

# Special 42' Diameter High Wind Roof Rafter Instructions

Owner's Manual

PNEG-1882

Date: 07-08-15



PNEG-1882

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**All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.**

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## 1. Safety

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### Safety Guidelines for Bins

Safety guidelines must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY** or **DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

This product is intended for the use of grain storage only. Any other use is a misuse of the product.

Sidewall bundles or sheets must be stored in a safe manner. The safest method of storing sidewall bundles is by laying them horizontally with the arch of the sheet upward, like a dome. Sidewall sheets stored on edge must be secured so that they cannot fall over and cause injury. Use care when handling and moving sidewall bundles.



***This product has sharp edges, which may cause serious injury. To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment.***

ST-0035

## Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **may result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **may result in minor or moderate injury.**



This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

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# 1. Safety

## Safety Cautions

### Use Personal Protective Equipment

- Use appropriate personal protective equipment:

**Eye Protection**



**Respiratory Protection**



**Foot Protection**



**Hearing Protection**



**Head Protection**



**Fall Protection**



**Hand Protection**



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

### Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.



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### Maintain Equipment and Work Area

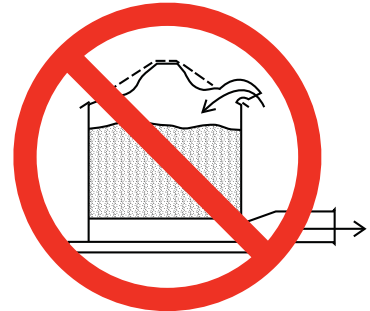
- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.



ST-0003-1

### Prevent Roof Damage Due to Vacuum Pressure

- Roof damage can result from excessive vacuum or internal pressure from fans or other air moving systems. The manufacturer does not warrant this type of roof damage.
- Adequate ventilation or “makeup air” devices should be provided for all powered air handling systems.
- The manufacturer does not recommend the use of downward flow systems (suction).
- Severe roof damage can result from any blockage of air passages.
- Running fans during high humidity or cold weather conditions can cause air exhaust or intake ports to freeze.



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## Guidelines for Proper Storage of Grain Bin Materials Prior to Construction

Storage of the build materials prior to construction is important. Do not to allow moisture to remain between sheets or panels.

Wet storage stain (rust) will develop when closely packed bundles of galvanized material, such as sidewall and roof sheets, have moisture present. Inspect roof and sidewall bundles on arrival for any moisture. If moisture is present, it must not be allowed to remain between the sheets. Separate the sheets or panels immediately and wipe them down. Spray with a light oil or diesel fuel.

If possible, sidewall bundles, roof sheets and other closely packed galvanized materials should be stored in a dry, climate controlled building. If outdoor storage is unavoidable, the materials should be stored so that they are raised above the ground and vegetation. Any stacking and spacing materials should not be corrosive or wet. Be sure to protect materials from the weather, but permit air movement around the bundles if possible.

Storing roof bundles and sidewall sheets at a slight incline can also help minimize the presence of moisture. Storing the bundles with the center of the dome up (like an arch) is one option for minimizing moisture during storage. Sidewall bundles can also be stored on edge but must be secured so that they do not fall over and cause injury.

If “white rust” or “wet storage stain” occurs, contact the manufacturer immediately about ways to minimize the adverse effect upon the galvanized coating.

