

ASSEMBLY □ □ □ MANUAL

6', 7' & 9' Bulk Feed Tank
BFT Series & GHT Series
Hopper Tanks, Accessories and
Components

Owner's Manual
Manual# PNEG-256
6/9/1999



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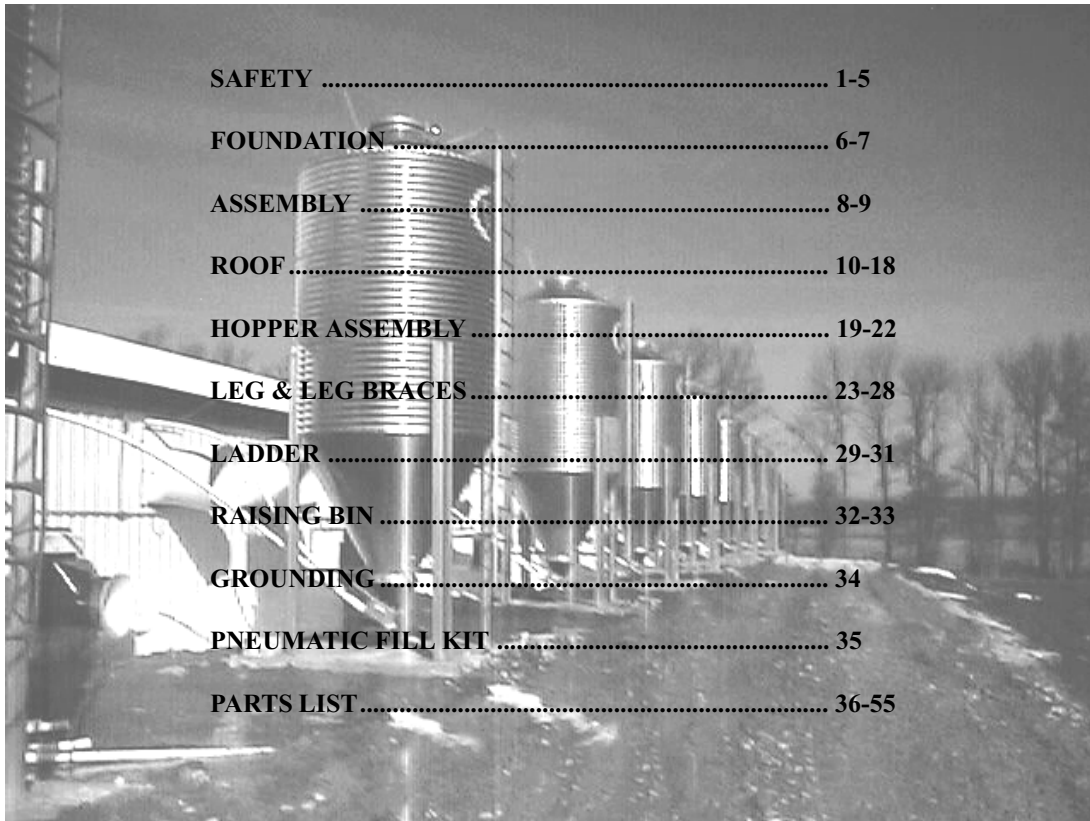


Conversion Table**Bulk Feed Tank**

Fraction - Decimal - Millimeter Conversion Table

Fractions	Decimals	Millimeters	Fractions	Decimals	Millimeters
1/64	.0156	.3969	33/64	.5156	13.0969
1/32	.0313	.07938	17/32	.5313	13.4938
3/64	.0469	1.1906	35/64	.5469	13.8906
1/16	.0625	1.5875	9/16	.5625	14.2875
5/64	.0781	1.9844	37/64	.5781	14.6844
3/32	.0938	2.3813	19/32	.5938	15.0813
7/64	.1094	2.7781	39/64	.6094	15.4781
1/8	.125	3.1750	5/8	.625	15.8750
9/64	.1406	3.5719	41/64	.6406	16.2719
5/32	.1563	3.9688	21/32	.6563	16.6688
11/64	.1719	4.3656	43/64	.6719	17.0656
3/16	1.875	4.7625	11/16	.6875	17.4625
13/64	.2031	5.1594	45/64	.7031	17.8594
7/32	.2188	5.5563	23/32	.7188	18.2563
15/64	.2344	5.9531	47/64	.7344	18.6531
1/4	.250	6.3500	3/4	.750	19.0500
17/64	.2656	6.7469	49/64	.7656	19.4469
9/32	.2813	7.1438	25/32	.7813	19.8438
19/64	.2969	7.5406	51/64	.7969	20.2406
5/16	.3125	7.9375	13/16	.8125	20.6375
21/64	.3281	8.3344	53/64	.8281	21.0344
11/32	.3438	8.7313	27/32	.8438	21.4313
23/64	.3594	9.1281	55/64	.8594	21.8281
3/8	.375	9.5250	7/8	.875	22.2250
25/64	.3906	9.9219	57/64	.8906	22.6219
13/32	.4063	10.3188	29/32	.9063	23.0188
27/64	.4219	10.7156	59/64	.9219	23.4156
7/16	.4375	11.1125	15/16	.9375	23.8125
29/64	.4531	11.5094	61/64	.9531	24.2094
15/32	.4688	11.9063	31/32	.9688	24.6063
31/64	.4844	12.3031	63/64	.9844	25.0031
1/2	.500	12.7000	1	1.000	25.4000

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SAFETY FIRST

General Safety Statements

The GSI Group Inc's Principal concern is your safety and the safety of others associated with grain handling equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems which may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards and precautions exist and inform all personnel associated with, or in the area of the Fill/Feed System. Safety precautions may be required from the personnel. Avoid any alteration to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury




WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



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

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



**BE ALERT!
Danger!**
Personnel operating or working around electrical equipment should 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 storing feed only. Any other use is a misuse of the product!

While every effort has been made to keep the edges from being sharp, please wear the proper protective clothing while erecting the bulk feed tank.

The GSI Group Inc. recommends that you contact your local power company and have a representative review your installation so your wiring will be compatible with their system and so that you will have adequate power supplied to your unit.

A bulk feed tank weighs a minimum of 159 lbs (72kg). All precautions should be taken when raising the tank to its feet. Follow the instructions given later in this manual.

The safety pages that follow are to show you where you can find the safety decals. The photographs show exactly where the decals should be. If a decal has been damaged or is missing contact The GSI Group, Inc. for a free replacement.

(This Page)

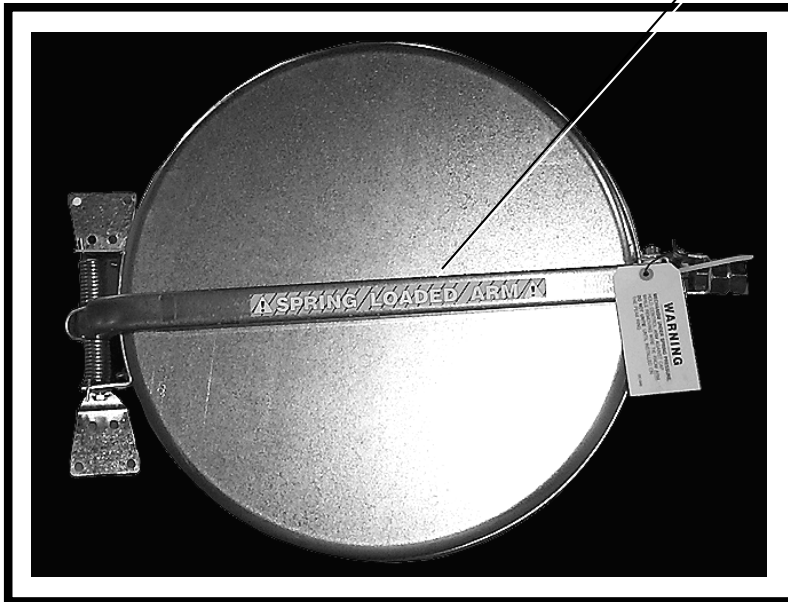
DC-604

**Located on the Cap Latch
Control Arm**

(Next Page)

DC-590

**Located on the Cap Latch
Control Arm**



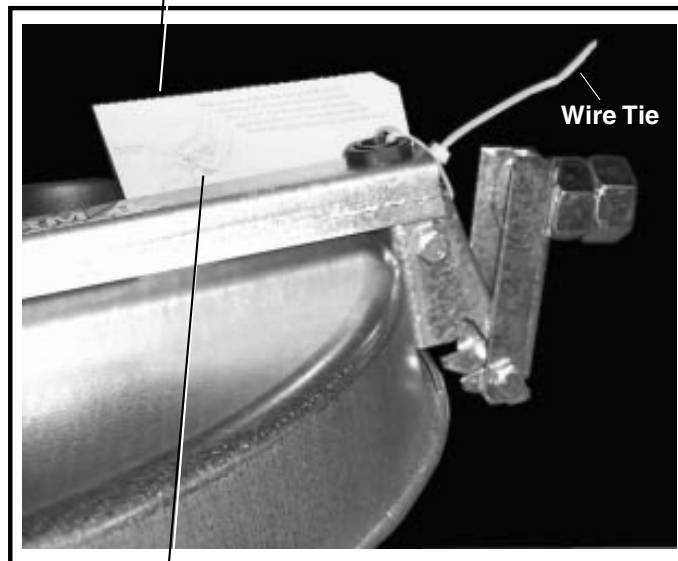
SPRING LOADED ARM

WARNING



MECHANISM UNDER SPRING PRESSURE. HOLD CONTROL ARM AGAINST CAP WHILE REMOVING WIRE TIE FROM ARM. DO NOT UNTIE UNTIL INSTALLED ON THE PEAK RING

DC-590



Make sure loop of Main Cap Spring (BLK-11623) is held securely in the preloaded position by the 5/16" x 1 1/4" Stop Bolt beneath. If necessary, place one or more 5/16" flat washers under the bolt head to ensure that the bolt catches the loop.

Main Cap Spring (BLK-11623)

5/16" x 1 1/4" Stop Bolt
5/16" Flat Washers

PNEG-452

Grain Systems, Inc.
Assumption, IL 62510
(217) 226-4421

⚠ DANGER

 Rotating fighting can kill or dismember.	 Flowing material can trap and suffocate.	 Crusted material can collapse and suffocate.
---	---	---

**Keep clear of all augers.
DO NOT ENTER this bin!**

If you must enter this bin:

1. Shut off and lock out all power.
2. Use safety harness and safety line.
3. Station another person outside the bin.
4. Avoid the center of the bin.
5. Wear proper breathing equipment or respirator.

Failure to heed these warnings will result in serious injury or death

DC-592

DC-522
Located on inside the Peak Cap



Bulk Feed Tank Assembly Manual General Instructions

First, read the Assembly Manual completely before starting to assemble your Bulk Feed Tank. Check your shipment with the packing list to be sure there are no shortages.

1. Decal protective mask must be removed when assembling tank. Mask may become difficult to remove if left exposed to sunlight.
2. Vertical seams **must be staggered** on all sidewall rings.
3. When legs extend up two rings, the leg holes must be in **alignment** in the bottom two rings.
4. All hopper seams and the hopper collar use truss head bolts. The heads of the bolts must be on the **inside** of the tank.
5. All bolts are to be tightened from the **nut side only. Do not allow bolt heads to spin.**
6. Hex head bin bolts are used on all sidewall and roof seams with the bolt heads on the **outside** of the bin.
7. Hex head bolts are to be used on all leg to sidewall connections with the bolt heads on the inside of the tank.
8. 7' diameter sidewall sheets **must** be bolted together so there is 65-5/8" between leg holes. (Refer to page 44.)
9. Drift punches can be used to align holes.
10. All vertical sidewall sheet seams must be overlapped in the same direction.
11. A hole spacing of 3-1/8" is used at the top of all top sidewall sheets and at the bottom of all bottom sidewall sheets.

Selecting The Proper Site

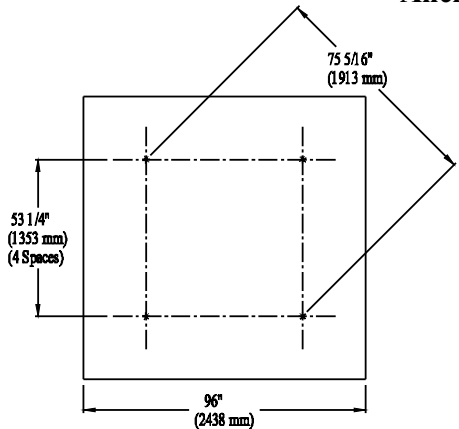
The selected site should be level, firm and free from underlying debris. The tank can be installed satisfactorily on slopes, but as the slope increases, additional labor and materials are required for the foundation. The concrete foundation surfaces must be level. If some fill is required, it should be watered and tamped thoroughly to prevent uneven settling from the weight of the tank. Good water drainage should be provided to prevent water collecting under or around the tank. Naturally, the site must allow convenient access for easy loading and unloading, plus provide additional space for future units. Also, consider the positioning of handling equipment, availability of electricity, etc.

Tools

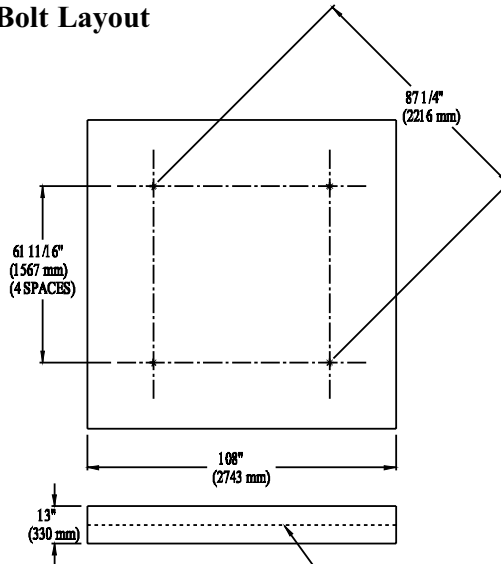
Tools recommended for assembly of Bulk Feed Tanks.

Assorted sizes of combination wrenches
Hammer
3-12" long drift punches
1 Large Flathead Screwdriver
1 Pair of slip joint pliers
2 Adjustable wrenches
Ratchet and sockets
Impact wrenches and sockets (if available).

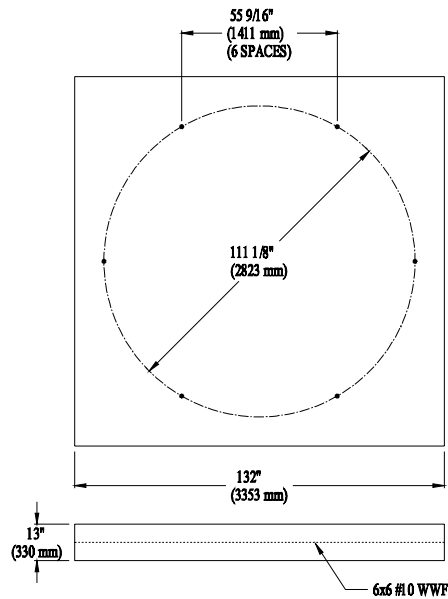
**Foundation Specifications
and
Anchor Bolt Layout**



6' DIA. TANK
2.6 Yards of Concrete (2.0 cubic meters)



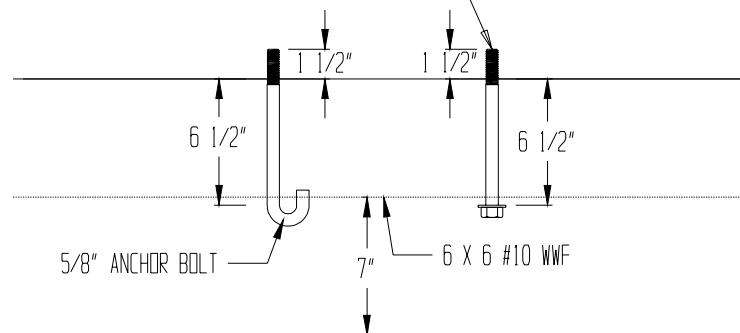
7' DIA. TANK
3.3 Yards of Concrete (2.5 cubic meters)



9' DIA. TANK
4.9 Yards of Concrete (3.8 cubic meters)

ANCHOR BOLT DETAIL

Alternate Anchor Bolt 5/8" x 8" (203 mm) bolt with a 3/16" thick x 1.5/8" O.D. washer next to bolt head.



Foundations are designed to be constructed with a soil bearing pressure of 3,500 P.S.F. (17,090 kg/m²). It is suggested to check local conditions in order to determine whether they comply with the necessary soil bearing values when using the concrete requirements set forth.

NOTE: ALL CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. (20,685 kPa) IN 28 DAYS.

Refer to drawings of anchor bolt detail and foundation specifications for proper size of bulk feed tank. It is most important that the foundation be level. Leg shims can be used to correct imperfections, but are not supplied with tanks.

Tank Side Walls

Sidewall Sheet Gauge Chart

Model	Gauge
BFT 6'-1 Ring	20
BFT 6'-2 Ring	20-20
BFT 6'-3 Ring	20-20-20
BFT 6'-4 Ring	20-20-20-20
BFT 7'-1 Ring	18
BFT 7'-2 Ring	18-20
BFT 7'-3 Ring	18-20-20
BFT 7'- 4 Ring	18-20-20-20
BFT 7'-5 Ring	18-18-20-20-20
BFT 7'-6 Ring	18-18-20-20-20-20
BFT 9'-1 Ring	20
BFT 9'-2 Ring	20-20
BFT 9'-3 Ring	20-20-20
BFT 9'-4 Ring	18-20-20-20
BFT 9'-5 Ring	18-18-20-20-20
BFT 9'-6 Ring	16-18-18-20-20-20

How to use charts on this page:

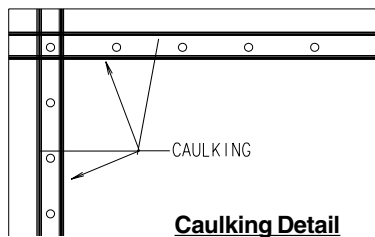
The chart labeled "Sidewall Sheet Gauge Chart" is for your reference when building the tank. This chart tells you what gauges your rings of your specific tank must have. To read the chart you look up the tank size you are building (a 7 foot diameter tank with 4 rings is referred to as BFT 7'-4 Ring). The side labeled "Gauge" will indicate which sidewall sheets to use. The sheets are color coded, all that needs to be done is to match the gauge number with the color (use "Sheet Gauge Color Code Chart")

Sidewall sheets are color coded on edges for gauge identification

Sheet Gauge Color Code Chart

20	Red
18	Orange
16	Blue
14	Green
12	Black
10	Light Blue

Caulking



Note: The rope caulking is installed before each sheet is assembled. Wipe sheet clean where it is to be applied. Apply caulking on each side of the holes on the vertical seams and also on each side of the horizontal row of holes.



Caulking is to be applied to all BFT parts before assembly.

