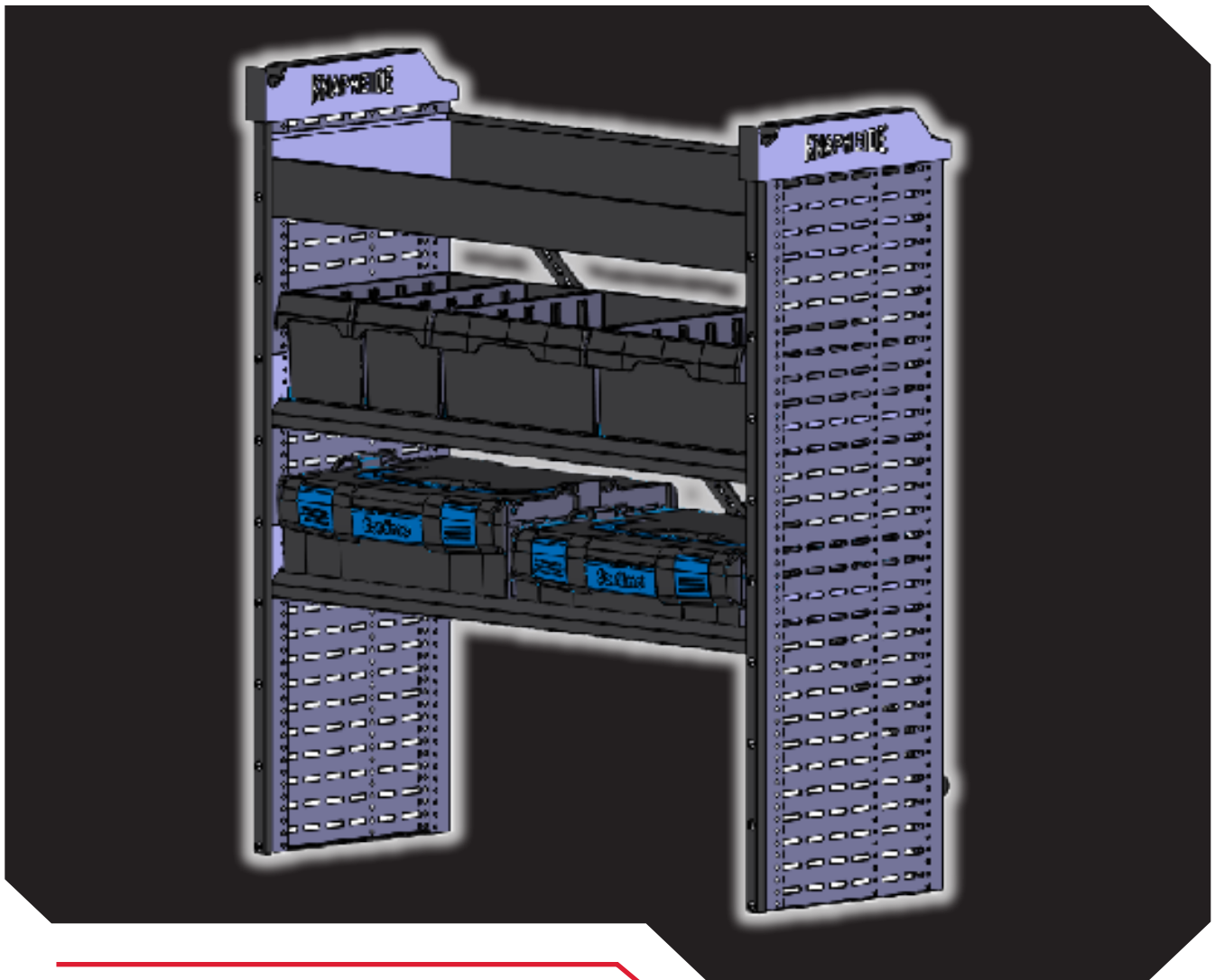


// KNPHEIDE VAN EQUIPMENT

# ASSEMBLY & INSTALLATION INSTRUCTIONS



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# INTRODUCTION

The following instructions detail the procedures for assembling & installing Knapheide Van Equipment.

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Knapheide product warranty information can be found at


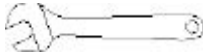



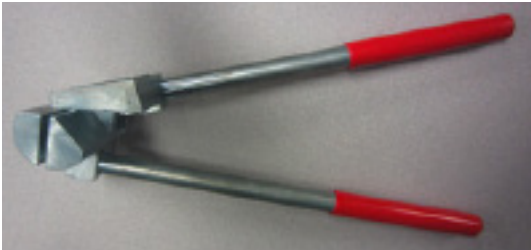
<https://www.knapheide.com/files/source/knapheide/Service/Knapheide-Warranty.pdf>

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# // REQUIRED TOOLS












TOOLS	
Description	Image
4 MM Allen Wrench	
Small Crescent Wrench	
#2 Phillips Head Driver	
Power Drill & 1/2" Drill Bit	
Pop Rivet Gun	
Bracket Bending Tool	

## // MOUNTING PARTS

PARTS			
Letter	Part Number	Description	Image
A	33897090	Grooved Bracket 2xM6X25	
B	33897084	Ecofix Bracket 165	
C	33897087	Ecofix Bracket 265	
D	33897083	Diagonal Brace 974	
E	33896996	End Panel Top Cap 03 Knap G	
F	33896997	End Panel Top Cap 04 Knap G	
G	12322848	Boxx Slide	
H	33897094	Shim for Floor Depth Rail	

**CAUTION:** Use of hardware other than provided, or alternative installation methods other than outlined herein, may void the product warranty. Fasteners should be tightened to called out specification or use Fastenal website torque calculator for any hardware not called out. Use caution when using air or battery operated tools.