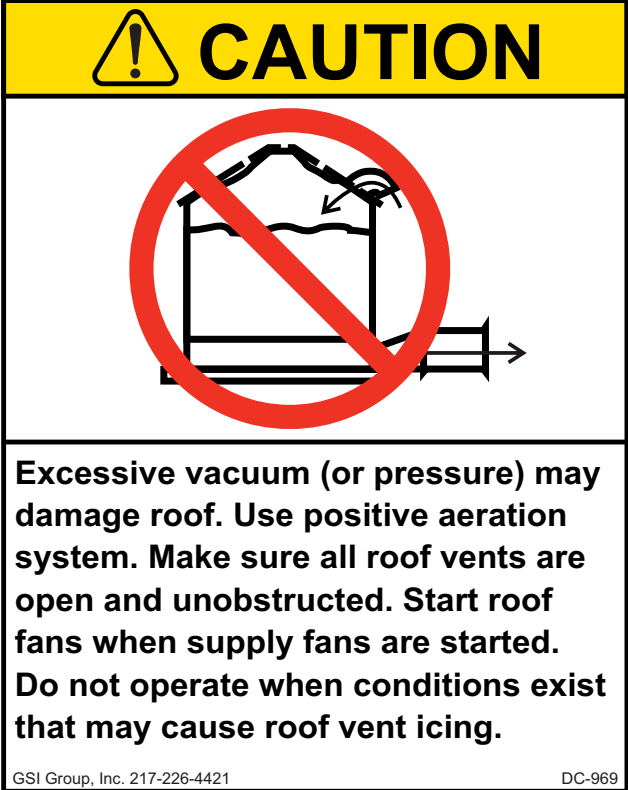
## 2. Decals


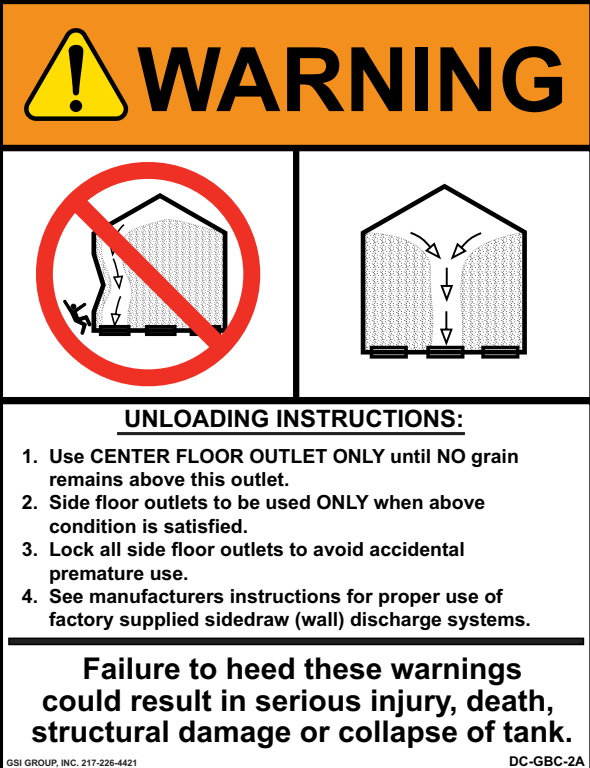
The safety decals on your equipment are safety indicators which must be carefully read and understood by all personnel involved in the installation, operation, service and maintenance of the equipment.

To replace a damaged or missing decal, contact us to receive a free replacement.

### GSI Decals

1004 E. Illinois St.  
Assumption, IL. 62510  
Phone: 1-217-226-4421

Location	Decal #	Decals	Description
Located next to aeration system.	DC-995		Caution Vacuum Pressure

Location	Decal #	Decals	Description
On bin door covers	DC-GBC-1A		Danger Keep Clear of Augers
On bin door covers	DC-GBC-2A		Warning Unload Instructions

### 3. 42' Roof Instructions

## 42' Diameter High Wind Roof Rafter Instructions

### Roof Stiffener Detail 4.00" Corrugation Outside Stiffener Only

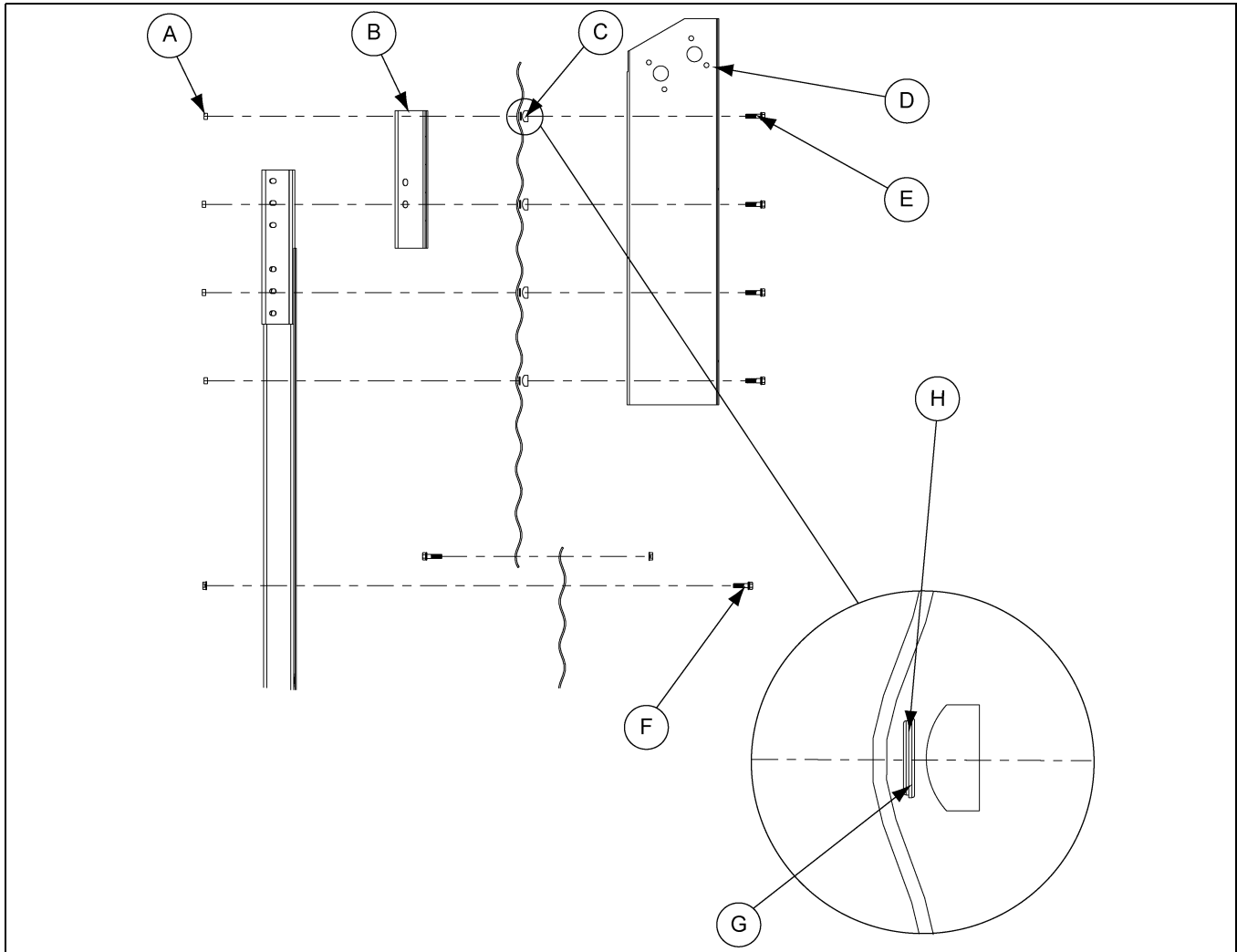


Figure 3A

Ref #	Part #	Description
A	S-7489	Hex Nut 3/8"-16 JS500 Grade 5
B	SS-7066	Top Stiffener (One per Sidewall Sheet)
C	S-7041	Corrugation Spacer
D	CRP-7035	Roof Beam Stiffener (One per Sidewall Sheet)
E	S-7488	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or Grade 8.2 with Sealing Washer
F		See sidewall and stiffener construction manual for correct hardware usage.
G		Insert steel backed neoprene washer between spacer and sidewall.
H	S-3558	3/8" Steel Backed Washer

**NOTE:** Insert corrugation spacer (S-7041) into corrugation.

### Special Rafter Instructions for 42' Diameter High Wind Roof

The 42' diameter high wind roof comes with 14 roof rafter assemblies and 28 purlins that are not included in the 30° roof manual (PNEG-1092). Install one roof rafter per sidewall sheet. Please refer to the roof manual for the complete roof assembly details.