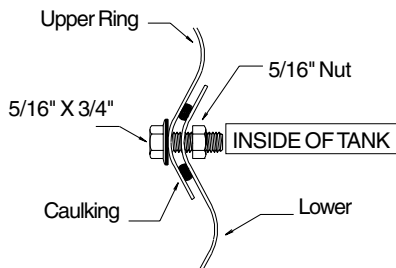
Sidewall Assembly

Start by assembling the top ring of the Bulk Feed Tank. The top row of bolt holes has 3-1/8" spacing in the top ring. Before bolting the sidewall sheets together, check that you have the proper gauge steel for the top ring. The higher gauge number denotes thinner material. (Example, 20 gauge material is thinner than 14 gauge.) In assembling all bulk feed tanks the thinnest material always go on top. The heaviest corrugated sidewall sheet will be located on the bottom of the tank. Check the various gauges of your tank with with the "Sheet Gauge Color Code Chart" & "Sidewall Sheet Gauge Chart", page 11.) Begin by putting the rings together on the edge of the sheets. On 7'-1 ring tanks ensure vertical leg seams are spaced equally around tank. (Refer to page 44.) After the first ring is complete the roof needs to be assembled. The pages that follow give the proper instructions for this. After the roof is assembled the tank can be rolled on its side for easier sidewall assembly. (See photograph at the bottom of this page.)

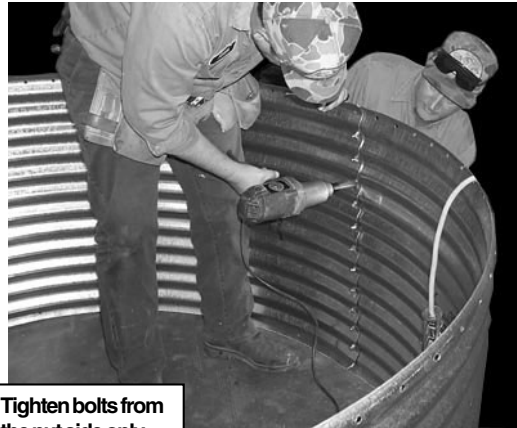
All bolts are to tightened from the nut side only!

Continue to add rings with lighter gauges first, then heavier gauges. The next row of sidewall sheets go to the inside of the previous row of sidewall panels. Do not forget to place the caulking between every ring.

Be sure to stagger all vertical seams between rows.



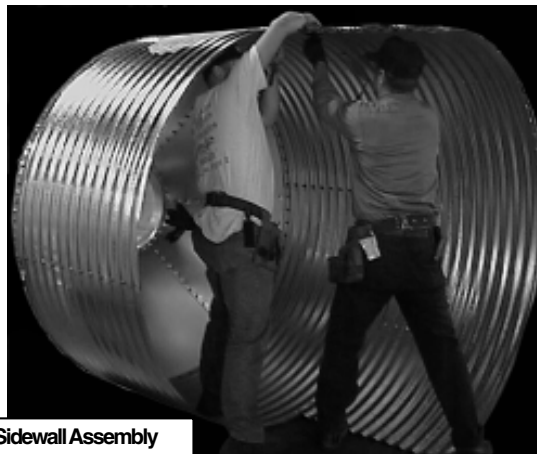
Ring Overlap Detail



Tighten bolts from the nut side only.

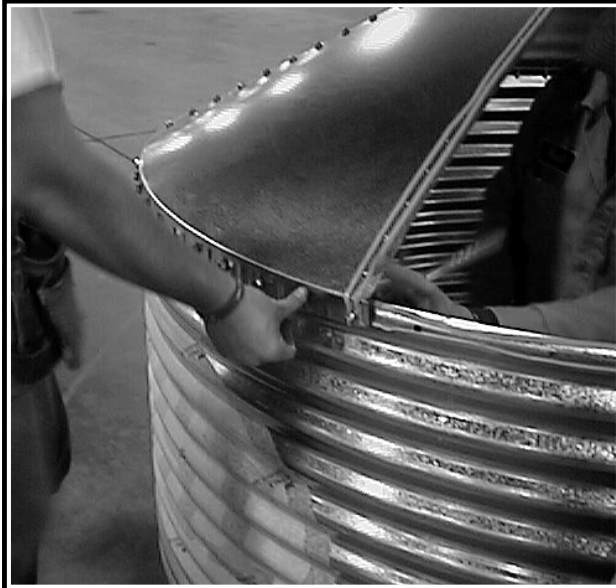
Important Note:

BOLTING PATTERN BEGINS IN THE CENTER OF THE SHEET! When starting to assemble the sidewall rings to one another, be sure to start in the center of the sheet and work to the outside edges (horizontal seams). This allows the sidewall to draw up evenly.



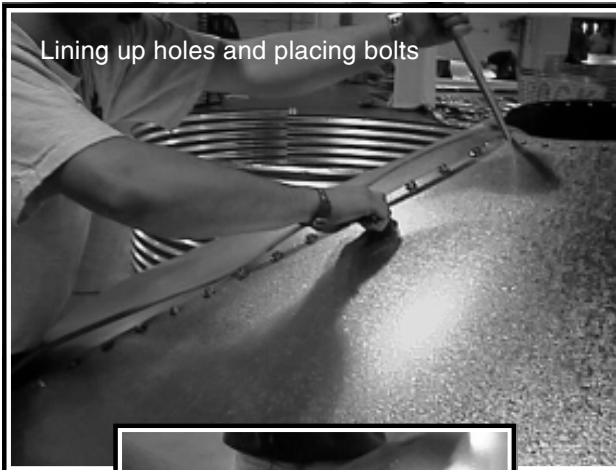
Sidewall Assembly

It is easier to put on more sidewall sheets with the tank on its side. It can be rolled easily from side-to-side to allow the bolts and nuts to be put in the proper holes. (The roof is, however, assembled on the first ring before rolling it over to its side.)

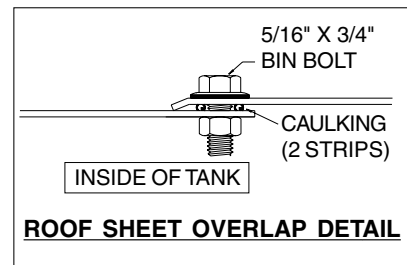


**Sealed Roof Panels
Installation**

Note that the roof and sidewall ladders are centered on a roof seam. Take notice when placing roof panel, that the outside edge is bent down. This edge is to be placed on the outside of other roof panel to form a tight seal. Be sure to apply two strips of caulking on all seams. Assemble roof panels in a counter clockwise manner.

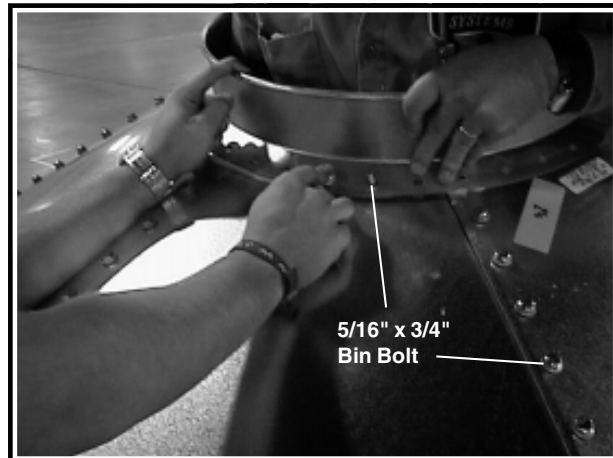
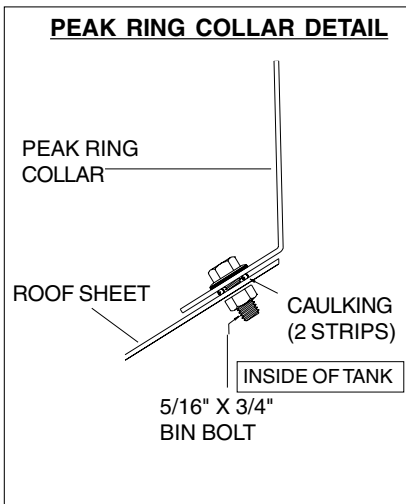
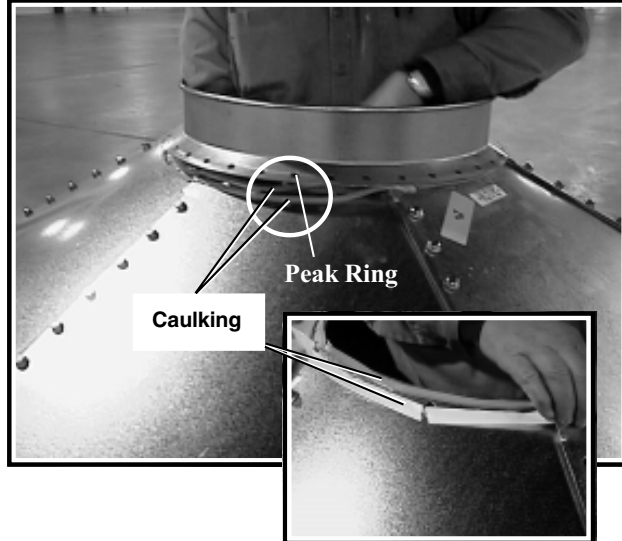


Assemble roof panels in a counter clockwise manner. On bins that will be equipped with a pneumatic fill system (refer to page 35), the two roof panels with fill hole and exhaust hole should be located opposite each other on the bulk feed tank. The peak ring may now be installed.



Peak Ring Collar to Roof Panels

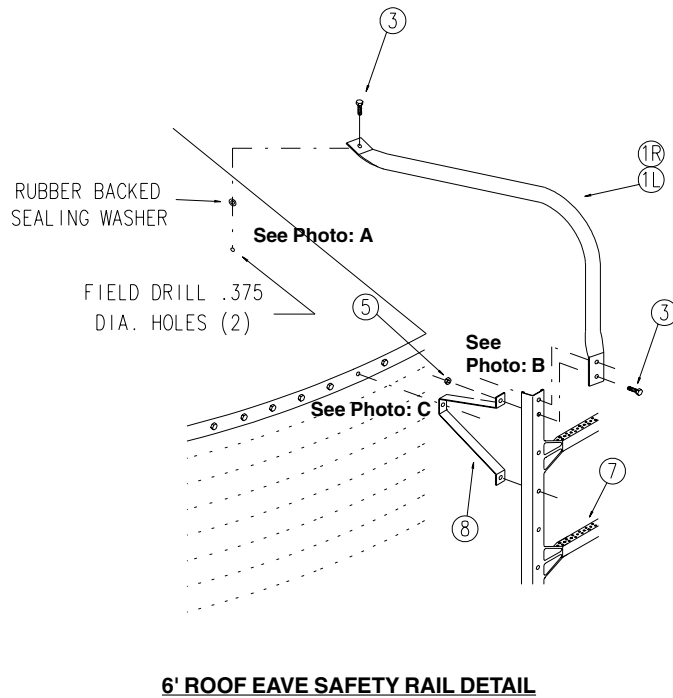
Use two strips of caulking between peak ring and roof panels (refer to photo). Note that the peak ring goes on the outside of the roof panels.



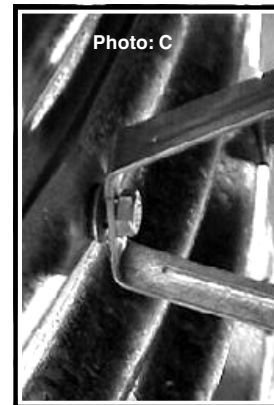
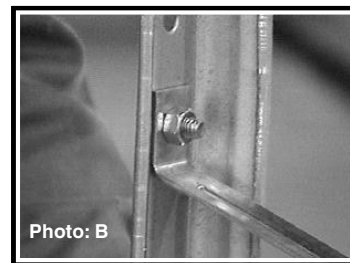
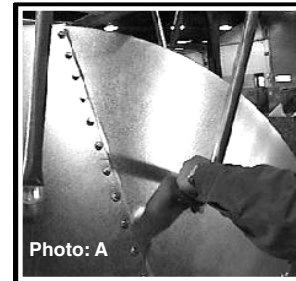
Roof: Eave Safety Rail

Bulk Feed Tanks

Eave Safety Rail (6')



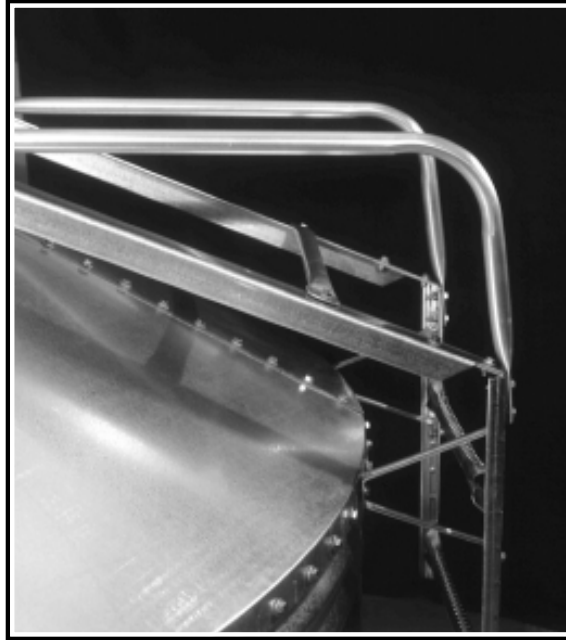
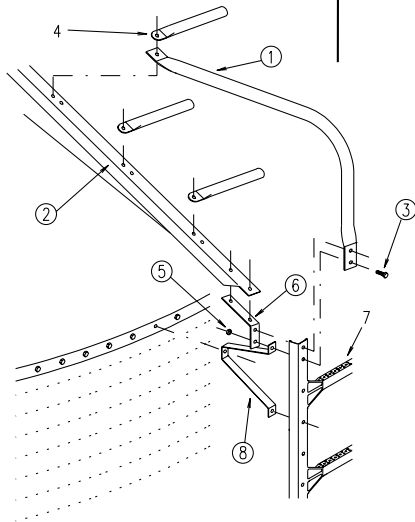
Field drill two (2) 3/8" dia. holes in 6' roof for safety rail attachment. Use bin bolt sealing washer between roof and rail. Note left and right positioning so it will fall between the legs when tank is complete.



Key	Part No.	Description	Qty. 6' Dia
1L	BLK-11877L	6' BFT Left Hand Roof Eave Safety Rail	1
1R	BLK-11877R	6' BFT Right Hand Roof Eave Safety Rail	1
3	S-275	5/16" x 3/4" Bin Bolt	6
5	S-396	5/16" - 18 Hex Nut	6
6	BLK-11673	Lower Support Channel Bracket	--
7	LDR-4002	44" Sidewall Ladder Section	--
8	LS-121	Sidewal Ladder Standoff	--

Eave Ladder

*Note:
Ladder is symmetrical about roof
seam. One side shown for clarity.*

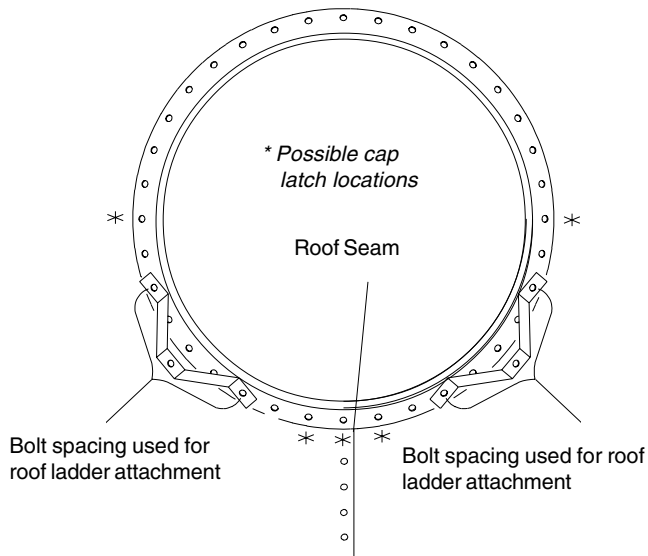


7' & 9' ROOF EAVE LADDER DETAIL

Key	Part No.	Description	Qty. 7' Dia	Qty 9' Dia
1	BLK-11680	Ladder Eave Safety Ring	2	2
2	BLK-11760	7' BFT Roof Ladder Support Channel	2	--
2	BLK-11761	9' BFT Roof Ladder Support Channel	--	2
3	S-275	5/16" x 3/4" Bin Bolt	16	18
4	BLK-11679	Roof Ladder Rung	2	3
5	S-396	5/16" -18 Hex Nut	16	18
6	BLK-11673	Lower Support Channel Bracket	2	2
7	LDR-4002	44" Sidewall Ladder Bracket	--	--
8	LS-121	Sidewall Ladder Standoff	--	--

Roof: Peak Ring (Ladder)

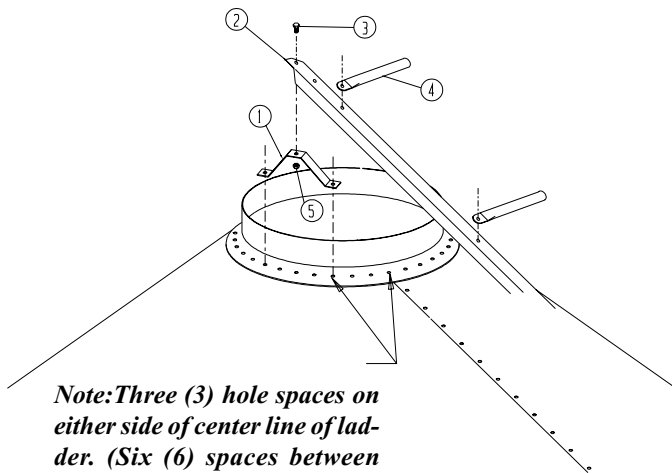
Bulk Feed Tanks



Note that peak ring is mounted to the outside of the roof panels. 6' Bulk Feed Tank utilizes only eave safety rail. See previous page for details.

Note: Center roof ladder over roof seam during assembly. Ladder is symmetrical about roof seam. One side shown for clarity.

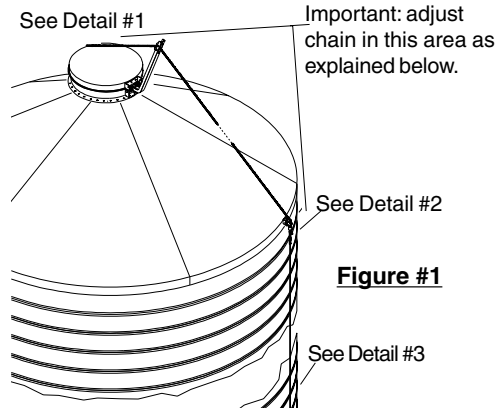
7'-9' ROOF LADDER PEAK RING DETAIL



Note: Three (3) hole spaces on either side of center line of ladder. (Six (6) spaces between brackets)

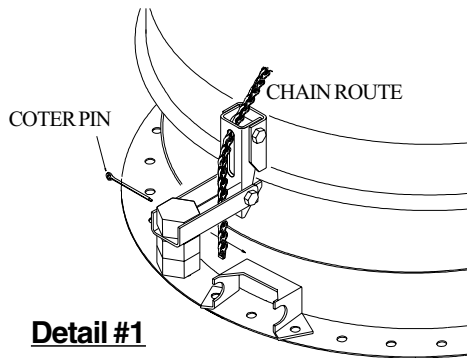
Key	Part No.	Description	Qty 7' dia.	Qty 9' dia
1	LS-147	Inside Ladder Standoff	2	2
2	BLK-11760	7' BFT Roof Ladder Support Channel	2	--
2	BLK-11761	9' BFT Roof Ladder Support Channel	--	2
3	S-275	5/16" x 3/4" Bin Bolt	16	18
4	BLK-11679	Roof Ladder Rung	2	3
5	S-396	5/16" - 18 Hex Nut	16	18

ROOF CAP GROUND CONTROL



Ground control comes standard on 6'-60°, 7-67° and 9'-60° Bulk Feed Tanks. Ground Control is optional on all 45° Bulk Feed Tanks. Ground control components come fully assembled for your convenience. The ground control is shipped with the control arm secured for safety and shipping purposes. The short chain and retaining tie are intended for shipping use only.