## // ASSEMBLY HARDWARE

HARDWARE			
Letter	Part Number	Description	Image
J	33897088	M6x10 Fillister HD Screw	
K	33897092	M6 Pawl Nut	
L	33897091	Sprung Nut Plastic/ESMK	
M	12075065	Bolt Whiz UNC 0.31 X 0.75	
N	32394850	Bolt Whiz UNC 0.31 X 1.50	
P	33897271	Slf Tap DIN 7981 VZ 4 8X19 MM3	
Q	50903910	Riv-Nut 5/16-18UNC HD Plus	
R	33897096	Spacer Sleeve PA 24-8 4-10	
S	33897095	Foam Rubber Buffer 8X20	
T	33913838	M6x10 Ratchet HD Screw	 2 Shown for Clarity
U	33897089	M6x12 Raised Flange HD Screw	

**CAUTION: Use of hardware other than provided, or alternative installation methods other than outlined herein, may void the product warranty. Fasteners should be tightened to called out specification or use Fastenal website torque calculator for any hardware not called out. Use caution when using air or battery operated tools.**

## // PRE-ASSEMBLY PREPARATIONS

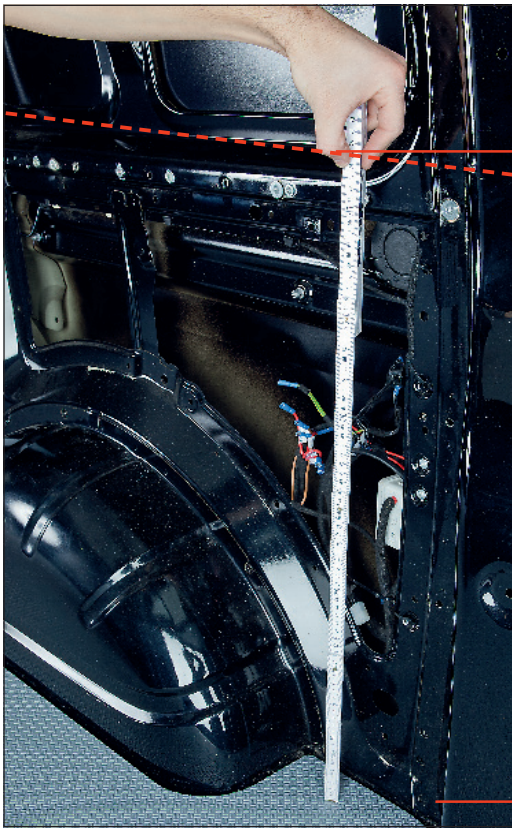
### WARNING!



*Prior to drilling into any part of a vehicle, check behind and underneath drilling and mounting locations for electrical wire, fuel lines, brake lines, and other critical vehicle components. Adjust the drilling location as required to avoid these components. Failure to do so can result in death or serious injury in addition to impairing critical vehicle functions.*

### WARNING!

*For E-transits, review the Ford Body Builder Layout book and Body Equipment Mounting Manual for applicable no drill zones, fastener clearance information, electrical and sub-system routing information, etc. Note that care should especially be taken when drilling through the floor that proper clearance is maintained between the drill bit and the electrical components per these OEM documents.*

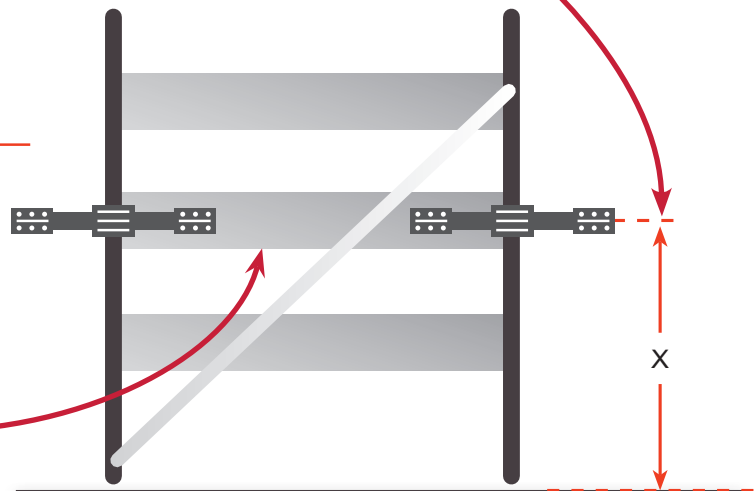


Measure from the vehicle cargo area floor to a horizontal brace on the vehicle sidewall...

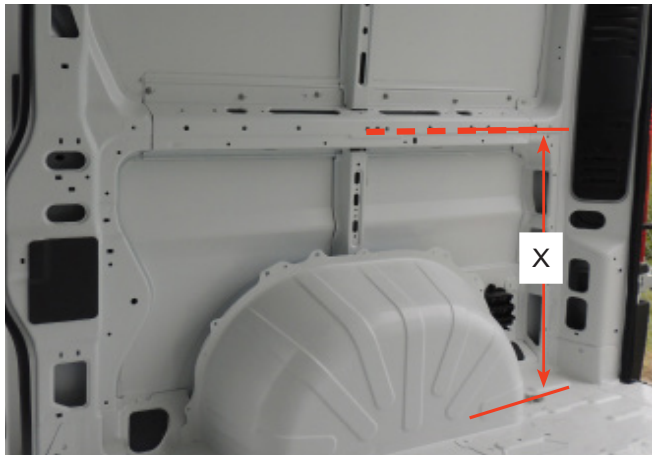
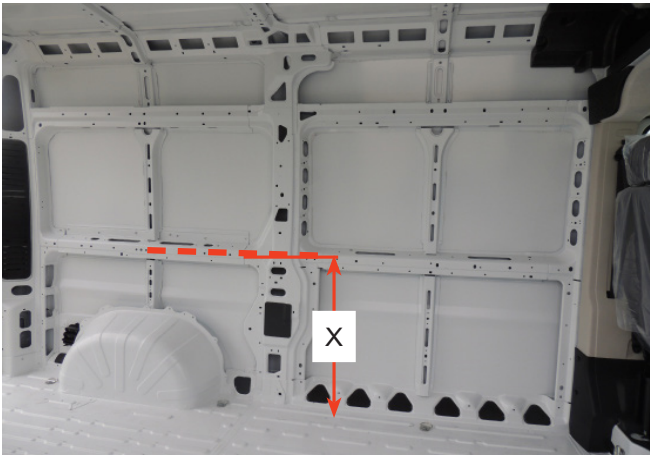
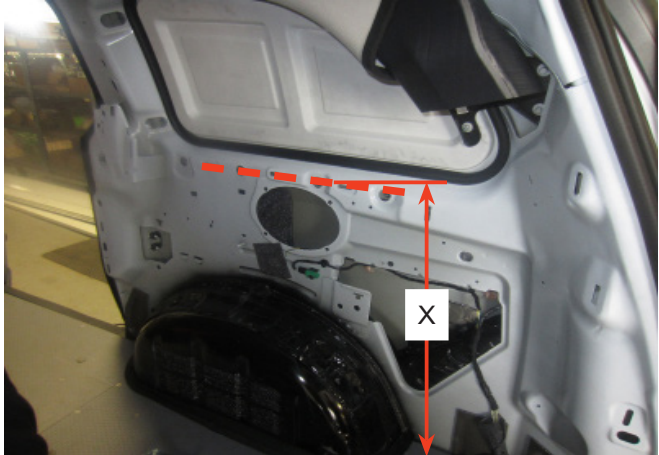
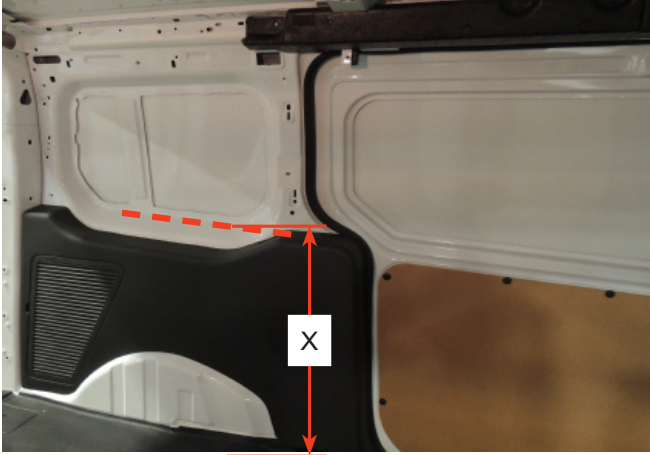
X

