

# ***GReddy Turbo Kit***

2003 Nissan 350Z (VQ35DE) Twin TD05-18G 8cm<sup>2</sup>

# Installation Manual

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

Application:

Make	Model	Chassis	Year
Nissan	350Z	Z33	2003

- 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 LONG #7** or NGK plugs (colder than factory) is recommended with this kit.

## Important

1. This installation should only be performed by a trained specialist who is very familiar with the automobile's mechanical, electrical and fuel management system.
2. If installed by an untrained person, it may cause damage to the kit as well as the vehicle.
3. GReddy Performance Products Inc. is not responsible for any damage to the vehicle's electrical system caused by improper installation.
4. Make sure to follow the instruction and pay attention to the "Important", "Warning!" and "Caution!" notice through out the instruction.
5. Improper installation can be **dangerous!** Please make sure to inspect the installation before operating the vehicle.
6. Call your GReddy Authorized dealer or GReddy Performance Products if there are any problems or questions regarding this product.

# 1. Parts List

1.	Turbocharger TD05-18G 8cm <sup>2</sup>				2
2.	Wastegate (GReddy / Tial)	.45bar			2
3.	Exhaust Manifold	(Right Side)	Ductile Iron Cast		1
4.	Exhaust Manifold	(Left Side)	Ductile Iron Cast		1
5.	Downpipe Adapter	(Right Side)			1
6.	Downpipe Adapter	(Right Side)			1
7.	Compression Pipe	R	C-1	(50Ø Aluminum Elbow No.6)	1
8.	"		R	C-2 (50Ø Aluminum)	1
9.	"		R	C-3 (50Ø Aluminum Elbow No.21)	1
10.	"		L	C-4 (50Ø-70Ø Aluminum)	1
11.	"			C-5 (50Ø Aluminum)	1
12.	"			C-6 (80Ø Aluminum)	1
13.	Airflow Meter Adapter				1
14.	Suction Pipe	R	S-1	(60Ø Aluminum)	1
15.	"	R	S-2	(70Ø Aluminum)	1
16.	"	L	S-3	(60Ø Aluminum Elbow No.82)	1
17.	"	L	S-4	(70Ø Aluminum)	1
18.	Airinx	AY-SB (Blue)			2
19.	Airinx Hose Adapter	S70			2
20.	Oil Pressure Hose SUS (R=600mm, L=800mm)				1 each
21.	Oil Pressure Union Fitting		3-Way Fitting		2
22.	"		1/8PT – 1/8 PT Straight		2
23.	"		1/8PT – 1/8 PF Straight		1
24.	"		1/8PT – 1/8 PF Male to Male 90°		1
25.	Oil Pressure Banjo Fitting		Male and Female (small)		2
26.	Copper Washer 10Ø		(t=1.0)		4
27.	Oil Return Pipe	Right	16Ø		1
28.	Oil Return Pipe	Left	16Ø		1
29.	Oil Pan with welded Oil Return Pipe				1
30.	Vacuum Hose		5Ø x 100mm	(Blue)	1
31.	"		6Ø x 2000mm	(Blue)	1
32.	Radiator Reserve Hose		7Ø x 10Ø x 790mm	CR60° Tube	1
33.	Rubber Hose 15Ø x 1140mm		(Oil Return 440mm, Blow By 300mm, Power Steering 200mm)		1
34.	Silicone Hose 50Ø x 70mm		Straight		6
35.	"	80Ø x 80mm	Straight		2
36.	"	60Ø - 70Ø	Reducer		2
37.	"	60Ø - 80Ø	Reducer		2

