

[www.300ZX.com](http://www.300ZX.com)  
770-838-7777

## Z1 Motorsports

2877 Carrollton / Villa Rica Highway  
Carrollton, GA 30116

### Z32 NA to TT Conversion information

We've gathered all this info over the past several years through many turbo conversions. We have tons of TT and NA parts here to compare and a Nissan computer system at our disposal. We receive many emails/calls asking if we can do a conversion or can sell the parts to do it. We can do it for around \$8750 if you have a 5 sp NA, around a \$1000 more if you have an auto, because we have to change the transmissions. We can also convert 5p to auto and vice versa for extra cost. They are with exchange of good NA parts and involve converting to a stock TT with used parts.

We do recommend installing certain parts new and upgrading certain things while we have everything apart for minimal extra labor costs. But that just depends on how far you want to go, it is easy to get up to \$15-\$20k quickly if you want a lot of performance parts. The only way we see fit to do the conversion is to buy a wrecked TT or front clip (which we have quite a few of) and transfer everything into the NA being converted, buying stuff piece by piece will take forever and become very expensive.

The majority of the differences are listed below.

## ENGINE

1. The cylinder block castings and main caps are the same. They both have oil squirters that direct oil towards the underside of the piston, but they point at different angles. The oil squirters on the TT direct oil straight into an off center hole on the underside of the TT piston, which leads to a hollow area inside the top of the TT piston. The NA squirters direct the oil towards the middle of the underside of the piston, which has no passages inside. They blocks have all of the same oil passages. Two passages are plugged with a bolt on the NA block (one on each outside face that feed the turbos on a TT). The TT block has two oil passages plugged inside where the oil filter bracket mounts. The NA has two small check valves in this location. They are plugged in the TT providing more pressure so that the oil will go through the lines to the oil cooler, which returns back to the oil pan. There are check valves on the inside of the TT oil filter bracket where the oil filter screws on, but none on the NA. The

purpose of these check valves is if the oil filter somehow becomes clogged or collapses that oil will still circulate.

2. The crankshaft is the same.

3. Connecting rods ARE the same!! (Same Nissan part #)

4. Piston rings and crankshaft bearings are the same.

5. Of course the pistons are different because of lower compression ratio in the **TT**, 8.5:1 in respect to 10.5:1 on the **NA**. The internal structure of the pistons is also different, the **TT** have a hollow ring inside the top that fills with oil for better cooling and a thicker dome towards the center. Oil pumps are different. They mount the same and are the same internally except for the spring for the pressure valve in the **TT** one is tighter so it produces more needed pressure to circulate oil to the turbos and cooler. You can actually just change the spring to the tighter one. The 94+ **NA** oil pumps and the replacement **NA** oil pumps from Nissan are different internally to the older ones and the TTs. They have internal gears with larger rounded teeth.

6. Oil filter bracket on a **TT** is different (longer) because it has an outlet that accommodates the hose going to the oil cooler. There is a spring loaded valve in the bracket that will not let the oil circulate to the cooler unless there is sufficient pressure. And then there are the spring loaded ball check valves that let oil bypass the oil filter if there is a problem, these are in the block on an **NA**. Oil filters are all the same.

7. Cams, lifters, locks, retainers, and valve springs ARE the same (90-93)(same Nissan Part #) The Auto **TT** has different intake cams (lower lift) but the intake cams on the 5 speed **TT**, **NA**, and auto **NA** are the same. The different intake cams in the auto **TT** along with the slightly smaller exhaust housings on the turbos results in 20 less HP in the auto **TT** (it was detuned to help the transmission last longer). All the exhaust cams are the same. The 94-95 cams were different than the 90-93 but just like the earlier ones they are all the same except for the intake cams on the auto **TT**. The 96 cams were ALL the same.

8. The valves are all the same size. But the exhaust valves on a **TT** are made from a stronger alloy (Inconel)

9. The heads are different between **NA** and **TT**. The castings are almost the same but not quite. The intake runners are of a different design in the turbo heads. The castings offer a more open port for the **TT**. We have used them interchangeably before without any problems, just probably

results in the loss of some power, when using **NA** heads on a **TT**. It is significant enough that it would take extensive porting to get **NA** heads up to **TT** specs. We use different spark plugs on the **NA** and **TT** but we see them used backwards and every way in between a lot. The **TT** ones we use are NGK PFR6B-11B which are slightly longer than the **NA** PFR6G-11. The longer plug is "colder" which helps with preventing detonation at higher boost levels.

