

VOLKSWAGEN

1.8L 4-Cylinder - Passat - AUG & AWM Engines

MANUFACTURER'S SUGGESTED SCHEDULED MAINTENANCE

The manufacturer suggests the timing belt AND tensioner be replaced at 105,000 mile intervals.

CAUTION: This application is an interference engine. Do not rotate camshaft or crankshaft when timing belt is removed, or engine damage may occur.

REMOVAL & INSTALLATION

TIMING BELT

Removal

1. For vehicles manufactured up to September, 2000, disconnect front turn signal light assembly wiring harnesses. Separate hood release lever from bumper cover. Remove front bumper cover. See **Fig. 1** . Remove bumper beam. Remove air intake duct from air cleaner housing. Remove support bolts from lock carrier assembly. See **Fig. 2** . Install Support Tool (3369) through lock carrier to body. Remove oil cooler from lock carrier assembly. Move lock carrier forward on support tools.
2. For vehicles manufactured from October, 2000, remove bumper cover from bumper carrier. See **Fig. 3** . Remove noise insulation panel from under engine compartment. Remove air intake duct at lock carrier. Remove bolts from front of bumper carrier. See **Fig. 4** . Install guide rods on right and left sides. Pull lock carrier forward about 4" (10 cm) on guide rods into service position.

3. **CAUTION:** DO NOT hang condenser or oil cooler from their lines.

On all vehicles, loosen bolts for air conditioning drive belt and remove belt. Remove serpentine drive belt. Remove serpentine drive belt tensioner.

4. Remove upper timing belt cover. See **Fig. 5** . Mark rotation direction of timing belt with arrow. Rotate crankshaft to TDC No. 1 cylinder. See **Fig. 6** .

5. **CAUTION:** Vibration damper outer bolts and center bolt are torque-to-yield type. If loosened or removed, bolts must be replaced.

Remove vibration damper. It is NOT necessary to remove center bolt from vibration damper. Remove lower and middle timing belt covers. See **Fig. 5** .

6. **NOTE:** If necessary, align pressure piston using needle nose pliers or a thin wire (hole in piston and hole in housing must align).

