

TAK-4<sup>®</sup> INDEPENDENT SUSPENSION





# Safer. Smoother. Stops sooner.

Proven, proprietary, severe-duty technology. Custom built for Pierce® chassis. The TAK-4® Independent Suspension system maintains the feel of the road with outstanding steer-ability and a dramatically smoother ride over any surface.

A tight steering system, torsion bar independent suspension, and high performance braking maximize control. It makes a 12-ton fire apparatus feel like an SUV.



TAK-4 was originally engineered and developed by Pierce’s parent company, Oshkosh Corporation, for military and aircraft rescue vehicles facing off-road duty. TAK-4 deals just as effectively with more mundane road events like pot holes, railroad tracks, speed bumps and crowned intersections.

In 2001, Pierce changed the industry by introducing TAK-4 Independent Front Suspension (IFS), engineered specifically for Pierce vehicles.

Pierce now offers TAK-4 Independent Rear Suspension (IRS) which applies the same military grade performance to the rear for supreme ride performance. For maximum mobility, Pierce also delivers TAK-4 T3, which combines the advantages of TAK-4 IRS with a 100% mechanical rear steering system.



## ► TAK-4® Specifications

	IFS	IRS	IRS T3
Custom Chassis	Arrow XT™, Dash® CF, Enforcer™, Impel®, Velocity®, Quantum®	Arrow XT™, Dash® CF, Enforcer™, Impel®, Velocity®	Arrow XT™, Dash® CF, Enforcer™, Impel®, Velocity®
Load Ratings	18,000 lb - 24,000 lb	24,000 lb - 52,000 lb	24,000 lb - 52,000 lb
Cramp Angle	Up to 45°	N/A	Up to 9°
Wheel Travel	Up to 10"	Up to 10"	Up to 10"
Dual Steering Gear	Standard	N/A	Standard
Suspension Spring Type	Torsion Bar	Coil	Coil





# TAK-4® Independent Front Suspension (IFS)

## Improves Ride Quality & Control

Compared to the standard leaf suspension, TAK-4 Independent Front Suspension delivers outstanding vehicle control. With up to 10” of suspension travel, a light spring rate, robust design, and independent wheel movement, the system keeps tires on track for improved overall handling and performance. Better ride quality reduces stress on the occupants as well as on the components and vehicle.

## Shortens Stopping Distances

Using the TAK-4 system will help you stop quicker, stay in control, and maneuver your vehicle to a safe and controlled stop. This minimizes potential for accidents and helps you get to the fire scene safer and quicker.

