

Timing Belt 86-98 Suzuki 1.6L 16 Valve (SKU# KER-TB16V)

Also includes: Water Pump (SKU# KER-WP525) and Tensioner Pulley
(SKU# KER-TBT16V) installation.

Installation Instructions



CAUTION: Safety glasses should be worn at all times when working with vehicles and related tools and equipment.



Suggested Tools:

- Ratchet
- Sockets 8, 10, & 12mm
- Combination wrenches, (2) 10 mm
- Gasket Scraper
- Gasket Sealer (Optional)
- Mirror Probe Tool (Optional)
- Screw Driver, Standard
- Screw Driver, Phillips
- Channel Lock Pliers, Large
- Needle Nose locking pliers



Step 1

Drain the coolant by opening the drain valve. Turn the valve counter clockwise. Catch the coolant in a clean drain pan so it can be reused or recycled.

Note: If coolant appears dirty or is over 2 years old we recommend replacing it.



Step 2

Remove the upper radiator hose from the radiator and kink it back out of the way.



Step 3

Disconnect the air conditioning hose mounting bracket from the fan shroud.



Step 4

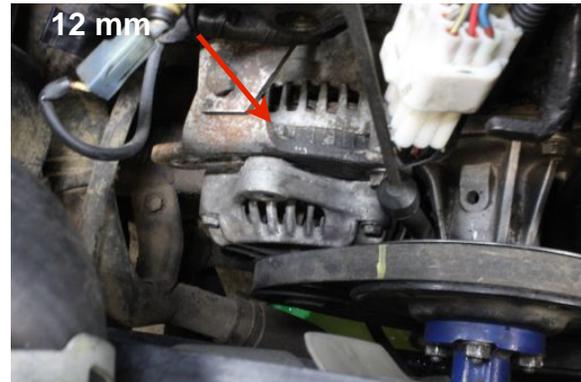
Carefully bend the air conditioning hose out of the way as shown.





Step 5

Loosen the (4) 10 mm fan bolts as shown. Do not remove them yet.



Step 6

Loosen the alternator adjustment 12 mm bolt and slide the alternator to the right so the belt becomes loose.



Step 7

Loosen the air conditioning adjustment bolt and slide the air conditioning compressor toward the engine so the belt becomes loose.



Step 8

Remove the fan by removing the 4 previously loosened bolt.

Note: Leave the water pump pulley in place. It can be removed later.





Step 9

Remove the shroud by removing (2) 10 mm bolts.

Note: There are only two bolts securing the shroud. Once removed the shroud will lift out from the top.



Step 10

Remove the air conditioning/power steering belt.



Step 11

Remove the alternator/power steering belt and the water pump pulley.



Step 12

Remove the crankshaft pulley by removing (5) 8 mm bolts.

Note: It may be helpful to use a mirror probe as shown here.





Step 13

Remove the timing belt cover by removing (8) 10 mm bolts and (1) 10 mm nut.



17 mm socket

Step 14

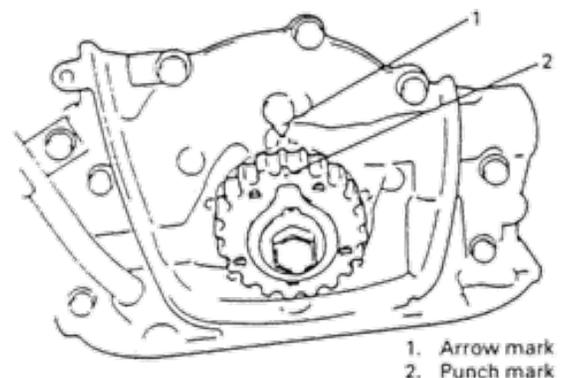
Rotate the engine by turning the crankshaft pulley clockwise with a 17 mm socket until the timing marks align as shown below.

Caution: Be careful not to turn either the crankshaft or the camshaft beyond its allowable turning range. Valve and or piston damage could result.



