

86-95 Suzuki Samurai HD Transfer Case Mount (SKU# STC-EOS)

Revised 4/11/14

Installation Instructions



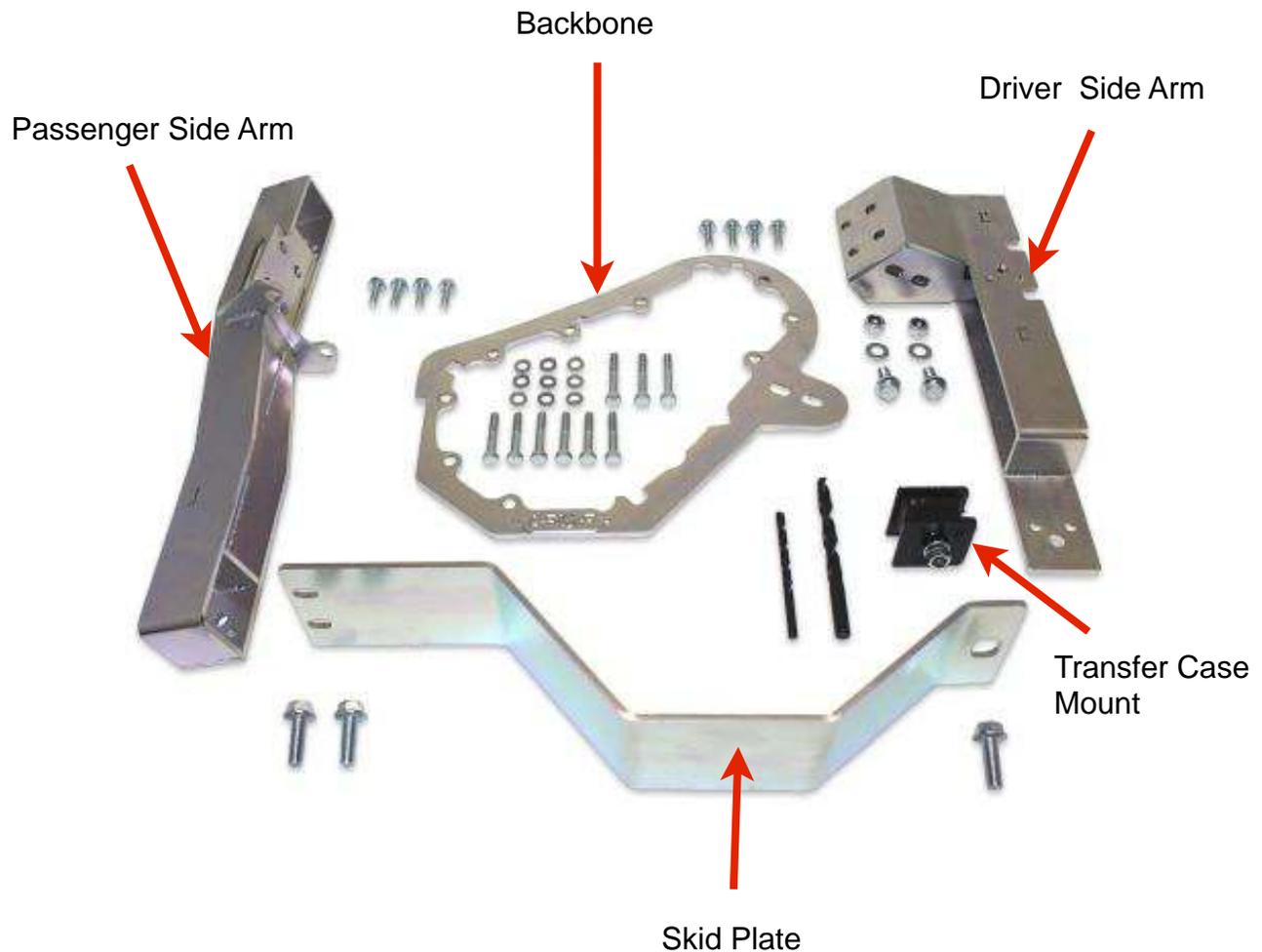
CAUTION: Safety glasses should be worn at all times when working with vehicles and related tools and equipment.



