Rhythm Wall

350-1431

Equipment Manufacturer

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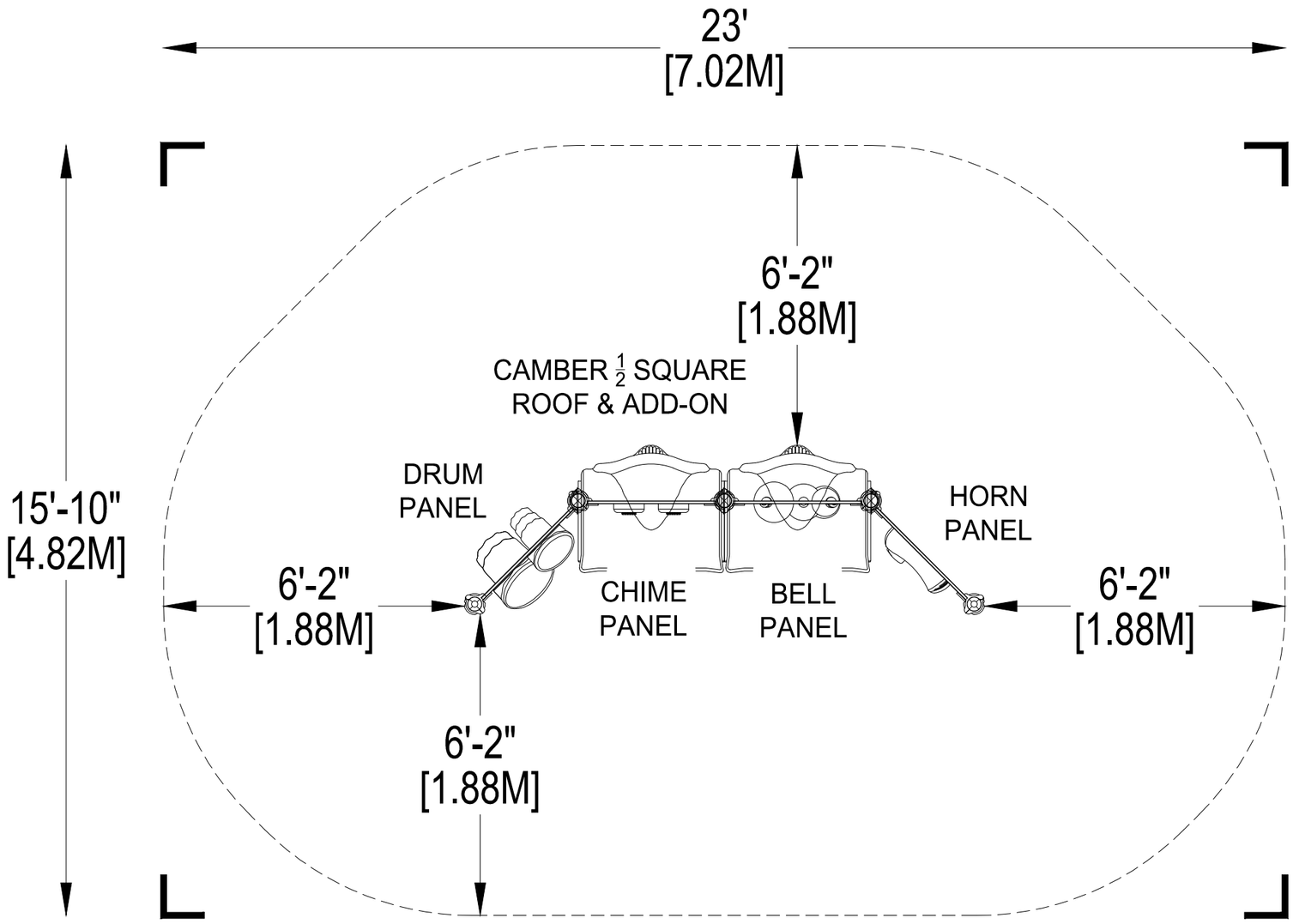
Primary

Natural

Contemporary



*PLAYGROUND SUPERVISION REQUIRED

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PLAYWORLD SYSTEMS, INC.
1000 Buffalo Road
Lewisburg, PA
17837-9795 USA

EQUIPMENT SIZE:
10'8" x 3'6" x 7'11"
3,25M x 1,07M x 2,41M

USE ZONE:
23'0" x 15'10"
7,02M x 4,82M

AREA:	PERIMETER:
307 SqFt.	**64 Ft.**
28,52 SqM.	19,51M

FALL HEIGHT:
0 Ft.
0M

USER CAPACITY:	AGE GROUP:
8	**2-12**

✓ ASTM F1487-11
✓ CPSC #325

PROJECT NO:	SCALE:
350-1431A	**3/8"=1'-0"**
DRAWN BY: **M. MERTZ**	Paper Size **B**
DATE: **08-DEC-14**	

RHYTHM WALL

CATALOG PRE-DESIGN

Rhythm Wall

Design Number: 350-1431A - Bill Of Material

Ref. No.	Part No.	Description	Quantity
	Posts		
1	ZZCH0139	3.5in OD x 112in STEEL POST W/O CAP	3
2	ZZCH0356	3.50in x 88in STEEL POST w/CAP	2
	Audible Activities		
3	ZZCH4587	DRUM PANEL (GROUND LEVEL)	1
4	ZZCH4589	BELL PANEL (GROUND LEVEL)	1
5	ZZCH4607	CHIME PANEL (GROUND LEVEL)	1
6	ZZCH4611	HORN PANEL GROUND LEVEL	1
	Roofs & Arches		
7	ZZCH9816	CAMBER 1/2 SQUARE ROOF	1
8	ZZCH9817	CAMBER 1/2 SQUARE ROOF ADD ON	1
	Additional Tool & Maintenance Kits		
9	ZZCHGUID	CHALLENGER GUIDELINES	1
10	ZZUN9910	SURFACING WARNING LABEL KIT	1
11	ZZUN9930	PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL	1
12	ZZUN9990	TOOL AND ADDITIONAL PARTS KIT W/AEROSOL	1

Rhythm Wall

Design Number: 350-1431A - Compliance and Technical Data
Reference Document: ASTM F1487

Ref. No.	Part No.	Qty.	Description	Unit ASTM Status	Total Weight (lbs)	Pre-Consumer Recycled Content (lbs)	Post-Consumer Recycled Content (lbs)	CO2e Footprint (kgs)	Users	Install Hours	Concrete (Yds3)	Active Play Events
1	ZZCH0139	3	3.5in OD x 112in STEEL POST W/O CAP	Certified	104.43			133	0	1.50	0.38	0
2	ZZCH0356	2	3.50in x 88in STEEL POST w/CAP	Certified	59.42			79	0	2.00	0.26	0
3	ZZCH4587	1	DRUM PANEL (GROUND LEVEL)	Certified	44.64			407	2	1.00	0.00	1
4	ZZCH4589	1	BELL PANEL (GROUND LEVEL)	Certified	46.91			381	2	1.00	0.00	1
5	ZZCH4607	1	CHIME PANEL (GROUND LEVEL)	Certified	54.97			444	2	1.50	0.00	1
6	ZZCH4611	1	HORN PANEL GROUND LEVEL	Certified	43.14			482	2	1.00	0.00	1
7	ZZCH9816	1	CAMBER 1/2 SQUARE ROOF	Certified	33.47			297	0	1.00	0.00	0
8	ZZCH9817	1	CAMBER 1/2 SQUARE ROOF ADD ON	Certified	31.61			272	0	1.00	0.00	0
9	ZZCHGUID	1	CHALLENGER GUIDELINES	N/A	0.00			1	0	0.25	0.00	0
10	ZZUN9910	1	SURFACING WARNING LABEL KIT	Certified	0.05			1	0	0.25	0.00	0
11	ZZUN9930	1	PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL	N/A	13.07			90	0	0.00	0.00	0
12	ZZUN9990	1	TOOL AND ADDITIONAL PARTS KIT W/AEROSOL	N/A	3.46			75	0	0.00	0.00	0
				Totals:	**435.17**	**98**	**105**	**2,661**	**8**	**10.50**	**0.63**	**4**
					195.83 Kg	**44 Kg**	**47 Kg**	**3 Metric Tons**			**0.48 m3**	

Rhythm Wall

Design Number: 350-1431A - Compliance and Technical Data
Reference Document: ASTM F1487

Ref. No.	Part No.	Qty.	Description	Unit ASTM Status	Total Weight (lbs)	Pre-Consumer Recycled Content (lbs)	Post-Consumer Recycled Content (lbs)	CO2e Footprint (kgs)	Users	Install Hours	Concrete (Yds3)	Active Play Events

ASTM F1487

The lay-out for this custom playscape, design number 350-1431A, has been configured to meet the requirements of the ASTM F1487 standard. In addition, each of the above components listed as "Certified" have been tested and are IPEMA certified. Components listed as "Not Applicable" do not fall within the scope of the ASTM F1487 standard and have not been tested. IPEMA certification can be verified on the IPEMA website, www.ipema.org. In the interest of playground safety, IPEMA provides a Third Party Certification Service which validates compliance.

2010 ADA Standards for Accessible Design

The lay-out was also designed to meet the 2010 Standards published 15-Sep-2010, by the Department of Justice when installed over a properly maintained surfacing material that is in compliance with ASTM F1951 "Accessibility of Surface Systems Under and Around Playground Equipment" as well as ASTM F1292, "Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment", appropriate for the fall height of the structure.

Installation Times

Installation times are based on one experienced installer. A crew of three experienced individuals can perform the installation within the given time, each member working 1/3 of the given hours. [Eg. Installation Time = 30 hours. For a crew of three, each member will work 10 hours on the installation for a total of 30 hours on the project.]

Carbon Footprint

The CO2e (carbon footprint given in Kilograms and Metric Tons) listed above is a measure of the environmental impact this play structure represents from harvesting raw materials to the time it leaves our shipping dock. Playworld Systems nurtures a total corporate culture that is focused on eliminating carbon producing processes and products, reducing our use of precious raw materials, reusing materials whenever possible and recycling materials at every opportunity. Playworld Systems elected to adopt the Publicly Available Specification; PAS 2050 as published by the British Standards Institute and sponsored by Defra and the Carbon Trust. The PAS 2050 has gained international acceptance as a specification that measures the greenhouse gas emissions in services and goods throughout their entire life cycle.

Pre-Consumer Recycle Content

A measurement, in pounds, that qualifies the amount of material that was captured as waste and diverted from landfill during an initial manufacturing process and is being redirected to a separate manufacturing process to become a different product. E.g. 100% of our Aluminum Tubing is made from captured waste material during the manufacturing process of extruded Aluminum products such as rods, flat bars and H-channels.

Post-Consumer Recycle Content

A measurement, in pounds, that qualifies the amount of material that was once another product that has completed its lifecycle and has been diverted from a landfill as a solid waste through recycling and is now being used in a Playworld Systems' product. E.g. **20% to 40% of the steel in our steel tubing and sheet steel have been diverted from landfills. Automobiles are scrapped and recyclable steel is purchased by the steel mill that produces our raw product.

** The amount of Post-Consumer recycled steel fluctuates daily based on the availability of the recycled steel.

Installation Instructions

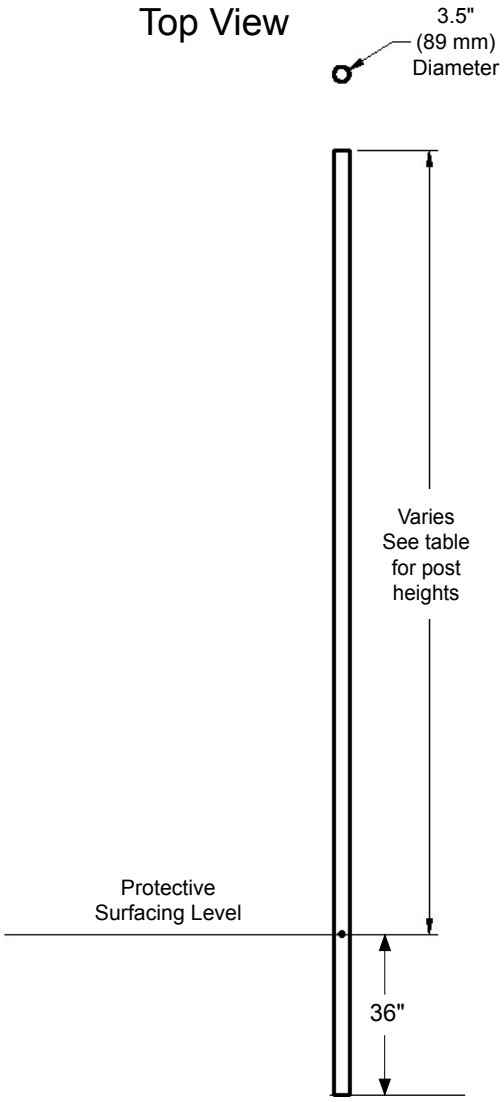
Challengers® Models CH0019, CH0029, CH0039, CH0049, CH0059, CH0069, CH0077, CH0137, CH0139, CH0257, CH0259
Steel Support Post w/o Cap
100 in. (2540 mm) to 224 in. (5690 mm)

Assembly View *(representative model)*

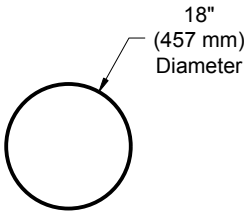
Installation Preparation

Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1 man-hour
Concrete Required: ..... 0.13 cubic yard (0,10 cubic meters)

Installation Instructions



Elevation View



Footing Diagram

Model	Post Height	Post Height above Surfacing
ZZCH0137	100" (2540 mm)	64" (1626 mm)
ZZCH0139	112" (2845 mm)	76" (1930 mm)
ZZCH0019	124" (3150 mm)	88" (2235 mm)
ZZCH0029	136" (3454 mm)	100" (2540 mm)
ZZCH0039	148" (3759 mm)	112" (2845 mm)
ZZCH0049	160" (4064 mm)	124" (3150 mm)
ZZCH0059	172" (4369 mm)	136" (3454 mm)
ZZCH0069	184" (4674 mm)	148" (3759 mm)
ZZCH0077	200" (5080 mm)	164" (4166 mm)
ZZCH0257	212" (5385 mm)	176" (4470 mm)
ZZCH0259	224" (5690 mm)	188" (4775 mm)

Installation Instructions

__**Notes Before You Begin:** Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.

__**Step 1:** Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

__**Step 2:** Separate and identify all components and hardware.

__**Step 3:** Excavate footings as shown in the **Footing Details**.

__**Step 4:** Set the support post into excavated footings in accordance with placement called out on the footing diagram. The post should be placed on a perforated shipping tube cap or on another porous flat surface to prevent any buildup of moisture in the base of the post. Block the support post at the specified depth.
Note: Heights of the decks and play components are measured from the top of protective surfacing.

Final Details.

__**Step 5:** Plumb and level the support post. Block and brace for concrete. Pour concrete after all equipment has been assembled. Allow 72 hours for concrete to completely cure.

CH0137 - STEEL SUPPORT POST w/o CAP 100 in. (2540 mm)

PART NO.	DESCRIPTION	QTY.
BAF5036	POST - 3-1/2" O.D. x 100" STEEL w/o Cap & w/ LBL AT 36"	1

CH0139 - STEEL SUPPORT POST w/o CAP 112 in. (2845 mm)

PART NO.	DESCRIPTION	QTY.
BAF5038	POST - 3-1/2" O.D. x 112" STEEL w/o Cap & w/ LBL AT 36"	1

CH0019 - STEEL SUPPORT POST w/o CAP 124 in. (3150 mm)

PART NO.	DESCRIPTION	QTY.
BAF5040	POST - 3-1/2" O.D. x 124" STEEL w/o Cap & w/ LBL AT 36"	1

CH0029 - STEEL SUPPORT POST w/o CAP 136 in. (3454 mm)

PART NO.	DESCRIPTION	QTY.
BAF5042	POST - 3-1/2" O.D. x 136" STEEL w/o Cap & w/ LBL AT 36"	1

CH0039 - STEEL SUPPORT POST w/o CAP 148 in. (3759 mm)

PART NO.	DESCRIPTION	QTY.
BAF5044	POST - 3-1/2" O.D. x 148" STEEL w/o Cap & w/ LBL AT 36"	1

CH0049 - STEEL SUPPORT POST w/o CAP 160 in. (4064 mm)

PART NO.	DESCRIPTION	QTY.
BAF5046	POST - 3-1/2" O.D. x 160" STEEL w/o Cap & w/ LBL AT 36"	1

CH0059 - STEEL SUPPORT POST w/o CAP 172 in. (4369 mm)

PART NO.	DESCRIPTION	QTY.
BAF5048	POST - 3-1/2" O.D. x 172" STEEL w/o Cap & w/ LBL AT 36"	1

CH0069 - STEEL SUPPORT POST w/o CAP 184 in. (4674 mm)

PART NO.	DESCRIPTION	QTY.
BAF5050	POST - 3-1/2" O.D. x 184" STEEL w/o Cap & w/ LBL AT 36"	1

CH0077 - STEEL SUPPORT POST w/o CAP 200 in. (5080 mm)

PART NO.	DESCRIPTION	QTY.
BAF5052	POST - 3-1/2" O.D. x 200" STEEL w/o Cap & w/ LBL AT 36"	1

CH0257 - STEEL SUPPORT POST w/o CAP 212 in. (5385 mm)

PART NO.	DESCRIPTION	QTY.
BAF0420	POST - 3-1/2" O.D. x 212" STEEL w/o Cap & w/ LBL AT 36"	1

CH0259 - STEEL SUPPORT POST w/o CAP 224 in. (5690 mm)

PART NO.	DESCRIPTION	QTY.
BAF0422	POST - 3-1/2" O.D. x 224" STEEL w/o Cap & w/ LBL AT 36"	1

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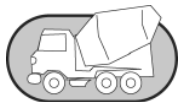
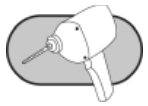
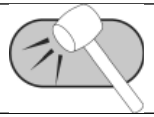
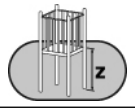
Installation Instructions

Challengers® Model CH0356
Steel Post w/ Cap
3.5 in. x 88 in.

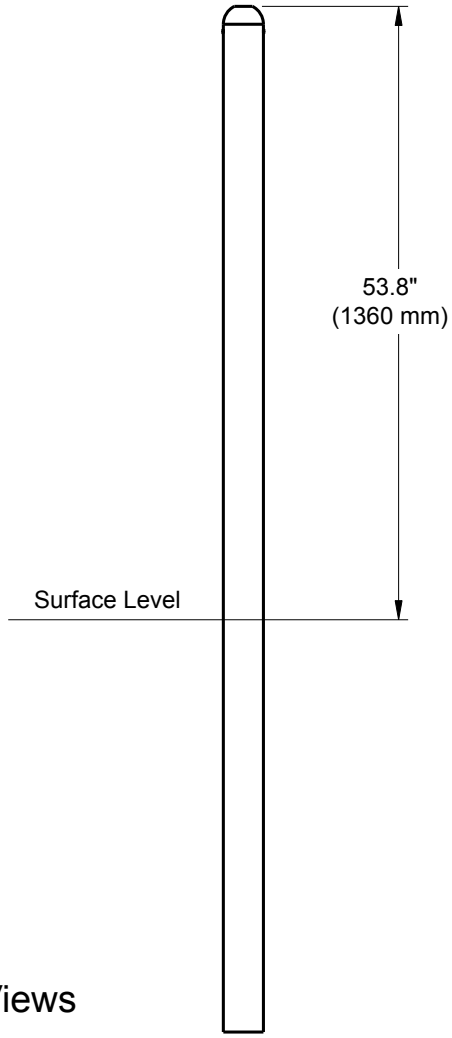
Assembly View

Installation Preparation

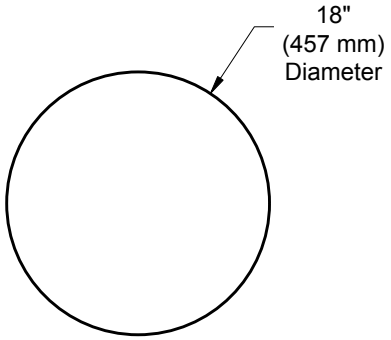
Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1 installation-hour
Weight: ..... 29.7 lbs. (13,5 kg)
Concrete Required: ..... 0.13 cubic yard (0,10 cubic meters)
Use Zone:..... Refer to Master Drawing

ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

Top View



Elevation Views



Footing Diagram

Installation Instructions

__**Notes Before You Begin:** Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.

__**Step 1:** Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

__**Step 2:** Separate and identify all components and hardware.

__**Step 3:** Excavate footings as shown in the **Support Post Footing Details** in the *Challenger Guidelines*.

__**Step 4:** Set the support post into excavated footings in accordance with placement called out on the footing diagram. The post should be placed on a perforated shipping tube cap or on another porous flat surface to prevent any buildup of moisture in the base of the post. Block the support post at the specified depth.
Note: Heights of the decks and play components are measured from the top of protective surfacing.

Final Details.

__**Step 5:** Plumb and level the support post. Block and brace for concrete. Pour concrete after all equipment has been assembled. Allow 72 hours for concrete to completely cure.

