WATEROUS

Form Number: F-2828

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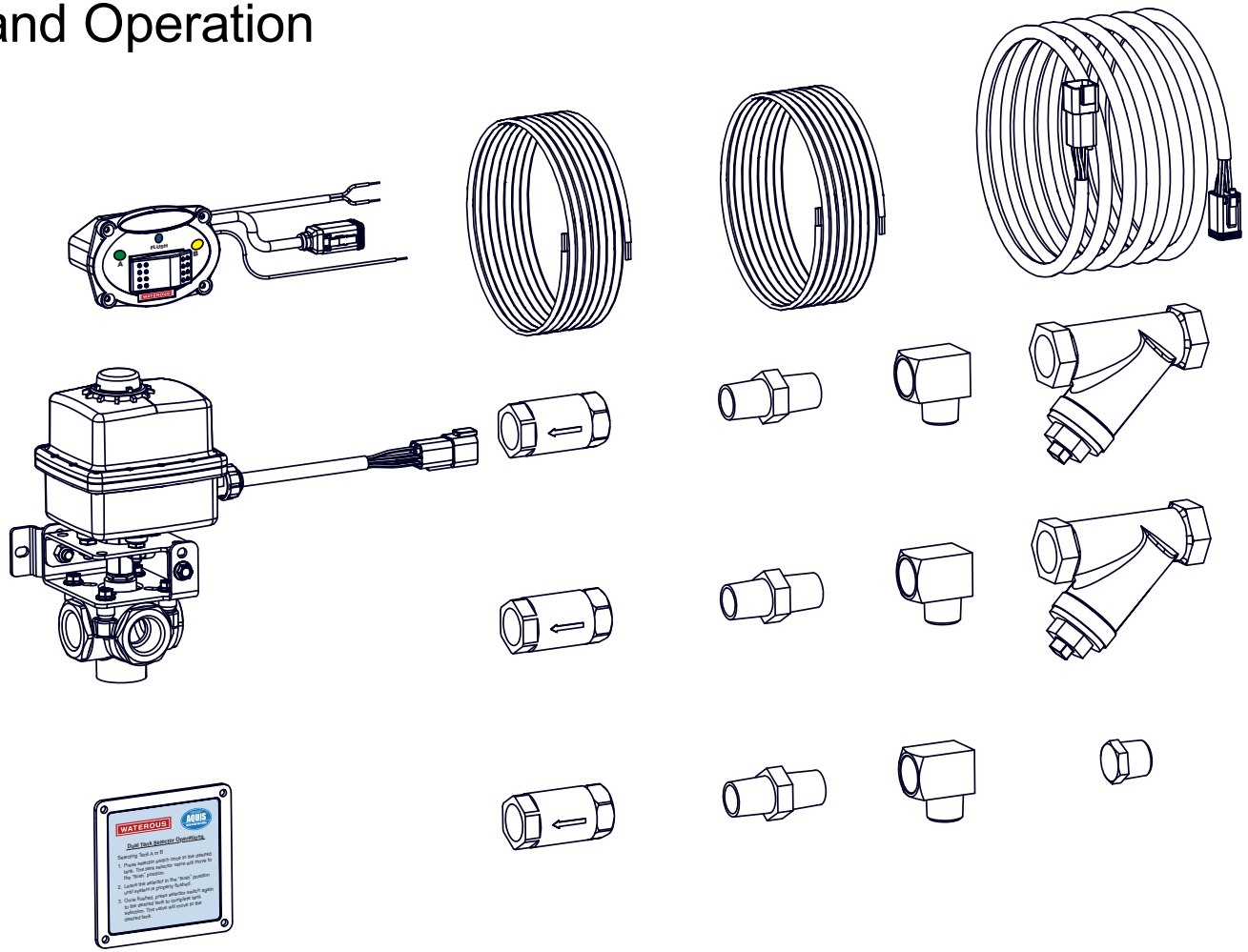
Dual Tank Selector System

Installation and Operation



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www.waterousco.com

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Safety Precautions

- Read and understand all the associated documentation before you begin the installation.
- Read and understand all the notices and safety precautions.
- Be aware that these instructions are only guidelines and are not meant to be definitive. Contact Waterous when you have questions about installing, operating, or maintaining the equipment.
- Do not install the equipment if you are not familiar with the tools and skills needed to safely perform the required procedures—proper installation is the responsibility of the purchaser.
- Do not operate the equipment when safety guards are removed.
- Do not modify the equipment.
- Regularly check for leaks, worn, or deteriorated parts.

NOTICE

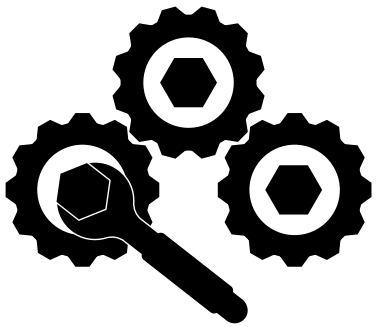
Before Operation

- **Read and understand all the instructions provided.**
- **Check all fluid levels and replenish if necessary.**
- **Remove all shipping plugs and install the operation plugs or caps.**

NOTICE

Modification

- **Modifying the equipment can damage components and void your warranty.**
- **Do not modify the system or any of its components.**

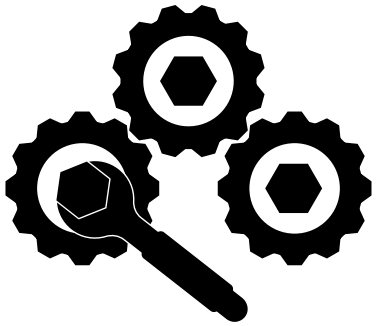


Safety Precautions

NOTICE

Maintenance

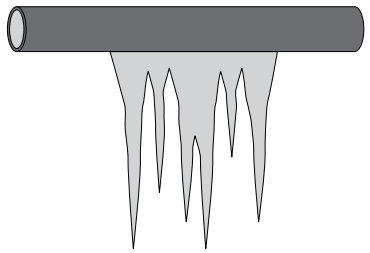
- Not following maintenance procedures can damage your equipment.
- Perform all maintenance procedures as required.



NOTICE

Freeze Damage

- Do not allow fluid in the lines to freeze.
- Remove all freezable fluid from the lines before storing the apparatus.



