

AquaBoost™ II Controller

Variable Speed Pump Control

Installation, Operation & Maintenance

Models Covered:
3AB2 (10.9A)

Owner's Information

Controller Model Number: _____

Controller Serial Number: _____

Pump Model Number: _____

Pump Serial Number: _____

Motor Model Number: _____

Tank Serial Number: _____

Dealer: _____

Dealer Telephone Number: _____

Installation Date: _____

Motor SFA: _____

Incoming Voltage: _____



NOTE: Unit is provided with pressure transducer and cable as standard.

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Note:

- Recommend 90° C UL copper wire.
- Maximum ambient conditions are 50° C (122° F).
- Enclosure rated NEMA 3R (outdoor/rain proof).
- Recommend dedicated circuit with fuse disconnect or circuit breaker.

! Safety Instructions

Section 1



Important: Read all safety information prior to installation of the AquaBoost II Controller.

Note



This is a **SAFETY ALERT SYMBOL**. When you see this symbol on the pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury or property damage. Obey all messages that follow this symbol to avoid injury or death.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.




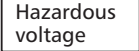


Used without a safety alert symbol indicates a potentially hazardous situation which, if not avoided, could result in property damage.

NOTE

Indicates special instructions which are very important and must be followed.

Note

All operating instructions must be read, understood, and followed by the operating personnel. Goulds Pumps accepts no liability for damages or operating disorders which are the result of non-compliance with the operating instructions.

1. This manual is intended to assist in the installation, operation and repair of the system and must be kept with the system.
2. Installation and maintenance **MUST** be performed by properly trained and qualified personnel.
3. Review all instructions and warnings prior to performing any work on the system.
4. Any safety decals **MUST** be left on the controller and pump.
5.  **DANGER**  The system **MUST** be disconnected from the main power supply before attempting any operation or maintenance on the electrical or mechanical part of the system. Failure to disconnect electrical power before attempting any operation or maintenance can result in electrical shock, burns or death.
6.  **CAUTION**  When in operation, the motor and pump could start unexpectedly and cause serious injury. Do not operate above fixture pressure ratings of home.

System Components

Section 2

Please review the AquaBoost II components and insure that you have all the parts and are familiar with their names. Be sure to inspect all components Goulds Pumps supplies for shipping damage.

AquaBoost II: (NOTE: STANDARD UNIT WILL COME WITH TRANSDUCER AND TRANSDUCER CABLE ONLY)

1. Pump with 3 Phase Motor
2. AquaBoost II Controller with Integral Pressure Sensor Cable (1AB2, 2AB2 or 3AB2)
3. Pressure Tank (V6P or V15P)
4. Pressure Sensor (9K336)
5. Mounting Kit
6. Tank Tee with Pipe Plug (AV20-6) 1" or (AV20-12) 1¼"
7. Pressure Gauge (AG5 = 100 PSI Range, AG2 = 200 PSI Range)

Warning



DO NOT power the unit or run the pump until all electrical and plumbing connections, especially the pressure sensor connection, are completed. The pump should not be run dry. All electrical work must be performed by a qualified technician. Always follow the National Electrical Code (NEC), or the Canadian Electrical Code (CEC) as well as all local, state and provincial codes. Code questions should be directed to your local electrical inspector. Failure to follow electrical codes and OSHA safety standards may result in personal injury or equipment damage. Failure to follow manufacturer's installation instructions may result in electrical shock, fire hazard, personal injury, death, damage to equipment, unsatisfactory performance and may void manufacturer's warranty.

System Design

Section 3

Note

Systems MUST be designed by qualified technicians only and meet all applicable state and local code requirements.

The following diagrams show a typical system using the AquaBoost II Constant Pressure System. Connection can be made directly to a water supply or water can be drawn from a supply tank. Diagram #1 shows a typical set up for a municipal water connection.

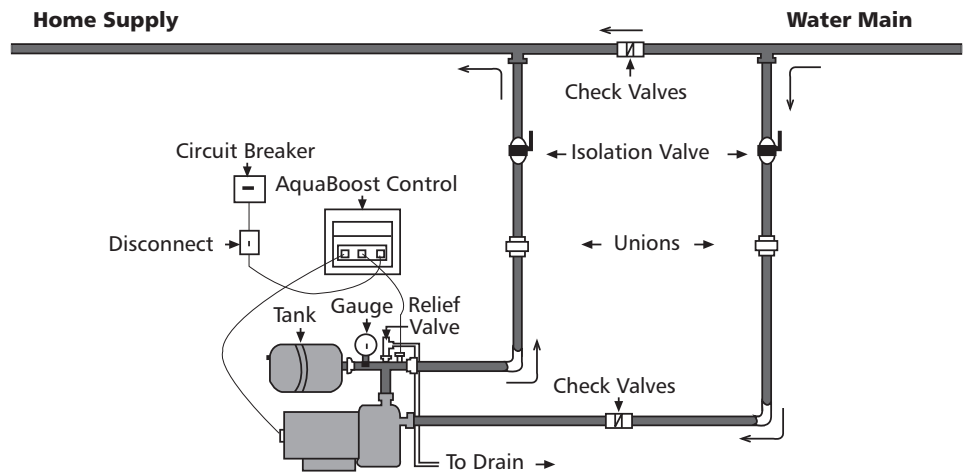


Diagram 1
System Layout for
municipal hook-up

Diagram #2 shows a set-up for well feed, supply tank. This allows pump maintenance without main line shut-off.

