

## ***GReddy Turbo Kit***

SCION xB NCP31 (1NZ FE) TF035 HL 14GK

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## Installation Manual

**Please read the entire manual before installing this kit.**

Application:

Make	Model	Chassis	Year
SCION	xB	NCP31	02~05

- This **GReddy Turbo Kit** Is designed only for the vehicles specified above.
- **GReddy Front mount intercooler kit** is recommended with this kit
- Premium grade gasoline (91 octane or higher) is required with this Kit.
- Make sure that the vehicle is not equipped with any ECU upgrade chips.
- Use of **GReddy Racing Spark Plugs ISO #7** or NGK plugs (colder than factory) is recommended with this kit.

### Important

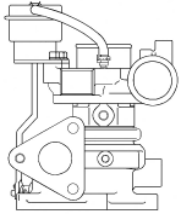
- This installation should only be performed by a trained specialist who is very familiar with the automobile's mechanical, electrical and fuel management system.
- If installed by an untrained person, it may cause damage to the kit as well as the vehicle.
- GReddy Performance Products Inc. is not responsible for any damage to the vehicle's electrical system caused by improper installation.

# 1. Parts List

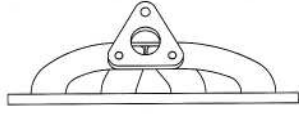
1.	Turbocharger	TF-035HL	14GK	6cm <sup>2</sup>	P380	1
2.	Turbo Exhaust Manifold		(Cast Iron)			1
3.	Down Pipe Adapter		(Cast Iron-Steel	50φ)		1
4.	Compression Pipe	C-1	(Aluminum	50φ)		1
5.	"	C-2	(Aluminum	50φ)		1
6.	Suction Pipe		(Aluminum	50φ)		1
7.	Oil Pressure Hose		SUS1200mm			1
8.	"	Banjo Fitting	male•female	(Small)		1 set
9.	"	Copper Washer	10φ	(t=1.0)		2
10.	"	Union Fitting	1/8PT-1/8PT			1
11.	"	Union Fitting	1/8PT-1/8PF			1
12.	"	Three Way Fitting				1
13.	Oil Return Flange tube	16φ	(Turbo side)			1
14.	Rubber Hose	8φ	× 800mm			1
15.	"	16φ	× 400mm			1
16.	Silicone Hose	50φ	× 70mm			2
17.	Reducer Hose	50φ	- 54φ			1
18.	"	50φ	- 60φ			1
19.	Hose elbow	50φ				1
20.	Hose band	8φ	Tridon #4			2
21.	"	16φ	Tridon #10			2
22.	"	50φ	Tridon #32			8
23.	"	60φ	Tridon #36			2
24.	Gasket	Turbo	in			1
25.	"	Turbo	out			1
26.	"	Oil Return				1
27.	"	Down pipe				1

28.	Heat Shield	No.1	(Turbine)							1
29.	"	No.2	(Down pipe)							1
30.	"	No.3	(Body)							1
31.	Thermo-cloth	100mm × 1000mm								2
32.	Zip ties 150mm									15
33.	Heat Shield bracket	(Body)								1
34.	e-manage NCP31	(UA)								1
35.	"	Harness								1
36.	Oil pan Assy	(Oil Return tube)								1
37.	Suction pipe bracket									1
38.	M6 × 15mm	P1. 0	Stainless	B	S/W	—	—	(Oil Return)		2
39.	M6 × 15mm	P1. 0	Stainless	B	S/W	—	N	(Heat Shield No.3, Suction pipe bracket)		2
40.	M6 × 15mm	P1. 0	Stainless	B	S/W	F/W	—	(Heat Shield No.2)		2
41.	M8 × 15mm	P1. 25	Stainless	B	S/W	F/W	—	(Heat Shield No.1)		2
42.	M8 × 38mm	P1. 25	Stainless stud	B	S/W	—	N	(Exhaust Manifold)		3
43.	M10 × 35mm	P1. 25	Stainless	B	S/W	—	—	(Turbine IN)		1
44.	M10 × 35mm	P1. 25	Stainless stud	B	S/W	—	N	(Turbine IN, OUT)		5
45.	M10		Stainless	—	S/W	—	—	(Turbine OUT)		1
46.	M10 × 80mm	P1. 25	Stainless	B	—	—	—	(Turbine OUT)		1