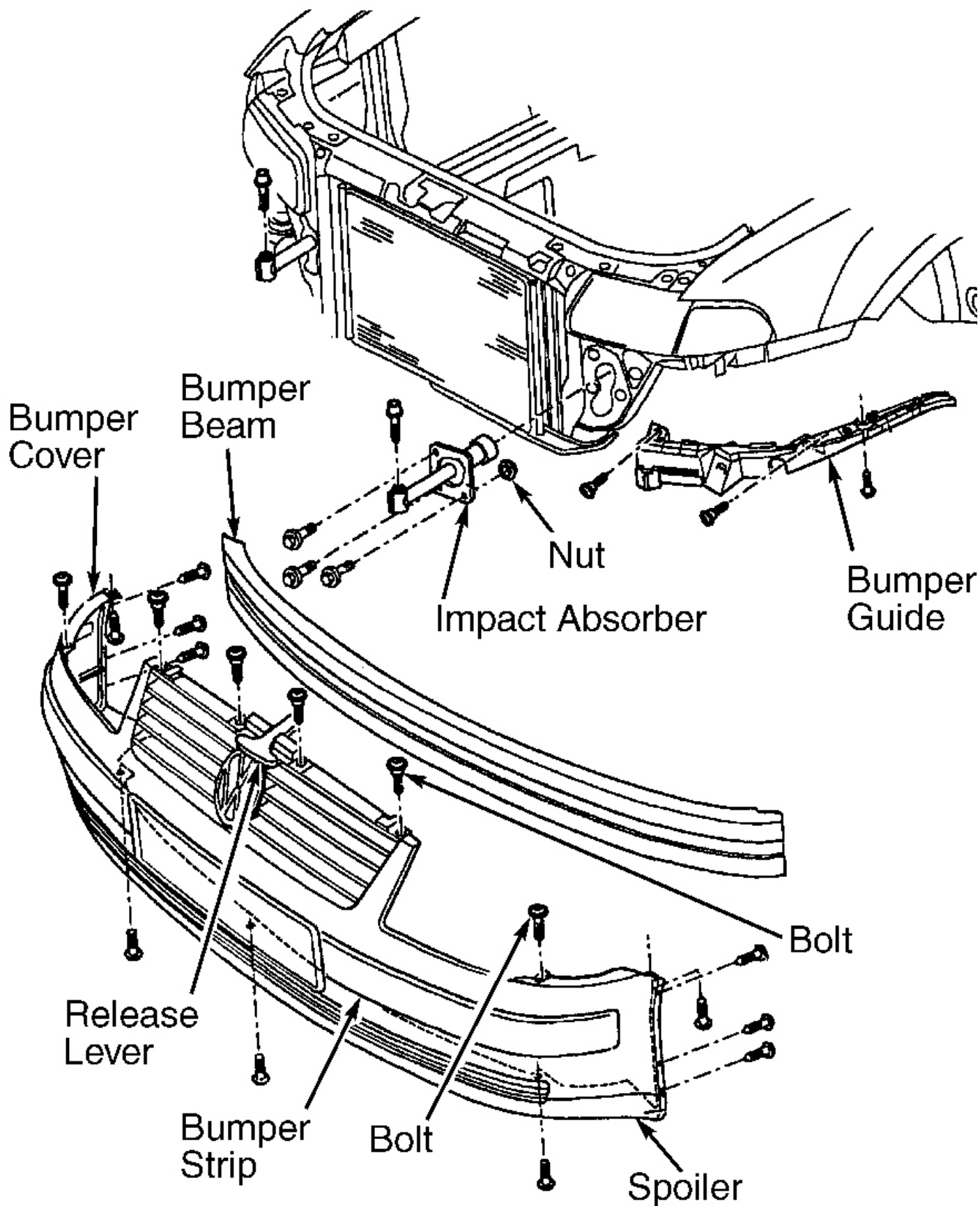
On vehicles built through July 2000, align holes in timing belt tensioner piston rod and housing. Insert Tensioning Bolt (T10092) into timing belt tensioner bracket. See **Fig. 7** . Turn tensioning bolt just enough so that holes in tensioner piston rod and housing align. Insert Locking Pin (T40011) into holes to secure tensioner in place. On vehicles built after July 2000, insert a hex wrench into hex socket on

tensioner until it bottoms out. Rotate tensioner counterclockwise using uniform force until locking plate (T10008) can be installed.

7. To loosen tensioner on models built after July 2000, install Pin Wrench (3387). Ensure tab on Pin Wrench is not bent. Loosen nut in center of tensioner, and rotate clockwise using Pin Wrench.
- 8.

CAUTION: Tensioners on vehicles built after July 2000 are oil-filled. Excessive force during compression can damage tensioner.

