

# OIL COOLER KIT

## INSTALLATION MANUAL



**Installation must be done by a professional.**

Read this manual prior to the installation.

Always have access to this manual as well as a factory service manual.

※ Make sure the vehicle is applicable to this kit.

NAME OF PRODUCT	OIL COOLER KIT
PART NUMBER	15004-AT011
APPLICATION	TOYOTA 86(DBA-ZN6), SUBARU BRZ(DBA-ZC6)
ENGINE	FA20
YEAR	TOYOTA 86 2012/04- / SUBARU BRZ 2012/03-
REMARKS	<p>※ <u>This kit was designed on a JDM vehicle and has not yet been tested in other markets.</u></p> <p>※ This kit can be installed to the vehicle with HKS Supercharger Kit (P/N 12001-AT006, 12001-AT008, and 12001-AT009) and stock vehicle.</p> <p>※ To keep air-intake for 86, the factory fog light cannot be installed. For a vehicle equipped with fog lights, it is recommended to purchase a factory cover for a vehicle not equipped with fog lights. Front Bumper Fog Light Cover RH: TOYOTA SU003-01516 Front Bumper Fog Light Cover LH: TOYOTA SU003-01517 The fog light can be installed to BRZ; however it is recommended to remove them to prevent the cooling air volume reduction.</p> <p><b>【Required Parts】</b></p> <ul style="list-style-type: none"><li>• New Engine Oil</li><li>• New Oil Filter</li></ul>

※This application was confirmed by February, 2013.

### REVISION OF MANUAL

Rev. Number	Date	Details
3-3.01	2014/5	1 <sup>st</sup> Edition

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## HKS Oil Cooler Kit on the Vehicle



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## NOTICE

This manual assumes that you have and know how to use the tools and equipment necessary to safely perform service operations on your vehicle. This manual assumes that you are familiar with typical automotive systems and basic service and repair procedures. Do not attempt to carry out the operations shown in this manual unless these assumptions are correct. Always have access to a factory service manual. To avoid injury, follow the safety precautions contained in the factory service manual.

## ATTENTION

- This manual indicates items you need to pay attention to in order to install this product safely and lists precautions to avoid any possible damage and/or accidents.
- This product is an automobile part. Do not use for any other purposes.
- HKS will not be responsible for any damage caused by incorrect installation and/or use, or use after modification and/or dismantling of this product.
- This product was designed for installation on a specific factory vehicle.
- The specifications of this product are subject to change without notice.
- The instructions are subject to change without notice. Make sure to refer to the most recent instructions.

## SAFETY PRECAUTIONS

The following precautions for use of this product are to prevent possible accidents and/or injuries and for proper use.



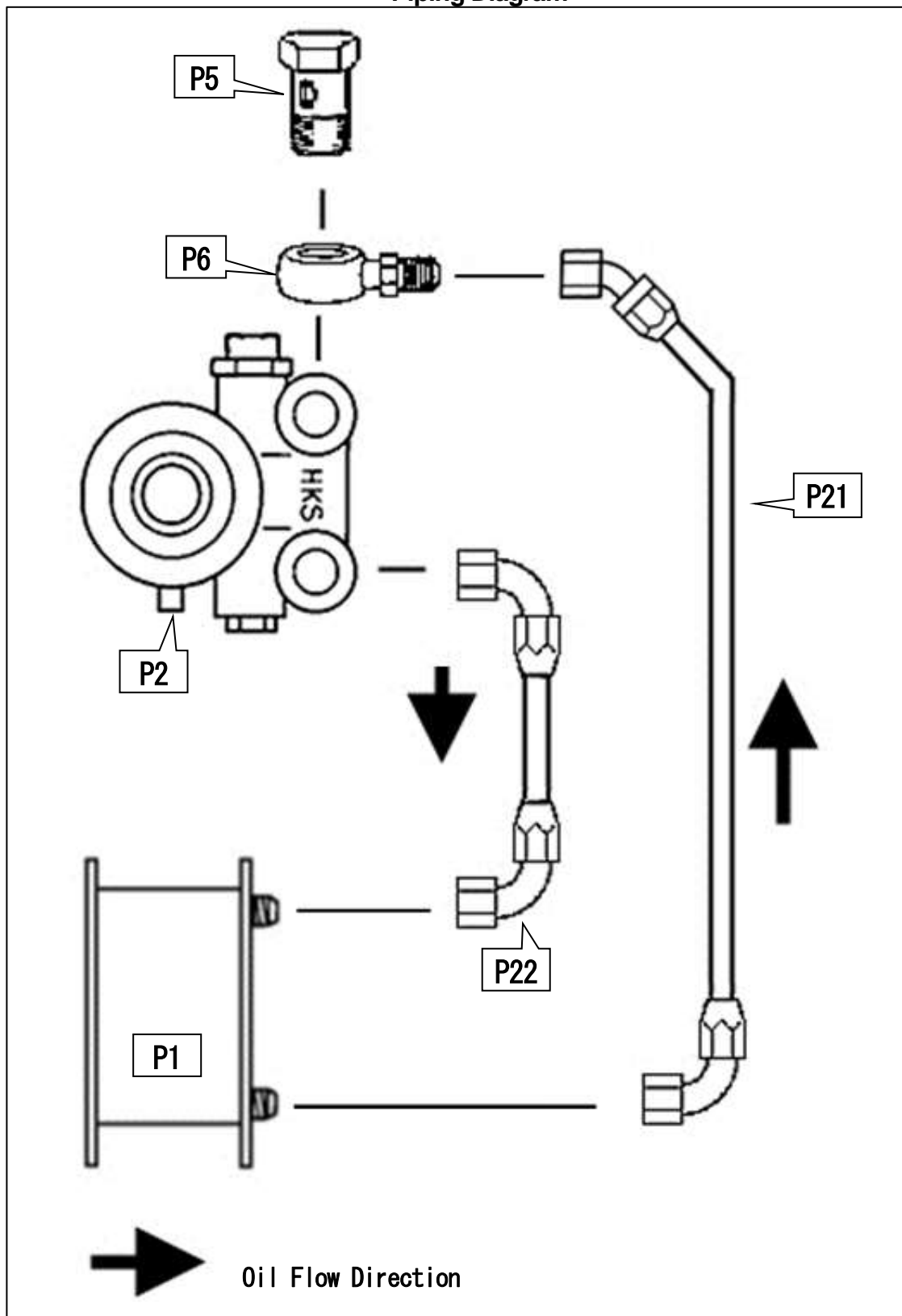
**WARNING:** Indicates risk of serious injury and/or possible death.

# PARTS LIST

NO.	DESCRIPTIONS	QT	IMAGE
1	Oil Cooler Core	1	
2	Oil Filter Mount	1	
3	Center Bolt	1	
4	Spacer	1	
5	Banjo Bolt	1	
6	Banjo	1	
7	O-ring	2	I.D. 55.6mm
8	Copper Washer $\phi 18$ $t=1.0$	2	
9	Conical Seal	4	
10	Core Bracket No.1	1	
11	Core Bracket No.2	1	
12	Core Bracket No.3	1	
13	Core Bracket No.4	1	
14	Bolt M8 L20	4	
15	Flange Nut M8	4	
16	Flat Washer M8	4	
17	Bolt M6 L15	8	
18	Flange Nut M6	8	
19	Flat Washer M6	6	
20	Flat Washer M6 Major Dia.	2	
21	Hose No. 1 45°—90°	1	
22	Hose No. 2 90°—90°	1	
23	Corrugated Tube	1	
24	Tie Wrap (L)	3	
25	Tie Wrap (M)	1	
26	Punching Plate	1	

27	Rivet	8	
28	Collar $\phi 20-10$ $t=5$	4	
29	Instruction Manual	1	
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**Piping Diagram**



