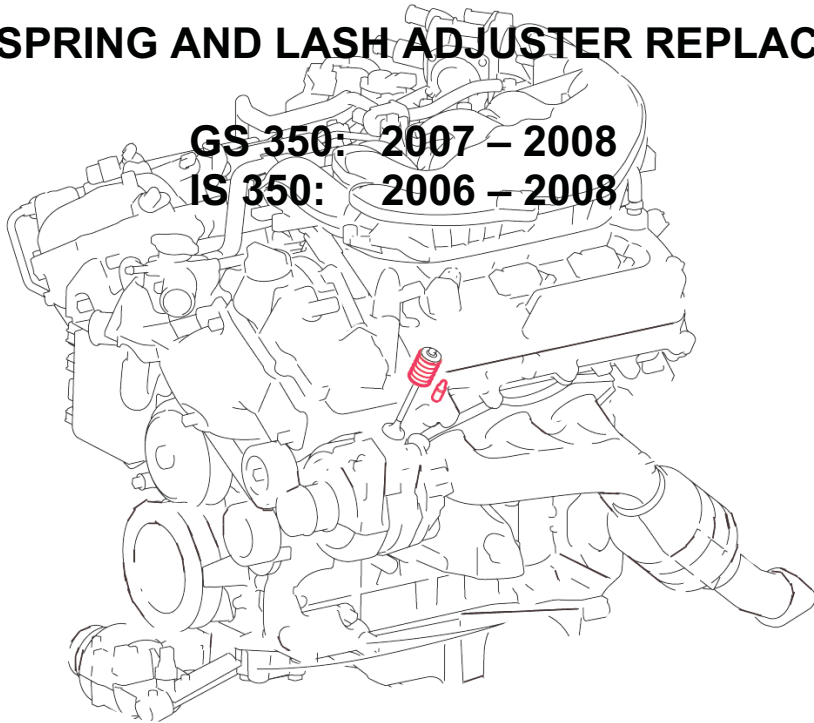
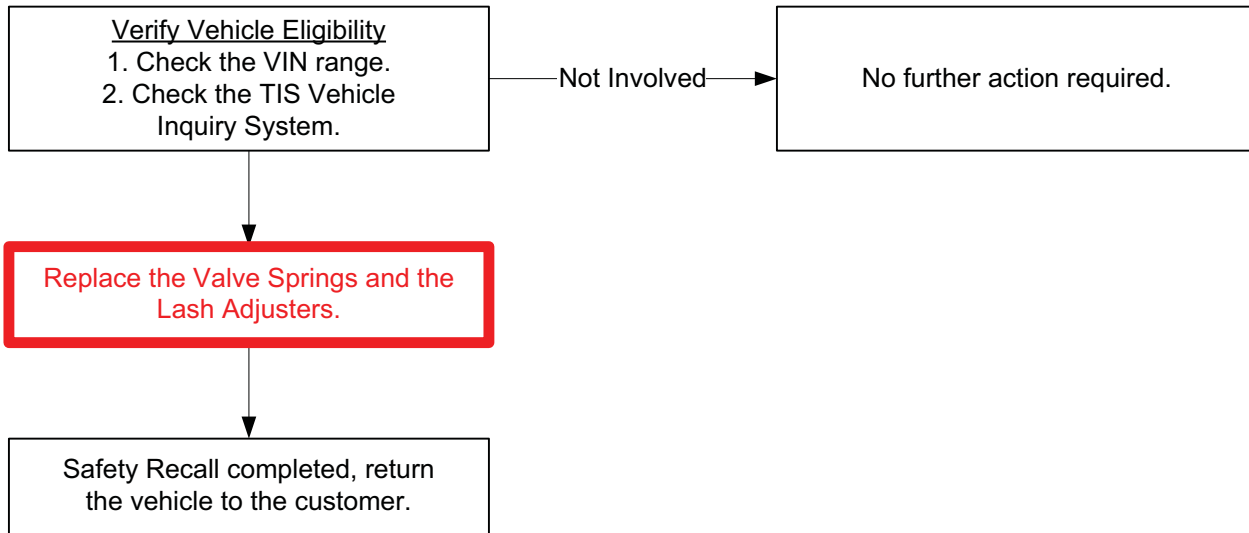


**TECHNICAL INSTRUCTIONS**  
**FOR**  
**SAFETY RECALL ALE**  
**VALVE SPRING AND LASH ADJUSTER REPLACEMENT**

**GS 350: 2007 – 2008**  
**IS 350: 2006 – 2008**



## I. OPERATION FLOWCHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

Model	WMI	Year	VIN Range	
			VDS	Range
GS 350	JTH	2007	BE96S	0007930 - 0028367
			CE96S	0001838 - 0013164
		2008	BE96S	0023566 - 0041906
			CE96S	0013166 - 0021058
IS 350	JTH	2006	BE262	2000000 - 2007084
				5000018 - 5011869
		2007		2006942 - 2013016
				5011870 - 5017246
		2008		2011547 - 2016223
				5017247 - 5021503

### NOTE:

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Safety Recall, 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. TOOLS & EQUIPMENT

- Techstream
- Standard hand tools
- Torque wrench
- Crankshaft anti-rotation tool
- Wire, rope, or zip tie ® (to secure timing chain)
- Safety Glasses
- Paint Pen
- Protective Gloves (protection for sharp internal engine parts)

## B. V6 SST KIT CONTENTS

- Valve Spring Removal & Installation Tool
- Cylinder Pressurizing Tool
- Hold-down bolts (qty: 18 (to secure camshaft housing))
- Hold-down washers (qty: 36)
- Valve Keeper Set Tool
- Lash Adjuster Bleed Tool (p/n 09276-75010)
- Stud bolts for fuel pipe removal (p/n 04007-32331)
- Fuel Line Plugs
- Spark Plug Tubes
- Replacement O-Rings for Spark Plug Tubes (qty:3)

## C. MATERIALS

- Toyota General Adhesive 1324: p/n 08833-00070 or equivalent (thread-locker)
- FIGP Sealant: p/n 08826-00080 or equivalent
- Engine Oil (small quantity to bleed valve lash adjuster)

## D. IS350 and GS350 PART KIT CONTENTS 04000-37531

Part Number	Part Description	Quantity	Page #
11159-31010	Camshaft oil hole gasket	4	24
11213-31040	Valve cover gasket RH	1	24
11214-31020	Valve cover gasket LH	1	24
11328-31030	Tensioner cover gasket	1	23
13750-31030	Valve lash adjuster	24	19
17176-31060	Air surge tank to intake manifold gasket	1	27
22271-31020	Throttle body gasket	1	27
23256-74010	No.1 fuel injector back up ring	1	26
23257-74010	No.2 fuel injector back up ring	1	26
23258-28011	No.3 fuel injector back up ring	1	26
23279-74010	Gasket (for pulsation damper hose)	2	26
23915-46011	Fuel pump insulator	1	26
90210-06013	Seal washer (for cylinder head cover)	3	24
90301-06016	O-ring (fuel)	1	26
90430-10024	O-ring (bearing cap)	2	24
90430-16012	No.1 gasket (upper VVT pipe)	4	25
90501-35046	Valve spring	24	17
90523-05007	E-ring (fuel)	1	26

*These parts will not be used for the standard repair.*

*Only use if coolant needs to be drained or if the VVT pipes need to be fully removed.*

16492-21050	Packing (for radiator drain cock)	1	NA
90430-16016	No.2 gasket (lower VVT pipe gasket)	2	NA

## E. Additional parts if necessary (not included in parts kit)

90119-08C85	Bearing cap bolt - Long	NA	20
90119-08C84	Bearing cap bolt - Short	NA	20

## IV. BACKGROUND

During the manufacturing process the valve springs on certain Lexus GS, IS, and LS engines were contaminated with a foreign material. As a result, the strength of the spring might be compromised. Over time, there is a potential for the valve spring to develop a crack and eventually break.

