

## SUSPENSION - FRONT

### Article Text

1993 Volkswagen Passat

For Volkswagen Technical Site: <http://vw.belcom.ru>

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, March 22, 2000 10:22PM

### ARTICLE BEGINNING

1993 SUSPENSION  
Volkswagen Front

Passat

### DESCRIPTION

FWD suspension system is equipped with MacPherson struts. Steering knuckles are supported by lower control arms and vertically mounted strut assemblies. See Fig. 1.

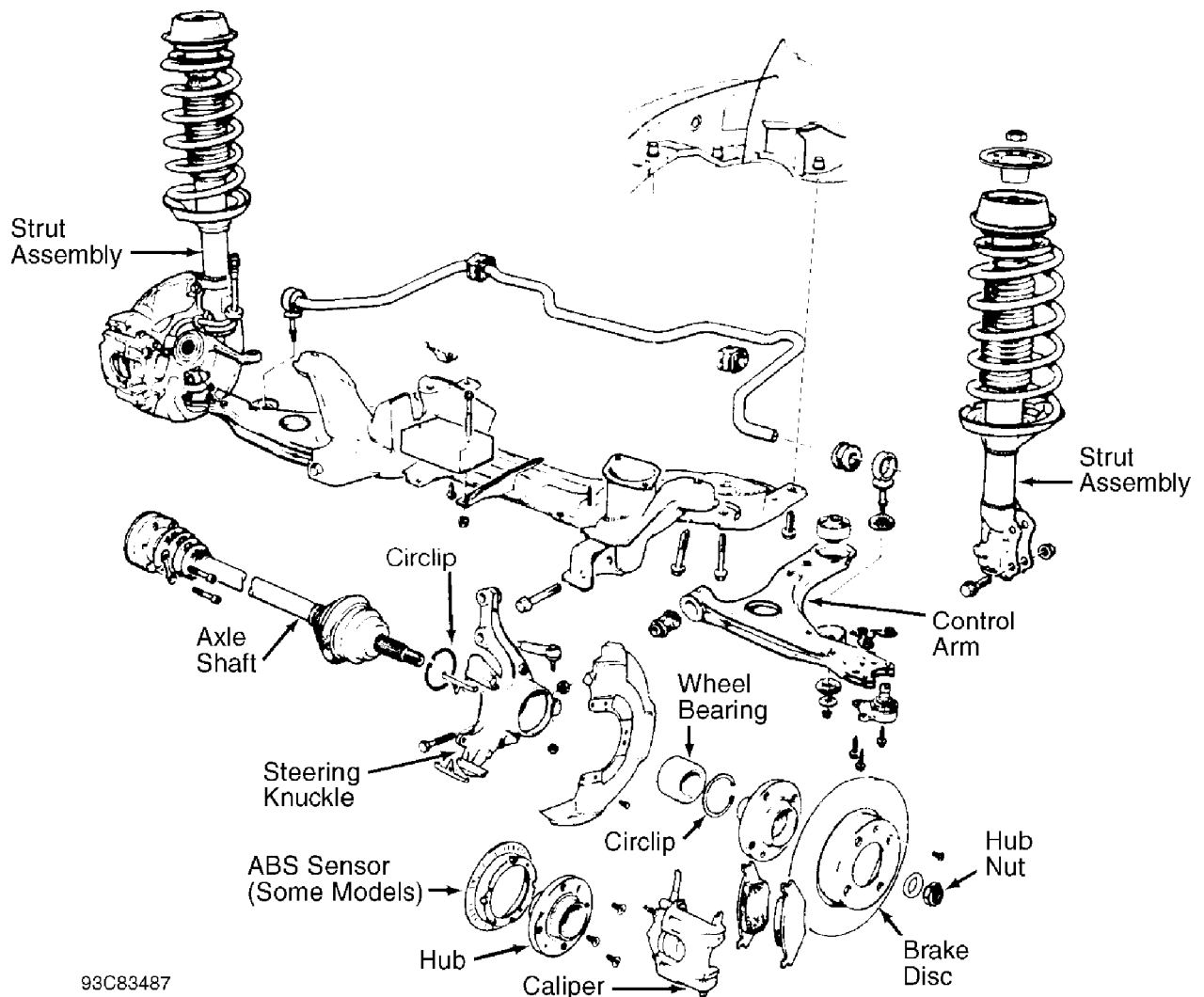


Fig. 1: Exploded View Of Front Suspension (Typical)

### ADJUSTMENTS & INSPECTION

### WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

## **SUSPENSION - FRONT**

### **Article Text (p. 2)**

1993 Volkswagen Passat

For Volkswagen Technical Site: <http://vw.belcom.ru>

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, March 22, 2000 10:22PM

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

#### **WHEEL BEARING**

No adjustment is required.

