

TURBO KIT

Scion FR-S ZN6
Subaru BRZ ZC6

Installation

Vehicle Type	Chassis Code	Engine Code	Transmission	Model Year
Scion FR-S	DBA-ZN6	FA20	6MT/AT	2013 ~
Subaru BRZ	DBA-ZC6	FA20	6MT/AT	2013 ~

The manufacturers state that the exhaust manifold nuts should not be reused.

Please purchase new parts from the dealer prior to installation of this turbo kit.

1. Parts List

1.	Turbo Charger			1
2.	Exhaust Manifold	(SUS 42.7φ-50.8φ)		1
3.	Down Pipe	(50φ-60φ)		1
4.	Test Pipe			1
5.	Compression Tube	C-1	(Aluminum 50φ)	1
6.	"	C-2	(Aluminum Elbow 60φ-70φ)	1
7.	"	C-3	(Aluminum 70φ)	1
8.	Intake Tube Adapter Flange		(Aluminum 60φ)	1
9.	Intake Tube		(Aluminum 70φ)	1
10.	Intercooler Type 40 E			1
11.	Oil Pressure Hose	SUS 600mm		1
12.	"	Banjo Bolt Male Female (small)		1 set
13.	"	Copper Crush Washer 10φ (t=1.0)		2
14.	"	Fitting 3 Way 1/8PT × 3		1
15.	"	Fitting Straight 1/8PT-1/8PT		1
16.	"	Fitting 90° 1/8PT-1/8PT		1
17.	Oil Return Tube with Flange	16φ		1
18.	Oil Return Tube (Weld onto Oil Pan)	16φ		1
19.	Free Rotation Union	1/8PT-5φ		1
20.	Hose Union	12φ		1
21.	Silicone Cap	15.5φ		1
22.	Vacuum	5φ × 150mm		1
23.	Blow By Hose	12φ × 150mm		1
24.	Oil Return Hose	15φ × 290mm		1
25.	Silicone Hose	50φ × 70mm		1
26.	"	60φ × 70mm		1
27.	"	70φ × 70mm		2
28.	Reducer Hose	50φ-60φ		1
29.	"	60φ-70φ		1
30.	Hose Clamp	12φ	Tridon #6	2
31.	"	16φ	Tridon #8	2
32.	"	50φ	Tridon #32	3
33.	"	60φ	Tridon #36	4
34.	"	70φ	Tridon #44	6

35.	Gasket	Turbine IN							1
36.	"	Turbine OUT							1
37.	"	Intake Tube Adapter Flange							1
38.	"	Small Oil Return							1
39.	"	Cylinder Head to Turbo Manifold (Exhaust Manifold)							2
40.	"	Test Pipe							2
41.	Heat Shield	Turbine							1
42.	Heat Shield	Turbo Manifold							1
43.	Heat Wrap	100mm × 1000mm							2
44.	Zip Tie	150mm							10
45.	Turbo Mounting Bracket	A							1
46.	Turbo Mounting Bracket	B							1
47.	Steel Spacer	A Turbo Bracket to Pulley							1
48.	Steel Spacer	B Turbo Bracket to Pulley							1
49.	Oil Return Hose Bracket								1
50.	Test Pipe Bracket								1
51.	Intercooler Bracket								1
52.	Intercooler Bracket Spacer								2
53.	AIRINX	AY—SB							1
54.	AIRINX	Adapter (S70)							1
55.	M4 × 10mm	P0. 7		Cap Bolt			(Airflow Sensor)		2
56.	M5 × 10mm	P0. 8	Stainless	Cap Bolt			(Exhaust Manifold Heat Shield)		4
57.	M6 × 8mm	P1. 0	Steel	Bolt Set			(Turbine Heat Shield)		3
58.	M6 × 15mm	P1. 0	Stainless	B S/W	—	—	(Oil Return)		2
59.	M6 × 15mm	P1. 0	Stainless	B S/W	F/W	—	(Intercooler Upper Bracket)		1
60.	M6 × 30mm	P1. 0	Stainless	B	—	—	(Intercooler Lower Bracket)		2
61.	M6	P1. 0	Steel	Flange Nut			(Intercooler Lower Bracket)		2
62.	M8 × 15mm	P1. 25	Stainless	B S/W	F/W	—	(Intercooler)		1
63.	M8 × 20mm	P1. 25	Stainless	B S/W	F/W	—	(Turbine Bracket)		4
64.	M8 × 35mm	P1. 25	Stainless	B S/W	F/W	N	(Turbine In)		1
65.	M8 × 30mm	P1. 25	Stainless Stud	B S/W	—	N	(Turbine In & Suction Adapter)		5
66.	M8 × 33mm	P1. 25	Stainless Stud	B S/W	—	N	(Turbine Out)		5
67.	M10 × 35mm	P1. 25	Steel	B S/W	—	N	(Down Pipe & Test Pipe)		4
68.	M10 × 50mm	P1. 25	Steel	Flange Nut			(Turbine Bracket)		2

Parts List Diagram



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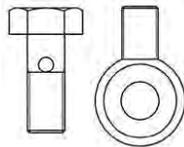
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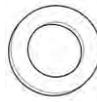
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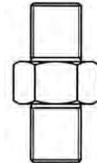
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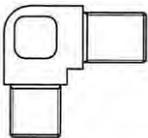
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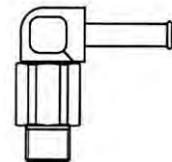
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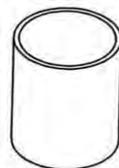
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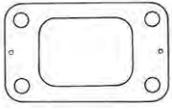
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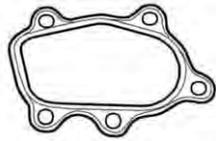
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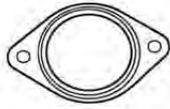
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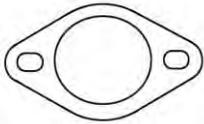
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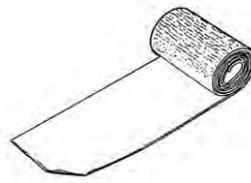
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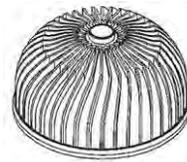
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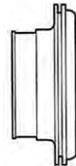
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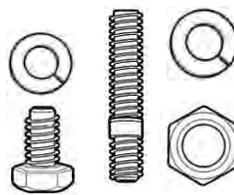
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58~67



68

2. Removing OEM Parts

Refer to the factory service manual prior to the uninstillation of OEM parts.

