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2012 Jeep COMPASS PATRIOT Service Manual

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- When wear has taken place on valve stems and valve guides, the vacuum in the intake manifold will draw oil and oil vapor between the intake valve stems and guides into the intake manifold and then into the cylinder where it will be burned.

8. **Bent or Misaligned Connecting Rods**

   - Bent or misaligned connecting rods will not allow the pistons to ride straight in the cylinders. This will prevent the pistons and rings from forming a proper seal with the cylinder walls and promote oil consumption. In addition, it is possible that a bearing in a bent connect rod will not have uniform clearance on the connecting rod wrist pin. Under these conditions, the bearing will wear rapidly and throw off an excessive amount of oil into the cylinder.

9. **Fuel Dilution**

   - If raw fuel is allowed to enter the lubrication system, the oil will become thinner and more volatile and will result in higher oil consumption. The following conditions will lead to higher oil consumption:

     - Excess fuel can enter and mix with the oil via a leaking fuel injector
     - Gasoline contaminated with diesel fuel
     - Restricted air intake
     - Excessive idling

10. **Contaminated Cooling Systems**

    - Corrosion, rust, scale, sediment or other formations in the water jacket and radiator will prevent a cooling system from extracting heat efficiently. This is likely to cause cylinder distortion thus leading to higher oil consumption.

11. **Oil Viscosity**

    - The use of oil with a viscosity that is too light may result in high oil consumption. Refer to the vehicle owner's manual for the proper oil viscosity to be used under specific driving conditions and/or ambient temperatures.

12. **Dirty Engine Oil**

    - Failure to change the oil and filter at proper intervals may cause the oil to be so dirty that it will promote accumulation of sludge and varnish and restrict oil passages in the piston rings and pistons. This will increase oil consumption; dirty oil by nature is also consumed at a higher rate than clean oil.

13. **Crankcase Overfull**

    - Due to an error in inserting the oil dip stick so that it does not come to a seat on its shoulder, a low reading may be obtained. Additional oil may be added to make the reading appear normal with the stick in this incorrect position which will actually make the oil level too high. If the oil level is so high that the

YOUR CURRENT VEHICLE

Rear Seal Area Leaks

REAR SEAL AREA LEAKS

The crankshaft rear oil seal is integral to the crankshaft rear oil seal retainer and cannot be serviced separately.

Since it is sometimes difficult to determine the source of an oil leak in the rear seal area of the engine, a more involved inspection is necessary. The following steps should be followed to help pinpoint the source of the leak.

If the leakage occurs at the crankshaft rear oil seal area:

1. Raise and support the vehicle (Refer to Vehicle Quick Reference/Hoisting/Standard Procedure).
2. Remove the transmission inspection/torque converter access cover.
3. Inspect the rear of the cylinder block for evidence of oil leakage, note the following:
    - Circular spray pattern generally indicates seal leakage or crankshaft damage.
    - Where leakage tends to run straight down, possible causes are a porous block, camshaft bore cup plugs, oil galley pipe plugs, oil filter runoff, and main bearing cap to cylinder block mating surfaces.
4. If no leaks are detected, use the Air Leak Detection Test Method as outlined in 09-Engine/Lubrication/Diagnosis and Testing section.

    CAUTION

    Do not exceed 20.6 kPa (3 psi).

5. If the leak is not detected, very slowly turn the crankshaft and watch for leakage. If a leak is detected between the crankshaft and seal while slowly turning the crankshaft, it is possible the crankshaft seal surface is damaged. The seal area on the crankshaft could have minor nicks or scratches that can be polished out using an emery cloth.

    CAUTION

connected near the battery, the starter or anywhere in between that is accessible.

4. Set up the channels and scaling according to the table below:

NOTE

The ignition coil sync is not necessary on initial testing. If the peaks are equal indicating that all of the cylinders are good during initial test, no further action is needed. If there is an issue with one or more of the cylinders, then the ignition coil can be used as a reference to help determine which cylinder is low.

