

# Clutches

## PORSCHE 924 TURBO, 928 & 944

### DESCRIPTION

The 924 Turbo and 944 utilize a single disc dry clutch and a diaphragm spring pressure plate. The 928 model uses a double dry disc clutch with a diaphragm spring pressure plate. On all models, the clutch release mechanism is operated hydraulically.

### REMOVAL & INSTALLATION

#### CLUTCH ASSEMBLY

##### Removal (924 Turbo)

1) Disconnect ground strap at battery. Disengage clutch cable housing from bracket under vehicle. Use engine support (VW 10-222) to suspend engine from above. Remove bottom engine guard.

2) Remove catalytic converter and muffler assembly. Disconnect wiring from backup light switch. Disconnect shift rod at transmission and at shift lever. Turn shift lever 180° and push forward about 12".

3) Remove plug from central tube housing. Push back protective tube for shift rod far enough so that it is outside of the central tube housing. Insert a screwdriver through opening in tube housing and open the tab on the protective tube.

4) Remove coupling screws through the opening. Move coupling toward transmission. Detach axle shafts from transmission and suspend to prevent damage to boots.

5) Place jack under transmission and remove transmission-to-central tube flange bolts. Remove transmission mount bolts and lower transmission.

6) Disconnect oxygen sensor wire at plug and remove from clips. Move exhaust pipe holders and rubber mounts out of brackets bolted to central tube.

7) Remove front exhaust pipe and heat shields (if equipped). Remove central tube-to-clutch housing bolts. Push central tube toward rear to rest on transmission carrier, turning 90° to ease operation.

8) Remove clutch housing attaching bolts. Move clutch housing back and turn until clutch release lever is located below cast boss on oil pan. Loosen pressure plate attaching bolts evenly and alternately and remove clutch assembly from flywheel.

##### Installation

1) Ensure that marks on flywheel and clutch are aligned and tighten pressure plate bolts 1 turn at a time in a diagonal pattern. Use a clutch centering tool to center disc.

2) If installing new clutch, balancing marks on clutch and flywheel should be offset 180°. Complete installation by reversing removal procedure. Check that insulation sheet on central tube is positioned correctly.

3) Inside flange to insulation distance should be 17.75" (500 mm). Install shift lever to transmission at an angle of 85°.

##### Removal (928)

1) Disconnect battery ground strap. Remove lower body brace. Remove clutch slave cylinder, leaving line attached. Remove lower clutch housing with starter attached and suspend from stabilizer bar. Remove catalytic converter.

2) Remove coupling screws and push coupling back on drive shaft. If equipped with long coupling, remove plug from central tube to reach rear bolt. Remove

release bearing sleeve mounting bolts and push sleeve toward flywheel.

3) Mark pressure plate, intermediate ring and flywheel for reassembly reference. Drive dowel pins in direction of pressure plate with a punch until they are beyond centering bore of flywheel.

4) Check visually at opening on intermediate plate. Loosen pressure plate mounting bolts evenly 1 or 2 turns at a time until free. Disconnect release lever at ball stud and remove clutch assembly and short drive shaft.

##### Installation

1) Assemble and install clutch as a unit. Prior to installation, push intermediate plate at the 3 adjusting elements in direction of release bearing to preload pressure plate.

2) To assemble, place pressure plate on a level plate in a press. Slide clips (US 8039) under bolt heads. Check protrusion of centering pins. They should protrude .12" (3 mm) over bearing surface of intermediate plate.

3) Push intermediate plate in the direction of release bearing on the 3 adjusting elements. Assemble the clutch, noting that disc with the long hub is installed in the rear and that hubs face release bearing. Mount marks on discs 180° from each other.

4) Drive pressure plate on to centering pins of intermediate plate with a plastic hammer far enough that drive plate between them can still be moved with short drive shaft.

5) Recheck protrusion of centering pins. Lubricate contact areas and guide centering pins on to flywheel. Ensure pressure plate marks and intermediate plate markings are 180° from each other.

6) Insert and torque mounting bolts. Ensure short drive shaft moves easily and remove clips from under pressure plate bolt heads. To complete installation, reverse removal procedure.

**NOTE:** Removal and installation procedures for 944 model were not available from manufacturer.

#### CLUTCH RELEASE BEARING

##### Removal (924 Turbo)

With clutch removed, detach bearing spring clips from release lever. Move lever forward and take bearing off of guide tube.

