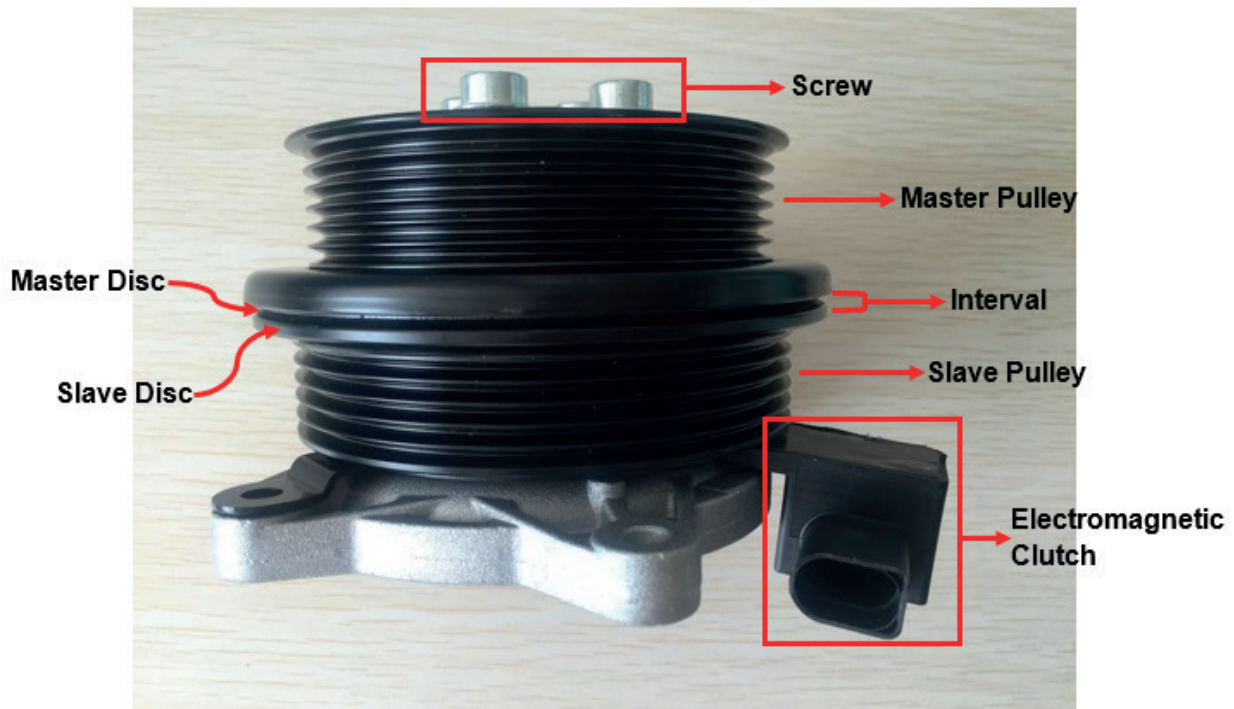


Technical Bulletin

WP6558

Factory guide and introduction.



- This water pump has two pulleys: Master Pulley and Slave Pulley.
- The Master Pulley is fixed on the shaft by screws and when the Master Pulley rotates, the impeller rotates in turn.

- Between Master Pulley and Slave Pulley, there is an 'Interval'.

- The bottom side of the Master Pulley is called the Master Disc.
- The upper side of the Slave Pulley is called Slave Disc.

- There is also an Electromagnetic Clutch fitted to this pump.



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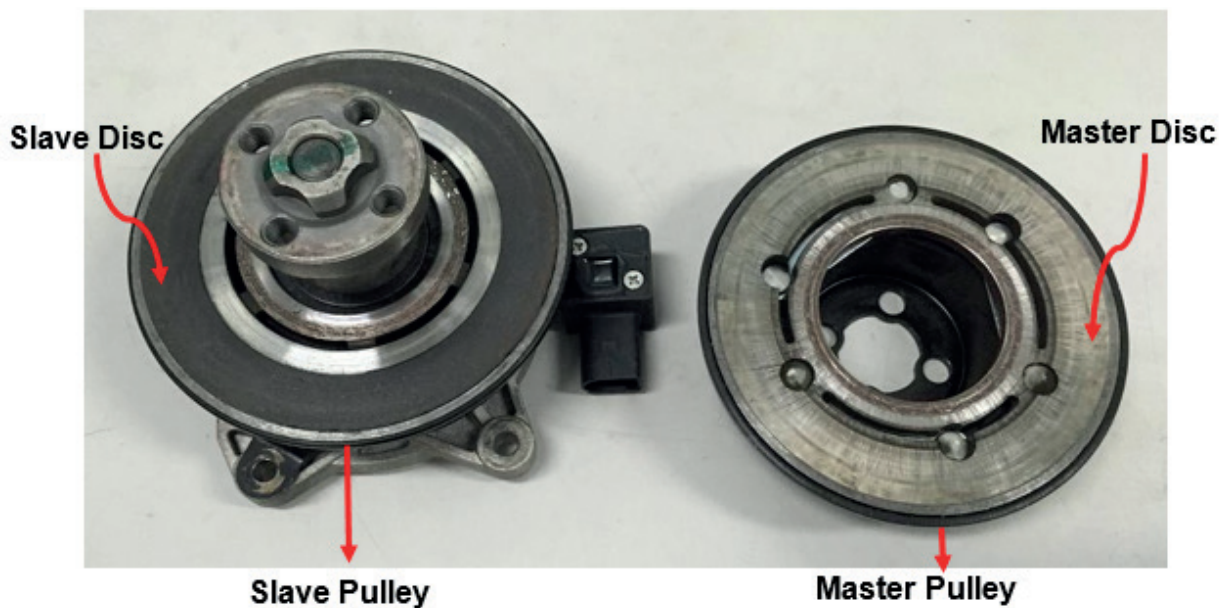