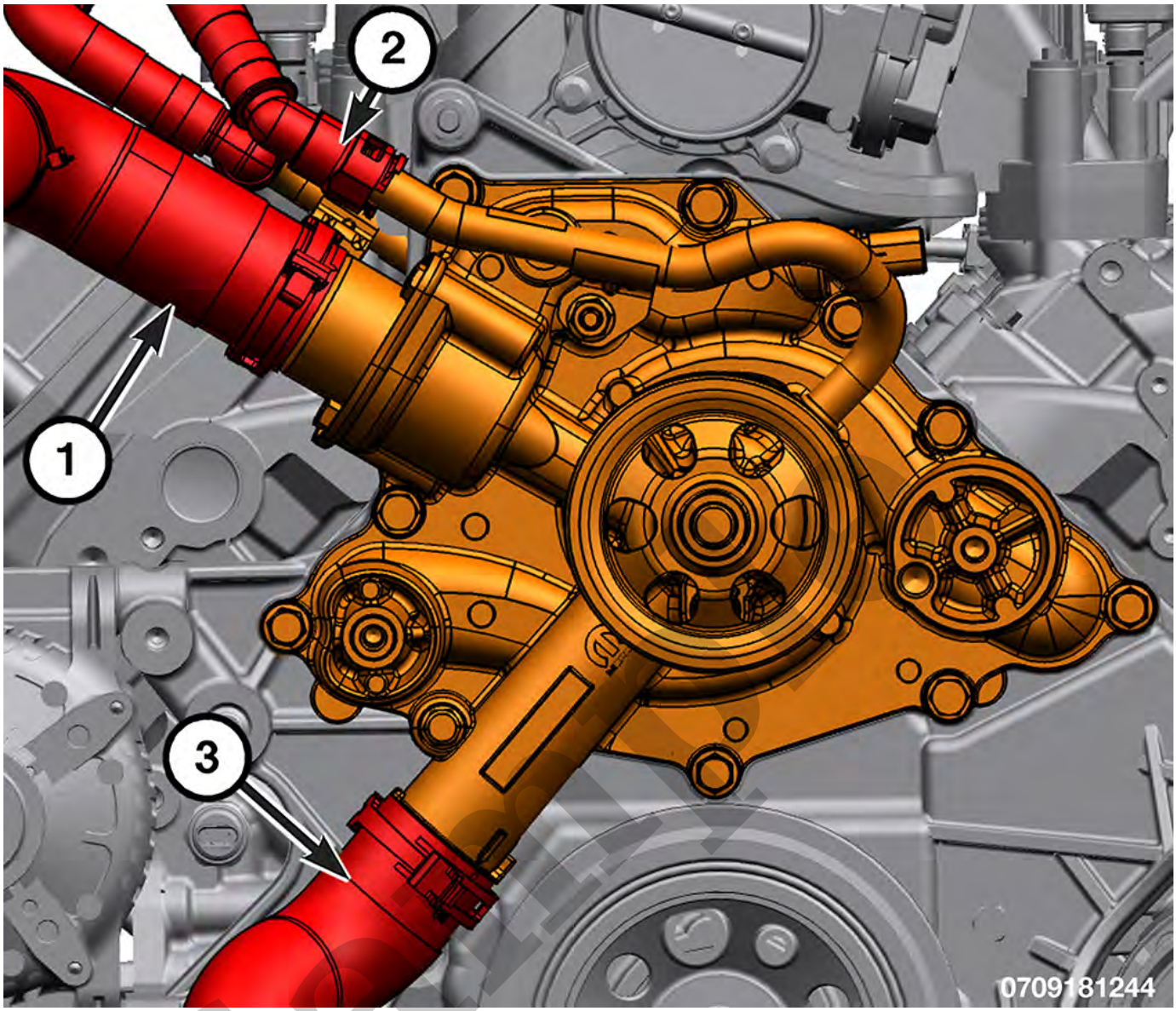
OSCILLOSCOPE CHANNEL SET-UP AND SCALING		
	CHANNEL A	**CHANNEL B (IF NEEDED)**
Scope Lead	2000A clamp	Coil on Plug Probe
Voltage/Amperage scaling	1kA	Auto-scales to 10mA
Scope Connection	Connect to the battery cable from the battery to the starter motor	Place on an ignition coil for reference sync (preferably #1)
Graph Timing	Recommend 500 ms/div	

5. Setting up a trigger will allow auto capturing the data during cranking. If the trigger is not used the scope will need to be manually stopped to capture the data for analyzing. If a trigger is being used, set up the trigger for channel A according to the trigger set-up table below:

TRIGGER SET-UP				
Mode	**Trigger Type**	**Direction**	**Threshold**	**Pre-trigger percentage**
Single	Simple Edge	Rising	100A	10%

