FIAT CHRYSLER AUTOMOBILES

February 2023

Dealer Service Instructions for:

Customer Satisfaction Notification ZD2 Engine Misfire

Remedy Available

2022

(DT) Ram 1500 Pickup
(JL) Jeep Wrangler
(JT) Jeep Gladiator
(RU) Chrysler Pacifica/Voyager
(WL) Jeep Grand Cherokee

NOTE: This campaign applies only to the above vehicles equipped with a 3.6L engine.

NOTE: Some vehicles above may have been identified as not involved in this campaign and therefore have been excluded from this campaign.

IMPORTANT: Some of the involved vehicles may be in dealer new vehicle inventory. Dealers should complete this campaign service on these vehicles before retail delivery. Dealers should also perform this repair on vehicles in used vehicle inventory and those vehicles in for service. Involved vehicles can be determined by using the VIP inquiry process.

Subject

The Malfunction Indicator Lamp (MIL) on about 56 of the above vehicles may illuminate on the instrument panel cluster due to a cylinder misfiring, which reduces the level of performance from the engine.

Repair

Replace the left side cylinder head.

Parts Information

Part Number	Description
68293289AB	**Left Side Cylinder Head Complete**
04893805AB	**Gasket, Cylinder Head Cover**
68284905AA	**Gasket, Cylinder Head**
68093232AA	**Gasket, Exhaust Flange to Cylinder Head**
68217514AB	**Seal, Plenum**
68232614AA	**Gasket, Intake Manifold**
68082860AA	**Threebond Engine RTV**
04275086AE	**Authorized Modification (Label)**

Parts Return

Return the Cylinder Head to the PDC following the standard core return policy. Dealers will be reimbursed for the core once received by the PDC.

Special Tools

The following special tools are required to perform this repair:

➢ NPN	wiTECH MicroPod II
➢ NPN	Laptop Computer
➢ NPN	wiTECH Software
➢ 8514A	Tensioner Pin
➢ 10202	LH Camshaft Phaser Lock
➢ NPN	Heat gun or equivilant
➢ NPN	Plastic blade tool or trim stick

Service Procedure

A. Left Cylinder Head Removal Procedure

1. Perform the fuel pressure release procedure.
2. Disconnect and isolate the negative battery cable(s).
3. Raise and support the vehicle.
4. Drain the cooling system.
5. Drain the engine oil.
6. Remove the upper and lower intake manifolds and insulator.
7. Remove the Exhaust Gas Recirculation (EGR) cooler and upper intake manifold support bracket.
8. Remove the heater core return hose from the water pump bypass.
9. Remove the A/C compressor and position aside.
10. Remove the left catalytic converter from the cylinder head and position aside.
11. Remove the left side ignition capacitor.
12. Remove the fasteners (1, 2) and disengage engine wire harness from the left cylinder head (Figure 1).
13. Reposition wire harness for cylinder head removal.

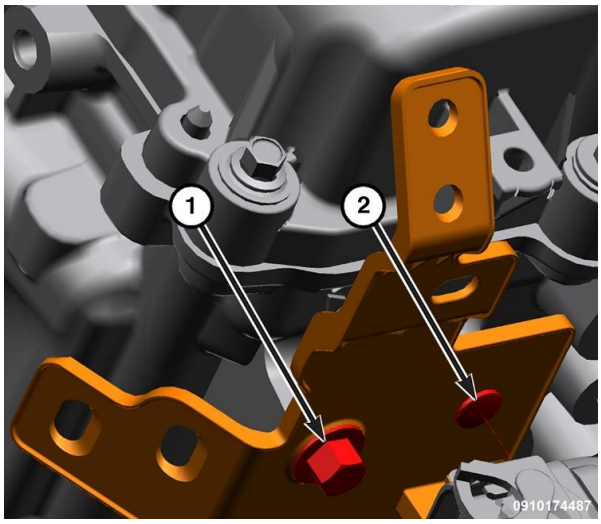

Figure 1 - Fasteners

Service Procedure [Continued]

14. Remove the spark plugs.

15. Remove the cylinder head covers and engine timing cover.

16. Lower the vehicle.

    CAUTION: When aligning timing marks, always rotate engine by turning the crankshaft. Failure to do so will result in valve or piston damage.