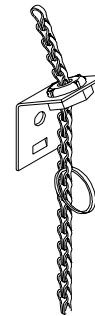
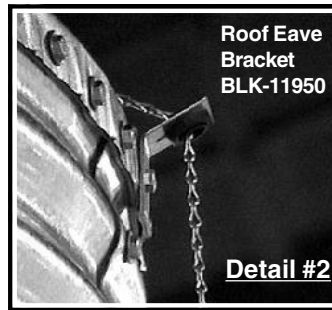
CAUTION: The control arm is spring loaded. Be careful when removing shipping retainers.



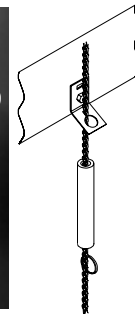
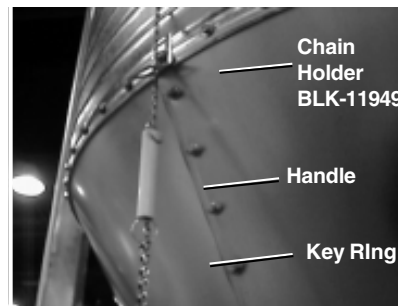
Detail #1

Refer to the Control Arm and Cap Latch details for component part assembly. The cap latch hook, located opposite the cap hinge, latches over the BLK-11846 Hold Down Bracket (Item 20, Cap Latch Detail pg. 17). One end of the ground control chain is secured at the counterweight arm with a cotter pin (See Detail #1). The chain is passed up and over the cap, through the grommet on the pivot arm, and through the Roof Eave Bracket (BLK-11950), then continues down the side of the tank.

After removing the slack from the ground control chain while in the fully closed and latched position. Install the key ring clip 2" below chain holder bracket. (See Detail #3). Ensure that the key ring allows the cap to fully latch when the cap is in the closed position, yet will not allow the chain enough slack on top of the cap to become wrapped around the pivot arm in a high wind condition.



Make sure the loop of the Main Cap Spring (BLK-11623) is held securely in the preloaded position by the head of the 5/16" Bolt beneath (Item 4, Control Arm Detail pg. 16). If necessary, place one or more 5/16" flat washers under the bolt head to ensure that the bolt catches the loop (See Stop Bolt Detail on Page #16).

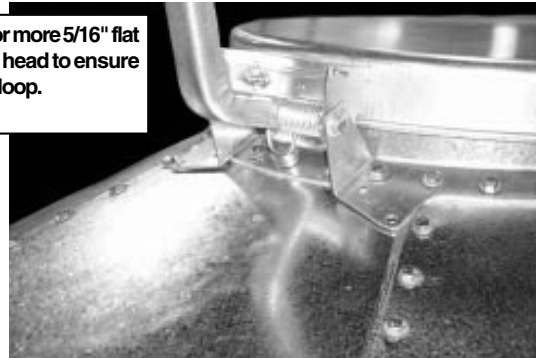


Bolt the Chain Holder (BLK-11949) to the bottom horizontal row of sidewall holes, or field drill and bolt to the leg tie brace (See Detail #3). Two (2) 4" plastic handles and extra key ring clips are provided for use at the hopper eave to be used as fully open and fully closed cap indicators.



Make sure the loop of the Main Cap Spring (BLK-11623) is held securely in the preloaded position by the head of the 5/16" bolt beneath.

If necessary, place one or more 5/16" flat washers under the bolt head to ensure that the bolt catches the loop.

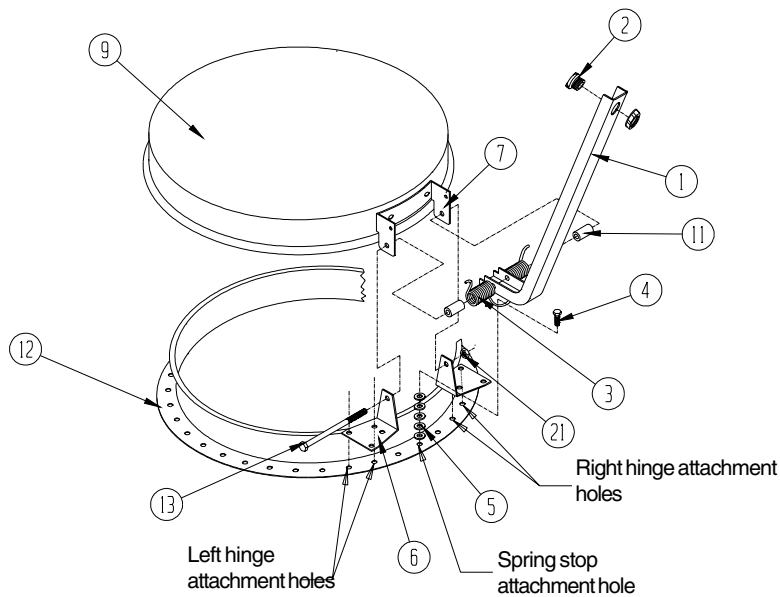


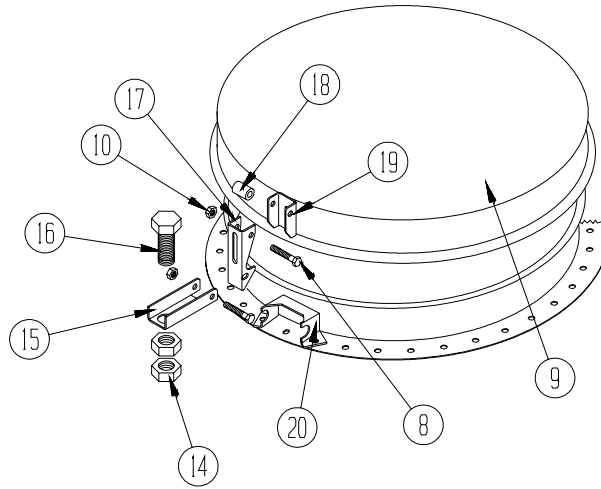
⚠ WARNING

The control arm is spring loaded. It must be released while on the ground and before attaching it to the peak ring. Failure to do so will result in serious injury.

Note: Use the chart on page 21 for Control Arm and Control Arm details.

Control Arm Detail





Ground Control Detail

Parts List for Control Arm and Ground Control

Key	Part No.	Description
1	BLK-11735	Control Arm
2	BLK-11876	Nylon Grommet with Nut
3	BLK-11623	Flush Cap Main Spring
4	S-277	5/16" - 18 x 1.25" Bin Bolt (Grade 5)
5	S-845	5/16" Wrought Iron Washer (Grade 2)
6	BLK-11842	Lower cap Hinge
7	BLK-11734	Upper Cap Hinge
8	S-6989	5/16"-18 x 2.25" Hex Head Bolt
9	BLK-10015	Bulk Tank Roof Cap
10	S-5220	5/16" - 18 Hex Lock Nut (Grade 2)
11	BLK-11503	1.875" Long Spring Spacer

Key	Part No.	Description
12	BLK-11730	1 Piece Bulk Tank Peak Ring
13	S-7171	3/8" - 16 x 6.5" Hex Head Bolt (Grade 5)
14	S-3214	7/8" - 9 Hex Nut (Grade 2)
15	BLK-11845	Latch Counterweight
16	S-7281	7/8" - 9 x 1.5" Hex Head Bolt
17	BLK-11844	Peak Cap Latch
18	BLK-11795	0.938" x .750 Dia. Plastic Spacer
19	BLK-11843	Pivot Bracket
20	BLK-11846	Cap Hold Down Bracket
21	S-4663	3/8" -16 Hex Head Locknut

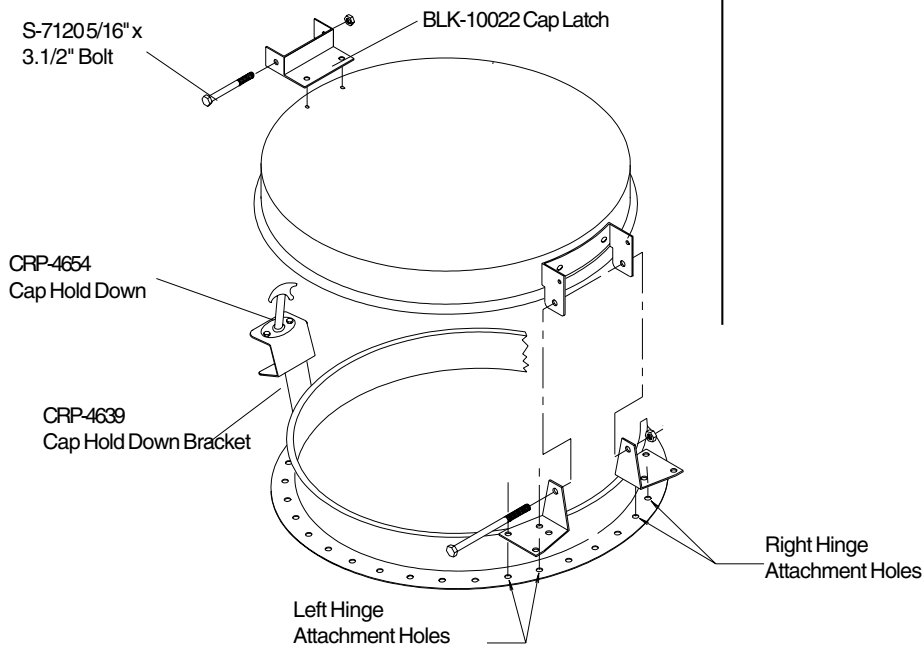
Bulb Seal Kit (Optional)



Note: Bulb seal kit is included with all pneumatic fill kits. When ordered as a separate option, specify Part No. BLK-10472.

Cap Hold Down Package comes standard on all 45° hopper bulk tanks., **Optional** on all 60° and 67° hopper bulk tanks.

Cap Hold Down Package

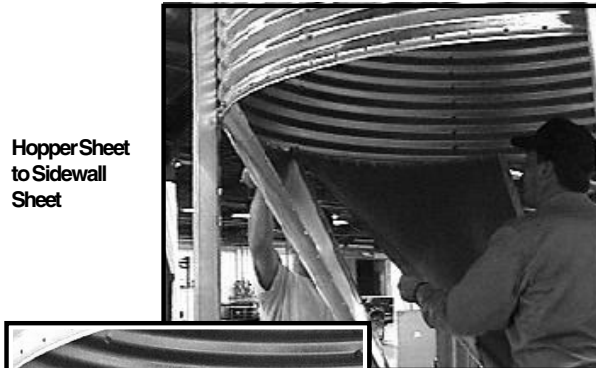
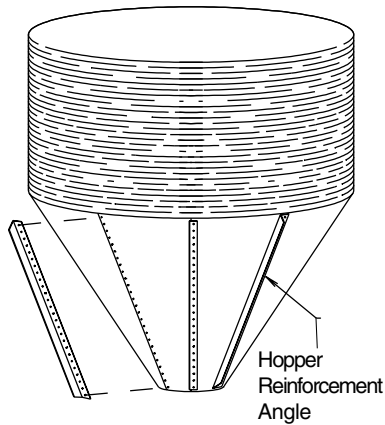


Hopper Sheets

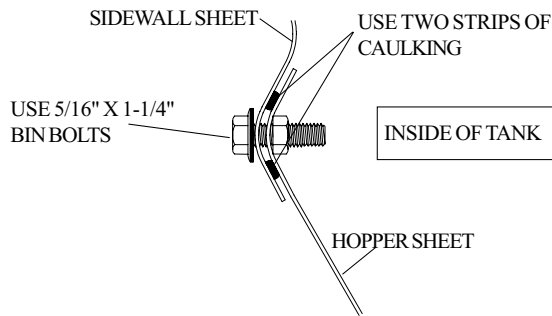
When starting to attach hopper sheets to sidewall it is recommend that the first hopper sheet seam be positioned halfway between leg positions. Lap the hopper sheets as shown. Use two (2) strips of caulking on all seams at sidewall to hopper and hopper sheet to hopper sheet. Be sure to place the head of the truss bolt on the **inside** of hopper. Leave one hopper sheet out to allow room to install hopper collar. Be sure to use two (2) strips of caulking between hopper collar and hopper sheets, then put last hopper sheet in place.

Caution: All 9' diameter 60° 3-6 ring and 7' diameter 67° 5 & 6 ring tanks require hopper reinforcement angles. Angle covers entire seam (including hopper collar).

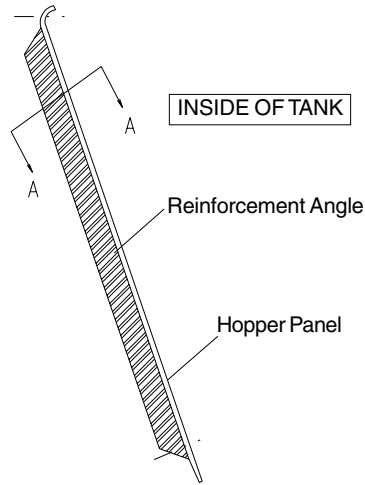
Note: When used for 22" (559 mm) hopper openings, field cut brace as needed to fit properly.



Hopper Sheet to Sidewall Sheet



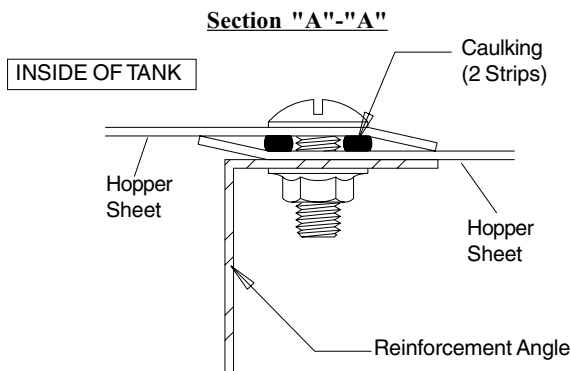
Hopper Sheet to Sidewall Sheet



Reinforcement Angles

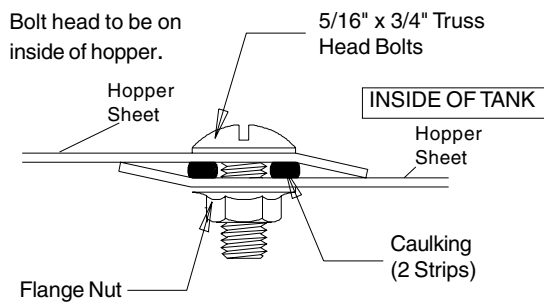
Note: Every hole in the hopper sheet will be utilized. Use 5/16" x 3/4" truss head bolt on hopper seams. (Truss head goes on inside of hopper).

The 9' 3-6 ring, 60° & 7' 5-6 ring, 67° Ring tanks are the only ones to use reinforcement angles



Hopper Overlap and Bolt Detail w/ Reinforcement Angle

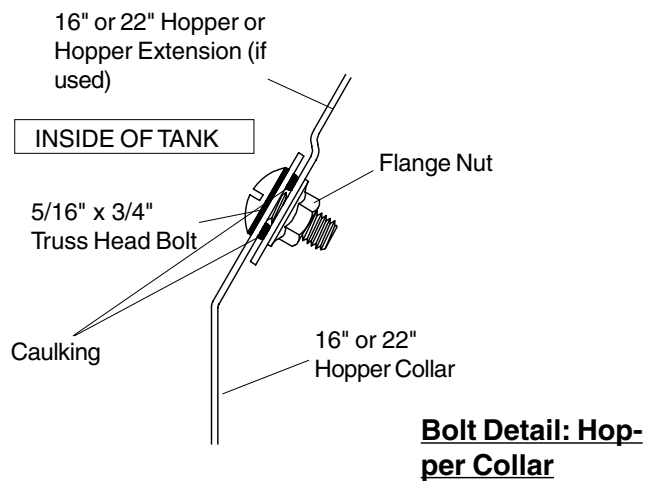
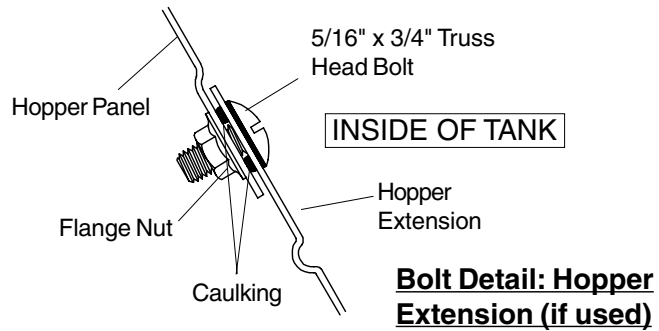
Note: last (bottom) bolt in reinforcement angle goes through hopper collar also.



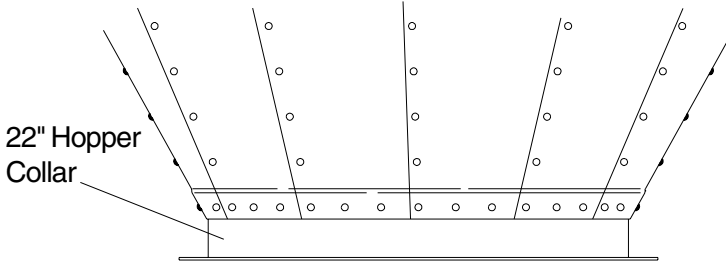
Hopper Overlap and Bolt Detail for Tanks w/out Reinforcement Angle

Hopper Collar

Before last hopper panel is attached, assemble the hopper extensions (if utilized) on the hopper collar. Use 5/16" truss head bolts, and caulk all joints on the assembly, attach to the hopper panels, using 5/16" truss head bolts. Be sure to caulk between hopper extensions and hopper panels. (Refer to page 22 for details.)



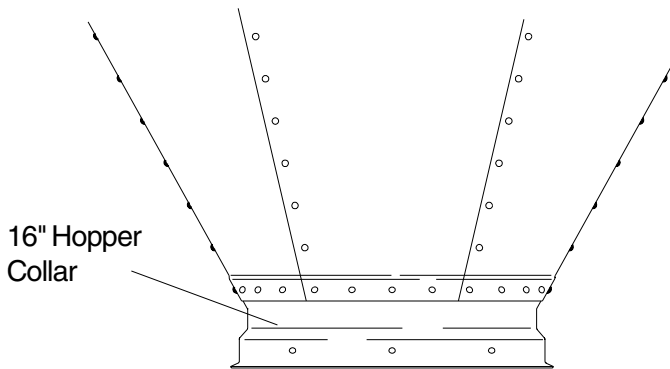
22" Hopper Collar



- 45 Degree 22" Hopper Collar
BLK-10854
- 60 Degree 22" Hopper Collar
BLK-10342
- 67 Degree 22" Hopper Collar
BLK-10341

Install hopper collar before all hopper panels are assembled. Use 5/16" truss head bolts, as shown in the illustration, on all hopper seams. Be sure to caulk between the hopper collar and hopper panels. See drawings.