## 1. REMOVAL OF FACTORY PARTS

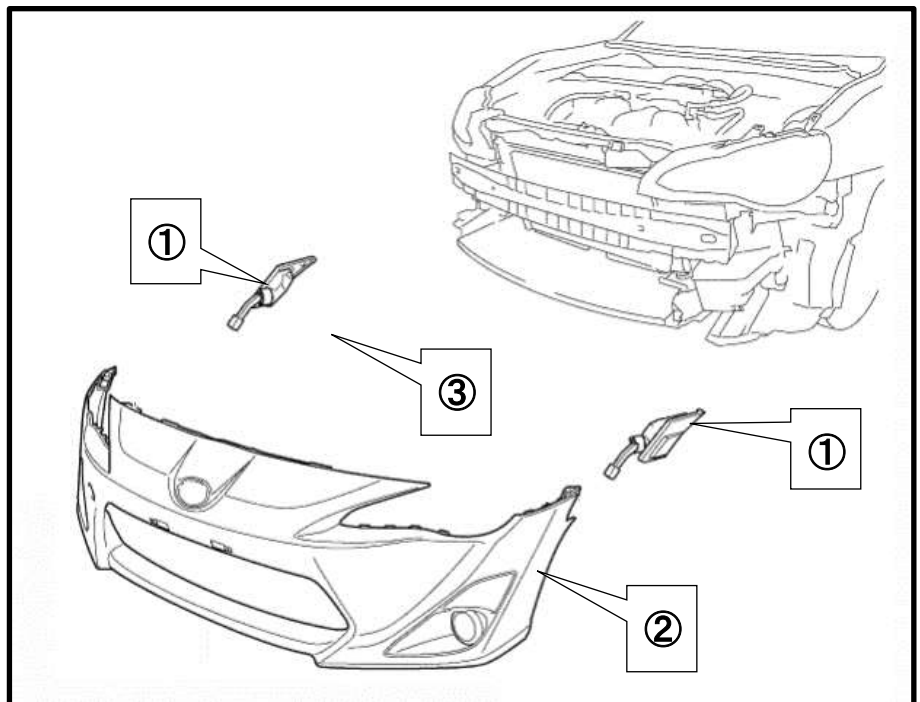
Before beginning removal of the factory parts, disconnect the negative cable from the battery terminal. Use this instruction manual and the manufacturer's service manual as a reference.

(18) Disconnect the negative cable from the battery.

(19)

(20) Remove ① side turn signal light from both sides.

(21) Remove ② front bumper.

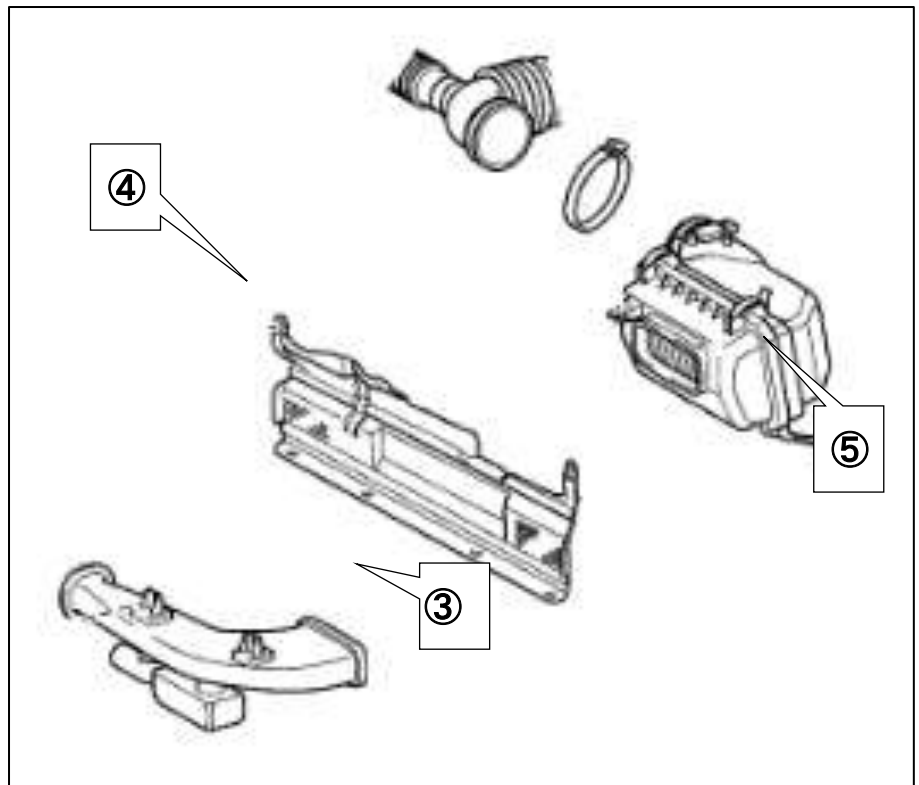


(22) —For 86— If the fog lights are installed, removed the lights. Cover the connector with vinyl tape to prevent water from entering to the connector.

(23) Remove ③ air cleaner duct.

(24) Remove ④ radiator cover plate.

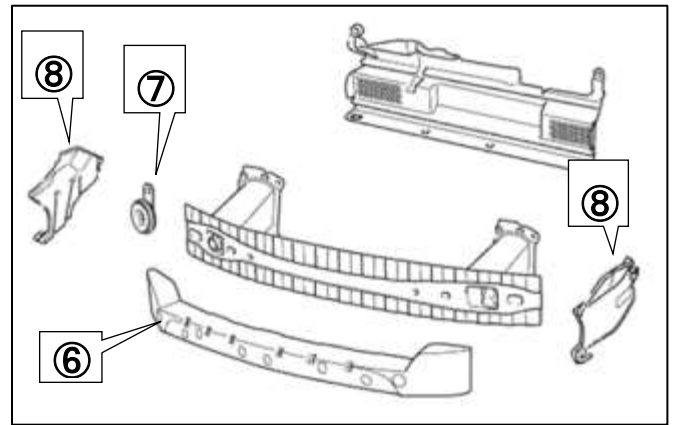
(25) Remove ⑤ air cleaner case.



(26) Remove ⑥ front bumper energy absorber.

(27) Remove ⑦ horn.

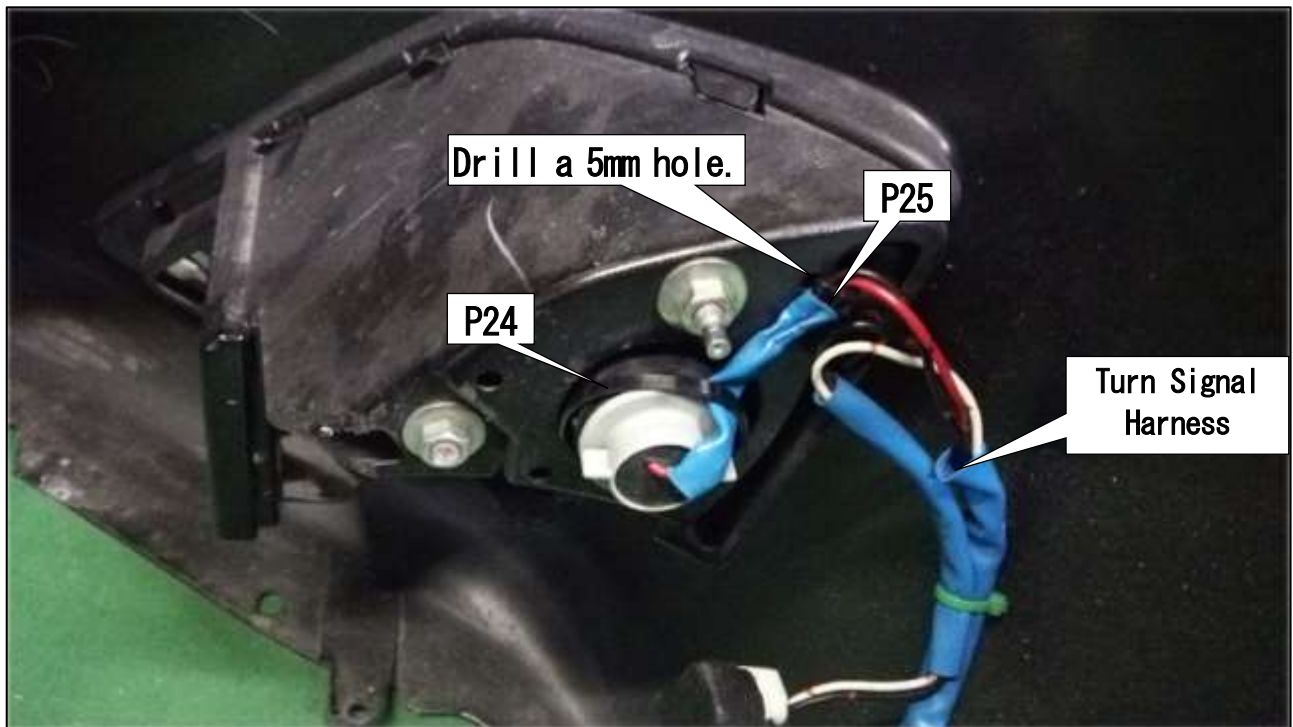
(28) Remove ⑧ front bumper reinforcement plate.