# Part List



1



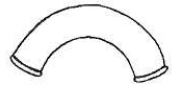
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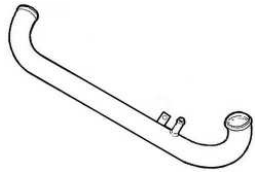
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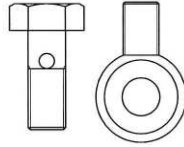
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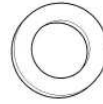
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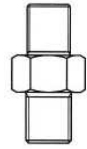
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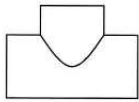
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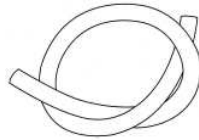
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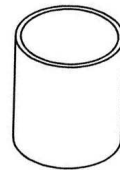
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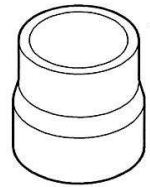
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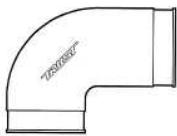
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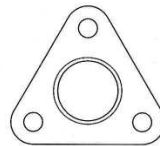
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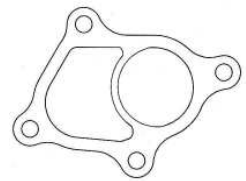
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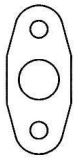
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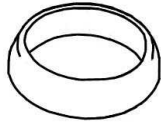
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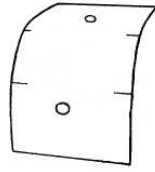
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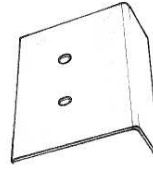
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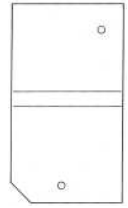
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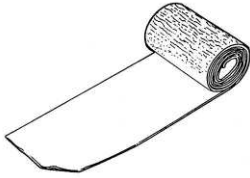
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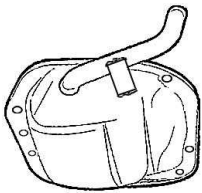
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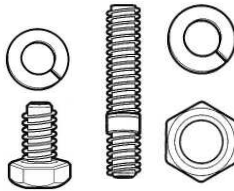
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38~46

## 2. Removal of Stock Parts

**Please refer to the factory service manual for the proper  
Stock parts removal**

- 2-1 Disconnect the negative terminal of the battery.
- 2-2 Remove the under engine cover.
- 2-3 Drain the engine oil.
- 2-4 Remove the cylinder head cover.
- 2-5 Remove the air cleaner hose and ventilation hose No.2.
- 2-6 Remove the brake booster hose.
- 2-7 Remove the Charcoal canister.
- 2-8 Remove the heat shield.
- 2-9 Remove the exhaust manifold and exhaust manifold bracket.
- 2-10 Remove the engine oil pan.

### 3. Kit Installation

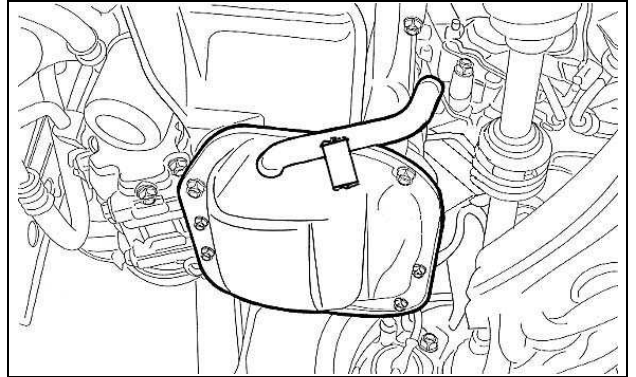
#### 3-1 Oil pan Installation

Install the provided oil pan using stock bolt and nut.

〈Parts No.37〉



Use Silicone Gasket on the surface of the oil pan to prevent leakage. Please clean the surface of the oil pan and engine block before installing.



