Installation Manual for

Dry Freight Trailers

Model DF-53-12

ANGELWING™



AirFlow Deflector

Builder of Side Guards

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Technical Specification, current price lists, certificates and drawings can be ordered on request.

Toll-Free Number (866) 717-8737
Toll-Free Fax: (877) 272-0542

Or visit www.airflowdeflector.com

ATTENTION:

PLEASE READ AND UNDERSTAND AND FOLLOW ALL INSTRUCTIONS AND WARNINGS BEFORE ASSEMBLING, INSTALLING OR USING THIS PRODUCT.

NOTICE

Follow additional instructions. There may be left over components depending on upfit.

Any modification or unintended use of this product shall immediately void all manufacturers' warranties. Manufacturer disclaims all liability for injuries to persons or property resulting from any modification to, or unintended use of this product.

WARNING

Prior to drilling, so as not to cut or puncture fuel tanks, fuel lines, electric wires, etc., check under vehicle for locations. All floor mounting bolts near the gas tank area should be installed from the underside of the vehicle, to guard against the gas tank being punctured in the event of a collision. This would mean not using Blind Fastener in this area. Holes drilled in this area should be done in accordance to the size(s) of the fasterners.

DANGER

Danger of explosion. Do not install this product near flamable explosives, hazardous materials, or hazardous waste, such as containers of gasoline, solvents, gun powder, dynamite, propane tanks, acetylene tanks and cutting torches. This product is only intended as a safety prevension measure and cannot always prevent injury or fatality. ANGELWINGTMs shall not be used as a step, ladder, brace and or bracket to attach other componts. Failure to follow these steps shall immediately void all warranties and guarantees by AirFlow Deflector. Any modifications made to, or unintended use of this product, could create a hazardous condition that can cause death, serious personal injury or property damage.

CAUTION

Before marking any mounting holes, check location for any gas spring housing and components that may obstruct safe drilling. To keep debris out of your eyes when checking the underside of the vehicle, or when drilling, always wear protective eyewear.

Questions?

Please call us toll-free at 1-866-717-8737
Email us at support@airflowdeflector.com

Watch our at https://youtu.be/k0Gsu5jvenI

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Recommended Tools:

Electric Tools
- MAB 155 or 150 – Ultra Compact Portable Magnetic Drill or equivalent (right angle drill)
- Impact driver with 16/16” socket

Drill Bits
- 11/16” annular drill metal bit (with ¾” shank for MAB 150 or 155)

Box wrenches
- 1 5 / 1 6 ”

Socket wrench
- 15/16”

Other
- Floor jack or pedal operated fork truck
- 6’’ ‘‘C’’ clamps
- Alignment tool
- Chalk Reel
- Hammer
- Pry Bar
- Spreader/Clamp Bar

Please follow all recommended safety and operational procedures when using any type of tool.

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AngelWing Itemized Components

Please ensure that each kits contains the items listed below. If any item is missing, please contact AirFlow Deflector or your selling agent.

- *Side Assembly - (Fig. #1) - 2 Units (Reversable)*
- *Diagonal Support - (Fig. #2) - 14 Units*
- Package X - End Bracket bolts - (Fig. #3) - 1 Unit
- Package C - Center diagonal bolts - (Fig #3) - 14 Units
- Saddle Bracket - (Fig. #4) - 14 Units