## V. WORK PROCEDURE

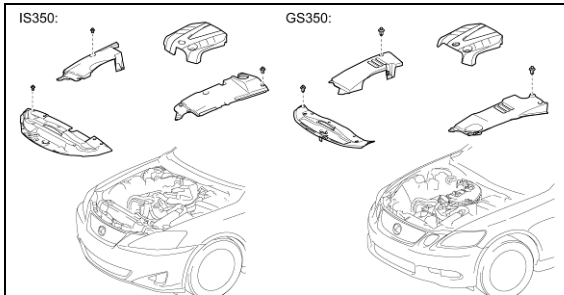
### A. RELEASE THE FUEL PRESSURE

#### 1. CHECK FOR DTC(s)

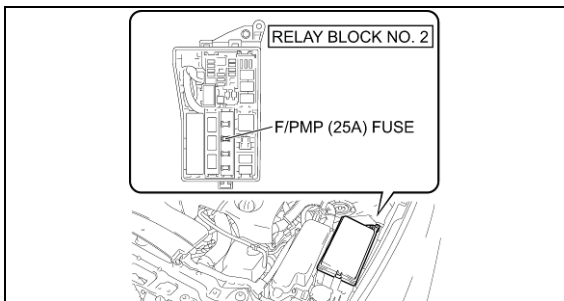
- a) If a DTC(s) is displayed, record the freeze frame data and perform repairs as necessary.

#### 2. RECORD CUSTOMER SETTINGS

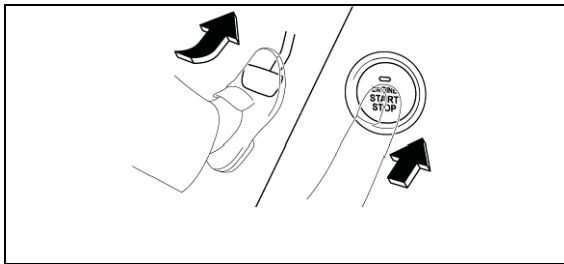
- a) Record all settings that will reset when the battery is disconnected - audio, etc.



#### 3. REMOVE THE ENGINE ROOM COVERS



#### 4. REMOVE THE FUEL PUMP FUSE

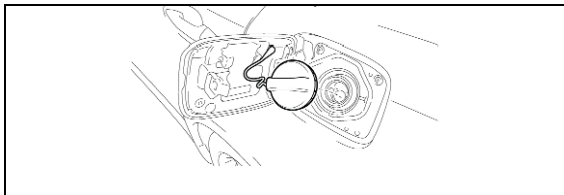


#### 5. DISCHARGE THE FUEL PRESSURE

- a) Run the engine until the vehicle stalls then confirm it will not start.
- b) Turn off the vehicle.

#### 6. REINSTALL THE FUEL PUMP FUSE

#### 7. REMOVE THE FUEL CAP



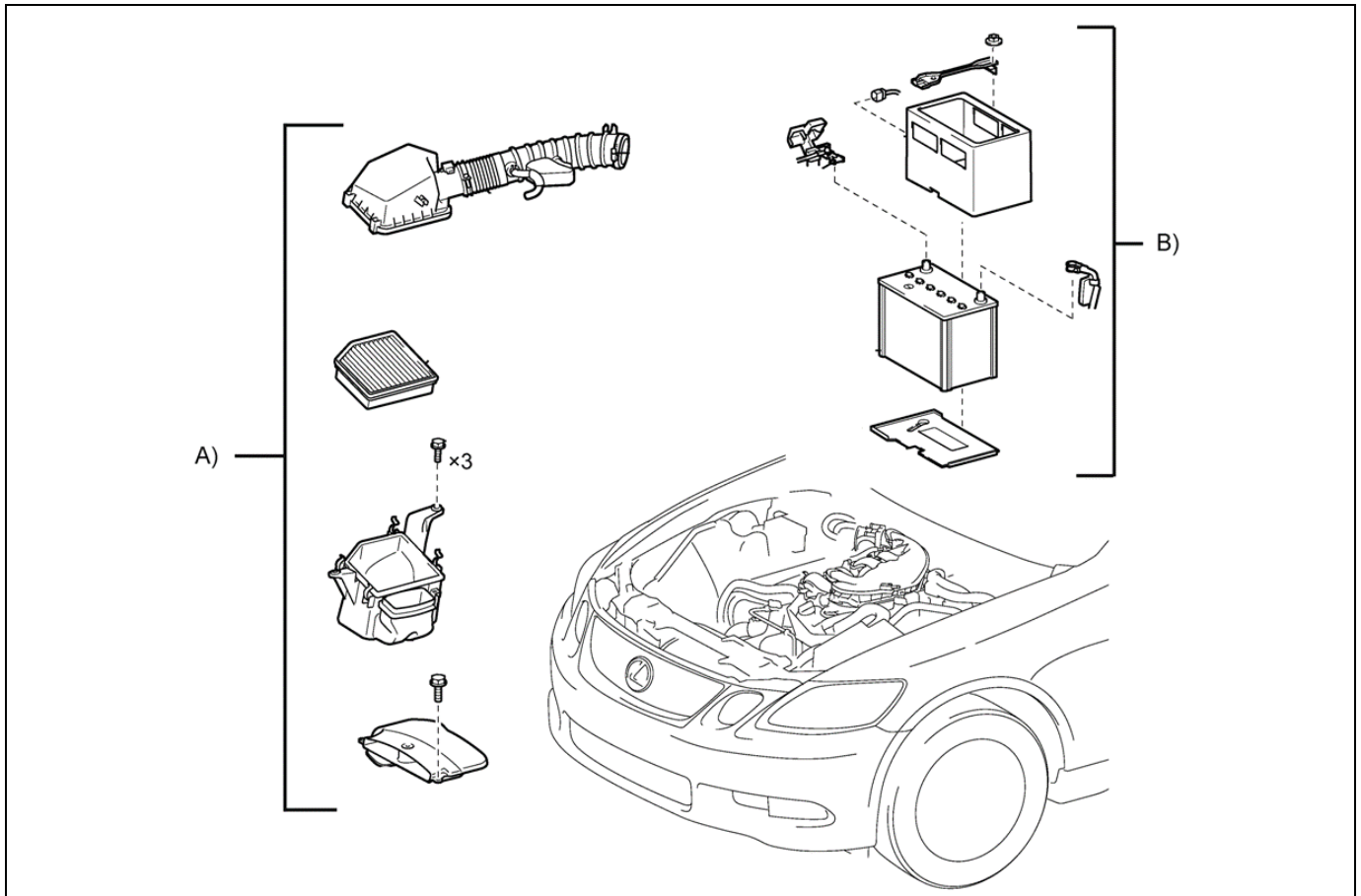
**NOTE:** Do not attach the cap until directed. The pressure and temperature can increase in the fuel tank throughout the repair process, causing fuel to spill through open lines.

