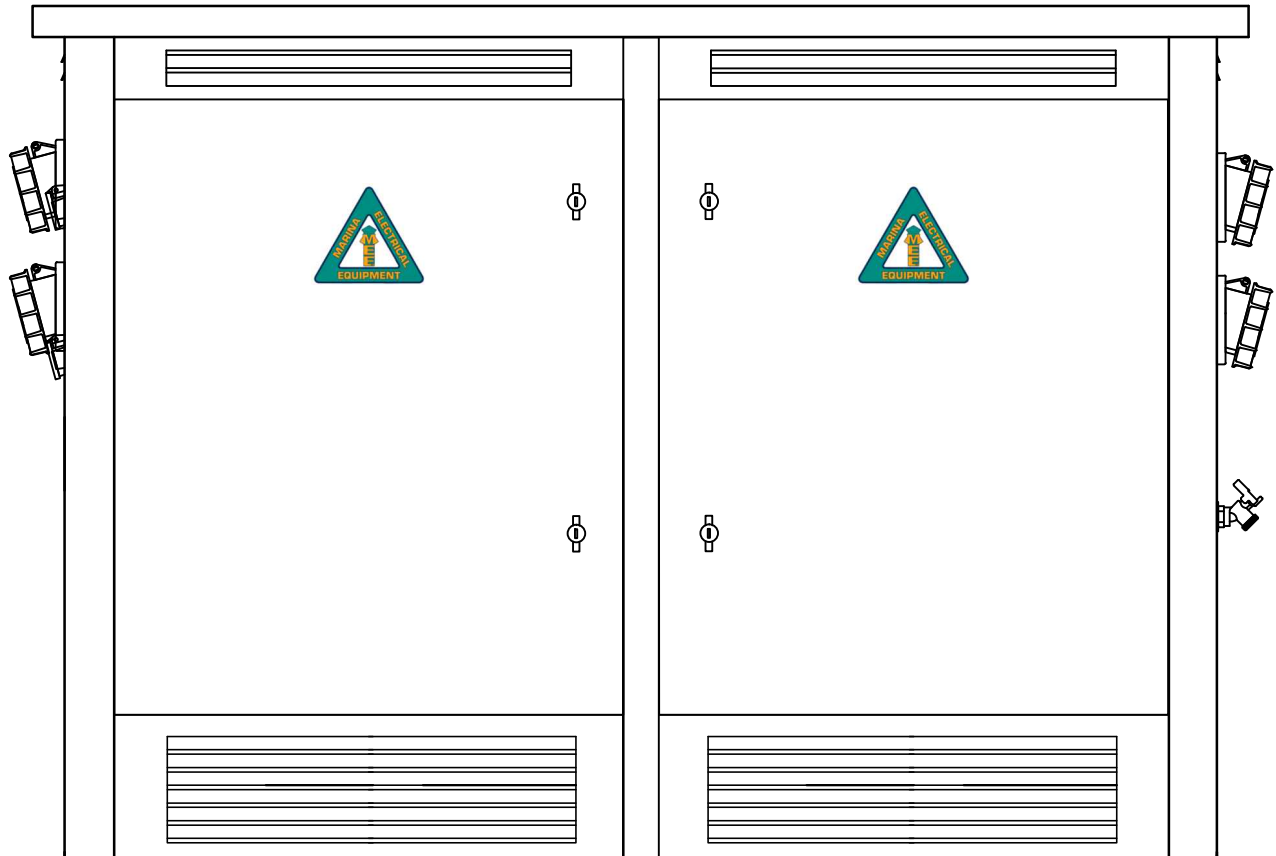




GTX™ SUPER YACHT UNIT SUBSTATION

Installation, Maintenance,
and Operation Manual



THE INFORMATION CONTAINED IN THE
FOLLOWING DOCUMENT REPRESENTS THE
STANDARD PROCEDURES FOR THE GTX™
SUPER YACHT UNIT. EACH UNIT IS
MANUFACTURED TO PROJECT SPECIFICATIONS
AND WILL BE MODIFIED ACCORDINGLY.

Marina Electrical Equipment, Inc.
100 Warwick Court
Williamsburg, VA 23185
Toll Free: 1-855-258-3939
Fax: 1-757-258-3988



GTX™ Super Yacht Unit Substation Installation, Maintenance, and Operation Manual

INTRODUCTION:

PRODUCT DESCRIPTION:

GTX Super Yacht Unit is designed to provide a load to industrial equipment. The GTX Super Yacht Unit Substation ranges in size from 50kVA to 300kVAA, single or three phase or both. The GTX Super Yacht Unit Substation comes with 2-6 high efficiency toroidal isolation transformers that range from 25 kVA to 50 kVA each. The toroid transformer primary winding is rated from 480V-600V and secondary windings of 120/240V, and/or 208Y/120V or 220Y/127V. The Distribution panelboards range from 125A to 1200A main breaker or main lug. Panelboards are fully rated up to 65 kAIC and a current rating up to main current level of the panel. The GTX Super Yacht Unit Substation comes equipped with a primary main lug or main circuit breaker, voltage range from 480V-600V with a current range up to 1200A. GTX Super Yacht Unit Substation comes with heavy duty cooling fans thermostatically controlled provided in the assembly to improve cooling and reduce condensation. A top solar access shield is designed to lift off to reveal the integral lifting shackles and removable side panels that provide easy access to the transformers and electrical components for field maintenance. All GTX Super Yacht Unit Substations use high stranded tin plated copper wire rated at 600V, 105°C wiring that is routed away from sharp or moving parts. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. The GTX Super Yacht Unit Substation Enclosure is NEMA 3RX rated, constructed of 316L stainless steel with a white textured powder-coat finish.

