

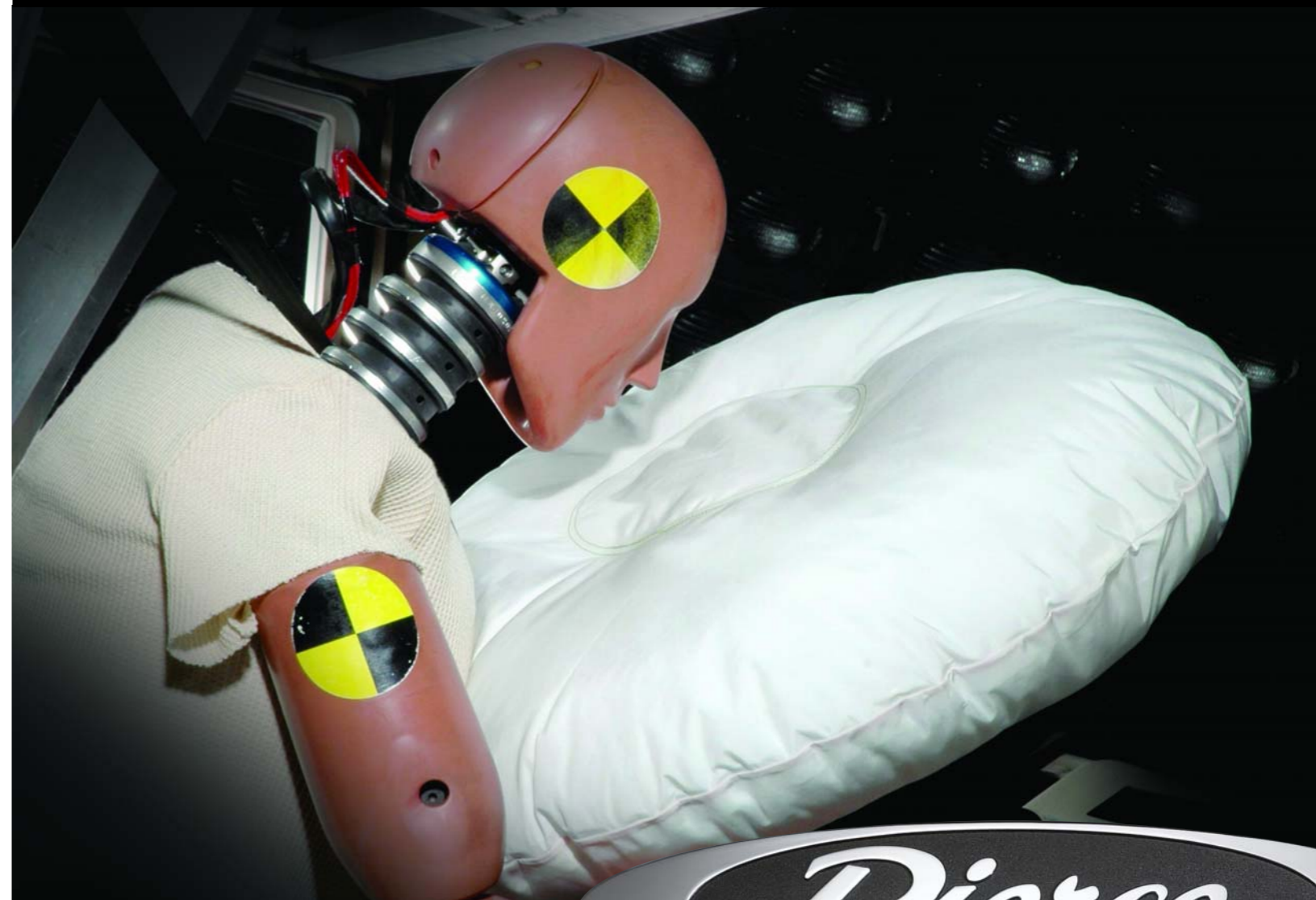
# SAFETY SYSTEMS



## *Our commitment to 360° protection extends into the future.*

We are constantly seeking more innovations. And we are always eager to get firefighter comments, feedback and suggestions. It's only through working with you that these safety systems have been introduced.

