1963-73 PORSCHE

356 Series (1963-65)
912 (1966-69)
911 (1966-73)
914 (1970-73)
914/6 (1970-71)

DESCRIPTION

A dry single plate clutch incorporated in flywheel is located between engine and transmission. A diaphragm spring is used to maintain pressure plate. Clutch has a mechanical release system consisting of clutch pedal, cable, withdrawal fork and throw-out bearing.

REMOVAL & INSTALLATION

CLUTCH ASSEMBLY

Removal – 1) Remove engine from vehicle and separate engine and transmission. *See Engine Removal in ENGINE Section.*

2) Prevent distortion of clutch cover by loosening all attaching bolts on clutch-to-flywheel in an alternating diagonal pattern.

3) Remove clutch and clutch disc. Inspect clutch and disc for wear, burning, cracks, oily disc and loose rivets. Replace any parts found to be defective or worn beyond limits.

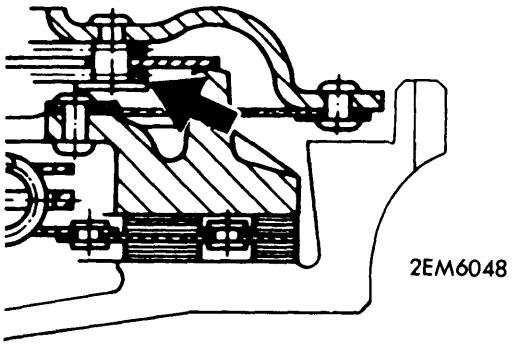
4) Place clutch disc on pilot shaft and see that it moves freely on splines. Place pilot shaft on fixed centers. Using a dial indicator, rotate clutch disc and check lateral runout. Maximum permissible runout is .024" (.610 mm). Measure clutch disc thickness for wear.

Clutch Disc Thickness

Application	Uncompressed Thickness	Wear Limit
356 B, C	.339-.362" (8.6-9.2 mm)	.296" (8.5)
912	.354-.370" (9.0-9.4 mm)	.315-.307" (8.0-7.8 mm)
911	.370-.402" (9.4-10.2 mm)	.256" (6.5 mm)
914 & 914/6	.382-.398" (9.7-10.1 mm)	

5) Check ends of diaphragm spring for running marks (thrust bearing contact). Lay suitable steel rule or straight-edge across pressure plate and check for distortion, wear of .011" (.28 mm) is permitted. Replace unit if any loose rivets are found.

6) Coat diaphragm spring between wire rings lightly with a thin coat of molybdenum disulphide grease before installing clutch (see illustration).



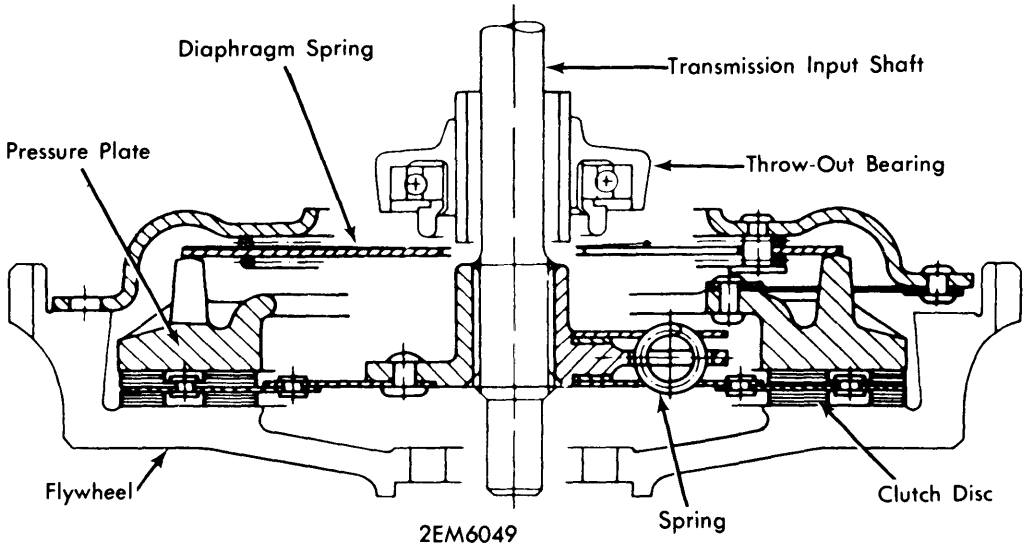
LUBRICATING DIAPHRAGM SPRING

Installation – 1) Place graphite or molybdenum disulphide grease in flywheel pilot bearing. Lubricate felt oil seal. Insert pilot shaft (with clutch disc) in pilot bearing.