GTX Super Yacht Units are ETL listed to Safety Standard for Unit Substations UL 1062 Dated January 29, 1997 Third Edition including revision through June 25, 2010.

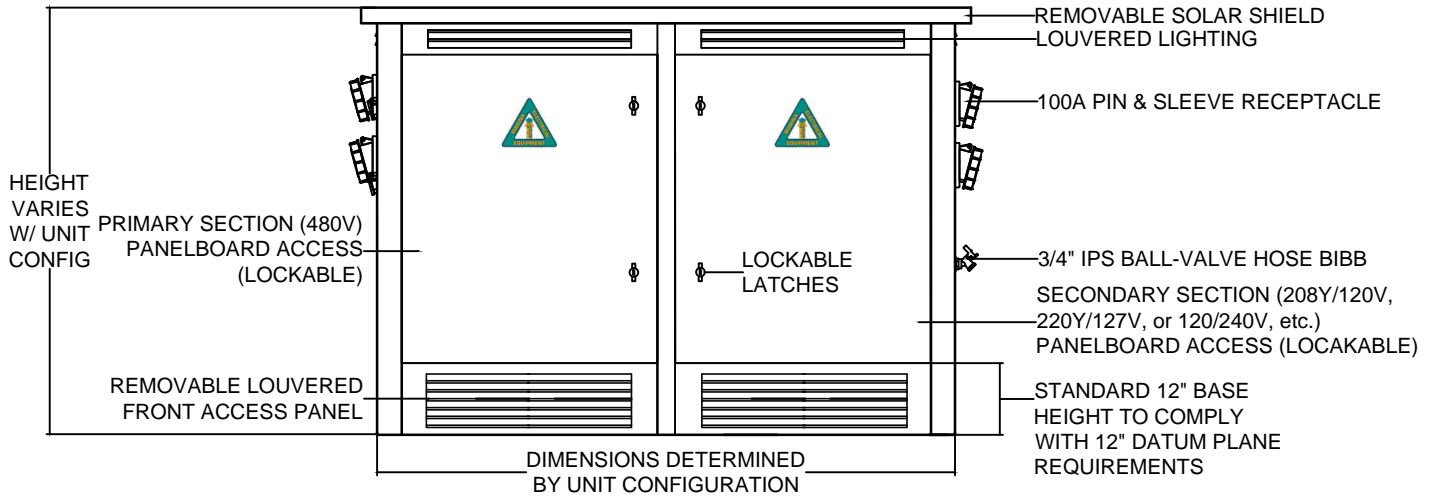
Specifications Subject to Change Without Notice

END OF SECTION

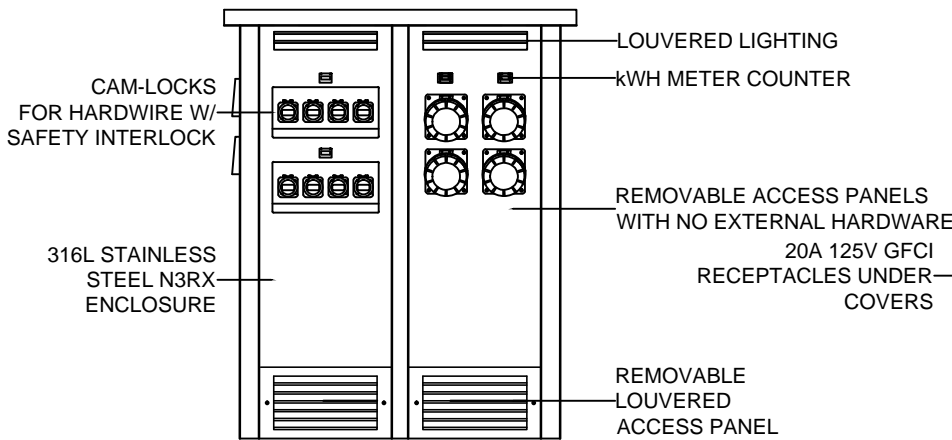
GTX™ Super Yacht Unit Substation

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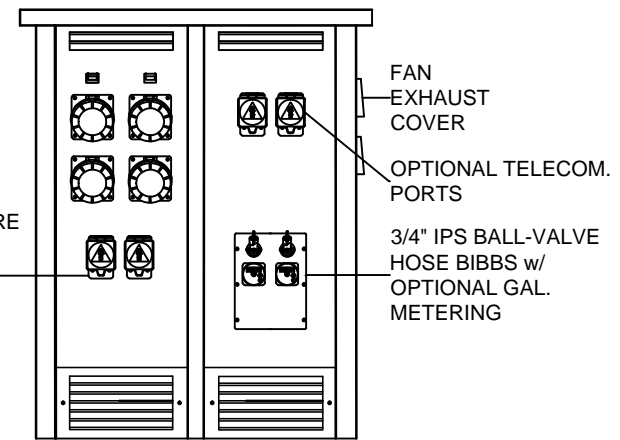
TYPICAL FRONT VIEW
w/ DOORS CLOSED



