PORSCHE

911SC
924
928

DESCRIPTION

The 928 model uses a dual disc dry clutch and a diaphragm spring type pressure plate. All other models use a single disc dry clutch with the diaphragm spring type pressure plate. The 924 Turbo and 928 clutches are hydraulically operated and self adjusting, while the 911SC and 924 models are mechanically operated through an adjustable cable.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

Removal (911SC) – 1) Raise and support vehicle. Disconnect negative battery cable and remove air cleaner. Loosen engine block vent hose at engine and plug vent cover hole. If equipped with air conditioning, detach compressor and place out of way but DO NOT disconnect hoses.

2) Remove relay plate cover and disconnect the engine wires at relay plate, adapter plug, relay plate socket, and ignition control unit. Remove fuel hoses at filter and return line. Disconnect accelerator linkage.

3) Remove rear center tunnel cover in passenger compartment. Slide boot forward over shift selector rod and disconnect coupling from inner shift rod. Disconnect speedometer sensor wires in tunnel. Drain engine oil and plug hoses on engine and oil tank.

4) Remove heater hoses at exchangers. Remove rear stabilizer. Disconnect ground strap at body and battery wires at starter. Disconnect accelerator linkage from pedal and clutch cable at transmission. Remove axle shafts from flanges at transmission.

5) Place suitable jack under engine/transmission assembly and lift slightly, using caution to prevent damage to secondary air injection pipes. Loosen transmission and engine mounting bolts and carefully lower assembly from vehicle.

6) Remove circlip from clutch release lever shaft and pull off lever and rubber ring. Remove mounting bolts and pull transmission from engine. Mark pressure plate and flywheel for reassembly and insert alignment tool. Loosen bolts 1 or 2 turns at a time in a diagonal pattern and separate clutch assembly from engine.

Removal (924 & 924 Turbo) – 1) Disconnect ground strap at battery. Loosen and remove clutch cable at holder, and remove holder nut. Use engine support (VW 10-222) to suspend engine on front transport eyelets. Loosen and remove bottom engine guard.

2) Remove catalytic converter and muffler. Push back dust boot, remove lock wire from bolt on shift linkage and unscrew bolt. Lift and fold back dust boot and inner cover on shift lever. Remove clamp and shift knob. Remove circlip from shift lever. Pull off shift rod and spring washer from pin of shift lever. Turn shift lever 180° and remove attaching bolts and lever.

3) Press down insulation sheet and push shift rod forward into cavity of tunnel approximately 12" (300 mm). Remove plug from central tube housing. Push back protective tube for shift rod so it is outside of central tube housing. Open tab on protective tube with a screwdriver. Loosen and remove coupling screws through opening.

4) Move coupling toward transmission. Detach axle shafts and suspend in a horizontal position. Remove wires from back-up light switch. Position jack underneath transmission with adapter plate (US 618 and 618/1). Engage points on adapter plates in take-up bores of transmission. Remove transmission-to-central tube housing flange bolts.

5) Remove transmission mount bolts. Lower transmission and central tube until central tube rests on rear axle. Remove transmission. Push back shift rod. Disconnect oxygen sensor wire at plug and remove from clips. Move exhaust pipe holders and rubber mounts out of brackets bolted to central tube.

6) 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. Remove clutch housing attaching bolts.

7) Move clutch housing back and turn until clutch release lever is located below cast boss on oil pan. Push clutch housing forward, tilt down rear end slightly and remove. Loosen pressure plate attaching bolts evenly and alternately and remove clutch assembly from flywheel. Separate clutch disc from pressure plate.

Installation (911SC, 924 & 924 Turbo) – 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. If installing new clutch, balancing marks on clutch and flywheel should be offset 180°.

2) On 911SC models, pull release lever in opposite direction of engine when transmission is installed on engine. There must be at least .78" (20.0 mm) clearance between release lever and transmission housing.

3) On all models, complete installation by reversing removal procedure. On 924, check that insulation sheet on central tube is positioned correctly. Inside flange to insulation distance should be 17.75" (500 mm). Install shift lever to transmission at an angle of 85°.

NOTE – *Use care when guiding central tube into clutch housing.*

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. Mark pressure plate, intermediate ring and flywheel for reassembly reference.

3) Drive dowel pins in direction of pressure plate with a punch until they are beyond centering bore of flywheel. 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 pressure

PORSCHE (Cont.)

plate, clutch discs, release bearing sleeve and short driveshaft as an assembly.

Installation (928) – **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. To assemble, place pressure plate on a level plate in a press. Slide clips (US 8039) under bolt heads.

