6', 7' & 9' Bulk Feed Tanks

Assembly Manual

PNEG-256

Date: 03-29-07

GSI GROUP

PNEG-256

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.

Contents

1. INTRODUCTION

READ THIS MANUAL carefully to learn how to properly use and install equipment. Failure to do so could result in personal injury or equipment damage.

INSPECT the shipment immediately upon arrival. The Customer is responsible for ensuring that all quantities are correct. Report any damage or shortages by recording a detailed description on the Bill of Lading to justify the Customer's claim from the Transport Firm. Our responsibility for damage to the equipment ends with acceptance by the delivering carrier. Save all paperwork and documentation furnished with any of the equipment/components.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your equipment and should be easily accessible when needed.

WARRANTY is provided as part of the company's support program for customers who use and maintain their equipment as described in the manual. The warranty is explained on the warranty page located on the inside of the back cover of this manual.

This warranty provides you the assurance that the company will back its products where defects appear within the warranty period. In some circumstances, the company also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the factory specifications, the warranty will become void and field improvements may be denied.

Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting ***personal safety*** and ***preventing equipment problems***. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and it's safety instructions is a misuse of the equipment and may lead to serious injury or death.

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

NOTE indicates information about the equipment that you should pay special attention to.

2. SAFETY

General Safety Statement

Our principle concern is your safety and the safety of others associated with grain handling equipment. 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 to inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.

You should consider the location of the bin site relative to power line locations or electrical transmission equipment. We recommend you contact your local power company to review your installation plan or for information concerning required equipment clearance. Clearance of portable equipment that may be taken to the bin site should be reviewed and considered as well. Any electrical control equipment in contact with the bin should be properly grounded and installed in accordance with National Electric Code provisions and other local or national codes.

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

This product has sharp edges! These sharp edges may cause serious injury. To avoid injury, handle sharp edges with caution and use proper protective clothing and equipment at all times.

Sidewall bundles or sheets must be stored in a safe manner. The safest method of storing sidewall bundles is laying horizontally with the arch of the sheet upward or over like a dome. Sidewall sheets stored on edge must be secured in a way that they cannot fall over and cause injury. Care should be taken in the handling and movement of sidewall bundles.

Personnel operating or working around 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.

Safety Instructions

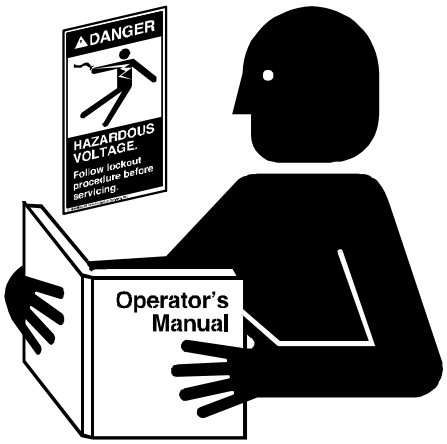
Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. 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.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your dealer.



Read and Understand Manual

Practice Safe Maintenance

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet, and clothing from all rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any build up grease, oil, or debris.

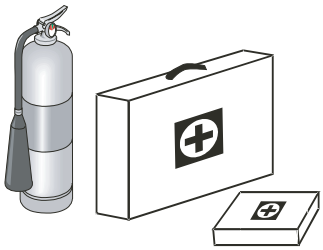
Maintain Equipment and Work Area

Prepare for Emergencies

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



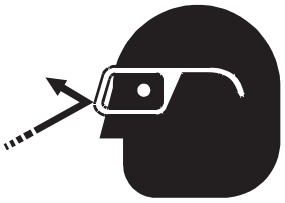
Keep Emergency Equipment Quickly Accessible

Wear Protective Clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Safety glasses should be worn at all times to protect eyes from debris.

Eye Protection



Wear gloves to protect your hands from sharp edges on plastic or steel parts.

Gloves

Wear steel toe boots to help protect your toes from falling debris.

Steel Toe Boots

A respirator may be needed if a hog house has poor ventilation. Waste fumes can be toxic.

Respirator

Remove all jewelry.

Tuck in any loose or dangling shoe strings.

Long hair should be tied up and back.

Wear hard hat to help protect your head.

Hard Hat

Prevent Wet Storage Stain

Properly Store Grain Bin/Silo Materials Prior to Construction to Prevent Wet Storage Strain:

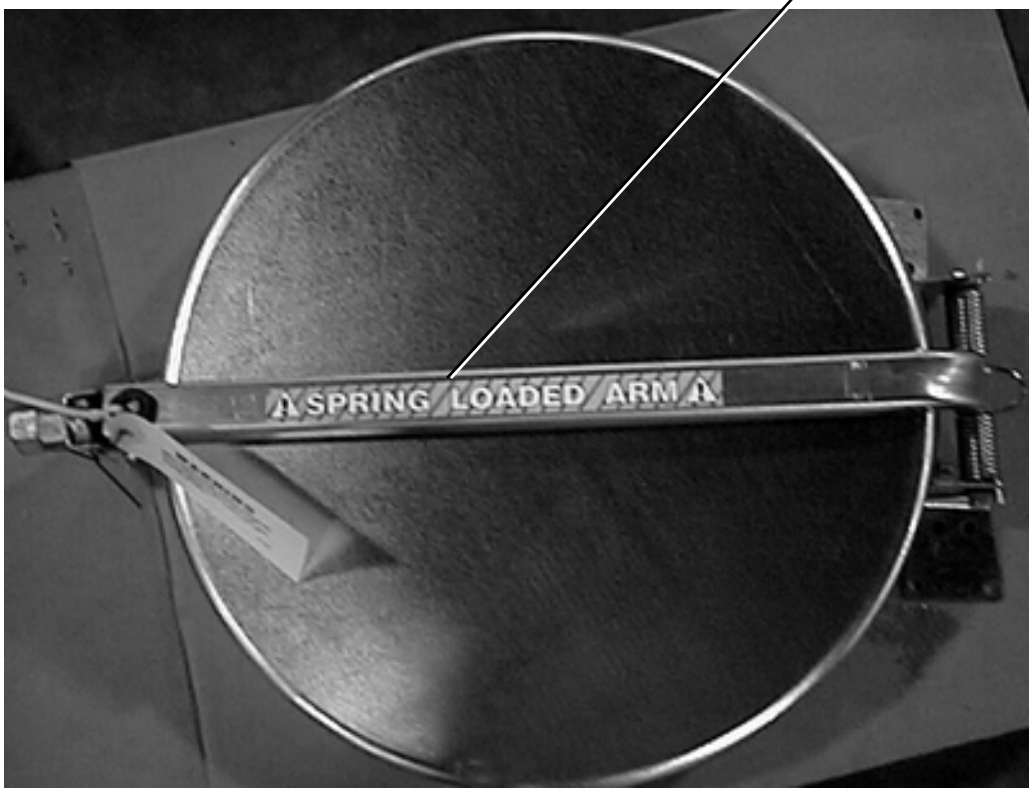
Wet storage stain (rust) will develop when closely packed bundles of galvanized material such as sidewall and roof sheets have moisture present from any source. Roof and sidewall bundles should be inspected on arrival for the presence of moisture. If moisture is present, moisture must not be permitted to remain between the sheets. In the case of moisture presence, sheets or panels should be separated immediately, wiped down, dried and sprayed with a light oil or diesel fuel.

Where possible, sidewall bundles, roof sheets and other closely packed materials should be stored in a dry, climate controlled building. Storage inside a dry building should be done if at all possible. Where outdoor storage is unavoidable, the materials should be raised out of contact from the ground or vegetation. Stacking and spacing materials should not be corrosive or wet. Materials must be protected from the weather. Weather protection that permits more air movement around the bundles is best.

The storage method of the roof bundles and sidewall sheets may also help minimize moisture presence. Roof bundles should be stored inclined. The bundles should be stored and secured in a safe & stable manner. Turning the bundles over and storing with the center of the dome “up” like a arch is an option. Sidewall bundles may be stored on edge, **however these bundles should be secured in such as way as they cannot fall over and cause injury.**

Should “white rust” or “wet storage stain” occur, contact the manufacturer immediately concerning methods to minimize the adverse effect upon the galvanized coating.

DC-604



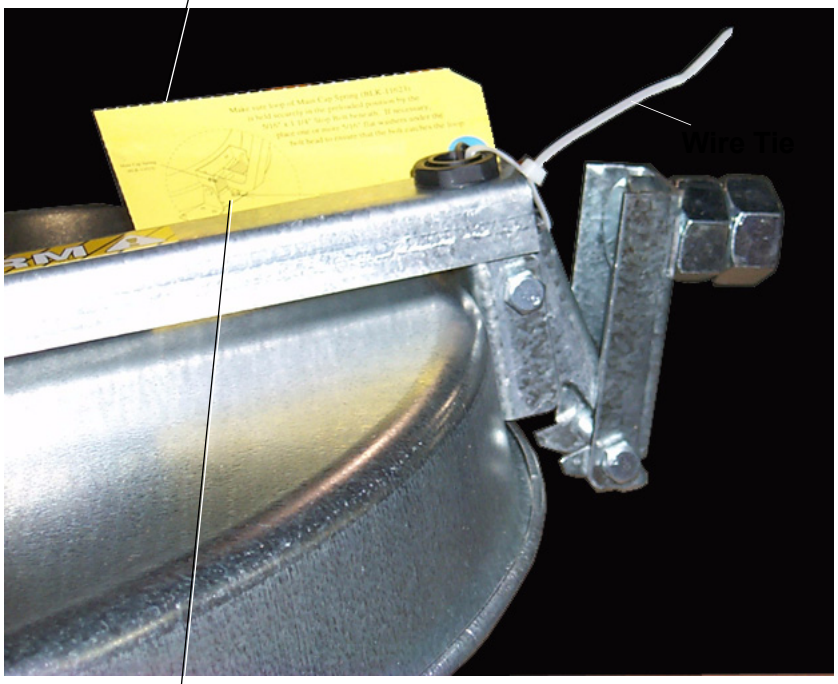
DC-604 located on the Cap Latch Control Arm.

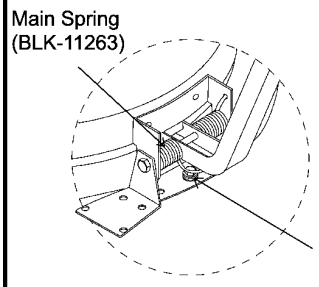
WARNING

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

DC-590

DC-590 located on the Cap Latch Control Arm





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.

PNEG-452

For Replacement Decals
Contact
P.O.Box 20
1004E. Illinois Street
Assumption IL, 62510-0020
Phone:1-217-226-4421

DC-GBC-1A located on Inside the Peak Cap

Bulk Feed Tank Assembly Manual General Instructions

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.

Our company 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 444 lbs (201 kg). All precautions should be taken when raising the tank to its feet. Follow the instructions given later in this manual.

The safety pages 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 our company for a free replacement.

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 66*).

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.

1. Assorted sizes of combination wrenches
2. Hammer
3. 3-12" long drift punches
4. 1 Large Flathead Screwdriver
5. 1 Pair of slip joint pliers
6. 2 Adjustable wrenches
7. Ratchet and sockets
8. Impact wrenches and sockets (if available).

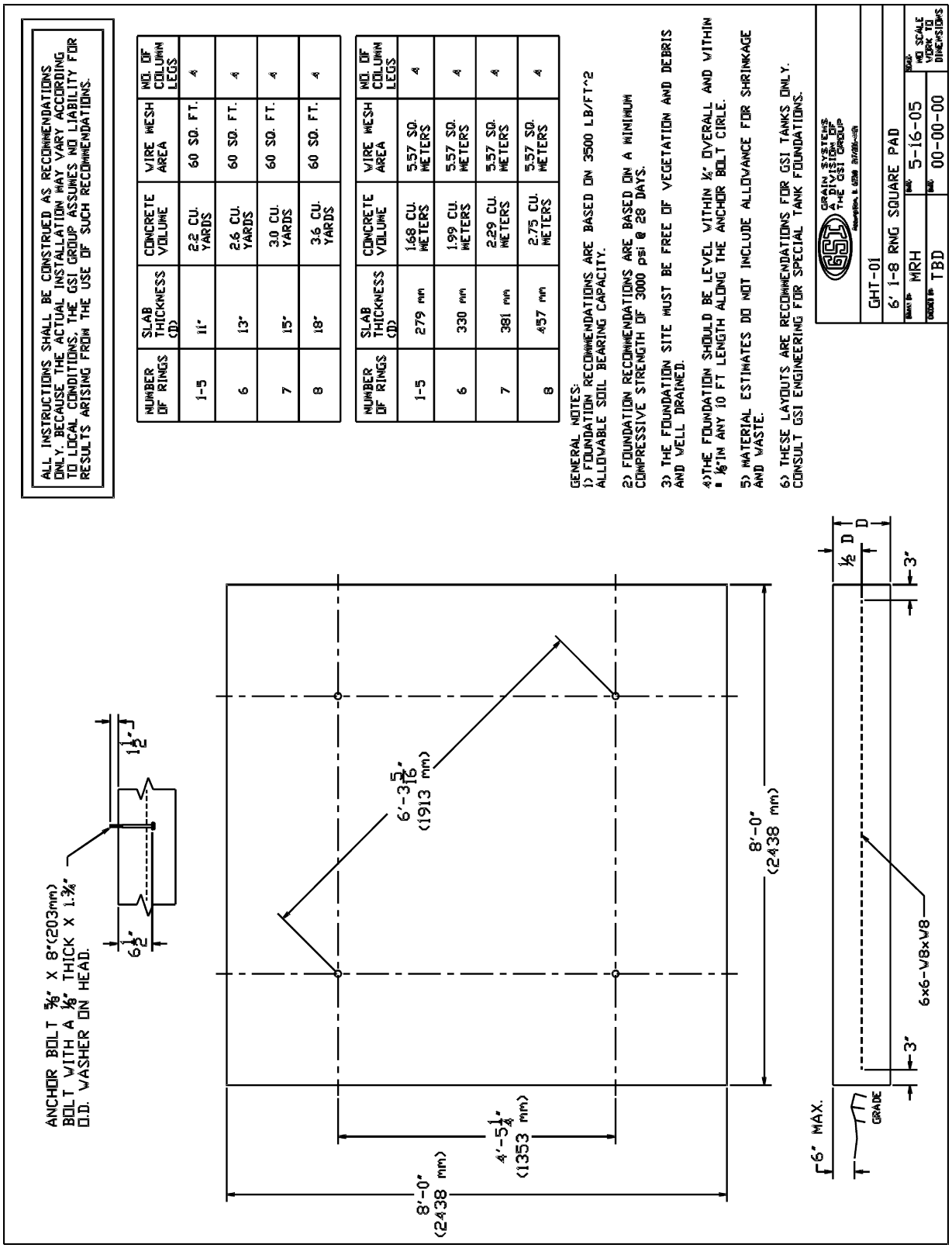
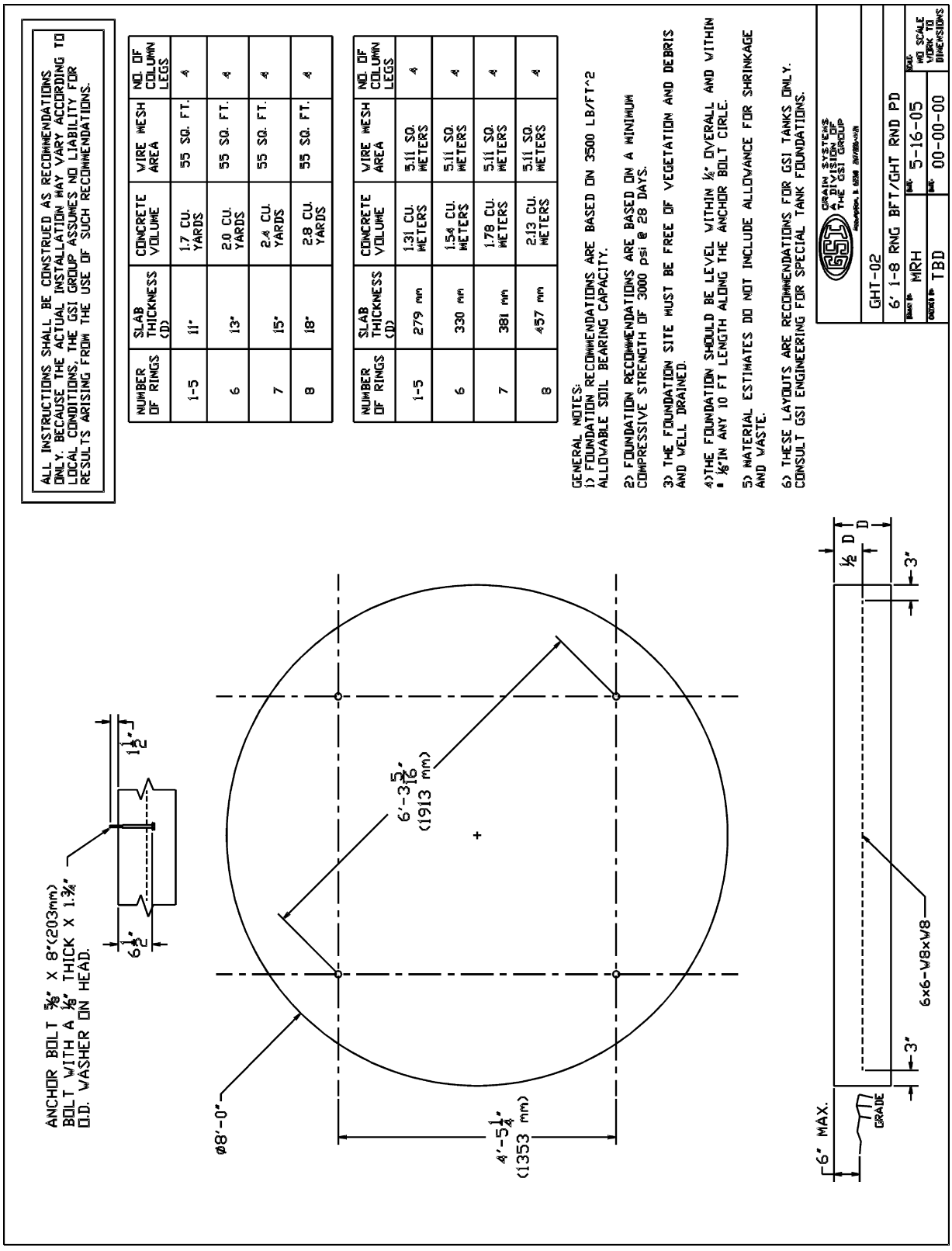

ALL INSTRUCTIONS SHALL BE CONSTRUED AS RECOMMENDATIONS ONLY. BECAUSE THE ACTUAL INSTALLATION MAY VARY ACCORDING TO LOCAL CONDITIONS, THE GSI GROUP ASSUMES NO LIABILITY FOR RESULTS ARISING FROM THE USE OF SUCH RECOMMENDATIONS.
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-5 | 11" | 2.2 CU. YARDS | 60 SQ. FT. | 4
6 | 13" | 2.6 CU. YARDS | 60 SQ. FT. | 4
7 | 15" | 3.0 CU. YARDS | 60 SQ. FT. | 4
8 | 18" | 3.6 CU. YARDS | 60 SQ. FT. | 4
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-5 | 279 mm | 168 CU. METERS | 5.57 SQ. METERS | 4
6 | 330 mm | 199 CU. METERS | 5.57 SQ. METERS | 4
7 | 381 mm | 229 CU. METERS | 5.57 SQ. METERS | 4
8 | 457 mm | 2.75 CU. METERS | 5.57 SQ. METERS | 4
GENERAL NOTES:
1) FOUNDATION RECOMMENDATIONS ARE BASED ON 3500 LB/FT^2 ALLOWABLE SOIL BEARING CAPACITY.
2) FOUNDATION RECOMMENDATIONS ARE BASED ON A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi @ 28 DAYS.
3) THE FOUNDATION SITE MUST BE FREE OF VEGETATION AND DEBRIS AND WELL DRAINED.
4) THE FOUNDATION SHOULD BE LEVEL WITHIN ½" OVERALL AND WITHIN ⅛"IN ANY 10 FT LENGTH ALONG THE ANCHOR BOLT CIRLE.
5) MATERIAL ESTIMATES DO NOT INCLUDE ALLOWANCE FOR SHRINKAGE AND WASTE.
6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
GRAIN SYSTEMS A DIVISION OF THE GSI GROUP
GHT-01
6' 1-8 RNG SQUARE PAD
MRH
5-16-05
TBD
00-00-00
WORK TO DIMENSIONS
ANCHOR BOLT ⅝" X 8"(203mm) BOLT WITH A ⅛" THICK X 1.¾" O.D. WASHER ON HEAD.
6½"
1½"
6'-3 5/16" (1913 mm)
8'-0" (2438 mm)
4'-5¼" (1353 mm)
8'-0" (2438 mm)
6" MAX.
GRADE
½ D
D
3"
3"
6x6-W8xW8

Figure 5A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NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-5 | 11" | 1.7 CU. YARDS | 55 SQ. FT. | 4
6 | 13" | 2.0 CU. YARDS | 55 SQ. FT. | 4
7 | 15" | 2.4 CU. YARDS | 55 SQ. FT. | 4
8 | 18" | 2.8 CU. YARDS | 55 SQ. FT. | 4
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-5 | 279 mm | 1.31 CU. METERS | 5.11 SQ. METERS | 4
6 | 330 mm | 1.54 CU. METERS | 5.11 SQ. METERS | 4
7 | 381 mm | 1.78 CU. METERS | 5.11 SQ. METERS | 4
8 | 457 mm | 2.13 CU. METERS | 5.11 SQ. METERS | 4
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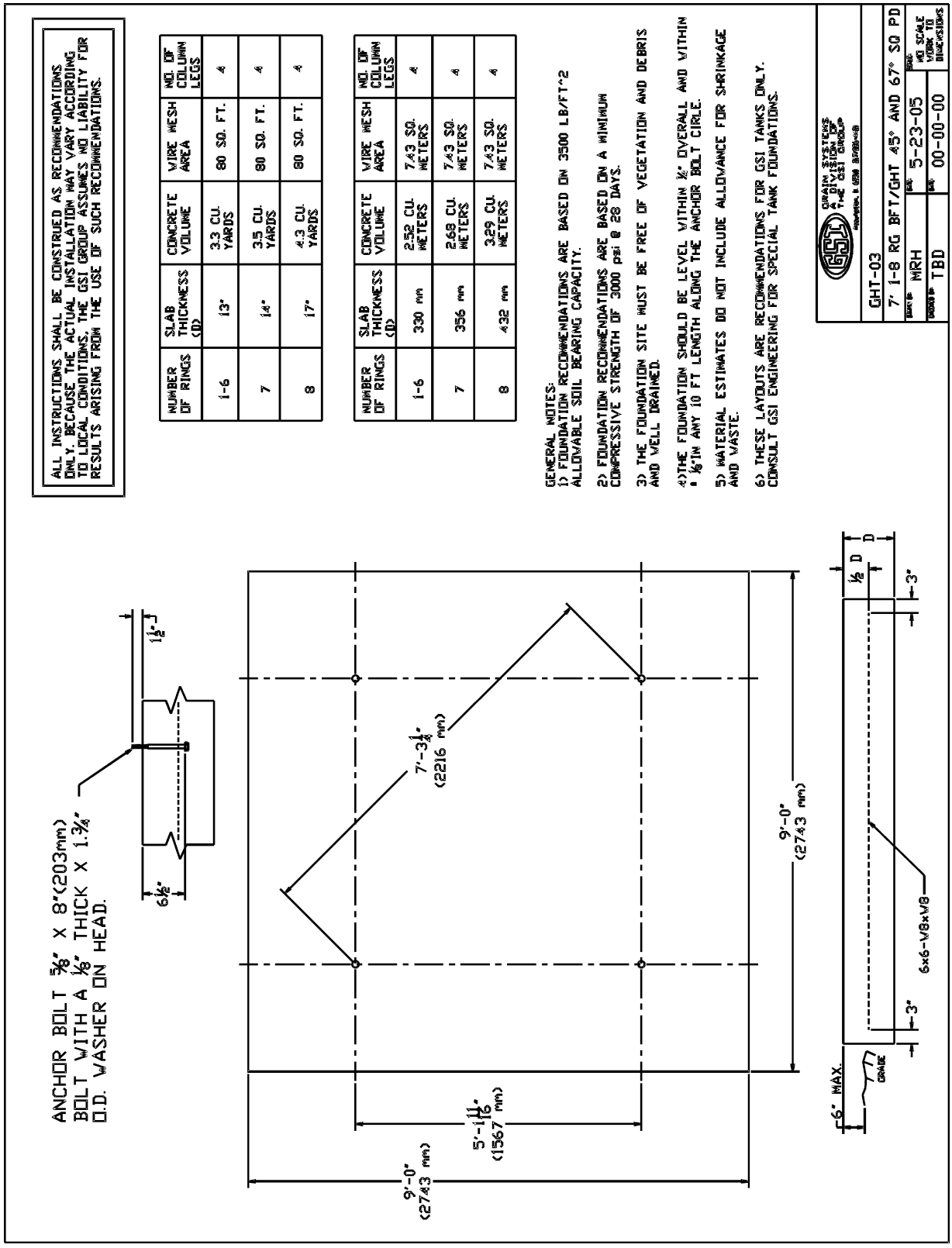
3) THE FOUNDATION SITE MUST BE FREE OF VEGETATION AND DEBRIS AND WELL DRAINED.
4) THE FOUNDATION SHOULD BE LEVEL WITHIN ½" OVERALL AND WITHIN ¼" IN ANY 10 FT LENGTH ALONG THE ANCHOR BOLT CIRLE.
5) MATERIAL ESTIMATES DO NOT INCLUDE ALLOWANCE FOR SHRINKAGE AND WASTE.
6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
GRAIN SYSTEMS A DIVISION OF THE GSI GROUP
GHT-02
6' 1-8 RNG BFT/GHT RND PD
DRAWN BY MRH
DATE 5-16-05
CHECKED BY TBD
DATE 00-00-00
DO NOT SCALE WORK TO DIMENSIONS
ANCHOR BOLT ⅝" X 8"(203mm) BOLT WITH A ⅛" THICK X 1¾" O.D. WASHER ON HEAD.
1½"
6½"
6'-3 5/16" (1913 mm)
Ø8'-0"
4'-5¼" (1353 mm)
½ D
D
3"
3"
6x6-W8xW8
6" MAX.
GRADE

