

February 15, 2024

Version 3

Safety Recall: 2016–20 MDX Connecting Rod Bearing

Supersedes 24-001, dated February 9, 2024, to revise the information highlighted in yellow.

AFFECTED VEHICLES

Year	Model	Trim	VIN Range
2016–20	MDX	ALL	Check iN VIN status inquiry for eligibility

REVISION SUMMARY

- Under WARRANTY CLAIM INFORMATION, information was added.
- Under INSPECTION A, step 17 was added, and a note was added for step 42
- Under INSPECTION B, step 11 was added, the image was revised for step 45, and a note was added for step 65.

BACKGROUND

On November 9th, 2023, Acura announced a **STOP SALE** and **safety recall** for a certain number of 2016–20 MDX units. These vehicles may have engines containing internal damage at the connecting rod bearings, possibly leading to engine failure. If an engine fails, the vehicle may lose motive power, increasing the risk of crash, fire and resulting injury.

During engine manufacturing, some crankshafts may have been built with improper connecting rod journal dimensions, resulting in increased friction between the journals and their bearings. This increased friction could lead to accelerated engine deterioration and possible failure due to a lack of lubrication and excessive heat.

If this bulletin appears during an iN VIN status inquiry, the vehicle is subject to a **safety recall**. Any affected vehicles in your dealer inventory are on **STOP SALE** until further notice. Refrain from calling Tech Line for updates.

CLIENT INFORMATION: The information in this bulletin is intended for use only by skilled technicians who have the proper tools, equipment, and training to correctly and safely maintain your vehicle. These procedures should not be attempted by “do-it-yourselfers,” and you should not assume this bulletin applies to your vehicle, or that your vehicle has the condition described. To determine whether this information applies, contact an authorized Acura automobile dealer.

CLIENT NOTIFICATION

Owners of the affected vehicles will be sent a notification of this campaign. They will be informed that due to a limited supply of parts (at this time) Acura is prioritizing the repair of client vehicles experiencing symptoms related to this recall.

When **adequate replacement parts** become available, Acura will send a follow-up letter to clients instructing them to schedule an appointment for all vehicles affected by this recall. If a client experiences the known symptoms associated with this **safety recall** (see CORRECTIVE ACTION), they are instructed to contact their local Acura dealer for the repair.

For any questions or concerns clients may have, you may have them contact American Honda's Customer Support & Campaign Center at **1-888-234-2138**.

The following suggested text should be included on any repair order for an already sold affected vehicle that comes in for service. This information should be printed out completely any time service is conducted on an affected vehicle, and the recall repair has not yet been completed. Depending on parts availability, the normal procedures under the *Dealer Operations Manual* (DOM) 7.2.1 will apply for this recall.

Suggested Verbiage to be Included on the Repair Order

Client was advised that:

The vehicle is subject to a recall affecting the connecting rod bearings. The parts necessary to complete the recall repair are currently limited. Vehicles with eligible VINs and the following symptom: an abnormal engine knocking noise or an abnormal engine knocking noise followed by a loss of power are eligible for immediate inspection. Once parts repair kits are available, if the vehicle has not been repaired, the registered owner of the vehicle will receive a notice to bring the vehicle in for a repair, regardless of symptom.

IMPORTANT NOTICE

Due to a limited parts inventory to complete the necessary repairs, dealers must prioritize which vehicles are inspected and repaired. A client experiencing a symptom of an engine rod knock or a vehicle stall when driving should be inspected. Otherwise, advise the client that parts are limited as described in the CLIENT NOTIFICATION section.

The self-study training module, *ENC65 Multiple Connecting Rod Repair with V-SMART*, is available on the Online University. Make sure to complete the module before starting the inspection procedure.

CORRECTIVE ACTION

Do an iN **VIN** status inquiry to make sure the vehicle is shown as eligible for an inspection. Removal of the connecting rod bearings and taking/sending photos via V-SMART for inspection by the Bearing Inspection Inquiry Team.

The technician will then create a Bearing Inspection Inquiry through iN and will receive a (reference case number). This number must be used when contacting the Bearing Inspection Inquiry Team. This team will conduct a judgment and recommend the appropriate repair for the technician to complete.

In the event that parts are not available, the **STOP SALE** remains in effect for that vehicle. To see if a vehicle in inventory is affected by this safety recall, do a **VIN** status inquiry before selling it. Some vehicles affected by this campaign may be in your new or used vehicle inventory.

PARTS INFORMATION

Repair parts will be automatically allocated based on repair direction. Carefully review the **Repair Type** instructions emailed *after* submission of the inspection results to the Bearing Inspection Inquiry team.

REQUIRED MATERIALS

Part Name	Part Number	Quantity
0-20 Full Synthetic Motor Oil	-	5.4 US qt
Hondabond HT Silicone Gasket	08718-0004	1

TOOL INFORMATION

Tool Name	Part Number	Quantity
V-SMART Phone	CDW5001003PK	1
Rod Bearing Organizer, [ORGANIZER, ROD BRNG]	07AAK-5J2A100	1 pair
Crank Angle Gauge, [GAUGE, CRANK ANGLE]	07AAJ-5G0A100	1
M8 Rod Holder, [HOLDER, M8 ROD]	07AAB-5G0A100	1
Piston Stopper, [STOPPER, PISTON]	07AAB-5G0A200	4 per vehicle
Bearing Photo Box, [BOX, BEARING PHOTO]	07AAK-5J2A200	1
Large Zip Tie	Commercially Available	2

NOTE: These tools have been auto-shipped to your dealer. There is no need to order at this time as quantities are limited. Contact the Special Tools Hotline (833) 949-4672 and/or email special_tools@ahm.honda.com for information.

WARRANTY CLAIM INFORMATION

Important Notice: Warranty claim information extends across multiple pages; please select the correct table.

INSPECTION A, plus repair.

NOTE:

- For inspections that resulted in a repair, you will need to create **two repair lines** in the repair order- **one for inspection** and **one for repair**.
- Both repair lines must be done for completion of **this claim**.
- Enter the **bearing part number(s)** (provided by the Bearing Inquiry Team) under template D.

Operation Number	Description	Flat Rate Time	Defect Code	Symptom Code	Template ID	Failed Part Number
1115G5	Inspection A- connecting rod bearings (includes photos)	1.7 hr	6JA00	THS00	B24001A	13010-R9P-A00
1111ER	Replace connecting rod bearings (includes photos)	2.3 hr	6KC00	OH600	B24001D	13321-5J6-A01

INSPECTION B, plus repair.

NOTE:

- For inspections that resulted in a repair, you will need to create **two repair lines** in the repair order- **one for inspection** and **one for repair**.
- Both repair lines must be done for completion of **this claim**.
- Enter the **bearing part number(s)** (provided by the Bearing Inquiry Team) under template E.

1115G6	Inspection B - main cap bearings (includes connecting rod bearings and photos) -	2.7 hr	6JA00	THS00	B24001B	13050-R9P-A00
1111FM	Replace connecting rod bearings (includes photos)	2.3 hr	6KC00	OH600	B24001E	13321-5J6-A01

INSPECTION A, further repair pending.

NOTE:

- For inspections that results in a repair other than a connecting rod bearing replacement, you will need to create one repair line in the repair order and **not close out** the repair order until the repair is fully complete.
- A further repair will be required for completion of this recall when parts become available.

1115G5	Inspection A- connecting rod bearings (includes photos)	1.7 hr	6JA00	THS00	B24001A	13010-R9P-A00
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INSPECTION B, further repair pending.

NOTE:

- For inspections that results in a repair other than a connecting rod bearing replacement, you will need to create one repair line in the repair order and **not close out** the repair order until the repair is fully complete.
- A further repair will be required for completion of this recall when parts become available.

1115G6	Inspection B - main cap bearings (includes connecting rod bearings and photos)	2.7 hr	6JA00	THS00	B24001B	13050-R9P-A00
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VIN and Engine Number Identification Query through V-SMART–No Repair.

NOTE:

- No further warranty claim required; vehicle is considered fixed by **engine number verification**.
- Use only this labor operation if the engine number identification query through V-SMART was done and resulted in *"Engine Not Affected."*
- **Do not** use this warranty table for either **Inspection A** or **Inspection B**.
- The Bearing Inspection Inquiry Team **must still** be contacted to complete a claim; See step 13 of the V- SMART ENGINE NUMBER VERIFICATION section for more details.

1115G2	Inspect VIN/EIN Engine not affected (Includes contacting the Bearing Inspection Inquiry Team)	0.3 hr	6KC00	OH600	B24001C	14100-5J6-A00
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Skill Level: Repair Technician

NOTE:

- Inspection does not require a special code.
- Repair will require a special code that has been emailed by the Bearing Inspection Inquiry Team.

CONTENT REFERENCE

Important Notice

This information has been designed to work best when viewing through iN. It is strongly suggested (due to final page count and complexity) that the technician use iN to fully utilize this service bulletin's functions.

Furthermore, the technician is also advised to prepare their workstation for the tasks ahead. This includes: V-SMART phone fully charged, tools laid out, verify strong connection to Wi-Fi, and access to this service bulletin in its entirety via iN.

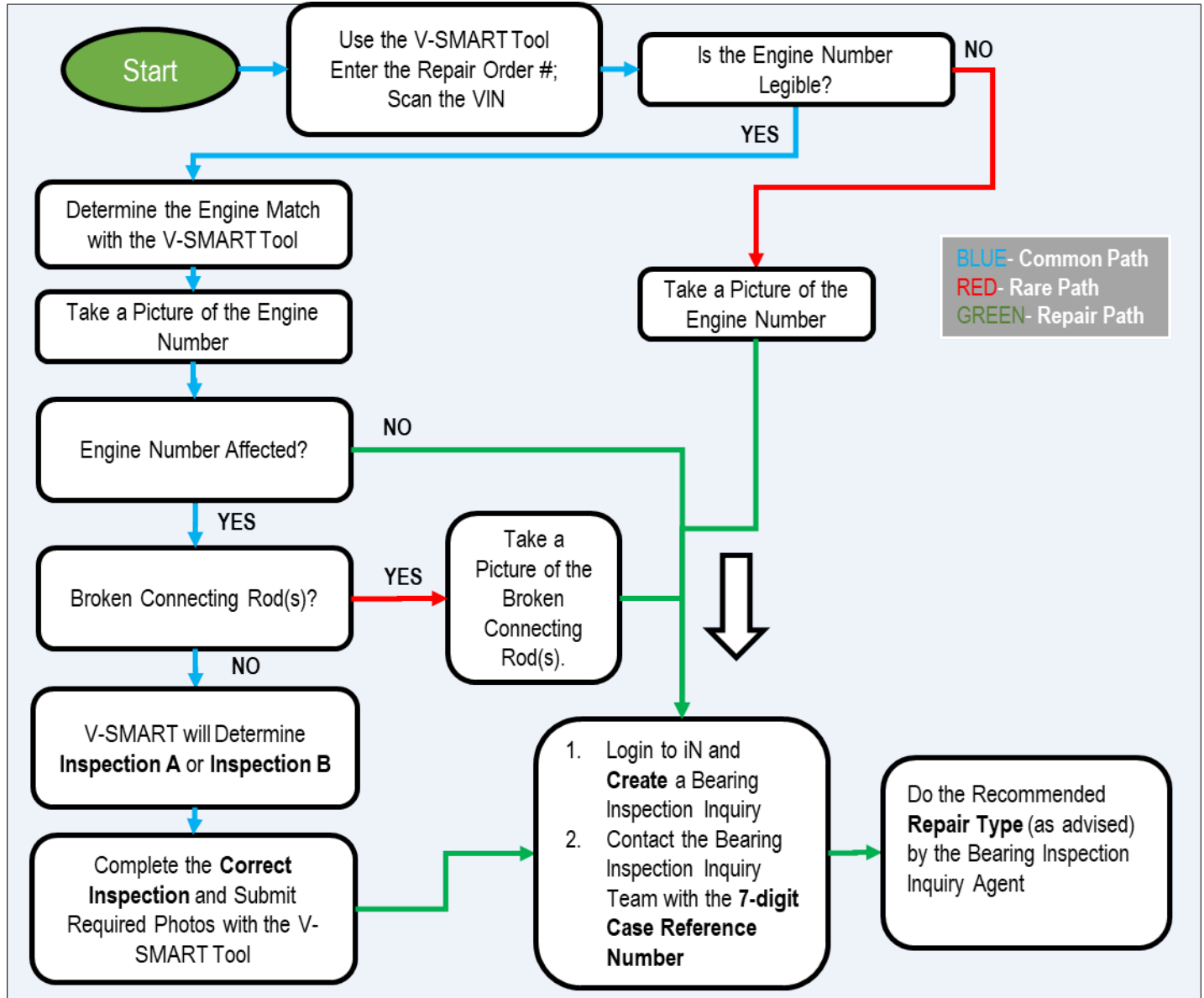


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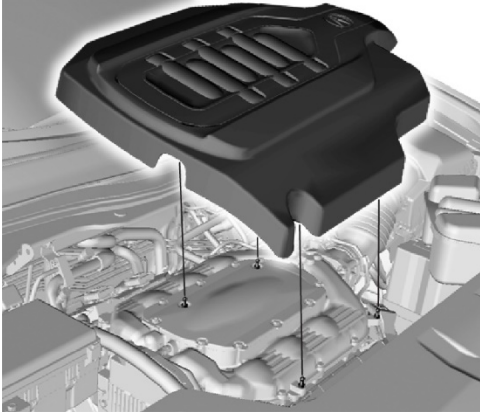
V-SMART ENGINE NUMBER VERIFICATION	6
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REPAIR #1 INSTALL RECOMMENDED BEARINGS	72

Note: Click on section title to go to that section.

V-SMART ENGINE NUMBER VERIFICATION

NOTE: DO NOT contact Tech Line for any inquiries to this safety recall. You must call the Bearing Inspection Inquiry Team at (800) 824-6632 (Select Option #9) for all inquiries and repair direction.

1. Remove the engine cover for better access to the engine number.



2. Log in to V-SMART application.

1. Dealer Number
2. User ID (iN login credentials)
3. Password (iN login credentials)



Dealer No

Username

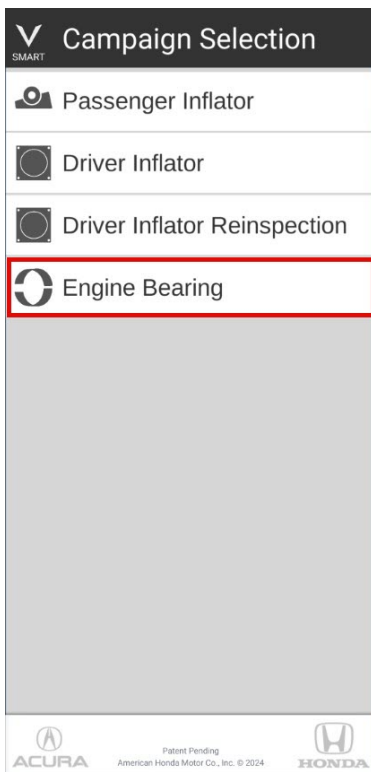
Password

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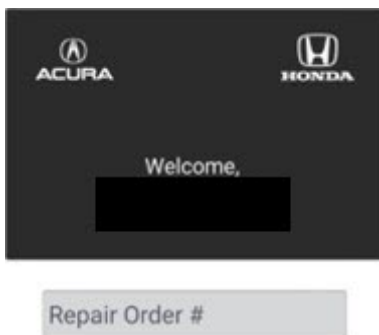
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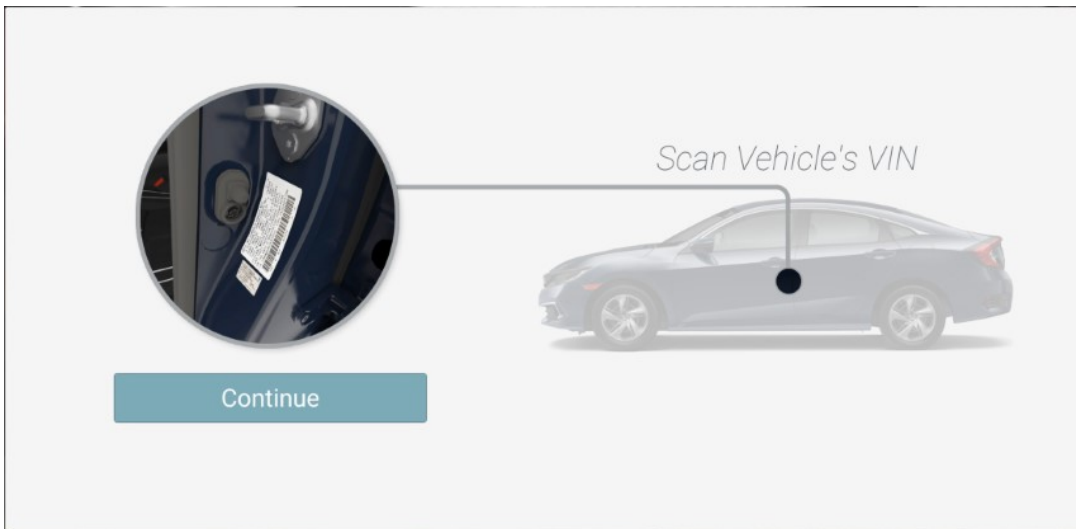
3. Select **Engine Bearing** from the campaign selection.



4. Enter the repair order number (RO#).

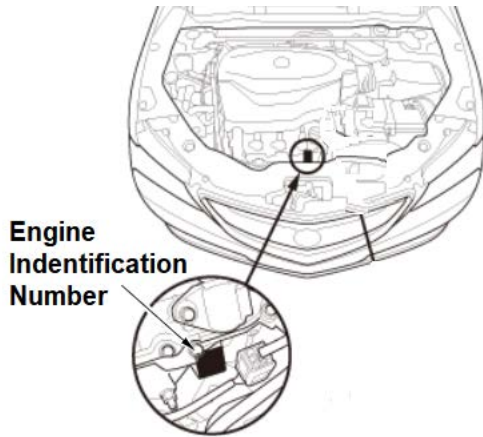


5. Scan the VIN on the driver's door jamb (the original engine identification number should appear).



6. Locate the engine identification number.

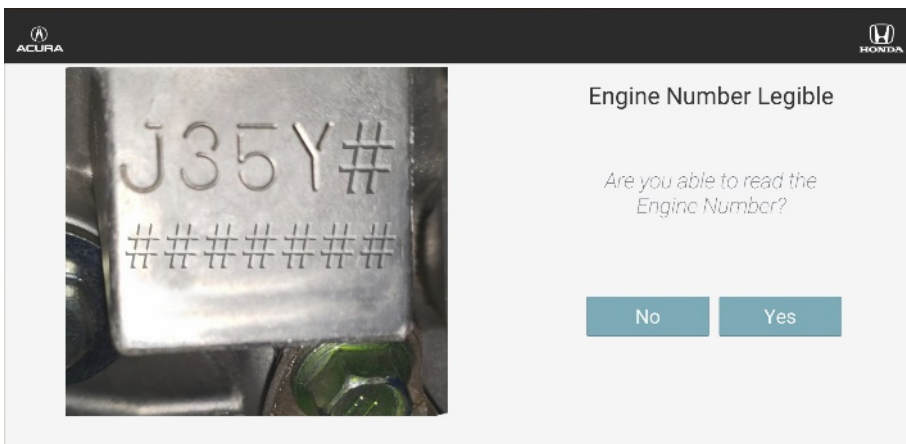
NOTE: If the number is not legible, clean the surface.



7. Verify that the engine number is legible.

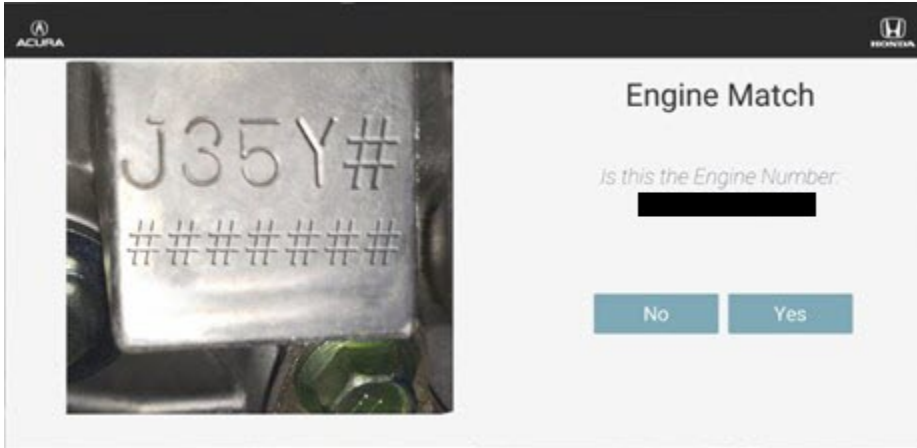
- **Yes**—Press **YES** and continue to the next step.
- **No**—Press **NO** and you will be prompted to clean the area, then take a photo.

NOTE: If the engine number cannot be read after cleaning, proceed to step 13 as necessary for information on creating a Bearing Inspection Inquiry and contacting the Bearing Inspection Inquiry Team.

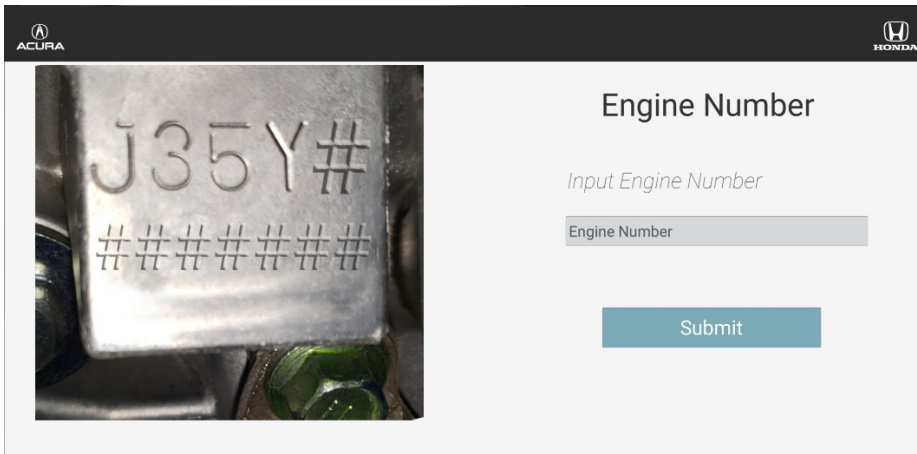


8. Does the engine number from the vehicle match the engine number on file?

- **Yes**-Press **YES**.

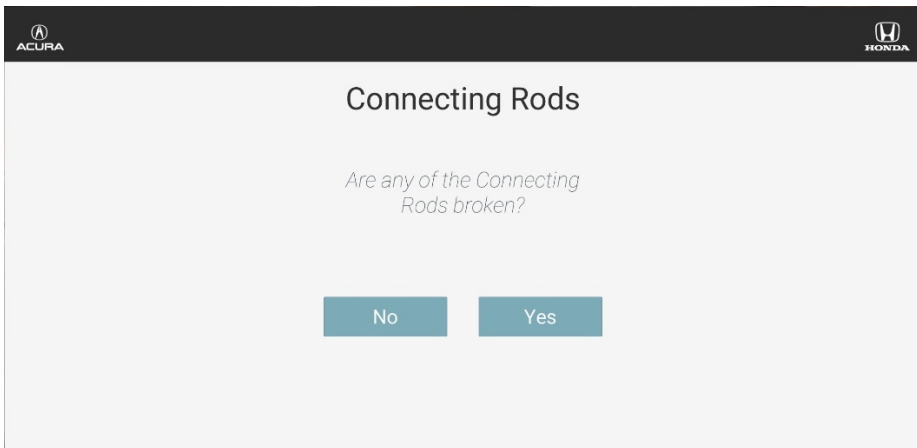


- **No**-Manually enter the 12-digit engine number into the application.



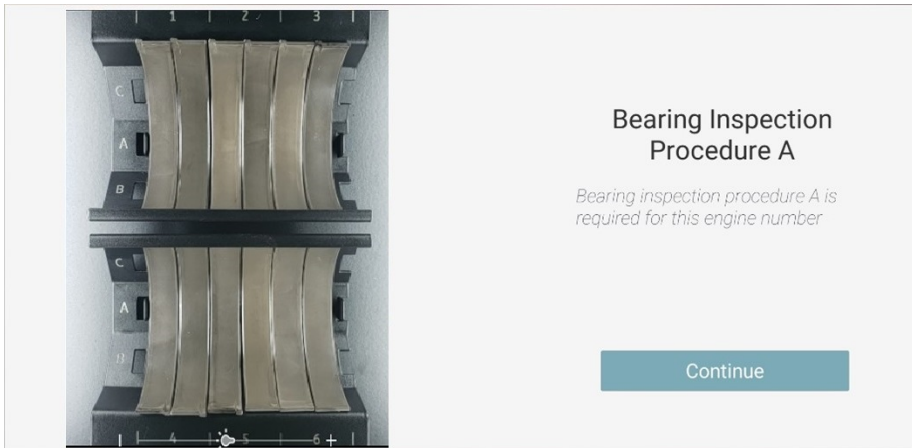
9. Answer the V-SMART tool's question: *Are any connecting rods broken?*

- **Yes**-Follow the application's instructions.
NOTE: Proceed to step 13 as necessary for information on creating a Bearing Inspection Inquiry and contacting the Bearing Inspection Inquiry Team.
- **No**-Press **NO** and **continue** to the next step in this bulletin.

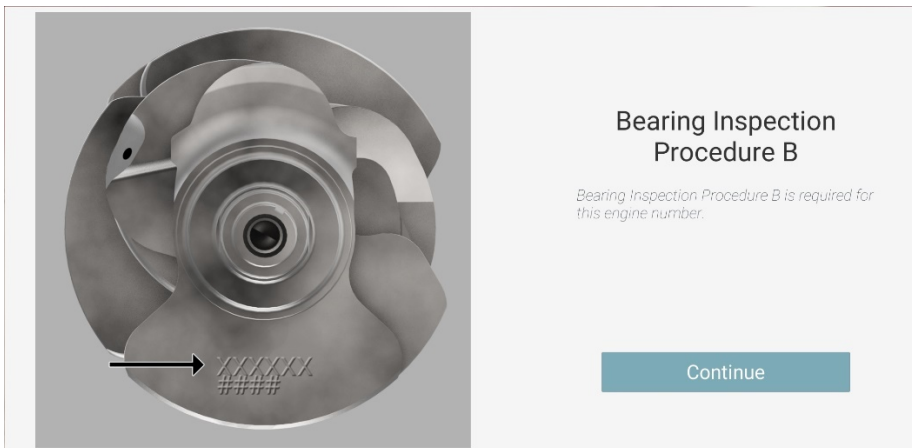


10. The V-SMART tool will direct you to either **INSPECTION A** or **INSPECTION B**. Follow the screen prompts and complete the correct inspection.

- **INSPECTION A:** V-SMART Database contains engine build information.



- **INSPECTION B:** V-SMART Database does not contain engine build information.



11. Sign out of the V-SMART application.

NOTE: DO NOT contact Tech Line for any inquires to this safety recall. You must call the Bearing Inspection Inquiry Team at (800) 824-6632 (Select Option #9) for all inquiries and repair direction.

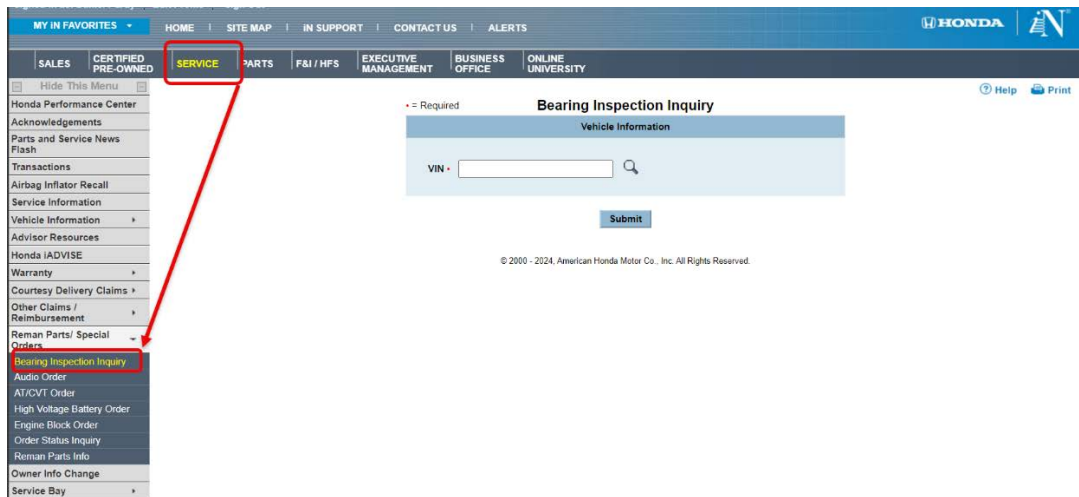
12. Proceed to either **INSPECTION A** or **INSPECTION B**, as directed by the V-SMART application.

NOTE:

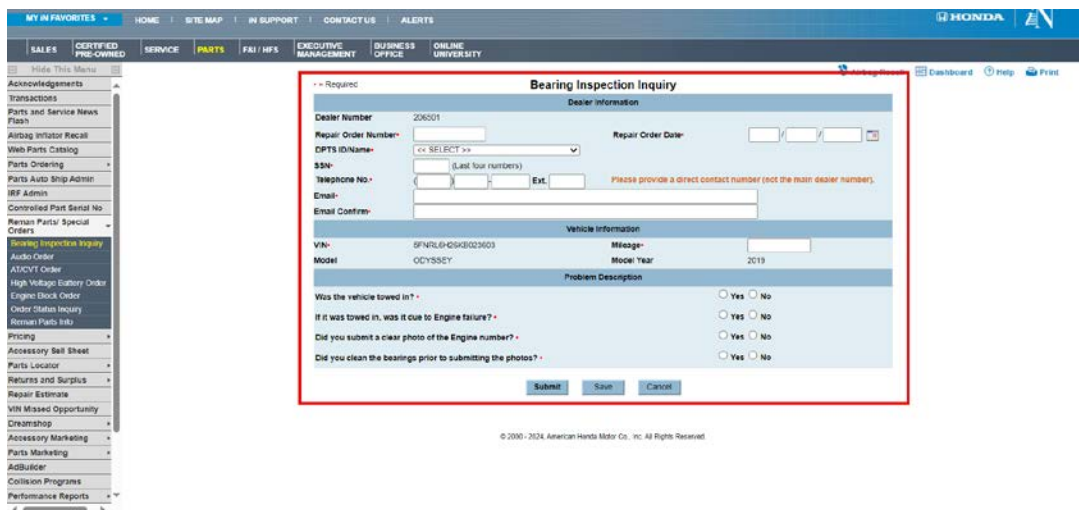
- Link to **INSPECTION A**, [\(Click HERE\)](#)
- Link to **INSPECTION B**, [\(Click HERE\)](#)
- Logging into the V-SMART application will always prompt the user to enter the RO# and scan/enter the VIN.
- V-SMART Troubleshooting Hotline Number: **800-346-6327**.

13. Create a Bearing Inspection Inquiry.

1. Log into iN.
2. Select **SERVICE > REMAN PARTS / SPECIAL ORDERS > BEARING INSPECTION INQUIRY**
3. Select the **BEARING INSPECTION INQUIRY**.
4. Input the correct **VIN**.



5. Input all vehicle information to create a case.



6. A 7-digit case reference number will be generated.

NOTE: Note this number on the RO for future reference.

7. Call the **Bearing Inspection Inquiry Team** at **(800) 824-6632**. Press **9** to be routed to the correct department (**do not contact TECH LINE for this**). Give the answering agent the **7-digit reference number** for a repair direction.

NOTE:

- MAKING THE INCORRECT SELECTION WILL RESULT IN INCREASED WAIT TIMES.
- **DO NOT** contact Tech Line for any inquires to this safety recall. You must call the **Bearing Inspection Inquiry Team** at **(800) 824-6632 (Select Option #9)** for all inquiries and repair direction.

8. The bearing inspection agent will give the **Repair Direction**. You will receive instructions via email on the repair method that includes the unique warranty code and the bearing sizes with their specific locations, if applicable. Parts will be shipped to your dealership. Make sure to advise the parts department with a copy of the RO.

NOTE: Link to CONTENT REFERENCE, ([Click HERE](#)).

