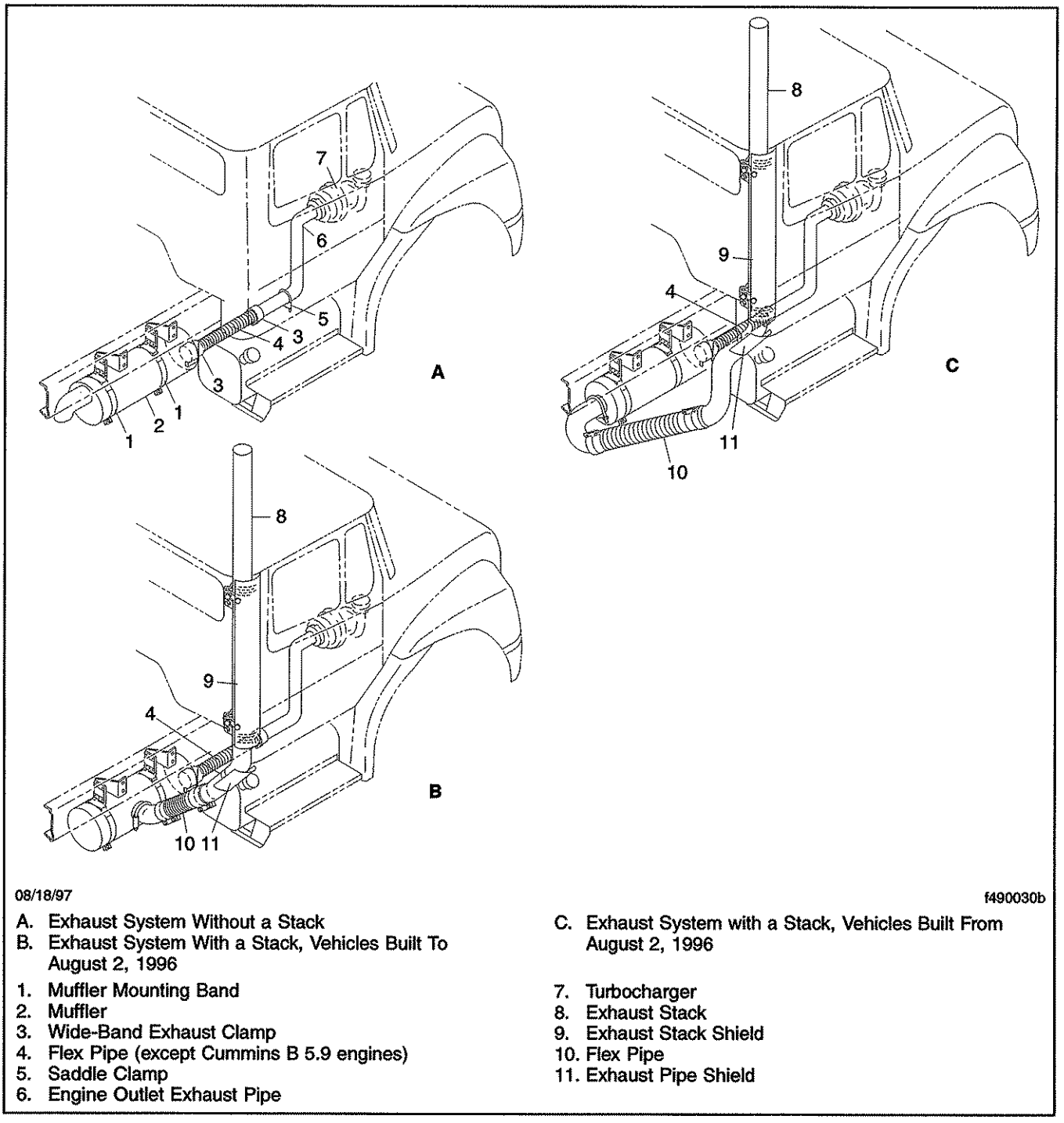
FL112 vehicles have either a horizontally mounted muffler with a horizontal outlet, (see **Fig. 3** and **Fig. 4**), or a vertical muffler with a stack (see **Fig. 2**).

System components include the engine outlet exhaust pipe, muffler, muffler mounting components, saddle clamps, wide-band exhaust clamps, flex pipe, exhaust stack, and exhaust system heat shields.

Most exhaust installations consist of an engine exhaust pipe, sometimes called the turbo pipe, mounted to the rear of the turbocharger and secured with a V-clamp. On Cummins M11 and C8.3 engines, Detroit Diesel Series 50, Caterpillar 3126, and OM 366LA engines, a section of this pipe is flex pipe. On Cummins M11 engines, a bracket attached to the frame rail uses a saddle clamp to hold and support the engine exhaust pipe as it runs to the muffler. See **Fig. 3**. A wide-band clamp holds the exhaust pipe to the muffler.

A horizontal muffler hangs from brackets mounted inside the frame rail web. See **Fig. 1** or **Fig. 5**. A vertical muffler bolts to an upright. See **Fig. 2**. All exhaust components attach to either the engine or the chassis frame rails, so there is no need to allow for movement between the cab and chassis.

General Description

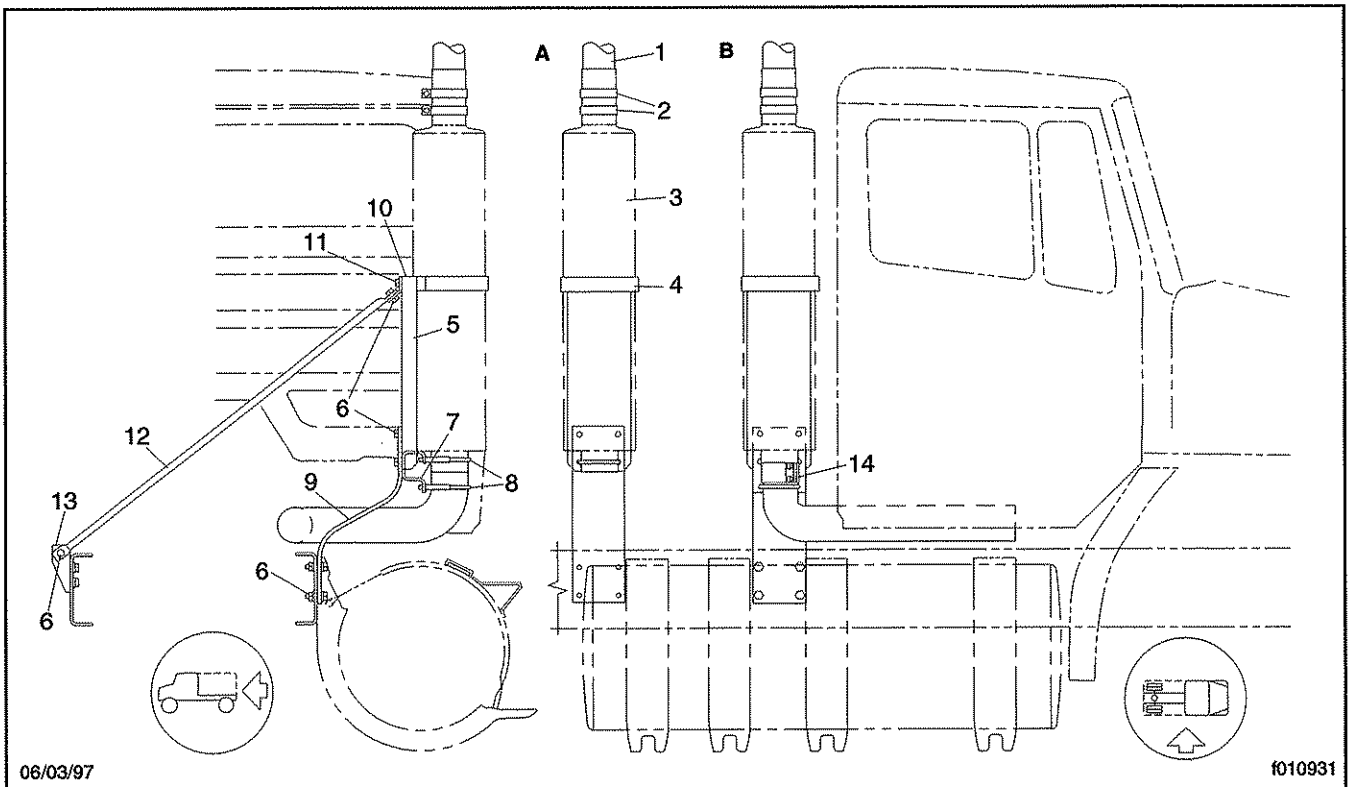


08/18/97 f490030b

A. Exhaust System Without a Stack
B. Exhaust System With a Stack, Vehicles Built To August 2, 1996
C. Exhaust System with a Stack, Vehicles Built From August 2, 1996

1. Muffler Mounting Band
2. Muffler
3. Wide-Band Exhaust Clamp
4. Flex Pipe (except Cummins B 5.9 engines)
5. Saddle Clamp
6. Engine Outlet Exhaust Pipe
7. Turbocharger
8. Exhaust Stack
9. Exhaust Stack Shield
10. Flex Pipe
11. Exhaust Pipe Shield