Figure 5B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NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-6 | 13" | 3.3 CU. YARDS | 80 SQ. FT. | 4
7 | 14" | 3.5 CU. YARDS | 80 SQ. FT. | 4
8 | 17" | 4.3 CU. YARDS | 80 SQ. FT. | 4
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-6 | 330 mm | 2.52 CU. METERS | 7.43 SQ. METERS | 4
7 | 356 mm | 2.68 CU. METERS | 7.43 SQ. METERS | 4
8 | 432 mm | 3.29 CU. METERS | 7.43 SQ. METERS | 4
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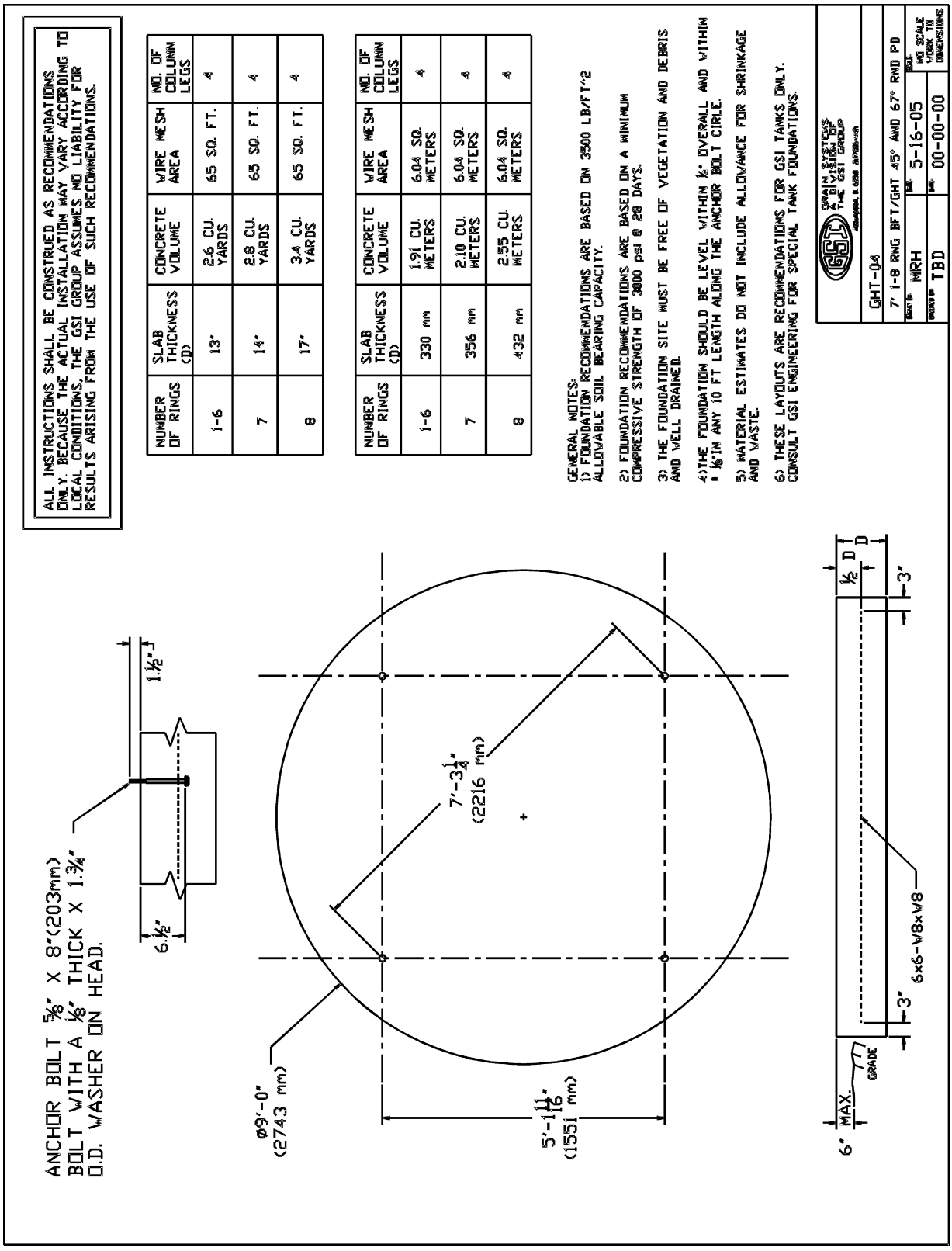
5) MATERIAL ESTIMATES DO NOT INCLUDE ALLOWANCE FOR SHRINKAGE AND WASTE.
6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
GRAIN SYSTEMS INC. A GSI GROUP
GHT-03
7' 1-8 RG BFT/GHT 45° AND 67° SQ PD
DRAWN BY MRH
DATE 5-23-05
CHECKED BY TBD
DATE 00-00-00
NTS SCALE WORK TO DIMENSIONS
ANCHOR BOLT ⅝" X 8"(203mm) BOLT WITH A ⅛" THICK X 1.3¾" O.D. WASHER ON HEAD.
1½"
6½"
7'-3¼" (2216 mm)
9'-0" (2743 mm)
5'-1⅛" (1567 mm)
9'-0" (2743 mm)
6" MAX.
GRADE
6x6-V8xV8
½ D
D
3"
3"

Figure 5C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NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-6 | 13" | 2.6 CU. YARDS | 65 SQ. FT. | 4
7 | 14" | 2.8 CU. YARDS | 65 SQ. FT. | 4
8 | 17" | 3.4 CU. YARDS | 65 SQ. FT. | 4
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
1-6 | 330 mm | 1.91 CU. METERS | 6.04 SQ. METERS | 4
7 | 356 mm | 2.10 CU. METERS | 6.04 SQ. METERS | 4
8 | 432 mm | 2.55 CU. METERS | 6.04 SQ. METERS | 4
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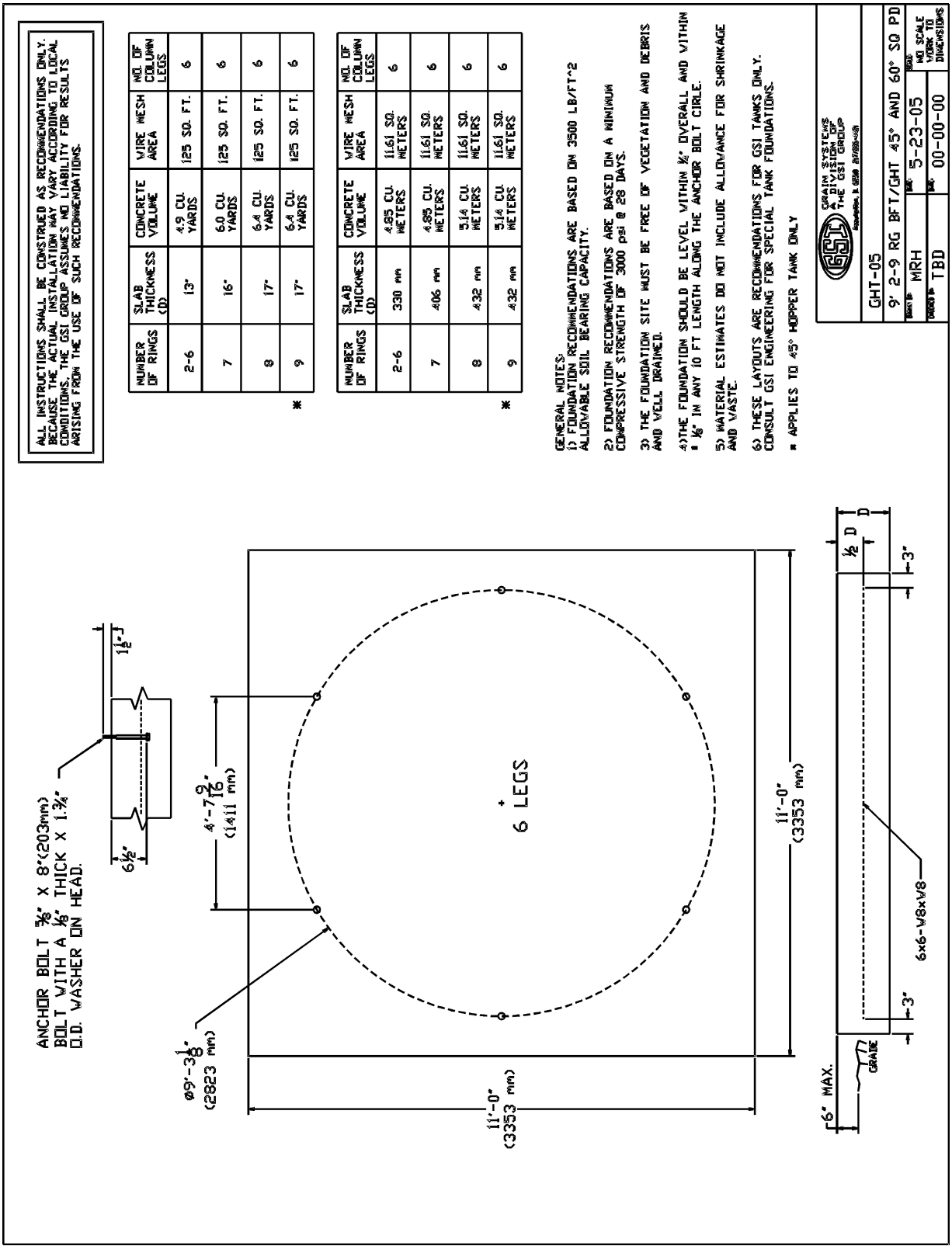
6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
GRAIN SYSTEMS A DIVISION OF THE GSI GROUP
GHT-04
7' 1-8 RNG BFT/GHT 45° AND 67° RND PD
DRAWN BY: MRH
DATE: 5-16-05
DESIGNED BY: TBD
DATE: 00-00-00
DRAWING NO. NO SCALE WORK TO DIMENSIONS
ANCHOR BOLT ⅝" X 8"(203mm) BOLT WITH A ⅛" THICK X 1¾" O.D. WASHER ON HEAD.
1½"
6½"
ø9'-0" (2743 mm)
7'-3¼" (2216 mm)
5'-1 11/16" (1551 mm)
½ D
D
3"
3"
6x6-W8xW8
6" MAX.
GRADE

Figure 5D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NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
2-6 | 13" | 4.9 CU. YARDS | 125 SQ. FT. | 6
7 | 16" | 6.0 CU. YARDS | 125 SQ. FT. | 6
8 | 17" | 6.4 CU. YARDS | 125 SQ. FT. | 6
9 * | 17" | 6.4 CU. YARDS | 125 SQ. FT. | 6
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
2-6 | 330 mm | 4.85 CU. METERS | 11.61 SQ. METERS | 6
7 | 406 mm | 4.85 CU. METERS | 11.61 SQ. METERS | 6
8 | 432 mm | 5.14 CU. METERS | 11.61 SQ. METERS | 6
9 * | 432 mm | 5.14 CU. METERS | 11.61 SQ. METERS | 6
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6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
* APPLIES TO 45° HOPPER TANK ONLY
GRAIN SYSTEMS INCORPORATED THE GSI GROUP
GHT-05
9' 2-9 RG BFT/GHT 45° AND 60° SQ PD
DRAWN MRH
DATE 5-23-05
DRAWING TBD
DATE 00-00-00
NO SCALE WORK TO DIMENSIONS
ANCHOR BOLT ⅞" X 8"(203mm) BOLT WITH A ⅛" THICK X 1¾" O.D. WASHER ON HEAD.
1½"
6½"
4'-7 9/16" (1411 mm)
Ø9'-3⅛" (2823 mm)
11'-0" (3353 mm)
6 LEGS
11'-0" (3353 mm)
½ D
D
3"
3"
6x6-W8xW8
6" MAX.
GRADE

Figure 5E

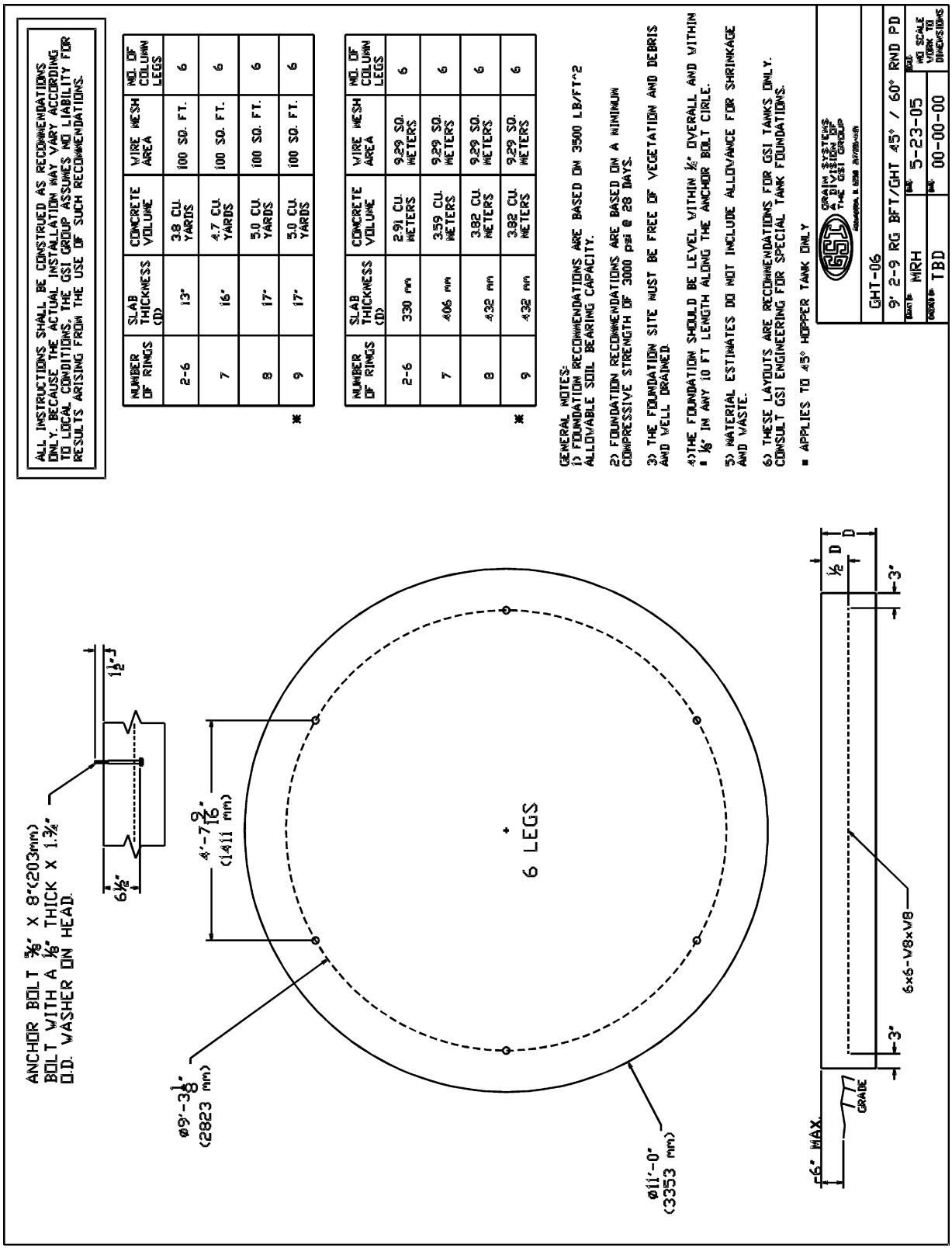

ALL INSTRUCTIONS SHALL BE CONSTRUED AS RECOMMENDATIONS ONLY. BECAUSE THE ACTUAL INSTALLATION MAY VARY ACCORDING TO LOCAL CONDITIONS, THE GSI GROUP ASSUMES NO LIABILITY FOR RESULTS ARISING FROM THE USE OF SUCH RECOMMENDATIONS.
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
2-6 | 13" | 3.8 CU. YARDS | 100 SQ. FT. | 6
7 | 16" | 4.7 CU. YARDS | 100 SQ. FT. | 6
8 | 17" | 5.0 CU. YARDS | 100 SQ. FT. | 6
9 | 17" | 5.0 CU. YARDS | 100 SQ. FT. | 6
NUMBER OF RINGS | SLAB THICKNESS (D) | CONCRETE VOLUME | WIRE MESH AREA | NO. OF COLUMN LEGS
2-6 | 330 mm | 2.91 CU. METERS | 9.29 SQ. METERS | 6
7 | 406 mm | 3.59 CU. METERS | 9.29 SQ. METERS | 6
8 | 432 mm | 3.82 CU. METERS | 9.29 SQ. METERS | 6
9 | 432 mm | 3.82 CU. METERS | 9.29 SQ. METERS | 6
GENERAL NOTES:
1) FOUNDATION RECOMMENDATIONS ARE BASED ON 3500 LB/FT^2 ALLOWABLE SOIL BEARING CAPACITY.
2) FOUNDATION RECOMMENDATIONS ARE BASED ON A MINIMUM COMPRESSIVE STRENGTH OF 3000 psi @ 28 DAYS.
3) THE FOUNDATION SITE MUST BE FREE OF VEGETATION AND DEBRIS AND WELL DRAINED.
4) THE FOUNDATION SHOULD BE LEVEL WITHIN ½" OVERALL AND WITHIN ⅛" IN ANY 10 FT LENGTH ALONG THE ANCHOR BOLT CIRCLE.
5) MATERIAL ESTIMATES DO NOT INCLUDE ALLOWANCE FOR SHRINKAGE AND WASTE.
6) THESE LAYOUTS ARE RECOMMENDATIONS FOR GSI TANKS ONLY. CONSULT GSI ENGINEERING FOR SPECIAL TANK FOUNDATIONS.
* APPLIES TO 45° HOPPER TANK ONLY
GRAIN SYSTEMS A DIVISION OF THE GSI GROUP
GHT-06
9' 2-9 RG BFT/GHT 45° / 60° RND PD
DRAWN BY MRH
DATE 5-23-05
DRAWING NO TBD
DATE 00-00-00
DO NOT SCALE WORK TO DIMENSIONS
ANCHOR BOLT ⅝" X 8"(203mm) BOLT WITH A ⅛" THICK X 1¾" O.D. WASHER ON HEAD.
6½"
1½"
4'-7 7/16" (1411 mm)
Ø9'-3⅜" (2823 mm)
6 LEGS
Ø11'-0" (3353 mm)
6" MAX
GRADE
½ D
D
3"
3"
6x6-W8xW8

Figure 5F

Tank Side Walls

Sidewall Sheet Gauge Chart

Model	Gauge
BFT 6'-1 Ring	20
BFT 6'-2 Ring	20-20
BFT 6'-3 Ring	18-20-20
BFT 6'-4 Ring	18-20-20-20
BFT 7'-1 Ring	20
BFT 7'-2 Ring	18-20
BFT 7'-3 Ring	18-20-20
BFT 7'-4 Ring	18-18-20-20
BFT 7'-5 Ring	17-17-18-20-20
BFT 7'-6 Ring	15-15-17-18-20-20
BFT 9'-1 Ring	20
BFT 9'-2 Ring	20-20
BFT 9'-3 Ring	20-20-20
BFT 9'-4 Ring	18-18-20-20
BFT 9'-5 Ring	17-17-18-20-20
BFT 9'-6 Ring	15-15-17-18-20-20

How to Use Chart 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 Chart”*).

Note: Sidewall sheets are color coded on edges for gauge identification.

Sheet Gauge Color Chart

Code #	Color
20	Red
18	Orange
17	Pink/Light Blue
16	Blue
15	Brown/Red
14	Green
13	yellow/Blue
12	Black
11	Pink
10	Light Blue

Caulking

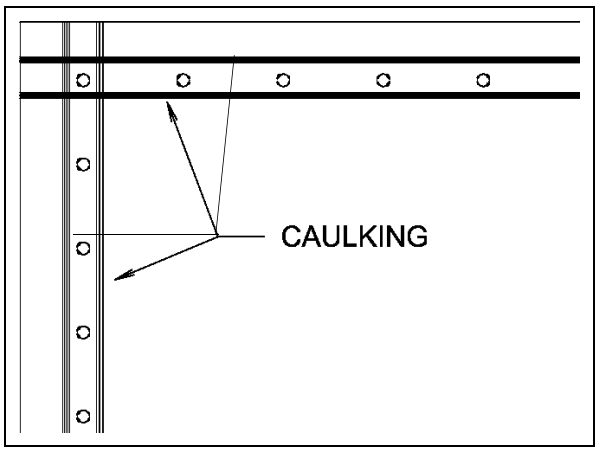


Figure 6A *Caulking Detail*

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.***

Figure 6B

Sidewall Sheet Orientation

Important: Please note the sheet orientation when assembling the bin sidewall. The upper right corner will have a slot or identifying sticker. This corner should be on the inside of the tank when assembled.

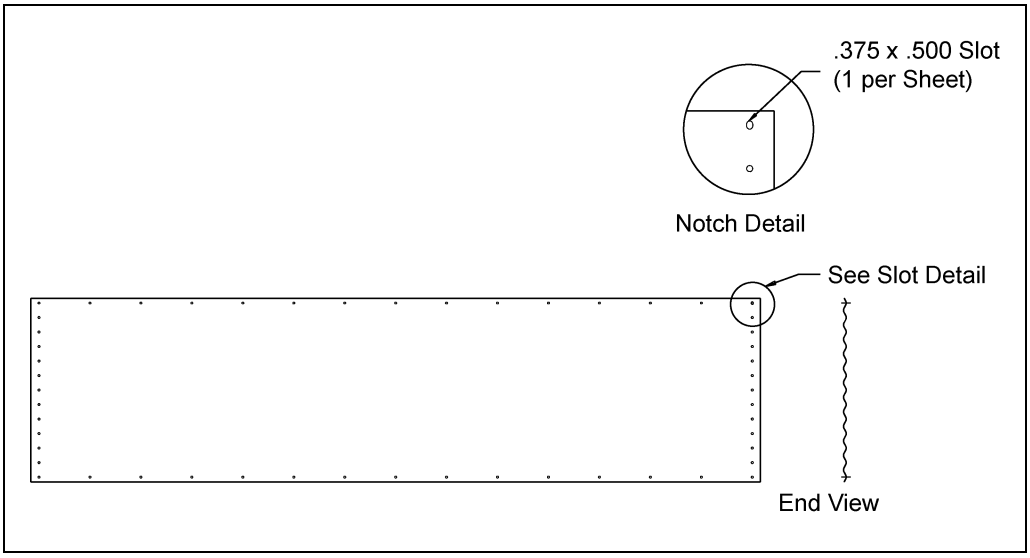


Figure 6C *Viewed from inside*

Sheet orientation will effect how the sheets lap together.

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 the “Sheet Gauge Color Code Chart” & “Sidewall Sheet Gauge Chart”, *Page 21* and *Page 21*.) 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 66*.) 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 Figure 6D)*

All bolts are to be 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.

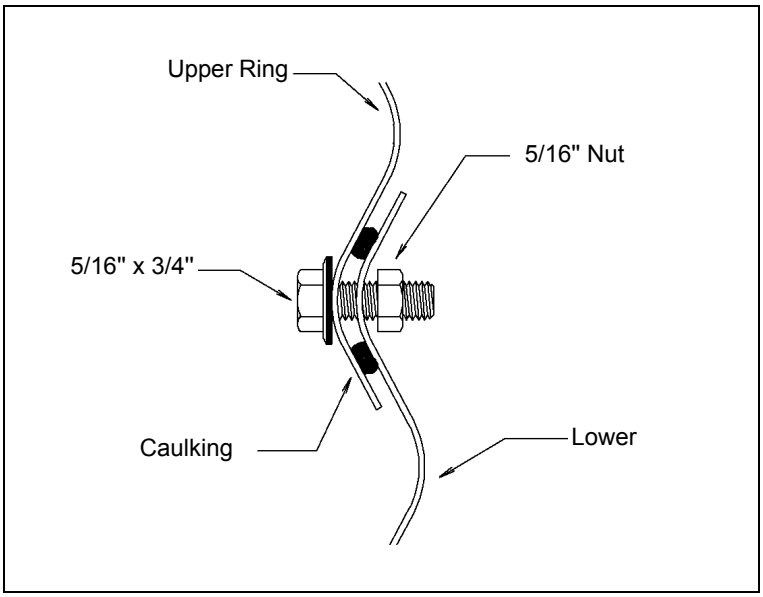


Figure 6D *Ring Overlap Detail*

Figure 6E

Important: 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.

Figure 6F

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.

Figure 7A

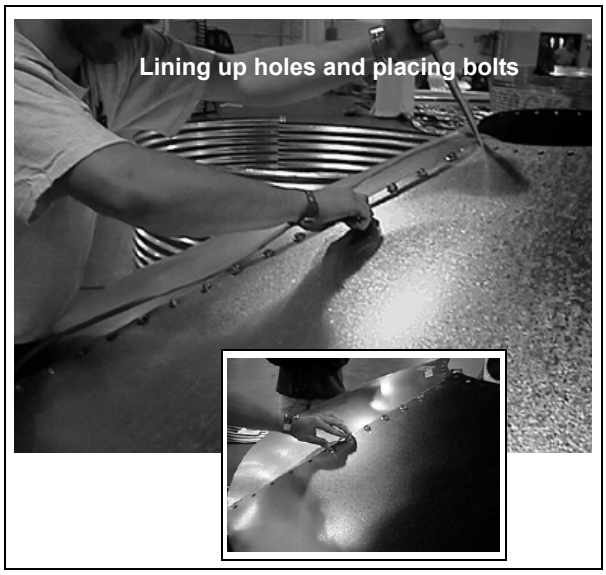


Figure 7B

Assemble roof panels in a counter clockwise manner. On bins that will be equipped with a pneumatic fill system (refer to *Page 59*), 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.