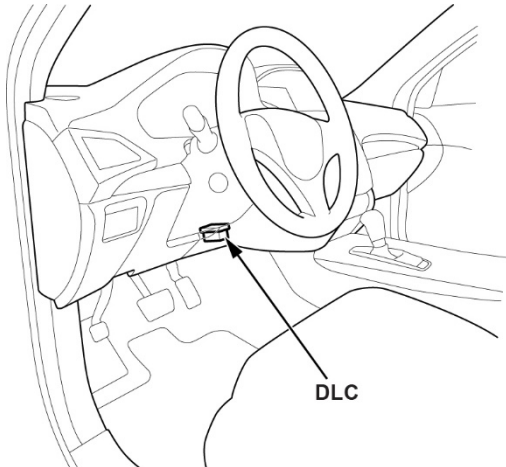
INSPECTION A

NOTE: DO NOT contact Tech Line for any inquiries to this safety recall. You must call the Bearing Inspection Inquiry Team at (800) 824-6632 (**Select Option #9**) for all inquiries and repair direction.

1. Turn the steering wheel all the way to the right.
2. Relieve the fuel pressure.

With the i-HDS:

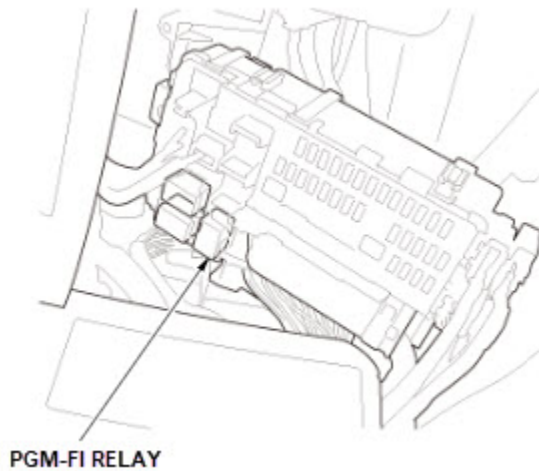
- Connect an i-HDS to the data link connector (DLC) located under the driver's side of the dashboard.



- Turn the vehicle to ON.
- Select the **PGM-FI** system on the i-HDS.
- Select **FUEL PUMP OFF** from the **Inspection Menu** and follow the on screen instructions.

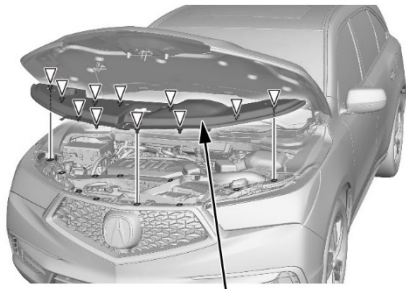
Without the i-HDS:

1. Remove the PGM-FI main relay 2 from the under-dash fuse/relay box.



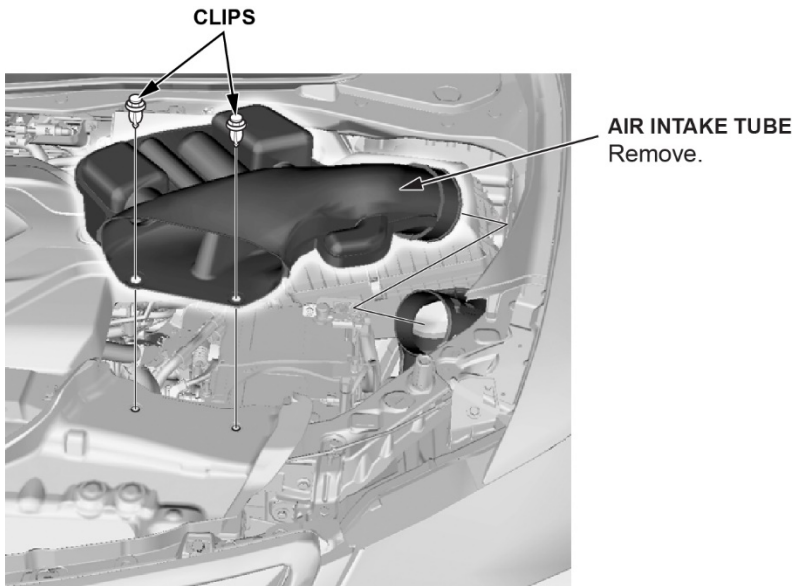
2. Start the engine and let it idle until it stalls.
3. Turn the vehicle to OFF.
4. Install the PGM-FI main relay 2.

3. Remove the front bulkhead cover.

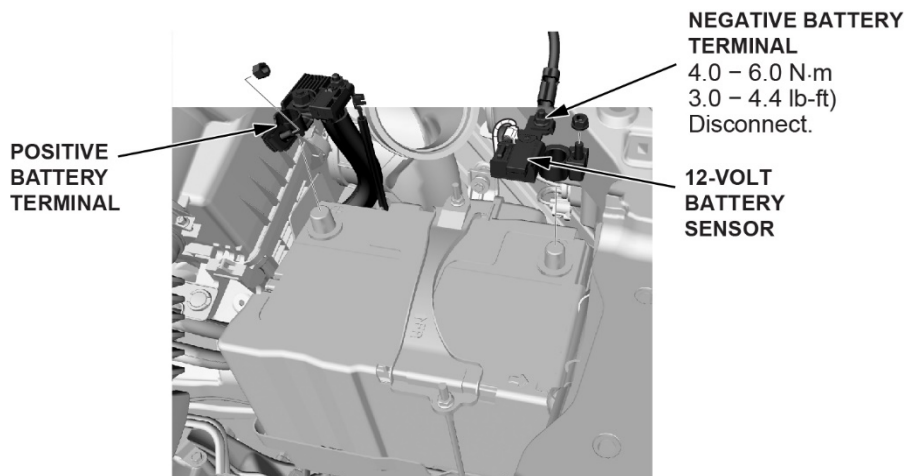


FRONT BULKHEAD COVER

4. Remove the air intake tube.

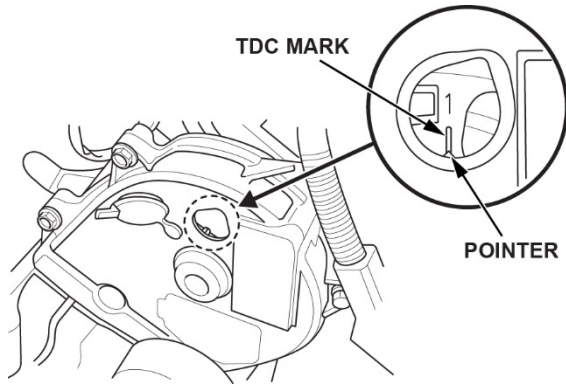


5. Disconnect the 12-volt battery.



6. Remove the oil dipstick.

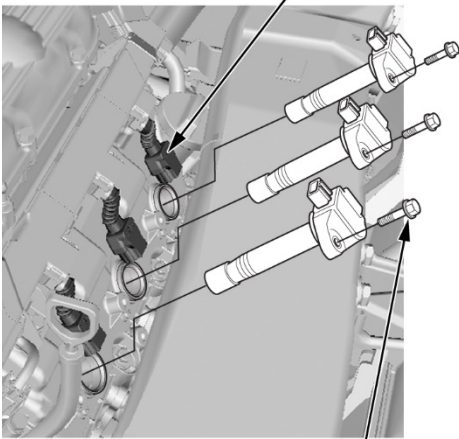
- Set **cylinder #1** to top dead center (TDC). Align the pointer on the front upper cover with the No. 1 Piston TDC mark on the front camshaft pulley.



- Disconnect and remove the coil packs.

FRONT

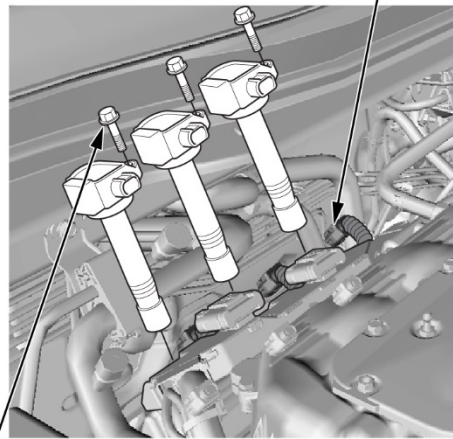
CONNECTOR



BOLTS
12 N.m
(9 lb-ft)

REAR

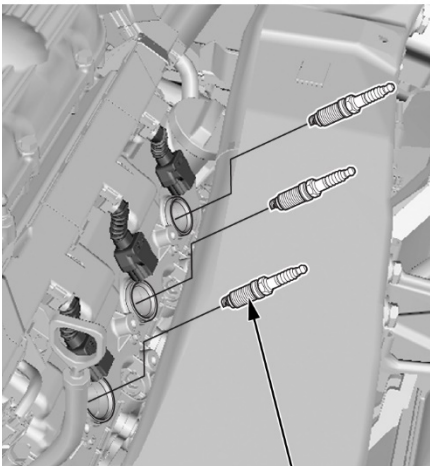
CONNECTOR



BOLTS
12 N.m
(9 lb-ft)

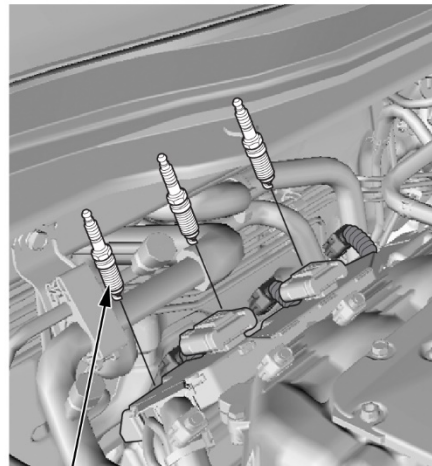
- Remove the spark plugs.

FRONT



SPARK PLUGS
22 N.m (16 lb-ft)

REAR



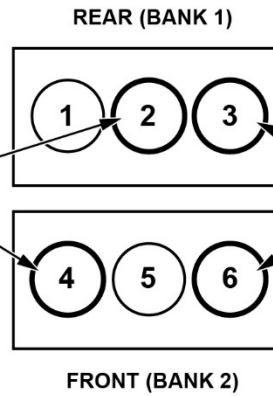
SPARK PLUGS
22 N.m (16 lb-ft)

10. Install the piston stoppers in **cylinders 2,3,4, & 6**.

NOTE: Hand tighten only.



Piston Stoppers
in cylinder #2 and #4.

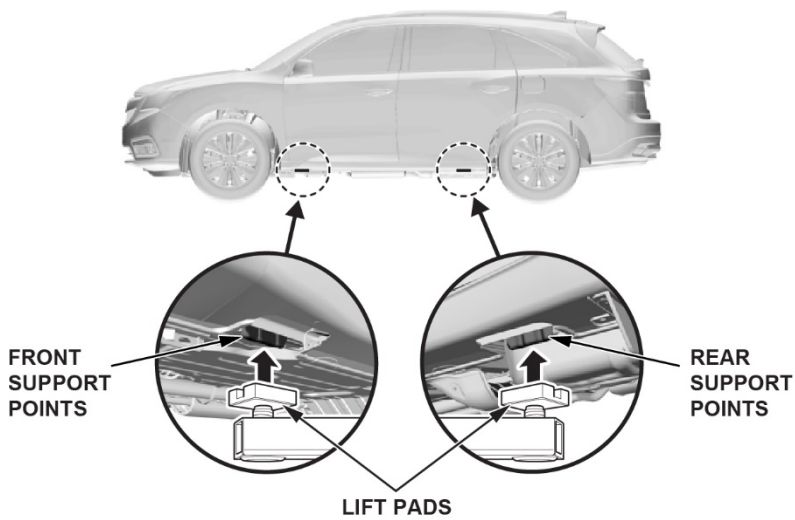


Piston Stoppers
in cylinder #3 and #6.

PISTON STOPPER
P/N 07AAB-5G0200

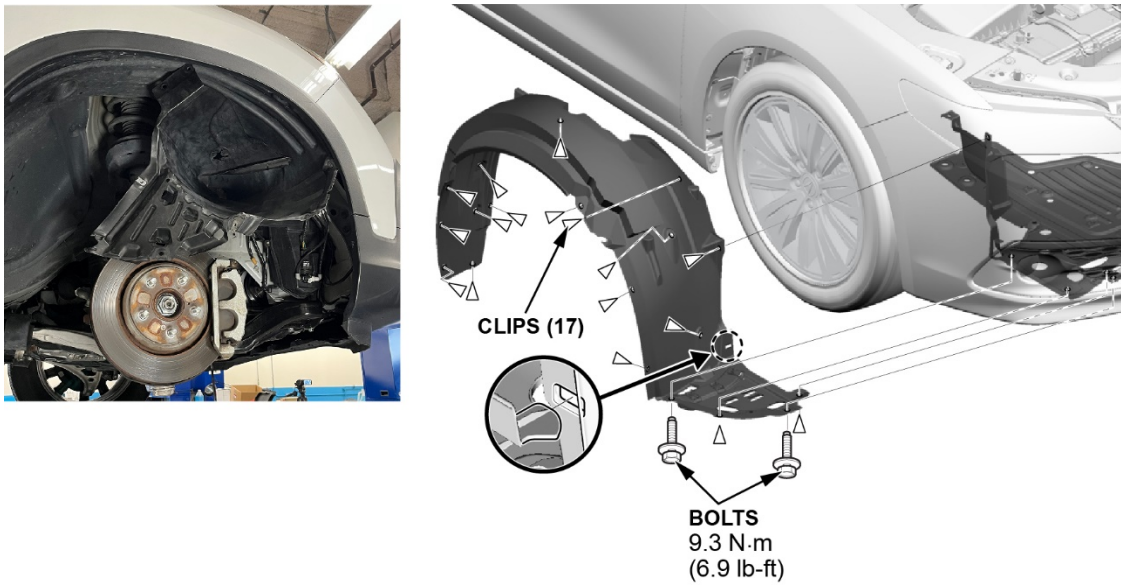


11. Raise the vehicle.

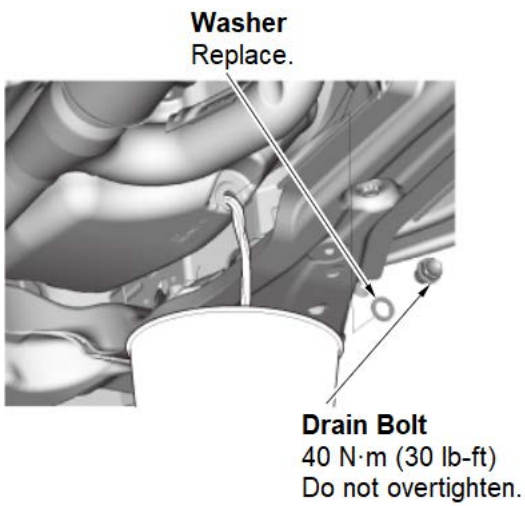


12. Remove the passenger side front wheel.

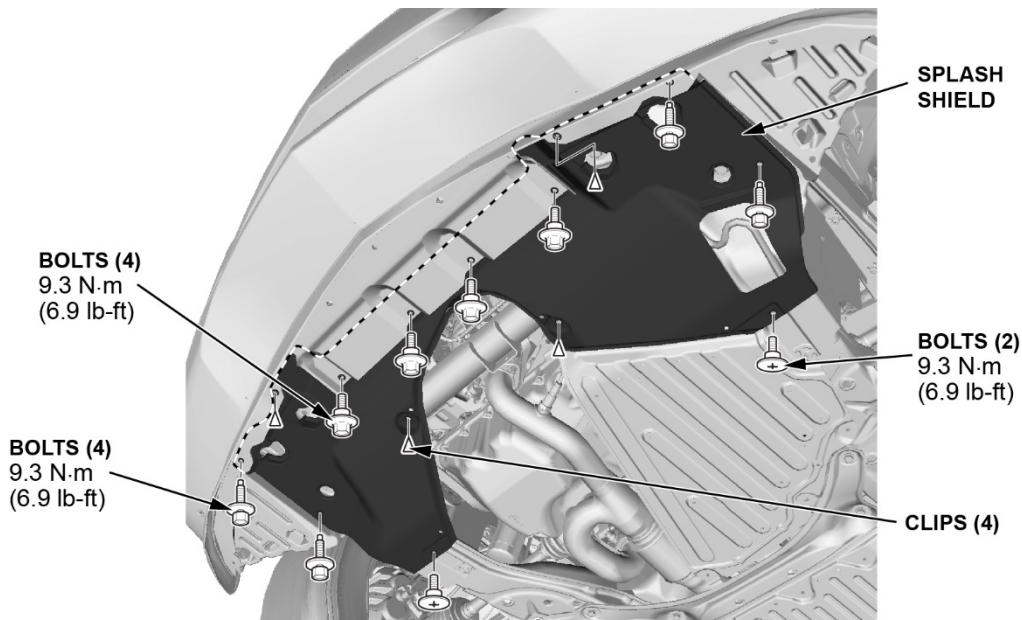
13. Pull back the passenger fender liner to gain access to the crankshaft pulley (the crankshaft pulley should be visible).



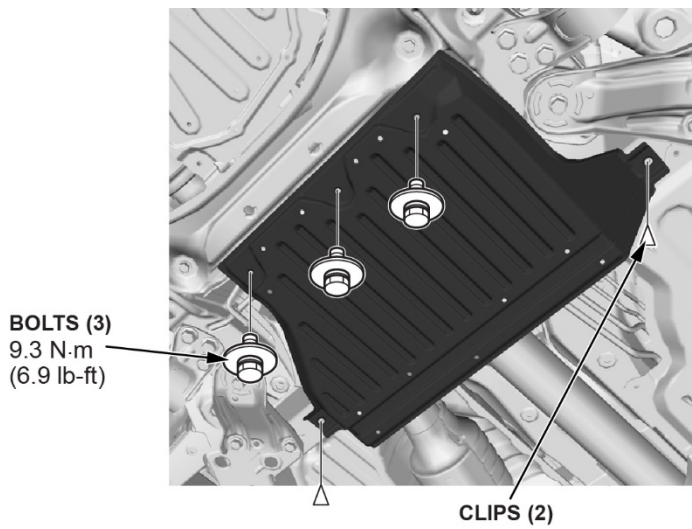
14. Drain the engine oil.



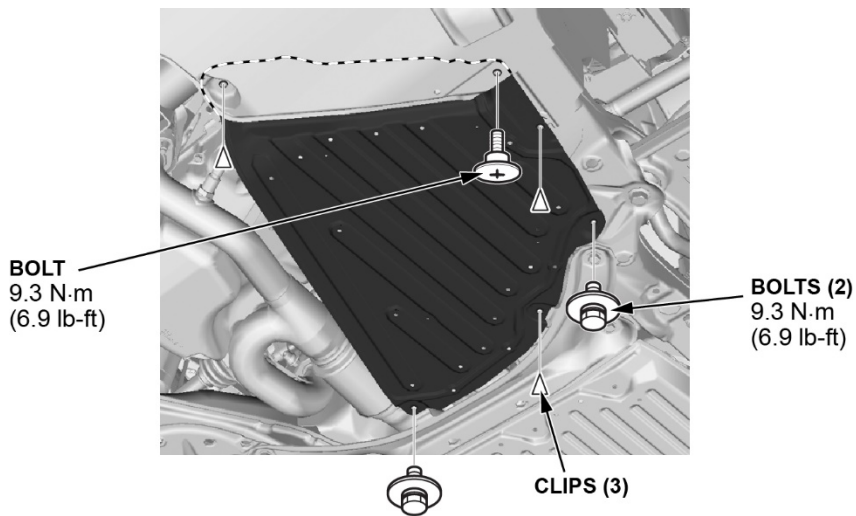
15. Remove the splash shield.



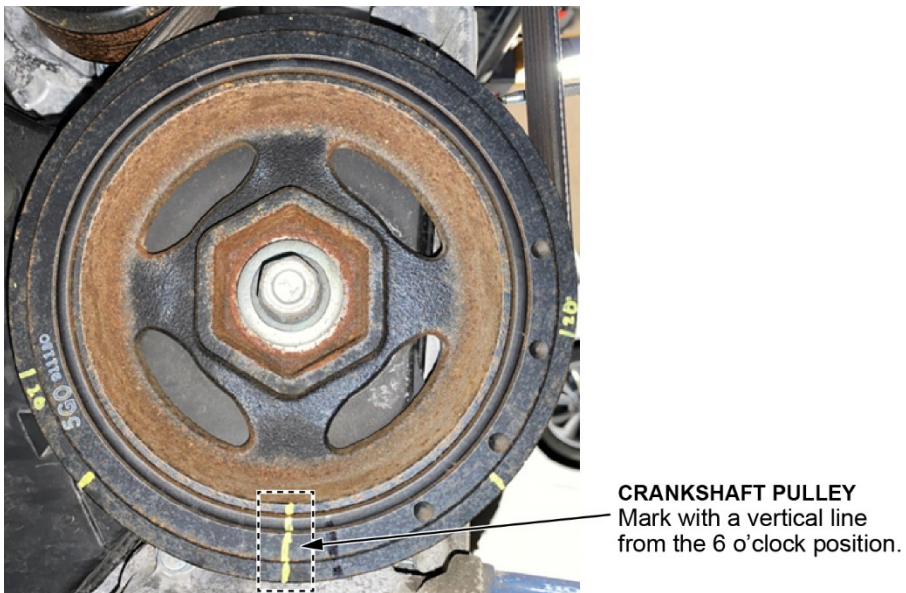
16. Remove the engine undercover.



17. Remove the transmission undercover.



18. With the crankshaft at TDC, mark the crankshaft pulley with a vertical line at the 6 o'clock position.



19. Attach the crank angle gauge to the crankshaft balancer pulley with **position #1** on the crank angle gauge aligned at the 6 o'clock position.

Click here to view video:

[▶ PLAY VIDEO](#)

NOTE: The back of the gauge is magnetic and will hold onto the pulley.



**CRANK ANGLE GAUGE
P/N 07AAJ-5G0A100**

20. Attach a large, commercially available zip tie to the subframe below the crankshaft pulley. The zip tie will be a **reference indicator** for a correct crank angle gauge position.

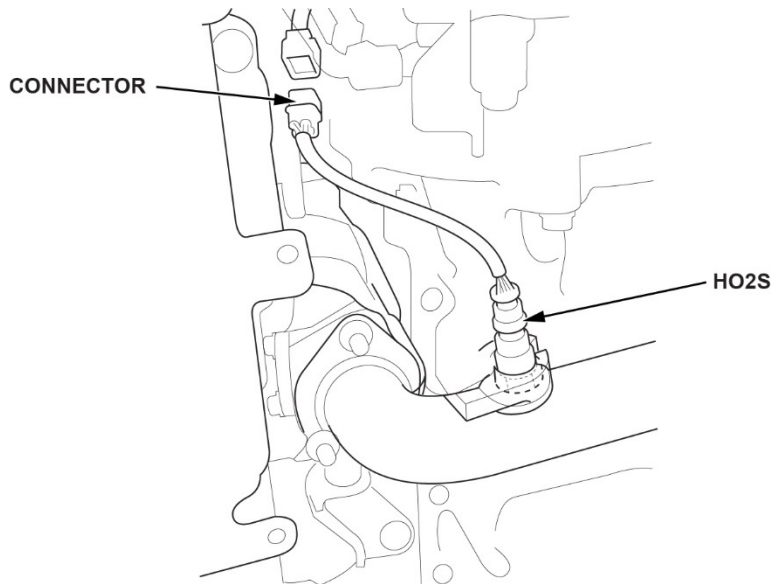
- Make sure it is pointing up at the 6 o'clock position on the pulley.
- The zip tie should extend roughly **8" to 12"** over the subframe.



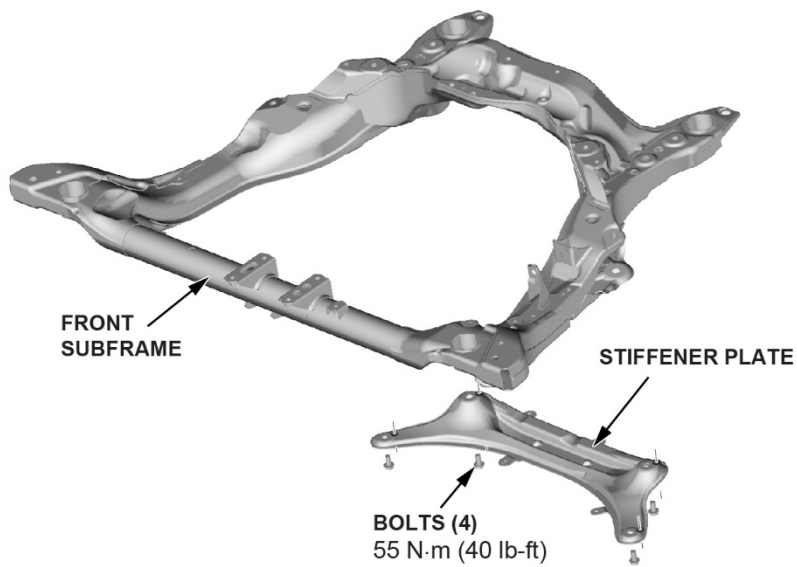
ZIP TIE
Attach a zip tie to the frame
and line up as shown.

21. Unplug the bank 2 oxygen sensor, HO2S.

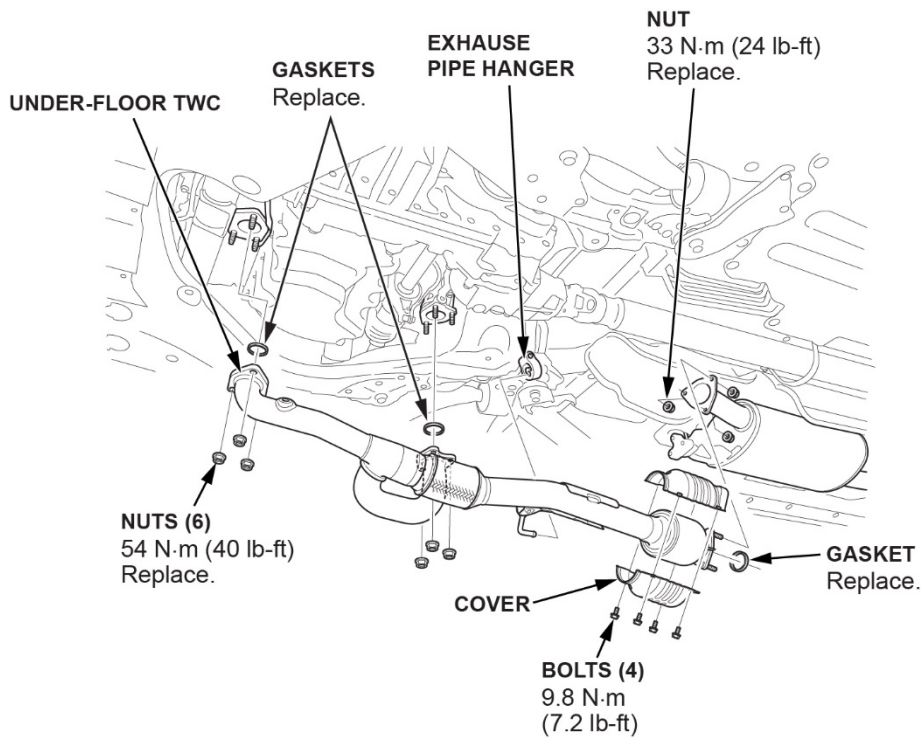
NOTE: Exhaust may be HOT.



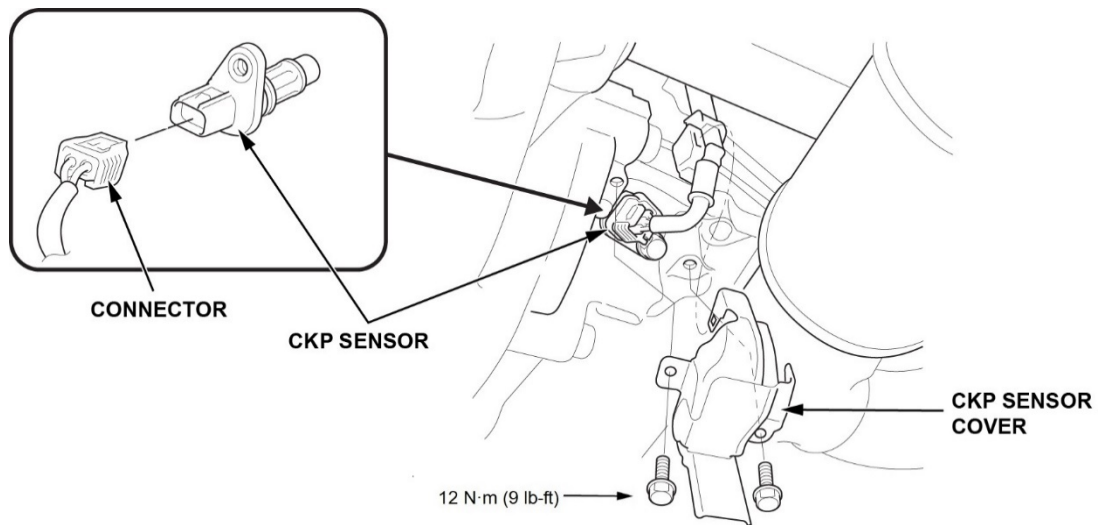
22. Remove the subframe stiffener plate.



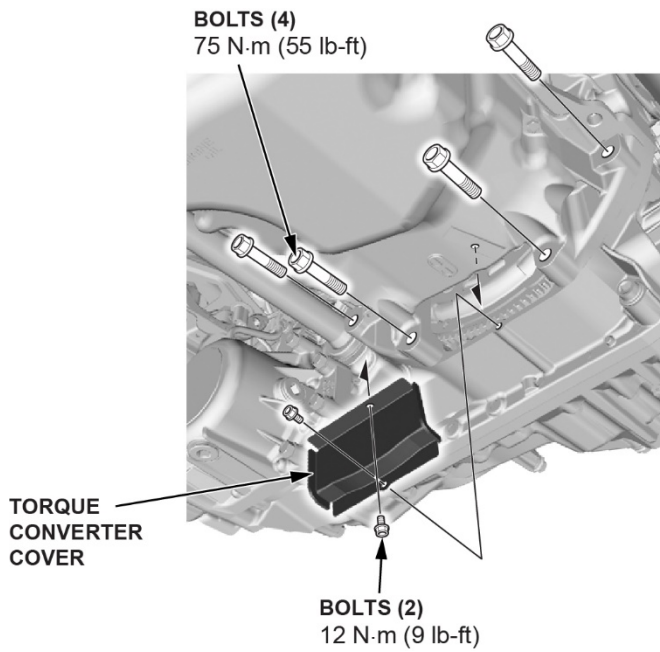
23. Remove the under-floor TWC (A-pipe).



24. Remove the CKP sensor cover, then disconnect the CKP sensor.



25. Remove the torque converter cover and the four lower transmission mounting bolts.



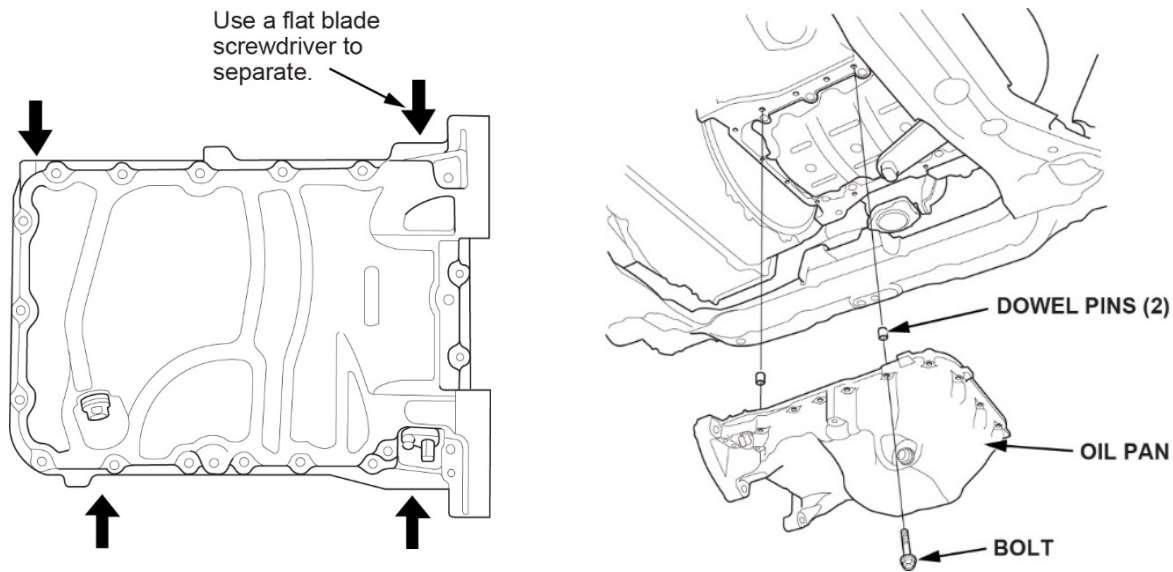
26. Remove the engine oil pan.

