

Tech Note Y

Mitsubishi V6 Clutch Remove & Replace

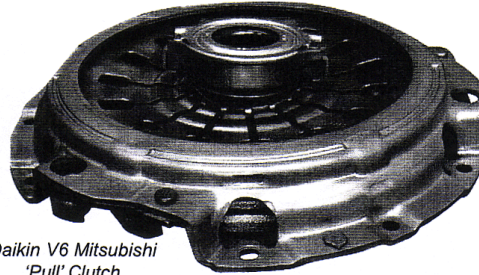
Ref: TNY

Issue date: 13 Dec 2004

Issue number: 2

At first glance, the clutch replacement of the V6 Mitsubishi Magna seems a relatively straight forward task, but as every repairer knows, things are not always as they seem!

A look in the Mitsubishi manual confirmed that this was in fact the case, as the V6 Magna uses a 'pull' clutch of which



Daikin V6 Mitsubishi
'Pull' Clutch

the thrust bearing locks into the pressure plate and must be disengaged from the pressure plate before the gearbox can be removed. While this procedure is described in the manual, a better understanding of the arrangement and the removal procedure can be gained by viewing the photographs provided.

The V6 Magna and Verada have a cast aluminium sub frame member. There is very little clearance between the gearbox and the sub frame. This complicates the removal procedure, making it virtually impossible to man handle the transmission in and out.

For this reason, it would be very difficult, if not impossible, to remove and refit the transmission without a good quality transmission stand. Couple this with the procedure to disengage the thrust bearing and you soon have a job that, if being done for the first time, justifies nearly a full day to carry out.

As with most front wheel drive manual transmissions, the battery must be disconnected, the starter motor removed and both driveshafts extracted. Some front wheel drive transmissions can be removed by removing only one driveshaft, but not the Magna. The engine compartment restrictions that have been imposed by the sub frame prevent the transmission from being manoeuvred either in or out unless the right hand driveshaft has been removed. It should not be necessary to undo the wiring harness to the starter motor, just unbolt it and secure it out of the way. The clutch slave cylinder can also be unbolted from the bell housing and secured up out of the way.

Because the transmission is such a tight fit, the engine will have to be supported before the lower crossmember can be removed. Mitsubishi recommend the use of a brace that supports the engine from above, although the staff at Bay Garage were able to use a second transmission jack to support the engine from underneath.

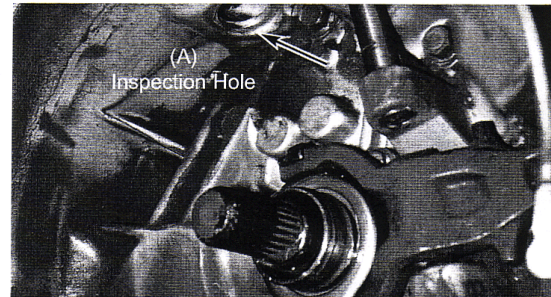
If available, the engine brace would probably be the preferred option. It allows greater flexibility to either lower

the vehicle down again should that be necessary, or to carry out other work on the vehicle while waiting for the flywheel to be machined or until the replacement clutch arrives.

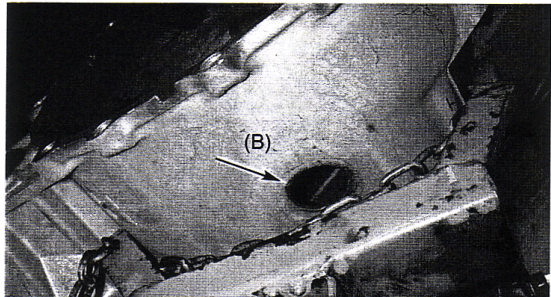
Removing the distributor cap will also allow greater access to the top bell housing bolts.

Now for the tricky bit!

Two inspection holes are positioned into the bell housing,



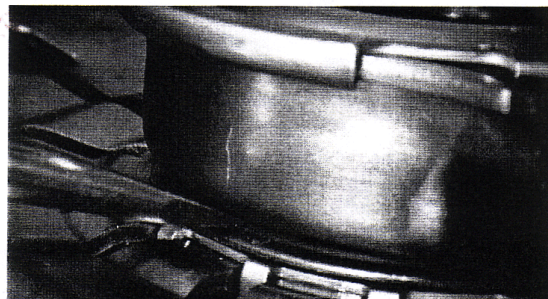
The inside of the bell housing showing the top inspection hole (A) and the release fork pivot hole



Lower inspection hole (B)

one is on the top of the bell housing and is plugged by a breather tube, the other is underneath of the bell housing and is plugged by a grommet. Remove these two inspection plugs.

A long, flat blade screwdriver is pushed into each of the inspection holes, to engage into the space between the



With the wave washer compressed by the pressure on the clutch fork, insert a screwdriver here!