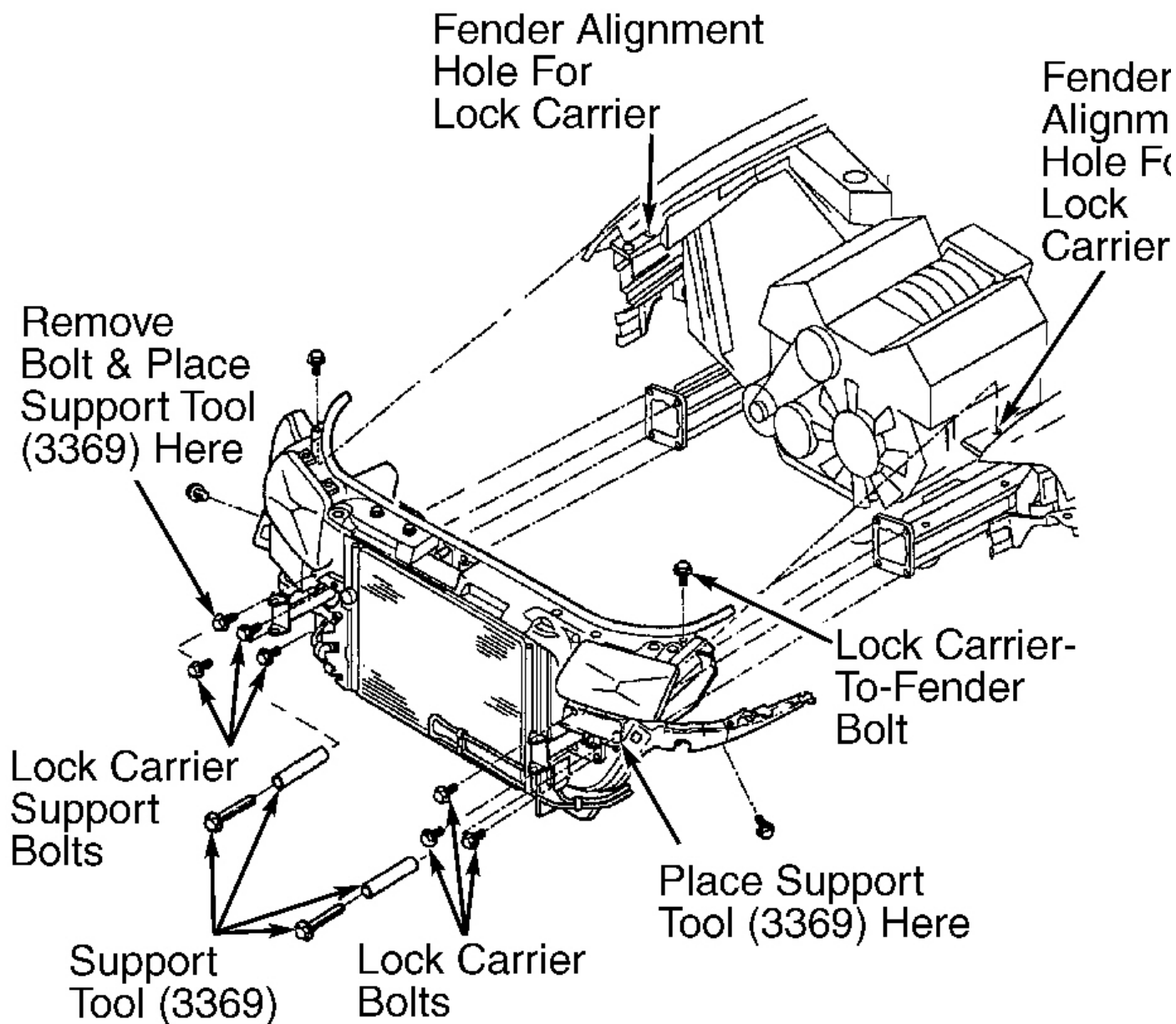
On all models, remove timing belt. Turn crankshaft back just slightly to ensure that crankshaft is not at TDC for any cylinder.



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Fig. 1: Removing Front Bumper Cover (Up To September, 2000)