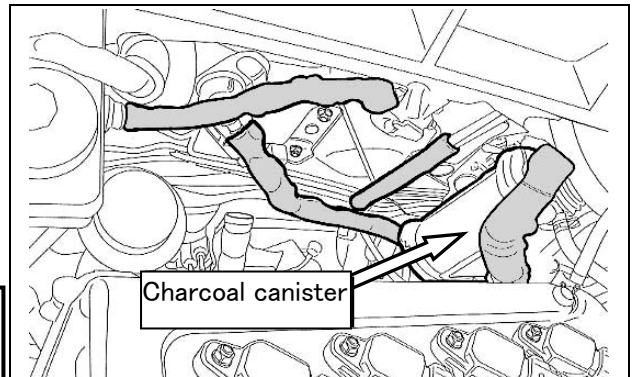
#### 3-2 Thermo Cloth Installation

(1) Wrap the thermo cloth to the engine harness and the heater hoses by the fire wall.

〈Parts No.31〉



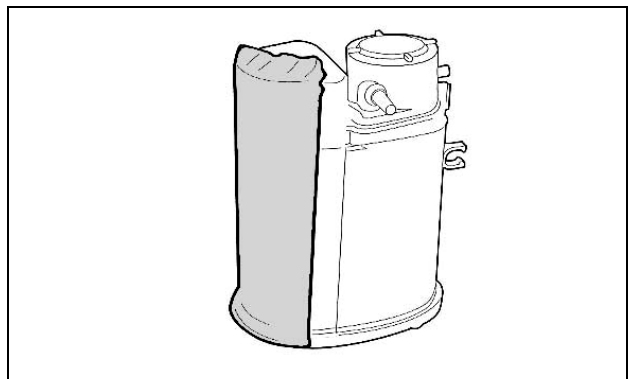
Be thorough with thermo cloth wrapping to prevent fires caused from heat.



(2) Wrap the thermo cloth charcoal canister using the safety wire.

\*The canister will be reinstalled later.[3-11 (1)]

〈Parts No.31〉

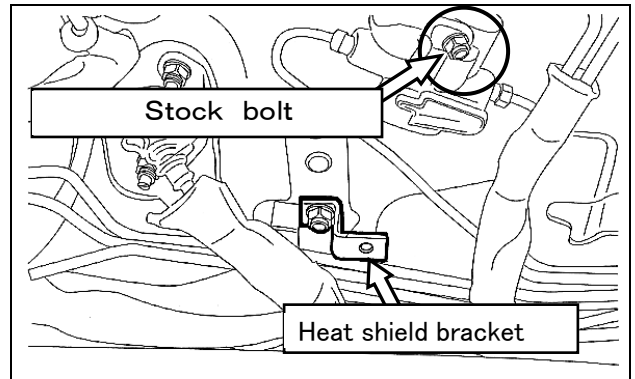




### 3-3 Heat shield 3 Installation

- (1) Install the heat shield bracket 3 on to the firewall using the provided bracket and stock bolt as shown.

〈Parts No.30, 33, 39〉

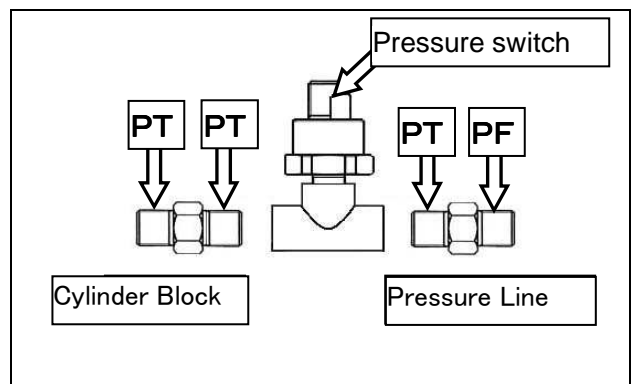


### 3-4 Oil Pressure Line Installation

- (1) Remove the Oil Pressure switch and install the union fitting and 3-way fitting on to the Cylinder block.

