

# TOYOTA

## PRODUCT SUPPORT DIVISION

**SB-10056822-8324**  
INTEROFFICE MEMORANDUM

Volume: XIX  
Number: TC14-036  
Date: 8/07/2014  
 Action  
 Retain  
 Information

To: All Toyota Region General Managers/Vice Presidents

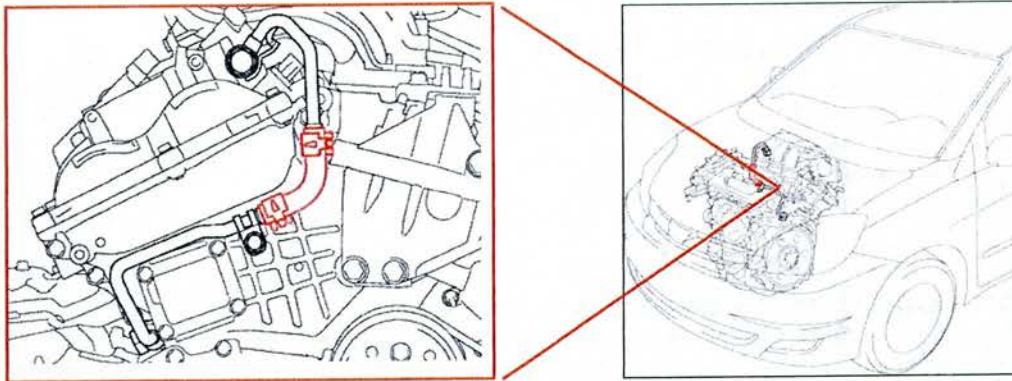
From: Bob Waltz,  
Group Vice President, Product Quality and Service Support

Subject: **Extension of** Limited Service Campaign (LSC) 90K  
Certain 2005-2009 Model Year Avalon  
Certain 2007-2010 Model Year Camry  
Certain 2008 Model Year Highlander  
Certain 2006-2009 Model Year Rav4  
Certain 2007-2010 Model Year Sienna Vehicles  
2GR-FE (V6) Engine VVTi Oil Hose Replacement

In our continuing efforts to ensure the best in customer satisfaction, Toyota is extending Limited Service Campaign (LSC) 90K on certain 2005-2009 MY Avalon, certain 2007-2010 MY Camry, certain 2008 MY Highlander, certain 2006-2009 MY Rav4, and certain 2007-2010 MY Sienna Vehicles. There are approximately 117,500 vehicles that were not completed prior to the expiration of the original LSC that will be covered by this LSC extension.

### **Background**

On certain vehicles equipped with a 2GR-FE (V6) engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



The following vital information is provided to inform you and your staff of the owner notification timing and your degree of involvement.

### **Limited Service Campaign (LSC) Remedy**

Authorized Toyota dealerships are requested to replace the VVTi Oil Hose at **NO CHARGE** to the vehicle's owner.

This LSC extension will be available **until December 31, 2021**, and will only be available at an authorized Toyota Dealer.

### **1. Dealer Letter Mailing Date**

The attached Dealer Letter will be sent to all Toyota dealers in Early August, 2014.

**2. Owner Notification Mailing Date**

The owner notification will commence in mid-September, 2014.

Please note that only owners of the covered vehicles will be notified. If a dealer is contacted by an owner who has not yet received a notification, please instruct them to **verify eligibility by confirming through TIS prior to performing repairs**. Dealers should perform the repair as outlined in the Technical Instructions found on TIS.

**3. Used Vehicles in Dealership Inventory (In-Stock Vehicles)**

To ensure customer satisfaction, Toyota requests that dealers conduct this LSC remedy on any used vehicles currently in dealer inventory that are covered by this LSC prior to customer delivery.

**4. Number and Identification of Covered Vehicles**

There are approximately 117,500 vehicles covered under this LSC extension.

**5. Parts Ordering Process (Dealer Ordering Solutions)**

Orders can be placed through the dealership's facing PDC. The VVTi Oil Hoses have been placed on Dealer Ordering Solutions and will be systematically released daily based on dealer ordering criteria. Each dealer has received specific dealer ordering criteria in an email from their facing PDC Manager based on Repair Order Volume \* PDC Affected UIO. Therefore, it is vital that each dealership work with both Parts and Service to immediately file claims and coordinate appropriate kit orders.

Additional Part Ordering information can be found in the dealer communication.

**6. Region/District Summary Reports**

We have enclosed the following LSC 90K Extension Summary Reports in the Region/Private Distributor (PD) Service Manager/Customer Service Operations Manager/Director of Service package:

- Region/PD Summary Report that provides an overview of the entire Region/PD for this LSC.
- A District Summary Report that indicates the number of covered vehicles per dealership in each district for this LSC.

The attached Dealer Notification Letter contains additional details.

Please review this notification with your staff to assure that all relevant personnel have been briefed regarding this subject.

Thank you for your cooperation.

Enclosures

cc: Region/Private Distributor Assistant General Managers  
 Region/Private Distributor Customer Service Operations Managers  
 Region/Private Distributor Service Managers/Directors/VPs  
 Region/Private Distributor Parts Managers/Directors/VPs  
 Region/Private Distributor Customer Services Field Managers  
 Region/Private Distributor Technical Services and Training Managers  
 Region/Private Distributor District Service and/or Parts Managers  
 Region/Private Distributor Customer Relations Managers  
 Region/Private Distributor PDC Managers  
 Region/Private Distributor Field Technical Specialists  
 Region/Private Distributor Service Training Specialists  
 Region/Private Distributor Vehicle Operations Managers  
 All NAPC General Managers  
 All TMS Sales Administration Managers  
 All TMS Product Quality & Service Support Managers  
 All Field Product Engineers

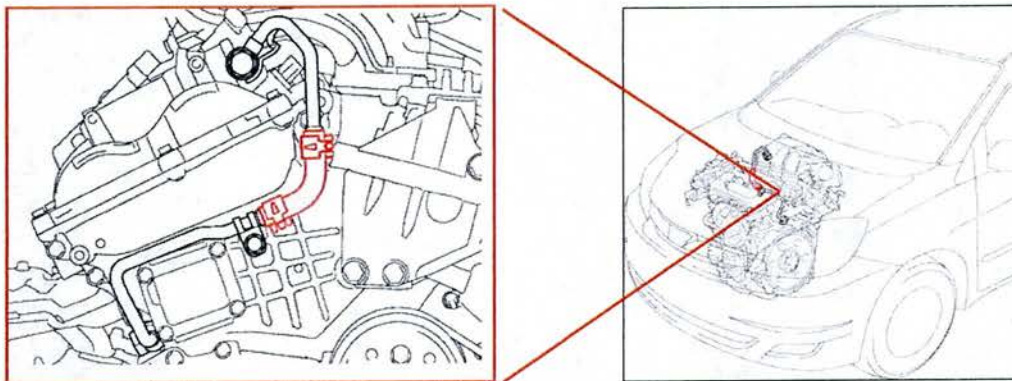
To: All Toyota Dealer Principals, Service Managers, and Parts Managers

Subject: **Extension of Limited Service Campaign (LSC) 90K**  
Certain 2005-2009 Model Year Avalon,  
Certain 2007-2010 Model Year Camry,  
Certain 2008 Model Year Highlander,  
Certain 2006-2009 Model Year Rav4, and  
Certain 2007-2010 Model Year Sienna Vehicles  
2GR-FE (V6) Engine VVTi Oil Hose Replacement

In our continuing efforts to ensure the best in customer satisfaction, Toyota is extending Limited Service Campaign (LSC) 90K on certain 2005-2009 MY Avalon, certain 2007-2010 MY Camry, certain 2008 MY Highlander, certain 2006-2009 MY Rav4, and certain 2007-2010 MY Sienna Vehicles. There are approximately 117,500 vehicles that were not completed prior to the expiration of the original LSC that will be covered by this LSC extension.

### **Background**

On certain vehicles equipped with a 2GR-FE (V6) engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



The following vital information is provided to inform you and your staff of the owner notification timing and your degree of involvement.

### **Limited Service Campaign (LSC) Remedy**

Authorized Toyota dealerships are requested to replace the VVTi Oil Hose at **NO CHARGE** to the vehicle's owner.

This LSC extension will be available **until December 31, 2021**, and will only be available at an authorized Toyota Dealer.

### **1. Owner Notification Mailing Date**

The owner notification will commence in mid-September.

*Toyota makes significant effort to obtain current customer name and address information from each state through industry resources when mailing owner letters. In the event your dealership receives a notice for a vehicle that was sold prior to the LSC extension announcement, it is the dealership's responsibility to forward the owner letter to the customer who purchased the vehicle.*

(Owner Notification Mailing Date Continued. . .)

Please note that only owners of the covered vehicles will be notified. If you are contacted by an owner who has not yet received a notification, please **verify eligibility by confirming through TIS prior to performing repairs**. Dealers should perform the repair as outlined in the Technical Instructions found on TIS.

**2. Used Vehicles in Dealership Inventory (In-Stock Vehicles)**

To ensure customer satisfaction, Toyota requests that dealers conduct the LSC remedy on any used vehicles currently in dealer inventory that are covered by this LSC prior to customer delivery.

**3. Number and Identification of Covered Vehicles**

There are approximately 117,500 vehicles covered by this LSC extension.

MODEL	WMI	VDS	MY	Start	Finish	MODEL	WMI	VDS	MY	Start	Finish			
Avalon	4T1	BK36B	2005	U001102	U062420	RAV4	JTM	2007	BK33V	5012869	5040746			
			2006	U062432	U167701					6010030	6028011			
			2007	U165629	U253861					BK34V	5012765	5040451		
			2008	U251079	U311505					BK35V	5013592	5040587		
			2009	U324725	U346786					ZK31V	5005695	5016119		
Camry	4T1	BK46K	2007	U001024	U560047				2008	2007	ZK32V	6003146	6010005	
			2008	U054582	U576873							5005722	5015913	
			2009	U073259	U587034							6003166	6009951	
	JTN	BK3EK	2010	U100665	U100665							ZK33V	5005710	5016113
			2007	3000021	3031526							6003137	6009952	
Highlander	JTE	2008	DS41A	2000147	2048686				ZK34V	5005707	5016043			
			DS42A	2000181	2048885				ZK35V	5005854	5015772			
			DS43A	2000146	2049459	BK31V	5040842	5061094						
			DS44A	2000303	2048181	6028124	6044174							
			ES41A	2000201	2084190	BK32V	5041092	5060709						
			ES42A	2000190	2082145	6028135	6044123							
RAV4	2T3	2009	ES43A	2000188	2083204	2008	2008	ZK33V	5040791	5060960				
			BK31V	W002732	W002744				BK34V	5040796	5060495			
	BK33V	W002720	W002720	BK35V	5040977				5060576					
	JTM	2006	BK31V	5000037	5012682				ZK31V	5015779	5020928			
				6000087	6010000				6010038	6014377				
			BK32V	5000030	5012501				ZK32V	5016143	5020974			
				6000080	6009998				6010023	6014383				
			BK33V	5000027	5012628				ZK33V	5016193	5020961			
				6000090	6009974				6010047	6014272				
			BK34V	5000094	5012662				ZK34V	5016170	5020924			
			BK35V	5000084	5012671				ZK35V	5016694	5020916			
			ZK31V	5000039	5005680				2007	BK22C	S000038	S008764		
			6000020	6003114	BK23C	S000025	S008740							
	ZK32V	5000044	5005619	ZK22C	S000015	S099335								
	6000017	6003131	ZK23C	S000018	S099339									
	ZK33V	5000011	5005655	2008	BK22C	S008777	S022321							
	6000026	6003054	BK23C		S008766	S022099								
	ZK34V	5000021	5005593		ZK22C	S099372	S223498							
	ZK35V	5000407	5005532		ZK23C	S095940	S225256							
	2007	BK31V	5012714	5040726	2009	BK23C	S023175	S023175						
6010028			6028043	ZK22C		S228570	S243366							
5012762			5040722	ZK23C		S227256	S281144							
BK32V	6010136	6028051	2010	KK4CC	S298111	S299362								

Please note that only owners of the covered vehicles will be notified. If a dealer is contacted by an owner who has not yet received the notification, please **verify coverage by confirming through TIS**. Dealers should perform the procedure as outlined in the Technical Instructions located on TIS. **Not all vehicles in the VIN range are covered by this LSC extension.**

**4. Dealer Summary Reports**

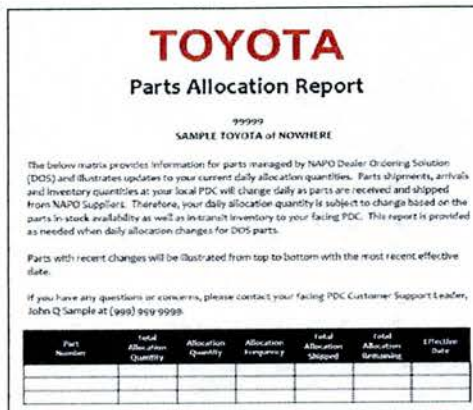
Summary Reports, containing the number of covered vehicles in your dealership's primary marketing area, have been enclosed in the dealer package. (Please verify eligibility by confirming through TIS prior to performing repairs.)

**5. Parts Ordering**

Orders can be placed through the dealership's facing PDC. The VVTi Oil Hoses have been placed on Dealer Ordering Solutions and will be systematically released daily based on dealer ordering criteria.

Campaign	Part Number	Part Description	Qty.
90K	04009-33131	No.1 Oil Hose Kit	1

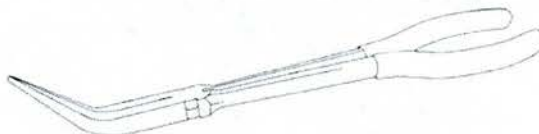
Each dealer has received specific dealer ordering criteria in an email from their facing PDC Manager based on Repair Order Volume \* PDC Affected UIO. Therefore, it is vital that each dealership work with both Parts and Service to immediately file claims and coordinate appropriate kit orders.



**6. Required Special Service Tools**

An angled needle nose pliers will be required to complete the repair, one of these tools was previously provided free of charge at the launch of the original 90K LSC. Technicians may also utilize the following commercially available tools:

- Snap-On: 411BCP
- Matco: PNG111B
- Mac: P301733



**7. Technician Training Requirements**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

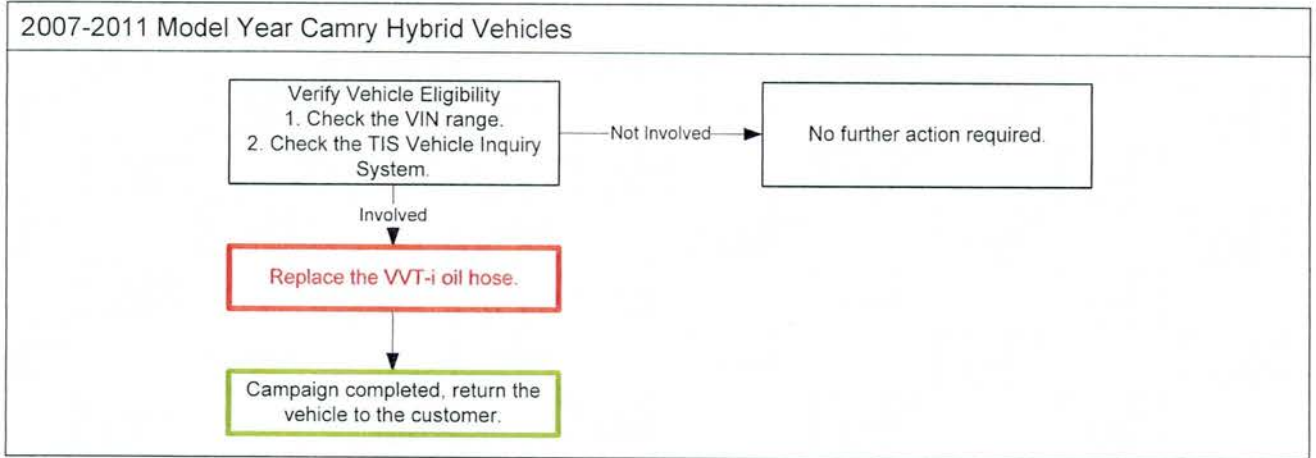
It is the dealership's responsibility to select technicians with the above certification level or greater to perform this Limited Service Campaign repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

**8. Remedy Procedures**

Please refer to TIS for Technical Instructions.

Conduct all applicable, non-completed Safety Recall and Service Campaigns on the vehicle during the time of appointment.

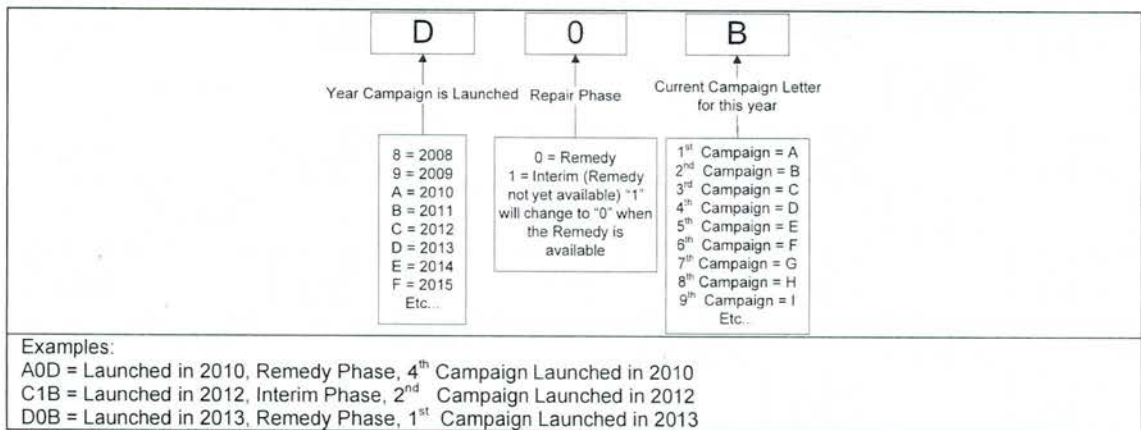
**9. Warranty Reimbursement Procedure**



LSC	Op. Code	Model	Description	Flat Rate
90K	9609K1	Highlander	Replace VVTi Oil Hose	0.7 hr/vehicle
	9609K2	RAV4		0.6 hr/vehicle
	9609K3	Camry		0.7 hr/vehicle
	9609K4	Avalon		0.7 hr/vehicle
	9609K5	Sienna		1.0 hr/vehicle

- The above operation codes include 0.1 hour for administrative cost per unit for the dealership.

**10. Campaign Designation Decoder**



**11. Repair Quality Confirmation**

The repair quality of covered vehicles is extremely important to Toyota. To help ensure that all vehicles have the repair performed correctly, please designate at least one associate (someone other than the individual who performed the repair) to verify the repair quality of every vehicle prior to customer delivery.

**12. Media Contacts**

It is imperative that all media contacts (local and national) receive a consistent message. In this regard, all media contacts must be directed to Cindy Knight (310) 468-2170 in Toyota Corporate Communications. (Please do not provide this number to customers. Please provide this contact to only media associates.)

**13. Customer Contacts**

Customers who receive the owner letter may contact your dealership with questions regarding the letter and/or LSC remedy. Please welcome them to your dealership and answer any questions that they may have. A Q&A is provided to assure a consistent message is communicated.

Customers with additional questions or concerns are asked to please contact the Toyota Customer Experience Center (1-888-270-9371).

***Please review this entire package with your Service and Parts staff to familiarize them with the proper step-by-step procedures required to implement this Limited Service Campaign.***

Thank you for your cooperation.  
TOYOTA MOTOR SALES, U.S.A., INC.

Certain 2005-2009 Model Year Avalon,  
Certain 2007-2010 Model Year Camry,  
Certain 2008 Model Year Highlander,  
Certain 2006-2009 Model Year RAV4,  
Certain 2007-2010 Model Year Sienna  
2GE-FE (V6) Engine VVTi Oil Hose Replacement  
**LIMITED TIME OFFER**

[VIN]

Dear Toyota Owner:

At Toyota, we are dedicated to providing vehicles of outstanding quality and value. In our continuing efforts to ensure the best in customer satisfaction, Toyota is extending Limited Service Campaign (LSC) 90K for vehicles that were not repaired prior to the expiration of the original LSC; this extension includes your vehicle.

**What is the condition?**

On certain vehicles equipped with a 2GR-FE (V6) engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.

**What is included in the Limited Service Campaign?**

Before you are inconvenienced by this condition, any authorized Toyota dealer will replace the VVTi Oil Hose at **NO CHARGE** to you for a limited time. ***This Limited Service Campaign will remain available until December 31, 2021***, and will only be available at an authorized Toyota dealer.

This offer is limited to your specific vehicle whose Vehicle Identification Number (VIN) is printed at the beginning of this letter and is subject to the same conditions set forth in the New Vehicle Limited Warranty section of your Owner's Manual Supplement or Owner's Warranty Information booklet. For additional information, please refer to the booklet.

**How do you take advantage of this Limited Service Campaign?**

Please contact your authorized Toyota dealer to make an appointment to have the VVTi Oil Hose replaced before **December 31, 2021**. The repair will take approximately 1 hour. However, depending upon the dealer's work schedule, it may be necessary to make your vehicle available for a longer period of time.

*If your vehicle is covered by this Limited Service Campaign, you do not need this owner letter to have the campaign completed; however, to assist the dealer in confirming vehicle eligibility, we request that you present this notice at the time of your service appointment.*

**What if you have other questions?**

- Your local Toyota dealer will be more than happy to answer any of your questions and set up an appointment to perform the repair.
- If you would like to update your vehicle ownership or contact information, please go to [www.toyota.com/ownersupdate](http://www.toyota.com/ownersupdate). You will need your full 17-digit Vehicle Identification Number (VIN) to input the new information.
- If you require further assistance, you may contact the Toyota Customer Experience Center at 1-888-270-9371 Monday through Friday, 5:00 am to 6:00 pm, Saturday 7:00 am through 4:00 pm Pacific Standard Time.

If you are a vehicle lessor, please assist us by forwarding this notice to the lessee.

We have sent this notice in the interest of your continued satisfaction with our products, and we sincerely regret any inconvenience this condition may have caused you.

Thank you for driving a Toyota.

Sincerely,

TOYOTA MOTOR SALES, USA, INC.





**Extension of Limited Service Campaign (LSC) 90K**  
Certain 2005-2009 Model Year Avalon  
Certain 2007-2010 Model Year Camry  
Certain 2008 Model Year Highlander  
Certain 2006-2009 Model Year Rav4  
Certain 2007-2010 Model Year Sienna Vehicles  
2GR-FE (V6) Engine VVTi Oil Hose Replacement

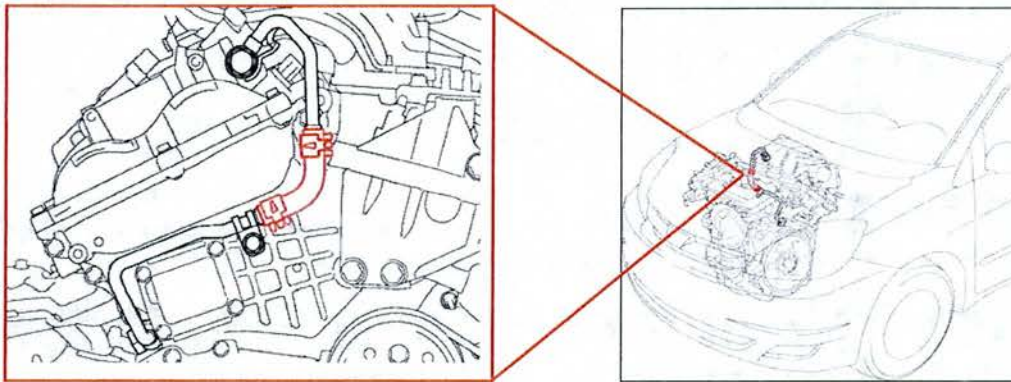
## Customer Frequently Asked Questions

Published Early August, 2014

In our continuing efforts to ensure the best in customer satisfaction, Toyota is extending Limited Service Campaign (LSC) 90K for vehicles that were not repaired prior to the expiration of the original LSC. Approximately 117,500 vehicles will be covered by this LSC extension.