...to determine where the mounting brackets must be placed on the Knapheide Van Equipment shelf unit. Mark the end panels accordingly to indicate the proper location of the shelf.

"X" Shelf (Ref.)



// PRE-ASSEMBLY PREPARATIONS



Examples of Various Van Interiors With Horizontal Braces

Some vehicles may not be equipped with horizontal braces.

When horizontal braces are not available, the Knapheide Van Equipment shelf unit must be strategically placed in order to secure it to the vertical braces.

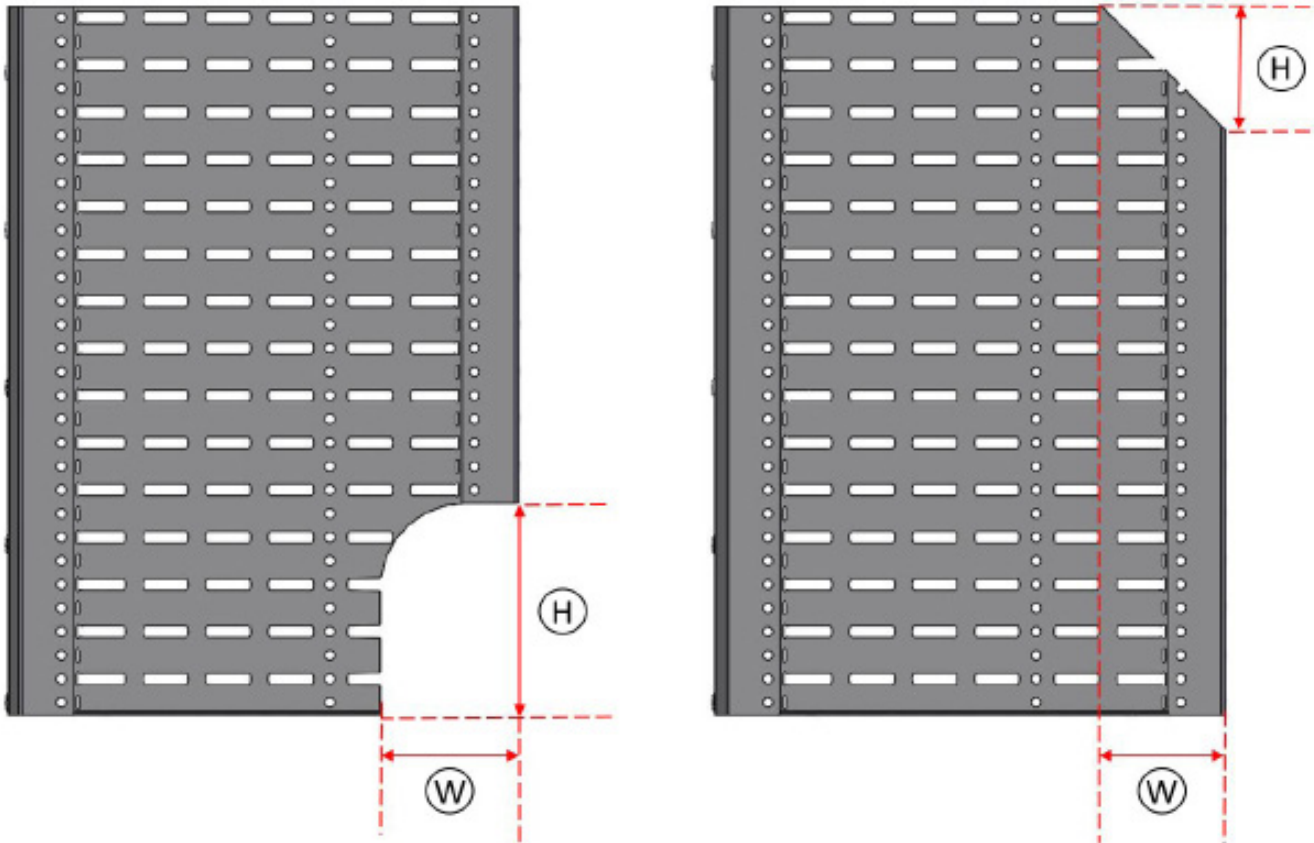


Example of a Van Interior Without Horizontal Braces

## // PRE-ASSEMBLY PREPARATIONS

### **End Panel Modifications**

End panels may be modified slightly to provide proper fitment and stability of the assembled shelving unit. In order to preserve the structural integrity of the shelving unit, **DO NOT** cut away more than 3.93 inches width (W) or more than 19.68 height (H) of end panel material.



### **Maximum Allowable Loads**

Each shelf is rated for 177.8 lbs. maximum and each complete shelving unit is rated for 220 lbs. maximum. Shelving units should be designed so that heavier items are stored on the lowest shelves possible.