- 2-1 Disconnect the negative battery terminal.
 - 2-2 Remove the under-cover, front bumper cover.
 - 2-3 Remove the washer tank.
 - 2-4 Remove front bumper reinforcement.
 - 2-5 Remove the exhaust manifold.
 - 2-6 Remove the air clear case assembly.
 - 2-7 Remove oil pan.
 - 2-8 Remove the oil pressure switch.
 - 2-9 Remove engine oil pan (Sub Assembly No2).
 - 2-10 Remove the intake chamber Assembly to the L Joint (below the brake booster).
- ※ Install the 5mm silicon cap to the L-shaped joint pipe.
〈Part # 21, 44〉

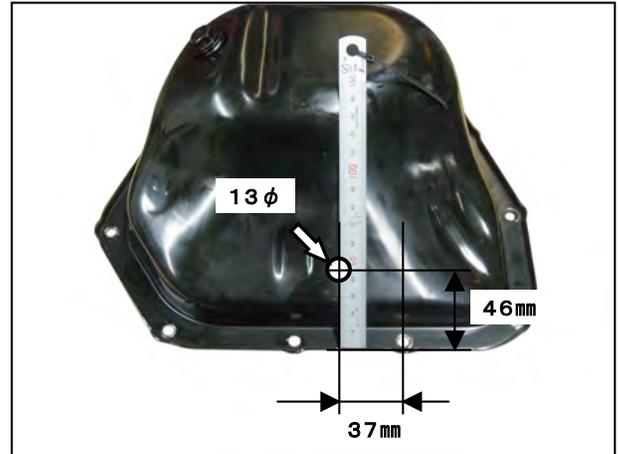
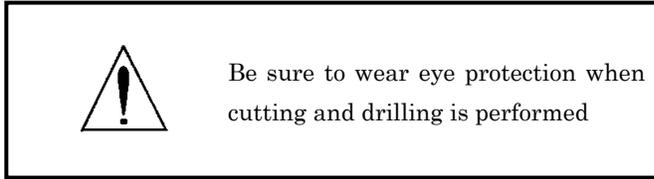


- 2-11 Remove the air cleaner inlet assembly and radiator cover plate.
- 2-12 Remove the radiator support sub assembly.
- 2-13 Remove the radiator fan, radiator fan shield and radiator reservoir tank..

3. Turbo Kit Mounting

3-1 Oil return tube positioning

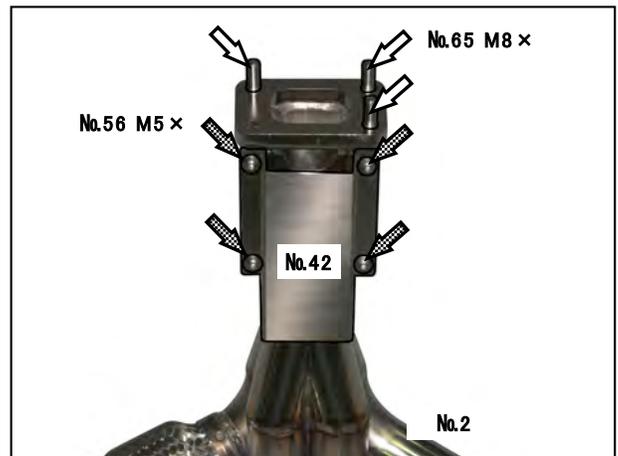
- (1) Tap a 13mm hole into the oil pan location shown in the diagram



- (2) Install the stud bolts and heat shield onto the turbo manifold.

※ Install 3 stud bolts via white arrows.

〈Part # 2, 42, 56, 65〉



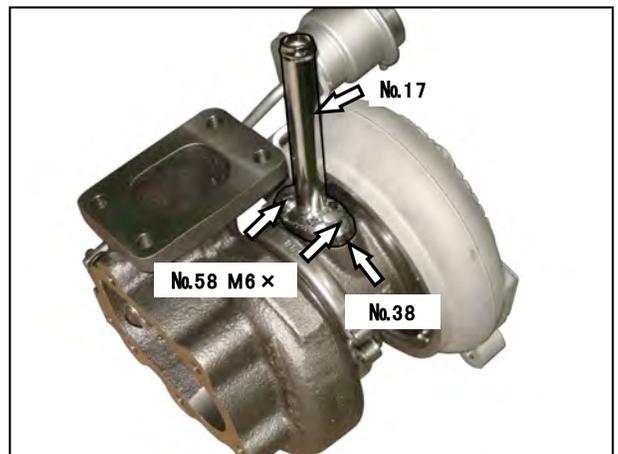
- (3) Temporarily install the oil pan, turbo manifold and gasket.

※ This to aide in marking the Location for the oil return tube. 〈Part # 39〉



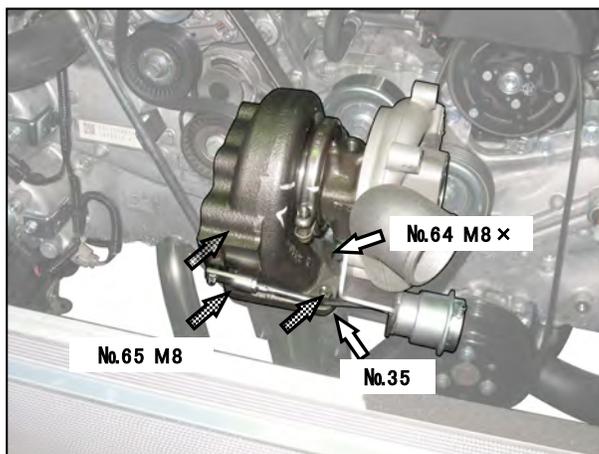
- (4) Install the oil return tube and gasket onto the turbo.

〈Part # 1, 17, 38, 58〉



- (5) Temporarily install the turbo and gaskets using the OEM bolts.

〈Part # 35, 64, 65〉



- (6) Install the oil return hose bracket using the OEM bolt shown via white arrow.

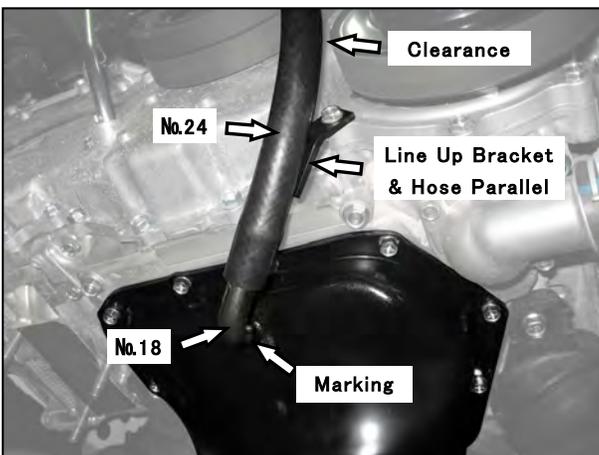
〈Part # 49〉



- (7) Mark the oil return tube in order to have the correct positioning.

- ※ Be sure that the oil return tube does not touch the crank pulley, and that it is aligned with the oil return hose bracket.

〈Part # 18, 24〉



3-2 Oil Pan Tapping

- (1) Remove the turbo charger, turbo manifold, gaskets and oil pan.
- (2) Weld on the oil return tube using the Location & Positioning markings that were marked previously.



Be sure to wear protective goggles and gloves when welding.
After welding, we recommend painting the surface to prevent rust.