### **Q1: What is the condition?**

A1: On certain vehicles equipped with a 2GR-FE (V6) engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



### **Q1a: What is the cause of this condition?**

A1a: The rubber portion of the engine oil supply hose for the VVT-i actuator may develop a pinhole. Over time, exposure to small amounts of corrosive gases from the positive crankcase ventilation (PCV) may cause this pinhole in the hose to expand. As a result, oil may leak from the hose.

### **Q1b: Are there any warnings that this condition exists?**

A1b: Yes, this condition may cause abnormal engine noise and/or the oil pressure light to illuminate

### **Q2: What is Toyota going to do?**

A2: Owners of vehicles covered by this LSC will receive a notification letter by first class mail starting in Mid-September, 2014.

Any authorized Toyota dealer will replace the VVTi Oil Hose at **NO CHARGE** to the vehicle owner. Please see your local authorized Toyota dealer for additional details.

### **Q2a: How does Toyota obtain my mailing information?**

A2a: Toyota uses an industry provider who works with each state's Department of Motor Vehicles (DMV) to receive registration or title information based upon the DMV records. Please make sure your registration or title information is correct.

**Q2b: Do I need my owner letter to have the remedy performed?**

A2b: No, you do not need an owner letter to have this LSC completed; however, to assist the dealer in confirming vehicle eligibility, we request that you present the owner notification at the time of your service appointment.

**Q3: Which and how many vehicles are covered by this Limited Service Campaign?**

A3: There are approximately 117,500 Toyota vehicles covered by this Limited Service Campaign extension in the U.S.

Model Name	Model Year	Production Period	Appx. UIO
Highlander	Certain 2008	Late May, 2007 through Late April, 2008	14,600
RAV4	Certain 2006-2009	Early January, 2006 through Early February, 2009	10,400
Camry	Certain 2007-2010	Late December, 2005 through Mid-June, 2009	19,500
Avalon	Certain 2005-2009	Late December, 2004 through Mid-May, 2009	18,800
Sienna	Certain 2007-2010	Early December, 2006 through Late June, 2009	54,300

**Q3a: Are there any other Toyota, Lexus, or Scion vehicles covered by this Limited Service Campaign Extension in the U.S.?**

A3a: Yes, this condition also affects the following Lexus vehicles.

Model Name	Model Year	Production Period	Appx. UIO
ES350	Certain 2007-2008	Early March, 2006 through Mid-April 2008	11,500
RX350	Certain 2007-2009	Mid-January, 2006 through Mid-August, 2008	18,500

Lexus vehicles will be identified under Limited Service Campaign extension 9LH.

**Q4: When will this Limited Service Campaign Expire?**

A4: This Limited Service Campaign will be available until December 31, 2021.

**Q5: How long will the repair take?**

A5: The repair will take approximately 1 hour. However, depending upon the dealer's work schedule, it may be necessary to make the vehicle available for a longer period of time.

**Q6: What if you have previously paid for repairs to your vehicle for this specific condition?**

A6: Owners who have previously paid for repairs to address this specific condition should refer to the owner letter for instructions regarding reimbursement consideration.

Please note the dealer will need to perform this LSC before reimbursement consideration requests can be processed.

**Q7: What if an owner has additional questions?**

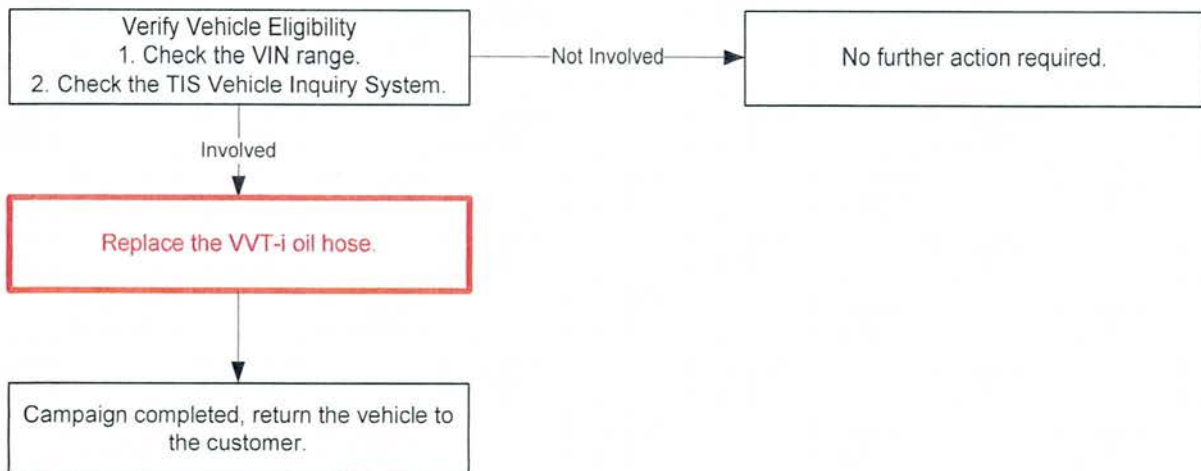
A7: Owners with questions or concerns are asked to please contact the Toyota Customer Experience Center at 1-888-270-9371 Monday through Friday, 5:00 am to 6:00 pm, or Saturday 7:00 am through 4:00 pm Pacific Time.

**TECHNICAL INSTRUCTIONS**  
**FOR**  
**LIMITED SERVICE CAMPAIGN 90K**  
**VVT-i OIL HOSE REPLACEMENT**  
**2008 HIGHLANDER**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

### A. AFFECTED VIN RANGE

Model	WMI	Year	VIN Range	
			VDS	Range
HIGHLANDER	JTE	2008	DS41A	2000147 - 2048686
			DS42A	2000181 - 2048885
			DS43A	2000146 - 2049459
			DS44A	2000303 - 2048181
			ES41A	2000201 - 2084190
			ES42A	2000190 - 2082145
			ES43A	2000188 - 2083204

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this LSC and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

## III. PREPARATION

### A. PARTS

Part Number	Part Description	Quantity
04009-33131	No.1 Oil Hose Kit	1

## B. TOOLS & EQUIPMENT

- Standard hand tools
- Torque wrench
- Angled long nose pliers\*
- Paper or shop towels
- Mirror

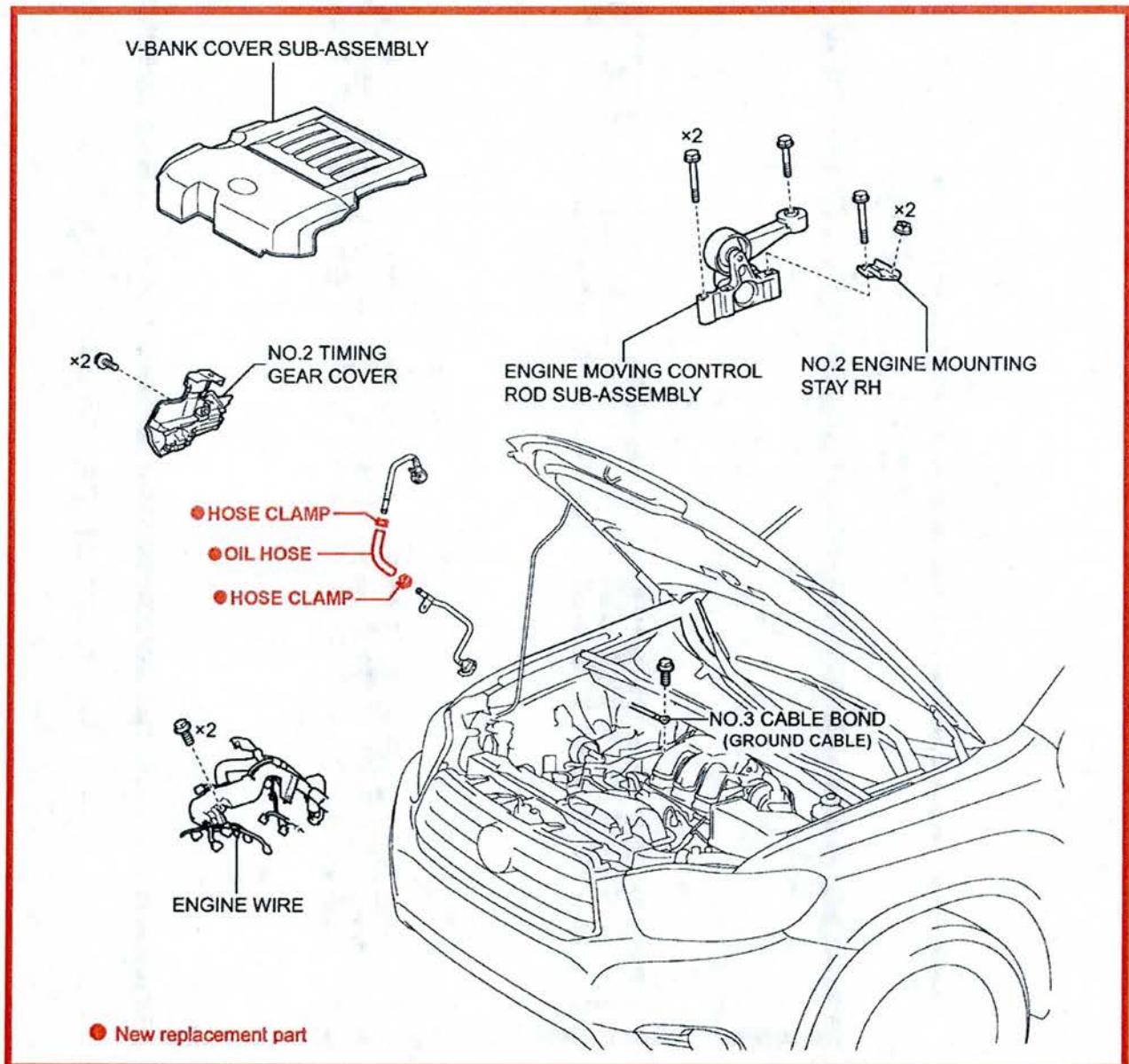
\* **NOTE:** One angled long nose pliers will be included in the dealer package. Technicians may also utilize one of the following commercially available tools:

1. Snap-On: 411BCP
2. Matco: PNG111B
3. Mac: P301733



## IV. BACKGROUND

On certain vehicles equipped with a 2GR-FE engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



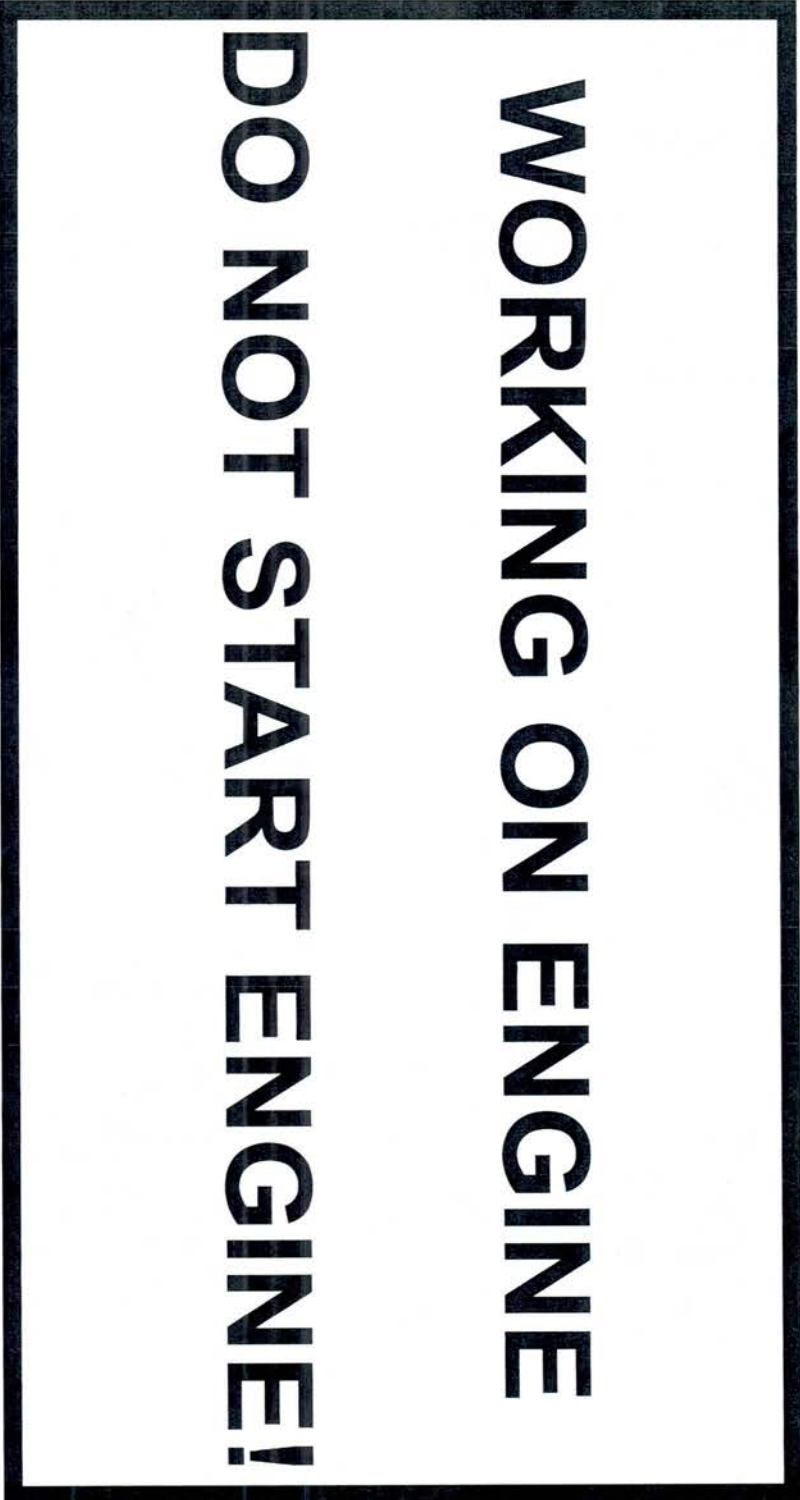
**V. WORK PROCEDURE**

**A. REMOVE OIL HOSE**

**1. CONFIRM IGNITION IS OFF**

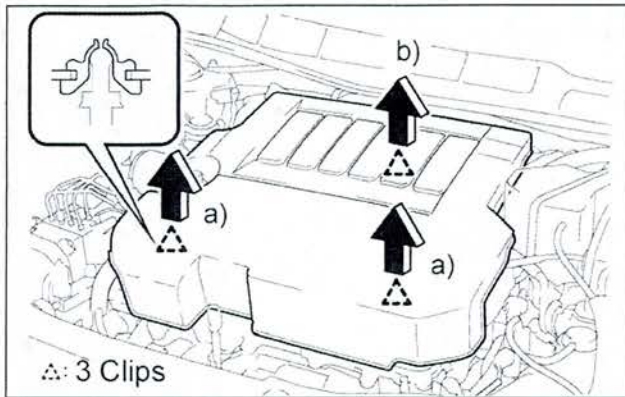
- a) Clearly indicate that the engine must not be started during repairs.

■ Copy and place in a visible location when working.



**Supervisor:**

---

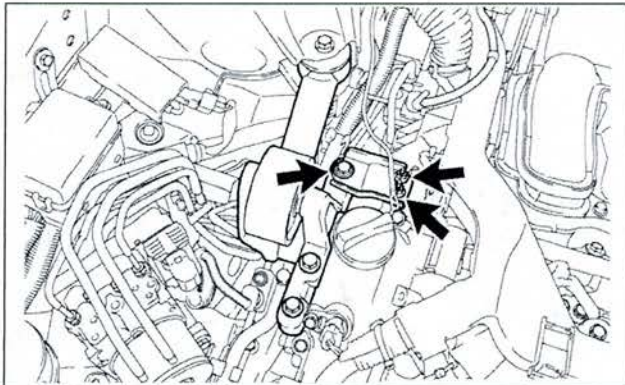


## 2. REMOVE THE V-BANK COVER SUB-ASSEMBLY

- a) Place both hands on the front side of the cover and lift up to disengage the 2 clips.
- b) Place both hands on the back side of the cover and lift up to disengage the rear clip.
- c) Remove the v-bank cover sub-assembly.

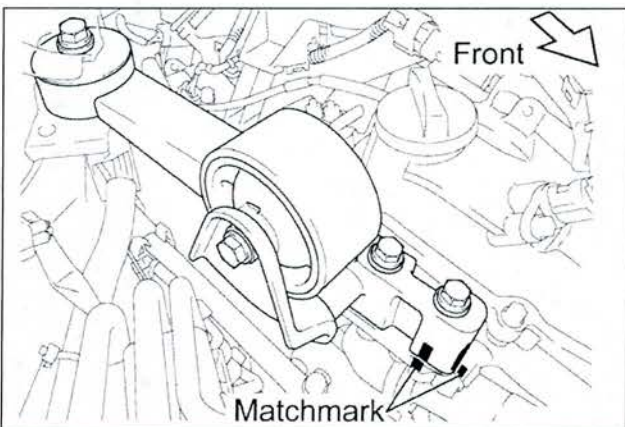
### NOTE:

Do not lift the cover's front and back end together; this may damage the clips.



## 3. REMOVE THE NO. 2 ENGINE MOUNTING STAY RH

- a) Remove the bolt, 2 nuts and No. 2 engine mounting stay RH.

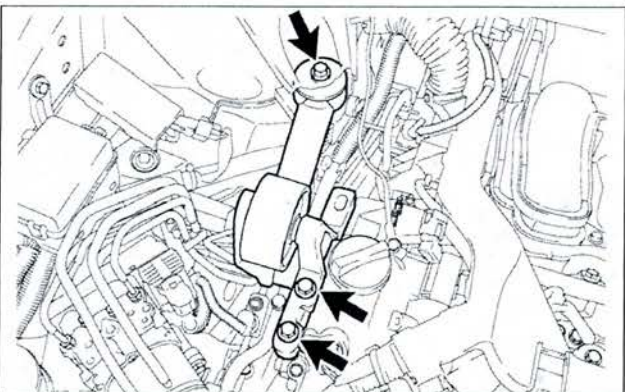


## 4. REMOVE THE ENGINE MOVING CONTROL ROD SUB ASSEMBLY

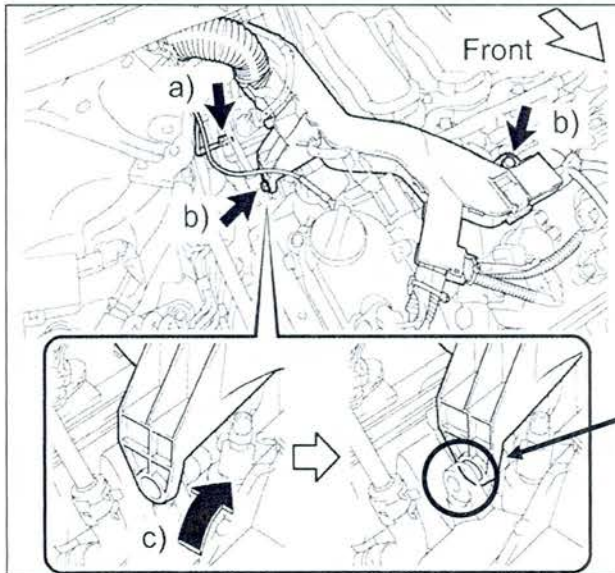
- a) Mark the sub-assembly as illustrated for reference during re-installation.

### NOTE:

Failure to reinstall the engine moving control rod in the same position from which it was removed may result in additional engine vibration.



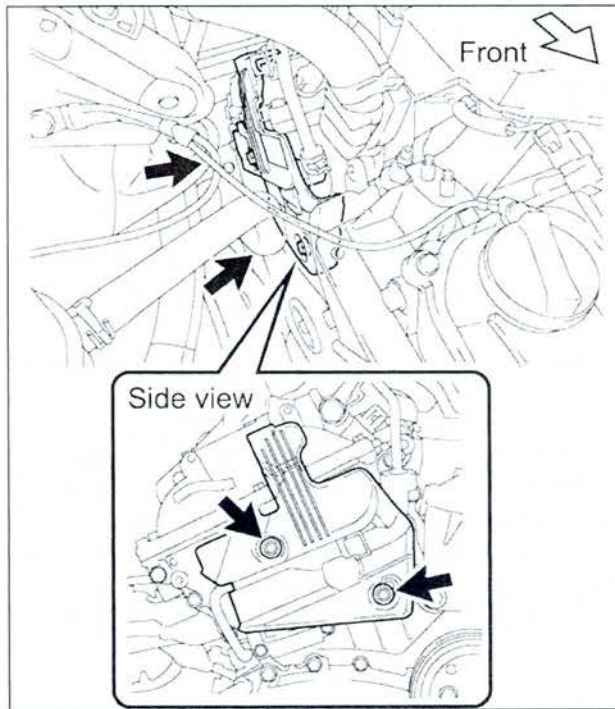
- b) Remove the 3 bolts and engine moving control rod sub-assembly.



## 5. SEPARATE THE WIRE HARNESS

- Remove the bolt and separate the No.3 cable bond (ground cable).
- Remove the 2 wire harness protector hold-down bolts as illustrated.
- Temporarily reposition the wire harness protector to the opposite side of the mounting tab.

**NOTE:**  
 Avoid damage to wire harness, harness clips and/or wiring. Use care when repositioning the harness for service.

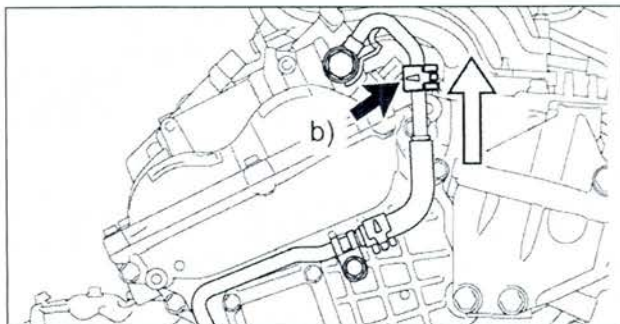


## 6. REMOVE THE NO.2 TIMING GEAR COVER

- Remove the 2 bolts.
- Remove the No. 2 timing gear cover.



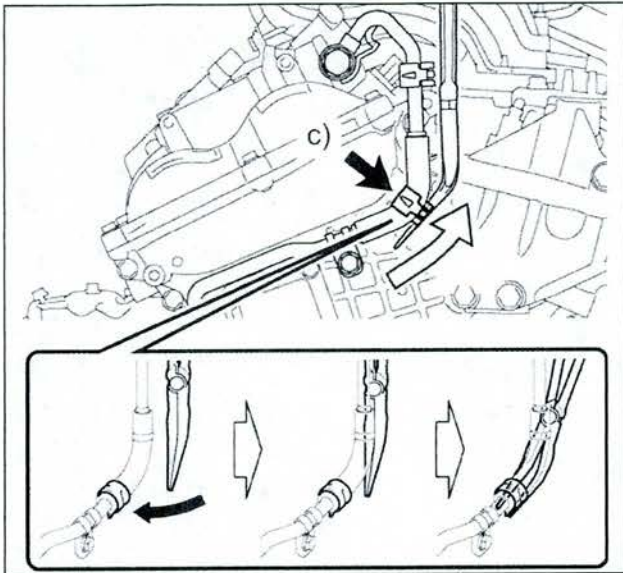
**Use care to avoid damage to the Power Steering hoses and VVT-i oil pipe when removing the oil hose.**



## 7. REMOVE THE OIL HOSE

- Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- Move the upper hose clamp to the upper section of the oil pipe.



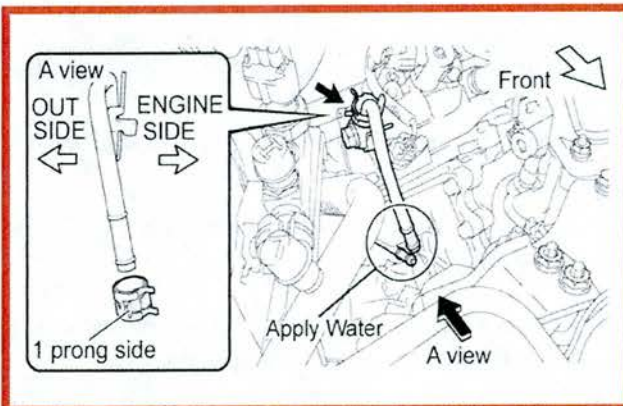


- c) Move the lower hose clamp to the center of the hose.
- d) Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.