(29) —For 86 — Drill a 5mm hole in the place shown in the diagram below. Secure the turn signal harness so it does not come in contact with the oil cooler core using the provided Tie Wrap (L) and (M).

(ア) P24: Tie Wrap (L) x 1

(イ) P25: Tie Wrap (M) x 1



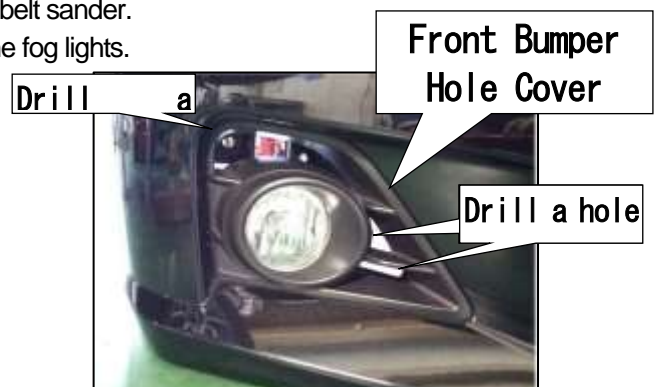
(30) Drill a hole in the right side front bumper hole cover for a cooling air inlet.

**NOTE**

- To easily drill a hole, shave from the back side using a belt sander.
- For BRZ, to increase the cooling air volume, remove the fog lights.



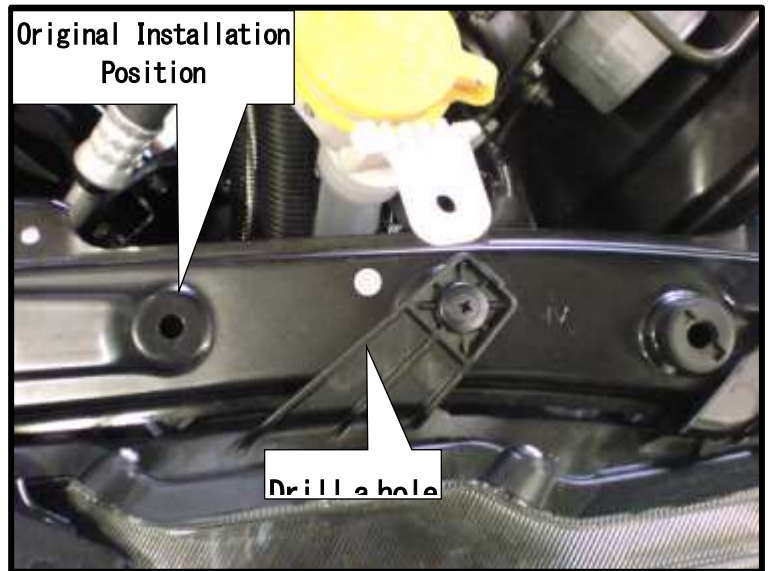
86



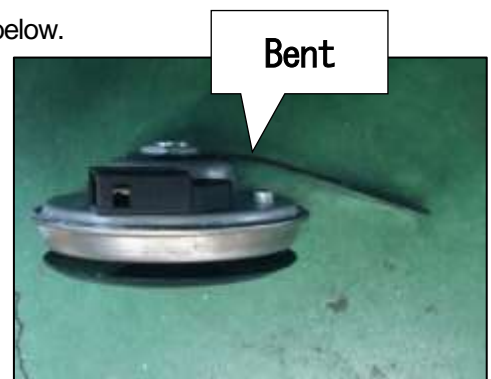
BRZ



- (31) Drill an 8mm hole in the position shown in the diagram on the right. Relocate the washer inlet.



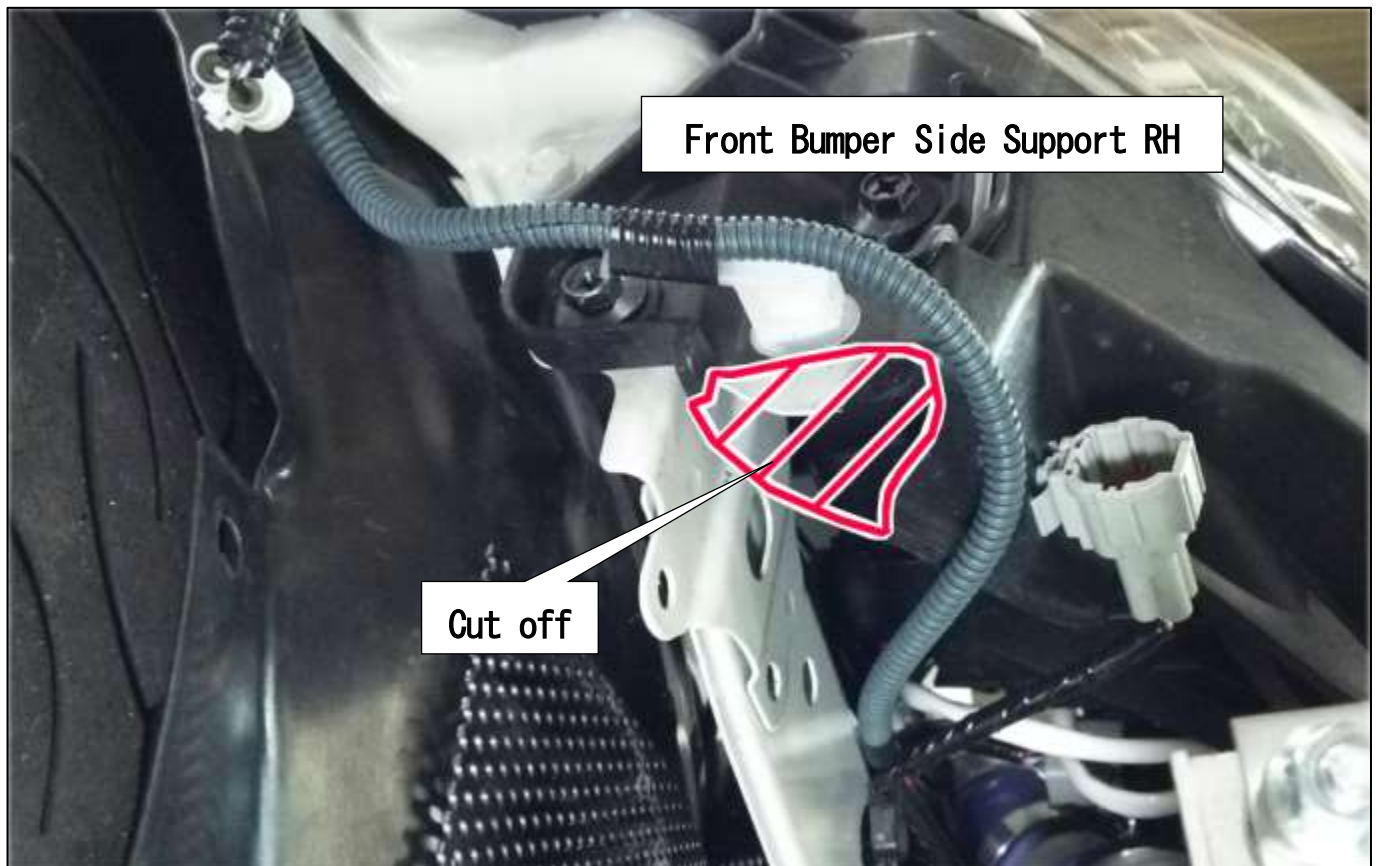
- (32) Bent the bracket of ⑦ horn removed in 1.(9) as shown in the diagram below.



