

**Single Mass Flywheel  
Installation Sheet**

Revision 1  
January 2026



**Installation must be carried out by a trained, professional technician, improper installation or failure to adhere to installation guidance provided will void the manufacturer's warranty.**

## Pre-installation

Visually inspect the flywheel and where possible, compare it with the previously used flywheel. To do this place both flywheels side by side sitting on the crank mating face. If the crank face is recessed place both flywheels on a spacer of identical height.

Check that the ring gear teeth are in the same position, the replacement flywheel may have a reduced width ring gear. The two ring gears should be very closely matched at the entry point of the starter. This could be from either side of the flywheel.

When an OEM style clutch is being used, ensure that the clutch faces of the new and original flywheel are similar in height. If not correct you may have the wrong flywheel.

When the new flywheel is designed to accept a race type clutch, the clutch face may be much closer to the crank face. The clutch slave cylinder in this case, may require a different profile of thrust bearing, to match the clutch spring profile, and even a replacement slave cylinder positioned to suit the setup height of the flywheel and clutch.

If fitting a new clutch kit verify the kit matches the vehicle application.

Use cleaner to remove oil/grease from the pressure plate and flywheel.

If fitting a new friction disc compare it to the old one, make sure the diameter, spline count and hub configuration match. Confirm it suits the vehicle and gearbox.

Ensure the friction material is clean, dry and free from oil, grease or dirt.

Place the friction disc on a flat surface or use a dial gauge to ensure it's not warped in transit.

Check the clutch retaining bolts will clamp the cover by screwing home the bolt and checking that the distance under the bolt head to the flywheel is less than the thickness of the clutch cover. Check that the clutch fits the new flywheel and that the fixing bolts will enter their holes. Up-rated, i.e. larger diameter, cover retaining bolts may require the cover to be drilled out. Ensure the cover is clamped down during the drilling operation and that the holes are de-burred.

Tools/equipment you will need, torque wrench, alignment tool, jack/stands, and new flywheel/pressure plate bolts (recommended).

## Installation

Use cleaner to remove oil/grease from the pressure plate and flywheel.

Ensure there are no burrs or dings in the crank to flywheel mounting faces of both the crank and flywheel. Clean out the flywheel retaining tapings in the crank. It may have thread locking residue within the threads. Ensure any crank dowels are burr free and straight. If the dowels are not an original feature, they may have to be removed for the flywheel to fit.

Screw the flywheel retaining bolts into the crank and check that the distance under the head to the crank face is less than the thickness of the flywheel, ensuring that the flywheel can be clamped appropriately, and that the bolts do not protrude from the back of the crank. We recommend using new flywheel to crank bolts and that, upon final assembly, they are tightened to the correct procedure and torque accordingly and a thread retainer is considered.

Trail fit the flywheel to the crank, check that it sits back onto the crank bolt face. Check that the bolt holes on the flywheel align with those of the crank. **MANY CRANKS HAVE UN-EQUAL BOLT SPACING; THE FLYWHEEL MAY HAVE TO BE ROTATED ON THE CRANK TO FIND THE CORRECT ALIGNMENT.** As the flywheel should be a close fit on the crank, it is better to align the holes before pushing the flywheel fully home.

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Now that the flywheel is correctly mounted, check that the starter pinion is in correct alignment mesh in its operating position, both 'radially' and 'axially' as below. This is simple when the starter is engine mounted, less so when bell housing mounted but it is important especially when non-OEM starters are used.

CHECK TO MAKE SURE THERE IS SOME BACKLASH (0.010"-0.025"MM-0.635MM RECOMMENDED) BETWEEN THE STARTER PINION AND RING GEAR WHEN ENGAGED. Check that the pinion is not bottomed out into the ring gear. Check there is not excessive clearance either as this will put excessive load on the ring gear teeth. When the starter pinion is retracted there should be clearance (0.03"-0.140"/1.524mm-3.556mm) between the end of the pinion and the ring gear face. Check that when the starter pinion is engaged with the ring gear it engages a minimum of 70% of the ring gear width.

When the flywheel carries the pulse generator for the engine management system, this should be checked for both axial and radial positioning. Ensuring the air gap is to OEM specification. If this is not correct the flywheel may not be correct, or the sensor may require shimming to obtain the correct air gap.

Test fit the friction disc on the gearbox input shaft (without forcing it), it should slide smoothly and have no excessive play.

Lightly lubricate splines with grease, then wipe off excess.

Place the friction disc onto the flywheel using an alignment tool. Ensure the correct side faces the flywheel (this will be labeled on the friction disc).

**NOTE - if the orientation of the friction disc becomes unclear, confirm with a Helix Technician.**

Position the pressure plate over the disc and align it with the dowel pins on the flywheel.

Tighten the pressure plate bolts gradually in a criss-cross pattern to the OEM specified torque.

Remove the clutch alignment tool before attempting to install the gearbox.

Ensure the release bearing rotates smoothly and has sufficient free play on the gearbox shaft.

If replacing the release bearing check the new bearing is the correct application against the part removed.

Carefully align the gearbox input shaft with the friction disc spline and insert it without forcing it.

Check for correct clutch pedal free-play, clearance and make certain there is margin between the diaphragm spring and release bearing.

## Bedding In

Helix Autosports condition is that all clutches are bedded in for 200 miles, whilst driving in traffic, going up and down the gears and stop starting, thereby fully using the capacity of the clutch.

This does not include motorway journeys.

Under no circumstances should dyno testing be used to bed in a clutch application.

At this stage if you cannot select all gears including reverse, DO NOT continue to utilise the clutch and contact Helix.

**IF YOU ENCOUNTER ISSUES AT ANY POINT THROUGHOUT THE PRE-INSTALLATION, INSTALLATION AND/OR BEDDING IN STAGES, PLEASE CONTACT HELIX AUTOSPORT BEFORE UTILISING THE CLUTCH FURTHER.**

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## **Additional Guidelines**

- Modern day friction disc material is typically 50% harder wearing than the now superseded asbestos material, making clutch replacement less frequent. One disadvantage of this is that it tends to accelerate wear to the flywheel and clutch cover contact surfaces.
- When replacing the clutch, the condition of both surfaces is highly important. A new hard-wearing friction disc will not bed into worn and uneven flywheel and clutch cover, and failure of the clutch will occur. If in doubt, always reface the flywheel and change the clutch cover and friction plate at the same time.
- When fitting the engine to the gearbox, never allow the gearbox to 'hang' on the clutch. Both gearbox and engine should be supported. As soon as the engine and gearbox have been mated, they should be bolted together immediately. This will prevent the possibility of distorting the friction disc, causing it to run out of true.
- Check for any oil leaks before renewing a clutch.
- Oil contamination from leaking rear crank seal or front gearbox seal will render the clutch useless.
- Always check the spigot bearing which supports the gearbox input shaft, this will cause clutch judder and in extreme cases can result in failure of the clutch and damage the gearbox.

## **Aftersales**

Returns for incorrectly ordered parts will only be processed with the originating distributor/purchaser and a 15% restocking fee will apply.

Any Helix parts which have been lightened, modified, incorrectly installed and/or mistreated are non-refundable.

Any Helix parts which are returned in a unsellable condition will NOT be refunded.

**Installation of Helix parts should be performed by a trained professional. Helix Autosport provides these instructions for reference only and accepts no liability for any damage, injury, or consequential loss arising from installation or use of our parts.**