Fig. 1, Exhaust Mounting, All Models Except FL112



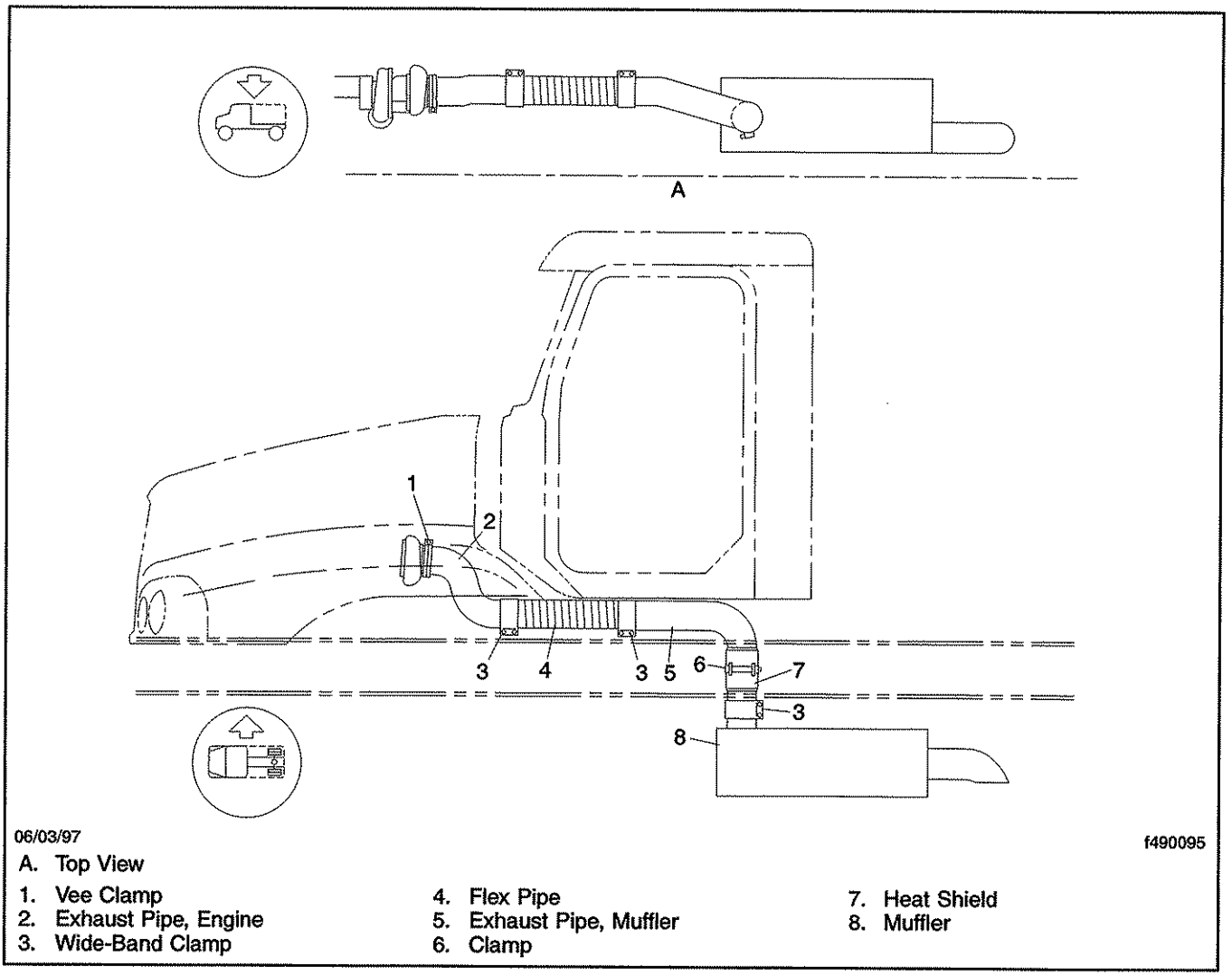
A. Muffler Position, FL112 Conventional with Extended Cab

B. Muffler Position, FL112 Conventional with Day Cab

1. Exhaust Stack
2. Narrow-Band Clamp (2 qty.)
3. Muffler
4. Muffler Mounting Band
5. Support Channel
6. Nut, Washer, and Capscrew, 5/8–11, Grade 8
7. Lower Muffler Mounting Bracket
8. Saddle Clamp, 5-Inch
9. Upright Muffler Mounting Bracket
10. Upper Brace Bracket
11. Nut, Washer, and Capscrew, 1/2–13
12. Brace
13. Lower Brace Bracket
14. Wide-Band Clamp

Fig. 2, Vertical Exhaust Mounting, FL112

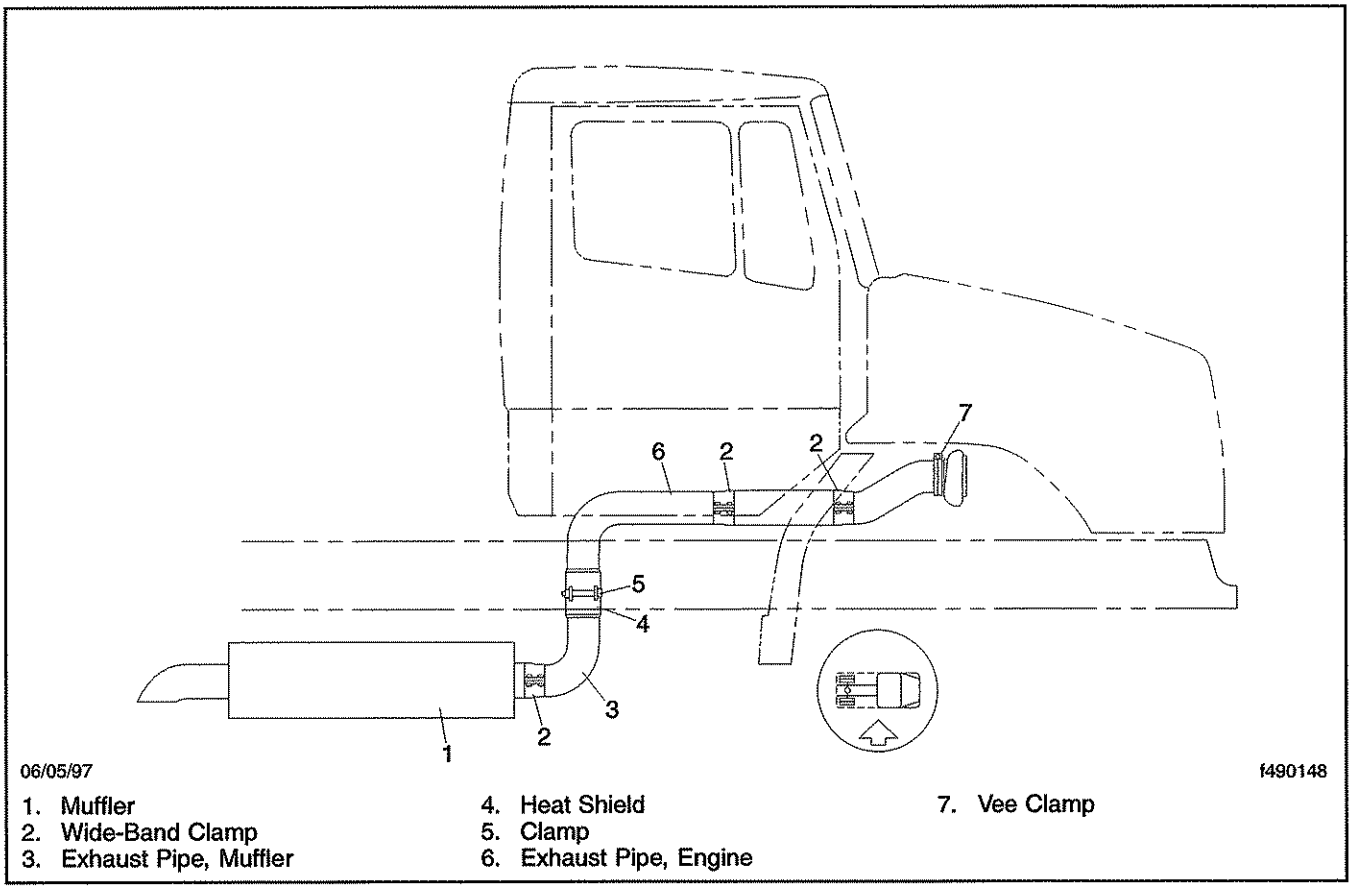
General Description



A. Top View

1. Vee Clamp
2. Exhaust Pipe, Engine
3. Wide-Band Clamp
4. Flex Pipe
5. Exhaust Pipe, Muffler
6. Clamp
7. Heat Shield
8. Muffler

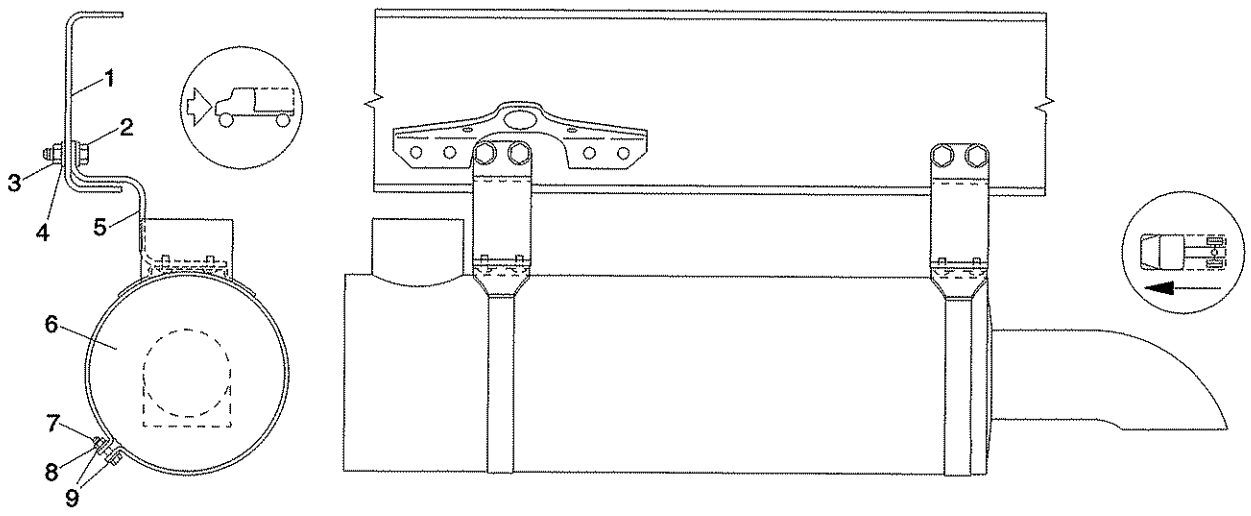
Fig. 3, Horizontal Exhaust System, FL112, Equipped with Cummins or Caterpillar Engine



1. Muffler
2. Wide-Band Clamp
3. Exhaust Pipe, Muffler
4. Heat Shield
5. Clamp
6. Exhaust Pipe, Engine
7. Vee Clamp

Fig. 4, Horizontal Exhaust System, FL112, Equipped with a Detroit Diesel Series 55 Engine

General Description



06/05/97 f490093

1. Frame Rail
2. Capscrew, 5/8–11 x 1.75 Inch, Grade 8
3. Hexnut, 5/8–11
4. Washer
5. Horizontal Muffler Mounting Bracket
6. Muffler
7. Capscrew, 5/16–18 x 1.75 Inch, Grade 8
8. Hexnut, 5/16–18
9. Washer

Fig. 5, Horizontal Muffler Mounting, FL112

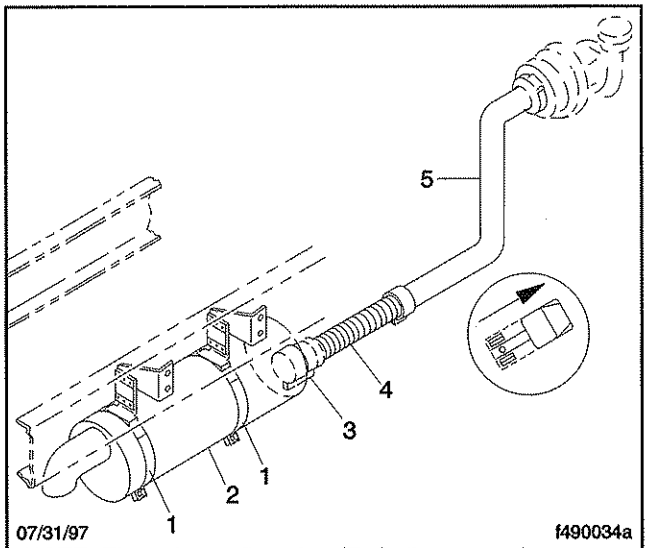
Replacement

NOTE: The mufflers on Freightliner Business Class vehicles can be mounted either horizontally or vertically. Use the following replacement procedure that applies to your vehicle.