TYPICAL PRIMARY SECTION
SIDE VIEW

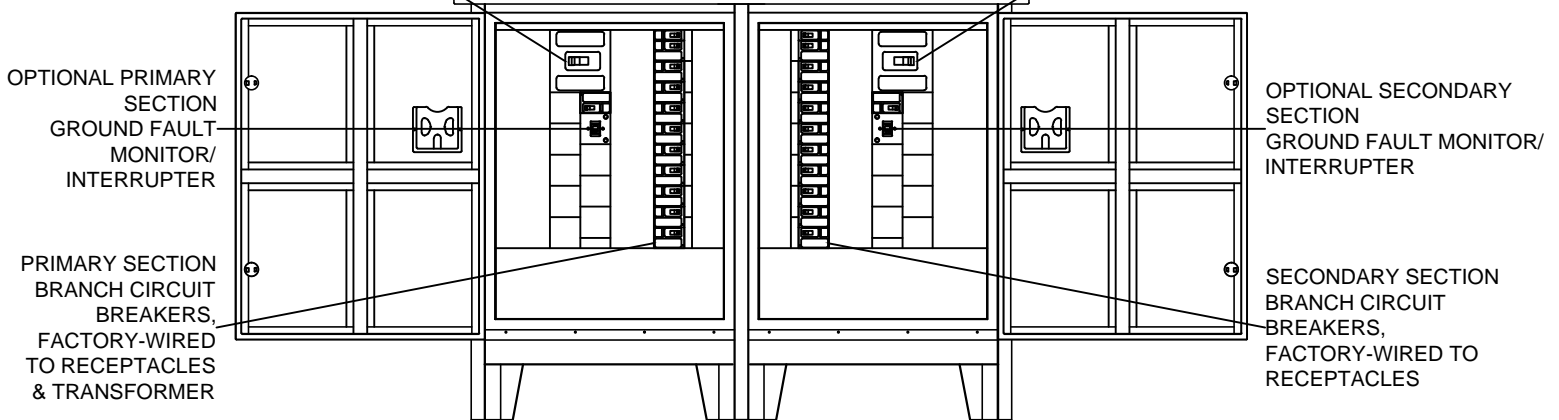


TYPICAL SECONDARY SECTION
SIDE VIEW



PRIMARY SECTION MAIN (MCB or MLO), FIELD-TERMINATION POINT

SECONDARY SECTION MAIN (MCB or MLO), FACTORY-WIRED TO RECEPTACLES



FRONT VIEW w/ DOORS OPEN
&
FRONT ACCESS PANELS
REMOVED

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CAUTION

Use lockout/tag-out precautions as prescribed in OSHA, NFPA 70E and other safety manuals during maintenance shutdown of any systems or circuits.

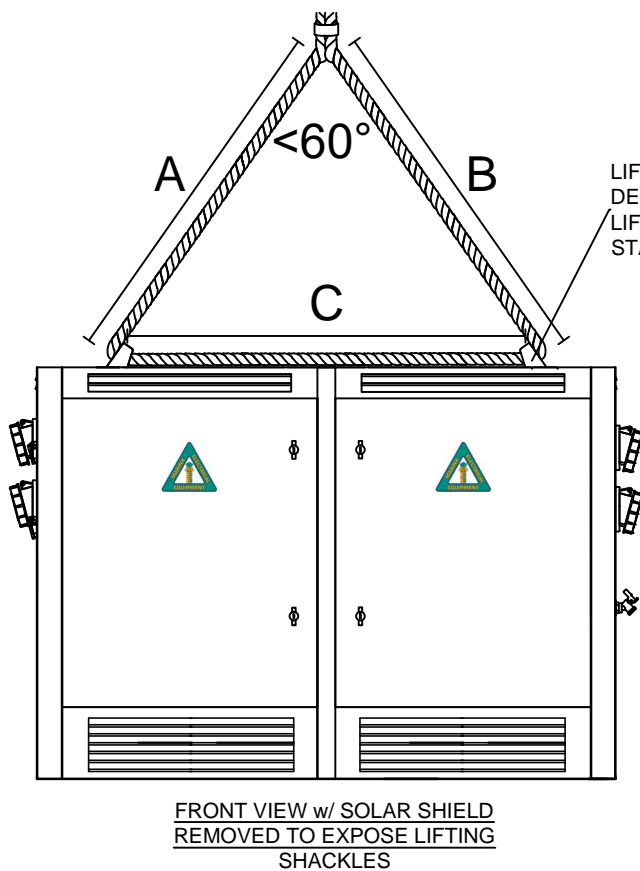
WARNING: BEFORE INSTALLING OR WORKING ON GTX SUPER YACHT UNIT SUBSTATION ELECTRICAL EQUIPMENT READ THE INSTALLATION INSTRUCTION IN ITS ENTIRETY. ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS SUPER YACHT UNIT SHOULD INSTALL THIS EQUIPMENT OR ANY ELECTRICAL DEVICE. INSTALLATION SHOULD BE DONE IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRIC CODES.