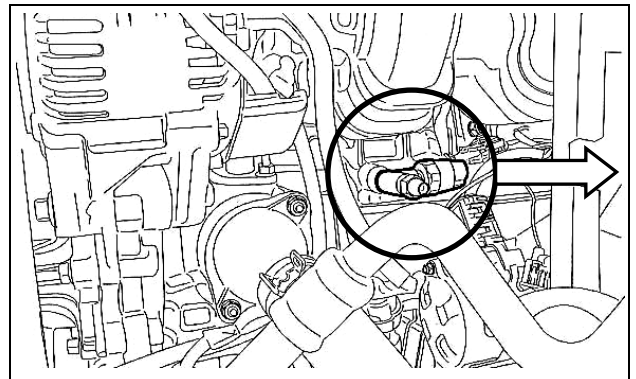
\*Use Teflon tape on PT threads but not on the PF thread.

〈Parts No.10, 11, 12〉



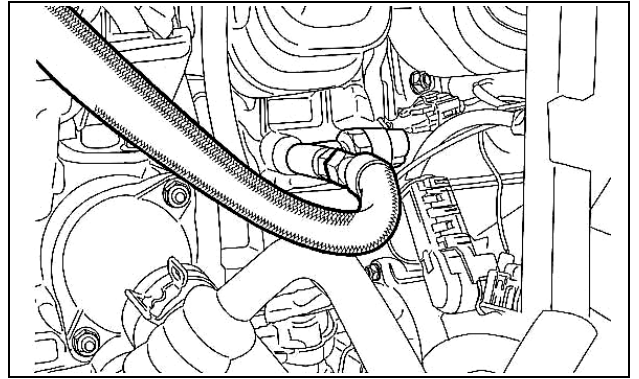
- (2) Install the oil pressure switch to the 3-way fitting.

- (3) Reconnect the oil pressure switch harness.



(4) Connect the oil pressure line to the installed union fitting.

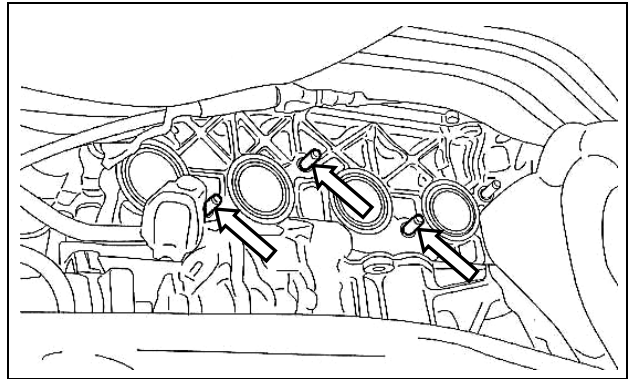
〈Parts No.7〉



### 3—5 Exhaust Manifold Installation

(1) Install three stud bolts on to the cylinder head as shown.

〈Parts No.42〉

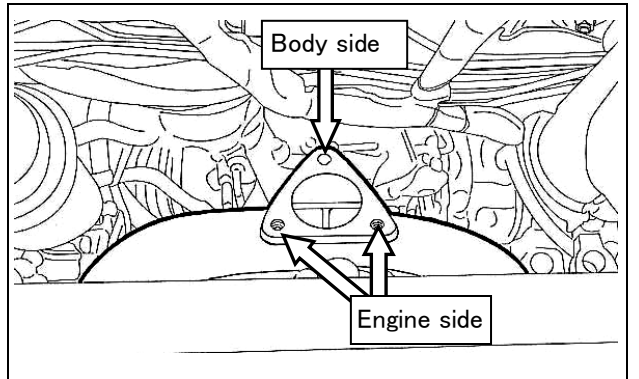


(2) Install the exhaust manifold using the factory gasket.

\*Use a new exhaust manifold gasket.

\*Use factory nuts on the top side of the flange.

