

AFTER-SALES SERVICE

According to the company's service regulations, the after-sales service process and terms of the TRE products are as follows:

1. The way of you find the way to solve your problem :

- 1.1 Send the materials (**refer to Terms 2**) directly to the post-sales department mailbox:**Tech@tre4x4.com**
- 1.2 If there are dealers in the local area, one can directly find a dealer to solve the problem.

2. Materials that must be provided:

- 2.1 Description of the problem and evidence (related pictures and videos)**
- 2.2 Proof of purchase (purchase time, purchase route, warranty card)**

3. Terms of Service and Commitment:

- 3.1 The non-artificial fault happen in normal use during warranty period.
- 3.2 The fault caused by TRE4X4 allowed dismantlement,install, and other operations.
- 3.3 This warranty is not transferable to another party.
- 3.4 If defective workmanship or materials become apparent in the Warrant period,TRE4x4 will replace or repair the defective TRE4x4 Products.
- 3.5 TRE4x4 will not be liable for labor charges and other intangible or consequential losses that might be claimed as a result of a failure of any TRE4x4 component or part thereof to the extent permitted by Chinese law.

4. Exemption clauses:

- 4.1 The products exceed the warranty period Can not provide the required proof(warranty card, proof of purchase, etc.)
- 4.2 The fault caused by incorrect operation and installation
- 4.3 The fault caused by accident, abuse (overload working), and misuse.
- 4.4 Commercial used/competition used
- 4.5 The size of the tyre exceed 37 inch.
- 4.6 The fault caused by operate Locking Differential at high speed(>10km/h)

5. Contact information:

- 5.1 If there are any problems during the user's use, one can send an email to the after-sales department's E-mail: **Tech@tre4x4.com**
- 5.2 For global authorized service outlets, please visit our official website: www.tre4x4.com

TRE LOCKING DIFFERENTIAL SERVICE GUIDE

Recommended Lubricants Specifications

TRE Locking Differential are constructed entirely from premium grade materials that meet or exceed automotive (SAE) and most military (MIL) and aerospace standards for resistance to commercially available lubricant grades and additives. As such, Locking Differential have no special requirements for lubricants above those which would be recommended according to the climate you live in and the nature of how you use your vehicle, and so the specifications below are provided only to assist in finding a suitable gear oil to suit.

Climate	Harshness Nature of Intended Vehicle Use		
	Light to Medium Domestic/Predominantly On Road	Recreational Enthusiast/Light Commercial	Heavy Recreational/Motorsport/Industrial
Temperate	API GL-5 90 weight mineral based gear oil or by Vehicle Service Manual Recommendations.	API GL-5 90 to 140 weight synthetic or semi-synthetic gear oil.	API MT-1 or SAEJ2360 140 weight full synthetic.
Subtropical	API GL-5 140 weight mineral based gear oil or by Vehicle Service Manual Recommendations.	API GL-5 90 to 140 weight mineral, synthetic or semi-synthetic EP gear oil.	API MT-1 or SAEJ2360 140 to 250 weight full synthetic.
Tropical	API GL-5 140 weight mineral based gear oil or by Vehicle Service Manual Recommendations.	API GL-5 140 weight mineral, synthetic or semi-synthetic gear oil.	API MT-1 or SAEJ2360 140 to 250 weight full synthetic

