

11 - Exhaust System/MUFFLER, Exhaust/Removal and Installation

MUFFLER

☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL

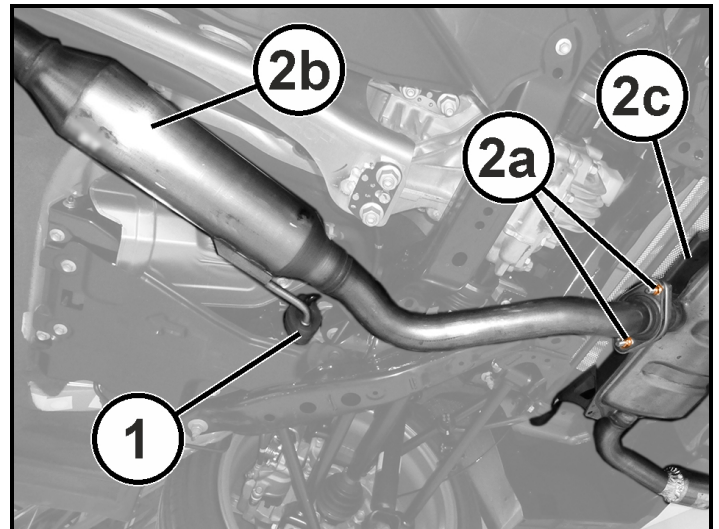
1. Raise and properly support the vehicle (Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure) .

2. Remove the center pipe isolator (1).

3. Remove the nuts (2a), disconnect the center exhaust pipe (2b) from the muffler (2c) and remove the center exhaust pipe.

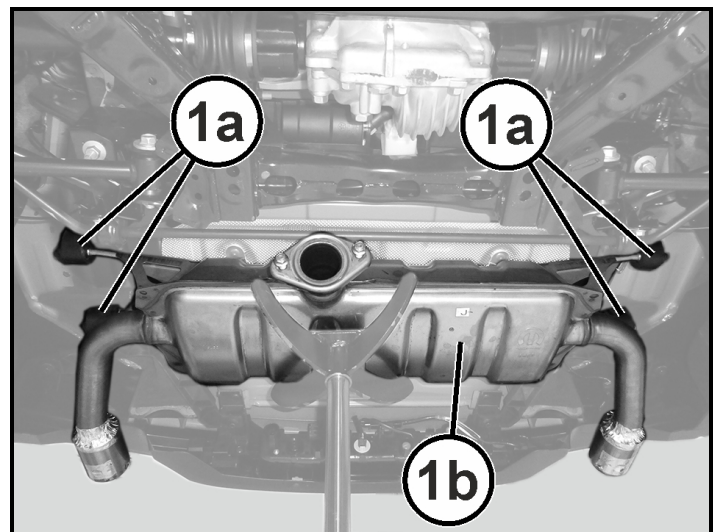
4. **DISCARD** the gasket.

5. Using a suitable jack stand, support the center exhaust pipe (2b).



6. Using a suitable jack stand, support the muffler (1b).

7. Remove the muffler isolators (1a) and remove the muffler (1b).



INSTALLATION

1. Using a suitable jack stand, support the muffler.

2. Install the muffler isolators.

3. Connect the center exhaust pipe to the muffler using a **NEW** gasket and tighten the flange nuts to the proper

(Torque Specifications) .