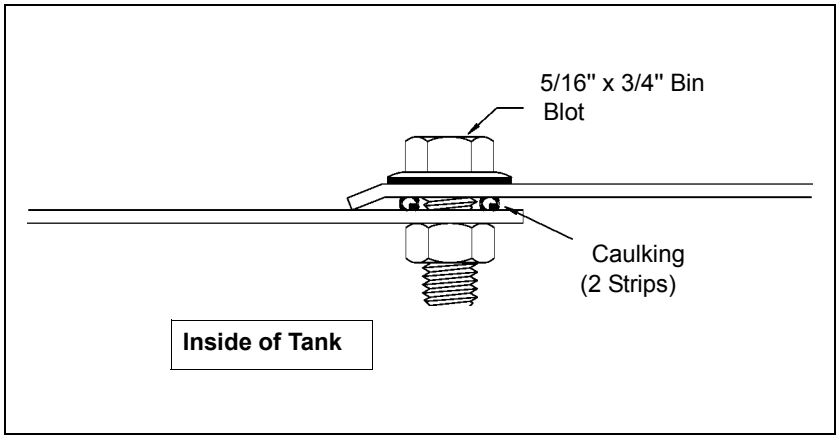


Figure 7C *Roof Sheet Overlap Detail*

Peak Ring

Peak Ring Collar to Roof Panels

Use two strips of caulking between peak ring and roof panels *(See Figure 7E)*. Note that the peak ring goes on the outside of the roof panels.

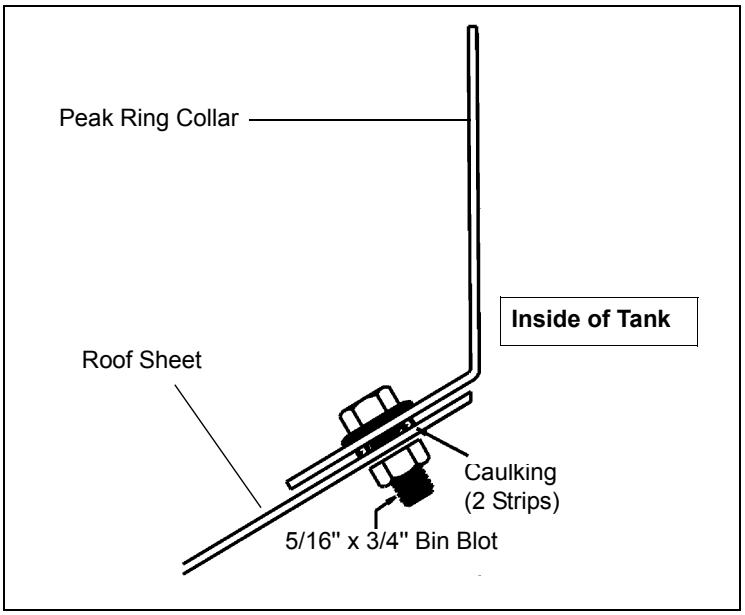


Figure 7D *Peak Ring Collar Detail*

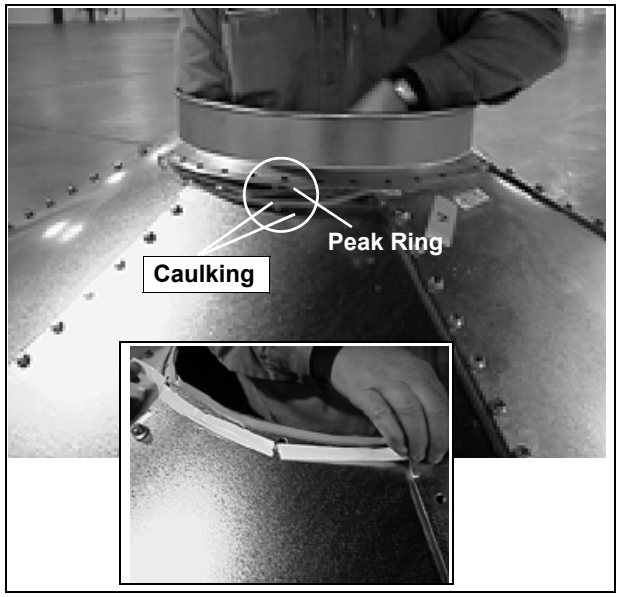


Figure 7E

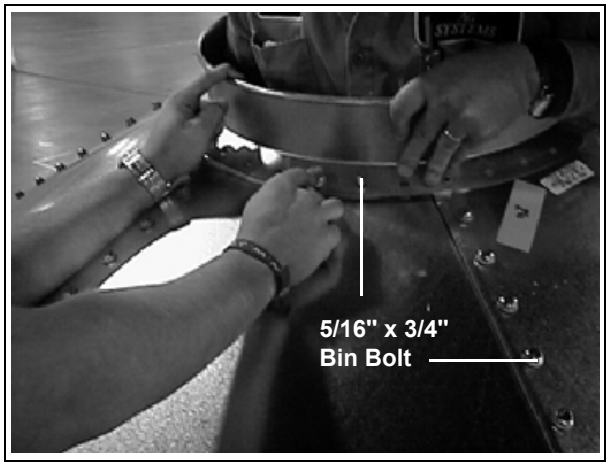


Figure 7F

Eave Safety Rail (6')

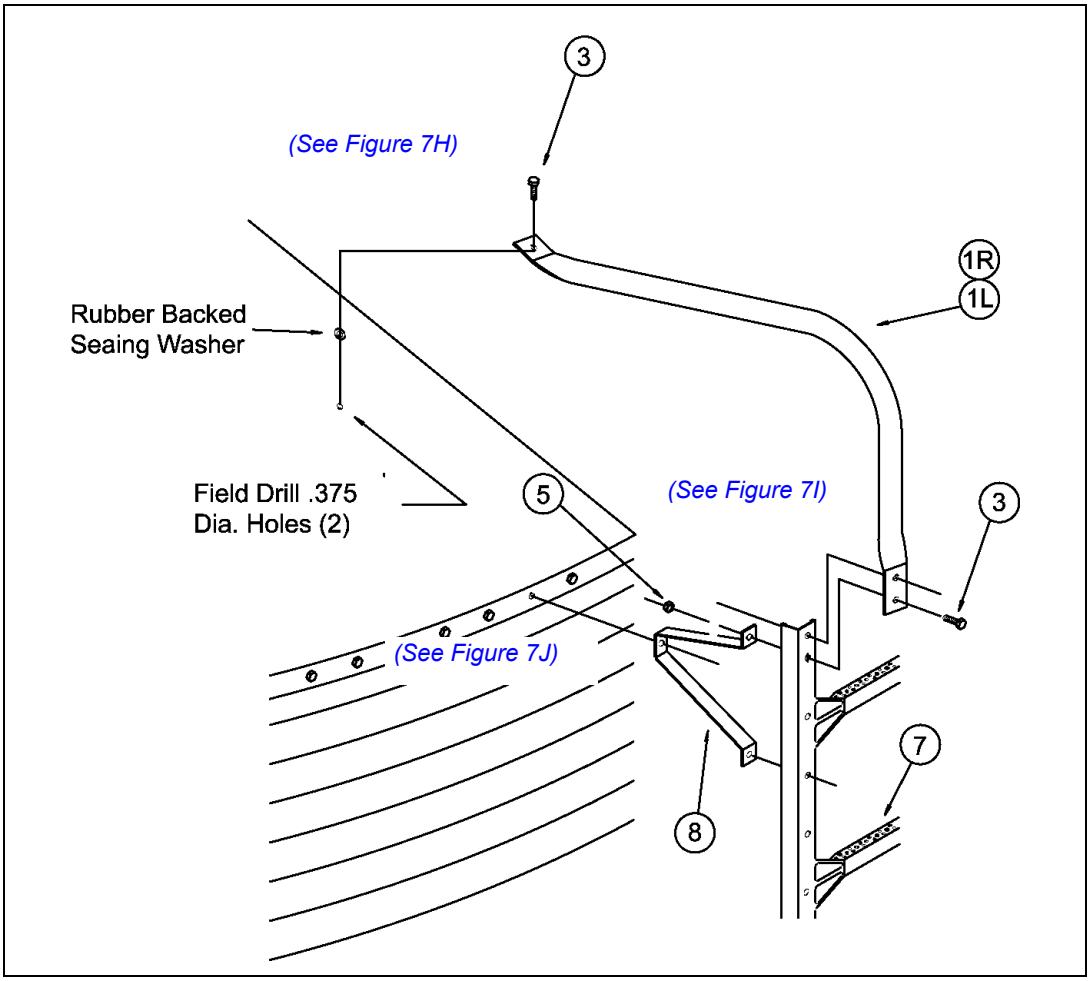


Figure 7G *6' Roof Eave Safety Rail Detail*

6' Roof Safety Rail Detail

Ref #	Part #	Qty	Description
1L	BLK-11877L	1	6' BFT Left Hand Roof Eave Safety Rail
1R	BLK-11877R	1	6' BFT Right Hand Roof Eave Safety Rail
3	S-275	6	5/16" x 3/4" Bin Bolt
5	S-396	6	5/16" - 18 Hex Nut
6	BLK-11673	--	Lower Support Channel Bracket
7	LDR-4002	--	44" Sidewall Ladder Section
8	LS-121	--	Sidewall Ladder Standoff

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.

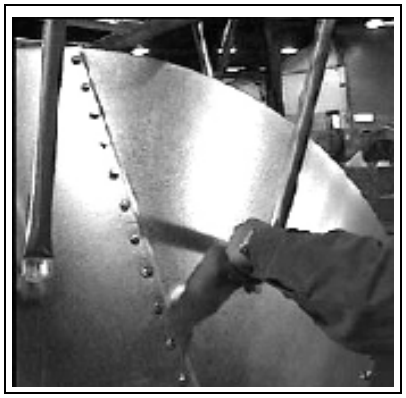


Figure 7H

Figure 7I

Figure 7J

Eave Ladder

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

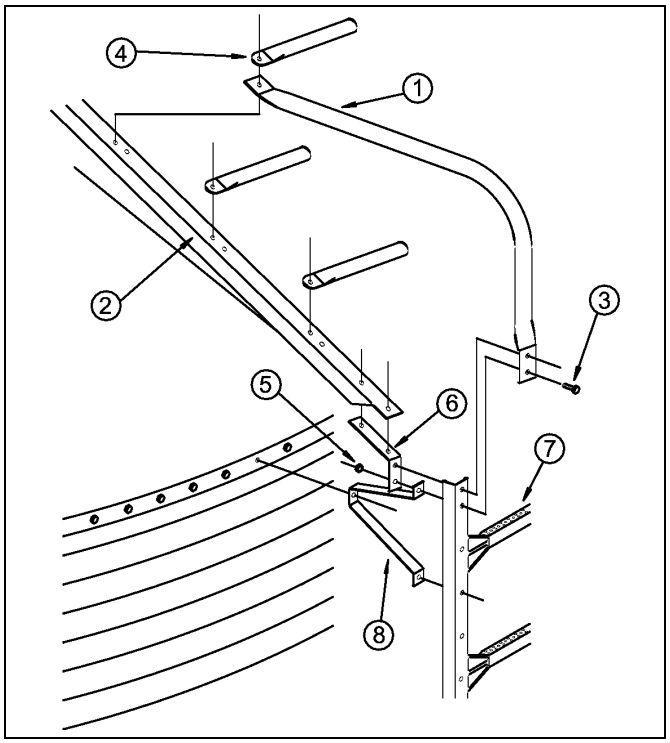


Figure 7K *7' & 9' Roof Eave Ladder Detail*

7' & 9' Roof Eave Ladder Detail

Ref #	Part #	Qty 7' Dia	Qty 9' Dia	Description
1	BLK-11680	2	2	Ladder Eave Safety Ring
2	BLK-11760	2	--	7' BFT Roof Ladder Support Channel
	BLK-11761	--	2	9' BFT Roof Ladder Support Channel
3	S-275	16	18	5/16" x 3/4" Bin Bolt
4	BLK-11679	2	3	Roof Ladder Rung
5	S-396	16	18	5/16" - 18 Hex Nut
6	BLK-11673	2	2	Lower Support Channel Bracket
7	LDR-4002	--	--	44" Sidewall Ladder Bracket
8	LS-121	--	--	Sidewall Ladder Standoff

Figure 7L

Peak Ring-Ladder

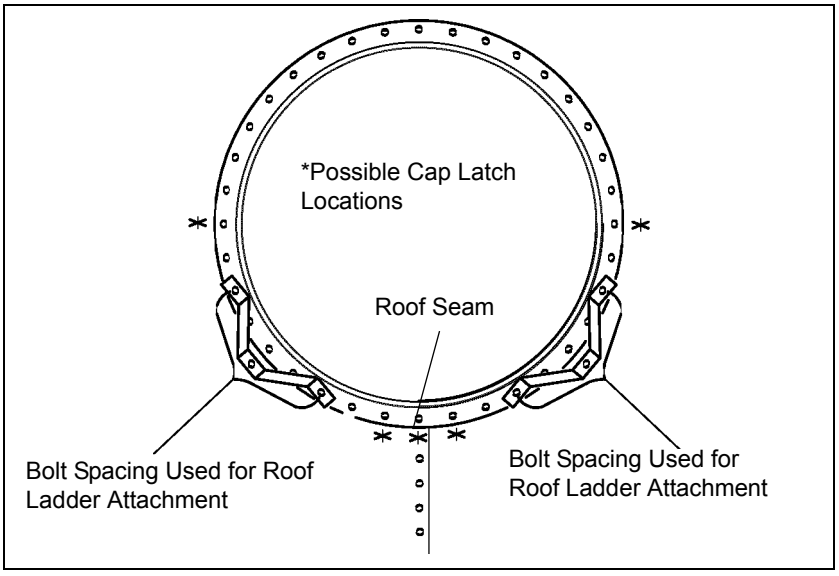


Figure 7M *7'-9' Roof Ladder Peak Ring Detail*

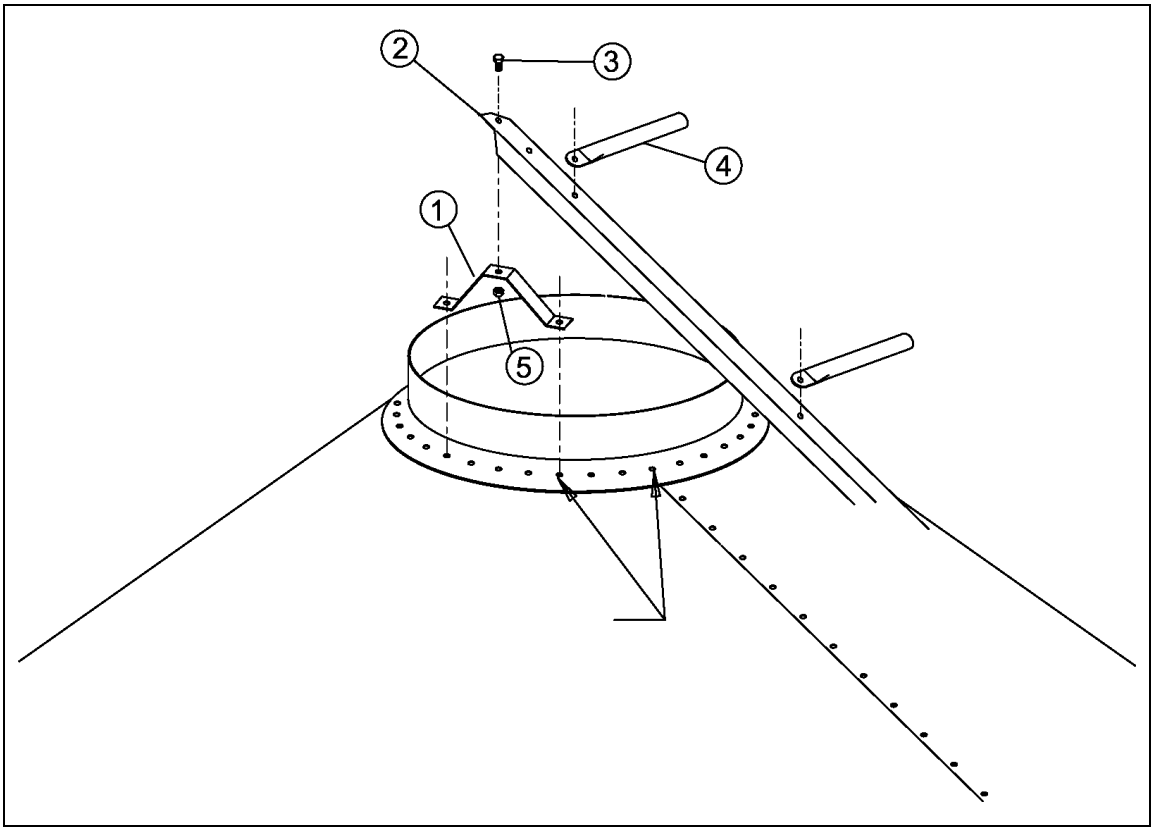


Figure 7N

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

7' & 9' Roof Eave Ladder Detail

Ref #	Part #	Qty 7' Dia	Qty 9' Dia	Description
1	LS-147	2	2	Inside Ladder Standoff
2	BLK-11760	2	--	7' BFT Roof Ladder Support Channel
2	BLK-11761	--	2	9' BFT Roof Ladder Support Channel
3	S-275	16	18	5/16" x 3/4" Bin Bolt
4	BLK-11679	2	3	Roof Ladder Rung
5	S-396	16	18	5/16" - 18 Hex Nut

Note that peak ring is mounted to the outside of the roof panels. 6' Bulk Feed Tank utilizes only eave safety rail. *See Page 29* for details.

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

Cap

Roof Cap Ground Control

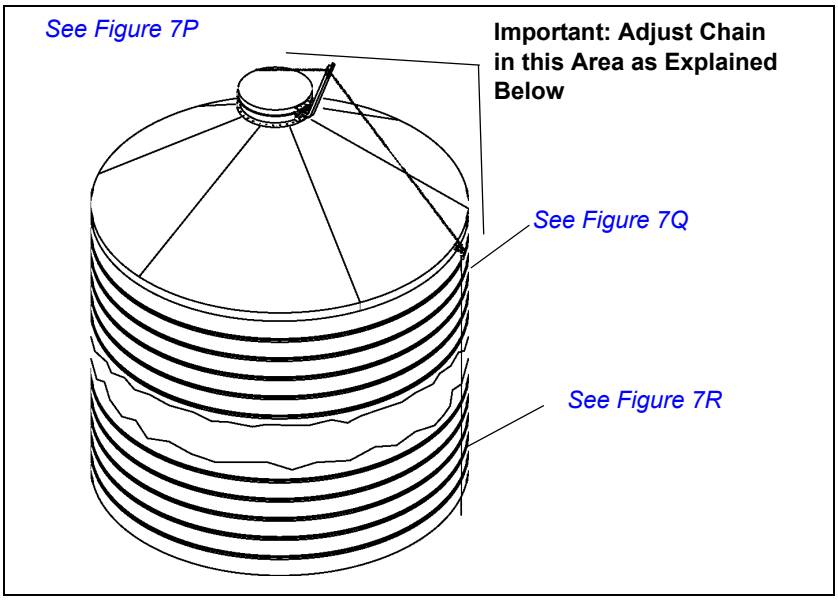


Figure 7O

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.

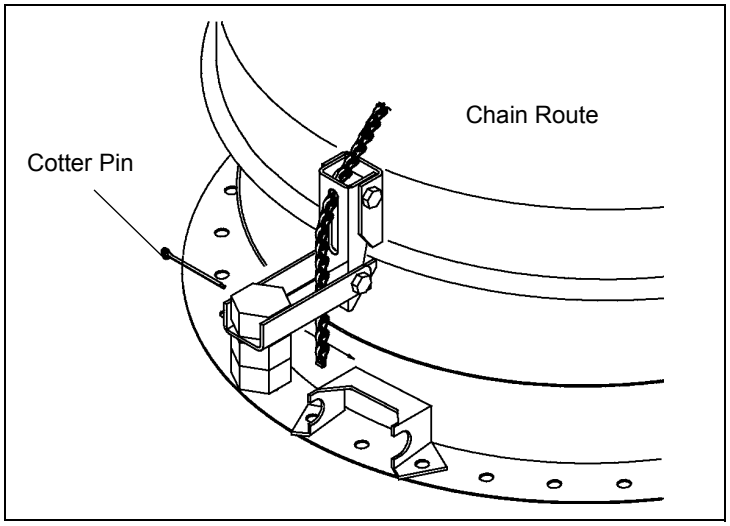


Figure 7P

Refer to the *Control Arm Detail* and Cap Latch Detail on 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 on *Page 19*). One end of the ground control chain is secured at the counterweight arm with a cotter pin *(See Figure 7P)*. 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 Figure 7R)*. 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.

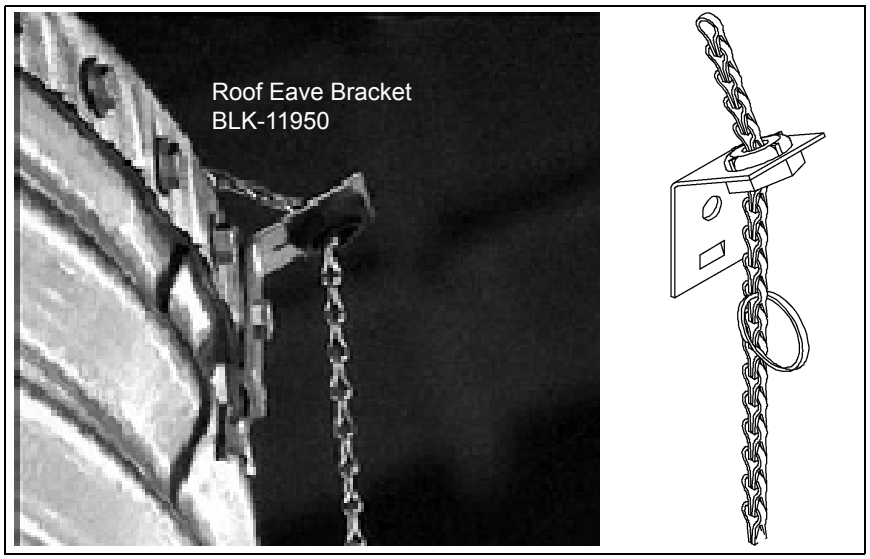


Figure 7Q

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 *See Figure 7T*). 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 34*.

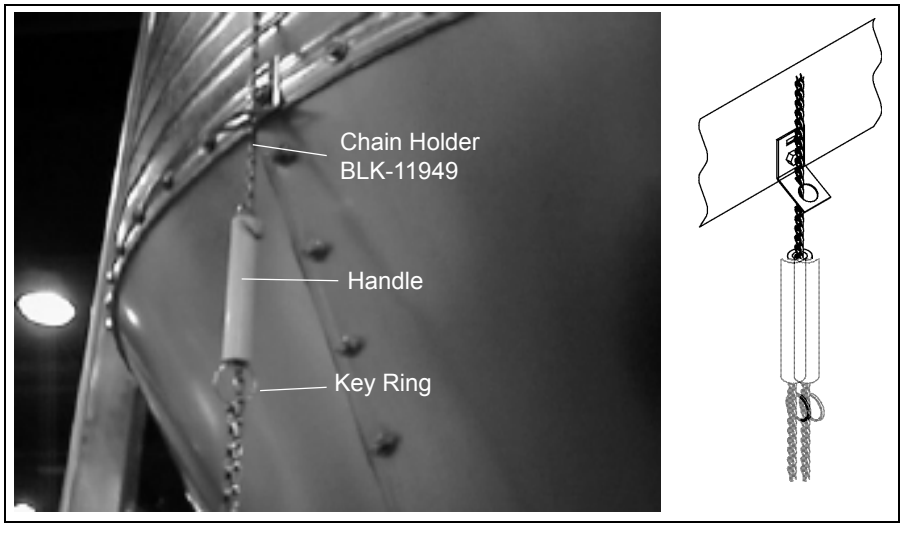
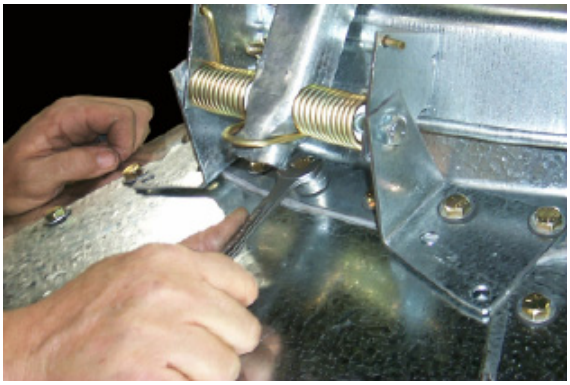


Figure 7R

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 Figure 7R)*. 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.



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

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.

Figure 7S

⚠ 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 19 for Control Arm and Ground Control details.