**NOTE:** Each rafter has two (2) sections.

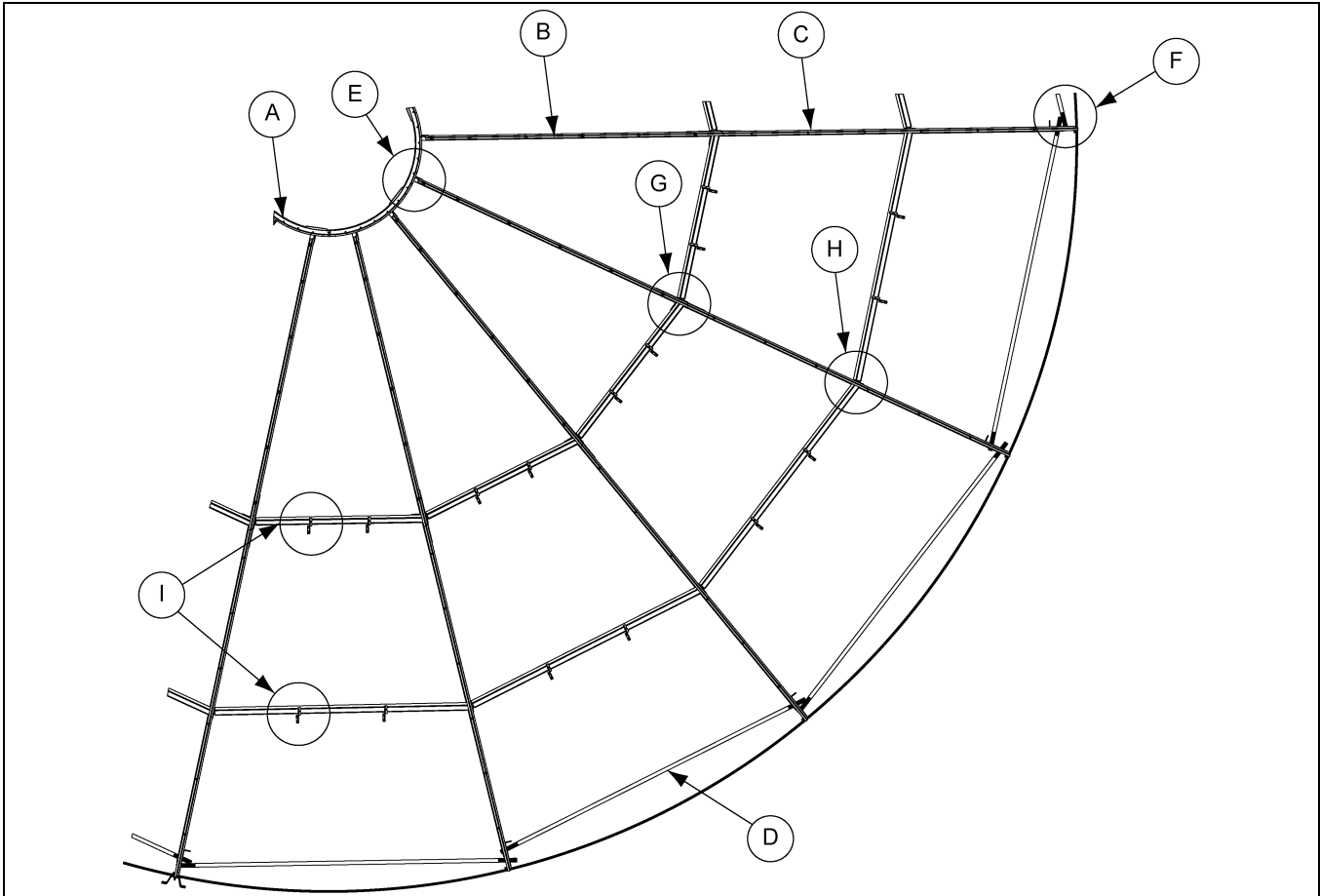
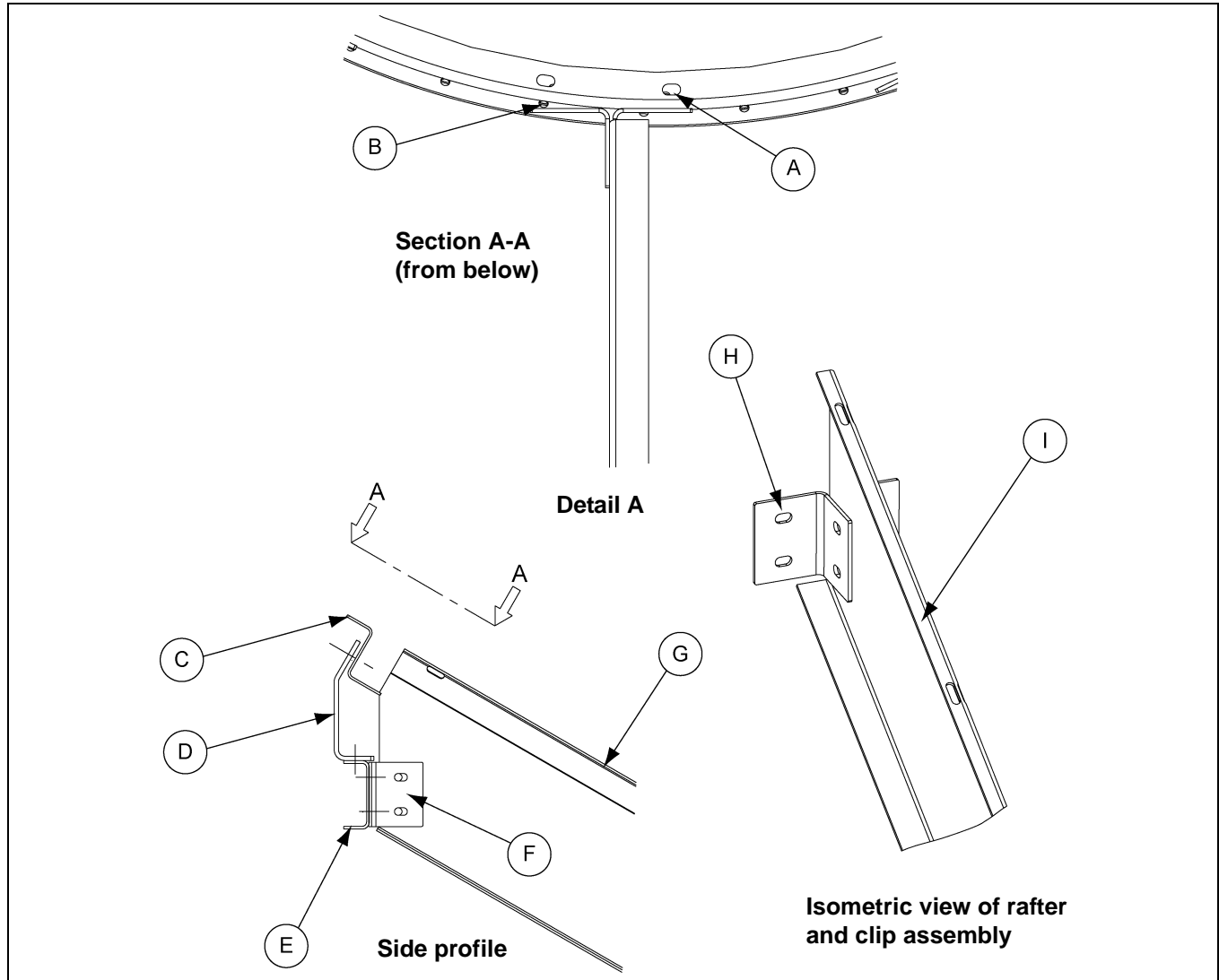


