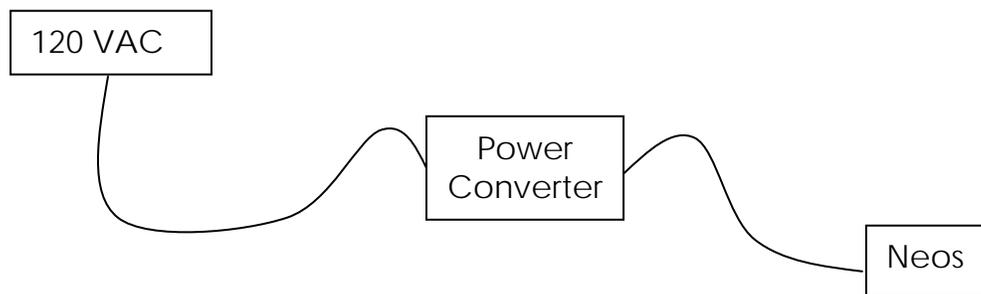


Powering A Neos

General Notes:

The Neos products run on 12 volt, direct current electricity. This is the same type of electrical power used in automobiles. For comparison, homes in the US are wired for 120 volt, alternating current. The lower voltage makes Neos an intrinsically safe product – there is no danger of being shocked by a Neos.

Most of the time, Neos is powered by taking 120 volt AC power and using a converter to make 12 volt DC power. This is shown schematically below:



The power converters for Neos are just larger versions of the small power converters found on numerous home appliances:

Small Converter (3" x 2" x 2")



Large Converter for Neos (9" x 5" x 2")



The power converter for a Neos must be 12 volt, and it must produce DC current. There are many low voltage outdoor lighting systems that run on 12 volt AC current. The power converters for these systems will not work for Neos.

Along with being 12 volt and direct current, the power converter must be large enough to supply the current that Neos requires. The small

converter pictured above might be able to supply 1 ampere of current. Neos requires 20 amperes of current.

There are a number of 12 volt DC power converters available on-line that will work for Neos. See the "Available Power Converters for Neos" document for a listing of where to obtain these converters. These converters typically cost \$150 - \$300.

Voltage Drop in Power Supply Lines

Often it is convenient to locate the power converter in a shed or similar structure and run an underground cable to the Neos. In this situation, the voltage will drop as it travels along the cable. This drop in voltage is proportional to the length of the supply cable. Care must be taken not to let the voltage drop below 10. Increasing the diameter of the cable will cause the voltage drop to be lower. Below is a chart that shows recommended wire gages for various distances between the power converter and the Neos: (Lower wire gages are larger diameter.)

Distance (feet)	20	40	60	80	100	120	140	160	180	200
Wire Gage	14	10	8	8	6	6	4	4	4	4

Outdoor Enclosures for the Power Converter

If there is not a shed or other building nearby to house the power converter, it can be housed in an outdoor enclosure. This enclosure can be mounted to a post or concrete pad. There are even enclosures that can be buried in the ground. See the document "Power Converter Enclosure for Neos" for one example of such an installation.

Powering a Neos with Solar Power

- Because Neos runs on 12 volt DC power, it is a good candidate for a Solar Power supply. However, a solar supply system that is large enough to ensure that Neos is always powered, regardless of the weather can be fairly expensive - \$5,000 or more depending on the location. See the document "Solar Power Systems for Neos" for more information.

Power Converters for Neos:

The Mean Well SP320-12:

- This power converter does not come with a cable and plug. You either wire it directly into a 120 volt supply, or you can obtain and attach a cable and plug.
- The voltage on this power converter can be adjusted up to 13 volts to account for voltage drop between the converter and Neos.
- This power converter will also work with 240 volt input.
- Available at:
<http://www.alliedelec.com/m/d/2156faf9b8b87f2189b791f4791cd42b.pdf>



The Tripp Lite PR-25:

- This power converter comes with a cable and plug.
- This converter is not adjustable.
- This converter only works with 120 volt input (it does not accommodate 240 volt input.)

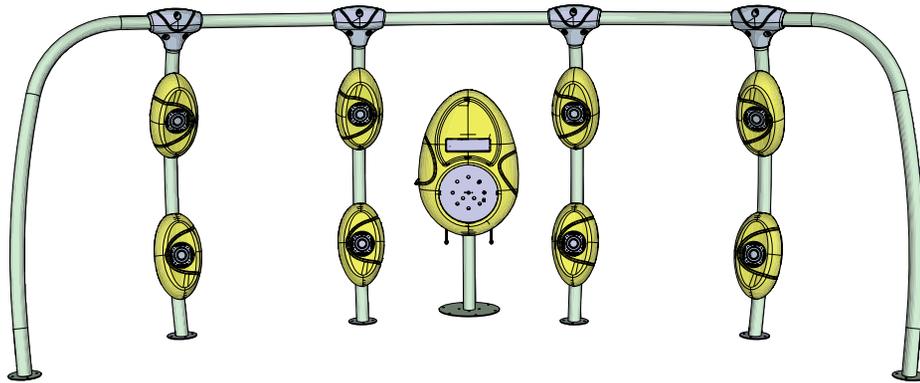


<http://www.provantage.com/tripp-lite-pr25~7TRTR01Q.htm>

Installation Instructions

Playworld Systems® Model XX0997

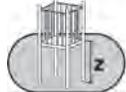
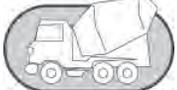
NEOS ARC