### **Touch-Up Painting**

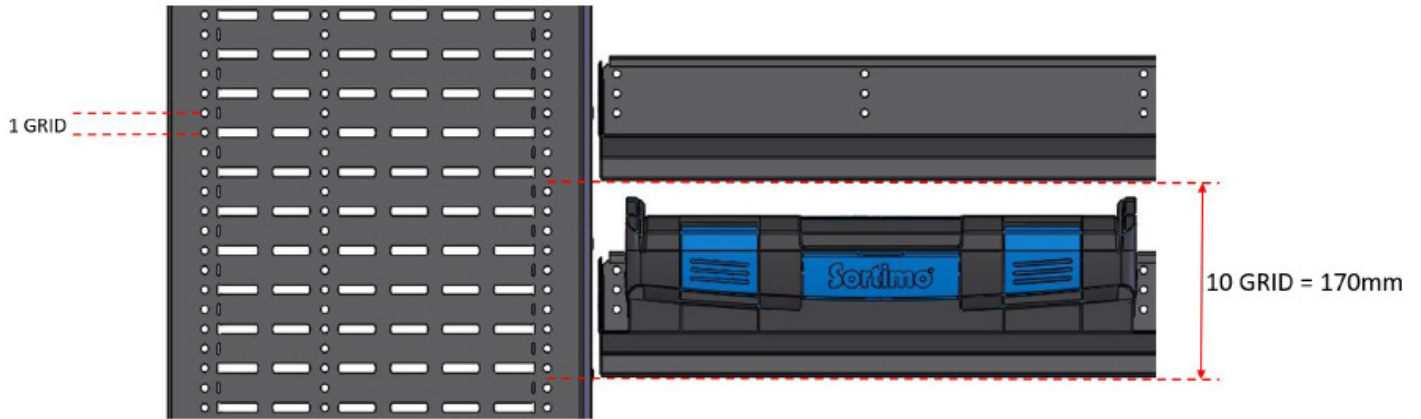
If any touch-up to the shelves or end panels is required, the paint code is Knapheide Cool Gray S/G Hybrid, Peridium EH03-51441.













// PRE-ASSEMBLY PREPARATIONS


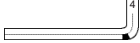

### Laying Out Shelving Configurations

Refer to the graphics and tables below to determine desired shelf locations. 1 grid is equivalent to the distance between the centerlines of two adjacent holes.



Grid	L-Boxx	LS-Boxx	I-Boxx Rack
10 Grid = 10 holes			
12 Grid = 12 holes			
18 Grid = 18 holes			
21 Grid = 21 holes			
22 Grid = 22 holes			
26 Grid = 26 holes			
31 Grid = 31 holes			
Grid	S-Boxx	M-Boxx	T-Boxx
8 Grid = 8 holes			
12 Grid = 12 holes			

# // SHELVING UNIT ASSEMBLY

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
J	33897088	M6x10 Fillister HD Screw		
L	33897091	Sprung Nut Plastic/ESMK		

## ***Shelving Unit Assembly***

Assemble the shelving unit by laying an end panel on its back edge.

Position the “X” shelf perpendicular to an end panel.

Install two sprung nuts in the channel of the end panel where the “X” shelf is to be installed (see Ref. on page 5).



Secure the “X” shelf to the end panel with M6 Fillister HD Screws.

Repeat the process at the opposite end of the shelf to attach it to the other end panel.

Continue to install remaining shelves.

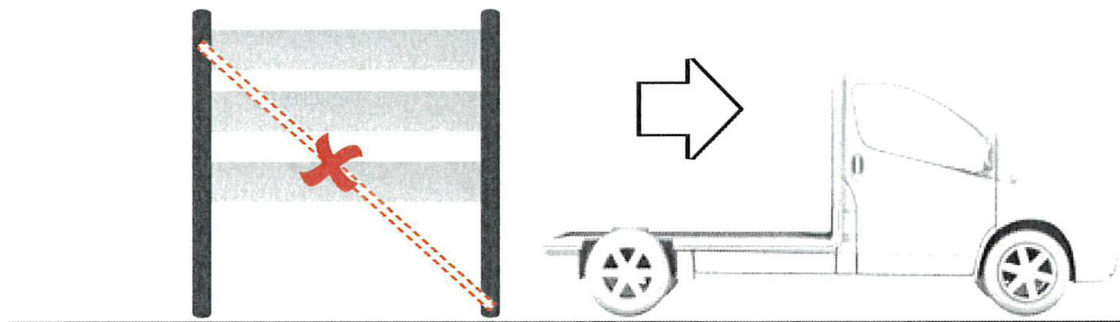
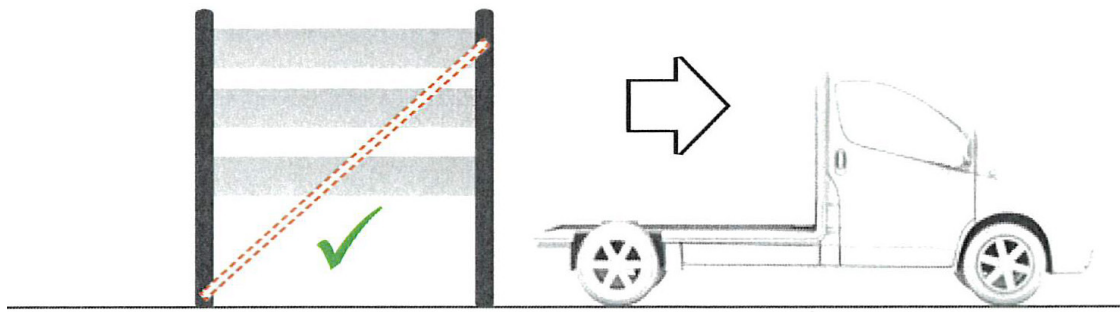
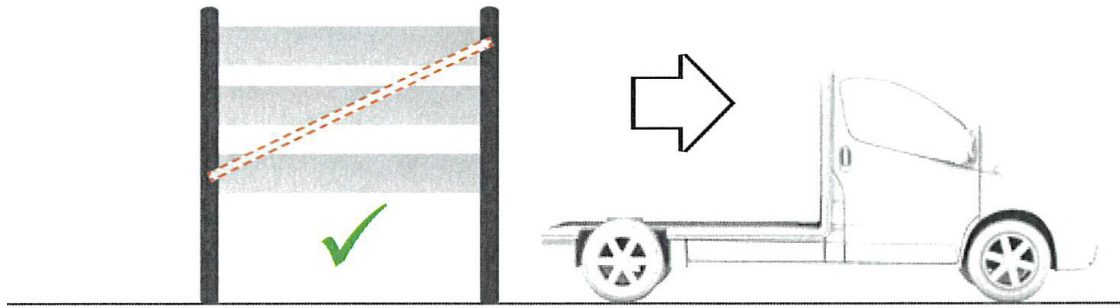
NOTE: The bottom shelf must clear the wheelwell of the van interior. Measure the wheelwell height, mark the location on the end panels and install the shelf accordingly.