Figure 3B

Ref #	Part #	Description
A	CRP-4688	"Z" Collar
B	CRP-7038	Upper Roof Rafter
C	CRP-7034	Lower Roof Rafter
D	CRP-7033	1-1/4" Tension Rod
E		<a href="#">See Detail A on Page 14</a>
F		<a href="#">See Detail B on Page 15</a>
G		<a href="#">See Detail C on Page 16</a>
H		<a href="#">See Detail D on Page 17</a>
I		<a href="#">See Detail E on Pages 18-21</a>

### 3. 42' Roof Instructions

## Special Rafter Instructions for 42' Diameter High Wind Roof (Continued)



**Figure 3C Rafter to "Z" Collar Connection**

Ref #	Part #	Description
A		Roof Flashing Bolts
B		Bolts in these holes are to hold roof sheet and roof truss.
C	CRP-4688	"Z" Collar
D	CRP-4900	"Z" Collar Support
E	CRP-7042	Peak Ring Weldment
F	CRP-6092	Peak Ring Attach Clip
G	CRP-7038	Upper Roof Rafter
H	CRP-6092	Peak Ring Attach Clip
I	CRP-7038	Upper Roof Rafter

See [Pages 18-21](#) for special instructions and hardware callouts.

### 42' Diameter Eave Truss Assembly

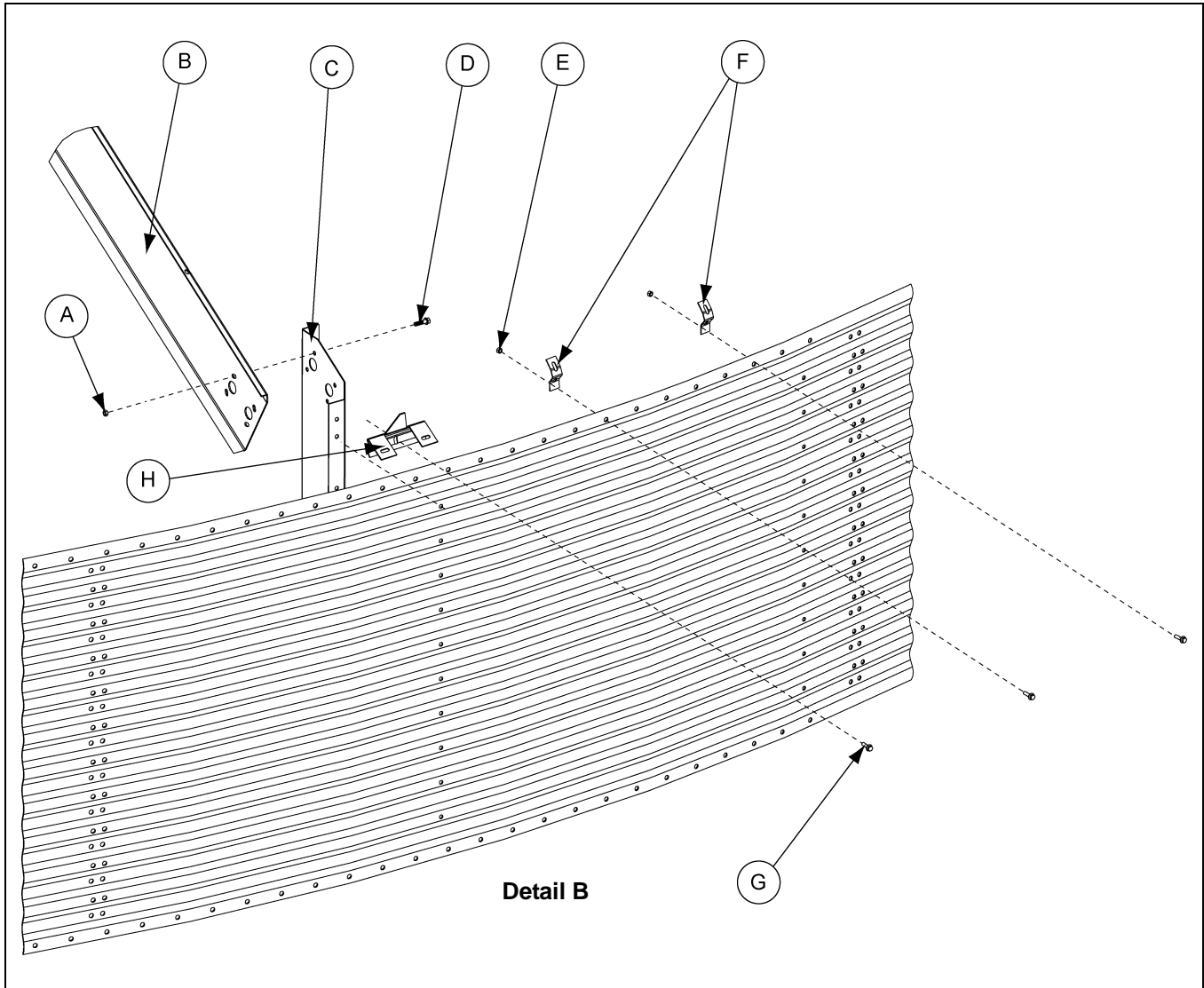
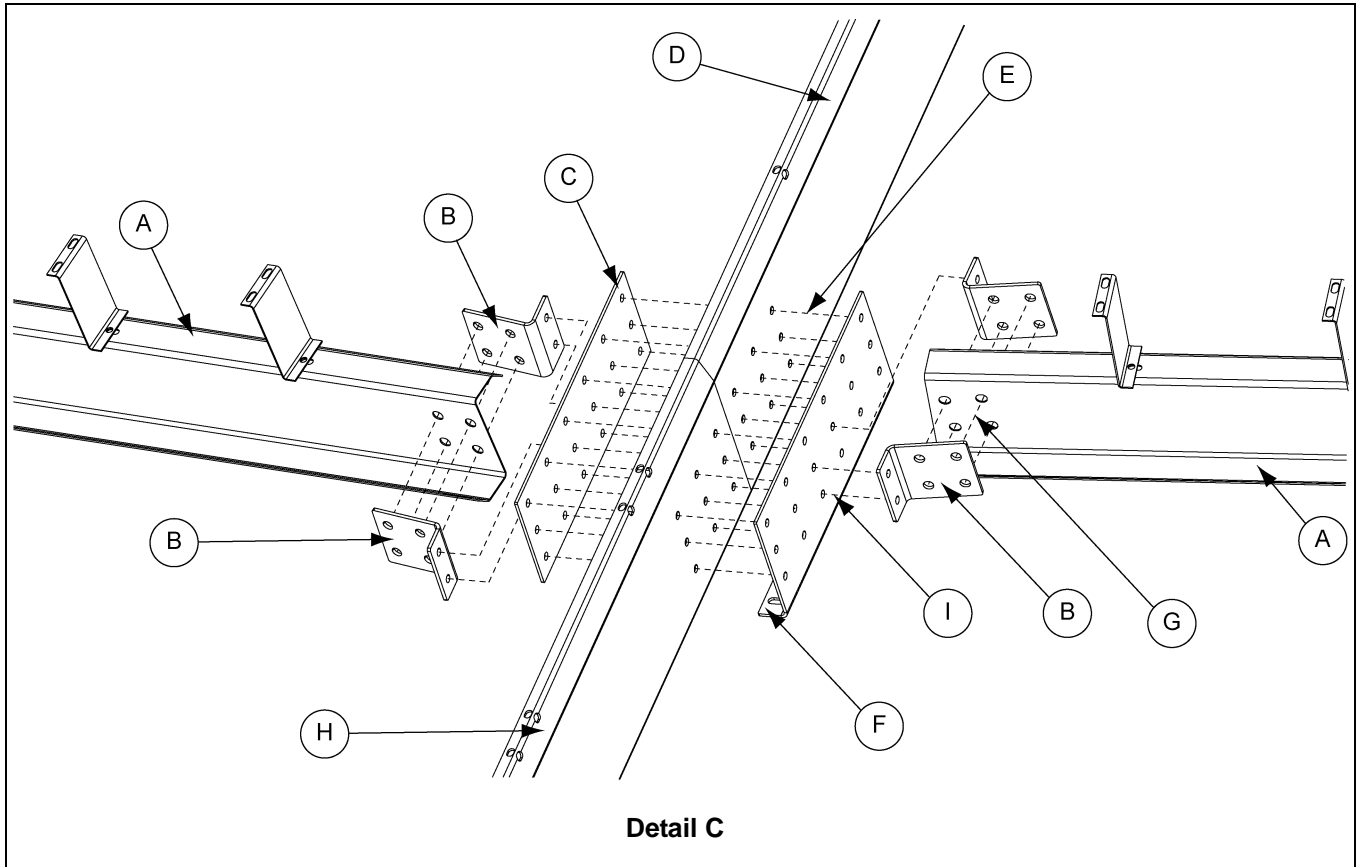