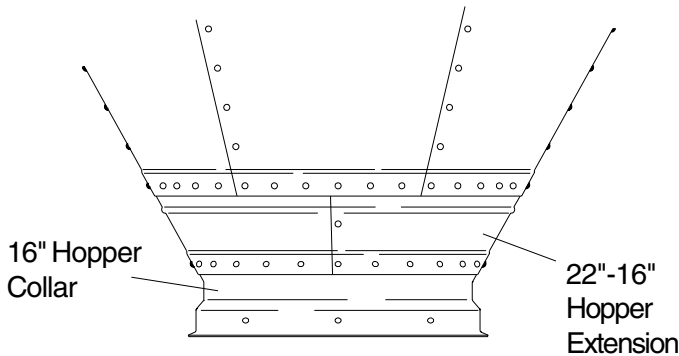
16" Hopper Collar



- 6' - 16" 60 Degree BLK-10489
(24 Holes)
- 7' - 16" 67 Degree BLK-10488
(24 Holes)
- *9' - 16" 60 Degree BLK-11463
(27 Holes)

**Note: 9' 16" 60° Hopper Collar BLK-11463 is used with a 9' - 16" 60° tank only. (27 Holes)*

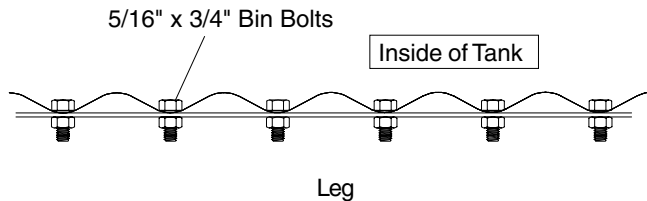
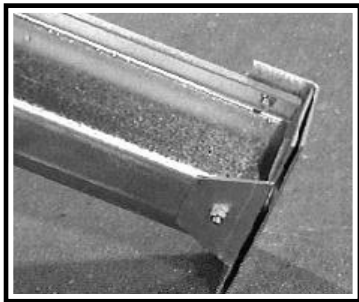
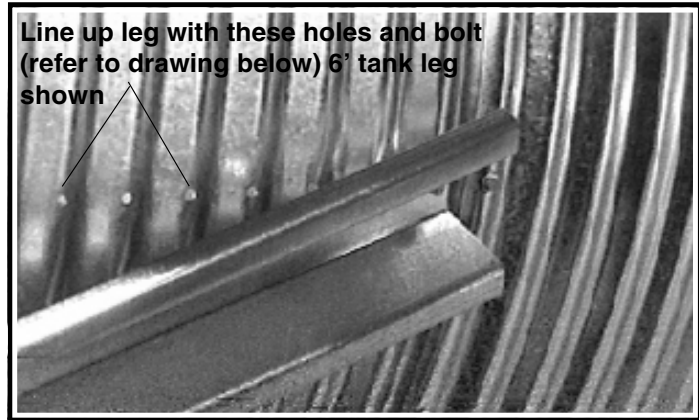
Hopper Extension Kits



- 16" 45° Hopper Extension & Collar
BLK-10847 (Standard on 7' & 9' 45
Degree)
- 16" 60° Hopper Extension & Collar
BLK-10587 (Optional)
- 16" 67° Hopper Extension & Collar
BLK-10591 (Optional)

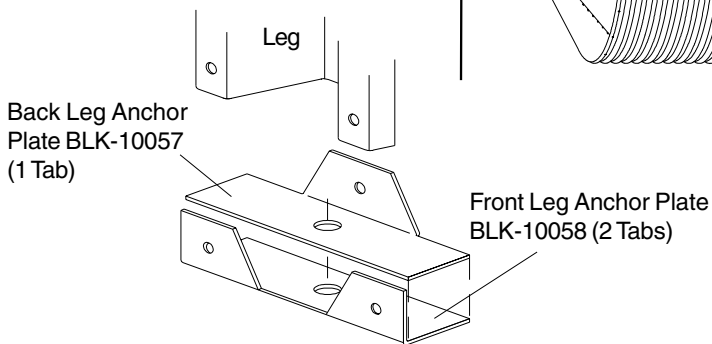
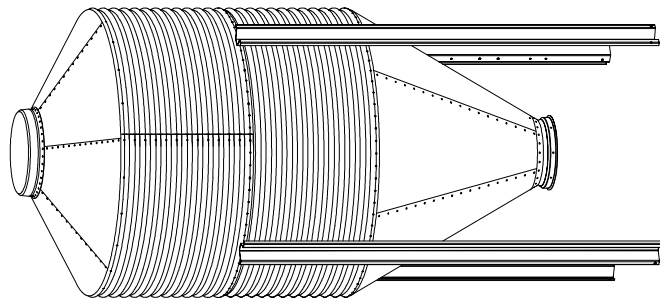
Tank Legs and Leg Braces

When installing legs to sidewall, reverse normal insertion procedure on bolts. Place hex head and neoprene washer to inside of sidewall, leaving threaded portion of bolt protruding outward. This provides for a weather tight seal at the leg attachment location. See pages 24 and 25 for Leg Attachment to Sidewall Sheet details.



Insert bolts inside to outside on all leg to tank connections.

Use 5/16" x 3/4" bin bolts and nuts when attaching the leg to base. Make sure the washer is used on the slot side of the leg.



Leg Size Chart

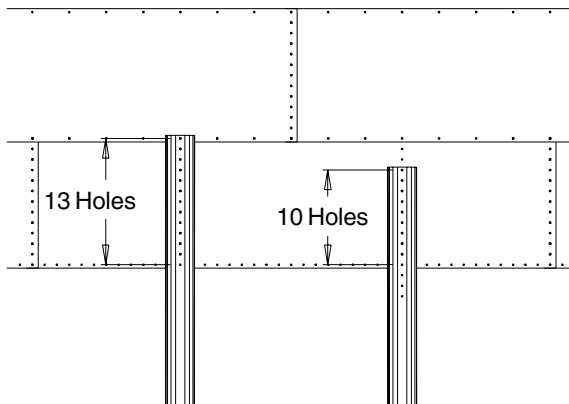
Tank Size	Hopper	Number of Rings	Length	Leg Coverage
6' Diameter Tank	60 Degree	1-4 Rings	106.375 in	1 Ring
7' Diameter Tank	67 Degree	1-4 Rings	140.500 in	1 Ring
7' Diameter Tank	67 Degree	5-6 Rings	164.500 in	1 3/4 Rings (56')
7' Diameter Tank	45 Degree	1-4 Rings	94.125 in	1 Ring
7' Diameter Tank	45 Degree	5-6 Rings	120.750 in	1 3/4 Rings (56')
9' Diameter Tank	60 Degree	1-5 Rings	140.500 in	1 Ring
9' Diameter Tank	60 Degree	6 Rings	164.500 in	1 3/4 Ring (56')
9' Diameter Tank	45 Degree	1-5 Rings	106.125 in	1 Ring
9' Diameter Tank	45 Degree	6 Rings	132.750 in	1 3/4 Rings (56')

**Note: 9' 5 - Ring tanks must utilize two ring coverage legs if raising 8" (203.2 mm).*

Caution: Failure to follow instructions may cause damage or failure of the equipment.

Depending on the size of the Bulk Feed Tank you are assembling, the leg will cover either the bottom ring or 1-3/4 rings (56'). Refer to this chart to find the correct number of rings your legs will cover. Put all legs on, but don't tighten bolts until all braces are in place. Be sure to put leg braces on properly. (Refer to pages 26-28.)

One-Ring Leg 140-1/2" (3569 mm)



**LEG ADJUSTMENT
(7' ((1-4 ring)) 67° & 9' ((1-5 ring)) 60° only)**

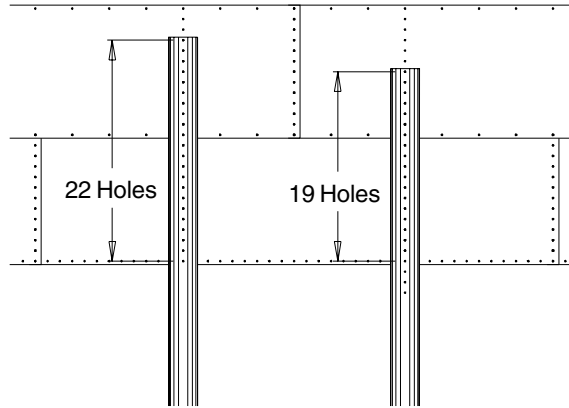
Extra Clearance Leg Adjustment

In cases where extra clearance is required (on 7' 67° & 9' 60° tanks only), you may raise the tank up to 8" when installing the legs. See details for proper positioning. Call GSI BFT engineering for any other special requirements.

**Note: 9' 5 - Ring tanks must utilize two ring coverage legs if raising 8" (203.2 mm).*

Caution: Failure to follow instructions may cause damage or failure of the equipment.

Leg Adjustment
 (7' ((5-6 ring)) 67° & 9'((6 ring)) 60° only)
Two-Ring Leg 164 1/2" (4178 mm)



Number of leg holes to use for desired clearance		
Clearance	One-Ring Leg 140.5" (3569 mm)	Two-Ring Leg 164.5" (4178 mm)
Standard	13 Holes	22 Holes
*+8" (203.2 mm)	10 Holes	19 Holes
+5.33" (135.4 mm)	11 Holes	20 Holes
+2.66" (67.6 mm)	12 Holes	21 Holes

BRACING HOLE LAYOUT
(60° & 67° Legs)

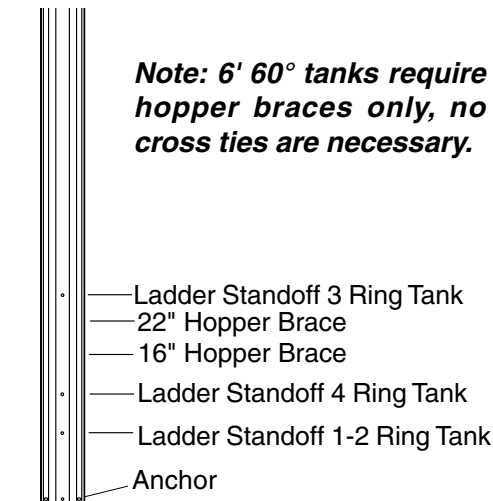
For 7' 67° and 9' 60° Feed Tank bracing layout see next two pages.

7' Leg 45°

9' Leg 45°

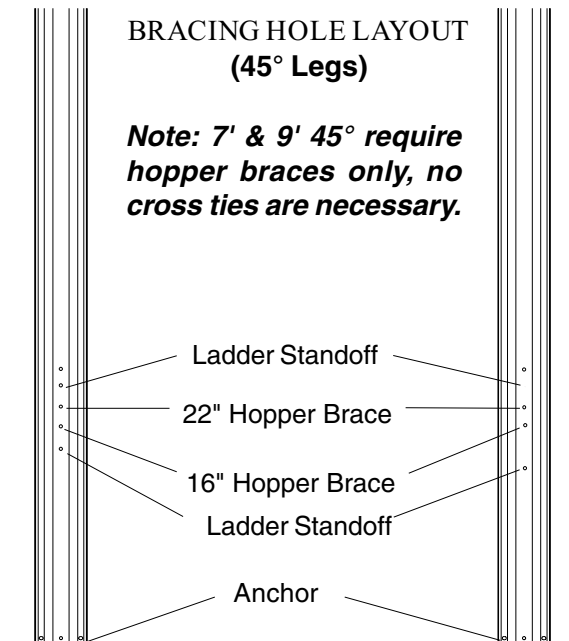
6' Leg 60 Degree

Note: 6' 60° tanks require hopper braces only, no cross ties are necessary.



BRACING HOLE LAYOUT
(45° Legs)

Note: 7' & 9' 45° require hopper braces only, no cross ties are necessary.

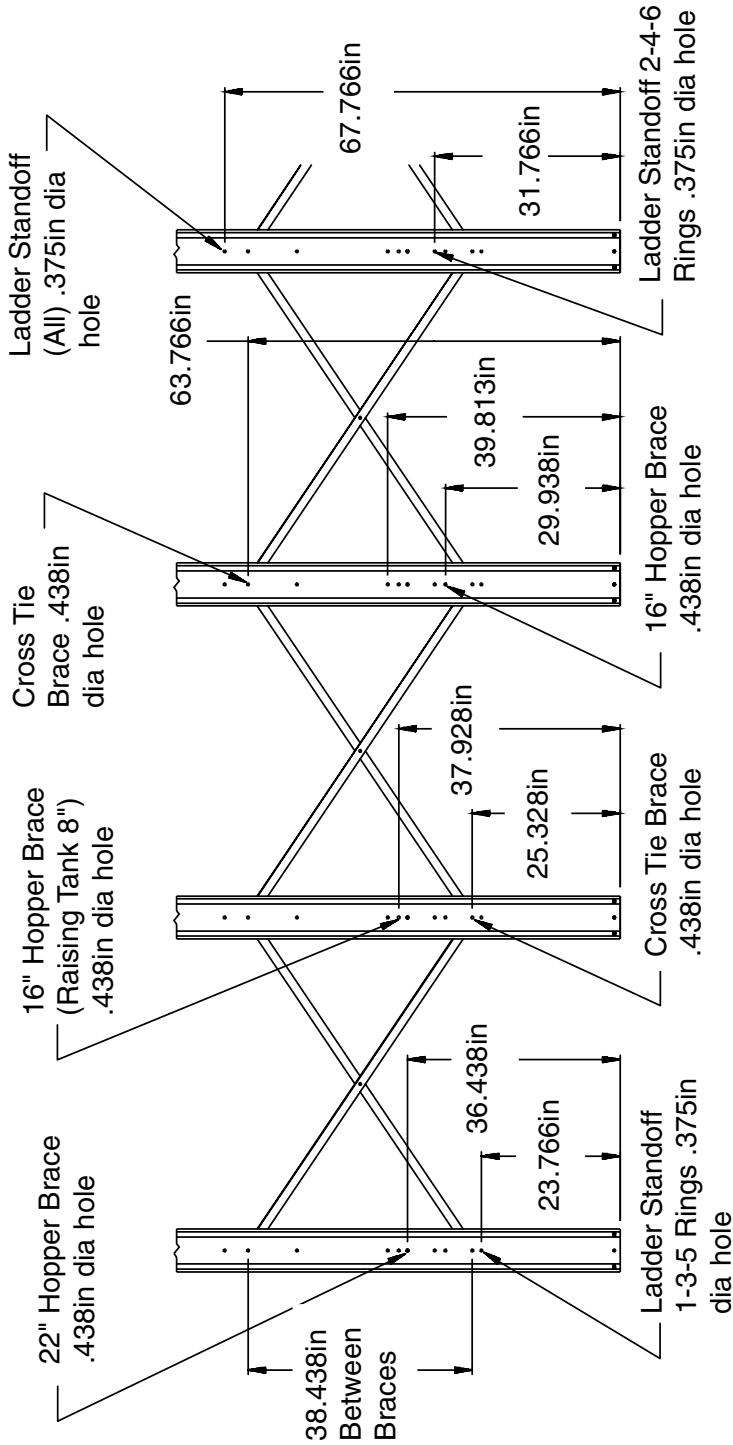


Leg and Leg Bracing

Bulk Feed Tanks

7' 67° 1-6 RING

Drawing below has been modified for clarity (not to scale)



7' 67 DEGREE 1-6 RING

DRAWING ABOVE HAS BEEN MODIFIED FOR CLARITY (NOT TO SCALE)

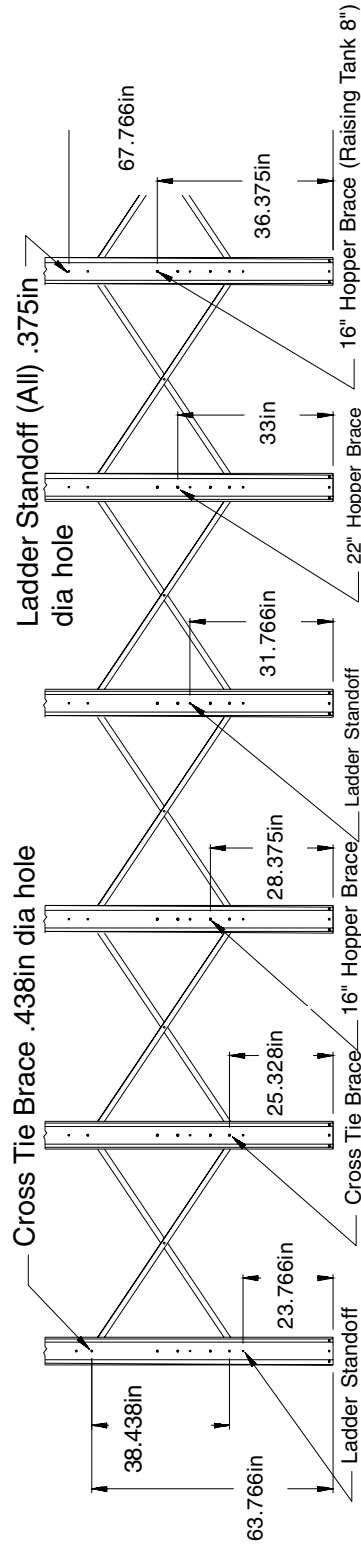
7' & 9' BRACING NOTES (SEE PAGE 28)

Dimensions shown are measured from center of attachment holes in legs to bottom of leg. Use 3/8" nuts and bolts to attach cross ties to each other and to leg. Hopper braces are attached to legs with 3/8" nuts and bolts and to hopper collar with 5/16" hardware. Ladder standoffs are attached to legs with 5/16" nuts and bolts. Do not tighten hardware until all bracing is in place.

Drawing below has been modified for clarity (not to scale)

9' 60° 2 thru 6 Ring Tank

Note: 9' 5-ring tanks must use 6-ring legs when raising 8" (203.2 mm)



7' & 9' BRACING NOTES (SEE PAGE 28)

Dimensions shown are measured from center of attachment holes in legs to bottom of leg. Use 3/8" nuts and bolts to attach cross ties to each other and to leg. Hopper braces are attached to legs with 3/8" nuts and bolts and to hopper collar with 5/16" hardware. Ladder standoffs are attached to legs with 5/16" nuts and bolts.

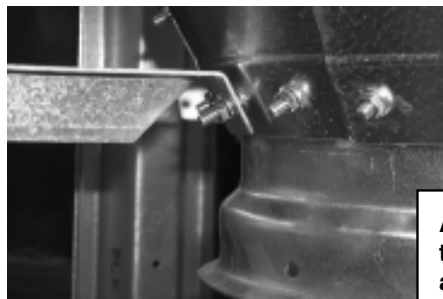
Do not tighten hardware until all bracing is in place.

