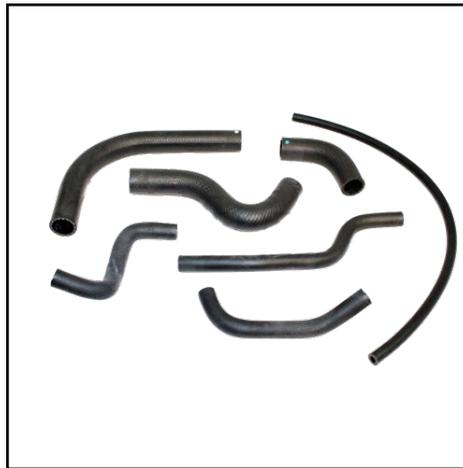


Suzuki Samurai Coolant and Water Hose Kit (SKU# SER-CHK)

Installation Instructions



SER-WPI



SER-HHCK



SER-ROP

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



FOR ADDITIONAL COPIES OF THESE AND OTHER INSTRUCTIONS GO TO:
www.lowrangeoffroad.com and click on the "INSTRUCTIONS" tab.

Suggested Tools:

- Standard Screwdriver
- Phillips Screwdriver
- Slip-joint pliers
- Channel Lock Plier
- Sockets: 10, 12 mm
- Ratchet
- Radiator Hose Hook Tool
- Utility Knife
- Wire Brush
- Coolant (If Being Changed)
- Drain Pan
- Funnel

Coolant (Water) Hoses & Related Components



Choke Heater
Outlet Hose

Choke Heater
Inlet Hose

Carburetor



Thermostat
Housing

Temperature
Valve

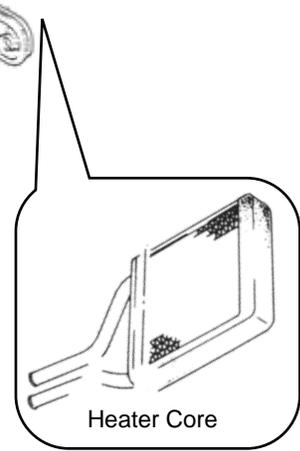
Upper
Radiator
Hose

Temperature
Valve Inlet
Hose

Thermostat

Heater Core
Inlet Hose

Coolant
By-Pass
Hose



Lower Radiator
Hose (No 2)

Heater Core
Outlet Hose

Lower
Radiator
Pipe

Water Inlet Pipe

Lower Radiator Hose
(No 1)



Figure A



Step 1

Let the engine cool down.

Draining the Coolant



Step 2

Place a clean drain pan under the radiator drain valve.

Note: This valve is located at the bottom of the radiator on the driver side.



Step 3

Open the drain valve by turning it counter clockwise.





Step 4

Remove the radiator cap to allow the coolant to drain faster. Inspect the cap and replace if needed.

Note: Click [HERE](#) to see what Low Range has to offer.



Step 5

Let the coolant drain until it stops coming out.

Note: Green coolant can be reused if it is less than 2 yrs. old and clean. If it is too old or dirty it should be replaced. Be sure to dispose of old fluid in accordance with local, state and federal laws.

Upper Radiator Hose Removal



Tech Tip 6

These hose clamps are removed using a screwdriver or a socket. It is best to thread the screw all the way loose as is shown here. Inspect the clamp and replace if needed. Click [HERE](#) to see what Low Range has to offer.



Step 6

Loosen the hose clamp using a 10 mm socket.





Step 7

Slide the hose clamp back on the radiator hose.



Step 8

Loosen the hose using channel lock pliers as shown.

Caution: Be careful not to damage the radiator inlet pipe. Do not squeeze too tight.



Step 9

It may be helpful to use a hook tool to loosen the hose. Work the tool between the radiator neck and the hose all the way around the hose.



Step 10

Work the hose off the radiator neck. If it is seized, continue to the next tech tips for some helpful hints about how to remove a seized radiator hose.