NOTE: The top two holes in the end panels must be reserved for installation of the end panel caps.

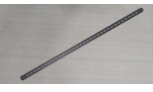
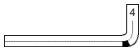
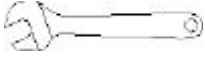





// SHELVING UNIT ASSEMBLY

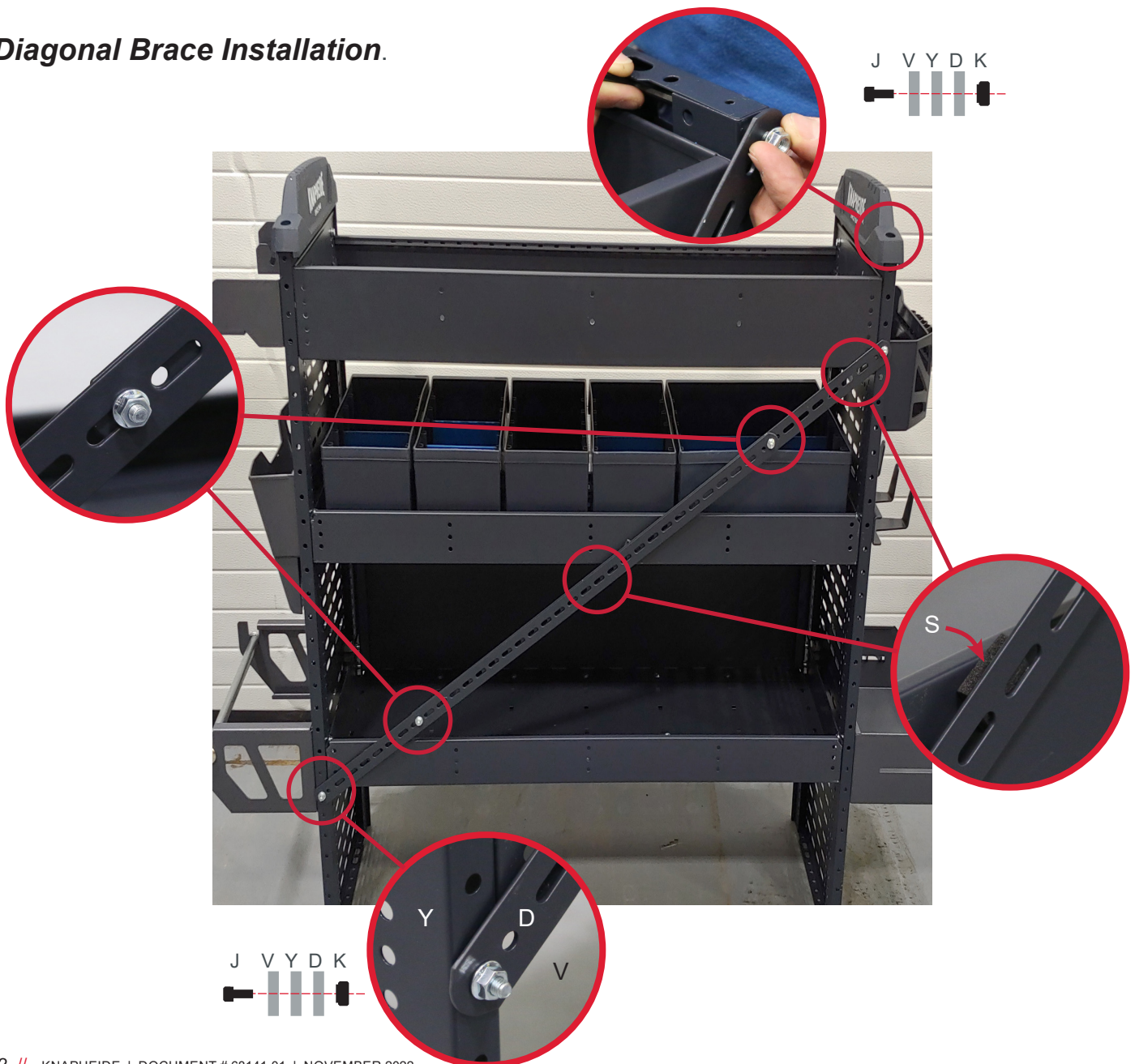
The diagonal brace attached to the shelf unit must always be attached at the front top of the unit.






// SHELVING UNIT ASSEMBLY

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
D	33897083	Diagonal Brace		 
J	33897088	M6x10 Fillister HD Screw		
K	33897092	M6 Pawl Nut		
S	33897095	Foam Rubber Buffer 8X20		

**Diagonal Brace Installation.**




HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
E & F	33896996 33896997	End Panel Top Cap 03 Knap G End Panel Top Cap 04 Knap G		
P	33897271	Sif Tap DIN 7981 VZ 4 8X19 MM3		

**End Panel Top Caps**

Use a power drill and phillips head bit to install the End Panel Top Caps with Whiz Bolts.



## // SHELVING UNIT ASSEMBLY

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
G	12322848	Boxx Slide		

### **Box Slides**

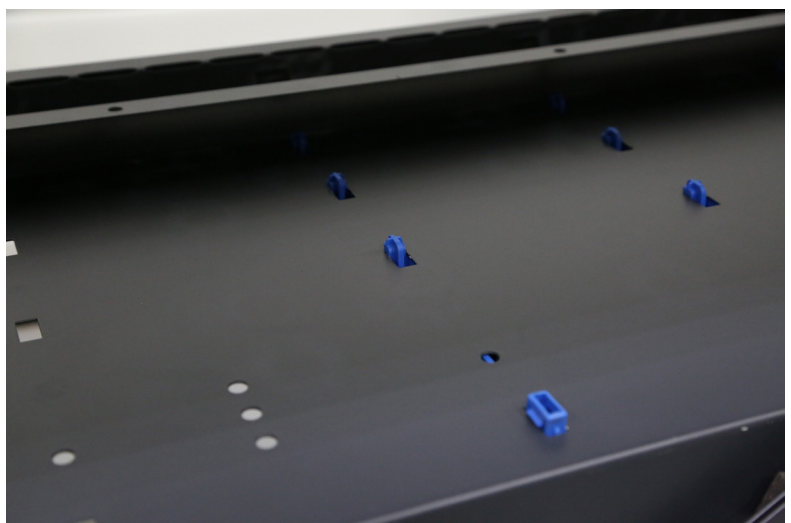
Insert Boxx Slide into holes on the shelf.