## B. GAIN ACCESS FOR VALVE COVER REMOVAL (REMOVE AUXILLARY ENGINE COMPONENTS)

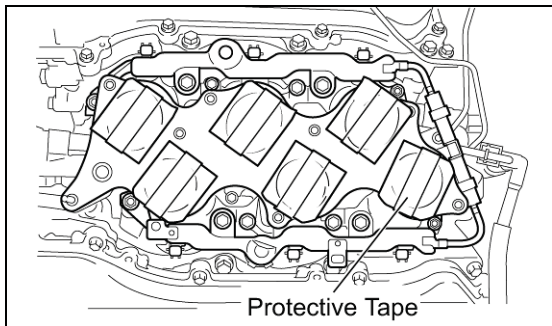
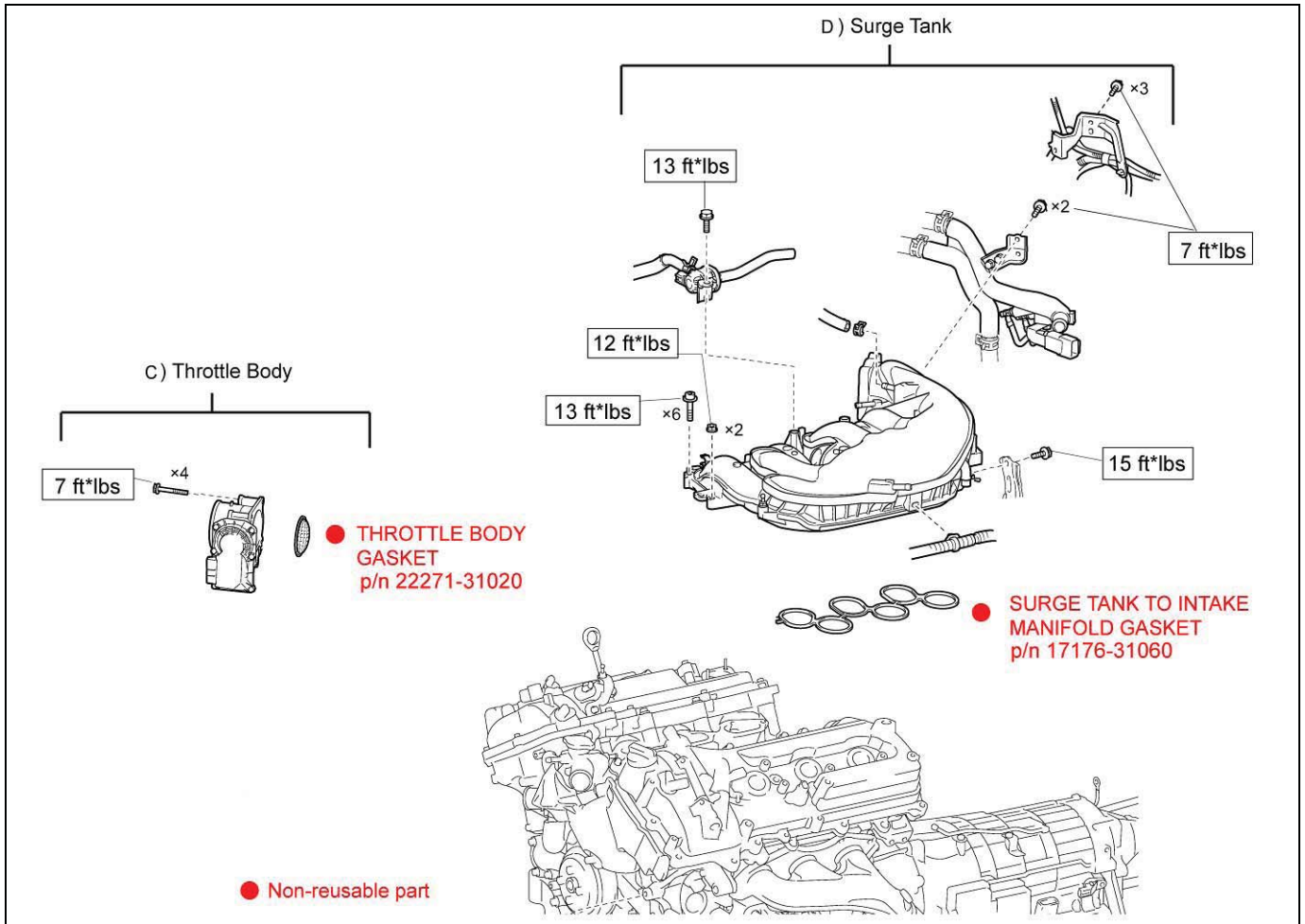
### 1. REMOVE COMPONENT GROUPS A-B



Wait 6 minutes after turning off the ignition before disconnecting the battery if the vehicle is equipped with HDD navigation. 6 minutes it required to store the memory.

