



SPARTAN

→ LOCKER

SUZUKI SAMURAI INSTALLATION MANUAL



Also available from USA Standard Gear:

- **Ring & Pinion Sets** •
- **Master Overhaul Kits** •
- **Axles** •



Note about your carrier: Before beginning to tear down your differential, please be aware that the Spartan Locker is designed to fit open carriers only. It will not install into any type of limited slip carrier.

Note about thrust washers: This Spartan Locker does not use the side gear thrust washers. Attempting to install or operate the unit with thrust washers present may damage the unit or your case.

This Spartan Locker design comes with the following components: *Figure 1*

- Two (2) Drivers
- One (1) Long cross pin shaft
- Two (2) Short cross pin shafts
- Four (4) Alignment pins
- Four (4) Springs
- Two (2) Spacers

Preparing the vehicle for installation

Take the following steps to prepare your vehicle for installation:

- Block the vehicle's tires, and place the transmission in neutral.
- Loosen the lug nuts and jack the vehicle up.
- Make sure that the vehicle is securely resting on jack stands.
- Remove the wheels; disconnect the brake lines and emergency brake cables.
- Slide out both axles to provide enough clearance to remove the carrier, if necessary.
- Remove the dropout from the axle housing.

Carrier removal and teardown

- Using a punch, mark one of the bearing caps so you can remember which side it belongs to. Bearing caps are specific to each side of the housing. This is very important for re-assembly.
- Check your backlash with a dial indicator and make note of it. You will need to check it again later after re-assembly to make sure everything went back together properly.
- Remove bearing caps, and pull out carrier.
- Remove ring gear from the carrier.
- Loosen carrier case bolts and remove the carrier hat.
- Remove cross pin shafts, spider gears and thrust washers. *Figure 2 & 3*
- Clean carrier case and side gears thoroughly.
- Inspect carrier case and side gears for excessive wear. If the carrier or side gears are damaged or worn excessively, your Spartan Locker may not work properly or could be damaged.
- Prior to beginning the installation process, check the side gear fit in carrier hat with the thrust washer removed to make sure it spins freely. *Figure 4*

Installation Steps:

- Place springs into the alignment pins. *Figure 5*
- Carefully install the alignment pins and springs into the holes in the back of the drivers. Make sure the springs do not fall out or become wedged sideways in the holes during installation. *Figure 6*
- Stack the drivers together as they would sit in the carrier case. *Figure 7*
- Install the first side gear into the carrier case. *Figure 8*
- Install the drivers together into the carrier case. *Figure 9*
- Place first spacer on top of the bottom side gear. *Figure 10*
- Install cross pin block. *Figure 11*
- Install all three cross pin shafts. *Figure 12*
- Place the second spacer on top of the cross pin block. *Figure 13*
- Install the second spider gear on top of the driver. *Figure 14*
- Place carrier hat on top of carrier and push down to make sure the hat seats completely against the carrier. *Figure 15*
- Install carrier case bolts and tighten down.
- Mount and install the ring gear.
- Install and torque down ring gear bolts. Consult shop manual for torque specifications.

Final Installation Steps

- Thoroughly clean the housing.
- Place the carrier races on same sides they were removed from.
- Install the carrier into the housing.
- Replace bearing caps to their correct sides, torque down bolts to the proper specification. Consult shop manual for the torque specification.
- Adjust backlash and tighten down side adjusters. Consult shop manual for proper bearing preload specification.
- Finish assembly by reconnecting brake lines, backing plates, tires, etc
- Check installation by putting the vehicle in gear and in 4wd if installing in a front application.
- Rotate one tire forcefully until it stops against the drivetrain. Repeat engagement/disengagement testing for both direction on each side of the vehicle.
- Have a second person rotate the opposite tire in the opposite direction, It should unlock and spin
- Your Spartan locker should make a clicking sound as the teeth move over each other. If this sound is not present, or you cannot get the teeth to disengage at all, check your work
- Add gear oil

****Note about tire diameters****

For safety and long life of your Spartan Locker, it is important that your tire diameters are as close to identical as possible. Differing tire sizes can cause premature wear to your Spartan Locker, shortening its life and causing possible damage to your differential. Measure each tire to make sure that they match from the ground to the top of the wheel.