〈Parts No.18〉

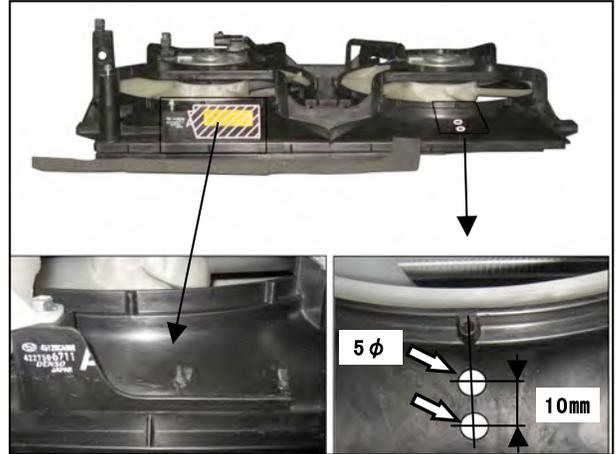
3-3 Installation of Oil Pan

Install oil pan.

※ Use liquid gasket.

3-4 Insulation of Electrical Harness

- (1) Cut out the portion of the radiator fan shield shown in diagram marked with diagonal lines.
- (2) On the right side of the radiator fan shield, drill out two 5 mm holes as shown in the diagram.

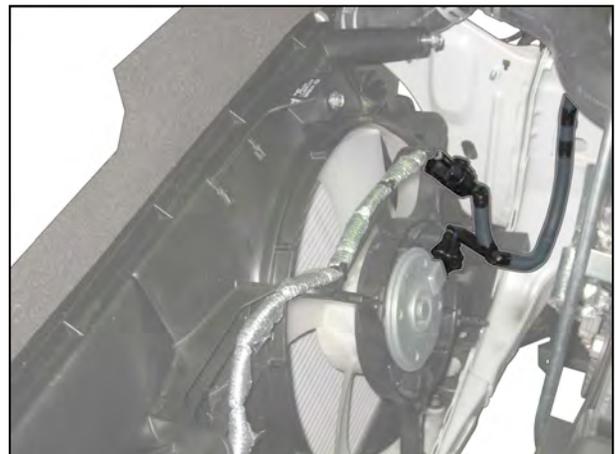


※ Change the location of the radiator fan harness and wrap with thermo wrap.

〈Parts No.43, 44〉



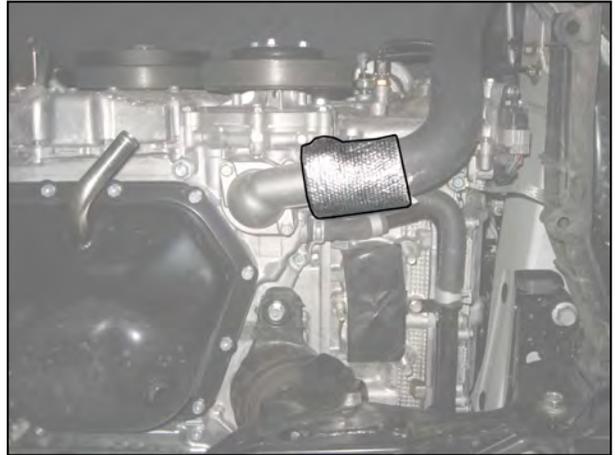
- (3) Reinstall the radiator fan, radiator fan shield, reservoir tank and reconnect the radiator fan harness coupler.



3-5 Turbo Manifold Installation

- (1) Wrap the lower radiator hose with thermo wrap as shown in the diagram.

〈Parts No.43〉



- (2) Install turbo manifold and test pipe bracket.

※ Be sure to purchase new replacement nuts from the dealer. Do not re-use original nuts.

Toyota **SU003-02873**

Subaru **902370010**

〈Parts No.2, 39, 50〉

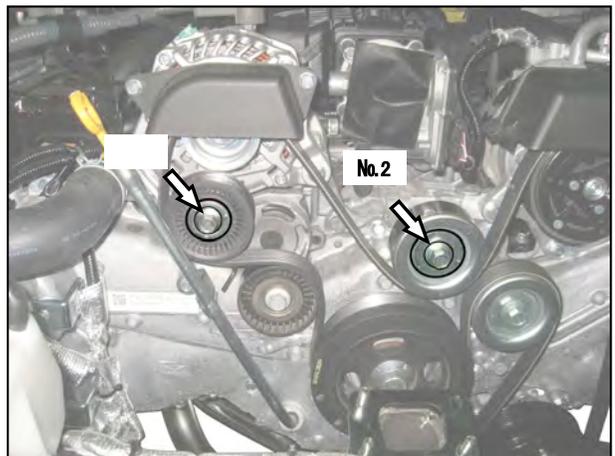


3-6 Installation of Turbo Charger

- (1) Loosen the tensioner pulley by turning the bolt head clockwise. Insert pin or hex key into the orifice to keep tension off of the pulley as shown via white arrow.



- (2) Remove the Idler pulley's 1 & 2.



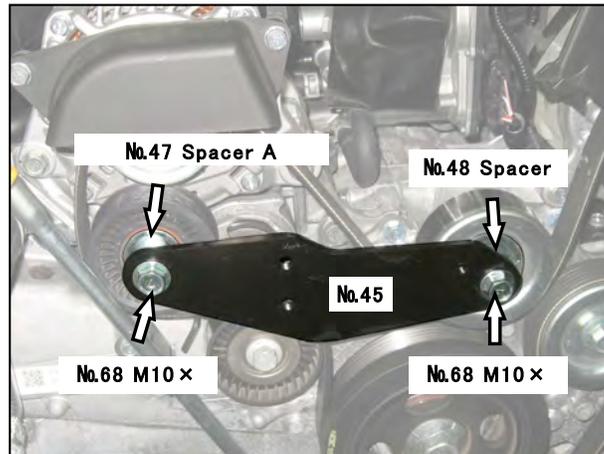
(3) Install the Turbo Mounting Bracket A. Using the Turbo Bracket to Pulley Spacers A & B, ◦

※ Turbo Bracket to Pulley Spacers A has a lip, be sure that this lip is inserted into the Idler Pulley.

※ When installing the Turbo Mounting Bracket, be sure to not remove the serpentine belt.

Pulley Bolt Torque Specs 36Nm(3.67kgf-m)

〈Parts No.45, 47, 48, 68〉

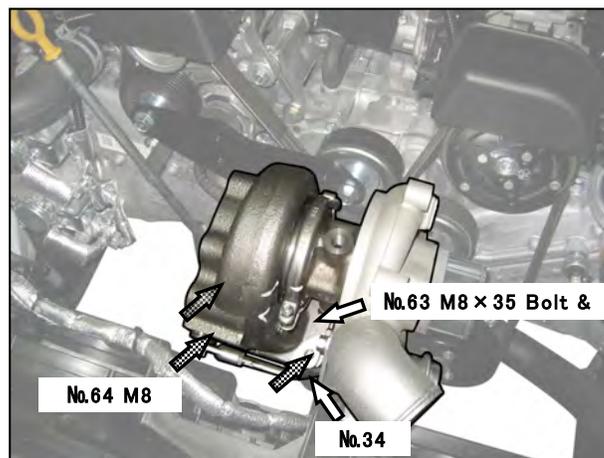


(4) Verify that the serpentine belt is seated on each pulley, from then on release the tensioner pulley.



(5) Install the Turbo assembly, and install the turbine inlet gasket.