Push the Boxx Slide forward as far as it will go.

Press the Boxx Slide down until it snaps in place.



Underside of a shelf with Boxx Slides installed shown here.



HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
A	33897090	Grooved Bracket 2xM6X25		
B	33897084	Ecofix Bracket 165		
C	33897087	Ecofix Bracket 265		
K	33897092	M6 Pawl Nut		

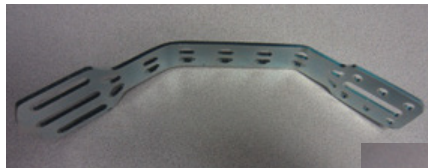
### Bending Ecofix Brackets

Ecofix brackets can be bent with a bracket bending tool (P/N 32070270) or by hand.

Ecofix brackets can only be bent or twisted **one** time. **DO NOT** straighten a bent Ecofix bracket and bend it again as this will cause embrittlement!



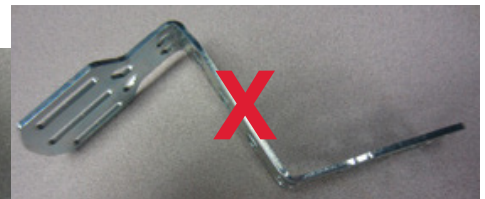
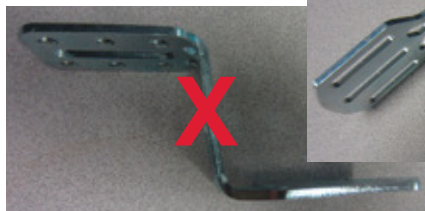
**DO NOT** bend Ecofix brackets past 60°



If necessary, Ecofix brackets can be twisted to a maximum of 90°.



Examples of unacceptable bends to Ecofix brackets shown here.

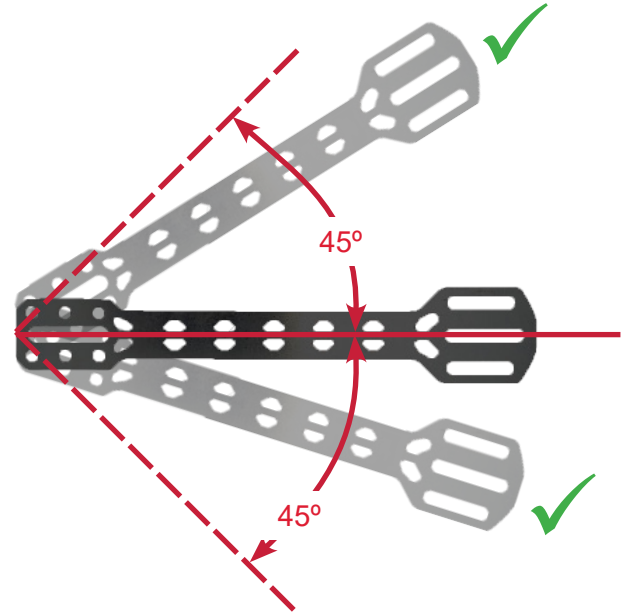


# // SHELVING UNIT INSTALLATION

## Mounting Ecofix Brackets

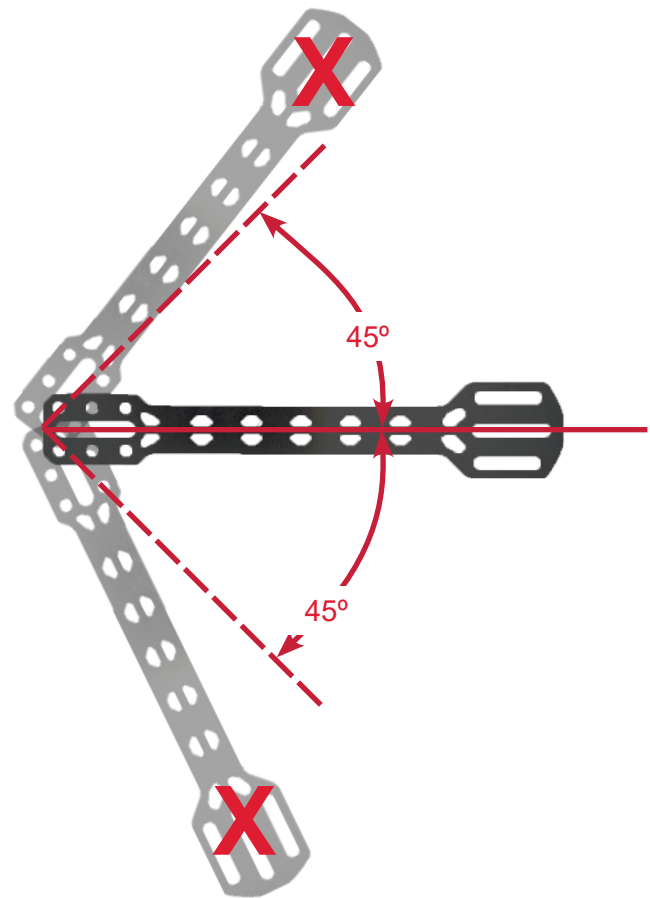
The recommended position for mounting Ecofix brackets is the horizontal position, as indicated by the dark bracket here.

Acceptable mounting positions, within 45° in either direction of the horizontal position, are indicated by the lighter brackets shown.



Recommended and Acceptable Mounting Positions

Unacceptable mounting positions, outside 45° in either direction of the horizontal position, are indicated by the lighter brackets shown.



