

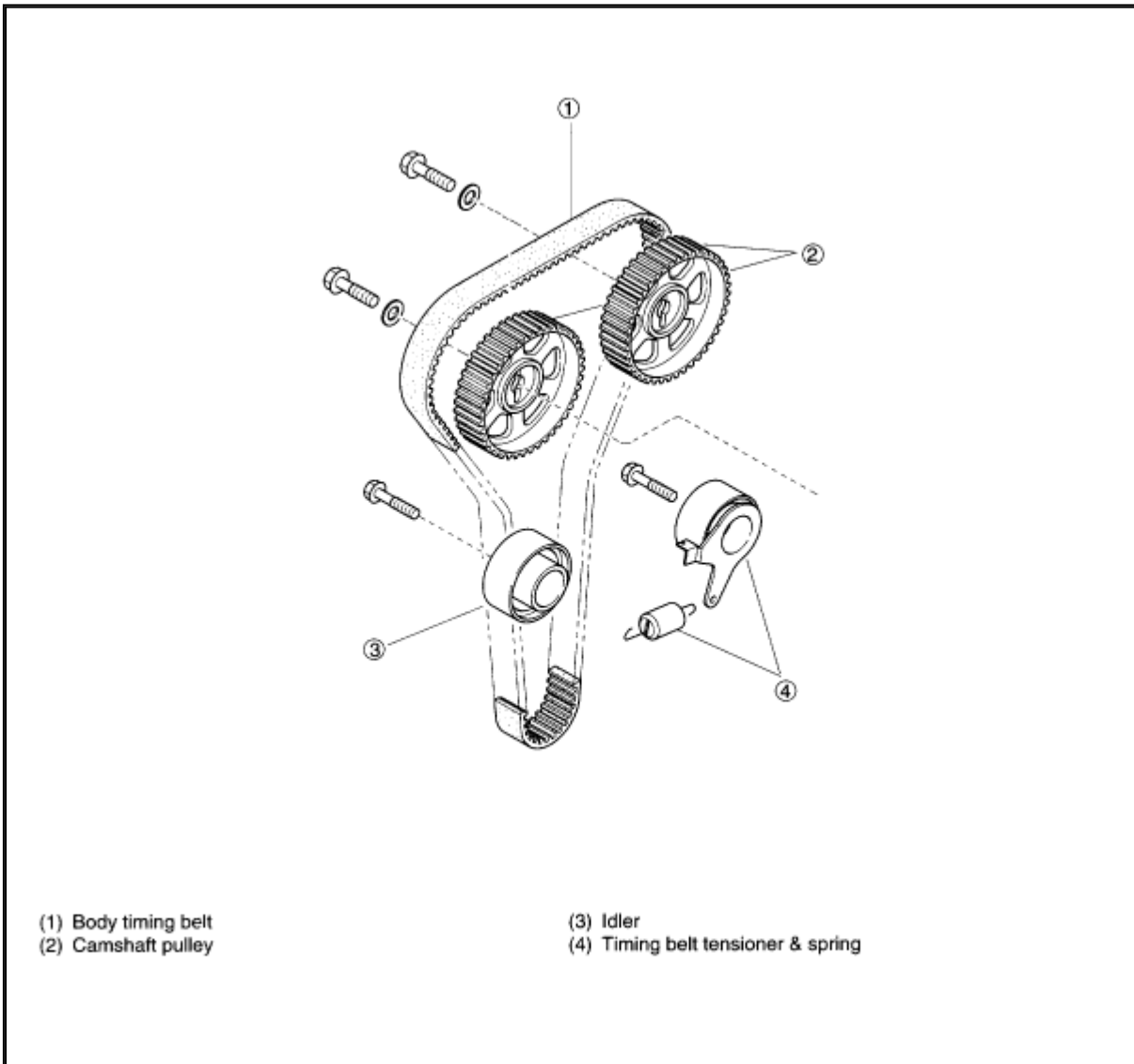
2003 Kia Rio L4-1.6L DOHC 16V

Vehicle Level → Engine, Cooling and Exhaust → Engine → Timing Belt → Service and Repair ←

