

SUZUKI JIMNY TRAIL-SAFE™ KNUCKLE BALL WIPER SEAL KIT

304921-3-KIT (1998-2017 SUZUKI JIMNY SN413/415)
(1998-2017 SUZUKI JIMNY JB23)
(1998-2005 SUZUKI JIMNY JB33)
(1998-2017 SUZUKI JIMNY JB43)

KIT CONTENTS



304963-3-INS

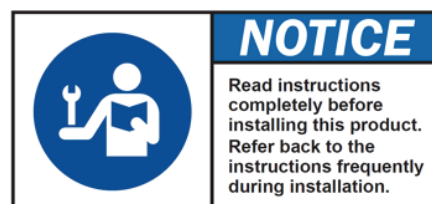


RECOMMENDED TOOLS

Ratchet & Socket Set	(2) M8 Hex Head Screws
Screwdriver Set	Slide Hammer
Torque Wrench	Safety Glasses
Retaining Ring Pliers	Degreasing Compound (e.g. Brake Cleaner)
Floor Jack	Slip Joint Pliers
Jack Stand	Length of Wire or Wire Hook
API GL5 SAE 80W-90 Hypoid Gear Oil	Suzuki Special Service Tool #09944-77020 (Wheel Bearing Locknut Removal Tool)
Drain Pan	Tie Rod End Remover (Suzuki Special Service Tool #09913-65210 or Equivalent)
Wheel Bearing Grease	
Lithium Grease	
Ball Peen Hammer	
Small Punch	
Drift Punch	

CAUTION

1. Read all instructions completely and carefully before you begin. If anything is not clear, please call our tech support line at 1.877.4X4.TOYS or 559.252.4950 or email tech@trail-gear.com before proceeding.
2. Check to make sure the kit is complete and that no parts are missing (refer to the Kit Contents Section on the first page of these instructions). If anything is missing, please contact Trail-Gear at 1.877.4X4.TOYS or 559.252.4950 or email tech@trail-gear.com.
3. Park vehicle on a clean, dry, flat, level surface and block the tires so the vehicle cannot roll in either direction.
4. This kit is for off-road use only. It is recommended that the installation steps below be performed by a competent mechanic. Buyers and users of this product hereby expressly assume all risks associated with the installation and use of this kit.
5. This installation is typical for most Suzuki Jimny vehicles. Some years or models may vary. If necessary, refer to the proper Factory Service Manual for the year and model of your Jimny.

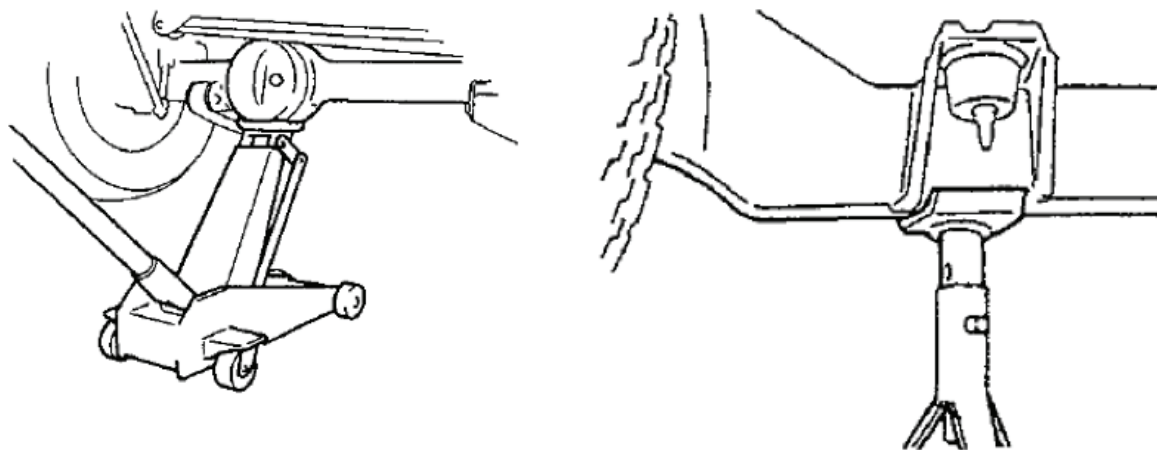


INSTALL INSTRUCTIONS (CONT'D.)



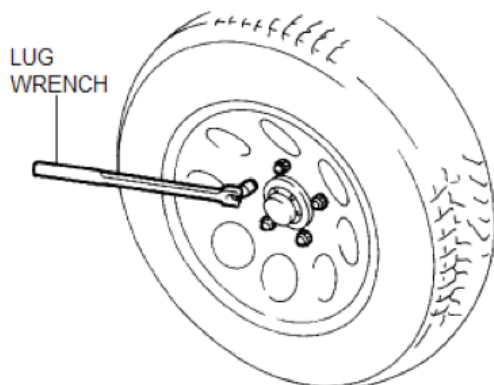
STEP 1

Lift up the front end of the vehicle with a floor jack and place jack stands under the front end on both sides of the frame.



