

# HPR Supra MKIV DCT installation guide



Rev 2 03/12-2020



## Kit contains:

- Flywheel with starter ring gear and spline drive
- Billet cnc transmission adapter
- HPR ultra flex transmission mount
- HPR cnc milled angle Mounts
- HPR transmission crossmember
- HPR output flange to suit Supra auto or 1350 propshaft
- 1 new output shaft seal
- 2x bobbin transmission mounts
- All bolts and hardware

## Flywheel installation

- Inspect crank mounting face and make sure it's clean and flat.
- Inspect all treads and check that bolts go in free by hand, re-tap threads if necessary.
- If applicable, mark off orientation on spline drive and remove it.  
The entire assembly is balanced together, so make sure it gets back to its original orientation.
- Measure flywheel/crank snout thickness and make sure that the flywheel bolts are not too long. (it has been reported once that the supplied 12.9 bolt where too long, and hitting the block behind the snout)
- Torque down the flywheel according to manufacturer's specifications and torque.  
We recommend using OEM bolts with light duty threadlocker.  
You can also use the 12.9 which is included in the kit. (M12 12.9 Torque is **160Nm**)
- Make sure that the flywheel bolts have clearance to the block, and that the engine spins freely after installation.
- Re-install spline drive to flywheel and cross torque in 3 steps with light duty threadlocker:  
**Step1 20Nm Step2 50NM Step3 73Nm** (this torque applies to M10 12.9 bolts)

## Adapter plate preparations

- Install adapter to transmission and install all the bolts onto the adapter.
- Make sure all bolts go in free by hand, and straight.
- If any of the bolts are too long, cut them down to the total length minus 1mm.
- Remove bolts, and make yourself a template for where the bolts should go in the bellhousing (ie bolts in a cardboard box with the bellhousing pattern)  
This will ease the installation process when you have it all tight in your car.

## Adapter to engine installation

- Inspect engine mounting face and make sure its clean and flat
- Inspect all treads and check that bolts go in free by hand, re-tap threads if necessary.
- Make sure that no bolts are too long, cut down if necessary.
  
- Torque down adapter to engine.

Max recommended torque for aluminium treads:

**M8 28Nm**      **M10 45Nm**      **M12 70Nm**

## Starter installation

The starter can be installed in two ways:

1. Drill out the threads in the starter and install starter to adapter plate treads.
2. Drill out the adapter plate threads and install starter. Please note that trimming of the transmission is required for option 2.  
Ensure that you don't drill out larger than 10mm holes. Too large holes may cause starter to ring gear clearance being incorrect.

## Spline lubrication

- Make sure both inner and outer spline are clean and free of rust
- Apply a thin layer of Spline grease on both splines with a small paint brush.  
(OEM BMW, Sachs, Molykote, or similar product to be used)

Lubricating the spline will help reduce damage and wear and will make sure the spline operates flawlessly for many years to come.

**MAKE SURE DO NOT SKIP THIS STEP**

## Rear Transmission mount

- Install the 4mm dowel pins in the CNC milled angle mounts. They should be in the centre hole for this application. Note that the 4mm holes in both the angle mount and transmission mount plate may require clearing out with a drill bit after its been powder coated.
- Install angle mounts to the transmission plate, and torque down the M12 flathead bolts to **70Nm** with a light duty threadlocker.
- Install the rubber mounts, transmission plate and crossmember together.
- Install the mount to the rear of the transmission and adjust the height to **124mm** from center output flange to the top of the crossmember. This is the stock height configuration for the Supra.
- Torque down the transmission mount plate and rubber mounts to **38Nm** (If you have 8mm studs on the rubber mounts they should be torqued to 25Nm)

## Transmission clearance

The DCT transmission is larger than the stock Supra units, and some minor trimming is needed for both the transmission and tunnel.

Trim down the outside webbing as pictured:



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- Install the transmission with a couple bolts and carefully jack it up to its position.

### How to find out where you need more clearance:

- Find a 1 meter long thin rope (4-5mm diameter) or a cable and grease it.
- Get the rope over the adapter plate and slide the rope back and forth going back towards the rear of the transmission. Adjust height of transmission as necessary.
- Remove transmission and locate the greasy points on the transmission and tunnel.
- Massage tunnel with a hammer or grind of gearbox to get clearance.
- Once the transmission has cleared, its time to install the oil cooler adapter and make clearance for that aswell.
- Install transmission and re-check clearance.
- Repeat this process until proper clearance is achieved.  
(for most applications 5mm clearance will be sufficient)

This is the locations where extra clearance will be needed:



## Transmission install

- Install transmission and torque it down to the adapter.  
(please note that some bolts may require shimming or cutting to fit)

Max recommended torque for aluminium treads:

**M8 28Nm**      **M10 45Nm**      **M12 70N**

## Output flange install

- Remove the rear nut with an impact wrench and remove the stock flange by using a puller.

The spline is an interference fit to the axle, so you will need a properly sized puller to do the job.

- Replace oil seal, and cut of the 14mm pilot off the axle.
- The new flange is also interference fit to the axle, so you will need to hammer it on until the nut can engage the threads. Acc to the BMW manual it should be torqued to **175Nm**. Release, make sure that the axle is fully seated, and re-torque to **125Nm**.
- Install your choice of driveshaft (use the spacer for the Stock Supra shaft)  
Tightening torque for the 4 bolts to the output flange are **73Nm/53lbft**.