Service and Repair

Notes

TIMING BELT



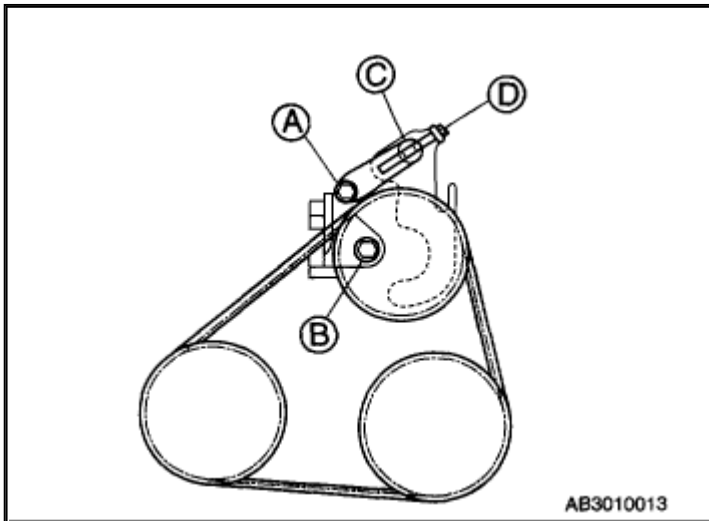
Zoom

Sized for Print

COMPONENT

REMOVAL

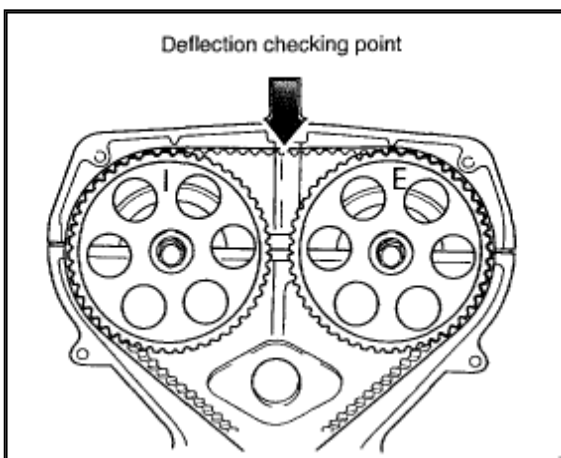
1. Disconnect negative battery cable.



Zoom

Sized for Print

2. Loosen power steering lock bolts and nuts accordingly and remove tension from Power Steering (**P/S**) and/or Air Conditioning (**A/C**) compressor [drive belt](#).
3. Remove P/S and/or A/C [drive belt](#).
4. Loosen generator mounting bolts and adjusting bolt.
5. Remove generator bolts.
6. Remove water pump pulley.
7. Remove crankshaft pulley and timing belt guide plate.
8. Remove upper and lower timing belt covers.
9. Turn crankshaft so that timing mark on timing belt pulley is aligned with timing mark on engine.



Zoom

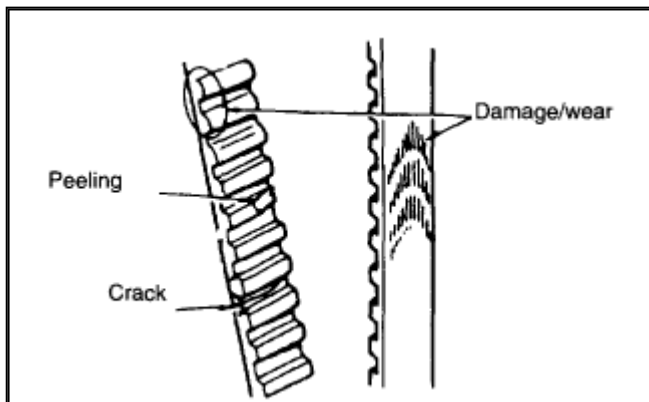
Sized for Print

10. Check that "I" mark on intake camshaft pulley is aligned with mark on cylinder head cover and "E" mark on exhaust camshaft pulley is aligned with mark on cylinder head cover. **NOTE:** Do not move camshaft or crankshaft once timing marks have been correctly positioned.
11. Loosen tensioner pulley lock bolt.
12. Protect timing belt with a rag.
13. Remove tensioner pulley.
14. Remove timing belt. **NOTE:** Mark the direction of timing belt rotation (on the timing belt) for proper reinstallation.

INSPECTION

NOTE: Never forcefully twist, turn inside out or bend timing belt. Do not allow oil or grease to come in contact with timing belt.