Hopper to Leg Horizontal Bracing

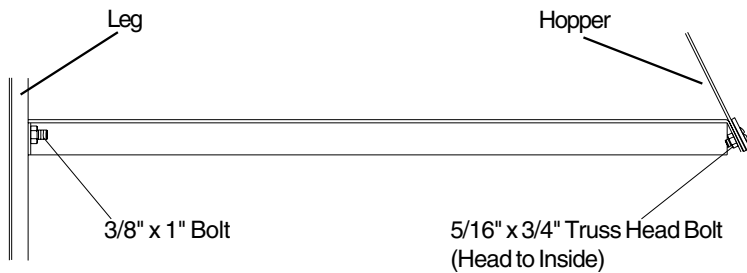
BFT Brace Quantity

Tank Description	Hopper Brace	Inside Cross Tie Brace	Outside Cross Tie Brace
6' Dia. 60° Hopper	4	0**	0**
7' Dia. 67° Hopper	4	4	4
7' Dia. 45° Hopper	4	0**	0**
9' Dia. 60° Hopper	6	6	6
9' Dia. 45° Hopper	6	0**	0**

**** 6' 60°, 7' 45° & 9' 45° tanks do not require cross tie braces.**



All 6' 60°, all 7' 67° and all 9' 60° tanks utilize hopper bracing. Braces attach horizontally to the legs with 3/8" hardware and to the hopper with 5/16" hardware.



Hopper braces are to be spaced equally around tank. Hopper braces are required on all hopper tanks. Refer to the chart below for the quantities required.

Tank	Brace Part Number (16" Hopper)	Qty.	Brace Part Number (22" Hopper)	Qty.
6' 60 Degree	BLK-12146	4	BLK-12147	4
7' 67 Degree	BLK-12107	4	BLK-12108	4
7' 45 Degree	BLK-12105	4	BLK-12106	4
9' 60 Degree	BLK-12109	6	BLK-12110	6
9' 45 Degree	BLK-12111	6	BLK-12112	6

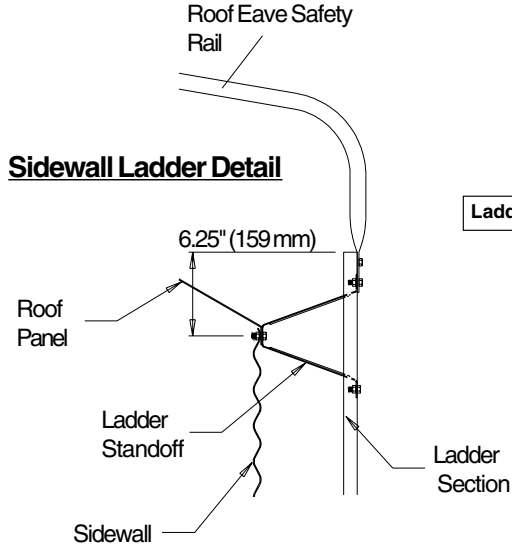
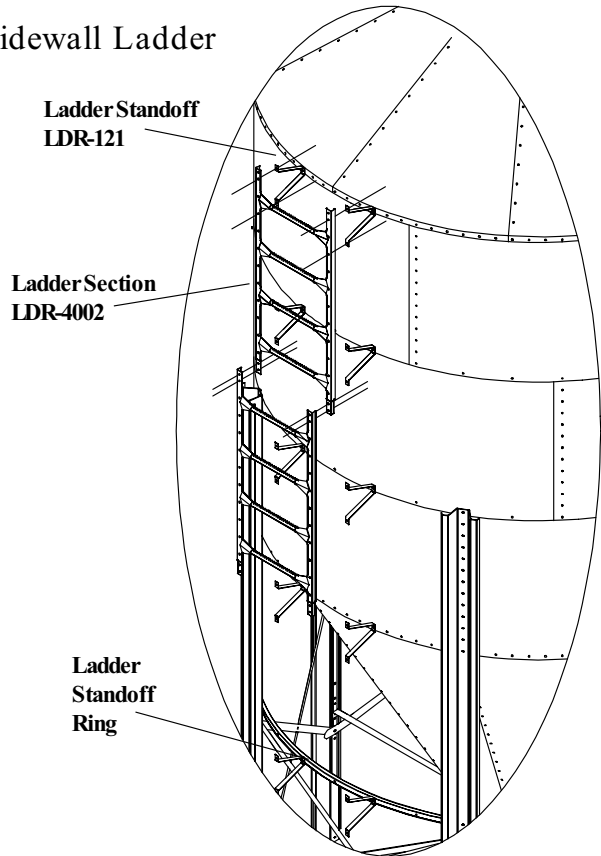
Note: Hopper braces attach between the legs and the collar/hopper horizontal seam. Never bolt the braces directly to the hopper seam above the collar. Use 16" braces with 16" collar and 22" braces with 22" collars.

Optional Sidewall Ladder

Instructions

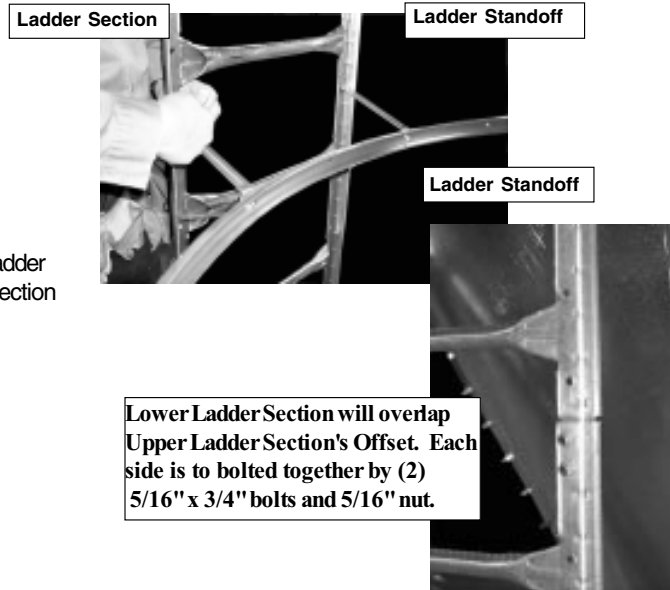
To start sidewall ladder, place two outside standoffs spaced 18.3/4" (476 mm) apart. At the roof eave, the ladder should be located on the standoffs. (Refer to drawing). Continue with standoff located on every horizontal seam. Ladder support ring should be located between two legs as shown. This will support the ladder at the bottom of bulk feed tank. When positioning the ladder on the tank, be sure to attach ladder so the raised non-slip tread surface is to the top of the ladder rungs.

Ladder Standoff Ring		Qty
6'	BLK-10147	1
7'	BLK-10148	2
9'	BLK-10149	2



Ladder Standoff Detail

Note locations of legs and other rings horizontal hole spacing when placing ladder.



LADDER AND SAFETY CAGE USAGE CHART (Number in chart specifies ring size)

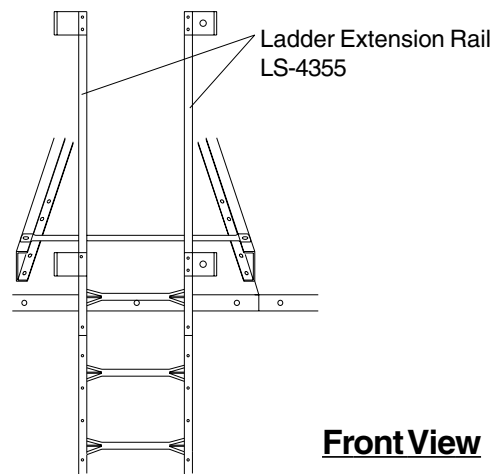
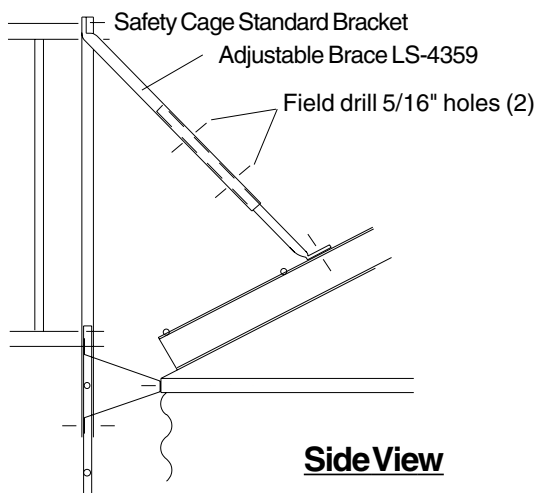
Ladder Package No.	Safety Cage No.	6' 60°	7' 67°	9' 60°	7' 45°	9' 45°
BLK-10824	N/A				1	
BLK-10630	BLK-10831	1			2	
BLK-10634	BLK-10832	2	1			2
BLK-10635	BLK-10833	3	2	2	3	3
BLK-10640	BLK-10835	4	3	3	4	4
BLK-10637	BLK-10836		4	4	5	
BLK-10641	BLK-10837				6	5
BLK-10642	BLK-10838		5	5		6
BLK-10643	BLK-10839		6	6		

Start attaching ladder at the eave (top) of the Bulk Feed Tank. After the first ladder section has been attached to the sidewall of tank, attach ladder extension rails to the ladder as shown. Refer to previous page for proper ladder placement in relation to the eave of the tank. Use 5/16" bin bolts and nuts on all safety cage connections. Attach hoop brackets and adjustable safety cage braces to the top of the extension rails. Now attach the opposite end of the adjustable brace to the roof ladder rail. After completing this, drill two (2) 5/16" holes through the adjustable brace and use 1/4" x 1.1/2" bolts and nuts to secure the two braces together.

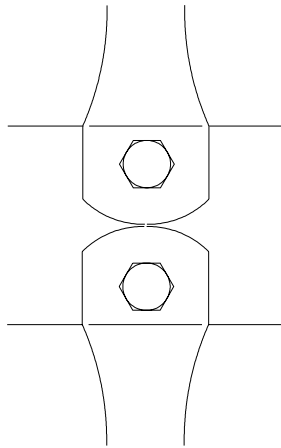
Add the safety cage hoops to the brackets and attach vertical supports to the hoops. Continue adding ladder sections and safety cage as sidewall rings are attached. Included in your safety cage package are two (2) Bell hoop halves which should be located at the bottom of the safety cage. Follow all drawings and details for proper placement of parts and proper location of safety cage.

IMPORTANT !!

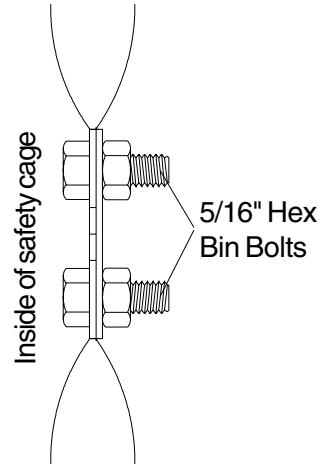
Belled safety cage section parts are color code: RED



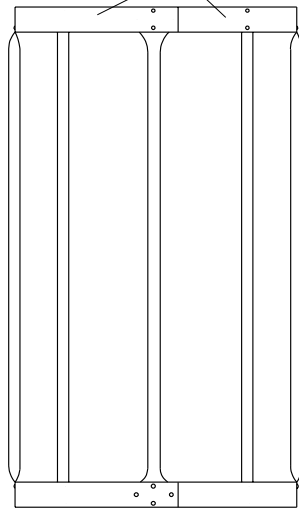
SAFETY CAGE ASSEMBLY



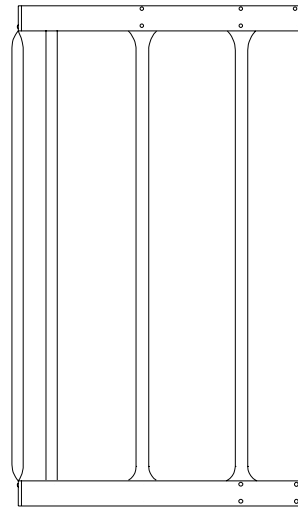
Head of the bolt to be placed to the inside of the safety cage.



Safety Cage Half Hoop LS-4351

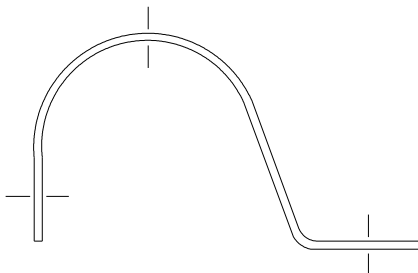


Safety Cage Vertical Support LS-4353



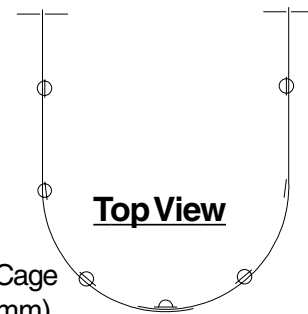
Front View

Side View



Safety Cage Standard Bracket LS-4349

Attach hoop to bracket on ladder



Top View

Overlap Safety Cage Hoops 5" (127 mm)

RAISING BIN TO SET ON FOUNDATION

PREPARING BIN

Just before standing the bin upright, peel protective mask off the decal while it is easy to reach. Mask may become difficult to remove if left exposed to sunlight.

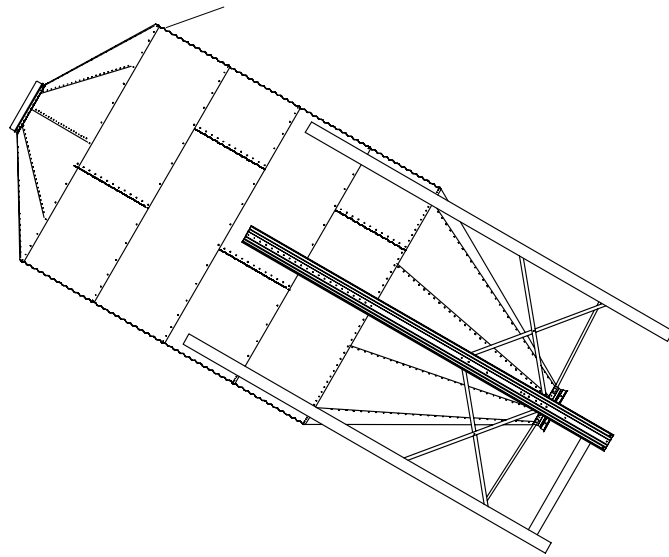
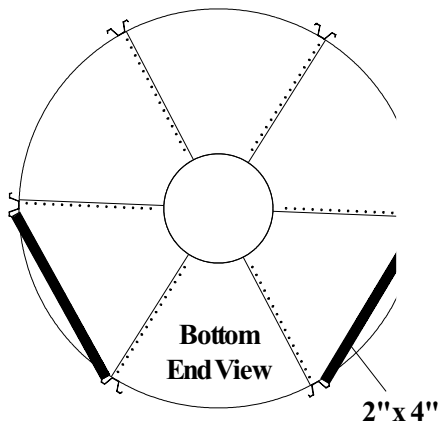
Check for all possible overhead obstructions, power line, etc., BEFORE standing the bin on the foundation.

To prevent damage to Legs when raising bin, brace them with 2" x 4" (50mm x 100mm) pieces of wood as shown in the illustration. See the chart for the correct length.



Warning: Do not raise tank near power lines. Electrocution could occur if the tank came into contact with live power lines.

BIN SIZE	2 X 4 LENGTH
6' Dia. (1,829 mm)	51.3/8" (1,305 mm)
7' Dia. (2,134 mm)	59.7/8" (1,521 mm)
9' Dia. (2,743 mm)	52.1/8" (1,324 mm)



Anchor or stabilize to prevent sliding during raising

RAISING BIN TO SET ON FOUNDATION

Be sure that all bolts are tightened properly. Bulk feed tank can now be set up on foundation. Small bulk feed tanks may be set up with manpower. As the tanks get taller and heavier, other means must be used to raise the bulk feed tank. A small crane of adequate capacity attached to a cable or sling secured around the bulk feed tank just above the legs will usually do the job. Refer any questions to a qualified rigger.

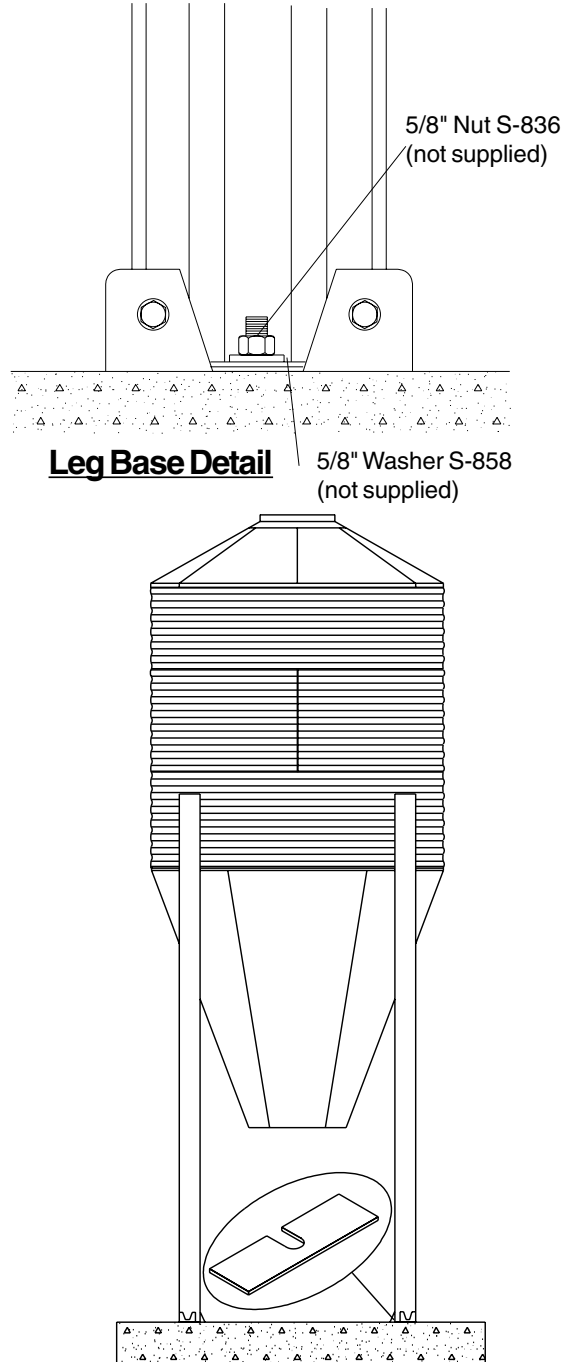
Anchoring Tank

Check all legs to see if shims are necessary to level the tank properly. After bulk feed tank is level and shimmed properly, anchor the tank down with 5/8" washers and nuts. (Refer to drawing at upper right).

Standard Hopper Bin Anchoring

Measure between opposite Legs to be sure they are an equal distance apart before securing the Bin with Anchor Bolts. Follow the chart shown below. Failure to do so may cause damage to the bin.