10. The oil pan is different because the **TT** one has 2 tubes protruding on the sides where the oil return hoses for the turbos mount and another one for the hose returning from the oil cooler.

11. The turbo engine obviously has a few different accessories and systems to accommodate the turbos. The exhaust manifolds on the **TT** are much shorter than the **NA** ones, which go all the way down and tie into the exhaust section including the catalytic converters. The turbos are oil lubricated and water cooled. So there are oil and water, supply and return lines everywhere on a **TT** motor.

12. The throttle bodies are the same size but the passenger side one is different on a **TT** simply because one of the water lines attached to the bottom of it has a junction in it to feed water to one turbo. But we usually do away with all that nonsense with the water lines under the plenum running to the TB's in our warm climate. We just run water to and from the metal hoses on the back of the motor going to and from the heater core. Nissan added all the water lines under the plenum going through the TB's to warm the intake air charge in cold climates. I think they designed it for the **NA** and just didn't change it for the **TT**. You do not need this on a **TT**. You intercool your air to cool it down after it leaves the turbo, why try to heat it back up. Remove all the nonsense under the plenum. It makes life much easier.

13. The upper and lower intake manifolds (plenums) are the same **TT** and **NA** 90-92. Newer ones are different from the earlier ones. They made the change to the new style injectors, lower plenum, and the intake port on the heads in 93 for the **NA** but not till 95 on the **TT**. So the lower plenum and heads on a 93 -94 **NA** are different than those on a 93-94 **TT**. The upper plenums changed just a small bit in 94 when the angle that the flange of one of the EGR tubes bolts on to the plenum rotated about 30 degrees. Just enough stuff to make interchanges a pain.

14. Motor mounts are the same, but I have a secret on that. I guess I'll let it out if you've read this far although I have made some money because of it. The convertible motor mounts are the same but substantially cheaper for some reason. Motor mounts are broken into

almost every time we pull a motor, so we go through lot of them and have saved \$.

15. Head gaskets have a different part #s but appear to be the same we use all **TT** ones because they are less expensive also.

16. Water pump, PCV valves, exhaust gaskets, intake gaskets, plenum gaskets, valve cover gaskets, seals, Timing belt, thermostat all the same.

## ELECTRICAL

1. Nissan claimed the **TT** coil packs were different a couple years ago and charged a lot more for them. I checked them and found that they were the same and now Nissan lists them as the same. I guess they got caught on that one.

2. Of course the ECU is different, along with a different transmission computer on the automatics, other than that there are no control units that must be changed. We can upgrade a **NA** ECU to upgraded **TT** specs for \$250 which is usually a better idea than buying a **TT** ECU then paying to have it upgraded later.

3. The main engine (EFI) harness is different also, but a **NA** harness will work in an **TT**, you just will not have the connections for the boost control solenoids which you don't need anyway if you have a boost controller. I don't recommend wasting your time with the conversion if you are too cheap to buy a boost controller. If necessary we have an easy way to remove the engine harness without removing hardly anything inside the car. There is an aluminum bracket bolted right inside the firewall that makes the engine harness difficult to change. The bracket is bolted in behind the heater core and AC evaporator so it is hard to remove from the inside. We take a pneumatic reciprocating saw and cut the passenger side of the bracket into from inside the engine bay and then with some prying the bracket pivots around on one bolt and moves out of your way.

4. If converting **NA** --> **TT**, I would leave the interior harness and gauge cluster alone. They will work with the **TT** setup. Get a stand alone boost gauge because the stock one sux. You would be insane to add the HICAS system or stock electronic adjustable suspension to a **NA** so you will not need the **TT** interior harness. I would leave all major wiring harnesses alone when doing a conversion.

5. MAF, PTU, TPS, IAA, AIV, EGR, O2 sensors, Detonation sensor, Coolant temperature sensor are all the same.

6. The electrical AC Condenser fan is different on a **TT**. The motor has three wires (2 speed) going to it as opposed to two (one speed) on the **NA**. But you can get by with the **NA** one on a conversion. The mechanical fan is the same but the fan clutch is different. The TTs have a yellow dot on the front and are tighter than the NAs with an orange dot.