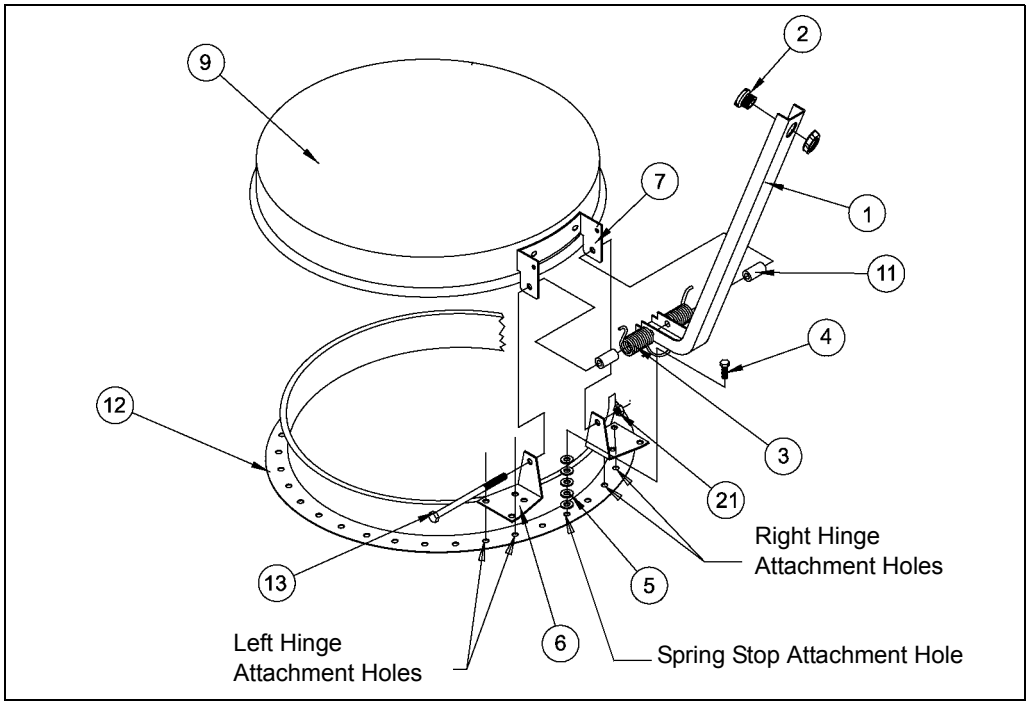


Figure 7T *Control Arm Detail*

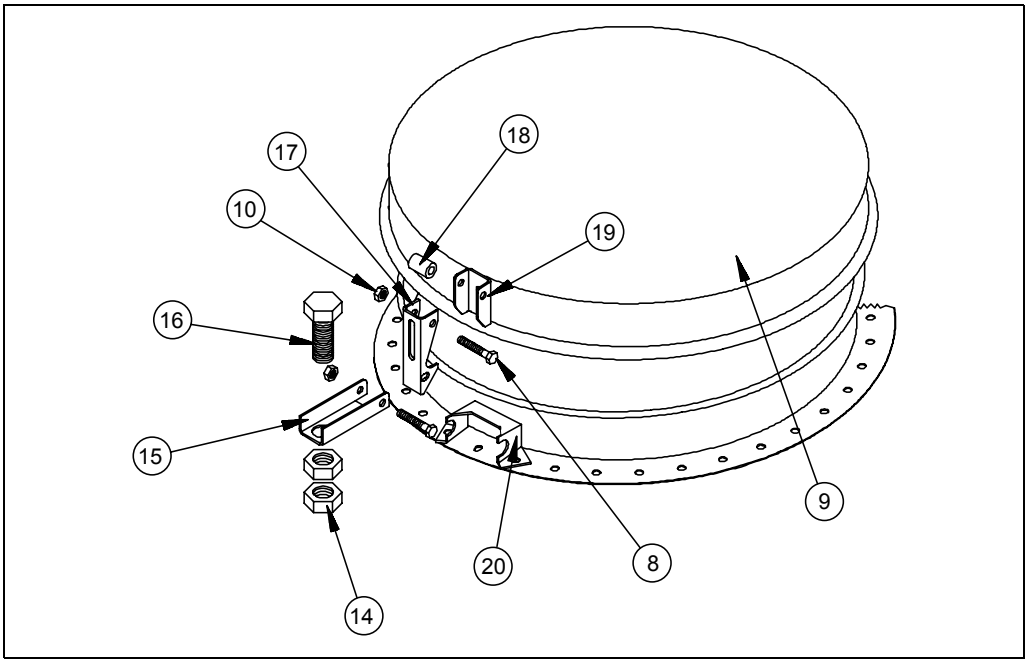


Figure 7U *Ground Control Detail*

Parts List for Control Arm and Ground Control

Ref #	Part #	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-7329	5/16" - 18 x 2" 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
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 0.750 Dia. Plastic Spacer
19	BLK-11843	Pivot Bracket
20	BLK-11846	Cap Hold Down Bracket
21	S-4663	3/8" - 16 Hex Head Lock Nut

Peak Ring

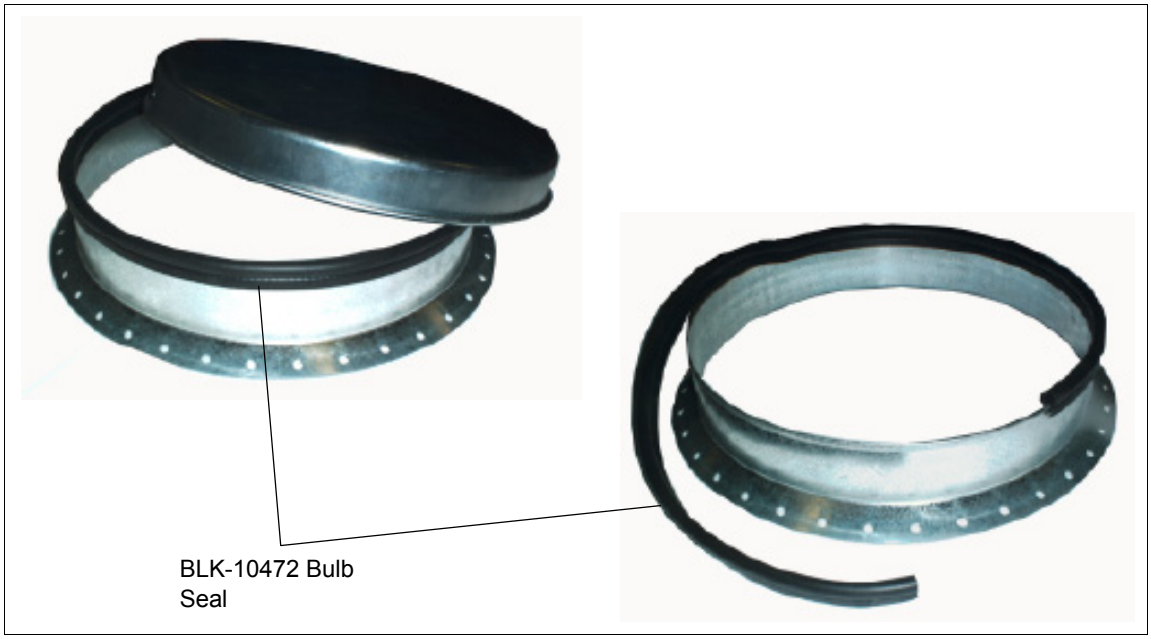


Figure 7V *Bulb Seal Kit (Optional)*

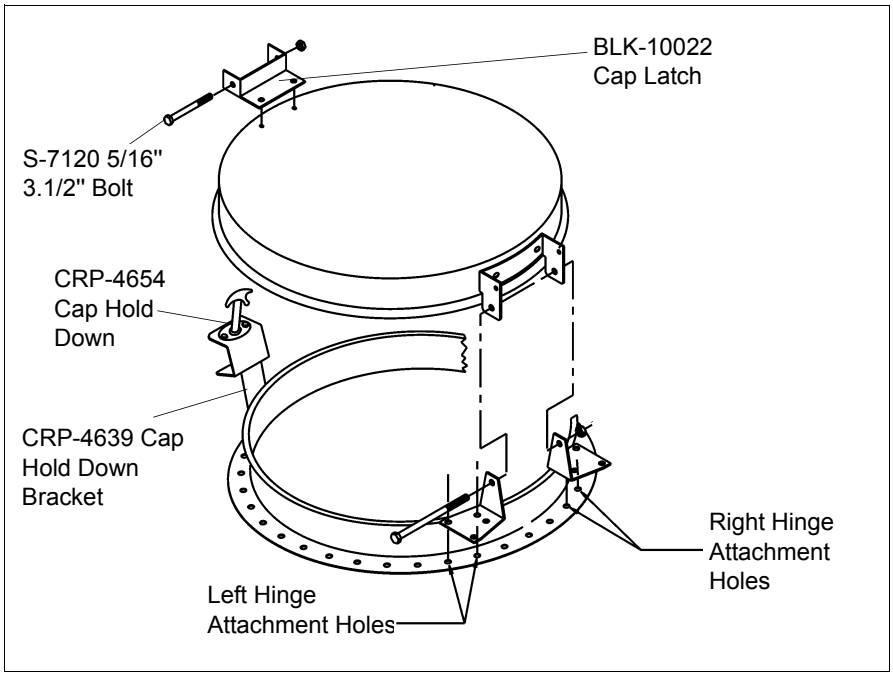


Figure 7W *Cap Hold Down Package*

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.

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).

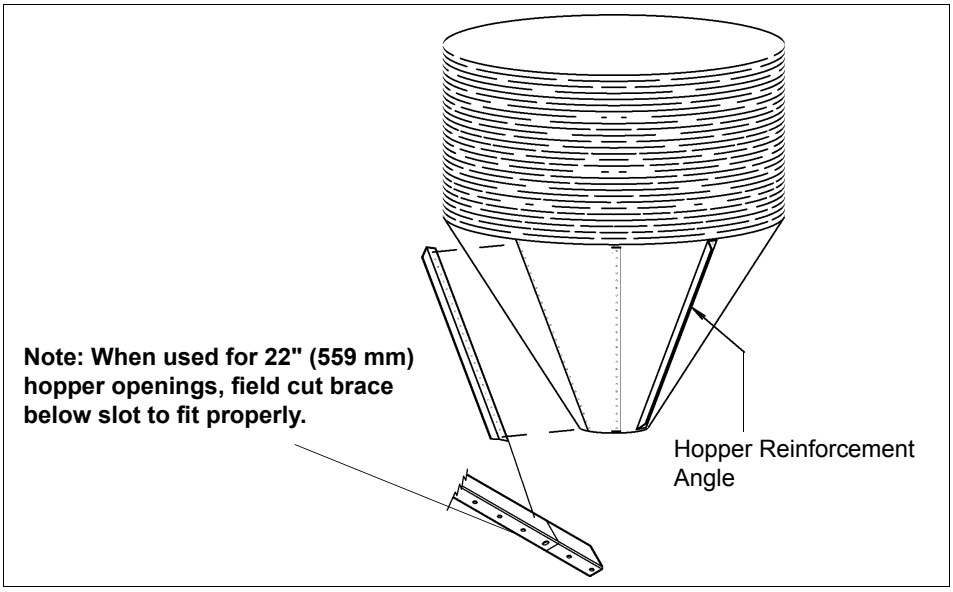


Figure 8A

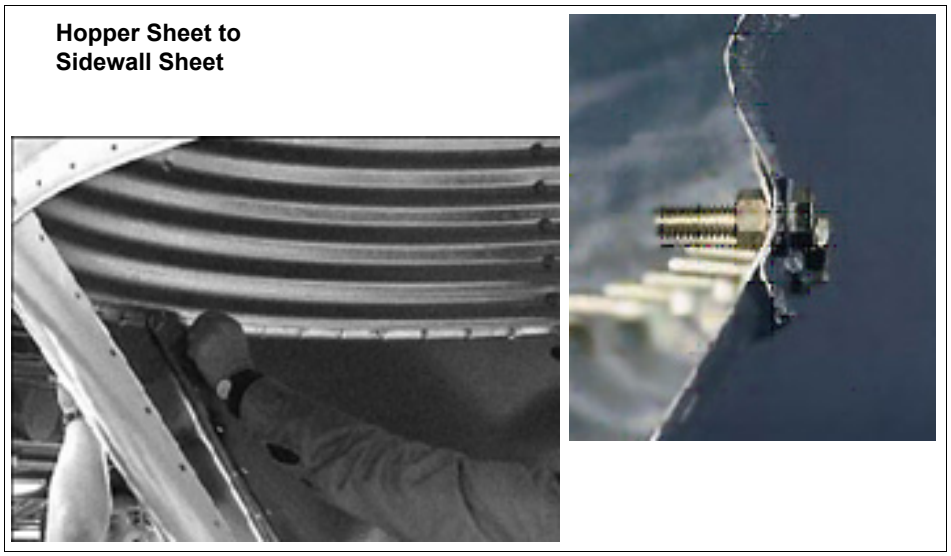


Figure 8B

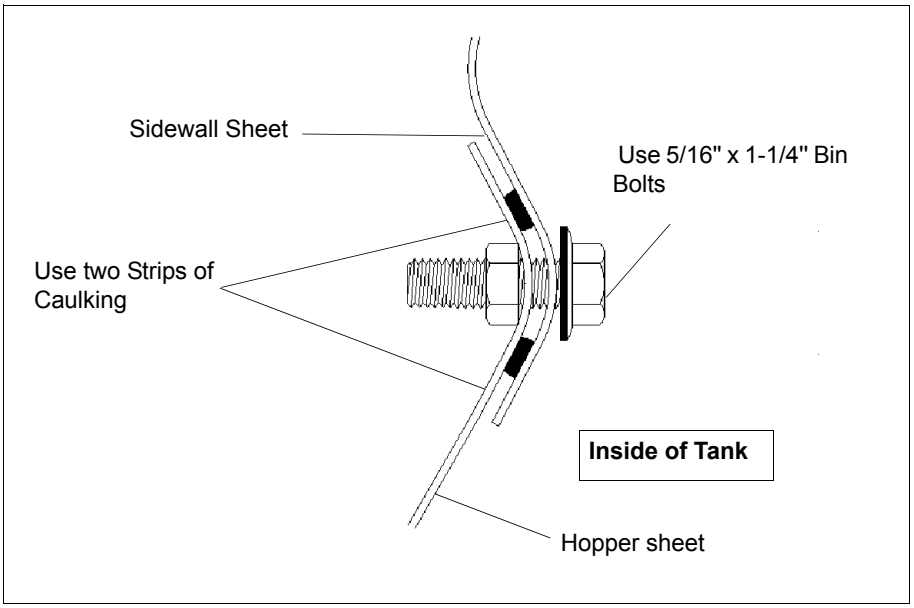


Figure 8C

9' 60° Leg Attachment (for 9' 60° Tanks Only)

Curved Washer are supplied in the hardware packages. These washers must be installed at the Bottom Leg to Sidewall Bolt Connection, to the inside of the Hopper Panel as indicated in the Illustration Below.

Apply caulking in between the hopper panel and the sidewall sheet.

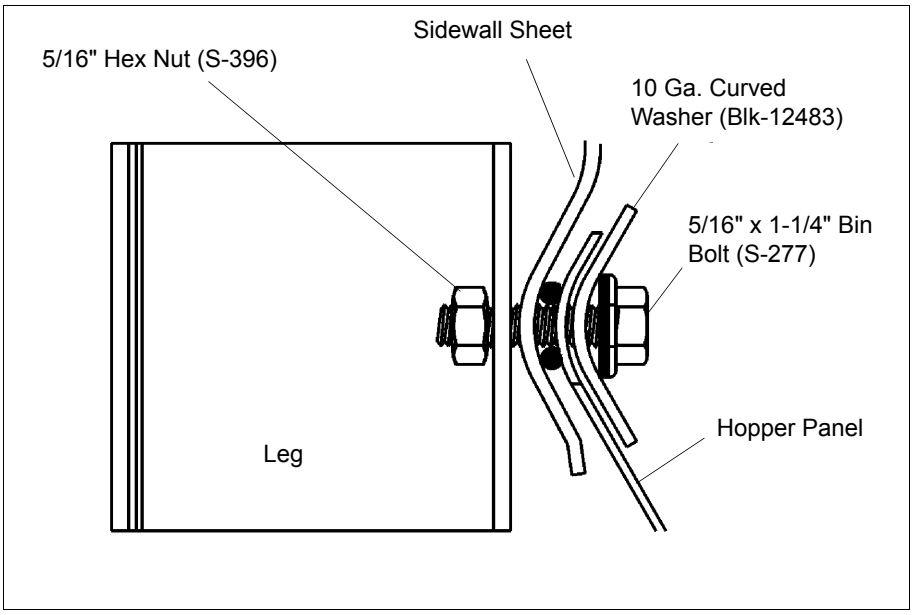


Figure 8D

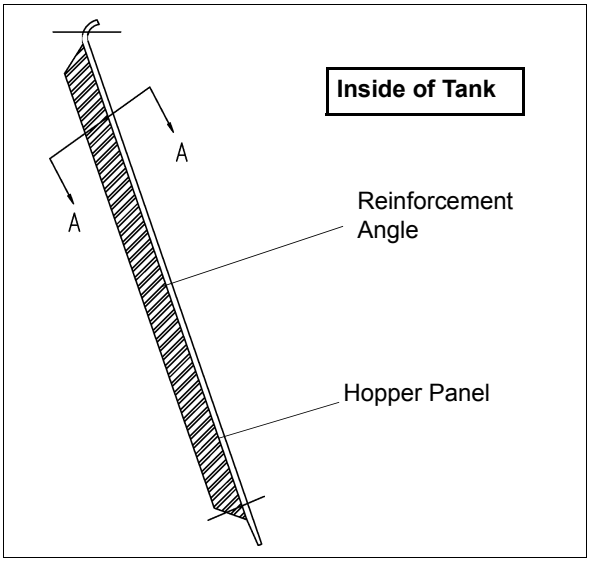


Figure 8E

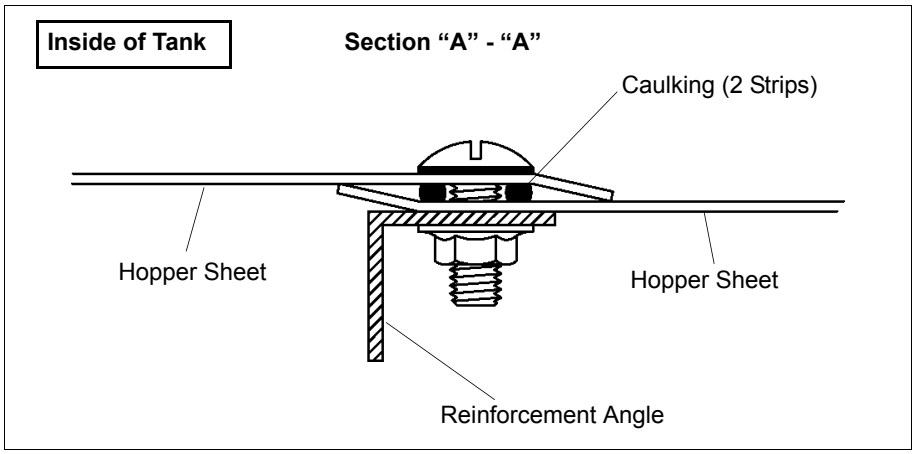


Figure 8F *Hopper Overlap and Bolt Detail W/Reinforcement Angle*

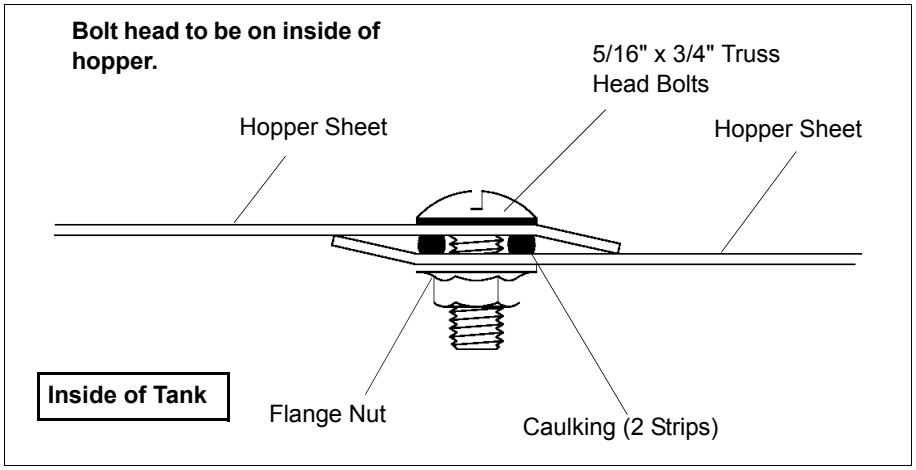


Figure 8G *Hopper Overlap and Bolt Detail for Tanks W/Out Reinforcement Angle*

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 once to use reinforcement angles.

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

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 details on *Figure 8I*).

Figure 8H

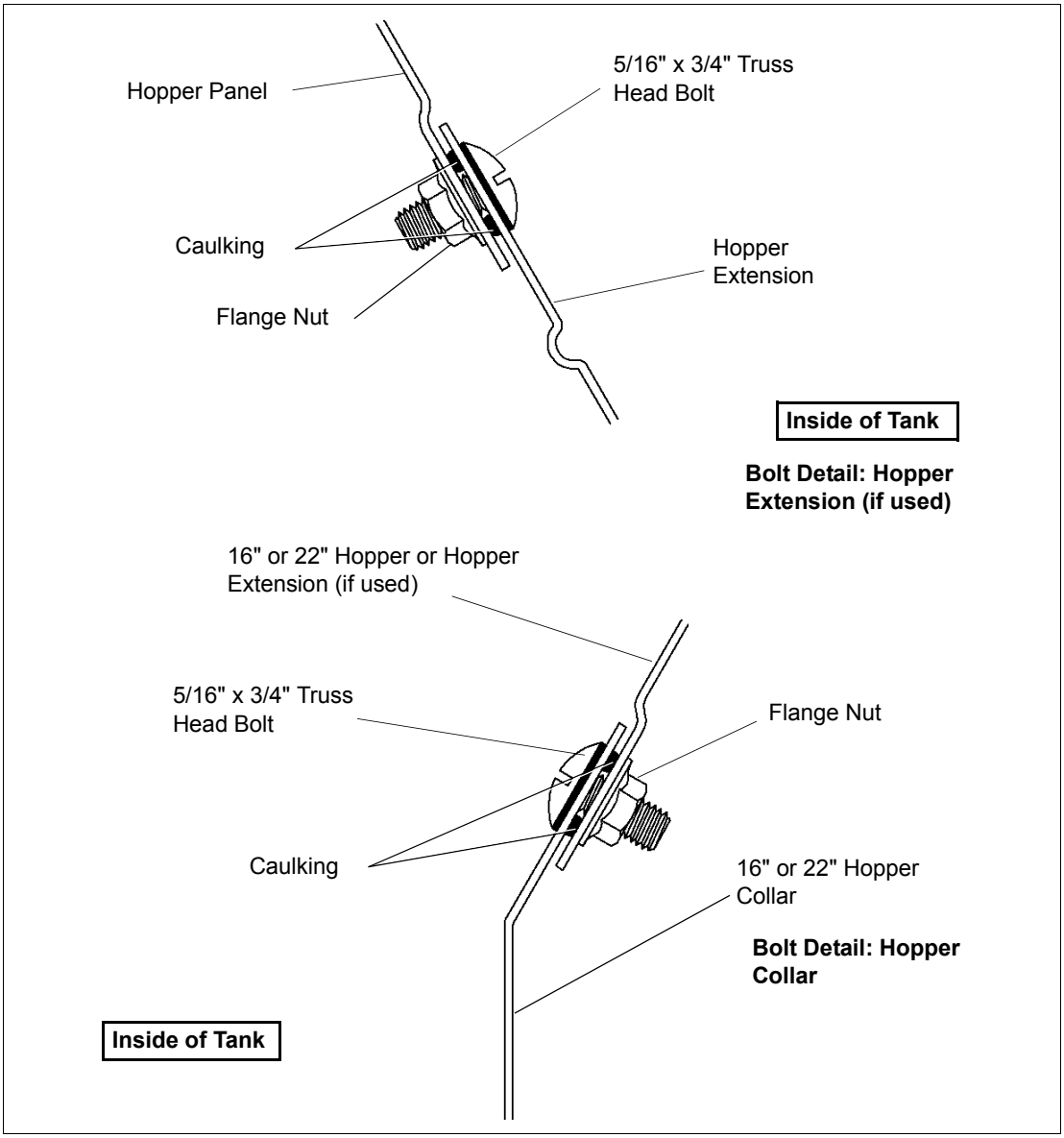

Hopper Panel
5/16" x 3/4" Truss
Head Bolt
Caulking
Hopper
Extension
Flange Nut
Inside of Tank
Bolt Detail: Hopper
Extension (if used)
16" or 22" Hopper or Hopper
Extension (if used)
5/16" x 3/4" Truss
Head Bolt
Flange Nut
Caulking
16" or 22" Hopper
Collar
Bolt Detail: Hopper
Collar
Inside of Tank

Figure 8I

8. HOPPER ASSEMBLY

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 Figure 8J*, *Figure 8K*, *Figure 8L*.

