

SPIRAL STAIRCASE



ASSEMBLY MANUAL

SIGN-OFF FORM

Meridian Manufacturing Inc. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE), and the Occupational Safety and Health Administration (OSHA). Anyone who will be using or maintaining the bin must read and clearly understand ALL Safety and Maintenance information presented in this manual.

Review this information annually, before the season start-up.

Make these periodic reviews of SAFETY and USAGE a standard practice for all of your equipment.

This form is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in this manual. Copy this page to continue record.

Date	Employee's Signature	Employer's Signature		

PRODUCT REGISTRATION FORM



Attention Dealers:

You can register products online through the Dealer Login: http://dealers.meridianmfg.com/login/

It is mandatory to register your product in order to qualify for future warranty claims that may aris

A copy of this form may also be mailed	to Meridian Manufacturing Inc.
Buyer's Name	Dealer's Name
Address	Address
City, Prov/State	City, Prov/State
Postal/Zip Code	Postal/Zip Code
Phone Number	Phone Number
Model Number	Serial Number
Invoice Date	
registered. If you require further assistance. We want to thank you for purchasing a Me	Meridian Manufacturing Inc. location which built this product being e call you're dealer or the Meridian outlet nearest to your location. eridian manufactured product. Whether this is your first Meridian r years, you are now part of the Meridian community of customers and
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Buyer's Signature _____



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Section 1: INTRODUCTION

Thank you for choosing a Meridian Manufacturing Inc. spiral staircase.

Safe, efficient assembly means that everyone who will be involved must read this manual.

Information provided herein is of a descriptive nature. Consistent with Meridian's policy of continued research and development of our products, we reserve the right to modify the equipment design and specifications and change information contained in this publication without any preliminary notice.

Keep this manual handy for future reference. Call your Meridian dealer or distributor if you need assistance, information or additional/replacement copies, or a digital copy of this document.

Staircase specifications, features and available options may vary depending on the region.

Disclaimer:

These instructions are based on standard assembly. A few popular options are described.

Many options change the location and arrangement of parts.

Your situation may necessitate a change from the described instructions.

IMPORTANT:

Parts lists, drawings and schematics are shipped, along with this manual.

Refer to them, as you read this manual for specific details;
such as, measurements, fasteners to use, and position of components.

IMPORTANT:

It is necessary to have the correct spacing between bin walls before installing the spiral staircase:

- Single Platform: 32" - 34"

- Twin Platform: 64" - 66"

Note:

Optional Intermediate Rest Platform
Refer to assembly instructions on pages 3-12 and 3-13.

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Section 2: SAFETY

The Safety Alert Symbol means:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

3 Big Reasons why safety is important to you:

- Accidents Disable and Kill
- Accidents Cost
- Accidents Can Be Avoided

The Safety Alert Symbol identifies important safety messages in this manual.

The following signal words are used in this manual to express the degree of hazard for areas of personal safety.

When you see the symbol and/or the signal words described below, obey the accompanying message to avoid possible injury or death.



Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations. Typically for machine components which, for functional purposes, cannot be guarded.



Indicates a hazardous situation, if not avoided, could result in death or serious injury. This word identifies hazards that are exposed when guards are removed. It may be used to alert against unsafe practices.



Indicates a hazardous situation, if not avoided, could result in minor or moderate injury. It may be used to alert against unsafe practices.



Indicates practices or situations which may result in the malfunction of, or damage to equipment.

SAFETY INSTRUCTIONS

Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

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2.1 GENERAL SAFETY

You are responsible for the safe assembly of this staircase. Good safety practices not only protect you, but also those around you. All accidents can be avoided.

• Use this staircase for its intended purpose.

2.2 ASSEMBLY SAFETY

- Keep assembly area clean and dry.
 - All platforms, ladders, stairways, fixed ladders, cages, handrails, and guardrails must be clean and free of all debris.
 - Remove anything which may cause accidental tripping and/or falling.
- Use adequate light for the job.
- Keep all persons not involved in assembly away from work area.
- Stay away from overhead power lines. Electrocution can occur without direct contact.



- Stay away from overhead obstructions when lifting the assembly. Contact can damage the components, or cause them to fail.
- Provide adequate space for forklifts and hoists to move components, large and small, around the structure.
- Components can be heavy and awkward.
 Always wear protective equipment to prevent cuts, scrapes, and pinching.

2.3 WORK SAFETY

 Assembling equipment can often be noisy enough to cause permanent, partial hearing loss. We recommend that hearing protection be worn on a full-time basis.



- Remove anything which may cause accidental tripping and/or falling.
- Keep the work area clean and orderly.
- Mount signage around structure to indicate that this structure is off limits. No unauthorized persons allowed.
- Keep structure in good repair, to prevent sharp edges and corners from becoming hazards.

2.4 PERSONAL PROTECTIVE EQUIPMENT

The following Personal Protective Equipment (PPE) should be worn at all times when assembling or working the area:



Safety Glasses



Coveralls



Hard Hat



Steel-Toe Boots



Work Gloves

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Section 3: ASSEMBLY

3.1 CHECK YOUR SHIPMENT

- Upon delivery, check all parts and packages against the packing list. Ensure that all items have arrived and that none are damaged.
- Do not begin installation with missing or damaged parts.
- When you are satisfied that all parts are in good condition, lay the parts out for convenient access.
- Carefully read and understand this installation manual before proceeding with assembly.

