# STA-RITE®

IntelliPro® VS-3050

Four Speed Variable Centrifugal Pump with Integral Trap

(Compatible with IntelliComm® communication center and EasyTouch®, IntelliTouch® and SunTouch® control systems)

NSF® UL® CSA®
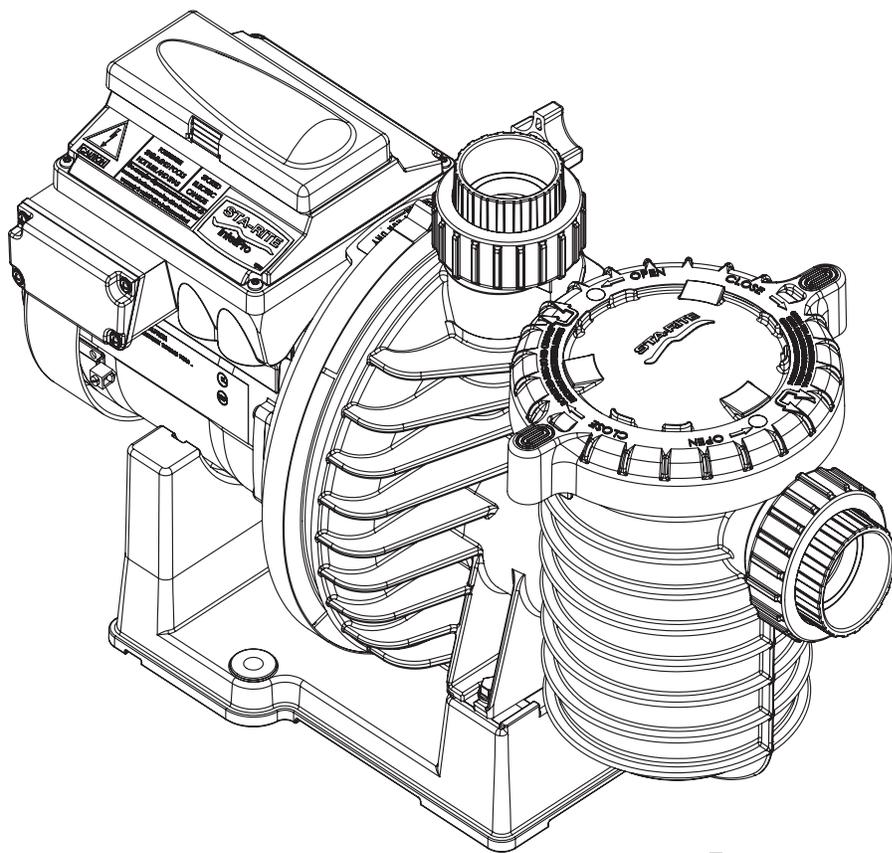
Installation and User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Pentair Water
Pool and Spa®

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IMPORTANT SAFETY PRECAUTIONS

⚠ DANGER **SERIOUS BODILY INJURY OR DEATH CAN RESULT IF THIS PUMP AND SAND FILTER IS NOT INSTALLED AND USED CORRECTLY.**

⚠ DANGER **INSTALLERS, POOL OPERATORS AND POOL OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING THIS PUMP AND SAND FILTER.**

⚠ WARNING This pump ss intended for use in swimming pool applications.

⚠ WARNING Most states and local codes regulate the construction, installation, and operation of public pools and spas, and the construction of residential pools and spas. It is important to comply with these codes, many of which directly regulate the installation and use of this product. Consult your local building and health codes for more information.

IMPORTANT NOTICE - Attention Installer: This Installation and User's Guide ("Guide") contains important information about the installation, operation and safe use of this pump. This Guide should be given to the owner and/or operator of this equipment.

Before installing this product, read and follow all warning notices and instructions in this Guide. Failure to follow warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions. Please refer to www.pentair.com for more information related to these products.

⚠ DANGER **SUCTION ENTRAPMENT HAZARD**
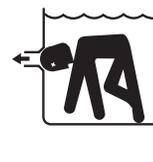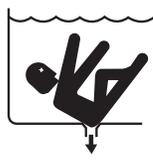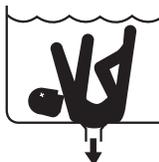
Pool and spa pumps move large volumes of water, which can pose extreme danger if a person's hair comes in close proximity to a drain that is not the proper size for the pump or pumps.

Hair Entanglement – When the hair tangles or knots in the drain cover, trapping the swimmer underwater. This hazard is present when the flow rating of the cover is too small for the pump or pumps.

Limb Entrapment – When a limb is sucked or inserted into an opening resulting in a mechanical bind or swelling. This hazard is present when a drain cover is missing, broken, loose, cracked or not properly secured.

Body Entrapment – When a portion of the body is held against the drain cover trapping the swimmer underwater. This hazard is present when the drain cover is missing, broken or the cover flow rating is not high enough for the pump or pumps.

Evisceration/Disembowelment – When a person sits on an open pool (particularly a child wading pool) or spa outlet and suction is applied directly to the intestines, causing severe intestinal damage. This hazard is present when the drain cover is missing, loose, cracked, or not properly secured.

Mechanical Entrapment – When jewelry, swimsuit, hair decorations, finger, toe or knuckle is caught in an opening of an outlet or drain cover. This hazard is present when the drain cover is missing, broken, loose, cracked, or not properly secured.

⚠ DANGER **RISK OF ELECTRICAL SHOCK OR ELECTROCUTION:**

**PUMPS REQUIRE HIGH VOLTAGE WHICH CAN SHOCK, BURN, OR CAUSE DEATH.
BEFORE WORKING ON PUMP!
Always disconnect power to the pool pump at the circuit breaker from the pump before servicing the pump. Failure to do so could result in death or serious injury to service person, pool users or others due to electric shock.**

IMPORTANT SAFETY PRECAUTIONS (continued)

⚠ DANGER

Water temperature in excess of 100° F (37.7° C) may be hazardous to your health. Prolonged immersion in hot water may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6° F (37° C.). Effects of hyperthermia include: (1) Unawareness of impending danger. (2) Failure to perceive heat. (3) Failure to recognize the need to leave the spa. (4) Physical inability to exit the spa. (5) Fetal damage in pregnant women. (6) Unconsciousness resulting in danger of drowning. The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

⚠ WARNING

When setting up pool water turnovers or flow rates the operator must consider local codes governing turnover as well as disinfectant feed ratios.

⚠ WARNING

DO NOT increase pump size; this may increase the flow rate through the system and exceed the maximum flow rate stated on the drain cover.

⚠ WARNING

Do not permit children to operate this product.

⚠ WARNING

If this pump is intended for use other than single-family dwellings, a clearly labeled emergency switch shall be provided as part of the installation. The switch shall be readily accessible to the occupants and shall be installed at least 5 feet (1.52 m) away, adjacent to, and within sight of, the unit.

⚠ WARNING

When setting up pool water turnovers or flow rates the operator must consider local codes governing turnover as well as disinfectant feed ratios.

⚠ WARNING

Before servicing the system, switch the main power OFF and remove the communication cable from the pump.

⚠ CAUTION

Install the pump a minimum of five (5) feet from the inside wall of the pool and spa. Canadian installations require a minimum of three (3) meters from pool water.

⚠ CAUTION

A No. 8 AWG (No. 6 AWG in Canada) or larger conductor must be wired to the motor bonding lug.

⚠ CAUTION

This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 feet (5.49m) and a maximum wall height of 42 inches (1.07m).

⚠ CAUTION

For hot tubs and spa pumps, do not install within an outer enclosure or beneath the skirt of a hot tub or spa unless so marked.

⚠ CAUTION

The IntelliPro pump is capable of generating systems pressures up to 50 psi. Installers must ensure that all system components are rated to withstand at least 50 psi. Over pressurizing the system can result in catastrophic component failure or property damage.

⚠ WARNING

Never exceed the maximum stated pump flow rating.
Only use a pumping system rated for the corresponding flow. FAILURE TO DO SO CAN RESULT IN HAIR OR BODY ENTRAPMENT WHICH CAN CAUSE SERIOUS PERSONAL INJURY OR DEATH. If in doubt about the rating of your system, consult a qualified pool service professional.

⚠ WARNING

Pumps are not a substitute for properly installed and secured pool drain covers. An ANSI/ASME A112.19.8 approved anti-entrapment drain cover must be used for each drain. Pools and spas should utilize a minimum of two drains per pump. Regularly inspect all covers for cracks, damage and advanced weathering. If a cover becomes loose, cracked, damaged, broken or is missing, close the pool or spa immediately, shut off the pump, post a notice and keep the pool or spa closed until an appropriate VGB 2008 certified cover is properly installed. Covers deteriorate over time due to exposure to sunlight and pool chemicals. This cover must be replaced within seven (7) years from installation (or earlier if the cover becomes damaged in any way).

IMPORTANT SAFETY PRECAUTIONS (continued)

⚠ WARNING

Entrapment Avoidance Notice:

The suction outlet connected to a swimming pool or spa pump can pull a high vacuum if it is blocked. Therefore, if only one suction outlet smaller than 18" x 23" is used, anyone blocking the suction outlet with their body can be trapped and held against the suction outlet. Disembowelment or drowning can result. Therefore, if small suction outlets are used with this pump, to prevent this entrapment and possible death, install at least two suction outlets in the body of water. Separate these suction outlets as described in the International Residential Code (IRC), the International Business Code (IBC), the Consumer Products Safety Council (CPSC) Guidelines for Entrapment Hazards: Making Pools and Spas Safer or ANSI/IAF-7 Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins. If suction outlets are not used, additional entrapment avoidance measures as described in the CPSC Guidelines or ANSI/IAF-7 should be employed.

The covers used on suction outlets should be approved and listed as conforming to the currently published edition of ANSI/ASME A112.19.8 Standard covering Suction Fittings for Use in Swimming Pools, Wading Pools, Spas and Hot Tubs. These covers should be inspected regularly and replaced if cracked, broken or older than the design lifetime indicated on them by the manufacturer. The maximum possible flow rate of this pump should be less than or equal to the maximum approved flow rate indicated on the suction outlet cover by the manufacturer. THE USE OF UNAPPROVED COVERS OR ALLOWING USE OF THE POOL OR SPA WHEN COVERS ARE CRACKED OR BROKEN CAN RESULT IN HAIR ENTANGLEMENT WHICH CAN RESULT IN DEATH.

The Virginia Graeme Baker Pool and Spa Safety Act imposes certain new requirements on owners and operators of swimming pools and spas.
Pools or spas constructed on or after December 20, 2008, shall utilize:

(A) No submerged suction outlets, a gravity drainage system with ASME/ANSI cover(s), one or more unblockable outlets; or

(B) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs and either:

(i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems and/or ASTM F2387 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas and Hot Tubs or

(ii) A properly designed and tested suction-limiting vent system or

(iii) An automatic pump shut-off system.

Pools and spas construction prior to December 20, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8 and either:

(A) A multiple main drain system without isolation capability, or

(B) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or

(C) A properly designed and tested suction-limiting vent system, or

(D) An automatic pump shut-off system, or

(E) Disabled submerged outlets, or

(F) Suction outlets shall be reconfigured into return inlets.

For information about the Virginia Graeme Baker Pool and Spa Safety Act, contact the Consumer Product Safety Commission at (301) 504-7908 or visit www.cpsc.gov.

NOTE: Always turn off all power to the pool pump before installing the cover or working on any suction outlet.

IMPORTANT SAFETY PRECAUTIONS (continued)

General Installation Information

- **All work must be performed by a qualified pool professional, and must conform to all national, state, and local codes.**
- **Install to provide drainage of compartment for electrical components.**

General Installation Information

⚠ WARNING Pumps improperly sized or installed or used in applications other than for which the pump was intended can result in severe personal injury or death. These risks may include but not be limited to electric shock, fire, flooding, suction entrapment or severe injury or property damage caused by a structural failure of the pump or other system component.

⚠ WARNING The pump can produce high levels of suction within the suction side of the plumbing system. These high levels of suction can pose a risk if a person comes within the close proximity of the suction openings. A person can be seriously injured by this high level of vacuum or may become trapped and drown. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes for swimming pools.

- These instructions contain information for a variety of pump models and therefore some instructions may not apply to a specific model. All models are intended for use in swimming pool applications. The pump will function correctly only if it is properly sized to the specific application and properly installed.

General Warnings

- Never open the inside of the drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.

- The IntelliPro VS-3050 pump is not submersible

- The IntelliPro VS-3050 pump is capable of 174 GPM or 104 feet of head; use caution when installing and programming to limit pumps performance potential with old or questionable equipment

- Code requirements for the electrical connection differ from state to state. Install equipment in accordance with the National Electrical Code and all applicable local codes and ordinances.