Unacceptable Mounting Positions



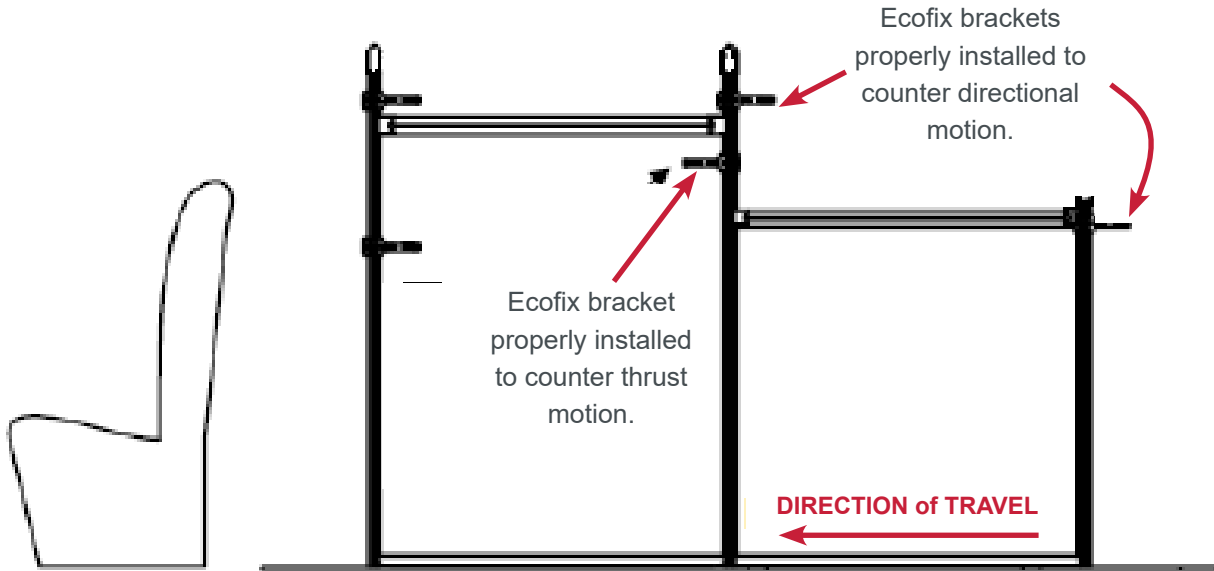
// SHELVING UNIT INSTALLATION

**Mounting Ecofix Brackets (cont.)**

Directional Motion vs. Thrust Motion.

Refer to the illustration below to better understand directional motion and thrust motion.

Knapheide Van Equipment units must be installed with Ecofix brackets properly mounted to counter the forces generated by both directional motion and thrust motion.







Combining Ecofix brackets to counter the forces generated by both motions is acceptable.



The table at right lists how many installation kits are required for the various Knapheide Van Equipment units. It also shows how many brackets are included in each kit. These quantities are derived from crash test data and must be closely adhered to.

Knapheide Van Equipment	EcoFix Brackets		
	Installation Kits	Directional Brackets	Thrust Brackets
4450-1	2	1	1
4260-1	2	2	1
4260-2	1	1	1
4460-1	2	2	1
4460-2	1	1	1
4660-1	2	3	1
4660-2	1	1	1
4280-1	3	3	2
4280-2	1	1	1
4480-1	3	3	2
4480-2	1	1	1
4680-1	3	4	2
4680-2	1	1	1
42100-1	4	4	3
42100-2	2	2	2
44100-1	4	4	3
44100-2	2	2	2
46100-1	4	5	3
46100-2	2	2	2

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
A	33897090	Grooved Bracket 2xM6X25		
B	33897084	Ecofix Bracket 165		
C	33897087	Ecofix Bracket 265		
K	33897092	M6 Pawl Nut		






### Mounting Ecofix Brackets (cont.)

Ecofix brackets must be mounted with grooved brackets (see above) and pawl nuts.

Attach the ecofix brackets to either the back of a shelf or the back edge of an end panel.



// SHELVING UNIT INSTALLATION

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
M	12075065	Bolt WhizUNC 0.31 X 0.75		
N	32394850	Bolt Whiz UNC 0.31 X 1.50		
Q	50903910	Riv-Nut 5/16-18 UNC HD Plus		
R	33897096	Spacer Sleeve PA 24-8 4-10		

**WARNING!**



*Prior to drilling into any part of a vehicle, check behind and underneath drilling and mounting locations for electrical wire, fuel lines, brake lines, and other critical vehicle components. Adjust the drilling location as required to avoid these components. Failure to do so can result in death or serious injury in addition to impairing critical vehicle functions.*

**Shelving Unit Installation in Van**

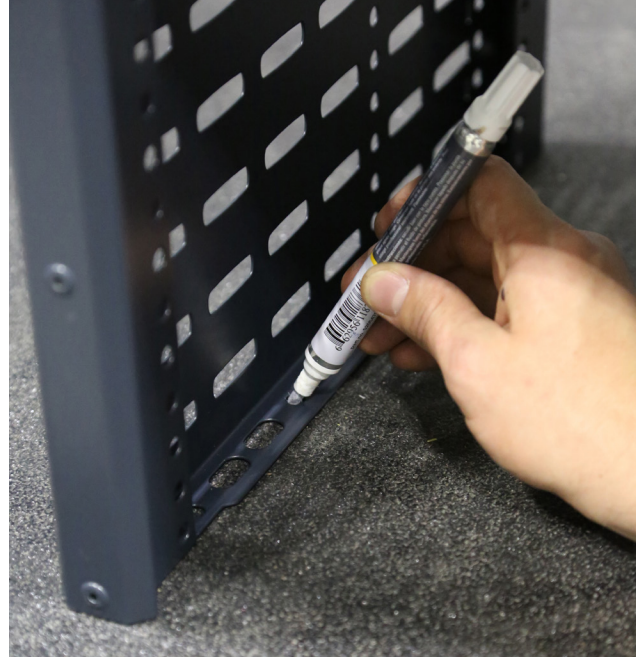
Strategically place the Knapheide Van Equipment Shelving Unit in the van where mounting brackets can be properly attached to the inside of the van and the unit straddles the rear wheel well.

Mark all floor and wall mounting locations with a paint pen.







Remove the shelving unit from the van.

Use a power drill and a 1/2" drill bit to drill holes in each mounting hole location.

Install 5/16" plus-nuts in each hole.