To find out even more about our commitment to your 360° Protection From Every Angle™, including crash test data, visit [www.piercemfg.com](http://www.piercemfg.com).



## *Support that makes a statement.*

We back every safety system with the strongest dealer sales and service support network across the U.S. and Canada, as well as the most knowledgeable reps in the industry. This network ensures your investment is protected from pickup to maintenance and beyond.



Pierce Manufacturing Inc., An Oshkosh Truck Corporation Company  
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PERFORM. LIKE NO OTHER.™

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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P-0016-SAFSYSBR 8/07





***You're always looking out for others.*** Fortunately, somebody's looking out for you. At Pierce, we build safety into every vehicle we make. For every market we serve — fire and emergency, first responders, homeland security and government agencies. We don't just meet requirements. We set standards. We don't just respond. We anticipate. We don't just meet expectations. We exceed them.

**We offer nothing less than 360° Protection From Every Angle.™** We strive to look at every function, every part, every situation – and every possibility.



#### **COVERAGE STARTS WITH THE CHASSIS**

Pierce® chassis are researched, engineered, tested and built with industry-leading safety features and equipment. Some of these innovations are apparent while others are invisible, but all are essential to helping safeguard your most precious asset – your safety. From bright exterior lighting to latching interior storage spaces and a mission-critical electrical system on Command Zone™-equipped trucks, Pierce fire trucks provide the safety to match their performance. A partial list of safety features, standard and optional, available on most Pierce chassis includes:

- **Side Roll Protection System** (air bags/curtains in front & rear)
- **Frontal air bags**
- **TAK-4° Independent Front Suspension**
- **Seat belt warning system**
- **Collision avoidance system provides warning before an accident can occur**
- **MADAS accident reconstruction system allows accident cause analysis**
- **Lateral g-roll indicator alerts driver to excessive chassis roll**
- **Interior dome lights enhance nighttime visibility**
- **Enclosed storage areas inside cab keep tools and equipment secure**
- **13 3/8" frame rails reduce frame beaming and improve ride stability**
- **Electronic Stability Control (ESC)**
- **Noise insulation and soundproofing provide a quieter interior environment**
- **Tinted windows reduce solar load**
- **Certified engine design provides efficient cooling**
- **Roll Stability Control (RSC) auto braking system helps prevent side rolls**
- **Tire Protection System including tire monitoring and tire blowout band protection**
- **Camera vision systems**
- **PS6™ seats**



Bringing Safety to People™

### THE MOST IMPORTANT TEST: CRASH TESTING

As a part of our commitment to 360° protection, every Pierce cab model is crash-tested at or above ECE requirements.

Testing is done at CAPE (Center for Advanced Product Evaluation), a part of IMMI, a world leader in safety consulting. CAPE offers an unparalleled vehicle barrier crash testing facility complete with a test laboratory, dynamic test sleds, static pull chamber, computer screen crash simulation capabilities, and the world's only 90° rollover impact test machine.

How rigorous is our testing? Consider the Pierce Quantum. In addition to the required testing, it passed a side strike test that wasn't mandated to meet the ECE 29 standard. We simply wanted to subject it to the forces a cab would see in a side roll accident. It also proved itself by passing an extra roof crush at 2.5 times the ECE standard.

Our crashes make a real impact. They strengthen our trucks—and reinforce our commitment to 360° protection.



### ROLL MODEL: THE SIDE ROLL PROTECTION SYSTEM

*We thought of all passengers.* Sidewall padding has been optimally placed to reduce head injuries for rear passengers. And the system design was tested not simply for an average occupant but with crash dummies ranging from 5th percentile females to 95th percentile males.

The evolution of our PS6™ seats, allow for the side roll air curtains to be fully integrated into the seating system rather than deploying from the wall, another first in the industry.

And we thought of possibilities which might never occur to you, unless you've been in a side roll yourself. For example, a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) inflates the bags to a relatively cool 120° Fahrenheit, protecting occupants from the burns that are possible from hot air inflators.