CH0356 - STEEL POST W/ CAP (3.5 O.D. in x 88 in)

PART NO.	DESCRIPTION	QTY.
CAP5067	POST - 3.50" OD x 88.00" STEEL w/CAP	1

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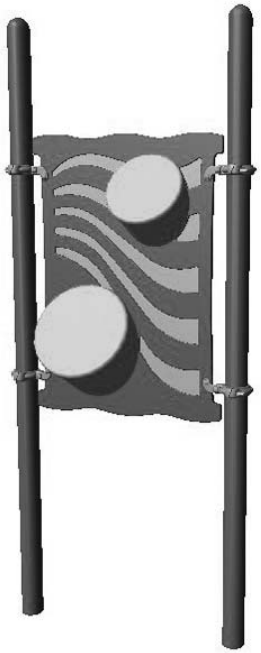
Installation Instructions

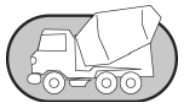
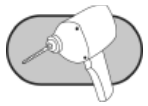
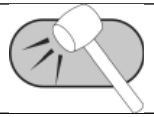
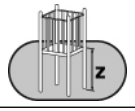
Challengers® Model CH4587
Drum Panel
(Ground Level)



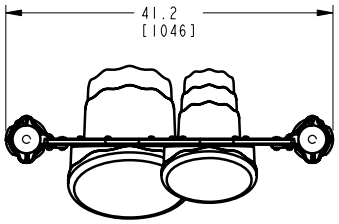
Assembly View

Installation Preparation

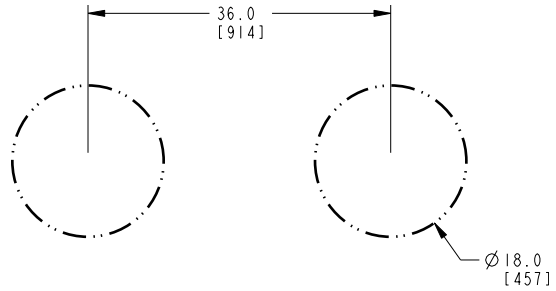
Recommended Crew: ..... One (1) adult
Installation Time: ..... 1 hour
Use Zone:..... Refer to Master Drawing
User Group Age (years): ..... ASTM/CSA: 2-12, EN: 2-14

ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully TIghten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

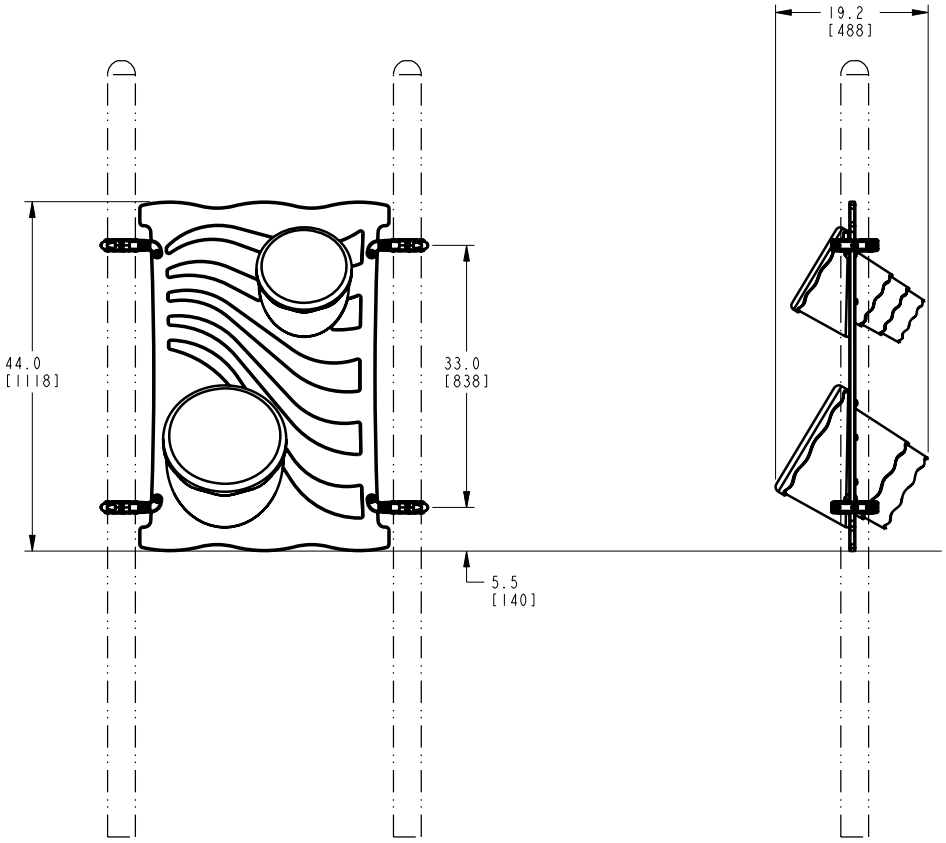
Top View



KEY	
Position	**Unit of Measurement**
Top #	Inches
Bottom #	[Millimeters]



Footing Diagram



Elevation Views

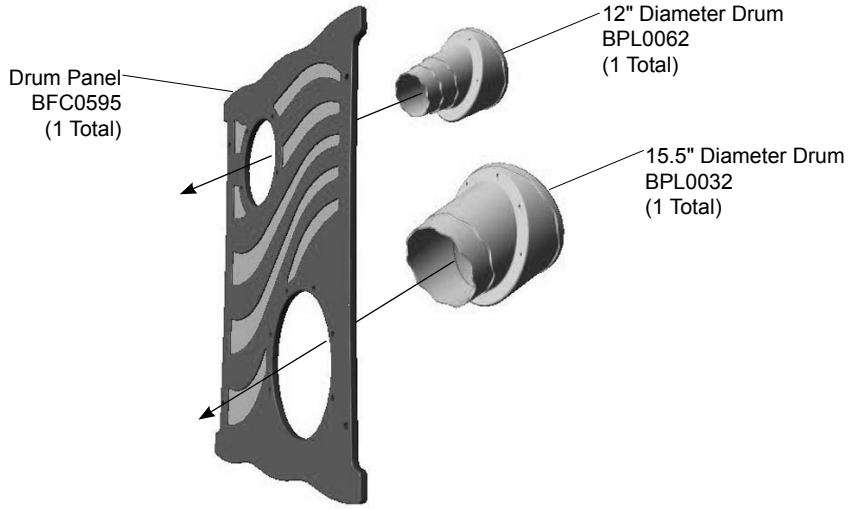
Important Notes:

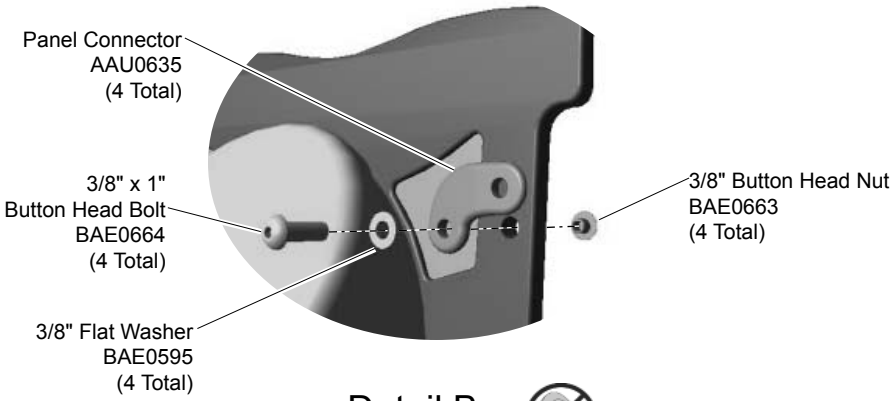
• When panel is positioned under a deck, the TOP edge of the panel must be less than 3.5" (90 mm) from the bottom edge of the deck or more than 9" (230 mm) to prevent any entrapment issues.

• If the panel is mounted above a deck, the LOWER edge of the panel must be less than 3.5" (90 mm) from the surface of the deck or more than 9 (230 mm) to prevent any entrapment issues.

Installation Instructions

Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 5.

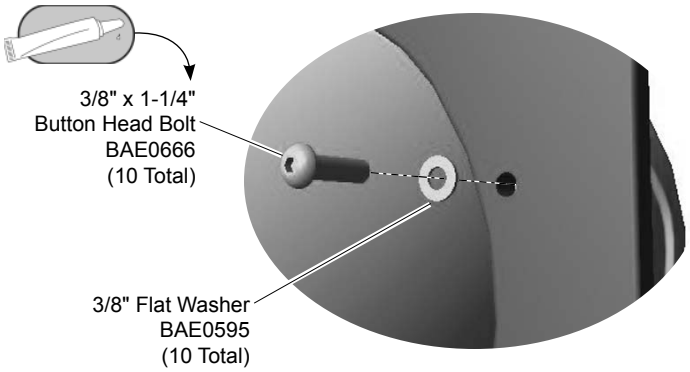




Detail B

Step 4

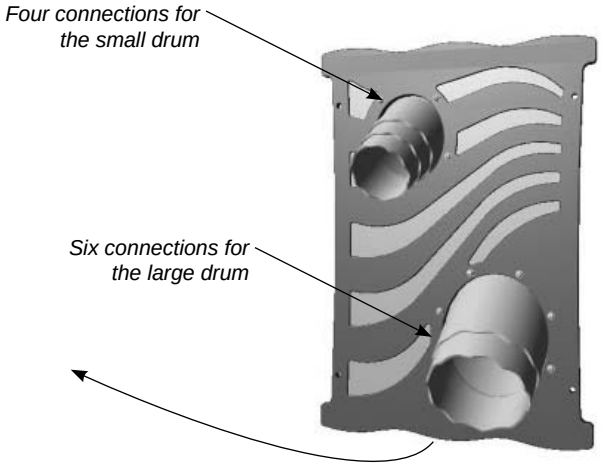
Attach the panel connectors to the drum panel.

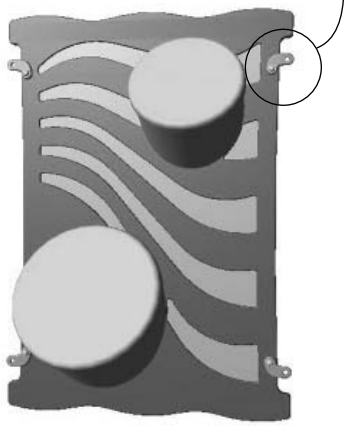


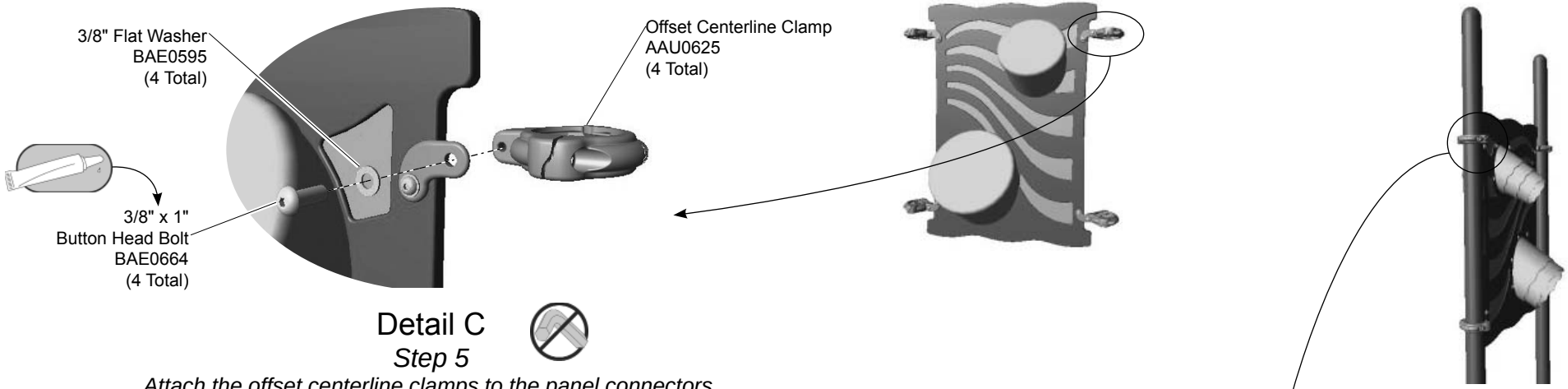
Detail A

Step 3

Attach the drums to the drum panel.



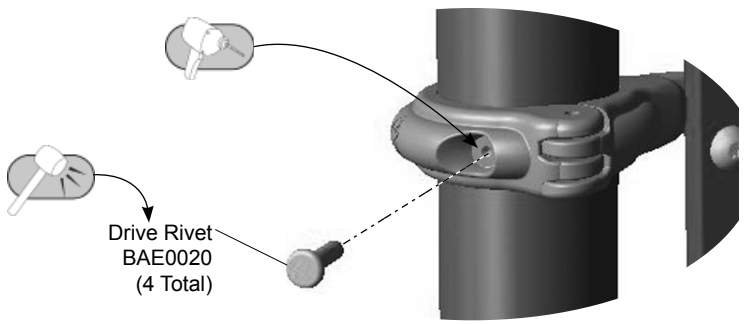




Detail C

Step 5

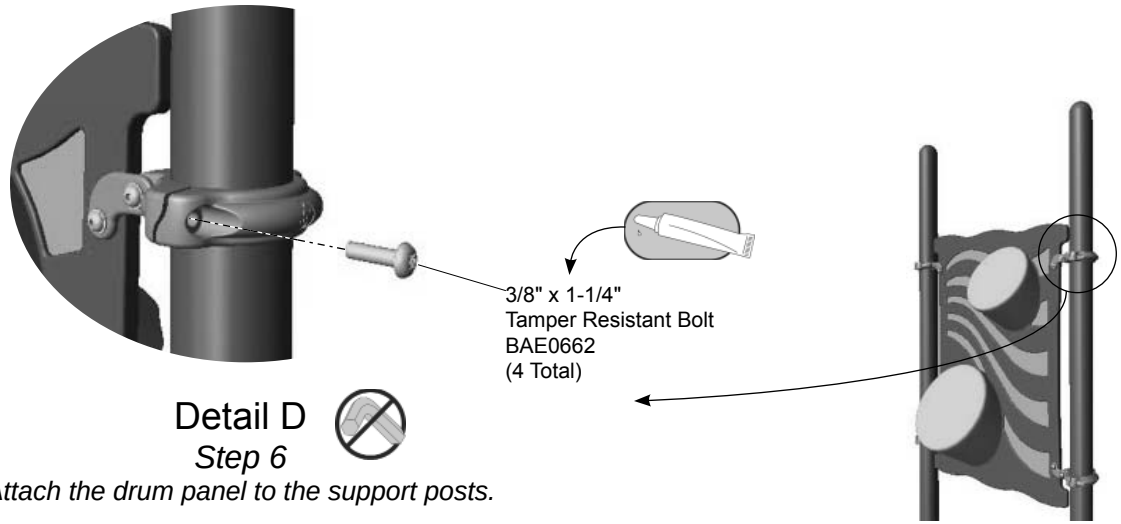
Attach the offset centerline clamps to the panel connectors.



Detail E

Step 8

Secure the clamps to the support posts.



Detail D

Step 6

Attach the drum panel to the support posts.

Installation Instructions

Notes Before You Begin: Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.

Step 1: Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

Step 2: Separate and identify all components and hardware.

Step 3: Attach the drums to the drum panel. See **Detail A**. Position the drums through the appropriate sized hole in the panel, apply a drop of thread locking adhesive to the bolt threads, and attach as shown. Fully tighten all fasteners according to tightening torque specifications (See **Final Details**).

Step 4: Attach the panel connectors to the drum panel. See **Detail B**. Position the panel connectors over the side holes on the front side of the panel and attach as shown.

Step 5: Attach the offset centerline clamps to the panel connectors. See **Detail C**. Position the flat side of the clamp against the panel connector, apply a drop of thread locking adhesive to the bolt threads, and attach as shown.

Step 6: Attach the drum panel to the support posts. See Detail D. Position the panel between the support posts, close the clamps around the post, apply a drop of thread locking adhesive to the bolt threads, and attach as shown. Reference the ***Important Notes*** on the **Elevation View**.

Final Details.

Step 7: Plumb and level the component. Tighten **all** fasteners. Fully tighten all fasteners according to tightening torque specifications.

Torque Specifications:

Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Set Screws - Snug tighten and tighten an additional full turn.

Step 8: Install drive rivets. See **Detail E**. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, drive the pin of the rivet until it is flush with the surface of the rivet head.

Note: This step should be executed after structure has been assembled and properly footed.

CH4587 - DRUM PANEL (GROUND LEVEL)

PART NO.	DESCRIPTION	QTY.
AAU0625	CLAMP - 3-1/2" OFFSET CENTERLINE DIE CAST	4
AAU0635	CONNECT - 3/4" PANEL	4
BAD0085	THREAD LOCKING ADHESIVE	1
BAE0020	RIVET - 1/4" x 11/16" DRIVE	4
BAE0595	WASHER - 3/8" SAE FLAT	18
BAE0662	BOLT - 3/8"-16 x 1-1/4" TMPR. RESISTANT w/TORX DRV.	4
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	4
BAE0664	BOLT - 3/8"-16 x 1" BUTTON HEAD - SS	8
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	10
BFC0595	SHEET - .75" x 31.50" x 44.00" DRUM PANEL (GRND LVL)	1
BPL0032	MISC - 15.50" x 14.71" DRUM	1
BPL0062	MISC - 12.00" x 14.18" DRUM	1

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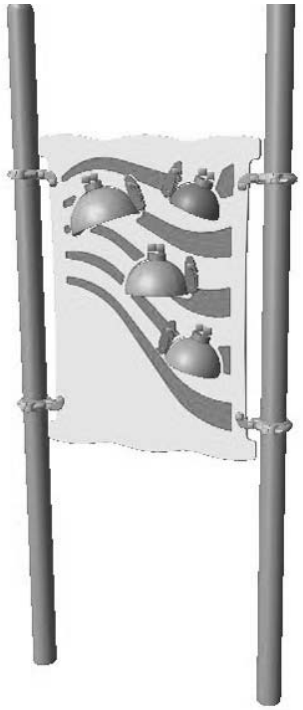
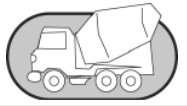
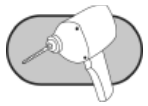
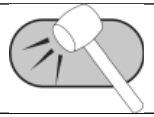
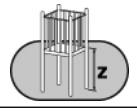
Installation Instructions
Challengers® Model CH4589
Bell Panel (Ground Level)



Assembly View

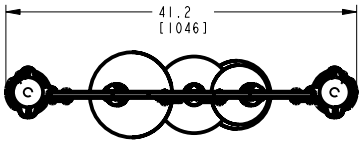
Installation Preparation

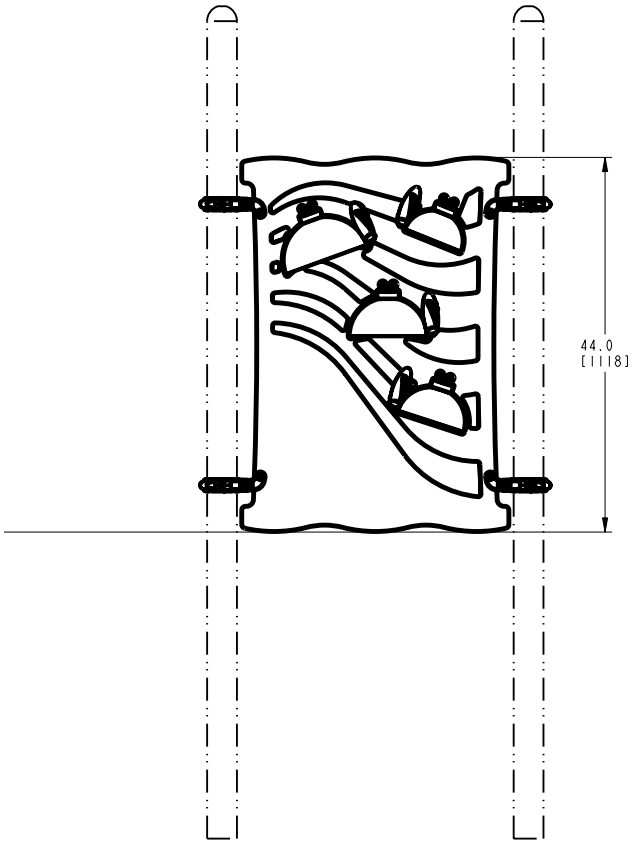
Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1 man-hour
Use Zone:..... Refer to Master Drawing
User Group Age (years): ..... ASTM/CSA: 2-12, EN: 2-14

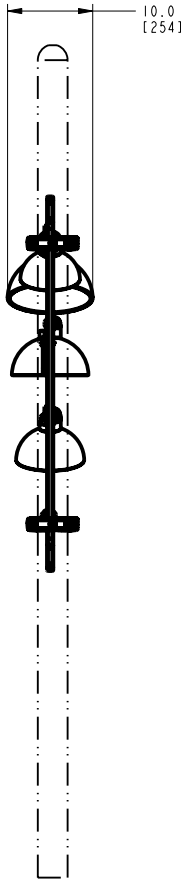
ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

KEY	
Position	**Unit of Measurement**
Top #	Inches
Bottom #	[Millimeters]

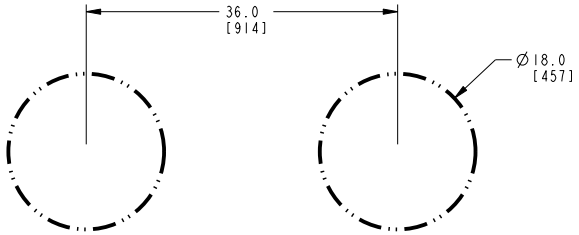
Top View







Elevation Views

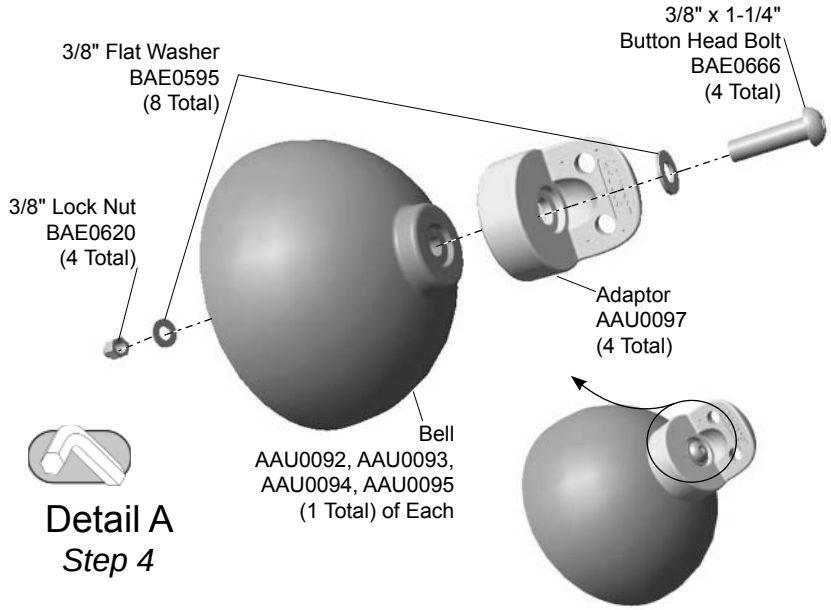


Footing Diagram

If the panel is placed under a deck there must be less than 3.5 in (89 mm) between the deck and the lower edge on the top of the panel, ***or*** more than 9 in. (229 mm) between the deck and the higher edge on the top of the panel.