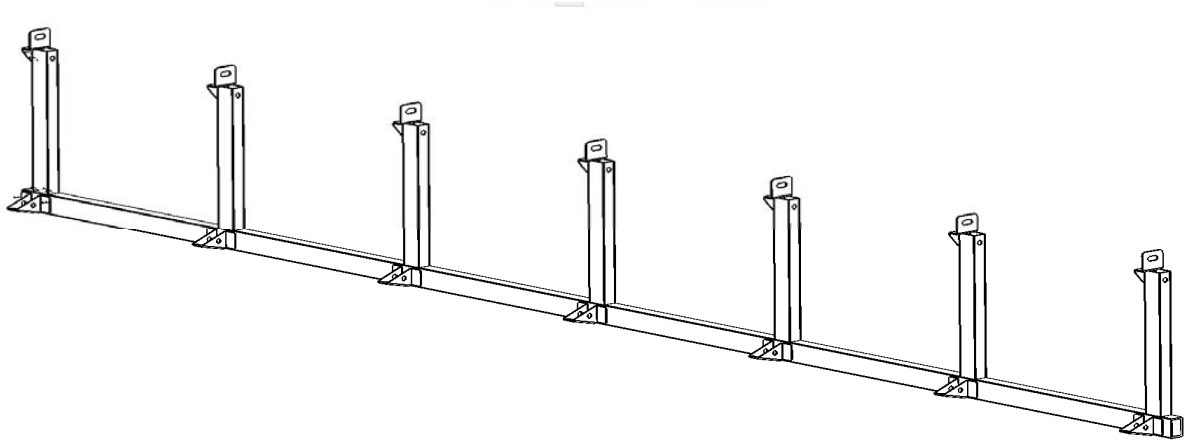


Figure 1 - Side Assembly

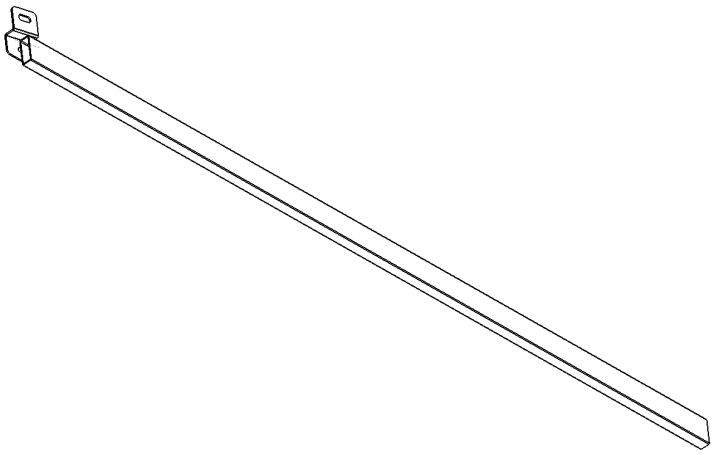


Figure 2 - Diagonal Support

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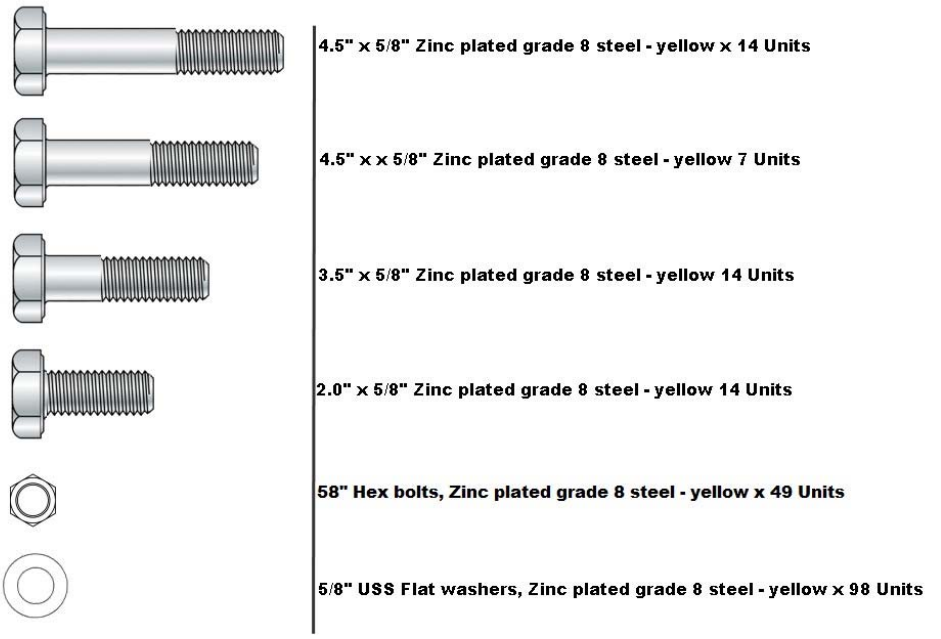


Figure 3 – Fasteners



Package X



Package C

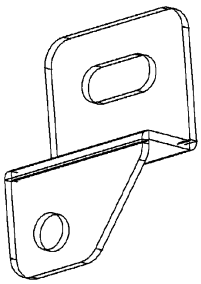


Figure 4 – Saddle Bracket

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Location and Identity of Attachment Cross Members

For installation projects on a high quantity of new trailers, contact your trailer dealer and request pre-drilling of cross members for **AngelWing**™.

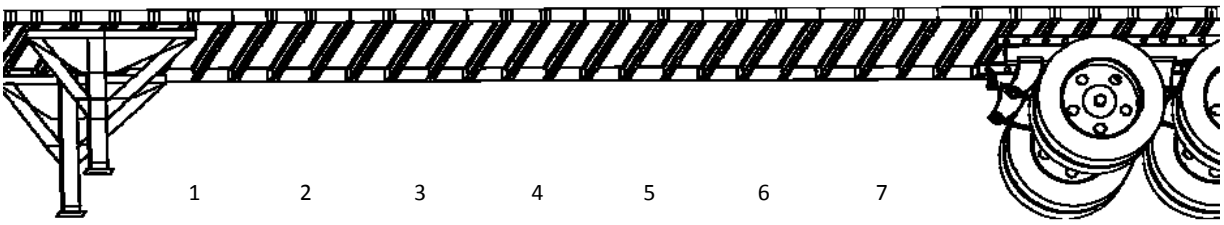


Figure 5 – Location of ANGELWING attachment cross members

Seven cross members between the landing gear and the trailer tandems require an 11/16” hole drilled in their webbing at each end. Start with the first cross member reward of the landing leg support attachment and mark or identify every third cross member. **AngelWing's**™ side assembly can be placed next to the trailer to ensure the marked cross members align with the brackets on the Side Assembly.

