

INSTALLATION & MAINTENANCE MANUAL

**CG SERIES
DISPENSERS**



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READ THIS FIRST

Equipment Inspection

When the dispenser(s) arrive at the installation site, unpack the units and inspect for possible shipping damage. Make all claims concerning damage to the freight carrier. Pump Measure Control (PMC) as shipper, is not liable for the hazards of transportation.

After unpacking and prior to installation, inspect all equipment to verify all required materials are on hand, and the dispensers have all the ordered options and markings. Compare the model number on the dispenser model / serial plate to the model number notation information in section 1 of this manual. If discrepancies in dispenser options and markings are determined, contact Pump Measure Control at (770) 667-0667.

Read all instructions and tags carefully prior to performing any work on the dispenser. An improperly installed or maintained dispenser can be dangerous and will likely be a source of ongoing problems.

1- SAFETY INFORMATION

The following procedures are mandatory and shall be followed when installing, maintaining, operating or servicing this equipment. Fire, explosion and electrical shock can occur and result in death or serious injury if the safe service practices outlined in this manual are not followed. The hazards and safety precautions associated with installing, maintaining or servicing the dispenser are detailed in the corresponding sections of this manual. Read all safety information and applicable sections in this manual before performing any work. Only trained or authorized individuals should install, inspect, maintain or service this equipment.

Emergency Shut-Off

Before performing any work at a location, identify the switch or circuit breakers that disconnects power to all fueling equipment, dispensing devices, and submerged turbine pumps (STPs).



Explosive / Flammable Environment

The fuel and associated vapors present in and around a dispenser are very flammable. In addition, the vapors can become explosive in the right concentrations. Clean up all spilled or leaking fuel immediately using an absorbent. Dispose of all contaminated material as required by regulatory agencies.



If the work being performed requires access to the dispenser's lower cabinet, allow it to 'air out' by opening it up before you begin. Open flames and sparks can ignite any fuel or vapors that may be present and therefore must be prevented. Never permit smoking or use of lighters and / or matches in the dispensing area. Other sources of ignition include welding torches and sparks generated by various sources including power tools, automobile starters and static electricity.

Read the Manual

Safety is of utmost importance! It is imperative that you understand the procedures necessary to complete a task before beginning any work. Read, understand and follow this manual and all applicable materials / labeling supplied with this dispenser. If you have questions or do not understand a procedure, call PMC - Tech Support at 770-667-0667.

Codes and Regulations

This equipment must be installed, operated and maintained in accordance with all federal, state and local codes and regulations. This includes, but is not limited to NFPA 30 *Flammable and Combustible Liquids Code*, NFPA 30A *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70 *The (NEC) National Electric Code*. Failure to do so may lead to violations and/or prevent safe operation of the equipment.

Replacement Parts

Use only genuine PMC repair parts and retrofit kits when making repairs or servicing this dispenser. Using non-PMC replacement parts may create a safety hazard and violate local regulations.



Safety Symbols and Signal Words

This safety alert triangle is used throughout this manual to alert you to a precaution or procedure that must be followed to avoid potential safety hazards.

The signal words DANGER, WARNING and CAUTION are used in this manual and on warning labels to alert you to the seriousness of the hazard. All safety procedures following these signal words must be followed to prevent serious injury or death.



DANGER - indicates a hazard or unsafe practice that **will** result in death or serious injury.



WARNING - indicates a hazard or unsafe practice that **may** result in death or serious injury.

CAUTION - indicates a hazard or unsafe practice that may result in minor injury or equipment damage.



Electrical Safety

Use safe and established practices in working with electrical devices. Be sure grounding connections are properly made. Refer to GROUND in Section 3 of this manual for specific information. Failure to do so may result in injury, damaged equipment or improper/erratic operation. All conduit sealing devices and compounds must be in place. Follow all OSHA Lock-Out and Tag-Out requirements / procedures. Make sure all station employees and service contractors on site understand these procedures to ensure safety while the equipment is being serviced or repaired.

2 - INSTALLATION INSTRUCTIONS

This section provides information for proper installation and wiring of your CG series dispenser and related equipment. It is essential that you understand the requirements of the system before attempting the installation. You should be familiar with, and have available for reference, the appropriate programming manuals and installation manuals for all other equipment to be installed and connected with the dispenser.

WARNING

Gasoline blends containing 15% or more ethanol may not be compatible with certain materials and hydraulic components. Leaks or component failure may result, causing fire or explosion or environmental damage.

When dispensing gasoline blends containing 15% or more ethanol, consult the manufacturer of all fuel system components to verify compatibility with the fuel being dispensed. This includes the fuel dispenser itself.

WARNING

The installation must conform with all applicable Federal, State and Local building / fire code requirements. This includes, but not limited to, NFPA (National Fire Protection Agency) 30 Flammable and Combustible Liquids Code , NFPA 30A Code for Motor Fuel Dispensing Facilities and Repair Garages and NFPA 70 National Electrical Code® . Failure to adhere to these requirements could result in severe injury or death.

WARNING

Gasoline and petroleum products that may be present during the installation of a dispenser are flammable and explosive, creating a dangerous environment requiring safe practices to prevent or avoid serious injury or death. Read and understand all sections of this manual prior to beginning an installation. Follow all instructions and heed all DANGER, WARNING and CAUTION blocks .

General Requirements

- Read and understand the entire Safety Information section located at the front of this manual.
- The complete instructions for other equipment used in the installation of the dispensers, such as STPs, shear valves, etc., must be provided by the manufacturer of that equipment.
- Plan the installation carefully and follow instructions. Many dispenser problems are caused by faulty installations.
- The dispenser installation MUST be done by a qualified installer / electrician.

Survey Site Prior to Installation

Prior to beginning installation of the dispenser, survey the site and verify that other components of the fueling system are installed properly according to the component manufacturer's instructions and applicable codes.

- Emergency Power Cut-Off Switch
- Grounding system for all equipment
- Circuit Breakers
- Impact Box and Containment
- Verify all fuel lines are marked in containment box.
- Shear Valves
- Verify that piping layout in impact box / containment matches the footprint of the dispenser being installed. Verify supply line fuel grades and shear valve and conduit locations. Corrections are much easier prior to placing the dispenser on the island.
- Verify proper conduit is used for the area classification in which it is installed (i.e. Conduit and fittings are Class 1 Group C & D where req'd).
- Seal-off is installed as the first fitting on the conduit as it leaves the ground below the dispenser.
- Pump control relay box with provisions for isolation of control signals from dispensers.
- Pump - Dispenser must be installed in a system with a power operated pump incorporating a pressure relief that maintains system pressures at or below 50 psi. The pressure relief device must be located and verified as being installed as required.
- If a pump other than a submersible turbine pump is used, provisions must be made to prevent air from being pumped through the dispenser.

Requirements for Plumbing Installation

	WARNING	
<p>Shear valves that are improperly installed or anchored may fail to operate correctly, causing a fire or explosion that results in severe injury or death. All shear valves must be installed and anchored per the manufacturer's instructions.</p>		

- The dispenser must be installed with a shear valve on the supply line at the unit. Verify that all shear valves are mounted correctly according to the valve manufacturer's instructions and code requirements.
- Remove all shipping plugs and caps that may be present in piping, shear valves and unions.

- Ensure all pipe threads are properly cut and undamaged with the inside edge reamed to remove burrs.

WARNING

Gasoline blends containing 15% or more ethanol may not be compatible with certain materials and hydraulic components. Leaks or component failure may result, causing fire or explosion or environmental damage.

When dispensing gasoline blends containing 15% or more ethanol, consult the manufacturer of all fuel system components to verify compatibility with the fuel being dispensed. This includes the fuel dispenser itself.

- All contractor supplied pipe and fittings must be Schedule 40. Standard units require 1-1/2" NPT and high flow units require 2" NPT pipe and fittings. All contractor supplied piping and fittings shall be black steel or stainless steel. All material must be compatible with the fuel being used.

WARNING

A shear valve may be damaged or broken if not properly supported when tightening fittings into it. The installer must use two wrenches to prevent stress from being applied to the shear point during tightening.

- The **CG** dispenser is supplied without unions on the supply and satellite feed connection points. A contractor provided union must be installed on top of each shear valve. Refer to valve manufacturer instructions for proper procedure to tighten union to shear valve.
- The shear point of each shear valve must be within +/- 3/4" of the plane of the bottom of the dispenser base, or within valve manufacturer's installation requirement, whichever is less.
- Each supply inlet and satellite feed connection on the dispenser is provided with a removable, NPT threaded flange for connection of piping to the dispenser.
- The vertical supply riser must be cut to the proper height in order to avoid stress on the dispenser.
- Clean all debris from pipes before assembly. Debris can damage the filter / strainer, allowing other foreign material to pass through, potentially damaging the dispenser.

Connecting Fuel Line(s) to Dispenser

Use the following procedure to pipe each shear valve to the associated connection point on the dispenser.

Installation Instructions

1. The installer must provide all piping and fittings necessary to connect the shear valve to the dispenser inlet. Use only schedule 40 black iron or stainless steel parts. Use only LISTED thread sealant that is approved for use with the appropriate fuel type. Follow manufacturer's instructions for the compound's use.



WARNING



Prying or otherwise using excessive force to align an inlet pipe will stress components and may damage the shear valves, unions or other parts of the dispenser. Stressed or damaged components may fail and leak fuel causing a fire or explosion that can result in severe injury or death. Properly positioned shear valves should not require the inlet piping to be forced. It may be necessary to temporarily remove the dispenser from the island to align the shear valve(s) properly.

2. Loosely connect the union halves together and double check the alignment of the piping before tightening. Tighten the unions.
3. Verify the shear point of each shear valve is within 3/4" of the plane of the bottom of the dispenser base. See Figure 3 for details.
4. Verify the shear valves are properly secured to the valve anchor bracket.
5. All liquid carrying lines must be checked for leaks. Remember to allow all pipe compound to cure or set before performing the leak tests.
6. Close the shear valve and leave closed until startup of the dispenser.

Mounting the Dispenser to the Island



WARNING



Improperly anchoring the dispenser can result in damage to the equipment, severe injury or death if the unit were to fall over due to impact or drive-off. The dispenser must be securely anchored per the instructions that follow.

The dispenser's containment pan must be mounted down before the dispenser is placed on top of it. See drawing #91-12G11072 for location of the mounting / anchor points.

Anchor the containment pan to the surface using all four (4) of the mounting holes in the flanges along the bottom of the pan.

1. Use only 1/2-inch, hardware that is treated to prevent corrosion. Do not use plastic or low grade hardware.
2. Securely anchor the bolts / studs to the island or impact box.
3. Securely anchor the containment pan using heavy duty washers and nuts on the anchor bolts / studs. Tighten the nuts.

4. Place the dispenser on the containment pan and securely bolt the two together using all 6 mounting holes.

Requirements for Electrical Installation

 WARNING 
<p>The electrical work must conform with all applicable Federal, State and Local building / fire code requirements. This includes, but not limited to, NFPA (National Fire Protection Agency) 30 <u>Flammable and Combustible Liquids Code</u> , NFPA 30A <u>Code for Motor Fuel Dispensing Facilities and Repair Garages</u> and NFPA 70 <u>National Electrical Code®</u>. Failure to adhere to these requirements could result in severe injury or death.</p>
CAUTION
<p>Do not attempt to wire the dispenser without first reviewing the appropriate wiring diagrams and associated notes. Failure to follow the correct wiring diagrams may result in damage to the dispenser.</p>

- All electrical wiring must be done by a qualified, licensed electrician.
- Read, understand and follow this manual and all applicable materials / labeling supplied with this dispenser.
- All dispensers must be wired on the same phase.

