

TECHNICAL BULLETINS	Make SUZUKI
	Model GRAND VITARA
	Liter 2.5
	VIN
	Year 2002-05

TB # 2155 CAMSHAFT & CRANKSHAFT TIMING CHAIN ALIGNMENT FOR 2.5L SUZUKI

Camshaft & Crankshaft Timing Chain Alignment For 1998-2003 Suzuki 2.5L, DOHC V-6 Engines

The AERA Technical Committee offers the following information regarding camshaft and crankshaft timing chain alignment on 1998-2003 Suzuki 2.5L, DOHC V-6 engines. These engines are used in the Grand Vitara vehicles. Suzuki uses an intricate timing chain arrangement, which is different from the right to left bank.

To correctly install the numerous chains and gears on this engine, start on the right hand bank or passenger side and follow the steps and diagrams listed below.

1. Install the right hand (RH) camshaft-to-camshaft timing chain tensioner adjustor as viewed in figure 1, torque bolts (a) to 8 ft/lbs.
2. Install the RH second timing chain, matching alignment marks of the yellow or silver links with camshaft sprockets as viewed in Figure 2.
3. Install the crankshaft sprocket and turn the crankshaft keyway up (12 o'clock position) as in Figure 3.
4. Align the RH intake camshaft timing mark as shown in Figure 4 and tighten the camshaft sprocket to 58 ft/lbs.
5. Install timing chain with silver plates to matching RH camshaft sprocket timing marks as in Figure 5.
6. Install the 1st chain around valley idler sprocket, then over the LH side idler sprocket, aligning the silver links of 1st chain to idler sprocket timing marks in Figure 6.
7. Install 1st chain matching with gold or yellow plates with crankshaft sprocket Figure 7.
8. Caution: turning crankshaft while the timing chain is off will bend valves.
9. Align timing marks on LH #2 idler and crankshaft sprocket as in Figure 8.
10. Align camshaft dowel pins with match marks on the cylinder head in Figure 9.
11. Install by aligning match marks (2) on yellow plate of LH 2nd timing chain and idler sprocket #2 as in Figure #10.
12. Hold the camshaft using a spanner wrench see figure #11 on the hexagonal section of the camshaft to hold it stationary. Install sprockets to intake and exhaust camshafts by aligning silver plate of LH #2 timing chain, match marks on intake sprocket and exhausts respectively in Figure #11. Torque the sprockets to 58 ft/lbs.
13. Caution: Do not turn camshafts more than necessary. If turned excessively, valve and piston may get damaged.
14. Install timing #3 chain tensioner compressed and plunger retained with a pin in Figure 12.
15. Tighten timing chain tensioner bolt c 18 ft/lbs, bolt d 32.5 ft/lbs tightening order 1, 2 & 3 see Figure 13.
16. Assembled front view as shown in Figure #14.

The AERA Technical Committee

Related Diagram

FIGURE 1.

FIGURE 2. CAM TO CAM TIMING FIGURE 3.

Tightening torque

Timing chain tensioner adjuster No.2 bolt (a): 11 N·m (1.1 kg-m, 8.0 lb-ft)

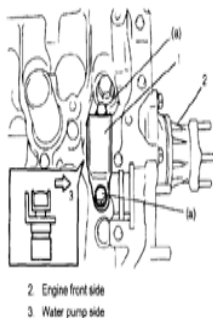


FIGURE 4.

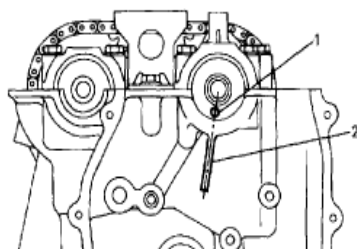


FIGURE 7.

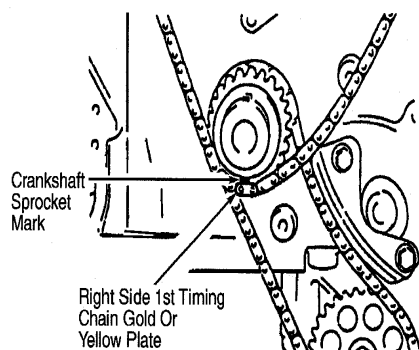


FIGURE 10.

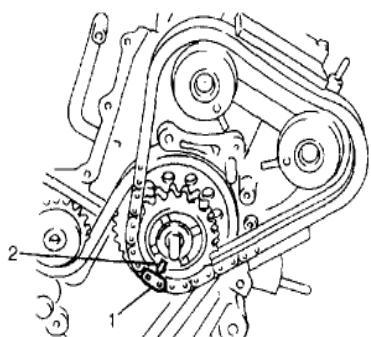


FIGURE 13

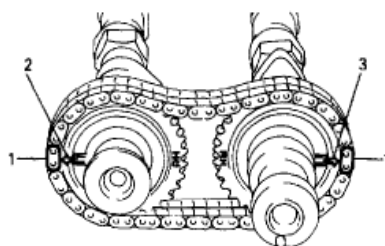


FIGURE 5.