Recommended Regular Service Schedule

Frequency of Service	Description of Service Check or Operation
After the first 2,500km (1,500 miles)of use, and after each subsequent 50,000km (31,000 miles)of off road use or 75,000km(46,600 miles) of highway only use	Change differential oil. Clean or replace axle breather. NOTE: Always fill until almost level with filler plug hole, manually rotate differential several times, then fill again until level with filler plug hole(see Recommended Lubricants Specifications).If the axle installation angle has been modified (i.e. the vehicle has been raised)or is used for lengthy steep inclines, a standpipe may be needed to modify the filler level of the housing.
After every 12,000km (7,460 miles)	Check differential oil level and inspect for leaks
After each use in water and/or mud	Change differential oil to maintain viscosity and to flush out any trapped water, mud or other foreign particles. Clean or replace breather.
After each use in dense bush and/or protruding rocks	Inspect all sections of exposed air line for abrasions or cuts.
After each heavy use (i.e. competition use)	Change differential oil to maintain viscosity and to flush out any foreign particles
Every 6 months(maximum)	Operate the Locking Differential to ensure it is in good working condition. Check air system for deposits of moisture condensation or oil. Flush clean with compressed air if necessary. Clean or replace axle breather.

In Field Service/Repair

TRE Locking Differential are engineered to give you years of trouble free use. However, harsh terrain can sometimes find a way of taking its toll, Just as you carry spare tyres, fuses, drive belts, etc. you should also consider packing an Air Line Service Kit(ASKO01),and some cable ties along with the necessary tools to ensure you are prepared for any unforeseen damage to your air line.

TROUBLE SHOOTING

Symptom	Possible Cause(s)	Solution(s)
<p>Small metallic particles are present in differential oil</p>	<p>Carrier bearings damaged.</p> <p>Differential gear(s) worn or Damaged</p> <p>Foreign object loose in differential housing.</p> <p>Clutch gear damaged from engaging under engine torque.</p>	<p>Inspect and replace damaged bearings (refer to your vehicle service manual).</p> <p>Inspect differential gears and ring and pinion set for signs of wear or damage and replace if necessary.</p> <p>Inspect all differential components for damage and replace as necessary.</p> <p>Inspect clutch gear for damage and replace as necessary.</p>
<p>Foreign object/large particles present in differential oil</p>	<p>Damaged internal components.</p>	<p>Inspect all differential components, bearings, ring and pinion set teethed.. for damage and repair or replace as necessary.</p>
<p>Running noise from differential</p>	<p>Differential oil level too low.</p> <p>Wheel bearing(s) damaged or worn out.</p> <p>Carrier bearings damaged or worn out.</p> <p>Incorrect backlash between ring and pinion gears.</p> <p>Incorrect preload on carrier Bearings</p> <p>Incorrect mesh (or 'running mark' or 'pattern') between ring and pinion gears.</p> <p>Ring and pinion set damaged.</p>	<p>Fill oil level until level with filler plug hole.</p> <p>Refer to your vehicle service manual for bearing replacement procedure.</p> <p>Inspect and replace damaged bearings (refer to your vehicle service manual).</p> <p>Adjust ring and pinion backlash to within manufacturer's specifications.</p> <p>Inspect bearings for damage and re-preload to manufacturer's specifications.</p> <p>Using gear marking compound, check and adjust ring and pinion mesh (refer factory service manual or ring and pinion manufacturer for procedure).</p> <p>Inspect for chips/cracks/uneven wear and replace gear set if necessary.</p>

<p>Running noise from differential only when cornering</p>	<p>Wheel bearing(s) damaged.</p> <p>Differential bevel gear(s) damaged.</p> <p>Axles making contact inside differential</p>	<p>Refer to your vehicle service manual for bearing replacement procedure.</p> <p>Inspect all differential gears and internal running surfaces for signs of damage and replace as necessary.</p> <p>signs of contact other than spline engagements.</p> <p>Where applicable, check axle shaft end float and thrust block end float requirement.</p>
<p>Intermittent noise from differential that occurs approx. once every 2.5 metres(8 feet)of vehicle movement regardless of vehicle speed</p>	<p>Damaged ring gear.</p> <p>Differential or ring gear run out.</p> <p>Bolt backing out of ring gear.</p> <p>Drive pinion contacting differential case</p>	<p>Inspect and replace if necessary</p> <p>Inspect by measuring backlash at several positions and correct if necessary</p> <p>Inspect and correct if necessary using correct torque and recommended thread locking compound.</p> <p>Check for clearance between differential and drive pinion and relieve(grind) pinion head if necessary</p>