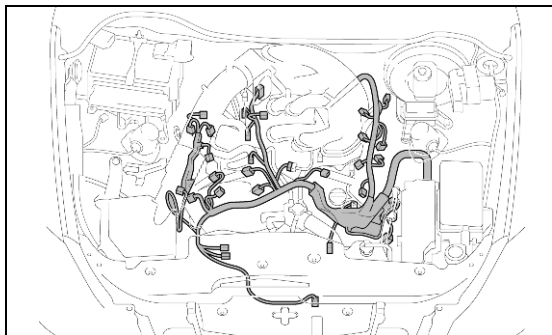


## 2. REMOVE COMPONENT GROUPS C-D



### 3. COVER THE INTAKE MANIFOLD WITH TAPE

**NOTE:** This will prevent foreign objects from falling into the engine.



### 4. DISCONNECT THE WIRE HARNESS

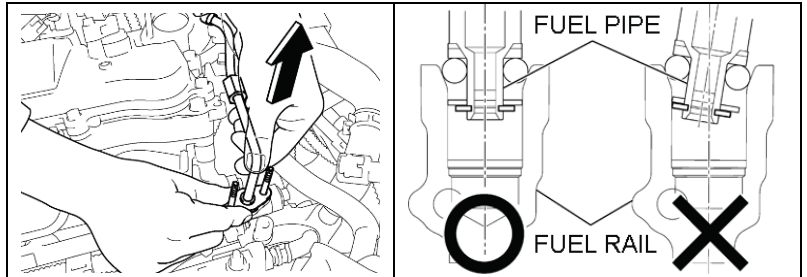
## 5. REMOVE THE FUEL COMPONENTS



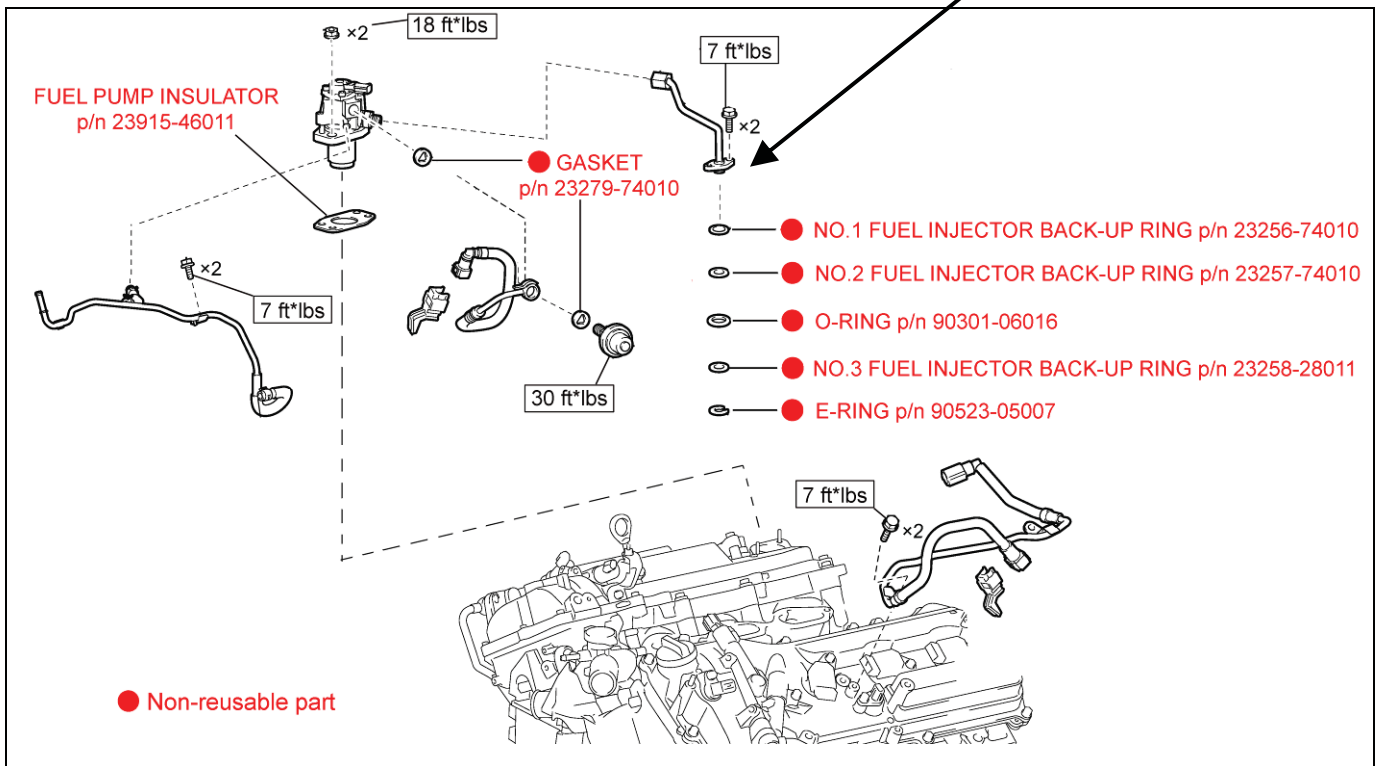
- Never have an ignition source near by when working on the fuel system.
- Always wear protective eye wear when working on the fuel system.
- To prevent fuel from spraying, cover the fuel lines with towels before disconnecting.

**Pull the fuel pipe straight up to prevent fuel rail damage.**

Use SST 04007-32331 stud bolts for assistance.

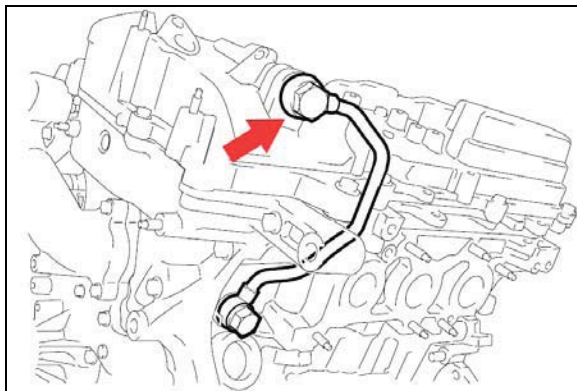
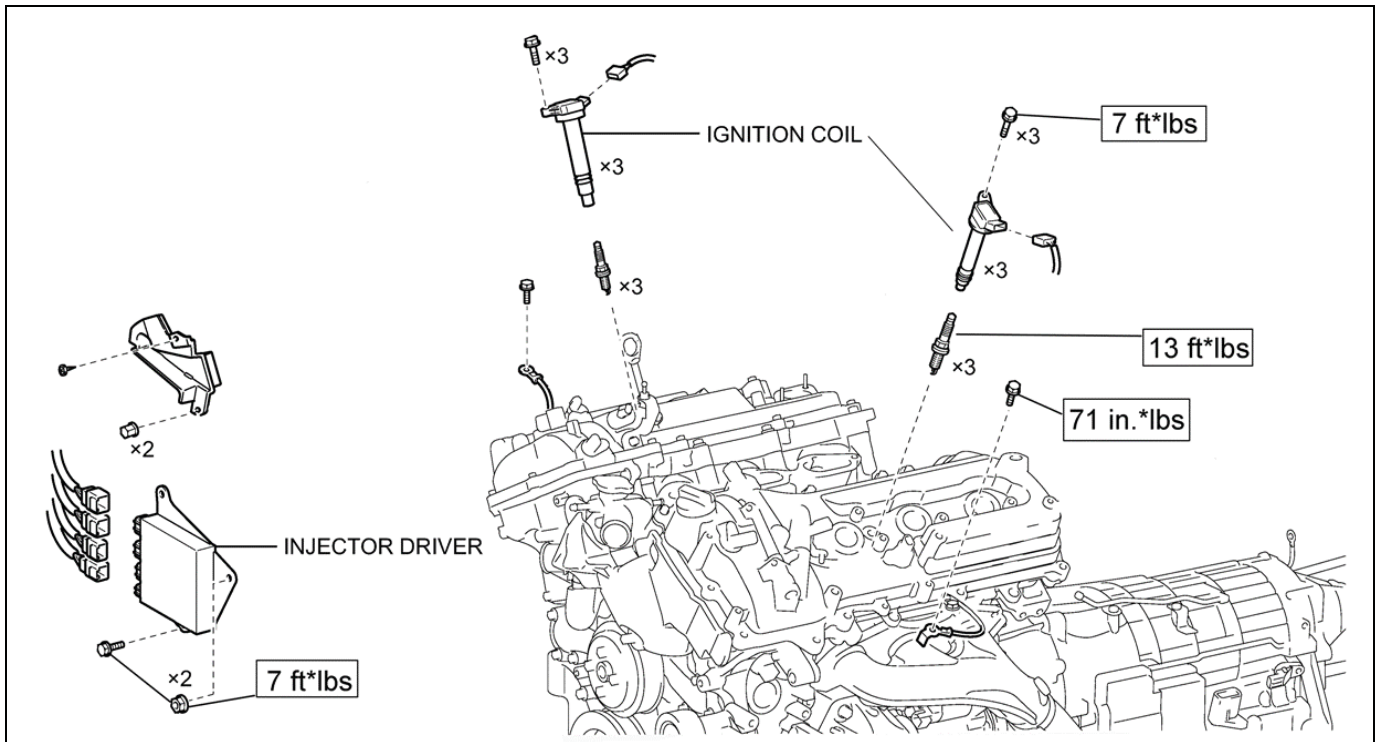


