



Here's the information we spoke about. If you have any questions, please call us.

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## BASIC UPGRADES FOR THE 81-83 280ZX-T, and 84-89 300ZX-T

Stock 280ZX-T HP = 180 @ ~ 6 - 7 PSI

Stock 300ZX-T HP = 200 @ ~ 6 - 7 PSI

Add JWT upgraded ECU can run about 11 PSI = ~ 225 HP \$595.00 exchange (core deposit \$500.00)

(Must use a boost controller to go higher than 6 - 7 PSI)

Manual boost controller kit \$149.00 (\$100.00 w/ECU purchase)

Greddy Profec B electronic boost controller \$420.00

HKS standard compressor bypass valve (recirculation valve) comes w/weld flange \$100.00

Add your own 2.5" -3" exhaust system and an intercooler system (see HKS for the 280ZX-T,) will allow you to run ~ 14 -14.5 PSI = ~ 260 HP.

Spearco intercooler system for 1984-89 300ZX-T (this is a complete kit, 88-89 requires some modifications.) \$1195.00

The original factory injectors will allow a maximum of ~ 260HP due to their 259cc flow rate.

For more horsepower than the above system upgrades can do, use our 450HP Control System Upgrade. See the following information sheets on our 450HP Control System for more info on this system.



## 450 HP ENGINE CONTROL SYSTEM UPGRADE FOR 1981-89 280ZX/300ZX TURBO

### Description/Parts List

Purpose: This conversion is required when horsepower requirements exceed the limits of the stock injectors and flow meter. Note that a working knowledge of the control system is required before attempting this conversion. This conversion is not intended for applications subject to specific emission control requirements and should not be used for such applications.

#### **Parts needed:**

1. We supply 420cc injectors. On 1986-89 300ZX-T you will need a fuel rail set from a 1984-85 model that uses top feed injectors.
2. We supply 6 dropping resistors. Note: 1981 already has dropping resistors and doesn't need them.
3. We supply the Ford Mustang Cobra MAF and harness adapter plug.
4. We supply the MSD 43 GPH inline fuel pump for 81-83 ZX-Ts. Use 90+ 300ZX-T for other Zs.
5. We supply a note sheet along with the conversion parts to explain the steps of installing some of the parts and some other required changes.

#### **A few of the following parts must be obtained on your own:**

1. You supply an ECU from a 1988-89 300ZX. See additional info. page for useable part numbers.
2. If you have a 1982-83 280ZX-T, you supply an "encoder disc" from a 1984-89 VG30 Distributor. (This is under the distributor cap and dust cover. Mark which side is up before removing.)
3. If you have a 1981, you must also convert to a 1982-83 distributor and drive.

#### **Additional Parts Recommended to Obtain the Best Power Gains:**

1. Turbocharger upgrade: The Wolftech Sport 350 (350 HP potential,) is a bolt on. The Wolftech Sport 400 (400 HP potential,) is a bolt on and requires a larger inlet hose. We now have a Wolftech Sport 450 Turbo (450 HP potential,) call for current price.
2. Boost controller: We have a basic manual boost controller or an electronic boost controller.
3. Intercooler kit.
4. Free flowing exhaust system.

QTY	DESCRIPTION	Part No.	PRICE
1	Upgrade and convert your 88-89 ECU core		\$595.00 exchange
6	420cc injector	IZ314-40000	\$100.00 each
6	Dropping resistor (6.8 ohm/10 watt)	IRES6-6OHMS	\$3.00 each
1	Ford Mustang Cobra MAF w/harness adapter	IMAF-COBRA	\$325.00
1	MSD 43 GPH fuel pump (use on 81-83 Zs)	IPUMP-MSD43	\$168.80
1	Manual boost controller kit (\$100 w/ECU purchase)	BMADJ-10000	\$149.00
1	(Optional) Greddy Profec "B" electronic boost controller	BCONT-PROFB	\$420.00
1	(Optional) Wolftech Sport 350 turbocharger	W4450-S3076	\$795 exchange
1	(Optional) Wolftech Sport 400 turbocharger	W4554-S3090	\$895 exchange
1	84-89 300ZX-T Intercooler kit		\$1195