〈Parts No.1, 35, 64, 65〉



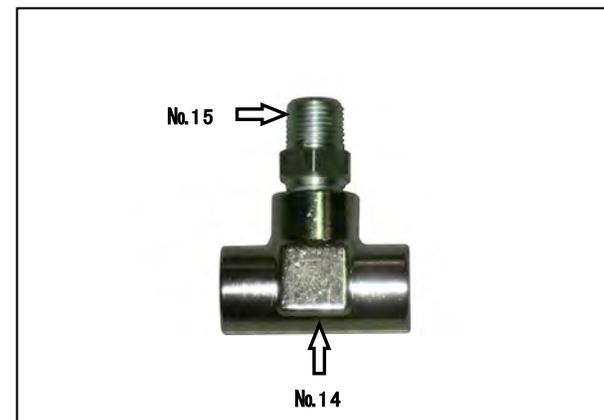
3-7 Three Way Oil Fitting

(1) Install 1/8PT- 1/8PT Straight Union into the Three Way Fitting as shown in the diagram.

※ Be sure to use thread seal.

※ Too much thread seal or an excess may lead to oil feed blockage.

※ Be sure not to over tighten the straight union fitting ◦



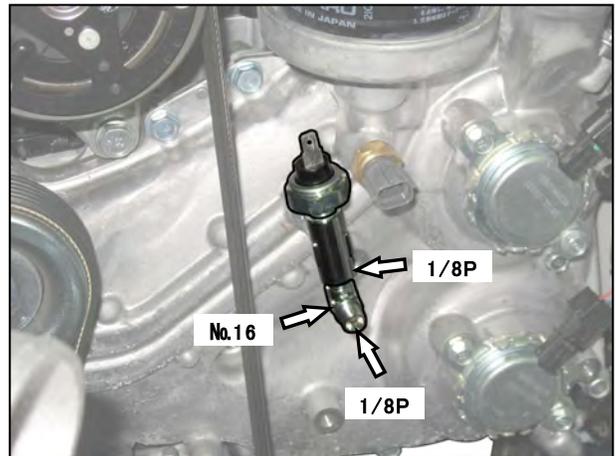
〈Parts No.14, 15〉

- (2) Install the factory oil switch onto the 3 way fitting as shown in the diagram.
- ※ Be sure to use thread seal.



- (3) Install the 1/8PT - 1/8PF 90 degree elbow fitting on the opposite side of the Oil Pressure Switch as shown in the diagram.
- ※ Insert 1/8PT portion in to the 3 way fitting.
 - ※ Be sure to use thread seal.

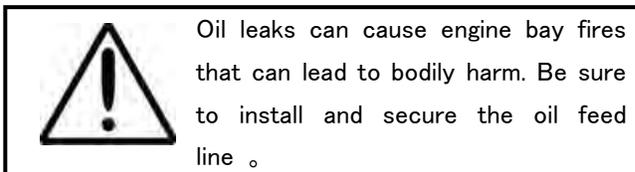
〈Parts No.16〉



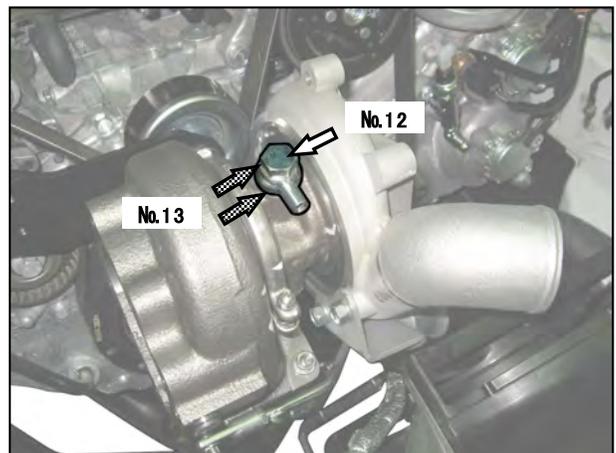
- (4) Reconnect the Oil Pressure Switch Harness.



- (5) Install the Banjo Bolt and crush washer as shown in the diagram.
- ※ Be sure that the 1/8PT side faces towards the front of the vehicle.

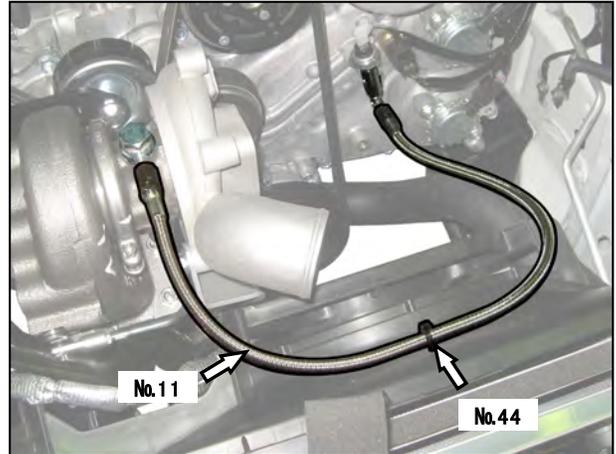


〈Parts No.12, 13〉



- (6) Install the Oil Pressure Line between the Banjo Fitting and 90 degree elbow. Mount the Oil Pressure Line to the Radiator Fan Cover using supplied Zip Ties.

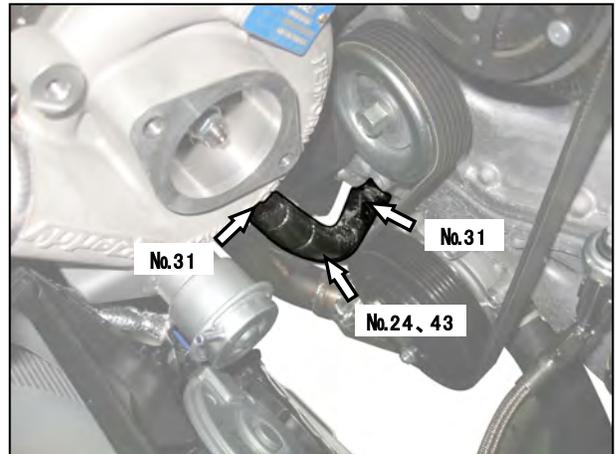
〈Parts No.11, 44〉



3-8 Oil Return Hose Installation

- (1) Route the Oil Return Hose between the Turbo and Oil Pan wrapped in thermo cloth.
- ※ Completely wrap the hose with thermo cloth make sure there are no exposed areas.

〈Parts No.24, 31, 43〉



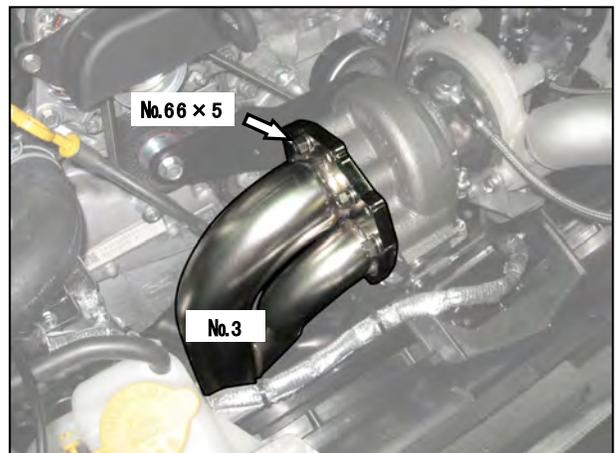
- (2) Mount the Oil Return Hose to the Oil Return Hose Bracket. We recommend using stainless steel wire.