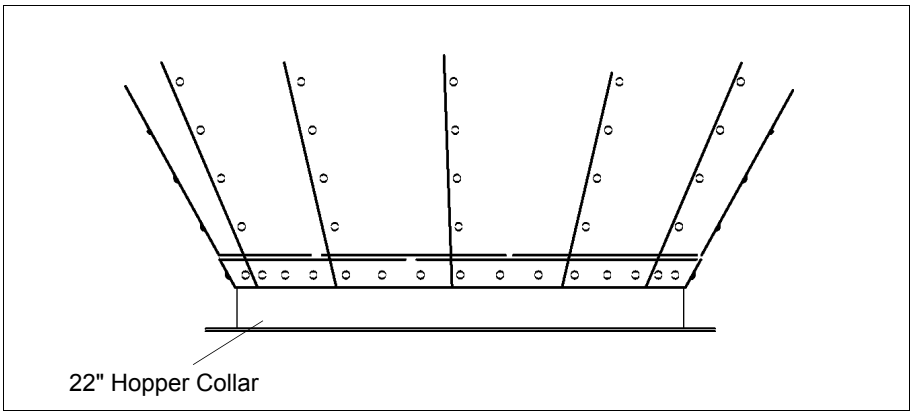


Figure 8J *22" Hopper Collar*

22" Hopper Collar

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

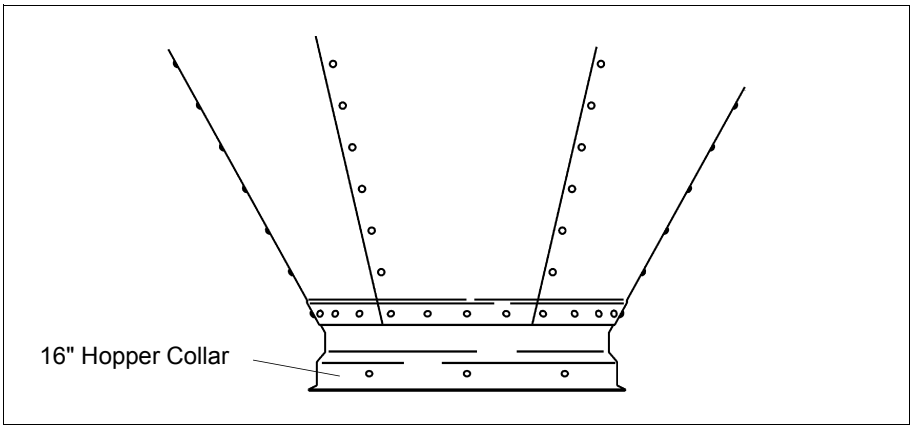


Figure 8K *16" Hopper Collar*

16" Hopper Collar

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

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

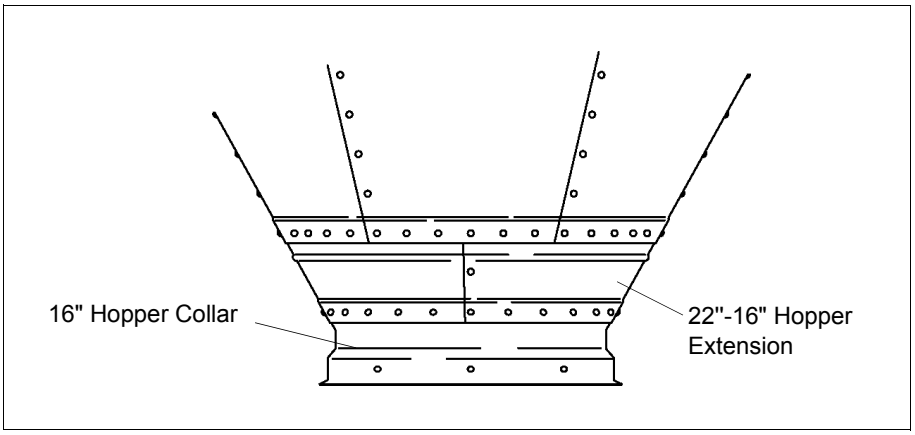


Figure 8L *Hopper Extension Kit*

Hopper Extension Kit

Part #	Description
BLK-10847	16" 45° Hopper Extension & Collar (Standard on 7' & 9' 45 Degree)
BLK-10587	16" 60° Hopper Extension & Collar (Optional)
BLK-10591	16" 67° Hopper Extension & Collar (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 on *Page 44* to *Page 46* for Leg Attachment to Sidewall Sheet details.

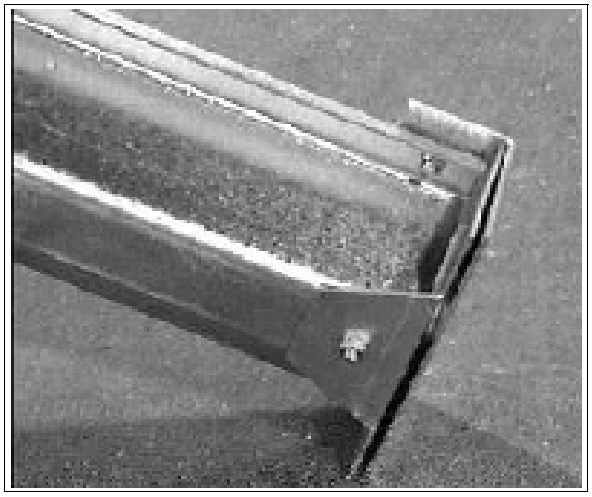


Figure 9A

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.

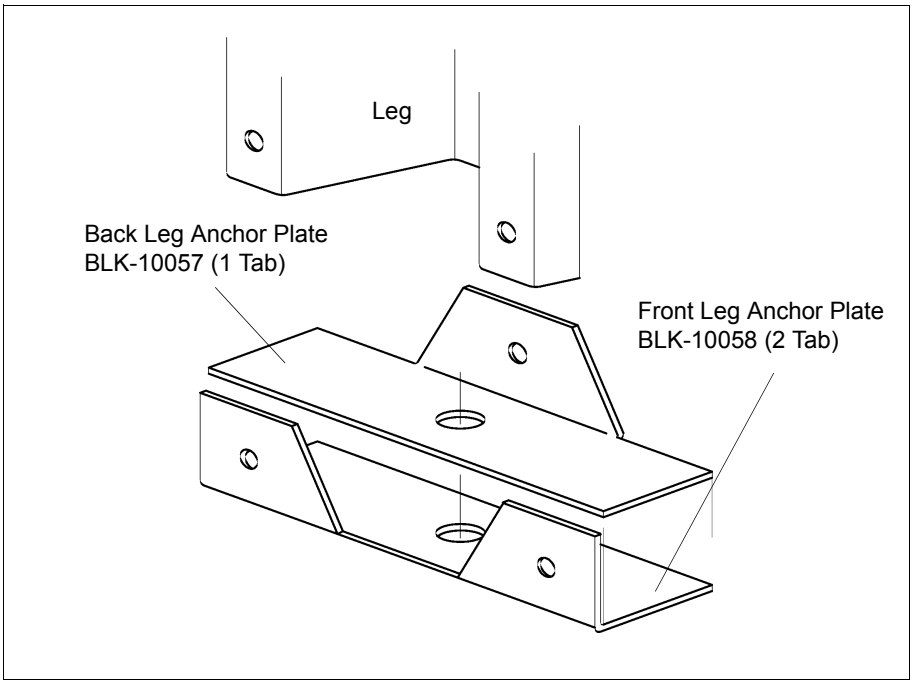


Figure 9B

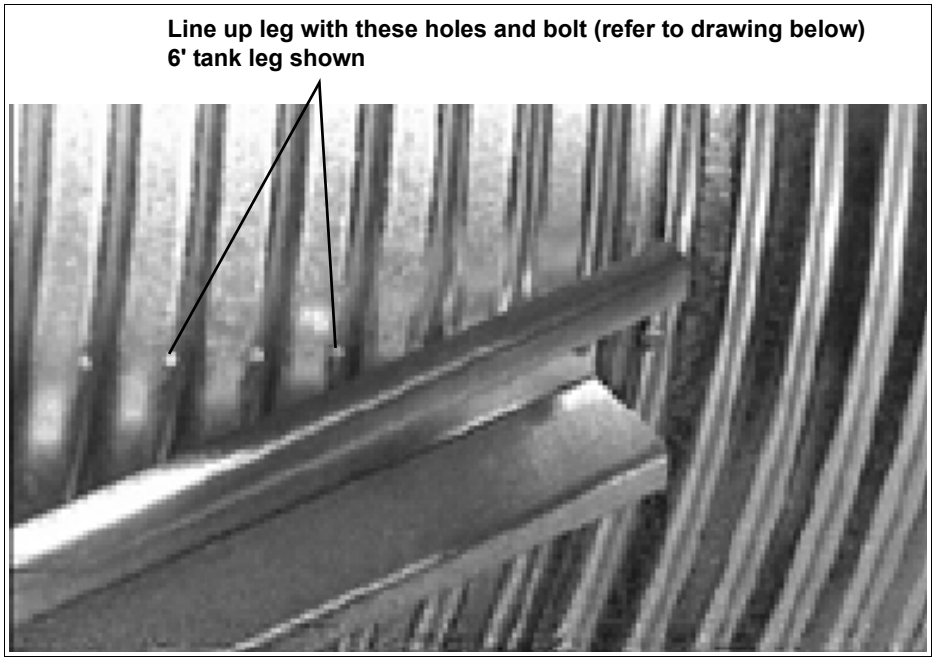


Figure 9C

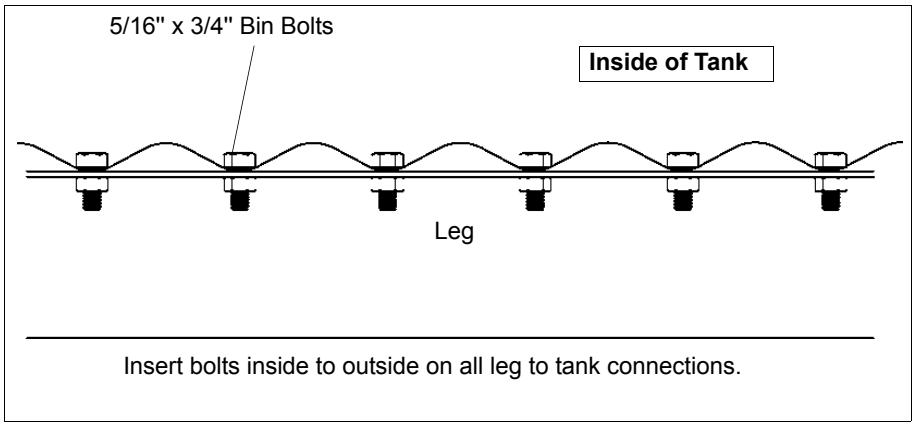


Figure 9D

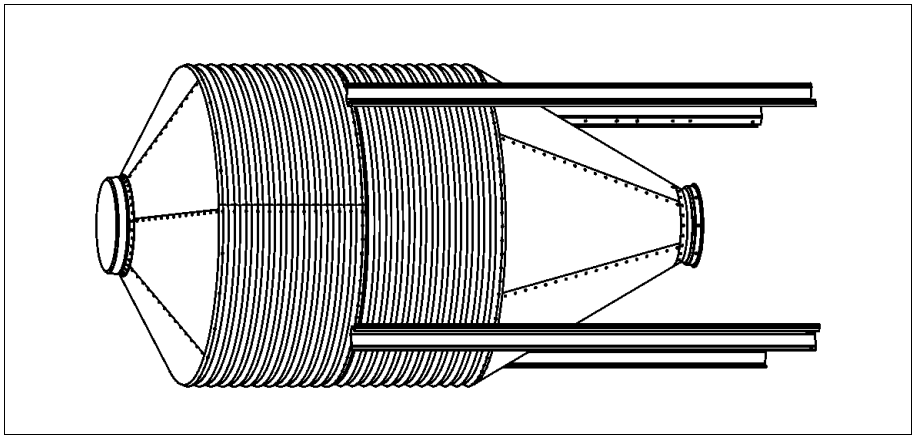


Figure 9E

Leg Size Chart

Tank Size	Hopper	Number of Rings	Length	Leg Coverage
6' Diameter	60 Degree	1-3 Rings	106-3/8"	1-Ring
6' Diameter	60 Degree	4-Rings	106-3/8"	1-Ring
7' Diameter	67 Degree	1-4 Rings	140-1/2"	1-Ring
7' Diameter	67 Degree	5-6 Rings	164-1/2"	1-3/4 Ring (56")
7' Diameter	45 Degree	1-4 Rings	94-1/8"	1-Ring
7' Diameter	45 Degree	5-6 Rings	120-3/4"	1-3/4 Rings (56")
9' Diameter	60 Degree	1-5 Rings	140-1/2"	1-Ring
9' Diameter	60 Degree	6 Rings	164-1/2"	1-3/4 Ring (56")
9' Diameter	45 Degree	1-5 Rings	106-1/8"	1-Ring
9' Diameter	45 Degree	6 Rings	132-3/4"	1-3/4 Rings (56")

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

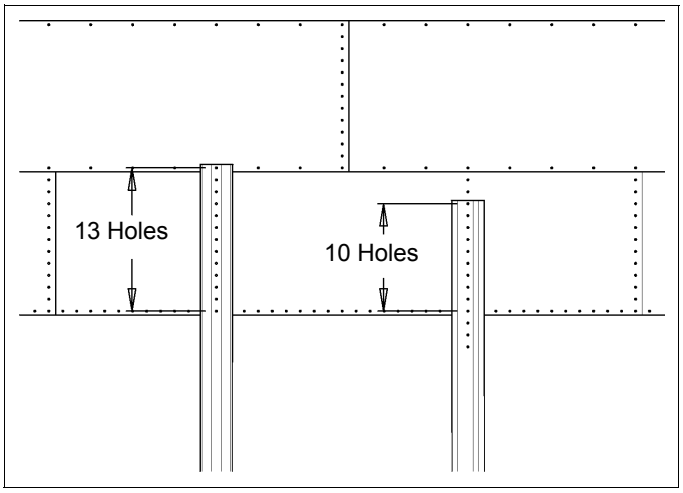


Figure 9F *Leg Adjustment (7' (1-4 ring) 67° & 9' (1-5 ring) 60° only)*

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 *Page 47* to *Page 51*)

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 Company's 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.

Bracing Hole Layout (60° & 67° Legs)

For 7' 67° and 9' 60° Feed Tank bracing layout see *Page 48* and *Page 49*.

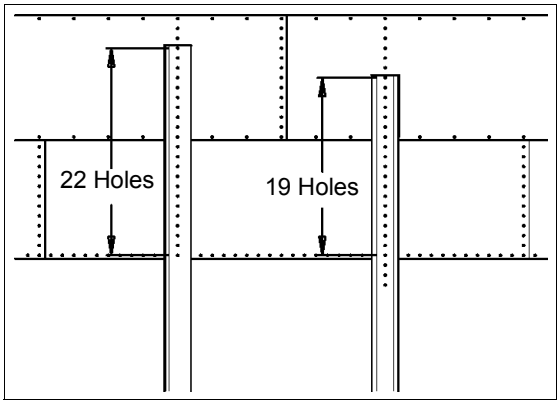


Figure 9G *Leg Adjustment (7' (5-6 ring) 67° & 9' (6 ring) 60° only)*
Two-Ring Leg 164 1/2" (4178 mm)

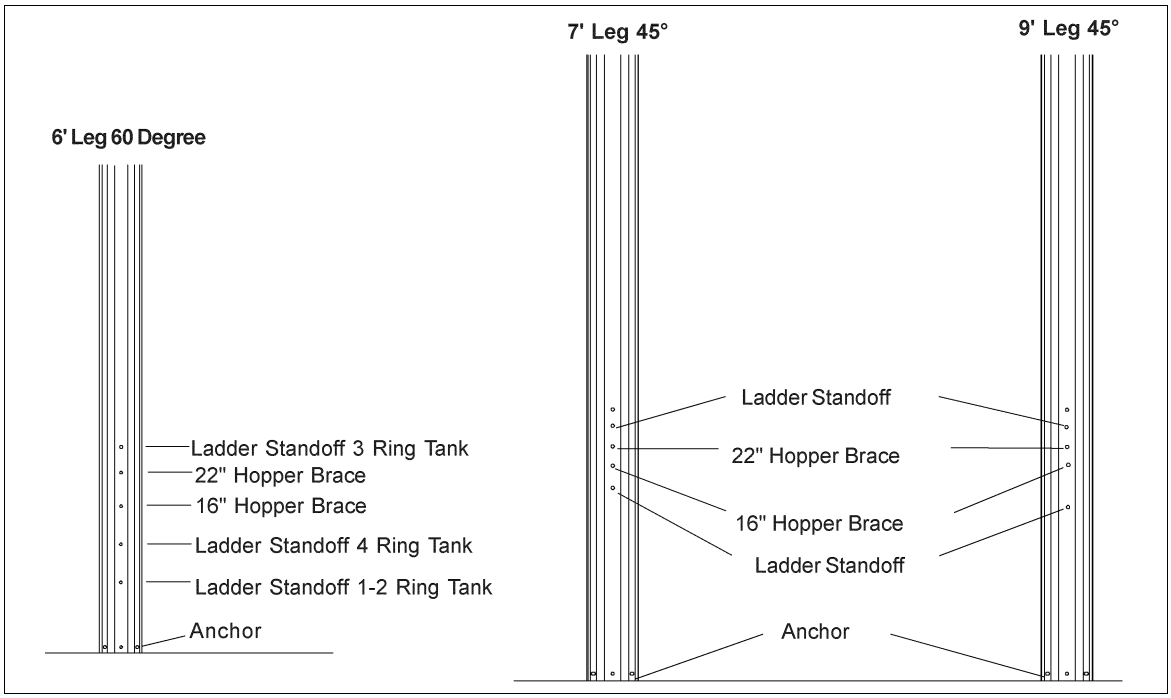


Figure 9H

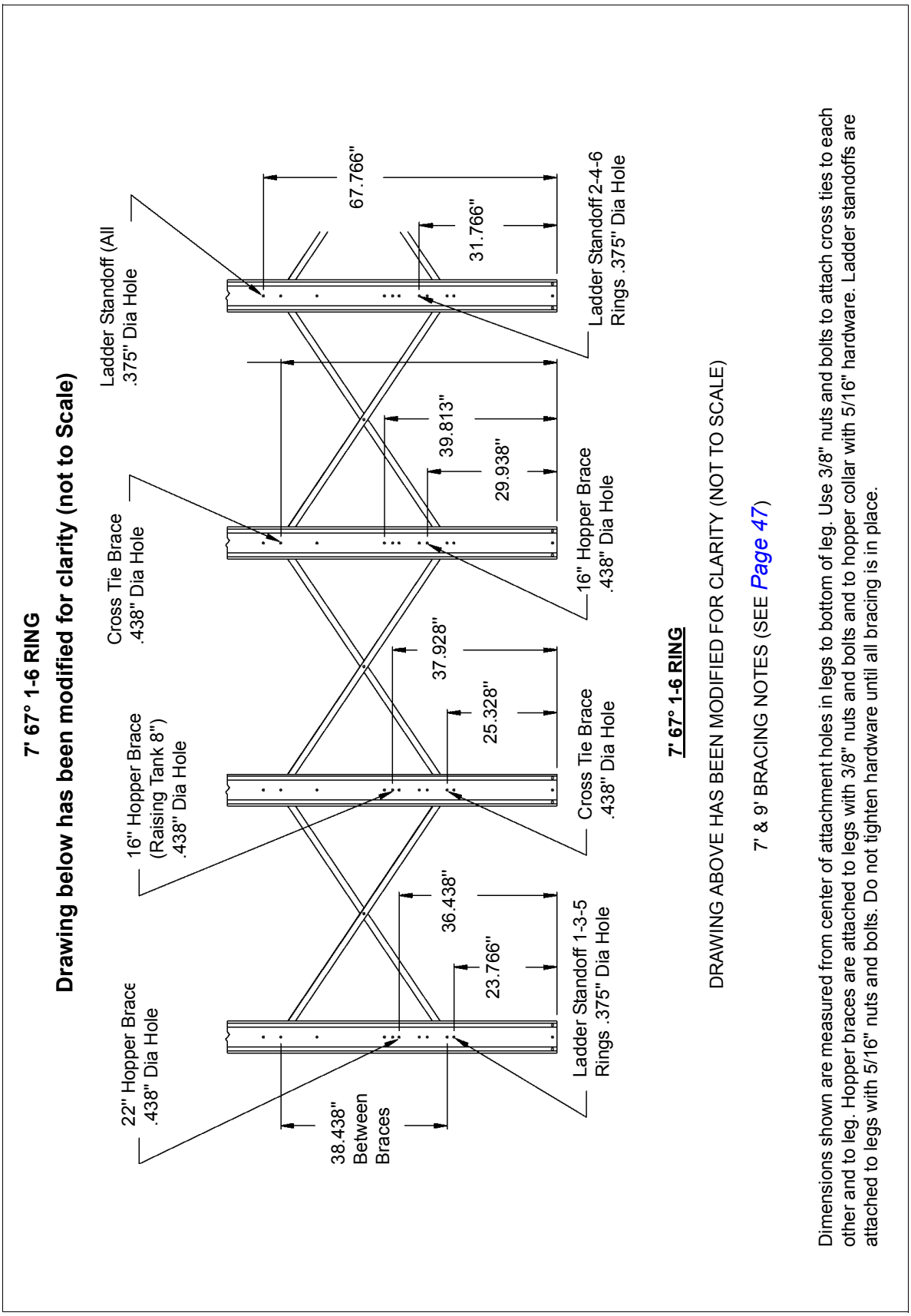
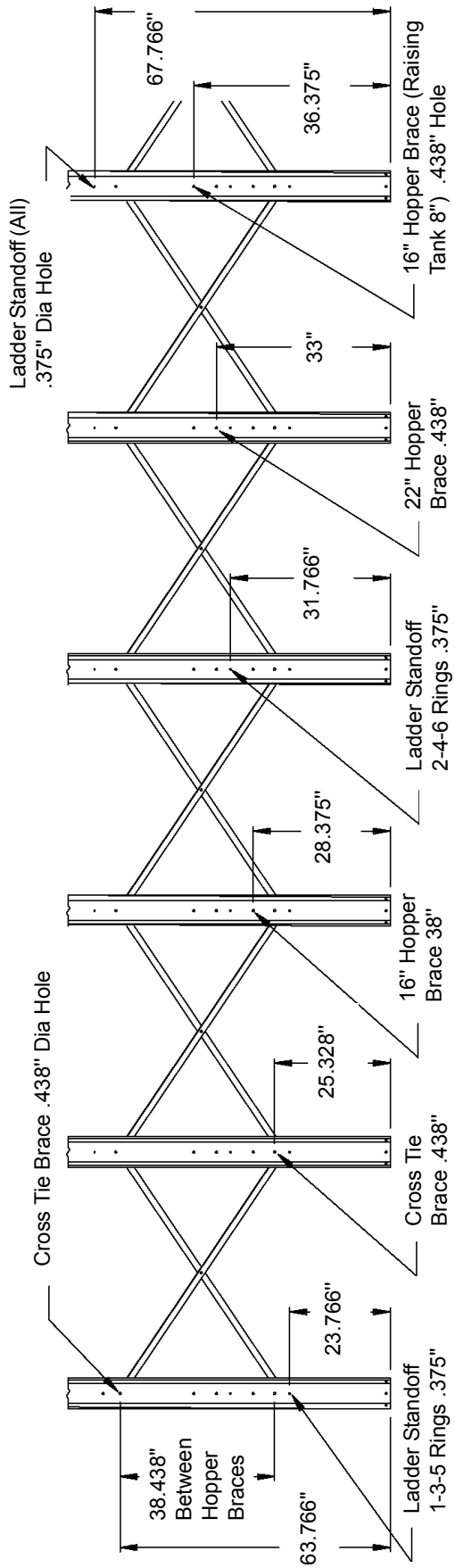

7' 67° 1-6 RING
Drawing below has been modified for clarity (not to Scale)
Ladder Standoff (All .375" Dia Hole
Cross Tie Brace .438" Dia Hole
16" Hopper Brace (Raising Tank 8") .438" Dia Hole
22" Hopper Brace .438" Dia Hole
38.438" Between Braces
Ladder Standoff 1-3-5 Rings .375" Dia Hole
Cross Tie Brace .438" Dia Hole
16" Hopper Brace .438" Dia Hole
Ladder Standoff 2-4-6 Rings .375" Dia Hole
36.438"
23.766"
37.928"
25.328"
39.813"
29.938"
67.766"
31.766"
7' 67° 1-6 RING
DRAWING ABOVE HAS BEEN MODIFIED FOR CLARITY (NOT TO SCALE)
7' & 9' BRACING NOTES (SEE Page 47)
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.

Figure 9I

9' 60° 2 THRU 6 RING TANK

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

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



7' & 9' BRACING NOTES (SEE *Page 47*)

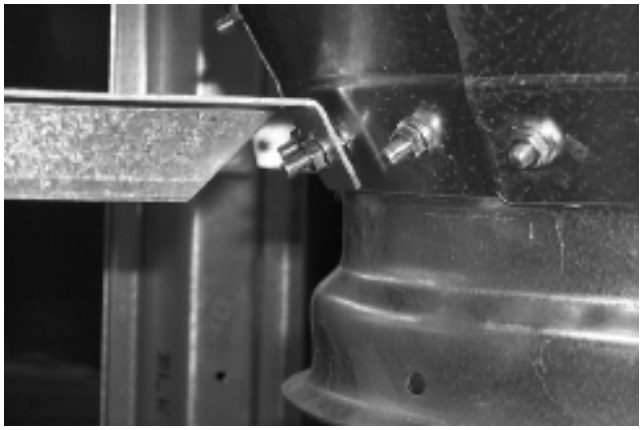
Dimensions shown are measured from center of attachment holes in legs to bottom of leg. Use 3/8" nuts and bolts to attach cross ties to each other and to leg. Hopper braces are attached to legs with 3/8" nuts and bolts and to hopper collar with 5/16" hardware. Ladder standoffs are attached to legs with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

Figure 9J

Hopper to Leg Horizontal Bracing

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.