Step 11

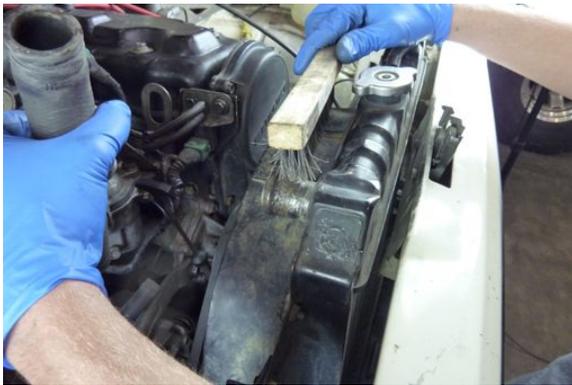
In some cases it may be necessary to cut the hose with a sharp pocket knife as shown here.



Step 12

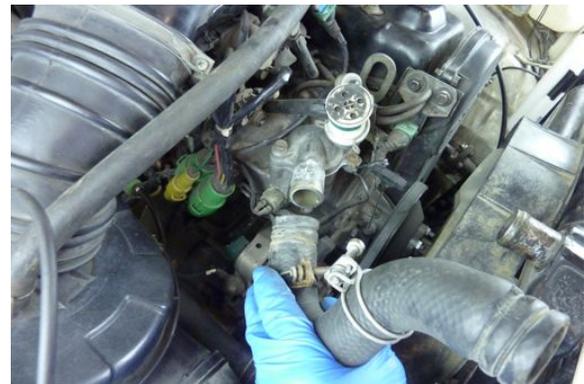
Another way to remove seized hoses is by splitting it with a utility knife.

Caution: Be careful! These knives can cause serious injury if not used with caution and care.



Step 13

Once the hose has been removed, clean the radiator neck with a wire brush or fine sandpaper.



Step 14

Repeat Steps 6 through 13 on the other end of the upper radiator hose.



Step 15

Remove both hose clamps from the old hose.



Step 16

Compare the shape of the new hose with the shape of the old hose to insure you have the correct hose and it is oriented properly. Install the (2) hose clamps on the new hose 2 or 3 inches from the ends of the hose.

Note: Insure the clamps are oriented such that a tool can be easily fitted on the clamp after the hose is in place.



Step 17

Install the new hose on the radiator neck as shown.

Note: Applying a small amount of full strength coolant to the inside of the hose will make installation much easier.



Step 18

Install the other end of the hose on the thermostat housing following the same procedure as the previous step.





Step 19

Slide the hose clamp into position at the thermostat housing end.



Step 20

Slide the hose clamp into position at the radiator end.



Step 21

Snug both radiator clamps using a 10 mm socket or a standard screwdriver.

Caution: Do not over-tighten these clamps. Stop when the wires of the clamp begin to sink into the hose.

Removing the Engine Splash Panel

Engine Splash Panel

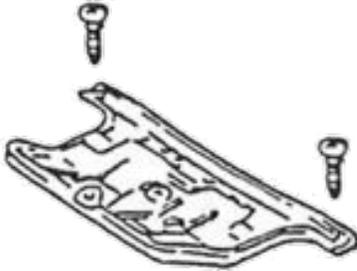


Figure B



Step 22

Unclip the brake line as shown.



Step 23

Remove the driver side mounting screw using a phillips screwdriver.

Note: The easiest way to access this screw is down through the engine compartment.



Step 24

Remove the passenger side screw in the same way.





Step 25

Remove the splash panel by lifting up, sliding rearward and down. Then set the panel aside.

Note: Be careful not to damage the radiator drain hose that extends down through a hole in the splash panel.

Replacing Lower Radiator Hose No. 1 and No. 2



Tech Tip 26 A

We recommend replacing these two hoses by disconnecting the hoses at the radiator and at the inlet water pipe. (See Figure A on Page 2)

Tech Tip 26 B

In order to remove both hoses at once, you will need to remove the (2) bolts securing the lower radiator pipe using a 10 mm socket.





Step 26

Once the lower radiator hose assembly has been removed, loosen the other 2 hose clamps.



Step 27

Disconnect the hoses from the water inlet pipe. Inspect the water inlet pipe and replace if needed. Click [HERE](#) to see what is available from Low Range.

Note: It may be necessary to use some of the Tech Tips shown earlier to remove



Step 28

Install the hose camps on the new hoses as shown here.

Note: Be sure the new hoses are positioned and oriented exactly as the old ones were. (See Step 26 & 29)



Step 29

This is what the lower hose assembly should look like when ready for installation.

