

CLUTCH

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CLUTCH

DESCRIPTION

On all engines a single dry plate diaphragm clutch which is cable operated is used.

The disc incorporates a spring dampened hub, and the linings are cushion mounted to make sure of a smooth take up of the drive.

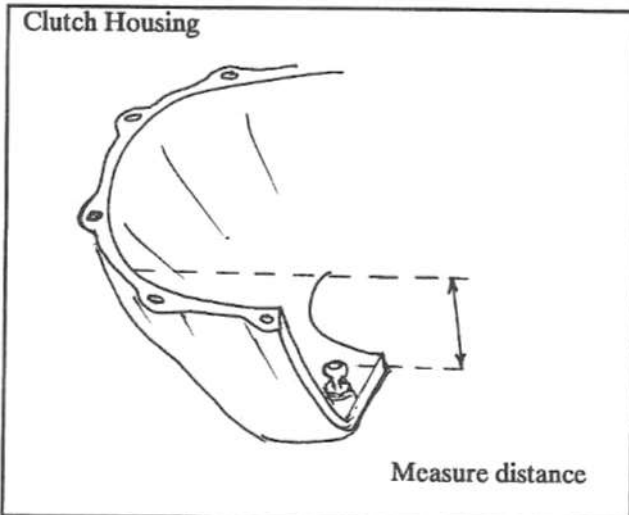
The clutch disc hub is free to slide along the splines of the main drive gear shaft, the forward end of which forms a spigot to fit into the clutch pilot bearing in the centre of the crankshaft.

ADJUSTMENTS

Initial Clutch Adjustment

Remove the clutch housing to make initial adjustment to the clutch, there is no pedal free travel.

1. Hold clutch fork ball and loosen the lock nut, for adjustment.



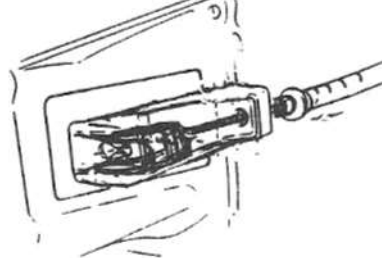
2. Measure the distance that the top of the ball is below the front of the clutch housing, if not within specification, screw the ball clockwise or anti clockwise to obtain the correct distance.

Specified distance from top of ball to the clutch housing face:

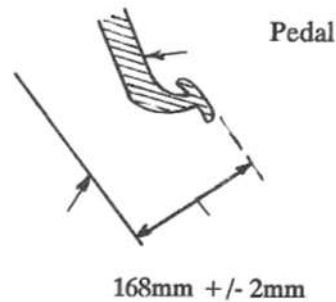
V6 Engine	102.0 mm
V8 Engine	105.0 mm

3. Tighten the ball lock nut and recheck specified distance as described above.

Adjust to set pedal travel at 168mm +/- 2mm



Measure distance from floor pan with rubber pad removed from pedal.



Floor Pan

Clutch Cable - All Vehicles

* The pedal height is set to provide travel to the floor pan of 168 +/- 2.0mm.

* Measure the pedal travel (from normal pedal place to floor pan position), using a tape measure or suitable tool. If measurement is not to specification, use the cable nut to shorten or lengthen cable until correct pedal travel is achieved.

Adjust the adjusting nut on outer lower cable fitting at clutch housing.

MAINTENANCE

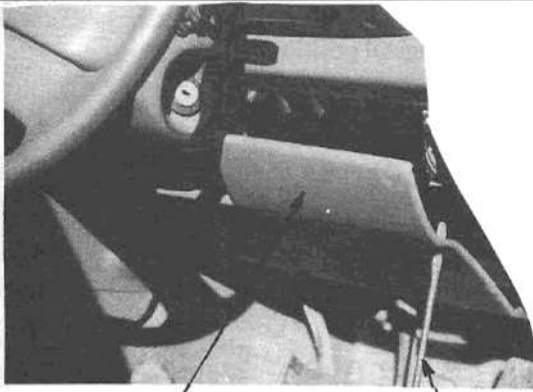
Clutch Pedal

Remove

1. Remove the lower and right side trim panel from dash.
2. Remove the heater duct tube to the right side floor.
3. Lower the fuse panel, by removing attaching screws and tying the panel to the side.
4. Remove the clutch pedal bolt, detach the pedal spring and cable.
5. Remove the pedal from the pedal assembly.