 WARNING 
<p>Unauthorized dispenser modifications may compromise the safety of the dispenser and create a condition that results in severe injury or death from fire, explosion or electric shock. Do not make, or allow to be made, any changes or modifications to the dispenser that are not factory authorized.</p>

- Only factory provided equipment is to be installed in the head of the dispenser.
- The vapor barrier forming the base of the head is an important part of the safety design of the dispenser and MUST remain as shipped from the factory. DO NOT drill or punch any holes in this barrier!
- All conduit and electrical fittings must be listed for use in Class 1, Division 1, Groups C & D hazardous locations. The conduit must be threaded, rigid, metal conduit. PVC or other non-metallic conduit is not acceptable.
- All threaded conduit connections must be drawn tight with a minimum of 5 threads of engagement.
- All field wiring must be connected in the main junction box.
- AC Neutral conductors must be solid WHITE or LIGHT GRAY.



WARNING



Performing work on a dispenser without first removing all power may result in electric shock, causing severe injury or death. All electricity must be turned off and tagged out prior to beginning any electrical work on the dispenser. More than one disconnect may be required. Use a digital multimeter to verify all power is off.

- Ground conductors must be solid GREEN or GREEN with one or two YELLOW stripes.
- Use only insulated, **STRANDED COPPER WIRE** that is properly sized, UL labeled and gasoline / oil resistant. Rated to 300V.
- All field wires must be color coded and/or labeled to facilitate equipment checkout and service.
- All wires must be pulled and connected as a continuous run to the dispenser junction box. Splices and field box terminal connectors are not permitted.
- Do not use gaskets or other sealing compounds on the cover of the explosion-proof junction box. The mating surfaces between the junction box and the cover must be clean and free of nicks or scratches.
- All required conduit seal-offs must be in place and poured when installation is complete.
- Make sure that all covers, plugs, etc. are in place and tight before replacing the dispenser's lower panels.
- All unused openings in the dispenser's main junction box must be plugged when finished with the installation of the dispenser.

Ground

The **CG** dispenser **MUST** be connected to an equipment grounding conductor located in the conduit as per National Electric Code, Article 250.

- Grounding conductor must be at minimum 12 AWG with insulation colored green or green with one or two yellow stripes.
- Grounding conductor must be connected to the equipment grounding terminal / lug in the dispenser's main junction box.
- A dedicated ground conductor from each dispenser to the electrical panel is required. This conductor must be connected to the green grounding screw in the dispenser's main junction box and the ground bus bar in the electrical panel.
- Verify that the main electrical panel and all sub panels are properly grounded per NEC requirements.
- Verify that the neutral bus in the main panel is bonded to the ground bus.

Emergency Power Disconnect Switch

- One or more emergency power disconnect switches must be installed to control power to the entire fueling system. See NEC Article 514-5 and NFPA 30A for specifics.
- The emergency power disconnect switch is a single control point that simultaneously disconnects all power to the fueling system including the dispensers, pumps/STPs, lights, etc.
- If more than one disconnect is used, they must be interconnected so that activation of any one of them will disconnect electrical power.
- The emergency disconnect switch must be clearly marked and located in an accessible location between 20 and 100 feet from the fuel dispensers it serves.
- The disconnect switch must be one that can only be reset with manual intervention in a manner subject to approval by local authorities.

Circuit Breakers

- Power to each dispenser must be supplied from a dedicated **switched neutral circuit breaker**. No other equipment or dispensers shall be powered from it. A dedicated breaker allows for isolation of the dispenser.
- Use of two single pole breakers with handle ties is not permitted.
- The circuit breaker must be properly sized for the power load. Consult specifications for load of dispenser model being installed.

Pump Control

A motor control relay must be installed on each pump being controlled by the dispenser. The control relay allows the dispenser's low amperage PUMP START control signal to control a high amperage/high voltage pump motor.

CAUTION

Damage to the dispenser can result if the PUMP START control signal is used to directly power a pump motor, accidentally shorted to the conduit or otherwise miswired.

- The PUMP START signal can supply up to 0.5 Amps AC to activate the coil on the motor control relay.
- When the control signal from more than one fueling point can activate a given pump motor, means must be provided to isolate the dispenser's control signals from one another.
- An isolation relay, or other means of isolation, must be provided for each

pump control signal. Combination pump motor control relay & isolation relay interface boxes are recommended for ease of installation.

 WARNING 
<p>Failure to isolate the dispensers' control signals can result in electric shock from electricity back-feeding from one dispenser to another via these signals, resulting in severe injury or death. Ensure all dispenser control signals are isolated from one another.</p>

CAUTION
<p>Failure to isolate dispenser control signals can result in damage to the dispenser's electronics from cross phasing that occurs when signals from two or more dispensers powered by different AC phases are connected together. Ensure all dispensers are powered by the same phase (as mandated in Requirements for Electrical Installation). Additionally, ensure all dispenser control signals are isolated from those of other dispensers.</p>

- If not used, the PUMP START control signal must be capped off to prevent it from shorting to the junction box.

Intrinsically Safe Communications Wiring for the EMR3

The *intrinsically safe communications wires* for the optional EMR3 cannot be run in the same conduit as non-intrinsically safe wiring and must be protected from contact with those wires. See [EMR3 Installation Manual](#) for further information.

Wiring the Dispenser

All field wire connections to the **CG** dispenser are made in the main junction box located in the rear of the lower cabinet of the dispenser.

 WARNING 
<p>Performing work on a dispenser without first removing all power may result in electric shock, causing severe injury or death. All electricity must be turned off and tagged out prior to beginning any electrical work on the dispenser. More than one disconnect may be required. Use a digital multimeter to verify all power is off.</p>

CAUTION
<p>Do not attempt to wire the dispenser without first reviewing the appropriate wiring diagrams and associated notes. Failure to follow the correct wiring diagrams may result in damage to the dispenser.</p>

1. Select the appropriate wiring diagram(s) for the installation. Select the drawings from the **“Wiring Diagrams”** section of this manual.

Study the diagram(s) and any notes that may be present.

2. Remove the rear door of the lower cabinet on the dispenser. Store the door in a safe manner so that it is not damaged.
3. Remove the cover from the main junction box. Store the cover and its six bolts for re-assembly later.
4. Verify that a conduit seal-off fitting is the first fitting on each conduit as it leaves the ground below the dispenser.
5. Verify that all field wires to be connected to the dispenser are:
 - long enough to make connections in junction box
 - rated for a minimum of 300V
 - gas/oil resistant
 - identified in some manner to differentiate the connectors
5. Connect the field wiring conduit(s) below the dispenser to the junction box using 3/4" conduit and fittings rated for Class 1 Division 1 Group C & D environments. Be careful not to damage or pinch the wires.
6. Test each wire conductor to verify that its insulation has not been damaged while being pulled through the conduit.
 - A. Wires to be tested **MUST** be disconnected at both ends.
 - B. Use a multimeter to measure resistance of each wire to ground.
 - C. Use a multimeter to measure resistance between all wires.
 - D. A reading of 50 Megaohms or greater for each test is acceptable.
 - E. Any wires that fail the test must be replaced.
 - F. After all wires have passed the insulation test, pour the seal-off fittings below the junction box.
7. Make all necessary connections as required by the wiring diagram(s) appropriate to the installation. Use only properly sized, Listed wire nuts to make the connections.
8. Individually cap all unused wires in junction box otherwise damage to the dispenser may occur if they short out.
9. Seal all unused conduit holes in the junction box using threaded, listed 3/4" conduit plugs.
10. Replace junction box cover using **all** six bolts removed in step 2 above. Make sure to not pinch any wires.
11. Replace the door on the rear, lower cabinet of the dispenser.

Hose Assembly Requirements

- All hoses and related hanging hardware must be Listed and installed per the manufacturer's instructions and in accordance with all applicable codes.
- Use only UL pipe sealant rated for the fuel being dispensed.
- Use pipe sealant on male threads only.
- DO NOT USE Teflon tape to seal fittings on the hose assembly. Teflon tape reduces the friction to the point that the fittings can easily be over-tightened, resulting in fractures or other failures of the fittings.
- Check ground continuity of the hose / nozzle assembly when finished.

 **WARNING** 

Improper installation of the hanging hardware may result in the failure of the break-away in the event of a drive-off, causing the hose assembly to rupture or the dispenser to be pulled over. A fire or explosion can occur, resulting in severe injury or death.

All hanging hardware must be installed per manufacturer's instructions and in accordance with all applicable codes.

 **WARNING** 

Gasoline blends containing 15% or more ethanol may not be compatible with certain materials and hydraulic components. Leaks or component failure may result, causing fire or explosion or environmental damage.

When dispensing gasoline blends containing 15% or more ethanol, consult the manufacturer of all fuel system components to verify compatibility with the fuel being dispensed. This includes the fuel dispenser itself.

 **WARNING** 

An improperly grounded nozzle spout can result in static discharge while fueling, igniting a fire / explosion, resulting in severe injury or death. Continuity must be present between the nozzle spout and the dispenser to prevent static discharge. All components of the hose assembly should be Listed . Continuity of each hose assembly must be tested and verified prior to use.

3 - STARTUP

Pre-Startup Checklist

The items in the following checklist must be inspected and verified as having been completed correctly prior to starting up the dispenser. All items should already be complete as required in previous sections. Only after the checklist is complete should power be applied to the dispenser.

- Power is turned off to the dispenser and associated product pump.
- The dispenser is securely anchored to the island using all four mounting locations in its base.
- All shear valves for dispensers being installed should be closed.
- Filters and strainers in dispenser are installed and tight.
- Dispenser is properly grounded.
- All conduit is complete.
- All unused conductors in the junction box are capped off.
- All ports or openings in junction boxes or fittings must be plugged according to manufacturer's instructions.

CAUTION

The **CG** dispenser **MUST NOT** be used to remove water from the storage tanks or damage to the dispenser can occur.

- Enough fuel is in the storage tank for proper operation of the pump(s). Any water in the storage tank has been removed.

CAUTION

Air must be purged from the fueling system slowly. Failure to follow the proper procedure as described can result in extensive damage to the dispenser's meter and will void the unit's warranty.

Purge Air from Supply Trunk Lines

All air must be purged from the dispenser and its product supply piping prior to beginning the startup procedure for the dispenser. The following procedure must be used to purge air from the supply piping.

1. Turn off all power to the product pump on the line being purged.
2. Verify that all shear valves on the product trunk and branch lines are closed.

3. Repeat steps 4 thru 10 for each product trunk and branch line.
4. Go to the dispenser furthest from the product pump on the trunk or branch line being purged.
5. Assemble a small ball valve to a 1/4" or 3/8" conductive hose that is compatible with the fuel in the line being purged. Make sure that the ball valve is closed.
6. Identify the shear valve associated with the line being purged and remove the plug from its test port. Connect the other end of the bleed hose to the test port using the appropriate NPT to hose fitting.



WARNING



Fire / explosions caused by sparks from static discharge are a potential danger anytime fuel is being dispensed, possibly causing serious injury or death. Use only approved, metallic containers and always keep the nozzle in contact with the container when fueling.

7. Place the ball valve in an approved metallic container. Keep the ball valve in contact with the container at all times while bleeding air.
8. Restore power to the product supply pump. Activate the pump.
9. Slowly open the ball valve and keep open until the air is purged and a steady stream of fuel is coming out of the ball valve. Close the ball valve. Be sure to maintain contact between the ball valve and the container to eliminate static buildup / discharge.
9. De-activate the product supply pump.
10. Disconnect power from the pump and dispenser using the appropriate breakers.
11. Place ball valve on the bleed line into the fuel container and open to relieve pressure on the supply line. Remove the hose / ball valve assembly from the test port of the shear valve.
12. Re-install the test port plug on the shear valve using listed sealant rated for the fuel being dispensed.