## B. INSTALL THE OIL HOSE



Proper positioning of the oil hose is critical to ensure adequate oil flow to the VVT-i actuator and to prevent leakage. Follow instructions carefully!

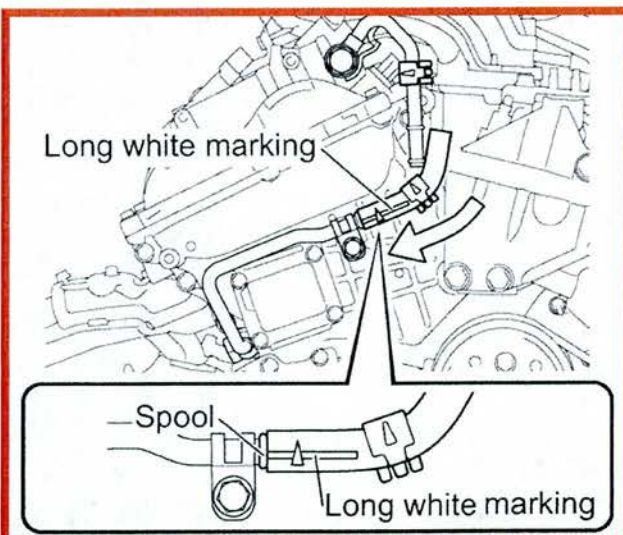


### 1. INSTALL THE OIL HOSE

- a) Place a **NEW** hose clamp on the upper oil pipe as shown.
- b) Clean both edges of the oil pipe with a shop towel and apply water as a lubricant to the oil pipe to assist with the oil hose attachment.

#### NOTE:

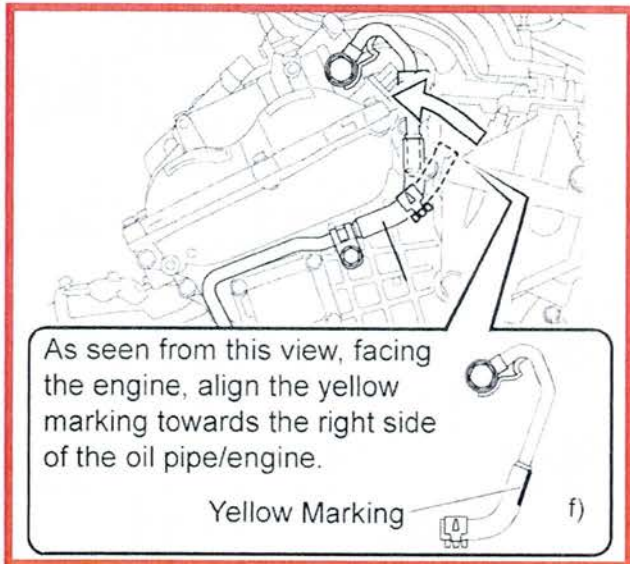
Use only water as a lubricant. Do not apply oil or other lubricants to the oil pipe, this may cause oil leaks.



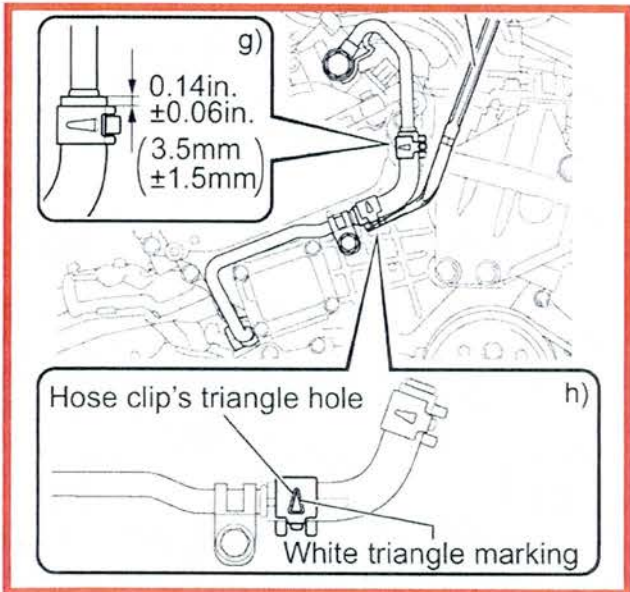
- c) Attach a **NEW** hose clamp on the **NEW** oil hose with the clamp's 2 prong side positioned on the same side as the hose's long white marking.
- d) Install the oil hose's long white marking (lower) side onto the lower pipe until it touches the spool.
- e) Position the long white marking facing away from the engine as illustrated.

#### NOTE:

The long white marking should face away from the engine.



- f) Install the oil hose's yellow marking (upper) side onto the upper oil pipe until it touches the spool. Align the yellow marking as illustrated.



- g) Position the upper hose clamp on the hose as illustrated.
- h) Position and align the lower hose clamp's triangle hole to the white triangle marking on the lower portion of the hose.

**NOTE:**

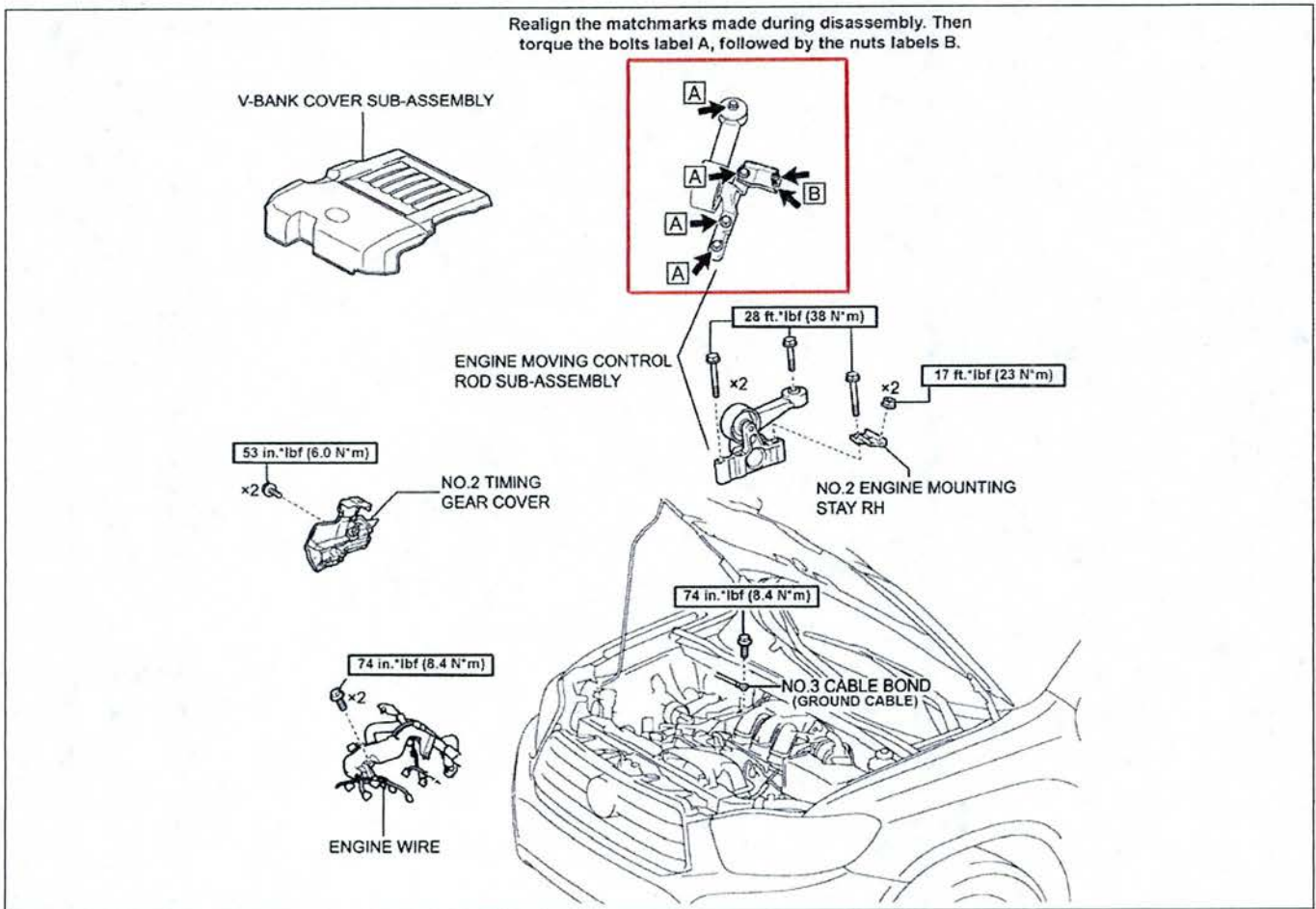
- Position both upper and lower hose clamps  $0.14\text{ in.} \pm 0.06\text{ in.}$  ( $3.5\text{mm} \pm 1.5\text{mm}$ ) from the edge of the hose ends.
- Ensure there are no twists in the oil hose.

**Important:**

**Avoid comebacks, visually verify correct installation!**

- i) After verifying correct installation, remove the paper towels from the engine compartment.

## 2. REASSEMBLE ENGINE COMPONENTS BY REVERSING DISASSEMBLY INSTRUCTIONS



NOTE: All necessary torque specifications are located in the illustration above.

3. VERIFY THE CORRECT ENGINE OIL LEVEL
4. TEMPORARILY RUN THE ENGINE AT 3,000 RPM's, CONFIRM NO OIL LEAKS ARE PRESENT

## VI. APPENDIX

### A. PARTS KIT CONTENTS

Part Number	Part Name	
04009-33131	Kit ,Oil Hose, No.1	
The kit listed above includes the following parts:		
Part Number	Part Name	Q'ty
15777-31020	Hose, Oil (Cooler)	1
90466-16003	Clip, Hose (Clamp)	2

### B. CAMPAIGN PARTS DISPOSAL

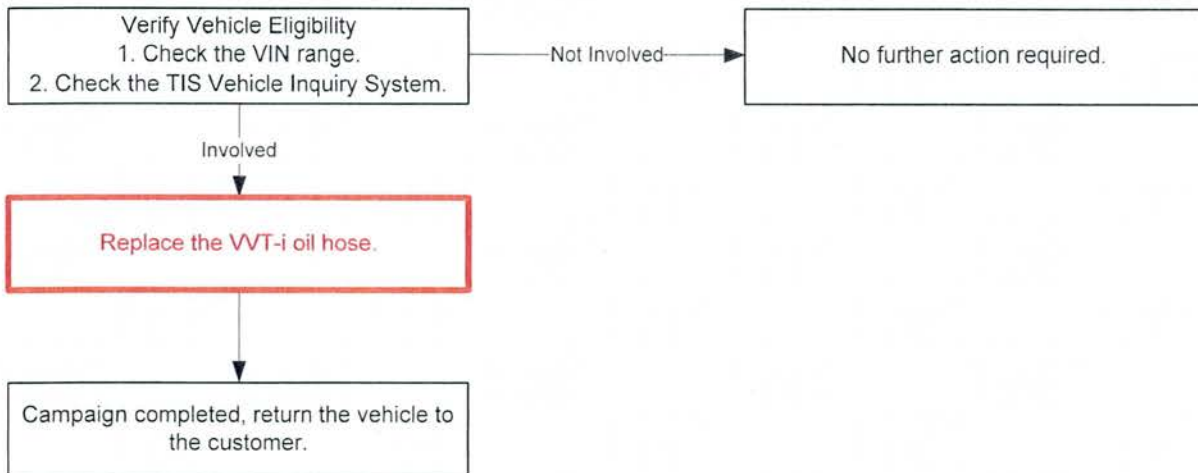
As required by Federal Regulations, please make sure all campaign parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused.

**TECHNICAL INSTRUCTIONS**  
**FOR**  
**LIMITED SERVICE CAMPAIGN 90K**  
**VVT-i OIL HOSE REPLACEMENT**  
**2007 – 2010 CAMRY**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

### A. AFFECTED VIN RANGE

Model	WMI	Year	VIN Range	
			VDS	Range
CAMRY	4T1	2007	BK46K	U001024 - U0560047 U054582 - U576873 U073259 - U587034
		2008		
		2009		
	2010	BK3EK	U100665 - U100665	
	JTN	2007	BK46K	3000021 - 3031526
		2008		3031562 - 3037061
2009		3037144 - 3040290		

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this LSC and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

## III. PREPARATION

### A. PARTS

Part Number	Part Description	Quantity
04009-33131	No.1 Oil Hose Kit	1

## B. TOOLS & EQUIPMENT

- Standard hand tools
- Torque wrench
- Angled long nose pliers\*
- Paper or shop towels
- Mirror

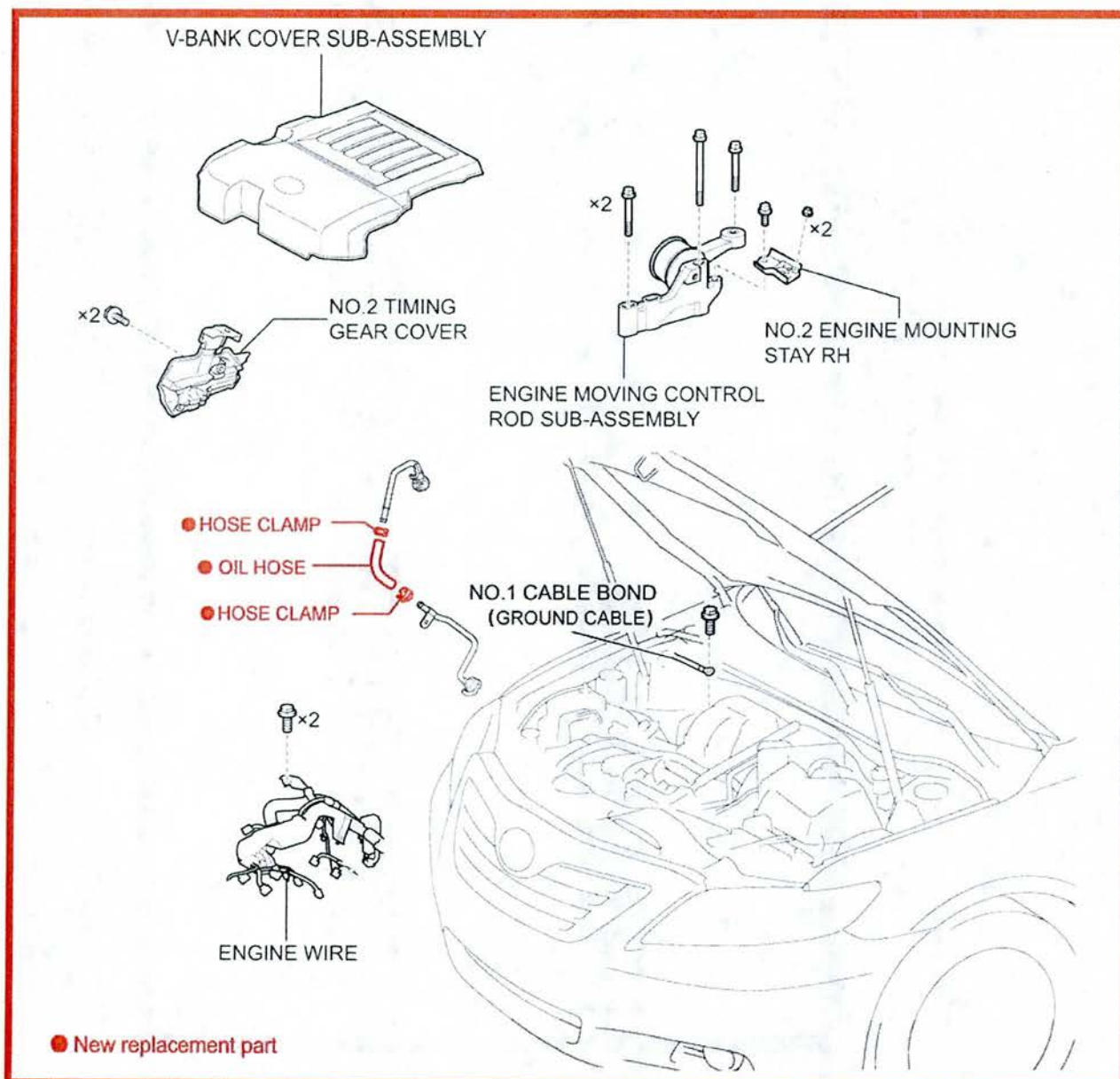
\* **NOTE:** One angled long nose pliers will be included in the dealer package. Technicians may also utilize one of the following commercially available tools:

1. Snap-On: 411BCP
2. Matco: PNG111B
3. Mac: P301733



## IV. BACKGROUND

On certain vehicles equipped with a 2GR-FE engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



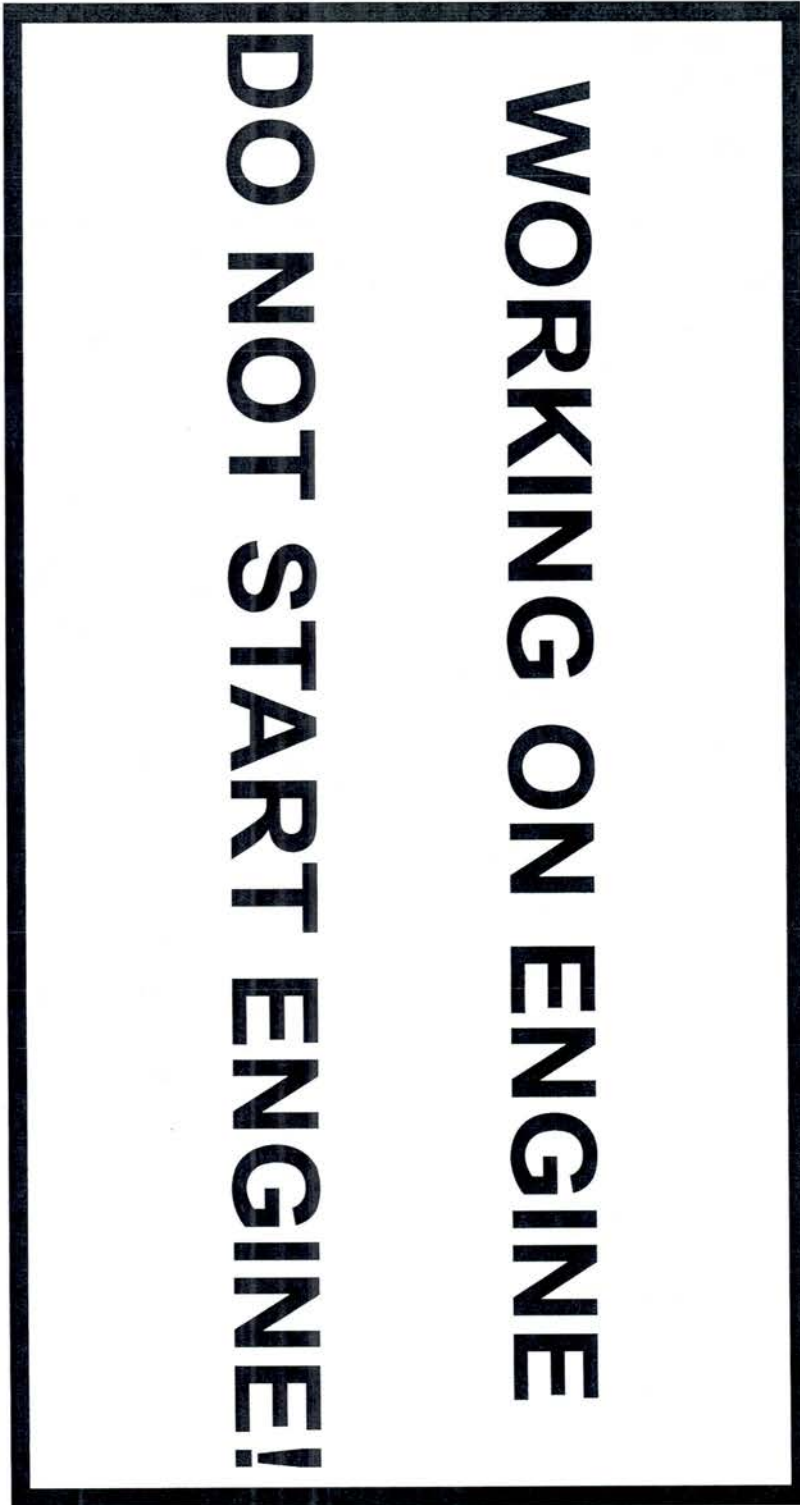
**V. WORK PROCEDURE**

**A. REMOVE OIL HOSE**

**1. CONFIRM IGNITION IS OFF**

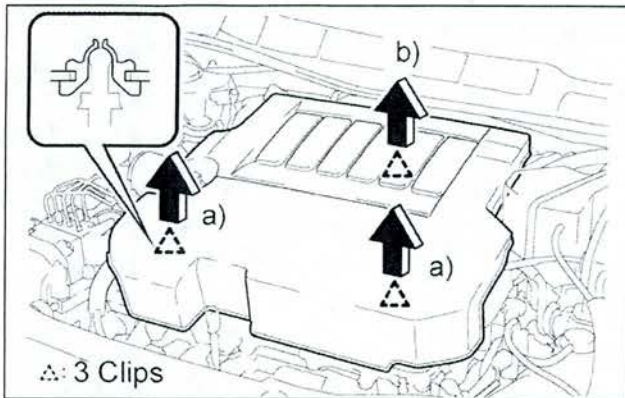
a) Clearly indicate that the engine must not be started during repairs.

■ Copy and place in a visible location when working.



**Supervisor:**

---

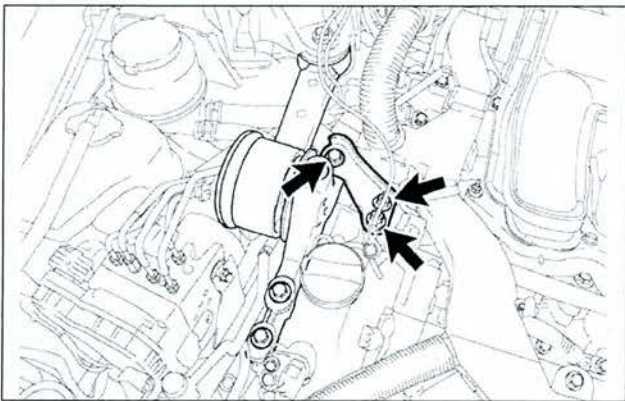


## 2. REMOVE THE V-BANK COVER SUB-ASSEMBLY

- a) Place both hands on the front side of the cover and lift up to disengage the 2 clips.
- b) Place both hands on the back side of the cover and lift up to disengage the rear clip.
- c) Remove the v-bank cover sub-assembly.

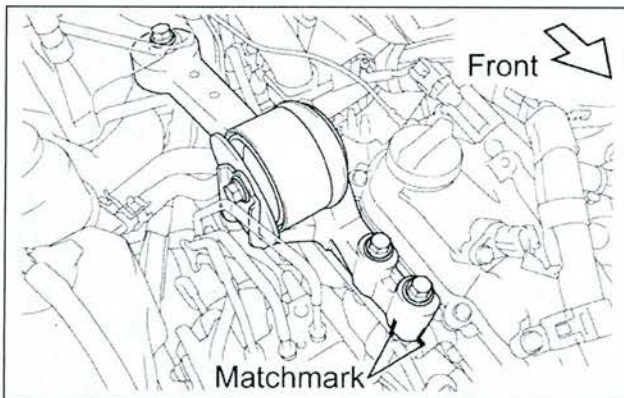
### NOTE:

Do not lift the cover's front and back end together; this may damage the clips.



## 3. REMOVE THE NO. 2 ENGINE MOUNTING STAY RH

- a) Remove the bolt, 2 nuts and No. 2 engine mounting stay RH.