7. The starters are all the same.

## OTHER DRIVETRAIN

1. If converting most people would keep the **NA** rear differential, because a lot of **TT** owners switch to it anyway. It has a lower ratio (4.08 compared to 3.67) that will decrease your top speed but enhance take off. Plus converting differentials is not easy. You must change the entire rear subframe because the differentials mount completely different. You would also have to change the halfshafts, which have a six bolt flange on the **TT** where they bolt to the diff (compared to five on the **NA**) and the ends are larger diameter where the splines go into the hubs. So the hubs are different. Since the **TT** has the Hicas tie rods in the rear there is an additional suspension arm on the **NA** to make up for the lack of support there. Because of the way these bolt up differently to the knuckle, the knuckles are different also, unless you press a ball joint out and somehow press a hollow bushing back in.

2. As long as you keep the **NA** rear diff, the **NA** driveshaft will work. The **TT** driveshaft will not work with an **NA** diff or vice versa. The **TT** driveshaft has a CV joint at the end where it bolts to the differential and larger U-joints. There are 6 different driveshafts for the Z: **TT** auto and 5sp, 2s **NA** auto and 5sp, and 4s **NA** auto and 5 sp. The stock driveshaft is a 2 piece so you can mix and match combinations and usually come up with something that will work what ever you are trying, because they will all bolt together in the middle. The center support bearings will work interchangeably although they are listed differently and there is a little issue about shimming one. We buy all new **TT** ones because they are cheaper. But the best idea is probably just to go with a one piece unit anyway. We have one piece driveshafts for any combination in stock. They are almost half the weight of the stock driveshafts. They have replaceable U-joints (the units in the stock shafts are almost always bad and can't be replaced. And they offer better torque transfer.

3. The **NA** and **TT** have the same 5 speed transmission model #, same splines on input and output shafts, etc. and the housings are the same

except for one small difference. The spot where the starter mounts on the bellhousing on the **TT** is machined a little differently so that the starter will properly engage the slightly larger diameter flywheel and so that the flywheel teeth won't scrape the inside of the bellhousing. You can use an **NA** 5 speed in a **TT** but you just have to shim the starter out a little with some flat washers and sometimes grind a little out of the inside of the bellhousing so the **TT** flywheel will fit inside. If trying to use a **TT** trans in an **NA** you would either have to grind down where the starter mounts so that it could engage the smaller **NA** flywheel or just use the **TT** flywheel, which could be used with only a **TT** clutch. The internals are the same between the **NA** and **TT** 5 sp transmissions, although all the 94 + models had redesigned stronger internals. I have used them interchangeably without problems. The automatic transmission is different for a **TT**, but the **NA** auto would still fit in place behind the **TT** engine, but probably wouldn't last long. They are different lengths and you would have to use the corresponding driveshaft. Both autos are geared virtually the same but the **TT** one is built for heavier duty.

4. The speed sensor gear in the transmission is different, different size for **NA** and **TT** because of the different ratios in the diff. So if you are using a **NA** diff you need a **NA** speed sensor gear. The speed sensor is different auto and 5 sp also.

5. The **TT** clutch has a larger contact face, a stronger pressure plate and a slightly larger diameter flywheel. You can use a **TT** flywheel in an **NA** by shimming out the starter but can't use a **NA** flywheel in a **TT** without cutting down the spot where the starter mounts to the **TT** transmission. You have to use a **TT** clutch assembly with a **TT** flywheel and the same with **NA** because of the way the pressure plate bolts to the flywheel. The **TT**s also included a clutch booster assembly because of the stronger pressure plate. The clutch pedal and master cylinder were different because of a vacuum assisted clutch booster inside the firewall. The booster included two plastic tanks for vacuum storage also, one under the driver's fender and one under the clutch master cylinder and a network of hoses connecting them all. Because of the clutch booster, the clutch pedal and master cylinder are different between **NA** and **TT** but all the slave cylinders are the same. You don't have to add this setup when doing a conversion (a lot of trouble) the clutch pedal will just be stiff but it's not unbearable in my opinion.

## OTHER

1. The Radiator and AC Condenser are MUCH different. They are much narrower on a **TT** so the intercooler piping can go around each side. The front lower core support is also different (but can be modified to work

with a little cutting and welding) because the **TT** radiator and condenser mount farther down into brackets, because they are taller to make up for the difference in width.