##### Removal (928)

Bearing is removed with pressure plate. Remove by laying pressure plate on bearing and removing snap ring on flywheel side of clutch fingers. Remove bearing along with washers.

##### Installation

Apply thin coat of lubricant to guide tube and friction surfaces and reverse removal procedures.

### ADJUSTMENTS

#### CLUTCH FREE PLAY

##### 924 Turbo, 928 & 944

No adjustment is necessary due to automatic adjustment by slave cylinder. There must be .02" (.5 mm) play between end of push rod and master cylinder piston. This gives approximately .12" (3.0 mm) free play at pedal pad. If necessary, correct play by adjusting push rod.

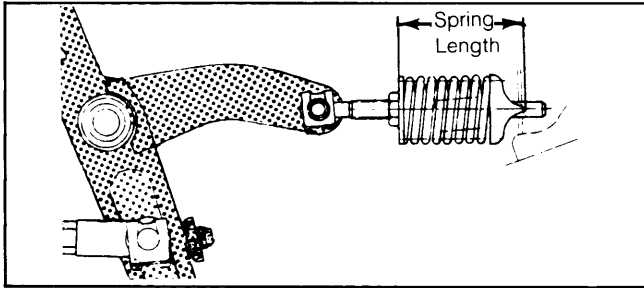
## PORSCHE 924 TURBO, 928 & 944 (Cont.)

### CLUTCH SPRING

#### 924 Turbo & 944

Clutch spring length is checked with clutch engaged and pedal against final stop. The distance between outer edge of plate and the knife-edge bearing must be 2.17" (55 mm) for 924 and 2.36" (60 mm) for 944. See Fig. 1.

**Fig. 1: Adjusting Clutch Spring Length**

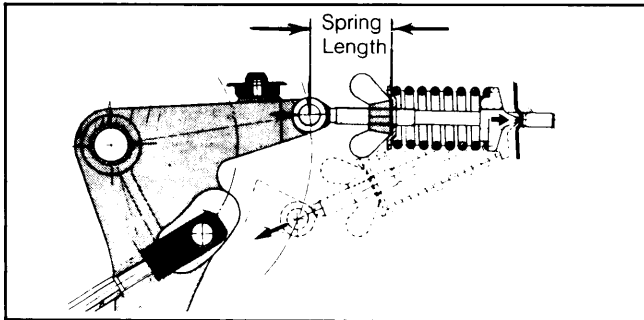


*Illustration applies to 924 Turbo & 944 models only.*

#### 928

The distance between the inside of spring retainer and center of pin must be 1.7" (43 mm). Measurement is taken with clutch engaged and pedal against final stop. See Fig. 2.

**Fig. 2: Adjusting Clutch Spring Length**



*Illustration applies to 928 model only.*

## INSPECTION

### CLUTCH DISC WEAR

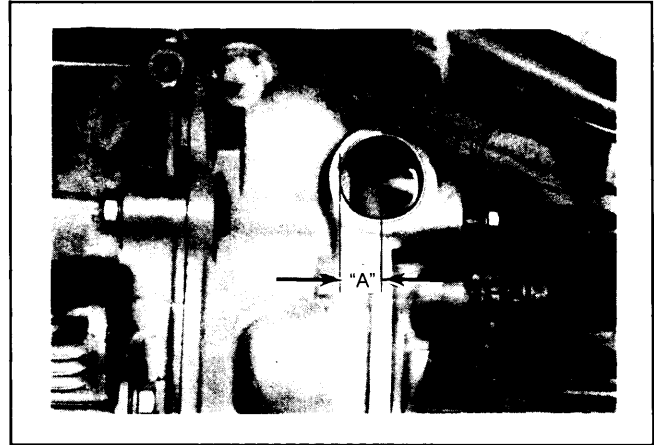
#### 924 Turbo & 944

Remove inspection plug in clutch housing next to slave cylinder. Measure the distance from inside edge of the inspection hole to the release lever. The clutch disc is worn if the distance "A" is 1.34" (34 mm) or more. See Fig. 3.

#### 928

Remove the inspection plug located below the slave cylinder. The clutch disc is worn when the front edge of the release lever just appears in the inspection hole.

**Fig. 3: Checking Clutch Disc Wear**



*Figure applies to 924 Turbo & 944 models only.*