Assembly View

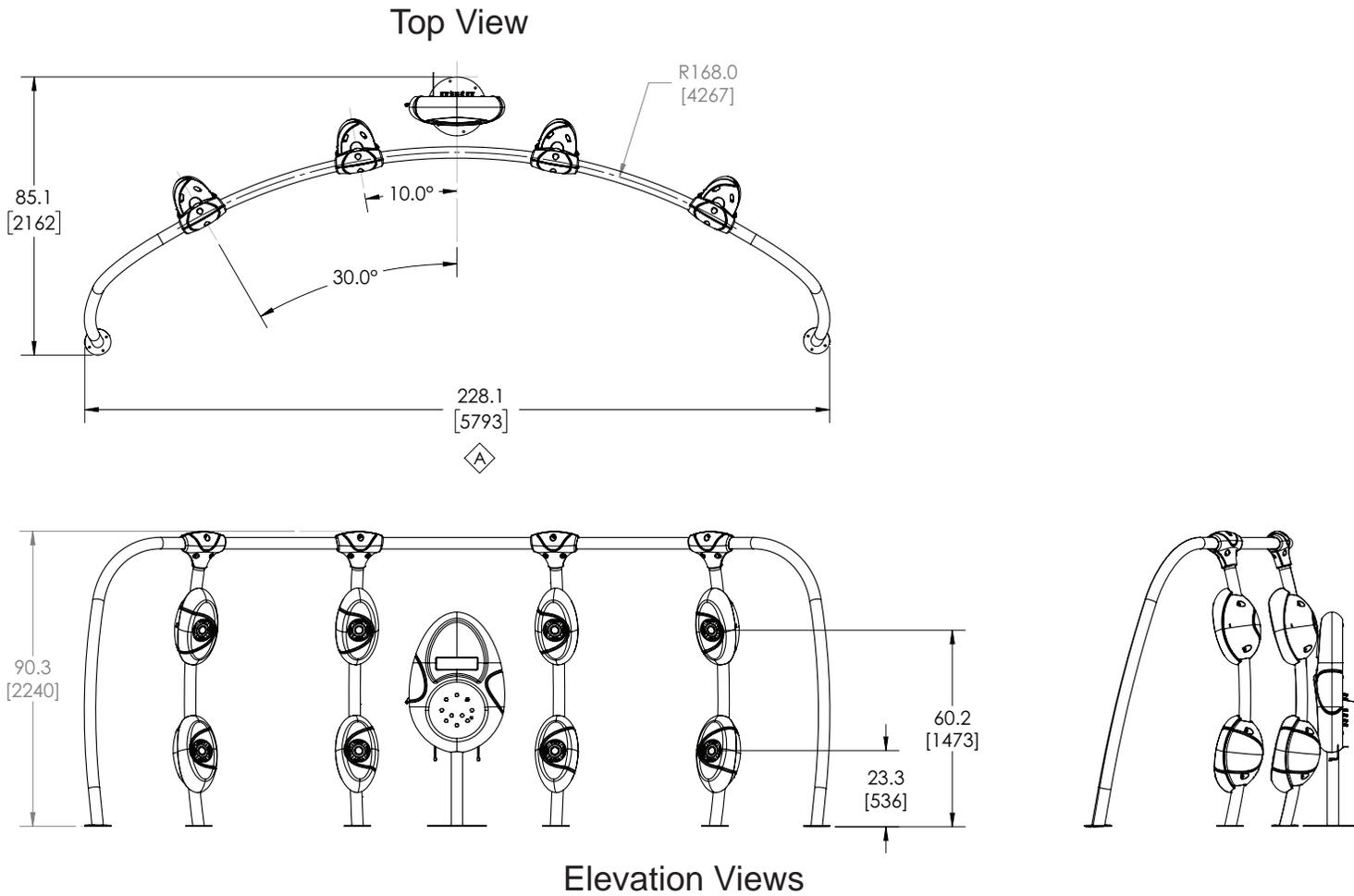
Installation Preparation

- Recommended Crew: Four (4) adults
- Installation Time: 4 man-hours (not including pad)
- Concrete Required: 1.8 cubic yard (1,39 cubic meters)
- Use Zone:..... Refer to the master layout drawing
- User Group Age (years): ASTM/CSA: All Ages, EN: 2-14

ICON KEY			
	Fully Tighten Hardware		Critical Fall Height
	Do Not Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		

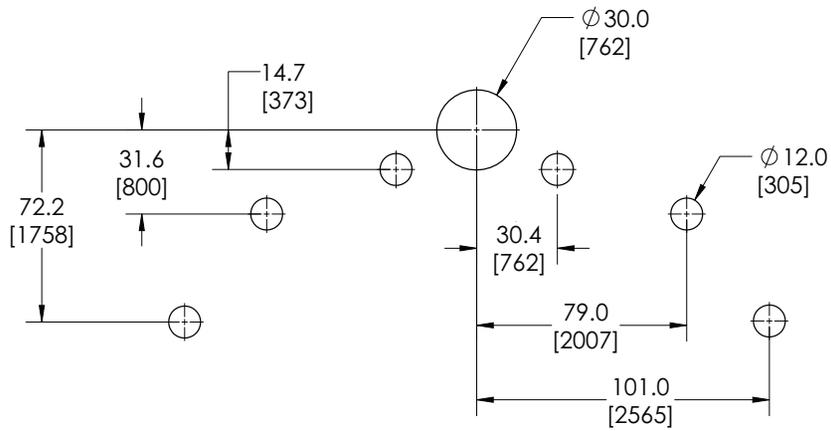
Installation Instructions

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

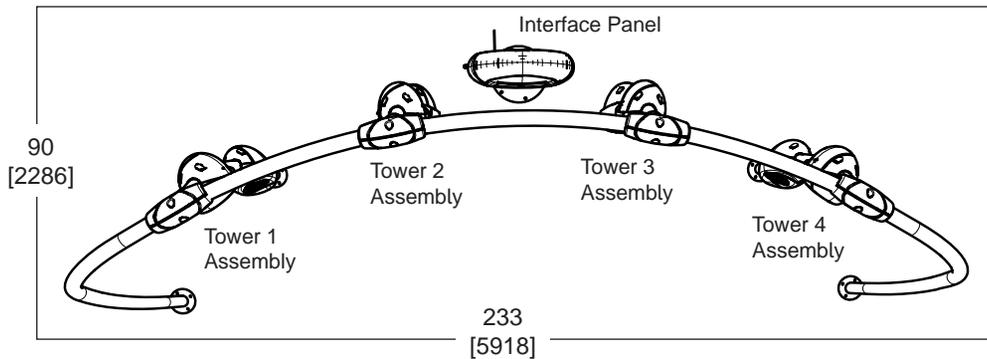


Installation Instructions

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



Footing Diagram

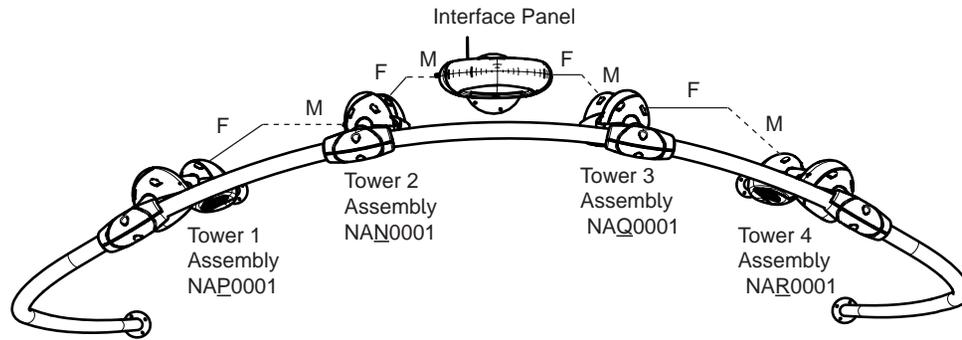


Pad Diagram



Installation Instructions

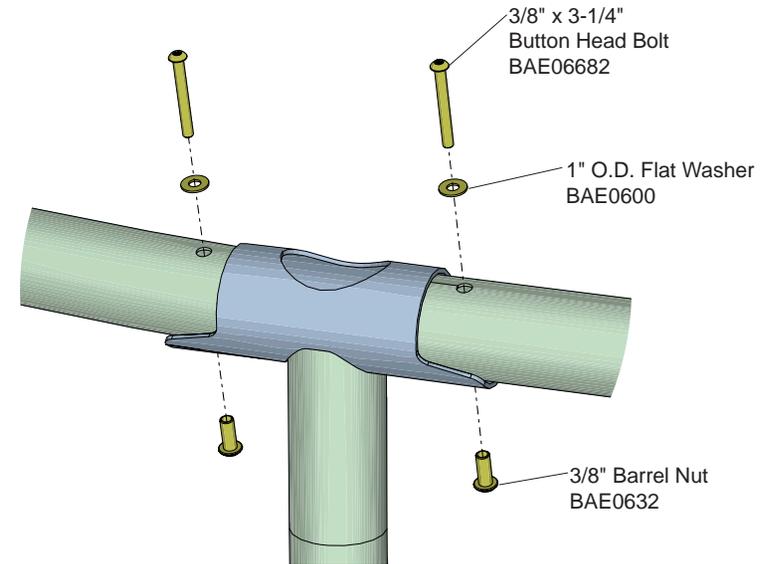
Follow the details in alphabetical order. For clarification, each detail references the step description. The step descriptions start on page 8.