FOR ALL CONSTRUCTION: **WARNING HAZARDOUS VOLTAGE** CAN CAUSE SEVERE INJURY, DEATH, OR DAMAGE TO EQUIPMENT. DE-ENERGIZE UPSTREAM SOURCE BEFORE OPENING SUPER YACHT UNIT. CHECK THAT ALL WIRES HAVE ZERO VOLTAGE.

INSTALLATION:

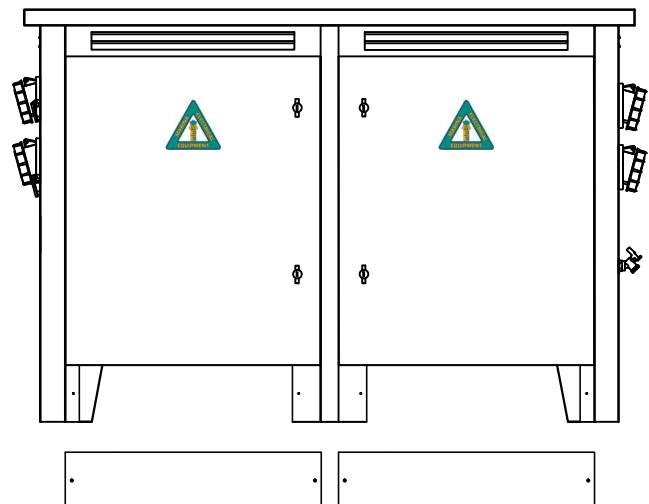
Step 1: HANDLING

- LIFTING SHACKLE METHOD:** This lifting assembly has been tested at a load of four times the static weight of the GTX Super Yacht Unit Substation. The lifting shackles are located under the solar shield. The solar shield can be removed can removing the screws located around the lower edge of the shield.
- FORKLIFT METHOD:** Lifting slots are provided on each end of the GTX Super Yacht Unit Substation. Remove the lower access panels on front and rear of the unit. Use fork extensions so that the forks are spread to the outside of the slots, making sure that the forks extend past the end of the assembly. Forks that do not completely extend through could damage internal components and/or result in imbalance, unit damage, injury/death. Forklift access can also be accomplished from the left and rear sides of the unit with the removal of the lower access panels.



IMPORTANT:
WHEN LIFTING THE GTX SUPER YACHT
UNIT SUBSTATION, THE SPREADER
ANGLE MUST BE LESS THAN 60° (LEGS A
AND B MUST BE LONGER THAN LEG C).

FRONT VIEW w/ ACCESS PANELS
REMOVED TO EXPOSE FORKLIFT
LIFTING SLOTS



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Step 2: Mounting the GTX Super Yacht Unit Substation:

1. Remove the front and rear lower access panels on the bottom of the GTX Super Yacht Unit Substation. This will expose the mounting holes at the bottom of the unit. Do not remove the neoprene pad from the bottom of the unit. The neoprene pads provide isolation from the dock surface.

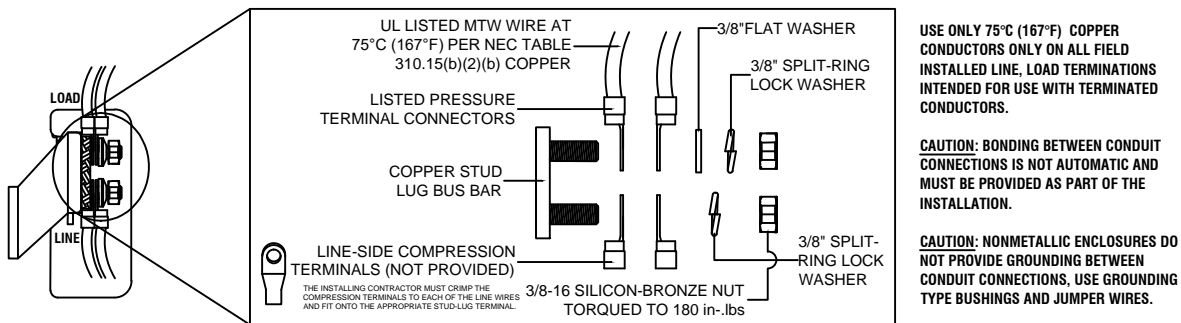
On Wooden Docks: Transfer mounting hole locations from the base of the Super Yacht Unit to dock. Drill ½” hole for ½” through-bolt. Align the GTX Super Yacht Unit Substation mounting holes to the holes in the dock. Feed bolts through the mounting hole and dock. Torque bolts and nuts to min.18 ft. lbs.