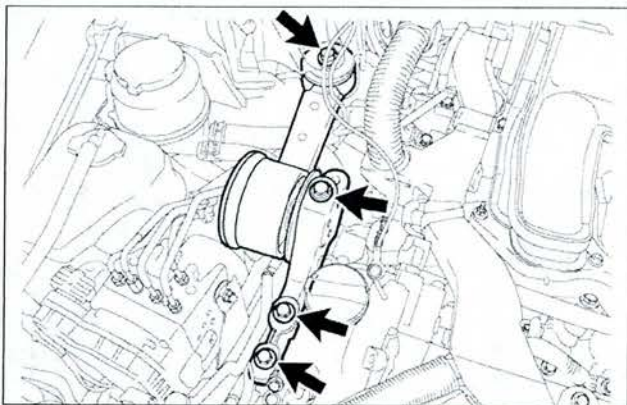


## 4. REMOVE THE ENGINE MOVING CONTROL ROD SUB ASSEMBLY

- a) Mark the sub-assembly as illustrated for reference during re-installation.

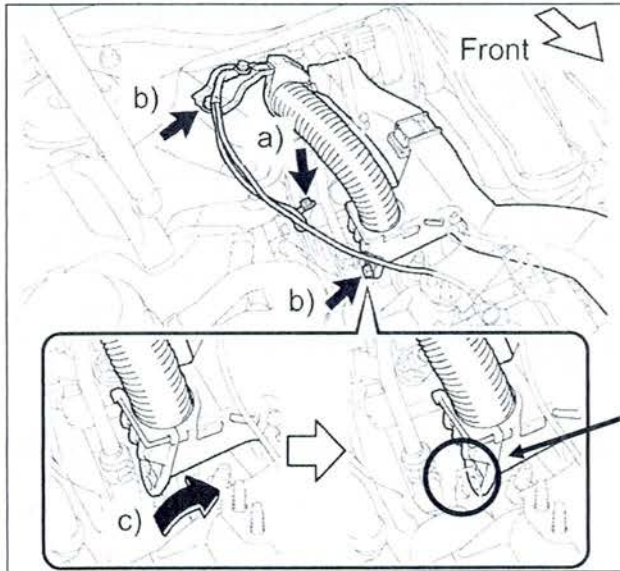
### NOTE:

Failure to reinstall the engine moving control rod in the same position from which it was removed may result in additional engine vibration.



- b) Remove the 4 bolts and engine moving control rod sub-assembly.



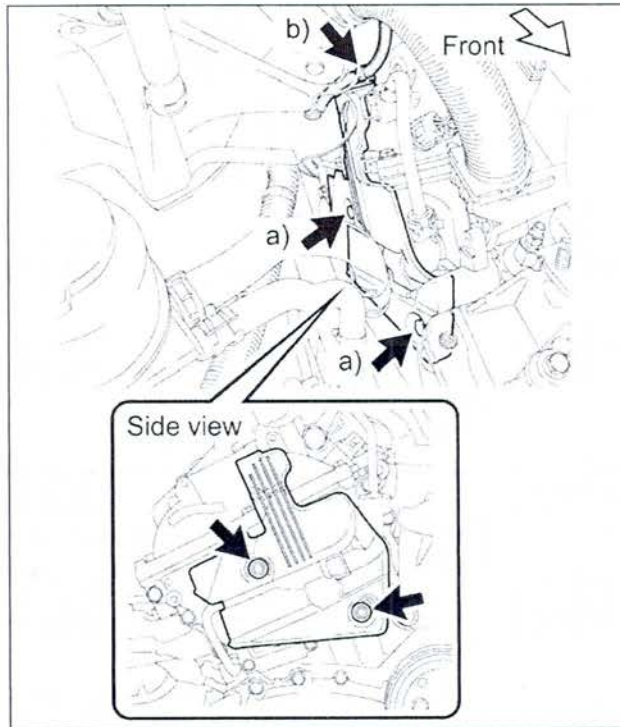


## 5. SEPARATE THE WIRE HARNESS

- Remove the bolt and separate the No.3 cable bond (ground cable).
- Remove the 2 wire harness protector hold-down bolts as illustrated.
- Temporarily reposition the wire harness protector to the opposite side of the mounting tab.

### NOTE:

Avoid damage to wire harness, harness clips and/or wiring. Use care when repositioning the harness for service.



## 6. REMOVE THE NO.2 TIMING GEAR COVER

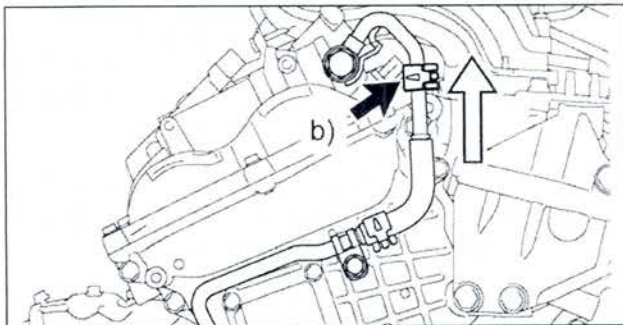
- Remove the 2 bolts.
- Pull the No. 2 timing gear cover slightly away from the engine and disconnect the wire harness clip.
- Remove the No. 2 timing gear cover.

### NOTE:

Don't forget to remove the small wire harness clip from the rear of the No. 2 timing gear cover.

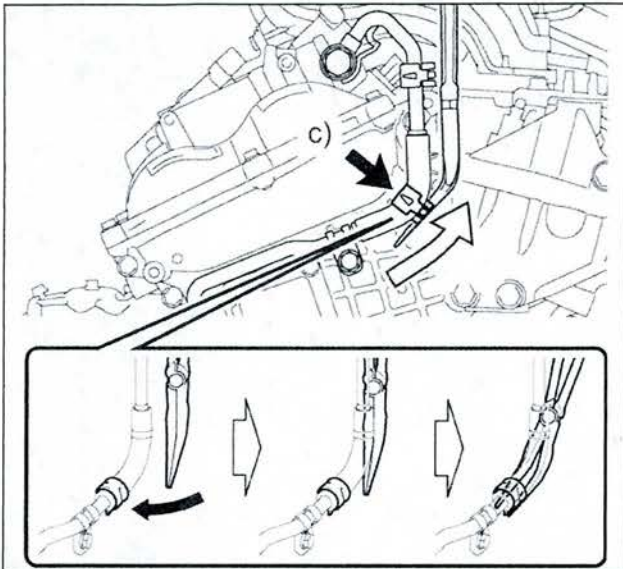


**Use care to avoid damage to the Power Steering hoses and VVT-i oil pipe when removing the oil hose.**



## 7. REMOVE THE OIL HOSE

- Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- Move the upper hose clamp to the upper section of the oil pipe.

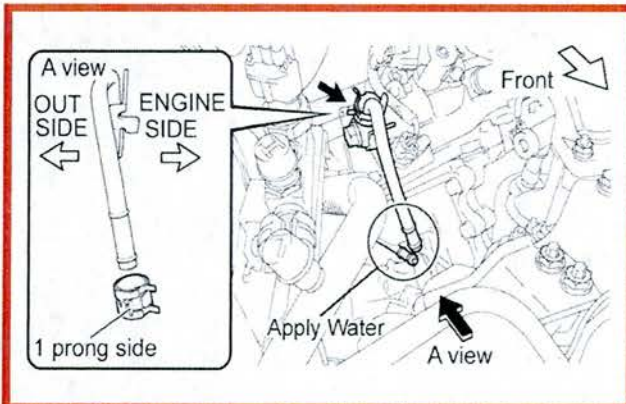


- c) Move the lower hose clamp to the center of the hose.
- d) Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.

## B. INSTALL THE OIL HOSE



**Proper positioning of the oil hose is critical to ensure adequate oil flow to the VVT-i actuator and to prevent leakage. Follow instructions carefully!**

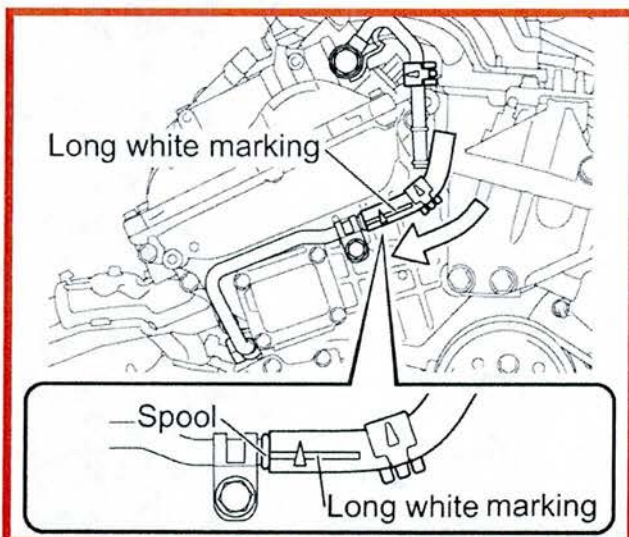


### 1. INSTALL THE OIL HOSE

- a) Place a **NEW** hose clamp on the upper oil pipe as shown.
- b) Clean both edges of the oil pipe with a shop towel and apply water as a lubricant to the oil pipe to assist with the oil hose attachment.

#### NOTE:

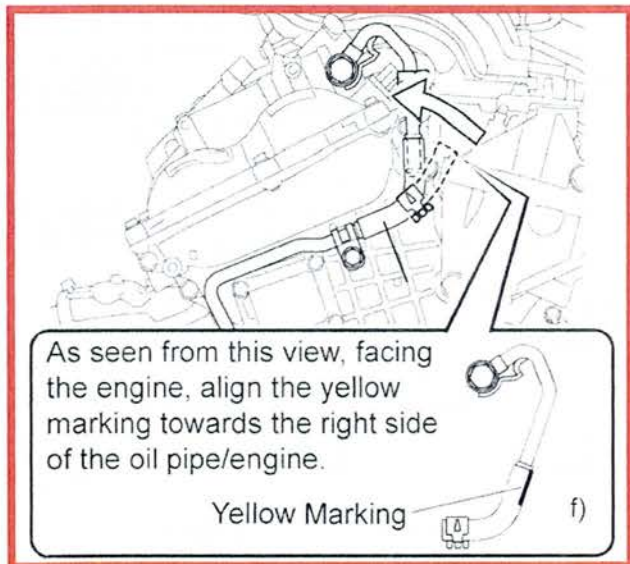
**Use only water as a lubricant. Do not apply oil or other lubricants to the oil pipe, this may cause oil leaks.**



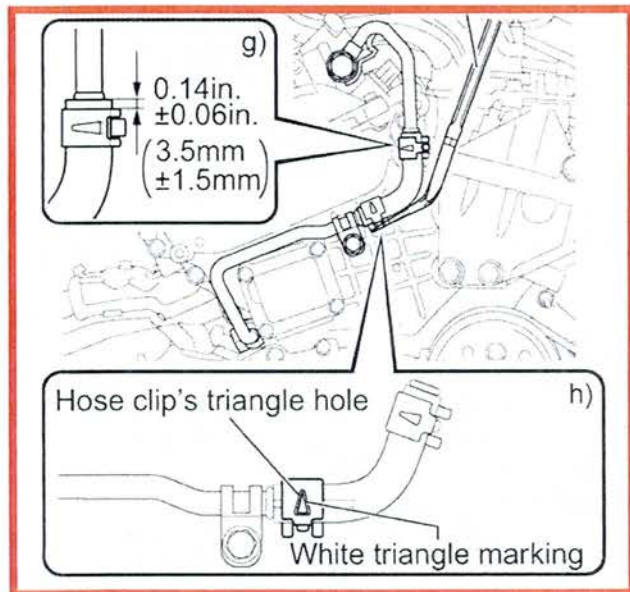
- c) Attach a **NEW** hose clamp on the **NEW** oil hose with the clamp's 2 prong side positioned on the same side as the hose's long white marking.
- d) Install the oil hose's long white marking (lower) side onto the lower pipe until it touches the spool.
- e) Position the long white marking facing away from the engine as illustrated.

#### NOTE:

**The long white marking should face away from the engine.**



- f) Install the oil hose's yellow marking (upper) side onto the upper oil pipe until it touches the spool. Align the yellow marking as illustrated.



- g) Position the upper hose clamp on the hose as illustrated.
- h) Position and align the lower hose clamp's triangle hole to the white triangle marking on the lower portion of the hose.

**NOTE:**

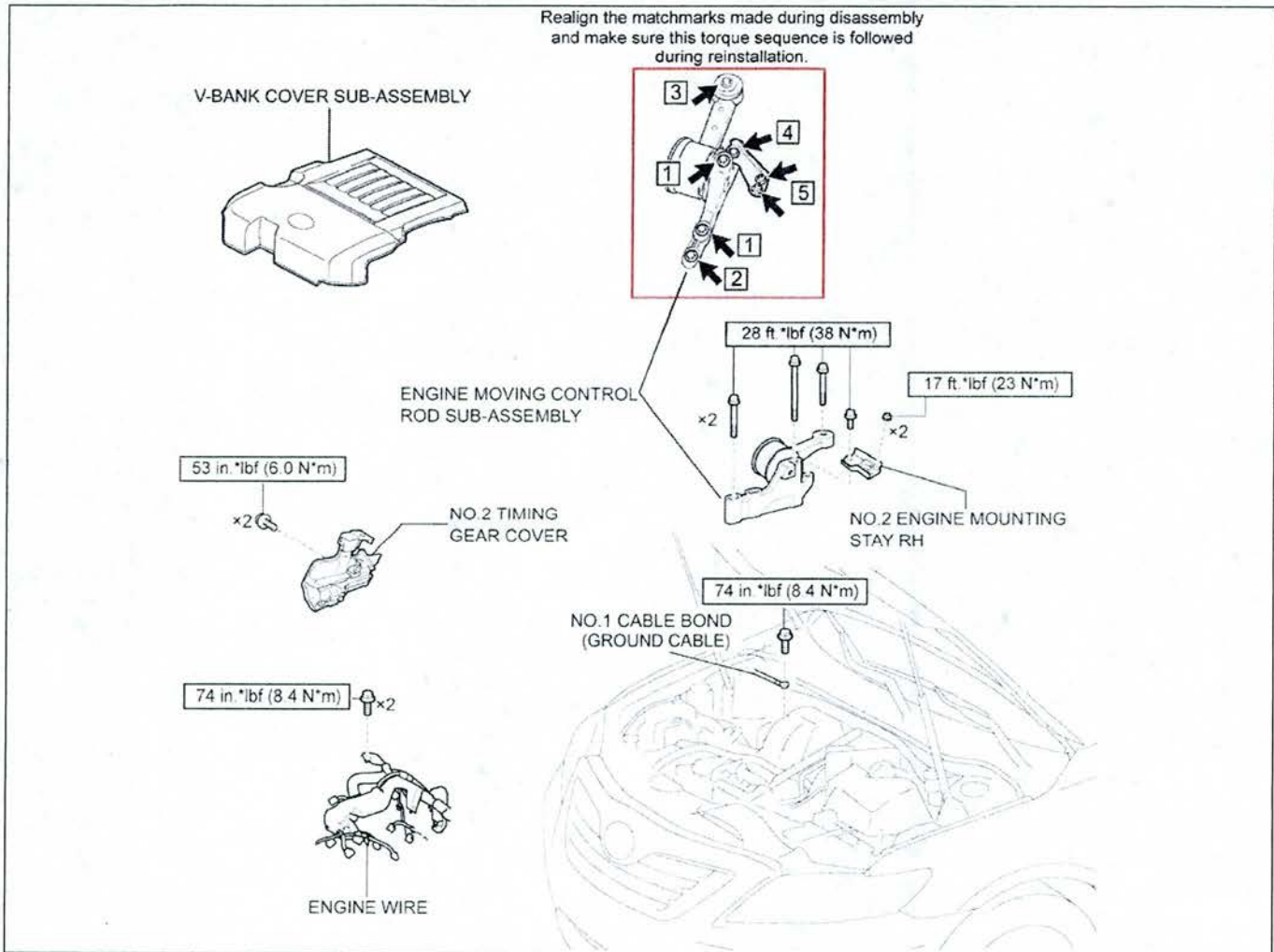
- Position both upper and lower hose clamps 0.14 in. ± 0.06 in. (3.5mm ± 1.5mm) from the edge of the hose ends.
- Ensure there are no twists in the oil hose.

**Important:**

**Avoid comebacks, visually verify correct installation!**

- i) After verifying correct installation, remove the paper towels from the engine compartment.

## 2. REASSEMBLE ENGINE COMPONENTS BY REVERSING DISASSEMBLY INSTRUCTIONS



**NOTE:** All necessary torque specifications are located in the illustration above.

### 3. VERIFY THE CORRECT ENGINE OIL LEVEL

### 4. TEMPORARILY RUN THE ENGINE AT 3,000 RPM's, CONFIRM NO OIL LEAKS ARE PRESENT

## VI. APPENDIX

### A. PARTS KIT CONTENTS

Part Number	Part Name	
04009-33131	Kit ,Oil Hose, No.1	
The kit listed above includes the following parts:		
Part Number	Part Name	Q'ty
15777-31020	Hose, Oil (Cooler)	1
90466-16003	Clip, Hose (Clamp)	2

### B. CAMPAIGN PARTS DISPOSAL

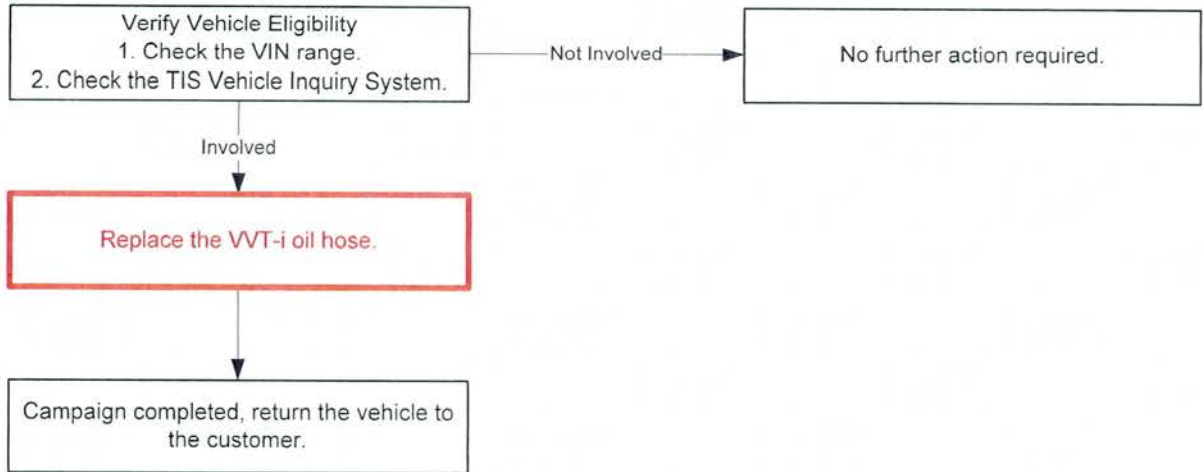
As required by Federal Regulations, please make sure all campaign parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused.

**TECHNICAL INSTRUCTIONS**  
**FOR**  
**LIMITED SERVICE CAMPAIGN 90K**  
**VVT-i OIL HOSE REPLACEMENT**  
**2006 - 2009 RAV4**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

### A. AFFECTED VIN RANGE

Model	WMI	Year	VIN Range	
			VDS	Range
RAV4	JTM	2006	BK31V	5000037 - 5012682
				6000087 - 6010000
			BK32V	5000030 - 5012501
				6000080 - 609998
			BK33V	5000027 - 5012628
				6000090 - 6009974
			BK34V	5000094 - 5012662
			BK35V	5000084 - 5012671
			ZK31V	5000039 - 5005680
				6000020 - 6003114
			ZK32V	5000044 - 5005619
				6000017 - 6003131
		ZK33V	5000011 - 5005655	
			6000026 - 6003054	
		ZK34V	5000021 - 5005593	
		ZK35V	5000407 - 5005532	
		2007	BK31V	5012714 - 5040726
				6010028 - 6028043
BK32V	5012714 - 5040726			
	6010028 - 6028043			
BK33V	5012869 - 5040746			
	6010030 - 6028011			
BK34V	5012765 - 5040541			
BK35V	5013592 - 5040587			
ZK31V	5005722 - 5015913			
	6003146 - 6010005			

**AFFECTED VIN RANGE CONTINUED...**

Model	WMI	Year	VIN Range		
			VDS	Range	
RAV4	JTM	2007	ZK32V	5005722 - 5015913	
				6003166 - 6009951	
			ZK33V	5005710 - 5016113	
				6003137 - 6009952	
			ZK34V	5005707 - 5016043	
		ZK35V	5005854 - 5015772		
		2T3	2008	BK31V	5040842 - 5061094
					6028124 - 6044174
				BK32V	5041092 - 5060709
					6028135 - 6044123
	BK33V			5040791 - 5060960	
			6028079 - 6044259		
	2009		BK34V	5040796 - 5060495	
				5040977 - 5060576	
			ZK31V	5015779 - 5020928	
				6010038 - 6014377	
		ZK32V	5016143 - 5020974		
		6010023 - 6014383			
	2009	ZK33V	5016193 - 5020961		
			6010047 - 6014272		
ZK34V		5016170 - 5020924			
ZK35V		5016694 - 5020916			
BK31V		W002732 - W002744			
	BK33V	W002720 - W002720			

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this LSC and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

**III. PREPARATION**

**A. PARTS**

Part Number	Part Description	Quantity
04009-33131	No.1 Oil Hose Kit	1

**B. TOOLS & EQUIPMENT**

- Standard hand tools
- Torque wrench (inch/lb)
- Angled long nose pliers\*
- Paper or shop towels
- Mirror

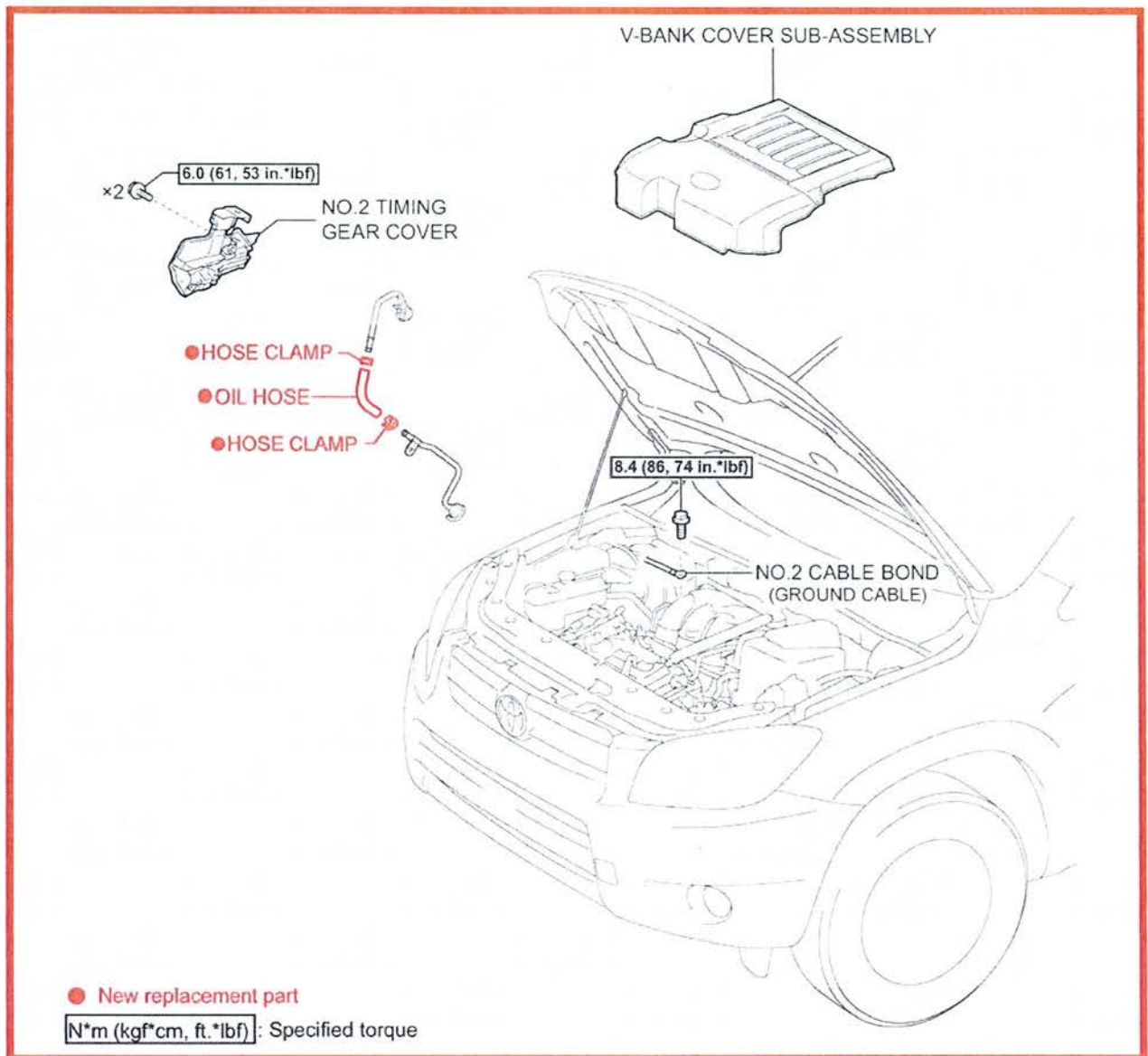
\* **NOTE:** One angled long nose pliers will be included in the dealer package. Technicians may also utilize one of the following commercially available tools:

1. Snap-On: 411BCP
2. Matco: PNG111B
3. Mac: P301733



#### IV. BACKGROUND

On certain vehicles equipped with a 2GR-FE engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.