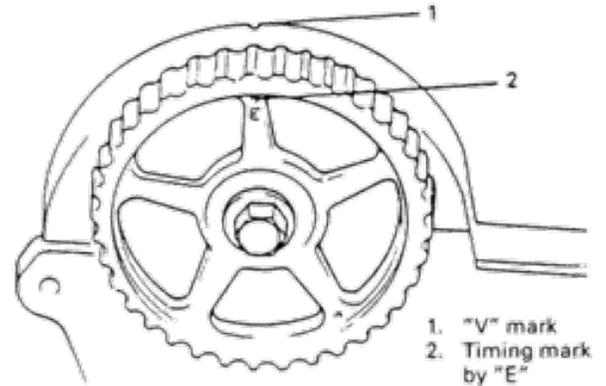
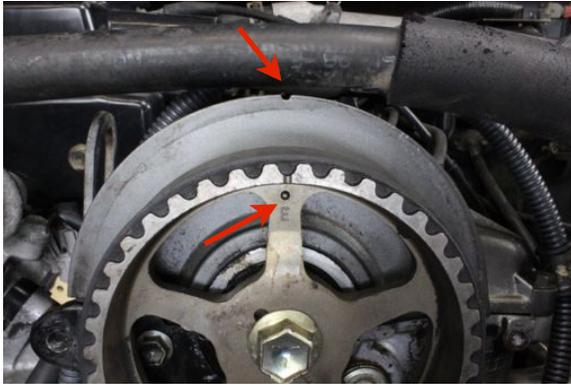
Crankshaft timing marks shown with a mirror. Pulley appears up-side-down.

Note: The dimple on the pulley aligns with the tear drop shaped mark on the engine.



1. Arrow mark
2. Punch mark





Camshaft timing marks.

Caution: Be sure to use the mark with the "E" next to it, **NOT** the "I" mark.



Step 15

Loosen the 12 mm tensioner pulley bolt.



Step 16

Loosen the 10 mm tension lever stud.





Step 17

Remove the tensioner lever spring.

Note: It is not necessary to remove the bolt on the lower end of the spring. Simply unhook it at both ends.



Step 18

Move the tensioner lever to the left releasing tension on the timing belt. Then hand-tighten the tension lever stud to keep the tensioner lever in the released position.



Step 19

Remove the timing belt by sliding it from the camshaft timing pulley first and then the crankshaft pulley.

Note: If you are not replacing the water pump skip to step 36.



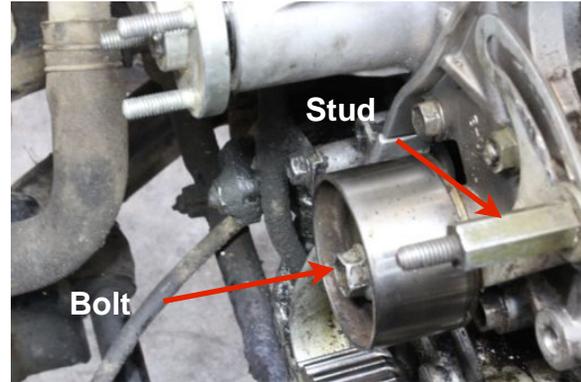
Water Pump Removal Procedure



Step 20

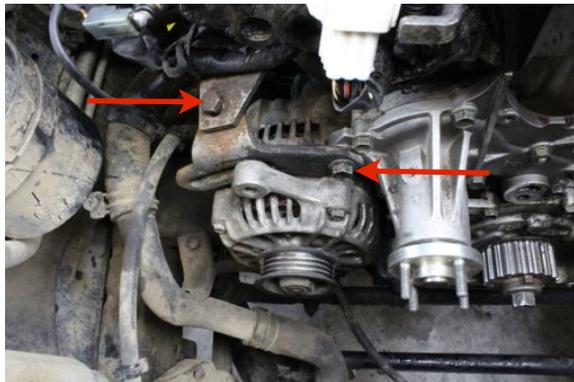
Remove the engine oil dip stick by removing the 10 mm bolt. Then twist and pull upward on the dipstick tube.