HORIZONTALLY MOUNTED MUFFLERS

(See Fig. 1, Fig. 2, and Fig. 3)

1. Remove the muffler.
   - 1.1 Remove and discard the wide-band exhaust clamp from the muffler inlet connection.
   - 1.2 On vehicles with a vertical exhaust stack, remove the saddle clamp from the muffler outlet connection. Pull the muffler outlet exhaust pipe out of the muffler outlet tube.
   - 1.3 Remove the bolts and locknuts on the front and rear muffler mounting bands. Remove the mounting bands. Remove the muffler.



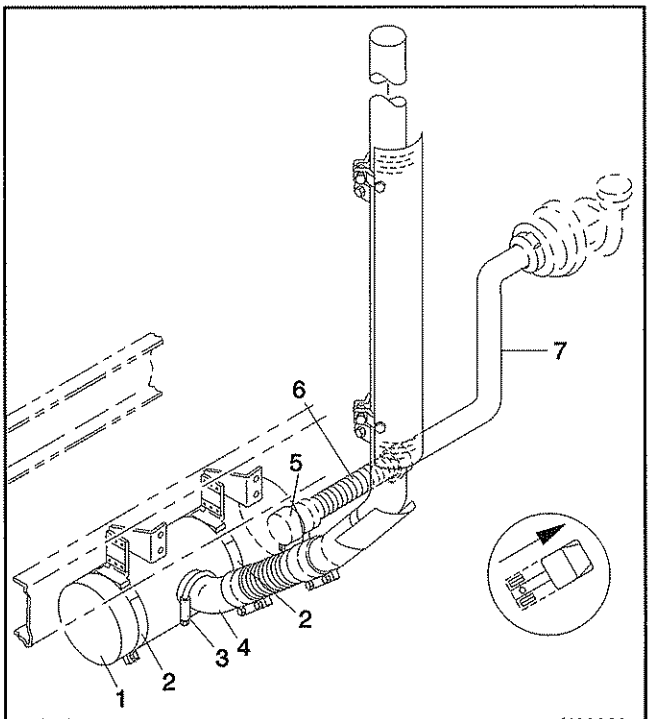
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NOTE: The exhaust flex pipe (Ref. 4) may not be present on early model vehicles.

1. Muffler Mounting Band
2. Muffler
3. Wide-Band Exhaust Clamp
4. Exhaust Flex Pipe (except Cummins B 5.9 engines)
5. Muffler Inlet Exhaust Pipe

Fig. 1, Exhaust System Without a Stack, All Models Except FL112

2. Install the muffler.
   - 2.1 Slide the new muffler's inlet tube over the muffler inlet exhaust pipe.
   - 2.2 Install the front and rear muffler mounting bands. Install the bolts and locknuts on the mounting bands, but do not tighten them at this time.
   - 2.3 On vehicles with a vertical exhaust stack, slide the muffler outlet exhaust pipe into the muffler outlet tube.



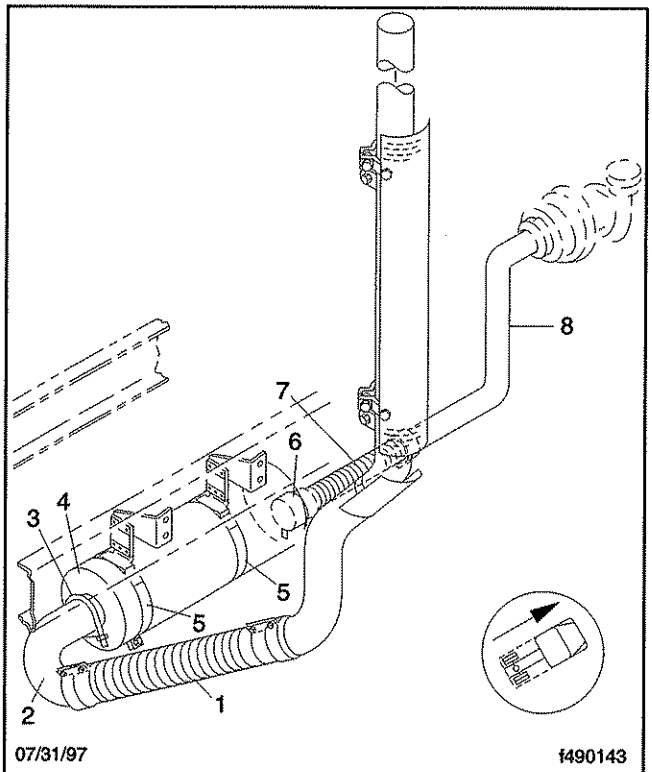
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NOTE: This configuration is on vehicles built to August 2, 1996. The exhaust flex pipe (Ref. 6) may not be present on early model vehicles.

1. Muffler
2. Muffler Mounting Band
3. Saddle Clamp
4. Muffler Outlet Exhaust Pipe
5. Wide-Band Exhaust Clamp
6. Exhaust Flex Pipe (except Cummins B 5.9 engines)
7. Muffler Inlet Exhaust Pipe

Fig. 2, Exhaust System With a Stack, Side Outlet, All Models Except FL112

Muffler Replacement



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NOTE: This configuration is on vehicles built from August 2, 1996. The exhaust flex pipe (Ref. 7) may not be present on early model vehicles.

1. Flex Pipe
2. Rear Exhaust Outlet
3. Saddle Clamp
4. Muffler (catalytic converter on some engine models)
5. Muffler Mounting Band Muffler
6. Wide-Band Exhaust Clamp
7. Exhaust Flex Pipe (except Cummins B 5.9 engines)
8. Muffler Inlet Exhaust Pipe

Fig. 3, Exhaust System, Rear Outlet, All Models Except FL112

2.4 Coat the lap joint area with chassis grease, so the clamp will slide freely without scratching the surface of the pipe.

2.5 Wrap a new wide-band exhaust clamp by hand around the lap joint. Place the large end of the clamp around the muffler inlet tube, and the small end around the inlet exhaust pipe.

2.6 Install the fasteners in the clamp. Starting from the larger end of the clamp, alternately tighten the fastener in three increments to a final torque of 50 to 60 lbf·ft (68 to 81 N·m).

Clean any excess chassis grease from around the clamp.

2.7 Install the saddle clamp U-bolt on the muffler outlet tube (where applicable). Tighten the saddle clamp flanged nuts alternately in three increments to a final torque of 24 lbf·ft (33 N·m).

2.8 Tighten the muffler mounting band fasteners until the band ears touch; then, tighten the fasteners two full turns or until the ears are in full contact, whichever occurs first.

2.9 Run the engine, and check for exhaust leakage at the exhaust clamp joints. Replace the wide-band exhaust clamps if they leak.

VERTICALLY MOUNTED MUFFLERS (See Fig. 4)

1. Remove the muffler.

1.1 Loosen the saddle clamp that holds the stack on the muffler, and remove the stack.

1.2 Loosen the saddle clamp that holds the base of the muffler to the support channel.

1.3 Loosen the wide-band clamp that connects the muffler to the exhaust pipe.

1.4 Remove the two bolts that hold the muffler mounting band to the muffler support channel.

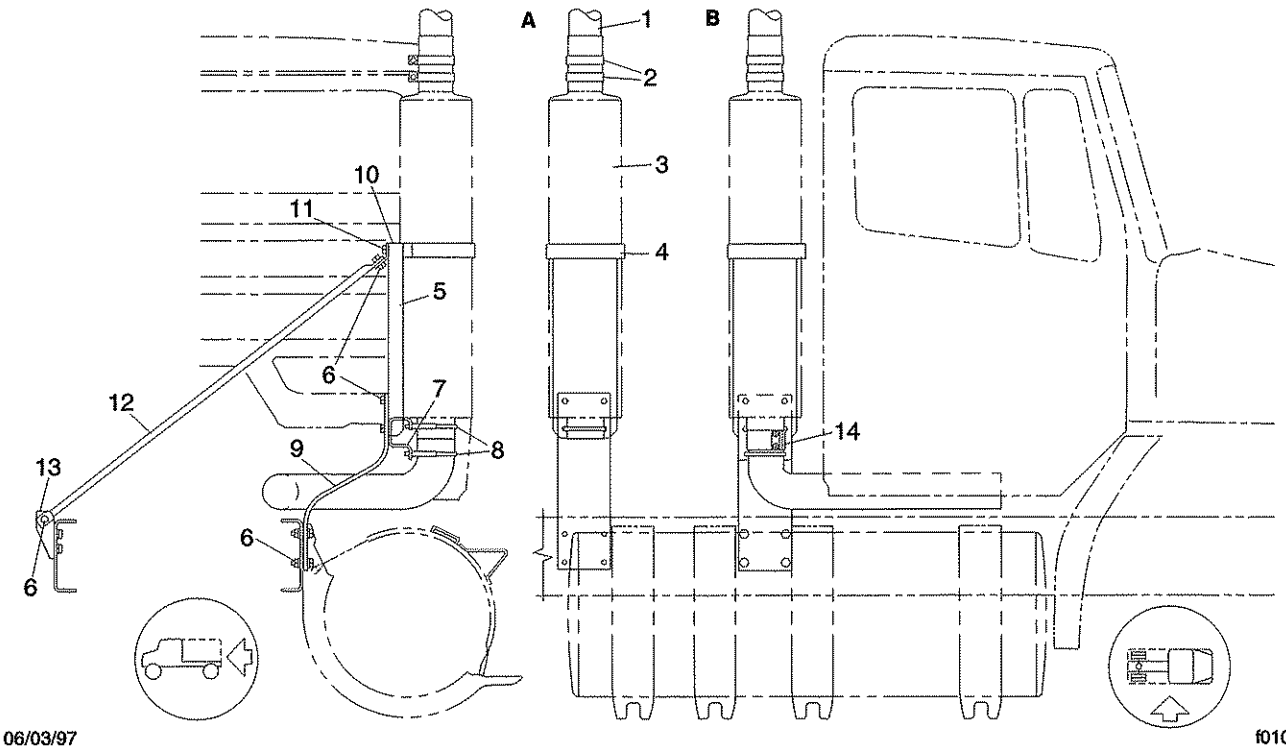
1.5 Lift the muffler out of the lower saddle clamp.

2. Install the muffler.

2.1 Place the muffler in the support channel, and hold it in place while installing a new wide-band clamp to connect the muffler with the exhaust pipe.

2.2 Coat the lap joint area with chassis grease, so the clamp will slide freely without scratching the surface of the pipe.

2.3 Wrap a new wide-band exhaust clamp by hand around the lap joint. Place the large



A. Muffler Position, FL112 Conventional with Extended Cab

B. Muffler Position, FL112 Conventional with Day Cab

1. Exhaust Stack
2. Narrow-Band Clamp (2 qty.)
3. Muffler
4. Muffler Mounting Band
5. Support Channel
6. Nut, Washer, and Capscrew, 5/8–11, Grade 8
7. Lower Muffler Mounting Bracket
8. Saddle Clamp, 5-Inch
9. Upright Muffler Mounting Bracket
10. Upper Brace Bracket
11. Nut, Washer, and Capscrew, 1/2–13
12. Brace
13. Lower Brace Bracket
14. Wide-Band Clamp

Fig. 4, Vertical Exhaust Mounting, FL112

end of the clamp around the muffler inlet, and the small end around the exhaust pipe.