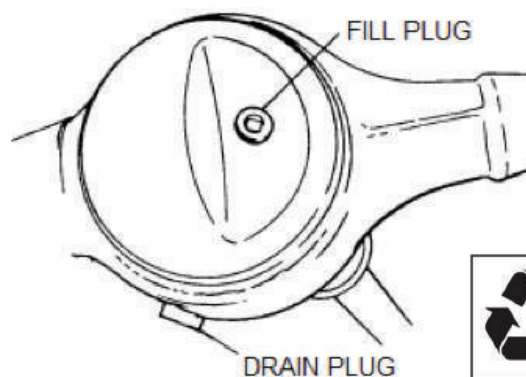
STEP 2

Loosen the (5) lug nuts securing the driver's side wheel to the axle. Raise the front end with a floor jack and place a jack stand under the frame. Remove the (5) lug nuts and remove the wheel from the axle. Save the wheel & lug nuts for reinstallation.



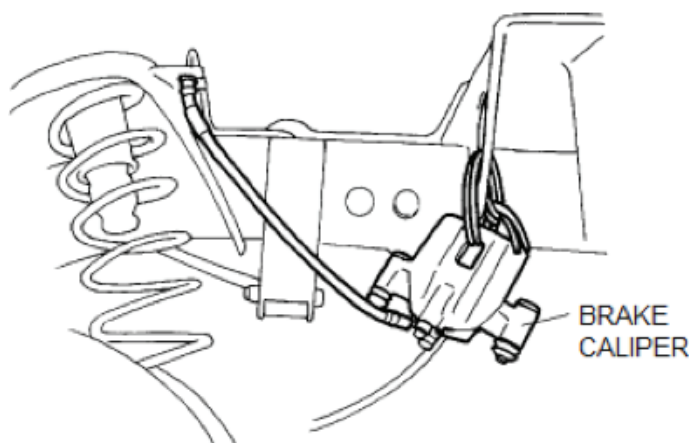
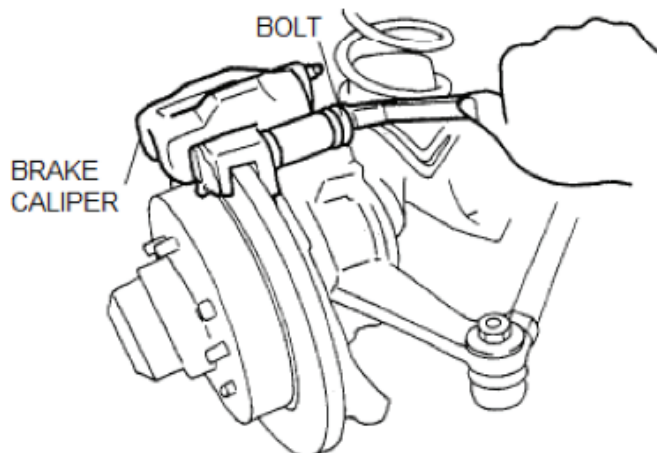
STEP 3

Place a drain pan underneath the transfer case. Remove the fill plug. Remove the drain plug and allow the transfer case to drain completely. Save both plugs for reinstallation. Discard the used oil in accordance with all local laws. Many auto parts stores will accept used oil for little or no cost.



STEP 4

Remove the brake calipers by loosening and removing the mounting bolts. Hang the caliper from the frame using as length of wire as shown to avoid stretching the brake lines. Save the bolts for reinstallation. **Use care to make sure that the brake hose does not get twisted or stretched. DO NOT depress the brake pedal, or the piston will pop out of the caliper.**

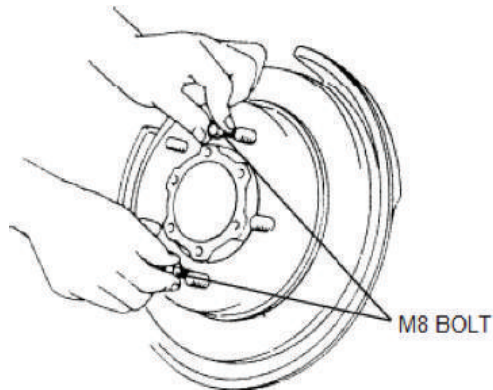


INSTALL INSTRUCTIONS (CONT'D.)



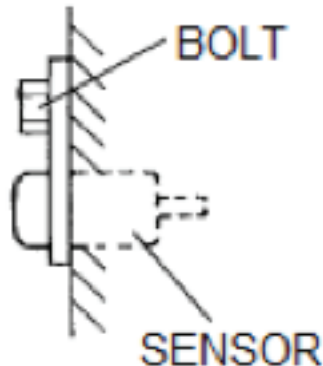
STEP 5

Remove the brake rotor from the hub. If the rotor cannot be removed by hand, use (2) M8 bolts to remove the rotor as shown.



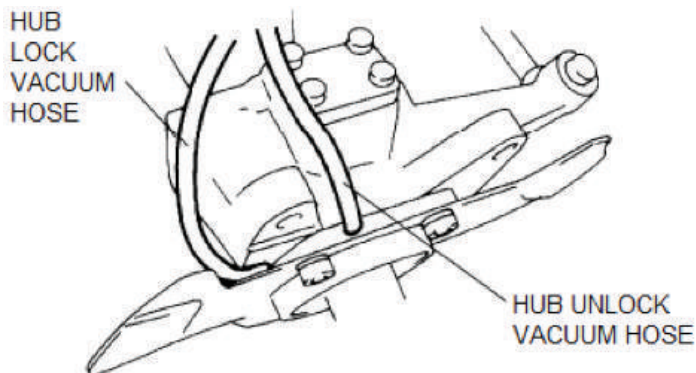
STEP 6

If your vehicle is equipped with anti-lock brakes (ABS), remove the wheel speed sensor. Save all parts for reinstallation. If you do not have ABS, skip to the next step.