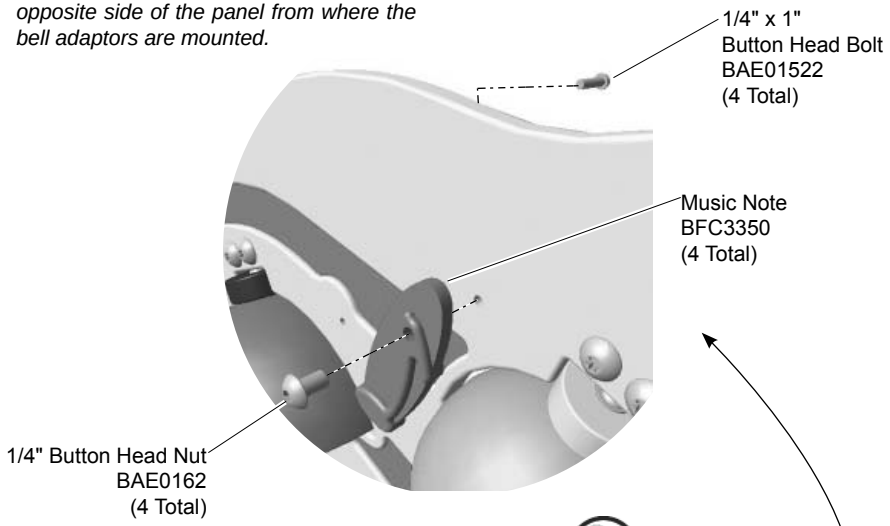
Installation Instructions

Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 6.

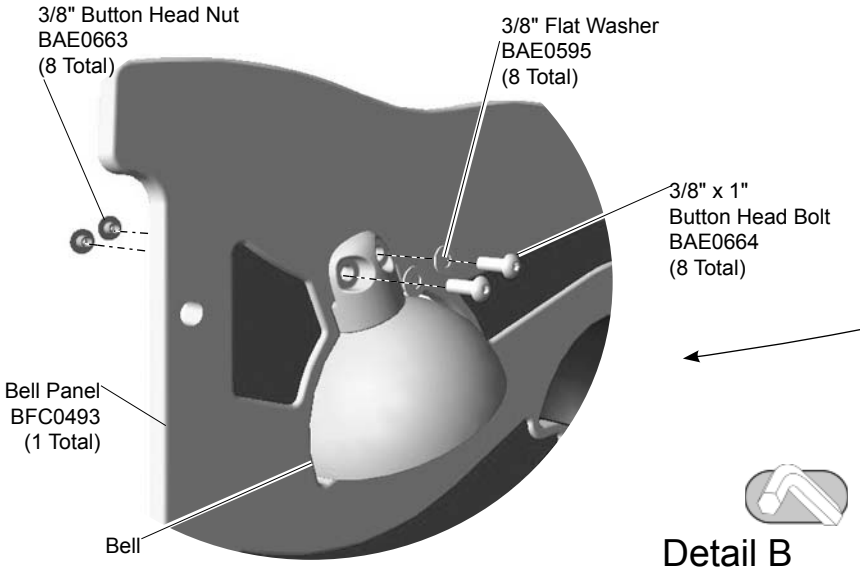


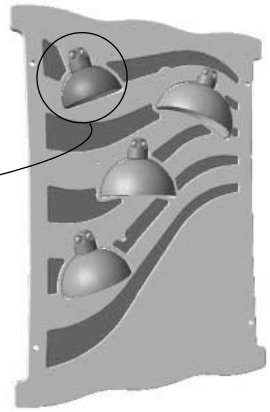
Detail A
Step 4

Note: *Attach the music notes on the opposite side of the panel from where the bell adaptors are mounted.*

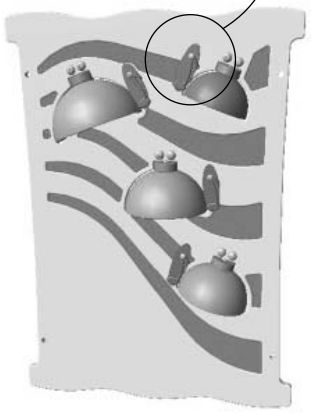


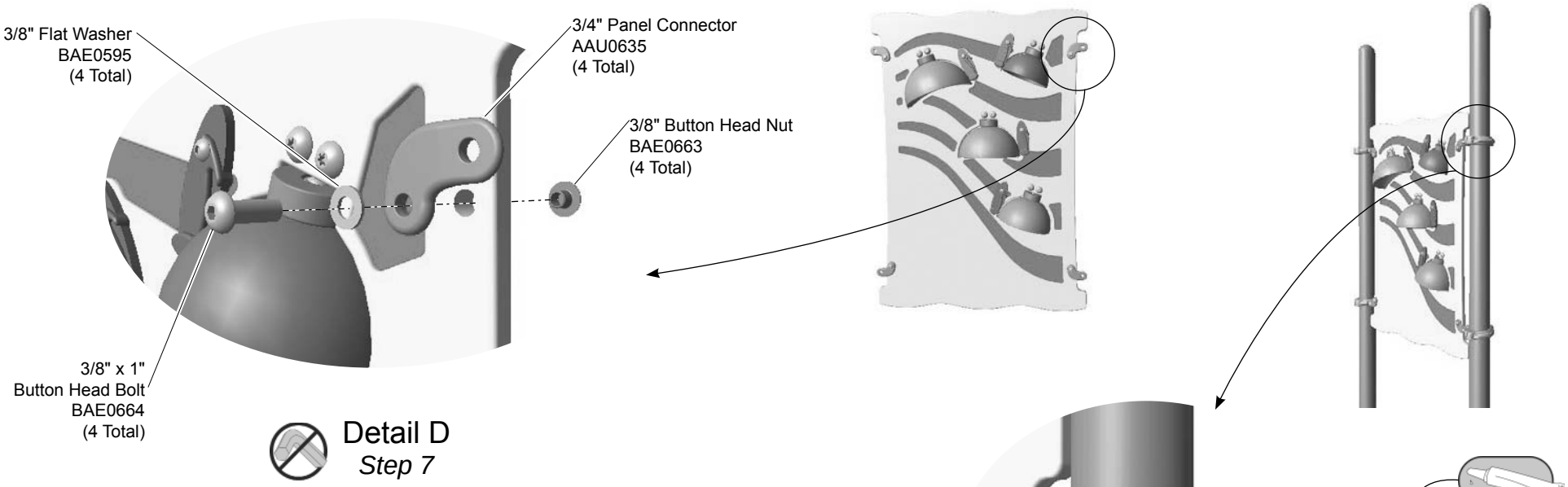
Detail C
Step 6



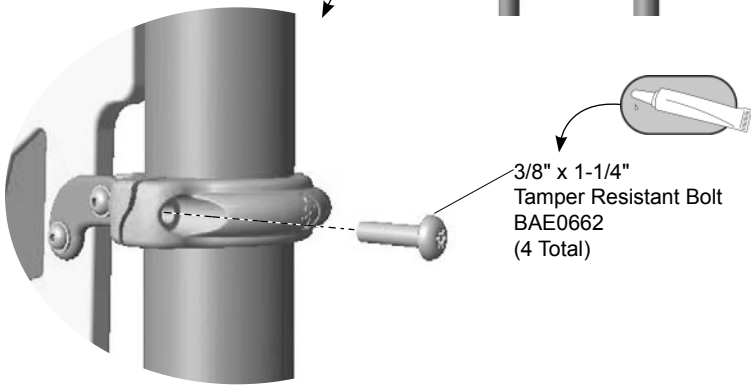


Detail B
Step 5

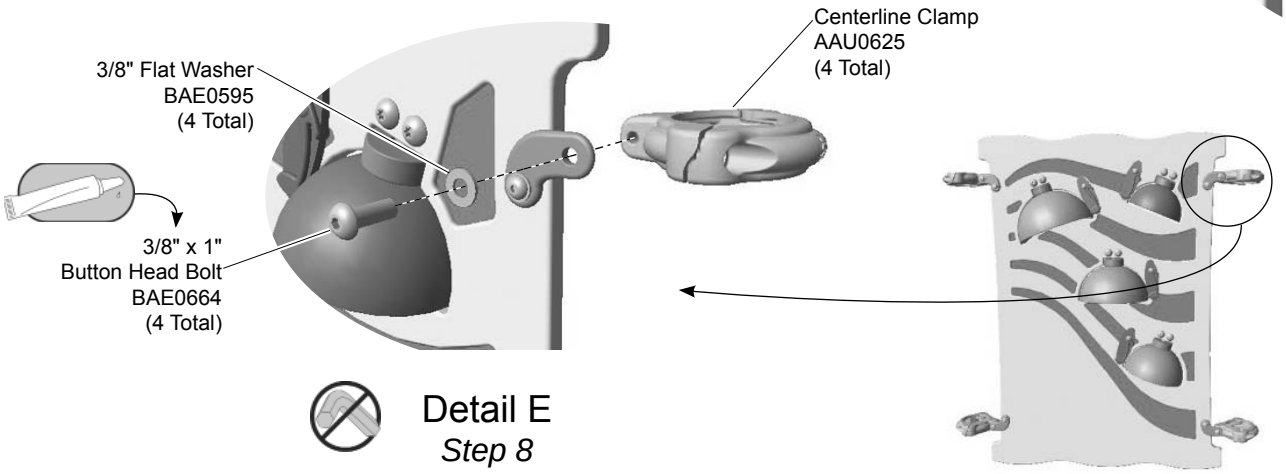




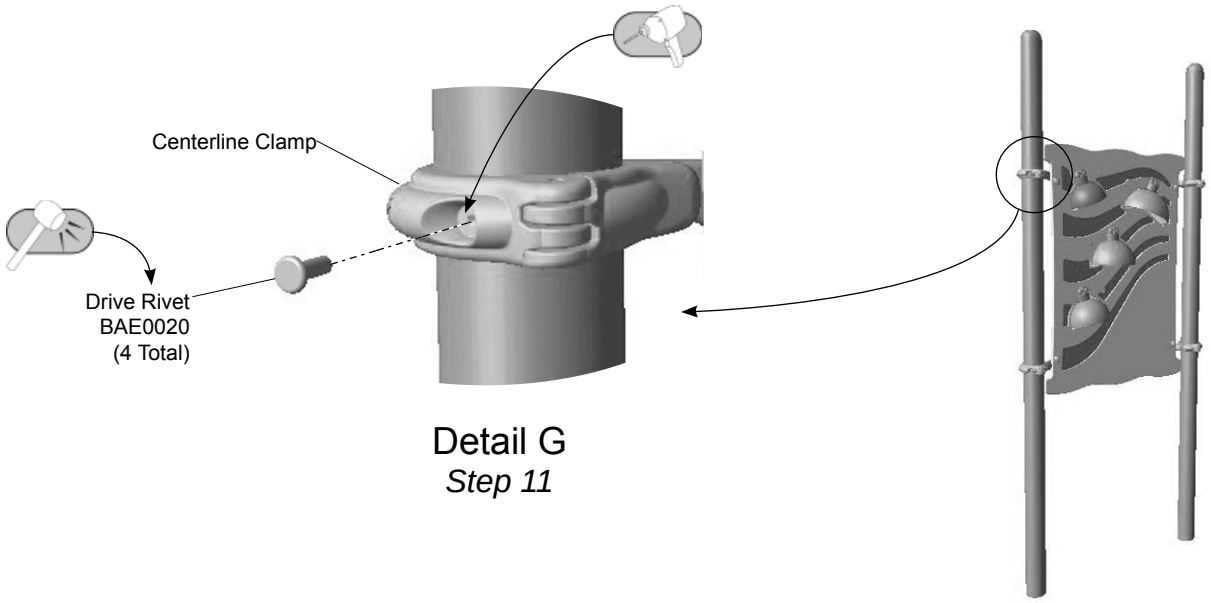
Detail D
Step 7



Detail F
Step 9



Detail E
Step 8



Detail G
Step 11

Notes Before You Begin: Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.
Step 1: Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

Step 2: Separate and identify all components and hardware.

Step 3: Determine location of the panel by referring to the master plan view / structure layout drawing.

Attach the adaptors to the bells
Step 4: See **Detail A**. Attach as shown for all (4) four bells. Fully tighten the connections according to tightening torque specifications.
Torque Specifications:
Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Attach the bells to the panel.
Step 5: See **Detail B**. Ensure the adaptor is flush against the panel and aligned. Attach as shown. Repeat procedure for the remaining bells. Match the bells with the appropriate sized cutout. Fully tighten the connections.
Note: The bells should all be attached to the same side of the panel.

Attach the music notes (bell strikers) to the bell panel.
Step 6: See **Detail C**. Position the music notes on the opposite side of the panel from where the bell adaptors are mounted and attach as shown.

Attach panel connectors to the panel.
Step 7: See **Detail D**. Position each panel connector so that the short leg aligns with the hole in the panel. The short leg of both connectors should point in the same direction. The connectors must all attach to the side of the panel that faces away from the deck. Attach as shown. Leave the connections loose for alignment adjustment.

Attach the clamps to the connectors.
Step 8: See **Detail E**. Place the flat side of each clamp against the panel side of the connector. Apply a of thread locking adhesive to the bolt threads and attach as shown. Leave the connections loose for alignment adjustment.

Attach the panel to the support posts.
Step 9: See **Detail F**. Apply a of thread locking adhesive to the bolt threads and attach as shown. Leave the connections loose for alignment adjustments.
Note: In the event of a clamp conflict with an adjacent component, the panel connector can be flipped upside down and reconnected to the panel. Remove the connector from both the panel and clamp before flipping and then reattach as in *Steps 7* and *8*. If possible, both clamps should be mounted at the same height.

Final Details.
Step 10: Plumb and level the component. Tighten **all** fasteners. Fully tighten all fasteners according to tightening torque specifications.
Torque Specifications:
Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Step 11: Install drive rivets. See **Detail G**. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, drive the pin of the rivet until it is flush with the surface of the rivet head.
Note: This step should be executed after structure has been assembled and properly footed.

CH4589 - BELL PANEL (GROUND LEVEL)

PART NO.	DESCRIPTION	QTY.
AAU0092	MISC - 10.00" DIA. x 5.38" BELL	1
AAU0093	MISC - 9.00" DIA. x 4.88" BELL	1
AAU0094	MISC - 8.00" DIA. x 4.38" BELL	1
AAU0095	MISC - 7.00" DIA. x 3.88" BELL	1
AAU0097	MISC - 2.50" DIA. x 2.52" ADAPTER	4
AAU0625	CLAMP - 3-1/2" OFFSET CENTERLINE DIE CAST	4
AAU0635	CONNECT - 3/4" PANEL	4
BAD0085	THREAD LOCKING ADHESIVE	1
BAE0020	RIVET - 1/4" x 11/16" DRIVE	4
BAE01522	BOLT - 1/4"-20 x 1" BUTTON HEAD - SS	4
BAE0162	NUT - 1/4"-20 x 9/16" BUTTON HEAD	4
BAE0595	WASHER - 3/8" SAE FLAT	24
BAE0620	NUT - 3/8"-16 LOCK w/ NYLON CAP	4
BAE0662	BOLT - 3/8"-16 x 1-1/4" TAMPER RESISTANT	4
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	12
BAE0664	BOLT - 3/8"-16 x 1" BUTTON HEAD - SS	16
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	4
BFC0493	SHEET - .75" x 31.50" x 44.00" BELL PNL (GRND. LEVEL)	1
BFC3350	SHEET- MUSIC NOTE	4

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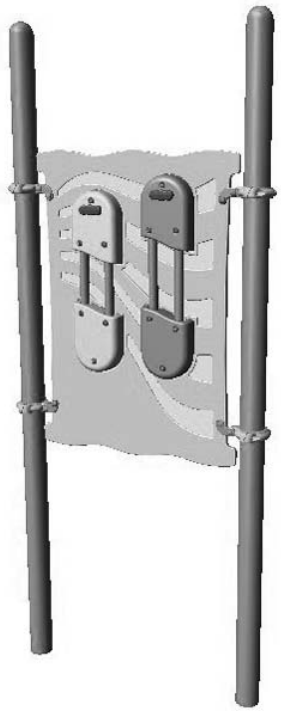
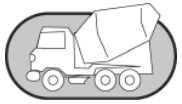
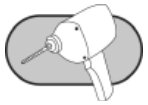
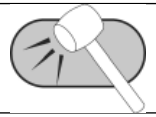
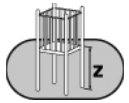
Installation Instructions
Challengers® Model CH4607
Chime Panel (Ground Level)



Assembly View

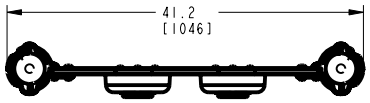
Installation Preparation

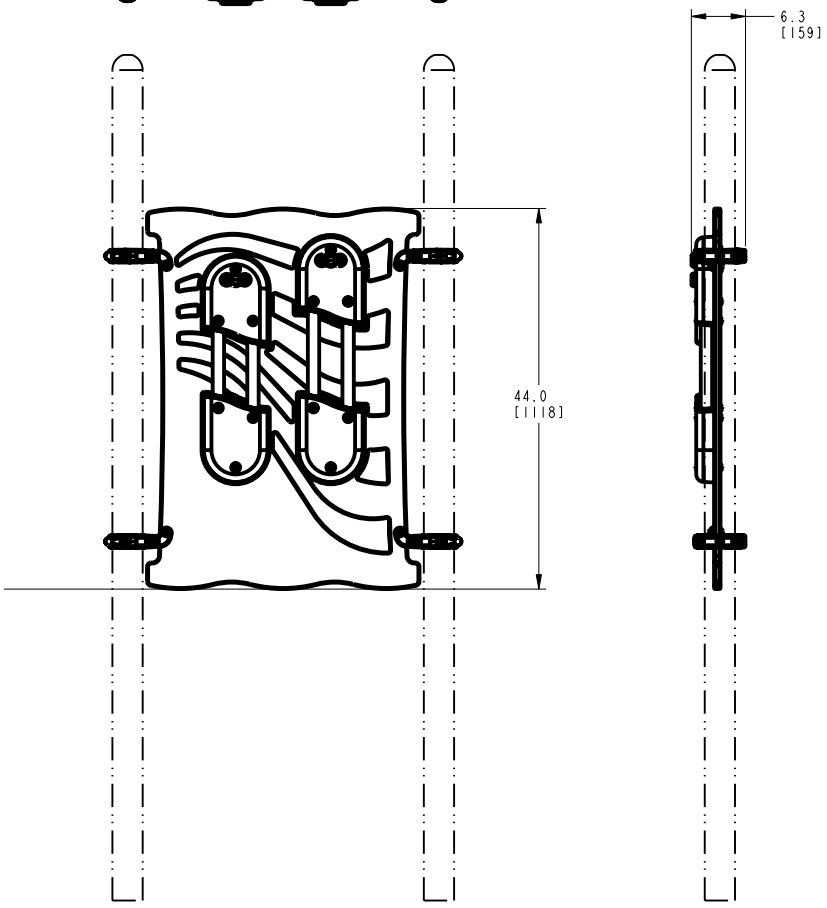
Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1.5 man-hours
Use Zone:..... Refer to Master Drawing
User Group Age (years): ..... ASTM/CSA: 2-12, EN: 2-14

ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully TIghten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

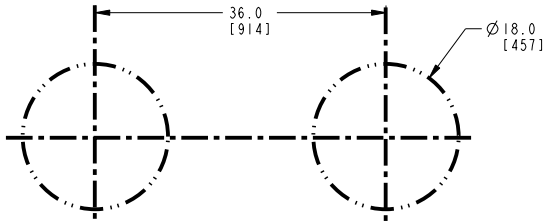
KEY	
Position	**Unit of Measurement**
Top #	Inches
Bottom #	[Millimeters]

Top View





Elevation Views



Footing Diagram

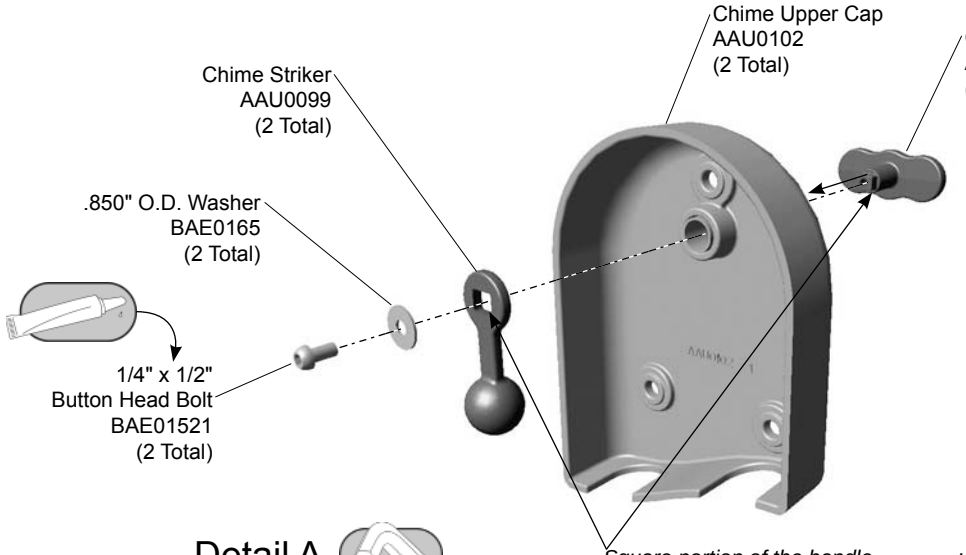
Important Notes:

• When panel is positioned under a deck, the TOP edge of the panel must be less than 3.5 in. (90 mm) from the bottom edge of the deck or more than 9 in. (230 mm) to prevent entrapment.