3.2 SHORTAGE AND DAMAGED PARTS

- Report shortages or damaged parts immediately to the delivery carrier, followed within ten days by a confirmation letter requesting inspection by that carrier, if required.
- Order necessary parts immediately to ensure that assembly will not be held up.
- All parts will be charged for and credit will be issued by the party at fault. No credit will be issued if delivery invoices are signed and received in good condition.

3.3 TOOLS AND EQUIPMENT

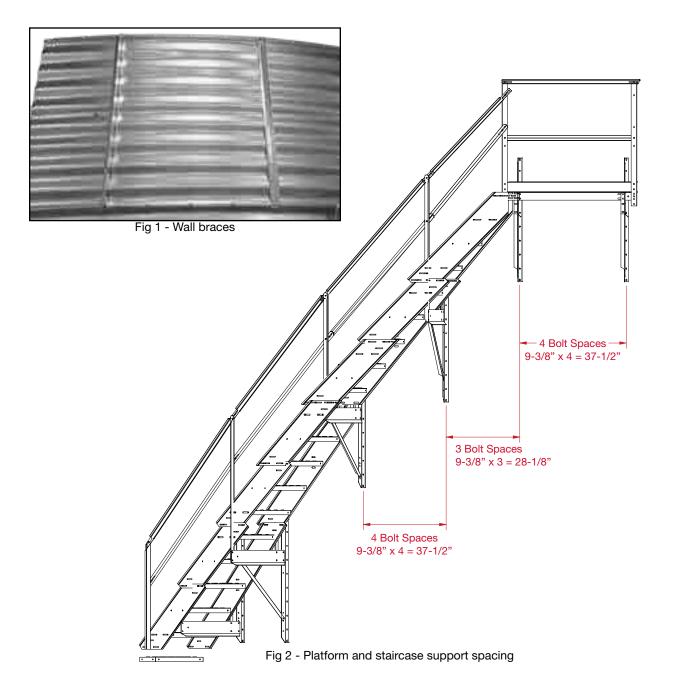
Use quality tools and equipment. Use them safely and correctly for their intended use. The tools and safety equipment for this application should include, but are not limited to:

- Tools:
 - Impact tools
 - Power drills and drill bits
 - Sockets
 - Large-pocket carpenter pouch
 - 8 inch (20 cm) metal tapered punches (for aligning bolt holes)
 - Construction grade step and extension ladders
 - 6-point wrenches (Imperial, box end)
 - Transit level
 - Tape measure 100' minimum
 - Tek screw driver 3/8"
 - Survey ground marking paint
 - Tube caulking applicator
 - Heavy duty utility knives
 - Spring clamps
 - Banding cutters
 - Generator
 - Skid loader
 - Shovel
 - Cut resistant gloves
 - Cord or rope and pegs
- Safety Equipment:
 - Properly-stocked first-aid kit
 - Personal protective equipment (PPE) like safety glasses, steel-toed boots, hard hats, work gloves
 - Cable, chain, or rope to tie down parts in case of wind during assembly



3.4 PLATFORM LAYOUT

The platform rests 12" below the eave and the A-frame brackets are 4 bolt spaces apart (37-1/2"). It is recommended to place two thirds of the platform under the roof ladder with the remainder under the manhole. The stair section assembly attaches to the platform and has an A-frame 3 bolt spaces (28 1/8") from the platform A-frame. The stair section is included in the platform package.



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3.5 WALL A-FRAMES BRACKETS

- 1. Assemble and fasten the A-frame brackets to the corrugated wall sections.
 - Use 51723 Short Posts to support the platform(s) on the inside and outside. See Figure 4 and 5.
 - Use 51709 Short Posts to support the stair sections. See Figure 16

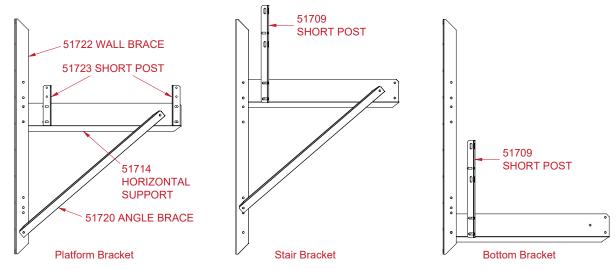
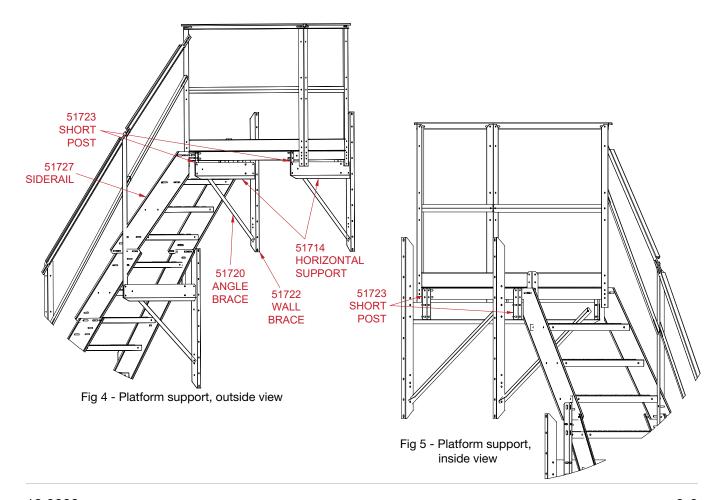