3-9 Down Pipe Installation

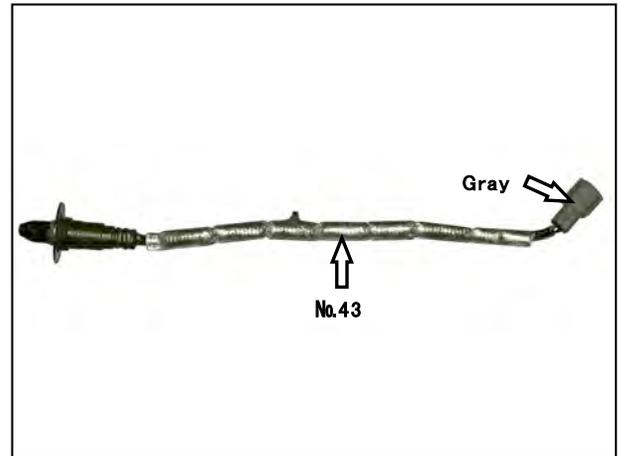
- (1) Install the Down Pipe and Turbine Outlet Gasket using the supplied hardware in the orientation shown in the diagram.

〈Parts No.3, 36, 66〉



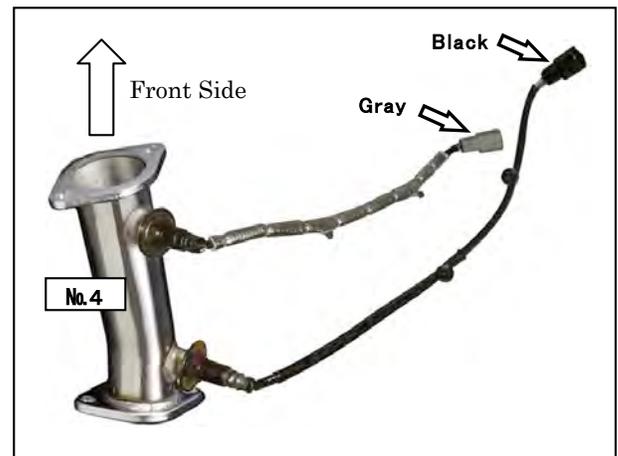
(2) Wrap the Air/Fuel Sensor Harness with thermo cloth.

〈Parts No.43〉



(3) Install the O2 and Air Fuel Sensor onto the Test Pipe.

〈Parts No.4〉

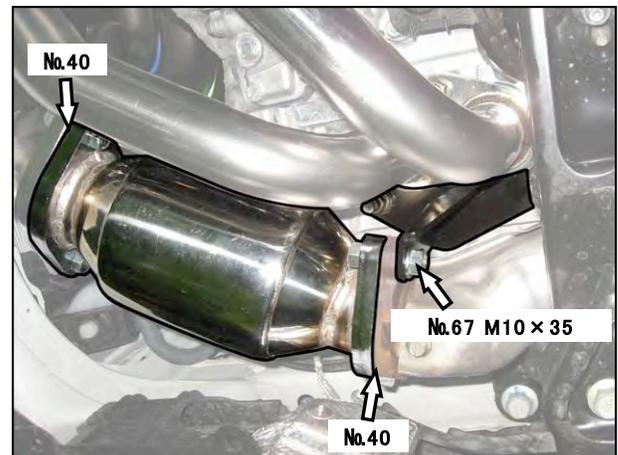


(4) Install the Test Pipe using our gaskets and hardware.

※ Be sure to readjust or make adjustments to the exhaust system if needed.

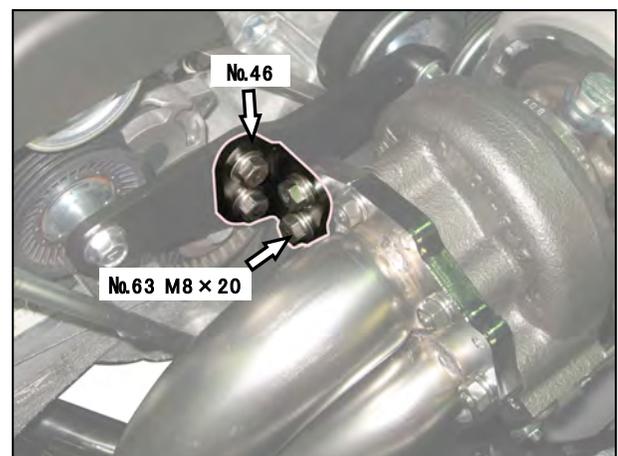
※ This photo is for the JDM Turbo Kit only.

〈Parts No.40, 67〉



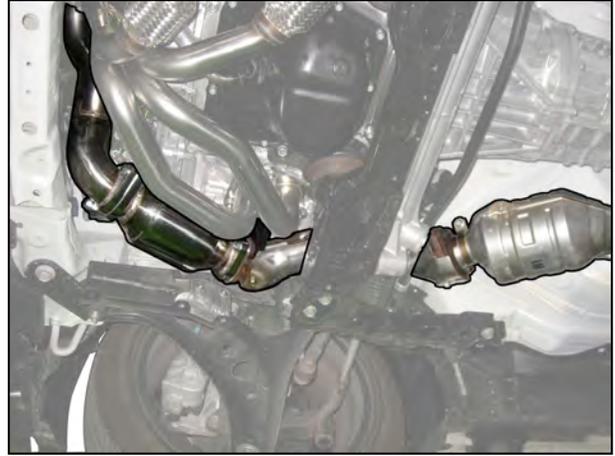
(5) Install the Turbine Bracket B.

〈Parts No.46, 63〉



(6) Readjust exhaust piping from the Turbine as needed, then tighten.

(7) Reconnect O2 Sensor and Air Fuel Sensor harness couplers.



3-10 Heat Shield Installation

(1) Install the Turbine Bracket A.
※ Temporarily finger tighten.

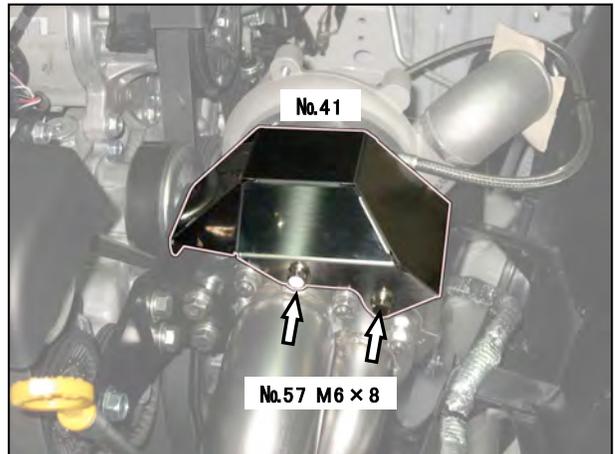
〈Parts No.57〉



(2) Install the Turbine Heat Shield by sliding the cut outs over the down pipe hardware as shown in the photo.