- Always Press the Stop button and disconnect the communication cable before performing maintenance, and always power the unit off by disconnecting the main circuit to the pump

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Two Speed Pump Controls Notice (Title 20 Compliance)
Please read the following important Safety Instructions. When using two-speed pumps manufactured on or after January 1, 2008, the pump's default circulation speed MUST be set to the LOWEST SPEED, with a high speed override capability being for a temporary period not to exceed one normal cycle, or two hours, whichever is less.

Section 1
Overview

IntelliPro® VS-3050 Variable Speed Pump

The IntelliPro VS-3050 variable speed pump is well suited for all of your pool, spa, cleaner, waterfall and other water application. Using the control panel, IntelliPro can use one of the four selectable preset speeds or the pump speed can be adjusted to run at a specific speed. The IntelliPro pump out performs all conventional pumps in its class. Advanced energy conservation features ensure that your filtration system is operating at peak efficiency.

IntelliPro VS-3050 models

The IntelliPro VS-3050 operates at a maximum system flow of 160 gallons per minute (GPM).

The IntelliPro VS-3050 can operate from 400 RPM to 3450 RPM with preset speeds of 750, 1500, 2350, and 3110 RPM. The pump can be adjusted from the control panel to run at any speed between 400 RPM to 3450 RPM for different applications. The IntelliPro pump control panel alarm LED warns the user against under and over voltage, high temperature, over current and freeze protection. See page 33 for the LED alarm and warning sequence codes.

External Control

The IntelliPro VS-3050 can communicate with an Easytouch, IntelliTouch or SunTouch control system or the IntelliComm communication center via a two-wire RS-485 communication cable for remote speed control. The RS-485 communication cable is included with each pump.
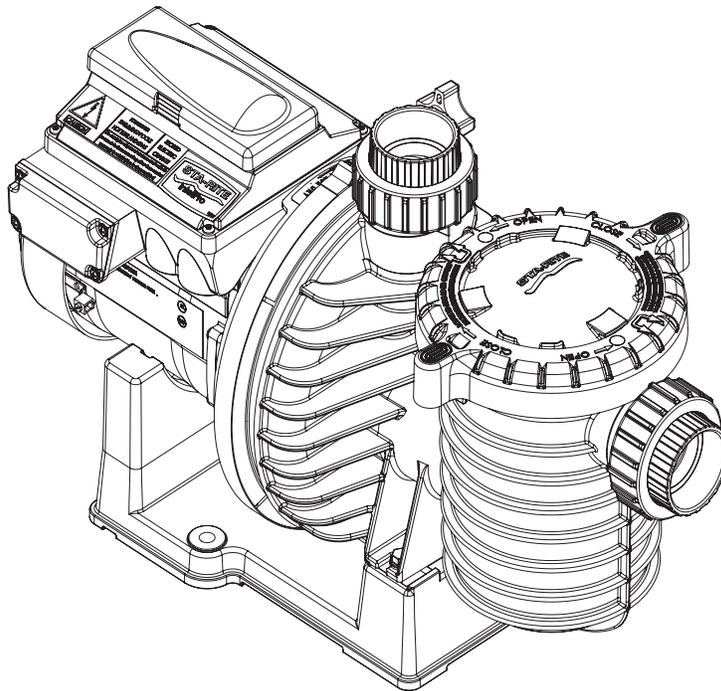
IntelliPro VS-3050 variable speed pump

Features

- Adjusts to various pool sizes
- Prevents thermal overload
- Detects and prevents damage from under and over voltage conditions
- Protects against freezing
- Communicates with the Pentair EasyTouch, IntelliTouch or SunTouch control system or IntelliComm communication center via a two-wire cable connection
- Easy to use operator control panel
- Operator control panel buttons for speed control
- Built-in strainer pot and volute
- Ultra energy-efficient TEFC Square Flange Motor
- Compatibility with most cleaning systems, filters, and jet action spas
- Motor assembly features permanent magnet synchronous motor
- Heavy-duty, durable construction designed for long life
- UL, CSA and NSF approval

IntelliPro VS-3050 Motor Assembly

The IntelliPro three-phase six-pole motor operates at 3450 RPM (at 92% efficiency) and 1000 RPM (at 90%). The drive assembly is continually cooled by an external fan. Dual seals on the motor shaft and at the fan assembly seal the entire motor from any moisture from entering the motor assembly. For added protection, a slinger located in front of the main shaft seal assists in slinging water away from the shaft opening in the flange.

Motor fan cover

Motor assembly

Drive assembly and electronics enclosure

Operator Control Panel

Communication Port for communication to EasyTouch, IntelliTouch or SunTouch control systems, or IntelliComm communication center via the two-wire RS-485 cable
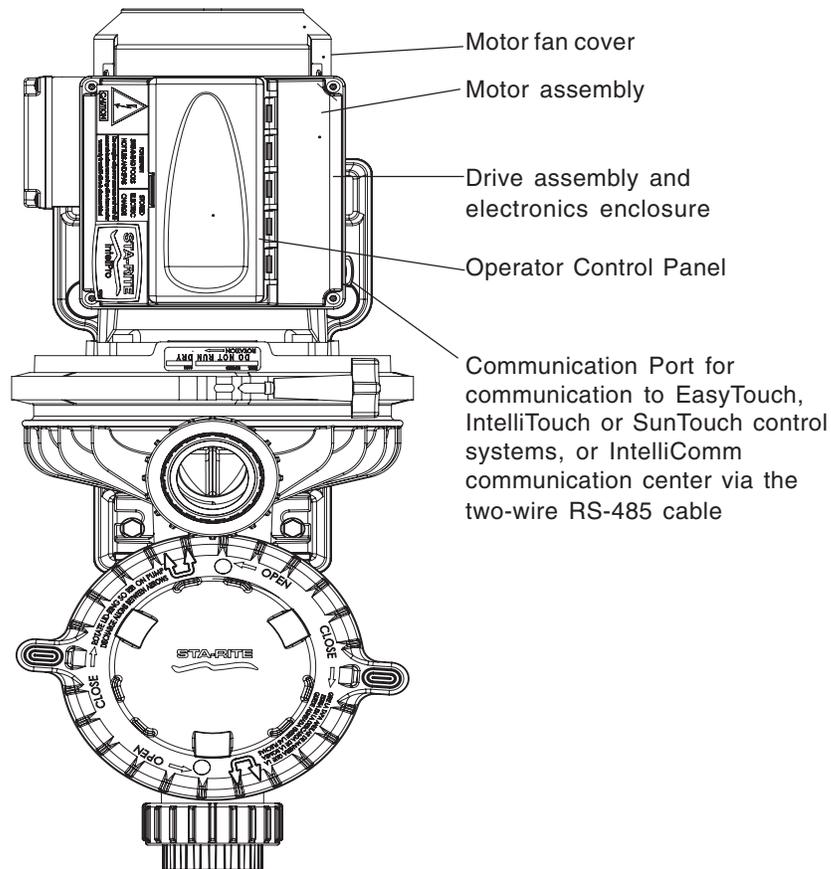
IntelliPro VS-3050 Motor Assembly

IntelliPro VS-3050 Drive Assembly and Control Panel

The IntelliPro drive assembly consists of an operator control panel and the system electronics that drive the motor. The drive microprocessor controls the motor by changing the frequency of the current it receives together with changing the voltage to control the rotational speed.

Operator Control Panel

Drive assembly

AC power connection compartment (see page 32)
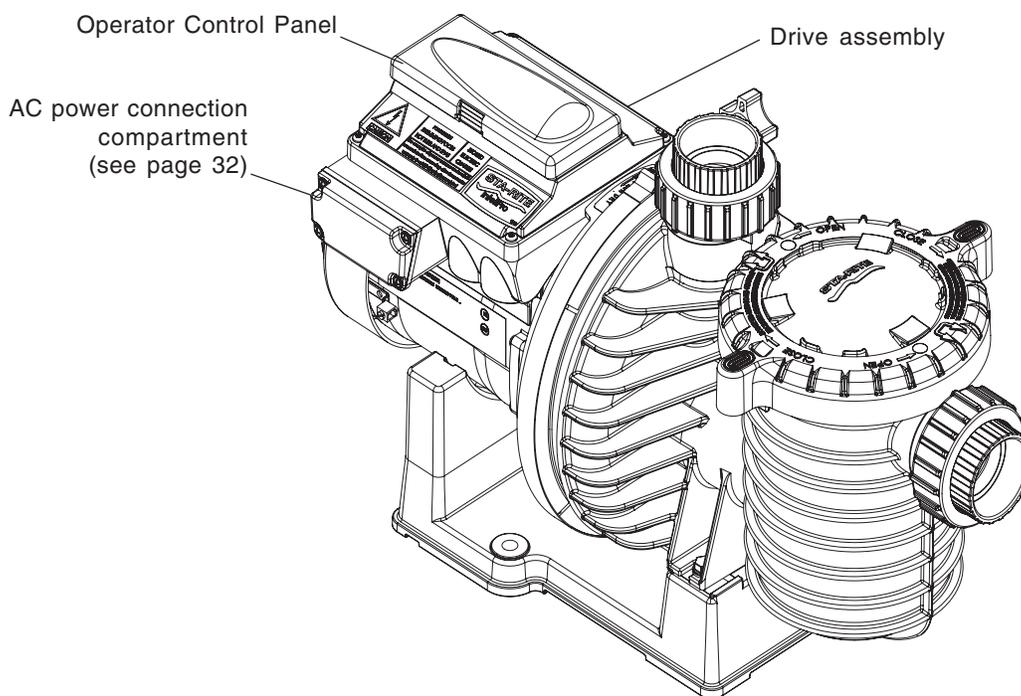
IntelliPro VS-3050 Drive Assembly

IntelliPro VS-3050 Motor Features

- Permanent Magnet Synchronous Motor (PMSM)
- High efficiency (3450 RPM 92% and 1000 RPM 90%)
- Superior speed control
- Operates at lower temperatures due to high efficiency
- Same technology as deployed in hybrid electric vehicles
- Designed to withstand outdoor environment
- Totally enclosed fan cooled
- Three-phase motor
- 56 Square Flange
- Six-Pole
- Low noise

IntelliPro VS-3050 Operator Control Panel

The IntelliPro operator control panel provides manual speed controls for the pump. There are four preset speed buttons that can be selected. The Up and Down button is used to adjust the pump speed. The selected speed can be saved and assigned to one of the speed buttons.
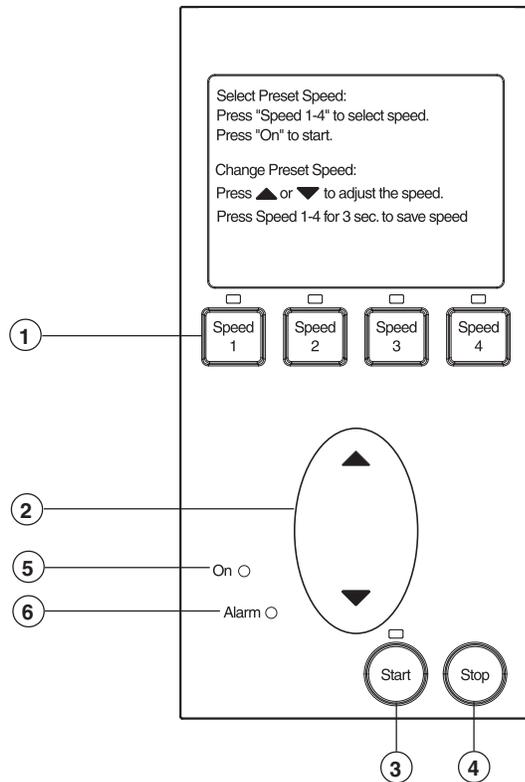
Controls and LEDs

① **Speed 1, Speed 2, Speed 3, and Speed 4 button/LED:** Press one of the speed buttons to select the desired preset pump speed. The pump preset speeds are: Speed 1 (750 RPM), Speed 2 (1500 RPM), Speed 3 (2350 RPM), and Speed 4 (3110 RPM). The speed button LED is on when the selected button is pressed. If the pump is running and the Up/Down button is used to adjust the speed, the selected speed LEDs will go off. For more about using the speed buttons, see "Setting the pump preset speed" on page 15.