#### **BALL JOINT CHECKING**

Raise and support vehicle. Inspect ball joints for excessive play and damaged rubber boots. There should be no vertical or horizontal ball joint play. Replace ball joint if any play is present.

#### **REMOVAL & INSTALLATION**

##### **HUB & KNUCKLE ASSEMBLY**

Use exploded view illustration when removing or installing hub and knuckle assembly. See Fig. 1.

##### **LOWER CONTROL ARM & BALL JOINT**

###### **Removal**

1) Raise and support vehicle. Remove bolt retaining ball joint at steering knuckle. Separate ball joint from housing. Leave control arm hanging in mounts at subframe.

2) If control arm is not to be removed and ball joint is riveted to control arm, drill out ball joint rivets using a 9/32" (7 mm) drill. After drilling rivets, chisel off rivet heads (if necessary). If ball joint is bolted to control arm, remove bolts. Remove ball joint.

3) If control arm is to be removed from vehicle, remove stabilizer bar link rod nut, washers, and bushings. Remove pivot bolt and "U" bracket housing inner pivot pin. Slide out control arm.

NOTE: On vehicles with automatic transmission, engine may have to be lifted slightly to gain access to pivot bolts.

###### **Inspection**

Check lower control arm bushings for excessive wear, cracks or contamination. Replace bushings if necessary. To replace bushings, press out worn bushing. Select new bushing and press into position. Ensure bushing does not twist when seating into place.

###### **Installation**

Slide new ball joint into slot in control arm. Install and tighten ball joint retaining bolts. Install lower control arm to subframe. Install ball joint into steering knuckle. To complete installation, reverse removal procedure. Tighten control arm bolts with vehicle on ground. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS table at end of article. Check wheel

## **SUSPENSION - FRONT**

### **Article Text (p. 3)**

1993 Volkswagen Passat

For Volkswagen Technical Site: <http://vw.belcom.ru>

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, March 22, 2000 10:22PM

alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

### **STRUT ASSEMBLY**

#### **Removal**

1) Raise and support vehicle. Remove wheel assembly. Disconnect and wire caliper aside. Remove bolts retaining strut to steering knuckle. Note top bolt is used for front wheel camber adjustment.

2) Support front suspension arm and components. Pry suspension strut from steering knuckle. Remove upper strut retaining nuts from inside engine compartment. Remove strut assembly.

#### **Installation**

To install, reverse removal procedure. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table at end of article. Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

### **FRONT SUSPENSION ASSEMBLY**

#### **Removal**

1) Raise and support vehicle at center with safety stands. Disconnect brake line and plug openings. Leave flex line in place. Remove stabilizer link rod nut, bushings and washers.

2) Remove tie rod nut. Separate tie rod from steering knuckle. Disconnect inner portion of constant velocity joint from transaxle drive flange.

3) Remove lower control arm front pivot bolt. Remove "U" shaped bracket bolts at control arm rear pivot.

NOTE: On vehicles with automatic transmission, engine may have to be lifted slightly to gain access to pivot bolts.

4) Support suspension assembly. Remove upper strut retaining nuts. Remove suspension assembly from vehicle.

#### **Installation**

To install, reverse removal procedure. Ensure convex side of thrust washer faces pivot bolt head. Tighten bolts and nuts to specification. Check wheel alignment. Proceed to appropriate WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

### **WHEEL BEARING**

#### **Removal**

1) Remove axle shaft nut with front wheels on ground. Raise and support vehicle. Allow suspension to hang free. Remove wheel assembly. Remove brake caliper attaching bolts. Remove caliper and wire aside. Remove brake disc retaining screw and remove disc.

## SUSPENSION - FRONT

### Article Text (p. 4)

1993 Volkswagen Passat

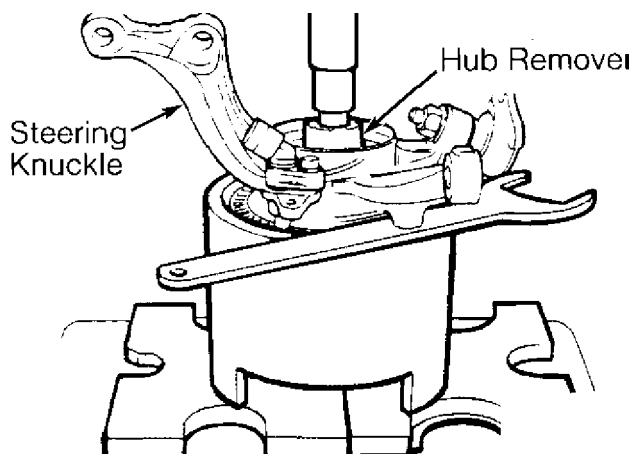
For Volkswagen Technical Site: <http://vw.belcom.ru>