## Increases Load Carrying Capacity

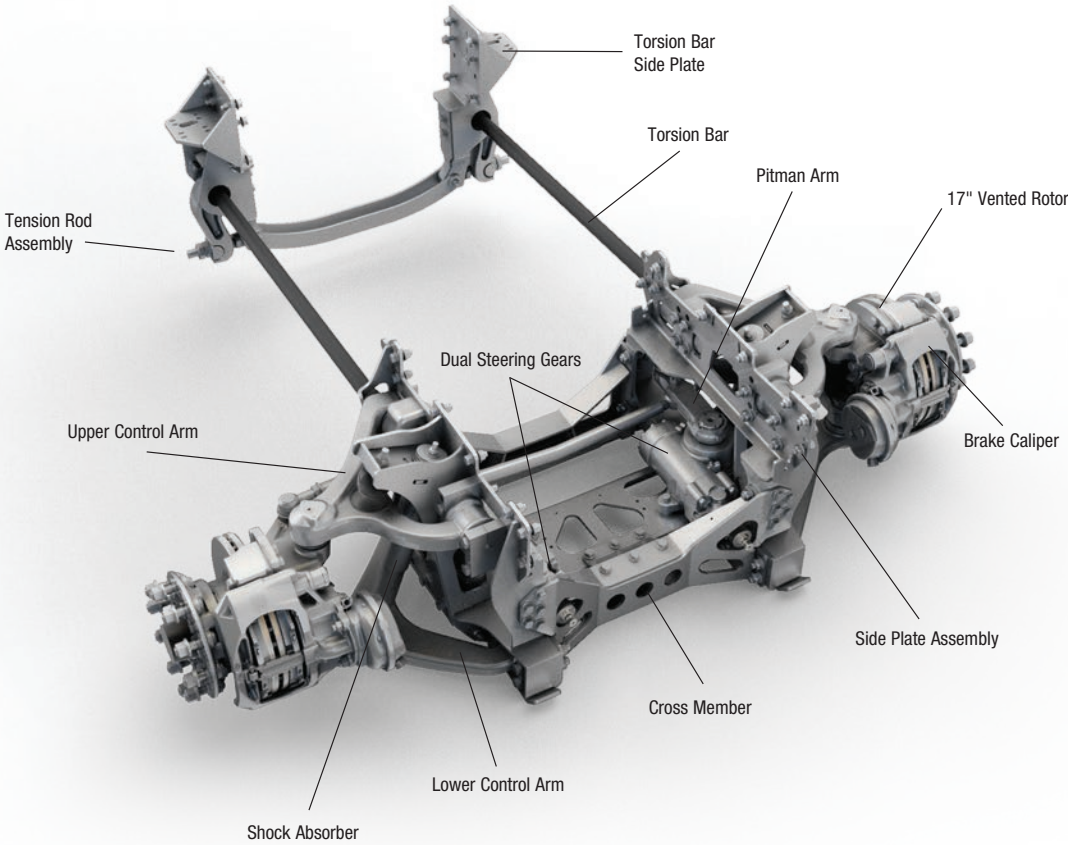
A maximum front axle weight rating of 24,000 lb is possible with 425/65R22.5 tires. Higher rated front axle allows for greater load carrying capacity, enabling you to add more features and equipment to your apparatus, such as front suction or air conditioning without exceeding gross vehicle weight restrictions.

## Advances Braking Performance

The independent suspension accommodates larger front brakes – which transfers weight quicker to the front wheels. The TAK-4 IFS not only maximizes a truck’s performance, it minimizes the wear and tear on your equipment, reduces maintenance, and saves a lot of brake repairs.

## Maximizes Maneuverability & Cramp Angle

TAK-4 provides you with the highest cramp angle in the fire industry; you can safely and effectively maneuver into strategic locations when responding to a fire. The maximum cramp angle achievable on TAK-4 is 45°, with a minimum of 40°.



## ► IFS COMPONENTS

### Steering

TAK-4 IFS is a mechanical-over-hydraulic steering system with two steering gears that provide power to the steering linkage.

### Control Arm

Cast steel alloy and ductile iron upper and lower control arms allow the front wheels to take on potholes one at a time.

### Springs

A robust torsion bar set-up helps deliver superior control. Lower spring rates, made possible by the torsion bar, smooth out the road better than any straight axle rig with leaf springs.

### Brakes

17” ventilated disc brakes improve stopping distance. The increased brake pad and rotor size reduces your brake changes and knocks down your maintenance expenditures over the life of the apparatus.