4. Install the center pipe isolator.
5. Remove supports and lower the vehicle.

11 - Exhaust System/PIPE, Exhaust/Removal and Installation

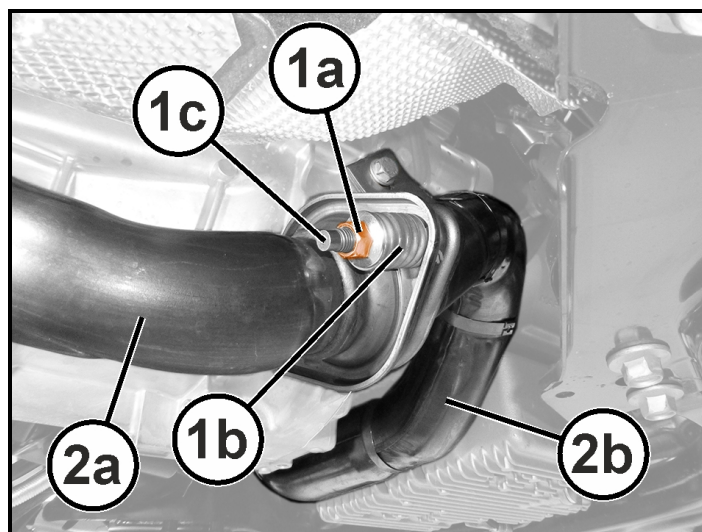
CENTER EXHAUST PIPE

☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL

1. Raise and properly support the vehicle (Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure) .
2. Remove the underbody tunnel crossmember (Refer to 13 - Frame and Bumpers/Frame/CROSSMEMBER, Underbody Tunnel/Removal and Installation) .
3. Remove the front crossmember reinforcement (Refer to 13 - Frame and Bumpers/Frame/CROSSMEMBER, Front Reinforcement/Removal and Installation) .
4. Remove the transmission belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .
5. Remove the center belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .

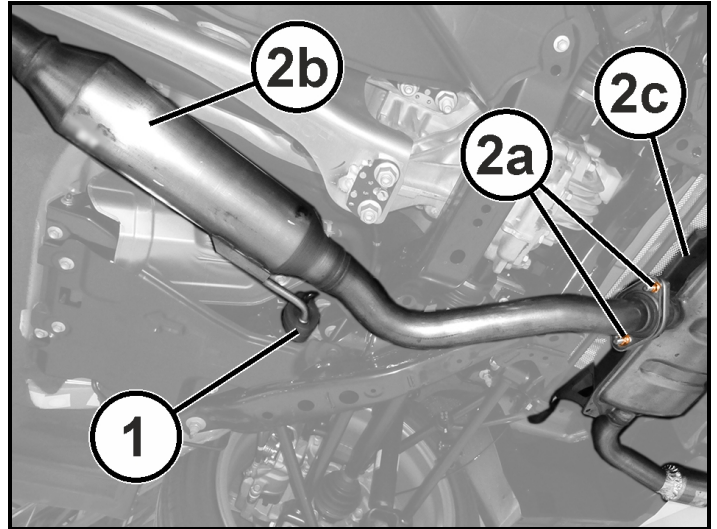
6. Remove the nuts (1a), remove the springs (1b) and the studs (1c) .
7. Disconnect the center exhaust pipe (2a) from the crossunder pipe (2b) .
8. **DISCARD** the gasket.



9. Using a suitable jack stand, support the center exhaust pipe (2b) .
10. Remove the center pipe isolator (1) .
11. Remove the nuts (2a), disconnect the center exhaust pipe (2b) from the muffler (2c) and remove the center

exhaust pipe.

12. **DISCARD** the gasket.



INSTALLATION

1. Using a suitable jack stand, support the center exhaust pipe equipped with **NEW** gaskets.
2. Connect the center exhaust pipe to the muffler and tighten the flange nuts to the proper (Refer to 11 - Torque Specifications) .
3. Install the center pipe isolator.
4. Connect the center exhaust pipe to the crossunder pipe.
5. Tighten the studs, install the springs and tighten the nuts to the proper (Refer to 11 - Torque Specifications) .
6. Install the center belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .
7. Install the transmission belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .
8. Install the front crossmember reinforcement (Refer to 13 - Frame and Bumpers/Frame/CROSSMEMBER, Front Reinforcement/Removal and Installation) .
9. Install the underbody tunnel crossmember (Refer to 13 - Frame and Bumpers/Frame/CROSSMEMBER, Underbody Tunnel/Removal and Installation) .
10. Remove supports and lower the vehicle.