CAUTION

Air must be purged from the product trunk and branch lines ***PRIOR*** to purging air from the dispenser. Failure to purge the supply lines can result in damage to the dispenser meter.

Purge Air from the Dispenser

The following procedure must be used to purge air from the dispenser.

1. Turn off all power to the product pump for the dispenser being purged.

2. Place the dispenser in STAND ALONE mode. See Programming Section of this manual.
3. Make sure that the nozzles are hung in their proper boot.
4. Restore power to the dispenser and associated product pump.
5. Verify that the dispenser displays have powered up and are showing information.
6. Slowly open the dispenser's shear valve on the supply line.
7. Lift the associated nozzle from its boot and lift the boot lever to activate the pump and pressurize the line.
8. Verify that the correct supply pump has been activated.

**WARNING**

Fire / explosions caused by sparks from static discharge are a potential danger anytime fuel is being dispensed, possibly causing serious injury or death. Use only approved, metallic containers and always keep the nozzle in contact with the container when fueling.

9. Place the nozzle in the metallic container used earlier. Be sure to maintain contact between the nozzle and the container.
10. Slowly open the nozzle only part way, and hold, until air stops coming out and is replaced by a steady stream of fuel.
11. Open the nozzle valve at least half way and dispense about 40 to 50 gallons per hose to eliminate all residual air in the lines / dispenser.
12. Hang up the nozzle in its boot.
13. Return all fuel dispensed to the appropriate product supply tank.
14. Disconnect power from the pump and dispenser using the appropriate breakers.
15. If testing is complete with this shear valve, remove the hose / ball valve assembly from its test port .
16. If the hose/valve assembly was removed in step 15, re-install the test port plug on the shear value using listed sealant rated for the fuel being dispensed.
17. Closely inspect the dispenser's hose assembly and internal piping for any signs of leaking fuel.
18. Repeat steps 1 to 17 for each hose/meter on the dispenser.

Verify Display and Totalizer Operation

Use the following procedure to properly startup the dispenser and prepare it to be placed into service. Before testing or operating the dispenser, air must have already been purged from the supply piping and the dispenser.

1. Restore power to the dispenser and pump with the appropriate breakers.
2. Configure the dispenser for the application in which it is used. If used in Console mode, the dispenser requires an authorize signal from any other device. Standalone mode does not require this.
3. Press the RESET button on the dispenser CPU board.
4. Record the current totalizer readings for the dispenser.
5. If the dispenser is used in Console mode, authorize the dispenser using the external control device.
6. Remove the nozzle from the boot and lift the handle to activate the dispenser.
7. Observe the reset sequence and verify the displays work properly.



WARNING



Fire / explosions caused by sparks from static discharge are a potential danger anytime fuel is being dispensed, possibly causing serious injury or death. Use only approved, metallic containers and always keep the nozzle in contact with the container when fueling.

8. Dispense some fuel into an approved container, taking care not to spill any and not to over flow the container.
9. Observe the displays to verify the counting looks smooth and consistent. Erratic or otherwise jumpy counting may indicate a problem with the display board or with the communications between it and the CPU.
10. When finished dispensing, gently replace the nozzle in the boot and verify that the dispenser is deactivated.
11. To verify that the dispenser is no longer authorized, try to dispenser more fuel into the container without lifting the nozzle boot lever. There should not be any fuel dispensed.
12. Verify that the supply pump has turned off.
13. Check the current totalizer readings with the ones recorded in step 4 above. Verify that the difference is the same as the amount of fuel dispensed.
14. Repeat steps 1 thru 13 for each hose position being started up.

Accuracy Verification of Meters

Verify / set the calibration of the dispenser meters using procedures from the **CALIBRATION** Section of the EMR3 Setup and Operation Manual.

4 - CALIBRATION

All meters are tested, calibrated and sealed before a dispenser is shipped from the factory. However, the accuracy of the meter must be verified as part of the startup procedure.

Additionally, the meters used in the **CG** dispenser require a break-in period after initial installation, during which the meter's calibration can change slightly. It is strongly recommended that the accuracy of each meter be re-checked after 90 days with calibration changes made as necessary.

In custody transfer applications involving the resale of fuel, the meter must be sealed by the appropriate Weights and Measures authority before initial use and after any changes are made to its calibration.

Minimum Size of Calibration Container

The accuracy of the meters used in the dispenser must be verified using a certified calibration container. NIST Handbook 44 defines the minimum size of the calibration container required to verify the meter's accuracy. The size is determined by the maximum flow rate achieved by the installed meter. For flow rates less than 20 GPM, the container must be large enough to hold at least 5 gallons. For flow rates of 20 GPM or greater, the container must be large enough to allow the meter to operate at least one minute at full flow. Generally, the minimum calibration container size required to test the meters used in the **CG** dispensers are 50 or 100 gallon. Note that these are minimum sizes. It is permissible to use larger calibration containers than required.

Calibration Tolerances

TABLE 1: *(This table is for reference only. The tolerances that apply to the actual installation are determined by the local authority having jurisdiction.)*

Acceptance Tolerance	Maintenance Tolerance
<u>Liquid Control M-5 Meter</u> 50 gallon test (0.2%): +/- 23.1 in ³ 100 gallon test (0.2%): +/- 46.2 in ³	<u>Liquid Control M-5 Meter</u> 50 gallon test (0.3%): +/- 34.6 in ³ 100 gallon test (0.3%): +/- 69.3 in ³

CG Dispenser Calibration

Liquid Controls M-5 Meter

The adjuster access panel on the CG dispenser is located just below the register on the meter. The following steps will allow the calibration to be set on the M-5.

1. Remove the adjuster housing dust cover. Remove the wire seal passing through the two bolts in the bottom of the cover. Next remove the bolts and the cover. Figure 3A shows the adjuster housing with the cover removed.
2. Check the dispensers current calibration setting by delivering product to a reliable, accurate prover. Perform several delivery tests at the normal flow rate to verify the repeatability.
3. Note and record the adjuster's current setting.
4. Note the volume in the prover. Calculate %correction by using the following formula:

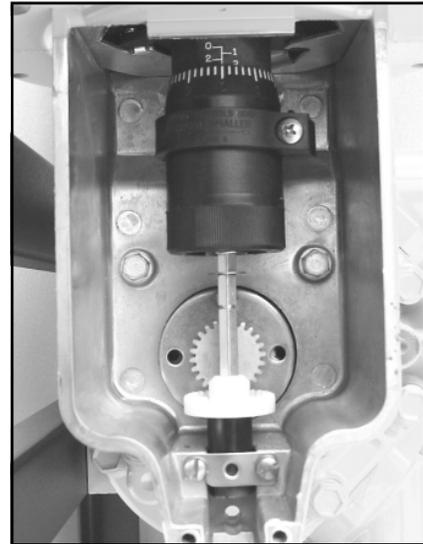


Figure 3A—Adjuster housing with cover removed

$$\% \text{ correction} = \frac{(\text{volume in prover}) - (\text{volume registered by dispenser})}{(\text{volume in prover})} \times 100$$

5. Loosen the adjuster clamp screw. See Figure 3B.
6. When the prover volume is **less** than the dispenser registered volume, add the %correction to the original adjuster setting by turning the thimble towards the arrow marked LARGER (volume). Correct the original setting by approaching the number desired from the next larger whole number. For example, assume a desired adjuster setting of 3.20. Turn the thimble to the left until 4.00 is reached, then back off until 3.20 is reached.
7. When the prover volume is **more** than the dispenser registered volume, subtract the %correction from the original adjuster setting by turning the thimble in the direction of the arrow marked SMALLER on the adjuster clamp (right).
8. Re-tighten the adjuster clamp screw. Run product through the dispenser to allow the adjuster to take a set.
9. Run another prover test to verify the new adjuster setting is correct.
10. Replace the dust cover and apply a wire seal to secure the adjuster settings.
11. Replace the adjuster access panel.

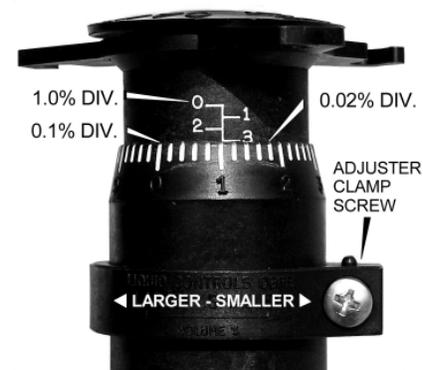


Figure 3B - Adjuster Detail

5 - OPERATING INSTRUCTIONS



WARNING



Per UL87A requirements, a dispenser must not be changed from its original application by changing fuel types once installed. For instance, if installed for a gasoline / ethanol blend such as E25 or E85, the dispenser can not be changed to traditional gasoline at a later date.

Leaks and potential environmental hazards can result or components may fail prematurely.

Do not change fuel types for a dispenser once it has been installed.

Prior to operating the dispenser, review the section “**SAFETY INFORMATION**” at the front of this manual.

Dispenser Controls

The only user accessible controls on the dispenser are the nozzle boot lever that the nozzle rests on when it is placed in the boot and the optional Veeder-Root EMR3 register (if present). When a user wants to begin a transaction, the nozzle is removed from the boot and the lever is raised. If present, press the START Button on the face of the EMR3 register and wait to be authorize to fuel. When the user wants to end a transaction, press the FINISH button on the EMR3 to signal to the console the transaction has ended. Lower the nozzle boot handle and return nozzle to boot after the hose is rewound on the reel.

If the FINISH button is not pressed, the EMR3 will timeout after a programmable delay and end the transaction automatically. See EMR3 [Setup and Operation Manual](#) to adjust this setting.



WARNING



An engine can generate sparks when running, potentially igniting fuel / vapors. Never fuel a vehicle with its engine running.

Dispenser Operating Sequence

1. Remove the nozzle from the boot and lift the lever.
2. (If present) Press the START button on the face of the EMR3 register.
3. If the dispenser is in Standalone mode or is in Console Mode and has been authorized by the console, the dispenser will begin its reset cycle.
 - The fuel supply pump turns on, pressurizing the system.
 - The dispenser does a display segment test showing all 8's.
 - At the end of the segment test, the displays clear to 0 and the solenoid is opened.
3. Dispense fuel. The sale information will be displayed on the face of the dispenser. The dispenser will remain active and able to dispense fuel until one

of the following occurs:

- The nozzle boot lever is lowered (turned off).
- The external authorize (if used) is removed.
- Power failure
- Pulser error is detected.
- Timeout period with no activity is reached.

4. The transaction is complete:

- The product supply pump is turned off.
- The solenoid valves in the dispenser are closed.
- The current transaction information will remain on the displays until the dispenser is authorized for another sale.

6 - OWNER MAINTENANCE INSTRUCTIONS

The following section outlines maintenance procedures and routines for the Commander dispenser that can be performed by the operator. All maintenance and repairs involving the dispenser should only be performed by qualified and trained service personnel.

Safety Precautions

Prior to inspecting or performing any maintenance on the dispenser, review the section “**SAFETY INFORMATION**” at the front of this manual. Failure to conform to safety procedures as outlined in this manual can result in severe injury or death.

Owner Inspections

The owner has a key role in maintaining the safe operation of the dispenser by performing equipment inspections on a periodic basis looking for leaks, worn or damaged parts, and any other hazards that may be present. When a hazard is identified, the dispenser should immediately be taken out of service and blocked off to prevent access to it. Only trained service personnel are to make the repairs necessary to fix the hazard.

Following is a recommended inspection routine to be performed by the station owner in order to identify potential hazards or other items that need to be repaired to maintain top performance and appearance of the dispenser. All safety precautions and procedures must be followed when performing the inspections. Any inspection or maintenance item not specifically covered should only be performed by trained service personnel.