Figure 3D Rafter to Stiffener Connection

Ref #	Part #	Description
A	S-9426	Flange Nut 3/8"-16 JS500
B	CRP-7034	Lower Roof Rafter
C	CRP-7035	Roof Beam Stiffener
D	S-7485	Flange Bolt 3/8"-16 x 1" JS500 Grade 8 or Grade 8.2 (4)
E	S-7484	Hex Nut 5/16"-18 JS500 Grade 5
F	R-411 CRP-5327	Intermediate Roof Clips for FCDL and NCL Inside Stiffened Intermediate Roof Clips for 2.66" Outside Stiffened
G	S-10260	Flange Bolt 5/16"-18 x 1" JS500 Grade 8 or Grade 8.2 Full Thread with Sealing Washer
H	R-007-1 CRP-5325	Roof Eave Clip for FCDL and NCL Inside Stiffened Roof Eave Clip for 2.66" Outside Stiffened

### 3. 42' Roof Instructions

#### 42' Diameter Upper Roof Truss Assembly

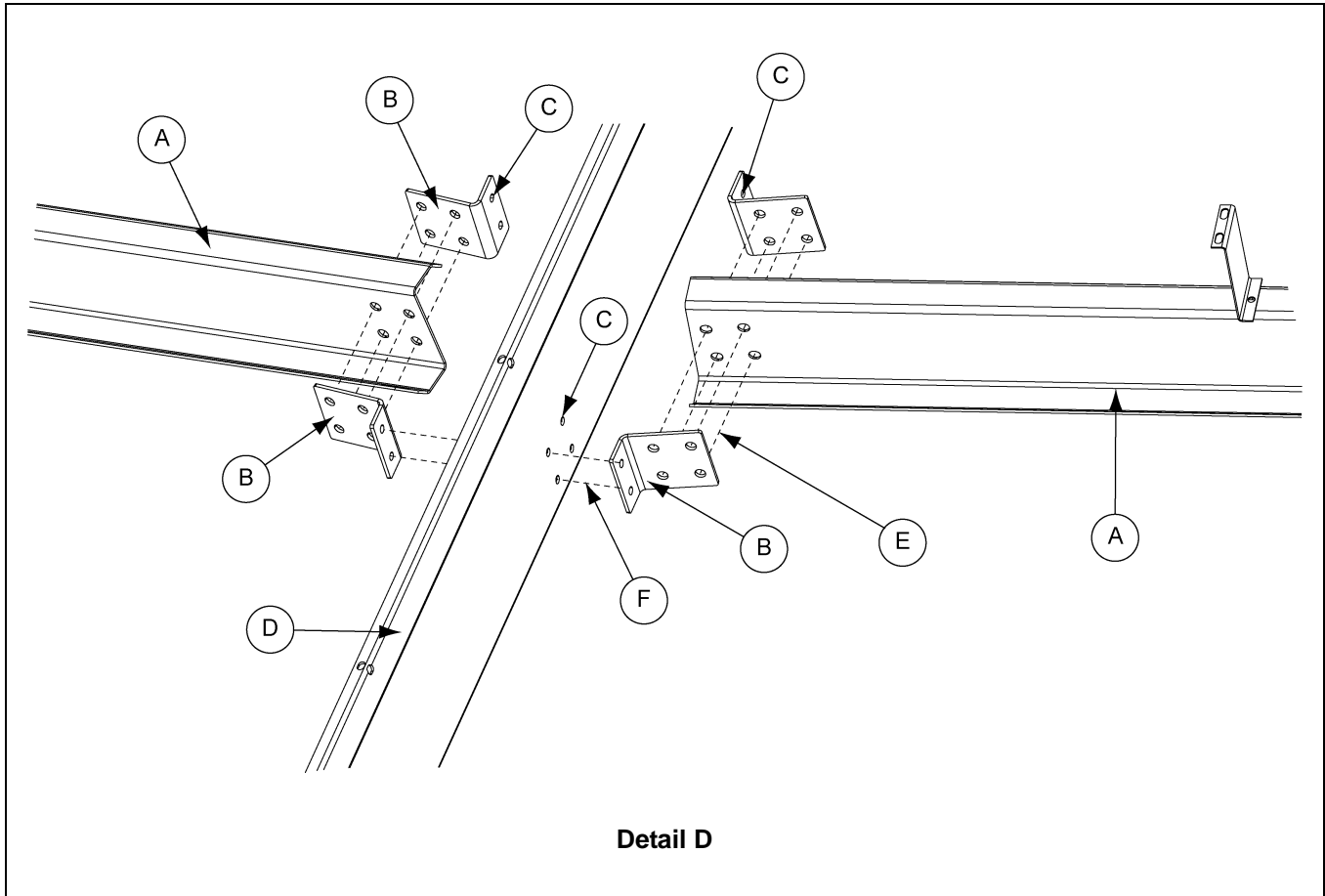


**Figure 3E Rafter Splice/Upper Purlin Connection**

Ref #	Part #	Description
A	CRP-7039	Upper Purlin
B	CRP-7044	Purlin Clip
C	CRP-4769	30° Stiffener Splice
D	CRP-7038	Upper Roof Rafter
E	S-7485 S-9426	3/8" x 1" Flange bolt with 3/8" flange nut at standard splice connection.
F	CRP-4781	30° Roof Stiffener Splice
G	S-3728 S-3729 S-2121	1/2" x 1-1/2" Bolt with 1/2" hex nut with washer on both sides. Purlin clip connection.
H	CRP-7034	Lower Roof Rafter
I	S-7486 S-9426	3/8" x 1-1/2" Flange bolt with 3/8" flange nut at purlin clip to rafter connection.