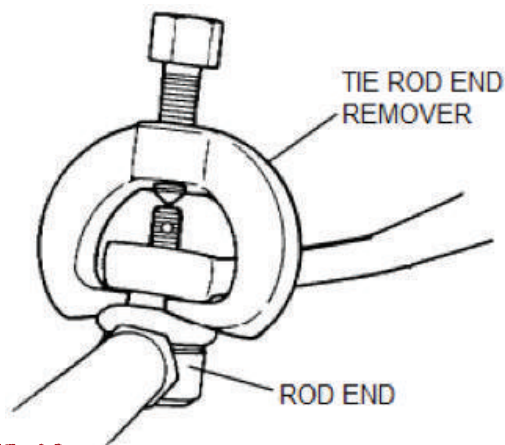
STEP 7

Disconnect the locking hub vacuum hoses from the wheel spindle. Place match marks on one of the hoses and the corresponding location on the spindle so they can be reassembled correctly.



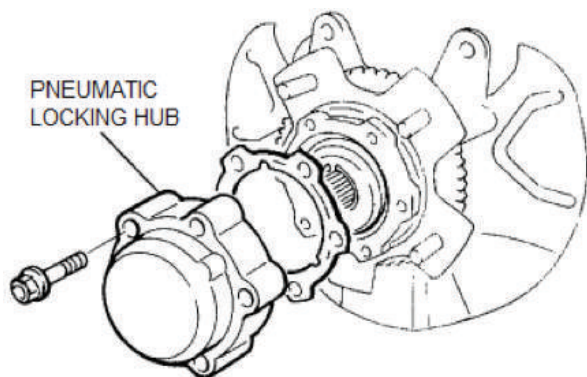
STEP 8

Remove the cotter pin securing the tie rod end castle nut. Remove the castle nut from the tie rod end. Disconnect the tie rod end from the knuckle using a tie rod end remover or Suzuki Service Tool 09913-65210. Save the cotter pin and castle nut for reinstallation.



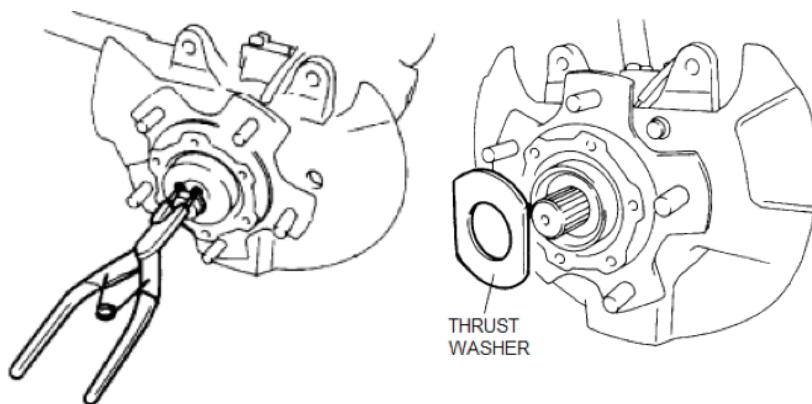
STEP 9

Loosen & remove the (6) screws securing the pneumatic locking hub to the wheel hub. Remove the pneumatic locking hub. Save the pneumatic locking hub and all hardware for reinstallation.



STEP 10

Remove the retaining ring from the front axle shaft using retaining ring pliers. Remove the spindle thrust washer. Save both parts for reinstallation.

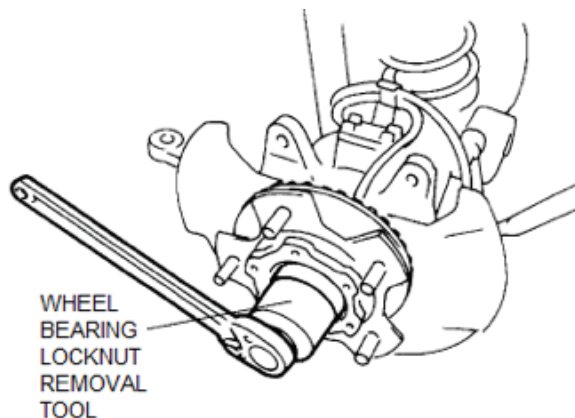
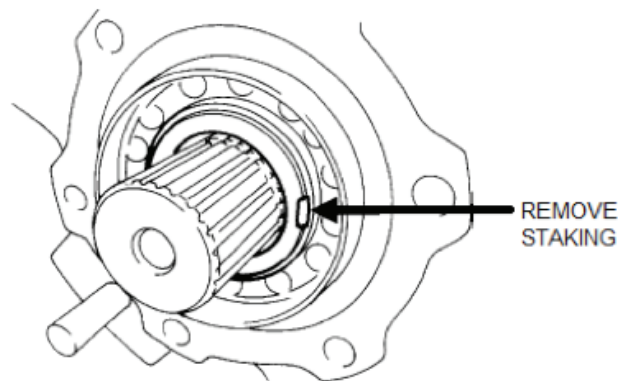


INSTALL INSTRUCTIONS (CONT'D.)



