

STAR Case



Case Number: S1203000003 REV. A

Release Date: June 2026

Models Affected:

- 2010 – 2018 – RAM 2500 (DJ)
- 2005 – 2009 – RAM 2500 (DH)
- 2003 – 2005 – RAM 2500 (DR)
- 2007 – 2010 – RAM 3500 (DC)
- 2010 – 2018 – RAM 3500 (Pickup) (D2)
- 2011 – 2018 – RAM 3500 (Cab Chassis) (DD)
- 2016 – 2018 – RAM 3500 (DF)
- 2008 – 2010 – RAM 4500 (DM)
- 2011 – 2018 – RAM 4500/5500 (DP)

Symptom/Vehicle Issue:

Trac-Rite Operation Diagnosis, Chatter, Shudder, Moving From A Stop And Turning

Discussion:

The Trac-Rite anti-spin differential uses a unique helical gear/pinion gear/pinion brake shoe arrangement (Figure 1).

[Contact the STAR Center for assistance if no solution is found](#)

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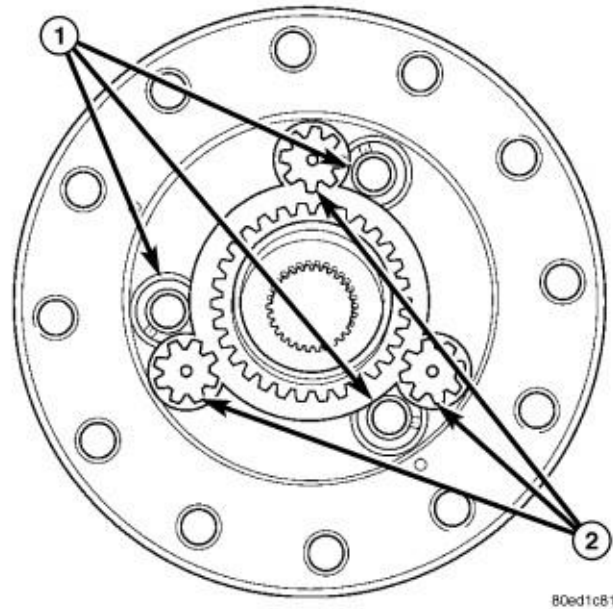


Figure 1

The Trac-Rite differential uses helical gears instead of clutch plates to transfer power to the opposite wheel when tire to road slippage occurs. The transfer of power from wheel to wheel is torque sensitive and requires rotation of both wheels for proper operation. If one rear wheel spins freely on launch, the opposite wheel may not receive power to move the vehicle.

When starting out on ice or other slippery surface, apply throttle gradually or apply parking brake slightly to minimize wheel spin. This will improve traction at both wheels. Refer to the Owner's Manual Limited Slip Differential section for operation details.

NOTE: IF VEHICLE IS RAISED ON HOIST AND ONE REAR WHEEL IS ROTATED MANUALLY, THE OPPOSING WHEEL WILL TURN IN THE OPPOSITE DIRECTION. THIS IS NORMAL FOR TRAC-RITE DIFFERENTIALS.

LUBRICANT:

The American Axle 10.5" and 11.5" axles require Mopar SAE 75W-90 (GL-5) synthetic lubricant / 05102232AA.

VISUAL OPERATION CHECK:

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To perform a visual operation check, a vehicle operator is required along with a second person to view rear wheel movement.

1. Raise the vehicle on a lift.
2. With engine running, shift transmission into gear.
3. Open throttle quickly for 1-2 seconds.
4. Both rear wheels should spin at same rate/same direction.

CAUTION: DO NOT ALLOW REAR DRIVELINE TO OPERATE AT HIGH RPM FOR PROLONGED PERIOD.

DRIVING TEST:

To perform a driving test, operate the vehicle in an open (parking lot) and safe area.

1. Operate the vehicle at slow parking lot speeds.
2. Turn the front wheels fully to the right or left.
3. Accelerate with moderate to aggressive throttle.
4. The vehicle should experience rear wheel hop or shudder. This is normal operating characteristic and indicates Trac-Rite system is engaging.

COMPARISON:

Suggest comparison with other like vehicles which can help determine if the Trac-Rite system is operating normally. If the rear axle is making cracking/popping noises on slight turns, add 4 ounces of Mopar friction modifier. Test drive for at least 20 minutes to properly circulate the friction modifier.

TIRES:

All tires on the vehicle must all be same make/model/size with relatively equal wear to prevent 4WD/AWD/anti-spin differential system overheat or failure. Measure the circumference of each tire to verify that all tires have equal wear. Circumference difference between each tire should be no more than a quarter (1/4") of an inch.

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