Fig 3 - Assembled wall A-frames brackets

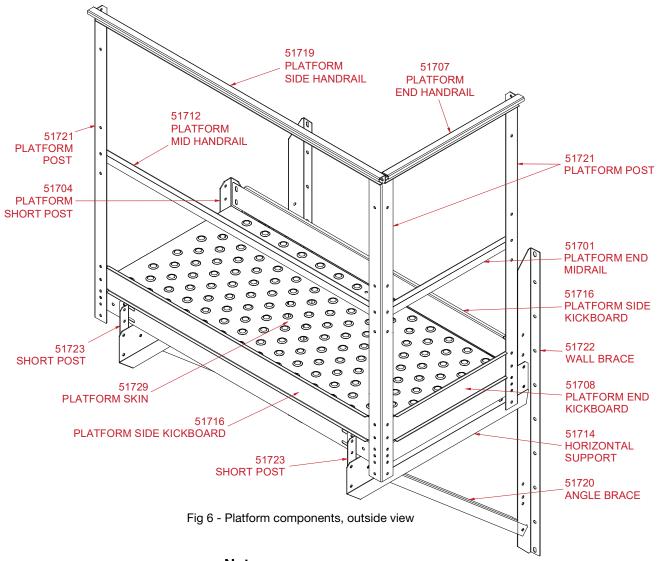




3.6 TOP PLATFORM ASSEMBLY

IMPORTANT: Determine from which end of the platform the stairs will be attached.

- 2. Bolt the Platform Posts to the corners of the Platform Skin.
 - Add the Kickboards, Midrails and Handrails.
 - Note: At the inside corner, where the stairs begin, attach the 51704 Platform Short Post.



Note:

Platform Skin dimension: 50-1/2 x 24 x 3"

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- 3. Bolt the Wall Braces in position on the bin.
 - Use existing bolt holes 4 bolt spaces apart (37-1/2").
- 4. Assembly the wall A-frames brackets.
 - Add Horizontal Support and Angle Brace.
- 5. Add 51723 Short Posts to the Horizontal Supports.
 - Use them to fasten the platform to.
- 6. Lift the assembled platform to sit on the A-frames.
 - Fasten to the inside 51723 Short Post
 - Add 51723 Short Post to the outside.

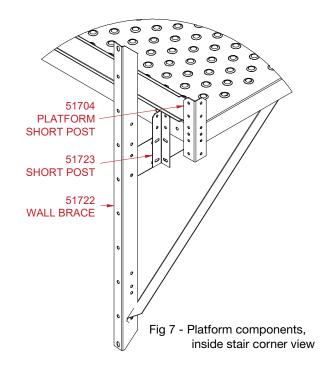




Fig 8 - 51723 Short Post holding platform



Fig 9 - Short posts on A-frame connected to platform



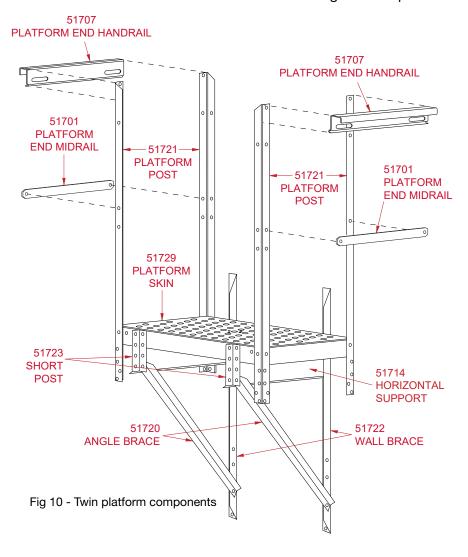
3.7 TWIN PLATFORM (OPTIONAL EQUIPMENT)

On standard 32" and 44" bin sheets, the wall A-frame brackets will attach four bolts (37-1/2") apart.

- 1. Attach Wall Brace to the bin. Assemble the A-frame bracket.
- 2. Assemble the Twin Platform, with Platform Posts, End Hand and Midrails.
- 3. Bolt the platform to the A-frame brackets.

IMPORTANT:

Spacing must be 64–66" between bins when installing the twin platform.



Note: Platform Skin dimension: 50-1/2 x 24 x 3"



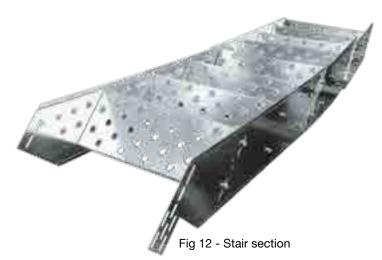
Fig 11 - Twin Platform

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3.8 STAIR SECTIONS ASSEMBLY

- 1. The first stair section to be attached to the top platform includes:
 - Three 51698 Stair Steps
 - One 51726 Siderail (inside)
 - One 51727 Siderail (outside)
- 2. Assemble the first stair section together.
 - Bolt the steps to the Inside Siderail, which have round bolt holes.
 - Tighten the round-hole connections.
 - Bolt the steps to the Outside Siderail which have slotted bolt holes to accommodate the curve of the bin.
 - Leave the slot connections loose for later adjustments.
- 3. Lift the stair section up to the platform.
 - Fasten the stairs between inside Short Post and outside Short Post.
 See Figure 14, 15 and 16