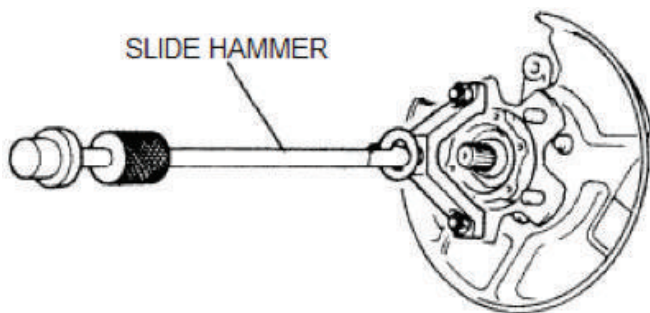
STEP 11

Using a flat-head screwdriver or punch and hammer, carefully remove the staking from the wheel bearing lock nut. Loosen and remove the wheel bearing lock nut using Suzuki Service Tool 09944-77020. Remove the wheel bearing lock nut washer. Save all parts for reinstallation.



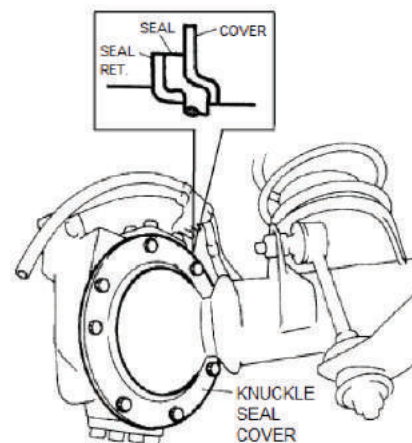
STEP 12

Remove the wheel hub assembly from the spindle. If the wheel hub cannot be removed by hand, use a slide hammer to remove the wheel hub. Save the wheel hub for reinstallation.



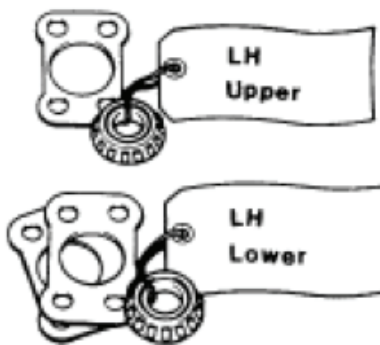
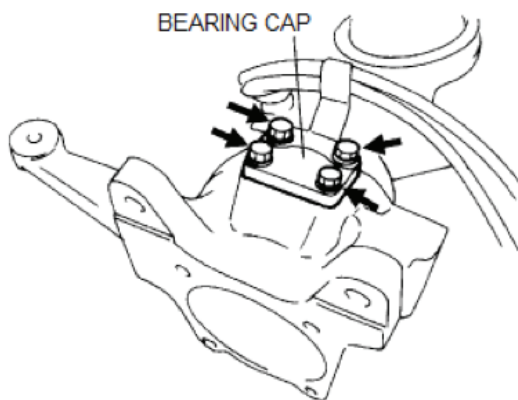
STEP 13

Loosen and remove the (8) bolts on the knuckle seal cover. Remove the knuckle seal cover, knuckle seal, and knuckle seal retainer from the knuckle. Discard the (8) bolts, knuckle seal cover, knuckle seal, and knuckle seal retainer.



STEP 14

Loosen and remove the upper and lower bearing cap bolts. Remove the bearing caps and shims. On each bearing cap, mark the bearing caps in such a manner that you can distinguish which one came from the top of the knuckle and vice versa. Make sure you keep any shims that were installed under each bearing cap with the corresponding bearing cap, similar to the illustration below. Save all parts for reinstallation.

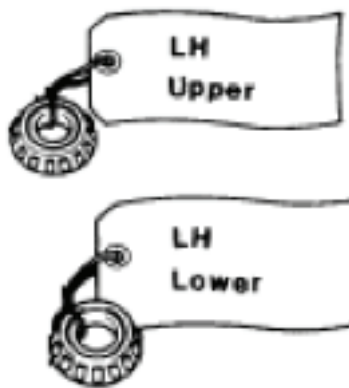
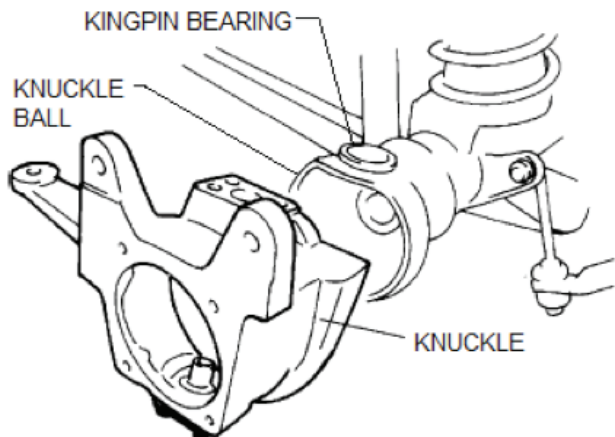


INSTALL INSTRUCTIONS (CONT'D.)