 WARNING 	
<p>Inspecting, servicing or repairing a fuel dispenser is potentially dangerous due to the presence of flammable fuel / vapors and high voltage electricity.</p> <ul style="list-style-type: none">• Read and obey all safety precautions to prevent serious injury or death.• Barricade the lane(s) next to the dispenser to prevent access by vehicles and non-authorized personnel.• Wear gloves and proper eye protection.• Disconnect all power to the dispenser prior to opening any of its panels. More than one disconnect may be required. Use proper lockout / tag out procedures to secure the disconnect(s) in the off position.• Disconnect all power to the associated supply pump prior to opening any of the panels on the dispenser’s lower hydraulic cabinet. More than one disconnect may be required. Use proper lockout / tag out procedures to secure the disconnect(s) in the off position.• If accessing the lower cabinet of the dispenser, remove the doors and allow any vapors that may be present to disperse for a few minutes before beginning any work.	

 **WARNING** 

Using a dispenser with leaking, damaged or worn parts can create a condition that may result in serious injury or death from fire, explosion or electric shock. If leaks or damaged parts are discovered during an inspection, remove the dispenser from service and contact service personnel for repair.

 **WARNING** 

Servicing or repairing a dispenser incorrectly can result in serious injury or death from fire, explosion or electric shock. Only qualified and trained service personnel should service or perform repairs on the dispenser.

WEEKLY INSPECTIONS

- **External Leaks:** Check the dispenser for any external leaks. Check around the base of the dispenser for signs of a recent spill or leak. All leaking, damaged, or worn parts must be repaired immediately by qualified service personnel.
- **Hanging Hardware:** Check all hanging hardware closely for leaks, cracks, wear and damage. The components checked should include the hose, whip hose, breakaway, swivel and nozzle. Consult component manufacturer for any additional inspections required. All leaking, damaged, or worn parts must be replaced immediately by qualified service personnel.
- **Breakaway:** Verify that the breakaway connection is secure. If brake away is not secure, notify service personnel to correct or repair as necessary.
- **Nozzle Boot Lever:** Check nozzle boot lever for ease of movement by moving up and down several times. If lever sticks or does not have free movement over full range, contact trained service personnel to make repairs.
- **Panels / Locks:** Verify all panels and locks are in place on the dispenser. Do not operate the dispenser if a exterior panel or lock is missing or severely damaged.
- **Labels:** Verify all required safety and product labels on dispenser are present, legible and unobstructed.

MONTHLY INSPECTIONS

- **Internal Leaks:** Slowly remove the lower doors from the dispenser and check for any internal leaks. Refer to safety precautions detailed in the **WARNING** on page 4-1.
- **Filter** (if present): Check if filter needs replacement. Filter should be replaced every 250,000 gallons, every six months or when fuel flow slows significantly. Anytime a filter is replaced, the date and totalizer reading should be written on the new filter. Compare the current date and totalizer reading to that written on the filter last time it was replaced to determine if the filter should be replaced. If the filter needs replacement, contact the service personnel.

- **LCD Displays:** Observe the dispenser's LCD displays and look for missing segments. LCDs with missing segments must be replaced.

Preventative Maintenance

The **CG** Series dispensers are designed to give many years of trouble free service. However, like any mechanical device, they require periodic maintenance to prevent problems from developing.

PM Schedule (Owner)

The owner should only perform the following preventive maintenance items on the **CG** dispensers. All other items not specifically outlined here should only be performed by trained service personnel.

MONTHLY MAINTENANCE (Owner / Operator)

1. **Locks:** The locks on the various panels of the dispenser require lubrication to prevent internal corrosion that may prevent proper operation. Use a standard lock oil and squirt a small amount into the key slot. Do not over lubricate and wipe off excess oil. Lock lubrication is very important in high corrosion environments such as salt water marinas.

CAUTION

Do not wash the dispenser with a pressurized water source. Water may be forced passed seals into the dispenser and damage electronics or other components.

CAUTION

Do not use petroleum based or abrasive cleaners to clean the exterior of the dispenser as they can damage the finish.

2. **Clean the Dispenser:** Use a mild soap (such as Dawn dish detergent) and water with a soft cloth to clean the exterior of the dispenser. If stains persist, use a non-abrasive industrial cleaner, such as Simple Green, on the stains. Wipe off the dispenser with a clean rag and clean water to remove any soap residue. Cleaning the dispenser should be done more often in high corrosion environments such as salt water marinas.

SEMI-ANNUAL MAINTENANCE (Owner / Operator)

1. **Wax the Dispenser:** The dispenser panels should be thoroughly cleaned and waxed every six months to maintain its original appearance and prevent corrosion. A high grade, non-abrasive automobile wax

should be used. Be careful not to get wax on textured surfaces or the finish may be ruined. Waxing the dispenser panels should be done more often in high corrosion environments such as salt water marinas.

Service / Inspections By Service Contractor

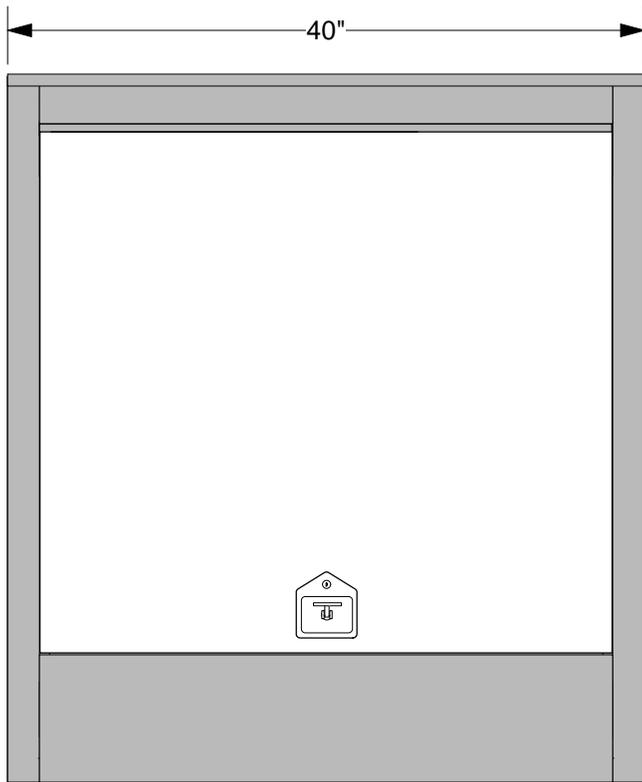
In addition to the periodic inspection and preventive maintenance schedule performed by the owner, the dispenser and fuel system should be fully inspected by qualified service personnel at least once a year. Many times, a trained observer can find problems / issues that may be overlooked. Anytime repairs, upgrades or modifications are made to the dispenser, the following WARNING information must be adhered to.

	WARNING	
<p>When making repairs to the dispenser's internal hydraulic system, only identical parts can be used. Substitute parts may compromise the reliability / safety of the dispenser and create a condition that results in severe injury or death from fire, explosion or electric shock.</p>		
	WARNING	
<p>Unauthorized dispenser modifications may compromise the safety of the dispenser and create a condition that results in severe injury or death from fire, explosion or electric shock. Do not make, or allow to be made, any changes or modifications to the dispenser that are not factory authorized.</p>		
	WARNING	
<p>Draining fuel from a section of the dispenser while performing service or repairs can result in a dry seal condition, leading to leaks. Leaking fuel poses both an environmental and safety hazard. Always replace seals and gaskets with new when servicing or repairing the dispenser.</p>		

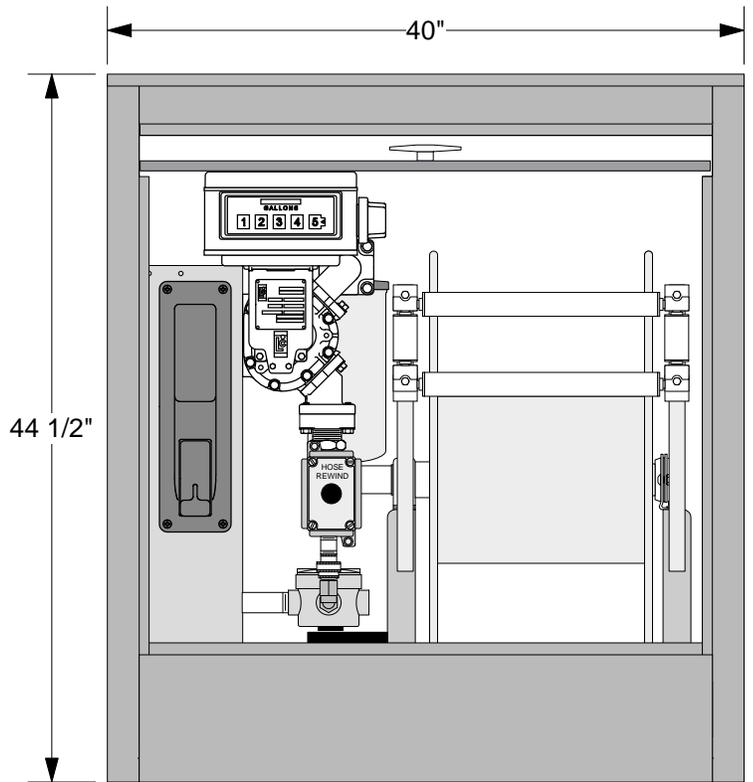
7 - DIAGRAMS

The following wiring diagrams / drawings are provided to assist the installer in wiring the **Commander** dispenser. Ensure that the proper diagram(s) is/are used for the installation. Failure to properly wire the dispenser may result in damage to both the dispenser and other equipment connected to it. Be sure to pay attention to any and all notes associated with the diagrams.

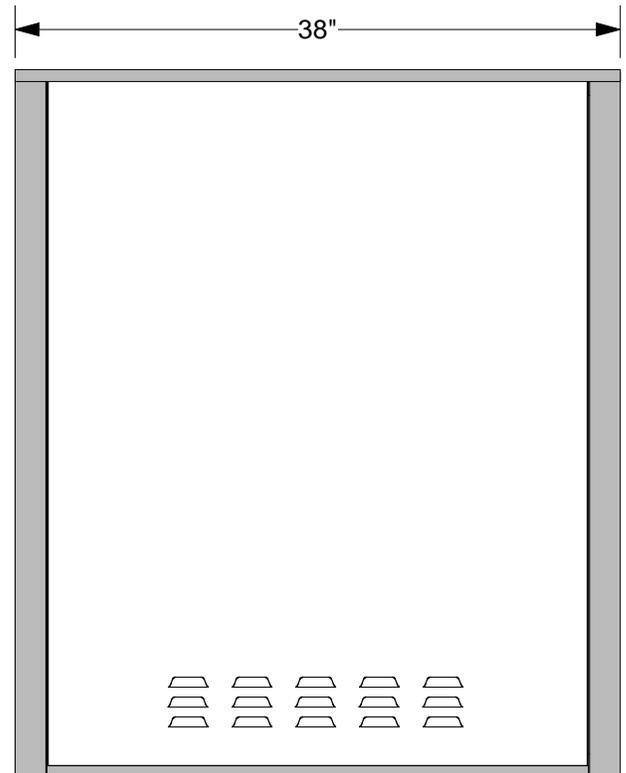
Drawing No.	Drawing Description	Page
91-12G05211	Specifications for CG Series Fuel Cabinets	7-3
91-12G01061	Drip Pan - CG Series Dispenser	7-4
91-12G01071	Footprint - CG Series Dispenser	7-5
91-19A08081	Parts Diagram - CG Housing / Panels	7-6
91-19A08083	Parts Diagram - CG 515 Hydraulic Parts	7-7
91-19A08082	Parts Diagram - CG 515 Hydraulic Parts	7-8
91-20A06231	Parts Diagram - NB2 Nozzle Boot Assembly	7-9
91-12G11181	Parts Diagram - SW1/2 Explosion Proof Switch	7-10
91-11G12151.4	Wiring Diagram - CG Series Internal Wiring	7-11
91-13G02081	Wiring Diagram - Typical USCG Installation	7-12