⚠ CAUTION

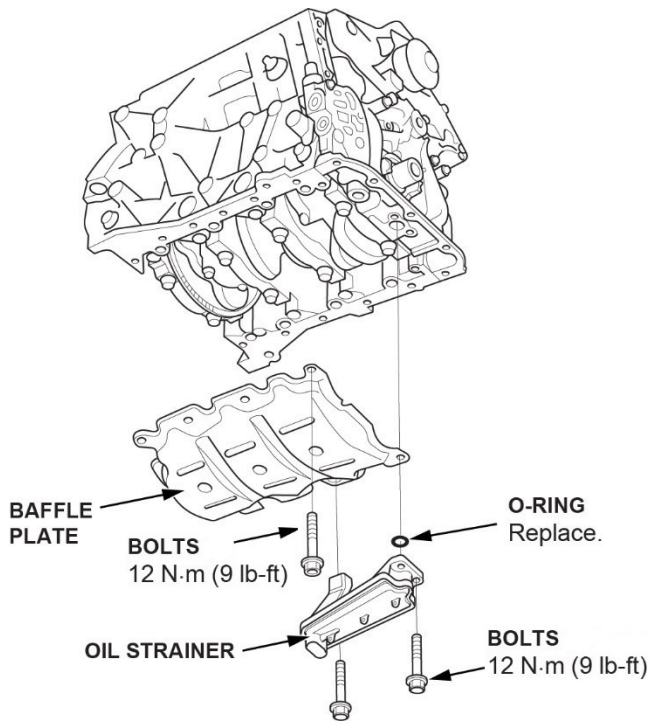
Hot engine oil may continue to drip from the engine which can cause burns or eye damage. Wear proper protective equipment and eyewear to avoid injury.

NOTE:

- Remove the bolts securing the oil pan.
- Use a flat blade screwdriver to separate the oil pan from the engine block.



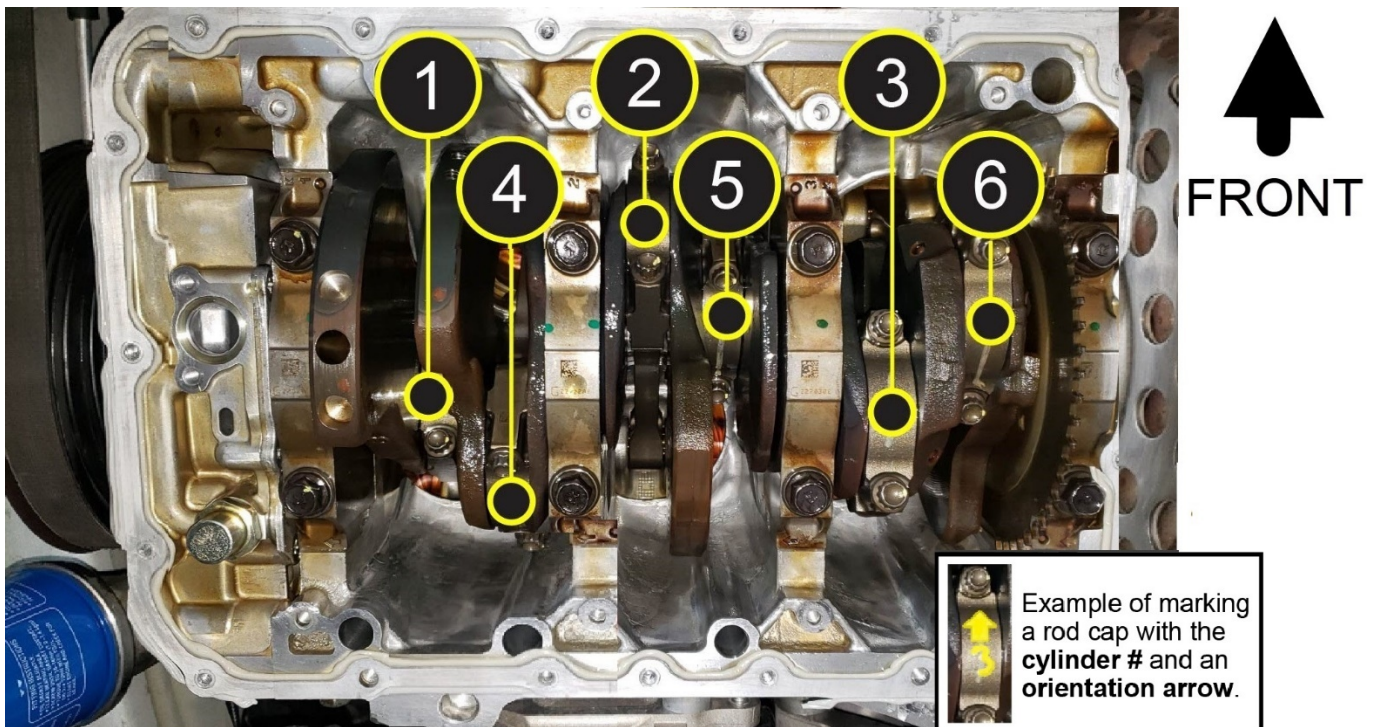
27. Remove the oil strainer and baffle plate.



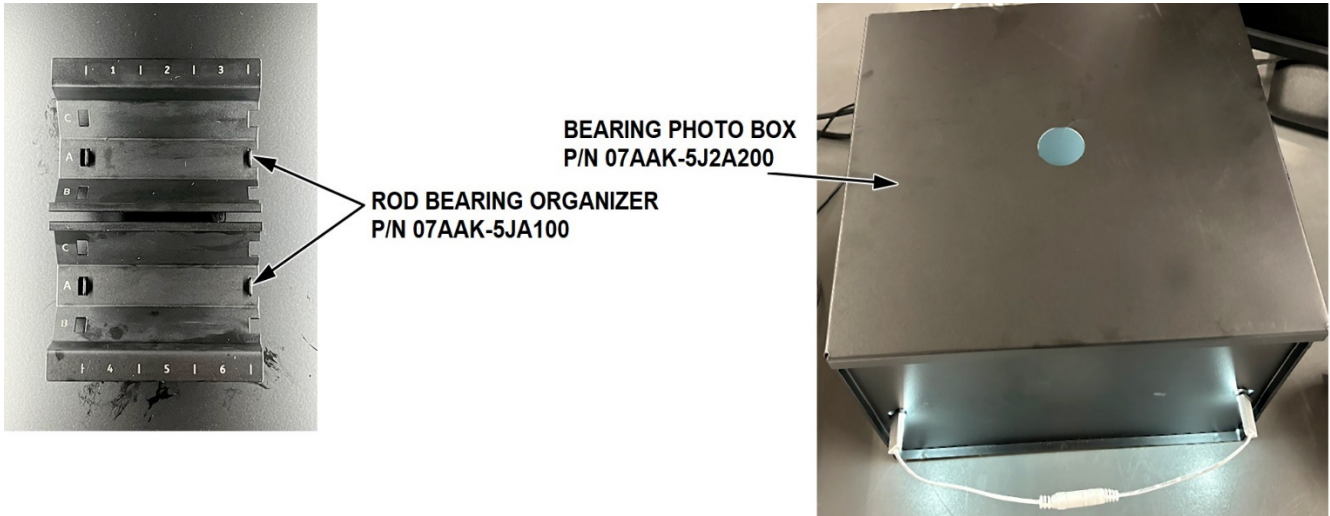
28. Clean and label each connecting rod cap with a paint marker (or otherwise suitable marking instrument) prior to removal. Make sure each rod cap has both the **cylinder #** and an **orientation arrow** pointing to the front of the vehicle.

NOTE:

- Do not confuse the existing marking on the side of the connecting rod and rod cap with the cylinder number. These are manufacturing marks referring to the size of the rod.
- Installing a rod cap incorrectly will result in engine knock and/or engine failure.



29. Make sure the Rod Bearing Organizer (Tool Number: 07AAK-5J2A100) and the Bearing Photo Fixture (Tool Number: 07AAK-5J2A200) are available for use.



30. Make sure the cylinder 1 is at TDC, (position #1).



31. Remove the **connecting rod bearing cap and lower bearing** for **cylinders 1,3,5, and 6**.

Step/Crankshaft Position	Cylinder 1 Bearing Cap and Lower Bearings	Cylinder 3 Bearing Cap and Lower Bearings	Cylinder 5 Bearing Cap and Lower Bearings	Cylinder 6 Bearing Cap and Lower Bearings
#1/At TDC	Remove	Remove	Remove	Remove

Click here to view video:



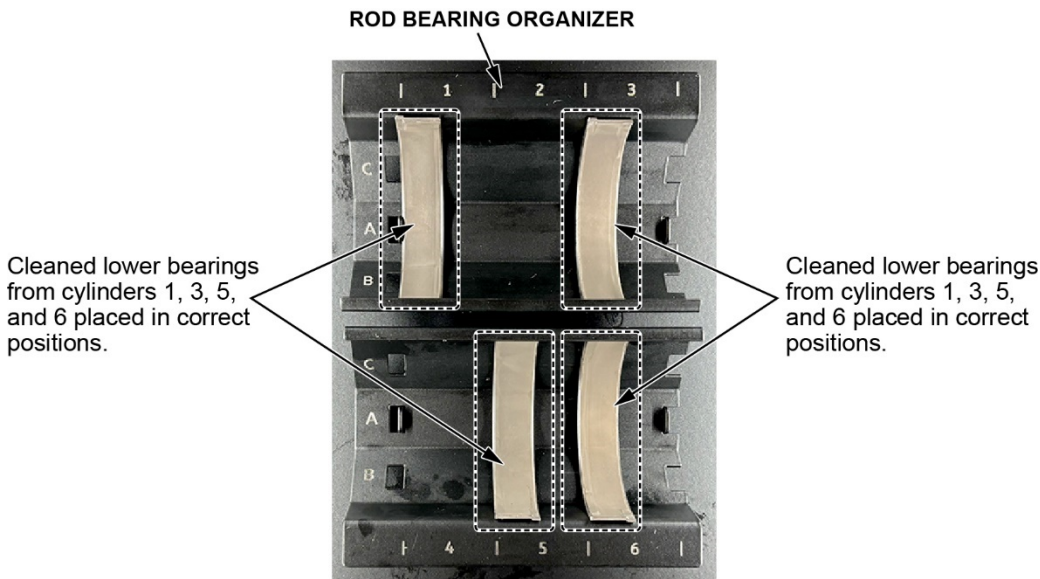
NOTE:

- Follow the removal of the connecting rod bearing steps precisely to prevent damage to the crankshaft journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearings with a clean shop towel after removal. There should be no oil residue remaining. **Do not use solvents.**

32. Place the removed lower bearings from **cylinders 1,3,5, and 6** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearings with a clean shop towel prior to placing the bearing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter**.



33. Rotate the crankshaft clockwise to the **#2 position** (TDC +45°).



Rotate the crank clockwise to the #2 position.

34. Remove the **cylinder 2 connecting rod bearing cap and lower bearing**.

Step/Crankshaft Position	Cylinder 2 Bearing Cap and Lower Bearings
#2/TDC +45°	Remove

NOTE:

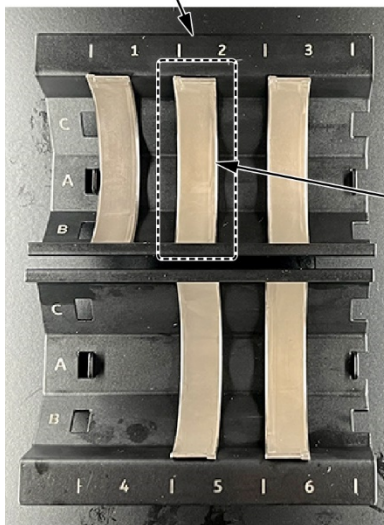
- Follow the removal of the connecting rod bearing steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**

35. Place the removed lower bearing from **cylinder 2** into the rod bearing organizer.

NOTE:

- Follow the removal of the connecting rod bearing steps precisely to prevent damage to the crank journal and connecting rods.
- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter**.

ROD BEARING ORGANIZER



Cleaned lower bearing from cylinder 2 placed in correct position.

36. Remove the **cylinder 2 upper connecting rod bearing**.

Step/Crankshaft Position	Cylinder 2 Upper Bearing
#2/TDC +45°	Remove

NOTE:

- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**
- Use the rod holder tool as needed, hand tighten only.

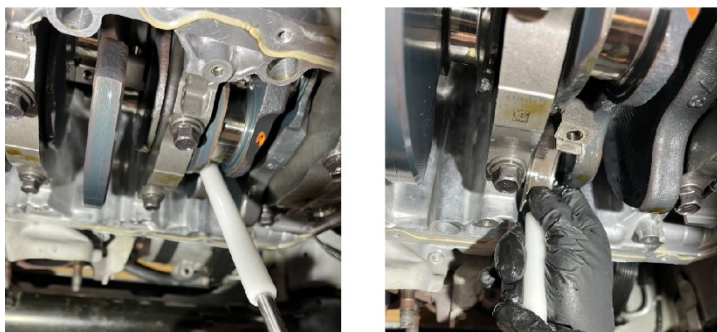
Click here to view video:



M8 ROD HOLDER
P/N 07AAB-5G0A100



EXAMPLE OF USING THE M8 ROD HOLDER TOOL

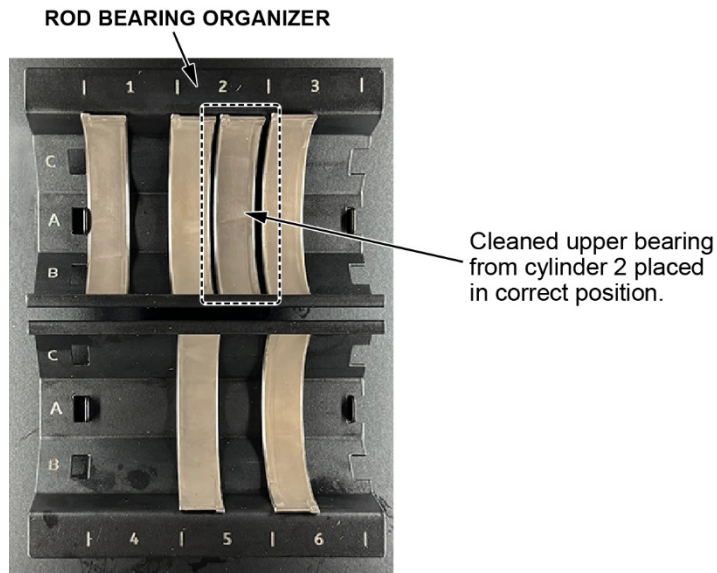


1. Thread the M8 rod holder tool into the connecting rod bolt hole.
2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
5. Using the M8 rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
6. Remove the M8 rod holder tool.
7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use any solvents.**

37. Place the removed **upper bearing** from **cylinder 2** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter.**



38. Rotate the crankshaft counterclockwise to the **#3 position** (TDC -45°).

Rotate the crank counterclockwise to the #3 position.



39. Remove the **cylinder 4 connecting rod bearing cap and lower bearing**.

Step/Crankshaft Position	Cylinder 4 Rod Cap and Lower Bearing
#3/TDC -45°	Remove

NOTE:

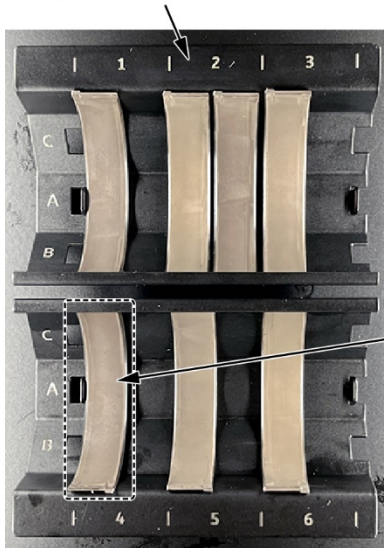
- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**

40. Place the removed **lower bearing** from **cylinder 4** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing** arrangement in the tray **does not matter**.

ROD BEARING ORGANIZER



Cleaned lower bearing from cylinder 4 placed in correct position.

41. Remove the **cylinder 3 upper connecting rod bearing**.

Step/Crankshaft Position	Cylinder 3 Upper Bearing	Cylinder 4 Upper Bearing
#3/TDC -45°	Remove	Remove

NOTE:

- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**
- Use the rod holder tool as needed, hand tighten only.

1. Thread the M8 rod holder tool into the connecting rod bolt hole.
2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
5. Using the M8 rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
6. Remove the M8 rod holder tool.
7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use solvent.**

42. Remove the **cylinder 4 upper connecting rod bearing**.

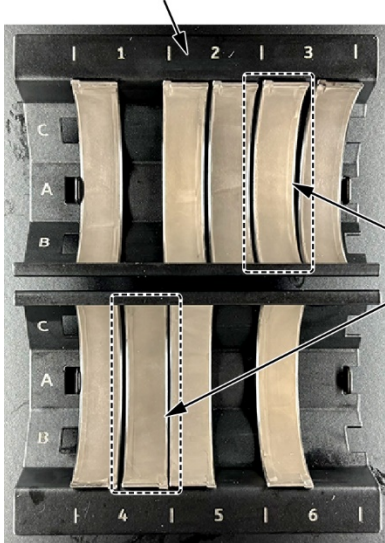
1. Thread the M8 rod holder tool into the connecting rod bolt hole.
2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
5. Leave the **cylinder 4 connecting rod in the lower position, do not push back up.**
6. Remove the M8 rod holder tool.
7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use solvent.**

43. Place the removed **upper bearings** from **cylinder 3 and 4** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not** use any solvents.
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter**.

ROD BEARING ORGANIZER



Cleaned upper bearings from cylinders 3 and 4 placed in correct positions.

44. Rotate the crankshaft clockwise to the **#4 position** (TDC +90°).



Rotate the crank clockwise to the #4 position.

45. Remove the **upper bearing from cylinders 1, 5, and 6.**

Step/Crankshaft Position	Cylinder 1 Upper Bearing	Cylinder 5 Upper Bearing	Cylinder 6 Upper Bearing
#4/TDC +90°	Remove	Remove	Remove

NOTE:

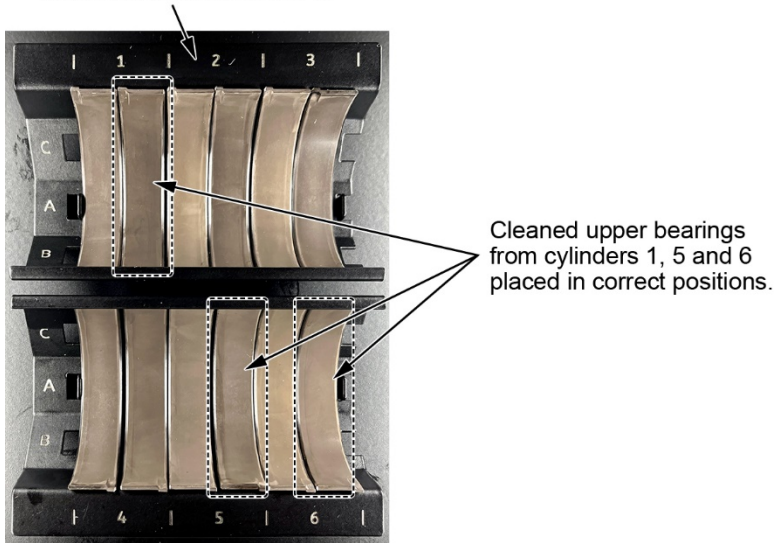
- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
 - The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
 - Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**
 - Use the rod holder tool as needed, hand tighten only.
1. Thread the M8 rod holder tool into the connecting rod bolt hole.
 2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
 3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
 4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
 5. Using the M8 rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
 6. Remove the M8 rod holder tool.
 7. Thoroughly clean the bearings with a clean shop towel to remove all oil residue. **Do not use any solvents.**

46. Place the removed **upper bearings from cylinders 1, 5, and 6** into the rod bearing organizer.

NOTE:

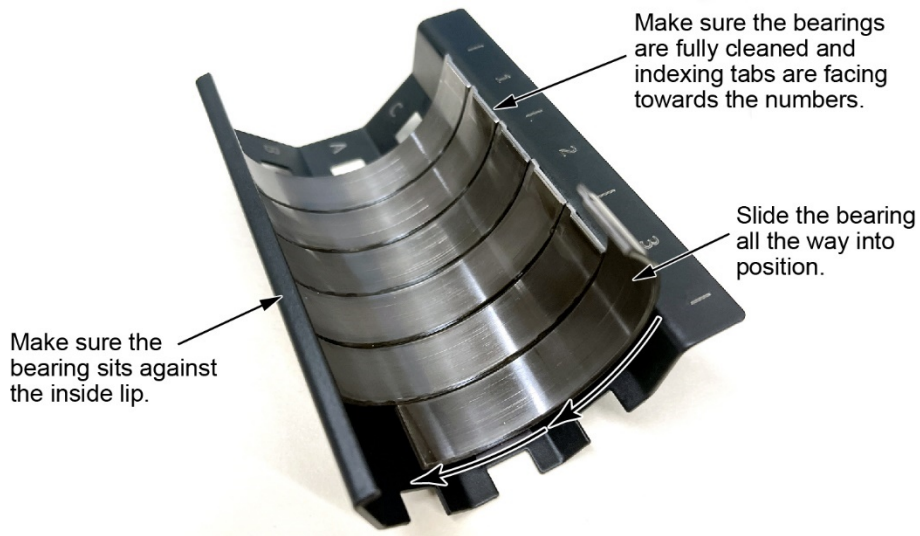
- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement in the tray does not matter.**

ROD BEARING ORGANIZER

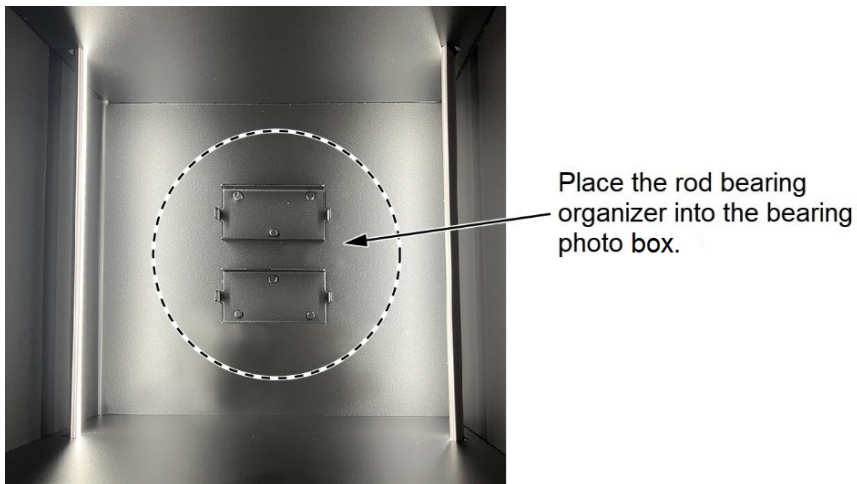


47. Make sure the bearings are fully seated and level with the edge of the rod bearing organizer.

- The bearing's indexing tab should be lined up at the numbers.
- The flat edge of the bearing should be inside the lip.
- All bearings should be fully seated.



48. Remove the bearing photo box cover and place the bearing organizers in the bearing photo box.



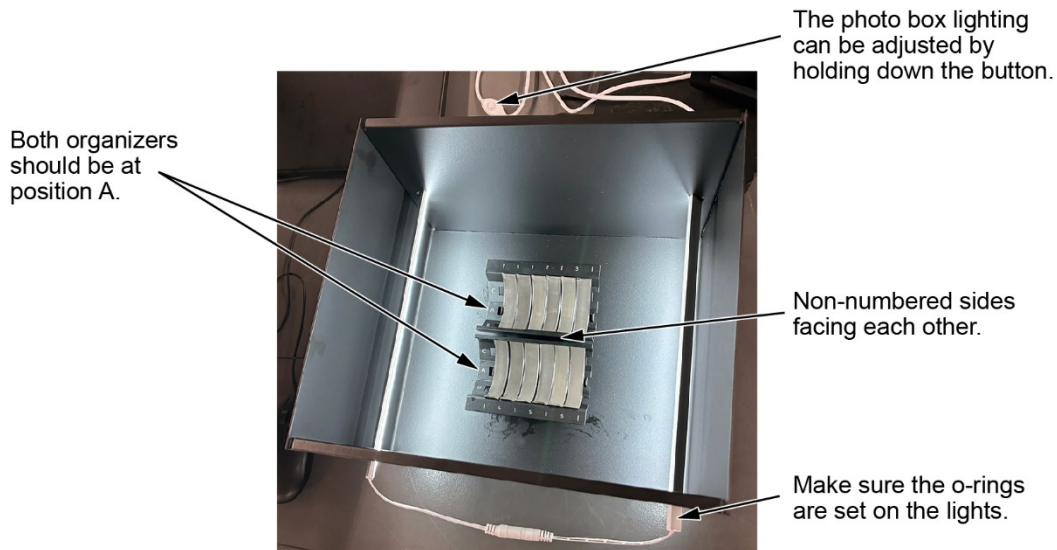
49. Confirm the following is ready on the bearing photo box:

8. Lights at the brightest setting.

NOTE: The lighting can be adjusted with a long hold on the button.

9. Both bearing trays in position A with non-numbered sides facing each other.

10. The O-rings are set on the lights to prevent an outside light source.



50. Login to the V-SMART application.

NOTE: Scanning the VIN will return to where you left off.

51. Using the V-SMART application, follow the instructions on the application to take bearing photos in positions A, B, and C. Follow the prompts when submitting the photos.

NOTE:

- Use the camera tap focus for a clear image.
- Any unclear images will not be accepted.
- Follow the V-SMART tool prompts after photo submission.



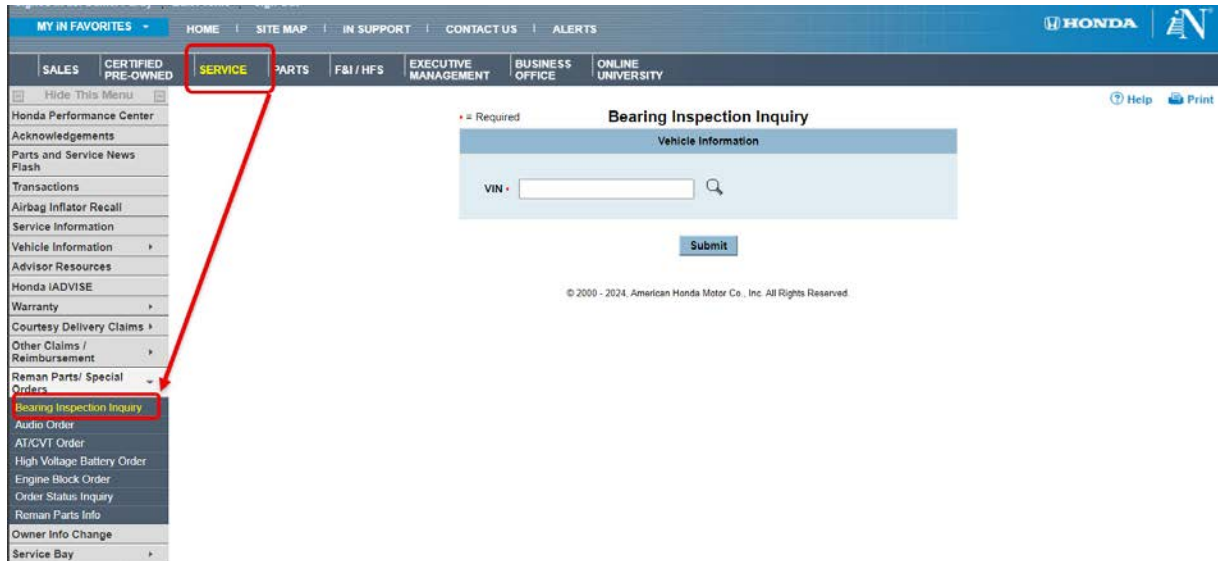
When taking the photos:

Tap here to focus camera.

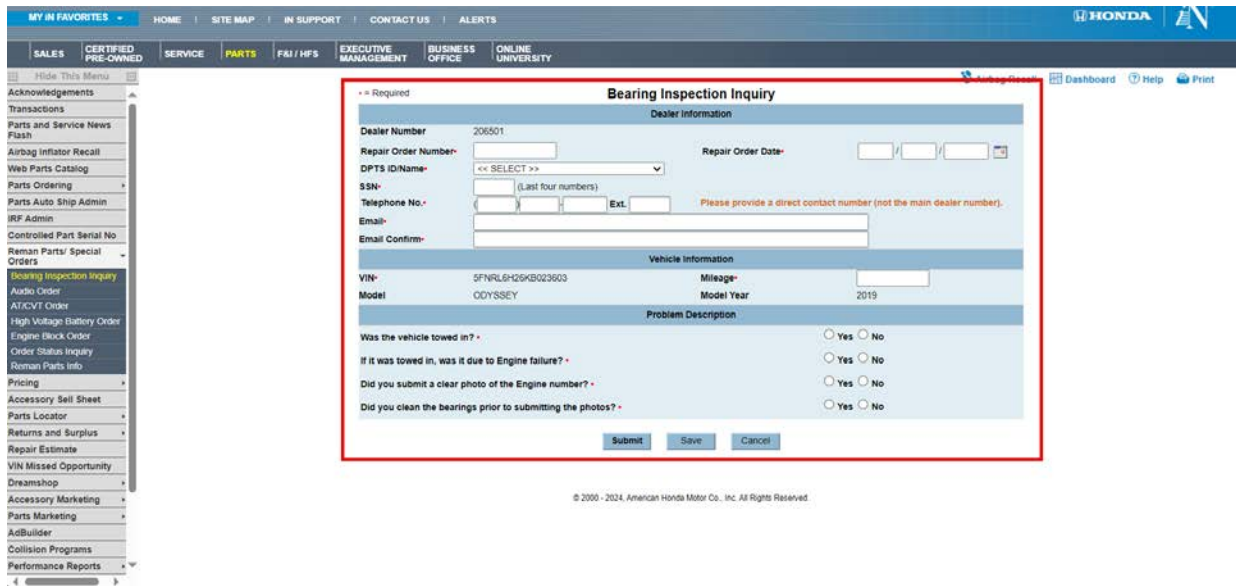


52. Create a Bearing Inspection Inquiry.

1. Log into iN.
2. Select **SERVICE > REMAN PARTS / SPECIAL ORDERS > BEARING INSPECTION INQUIRY**
3. Select the **BEARING INSPECTION INQUIRY**.
4. Input the correct VIN.



5. Input all vehicle information (including the correct VIN) to create a case.



6. A **7-digit case reference number** will be generated.
7. Call the **Bearing Inspection Inquiry Team** at **(800) 824-6632**. Press **9** to be routed to the correct department (**do not contact TECH LINE for this**). Give the answering agent the **7-digit reference number** for repair direction.

NOTE: MAKING THE INCORRECT SELECTION WILL RESULT IN INCREASED WAIT TIMES.

53. The bearing inspection agent will give the **Repair Direction**. You will receive instructions via email on the repair method that includes the unique warranty code and the bearing sizes with their specific locations, if applicable. Parts will be shipped to your dealership. Make sure to advise the parts department with a copy of the RO.

NOTE: Link to CONTENT REFERENCE, [\(Click HERE\)](#).

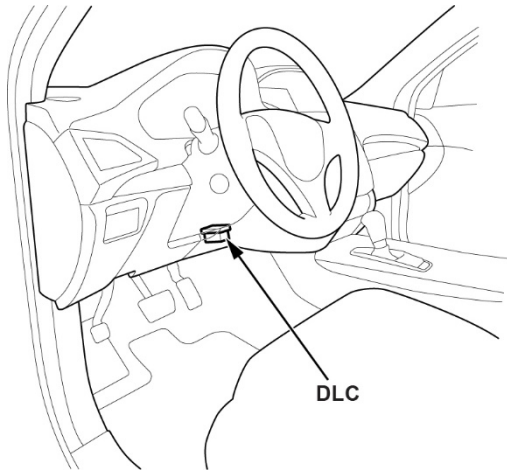
INSPECTION B

NOTE: DO NOT contact Tech Line for any inquiries to this safety recall. You must call the Bearing Inspection Inquiry Team at (800) 824-6632 (**Select Option #9**) for all inquiries and repair direction.

1. Turn the steering wheel all the way to the right.
2. Relieve the fuel pressure.

With the i-HDS:

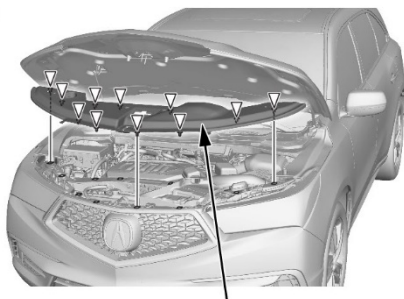
1. Connect an i-HDS to the data link connector (DLC) located under the driver's side of the dashboard.



2. Turn the vehicle to ON.
3. Select the **PGM-FI** system on the i-HDS.
4. Select **FUEL PUMP OFF** from the **Inspection Menu** and follow the on screen instructions.