2) Check protrusion of centering pins. They should protrude .12" (3 mm) over bearing surface of intermediate plate. 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.

3) 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. Recheck protrusion of centering pins. Lubricate contact areas and guide centering pins on to flywheel.

4) Insert mounting bolts and screw in uniformly until clutch is held tightly. Ensure pressure plate marks and intermediate plate markings are 180° from each other and tighten bolts. Ensure short drive shaft moves easily and remove clips from under pressure plate bolt heads. To complete installation, reverse removal procedure.

CLUTCH RELEASE BEARING

Removal (911SC & 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.

Removal (924 & 924 Turbo) – With clutch removed, detach bearing spring clips from release lever. Move lever forward and take bearing off of guide tube.

Installation (All Models) – Apply thin coat of suitable lubricant to guide tube and friction surfaces and reverse removal procedures.

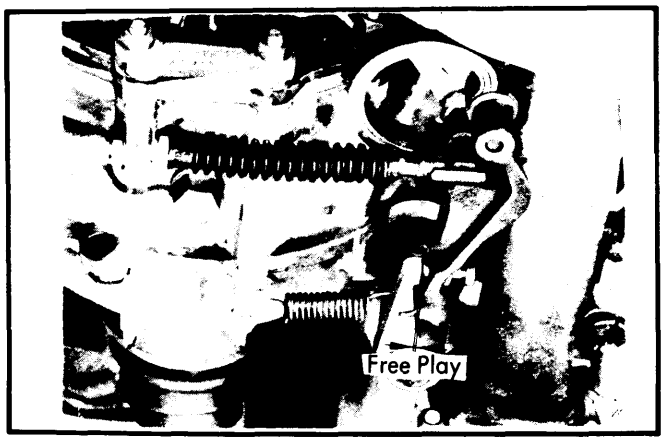

Fig. 1 911SC Clutch Adjusting Mechanism

ADJUSTMENT

CLUTCH ADJUSTMENT

911SC – Clutch free play must be checked at transmission adjusting lever due to auxiliary clutch spring. With cable snug, adjust play at lever to .040" (1.0 mm). Clutch pedal travel may be adjusted at stop on floor plate. Release travel should be .965-1.004" (24.5-25.5 mm) when measured at cable end.

924 – With release bearing against diaphragm spring, lower end of cable should be 5.36-5.52" (136.0-140.0 mm) when measured from lower edge of cable holder to pin at release lever. To adjust, turn outboard release lever on shaft and tighten in position. Adjust cable with counternuts on holder to give .8-1.0" (20.0-25.0 mm) free play at clutch pedal.

924 Turbo & 928 – 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.

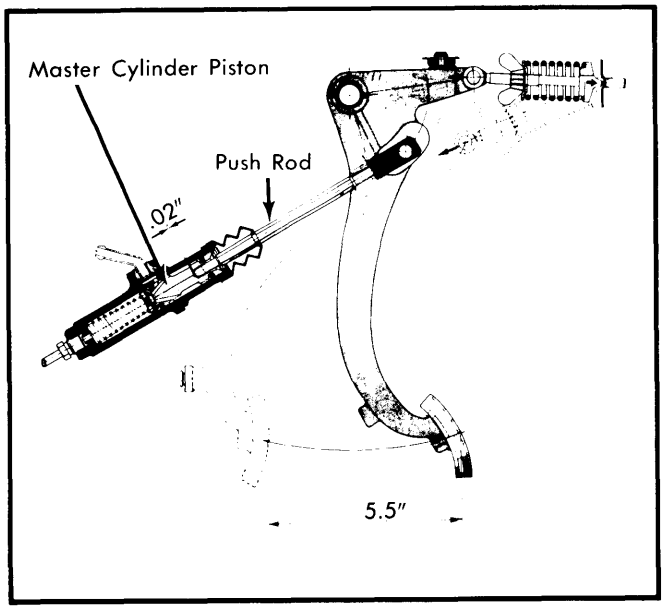

Fig. 2 924 Turbo & 928 Clutch Push Rod Adjustment

PEDAL ADJUSTMENT

NOTE – *Pedal adjustment procedures not available from manufacturer for other models.*

911SC – 1) With engine running and warm, reverse gear must be able to be engaged silently when pedal is fully depressed. Release lever should move .6" (15.0 mm) to completely release clutch. If cable housing rests on bottom of guide clamp when pedal is fully depressed, inner cable must be adjusted at yoke end.

2) Measure from threaded cable end of yoke to outer edge of lock nut. Adjust if not within .7-.9 (17.0-22.0 mm). If arc of cable is too large and allows cable to come out of guide clamp when pedal is released, inner cable must be shortened at yoke end.