Use this document to install and operate your Waterous equipment. Understand the following conditions before continuing with the document:

- The instructions may refer to options or equipment that you may not have purchased with your system.
- The illustrations in this document are intended to convey concepts. Do not use the illustrations to determine physical attributes, placement, or proportion.
- Understand that your application may require additional steps, that are not described in the illustrations or instructions, to perform the installation.
- The equipment described in this document is intended to be installed by a person or persons with the necessary skills and knowledge to perform the installation.
- The equipment described in this document is intended to be operated by a person or persons with the basic knowledge of operating similar equipment.
- The information in this document is subject to change without notice.

This document is divided into the following sections:

SAFETY

This section describes general precautions and alert symbols that are in this document.

INTRODUCTION

This section is an overview of the document.

PRODUCT OVERVIEW

This section describes the components that make up the system.

INSTALLATION

This section describes the installation and initial setup procedures.

OPERATION

This section describes the equipment operation.

Using this Document

Use the guidelines below when viewing this document.

Viewing the Document Electronically

- View this document in landscape orientation.
- Use the table of contents to navigate directly to that section.
- Text **with this appearance** is linked to a reference.

Printing the Document

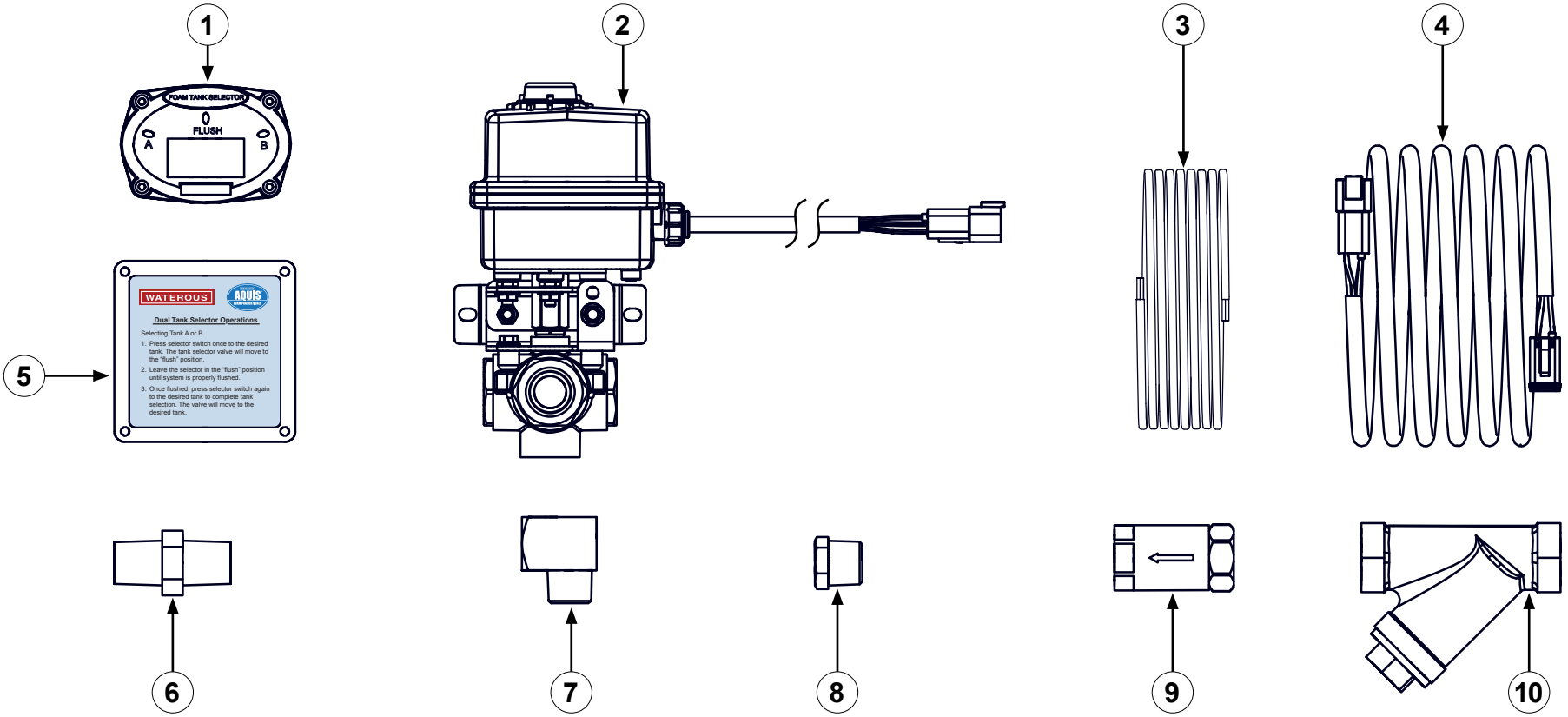
- The document is viewed the best when printed in color.
- The print on both sides and flip on long edge features can provide the best results.
- Use a 3-ring binder to store the document.

Additional Documentation

Additional documentation is available through the MyWaterous login at Waterousco.com. Use your serial number to gain access to the service parts list associated with your system. Dimensional drawings are available through the Waterous Service department.

System Components

The dual-tank selector system includes the illustrated components. Various components are available in 3/4 or 1 inch, in brass or stainless steel, and 12 V or 24 V. Components such as hoses, fittings, sensors, circuit breakers, are sourced by the installer. Installation kits are available, contact Waterous for more information.

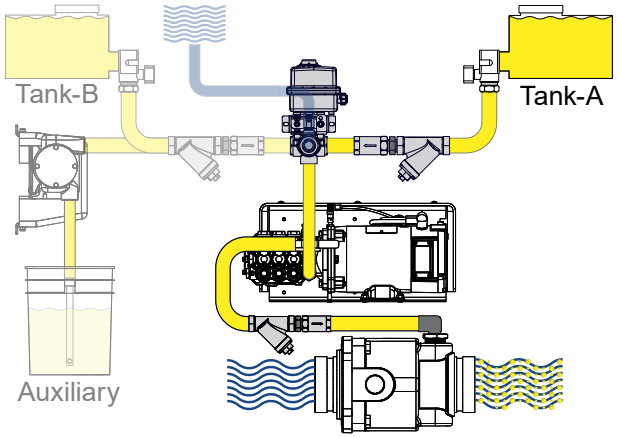


	Feature	Description
1	Control panel	This is the operator interface to the system.
2	Electric valve	This directs the clear-water or concentrate supply.
3	Extension wire (2)	This extends the tank level sensor wire.
4	Wire harness extension	This extends the control panel wire harness.
5	Instruction plate	This instructs how to operate the system.