# 450 HP ENGINE CONTROL SYSTEM UPGRADE FOR 1981-89 280/300ZX TURBO

## Installation/ECU selection

- 1 Confirm that you have the correct ECU for the upgrade using the table below. If your car is a 1984-87 you will need to obtain a good 1988-89 ECU of the correct part number found in the table. It is important to confirm the type of O2 sensor now being used in your car. This can be quickly checked by measuring the wrench size used to remove it and confirm that it is the same as the size in the second column below. Once you have the correct ECU to be upgraded, it must be reprogrammed by Jim Wolf Technology before it will work with this upgrade.
- 2 If your car is a 1986-89 you will need a fuel rail set from a 84-85 model that uses top feed injectors. The part numbers are 17521-V5220 for the left fuel rail and 17522-V5220 for the right fuel rail. This will convert you bottom feed injector (2 hoses to each injector) system to accept the 420cc top feed injectors.
- 3 Install dropping resistors (see diagram at lower right) by cutting each injector signal wire near the ECU connector and solder a resistor inline with each wire. Use shrink tubing to insulate all bare wire and solder joints. Arrange the resistors so the wires are relaxed and are not squashed into the other wires. The injector wires are the 6 wires connected to the ECU at pins #101 thru 106. These are located on the lower connector (as seen mounted in the car), it has 3 rows of pins. Pins #101 thru 106 are the 6 pins in the row opposite the connector lock tab. This step is necessary because the 420cc injectors are low impedance and need resistors to lower the current flowing through them.
- 4 To install the 93 Cobra Mustang MAF sensor refer to the page on installation of the MAF sensor.
- 5 If your car has had the **Nissan factory injector recall**, refer to the page on this subject.

MODEL OF CAR YOU WANT TO UPGRADE	CONFIRM THAT YOUR CAR'S O2 SENSOR HAS THIS NUT SIZE	ECU(S) THAT CAN BE USED FOR THE UPGRADE	ALTERNATE NO. FOUND ON OUTSIDE OF THE ECU
81-85 ZXT	22MM	23710-25P01	A18-A00 M42
81-85 ZXT	22MM	23710-25P00	A18-A00 M84
81-85 ZXT	22MM	23710-25P11	A18-A01 M43
81-85 ZXT	22MM	23710-25P10	A18-A01 M85
81-85 ZXT	22MM	23710-25P06	A18-A02 M44
81-85 ZXT	22MM	23710-25P05	A18-A02 M86
81-85 ZXT	22MM	23710-25P16	A18-A03 M45
81-85 ZXT	22MM	23710-25P15	A18-A03 M87
86-89 300ZXT	17MM	23710-26P01	A18-A04 M46
86-89 300ZXT	17MM	23710-26P00	A18-A04 M94
86-89 300ZXT	17MM	23710-26P11	A18-A05 M47
86-89 300ZXT	17MM	23710-26P10	A18-A05 M95
86-89 300ZXT	17MM	23710-26P06	A18-A06 M48
86-89 300ZXT	17MM	23710-26P05	A18-A06 M96
86-89 300ZXT	17MM	23710-26P16	A18-A07 M49
86-89 300ZXT	17MM	23710-26P15	A18-A07 M97

### INJECTOR WIRE COLOR CHART

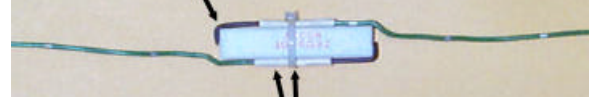
INJ #	ECU PIN #	V- (FROM ECU)	V+ (FROM BAT.)
1	101	GRN	RED
2	102	GRN/BLK	RED
3	103	GRN/BLU	RED
4	104	GRN/YEL	RED
5	105	GRN/RED	RED
6	106	GRN/WHT	RED

TITANIA TYPE O2 SENSOR  
USES 17 M.M. WRENCH



ZIRCONIA TYPE O2 SENSOR  
USES 22 M.M. WRENCH

**INSTALLING INJECTOR RESISTORS**  
COVER LEADS WITH SMALL SHRINK TUBING  
AND BEND LEAD AROUND RESISTOR SO IT  
POINT TOWARDS OPPOSITE END.



SOLDER AND SHRINK TUBE WIRES  
SECURE WIRES TO RESISTOR BODY  
USING A NYLON ZIP TIE



# REESTABLISHING THE CORRECT INJECTOR TIMING ON 84-89 NISSAN 300ZX TURBO IF THE FACTORY INJECTOR RECALL HAS BEEN PERFORMED