Note: Some trailer models require a bracket to shift the position of the brake line extension forward of the trailer’s tandem frame. Be sure to check if this extension will contact the rearward most Diagonals once **AngelWing** ™ Is installed. Contact Airflow Deflector if you are unsure if your model requires such a bracket.

Mark holes for drilling

Once the seven cross members are identified, the hole locations at the end of each of the seven (7) cross members must be marked. Typical cross member length is 101-3/8” measured end-clip to end-clip on their inside face. In this case the center of the hole should be inset 2-5/8” horizontally from the cross member end-clip. Double check that your trailer conforms to this standard. Visibly mark this location on the bottom flange of each end of cross members 1 and 7. String and pop the chalk line from the mark on cross member’s 1 and 7 on each side of the trailer. See Fig. 6 and Fig. 8

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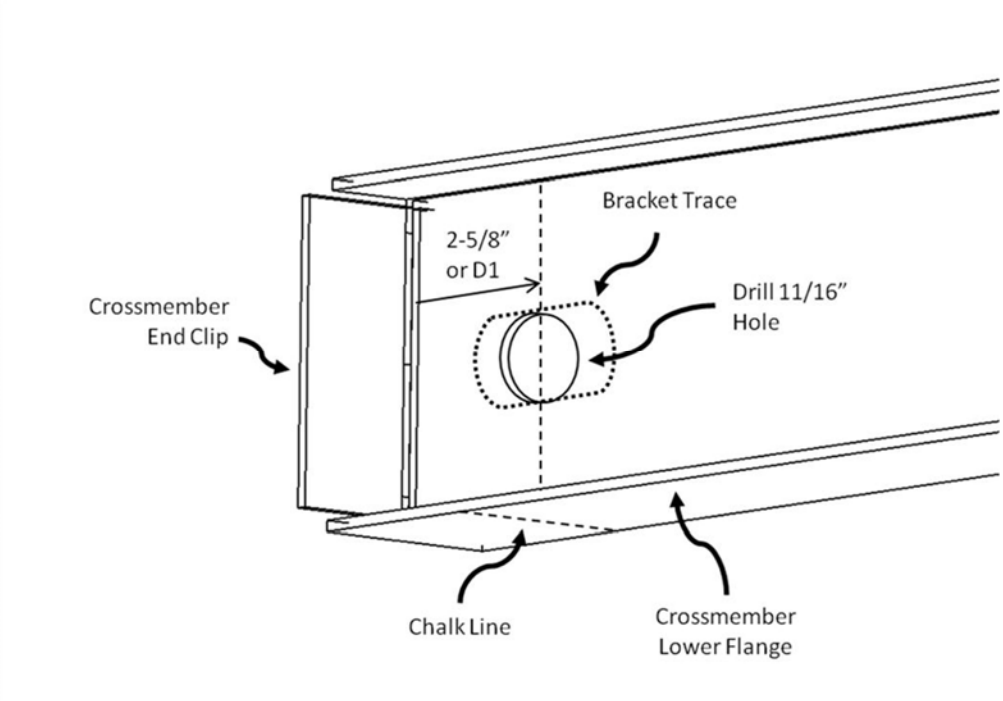


Figure 6 – Location to Drill 11'16" hole

If the cross member does not measure 103-3/8" use the formula below for the horizontal hole center inset from the cross member end-clip, D1.
L is the length of the cross member measured from the inside faces of the end clips

$$D1 = \frac{L - 96\ 5/32"}{2}$$

Next with the supplied bracket, place the face of the bracket with the oblong hole flush against the webbing of the cross member centered on the previously marked chalk line to trace or mark the location of the hole to be drilled (See Fig. 6 & 7). Vertically, the hole should be on the approximate webbing centerline. Drill an 11/16" hole.

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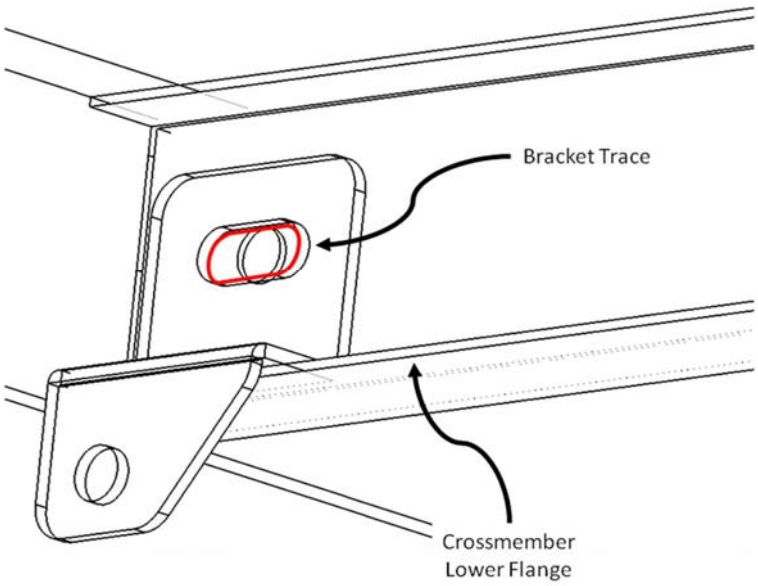