// SHELVING UNIT INSTALLATION

HARDWARE & TOOLS				
Letter	Part Number	Description	Image	Required Tools
H	33897094	Shim for Floor Depth Rail		
M	12075065	Bolt WhizUNC 0.31 X 0.75		
N	32394850	Bolt Whiz UNC 0.31 X 1.50		
Q	50903910	Riv-Nut 5/16-18 UNC HD Plus		
R	33897096	Spacer Sleeve PA 24-8 4-10		

**Van Specific Installations**

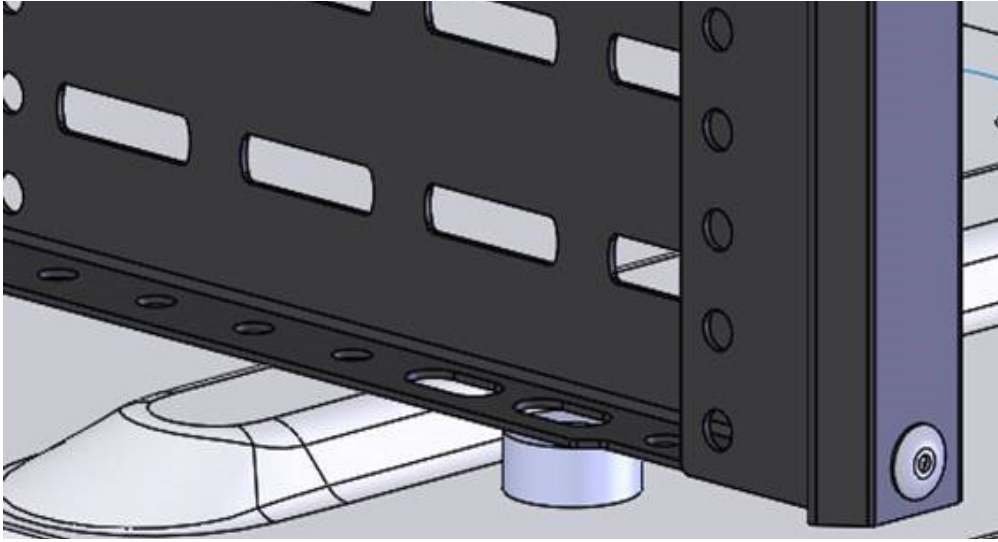
**Ford Transit Connect Vans (2014 & Newer)**

When installing a Knapheide Van Equipment shelving unit in a 2014 or newer Ford Transit Connect van, space the unit 1½” to 2” off the wall to avoid drilling mounting holes through the floor and into the vehicle fuel tank.

Also make sure the bottom rear of the shelving unit is positioned against the factory moulding across the rear of the vehicle.



## // SHELVING UNIT INSTALLATION

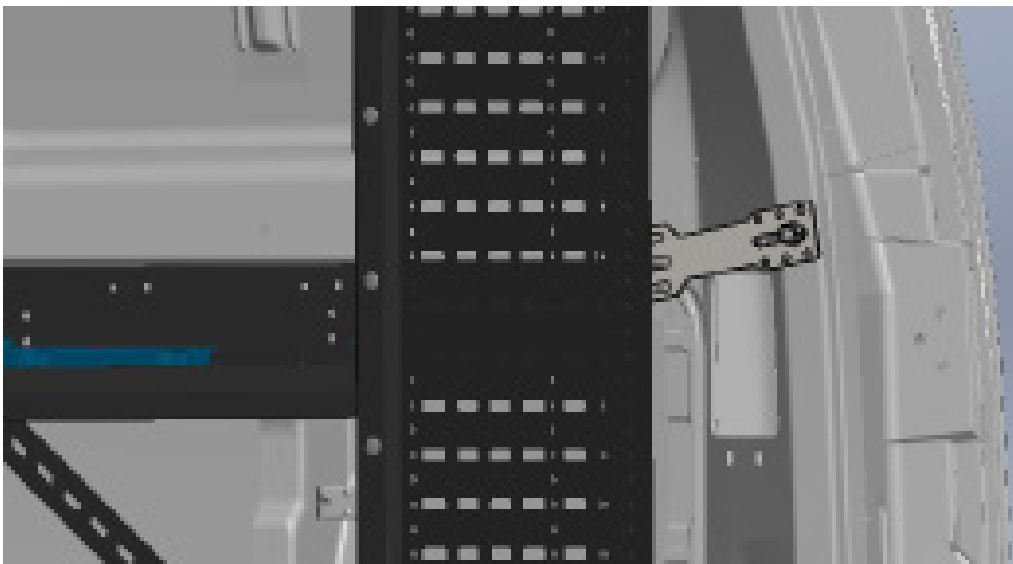
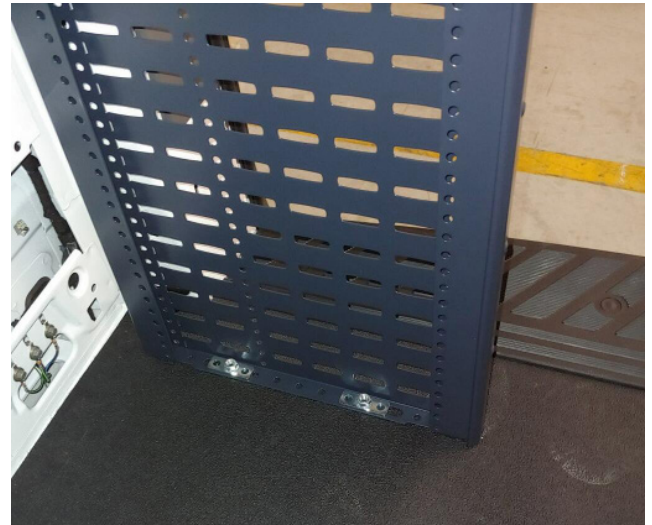


Place the shelving unit back into the van and properly align the unit and brackets to the mounting holes.

**If the mounting hole is located on a rib, then no spacer is needed. However, if the mounting hole is not located on a rib, the spacer provided in the kit will need to be added between the van floor and the shelf flange, as seen above, just above the riv nuts.**

Secure the unit to the van floor with whiz bolts. The 0.75 Whiz Bolts for mounting holes that align with ribs, and the 1.50 Whiz Bolts for mounting holes that do not align with ribs and required a spacer.

Secure the unit to the van wall with 5-16" whiz bolts (.75 or 1.50 long) through each mounting bracket as seen below (use two whiz bolts per mounting location when possible).



## // SHELVING UNIT INSTALLATION

### Ram CV Vans

The factory duct work at the rear curb inside must be trimmed to accommodate Knapheide Van Equipment Shelving Unit installation.

Trim the duct work flush with the factory headliner.



// SHELVING UNIT INSTALLATION



Completed Installation



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