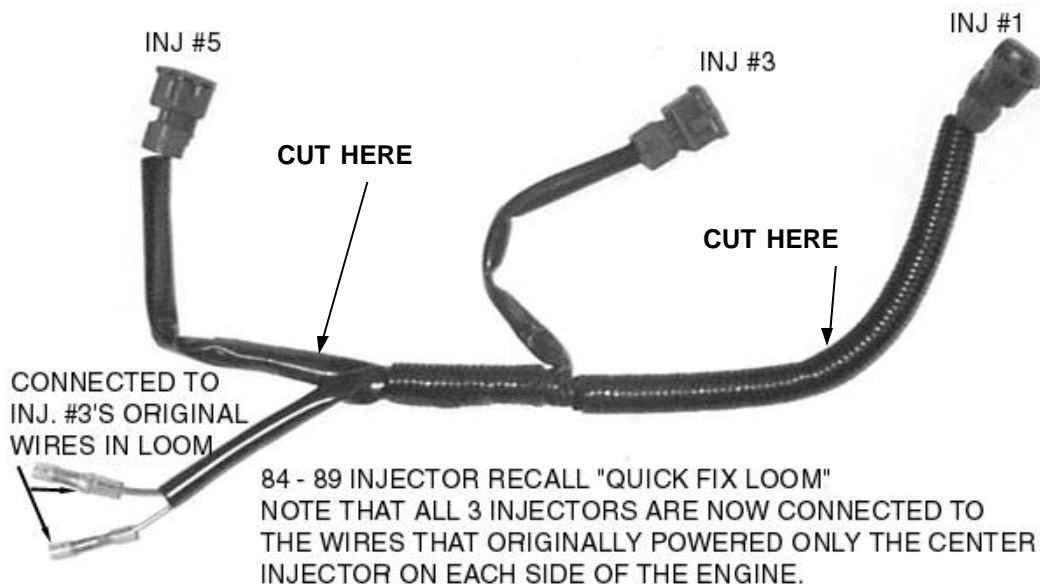
To insure precise fuel control when performing power upgrades on 84-89 300ZX turbo models, please inspect the injector wire looms to see if Nissan has performed the injector recall modifications. During this recall, the injector wires are replaced. To reduce the labor cost of the recall, all three injectors on each side of the engine are wired together to the center injectors original wires (SEE PICTURE BELOW). The 300ZX turbo uses a group mode injection timing (cyl. 1,2,3 and cyl. 4,5,6 are injected as alternating groups) that is adversely affected by the recall modification. If you find this recall modification was performed, the injector wires must be restored to their stock configuration. This can be done as follows.

- 1 Disconnect the battery as the ECU may be damaged.
- 2 Carefully cut back the tape and covering material on the injector wires.
- 3 Cut the injector wires going to injectors on cyl. 1,5,2, and 6 (all except the middle injectors). The cut should leave the maximum length on the injector side so cut them as close to the junction in the loom as possible. Tape off the wire ends on the loom side to prevent electrical shorting of the wires.
- 4 By cutting back the tape added during the recall, find the original injector wire pairs for the #1,5,2, and 6 injectors. See below for wire colors.
- 5 Using solder and shrink tubing, connect the injector leads you cut off in step 3 to the wires you located in step 4. Retape the loom and connect the injectors and battery.

INJ #	ECU PIN #	V- (FROM ECU)	V+ (FROM BAT.)
1	101	GRN	RED
2	102	GRN/BLK	RED
3	103	GRN/BLU	RED
4	104	GRN/YEL	RED
5	105	GRN/RED	RED
6	106	GRN/WHT	RED

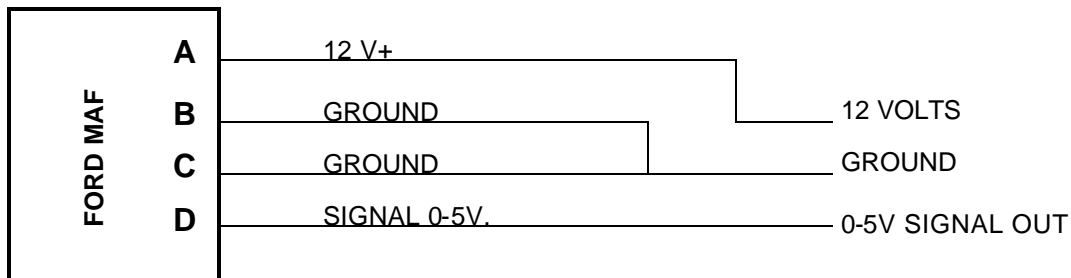


### RIGHT SIDE SUB -HARNESS ADDED BY NISSAN DURING INJECTOR RE- CALL



# ADAPTING A FORD MAF SENSOR F1SZ-12B579-A (93 FORD COBRA MUSTANG) INTO A NISSAN CONTROL SYSTEM

Use ford connector kit **F43Z-14A411-A** to replace the original Nissan MAF wire loom connector. The kit contains solder and shink tubing to make solid water tight splices. Cut the wires and solder them to the correct Ford connector wires (see chart below). This conversion will only work with a JWT ECU programmed specifically for this MAF sensor.