FRONT
(DOOR CLOSED)



FRONT
(DOOR OPEN)



RIGHT SIDE

SPECIFICATIONS:

GENERAL DESIGN:

- 1-1/2" Liquid Controls M-5 Meter
- Mecanical Veeder-Root Register
 - 0 to 9999.9 GAL Registration
 - 8 digit non-resettable totalizer
- Inlet Filter (see below)
- Stainless steel reel w/ electric rewind (see below).
- Solenoid valve - brass w/ viton seals (see below).
- All 304SS or ALUMINUM piping and conduit
- Fully enclosed with access door (LIFT / SLIDE IN)
- Hose and nozzle stored internally
- 304 Stainless steel - top & frame (Powder Coated)
- 316 Stainless steel doors and panels

CG-515-MA:

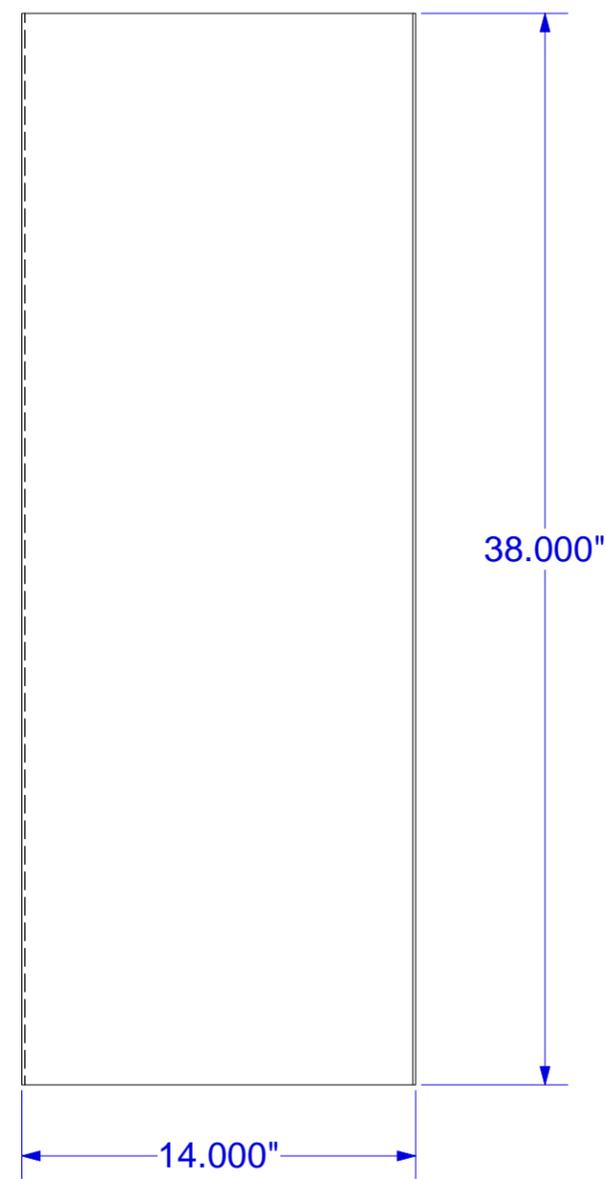
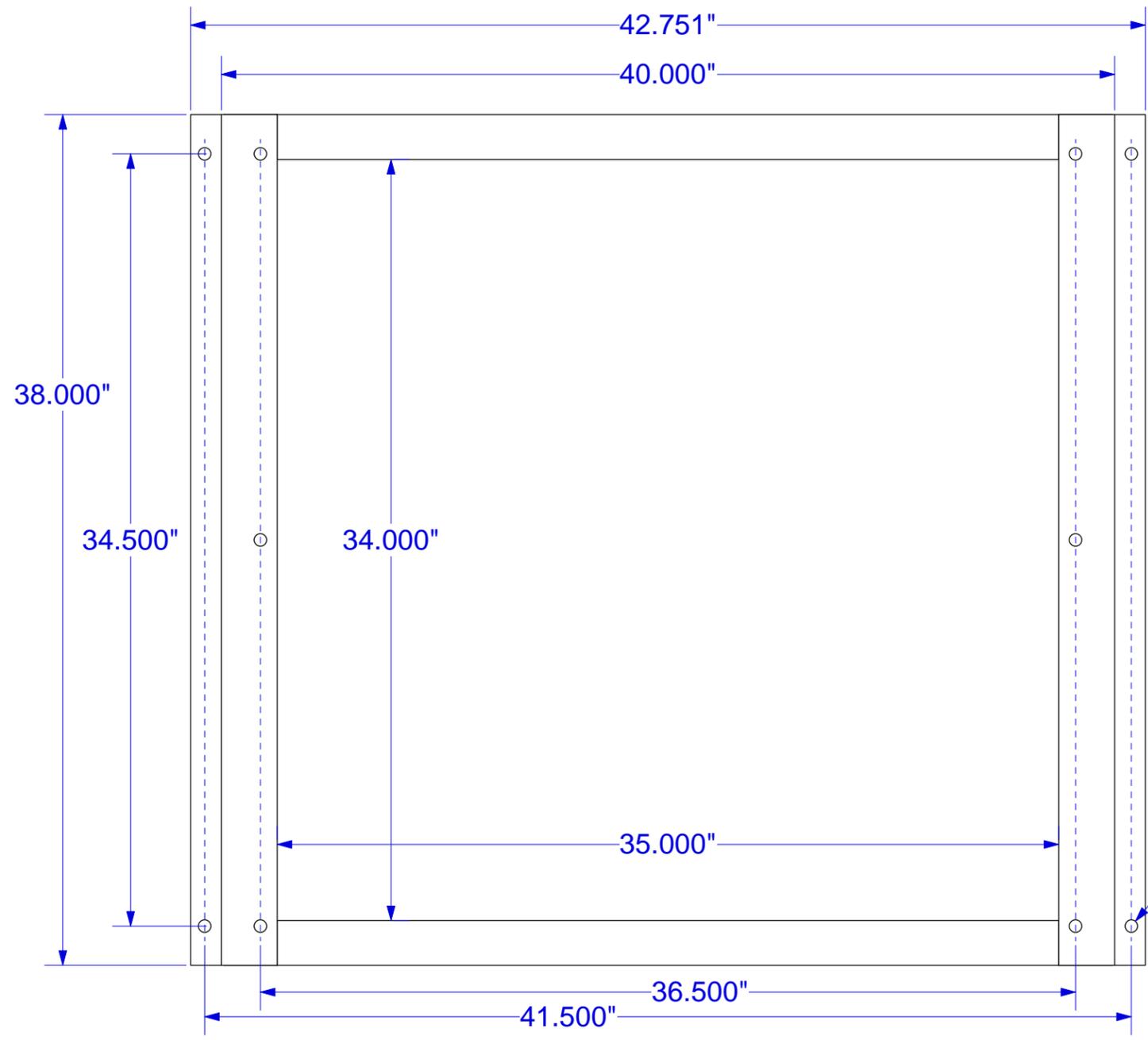
- Reel: 1-1/2" inlet swivel with 1-1/2" internal piping
- capacity: in excess of 125' of 1" hose (not incl.)
- Inlet Filter - Single element (rated to 40 GPM)
- Solenoid Valve: 1-1/2"

CG-520-MA:

- Reel: 1-1/2" inlet swivel with 1-1/2" internal piping
- capacity: 130' of 1-1/2" hose (not incl.)
- Inlet Filter - Dual Element (rated to 80 GPM)
- Solenoid Valve: 2"

 Pump Measure Control, Inc. 1070 Nine North Drive, Suite 100 Alpharetta, GA 30004 PH. 770-667-0667 FAX 770-667-0476 <small>DRAWING NUMBER:</small>		CG-515-MA & CG-520-MA ENCLOSED FUEL DISPENSER CABINETS	
		DATE: 05/21/12	DRAWN BY: GJG
		SCALE: NTS	
91-12G05211		*THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND IS SUBJECT TO COPYRIGHT OWNERSHIP BY PMC, INC.*	