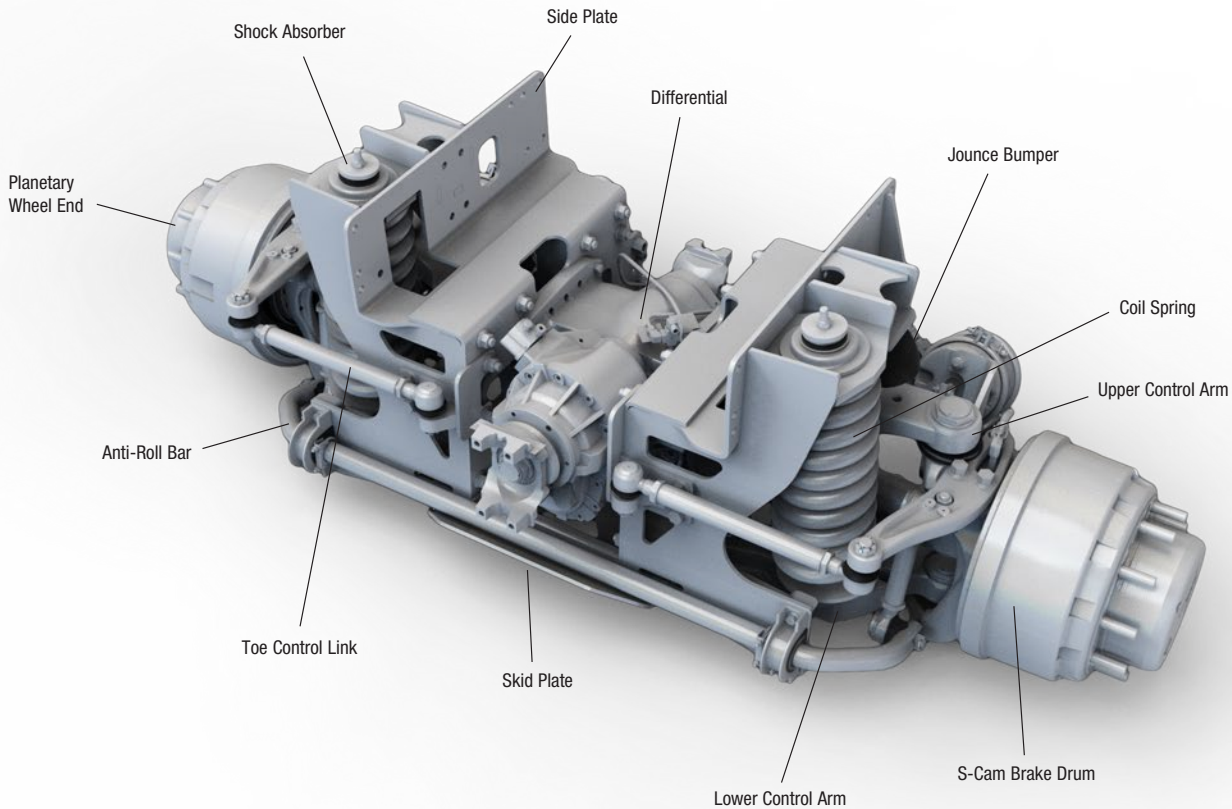


# TAK-4® Independent Rear Suspension (IRS)

Improved ride. Less maintenance. TAK-4 IRS operates in a similar capacity to TAK-4 IFS, only IRS has the ability to drive or provide power to the wheels. Though there are upper and lower control arms and springs, TAK-4 IRS utilizes coil springs instead of torsion springs. IRS has been proven on Oshkosh Defense vehicles since 1996 and modified for integration into Pierce® custom fire apparatus. TAK-4 IRS adds 1,000 lb per axle to the weight of the apparatus.

### Benefits

- Improved ride with reduced road input.
- Increased stability & comfort.
- Less wear & tear on equipment.
- Better traction.
- Ability to add TAK-4 T3 to further improve control & mobility.



## ► IRS COMPONENTS

### Steering

TAK-4 IRS is equipped with steering toe links that provide toe adjustments and maintain wheel control throughout the entire range of wheel travel.

### Control Arm

Cast steel alloy and ductile iron upper and lower control arms have integrated spring tower mounts.

### Springs

Heavy-duty coil springs provide maximum travel over a variety of road conditions.