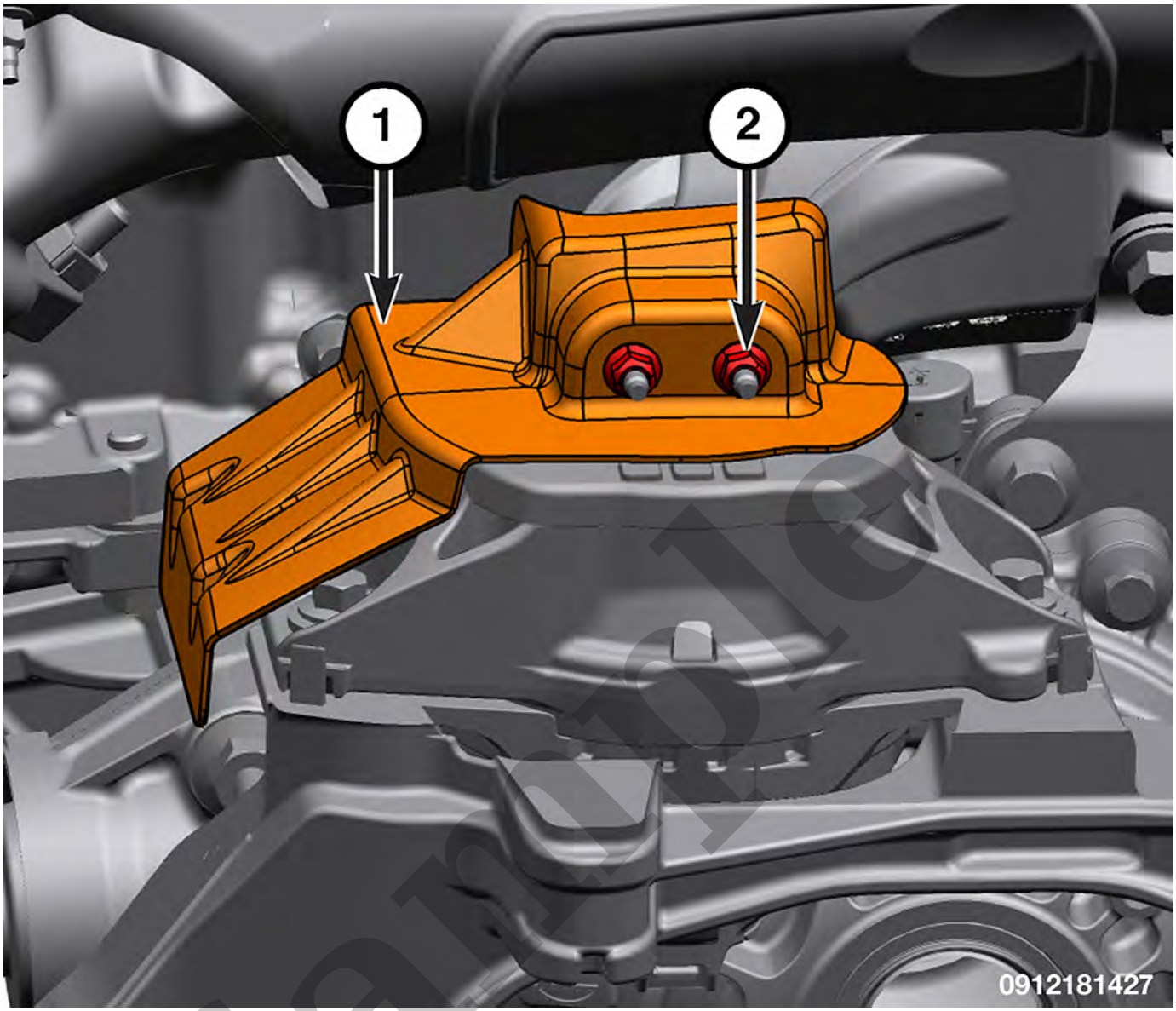
6. Hold the accelerator pedal open to help prevent the engine from trying to start.