38.	"	70Ø - 80Ø	Reducer						1
39.	Hose Band	12Ø	#8						4
40.	"	16Ø	#10						9
41.	"	50Ø	#32						12
42.	"	60Ø	#36						4
43.	"	70Ø	#44						5
44.	"	80Ø	#48						7
45.	Power Steering Pump Fitting								1
46.	Check Valve (Nissan factory part #47478-51E00)								1
47.	Radiator Reserve Tank								1
48.	Radiator Reserve tank Cap								1
49.	Hose Fitting	8Ø	90°						1
50.	Radiator Reserve Tank Bracket		A / B						1 Set
51.	Aluminum Spacer	t=28mm							1
52.	Airinx Bracket		Right / Left						1 Set
53.	Hose Fitting	16Ø	Straight						1
54.	Exhaust Manifold Gasket		(Nissan Factory Part # 14036-AG010)						1 Set
55.	Turbo Gasket		TD05 In / Out						4
56.	Catalytic Converter Gasket		(Nissan Factory Part # 20813-AL500)						2
57.	Oil Return Gasket		TD Small						2
58.	Thermo Cloth		100m x 1000mm						4
59.	Three Way fitting		5Ø - 6Ø						1
60.	Zip Ties		150mm						15
61.	E-Manage		(US-Z33)						1
62.	"		Harness						1
63.	"		I/J Harness						1
64.	"		RPM signal adapter						1
65.	Injectors		440cc (with 4 aluminum fuel rail spacers)						6
66.	M5 x 15mm	Stainless	P=0.8	B	S/W	F/W	N		1
67.	M6 x 15mm	Stainless	P=1.0	B	S/W	-	-		6
68.	M6 x 15mm	Stainless	P=1.0	B	S/W	F/W	N		5
69.	M6 x 40mm	Steel	P=1.0	B	-	-	-		1
70.	M8 x 15mm	Stainless	P=1.25	B	S/W	-	-		6
71.	M8 x 20mm	Stainless	P=1.25	B	S/W	-	-		2
72.	M8 x 25mm	Stainless	P=1.25	B	S/W	-	-		4
73.	M8 x 30mm	Stainless Stud	P=1.25 – 1.25	B	S/W	-	N		8
74.	M10 x 35mm	Stainless Stud	P=1.25 – 1.25	B	S/W	-	N		12
75.	M10 x 45mm	Stainless Stud	P=1.25 – 1.50	B	-	-	-		2

# 1. Parts List



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# 1. Parts List



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# 1. Parts List



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66 - 75

## 2. Factory Parts Removal

When removing the stock parts, make sure you read over the factory repair manual for proper procedures.

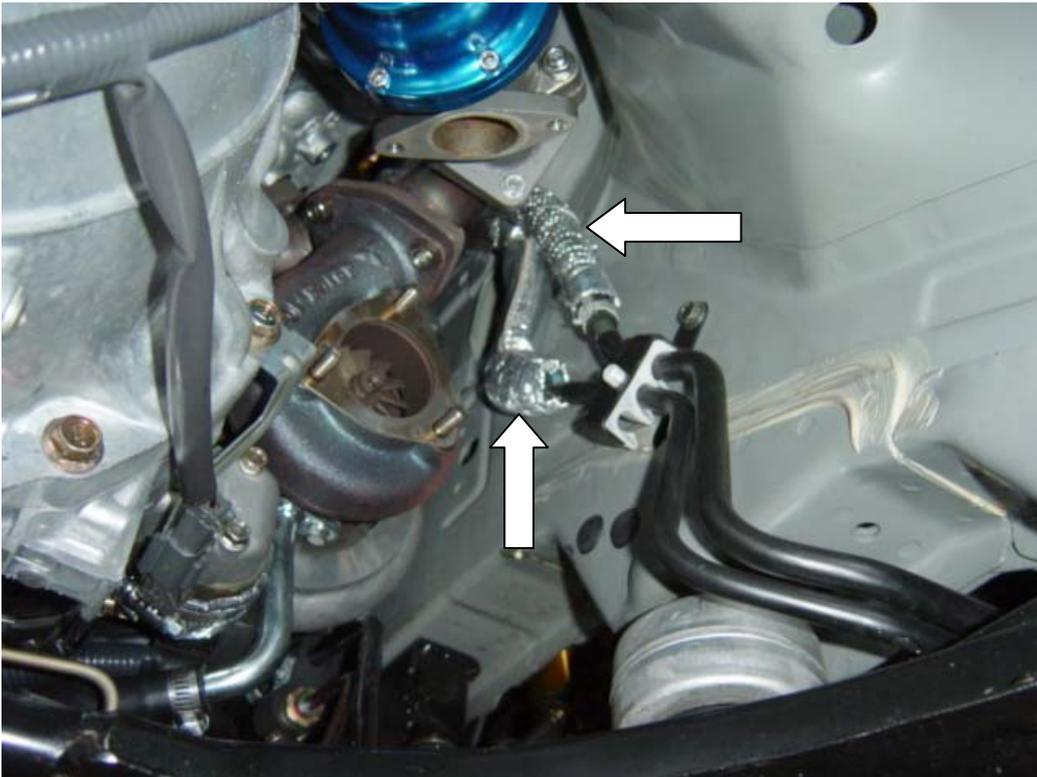
- 2-1 Disconnect the negative terminal of the battery.
- 2-2 Drain the engine oil, coolant and power steering fluid.
- 2-3 Disconnect the air flow meter.
- 2-4 Remove the Air cleaner assembly with airflow meter, intake tube, and breather hose.
- 2-5 Remove the Top Radiator Hose and the Water Pipe (Located above the Right Exhaust manifold).
- 2-5 Disconnect the primary and secondary O2 sensor and remove the exhaust manifold and catalytic converter.
- 2-6 Remove the exhaust manifold.
- 2-7 Remove oil pan (Please refer to the factory service manual for detail instructions for removing the oil pan.)
- 2-8 Remove the upper intake manifold collector, fuel rail assembly with injectors and regulator.