〈Part No.41, 57〉

(3) Tighten the bolts.



3-11 Compression Tube Installation

(1) Install the Free Rotation Union onto the Compression Pipe.
※ Use liquid seal when installing the Free Rotation Union.

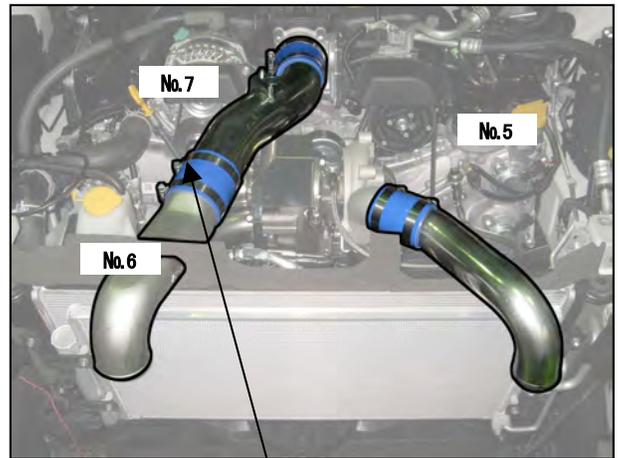
〈Part No.5, 19〉



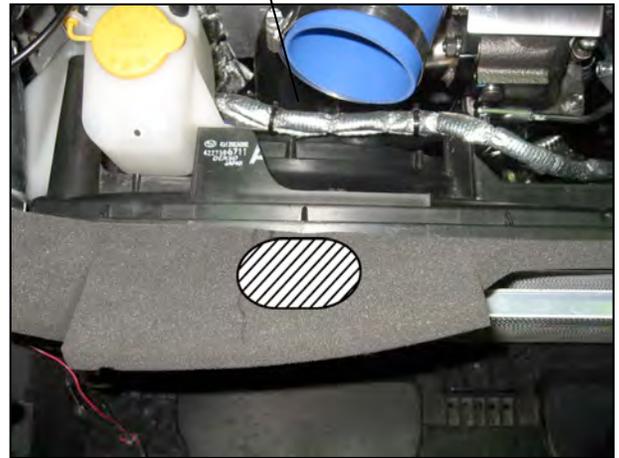
(2) Install Compression Pipes C11 to C-3.

※ Temporarily Finger Tighten.

〈Parts No.5, 6, 7, 25, 27, 32, 34〉



※ When installing C-2 (No.6) please cut the OEM Air Diversion Foam.

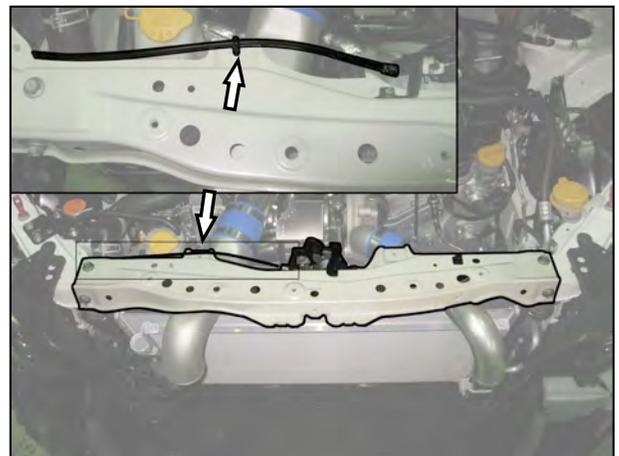


3-12 Intercooler Installation

(1) Reinstall the radiator core support sub assembly.

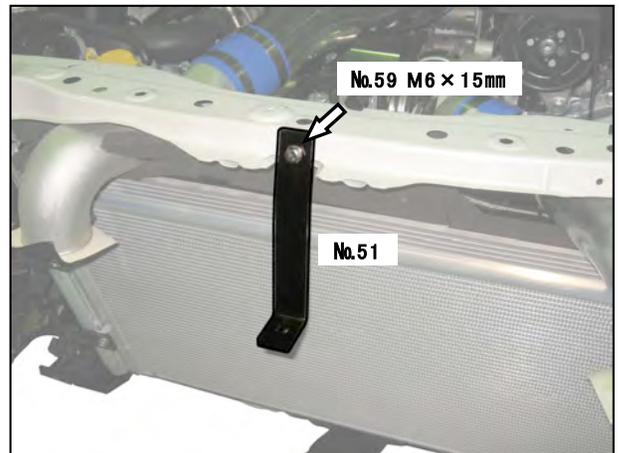
※ Relocate the hood latch cable as shown in the photo. Use zip tie to mount the cable.

〈Parts No.44〉



(2) Install the Intercooler Mounting Bracket Temporarily Finger Tighten.

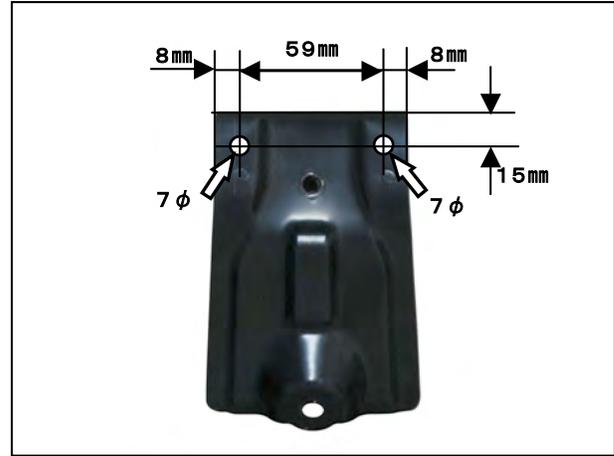
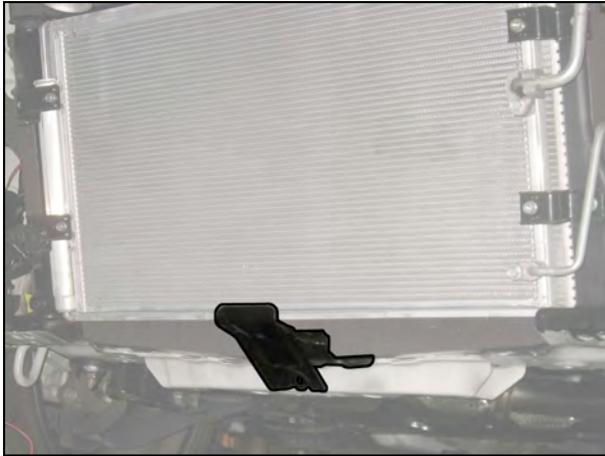
〈Parts No.51, 59〉



(3) Remove the front bumper bracket and drill out two holes as shown in the diagram.