NOTE



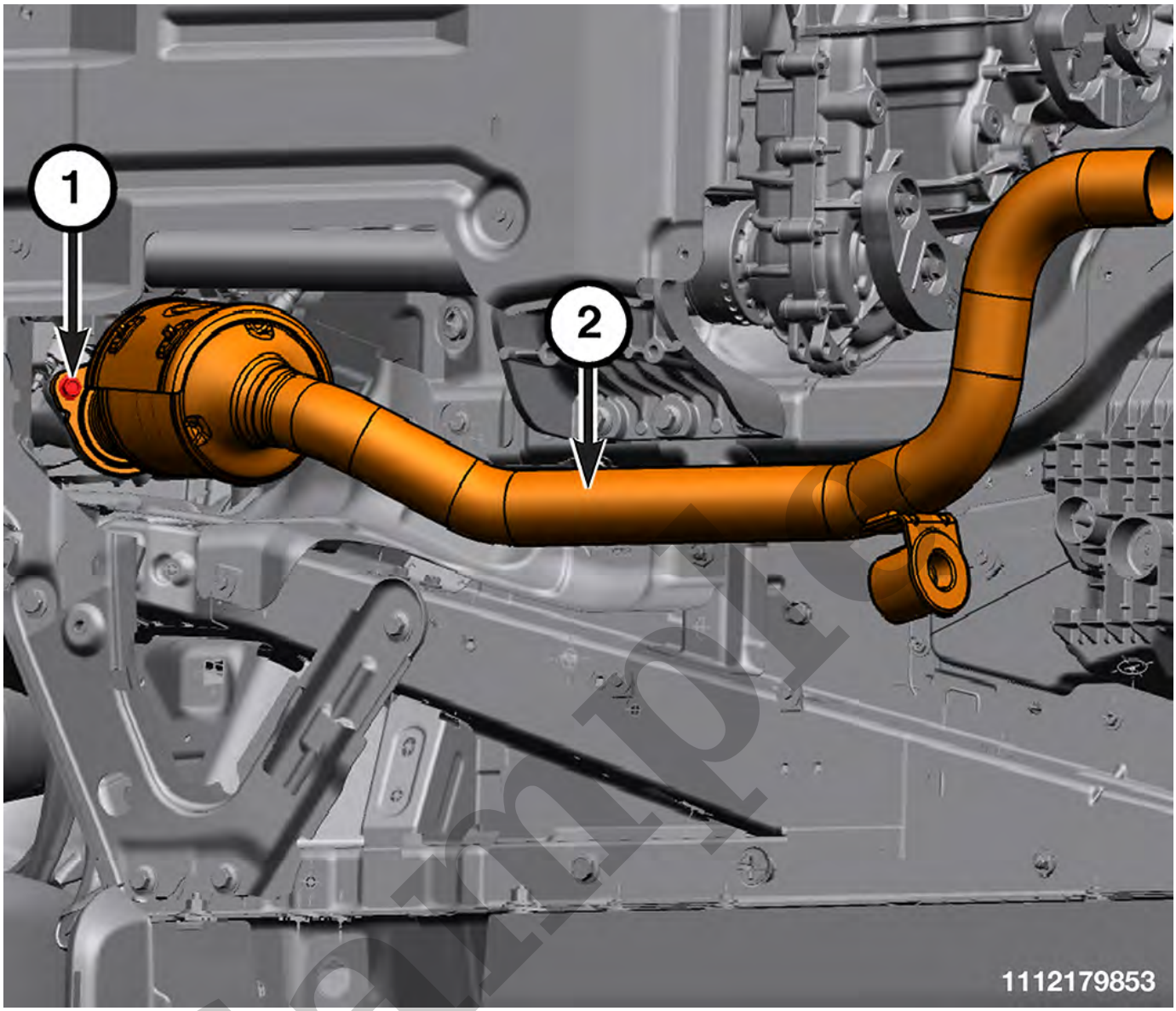
1 - Upper Radiator Hose
2 - Heater Hose
3 - Lower Radiator Hose

8. Remove the upper radiator hose from the thermostat housing.
9. Remove the lower radiator hose from the water pump.
10. Remove the heater hoses from the water pump.
11. Remove the pressurized coolant bottle (Refer to Engine/Cooling System/BOTTLE, Coolant/Removal and Installation)(Refer To List 6).
12. Remove the heater hoses.