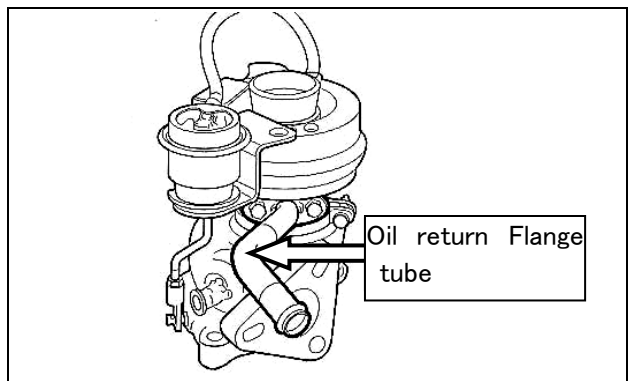
〈Parts No.2, 42〉



### 3—6 Turbocharger Installation

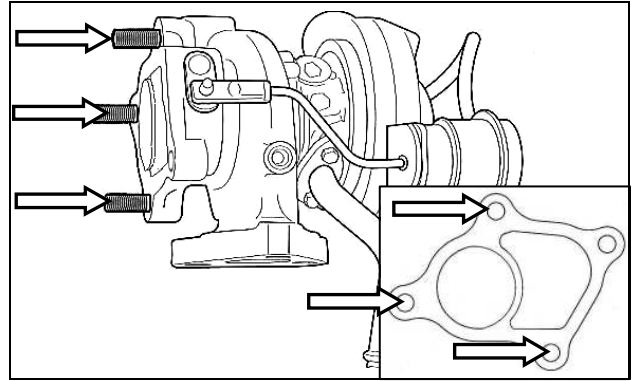
(1) Install the provided oil return pipe to the turbocharger using the provided gasket and hardware as shown.

〈Parts No.1, 13, 26, 38〉

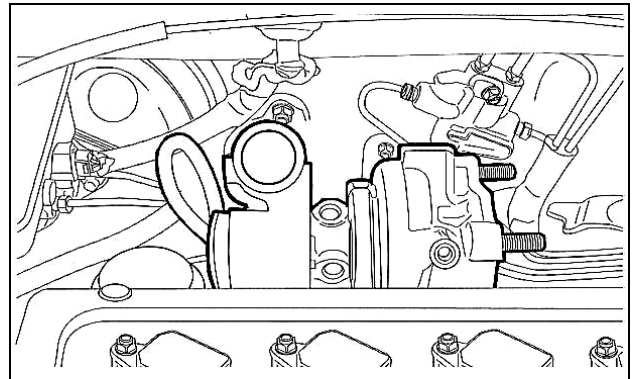


(2) Install the three stud bolts on to the turbine housing as shown.

〈Parts No.44〉



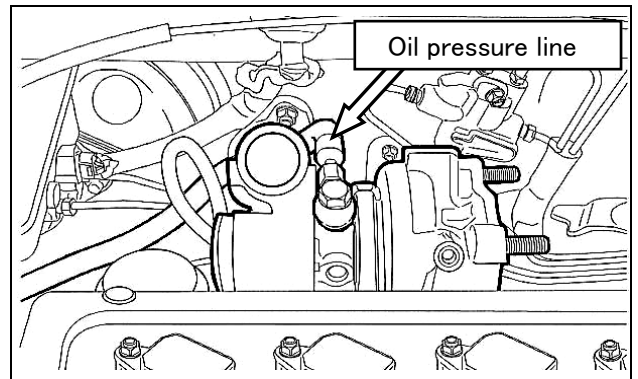
(3) Install the stud bolts on to the exhaust manifold, then mount the turbocharger to the manifold with compressor housing on the passenger side. Using provided hardware and gasket.



### 3-7 Oil Pressure Line Connection

(1) Connect the oil pressure line that was installed in step 3-5(3) to the turbo using banjo fitting and copper washers. As shown.

\*Secure the oil pressure line to the engine mount and alternator bracket using provided zip ties.