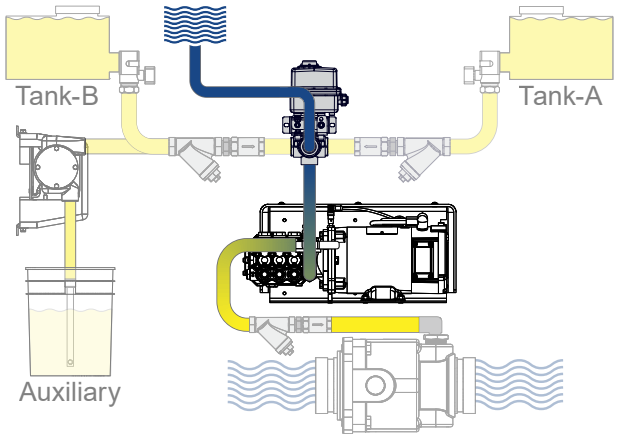
	Feature	Description
6	Nipple fitting (3)	This couples fittings together.
7	90° fitting (3)	This enables right-angle hose routing.
8	Plug fitting	This plugs the unused port on the 5-port valve.
9	Check valve (3)	This prevents the concentrate from reversing direction.
10	Wye strainer (2)	This is an in-line filter for the concentrate or clear water.

Operation Overview

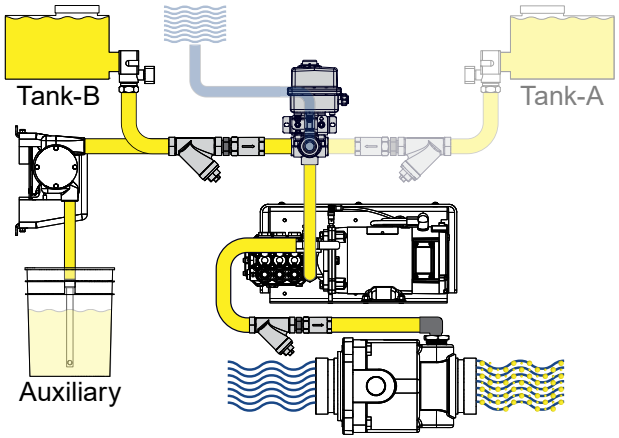
The dual tank selector system enables you to select which tank, or source, in a multi-source system supplies foam concentrate to the waterway. This overview illustrates the system operating when tank-A, flush, or tank-B/auxiliary supply are selected.



In normal operation, primary tank, label tank-A, is selected as the supply for the concentrate

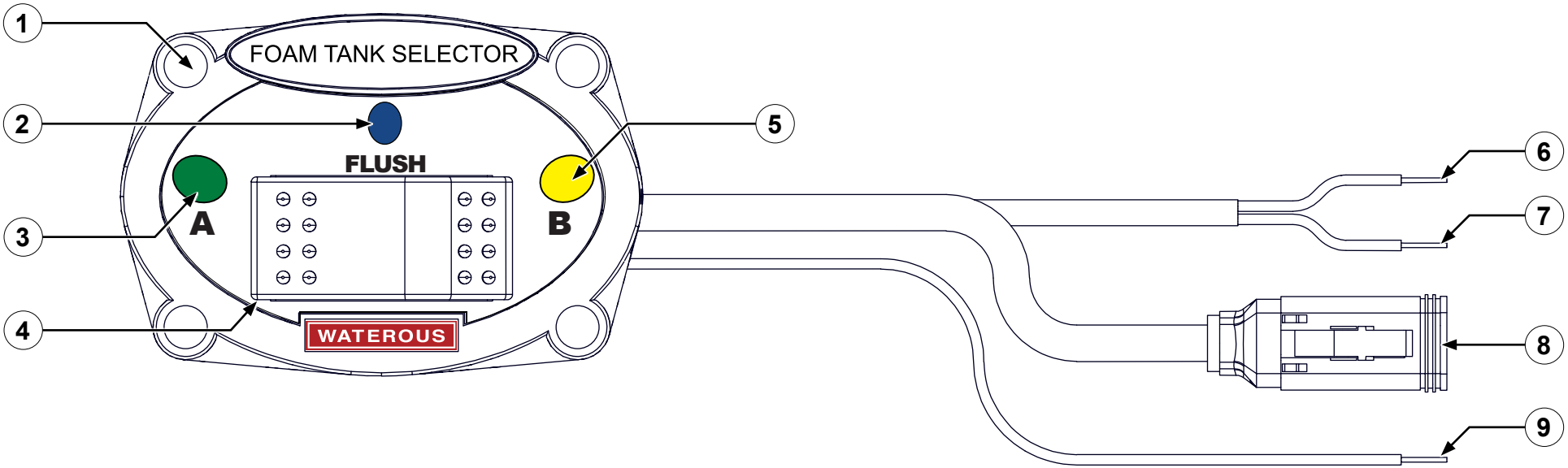


At the end of an operation, or before switching to a concentrate that is incompatible with the previous concentrate, flush the system to remove any residual concentrate.



