

Last Modified: 12-04-2024	6.11:8.1.0	Doc ID: RM100000002BIHA
Model Year Start: 2023	Model: Prius Prime	Prod Date Range: [03/2023 -]
Title: M20A-FXS (ENGINE MECHANICAL): CYLINDER HEAD: DISASSEMBLY; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DISASSEMBLY

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization or registration) that must be performed after parts are removed and installed, or replaced during engine unit removal/installation are shown below.

Necessary Procedures After Parts Removed/Installed/Replaced

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Replacement of ECM	Perform Vehicle Identification Number (VIN) registration	DTC is output	INFO
	ECU configuration	-	INFO
	Update ECU security key	Vehicle Control History (RoB) are stored	INFO
<ul style="list-style-type: none"> Replacement of throttle body with motor assembly Cleaning the deposits from the throttle body with motor assembly Replacement of cam timing control motor with EDU assembly* Replacement of camshaft timing gear assembly* Replacement of camshaft (for 	Inspection after repair	<ul style="list-style-type: none"> Poor idle, etc. Engine start function, etc. 	INFO

*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

*1: Also necessary after performing a tire rotation.

*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

*3: The vehicle height changes because of tire replacement.

*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
intake or exhaust camshaft) <ul style="list-style-type: none"> • Replacement of camshaft timing exhaust gear assembly • Replacement of fuel (engine room side) pump assembly (for high pressure side) • Replacement of ignition coil assembly • Replacement of engine assembly • Gas leak from exhaust system is repaired • Replacement of cylinder head sub-assembly • Replacement of port fuel injector assembly • Replacement of direct fuel injector assembly • Replacement of EGR valve assembly • Replacement of air fuel ratio sensor (sensor 1) • Replacement of knock control sensor • Replacement of spark plug 			

*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

*1: Also necessary after performing a tire rotation.

*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

*3: The vehicle height changes because of tire replacement.

*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Replacement of inverter with converter assembly	ECU configuration	-	INFO
	Resolver learning	<ul style="list-style-type: none"> DTCs are stored Slight vibration at a vehicle speed of 5 km/h (3 mph) or less Shock or vibration during acceleration 	for M20A-FXS HEV Model: INFO for M20A-FXS PHEV Model: INFO
for PHEV Model: Replacement of service plug grip	High voltage fuse accumulated load history reset	DTCs are stored	INFO
Replacement of hybrid vehicle transaxle assembly	<ul style="list-style-type: none"> Resolver learning Initialize resolver 	<ul style="list-style-type: none"> DTCs are stored Slight vibration at a vehicle speed of 5 km/h (3 mph) or less Shock or vibration during acceleration 	for M20A-FXS HEV Model: INFO for M20A-FXS PHEV Model: INFO
Suspension parts	Rear television camera assembly optical axis (Back camera position setting)	Parking Assist Monitor System	INFO
	Parking assist ECU initialization	Panoramic View Monitor System	INFO
		Advanced Park	INFO
Tires	<ul style="list-style-type: none"> Initialization*1*2 Tire Position Identification*1*2 	Tire Pressure Warning System	Refer to Procedures Necessary When Replacing Parts (for Tire Pressure

*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

*1: Also necessary after performing a tire rotation.

*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

*3: The vehicle height changes because of tire replacement.

*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
			Warning System) table below INFO
	Rear television camera assembly optical axis (Back camera position setting)	Parking Assist Monitor System	INFO
	Parking assist ECU initialization*3	Panoramic View Monitor System	INFO
		Advanced Park	INFO
No. 2 steering intermediate shaft assembly*4	End position initial setting	-	INFO
Replacement of front bumper assembly*	Front television camera view adjustment	Panoramic View Monitor System	INFO
		Advanced Park	INFO
Front wheel alignment adjustment	Perform "Calibration"	<ul style="list-style-type: none"> • DTCs are stored • ABS warning light illuminates • Brake system warning light (yellow indicator) illuminates • Slip indicator light illuminates • Electronically controlled brake system disabled or malfunctions 	INFO

*: Even when not replacing the part, it is necessary to perform the specified necessary procedures after installation.