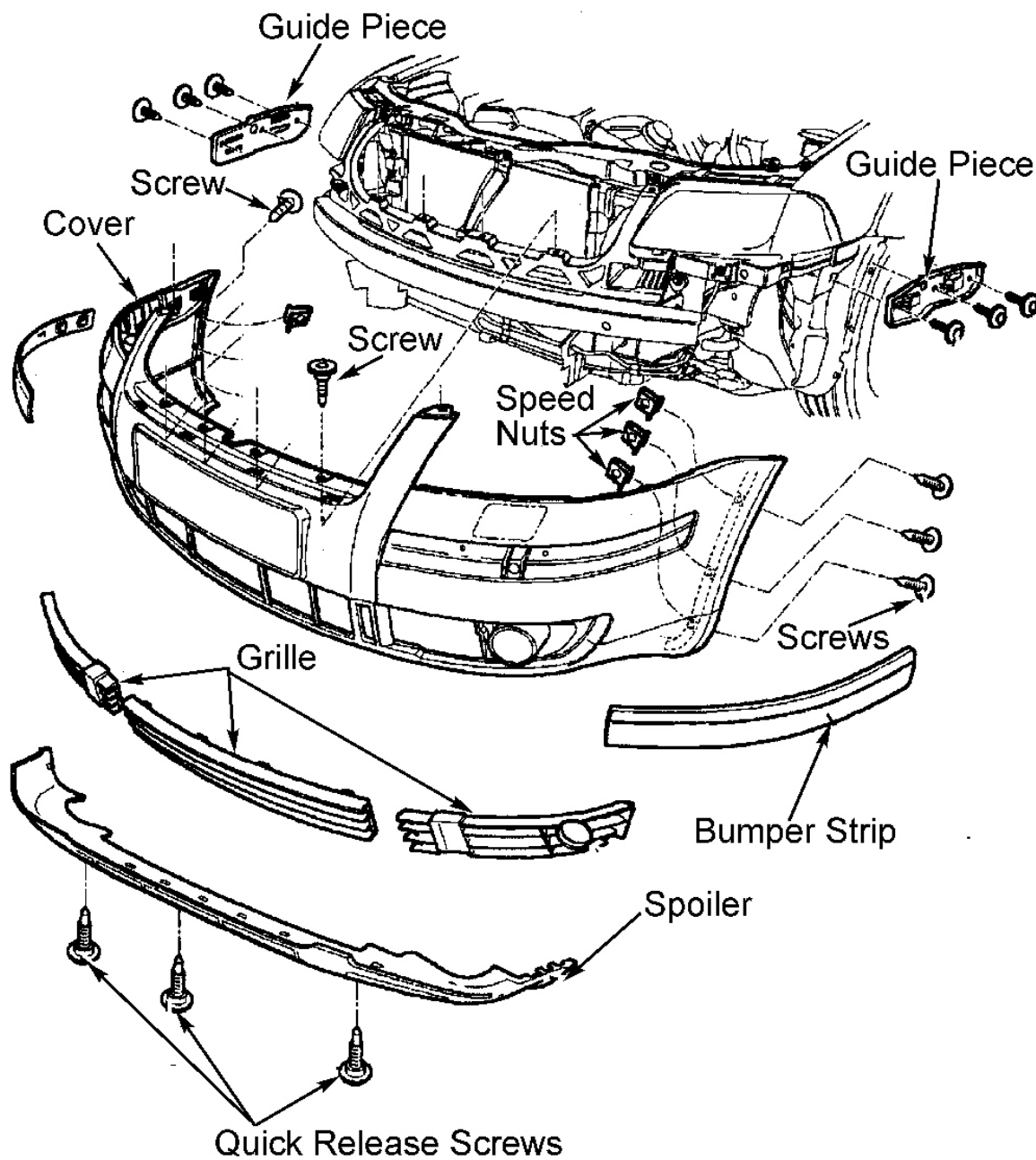
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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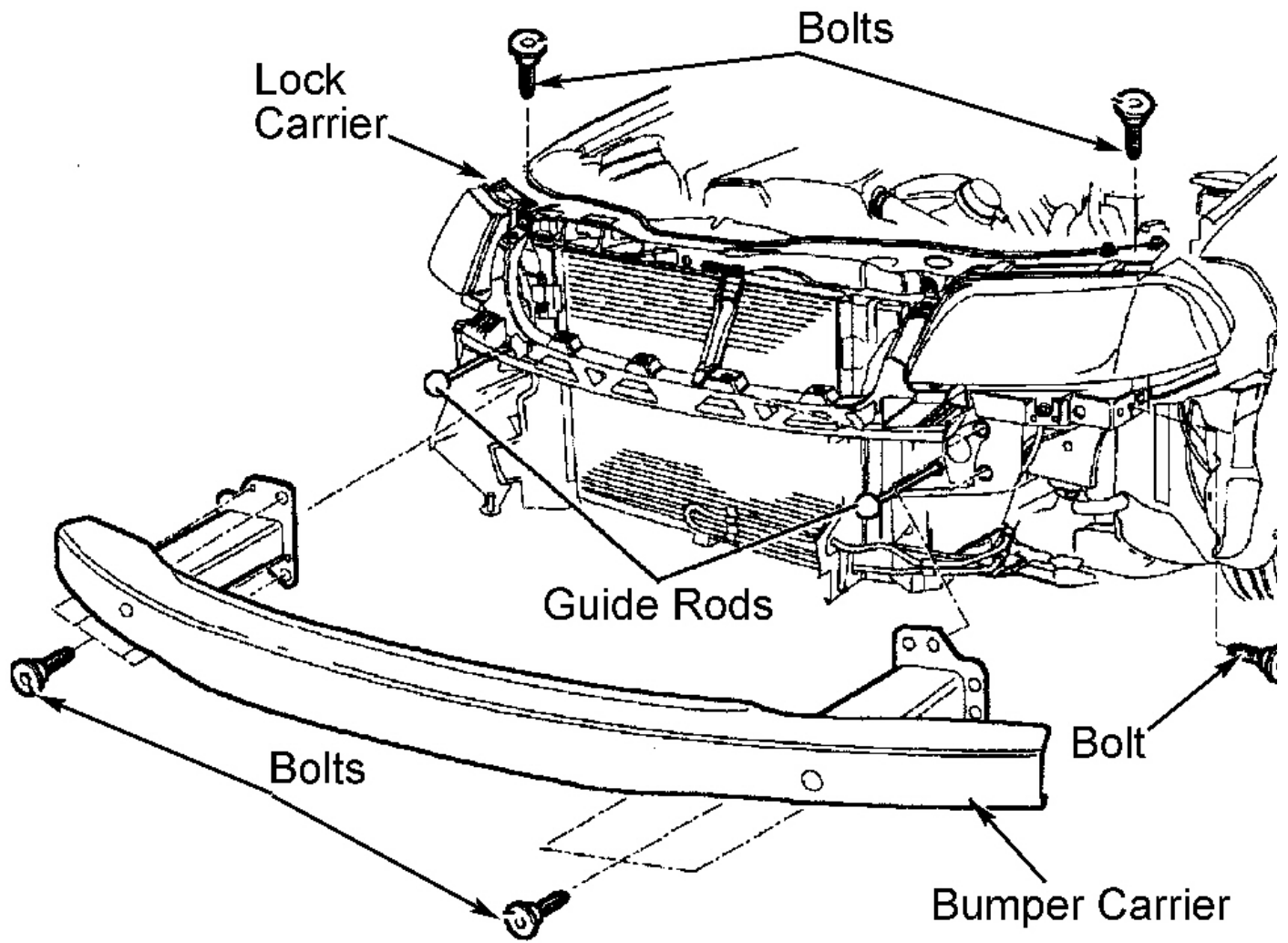
Fig. 2: Moving Lock Carrier To Service Position (Up To September, 2000)