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NO.	DESCRIPTION	DATE

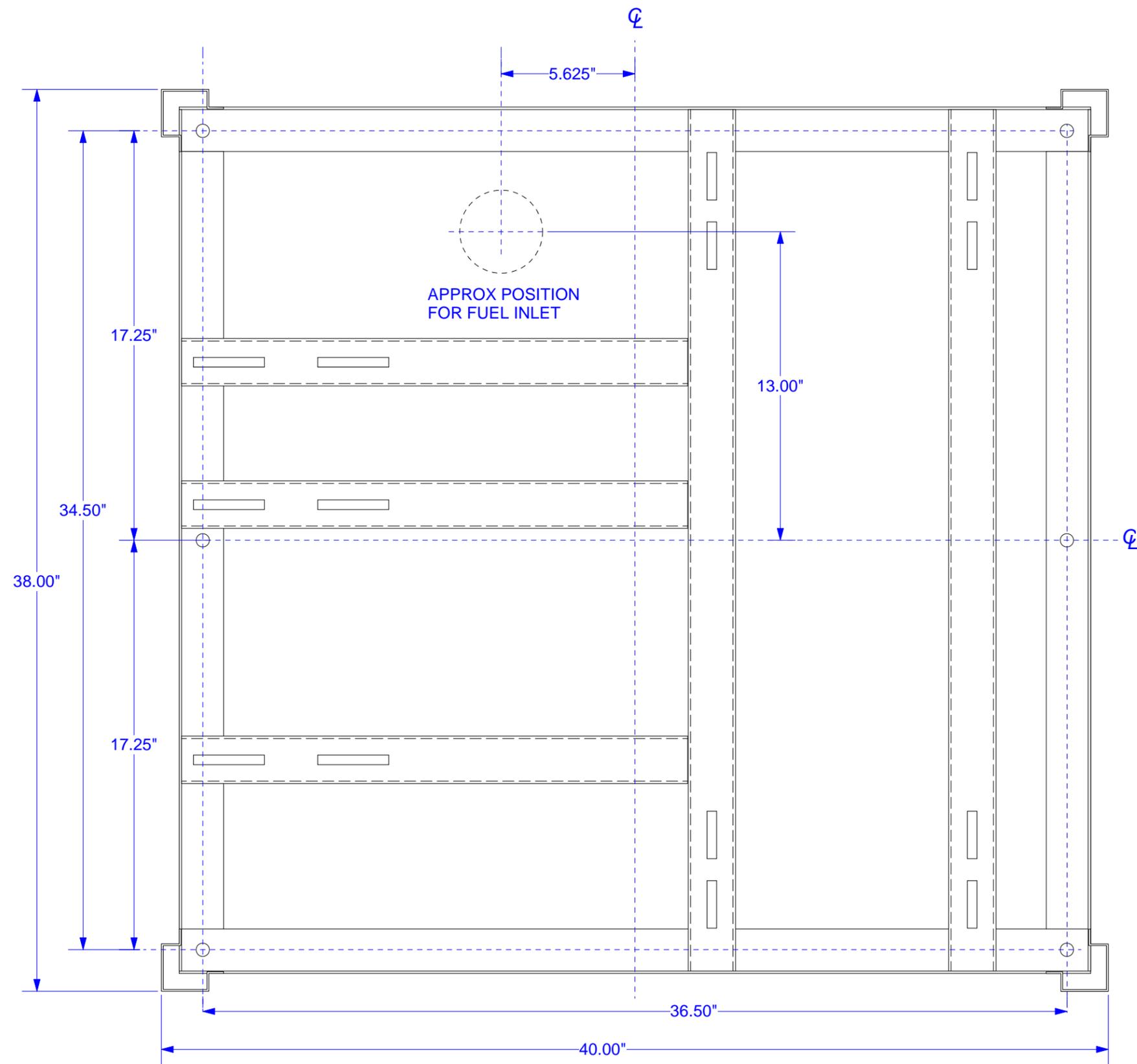


CONTAINMENT VOLUME: 90 GALLONS

MATERIAL: 304 SS SHEET

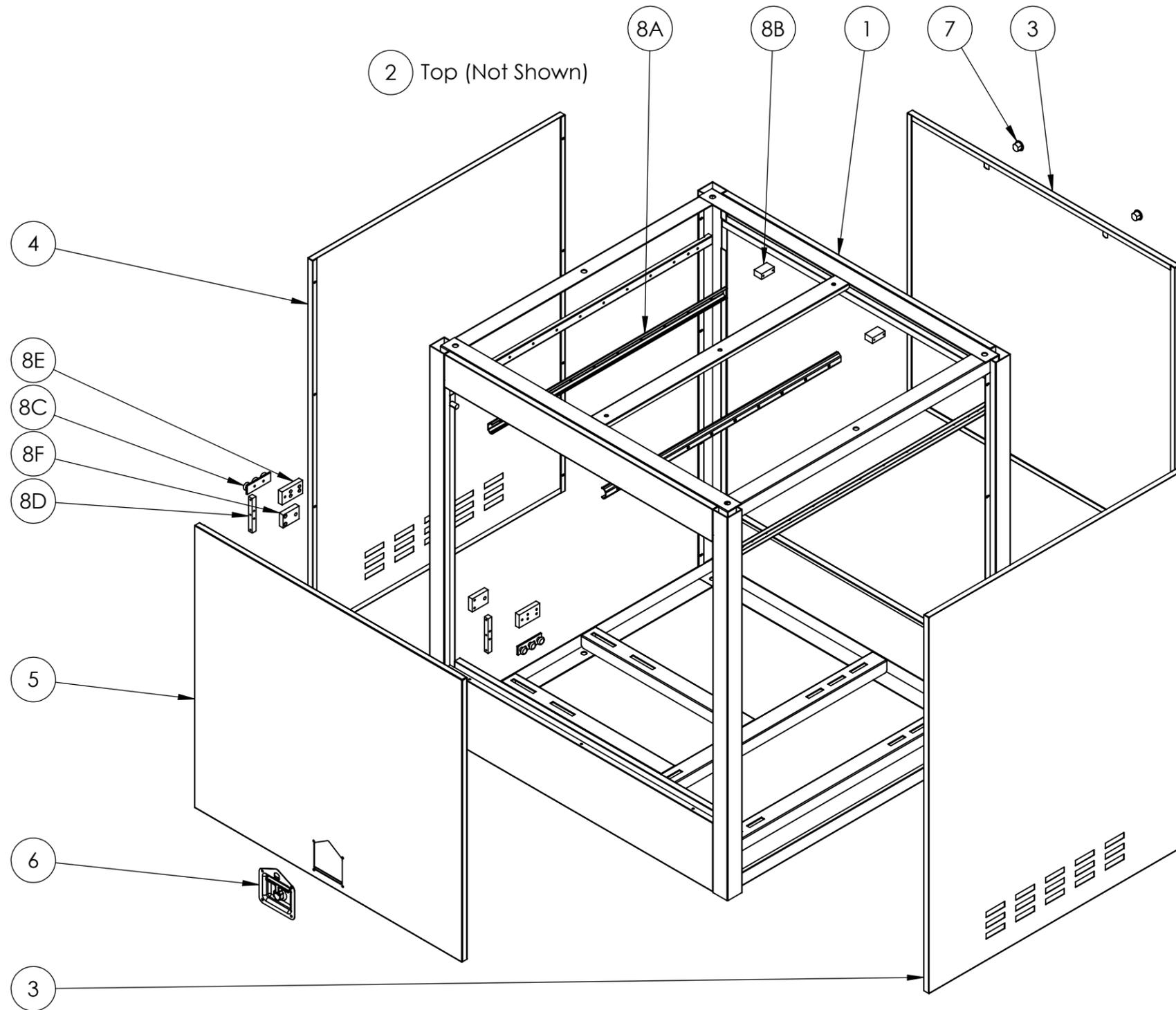
 Pump Measure Control, Inc. 1070 Nine North Drive, Suite 100 Alpharetta, GA 30004 PH. 770-667-0667 FAX 770-667-0476 DRAWING NUMBER: 91-12G11072	CG DISPENSER DRIP PAN DIMENSIONS	
	DATE: 11/07/12	DRAWN BY: GJG
	SCALE: 1" = 6"	
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DISPENSER FRONT

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	DATE: 1/07/12	DRAWN BY: GJG
	SCALE: 1" = 5"	
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1	20-CG-FRM-SS	Frame Assembly
2	20-CMD1312SS	Top Panel (Not Shown)
3	20-CMD1317SS-6	Rear Panel
4	20-CMD1315SS-6	Side Panels
5	20-CMD1316SS-6	Front Panel
6	39-T_HANDLE-SS	Door Lock (T-Handle)
7	39-CL-58-2	Panel Lock
8		Door Rail Assembly
8A	85-LAX26-0800	Front Door Slide Rail
8B	85-FDTS-AL	Front Door Track Stop
8C	85-PAX26-3	Track Shuttle with Rollers
8D	85-FDSC-AL	Front Door Support Cleat
8E	85-FDSB-AL	Shuttle Block
8F	85-FDPB-AL	Pivot Block



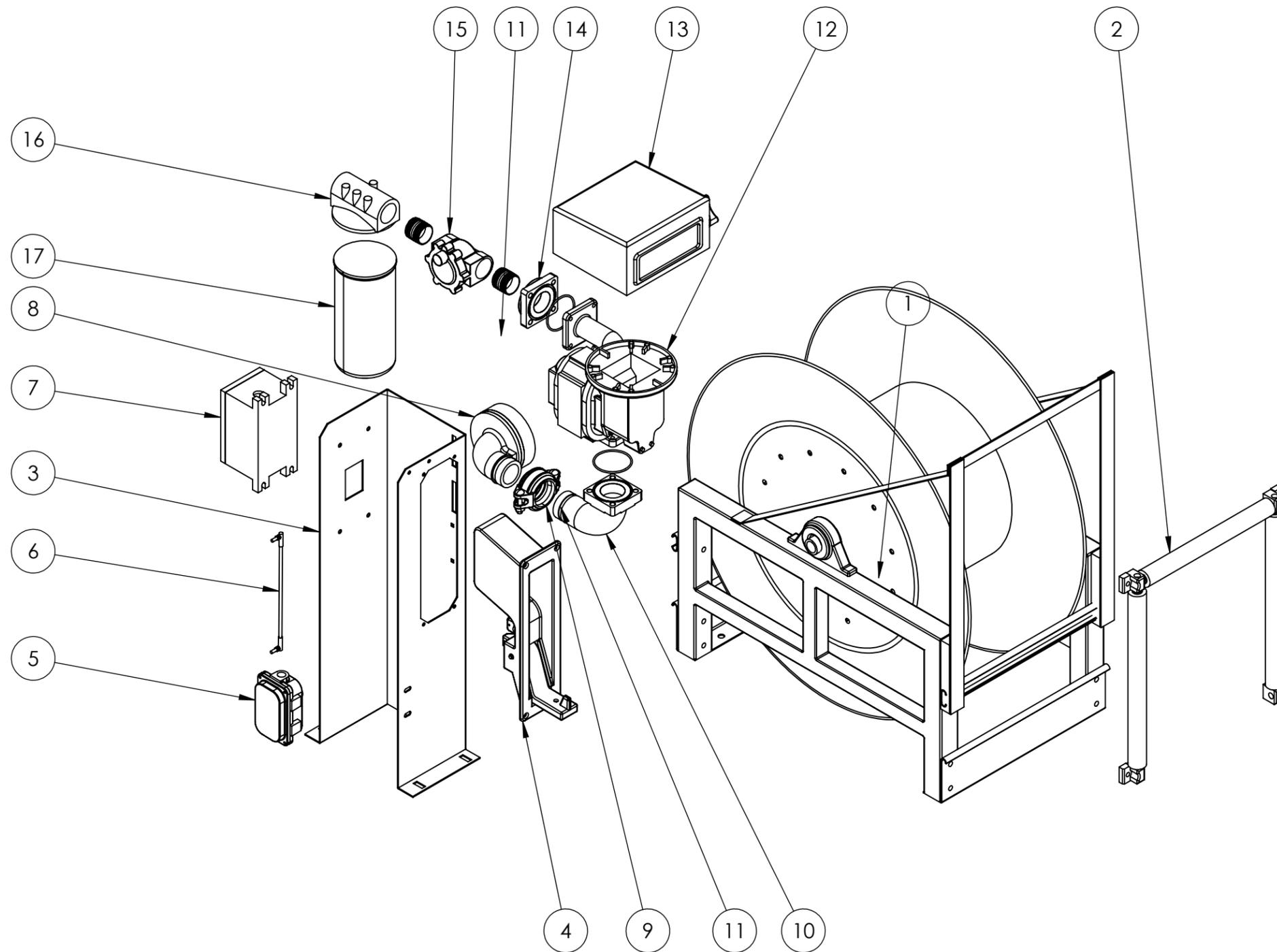
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Alpharetta, GA 30004
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ANGLES $\pm 1.0^\circ$
2 PL ± 0.01 3 PL ± 0.005

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CG Frame Assembly

PART NO	DRAWING NO	REV
	91-19A08081	A
SIZE	SCALE	DRAWN BY:
B	1:12	AGG
FILE NAME	DATE	
	08/08/2019	
		SHEET 1 OF 1



1	Hannay Reel	See Hannay Drawing ISO-41 and ISO-155 for Parts Information
2	40-ROLLASM-6	Roller Assembly
3	20-CMD1313SS	Pedestal
4	NB-2	Nozzle Boot
5	SW1-2	Switch Assembly (See Drawing 91-12G11181)
6	LRBJ	Linkage Rod/Ball Joints
7	50-XIF030603	Junction Box
8	40-9930.4312	Reel Swivel
9	40-75-2.0	Victaulic Coupling
10	45-FL90_2.38VICTAULIC	Flange/Victaulic Nipple Assembly
11	49-233-VITON	Flange O-Ring
12	M5P1-CG	M5 Meter Assembly
13	0788702-000	1/10th Gallon Register
14	LCA2112	Flange - 1-1/2" NPT
15	AS-EFL8210G022V	1-1/2 Solenoid Valve
16	40-FLTR50027	Single Filter Housing w/ Gauge Ports
17	40-FLTR70063	Hydrosorb Filter Element