• If the panel is mounted above a deck, the LOWER edge of the panel must be less than 3.5 in. (90 mm) from the surface of the deck or more than 9 in. (230 mm) to prevent entrapment.

Installation Instructions

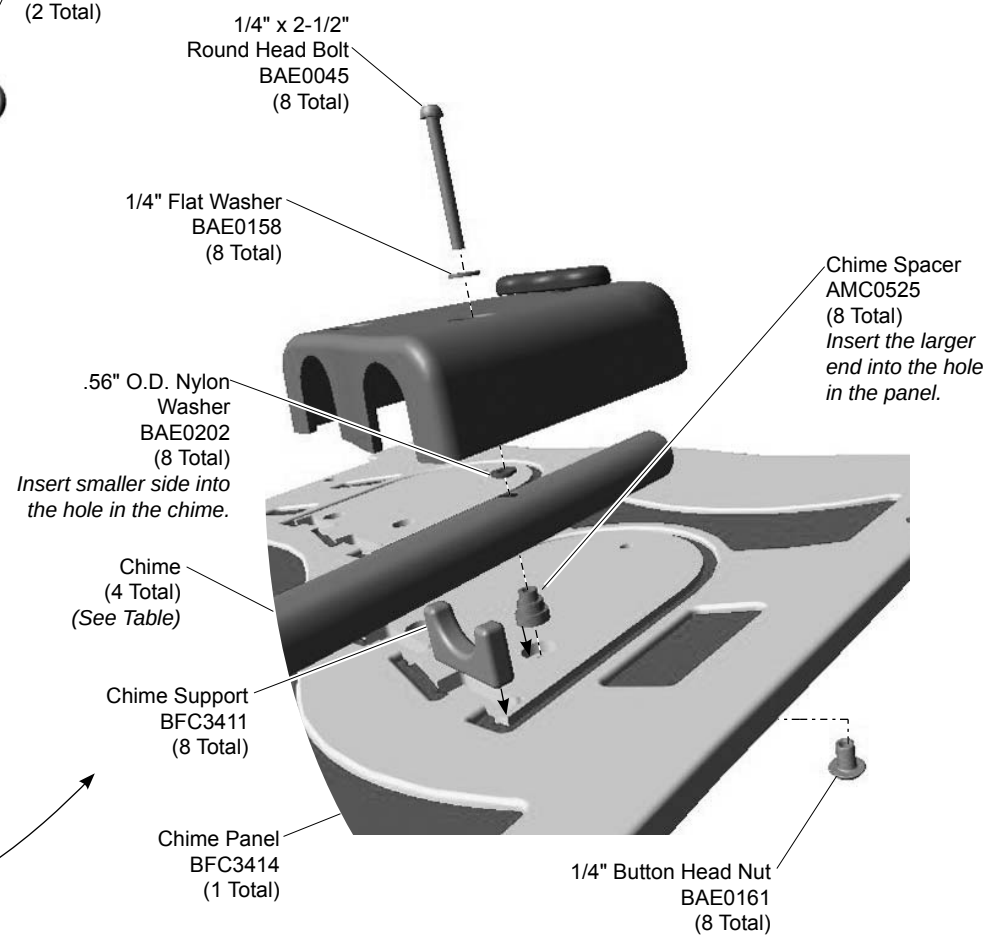
Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 6.



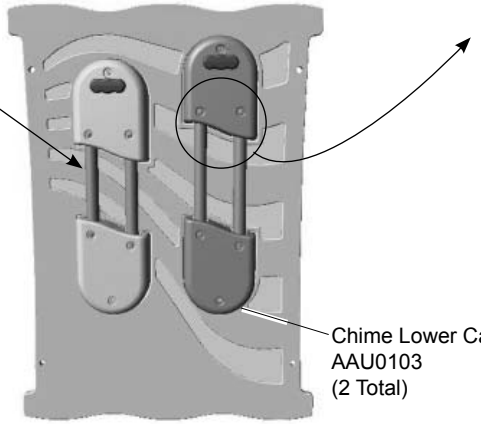
Detail A

Step 3

Attach a chime striker to the chime upper caps.



Chimes attach to the panel from the shortest to the longest going from left to right. Attach to the side of the panel that's routed out for the chime caps.

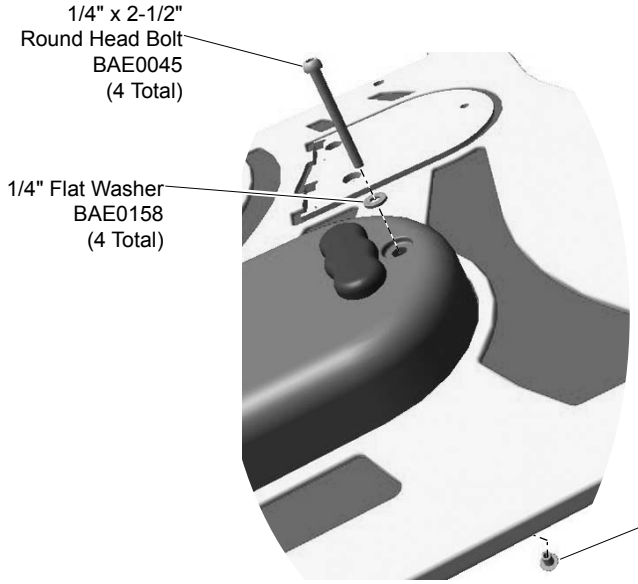


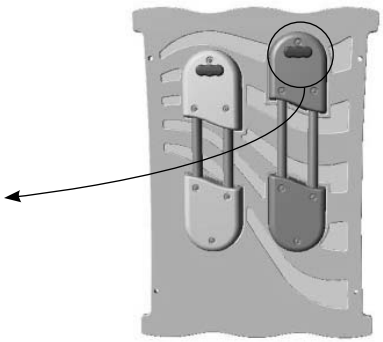
Chime Part Number	Chime Length
AFM2176	18" (457 mm)
AFM2177	20" (508 mm)
AFM2178	22" (559 mm)
AFM2179	24" (610 mm)

Detail B

Step 4

Attach the chimes and the chime caps (upper and lower) to the chime panel.

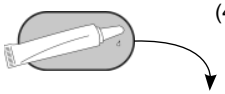


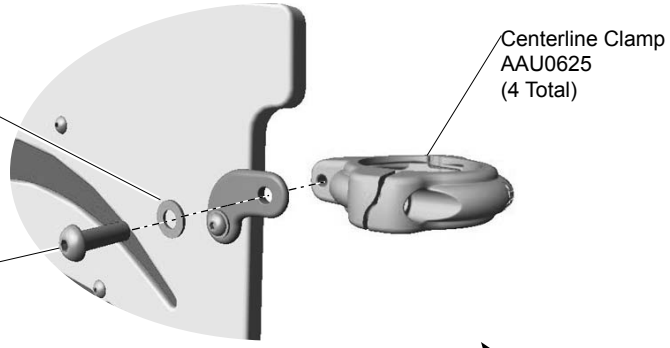


Detail C

Step 5

Secure the chime caps (upper and lower) to the chime panel.

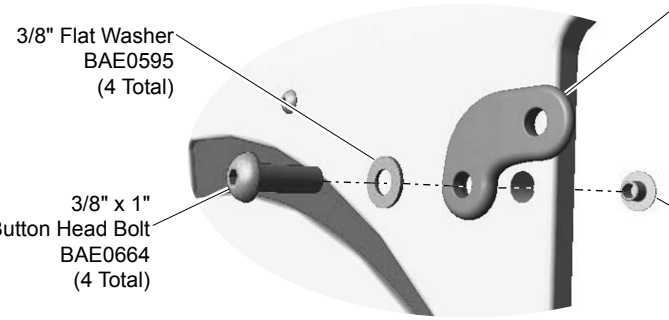




Detail E

Step 7

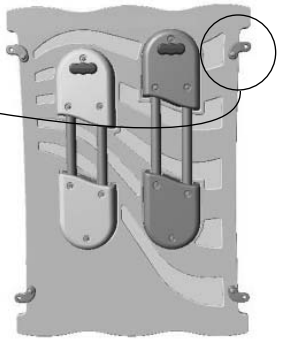
Attach the clamps to the panel connectors.

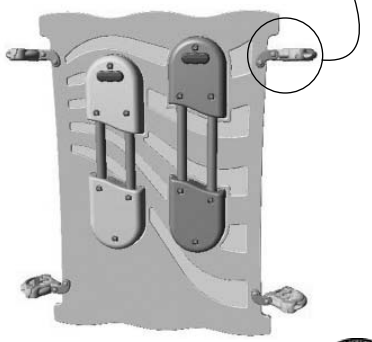


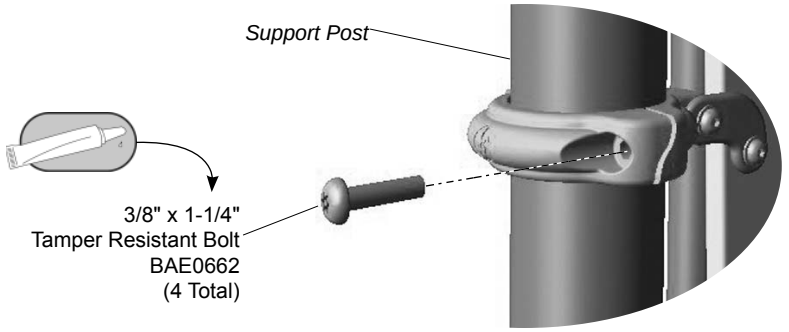
Detail D

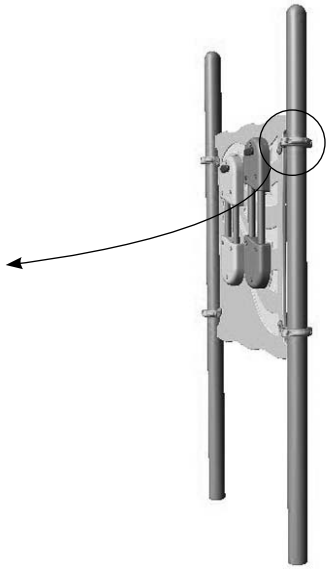
Step 6

Attach the panel connectors to the chime panel.





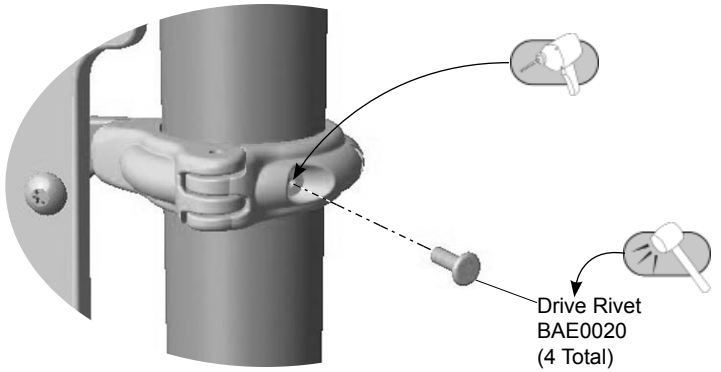




Detail F

Step 8

Attach the panel to the support posts.



Detail G

Step 10

Secure the clamps to the support posts.

Installation Instructions

Notes Before You Begin: Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.

Step 1: Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the telephone number shown on the last page of these instructions.

Step 2: Separate and identify all components and hardware.

Step 3: Attach a chime striker to the chime upper caps. See **Detail A**. Insert the stem of the handle through the front of the cap and seat squarely into the striker, apply a drop of thread locking adhesive to the bolt threads, and attach as shown. Fully tighten the connections according to tightening torque specifications (See **Final Details**).

Step 4: Attach the chimes and the chime caps (upper and lower) to the chime panel. See **Detail B**. Chimes attach to the panel from the shortest to the longest going from left to right. Attach to the side of the panel that's routed out for the chime caps. Place the chime spacers and chime supports in their appropriate cutouts in the panel, place the chimes on top, align the holes and then place the chime covers over the top and bottom of the chimes, and attach as shown. Fully tighten the connections according to tightening torque specifications (See **Final Details**).

Step 5: Secure the chime caps (upper and lower) to the chime panel. See **Detail C**. Secure the caps to the panel through the remaining open hole in the cap. Fully tighten the connections according to tightening torque specifications (See **Final Details**).

Step 6: Attach the panel connectors to the chime panel. See **Detail D**. Position the short leg of the panel connector over the top outside hole in the panel on the opposite side from the chimes, and attach as shown.

Step 7: Attach the clamps to the panel connectors. See **Detail E**. Position the clamp against the chime side of the panel connector, apply a drop of thread locking adhesive to the bolt threads, and attach as shown.

Step 8: Attach the panel to the support posts. See **Detail F**. Position the panel between the support posts with the bottom of the chime side against the deck. Close the clamps around the posts, apply a drop of thread locking adhesive to the bolt threads, and attach as shown.
Note: In the event of a clamp conflict with an adjacent component, the connectors can be flipped and reconnected to the panel. Remove the connector from both the panel and clamp before flipping and then reattach as before.

Final Details.

Step 9: Plumb and level the component. Tighten **all** fasteners. Fully tighten all fasteners according to tightening torque specifications.
Torque Specifications:

Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Step 10: Install drive rivets. See **Detail G**. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, drive the pin of the rivet until it is flush with the surface of the rivet head.
Note: This step should be executed after structure has been assembled and properly footed.

CH4607 - CHIME PANEL (GROUND LEVEL)

PART NO.	DESCRIPTION	QTY.
AAU0098	HANDLE - 1.50" x 3.50" CHIME KNOB	2
AAU0099	MISC - 1.25" x 3.50" CHIME STRIKER	2
AAU0102	CAP - 7.50" x 10.30" CHIME UPPER w/BEARING	2
AAU0103	CAP - 7.50" x 10.30" CHIME LOWER	2
AAU0625	CLAMP - 3-1/2" OFFSET CENTERLINE DIE CAST	4
AAU0635	CONNECT - 3/4" PANEL	4
AFM2176	FAB METAL - 1.315" O.D. x 18.00" CHIME	1
AFM2177	FAB METAL - 1.315" O.D. x 20.00" CHIME	1
AFM2178	FAB METAL - 1.315" O.D. x 22.00" CHIME	1
AFM2179	FAB METAL - 1.315" O.D. x 24.00" CHIME	1
AMC0525	CHIME SPACER	8
BAD0085	THREAD LOCKING ADHESIVE	1
BAE0020	RIVET - 1/4" x 11/16" DRIVE	4
BAE0045	BOLT - 1/4"-20 x 2-1/2" BUTTON HEAD - SS	12
BAE01521	BOLT - 1/4"-20 x 1/2" BUTTON HEAD - SS	2
BAE0158	WASHER - 1/4" SAE FLAT	12
BAE0161	NUT - 1/4"-20 x 7/16" BUTTON HEAD	12
BAE0165	WASHER - .300" I.D. x .850" O.D. x .048" THICK	2
BAE0202	NYLON WASHER - .56" x .12"	8
BAE0595	WASHER - 3/8" SAE FLAT	8
BAE0662	BOLT - 3/8"-16 x 1-1/4" TAMP RESIST w/TORX DRIVE	4
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	4
BAE0664	BOLT - 3/8"-16 x 1" BUTTON HEAD - SS	8
BFC3411	SHEET - 2.50" x 1.30" x .50	8
BFC3414	SHEET - .75" x 31.50" x 44.00" CHIME PANEL (GRND LVL)	1

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INSTALLATION INSTRUCTIONS

CHALLENGERS®
MODEL CH4611
HORN PANEL (GROUND LEVEL)

Assembly View

Installation Preparation . . .

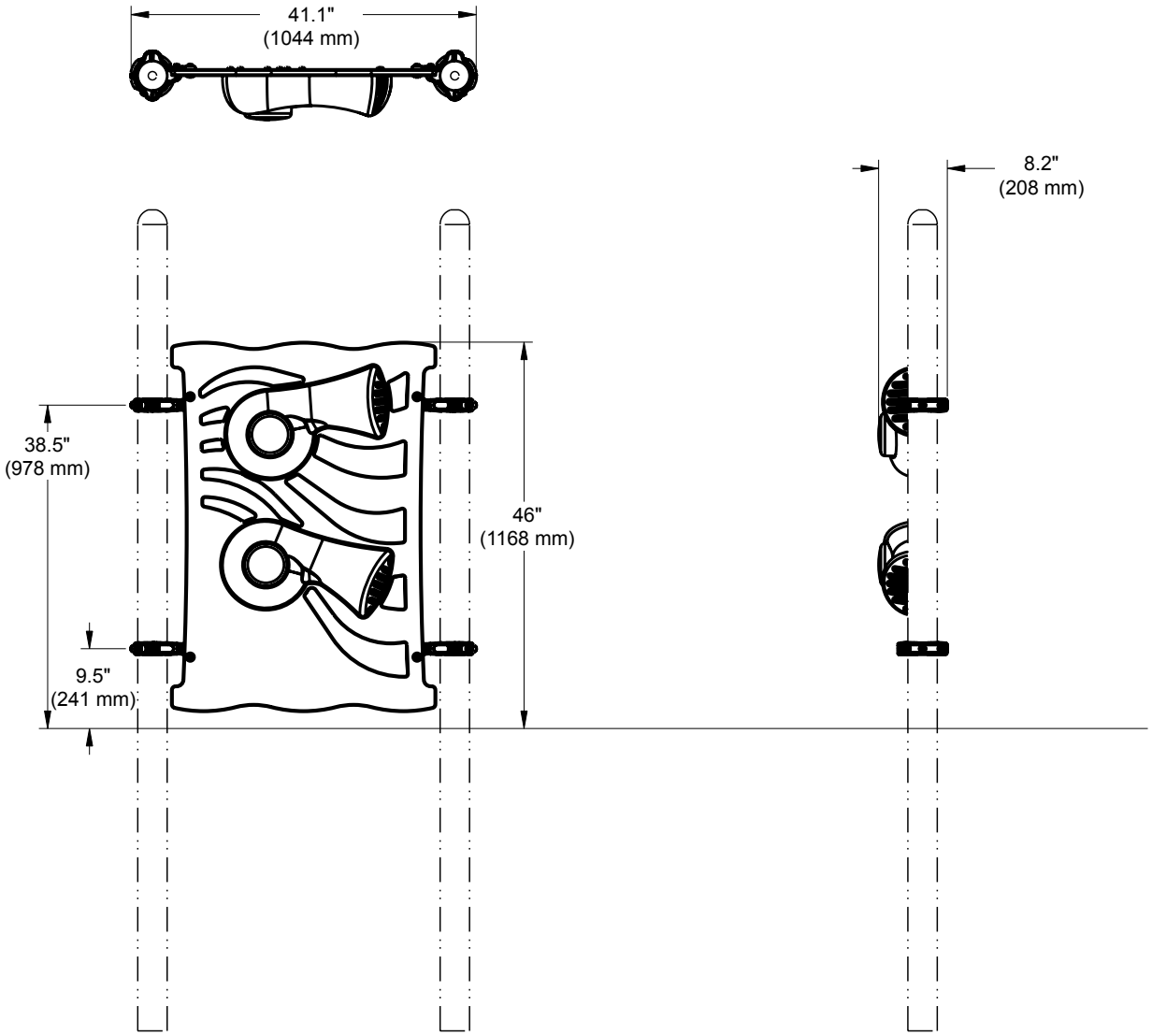
Recommended Crew:	Two (2) adults
Installation Time:	1 man-hour
User Group:	Ages 2 - 12 years

Torque Specification:

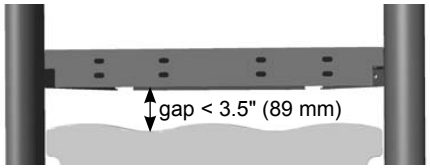
Bolts & Nuts:	Snug tighten and tighten an additional one-half turn.

Maintenance . . .

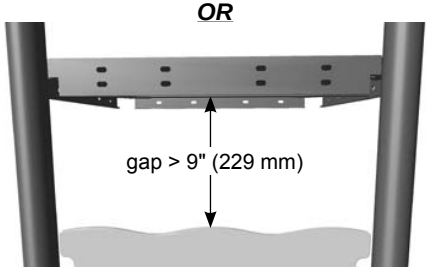
- Playworld Systems® strongly recommends the use of protective surfacing within the use zone of each play structure in accordance with the applicable standard for your location, appropriate for the fall height of each structure.
- Playworld Systems® strongly recommends close supervision of children as they play. The owners of playground equipment and the parents or guardians of children are responsible for this proper supervision. Do not use playground equipment when it is wet or snow covered.
- As the owner of playground equipment, you are responsible for the maintenance of the equipment and surrounding play area. A comprehensive maintenance and inspection schedule must be developed and all equipment inspected frequently.



Elevation View



OR



If the panel is placed under a deck there must be less than 3.5 in (89 mm) between the deck and the lower edge on the top of the panel, ***or*** more than 9 in. (229 mm) between the deck and the higher edge on the top of the panel.

INSTALLATION

☒ **Notes Before You Begin:**

- Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.
- If during the installation process a bolt needs to be removed from a part or parts, it will be necessary to apply a drop of liquid thread lock / loctite to the bolt before reinstallation.

Carefully read and understand these installation instructions before you begin.

__**Step 1:** Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the telephone number shown on the last page of these instructions. *You will need a straight screwdriver or a 5/16" wrench for the horn assembly.*

__**Step 2:** Separate and identify all components and hardware by referencing the detail drawings and packing list. Determine where panel is to be placed by referring to the master layout drawing.