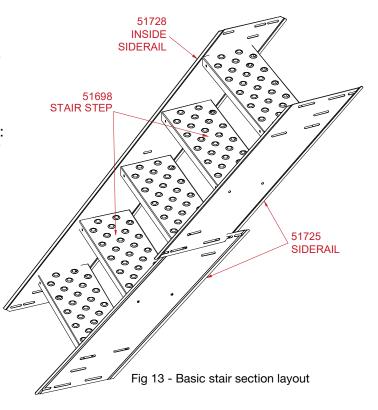
Note:

The first stair section connected to the top platform has three steps. See Figure 15:

- Stair Step dimension: 24-1/8 x 9 x 1-3/4"
- One 51726 inside Siderail
- One 51727 outside Siderail

The rest of the stair sections has five steps:

- Stair Step dimension: 24-1/8 x 9 x 1-3/4"
- One 51728 Inside Siderail
- Two 51725 Siderails
- 4. Continue to assemble the the rest of the stair sections.
 - Refer to the drawings for details.
- 5. Support the stair section with wall A-frame.
 - Bolt the Inside Siderails to the 51709 Short Post. See Figure 16





- 6. Fasten the Base Support Posts to the Horizontal Supports and Outside Siderails.
- 7. Attach the Midrails and Handrails between the posts.
 - Note: 3 stair step section handrails:
 - 51717 Handrail
 - 51713 Midrail

5 stair step section handrails:

- 51724 Handrail
- 51715 Midrail



14 - 51727 Siderail fastened to platform

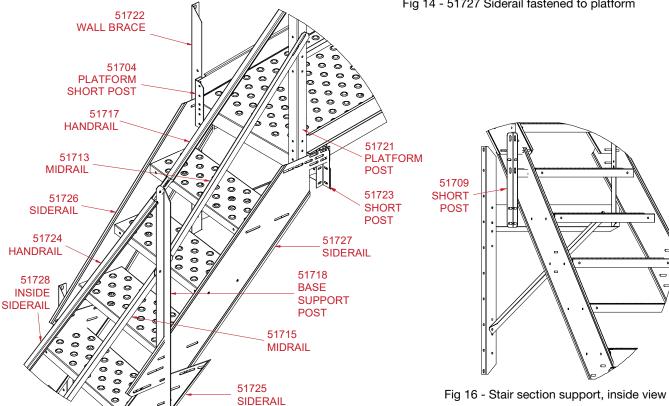


Fig 15 - Stair section at platform

Note:

51709 Short Post is fastened on the inside of the stair section.



Fig 17 - 51709 Short Post supporting stairs



3.9 ASSEMBLY NOTES

- The inside siderails have round bolt holes with no adjustment possible. The outside siderails have slotted bolt holes to move the stairs, adjusting them to the curve of the bin.
 - Keep the bolts as close to the centre of the adjustment slot as possible to keep the stairs from creeping forward down the bin.
 - Continue to monitor the position of the stairs during installation of successive sections by watching the connections of the short posts to the siderails.
 - Stay as close as possible to the centre to keep the post plumb.
- Tighten the stair sections from the inside out and from the top down.
 - Always level the bottom step before tightening the outside siderail.
 - Use the slotted holes on the outside siderail to adjust the steps for an even fan pattern.
- When attaching the next stair sections, use the same procedure as the first stair section to the platform, except level the middle step and tighten the upper splice.
- When finishing the bottom stair section, level the bottom step and tighten the middle of the siderail.

Note: 51718 Base Support Post is used to support the outside of the bottom stair section.

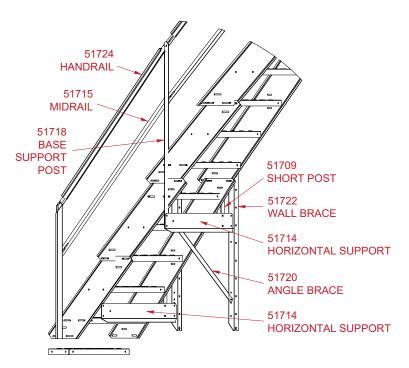


Fig 18 - Stair section support, outside view



3.10 BOTTOM STAIR SECTION ASSEMBLY AND FINISHING

- 8. Attach #51700 Bottom Knee Brace to the rear, inside hole of the bottom step.
- 9. Attach the other end of knee brace to #51722 Wall Brace.
 - **Note:** On some bin diameters this may not work. If the stair system has to be severely deformed to use the hole, drill the hole to allow for connection.
- 10. Attach #51710 Bottom Brace to the inside and outside siderails under the bottom step.
 - This will keep it out of the walking path when descending off the last step.
 - On bins with a rolled flange bottom ring, it may be necessary to move the bottom brace up to the step bolts for the upper holes.
- 11. If possible, attach the #51703 Base Support Post to the bottom bracket.
 - If that causes the post to become misaligned with the hand and midrails, then attach them separately to the outside siderail.