1. Replace timing belt if it is contaminated with oil or grease.

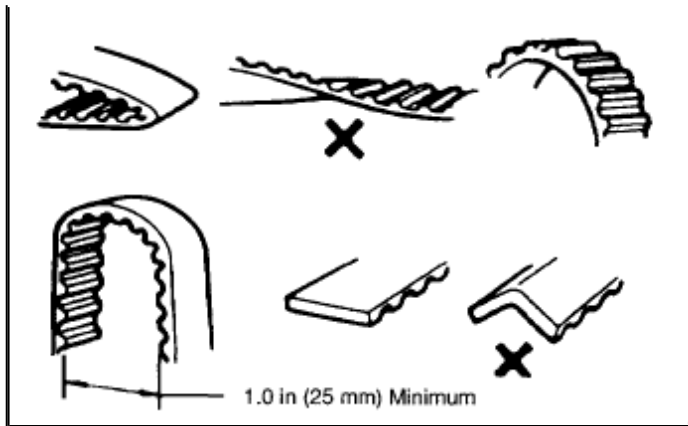


Zoom

Sized for Print

2. Check timing belt for uneven wear, fraying, peeling, cracking and hardening. Replace timing belt as necessary.
3. Bend timing belt into a "U" shape as shown in figure. Distance "A" must be at least **1.0 inch (25 mm)**.

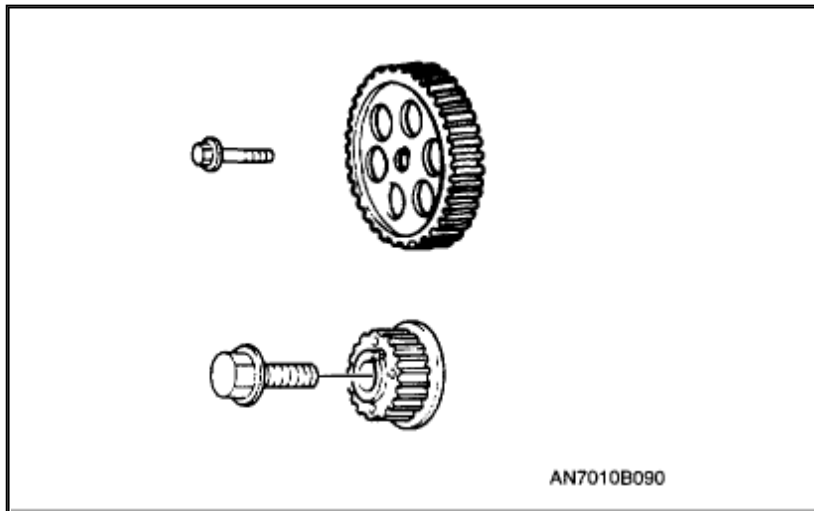




Zoom

Sized for Print

- Inspect both idler pulley and tensioner pulley for uneven wear and smooth bearing operation.



Zoom

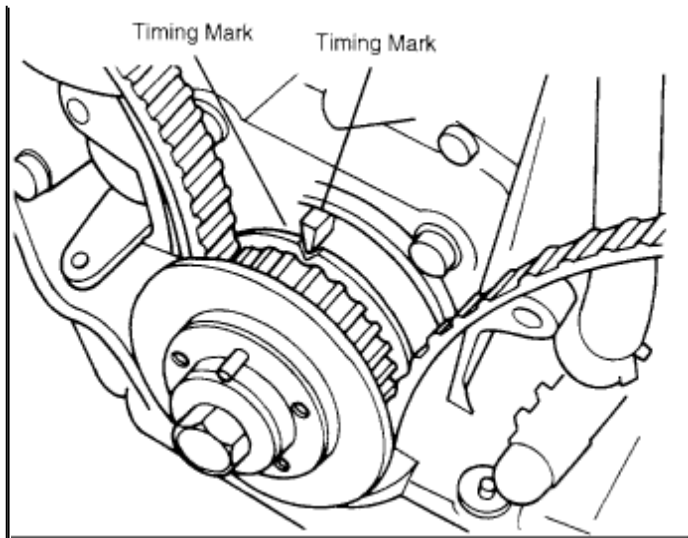
Sized for Print

- Inspect camshaft pulleys and timing belt pulley for broken teeth or damage.
NOTE: Replace any component that shows damage, excessive wear, or that appears prone to a possible failure.

INSTALLATION

- Install tensioner pulley. **NOTE:** Replace tensioner spring whenever timing belt is replaced.