There are some differences in the AC lines also. The upper radiator hose on the **TT** is different but the lower one is the same. We often go to home depot and buy some chrome drain pipe to replace the bottom section of the radiator hose which can collapse. We just splice it in with some clamps, better than paying for the Stillen solid hose and easier to work with when removing/installing the radiator.

2. When swapping the **NA** rear diff into the **TT** the best option is to do away with all the Hicas lines, solenoid, reservoir, pws pump, etc. The **NA** pws pump is smaller and provides less drag on the motor. Plus the **TT** pump has two chambers, one for the front and one for the rear. So if you eliminate the HICAS what do you want the fluid pumping back there for? Like with the return fittings Stillen supplies for their HICAS elimination bar. You also don't want to just disconnect all of that and still run a **TT** pump, because it requires lubrication in the rear chamber provided by the fluid. So if converting you would hopefully stay with the **NA** pws pump. The mounting brackets and bolts on the block for the PWS pump are different for the **TT** and **NA** as well as the length of the bolt that the pump pivots on.

3. The front steering racks look and fit exactly the same but they have different gear ratios inside providing for more turn with less steering wheel travel in the **NA** which doesn't have the rear wheels to assist. But it isn't something to change in a conversion.

4. The rest of the front suspension is the same, except for shocks and springs. The **TT** shocks are the 2 way adjustable units and the **TT** springs are more progressive, but in a conversion I would just go with aftermarket performance units on both. The **TT** swaybars are also stiffer but no big deal, just go aftermarket performance with that also at your convenience.

5. The calipers and rotors are all the same size except for in 90 when the **NA** calipers supported a slightly thinner 26 mm wide rotor. There was not enough cooling capacity in that rotor so all the later NAs and all TTs had 30mm wide rotors. The calipers were all aluminum until 93 when they went to cast iron.

6. The **TT** alternator is higher output (90A vs 80A) but they are interchangeable. I don't think putting a **TT** alternator on an **NA** is a bad idea.

7. The AC Compressors are the same for corresponding year models.

8. The **TT** has all of the intake/turbo/intercooler piping, intercoolers, and recirculation valves. On an **NA** air goes from the intake to the throttle bodies, for a **TT** we go in the intake to the turbos back up front to the intercoolers and then to the throttle bodies (big difference). This can be one of the most difficult things to put on a **NA**, because all the brackets that attach it to the frame on the **TT** do not exist on the **NA** you just have to get it in there and support it the best you can. It isn't easy to find used and is one of the main reasons I recommend buying an entire wrecked **TT** for parts if you are trying to convert from an **NA**. When I have complete sets of plumbing for a **TT** we sell them together for around \$600 (minus intercoolers and turbos) which is only a fraction of what they cost new.

9. The exhaust is different for the **TT** (every single section is different in some way). Although if you get the J-spec downpipes (which are stock in Japan in the place of our pre-cats on **TT**'s) an **NA** exhaust will bolt right up and work fine but I recommend at least getting the performance cat-back which with the J-spec down pipes and **NA** cats will be a nice reasonably free-flowing setup. The **TT** muffler sections have mandrel bent piping and the **NA** ones do not. The **TT** resonator section has a smaller resonator because TTs make less noise (the turbos baffle a lot of it). The catalytic converters include piping that go all the way up to the manifolds on an **NA** or to the pre-cats on a US **TT**. The **TT** ones are shorter because the pre-cats come down farther. The Japanese **TT** catalytic converter sections and the US **NA** are the same, because of those nice little downpipes that come off the turbo stock in Japan instead of the restrictive, in the way of everything, pre-cats we have in the US.

10. The fuel system is also different. The fuel pump and fuel pump control units are different corresponding to the higher output **TT** injectors. But you can get by with the **NA** pump and control unit on a **TT** without extreme mods. The fuel rail, filter, pressure regulator, and dampener are all the same.

11. Of course the front fascia is different with the gills in the bottom corners so air can get to the intercoolers. The fascias are completely interchangeable but, if converting over most just buy an aftermarket fascia (Stillen, WW, etc.), all of which will work for **NA** or **TT**. As you all know the **TT** came with a stock rear spoiler.