12. Remove Tripping Hazard:

Once the bottom stair section is attached, trim off the point of the outside rail so that it is flush with the handrail post to avoid a tripping hazard.

13. #51699 Bottom Platform is to be used as the final step which is attached to the cement base.

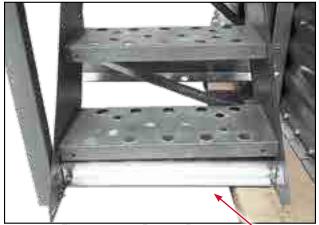


Fig 19 - 51710 Bottom Brace



Fig 20 - Remove tripping hazard



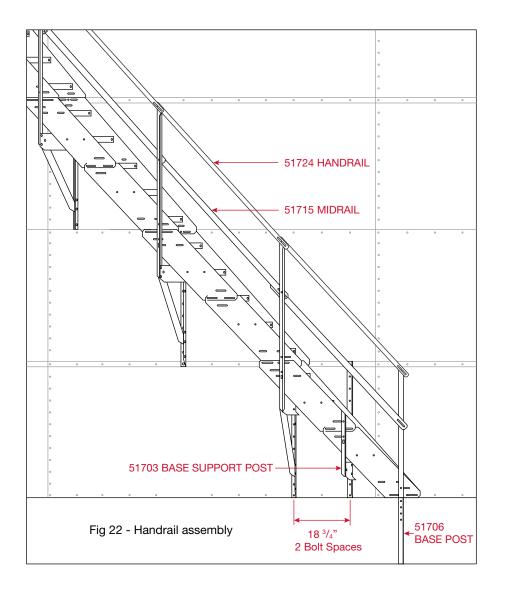
Fig 21 - 51699 Bottom Platform

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3.11 ATTACH BOTTOM STAIR SECTION

- 14. The bottom section uses a special configuration of the A-frame bracket.
 - For assembly, see Figure 3.
- 15. Bolt it to the middle of the stair section.
 - It is two bolt spaces (18-3/4" +/-) from the last A-frame bracket.
- 16. There is 51706 Base Post, and 51700 Bottom Knee Brace that attaches to the bottom bracket under the bottom section.
 - This allows the handrail to end at the last step and braces the bottom two steps and post.
- 17. Shape the handrails and midrails according to the curve of the bin. Attach them to the posts.





3.12 INTERMEDIATE PLATFORM ASSEMBLY, PART #31803 (OPTIONAL EQUIPMENT)

- 1. Assemble the Intermediate similar to the Top platform.
 - Bolt the Platform Posts to the outside corners of the Platform Skin.
 - Add the Kickboards, Midrails and Handrails.
- 2. Bolt the Wall Braces in position on the bin and assemble the A-frame brackets.
 - Use existing bolt holes four bolt spaces apart (37-1/2").
 - Add Platform Short Posts to the Horizontal Supports.

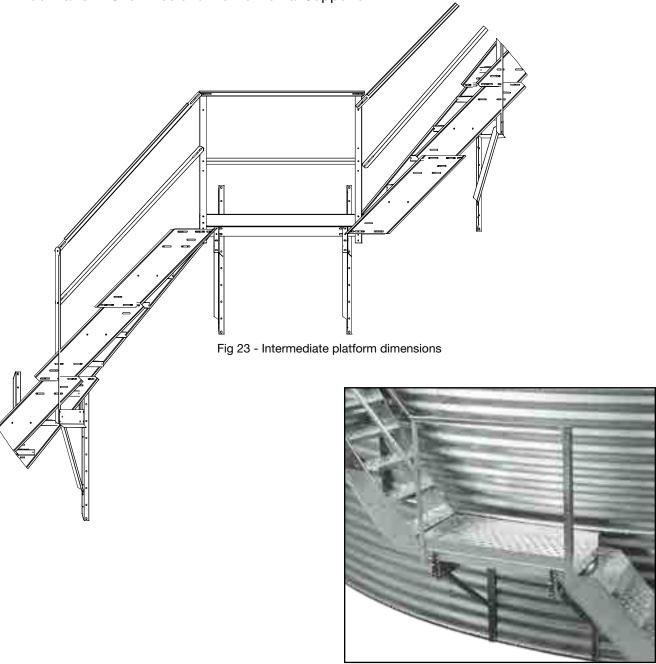
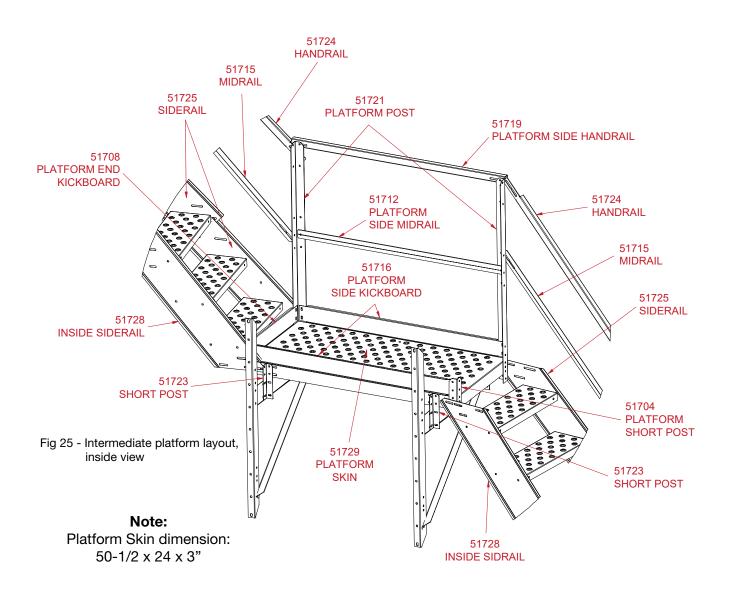