2.4 Install the fasteners in the clamp. Starting from the larger end of the clamp, alternately tighten the fastener in three increments to a final torque of 50 to 60 lbf·ft (68 to 81 N·m).

Clean any excess chassis grease from around the clamp.

2.5 Install the saddle clamp at the bottom of the muffler, and tighten the clamp 24 lbf·ft (33 N·m).

2.6 Install the capscrews, washers and nuts that hold the muffler mounting band to the support channel, and tighten the capscrews 68 lbf·ft (92 N·m).

2.7 Install the stack, and secure it with two narrow-band clamps. Tighten the clamps 50 lbf·ft (68 N·m).

2.8 Run the engine, and check for exhaust leakage at the exhaust clamp joints. Replace the wide-band exhaust clamps if they leak.

Wide-Band Exhaust Clamp Replacement

Replacement

1. Remove and discard the leaking or damaged wide-band exhaust clamp.
2. Grease the lap joint area.
3. Hand-form a new wide-band exhaust clamp around the lap joint, with the larger end of the clamp around the larger diameter tubing, and the smaller end of the clamp around the smaller diameter tubing. Position one third to one half of the exhaust clamp width onto the larger diameter tubing, or completely cover the slots in the larger tubing.
4. Install the fasteners in the clamp. Starting from the larger end of the clamp, alternately tighten the fasteners in three increments to a final torque of 68 to 81 N·m (50 to 60 lbf·ft).
5. Run the engine, and check for exhaust leakage at the exhaust clamp joint. Replace the wide-band exhaust clamp if it leaks.

Exhaust Stack Shield Replacement

Replacement

1. Remove the four capscrews that attach the exhaust shield to the exhaust shield clamps, and remove the exhaust shield.
2. Position the new exhaust shield against the clamps, and install all four capscrews. Tighten the capscrews to 18 N·m (13 lbf·ft).

Specifications

Description	Grade	Size	Torque N·m (lbf·ft)
Wide-Band Exhaust Clamp	—	—	68-81 (50-60)
Saddle Clamp U-Bolt	—	3/8-16	33 (24)
Exhaust Stack Shield Capscrews	302 SS	5/16-18	18 (13)

Table 1, Fastener Torques

Catalytic Converter Muffler 49.01

Contents

Subject	Subject Number
General Description	050
Service Operations	
Catalytic Converter Muffler Replacement, Diesel Engines	100
Muffler Removal and Installation, Gasoline Engines	105
Air Injection Pump Removal and Installation, Gasoline Engines	110
Catalytic Converter Removal and Installation, Gasoline Engines	115
Specifications	400

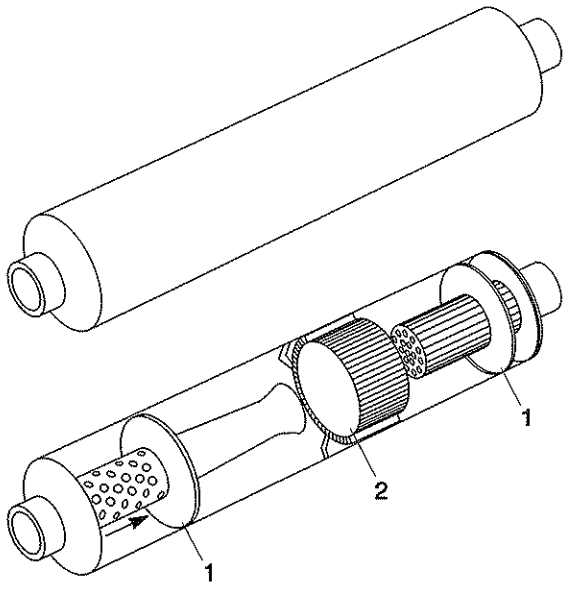
General Information

To clean vehicle exhaust and reduce exhaust noise, Freightliner uses mufflers and catalytic converters with some engines. On diesel engines, including the Cummins B and C series, and the Mercedes Benz 210 and 230 horsepower OM 366LA, Freightliner uses a combined catalytic converter and muffler in the same housing (can). On gasoline engines, Freightliner uses a separate catalytic converter and muffler.

Exhaust pipes route the exhaust from the engine to the catalytic converter.

Diesel engines use a combined catalytic converter and muffler. The converter consists of three sections: a muffler section, the catalytic converter, another muffler section. **See Fig. 1.**

Inside the converter, a series of baffles dampens the noise of the exhaust by breaking the sound waves into shorter lengths. Then the exhaust is channeled through the catalytic converter, a section of fine ceramic honeycomb called the substrate. The substrate is coated with gold, and the heat of the exhaust heats the gold plate. Once the catalytic converter is warmed to operating temperature, the hot gold plate ignites any unburned fuel and oil in the exhaust. The remaining fuel and oil burn, and the cleaned exhaust passes through another section of baffles that further muffle any noise. After the second muffler section, the exhaust vents to the atmosphere.



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NOTE: This combined muffler and catalytic converter is used with diesel engines.

1. Baffle
2. Substrate

Fig. 1, Typical Catalytic Converter Muffler

Although the catalytic converter muffler is the same size as a standard muffler assembly, the converter muffler weighs about 50 percent more. A standard muffler may weigh about 9 kg (20 lbs), while a converter muffler the same size will weigh 15 kg (33 lbs). To be fully effective, the gold plate on the ceramic honeycomb of the substrate must stay clean so that it can contact and burn any fuel and oil in the exhaust. A layer of pollutants on the gold plate will insulate it and allow unburned fuel and oil to pass through the catalytic converter muffler. To prevent pollution build-up on the gold plate, the muffler is built with aluminized stainless steel which is thicker and heavier than the aluminized steel used in standard mufflers.

Gasoline engines use separate catalytic converters and mufflers. Engine exhaust is routed from each exhaust manifold, back, to two separate catalytic converters on the forward end of the muffler. **See Fig. 2.**

To help the converters burn any residual oil and fuel, an air injection pump on the engine pumps air through lines to the catalytic converters. **See Fig. 3.** A pressure relief valve on the air injection line will open if pressure in the injection line is too high. Check valves at the catalytic converters keep hot exhaust from backing up the air injection lines into the injection pump and engine. After passing through the converters, the exhaust passes through the muffler. The catalytic converters, muffler, and exhaust pipes are suspended from the frame rails and transmission by rubber isolators (**see Fig. 4**) or straps (**Fig. 5**) that allow the exhaust system to move as necessary under normal vehicle operation.

All catalyst muffer installations are certified to be in compliance with 1994 EPA standards. Use parts specified by PartsPro® when replacing any of the exhaust system components.

General Description

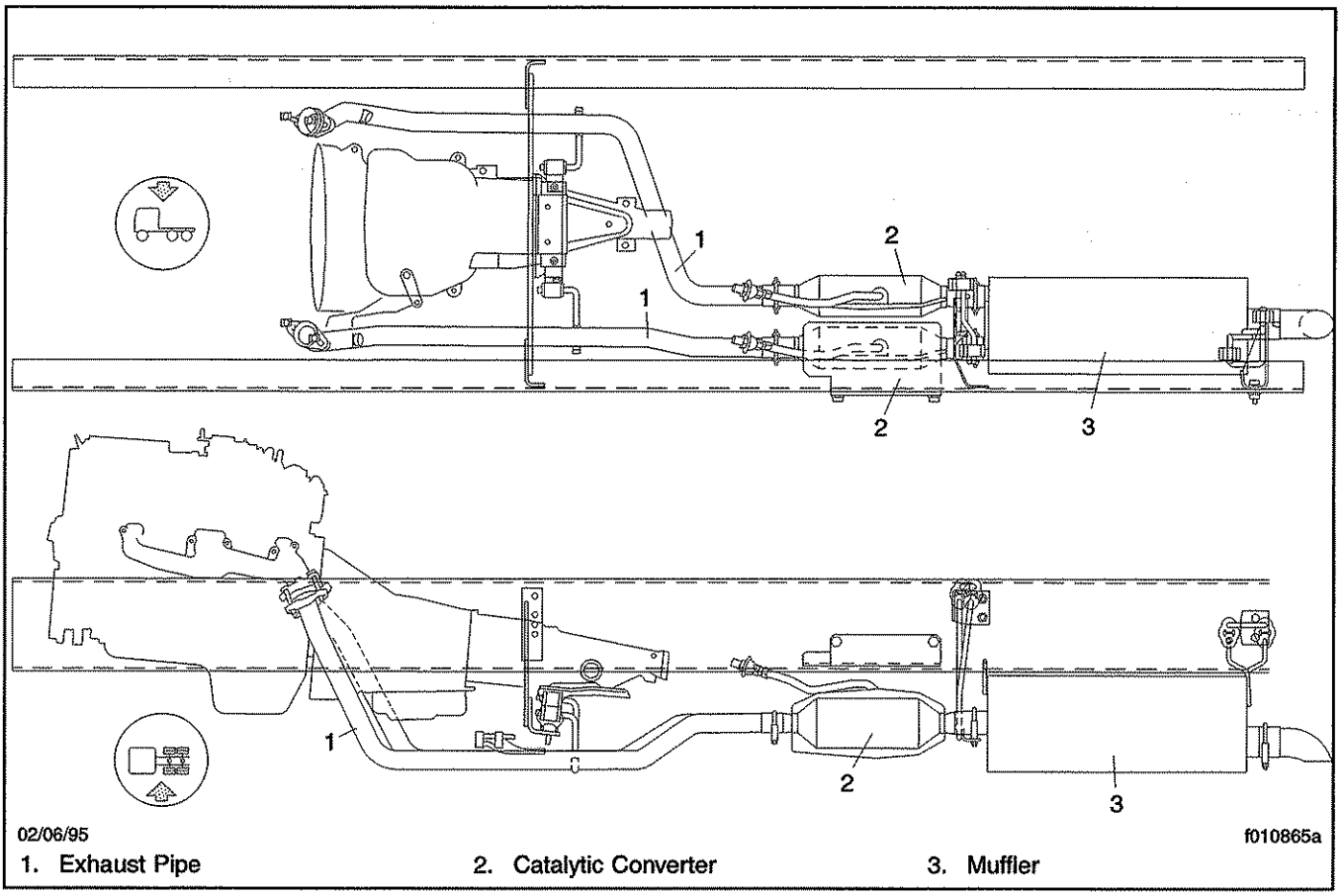
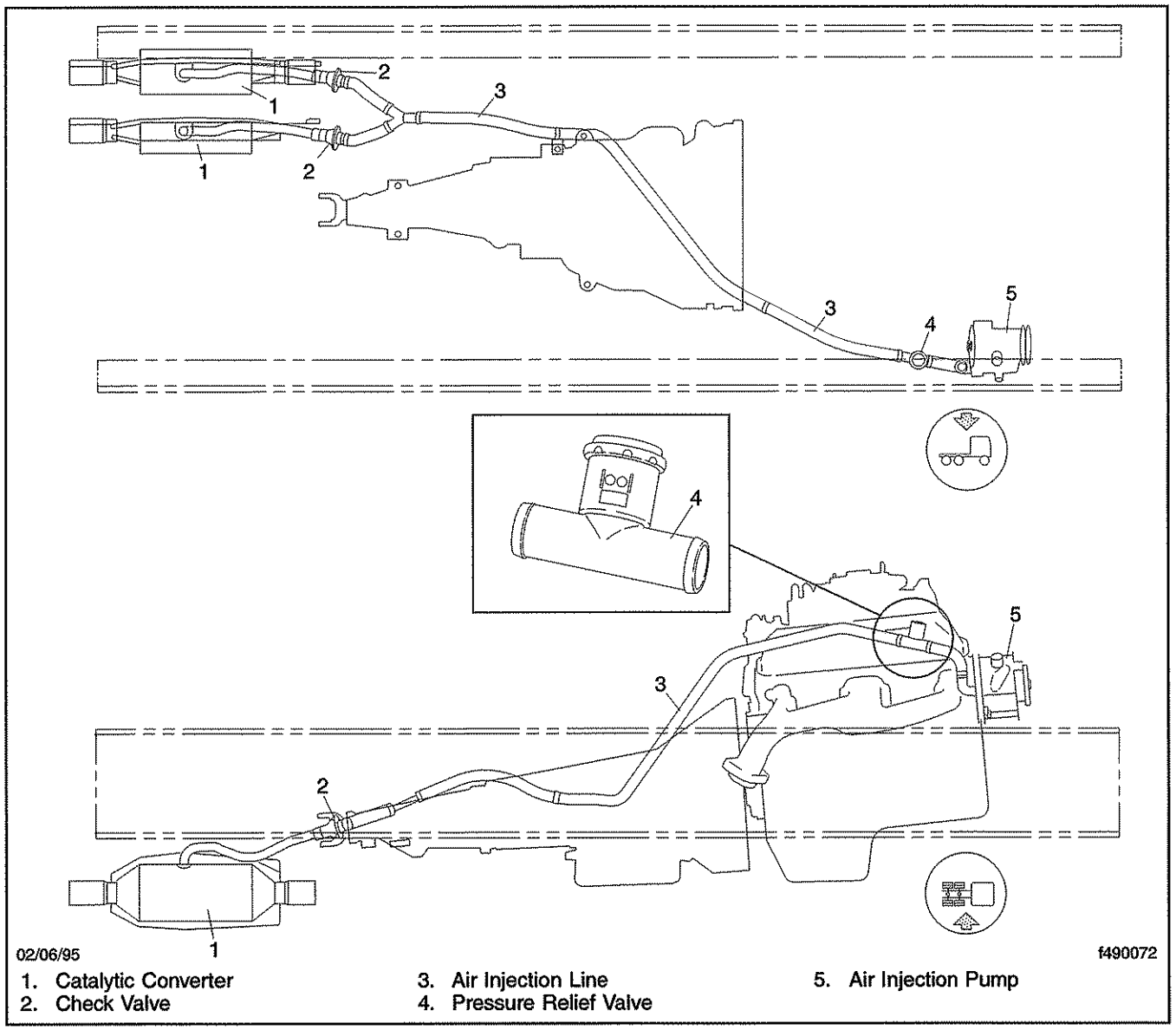


