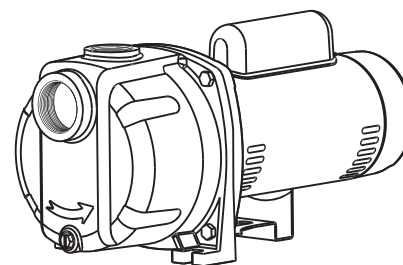




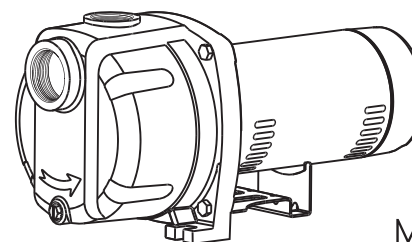
## Centrifugal Pump

User Manual



**2HP**

Model: SPRK200



**1-1/2HP**

Model: SPRK150

**AQUASTRONG™**

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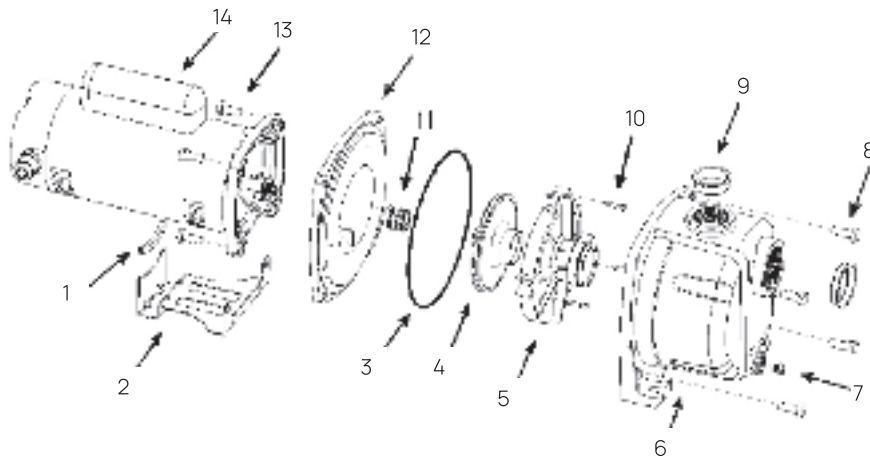
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## Troubleshooting

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION(S)
Motor will not run	1. Disconnect switch is off	1. Be sure the switch is on.
	2. Fuse is blown or circuit breaker tripped	2. Replace the fuse.
	3. Wires at motor are loose: a) Disconnected or wired b) incorrectly	3. Refer to wiring instructions.
	4. Defective Motor	4. Check and tighten all wiring.
	5. Voltage selector switch not properly set	5. Replace the motor.
	6. Low line voltage	6. Disconnect power. Set voltage selector switch (Figure 5) to match line voltage. (See electrical connections page 3.)
Motor runs hot and overload kicks off	1. Motor is wired incorrectly	1. Refer to wiring instructions.
	2. Low line voltage	2. Contact an electrician.
	3. Pump house not properly vented	3. Be sure the pump has sufficient ventilation to cool the motor.
Motor runs but no water is delivered  <b>NOTE:</b> Check prime before looking for other causes. Unscrew priming plug and see if water is in priming hole.	1. Pump in new installation did not pick up prime through: a) Improper priming b) Air leaks c) Leaking foot valve	1. New installation: a) Re-prime according to instructions. b) Check all connections on the suction line. Replace foot valve.
	2. Pump has lost prime through: a) Air leaks b) Water level below suction of pump	2. Existing installations a) Check all connections on the suction line and shaft seal. b) Lower the suction line into water and re-prime. If the receding water level exceeds suction lift, reposition the pump to ensure less than 25 ft. of lift.
	3. Impeller obstructed	3. Clean the impeller.
	4. Check valve or foot valve is stuck in the closed position	4. Replace the check valve or foot valve.
	5. Pipes are frozen	5. Thaw pipes. Bury pipes below the frost line. Heat pit or pump house.
	6. Foot valve and/or strainer are buried in sand or mud	6. Raise the foot valve and/or strainer above the well bottom.
	7. Low line voltage	7. Contact an electrician.
Pump does not deliver water to full capacity.	1. Water level in the well is lower than estimated	1. Reposition the pump to minimize lift (25 ft. max lift).
	2. Steel piping (if used) is corroded or lined, causing excess friction	2. Replace with plastic pipe where possible; otherwise, with new steel pipe.
	3. Piping is too small in size	3. Use larger piping.
	4. Low line voltage	4. Contact an electrician.

