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 and 924 Turbo) – **1)** Support front of engine and disconnect battery ground cable. Loosen and remove clutch cable at holder, then remove holder nut. Remove bottom engine cover and clutch bell housing inspection cover. Disconnect oil temperature sensor wire at rear of oil pan.

2) Loosen clutch pressure plate mounting bolts evenly, about 2 turns at a time until all are removed. Turn engine with crankshaft pulley bolt. Place a block of wood between drive shaft tube and crossmember, then remove engine to bell housing bolts.

3) Remove exhaust system from primary muffler to rear of vehicle. Disconnect plug for backup light switch and remove wires from clip on transmission. Remove back-up light switch. Working inside vehicle, pull up shift lever boot and remove circlip, selector rod and wave washer from shift lever pin.

4) Remove axle shafts from transmission. Suspend with wire in a horizontal position to prevent damage to axle shaft boots. Carefully lift transmission slightly, and remove mounts. Move transmission and central tube back about 3.35" (85 mm). Remove clutch disc, pressure plate and release bearing.

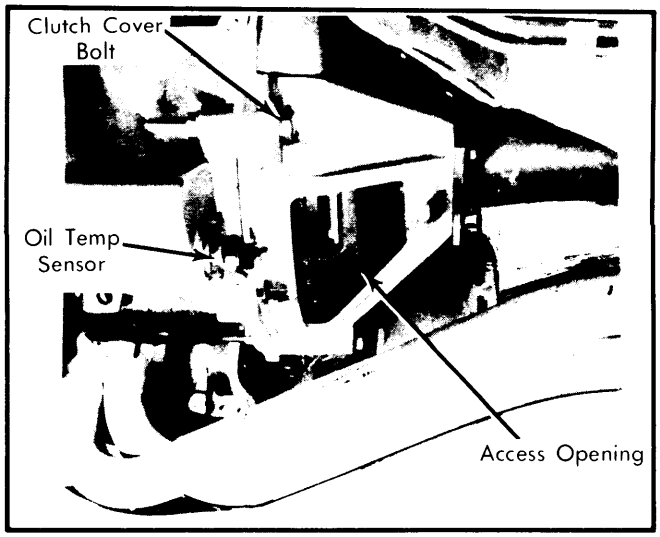

Fig. 1 924 Clutch Housing Access

Removal (928) – **1)** Remove lower body brace. Remove slave cylinder, leaving line connected. Remove lower clutch housing with starter attached and suspend from stabilizer bar. Remove coupling screws and push coupling back onto drive shaft.

2) Remove release bearing sleeve mounting bolts and push sleeve toward flywheel. Mark pressure plate, intermediate ring and flywheel for reassembly alignment since they are a balanced unit. Loosen pressure plate mounting bolts evenly 1 or 2 turns at a time until free. Disconnect release lever at ball stud and remove pressure plate, intermediate plate, clutch discs, release bearing, release bearing sleeve, and short drive shaft as an assembly.

Inspection – **1)** Check pressure plate and disc for wear, cracks, burning or loose rivets. Replace any part found defective. Check ends of diaphragm spring for wear marks from release bearing.

2) Lay a straightedge across pressure plate face and check for distortion; up to .011" (.3 mm) is permissible. Place clutch disc on input shaft and see that it moves freely on splines. Check disc for maximum allowable runout of .24" (.6 mm).

3) Check clutch release bearing for noise or rough operation. Do not wash bearing in any cleaning solution; clean with a lint free cloth only. Replace bearing if contaminated or loud. Check pilot bearing in crankshaft for rough operation, replace as necessary.

Installation (All Models) – **1)** On 928, assemble and install clutch as a unit, noting that rigid disc is against flywheel and

PORSCHE (Cont.)

spring center disc is between pressure plate and intermediate plate. Use short drive shaft to ensure alignment. On 911SC and 924 models, use alignment tool and install clutch assembly.

2) On all models, ensure that marks on flywheel and clutch assembly are aligned and tighten pressure plate bolts one turn at a time in a diagonal pattern. If installing new clutch, balancing marks on clutch and flywheel should be offset 180°.

3) 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. On all models, complete installation in reverse order of removal.

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.

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.

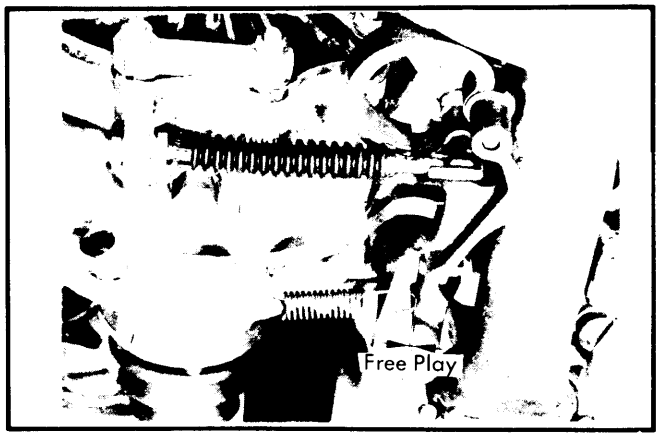

Fig. 2 View of 911SC Clutch Adjusting Mechanism

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.

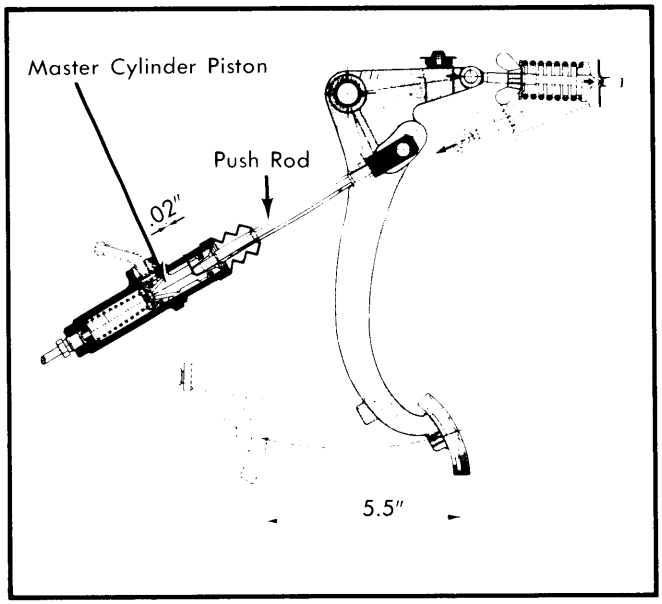

Fig. 3 924 Turbo and 928 Clutch Push Rod Adjustment

PEDAL ADJUSTMENT

911SC & 924 – 1) With engine running and warm, reverse gear must be able to be engaged silently when clutch pedal is fully depressed. Release lever should move .6" (15.0 mm) to completely disengage clutch. If cable housing rests on bottom of guide clamp when clutch 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.