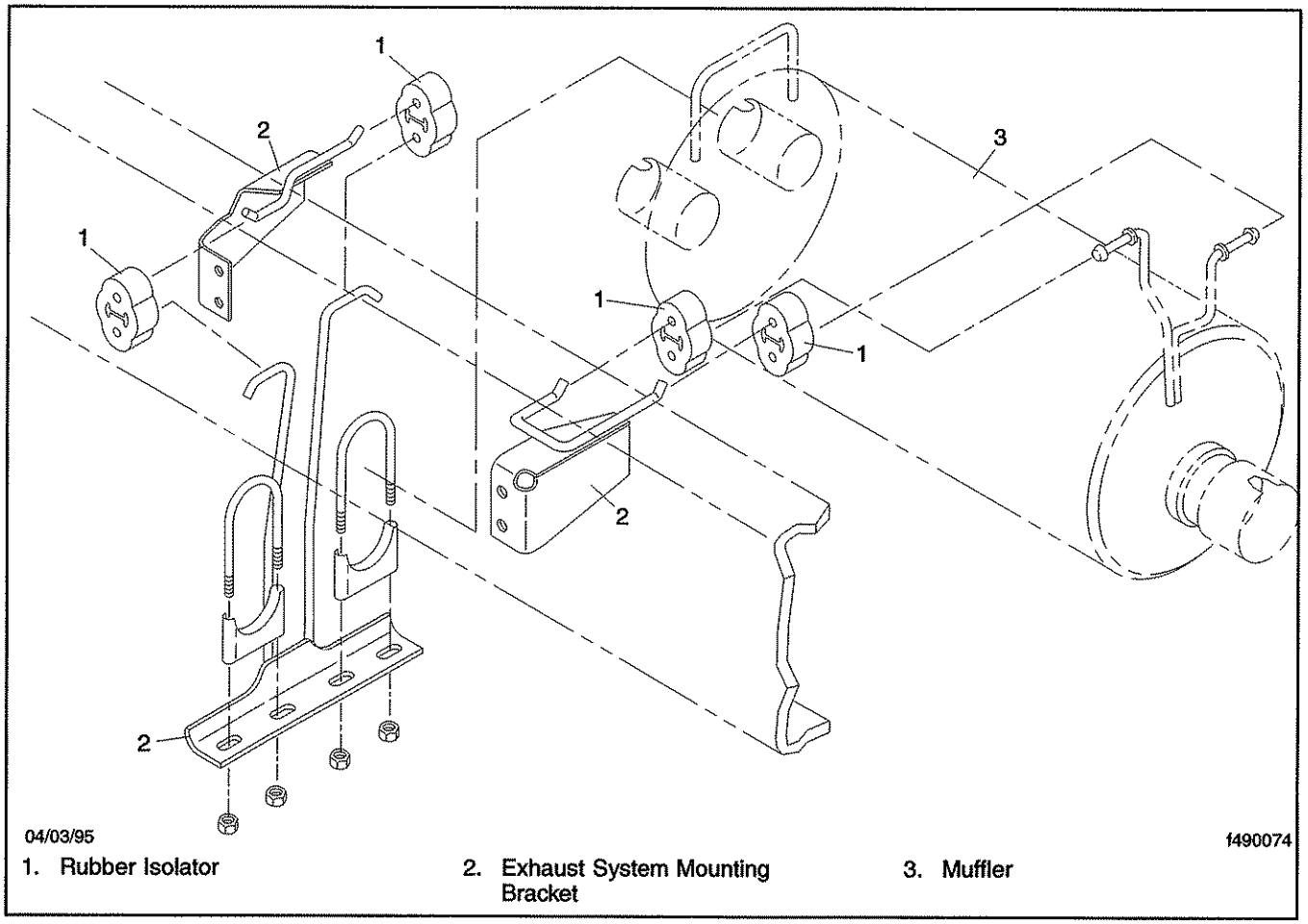
Fig. 2, Exhaust Routing, Dodge Magnum Engine



1. Catalytic Converter
2. Check Valve
3. Air Injection Line
4. Pressure Relief Valve
5. Air Injection Pump

Fig. 3, Air Injection System, Dodge Magnum Engine

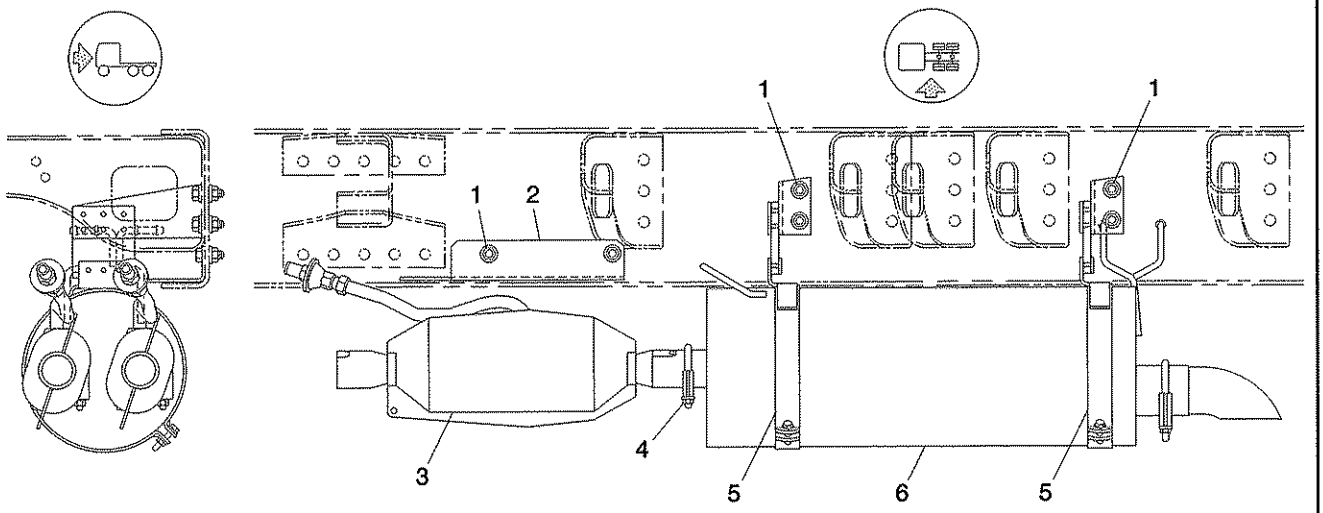
General Description



1. Rubber Isolator
2. Exhaust System Mounting Bracket
3. Muffler

Fig. 4, Muffler Mounting with Rubber Isolators, Dodge Magnum Engine

General Description



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1. Capscrew, 1/2–13 x 1.75 inch, grade 8; Washer; Hexnut, 1/2–13
2. Heat Shield
3. Catalytic Converter
4. U-Bolt Clamp, 57.15 mm diameter
5. Muffler Support Assembly
6. Muffler

Fig. 5, Muffler Mounting with Straps, Dodge Magnum Engine

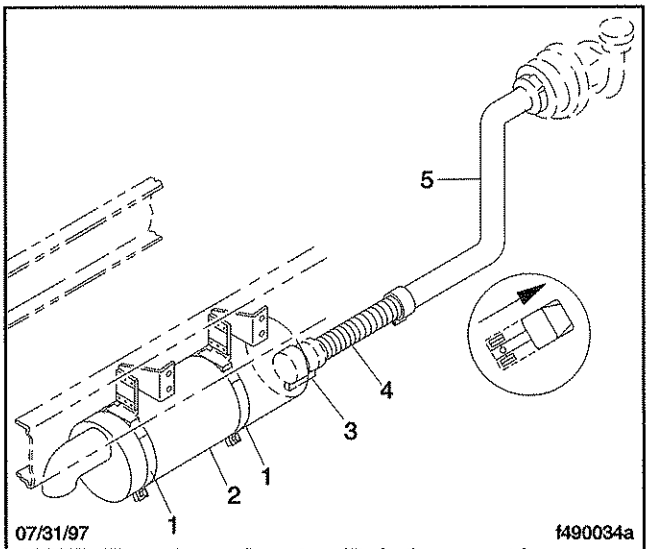
Replacement

NOTE: The mufflers on Freightliner Business Class vehicles can be mounted either horizontally or vertically. Use the following replacement procedure that applies to your vehicle.