On Concrete Docks: Transfer mounting hole locations from the base of the Super Yacht Unit to dock. Follow manufacturer's instructions for installation of ½” expansion bolts. Line Super Yacht Unit mounting holes with the holes on the dock. Thread ½” bolt into the expansion nuts to the manufacturer's recommended torque value.

Step 3: Connecting the Power Lines to the Terminal Block and Branch Breaker Installation:

- Open the primary section main door of the GTX Super Yacht Unit Substation to remove the dead front to expose the main lug/main circuit breaker. The 600V-rated main supply terminal block is typically located on the bottom end of the panelboard.
- Note: location and method of termination can vary based on customer requirements.*
- Remove gland plate from the top of the bottom frame. Punch or cut the desired hole(s) in the gland plate. Install appropriate fittings in the gland plate.
- Feed all primary circuit wires through the gland plate to the main lug/main circuit breaker. Secure the gland plate back in place.
- Install the primary feeder circuit to the proper lug terminals and torque as specified on the main lugs/main breaker.
- If unit is constructed with stud-lug type terminal block, only listed pressure ring-type terminals may be used. Torque all connections to 180 in-lbs. minimum. **IMPORTANT: This terminal block is designed for COPPER compression-type lugs ONLY. The installing contractor must crimp each of the LINE terminations and place on the appropriate stud-lug. These terminals are NOT provided by the factory. Use of any other terminal/lug will VOID THE MANUFACTURER'S WARRANTY.**

IMPORTANT: Contractor shall mount line side feeders per the diagram below. Heat shrink tubing shall be used when uninsulated copper terminal extend below bus bar insulation divider to keep proper spacing between live and grounded conductors, per NEC spacing requirements.

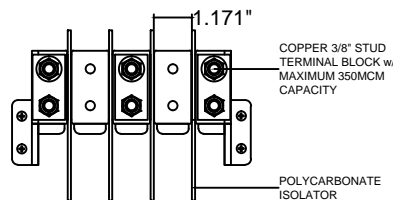


USE ONLY 75°C (167°F) COPPER CONDUCTORS ONLY ON ALL FIELD INSTALLED LINE, LOAD TERMINATIONS INTENDED FOR USE WITH TERMINATED CONDUCTORS.

CAUTION: BONDING BETWEEN CONDUIT CONNECTIONS IS NOT AUTOMATIC AND MUST BE PROVIDED AS PART OF THE INSTALLATION.

CAUTION: NONMETALLIC ENCLOSURES DO NOT PROVIDE GROUNDING BETWEEN CONDUIT CONNECTIONS, USE GROUNDING TYPE BUSHINGS AND JUMPER WIRES.

**STUD-LUG TERMINAL BLOCK ASSEMBLY
EXPLODED VIEW**



**STUD-LUG TERMINAL BLOCK ASSEMBLY
FRONT VIEW**

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Step 4: Water Connection:

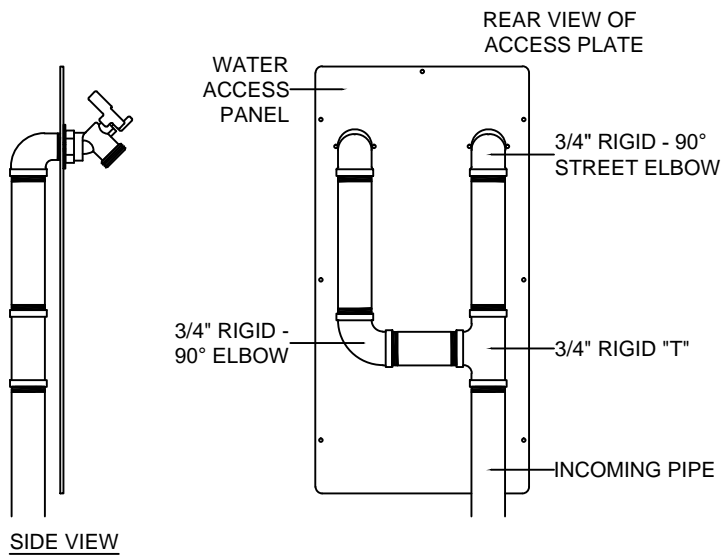
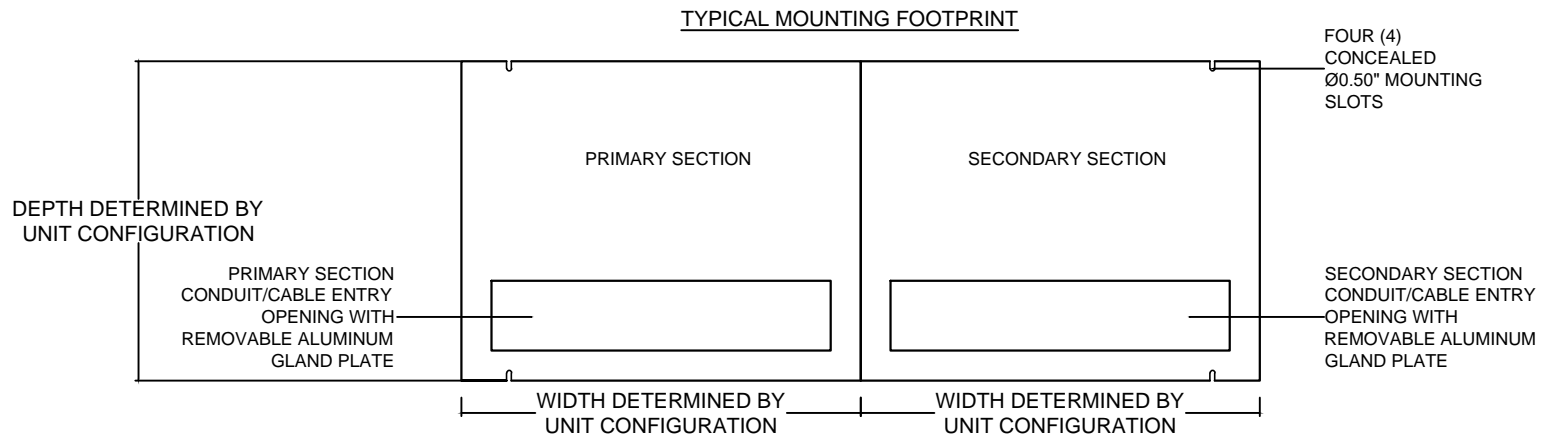
Remove the water access panel to access the back side of the 3/4" female ball valve (see figures below). Feed the piping through the bottom of the water compartment and plumb into the ball valve. Marina Electrical Equipment recommends using a 90° street elbow or a Pex to male-threaded elbow (for flexible piping). After plumbing, guide the assembly back into the water compartment and mount the water access panel back onto the pedestal.