## Parts Diagram



## Parts List

Part Number	Description	Quantity
1	Rubber pad	1
2	Underprop	1
3	O-ring	1
4	Impeller	1
5	Water out cover	1
6	Pump body	1
7	Drain plug	1
8	Hex. bolt	6
9	Dust cover	1
10	Screw	3
11	Mechanical seal	1
12	Pump support	1
13	Hex bolt	2
14	Motor	1

## Intended Use

This pump is designed for lawn sprinkling. It delivers plenty of water at full sprinkler pressure. Pumps from ponds, cisterns, or well points. Pump discharge can be divided to supply 4 or more sprinkler systems. The pump features a powerful dual-voltage 115/230V continuous-duty 1.5 HP motor and a cast iron casing for durability and long-lasting performance.

## Technical Specifications For SPRK150

Specification	Value
Power	115V/230V-60HZ
HP	1-1/2HP
Amperage	18A/9A
Discharge connections	1-1/2 in
Suction connections	2 in.NPT
Max. Head	108 ft
Max. Flow	4250 GPH

## Technical Specifications For SPRK200

Specification	Value
Power	230V-60HZ
HP	2HP
Amperage	9A
Discharge connections	1-1/2 in
Suction connections	2 in.NPT
Max. Head	112 ft
Max. Flow	5200 GPH

## Important Safety Information

### WARNING

- Read and understand all instructions. Failure to follow all instructions may result in serious injury or property damage.
- The warnings, cautions, and instructions in this manual cannot cover all possible conditions or situations that could occur. Exercise common sense and caution when using this pump. Always be aware of the environment and ensure that the pump is used in a safe and responsible manner.
- Do not allow persons to operate or assemble the product until they have read this manual and have developed a thorough understanding of how it works.
- Do not modify this pump in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the product. There are specific applications for which the product was designed.
- Use the right tool for the job. DO NOT attempt to force small equipment to do the work of larger industrial equipment. There are certain applications for which this equipment was designed. This product will be safer and do a better job at the capacity for which it was intended. DO NOT use this equipment for a purpose for which it was not intended.
- Industrial or commercial applications must follow OSHA requirements.

### WARNING

This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

### WARNING - WORK AREA SAFETY

- Inspect the work area before each use. Keep the work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the pump in confined work areas may put you dangerously close to other cutting tools and rotating parts.
- Do not use the pump where there is a risk of causing a fire or an explosion; e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite the flammable liquids, gases, or dust.
- Do not allow the pump to come into contact with an electrical source. The tool is not insulated and contact will cause electrical shock.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the pump.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

### WARNING - PERSONAL SAFETY

5. Start the pump. Water will begin to move in a few minutes. If the pump fails to prime in 5 minutes, stop the motor and refill the pump housing with water. Priming time is proportional to the amount of air in the inlet pipe.

6. Let the system operate for several minutes to flush all the pipes.

7. Close the faucet and allow the pump to build pressure in the tank. When the pressure reaches the cut-out setting, the motor automatically stops. The system is now in operation and will automatically cycle on demand.

## After Use

After use, unplug the pump and allow time for it to cool before moving it because it will be HOT. When the pump has cooled, never lift the pump by the power cord.

Store the pump when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the pump for good working condition prior to storage and again before re-use.

## Maintenance

Maintain the pump. It is recommended that the general condition of any tool be examined before it is used. Keep the pump in good repair by adopting a program of conscientious repair and maintenance in accordance with the recommended procedures.

### WARNING

Before inspection, always unplug the pump from power and allow it to cool.

Do not disassemble the motor housing. This pump has NO repairable internal parts, and disassembling may cause an oil leak or dangerous electrical wiring issues.

## Drain the Pump

It is necessary to drain the entire system when the pump, piping, etc., will be subjected to freezing. A drain opening is provided for this purpose. To drain the pump:

1. Remove the drain plug (located on the front of the pump below the inlet port) and prime plug (located on the top of the pump, close to the outlet hole) to vent the system.
2. Drain all piping to a point below the freeze line.

**Note:** While this will drain the pump, it will not necessarily drain all the unprotected parts of the piping or any tank in the system. It may be necessary to tip the pump or blow compressed air into the pump housing to clear all water from the pump.

## Connecting Wires

The terminal cover must be in place for safe operation. Ground in accordance with local and national electrical codes. Keep fingers and objects away from openings and rotating parts. Disconnect power sources before touching internal parts. See Figure E for appropriate wiring locations.

