

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) What is the difference between a hunting and non-hunting gear set?

2) Why is a friction modifier additive required for use in some rear drive axles?

3) What is the difference between an integral and a removable carrier?

4) What are the six types of limited-slip differentials?

5) Why is a hypoid gear set used in drive axle assemblies?

Answer Key

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1) Hunting gear sets are gear sets with final drive ratios expressible in a fraction that cannot be reduced to any lower terms. An example of a hunting gear set is one that has 41 teeth on the ring gear and 11 teeth on the drive pinion. This combination creates a 3.73:1 axle ratio. This type of gear set requires no timing marks or alignment during assembly. As the pinion gear drives the ring gear, each pinion tooth will hunt for, or seek, contact with every ring gear tooth.

Non-hunting gear sets are gear sets with final drive ratios expressible as a whole number. an example of a non-hunting gear set is a differential that uses 39 teeth on the ring gear and 13 teeth on the pinion gear which gives a 3.00:1 gear ratio. Non-hunting gear sets require timing marks. as the pinion gear drives the ring gear, each pinion tooth contacts only a few ring gear teeth during each revolution.

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2) A special friction modifier additive is required in the gear oil to make it slippery enough for many limited slip differentials.

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3) Removable carriers—most early trucks and passenger vehicle drive axles had removable carriers, which could be unbolted and removed from the housing for service. They are also known as:

- third member
- drop-out
- pumpkin

Integral carriers—most rear-wheel-drive passenger vehicles and light trucks use integral carriers, and the axle tubes are welded to extensions of the carrier. an integral carrier is stronger in the areas around the carrier bearings. an integral carrier axle assembly, sometimes called a Salisbury or Spicer axle, has a removable rear cover for access to the differential and other internal parts.

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4) 1. Preloaded clutches

2. Self-applying clutches

3. Viscous couplings

4. Eaton locker differential

5. Hydraulic applied clutches

6. Cone type

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5) A hypoid gear set has the pinion gear below the center line. This accomplishes two purposes:

1. Allows a lower the driveshaft so that the tunnel or hump in the floor of the vehicle can be smaller.

2. Allows a larger and stronger drive pinion gear in which the pinion gear teeth slide across the teeth of the ring gear. This also makes a hypoid gear set quieter.

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