Note: The two hose claps securing the hoses to the water inlet pipe should be tight with the other 2 hose clamps left loose.





Step 30

Install the lower hose assembly in reverse order of removal.



Step 31

Position and secure the (2) clamps, one at the radiator and one the inlet pipe.



Step 32

Re-attach the lower radiator pipe by installing the two bolts removed earlier.

Tips for replacing Passenger Heater, Choke Heater & By-Pass Hoses. (See Figure D)



Tech Tip 33 A

These are **stainless steel worm gear** hose clamps. They were not used on the Samurai originally. But, are a popular replacement. To loosen these hose clamp all that is required is to turn the screw in a counterclockwise direction using a standard screwdriver or a socket (usually a 5/16")



Tech Tip 33 B

This shows proper worm gear hose clamp removal.



Tech Tip 33 C

This is a **spring steel self-tightening** hose clamp similar to the ones used on many Suzuki vehicles. It is loosened by pinching the tabs together with pliers.



Tech Tip 33 D

Self tightening hose clamp removal. Once the hose clamp is released (pinched) slide it back on the hose at least an inch or so.





Tech Tip 33 E

In some cases the heater hoses can become very difficult to remove. They seem to be melted to the metal parts. We find it helpful to split the hose using a utility knife. Then peel the hose off.

Caution: Be careful when using a utility knife. If these knives are not used properly accidents can happen resulting in serious injury.

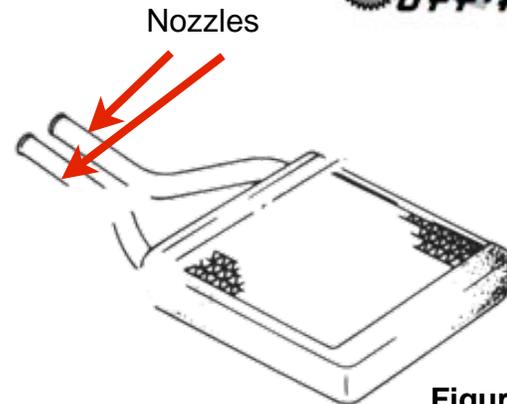


Figure C

Caution:

Be very careful when removing and replacing the hoses that are connected to the heater core (See Figure C). These nozzles are made of thin brass and if excessive force is used they can be bent or broken.



Tech Tip 33 F

This shows the heater hoses connected to the heater core nozzles. Access to these hoses is very limited and can be very difficult to remove.

Caution: Be gentle when removing these hoses. Heater cores are fragile and can be easily damaged. If broken they are expensive to purchase and difficult to replace.



Step 33

Replace all the hoses shown in Figure D (Shown Below).

4. Choke Heater Outlet Hose

5. Choke Heater Inlet Hose

Note: The numbering shows the order in which we recommend you remove each hose. Installation should be in reverse order.

1. Temperature Valve Inlet Hose

2. Heater Core Inlet Hose

6. Coolant By-Pass Hose

3. Heater Core Outlet Hose

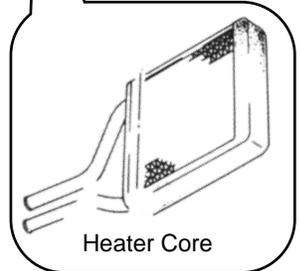
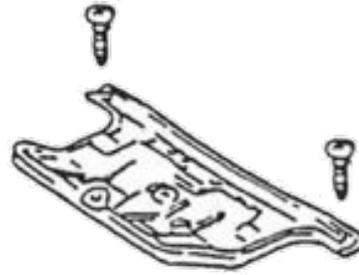


Figure D



Step 34

Once all the hoses have been replaced, check all the hose clamps to see that they are in place and tight.



Step 35

Install the engine splash shield in reverse order of removal.

Note: See Step 22 for details.



Step 36

Close the radiator drain valve and proceed to the Cooling System Refill Procedures.