② **Up/Down button:** While the pump is running, press the Up or Down button to increase or decrease the pump speed. To save the new pump speed, press any one of the four speed buttons for three seconds to assign the speed to the selected button (the LED will be on). Four adjusted pump speeds can be assigned to the speed buttons. When the pump is using an adjusted speed and the pump is powered down, the next time the pump is powered up the pump will use the same speed. For more about using the Up/Down button, see page "Adjusting the pump speed" on page 16.

③ **Start button/LED:** Starts the pump using a selected or adjusted speed. This LED is on when the pump is running.

④ **Stop button:** Press this button to stop the pump.

⑤ **On LED:** This green power LED is on when IntelliPro is powered up.

⑥ **Alarm LED:** This LED is on when an error condition occurs. This green LED will flash a certain number of times indicating a specific error condition. For the alarm LED flash sequence, refer to "Alarm LED Sequence," on page 33.

Section 2
Installation

This section describes how to install the IntelliPro VS-3050 pump.

> **IMPORTANT! Only qualified, licensed personnel should install pump and wiring.**
>
> • **Pump mount must be located away from corrosive or flammable chemicals.**

Before installation

Ventilation: Allow enough ventilation to maintain air temperature at less than the maximum ambient temperature rating (Max. Amb.) listed on the motor model plate. If this pump is installed in an enclosure or pump house, the enclosure must have adequate ventilation and air circulation to keep the temperature in the enclosure at or below the rated ambient temperature for the motor whenever the pump is running.

- Solid, level, rigid, vibration free, and non-combustible. (To reduce vibration and pipe stress, bolt pump to mount.)
- Allow pump suction inlet height to be as close to water level as possible
- Allow use of short, direct suction pipe (To reduce friction losses)
- Allow for gate valves in suction and discharge piping
- Have adequate floor drainage to prevent flooding
- Be protected from excess moisture
- Allow adequate access for servicing pump and piping

> ⚠ **WARNING!** Fire and burn hazard. Modern motors run at high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for 20 minutes before trying to work on it.
>
> **NOTICE:** Use Teflon® tape or Plasto-Joint Stik® for making all threaded connections to the pump. Do not use pipe dope; pipe dope will cause stress cracking in the pump.
>
> **NOTICE:** Pump suction and discharge connections have molded in thread stops. DO NOT try to screw pipe in beyond these stops.

Teflon Taping Instructions

- Use only new or clean PVC pipe fittings
- Wrap male pipe threads with one to two layers of Teflon tape. Cover entire threaded portion of pipe
- Do not overtighten or tighten past thread stop in pump port!
- If leaks occur, remove pipe, clean off old tape, rewrap with one to two additional layers of tape and remake the connection
- Support all piping connected with pump!
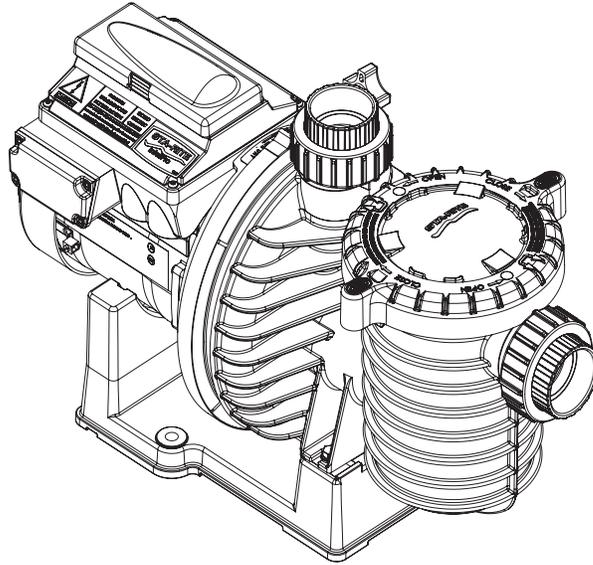
IntelliPro VS-3050 Drive Assembly

NOTE: Port threads are: Internal - 2" NPT for direct connection to pipe. External - 3-1/4" Buttress. Fits Sta-Rite U11-200P Union Collar for quick disconnect pipe connection. See Page 31 for Union Kits.

Piping

Use at least 2" IPS PVC (51mm) pipe. Increase size if a long run is needed. To avoid strains on the pump, support both suction and discharge pipes independently. Place these supports near the pump. To avoid a strain left by a gap at the last connection, start all piping at the pump and run pipe away from the pump. Never use a suction pipe smaller than pump suction connection. To avoid air locking, slope suction pipe slightly upward toward the pump.

NOTICE: To prevent flooding when removing pump for service, all flooded suction systems must have gate valves in suction and discharge pipes.

Fittings

- Fittings restrict flow; for best efficiency use fewest possible fittings.
- Avoid fittings which could cause an air trap.
- Pool fittings must conform to International Association of Plumbing and Mechanical Officials (IAPMO) standards.
- Use only non-entrapping suction fitting or double suction.

Wiring the IntelliPro VS-3050

To connect the IntelliFlo VS to an AC power source:

1. Make sure all electrical breakers and switches are turned off before wiring motor.

2. Make sure that the wiring voltage is 230 VAC ± 10%.

3. Use #12 AWG for wire runs up to 100 feet and #10 AWG for lengths longer than 100 feet. When in doubt use a heavier gauge (larger diameter) wire. Heavier gauge will allow the motor to run cooler and more efficient.

4. Make sure all electrical connections are clean and tight.

5. Cut the wires to the appropriate length so they do not overlap or touch when connected.

6. Permanently ground the motor using the green ground wire, as shown below. Use the correct wire size and type specified by National Electrical Code. Make sure the ground wire is connected to an electrical service ground.

7. Bond the motor to the pool structure in accordance with the National Electrical Code. Use a solid No. 8 AWG or larger copper conductor (No. 6 or larger in Canada). Run a wire from the external bonding lug to the pool bonding structure, as shown below.

8. The pump should be permanently connected to either a **circuit breaker**, **2-pole timer** or **2-pole relay**. If AC power is supplied by a GFCI circuit breaker, use a dedicated circuit breaker that has no other electrical loads.

9. **IMPORTANT: When connecting the pump to an automation system (IntelliTouch, EasyTouch, SunTouch and IntelliComm), continuous power must be supplied to the pump by connecting it directly to the circuit breaker. When using an automation system, Be sure that no other lights or appliances are on the same circuit.**

> **NOTE: When the IntelliFlo VS is started and stopped by removing power with a relay or timer, a two-pole device should be used to apply and remove power to both POWER LINE TERMINALS.**

GROUND WIRE
CONNECTION

BONDING LUG
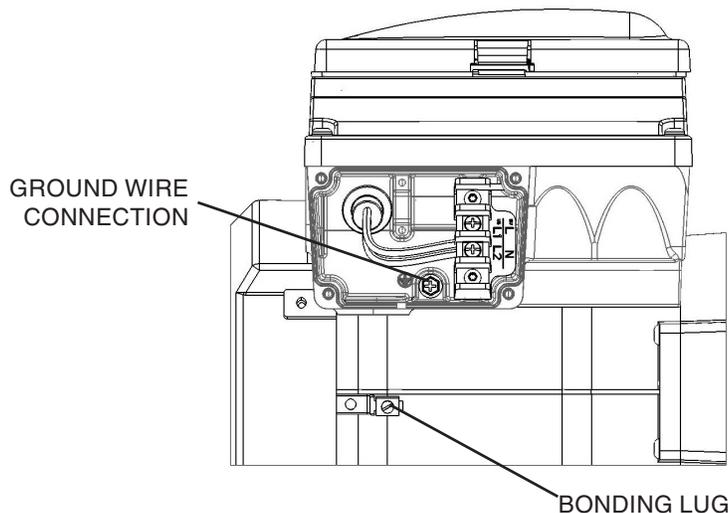
Initial SVRS Setup and Operational Check

The following initial SVRS setup steps describe how to determine the maximum intended flow (GPM) and pump speed (RPM) for the system, and to perform a simulated entrapment event.

1. The SVRS system should be initially setup for operation at maximum flow (see page 12).
2. If the system includes a filter, the filter must be in a clean condition prior to setting up the maximum flow condition.
3. Remove the drain plug from the pump strainer housing and install the vacuum gage into the 1/4" NPT housing opening.

External Control with IntelliComm Communication Center

The IntelliPro VS-3050 can be remotely controlled by the Pentair IntelliComm Communication Center using the communications cable (P/N 350122). The IntelliComm provides four pairs of input terminal connections. These inputs are actuated by either 15 - 240 VAC or 15 - 100 VDC. Using the device's inputs, the programmed IntelliPro pump speeds can be controlled.

If more than one input is active the highest number will be communicated to the IntelliPro pump. The IntelliComm will always communicate to pump address 1.

The following table shows the wiring terminal descriptions for IntelliComm.

External Control

Terminal number	Terminal name	Voltage	Maximum current	Phase type	Frequency
1-2	Power supply	100 - 240 VAC	100 mA	1 Input	50/60 Hz
3-4	Program 1	15 -240 VAC or 15 - 100 VDC	1 mA	1 Input	50/60 Hz
5-6	Program 2	15 -240 VAC or 15 - 100 VDC	1 mA	1 Input	50/60 Hz
7-8	Program 3	15 -240 VAC or 15 - 100 VDC	1 mA	1 Input	50/60 Hz
9-10	Program 4	15 -240 VAC or 15 - 100 VDC	1 mA	1 Input	50/60 Hz
11 12	RS-485 + Data: Yellow - Data: Green	-5 to +5 VDC	5 mA	1 Output	N/A
⏚	Ground				

Terminals

IntelliComm Communication Center

Connecting IntelliPro VS-3050 to an EasyTouch System

The IntelliPro VS-3050 can be controlled by an EasyTouch system via the RS-485 communication cable (P/N 350122). In this configuration, EasyTouch starts, stops and controls the speed of the IntelliPro pump. When the EasyTouch does this, it rewrites the IntelliPro memory, which can take several seconds. This causes a delay after a command is given on the EasyTouch control panel until the IntelliPro physically responds.

The IntelliPro control panel is disabled when communicating with the EasyTouch system. Note that IntelliTouch will not begin communicating with the IntelliPro until the pump is assigned to a circuit. The IntelliPro default pump address is one which is the only address that works with EasyTouch. See page 16 for details about how to check the address and change if necessary. For more information, refer to the EasyTouch User's Guide (P/N 520584).

To connect the IntelliPro communication cable to EasyTouch load center:

1. ⚠ CAUTION - **Switch the main power off to the EasyTouch load center.**

2. Unlatch the two enclosure door spring latches, and open the door.

3. Remove the two retaining screws securing the high voltage cover panel, and remove it from the enclosure.

4. Loosen the two access screws securing the control panel.

Control panel access screw

Control panel access screw

Retaining screws

High voltage cover panel

EasyTouch Load Center (front view)
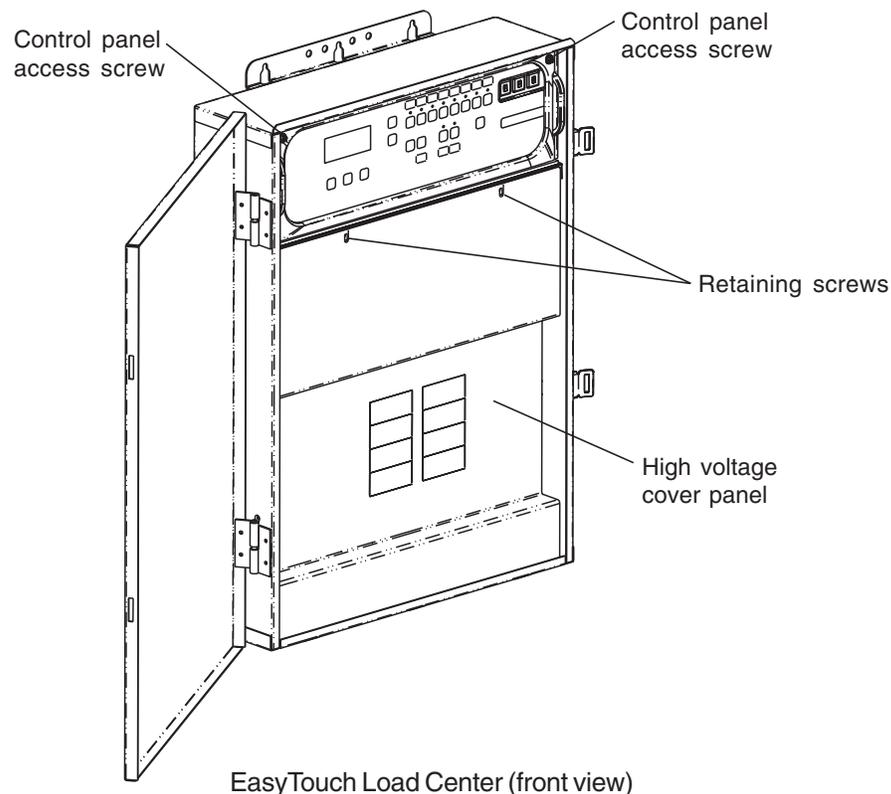
5. Lower down the hinged control panel to access the EasyTouch motherboard.