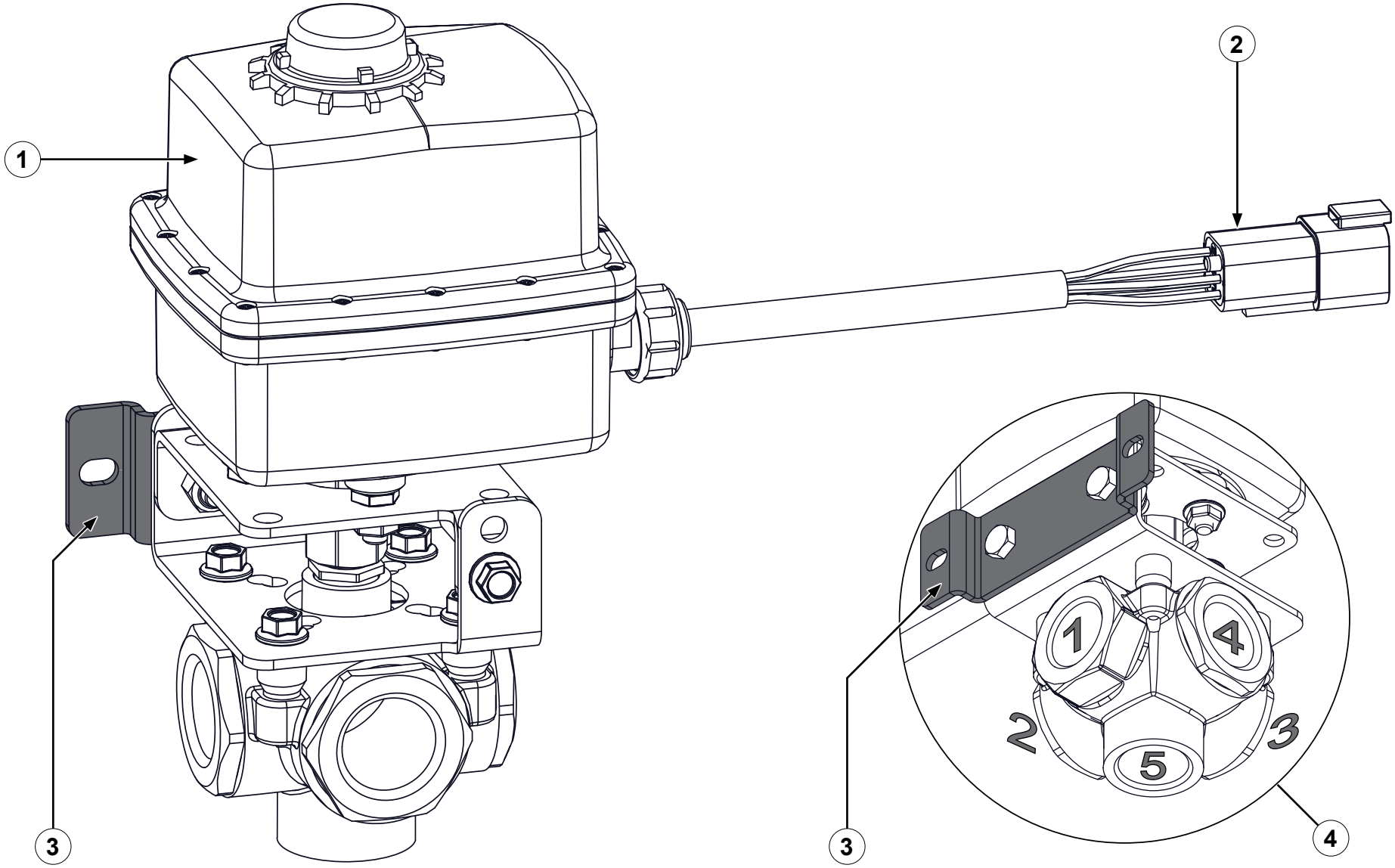
The final selection is the remaining supply. Your application may include a second supply tank or an auxiliary concentrate supply.

Control Panel



	Feature	Description
1	Mounting hole	This secures the panel to the apparatus.
2	Flush LED	This LED indicates the valve is in the flush position.
3	Tank-A LED	This LED indicates the valve is in the tank-A position.
4	Selector switch	This switch selects the valve position.
5	Tank-B LED	This LED indicates the valve is in the tank-B position.
6	Positive (+) wire—red	This wire connects to the power supply—3 ft (1 m).
7	Ground (–) wire—black	This wire connects to ground—3 ft (1 m).
8	Wire-harness connector	This connects to the valve-wire harness—7 inches (178 mm).
9	Tank-select wire—orange	This connects to the foam pump-terminal block—3 ft (1 m).