CLUTCH

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Trim panel

Turn screw driver 90°

Remove the lower and right side trim panel from dash

Install

Lubricate the pedal bushes, install the bushes. Lubricate cable bushes.

1. Place the pedal into the pedal assembly.
2. Install the clutch pedal bolt, attach the pedal spring and clutch cable.
3. Untie the fuse panel and screw the panel back into position, connect any wires that may have been removed to allow the panel to be moved to the side.
4. Install the heater duct tube to the right side floor

5. Install the lower and right side trim panel from dash.
6. Adjust the clutch cable or pedal height as previously described.

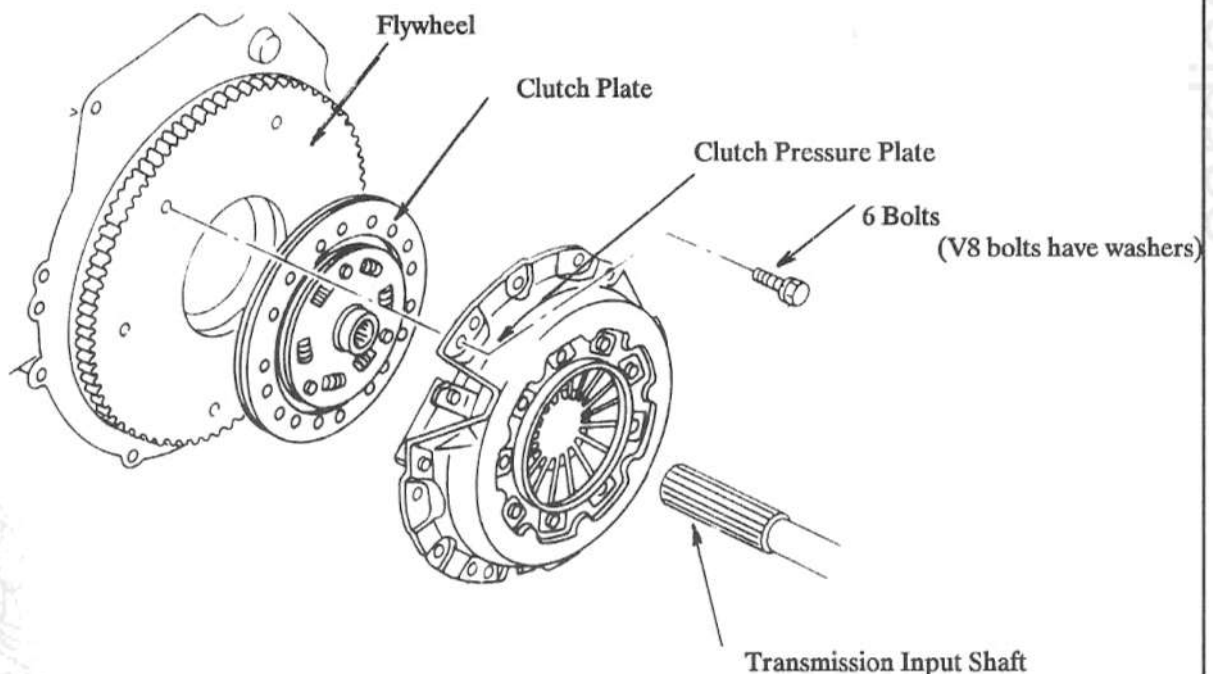
Clutch Cable**Remove**

1. Remove the lower and right side trim panel from dash.
2. Remove the heater duct tube to the right side floor.
3. Lower the fuse panel, by removing attaching screws and tying the panel to the side.
4. Remove the clutch pedal bolt, detach the pedal spring and cable.
5. Remove the pedal from the pedal assembly.
6. Separate the clevis from the end of the cable.
7. Remove the clutch cable from the clutch fork.
 - (a) Loosen the outer cable adjusting nut, lift tab on the rear of the dust cover and remove the cover.
 - (b) Disconnect the cable lower clevis from the clutch fork, withdraw the cable from the clutch housing lug, slide cover from cable.
8. Pull the cable through the fire wall from inside of the vehicle to remove the cable.

Install

Lubricate the pedal bushes, install the bushes. Lubricate cable bushes.