Suggested Tools:

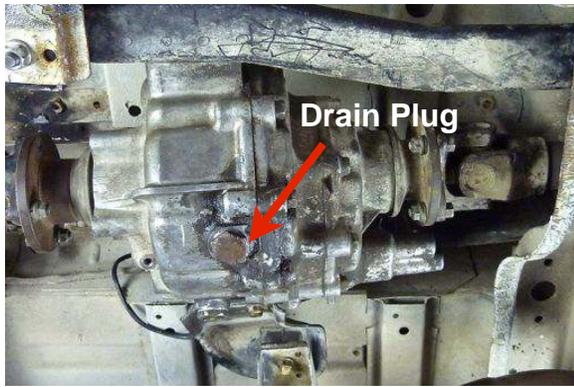
- Sockets: 10, 12, 14, & 17 mm
- Combination Wrenches: 10,12,14,17,19 22 & 24 mm
- 3/8 Ratchet and Extension (or 24 mm tool) for drain and fill plug removal.
- Power Hand Drill: 1/4"
- Magnetic Pick-up Tool
- Twin Post Lift (or Floor Jack and (2) Safety Stands)
- Under Hoist Safety Stand
- Loctite®: Blue (Optional)
- 1 Qt of 75W90 Gear Oil (Optional)

Suzuki Samurai Transfer Case Cradle Parts Identification & Kit Content



Check to make sure the kit is complete and that no parts are missing. If anything is missing, please contact Low Range Off-Road at 801-805-6644 or Email us at sales@lowrangeoffroad.com





Step 1

Position a pan under the drain plug. Remove the drain plug using a 24 mm box end wrench (or a 3/8" extension if you have the internal square plug). This is a good time to change the transfer case fluid if it needs changing. In addition, draining the fluid will make the job a lot cleaner. However, draining the fluid is not required. This job can be done without draining the fluid if you are very careful.



Step 2

Place the transfer case shifter in **NEUTRAL**. Then remove the shift knob by twisting in a counter-clockwise direction.

Note: If the knob is hard to loosen, it may be helpful to place a rag over the knob for protection and loosen it with channel lock pliers.



Picture showing hard-to-remove shift knob removal.

A new shift knob can be purchased on our web site. Click [HERE](#) for more information on this and other Samurai T-Case products.



Step 3

Remove the interior shifter boot by removing the (4) phillips screws.





Step 4

Slide the boot off the top of the shift lever.



This picture shows a transfer case removed from the vehicle to provide you with a clearer view.

Step 5

Remove the lower shifter boot with your fingers.



Step 6

Slide the lower shifter boot off the top of the shifter handle.



Lever Guide

Step 7

Depress the lever guide and turn 1/8th turn, counterclockwise. See Figure A for a clearer view.

Note: We found this easier from under the vehicle but could be done from the top.

Figure A

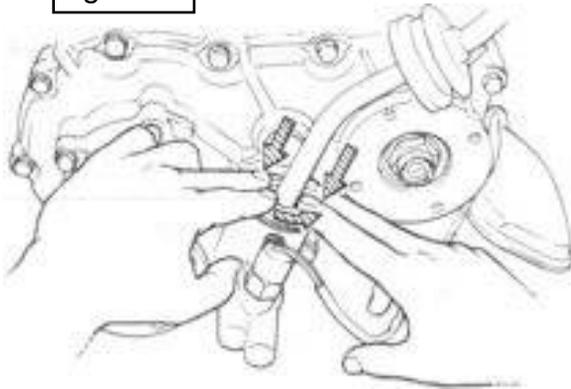
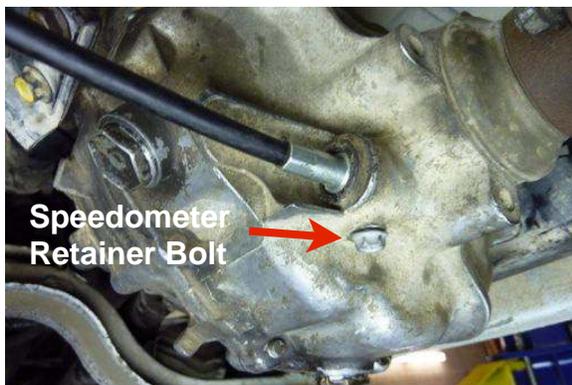


Illustration showing shift lever guide removal procedure.



