Spicer® Drive Axles

DANA SPICER® Drivetrain Products

Driver Instructions

AXDR0126

August 2013

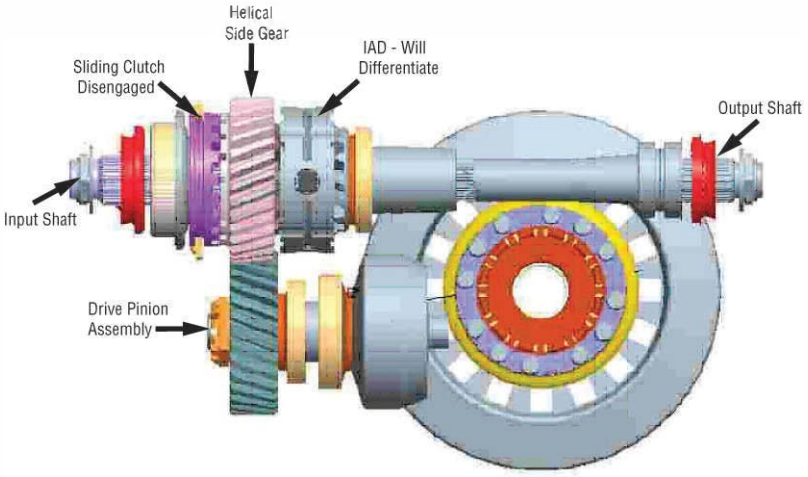
Operation

How the IAD Lockout Works

Disengaged (Unlocked) Operation
With the lockout in the disengaged position, the IAD will rotate / differentiate to make up for speed differences between the forward and rear axles. Differentiation can occur when operating a vehicle on slippery road conditions, when a vehicle travels over uneven terrain, and / or when there are tire size differences between the forward and rear axles.

During normal operating conditions (dry roads) the lockout should always be in the disengage position. Under normal conditions torque will be evenly distributed between the two axles.

Remember: The inter-axle differential makes up for speed differences between the forward and rear axles. The wheel differential makes up for speed differences between the right and left wheel end of each axle.



The IAD will differentiate letting the output shaft turn at a different speed than the input shaft, helical side gear, and forward axle drive pinion

Operation

⚠ IMPORTANT

If the IAD lockout is not engaged during conditions that can cause substantial speed differences between the two axles the following non-warrantable damage may occur.

- Shock failures to IAD spider and/or side pinions
- Scoring (spinout) to the IAD spider and/or side pinion bores
- Shock failures to the sliding clutch and helical side gear teeth
- Scoring (spinout) to input shaft stub end
- Helical side gear thrust washer and bushing wear (spinout)

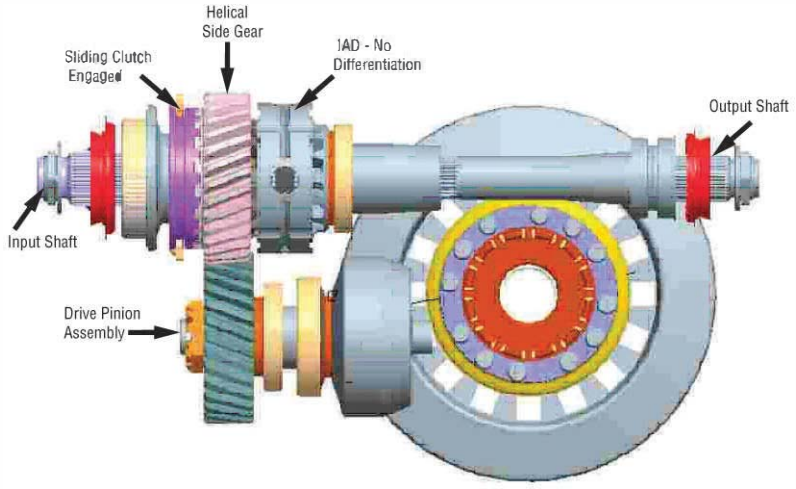
Engaged (Locked) Operation
With the IAD lockout in the engaged position, the IAD will not rotate / differentiate. This means that at least one wheel from the forward axle and one wheel from the rear axle has to turn at the same speed no matter what the road conditions.

When the selector switch on the dash is moved to the engaged position, system air pressure forces the shift fork and sliding clutch to engage with the mating teeth on the helical side gear. Air pressure holds the clutch in position until the switch is flipped to "Unlock." A heavy spring is used to disengage the sliding clutch teeth from the helical side gear. For this reason the vehicle operator must provide an interruption in torque (break torque) to ensure clutch disengagement.

Remember: The IAD lockout can be activated at any operating speed, but should not be engaged while one or more wheels are actually slipping, spinning or losing traction. With the lockout engaged you will have power to at least one wheel on each axle.

The position of that powered wheel will depend on the amount of traction at each wheel position. Remember, the wheel differential will still allow differentiation from right to left on each axle.

Operation



The input shaft, helical side gear, IAD, and output shaft all turn at the same speed

⚠ IMPORTANT

Operating the IAD lockout in the engaged position on dry road conditions or trying to engage the lockout when the IAD is differentiating may cause the following damage to drive axle components.

- Sliding clutch jump-out - Bent shift fork causing poor clutch engagement
- Shift fork scoring
- Excessive operating temperatures
- Power divider gear wear
- Primary gearing wear
- Pinion bearing failures
- IAD spider, dog collar and / or side pinion shock failures
- Sliding clutch shock failures
- Axle shaft shock failures
- Tire wear

Operation Tips

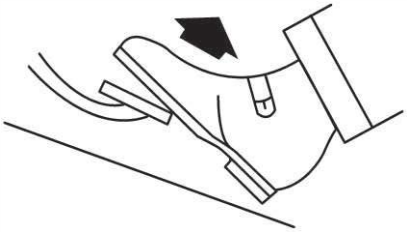
1. The IAD switch should be in the "Unlock" position when operating on dry roads.
2. Lock the IAD when anticipating poor road conditions or when improved traction is needed.
3. Remember to disengage the IAD lock when road conditions improve (dry roads).
4. After locking or unlocking the IAD, let up on the accelerator to provide an interruption in torque.
5. Do not engage the IAD lockout while one or more wheels are slipping, spinning and/or losing traction.
6. Do not spin wheels with the IAD disengaged.

Driver Instructions

Engaging (Locking) the IAD Lockout

1. Flip the IAD switch on the dash to the "Lock" position while maintaining vehicle speed (stay on accelerator).

2. Momentarily let up on the accelerator to break engine torque. IAD lock will engage.

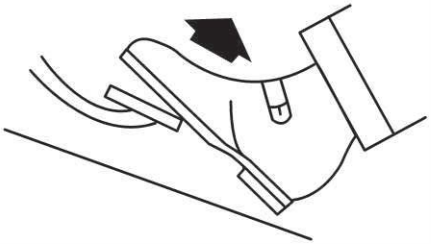


3. Resume a safe operating speed.

Disengaging (Unlocking) the IAD Lockout

1. Flip the IAD switch on the dash to the "Unlock" position while maintaining vehicle speed (stay on accelerator).

2. Momentarily let up on the accelerator to break engine torque. IAD lock will disengage.



3. Resume a safe operating speed.

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