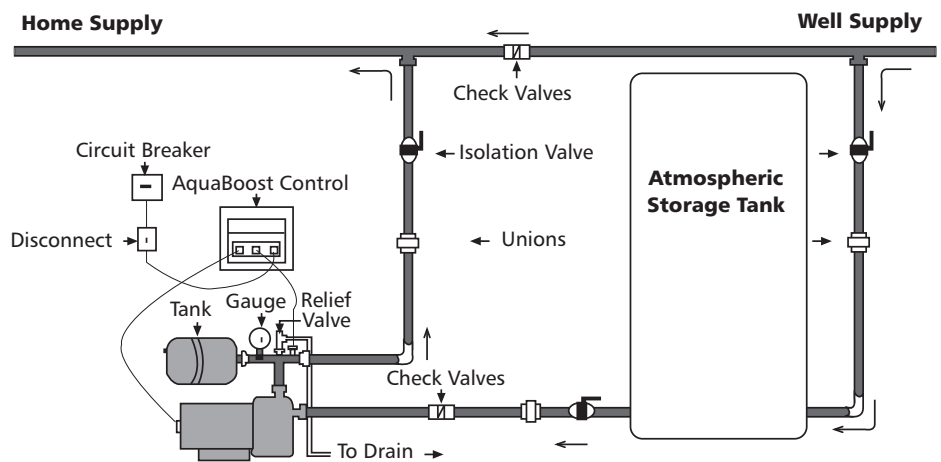


Diagram 2
System Layout
for supply tank

NOTE: NOT ALL FITTINGS, VALVES ARE INCLUDED IN AQUABOOST SYSTEMS.

Piping

Section 4

General

Note

All plumbing work must be performed by a qualified licensed technician. Always follow all local, state and provincial codes.

A proper installation requires a pressure relief valve, a 1/4" female N.P.T. threaded fitting (found on tank tee) for the pressure sensor, and properly sized pipe. Piping should be no smaller than the pump discharge and/or suction connections. Piping should be kept as short as possible. Avoid the use of unnecessary fittings to minimize friction losses.



Some pump and motor combinations supplied with this system can create over 200 PSI. Select pipe and fittings accordingly per your pipe suppliers' recommendation. Consult local codes for piping requirements in your area.

All joints must be airtight. Use Teflon tape or another type of pipe sealant to seal threaded connections. Please be careful when using thread sealant as any excess that gets inside the pipe may plug the pressure sensor and impeller.

Galvanized fittings or pipe should never be connected directly to the stainless steel discharge head or casing as galvanic corrosion may occur. Barb type connectors should always be double clamped.

Pressure Tank, Pressure Relief Valve and Discharge Piping

The standard Hydro-Pro tank has a pre-charge of 38 PSI. You may set the tank pre-charge anywhere between 10 PSI and 20 PSI below the system operating pressure. Use the higher tank pre-charge setting if the system drifts over 5 PSI at a constant flow rate. Use only "pre-charged" tanks on this system. Do not use galvanized tanks. Select an area that is always above 34° F (1.1° C) in which to install the tank and pressure relief valve. If this is an area where a water leak or pressure relief valve blow-off may damage property, connect a drain line to the pressure relief valve. Run the drain line from the pressure relief valve to a suitable drain or to an area where water will not damage property. Use the optional tank tee to connect the discharge pipe to the pressure tank and house plumbing. It is allowable to pump to multiple locations.

Warning

Maximum working pressure of the Goulds HydroPro tank is 125 psi. Do not exceed pressure ratings of household fixtures.

Pressure Tank Installation and Selection

⚠ WARNING EXPLODING TANK CAN INJURE OR KILL.

Refer to pump catalog or contact your supplier for maximum discharge pressure of pump. Ensure pressure rating of pipe is greater than maximum discharge pressure of pump.

⚠ CAUTION It is likely that the pressure relief valve will open sometime during the life of the system. Plan ahead by running drain to a location where water will not cause damage.

Diaphragm Tank Sizing and Pre-Set Pressure Recommendations:

Diaphragm type (captive air) tanks are required on these systems.

Total Tank Volume, not drawdown volume, is used to select the proper tank size. The total tank volume should be approximately 20% of the pump's maximum flow. For example, when using a 10 gpm pump the system requires a

Piping

2 gallon (total volume) tank, i.e. a V6P or TP6P. A 50 gpm pump requires a minimum 10 gallon total volume tank, a V25 at 8.2 gallons may be too small, in this case we recommend the next larger tank, a V45 or TP45 at 13.9 gallons. Due to the many variables in a pump system there may be installations where a smaller than recommended tank will operate the system properly. The tank sizing recommendations are field proven to prevent objectionable pressure drops on start-up and provide smooth operation for the majority of variable speed pump systems.

Set the tank pressure, while tank is empty of water, to 20 psi below the desired system pressure setting. Ex. for a 50 psi system pressure, charge the tank to 30 psi. Tanks sold by ITT Water Products brands are all factory pre-charged to 38 psi. Locate the tank where it will not freeze.