17. Rotate the crankshaft clockwise to place the number one piston at TDC on the exhaust stroke by aligning the dimple 7) on the crankshaft with the block/bearing cap junction (6). The left side cam phaser arrows (4) should point toward each other and be parallel to the valve cover sealing surface (3). The right side cam phaser arrows (5) should point away from each other and the scribe lines (1) should be parallel to the valve cover sealing surface (2) (Figure 2).

    CAUTION: Always reinstall timing chains so that they maintain the same direction of rotation. Inverting a previously run chain on a previously run sprocket will result in excessive wear to both the chain and sprocket.

18. Mark the direction of rotation on the timing chain using a paint pen or equivalent to aid in reassembly.

19. Reset the LH cam chain tensioner by lifting the pawl (1), pushing back the piston (2) and installing Tensioner Pin 8514A (3).

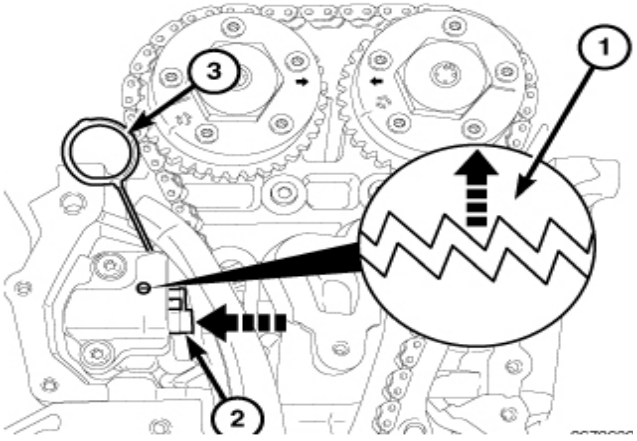

Figure 2 – Chain Tensioner

Service Procedure [Continued]

20. Remove the left side camshafts.

NOTE: If the rocker arms are to be reused, identify their positions so that they can be reassembled into their original locations.

21. Remove the rocker arms.

NOTE: If the hydraulic lifters are to be reused, identify their positions so that they can be reassembled into their original locations.

22. If required, remove the hydraulic lifters.

23. Remove the LH cam chain tensioner arm (1).
24. Remove the two bolts (6) and the LH cam chain tensioner (5).
25. Remove the two bolts (4) and the LH cam chain guide (2).

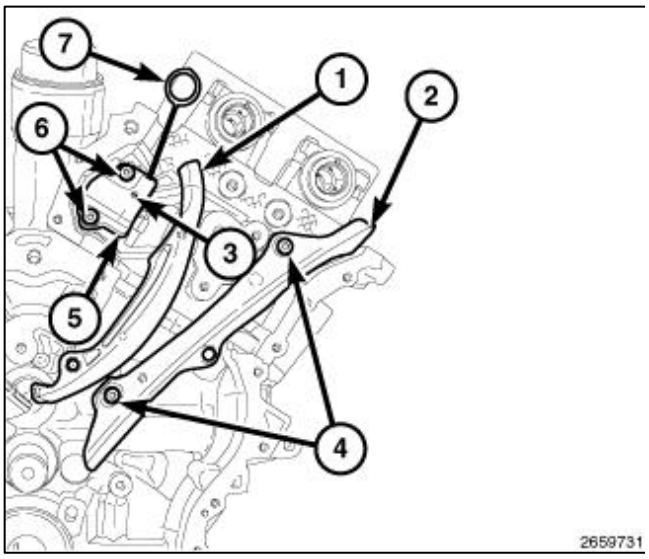

Figure 3 – Chain Guide

CAUTION: DO NOT use an impact gun or any type of power tools to break loose or remove the head bolts. This can cause the threads to pull out of the block with the bolts.

Service Procedure [Continued]

26. Using the sequence shown, remove the cylinder head retaining bolts.

    WARNING: The multi-layered steel head gaskets have very sharp edges that could cause personal injury if not handled carefully.

    NOTE: The head gasket crimps the locating dowels and the dowels may pull out of the engine block when the head gasket is removed.

27. Remove the cylinder head and gasket. Discard the gasket.

Service Procedure [Continued]

B. Left Cylinder Head Installation Procedure

1. If removed, install the Engine Coolant Temperature (ECT) sensor on the **NEW** cylinder and tighten to 30 N·m (22ft. lbs.).