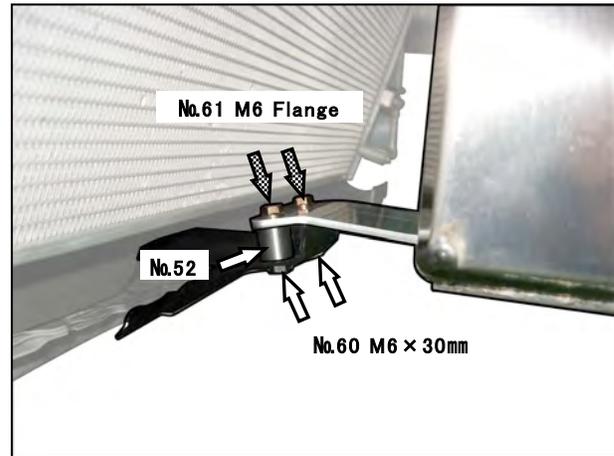
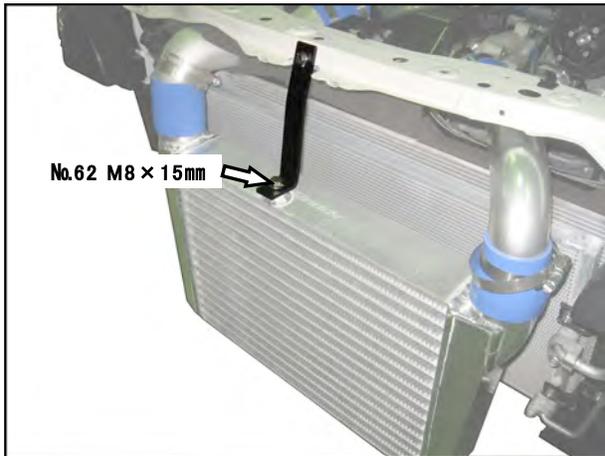


Be sure to wear proper eye protection when cutting or drilling.
Clean the surface area of any sharp edges and repaint exposed metal.



(4) Reinstall the front bumper bracket, then install the Intercooler using the Intercooler Mounting Spacers as shown in the diagram.

〈Parts No.10, 52, 60, 61, 62〉



3-13 Intercooler Piping Installation

(1) Connect the Intercooler Piping to the Intercooler and check the clearance. Once the pipes have been connected to the Intercooler, tighten all hose clamps.

〈Parts No.26, 28, 32, 33〉



(2) Install the Airflow Meter.

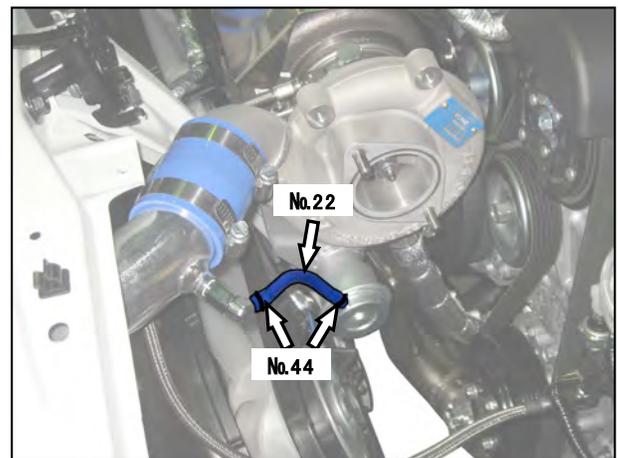
〈Parts No.55〉

(3) Wrap the Airflow Meter Harness with thermo wrap.
Then connect the Airflow Meter Coupler to the
Airflow Meter.



(4) Connect the Compression Tube and Free Rotation
Union to the Turbo Actuator.

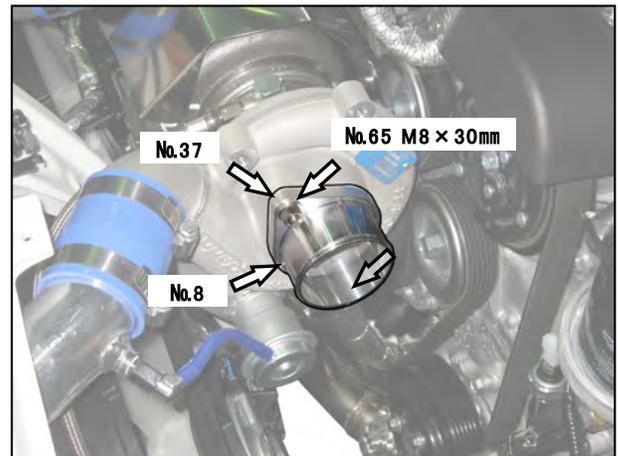
〈Parts No.22, 44〉



3-14 Intake Tube Installation

(1) Install the Intake Tube Adapter Flange onto the
Turbo Compressor Inlet using supplied stud bolts
and gasket.

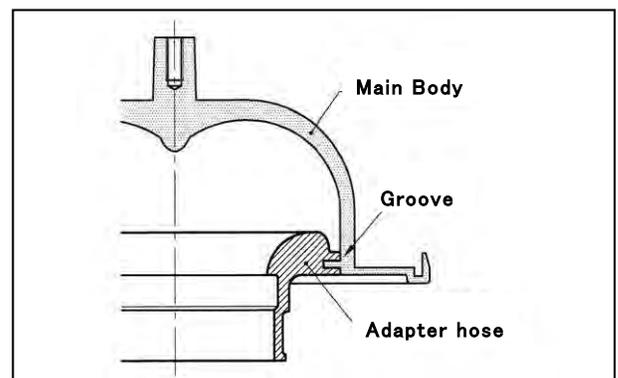
〈Parts No.8, 37, 65〉



(2) Separate the Airinx external cage and filter
element. Install the Intake adapter hose/
Airinx onto the Airinx Baseplate.

※ Make sure that the adapter hose is seated within
the Airinx Baseplate.

〈Parts No.53, 54〉



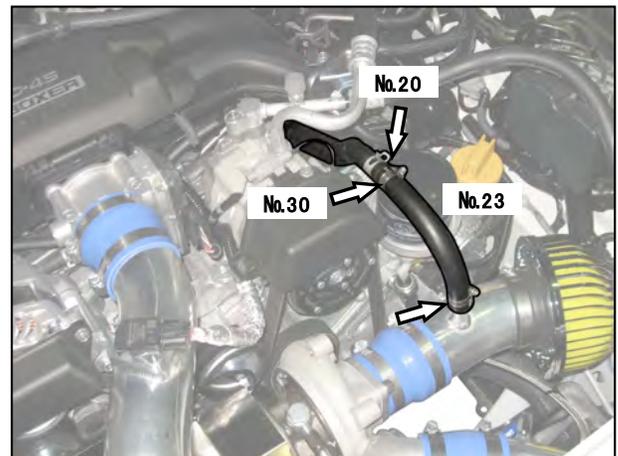
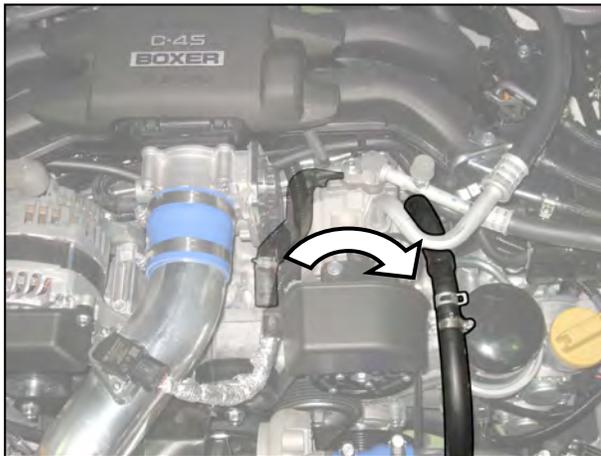
- (3) Install the filter, external cage and tighten the Airinx Top Bolt.
- (4) Install the Intake Pipe and Airinx.

