

# Frequently Asked Questions

**Advanced shockless  
air suspension  
system!**



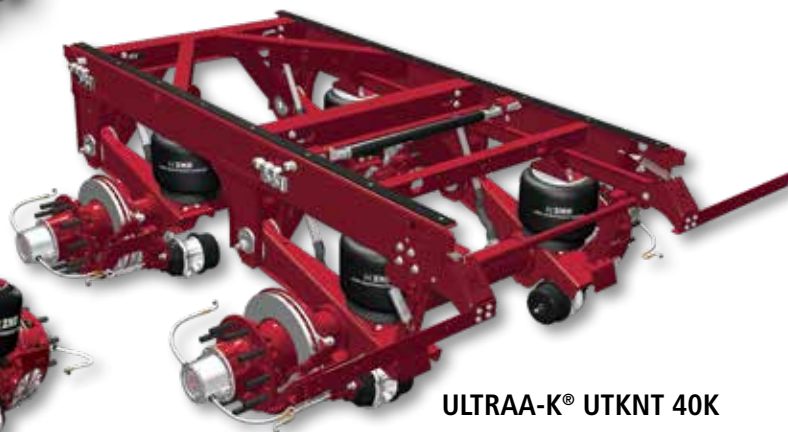
**VANTRAAX® HKANT 40K**



**INTRAAX® AANT 23K**



**INTRAAX AAT 23K / 25K**



**ULTRA-A-K® UTKNT 40K**



To learn more about ZMD technology,  
call 866.743.3247 or visit  
[www.hendrickson-intl.com](http://www.hendrickson-intl.com)

## ZMD® Frequently Asked Questions

### 1. What is ZMD® ZERO MAINTENANCE DAMPING® technology?

ZMD ZERO MAINTENANCE DAMPING technology consists of a patented\* air spring and a down stop that are designed to replace the function of a standard shock absorber to help lower maintenance, improve ride quality and enhance cargo protection.

### 2. What are the benefits of ZERO MAINTENANCE DAMPING technology?

ZMD offers improved ride quality and helps lower maintenance over the trailer's life cycle due to the elimination of the shock absorbers. It provides better cargo protection and reduces the risks associated with possible CSA violations of applicable U.S. Federal Motor Carrier Safety Administration regulations.



### 3. What are the advantages of ZMD air springs compared to shocks over the lifetime of the trailer?

Shocks are a common maintenance item on air suspensions that must be replaced periodically. Over time, as shocks wear, their damping capabilities also diminish. ZMD air springs are designed to provide continuous and consistent damping levels throughout the life of the air springs. Since there are no shocks to wear out, the ZMD option helps save time and labor costs over a trailer's life cycle.

### 4. What are the key design features of ZMD air springs?

The main components of a ZMD air spring are similar to those of a standard air spring - both have a rubber bellows and a steel or plastic piston. The internal design components of this patented air spring are specifically designed to perform the suspension damping function traditionally performed by the shock.

### 5. How does a ZMD air spring work?

The ZMD air spring exchanges pressurized air between the bellows and piston through channels that interconnect to provide continuous suspension damping.

### 6. Traditionally, shock absorbers are responsible for controlling the travel of a suspension to prevent overextending the air springs. Since ZMD eliminates the shocks, how will the travel be controlled?

The ZERO MAINTENANCE DAMPING design features down stops to limit suspension travel. The down stops are installed where the shocks would traditionally be.

### 7. Is ZMD available on all suspension systems?

**NO.** Currently ZMD is standard on ULTRAA-K® air slider systems. It is an option on select VANTRAAX® and INTRAAX® models. Only VANTRAAX HKANT 40K with a 16-inch ride height equipped with Hendrickson's QUIK-DRAW® fully pneumatic pin-pull system are available with ZMD. INTRAAX AANT 23K and AAT 23K / 25K models with a 14-inch through 17-inch ride height and standard travel are available with ZMD. INTRAAX AAT 23K / 25K RCA models with a 14-inch or 16-inch ride height and limited rebound travel are available with ZMD.

### 8. Is ZMD the only option available when specifying a new VANTRAAX or INTRAAX suspension?

On select VANTRAAX HKANT 40K models and select INTRAAX AANT 23K and AAT 23K / 25K models, ZMD is an option that is available to customers who wish to upgrade their suspension. Customers still have the option of specifying a suspension with standard air springs and shocks on the HKANT 40K, AANT 23K and AAT 23K / 25K models.

*(Please refer to Hendrickson Literature Numbers L602 INTRAAX Ordering Guide, L544 VANTRAAX Ordering Guide and L1226 ULTRAA-K Ordering Guide for a complete list of options)*

### 9. Can ZMD be retrofitted on existing trailers in service?

**YES.** ZMD air springs and down stops can be retrofitted on select VANTRAAX and INTRAAX models with the following specifications. VANTRAAX HKANT 40K models require a 16-inch ride height and QUIK-DRAW®. ZMD is compatible with Hendrickson's SURELOK® device. INTRAAX AANT 23K and AAT 23K / 25K models are available with 14-inch through 17-inch ride heights and standard travel. INTRAAX AAT 23K / 25K RCA models are available with 14- or 16-inch ride heights and limited rebound travel. Please call Hendrickson for assistance in ordering a ZMD retrofit kit.

\* This product is covered by at least one or more U.S. and/or foreign patents and/or pending U.S. and/or foreign patent applications. See Hendrickson for details.