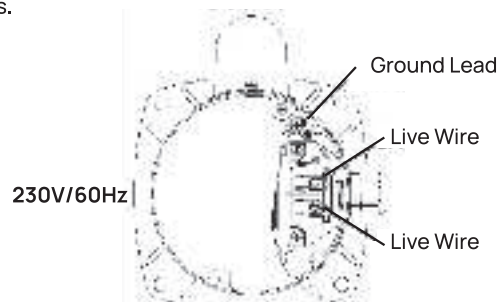


Figure 6  
Connecting Wire

## Operating Instructions

### ⚠ WARNING

Stay alert, watch what you are doing, and use common sense when operating the pump. Do not use the pump while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the pump may result in serious personal injury.

Use ANSI Z87.1 compliant safety goggles, or when needed, a face shield. Also use non-skid safety shoes, gloves, and hearing protection when appropriate.

Do not overreach. Keep proper footing and balance at all times.

Do not submerge the pump. Do not stand the pump in water while it is plugged in, and do not get the motor wet as it could cause electrocution. Do not handle the pump with wet hands.

Do not pump flammable or explosive liquids such as oil, gasoline, kerosene, ethanol, etc. Do not use in the presence of flammable or explosive vapors. Using this pump with or near flammable liquids can cause an explosion or fire, resulting in property damage, serious personal injury, and/or death.

Do not touch the pump housing while it is operating, as the pump may be HOT and can cause serious skin burns. To avoid burns, unplug the pump and allow time for it to cool after periods of extended use.

Never lift the pump by the power cord.

1. Remove the priming plug.
2. Fill the pump housing and piping completely full of water.
3. Replace the prime plug.
4. Open a faucet to vent the system.

- Stay alert, watch what you are doing, and use common sense when operating the pump. Do not use the pump while you are tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool may result in serious personal injury.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts. Air vents on the tool often cover moving parts and should be avoided.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield. Use a dust mask in dusty work conditions. Also use non-skid safety shoes, a hardhat, gloves, dust collection systems, and hearing protection when appropriate. This applies to all persons in the work area.
- Do not overreach. Keep proper footing and balance at all times.
- Do not use the tool when tired or under the influence of drugs, alcohol, or medication.

### ⚠ CAUTION - PUMP USE AND CARE

- Do not force the pump. Products are safer and do a better job when used in the manner for which they are designed. Plan your work and use the correct product for the job.
- Check for damaged parts before each use. Carefully check that the product will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the product with a damaged part.
- Do not use a product with a malfunctioning switch. Any power tool that cannot be controlled with the power switch is dangerous and must be repaired by an authorized service representative before using.
- Disconnect the power/air supply from the product and place the switch in the locked or off position before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- Store the product when it is not in use. Store it in a dry, secure place out of the reach of children. Inspect the tool for good working condition prior to storage and before re-use.
- Use only accessories that are recommended by the manufacturer for use with your product. Accessories that may be suitable for one product may create a risk of injury when used with another tool. Never use an accessory that has a lower operating speed or operating pressure than the tool itself.
- Keep guards in place and in working order. Never operate the product without the guards in place.
- Do not leave the tool running unattended.

## Specific Operation Warnings

### ⚠ WARNING

- Wear ANSI Z87.1 compliant goggles.
- DO NOT start the pump or run the pump dry. Prime the pump before each use.
- DO NOT submerge the pump in water. For indoor use only.

- Pump clean water only. DO NOT use for saltwater, brine, laundry discharge, or any application that may contain foreign materials and/or caustic chemicals.
  - Never pump gasoline or flammable liquids with this product.
  - Do not operate the pump where flammable or explosive fumes or gases are present. Explosion, fire, or serious injury may result.
  - Do not use this product to pump chemicals or corrosive liquids, as damage to seals and moving parts will result.
  - Do not run the pump with the outlet closed or blocked. The excessive pressure will cause the pump to explode and cause injury or death.
  - Before using any pump, check for alignment and binding of moving parts, any broken parts or mounting fixtures, and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician.
  - Disconnect power before servicing and when changing accessories.
  - When servicing, use only identical replacement parts. Only use accessories intended for use with this pump. Approved accessories are available.
  - Do not let water inside the pump freeze or let frost build up on it.
  - No alterations shall be made to this product.
  - Do not use in swimming pools or marine areas.
- Not for use by or around children.

