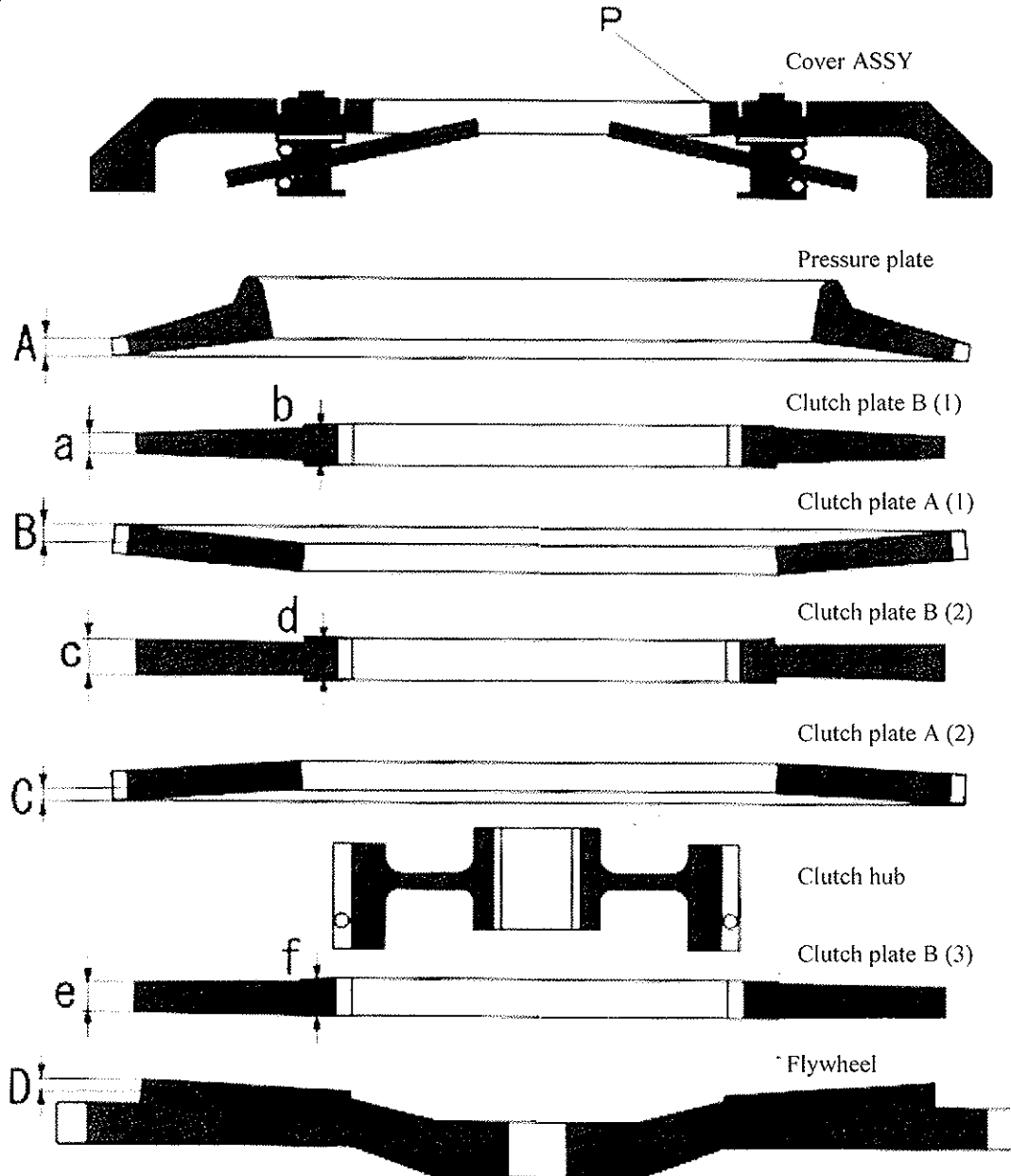


A typical example of a worn out / warped carbon clutch



Even under the proper usage, the internal parts of CARBONETIC carbon clutch wear down after several years of operation. This will provide some solutions if the clutch becomes slippery or starts experiencing the disengagement problem.

Carbon clutch overhaul procedure

This section introduces several overhaul process to cope with a CARBONETIC carbon clutch which experiences slippage or disengagement problems due to a worn out / warped internal parts. First, measure the degree of wear and tear and/or warpage, then decide the process. Typical examples are shown here but those examples do not cover all the possible situations.