1. Install the cable through the fire wall from inside of the vehicle to the clutch fork.

Clutch assembly

2. Install the clutch cable to the clutch fork.

(a) Connect the cable lower clevis to the clutch fork, after pulling the cable to the clutch housing lug and fitting cover to the cable.

(b) Fit the dust cover and move the adjusting outer cable adjusting nut up tight.

3. Inside of the vehicle fit the clevis to the end of the cable.

4. Place the pedal into the pedal assembly.

5. Install the clutch pedal bolt, attach the pedal spring and clutch cable.

6. Untie the fuse panel and screw the panel back into position, connect any wires that may have been removed to allow the panel to be moved to the side.

7. Install the heater duct tube to the right side floor

8. Install the lower and right side trim panel from dash.

9. Adjust the clutch cable or pedal height as previously described.

Clutch Release Bearing and Lever

Remove

1. Remove the clutch cable from the clutch fork.

(a) Loosen the outer cable adjusting nut, lift tab on the rear of the dust cover and remove the cover.

(b) Disconnect the cable lower clevis from the clutch fork, withdraw the cable from the clutch housing lug, slide cover from cable.

2. Remove transmission, remove flywheel housing as described in Transmission Chapter.

3. Remove the clutch throw out bearing from the clutch fork.

4. Remove the Clutch fork from the clutch housing.

Install

Coat the groove in the release bearing hub bore and lightly lubricate all release lever contact areas with the specified grease.

1. Replace the Clutch fork into the clutch housing.

2. Place the clutch throw out bearing onto the clutch fork.

3. Install flywheel housing and transmission as described in Transmission Chapter.

4. Install the clutch cable to the clutch fork.

(a) Connect the cable lower clevis to the clutch fork, after pulling the cable to the clutch housing lug and fitting cover to the cable.

(b) Fit the dust cover and move the adjusting outer cable adjusting nut up tight.

Clutch Pressure Plate and Disc

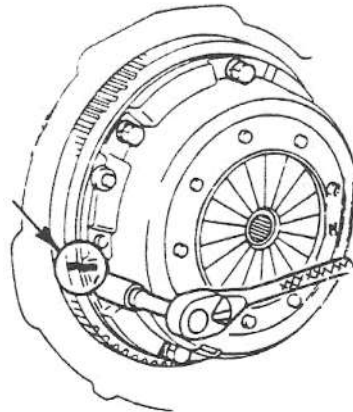
Remove

1. Remove the clutch cable from the clutch fork.

(a) Loosen the outer cable adjusting nut, lift tab on the rear of the dust cover and remove the cover.

(b) Disconnect the cable lower clevis from the clutch fork, withdraw the cable from the clutch housing lug, slide cover from cable.

Mark cover and flywheel so that pressure plate can be installed in its original position



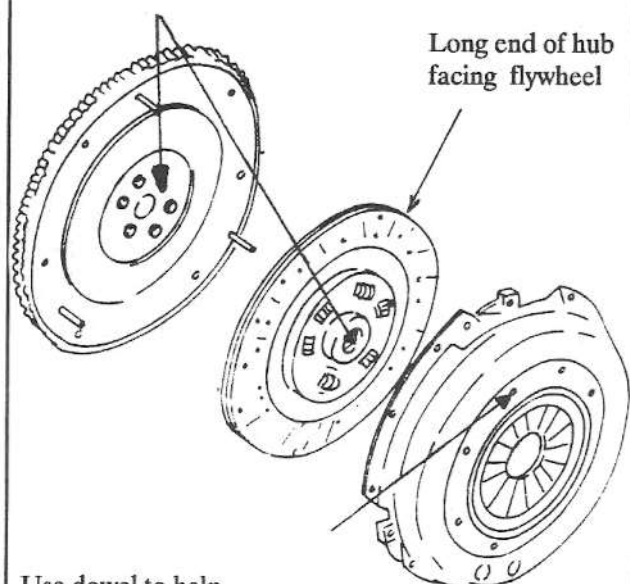
2. Remove transmission, remove flywheel housing as described in Transmission Chapter.