#### ELECTRIC SHOCK HAZARD

- Have a licensed or certified electrician install the pump to a power source.
- DO NOT operate if the power cord or electrical components are damaged or seals are compromised.
- DO NOT attempt to service or open this product while it is connected to an electrical power supply.

### Grounding

#### ⚠ WARNING

- This machine must be grounded while in use to protect the operator from electrical shock. This pump is equipped with an electrical cord that has an equipment grounding conductor and a grounding plug. The plug MUST be plugged into a matching receptacle that is properly installed and grounded in accordance with ALL local codes and ordinances.
- DO NOT MODIFY THE PROVIDED PLUG. If it will not fit the receptacle, have the proper receptacle installed by a qualified electrician.
- CHECK with a qualified electrician or service person if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

### Grounded Tools: Tools with 3-Prong Plugs

Tools marked with "Grounding Required" have a 3-wire cord and 3-prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. (See Figure A.)

### Electrical Connections

This pump is pre-wired at 230 volts. If the power source is 115 volts, follow these steps:

1. Remove the electrical housing cover.
2. Flip the switch to 115 volts.
3. Replace the cover.

Connect the pump to a separate electrical circuit with a dedicated circuit breaker. Refer to the electrical specifications in the wiring chart for the recommended fuse and wire size.

The SPRK150 has dual voltage motors preset at the factory to 230 volts. The motors can be converted to 115 volts by turning the voltage selector to the desired voltage (Figure 5). Rotate the correct position with a slotted screwdriver.

**Note:** The SPRK200 cannot be converted. The motor is 230 volts only.

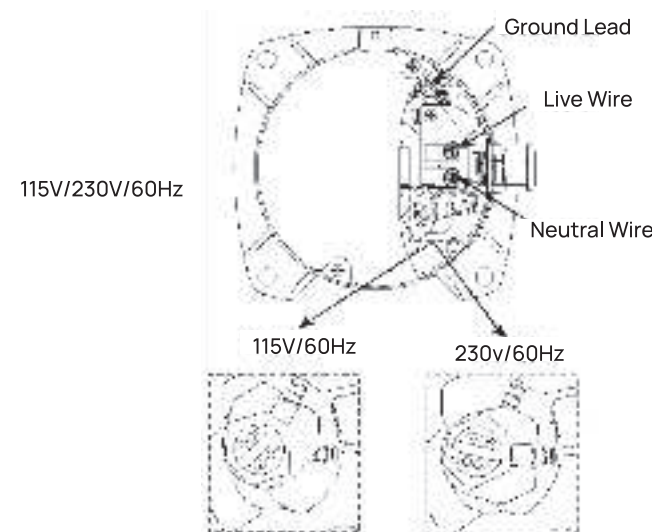


Figure 5 - Voltage Selector



## Before Operation

### ⚠ WARNING

- Inspect the work area before each use. Keep the work area clean, dry, free of clutter, and well-lit. Cluttered, wet, or dark work areas can result in injury. Using the pump in confined work areas may put you dangerously close to other cutting tools and rotating parts.
- Check for damaged parts before use. Carefully check that the pump will operate properly and perform its intended function. Replace damaged or worn parts immediately. Never operate the pump with a damaged part.
- Do not use the pump where there is a risk of causing a fire or an explosion, e.g., in the presence of flammable liquids, gases, or dust. The pump can create sparks, which may ignite the dust or fumes.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be below the work surface hidden from your view and may cause personal harm or property damage if unintentionally contacted.

**Note:** All electrical work should be performed by a licensed electrician.

1. To prime, remove both:

- a. the plug from the top of the discharge tee (water will be filled in here), and;
- b. the priming plug in front of the discharge tee. (This is to allow air to vent out while priming.)

2. Fill the discharge tee with water until water overflows.

**Note:** It may take several minutes or more to fill the pipes and the pump completely. Watch the water level in the discharge tee. Make sure the water level is stable and there are no air bubbles.

### ⚠ WARNING

If the pump is lower than the suction pipe, air may trap in the pipe and the pump may not work properly. Make sure the pipe slopes away from the pump.

3. Wrap the discharge tee plug and priming plug threads with thread tape and re-attach to the pump (tighten with a wrench).

The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically live terminal.

Your tool must be plugged into an appropriate outlet, properly installed, and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the following illustration (FIGURE A).



Figure A

## Double Insulated Tools: Tools with Two-Prong Plugs

Tools marked as Double Insulated do not require grounding. They have a special double insulation system that satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. (See Figure B.)

Double insulated tools may be used in either of the 120-volt outlets shown in the following illustration (FIGURE B).



Figure B

## Extension Cords

### ⚠ WARNING

- Use a proper extension cord. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage, resulting in loss of power and causing overheating.
- Be sure your extension cord is properly wired and in good condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.
- Grounded tools require a 3-wire extension cord. Double Insulated tools can use either a 2- or 3-wire extension cord.
- As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage.

- The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14-gauge cord can carry a higher current than a 16-gauge cord. The minimum extension cord wire size is shown in the following table:

Nameplate AMPS	Minimum Wire Size Of Extension Cords			
	Cord Length			
	25'	50'	100'	150'
0-6	18 AWG	16 AWG	16 AWG	14 AWG
6-10	18 AWG	16 AWG	14 AWG	12 AWG
10-12	16 AWG	16 AWG	14 AWG	12 AWG
12-16	14 AWG	12 AWG	NOT RECOMMENDED	

- When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required.
- If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size.
- If you are using an extension cord outdoors, make sure it is marked with the suffix W-A (W in Canada) to indicate it is acceptable for outdoor use.
- Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
- Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

## Installation

### ⚠ CAUTION

- This pump is meant to be used where the vertical lift of water is less than 25 ft. If the well is deeper than that, you need to purchase a deep well convertible jet pump.
- All connections must be airtight. A single leak will prevent proper operation of the pump and may cause the pump to run dry. NEVER let the pump run dry.
- This is a dual voltage 115V/230V pump. The voltage selector inside is preset to 230V. If 115V is needed, open the terminal cover and set the switch to the required voltage. Using the pump at the incorrect voltage will damage the pump and void the warranty.

Have a licensed or certified electrician install the pump to a power source.

Tools Required (not included): Wrench, Pliers, Phillips Screwdriver, Thread Tape, PVC Purple Primer, and PVC Cement.

1. Install a 1-1/2" pipe tee in the pump discharge to allow easy priming. Plug the end of the tee opposite the pump to allow the branch piping to go to the spray nozzles (Figure 1). Remove the pipe plug to fill the pump with water for priming.

**Note:** Do not install suction piping near swimming areas.

2. Install a foot valve on the first section of the pipe (Figure 2). Lower the pipe into the well. Add pipe until the foot valve is 10 feet below the lowest anticipated water level.

**Note:** Leaking joints or couplings will allow air to leak into the pipe and cause poor pump operation or difficulty priming. Make sure to use pipe joint compound or plumber's seal tape on all threaded pipe connections.

3. After the proper depth is reached, install a well seal or pitless adapter to support the pipe. Slope the horizontal pipe upward toward the pump to eliminate trapping air. When using a foot valve, a priming tee and plug above the well seal is recommended.

**Note:** A packer-type foot valve can be installed in the well (Figure 3). This type of foot valve allows the well pipe to be filled with water when priming and makes the inlet pipe much easier to test for leaks. Follow the manufacturer's instructions when installing the packer-type foot valve.

4. As an alternative, an in-line check valve can be used with a driven well (Figure 4). It may be necessary to supply the pump with multiple well points to maintain the high flow capability of the pump. Consult with a plumbing professional for appropriate materials and installation instructions. Leaking joints or couplings will allow air to leak into the pipe and cause poor pump operation or difficulty priming. Make sure to use pipe joint compound or plumber's seal tape on all threaded pipe connections.

Figure 1

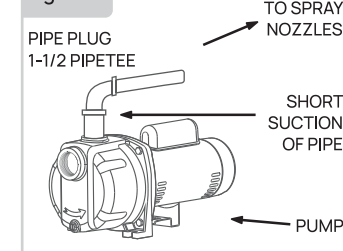


Figure 2

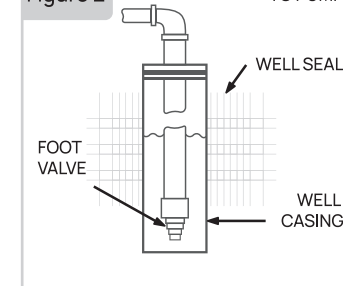


Figure 3

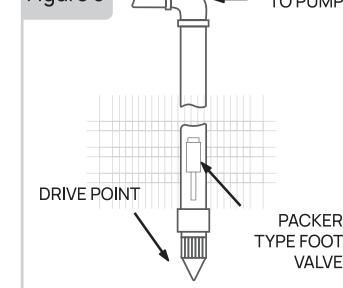


Figure 4