Figure 9K

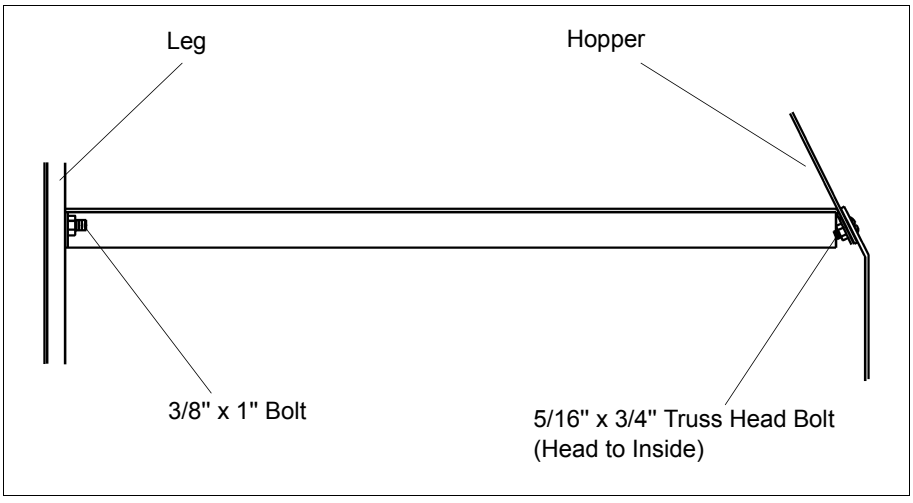


Figure 9L

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°	BLK-12146	4	BLK-12147	4
7' 67°	BLK-12107	4	BLK-12108	4
7' 45°	BLK-12105	4	BLK-12106	4
9' 60°	BLK-12109	6	BLK-12110	6
9' 45°	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, places two outside standoffs spaces 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	3

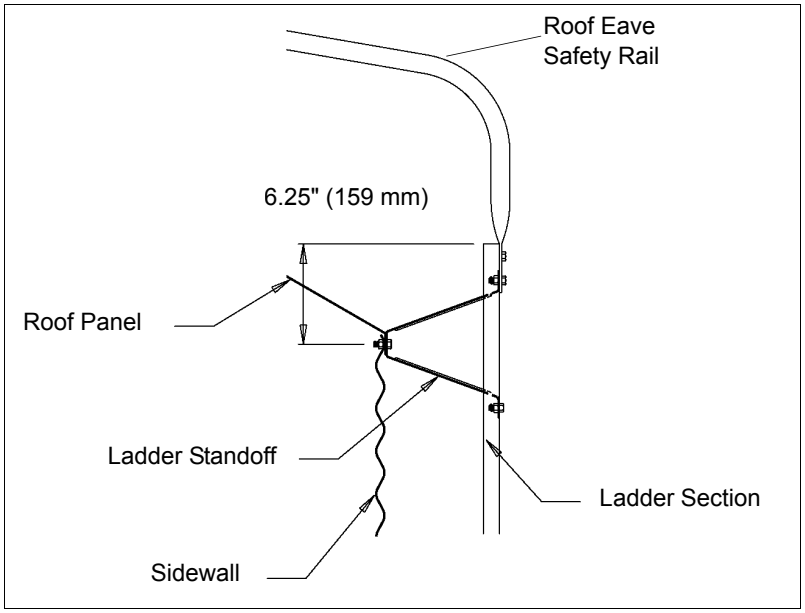


Figure 10A *Sidewall Ladder Detail*

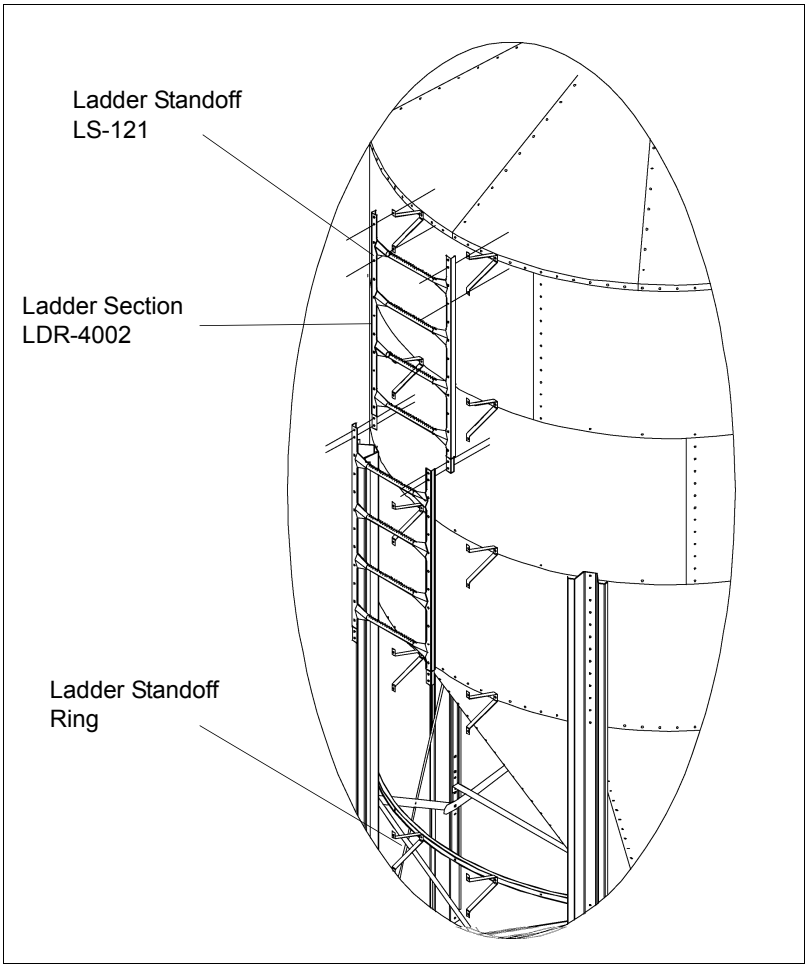


Figure 10B *Ladder Standoff Detail*

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

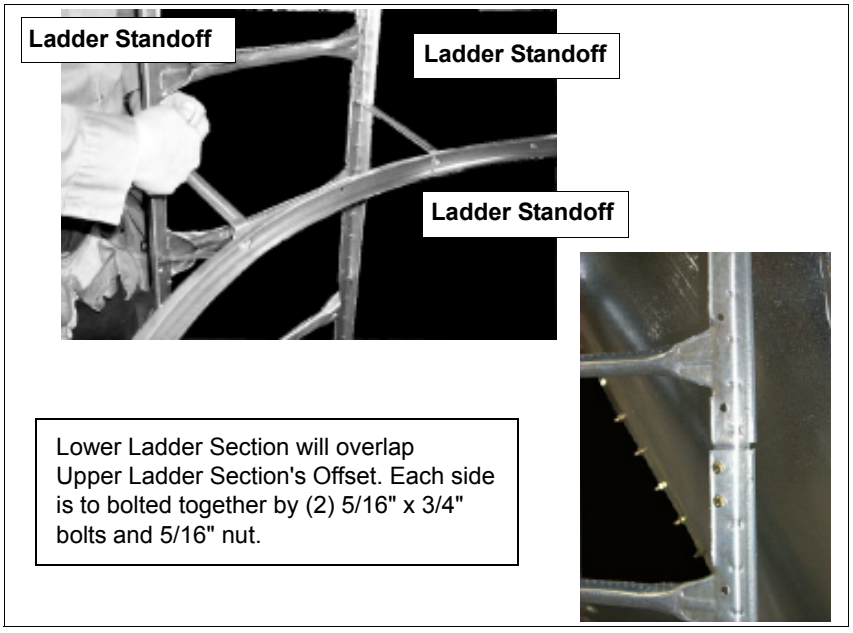


Figure 10C

Safety Cage

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 *Page 52* 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.

Note: Belled safety cage section parts are color code: RED.

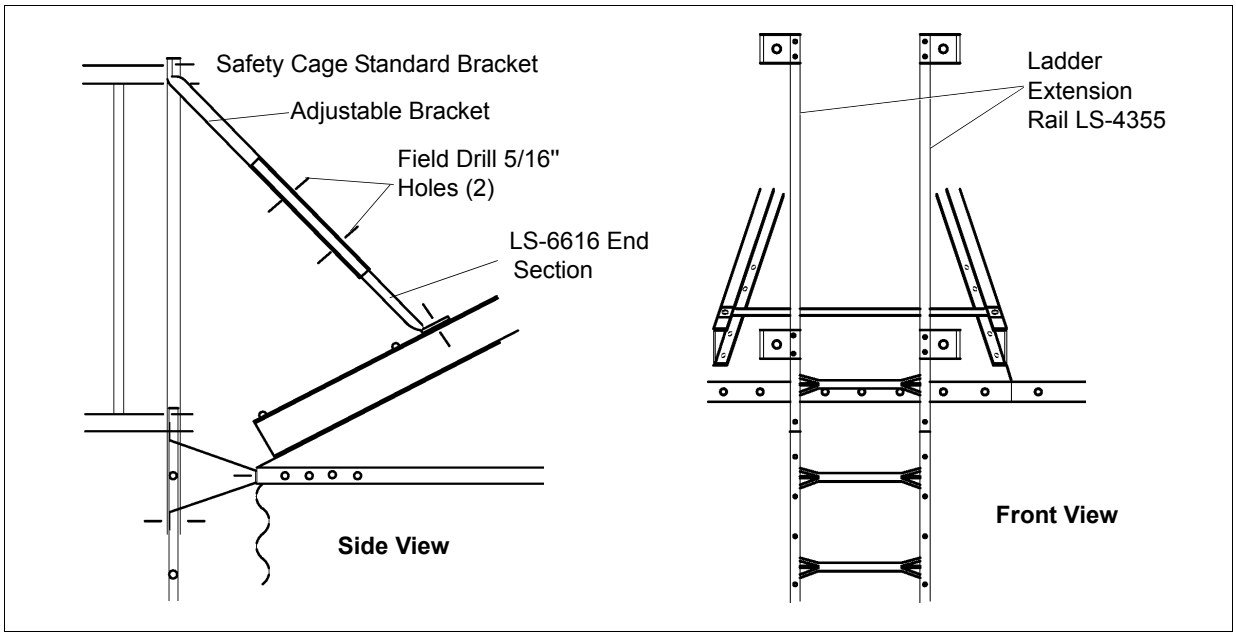
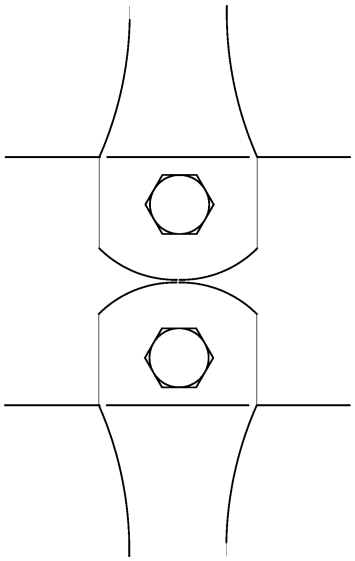
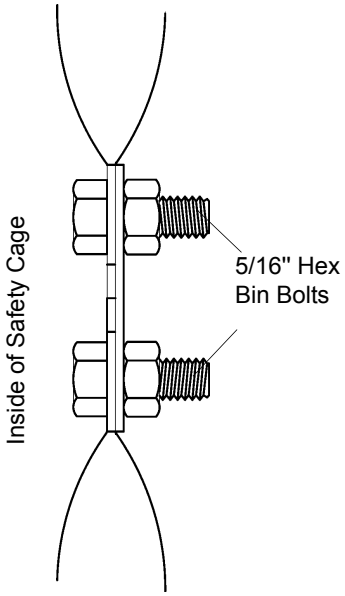


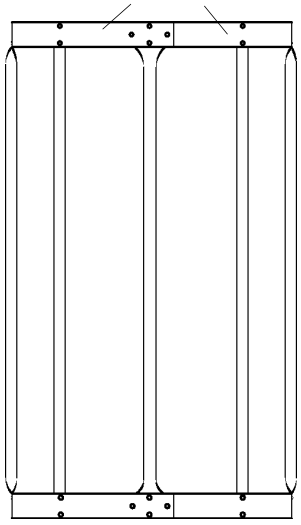
Figure 10D



Head of the Bolt to be Placed to the Inside of the Safety Cage.

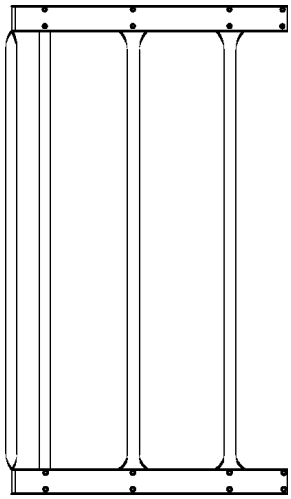


Safety Cage Half Hoop LS-4351



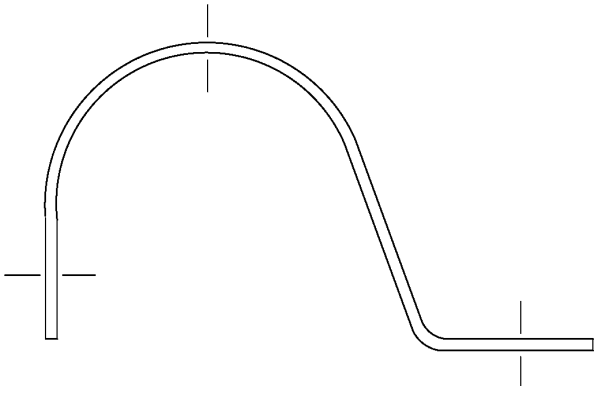
Front View

Safety Cage Vertical Support LS-4353

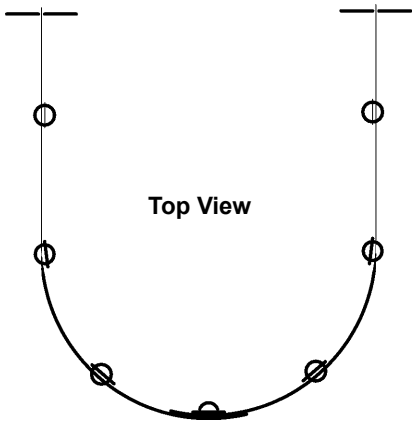


Side View

Attach Hoop to Bracket on Ladder



Safety/Cage Standard Bracket LS-4349



Overlap Safety Cage Hoops 5" (127 mm)

Figure 10E *Safety Cage Assembly*

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 " (50 mm x 100 mm) 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)

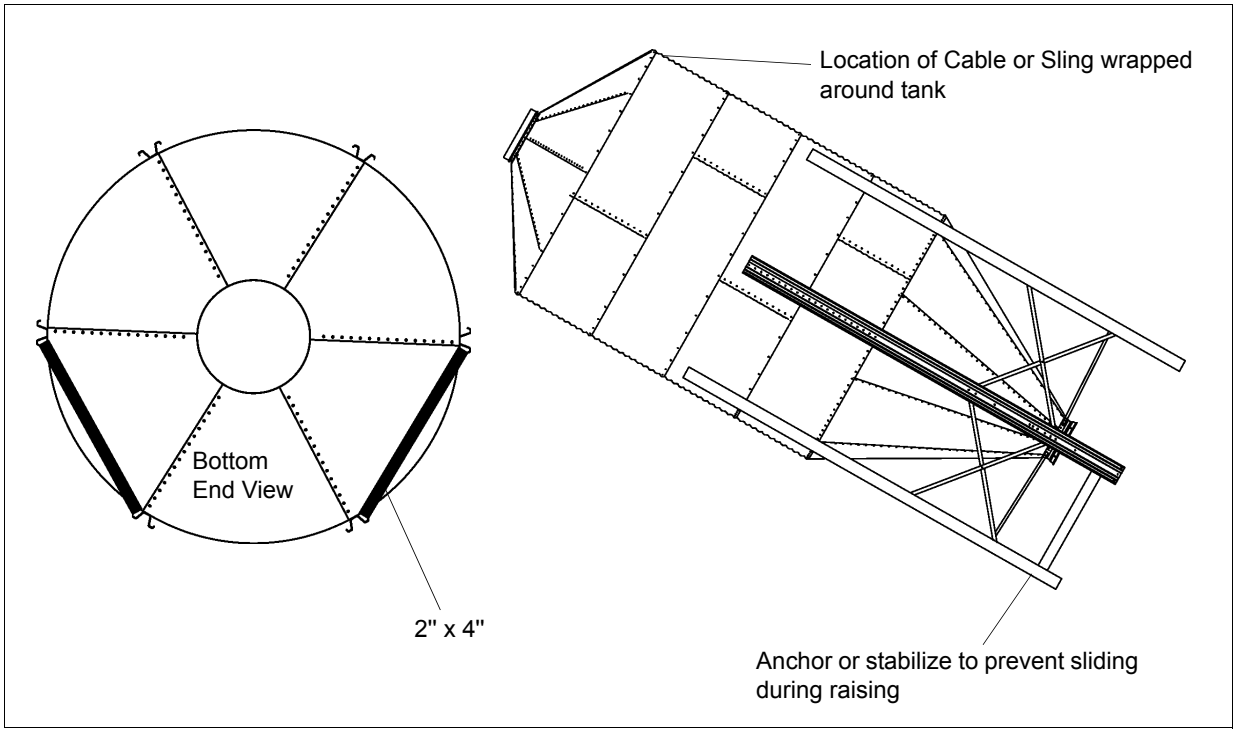


Figure 11A

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 *(See Figure 11B)*.

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)

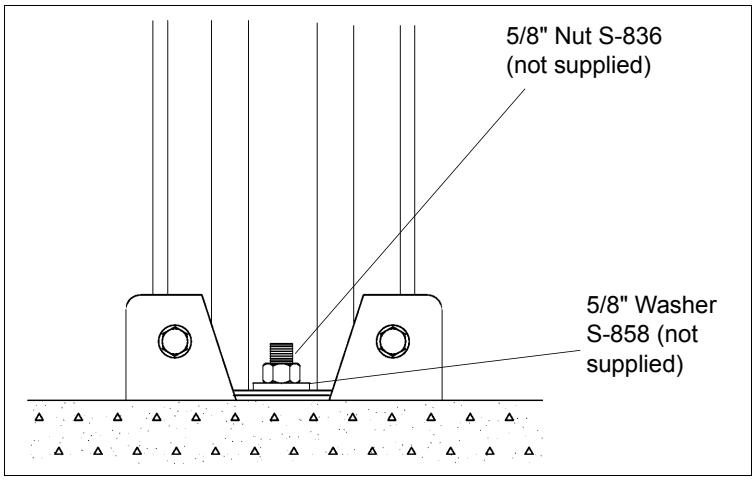


Figure 11B

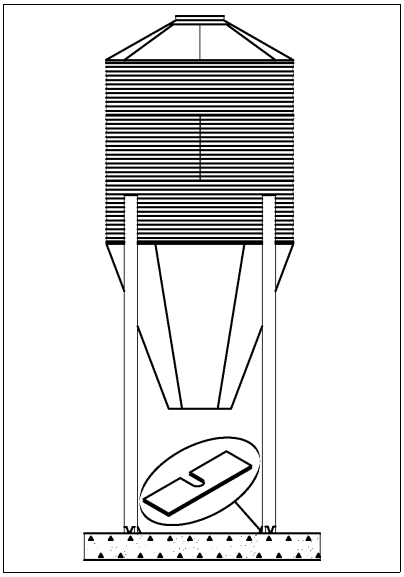


Figure 11C *Leg Base Detail*

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

Bin Grounding Instructions

Note: Parts not supplied by Manufacturer, 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.

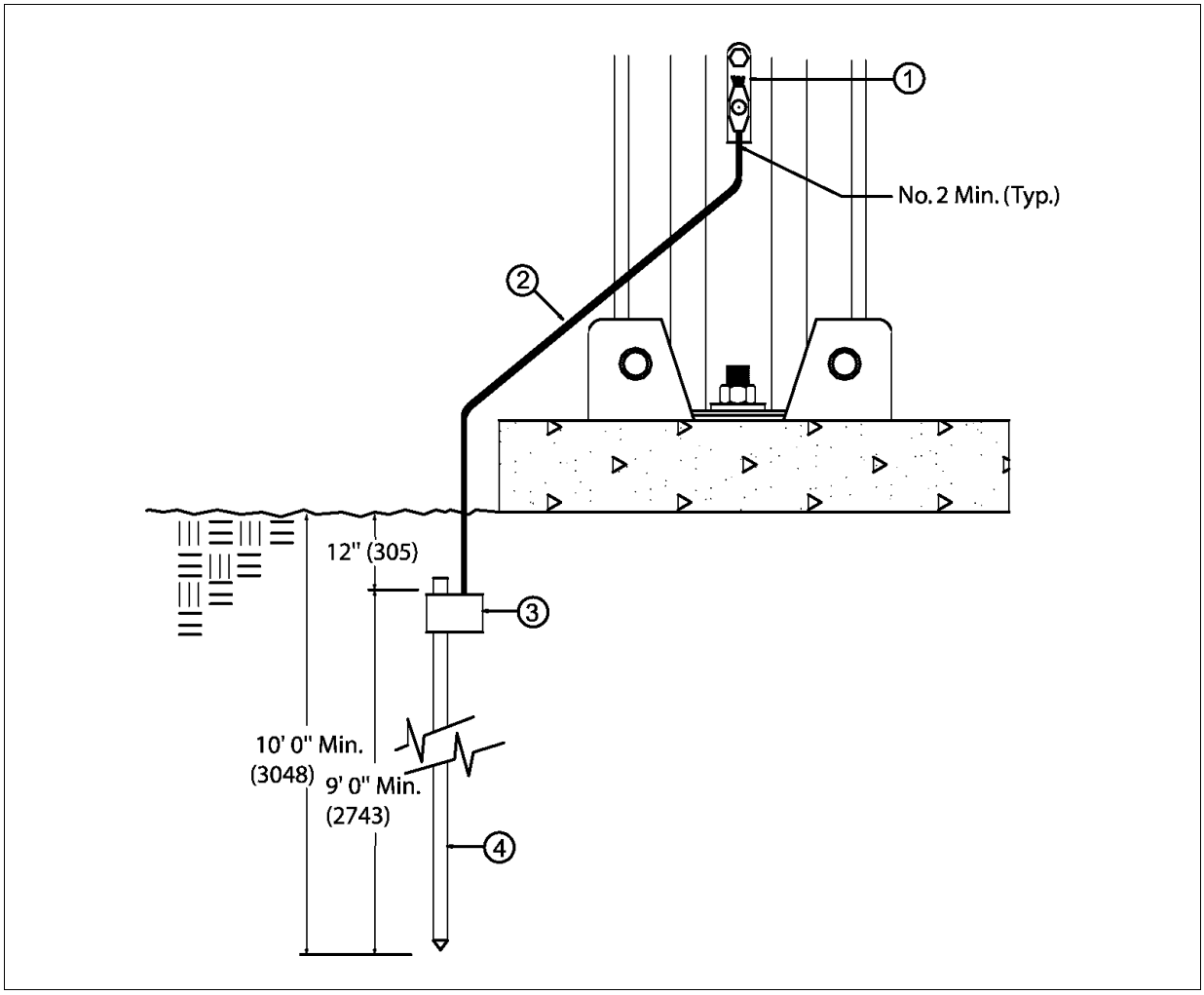


Figure 12A

Key	Description
1	Cable Clamp
2	5' (1524 mm) Copper Cable (Plain or Jacketed)
3	Ground Rod Clamp
4	Ground Rod 1/2" x 10' (3048 mm)

Roof Panel

Identical pre-punched roof panels are available from Manufacturer 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).