\*Due to the variations of Nissan wiring between models, this may not be the correct Nissan MAF sensor pins for the model you are working on. You must confirm that Ford pin "A" is connected to 12v+. Ford pins "B" and "C" are connected to the Nissan ground wire. Ford pin "D" must be connected to the Nissan 0-5V MAF signal wire.

**CONFIRM THE CONNECTIONS USING THE FACTORY MANUAL**

MODEL	12 VOLT	0-5V SIGNAL OUT	GROUND
91-94 SER (SR20)	ORANGE /BLUE STRIP	ORANGE	WHITE
95-98 SER (SR20)	WHITE / RED STRIP	ORANGE	WHITE
89-98 240SX	BLACK/WHITE STRIP	WHITE	BLACK
81-83 280ZXT	YEL / BLUE STRIP	YEL / RED STRIP	BLACK
84-89 300ZXT	BLACK / WHT STRIP	BLACK SHIELDED	BLACK (BOTH)

ANY WIRES THAT ARE NO LONG USED IN THE WIRE LOOM, SHOULD BE TAPED UP TO AVOID SHORTING.

# 450 HP ENGINE CONTROL SYSTEM UPGRADE FOR 1981-89 280ZX/300 TURBO

## Additional Steps For 280ZX Turbo Only

This conversion is required when horsepower requirements exceed the limits of the stock injectors and restriction of the original "flopper door" flow meter. Note that a full knowledge of both systems is required before attempting this conversion. We assume no responsibility for the content of these notes and their use for this modification. A logical pin by pin inspection is required by the technician to establish that all systems will function correctly and safely for the intended use and application. This conversion is not intended for applications subject to specific emission control requirements and should not be used for such applications.

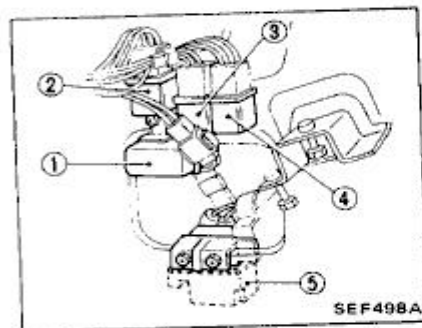
1. If conversion is being done to a 1981 280ZX turbo with crank triggered ignition, a **distributor and drive from a '82 or later** is needed.
2. Install the **encoder disc** from a **Z31 300ZX** (anyone will work) in to the 280ZX turbo distributor. Mark which side is **up** and install in same direction.
3. Unplug and **discard the VCM** (vacuum control module) it is not compatible with the Z31 ECU. Idle must be adjusted by adjusting the throttle stop or by adding an adjustable air bypass valve.
4. Follow the diagram for the **MAF / Flow Meter plug conversion** on next page.
5. **82-83 ONLY:** Unplug the **Fuel Pump Module**. Fuel pump control is now done inside the Z31 ECU and the module is not needed. Also ground the fuel pump ground wire direct to a good ground, as the pump no longer has a ground with the module removed.
6. At the **Fuel Pump Relay connector**, cut the **black wire** about 2" below the relay and solder the black 2" end at the relay to the **white wire with a black strip (see note below)** at the relay (**do not cut this wire**, you are simply tapping into this wire to get 12V+ to the black wire at the relay. The harness side of the black wire can be taped up as it is no longer used here.
7. **Disconnect the detonation sensor**, as it is not tuned to the Z31 ECU and won't function correctly.
8. Install the Jim Wolf Technology modified 300ZX ECU.
9. Six dropping resistors need to be installed on the injector wires coming from the ECU to the injectors (1981 already has dropping resistors and does not need them). Because of the improved injector timing on the later ECU, the injector wires going to cyl #2 and #5 from the ECU must be cut and switched with each other (wires from pins #102 and #105 from the ECU). This can be done as you add the dropping resistors.
10. 1981 only: add a wire with unswitched 12v to pin #114 at the ECU. This retains ECU learned information after the key is turned off.

- Note:
- This may actually be a black w/white strip in some cars, it is incorrectly stated in the Nissan factory manual.
- If it's White with a black strip, it is 12v+
- If it's Black with a white strip, it's switched 12v+



### CHECKING FUEL PUMP RELAY

The fuel pump relay is installed on the dash right side.



- 1 Seat belt warning timer unit
- 2 Fuel pump relay
- 3 Ignition relay
- 4 Accessory relay
- 5 Fan motor timer unit