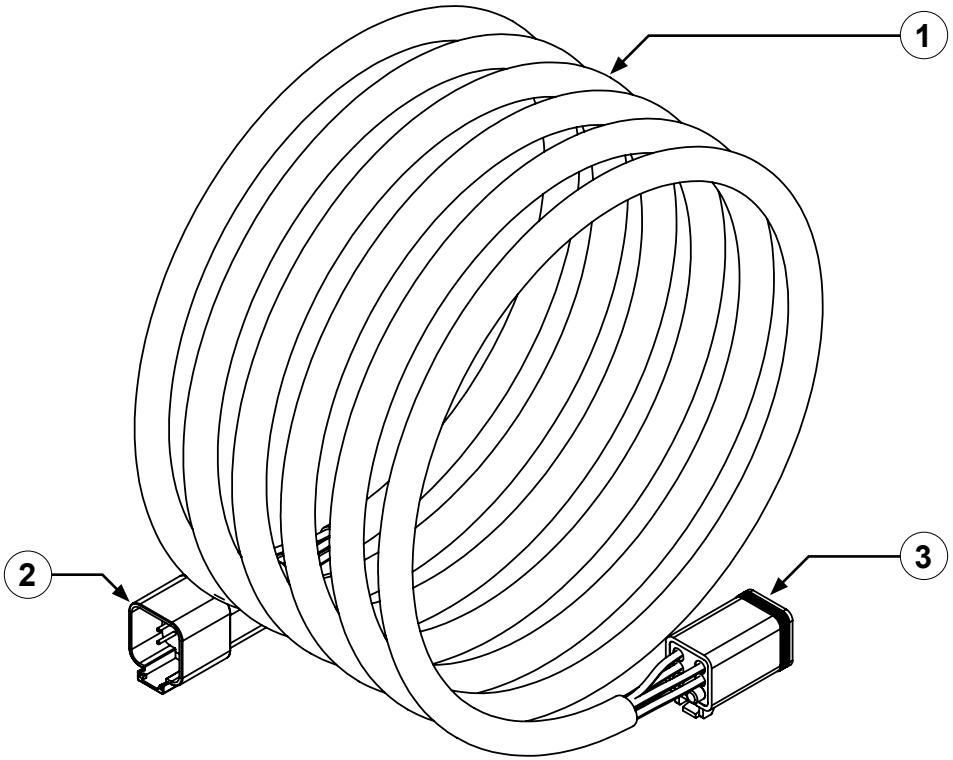
Electric Valve—5 Port



Electric Valve—5 Port

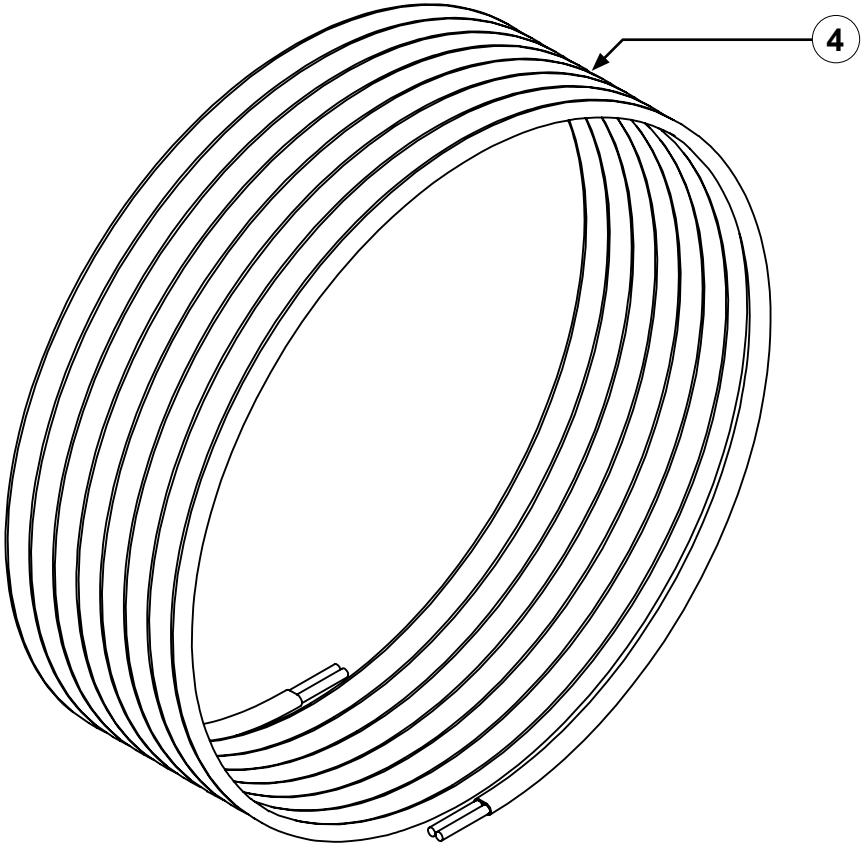
	Feature	Description
1	Electric-valve actuator	This operates the valve.
2	Valve-wire harness	This connects the valve to the selector panel—7-3/8 inches (187 mm).
3	Mounting bracket	This mounts the valve to the apparatus.
4	Port 1	This port is not used.
	Port 2	This port is plumbed to tank-A.
	Port 3	This port is plumbed to the clear-water supply.
	Port 4	This port is plumbed to tank-B, or an auxiliary supply.
	Port 5	This port is plumbed to the foam-pump inlet.

Wire Harness Extension



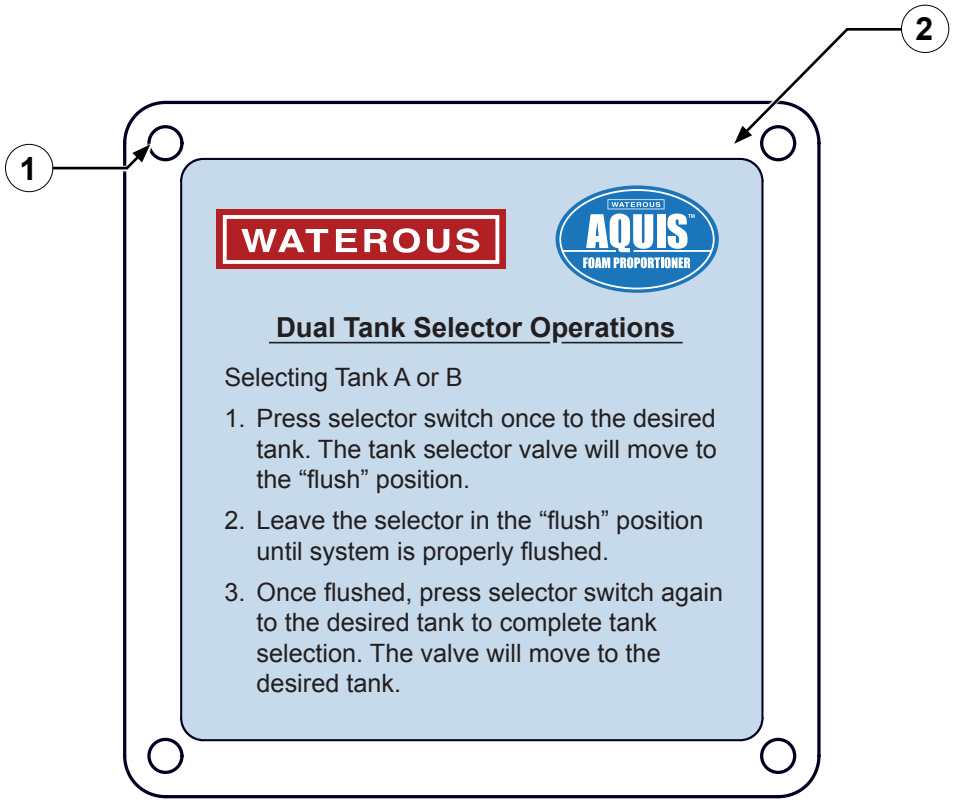
	Feature	Description
1	Wire harness extension	This extends the control panel wire harness—10 ft (3 m).
2	Control panel connector	This connects the wire harness to the control panel.
3	Electric valve connector	This connects the wire harness to the electric valve.

Tank Level Sensor Extension Wire



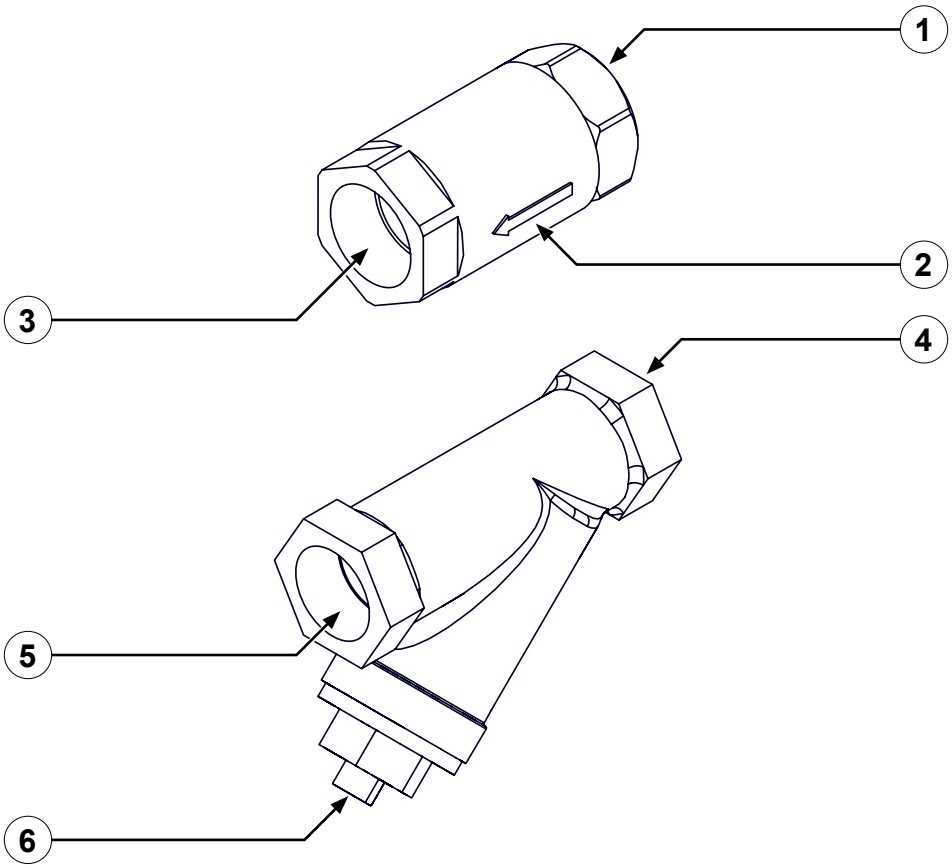
	Feature	Description
4	Extension wire	This extends the tank level sensor wire—13 ft (4 m).