3. Remove the clutch throw out bearing from the clutch fork.

4. Remove the Clutch fork from the clutch housing.

5. Before removing the clutch assembly from the flywheel, clean the pressure plate cover. If same pressure plate and cover are to be installed, mark cover and flywheel so that pressure plate can be installed in its original position

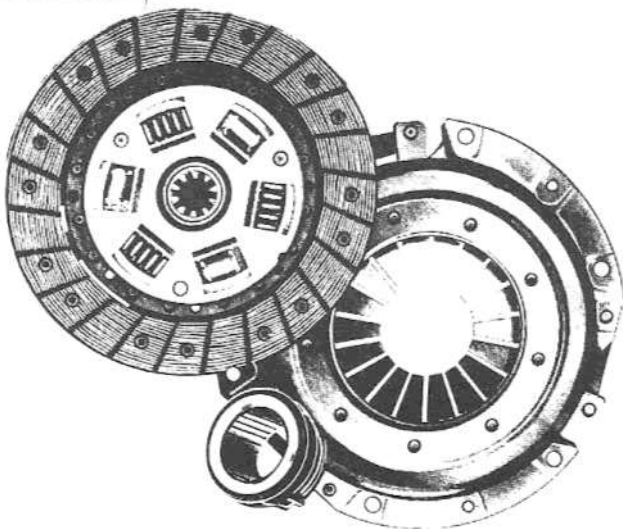
Align clutch disc splined hub with the flywheel spigot bearing using a centralising tool as shown on the next page.



Use dowel to help position pressure plate

Align paint marks made during dismantle

PBR Clutch Kit



6. Loosen the pressure plate cover attaching bolts evenly to release the spring tension.

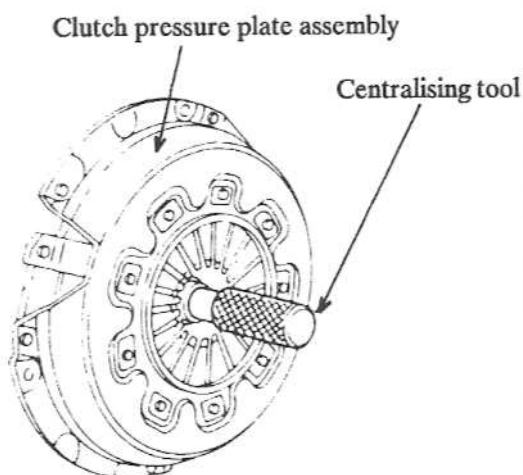
7. Remove attaching bolts while holding the pressure plate cover, then remove the pressure plate and clutch disc.

Install

1. Clean the flywheel and pressure plate friction surfaces with methylated spirits to be sure that the surfaces are free from any oil film. Resurfacing of the pressure plate is not recommended, however, minor burn marks, scores or ridges may be removed by hand using fine (400 grit) emery cloth.

2. Hold the clutch disc, and pressure plate and cover assembly in position on the flywheel, align the paint mark/s.

Clutch Centralising Tool



3. Start the cover attaching bolts to hold the parts in place but do not tighten them. Avoid contaminating parts with oil or grease.

4. Align the clutch disc with a clutch alignment tool or transmission input shaft and torque the pressure plate cover attaching bolts evenly. Then remove the tool.

Pressure Plate to Flywheel bolt torque specification:

V6 20-25Nm

V8 41-47Nm

5. Make certain that the release bearing and hub is properly installed on the clutch fork. Do not lubricate the clutch disc hub.

6. Make certain that the flywheel housing and the cylinder block mounting surfaces are clean. Install the flywheel housing.

Flywheel Housing to Cylinder Block bolt torque specification:

V6 72-90Nm

V8 34-44Nm

Lower Clutch Cover Plate bolt torque spec: 9-12Nm

7. Install transmission as described Transmission chapter.

8. Install the clutch cable to the clutch fork.

(a) Connect the cable lower clevis to the clutch fork, after pulling the cable to the clutch housing lug and fitting cover to the cable.

(b) Fit the dust cover and move the adjusting outer cable adjusting nut up tight.

PROBLEM SOLVING AND DIAGNOSIS

PROBLEM: Clutch does not disengage correctly.

CAUSES

- * Worn clutch disc.
- * Worn or failed pressure plate.
- * Incorrect pedal travel.

ACTION

- * Replace worn or defective parts.
- * Replace pressure plate.
- * Correct pedal Travel.

PROBLEM: Clutch pedal hang-up or excessive clutch pedal effort.

CAUSES

* Incorrect assembly of release lever to pivot or release bearing.