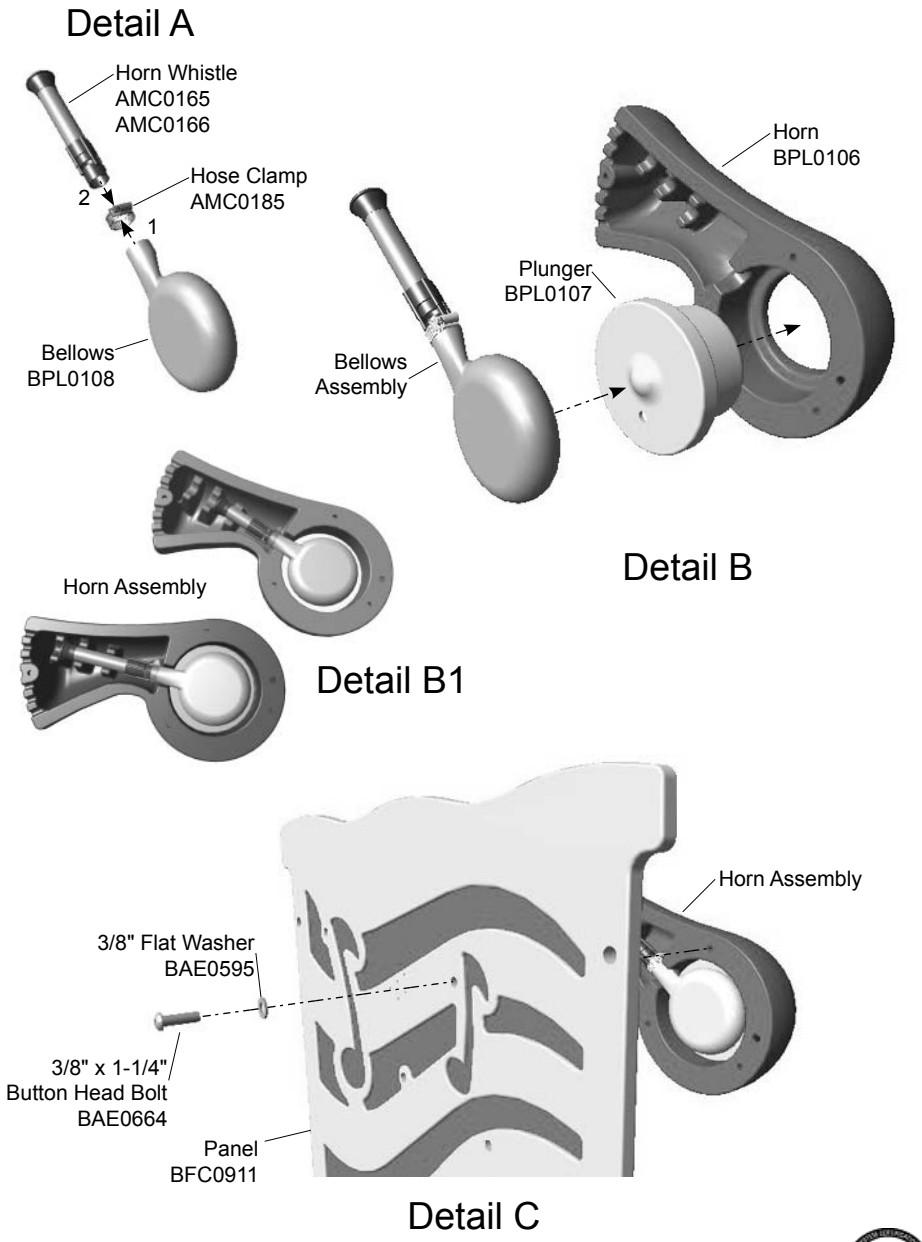
Assemble the horns

__**Step 3:** Assemble the horns. See **Details A, B, and B1**. Select (2) two of the following: horn whistles (2 different lengths), bellows, hose clamps, the horn plungers and horns. Place the hose clamp on the neck of the bellows. Insert the smaller end of each horn whistle into the bellows' neck, and *partially* tighten the screw on the clamp. Following the color chart below, place a plunger into the inside of each of the horns. Place the bellows assembly into the horn with the horn whistle seated into the indentation, with the end against the plastic. Tighten the hose clamp connection. *The connections should be tight enough to hold the tube in place but not crack the plastic.* (**See B1**) Assemble both horns.

Color Combinations:	**Horn**	**Plunger**	**Whistle length**
	Red	Yellow	short
	Blue	Tangerine (orange)	long

Attach the horns to the panel.

__**Step 4:** Attach the horns to the panel. See **Detail C**. Select both horn assemblies, the panel, (8) eight 3/8" x 1-1/4" button head bolts and (8) eight 3/8" flat washers. Place each horn into the indentation in the panel and align holes. Apply a drop of loctite to the bolt threads, and insert each bolt though a flat washer, the panel, and thread into the horn. There are four connections for each horn. Fully tighten the connections and test the horn by pressing the plunger.



Attach the clamps to the panel.

__Step 5: Attach the clamps to the panel. See **Detail D**. Select (4) four of the following: offset centerline clamps, panel connectors, 3/8" button head nuts. Also select (8) eight 3/8" x 1" button head bolts and (8) eight 3/8" flat washers. Align the short leg of the panel connector with each hole on the side of the panel *without* the horns. Insert each bolt through a flat washer, the connector, the panel and thread into a button head nut. If possible, the short legs of the connectors should be facing the same direction, with the longer legs sticking straight out. *(The upper connectors can point one way and the lower connectors can point the opposite way.)* Place a clamp against the panel side of each connector. Apply a drop of loctite to the bolt threads and insert a bolt though a flat washer, the connector and thread into the clamp.

Attach the panel to the posts and deck.

__Step 6: Attach the panel to the posts. See **Detail D**. Select the panel and (4) four 3/8" x 1-1/4" tamper resistant bolts. Place the panel in the desired location and close the clamps around the posts. Insert and thread a bolt into each clamp. Leave the connections loose for adjustment.

Important Note: *If the panel is to be placed under a deck, please refer to the spacing below the deck on the panel placement detail on* ***page 2*** *of these instructions.*

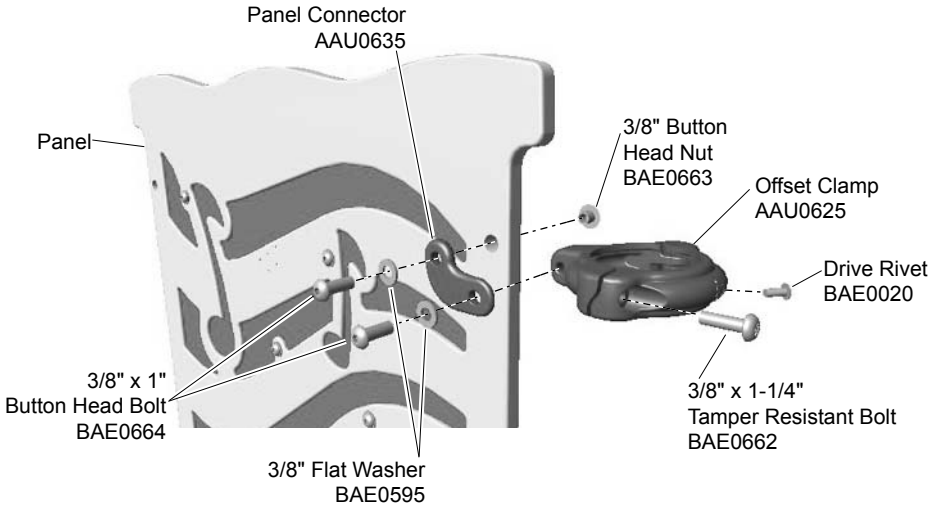
Note: *The connectors can be flipped to provide adjustment in the event of clamp interference with an adjacent component.*

Final Details.

__Step 7: Plumb and level the panel. *The bottom edge of the panel should not be more than 3.5" (89 mm) from the level of the protective surfacing.* The panel connectors should be horizontal (not angled up or down). Tighten **all** fasteners. Fully tighten all fasteners according to tightening torque specifications. See page 1 of these instructions.

__Step 8: Install the drive rivets. See **Detail D**. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, pound the pin of the rivet until it is flush with the surface of the rivet head.

Note: This step should be executed after the entire structure has been assembled and properly footed.



Detail D

BILL OF MATERIAL

CH - HORN PANEL (GROUND LEVEL)

PART NO.	DESCRIPTION	QTY.
AAU0625	CLAMP - 3-1/2 OFFSET CENTERLINE DIE CAST	4
AAU0635	CONNECT - 3/4" PANEL	4
AMC0165	MISC - 1.63" O.D. x 7.50" HORN WHISTLE	1
AMC0166	MISC - 1.63" O.D. x 9.50" HORN WHISTLE	1
AMC0185	#12 WORM DRIVE HOSE CLAMP	2
BAD0085	THREAD LOCKING ADHESIVE	1
BAE0020	RIVET - 1/4" x 11/16" DRIVE	4
BAE0595	WASHER - 3/8" SAE FLAT	16
BAE0662	BOLT - 3/8"-16 x 1-1/4" TAMPER RESISTANT w/TORX DRIVE	4
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	4
BAE0664	BOLT - 3/8"-16 x 1" BUTTON HEAD - SS	8
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	8
BFC0911	SHEET - .75" x 31.50" x 44.00" HORN PANEL (GROUND LVL)	1
BPL0106	HORN - 19.13" x 12.31" x 4.94"	2
BPL0107	PLUNGER - 6.63" O.D. x 3.88"	2
BPL0108	BELLOW - 5.50" O.D. x 7.63"	2

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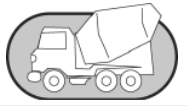
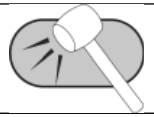
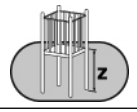
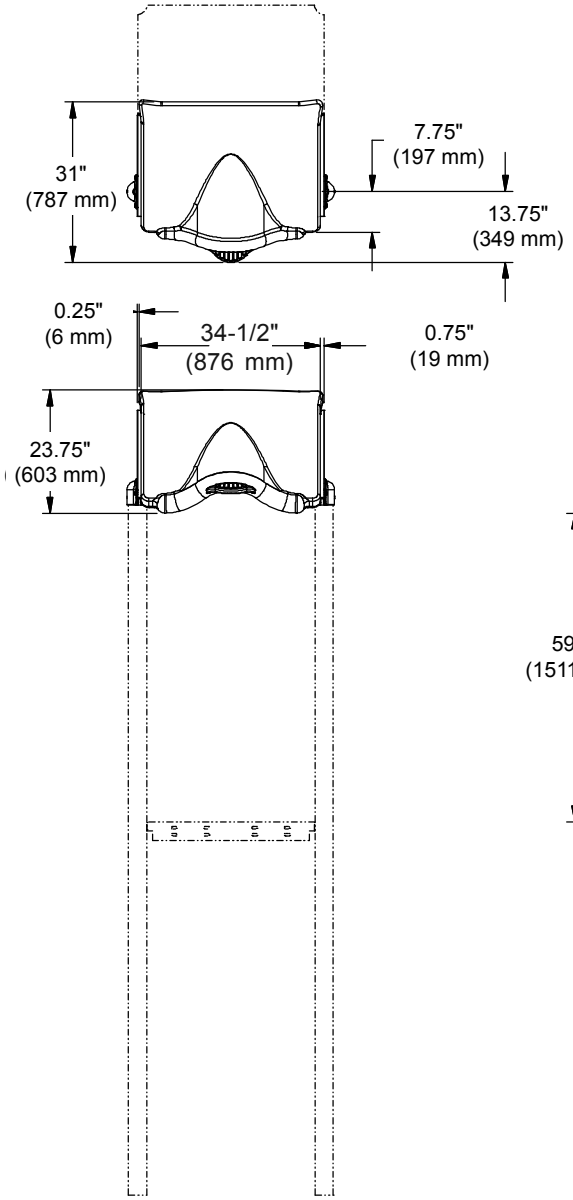
Installation Instructions
Challengers® Model CH9816
Camber Half Square Roof

Assembly View

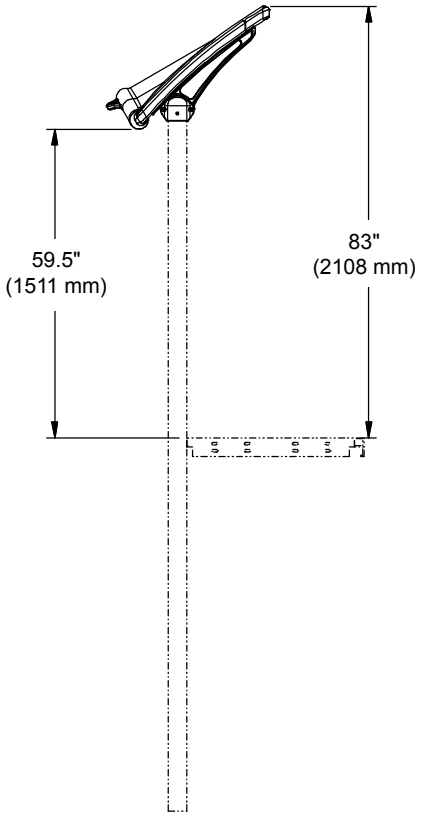
Installation Preparation

Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1 man-hour
Use Zone:..... Refer to Master Drawing
User Group Age (years): ..... ASTM/CSA: 2-12, EN: 2-14

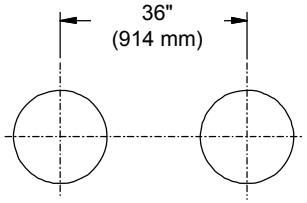
ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height



Top View



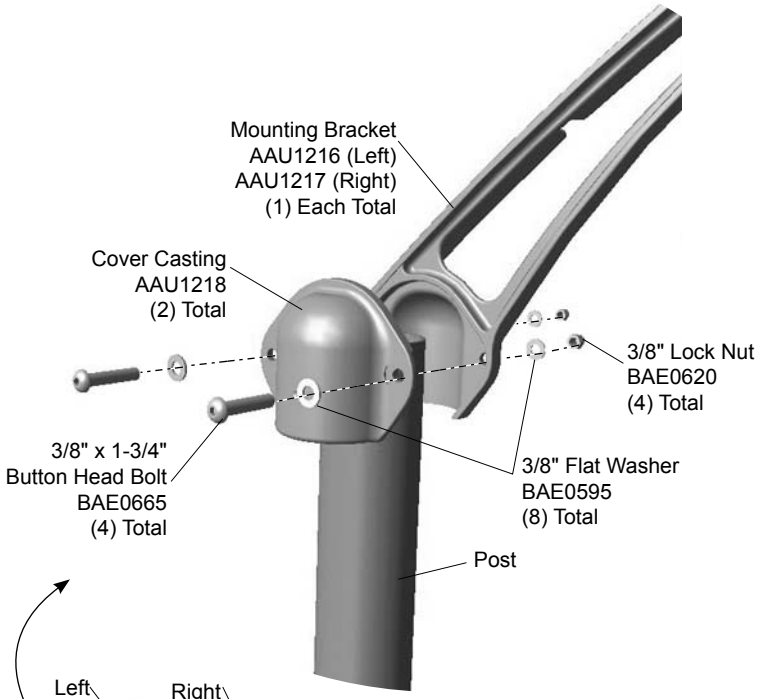
Elevation Views



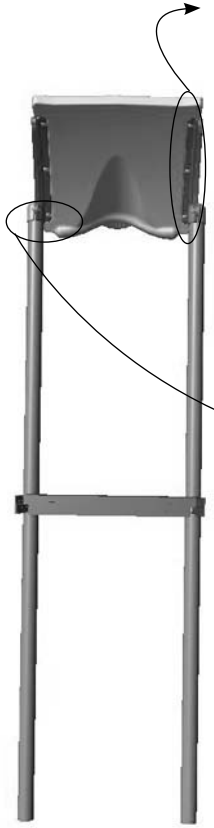
Footing Diagram

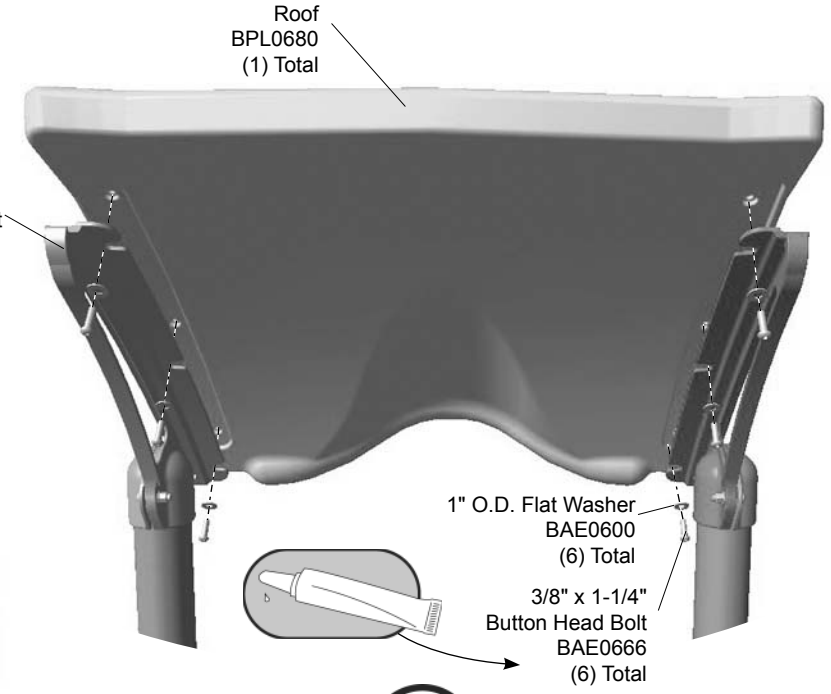
Installation Instructions

Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 4.

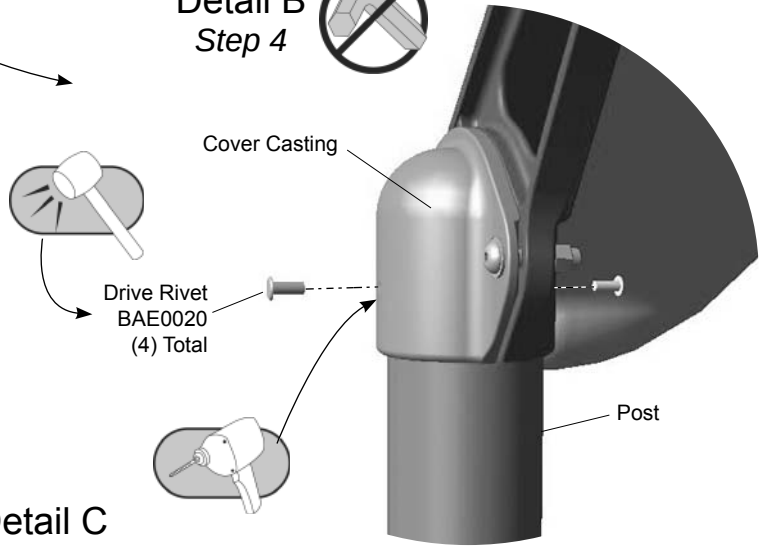


Detail A
Step 3





Detail B
Step 4



Detail C
Step 6

__**Notes Before You Begin:** Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.
Step 1: Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

Step 2: Separate and identify all components and hardware.

Assemble and attach mounting brackets to posts.
Step 3: See **Detail A**. Attach as shown. Snug tighten the bolts. The bracket height may have to be adjusted to level the roof.
Note: Right and left are determined as if you were standing on the deck to be covered.

Attach the roof.
Step 4: See **Detail B**. Place the roof on the brackets and align the holes. Attach as shown. Do not tighten the bolts completely.

Final Details
Step 5: Square and level the roof at the desired height. Tighten the bracket bolts. Fully tighten all fasteners in accordance with the tightening torque specifications.
Torque Specifications:
Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Step 6: Install drive rivets. See **Detail C**. A quantity of (4) four drive rivets are supplied for permanently securing brackets to the support posts. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, drive the pin of the rivet until it is flush with the surface of the rivet head.
Note: This step should be executed after structure has been assembled and properly footed.