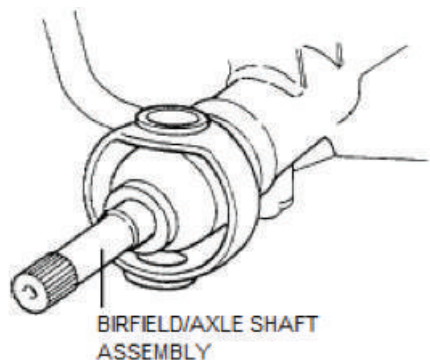
STEP 15

Remove the entire knuckle/spindle/brake dust cover assembly from the axle. Remove the kingpin bearings from the knuckle ball. Mark the kingpin bearings in such a manner that you can distinguish which one came from the top of the knuckle ball and vice versa. Save all parts for reinstallation.



STEP 16

Carefully remove the axle shaft and birfield joint from the axle housing. Save the axle shaft and birfield joint for reinstallation.



STEP 17

Clean and degrease the outer surface of the knuckle ball.



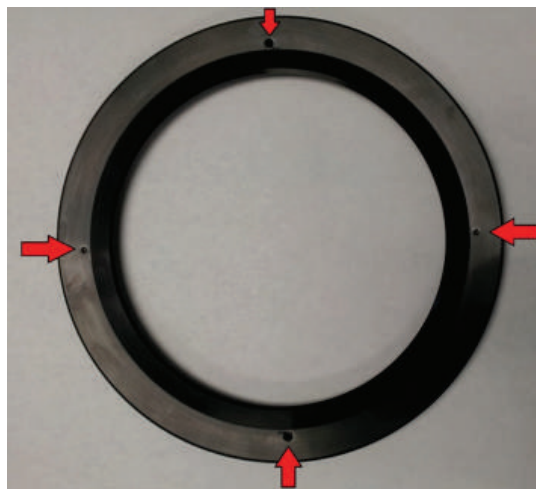
STEP 18

Apply wheel bearing grease to the entire inner diameter of both sealing lips.



STEP 19

The side of the seal with the (4) ejector-pin marks faces the differential when installed.



INSTALL INSTRUCTIONS (CONT'D.)



STEP 20

Carefully work the seal over the bottom lip of the knuckle ball as shown. Remember, the side with the (4) ejector-pin marks will be facing towards the differential when installed.



STEP 21

Pull the seal up towards the top of the knuckle ball as shown. Work the seal up towards the top of the knuckle ball equally with both hands until the seal is tight.



STEP 22

Using a small screwdriver or pry tool, place the tool between the seal and the top of the knuckle ball. Gently pry the seal onto the knuckle ball. Use care not to damage the seal or the outer surface of the knuckle ball with the pry tool.



STEP 23

Smooth the seal out, making sure that there are no kinks or dents in the seal.



STEP 24

Install the one-piece split metal backing ring over the knuckle ball

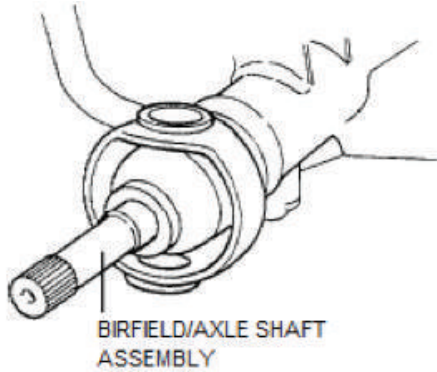


INSTALL INSTRUCTIONS (CONT'D.)



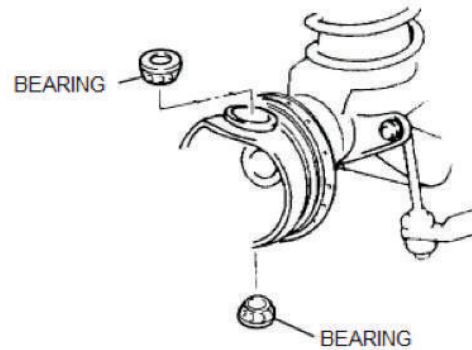
STEP 25

Reinstall the axle shaft and birfield joint back into the axle housing.



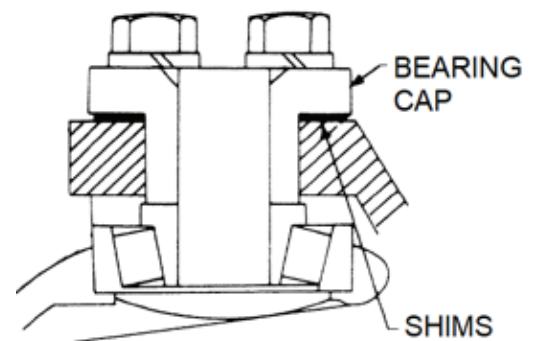
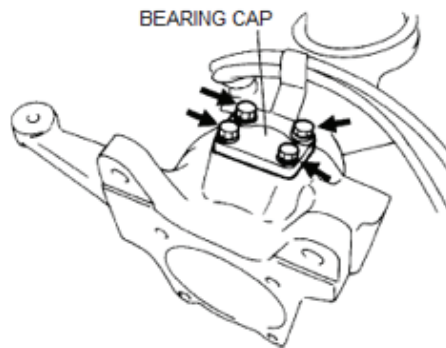
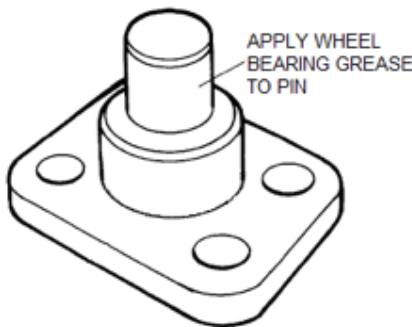
STEP 26