- (33) Cut off the shaded portion of the right side front bumper side support in the diagram below.

**NOTE**

- For easier modification, use a handy belt sander.





(34) Remove ⑪ oil filter.

**NOTE**

- Before removing the oil filter, clean the installation surface on the engine side, and remove all dirt and/or foreign objects.



(35) Remove ⑫ oil filter union.

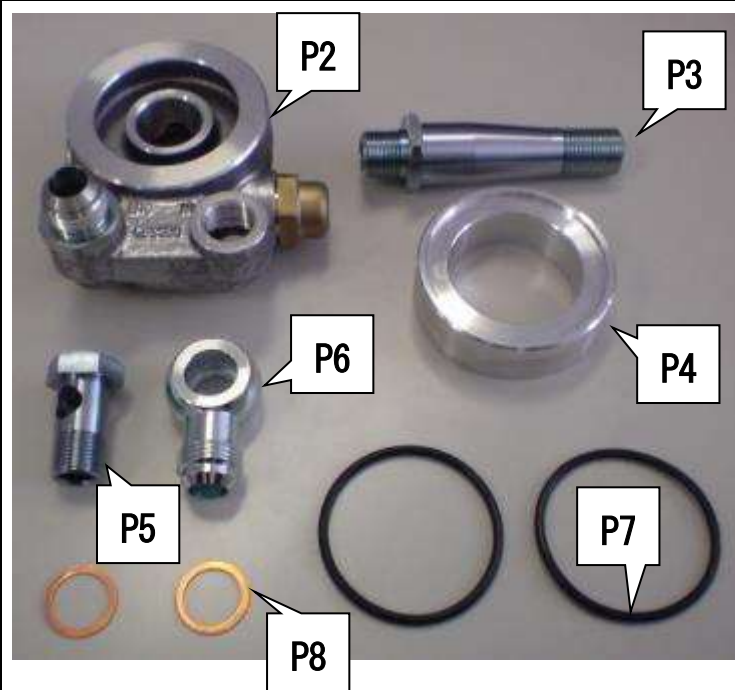
**NOTE**

- Prepare a waste cloth or container to catch oil spilled when removing the union.
- Cover the opening with a clean cloth during installation to prevent contaminants from entering the engine.



## 2. INSTALLATION OF OIL FILTER MOUNT

PARTS LIST



No.	Descriptions	Qt
P2	Oil Filter Mount	1
P3	Center Bolt	1
P4	Spacer	1
P5	Banjo Bolt	1
P6	Banjo	1
P7	O-ring	2
P8	Copper Washer $\phi 18$ $t=1.0$	2

キット内パーツ(オイルクーラコア、アタッチメントボルト、オイルクーラホース、オイルフィルターマウント、スペーサー、バンジョウボルト、バンジョウ、フィッティング)に、キズや異物の混入がないことを確認してください。

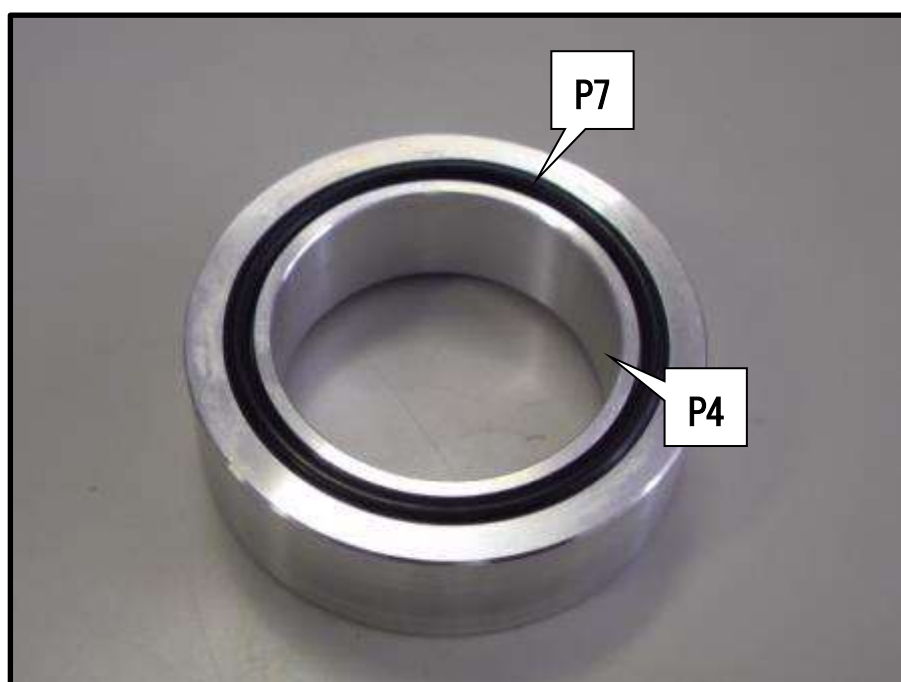
Make sure there is no scratch on kit parts (Oil Cooler Core, Bolts, Oil Cooler Hoses, Oil Filter Mount, Spacers, Banjo Bolt, and Fittings). Remove foreign objects from parts.

(8) Apply a thin coat of the engine oil to the O-ring.

•P7: O-ring x 1

(9) Install the O-ring to the groove on the Spacer.

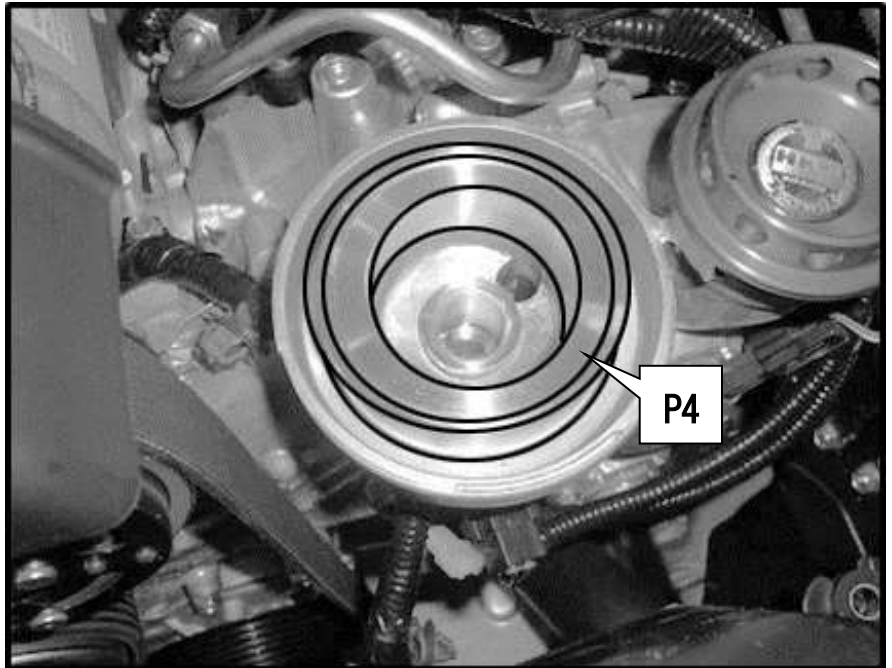
•P4: Spacer x 1



- (10) Temporarily install the Spacer with the O-ring to the engine filter installation position.