- * Release cable, worn or kinked.

ACTION

- * Check assembly and rectify if necessary.
- * Replace cable.

PROBLEM: Clutch noisy when engine running.

CAUSES

- * Release bearing failure.

ACTION

* Replace bearing.

PROBLEM: Clutch noisy with engine off.

CAUSES

* Binding at pedal support bracket.

* Cable worn or kinked.

ACTION

* Lubricate with engine oil or replace support bracket bushing.

* Replace cable.

PROBLEM: Clutch slips or chatters.

CAUSES

* Worn or contaminated clutch lining.

* Grease or oil on clutch facings from: release bearing.

engine.

release lever.

pilot bearing.

transmission.

* Weak or failed pressure plate.

* Loose pressure plate to flywheel bolts.

* Loose engine mount bolts.

* Kinked or binding cable.

ACTION

* Replace defective part. (If grease or oil is causing the clutch to slip, release the disc. Remove the grease or oil from the pressure plate and flywheel and reuse if it is not burned or scored.) Repair source of leakage.

* Replace pressure plate.

* Torque bolts to spec.

* Torque bolts to spec.

* Replace or lubricate.

PROBLEM: Intermittent Squawk.

CAUSES

Flywheel housing misalignment.

ACTION

Replace flywheel housing.

PROBLEM: Clutch noisy when disengaged.

CAUSES

* Pilot bearing worn.

* Release bearing worn.

ACTION

* Replace bearing.

PROBLEM: Clutch spin or drag.

CAUSES

* Failed or worn pressure plate.

* Grease on lining of clutch disc.

* Flywheel housing out of alignment.

* Damaged clutch disc.

* Clutch disc fitted in reverse.

* Binding of the disc on the input shaft splines.

* Incorrect pedal travel.

ACTION

* Replace pressure plate.

* Replace clutch disc/degrease pressure plate & flywheel.

* Align to specifications.

* Replace clutch disc.

* Fit clutch disc correctly, if damaged replace.

* Check splines for burrs, rusting and damage. Clean up splines and lubricate with the specified lubricant.

* Correct pedal travel.

SPECIFICATIONS

CLUTCH

Type Single plate dry disc.

DISC FACING

V6 Engine:

Outside Diameter 252.7 mm.

Inside Diameter 165.1 mm.

Thickness 8.35 - 7.85 mm at 740 kg load.

V8 Engine:

Outside Diameter 252.7 mm.

Inside Diameter 165.1 mm.

Thickness 7.315 - 7.7823 mm at 840.9 kg load.

PRESSURE PLATE

Engine:

V6

V8

Total Spring Load 700 - 780 kgf. 990 kgf (min).

Pressure Plate Deflection 8.1 mm. 7.62 mm.

THROW-OUT BEARING

Type

Ball Bearing.

Lubrication

Greased for Life.

RECOMMENDED LUBRICANT

Clutch Spigot Bearing SAE 90 GEAR OIL

Clutch Throw-out Bearing Wheel Bearing Grease

Clutch Pedal Molybdenum Disulphide Grease

Clutch Cable Clevis Molybdenum Disulphide Grease

Clutch Fork & Ball Stud Pivot Surfaces Molybdenum Disulphide Grease

Torque Wrench Spec's Nm

Pressure Plate Cover to Flywheel

Attaching Screw 20-25 (V6) 41-47 (V8)

Clutch Housing to Engine

Cylinder Block Attaching Screw 72-90 (V6) 34-44 (V8)

Clutch Housing Cover Attaching Screw 9 - 12

Clutch Fork Ball Stud Lock Nut 25 - 34

Starter Motor Mounting Bolts 36-50 (V6) 48-60 (V8)

(Brace Bolt) 12-16 (V8)

Flywheel Housing Attaching Bolt 70 - 84

Clutch Pedal Pivot 12 - 16

Engine Pipe to Catalytic Converter Attaching Bolt 30-50

Right-Hand to Left-Hand Engine Pipe Clamp Nut 10-20

Transmission Lever to Lever Screw 17-27

Rear Crossmember to Engine Rear Support Nut 30-40

Rear Crossmember to Side Frame Bolt 40 - 50

Tail Shaft Centre Bearing to Underbody bolt 20 - 25

Tail Shaft Rear Universal Flange to Pinion Flange 55-65