360° protection starts with minimizing the risks of 90° side rolls. But it doesn't end there.

The Side Roll Protection System is default equipment on Pierce's Velocity™ and Impel™ and optional equipment on the Arrow XT™ and Quantum® chassis.



### THE THICKEST FIREWALL IN THE INDUSTRY

On a Pierce® chassis, protection is in the details. That's why we insist on having one of the thickest firewalls in the industry. It starts with .25" aluminum welded to a .5" thick engine tunnel that is tied to the doorposts with a .5" thick semi-crosscar support providing a rigid front that holds the cab together. This build process offers greater occupant protection in the event of a frontal crash, as well as greater shroud protection should an engine mishap occur. We also add a .5" thick layer of sound-dampening foam to reduce engine noise for a quieter, more comfortable ride.



### REAR SIDE AIR CURTAIN

Crew cab air curtains are attached to ABTS seats. During a roll, these deploy across the window and side of the vehicle interior to protect occupants' heads during impact. This reduces movement, lowers the chance of head contact with the roof and increases the survivable space.

### FRONTAL AIR BAGS

We're never satisfied when it comes to occupant safety in Pierce® apparatus. The logical evolution in 360° protection was the offering of frontal air bags - another industry first in custom chassis.





### THE SUSPENSION SYSTEM THAT RAISES STANDARDS: TAK-4® INDEPENDENT FRONT SUSPENSION

Pierce was the first custom fire truck manufacturer in North America to offer a proprietary independent front suspension. And it has quickly become the most popular new technology ever introduced by Pierce.

The cramp angle and turning radius of many fire trucks are limited by straight-axle designs. But TAK-4, offers a 45° cramp angle, delivering a tighter turning radius, better handling and more control of the vehicle.

The benefits are amazing: TAK-4 Independent Front Suspension system shortens stopping distance by up to 23%, improves ride quality by 340% (as measured by accelerometer testing), enhances vehicle control, increases load-carrying capacity to give you more fire package flexibility, improves durability, and simplifies maintenance. With the torsion bar lock system, vehicle lean can be adjusted within 15 minutes.

TAK-4 isn't just about stopping power; it's also about streamlined operation.

### INFORMATION AT YOUR FINGERTIPS: COMMAND ZONE™ ADVANCED ELECTRONICS

Better information means better decisions. Command Zone brings vehicle diagnostics to a new level. When the vehicle starts, it automatically checks each electrical circuit and verifies that systems – including aerial apparatus – are functioning properly.

For example, Command Zone provides visual and audible warnings for open doors and compartments or shows who is or isn't wearing their seatbelts. For aerials, it displays information on basket and ladder capacity, rung and ladder alignment, tip temperature, grade, slope and outrigger status; breathing air and much more. And you can customize the display-screen data based on your department's needs.

It's easy to use, robust, and reliable – sending multiple electrical signals through a datalink cable rather than the typical wire harness with separate wire circuits.

Command Zone uses technology that has been proven in the automotive industry. It is housed in sealed, extruded aluminum and tested for temperatures up to 185°.

Command Zone is realtime information that makes a real difference.



WITHOUT ESC



WITH ESC

### ELECTRONIC STABILITY CONTROL (ESC)

Electronic Stability Control (ESC), an automatic safety management braking system, enhances the directional and roll stability of fire apparatus during evasive maneuvers. ESC is always ready to assist with the braking management of your vehicle.

- Monitors lateral acceleration (cornering) of the vehicle and activates when the critical roll threshold is met
- Automatically reduces engine RPMs, applies engine retarder (if so equipped) and selectively applies brakes to individual wheel ends of the front and rear axles to assist in bringing the vehicle back to its intended direction
- Reduces the possibility of the vehicle rolling on its side
- Monitors directional stability through sensors and compares the actual direction of the vehicle versus the direction you travel
- Reduces the possibility of a spinout or driftout, even in poor traction conditions (i.e. rain, snow, etc.)



### PIERCE EXCLUSIVE PS6™ SEATS

The first custom-designed, safer and noticeably more comfortable seat in the industry, featuring a 7.5° angle of recline and built-in side roll protection.