Note: There is an O-ring at the bottom of the tube. If it is in good condition it can be reused. If not replace it.



Step 21

Remove the timing belt tensioner assembly by removing the tensioner pulley bolt (10 mm) and the tensioner lever stud (10 mm).



Step 22

Remove the (2) 12 mm alternator bracket bolts.



Step 23

Rotate the alternator and bracket out of the way of the water pump as shown.





Step 24

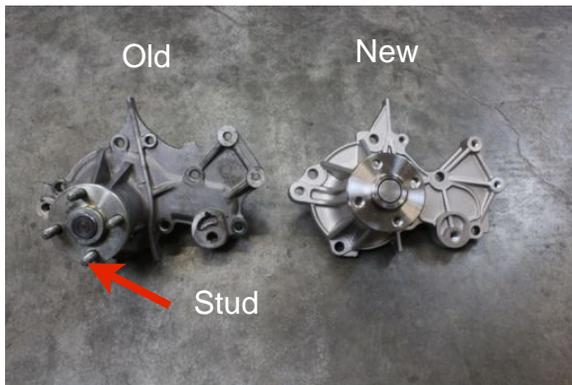
Remove the water pump by removing (2) 10 mm nuts and (4) 10 mm bolts.



Step 25

Compare the old pump with the new pump to insure correct replacement part.

Note: There are slight differences between the old and the new pump. However, as long as the bolt holes and water cavities match-up, it will work just fine.



Step 26

If new pump does not include new fan and pulley mounting studs, you will need to remove the studs from the old pump and install them in the new pump.

Note: There are slight differences between the old and the new pump. However, as long as the bolt holes and water cavities match-up, it will work just fine.



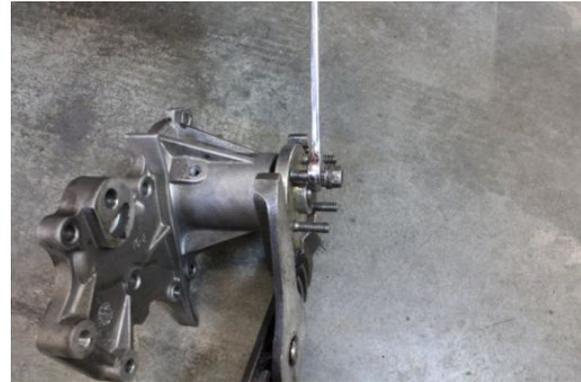
Stud Transfer Procedure



Step 27

Install two nuts on a stud as shown. Then tighten the two nuts together by holding the lower nut and turning the upper nut in a clockwise direction.

Caution: Do not use a stud extractor tool or vice grip plier for stud removal. Thread damage will occur.



Step 28

Remove the stud by holding the water pump hub with channel lock pliers and turning the lower nut counter clockwise.



Step 29

Remove the nuts by holding the lower nut and turning the upper nut counter clockwise. Then remove the lower nut by turning it counter clockwise.



Step 30

Install the stud in the new water pump with locking vice grip pliers as shown. Repeat steps 27 to 29 on the other three studs.

Caution: Be sure to grip the stud in the non-threaded area so as not to damage the threads.

Water Pump Installation Procedure



Step 31

Clean away all old water pump gasket material from the engine with a gasket scraper.

Caution: Be careful not to gouge or damage the soft aluminum housing.



Step 32

Install the new gasket as shown.

Note: If either mating surfaces appear damaged or uneven in any way, gasket sealer is recommended. Apply sealer to both sides of the gasket.



Step 33

Install the new water pump and torque the bolts and nuts to 7.0 to 8.5 ft. lbs. in a star (or criss-cross) pattern.



Step 34

Install the alternator adjustment bracket.