2) Centralize clutch on flywheel. Install attaching bolts, tightening one or two turns at a time in a diagonal pattern until torque specifications are reached.

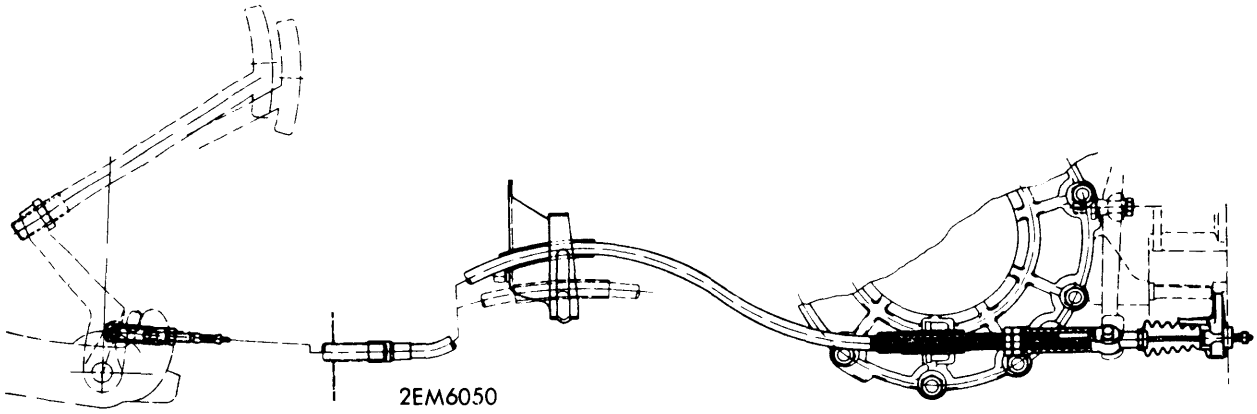
NOTE – Some clutches and flywheels have balancing marks, align when installing clutch.

3) Slide transmission input shaft through clutch disc and into pilot bearing. Install and tighten transmission bolts. Check that clutch release lever has .787" (20 mm) of clearance between release lever and transmission housing.



CLUTCH ASSEMBLY

1963-73 PORSCHE (Cont.)



CLUTCH CABLE ASSEMBLY, 911 MODELS (1970 & LATER)

CLUTCH CABLE

There are three types of clutch cables: In 356, 912 and 911 models prior to 1970, cable housing is fixed and does not move. Each end of clutch cable has a clevis and adjuster. On 911 models from 1970 onward, clutch cable is attached to clutch pedal and transmission housing. At clutch end of cable housing, an adjuster with a pair of dogs engages clutch release lever. Opposite end of housing is rigidly attached to center tunnel rear panel. When clutch is depressed, housing moves clutch relase lever (see illustration). On 914 and 914/6 models, cable is attached to lever arm and clutch pedal. At clutch end, cable runs around a pulley to reverse direction of cable pull.

Removal 356 B,C – 1) Remove floor board behind clutch pedal. Remove lock nut and adjusting nut from clutch cable.

2) Place left rear of vehicle on floor stand and remove wheel. Withdraw spring clip and remove clevis pin. Remove clevis and lock nut from clutch cable. Disconnect cable housing from clamp on transmission and pull cable out of channel to rear.

Installation – 1) Grease clutch cable. Slide cable through flexible housing several times. Pump grease into channel in frame with a grease gun until clean grease appears at forward end.

2) Thread cable through housing and tunnel with threaded end of cable facing adjusting bracket on transmission. Have an assistant block forward end of tunnel when installing cable to prevent grease loss.