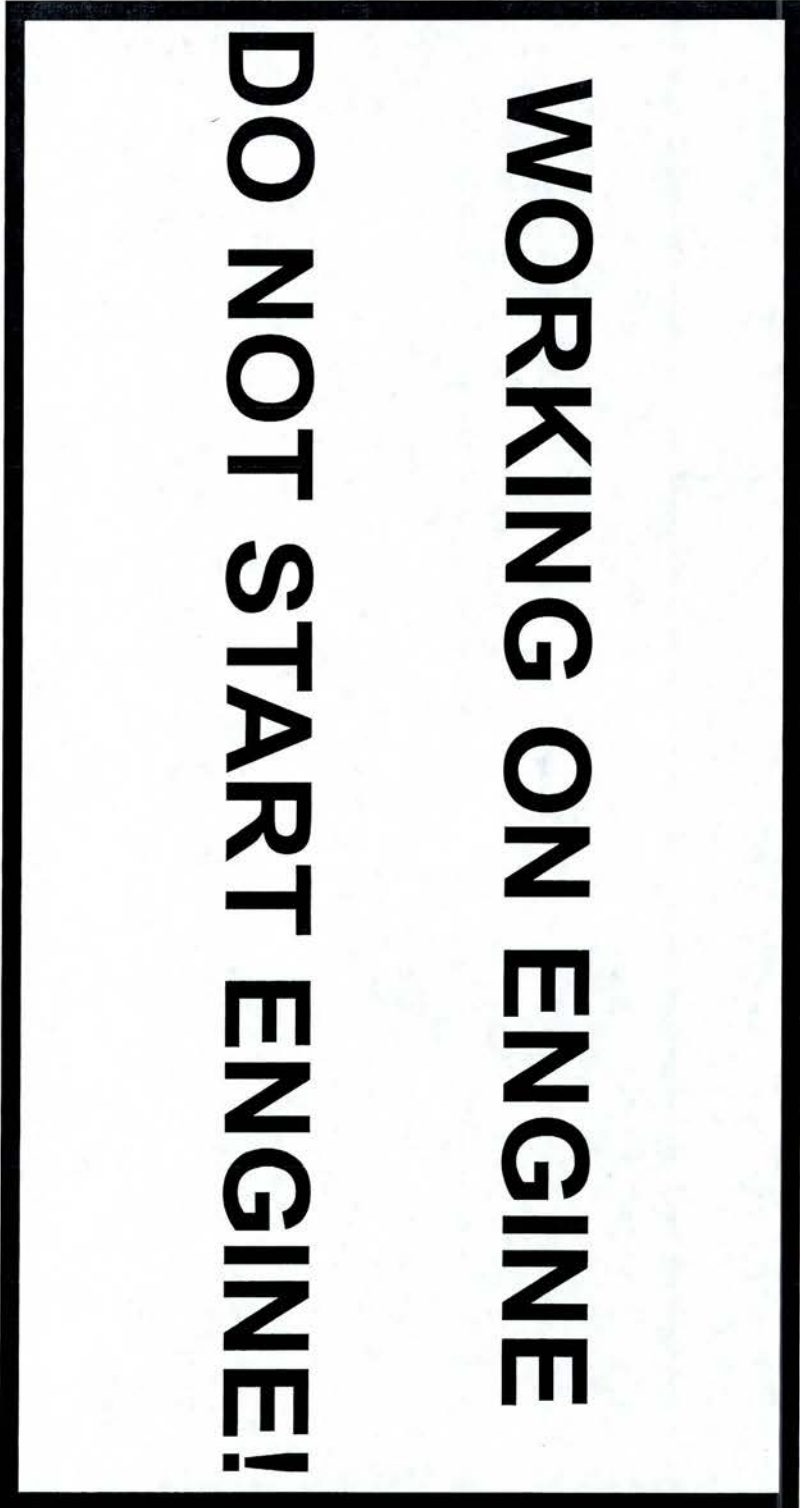
**V. WORK PROCEDURE**

**A. REMOVE THE OIL HOSE**

**1. CONFIRM IGNITION IS OFF**

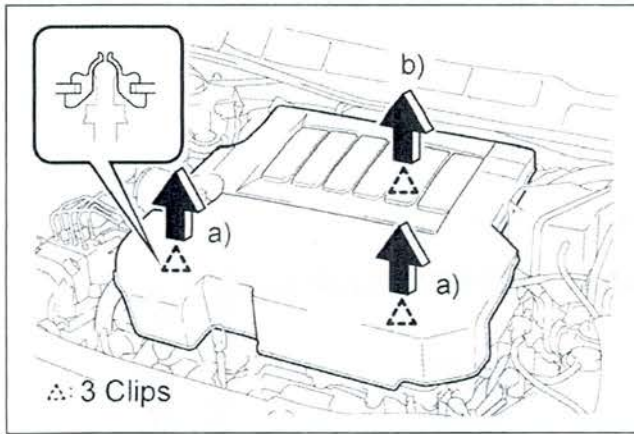
- a) Clearly indicate that the engine must not be started during repairs.

■ Copy and place in a visible location when working.



**Supervisor:**

---

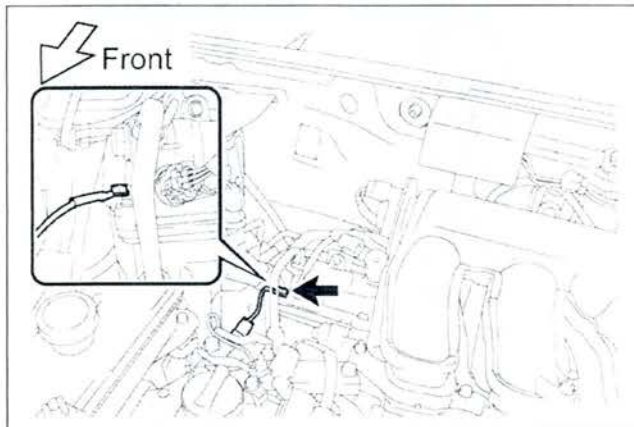


## 2. REMOVE THE V-BANK COVER SUB-ASSEMBLY

- a) Place both hands on the front side of the cover and lift up to disengage the 2 clips.
- b) Place both hands on the back side of the cover and lift up to disengage the rear clip.
- c) Remove the v-bank cover sub-assembly.

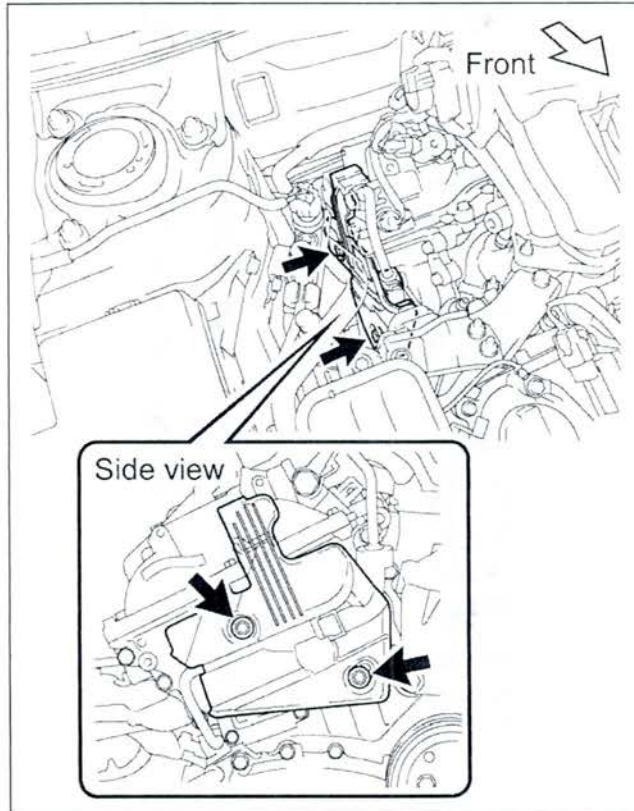
### NOTE:

Do not lift the cover's front and back end together; this may damage the clips.



## 3. SEPARATE THE NO. 2 CABLE BOND (GROUND CABLE)

- a) Remove the bolt and separate the ground cable.

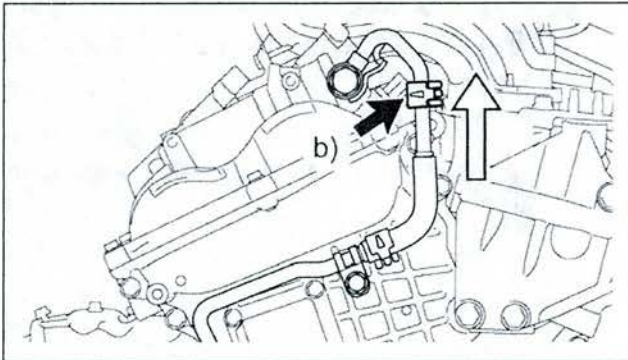


## 4. REMOVE THE NO. 2 TIMING GEAR COVER

- a) Remove two bolts.
- b) Remove the No. 2 timing gear cover.

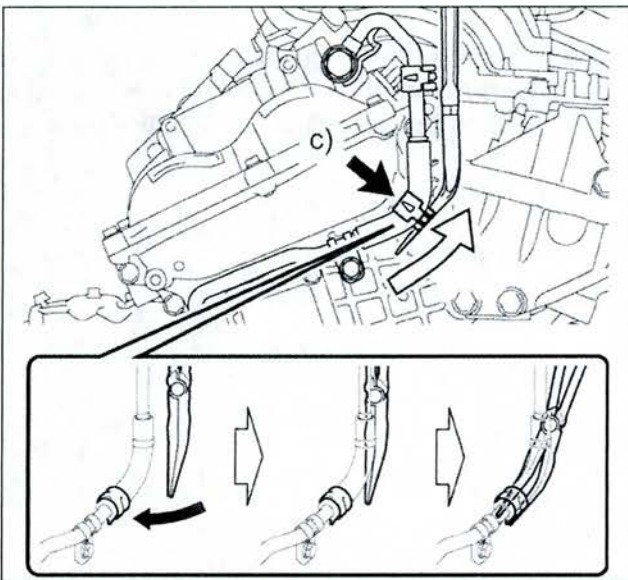


Use care to avoid damage to the Power Steering hoses and VVT-i oil pipe when removing the oil hose.



### 5. REMOVE THE OIL HOSE

- Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- Move the upper hose clamp to the upper section of the oil pipe.

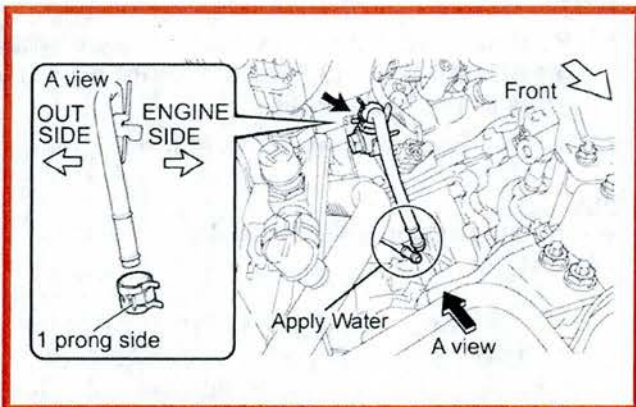


- Move the lower hose clamp to the center of the hose.
- Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.

### B. INSTALL THE OIL HOSE



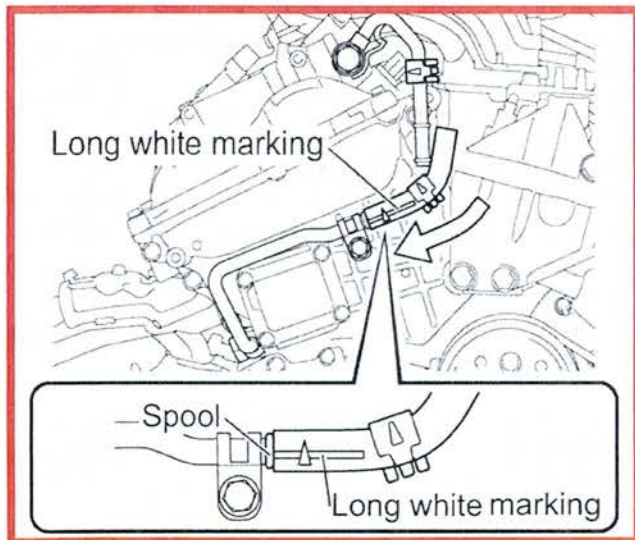
Proper positioning of the oil hose is critical to ensure adequate oil flow to the VVT-i actuator and to prevent leakage. Follow instructions carefully!



### 1. INSTALL THE OIL HOSE

- Place a **NEW** hose clamp on the upper oil pipe as shown.
- Clean both edges of the oil pipe with a shop towel and apply water as a lubricant to the oil pipe to assist with the oil hose attachment.

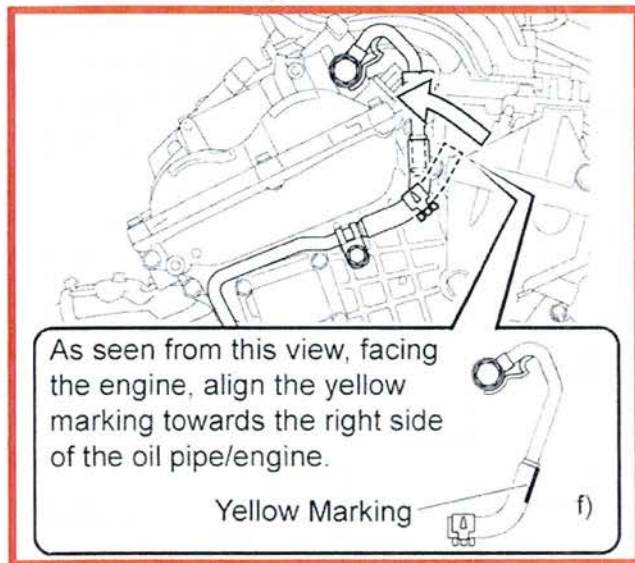
**NOTE:**  
Use only water as a lubricant. Do not apply oil or other lubricants to the oil pipe, this may cause oil leaks.



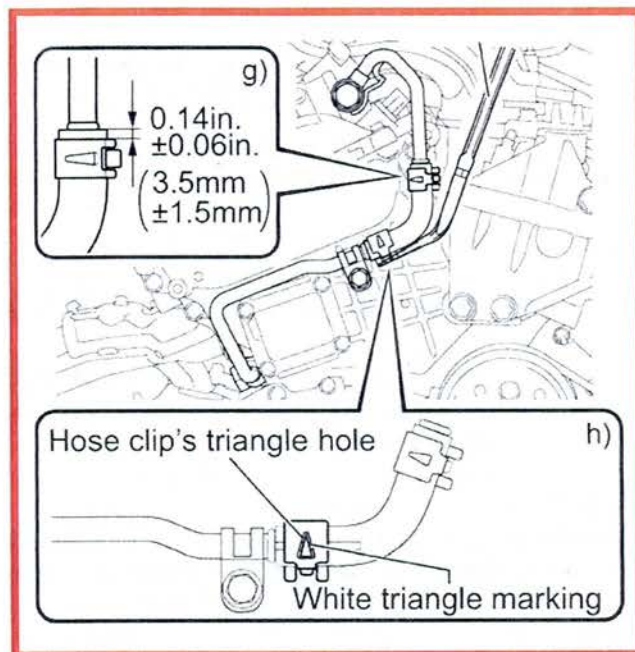
- c) Attach a **NEW** hose clamp on the **NEW** oil hose with the clamp's 2 prong side positioned on the same side as the hose's long white marking.
- d) Install the oil hose's long white marking (lower) side onto the lower pipe until it touches the spool.
- e) Position the long white marking facing away from the engine as illustrated.

**NOTE:**

The long white marking should face away from the engine.



- f) Install the oil hose's yellow marking (upper) side onto the upper oil pipe until it touches the spool. Align the yellow marking as illustrated.



- g) Position the upper hose clamp on the hose as illustrated.
- h) Position and align the lower hose clamp's triangle hole to the white triangle marking on the lower portion of the hose.

**NOTE:**

- Position both upper and lower hose clamps 0.14 in. ± 0.06 in. (3.5mm ± 1.5mm) from the edge of the hose ends.
- Ensure there are no twists in the oil hose.

**Important:**

Avoid comebacks, visually verify correct installation!

- i) After verifying correct installation, remove the paper towels from the engine compartment.
- j) Start the engine and temporarily run it at 3000 RPM's. Confirm no oil leaks are present.

**2. REINSTALL THE NO.2 TIMING GEAR COVER**

a) Reinstall the No.2 timing gear cover with the 2 bolts and torque to **6.0 N·m (61 kgf·cm, 53 in·lbf)**

**3. RECONNECT THE GROUND CABLE**

a) Reconnect the ground cable with the bolt, and torque to **8.4 N·m (86 kgf·cm, 74 in·lbf)**

**4. VERIFY ALL PARTS ARE PROPERLY INSTALLED AND SECURED**

**5. VERIFY THE CORRECT ENGINE OIL LEVEL**

**6. REINSTALL THE V-BANK COVER SUB-ASSEMBLY**

**NOTE:**

When attaching the clips, be careful not to apply excessive force to the top of the cover as this may damage the cover.

**VI. APPENDIX**

**A. PARTS KIT CONTENTS**

<b>Part Number</b>	<b>Part Name</b>	
04009-33131	Kit ,Oil Hose, No.1	
<b>The kit listed above includes the following parts:</b>		
<b>Part Number</b>	<b>Part Name</b>	<b>Qty</b>
15777-31020	Hose, Oil (Cooler)	1
90466-16003	Clip, Hose (Clamp)	2

**B. CAMPAIGN PARTS DISPOSAL**

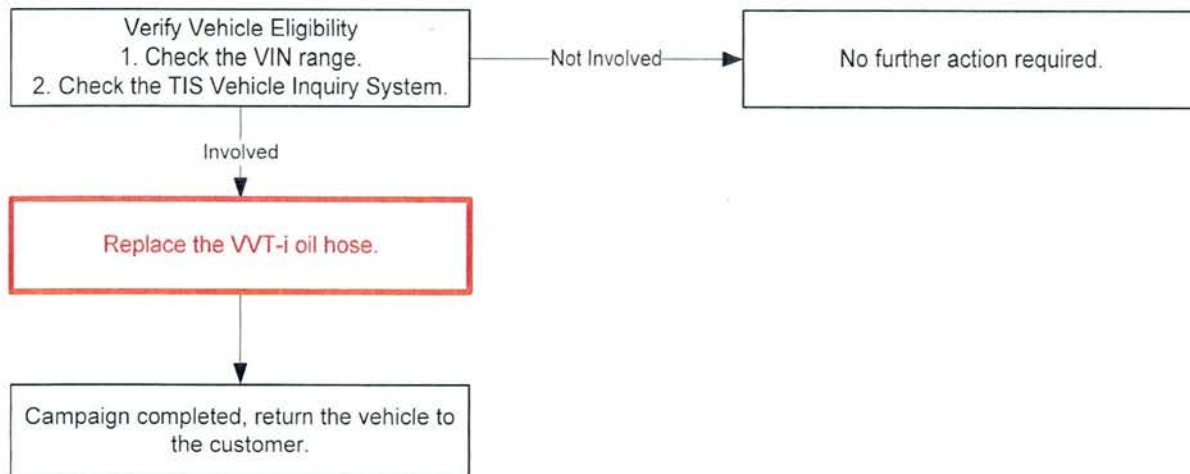
As required by Federal Regulations, please make sure all campaign parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused.

**TECHNICAL INSTRUCTIONS**  
**FOR**  
**LIMITED SERVICE CAMPAIGN 90K**  
**VVT-i OIL HOSE REPLACEMENT**  
**2007 – 2010 SIENNA**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

### A. AFFECTED VIN RANGE

Model	WMI	Year	VIN Range	
			VDS	Range
SIENNA	5TD	2007	BK22C	S000038 - S008764
			BK23C	S000025 - S008740
			ZK22C	S000015 - S099335
			ZK23C	S000018 - S099339
		2008	BK22C	S008777 - S022321
			BK23C	S008766 - S022099
			ZK22C	S099372 - S223498
			ZK23C	S095940 - S225256
		2009	BK23C	S023175 - S023175
			ZK22C	S228570 - S243366
			ZK23C	S227253 - S281144
		2010	KK4CC	S298111 - S299362

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this LSC and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

## III. PREPARATION

### A. PARTS

Part Number	Part Description	Quantity
04009-33131	No.1 Oil Hose Kit	1

## B. TOOLS & EQUIPMENT

- Standard hand tools
- Torque wrench
- Angled long nose pliers\*
- Paper or shop towels
- Mirror

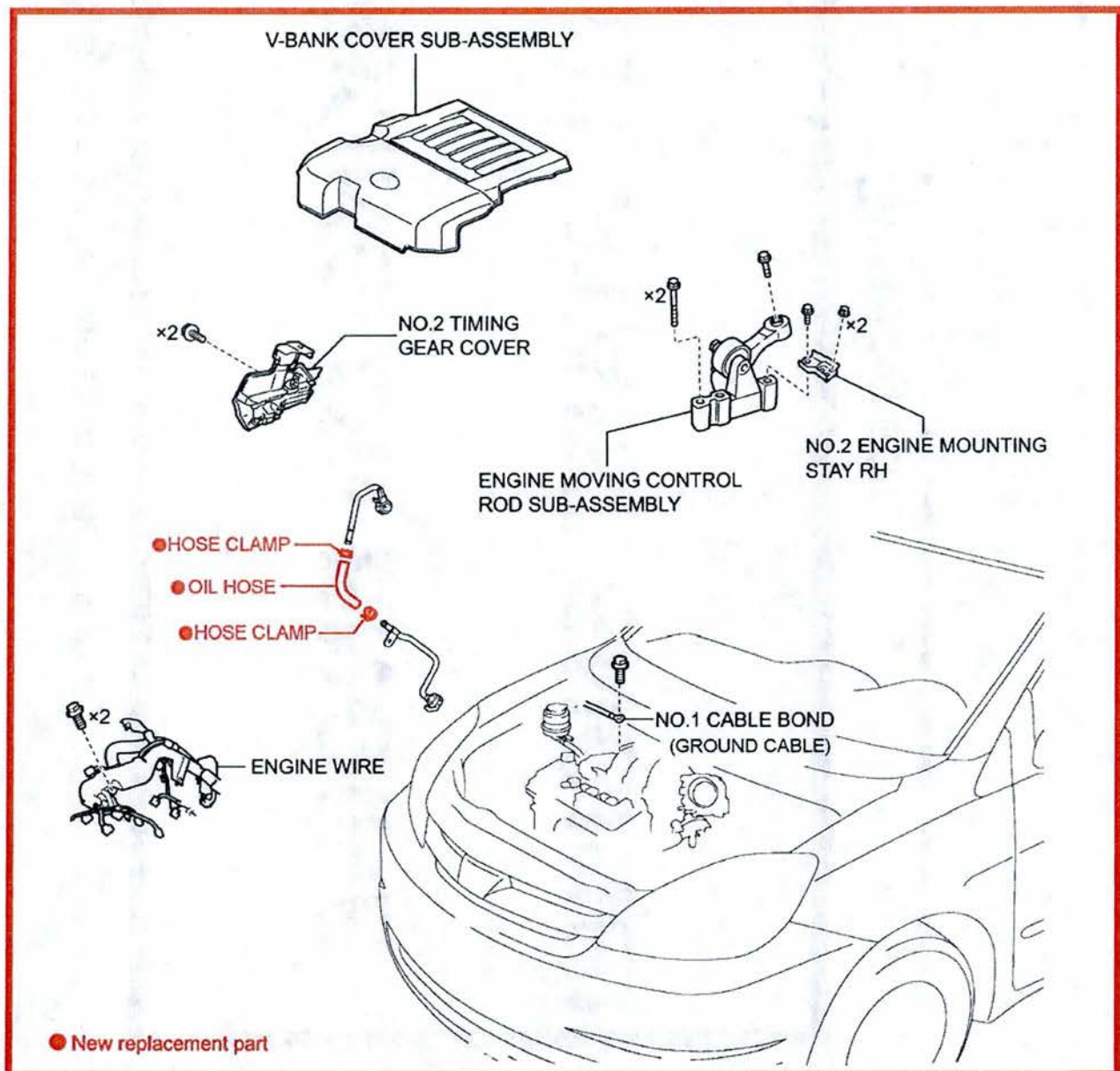
\* **NOTE:** One angled long nose pliers will be included in the dealer package.  
Technicians may also utilize one of the following commercially available tools:

1. Snap-On: 411BCP
2. Matco: PNG111B
3. Mac: P301733



## IV. BACKGROUND

On certain vehicles equipped with a 2GR-FE engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.