11 - Exhaust System/PIPE, Exhaust/Removal and Installation

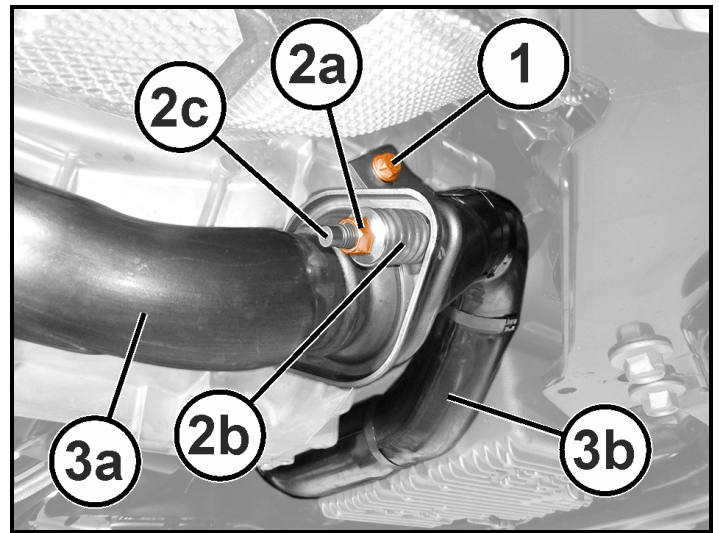
CROSSUNDER PIPE

☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

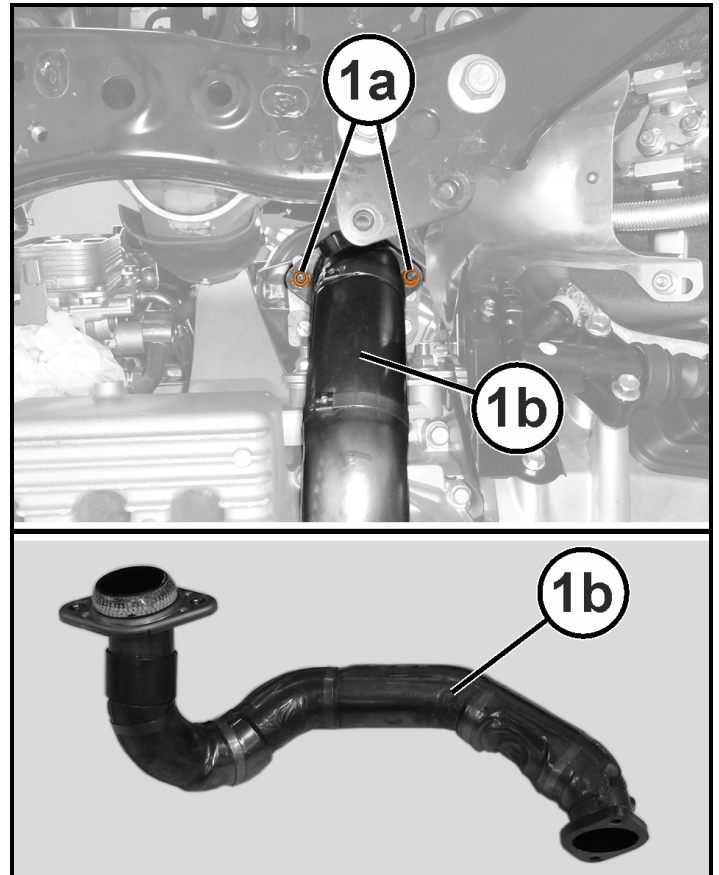
REMOVAL

1. Disconnect and isolate the negative battery terminal.
2. Raise and properly support the vehicle (Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure) .
3. Remove the downstream oxygen sensor (Refer to 14 - Fuel System/Fuel Injection, Gas/SENSOR, Oxygen/Removal and Installation) .

4. Remove the exhaust pipe bracket to transmission bolt (1).
5. 2. Remove the nuts (2a), remove the springs (2b) and remove the studs (2c).
6. 3. Disconnect the exhaust pipe (3a) from the crossunder pipe (3b).
7. **DISCARD** the flange gasket.



8. Remove the nuts (1a) from the flange on the catalytic converter and remove the crossunder pipe (1b).



INSTALLATION

1. Fit the crossunder pipe assembly in position, complete with **NEW** gaskets.
2. Tighten the crossunder pipe to the catalytic converter flange nuts to the proper (Refer to 11 - Torque Specifications) .
3. Connect the exhaust pipe to the crossunder pipe.
4. Install the crossunder pipe studs and tighten to the proper (Torque Specifications) .
5. Install the crossunder pipe to exhaust pipe springs and tighten the flange nuts to the proper (Torque Specifications) .
6. Install the exhaust pipe bracket to transmission bolt and tighten to the proper (Torque Specifications) .
7. Install the downstream oxygen sensor (Refer to 14 - Fuel System/Fuel Injection, Gas/SENSOR, Oxygen/Removal and Installation) .
8. Remove supports and lower the vehicle.