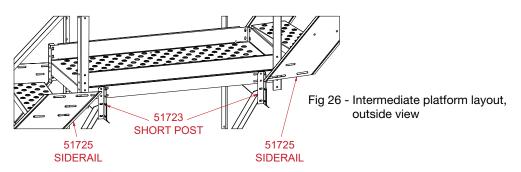
Fig 24 - Intermediate platform onto A-frame

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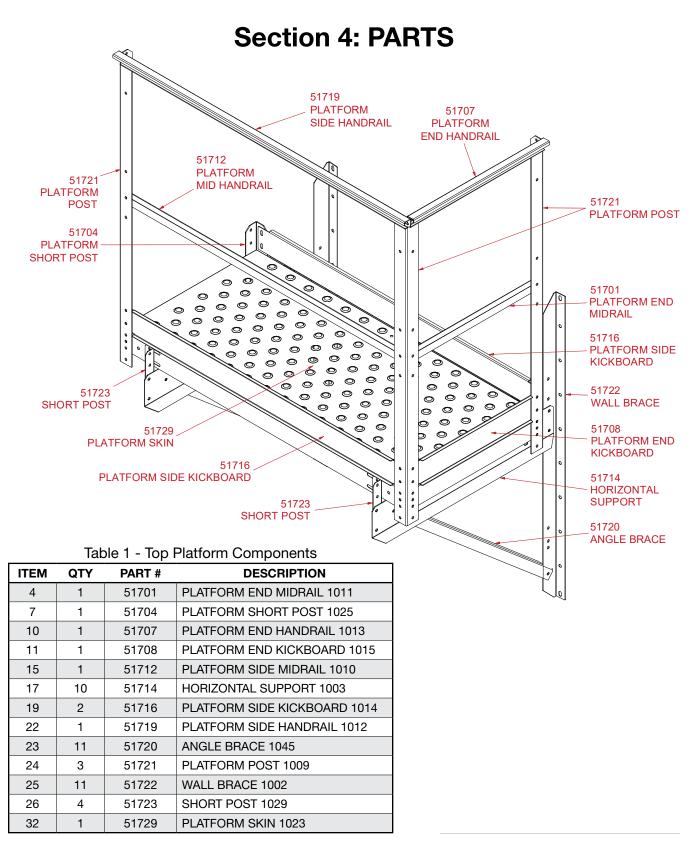
- 3. Support the Intermediate Platform with wall A-frame brackets.
 - Fasten the platform between the inside Platform Short Post and outside Short Post.











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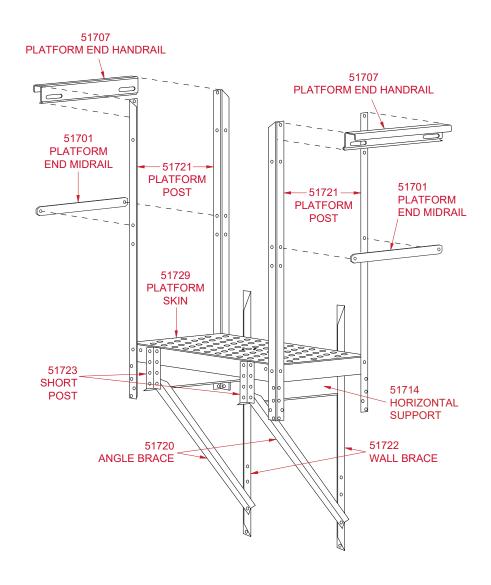
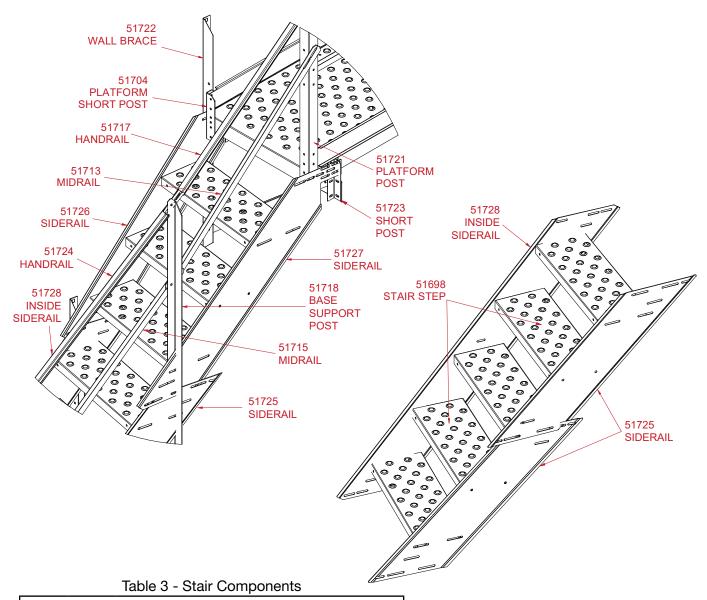