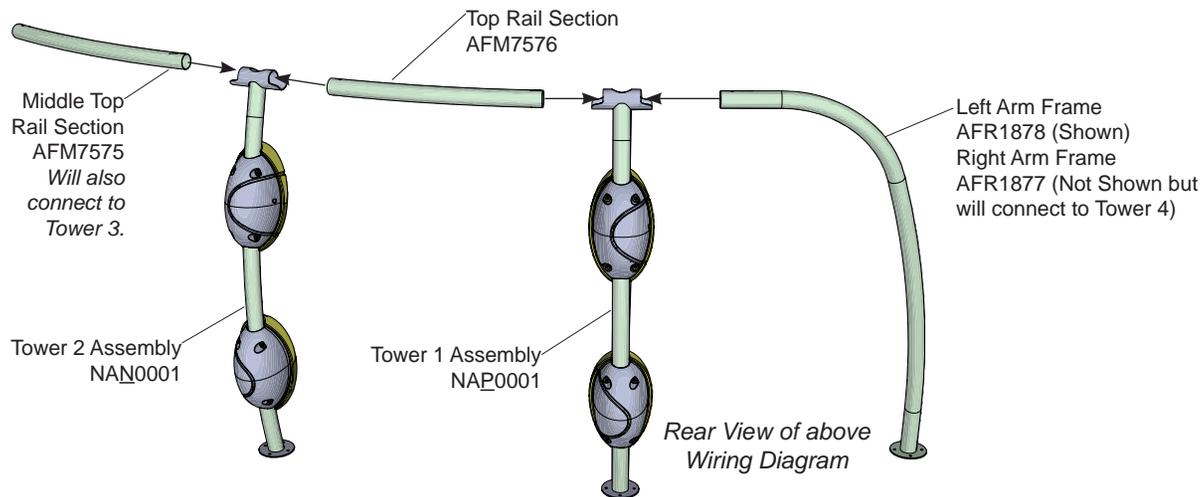
Wiring Diagram

Line	Connection Type
—	Female
- -	Male

Important Note: The long cables will thread through the top rail sections and attach to the short cables at the top of the tower. Refer to the diagram to ensure proper attachment.

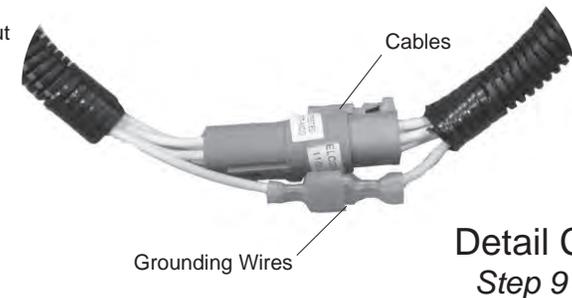


Detail B
Steps 7 and 8



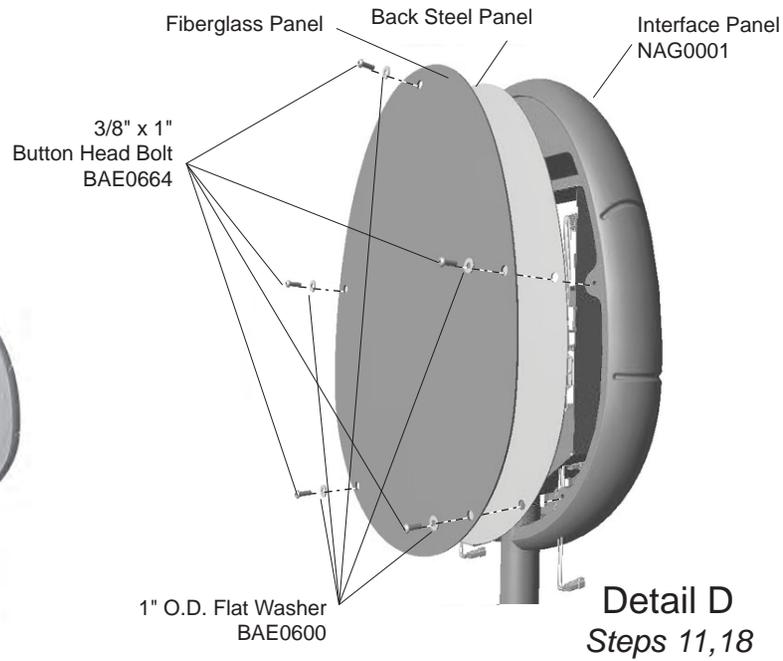
Detail A
Steps 6, 7 and 8

Note: Thread the cable with the female end from Tower 1 through the top rail to connect to the cable with the male end in Tower 2.