6. Route the communication cable into the lower plastic grommet, up through the low voltage raceway to the EasyTouch load center motherboard.
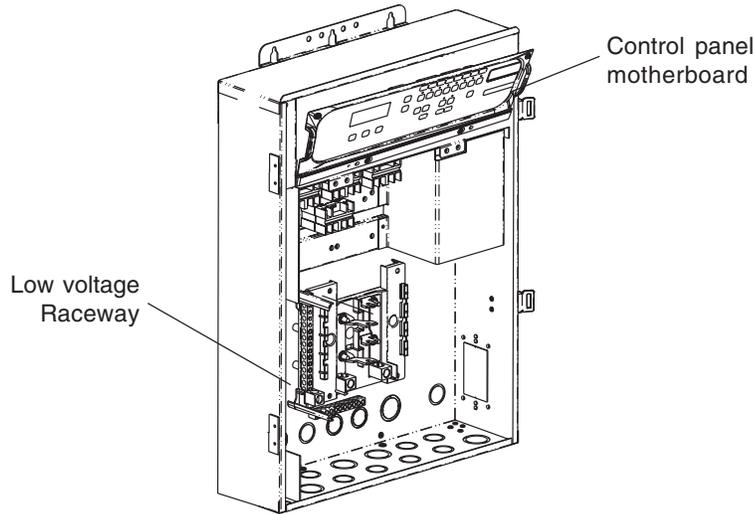
7. Strip back the cable conductors ¼ inch. Insert the two wires into the screw terminals on the board. Secure the wires with the screws.

8. **EasyTouch to IntelliPro pin configuration:**
   • IntelliPro: Connect pin 6 (green) to EasyTouch screw terminal pin 2 (green)
   • IntelliPro: Connect pin 7 (yellow) to EasyTouch screw terminal pin 3 (yellow)

EasyTouch screw terminal connector	IntelliPro (2-wire cable)
2 (GRN)	GREEN (Pin 6)
3 (YEL)	YELLO (Pin 7)
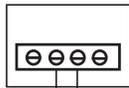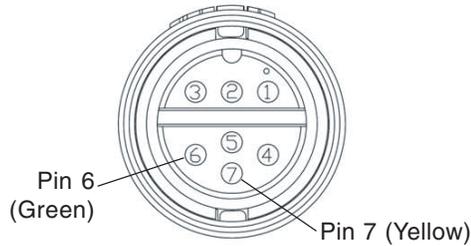
Pin configuration

IntelliPro connector pin configuration

9. Insert the screw terminal onto the EasyTouch **COMPORT (J20)** board connector. *Note: Multiple wires may be inserted into a single screw terminal.*
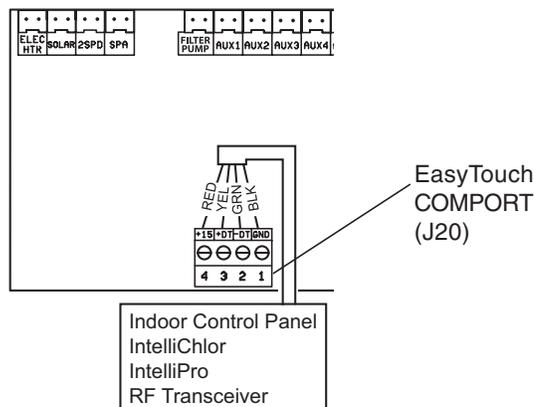
10. Close the control panel into its original position and secure it with the two access screws.

11. Install the high voltage cover panel and secure it with the two retaining screws.

12. Close the EasyTouch load center front door. Fasten the two spring latches.

13. Switch the power on to the EasyTouch load center.

Control panel
access screw

Control panel
access screw

Retaining screw

High voltage
cover panel

EasyTouch Load Center (front view)
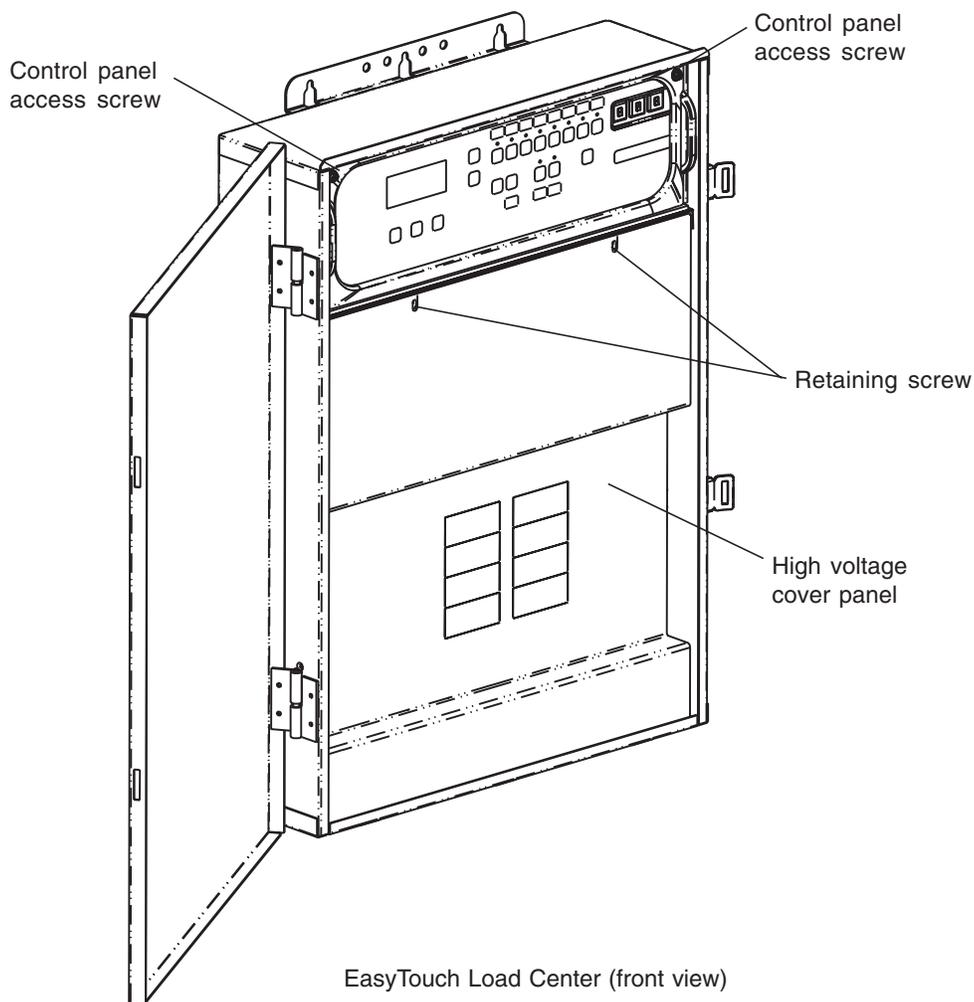
Connecting IntelliPro VS-3050 to an IntelliTouch System

The IntelliPro VS-3050 can be controlled by an IntelliTouch system via the RS-485 communication cable (P/N 350122). In this configuration, IntelliTouch starts, stops and controls the speed of the IntelliPro pump. When the IntelliTouch does this, it rewrites the IntelliPro memory, which can take several seconds. This causes a delay after a command is given on the IntelliTouch control panel until the IntelliPro physically responds.

The IntelliPro control panel is disabled when communicating with the IntelliTouch system. Note that IntelliTouch will not start communicating with the IntelliPro until the appropriate pump address is assigned to a circuit. The IntelliPro default pump address is one. See page 16 for details about how to check the address and change if necessary. For more information, refer to the IntelliTouch User's Guide (P/N 520102).

To connect the IntelliPro communication cable to IntelliTouch load center:

1. ⚠️ **CAUTION - Switch the main power off to the IntelliTouch load center.**

2. Unlatch the IntelliTouch load center front door spring latches, and open the front door.

3. Remove the cover-panel screws securing the high voltage cover-panel, and remove it from the enclosure.

4. Loosen the two control panel access screws and fold down the outdoor control panel.

5. Insert the two-wire cable into plastic grommet on the bottom of the enclosure and route the wire up through the low voltage raceway to the Personality board.
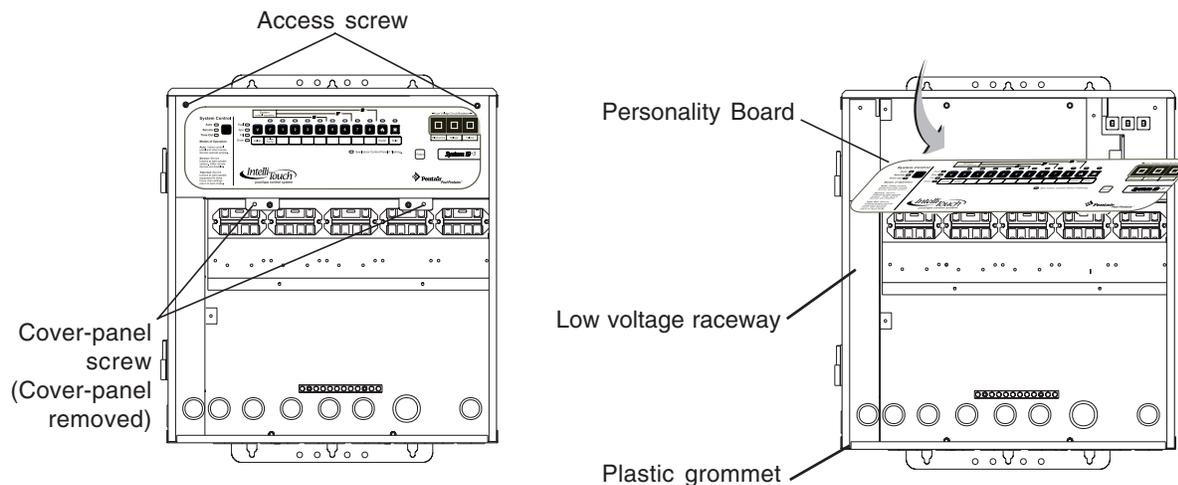
IntelliTouch Load Center

Connecting IntelliPro to IntelliTouch (Continued)

6. Strip back the cable conductors ¼". Insert the wires into the either of the **COM PORTS (J7 and J8)** screw terminals located on the left side of the Personality board. Secure the wires with the screws. For wiring details, refer to the pin configuration shown below. *Note: Multiple wires may be inserted into a single screw terminal.*
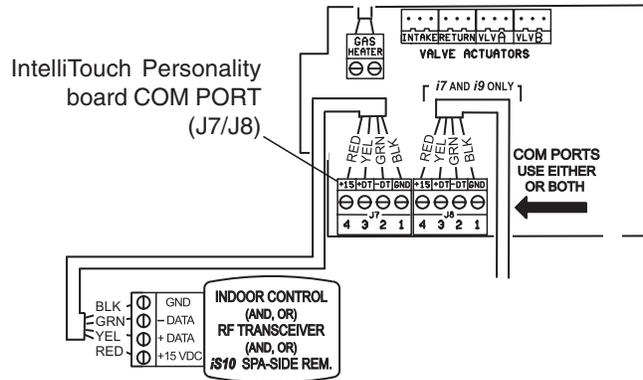
Pin Configuration for IntelliPro to IntelliTouch:
- IntelliPro: Connect pin 6 (green) to IntelliTouch screw terminal pin 2 (green)
- IntelliPro: Connect pin 7 (yellow) to IntelliTouch screw terminal pin 3 (yellow)
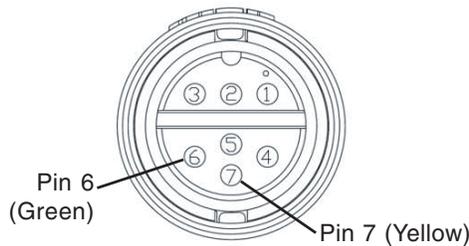
IntelliPro cable pin configuration

IntelliTouch
COM PORT (J7/J8)
screw terminal

IntelliTouch screw terminal connector	IntelliPro (2-wire cable)
2 (GRN)	GREEN (Pin 6)
3 (YEL)	YELLOW (Pin 7)
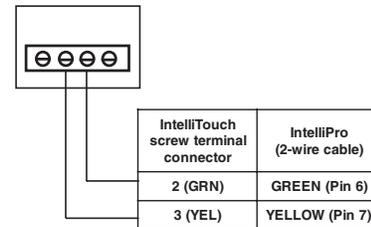
Pin configuration

7. Close the IntelliTouch control panel and secure it with the two access screws.

8. Install the high voltage panel cover and secure it with the two retaining screws.

9. Close the load center front door and secure with the two latches.

10. Switch power on to the IntelliTouch load center.

Connecting IntelliPro VS-3050 to a SunTouch System

The IntelliPro VS-3050 can be controlled by a SunTouch system via the RS-485 communication cable (P/N 350122). To connect the two wire RS-485 cable from the IntelliPro VS-3050 drive assembly to the motherboard located in the SunTouch Power Center:

> ⚠️ **WARNING** - Switch OFF main system power to the SunTouch Power Center before making any connections.