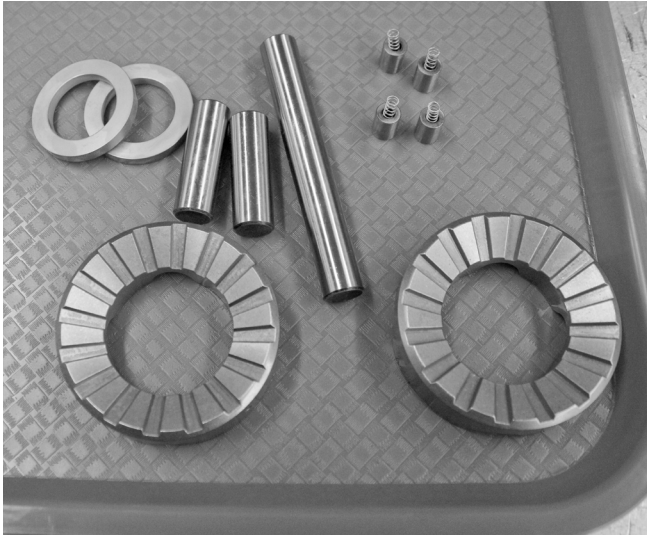


Figure 1

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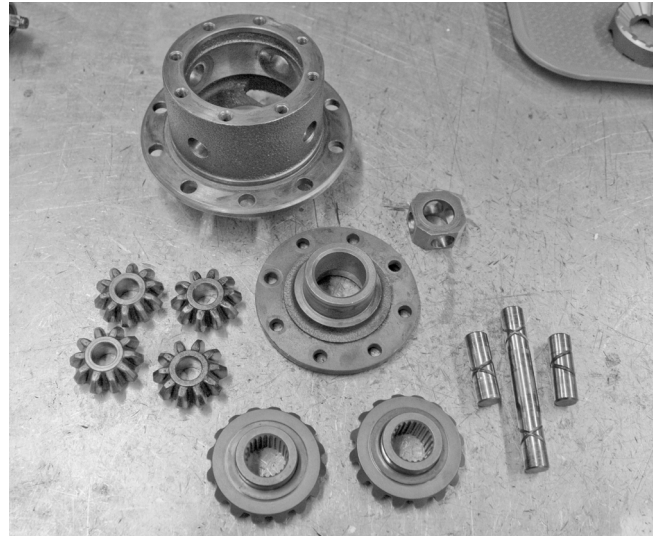