2. If removed, install the ignition coil capacitor with a M6 bolt and tighten to 10 N·m (89In. lbs.).

   CAUTION: The cylinder head bolts are tightened using a torque plus angle procedure. The bolts must be examined BEFORE reuse. If the threads are necked down the bolts must be replaced.

3. Check cylinder head bolts for necking by holding a scale or straight edge against the threads. If all the threads do not contact the scale (2) the bolt must be replaced (Figure 4).

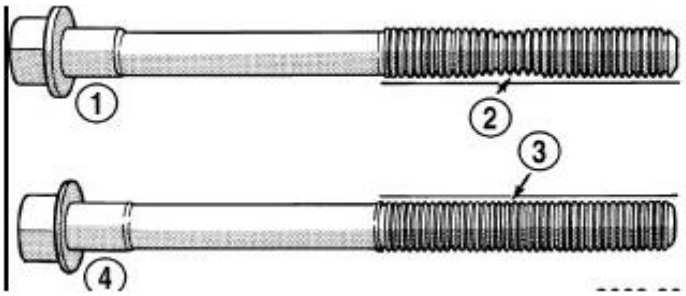

Figure 4 – Head Bolts

CAUTION: When cleaning cylinder head and cylinder block surfaces, DO NOT use a metal scraper because the surfaces could be cut or ground. Use ONLY a wooden or plastic scraper.

4. Clean and prepare the gasket sealing surfaces of the cylinder head and block.

CAUTION: Non-compressible debris such as oil, coolant or RTV sealants that are not removed from bolt holes can cause the aluminum casting to crack when tightening the bolts.

5. Clean out the cylinder head bolt holes in the engine block.

Service Procedure [Continued]

WARNING: The multi-layered steel head gaskets have very sharp edges that could cause personal injury if not handled carefully.

CAUTION: The installation of the cylinder head gaskets are not interchangeable between the left and right cylinder heads. They are clearly marked (3) with "R" for right and "L" for left. They must be applied on a dry surface, without the use of any adhesives.

6. Position the **NEW** cylinder head gasket on the locating dowels.
7. Position the cylinder head onto the cylinder block. Make sure the cylinder head seats fully over the locating dowels.

NOTE: Do not apply any additional oil to the bolt threads.

8. Install the eight head bolts finger tight.
9. Tighten the cylinder head bolts in the sequence shown, following this 9 step torque plus angle method. The torque sequence must be used for each step. Tighten according to the following torque values.

- Step 1: All to 30 N·m (22 ft. lbs.)
- Step 2: All to 45 N·m (33 ft. lbs.)
- Step 3: Re-tighten all to 45 N·m (33 ft. lbs.)
- Step 4: All + 125° Turn (optional angle if 125° rotation cannot be accomplished in one motion; tighten all by turning 35° followed by tightening all by turning 90°) Do not use a torque wrench for this step.
- Step 5: Loosen all fasteners in reverse of sequence shown
- Step 6: All to 30 N·m (22 ft. lbs.)
- Step 7: All to 45 N·m (33 ft. lbs.)
- Step 8: Re-tighten all to 45 N·m (33 ft. lbs.)
- Step 9: All + 130° Turn (optional angle if 130° rotation cannot be accomplished in one motion; tighten all by turning 40° followed by tightening all by turning 90°) Do not use a torque wrench for this step.

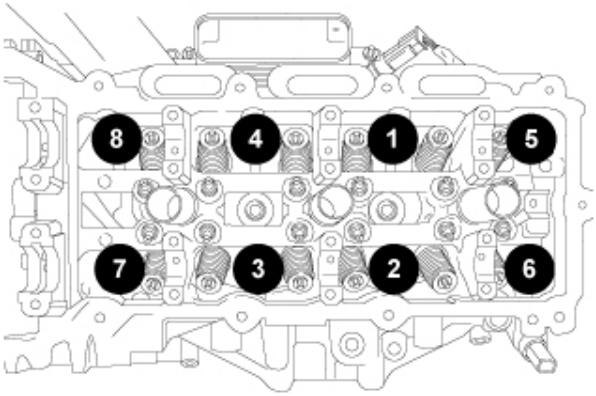

Figure 5 – Toque Sequence

Service Procedure [Continued]

CAUTION: Do not rotate the camshafts more than a few degrees independently of the crankshaft. Valve to piston contact could occur resulting in possible valve damage. If the camshafts need to be rotated more than a few degrees, first move the pistons away from the cylinder heads by rotating the crankshaft counterclockwise to a position 30° before-top-dead-center. Once the camshafts are returned to their top-dead-center position, rotate the crankshaft clockwise to return the crankshaft to top-dead-center.