To access the SunTouch Power Center electronics compartment:

1. Unlatch the front door of the SunTouch Power Center, and open the door.

2. Loosen the retaining screw on front panel. Open the hinged front panel to access the electronics compartment.

3. Route the two conductor cable up through the Power Center grommet opening located on the left side, and up through the low voltage raceway to the motherboard.

4. Strip back the cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color coding of the wires; Yellow = +DT, Green = -DT.

5. Insert the connector on the **COMPORT (J11)** screw terminal on the motherboard.

6. When the connection is completed, close the control panel and secure it with the retaining screw.

7. Close the front door. Fasten the spring latch.

Pin 6 (Green)
Pin 7 (Yellow)

IntelliPro cable pin configuration

SunTouch Motherboard
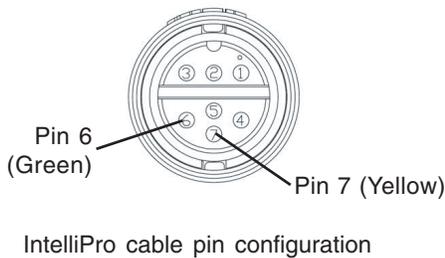
SunTouch COM PORT (J11) screw terminal
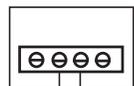
SunTouch screw terminal connector	IntelliPro (2-wire cable)
2 (GRN)	GREEN (Pin 6)
3 (YEL)	YELLOW (Pin 7)

Pin configuration

COM PORT

RS-485 communication cable (P/N 350122)

IntelliPro VS-3050 Drive

230 VAC Power to Pump
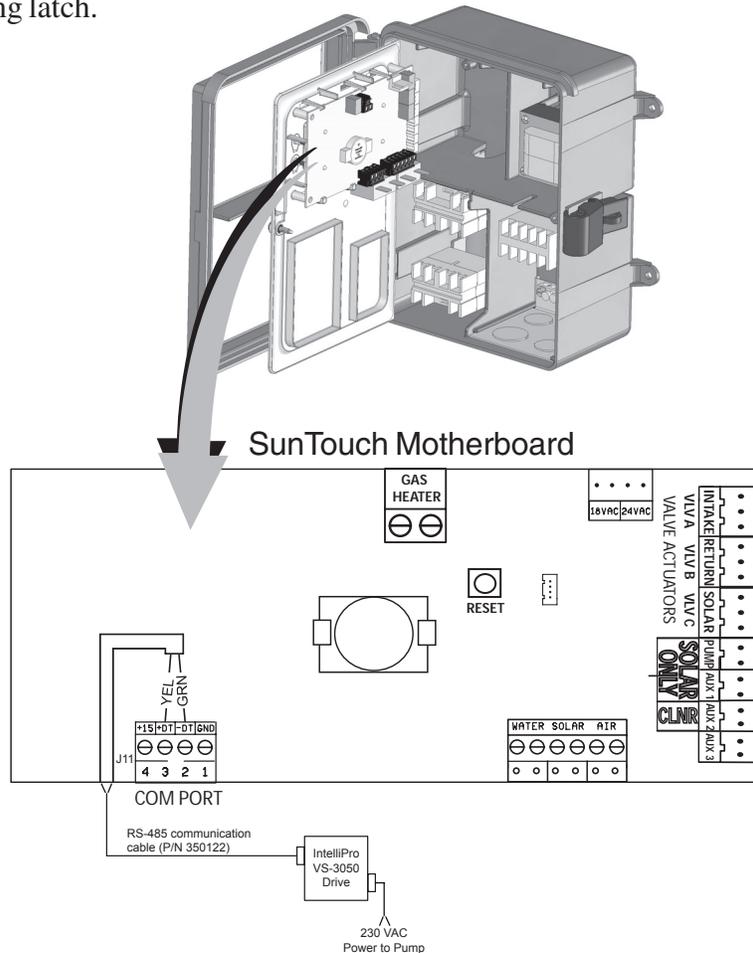
Section 3
Operation

This section describes how to use the IntelliPro pump control panel.

⚠ **CAUTION** - NEVER run pump dry. Running pump dry may damage seals, causing leakage and flooding. Fill pump with water before starting motor.

Before removing trap cover:

1. STOP PUMP before proceeding.
2. CLOSE GATE VALVES in suction and discharge pipes.
3. RELEASE ALL PRESSURE from pump and piping system.
4. NEVER tighten or loosen clamp while pump is operating!

⚠ **WARNING** - If pump is being pressure tested, be sure pressure has been released before removing trap cover.

Do not block pump suction. To do so with body may cause severe or fatal injury. Small children using pool must ALWAYS have close adult supervision.

Fire and burn hazard: Modern motors run at high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, let it cool for 20 minutes before trying to work on it. An automatic internal cutoff switch protects the motor from heat damage during operation.

NOTICE: Maximum ambient temperature for motor operation must not exceed maximum ambient temperature rating on motor model plate.

Setting the pump preset speed

IntelliPro operates using one of the preset speeds. Use the speed buttons to select the preset speeds.

To set the pump speed

1. Ensure that the pump is powered on and the green power LED is on.
2. Press the desired speed button (1- 4) for less than three seconds to select the preset pump speed. When the selected speed button is pressed, the LED is on. The pump preset buttons and speeds are:

   Speed 1 button - 750 RPM

   Speed 2 button - 1500 RPM

   Speed 3 button - 2350 RPM

   Speed 4 button - 3110 RPM
3. Press the **Start** button to start the pump using the selected speed if necessary.

Adjusting the pump speed

IntelliPro can be adjusted to run at any speed between 400 RPM and 3450 RPM.

To adjust the pump speed

1. Ensure that the pump is powered on and the green power LED is on.
2. Press the **Start** button to start the pump if the pump is not running.
3. Press the **UP/Down** button to increase or decrease the pump speed.
   - **10 RPM increments:** Press and quickly release the **Up/Down** button to increase or decrease the speed in 10 RPM increments.
   - **20 RPM increments:** Press and hold the **Up/Down** button to continuously increase or decrease the pump speed.
4. **Saving an adjusted speed:** To save the newly adjusted pump speed, press the desired speed buttons to assign the current speed. Four new pump speeds can be assigned to Speed buttons (1-4).
5. Press the **Speed** button that is assigned to the adjusted speed.
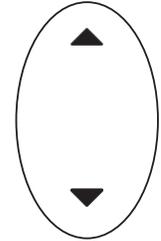
Up/Down button

Starting the pump

To start the pump

1. Ensure that the pump is powered on and the green power LED is on.
2. Press the **Start** button (LED on) to start the pump.

Note: When the pump is using a modified speed and is powered down, the next time the pump is powered up, the pump will use that same speed.

Stopping the pump

To stop the pump

- Press the **Stop** button to stop the pump.
  Note: The pump can automatically restart if the communication cable is connected.

Setting the pump communication address

The IntelliPro communication address can be set to numbers 1, 2 ,3 or 4.

To set the address

1. Be sure the pump is powered on (green LED on) but not running.
2. Press and hold the **Start** and **Stop** button simultaneously for *three* seconds. The red Alarm LED should start flashing. The LED for the currently active communication address should illuminate.
3. Release the **Start** and **Stop** buttons.
4. The active communications address in indicated by the LED's above the Speed buttons; Speed 1 for address 1, Speed 2 for address 2 etc.

Setting the pump communication address (Continued)

5. Change the active address by pressing the appropriate Speed button (Speed 1, Speed 2, Speed 3 or Speed 4) while the Alarm LED is flashing.
6. Once the desired address has been selected, press and hold the **Start** and **Stop** buttons again. The Alarm LED will stop flashing and the Speed LED for the previously selected run speed will illuminate.
7. Release the **Start** and **Stop** buttons.

Resetting the pump to factory defaults

The IntelliPro pump can be reset to the factory default settings. All previously adjusted pump speeds that were saved will be erased.

To reset the pump to the factory default settings:

1. Ensure that the pump is powered on and the green power LED is on.
2. Press the **Stop** button to stop the pump.
3. Press and hold all of the four **Speed** buttons simultaneously for four seconds. Power off the drive and reenergize. The default settings will be in effect.
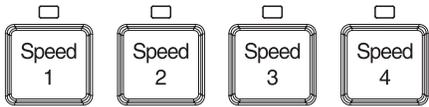
Priming the pump for the first time or after service

Before the IntelliPro pump is started for the first time it must be primed. To prime a pump means filling the pump and suction pipe with water. This process evacuates the air from all the suction lines and the pump. It may take several minutes to prime depending on the depth of water, pipe size and length. It is easier to prime a pump if you allow all the air to escape from the pump and pipes. The water cannot enter unless the air can escape. Pumps do not hold prime, the pool piping system has that task.

⚠ **CAUTION -** To avoid permanent damage to the IntelliPro pump, before starting the pump, fill the IntelliPro housing strainer with water so that the pump will prime correctly. If there is no water in the stainer the pump will not prime.

- NEVER run the pump dry! Running the pump dry may damage the seals, causing leakage and flooding!
- Do not add chemicals to the system directly in front of pump suction. Adding undiluted chemicals may damage the pump and will void the warranty.
- Open gate valves before starting system.
- Pump will prime itself when used in flooded suction system.
- Be sure to release all air from filter and piping system.
- The IntelliPro pump is a variable speed pump. Typically the lower speeds are used for filtration and heating. The higher speeds can be used for spa jets, water features, and priming.

⚠ **CAUTION - Before starting this procedure, first read the following.**
Before removing the pump lid:

1. **Press the Stop button** if the pump is running before proceeding.
1. **Disconnect the communication cable from the pump.**
2. **Close the gate valves** in suction and discharge pipes.
3. **Release all pressure** from pump and piping system.
4. **Never tighten or loosen** the clamp while the pump is operating.

Lid Clamp Volute
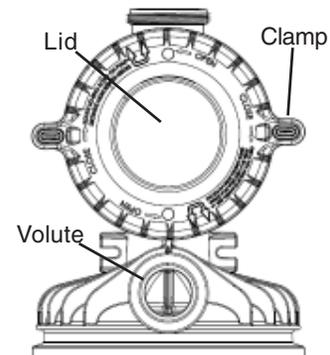
⚠ **WARNING!** If the pump is being pressure tested, release all pressure before removing the trap cover. Do not block the pump suction while the pump is running. If a body part blocks the pump suction it may cause severe or fatal injury. Small children using the pool must ALWAYS have close adult supervision.

⚠ **WARNING! FIRE and BURN HAZARD** - The pump motor may run at a high temperatures. To reduce the risk of fire, do not allow leaves, debris, or foreign matter to collect around the pump motor. To avoid burns when handling the motor, shut off the motor and allow it to cool for 20 minutes before trying to work on it. The IntelliPro provides an automatic internal cutoff switch to protect the motor from heat damage during operation.

Priming the pump for the first time or after service (Continued)

Priming the Pump

- Release all pressure from filter, pump, and piping system; see the filter owner's manual.
- In a flooded suction system (water source higher than pump), the IntelliPro pump will prime itself when suction and discharge valves are opened.
- If the IntelliPro pump is not in a flooded suction system, unscrew and remove lid cover; fill the and pump with water.
- Do not lubricate the trap cover o-ring. The original equipment o-ring contains a permanent internal lubricant.

NOTICE: If you replace the o-ring with a non-internally lubricated o-ring, you may need to apply a silicone based lubricant.

- Clean and inspect o-ring; reinstall on trap cover.
- Replace trap cover on trap; turn clockwise to tighten cover.

NOTICE: Tighten the pump lid by hand only (no wrenches)!

Pump should prime now. Priming time will depend on vertical length of suction lift and horizontal length of suction piping. If pump does not prime, make sure that all valves are open, suction pipe end is under water, pump suction is below water level, and that there are no leaks in suction pipe.