HORIZONTALLY MOUNTED MUFFLERS

(See Fig. 1, Fig. 2, and Fig. 3)

1. Remove the muffler.
   - 1.1 Remove and discard the wide-band exhaust clamp from the muffler inlet connection.
   - 1.2 On vehicles with a vertical exhaust stack, remove the saddle clamp from the muffler outlet connection. Pull the muffler outlet exhaust pipe out of the muffler outlet tube.
   - 1.3 Remove the bolts and locknuts on the front and rear muffler mounting bands. Remove the mounting bands. Remove the muffler.



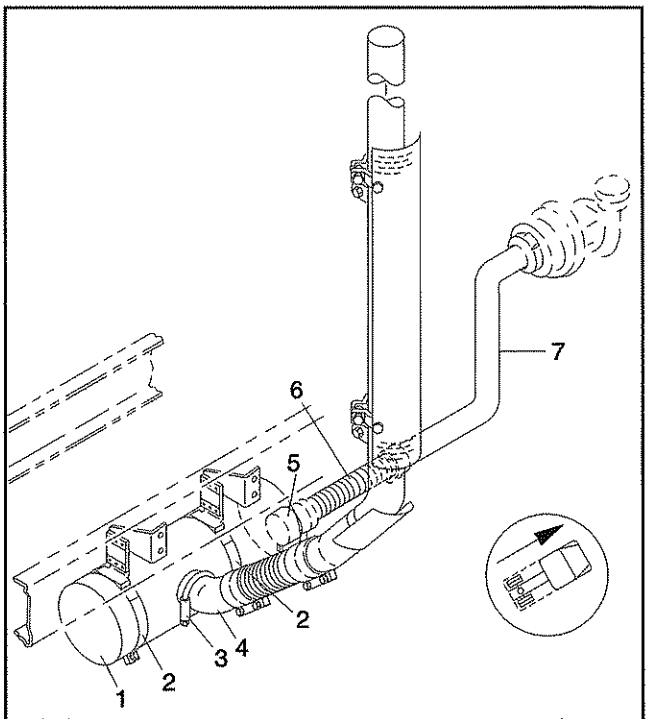
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NOTE: The exhaust flex pipe (Ref. 4) may not be present on early model vehicles.

1. Muffler Mounting Band
2. Muffler
3. Wide-Band Exhaust Clamp
4. Exhaust Flex Pipe (except Cummins B 5.9 engines)
5. Muffler Inlet Exhaust Pipe

Fig. 1, Exhaust System Without a Stack, All Models Except FL112

2. Install the muffler.
   - 2.1 Slide the new muffler's inlet tube over the muffler inlet exhaust pipe.
   - 2.2 Install the front and rear muffler mounting bands. Install the bolts and locknuts on the mounting bands, but do not tighten them at this time.
   - 2.3 On vehicles with a vertical exhaust stack, slide the muffler outlet exhaust pipe into the muffler outlet tube.



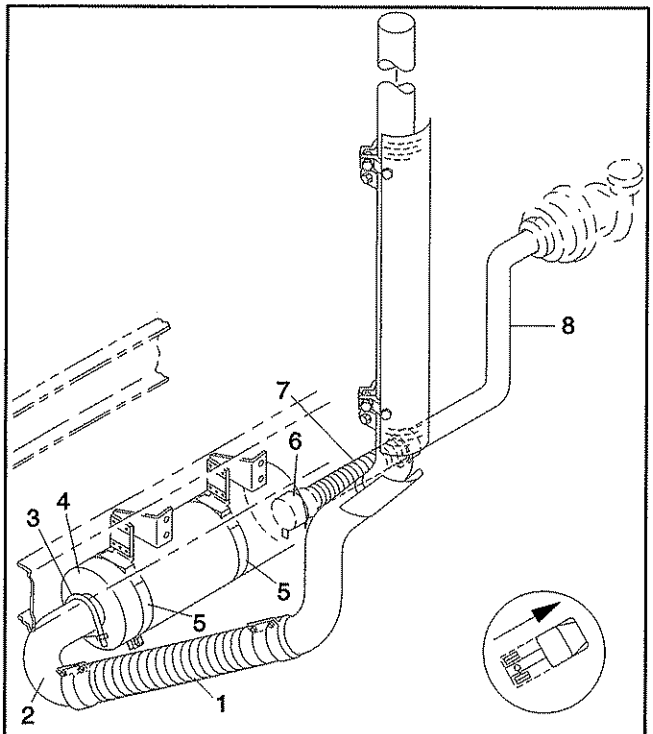
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NOTE: This configuration is on vehicles built to August 2, 1996. The exhaust flex pipe (Ref. 6) may not be present on early model vehicles.

1. Muffler
2. Muffler Mounting Band
3. Saddle Clamp
4. Muffler Outlet Exhaust Pipe
5. Wide-Band Exhaust Clamp
6. Exhaust Flex Pipe (except Cummins B 5.9 engines)
7. Muffler Inlet Exhaust Pipe

Fig. 2, Exhaust System With a Stack, Side Outlet, All Models Except FL112

Muffler Replacement



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NOTE: This configuration is on vehicles built from August 2, 1996. The exhaust flex pipe (Ref. 7) may not be present on early model vehicles.

1. Flex Pipe
2. Rear Exhaust Outlet
3. Saddle Clamp
4. Muffler (catalytic converter on some engine models)
5. Muffler Mounting Band Muffler
6. Wide-Band Exhaust Clamp
7. Exhaust Flex Pipe (except Cummins B 5.9 engines)
8. Muffler Inlet Exhaust Pipe

Fig. 3, Exhaust System, Rear Outlet, All Models Except FL112

2.4 Coat the lap joint area with chassis grease, so the clamp will slide freely without scratching the surface of the pipe.

2.5 Wrap a new wide-band exhaust clamp by hand around the lap joint. Place the large end of the clamp around the muffler inlet tube, and the small end around the inlet exhaust pipe.

2.6 Install the fasteners in the clamp. Starting from the larger end of the clamp, alternately tighten the fastener in three increments to a final torque of 50 to 60 lbf·ft (68 to 81 N·m).

Clean any excess chassis grease from around the clamp.

2.7 Install the saddle clamp U-bolt on the muffler outlet tube (where applicable). Tighten the saddle clamp flanged nuts alternately in three increments to a final torque of 24 lbf·ft (33 N·m).

2.8 Tighten the muffler mounting band fasteners until the band ears touch; then, tighten the fasteners two full turns or until the ears are in full contact, whichever occurs first.

2.9 Run the engine, and check for exhaust leakage at the exhaust clamp joints. Replace the wide-band exhaust clamps if they leak.

VERTICALLY MOUNTED MUFFLERS (See Fig. 4)

1. Remove the muffler.

1.1 Loosen the narrow-band clamps that hold the stack on the muffler, and remove the stack.

1.2 Loosen the saddle clamp that holds the base of the muffler to the support channel.

1.3 Loosen the wide-band clamp that connects the muffler to the exhaust pipe.

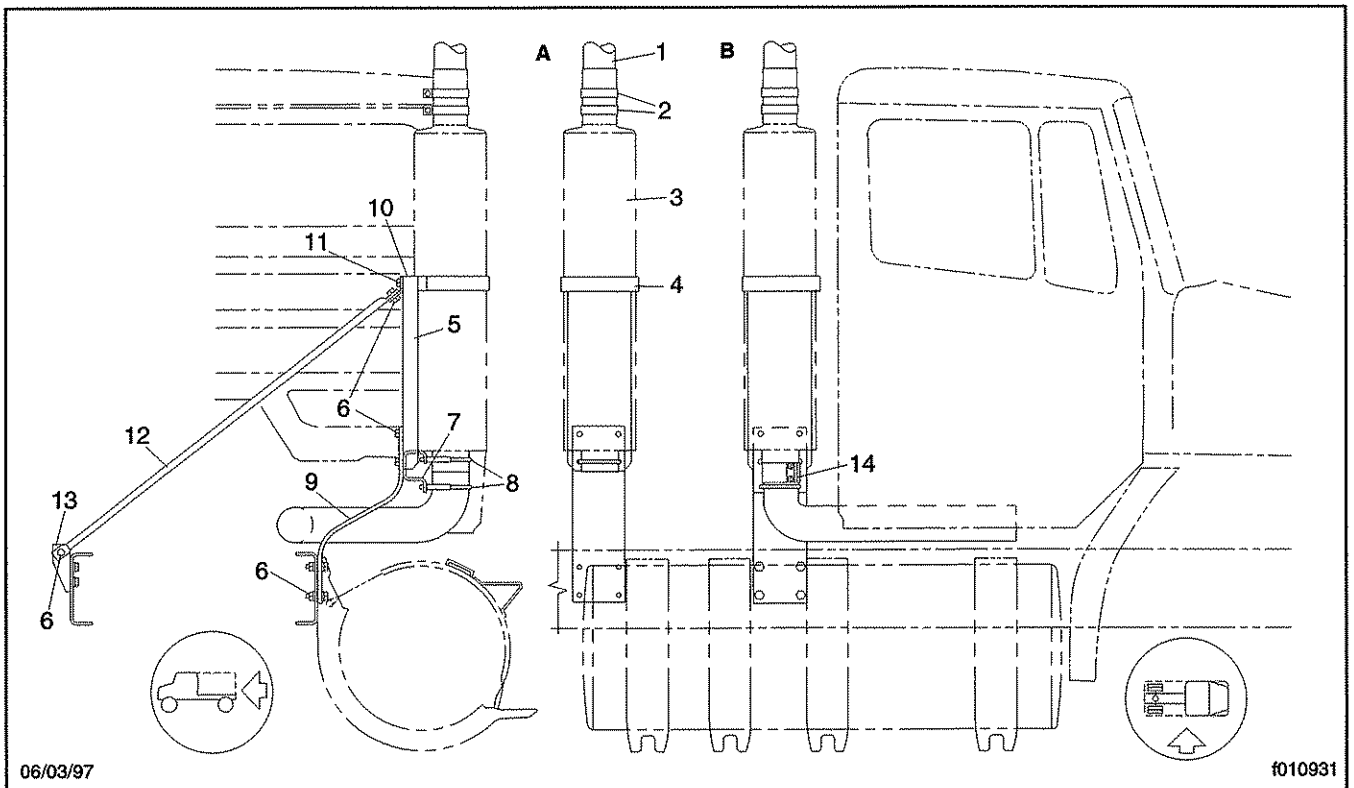
1.4 Remove the two bolts that hold the muffler mounting band to the muffler support channel.

1.5 Lift the muffler out of the lower saddle clamp.

2. Install the muffler.

2.1 Place the muffler in the support channel, and hold it in place while installing a new wide-band clamp to connect the muffler with the exhaust pipe.

2.2 Coat the lap joint area with chassis grease, so the clamp will slide freely without scratching the surface of the pipe.