*1: Also necessary after performing a tire rotation.

*2: It is not necessary to perform this procedure if the tire pressure warning valve and transmitters are installed to the same location.

*3: The vehicle height changes because of tire replacement.

*4: If matchmarks were not placed when removing parts related to steering operation, perform end position initial setting.

HINT:

When the cable is disconnected / reconnected to the auxiliary battery terminal, systems temporarily stop operating. However, each system has a function that completes learning the first time the system is used.

Items for which learning is completed by driving the vehicle

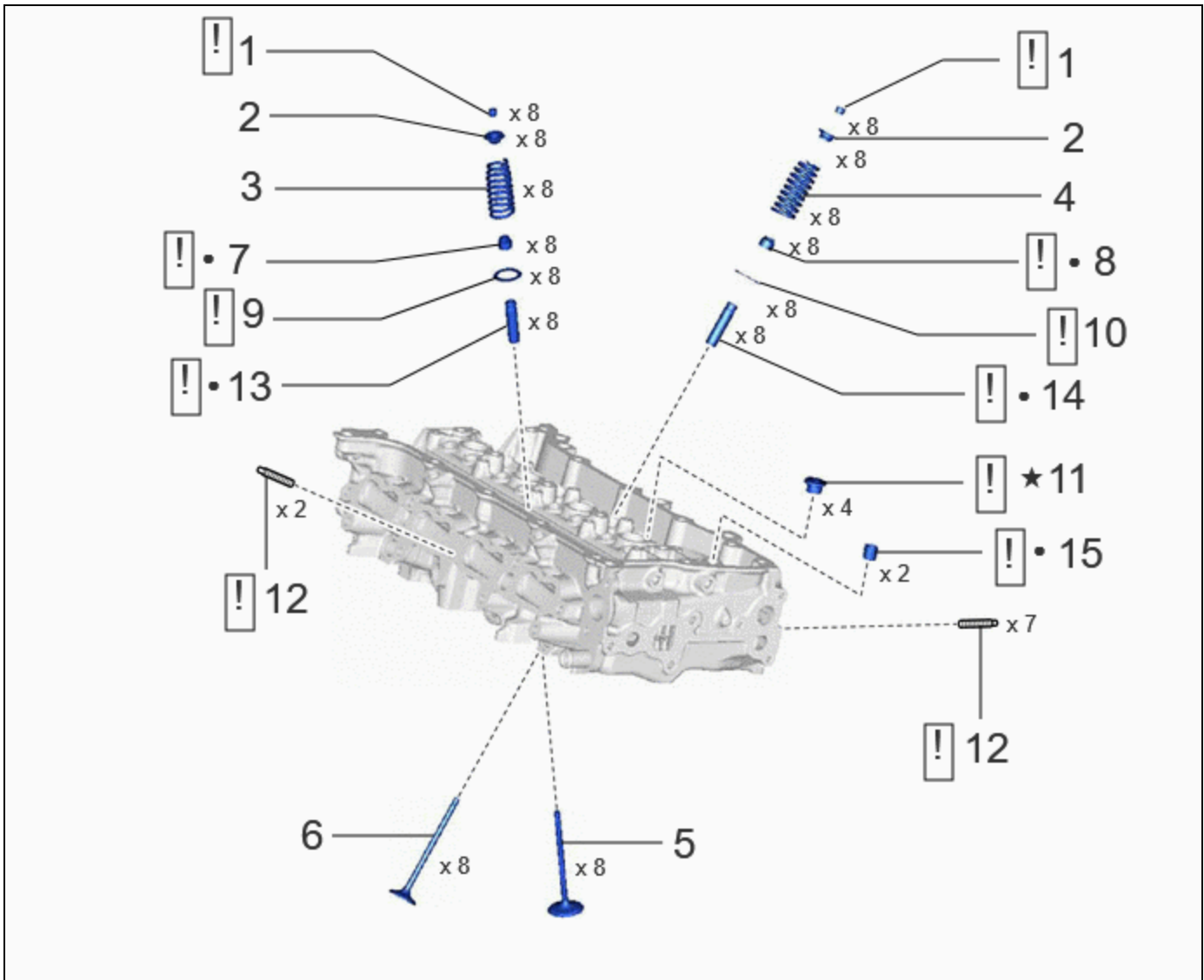
EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	NECESSARY PROCEDURES	LINK
Front Camera System	Drive the vehicle straight ahead at 35 km/h (22 mph) or more for 5 seconds or more.	INFO