### 3. Turbo Kit Installation

#### Thermo Cloth Installation

- Remove the bracket securing the fuel line right below the right side shock tower and disconnect the fuel line. Flip the connector so that the line points up and reconnect the line. Double wrap the fuel and evap Line using safety Wire. Leave the top bracket off and secure the bottom back on as shown.

(Parts used #58)



(This picture shows the turbo already installed)

#### Important!

- Make sure that the fuel line is secured away from the turbine housing when the turbo is installed. Some bending of the lines is necessary to achieve good clearance.
- Make sure the lines are properly wrapped twice.
- Make sure to use safety wire to wrap the thermo cloth. Zip ties will melt from the heat and eventually will come off.
- Make sure that the fuel line connector is properly clicked in all the way.
- GReddy Performance Products, Inc. will not be responsible for any damage caused due to improper installation.

### Caution!

- **Make sure to check and double check this step. This is the most important step in this install.**
- **Without proper clearance and thermo wrapping the fuel lines, the fuel line connector can melt from heat and may catch on fire.**
- **Wrap the Starter and the Main Engine harness right above the transmission housing.**

### Important!

Make sure that the main engine harness is properly wrapped and secured away from the manifold and the wastegate when they are installed.



### Caution!

Without proper clearance and thermo wrapping the harness, it melt and cause a short in the electrical system or may catch on fire.

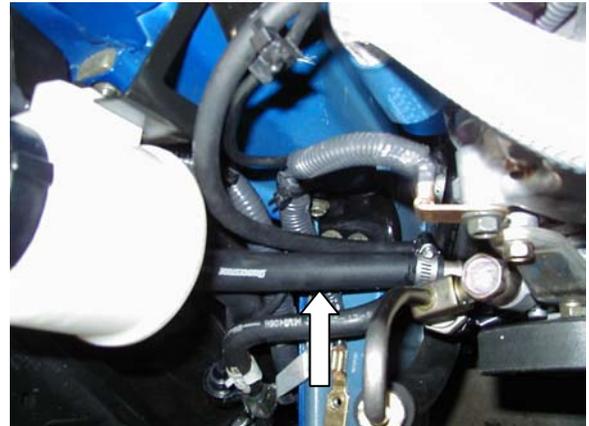
### Power Steering Line Installation

1. Remove the hose fitting off the power steering pump and install the provided fitting.

(Parts Used #40, 45)

2. Cut the provided 15Ø hose to 200mm (8in) and install it between the pump and the tank.

(Parts Used #33)



### Oil Pan Installation

Install the Oil pan with a silicone sealant.

(Part Used #29)

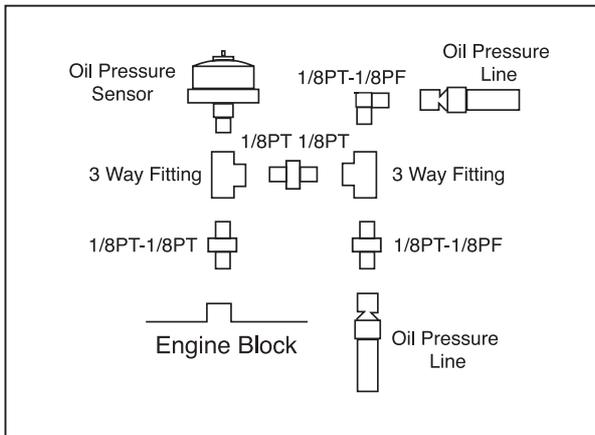


## Oil Pressure Line Installation

Install the oil pressure line to engine block using provided fittings.

(Part Used #20, 21, 22, 23, 24)

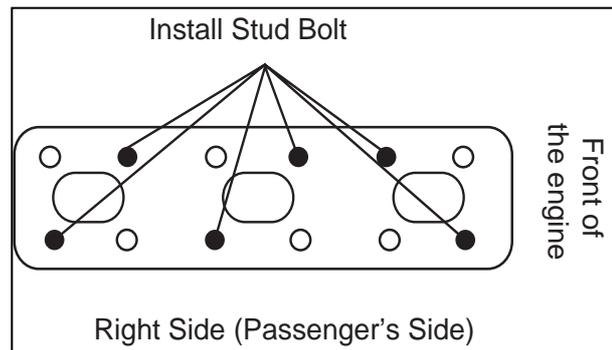
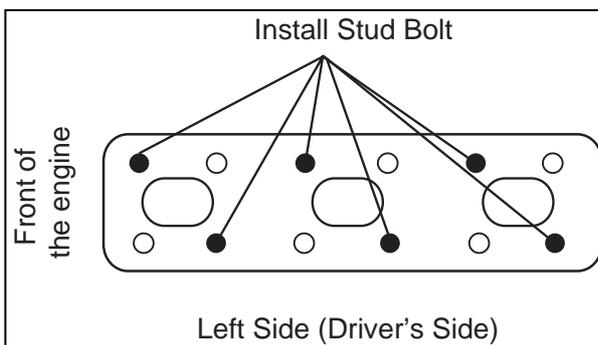
600mm line is for the right side and 800mm line is for the left side.