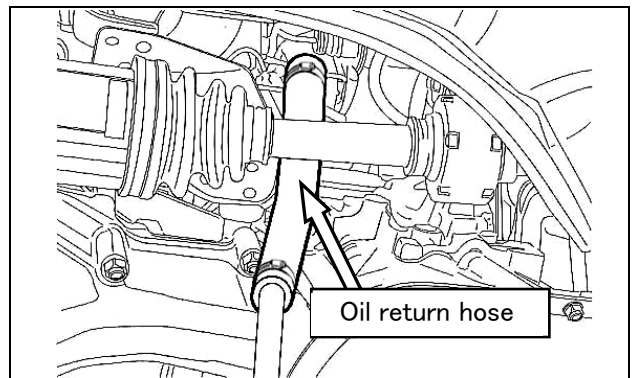


〈Parts No.8, 9, 32〉

### 3-8 Oil Return Installation

Wrap the provided 16  $\phi$  hose with thermo cloth. Then install the hose to connect the oil return pipe from the turbo to the oil pan.

〈Parts No.15, 21, 31〉



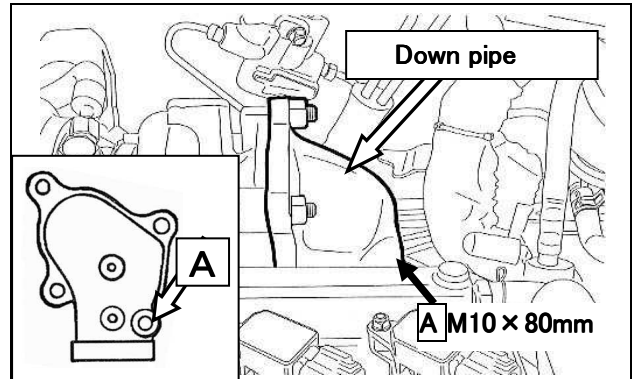
### 3-9 Down Pipe Installation

(1) Install gasket on the catalytic converter end of the down pipe.

⟨PartsNo.3, 27⟩

(2) Install stock O2 sensor on the down pipe.

(3) Install the down pipe to the turbo using provided gasket and hardware. Use the provided M10X80mm bolt for location "A."



(4) Reinstall the catalytic converter and reconnect the O2 sensor connectors.

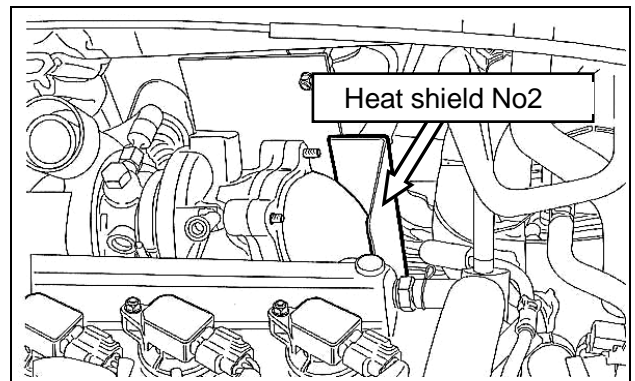
\*Reuse factory hardware to bolt the cat back on

⟨PartsNo.24, 44, 45, 46⟩

### 3-10 Heat Shield No1.2 Installation

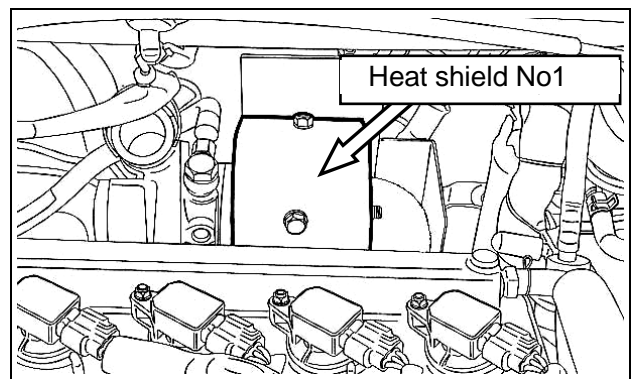
(1) Install the down pipe heat shield No2 on to the down pipe using the provided M6 x 10mm bolts and reinstall the stock charcoal canister. [3-2 (2)]

⟨PartsNo.29, 40⟩



(2) Install the turbine housing heat shield No1 on to the turbo using the provided bolts as shown.

⟨PartsNo.28, 41⟩



### 3-11 Brake booster hose Installation

(1) Install the provided 8Φ hose to connect the brake booster to intake manifold using the provided hose band and zip ties.