To prime the IntelliPro pump:

1. Turn the pump clamp and lid in a counterclockwise direction until it stops and remove them.

2. Fill the pump strainer pot with water.

3. Reinstall the pump clamp and lid onto the strainer pot. The pump is now ready to prime.

4. Make sure all electrical connections are clean and tight.

5. Open the air release valve on the filter, and stand clear of the filter.

6. Switch the IntelliPro pump on at the circuit breaker. Ensure that the green power light is on.

7. Press the **Speed 1** button to select the pump speed of 750 RPM.

8. Press the **Start** button to start the pump. Use the **Up/Down** button to increase the speed as necessary to prime the pump.

9. When water comes out of the air release valve, close the valve. The system should now be circulating water back to the pool without air bubbles showing in either the hair and lint pot or at the pool return fittings.

10. Use the **Up/Down** button to adjust the operating speed as desired.
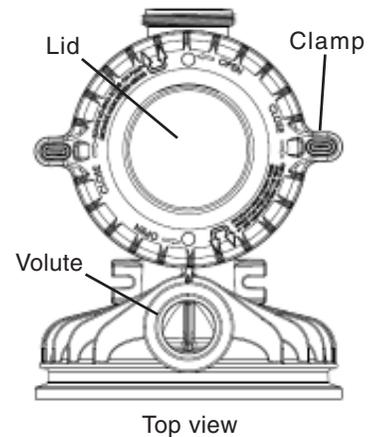
Draining Pump

> ⚠️ **CAUTION -** To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before draining pump.

1. Pump down water level below all inlets to the pool.

2. Remove the trap cover and use low pressure air to blow the accumulated water from the piping system. Lugs have been provided on the trap lid to use a lever or pry bar for loosening.

3. Cap the inlet piping after draining to keep water out of the pipes.

4. To prevent the pump from freezing, remove the trap cover and drain the tank body through the drain plugs (Key No. 19). Clean the pump and trap basket thoroughly; replace the trap cover.

   NOTICE: Hand tighten the trap cover - **Do not use a wrench!** Use a rubber mallet only if necessary to remove the cover - If the pump is not anchored, use caution not to break or damage the attached piping.

5. Be sure the motor is kept dry and covered.

Storage/Winterizing

> ⚠️ **WARNING - Explosion hazard. Purging the system with compressed air can cause components to explode, with risk of severe injury or death to anyone nearby. Use only a low pressure (below 5 PSI), high volume blower when air purging the pump, filter, or piping.**

NOTICE: Allowing the pump to freeze will damage pump and void warranty!

NOTICE: Do not use anti-freeze solutions (except propylene glycol) in your pool/spa system. Propylene glycol is non-toxic and will not damage plastic system components; other anti-freezes are highly toxic and may damage plastic components in the system.

• Drain all water from pump and piping when expecting freezing temperatures or when storing pump for a long time (see instructions below).
• Keep motor dry and covered during storage.
• To avoid condensation/corrosion problems, do not cover pump with plastic.

For outdoor/unprotected installations:

1. Gravity drain system as far as possible.
2. Protect areas which retain water with non-toxic propylene glycol antifreeze ("RV antifreeze").
3. Enclose entire system in a weatherproof enclosure.
4. To avoid condensation/corrosion damage, allow ventilation; do not wrap system in plastic.
5. Use a 40% propylene glycol/60% water solution to protect pump to -50°F (-46°C).

Startup For Winterized Equipment

1. Remove any temporary weather protection placed around system.

2. Follow the filter manufacturer's instructions for reactivation of the filter.

3. Inspect all electrical wiring for damage or deterioration over the shutdown period. Have a qualified serviceman repair wiring as needed.

4. Inspect and tighten all watertight connections.

5. Open all valves in suction and return piping.

6. Remove any winterizing plugs in piping system.

7. Drain all antifreeze from system.

8. Close all drain valves and replace all drain plugs in piping system.

9. Prime pump according to instructions on Page x.

Pump Service

- Pump should only be serviced by qualified personnel.

- For best results, use only genuine Sta-Rite factory parts.

- Be sure to prime pump (page 19) before starting.

⚠️ **CAUTION** - Before removing clamp or trap cover:

1. STOP PUMP before proceeding.

2. DISCONNECT THE COMMUNICATIONS CABLE from the pump.

3. DISCONNECT THE MAIN POWER SUPPLY

4. CLOSE GATE VALVES in suction and discharge pipes.

5. RELEASE ALL PRESSURE from pump and piping system.

6. NEVER tighten or loosen clamp while pump is operating!

⚠️ **WARNING -** To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before working on pump or motor. No lubrication or regular maintenance is needed beyond reasonable care and periodic cleaning of the strainer basket.

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Section 4
User Maintenance

The following information describes how to service and maintain the IntelliPro pump.

Pump Strainer Basket

The strainer, sometimes referred to as the "Hair and Lint Pot," is in front of the pump. Inside there is a basket which must be kept clean of leaves and debris at all times. View the basket through the top see through lid to inspect for leaves and debris.

Regardless of the length of time between filter cleaning, it is most important to visually inspect the hair and lint pot basket at least once a week. A dirty basket will reduce the efficiency of the filter and possibly the heater.

> ⚠ **WARNING —** **DO NOT** open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and that the strainer pot is cool to the touch, then open with extreme caution.
>
> ⚠ **CAUTION —** To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly.

Pump Strainer Basket Service

If the IntelliPro pump is installed below the water level of the pool, close the return and suction lines before opening the hair and lint pot on the pump.

1. Press the **Stop** button to stop the pump and switch off the pump at the circuit breaker.
2. Disconnect the communication cable from the IntelliPro pump.
3. Relieve pressure in the system.
4. Turn the clamp and lid in a counterclockwise direction until it stops.
5. Remove the clamp and lid.
6. Remove the basket and put the debris into the trash and rinse out the basket. If the basket is cracked, replace the basket.
7. Replace the basket and fill the pump pot and volute with water up to the inlet port.
8. Clean the cover, o-ring, and sealing surface of the pump pot. Grease the o-ring with Teflon or silicone lubricant.
9. Reinstall the lid by placing the clamp and the lid on the pot.

Pot clamp

Lid

O-ring lid

Basket

Pot volute
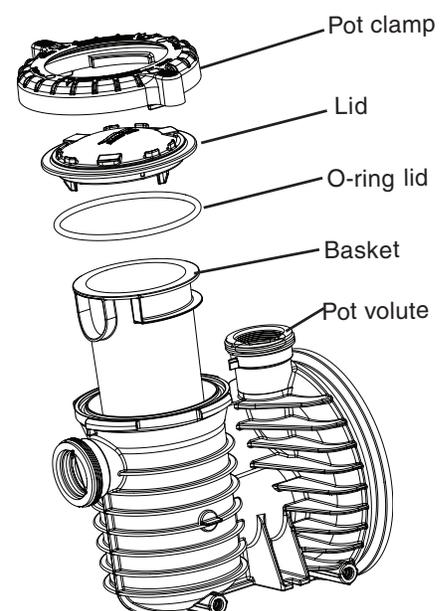
Pump Strainer Basket Service (Continued)

10. Ensure that the lid o-ring is properly placed. Seat the clamp and lid then turn clockwise until the handles are horizontal as shown.

11. Reconnect the communication cable to the pump if required.

12. Switch the power ON at the circuit breaker. Reset the pool time clock to the correct time.
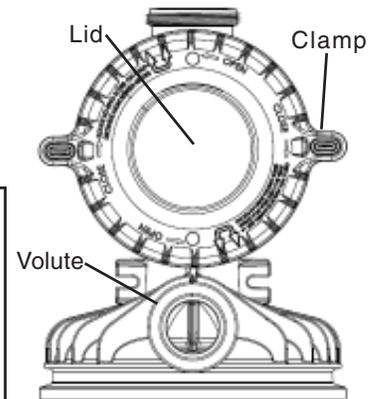
> ⚠️ **WARNING —** FILTER OPERATES UNDER HIGH PRESSURE. WHEN ANY PART OF THE CIRCULATING SYSTEM (e.g., LOCK RING, PUMP, FILTER, VALVES, ETC.) IS SERVICED, AIR CAN ENTER THE SYSTEM AND BECOME PRESSURIZED. PRESSURIZED AIR CAN CAUSE THE LID TO BLOW OFF WHICH CAN RESULT IN SEVERE INJURY, DEATH, OR PROPERTY DAMAGE. TO AVOID THIS POTENTIAL HAZARD, FOLLOW THESE INSTRUCTIONS.

13. Prime the pump. See page 18 for details.

Motor Service

1. **Protect from heat:**
   - Shade the motor and controller from the sun.
   - Any enclosure must be well ventilated to prevent overheating. Particular attention should be paid to the motor fan cover and the cooling fins between the drive and the motor.
   - Provide ample cross ventilation.

2. **Protect against dirt:**
   - Protect from any foreign matter or splashing water.
   - Do not store (or spill) pool chemicals near the motor.
   - Avoid sweeping or stirring up dust near the motor while it is operating.
   - If a motor has been damaged by dirt it voids the motor warranty.

3. **Protect against moisture:**
   - Protect from splashing pool water.
   - Protect from the weather.
   - Protect from lawn sprinklers.
   - If a motor has become wet - let it dry before operating. Do not allow the pump to operate if it has been flooded.
   - If a motor has been damaged by water it voids the motor warranty.

Note: DO NOT wrap motor and controller with plastic or other air tight materials. The motor and controller may be covered, but not wrapped in plastic, during a storm, for winter storage, etc., but never when operating, or expecting operation.

Winterizing

To protect the IntelliPro pump electronics from damage due to freezing conditions, the pump will switch it self on to generate internal heat when the air temperature drops below 40° F. This feature is not intended to protect the system plumbing from freezing.

1. If the air temperature drops below 40° F the water in the pump can freeze and cause damage. Freeze damage is not warrantable.

2. To prevent freeze damage follow the procedures listed below.
   - Shut off electrical power for the pump at the circuit breaker.
   - Drain the water out of the pump by removing the two thumb-twist drain plugs located at the bottom of the volute. Store the plugs in the pump basket.
   - Cover the motor to protect it from severe rain, snow and ice.
   - Do not wrap the motor in plastic. It will cause condensation and rust on the inside of the motor.

Note: In mild climate areas, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.

Priming the pump after service

Before a system start-up, the pump and system must be manually primed. Make sure to reopen valves before operating. To prime IntelliPro, the strainer pot must be filled with water.

> ⚠ **CAUTION —** DO NOT run the pump dry. If the pump is run dry, the mechanical seal will be damaged and the pump will start leaking. If this occurs, the damaged seal must be replaced. ALWAYS maintain proper water level in your pool. Continued operation in this manner could cause a loss of pressure, resulting in damage to the pump case, impeller and seal.

For instructions about how to prime the IntelliPro pump, refer to "Priming the pump for the first time or after servicing," on page 18.

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Section 5
Removal and Replacement

The following information describes how to remove and install the drive assembly and to repair a worn or damaged shaft seal.

> **Note: Before installing this product, read and follow all warning notices and instructions on page ii.**

Pump Disassembly

> ⚠ **WARNING** — Always disconnect power to the pool pump at the circuit breaker and disconnect the communication cable before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.
>
> Read all servicing instructions before working on the pump.
>
> ⚠ **WARNING** — **DO NOT** open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.
>
> ⚠ **CAUTION** — Be sure not to scratch or mar the polished shaft seal faces; seal will leak if faces are damaged.

Required tools:

- ½ inch open end wrench.
- 7/16 inch open end wrench.
- Flat blade screwdriver.

Drive Assembly Removal and Installation

To remove the IntelliPro drive assembly and control panel from the pump's motor assembly:

> ⚠ **WARNING -** To avoid dangerous or fatal electrical shock hazard, switch OFF power to motor before working on pump or motor.

1. Disconnect the RS-485 communication cable from the pump.

2. Open the control panel cover.

Drive Assembly Removal and Installation (Continued)

3. Remove the three Phillips head screws securing the drive to the motor assembly as shown.

> ⚠ **CAUTION: TO AVOID ELECTRICAL HAZARD, DO NOT REMOVE THE FOUR TAMPER PROOF BITS FROM THE MOTOR ASSEMBLY**

4. Lift up the drive assembly and remove it from the motor adapter located on top of the motor assembly.

> *Note: Be careful not to remove the gasket between the drive and motor, it is critical in keeping moisture out of the drive and motor. Replace the gasket if damaged. Do not reassemble with a damaged or missing gasket.*

To install the IntelliPro drive assembly onto the motor assembly:

1. Make sure all electrical breakers and switches are turned off before installing the drive.

2. Be sure that the gasket between the drive and motor is in place. It is critical in keeping moisture out of the drive and motor. Replace the gasket if damaged. Do not reassemble with a damaged or missing gasket.