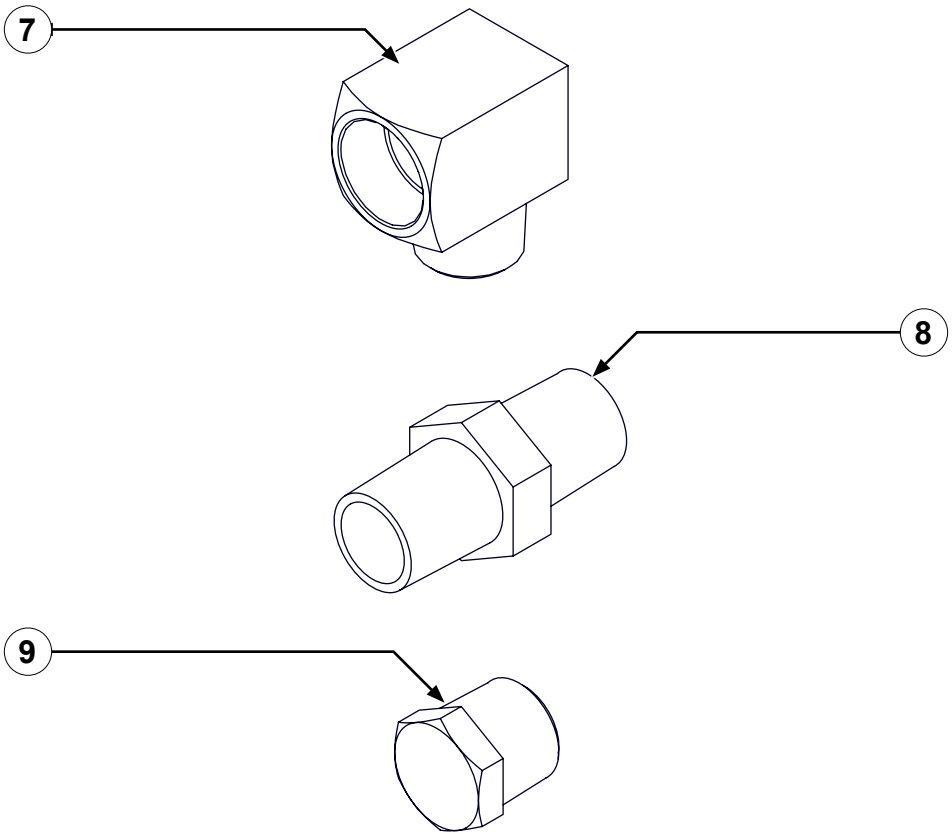
Instruction Plate



	Feature	Description
1	Mounting hole	This secures the plate to the apparatus.
2	Instruction plate	This plate instructs how to use the system.

Additional Fittings





	Feature	Description
1	Check valve inlet	This is the check valve inlet.
2	Flow indicator	This indicates the direction of flow.
3	Check valve outlet	This is the check valve outlet.
4	Wye strainer inlet	This is the wye strainer inlet.
5	Wye strainer outlet	This is the wye strainer outlet.
6	Wye strainer plug	This is the wye strainer plug.

	Feature	Description
7	90° Elbow fitting	This provides a right angle connection.
8	Nipple fitting	This connects components together.
9	Plug fitting	This plugs the unused port on the electric valve.

Notes

Installation Overview

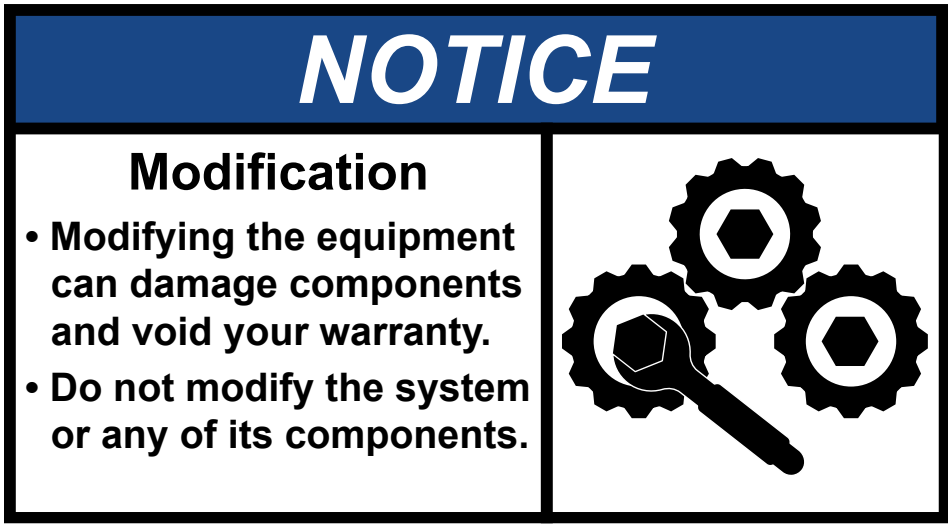
This equipment is intended to be installed by a person or persons with the basic knowledge of installing similar equipment. Contact Waterous with questions about installing the equipment.

Preparing for the Installation

Read and understand all the installation instructions before installing the equipment. Prepare a suitable, well-lit area, and gather all the necessary tools before you begin the installation.

Modifying the Equipment

This equipment is intended to operate as designed. Do not remove, modify, or change the components in the system. Doing so will void the warranty. Contact Waterous for more information.



Do not modify the system or any components. Doing so will void your warranty.

Determining the Electric-Valve Location

Use the following guidelines to determine a location to mount the electric valve:

- Consider the hose and cable routing.
- Consider accessibility for maintenance.
- Install the electric valve where it has minimal exposure to excessive dirt, road debris, and heat buildup.

Determining the Control Panel, Instruction Plate, Electric Valve, and Connection Locations

Use the following guidelines to determine a location to mount the control panel, instruction plate, electric valve, and wye fittings:

- Consider the wire harness and hose routing.
- Consider accessibility during operation and maintenance.
- Install instruction plates near their applicable operator panels.