\* Wrap the thermo cloth to the brake booster hose by the turbo upside.

〈PartsNo.14, 20, 31, 32〉

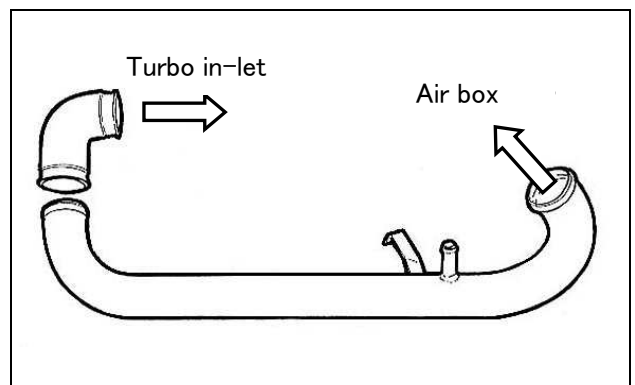
(2) Install the stock cylinder head cover No2.



### 3-12 Suction Pipe Installation

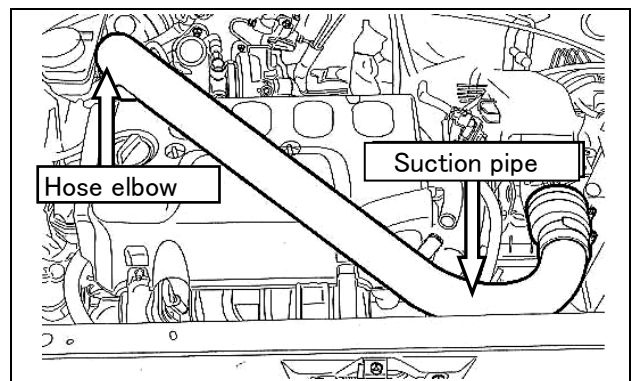
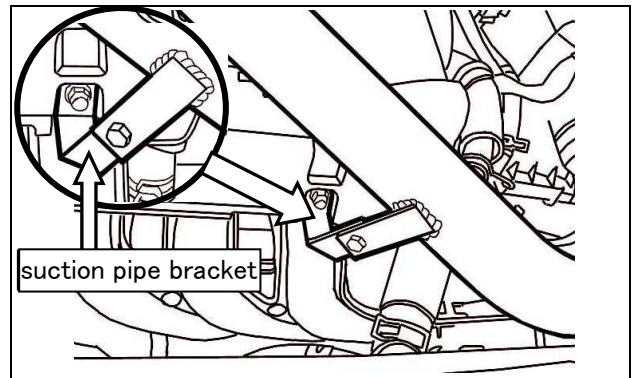
(1) Install the Suction pipe and hose elbow between turbo in-let and stock air box. Using provided hose and clamps.

〈PartsNo.6, 18, 19, 22, 23〉

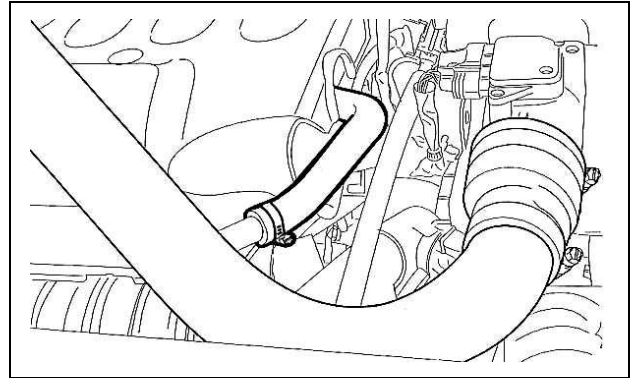


(2) Install the suction pipe bracket using provided bolt and nut as show.

〈PartsNo.37, 39〉



- (3) Connect the ventilation hose No.2 from the valve cover to the suction pipe using the stock hose clamp as show.