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

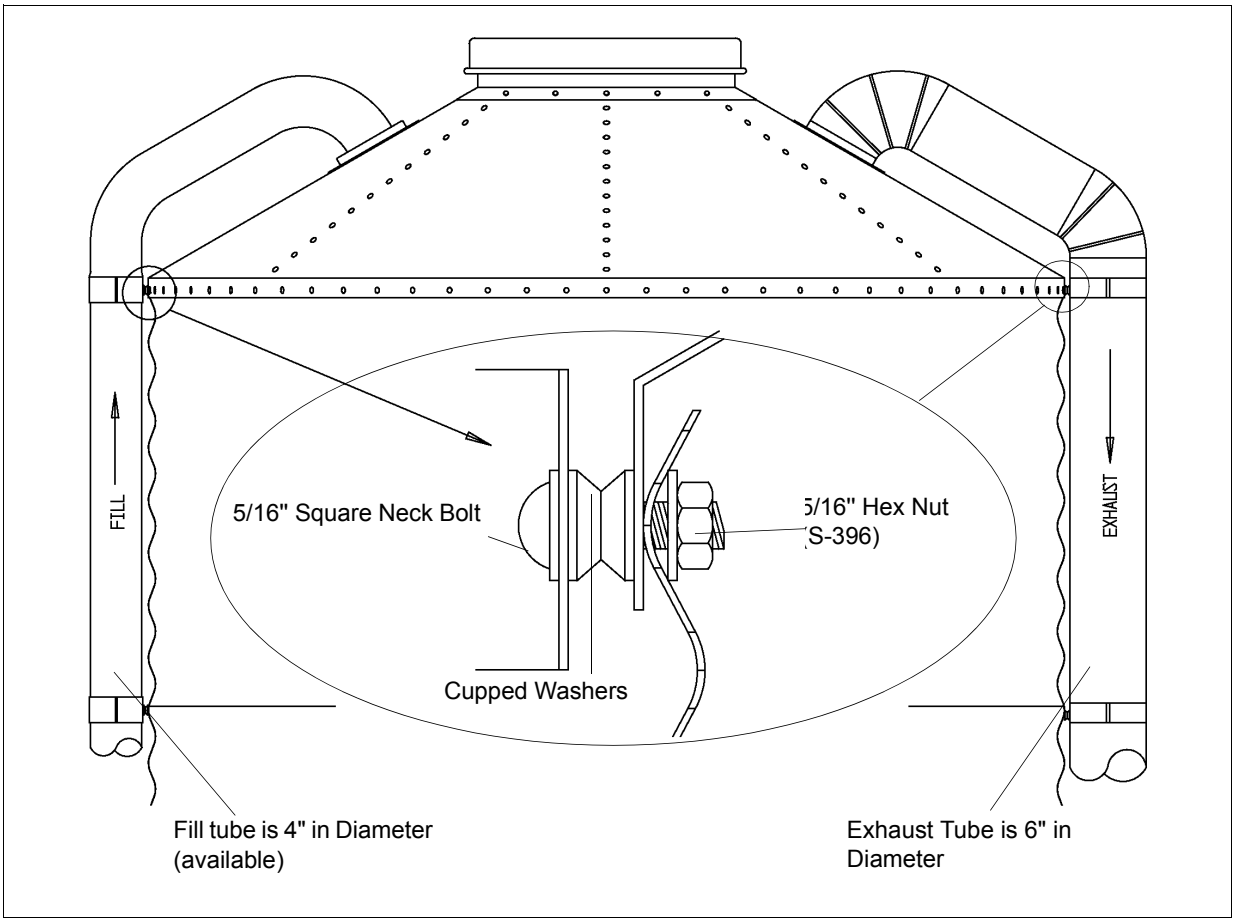


Figure 13A

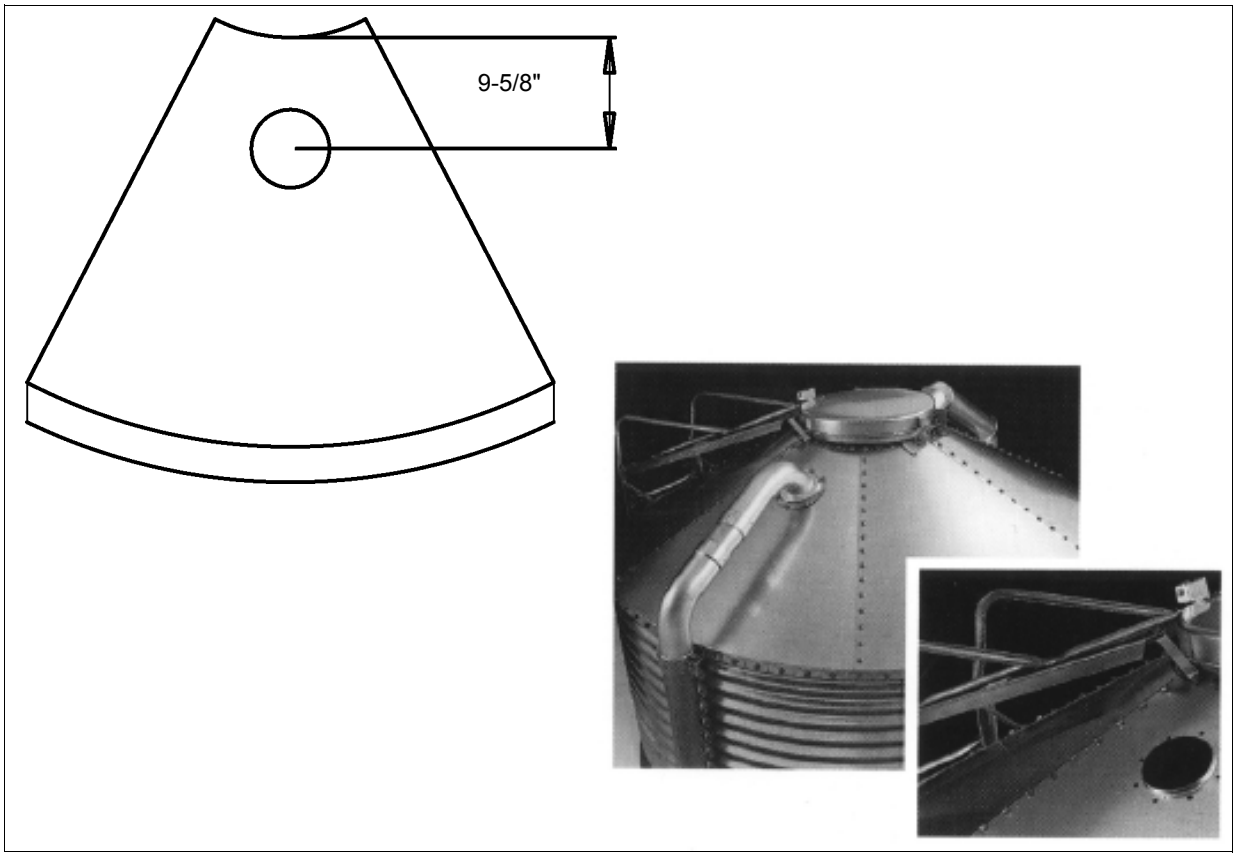
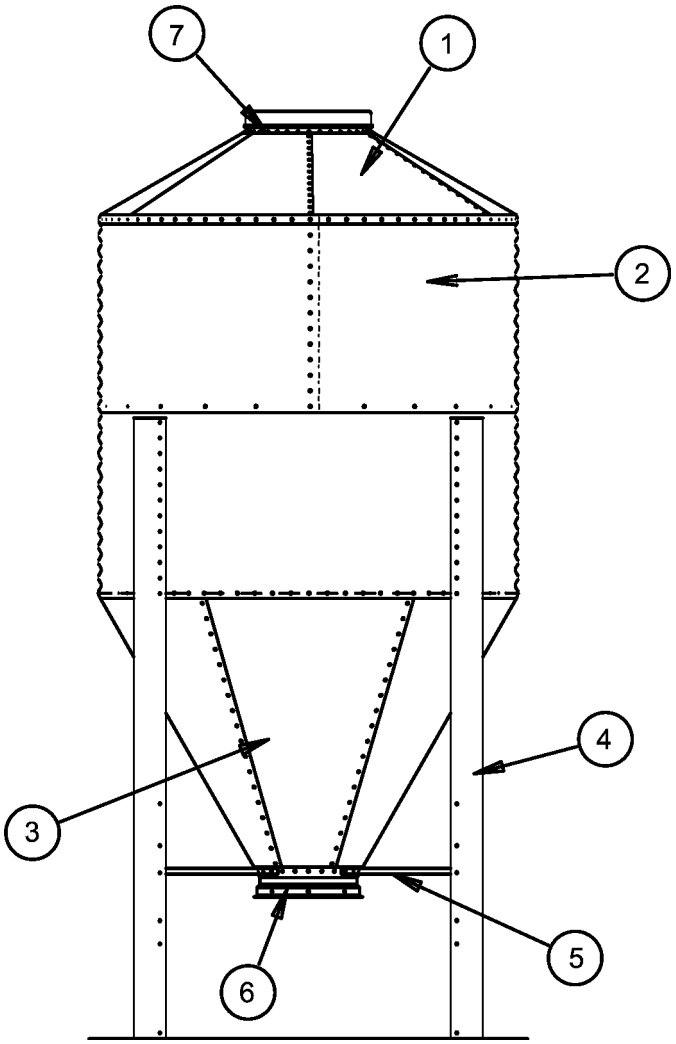


Figure 13B

1. 6' Diameter 60° Hopper Bin Specifications
2. 6' Diameter 60° Hopper Bin Specifications
3. 7' Diameter 67° Hopper Bin Specifications
4. 7' Diameter 67° Hopper Bin Specifications
5. 7' Diameter 45° Hopper Bin Specifications
6. 7' Diameter 45° Hopper Bin Specifications
7. 9' Diameter 60° Hopper Bin Specifications
8. 9' Diameter 60° Hopper Tank Specifications
9. 9' Diameter 45° Hopper Bin Specifications
10. 9' Diameter 45° Hopper Bin Specifications

6' Diameter 60° Hopper Bin Specifications



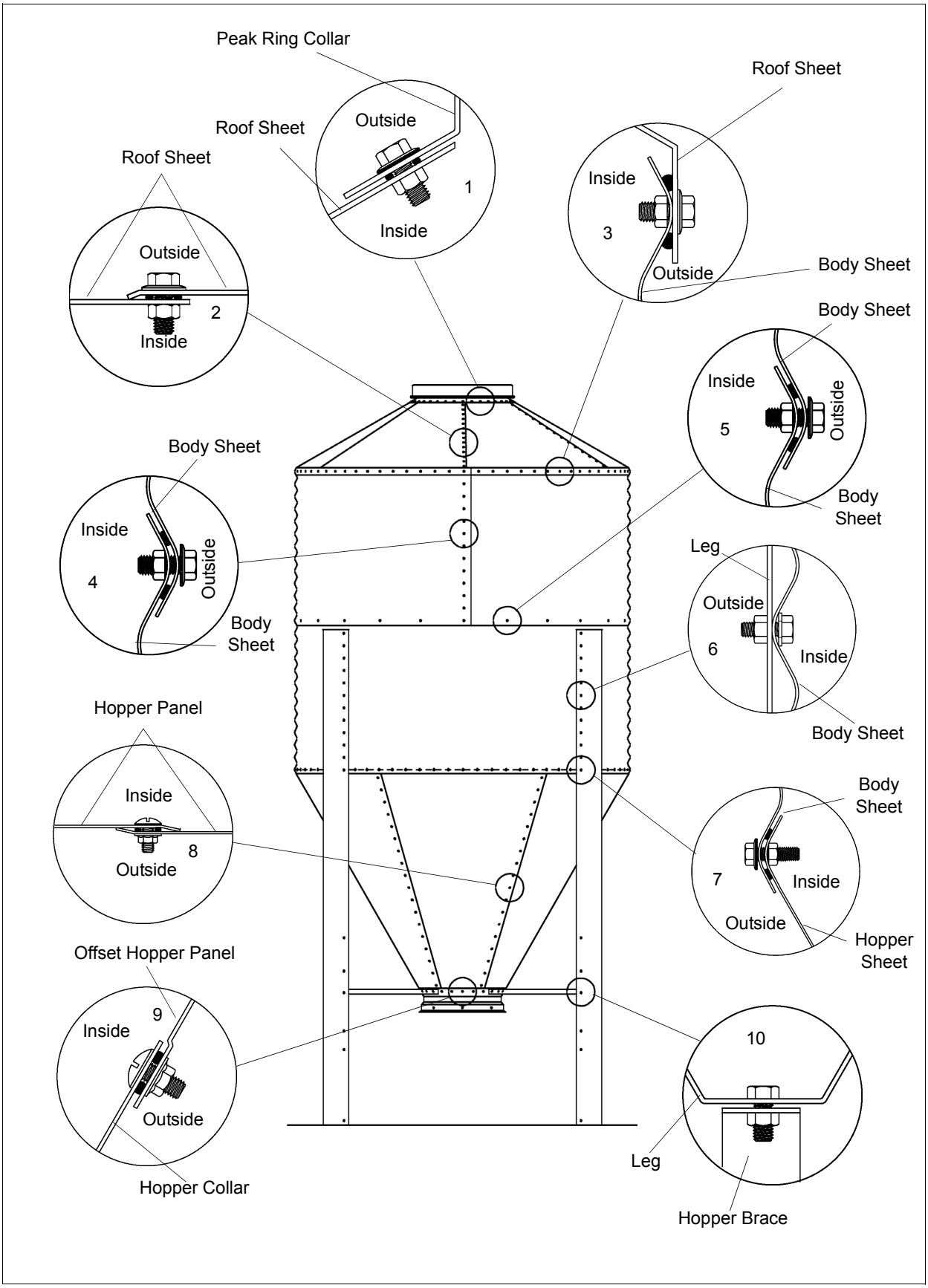
Under Collar Clearance	
16" Collar	28.5/16" (719 mm)
22" Collar	32.7/8" (837 mm)

***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 22 for location of caulking. No cross tie bracing required.*

6' Diameter 60° Hopper Bin

Ref #	Part #	Qty	Description
1	BLK-12254	6	6' 30° Roof Panel (20 Gauge) (Shown)
	BLK-12257	6	6' 40° Roof Panel (20 Gauge)
2	**6' Sidewall Sheet**	**2 Per Ring**	
	SS40682006		20 Gauge (Top Punched Sidewall Sheet)
	SS41632006		20 Gauge (Top Punched Decal Sidewall Sheet)
	SS40672006		20 Gauge (Bottom/Top Leg Sidewall Sheet)
	SS40692006		20 Gauge (Middle Punched Sidewall Sheet)
	SS41622006		20 Gauge (Bottom/Top Leg Decal Sidewall Sheet)
	SS40712006		20 Gauge (Bottom Leg Sidewall Sheet)
	SS40711806		18 Gauge (Bottom Leg Sidewall Sheet)
3	BLK-11475	6	6' 60° Offset Hopper Panel 16" Opening (20 Gauge) (Shown)
	BLK-10358	6	6' 60° Hopper Panel 22" Opening (20 Gauge)
4	BLK-12716	4	6' 60° Leg 106 - 1/16" (14 Gauge) (1--3 Rings)
	BLK-12222	4	6' 60° Leg 106 - 1/16" (12 Gauge) (4 Ring)
5	BLK-12146	4	Hopper Brace for 16" Collar (Shown)
	BLK-12147	4	Hopper Brace for 22" Collar
6	BLK-10489	1	16" 60° Hopper Collar (24 Holes) (Shown)
	BLK-10342	1	22" 60° Hopper Collar (36 Holes)
7	BLK-11730	1	30° Bulk Tank Peak Ring (Shown)
	BLK-12534	1	40° Bulk Tank Peak Ring

6' Diameter 60° Hopper Bin Specifications



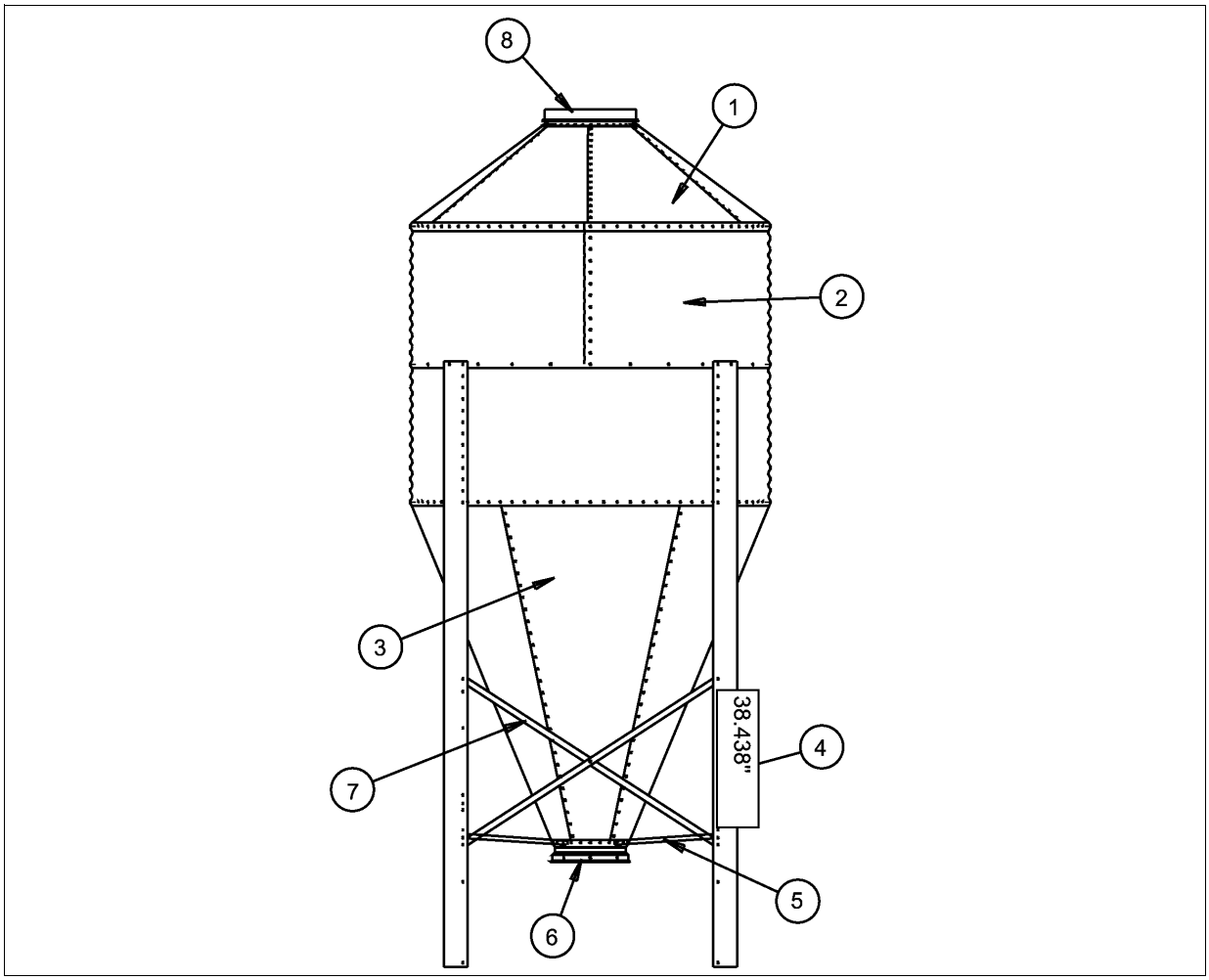
6' Diameter 60° Hopper Bin parts list

Ref #	Part #	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	48 48	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 Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	Varies Varies	Vertical Sidewall 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 Sidewall 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 to Sidewall Sheet (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.) (Bolt Heads to Inside of Tank.)
7	S-277 S-396	72 72	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.)**
8	S-4303 S-3611	108 108	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.)**
9	S-4303 S-3611	24 or 36 24 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)
10	S-7927 S-456	4 4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

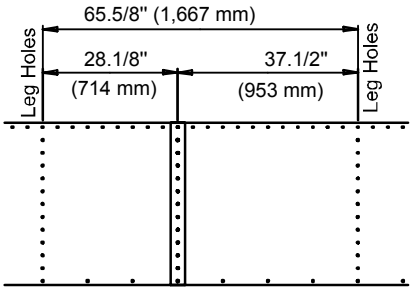
Note: Bolt listed first and nut second for each usage.

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

7' Diameter 67° Hopper Bin Specifications



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



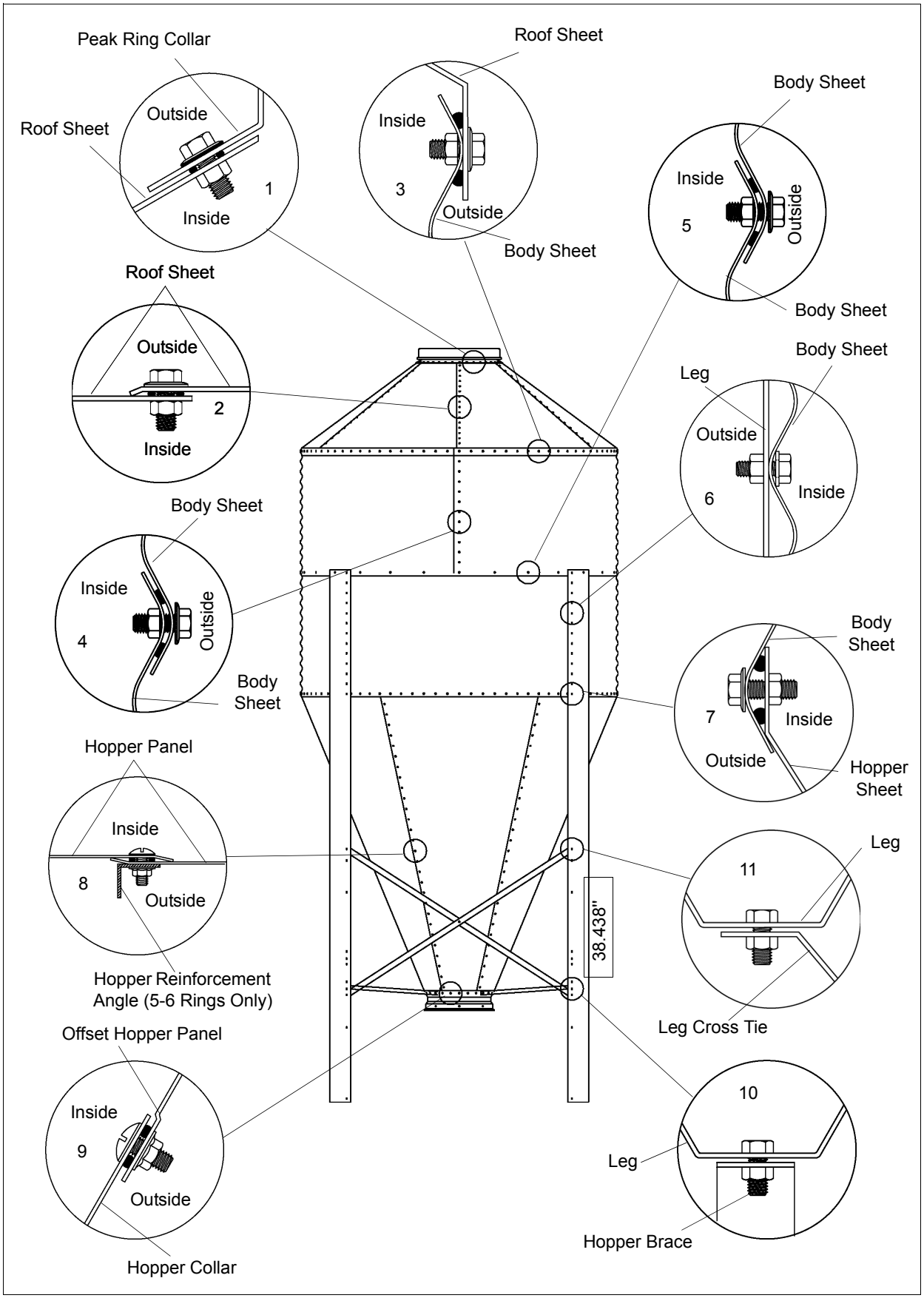
***Important:** Vertical seams of Body Sheets with leg holes MUST be bolted together to provide 65.5/8" (1,667 mm) between Leg Holes.*

***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 22 for location of caulking.*

7' Diameter 67° Hopper Bin Specifications

Ref #	Part #	Qty	Description
1	BLK-12260	6	7' 30° Roof Panel (20 Gauge) (Shown)
	BLK-12263	6	7' 40° Roof Panel (20 Gauge)
2	**7' Sidewall Sheet**	**2 Per Ring**	
	SS40602007		20 Gauge (Bottom/Top Leg Punched Sidewall Sheet)
	SS41642007		20 Gauge (Bottom/Top Leg Punched Decal Sidewall Sheet)
	SS40612007		20 Gauge (Top Punched Sidewall Sheet)
	SS41652007		20 Gauge (Top Punched Decal Sidewall Sheet)
	SS40462007		20 Gauge (Middle Punched Sidewall Sheet)
	SS40461807		18 Gauge (Middle Punched Sidewall Sheet)
	SS40461707		17 Gauge (Middle Punched Sidewall Sheet)
	SS40641707		17 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40641507		15 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40661807		18 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40661707		17 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40661507		15 Gauge (Bottom Leg Punched Sidewall Sheet)
3	BLK-11476	6	7' 67° Offset Hopper Panel 16" Opening (18 Gauge) (Shown)
	BLK-10569	6	7' 67° Hopper Panel 22" Opening (18 Gauge)
4	BLK-12039	4	7' Leg 140 - 1/2" (12 Gauge) (1 -- 4 Rings) (Shown)
	BLK-12040	4	7' Leg 164 - 1/2" (10 Gauge) (1 -- 4 Rings) (Shown)
5	BLK-12107	4	Hopper Brace for 16" Collar (Shown)
	BLK-12108	4	Hopper Brace for 22" Collar
6	BLK-10488	1	16" 67° Hopper Collar (Shown)
	BLK-10341	1	22" 67° Hopper Collar (36 Holes)
7	BLK-12056	4	7' Inside Cross Tie Brace (72.49") (12 Gauge)
	BLK-12057	4	7' Outside Cross Tie Brace (72.49") (12 Gauge)
8	BLK-11730	1	30° Bulk Tank Peak Ring (Shown)
	BLK-12534	1	40° Bulk Tank Peak Ring
9	BLK-12009	6	7' 67° Hopper Reinforcement Angle (5 -- 6 Ring Tanks Only)

7' Diameter 67° Hopper Bin Specifications



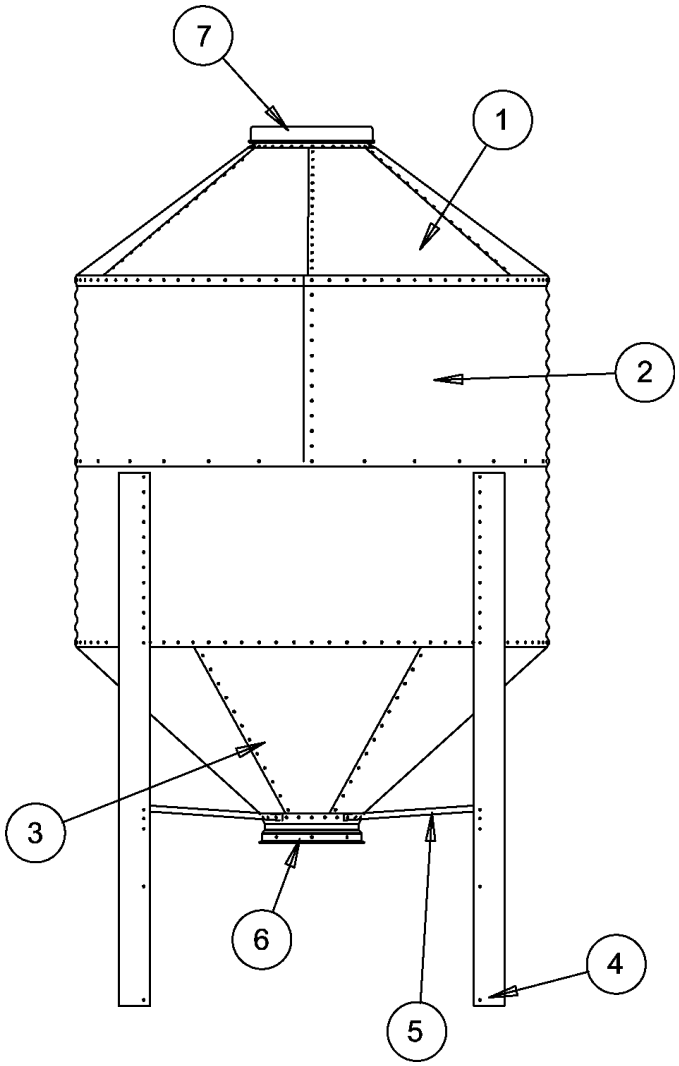
7' Diameter 67° Hopper Bin Specifications

Ref #	Part #	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	60 60	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 Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	Varies Varies	Vertical Sidewall 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 Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	52 or 88 52 or 88	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.)**
7	S-277 S-396	84 84	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.)**
8	S-4303 S-3611	162 162	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.)**
9	S-4303 S-3611	24 or 36 24 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)
10	S-7927 S-456	4 4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
11	S-7927 S-456	12 12	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

