



*Nissan VG30 Turbo400 automatic transmission adapter kit*

## **Parts List**

(1) Bellhousing adapter

### Hardware:

(4) 82° tapered seat allen drive bolts

(4)  $\frac{5}{16}$ " NC x 2  $\frac{1}{2}$ " grade 8 flange-head bolts

(6)  $\frac{5}{16}$ " NC x 1  $\frac{1}{4}$ " grade 8 flange-head bolts

(9) Viton o-rings, front side,  $\frac{7}{16}$ " OD (1 EXTRA)

(9) Viton o-rings, back side,  $\frac{5}{8}$ " OD (1 EXTRA)

## **Tools Required (to install kit onto transmission)**

$\frac{3}{16}$ " Allen socket

$\frac{1}{2}$ " socket

Torque wrench

Moly based grease

## **Transmission**

The bellhousing needs to be machined off of the TH400 case (Figure 5) to allow the ZD30 bellhousing and BDE adapter to be fitted. Fortunately, this is the very same requirement to fit a *JW Performance Ultrabell*. Utilizing this technique allows the transmission to be easily converted to any application that is serviced by the *JW Ultrabell*, so there is no value lost with this modification to the transmission.

**TIP:** the transmission case must be machined 0.010" to 0.040" below the pump surface to allow the adapter plate to position properly on the pump. This typically means that the transmission will need to be disassembled to do it the right way. **Do not cut the oil pan rail to the same depth** as the rest of the housing; the adapter plate is relieved on the bottom to allow the oil pan rail to remain un-modified.

Note: some late TH400 pumps are only drilled for 6 bolts – do not be concerned if you have this type of TH400 pump, 6 bolts torqued properly are more than enough to handle the loads.

## **Bellhousing Adapter**

Because of the way the TH400 is cast, it has the potential to leak fluid through the pump bolt holes; GM used plastic washers under the bolt heads as gaskets to prevent this. The BDE bellhousing adapter has o-rings engineered to seal both the bolt shank and the adapter to the pump, thereby preventing leaks entirely.

- Remove the OE bolts from the front pump and discard.
- Clean the surface of the pump and ensure that the housing is machined lower than the pump surface and that there are no raised burrs.
- Install eight (8) large Viton o-rings into the counter-bores on the back of the adapter (Figure 1).



**Figure 1** –adapter back o-rings



**Figure 2** – adapter front o-rings

- Install one small o-ring onto each of the four (4) tapered seat bolt shanks and grease the shank, threads, and under-head surface entirely (Figure 3).
- Install the adapter with the o-rings towards the pump and thread the taper seat bolts into the transmission. Leave these semi-loose until all four are installed and then snug them all – this will help to center the adapter onto the transmission.

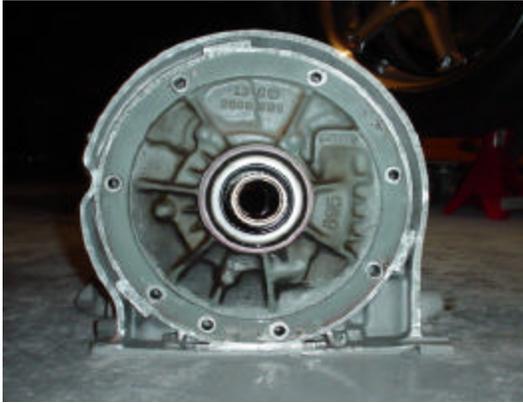


**Figure 3** – front o-ring installed on tapered bolt

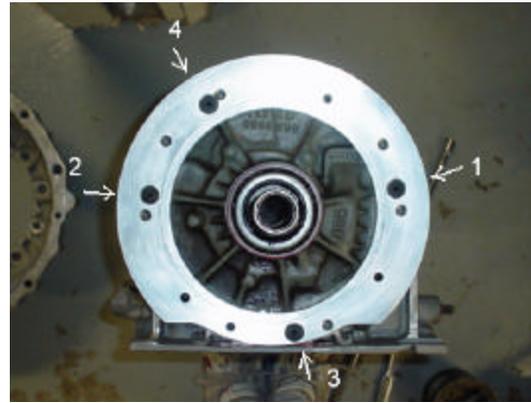


**Figure 4** – adapter front o-ring locations

- When all four bolts are installed and snug, verify that none of the back o-rings have become dislodged, preventing the adapter from sitting flat on the pump surface.