A. Muffler Position, FL112 Conventional with Extended Cab

B. Muffler Position, FL112 Conventional with Day Cab

1. Exhaust Stack
2. Narrow-Band Clamp (2 qty.)
3. Muffler
4. Muffler Mounting Band
5. Support Channel
6. Nut, Washer, and Capscrew, 5/8–11, Grade 8
7. Lower Muffler Mounting Bracket
8. Saddle Clamp, 5-Inch
9. Upright Muffler Mounting Bracket
10. Upper Brace Bracket
11. Nut, Washer, and Capscrew, 1/2–13
12. Brace
13. Lower Brace Bracket
14. Wide-Band Clamp

Fig. 4, Vertical Exhaust Mounting, FL112

2.3 Wrap a new wide-band exhaust clamp by hand around the lap joint. Place the large end of the clamp around the muffler inlet, and the small end around the exhaust pipe.

2.4 Install the fasteners in the clamp. Starting from the larger end of the clamp, alternately tighten the fastener in three increments to a final torque of 50 to 60 lbf·ft (68 to 81 N·m).

Clean any excess chassis grease from around the clamp.

2.5 Install the saddle clamp at the bottom of the muffler, and tighten the clamp 24 lbf·ft (33 N·m).

2.6 Install the capscrews, washers and nuts that hold the muffler mounting band to the support channel, and tighten the capscrews 68 lbf·ft (92 N·m).

2.7 Install the stack, and secure it with two narrow-band clamps. Tighten the clamps 50 lbf·ft (68 N·m).

2.8 Run the engine, and check for exhaust leakage at the exhaust clamp joints. Replace the wide-band exhaust clamps if they leak.

Muffler Removal and Installation, Gasoline Engines

Removal (See Fig. 1or Fig. 2)

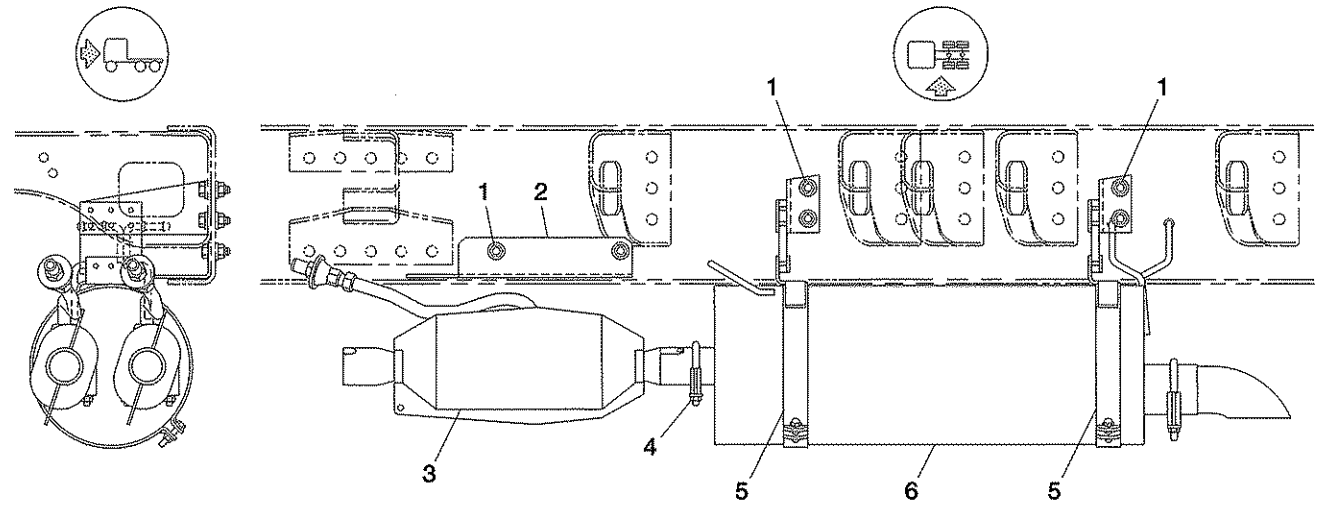
1. Park the vehicle, apply the parking brakes, and shut down the engine.
2. Loosen the two saddle clamps that hold the catalytic converters to the front of the muffler.
3. *If removing a muffler supported by straps (***Fig. 1***) do this step, if removing a muffler supported by rubber isolators (***Fig. 2***) go to the next step.*

   Remove the capscrews that hold the bands of the muffler support assemblies together. Then lower and remove the muffler.
4. To remove a muffler supported by rubber isolators, support the muffler, and remove the two bolts that hold the rear exhaust system mounting bracket to the frame rail.
5. Pull the muffler back, away from the catalytic converters, and remove it.
6. If replacing the muffler, remove the rubber isolators and the rear exhaust system mounting bracket from the old muffler.

Installation

1. *If installing a muffler supported by straps (***Fig. 1***) do this step, if installing a muffler supported by rubber isolators (***Fig. 2***) go to the next step.*

   To install a muffler supported by straps, position the muffler in the bands of the support assemblies, then close the bands with capscrews and tighten the capscrews 13 N·m (10 lbf·ft). Now, go to the last step in this procedure.
2. To install a muffler supported by rubber isolators, first install the rubber isolators and the rear exhaust system mounting bracket on the new muffler.
3. Position the muffler in the vehicle so that it mates with the catalytic converters.



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1. Capscrew, 1/2–13 x 1.75 inch, grade 8; Washer; Hexnut, 1/2–13
2. Heat Shield
3. Catalytic Converter
4. U-Bolt Clamp, 57.15 mm diameter
5. Muffler Support Assembly
6. Muffler

Fig. 1, Muffler Mounting with Straps, Dodge Magnum Engine

Muffler Removal and Installation, Gasoline Engines

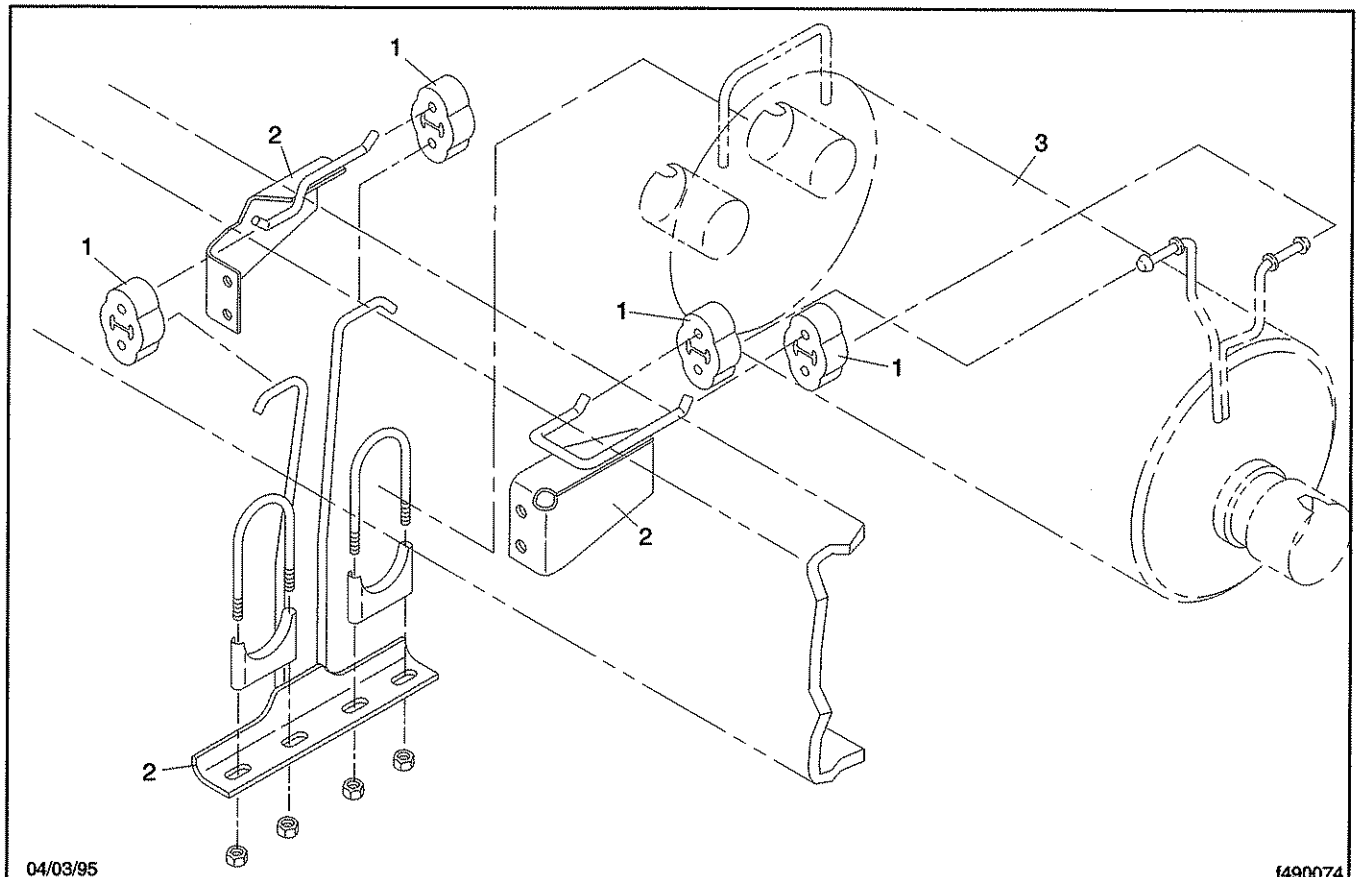


Fig. 2, Muffler Mounting with Rubber Isolators, Dodge Magnum Engine

4. Install the two bolts that hold the rear exhaust system mounting bracket to the frame rail, and tighten the bolts firmly.
5. Tighten the saddle clamps to seal the muffler-catalytic converter joints.

Air Injection Pump Removal and Installation, Gasoline Engines

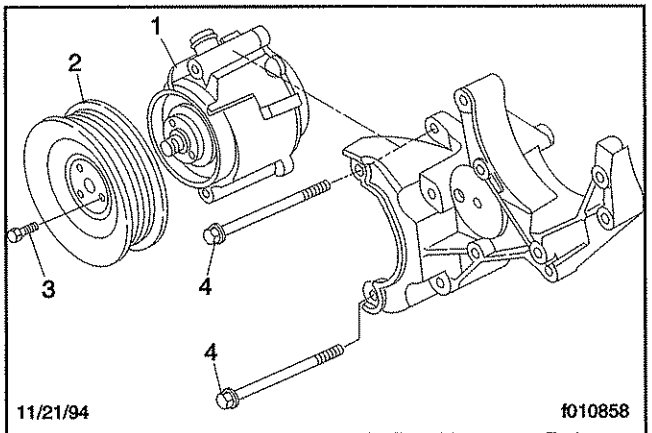
Removal

NOTE: The air injection pump does not have any internal serviceable parts.