1 - Heat Shield
2 - Heat Shield Nuts

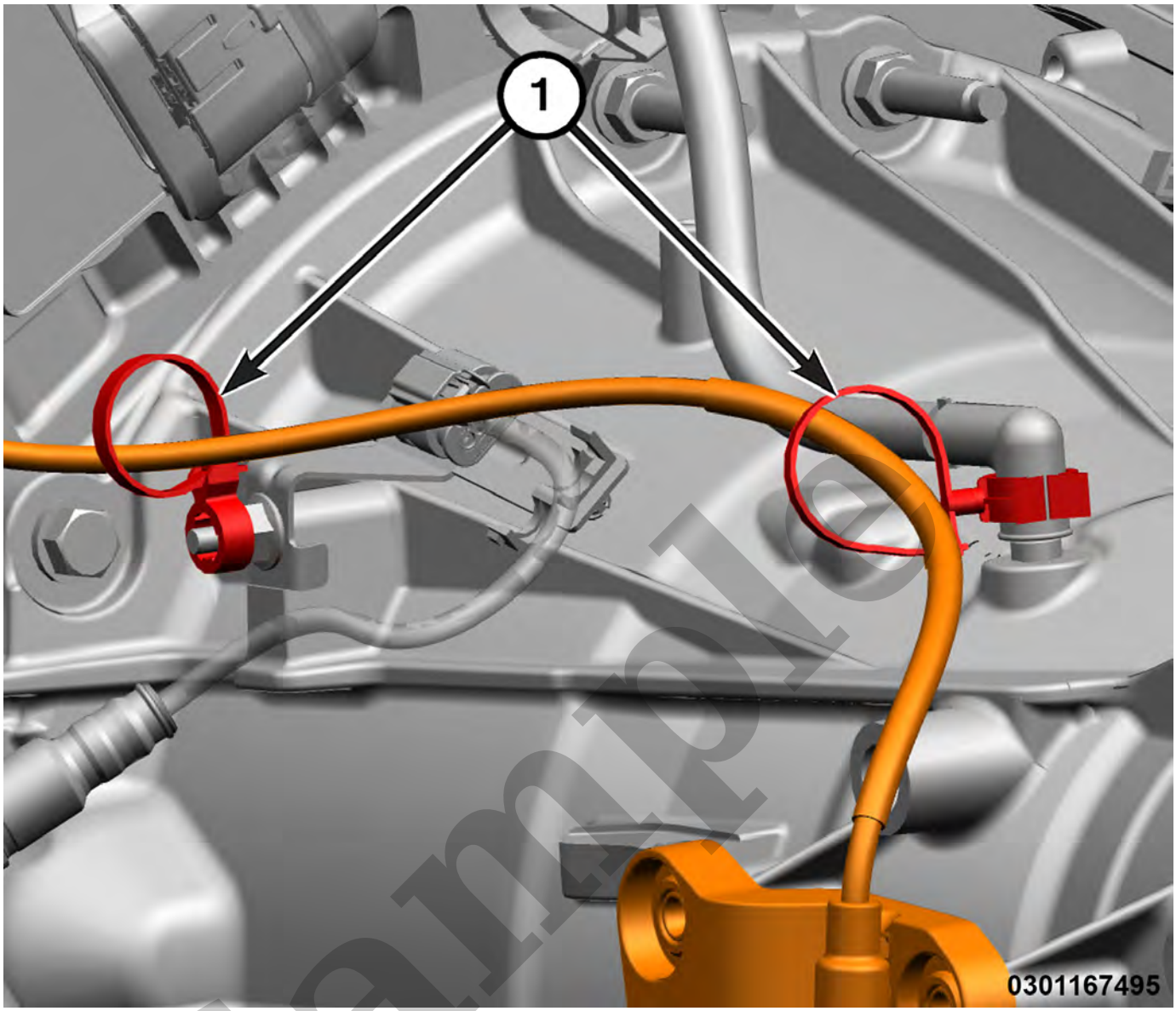
23. Remove the right heat shield nuts and heat shield.



1 - Catalytic Converter to Exhaust Manifold Bolts
2 - Catalytic Converter

29. Remove the right catalytic convertor to exhaust manifold bolts.

30. Remove the starter (Refer to Electrical/Starting/STARTER/Removal and Installation).



1 - MPR Cable Stays

34. Remove the manual park release cable stays holding the cable to the transmission.

35. Reposition the transmission vent tube.

2. Position the engine in the engine compartment.
3. Lower and align the engine with the transmission.
4. Install two transmission bell housing to engine block mounting bolts finger tight.

   Lower the engine assembly until the engine mount bolts line up in the mount brackets.
5. Insert the lower engine mount to bracket bolts.
6. Install the right side engine mount bracket to engine mount nuts onto the bolts and tighten to the proper torque specifications in the table below.
7. Install the left side engine mount bracket to engine mount nuts onto the bolts and tighten to the proper torque specifications in the table below.
8. Install the engine mount bracket to transmission retaining bolts and tighten bolts to the proper torque specifications in the table below.
9. Install the engine mount bracket to front pinion housing retaining bolts and tighten bolts to the proper torque specifications in the table below.
10. Install the remaining transmission bell housing to engine block mounting bolts and tighten to the proper torque specifications in the table below.
11. Tighten both the left and right side oil pan to transmission bolts and tighten bolts to the proper torque specifications in the table below.
12. Secure the manual park release cable to the transmission.
13. Position and secure the vent tube to the transmission.
14. Install the transmission/transfer case wire harness.
15. Install all torque converter to flexplate bolts by hand, verify the torque converter is pulled flush to the flexplate and then tighten the bolts to the proper torque specifications in the table below.
16. Install the transmission cooler lines at the oil pan and tighten the bolts to the proper torque specifications in the table below.
17. Install the dust cover.
18. Install the starter (Refer to Electrical/Starting/STARTER/Removal and Installation).
19. Tighten the right side catalytic converter to manifold bolts to the proper torque specifications in the table below.