Step 8

Remove the lever from the transfer case by pulling upward.



Step 9

Disconnect the speedometer cable by removing the bolt using a 10 mm socket. Once the bolt is removed pull the cable out.



Step 10

Disconnect the 4WD indicator light connector.





Tech Tip

Disconnect the wire connector by lifting up on the tab and pulling the two connectors apart.



Step 11

Disconnect the rear propeller shaft (output to rear differential) from the transfer case by removing the 4 bolts using a 12 mm socket and 12 mm box end wrench. It may be necessary to hit the drive line with a dead blow hammer if the propeller shaft does not disconnect easily.



Step 12

Swing the rear propeller shaft aside and support it as shown.

Note: Do not remove this shaft from the vehicle.

Front Output Propeller Shaft

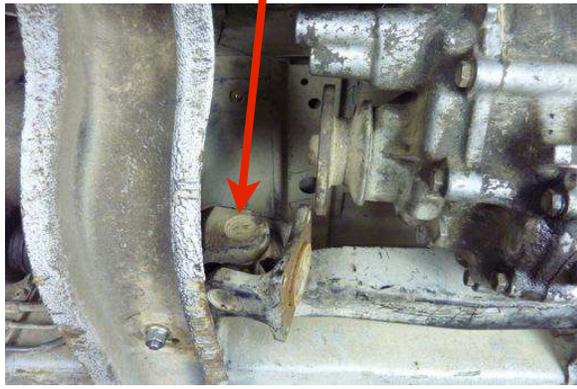


Step 13

Disconnect the front output propeller shaft (output to the front differential) from the transfer case by removing the 4 bolts using a 12 mm socket and 12 mm box end wrench.



Front Output Propeller Shaft



Front Input Propeller Shaft



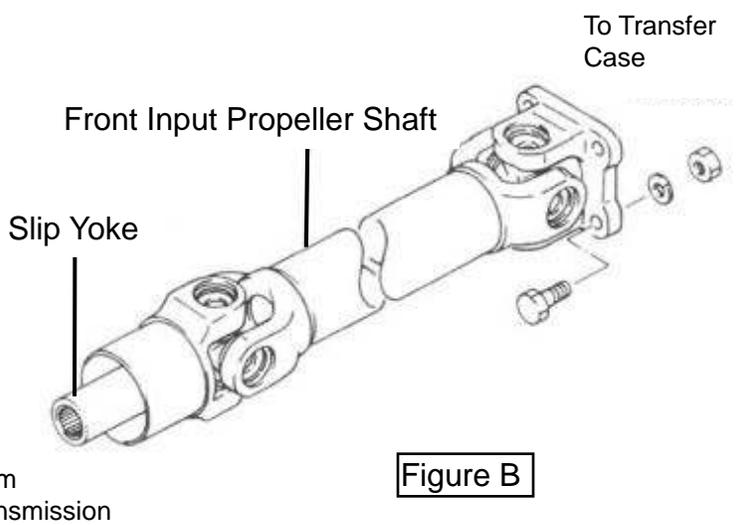
Step 14

Push the shaft forward (it will telescope) and let it rest on the crossmember support as shown.

Note: Do not remove this shaft from the vehicle.

Step 15

Disconnect the front input propeller shaft (input from the transmission) from the transfer case by removing the 4 bolts using a 12 mm socket and 12 mm box end wrench.



Step 16

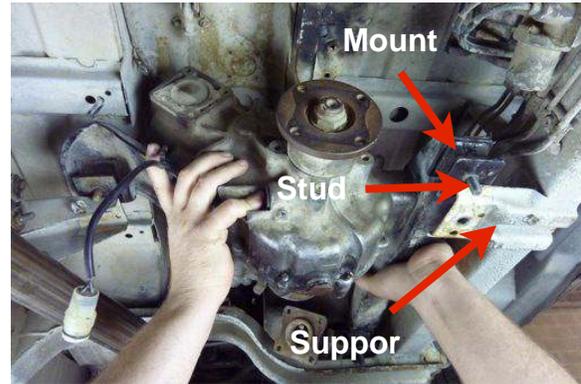
Remove the shaft by letting the rear drop down and pulling it toward the rear of the vehicle. The front of this propeller shaft has a slip yoke (See Figure B) and will easily slide out of the transmission.