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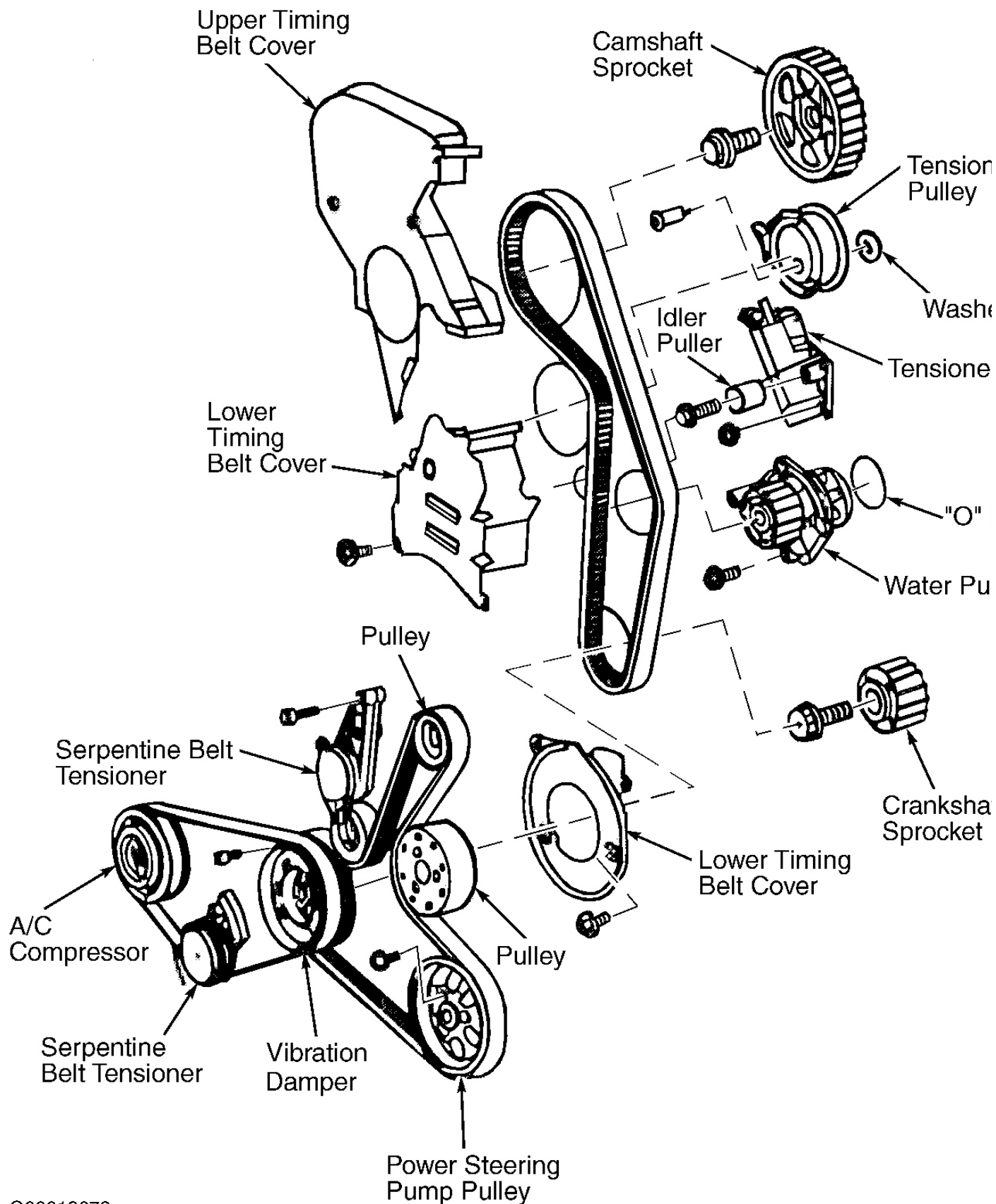
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Fig. 3: Removing Front Bumper Cover (From October, 2000)
Courtesy of VOLKSWAGEN UNITED STATES, INC.



