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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 (on earlier models) 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 and exhaust 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. We 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. Motor mounts are broken into almost every time we pull a motor.

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. We strongly suggest sticking with and just upgrading your existing NA ECU when performing a TT conversion. It properly communicates with your existing NA fuel pump control module. If you have an existing TT ECU that came with a front clip or a parts car you are using for the conversion, we will give you credit for the TT ECU against converting your existing NA one to an upgraded TT program.

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. If you use an your existing NA harness or a new NA harness do not use a TT ECU. Simply have Z1 upgrade your existing NA ECU and send you TT ECU in for credit.

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 is inaccurate. 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. We 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 TTs 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 at all a problem in our 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 recommend going with silicone radiator hoses including a lower hardpipe which are for sale on our website.

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? 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 widen 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. We 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 \$700 (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. When doing TT conversions at Z1 we always go with a set of divorced downpipes and usually a set of TT test pipes bolted to a performance catback system for the best performance.

10. The fuel system is also different. The fuel pump is considerably different. A good NA fuel pump can support 400-450 rwhp. A good TT fuel pump can support 700-750 rwhp. The TT has larger 370cc injectors as compared to 270cc for the NA.. Although an NA fuel pump in good condition will usually support the output of a stock TT, we recommend going ahead and upgrading to the TT fuel pump for the assurance of knowing you'll have enough fuel and not run lean. The fuel rail, filter, pressure regulator, and dampener are all the same. The fuel pump control units are different. The 90-93 NA models run the pump at 2 speeds and the TT run the pump at 3 speeds. We recommend leaving in the NA fuel pump control unit (FPC) as there is no problem running the TT pump at 2 speeds. As well as the fact that if running the TT FPC you'll need to run a TT ECU that is capable of supplying signals for the three speed controller. Then you'll have to run an extra wire through your car from the TT ECU to the TT FPC that controls the third speed because that wire doesn't exist in the NA body harness. Moral of the story is upgrade your NA ECU to TT specs, and drop in a TT fuel pump. It's less parts to buy, less work, and you'll have enough fuel for 700 rwhp+ .

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 (99 JDM, Stillen, WW, etc.), all of which will work for NA or TT. As you all know the TT came with a stock rear spoiler.