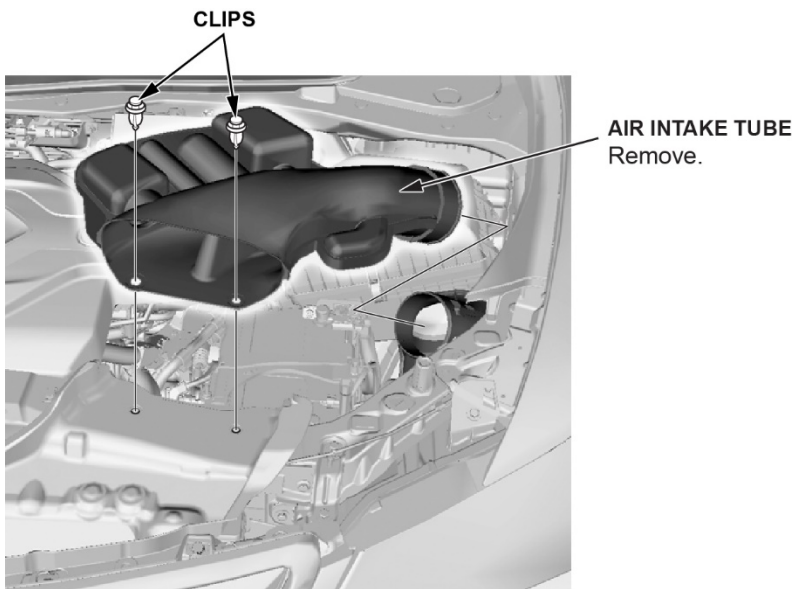
Without the i-HDS:

1. Remove the PGM-FI main relay 2 from the under-dash fuse/relay box.
 2. Start the engine and let it idle until it stalls.
 3. Turn the vehicle to OFF.
 4. Install the PGM-FI main relay 2.
2. Remove the front bulkhead cover.

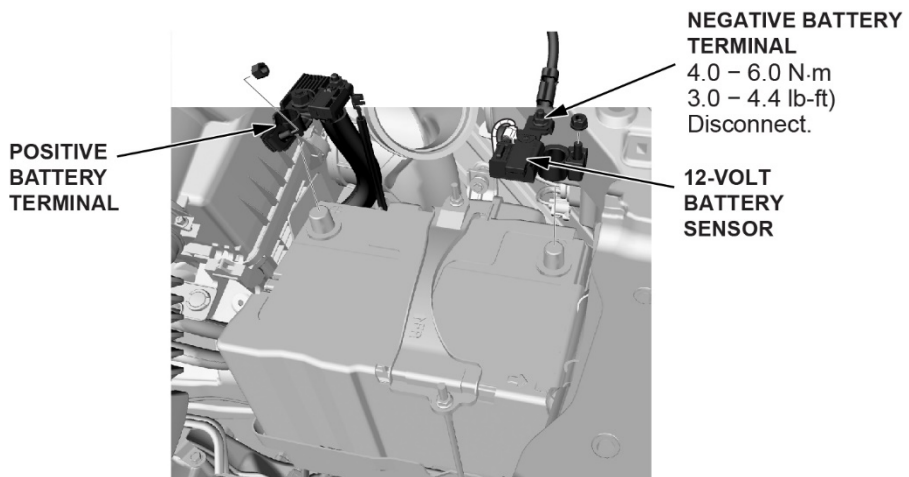


FRONT BULKHEAD COVER

3. Remove the air intake tube.



4. Disconnect the 12-volt battery.

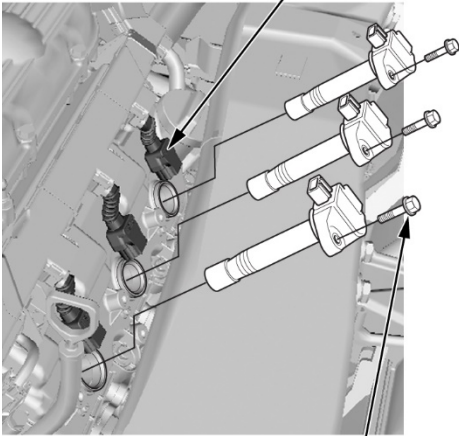


5. Remove the oil dipstick.

6. Disconnect and remove the coil packs.

FRONT

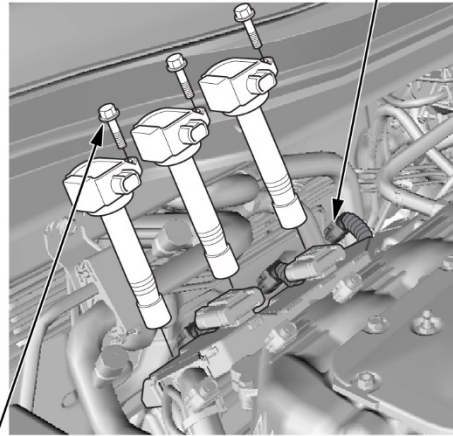
CONNECTOR



BOLTS
12 N·m
(9 lb-ft)

REAR

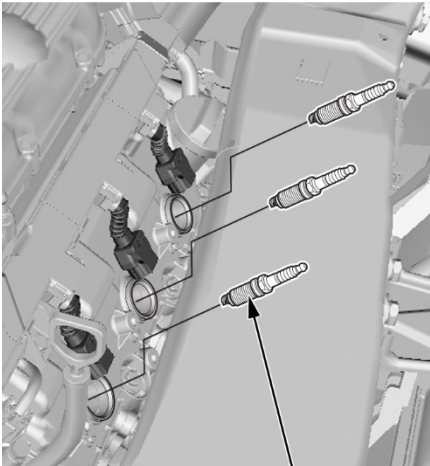
CONNECTOR



BOLTS
12 N·m
(9 lb-ft)

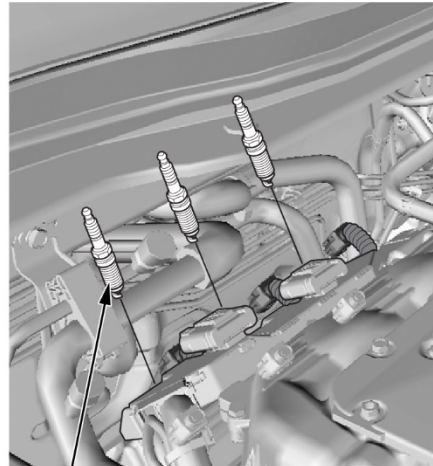
7. Remove the spark plugs.

FRONT



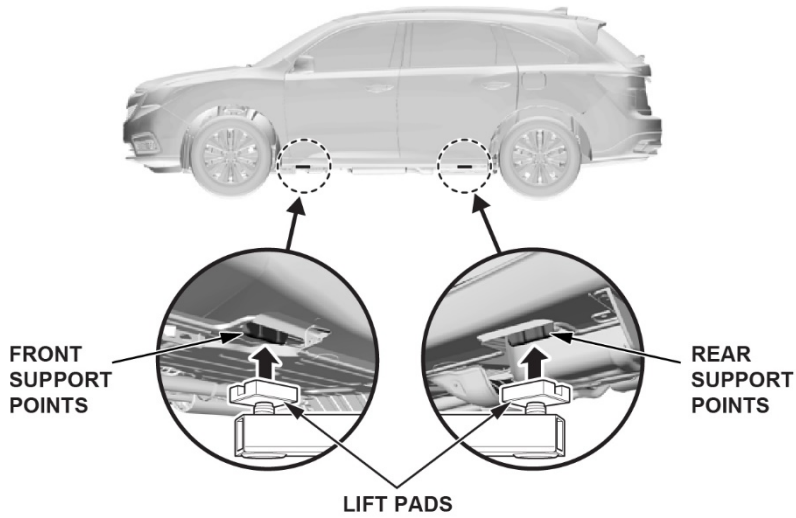
SPARK PLUGS
22 N·m (16 lb-ft)

REAR

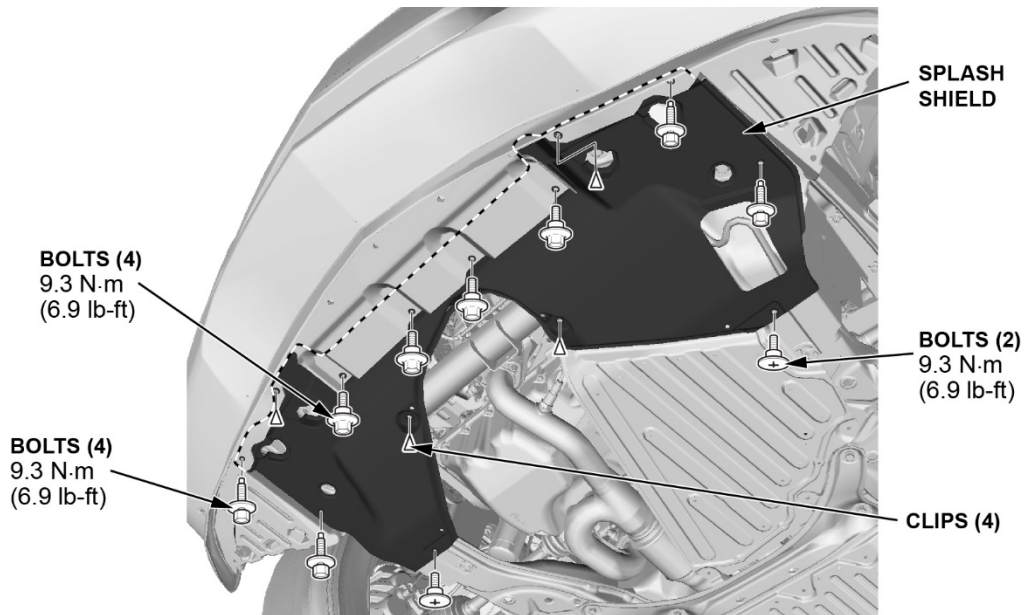


SPARK PLUGS
22 N·m (16 lb-ft)

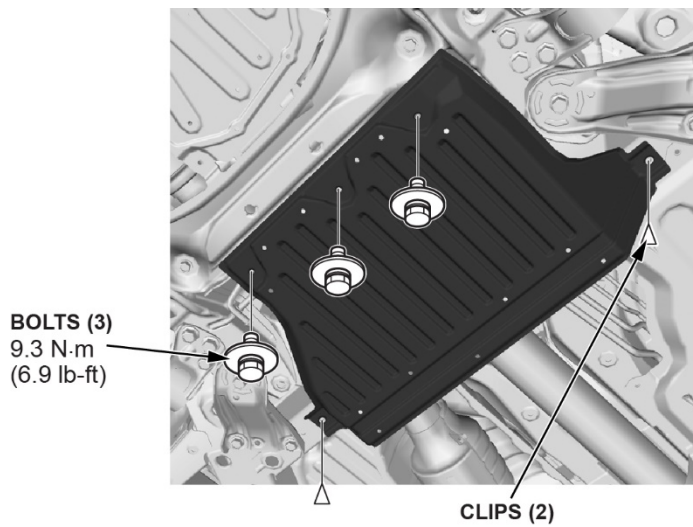
8. Raise the vehicle.



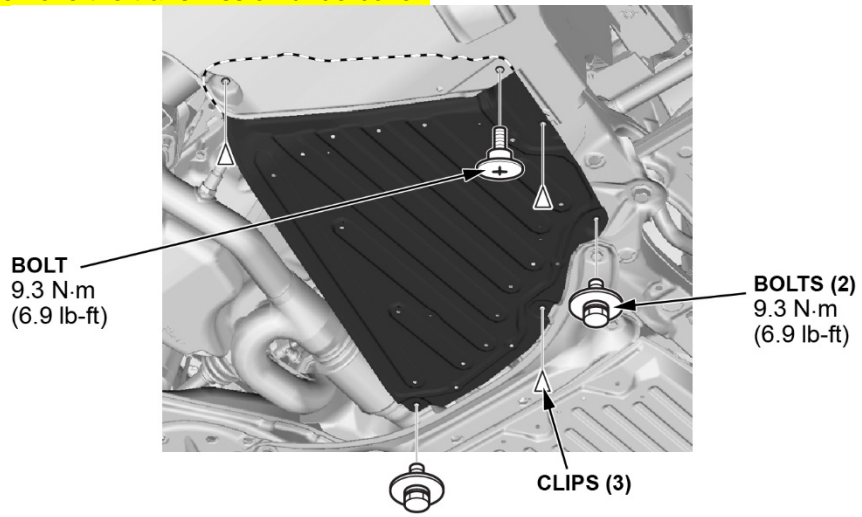
9. Remove the splash shield.



10. Remove the engine undercover.

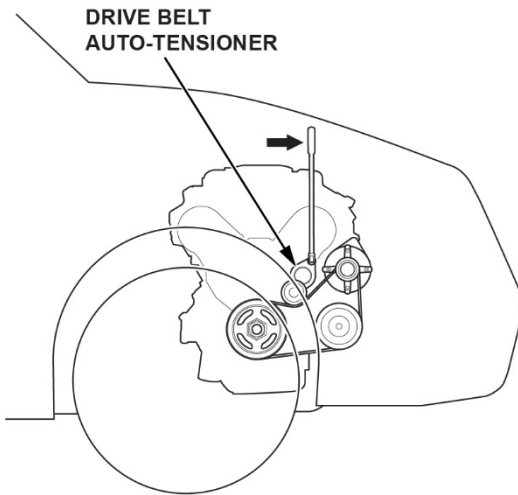


11. Remove the transmission undercover.



12. Remove the passenger side front wheel.

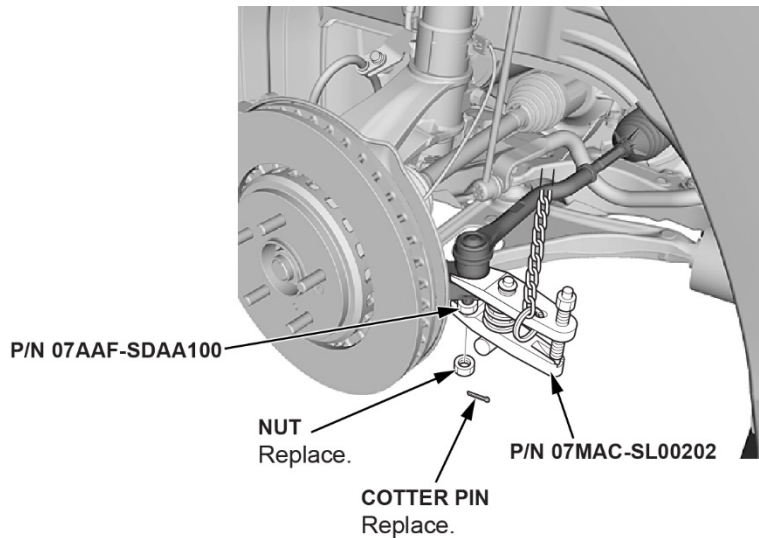
13. Remove the drive belt.



14. Separate the passenger's side tie rod ball joint.

1. Remove the cotter pin.
2. Remove the nut.
3. Disconnect the tie rod end ball joint from the knuckle using the ball joint thread protector and the ball joint remover.

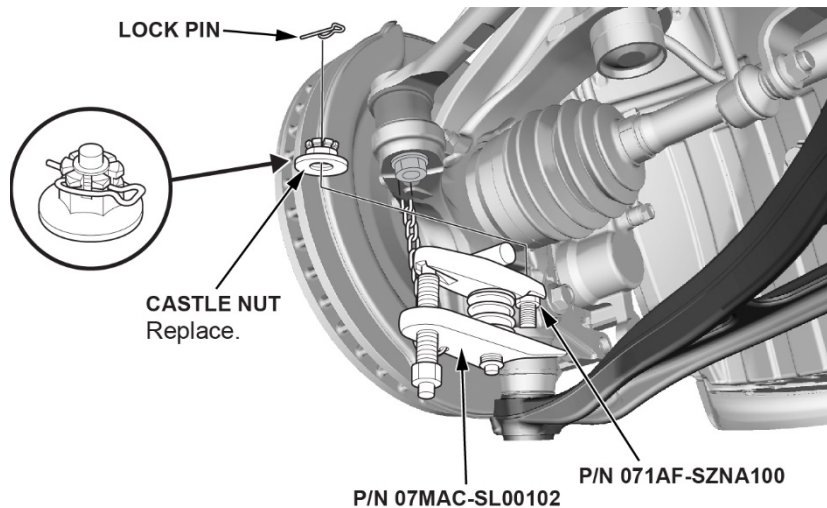
NOTE: Be careful not to damage the ball joint boot when installing the ball joint remover.



15. Separate the passenger's side lower knuckle ball joint.

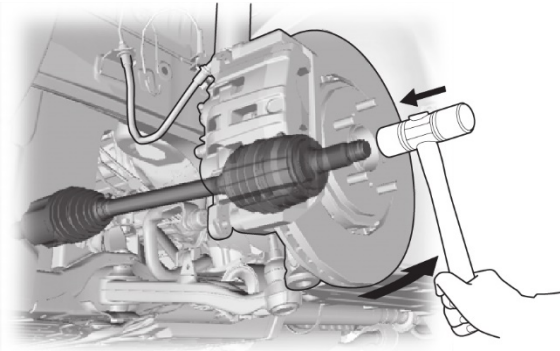
1. Remove the lock pin.
2. Remove the castle nut.
3. Disconnect the lower arm ball joint from the knuckle using the ball joint thread protector and the ball joint remover.

NOTE: Be careful not to damage the ball joint boot when installing the ball joint remover.

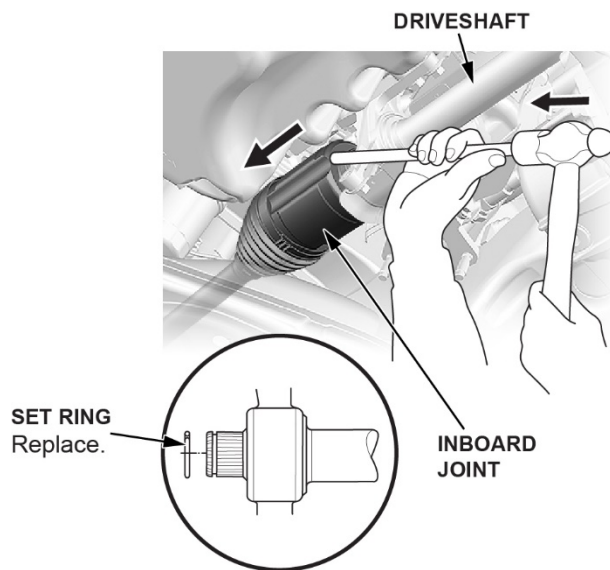


16. Remove passenger side driveshaft.

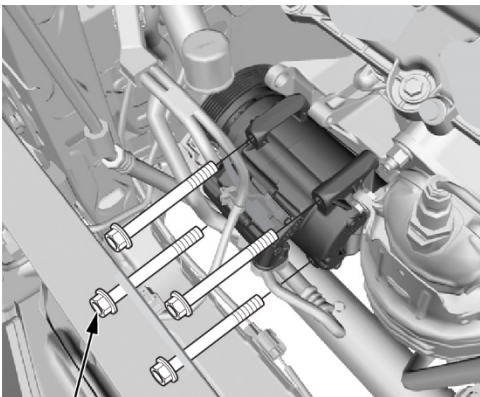
1. Remove the front spindle nut.
2. Pull the knuckle outward and separate the outboard joint from the front hub using a soft face hammer.



3. Drive the inboard joint off of the intermediate shaft using a drift punch and a hammer.

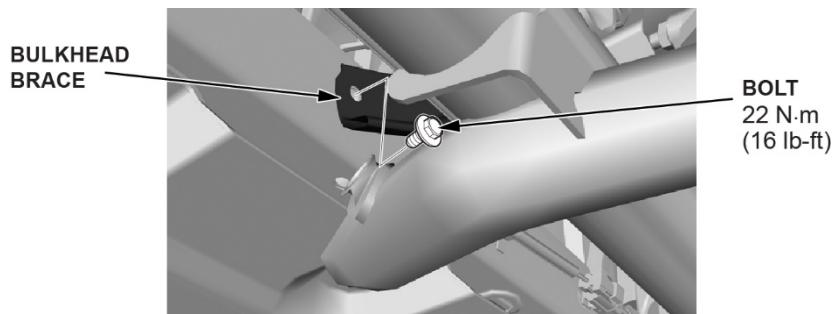


4. Remove the driveshaft as an assembly.
 5. Remove and replace the set ring.
17. Remove the lower mounting bolts of the A/C compressor.

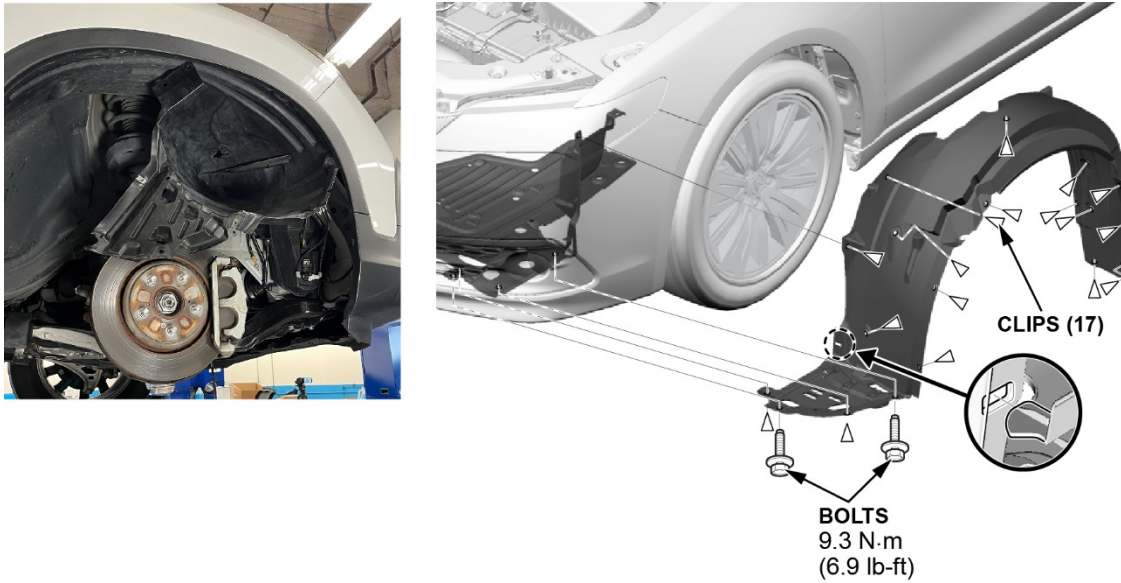


BOLTS (4)
22 N·m (16 lb-ft)

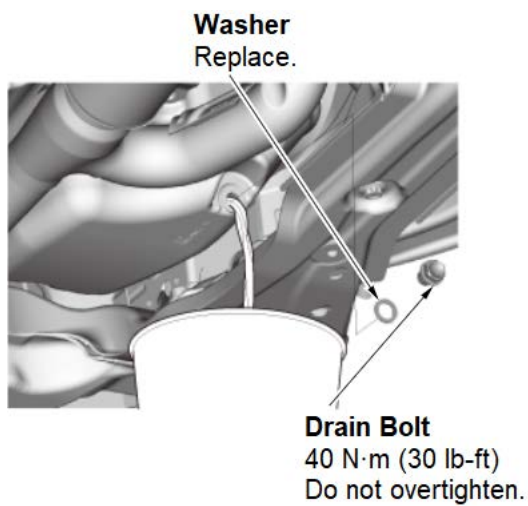
18. Remove the lower bolt of the bulkhead brace.



19. Pull back the passenger fender liner to gain access to the crankshaft pulley (the crank angle gauge should be visible).

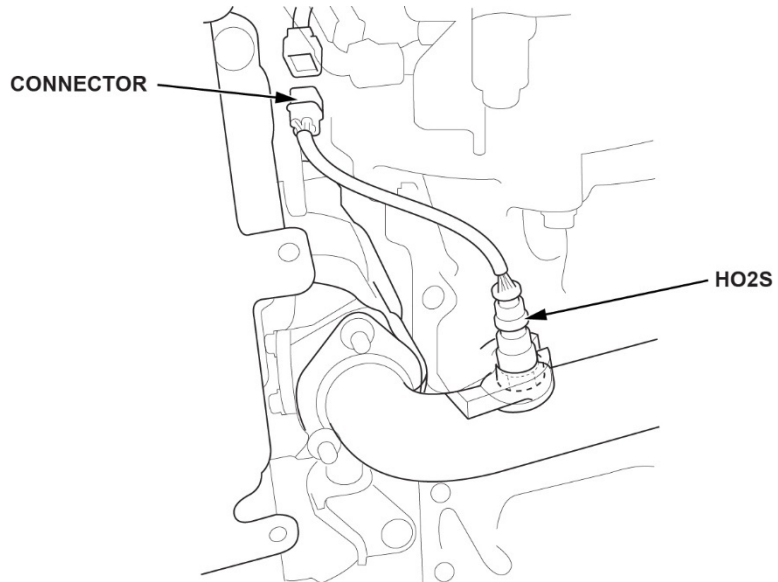


20. Drain the engine oil.

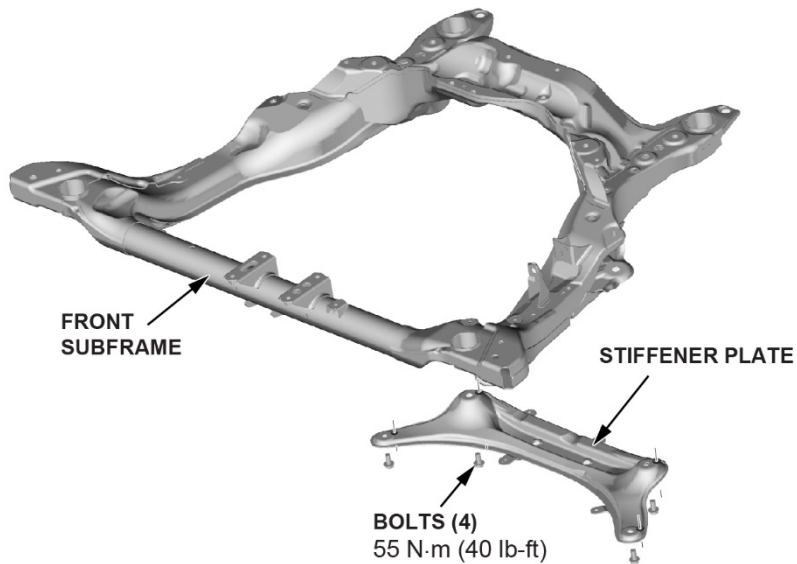


21. Unplug the bank 2 oxygen sensor.

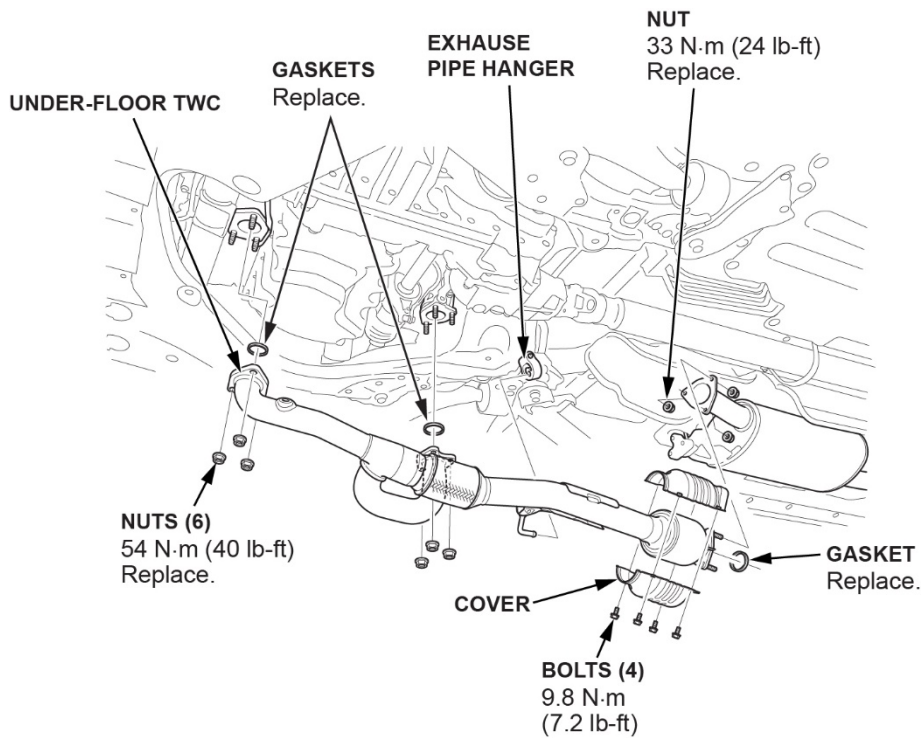
NOTE: Exhaust may be HOT.



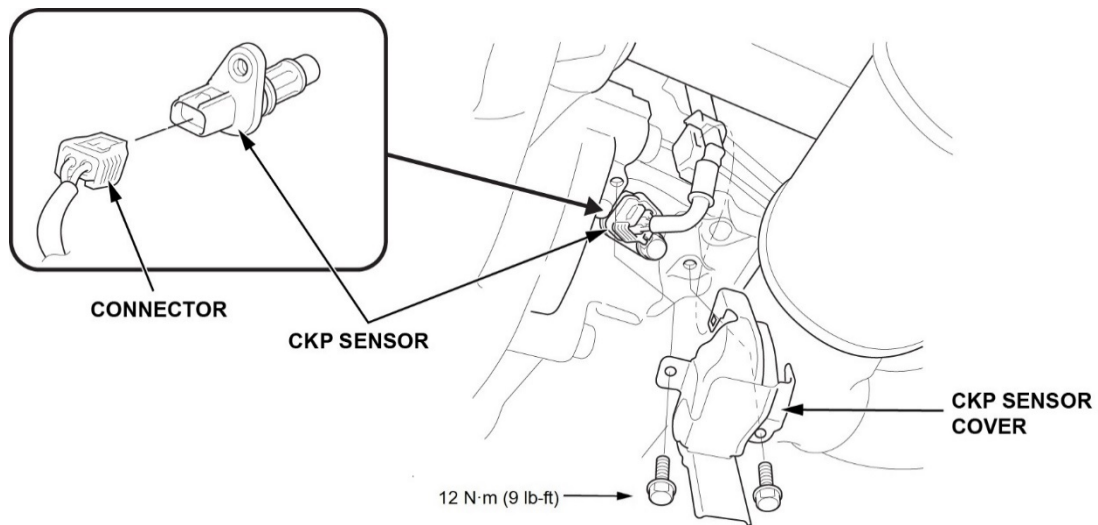
22. Remove the subframe stiffener plate.



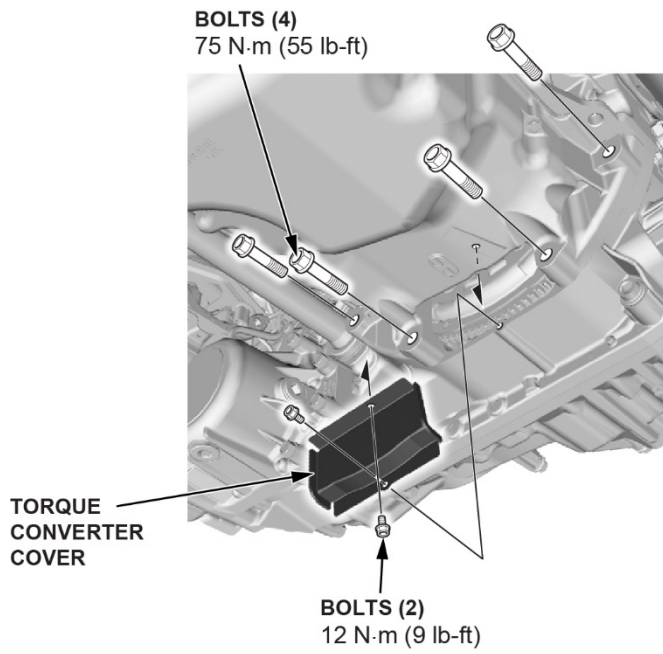
23. Remove the under-floor TWC (A-pipe).