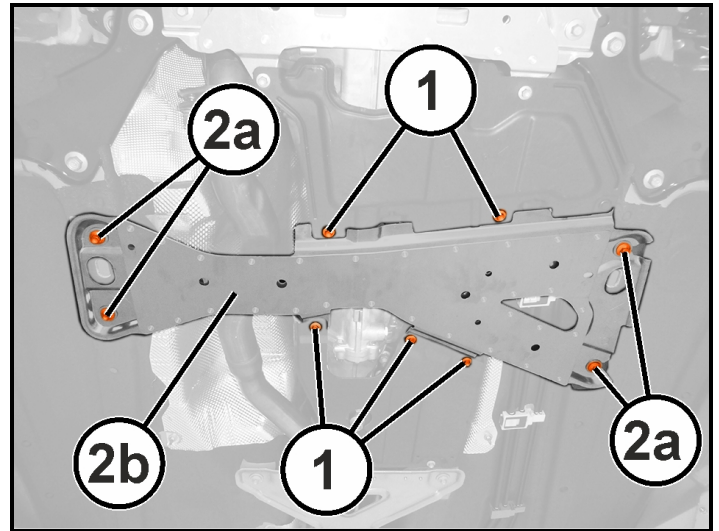
9. Connect the negative battery terminal.

REMOVAL AND INSTALLATION

☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL


1. Disconnect and isolate the negative battery cable.
2. Raise and support the vehicle, ([Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
3. Remove the screws (1) on the belly pans under the gearbox.
4. Remove the screws (2a) and remove the front crossmember (2b).



INSTALLATION

1. Position the front crossmember (2b) back and install the screws (2a).
2. Tighten the screws (2a) to the proper ([Torque Specifications](#)) .

REMOVAL AND INSTALLATION

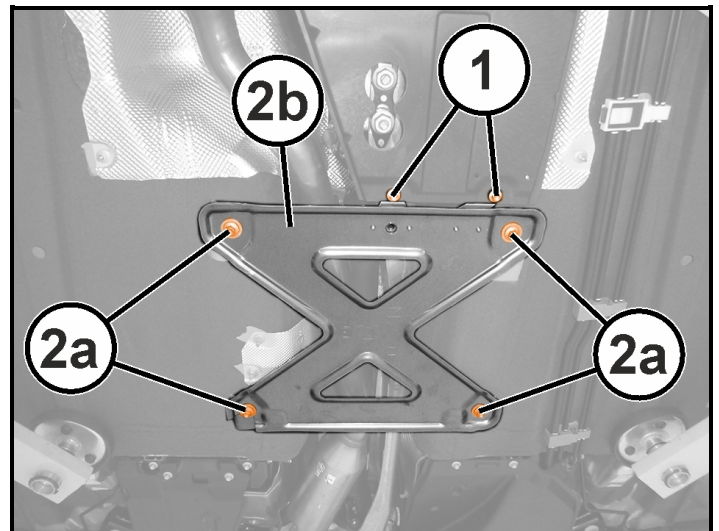
 **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL

1. Raise and support the vehicle, ([Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
2. Remove the screws (1) on the rear belly pan under the transmission.
3. Remove the screws (2a) and remove the underbody tunnel reinforcement crossmember (2b).

INSTALLATION

1. Position the underbody tunnel reinforcement crossmember (2b) and tighten the screws (2a) to the proper ([Torque Specifications](#)) .
2. Install the screws (1)
3. Remove supports and lower vehicle.



REMOVAL AND INSTALLATION

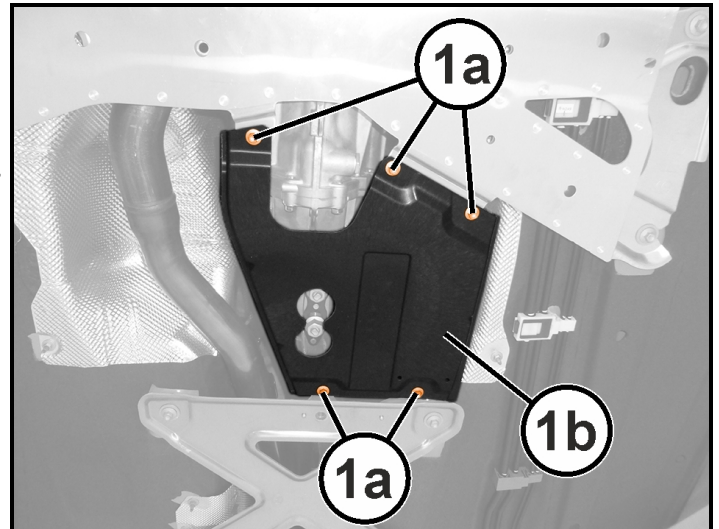
☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL

1. Raise and support the vehicle, ([Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
2. Remove the screws (1a) and remove the belly pan under the transmission (1b).

INSTALLATION

1. Install the belly pan under the transmission and tighten the screws to the proper ([Torque Specifications](#)) .
2. Remove supports and lower vehicle.



REMOVAL AND INSTALLATION

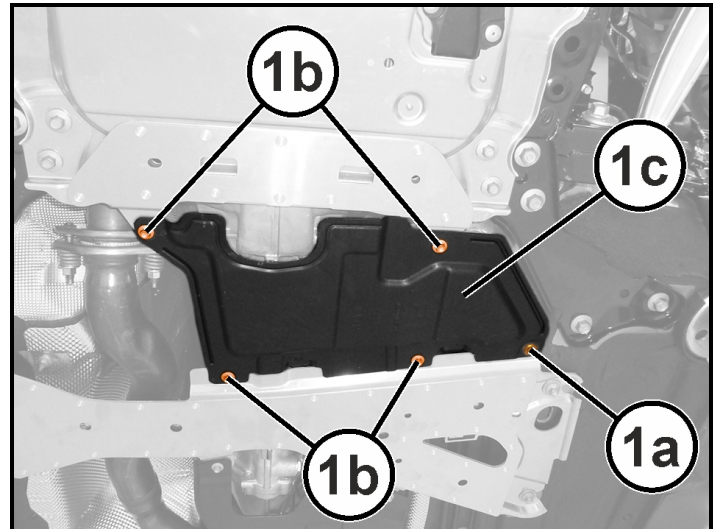
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REMOVAL


1. Raise and support the vehicle, (Refer to [04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
2. Release the retainer (1a), remove the screws (1b) and remove the belly pan under the transmission (1c).

INSTALLATION

1. Position the belly pan (1c) under the transmission, tighten the screws (1b) to the proper ([Torque Specifications](#)) and secure the retainer (1a).
2. Remove the supports and lower vehicle.