**Figure 5** – Machined housing and pump face

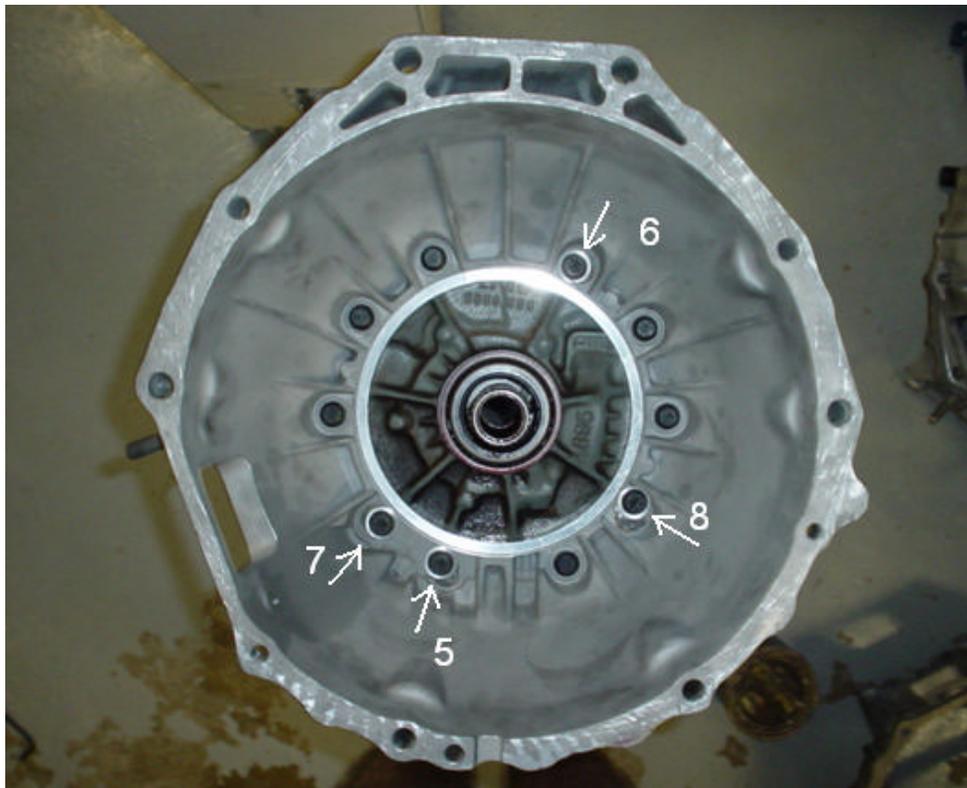


**Figure 6** – Adapter installed, torque sequence

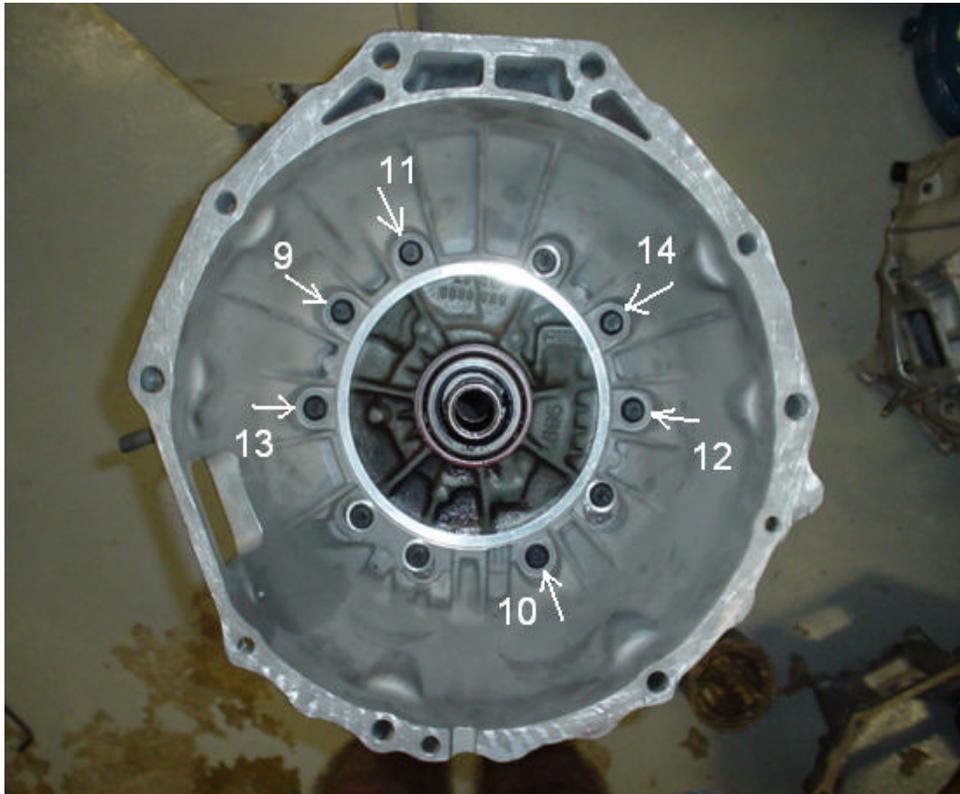
- Torque the bolts using a 3/16” Allen drive socket to 18 ft-lbs (see Figure 6 for torque sequence) and wipe off any excess grease.
- Install the small o-rings into the remaining four (4) front adapter pockets (Figure 4), smear some grease onto these so the bolts don’t tear them during assembly.

### ***Bellhousing***

- Place the bellhousing onto the adapter and rotate into position (sight through bolt holes 5, 6, 7, and 8 [Figure 7] which index the entire assembly).



**Figure 7** – VG30 bellhousing installed, long bolt torque sequence



**Figure 8** – Short bolt torque sequence

- Grease the entire shank and under-head washer surface of the four (4) 2 ½” long bolts and thread into positions 5 - 8 (Figure 7) through the adapter o-rings and into the transmission threads. Torque to 18 ft-lbs using Figure 7 torque sequence.
- Grease the remaining short bolt’s threads and under-head washer and install
- Torque bolts 9 – 14 to 18 ft-lbs using Figure 8 torque sequence.