Step 5: Phone, Cable TV, Data Connections:

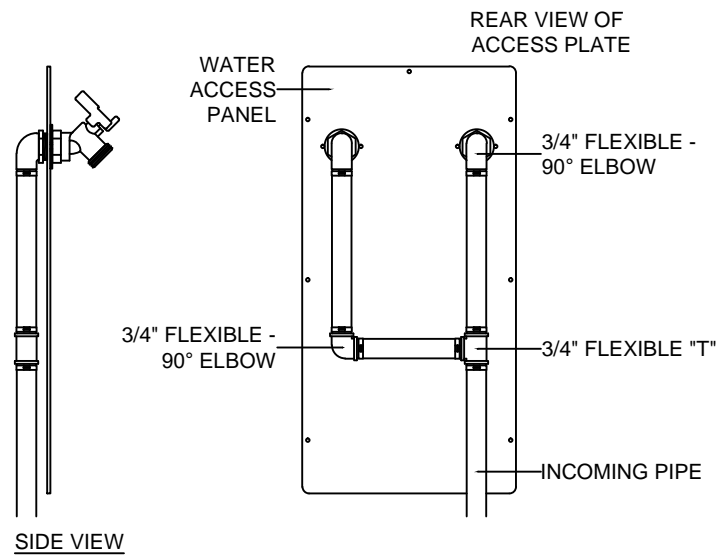
Remove the weatherproof cover and jack insert to access the back side of the jacks. Pull the phone line, CATV line and/or data line from under the mounting base and into the single gang box to make the appropriate terminations into each of the corresponding jacks. Carefully guide the lines back into the box and re-mount the jack insert and weatherproof cover onto the pedestal.

Step 7: Changing the LED Bulb:

Unscrew the four (4) screws underneath the top to remove the top and expose the lamp holder and bulb. Replace the bulb and top (see figure below).