Symptom	Possible Cause(s)	Solution(s)
<p>Intermittent noise from differential that occurs approx. once every 0.6 meters(2 feet)of vehicle movement regardless of vehicle speed</p>	<p>Damaged or bent drive pinion gear(i.e. of ring and 'pinion').</p>	<p>Inspect and replace ring and pinion set if necessary.</p>
<p>Noise from differentials while decelerating on engine brakes from any speed</p>	<p>Damaged pinion bearing.</p> <p>Incorrect mesh (or 'running mark' or 'pattern')between ring and pinion gears.</p>	<p>Inspect and replace if necessary.</p> <p>Using gear marking compound, check and adjust ring and pinion mesh</p> <p>(refer factory service manual or ring and pinion manufacturer for procedure).</p>

<p>Excessive oil visible at solenoid exhaust port</p> <p>Note:</p> <p>Some fine oil mist around the solenoid is perfectly normal as an Locking Differential is an oiled mechanical system</p>	<p>Pneumatic seals damaged. Pneumatic seal running surfaces worn or damaged.</p> <p>Misaligned or damaged seal housing.</p>	<p>Replace all pneumatic seals.</p> <p>Remove seal housing and inspect the sealing surface for condition. Worn, damaged, or surface with rough machining should be polished or replaced.</p> <p>Inspect seal housing for damage and make sure seal housing is fitted according to the supplied installation instructions.</p>
<p>Locking Differential engages slowly or will not engage at all when switch is activated</p>	<p>Internal mechanical damage or obstruction to locking system.</p> <p>Air line blocked.</p> <p>Compressor malfunction.</p> <p>Electrical fault.</p> <p>Seized solenoid.</p> <p>Purge valve (if fitted) is slowing actuation.</p> <p>Oil temperature (climate) below manufacturer's specifications.</p> <p>Damaged locking gear teeth.</p>	<p>Inspect differential unit for damage or lodged foreign objects. Repair or replace as necessary.</p> <p>Inspect full length of air line for kinks, pinched sections or presence of oil or foreign matter in the line which may restrict air flow. Make sure air blows freely through whole air line.</p> <p>Make sure the compressor is functioning and is capable of supplying free air flow of at least 85PSI.</p> <p>Check for blown fuse or relay on compressor. Check all electrical connections to switch and solenoid.</p> <p>Solenoid should instantly open, allowing free flow of air when switch is activated., Clean or replace solenoid if faulty</p> <p>Slight actuation delays are normal when purge valves are fitted. If delay is too long then valve should be replaced.</p> <p>Use correct grade of oil to suit the environment where the vehicle is used.</p> <p>Teeth may be damaged from engaging</p>

		lock under engine acceleration. Replace damaged locking gear.
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Symptom	Possible Cause(s)	Solution(s)
Locking Differential will not disengage when switched OFF	<p>Wheels under torque</p> <p>Electrical fault.</p> <p>Solenoid exhaust port(port#3) is blocked.</p> <p>Solenoid seized.</p> <p>Internal damage.</p> <p>Solenoid installed backwards.</p>	<p>With the Locking Differential switch turned OFF and the wheels turned straight, slowly move the vehicle back and forth until the unit unlocks.</p> <p>Inspect all electrical connections for a possible short. If it is necessary to move the vehicle you can manually disconnect the air line from the compressor.</p> <p>Remove any obstruction from the exhaust port located in the middle of the round knob on the top of the solenoid(port#3).</p> <p>Clean or replace solenoid.</p> <p>Inspect differential unit for damage or lodged foreign objects. Repair or replace as necessary.</p> <p>Reverse solenoid configuration so that port#1 connects to the air supply.</p>
Air blows out of solenoid continuously until the Air Locker switch is engaged	Solenoid installed backwards.	Reverse solenoid configuration so that port#1 connects to the air supply and port#2 connects to the Locking Differential.
Locking Differential disengages slowly when switched OFF	<p>Air line is blocked.</p> <p>Solenoid exhaust port(port# 3) is blocked.</p> <p>Bulkhead fitting is over tightened.</p>	<p>Inspect full length of air line for kinks, pinched sections, or presence of foreign matter in the line which may restrict air flow.</p> <p>Check for oil in air line and flush clean if necessary.</p> <p>Make sure that air flows freely from</p>