**NOTE**

- The O-ring must come to the engine side

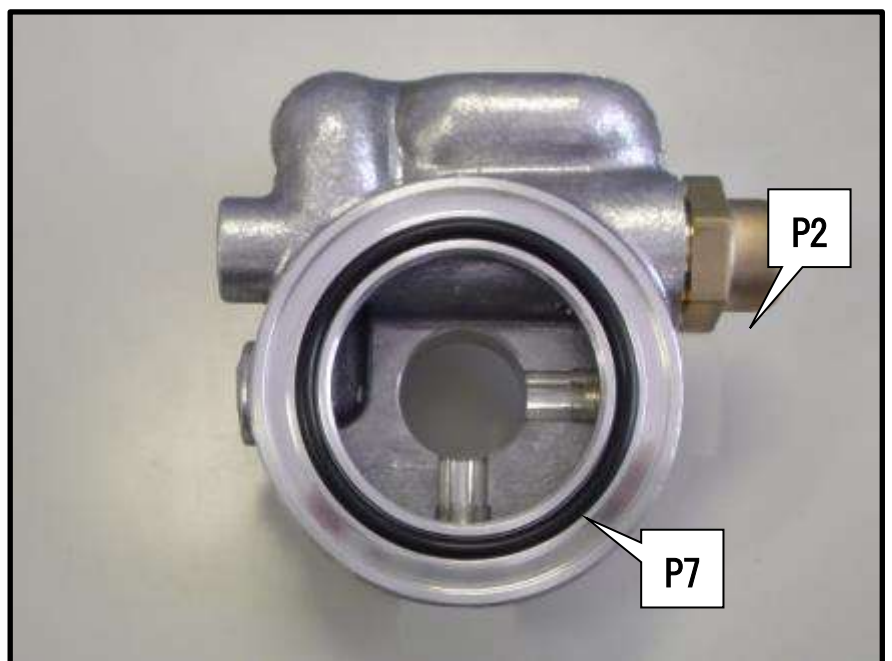


- (11) Apply a thin coat of the engine oil to the O-ring.

- P7: O-ring x 1

- (12) Install the O-ring to the groove on the inside of the oil filter mount.

- P2: Oil Filter Mount x 1



- (13) Place the Oil Filter Mount on the Spacer. Temporarily install the mount using the provided Center Bolt.

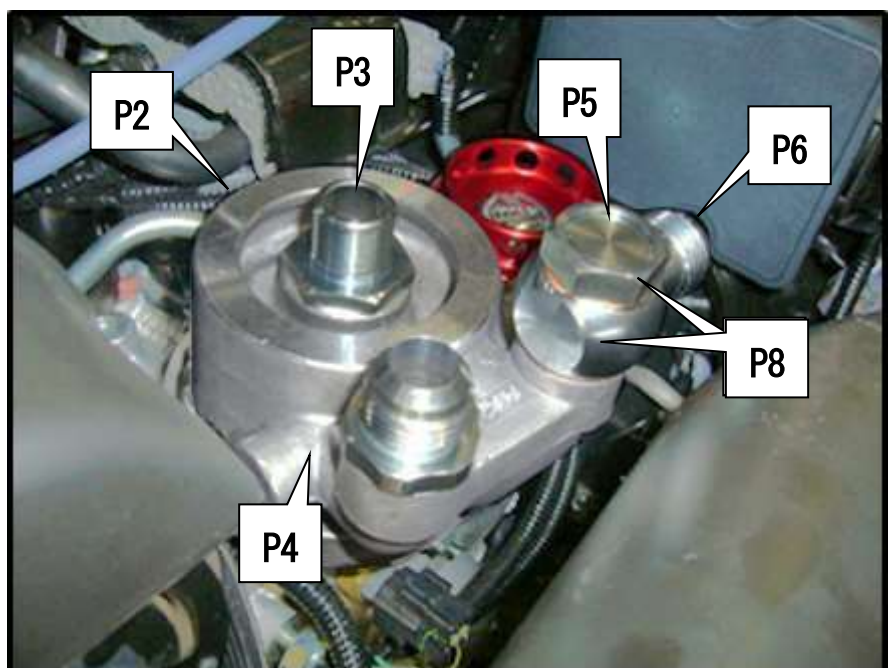
- P3: Center Bolt x 1

**NOTE**

- A convex part of the Spacer must fit into the Oil Filter Mount's groove.

- (14) Temporarily install the Banjo to the Oil Filter Mount using the provided Copper Washer, and Banjo Bolt.

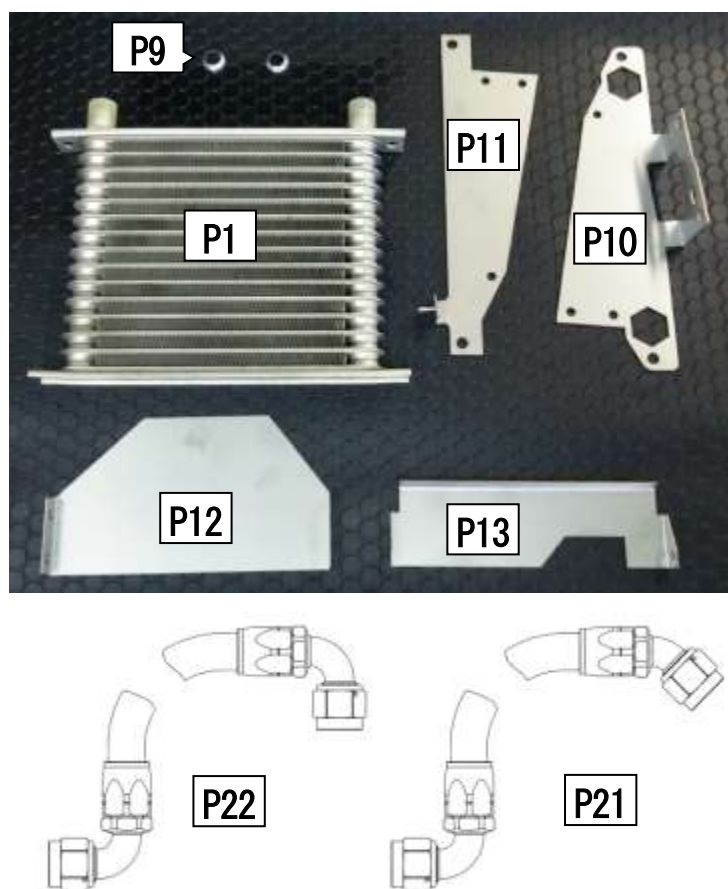
- P5: Banjo Bolt x 1
- P6: Banjo x 1
- P8: Copper Washer 18mm x 2