### 42' Diameter Lower Roof Truss Assembly



**Figure 3F** Lower Purlin Connection

Ref #	Part #	Description
A	CRP-7040	Lower Purlin
B	CRP-7044	Purlin Clip
C		Drill two (2) 7/16" holes into rafter to attach the second purlin clip. This only needs to be done on the lower purlin.
D	CRP-7034	Lower Roof Rafter
E	S-3728 S-3729 S-2121	1/2" x 1-1/2" Bolt with 1/2" hex nut with washer on both sides. Purlin clip connection.
F	S-7486 S-9426	3/8" x 1-1/2" Flange bolt with 3/8" flange nut at purlin clip to rafter connection.

### 3. 42' Roof Instructions

#### 42' Diameter High Wind Roof Rafter

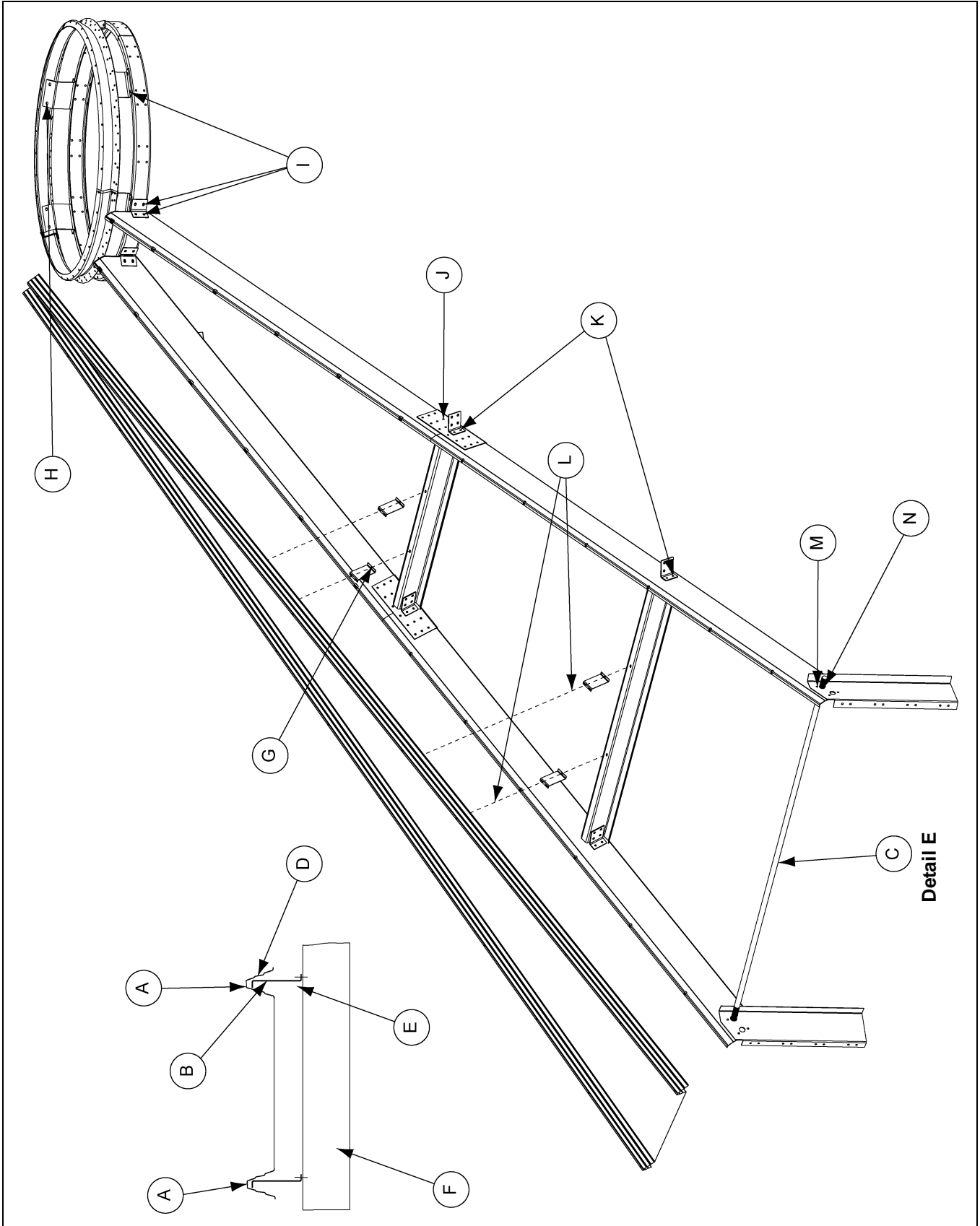


Figure 3G Roof Panel to Rib Support Clip Connection

Ref #	Part #	Description
A		Drill 3/8" Hole Panel
B	CRP-7041	Rib Support Clip
C	CRP-7033	1-1/4" Tension Rod
D		Roof Panel
E		<b>NOTE:</b> Rib support clips may be flipped 180° if needed.
F		Purlin
G	S-10260 S-10268	Attach using 5/16" x 1" bin bolt and 5/16" flange nut.
H		<b>Place center collar assembly with correct timing to roof panels and drill two (2) 3/8" holes in center collar per connection point. Six (6) total connection points.</b>
I	S-7486 S-9426	Attach using 3/8" x 1-1/2" flange bolt with 3/8" flange nut.
J	S-7485 S-9426	Attach using 3/8" x 1" flange bolt with 3/8" flange nut at standard splice connection.
K	S-7486 S-9426	Attach using 3/8" x 1-1/2" flange bolt with 3/8" flange nut at purlin clip to rafter connection.
L		Attach rib support clip to purlin using 5/16" x 1-1/4" bolt and 5/16" flange nut.
M	S-7485 S-9426	Attach using 3/8" x 1" flange bolt with 3/8" flange nut.
N	S-7250 S-8731	Attach using 1-1/4" nut with washer.