**NOTE: Pulling at an angle can cause scratches and nicks which will potentially cause fuel leaks.**





## 6. REMOVE THE IGNITION AND OIL COMPONENTS



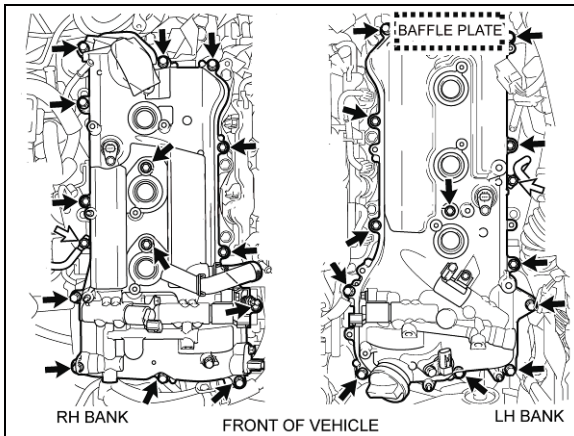
## 7. DISCONNECT THE TOP SIDE OF THE OIL PIPES (Both LH & RH sides)

**NOTE:** Take special care not to damage the oil control valve filter during removal.



[Click here for video supplement 1](#)

### C. REMOVE THE VALVE COVER AND TIMING CHAIN TENSIONER



#### 1. REMOVE VALVE COVERS

**NOTE:** There is a baffle plate under the LH bank valve cover. Take special care not to damage the baffle.

[Click here for video supplement 2 \(steps C-D\)](#)

#### 2. PLUG THE OIL GALLEYS AND SPARK PLUG TUBES

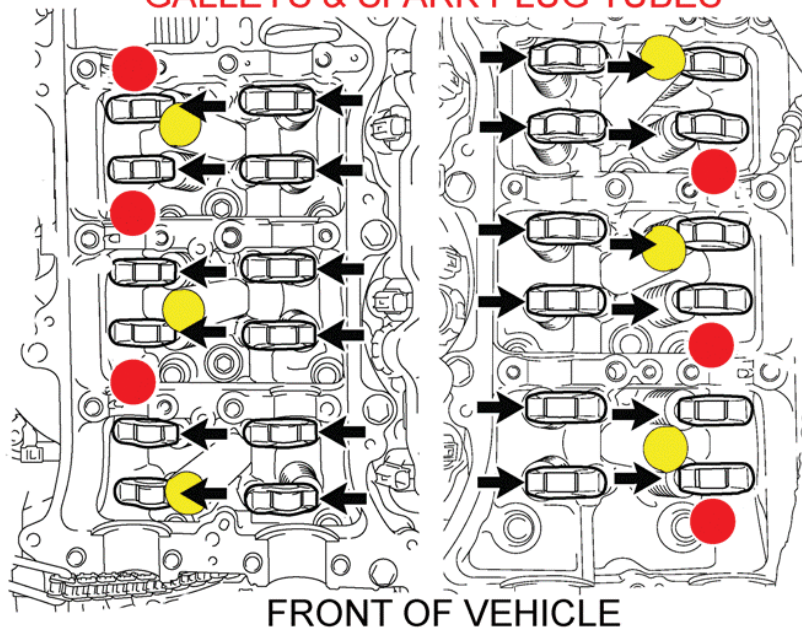
- a) Do not make the mistake of dropping small parts down into the block.
- b) Cover and plug the oil galleys and spark plug tubes with shop towels.
- c) Do not forget to remove all shop towels before reinstalling the valve covers.

## Plug the...

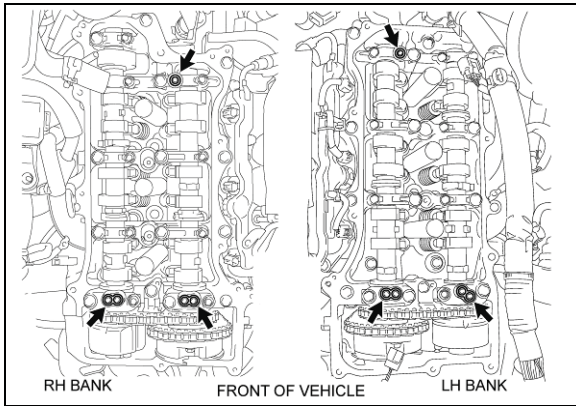
OIL GALLEYS = 

SPARK PLUG TUBES = 

**DON'T FORGET TO PLUG THE OIL GALLEYS & SPARK PLUG TUBES**



**Don't drop valve components down the block!**

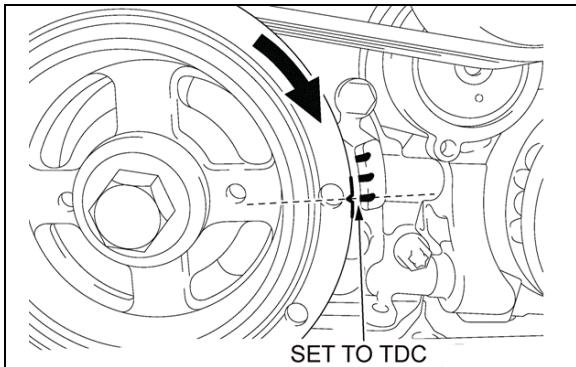


**3. REMOVE THE O-RINGS FROM THE BEARING CAPS**



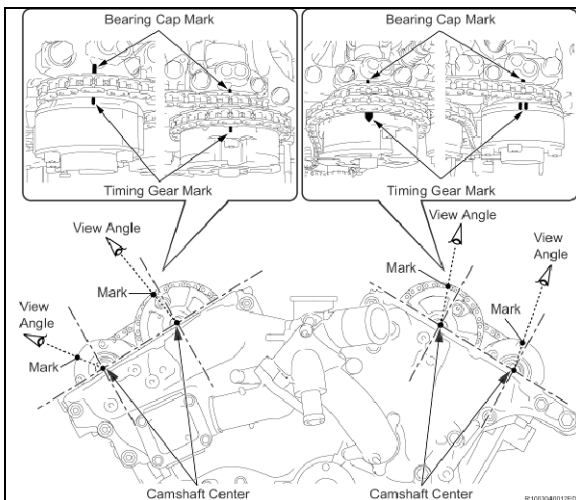
Cover the holes to prevent injury and an unclean engine bay.