Step 17

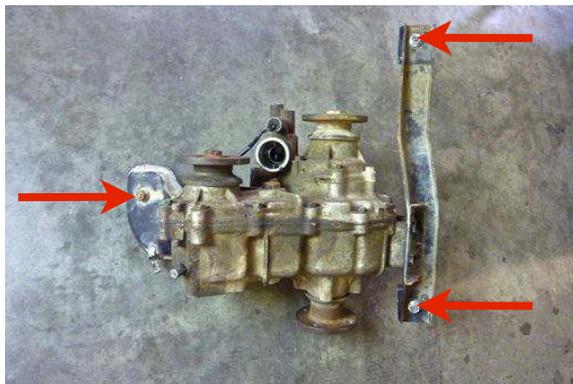
Remove the (3) transfer case mount nuts using a 14 mm socket.



Step 18

Lift up on the transfer case until the (3) mount studs clear the supports. Then move the entire transfer case toward the rear of the vehicle. When it clears the transfer case supports, lower the case to the floor.

Caution: This transfer case is a bit heavy. So if you did not have your “Wheaties” this morning you may want to get someone to assist you.



Step 19

Remove the (3) transfer case mounts by removing the nuts using a 14 mm socket.

Note: Save these (3) mounts. They will be used with the new cradle.



Step 20

Remove the driver side bracket by removing the 4 bolts using a 12 mm socket.

Note: This bracket will not be used with new cradle kit.





Step 21

If the fluid has been drained, turn the transfer case over and remove the passenger side bracket by removing the (4) bolts using a 12 mm socket. This bracket will not be used with the new cradle kit.

Caution: If the fluid has not been drained, this step will have to be done with the transfer case upright.



Step 22

Remove the 4WD indicator light switch with a 22 mm combination wrench.



Step 23

Remove the steel ball using a magnet.



Step 24

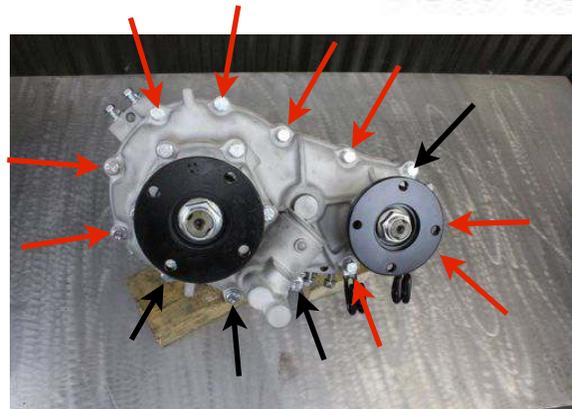
Set these two components (the ball and switch) aside. They will be reused later.

Note: The transfer case we removed had a few problems. So we pulled a freshly rebuilt cases off the shelf to use for these instructions.



Step 25

Place the transfer case on a suitable work bench.



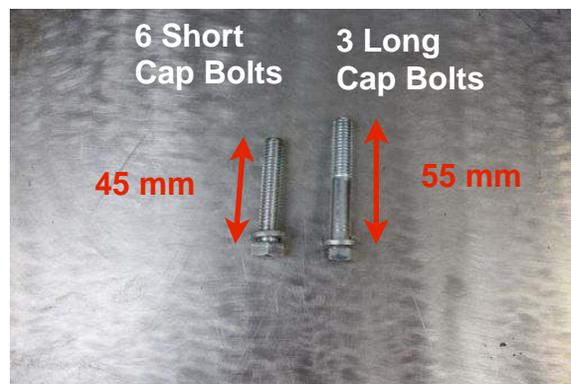
Step 26

Remove the nine case bolts indicated by the **RED** arrows. Do not remove the other 4 case bolts indicated by **BLACK** arrows.



Step 26 Continued

Caution: Be gentle with the transfer case once the bolts are removed. Rough handling could cause the case halves to separate resulting in a fluid leak after the cradle installation is complete.



Step 27

Locate the 9 cap bolts and lock washers that look like these. There should be 6 short and 3 long bolts with lock washers for each bolt.