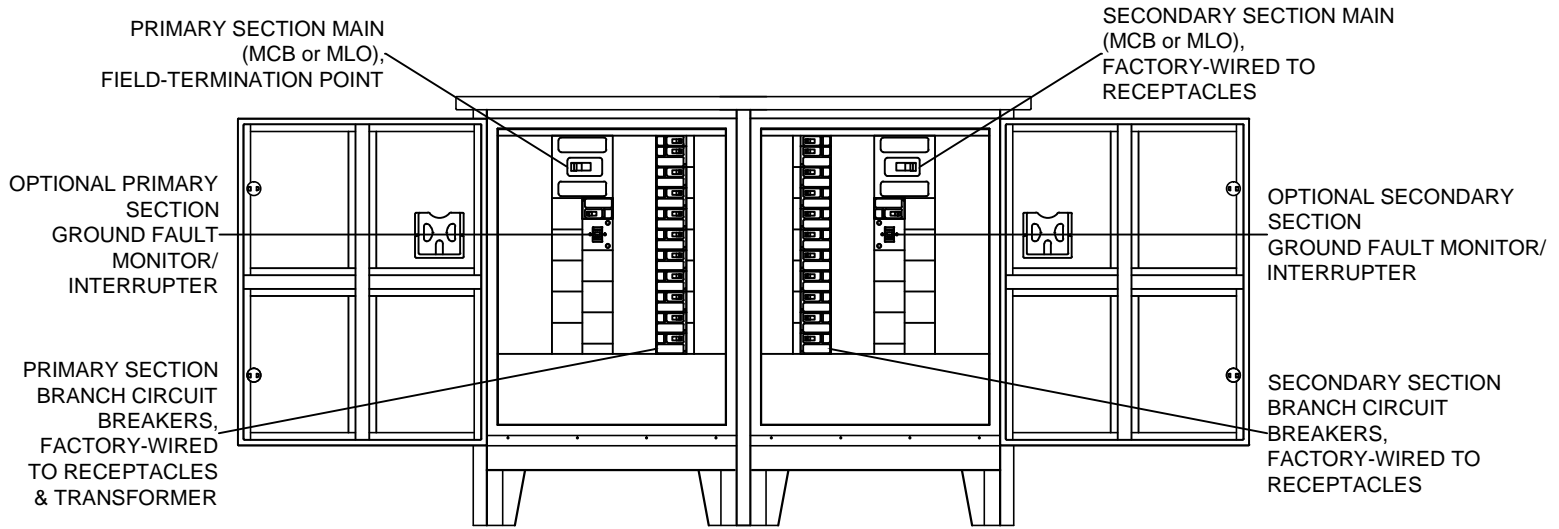
DUAL WATER CONNECTION w/ RIGID PIPE



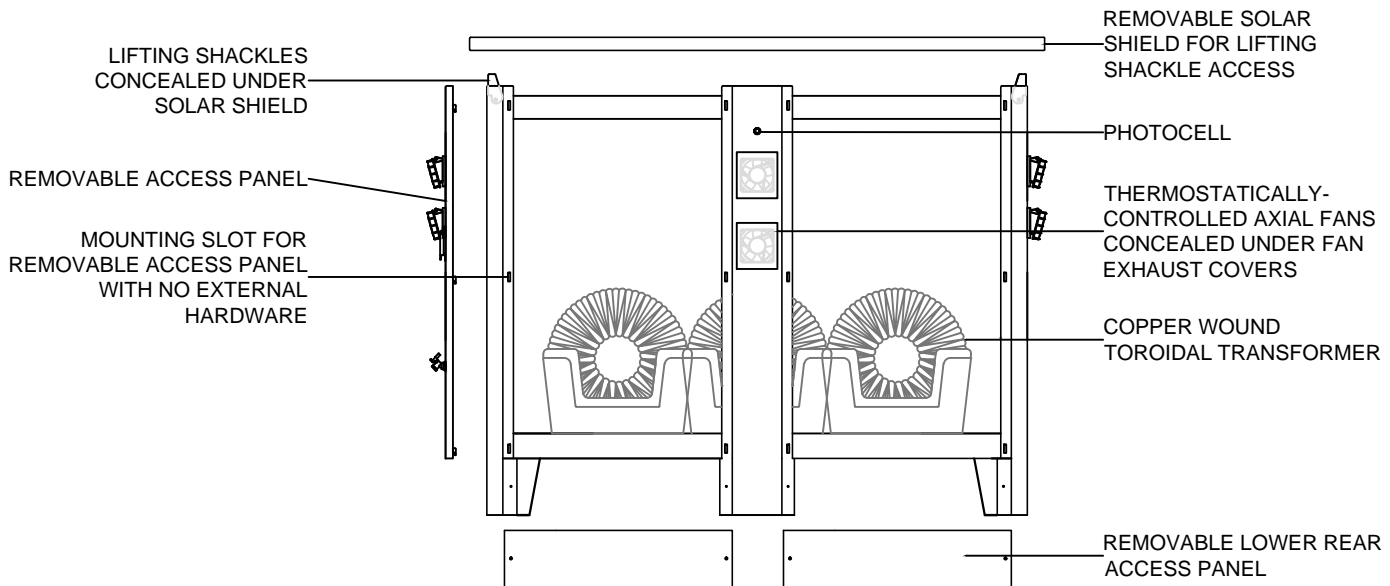
DUAL WATER CONNECTION w/ FLEXIBLE PIPE

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FRONT VIEW w/ DOOR OPEN



TYPICAL REAR VIEW w/ ACCESS PANELS REMOVED TO EXPOSE TOROIDAL TRANSFORMERS

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Note: Test and inspect all connections, main feed and branch feeds using a multi meter, high-pot tester, and/or any other test required by the local jurisdiction in the area.

WARNING:

UNITS EQUIPPED WITH GROUND-FAULT MONITORING DEVICES: REMOVE PROTECTIVE FUSE ON POWER CIRCUIT PRIOR TO PERFORMING HI-POT TEST TO AVOID DAMAGING THE DEVICE. SUCH FAILURES ARE NOT COVERED BY THE MANUFACTURER'S WARRANTY.

UNITS EQUIPPED WITH SURGE-PROTECTIVE DEVICES (SPDs): TURN THE LABELED CIRCUIT BREAKER PROTECTING THIS DEVICE TO THE "OFF" POSITION PRIOR TO PERFORMING HI-POT TEST TO AVOID DAMAGING THE DEVICE. SUCH FAILURES ARE NOT COVERED BY THE MANUFACTURER'S WARRANTY.