10. Rotate the camshafts CW to TDC by positioning the alignment holes (1) vertically.

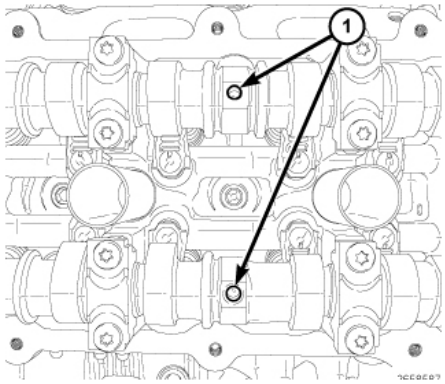

Figure 6 – Alignment Holes

11. Install the LH cam chain guide (2) with two bolts (4). Tighten the T30 bolts (4) to 12 N·m (106 in. lbs.).

12. Install the LH cam chain guide (2) with two bolts (4). Tighten the T30 bolts (4) to 12 N·m (106 in. lbs.).

13. Install the LH cam chain tensioner (5) to the cylinder head with two bolts (6). Tighten the T30 bolts (6) to 12 N·m (106 in. lbs.).

14. Reset the LH cam chain tensioner (5) by lifting the pawl (3), pushing back the piston and installing Tensioner Pin 8514A (7)

15. Install the LH tensioner arm.

16. Press the LH intake cam phaser onto the intake camshaft. Install and hand tighten the oil control valve.

CAUTION: Always reinstall timing chains so that they maintain the same direction of rotation. Inverting a previously run chain on a previously run sprocket will result in excessive wear to both the chain and sprocket.

17. Drape the left side cam chain over the LH intake cam phaser and onto the idler sprocket (1) so that the arrow (3) is aligned with the plated link (2) on the cam chain.

Service Procedure [Continued]

18. While maintaining this alignment, route the cam chain around the exhaust and intake cam phasers so that the plated links are aligned with the phaser timing marks (1). Position the left side cam phasers so that the arrows (3) point toward each other and are parallel to the valve cover sealing surface (5). Press the exhaust cam phaser onto the exhaust cam, install and hand tighten the oil control valve (2).

NOTE: Minor rotation of a camshaft (a few degrees) may be required to install the camshaft phaser or phaser lock.

19. Install the LH Camshaft Phaser Lock 10202 (4) and tighten the oil control valves (2) and (6) to 150 N·m (110 ft. lbs.).

20. Remove the LH Camshaft Phaser Lock 10202.

21. Remove the Tensioner Pin 8514A (1) from the LH cam chain tensioner.

22. Rotate the crankshaft CW two complete revolutions stopping when the dimple (4) on the crankshaft is aligned the with the block/bearing cap junction (5).

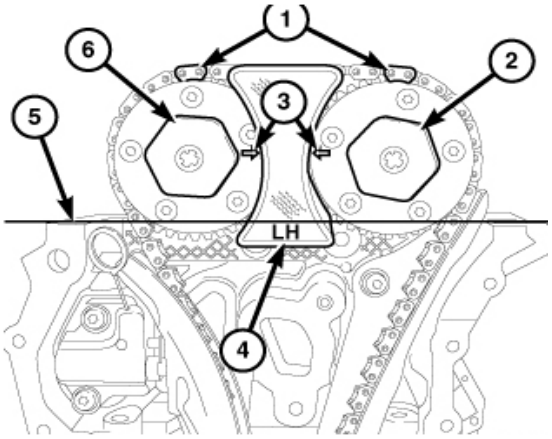

Figure 7 – Camshaft Phaser Lock

23. While maintaining this alignment, verify that the arrows on the left side cam phasers (2) point toward each other and are parallel to the valve cover sealing surface (3) and that the right side cam phaser arrows (7) point away from each other and the scribe lines (9) are parallel to the valve cover sealing surface (8)

24. There should be 12 chain pins (2) between the exhaust cam phaser triangle marking (1) and the intake cam phaser circle marking (3).