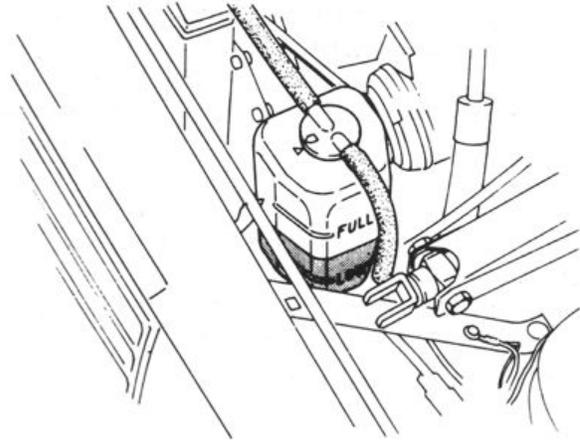


Cooling System Refill Procedures



Step 37

If you are replacing the fluid, empty the overflow tank and refill it with a 50/50 mix of full strength coolant and water to approximately half way between the "FULL" and "LOW" marks. See Figure E.

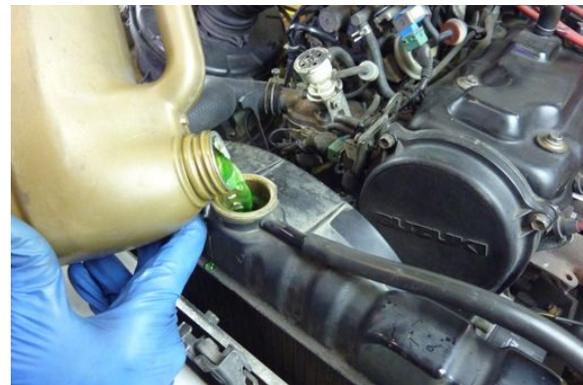


See Figure E



Step 38

If installed, remove the radiator cap.



Step 39

Add a 50/50 mix of full strength coolant and water to the radiator until it is full.





Step 40

Place the heater temperature control in the "HOT" position.



Step 41

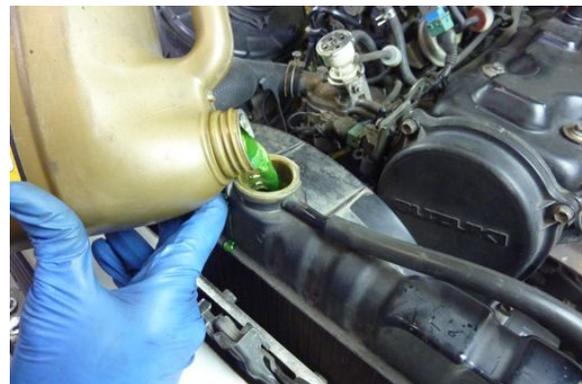
Start the engine and let it idle. While idling, monitor the temperature gage on the instrument cluster.

Caution: If the engine overheats at anytime during the refill procedure, turn the engine off and let it cool.



Caution:

NEVER stand directly over the radiator at anytime during the refill procedure. Hot coolant can belch out unexpectedly.



Step 42

When the engine reaches operating temperature (usually within 15 to 20 minutes) the thermostat will open and the coolant level in the radiator will drop. As the coolant level drops, add coolant, keeping the radiator full.



Step 43

When the coolant level remains constant, without dropping, install the cap.



Step 44

Leave the engine running and check all the hose connections for leaks. If leaks are observed, turn the engine off and repair as needed. Small hose leaks can often be remedied by snugging the clamps.

Warning: If hoses have to be removed to make needed repairs, be sure to let the engine (and coolant) cool down (usually 30 to 45 minutes) before removing the cap or hoses.



Congratulations!!!

Once the radiator and overflow bottle is full and you are sure there are no leaks . . . you are done. Congratulations!!!!

One more thing. It is almost impossible to get all the air out of the system in the procedure outlined above. So after several warm-up and cool-down cycles, check the overflow bottle (NOT THE RADIATOR) and add coolant if needed. This can be done with the engine hot. There should be no need to have to check the radiator as it is kept full by the overflow bottle. However, if you think the radiator could be low, it is okay to check and add coolant if needed. Just be **sure the engine is cool** when you remove the radiator cap to check coolant level at the radiator.

We hope these instructions have been helpful. If you have suggestions on how we can improve our instructions (or products) please email us at sales@lowrangeoffroad.com.



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 7:30am-5:30pm 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 products 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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