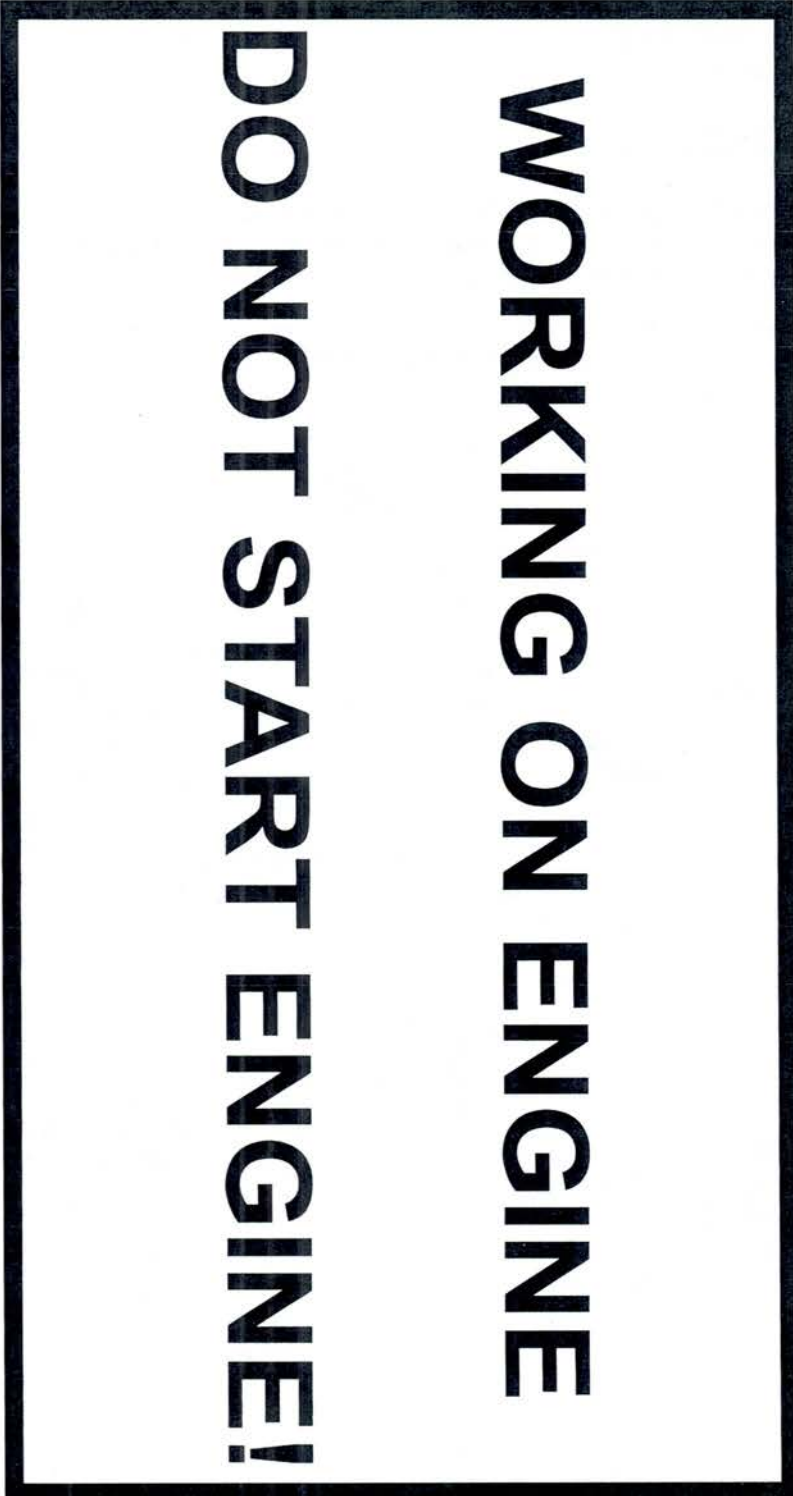
**V. WORK PROCEDURE**

**A. REMOVE OIL HOSE**

**1. CONFIRM IGNITION IS OFF**

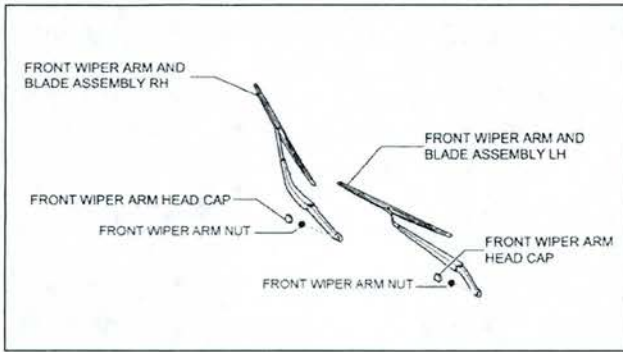
a) Clearly indicate that the engine must not be started during repairs.

■ Copy and place in a visible location when working.



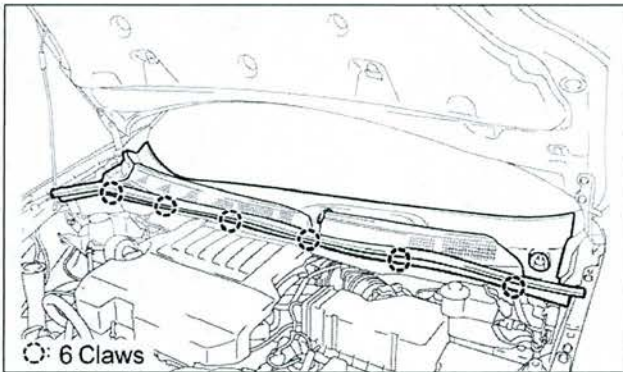
**Supervisor:**

---



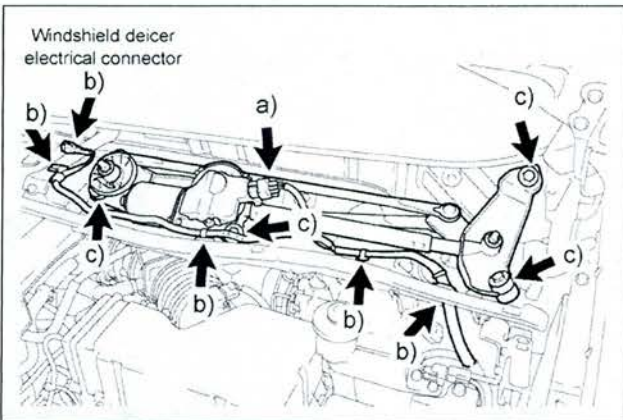
## 2. REMOVE THE FRONT WIPER ARM LH/RH

- Remove the front wiper arm head caps.
- Ensure the wiper arms are in the normal down resting position.
- Remove the nuts and front wiper arms LH/RH.



## 3. REMOVE THE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY

- Remove the 6 claws.
- Remove the sub-assembly.



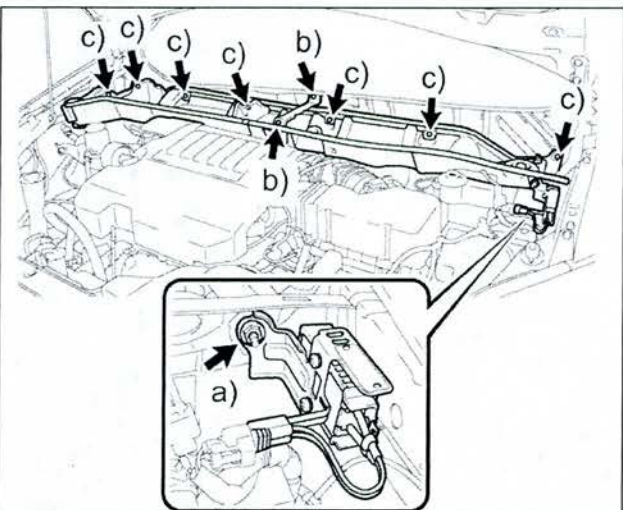
## 4. REMOVE THE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY

- Disconnect the wiper motor electrical connector.
- Disconnect the 4 harness clamps and grommet and pull out the wire harness from the cowl top panel.

### NOTE:

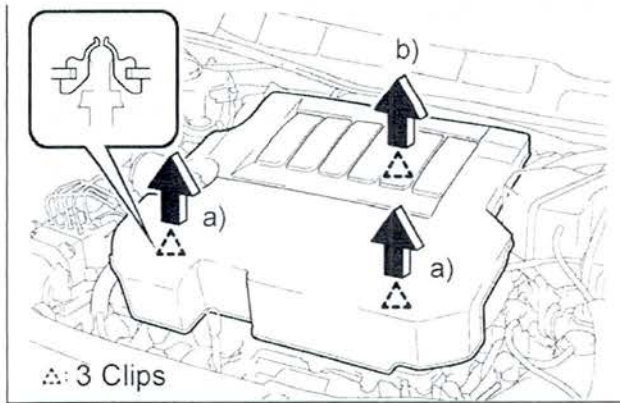
If equipped, disconnect the windshield deicer electrical connector located on the cowl inner brace

- Remove the 4 bolts and wiper motor and link assembly.



## 5. REMOVE THE FRONT OUTER COWL TOP PANEL ASSEMBLY

- Remove the nut, and separate the fuel pump resistor.
- Remove the 2 bolts and the cowl inner brace.
- Remove the 7 bolts and the sub-assembly.

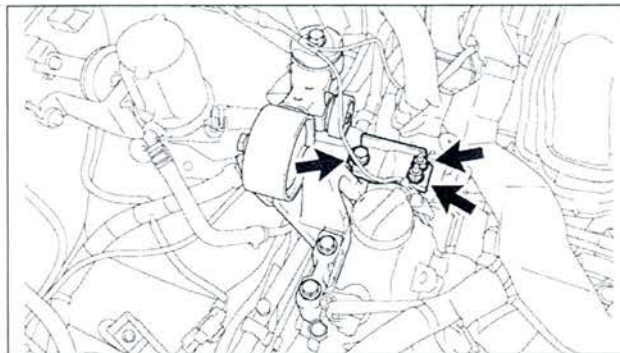


**6. REMOVE THE V-BANK COVER SUB-ASSEMBLY**

- a) Place both hands on the front side of the cover and lift up to disengage the 2 clips.
- b) Place both hands on the back side of the cover and lift up to disengage the rear clip.
- c) Remove the v-bank cover sub-assembly.

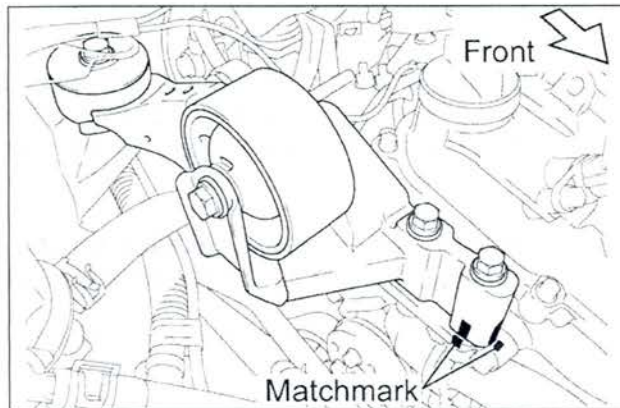
**NOTE:**

Do not lift the cover's front and back end together; this may damage the clips.



**7. REMOVE THE NO. 2 ENGINE MOUNTING STAY RH**

- a) Remove the bolt, 2 nuts and No. 2 engine mounting stay RH.

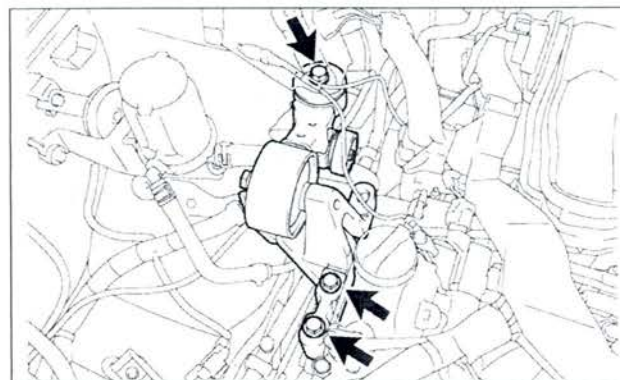


**8. REMOVE THE ENGINE MOVING CONTROL ROD SUB ASSEMBLY**

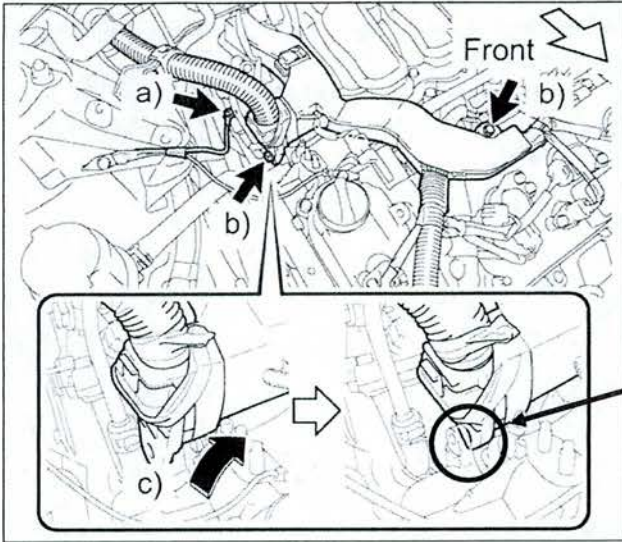
- a) Mark the sub-assembly as illustrated for reference during re-installation.

**NOTE:**

Failure to reinstall the engine moving control rod in the same position from which it was removed may result in additional engine vibration.



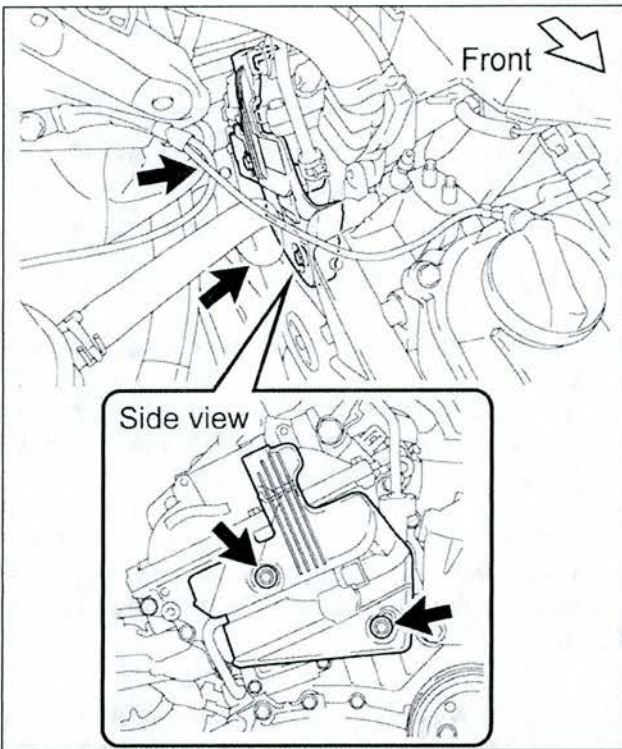
- b) Remove the 3 bolts and engine moving control rod sub-assembly.



## 9. SEPARATE THE WIRE HARNESS

- a) Remove the bolt and separate the No.1 cable bond (ground cable).
- b) Remove the 2 wire harness protector hold-down bolts as illustrated.
- c) Temporarily reposition the wire harness protector to the opposite side of the mounting tab.

**NOTE:**  
 Avoid damage to wire harness, harness clips and/or wiring. Use care when repositioning the harness for service.

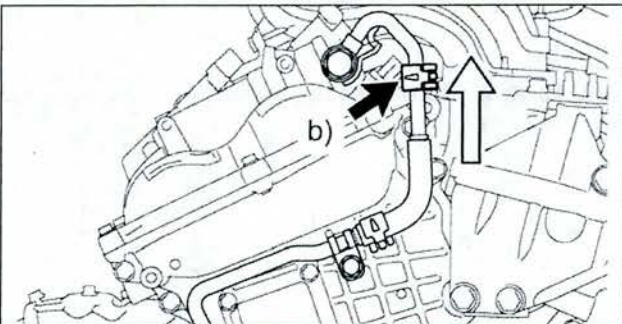


## 10. REMOVE THE NO.2 TIMING GEAR COVER

- a) Remove the 2 bolts.
- b) Remove the No. 2 timing gear cover.

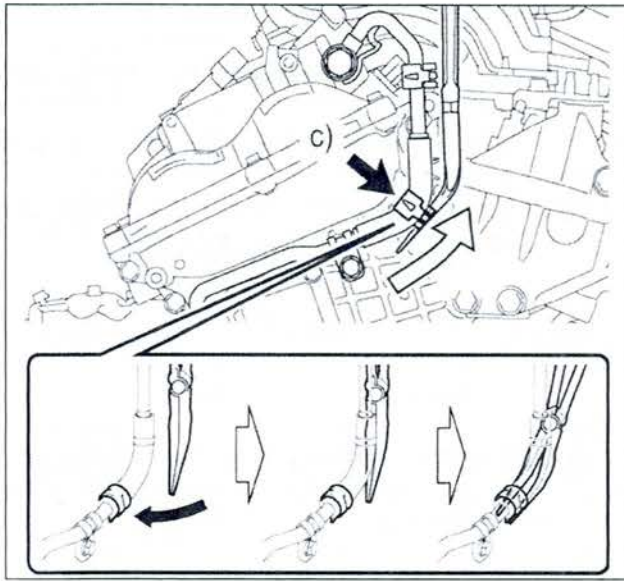


**Use care to avoid damage to the Power Steering hoses and VVT-i oil pipe when removing the oil hose.**



## 11. REMOVE THE OIL HOSE

- a) Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- b) Move the upper hose clamp to the upper section of the oil pipe.

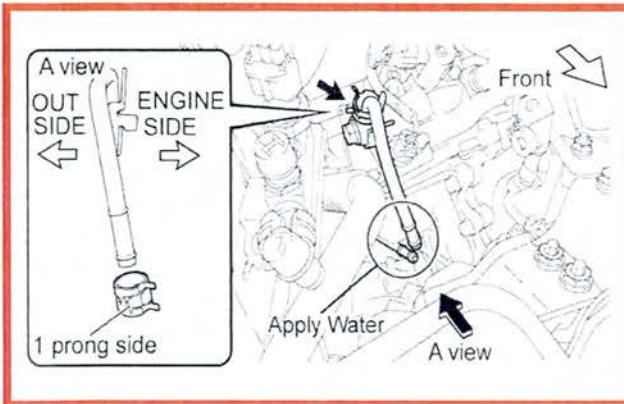


- c) Move the lower hose clamp to the center of the hose.
- d) Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.

## B. INSTALL THE OIL HOSE



Proper positioning of the oil hose is critical to ensure adequate oil flow to the VVT-i actuator and to prevent leakage. Follow instructions carefully!

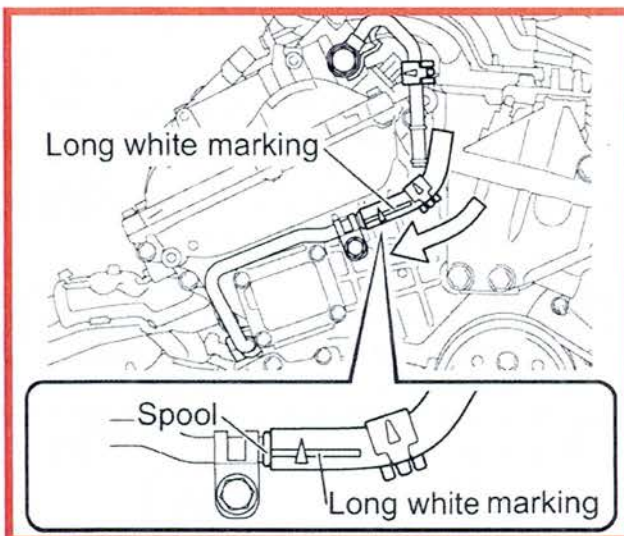


### 1. INSTALL THE OIL HOSE

- a) Place a **NEW** hose clamp on the upper oil pipe as shown.
- b) Clean both edges of the oil pipe with a shop towel and apply water as a lubricant to the oil pipe to assist with the oil hose attachment.

#### NOTE:

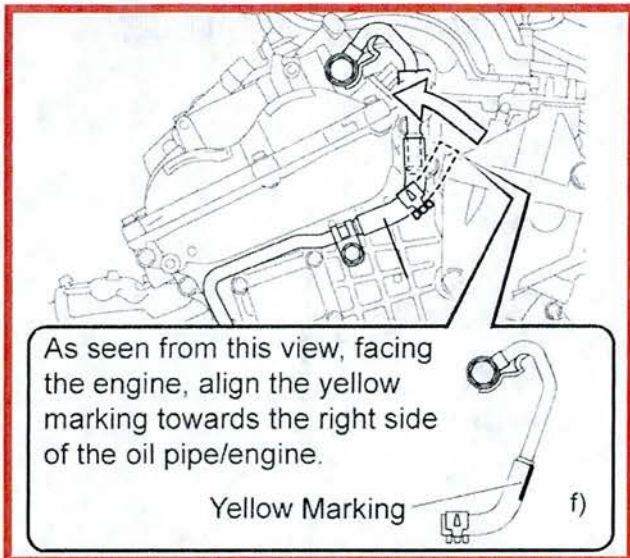
Use only water as a lubricant. Do not apply oil or other lubricants to the oil pipe, this may cause oil leaks.