Disassembly Remove the dust by blowing air on the parts. Mark the parts (assembly orders and upper/bottom sides) — This is very important . A brand new carbon clutch plate does not have sides. However, during the usage, each side wear out differently. **It is important to place back all the plates with same order / side during the reassembly.**

Measurement Use a micrometer to measure the wear of a disc. Use a feeler gauge and precision straightedge to measure warpage. Measure the warpage of a flywheel without removing the casing.

Assembly Use new diagram spring(s) if necessary. (especially if the color is very blue, the change is strongly recommended). Make sure all the parts are placed back in the same orders/sides. Use new CARBONETIC bolts and tighten them at the specified torque. Do not touch the ring on the hub (it is fragile and might snap)

Disc factory spec Carbon disc 3.9mm Carbon disc for Nissan single clutch 8.0mm Clutch plate A 5.5mm

CARBONETIC carbon disc does not usually break until it becomes thinner than 2.0mm. However, the slippage or other problem might start before the disc wears down to that point.

The diagram in the previous page is exaggerated to show the points. The following is some process of overhauling CARBONETIC triple carbon clutch .

Overhaul 1 Restoration of performance without changing the plates

When the total wear of clutch plate B (carbon plates) exceeds 1.0 to 1.5mm, the pressure plate rate dramatically goes down resulting in possible clutch slippage. By adding an 1 mm plate (CARBONETIC parts number A37189-10) or 1.2mm plate (A37189-16) on the clutch cover, it is possible to restore the pressure plate rate.

Required condition Engagement / disengagement is normal. The maximum warpage of the metal parts (pressure plate, clutch plate A, and flywheel—A, B,C, D) is less than 0.5mm. Sometimes a larger warpage is acceptable when the all the original parts are used. The thickness of the clutch plate B (carbon disc) is above 2mm. A carbon disc with less than 2mm thickness has a higher chance to break.

Process Install a plate A37189-10, described as P in the diagram, on the backside of the clutch cover. There is an original plate. Do not remove it, just add the additional one on the original plate. Calculate the total wear by $3.9 \times (\text{number of the plates } 1 \text{ to } 3) - (b + c + f)$. Add one plate (1mm) for the wear of 1.0 mm to 1.5mm. A 1.2mm plate (parts# A37189-16) could be used for a larger wear.

Note Change the metal part to a new one if the warpage is larger than 0.6mm. The partial wear of a carbon disc which contacts to the new metal parts has to be within 0.2mm. The partial wear is defined as b-a, c-d, f-e.

Overhaul 2 Replacing the metal parts (pressure plate / clutch plate A) with the new ones

If the clutch has disengagement difficulty, the warpage or distortion of the metal parts may be out of the factory spec and they need to be exchanged to the new ones. If the partial wear of the carbon disc contacting the warped metal parts is beyond the factory spec, it also has to be replaced.

Required condition The partial wear of the carbon disc has to be within the following spec.
 b - a within 0.2mm, c - d within 0.2mm, & f - e within 0.2mm

Process Replacing the pressure plate and/or clutch plate(s) with the new ones

Note You might experience a slight slippage right after the reassembly (150 to 600 miles). If the partial wear of a carbon disc is above 0.4mm and contacting metal part is replaced with new one, the carbon disc also has to be replaced with a new one.

Overhaul 3 Replacing the clutch plate B (carbon disc) with new ones

The case you have to replace the carbon discs only is rare. The warpage of the metal parts contacting the replacing carbon plates has to be within the factory spec. Otherwise, replacing a carbon disc only will cause a slippage problem.

Required condition The warpage of the clutch plate A and the flywheel has to be within the following spec.
 A, B, C, & D has to be within 0.1mm

Process Replace the clutch plate B (carbon disc) with a new one

Note You might experience a slight slippage right after the reassembly (150 to 600 miles).

Alternative for Overhaul 1

Instead of adding an extra plate on the cover, it is possible to restore the pressure plate rate by reducing the height of the casing.

Process Bring the casing to a machine shop and mill / shave the height by 1mm (possibly slightly more) by a lathe. You can reduce the height either from the top (cover side) or from the bottom (flywheel side) of the casing. This has to be performed by a trained professional.