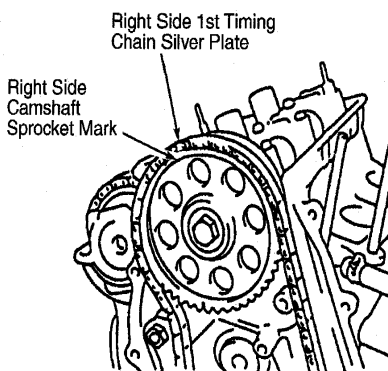


FIGURE 8.

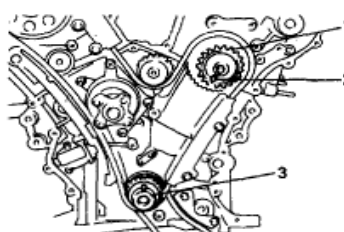
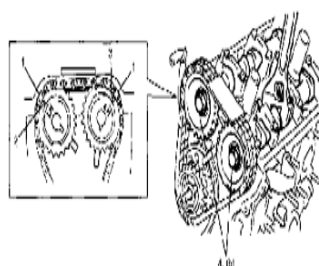


FIGURE 11.

Tightening torque
Camshaft timing sprocket bolt (b): 80 N·m (8.0 kg-m, 58.0 lb-ft)

1. Idler sprocket No.2
2. Match mark of idler sprocket No.2
3. Crankshaft

FIGURE 14.

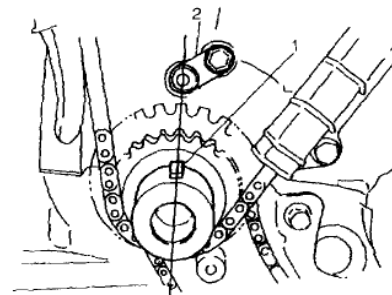


FIGURE 6.

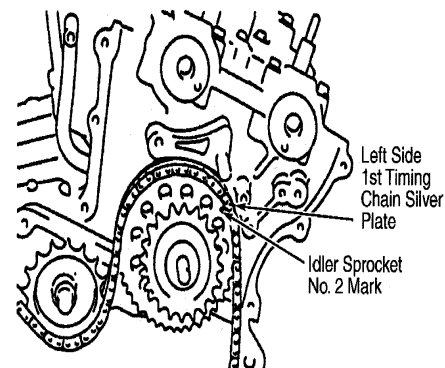


FIGURE 9.

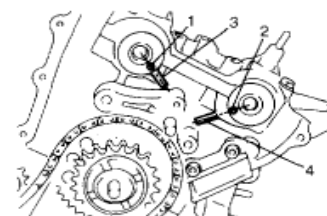
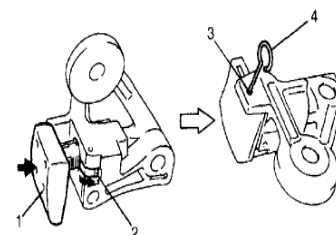
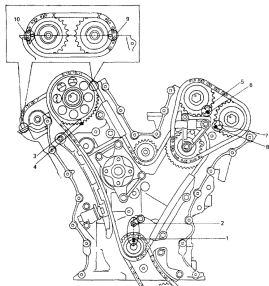
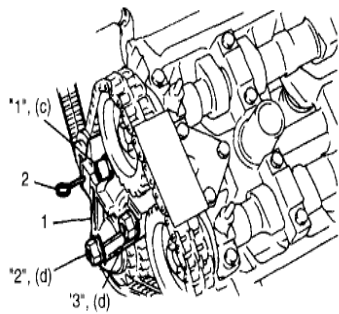


FIGURE 12.



1. Plunger
2. Latch
3. Set hole
4. Stopper (Pin)



- 1. Crank timing pin key
- 2. Oil pin
- 3. Timing mark of 1st bank 1st timing chain sprocket
- 4. Timing mark of 1st bank 1st timing chain
- 5. Timing mark of 1st bank 2nd timing chain intake sprocket
- 6. Timing mark of 1st bank 2nd timing chain
- 7. Timing mark of 1st bank 2nd timing chain exhaust sprocket
- 8. Timing mark of 1st bank 2nd timing chain
- 9. Timing mark of 1st bank 2nd timing chain intake sprocket
- 10. Timing mark of 1st bank 2nd timing chain exhaust sprocket