Figure 7 – Vertical positioning of hole location



Figure 8 – Attachment hole positioned by chalk line

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Assembly

ATTENTION! Semi-trailer cross members are not always spaced precisely by the manufacturer. A semi-trailer may flex and distort on uneven surfaces.

AngelWing™ will flex when lifted. As a result **AngelWing**™ will likely require some level of force through prying and hammering to assemble. This is normal and to be expected. Hole alignment tools, long spreader/clamp bars, crowbars and a large hammer will greatly facilitate assembly.

Align and install the sides

AngelWing's™ Side Assemblies are neither left nor right-side specific. Align the seven Side Assembly Brackets with the seven holes drilled in the trailer cross member webbing. Distribute a "Pack X" of fasteners near each end of the seven drilled cross members (14 total) for use during assembly. Using a fork truck or other lift, raise the first Side Assembly so that the gap between the Side Bracket and vertical tube are level and can slide onto the lower flange of the trailer cross member. The slotted hole on the Side Assembly Bracket should align with the hole in the cross member webbing. Slide the entire Side Assembly so that the bracket fits onto the lower flange of the trailer cross member and the top of the side bracket mates with the trailer cross member web. See Fig. 10 & 11.



Figure 9 – Installation of Side Assembly.

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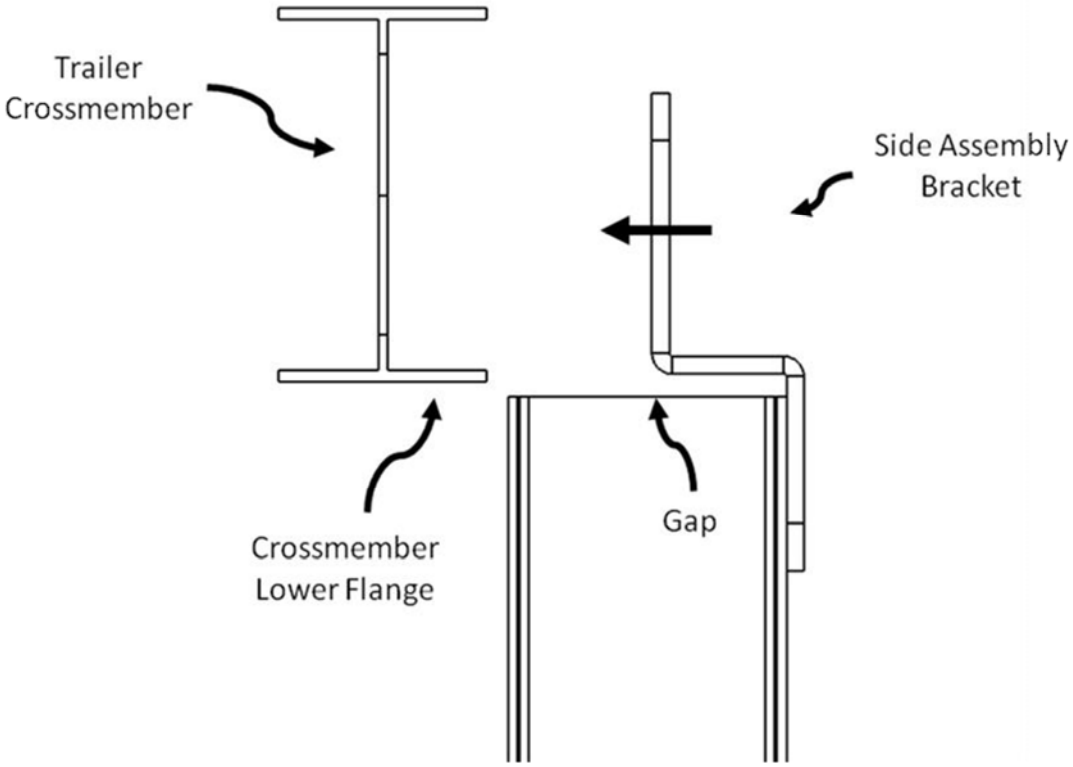


Figure 10 – Side Assembly Bracket slides onto the cross member's lower flange

DANGER!