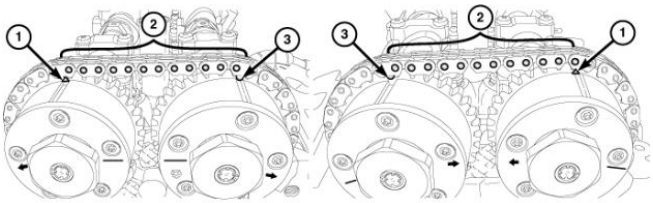

Figure 8 – Camshaft Alignment

Service Procedure [Continued]

25. If the engine timing is not correct, repeat this procedure.
26. Install the engine timing cover.
27. Connect the ignition coil capacitor electrical connector.
28. Install the A/C compressor onto the engine and tighten the fasteners.
29. Connect the A/C compressor wire harness connectors.
30. If removed, install the ignition coil capacitor with a M6 bolt and tighten to 10N·m (89In. Lbs.).
31. Install the accessory drive belt.
32. Install the right and left cylinder head covers.
33. Position new exhaust gasket onto flange.
34. Position the catalytic converter assembly into vehicle.
35. Install the upper bolts at the catalytic converter to cylinder head. Tighten bolts to 23 N·m (17 ft. lbs.).
36. Connect the upstream and downstream oxygen sensor connectors to the main wire harness.
37. Install the lower intake manifolds.
    - Clean and inspect the sealing surfaces. Install **NEW** lower intake manifold to cylinder head seals.
38. Position the lower intake manifold on the cylinder head surfaces.
39. Install the manifold attaching bolts and tighten in the sequence shown to 12 N·m (106 in. lbs.).

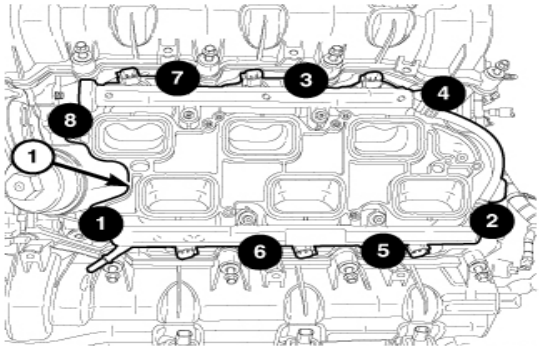

Figure 9 – Intake Manifold

Service Procedure [Continued]

40. Engage the main wire harness retainer to the rear of the lower intake manifold.

41. Clean and inspect the sealing surfaces. Install **NEW** upper to lower intake manifold seals.

42. If removed, install the insulator to the two alignment posts on top of the LH cylinder head cover.

43. Engage the injection/ignition harness retainer to the rear of the lower intake manifold.

44. Connect the fuel injector electrical connectors.

45. Connect the fuel supply hose to the fuel rail.

46. Install the insulator to the two alignment posts on top of the LH cylinder head cover.

47. Install the upper intake manifold, support brackets and air cleaner body.

48. Position the upper intake manifold onto the lower intake manifold so that the two locating posts on the upper intake manifold align with corresponding holes in the lower intake manifold.

49. Install the seven upper intake manifold attaching bolts. Tighten the bolts in the sequence shown to 10N·m(89 in. lbs.).

50. Engage the wire harness retainer to the upper intake manifold.

51. Engage the wire harness connector retainer to the right upper intake manifold support bracket.

52. Engage the following hoses to the upper intake manifold:

    - Fresh air makeup
    - Positive Crankcase Ventilation (PCV)
    - Transfer case vent

Service Procedure [Continued]

53. Install the left rear upper intake manifold support bracket with two nuts tightened to 10 N·m (89 in. lbs.).

54. Tighten the two studbolts to the left rear upper intake manifold support bracket to 20 N·m (177 in. lbs.).

55. Position the wire harness and engage the wire harness retainers to the left rear upper intake manifold support bracket.

56. Engage the brake booster hose retainer to the left rear upper intake manifold support bracket.

57. Install the left front upper intake manifold support bracket with two nuts and two bolts. Tighten the nuts to 10 N·m (89 in. lbs.) and tighten the bolts to 10 N·m (89 in. lbs.).