Installing the Pump

Warning

⚠ WARNING

Hazardous
voltage

⚠ CAUTION

Hazardous
Pressure

Risk of electric shock - This pump system has not been investigated for use in swimming pool areas.

⚠ CAUTION

Hazardous
Pressure

Plumb suction and discharge of pump into piping. Be sure to install a check valve on the suction side of the pump. Use a minimum of 6 inches of straight pipe between the check valve and the suction of the pump. Locate the pump as near liquid source as possible. When pumping out of an atmospheric tank locate the pump below the level of the liquid in the tank. All piping must be supported independently of the pump. Be sure that suction and discharge piping are in line with the suction and discharge of the pump. For additional information refer to Installation, Operation and Maintenance Instructions supplied with the pump.

Note

If pump is drawing water from a storage tank, a flapper type check valve may be necessary, instead of spring loaded valve on suction side of pump.

Installing the Pressure Sensor

Install the pressure sensor in the tank tee provided with the unit. The pressure sensor cable supplied with the controller is 80 inches long and is pre-wired to the Aquaboost controller. Locate the controller so there will be enough cable to properly install the pressure sensor. Do not install in temperatures below 32°F. Freezing will damage transducer.

Caution

⚠ CAUTION

Hazardous
Pressure

Do not install any shut-off valves, filters or flow/pressure control devices between the pressure sensor and the discharge of the pump as this could create a hazardous situation.

Use ONLY the pressure sensor provided with the unit. Install the pressure sensor into one of the 1/4" holes on the tank tee provided in the kit. Do not install the pressure sensor upside down. Do not install the tank tee with the 1/4" holes facing down. Align the connector on the end of the pressure sensor cable with the mating connector on the pressure sensor and push it on. The tab will lock it in place. Maximum recommended transducer cable length is 100'. Order number PSC1200, if required.

Mounting the Controller

Section 5

General

Mount the controller in a well ventilated, shaded area using the supplied mounting kit. The controller must be mounted vertically. Be sure to leave 8 inches of free air space on every side of the unit. The controller must be in an area with an ambient between 0° F and 122° F.

Note

Do not block the heat sink (fins) and do not set anything on the units.

Warning

⚠ DANGER Hazardous voltage The controller access cover should always be securely fastened to the control box due to the dangerous voltage/shock hazard inside the unit.

Section 6

Power Supply

⚠ DANGER Hazardous voltage The controller requires a single-phase power supply of 230 volts +/- 15% on a dedicated 30-amp two-pole circuit breaker. A dedicated circuit means no other appliances use the same circuit! The output power from the motor controller is three-phase, variable frequency and variable voltage. Maximum output voltage and frequency are line input voltage and 60 Hz, respectively. **Low supply voltage will reduce pump performance.**

Note

Installation and maintenance **MUST** be performed by properly trained and qualified personnel. Always follow the National Electric Code or Canadian Electric Code, as well as all local, state and provincial codes when wiring the system.

Wire and Conduit

Factory installed input and output power leads may be supplied with the controller. Use 90°C UL type copper wire. Use of Metal Conduit with Metal Conduit liquid tight Connectors is recommended for all electrical connections.

Connecting Input Power

Connect the 230 volt, single-phase power supply leads and Safety Ground wire from a 30 amp two-pole circuit breaker (in the OFF position) to one side of a 30-amp two-pole disconnect switch. Connect the input power leads supplied with the controller to the other side of the disconnect switch. Be sure to use Metal Conduit with Metal Conduit Connectors for electrical connections. Use min 10 AWG copper wire. 90°C UL rated.

Starting the System

Danger



The controller has a high leakage current to ground. The terminals marked "GND" in the controller must be connected to the safety ground from the electrical service entrance. Failure to properly ground the controller or motor will create an electrical shock hazard.

Note

Do not use GFCI protection with this controller. Nuisance tripping will result.

Motor Power Connections



Connect the motor leads for 230 volt, 200 volt, or 208 volt operation using the nameplate as a reference. Connect the output power leads from the controller to the 3 motor leads in the conduit box on the motor. Connect the ground (green) output power lead to the ground screw in the conduit box on the motor. This step is performed in its entirety at the factory for complete systems. See diagram 4 for details. Use minimum 14 AWG copper wire. 90°C UL rated.

Note

If the pump has more than 50 feet of wire from the controller, consult factory for selection of an output load filter (load reactor).

Section 7

Danger



Status Code Indicator Light is not a voltage indicator! Always turn off disconnect switch and circuit breaker before servicing.

Danger



Once the controller is powered it will remain electrically charged for 5 minutes after power is turned off. Wait 5 minutes after disconnecting power before opening controller access cover as there is a severe shock hazard.