Technical Bulletin

Removing the master pulley



Unscrew all screws



- The Master Disc is metal material.
- The Slave Disc is friction material, something like the material of brake pad.



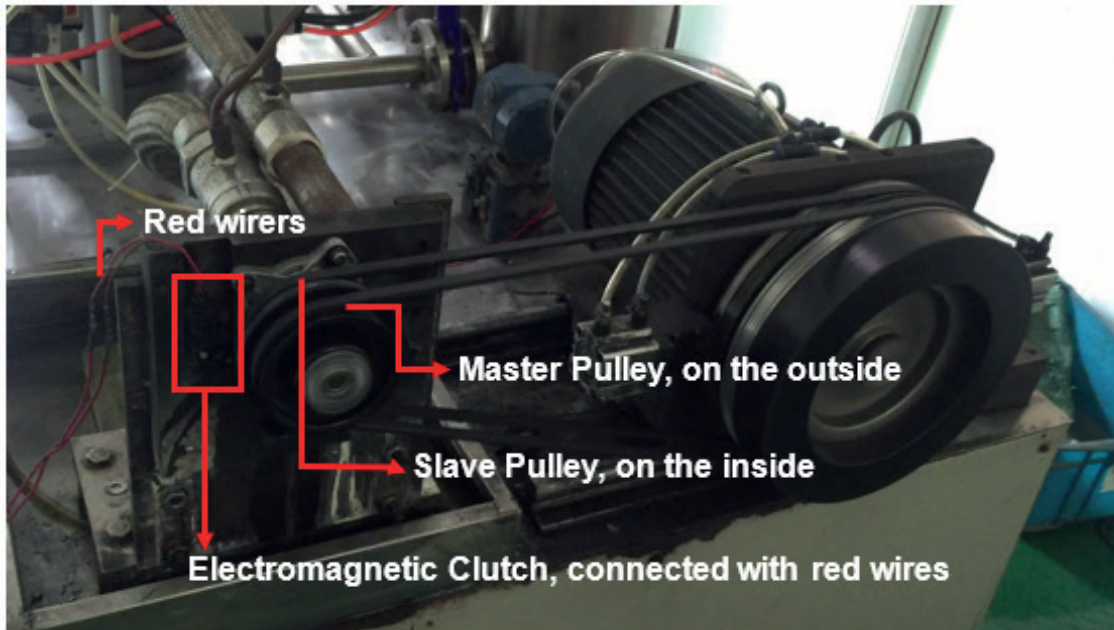
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How the water pump works



- Under normal working environment, only the Master Pulley rotates, while the Slave Pulley is stationary.

- When changing from the supercharger to turbocharger, through the Electromagnetic Clutch engaging; the Master Pulley and Slave Pulley activate in unison. This causes the Interval between the two pulleys to disappear.

- At this moment, there is friction between the Master and Slave Disc causing the Slave Pulley to start rotating alongside the Master Pulley.



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Technical Bulletin

Water Pump Noise

When it happens?

Every time the pump switches from the supercharger to the turbocharger, the two pulleys engage and cause friction between the two discs.

When Slave Pulley starts rotating, a noise can be heard, lasting only a second.

Why it happens?

The friction between the two discs makes the short noise and it can't be avoided whilst there is friction between the discs.

How about OE?

When an OE sample was tested, it made exactly the same noise for the same duration.

Further Remarks

The noise happens every time the supercharger switches to the turbocharger. It is difficult to tell how many times the noise is made in the operation of the vehicle due to the ECU's decision on how many times the supercharger switches to turbocharger.

FAI have prepared two videos showing our simulation about how the water pump works.

Video A – "FAI sample test on test-bed", the noise can be heard clearly at the 15th second of the video.

Video B – "OE sample test on test-bed", the noise can be heard clearly at the 17th second of the video.

FAI's pump and the OE pump have different colours as demonstrated below. This makes it easy to distinguish the difference between the two videos.



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