PS6 seats feature double-length seat belts and dual retractors that are located within easy reach and can be pulled quickly and comfortably over a firefighter in full turnout gear. The seats can also be retrofitted into many existing chassis.

### PS6 SEATS OFFER:

- Side roll protection
- Dual seat belt retractors and double-length seat belts
- Hands-free SCBA holders
- Lumbar support
- 7.5° angle of recline
- 17" cushion (front to back)

### HANDS-FREE SCBA BRACKET

Designed for walk-away use, the Pierce® exclusive hands-free SCBA bracket\* is simpler, quicker and safer. Inertia locks the bottle in place – without the use of straps or levers. The bottle is released – quickly and easily – when you pull it from the holder. Resistant up to 30G, the bracket provides extra safety and security. The hands-free SCBA bracket can be retrofitted into many existing seats. The hands-free brackets set a new safety standard among seating solutions available in fire trucks.



\* SCBA bracket developed with LifeGuard Technologies, a division of IMMI.



**SIGHT LINES AND SOUND ENGINEERING: CAB DESIGN AND CONTROL ZONE™ PUT YOU IN CONTROL**

From the way you see the road to the way you reach for switches, every Pierce cab is designed for superior control.

The ergonomically-designed dash means that controls are placed within easy reach and clear sight. Our Control Zone organized pump panel uses color coding and standardized knobs to simplify control panel operation. Controls are grouped by function so you can move from one apparatus to another without hesitation. And, based on firefighter input, it comes with stainless steel piping and a 10 year limited warranty, one of the longest in the industry.

Everything we do is designed for your protection.

**HUSKY® AND HERCULES™ FOAM SYSTEMS**

Pierce delivers not only superior foam systems, but also reliability, ease of operation, quicker knockdown and on-the-scene confidence. Two distinct classes – municipal and industrial – are each backed by unsurpassed research and development, extensive testing and a second-to-none support system.

From municipalities to industrial refineries; volunteers to career; Class A to Class B fires — Pierce® Husky Foam Systems are the best-performing, easiest, most economical and safest ways to fight fires. Foam is also ideal for fighting car, structural and big chemical complex Class B fires. Our larger systems use non-circulating, automatic balanced-pressure technology, making them powerful enough to handle high flow rates needed for industrial fire fighting. Plus, they feature individual metering valves for every discharge.

**Hercules Compressed-air foam** is light, easy to control and more effective than just water, resulting in less injuries and health-related issues. With a Pierce foam system, you get more performance from your truck and your crew, while conserving water.



**VLH® CAPS**

Our commitment to your safety extends to every detail of our vehicles, even the smallest of features. VLH cap adds an extra layer of safety for firefighters when working with pressurized lines, reducing the risk of injuries caused by the inadvertent release of lines containing trapped residual pressure.



**LADDER GANTRY**

The Pierce® overhead ladder gantry gives you the convenience of hydraulic ladder deployment with the added safety of back-of-the-truck positioning. The gantry moves ladders to the rear and then tilts down to provide you easy access. There's more room and you're out of traffic.

The system includes a 2-rail design for added stability, which allows ladders to deploy to a height of 36" to 42" off the ground. The bottom ladder is mechanically held in place while the single (top) ladder is removed. Plus, LED warning lights are located on the rack. Variable mounting heights/locations are available with a range of 96" to 120" off the ground.

**PERFORM AT A SAFER LEVEL. PIERCE PACK MULE™ ERGONOMIC HOSEBED**

Reduce unnecessary injuries and dangerous falls.

With the Pierce Pack Mule ergonomic hosebed, a full-size, top-of-the-engine hosebed hydraulically deploys to waist level in 26 seconds. This eliminates the need to climb the apparatus or work on top of it, actions that can cause slips, strains and sprains. It also provides a comfortable position for retrieving hose, helping avoid costly and debilitating back, arm and shoulder injuries.

The hosebed can carry 1,500 feet of 5-inch hose, or 1,000 feet of 5-inch hose combined with 400 feet of 2.5-inch hose. The Pack Mule is powered by a transmission-mounted PTO, and its easy-to-use controls are located at the rear bulkhead on the driver's side.