Setting the Motor Overload Switch

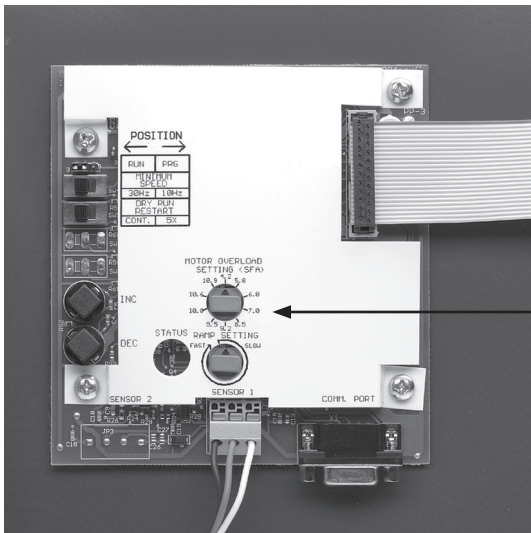


Figure A

The Motor Overload Setting Switches adjust the level of motor overload current protection needed to protect the motor from damage due to overcurrent conditions. Turn the circuit breaker and disconnect switch to the off position, and wait 5 minutes. Remove controller access cover. Read the Service Factor Amps off the motor nameplate. Match the Service Factor Amps (SF Amps) of the motor to the correct switch setting. See Section 8 for details. Set the Motor Overload Switch according to the correct setting. If the Service Factor Amps of the motor does not match any of the Motor Overload Settings, use the next lowest switch setting.

Starting the System

Note

The Motor Overload Setting Switch is preset at the factory for complete systems.

Caution

Failure to perform this step will result in loss of Motor Overload Protection and will void the Motor Warranty. Motor damage can occur if these switches are not set properly.

Setting the Pressure

Turn the circuit breaker and disconnect switch to the off position, and wait 5 minutes. Remove controller access cover. Open a faucet in the system and turn the breaker/disconnect switch to the ON position. The pump will start and pressure will increase to the factory preset 50 PSI. After the pressure has stabilized, use the Increase/Decrease Pressure Adjust Pushbuttons on the upper left side of the controller to adjust the pressure setting (INC, DEC).

PUSH AND HOLD the Increase or Decrease Pressure Adjust Pushbutton until the desired pressure setting is reached. Close the faucet and allow the controller to go into standby mode (pump off). Turn power to controller off. Wait 5 minutes before installing the controller access cover.

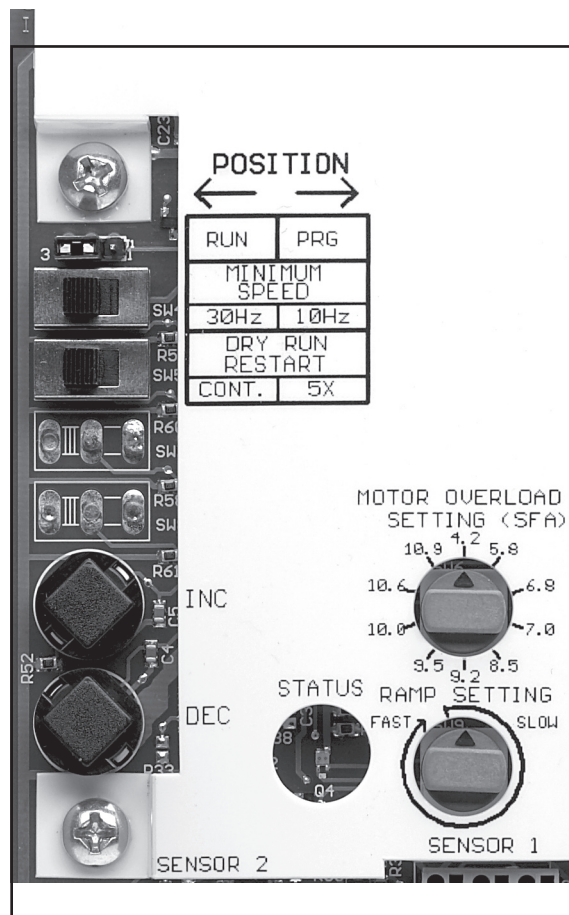


Figure B

Note

The maximum recommended pressure setting is 85 psi. DO NOT EXCEED HOME FIXTURE RATINGS.

Starting the System

Note

Before adjusting the Minimum Frequency or Ramp Setting Switches, turn the circuit breaker and disconnect switch to the off position. Wait 5 minutes. Remove the controller access cover. See Section 8 for details.

Setting the Minimum Frequency Switch

The controller has 2 possible Application Settings. These settings are used to adjust the Minimum Speed of the motor. This allows the controller to fit a wide range of applications. Select a Minimum Speed of 10 Hz if the pressure at the pump's suction is within 20 PSI of the desired pressure setting. Select a Minimum Speed of 30Hz if the pressure at the pump's suction is more than 20 PSI below the desired pressure setting, if pumping from a tank or if drawing a suction lift.

Setting the Ramp Setting

Changing the Ramp Setting changes how fast the controller can change the speed of the motor. A Slow Ramp Setting allows the controller to work better in applications where the average demand for water is low (less than 3GPM or about 1 faucet). A Fast Ramp Setting allows the controller to work better in applications where the demand for water is high because the motor is allowed to change speed faster.

Note

The Ramp Setting is preset at the factory for the "6 O'Clock" position which is a half way point between fast and slow. If "Hunting" or pressure fluctuation occurs, turn dial to slower setting.