Table 2 - Twin Platform Components

Table 2 TWITT latterin Compensition					
ITEM	QTY	PART #	DESCRIPTION		
4	1	51701	PLATFORM END MIDRAIL 1011		
10	1	51707	PLATFORM END HANDRAIL 1013		
17	10	51714	HORIZONTAL SUPPORT 1003		
23	11	51720	ANGLE BRACE 1045		
24	3	51721	PLATFORM POST 1009		
25	11	51722	WALL BRACE 1002		
26	4	51723	SHORT POST 1029		
32	1	51729	PLATFORM SKIN 1023		

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ITEM	QTY	PART #	DESCRIPTION		
1	43	51698	STAIR STEP 1007		
7	1	51704	PLATFORM SHORT POST 1025		
16	1	51713	MIDRAIL 1030		
18	8	51715	MIDRAIL 1019		
20	1	51717	HANDRAIL 1031		
21	10	51718	BASE SUPPORT POST 1001		
24	3	51721	PLATFORM POST 1009		
25	11	51722	WALL BRACE 1002		
26	4	51723	SHORT POST 1029		
27	8	51724	HANDRAIL 1020		
28	16	51725	SIDERAIL 1006		
29	1	51726	SIDERAIL 1032		
30	1	51727	SIDERAIL 1???		
31	8	51728	45 INSIDE SIDERAIL 1005		

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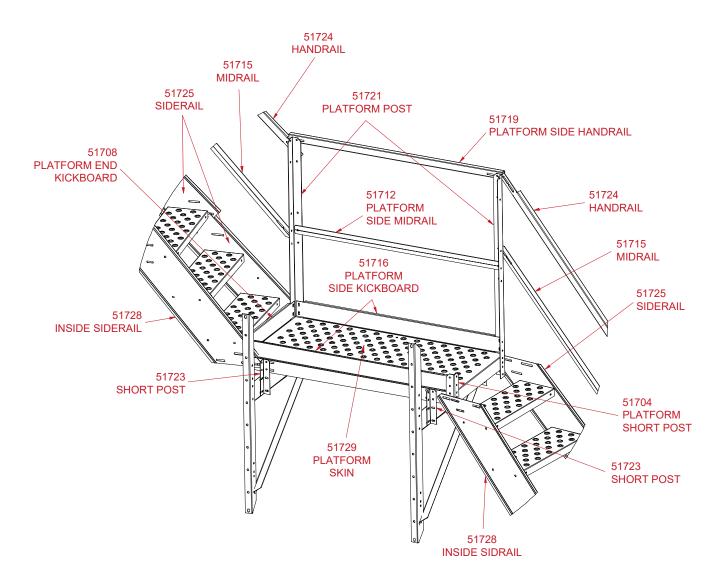


Table 4 - Part #31803: Intermediate Platform Components

ITEM	QTY	PART #	DESCRIPTION			
7	1	51704	PLATFORM SHORT POST 1025			
11	1	51708	PLATFORM END KICKBOARD 1015			
15	1	51712	PLATFORM SIDE MIDRAIL 1010			
18	8	51715	MIDRAIL 1019			
19	2	51716	PLATFORM SIDE KICKBOARD 1014			
22	1	51719	PLATFORM SIDE HANDRAIL 1012			
24	3	51721	PLATFORM POST 1009			
26	4	51723	SHORT POST 1029			
27	8	51724	HANDRAIL 1020			
28	16	51725	SIDERAIL 1006			
31	8	51728	45 INSIDE SIDERAIL 1005			
32	1	51729	PLATFORM SKIN 1023			

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4.1 RECOMMENDED BOLT ASSEMBLY

When tightening bolts, tighten the nut (NOT the bolt) until a "snug-tightened condition" is achieved. This is defined in Specification for Structural Joints Using ASTM A325 or A490 Bolts (June 2004) as:

"The snug-tightened condition is the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the connected plies into **firm contact**."

Properly tightening the bolt will result in compressing the sealing washer noticeably. This is a requirement and all assembly crew members must be made aware of how to achieve a "snug-tightened condition" using common building tools. See the table below for minimum impact gun torque capacity necessary to achieve "snug-tightened condition" for bolts in the assembly process.

If caulking is being used at any joints, it is important that the bolts are tightened enough to squeeze the caulking and bring the surfaces of the parts into firm contact with each other. This is especially important to monitor when installing bolts in temperatures approaching -10°C (14°F).

Do not substitute bolts in place of those supplied by Meridian Manufacturing Inc.