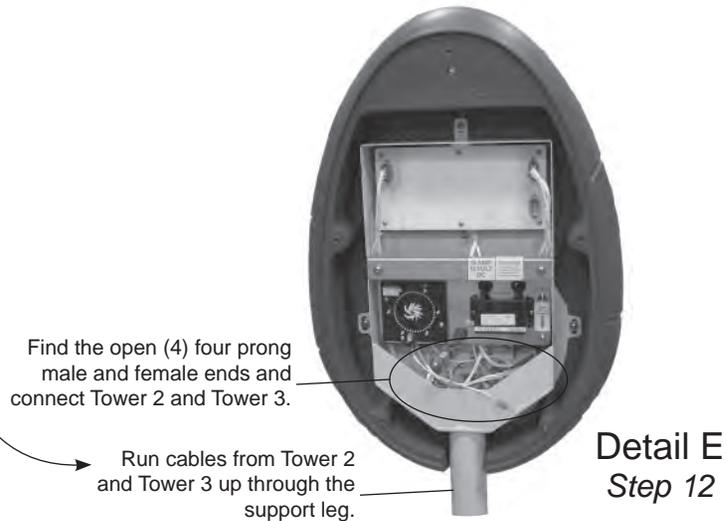


Detail C
Step 9

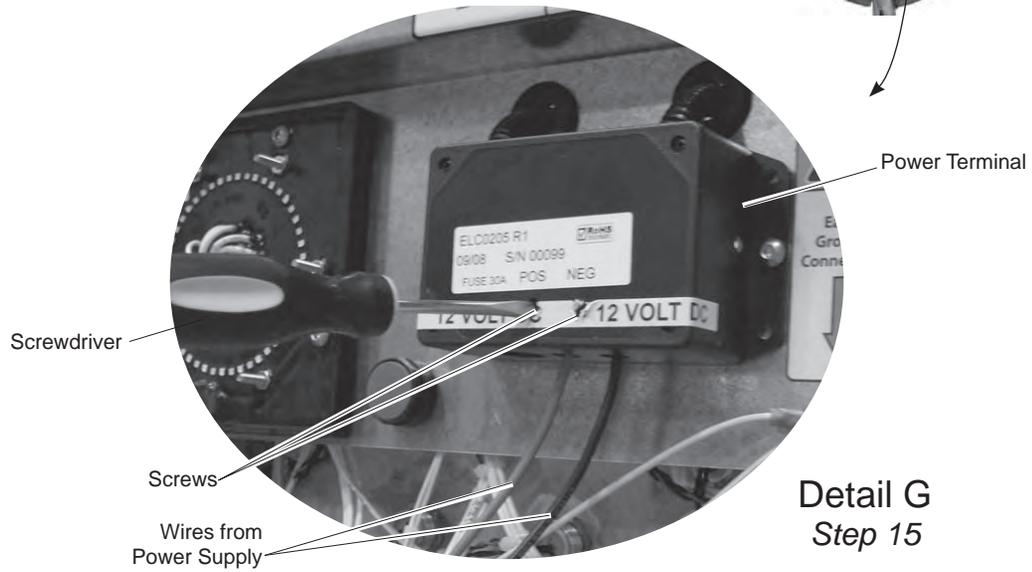
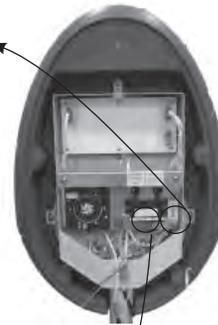
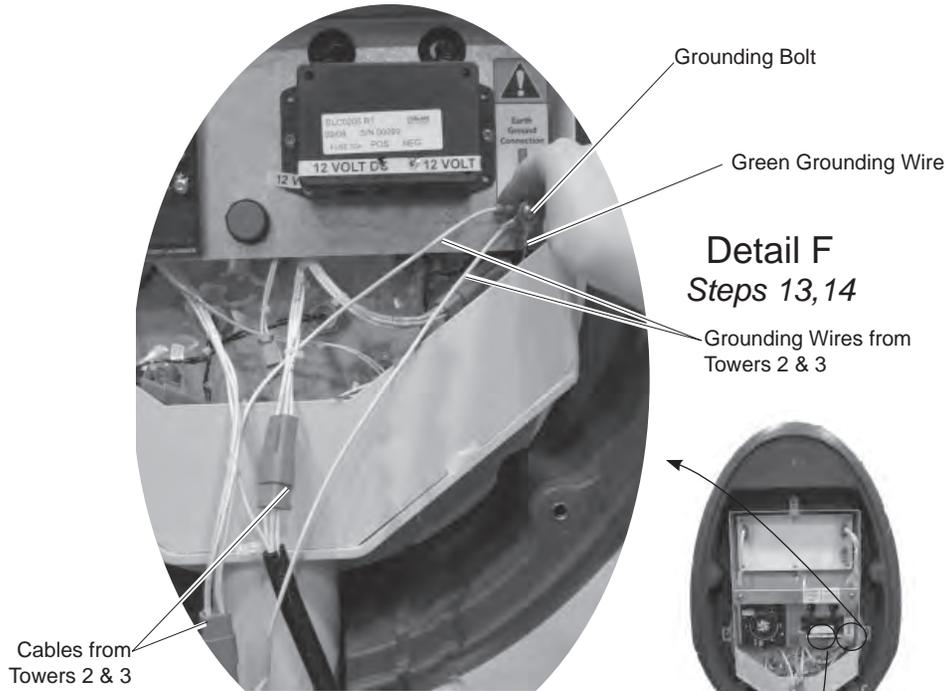
Installation Instructions



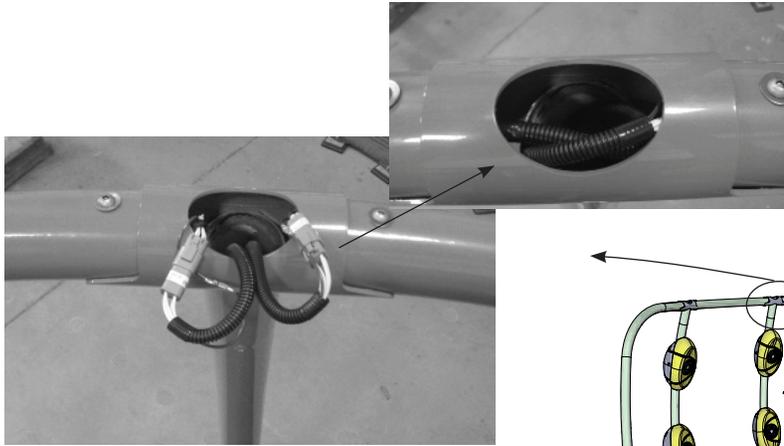
Caution: It is recommended that (2) two people perform this step. A person should hold the back steel panel as the bolts are being removed. There is a hand hold at the bottom of the panel.



Installation Instructions

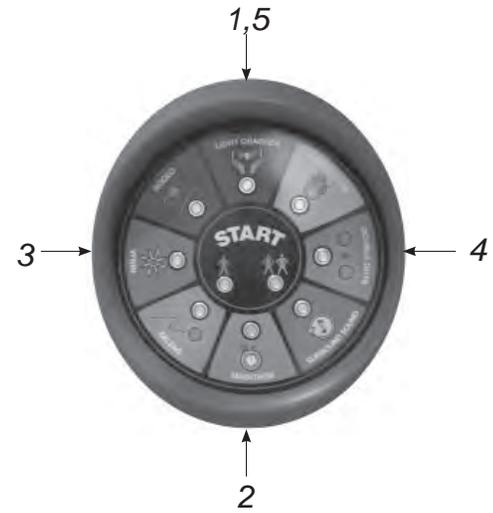
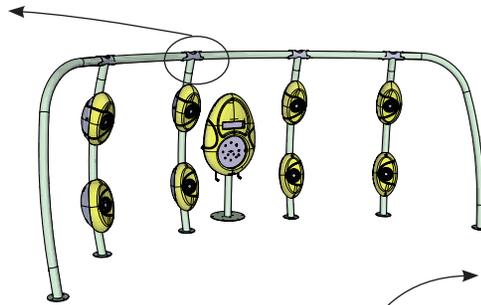


Installation Instructions



Detail H
Step 16

Note: The towers that end up with the cable connections may have excess cable protruding from the top. When all connections are made, excess cable should be fed back into the top of the tower.



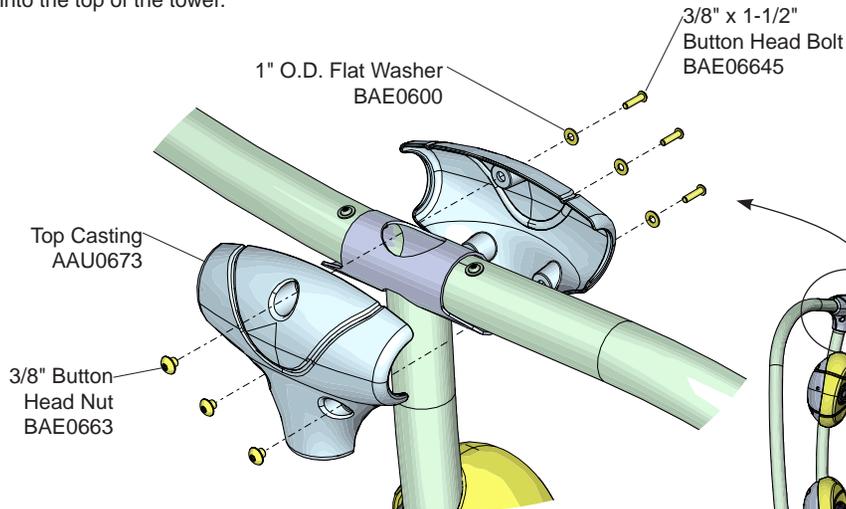
Volume Adjust

Note: To adjust the volume press the Light Grabber button, then the Marathon button, the Ninja button, the Double Dots button, and the Light Grabber Button again quickly in succession. Then using the Light Grabber button as volume up, and the Marathon button as volume down, adjust the volume to the desired level. To exit Volume Adjust, press another game selector button.



