

MODEL: Celica 1994-99. Series: ST204R
ENGINE: 5S-FE, 2.2L

REMOVAL

INTERFERENCE ENGINE. In the event of timing belt failure, it is probable that valve to piston damage has occurred. A compression test should be carried out on all cylinders before removing the cylinder head.

1. Disconnect the negative cable from the battery.
2. Remove:
 - alternator,
 - RH engine mounting bracket,
 - spark plugs.
3. Disconnect the engine wire from alternator bracket and adjusting bar.
4. Remove the No.2 timing belt cover.
5. Turn the crankshaft pulley (clockwise) and align its groove with the timing mark "O" on the No.1 timing belt cover.
6. Check that the hole of the camshaft timing pulley is aligned with the timing mark on the bearing cap. If not, turn the camshaft one full

- revolution.
7. Loosen the mounting bolt of the No.1 idler pulley and push it to the left as far as possible, then temporarily secure it.
8. Remove the timing belt from the camshaft timing pulley.
Note: If reusing the belt, place matchmarks on timing belt and camshaft pulley. Also place matchmark on the belt to match the end of No.1 timing belt cover.
9. Remove the camshaft timing pulley.
10. Remove the crankshaft pulley. If reusing timing belt:
 - a). (When matchmark is out of alignment clockwise).
 - Align matchmark by pulling timing belt up on water pump pulley side while turning the crankshaft pulley counterclockwise.
 - After aligning matchmark, hold the timing belt and turn crankshaft pulley clockwise. Then align its groove with timing mark "O" of the

- timing belt cover.
- b). (When matchmark is out of alignment counterclockwise).
 - Align matchmark by pulling timing belt up on No.1 idler pulley side while turning the crankshaft pulley clockwise.
 - After aligning matchmark, hold the timing belt and turn crankshaft pulley counterclockwise. Then align its groove with timing mark "O" of the timing belt cover.
11. Remove the No.1 timing belt cover and the timing belt guide.
12. Remove the timing belt.
Note: if reusing the belt, make a mark on the belt to indicate its direction of the rotation to ensure proper reinstallation.
13. Remove:
 - No.1 idler pulley,
 - tension spring,
 - No.2 idler pulley,
 - crankshaft timing pulley,
 - oil pump pulley.

INSTALLATION

1. Install the oil pump pulley.
2. Install the crankshaft timing pulley.
3. Install the No.2 idler pulley.
4. Temporarily install the No.1 idler pulley. Check free length of tension spring before installing it.
5. Pry the idler pulley to the left as far as possible and tighten the bolt. Check the movement the idler pulley.
6. Temporarily install the timing belt.
7. Turn the crankshaft pulley bolt to position key groove of crankshaft timing pulley upward.
8. Install the timing belt on crankshaft pulley, oil pump pulley, water pump pulley, No.1 idler pulley, No.2 idler pulley. Make sure there is no oil or water on them.

Note: If reusing timing belt, align the points marked before removal; including the

- direction of rotation.*
9. Install:
 - timing belt guide,
 - No.1 timing belt cover,
 - crankshaft pulley,
 - camshaft timing pulley.
10. Turn the crankshaft pulley to align its groove with the timing mark "O" of the No.1 timing belt cover. Turn the camshaft to align the hole of the camshaft timing pulley with the timing mark on the bearing cap.
11. Install the timing belt to the camshaft timing pulley. (If reusing timing belt),
 - Check the matchmark on the timing belt aligns with the end of No.1 timing belt cover.
 - Align the matchmarks of the timing belt and camshaft timing pulley.
12. Check for tension between the

- crankshaft timing belt pulley and camshaft timing pulley. Re-adjust if necessary.
13. Loosen the No.1 idler pulley bolt half a turn. Then slowly turn the crankshaft pulley (clockwise) two revolutions from TDC to TDC.
14. Check all timing marks on all crankshaft and camshaft pulleys. Re-adjust if necessary.
15. Slowly turn the crankshaft pulley approx. 2 revolutions (clockwise) from TDC to 45° BTDC.
16. Tighten the bolt of No.1 idler pulley.
17. Install:
 - No.2 timing belt cover,
 - engine wire to alternator bracket and adjusting bar,
 - spark plugs,
 - RH engine mounting bracket,
 - alternator.