3. Verify that the three (3) orange motor post caps are in position before placing the drive on the motor assembly.

4. Align the drive assembly with the motor adapter and seat the drive on the motor assembly.

5. Secure and tighten the drive assembly with the three Phillips head screws.

Phillips head screw (3)

Do not remove these screws

Adapter connector and gasket

Orange motor post caps (QTY. 3)
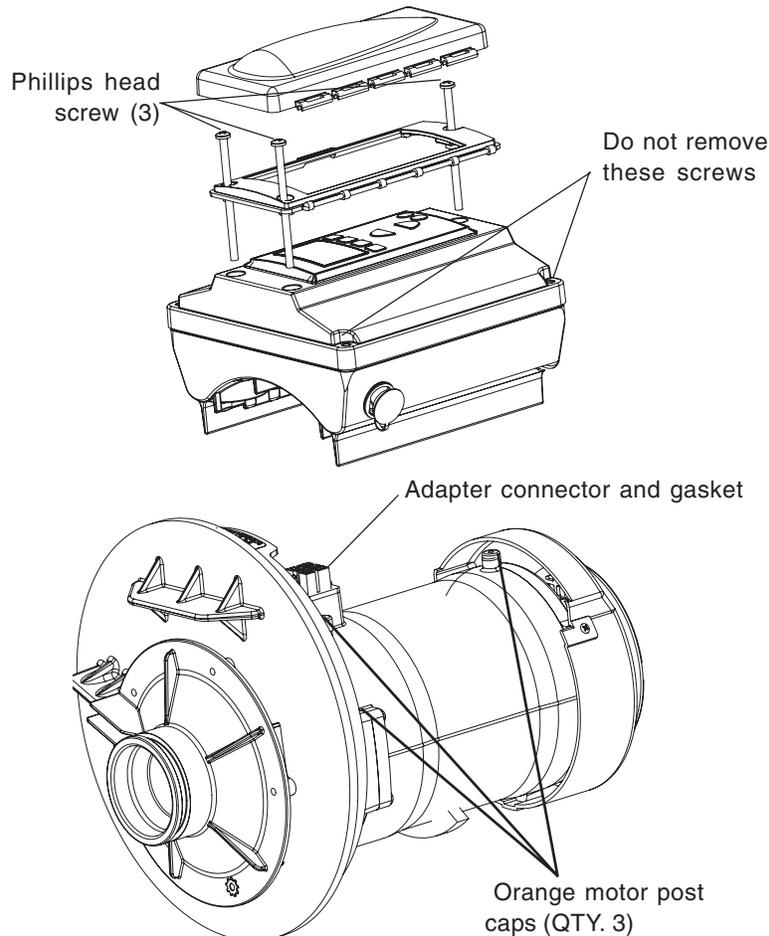
Pump Disassembly/Removing Old Seal

> ⚠ **WARNING -** To avoid dangerous or fatal electrical shock hazard, switch OFF power to motor before working on pump or motor.

> ⚠ **CAUTION -** Be sure gate valves on suction and return piping are closed and release all pressure by opening all vents before starting work.

Release all pressure by opening all vents before starting.

1. Drain the pump by removing the drain plugs on the bottom of the pump body and trap body.

2. Be sure there is no pressure in the trap body. Remove the cover (unscrew by turning the handle ring counterclockwise).

3. Remove the clamp holding the pump halves together. The motor and seal plate assembly can now be pulled away from the pump body.

4. Remove the five screws and washers holding the diffuser to the seal plate. Remove the diffuser.

5. Hold the shaft with a 7/16" open-ended wrench on the motor shaft flats.

6. Unscrew the impeller from the shaft (turn counterclockwise when facing it). ***Note:*** *On models with an impeller screw: Remove the impeller screw (left hand thread - turn **clockwise**) and gasket before removing the impeller. Inspect the gasket for damage, cracks, etc. Replace if damaged.*

7. Pull the rotating member of the seal off the impeller sleeve - Clean the sleeve.

8. Remove the four screws holding the seal plate to the motor.

9. Place the seal plate face down on flat surface and tap out the ceramic seat.

10. Clean the seal cavity in the seal plate and clean the motor shaft.
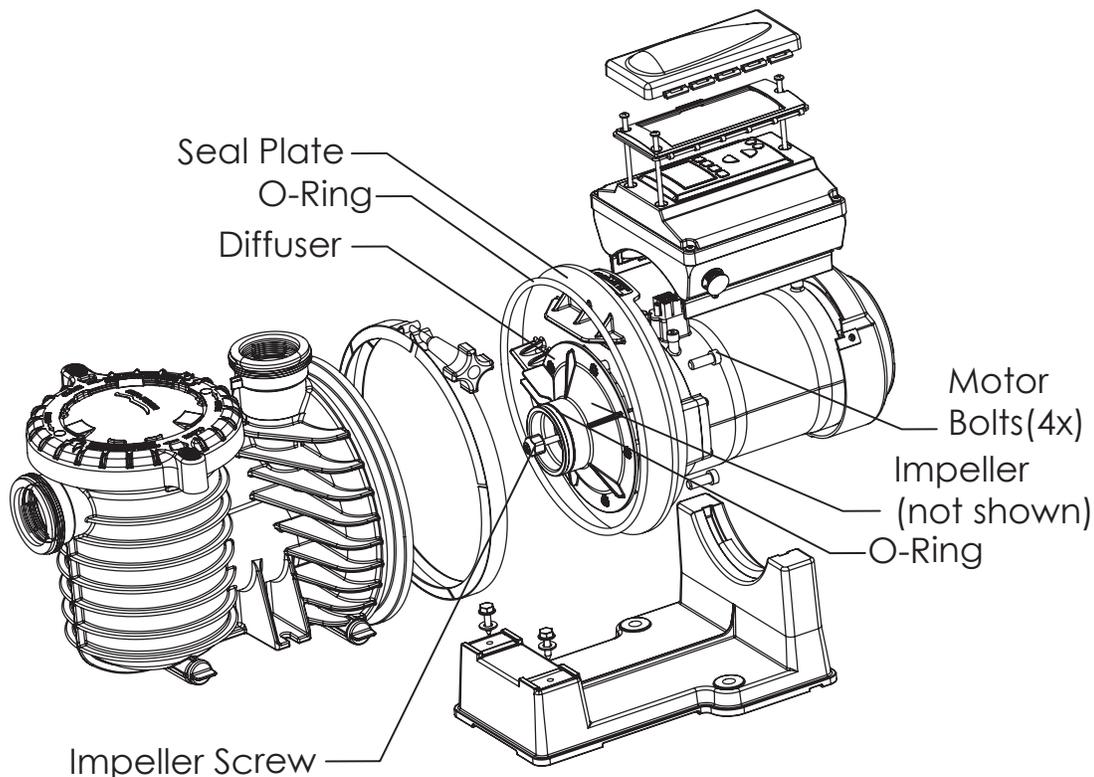
Pump Reassembly/Installing New Seal

1. The ceramic seat must be clean and free of dirt, grease, dust, etc. Wet the outer edge of rubber cup on the ceramic seat with a small amount of liquid detergent. Press the ceramic seat into the seal plate firmly and squarely with finger pressure. See illustration below.
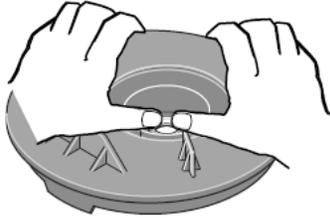
2. If the ceramic seat will not lock properly, remove it, place it face up on bench and reclean the cavity. The ceramic seat should now lock.

3. If the seat still won't lock properly, place a cardboard washer over the polished face and use a piece of 3/4" (19 mm) standard pipe for pressing purposes. *Note: Be sure not to scratch or mar the polished surface. This will cause the seal to leak.*

4. Remount the seal plate on the motor. Tighten the bolts to 60-80 inch-lbs. (69-92 kg/cm) torque.

5. Apply a small amount of liquid detergent to the inside diameter of rotating half of seal.

6. Slide the rotating seal member, polished face last, over impeller sleeve until the rubber drive ring contacts the shoulder. *Note: Be sure not to nick or scratch the polished seal face. The seal will leak if the face is damaged.*

7. Screw the impeller onto the shaft (clockwise); this will automatically lock the seal in the seal plate. *Note: On models with an impeller screw: Install the impeller gasket and lock screw (left-hand thread - turn* **counterclockwise**). *Torque lock screw to 50-55 inch-lbs. (57.6-63 kg/cm).*

8. Mount the diffuser on the seal plate. Tighten the screws to 10-14 inch-lbs. (11.2-16.1 kg/cm) torque.

9. Assemble the motor and seal plate to the volute. Be sure the clamp is properly seated. *Note: Clamp knob can be located in any position around volute; if it is moved after assembly, tighten knob while tapping around clamp to assist sealing. Do not move clamp while pump is full of water.*

> ⚠ **WARNING -** Hazardous pressure. Release all pressure from pump and piping system before working on pump or attempting to adjust or remove clamp. Clamp may blow off of pump if adjusted under pressure.

10. Reconnect the RS-485 communication cable to the pump.

11. Fill the pump with water.

12. Reinstall the pump lid and the plastic clamp. See "Pump Strainer Basket" on page 23 for details.

13. Prime the pump. See "Priming the pump for the first time or after servicing," on page 18 for details.

Illustrated Parts List
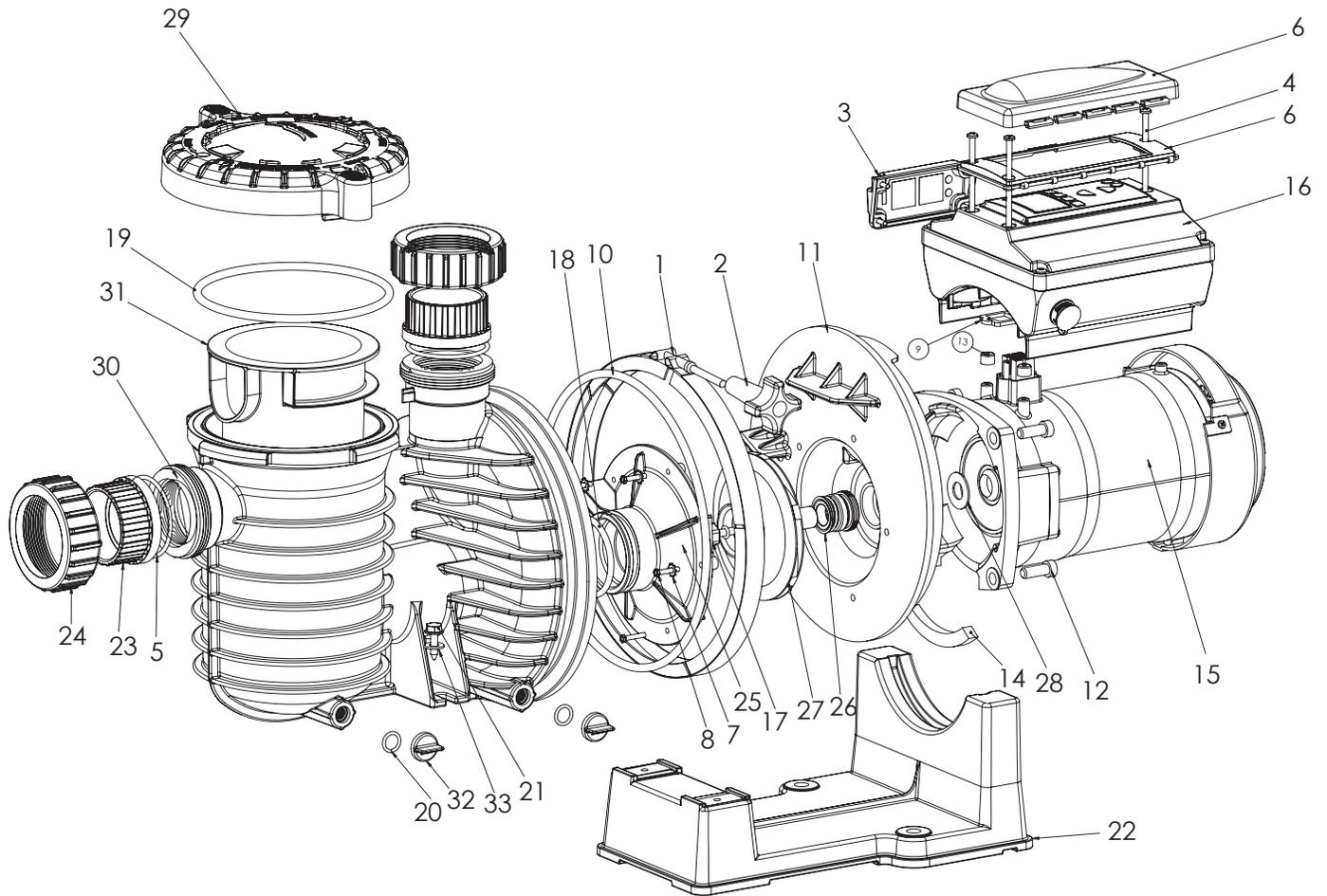
Item No.	Qty.	Part Number	Description	Item No.	Qty.	Part Number	Description
1	1	c19-37a	V-CLAMP	17	1	37337-6080	IMPELLER SCREW
2	1	wc36-22	CLAMP, KNOB	18	1	U9-374	O_RING
3	1	350301	COVER, FWC ASSEMBLY	19	1	35505-1440	O-RING 6.90 O.D. 6.35 I.D.
4	3	350107	10-24 X 3 1/4" PH MS 18-8 SS	20	2	U9-359	O-RING DRAIN PLUG
5	2	U9-362	O-RING #2-231	21	2	u30-918	SCR 5/16-14 X 1 IN LG HI-LO HEX
6	1	357290	CVR CNTR ASSY, BLK	22	1	C4-78P	BASE
7	5	u43-21ss	#8 EXT TOOTH WASHER	23	2	U11-196P	2" NPT ADAPTER
8	5	u30-922ss	SCREW DIFFUSER	24	2	U11-200PS	UNION COLLAR
9	1	350108	GASKET INTELLIFLO DRIVE	25	1	c1-271P	DIFFUSER
10	1	u9-228a	O-RING	26	2	37400-0028	SHAFT SEAL, VITON
11	1	c103-194P	SEAL PLATE	27	1	C105-238PLA	IMPELLER ASSEMBLY
12	4	U30-99SS	SCR CAP 3/8-16 X 1" Soc Head	28	1	17351-0009	SLINGER PUMP SHAFT 1/16 IN
13	3	350142	CAP SPACER	29	1	17307-0111S	TRAP COVER ASSEMBLY *
14	1	C35-11	MOTOR PAD	30	1	17307-0110S	TANK BODY ASSEMBLY **
15	4	357294	MTR 3.2KW PMSM VFD	31	2	C8-58P	TRAP BASKET
16	1	357289	DRIVE 4SPD INTELLIFLO BLK	32	2	U78-920P	DRAIN PLUG
				33	2	u43-41SS	WASHER 5/16 TYPE B NARROW