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

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

7' Diameter 45° Hopper Bin Specifications



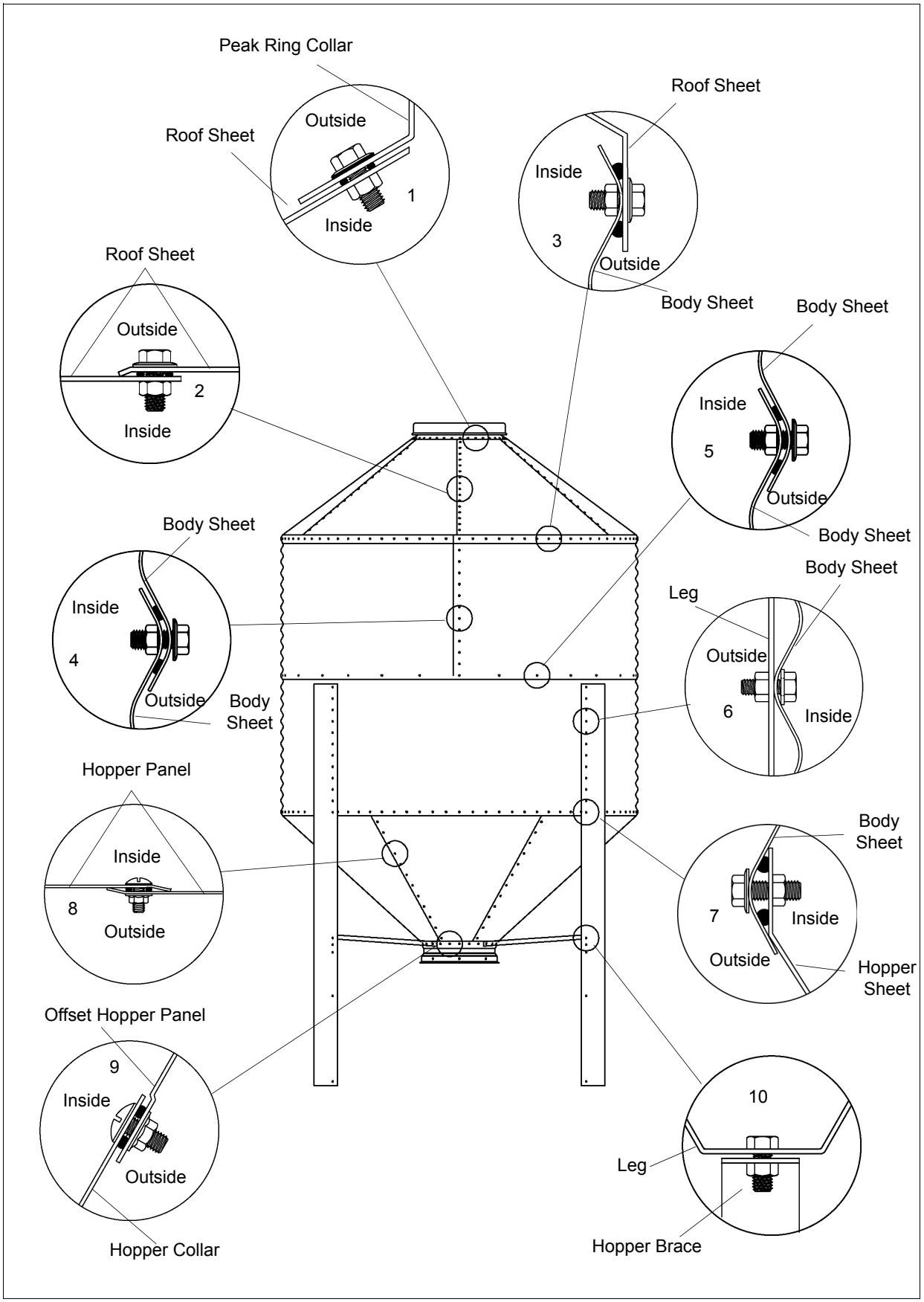
Under Collar Clearance	
16" Collar	29.3/4" (756 mm)
22" Collar	32.5/16" (821 mm)

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 22 for location of caulking. No cross tie bracing required

7' Diameter 45° Hopper Bin

Ref #	Part #	Qty	Description
1	BLK-12260	6	7' 30° Roof Panel (20 Gauge) (Shown)
	BLK-12263	6	7' 40° Roof Panel (20 Gauge)
2	**7' Sidewall Sheet**	**2 Per Ring**	
	SS40602007		20 Gauge (Bottom/Top Leg Punched Sidewall Sheet)
	SS41642007		20 Gauge (Bottom/Top Leg Punched Decal Sidewall Sheet)
	SS40612007		20 Gauge (Top Punched Sidewall Sheet)
	SS41652007		20 Gauge (Top Punched Decal Sidewall Sheet)
	SS40462007		20 Gauge (Middle Punched Sidewall Sheet)
	SS40461807		18 Gauge (Middle Punched Sidewall Sheet)
	SS40461707		17 Gauge (Middle Punched Sidewall Sheet)
	SS40641707		17 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40641507		15 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40661807		18 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40661707		17 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40661507		15 Gauge (Bottom Leg Punched Sidewall Sheet)
3	BLK-10693	6	7' 45° Offset Hopper Panel 22" Opening (18 Gauge) (Shown)
4	BLK-12014	4	7' Leg 94-1/8" (12 Gauge) (1--4 Rings) (Shown)
	BLK-12042	4	7' Leg 120-3/4" (10 Gauge) (5--6 Rings)
5	BLK-12105	4	Hopper Brace for 16" Collar (Shown)
	BLK-12106	4	Hopper Brace for 22" Collar
6	BLK-10696	1	16" 45° Hopper Collar (24 Holes) (Shown)
	BLK-10854	1	22" 45° Hopper Collar (36 Holes)
7	BLK-11730	1	30° Bulk Tank Peak Ring (Shown)
	BLK-12534	1	40° Bulk Tank Peak Ring

7' Diameter 45° Hopper Bin Specifications



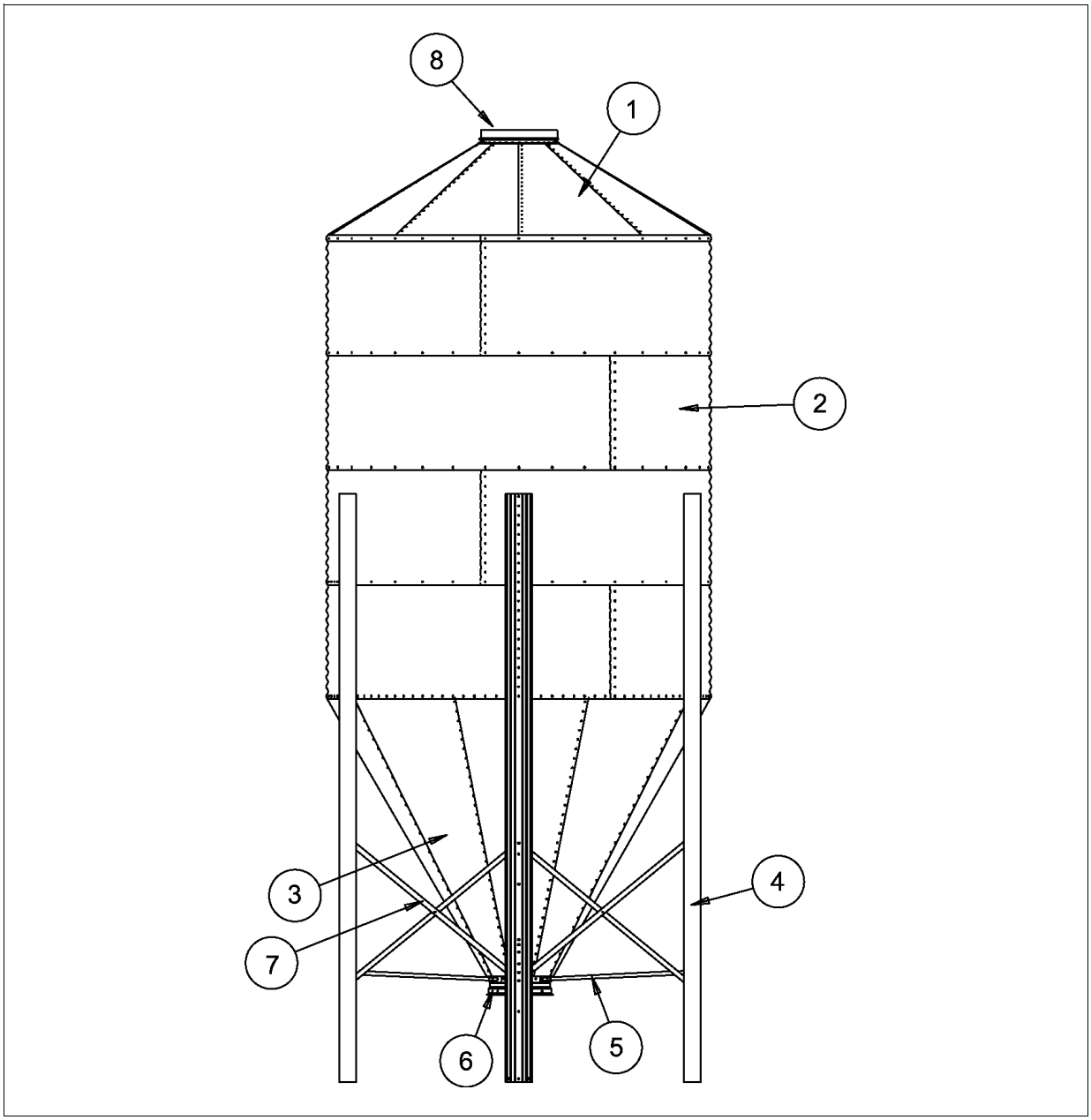
7' Diameter 45° Hopper Bin Specifications

Ref #	Part #	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	60 60	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 Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	Varies Varies	Vertical Sidewall 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 Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	48 or 88 48 or 88	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.)**
7	S-277 S-396	84 84	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.)**
8	S-4303 S-3611	102 102	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.)**
9	S-4303 S-3611	24 or 36 24 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)
10	S-7927 S-456	4 4	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

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

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

9' Diameter 60° Hopper Bin Specifications



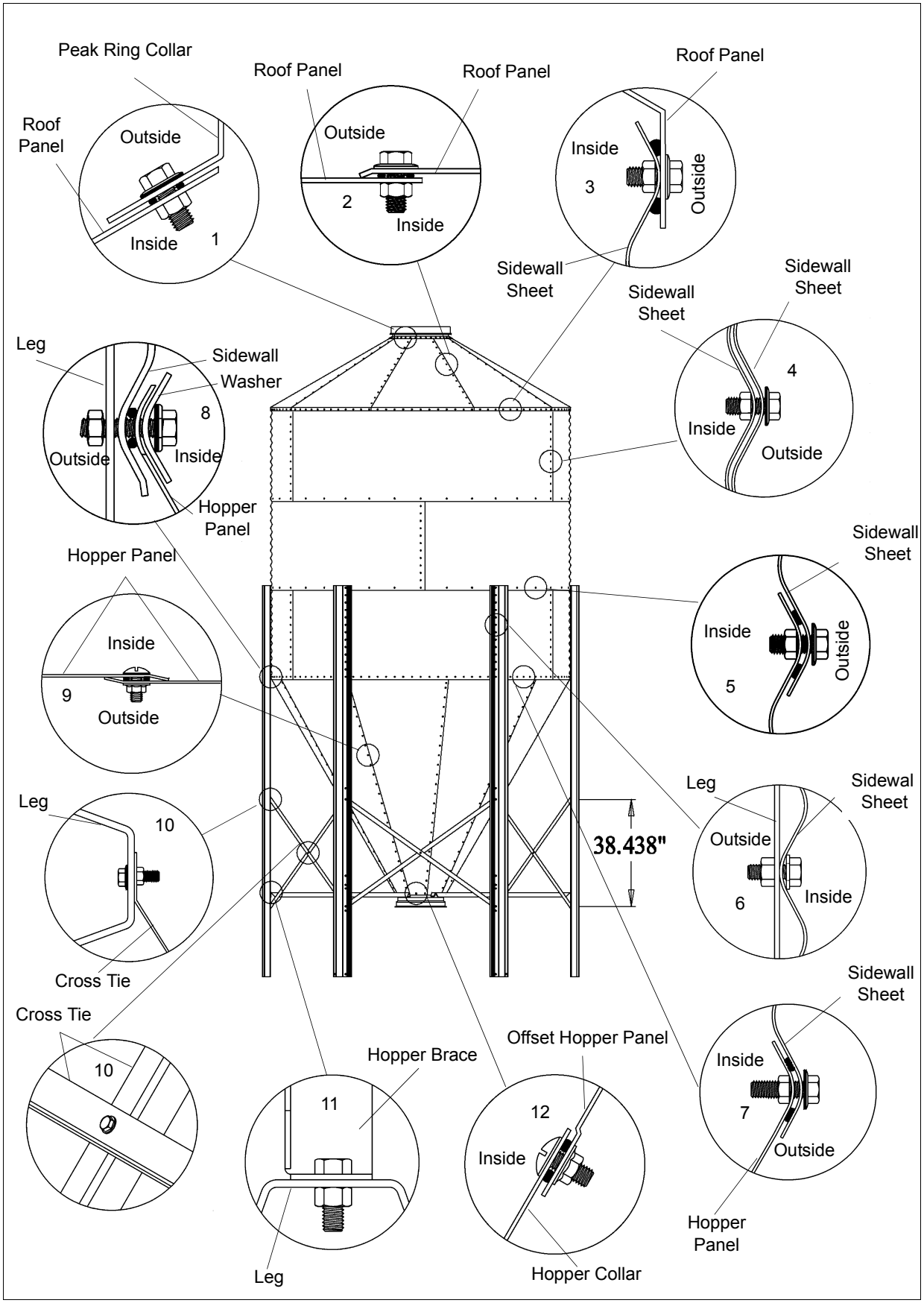
Under Collar Clearance	
16" Collar	28.1/16" (713 mm)
22" Collar	32.5/8" (829 mm)

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 22 for location of caulking.

9' Diameter 60° Hopper Bin Specifications

Ref #	Part #	Qty	Description
1	BLK-12266	9	9' 30° Roof Panel (20 Gauge) (Shown)
	BLK-12269	9	9' 40° Roof Panel (20 Gauge)
2	**9' Sidewall Sheet**	**3 Per Ring**	
	SS40682009		20 Gauge (Top Punched Sidewall Sheet)
	SS41662009		20 Gauge (Top Punched Decal Sidewall Sheet)
	SS40692009		20 Gauge (Middle Punched Sidewall Sheet)
	SS40691809		18 Gauge (Middle Punched Sidewall Sheet)
	SS40691709		17 Gauge (Middle Punched Sidewall Sheet)
	SS40701509		15 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40712009		20 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711809		18 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711709		17 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711509		15 Gauge (Bottom Leg Punched Sidewall Sheet)
3	BLK-12311	9	9' 60° Offset Hopper Panel 16" Opening (18 Gauge) (Shown)
	BLK-12313	9	9' 60° Hopper Panel 22" Opening (18 Gauge)
4	BLK-12036	6	9' Leg 140-1/2" (12 Gauge) (2--5 Rings) (Shown))
	BLK-12037	6	9' Leg 164-1/2" (10 Gauge) (6 Rings)
5	BLK-12109	6	Hopper Brace for 16" Collar (Shown)
	BLK-12110	6	Hopper Brace for 22" Collar
6	BLK-12342	1	16" 60° Hopper Collar (18 Holes) (Shown)
	BLK-10342	1	22" 60° Hopper Collar (36 Holes)
7	BLK-12058	6	9' Inside Cross Tie Brace (67.788") (12 Gauge)
	BLK-12059	6	9' Outside Cross Tie Brace (67.788") (12 Gauge)
8	BLK-11730	1	30° Bulk Tank Peak Ring (Shown)
	BLK-12534	1	40° Bulk Tank Peak Ring
9	BLK-12730	9	9' 60° Hopper Reinforcement Angle (3--6 Ring Tanks Only)

9' Diameter 60° Hopper Tank Specifications



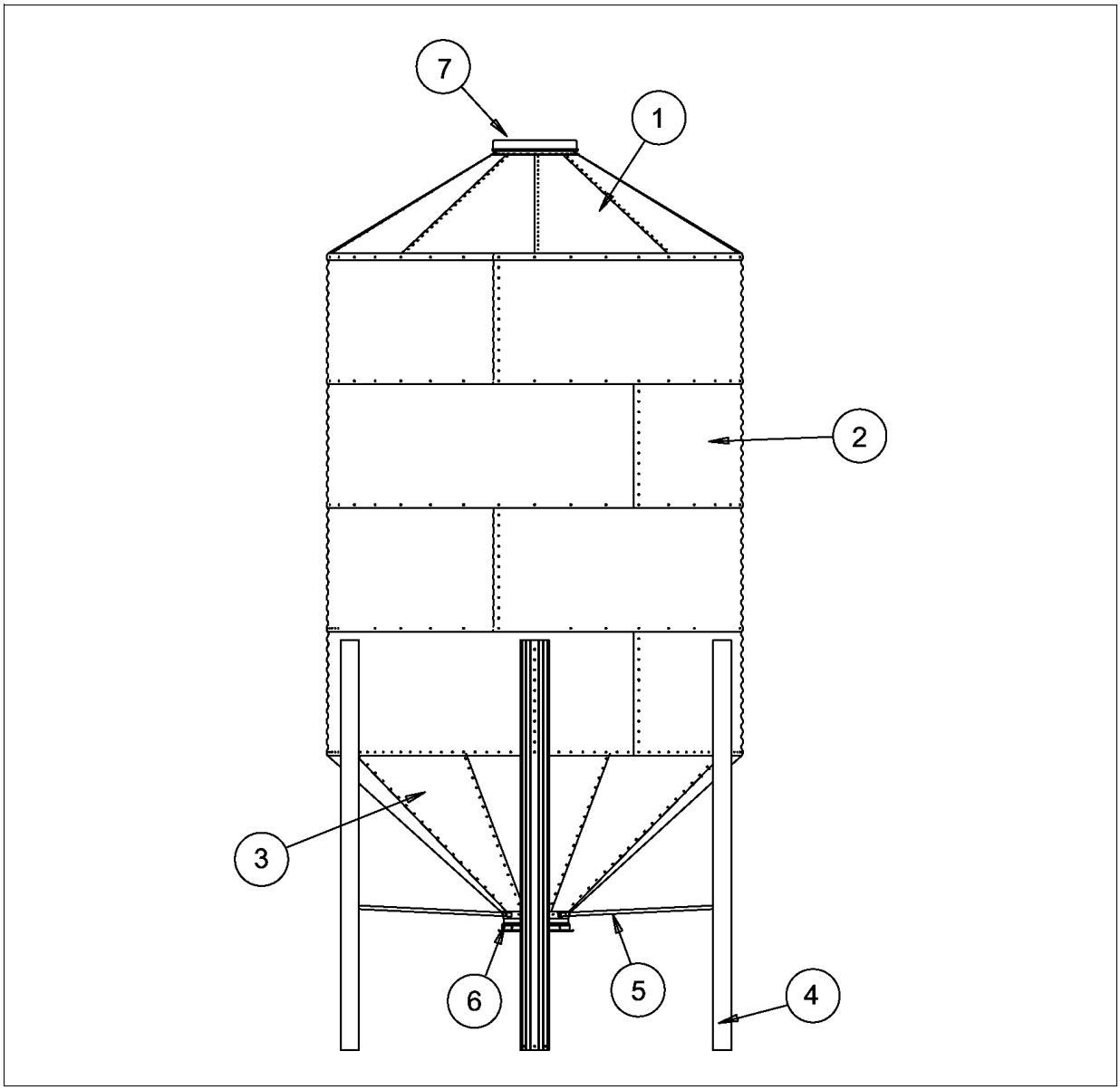
9' Diameter 60° Hopper Tank Specifications

Ref #	Part #	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	108 108	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	108 108	Roof Panels to Top Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	Varies Varies	Vertical Sidewall 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 Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	78 or 132 78 or 132	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.)**
7	S-277 S-396	108 108	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.)**
8	S-277 S-396 BLK-12483	6 6 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.)**
9	S-4303 S-3611	216 216	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.)**
10	S-7927 S-456	18 18	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
11	S-7927 S-456	6 6	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
12	S-4303 S-3611	27 or 36 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)

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

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

9' Diameter 45° Hopper Bin Specifications



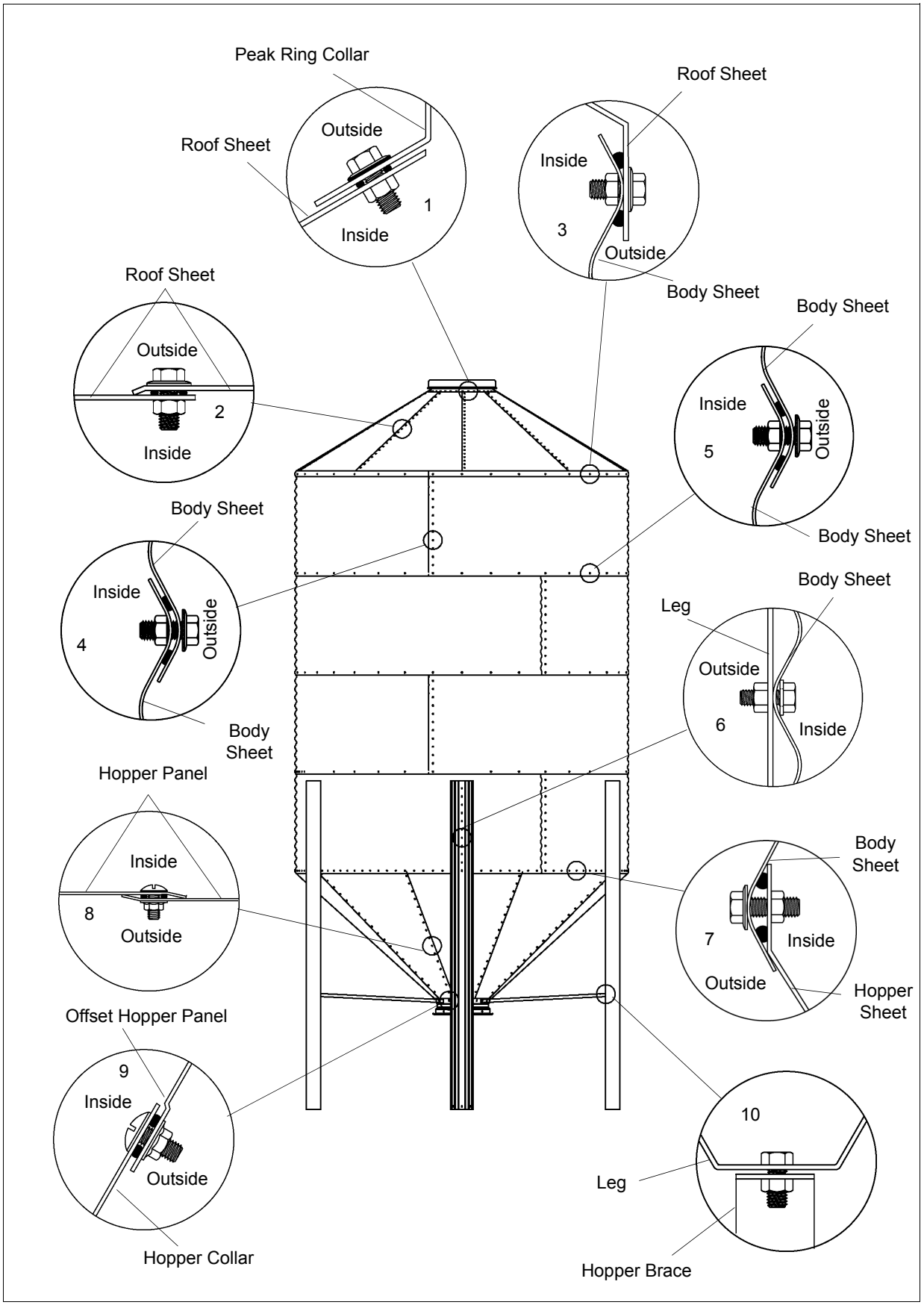
Under Collar Clearance	
16" Collar	30.11/16" (779 mm)
22" Collar	33.1/4" (844 mm)

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 22 for location of caulking. No cross tie bracing required.

9' Diameter 45° Hopper Bin Specifications

Ref #	Part #	Qty	Description
1	BLK-12266	9	9' 30° Roof Panel (20 Gauge) (Shown)
	BLK-12269	9	9' 40° Roof Panel (20 Gauge)
2	**9' Sidewall Sheet**	**3 Per Ring**	
	SS40682009		20 Gauge (Top Punched Sidewall Sheet)
	SS41662009		20 Gauge (Top Punched Decal Sidewall Sheet)
	SS40692009		20 Gauge (Middle Punched Sidewall Sheet)
	SS40691809		18 Gauge (Middle Punched Sidewall Sheet)
	SS40691709		17 Gauge (Middle Punched Sidewall Sheet)
	SS40701509		15 Gauge (Middle Leg Punched Sidewall Sheet)
	SS40712009		20 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711809		18 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711709		17 Gauge (Bottom Leg Punched Sidewall Sheet)
	SS40711509		15 Gauge (Bottom Leg Punched Sidewall Sheet)
3	BLK-10694	9	9' 45° Offset Hopper Panel 22" Opening (16 Gauge) (Shown)
4	BLK-12043	6	9' 45° Leg 106-1/8" (12 Gauge) (2--5 Rings) (Shown)
	BLK-12044	6	9' 45° Leg 132-3/8" (10 Gauge) (6 Rings)
5	BLK-12111	6	Hopper Brace for 16" Collar (Shown)
	BLK-12112	6	Hopper Brace for 22" Collar
6	BLK-10696	1	16" 45° Hopper Collar Bundle (Shown)
	BLK-10854	1	22" 45° Hopper Collar (36 Holes)
8	BLK-11730	1	30° Bulk Tank Peak Ring (Shown)
	BLK-12534	1	40° Bulk Tank Peak Ring

9' Diameter 45° Hopper Bin Specifications



9' Diameter 45° Hopper Bin Specifications

Ref #	Part #	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	126 126	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	108 108	Roof Panels to Top Sidewall Sheets (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
4	S-275 S-396	Varies Varies	Vertical Sidewall 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 Sidewall Sheet Seams (Use 5/16" x 3/4" Hex Head Bin Bolts and 5/16" Hex Nuts.)
6	S-275 S-396	28 or 132 28 or 132	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.)**
7	S-277 S-396	108 108	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.)**
8	S-4303 S-3611	171 171	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.)**
9	S-4303 S-3611	27 or 36 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)
10	S-7927 S-456	18 18	Cross Tie Brace (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)
11	S-7927 S-456	6 6	Hopper Brace to Leg (Use 3/8" x 1" Flange Head Bolts and 3/8" Hex Nuts.)

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

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

NOTES

GSI GROUP

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
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
	Apex Flooring	10 Years *
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1.75" & 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
	Portable Dryers	2 Years
	Portable Dryer Frames, Screens and Internal Infrastructure †	5 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%

** Warranty prorated from list price:
  0 to 3 years – no cost to end-user
  3 to 5 years – end-user pays 50%

† Motors, burner components and moving parts not included

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.

GSI GROUP

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