Independent analysis by an ergonomic expert indicates that using the Pack Mule reduces spinal compression for firefighters by 90% compared to a traditional hosebed.

- Prevents stress on joints
- Minimizes strain on heart
- Reduces the risk of falls



### ROLL-UP HOSEBED COVER

Add safety and space with the Pierce® roll-up hosebed cover. It rolls forward, out of the way of the hosebed, for easier hose loading at the top of the truck. The solid cover protects the hose from all elements, and also provides an NFPA-compliant walking surface above the hose. The roll-up hosebed cover does not add to overall height as most aluminum covers do when opened.



### VELOCITY™ AND IMPEL™ FORWARD-MOUNTED ONE-ELEVEN MIRRORS

Pierce's exclusive one-eleven mirrors make the Velocity and Impel the only custom OEM fire trucks to meet FMVSS-111 visibility standards for school buses. They are positioned to minimize both the body and head movements of the driver, and they ensure that the officer's position does not interfere with passenger side mirror visibility. This positioning provides visibility down to the front bumper as well as along the sides of the body, and narrows the overall width of the vehicle by as much as eight inches as compared to conventional door-mounted mirrors.

### LUMINESCENT RUNG COVERS

The rung covers increase visibility during egress and do not need electrical connections or amp draw. Lasting up to 12 hours, the illumination provides extra step detection during night fire scenes. Unlike rubber-covered rungs, the luminescent rung cover material is more durable, slip-resistant and safe. This safety enhancement is available to the fire service exclusively through Pierce. An extended 10-year warranty is standard, and the rung covers can be retrofitted onto existing aerials.



### VELOCITY™ AND IMPEL™ SINGLE-PIECE BONDED WINDSHIELD AND WIPER BLADES

The new windshield increases visibility and reduces the risk of accidents as the driver is able to clearly see the road, pedestrians and traffic. There is no center post to obstruct the driver's vision, and the absence of an outside curved windshield results in considerably less distortion to the corners. And so you can get maximum visibility in all types of weather conditions, three wiper blades clear at least 86% of the windshield's surface.



### AUTOMATIC FOLDING STEPS

Speed and safety go hand-in-hand with the Pierce exclusive air-actuated steps. Each pneumatically-operated step folds out automatically when the door is opened, providing a large, low, first step at 16" from the ground. It makes cab exit and entry easier and safer, especially when suited up and carrying gear.

The large-area step height is a consistent 16". And since the air-actuated steps fold away automatically when the doors close, they stay clear of ice, snow and mud.



### UNDERWRITERS' LABORATORY TESTING NFPA 1901 UL CERTIFICATION & UL CANADA (ULC) CERTIFICATION

Pierce is the first fire apparatus manufacturer to be both 3rd party certified to NFPA 1901-2003 edition and ULC listed to Canada ULC-S515-04 standard by Underwriters Laboratories. Stages of testing include road, pump, weight, brake, performance and aerial application. All products must pass all tests before a truck is released into Canada. This commitment to quality applies to trucks sold in the U.S. as well.

### TIRE PROTECTION SYSTEM

The Pierce tire pressure management system and tire blowout protection band prepare you for the unexpected.

The Tire Pressure Management System uses sensors to monitor tire pressure and temperature and display them in the cab unit. Proper tire inflation reduces maintenance downtime, fuel costs, tire and tread wear, tire blowouts, tread separation, tandem axle tire wear and heat-related tire problems.

Exclusive to Pierce in the fire industry, the Tire Blowout Protection Band features a safety band attached to a recessed drop inside the wheel. This prevents the tire from coming off the wheel during a blowout and assists the driver in maneuvering and slowing down in a safe manner.



***Pierce has you covered—from every angle.***

***Every system of every apparatus is engineered and designed with your protection and safety in mind. Nothing is more important to us. No one makes getting to and from the scene safer than Pierce. And no one keeps you safer at the scene.***

***360° Protection From Every Angle™ is the most advanced and comprehensive firefighter safety commitment in the world. And it's only available through Pierce.***