CH9816 - CAMBER HALF SQUARE ROOF

PART NO.	DESCRIPTION	QTY.
AAU1216	BRACKET - 3-1/2" SQUARE (LEFT)	1
AAU1217	BRACKET - 3-1/2" SQUARE (RIGHT)	1
AAU1218	BRACKET - 3-1/2" COVER CASTING	2
BAE0020	RIVET - 1/4" x 11/16" DRIVE	4
BAE0595	WASHER - 3/8" SAE FLAT	8
BAE0600	WASHER - 1" O.D. FLAT	6
BAE0620	NUT - 3/8"-16 LOCK w/ NYLON CAP	4
BAE0665	BOLT - 3/8"-16 x 1-3/4" BUTTON HEAD - SS	4
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	6
BPL0680	ROOF - SQUARE (CH)	1

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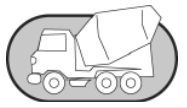
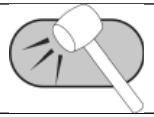
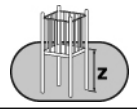
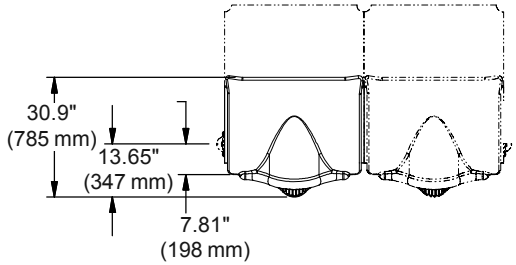
Installation Instructions
Challengers® Model CH9817
Camber Half Square Roof Add On

Assembly View

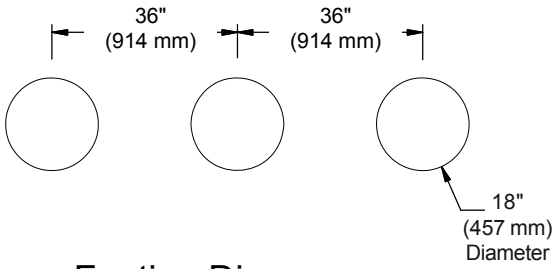
Installation Preparation

Recommended Crew: ..... Two (2) adults
Installation Time: ..... 1 man-hour
Use Zone:..... Refer to Master Drawing
User Group Age (years): ..... ASTM/CSA: 2-12, EN: 2-14

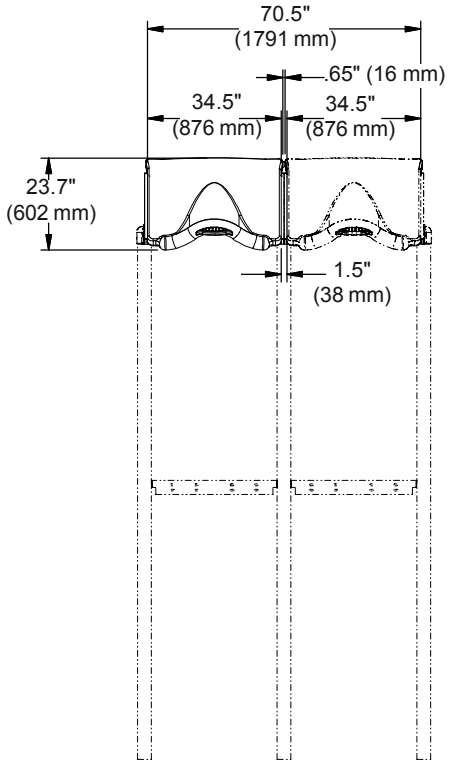
ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

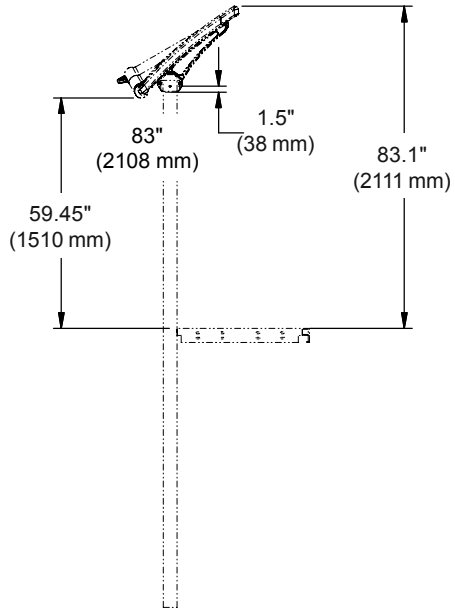


Top View



Footing Diagram

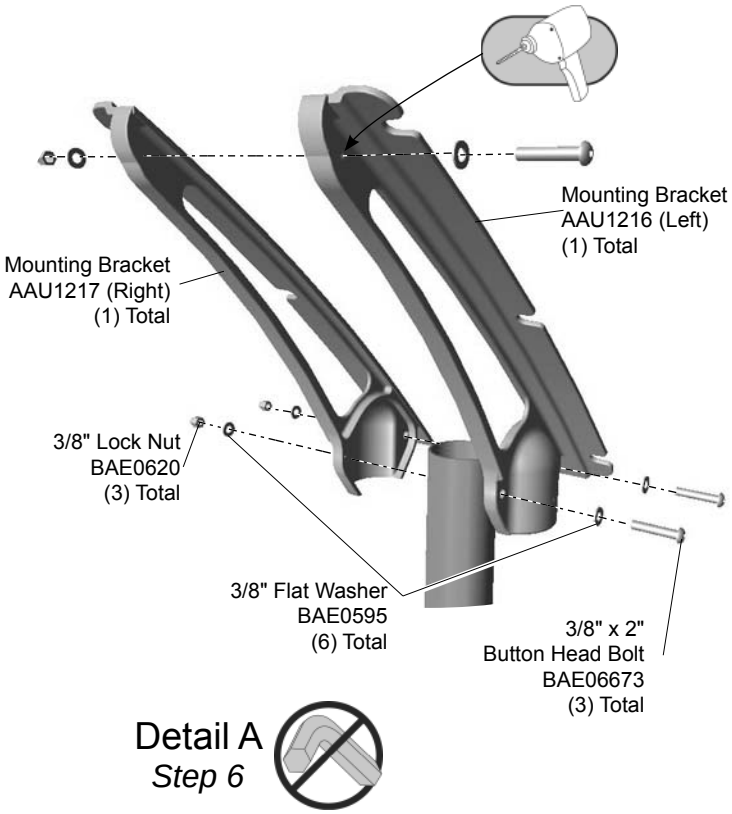




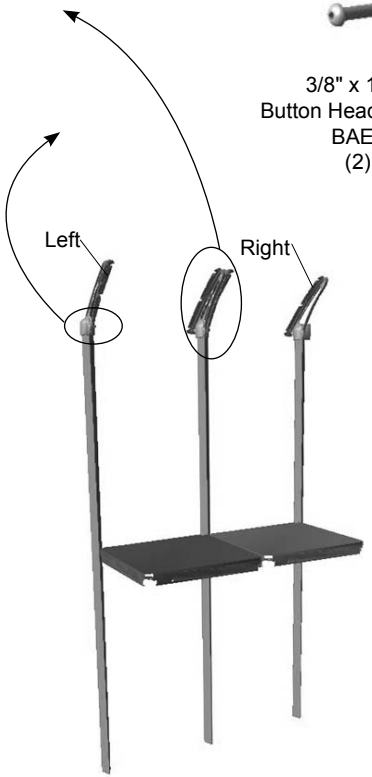
Elevation Views

Installation Instructions

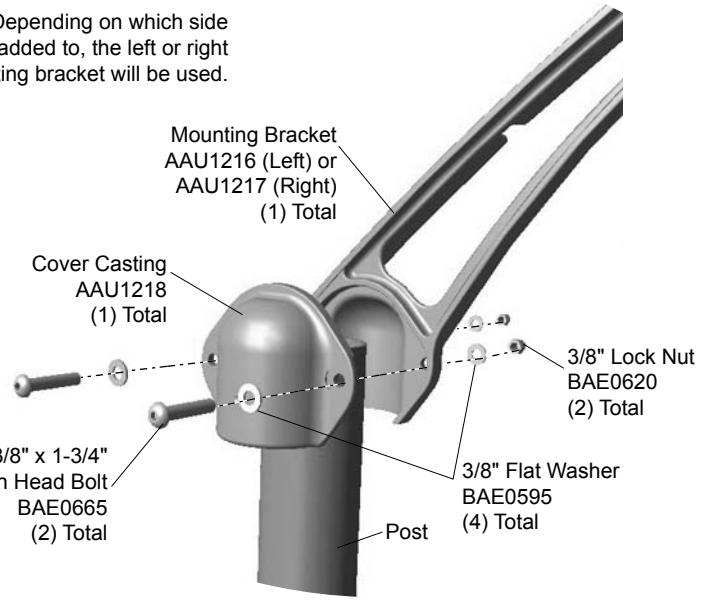
Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 5.



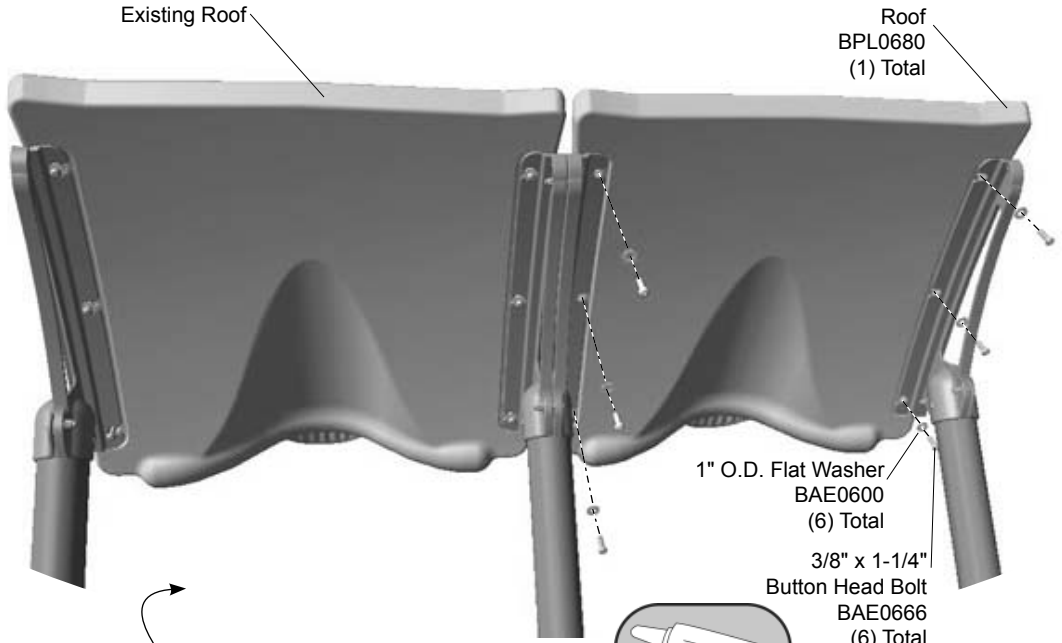
Detail A
Step 6



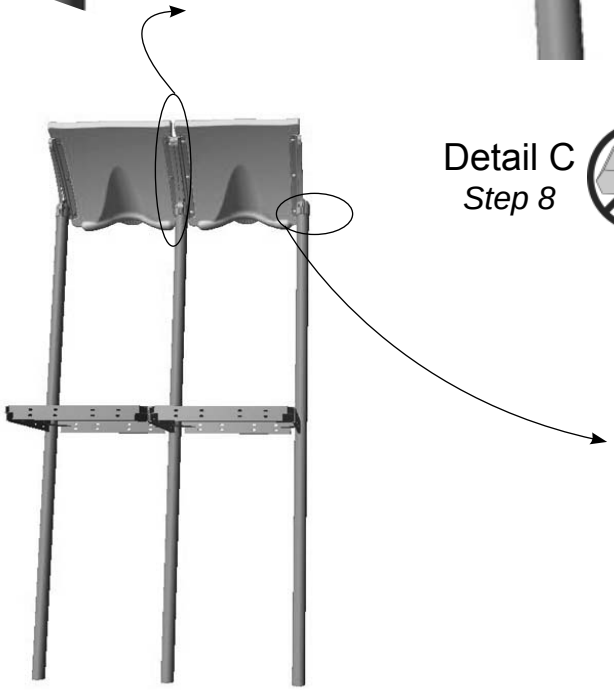
Note: Depending on which side the roof is added to, the left or right mounting bracket will be used.

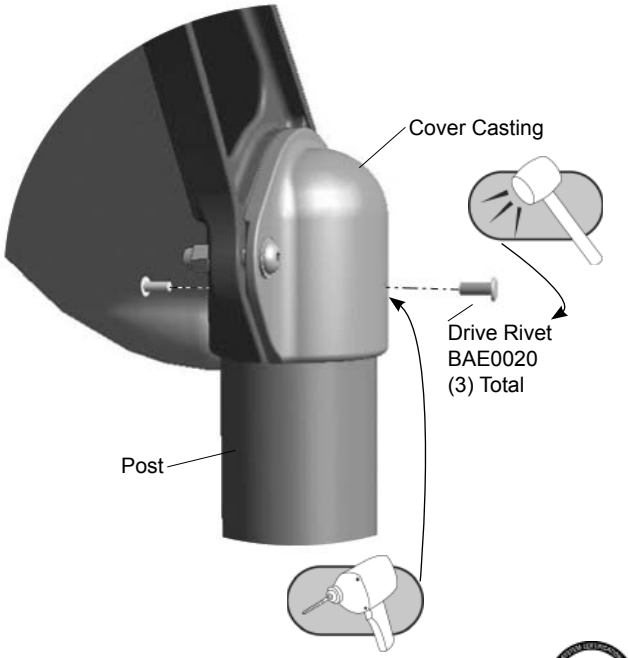


Detail B
Step 7



Detail C
Step 8





Detail D
Step 10

__**Notes Before You Begin:** Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.
Step 1: Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

Step 2: Separate and identify all components and hardware.

Step 3: Determine where the add-on roof is to be placed. If this add-on roof is to be connected to a existing camber roof follow the instructions below. If this add-on roof was purchased with a stand alone camber roof, skip to Step 5. Assemble multiple adjacent camber roofs at the same time.

Prepare the existing camber roof to accept an adjacent add-on roof.
Step 4: Prepare the existing camber roof to accept an adjacent add-on roof. Drill out the drive rivet from the cover casting on the side that the new roof section will be placed.

Step 5: Remove the hardware from the side that the add-on roof will be placed and set it aside to be used in *Step 7*.

Connect the adjacent mounting brackets.
Step 6: See **Detail A**. Select the appropriate roof bracket (either left or right depending on which side the roof is being placed). Drill a 7/16" hole through the upper portion of the brackets. Attach as shown. Snug tighten only to allow for roof height adjustment.

Attach remaining the bracket to the support post.
Step 7: See **Detail B.** Select the remaining mounting bracket and the hardware previously set aside in *Step 5*. Position the bracket at the inside top of the remaining support post. Attach as shown. Snug tighten bolts. The bracket height may have to be adjusted to level the roof.

Attach the roof.
Step 8: See **Detail C**. Place the roof on the brackets and align the holes. Apply a drop of loctite to the bolt threads and attach as shown. Do not tighten the bolts completely.

Final Details
Step 9: Square and level the roof at the desired height. Tighten the bracket bolts. Fully tighten all fasteners in accordance with the tightening torque specifications.
Torque Specifications:
Bolts and nuts - Snug tighten and then tighten an additional one half turn.

Step 10: Install drive rivets. See **Detail D**. After the equipment assembly is complete, install a drive rivet in each clamp to permanently secure it to the support post. Using a 1/4" drill bit, drill through the clamp and support post. Insert the drive rivet into drilled hole until the head of the rivet is against the surface of the clamp. Using a hammer, drive the pin of the rivet until it is flush with the surface of the rivet head.
Note: This step should be executed after structure has been assembled and properly footed.

CH9817 - CAMBER HALF SQUARE ROOF ADD-ON

PART NO.	DESCRIPTION	QTY.
AAU1216	BRACKET - 3-1/2" SQUARE (LEFT)	1
AAU1217	BRACKET - 3-1/2" SQUARE (RIGHT)	1
BAE0020	RIVET - 1/4" x 11/16" DRIVE	3
BAE0595	WASHER - 3/8" SAE FLAT	6
BAE0600	WASHER - 1" O.D. FLAT	6
BAE0620	NUT - 3/8"-16 LOCK w/ NYLON CAP	3
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	6
BAE06673	BOLT - 3/8"-16 x 2" BUTTON HEAD - SS	3
BPL0680	ROOF - SQUARE (CH)	1

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570-522-9800 OUTSIDE U.S.
1000 Buffalo Road • Lewisburg, PA 17837
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PLAYWORLD®
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Important ! Please Read Completely Before Beginning Installation. According to a report published by the U. S. Consumer Product Safety Commission (C.P.S.C.) 72% of all playground injuries result from accidental falls. With this in mind, this equipment is designed to fill the need for safe yet challenging play. In conjunction with design efforts to reduce the possibilities of injuries, this equipment **must** be installed "Step by Step" per our installation instructions. As a new owner you are responsible for the correct installation, safe use, and maintenance of your equipment.

INSTALLATION GUIDELINES

- Identify all parts and thoroughly read the assembly instructions before beginning construction.

- Site layout is a critical part of the overall installation. Footings must be measured and marked accurately according to the footing diagram. A level and clear installation site is ideal.

- Good drainage around the structure and its supports is important. Inquire with local contractors for appropriate recommendations.

- After laying out all footings and before digging holes, be sure to inquire about underground utilities that may exist.

- Refer to your playground equipment drawing and footing diagram to assure the equipment purchased will fit into your selected site area. The use and no-encroachment zones around the play equipment shall be areas empty of obstacles and designated for unrestricted circulation.

- The dimensions of Use Zones vary based upon the applicable standard for your location. The master layout drawing will show the minimum use zone necessary for the equipment in your area.

- When building the structure, the recommended order of assembly is: 1) posts, 2) decks, 3) bridging components that will set and square distances between decks, 4) barriers and full roofs that will add to the stability and rigidity of the structure, 5) climbers and ground based components, and 6) partial roofs and non structural components.

- Insure that hard surface warning/Playworld Systems identification labels are properly affixed to the play equipment. Labels are to be plainly visible according to current playground equipment guidelines. **See page 12.** *For the areas complying with ASTM and CSA standards age appropriate labels must also be applied.* ***See page 11.***

- Do not leave the job site unattended without making sure that all fastening hardware on all components are tightened according to tightening torque specifications listed on every installation guide. We also recommend roping off construction area and covering all holes that do not contain a piece of equipment with plywood or other suitable material.

PROTECTIVE SURFACING

- IMPORTANT! Because accidental falls around your playground equipment can occur, Playworld Systems recommends that the area under and around the structure be covered with a resilient material such as sand, bark mulch, or wood chips. If loose fill surfacing materials are used, Playworld Systems recommends a depth of 12 in. (305 mm). An approved rubber safety matting can also be used. **Many protective surfacing materials can become compacted due to weather and use, which reduces their shock absorbency. It is strongly recommended that the surfacing be checked weekly and material added or replaced as necessary. Hard surfaces, such as asphalt, concrete and packed earth are not acceptable for use under playground equipment.**

- The entire area, under and around the playground equipment, must be covered with protective surfacing material. The impact attenuation of the protective surfacing under and around playground equipment should be rated to have a critical height value of at least the height of the highest accessible part of the equipment. The critical height for surfacing is to be rated in accordance with the A.S.T.M. standard, designated F-1292, A Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment. Contact the manufacturer of unitary surfacing materials (rubber matting) for the critical height rating for their products.

Installation Guidelines

USE ZONE INFORMATION:

Refer to the applicable standard for your location. The master structure drawing will show use zones and critical fall heights for the equipment.

ASTM

• The overall use zone measurements for composite play structures should extend a minimum of 72 inches from its perimeter; dimensions and configuration of the use zone are dependent upon the types of included play equipment.

• If the stationary play equipment contains a slide (or slides), the use zones of the slide (or slides) may **not** be overlapped by the use zones of adjacent play equipment.

• The use zone in front of the slide exit shall be a minimum of 72 inches and shall not exceed 96 inches. The use zone shall be measured from the end of the slide and equal the vertical measurement as measured from the highest point of the sliding surface to the protective surfacing at the slide exit.
Example: If the highest point of the sliding surface is 73.5 inches, the use zone in front of the slide exit should measure 73.5 inches.

CSA

• The overall use zone measurements for composite play structures should extend a minimum of 1800 mm from its perimeter; dimensions and configuration of the use zone are dependent upon the types of included play equipment.

• If the stationary play equipment contains a slide (or slides), the use zones of the slide (or slides) may **not** be overlapped by the use zones of adjacent play equipment.

• A no-encroachment zone is also required for the exit of slides over 48" (1220 mm) in height. In addition to the use zone measurement at the runout of the slide, the no-encroachment zone will extend an additional 1800 mm and may **not** be overlapped by the use or no-encroachment zones of adjacent play equipment.

• The use zone in front of the slide exit shall be a minimum of 1800 mm and shall not exceed 2400 mm. The use zone shall be measured from the end of the slide and equal the vertical measurement as measured from the highest point of the sliding surface to the protective surfacing at the slide exit.
Example: If the highest point of the sliding surface is 1870 mm, the use zone in front of the slide exit should measure 1870 mm.

EN

• For areas complying with the European Standard (EN-1176 / EN-1177), the use zone at the end of the slide runout will be at least 2000 mm for Type 1 slides. There is also a free space of 1000 mm on either side of the slide bedway.

• The use zone (impact zone) is a minimum of 1500 mm and will increase as the critical fall height exceeds 1500 mm. A formula to calculate the impact zone for higher fall heights is: 2/3*y* + 500 mm, where *y* equals the highest critical fall height for the component.

FOOTINGS

• For In-ground Footing Installations (See Pages 4-6), excavate the holes as shown in the footing detail. If a level and clear site cannot be obtained, adjust the depth of footing to maintain a level footing base. If soil conditions are loose or unstable, a larger diameter footing may be required. Inquire with local contractors for appropriate recommendations. Be sure the concrete that might have splashed onto the unit is washed off before it dries. Allow concrete to harden 72 hours before allowing your structure to be used. **Assemble the entire structure before pouring concrete unless specifically instructed to do so in the installation instructions.**

• For Surface Mount Footing Installations, see page 7.

Installation Guidelines

REQUIRED TOOLS

Playworld Systems® supplies a service kit that contains commonly used hex key wrenches required to assemble your equipment. You may also need: shovel, digging iron, post hole digger, steel rake, wheelbarrow, garden hoe, water hose, tape measure, level, alignment tool, 3/8" ratchet with 9/16" socket, and 9/16" combination wrench.

Recommended Tools for Installation:		
Shovel / Spade	Hammers (Various Sizes)	Assorted Files
Post Hole Digger	Tape Measure	Vise Grip / Locking Pliers
Digging Iron	Safety Glasses	Pencils
Steel Rake	Line Level	Electrical Extension Cord
Wheelbarrow	2 ft. & 4 ft. Level	Nylon Construction Line
Garden Hose	Utility Knife	Screwdrivers
Water Hose Nozzle	Electric Drill	Scrap Wood For Shims
3/8" Ratchet Set - 5/16", 7/16", 1/2", 9/16" & 3/4"	Combination Wrenches - 7/16", 1/2", 9/16" & 3/4"	Drill Bits - 1/8", 3/16", 1/4", 5/16", 3/8", 7/16" & 1/2"
Tools That Make the Job Faster:		
Power Auger (12"/18" Dia. Auger)	Nylon Ratchet Strap	3/8"-16 Tap & Die Set
Rechargeable Drill	6 ft. Step Ladder	Alignment Tool / Punch
Hex Key Wrenches - 3/16", 7/32", 1/4" & 5/16"	3/8" Drive Allen Wrenches - 3/16", 7/32", 1/4" & 5/16"	

MAINTENANCE

• Inadequate maintenance of equipment has resulted in injuries on the playground. Because the safety of playground equipment and its stability depends on good inspection and maintenance, **a comprehensive maintenance program must be developed for each playground and strictly followed**. All equipment must be inspected frequently for any potential hazards. Special attention must to be given to moving parts and other components that can be expected to wear. Inspections must to be carried out in a systematic manner by trained personnel. Any damaged or worn parts, or any other hazards identified during inspections must be repaired or replaced immediately. Complete documentation of all maintenance inspections and repairs must be retained.

SUPERVISION GUIDELINES

• Playworld Systems® strongly recommends close supervision of the children as they play as well as intensive classroom and home instruction about safe behavior on playground equipment.