24. Remove the CKP sensor cover, then disconnect the CKP sensor.



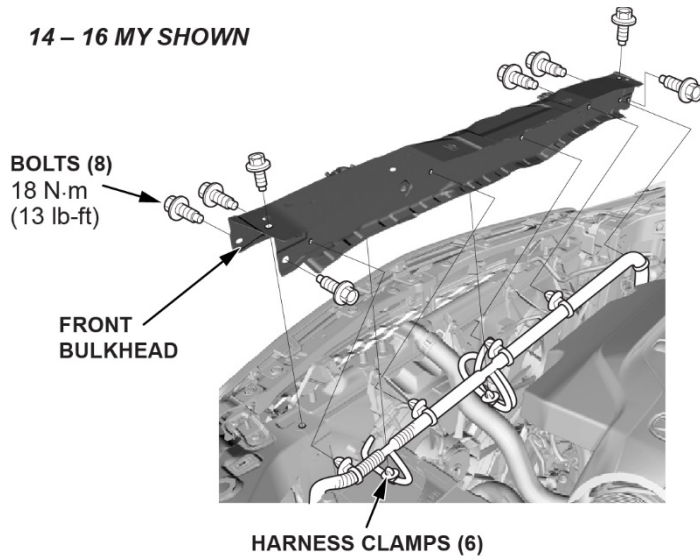
25. Remove the torque converter cover and the four lower transmission mounting bolts.



26. Lower the vehicle.

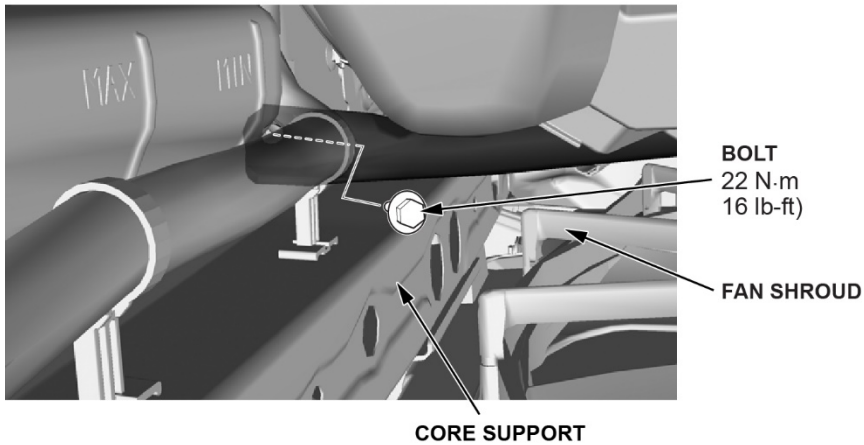
27. Remove the bulkhead.

14 – 16 MY SHOWN

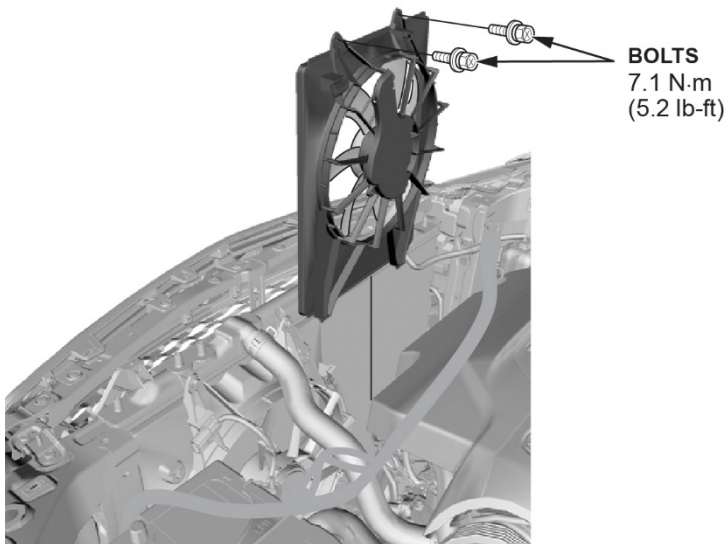


28. Remove the passenger's side bulkhead brace.

LOOKING DOWN FROM UNDER HOOD

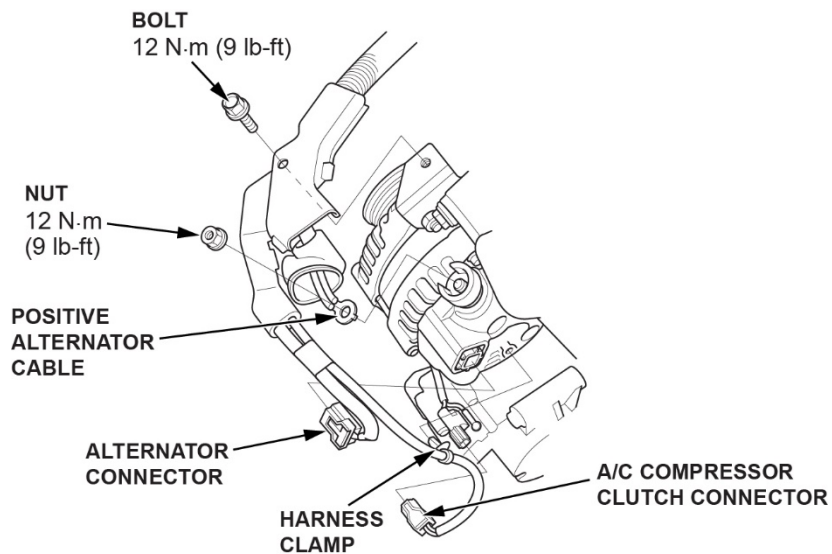


29. Disconnect and remove the condenser fan.

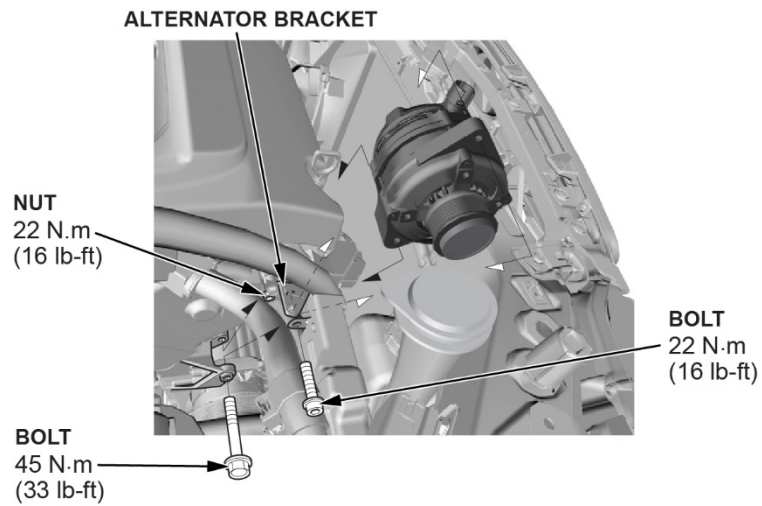


30. Remove the alternator.

1. Disconnect the positive alternator cable, the alternator connector, and the A/C compressor clutch connector.
2. Remove the harness clamp and bolt.

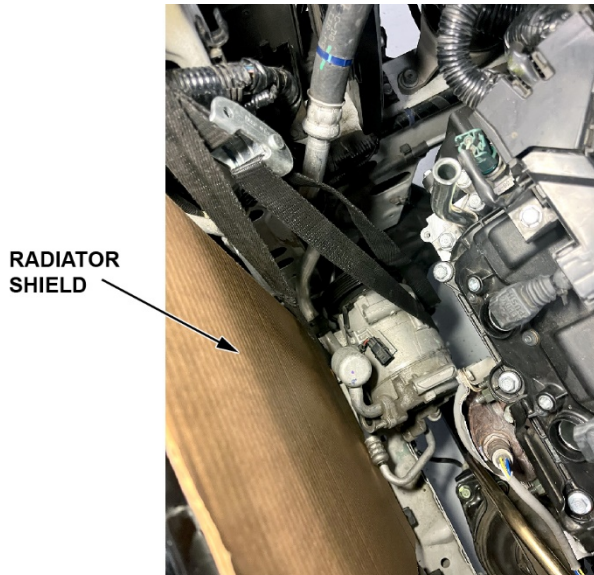


31. Remove the alternator



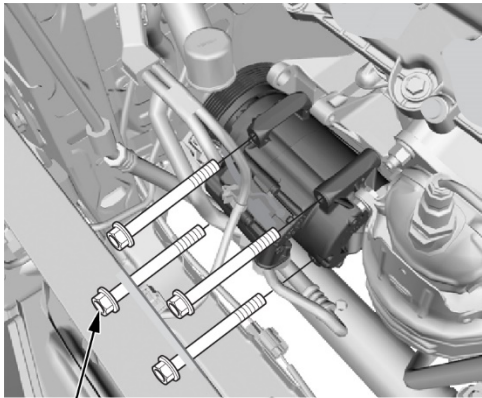
32. Install the radiator shield to protect the radiator.

- A suitable radiator shield could be as simple as a clean piece of cardboard.
- Make sure the shield covers the entire radiator.

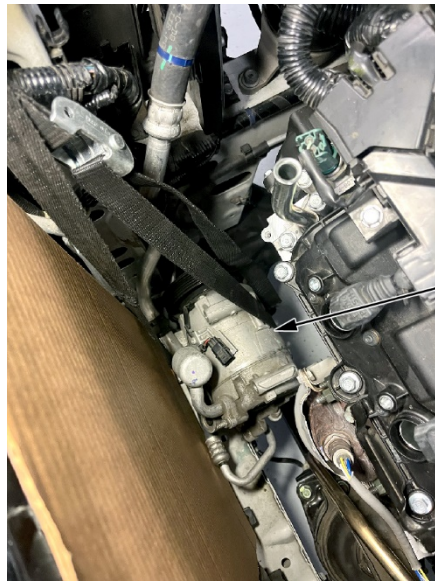


33. Remove the upper A/C compressor mounting bolts and move the A/C compressor forward to rest on the bulkhead frame by the radiator and secure with a strap.

NOTE: Do not disconnect the A/C hoses.



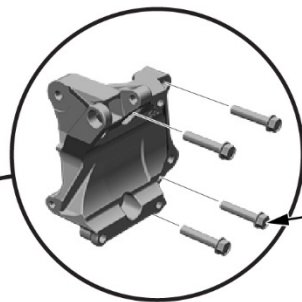
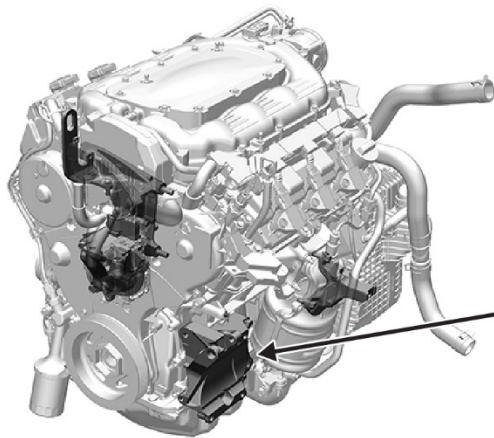
BOLTS (4)
22 N·m (16 lb-ft)



**SECURED
COMPRESSOR**

34. Raise the vehicle.

35. Remove the A/C compressor bracket leaving the drive belt auto tensioner attached. Torque to **45 N·m (33 lb-ft)** on installation.



BOLTS (4)
45 N·m
(33 lb-ft)

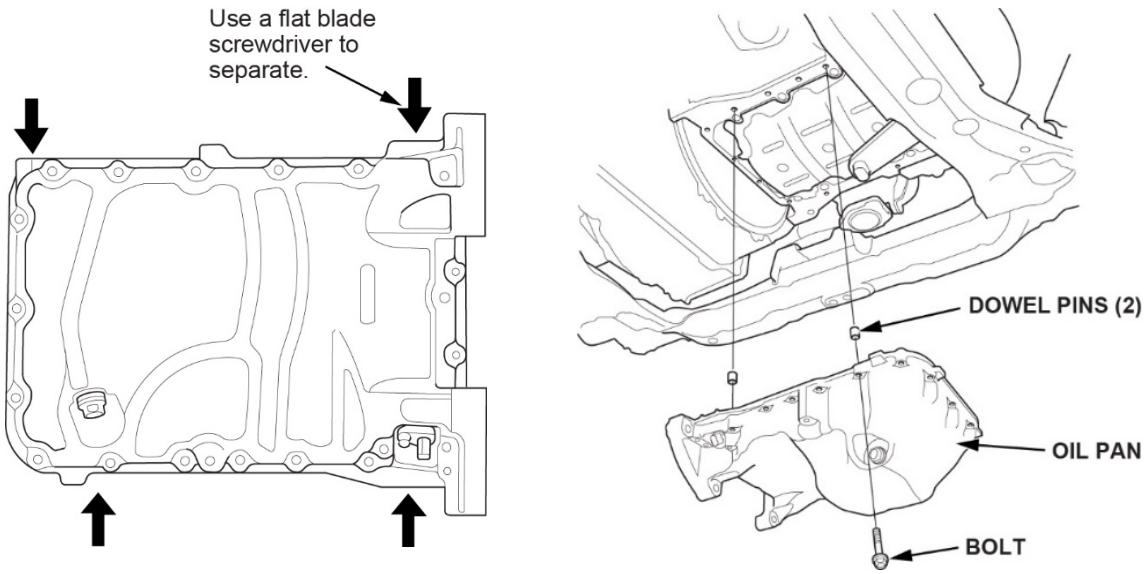
36. Remove the engine oil pan.

⚠ CAUTION

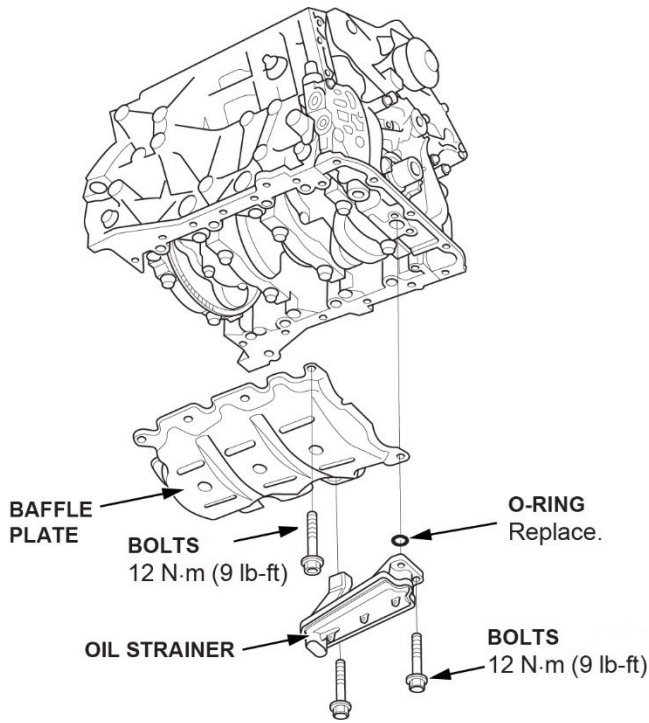
Hot engine oil may continue to drip from the engine which can cause burns or eye damage. Wear proper protective equipment and eyewear to avoid injury.

- Remove the bolts securing the oil pan.
- Use a flat blade screwdriver to separate the oil pan from the engine block.

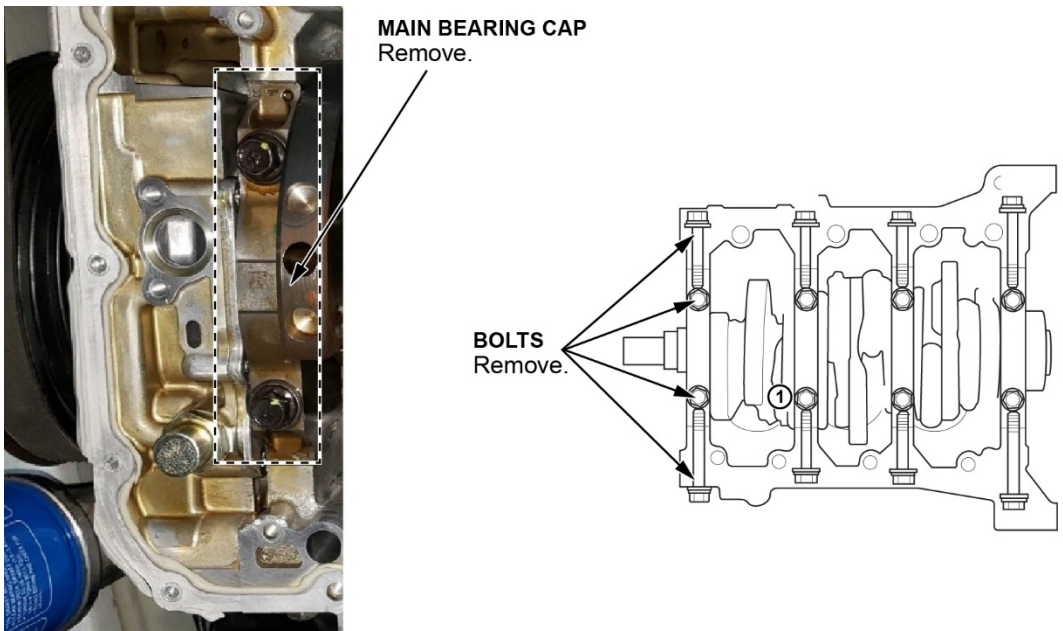
37. Using a flat blade screwdriver, separate the oil pan from the engine block in the places shown.



38. Remove the oil strainer and baffle plate.

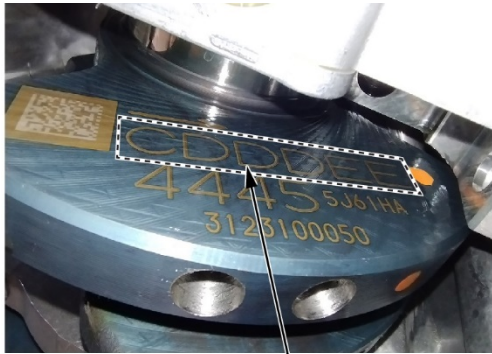


39. Remove the #1 main bearing cap.

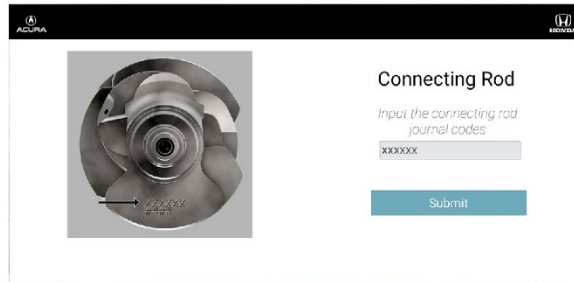


40. Login to V-SMART application.

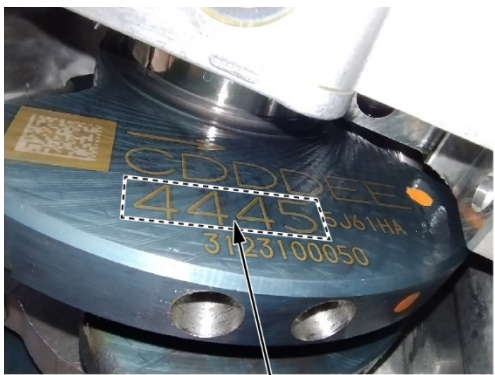
41. Enter the connecting rod journal codes.



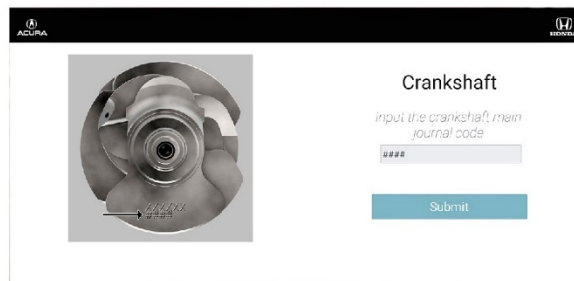
**CRANKSHAFT MAIN
JOURNAL CODE**



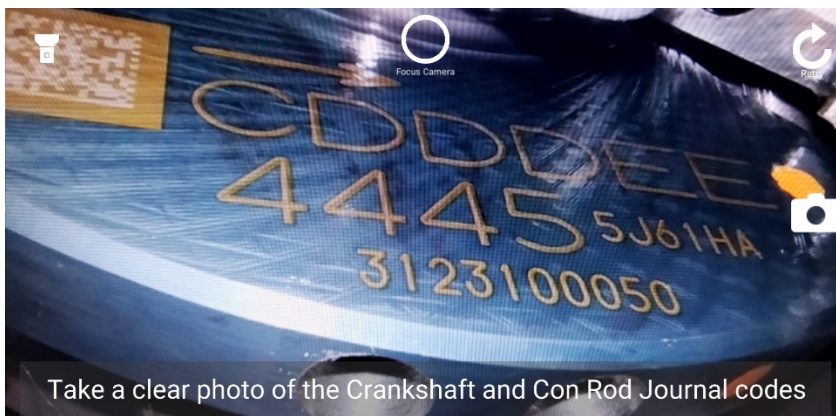
42. Enter the connecting rod journal codes.



**CONNECTING ROD
JOURNAL CODE**



43. Take a picture of the code on the crankshaft counterweight with the V-SMART tool.

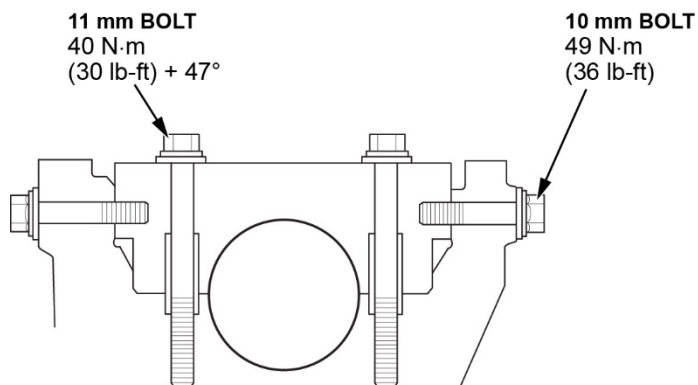


44. Reinstall the #1 main bearing cap.

NOTE:

- Apply new engine oil to the bolt threads and flanges.
- Do not rotate the crankshaft during inspection.

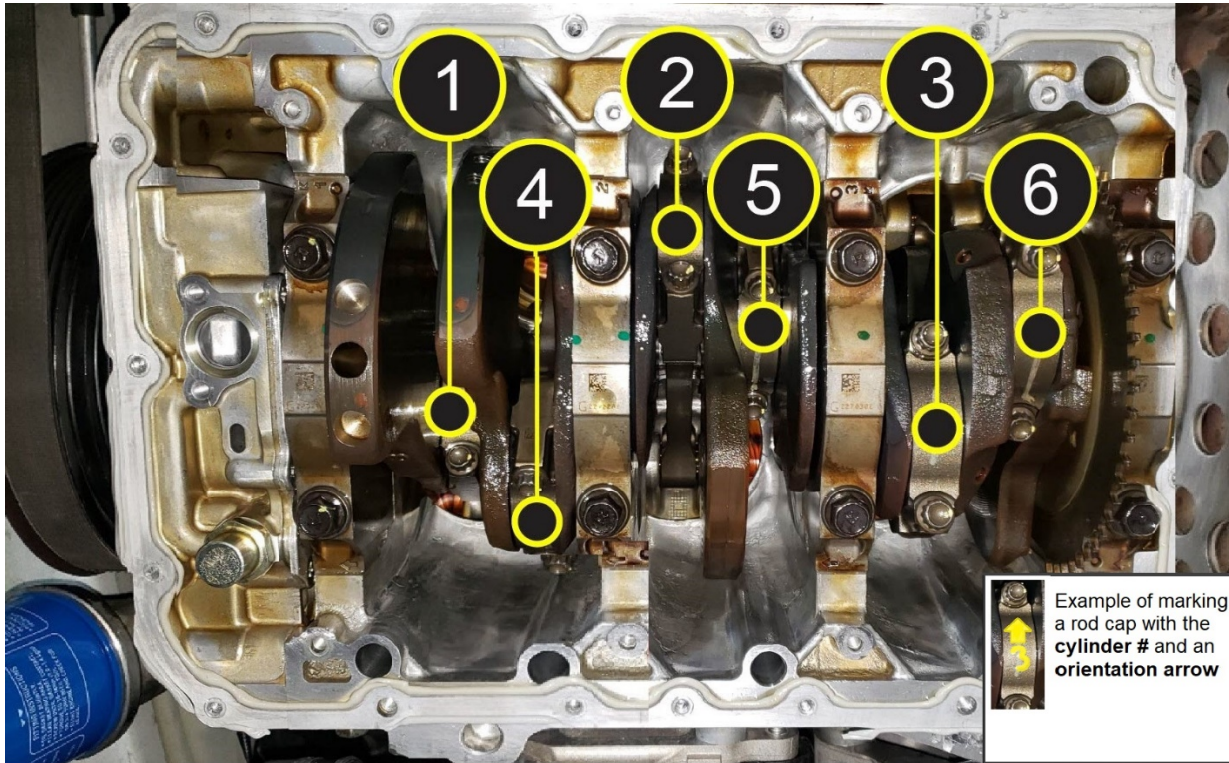
1. Torque the 2 vertical bolts to **40 N·m (30 lb-ft)**.
2. Torque the 2 horizontal bolts to **49 N·m (36 lb-ft)**.
3. Torque the 2 vertical bolts again an additional **47°**.



45. Clean and label each connecting rod cap with a paint marker (or otherwise suitable marking instrument) prior to removal. Make sure each rod cap has both the **cylinder #** and an **orientation arrow** pointing to the front of the vehicle.

NOTE:

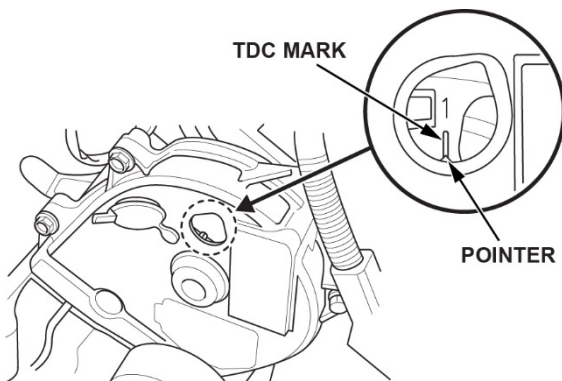
- Do not confuse the existing marking on the side of the connecting rod and rod cap with the cylinder number. These are manufacturing marks referring to the size of the rod.
- Installing a rod cap incorrectly will result in engine knock and/or engine failure.



46. Rotate the engine to take pictures of all the connecting rod numbers.

1. Rotate cylinder 1 to bottom dead center (TDC +240°) to take pictures of **connecting rods 1,4,5 and 6**. Enter the values and pictures into V-SMART as directed.
2. Rotate the crankshaft (TDC + 120°) until the **cylinder 3** rod is visible. Enter the value and take a picture as directed by V-SMART.
3. Rotate the crankshaft (TDC +120°) until the **cylinder 2** rod is visible. Enter the value and take a picture as directed by V-SMART.

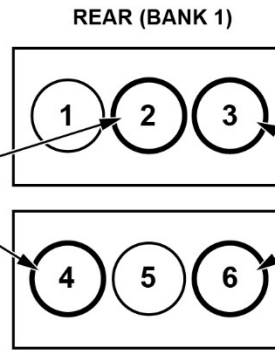
47. Set cylinder #1 to top dead center (TDC). Align the pointer on the front upper cover with the No. 1 Piston TDC mark on the front camshaft pulley.



48. Install piston stoppers into cylinders 2,3,4, & 6.



Piston Stoppers
in cylinder #2 and #4.



Piston Stoppers
in cylinder #3 and #6.

PISTON STOPPER
P/N 07AAB-5G0200



49. With the crankshaft at TDC, mark the crankshaft pulley with a vertical line at the 6 o'clock position.



CRANKSHAFT PULLEY
Mark with a vertical line
from the 6 o'clock position.

50. Attach the crank angle gauge to the crankshaft pulley with position #1 correctly aligned at the 6 o'clock position.

[▶ PLAY VIDEO](#)

Click here to view video:



**CRANK ANGLE GAUGE
P/N 07AAJ-5G0A100**

51. Attach a large, commercially available zip tie to the subframe below the crankshaft pulley. The zip tie will be a **reference indicator** for a correct timing wheel position.

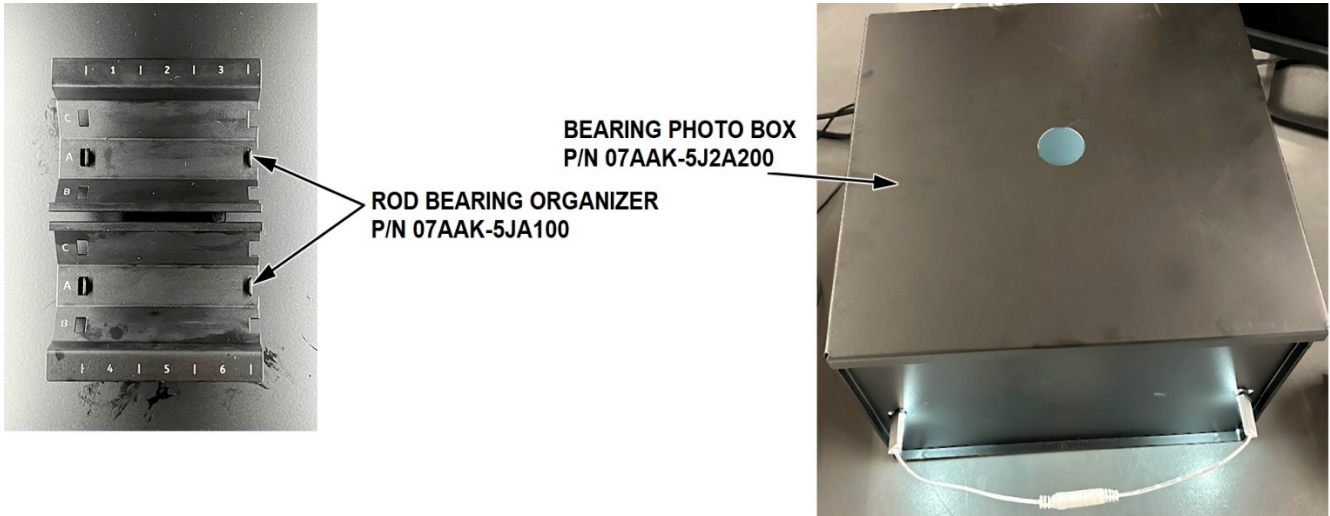
NOTE:

- Make sure it is pointing up at the 6 o'clock position on the pulley.
- The zip tie should extend roughly 8" to 12" over the subframe.



ZIP TIE
Attach a zip tie to the frame
and line up as shown.

52. Make sure the Rod Bearing Organizer (Tool Number: 07AAK-5J2A100) and the Bearing Photo Fixture (Tool Number: 07AAK-5J2A200) are available for use.



53. Make sure the **cylinder 1** is at TDC (**position #1**).



54. Remove the **connecting rod bearing cap and lower bearing** for **cylinders 1,3,5, and 6**.

Step/Crankshaft Position	Cylinder 1 Bearing Cap and Lower Bearings	Cylinder 3 Bearing Cap and Lower Bearings	Cylinder 5 Bearing Cap and Lower Bearings	Cylinder 6 Bearing Cap and Lower Bearings
#1/At TDC	Remove	Remove	Remove	Remove



Click here to view video:

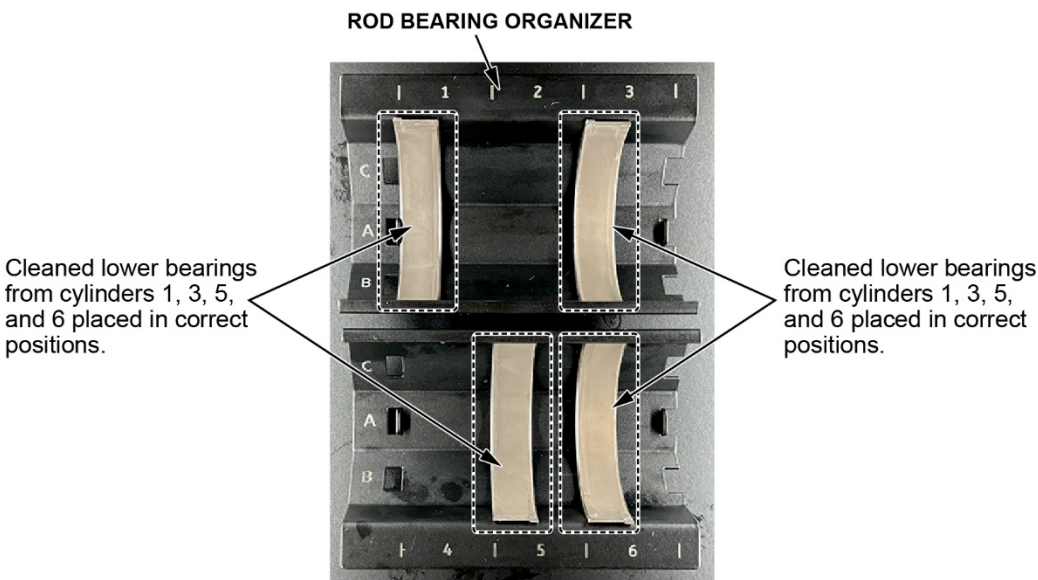
NOTE:

- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**

55. Place the removed lower bearings from **cylinders 1,3,5, and 6** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearings with a clean shop towel prior to placing the bearing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter**.