Game Count

Note: To view the game count, press the Marathon button (6) six times quickly in succession. To exit game count, press another game selector button.



Detail I
Step 20

Note: Make all connections and then tighten evenly so that there are no gaps between the castings.

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: Prepare the pad.

Note: It is recommended that a 90 in. (2286 mm) x 233 in. (5918 mm) x 4 in. (102 mm) concrete or asphalt pad be prepared for NEOS ARC.

Step 4: Arrange the NEOS ARC towers on the ground in the approximate area that they will be installed. Facing the front of the unit, they will be in numerical order from Tower 1 to Tower 4, left to right. Refer to the **Pad Diagram** on page 3.

Position Tower 2 and Tower 3.

Step 5: Place Tower 2 and Tower 3 into position. Refer to the **Pad Diagram** on page 3. The towers will have one cable coming out of the top of the tower and one coming out of the bottom of the tower. Put the bottom cable through the prepared conduit in the footing and leave open for a **later connection**.

Connect the towers.

Step 6: Connect the towers. See **Detail A, and the Wiring Diagram**. Select Tower 2, Tower 1, and a top rail, a middle rail and the left arm frame. Thread the female ended cable from Tower 2 through the top rail and into the top of Tower 1. Leave the end exposed for connection.

Note: Start the assembly of the ARC with Tower 2.

Step 7: Connect the top rail to the towers. See **Details A and B**. Select the appropriate hardware. There is (1) one connection per tower, (2) two total connections. Insert the top rail into the top of the towers as shown. Insert the hardware and attach as shown. Do not fully tighten the hardware.

Step 8: Connect the middle top rail to Tower 2 and the end frame to Tower 1. See **Details A and B**. Select the appropriate hardware. There is (1) one connection per tower, (2) two total connections.

Step 9: Connect the cables and grounding wires. See **Detail C**. Select the cable and grounding wires from Tower 2 and Tower 1. Connect as shown.

Step 10: Repeat **Steps 6-9** for the remaining towers (3 & 4). Each tower will connect in numerical order as indicated on the label positioned on the top of the tower. Refer to the diagram on page 4 for wiring reference.

Position the interface panel.

Step 11: Place the interface panel near the prepared footing. Remove the back panel from the interface panel. See **Detail D**. There are (5) five connections. Remove the hardware and panels from the back of the interface panel as shown.

Caution: It is recommended that (2) two people perform this step. A person should hold the back panel as the bolts are being removed. There is a hand hold at the bottom of the panel. If possible, you may want to lay the panel down.

Step 12: Run the cables from Tower 2 and Tower 3 up through the bottom of the interface panel support leg. See **Detail E**. There should be prepared conduit leading from Tower 2, Tower 3, and the power supply. Run the appropriate cables through the conduit leading from Tower 2 and Tower 3 up through the bottom of the interface panel and into the back of the panel. Connect the cables from Tower 2 and 3 to the open (4) four prong cables in the interface panel. Place the interface panel over the prepared footing.

Step 13: Connect the grounding wires from the cables from Tower 2 and Tower 3 to the interface panel. See **Detail F**. Remove the bolt from the area that says "Earth Ground Connection." Insert the bolt through the grounding wire from the Tower 2 and Tower 3 cables. There will already be a green grounding wire on the bolt. Replace the bolt with the three grounding wires into the interface panel.

Important Note: Steps 14-15 must be executed by a professional electrician.

Position the interface panel.

Step 14: NEOS ARC must be attached to earth ground. See **Detail F**. Using the green grounding wire, attach the NEOS ARC to the earth ground.

Step 15: Insert the wires from the customer supplied power supply into the power terminal. Tighten the screws in the power indicator box. See **Detail G**. Using a flat head screw driver, tighten the screws onto the wires.

Note: Leave the back off of the interface panel off until you have assembled the entire NEOS ARC unit and checked that the unit turns on.



Installation Instructions

Feed the excess cable back into the top of the towers.

Step 16: When all connections have been made, feed the excess cable back into the top of the tower as shown in **Detail H**.

Make sure that the NEOS ARC is working properly.

Step 17: After the power supply is attached and powered, the NEOS ARC will automatically go through a diagnostic test. When it finishes the diagnostic test you will hear the sound of a heartbeat and it will then be in a game ready state. If the unit does not turn on, check to see if the power indicator light is illuminated in the power terminal. See **Detail G**. If the power indicator light is not on, consult an electrician and return to steps 14-15.

Replace back panel from the interface panel.

Step 18: Replace the back panel from the interface panel. See **Detail D**. There are (5) five connections. Replace the hardware and panels from the back of the interface panel as shown.

Final Details.

Step 19: Plumb and level the component. Tighten **all** fasteners. Fully tighten all fasteners according to tightening torque specifications. Bolt down all surface mount supports in accordance with specifications provided by your registered structural engineer.

Important Note: Surface mount hardware is not supplied. Customer is responsible for concrete base and for providing surface mount hardware as specified by a registered structural engineer for each specific project application.

Torque Specifications: Bolts & Nuts - Snug tighten and then tighten an additional half turn.

Attach the top castings.

Step 20: Attach the top castings. See **Detail I**. Select the top castings and appropriate hardware. There are (3) three connections per casting, (24) twenty-four total connections. Place a casting on either side of the top of a tower. Attach as shown. When all connections have been made, fully tighten the connections.

Note: Make all connections and then tighten evenly so that there are no gaps between the castings.

NEOS ARC settings.

__ **Volume Adjust:** Refer to the **Volume Adjust Detail** on page 7. To adjust the volume press the Light Grabber button, then the Marathon button, the Ninja button, the Double Dots button, and the Light Grabber Button again quickly in succession. Then using the Light Grabber button as volume up, and the Marathon button as volume down, adjust the volume to the desired level. To exit Volume Adjust, press another game selector button.

__ **Game Count:** Refer to the **Game Count Detail** on page 7. To view the game count, press the Marathon button (6) six times quickly in succession. To exit game count, press another game selector button.

__ **Diagnostic Test:** If there is any operational problem, the NEOS ARC will go through a diagnostic test. At the end of the test an error code will appear on the score display board. Please take note of the error code and call customer service at the number indicated below.

Note: To make the NEOS ARC run a diagnostic test, turn the power to the unit off, and then turn it back on again.

__ **Addressing Mode:** The **green button** inside the interface panel will force the NEOS ARC into Addressing Mode. Each Neos tower should be correctly addressed when originally shipped from the factory, but re-addressing may be necessary if a circuit board in one of the towers is replaced. Once in Addressing Mode, the score display will show "Adr 0." Starting with tower 1, hit the button on each tower in sequence (2,3,etc,,,,). This process will "teach" each circuit board which location it is in. Addressing should not be required again unless another circuit board is replaced.