BIN SIZE	Distance Between Opposite Legs
6' Dia. (1,829 mm)	72.1/4" (1,835 mm)
7' Dia. (2,134 mm)	84.1/4" (2,140 mm)
9' Dia. (2,743 mm)	108.1/8" (2,746 mm)



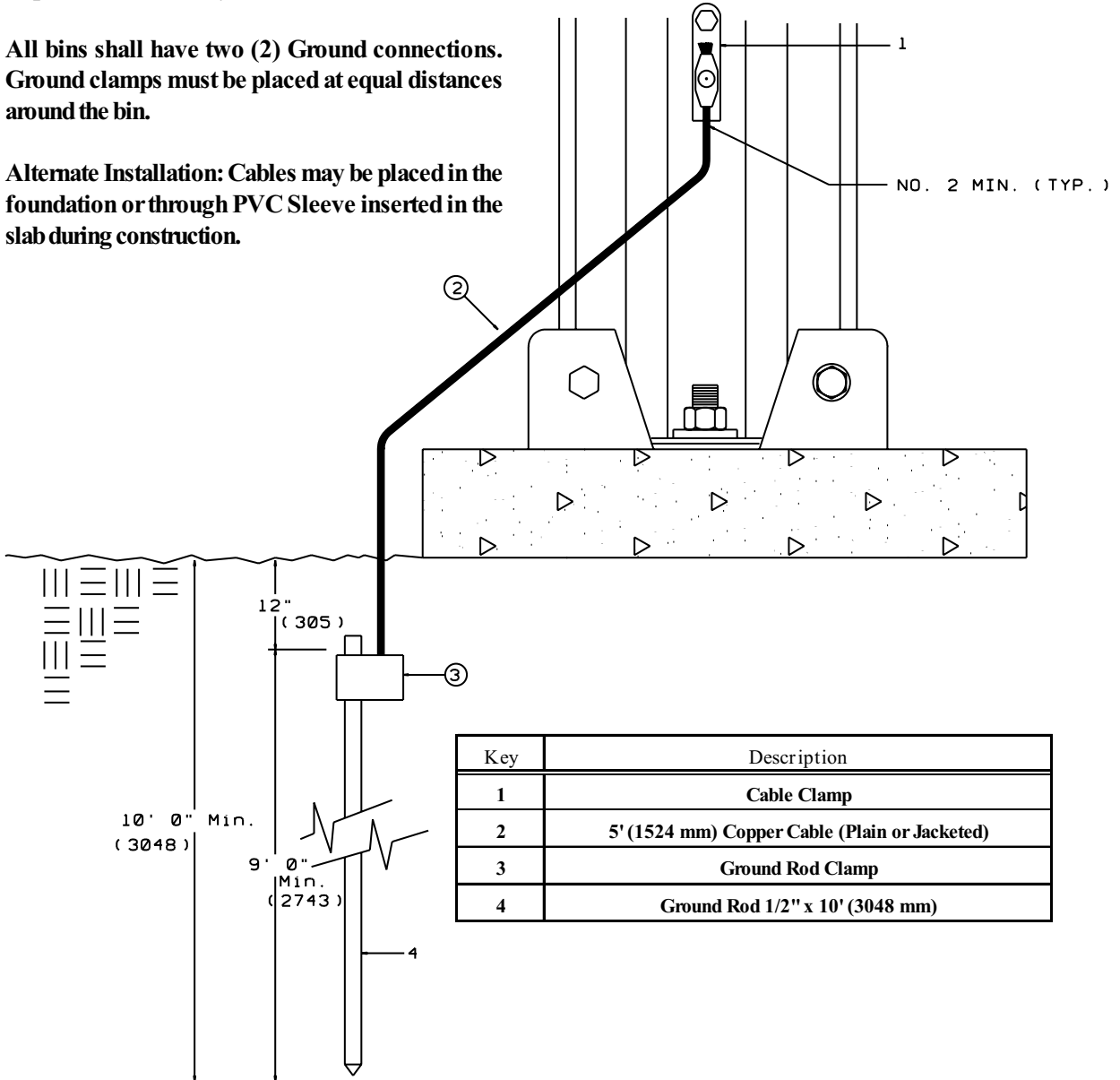
Note: Leg shims are not standard equipment and must be obtained locally.

BIN GROUNDING INSTRUCTIONS

Note: Parts not supplied by GSI , they should be purchased Locally

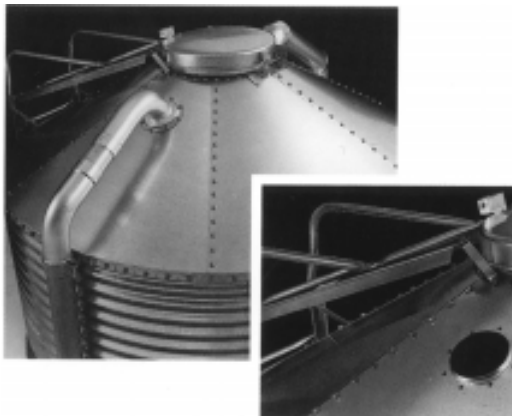
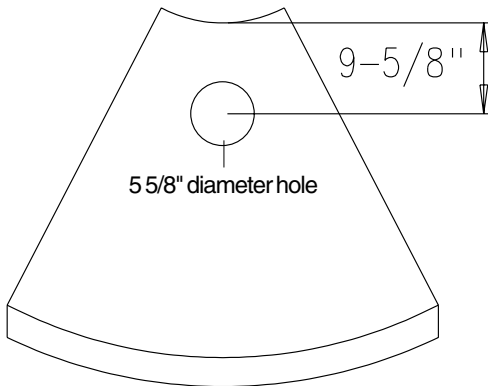
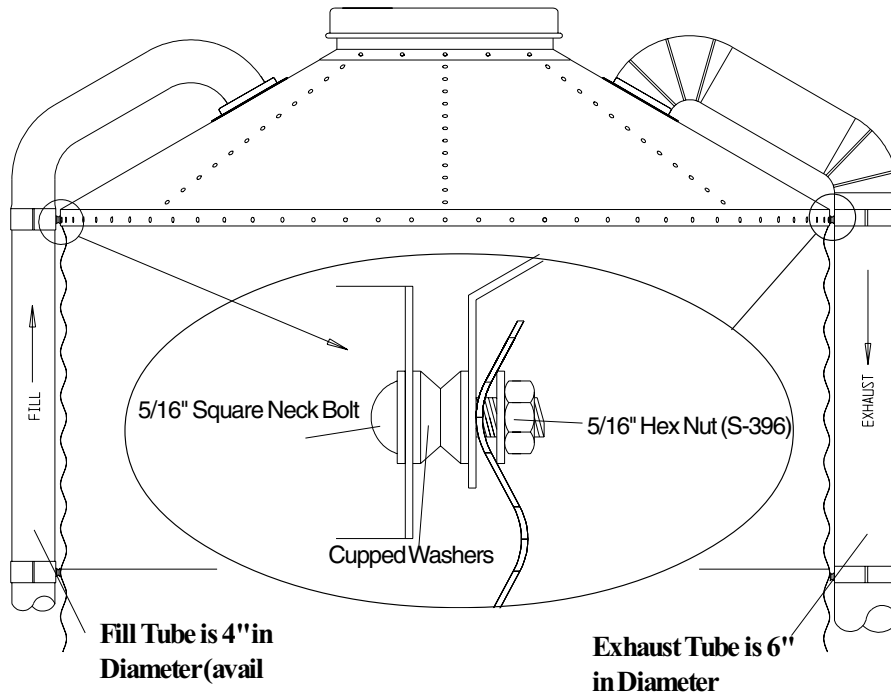
All bins shall have two (2) Ground connections. Ground clamps must be placed at equal distances around the bin.

Alternate Installation: Cables may be placed in the foundation or through PVC Sleeve inserted in the slab during construction.



PNEUMATIC FILL KIT ASSEMBLY

Note: inlet and exhaust parts from roof eave upward supplied with kit.



Roof Panel

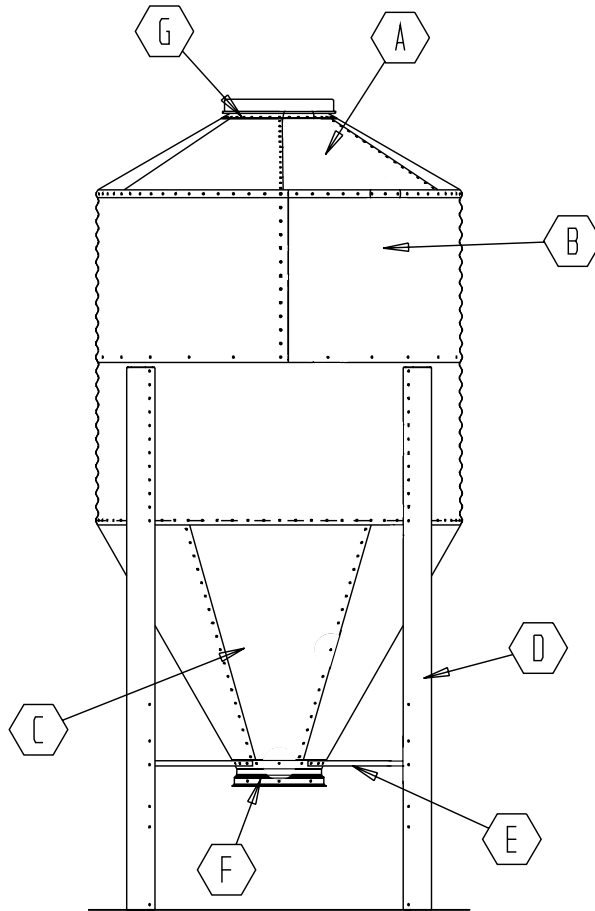
Identical pre-punched roof panels are available from G.S.I. for inlet and outlet sections of Pneumatic fill systems. Extruded lip of the panels provide for weather tight installation. Caulking placed between angle rings virtually eliminates all leakage problems. Rubber seal must be utilized at roof cap area to prevent material "Blow By" from pressurized systems.

To install fill kits in roof panels not pre-punched, cut 5 5/8" (143 mm) diameter holes in opposing roof panels as shown. Caulk sufficiently to provide weather tight seal.

Refer to "Peak Ring Seal Strip" installation procedure when installing pneumatic fill kits.

Abnormal pressure may require us of optional "Cap Hold Down Package". (BLK-10474)

6' DIAMETER 60° HOPPER BIN SPECIFICATIONS



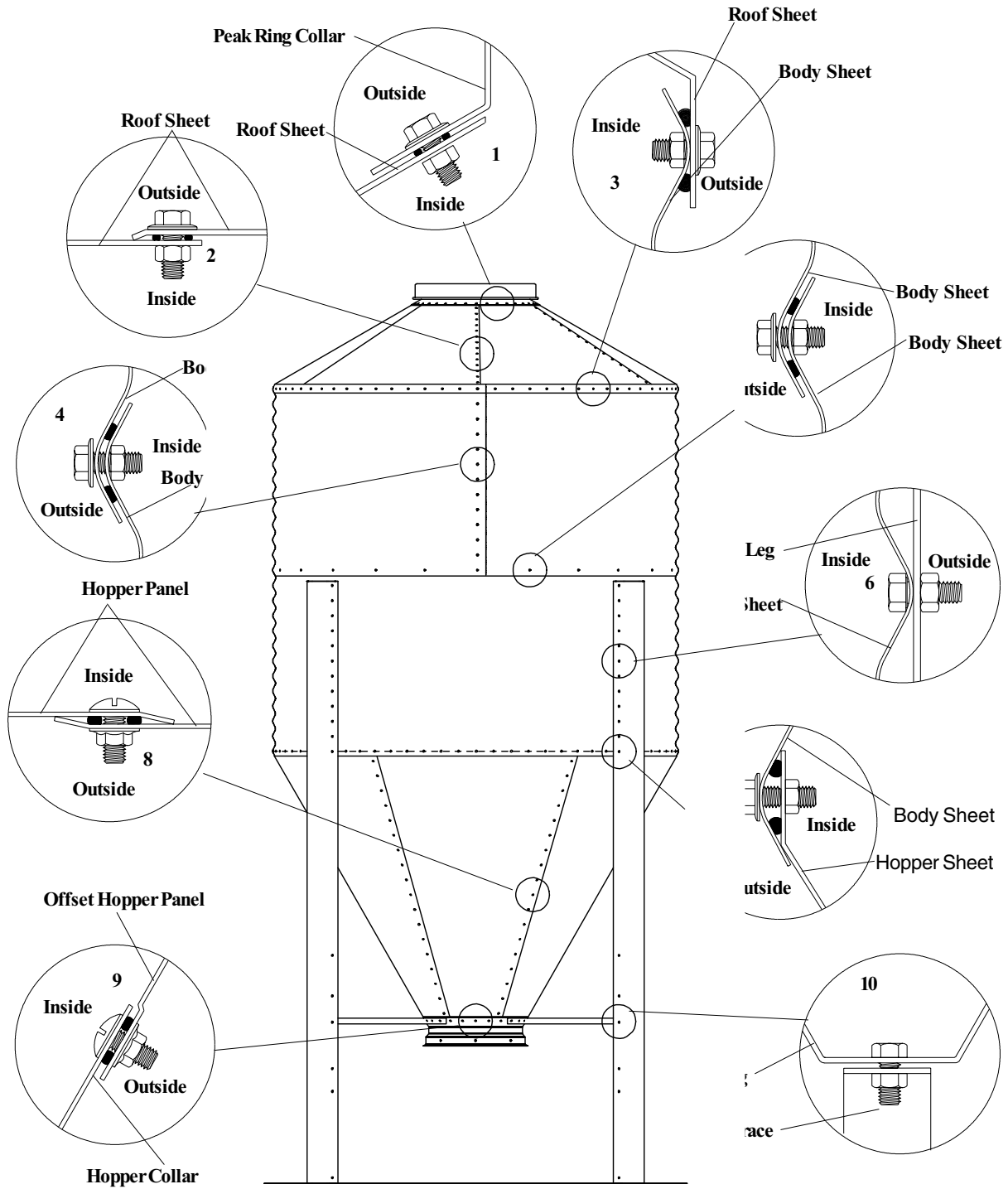
Under Collar Clearance	
16" Collar	28.5/16" (719 mm)
22" Collar	32.7/8" (837 mm)

IMPORTANT: Bolt Heads are inside of bin at the Leg to Body attachment and on all Vertical Seams on Hopper Panels. All bolts to be tightened from the nut side only. Refer to Detail on Page #4 for location of caulking. No cross tie bracing required.

6' DIAMETER 60° HOPPER BIN PARTS LIST

Key	Part No.	Qty	Description
A	BLK-10005	6	6' Roof Panel 30° (20 gauge)
	6' body sheet	2 per ring	
B	SS40682006 SS41632006 SS40672006 SS40692006 SS41622006 SS40712006		20 gauge (Top Punched Body Sheet) 20 gauge (Top Punched Decal Body Sheet) 20 gauge (Bottom/Top Leg Body Sheet) 20 gauge (Middle Punched Body Sheet) 20 gauge (Bottom/Top Leg Decal Body Sheet) 20 gauge (Bottom Leg Body Sheet)
C	BLK-11475 BLK-10358	6 6	6' Offset Hopper Panel 16" Opening (20 gauge)(Shown) 6' Offset Hopper Panel 22" Opening (20 gauge)
D	BLK-12222	4	6' Leg 106-1/16" (12 gauge)
E	BLK-12146 BLK-12147	4 4	Hopper Brace for 16" Collar Hopper Brace for 22" Collar
F	BLK-10489 BLK-10342	1 1	16" Hopper Collar (24 Holes) (Shown) 22" Hopper Collar (36 Holes)
G	BLK-11730	1	Bulk Tank Peak Ring

6' DIAMETER 60° HOPPER BIN SPECIFICATIONS



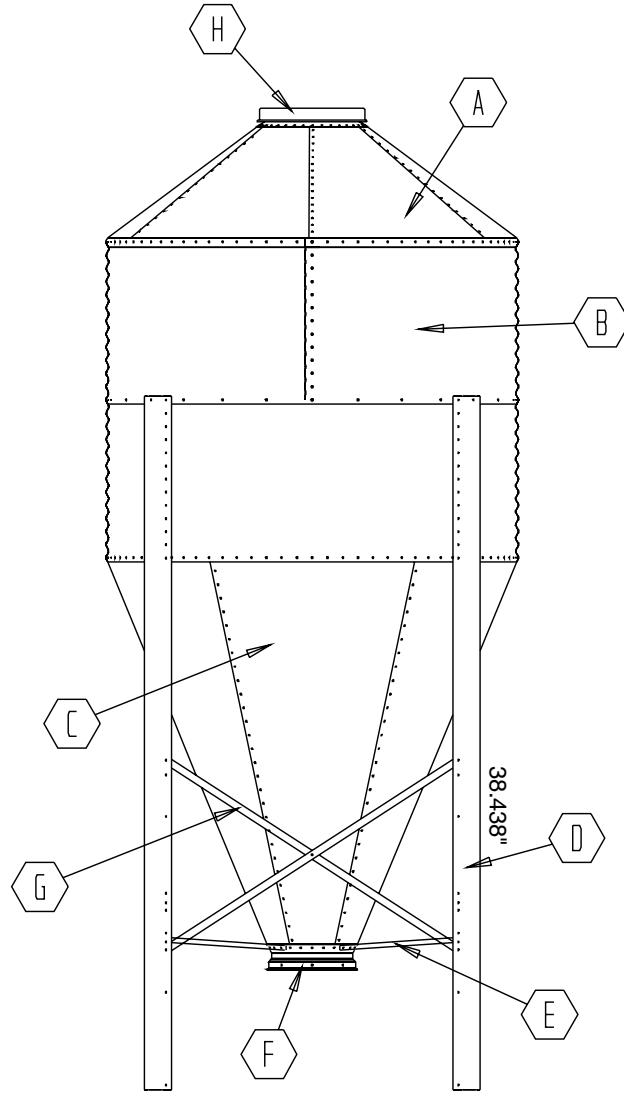
6' DIAMETER 60° HOPPER BIN PARTS LIST

**Note: Bolt listed first and nut second for each usage.*

Hardware usage: Heads of bolts are on the outside of tank unless otherwise noted.

Key	Part No.*	Qty	Description
1	S-275 S-396	36 36	Bulk Tank Peak Ring to Roof Panels (Use 5/16" x 3/4 Hex Head Bin Bolts and 5/16" Hex Nuts.)
2	S-275 S-296	72 72	Roof Panel to Roof Panel (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
3	S-275 S-396	72 72	Roof Panels to Top Body Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	varies varies	Vertical Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
5	S-275 S-396	varies varies	Horizontal Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	44 44	Leg Bolts to Body Sheet (Heads INSIDE) (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
7	S-277 S-396	72 72	Hopper Panels to Body Sheet (Use 5/16" x 1-1/4" Hex Head Bin Bolts and 5/15" Hex Nuts.) (Head inside at Leg to Hopper to Sidewall Connection Only.)
8	S-4303 S-3611	108 108	Vertical Hopper Seams (Use 5/16" x 3/4 Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank.)
9	S-4303 S-3611	24 24	Hopper Collar to Hopper Panel (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank.)
10	S-7927 S-456	4 4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

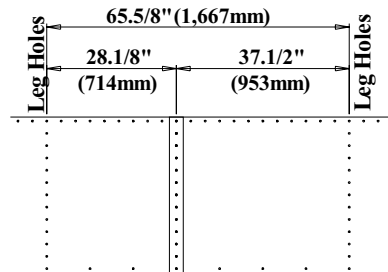
7' DIAMETER 67° HOPPER BIN SPECIFICATIONS



ANT: Vertical seams of
 meets with leg holes
 bolted together to pro-
 8" (1,667 mm) between

LEG HOLES.