## Exhaust Manifold Installation

1. Remove all factory exhaust manifold stud bolt off from the cylinder head. Install the provided M10 x 35mm stud bolts on to the cylinder head as shown.

(Part Used #74)



2. Install the Exhaust Manifold using provided gasket and hardware.

(Part Used #3, 4, 54, 74)



Left Side (Driver's Side)



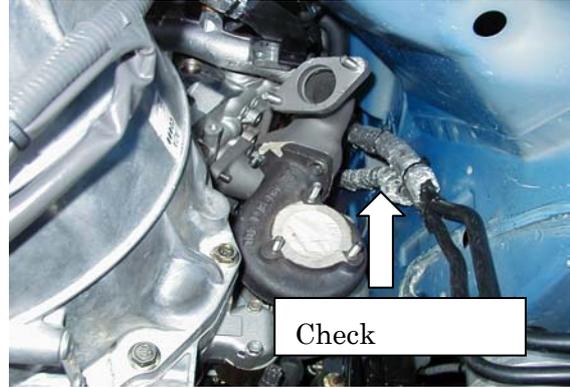
Right Side (Passenger's Side)

## Turbocharger Installation

1. Install the turbocharger on to the exhaust manifold installed in the previous step.

\* For the left side, remove the steering shaft joint before installing the turbo.

\* For the right side, remove the bolts holding the starter, and lower the starter before installing the turbo.  
(Part Used #1, 25, 26, 55, 71, 72, 73)



• After the turbo installation, double check the fuel line clearance by the turbo and the manifold on right side (passenger side).

2. Connect the Oil Pressure line to the turbo using the provided banjo fitting.

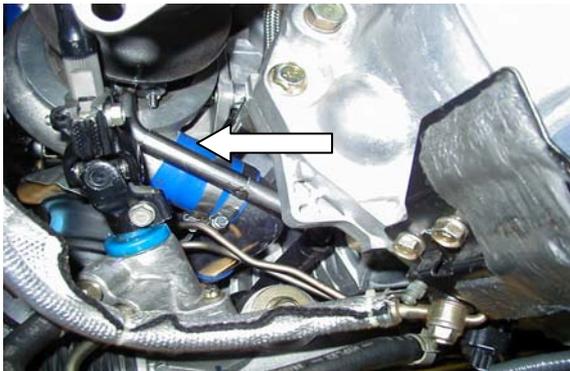
(Parts Used #25)

## Oil Return Pipe Installation

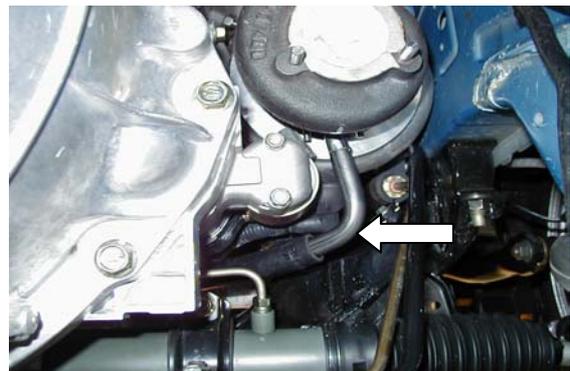
Install the oil return pipe using provided gasket and hardware. Cut the provided 15Ø hose to proper length and install them between the oil return pipe and the oil pan as shown.

(Part Used #27, 28, 33,

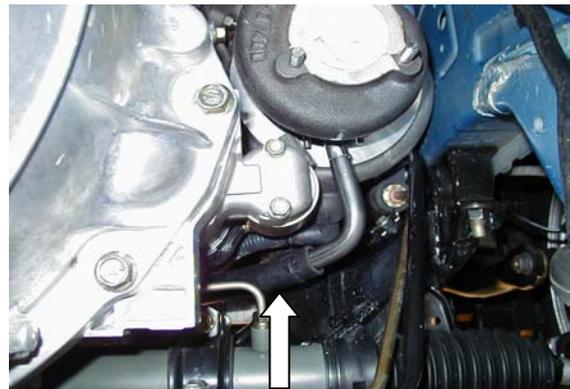
40, 57, 67)



Left Side (Driver's Side)



Right Side (Passenger's Side)



## Wastegate Installation

Install the provided banjo fitting on to the bottom port of the wastegate. (Top Port is used for boost controller) Install the wastegate using the provided gasket and hardware as shown.