<Parts No.9, 29, 33, 34>



- (5) Extend the ventilation hose using the 12mm hose union and supplied rubber hose. Connect the extended hose to the Air Intake Tube.

<Parts No.20, 23, 30>



3-15 Engine Start Up

- (1) Replace engine oil, monitor the oil level by checking the oil dipstick..
- (2) Reconnect the Battery Terminals
- (3) Remove the ECU Harness from the ECU and crank the engine by turning the Ignition. This will pressurize the turbo oil feed line.
- (4) Recheck oil level add oil as needed.
- (5) Reconnect the ECU Harness to the ECU and start the engine. Check for any leaks.

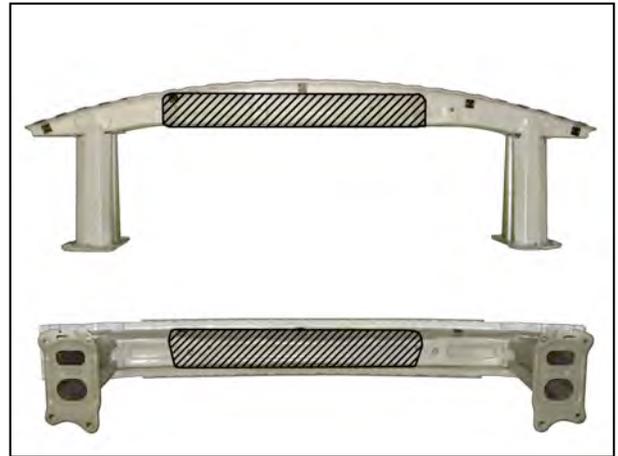
3-16 OEM Bumper Installation

- (1) Modify the OEM bumper reinforcement by cutting and removing material as shown in the diagram.

Make sure that the Intercooler fits in this space.



Be sure to wear proper eye protection when cutting or drilling.
Clean the surface area of any sharp edges and repaint exposed metal.

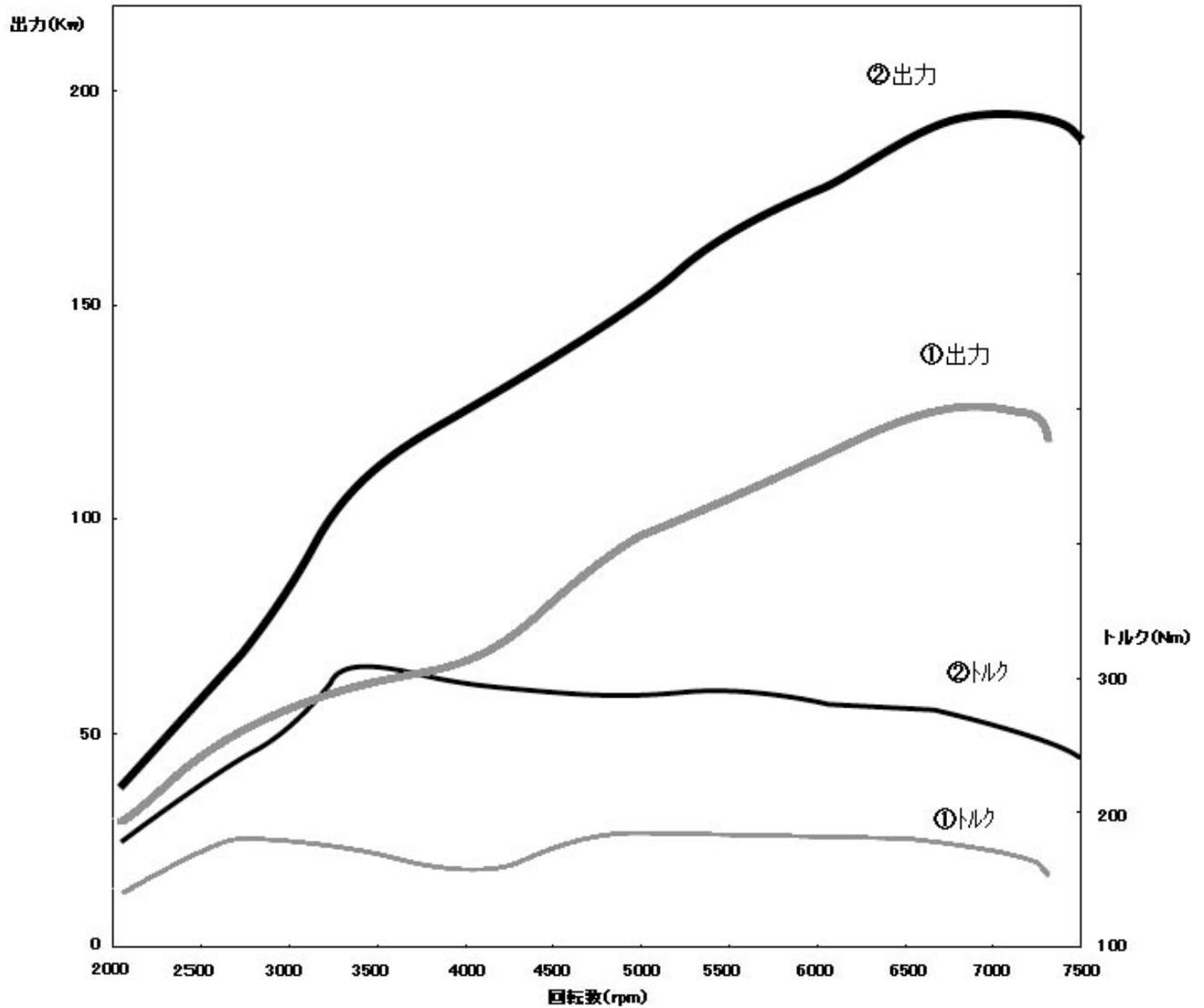


- (2) Reinstall the washer tank, bumper and undercarriage cover.

4. Power Graph

○ This Turbo Kit is designed to boost up to 6 to 7.5 PSI.

※ Important This Turbo Kit is not Pre-tuned. The customer or Tuner must select a proper fuel management system. The vehicle & fuel management system must be re-tuned.



Spec	Max Power kW(PS)/rpm	Max Torque Nm(kg·m)/rpm
① Stock NA	127.5(173.4)/6770	187.9(19.2)/4780
② Turbo Kit	196.1(266.7)/7120	313.7(32.0)/3400

○ Results may vary.