### 3. 42' Roof Instructions

#### 42' Diameter High Wind Roof Rafter (Continued)

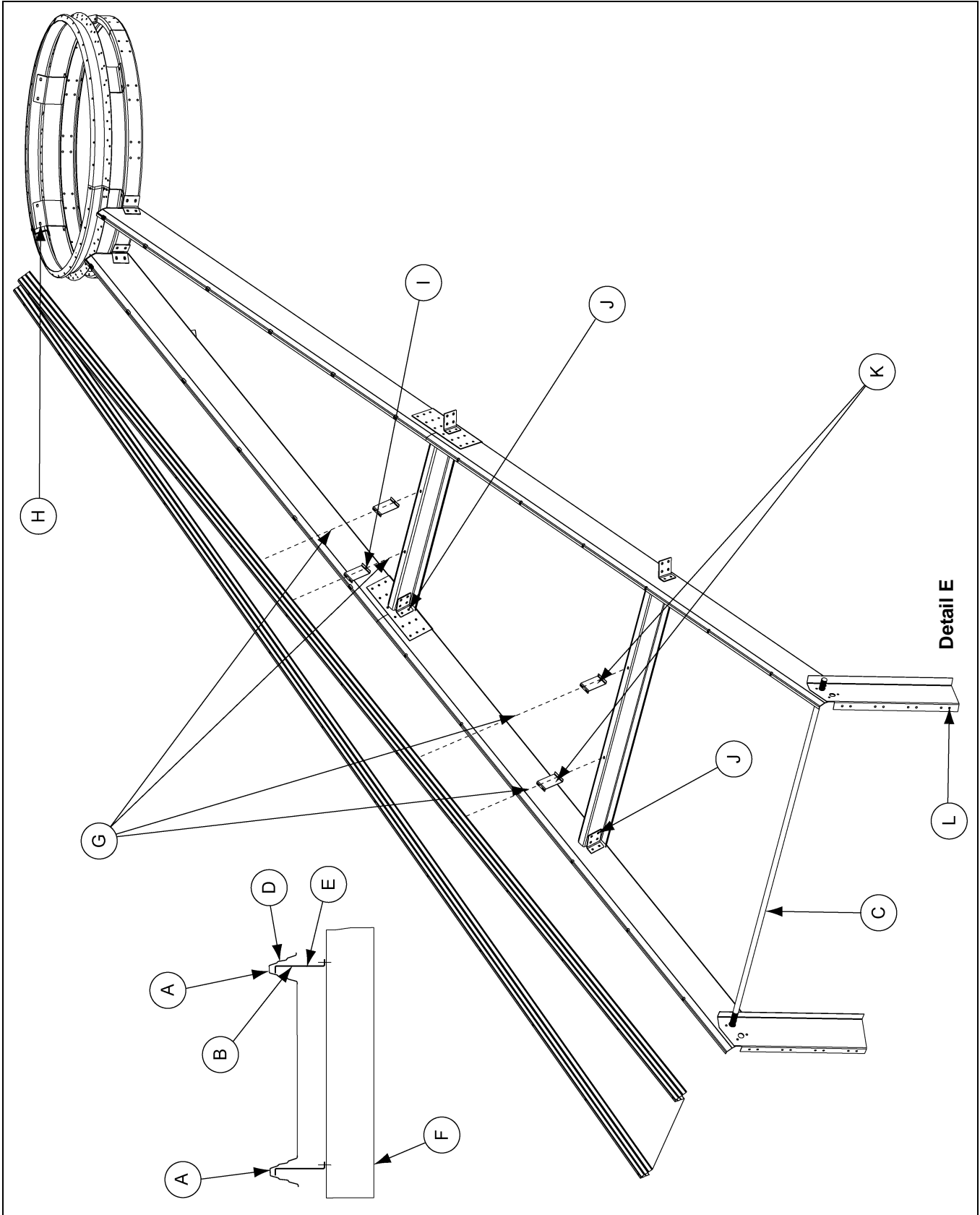


Figure 3H Roof Panel to Rib Support Clip Connection

Ref #	Part #	Description
A		Drill 3/8" Hole Panel
B	CRP-7041	Rib Support Clip
C	CRP-7033	1-1/4" Tension Rod
D		Roof Panel
E		<b>NOTE:</b> Rib support clips may be flipped 180° if needed.
F		Purlin
G		Field drill 3/8" hole through overlapping roof rib and attach to rib support clip using 5/16" x 1-1/4" bolt and 5/16" flange nut.
H	S-10260 S-10268	5/16" x 1" Flange bolt and 5/16" flange nut.
I	S-10260 S-10268	Drill one 3/8" hole in roof panel to match up with slot in "Z" roof rib clip. Bolt roof panel to "Z" roof rib clip using 5/16" x 1" flange bolt and 5/16" flange nut.
J	S-3728 S-3729 S-2121	1/2" x 1-1/2" Full threaded bolt with 1/2" hex nut with washer on both sides. Purlin to purlin clip connection.
K	CRP-7041	Rib Support Clips
L	S-7488 S-9426	3/8" x 1-1/2" Flange bolt with 3/8" flange nut.

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# NOTES

## GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

### Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period	
<b>AP Fans and Flooring</b>	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 25% 5 to 7 years - end-user pays 50% 7 to 10 years - end-user pays 75%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
<b>AP and Cumberland</b>	Flex-Flo/Pan Feeding System Motors	2 Years	
<b>Cumberland Feeding/Watering Systems</b>	Feeder System Pan Assemblies	5 Years **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	Feed Tubes (1-3/4" and 2.00")	10 Years *	
	Centerless Augers	10 Years *	
	Watering Nipples	10 Years *	
<b>Grain Systems</b>	Grain Bin Structural Design	5 Years	
<b>Grain Systems Farm Fans Zimmerman</b>	Portable and Tower Dryers	2 Years	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12<sup>th</sup>) month from the date of purchase and continuing until the sixtieth (60<sup>th</sup>) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

### Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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