• Playground supervisors should be aware that not all playground equipment is appropriate for all children who may use the playground. Signs should be posted near the equipment indicating the recommended age of the users. Supervisors should direct children to equipment appropriate for their age.

• It is important that playground supervisors recognize that preschool-age children require more attentive supervision on playgrounds than older children.

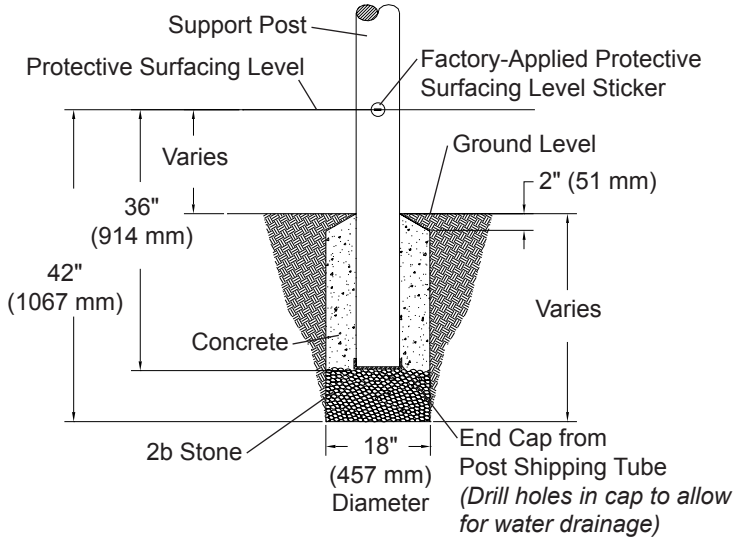
• Do not permit the use of wet playground equipment. Wet equipment will inhibit necessary traction and gripping capabilities. Slips or falls could occur.

• Do not permit too many children on the same piece of equipment at the same time. It is suggested that children take turns.

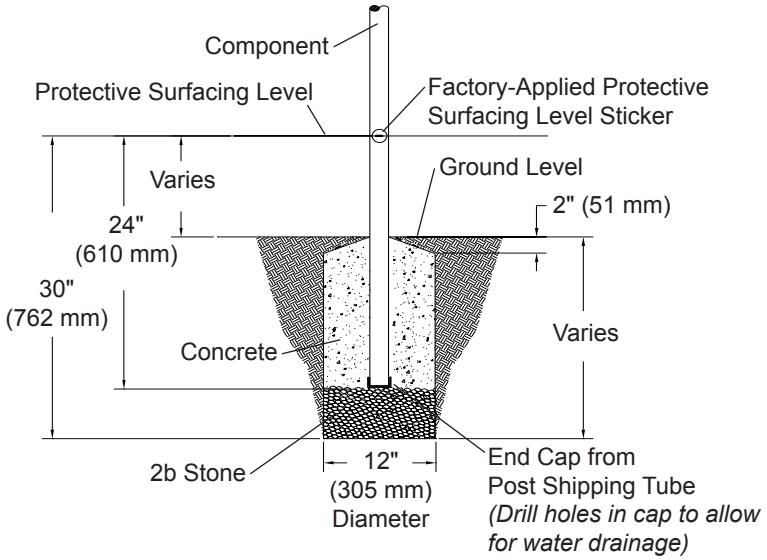
• Constantly observe play patterns to discover possible hazardous play and suggest changes in equipment use or play patterns.

Installation Guidelines

IN GROUND FOOTING DIAGRAMS: ASTM / CSA

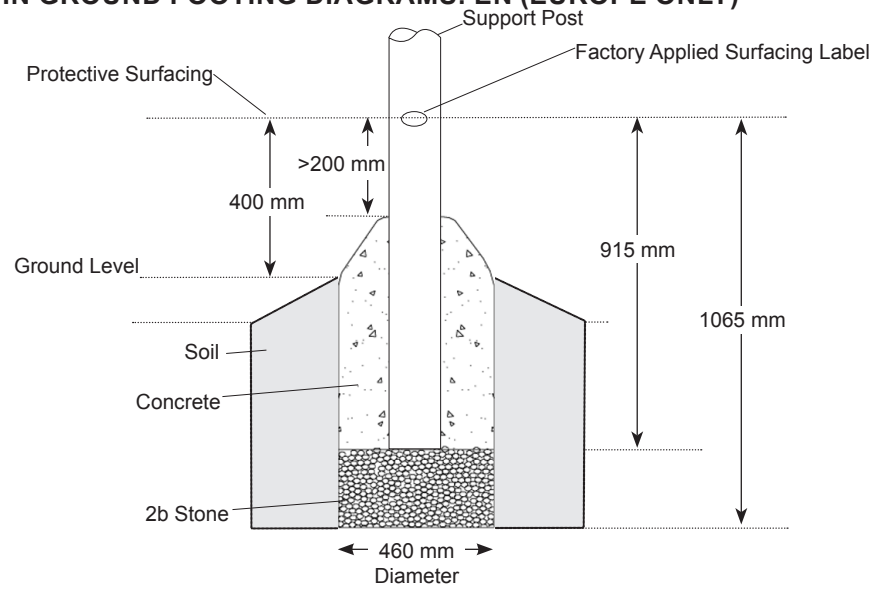


Support Post Footing Detail (ASTM/CSA)

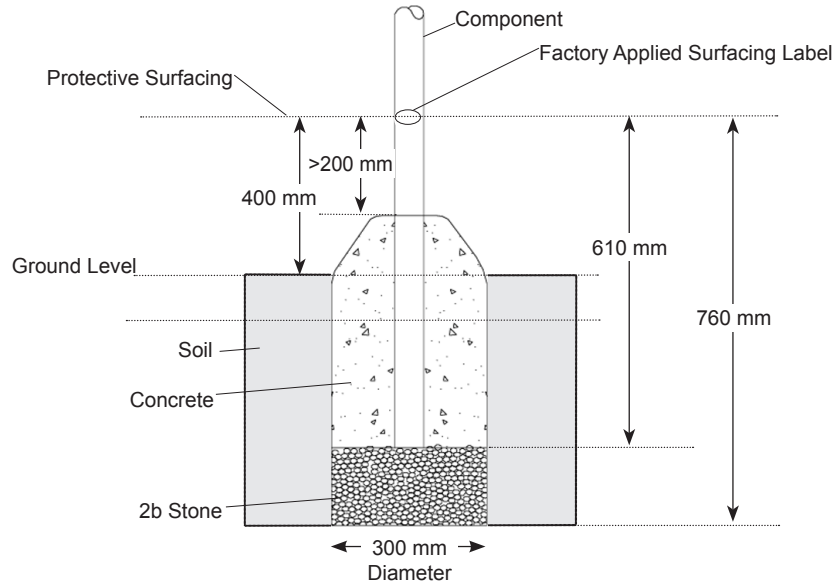


Component Footing Detail (ASTM/CSA)

IN GROUND FOOTING DIAGRAMS: EN (EUROPE ONLY)



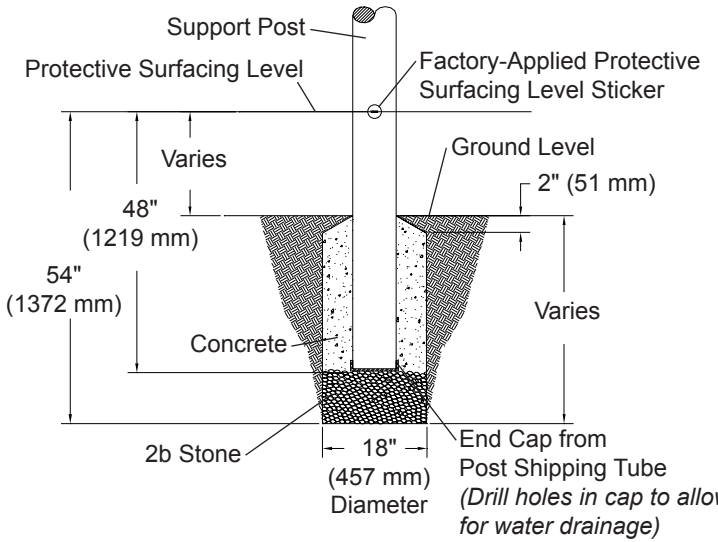
Footing Detail Support Post (EN)



Footing Detail Component Post (EN)

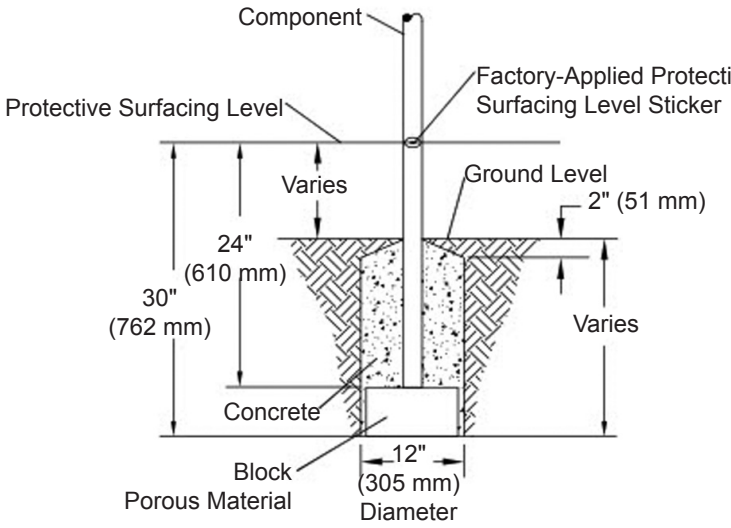
Installation Guidelines

IN GROUND FOOTING DIAGRAMS: GROUND ZERO POSTS

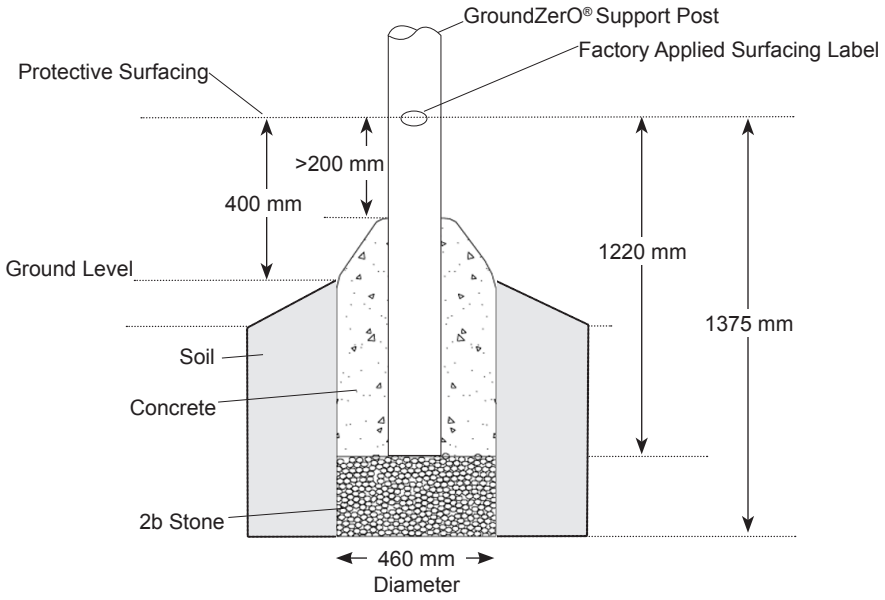


GroundZerO® Support Post Footing Detail ASTM/CSA

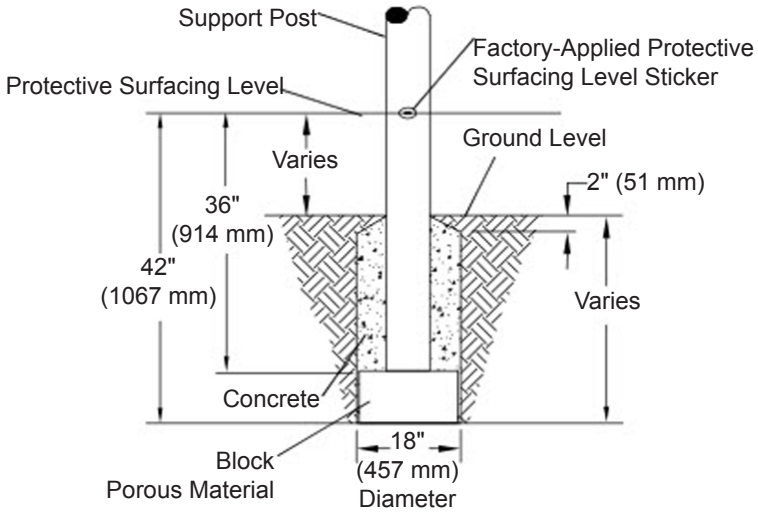
IN GROUND FOOTING DIAGRAMS-BLOCK OPTION



Component Footing Detail (ASTM/CSA) Block Option



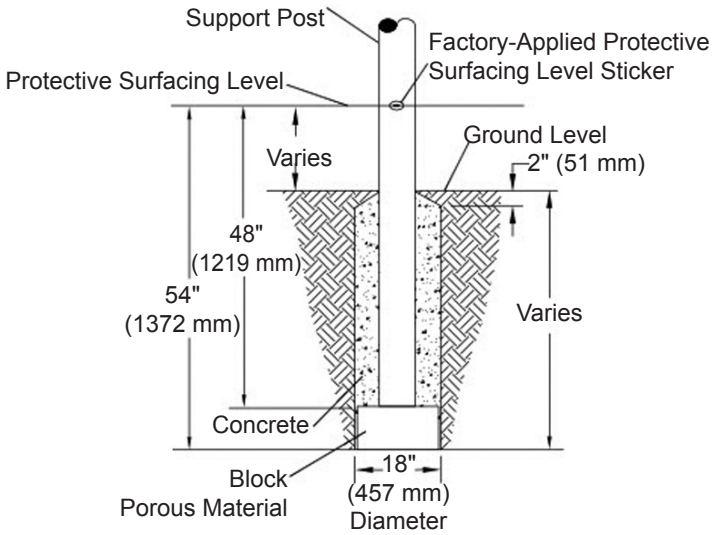
Footing Detail GroundZerO® Support Post (EN)



Support Post Footing Detail (ASTM/CSA) Block Option

Installation Guidelines

IN GROUND FOOTING DIAGRAMS-BLOCK OPTION



GroundZerO® Support Post Footing Detail ASTM/CSA Block Option

FOOTING NOTES

• Support post footing depth equals 42 in. (1067 mm) less the depth of the protective surfacing material. The post is designed to have 24" (610 mm) in concrete.

Example: If 12 in. (305 mm) of wood mulch is used for surfacing, the footing depth would be 30 in. (762 mm).

GroundZerO® posts are footed 12 in. (305 mm) deeper than the regular support posts, and will be marked as such on the master footing diagram.

• Component footing depth equals 30 in. (762 mm) less the depth of the protective surfacing material. The post is designed to have 12" (305 mm) in concrete.

Example: If 12 in. (305 mm) of wood mulch is used for surfacing, the footing depth would be 18 in. (457 mm).

• Most support posts and component support legs will have either a factory-applied sticker with line, or factory-applied mark designating protective surfacing level on a clear and level installation site.

• If play structure is installed on uneven terrain, maintain support post mark at protective surfacing level at lowest grade. Adjust other footings accordingly. Support posts and all attaching decks and play components must be plumb and level.

• Do not encase bottom of support post in concrete. Place post directly on packed stone.

• The footings shown on Playworld Systems' documentation are recommendations based on historical performance in average soil conditions. Footing dimensions may be modified by the owner based on actual soil conditions.
For example:

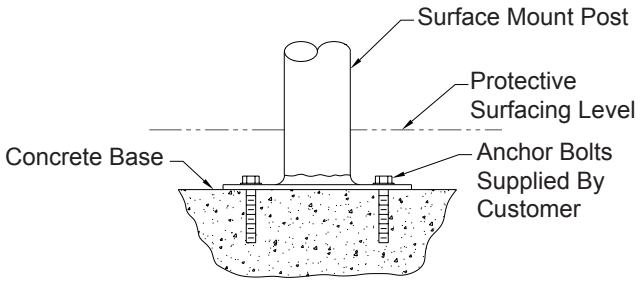
- If local soil is loose or unstable, a larger footing may be required.
- If local soil is considered stable, such as bedrock, clay or hard packed earth, a smaller footing may be used. Before changing footing dimensions, we strongly recommend that the footings be reviewed and approved by a registered engineer.

• Base of footing must be below frost line.

• Assemble the entire structure before pouring concrete unless specifically instructed to do so in the individual component installation instructions.

Installation Guidelines

SURFACE MOUNT FOOTING DIAGRAMS: SUPPORT POSTS AND COMPONENTS



Surface Mount Footing Detail

DEFINITIONS

• Concrete Pier: A pier type surface mount installation is defined as a footing hole that has been excavated and poured with concrete. Concrete should be flush to the top surface of excavated hole. Equipment would then be secured to this concrete footing that has been properly cured.

• Concrete Slab: Existing concrete slab type installation is defined as equipment being secured to an existing concrete pad or slab. As an example, this pad could be in the form of an existing concrete parking lot.

FOOTING NOTES: PIER TYPE SURFACE MOUNT

• Most support posts and component support legs will have either a factory-applied sticker with line, or factory-applied mark designating protective surfacing level on a clear and level installation site.

• If play structure is installed on uneven terrain, maintain support post mark at protective surfacing level at lowest grade. Adjust other footings accordingly. Support posts and all attaching decks and play components must be plumb and level.

• Footing size may vary due to local soil and weather conditions.

• Base of footing must be below frost line.

FOOTING NOTES: EXISTING CONCRETE SLAB TYPE SURFACE MOUNT

• Most support posts and component support legs will have either a factory-applied sticker with line, or factory-applied mark designating protective surfacing level on a clear and level installation site.

• Support posts and all attaching decks and play components must be plumb and level.

IMPORTANT NOTE: Surface mount hardware is not supplied. The customer is responsible for the concrete base and providing surface mount hardware as specified by a registered structural engineer for each specific project application.

Installation Guidelines

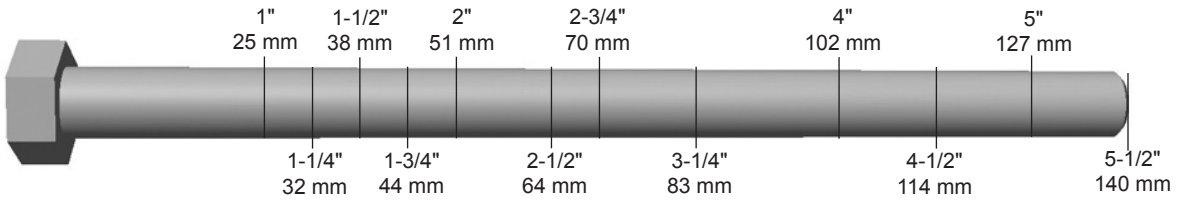
HARDWARE GUIDE

The following are full scale drawings of the hardware commonly used in structure assembly. During installation, use these drawings as a quick reference.

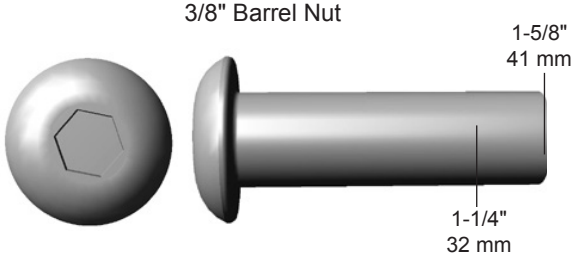
Tightening Torque Specifications:

Bolts & Nuts: Snug tighten and tighten an additional one-half turn.
Set Screws: Snug tighten and tighten an additional full turn.