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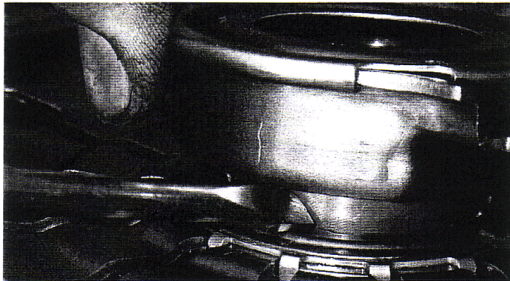
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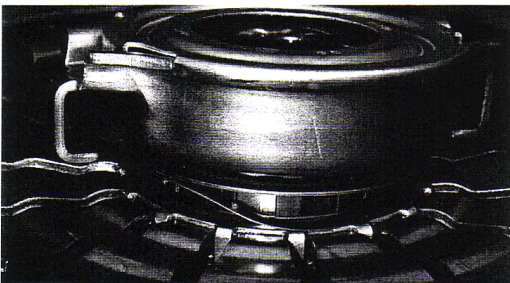
thrust bearing and the pressure plate. The positioning of the screwdrivers is difficult to explain, but becomes very clear as the photographs are viewed.

Apply pressure to the clutch release fork to push the thrust bearing up against the pressure plate and then twist both screwdrivers 90 degrees. This will release the snap ring that retains the thrust bearing into the pressure plate.

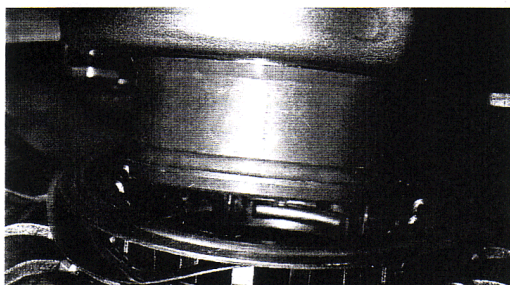
Note: When Bay Garage carried out the clutch replacement, the thrust bearing snap ring released when only a single screwdriver was used. This may have just been luck, or perhaps because the vehicle had relatively low mileage. It is possible that a high mileage vehicle with greater wear,



Keep gentle pressure on the clutch fork, twist the screwdriver 90 deg.



The pressure plate and thrust bearing separated by a wave washer.



With the thrust bearing removed, the snapping and groove are now visible.

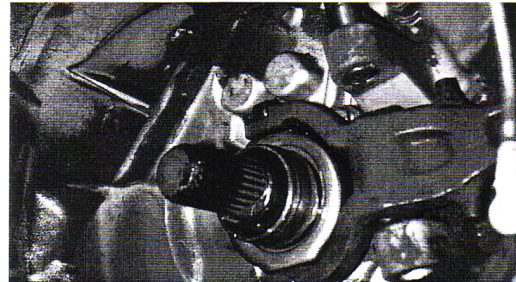
more dust and less lubrication may have been more stubborn, requiring the use of two screwdrivers as recommended by Mitsubishi.

Obviously, if the thrust bearing can be disengaged with only

one screwdriver, it frees up the spare hand to keep some pressure on the clutch fork and negates the need for a second person to hold the screwdriver from underneath.

With the thrust bearing released, support the weight of the transmission with the transmission jack, remove the steel crossmember and then undo the bell housing bolts. All that remains now is to manoeuvre the transmission out and down.

With the transmission out of the vehicle the pivot rod for the clutch release fork can be removed, allowing the removal of the fork and thrust bearing assembly. With the pressure plate and thrust bearing on the bench, it is much easier to gain an appreciation of how the whole arrangement works and how it is held together. As can be seen in the photographs, the thrust bearing engages positively into the pressure plate.



The bell housing showing the upper pivot pin hole & the removal of the clutch fork pivot

To replace the actual thrust bearing, the retaining bolt on the clutch fork pivot pin will have to be removed. The pivot pin can now slide up and through a hole in the top of the bell housing.

The thrust bearing can now be disengaged from the clutch fork.

When refitting the clutch, the thrust bearing must once again be assembled with the fork.

With the new clutch and pressure plate assembly bolted in place, the transmission can be manoeuvred into place and the bell housing bolts installed. Push the clutch fork away from the bell housing until it engages positively into the pressure plate. Trying to apply the clutch should confirm that the bearing is properly engaged.

The remaining components can now be reassembled in the reverse order of their disassembly.

Exedy Australia wishes to thank and acknowledge Noel and Simon of Bay Garage in Port Melbourne, and the VACC Technical Department, as the original producers of this bulletin.

Exedy Australia is a subsidiary of Exedy Corporation of Japan (formerly known as Daikin Manufacturing). The Exedy Corporation is the original equipment manufacturer of the clutch for the Mitsubishi V6 Magna.