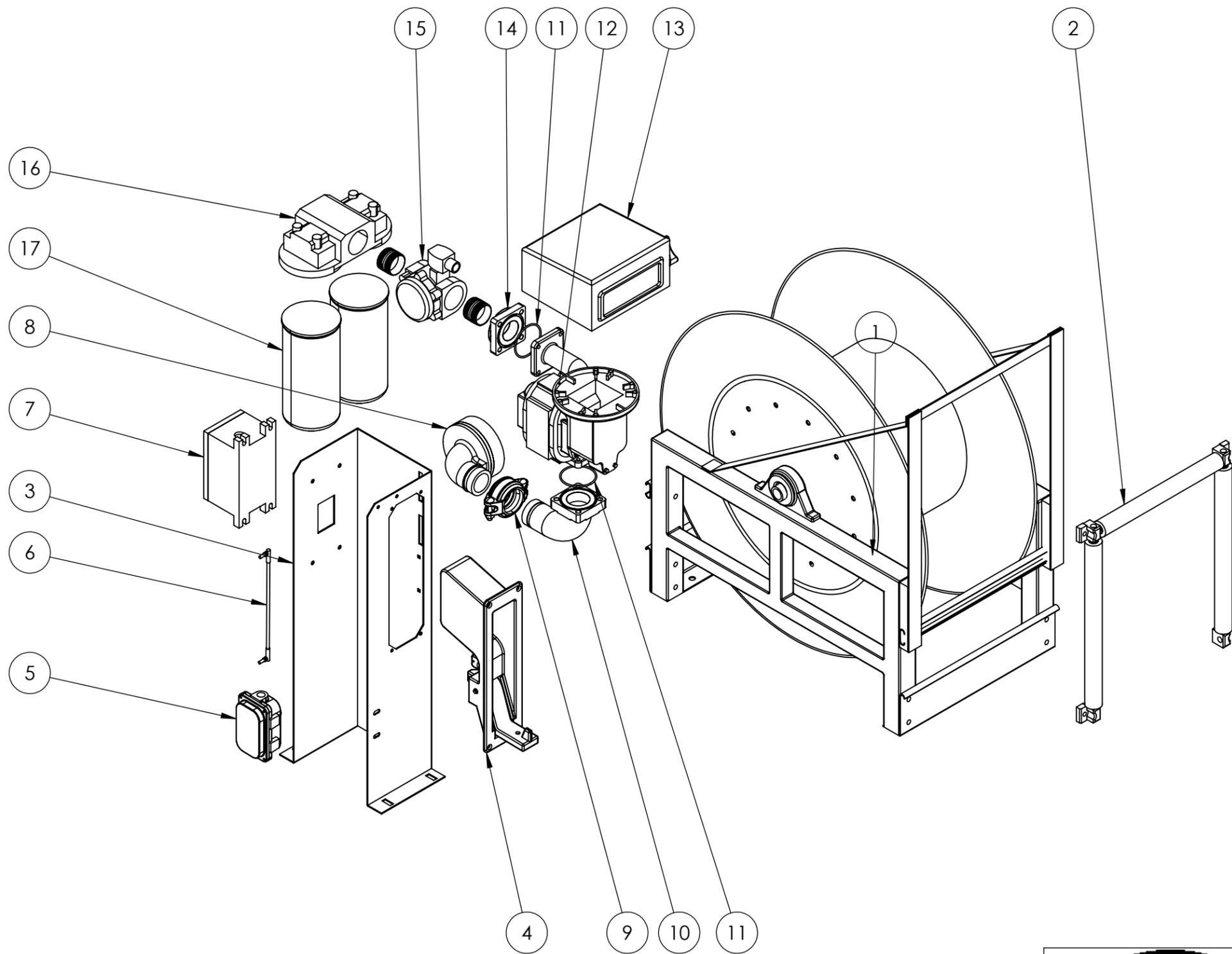
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DIMENSIONS ARE IN INCHES
ANGLES $\pm 1.0^\circ$
2 PL ± 0.01 3 PL ± 0.005

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CG 515 - MA

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SIZE	SCALE	DRAWN BY:
B	1:10	AGG
FILE NAME	DATE	
	08/08/2019	
		SHEET 1 OF 1



1	Hannay Reel	See Hannay Drawing ISO-41 and ISO-155 for Parts Information
2	40-ROLLASM-6	Roller Assembly
3	20-CMD1313SS	Pedestal
4	NB-2	Nozzle Boot
5	SW1-2	Switch Assembly (See Drawing 91-12G11181)
6	LRBJ	Linkage Rod/Ball Joints
7	50-XIF030603	Junction Box
8	40-9930.4312	Reel Swivel
9	40-75-2.0	Victaulic Coupling
10	45-FL90_2.38VICTAULIC	Flange/Victaulic Nipple Assembly
11	49-233-VITON	Flange O-Ring
12	M5P1-CG	M5 Meter Assembly
13	07887702-000	1/10th Gallon Register
14	LCA2212	Flange - 2" NPT
15	AS-EFL8210G100V	2" Solenoid Valve
16	40-FLTR50028	Single Filter Housing w/ Gauge Ports
17	40-FLTR70063	Hydrosorb Filter Element



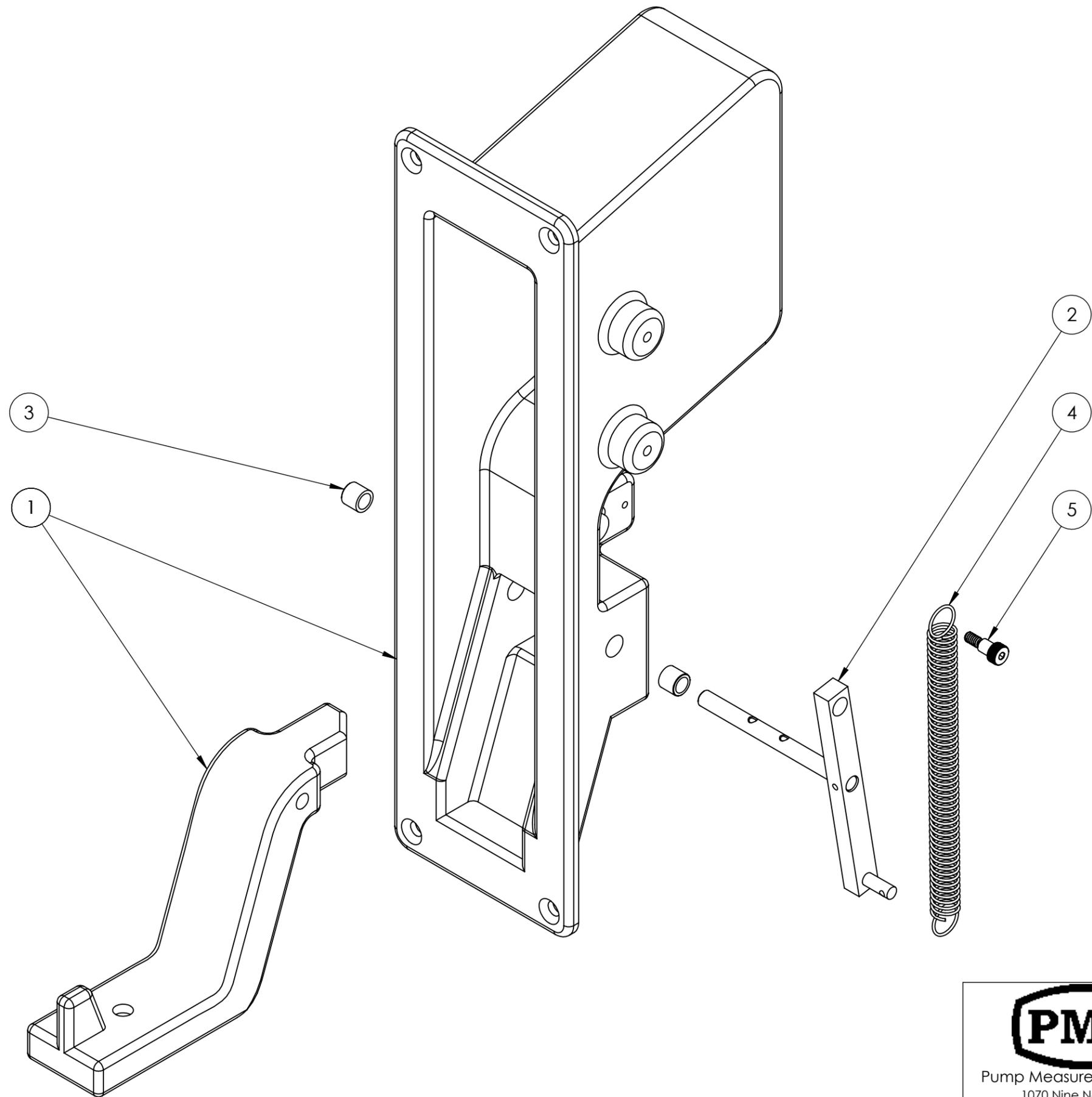
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ANGLES $\pm 1.0^\circ$
2 PL ± 0.01 3 PL ± 0.005

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CG 520 - MA

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SIZE	SCALE	DRAWN BY:
B	1:10	AGG
FILE NAME	DATE	
	08/08/2019	
		SHEET 1 OF 1



1	NB2-A/NB2-B	NB Casting
2	85-NB-12	Shaft/Lever Assembly
3	39-B110812	Bronze Bushing
4	NB-5	Spring
5	35-52025	Shoulder Bolt



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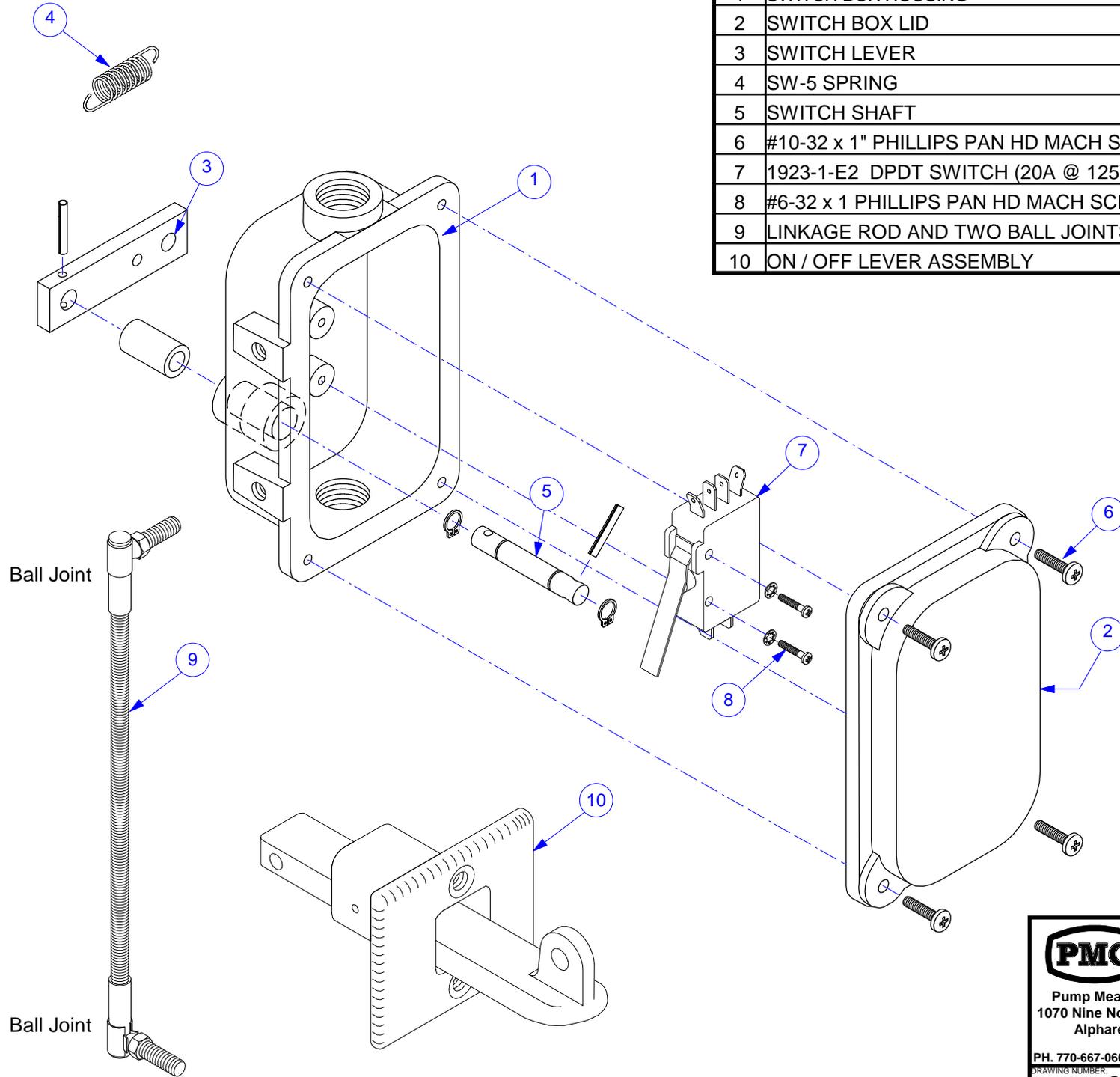
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 2 PL ± 0.01 3 PL ± 0.005