### 10. Is ZMD® technology compatible with lift kits or lift systems?

ULTRAA-K® UTKNT 40K and VANTRAAX® HKANT 40K suspensions equipped with ZMD technology are incompatible with Hendrickson lift systems. INTRAAX® AANT and AAT 23K / 25K suspensions equipped with ZMD technology are compatible with Hendrickson's recommended lift kits. Refer to Hendrickson Literature Number L801 Lifiable Application Guide for more information on lift kit availability for AANT 23K and AAT 23K / 25K suspensions.

### 11. Is ZMD technology compatible with RCA Raised-Center Axles?

INTRAAX AAT 23K / 25K suspensions equipped with ZMD are compatible with RCA. AAT 23K / 25K models specified with standard travel and 14-inch through 17-inch ride heights are available. AAT 23K / 25K models specified with limited rebound travel and 14-inch or 16-inch ride heights are available. RCA is recommended with limited rebound travel.

### 12. Are replacement ZMD air springs available in the aftermarket?

**YES.** ZMD air springs and down stops are available in the aftermarket. Contact your Hendrickson Customer Service Representative for more details.

### 13. Why is ZMD limited to specific ride heights on ULTRAA-K, HKANT 40K and select top-mount INTRAAX models?

ZMD is currently limited because this patented air spring is rated for 20K axle applications. Additionally, the down stop has been rigorously tested for these specific applications.

### 14. How are ZMD air springs installed?

ZMD air spring installation procedures and mounting hardware are identical to standard air spring and shock installation procedures. To install ZMD air springs as a retrofit, simply remove the existing shocks and air springs and replace with ZMD air springs and down stops. The select INTRAAX AANT 23K models that are available with ZMD require an additional bolt to be added to the shock clevis on winged hangers only. Follow all applicable Hendrickson installation, service, maintenance and repair procedure publications.

### 15. Can standard air springs be mixed with ZMD air springs?

**NO.** Mixing ZMD air springs with standard air springs is not recommended. While the load curves for each product are somewhat similar, they provide different damping performance to the suspension system. Mixing ZMD and standard air springs on the same suspension can adversely affect the operation and life of other integral suspension components.

### 16. Can ZMD air springs equipped on VANTRAAX and INTRAAX suspensions be interchanged?

**NO.** Both ZMD and standard air springs are specially designed to meet the needs and geometry of the specific application. It is important to use only the exact air springs specified by Hendrickson for each model to ensure maximum operation performance and life of components.

### 17. How can customers tell the difference between a ZMD air spring and a standard air spring?

The customer must visually inspect the air spring to verify the type of air spring.

Identifiers include:

- ZMD embossed on the bellows
- Sealed piston bottom
- Part number
- Black plastic on ULTRAA-K
- Down stop instead of shocks

Similar to today's standard air springs, the Hendrickson part number will be located on the ZMD air spring bellows.

### 18. Is there slack in the down stop on ZMD®?

**YES.** There is slack in the down stop to allow 3 to 4 inches of suspension travel on ULTRAA-K® and VANTRAAX® HKANT 40K models. The select top-mount INTRAAX® models available with ZMD will allow for 2 inches of suspension travel.

### 19. Will the down stop kink or twist?

The down stop cover helps prevent the down stop from twisting and kinking at installation and while the trailer is in service.



## ZMD® Frequently Asked Questions

### 20. Is the air-up time the same on ZMD® air springs as on standard air springs?

**NO.** ZMD has a slightly longer air-up time but it is not significant.

### 21. What suspension load scale kit should be used for ZMD?

VANTRAAX® HKANT 40K and select top-mount INTRAAX® models equipped with ZMD use the same load scale kits available for models equipped with standard air springs. Please refer to Hendrickson Literature Number L1182 Controls Parts Catalog for a complete listing of load scale kits.

### 22. How do I inspect ZMD air springs and down stops?

A visual inspection of the components during regularly scheduled trailer maintenance is all that is required. There are no additional component inspection requirements for ZMD. Follow all applicable Hendrickson installation, service, maintenance and repair procedure publications.

### 23. What is the suspension jounce for a ZMD air spring?

The ZMD air spring is designed to provide the same suspension jounce travel as the standard air springs on the select VANTRAAX and INTRAAX suspensions.

### 24. Can the ZMD down stops be interchanged on ULTRAA-K®, VANTRAAX HKANT 40K and top-mount INTRAAX models?

**NO.** The ZMD down stops equipped on ULTRAA-K, VANTRAAX HKANT 40K and top-mount INTRAAX models are not interchangeable with one another.

### 25. Can a shock absorber be used to replace the down stop(s) on a suspension equipped with ZMD?

There are no shock absorbers that will properly fit the ULTRAA-K suspension. Replacing a down stop with a shock is not recommended for the VANTRAAX HKANT 40K models equipped with ZMD air springs. The same is true for the select top-mount INTRAAX models available with ZMD.

### 26. Does ZMD require any special plumbing, height control valves or other valves?

**NO.** The ZMD air spring can be installed exactly the same as current air springs including all mounting bolts, air lines and valves.

### 27. What are the visual differences between the ULTRAA-K, VANTRAAX and INTRAAX ZMD down stops?

The ULTRAA-K ZMD down stop mounts within the cross member. It features a partial rod with a chain connection. The VANTRAAX ZMD down stop is a full chain that is installed to the outside of the cross member by a shock clevis. The INTRAAX ZMD down stop is a full chain that is installed to the frame bracket by a shock clevis.

*Actual product performance may vary depending upon vehicle configuration, operation, service and other factors.*

*All applications must comply with applicable Hendrickson specifications and must be approved by the respective vehicle manufacturer with the vehicle in its original, as-built configuration.*

*Contact Hendrickson for additional details regarding specifications, applications, capacities, and operation, service and maintenance instructions.*

Call Hendrickson at **330.489.0045** or **866.RIDEAIR (743.3247)** for additional information.



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