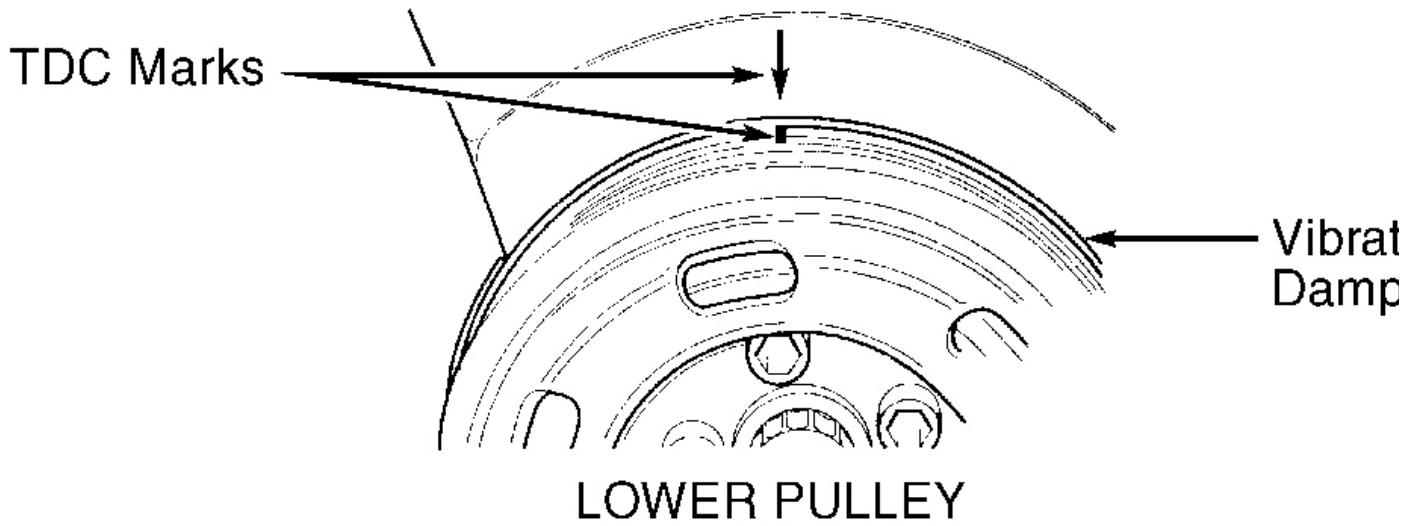
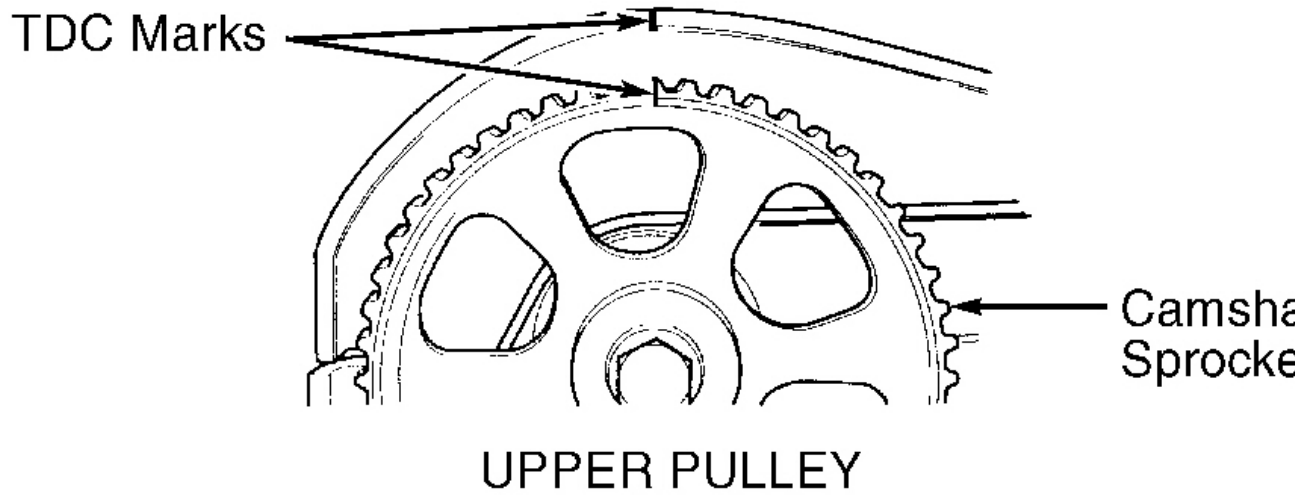
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Fig. 4: Moving Lock Carrier To Service Position (From October, 2000)
Courtesy of VOLKSWAGEN UNITED STATES, INC.