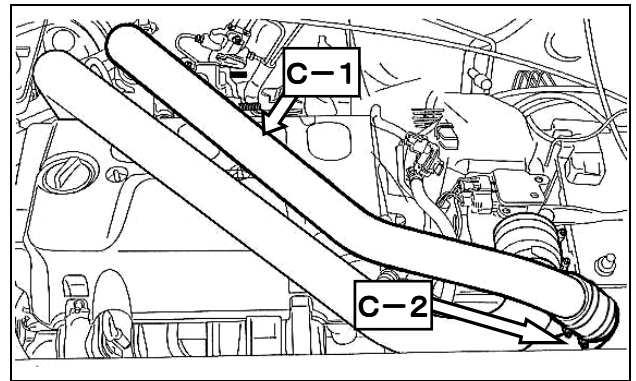
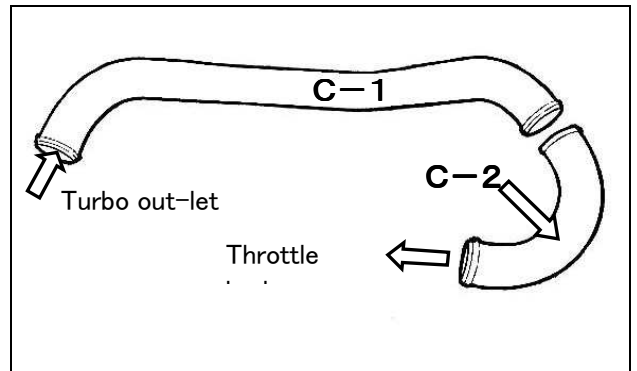


### 3-13 Compression Pipe Installation

Install the Compression pipe C-1 and C-2 between turbo out-let and throttle body. Using provided hose and hose clamps.

\*Wrap the turbo out-let hose with thermo cloth.

<Parts No. 4, 5, 16, 17, 22, 23, 31>



### 3-14 E-manage Installation

- (1) Remove the cover under the glove box to access the ECU and ECU harness. Unplug the ECU connectors from the ECU.
- (2) Connect the provided Plug and Play e-manage harness to the ECU and ECU harness. Connect the e-manage unit to the Plug and Play Harness.

〈PartsNo.34,35〉

- (5) Secure the e-Manage next to the ECU.

\* Avoid mounting the e-Manage unit in the area that would be exposed to direct sun light, moisture, or near heater outlet.

### 3-15 Starting the Engine

- (1) Refill the engine oil to factory spec.
- (2) Check all the hoses and wires connection, then reconnect the negative side of the battery.
- (4) Remove the ECM fuse and crank the engine to get oil pressure to the turbo. (Until the oil light on the dash turns off) Check for any oil leaks, then reinstall the fuse and start the engine.
- (5) While idling, check for any oil, coolant, or air leaks.
- (6) After inspection, reinstall the under cover and other stock parts that were removed.
- (7) On the initial run, be sure to have a boost gauge to check the turbo-actuator setting. This turbo kit is preset to boost between 0.3kg/cm<sup>2</sup> to 0.4kg/cm<sup>2</sup>.  
It is very important that you monitor the boost pressure, and make sure not to over boost. Over boosting can cause engine damage.

This completes the Turbo Kit installation.

**Important!**

- It is very important that you monitor the boost pressure, and make sure not to over boost. Over boosting can cause engine damage.
- GReddy Performance Products, Inc. is not responsible for any engine damage caused by over boosting (increased boost), modification to the kit, and/or misuse of the product. NO WARRANTY is offered.
- Due to lack of control over proper installation and use of this product, NO WARRANTY is offered for this kit.

**e-manage Information**

**Important!**

- The e-manage included in this kit is preprogrammed for the this turbo kit.
- Do not attempt to adjust any of the setting in the e-manage.
- Any adjustments made can cause damage to the e-manage, engine and the factory ECU.



**Important!**

As of 5/25/03 this kit is not a street legal kit. Please ignore the label on the e-manage.

□ **ACTIVE L.E.D.**

- When the ignition is turned on, it will illuminate and flash GREEN.
- When it reaches to the A.A.V. setting RPM range, it will illuminate and flash ORANGE.
- When an error is detected it will flash RED.

□ **INTERACTION L.E.D.**

- This will illuminate when there is a connection with PC.