### 3. INSTALLATION OF OIL COOLER CORE

PARTS LIST



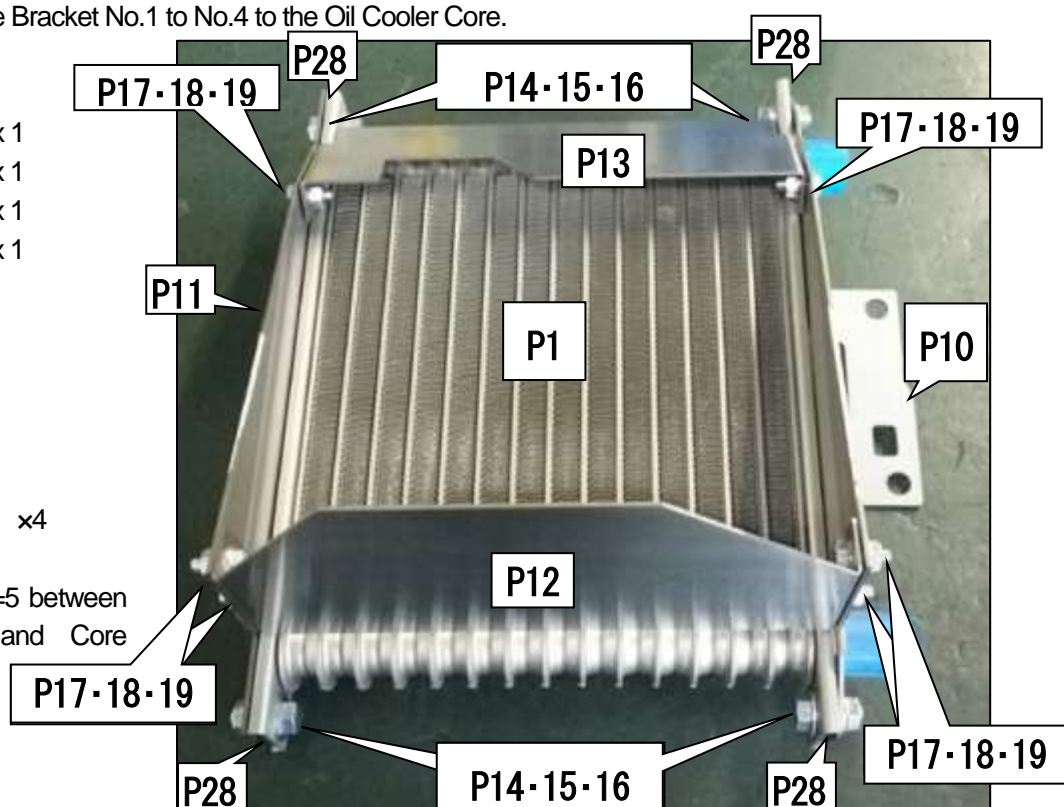
No.	Descriptions	Qt
P1	Oil Cooler Core	1
P9	Conical Seat	2
P10	Core Bracket No.1	1
P11	Core Bracket No.2	1
P12	Core Bracket No.3	1
P13	Core Bracket No.4	1
P14	Bolt M8 L20	4
P15	Flange Nut M8	4
P16	Flat Washer M8	4
P17	Bolt M6 L15	8
P18	Flange Nut M6	8
P19	Flat Washer M6	6
P20	Flat Washer M6 Major Dia.	2
P21	Hose No. 1 45°—90°	1
P22	Hose No. 2 90°—90°	1
P23	Corrugated Tube	1
P26	Punching Plate	1
P27	Rivet	8
P28	Collar φ20-10 t=5	4

(9) Temporarily install the Core Bracket No.1 to No.4 to the Oil Cooler Core.

- P1: Oil Cooler Core x 1
- P10: Core Bracket No.1 x 1
- P11: Core Bracket No.2 x 1
- P12: Core Bracket No.3 x 1
- P13: Core Bracket No.4 x 1
- P14: Bolt M8 L20 x 4
- P15: Flange Nut M8 x 4
- P16: Flat Washer M8 x 4
- P17: Bolt M6 L=15 x 6
- P18: Flange Nut M6 x 6
- P19: Flat Washer M6 x 6
- P28: Collar φ20-10 t=5 x4

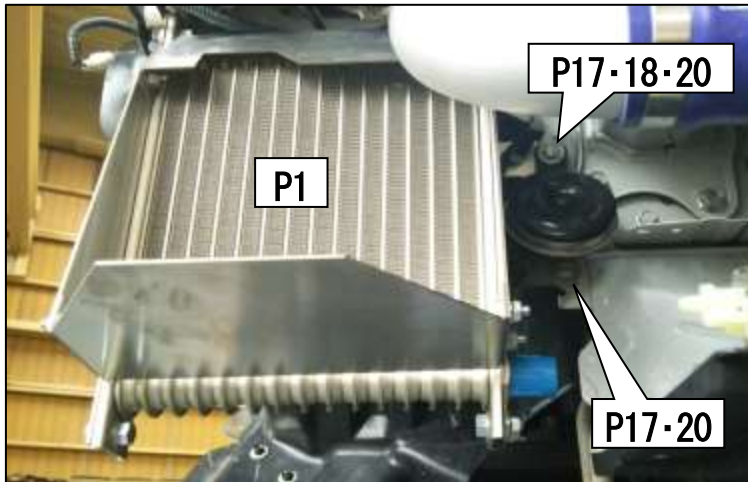
**NOTE**

- Insert the Collar φ20-10 t=5 between the Oil Cooler Core and Core Brackets.



(10) Temporarily install the Oil Cooler Core to the vehicle. Put a mark of the Punching Plate's installation position for the front fender liner.

- P17: Bolt M6 L=15 × 2
- P18: Flange Nut M6 × 2
- P20: Flat Washer M6 Major Dia. x 2



(11) Remove the Oil Cooler Core. Cut off the front fender liner along the mark.

**NOTE**

- Cut off approximately to 190mm x 190mm.  
(The size of the Punching Plate is 250mm x 250mm.)

(12) Drill a hole to install the Punching Plate to the front fender liner using a 3.5mm drill.

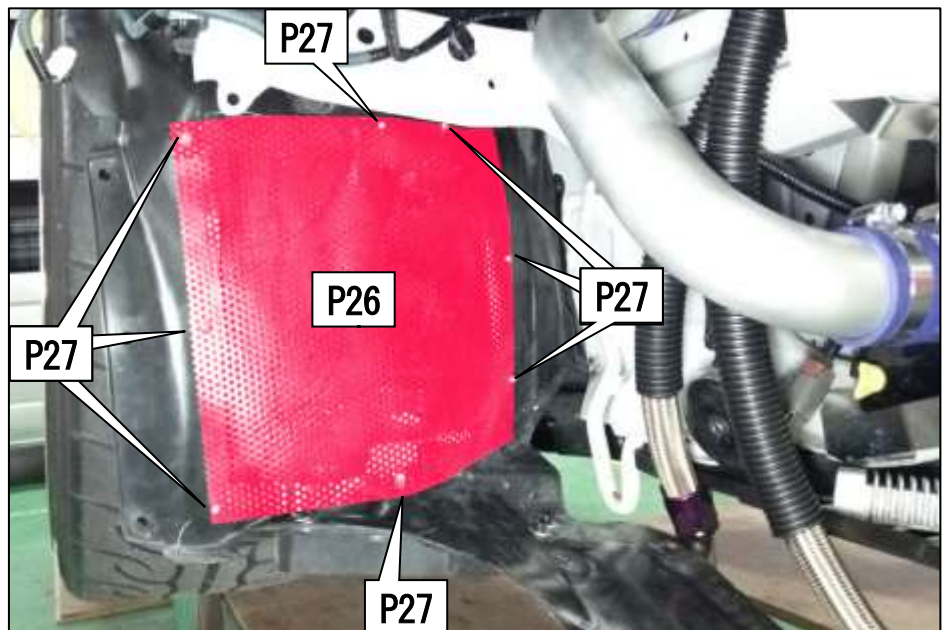
- P26: Punching Plate x 1

**NOTE**

- It is necessary to enlarge the hole on the side of the Punching Plate.
- Change the shape of the Punching Plate to fit the front fender liner.

(13) Install the Punching Plate to the front fender liner using the provided Rivets.