- 6 - 8X1.25X45mm Bolts
- 3 - 8X1.25X55mm Bolts
- 9 - 8 mm Lock Washers

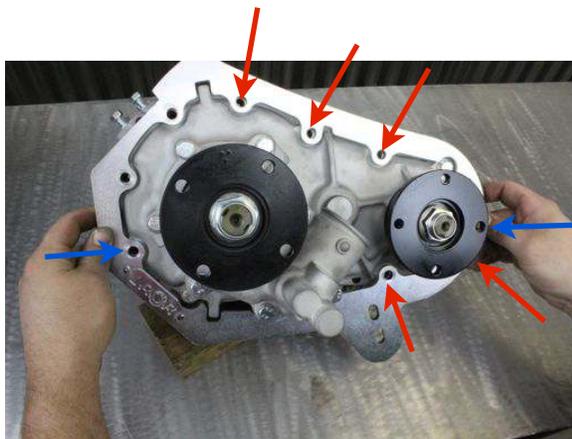


Cradle Backbone

Step 28

Position the cradle backbone as shown above.

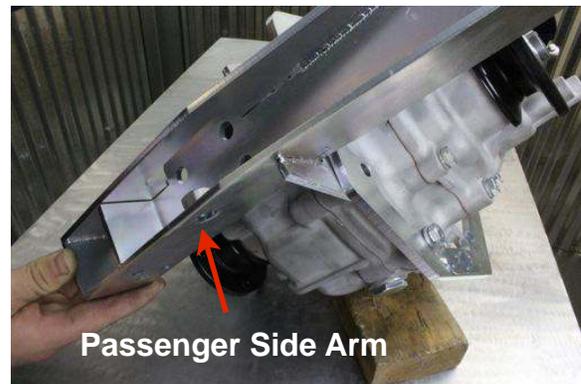
Note: **All** bolts and nuts that will be used during the installation of this cradle are to be left loose until **all** the bolts and nuts have been installed. After all the bolts and nuts have been installed, the tightening sequence will be explained. Tightening bolts and nuts out of sequence may result in cross-threading, case damage and cradle part misalignment.



Step 29

Caution: Bolt length positioning is critical.

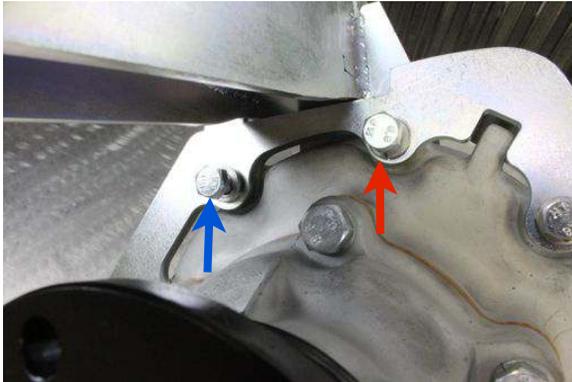
Install the cap bolts and lock washers supplied with the cradle as shown. **Long** bolt placement is indicated by the **blue** arrows, and **short** bolt placement is indicated by the **red** arrows. DO NOT tighten them yet.



Passenger Side Arm

Step 30

Position the passenger side arm as shown.



Step 31

Install the (2) remaining bolts and lock washers in the positions indicated by the arrows. Remember **blue** is **long** and **red** is **short**. Also, remember to leave them loose.



Step 32

Align the 4 holes in the passenger side arm with the holes in the transfer case.



Step 33

Install the (4) small flange bolts and leave them loose as well.

- 4 - 8X1.0X20 mm Flange Bolts



Step 34

Locate the (2) larger flange bolts, (2) flat washers and (2) Nylock nuts.

- 2 - 10X1.0X25 mm Flange Bolts
- 2 - 10X1.0 mm Nylock® Nuts
- 2 - 10 mm Flat Washers



Step 35

Position the driver side arm as shown and install the two large flange bolts as shown.



Step 35 Continued

Install the flat washers and Nylock® nuts on the bolts.



Step 36

Install the (4) small flange bolts as shown. Leave these loose as well.

- 4 - 8X1.0X20 mm Flange Bolts

At this point all the cradle attaching bolts and nuts should be installed and left loose.