Oil may squirt out of the oil supply camshaft cap holes when the chain spins the oil pump.



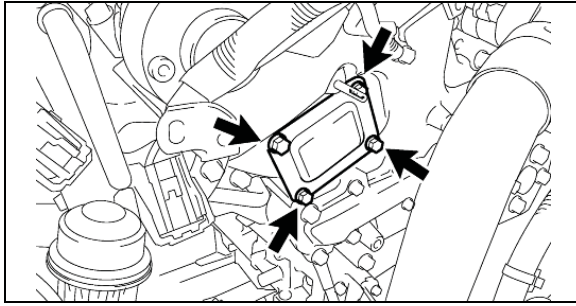
**4. ALIGN CYLINDER 1. TO TOP DEAD CENTER (TDC)**

a) Align the crankshaft pulley notch with the 3<sup>rd</sup> hash mark (0°) as illustrated.

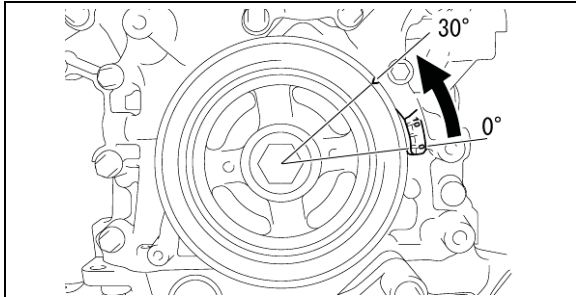


- b) Check the timing marks on the VVT gears; confirm they are facing up from a birds eye view. If the marks are not seen rotate the crankshaft 360°.
- c) Using a paint marker, mark the chain, VVT gears and bearing cap to assist with alignment during reassembly.

**NOTE:** Please reference L-SB-0156-08 to easily mark and identify the timing marks.



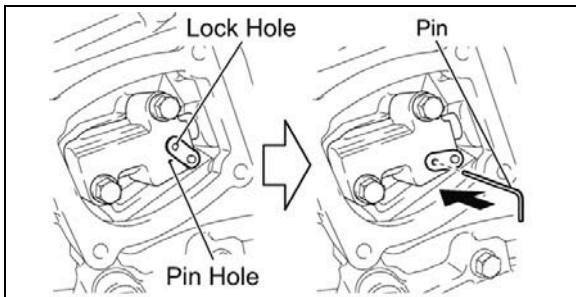
5. REMOVE THE FRONT CHAIN TENSIONER COVER



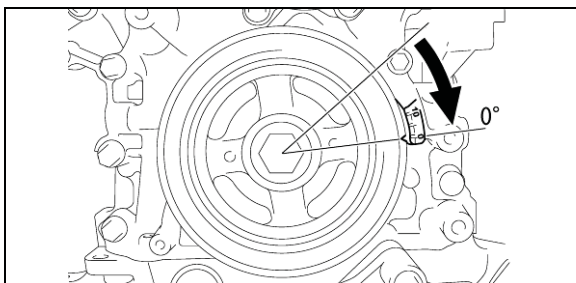
6. REMOVE THE PRIMARY CHAIN TENSIONER

a) Turn the crankshaft 30° counterclockwise.

**NOTE:** This action compresses the tensioner as the chain pushes back against it.

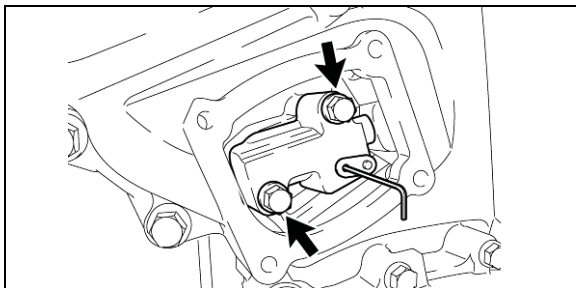


b) Insert a pin into the lock and pin hole once they are aligned.



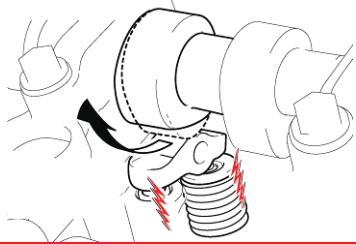
c) Return the crankshaft back to TDC.

**NOTE:** This action releases chain pressure on the tensioner.



d) Remove the tensioner.

**NOTE:** Be careful not to let the pin fall out of the tensioner.

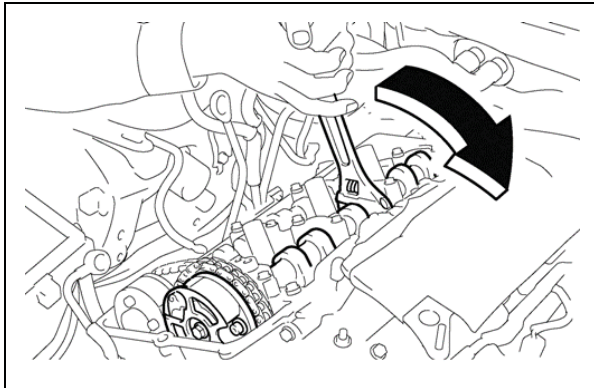


**Caution:**

**The camshafts can quickly spin under the pressure of the valve springs.**

**Keep fingers and wire harness/electrical connectors away from moving camshaft parts.**

**D. REMOVE THE CAMSHAFTS**

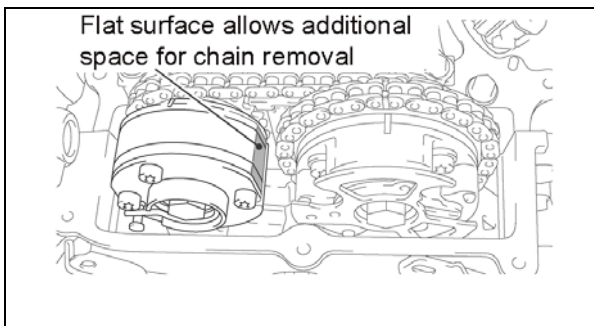


**1. DETACH THE PRIMARY TIMING CHAIN**

- a) Using the hexagonal portion of the **intake camshaft**, slightly rotate the camshaft towards the center of the engine until the valve spring pressure releases. This will prevent the over-spinning of the camshaft due to spring force.

**NOTE:** If this step is skipped the valvetrain will rapidly rotate due to the valve spring pressure. This can cause the chain to bind.

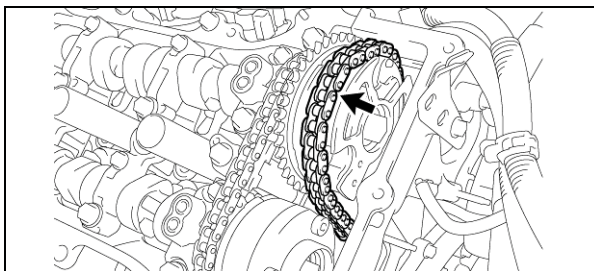
**(RH BANK SHOWN)**



- b) Rotate the crankshaft clockwise until the flat surface on the exhaust gear allows space for chain removal.