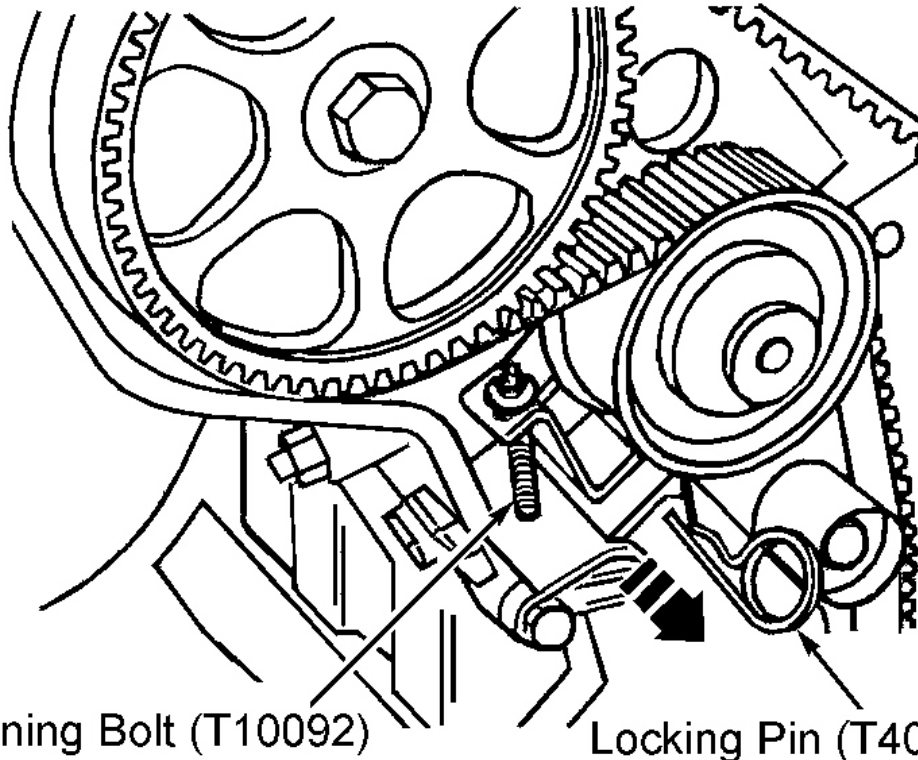
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Fig. 5: Exploded View Of Timing Belt Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 6: Aligning Camshaft & Crankshaft Timing Marks
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 7: Installing Timing Belt Tensioner Locking Pin
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installation