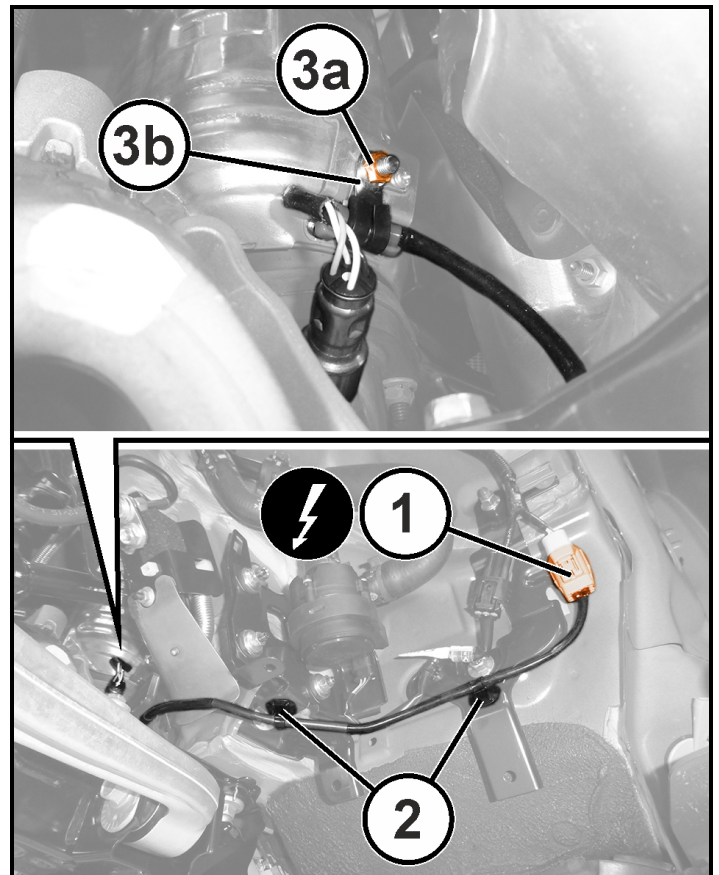


REAR OXYGEN SENSOR TO THE CATALYTIC CONVERTER

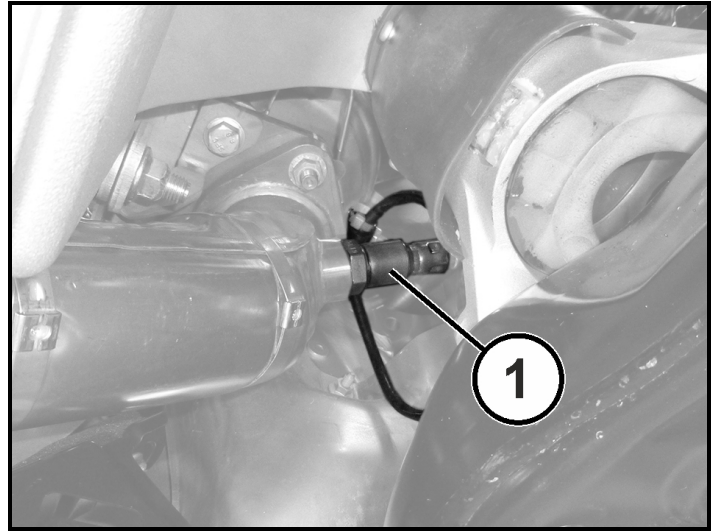
 **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL

1. Disconnect the negative battery terminal.
2. Remove the front splash shield (Refer to 23 - Body/Exterior/SHIELD, Splash/Removal and Installation) .
3. Remove the belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .
4. Disconnect the electrical connection (1).
5. Release the wiring retaining clips (2).
6. Undo the nut (3a) from the wiring retaining bracket (3b).



7. Undo and remove the oxygen sensor (1).



INSTALLATION

1. Refit the oxygen sensor in position and tighten it to the proper (Torque Specifications) .
2. Refit the wiring retaining bracket and tighten the nut.
3. Engage the wiring retaining clips.
4. Connect the electrical connection.
5. Install the belly pan (Refer to 13 - Frame and Bumpers/Under Body Protection/BELLY PAN/Removal and Installation) .
6. Install the front splash shield (Refer to 23 - Body/Exterior/SHIELD, Splash/Removal and Installation) .
7. Connect the negative battery terminal.

REMOVAL AND INSTALLATION

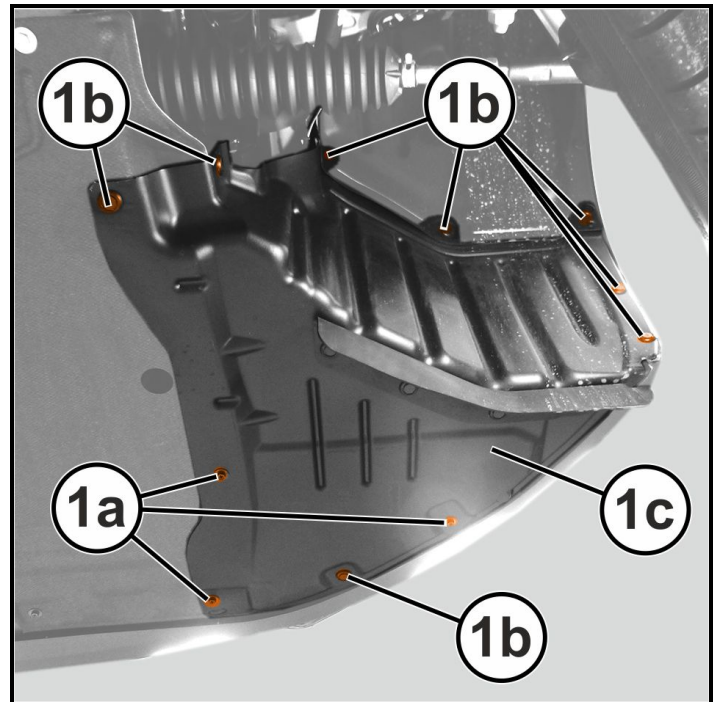
☒ **Labor Operations:** Click to display a list of Labor Operations associated with this procedure

REMOVAL – FRONT

1. Raise and support the vehicle, ([Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
2. Remove the screws (1a), remove the retainers (1b) and remove the shield (1c).