ZZXX0997 - NEOS ARC

PART NO.	DESCRIPTION	QTY.
AAU0673	CAST NEOS 360 - TOP	8
AFM7575	FAB METAL - 3.50" DIA - ROLLED TOP RAIL	1
AFM7576	FAB METAL - 3.50" DIA - ROLLED TOP RAIL	2
AFR1877	FRAME - NEOS ARM RIGHT	1
AFR1878	FRAME - NEOS ARM LEFT	1
ASY0589	LABEL KIT - 18MTHS - 12YRS ASTM, CSA, FRENCH	1
BAE0600	1" O.D. x .437" I.D. STAINLESS STEEL FLAT WASHER	20
BAE0632	NUT - 3/8"-16 x 1.25 BARREL	8
BAE0663	NUT - 3/8"-16 x 7/16" BUTTON HEAD	12
BAE06645	BOLT - 3/8"-16 x 1.50" BUTTON HEAD - SS	12
BAE06682	BOLT - 3/8"-16 x 3.25" BUTTON HEAD - SS	8
NAN0001	NEOS ARC - TOWER #2	1
NAG0001	NEOS - 360 INTERFACE	1
NAP0001	NEOS ARC - TOWER #1	1
NAQ0001	NEOS ARC - TOWER #3	1
NAR0001	NEOS ARC - TOWER #4	1



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Fasteners

- Inspect for loose fasteners. Tightening torque specifications are: Bolts and Nuts: Snug tighten and tighten an additional one-half turn.
- Inspect drive rivets to insure they are intact and secure.
- 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.

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.

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

- Raking loose-fill surfacing material back into dug out and displaced areas is necessary at frequent intervals to maintain the impact absorption qualities.
- Loose-fill materials must be replenished when the surface level drops below the minimum level to maintain proper depth in accordance with your equipment's critical fall height.
- Eliminate areas of standing water by improving site drainage.
- Contact manufacturer of unitary surfacing material for specific instructions and product to use for cleaning spots and stains.
- Contact manufacturer of unitary surfacing material if rips, tears or missing material is noticed. Follow the manufacturer instructions regarding the appropriate actions necessary for the repair.

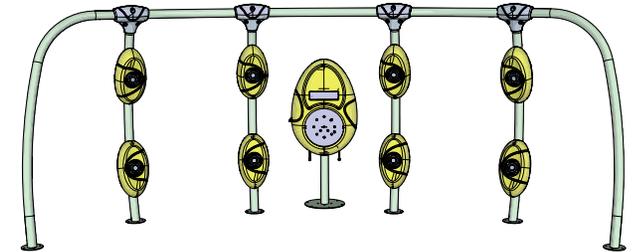
Labels

- Inspect all applied labels to ensure labels are secure, not faded or damaged. Contact your local representative if replacement labels are needed.

Replacement Parts

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

Equipment Maintenance Playworld Systems® Model XX0997 NEOS ARC




The world needs play.

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570-522-9800 OUTSIDE U.S.
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www.playworld.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	Date	Date Repairs Completed
Inspect plastic parts for damage.	Medium			
Inspect surfacing to insure proper depth and distribution.	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			

Inspection Codes

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

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

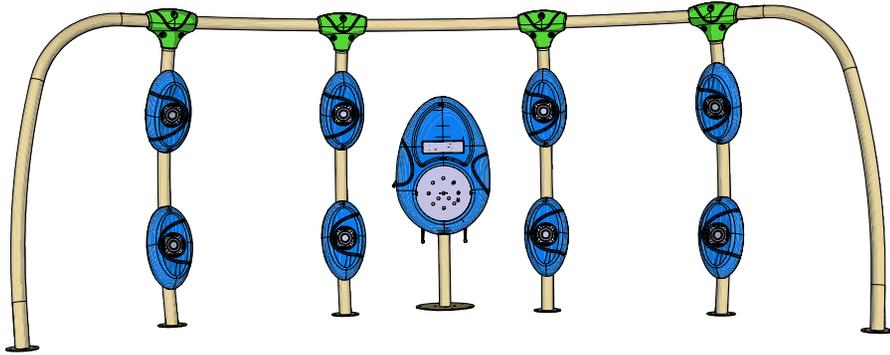
MAINTENANCE SCHEDULE

Item in Question	Description of Problem	Corrective Action	Date

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



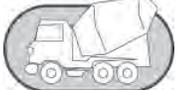
Removal and Replacement
Instructions
Playworld Systems® Model XX0997
NEOS Arc



Assembly View

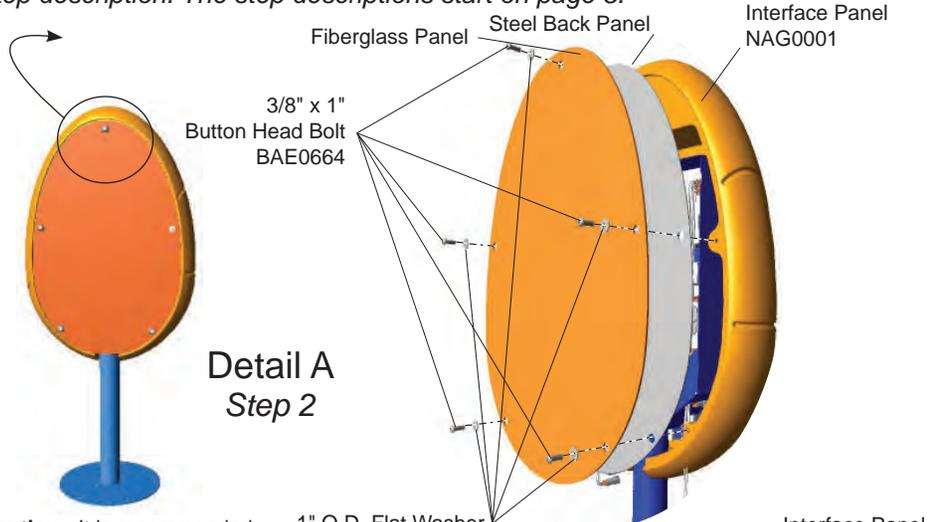
Installation Preparation

Recommended Crew: Two (2) adults

ICON KEY			
	Fully Tighten Hardware		Critical Fall Height
	Do Not Fully Tighten Hardware		Pour Concrete
	Drill		Dig Footing Holes
	Hammer		