Motor Rotation Direction

If the pressure or flow seems low, check motor rotation direction. Turn the circuit breaker and disconnect switch to the off position, and wait 5 minutes. Switch any two leads on the controller output (T1, T2, or T3). Turn the circuit breaker and disconnect switch to the on position. Observe pressure and flow. If pressure or flow still seems low check plumbing. **When viewing motor shaft end, rotation should be clockwise.**

Note

It is possible for the pump to maintain constant pressure with a low flow or a high positive suction head even if the pump is rotating backwards. While the pump is running, use an amp probe on one of the output power leads connected to the motor and compare the current draw between the two rotation directions. The lowest current reading indicates the pump is running in the correct direction.

System Status

The controller is always powered. A Solid Green Status Code indicates that the pump is in standby mode (pump not running) or that the line input voltage is low.

Danger



Status Code Indicator Light is not a voltage indicator! Always turn off disconnect switch and circuit breaker and wait 5 minutes before servicing.

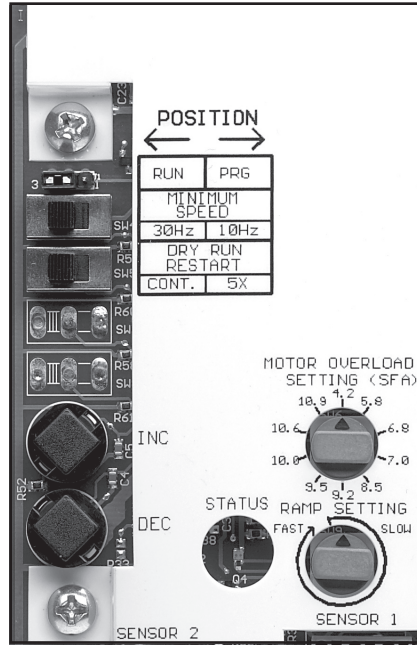
A **Blinking Green** Status Code indicates that the pump is running. A **Blinking or Solid Red** Light indicates a problem with the controller. Refer to the front cover or Diagram 5 for Status Codes. See Section 9 for more details on fault codes.

Diagrams

Section 8

Motor Overload and Minimum Speed Switch Setting

Min. Speed Example:
For a suction lift or tank feed system, select the 30 Hz setting to ensure shut down at no flow conditions

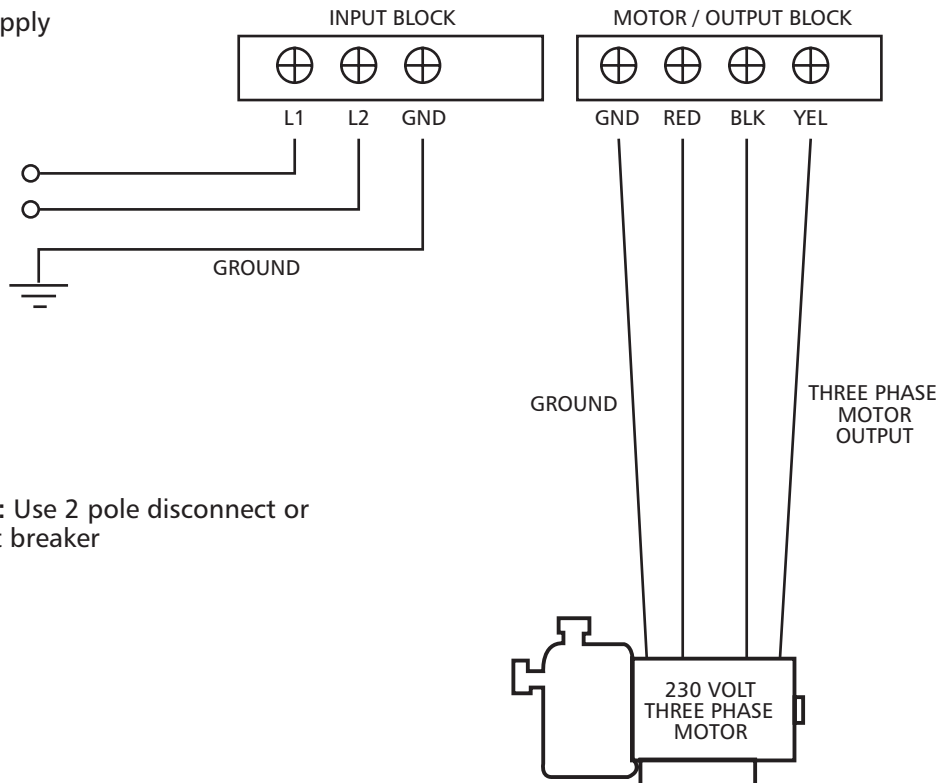


Motor Overload Example: If motor nameplate service factor amps = 4.4, use the next lowest setting of 4.2