Bolt Tightening Sequence



Step 37

Remove each of the 9 backbone/case bolts, one by one, apply blue loctite® to the threads and reinstall them.

Note: This step is optional but we do strongly recommend it.

Step 38

Tighten and torque all (9) backbone/case bolts in a chris-cross pattern. (9.5 to 16.5 ft. lbs.)



Step 39

Tighten and torque the passenger side arm-to-case bolts. (13.5 to 20 ft. lbs.)

Note: The top two bolts will have to be tightened with an end wrench to an estimated torque. A socket and torque wrench will not fit.

Step 40

Tighten and torque the driver side arm-to-backbone nuts. (30 to 35 ft. lbs.)

Note: The tools needed are 17 mm for the nut and 14 mm for the bolt.



Step 41

Tighten and torque the driver side arm-to-case bolts. (13.5 to 20 ft. lbs.)



Step 42

Insert the 4WD indicator ball in the hole as shown.



Step 43

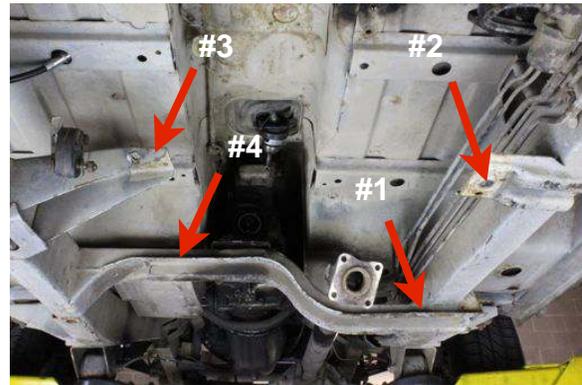
Install the 4WD indicator switch and tighten. (12 to 16.5 ft. lbs.)



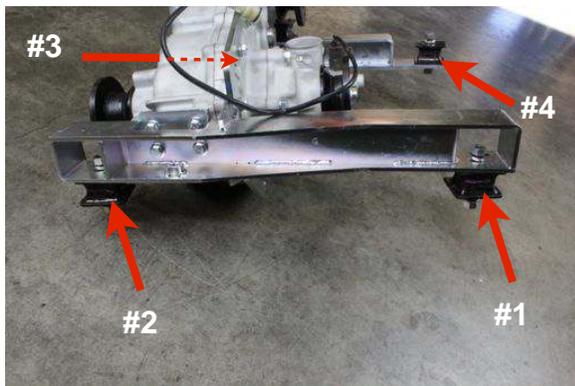
Transfer Case Mount Installation



Note: There is only one mount supplied with this kit. You will need to use all three of the original mounts that you removed from the brackets earlier. If you are interested in purchasing new quality OEM mounts click [HERE](#) to see what we offer.



Mount Location and Numbering on Vehicle



Mount Locations and Numbering on Cradle



Tech Tip

All mounts are interchangeable. We numbered them to help make these instructions clearer.

Step 44

Install mounts #1 and #2 on the passenger side arm as shown, and tighten the nuts. (18.5 to 25 ft. lbs.)

Note: Be sure there is a lock washer under each nut.



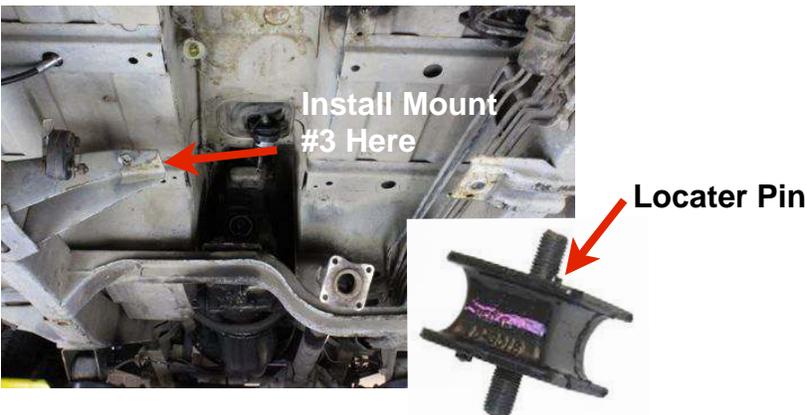


Warning:

If any of the mounts do not have locator pins, they are not Suzuki OEM mounts. Do not use aftermarket mounts with this cradle. They will not hold up. To see a video about OEM vs. Aftermarket mount testing, click [HERE](#).