Removal and Replacement Instructions

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

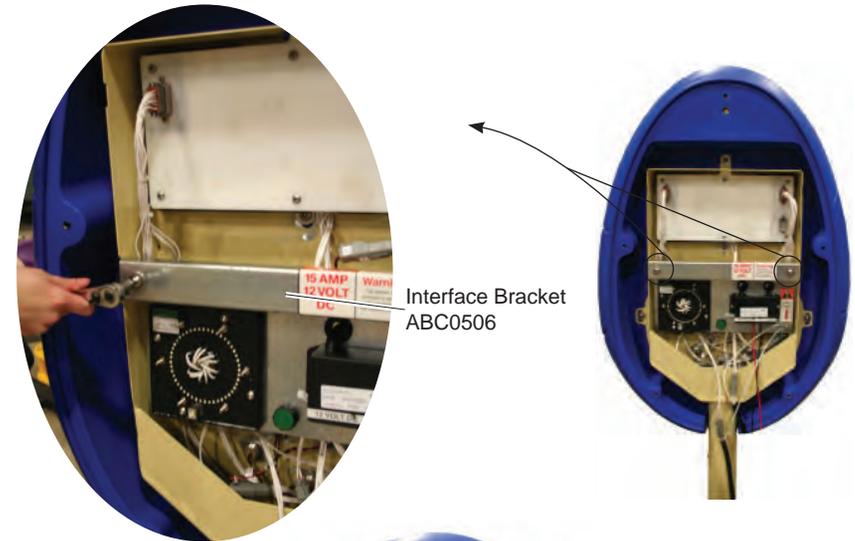


Detail A
Step 2

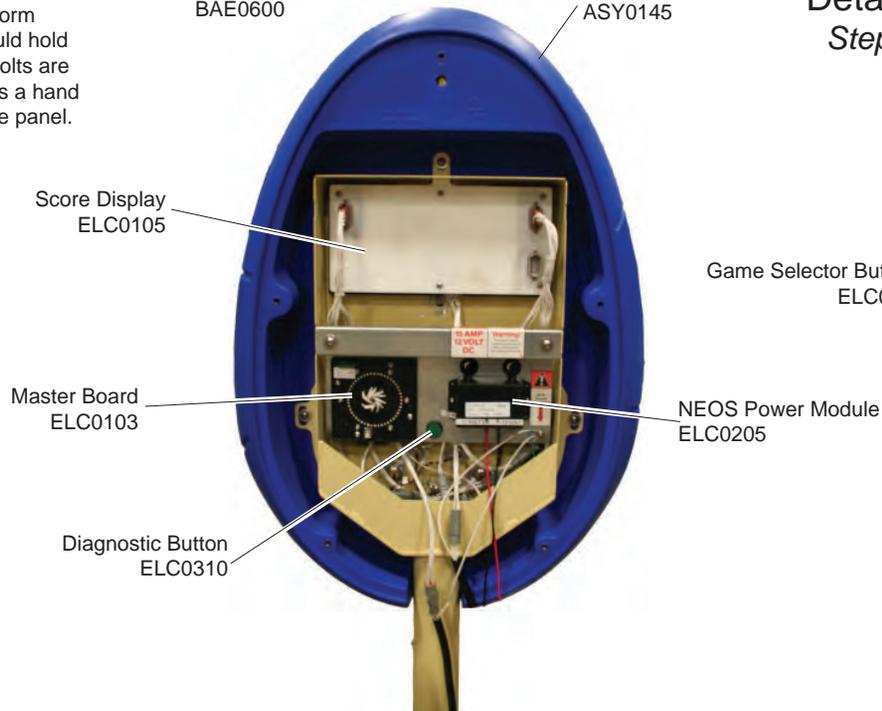
Caution: It is recommended that (2) two people perform this step. A person should hold the back panel as the bolts are being removed. There is a hand hold at the bottom of the panel.