56. Rotate the crankshaft clockwise to the **#2 position** (TDC +45°).



Rotate the crank clockwise to the #2 position.

57. Remove the **rod bearing cap and lower bearing** from **cylinder 2**.

Step/Crankshaft Position	Cylinder 2 Bearing Cap and Lower Bearings
#2/TDC +45°	Remove

NOTE:

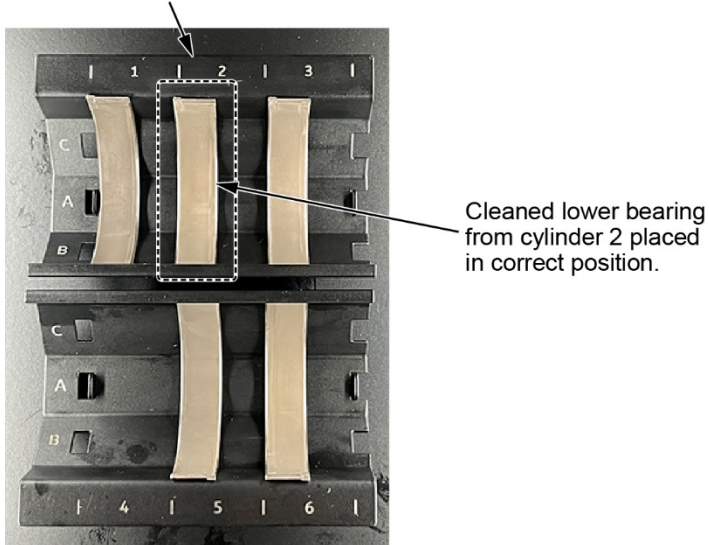
- Follow the removal of the connecting rod bearing steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not** use any solvents.

58. Place the removed lower bearing from **cylinder 2** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter.**

ROD BEARING ORGANIZER



59. Remove the **cylinder 2 upper connecting rod bearing**.

Step/Crankshaft Position	Cylinder 2 Upper Bearing
#2/TDC +45°	Remove

Click here to view video:



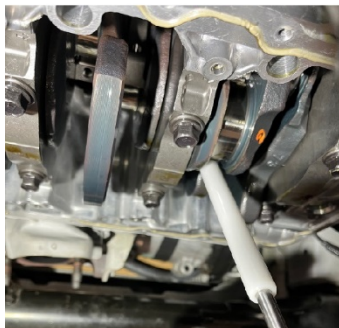
M8 ROD HOLDER
P/N 07AAB-5G0A100



NOTE:

- Follow the removal of the connecting rod bearing steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**

EXAMPLE OF USING THE M8 ROD HOLDER TOOL

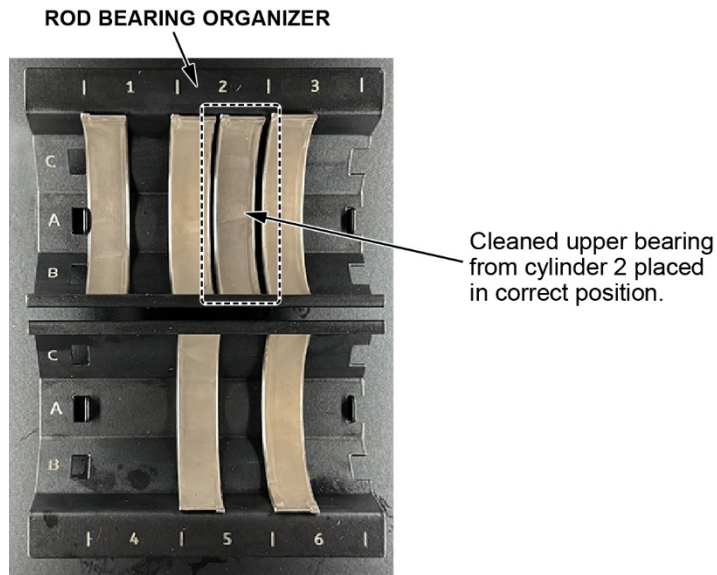


1. Thread the M8 rod holder tool into the connecting rod bolt hole.
2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
5. Using the M8 rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
6. Remove the M8 rod holder tool.
7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use any solvents.**

60. Place the removed **upper bearing** from **cylinder 2** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter.**



61. Rotate the crankshaft counterclockwise to the **#3 position** (TDC -45°).

Rotate the crank counterclockwise to the #3 position.



62. Remove the **rod bearing cap and lower bearing** from **cylinder 4**.

Step/Crankshaft Position	Cylinder 4 Rod Cap and Lower Bearing
#3/TDC -45°	Remove

NOTE:

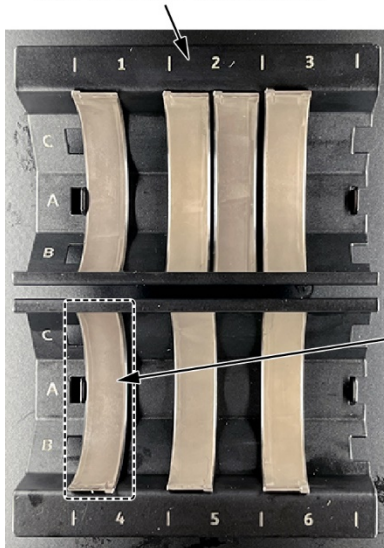
- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
- The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
- Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**

63. Place the removed **lower bearing** from **cylinder 4** into the rod bearing organizer.

NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing** arrangement in the tray **does not matter.**

ROD BEARING ORGANIZER



Cleaned lower bearing
from cylinder 4 placed
in correct position.

64. Remove the **cylinder 3 upper connecting rod bearing**.

Step/Crankshaft Position	Cylinder 3 Upper Bearing	Cylinder 4 Upper Bearing
#3/TDC -45°	Remove	Remove

NOTE:

- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
 - The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
 - Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**
1. Thread the rod holder tool into the connecting rod bolt hole.
 2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
 3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
 4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
 5. Using the M8 rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
 6. Remove the M8 rod holder tool.
 7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use any solvents.**

65. Remove the **cylinder 4 upper connecting rod bearing**.

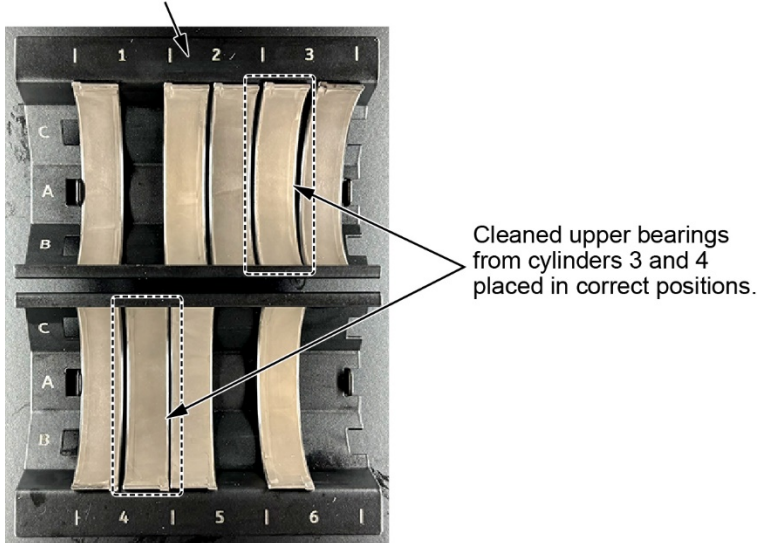
1. Thread the rod holder tool into the connecting rod bolt hole.
2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
5. **Leave the cylinder 4 connecting rod in the lower position, do not push back up.**
6. Remove the M8 rod holder tool.
7. Thoroughly clean the bearing with a clean shop towel to remove all oil residue. **Do not use any solvents.**

66. Place the removed **upper bearings** from **cylinder 3 and 4** into the rod bearing organizer.

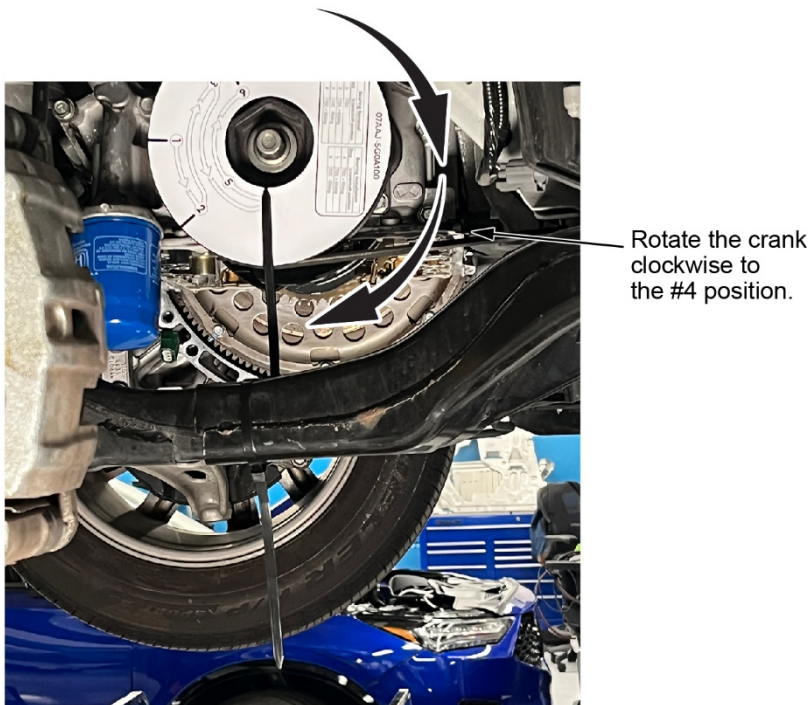
NOTE:

- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter.**

ROD BEARING ORGANIZER



67. Rotate the crankshaft clockwise to the **#4 position** (TDC +90°).



68. Remove the **upper bearing from cylinders 1, 5, and 6.**

Step/Crankshaft Position	Cylinder 1 Upper Bearing	Cylinder 5 Upper Bearing	Cylinder 6 Upper Bearing
#4/TDC +90°	Remove	Remove	Remove

NOTE:

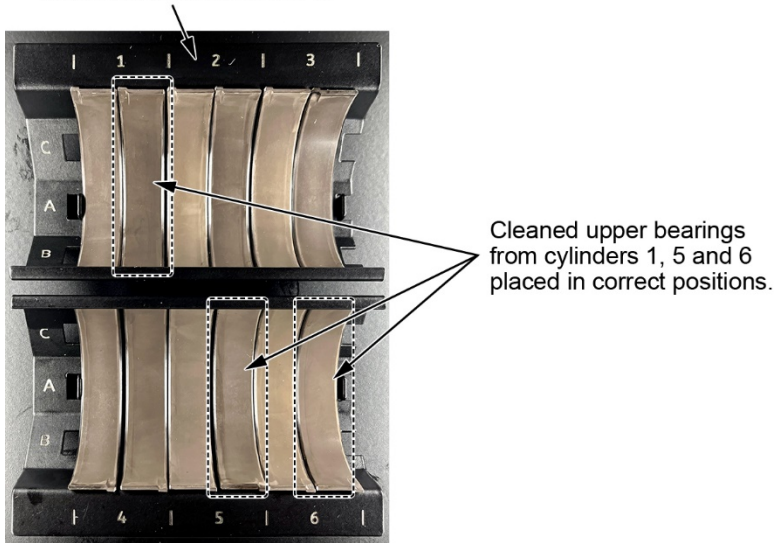
- Follow the removal of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.
 - The next steps involve manually moving the piston/rod assemblies while disconnected from the crankshaft. Moving the piston/rod assembly too far in either direction can damage the piston and/or oil jet.
 - Thoroughly clean the bearing with a clean shop towel after removal. No oil should be present. **Do not use any solvents.**
 - Use the rod holder tool as necessary, hand tighten only.
1. Thread the rod holder tool into the connecting rod bolt hole.
 2. Carefully push the connecting rod up until the connecting rod clears the crankshaft journal.
 3. Swing the connecting rod to the side, then pull down just enough to gain access to the upper bearing.
 4. Remove the upper bearing by sliding it to the side until it releases from the connecting rod.
 5. Using the rod holder tool, carefully push the connecting rod back up until it contacts the piston stopper.
 6. Remove the rod holder tool.
 7. Thoroughly clean the bearings with a clean shop towel to remove all oil residue. **Do not use any solvents.**

69. Place the removed **upper bearings from cylinders 1, 5, and 6** into the rod bearing organizer.

NOTE:

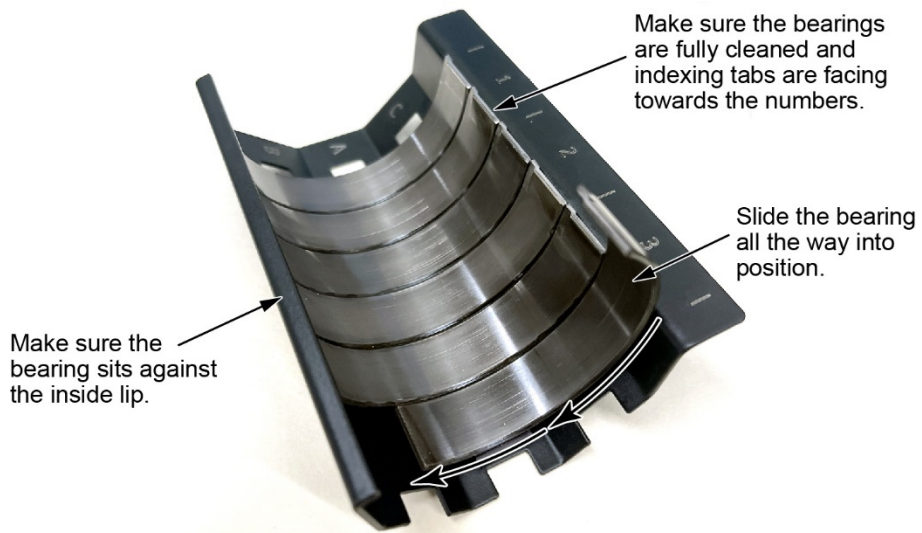
- Thoroughly clean the bearing with a clean shop towel prior to placing in the rod bearing organizer. No oil should be present. **Do not use any solvents.**
- **Place** the removed bearings into the rod bearing organizer at the correct position. For example, the **cylinder 1 bearings** should be in the **#1 slot** in the **tray**. **Upper and lower bearing arrangement** in the tray **does not matter.**

ROD BEARING ORGANIZER

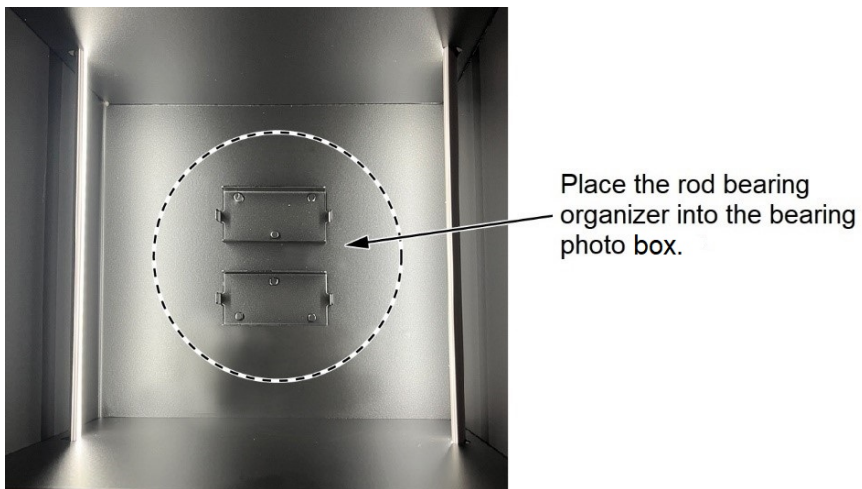


70. Make sure the bearings are fully seated and level with the edge of the rod bearing organizer.

- The bearing's indexing tab should be lined up at the numbers.
- The flat edge of the bearing should be inside the lip.
- All bearings should be fully seated.



71. Remove the photo box cover and place the rod bearing organizers into the bearing photo box.



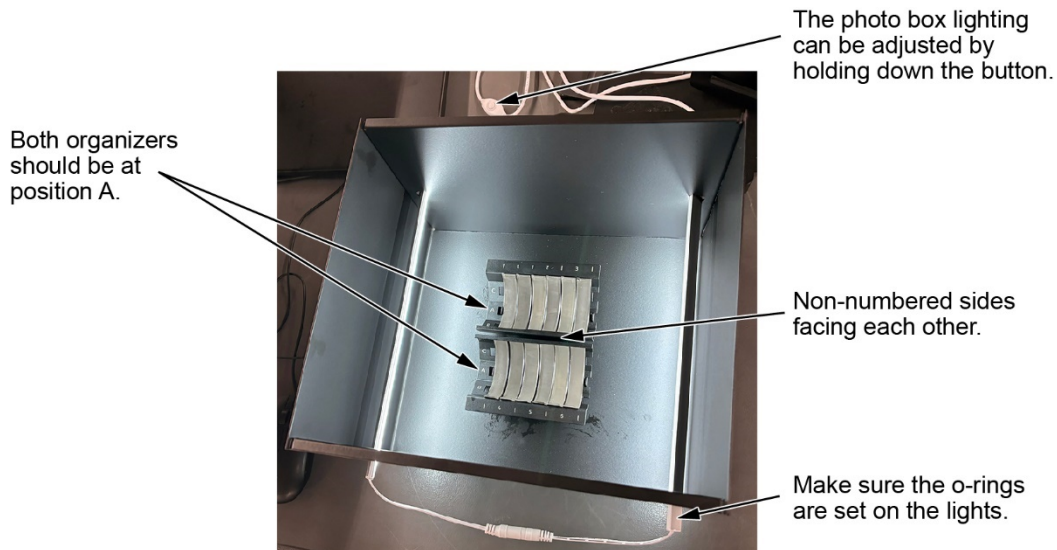
72. Confirm the following is ready on the bearing photo box:

1. Lights at the brightest setting.

NOTE: The lighting can be adjusted with a long hold on the button.

2. Both bearing trays in position A with non-numbered sides facing each other.

3. The O-rings are set on the lights to prevent an outside light source.



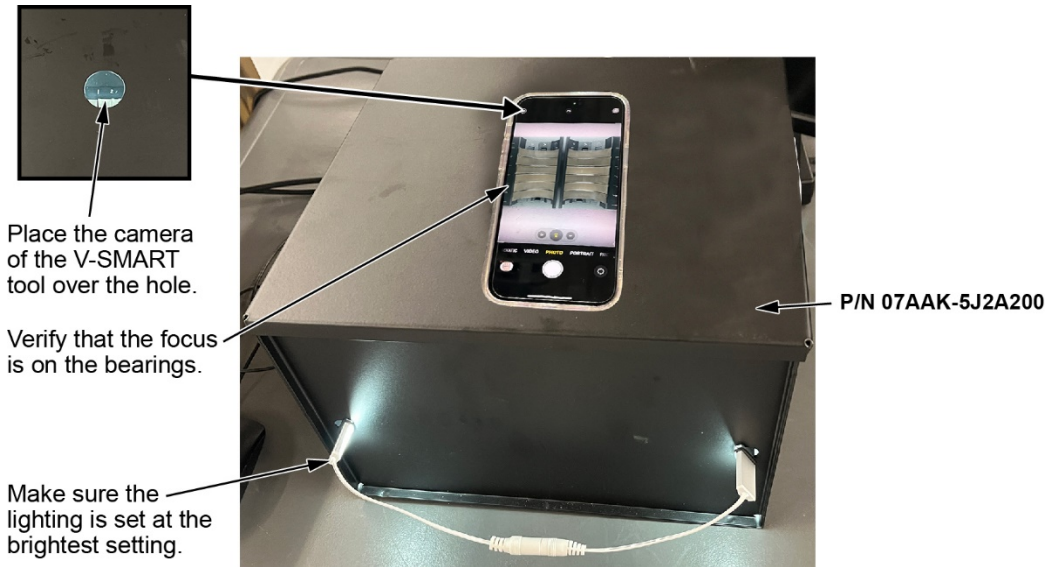
73. Login to the V-SMART application.

NOTE: Scanning the VIN will return to where you left off.

74. Using the V-SMART application, follow the instructions on the application to take bearing photos in positions A, B, and C. Follow the prompts when submitting the photos.

NOTE:

- Use the camera tap focus for a clear image.
- Any unclear images will not be accepted.
- Follow the V-SMART tool prompts after photo submission.



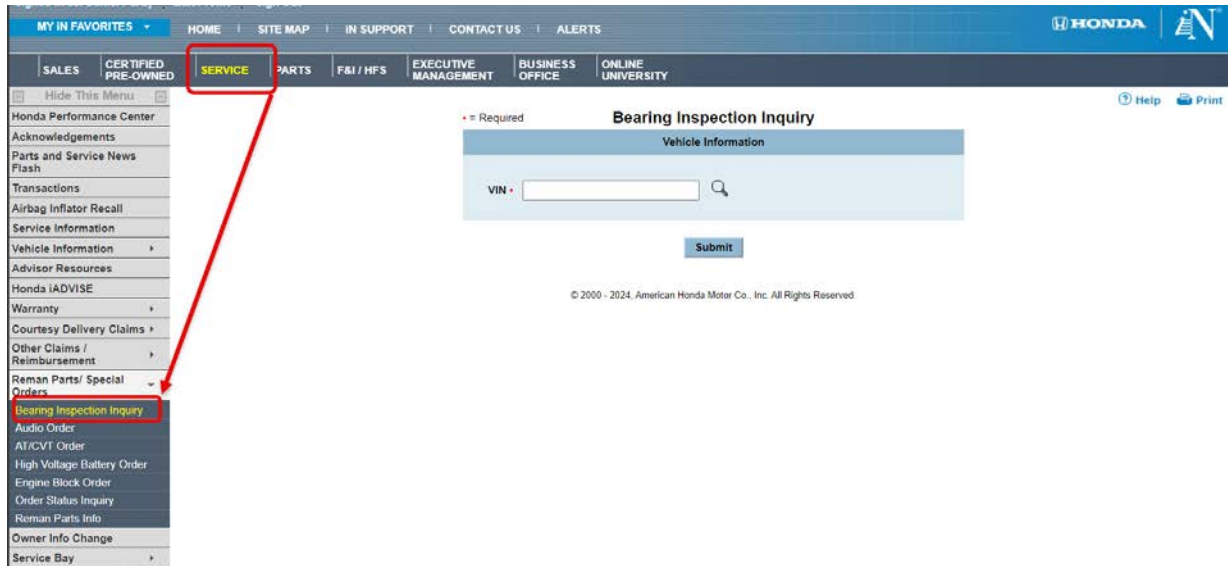
When taking the photos:

Tap here to focus camera.

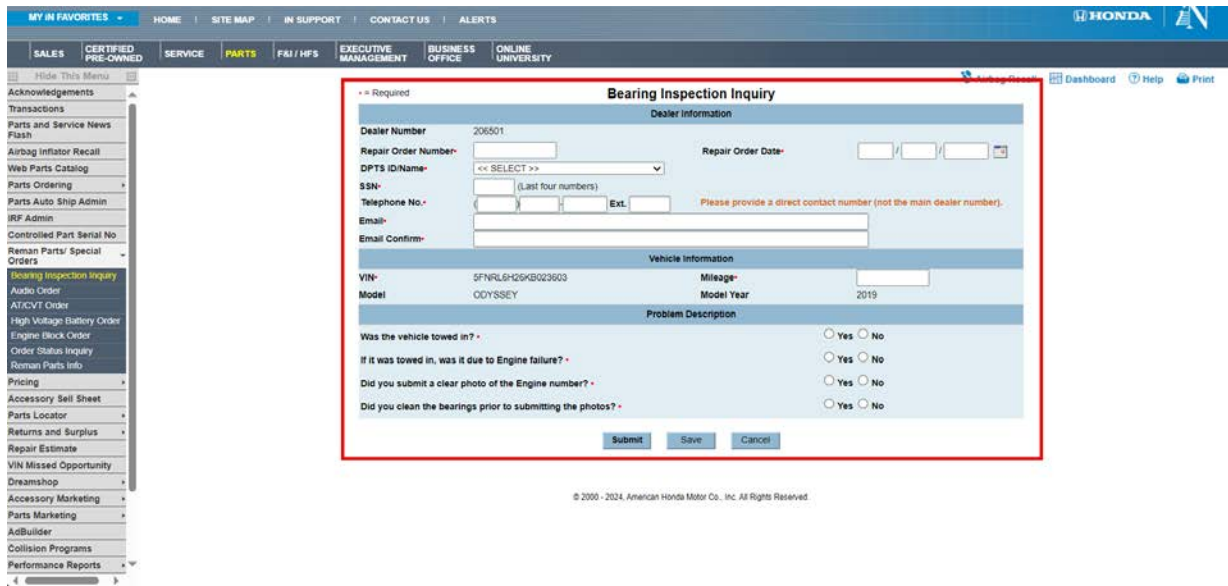


75. Create a Bearing Inspection Inquiry.

1. Log into iN.
2. Select **SERVICE > REMAN PARTS / SPECIAL ORDERS > BEARING INSPECTION INQUIRY.**
3. Select the **BEARING INSPECTION INQUIRY.**
4. Input the correct VIN.



5. Input all vehicle information (including the correct VIN) to create a case.



76. A 7-digit case reference number will be generated.

77. Call the **Bearing Inspection Inquiry Team** at **(800) 824-6632**. Press **9** to be routed to the correct department (**do not contact TECH LINE for this**). Give the answering agent the **7-digit reference number** for repair direction.

NOTE: MAKING THE INCORRECT SELECTION WILL RESULT IN INCREASED WAIT TIMES.

78. The bearing inspection agent will give the **Repair Direction**. You will receive instructions via email on the repair method that includes the unique warranty code and the bearing sizes with their specific locations, if applicable. Parts will be shipped to your dealership. Make sure to advise the parts department with a copy of the RO.

NOTE: Link to CONTENT REFERENCE, ([Click HERE](#)).

REPAIR #1 INSTALL RECOMMENDED BEARINGS

NOTE: DO NOT contact Tech Line for any inquiries to this safety recall. You must call the Bearing Inspection Inquiry Team at (800) 824-6632 (**Select Option #9**) for all inquiries and repair direction.

1. Follow the **Repair Type** instructions on the emailed Bearing Selection Results sheet. Make sure the VIN sheet matches the vehicle.

NOTE:

- Follow the **Repair Type** instructions exactly as recommended.
- Use the **Warranty Verification Code** for the warranty claim.



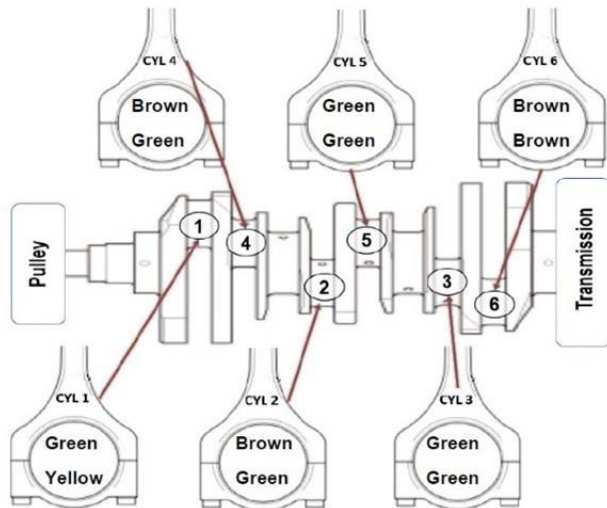
Bearing Inspection Repair Direction

Date: 2024-02-01
Time: 18:32
Page: 1

Car Information:

Case #: 1234567	VIN: [REDACTED]	Exterior Color: SLATE SILVER METALLIC
Dealer #: 1234567	EIN: [REDACTED]	Interior Color: EBONY SLATE SILVER METALLIC
	Model: [REDACTED]	Year: 2015

Warranty Verification Code: [REDACTED]
Failed Part Number: [REDACTED]
Repair Type: Rod Bearings
Bearing Information:

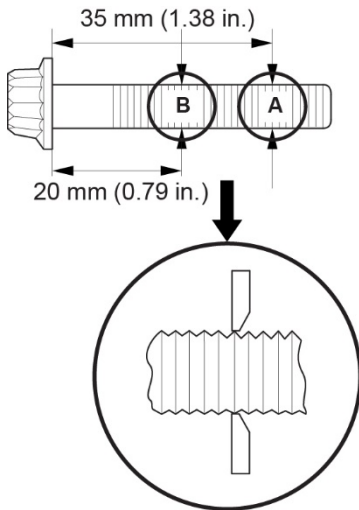


2. Inspect the connecting rod bolts:

- Measure the diameter of each connecting rod bolt at point A and point B.
- Calculate the difference in diameter between point A and point B.

Difference in diameter specification: 0–0.1 mm (0–0.004 in)

- If the difference in diameter is out of tolerance, replace the connecting rod bolt.



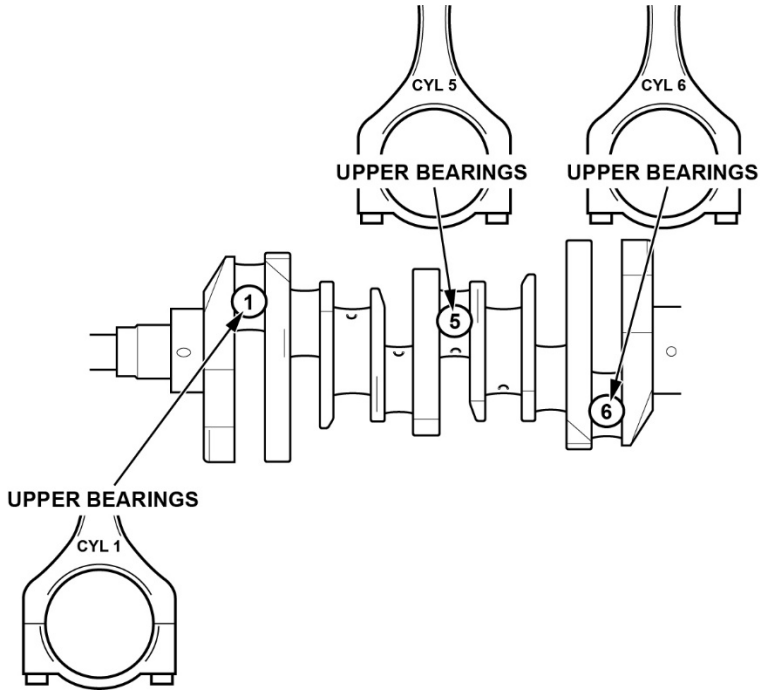
3. Apply a light coating of oil to all connecting rod journals.

4. While the crankshaft is still at crank angle gauge **position #4** (TDC +90°), install the **upper bearing** to the connecting rod for **cylinders 1, 5, and 6**.

NOTE:

- Make sure the bearing indexing tabs are properly oriented during installation.
- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.