Items for which learning is completed by operating the vehicle normally




EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	NECESSARY PROCEDURES	LINK
Power Door Lock Control System*1 <ul style="list-style-type: none"> • Back door opener 	Perform door unlock operation with door control switch or electrical key transmitter sub-assembly switch.	INFO
Power Back Door System*2	Reset back door close position	INFO
Air Conditioning System	<p>for HEV Model:</p> <p>After the ignition switch is turned to ON, the servo motor standard position is recognized.</p> <p>for PHEV Model:</p> <p>After the ignition switch is turned to ON, the servo motor and cooler expansion valve standard position is recognized.</p>	-
*1: w/o Power Back Door System *2: w/ Power Back Door System		

CAUTION / NOTICE / HINT

COMPONENTS (DISASSEMBLY)



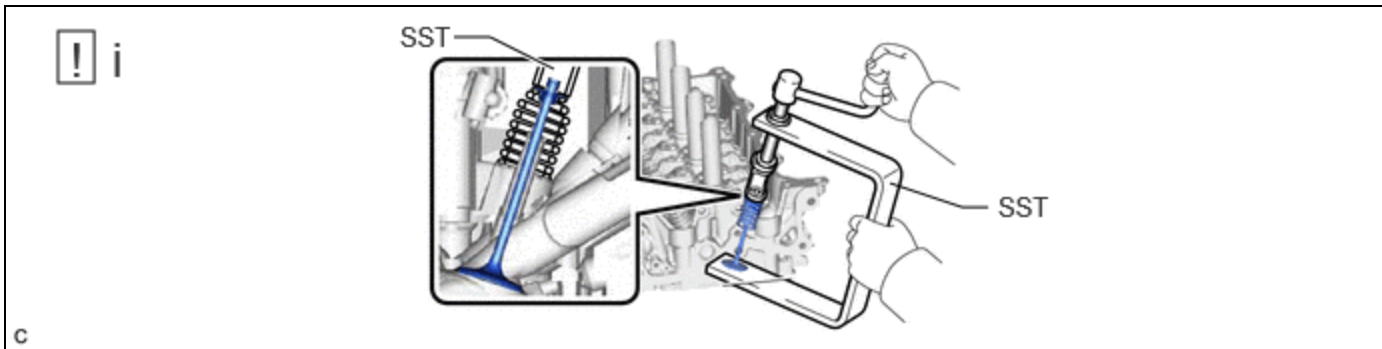
PROCEDURE		PART NAME CODE	!		
1	VALVE SPRING RETAINER LOCK	13741A	INFO	-	-
2	VALVE SPRING RETAINER	-	-	-	-
3	INTAKE VALVE COMPRESSION SPRING	13711M	-	-	-
4	EXHAUST VALVE COMPRESSION SPRING	13715H	-	-	-
5	INTAKE VALVE	13711	-	-	-
6	EXHAUST VALVE	13715	-	-	-
7	INTAKE VALVE STEM OIL SEAL	13711E	INFO	-	-
8	EXHAUST VALVE STEM OIL SEAL	13715A	INFO	-	-
9	INTAKE VALVE SPRING SEAT	13734A	INFO	-	-
10	EXHAUST VALVE SPRING SEAT	13734B	INFO	-	-
11	NO. 1 STRAIGHT SCREW PLUG	11117E	INFO	-	-

PROCEDURE		PART NAME CODE			
12	STUD BOLT	-	INFO	-	-
13	INTAKE VALVE GUIDE BUSH	11122	INFO	-	-
14	EXHAUST VALVE GUIDE BUSH	11126	INFO	-	-
15	RING PIN	11115A	INFO	-	-

•	Non-reusable part	★	Precoated part
---	-------------------	---	----------------

PROCEDURE

1. REMOVE VALVE SPRING RETAINER LOCK



(1) Using SST, remove the 16 valve spring retainer locks.

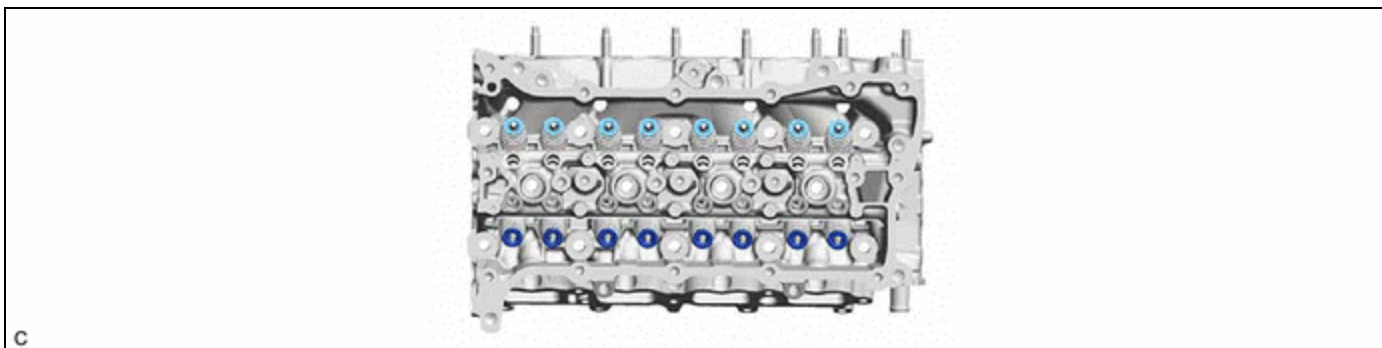
SST: 09202-70020

09202-01010

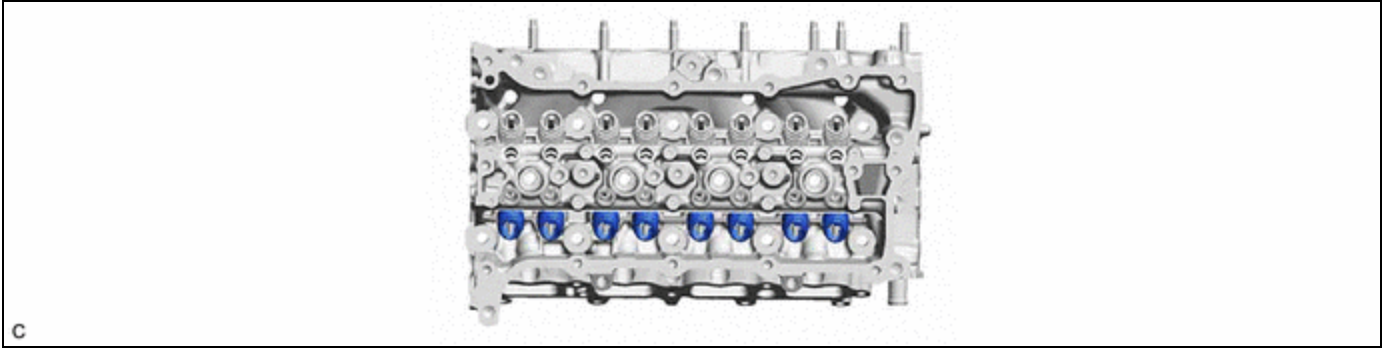
09202-01020

SST: 09202-00021

2. REMOVE VALVE SPRING RETAINER



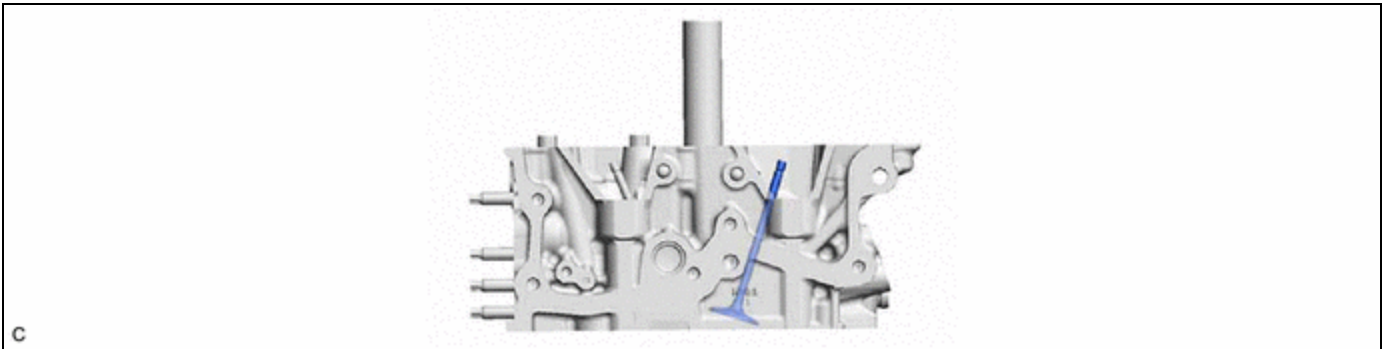
3. REMOVE INTAKE VALVE COMPRESSION SPRING



4. REMOVE EXHAUST VALVE COMPRESSION SPRING

(a) Perform the same procedure as for the intake valve compression spring.

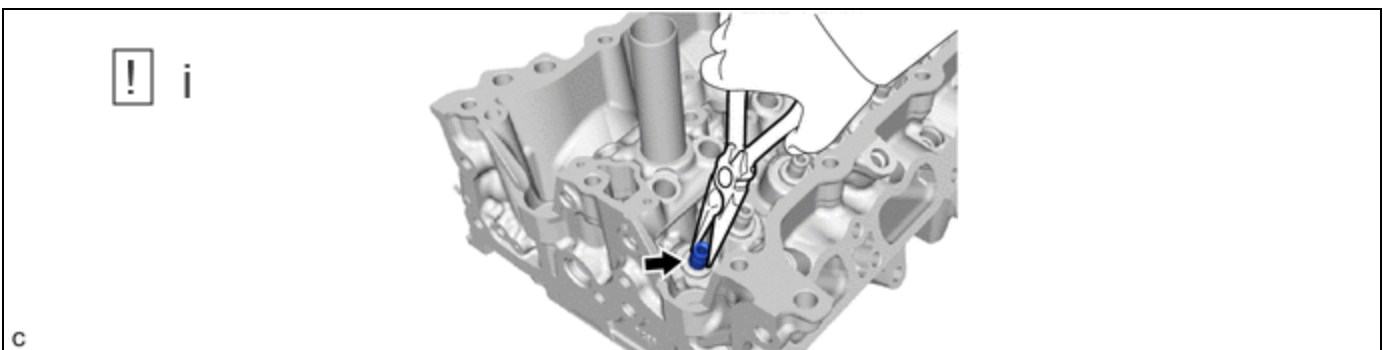
5. REMOVE INTAKE VALVE



6. REMOVE EXHAUST VALVE

(a) Perform the same procedure as for the intake valve.

7. REMOVE INTAKE VALVE STEM OIL SEAL

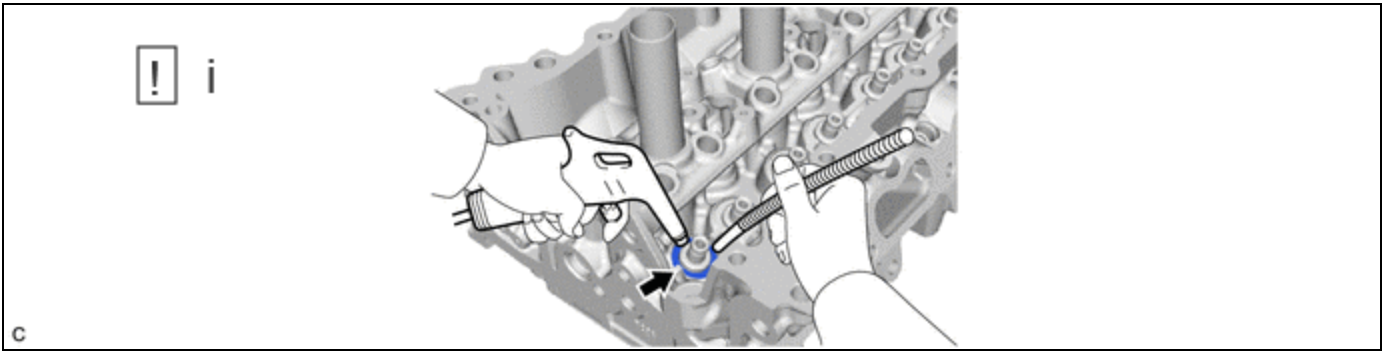


(1) Using needle-nose pliers, remove the 8 intake valve stem oil seals.

8. REMOVE EXHAUST VALVE STEM OIL SEAL

(a) Perform the same procedure as for the intake valve stem oil seal.

9. REMOVE INTAKE VALVE SPRING SEAT



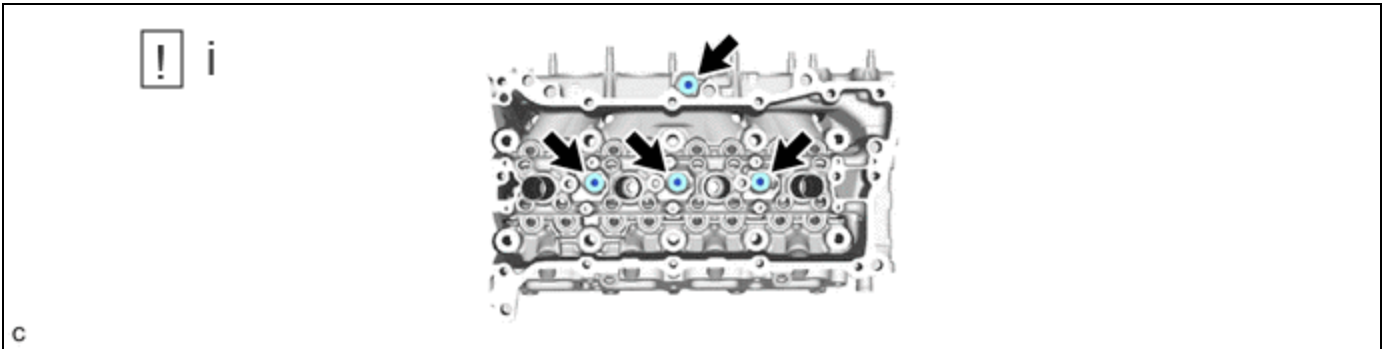
(1) Using compressed air and a Magnet Hand, remove the 8 intake valve spring seats from the cylinder head sub-assembly by blowing air onto them.

10. REMOVE EXHAUST VALVE SPRING SEAT

(a) Perform the same procedure as for the intake valve spring seat.

11. REMOVE NO. 1 STRAIGHT SCREW PLUG

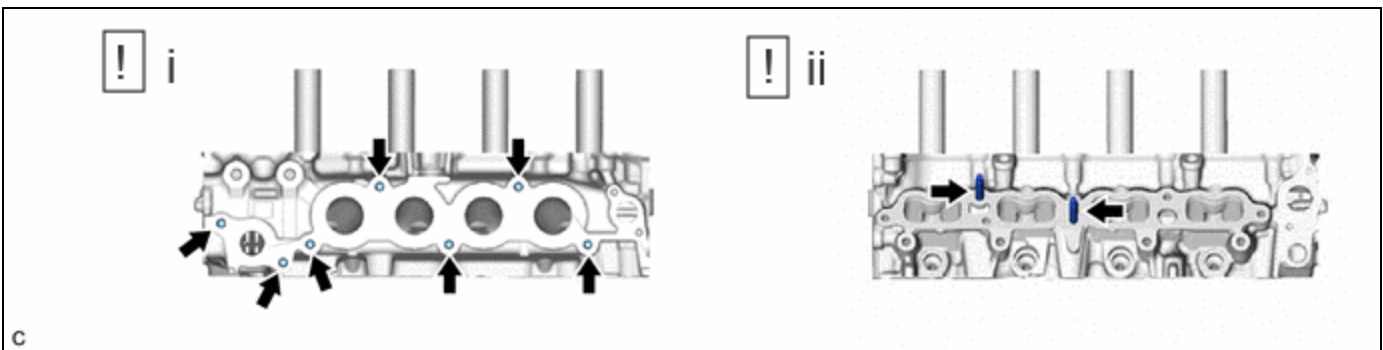
	<p>NOTICE: If coolant leaks from a No. 1 straight screw plug or a plug is corroded, replace it.</p>
---	--



(1) Using a 6 mm straight hexagon wrench, remove the 4 No. 1 straight screw plugs from the cylinder head sub-assembly.

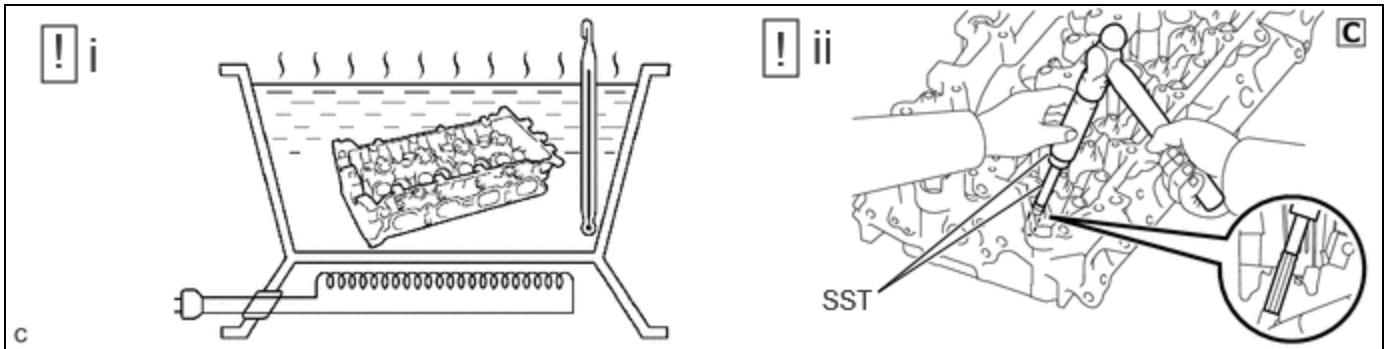
12. REMOVE STUD BOLT

	<p>NOTICE: If a stud bolt is deformed or its threads are damaged, replace it.</p>
---	--



- (1) Using an E8 "TORX" socket wrench, remove the 7 stud bolts.
- (2) Using an E8 "TORX" socket wrench, remove the 2 stud bolts.

13. REMOVE INTAKE VALVE GUIDE BUSH



- (1) Heat the cylinder head sub-assembly to between 80 and 100°C (176 and 212°F).

CAUTION:

Be sure to wear protective gloves.

- (2) Using SST and a hammer, tap out the intake valve guide bush.

SST: 09201-01055

SST: 09950-70010

09951-07100

14. REMOVE EXHAUST VALVE GUIDE BUSH

- (a) Perform the same procedure as for the intake valve guide bush.

15. REMOVE RING PIN



NOTICE:

It is not necessary to remove the ring pins unless they are being replaced.