Figure 2



Figure 3 - MUST REMOVE thrust washers



Figure 4



Figure 5

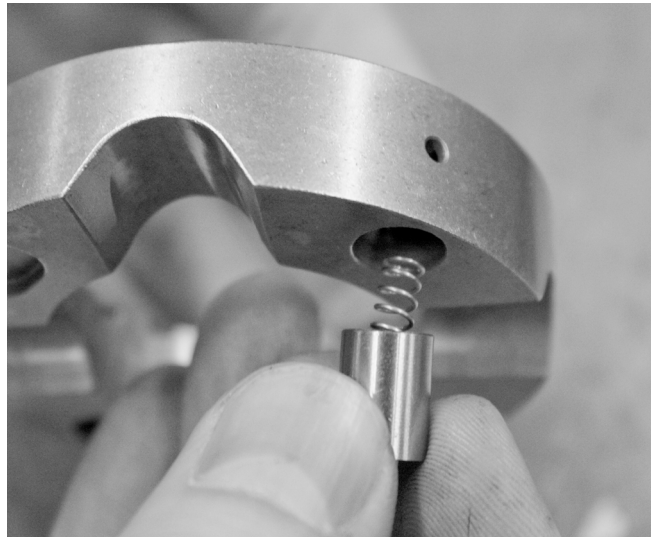


Figure 6

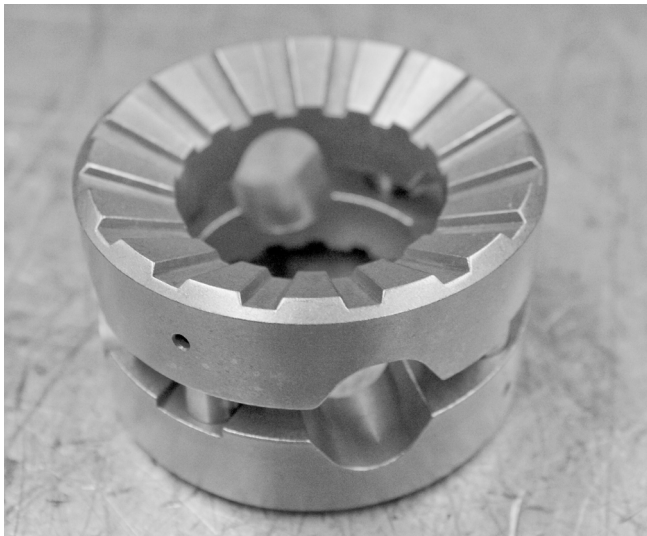


Figure 7

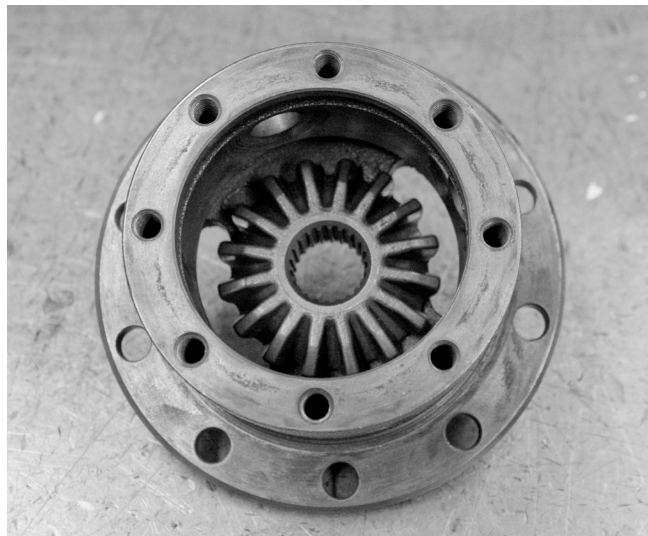


Figure 8

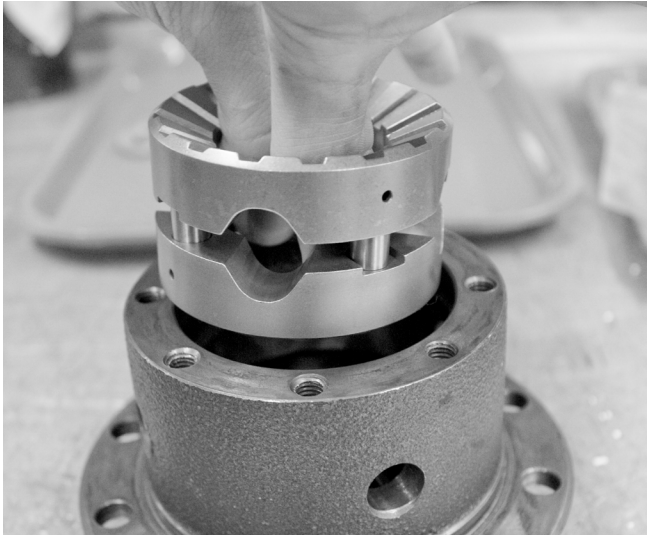


Figure 9

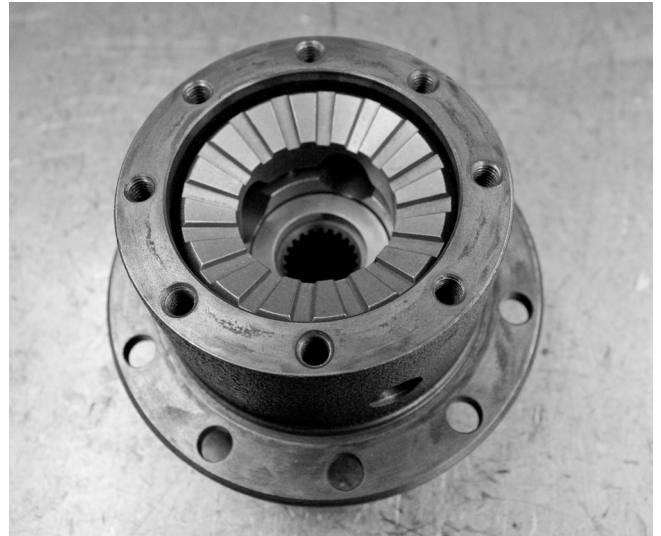
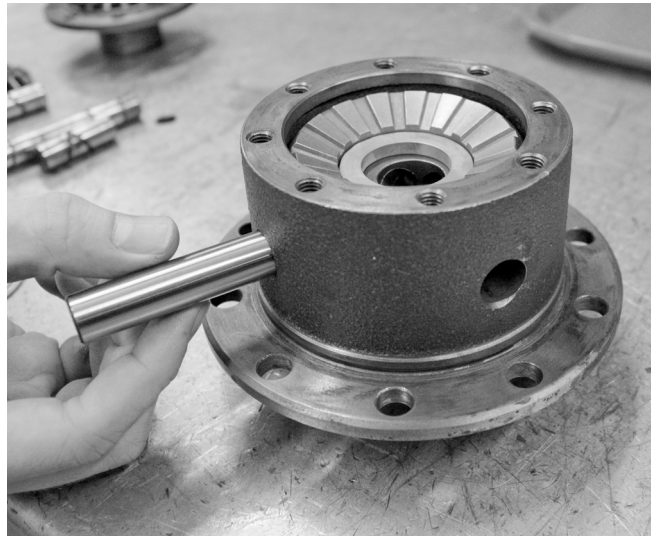


Figure 10



Figure 11



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Figure 12



Figure 13

11



Figure 14



Figure 15