(Part Used #2, 73)



Left Side (Driver's Side)



Right Side (Passenger's Side)

- Double check the clearance between the wastegate and the main engine harness on the right side (passenger side). Make sure that there is enough clearance to avoid the harness from getting too hot and melting.

## Down Pipe Adapter Installation

Install the down pipe adapter using the provided gasket and hardware as shown.

(Part Used #5, 6, 55, 70, 72)



## Exhaust System Installation

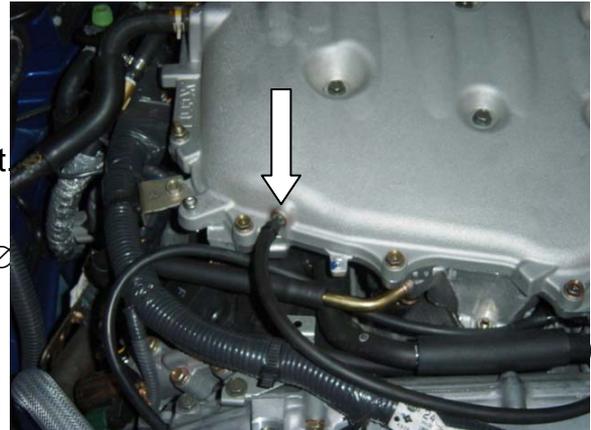
Install the catalytic converter and the exhaust system using the provided gasket and hardware as shown.

(Part Used #56, 75)



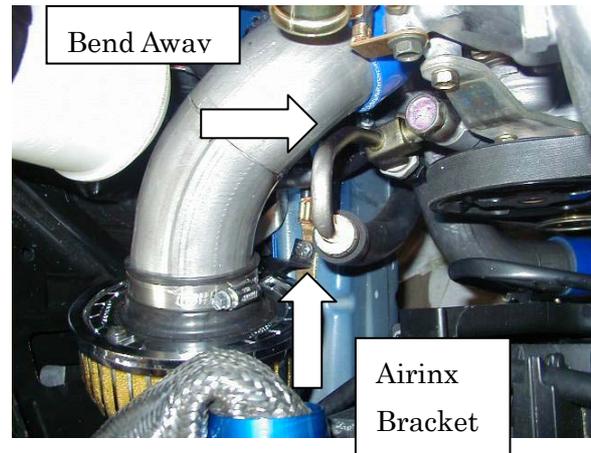
### Vacuum hose for Wastegate Installation

Remove the factory engine cover. Locate the rubber plug on the intake manifold and remove it. Connect the 5Ø hose to the intake manifold and by using the three way fitting and connect the 6Ø hose to each of the wastegate fitting.

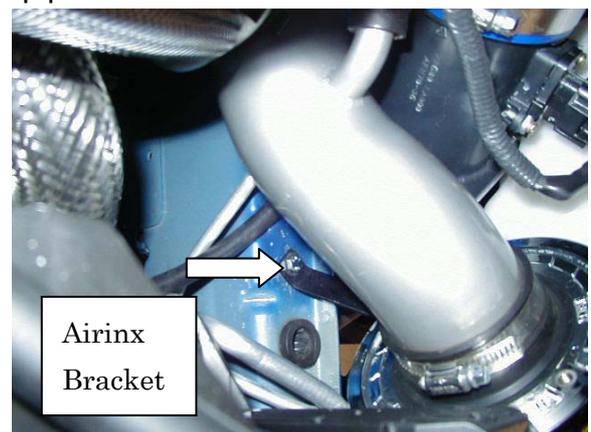


### Suction Pipe Installation

1. Install the Airinx air filter to the Suction pipe S-2 and S-4.  
(Part Used #14, 15, 16, 17, 18, 19, 33, 36, 37, 40, 42, 43, 44, 52, 53, 67)
2. Install the S-1 and the S-2 (with AIRINX) to the right (passenger side) turbo inlet using provided hose and hose clamps and secure the Airinx to the chassis as shown. Bend the Power steering line over towards the pulley so that the S-2 clears the line.



3. Install the S-3 and the S-4 (with AIRINX) to the left (driver side) turbo inlet using provided hose and hose clamps and secure the Airinx to the chassis as shown. Bend the A/C line toward the engine so that the S-4 pipe clears the line.