Step/Crankshaft Position	Cylinder 1 Upper bearings	Cylinder 5 Upper bearings	Cylinder 6 Upper bearings
#4/TDC +90°	Install	Install	Install

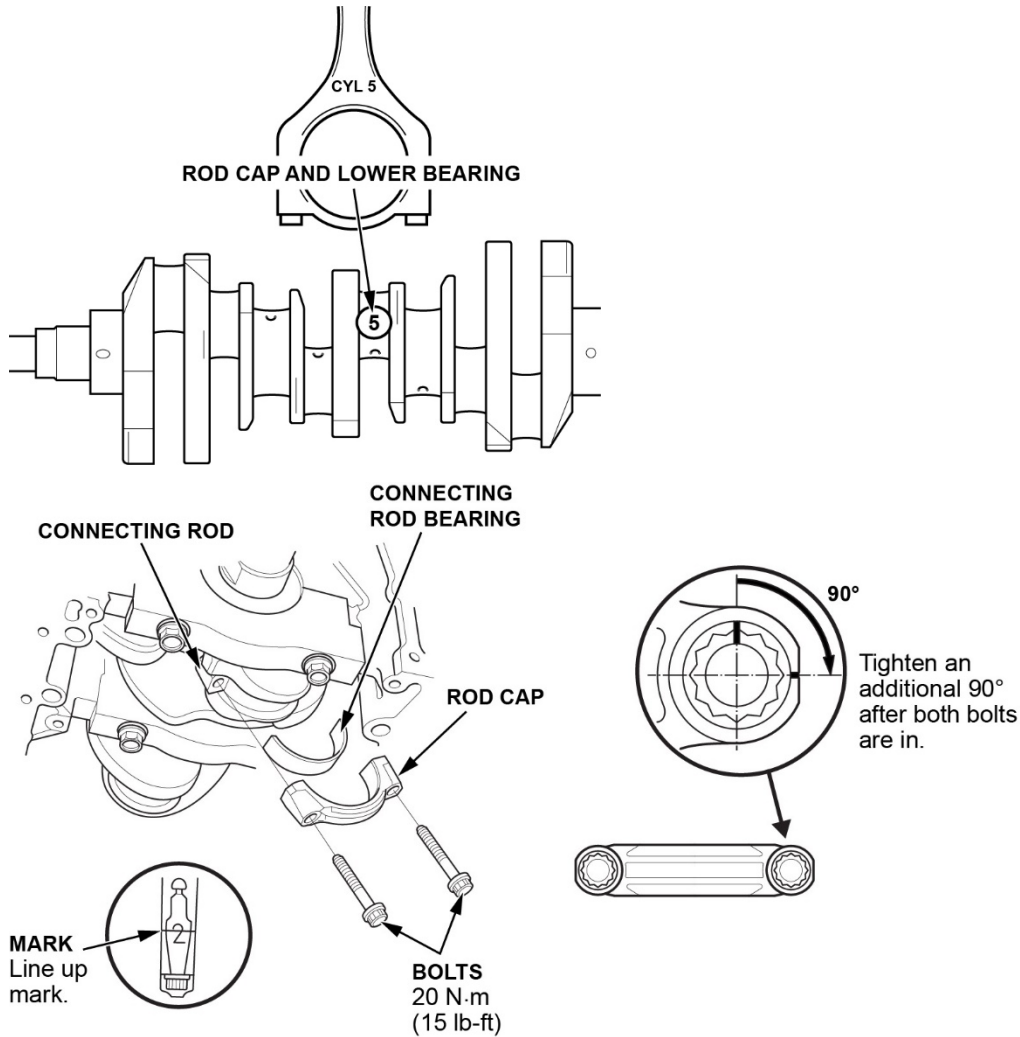


5. Install the connecting rod cap and lower bearing to the connecting rod for cylinder 5.

NOTE:

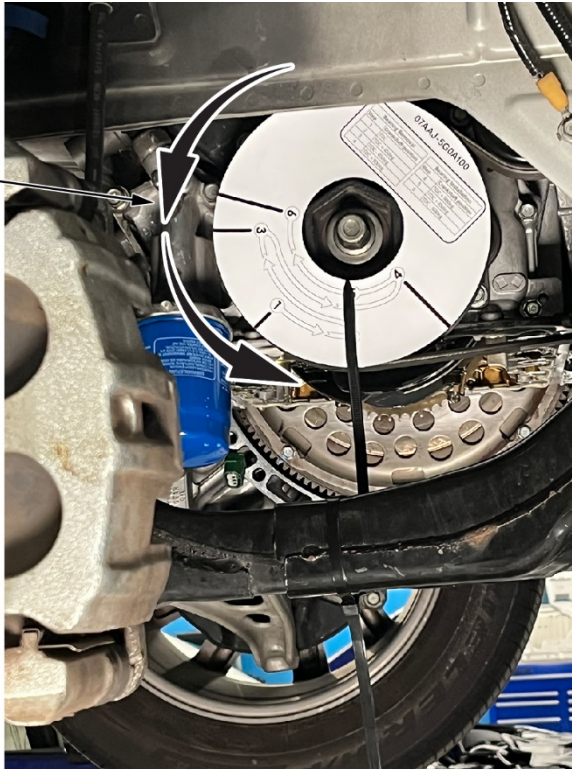
- Make sure the bearing indexing tabs are properly oriented during installation.
- Apply new engine oil to the bolt threads and bolt flanges.
- If you tightened the connecting rod bolt beyond the specified angle, remove and inspect the connecting rod bolt. Do not loosen it back to the specified angle.
- Use a commercially available torque angle meter.
- Use the rod holder tool as needed, hand tighten only.
- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.

Step/Crankshaft Position	Cylinder 5 Rod Cap and Lower Bearing
#4/TDC +90°	Install



- Rotate the crankshaft counterclockwise to crank angle gauge **position #5** (TDC +45°).

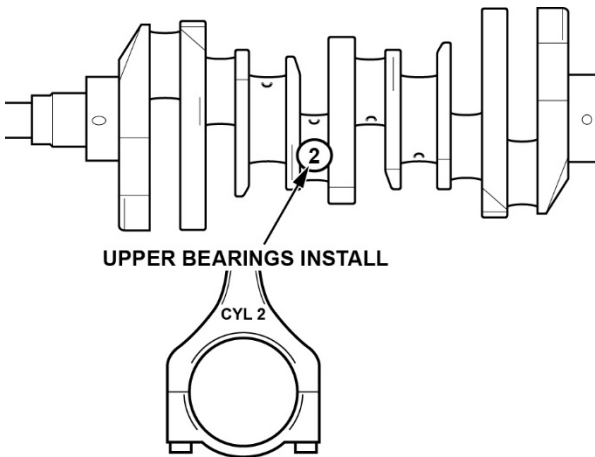
Rotate the crank counter-clockwise to the #5 position.



- Install the **upper bearing** to the connecting rod for **cylinder 2**.

Step/Crankshaft Position	Cylinder 2 Upper Bearings
#5/TDC +45°	Install

- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.

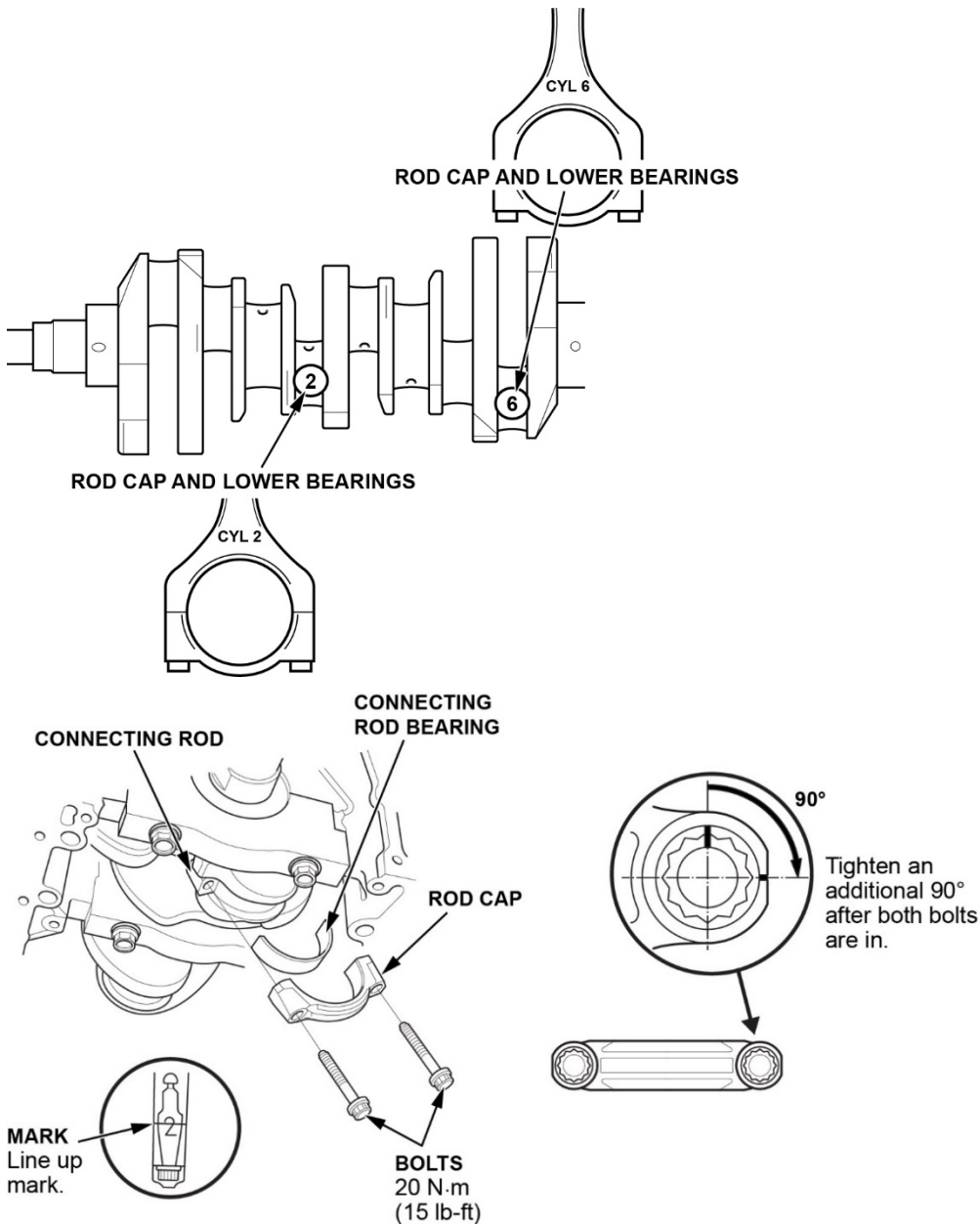


8. Without moving the crank, install the **rod cap and lower bearing** to the connecting rod **for cylinders 2 and 6**.

NOTE:

- Make sure the bearing indexing tabs are properly oriented during installation.
- Apply new engine oil to the bolt threads and bolt flanges.
- If you tightened the connecting rod bolt beyond the specified angle, remove and inspect the connecting rod bolt. Do not loosen it back to the specified angle.
- Use a commercially available torque angle meter.
- Use the rod holder tool as needed, hand tighten only.
- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.

Step/Crankshaft Position	Cylinder 2 Rod Cap and Lower Bearings	Cylinder 6 Rod Cap and Lower Bearings
#5/TDC +45°	Install	Install



9. Rotate the crankshaft counterclockwise to crank angle gauge **position #6** (TDC -60°).

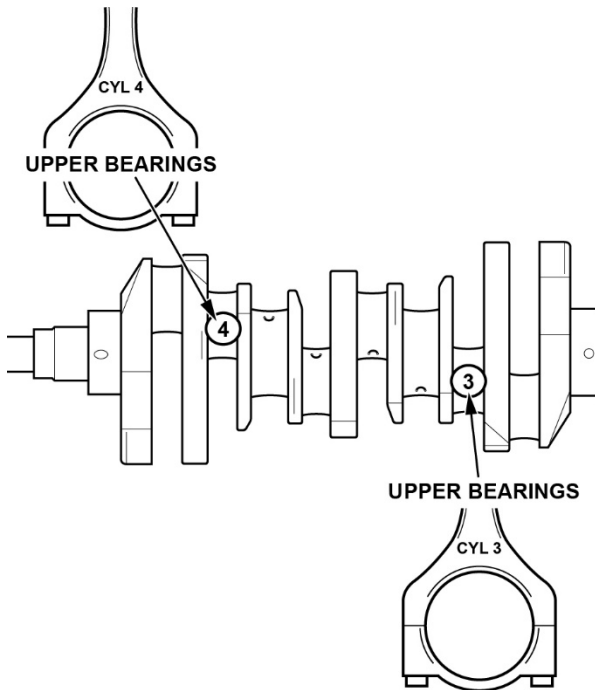
Rotate the crank counterclockwise to the #6 position.



10. Install the **upper bearings** to the connecting rods for **cylinders 3 and 4**.

Step/Crankshaft Position	Cylinder 3 Upper Bearings	Cylinder 4 Upper Bearings
#6/TDC -60°	Install	Install

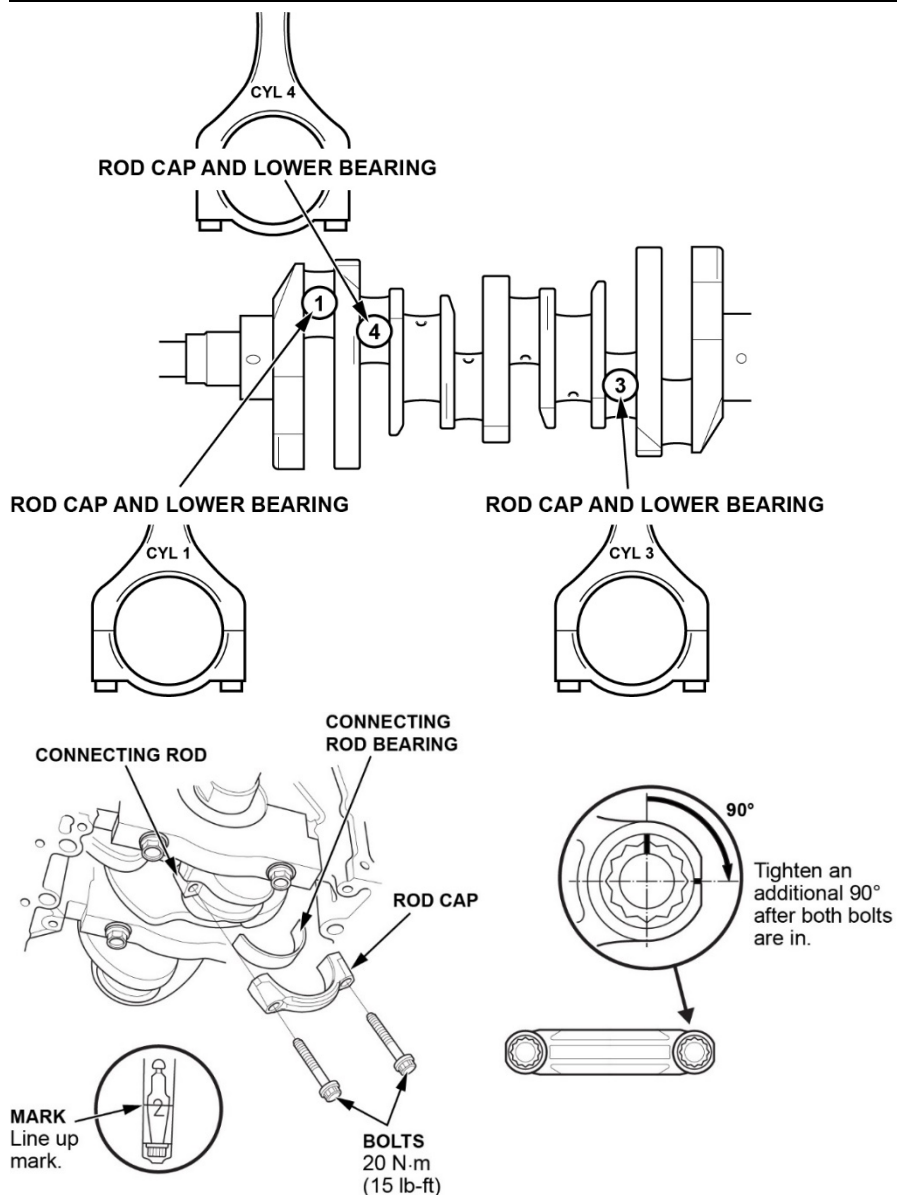
- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.



11. Without rotating the crank, install the **rod caps and upper and lower bearings** to the connecting rod **for cylinder 1**. Then, **install the rod cap and lower bearing** to the connecting rod **for cylinders 3, and 4**.

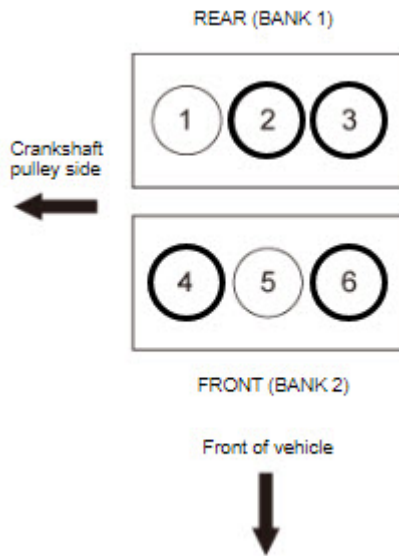
- Make sure the bearing indexing tabs are properly oriented during installation.
- Apply new engine oil to the bolt threads and bolt flanges.
- If you tightened the connecting rod bolt beyond the specified angle, remove and inspect the connecting rod bolt. Do not loosen it back to the specified angle.
- Use a commercially available torque angle meter.
- Use the rod holder tool as needed, hand tighten only.
- Follow the install of the connecting rod steps precisely to prevent damage to the crank journal and connecting rods.

Step/Crankshaft Position	Cylinder 1 Rod Cap and Upper and Lower Bearings	Cylinder 3 Rod Cap and Lower Bearings	Cylinder 4 Rod Cap and Lower Bearings
#6/TDC -60°	Install	Install	Install



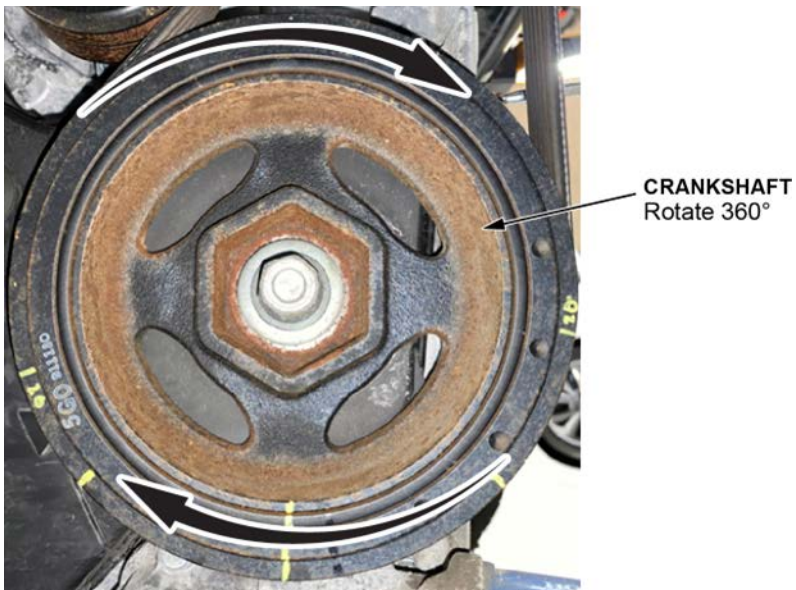
12. Remove the crank angle gauge and zip tie.

13. Lower the vehicle and remove the piston stoppers.

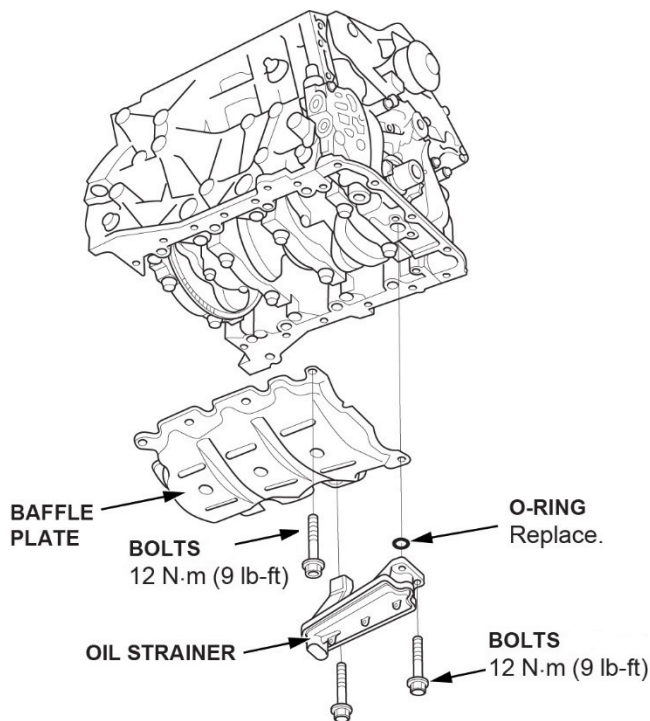


14. Raise the vehicle.

15. Rotate the crankshaft **360 degrees** to check for binding of rod bearings.



16. Install the baffle plate and oil strainer.

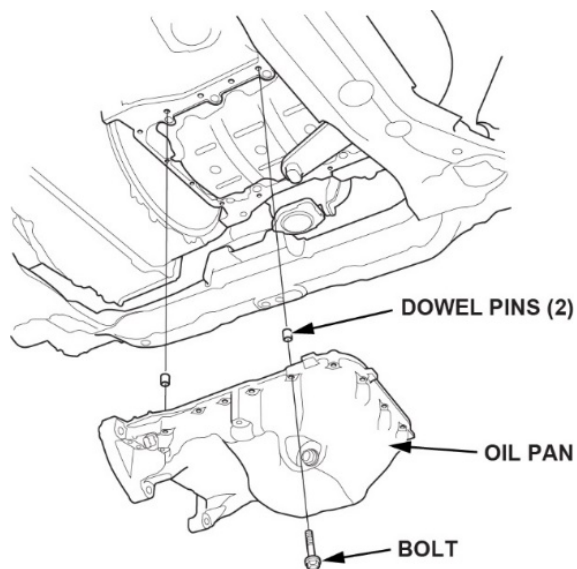


17. Install the engine oil pan.

1. Remove all of the old liquid gasket from the oil pan mating surfaces, the bolts, and the bolt holes.
2. Clean and dry the oil pan mating surfaces.
3. Apply liquid gasket to the oil pan mating surface of the engine block and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE: If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.

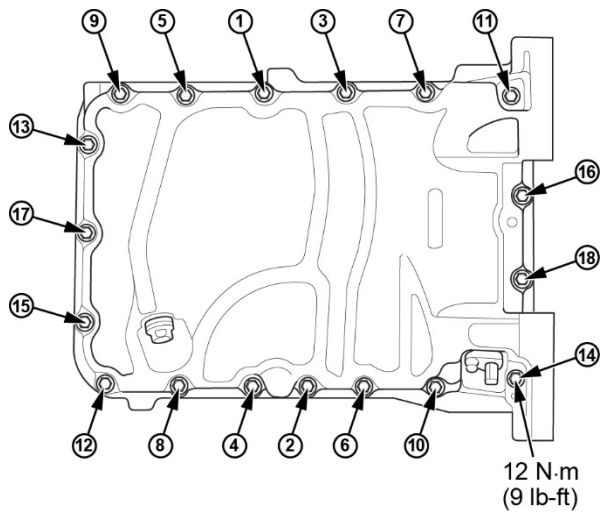
4. Install the dowel pins.
5. Install the oil pan.



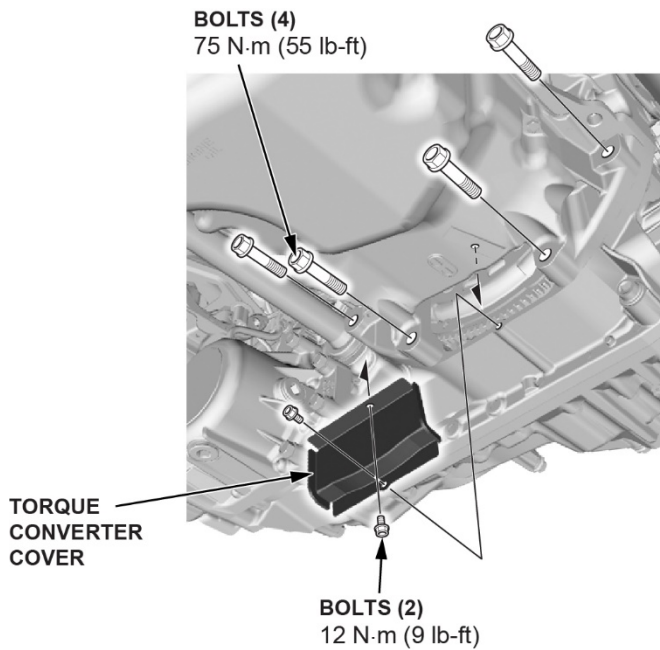
18. Tighten the bolts in **three steps**; tighten the bolts until the bolts sit on the oil pan, tighten the bolts until the gasket is compressed, torque the bolts to **12 N·m (9 lb-ft)**. Follow the sequence shown.

NOTE:

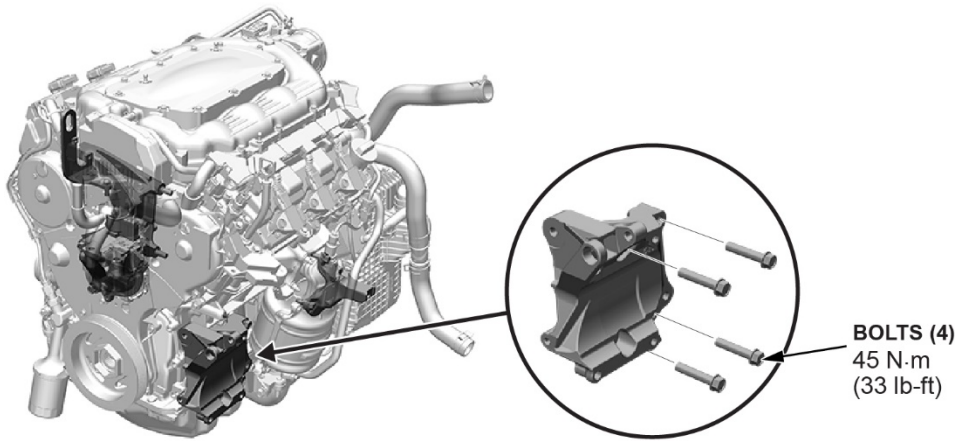
- Wait at least **30 minutes** before filling the engine with oil.
- Do not run the engine for at least **3 hours** after installing the oil pan.



19. Install the lower transmission assembly mounting bolts and torque to **75 N·m (55 lb-ft)**, then install the torque converter cover and torque to **12 N·m (9 lb-ft)**.

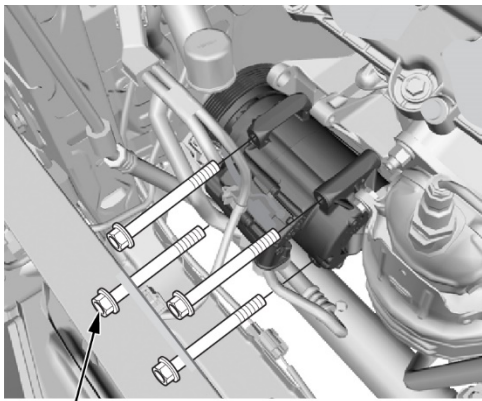


20. **INSPECTION B ONLY:** Install the A/C compressor bracket.

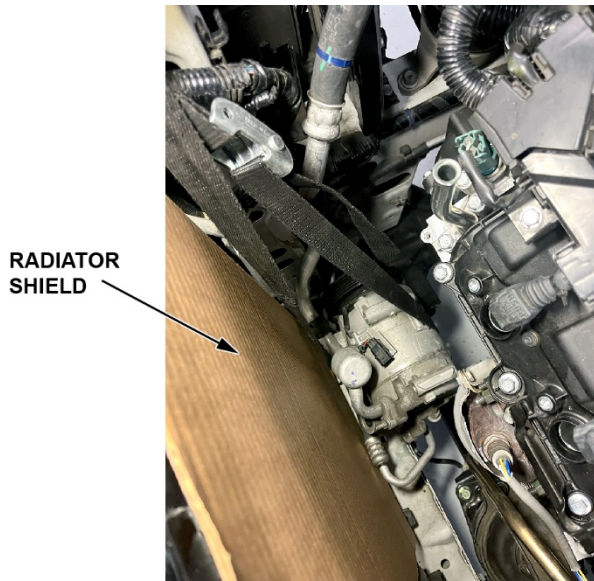


21. Lower the vehicle

22. **INSPECTION B ONLY:** Install the A/C compressor with the upper mounting bolts.

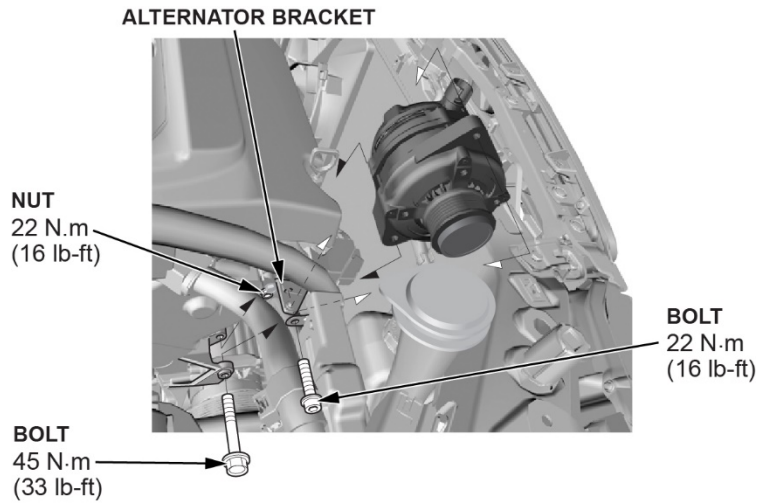


23. **INSPECTION B ONLY:** Remove the radiator shield.

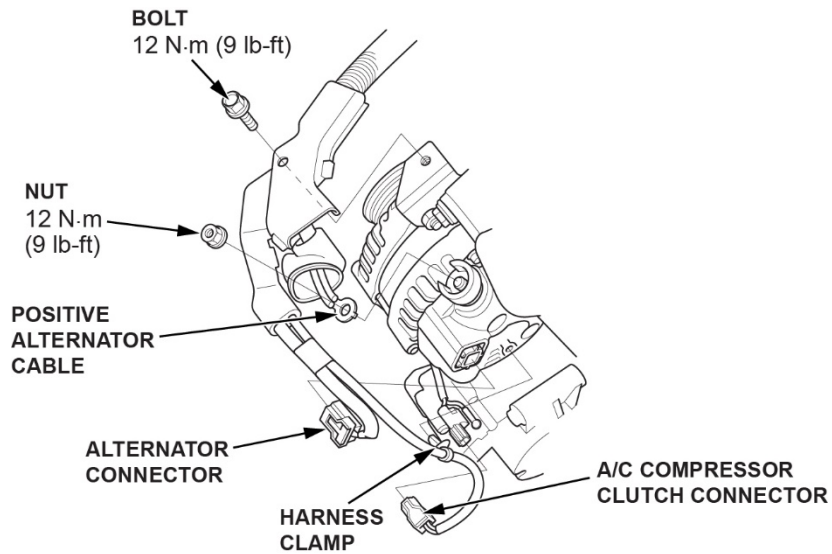


24. **INSPECTION B ONLY:** Install the alternator.

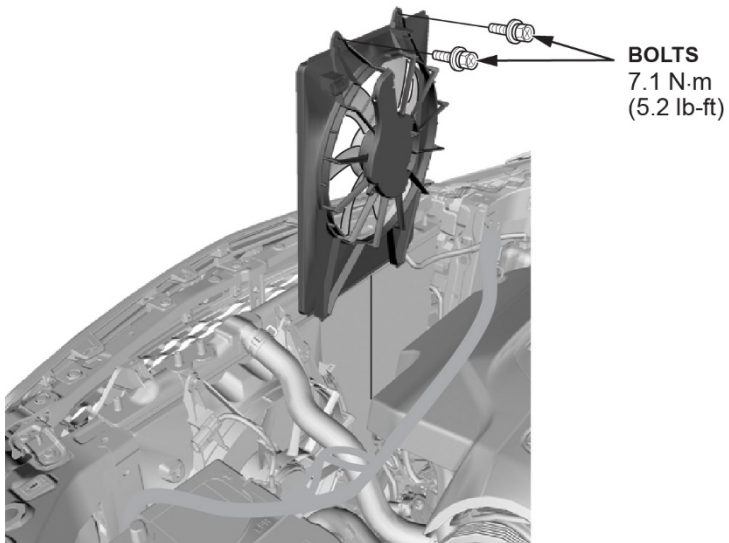
1. Install the alternator to the alternator bracket.



25. **INSPECTION B ONLY:** Connect the A/C compressor clutch connector, the alternator connector, and the positive alternator cable. Then install the harness clamp and bolt.

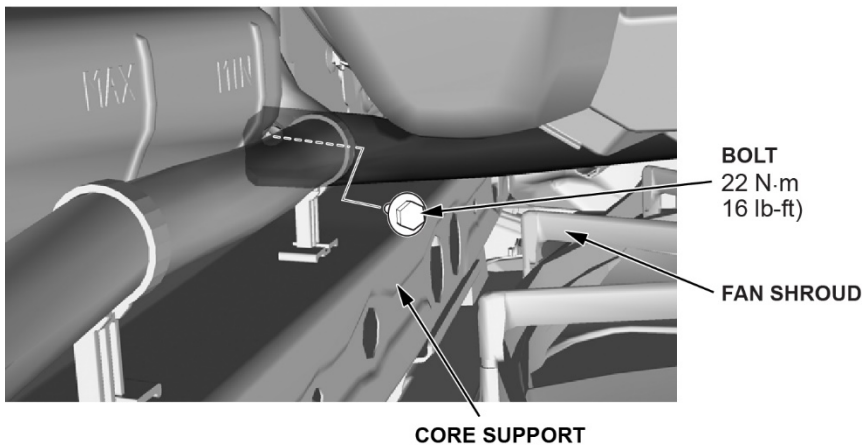


26. **INSPECTION B ONLY:** Install the condenser fan and reconnect the wiring.