58. Install the air intake resonator assembly.

59. Fill the cooling system.

60. Connect the negative battery cable and tighten nut to 5 N·m (45 in. lbs.).

61. Run the engine until it reaches normal operating temperature. Check cooling system for correct fluid level

    NOTE: The Cam/Crank Variation Relearn procedure must be performed using the scan tool anytime there has been a repair/replacement made to a powertrain system, for example: flywheel, valvetrain, camshaft and/or crankshaft sensors or components.

62. Type or print (with a ballpoint pen) the necessary information onto the Authorized Modifications Label. Then attach the label near the VECI label (Figure 10).

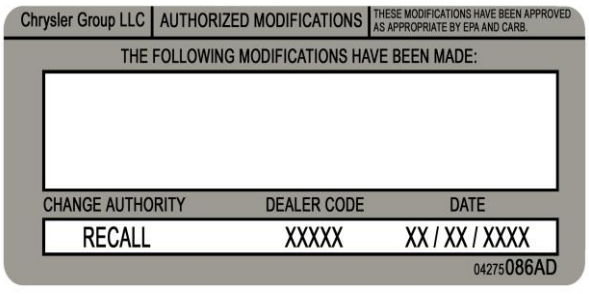

Figure 10 - Label

63. Complete the Proof of Correction Form for California Residents.

Complete Proof of Correction Form for California Residents

This campaign is subject to the **State of California Registration Renewal/Emissions Recall Enforcement Program**. Complete a Vehicle Emission Recall Proof of Correction Form **(Form No. 81-016-1053)** and **supply it to vehicle owners residing in the state of California** for proof that this campaign has been performed when they renew the vehicle registration.

Process Steps to obtain the California Proof of Correction form:

a. Access the "**DealerCONNECT**" website.
b. Select the "**Service**" tab.
c. Under the "**Publications**" heading, select the "**ePublishing**" link.
d. Sign in using your **Dealer Code** and **Password**.
e. Select the "**Proof of Correction form**".

Completion Reporting and Reimbursement

Claims for vehicles that have been serviced must be submitted on the DealerCONNECT Claim Entry Screen located on the Service tab. Claims paid will be used by FCA to record Customer Satisfaction Notification service completions and provide dealer payments.

Use the following labor operation numbers and time allowances:

	Labor Operation Number	**Time Allowance**
Replace Left Side Cylinder Head (**DT Models Only**)	09-ZD-21-82	8.9 hours
Replace Left Side Cylinder Head (**JL/JT Models Only**)	09-ZD-21-83	8.7 hours
Replace Left Side Cylinder Head (**WL Models Only**)	09-ZD-21-84	7.9 hours
Replace Left Side Cylinder Head (**RU Models Only**)	09-ZD-21-85	9.3 hours

Completion Reporting and Reimbursement [Cont.]

Related Operation

09FF0350	Oil drain and fill	0.1 hours
07FF0150	Coolant drain and fill	0.3 hours

Optional Equipment

09350363	Electric Stop/Start Equipped (JL/JT)	0.6 hours
02270260	Air Suspension Equipped (WL)	0.1 hours

Add the cost of the campaign parts package plus applicable dealer allowance to your claim.

NOTE**:** See the Warranty Administration Manual, Recall Claim Processing Section, for complete claim processing instructions.

Dealer Notification

To view this notification on DealerCONNECT, select "Global Recall System" on the Service tab, then click on the description of this notification.

Owner Notification and Service Scheduling

All involved vehicle owners known to FCA are being notified of the service requirement by mail. They are requested to schedule appointments for this service with their dealers. A generic copy of the owner letter is attached.

Vehicle Lists, Global Recall System, VIP and Dealer Follow Up

All involved vehicles have been entered into the DealerCONNECT Global Recall System (GRS) and Vehicle Information Plus (VIP) for dealer inquiry as needed.

GRS provides involved dealers with an updated VIN list of their incomplete vehicles. The owner's name, address and phone number are listed if known. Completed vehicles are removed from GRS within several days of repair claim submission.

To use this system, click on the **"Service"** tab and then click on **"Global Recall System."** Your dealer's VIN list for each campaign displayed can be sorted by: those vehicles that were unsold at campaign launch, those with a phone number, city, zip code, or VIN sequence.

Dealers should perform this repair on all unsold vehicles *before* retail delivery. Dealers should also use the VIN list to follow up with all owners to schedule appointments for this repair.