SPECIAL TOOLS

- Spark plugs remover SST 09155-16100
- Camshaft timing pulley remover/installer SST 09249-63010, 09278-54012
- Crankshaft pulley bolt remover/installer SST 09213-54015 (91651-60855) and SST 09330-00021
- Crankshaft pulley remover: SST 09213-60017 (09213-00020, 09213-00030, 09213-00060).
- Oil pump pulley remover/installer SST 09616-30011

TIGHTENING TORQUE

- Oil pump pulley: 28 Nm
- No.1 idler pulley: 42 Nm
- No.2 idler pulley: 42 Nm
- Crankshaft pulley: 108 Nm
- Camshaft timing pulley: 54 Nm (37 Nm for the SST).
- RH engine mounting bracket: 52 Nm
- Spark Plugs: 18 Nm

BELT REPLACEMENT INTERVAL

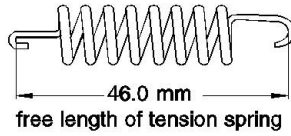
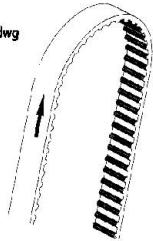
100,000 km

RECOMMENDED REPAIR TIME

2.5 hours *May not include time to remove/install associated component(s).

Note: Diagrams are not to scale and for presentation only. They may not show real shape and size of the components.

belt1.dwg

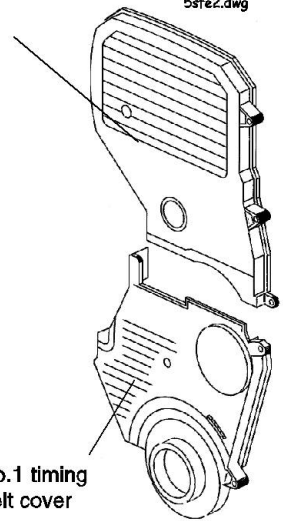


46.0 mm
free length of tension spring

If reusing timing belt, draw a direction arrow on timing belt to ensure proper reinstallation. Also place matchmarks on timing belt, camshaft pulley and crankshaft pulley.

No.2 timing belt cover

5sfe2.dwg

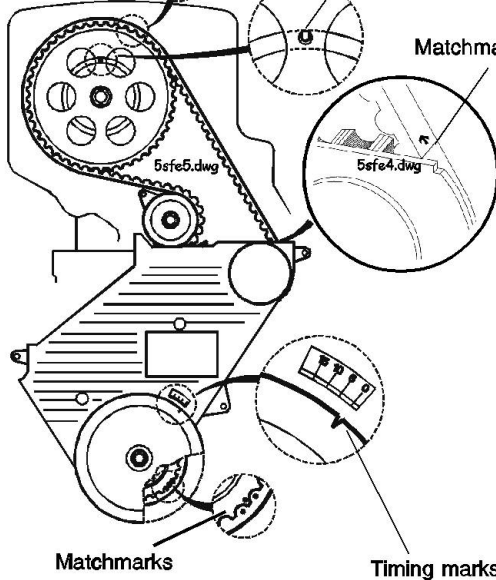


No.1 timing belt cover

Matchmarks

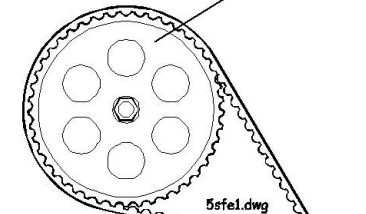
Timing marks

Matchmarks



Camshaft timing pulley

5sfe1.dwg



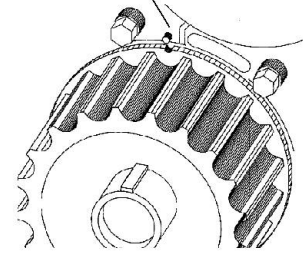
No.1 idler pulley

Oil pump pulley

Crankshaft timing pulley

No.2 idler pulley

Timing marks



Crankshaft timing pulley

TIMING BELT

MANUFACTURER NUMBER 13568-74012
DEFLECTION (mm) UNDER A 10KG (98N) LOAD NAM

AUXILIARY DRIVE BELTS

BELT	DEFLECTION (mm) under 10kg (98N) load		SIZE (WxL)(mm)
	NEW	USED	
ALT	11 - 15	13 - 17	NAM
AC&ALT	6 - 9	9 - 11	17 x 1105
PS	8 - 10	10 - 13	10.3 x 760

- AC - Air conditioning pulley
- ALT - Alternator / generator pulley
- CS - Crankshaft pulley
- IP - Idler pulley
- PS - Power steering pulley
- TP - Tension pulley
- WP - Water pump

