

Alternator De-coupler Pulleys

A question we often get asked is...What is the purpose of a clutch pulley on an alternator?

The clutch pulley allows the alternator's heavy rotor to overrun, absorbing shock, as engine revs and/or Alternator load changes. The result is smoother idle, no belt chirp, and increased life of alternator, power steering pump, water pump, serpentine belt and automatic belt tensioner. It is important to remember that an Alternator Overrun or Clutch Pulley is a service part and will wear out and lose efficiency over time. This need has really come about with serpentine belts and far more ancillary components running on this single belt and also the increased size and output of modern alternators and therefore their rotor size and mass.

We have found that in some situations the overrun pulley has been replaced by the OE manufacturer by a solid Pulley and then returned to a Clutch Pulley in subsequent models. Some vehicles can have the clutch pulleys replaced with solid pulleys quite successfully whereas others will suffer from a greatly increased amount of noise and component wear. In our experience this would come down to how smooth the particular vehicle's motor runs and what harmonics are present in its drive line components.

We have had some information from Denso identifying clutch pulley failure as a potential factor in constant drive compressor shaft failure due to the shock sent through the belt to the compressor when an alternator pulley has failed.

There are 2 Basic types of Overrun Pulley

1. Clutch type, which can be likened to a starter motor clutch with rollers that free wheel in one direction and lock up in the other.
2. OAD or Overrunning Alternator De-coupler that is like the above but with an added spring to further reduce belt "shock".

A good Visual demonstration is on the link <https://www.youtube.com/watch?v=4EXYP1Cml9Q>

CP410GQ Mitsubishi Clutch Pulley

Suits Mitsubishi
Suits Lancer Outlander
6PV CCW 17 x 59 x 37mm



CP614GQ Bosch Clutch Pulley

Suits Holden Vectra
5PV CCW 17 x 60 x 43mm



CPT006 Clutch Pulley Removal Tool

Suits Bosch, Valeo
Use with Rattle Gun



CPT007 Clutch Pulley Removal Tool

Suits Denso
Use with Rattle Gun