Under Collar Clearance	
16" Collar	30.3/8" (771 mm)
22" Collar	36.1/2" (927 mm)



IMPORTANT: Bolt Heads are inside of bin at the Leg to Body attachment and on all Vertical Seams on Hopper Panels. All bolts to be tightened from the nut side only. Refer to Detail on Page #9 for location of caulking.

7' DIAMETER 67° HOPPER BIN SPECIFICATIONS

**Note: Bolt listed first, nut second for each usage.*

Hardware usage: Heads of bolts are on the outside of tank unless otherwise noted.

Key	Part No.	Qty	Description
A	BLK-10006	6	7' BFT Roof Panel 30° (20 gauge)
	7' body sheet	2 per ring	
B	SS40612007 SS41652007 SS40601807 SS40462007 SS41641807 SS40661807 SS40641807		20 gauge (Top Punched Body Sheet) 20 gauge (Top Punched Decal Body Sheet) 18 gauge (Bottom/Top Leg Body Sheet) 20 gauge (Middle Punched Body Sheet) 18 gauge (Bottom/Top Leg Decal Body Sheet) 18 gauge (Bottom Leg Body Sheet) 18 gauge (Middle Leg Punched body Sheet)
C	BLK-11476 BLK-10569	6 6	7' Offset Hopper Panel 16" Opening (18 gauge) (Shown) 7' Offset Hopper Panel 22" Opening (18 gauge)
D	BLK-12039 BLK-12040	4 4	7' Leg 140-1/2" (12 gauge) (1--4 Rings)(Shown) 7' Leg 164-1/2" (10 gauge) (5--6 Rings)
E	BLK-12107 BLK-12108	4 4	Hopper Brace for 16" Collar (Shown) Hopper Brace for 22" Collar
F	BLK-10488 BLK-10341	1 1	16" Hopper Collar (24 Holes) (Shown) 22" Hopper Collar (36 Holes)
G	BLK-12056 BLK-12057	4 4	7' Inside Cross Tie Brace (72.49") (12 gauge) 7' Outside Cross Tie Brace (72.49") (12 gauge)
H	BLK-11730	1	Bulk Tank Peak Ring
J	BLK-12009	6	7' Hopper Reinforcement Angle (5--6 Ring Tanks only)

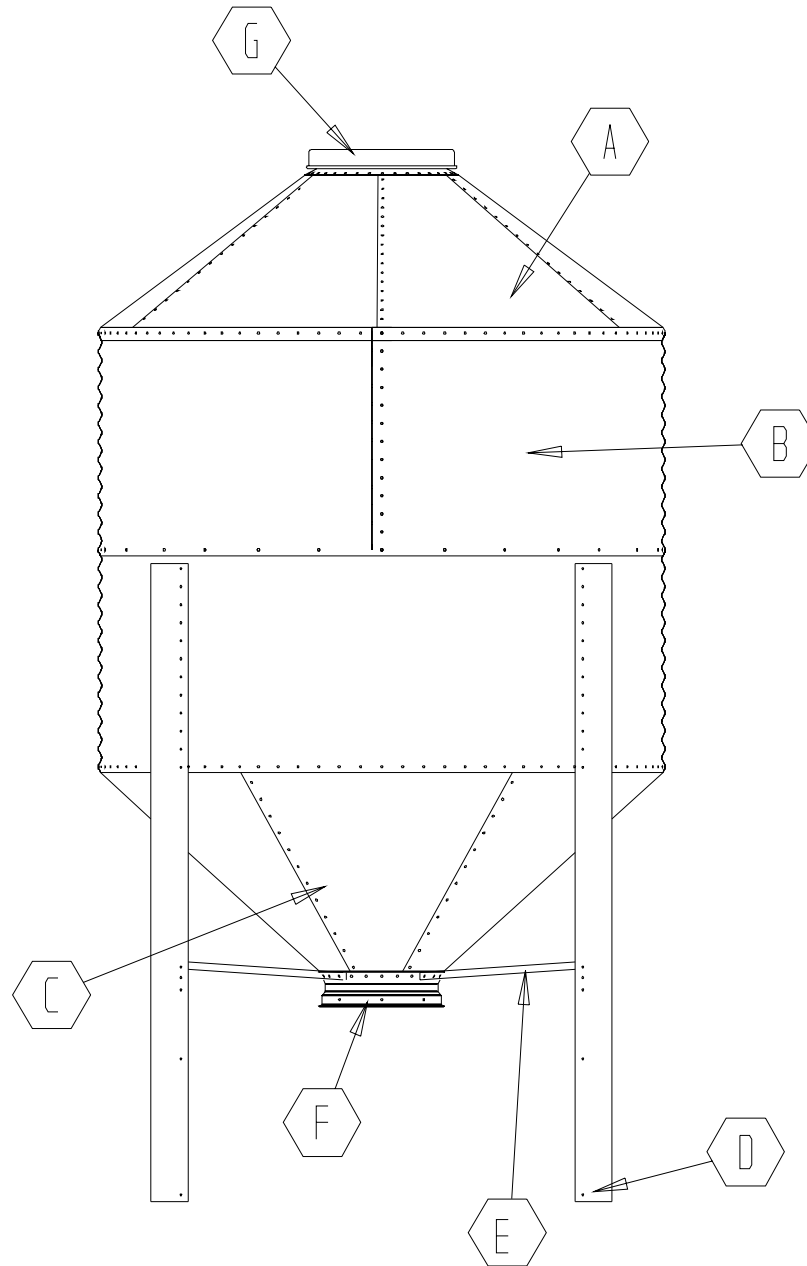
7' DIAMETER 67° HOPPER BIN SPECIFICATIONS

**Note: Bolt listed first, nut second for each usage.*

Hardware usage: Heads of Bolts are on the outside of tank unless otherwise noted.

Key	Part No.*	Qty	Description
1	S-275	36	Bulk Tank Peak Ring to Roof Panels (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	36	
2	S-275	72	Roof Panel to Roof Panel (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	72	
3	S-275	84	Roof Panels to Top Body Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	84	
4	S-275	varies	Vertical Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	varies	
5	S-275	varies	Horizontal Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	varies	
6	S-275	48 or 84	Leg Bolts to Body Sheet Heads INSIDE (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	48 or 84	
7	S-277	84	Hopper Panels to Body Sheet (Use 5/16" x 1-1/4" Hex Head Bin Bolts and 5/15" Hex Nuts.) (Head inside at Leg to Hopper to Sidewall Connection Only.)
	S-396	84	
8	S-4303	162	Vertical Hopper Seams (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank).
	S-3611	162	
9	S-4303	24	Hopper Collar to Hopper Panel (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank). (16" Shown)
	S-3611	24	
10	S-7927	4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	4	
11	S-7927	12	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	12	

7' DIAMETER 45° HOPPER BIN SPECIFICATIONS



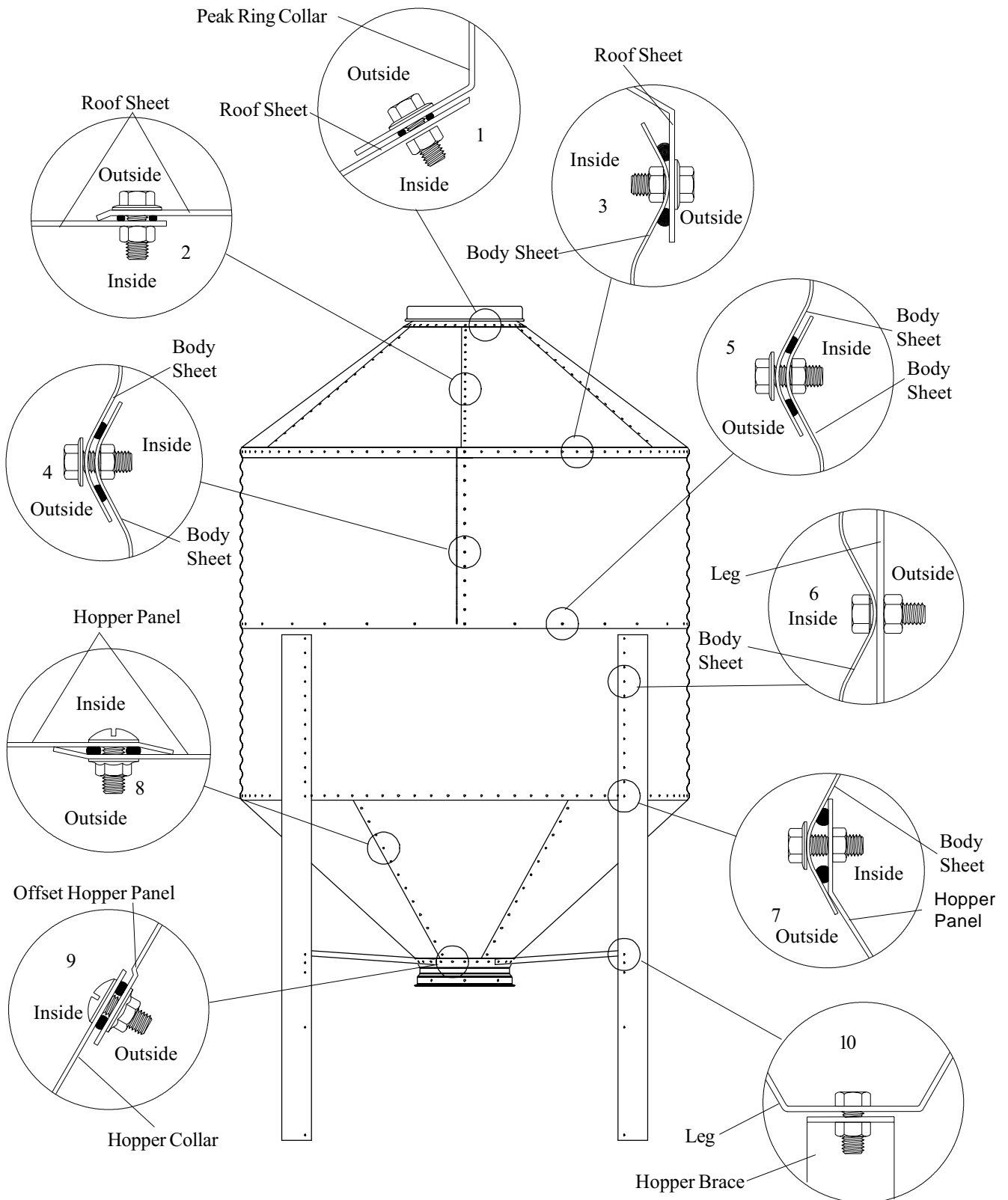
Under Collar Clearance	
16" Collar	29.3/4" (756 mm)
22" Collar	32.5/16" (821 mm)

IMPORTANT: Bolt Heads are inside of bin at the Leg to Body attachment and on all Vertical Seams on Hopper Panels. All bolts to be tightened from the nut side only. Refer to Detail on Page #9 for location of caulking. No cross tie bracing required.

7' DIAMETER 45° HOPPER BIN PARTS LIST

Key	Part No.	Qty	Description
A	BLK-10006	6	7' BFT Roof Panel 30° (20 gauge)
	7' body sheet	2 per ring	
B	SS40612007 SS41652007 SS40601807 SS40462007 SS40641807 SS41641807 SS40661807		20 gauge (Top Punched Body Sheet) 20 gauge (Top Punched Decal Body Sheet) 18 gauge (Bottom/Top Leg Body Sheet) 20 gauge (Middle Punched Body Sheet) 18 gauge (Middle Leg Punched Body Sheet) 18 gauge (Bottom/Top Leg Decal Body Sheet) 18 gauge (Bottom Leg Body Sheet)
C	BLK-11476 BLK-10569	6 6	7' Offset Hopper Panel 16" Opening (18 gauge) (Shown) 7' Offset Hopper Panel 22" Opening (18 gauge)
D	BLK-12041 BLK-12042	4 4	7' Leg 94-1/8" (12 gauge) (1--4 Rings)(Shown) 7' Leg 120-3/4" (10 gauge) (5--6 Rings)
E	BLK-12105 BLK-12106	4 4	Hopper Brace for 16" Collar (Shown) Hopper Brace for 22" Collar
F	BLK-10847 BLK-10341	1 1	16" Hopper Collar Ext. Kit w/collar. (Shown) 22" Hopper Collar (36 Holes)
G	BLK-11730	1	Bulk Tank Peak Ring

7' DIAMETER 45° HOPPER BIN SPECIFICATION



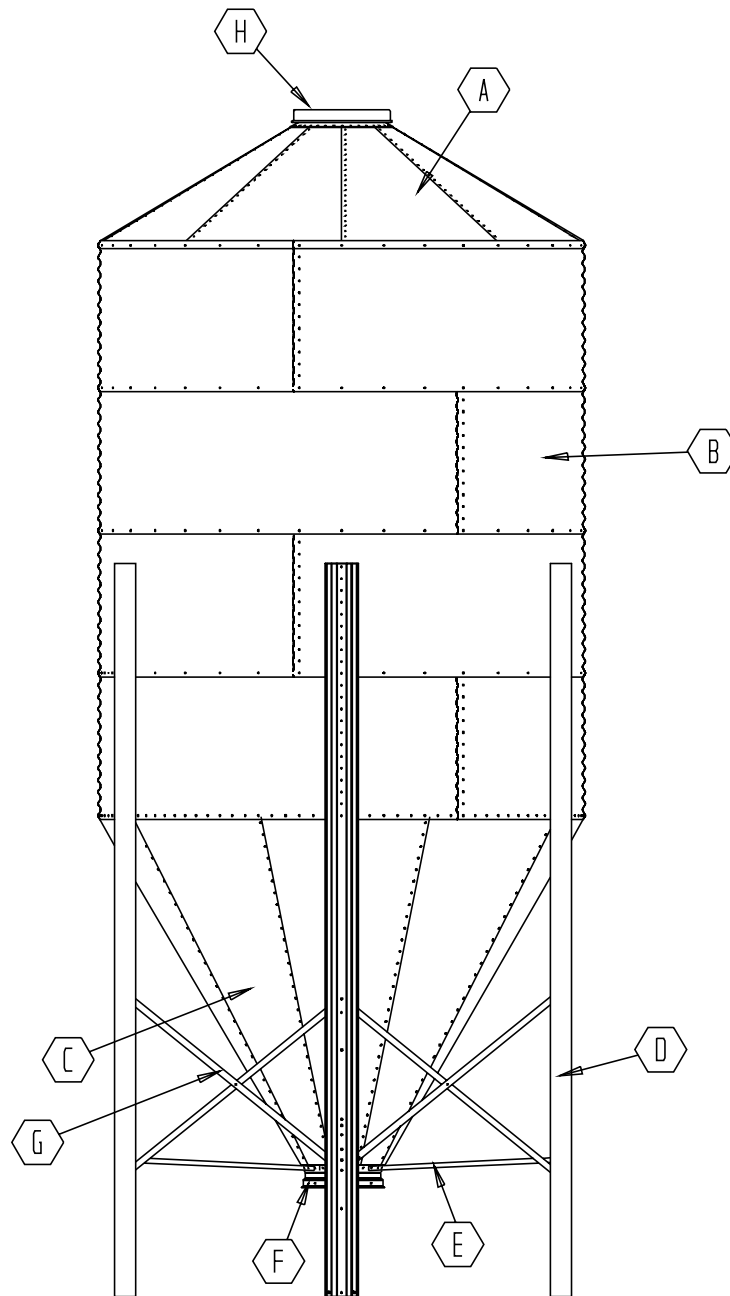
7' DIAMETER 45° HOPPER BIN SPECIFICATIONS

***Note: Bolt listed first, nut second for each usage.**

Hardware usage: Heads of bolts are on the outside of tank unless otherwise noted.

Key	Part No.*	Qty	Description
1	S-275 S-396	36 36	Bulk Tank Peak Ring to Roof Panels (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
2	S-275 S-396	72 72	Roof Panel to Roof Panel (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
3	S-275 S-396	84 84	Roof Panels to Top Body Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	varies varies	Vertical Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
5	S-275 S-396	varies varies	Horizontal Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	48 48	Leg Bolts to Body Sheet Heads INSIDE (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
7	S-277 S-396	84 84	Hopper Panels to Body Sheet (Use 5/16" x 1-1/4" Hex Head Bin Bolts and 5/15" Hex Nuts.) (Head inside at Leg to Hopper to Sidewall Connection Only.)
8	S-4303 S-3611	96 96	Vertical Hopper Seams (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank).
9	S-4303 S-3611	24 24	Hopper Collar to Hopper Panel (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank). (16" Shown)
10	S-7927 S-456	4 4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

9' DIAMETER 60° HOPPER BIN SPECIFICATIONS



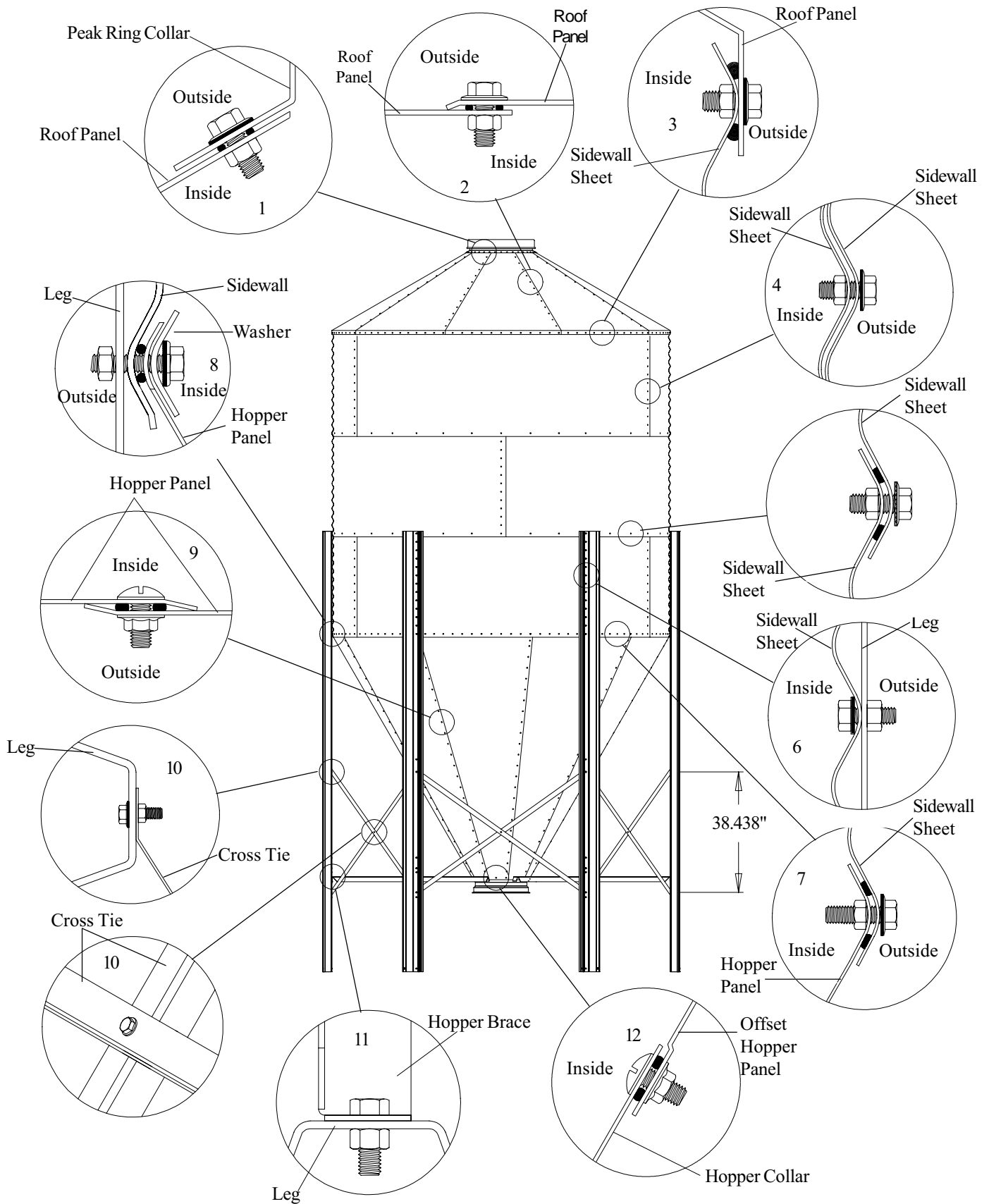
Under Collar Clearance	
16" Collar	28.1/16" (713 mm)
22" Collar	32.5/8" (829 mm)

IMPORTANT: Bolt Heads are inside of bin at the Leg to Body attachment and on all Vertical Seams on Hopper Panels. All bolts to be tightened from the nut side only. Refer to Detail on Page #9 for location of caulking.