Diagram 3

AquaBoost II Wiring Diagram

* Input Power Supply
Single Phase
208-240 VAC



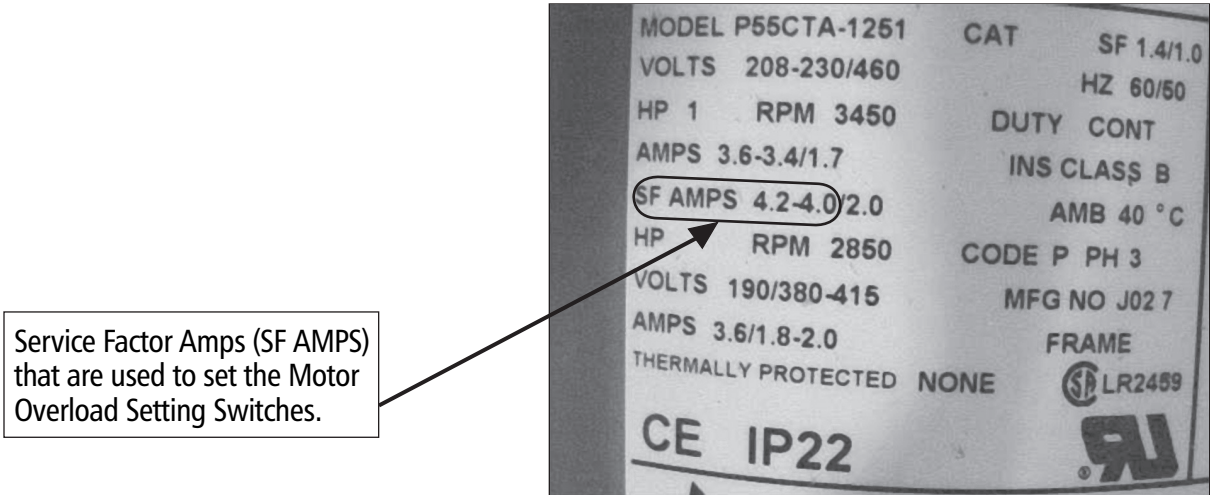
NOTE: Use 2 pole disconnect or circuit breaker

Diagrams

Section 8 (continued)

Diagram 4

Typical Motor Nameplate Showing Service Factor Amps (SF AMPS)



In this example, use the 4.2 Amp setting indicated on the Motor Overload Setting Table. This setting is used to account for any voltage fluctuation.

Diagram 5

System Status Label

GOULDS PUMPS

AquaBoost™ Pump Controller

3AB2

Goulds Pumps
ITT Industries

System Status	
Constant Green - Standby	2 Red Blinks - No Water/Loss of Prime
Blinking Green - Running	3 Red Blinks - Sensor Fault
No Light - Low/No Power	4 Red Blinks - Pump Bound
Constant Red - Replace Controller	5 Red Blinks - Short Circuit
	6 Red Blinks - Ground Fault
	7 Red Blinks - Temperature
	8 Red Blinks - Open Lead

Troubleshooting

Section 9

General

The AquaBoost II is a self-diagnosing controller. If a problem occurs, observe the Status Code Indicator Light on the front of the unit. No Status Code Indicator Light means either no or low input voltage (less than 50 V).

Danger



Status Code Indicator Light is not a voltage indicator! Always turn off disconnect switch and circuit breaker and wait 5 minutes before servicing. High voltage may still remain on controller.

Refer to the status code label on the front of the controller access cover to diagnose system errors.

See *Diagram 6* for details.

Use the following table to help troubleshoot problems.

NOTE: ALWAYS TROUBLESHOOT THE FOLLOWING FIRST:

1. Input supply power is within limits. Low voltage will cause lower performance.
2. Fuses are intact.
3. Circuit breaker is not tripped or overheating. Is it sized correctly?
4. Motor leads are connected for 230 volt, 3 phase?
5. All ground leads are connected?
6. Motor insulation or lead short / damage.
7. Pump is rotating in correct direction.
8. Pump is not jammed or blocked.
9. Transducer is located correctly in piping.
10. Check valve is located before tank and transducer.

Troubleshooting

Diagram 6

Green Light Codes																												
Flashes	Controller Status	Description																										
Constant	Standby/Low Voltage	Constant Green Light indicates the pump is off. The system is in Standby mode when there is no flow in the system and the pressure setting has been reached. The system is in a Low Voltage condition when the line input voltage drops below 190VAC.																										
Blinking	Pump Running	Flashing Green Light indicates the pump is running.																										
Red Light Codes																												
Number of Flashes	Controller Status	Fault Description. This information is to be used by professional installers or qualified personnel only.																										
	Controller Action																											
Constant	Controller Error To clear the fault, turn off power to the controller, wait 1 minute, turn on power to the controller. If fault persists contact installer.	Internal controller fault. Replace controller.																										
2 Blinks	No Water / Loss of Prime The controller will automatically restart according to the chart shown on the right. If fault persists contact installer * Set the switch to 5x to manually restart controller after loss of water after 5 attempts.	<p>* By using the selector switch “Dry Run Restart”, you can determine how the Aquaboost will restart during low incoming water supplies.</p> <p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Water level in well falls below suction inlet of pump. • Plugged suction screen. • Restriction in pipe between pump and pressure sensor. • Air bound pump - see “Purging System” <p>If problem persists, please verify well capacity. The controller will automatically restart according to the chart below:</p> <div data-bbox="522 1381 1360 1738" data-label="Figure"> <table border="1"> <caption>Dry Well Restart Time</caption> <thead> <tr> <th>Dry Well Conditions</th> <th>Minutes Between Restarts</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td></tr> <tr><td>2</td><td>2</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>4</td><td>4</td></tr> <tr><td>5</td><td>5</td></tr> <tr><td>6</td><td>6</td></tr> <tr><td>7</td><td>7</td></tr> <tr><td>8</td><td>8</td></tr> <tr><td>9</td><td>9</td></tr> <tr><td>10</td><td>10</td></tr> <tr><td>11</td><td>10</td></tr> <tr><td>12</td><td>10</td></tr> </tbody> </table> </div> <p>For example: The 1st fault will clear in 1 minute, the 5th fault will clear in 5 minutes.</p>	Dry Well Conditions	Minutes Between Restarts	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	10	12	10
Dry Well Conditions	Minutes Between Restarts																											
1	1																											
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Troubleshooting