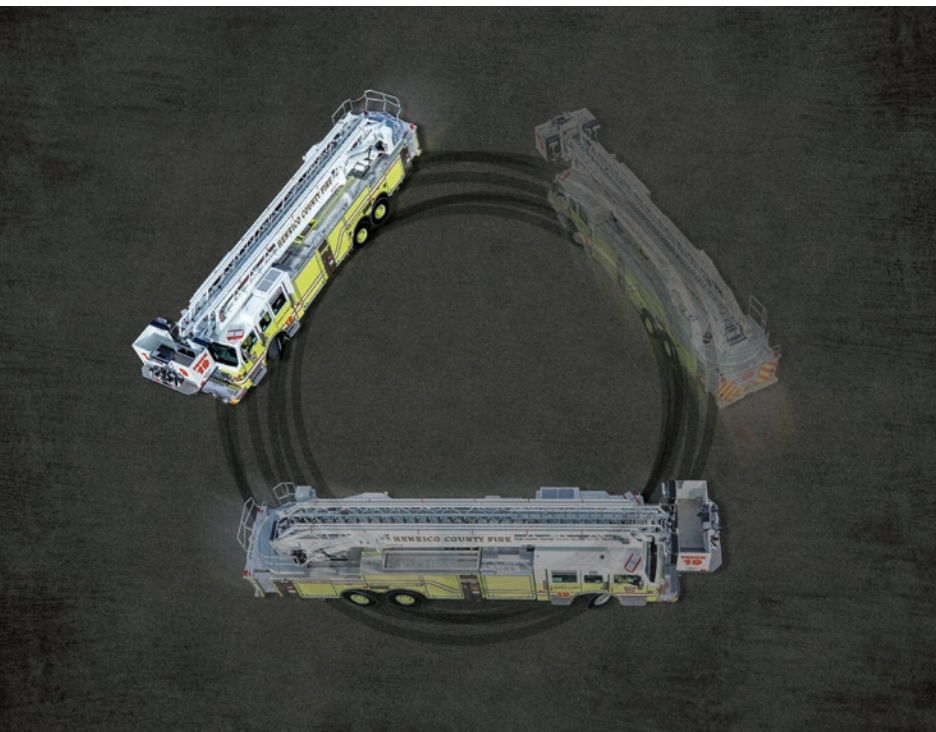


# TAK-4 T3 IRS with Tight Turning Technology

100% mechanical rear steering. Maximized mobility.