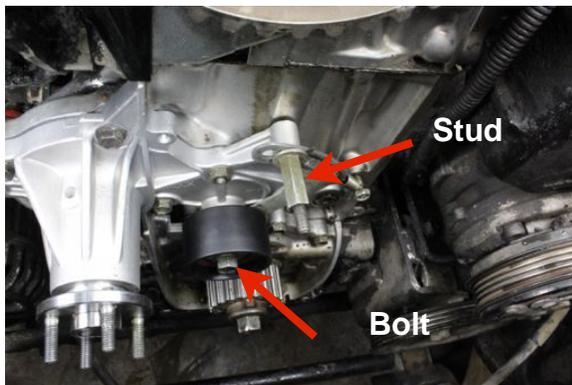


Step 35

Install the oil dipstick tube and attaching bolt. Don't forget the o-ring.

Note: It may be helpful to apply a small amount of grease to the o-ring.

Timing Belt Installation Procedure



Step 36

Reinstall the timing belt tensioner assembly and spring. Leave the bolt and stud loose so that the tensioner can slide freely left to right.

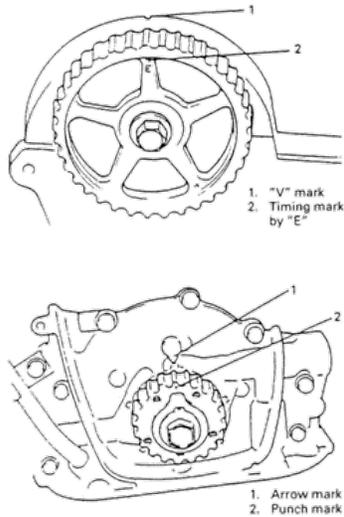
Note: It is recommended that you replace the timing belt tensioner pulley whenever replacing the timing belt.



Step 37

Position the tensioner lever all the way to the left, against spring tension and snug the tensioner lever stud to hold the tensioner in position.





Step 38

Insure that the camshaft and crankshaft timing marks are still properly aligned.



Step 40

Double check to see that marks are still aligned properly and there is no slack in the tension side of the belt. If there is slack, hold the crankshaft pulley and turn the camshaft pulley counter clockwise. Check the marks again to insure they are still aligned. If they are not aligned at this point, you will need to remove the belt, realign the pulleys and reinstall the belt.

Caution: This step ***MUST*** be correct or engine will ***NOT*** run properly.



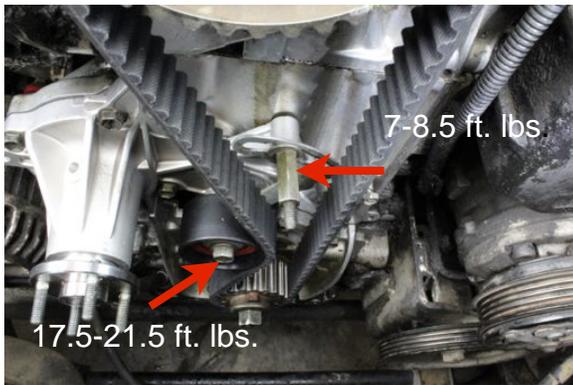
Step 39

Install the new timing belt. Slide the belt on both pulleys at the same time. It may be necessary to turn the camshaft very slightly one way or the other to align the grooves of the belt with the grooves of the pulley.



Step 41

Tension the belt by loosening the tensioner lever stud allowing the belt to be tensioned by the spring. Move the tensioner by hand to the left and then let go, allowing the ***spring*** to set the tension on the belt.



Step 42

Tighten the tensioner lever stud to 7-8.5 ft. lbs. and the tensioner pulley bolt to 17.5-21.5 ft. lbs.