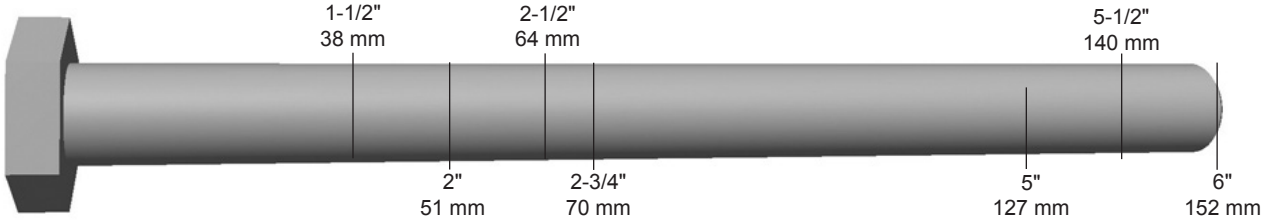
3/8" Hex Head Bolt



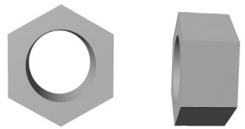
3/8" Barrel Nut



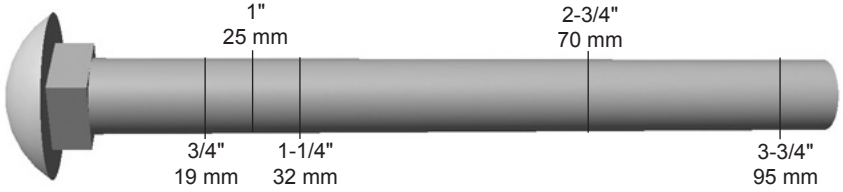
1/2" Hex Head Bolt



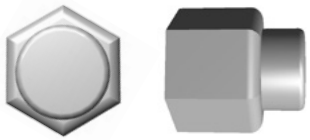
3/8" Thin Series Lock Nut
BAE0610



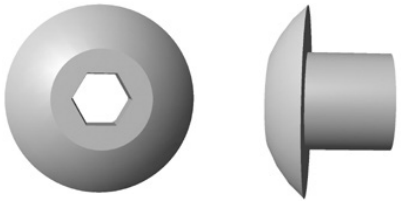
3/8" Carriage Bolt



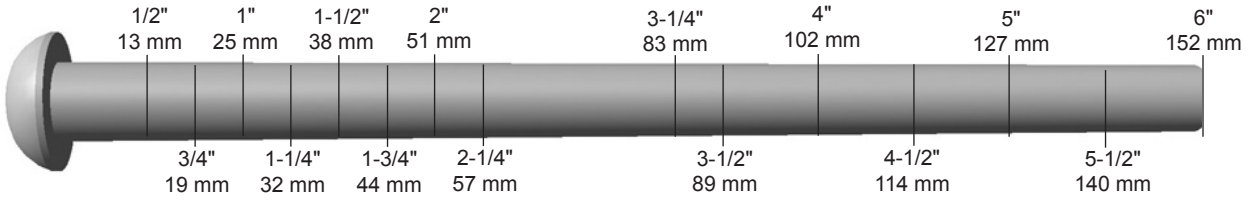
3/8" Lock Nut BAE0620



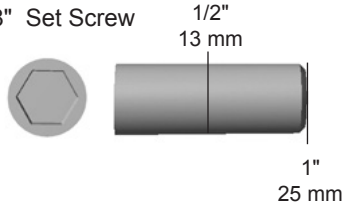
3/8" Button Head Nut



3/8" Button Head Bolt



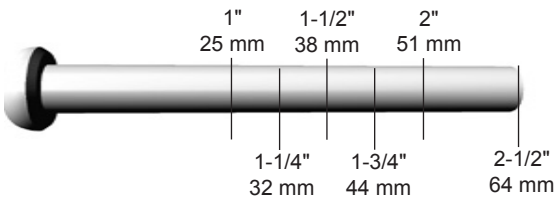
3/8" Set Screw



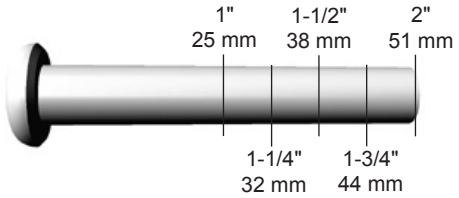
Installation Guidelines

HARDWARE GUIDE

1/4" Button Head Bolt



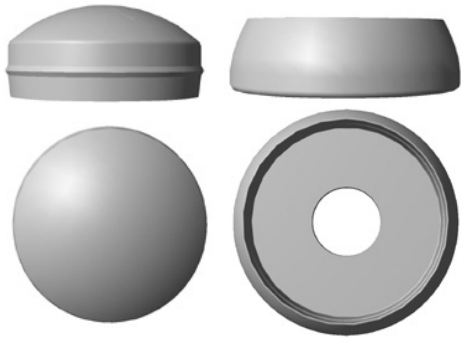
5/16" Button Head Bolt



3/8" x 1-1/4" Tamper Resistant Bolt
BAE0662

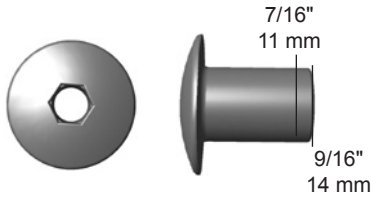
Drive Rivet BAE0020

Bolt Cap & Washer
BPL0300



1/4" Flat Washer
BAE0158

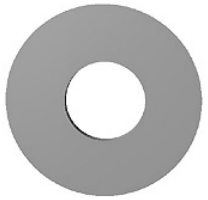
1/4" Button Head Nut



1-1/2" I.D. x 3-1/4" O.D. Flat Washer BAE0937

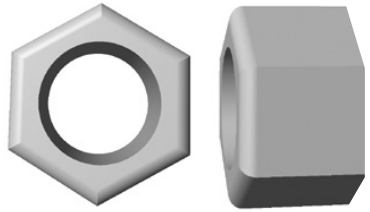
3/8" Flat Washer
BAE0595

1" O.D. Flat
Washer BAE0600



1/2" Flat Washer
BAE0690

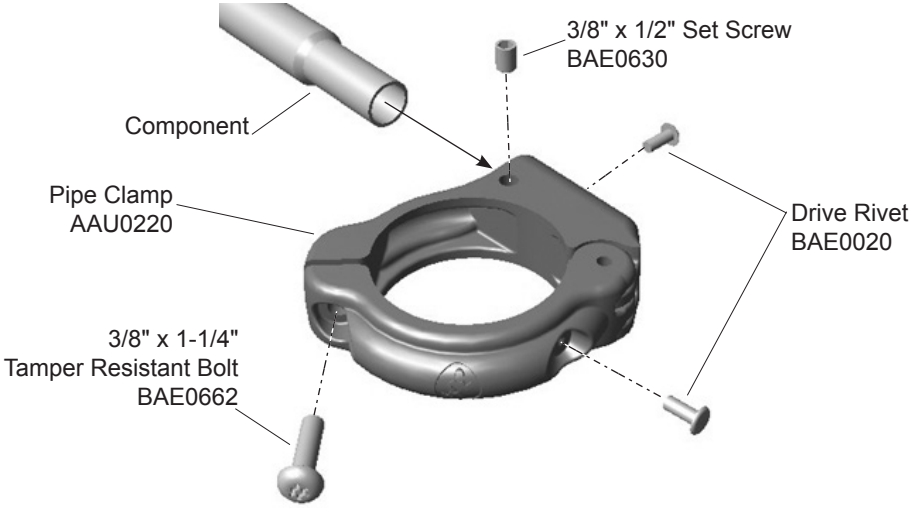
1/2" Lock Nut BAE0720



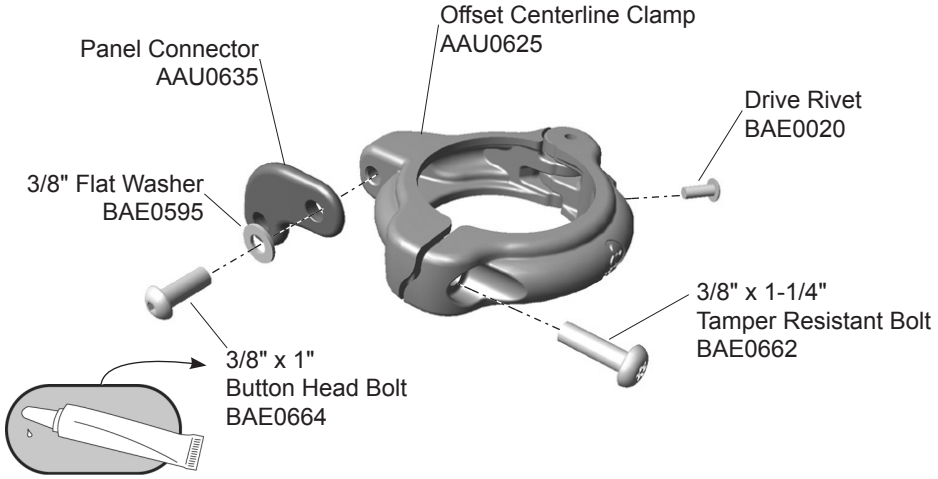
Installation Guidelines

CHALLENGERS® CLAMP ASSEMBLIES

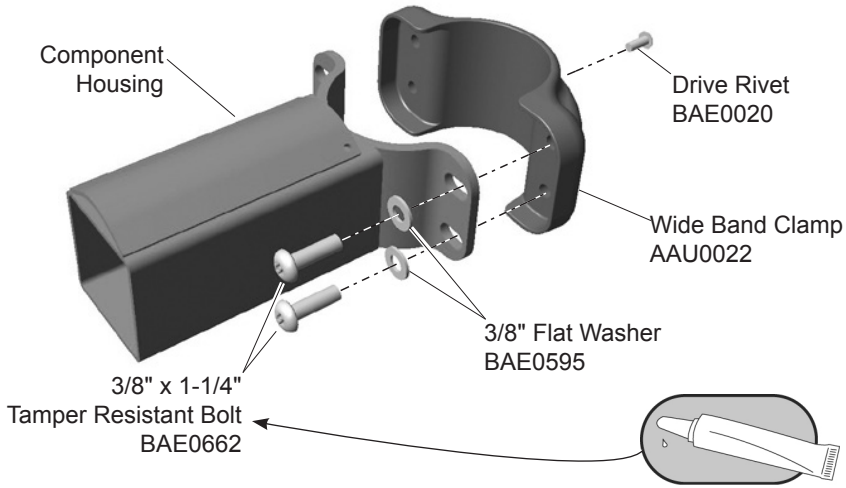
We have provided the following typical assembly drawings of the Challengers® clamps for your reference.



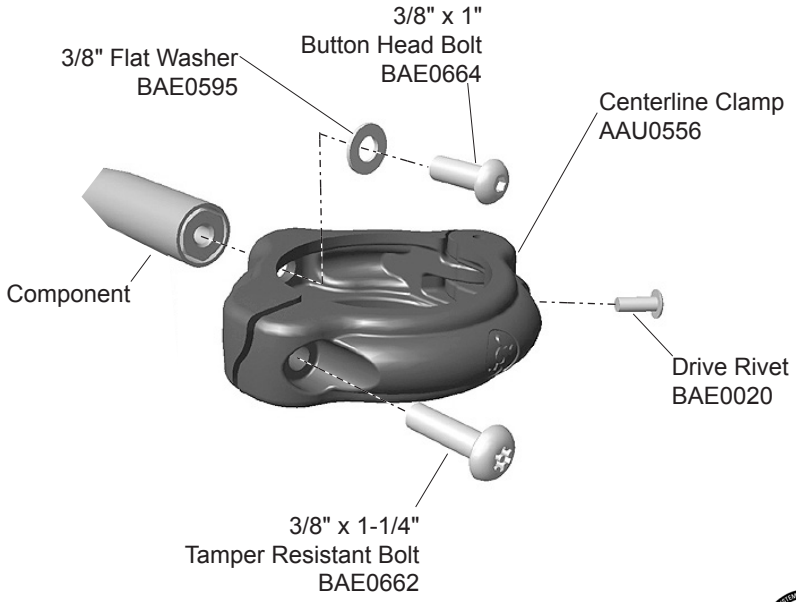
Pipe Clamp Assembly



Centerline Clamp Assemblies



Band Clamp Assembly



Installation Guidelines

AGE APPROPRIATE LABELS (COMPLIANCE WITH ASTM / CSA)

Each composite play structure and each independent (non "play functionally linked") unit must have a label applied.

__**Step 1:** Choose a conspicuous location that will be visible to adults.

All three labels are included. Only apply the label that is appropriate for your equipment.

__**Step 2:** Follow instructions for the type of structure or unit. The age range on the label should match the age range listed on the master composite structure top view drawing, or on the independent item's installation instructions.

Composite structures: Apply label approximately 4 ft. to 5 ft. (1220 to 1525 mm) above the resilient surfacing material on a support post. Surface must be clean and dry before applying the label.

Independent items: Apply label in the line of sight above the resilient surfacing material on a support post or vertical surface. Surface must be clean and dry before applying the label. For smaller components (i.e. spring riders), place label on the back or side of the unit - not on the spring.

Important Note: *Do not place label on rotationally-molded plastic parts, Eco-Armour coated parts, or locations where children may step and wear off label.*

__**Step 3:** Remove backing sheet from label and apply label in position. Using the backing sheet, rub the label to smooth into place removing any wrinkles.

ASTM Labels

CSA Labels

Installation Guidelines

FINAL INSPECTION

- Playworld Systems® insists on the installation of protective surfacing within the use zone of each play structure in accordance with the applicable standard or specifications appropriate for the fall height of each structure.

- Playworld Systems® strongly recommends close supervision of children as they play. The owners of playground equipment and the parents or guardians of children are responsible for this proper supervision.

- As the owner of playground equipment, you are responsible for the maintenance of the equipment and surrounding play area. A comprehensive maintenance and inspection schedule must be developed and all equipment inspected frequently. Refer to the inspection and maintenance schedule in the back of this booklet.

- Perform a thorough final check on the installed equipment to insure all equipment is installed as specified by manufacturer's installation instructions.

  - Review all Installation Instructions for specified dimensions. Make sure dimensions called for in instructions agree with actual installation.

  - Double check height dimensions. Height measurements are taken from the top of the protective surfacing material.

  - Insure all fasteners are tightened according to tightening torque specifications listed on your installation instructions.

  - Insure all exposed pipe ends have properly installed end caps. Insure that drive rivets are secure.

  - Clean dried concrete off of components and any other affected surface.

  - Touch-up any scratches or installation damage to powder coated finish with color-matched spray paint.

  - Allow adequate time for proper curing, both for concrete and urethane cement if rubber safety surfacing tiles have been installed.

  - Insure that protective surfacing is properly installed according to C.P.S.C. (or other appropriate body) recommendations. Footings must not be exposed.

  - Insure that hard surface warning/Playworld Systems® identification labels are properly affixed to the play equipment. Labels are to be plainly visible according to current playground equipment guidelines. For locations complying with ASTM F1487 or CSA Z-614, Age Appropriate labels must also be applied in a visible location.

  - Dispose of all packaging material properly. These materials which include large plastic bags and sheets can be a suffocation hazard. Dispose of these materials out of reach or contact of small children.

Surfacing Warning Label

Clamps
- Inspect clamps to insure they are properly secured to the support posts.
- Use the supplied torx-style tamper-resistant bit to insure bolt connection is tight.
- Use the supplied 3/16" hex key wrench to insure the set screw connection is tight.
- Inspect drive rivets to insure they are intact and secure.
- Visually inspect clamps for cracks or breakage. If any damage is detected, barricade equipment to prevent use until repair is completed. Contact your sales representative immediately for a replacement part.

Fasteners
- Inspect for loose fasteners.
  Tightening torque specifications are:
  Bolts and Nuts: Snug tighten and tighten an additional one-half turn.
  Set Screws: Snug tighten and tighten an additional full turn.
- If during the maintenance process a bolt needs to be removed from a part or parts, it will be necessary to apply a drop of liquid thread lock / loctite to the bolt before reinstallation.
- Inspect for missing, worn or broken fasteners. If any missing, worn or broken fasteners are found, refer to the installation instructions for proper replacement fastener. If any damage is detected, barricade equipment to prevent use until repair is completed. Contact your sales representative immediately for a replacement part.

Castings
- Inspect the aluminum castings to insure they are properly secured to the component.
- Visually inspect the castings for cracks or breakage. If any damage is detected, barricade the equipment to prevent use until repair is completed. Contact your sales representative immediately for a replacement part.

Welds
- Inspect all welded joints. If any broken welds are detected, barricade equipment to prevent use until repair is completed. Contact your sales representative immediately for a replacement part.

Slide
- Inspect entire sliding surface for obstructions, sharp points, cracks or jagged edges. If any damage to sliding surface is detected and is determined to be unsafe, barricade component to prevent use until repair is completed. Minor burrs or sharp edges may be removed by using a sharp utility knife or block plane to remove sharp burr.
- Inspect the exit region of slide for standing water. If standing water is detected, lower the exit region to provide a downward slope.
  Note: This will require the footing of the end support leg to be adjusted deeper.

Plastic Parts
- Inspect all plastic surfaces for sharp points, cracks or jagged edges. If any damage is detected and is determined to be unsafe, barricade equipment to prevent use until repair is completed. Minor burrs or sharp edges may be removed by using a sharp utility knife or block plane to remove sharp burr.

Finish
- Inspect metal parts for finish damage.
  To repair painted surfaces, sand damaged area with sandpaper and wipe clean. Mask area and paint with primer and allow to dry. Paint primed area with color-matching paint and allow to dry. Recoat area with color-matching paint if required. Drying time is approximately 8 hours between coats.
  To repair the coating, contact the Playworld Systems' Customer Service Department for a coating repair touch-up kit.

Footings
- Inspect component to be solid in footing and secure. If any damage is detected, barricade equipment to prevent use until repair is completed.

Surfacing
- Refer to the specific surfacing maintenance detail sheet for additional information.

Equipment Maintenance
Challengers®
Composite Structure

(representative structure)

Replacement Parts
- Refer to your installation instructions to obtain replacement part number.
- Contact your sales representative or call Playworld Systems' Customer Service for replacement part.

PLAYWORLD
The world needs play.
For Customer Service, Call
800-233-8404 or
570-522-9800 OUTSIDE U.S.
1000 Buffalo Road • Lewisburg, PA 17837
www.playworldsystems.com

Inspection Form

Preventive Maintenance
. . . for Safety's Sake!

- Be sure that you are using a copy of this Inspection Form and not your original.
- Use the Inspection Codes listed below and record condition of equipment at time of examination on the Inspection Checklist.
- Document any item from the Inspection Checklist that will require maintenance along with any corrective action on the Maintenance Schedule.
- Be sure to include appropriate dates and signatures on each section to properly document maintenance procedure.

INSPECTION CHECKLIST

	Frequency	Inspection Code	Inspection Date	Date Repairs Completed
Inspect plastic parts for damage.	Medium			
Inspect clamps for tightness and damage.	High			
Inspect metal parts for structural and finish damage.	Medium			
Inspect for loose, missing, worn, or broken fasteners.	High			
Inspect footing to insure support is secure and footing is not damaged.	Low			
Inspect surfacing to insure proper depth and distribution.	High			
Inspect sliding surface for obstructions and damage.	High			

Inspection Codes
P = Pass **F** = Fail
NA = Not Applicable

Inspector: Name (Please Print) _____ Signature:_____ Date:___ /___ /___

MAINTENANCE SCHEDULE

Item in Question	Description of Problem	Corrective Action	Date

Repairer: Name (Please Print) _____ Signature:_____ Date:___ /___ /___

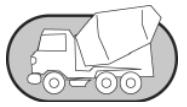
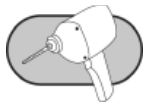
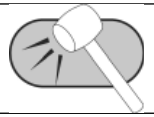
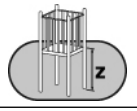
PLAYWORLD
The world needs play.

Installation Instructions
Universal Model UN9910
Surface Warning Label

Assembly View

Installation Preparation

Recommended Crew: ..... One (1) adult
Installation Time: ..... 15 to 20 min

ICON KEY			
	Fully Tighten Hardware		Add 1 Drop of Thread Locking Adhesive
	Do **Not** Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		Critical Fall Height

__**Notes Before You Begin:** Do not over tighten bolts during assembly, only snug tighten them until assembly is complete.

Carefully read and understand these installation instructions before you begin.

__**Step 1:** Before attempting to assemble your equipment, please review all installation information carefully. Should you experience any difficulty during the installation process, please call us at the phone number shown on the last page of these instructions.

__**Step 2:** Separate and identify all components and hardware by referencing the detail drawings and packing list.

__**Step 3:** Choose a conspicuous location on all four sides of the composite structure that will be visible to adults.

__**Step 4**: Apply warning label 48" (1219 mm) to 60" (1524 mm) above the resilient surfacing material on a support post. Surface must be clean and dry before applying the label.

Note: Do not place label on rotationally-molded plastic parts, vinyl coated parts, or locations where children may step and wear off label.

__**Step 5:** Remove backing sheet from label and apply label in position. Using the backing sheet, rub the label to smooth into place removing any wrinkles.

UN9910- SURFACING WARNING LABEL

PART NO.	DESCRIPTION	QTY.
BAB0032	Surfacing Warning Label	4

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Bill of Materials

Installation Instructions
Universal Model UN9930
Pipe Systems Maintenance Kit With Aerosol

PART NO.	DESCRIPTION	QTY.
BAB0032	LABEL - TAMPER RESISTANT SURFACE WARNING	1
BAD0001	PLAYWORLD SILK SCREENED BLANK	1
BAD6000	4.5 oz AEROSOL TOUCH-UP PAINT	2
BAD6010	AEROSOL RUST-RESISTANT PRIMER PAINT	1
BAD6016	GRAFFITI REMOVER TOWELS	1
AUNH9600	HARDWARE FOR MAINT/TOOLS & SERVICE KIT	1
BAD0085	THREAD LOCKING ADHESIVE	2
BAE0020	RIVET - 1/4" x 11/16" DRIVE	10
BAE0158	WASHER - 1/4" SAE FLAT	4
BAE0159	NUT - 1/4"-20 HEX LOCK w/o NYLON CAP	4
BAE0161	NUT - 1/4"-20 x 7/16" BUTTON HEAD	2
BAE0595	WASHER - 3/8" SAE FLAT	10
BAE0600	WASHER - 1" O.D. FLAT	10
BAE0620	NUT - 3/8"-16 LOCK w/NYLON CAP	10
BAE0630	SCREW - 3/8"-16 x 1/2" SOCKET SET SS	2
BAE0632	NUT - 3/8"-16 x 1.25 BARREL w/PATCH	3
BAE0659	BOLT - 3/8"-16 x 3/4" BUTTON HEAD - SS	2
BAE0661	BOLT - 3/8"-16 x 1/2" BUTTON HEAD - SS	2
BAE0662	BOLT - 3/8"-16 x 1-1/4" TAMP RESIST w/TORX DRIVE	5
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	2
BAE0664	BOLT - 3/8"-16 x 1" BUTTON HEAD - SS	8
BAE0665	BOLT - 3/8"-16 x 1-3/4" BUTTON HEAD - SS	2
BAE0666	BOLT - 3/8"-16 x 1-1/4" BUTTON HEAD - SS	4
BAE0668	BOLT - 3/8"-16 x 2-1/2" BUTTON HEAD - SS	1
BAE0900	WRENCH - 5/32" SHORT HEX KEY	2
BAE0902	TOOL - 7/32" SHORT HEX KEY WRENCH	1
BAE0915	BIT - 3/8" TAMPER RESISTANT	1
BAE0922	TOOL - TT 45 L WRENCH	2
BAE01521	BOLT - 1/4"-20 x 1/2" BUTTON HEAD - SS	2
BAE01522	BOLT - 1/4"-20 x 1" BUTTON HEAD - SS	4
BAE01524	BOLT - 1/4"-20 x 3/4" BUTTON HEAD - SS	2
BAE01525	BOLT - 1/4"-20 x 1-1/4" BUTTON HEAD - SS	4
BAE06645	BOLT - 3/8"-16 x 1-1/2" BUTTON HEAD - SS	4
BAE06673	BOLT - 3/8"-16 x 2" BUTTON HEAD - SS	2
BAE06675	BOLT - 3/8"-16 x 2-1/4" BUTTON HEAD - SS	1
BAE06682	BOLT - 3/8"-16 x 3-1/4" BUTTON HEAD - SS	1
BAE06683	BOLT - 3/8"-16 x 3-1/2" BUTTON HEAD - SS	1