9' DIAMETER 60° HOPPER BIN PARTS LIST

Key	Part No.	Qty	Description
A	BLK-10007	9	9' BFT Roof Panel 30° (20 gauge)
	9' body sheet	3 per ring	
B	SS40682009 SS41662009 SS40692009 SS40701809 SS40712009 SS40711609 SS40711809		20 gauge (Top Punched Body Sheet) 20 gauge (Top Punched Decal Body Sheet) 20 gauge (Middle Punched Body Sheet) 18 gauge (Middle Punched Leg Sheet) 20 gauge (Bottom Punched Leg Sheet) 16 gauge (Bottom Punched Leg Sheet) 18 gauge (Bottom Leg Body Sheet)
C	BLK-11477 BLK-10365	9 9	9' 60° Offset Hopper Panel 16" Opening (18 gauge) (Shown) 9' 60° Offset Hopper Panel 22" Opening (18 gauge)
D	BLK-12036 BLK-12037	6 6	9' 60° Leg 140-1/2" (12 gauge) (2--5 Rings (Shown)) 9' 60° Leg 164-1/2" (10 gauge) (6 Rings)
E	BLK-12109 BLK-12110	6 6	Hopper Brace for 16" Collar (Shown) Hopper Brace for 22" Collar
F	BLK-11463 BLK-10342	1 1	16" Hopper Collar (27 Holes) (Shown)(For 9' 60° tank only) 22" Hopper Collar (36 Holes)
G	BLK-12058 BLK-12059	6 6	9' Inside Cross Tie Brace (67.788") (12 gauge) 9' Outside Cross Tie Brace (67.788") (12 gauge)
H	BLK-11730	1	Bulk Tank Peak Ring
J	BLK-11621	9	9' Hopper Reinforcement Angle (3--6 Ring Tanks only)

9' DIAMETER 60° HOPPER TANK SPECIFICATIONS

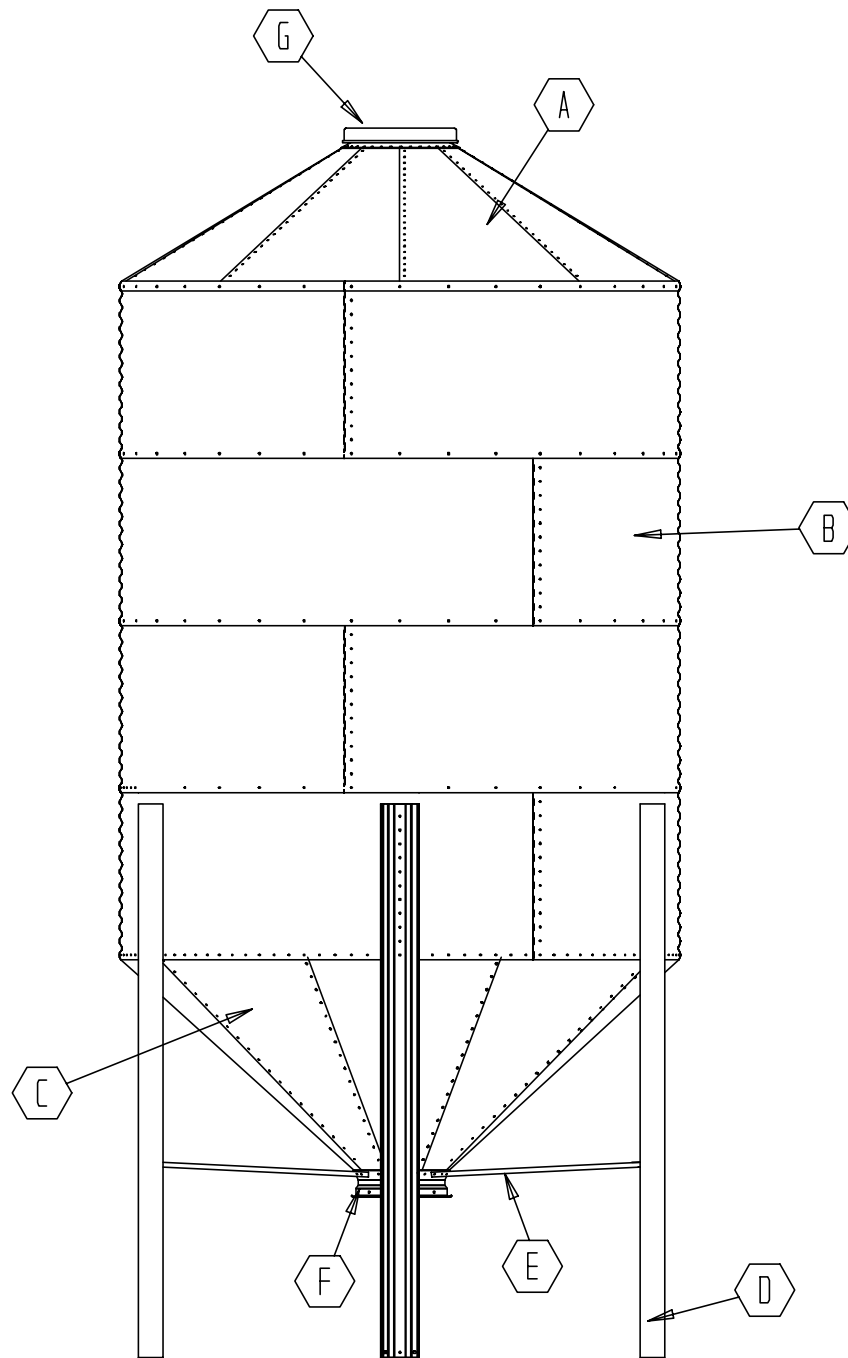


9' DIAMETER 60° HOPPER TANK SPECIFICATIONS

Note: Bolts listed first, nut second for each usage.

Hardware usage: Heads of Bolts are on the outside of tank unless otherwise noted.

Key	Part No. *	Qty.	Description
1	S-275	36	Bulk Tank Peak Ring to Roof Panels (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	36	
2	S-275	108	Roof Panel to Roof Panel (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	108	
3	S-275	108	Roof Panels to Top Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	108	
4	S-275	Varies	Vertical Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	Varies	
5	S-275	Varies	Horizontal Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	Varies	
6	S-275	72 or 126	Leg to Sidewall Sheet (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.) (Bolt Heads to Inside of Tank)
	S-396	72 or 126	
7	S-277	108	Hopper Panels to Sidewall Sheet (Use 5/16" x 1-1/4" Hex Head Bin Bolts and 5/16" Hex Nuts.) (Bolt Head to Inside at Leg to Hopper to Sidewall Connection Only.)
	S-396	108	
8	S-277	6	Leg to Body Sheet to Hopper Connection (Use 10 Gauge Washer under 5/16" x 1-1/4" Hex Head Bin Bolts and 5/16" Hex Nuts.) (Bolt Head to Inside at Leg to Hopper to Sidewall Connection Only.)
	S-396	6	
	BLK-12483	6	
9	S-4303	273	Vertical Hopper Seams (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flanged Whiz Nuts.) (Bolt Heads to Inside of Tank.)
	S-3611	273	
10	S-7927	18	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	18	
11	S-7927	6	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	6	
12	S-4303	27 or 36	Hopper Collar to Hopper Panel (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flanged Whiz Nuts.) (Bolt Heads to Inside of Tank.) (16" Shown)
	S-3611	27 or 36	



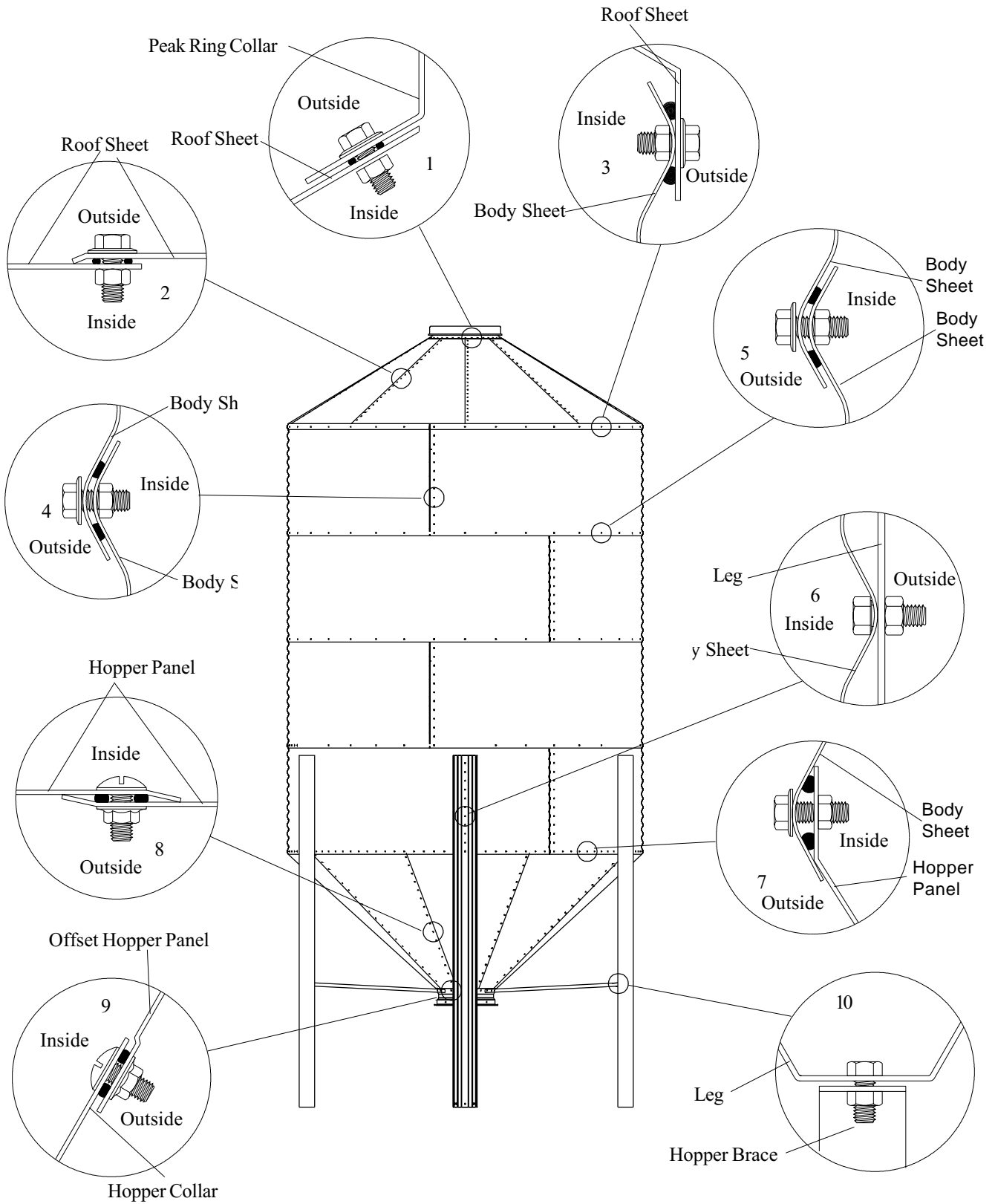
Under Collar Clearance	
16" Collar	30.11/16" (779 mm)
22" Collar	33.1/4" (844 mm)

IMPORTANT: Bolt Heads are inside of bin at the Leg to Body attachment and on all Vertical Seams on Hopper Panels. All bolts to be tightened from the nut side only. Refer to Detail on Page #9 for location of caulking. No cross tie bracing required.

9' DIAMETER 45° HOPPER BIN SPECIFICATIONS

Key	Part No.	Qty	Description
A	BLK-10007	9	9' BFT Roof Panel 30° (20 gauge)
	9' body sheet	3 per ring	
B	SS40682009 SS41662009 SS40692009 SS40701809 SS40712009 SS40711609 SS40711809		20 gauge (Top Punched Body Sheet) 20 gauge (Top Punched Decal Body Sheet) 20 gauge (Middle Punched Body Sheet) 18 gauge (Middle Punched Leg Sheet) 20 gauge (Bottom Punched Leg Sheet) 16 gauge (Bottom Punched Leg Sheet) 18 gauge (Bottom Leg Body Sheet)
C	BLK-10694	9	9' 45° Offset Hopper Panel 22" Opening (16 gauge)(shown)
D	BLK-12043 BLK-12044	6 6	9' 45° Leg 106-1/8" (12 gauge) (2--5 Rings (Shown)) 9' 45° Leg 132-3/8" (10 gauge) (6 Rings)
E	BLK-12111 BLK-12112	6 6	Hopper Brace for 16" Collar(Shown) Hopper Brace for 22" Collar
F	BLK-10847 BLK-10854	1 1	16" Hopper Extension Kit w/Collar(Shown) 22" Hopper Collar
G	BLK-11730	1	Bulk Tank Peak Ring

9' DIAMETER 45° HOPPER BIN SPECIFICATIONS



9' DIAMETER 45° HOPPER BIN SPECIFICATIONS

Note: Bolts listed first, nut second for each usage.

Hardware usage: Heads of bolts are on the outside of tank unless otherwise noted.

Key	Part No.*	Qty	Description
1	S-275	36	Bulk Tank Peak Ring to Roof Panels (Use 5/16" x 3/4 Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	36	
2	S-275	72	Roof Panel to Roof Panel (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	72	
3	S-275	108	Roof Panels to Top Body Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	108	
4	S-275	varies	Vertical Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	varies	
5	S-275	varies	Horizontal Body Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	varies	
6	S-275	72or126	Leg Bolts to Body Sheet (Heads INSIDE) (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
	S-396	72or126	
7	S-277	186	Hopper Panels to Body Sheet (Use 5/16" x 1-1/4" Hex Head Bin Bolts and 5/15" Hex Nuts.) (Head inside at Leg to Hopper to Sidewall Connection Only.)
	S-396	186	
8	S-4303	162	Vertical Hopper Seams (Use 5/16" x 3/4 Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank.)
	S-3611	162	
9	S-4303	24	Hopper Collar to Hopper Panel (Use 5/16" x 3/4" Truss Head Bin Bolts and 5/16" Flange Nuts. (Heads on the inside of Tank.) (16" Shown)
	S-3611	24	
10	S-7927	6	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	6	
11	S-7927	12	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
	S-456	12	

Big Dutchman, Inc. Limited Warranty

1. Big Dutchman warrants to the original purchaser that as to any product of its manufacture proving to be defective in material or workmanship under normal and intended use and service within one year from date of purchase thereof Big Dutchman will, at its option, (a) repair or replace such product free of charge, or (b) in lieu of repair or replacement, refund to the original purchaser the original purchase price less the reasonable value of the product's use to the original purchaser.
2. Any component parts that are not manufactured by Big Dutchman, such as electrical motors and controls, are excluded from this warranty, although such parts may be covered by separate warranties of the respective manufacturers. Copies of those other warranties, if any, may be obtained through Big Dutchman.
3. This warranty does not apply if all components of a system are not supplied by Big Dutchman, or if the product is not purchased from and installed by an authorized Big Dutchman distributor or company warehouse, or installed and operated in accordance with Big Dutchman specifications and instructions.
4. This warranty does not cover malfunctions or failures resulting from misuse, abuse, negligence, alterations, unauthorized or improper repairs, accident, damage while in transit, or lack of authorized or proper maintenance or installation. In addition, this warranty does not cover normal wear and tear or any problem with a product not caused by a defect in Big Dutchman materials or workmanship.
5. The obligations of Big Dutchman under this warranty do not include shipping charges, labor (whether for dismantling, installing, replacing or repairing), travel and subsistence allowance.
6. This warranty applies only to systems for the care of poultry and livestock. It does not apply to industrial or commercial installation. In addition, with respect to Big Dutchman's breeder nest system, Big Dutchman makes no warranty or guarantee that individual birds or any given population of birds will utilize the nests.
7. Warranty claims must be made in writing to Big Dutchman within 20 days of discovery and In accordance with Big Dutchman's published return-goods procedures, a copy of which may be obtained from Big Dutchman. For this warranty to apply, the product must be returned to a facility specified by Big Dutchman, freight prepaid and insured with proof of original purchase and date.
8. The acceptance by Big Dutchman of any product for repair, replacement or refund will not be deemed an admission by Big Dutchman that the product is defective or in violation of any warranty. Products that are replaced or for which a refund is issued become the property of Big Dutchman.
9. The rights and obligations of the purchaser under this warranty may neither be assigned nor delegated without the prior written permission of an authorized officer of Big Dutchman.
10. This warranty contains the entire warranty agreement between Big Dutchman and the purchaser, and the terms and conditions of this warranty supersede any and all other understandings, representations or proposals between Big Dutchman and the purchaser with respect to the matters covered by this warranty. This warranty shall not be modified by any custom or practice of the trade or of the parties, nor by any instances of Big Dutchman's waiver of or failure to enforce any of the provisions of this warranty.
11. This warranty may be modified or amended only in writing signed by both the purchaser and an authorized officer of Big Dutchman, and no other agent, employee, salesman, representative, dealer or distributor is authorized to make or to bind Big Dutchman to any representation, affirmation or warranty concerning the products in any manner whatsoever.
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