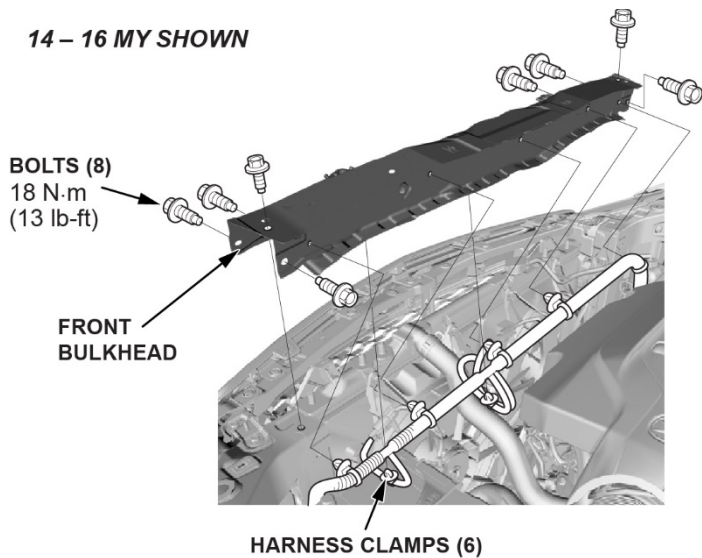
27. **INSPECTION B ONLY:** Install the passenger's side bulkhead brace and upper bolt.

LOOKING DOWN FROM UNDER HOOD



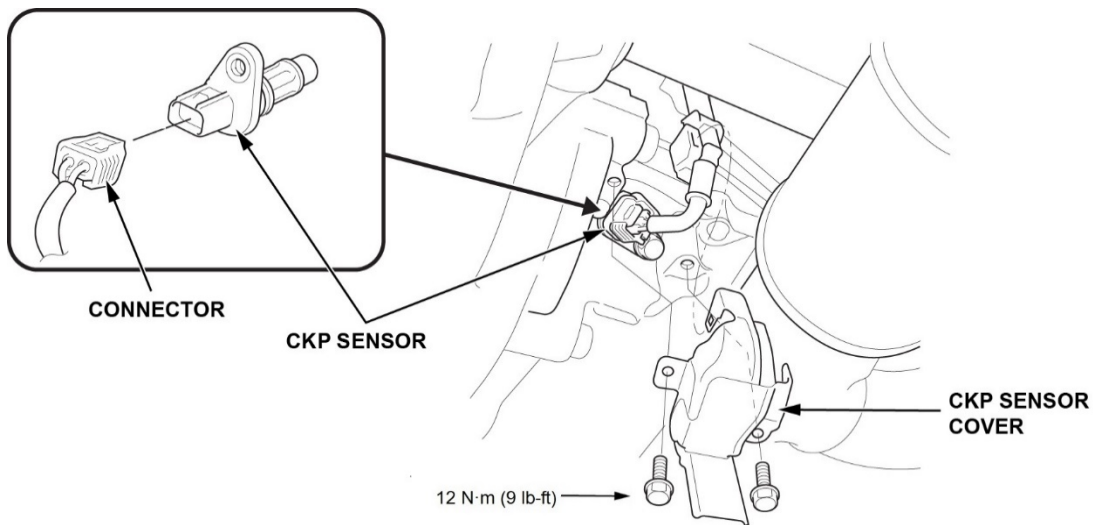
28. **INSPECTION B ONLY:** Install the bulkhead.

14 – 16 MY SHOWN

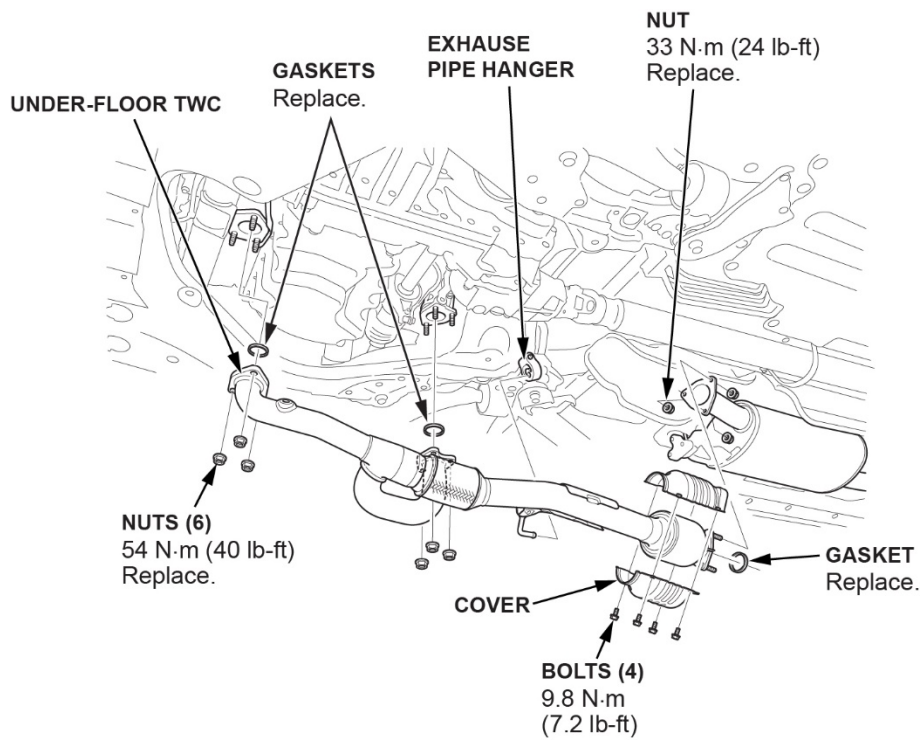


29. Raise the vehicle.

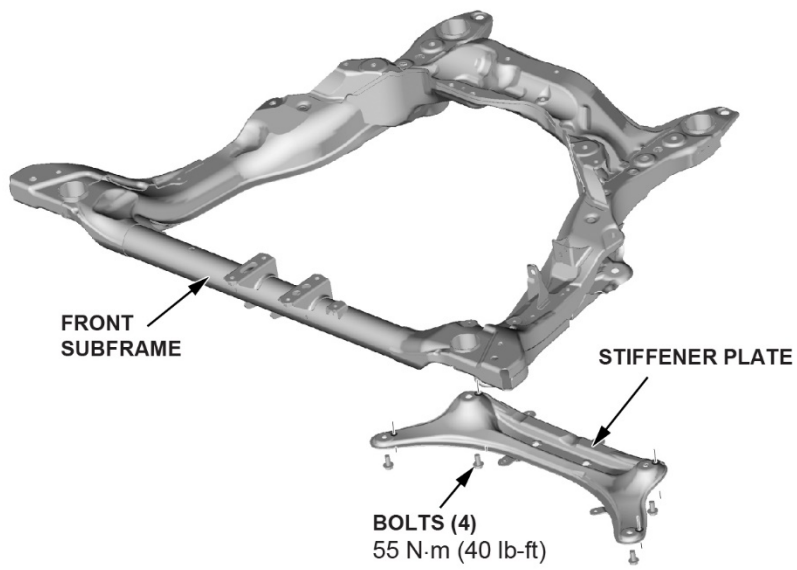
30. Reconnect the CKP sensor, then install the CKP sensor cover, **12 N·m (9 lb-ft)**.



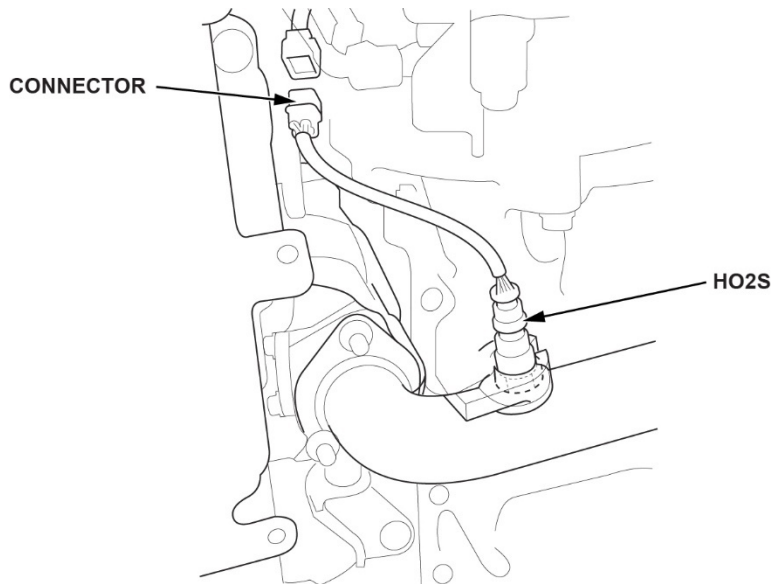
31. Install the under-floor TWC (A-pipe).



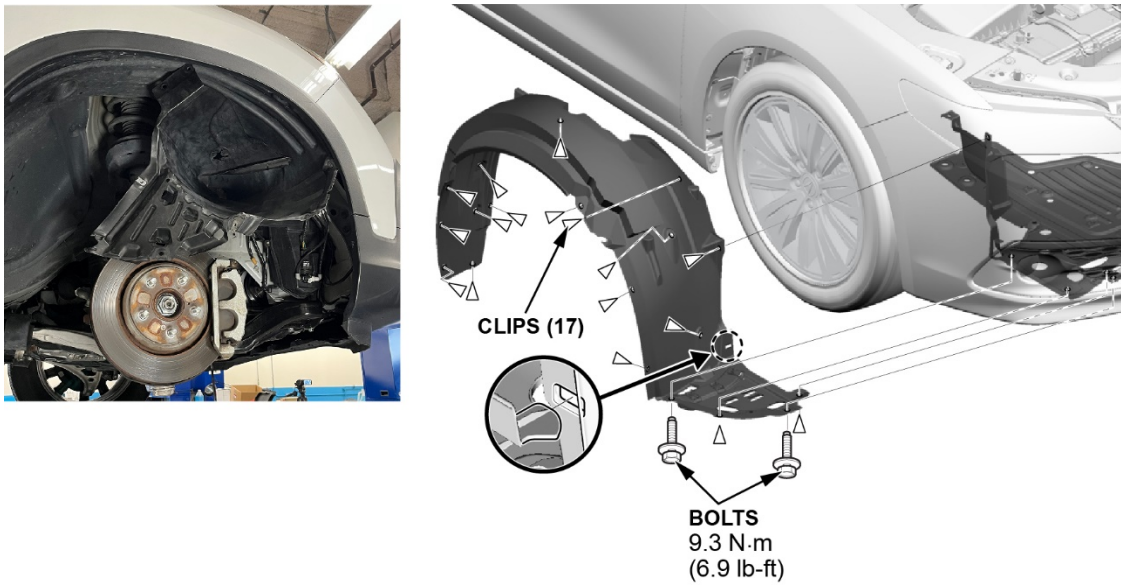
32. Install the subframe stiffener plate.



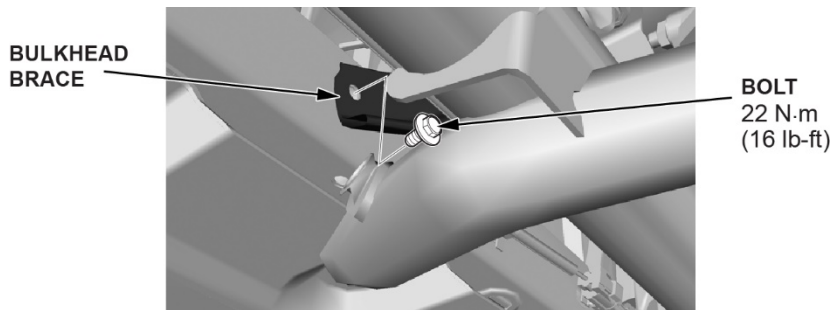
33. Reconnect the bank 2 oxygen sensor.



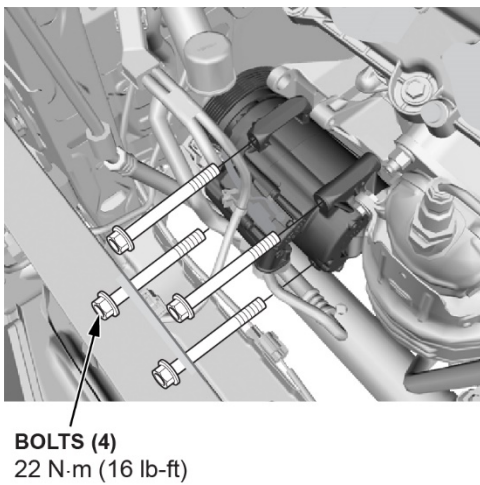
34. Install the passenger side fender liner.



35. **INSPECTION B ONLY:** Install the bulkhead brace lower bolt.



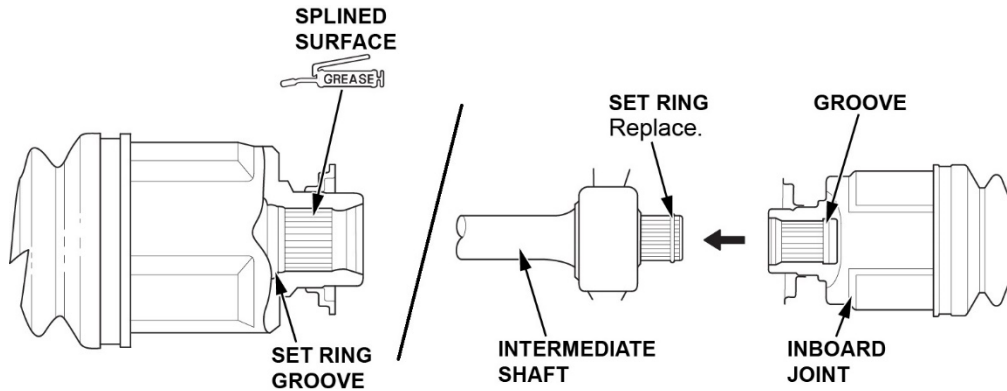
36. **INSPECTION B ONLY:** Install the lower A/C Compressor bolts and torque to **22 N-m (16lb-ft)**.



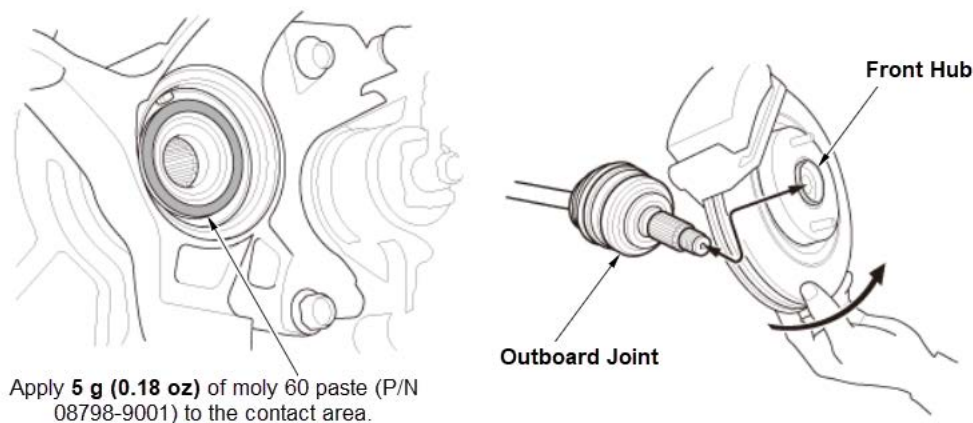
37. **INSPECTION B ONLY:** Install the passenger's side driveshaft.

1. Apply **2.0-3.0 g** of molybdenum grease to the whole splines surface of the right driveshaft.
2. After applying grease, remove the grease from the splined grooves at intervals of **2-3 splines** and from the set ring groove so that air can bleed from the intermediate shaft.
3. Install a new set ring.
4. Insert the inboard joint end of the driveshaft onto the intermediate shaft until the set ring locks in the groove.

NOTE: Insert the driveshaft horizontally to avoid damaging the oil seal.

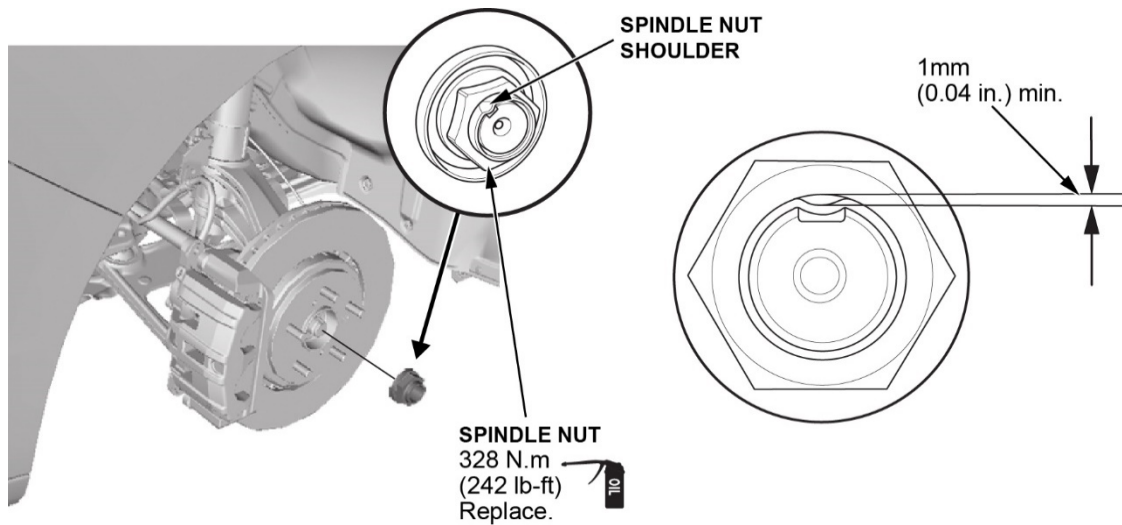


5. Apply about 3.0 g of molybdenum grease to the contact area of the outboard joint and the front wheel bearing.
6. Install the outboard joint into the front hub on the knuckle.

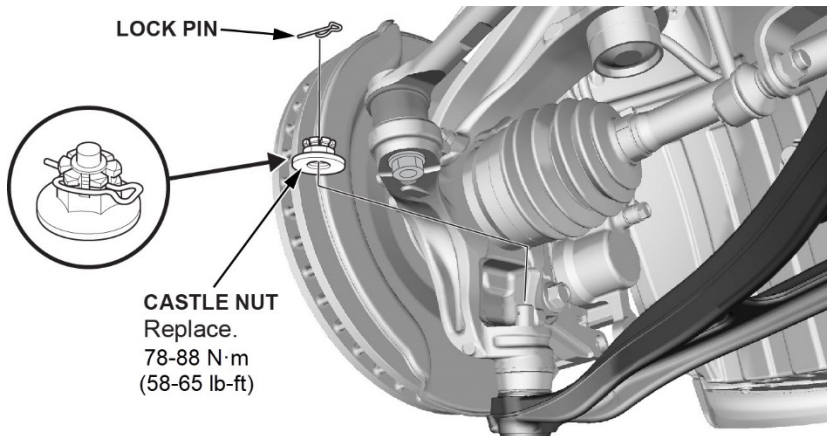


7. Install the new spindle nut.

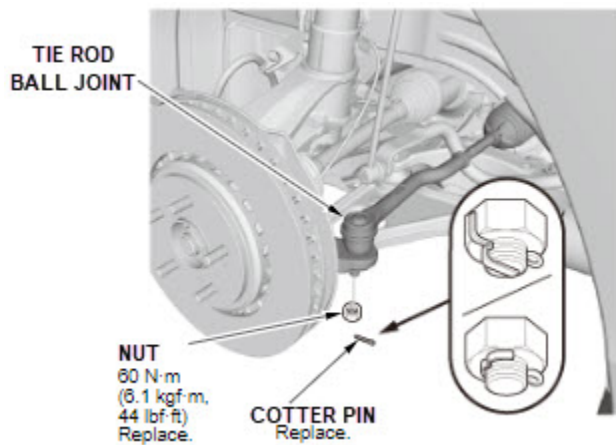
- Apply a small amount of engine oil to the seating surface of the new spindle nut.
- Use a drift to stake the spindle nut shoulder against the driveshaft.
- Be careful not to make a crack on the spindle nut when staking.



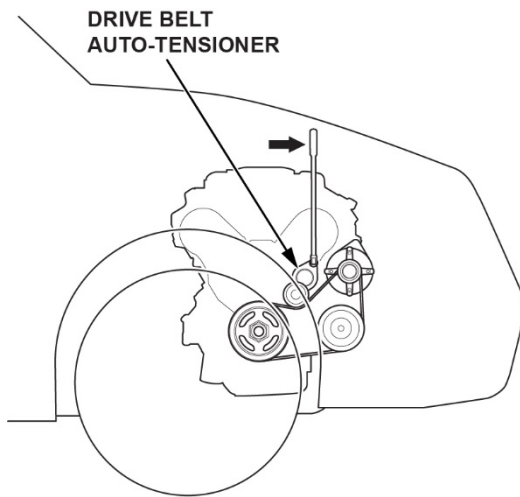
38. Connect the passenger's side lower knuckle ball joint.



39. Connect the passenger's side tie rod ball joint.

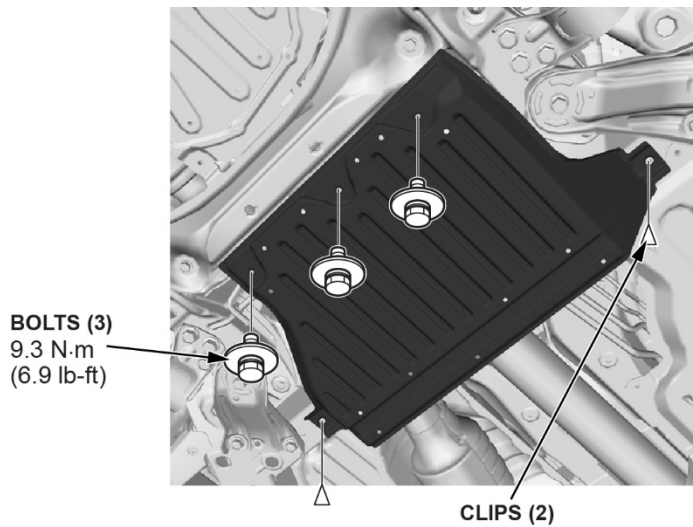


40. **INSPECTION B ONLY:** Install the drive belt.



41. Install the passenger's side front wheel. Torque wheel nuts to **127 N·m (94 lb-ft)** after installation.

42. Install the engine undercover.

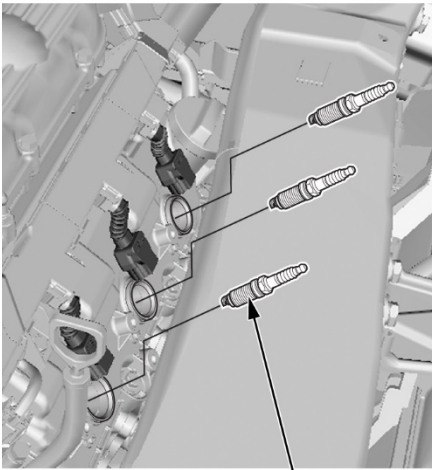


43. Install the splash shield.

44. Lower the vehicle.

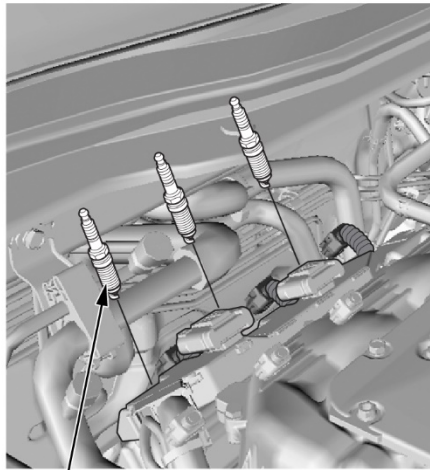
45. Install the spark plugs.

FRONT



SPARK PLUGS
22 N·m (16 lb-ft)

REAR

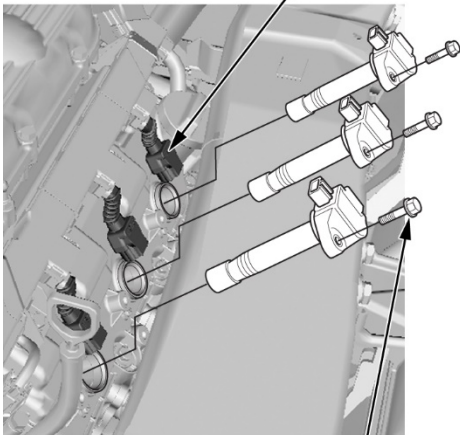


SPARK PLUGS
22 N·m (16 lb-ft)

46. Install and connect the coil packs.

FRONT

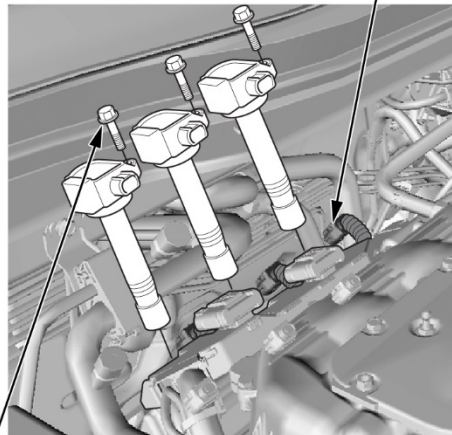
CONNECTOR



BOLTS
12 N·m
(9 lb-ft)

REAR

CONNECTOR



BOLTS
12 N·m
(9 lb-ft)

47. Install the oil dipstick.

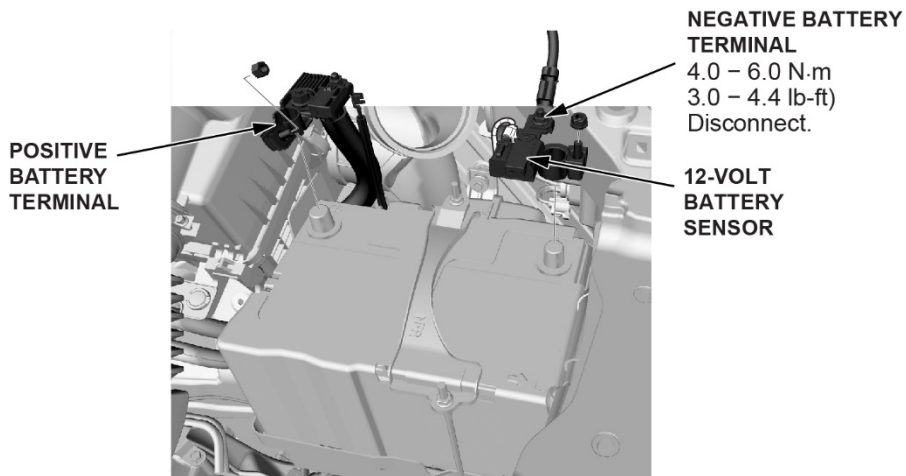
48. Refill the engine with recommended engine oil.

1. Install the new drain bolt washer and drain bolt and torque to 40 N·m (30 lb-ft)..
2. Refill with engine oil.

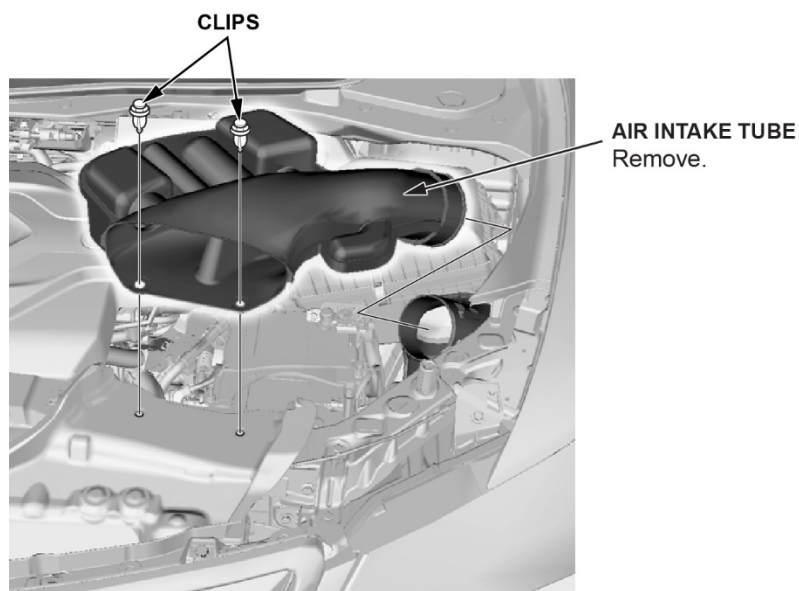
Capacity

At Oil Change – 5.1L (5.4 US qt)

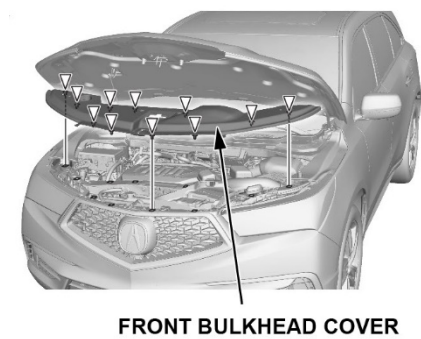
49. Connect the 12-volt battery.



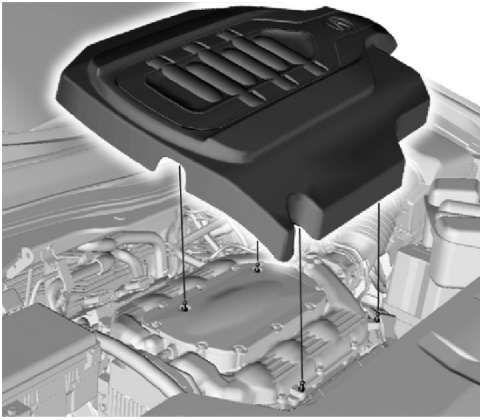
50. Install the air intake tube.



51. Install the front bulkhead cover.



52. Install the engine cover.



53. Make sure the vehicle has sat for at least **3 hours** from the time the oil pan was reinstalled.

Note: This is to make sure the sealant on the oil pan has completely cured.

54. Connect to the i-HDS.

55. Do a PCM reset.

1. Select the PGM-FI system with the i-HDS.
2. Reset the PCM with the i-HDS while the engine is stopped.
3. Turn the vehicle to the OFF (LOCK) mode.
4. Turn the vehicle to the ON mode and wait **30 seconds**.
5. Turn the vehicle to the OFF (LOCK) mode and disconnect the i-HDS from the DLC.

56. Do the CKP Pattern clear and learn.

1. Turn the vehicle to ON mode, but do not start the engine.
2. Connect the i-HDS to the DLC located under the driver's side of the dashboard.
3. Select CRANK PATTERN in the ADJUSTMENT MENU with the i-HDS.
4. Select CRANK PATTERN CLEAR with the i-HDS, and clear the CKP pattern.
5. Select CRANK PATTERN LEARNING with the i-HDS, and follow the screen prompts.
6. Turn the vehicle to the OFF (LOCK) mode.
7. Jump the SCS line with the i-HDS.
8. Wait **60 seconds** and exit the SCS mode with the i-HDS.

57. Do the Idle Speed Inspection.

NOTE: If the idle speed is not within specification, do the *PCM Idle Learn Procedure* in the service manual.

1. Start the engine and place the vehicle in PARK or NEUTRAL.
2. Hold the engine speed **without load** at **3,000 rpm** until the radiator fan comes on, then let it idle.
3. Check the idle speed under no load conditions: headlights, blower fan, radiator fan, audio system, and A/C off.

Idle Speed at No Load Should Be:

Engine: 680 ± 50 rpm in PARK or NEUTRAL

4. Let the engine idle for 1 minute with a high electrical load (A/C on, temperature set to max cool, blower fan on high, headlights on high beam).

Idle speed at High Load Should Be:

Engine: 680 ± 50 rpm in PARK or NEUTRAL

58. Do the VSA Sensor Neutral Position Memorization procedure.

NOTE: Do not press the brake pedal during this procedure.

1. Park the vehicle on a flat and level surface.
2. Make sure the steering wheel is straight ahead.
3. Select **VSA ADJUSTMENT** in the i-HDS.
4. Select **ALL SENSORS**, and follow the screen prompts.

59. Do the Steering Angle Sensor Neutral Position.

1. Select **EPS ADJUSTMENT** on the i-HDS.
2. Select **EPS STEERING ANGLE SENSOR VALUE CLEAR**, and follow the screen prompts.

60. Exit the i-HDS, **REPAIR #1** is complete.

NOTE: Link to CONTENT REFERENCE, ([Click HERE](#)).