Apply wheel bearing grease to the kingpin bearing rollers. Install the kingpin bearings onto the knuckle ball, making sure to install each kingpin bearing in the same location it was removed from.



STEP 27

Reinstall the knuckle/spindle/brake dust cover assembly onto the knuckle ball. Install the bearing caps and shims back onto the knuckle. Make sure to install the bearing caps and any shims to the same location that they were removed from. Apply wheel bearing grease to the bearing cap pins before installing them onto the knuckle. Reinstall the bearing cap bolts. Torque each bearing cap bolt to 18 ft-lbs (25 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual.



STEP 28

Install the one-piece split metal backing ring into the counterbore on the back of the knuckle. Make sure that the relief slots in the backing ring align with the kingpin bearing races on the knuckle ball.



STEP 29

Install the seal over the one-piece split metal backing ring, trapping the split metal backing ring between the knuckle and the seal.



INSTALL INSTRUCTIONS (CONT'D.)



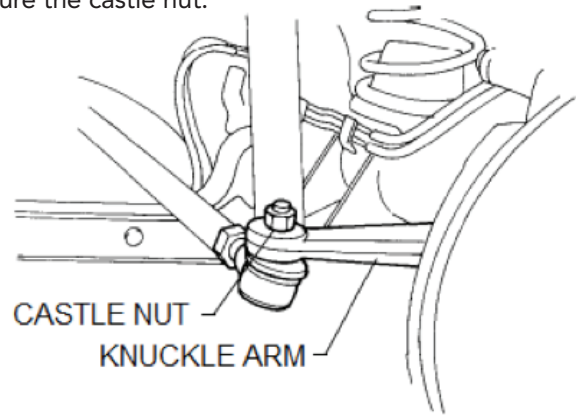
STEP 30

Install the rock rings over the wiper seal and secure with the M6 bolts and lock washers provided in the kit. Torque the bolts to 7.5 ft-lbs (10 N-m).



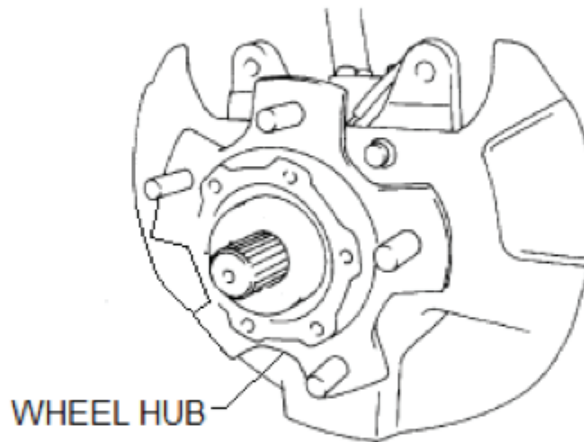
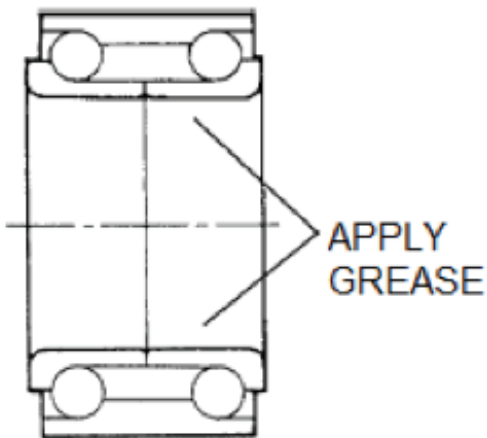
STEP 31

Reconnect the tie rod end to the steering knuckle. Secure with the castle nut. Torque the castle nut to 31.5 ft-lbs (43 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual. Reinstall the cotter pin to secure the castle nut.



STEP 32

Apply wheel bearing grease to inner diameter of the wheel bearings. Reinstall the front wheel hub onto the spindle.