1. Park the vehicle, apply the parking brakes, and chock the tires.
2. Tilt the hood.
3. Disconnect both the hoses at the air injection pump.
4. Loosen (but do not remove at this time) the three 10 mm air pump pulley mounting bolts. **See Fig. 1.**
5. Place a 5/8-inch wrench over the pulley bolt on the automatic belt tensioner, and turn the wrench counterclockwise to relax the belt tensioner and remove the engine accessory drive belt. **See Fig. 2.**
6. Remove the three air pump pulley bolts and remove the pulley from the pump.
7. Remove the two 14 mm air pump mounting bolts, and remove the pump from the mounting bracket. **See Fig. 1.**

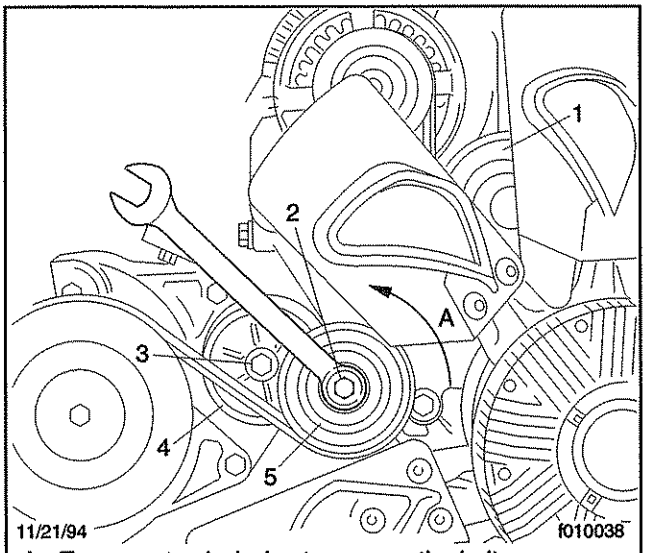
Installation

1. Position the air injection pump on the mounting bracket.
2. Install the two 14 mm pump mounting bolts. **See Fig. 1.** Tighten the mounting bolts 40 N·m (30 lbf·ft).
3. Install the pump pulley and three 10 mm pulley mounting bolts. Tighten the bolts finger tight.
4. Place a 5/8-inch wrench over the pulley bolt on the automatic belt tensioner, and turn the wrench counterclockwise to relax the belt tensioner. Install the engine accessory drive belt. **See Fig. 2.**
5. Tighten the pump pulley mounting bolts 1180 N·cm (105 lbf·in).
6. Connect the two hoses to the air pump.
7. Lower the hood, and remove the chocks from the tires.



1. Air Injection Pump
2. Pump Pulley
3. Pulley Mounting Bolt
4. Pump Mounting Bolt

Fig. 1, Pump Mounting



A. Turn counterclockwise to remove the belt.

1. Idler Pulley
2. Tensioner Pulley Bolt
3. Tensioner Mounting Bolt
4. Tensioner
5. Tensioner Pulley

Fig. 2, Relieving Belt Tension

Catalytic Converter Removal and Installation, Gasoline Engines

Removal (See Fig. 1or Fig. 2)

1. Park the vehicle, apply the parking brakes, and shut down the engine.
2. *If the muffler is mounted with rubber isolators* (**Fig. 1**), remove the muffler. For instructions, refer to **Subject 105.**

   If the muffler is mounted with straps (**Fig. 2**), loosen the U-bolt clamps that hold the catalytic converters to the muffler.
3. Loosen the clamps that hold the air injection lines to the catalytic converters. Then, disconnect the lines from the converters.
4. Loosen the saddle clamps that hold the catalytic converters to the exhaust pipes, then pull the converters back and remove them.

Installation

1. Position the catalytic converters on the exhaust pipes, but don't tighten the saddle clamps yet.
2. *If the muffler is mounted with rubber isolators* (**Fig. 1**), install the muffler. For instructions, refer to **Subject 105.**

   If the muffler is mounted with straps (**Fig. 2**), connect the catalytic converters to the muffler, and tighten the U-bolt clamps to seal the connection.
3. Tighten the saddle clamps to seal the joint between the exhaust piping and each catalytic converter.
4. Connect the air injection lines to the catalytic converters, and tighten the hose clamps.

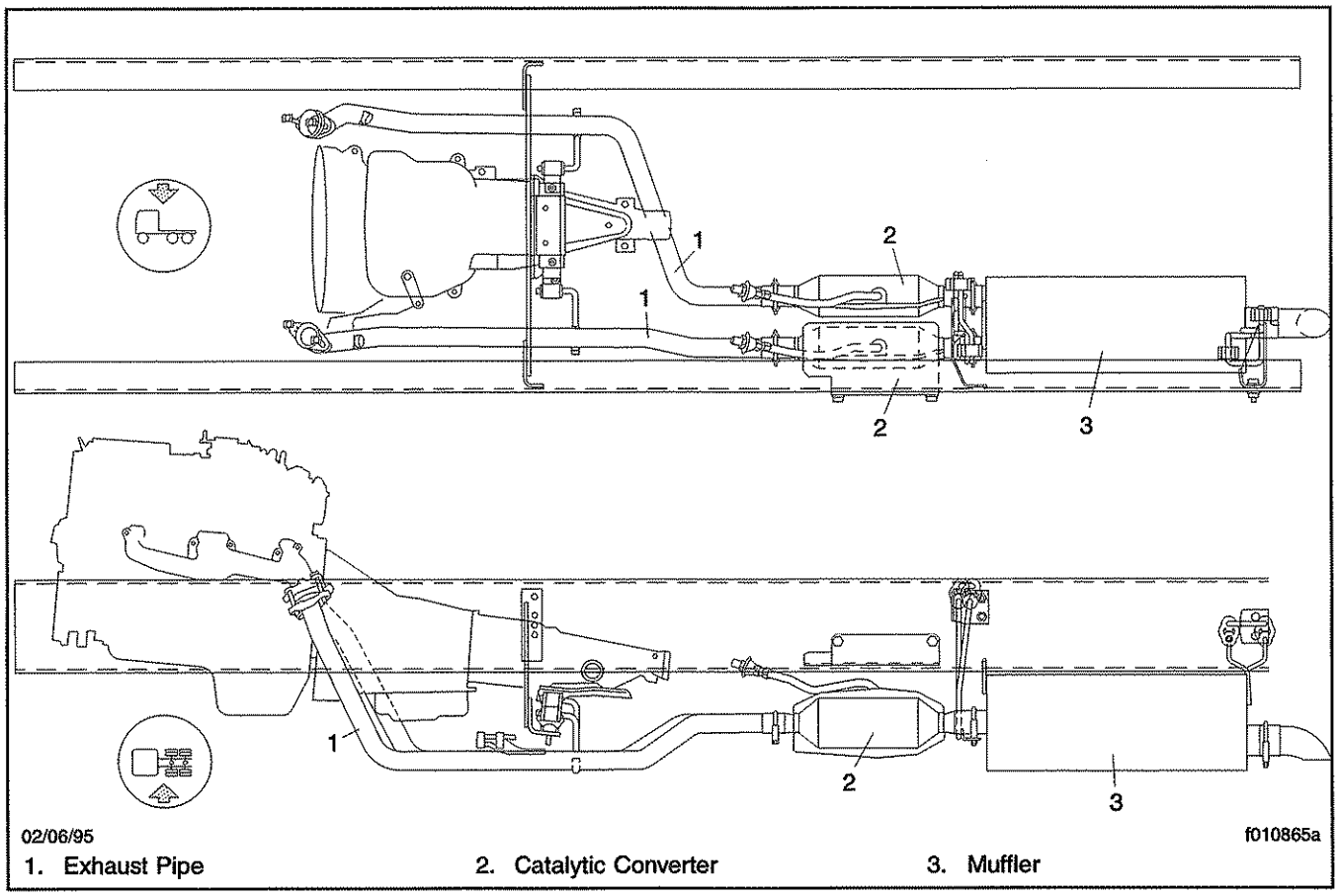
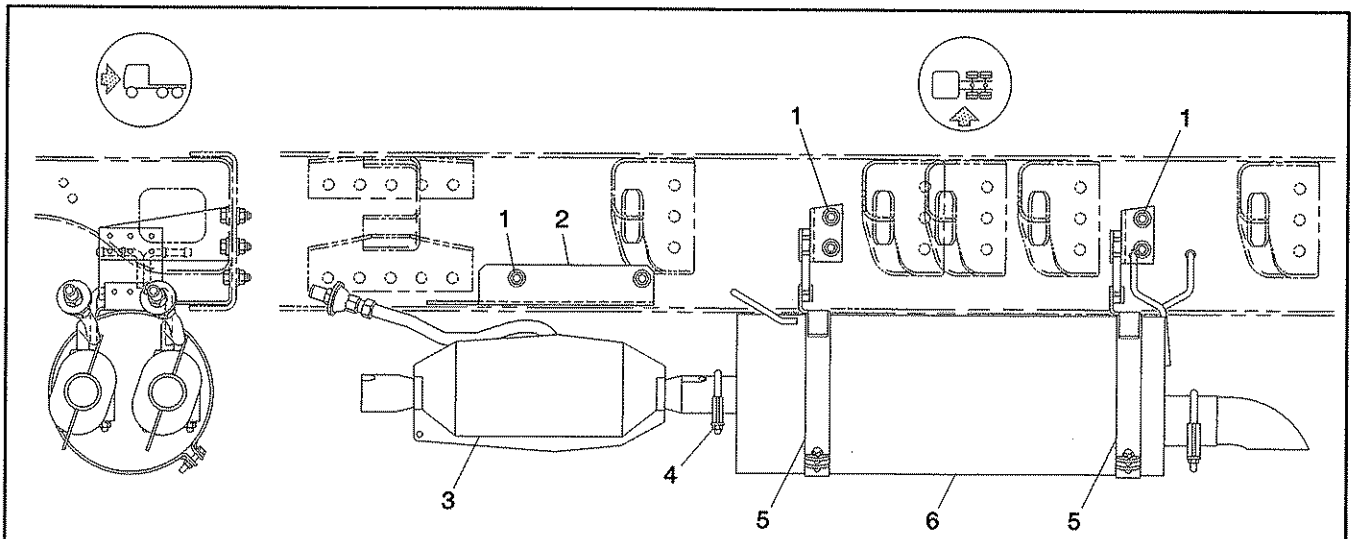


Fig. 1, Muffler Mounting with Rubber Isolators, Dodge Magnum Engine

Catalytic Converter Removal and Installation, Gasoline Engines



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1. Capscrew, 1/2–13 x 1.75 inch, grade 8; Washer; Hexnut, 1/2–13
2. Heat Shield
3. Catalytic Converter
4. U-Bolt Clamp, 57.15 mm diameter
5. Muffler Support Assembly
6. Muffler

Fig. 2, Muffler Mounting with Straps, Dodge Magnum Engine

Specifications

Description	Grade	Size	Torque N·m (lbf·ft)
Wide-Band Exhaust Clamp	—	—	68-81 (50-60)
Saddle Clamp U-Bolt	—	3/8–16	33 (24)
Exhaust Stack Shield Capscrews	302 SS	5/16–18	18 (13)
Mounting Band Fasteners	—	—	14 (10)

Table 1, Fastener Torques