## Compression Pipe Installation

1. Install the Air flow meter adapter on top of the air flow meter.
2. Install the Compression pipe C-1, C-2, C-3, C-4, C-5, and C-6 by using the provided hose and hose clamps as shown. Make sure to check all the clearance before securing the hose clamps.

\* When installing the airflow meter assembly, make sure not to reverse the flow.

(Part Used #7, 8, 9, 10, 11, 12, 13, 34, 35, 38, 41, 43, 44, 66, 67)



Secure the bracket on C-3 to the block



Secure the bracket on C-6 to the Intake manifold

## Radiator Over Flow Tank Installation

Remove the left side head light assembly, and Install the provided radiator over flow tank as shown. Connect the hose to the lid and reinstall the head light assembly.

(Part Used #47, 48, 49, 50, 52, 68, 69)



## Brake Check Valve Installation

Install the provided check valve as shown.

(Part Used #39, 46)

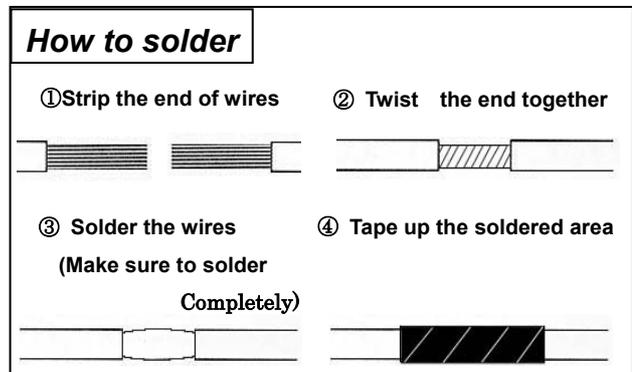


## Injectors Installation

1. Remove the upper intake manifold collector, fuel rail assembly with injectors and regulator.
2. Grind the top of the fuel rail as shown to clear the intake manifold. Make sure not to grind too much. Grind the part on the bracket that is raised down flat. Clean the rail thoroughly after grinding.



3. Install the 440cc injectors and reinstall the fuel rail using the provided spacer. (Part Used #65)
4. Cut the factory injector connectors and solder in the provided connector harness.



## E-manage Installation

Install the e-manage and the rpm adapter as shown in the diagram. Make sure to solder all connections except for the ones that are supplied with the male and female connectors.

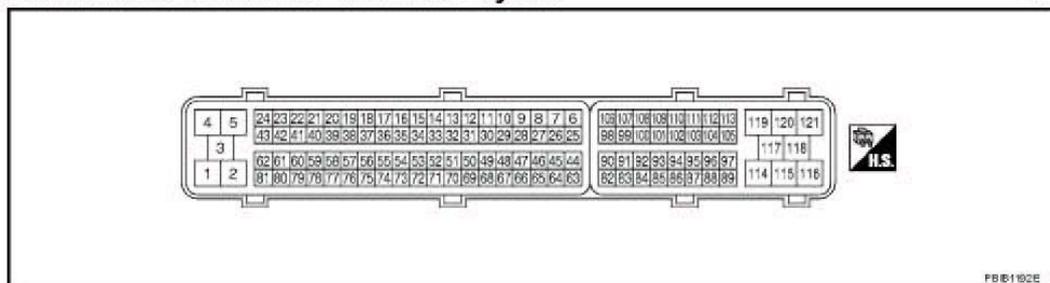
(Part Used #61, 62, 63, 64)

### Important!

- Make sure you fully understand the diagram before attempting this installation.
- Improper wiring can damage the ECM and the vehicle's electrical system.
- GReddy Performance Product, Inc. will not be responsible for any damage caused by improper installation.
- Please do not use crimp connectors or t-tap connectors. These can cause poor connection and prevent e-manage to operate properly.