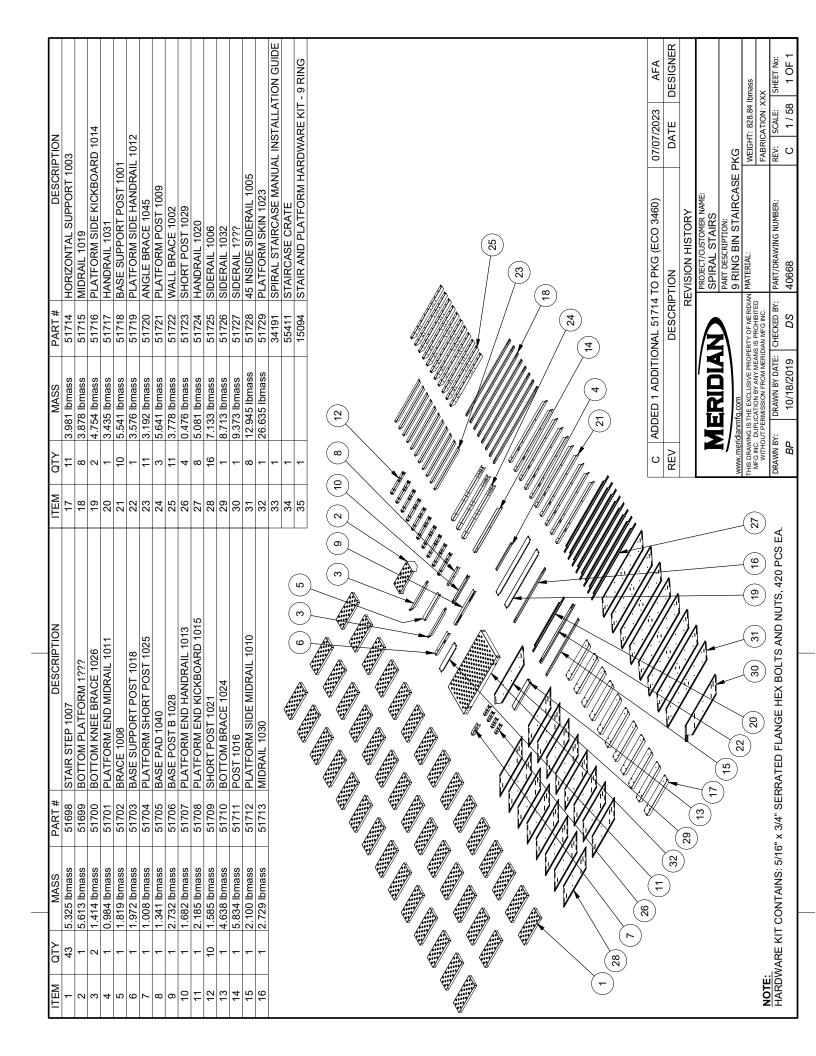
ALWAYS TIGHTEN THE NUT, NOT THE BOLT!

Table 5 - Recommended Impact Gun Torque Capacity for Snug-Tightened Condition Bolts

BOLT DIAMETER	BOLT GRADE	GRADE MARK	RECOMMENDED TORQUE CAPACITY		
(in)			in-lb	ft-lb	Nm
3/8	8.2	0	520	43	58

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WARRANTY STATEMENT

- Meridian Manufacturing Inc, hereafter referred to as Meridian, guarantees its products against any defects in materials or workmanship for a period of twelve (12) months from the date of purchase, provided that the said products are set up according to its instructions and recommendations and also that the said products are operated and used in proper conditions and according to its instructions and recommendations.
- 2. Meridian's responsibility and obligations under this warranty shall be limited to replacement of parts and shall not extend to parts, equipment or accessories that are component parts of Meridian's products but that are manufactured by other manufacturers. Those manufacturers' warranty will apply to such parts, equipment or accessories. Any parts set up by reason of the application of this warranty shall be amenable to the terms of this warranty except that the period of twelve (12) months applicable to such parts shall be peremptory and that upon termination of the said period, warranty shall by null and void, for any purpose whatsoever with respect to the said parts substituted to it before the termination of the said period of twelve (12) months.
- 3. This warranty shall not extend to loss and damage to content of the products, neither to property or loss of revenue. Moreover, it shall not extend to bodily injuries, including death, sustained by any person or animal.
- 4. The purchaser shall give notice to Meridian, without delay, of any damage or defects to its products that he may ascertain before they are set up, otherwise this warranty will not apply to such damage or defects.
- 5. Any modification or incorporation whatsoever made to products, except those authorized or recommended by Meridian, shall void this warranty; this warranty shall not apply to damages resulting from improper installation or erection of products by purchaser.
- 6. This warranty is the sole and only warranty and it is in lieu of any other warranty, express or implied, statutory or not.
- 7. Any claim under this warranty shall by notified in writing to Meridian's head office within thirty (30) days from the failure.

Specifications and descriptions are subject to change without notice.

Register your product at: www.meridianmfg.com
For warranty information send an email to: warranty@meridianmfg.com

WARRANTY REQUEST PROCEDURE

- 1. The product must be registered with Meridian Manufacturing Inc.
- 2. The purchaser must contact the dealer, from where the unit was purchased, immediately upon discovery of any defects.
- 3. A completed Warranty Request (Claim) Form must be submitted by the dealer to Meridian's warranty representative for review and any subsequent course of action.
 - Warranty requests must be completed with ALL required information in order it to be considered for approval.
 - Send photographs of the entire piece of equipment, and of the specific area of concern.
- 4. Warranty repair work will only be performed by Meridian or an approved representative of Meridian. Warranty work completed prior to Meridian's approval will NOT be honoured. Failure to follow this procedure may affect any or all of this warranty.
- 5. All warranty requests will be adjudicated at the sole discretion of Meridian and in accordance with the terms and conditions of the warranty.



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