Determining Hose Routing

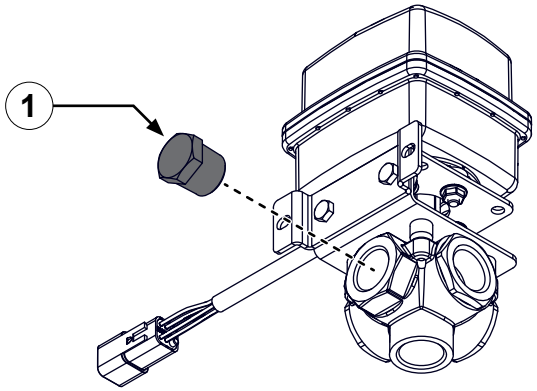
Use the following guidelines when routing the hoses:

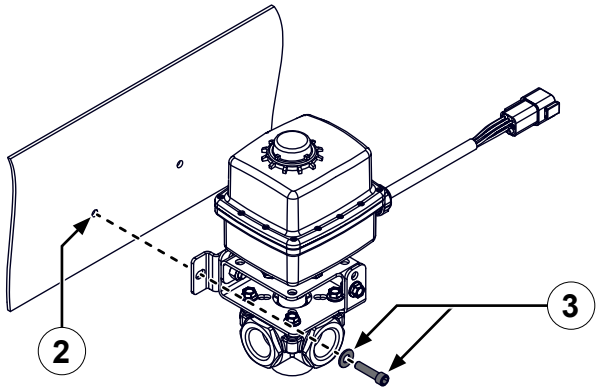
- Route the hose in a straight line whenever possible.
- Do not pinch or kink the hose.
- Do not secure the hose to moving parts.
- Do not secure the hose near excessive heat.

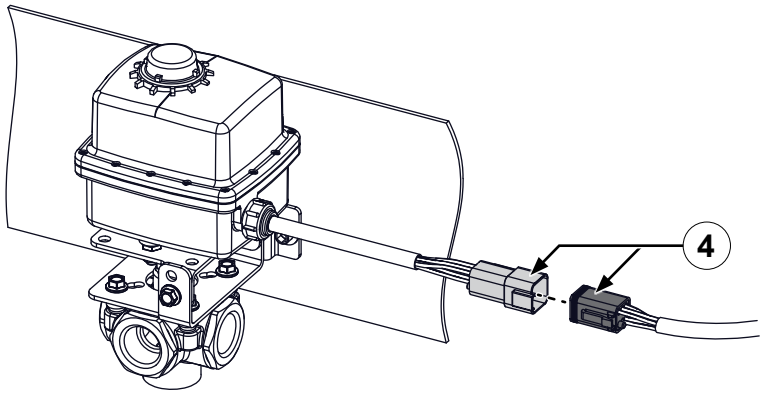
Determining Cable and Wire Routing

Use the *Wiring Best Practices* document, available at www.waterousco.com, as a guide to select and route wiring for your application.

Installing the Electric Valve







Use the illustrations and instructions to install the electric valve to the apparatus.

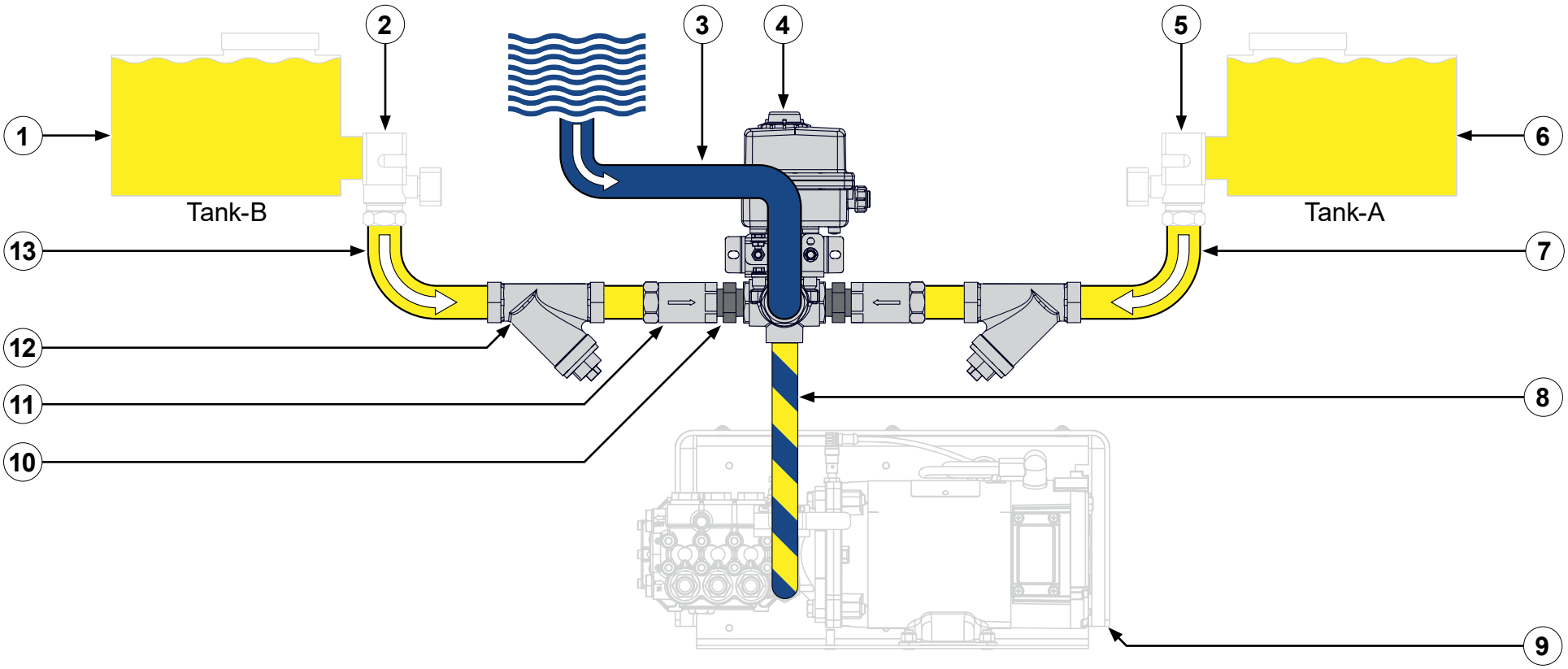
1	Install the plug into port 1.
2	Locate and drill the mounting holes.
3	Use locally sourced hardware to secure the electric valve to the apparatus.
4	Connect the wire harness extension connector to the electric valve connector.