Note
(*) Includes TRAP COVER, TRAP RING AND COVER O-RING
(**) Includes TRAP BODY, BASKET, DRAIN PLUGS AND TRAP COVER ASSEMBLY

IntelliPro VS-3050 Pump Dimensions
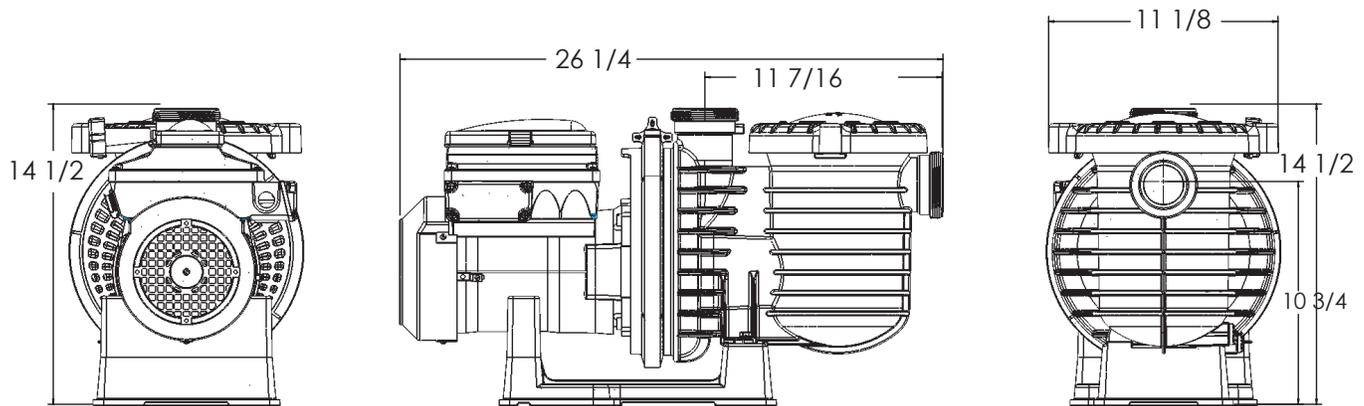
IntelliPro VS-3050 Flow and Power vs Flow Pump Curve
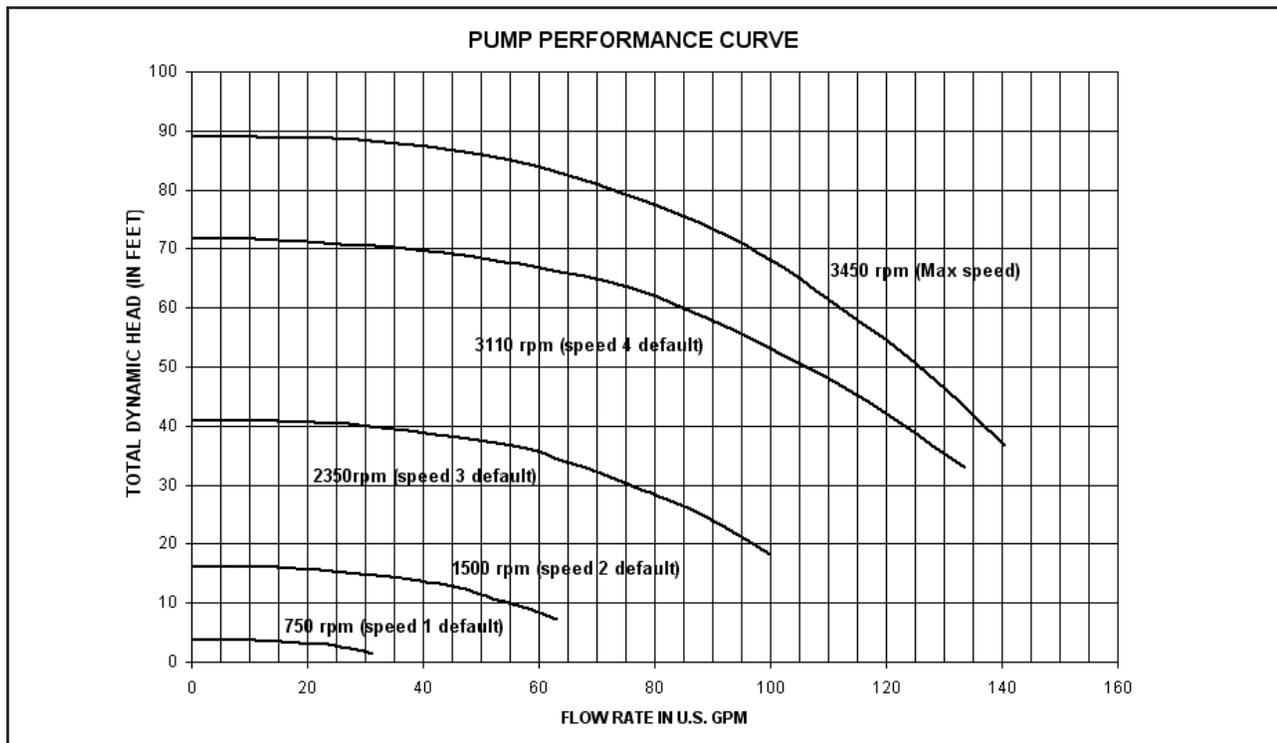
IntelliPro VS-3050 Electrical Specifications

Circuit Protection: Two-pole 20 AMP device at the Electrical Panel.

Input: 230 VAC, 50/60 Hz, 3200 Watts

Section 6
Troubleshooting

> ⚠ **CAUTION: Before installing this product, read and follow all warning notices and instructions on page ii.**

Warning and Alarm conditions

The IntelliPro VS-3050 alarms and warnings are indicated by flashing LEDs on the control panel. For example, if a "Drive Temperature" warning occurs, the LED will blink two times, then Off, then blink two times. This sequence is repeated until the condition is cleared.

- **Warning condition:** If a warning condition occurs the pump will be continue to run but at a reduced speed. The Green LED executes a sequence of blinks to indicate which alarm or warning has occurred.

- **Alarm condition:** If an alarm condition occurs the pump will drive stop running. The red LED flashes continuously to indicate the presence of an alarm. The alarm LEDs will reset when the condition clears.

Alarm and warning LED sequence

Number of time the LED will blink	Alarm	Description	Action
2	Drive Temperature Warning	Excessive drive temperature	1. Ensure the motor fan has adequate area for ventilation. 2. Stop motor and allow to cool. 3. Run motor at a higher speed to improve cooling air flow.
5	Unknown alarm	Electronic failure	1. Cycle power to reset pump. 2. Replace drive.
6	Drive Temperature Alarm	Excessive drive temperature	1. Ensure the motor fan has adequate area for ventilation. 2. Run motor at a higher speed to improve cooling air flow.
7	Power Out Alarm	Supply voltage low	Ensure proper supply voltage.
8	Over current Alarm	Excessive drive current	1. Examine fluid/mechanical system for source of overload. 2. De-energize motor and determine if motor spins freely. 3. Replace drive.
9	Over voltage Alarm	Excessive voltage on drive buss	1. Rapid switching between speeds can cause excessive voltages on the drive's DC buss. 2. Ensure proper supply voltage.

General IntelliPro VS-3050 Troubleshooting Problems

Use the following general troubleshooting information to resolve possible problems with your IntelliPro pump.

Note: Switch the main power off to the pump before attempting service or repair.

Problem	Possible Cause	Corrective Action
Pump failure. Refer to Alarm LED sequence on page 33.	Pump will not prime - Air leak in suction.	Check suction piping and valve glands on any suction gate valves. Secure lid on pump strainer pot and make sure lid gasket is in place. Check water level to make sure skimmer is not drawing air.
	Pump will not prime - Not enough water.	Ensure that the suction lines, pump, strainer, and pump volute are full of water.
	Pump strainer clogged.	Clean pump strainer pot.
	Pump strainer gasket defective.	Replace gasket.
Reduced capacity and / or head. Refer to Alarm LED sequence on page 33.	Air pocket or leaks in suction line.	Check suction piping and valve glands on any suctin gate valves.
	Clogged impeller.	Turn off electrical power to the pump.
	Pump strainer clogged.	Remove the (6) bolts that holds the volute to the seal plate. Slide the motor and seal plate away from the volute. Clean debris from impeller. If debris cannot be removed, complete the following steps. 1. Remove diffuser and o-ring. 2. Remove left hand thread anti-spin bolt and o-ring. 3. Remove, clean and reinstall impeller. 4. Reinstall anti-spin bolt and o-ring. Reinstall diffuser, and o-ring. Reinstall motor and seal plate into volute. Reinstall (6) bolts around seal plate and volute and tighten securely. Clean suction trap.

Problems and Corrective Action (Continued)

Problem	Possible Cause	Corrective Action
Circuit breaker trips repeatedly. Refer to Alarm LED sequence on page 33.	Excessive motor current. GFCI fault.	Breaker must be of adequate capacity. For GFCI breaker, test according to GFCI manufacturer's instructions. Be sure no other lights and appliances are on circuit. Voltage too high or too low.
Electrical problem. Refer to Alarm LED sequence on page 33.	Pump may be too hot.	Check line voltage; if less than 90% or more than 110% of rated voltage consult a licensed electrician. Increase ventilation. Reduce ambient temperature. Tighten any loose wiring connections. Motor internal terminal overload protector is open. Motor runs too hot. Turn power to motor off. Check for proper voltage. Check for proper impeller or impeller rubbing.
Mechanical Troubles and Noise.	The pump motor is running but with loud noise. Cavitation.	If suction and discharge piping are not adequately supported, pump assembly will be strained. Do not mount pump on a wooden platform! Securely mount on concrete platform for quietest performance. Foreign matter (gravel, metal, etc.) in pump impeller. Disassemble pump, clean impeller, follow pump service instructions for reassembly. Improve suction conditions. Increase pipe size. Decrease number of fittings. Increase discharge pressure.

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