INSTALLATION

1. Install the shield, secure the retainers and tighten the screws.
2. Remove the support and lower the vehicle.

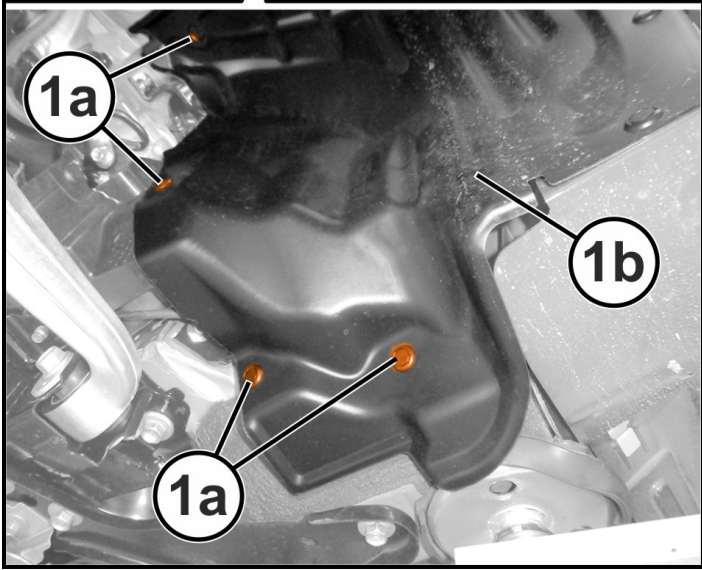
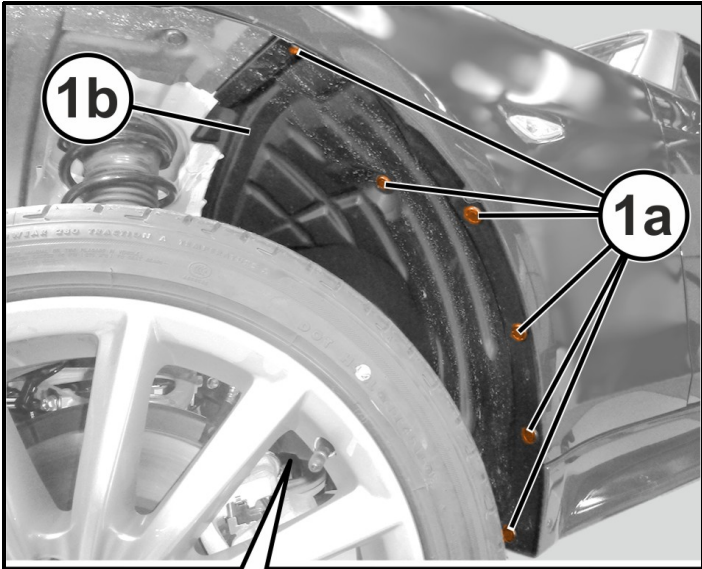


REMOVAL – REAR

1. Raise and support the vehicle, ([Refer to 04 - Vehicle Quick Reference/Hoisting/Standard Procedure](#)) .
2. Remove the retainers (1a) and remove the shield (1b).

INSTALLATION

1. Install the shield and secure the retainers.
2. Remove the support and lower the vehicle.



11 - Exhaust System/Adjustments

ADJUSTMENTS

A misaligned exhaust system is usually indicated by a exhaust leak, vibration, rattling noise, or binding of exhaust system components. These noises are sometimes hard to distinguish from other chassis noises. Inspect exhaust system for broken or loose clamps, heat shields, isolators, and brackets. Replace or tighten as necessary. It is important that exhaust system clearances and alignment be maintained.

Perform the following procedures to align the exhaust system:

1. Loosen the clamps and support brackets.
2. Align the exhaust system starting at the front, working rearward.
3. Tighten all clamps and brackets once alignment and clearances are achieved.