3) Pull cable forward as far as possible and connect to link of clutch pedal lever. Install adjusting and lock nuts. Bevel of adjusting nuts fits in anchor bracket.

4) Insert end of flexible housing into bracket on transmission so that at least three threads on which rubber dust cap can be mounted protrude from bracket. Connect clevis to clutch release lever. Adjust travel and tighten lock nuts.

Removal 912 & 911 Prior to 1970 – 1) Loosen floor mats and fold them over. Raise rubber tunnel cover at front end and fold over.

2) Loosen lock nut of clevis in threaded portion of clutch cable, disengage spring clip from clevis and withdraw pin. Unscrew clevis and lock nut from clutch cable and pull cable out to rear of housing.

3) Loosen lock nut from adjusting nut and unscrew from rear threaded end of cable.

Installation – Grease cable and slide into housing from transmission end. Reverse removal procedures. Reset clutch clearance.

Removal 911 1970 & Later – 1) Loosen lock and back off adjuster at clutch release lever. Pull clevis pin at clutch pedal.

2) Pull cable and housing out of cable guide brackets. Disengage cable housing from clutch release lever and disconnect cable from transmission. To install, reverse removal procedures.

Removal 914 & 914/6 – 1) Loosen cable adjuster lock nut and back off adjuster until clutch lever may be disengaged.

2) Pull cable housing back from mounting bracket and disengage cable from slot in bracket. Remove cable from pulley. Disconnect cable at clutch pedal and withdraw cable. To install reverse removal procedures.

CLUTCH RELEASE BEARING

1) Remove engine from vehicle. Separate engine and transmission. Disconnect clutch return spring. Remove clutch release bearing from guide sleeve.

2) Apply a thin coat of graphite grease to clutch release fork. Install new bearing. Adjust throw-out bearing back $1\frac{31}{32}$" (50 mm) from face of clutch using suitable tool (No. P35a or equivalent).

NOTE – Do not wash throw-out bearings in cleaning solvent. Bearings are pre-packed and require no lubrication.

PILOT BEARING

Check pilot bearing and seal for wear or damage. If replacement is necessary, remove flywheel. Using an arbor press, press bearing out from clutch side of flywheel. Press new bearing in from crankshaft side of flywheel. Grease bearing with molybdenum disulphide grease and oil seal with engine oil.

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ADJUSTMENT

CLUTCH ADJUSTMENT

All Models Exc. 1970 & Later 911 – 1) Place left rear side of vehicle on a floor stand and remove wheel. Loosen lock nut of clutch lever clevis and remove clevis by releasing spring clip.

2) Adjust clevis until ¾-1" (19-25 mm) of free travel is available. Pump clutch several times to verify free travel, tighten lock nut and replace clevis. Clutch cable has an adjuster on both ends and may be adjusted at clutch pedal also.

911 1970 & Later – 1) Loosen cable housing lock nut. Turn adjusting nut until clutch pedal has ¾-1" (19-25 mm) of free play.

All Models Exc. 1970 & Later 911 – 1) Run engine until transmission is warm. Depress clutch pedal to stop. In this position reverse gear must just be able to be engaged silently.

2) Remove floor mat. Loosen both pedal stop screws. Adjust plate forward or back. Tighten screws and check reverse gear engagement.

911 1970 & Later – 1) Run engine until transmission is warm. Depress clutch pedal to stop. In this position, reverse gear must just be able to be engaged silently.

2) When clutch pedal is fully depressed, clutch release lever should move .6" (15 mm) to completely disengage clutch. If cable housing rests on bottom of guide clamp when pedal is fully depressed, inner cable must be adjusted at yoke end.

3) Measure from threaded cable end of yoke to outer edge of lock nut. Measurement is .7-.9" (18-23 mm), adjust if necessary.

4) If cable housing rests on bottom of guide clamp when clutch pedal is fully depressed, inner cable must be lengthened at yoke end.

5) If arc of cable is too large, allowing cable to come out of guide clamp when pedal is released, inner cable must be shortened at yoke end.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (mkg)
Flywheel	
356 B, C & 912	254-272 (35-38)
911 & 914/6	108 (15)
914	80 (11)
Transmission-to-Engine (914)	22 (3.0)
Clutch-to-Flywheel	25 (3.5)