**NOTE:** When the camshafts are in this position, valve spring pressure is at a minimum for this bank only. This is a requirement when removing bearing caps. If the spring pressure is not reduced, bearing caps can break.

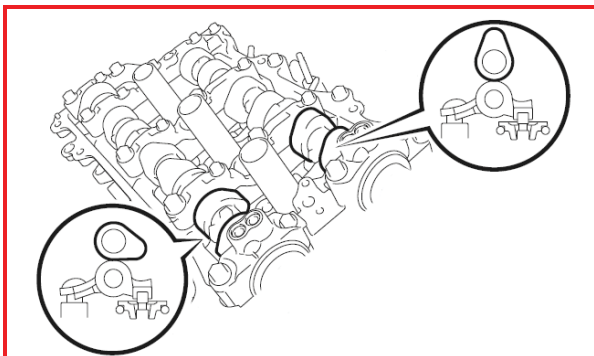
**(RH BANK SHOWN)**



- c) Hang the chain on the RH bank intake VVT actuator in a position where it will not fall off.

**NOTE:** Do NOT let the chain fall into the timing cover.

**(RH BANK SHOWN)**



**2. DECREASE SPRING TENSION**

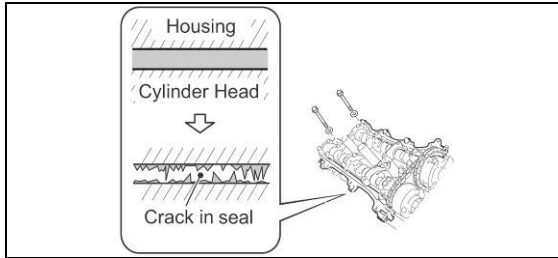
- a) Confirm the camshafts are in a neutral position.

**NOTE:** Prevent all cam lobes from compressing the valve springs before bearing cap removal or bearing caps may break.

**(RH BANK SHOWN)**



### 3. REMOVE ONE CAMSHAFT BEARING CAP AT A TIME (RH BANK SHOWN)



**NOTE:** If this step is not closely followed the FIPG seal will crack causing future oil leaks.

**Loosen the bolts in several increments. Begin with the 10mm black bolt (circled on step a), one cap at a time, and do NOT use air tools or the bearing caps may break.**

a) Loosen the bearing cap bolts, **ONE CAP AT A TIME.**



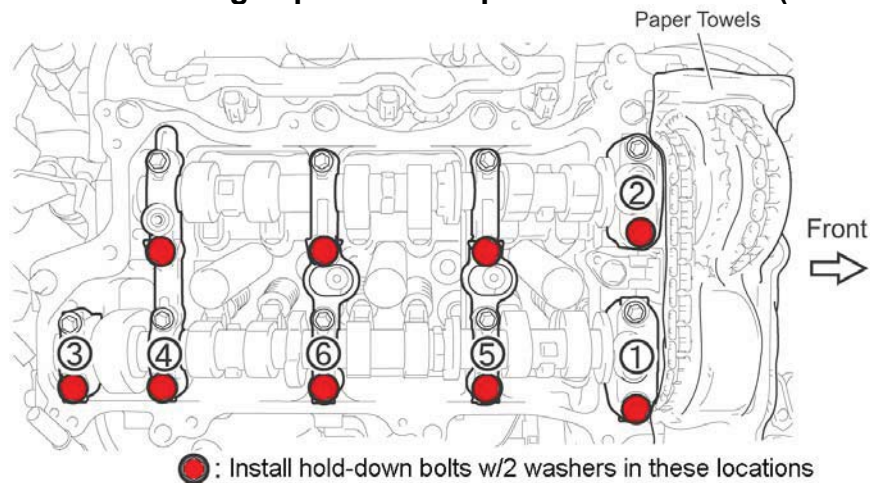
b) Install a hold-down bolt with 2 washers, **do not crush the dowel pins**



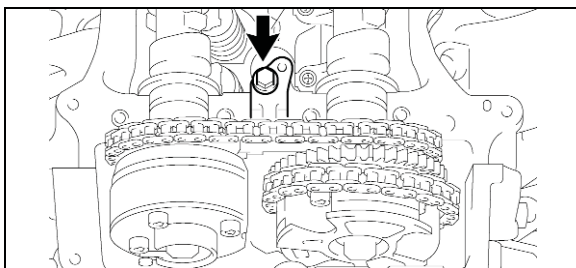
c) Torque the hold-down bolt to 7 ft.\*lbs.



**Remove the bearing caps in the sequence shown here (RH bank)**



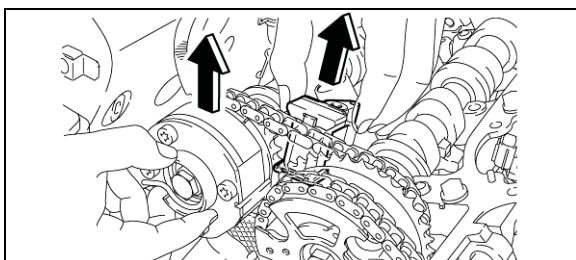
● : Install hold-down bolts w/2 washers in these locations



### 4. REMOVE THE CAMSHAFTS

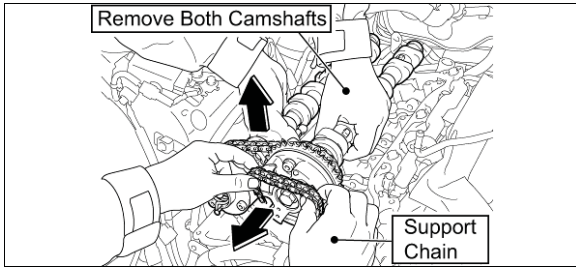
a) Remove the chain tensioner bolt.

(RH BANK SHOWN)



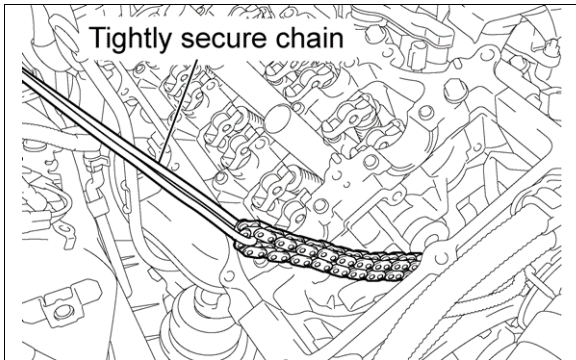
b) Lift the exhaust camshaft and remove the chain tensioner.

(RH BANK SHOWN)



- c) Have one person tightly hold the chain while another person removes both camshafts.