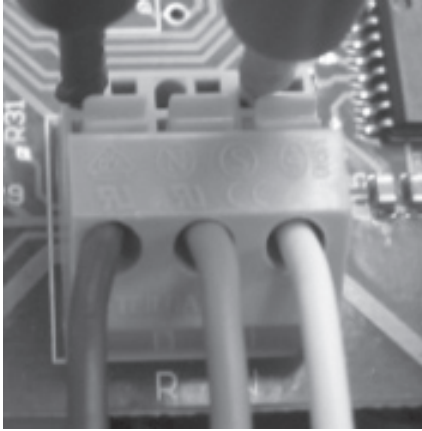
<p>3 Blinks</p>	<p style="text-align: center;">Sensor Fault</p> <p>-----</p> <p>The controller will not run if the signal from the sensor is disconnected or out of tolerance. The controller will automatically restart when the signal is within tolerance. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Disconnected sensor. Disconnect sensor from sensor cable connector and reconnect to ensure a good connection. • Disconnected sensor cable lead inside the controller. Check for loose wires where the sensor cable connects to the circuit board by tugging on each wire. • Broken wire in the sensor cable. • Miswired sensor cable. Check that the wires are connected to the correct terminals on the sensor connector. The correct location of the wires is indicated on the circuit board. B=Black, R=Red, W=White. • Failed sensor. With the sensor cable connected to the circuit board, measure the DC voltage between the black and white wires of the sensor cable at the sensor connector, as shown below. <div style="text-align: center;">  </div> <p>The voltage measured should be between 0.5Vdc and 4.5Vdc.</p>
<p>4 Blinks</p>	<p style="text-align: center;">Pump or Motor Bound</p> <p>-----</p> <p>The controller will try to restart the motor three times before displaying this fault. To clear the fault, turn off power to the controller, wait 1 minute, turn on power to the controller. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Mechanical binding from debris in pump. • Electrical failure of the motor. • Incorrect setting of “Motor Type” switch. <p>Verify the error by turning power to controller off for 1 minute and then on. Pump/Motor must be checked if fault persists.</p>

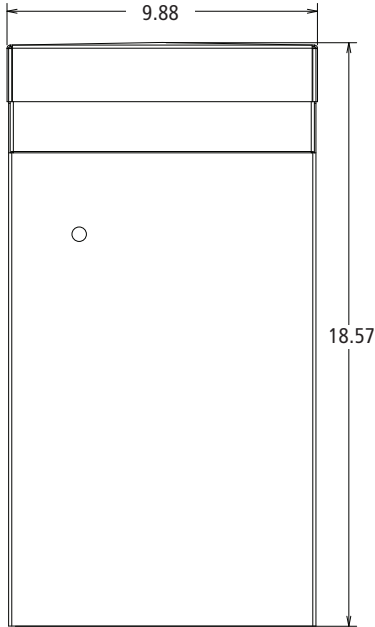
Table 3: Fault Blink Codes (continued from previous page)