- P27: Rivet x 8



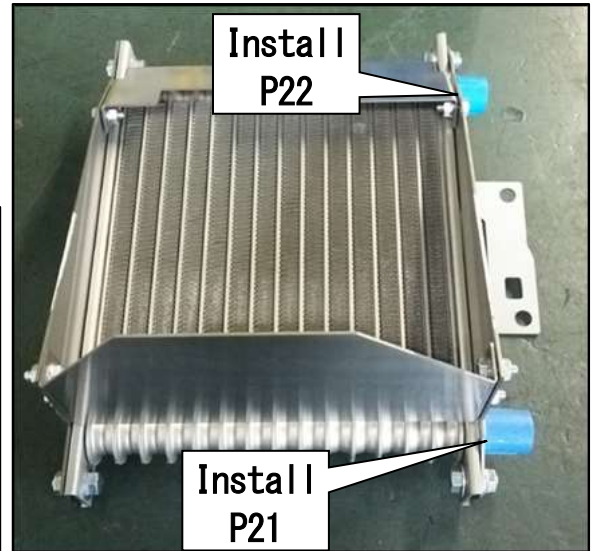
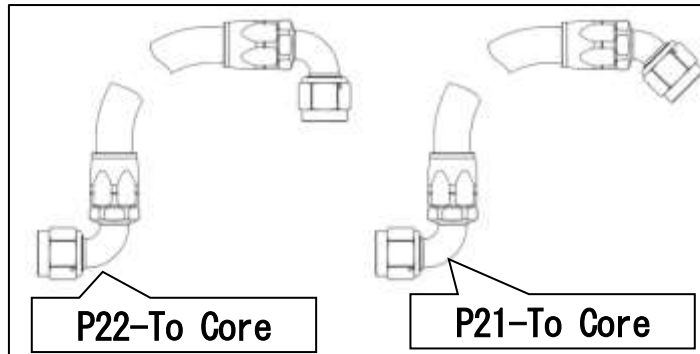
(14) Cut the Corrugated Tube to ①1650mm and ②1530mm. Install ① to the Hose No.1 45°-90° and ② to the Hose No.2 90°-90°.

- P23: Corrugated Tube x 1



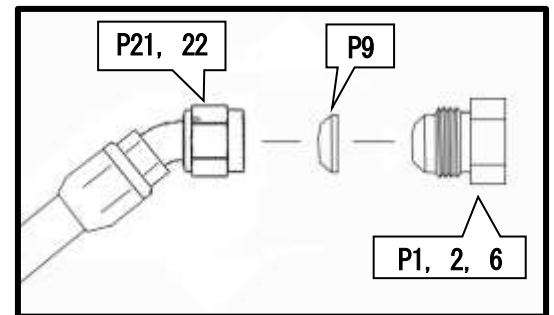
(15) Temporarily install the Hose No.1 45°-90° and Hose No.2 90°-90° to the Oil Cooler Core.

- P9: Conical Seal x 2
- P21: Hose No.1 45°-90° x 1
- P22: Hose No.2 90°-90° x 1



**NOTE**

- Install the hoses as shown above. Make sure to install the Hose No.1 45°-90° and Hose No.2 90°-90° in the correct direction.
- Use the Conical Seal as a sealing agent to connect the hose fitting and union.



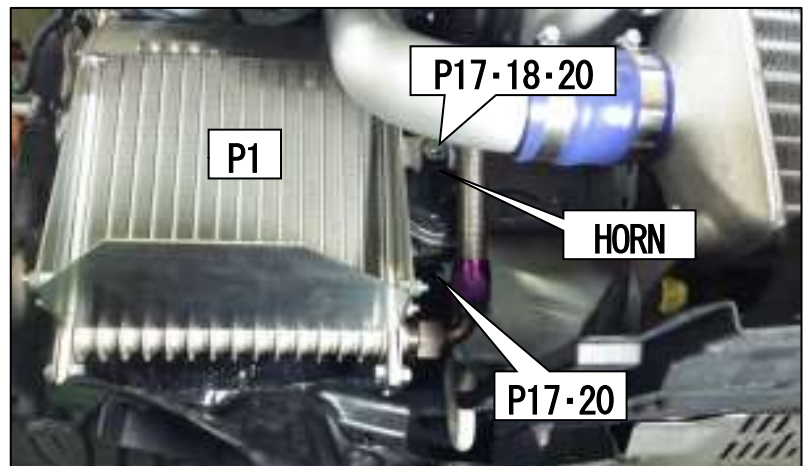
**CAUTION**

- Do not use sealing tapes to the unions of the oil cooler core and oil filter mount, and banjo. If neglected, a tape may get inside the engine, which may result in the engine damage.
- Make sure the hoses temporarily installed are not bent or twisted. If neglected, the amount of the engine oil flow may be decreased, which may result in the engine damage.

(16) Install the Oil Cooler Core to the vehicle.

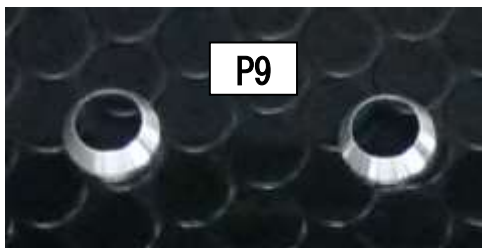
**NOTE**

- Install the horn together with the core by tightening the installation bolt shown in the diagram below:



## 4. INSTALLATION OF OIL COOLER HOSES

### PARTS LIST

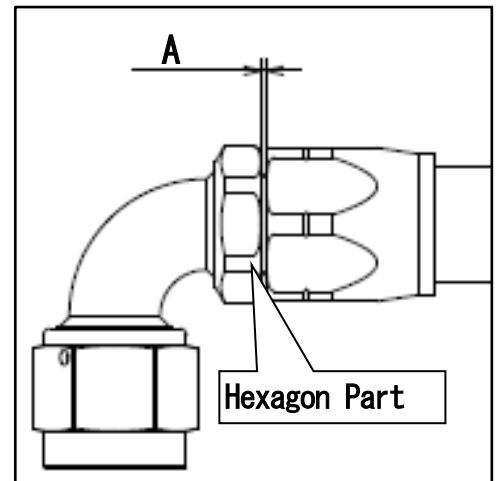


No.	Descriptions	Qt
P9	Conical Seal	2
P24	Tie Wrap (L)	2

- (6) Tighten the fittings' hexagon parts of the Oil Cooler Hose No.1 45°-90° and No.2 90°-90° on the engine side. Adjust the installation angle of the Oil Filter Mount and Banjo.

**NOTE**

- Turn the fittings' hexagon parts to the right to tighten them ((Approximately 30° to 40°) referring to the layout in the diagram. Make sure the hoses can be installed easily without being twisted.
- Use 2 adjustable wrenches for easier installation.