Before lowering the lift forks, use the appropriate bolt (D) and nut (E) and insert (see Fig. 3) through the hole in the webbing on cross members 2 and 6. Thread and tighten the nut onto the bolt to ensure that the sides will not fall while assembly progresses. Use the impact driver to tighten the nut and draw the side brackets flush with the webbing of the cross members as shown on Fig. 12 next page.

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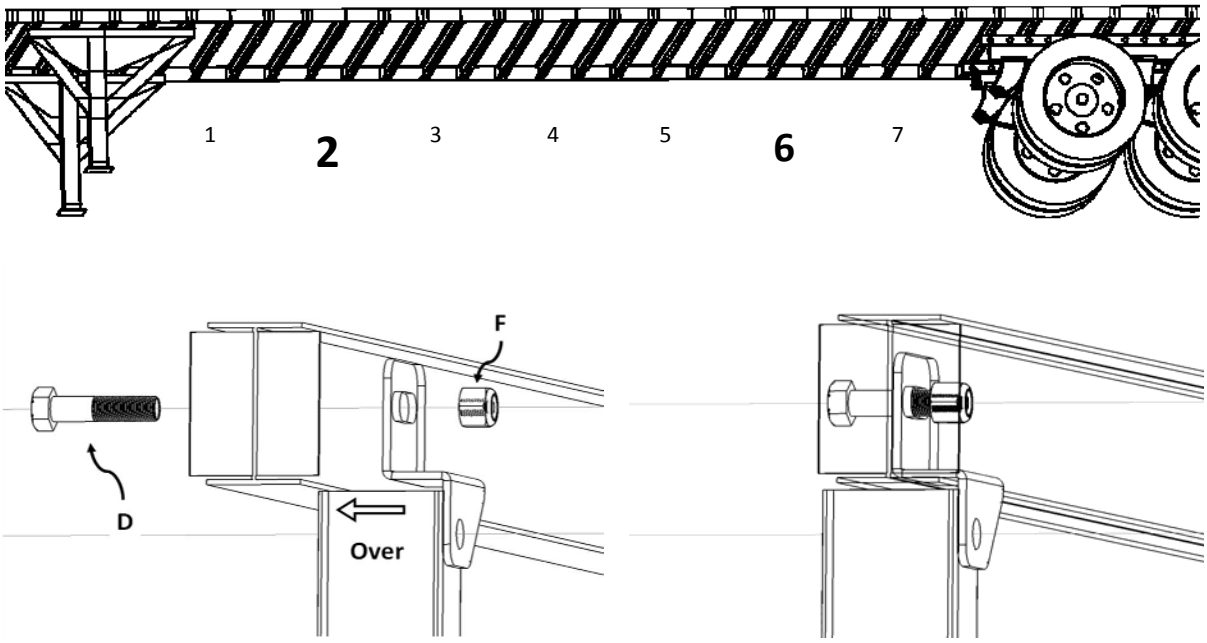


Figure 11 – Secure Side Assemblies in two locations per side before installing diagonal supports

Repeat the Side Assembly installation process on the opposite side on the trailer.

Install the Diagonal Supports

Once the Side assemblies are in place and safely secured at two cross member locations on each side, the remaioning diagonals may be installed.

Note: AngelWing's™ diagonals are neither left nor right specific but do have a bracket-less lower end and an upper end with a bracket.