(RH BANK SHOWN)



- d) Tightly secure the timing chain.  
 e) Leave just enough slack to allow chain movement when turning the crankshaft and chain in step E. 4. e. (p.15)

(RH BANK SHOWN)

**NOTE: If the chain is not held tightly, it will become trapped or it may skip teeth. If the chain is dropped or trapped see the appendix for service hints.**

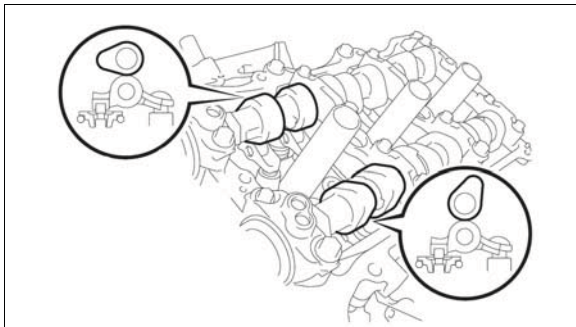
## Repeat "Step D" for the LH bank. Remove the Camshafts

All notes in the RH sequence apply to the LH bank.



**NOTE: The following are different for the left and right hand banks.**

- Timing marks
- Torque sequence

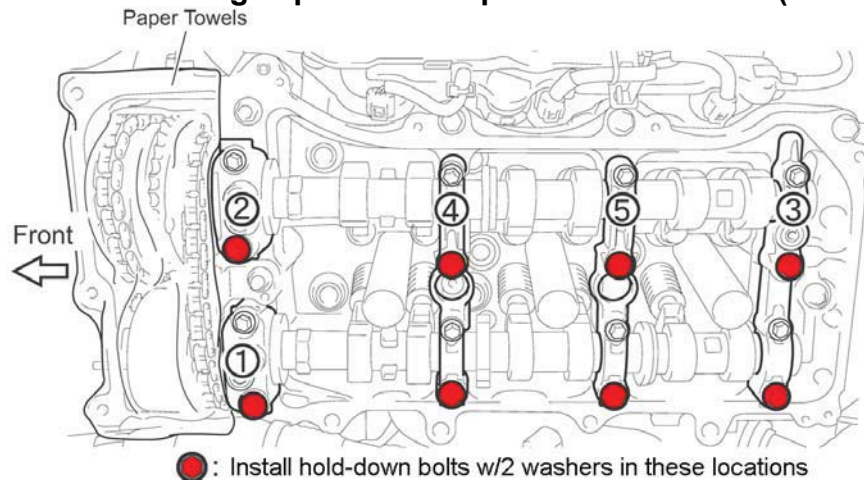


Position the camshafts in a neutral position.

This is a requirement when removing bearing caps. If the spring pressure is not reduced, bearing caps can break.

(LH BANK SHOWN)

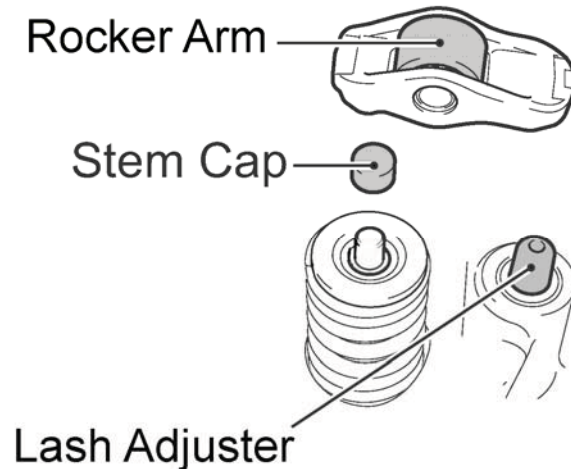
**Remove the bearing caps in the sequence shown here (LH bank)**



E. REMOVE AND REPLACE THE VALVE SPRINGS [Click here for video supplement 3 \(step E\)](#)

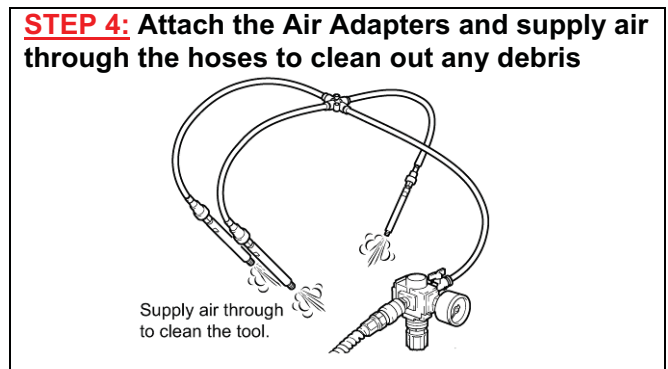
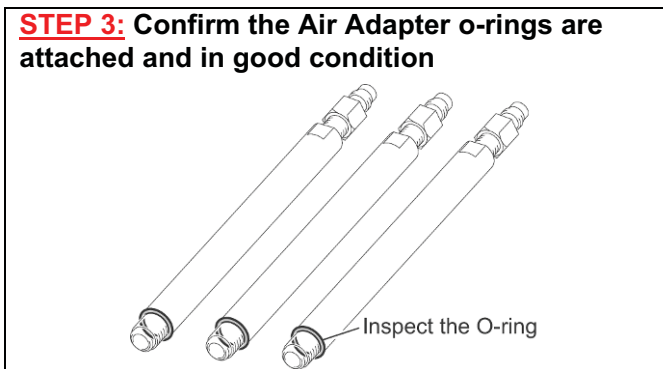
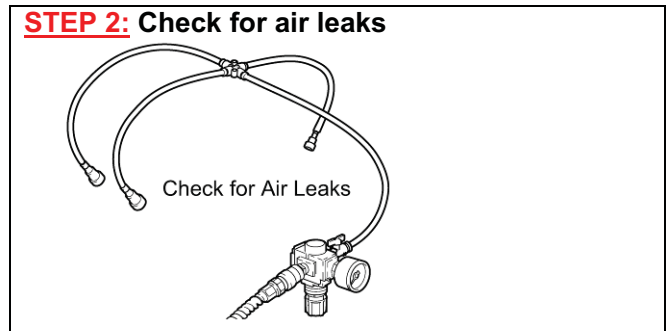
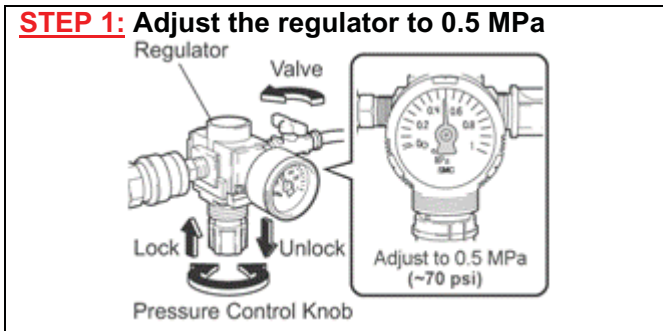
1. REMOVE THE STEM CAPS, ROCKER ARMS AND VALVE LASH ADJUSTERS

- a) The stem caps and rocker arms are not included in the campaign parts kit.
- b) Remove these parts using a strong magnet.
- c) Keep the parts organized so that they can be reinstalled on the same valve from where they were removed.



2. MAKE SURE THE AIR HOSE PRESSURE LINES ARE WORKING CORRECTLY

- a) Perform this 4 step inspection before you use the air hose each time you repair a vehicle.
- b) Always turn off the regulator valve before installing or removing the air hoses.



**Don't take the risk of dropping valves into the cylinder.  
Confirm the proper operation of the air hose and regulator.**