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, March 22, 2000 10:22PM

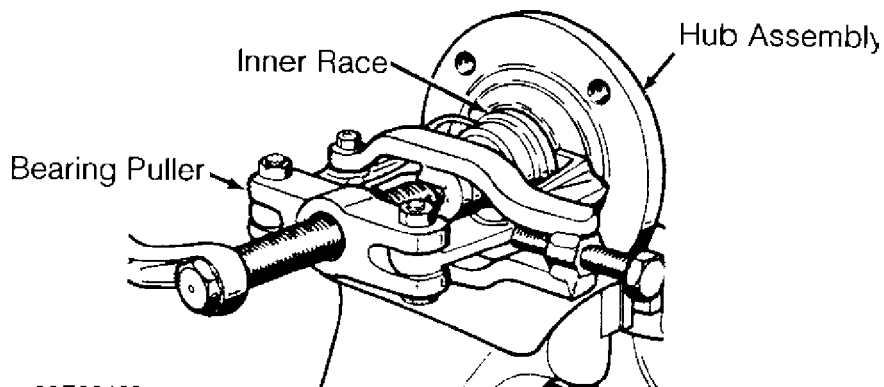
2) Disconnect tie rod ball joint from steering knuckle. Remove control arm ball joint clamp nut and bolt. Disconnect control arm ball joint from steering knuckle. Remove steering knuckle.

3) Remove 2 wheel bearing circlips. Using Hub Remover (VW 295a), press wheel bearing out of steering knuckle. See Fig. 2. Using a bearing puller, remove wheel bearing inner race from hub assembly. See Fig. 3. Using Bearing Remover (VW 433), press wheel bearing from outboard side of steering knuckle.



93D83488

Fig. 2: Pressing Wheel Bearing Out Of Steering Knuckle (Typical)



93E83489

Fig. 3: Removing Wheel Bearing Inner Race (Typical)

NOTE: When installing hub, ensure press adapter contacts inner bearing race only.

#### Installation

1) Press new wheel bearing race onto hub. Using Bearing & Hub Installer (VW 472/1), press new bearing into steering knuckle from outboard side. Using same adapter, press wheel hub into steering knuckle. See Fig. 4. Apply a small bead of locking compound to axle splines before installing axle into hub.

2) To complete installation, reverse removal procedure. Always replace self-locking axle shaft nut. Tighten bolts and nuts to specification. See TORQUE SPECIFICATIONS table. Check wheel alignment.

## SUSPENSION - FRONT

### Article Text (p. 5)

1993 Volkswagen Passat

For Volkswagen Technical Site: <http://vw.belcom.ru>

Copyright © 1998 Mitchell Repair Information Company, LLC

Wednesday, March 22, 2000 10:22PM

See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

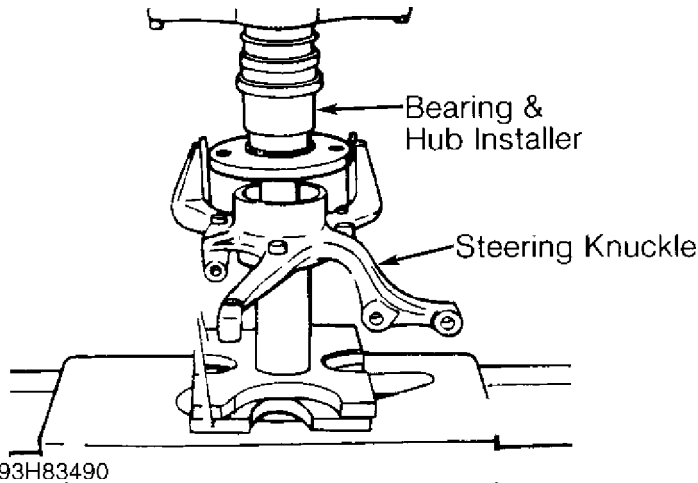


Fig. 4: Pressing Wheel Hub Into Steering Knuckle (Typical)

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS TABLE

XX

Application	Ft. Lbs. (N.m)
-------------	----------------

Axle Nut .....	195 (265)
Axle Shaft-To-Transaxle Bolt .....	33 (45)
Ball Joint Clamp Bolt .....	37 (50)
Ball Joint-To-Control Arm Bolt .....	18 (24)
Caliper Pin Bolt .....	18 (24)
Control Arm Pivot Bolt .....	96 (130)
Control Arm-To-Subframe Rear Bushing Bolt .....	96 (130)
Strut Piston Rod Nut .....	44 (60)
Suspension Strut-To-Steering Knuckle Bolt .....	59 (80)
Tie Rod Castle Nut .....	26 (35)
Wheel Lug Bolt .....	81 (110)

XX

END OF ARTICLE