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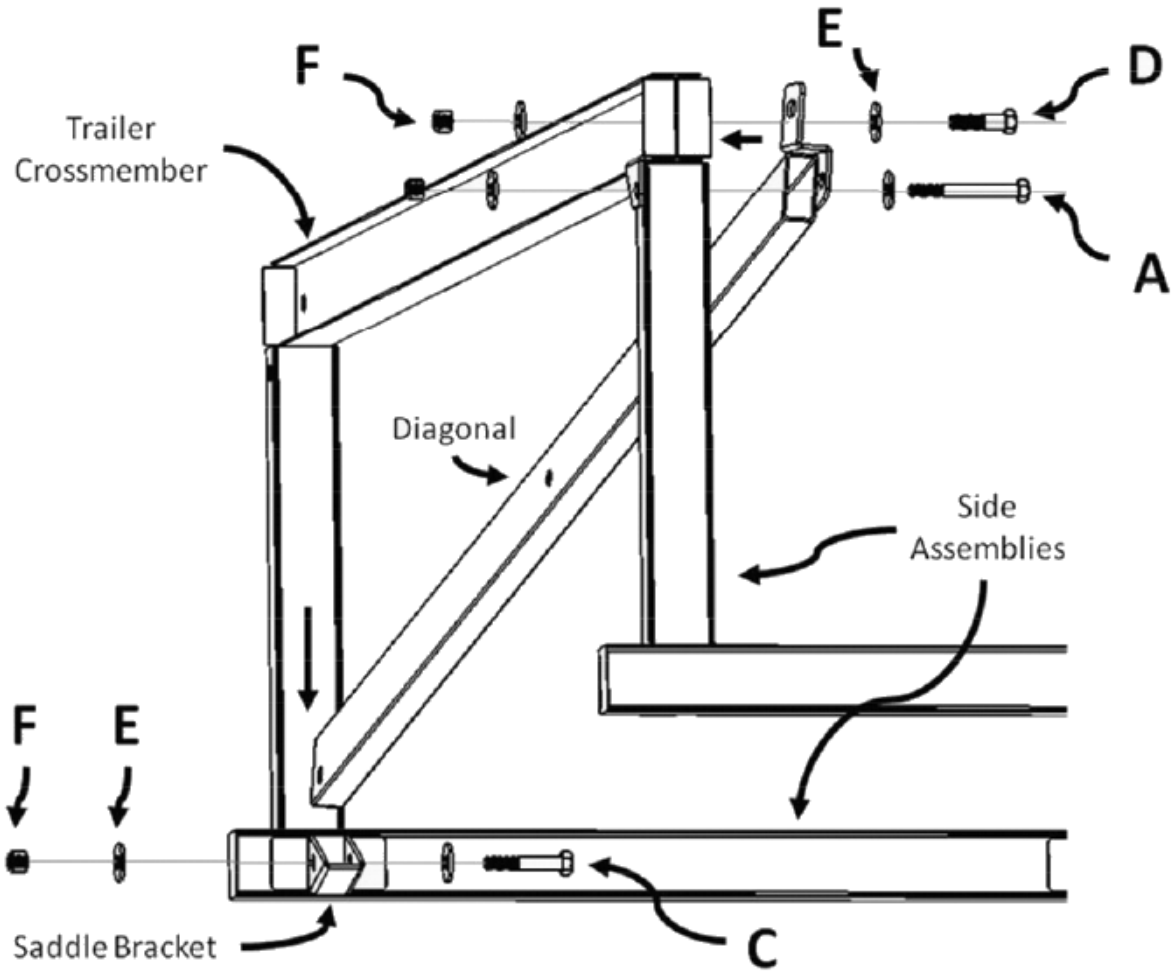


Figure 12 – Place the lower end of the Diagonal into the Saddle Bracket. Slide the upper end of the Diagonal Support onto the cross member lower flange.

Place the lower end of the Diagonal into the Saddle Bracket on the inside face of one the Side Assembly. Then slide the Diagonal Bracket onto the lower flange of the cross member on the opposite side of the trailer as show in Fig. 13. Insert the bolts, washers and nuts as shown in Fig. 13 and hand tighten.

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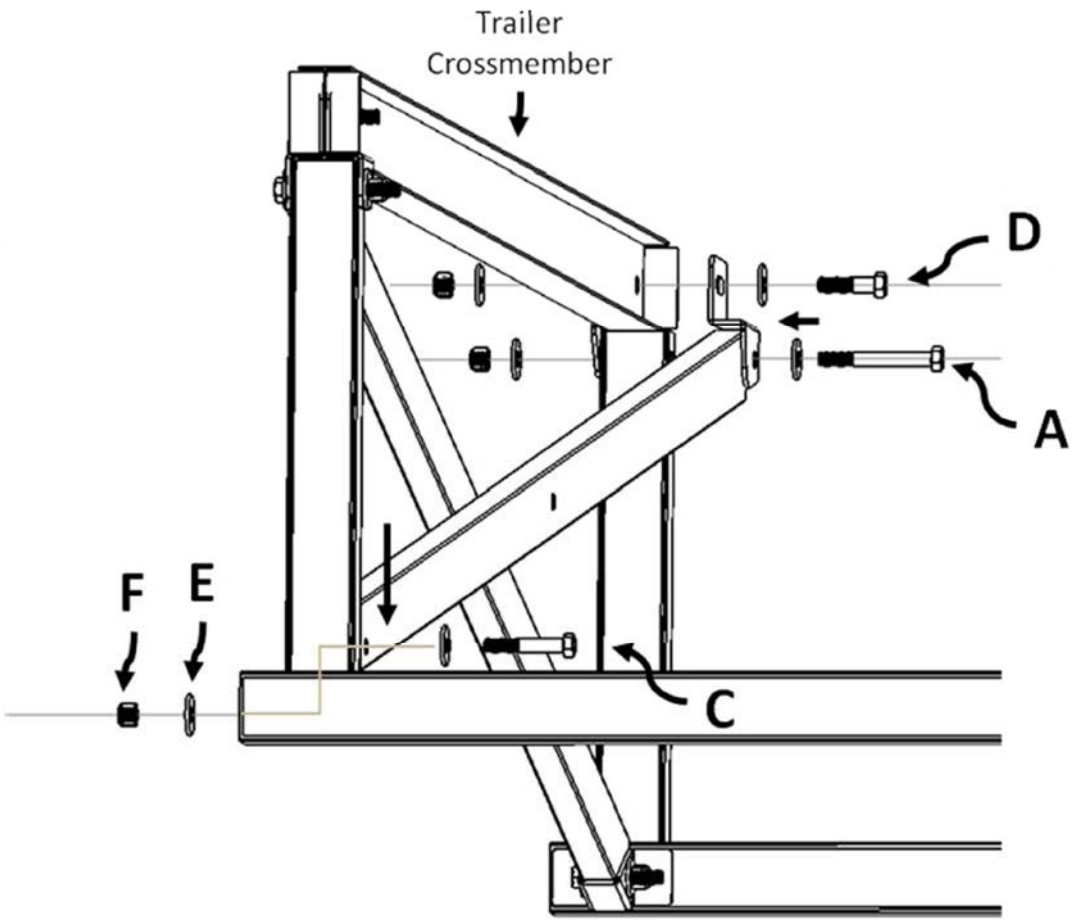