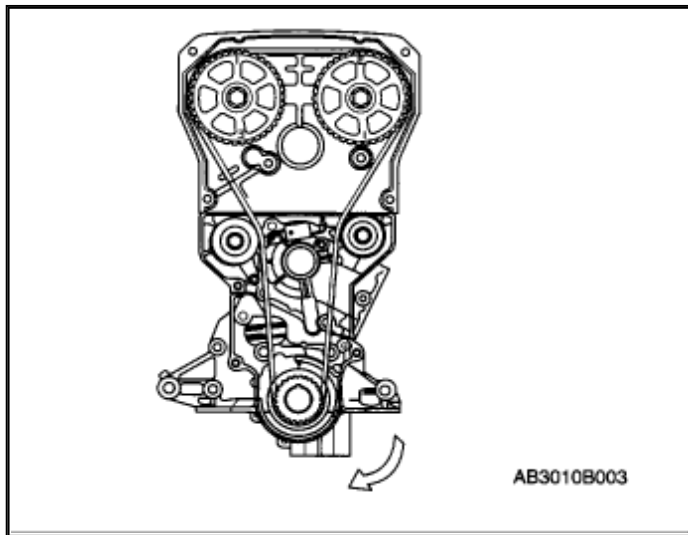




Zoom

Sized for Print

2. Pull tensioner pulley to its furthest point and tighten lock bolt.
3. Check that timing mark on timing belt pulley is aligned with timing mark on engine.

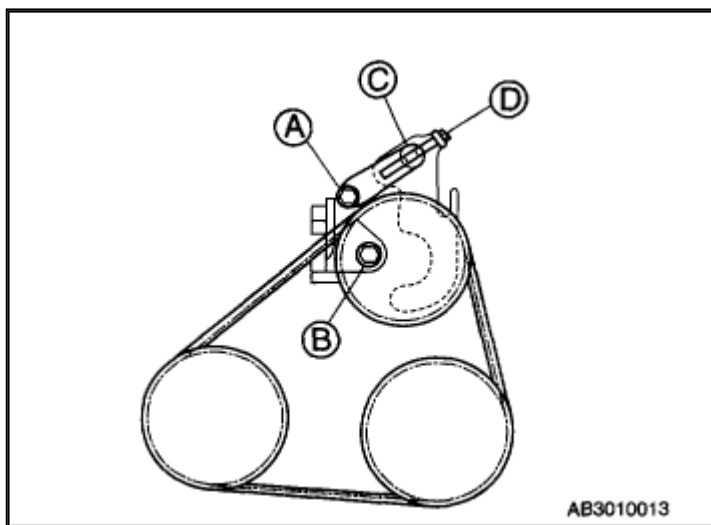


Zoom

Sized for Print

4. Check that "I" mark on intake camshaft pulley is aligned with mark on cylinder head cover and "E" mark on exhaust camshaft pulley is aligned with mark on cylinder head cover. **NOTE:** If existing timing belt is being reused, install belt in proper rotation direction marked prior to removal.
5. Install timing belt onto timing belt pulley first, then idler pulley, exhaust camshaft pulley, intake camshaft pulley, and tensioner pulley in that order.
6. Check that there is no looseness in belt between idler pulley and exhaust camshaft pulley or between intake and exhaust camshaft pulleys.

7. Loosen tensioner pulley lock bolt and allow tensioner spring to apply tension to timing belt. **NOTE:** Do not add additional tension.
8. Tighten tensioner pulley lock bolt to specified torque. Tightening torque: **28 - 38 ft. lbs. (38 - 51 Nm, 3.9 - 5.2 kg-m)**
9. Rotate crankshaft **two full revolutions** (clockwise only) and align timing mark on timing belt pulley with timing mark on engine block.
10. Check that "I" mark on intake camshaft pulley and "E" mark on exhaust camshaft pulley are aligned with marks on cylinder head cover.
11. If they are not aligned, remove timing belt and start process from tensioner installation.
12. Measure timing belt deflection by applying moderate pressure midway between camshaft pulleys. If deflection is not correct, repeat from tensioner installation. Deflection pressure: **22 lb. (98 N, 10 kg)** Deflection: **0.39 - 0.50 inch (11 - 13 mm)**
13. Install lower and upper timing belt covers in that order. Tightening torque: **5.8 - 8.0 ft. lbs. (7.9 - 10.7 Nm, 0.8 - 1.1 kg-m)**
14. Install timing belt guide plate and crankshaft pulley. Tightening torque: **9.0 - 12.6 ft. lbs. (12.3 - 17.2 Nm, 1.3 - 1.8 kg-m)**

[Zoom](#)[Sized for Print](#)

15. Install water pump pulley. Tightening torque: **9.0 - 12.6 ft. lbs. (12.3 - 17.2 Nm, 1.3 - 1.8 kg-m)**
16. install generator belt and adjust the tension.
17. Install P/S and/or A/C [drive belt](#) and adjust the tension.
18. Connect negative battery cable.