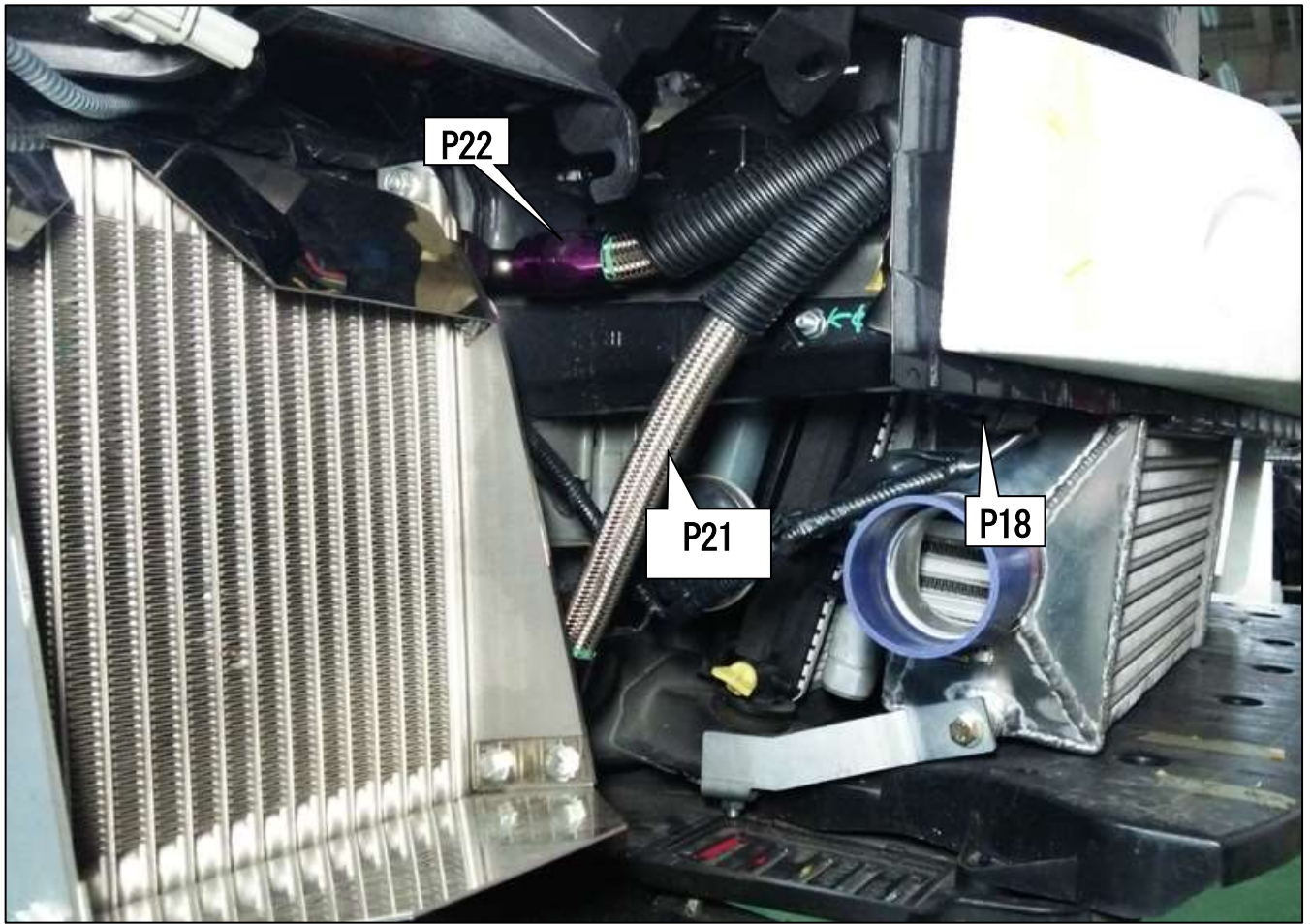


## CAUTION

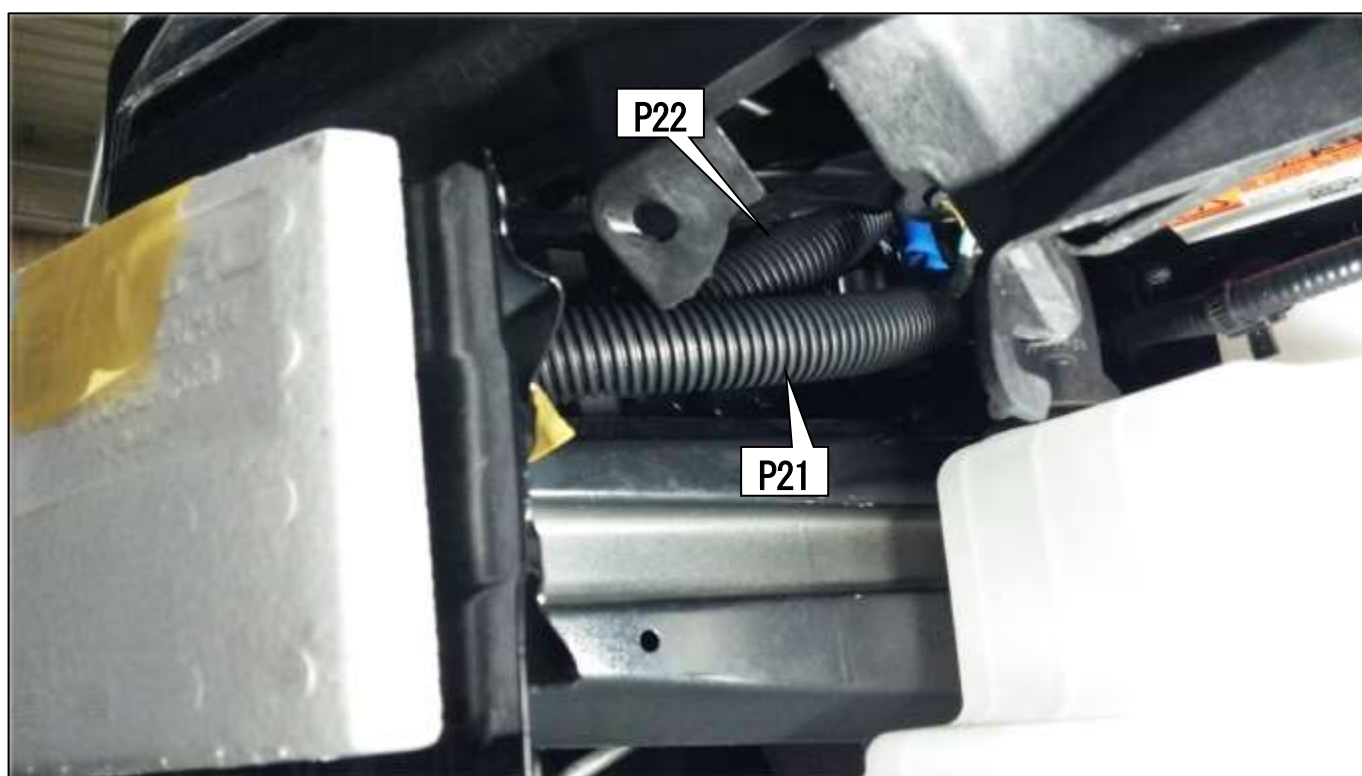
- When adjusting the angle, turn the fitting in the direction of tightening. If the fitting is turned in the opposite direction, the hose may be damaged.
- After adjusting the angle, the gap “A” should be between 0.7mm to 1.0mm. (See the diagram on the previous page.) If the gap “A” is not within the designated distance, the tightening allowance is not appropriate that may result in breakage of a hose.
- When adjusting the angle, do not tighten the fitting more than 90°. If it is necessary to tighten more than 90°, the installation direction of the hose may be incorrect.
- Make sure the hoses temporarily installed are not bent or twisted. If neglected, the amount of the engine oil flow may be decreased, which may result in the engine damage. Also, a hose may be damaged due to overload.
- Do not repeatedly tighten and loosen the hexagon parts. It may damage a hose.



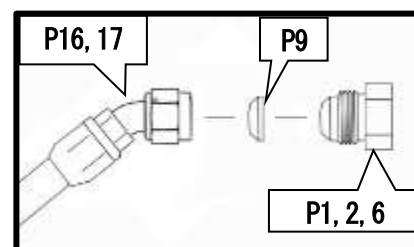








- (7) Temporarily install the Oil Cooler Hose No.1 45°-90° and No.2 90°-90° to the Oil Filter Mount and Banjo.  
 •P9: Conical Seal x 2



- (8) Temporarily install the air cleaner case. Adjust the position of the Oil Filter Mount. Make sure the hoses do not come in contact with any other parts of the vehicle. Tighten the Center Bolt and Banjo.

Tightening Torque N·m(kgf·m)

Center Bolt: T=45(4.6)

Banjo Bolt: T=39.2(4)

- (9) Make sure the Oil Cooler Hose No.1 45°-90° and No.2 90°-90° do not come in contact with any other parts of the vehicle; then, tighten bolts to install the Oil Cooler Hose.

Tightening Torque N·m(kgf·m)

T=14.7~17.7(1.5~1.8)



#### CAUTION

- Make sure the hoses are not bent or twisted. If neglected, the amount of the engine oil flow may be decreased, which may result in the engine damage.

- (10) Secure the Oil Cooler Hose No.1 45°-90° and No.2 90°-90° using the provided Tie Wrap (L).

•P24: Tie Wrap (L)



## 5. REINSTALLATION OF FACTORY PARTS / INITIAL CHECK-UP

- (1) Install the oil filter to the Oil Filter Mount..

- (2) Add the adequate amount of the engine oil.

#### NOTE

The use of HKS' engine oil is recommended.

- (3) Reconnect the negative terminal to the battery.

- (4) Start the engine. Check the following after idling (when the oil temperature exceeds 75°C):

- Make sure oil is not leaking.
- Make sure the oil cooler hoses do not come in contact with any other parts of the vehicle.

- (5) Reinstall the factory parts ① to ⑧.

※ After the installation process is complete, check all items listed in the “Confirmation After Installation” section of the Instruction Manual.

※