Figure 13 – Place the lower end of the second Diagonal into the Saddle Bracket then slide the upper end of the Diagonal onto the cross member lower flange

Install the second diagonal in identical mirrored fashion creating an “X” shape. See Fig. 14. Repeat the process at all seven drilled cross members.

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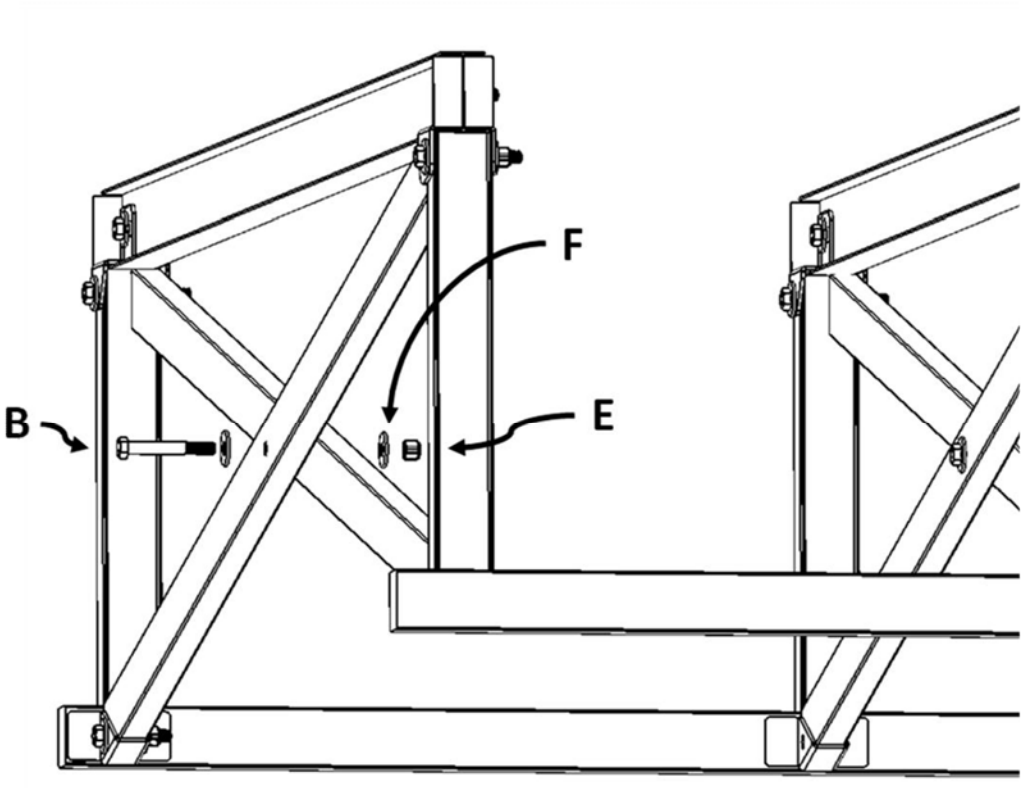


Figure 14 – Fastener B inserts through the Diagonal center holes

Insert Fastener B into the center Diagonal Holes and hand tighten the nut.

Systematically tighten all the nuts and bolts using impact driver.

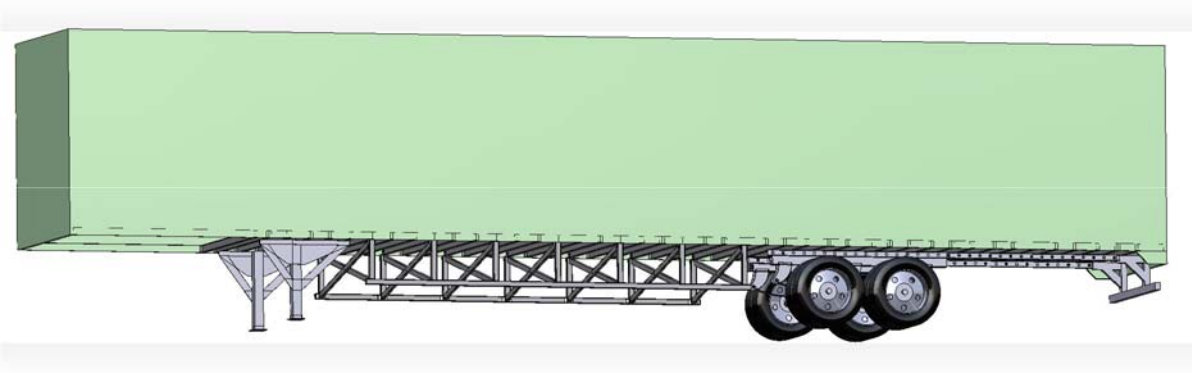


Figure 15 – Assembled ANGELWING (Pat. Pending)