		<p>port#3 when Locking Differential is disengaged.</p> <p>Disassemble bulkhead fitting and inspect for pinched off copper tube. Cut pinched end off and reassemble hand tight.</p>
Locking Differential engages when switch is in the OFF position and disengages when switch is turned ON	Switch cover installed upside down.	Carefully remove Technologies cover and replace in correct position. A tool is available from Carling Technologies to make this easy to do.
Air leakage at bulkhead fitting	<p>Bulkhead fitting too loose to form adequate seal.</p> <p>Worn or damaged bulkhead components.</p>	<p>Inspect and appropriately tighten all compression fittings(hand tight only).</p> <p>Replace all damaged fittings, seals, etc. Trim and replace any damaged mating sections of tubing.</p>
Leakage at solenoid	<p>Dirt inside of solenoid.</p> <p>Solenoid body damaged (i.e. cracked, cross threaded).</p> <p>Fitting(s)too loose or too tight to form adequate seal.</p>	<p>Disassemble solenoid valve and clean thoroughly.</p> <p>Replace solenoid.</p> <p>Inspect, and if necessary apply thread sealant to fittings and retighten.</p>

Symptom	Possible Cause(s)	Solution(s)
Compressor ALWAYS runs continuously	<p>Compressor malfunction.</p> <p>Pressure cutout switch malfunction</p> <p>Leak in air system(i.e.air system not reaching cut-off pressure)</p>	<p>Make sure compressor is working correctly and is capable of reaching the pressure switch cut-off pressure.</p> <p>Using a pressure gauge, make sure that .the pressure switch opens contacts at its cutout pressure.</p> <p>Locate and repair air leak.</p>
Compressor runs continuously ONLY when Locking Differential Is witched ON	<p>Leak in air system.</p> <p>Air leak inside differential Housing</p>	<p>Inspect air line and all air connections for leaks using a soap and water mixture,</p> <p>Remove filler plug and listen for leaking or bubbling when air is switched ON.</p>

	Dirt inside of solenoid valve.	<p>Inspect bulkhead fitting and seal housing tube inside housing and replace/repair leaking component(s) and seals as necessary.</p> <p>Disassemble and clean solenoid valve.</p>
Compressor runs continuously ONLY when under torque	Too little carrier bearing pre-load.	Adjust pre-load shims or adjuster nuts to vehicle specifications and test using brakes
Leakage inside differential housing Note: Air leaks may be pinpointed by using a length of tubing as a stethoscope	Pneumatic seal(s) damaged, Damaged seal housing tube (i.e., the internal copper tube) Damage from broken axle shaft,	<p>Locate and replace any damaged seals using stethoscope or soap and water mixture.</p> <p>Inspect and replace if necessary, Ensure no contact can be made between the tube and any internal moving components.</p> <p>Inspect inside axle bores of Locking Differential for damage caused by a broken shaft.</p> <p>Replace damaged part if necessary.</p>
No illumination occurs in switches when headlights are turned ON	Switch illumination terminal not correctly connected to illuminated dashboard light. illumination bulb(s) blown or not functioning. Switch cover installed upside down.	<p>Refer to fitting instructions for correct wiring procedure and diagrams.</p> <p>Clean bulb socket and all terminal connections. Replace bulb if necessary</p> <p>Carefully remove switch cover and replace in correct position.</p>