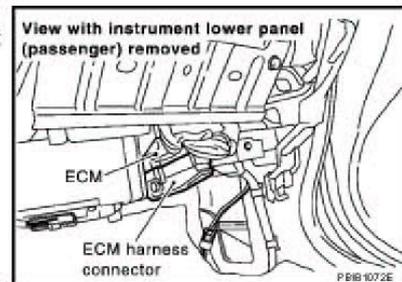
## TROUBLE DIAGNOSIS

### ECM Harness Connector Terminal Layout

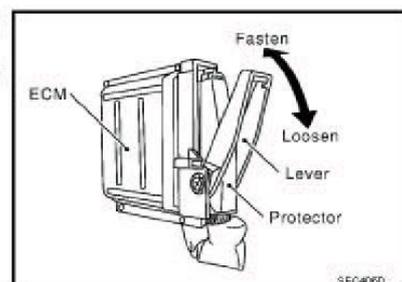


### ECM Terminals and Reference Value PREPARATION

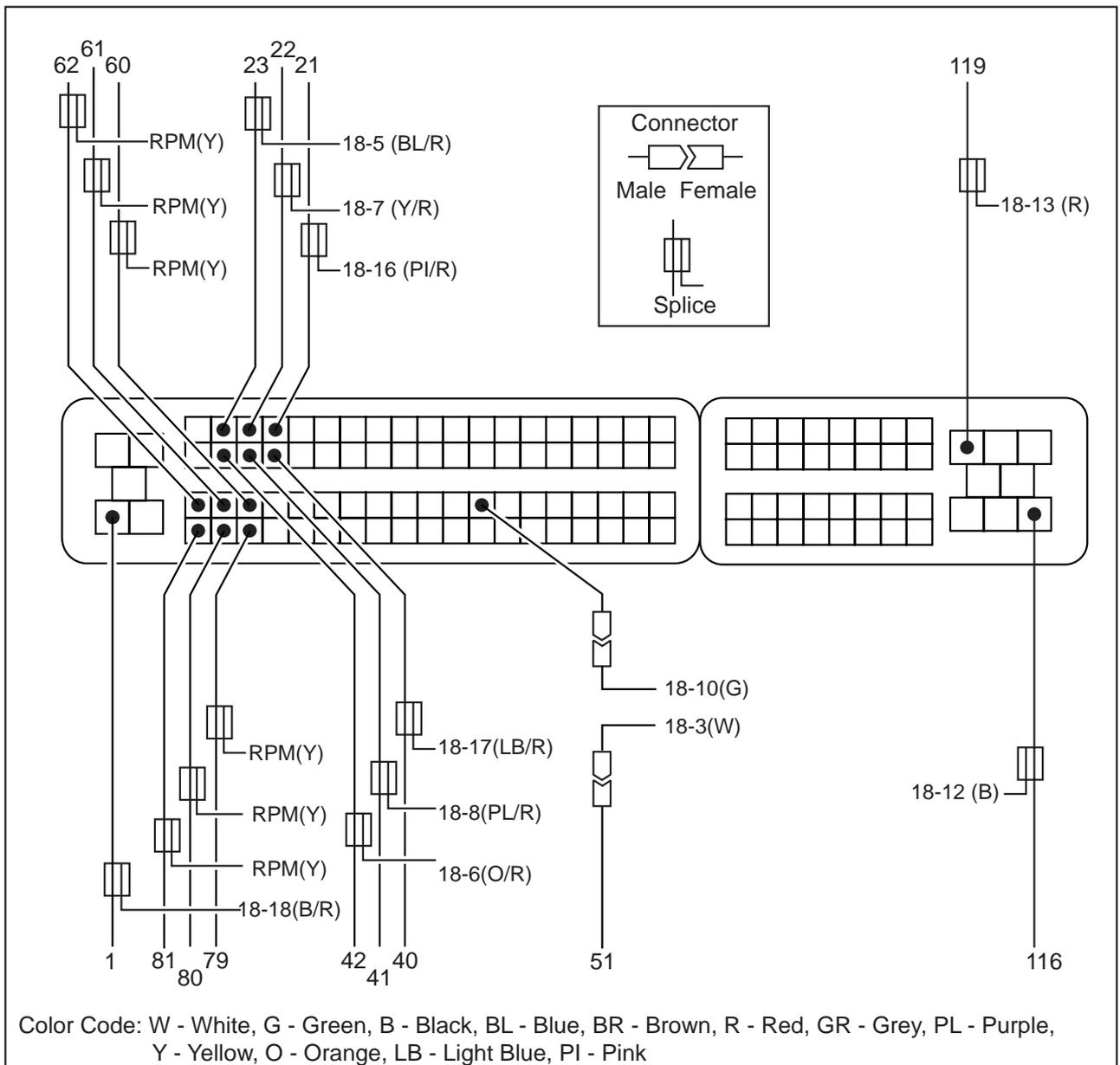
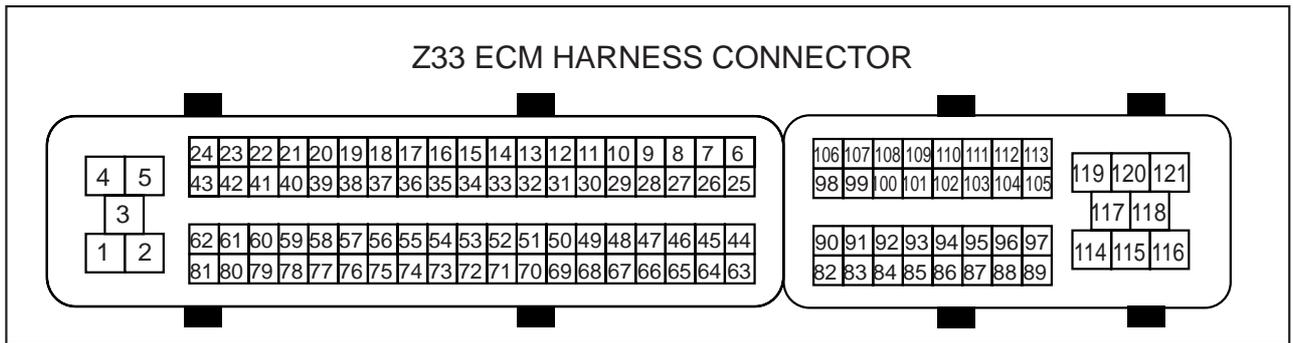
1. ECM is located behind the passenger side instrument lower panel. For this inspection, remove passenger side instrument lower panel.
2. Remove ECM harness connector.