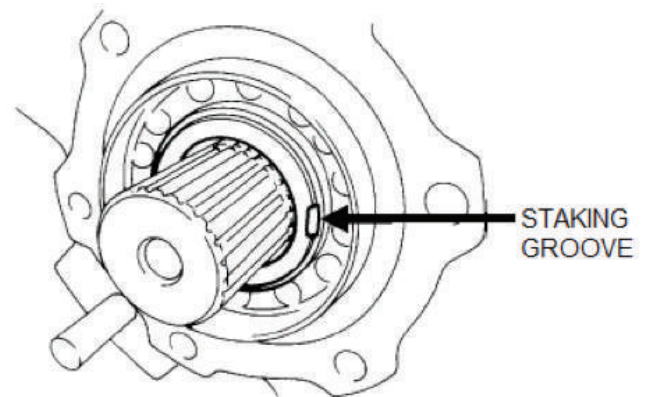
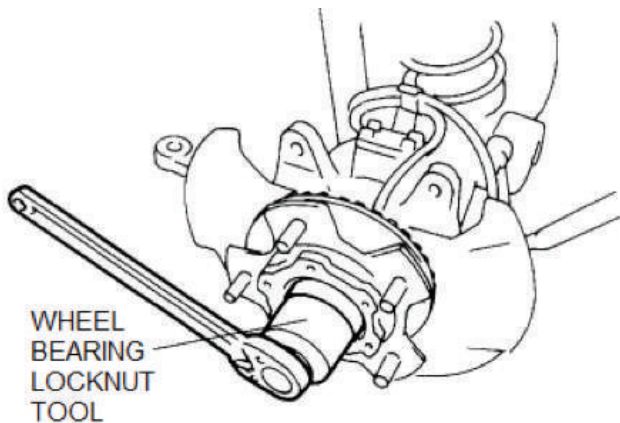


STEP 33

Reinstall the wheel bearing washer. Reinstall the wheel bearing lock nut. Using Suzuki Service Tool 09944-77020, torque the wheel bearing lock nut to 160 ft-lbs (220 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual.

STEP 34

Using a ball peen hammer and a drift punch, stake the wheel bearing lock nut into the spindle groove.

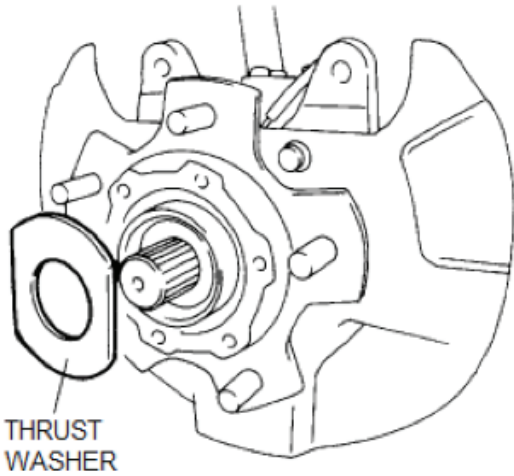


INSTALL INSTRUCTIONS (CONT'D.)



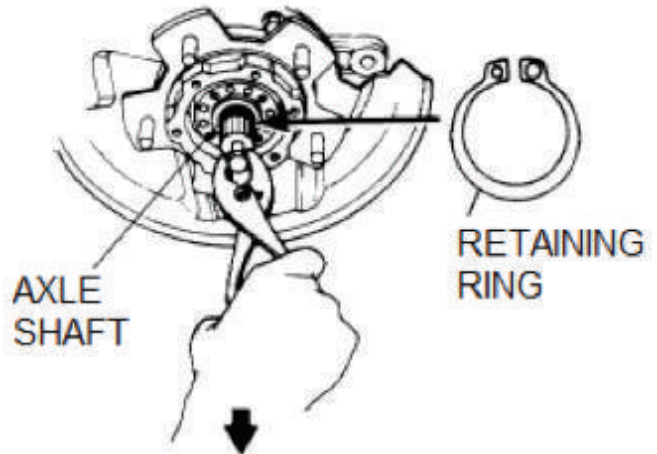
STEP 35

Apply lithium grease to both sides of the thrust washer. Reinstall the thrust washer.



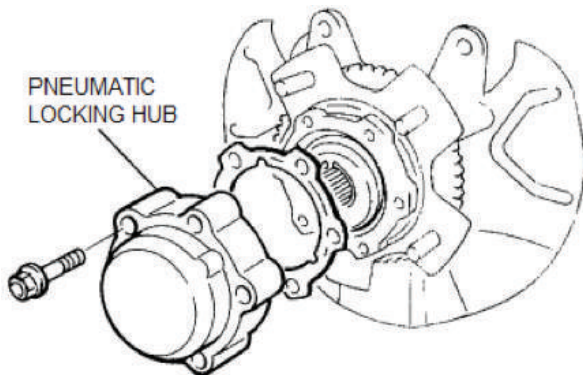
STEP 36

Install an M8 hex head screw into the axle shaft and pull the shaft out until the retaining ring groove is accessible. Reinstall the retaining ring into the groove on the axle shaft.



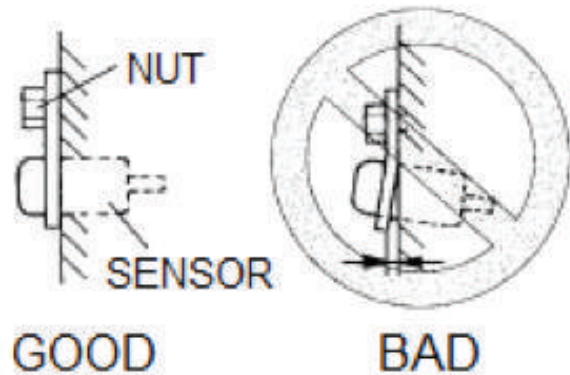
STEP 37

Clean the mating surfaces of wheel hub and the pneumatic locking hub. Reinstall the (6) screws to secure the pneumatic locking hub to the wheel hub. Torque the screws to 35 ft-lbs (48 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual.