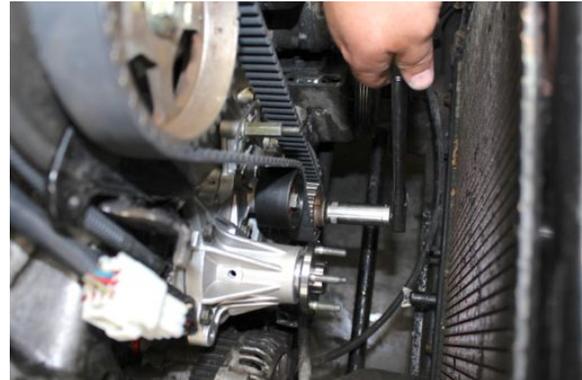
Caution: Do not over-tighten either bolt. They are threaded into cast aluminum, which is very soft metal and is easily stripped.



Step 44

Start the engine and run for a few seconds to insure that it will run properly. If it run properly, continue to next step. If it does not run properly double check timing marks for proper alignment and align as needed.

Caution: Only run the engine for a few seconds. Engine will overheat quickly in its current condition.



Step 43

Rotate the crankshaft by hand in a clockwise direction two complete turns stopping with the timing marks aligned on the crankshaft timing pulley. Check to see that the timing marks are still aligned properly on the camshaft timing pulley. If they are aligned, continue on to the next step. If not, remove the belt and repeat steps 37 to 43.



Step 45

Install timing belt cover with all attaching bolts. Torque bolts 7.0 to 8.5 ft. lbs.





Step 46

Install Crankshaft pulley and torque the bolts to 7.5 to 9 ft. lbs.



Step 47

Install the fan shroud and the two attaching bolt.

Caution: Be sure the bottom is positioned properly.



Step 48

Install water pump pulley and cooling fan. Tighten the nuts as best you can. You will be able to finish tightening them later in Step 51.



Step 49

Install the alternator belt and tension properly.

Note: A good tensioning method is to push on the belt with moderate pressure and the belt should deflect about 1/2 inch.





Step 50

Install the air conditioning/power steering belt and tension properly.

Note: Again, a good method is to push on the belt with moderate pressure and the belt should deflect about 1/2 inch.



Step 51

Finish tightening the fan nuts 6.0 to 8.5 ft. lbs.



Step 52

Reattach the air conditioning hose bracket.

Step 53

Fill the radiator with coolant.

Note: If the coolant is over two years old or appears to be dirty, we recommend replacing it.





Step 54 - Purging air from the cooling system.

Run the engine with radiator cap off. Monitor the coolant level in the radiator as the engine heats up. As the engine heats up the coolant level will drop. As the coolant level drops add more coolant, keeping radiator full.

CAUTION: On rare occasion, hot coolant will belch from the radiator. So it is important to stand clear as you observe and refill the coolant.

When the coolant level in the radiator stays full with out dropping, install the radiator cap and turn engine off. You will want to check coolant level after the engine heats-up and cools down several times to insure the system is full. It often takes several hot/cold cycles of operation to purge all the air from the system. Be sure to watch the overflow bottle and add coolant as needed during the entire refill process.

As always, If you experience any difficulty during the installation of this product please contact Low Range Off-Road Technical Support at 801-805-6644 M-F 8am-5pm MST. Thank you for purchasing from Low Range Off-Road.



These instructions are designed as a general installation guide. Installation of many Low Range Off-Road require specialized skills such as metal fabrication, welding and mechanical trouble shooting. If you have any questions or are unsure about how to proceed, please contact our shop at 801-805-6644 or seek help from a competent fabricator. Using fabrication tools such as welders, torches and grinders can cause serious bodily harm and death. Please operate equipment carefully and observe proper safety procedures.

Rock crawling and off-road driving are inherently dangerous activities. Some modifications will adversely affect the on-road handling characteristics of your vehicle. All products sold by Low Range Off-Road are sold for off road use only. Any other use or application is the responsibility of the purchaser and/or user. Some modifications and installation of certain aftermarket parts may under certain circumstances void your original dealer warranty. Modification of your vehicle may create dangerous conditions, which could cause roll-overs resulting in serious bodily injury or death. Buyers and users of these products hereby expressly assume all risks associated with any such modifications and use.

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