EXTERIOR MAINTENANCE:

Dirt, grime, bird droppings and insect residue can be removed by use of a mild degreasing solution mixture of one teaspoon per gallon of warm water. Gently scrub the housing exterior and rinse clean. Spiders and other insects can be controlled by use of a ***WATER-BASED*** insect spray.

WARNING: DO NOT use any petroleum or solvent-based insect spray or corrosion inhibiting products on any part of the power pedestal. These solvents will compromise the structural integrity of the polycarbonate material and cause stress cracking and material failure. Use of any such solvents will void the manufacturer's warranty.

INTERIOR MAINTENANCE:

WARNING: Turn off or disconnect the power supplying this equipment before beginning work. This might require you to contact your local utility to disconnect the power to an existing panel board or disconnect. The line side of the main breaker in a panel board is energized unless power is disconnected upstream. Marina Electrical Equipment, Inc. will not assume any responsibility for property damage or personal injury resulting from misuse of the information in this manual.

1. Annual Terminal Block Maintenance:

Open the main door and remove the dead front to expose the ***de-energized*** supply terminal block. The terminal block and each circuit breaker lug should then be thoroughly examined for signs of excessive heating, loose and/or corroded connections, and any other sign of damage or wear. All loose or damaged connections need to be tightened or replaced.

Thoroughly examine any copper wire to aluminum lug connections for signs of corrosion. If any corrosion is found, simply remove the copper wire, clean the wire, coat with ***synthetic*** anti-corrosion grease and reinstall the wire.

2. Annual Receptacle and Circuit Breaker Maintenance:

The receptacles and circuit breakers should be examined on an annual basis. If any sign of heating or corrosion is evident, the component should be replaced. The GTX Super Yacht Unit Substation (may) contain innovative, patent-pending pivoting faceplate assemblies and removable access panels to simplify field maintenance. These will allow for full access to the receptacles, circuit breakers, and internal components for inspection, maintenance or replacement.

3. Annual Water Assembly Maintenance:

In colder climates, water supply lines should be blown-out with compressed air as part of the winterization process to prevent damage from freezing. The 3/4" ball valve should be worked opened and closed, and then left open to allow any water to escape and avoid damage to the valve from freezing temperatures.

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4. Annual Light Fixture Maintenance:

The light fixture can be tested by covering the photocell window for 2-4 minutes to simulate darkness. The photocell should then close the circuit to illuminate the bulbs. Should any bulbs not illuminate, switch the labeled circuit breaker to the "OFF" position, unscrew the screws underneath the top to remove the solar shield and expose the lamp holder and replace the bulb.

OPERATION:

1. Connect Shore Power Cord to Vessel:

Insert the female end of the shore power cord into the vessel's power inlet connection. Twist (for twist-locks) or push the plug (for pin and sleeve receptacles) to lock on and tighten the locking plug retainer nut until the cord set is snug to the vessel.

2. Connect Shore Power Cord to GTX Super Yacht Unit Substation:

With the circuit breakers in the OFF position, insert the shore power cord into the receptacle and twist clockwise (for twist-locks) or push the plug (for pin and sleeve receptacles) until it locks onto the receptacle.

3. Cam-Lock Hardwire Connections:

The cam-lock hardwire female receptacle connections are equipped with an electric safety interlock. The circuit breaker protecting the cam-locks will normally be in the "TRIP" position. The circuit breaker can only be energized once all of the male cam-connectors are inserted. Should any of the male cam-lock connectors be removed, the circuit breaker will immediately trip.

PROCEDURE:

1. Connect Shore Power Cord to Vessel as described above.
2. Connect Shore Power Cord to GTX Super Yacht Center Cam Locks:
Ensure labeled circuit breaker protecting female cam-lock receptacles is in "TRIP" position.
3. Insert all male cam-connectors from the connected vessel into appropriate female cam-lock receptacles.
4. The labeled circuit breaker can now be energized.

WARRANTY POLICY

1. The main housing and attached parts (main housing, access panels, solar shield, lenses, doors, receptacle faceplates, and circuit breaker plates) will be free from failure resulting from defects in material and/or workmanship, and are covered by a limited warranty of one (1) year. The warranty is voided if any petroleum-based solvent is used anywhere on or near any of the polycarbonate parts. These parts include: main housing, access panels, solar shield, lenses, doors, receptacle faceplates, and circuit breaker plates.
2. Internal electrical components shall be covered by a limited warranty of one (1) year. Items covered include: torodial transformers, panelboards, fans, receptacles, circuit breakers, photocells, lamp holders, coil transformers, counters and wiring harnesses.
3. The solid-state electric kWh monitors will be free from failure resulting from defects in material and/or workmanship, and are covered for one (1) year. The warranty shall not cover the product against severe over-voltage conditions such as lightning strikes or abnormal utility surges. The warranty is voided if the damage to any or all of the components is the result of abuse, misuse, or Force Majeure. This warranty is voided if the factory seal is broken or manipulated.

Send all warranty claims to:

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