2 Clutch assembly - removal, inspection and installation

Warning:
Dust created by clutch wear and deposited on the clutch components is a health hazard. DO NOT blow it out with compressed air, or inhale any of it. DO NOT use gasoline (or petroleum-based solvents) to clean off the dust. Brake system cleaner should be used to flush the dust into a suitable receptacle. After the clutch components are wiped clean with rags, dispose of the contaminated rags and cleaner in a sealed, marked container.

Note:
If the clutch pressure plate is to be re-used, BMW tool 21 2 170 will be required to compress the diaphragm spring prior to removal of the clutch cover. Tool 21 2 142 may be required to center the friction plate.

Removal

1 Remove the transmission as described in Chapter 7A .

2 If the original clutch is to be reinstalled, make alignment marks between the clutch cover and the flywheel, so that the clutch can be installed in its original position.

3 If the original pressure plate is to be re-used, engage the three legs of the BMW clutch compressing tool (No 21 2 170) with the clutch cover in the area of the adjusting springs **(see illustration)** . Screw down the knurled collar to lock the legs in place, then tighten down the spindle to compress the diaphragm spring.

2.3 Use BMW tool 21 2 170 to compress the diaphragm spring

4 Regardless of whether the pressure plate is to be replaced, progressively unscrew the bolts securing the clutch cover to the flywheel and, where applicable, recover the washers.

5 Withdraw the clutch cover from the flywheel. Be prepared to catch the clutch friction disc, which may drop out of the cover as it is withdrawn, and note which way the friction disc is installed - the two sides of the disc are normally marked Engine side and Transmission side. The greater projecting side of the hub faces away from the flywheel.

Inspection

6 With the clutch assembly removed, clean off all traces of dust using a dry cloth. Although most friction discs now have asbestos-free linings, some do not, and it is wise to take suitable precautions; asbestos dust is harmful, and must not be inhaled.

7 Examine the linings of the friction disc for wear and loose rivets, and the disc for distortion, cracks, and worn splines. The surface of the friction linings may be highly glazed, but, as long as the friction material pattern can be clearly seen, this is satisfactory. If there is any sign of oil contamination, indicated by a continuous, or patchy, shiny black discoloration, the disc must be replaced. The source of the contamination must be traced and rectified before installing new clutch components; typically, a leaking crankshaft rear oil seal or transmission input shaft oil seal - or both - will be to blame (replacement procedures are given in the relevant Part of Chapter 2 , and Chapter 7A respectively). The disc must also be replaced if the lining thickness has worn down to, or just above, the level of the rivet heads. Note that BMW specifies a minimum friction material thickness above the heads of the rivets (see Specifications).

8 Check the machined faces of the flywheel and pressure plate. If either is grooved, or heavily scored, replacement is necessary. The pressure plate must also be replaced if any cracks are apparent, or if the diaphragm spring is damaged or its pressure suspect.

9 With the clutch removed, it is advisable to check the condition of the release bearing, as described in Section 3 .

10 Check the pilot bearing in the end of the crankshaft. Make sure that it turns smoothly and quietly. If the transmission input shaft contact face on the bearing is worn or damaged, install a new bearing, as described in

the relevant Part of Chapter 2 .

Installation

11 If new clutch components are to be installed, ensure that all anti-corrosion preservative is cleaned from the friction material on the disc, and the contact surfaces of the pressure plate. Use brake system cleaner to clean the surfaces.

12 It is important to ensure that no oil or grease gets onto the friction disc linings, or the pressure plate and flywheel faces. It is advisable to install the clutch assembly with clean hands, and to wipe down the pressure plate and flywheel faces with a clean rag before assembly begins.

13 Apply a small amount of molybdenum disulfide grease to the splines of the friction disc hub. Match the disc to the flywheel, with the greater projecting side of the hub facing away from the flywheel (most friction discs will have an Engine side or Transmission side marking which should face the flywheel or transmission as applicable) **(see illustration).** Using tool BMW tool 21 2 142, center the friction disc in the flywheel **(see illustration).**

2.13a The friction disc may be marked Getriebeseite meaning Transmission side

2.13b Use a clutch alignment tool to center the friction disc

14 If the original pressure plate and cover is to be installed, engage the legs of BMW tool 21 2 170 with the cover (if removed), and compress the diaphragm spring fingers as described in Paragraph 3. Using a screwdriver, reset the self-adjusting mechanism by pushing the adjustment ring thrust pieces fully anti-clockwise, while undoing the special tool spindle only enough to allow the adjustment ring to move. With the

adjustment ring reset, tighten down the special tool spindle to compress the spring fingers, while preventing the adjustment ring thrust pieces from moving by inserting metal spacers in the gap between the thrust pieces and the cover. Note that a special tool is available from BMW to reset the adjustment ring **(see illustrations)**

2.14a Push the adjustment ring thrust pieces fully counterclockwise . . .

2.14b . . . and insert metal spacers between the thrust pieces and the cover

2.14c A special BMW tool is available to reset the adjustment ring thrust pieces

15 Install the clutch cover assembly, aligning the marks on the flywheel and clutch cover (where applicable). Ensure that the clutch cover locates over the dowels on the flywheel **(see illustration).** Insert the securing bolts and washers, and tighten them to the specified torque.

2.15 Ensure the cover locates over the flywheel dowels

16 If a new pressure plate cover was installed, insert a 14 mm Allen key into the center of the diaphragm spring locking piece, and turn it clockwise and remove it to release the spring.

17 Where the original pressure plate cover was installed, undo the spindle and knurled collar, then remove the compression tool from the cover. Pry out the metal spacers holding the adjustment ring thrust pieces in place **(see illustration). Caution:** *As the last spacer is withdrawn, the adjustment ring may spring into place. Ensure your fingers are clear of the area.*

2.17 Keep your fingers away when removing the metal spacers

18 Remove the clutch friction disc centering tool by screwing a 10 mm bolt into its end and pulling using a pair of pliers or similar **(see illustration).**

2.18 Thread the bolt into the end of the centering tool, then pull it out

19 Install the transmission as described in Chapter 7A .