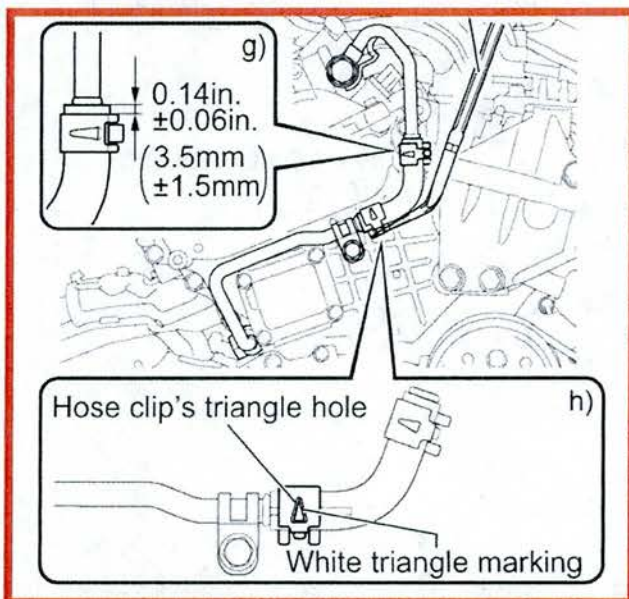
- c) Attach a **NEW** hose clamp on the **NEW** oil hose with the clamp's 2 prong side positioned on the same side as the hose's long white marking.
- d) Install the oil hose's long white marking (lower) side onto the lower pipe until it touches the spool.
- e) Position the long white marking facing away from the engine as illustrated.

#### NOTE:

The long white marking should face away from the engine.



- f) Install the oil hose's yellow marking (upper) side onto the upper oil pipe until it touches the spool. Align the yellow marking as illustrated.



- g) Position the upper hose clamp on the hose as illustrated.
- h) Position and align the lower hose clamp's triangle hole to the white triangle marking on the lower portion of the hose.

**NOTE:**

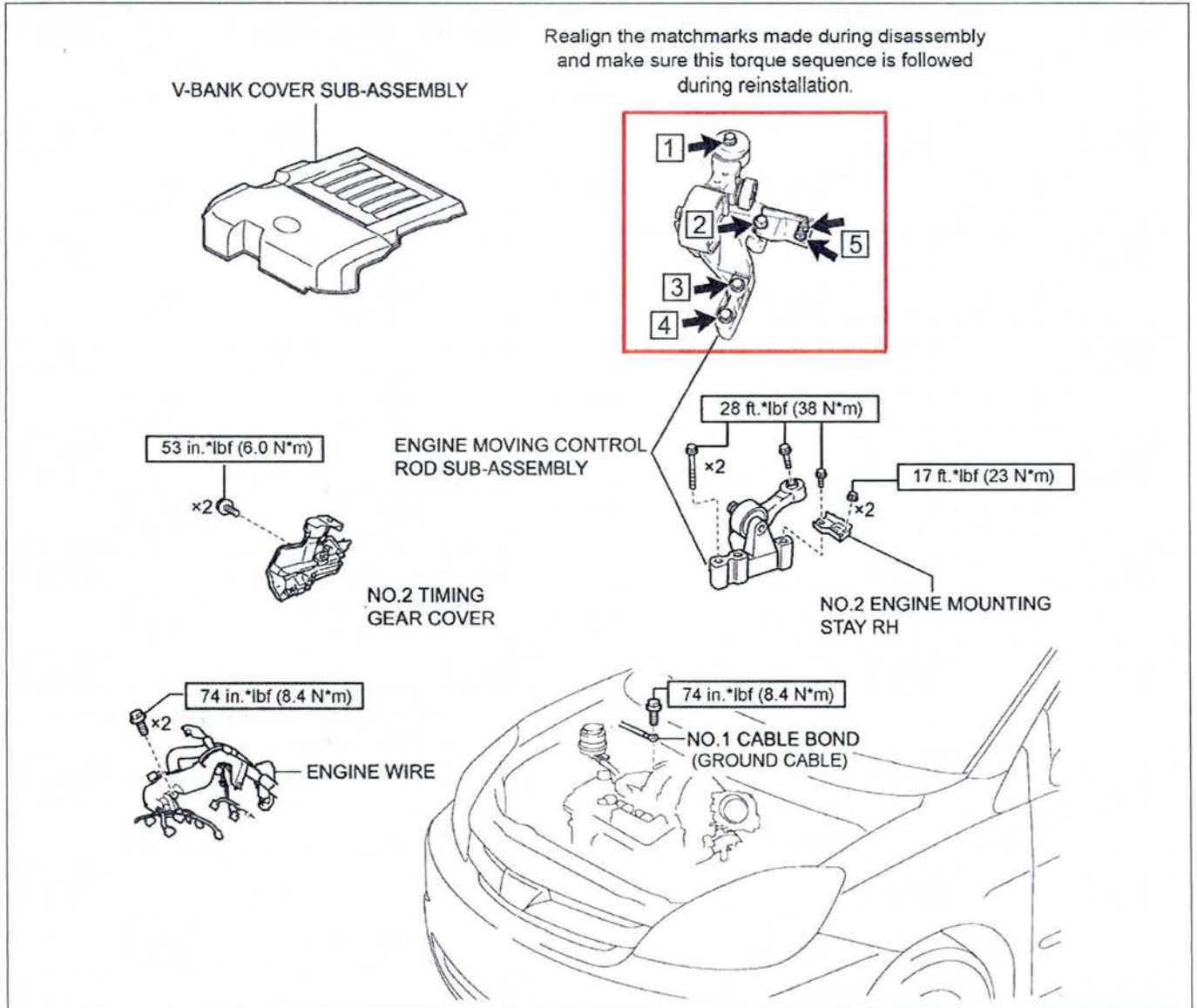
- Position both upper and lower hose clamps 0.14 in. ± 0.06 in. (3.5mm ± 1.5mm) from the edge of the hose ends.
- Ensure there are no twists in the oil hose.

**Important:**

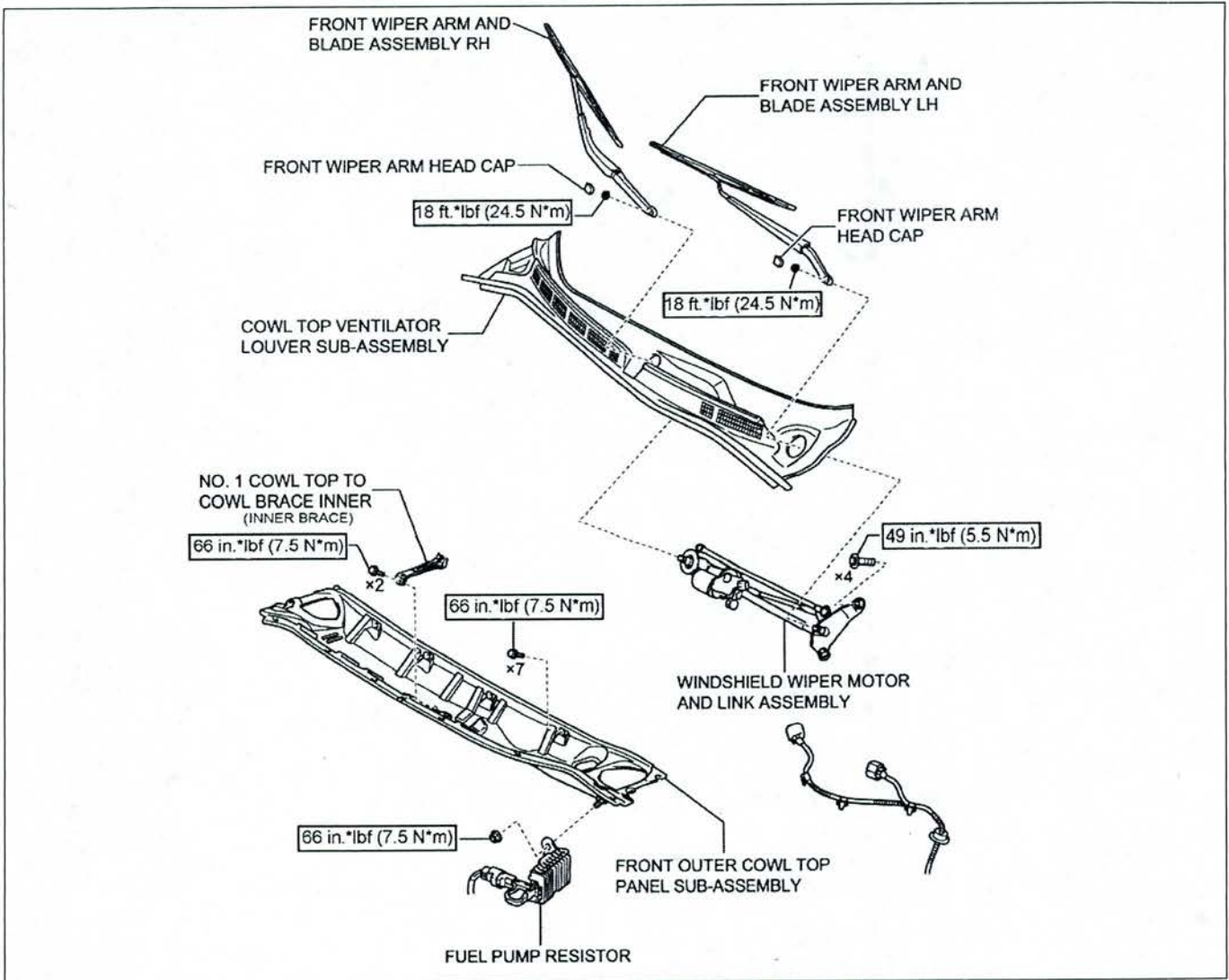
**Avoid comebacks, visually verify correct installation!**

- i) After verifying correct installation, remove the paper towels from the engine compartment.

## 2. REASSEMBLE ENGINE COMPONENTS BY REVERSING DISASSEMBLY INSTRUCTIONS



**NOTE:** All necessary torque specifications are located in the illustration above.



NOTE: All necessary torque specifications are located in the illustration above.

3. VERIFY THE CORRECT ENGINE OIL LEVEL
4. TEMPORARILY RUN THE ENGINE AT 3,000 RPM's, CONFIRM NO OIL LEAKS ARE PRESENT

## VI. APPENDIX

### A. PARTS KIT CONTENTS

Part Number	Part Name	
04009-33131	Kit ,Oil Hose, No.1	
The kit listed above includes the following parts:		
Part Number	Part Name	Q'ty
15777-31020	Hose, Oil (Cooler)	1
90466-16003	Clip, Hose (Clamp)	2

### B. CAMPAIGN PARTS DISPOSAL

As required by Federal Regulations, please make sure all campaign parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused.

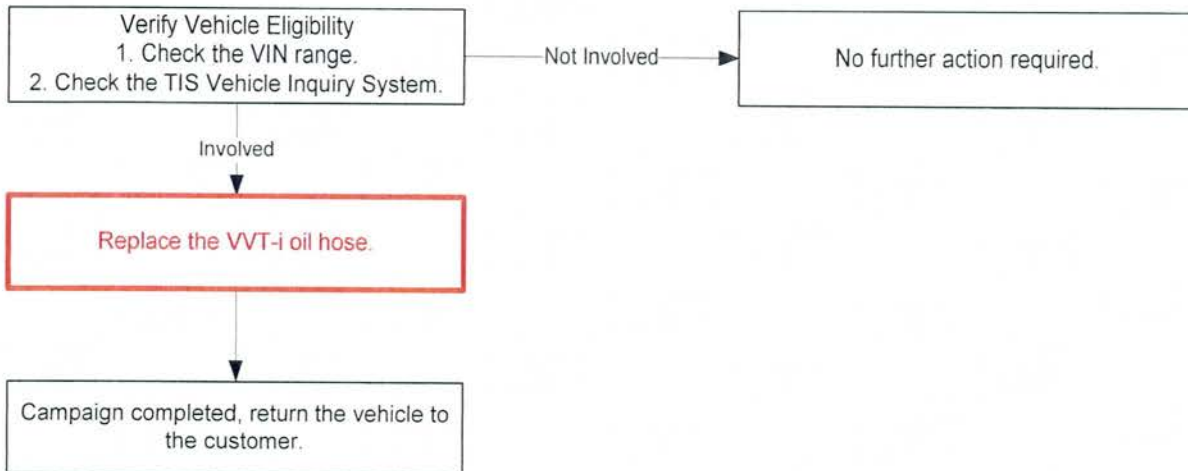


**TECHNICAL INSTRUCTIONS**  
**FOR**  
**LIMITED SERVICE CAMPAIGN 90K**  
**VVT-i OIL HOSE REPLACEMENT**  
**2005 - 2009 AVALON**

The repair quality of covered vehicles is extremely important to Toyota. All dealership associates involved in the LSC process are required to successfully complete E-Learning course SC13A. To ensure that all vehicles have the repair performed correctly; technicians performing this LSC repair are required to currently hold at least one of the following certification levels:

- Certified Engine
- Expert Engine
- Master
- Master Diagnostic Technician

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

### A. AFFECTED VIN RANGE

Model	WMI	Year	VIN Range	
			VDS	Range
AVALON	4T1	2005	BK36B	U001102 - U062420
		2006		U062432 - U167701
		2007		U165629 - U253861
		2008		U251079 - U311505
		2009		U324725 - U346786

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this LSC and that the campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs conducted on vehicles that are not affected or were completed by another dealer.

## III. PREPARATION

### A. PARTS

Part Number	Part Description	Quantity
04009-33131	No.1 Oil Hose Kit	1

## B. TOOLS & EQUIPMENT

- Standard hand tools
- Torque wrench
- Angled long nose pliers\*
- Paper or shop towels
- Mirror

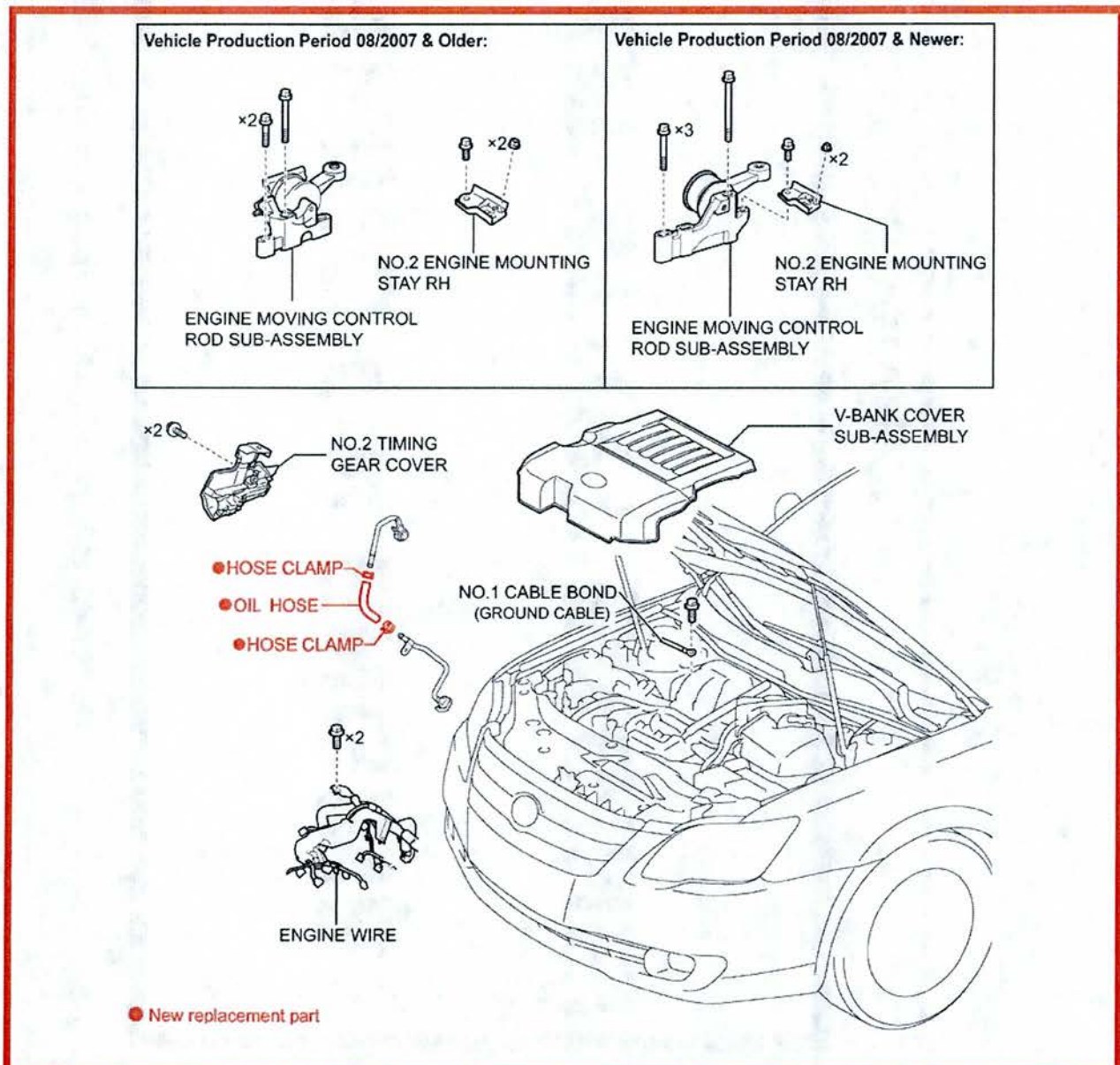
\* **NOTE:** One angled long nose pliers will be included in the dealer package.  
Technicians may also utilize one of the following commercially available tools:

1. Snap-On: 411BCP
2. Matco: PNG111B
3. Mac: P301733



## IV. BACKGROUND

On certain vehicles equipped with a 2GR-FE engine, the rubber portion of the oil supply hose for the VVT-i actuator may degrade over time. This condition may cause oil to leak from the VVT-i oil hose producing abnormal engine noise and the oil pressure light to illuminate.



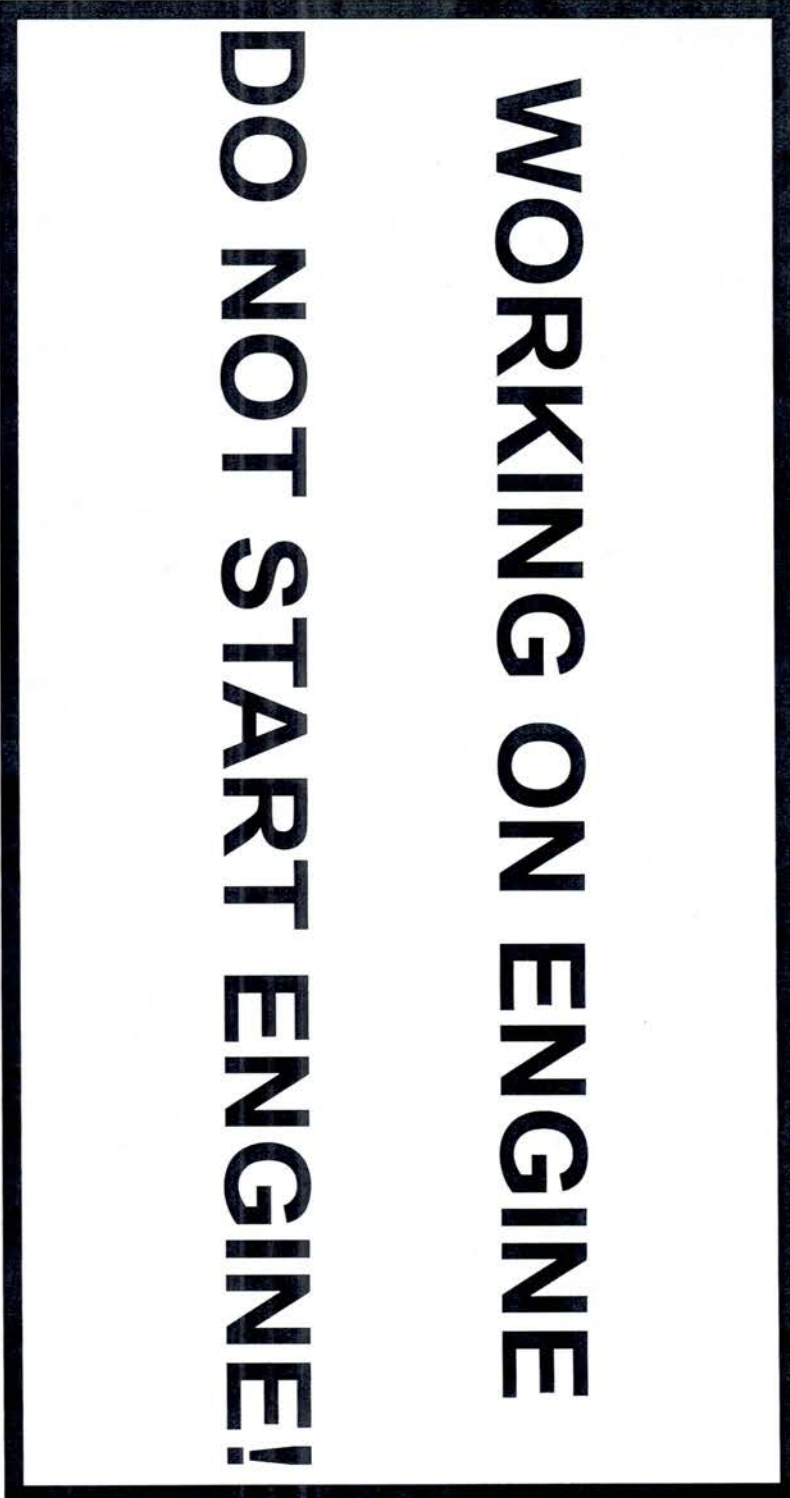
V. WORK PROCEDURE

A. REMOVE OIL HOSE

1. CONFIRM IGNITION IS OFF

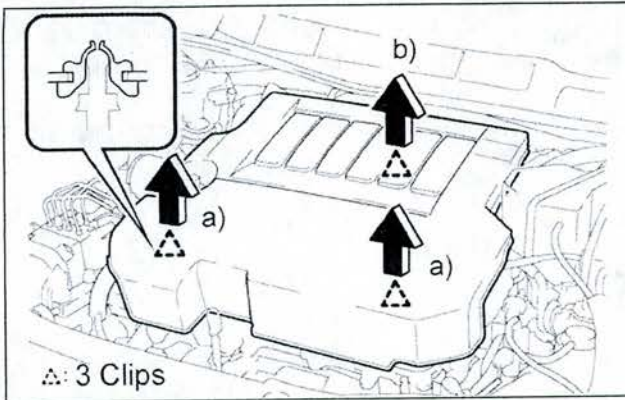
a) Clearly indicate that the engine must not be started during repairs.

■ Copy and place in a visible location when working.



**Supervisor:**

---



## 2. REMOVE THE V-BANK COVER SUB-ASSEMBLY

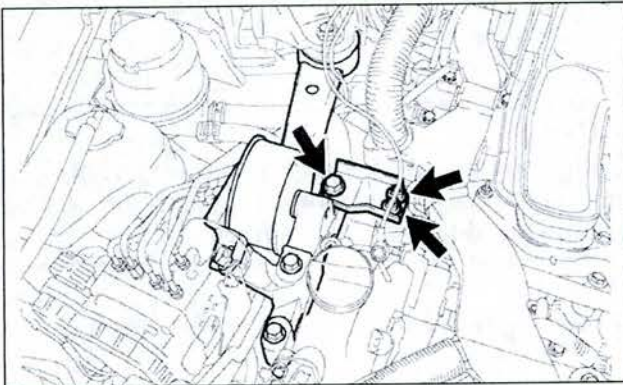
- Place both hands on the front side of the cover and lift up to disengage the 2 clips.
- Place both hands on the back side of the cover and lift up to disengage the rear clip.
- Remove the v-bank cover sub-assembly.

### NOTE:

Do not lift the cover's front and back end together; this may damage the clips.