Step 44 Continued

Make certain that the locator pin on the mount aligns with the hole in the arm on this and all other mounts.



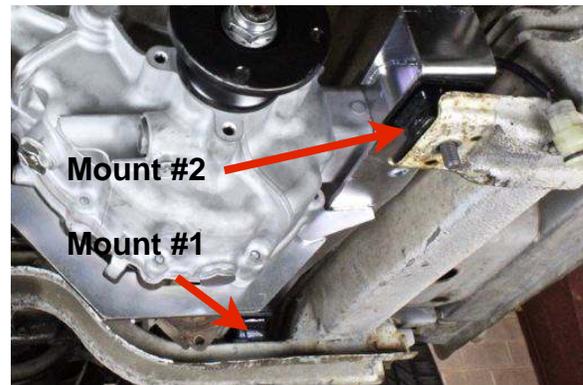
Step 45

Install mount #3 in the location shown by the arrow. Tighten the nut to 18.5 to 25 ft. lbs.

Note: Make certain that the pin in the mount aligns with the hole in the support on this and all other mounts.



Transfer Case Installation



Tech Tip:

Have an under hoist jack stand, or a floor jack if you are working on jack stands, close at hand. Also, it is very helpful to have an assistant help with this phase of the installation even if you did have your "Wheaties" this morning. The transfer case is quite a bit heavier now, than it was when it was removed.

Step 46

Being very careful, lift the transfer case and position it such that both passenger side mount studs (mounts #1 and #2) sit into their proper holes in the frame support.



Step 47

Then raise the drivers side of the cradle into position and support it with the under hoist jack stand or a floor jack.

Step 48

Using the holes in the driver side arm as a guide, drill a hole in the cross member support using the "Y" size drill bit supplied in this kit. This hole, as well as the hole drilled in the next step, will be used to install mount #4.





Step 49

Again, using the hole in drivers side arm as a guide, drill a second hole in the cross member using the 1/4" drill bit supplied in this kit.



Step 50

Lower the transfer case slightly and insert mount #4. Make sure the pins in the mount align with the hole in the cross member as well as the hole in the support arm.

Note: This 4th mount is supplied with the cradle kit.



Step 51

Raise the transfer case into position. As you raise the transfer case, check to see that both driver side mounts, mounts #3 and #4, are aligned properly.



Step 52

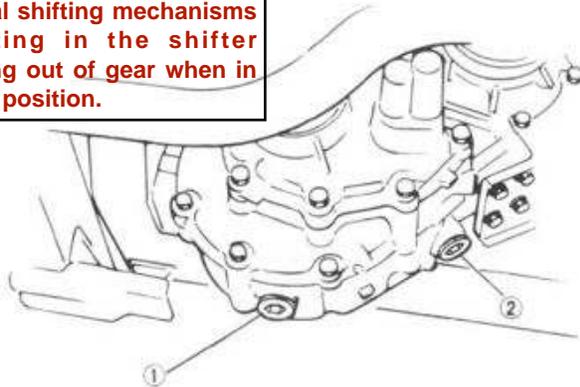
Install the lock washers and nuts on the top and bottom of mount #4 and tighten. (18.5 to 25 ft. lbs.)



Step 53

Install the lock washer and nut on mount #3 and tighten. (18.5 to 25 ft. lbs.)

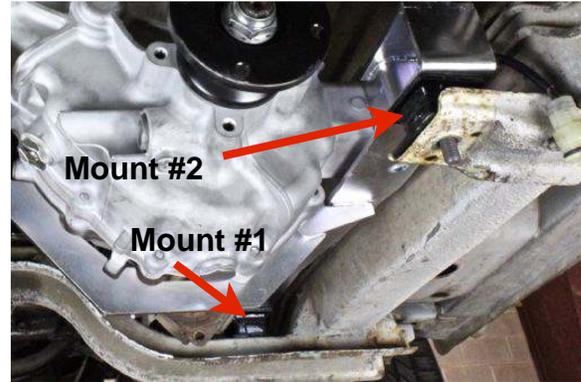
Warning: Over-tightening of plug #2 can interfere with internal shifting mechanisms resulting in the shifter popping out of gear when in the 4H position.



Step 55

If the transfer case was drained at the beginning, it will have to be refilled. First, be sure the drain plug (plug #1) is installed and tight. Then remove the fill and check plug (Plug #2). Pump fluid into the hole until it runs out. Once fluid runs out, quickly reinstall the plug and tighten it. Do not over-tighten either plug. (Torque spec is 13.5 to 20 ft. lbs.)

Note: We recommend using SAE 75W90 Gear Oil. Refill capacity is 1 quart.



Step 54

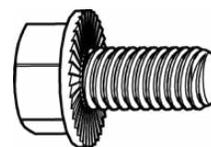
Install the lock washers and nuts on both passenger side mounts, #1 and #2, and tighten. (18.5 to 25 ft. lbs.)



Step 56

Install the transfer case skid plate and tighten the (3) serrated flange bolts. (25-30 ft. lbs.)

3-10X1.5X 30 mm



Serrated Flange Bolt



Step 57

Reconnect the 4WD indicator connector.

Note: Push it together until it snaps.



Step 58

Reconnect the speedometer cable and install the bolt.

Note: This bolt hole is easily stripped. It only needs to be snug.



Step 59

Reconnect the rear output shaft and tighten the bolts. (17 to 21.5 ft. lbs.)

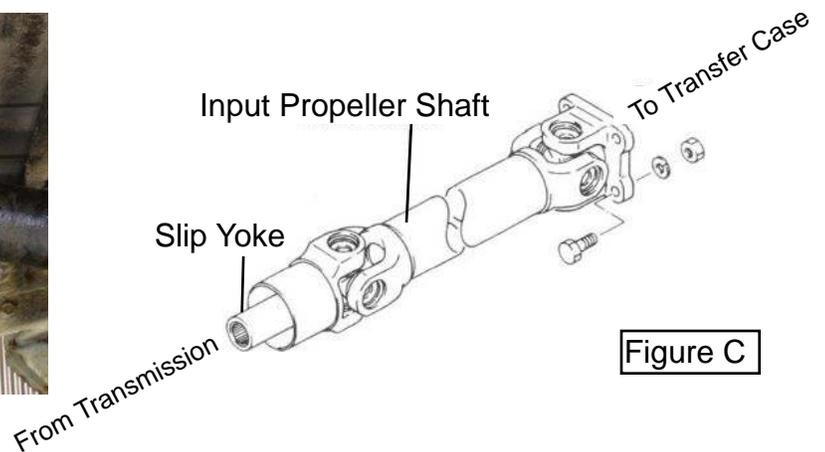


Figure C

Step 60

Install the input propeller shaft, by inserting the slip yoke (See Figure C) into the transmission and connecting the other end of the shaft to the transfer case. Tighten the bolts. (17 to 21.5 ft. lbs.)





Step 61

Connect the front output shaft and tighten the bolts. (17 to 21.5 ft. lbs.)



Step 62

If you are working with the vehicle on a twin post lift, lower the vehicle to the floor.



Tech Tip:

If not done previously, we strongly recommend you replace the Transfer Case Shifter Sheet. This part, when installed, can make an enormous difference in transfer case shifter feel and performance. Click [HERE](#) for more information on our Transfer Case Shifter Sheets.



Step 63

Reinstall the shift lever.





Common Wear Point

Shifter Guide



Step 64

Align the grooves in the shifter guide with the pins that are inside the shifter cavity.

Note: Inspect the shifter guide for wear and replace it if needed. This and other parts can be found on our web site. Click [HERE](#) for more information.



Step 66

Reinstall the lower boot.

Note: Final positioning of the boot may be easier from under the vehicle.

Step 65

Depress the lever guide and rotate clockwise until it locks.

Note: Move transfer case shifter handle into each position (4L, N, 4H, 2H) verifying correct installation.



Step 67

Reinstall the upper boot and install the 4 phillips screws.





Step 68

Reinstall the shift knob.

Note: If the lower boot or upper boot is damaged or cracked we recommend replacement. If you are interested in seeing what is available through our website, click [HERE](#) for more information.





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 parts requires 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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