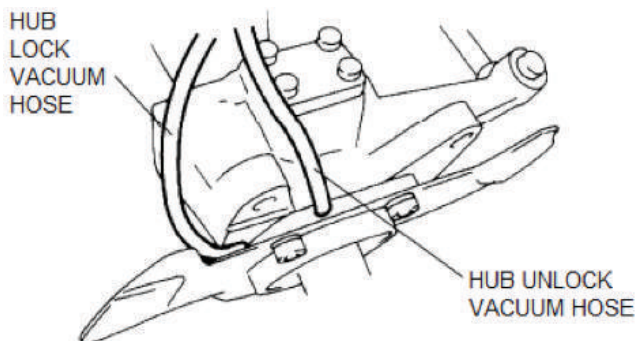
STEP 38

If your vehicle has ABS, reinstall the wheel speed sensor. Torque the mounting screw to 7.2 ft-lbs (10 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual. If you do not have ABS, skip to the next step.



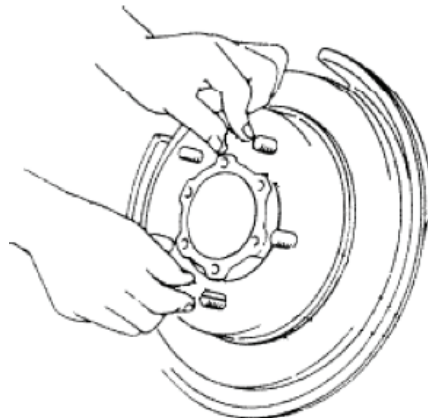
STEP 39

Reconnect the locking hub vacuum hoses to the wheel spindle.



STEP 40

Reinstall the brake rotor onto the wheel hub.

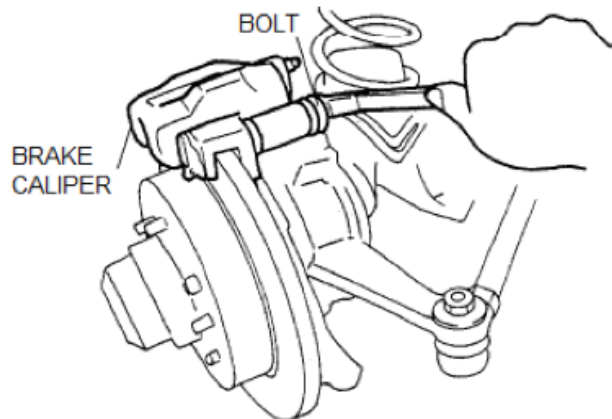


INSTALL INSTRUCTIONS (CONT'D.)



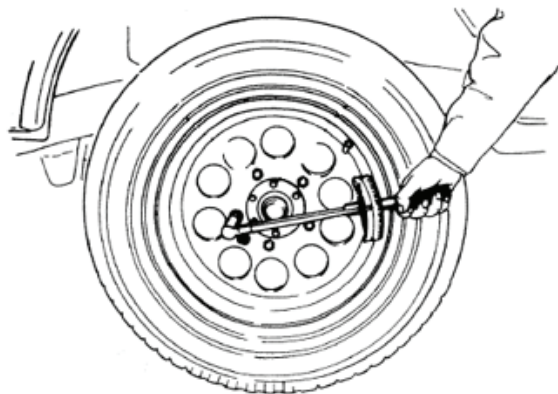
STEP 41

Reinstall the brake caliper. Torque the mounting screw to 61.5 ft-lbs (85 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual.



STEP 42

Reinstall the wheel and lug nuts. Torque the lug nuts 69 ft-lbs (95 N-m) or to the torque specified in the Suzuki Jimny Owner's Manual.

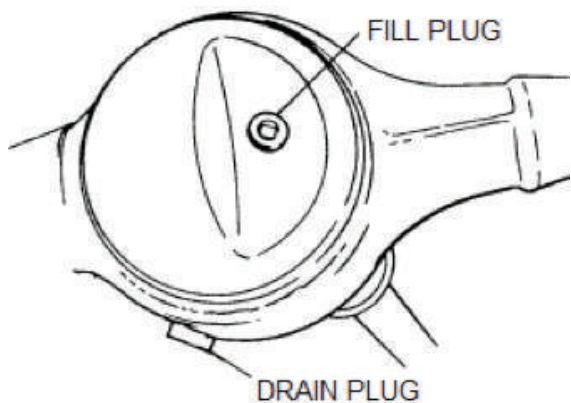


STEP 43

Repeat Steps 1-42 for the other side of the vehicle.

STEP 44

Replace the differential drain plug and torque to 19.5 ft-lbs (27 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual. Refill the differential with gear oil. Replace the fill plug and torque to 36.5 ft-lbs (50 N-m) or to the torque specified in the Suzuki Jimny Factory Service Manual.



STEP 45

Lower the vehicle. Take the vehicle for a short test drive. After the test drive, check the torque on all hardware and tighten as necessary.

INSTALL INSTRUCTIONS (CONT'D.)



REPLACEMENT PARTS