VIN lists may contain confidential, restricted owner name and address information that was obtained from the Department of Motor Vehicles of various states. Use of this information is permitted for this notification only and is strictly prohibited from all other use.

Additional Information

If you have any questions or need assistance in completing this action, please contact your Service and Parts District Manager.

Customer Service / Field Operations
FCA US LLC

This notice applies to your vehicle,

[Model Year and Model]
VIN XXXXXXXXXXXXXXXXX

ZD2

LOGO

VEHICLE PICTURE

YOUR SCHEDULING OPTIONS

1. **RECOMMENDED OPTION**
   Call your authorized Chrysler / Dodge / Jeep® / RAM Dealership

2. **Call the FCA Recall Assistance Center at 1-800-853-1403. An agent can confirm part availability and help schedule an appointment**

3. **Visit recalls.mopar.com, scan the QR code below, or download the Mopar Owner's Companion App.**

QR Code

Get access to recall notifications, locate your nearest dealer, and more through this website or Mopar Owner's Companion App. You will be asked to provide your Vehicle Identification Number (VIN) to protect and verify your identity.

DEALERSHIP INSTRUCTIONS
Please reference CSN ZD2.

CUSTOMER SATISFACTION NOTIFICATION

Engine Misfire

Dear [Name],

At FCA US LLC, we recognize that the success of our business depends on the satisfaction of our customers. We are constantly monitoring the quality of our products and looking for opportunities to improve our vehicles even after they are sold. Because your long-term satisfaction is important to us, we are contacting you on important improvements we would like to make to your vehicle [1]. This will be done at no charge to you.

We are recommending the following improvements be performed on certain [2022 Model Year (DT) 1500 Ram Pickup, (JL) Jeep Wrangler, (JT) Jeep Gladiator, (RU) Chrysler Pacifica/Voyager, (WL) Jeep Grand Cherokee] vehicles equipped with a 3.6L engine.

WHY DOES MY VEHICLE NEED REPAIRS?

The Malfunction Indicator Lamp (MIL) may illuminate on your instrument panel cluster due to a cylinder misfiring and you may also notice reduced level of performance from your engine.

HOW DO I RESOLVE THIS CUSTOMER SATISFACTION NOTIFICATION?

FCA US will repair your vehicle free of charge (parts and labor). To do this, your dealer will replace the left side cylinder head. The estimated repair time is about 10 hours. In addition, your dealer will require your vehicle for proper check-in, preparation, and check-out during your visit, which may require more time. Your time is important to us, so we recommend that you schedule a service appointment to minimize your inconvenience. Please bring this letter with you to your dealership.

TO SCHEDULE YOUR FREE REPAIR,
CALL YOUR CHRYSLER, DODGE, JEEP OR RAM DEALER TODAY

CALIFORNIA RESIDENTS

The State of California requires the completion of this emission recall repair prior to vehicle registration renewal. Your dealer will provide you with a Vehicle Emission Recall Proof of Correction Form after the Customer Satisfaction Notification service is performed. Be sure to save this form since the California Department of Motor Vehicles may require that you supply it as proof that the Customer Satisfaction Notification has been performed.

In order to ensure your full protection under the emissions warranty provisions, it is recommended that you have your vehicle serviced as soon as possible. Failure to do so could be determined as lack of proper maintenance of your vehicle.

WHAT IF I ALREADY PAID TO HAVE THIS REPAIR COMPLETED?

If you have already experienced this specific condition and have paid to have it repaired, you may visit **www.fcarecallreimbursement.com** to submit your reimbursement request online. [2] Once we receive and verify the required documents, reimbursement will be sent to you within 60 days. If you have had previous repairs performed and/or already received reimbursement, you may still need to have the repair performed.

We apologize for any inconvenience, but are sincerely concerned about your satisfaction. Thank you for your attention to this important matter.

Customer Assistance/Field Operations
FCA US LLC

FIAT CHRYSLER AUTOMOBILES

Mr. Mrs. Customer
1234 Main Street
Hometown, MI 48371

[1] If you no longer own this vehicle, please help us update our records. Call the FCA Recall Assistance Center at 1-800-853-1403 to update your information.

[2] You can also mail in your original receipts and proof of payment to the following address for reimbursement consideration: FCA Customer Assistance, P.O. Box 21-8004, Auburn Hills, MI 48321-8007, Attention: Recall Reimbursement.