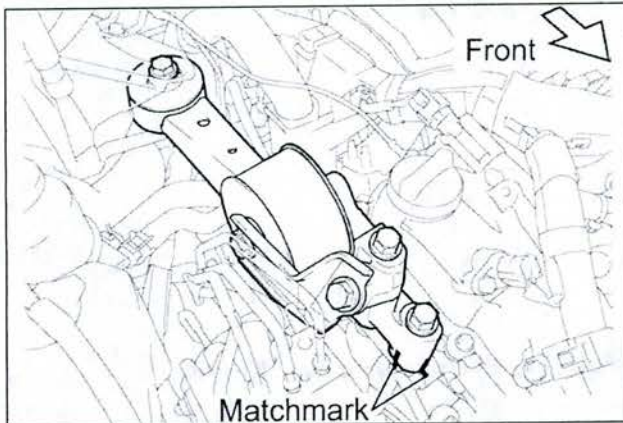


- For Vehicle Production: August 2007 & Older use step 3 - 4
- For Vehicle Production: August 2007 & Newer use step 5 - 6



## 3. REMOVE THE NO. 2 ENGINE MOUNTING STAY RH (Production Period: August 2007 & Older)

- Remove the bolt, 2 nuts and No. 2 engine mounting stay RH.



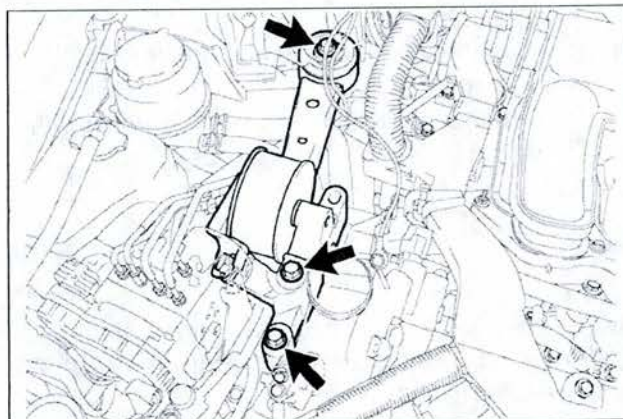
## 4. REMOVE THE ENGINE MOVING CONTROL ROD SUB ASSEMBLY (Production Period: August 2007 & Older)

- Mark the sub-assembly as illustrated for reference during re-installation.

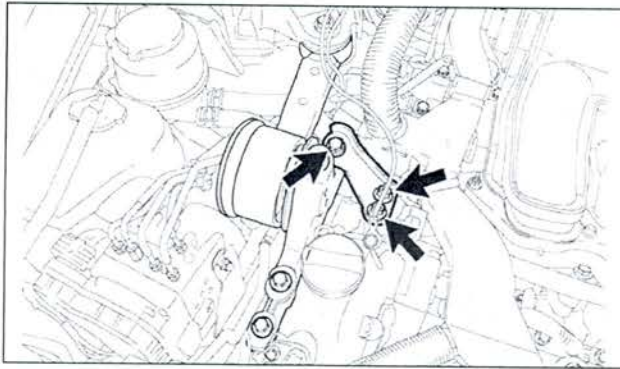
### NOTE:

Failure to reinstall the engine moving control rod in the same position from which it was removed may result in additional engine vibration.

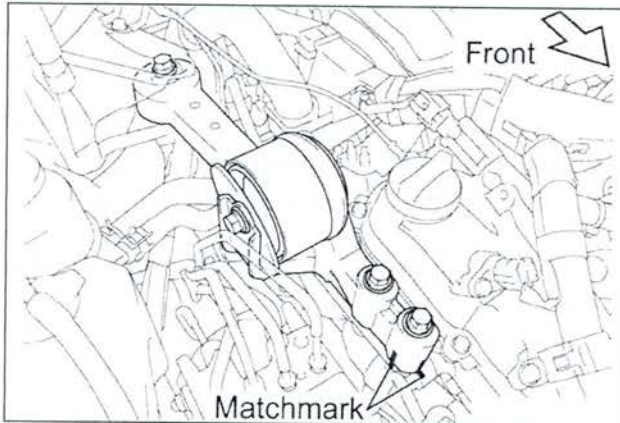
(Production Period: August 2007 & Older)



- Remove the 3 bolts and engine moving control rod sub-assembly.



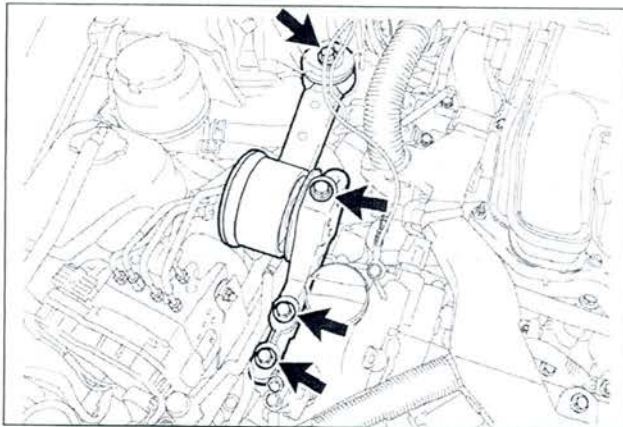
5. REMOVE THE NO. 2 ENGINE MOUNTING STAY RH  
(Production Period: August 2007 & Newer)
- a) Remove the bolt, 2 nuts and No. 2 engine mounting stay RH.



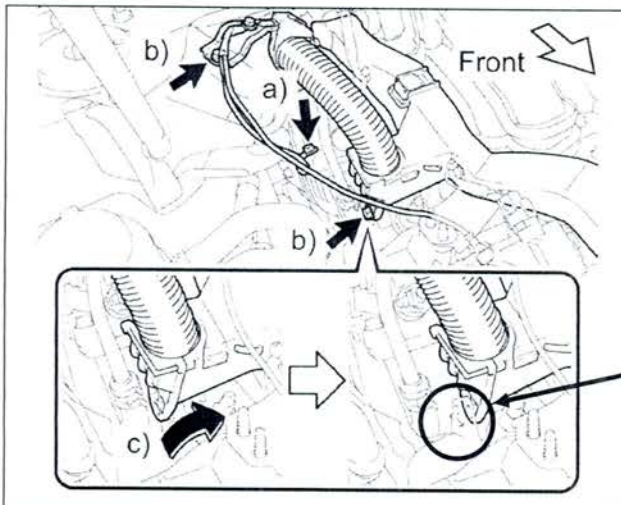
6. REMOVE THE ENGINE MOVING CONTROL ROD SUB-ASSEMBLY  
(Production Period: August 2007 & Newer)
- a) Mark the sub-assembly as illustrated for reference during re-installation.

**NOTE:**

Failure to reinstall the engine moving control rod in the same position from which it was removed may result in additional engine vibration.



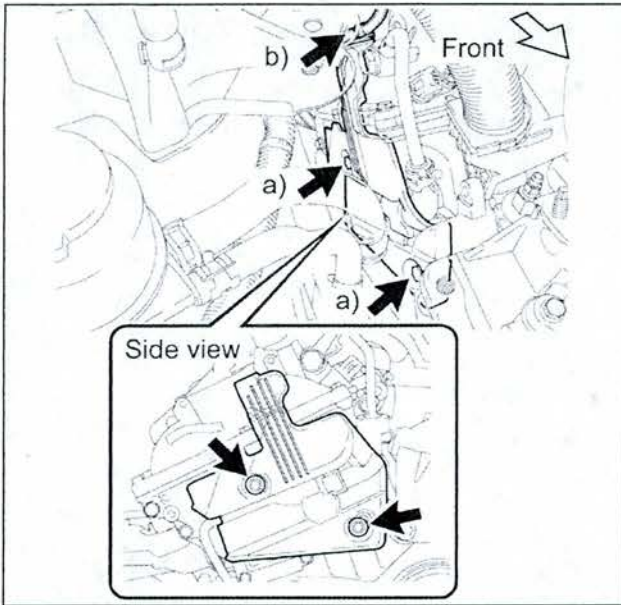
- (Production Period: August 2007 & Newer)
- b) Remove the 4 bolts and engine moving control rod sub-assembly.



7. SEPARATE THE WIRE HARNESS
- a) Remove the bolt and separate the No.1 cable bond (ground cable).
  - b) Remove the 2 wire harness protector hold-down bolts as illustrated.
  - c) Temporarily reposition the wire harness protector to the opposite side of the mounting tab.

**NOTE:**

Avoid damage to wire harness, harness clips and/or wiring. Use care when repositioning the harness for service.



## 8. REMOVE THE NO. 2 TIMING GEAR COVER

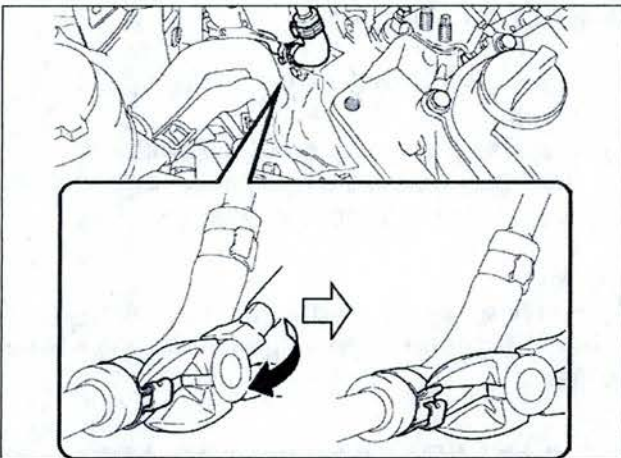
- a) Remove the 2 bolts.
- b) Pull the No. 2 timing gear cover slightly away from the engine and disconnect the wire harness clip, if equipped.
- c) Remove the No. 2 timing gear cover.

### NOTE:

Don't forget to remove the small wire harness clip from the rear of the No. 2 timing gear cover, if equipped.



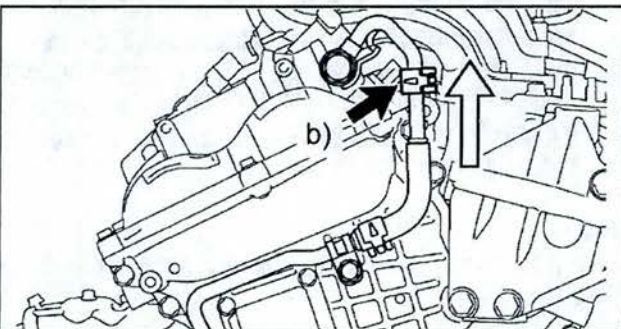
- For Vehicle Production: February 2006 & Older use step 9
- For Vehicle Production: February 2006 & Newer use step 10
- Use care to avoid damage to the Power Steering hoses and VVT-i oil pipe when removing the oil hose.



## 9. REMOVE THE OIL HOSE

Production Period: February 2006 & Older

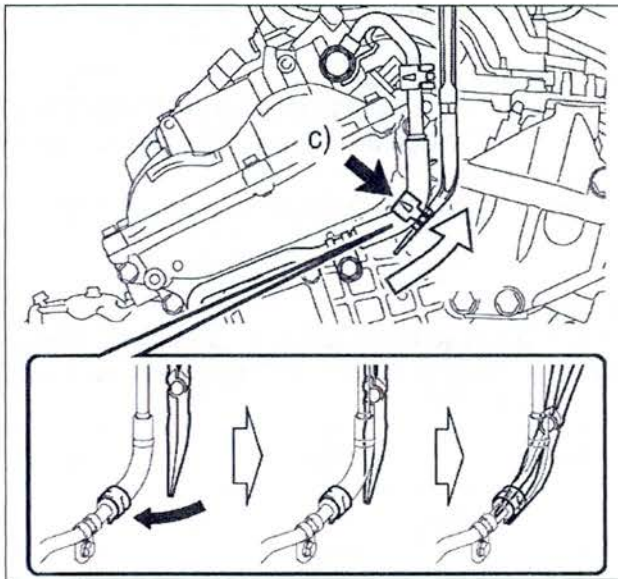
- a) Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- b) To release the hose clamps, squeeze the crimped section using diagonal cut pliers, as illustrated.
- c) Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.



## 10. REMOVE THE OIL HOSE

Production Period: February 2006 & Newer

- a) Place paper towels below the hose before removal to prevent engine oil from dripping onto vehicle components.
- b) Move the upper hose clamp to the upper section of the oil pipe.

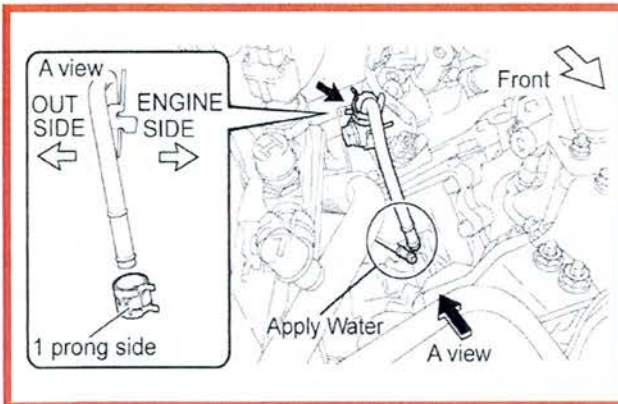


- c) Move the lower hose clamp to the center of the hose.
- d) Remove and dispose the oil hose and the two clamps in a manner by which they cannot be reused.

## B. INSTALL THE OIL HOSE



Proper positioning of the oil hose is critical to ensure adequate oil flow to the VVT-i actuator and to prevent leakage. Follow instructions carefully!

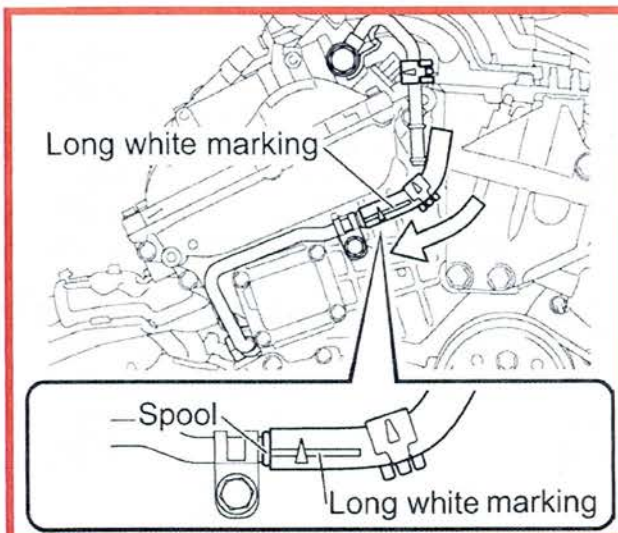


### 1. INSTALL THE OIL HOSE

- a) Place a **NEW** hose clamp on the upper oil pipe as shown.
- b) Clean both edges of the oil pipe with a shop towel and apply water as a lubricant to the oil pipe to assist with the oil hose attachment.

#### NOTE:

Use only water as a lubricant. Do not apply oil or other lubricants to the oil pipe, this may cause oil leaks.

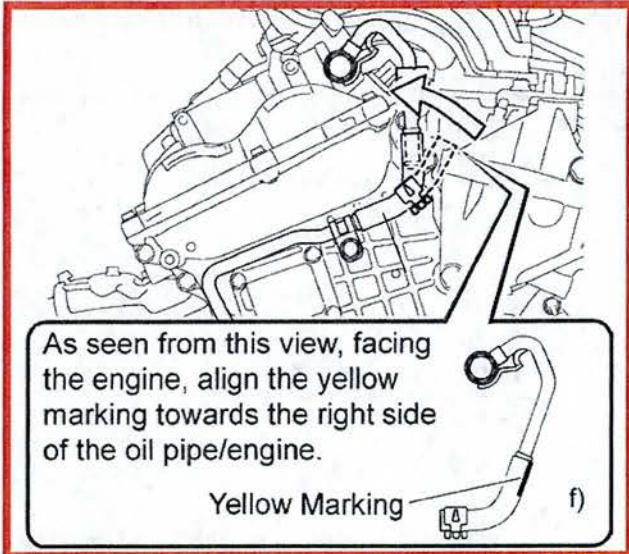


- c) Attach a **NEW** hose clamp on the **NEW** oil hose with the clamp's 2 prong side positioned on the same side as the hose's long white marking.
- d) Install the oil hose's long white marking (lower) side onto the lower pipe until it touches the spool.
- e) Position the long white marking facing away from the engine as illustrated.

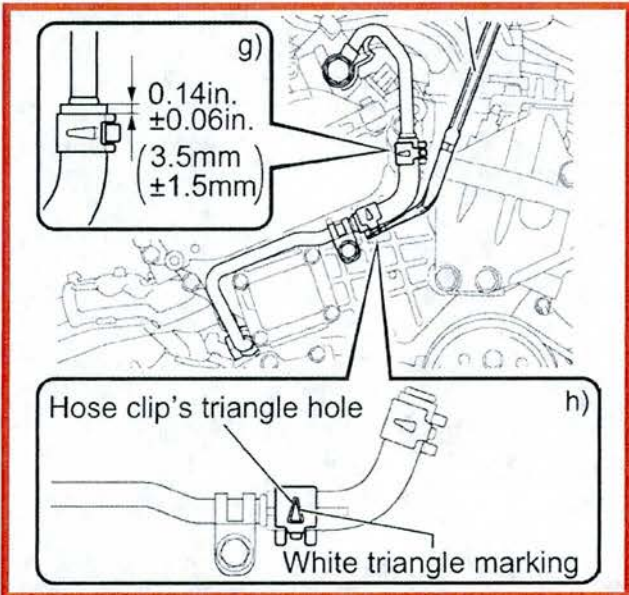
#### NOTE:

The long white marking should face away from the engine.





- f) Install the oil hose's yellow marking (upper) side onto the upper oil pipe until it touches the spool. Align the yellow marking as illustrated.



- g) Position the upper hose clamp on the hose as illustrated.
- h) Position and align the lower hose clamp's triangle hole to the white triangle marking on the lower portion of the hose.

**NOTE:**

- Position both upper and lower hose clamps 0.14 in. ± 0.06 in. (3.5mm ± 1.5mm) from the edge of the hose ends.
- Ensure there are no twists in the oil hose.

**Important:**

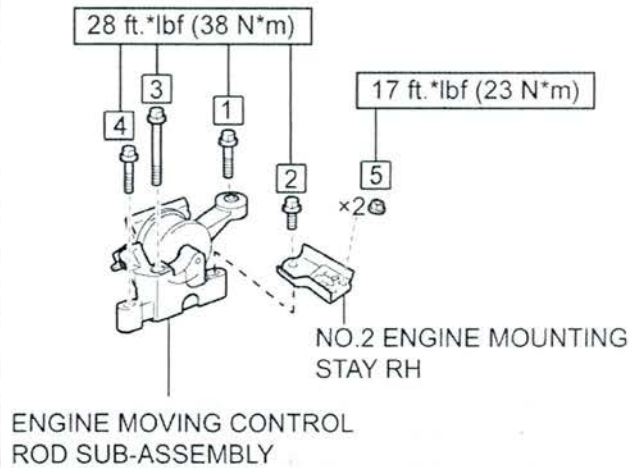
**Avoid comebacks, visually verify correct installation!**

- i) After verifying correct installation, remove the paper towels from the engine compartment.

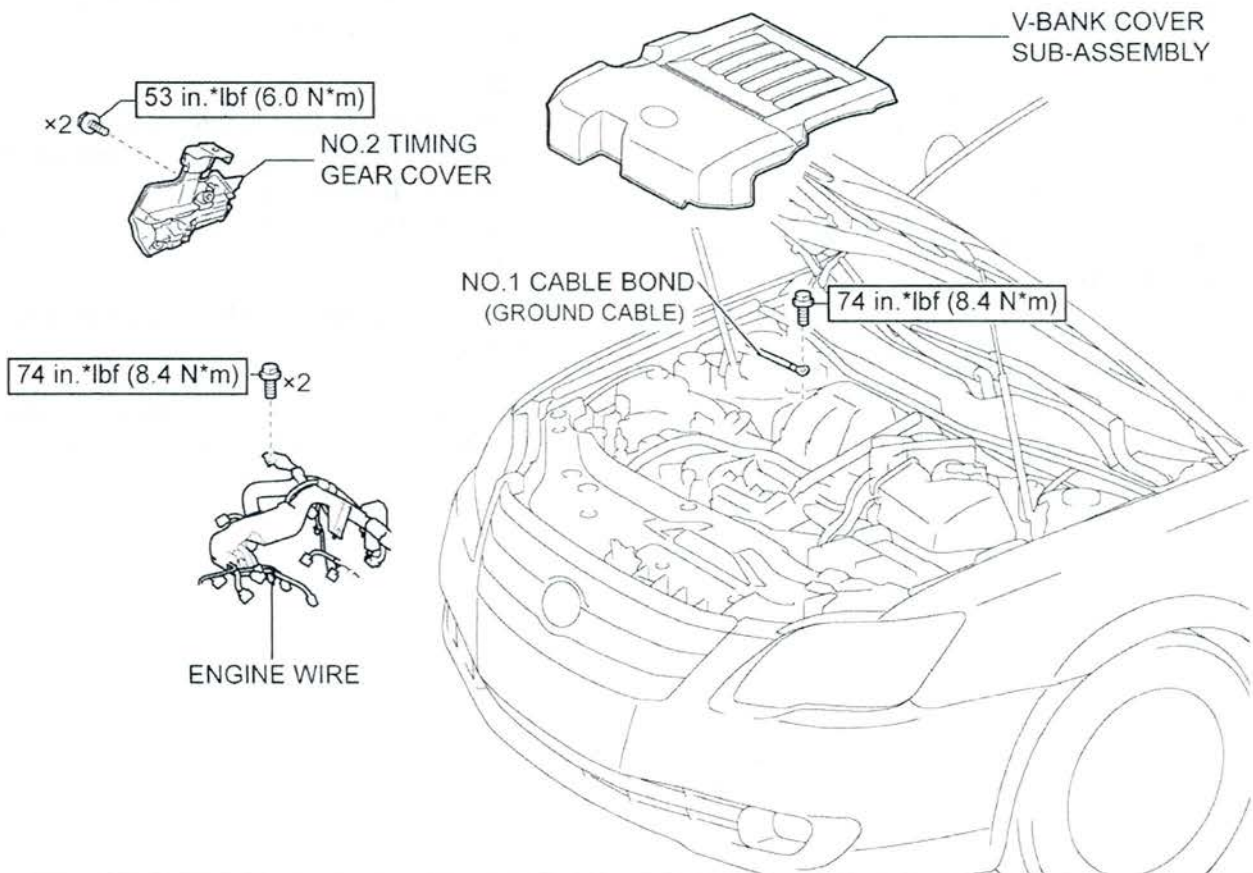
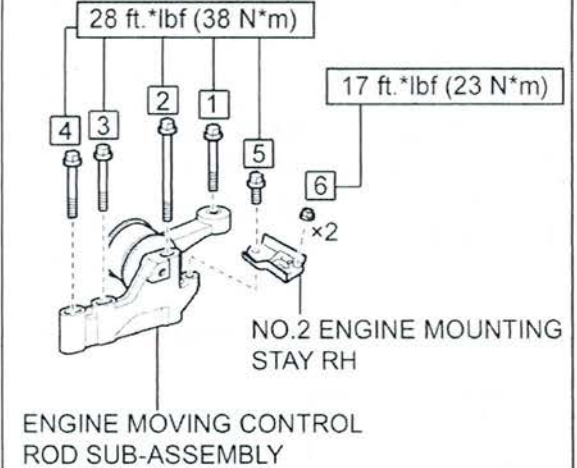
## 2. REASSEMBLE ENGINE COMPONENTS BY REVERSING DISASSEMBLY INSTRUCTIONS

Realign the matchmarks made during the disassembly of the Engine Moving Control Rod and make sure the correct torque sequence is followed depending on Vehicle Production Period.

Vehicle Production Period 08/2007 & Older:



Vehicle Production Period 08/2007 & Newer:



NOTE: All necessary torque specifications are located in the illustration above.

3. VERIFY THE CORRECT ENGINE OIL LEVEL

4. TEMPORARILY RUN THE ENGINE AT 3,000 RPM's, CONFIRM NO OIL LEAKS ARE PRESENT

## VI. APPENDIX

### A. PARTS KIT CONTENTS

Part Number	Part Name	
04009-33131	Kit ,Oil Hose, No.1	
The kit listed above includes the following parts:		
Part Number	Part Name	Q'ty
15777-31020	Hose, Oil (Cooler)	1
90466-16003	Clip, Hose (Clamp)	2

### B. CAMPAIGN PARTS DISPOSAL

As required by Federal Regulations, please make sure all campaign parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused.