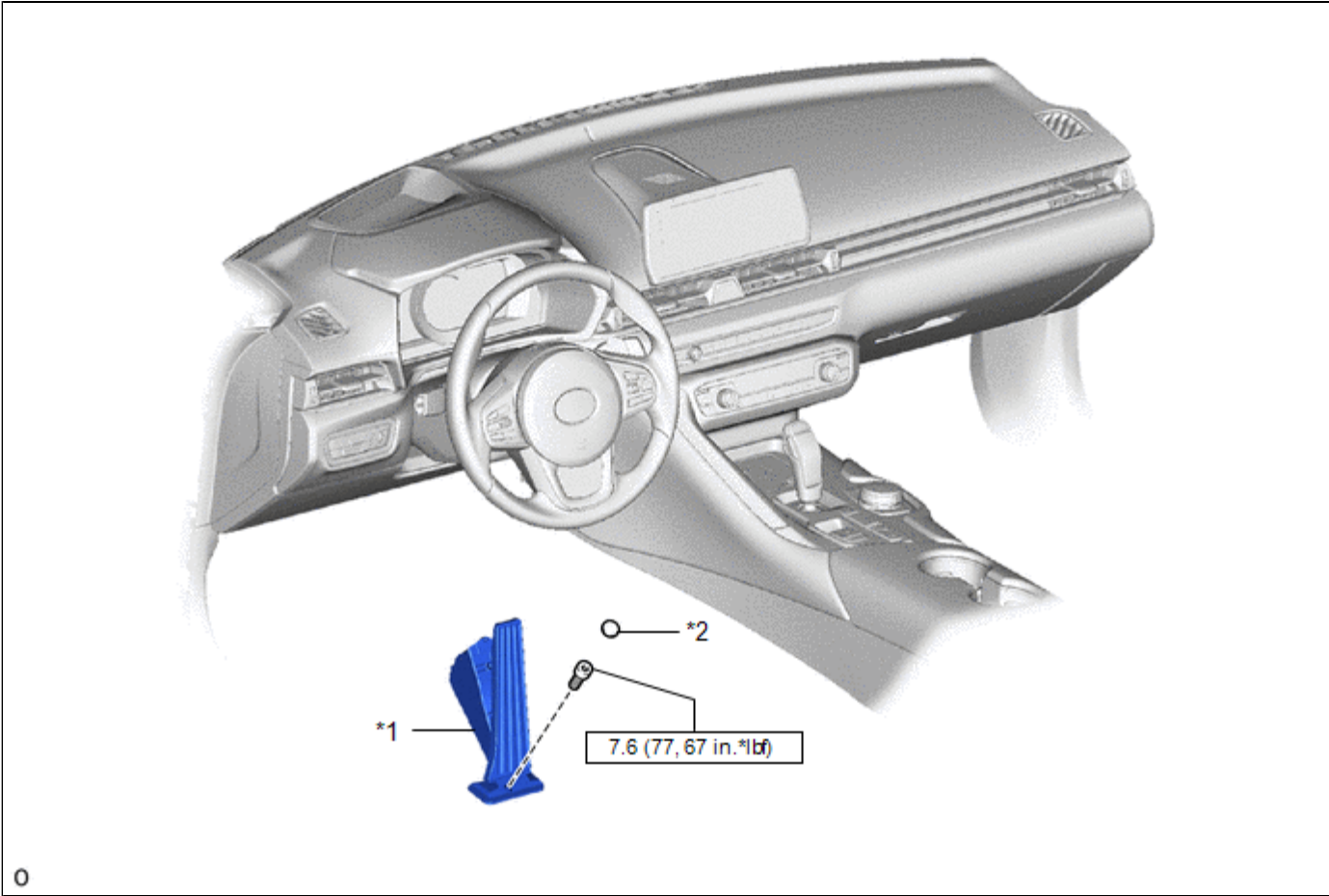


Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWE
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ACCELERATOR PEDAL: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	ACCELERATOR PEDAL SENSOR ASSEMBLY	*2	COVER
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

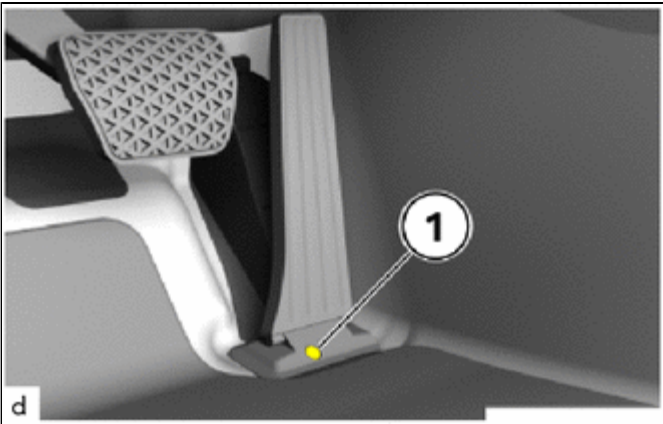
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWF
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ACCELERATOR PEDAL: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

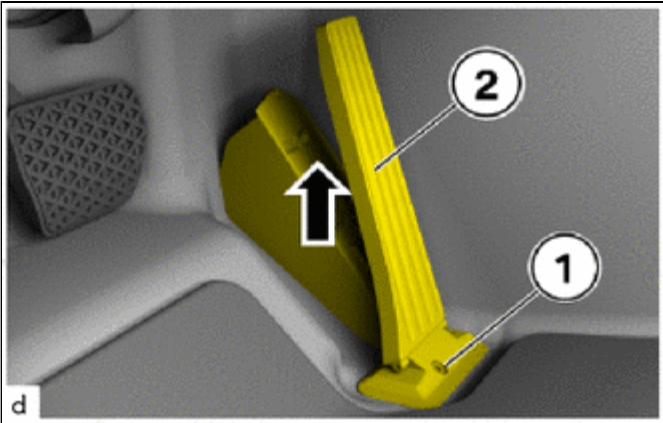
PROCEDURE

1. REMOVE ACCELERATOR PEDAL SENSOR ASSEMBLY

(a) Unclip the cover (1).

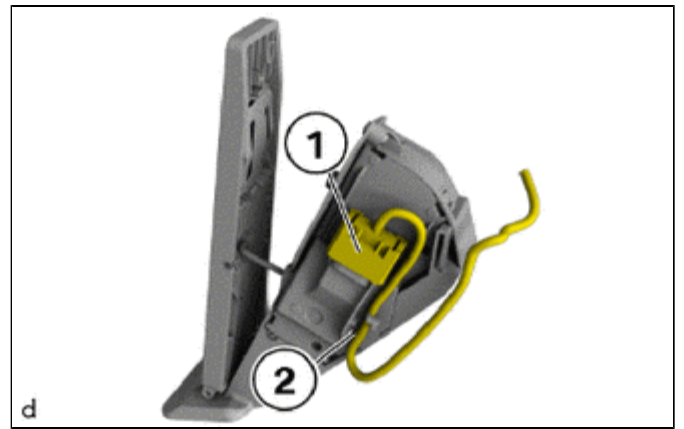


(b) Loosen T10 bolt (1).



(c) Feed out accelerator pedal sensor assembly (2) towards the top.

(d) Unlock plug connection (1) and disconnect.



(e) Feed the wiring harness out of the holder (2).

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWG
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ACCELERATOR PEDAL: INSTALLATION; 2020 MY Supra [03/2019 -]		

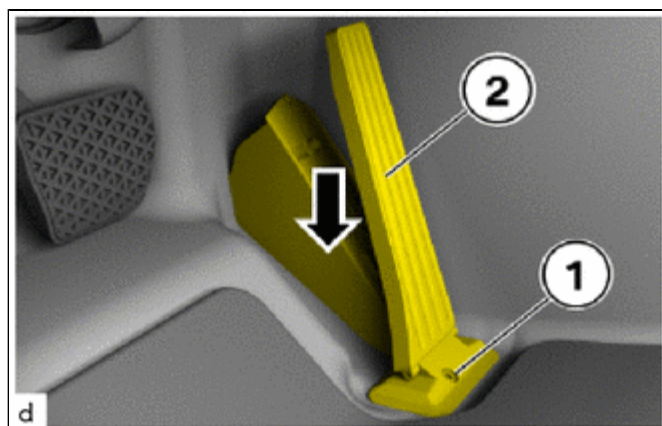
INSTALLATION

PROCEDURE

1. INSTALL ACCELERATOR PEDAL SENSOR ASSEMBLY

- (a) Connect connectors and lock.
- (b) Feed the wiring harness into the holder.

- (c) Feed the accelerator pedal sensor assembly (2) in to the bottom.



- (d) Tighten down T10 bolt (1).

Torque:

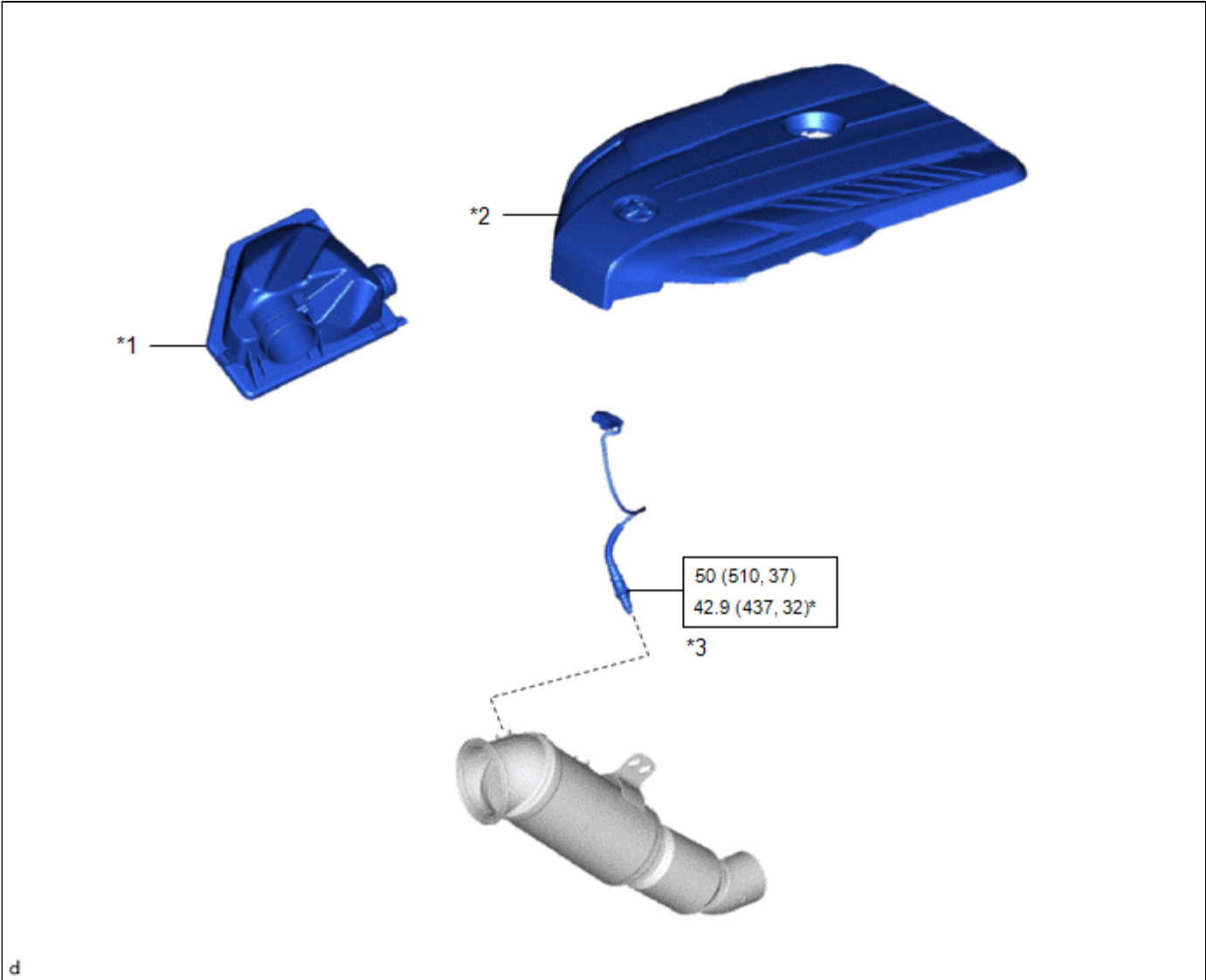
7.6 N·m { 77 kgf·cm, 67 in·lbf }

- (e) Clip in the cover.

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXE
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR FUEL RATIO SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	AIR CLEANER CAP SUB-ASSEMBLY	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	WIDE RANGE AIR FUEL RATIO SENSOR	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	*	For use with SST

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXF
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR FUEL RATIO SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE AIR CLEANER CAP SUB-ASSEMBLY

Click here [INFO](#)

3. REMOVE WIDE RANGE AIR FUEL RATIO SENSOR

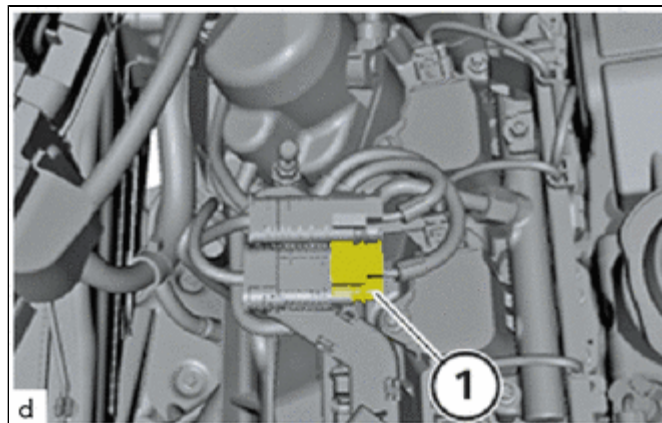
CAUTION:

- Hot surfaces.

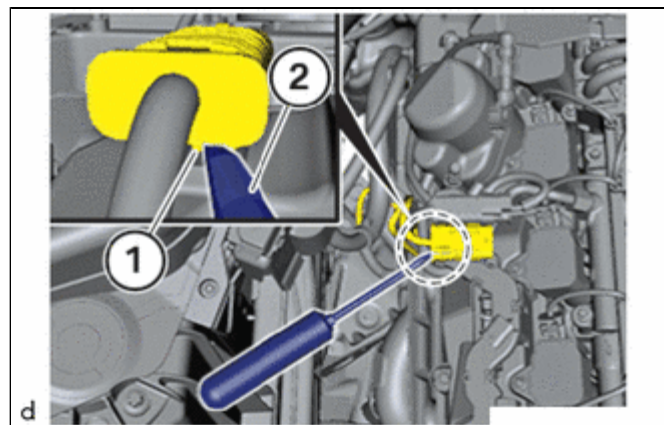
Risk of burning!

- Perform all work only on components that have cooled down.

(a) Unlock plug connection (1) and disconnect.

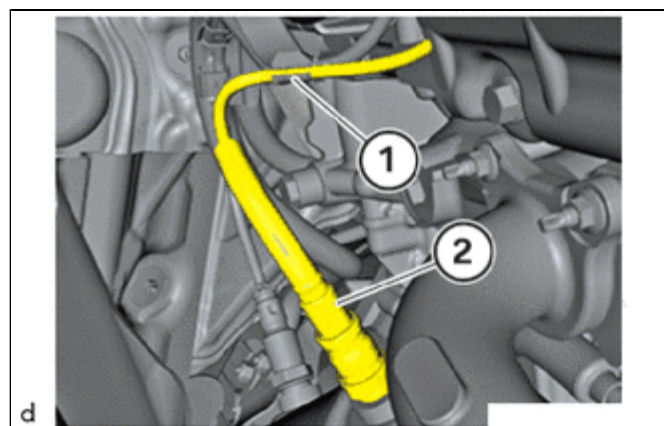


(b) Unlock the lock on the connector (1) with a suitable screwdriver (2).



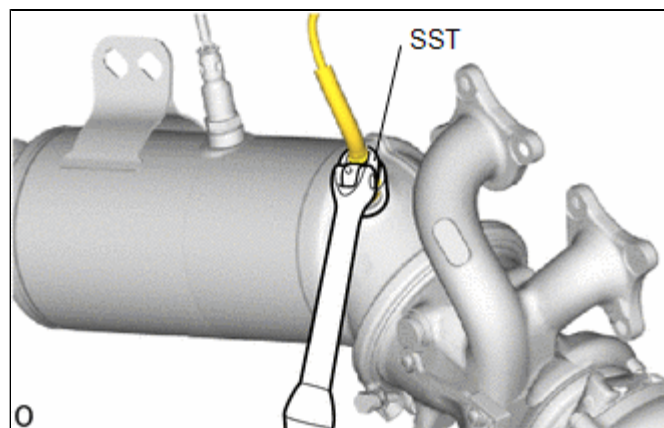
(c) Remove connector (1).

(d) Detach the line of the wide range air fuel ratio sensor (2) from the holder (1).



(e) Using SST, remove the wide range air fuel ratio sensor (1).

SST: 09224-00012



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXG
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR FUEL RATIO SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

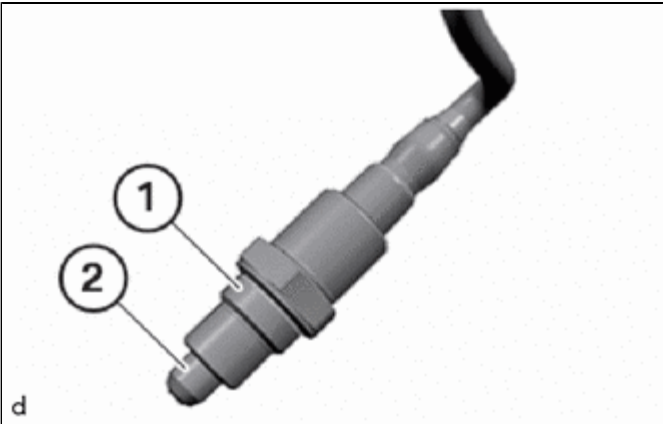
PROCEDURE

1. INSTALL WIDE RANGE AIR FUEL RATIO SENSOR

(a) Check the thread (1) and sensor ceramics (2) for damage and replace the wide range air fuel ratio sensor, if necessary.

NOTICE:

- For wide range air fuel ratio sensors that are reused, the following should be observed.
 - Do not clean the part of the wide range air fuel ratio sensor that does not protrude into the exhaust branch (sensor ceramics).



(b) Using SST, install the wide range air fuel ratio sensor (1).

SST: 09224-00012

Torque:

50 N·m { 510 kgf·cm, 37 ft·lbf }

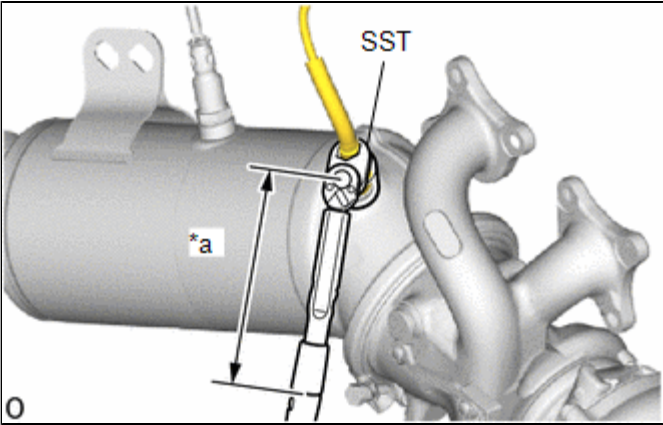
HINT:

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.

Click here [INFO](#)

- When using SST (fulcrum length of 30 mm (1.18 in.)) + torque wrench (fulcrum length of 180 mm (7.09 in.)):

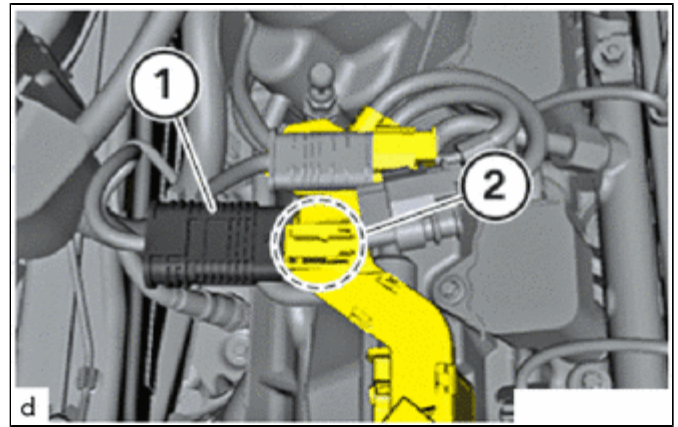
42.9 N*m (437 kgf*cm, 32 ft.*lbf)



*a	Torque Wrench Fulcrum Length
----	------------------------------

(c) Engage the line of the wide range air fuel ratio sensor in the holder.

(d) Engage connector (1) on the holder (2).



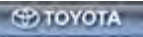
(e) Connect connectors and lock.

2. INSTALL AIR CLEANER CAP SUB-ASSEMBLY

Click here [INFO](#)

3. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

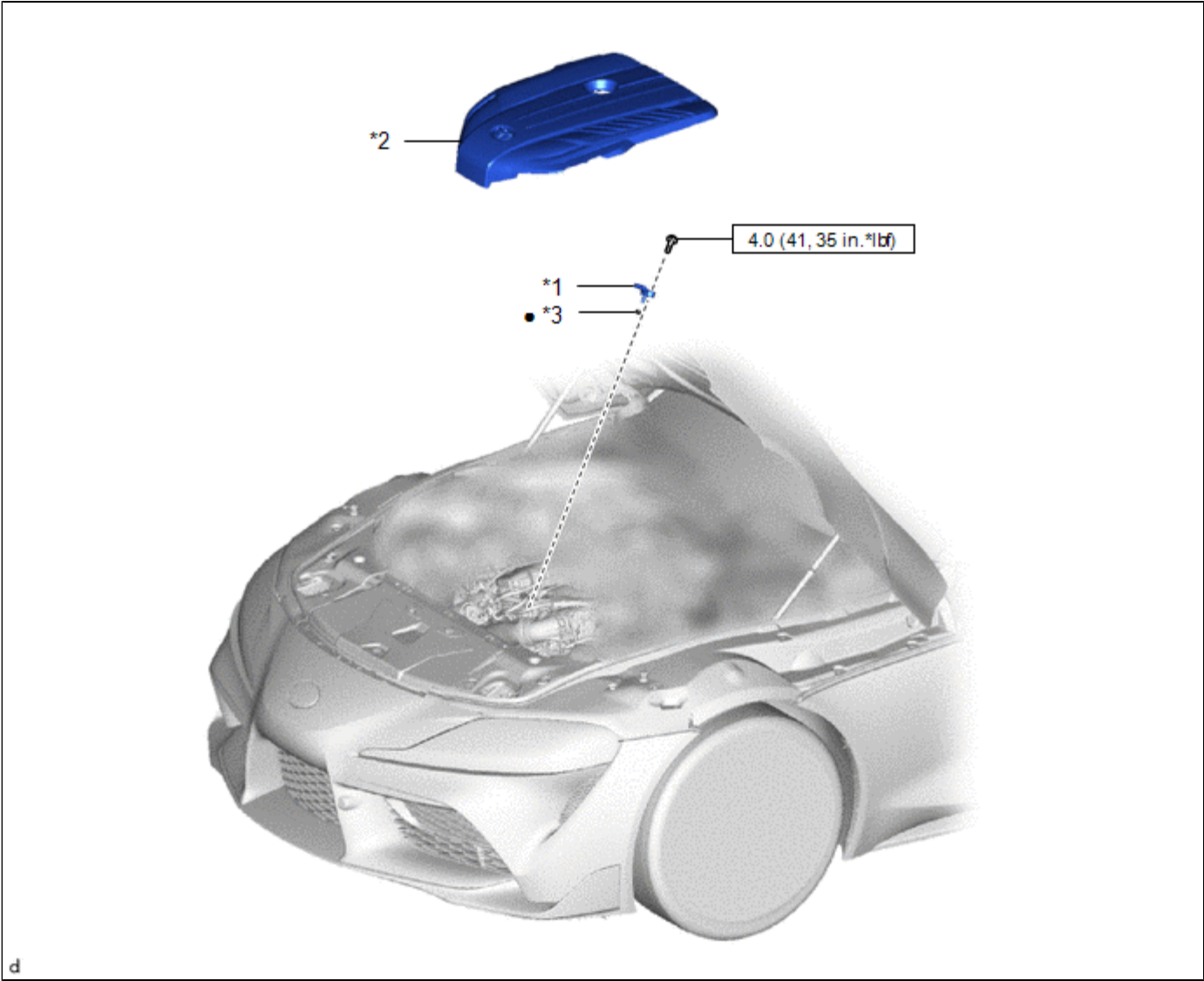
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWK
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR PRESSURE SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	AIR PRESSURE SENSOR	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	O-RING	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWL
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR PRESSURE SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE AIR PRESSURE SENSOR

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

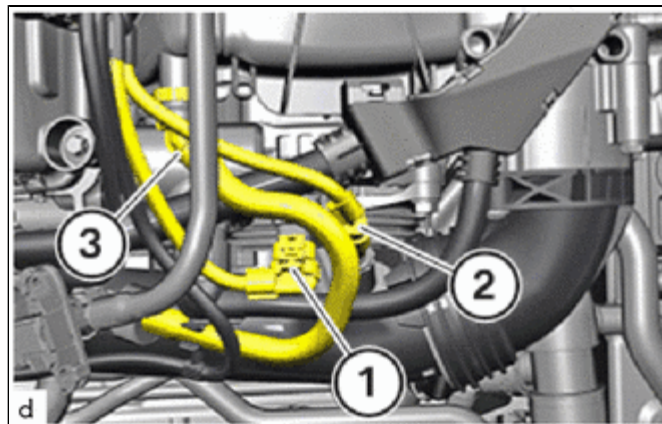
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

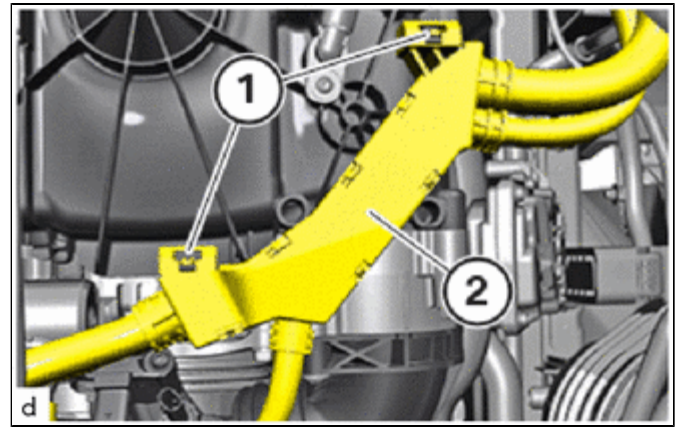
(a) Unlock plug connection (1) and disconnect.



(b) Unlock plug connection (2) and disconnect.

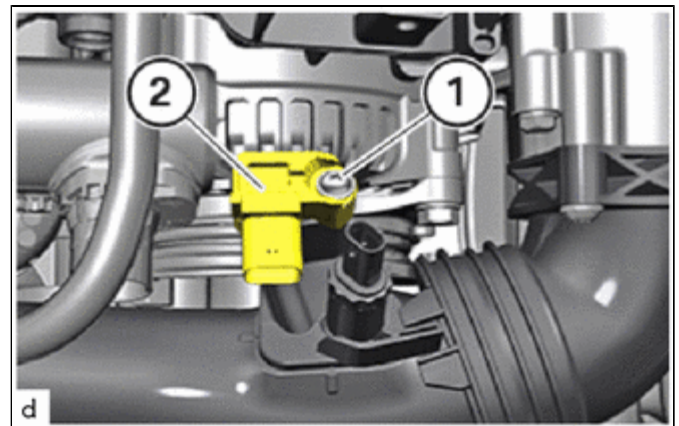
(c) Unlock the engine ventilation line (3) and set it aside.

(d) Unlock the locks (1).



(e) Feed out wiring harness section for the engine (2) slightly and set it aside.

(f) Loosen T25 screw (1).



(g) Remove the air pressure sensor (2).

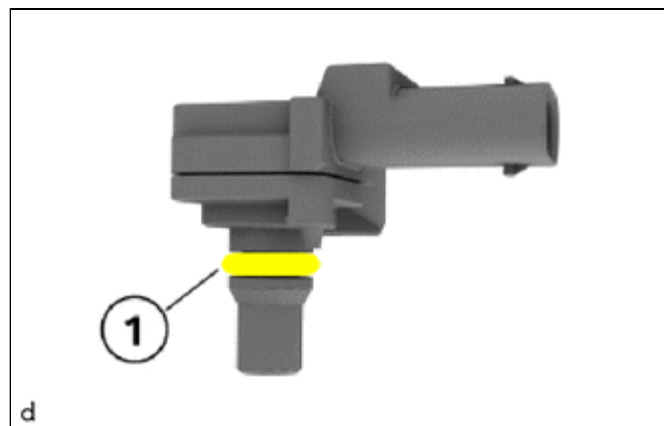
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWM
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): AIR PRESSURE SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL AIR PRESSURE SENSOR

(a) Replace O-ring (1) of the air pressure sensor.



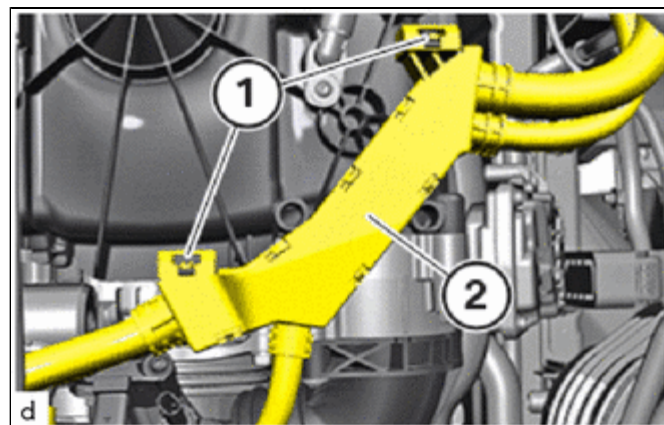
(b) Insert and install the air pressure sensor.

(c) Tighten down T25 screw.

Torque:

4.0 N·m { 41 kgf·cm, 35 in·lbf }

(d) Insert the wiring harness section for the engine (2) and install.

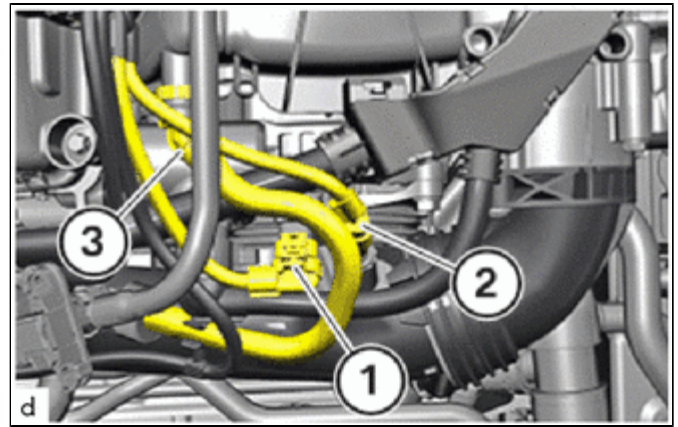


(e) Ensure that the locks (1) engage audibly.

(f) Insert and connect the engine ventilation line (3).

HINT:

The engine ventilation line (3) must engage audibly.



(g) Connect connectors (2) and lock.

HINT:

The connector (2) must engage audibly.

(h) Connect connectors (1) and lock.

HINT:

The connector (1) must engage audibly.

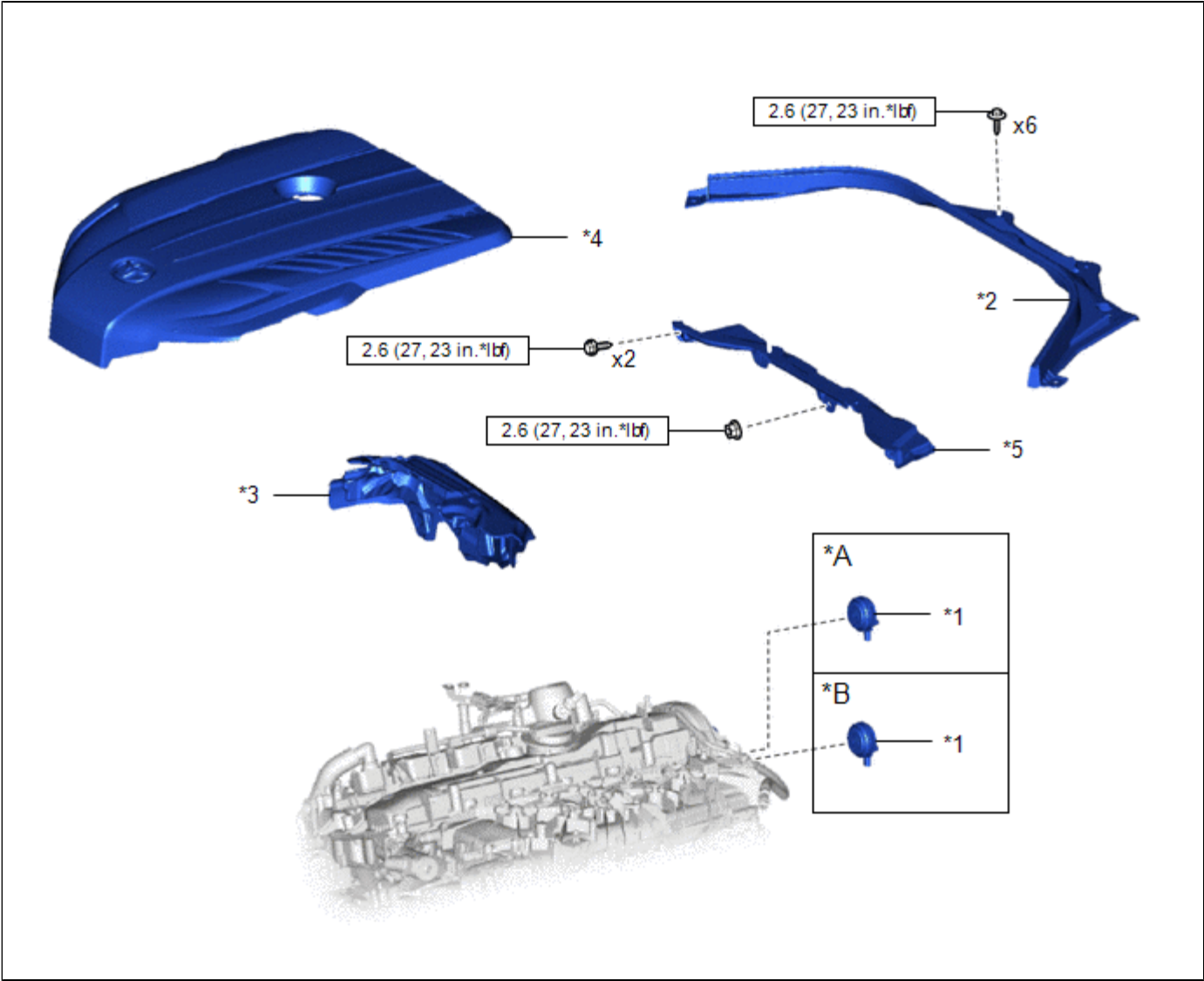
2. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW1
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT OIL CONTROL SOLENOID: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*A	for Exhaust Side	*B	for Intake Side
*1	CAM TIMING OIL CONTROL SOLENOID ASSEMBLY	*2	COWL TOP VENTILATOR LOUVER PROTECTOR
*3	NO. 1 ENGINE COVER	*4	NO. 1 ENGINE COVER SUB-ASSEMBLY
*5	NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

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Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW2
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT OIL CONTROL SOLENOID: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

PROCEDURE

1. REMOVE UPPER FRONT SUSPENSION CENTER BRACE

Click here [INFO](#)

2. REMOVE COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

3. REMOVE NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

4. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

5. REMOVE NO. 1 ENGINE COVER

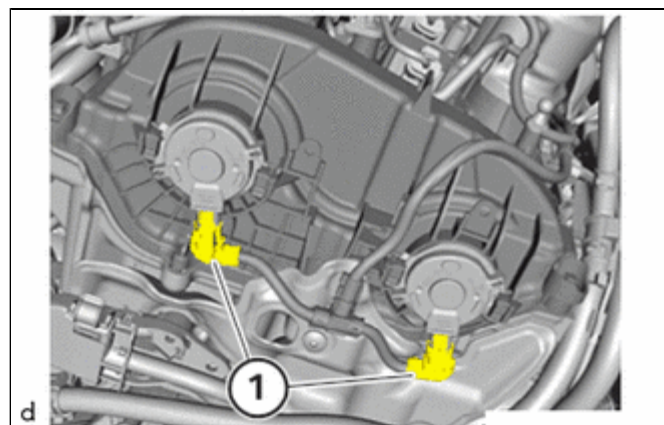
Click here [INFO](#)

6. REMOVE CAM TIMING OIL CONTROL SOLENOID ASSEMBLY

(a) Unlock and disconnect both connectors (1).

HINT:

The figure shows the rear side of the engine.



(b) Position each SST correctly on the cam timing oil control solenoid assembly.

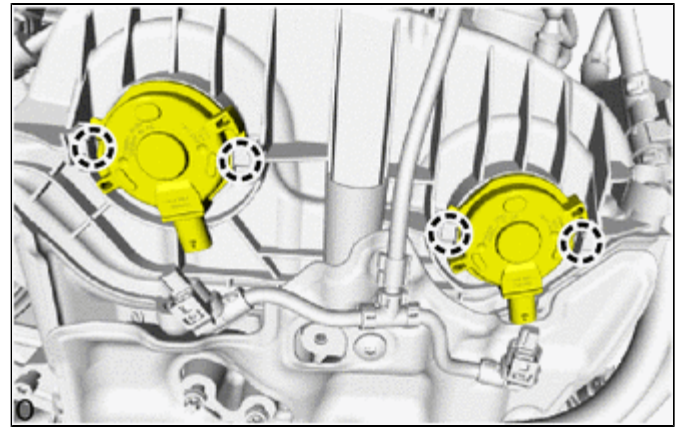
SST: 09960-10010

09962-01000

09963-00350

HINT:

The figure shows the rear side of the engine.

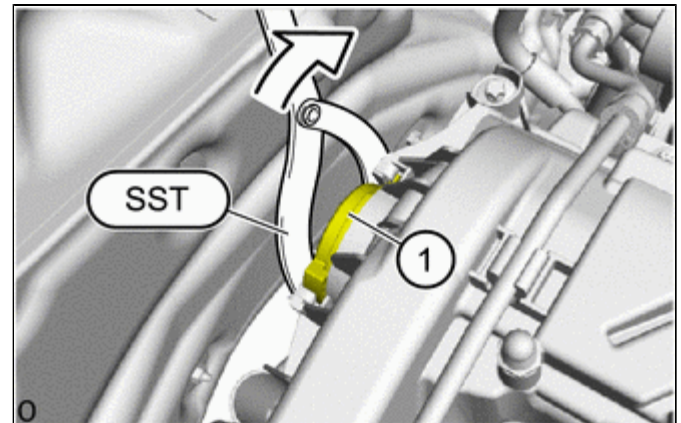


- (c) Using SST, turn the cam timing oil control solenoid assembly on intake adjuster (1) by approx. 50° in the direction of the arrow and remove it.

SST: 09960-10010

09962-01000

09963-00350

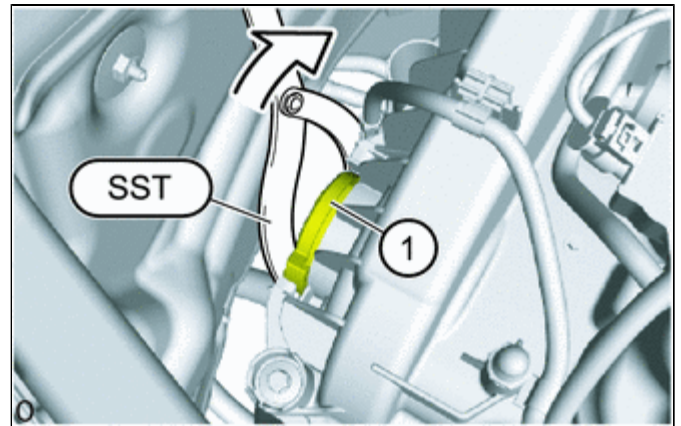


- (d) Using SST, turn the cam timing oil control solenoid assembly on exhaust camshaft adjuster (1) by approx. 50° in the direction of the arrow and remove it.

SST: 09960-10010

09962-01000

09963-00350



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW3
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT OIL CONTROL SOLENOID: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

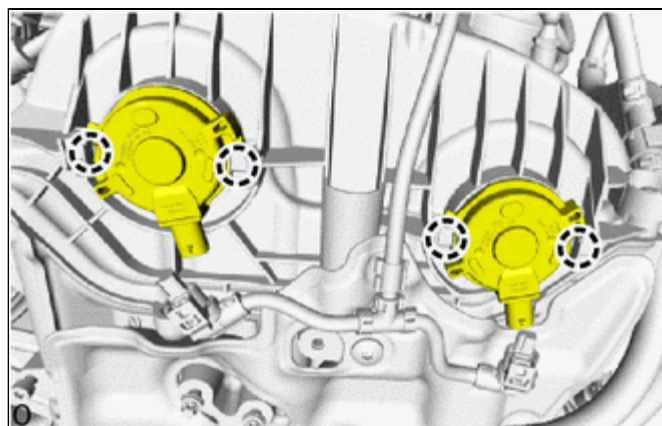
PROCEDURE

1. INSTALL CAM TIMING OIL CONTROL SOLENOID ASSEMBLY

- (a) Position the cam timing oil control solenoid assemblies at the cylinder head cover.

HINT:

The figure shows the rear side of the engine.



- (b) Position each SST correctly on the cam timing oil control solenoid assembly.

SST: 09960-10010

09962-01000

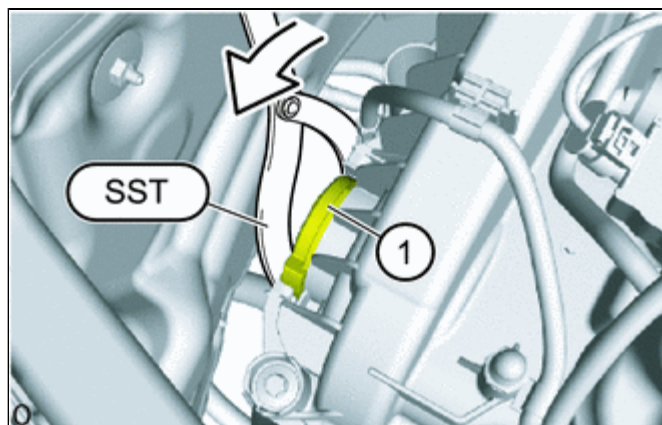
09963-00350

- (c) Using SST, turn the cam timing oil control solenoid assembly on the exhaust camshaft adjuster (1) in the direction of the arrow until the limit positions rest against the clamps.

SST: 09960-10010

09962-01000

09963-00350



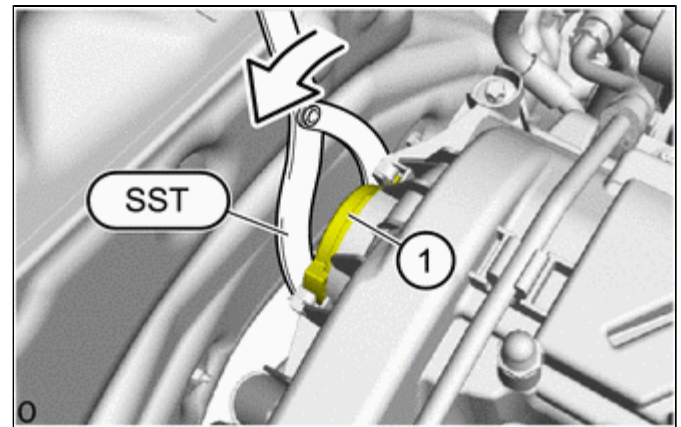
- (d) Using SST, turn the cam timing oil control solenoid assembly on the intake adjuster (1) in the direction of the

arrow until the limit positions rest against the clamps.

SST: 09960-10010

09962-01000

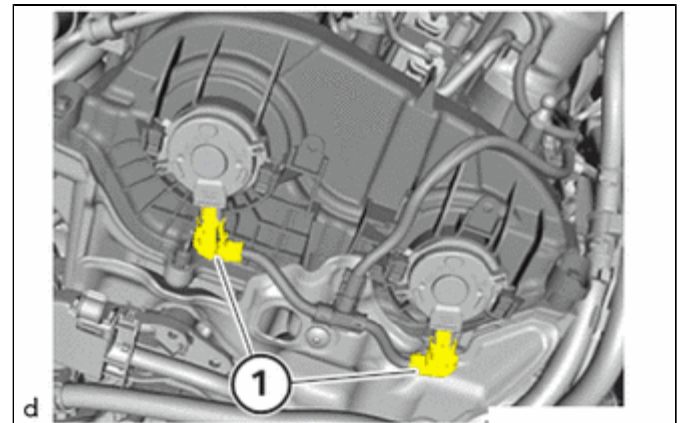
09963-00350



(e) Connect both connectors (1) to the cam timing oil control solenoid assemblies and route the cable correctly.

HINT:

The figure shows the rear side of the engine.



2. INSTALL NO. 1 ENGINE COVER

Click here [INFO](#)

3. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

4. INSTALL NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

5. INSTALL COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

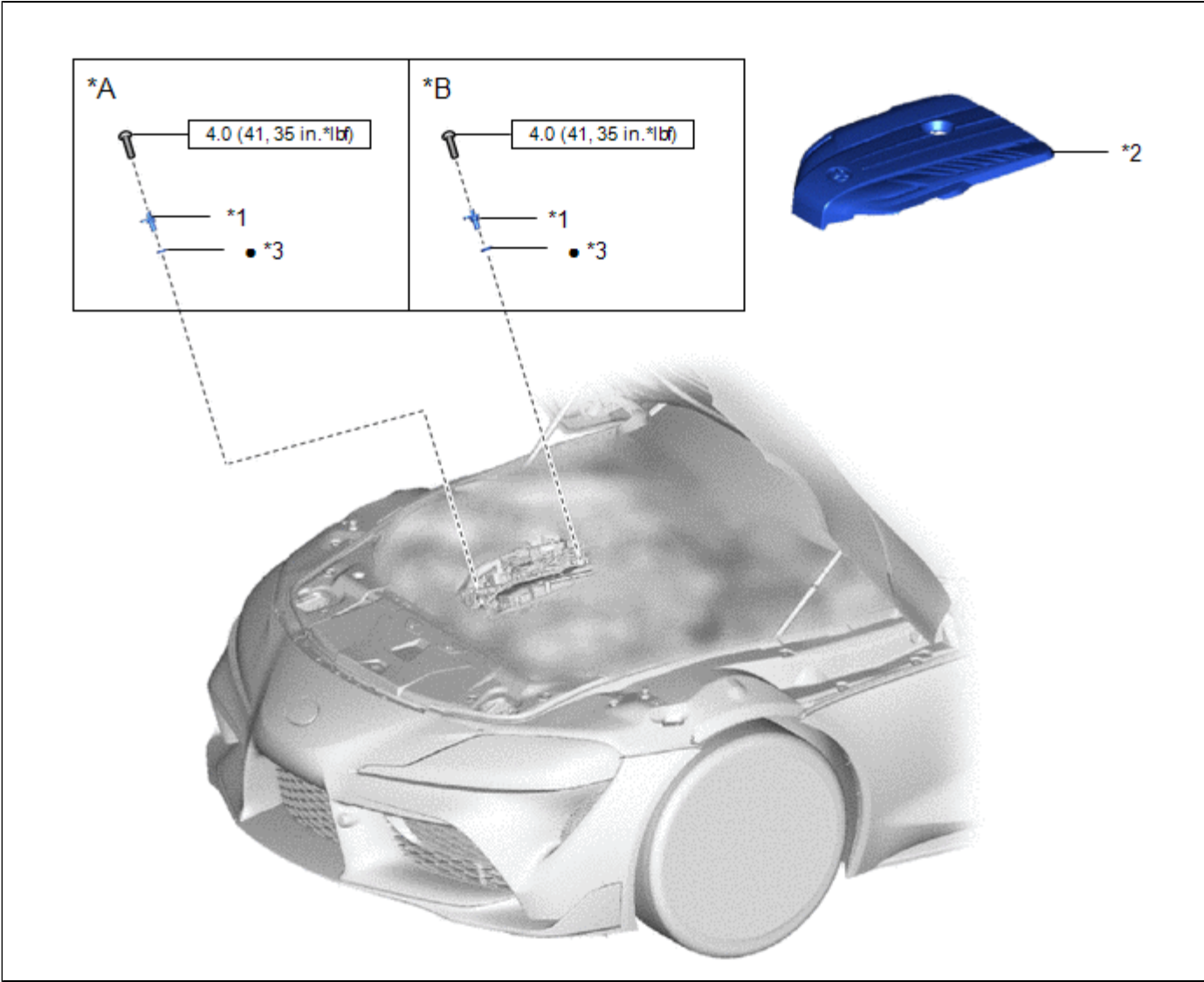
6. INSTALL UPPER FRONT SUSPENSION CENTER BRACE

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWN
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT POSITION SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*A	for Exhaust Side	*B	for Intake Side
*1	CAMSHAFT POSITION SENSOR	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	O-RING	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWO
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT POSITION SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE CAMSHAFT POSITION SENSOR (for Intake Side)

NOTICE:

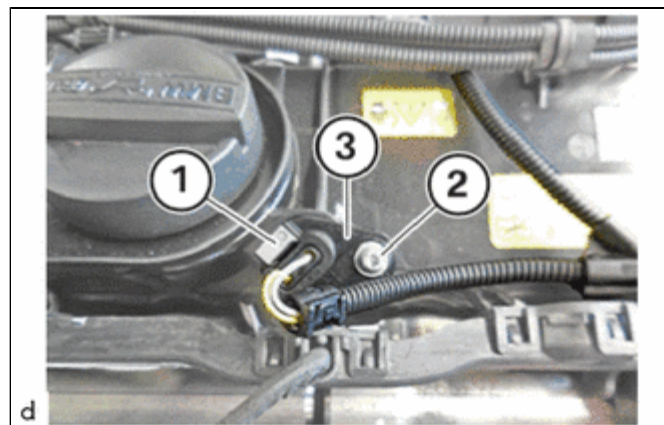
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

(a) Unlock plug connection (1) and disconnect.



(b) Loosen T20 bolt (2).

(c) Thread out and remove the camshaft position sensor of the intake camshaft (3).

3. REMOVE CAMSHAFT POSITION SENSOR (for Exhaust Side)

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

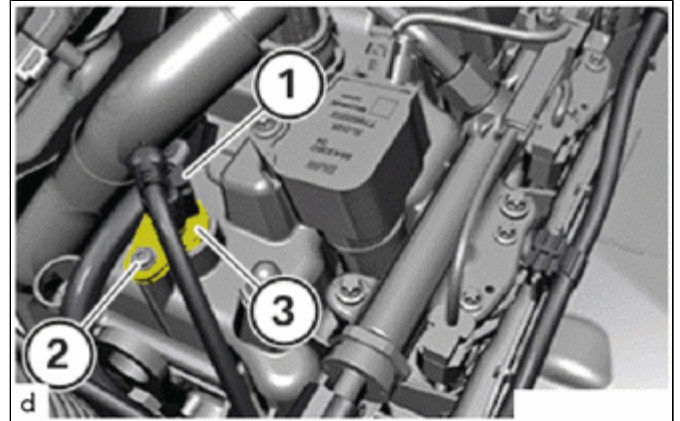
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

(a) Unlock plug connection (1) and disconnect.



(b) Loosen T20 bolt (2).

(c) Guide the camshaft position sensor of the exhaust camshaft (3) out and remove.



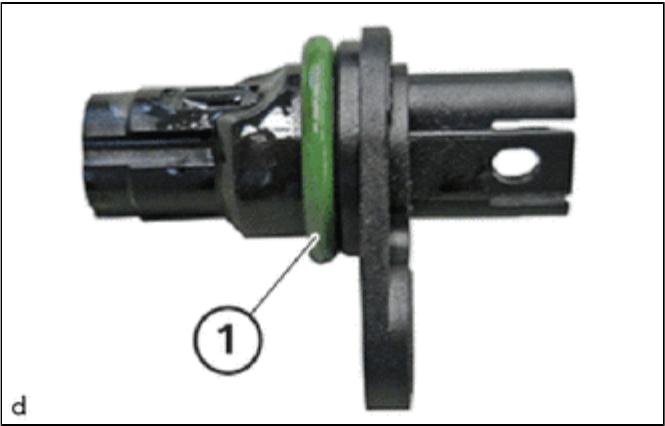
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWP
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT POSITION SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL CAMSHAFT POSITION SENSOR (for Exhaust Side)

(a) Replace O-ring (1).



(b) Guide the camshaft position sensor of the exhaust camshaft in and install.

(c) Tighten down T20 bolt.

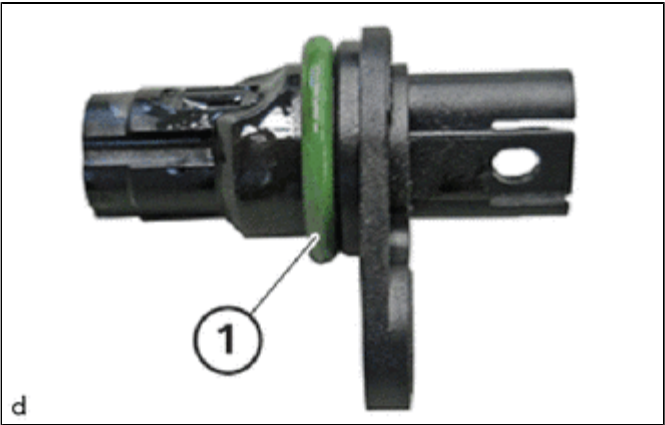
Torque:
4.0 N·m {41 kgf·cm, 35 in·lbf}

(d) Connect connectors and lock.

HINT:
The connector must engage audibly.

2. INSTALL CAMSHAFT POSITION SENSOR (for Intake Side)

(a) Replace O-ring (1).



- (b) Thread in and install the camshaft position sensor of the intake camshaft.
- (c) Tighten down T20 bolt.

Torque:

4.0 N·m { 41 kgf·cm, 35 in·lbf }

- (d) Connect and lock the connector.

HINT:

The connector must engage audibly.

3. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

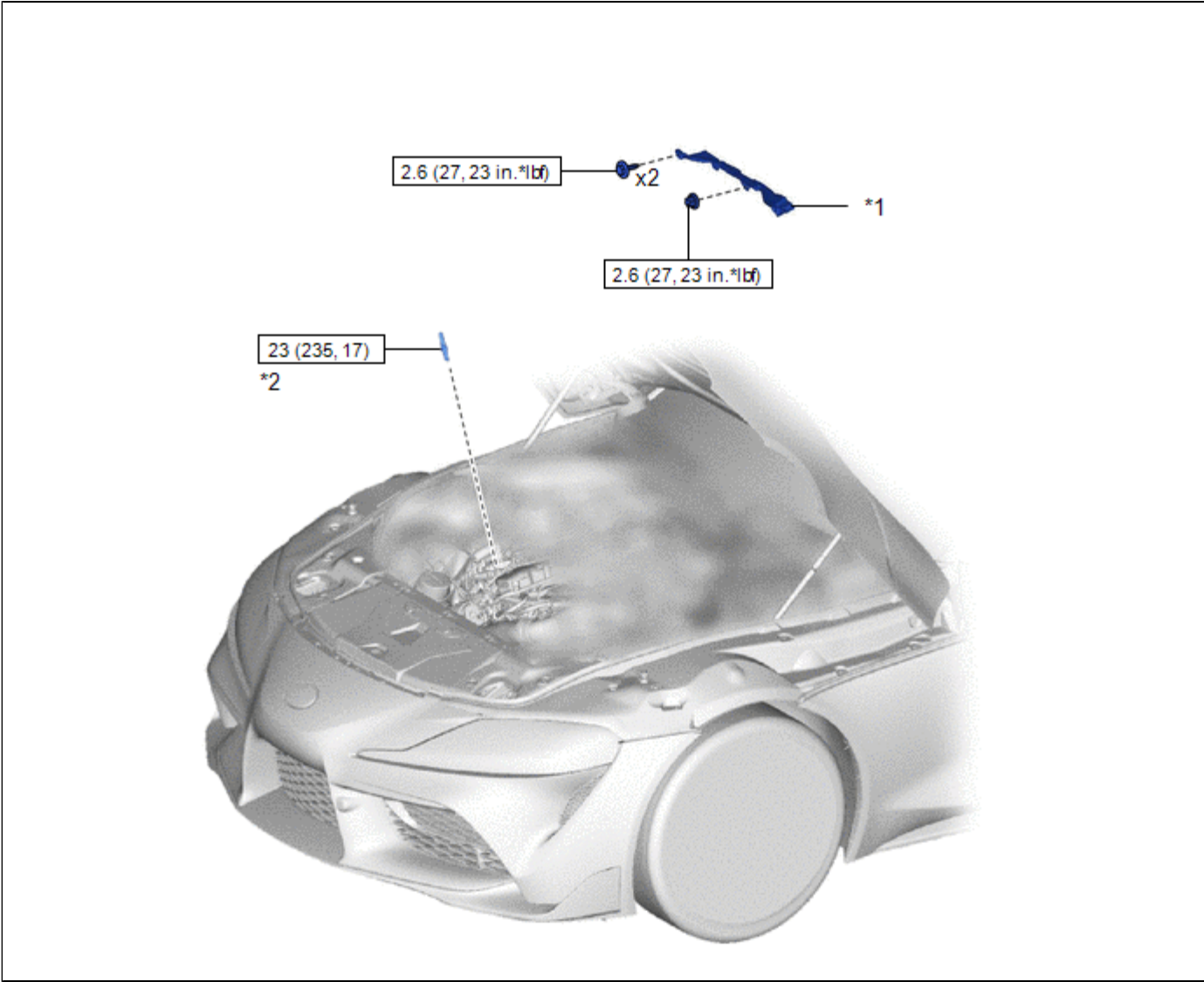
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXK
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT TIMING GEAR BOLT: COMPONENTS; 2020 MY Supra [03/2019 -]		

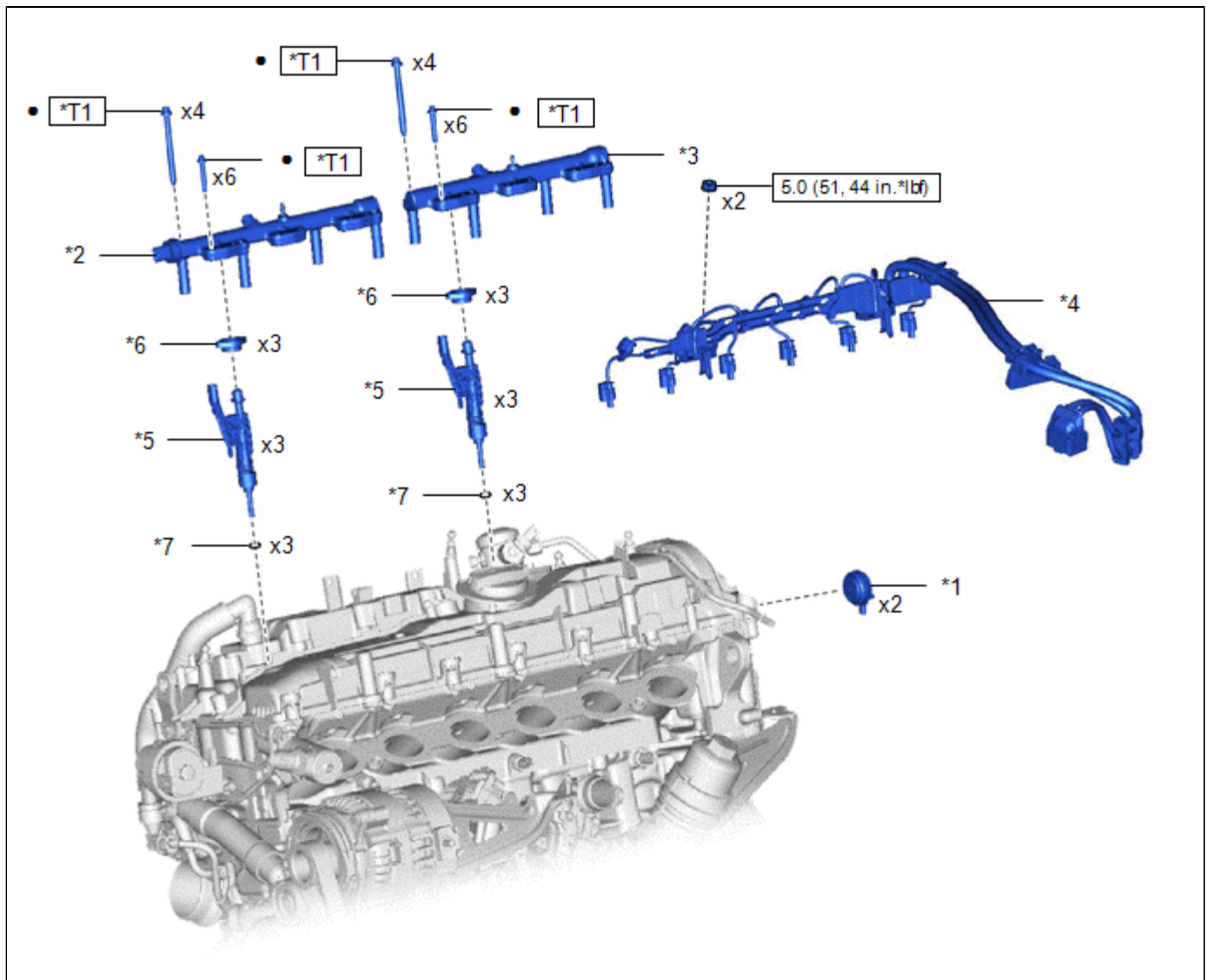
COMPONENTS

ILLUSTRATION



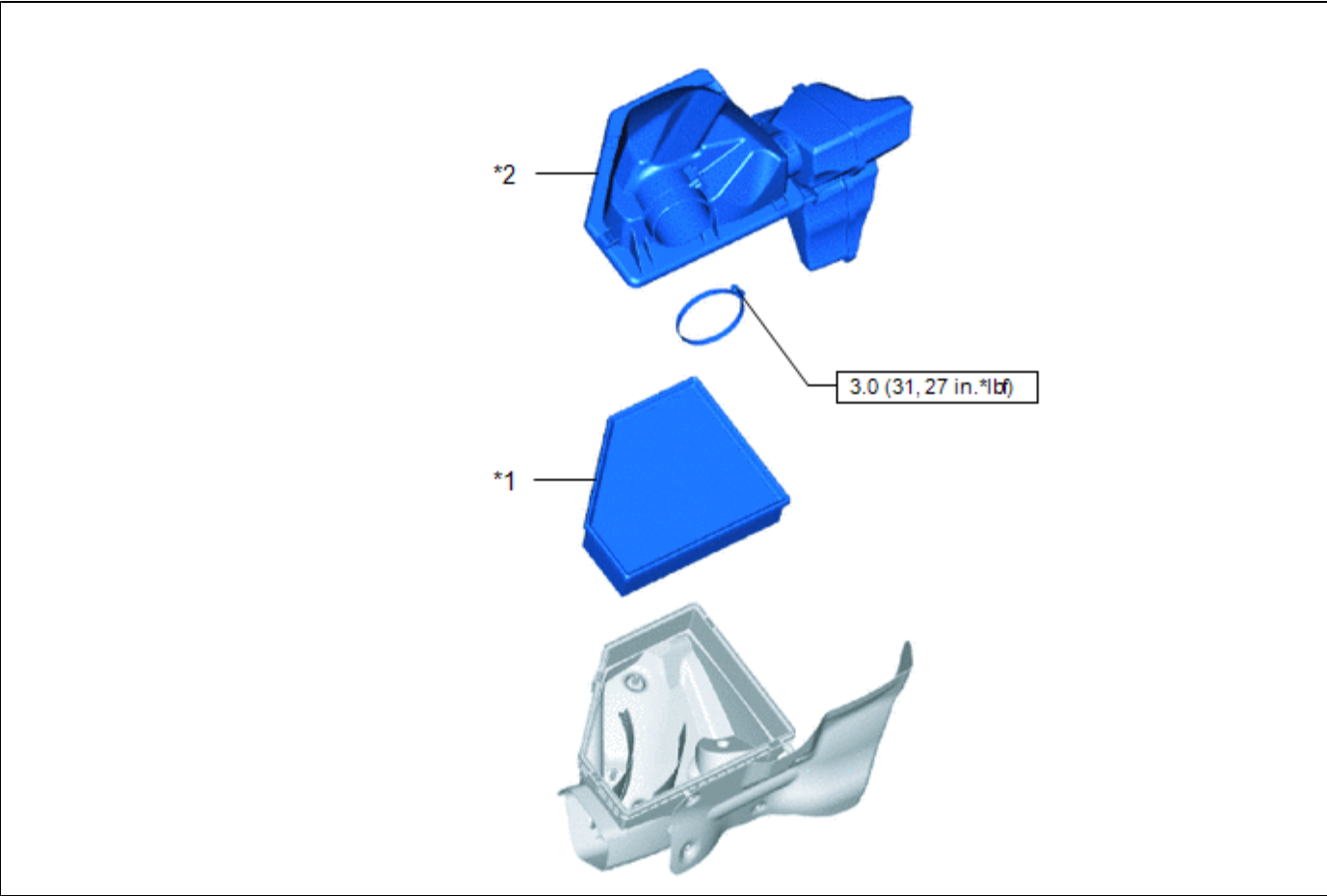
*1	NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR	*2	SPARK PLUG
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

ILLUSTRATION



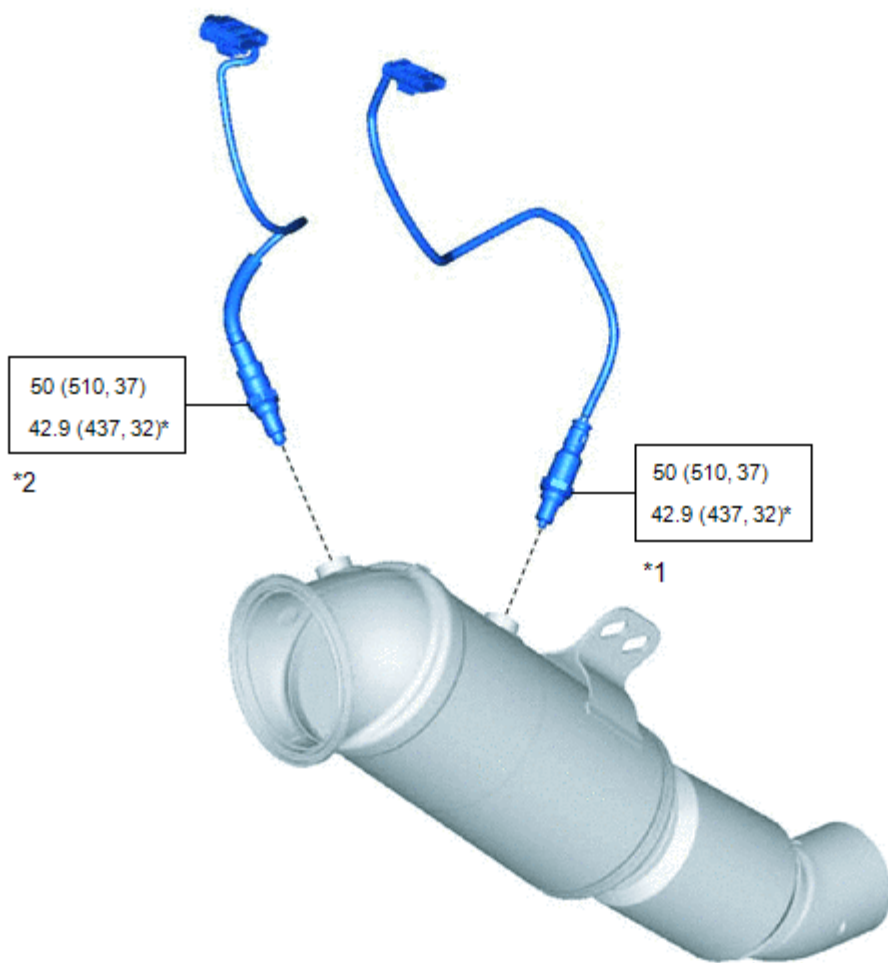
*1	CAM TIMING OIL CONTROL SOLENOID ASSEMBLY	*2	FUEL DELIVERY PIPE
*3	NO. 2 FUEL DELIVERY PIPE	*4	NO. 4 ENGINE WIRE
*5	FUEL INJECTOR ASSEMBLY	*6	INJECTOR BRACKET
*7	TEFLON RING	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part
*T1	1st: 5.0 (51, 44 in.*lbf) 2nd: Turn 90°	-	-

ILLUSTRATION



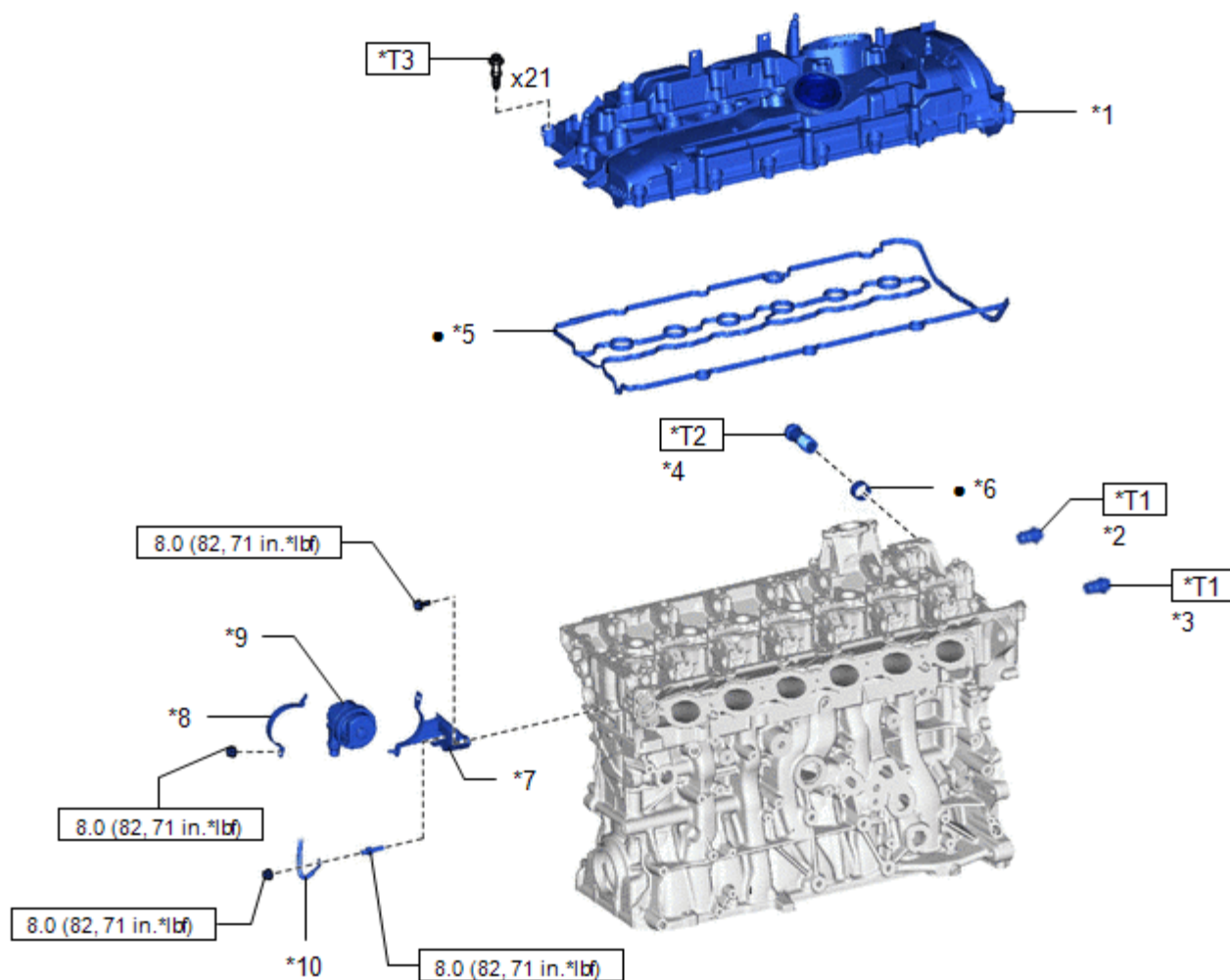
*1	AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY	*2	AIR CLEANER CAP SUB-ASSEMBLY
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

ILLUSTRATION



*1	OXYGEN SENSOR	*2	WIDE RANGE AIR FUEL RATIO SENSOR
	N*m (kgf*cm, ft.*lbf): Specified torque	*	For use with SST

ILLUSTRATION



*1	CYLINDER HEAD COVER SUB-ASSEMBLY	*2	EXHAUST CAMSHAFT TIMING GEAR BOLT ASSEMBLY
*3	INTAKE CAMSHAFT TIMING GEAR BOLT ASSEMBLY	*4	NO. 1 CHAIN TENSIONER ASSEMBLY
*5	CYLINDER HEAD COVER GASKET	*6	SEALING SLEEVE
*7	NO. 1 ELECTRIC WATER PUMP BRACKET SUB-ASSEMBLY	*8	NO. 2 ELECTRIC ENGINE WATER PUMP BRACKET SUB-ASSEMBLY
*9	ELECTRIC WATER PUMP ASSEMBLY	*10	NO. 2 ENGINE WIRE
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part
*T1	1st: 10 (102, 7) 2nd: 30 (306, 22) 3rd : 50 (510, 37) 4th : Turn 35°	*T2	1st: 20 (204, 15) 2nd: Turn 40°
*T3	1st: 6.0 (61, 53 in.*lbf)	-	-

	2nd: 11 (112, 8)		
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TOYOTA

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXL
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT TIMING GEAR BOLT: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

- Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.

NOTICE:

- Damage to battery terminal, the safety battery terminal or the battery state sensor.

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PROCEDURE

1. REMOVE AND INSTALL HOOD SUPPORT ASSEMBLY

Click here [INFO](#)

2. REMOVE FRONT SUSPENSION MEMBER LOWER PROTECTOR

Click here [INFO](#)

3. REMOVE FUEL PUMP ASSEMBLY

Click here [INFO](#)

4. REMOVE NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

5. REMOVE SPARK PLUG

Click here [INFO](#)

6. REMOVE FUEL DELIVERY PIPE

Click here [INFO](#)

7. REMOVE NO. 2 FUEL DELIVERY PIPE

Click here [INFO](#)

8. REMOVE CAM TIMING OIL CONTROL SOLENOID ASSEMBLY

Click here [INFO](#)

9. REMOVE AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY

Click here [INFO](#)

10. REMOVE OXYGEN SENSOR

Click here [INFO](#)

11. REMOVE WIDE RANGE AIR FUEL RATIO SENSOR

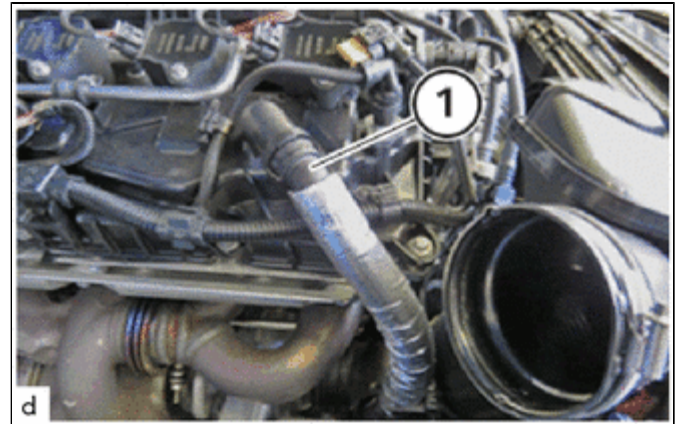
Click here [INFO](#)

12. REMOVE CYLINDER HEAD COVER SUB-ASSEMBLY

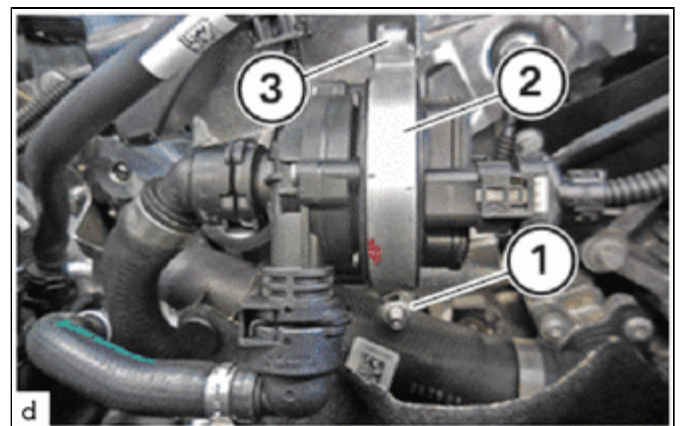
NOTICE:

- Damage to wires when disconnecting connectors and plug connections.
- Sheared wires can cause a short circuit.
 - Do not pull on the wires when disconnecting connectors and plug connections.

(a) Unlock and loosen ventilation hose (1).

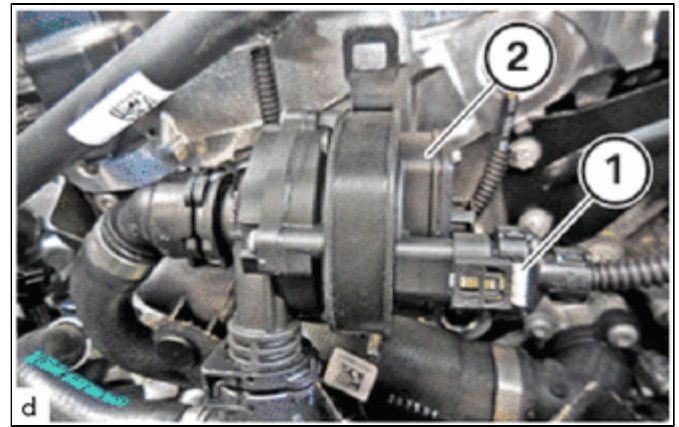


(b) Loosen nut (1).



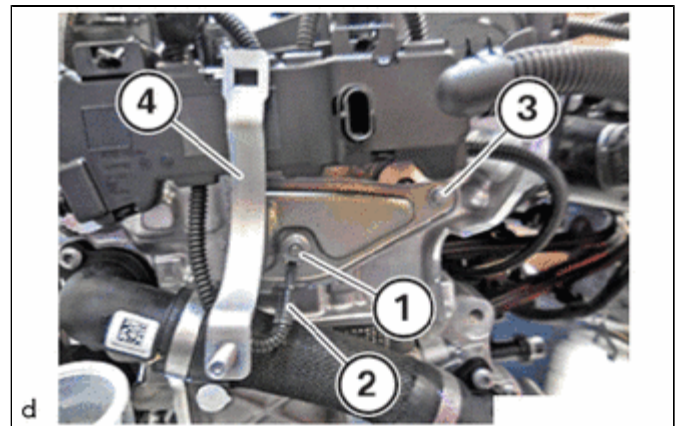
(c) Guide out and remove No. 2 electric engine water pump bracket sub-assembly (2) from holder (3).

(d) Unlock plug connection (1) and disconnect.



(e) Guide out electric water pump assembly (2) and place it aside.

(f) Loosen nut (1).



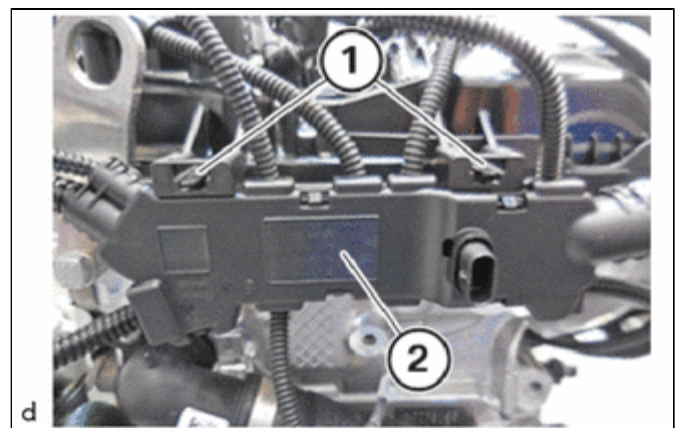
(g) Feed out No. 2 engine wire (2) and set it aside.

(h) Loosen stud bolt.

(i) Loosen bolt (3).

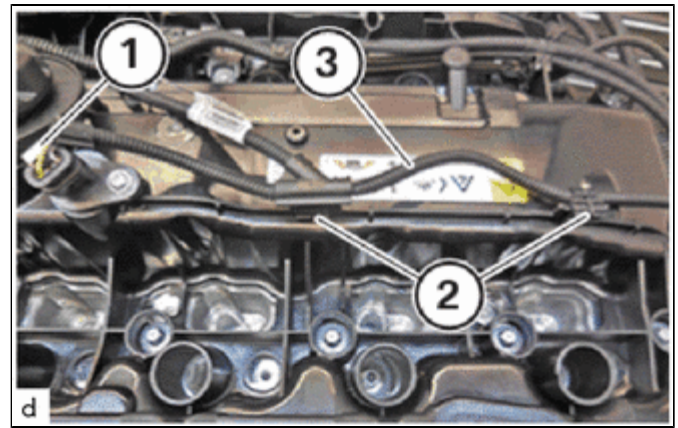
(j) Guide out and remove No. 1 electric water pump bracket sub-assembly (4).

(k) Unlock the locks (1).



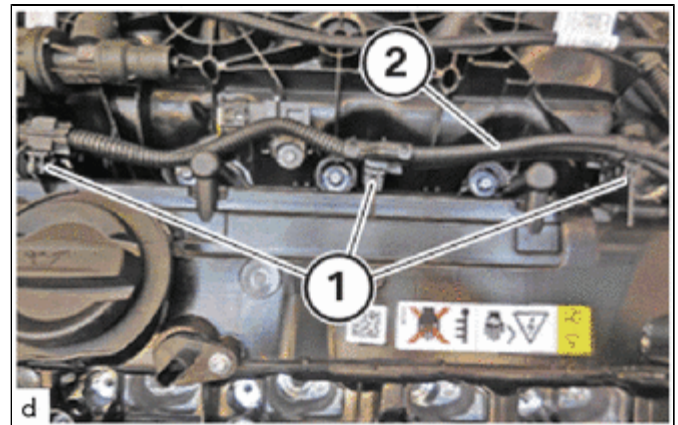
(l) Guide out the engine wiring harness for No. 2 engine wire (2) and place it aside.

(m) Unlock plug connection (1) and disconnect.



(n) Loosen clamps (2).

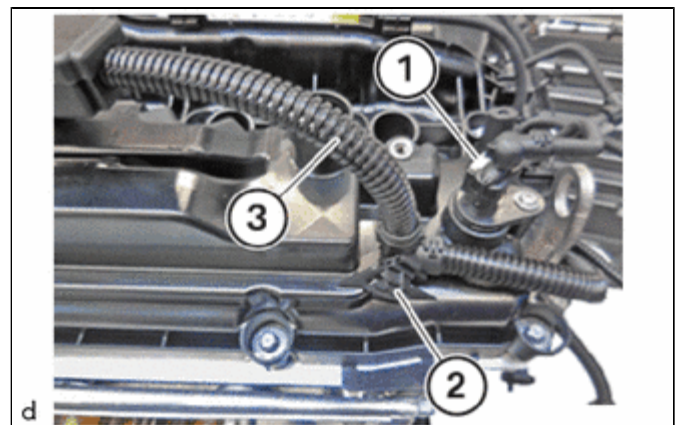
(o) Guide out the engine wiring harness for No. 2 engine wire (2) and place it aside.



(p) Loosen clamps (1).

(q) Guide out the engine wiring harness for engine wire (2) and place it aside.

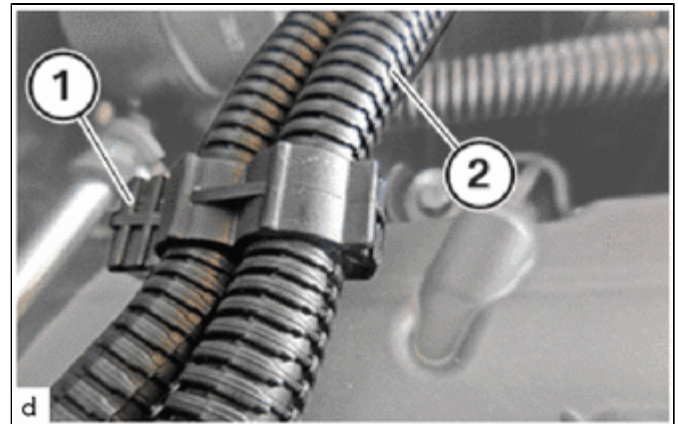
(r) Unlock plug connection (1) and disconnect.



(s) Loosen clamp (2).

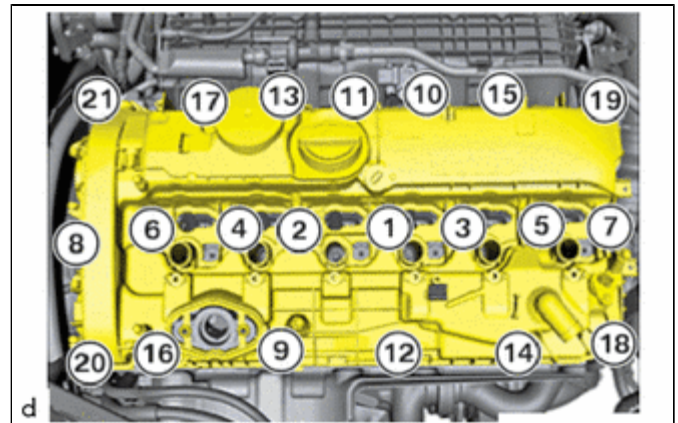
(t) Guide out the engine wiring harness for No. 2 engine wire (3) and place it aside.

(u) Loosen clamp (1).



(v) Thread out the wiring harness section (2) for the injectors and ignition coils and set it aside.

(w) Loosen all E10 bolts in sequence (21) to (1).



(x) Feed out and remove the cylinder head cover sub-assembly.

13. SET NO. 1 CYLINDER TO TDC (COMPRESSION)

Click here [INFO](#)

14. REMOVE NO. 1 CHAIN TENSIONER ASSEMBLY

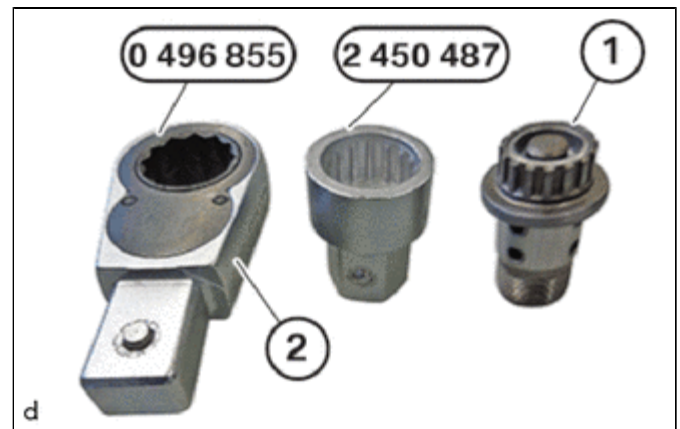
Click here [INFO](#)

15. LOOSEN INTAKE CAMSHAFT TIMING GEAR BOLT ASSEMBLY

(a) To release the intake camshaft timing gear bolt assembly
(1) use the reversible ratchet (2) from the special tool 0 496855 with the special tool 2 450 487 .

SST: 09200-WA470

SST: 09200-WA800

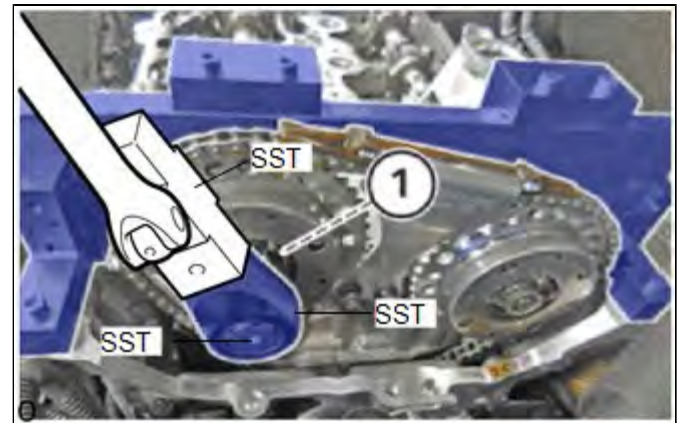


- (b) Release the intake camshaft timing gear bolt assembly of the intake camshaft adjuster (1) with the special tool 2 450 487.

SST: 09200-WA470

SST: 09200-WA800

SST: 09900-WA280

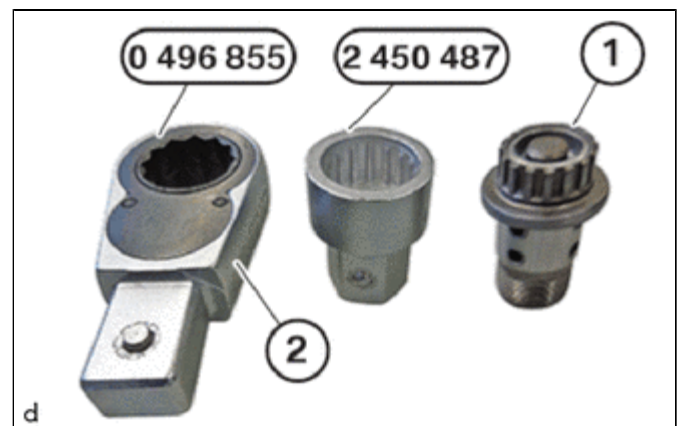


16. LOOSEN EXHAUST CAMSHAFT TIMING GEAR BOLT ASSEMBLY

- (a) To release the exhaust camshaft timing gear bolt assembly (1) use the reversible ratchet (2) from the special tool 0 496855 with the special tool 2 450 487 .

SST: 09200-WA470

SST: 09200-WA800



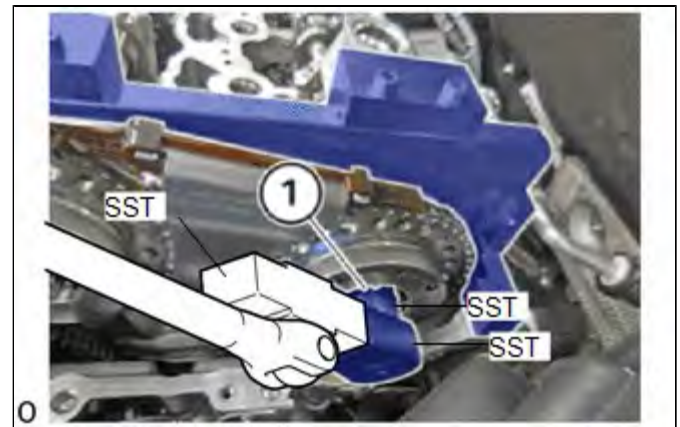
- (b) Release the exhaust camshaft timing gear bolt assembly of the exhaust camshaft adjuster (1) with the special tool 2

450 487.

SST: 09200-WA470

SST: 09200-WA800

SST: 09900-WA280

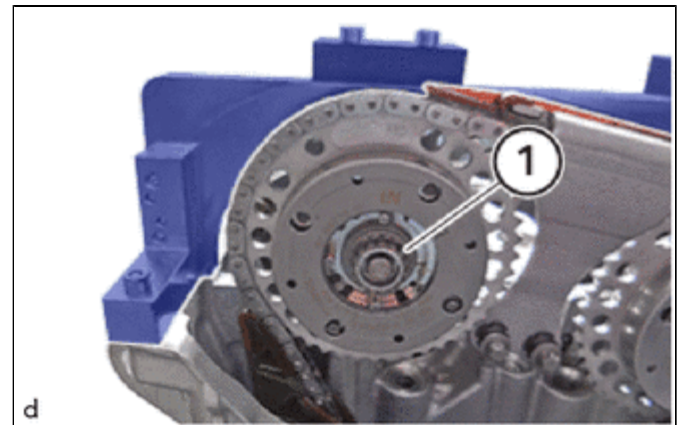


17. REMOVE INTAKE CAMSHAFT TIMING GEAR BOLT ASSEMBLY

HINT:

The figure shows the rear side of the engine.

- (a) Guide out and remove the intake camshaft timing gear bolt assembly (1) of the intake adjuster.

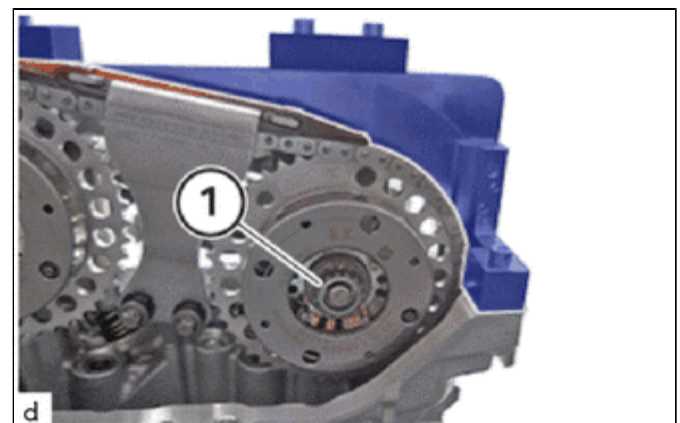


18. REMOVE EXHAUST CAMSHAFT TIMING GEAR BOLT ASSEMBLY

HINT:

The figure shows the rear side of the engine.

- (a) Guide out and remove the exhaust camshaft timing gear bolt assembly (1) of the exhaust camshaft adjuster.





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Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CAMSHAFT TIMING GEAR BOLT: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

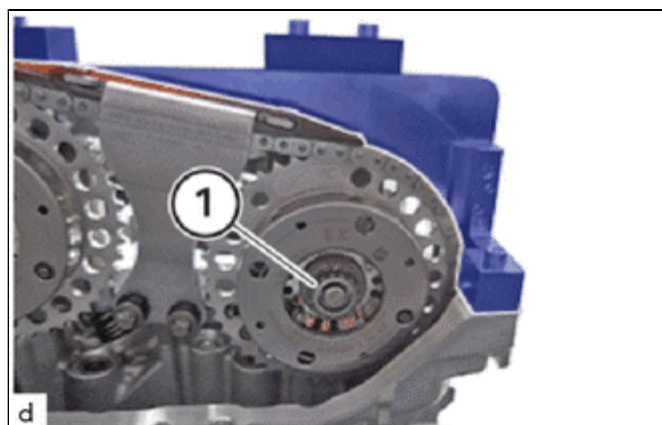
PROCEDURE

1. TEMPORARILY TIGHTEN EXHAUST CAMSHAFT TIMING GEAR BOLT ASSEMBLY

HINT:

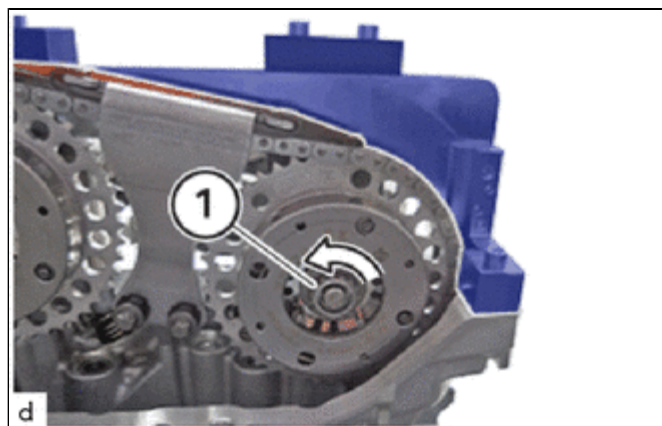
The figure shows the rear side of the engine.

- (a) Guide in the exhaust camshaft timing gear bolt assembly (1) of the exhaust camshaft adjuster and install.



- (b) Hand-tighten the exhaust camshaft timing gear bolt assembly (1) of the exhaust camshaft adjuster.

- (c) Release the exhaust camshaft timing gear bolt assembly (1) of the exhaust camshaft adjuster in the direction of arrow by 60°.

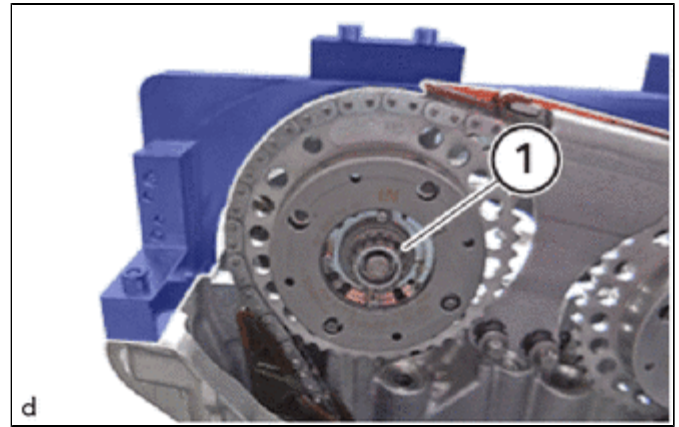


2. TEMPORARILY TIGHTEN INTAKE CAMSHAFT TIMING GEAR BOLT ASSEMBLY

HINT:

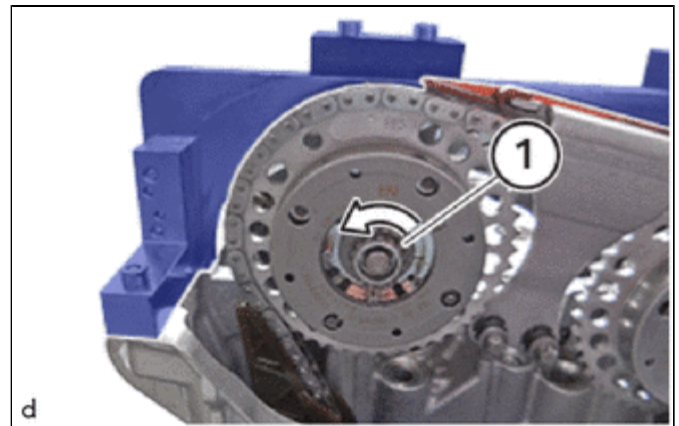
The figure shows the rear side of the engine.

- (a) Guide in the intake camshaft timing gear bolt assembly (1) of the intake adjuster and install.



- (b) Hand-tighten the intake camshaft timing gear bolt assembly (1) of the intake adjuster.

- (c) Release the intake camshaft timing gear bolt assembly (1) of the intake adjuster in the direction of arrow by 60 °.



3. REMOVE SST

Click here [INFO](#)

4. ADJUST CAMSHAFT

Click here [INFO](#)

5. TEMPORARILY INSTALL CHAIN SUB-ASSEMBLY

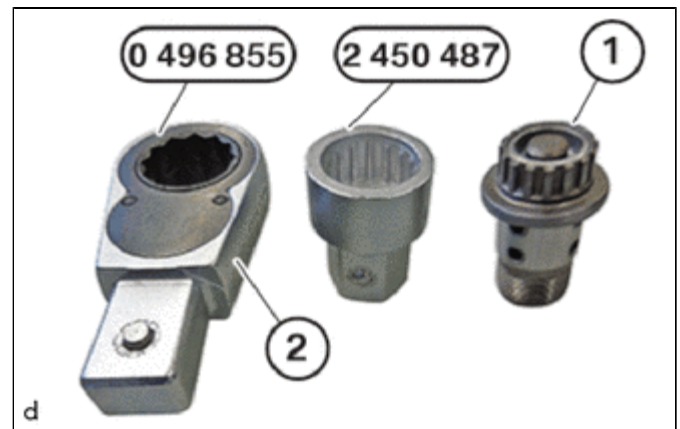
Click here [INFO](#)

6. TIGHTEN EXHAUST CAMSHAFT TIMING GEAR BOLT ASSEMBLY

- (a) To tighten the exhaust camshaft timing gear bolt assembly (1) use the reversible ratchet (2) from the special tool 0 496855 with the special tool 2 450 487 .

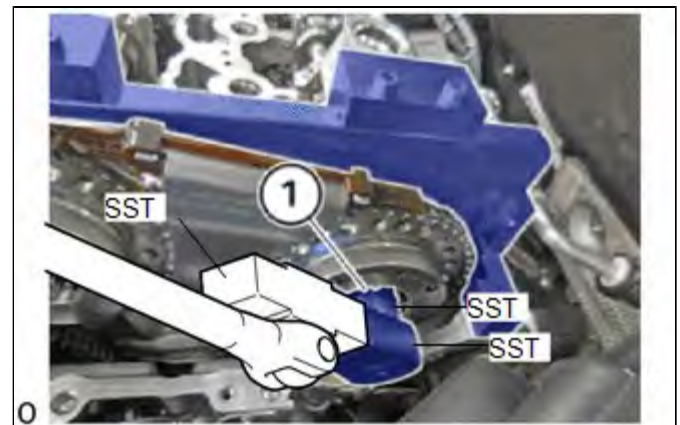
SST: 09200-WA470

SST: 09200-WA800



(b) Install the exhaust camshaft timing gear bolt assembly of the exhaust camshaft adjuster (1) with the special tool 2 450 487.

SST: 09200-WA470
SST: 09200-WA800
SST: 09900-WA280



(c) Tighten exhaust camshaft timing gear bolt assembly in 3 steps according to the table below.

Torque:

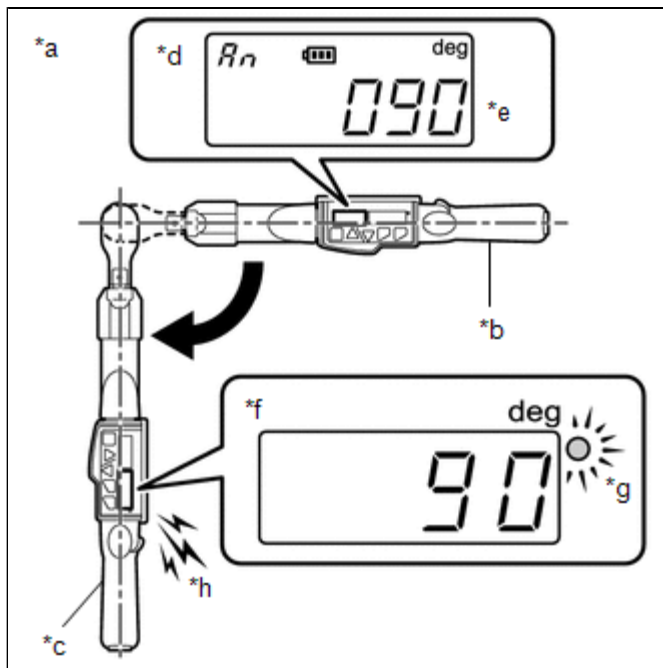
1st	10 N*m (102 kgf*cm, 7 ft.*lbf)
2nd	30 N*m (306 kgf*cm, 22 ft.*lbf)
3rd	50 N*m (510 kgf*cm, 37 ft.*lbf)

HINT:

Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.

[Click here](#) **INFO**

(d) Using a digital angle torque wrench, tighten the exhaust camshaft timing gear bolt assembly an additional 35°.



*a	Example
*b	Before Tightening
*c	After Tightening
*d	Set Angle Display
*e	Setting the Specified Angle
*f	Tightening Angle Display
*g	LED Notification
*h	Buzzer Notification

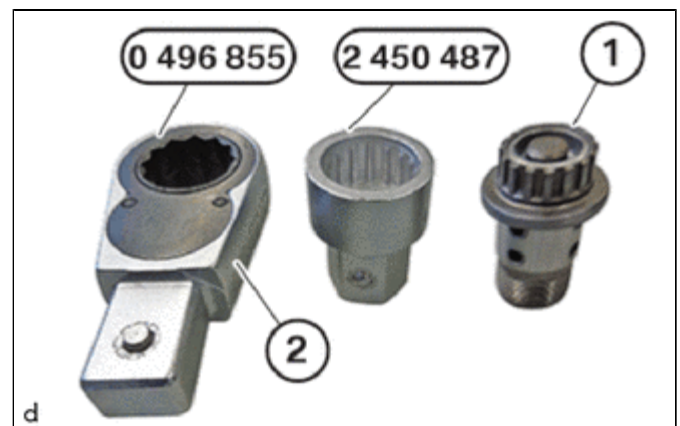
- When using the digital angle torque wrench, set the wrench to the specified tightening angle before use.
- When using the digital angle torque wrench, check the tightening angle display while performing the work.
- When tightening reaches the set angle, the buzzer will sound and a blue LED will illuminate.

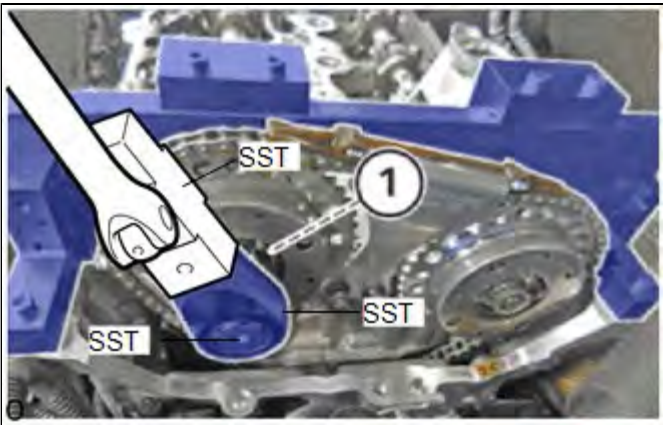
7. TIGHTEN INTAKE CAMSHAFT TIMING GEAR BOLT ASSEMBLY

(a) To tighten the intake camshaft timing gear bolt assembly (1) use the reversible ratchet (2) from the special tool 0 496 855 with the special tool 2 450 487 .

SST: 09200-WA470

SST: 09200-WA800





(b) Install the intake camshaft timing gear bolt assembly of the intake camshaft adjuster (1) with the special tool 2 450 487.

- SST: 09200-WA470
- SST: 09200-WA800
- SST: 09900-WA280

(c) Tighten intake camshaft timing gear bolt assembly in 3 steps according to the table below.

Torque:

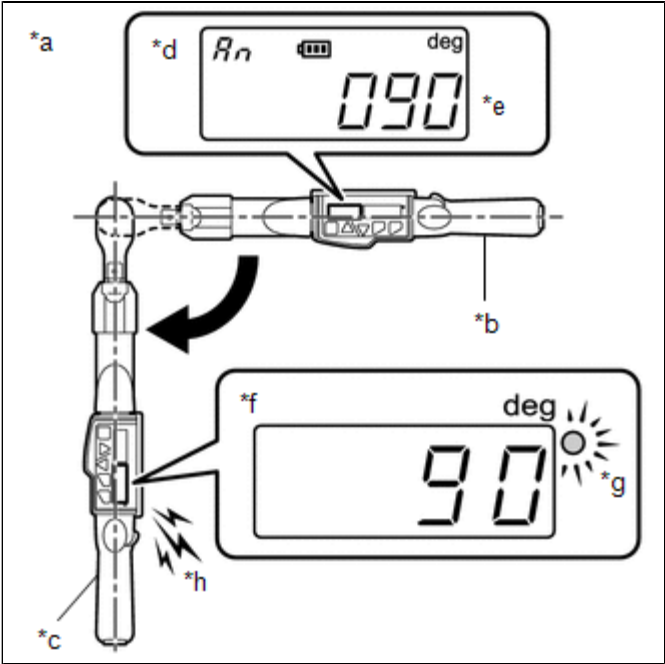
1st	10 N*m (102 kgf*cm, 7 ft.*lbf)
2nd	30 N*m (306 kgf*cm, 22 ft.*lbf)
3rd	50 N*m (510 kgf*cm, 37 ft.*lbf)

HINT:

Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.

[Click here](#) **INFO**

(d) Using a digital angle torque wrench, tighten the intake camshaft timing gear bolt assembly an additional 35°.



*a	Example
*b	Before Tightening
*c	After Tightening
*d	Set Angle Display
*e	Setting the Specified Angle

*f	Tightening Angle Display
*g	LED Notification
*h	Buzzer Notification

- When using the digital angle torque wrench, set the wrench to the specified tightening angle before use.
- When using the digital angle torque wrench, check the tightening angle display while performing the work.
- When tightening reaches the set angle, the buzzer will sound and a blue LED will illuminate.

8. REMOVE SST

Click here [INFO](#)

9. INSTALL NO. 1 CHAIN TENSIONER ASSEMBLY

Click here [INFO](#)

10. INSPECT CAMSHAFT TIMING

Click here [INFO](#)

11. INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY

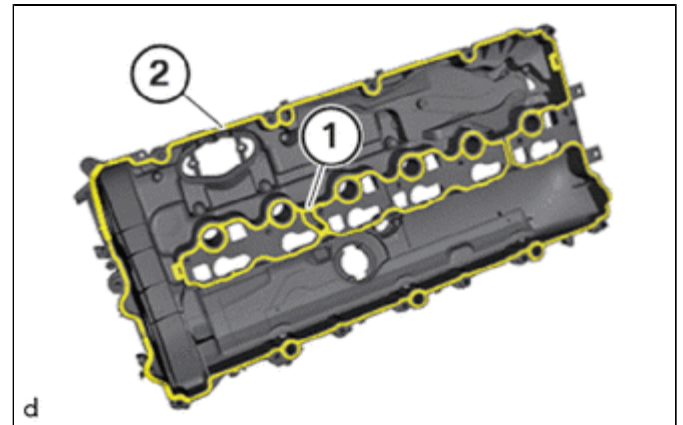
NOTICE:

- Improper routing of cables and wiring harnesses.
- Trapped, crushed or damaged cables may cause short circuits and malfunctions.
 - Route all cables without abrasions, do not trap and crush.

HINT:

Latch mechanisms, guides and mounting elements must not be damaged or missing.

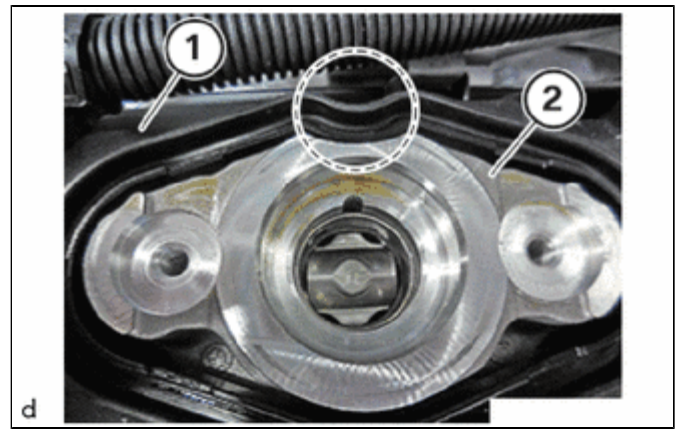
(a) Replace cylinder head cover gasket (1) and (2).



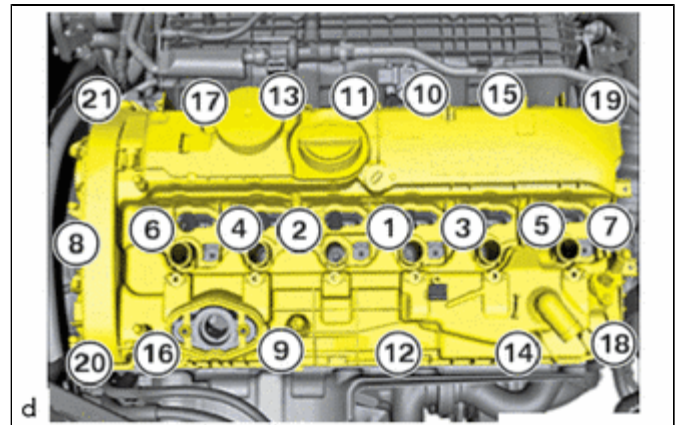
(b) Ensure that the cylinder head cover sub-assembly (1) is installed in the marked area correctly on the high pressure pump bracket (2).

NOTICE:

The cylinder head cover sub-assembly (1) must not touch the high pressure pump bracket (2) in the marked area.



(c) Position cylinder head cover sub-assembly.



(d) Make sure that the cylinder head cover sub-assembly does not touch the high pressure pump bracket!

(e) Tighten all E10 bolts in sequence (1) to (21).

Torque:

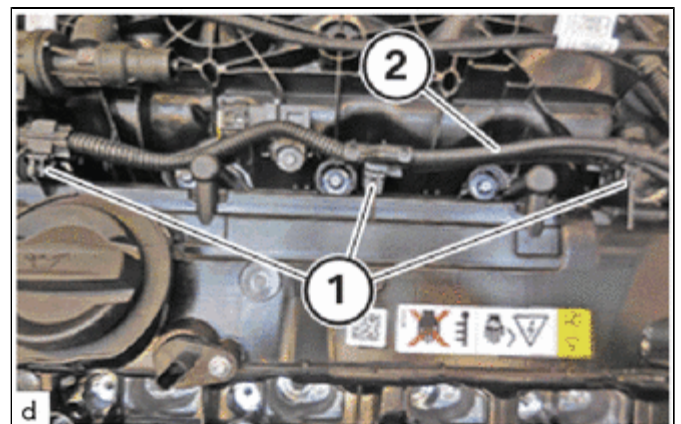
6.0 N·m {61 kgf·cm, 53 in·lbf}

(f) Tighten all E10 bolts in a sequence from (1) to (21).

Torque:

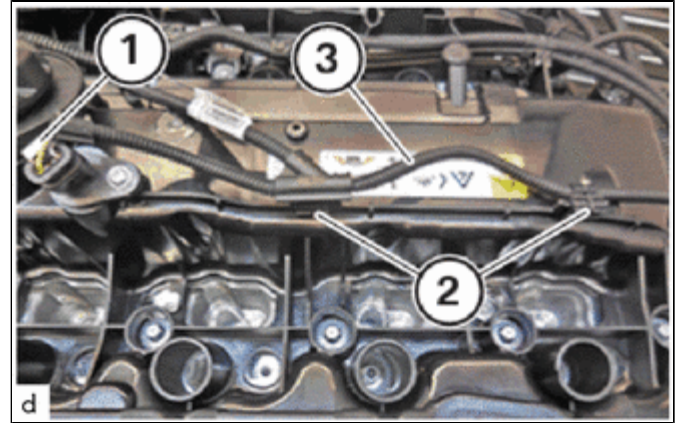
11 N·m {112 kgf·cm, 8 ft·lbf}

(g) Thread in and install the engine wiring harness for engine wire (2).



(h) Secure clamps (1).

(i) Thread in and install the engine wiring harness for No. 2 engine wire (3).

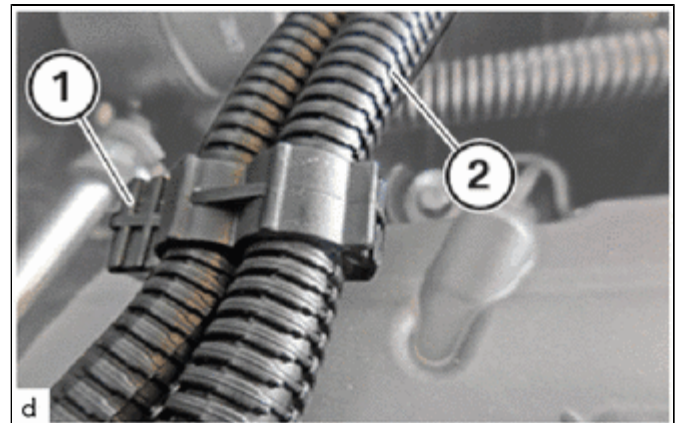


(j) Secure clamps (2).

(k) Connect connectors (1) and lock.

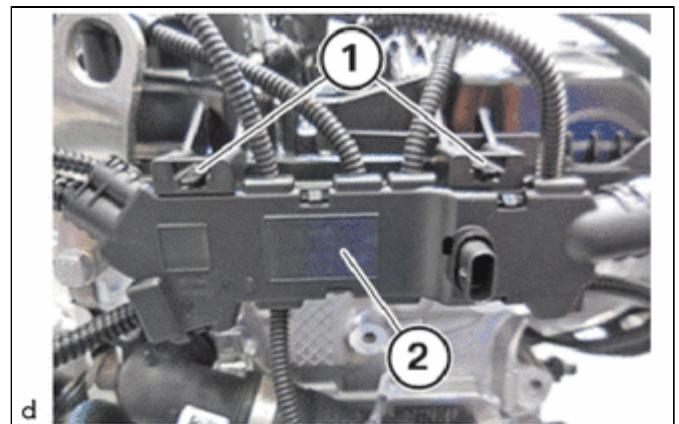
(l) Make sure the connector (1) engages audibly.

(m) Insert and install the wiring harness section (2) for the injectors and ignition coils.



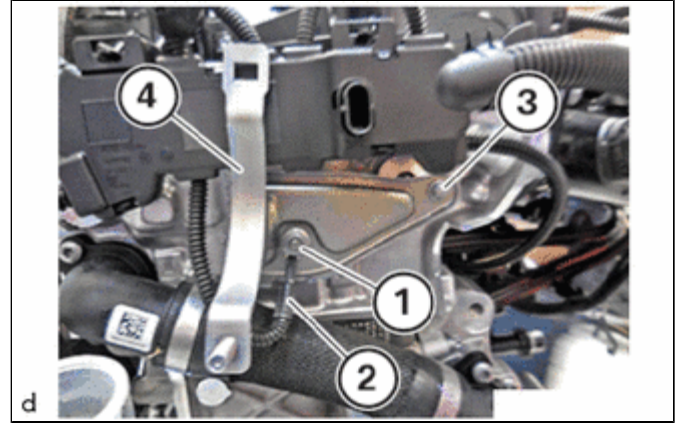
(n) Secure the clamp (1).

(o) Thread in and install the engine wiring harness for No. 2 engine wire (2).



(p) Ensure that the locks (1) engage audibly.

(q) Insert and install the No. 1 electric water pump bracket sub-assembly (4).



(r) Tighten down bolt (3).

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

(s) Tighten down stud bolt.

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

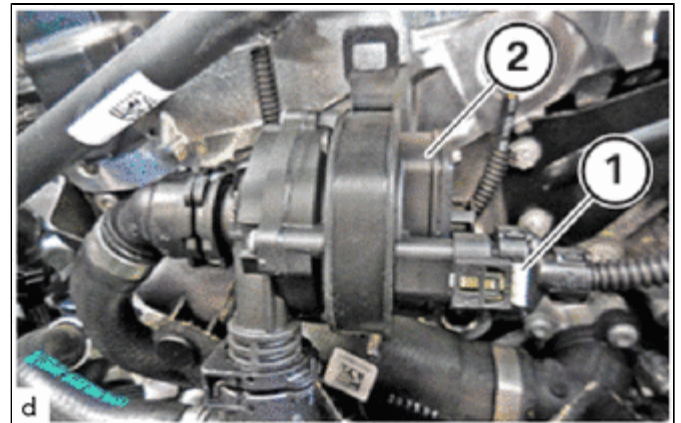
(t) Thread in No. 2 engine wire (2) and install.

(u) Tighten nut (1).

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

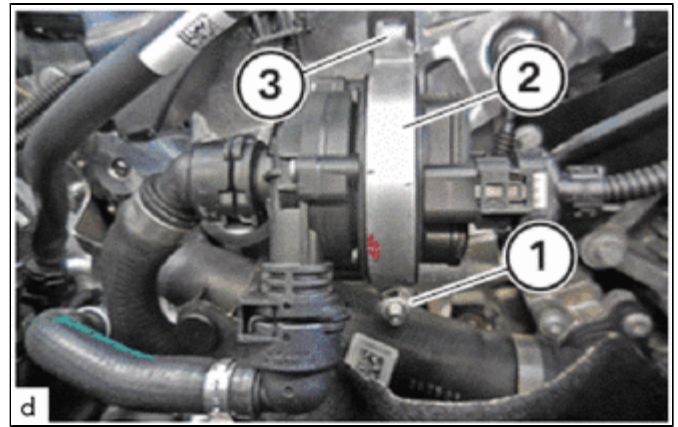
(v) Thread in electric water pump assembly (2) and install.



(w) Connect connectors (1) and lock.

(x) Make sure the connector (1) engages audibly.

(y) Thread in No. 2 electric engine water pump bracket sub-assembly (2) on holder (3) and install.

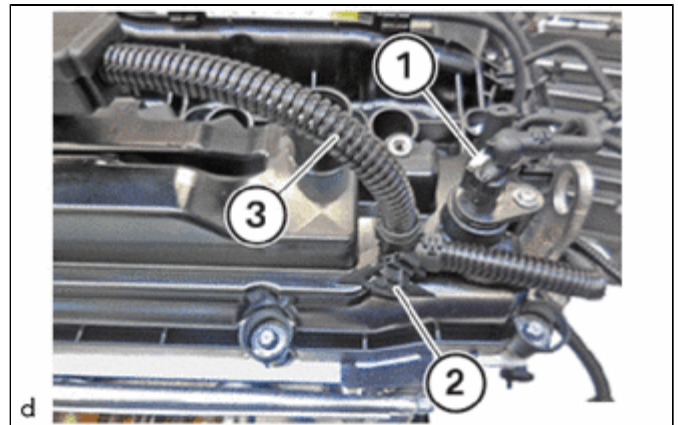


(z) Tighten nut (1).

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

(aa) Thread in and install the engine wiring harness for No. 2 engine wire (3).



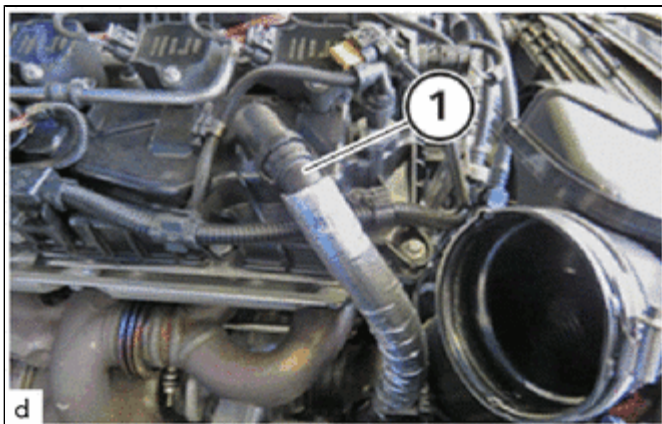
(ab) Secure clamps (2).

(ac) Connect connectors (1) and lock.

(ad) Make sure the connector (1) engages audibly.

HINT:

Latch mechanisms, guides and mounting elements must not be damaged or missing.



(ae) Connect ventilation hose (1) and lock.

(af) Make sure that the engine ventilation line (1) engages audibly.

12. INSTALL WIDE RANGE AIR FUEL RATIO SENSOR

Click here [INFO](#)

13. INSTALL OXYGEN SENSOR

Click here [INFO](#)

14. INSTALL AIR CLEANER FILTER ELEMENT SUB-ASSEMBLY

Click here [INFO](#)

15. INSTALL CAM TIMING OIL CONTROL SOLENOID ASSEMBLY

Click here [INFO](#)

16. PREPARE INJECTORS FOR INSTALLATION

Click here [INFO](#)

17. INSTALL NO. 2 FUEL DELIVERY PIPE

Click here [INFO](#)

18. INSTALL FUEL DELIVERY PIPE

Click here [INFO](#)

19. INSTALL SPARK PLUG

Click here [INFO](#)

20. INSTALL NO. 2 COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

21. INSTALL FUEL PUMP ASSEMBLY

Click here [INFO](#)

22. INSTALL FRONT SUSPENSION MEMBER LOWER PROTECTOR

Click here [INFO](#)

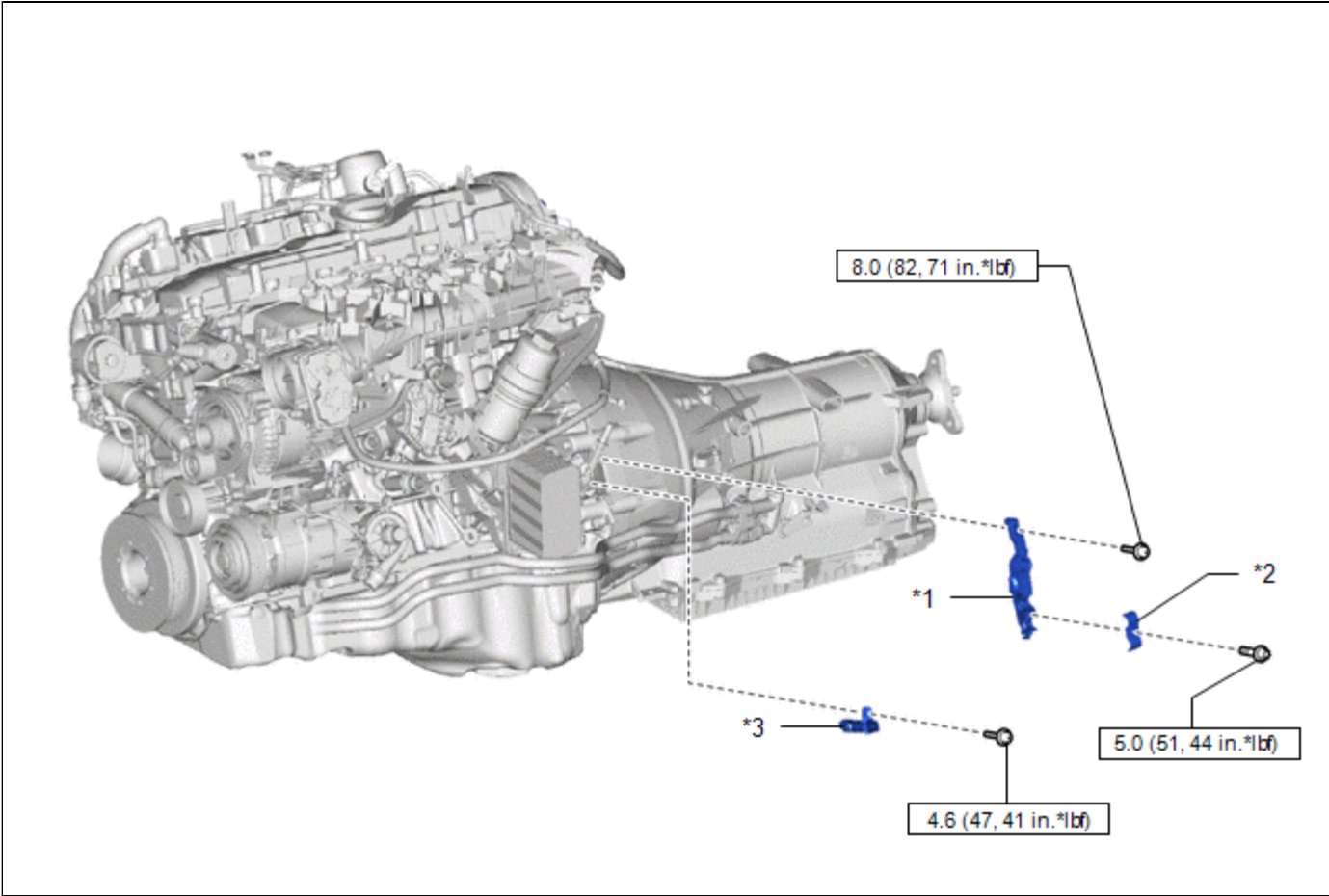
23. REMOVE AND INSTALL HOOD SUPPORT ASSEMBLY

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWQ
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CRANKSHAFT POSITION SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	NO. 2 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP	*2	NO. 3 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP
*3	CRANKSHAFT POSITION SENSOR	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWR
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CRANKSHAFT POSITION SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:
Hot surfaces.

- Risk of burning!
- Perform all work only on components that have cooled down.

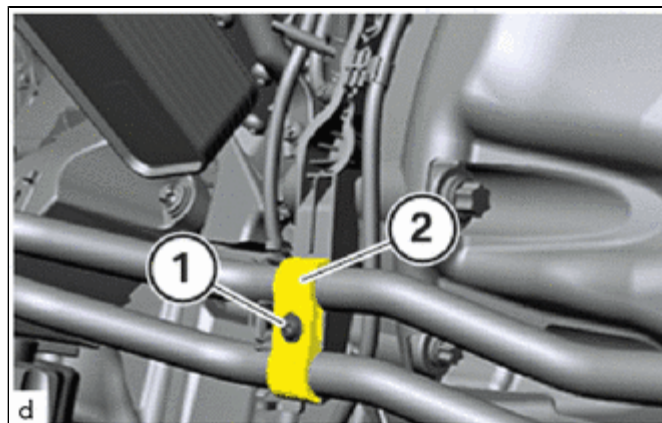
PROCEDURE

1. REMOVE FRONT SUSPENSION MEMBER LOWER PROTECTOR

Click here [INFO](#)

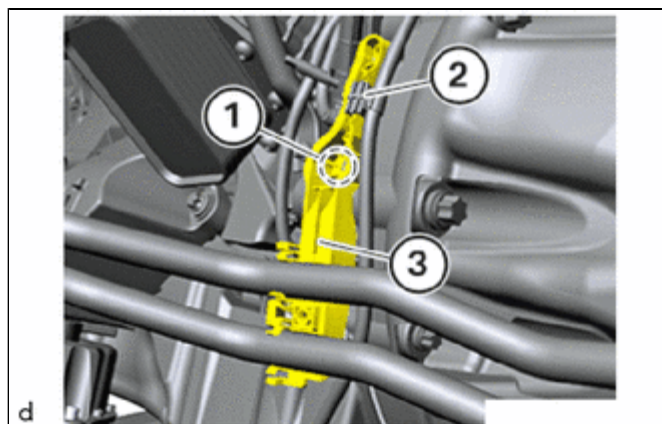
2. REMOVE NO. 3 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP

- (a) Unscrew the T25 screw (1) and remove the upper section of the No. 3 automatic transmission oil cooler tube clamp (2) for the transmission oil lines.



3. REMOVE NO. 2 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP

- (a) Unclip the cable clip (2).



(b) Loosen E8 bolt (1).

(c) Unclip the transmission oil lines from the No. 2 automatic transmission oil cooler tube clamp (3) for the transmission oil lines.

(d) Remove the No. 2 automatic transmission oil cooler tube clamp (3) for the transmission oil lines.

4. REMOVE CRANKSHAFT POSITION SENSOR

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

- Electrostatic discharge.

Damage to or destruction of electrical components.

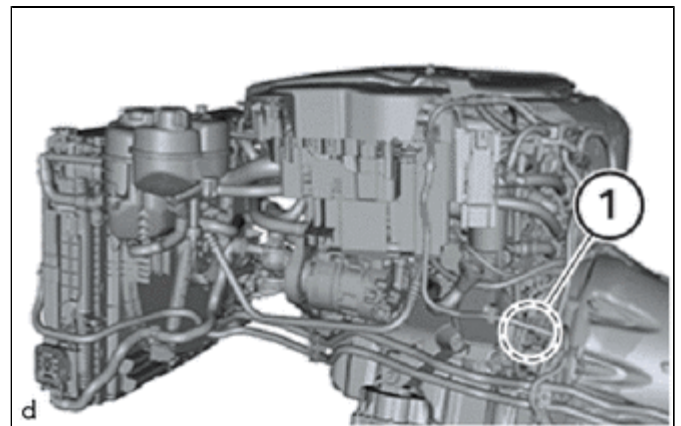
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

[Click here](#) 

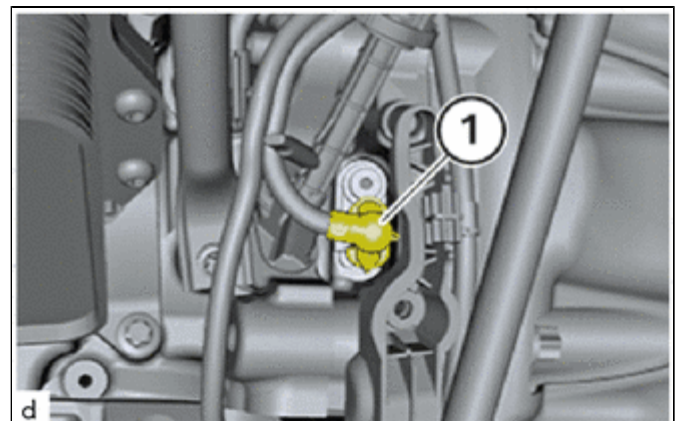
(a) Note the installation location of the crankshaft position sensor.

HINT:

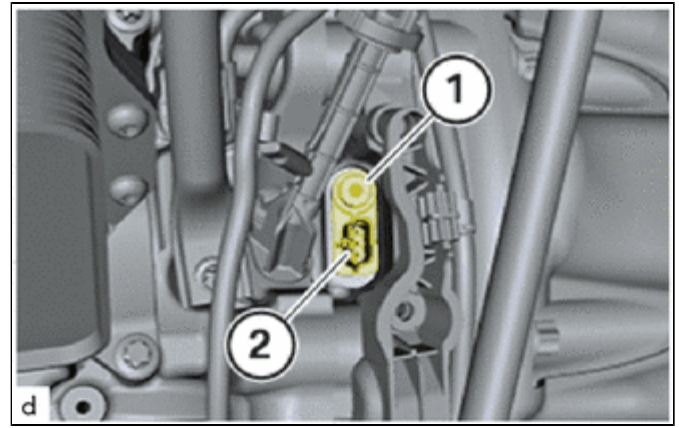
- To provide a better overview: Shown with engine removed.
- The crankshaft position sensor is located in the marked area (1) on the engine block.



(b) Unlock plug connection (1) and disconnect.



(c) Unscrew the 4 mm hexagon bolt (1) and remove the crankshaft position sensor (2).



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Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): CRANKSHAFT POSITION SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL CRANKSHAFT POSITION SENSOR

- (a) Guide in and install crankshaft position sensor and install.
- (b) Tighten down 4 mm hexagon bolt.

Torque:

4.6 N·m {47 kgf·cm, 41 in·lbf}

- (c) Connect connectors and lock.

HINT:

The connector must engage audibly.

2. INSTALL NO. 2 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP

- (a) Position the No. 2 automatic transmission oil cooler tube clamp for the transmission oil lines at the engine block and clip in the transmission oil lines.
- (b) Join and tighten the E8 bolt.

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

- (c) Clip in the cable clip.

3. INSTALL NO. 3 AUTOMATIC TRANSMISSION OIL COOLER TUBE CLAMP

- (a) Position the upper section of the No. 3 automatic transmission oil cooler tube clamp for the transmission oil lines and tighten the T25 screw.

Torque:

5.0 N·m {51 kgf·cm, 44 in·lbf}

4. INSTALL FRONT SUSPENSION MEMBER LOWER PROTECTOR

Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWD
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ECM: PRECAUTION; 2020 MY Supra [03/2019 -]		

PRECAUTION

Instructions for removal and replacement of ECM

NOTICE:

- Disconnecting the vehicle battery will cancel the fault memories of ECU. Consequently, before disconnecting the car's battery, always interrogate the fault memories. Investigate stored faults and, once any faults have been remedied, cancel the fault memory.
- ECU plugs should only ever be connected and disconnected while the ignition is turned off.
- The removal and installation of components, relays, fuses etc. can cause faults to be stored in fault memories capable of self diagnosis. Always interrogate the fault memories after completing work on the electrical system.
- Investigate stored faults and, once any faults have been remedied, cancel the fault memory.
- If necessary, initialize power windows unit.

Observe the following when exchanging the ECM:

- In every case, use the diagnosis system to read out the hardware/software version of the corresponding ECM.

Comply with the diagnosis system instructions for the encoding and programming operations.

On vehicles with an electronic immobilizer, comply with the diagnosis system instructions.

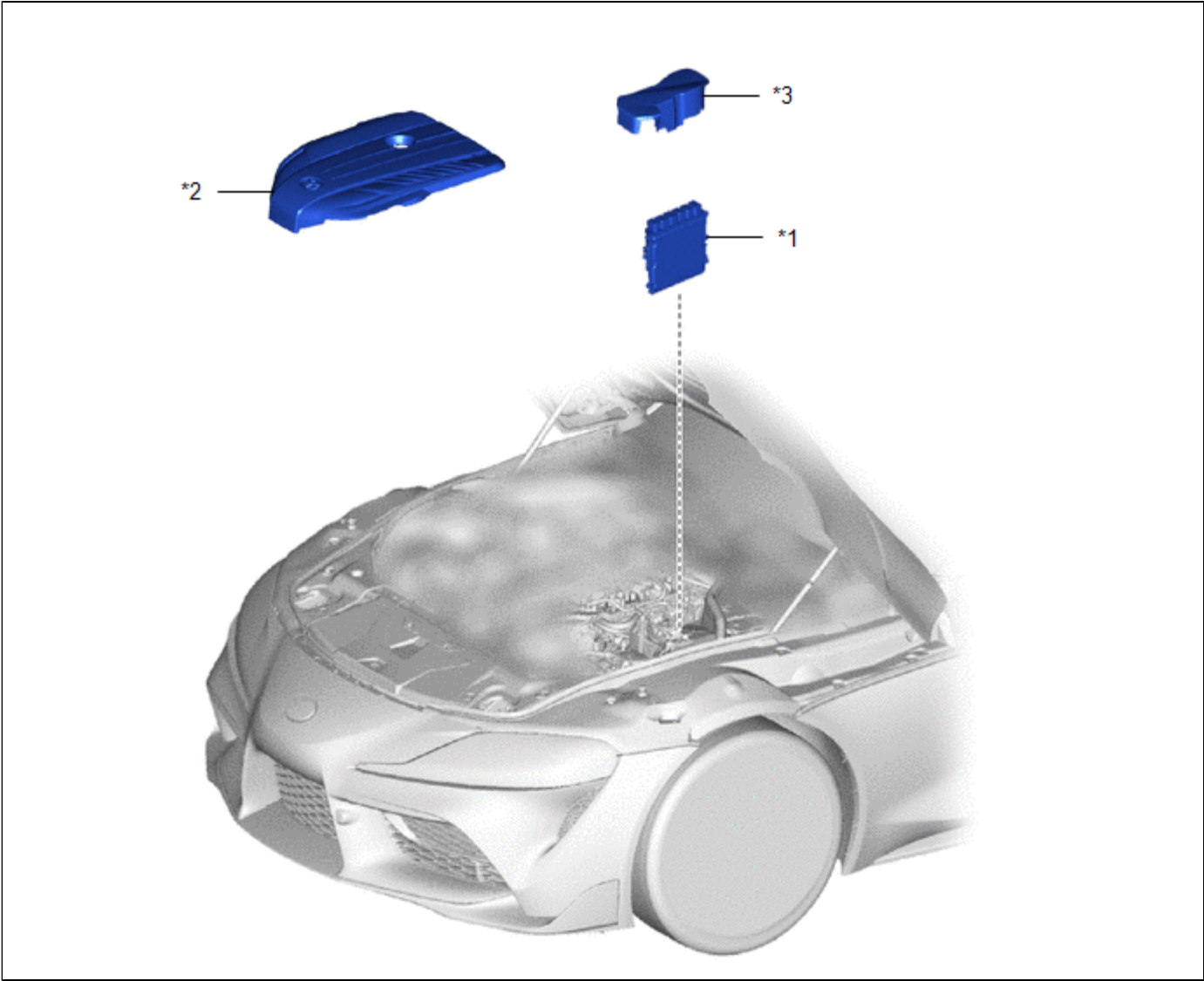
- In every ECU certain mean values are stored that are the basic values. The ECM receives different input values according to the engine condition. The teachable system compares the input values against the stored basic values and then forms the associated control commands. The control commands are forwarded to the corresponding actuators.
- When the ECM is de-energized for a long period (over one hour), the teachable system then loses the stored values. When a deleted ECM is returned to service or a new ECM is installed, the teachable system itself must read in and store the input value of the associated engine as new basic values.
- This process may cause uneven idle and faults in coasting mode after starting. Depending on the engine characteristics, it may take some time until all values have been compared with the engine condition.
- Therefore, comply with the following procedure before an exchange or reinstallation of a ECM is carried out:
 - a. If possible, bring the engine up to its operating temperature prior to replacement of the ECM.
 - b. Change ECM and drive the vehicle with changing engine speeds.



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWA
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ECM: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	ECM	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	COVER	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWB
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ECM: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.

PROCEDURE

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

Click here [INFO](#)

2. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

3. REMOVE ECM

NOTICE:

- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

HINT:

- Follow instructions for removing and installing control units.

For additional information see:

Click here [INFO](#)

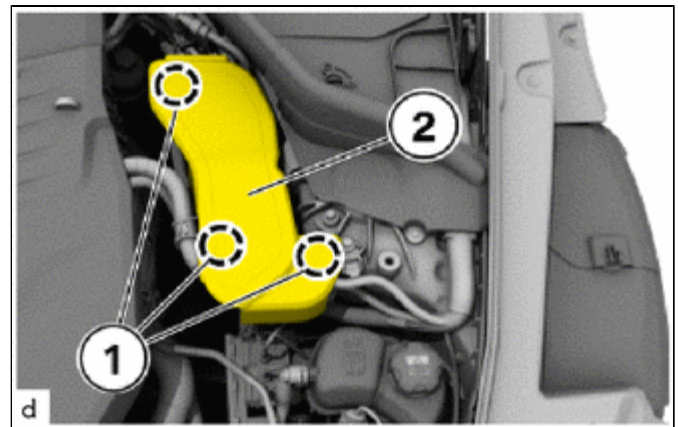
- In a warranty case, you must always provide a fault memory printout with the defective part, even if the fault memory does not contain an entry.
- Control unit must be programmed after it is replaced.

For additional information see:

Click here [INFO](#)

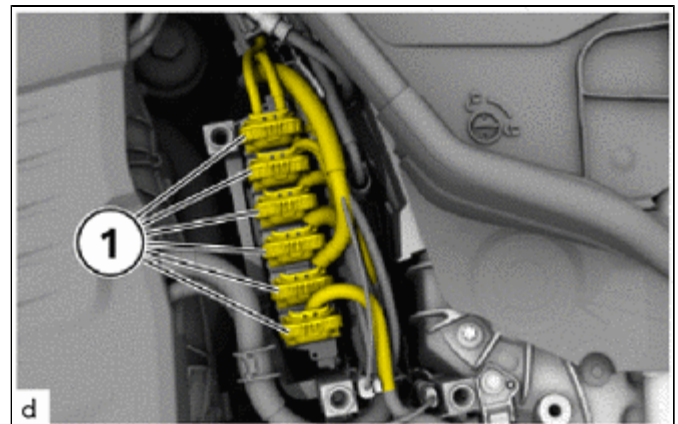
- Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.

(a) Release snap-lock couplings (1).

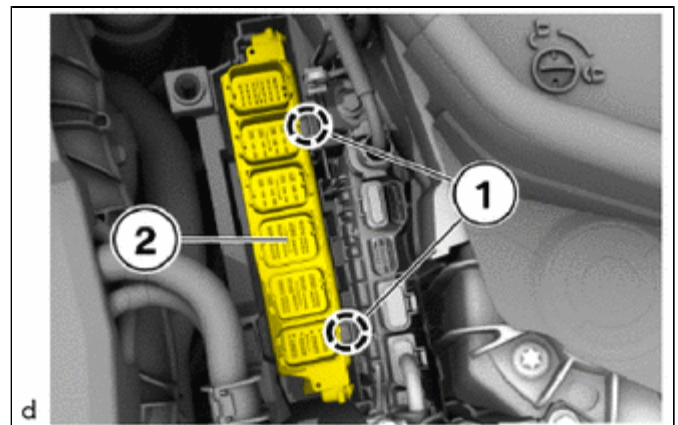


(b) Feed the cover (2) out toward the top and remove.

(c) Unlock and disconnect all plug connections (1).



(d) Unlock the locks (1).



(e) Guide out and remove ECM (2).

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWC
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ECM: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

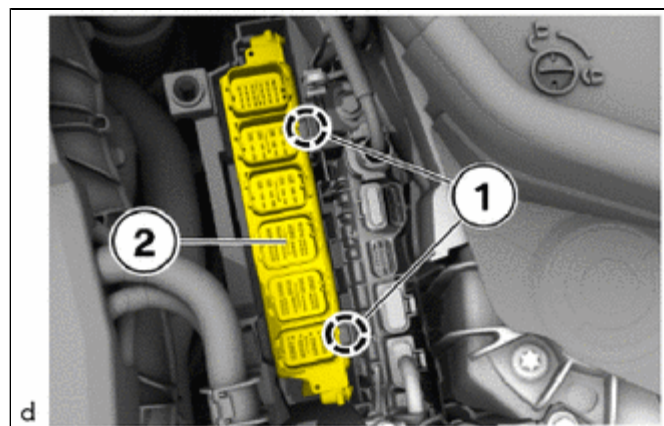
PROCEDURE

1. INSTALL ECM

(a) Feed in and install ECM (2).

HINT:

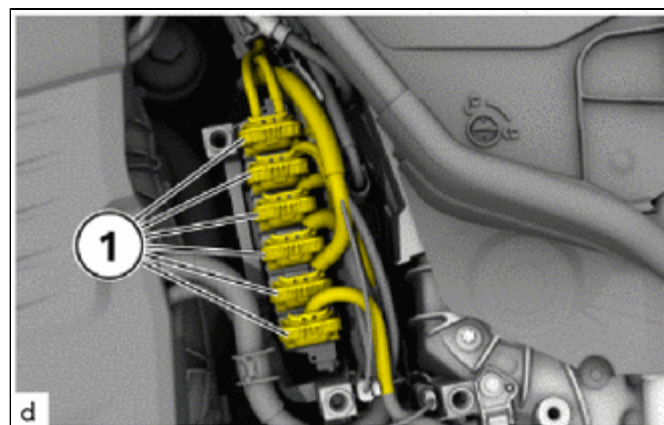
The locks (1) must engage audibly.



(b) Connect all connectors (1) and lock.

HINT:

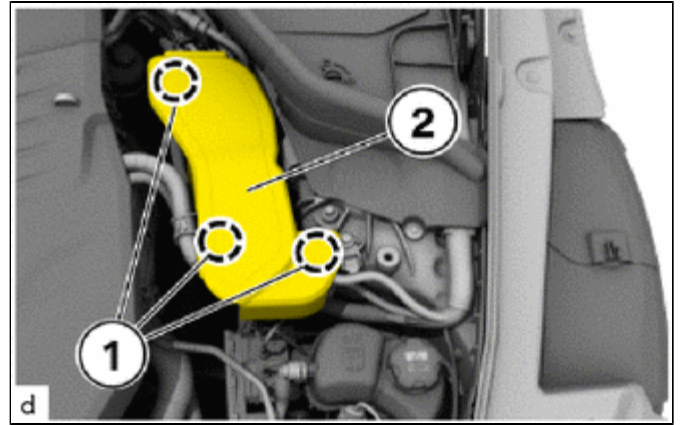
All connectors (1) must engage audibly.



(c) Install the cover (2).

HINT:

The snap-lock couplings (1) must engage audibly.



2. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Click here [INFO](#)

4. PERFORM INITIALIZATION

- (a) Connect the diagnosis system to the vehicle and enter the following menus:

Vehicle management / Service functions / Drive / Engine electronics / Reset adaptations / ABL Reset adaptation values

5. ENCODE / PROGRAM CONTROL UNIT(S)

NOTICE:

- Use the most recent software version to prevent faults during programming/encoding.
- The battery voltage must not drop below 13.0 V during programming.
- Use only recommended chargers for a low-voltage vehicle electrical system.
- Do not exceed the maximum charging voltage of 14.8 V when charging the battery.
- When there is communication abnormality in the middle of work, control unit might be damaged.

- (a) Connect the battery charger to the vehicle.

- (b) Connect the diagnosis system with the vehicle.

- (c) Determine the action plan.

Service plan / Programming plan / Action plan / Calculate action plan

- (d) Accept and fully process the measures plan.

Service plan / Programming plan / Action plan / Perform action plan

- (e) Wait until programming/encoding has been completed.

NOTICE:

When there is communication abnormality in the middle of work, control unit might be damaged.

- (f) Carry out vehicle test.

Vehicle management / Troubleshooting / Fault memory / Calculate test plan

- (g) Delete the fault memory.

Vehicle management / Troubleshooting / Fault memory / Delete fault memory

- (h) Disconnect the diagnosis system from the vehicle.

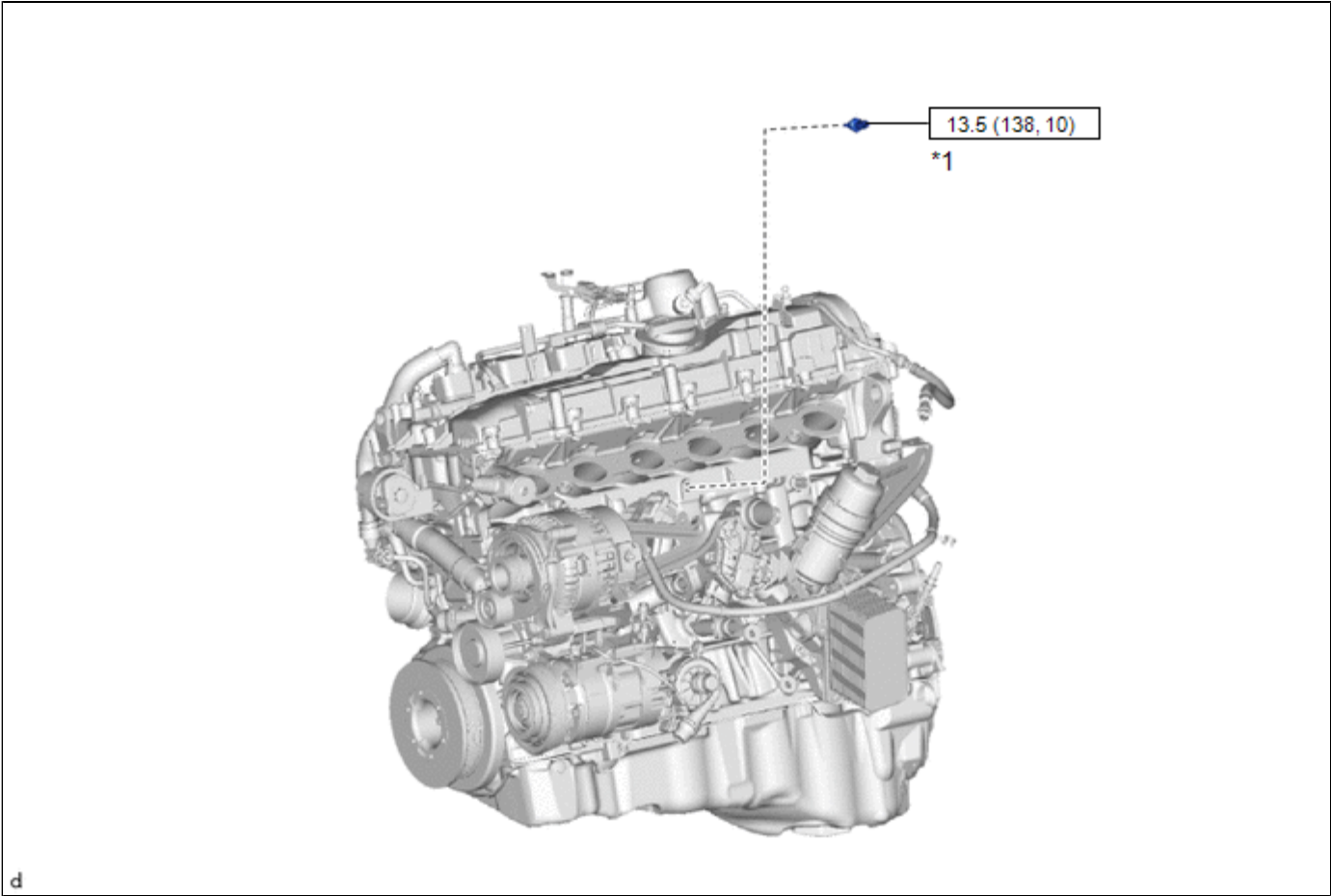
- (i) Disconnect the battery charger from the vehicle.



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWZ
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Engine): COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	ENGINE COOLANT TEMPERATURE SENSOR	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX0
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Engine): REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Working on 12 V vehicle electrical system.
- Risk of short circuits! Risk of fire!
- Detach battery earth lead from battery.

NOTICE:

- Damage to battery terminal, the safety battery terminal or the battery state sensor.
- Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.
- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PROCEDURE

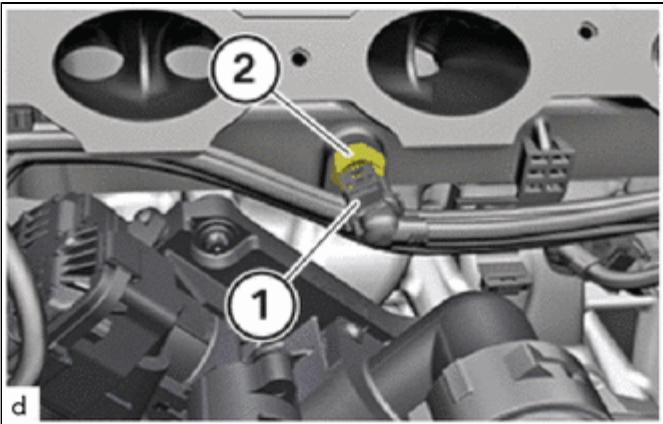
1. REMOVE INTAKE MANIFOLD

Click here [INFO](#)

2. REMOVE ENGINE COOLANT TEMPERATURE SENSOR

CAUTION:

- Hot surfaces.
- Risk of burning!
- Perform all work only on components that have cooled down.



(a) Unlock and disconnect connector (1).

(b) Using a 17 mm deep socket wrench, unscrew the engine coolant temperature sensor (2) with the special tool 0 496 142 (11 8 850).

HINT:

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.

(c) Guide out and remove the engine coolant temperature sensor (2).



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX1
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Engine): INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL ENGINE COOLANT TEMPERATURE SENSOR

- (a) Insert and install the engine coolant temperature sensor.
- (b) Using a 17 mm deep socket wrench, tighten the engine coolant temperature sensor using the special tool 0 496 142 (11 8 850).

Torque:
 13.5 N·m {138 kgf·cm, 10 ft·lbf}

(c) Connect connectors and lock.

HINT:
 The connector must engage audibly.

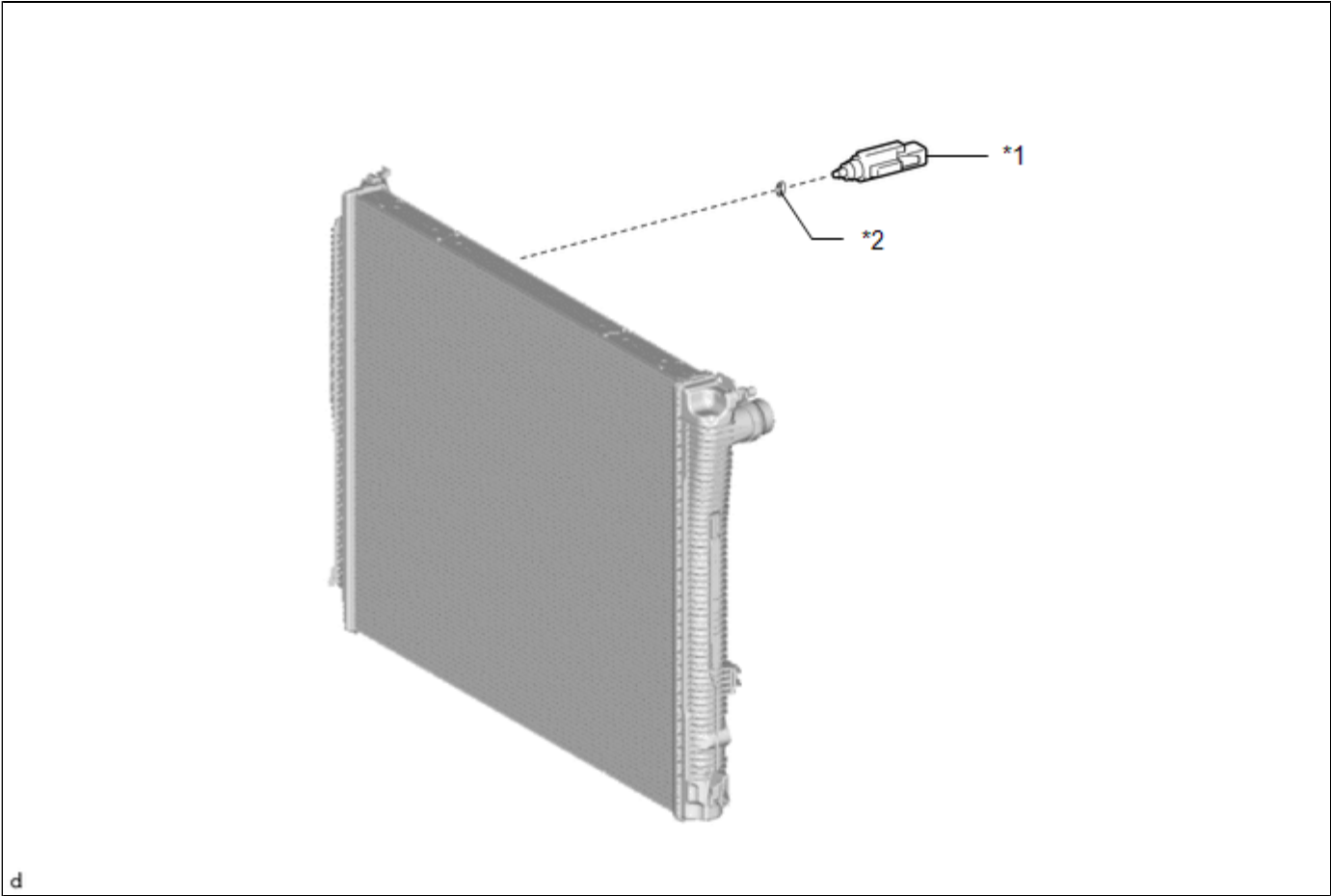
2. INSTALL INTAKE MANIFOLD

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWW
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Radiator): COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	ENGINE COOLANT TEMPERATURE SENSOR	*2	O-RING
----	-----------------------------------	----	--------

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWX
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Radiator): REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.
- Risk of burning!
- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE ENGINE COOLANT TEMPERATURE SENSOR

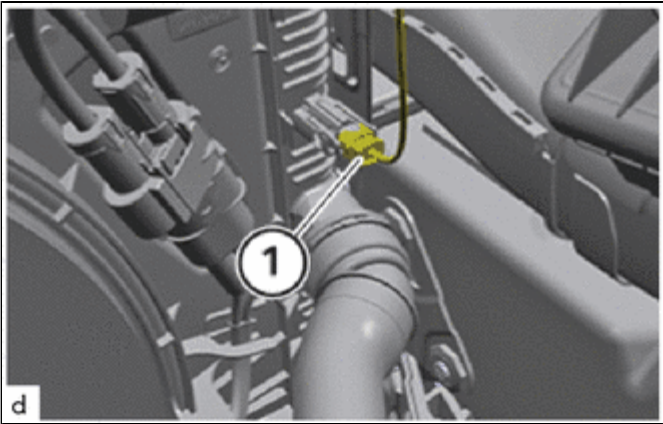
CAUTION:

- Hot fluids.
- Risk of scalding!
- Conduct all work in the vehicle wearing appropriate personal protective equipment only.

NOTICE:

- Electrostatic discharge.
- Damage to or destruction of electrical components.
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
 - For additional information see:

Click here [INFO](#)

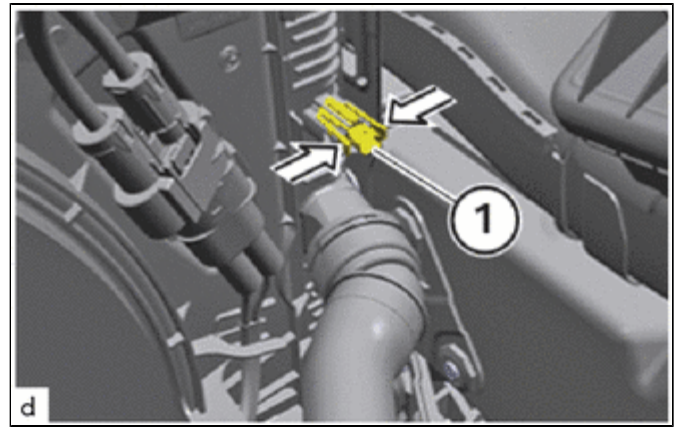


(a) Unlock plug connection (1) and disconnect.

(b) Unlock the locks (arrows), pull the engine coolant temperature sensor (1) out of the radiator and remove.

HINT:

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWY
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE COOLANT TEMPERATURE SENSOR (for Radiator): INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL ENGINE COOLANT TEMPERATURE SENSOR

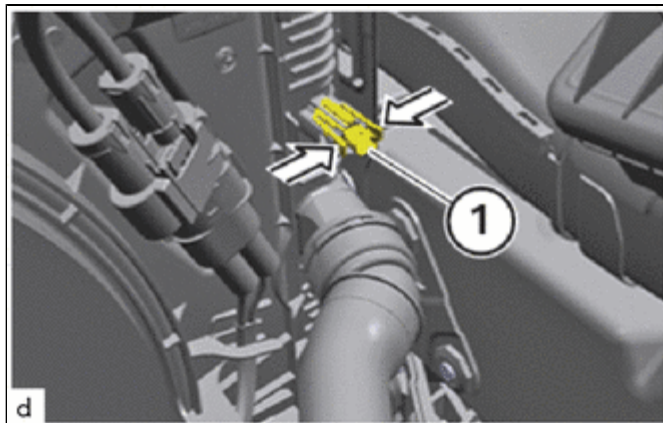
CAUTION:

- Hot fluids.

Risk of scalding!

- Conduct all work in the vehicle wearing appropriate personal protective equipment only.

- (a) Check the O-ring on the engine coolant temperature sensor (1) for damage and replace the O-ring where required.



- (b) Install the engine coolant temperature sensor (1) in the radiator.
(c) Lock the locks (arrows).
(d) Connect connectors and lock.

HINT:

The connector must engage audibly.

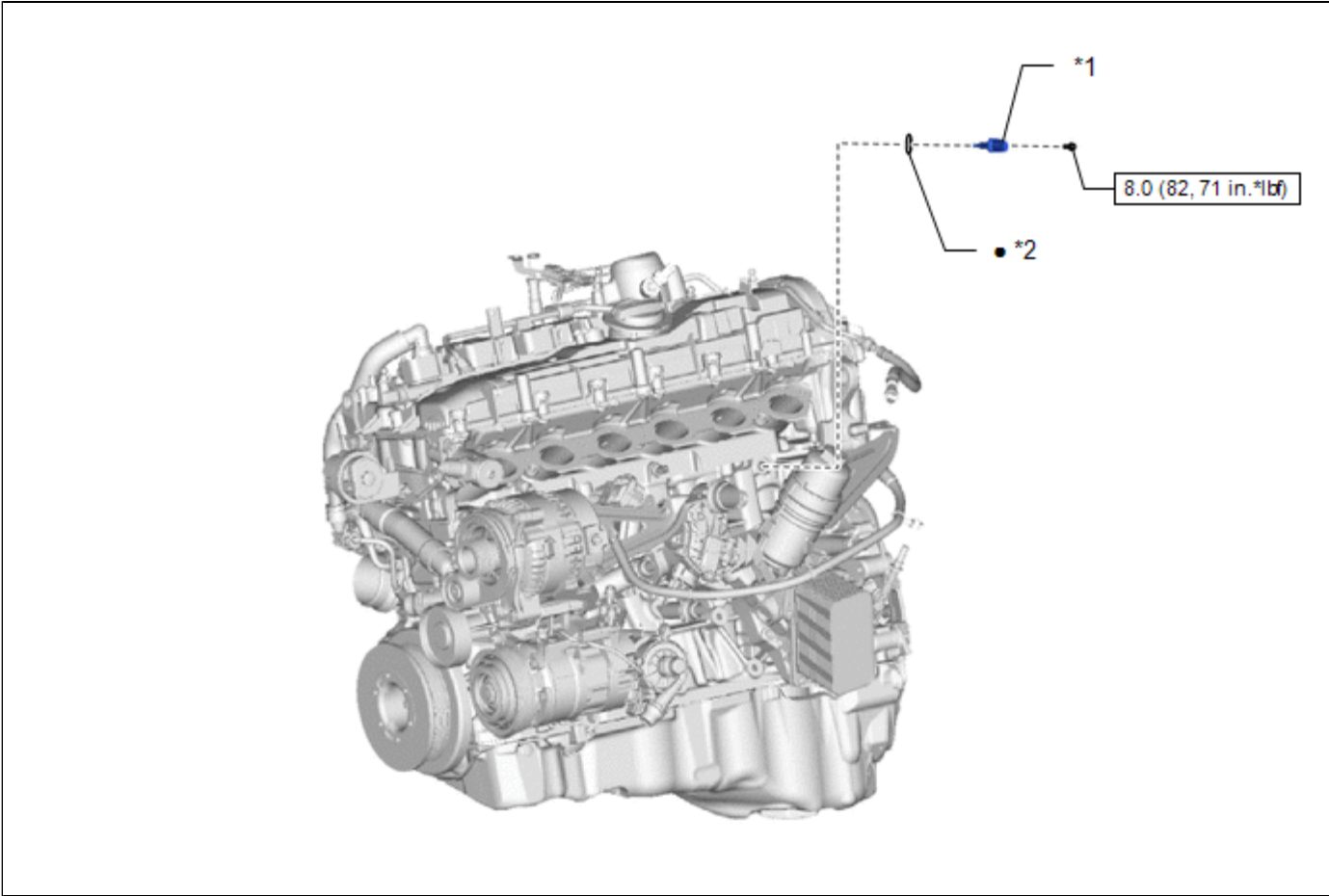
2. INSPECT FOR COOLANT LEAK (for High Temperature)

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX2
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE OIL TEMPERATURE SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	OIL TEMPERATURE SENSOR	*2	O-RING
	N*m (kgf*cm, ft.*lbf): Specified torque	●	Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX3
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE OIL TEMPERATURE SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.

NOTICE:

- Damage to battery terminal, the safety battery terminal or the battery state sensor.

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PROCEDURE

1. REMOVE INTAKE MANIFOLD

Click here [INFO](#)

2. REMOVE OIL TEMPERATURE SENSOR

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

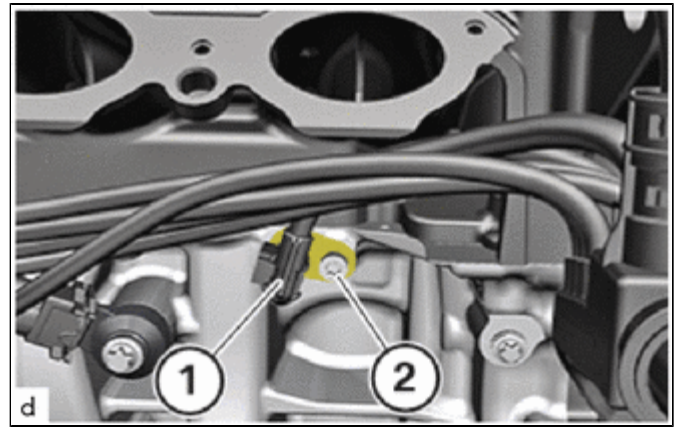
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

(a) Unlock plug connection (1) and disconnect.

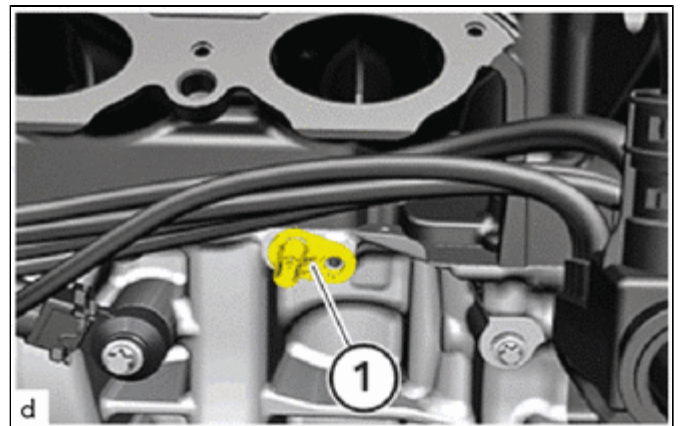


(b) Loosen T30 bolt (2).

(c) Guide out and remove oil temperature sensor (1).

HINT:

Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.



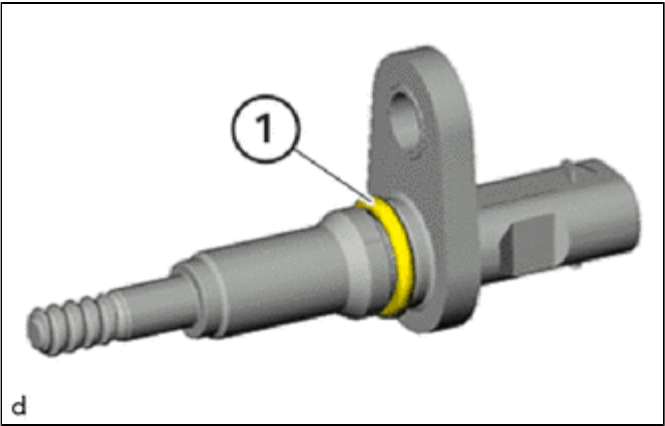
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX4
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE OIL TEMPERATURE SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL OIL TEMPERATURE SENSOR

(a) Replace O-ring (1).



(b) Guide in and install oil temperature sensor.

(c) Tighten down T30 bolt.

Torque:
8.0 N·m { 82 kgf·cm, 71 in·lbf }

(d) Connect connectors and lock.

HINT:
The connector must engage audibly.

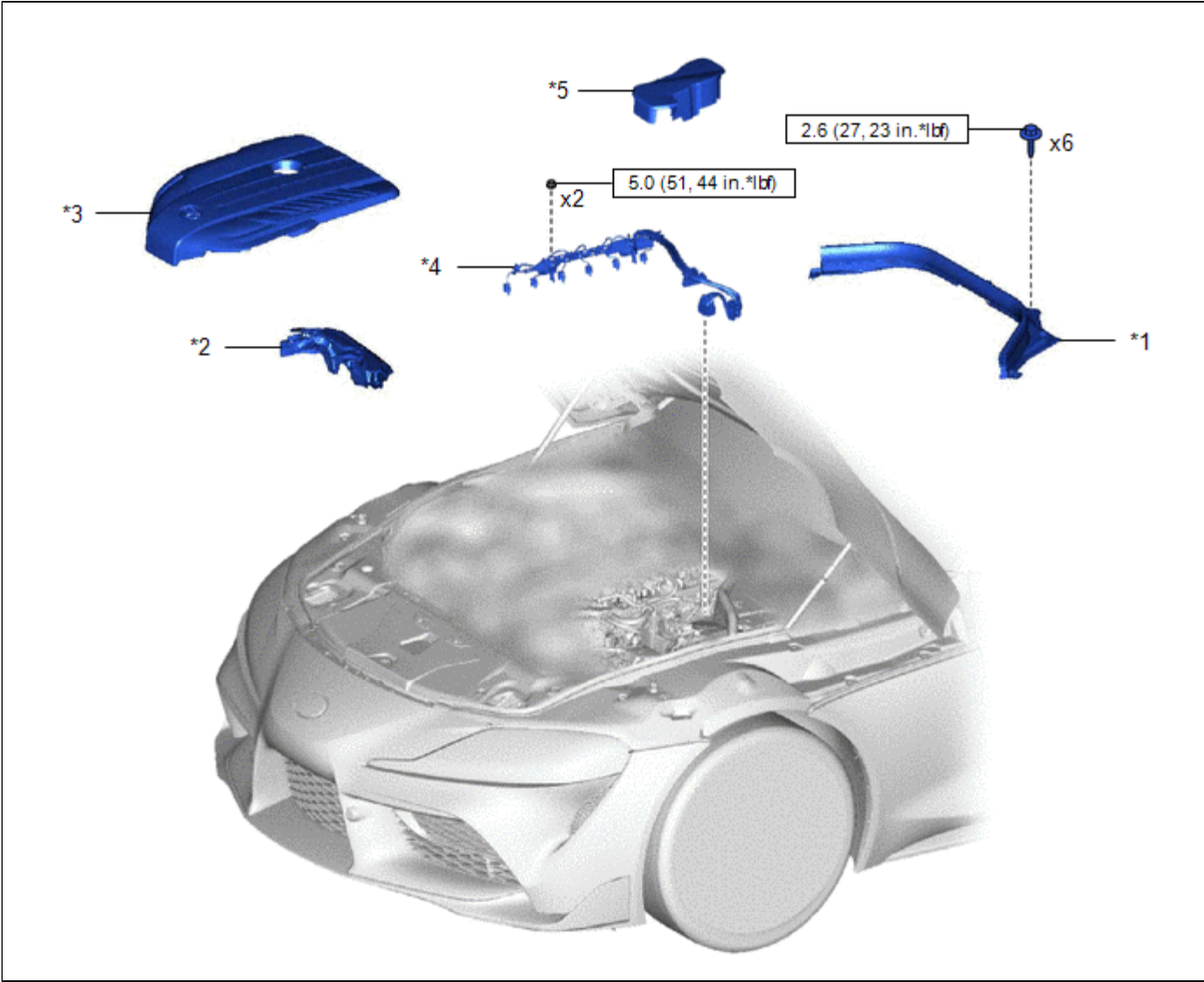
2. INSTALL INTAKE MANIFOLD

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCVY
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE WIRE HARNESS: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	COWL TOP VENTILATOR LOUVER PROTECTOR	*2	NO. 1 ENGINE COVER
*3	NO. 1 ENGINE COVER SUB-ASSEMBLY	*4	NO. 4 ENGINE WIRE
*5	COVER	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCVZ
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE WIRE HARNESS: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.

NOTICE:

- Damage to battery terminal, the safety battery terminal or the battery state sensor.

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PROCEDURE

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

Click here [INFO](#)

2. REMOVE UPPER FRONT SUSPENSION CENTER BRACE

Click here [INFO](#)

3. REMOVE COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

4. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

5. REMOVE NO. 1 ENGINE COVER

Click here [INFO](#)

6. REMOVE NO. 4 ENGINE WIRE

NOTICE:

- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

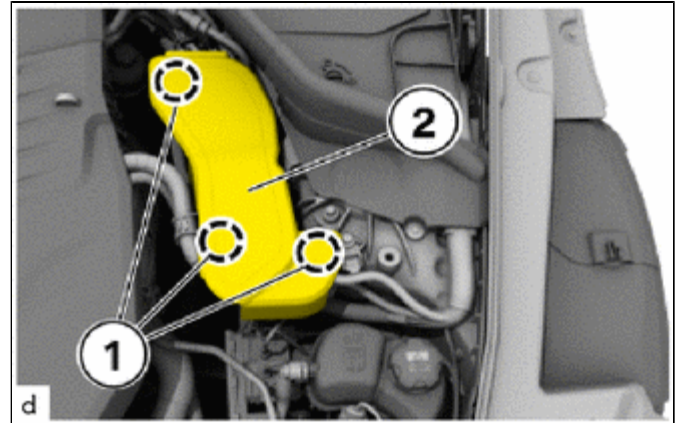
HINT:

- Follow instructions for removing and installing control units.
- For additional information see:

[Click here](#) INFO

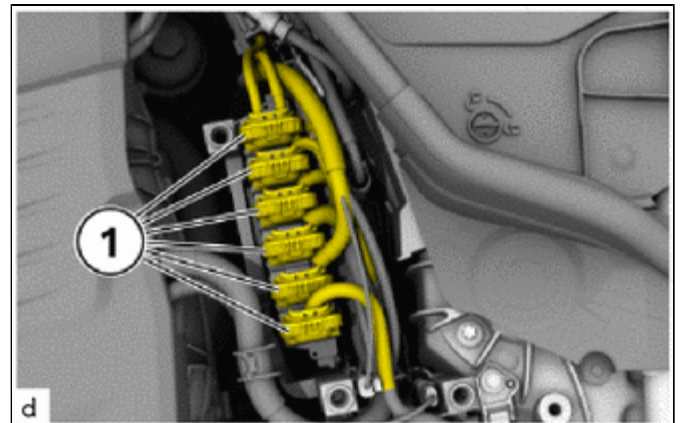
- Disconnecting control units may cause fault code entries and functional limitations. Fault code entries must be read out and deleted if necessary.

(a) Release snap-lock couplings (1).

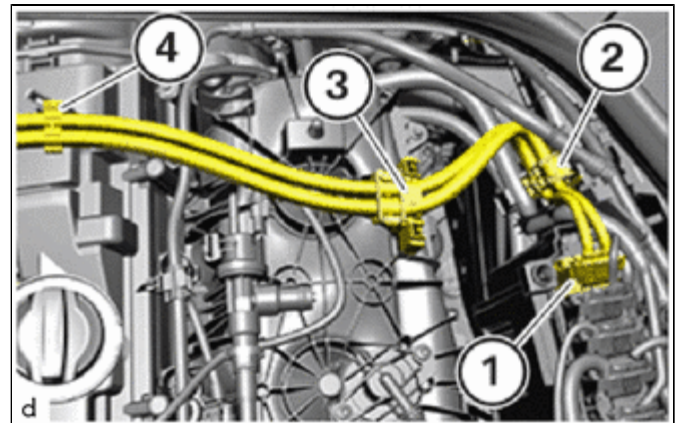


(b) Feed the cover (2) out toward the top and remove.

(c) Unlock and disconnect all plug connections (1).



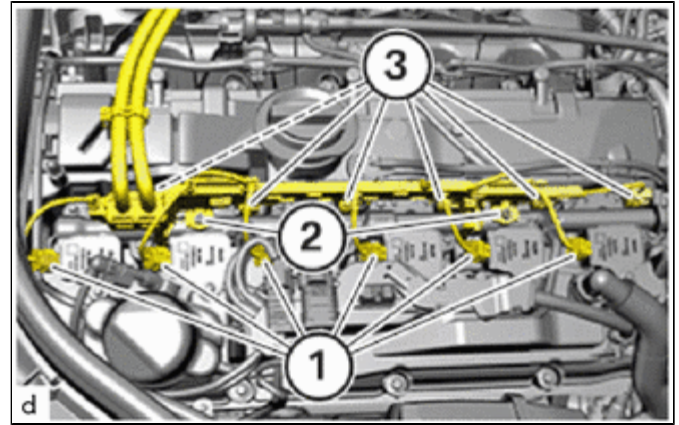
(d) Disconnect connector (1) from ECM.



(e) Release No. 4 engine wire from bracket (2).

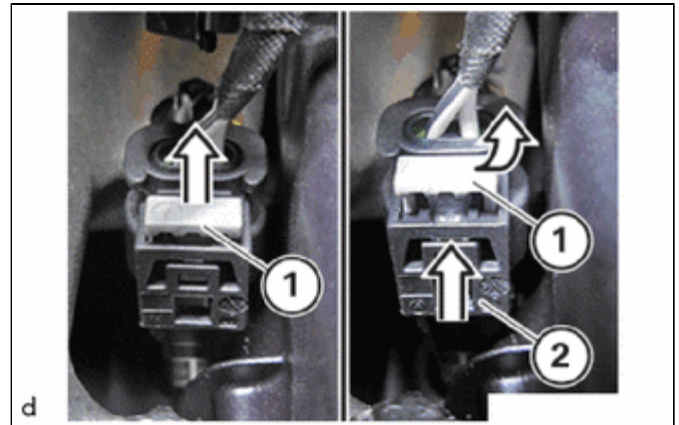
- (f) Release No. 4 engine wire from the clamp (3).
- (g) Release No. 4 engine wire from the clamp (4).

- (h) Unlock and disconnect all connectors (1) of the ignition coils.



- (i) Release nuts (2) and remove ground cable.
- (j) Unlock and pull off all connectors (3) of the injectors.

- (k) Push the lock (1) upward in the direction of the arrow.



- (l) Press lock (1) together and release.
- (m) Pull off the connector (2) from the injectors.



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Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): ENGINE WIRE HARNESS: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL NO. 4 ENGINE WIRE

NOTICE:

- Improper routing of cables and wiring harnesses.

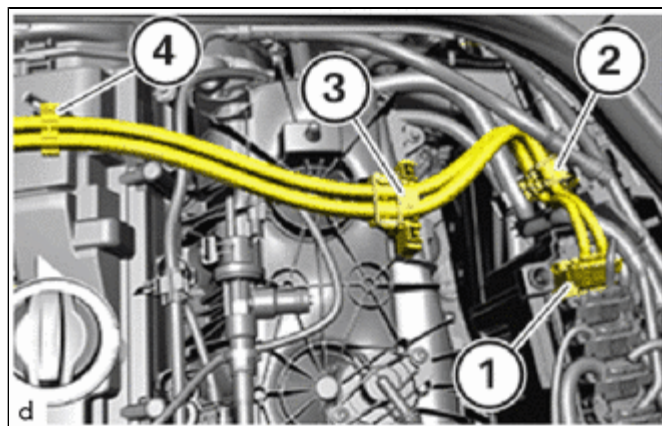
Trapped, crushed or damaged cables may cause short circuits and malfunctions.

- Route all cables without abrasions, do not trap and crush.

(a) Guide in and install the No. 4 engine wire section for the ignition and injectors.

(b) Connect connector (1) to ECM.

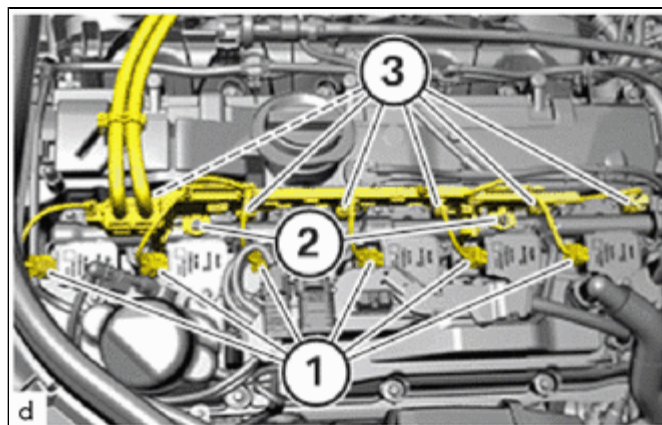
(c) Secure the No. 4 engine wire at the bracket (2).



(d) Fasten No. 4 engine wire with the clamp (3).

(e) Fasten No. 4 engine wire with the clamp (4).

(f) Connect and lock all connectors (1) on the ignition coils.



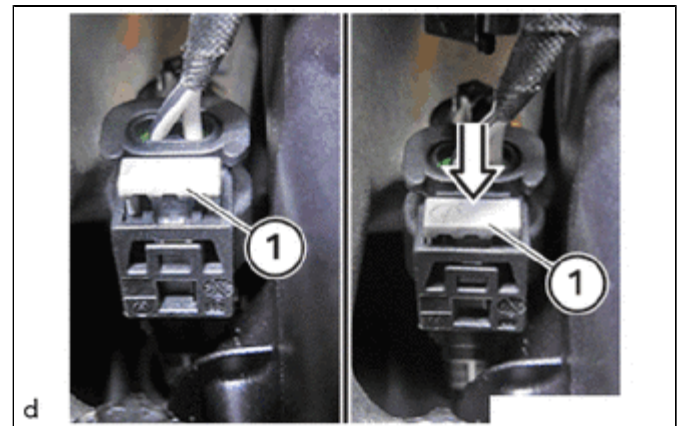
(g) Mount both ground cables and tighten the nuts (2).

Torque:

5.0 N·m { 51 kgf·cm, 44 in·lbf }

(h) Connect and lock all connectors (3) to the injectors.

(i) Connect the connector to the injectors.

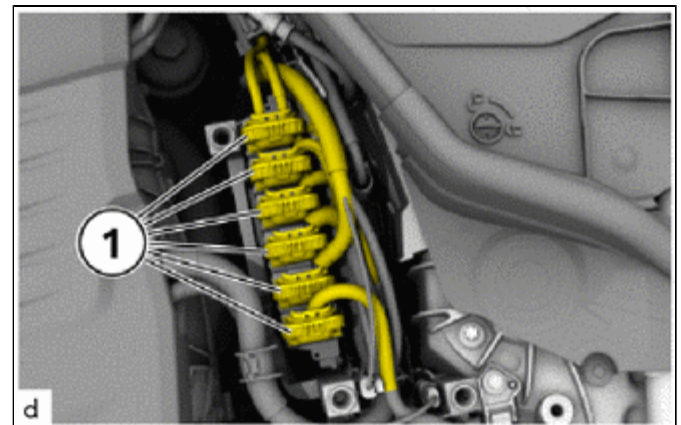


(j) Engage lock (1) in direction of arrow audibly.

(k) Connect all connectors (1) and lock.

HINT:

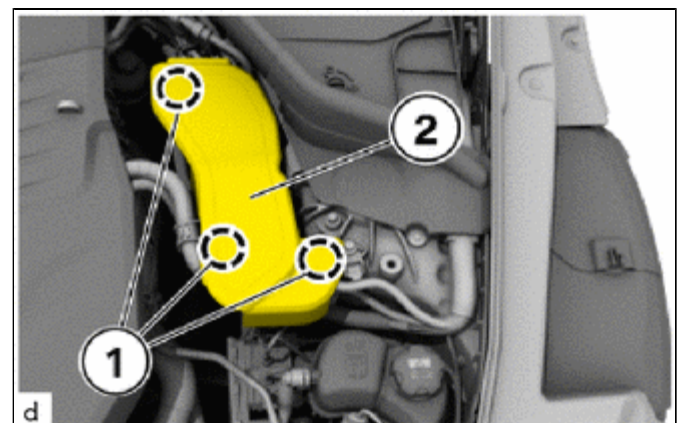
All connectors (1) must engage audibly.



(l) Install the cover (2).

HINT:

The snap-lock couplings (1) must engage audibly.



2. INSTALL NO. 1 ENGINE COVER

Click here [INFO](#)

3. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

4. INSTALL COWL TOP VENTILATOR LOUVER PROTECTOR

Click here [INFO](#)

5. INSTALL UPPER FRONT SUSPENSION CENTER BRACE

Click here [INFO](#)

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

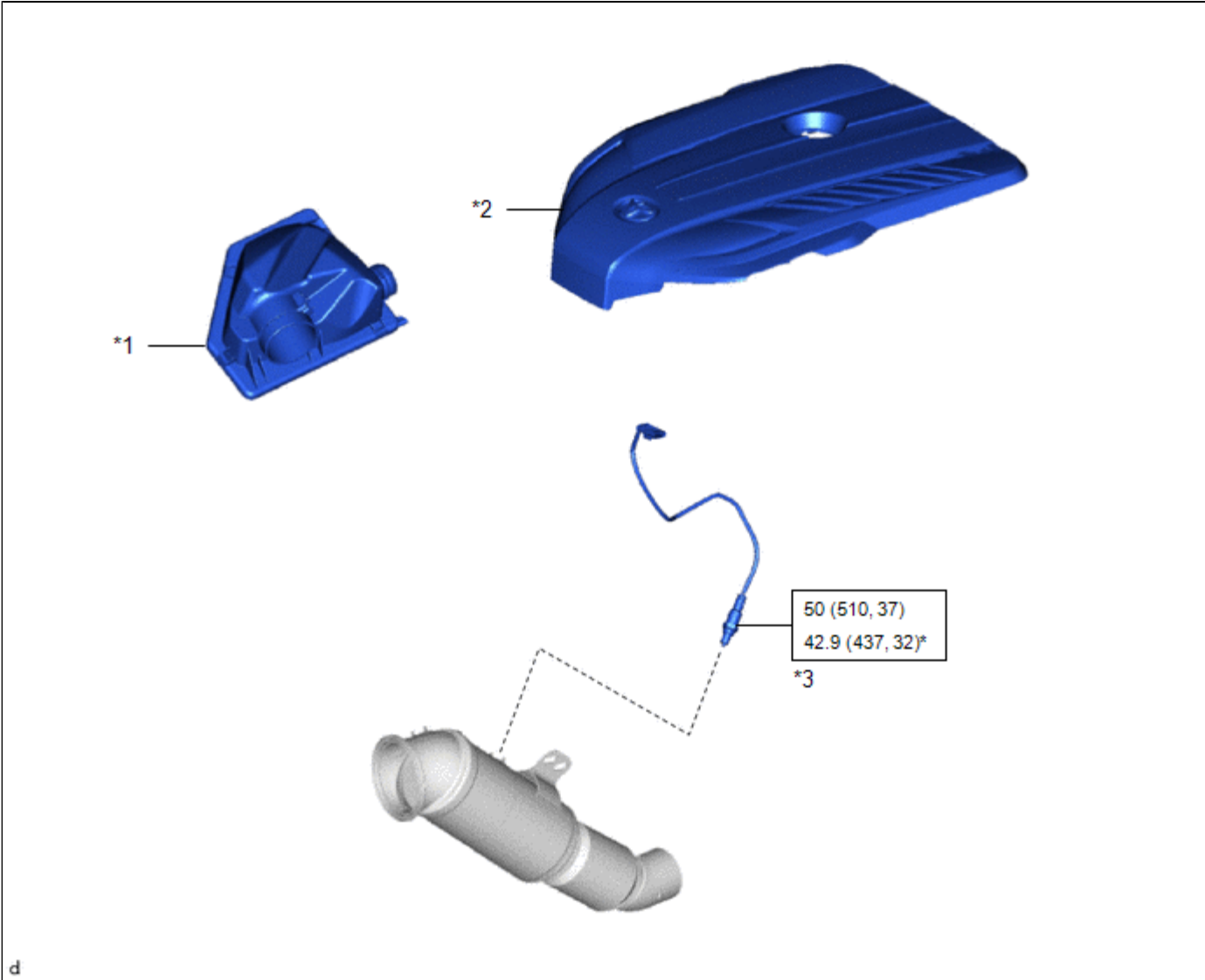
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXH
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): HEATED OXYGEN SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	AIR CLEANER CAP SUB-ASSEMBLY	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	OXYGEN SENSOR	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	*	For use with SST

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXI
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): HEATED OXYGEN SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE AIR CLEANER CAP SUB-ASSEMBLY

Click here [INFO](#)

3. REMOVE OXYGEN SENSOR

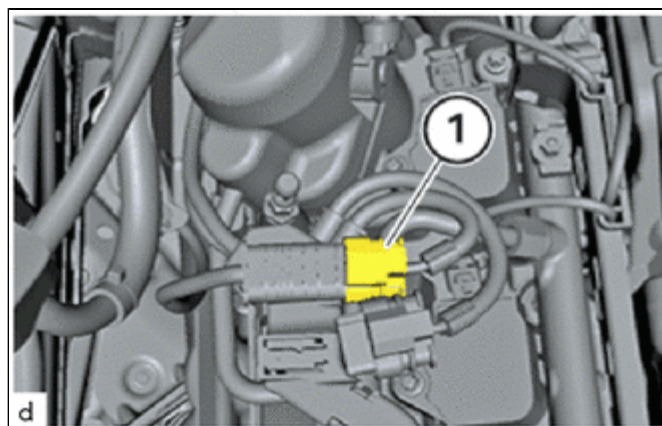
CAUTION:

- Hot surfaces.

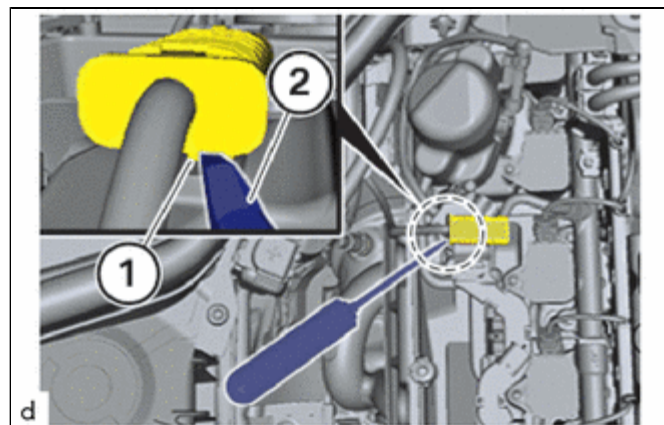
Risk of burning!

- Perform all work only on components that have cooled down.

(a) Unlock plug connection (1) and disconnect.

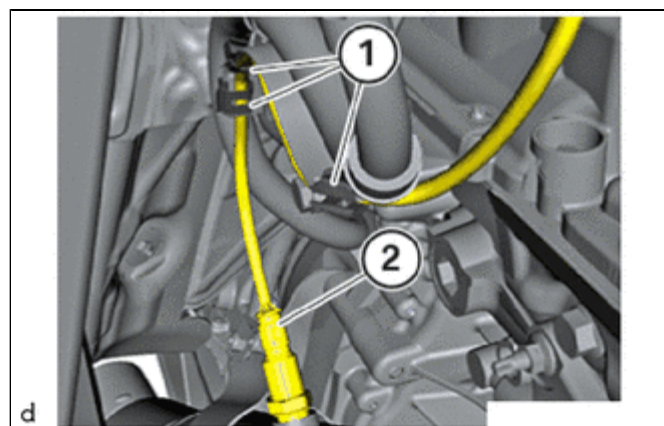


(b) Unlock the lock on the connector (1) with a suitable screwdriver (2).



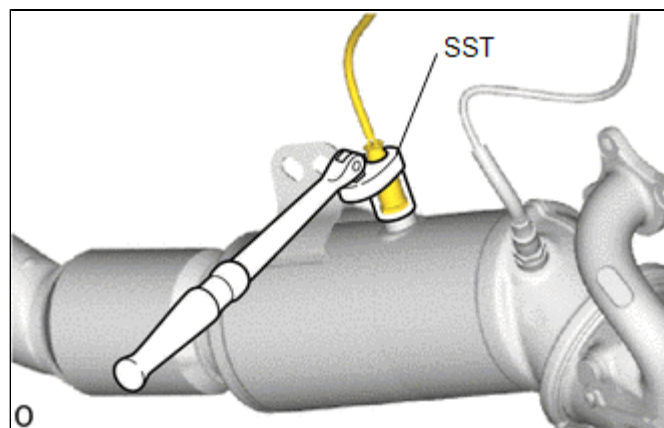
(c) Remove connector (1).

(d) Detach the line of the oxygen sensor (2) from the holder (1).



(e) Using SST, remove the oxygen sensor (1).

SST: 09224-00012



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXJ
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): HEATED OXYGEN SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

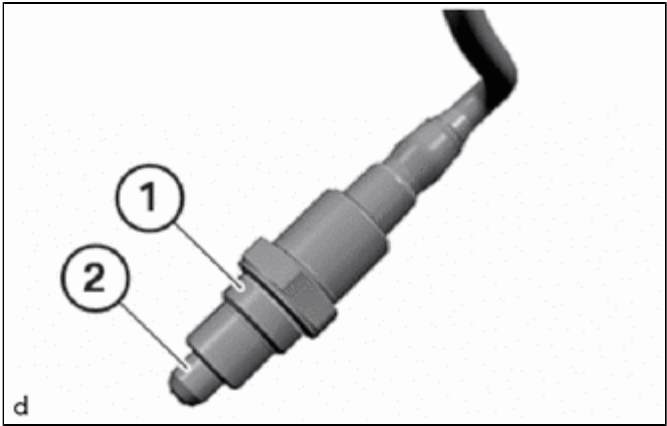
PROCEDURE

1. INSTALL OXYGEN SENSOR

(a) Check the thread (1) and sensor ceramics (2) for damage and replace the oxygen sensor, if necessary.

NOTICE:

- For oxygen sensors that are reused, the following should be observed.
 - Do not clean the part of the oxygen sensor that does not protrude into the exhaust branch (sensor ceramics).



(b) Using SST, install the oxygen sensor (1).

SST: 09224-00012

Torque:

50 N·m {510 kgf·cm, 37 ft·lbf}

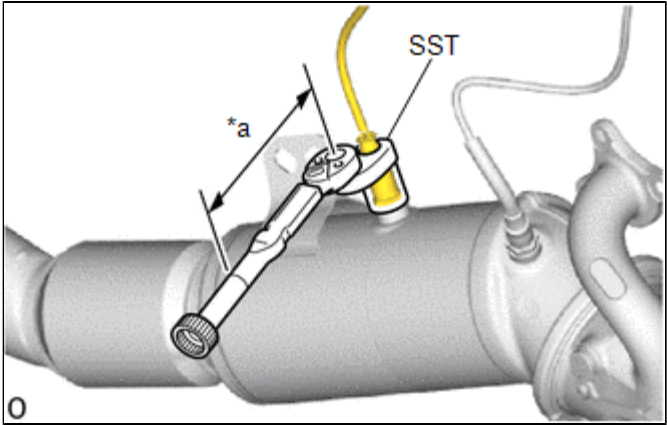
HINT:

- Calculate the torque wrench reading when changing the fulcrum length of the torque wrench.

Click here [INFO](#)

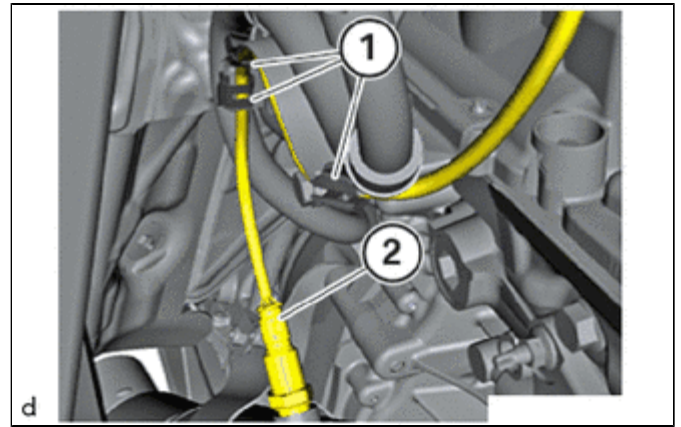
- When using SST (fulcrum length of 30 mm (1.18 in.)) + torque wrench (fulcrum length of 180 mm (7.09 in.)):

42.9 N*m (437 kgf*cm, 32 ft.*lbf)

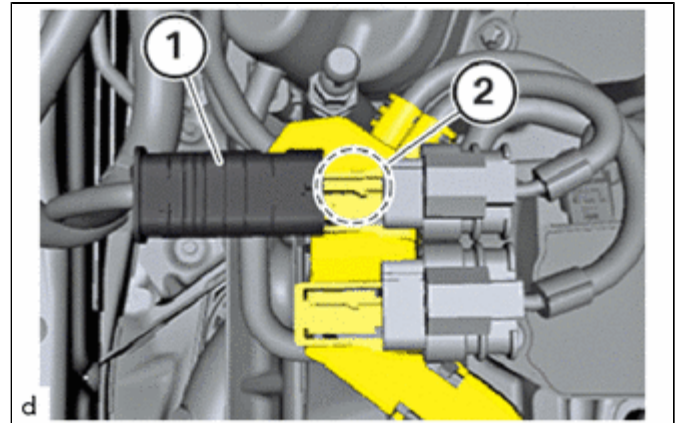


*a	Torque Wrench Fulcrum Length
----	------------------------------

(c) Engage the line of the oxygen sensor (2) in the holders (1).



(d) Engage connector (1) on the holder (2).



(e) Connect connectors and lock.

2. INSTALL AIR CLEANER CAP SUB-ASSEMBLY

Click here [INFO](#)

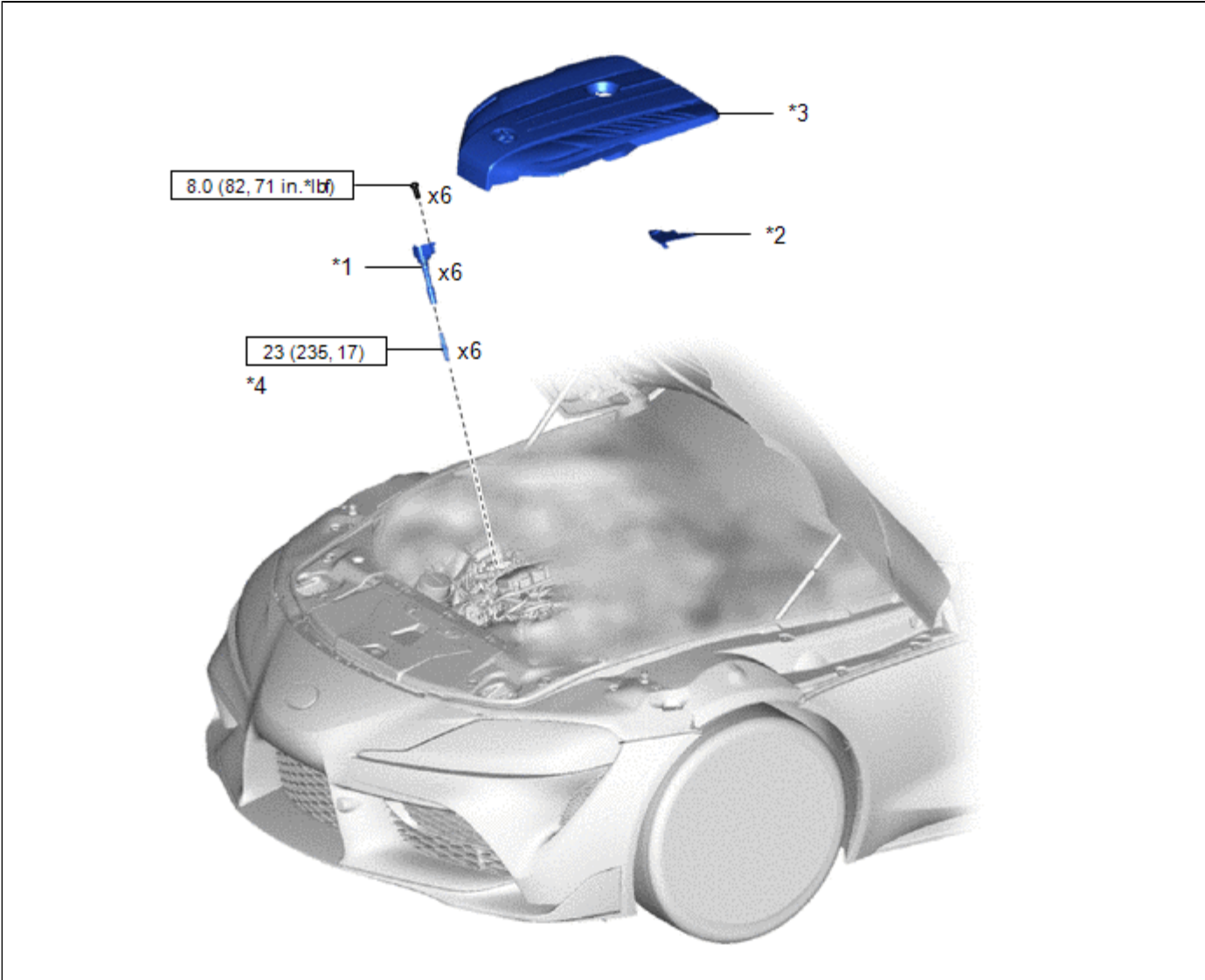
3. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWT
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): IGNITION COIL AND SPARK PLUG: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	IGNITION COIL	*2	NO. 1 ENGINE COVER
*3	NO. 1 ENGINE COVER SUB-ASSEMBLY	*4	SPARK PLUG
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWU
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): IGNITION COIL AND SPARK PLUG: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

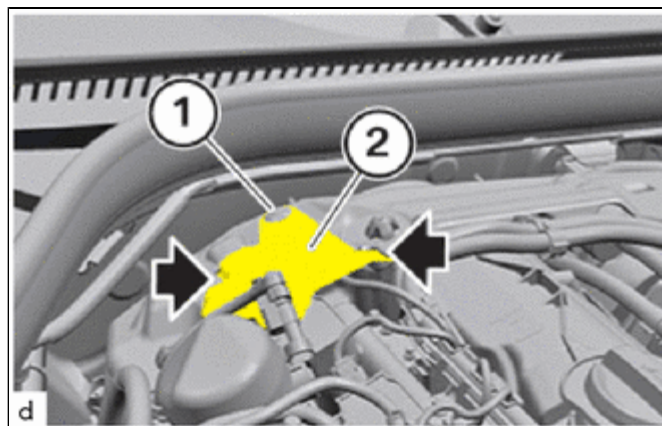
PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE NO. 1 ENGINE COVER

- (a) Detach the No. 1 engine cover (2) in the marked areas (arrows) and twist it to the side at the pivot point (1).



3. REMOVE IGNITION COIL

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

- Damage to the ignition coil.

The silicone hose of the ignition coil must not be contaminated by fuel as this can lead to failure of the ignition coil.

- Cover ignition coils using suitable covers when working on the fuel system, if necessary remove them.
- Do not oil or grease the silicone tube of the spark plug connector. The silicone tube is coated with talc to reduce the pulling forces.

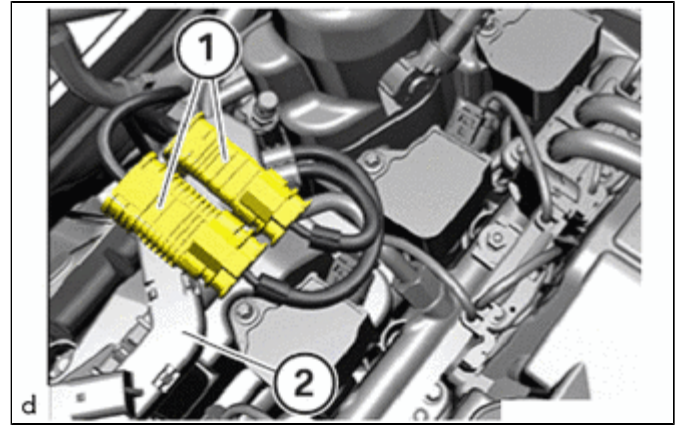
- Electrostatic discharge.

Damage to or destruction of electrical components.

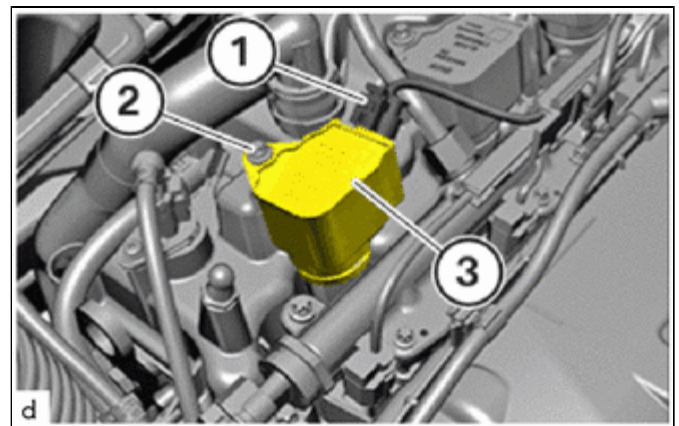
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

- (a) Disconnect the connectors (1) of the No. 2 oxygen sensor and the No. 2 air fuel ratio sensor from the cable channel (2) and set aside.



- (b) Unlock plug connection (1) and disconnect.



- (c) Loosen E8 bolt (2).

- (d) Remove ignition coil (3).

4. REMOVE SPARK PLUG

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWV
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): IGNITION COIL AND SPARK PLUG: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL SPARK PLUG

Click here [INFO](#)

2. INSTALL IGNITION COIL

- (a) Install ignition coil.
- (b) Tighten down E8 bolt.

Torque:

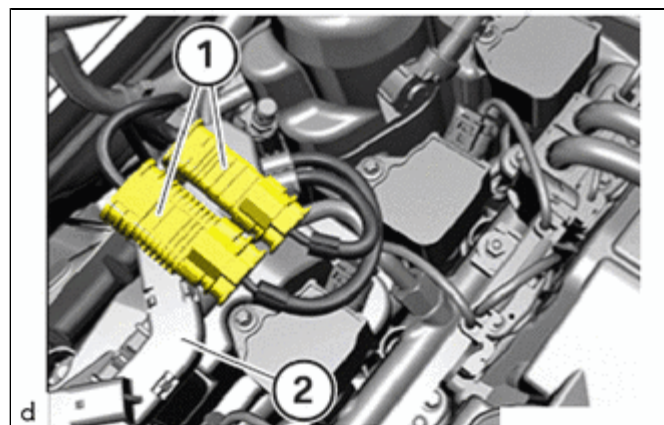
8.0 N·m {82 kgf·cm, 71 in·lbf}

- (c) Connect connectors and lock.

HINT:

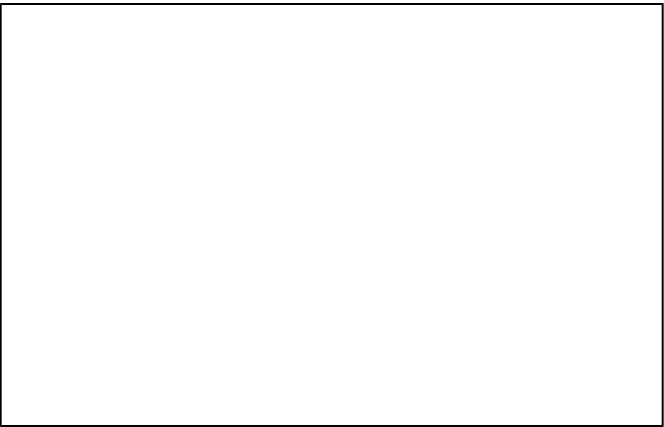
The connector must engage audibly.

- (d) Connect the connectors (1) of the No. 2 oxygen sensor and the No. 2 air fuel ratio sensor on the cable shaft (2).



3. INSTALL NO. 1 ENGINE COVER

- (a) Turn the No. 1 engine cover (2) at the pivot point (1) to the installation position and guide it in where marked (arrows).



4. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

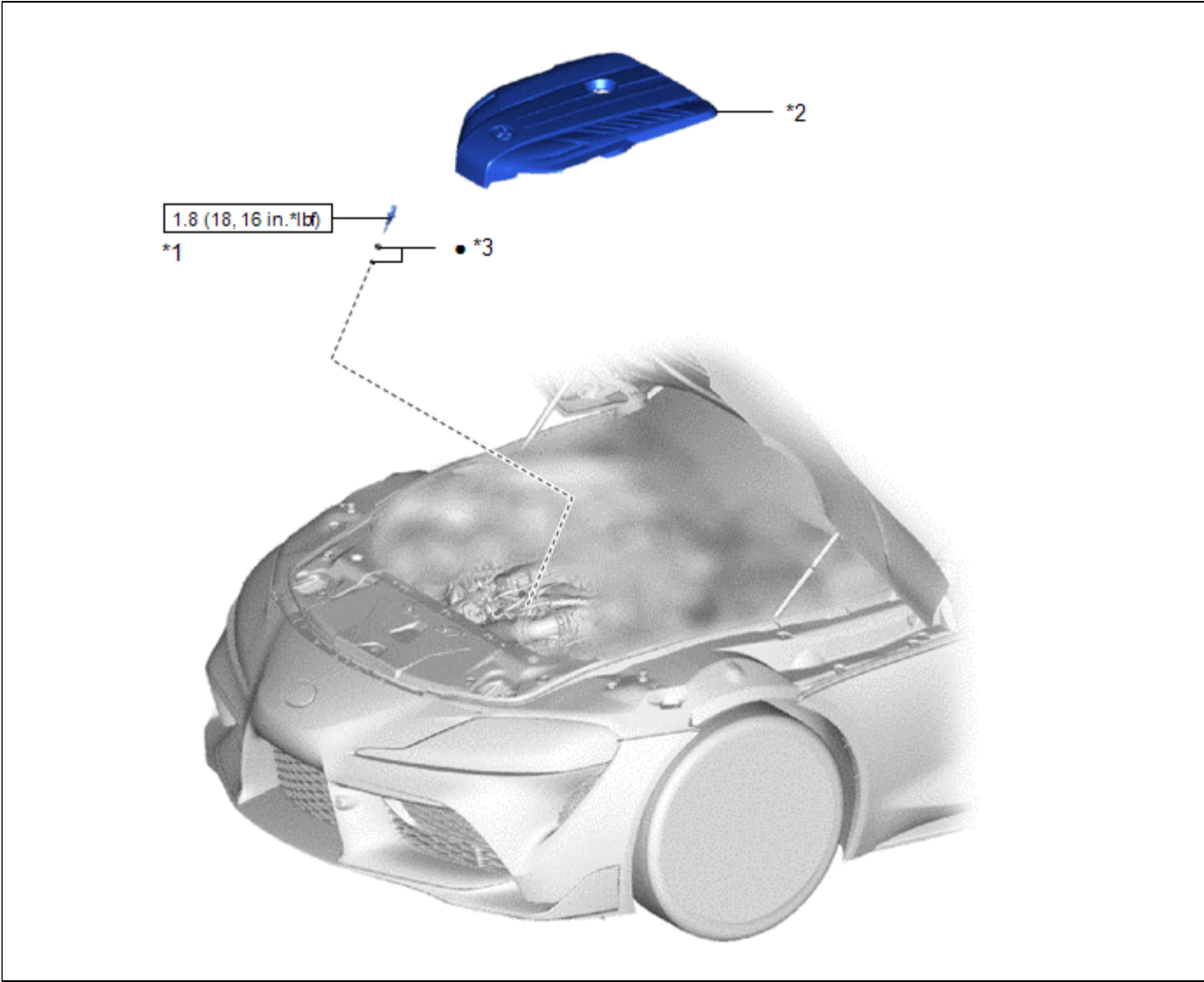
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX5
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): INTAKE AIR TEMPERATURE SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	INTAKE AIR TEMPERATURE SENSOR	*2	NO. 1 ENGINE COVER SUB-ASSEMBLY
*3	O-RING	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX6
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): INTAKE AIR TEMPERATURE SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE INTAKE AIR TEMPERATURE SENSOR

NOTICE:

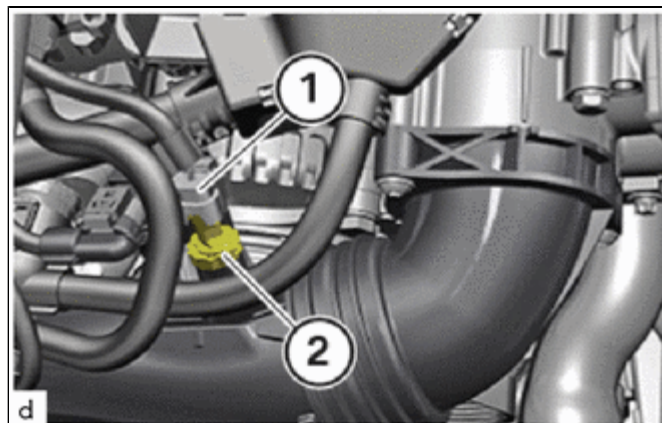
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

(a) Unlock plug connection (1) and disconnect.



(b) Using a 17 mm deep socket wrench, unscrew the intake air temperature sensor (2) with the special tool 0 496 142 (11 8 850).

(c) Take out and remove intake air temperature sensor (2).

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX7
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): INTAKE AIR TEMPERATURE SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL INTAKE AIR TEMPERATURE SENSOR

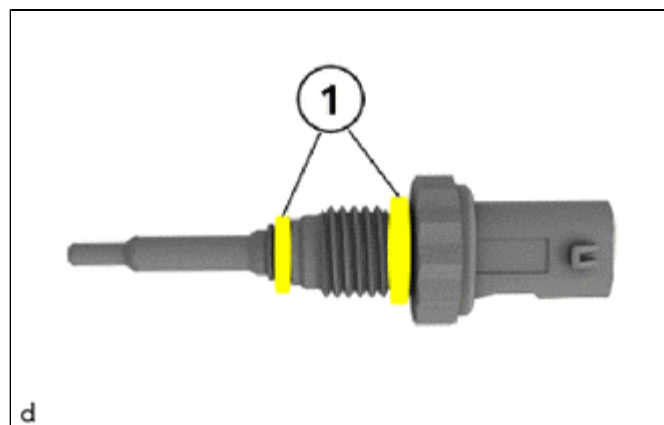
NOTICE:

- Contaminant or foreign body.

Contamination can result in malfunctions, operating failure or leaks.

- Adhere to the utmost cleanliness.
- Protect components from contamination e.g. by covering.
- Close off line connections with O-rings plugs.

(a) Replace the O-rings (1) on the intake air temperature sensor.



(b) Insert and install the intake air temperature sensor.

(c) Using a 17 mm deep socket wrench, tighten the intake air temperature sensor with the special tool 0 496 142 (11 8 850).

Torque:

1.8 N·m {18 kgf·cm, 16 in·lbf}

(d) Connect connectors and lock.

HINT:

The connector must engage audibly.

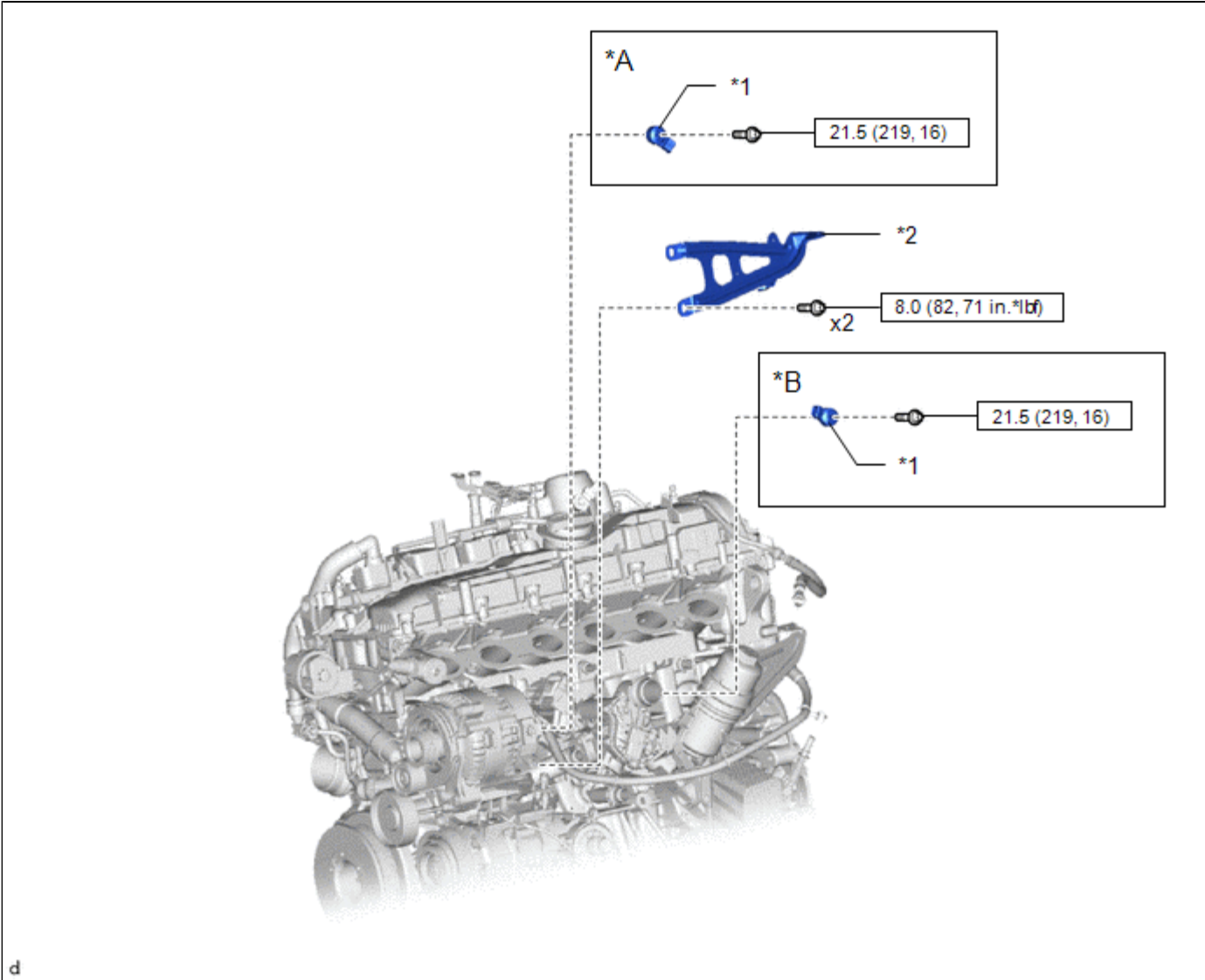
2. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX8
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): KNOCK SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*A	for Bank 1	*B	for Bank 2
*1	KNOCK SENSOR	*2	INTAKE MANIFOLD STAY
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCX9
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): KNOCK SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Working on 12 V vehicle electrical system.

Risk of short circuits! Risk of fire!

- Detach battery earth lead from battery.

NOTICE:

- Damage to battery terminal, the safety battery terminal or the battery state sensor.

Damaged battery terminals can lead to malfunctions or vehicle electrical system faults.

- Pull off battery terminal from battery pole by carefully moving to and fro. Do not pry off using a tool.

PROCEDURE

1. REMOVE INTAKE MANIFOLD

Click here [INFO](#)

2. REMOVE KNOCK SENSOR (for Bank 1)

NOTICE:

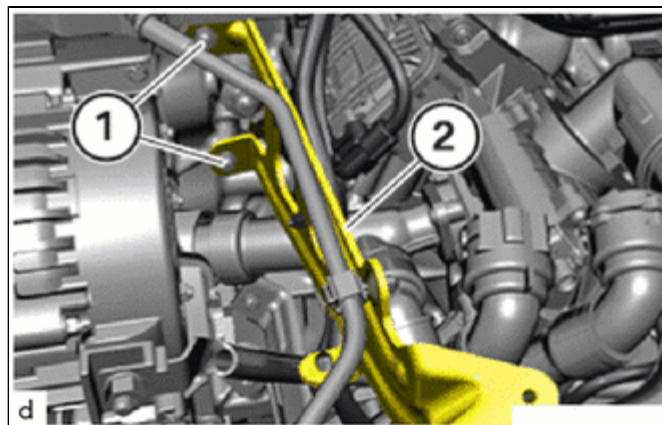
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

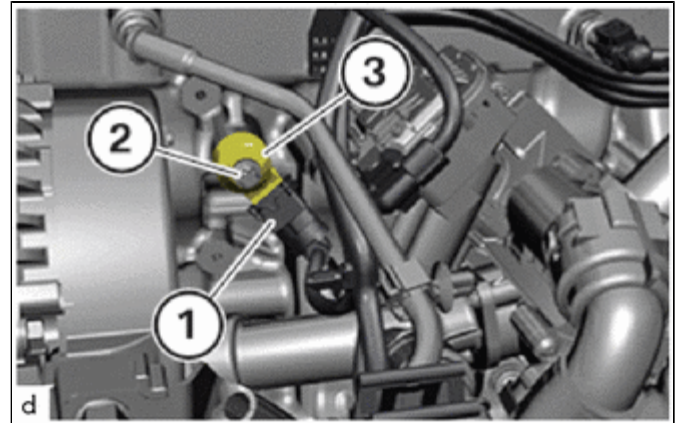
(a) Loosen E8 bolts (1).



(b) Detach coolant line and wiring harness from the intake manifold stay (2).

(c) Guide out and remove intake manifold stay (2).

(d) Unlock connector (1) and pull off.



(e) Loosen E10 bolt (2).

(f) Remove the knock sensor (3).

3. REMOVE KNOCK SENSOR (for Bank 2)

NOTICE:

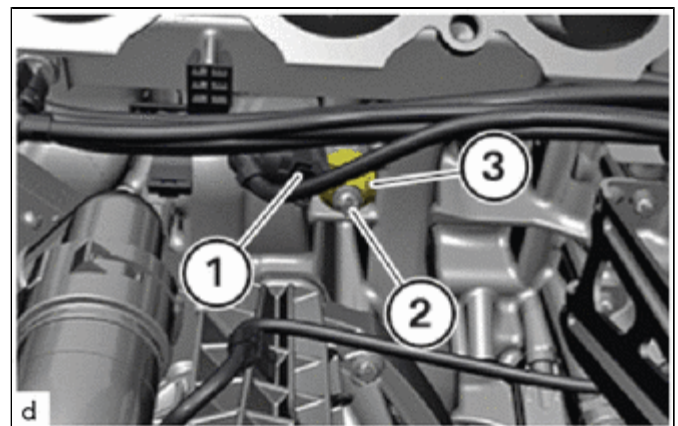
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

[Click here](#) **INFO**

(a) Unlock connector (1) and pull off.



(b) Loosen E10 bolt (2).

(c) Remove the knock sensor (3).

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXA
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): KNOCK SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL KNOCK SENSOR (for Bank 2)

NOTICE:

When installing the knock sensor, the tightening torque must be observed.

Non-compliance with the tightening torque can lead to malfunction.

- Clean the contact surface of the knock sensor at the crankcase.
- Install knock sensor.
- Tighten down E10 bolt.

Torque:

21.5 N·m {219 kgf·cm, 16 ft·lbf}

- Connect the connector, it should lock audibly.

2. INSTALL KNOCK SENSOR (for Bank 1)

NOTICE:

When installing the knock sensor, the tightening torque must be observed.

Non-compliance with the tightening torque can lead to malfunction.

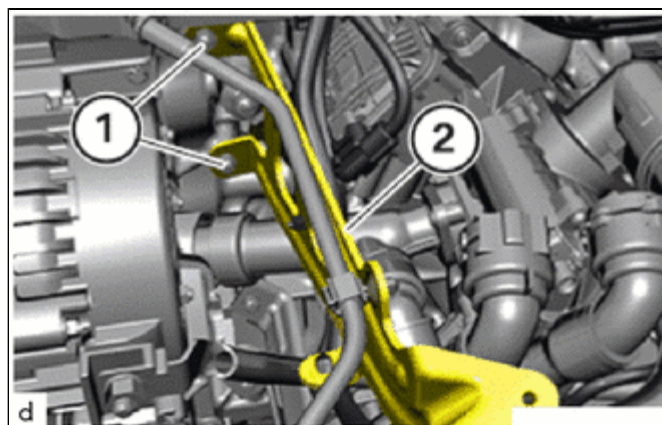
- Clean the contact surface of the knock sensor at the crankcase.
- Install knock sensor.
- Tighten down E10 bolt.

Torque:

21.5 N·m {219 kgf·cm, 16 ft·lbf}

- Connect the connector, it should lock audibly.

- Insert and install the intake manifold stay (2).



- Tighten the E8 bolts (1).

Torque:

8.0 N·m {82 kgf·cm, 71 in·lbf}

(g) Secure the wiring harness and the coolant lines on the intake manifold stay (2).

3. INSTALL INTAKE MANIFOLD

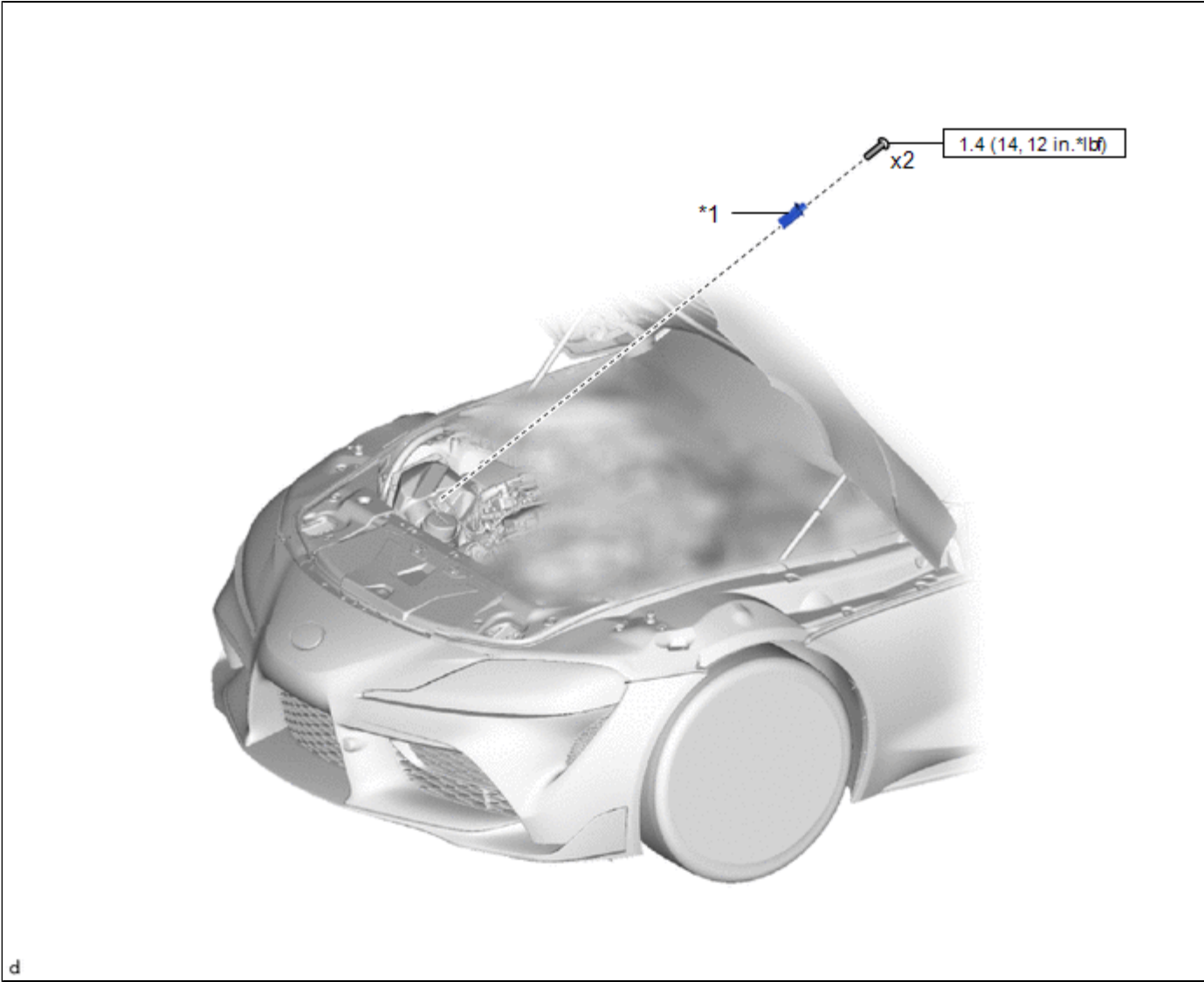
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWH
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): MASS AIR FLOW METER: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	INTAKE MASS AIR FLOW METER SUB-ASSEMBLY	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque	-	-

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWI
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): MASS AIR FLOW METER: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

PROCEDURE

1. REMOVE INTAKE MASS AIR FLOW METER SUB-ASSEMBLY

NOTICE:

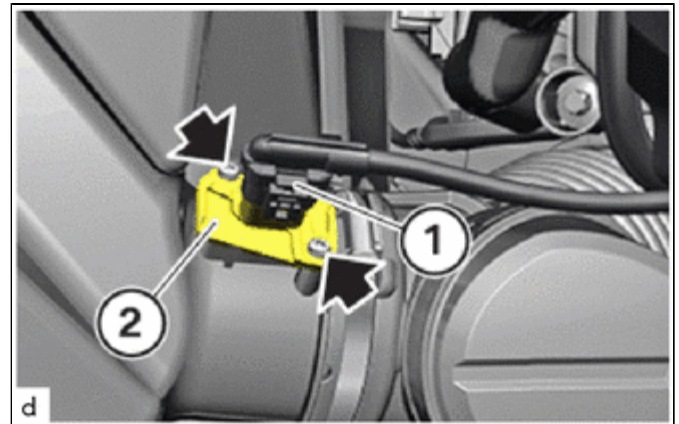
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

[Click here](#) [INFO](#)

(a) Unlock plug connection (1) and disconnect.



(b) Remove T20 screws (arrows).

(c) Remove the intake mass air flow meter sub-assembly (2).

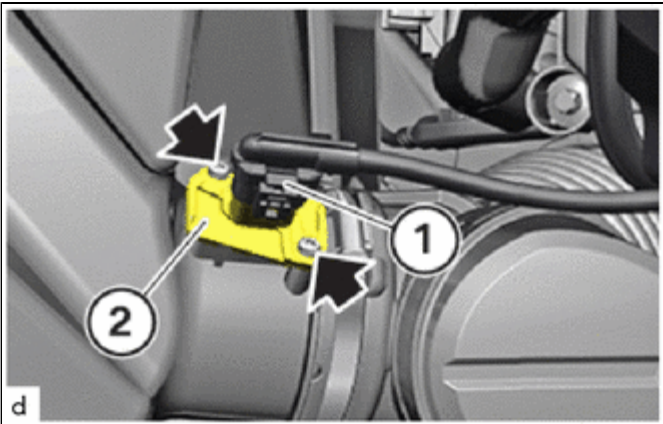
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCWJ
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): MASS AIR FLOW METER: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL INTAKE MASS AIR FLOW METER SUB-ASSEMBLY

- (a) Insert and install the intake mass air flow meter sub-assembly (2).



- (b) Tighten T20 screws (arrows).

Torque:
1.4 N·m {14 kgf·cm, 12 in·lbf}

- (c) Connect connectors (1) and lock.

HINT:
The connector (1) must engage audibly.

2. PERFORM INITIALIZATION

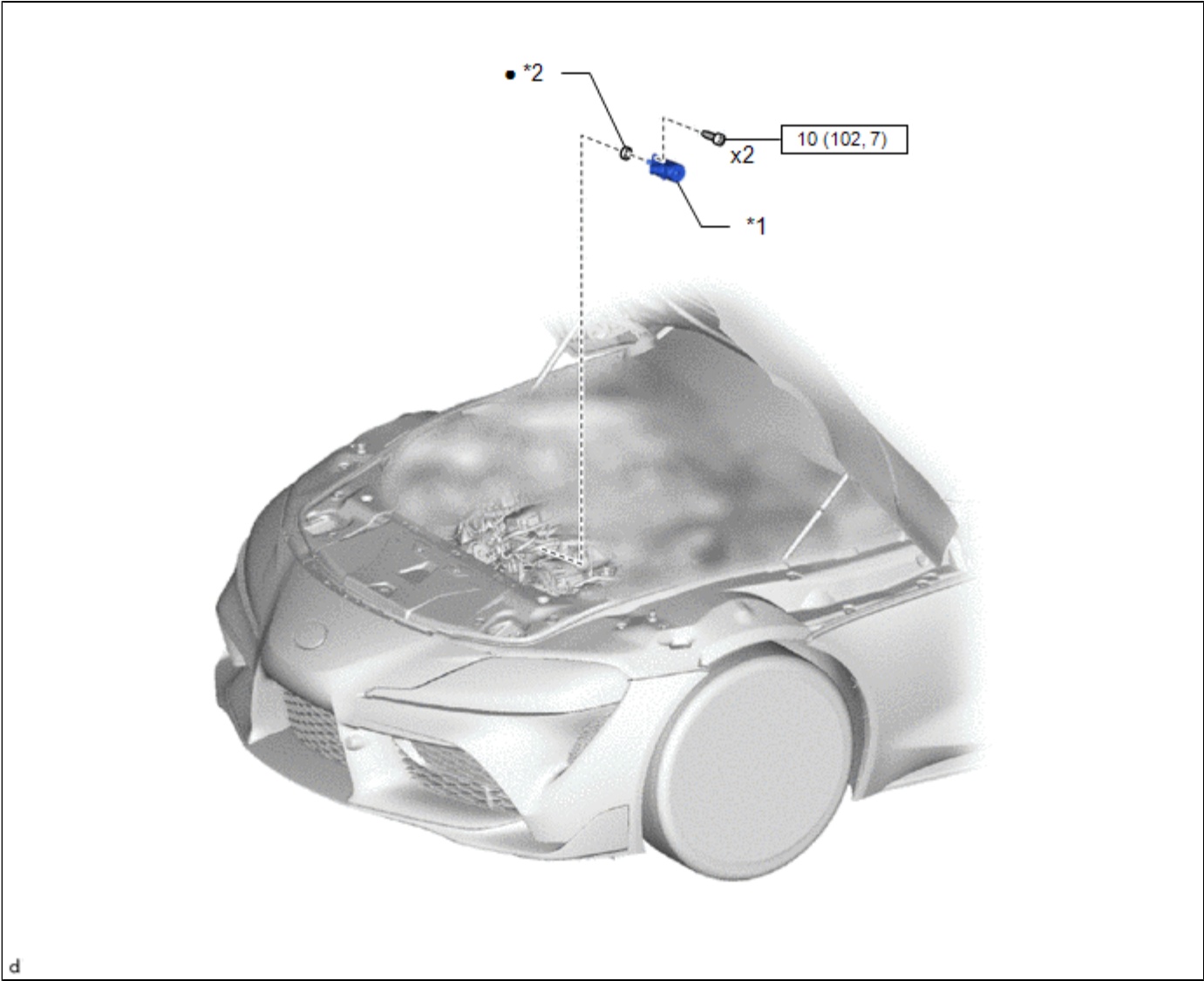
- (a) Connect the diagnosis system to the vehicle and enter the following menus:
Vehicle management / Service functions / Drive / Engine electronics / Reset adaptations / ABL Reset adaptation values



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW4
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): SERVO MOTOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	SERVO MOTOR	*2	O-RING
	N*m (kgf*cm, ft.*lbf): Specified torque		Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW5
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): SERVO MOTOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE THROTTLE BODY WITH MOTOR ASSEMBLY

Click here [INFO](#)

2. REMOVE SERVO MOTOR

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

NOTICE:

- Contaminant or foreign body.

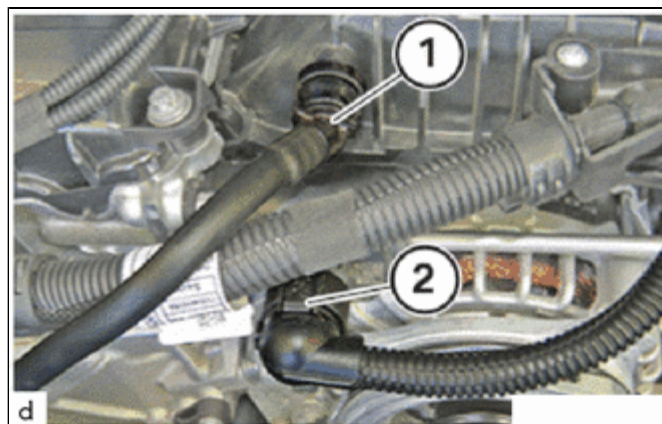
Contamination can result in malfunctions, operating failure or leaks.

- Adhere to the utmost cleanliness.
- Protect components from contamination e.g. by covering.
- Close off line connections with O-rings plugs.

HINT:

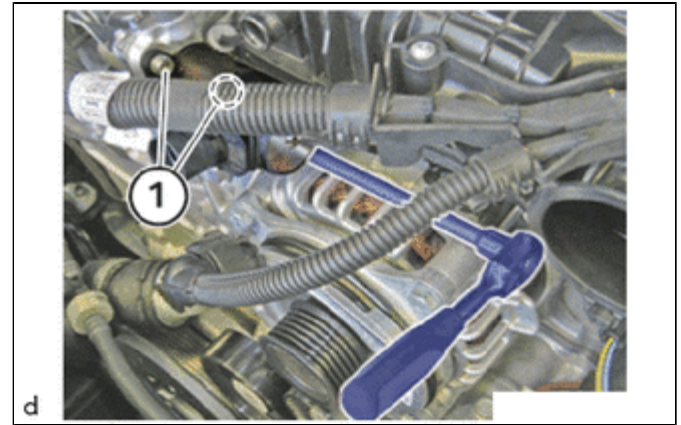
Collect and dispose of emerging fluids. Observe country-specific waste disposal regulations.

- (a) Unlock ventilation line (1) and pull off from intake manifold.



(b) Unlock connector (2) and pull off.

(c) Push wiring harness to the side and unclip where required.



(d) Have a cleaning cloth ready.

HINT:

Engine oil may emerge when pulling off the servo motor for the No. 3 camshaft sub-assembly.

(e) Loosen T30 bolts (1).

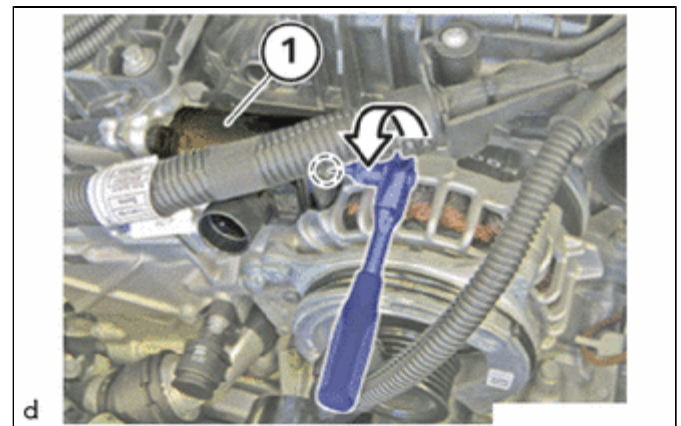
(f) Using a 4 mm hexagon wrench, turn servo motor for the No. 3 camshaft sub-assembly (1) to the left on the bolt in the marked area and pull off the cylinder head at the same time.

NOTICE:

Do not turn the No. 3 camshaft sub-assembly beyond the end stop.

HINT:

This releases the tension of the No. 3 camshaft sub-assembly.



(g) Removing the servo motor for the No. 3 camshaft sub-assembly (1).

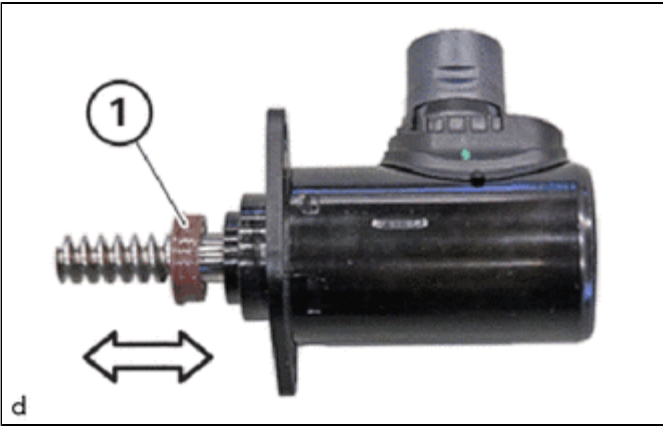
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW6
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): SERVO MOTOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

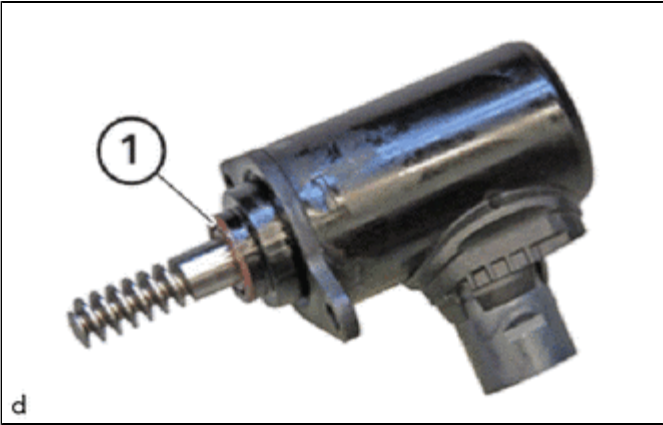
PROCEDURE

1. INSTALL SERVO MOTOR

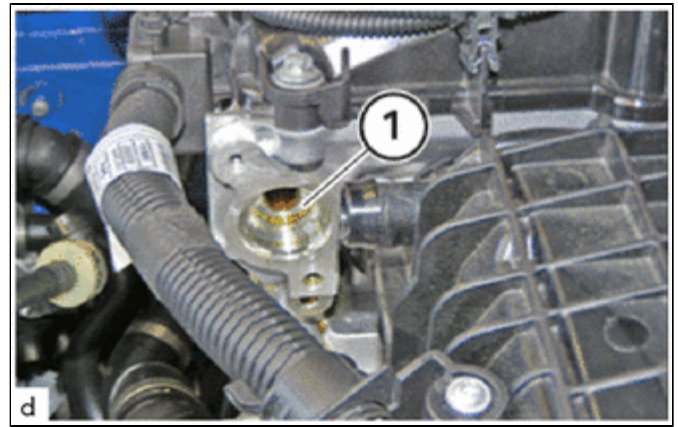
(a) Pull off O-ring (1) and replace.



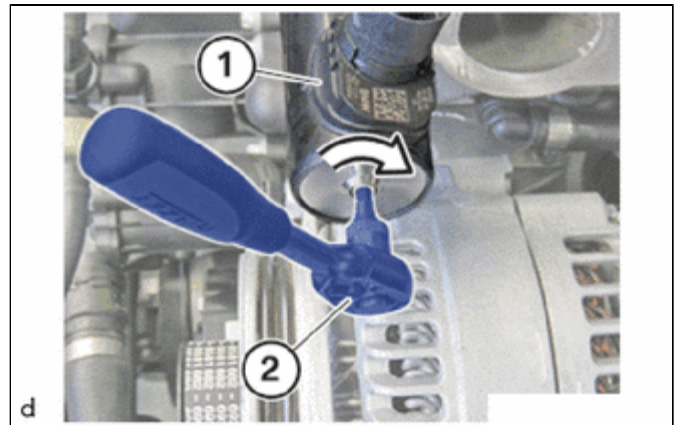
(b) Push the O-ring (1) onto the servo motor housing to the limit position.



(c) Clean sealing surface (1).



(d) Slide servo motor for eccentric shaft (1) up to the limit position.

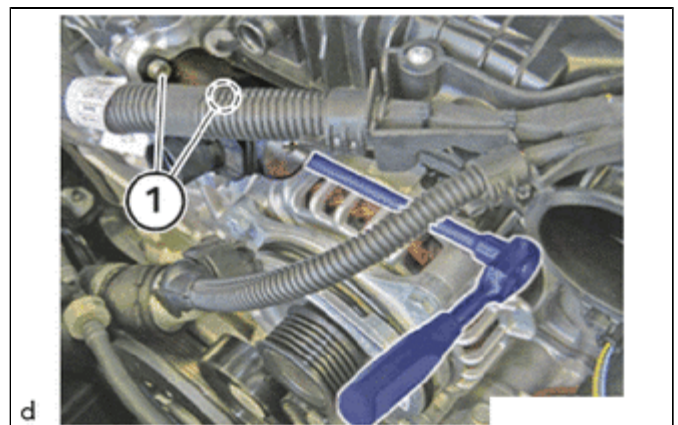


(e) Turn screw on the servo motor for the eccentric shaft (1) to the right with a 4 mm hexagon wrench (2) until the servo motor for the eccentric shaft rests against the cylinder head.

(f) Tighten the T30 bolts (1).

Torque:

10 N·m { 102 kgf·cm, 7 ft·lbf }



(g) Lock connector.

(h) Position the ventilation line on the intake manifold and lock.

2. INSTALL THROTTLE BODY WITH MOTOR ASSEMBLY

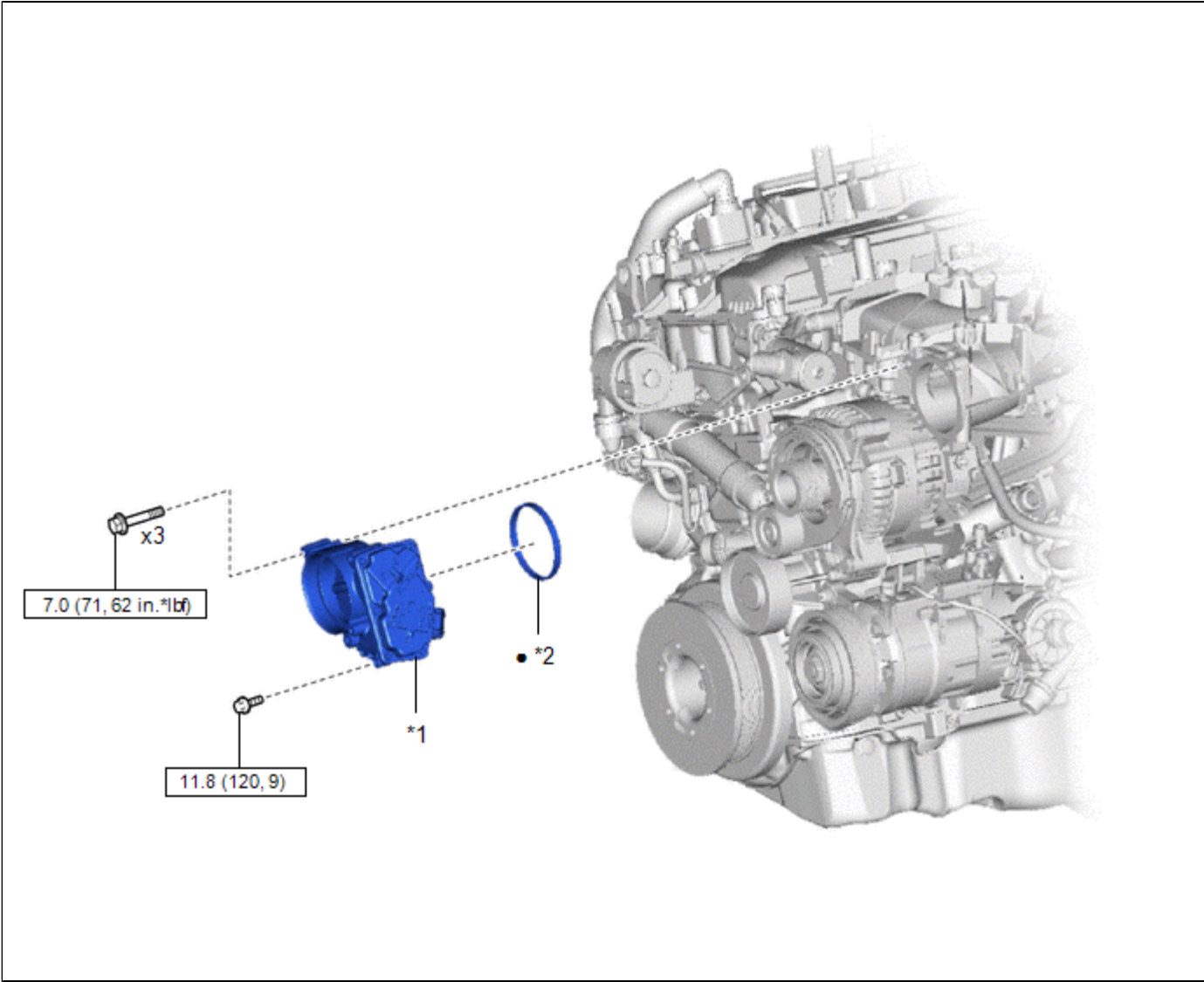
Click here [INFO](#)



Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW7
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): THROTTLE BODY: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	THROTTLE BODY WITH MOTOR ASSEMBLY	*2	THROTTLE BODY GASKET
	N*m (kgf*cm, ft.*lbf): Specified torque		Non-reusable part

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW8
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): THROTTLE BODY: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

CAUTION:

- Hot surfaces.

Risk of burning!

- Perform all work only on components that have cooled down.

PROCEDURE

1. REMOVE NO. 2 AIR CLEANER HOSE

Click here [INFO](#)

2. REMOVE THROTTLE BODY WITH MOTOR ASSEMBLY

NOTICE:

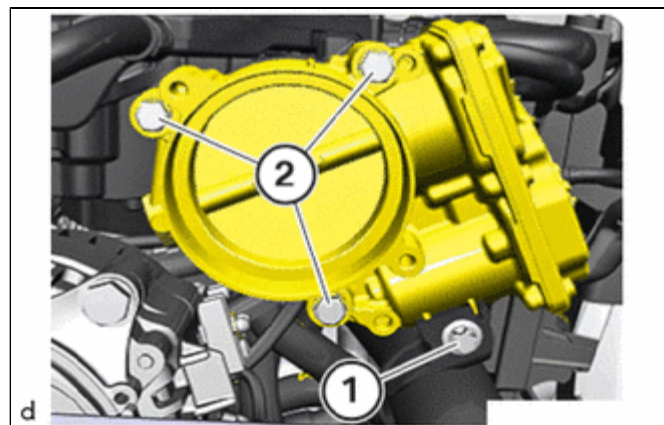
- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

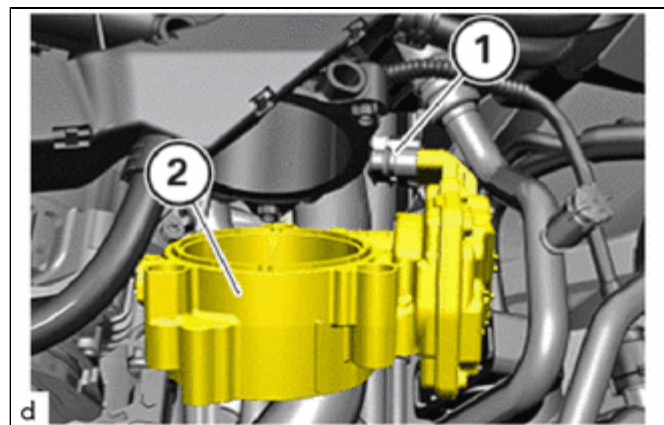
Click here [INFO](#)

(a) Loosen E10 bolt (1).



(b) Loosen bolts (2).

(c) Thread the throttle body with motor assembly (2) a little bit out to the front.



(d) Unlock plug connection (1) and disconnect.

(e) Remove throttle body with motor assembly (2).

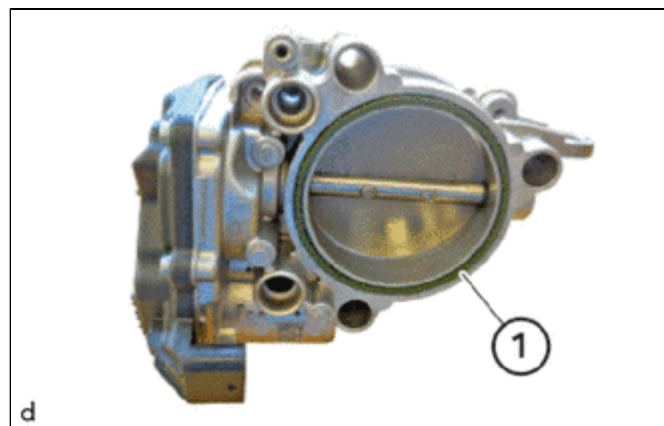
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCW9
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): THROTTLE BODY: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL THROTTLE BODY WITH MOTOR ASSEMBLY

- (a) Replace the throttle body gasket (1).



- (b) Position throttle body with motor assembly.

- (c) Connect connectors and lock.

HINT:

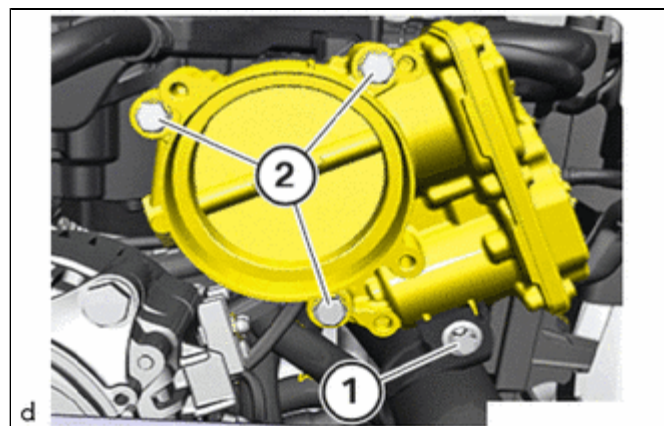
The connector must engage audibly.

- (d) Install throttle body with motor assembly.

- (e) Tighten down bolts (2).

Torque:

7.0 N·m {71 kgf·cm, 62 in·lbf}



- (f) Tighten down E10 bolt (1).

Torque:

11.8 N·m {120 kgf·cm, 9 ft·lbf}

2. INSTALL NO. 2 AIR CLEANER HOSE

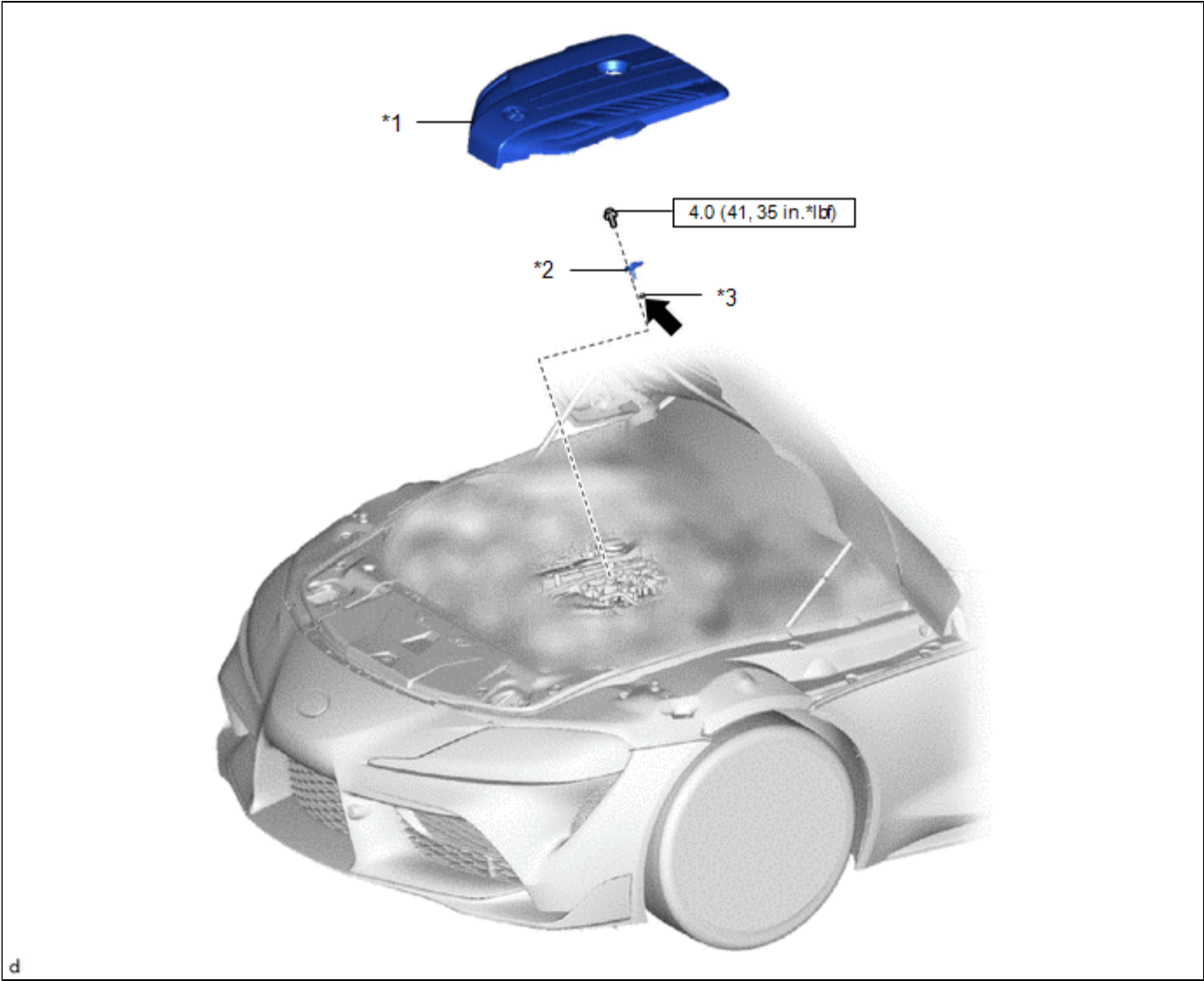
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Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXB
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): VACUUM SENSOR: COMPONENTS; 2020 MY Supra [03/2019 -]		

COMPONENTS

ILLUSTRATION



*1	NO. 1 ENGINE COVER SUB-ASSEMBLY	*2	VACUUM SENSOR ASSEMBLY
*3	O-RING	-	-
	N*m (kgf*cm, ft.*lbf): Specified torque		LUBRICANT

Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXC
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): VACUUM SENSOR: REMOVAL; 2020 MY Supra [03/2019 -]		

REMOVAL

CAUTION / NOTICE / HINT

NOTICE:

- Electrostatic discharge.

Damage to or destruction of electrical components.

- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

PROCEDURE

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)

2. REMOVE VACUUM SENSOR ASSEMBLY

NOTICE:

- Electrostatic discharge.

Damage to or destruction of electrical components.

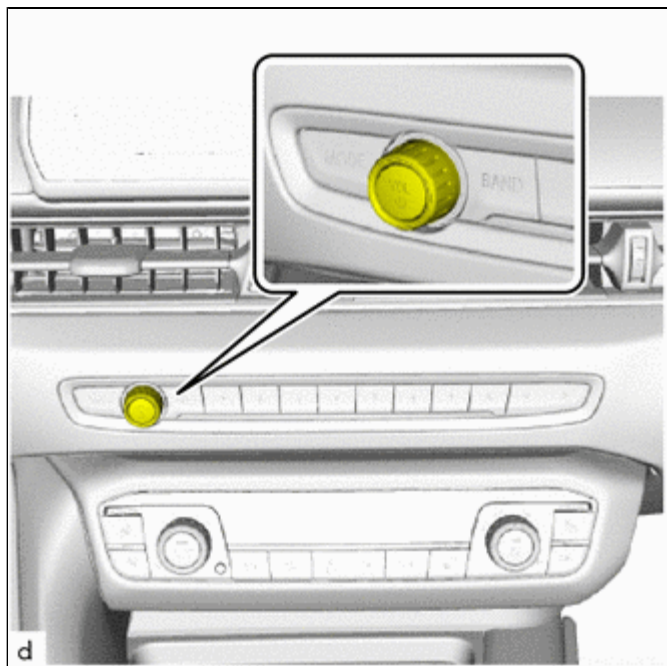
- Only touch the housings of electrical components. Do not touch pins or multi-pin connectors directly.
- For additional information see:

Click here [INFO](#)

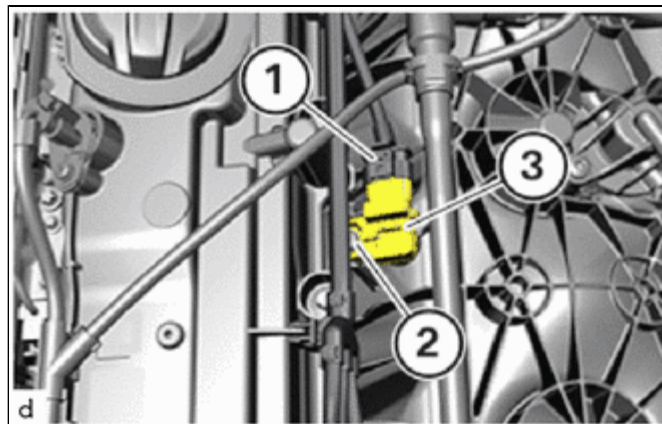
(a) Turn the START-STOP button (engine switch) off.

HINT:

Pressing and holding the AUDIO button changes the power source mode to IG OFF.



(b) Unlock plug connection (1) and disconnect.



(c) Loosen T25 bolt (2).

(d) Remove the vacuum sensor assembly (3).

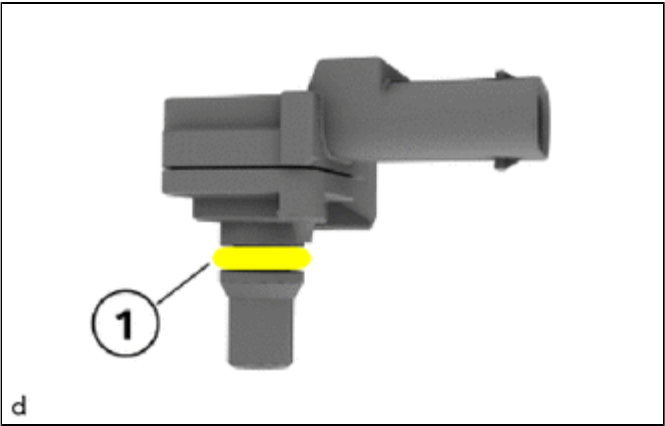
Last Modified: 09-05-2019	6.9:8.0.49	Doc ID: RM100000001JCXD
Model Year Start: 2020	Model: Supra	Prod Date Range: [03/2019 -]
Title: B58 (ENGINE CONTROL): VACUUM SENSOR: INSTALLATION; 2020 MY Supra [03/2019 -]		

INSTALLATION

PROCEDURE

1. INSTALL VACUUM SENSOR ASSEMBLY

(a) Check the O-ring for damage and replace where required.



(b) Apply a thin coat of lubricant to the O-ring (1).

(c) Install the vacuum sensor assembly.

(d) Tighten down T25 bolt.

Torque:

4.0 N·m {41 kgf·cm, 35 in·lbf}

(e) Connect connectors and lock.

2. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

Click here [INFO](#)