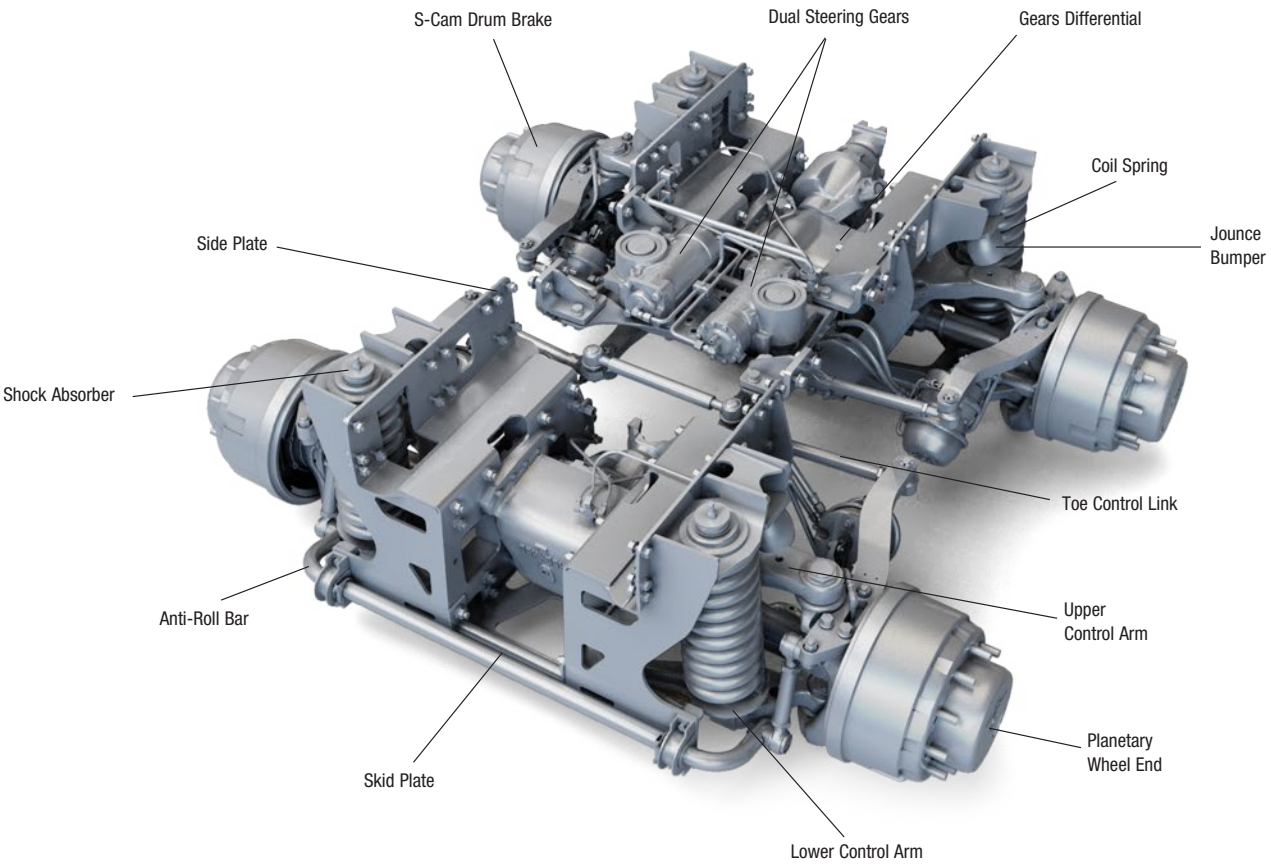
TAK-4 T3 combines the advantages of TAK-4 IRS with a 100% mechanical rear steering system. Just like TAK-4 IFS, the steering system is a mechanical-over-hydraulic system – free of electronics – with two steering gears that provide power to the steering linkage. TAK-4 T3 is available for steering on one or two axles on tandems.

Reduce wide swing turns with a tighter turning radius. Maneuver effortlessly – turn the wheel and you get response. Minimize tire scrub for improved tire life. TAK-4 T3 is available on 24K - 26K single axle and 36K - 52K tandem axle configurations that are equipped with TAK-4 IRS.



**Benefits**

- Improved turning radius & turning diameter.
- Increased tire life with reduced tire scrub.
- Lane-to-lane turning.
- Improved maneuverability & safety.
- Pierce single-source manufacturing.



► TAK-4 T3 COMPONENTS

**Steering**

Mechanical-over-hydraulic steering system with two steering gears that provide power to the steering linkages.

**Control Arm**

Cast steel alloy and ductile iron upper and lower control arms have integrated spring tower mounts.

**Springs**

Heavy-duty coil springs provide maximum travel over a variety of road conditions.



# Testing the most brutal road conditions.

Pierce partnered with the Transportation Research Center of East Liberty, OH to subject TAK-4 to the roadway works – chatter bumps, staggered bumps, high-crown intersections, ruts, and potholes.

A 24,000-lb load was placed on the front axle to extreme-test the suspension, steering, and braking systems. To gauge endurance, the vehicle then performed 17,700 actual test miles.

Based on our testing, the TAK-4 IFS was proven to outperform any other suspension system in existence in the most grueling conditions.



## ► SIMPLIFIED MAINTENANCE

The TAK-4 design not only maximizes a truck’s performance, it minimizes the wear and tear on your equipment and streamlines the maintenance process. There are no u-bolts on the front axle, no adjustments needed for the caster angle, and no need for lubricating the heavy duty ball joints. Your rig spends less time in the shop and more time on the street.

## ► IMPERATIVE PERIODIC INSPECTIONS

With a vast service network, Pierce provides you with trained certified technicians to perform routine maintenance and inspections that keep your vehicle running at its peak.



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Specifications, descriptions, and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories and may not include all standard equipment. All measurements are nominal values.

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