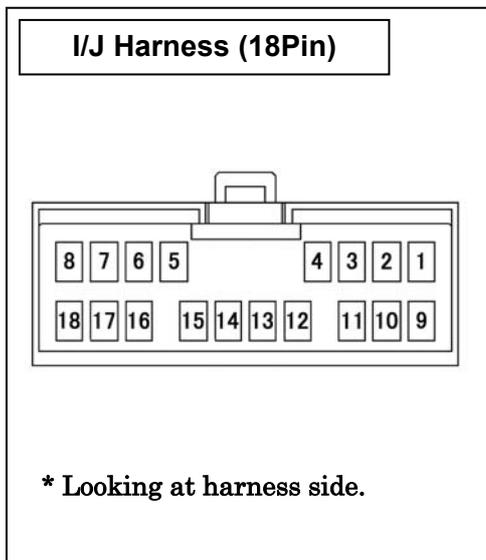
3. When disconnecting ECM harness connector, loosen it with levers as far as they will go as shown at right.
4. Connect a break-out box (SST) and Y-cable adapter (SST) between the ECM and ECM harness connector.
  - Use extreme care not to touch 2 pins at one time.
  - Data is for comparison and may not be exact.



# E-manage Installation



## E-manage Installation



e-manage			Factory ECU		
Pin #	Wire Color	Description	ECU Pin #	Color	Code
3	White	MAP IN	51 (harness Side)	Orange	Airflow Meter
5	Blue/ Red	INJ 1	23	Red/ Black	INJ 1
6	Orange/ Red	INJ 2	42	Black/ Red	INJ 2
7	Yellow/ Red	INJ 3	22	Red/ Yellow	INJ 3
8	Purple/ Red	INJ 4	41	White/ Red	INJ 4
10	Green	MAP OUT	51 (ECU side)	Orange	Airflow Meter
11	brown	RPM	RPM Adapter	Brown	
12	Black	GND	116	Black/ Red	ECM ground
13	Red	+B	119	Green/ Yellow	ECM Power
16	Pink/Red	INJ 5	21	Sky blue	INJ 5
17	Light Blue/ Red	INJ 6	40	Light green	INJ 6
18	Black/ Red	INJ GND	1	Black	ECM ground

Sensor Adapter		Connect to		
Wire Color	Description	Pin #	Color	Code
Yellow	RPM IN	60 ECU	PU/ W	IG#5
Yellow	RPM IN	61 ECU	L/R	IG#3
Yellow	RPM IN	62 ECU	Y/R	IG#1
Yellow	RPM IN	79 ECU	GY/R	IG#6
Yellow	RPM IN	80 ECU	GY	IG#4
Yellow	RPM IN	81 ECU	G/b	IG#2
Brown	RPM OUT	18 - 11 e-manage	Brown	RPM
Black	GND	116 ECU	Black/Red	ECM Ground

## **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.
3. Turn the ignition to "ON" position 2-3 times to get fuel pressure. Then, check the injectors and the fuel rail for any fuel leaks.

**\* Repair any fuel leaks before starting the engine. Starting the engine with a fuel leak can cause fire in the engine compartment and can be very dangerous.**

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 was 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  $0.4\text{kg/cm}^2$  to  $0.45\text{kg/cm}^2$ .  
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 11/25/03 this kit is not a street legal kit. Please ignore the label on the e-manage.**

#### ① ACTIVE L.E.D.

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

#### ② INTERACTION L.E.D.

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

## Checking Error Codes

When the unit is powered up and if there are any errors, the ACTIVE L.E.D will turn "RED" from "GREEN", and begin to flash.

If this happens shut the engine off and turn the ignition switch to "ON" position to go to Self Troubleshooting Mode. While in the Self Troubleshooting Mode, the L.E.D. will show the error code. Turn off the ignition. Check the error code in the chart below and fix the problem. The error code will show until the error is corrected.