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ATTENTION! Prior to sliding the tandem to the full forward position check that there will be no interference with the rearmost Diagonal supports and the trailer air brake lines. Some trailers have an air brake line extension protruding forward of the tandem which could pinch the air hoses in the full forward position. Please check with AIRFLOW DEFLECTOR INC® to ensure you have the correct brackets.



ATTENTION! After installation of AngelWing™, follow all normal trailer inspection and maintenance instructions from your original trailer maintenance manual.

All trailer structures including **AngelWing™** should be inspected for weld fatigue, cracks and/or loose fasteners.

All worn items should be corrected as a part of routine preventative maintenance or service. Any defective items found should be corrected to the manufacturer specifications before the trailer is returned to service.

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AIRFLOW DEFLECTOR® Products — Limited Warranty

(Purchased on or after 1/1/2017)

AIRFLOW DEFLECTOR INC® (the "Manufacturer") warrants to the original purchaser only that AIRFLOW DEFLECTOR® Truck Side Guards or Lateral Protection Devices (the "Product") will be free from defects in material and workmanship from the date of purchase and continuing for three years of the AIRFLOW DEFLECTOR® Product. A copy of the original sales receipt must be supplied to the Manufacturer at the time a warranty claim is made. This warranty terminates if the original purchaser transfers the AIRFLOW DEFLECTOR® Product to any other person.

What is covered

All AIRFLOW DEFLECTOR INC ®. Products identified above that are purchased on or after January 1, 2017.

What We Will Do To Correct Problems

Subject to the limitations and exclusions described in this limited warranty, the Manufacturer will remedy defects in materials or workmanship by providing one of the following remedies at its option and without charge to the original purchaser for parts or labor: (a) repairing the defective portion of the AIRFLOW DEFLECTOR® Product or (b) replacing the entire AIRFLOW DEFLECTOR® Product. In addition, the Manufacturer may elect at its option, not to repair or replace the AIRFLOW DEFLECTOR® Product, but rather issue to the original purchaser a refund equal to the purchase price paid for the AIRFLOW DEFLECTOR® Product or a credit to be used toward the purchase of a new AIRFLOW DEFLECTOR® Product.

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What is Not Covered

This limited warranty expressly excludes:

- Defects caused by normal wear and tear, cosmetic rust, scratches, accidents, unlawful vehicle operation, or modification to the product, or any types or repair of an AIRFLOW DEFLECTOR® other than those authorized or provided by the Manufacturer.
- Defects resulting from conditions beyond the Manufacturer's control including, but not limited to misuse, overloading, or failure to assemble, mount or use the AIRFLOW DEFLECTOR® Product in accordance with the Manufacturer's written instructions or guidelines included with the AIRFLOW DEFLECTOR® Product or made available to the original purchaser.
- Damage to the contents of the box or vehicle.
- TO THE EXTENT PERMITTED BY LAW, IN NO EVENT SHALL THE MANUFACTURER BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING ANY ECONOMIC LOSS, WHETHER RESULTING FROM NONPERFORMANCE, USE, MISUSE OR INABILITY TO USE THE AIRFLOW DEFLECTOR® PRODUCT OR THE MANUFACTURER'S NEGLIGENCE.

No Other Express Warranty Applies

This Limited Warranty is the sole and exclusive warranty for AIRFLOW DEFLECTOR® Products. No employee, agent, dealer, or other person is authorized to alter this warranty or make any other warranty on behalf of AirFlow Deflector Inc.

Notification Procedures

If the AIRFLOW DEFLECTOR® Product does not conform to the terms of this limited warranty, the original owner must promptly notify the Manufacturer in writing upon discovery of the nonconformity. In order to receive the remedies under this limited warranty, the warranty claim must describe the nature of the nonconformity, and a copy of the original sales receipt, invoice, bill or other proof of purchase must accompany the claim.

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Repairs or modifications made to the AIRFLOW DEFLECTOR® Product by other than the Manufacturer or its authorized agent will nullify this limited warranty. Coverage under this limited warranty is conditioned at all times upon the owner's compliance with these required notification and repair procedures. Warranty claims must include reciprocal contact information and may be made via certified mail to:

AIRFLOW DEFLECTOR INC.
ATTN:
Warranty Claims
3974 Notre Dame West
Suite 101
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