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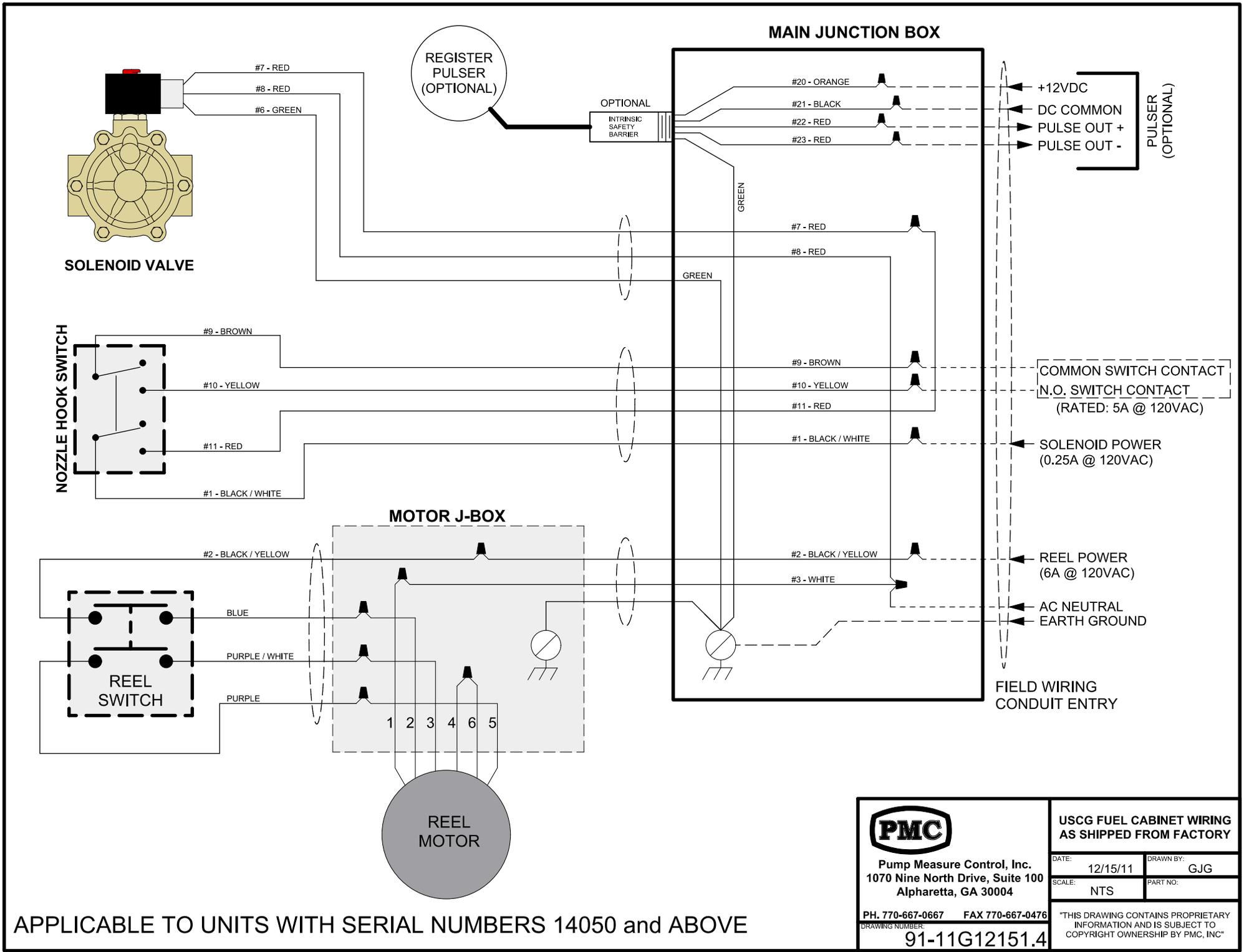
Nozzle Boot

PART NO		DRAWING NO		REV
		91-20A06231		A
SIZE	SCALE	DRAWN BY:	DATE	
B	1:2	AGG	06/23/2020	
FILE NAME			SHEET 1 OF 1	
Nozzle Boot Assembly.sldasm				

NO.	DESCRIPTION	QTY	PART NO.
1	SWITCH BOX HOUSING	1	75-SW1
2	SWITCH BOX LID	1	75-SW2
3	SWITCH LEVER	1	75-SW4
4	SW-5 SPRING	2	
5	SWITCH SHAFT	1	75-SW3
6	#10-32 x 1" PHILLIPS PAN HD MACH SCREW	4	35-41105
7	1923-1-E2 DPDT SWITCH (20A @ 125VAC)	1	1923-1-E2
8	#6-32 x 1 PHILLIPS PAN HD MACH SCREW	2	35-22102
9	LINKAGE ROD AND TWO BALL JOINTS	1	LRBJ
10	ON / OFF LEVER ASSEMBLY	1	75-CD27/28



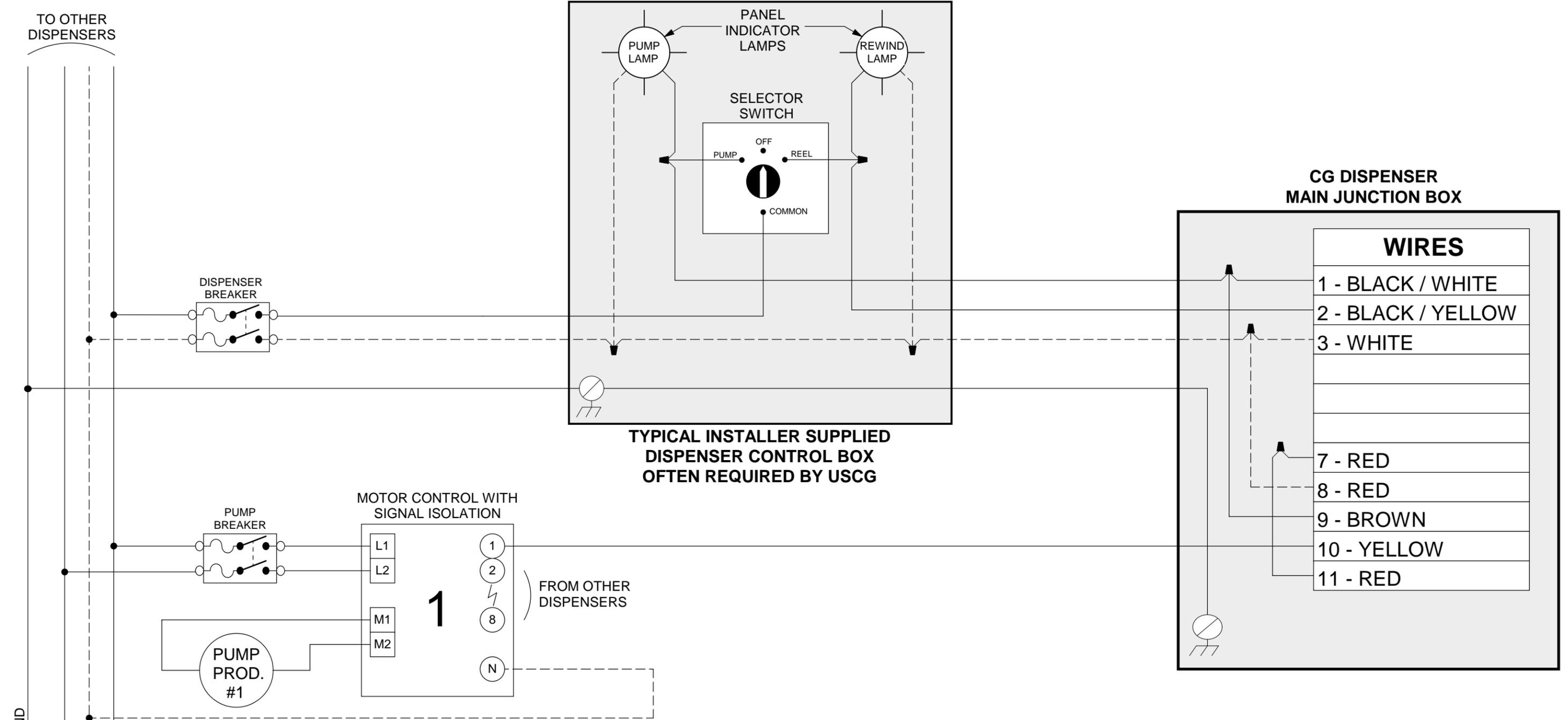
 Pump Measure Control, Inc. 1070 Nine North Drive, Suite 100 Alpharetta, GA 30004 PH. 770-667-0667 FAX 770-667-0476 <small>DRAWING NUMBER:</small>	EXPLOSION PROOF SWITCH BOX ASSEMBLY	
	<small>DATE:</small> 2/16/05	<small>DRAWN BY:</small> CAT
	<small>SCALE:</small> NTS	
	<small>*THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND IS SUBJECT TO COPYRIGHT OWNERSHIP BY PMC, INC.*</small>	
91-12G11181		



APPLICABLE TO UNITS WITH SERIAL NUMBERS 14050 and ABOVE

 Pump Measure Control, Inc. 1070 Nine North Drive, Suite 100 Alpharetta, GA 30004 PH. 770-667-0667 FAX 770-667-0476 DRAWING NUMBER: 91-11G12151.4	USCG FUEL CABINET WIRING AS SHIPPED FROM FACTORY	
	DATE:	DRAWN BY:
	SCALE:	PART NO.:
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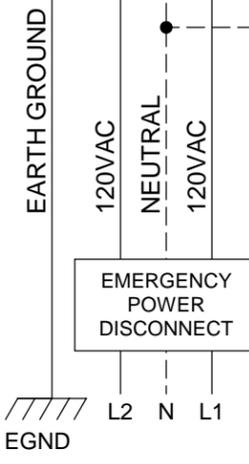
REVISIONS		
NO.	DESCRIPTION	DATE



**TYPICAL INSTALLER SUPPLIED
DISPENSER CONTROL BOX
OFTEN REQUIRED BY USCG**

**CG DISPENSER
MAIN JUNCTION BOX**

WIRES	
1 -	BLACK / WHITE
2 -	BLACK / YELLOW
3 -	WHITE
7 -	RED
8 -	RED
9 -	BROWN
10 -	YELLOW
11 -	RED



NOTES:
1. REFER TO MANUFACTURERS' INSTALLATION MANUALS FOR GROUNDING REQUIREMENTS FOR ALL EQUIPMENT INSTALLED.

<p>Pump Measure Control, Inc. 1070 Nine North Drive, Suite 100 Alpharetta, GA 30004</p> <p>PH. 770-667-0667 FAX 770-667-0476 DRAWING NUMBER: 91-13G02081</p>	CG SERIES DISPENSER TYPICAL SYSTEM WIRING (USCG)	
	DATE: 02/08/13	DRAWN BY: GJG
	SCALE: NTS	
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