1" O.D. Flat Washer
BAE0600

Interface Panel
ASY0145



Detail C
Step 3

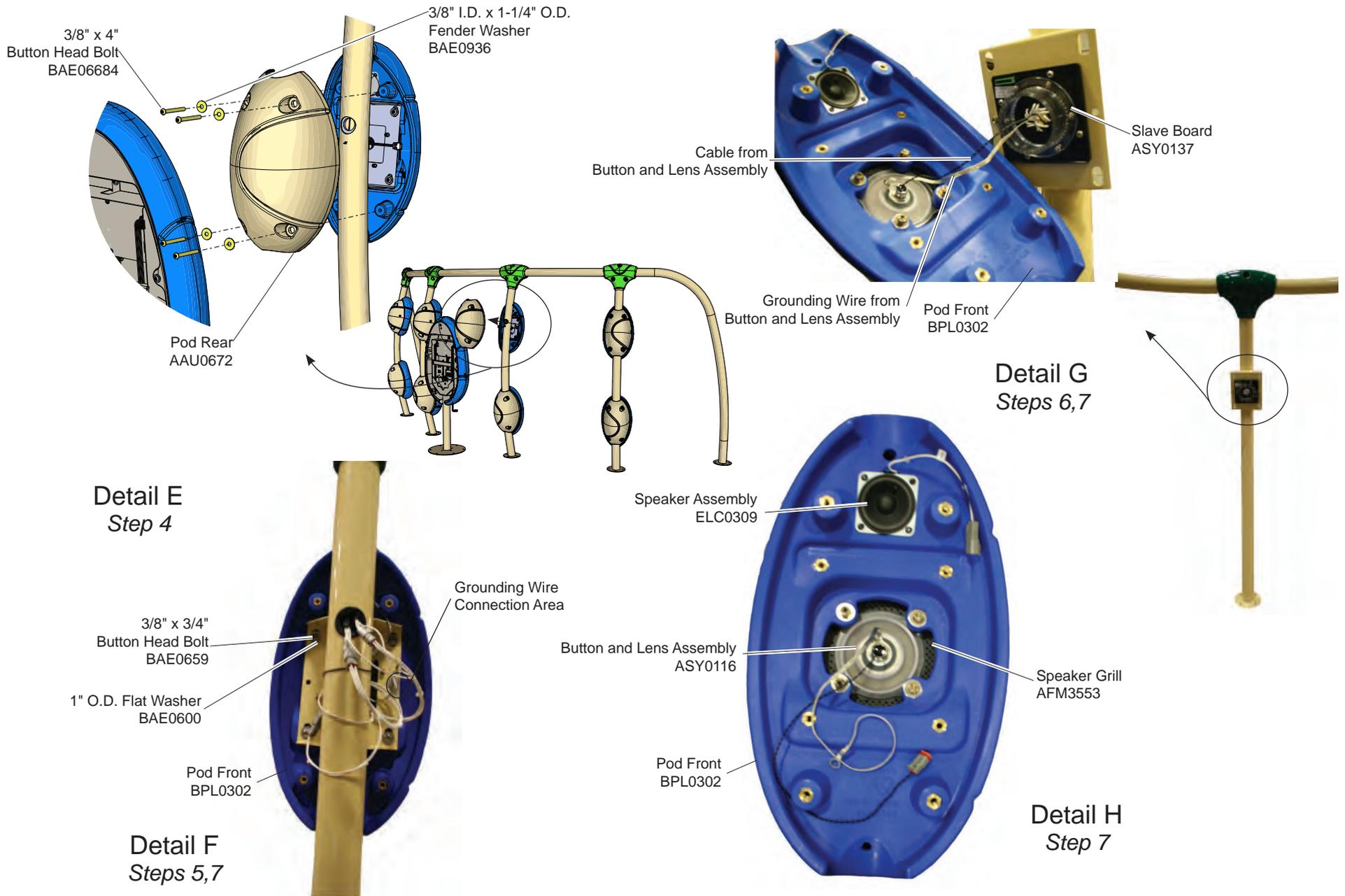


Detail B
Step 3

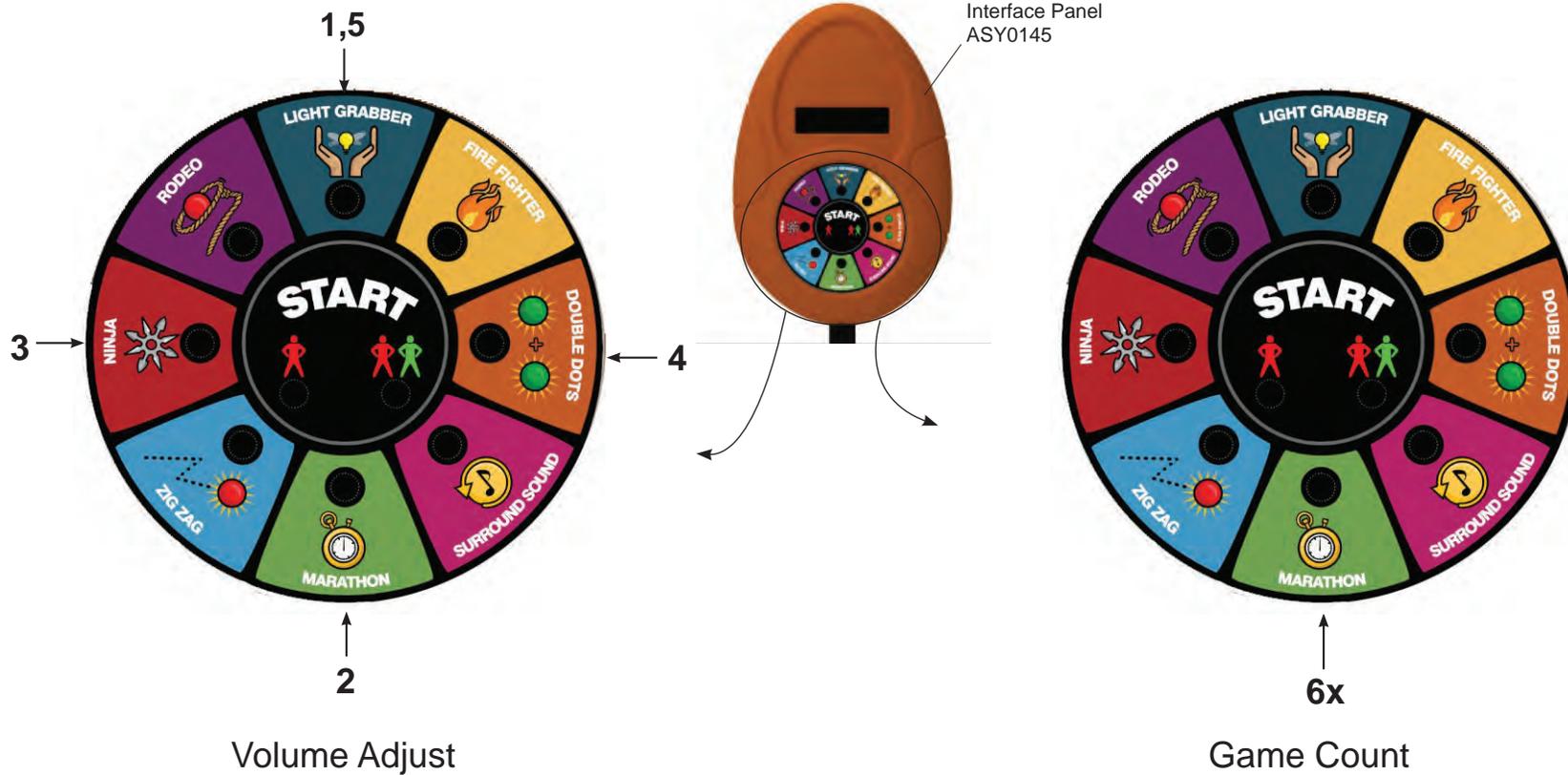


Detail D
Step 3

Removal and Replacement Instructions



NEOS Arc SETTINGS



Note: To adjust the volume press the Light Grabber button, then the Marathon button, the Ninja button, the Double Dots button, and the Light Grabber Button again quickly in succession. Then using the Light Grabber button as volume up, and the Marathon button as volume down, adjust the volume to the desired level. To exit Volume Adjust, press another game selector button.

Note: To view the game count, press the Marathon button (6) six times quickly in succession. To exit game count, press another game selector button.

Removal and Replacement 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 instructions before you begin.

Step 1: Before attempting to disassemble your equipment, please **turn off the power** to the NEOS Arc unit. Should you experience any difficulty during the process, please call us at the phone number shown on the last page of these instructions.

Replacing the Diagnostic Button, Game Selector Buttons, Master Board, Power Module, or Score Display.

Step 2: Remove the back panel from the interface panel. See **Detail A**. There are (5) five connections. Remove the hardware and panels from the back of the interface panel as shown.

Caution: It is recommended that (2) two people perform this step. A person should hold the back panel as the bolts are being removed. There is a hand hold at the bottom of the panel.

Step 3: Locate the part to be replaced. See **Detail B**. Remove the existing part. Make a note as to where the part was connected. Insert the replacement part in the same position. Reconnect the part.

Note: To replace the Game Selector Buttons, refer to **Details C and D**. The interface bracket may need to be removed to access the buttons.

Replacing the Button Lens Assembly, Slave Board, Speaker Assembly, Speaker Grill.

Step 4: Remove the pod rear from the back of the tower containing the part to be removed. See **Detail E**. There are (4) four connections. Remove the hardware and the pod rear from the back of the tower as shown.

Step 5: Remove the pod front from the tower. See **Detail F**. There are (4) four connections, and (1) one grounding wire connection. Disconnect all cables. Remove the bolt holding down the grounding wires. Remove the hardware and the pod front from the back of the tower as shown.

Important Note: When reconnecting the assembly simply match the male and female cable ends. Be sure that you don't connect the Slave Board cable ends to each other.

Step 6: Remove the pod front from the tower. See **Detail G**. Note that the cable and grounding wire from the Button Lens Assembly will thread through the Slave Board.

Step 7: Locate the part to be replaced. See **Details F, G, or H**. Remove the existing part. Make a note as to where the part was connected. Insert the replacement part in the same position. Reconnect the part.

Reassembly/Operational Test.

Step 8: Before replacing the back panel or pod rear, check to make sure that the NEOS Arc is working properly. Turn on the power to the unit. The NEOS Arc will automatically go through a diagnostic test. If the unit does not work properly, check that all connections were made correctly. If there is an error, an error code will appear on the score display board. Please take note of the error code and call customer service at the number indicated below. If the diagnostic test runs, and the unit enters a game ready state (you will hear the sound of a heartbeat), the unit can be reassembled. Reassemble the unit by reversing the directions.

NEOS Arc settings.

Volume Adjust: Refer to the **Volume Adjust Detail** on page 5. To adjust the volume press the Light Grabber button, then the Marathon button, the Ninja button, the Double Dots button, and the Light Grabber Button again quickly in succession. Then using the Light Grabber button as volume up, and the Marathon button as volume down, adjust the volume to the desired level. To exit Volume Adjust, press another game selector button.

Game Count: Refer to the **Game Count Detail** on page 5. To view the game count, press the Marathon button (6) six times quickly in succession. To exit game count, press another game selector button.

Diagnostic Test: If there is any operational problem, the NEOS Arc will go through a diagnostic test. At the end of the test an error code will appear on the score display board. Please take note of the error code and call customer service at the number indicated below.

Note: To make the NEOS Arc run a diagnostic test, turn the power to the unit off, and then turn it back on again.