CAUTION: When turning camshaft, crankshaft must not be at TDC, or there is a potential for valves to contact pistons. Install timing belt when engine is cold or lukewarm.

1. Align timing marks on camshaft sprocket with mark on cylinder head cover. Ensure crankshaft sprocket is still aligned with timing mark. See **Fig. 6**.
2. Install timing belt around crankshaft sprocket. Install lower timing belt cover. Install vibration damper and tighten bolts to specification. See **TORQUE SPECIFICATIONS**.
3. Set crankshaft pulley to TDC No. 1 cylinder. Place timing belt on water pump, tensioner pulley and camshaft sprocket.

4.

NOTE: Engine must not be hotter than lukewarm when tensioning timing belt.

On models built through July 2000, remove Locking Pin (T40011) and unscrew Tensioning Bolt (T10092). See **Fig. 7**. On models built after July 2000, rotate tensioner counterclockwise using Pin Wrench (3387), removing all tension until Locking Plate (T10008) can be removed without force.

5.

CAUTION: If tensioner is fully extended at any time, it must be pressed back into compressed position using tensioner assembly and Pin Wrench. Excessive force during this compression procedure can damage

tensioner assembly.

After removing Locking Plate, rotate tensioner clockwise using Pin Wrench until a 5/16" (8 mm) drill bit can be inserted between tensioner lever and housing through underside of tensioner. While holding tensioner in this position, tighten tensioner retaining bolt to specification. See **TORQUE SPECIFICATIONS**.

6. On all models, turn crankshaft 2 revolutions in normal direction of rotation. Check that camshaft and crankshaft timing marks align properly. See **Fig. 6**.
7. Install middle and upper timing belt covers. Tighten bolts to specification. See **TORQUE SPECIFICATIONS**. Install serpentine drive belt tensioner. Install serpentine drive belt.
8. Install the A/C compressor drive belt (if equipped). Ensure used belts are installed in original direction of rotation.
9. Install lock carrier in original location. Install bumper and bumper cover.

TORQUE SPECIFICATIONS

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Application	Ft. Lbs. (N.m)
Bumper Carrier-To-Impact Absorber Vertical Bolt	15 (20)
Camshaft Sprocket Bolt	50 (65)
Crankshaft Pulley Center Bolt ⁽¹⁾	
Step 1	66 (90)
Step 2	Plus 1/4 Turn (90 Degrees)
Idler Pulley Bolt	18 (25)
Impact Damper-To-Lock Carrier Bolt (From Oct. 2000)	68 (50)
Lock Carrier	
Front Support Bolt	37 (50)
Timing Belt Tensioner Bolt	11 (15)
Serpentine Drive Belt Tensioner Bolt	18 (25)
Timing Belt Tensioner Pulley Bolt	20 (27)
Water Pump Bolt	11 (15)
	INCH Lbs. (N.m)
Bumper Guide-To-Side Panel Bolt	18 (2)
Lock Carrier-To-Side Panel Bolt	71 (8)
Timing Belt Cover Bolt ⁽¹⁾	89 (10)
Vibration Damper Bolt ⁽¹⁾	
Step 1	89 (10)
Step 2	Plus 1/4 Turn (90 Degrees)
⁽¹⁾ Replace bolt if loosened or removed.	