Troubleshooting

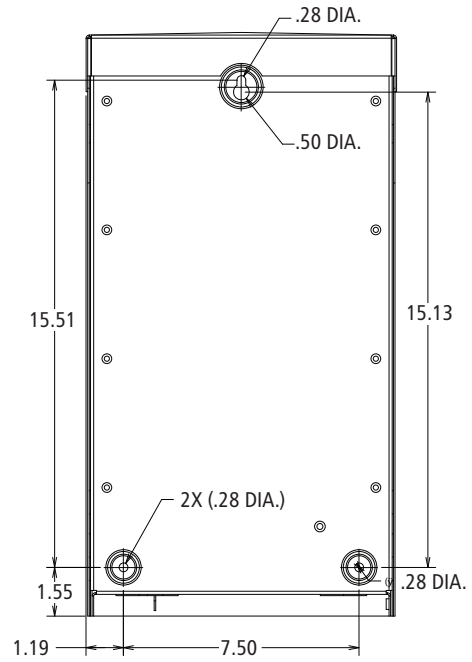
<p>5 Blinks</p>	<p style="text-align: center;">Short Circuit</p> <p>-----</p> <p>If this fault was detected while the pump was running, the controller will attempt to restart three times before displaying this fault. To clear the fault, turn off power to the controller, wait 1 minute, turn on power to the controller. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Electrical failure of the motor • Electrical failure of wiring between controller and motor. <p>Verify the error by turning power to controller off for 1 minute and then on. If error persists, motor and wiring between controller and motor must be checked. Turn power off for 1 minute. Remove the three motor wires from the terminal block. Check wiring and motor for shorting phase to phase and phase to ground. 230V motor typical phase-phase resistances: .5 HP = 10 Ohms, .75 HP = 7 Ohms, 1 HP = 5 Ohms, 1.5 HP = 3.5 Ohms, 2 HP = 2.5 Ohms, 3 HP = 2 Ohms, 5 HP = 1 Ohm, 7.5 HP = .75 Ohms, 10 HP = .5 ohms</p>
<p>6 Blinks</p>	<p style="text-align: center;">Ground Fault</p> <p>-----</p> <p>The controller will not restart if displaying this fault. To clear the fault, turn off power to the controller, wait 1 minute, turn on power to the controller. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Electrical failure of the motor • Electrical failure of wiring between controller and motor. • Miswiring of motor cable. <p>Verify the error by turning power to controller off for 1 minute and then on. If error persists, motor and wiring between controller and motor must be checked. Turn power off and wait 1 minute. Remove the three motor wires and ground wire from the terminal block. Check wiring and motor for shorting phase to ground using a megohmmeter (“megger”). A reading less than 200K Ohms indicates faulty insulation in the motor cable or motor. Test each to determine fault location.</p>
<p>7 Blinks</p>	<p style="text-align: center;">Temperature</p> <p>-----</p> <p>The controller will automatically restart when the temperature reaches an acceptable level. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • High ambient temperature. The maximum ambient temperature rating is 122°F (50°C). • Low ambient temperature. The minimum ambient temperature rating is -4°F (-20°C). <p>Check for a fan failure. The fan will turn on when the temperature inside the controller reaches 140°F (60°C). The fan will turn on for 1 second each time the controller starts the motor. If the fan never turns on, check fan connections and replace as needed. Ensure that the external fan intake filter is not blocked or clogged. It can be removed for cleaning and replacements are available.</p>
<p>8 Blinks</p>	<p style="text-align: center;">Open Lead</p> <p>-----</p> <p>The controller will not restart if displaying this fault. To clear the fault, turn off power to the controller, wait 1 minute, turn on power to the controller. If fault persists contact installer.</p>	<p>This fault can be caused by:</p> <ul style="list-style-type: none"> • Disconnected or broken wire between the controller and motor. <p>Verify the error by turning power to controller off for 1 minute and then on. If error persists, motor and wiring between controller and motor must be checked. Turn power off for 1 minute. Remove the three motor wires from the terminal block. Using an ohmmeter, measure the resistance from phase to phase. A disconnected or broken wire will be indicated by a high resistance reading (20 Ohms or higher).</p>

Table 3: Fault Blink Codes (continued from previous page)

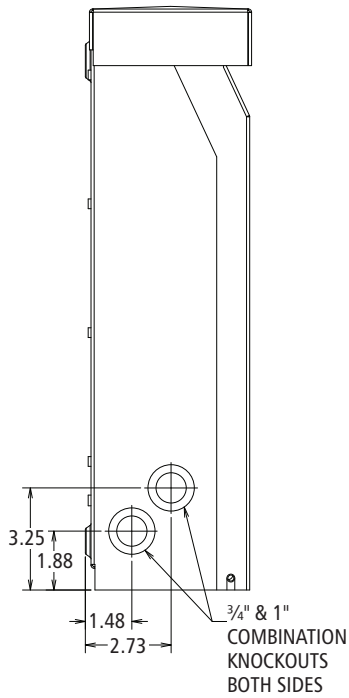
Controller Dimensions



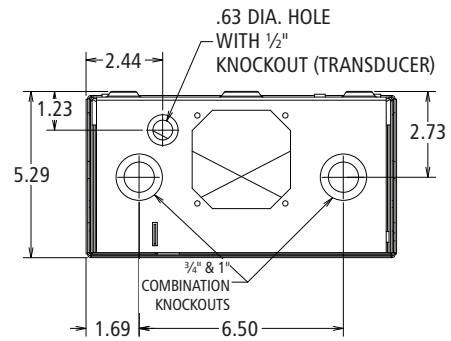
FRONT



BACK



SIDE



BOTTOM

GOULDS PUMPS LIMITED WARRANTY

This warranty applies to all AquaBoost and AquaBoost II systems manufactured by Goulds Pumps.

Any part or parts found to be defective within the warranty period shall be replaced at no charge to the dealer during the warranty period. The warranty period shall exist for a period of twelve (24) months from date of installation or eighteen (30) months from date of manufacture, whichever period is shorter.

A dealer who believes that a warranty claim exists must contact the authorized Goulds Pumps distributor from whom the pump was purchased and furnish complete details regarding the claim. The distributor is authorized to adjust any warranty claims utilizing the Goulds Pumps Customer Service Department.

The warranty excludes:

- (a) Labor, transportation and related costs incurred by the dealer;
- (b) Reinstallation costs of repaired equipment;
- (c) Reinstallation costs of replacement equipment;
- (d) Consequential damages of any kind; and,
- (e) Reimbursement for loss caused by interruption of service.

For purposes of this warranty, the following terms have these definitions:

- (1) "Distributor" means any individual, partnership, corporation, association, or other legal relationship that stands between Goulds Pumps and the dealer in purchases, consignments or contracts for sale of the subject pumps.
- (2) "Dealer" means any individual, partnership, corporation, association, or other legal relationship which engages in the business of selling or leasing pumps to customers.
- (3) "Customer" means any entity who buys or leases the subject pumps from a dealer. The "customer" may mean an individual, partnership, corporation, limited liability company, association or other legal entity which may engage in any type of business.

THIS WARRANTY EXTENDS TO THE DEALER ONLY.

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