Hose Connections—Dual Tank

Illustrated below is a typical dual tank application. Hose length, hose routing, fittings, and components may differ in your application. Use industry best practices to connect the supply tanks and clear water source to the electric valve and foam pump. Locally source hoses and fittings that are compatible with the foam concentrate and operating pressure, or use the Waterous hose and fitting kit.

Make sure that you meet the following hose specifications:

- Use a hose with minimum 3/4 inch inner diameter, reinforced, clear wall, as required by NFPA.
- Use a hose with a minimum vacuum rating of 23 inHg (0.78 bar).
- Use a hose with a minimum pressure rating of 50 psi (3.45 bar).



Hose Connections—Dual Tank

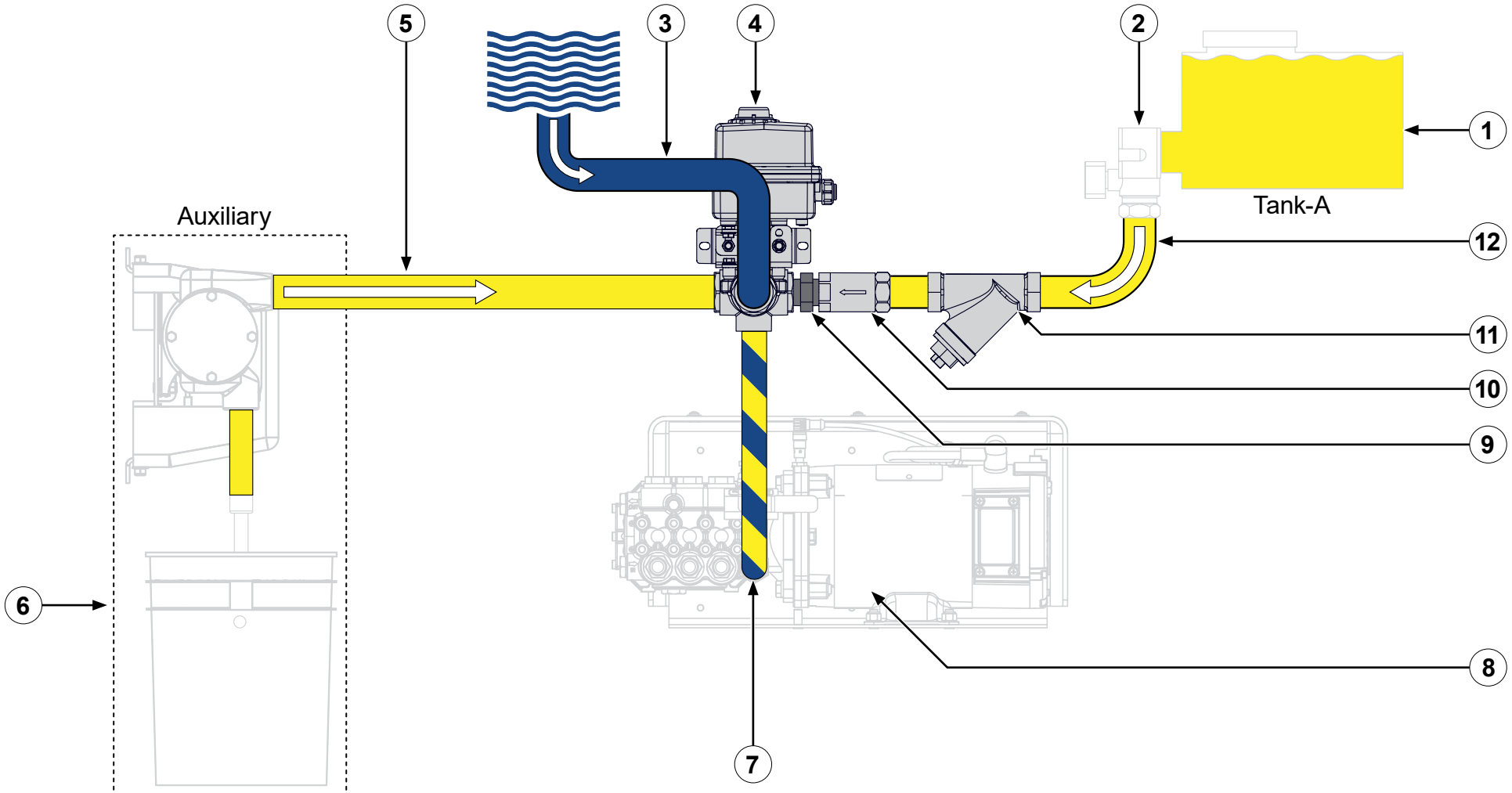
	Feature	Description
1	Tank-B	This holds the foam concentrate—installer supplied.
2	Tank-B shut-off valve	This shuts off the concentrate supply—installer supplied.
3	Clear water line	This is the clear water supply for flushing the system after use—supplied with the Waterous hose and fitting kit.
4	Electric valve	This directs which source is routed to the foam pump—supplied with the system.
5	Tank-A shut-off valve	This shuts off the concentrate supply—installer supplied.
6	Tank-A	This holds the foam concentrate—installer supplied.
7	Supply hose	This routes the concentrate from the tank to the electric valve—supplied with the Waterous hose and fitting kit.
8	Valve discharge hose	This routes the concentrate or clear water from the electric valve to the foam pump—supplied with the Waterous hose and fitting kit.
9	Foam pump	This pumps the concentrate into the waterway or clear water to flush the system—available from Waterous.
10	Nipple fitting	This connects fittings to the electric valve—3 are supplied with the system.
11	Check valve	This prevents back-flow in the hose—3 are supplied with the system.
12	Wye strainer	This filters debris in the hose—2 are supplied with the system.
13	Supply hose	This routes the concentrate from the tank to the electric valve—supplied with the Waterous hose and fitting kit.

Hose Connections—Auxiliary Supply

Illustrated below is a typical single tank and auxiliary supply application. Hose length, hose routing, fittings, and components may differ in your application. Use industry best practices to connect the supply tank, auxiliary supply pump, and clear water source to the electric valve and foam pump. Locally source hoses and fittings that are compatible with the foam concentrate and operating pressure, or use the Waterous hose and fitting kit.

Make sure that you meet the following specifications when locally sourcing the hoses:

- Use a hose with minimum 3/4 inch inner diameter, reinforced, clear wall, as required by NFPA.
- Use a hose with a minimum vacuum rating of 23 inHg (0.78 bar).
- Use a hose with a minimum pressure rating of 50 psi (3.45 bar).

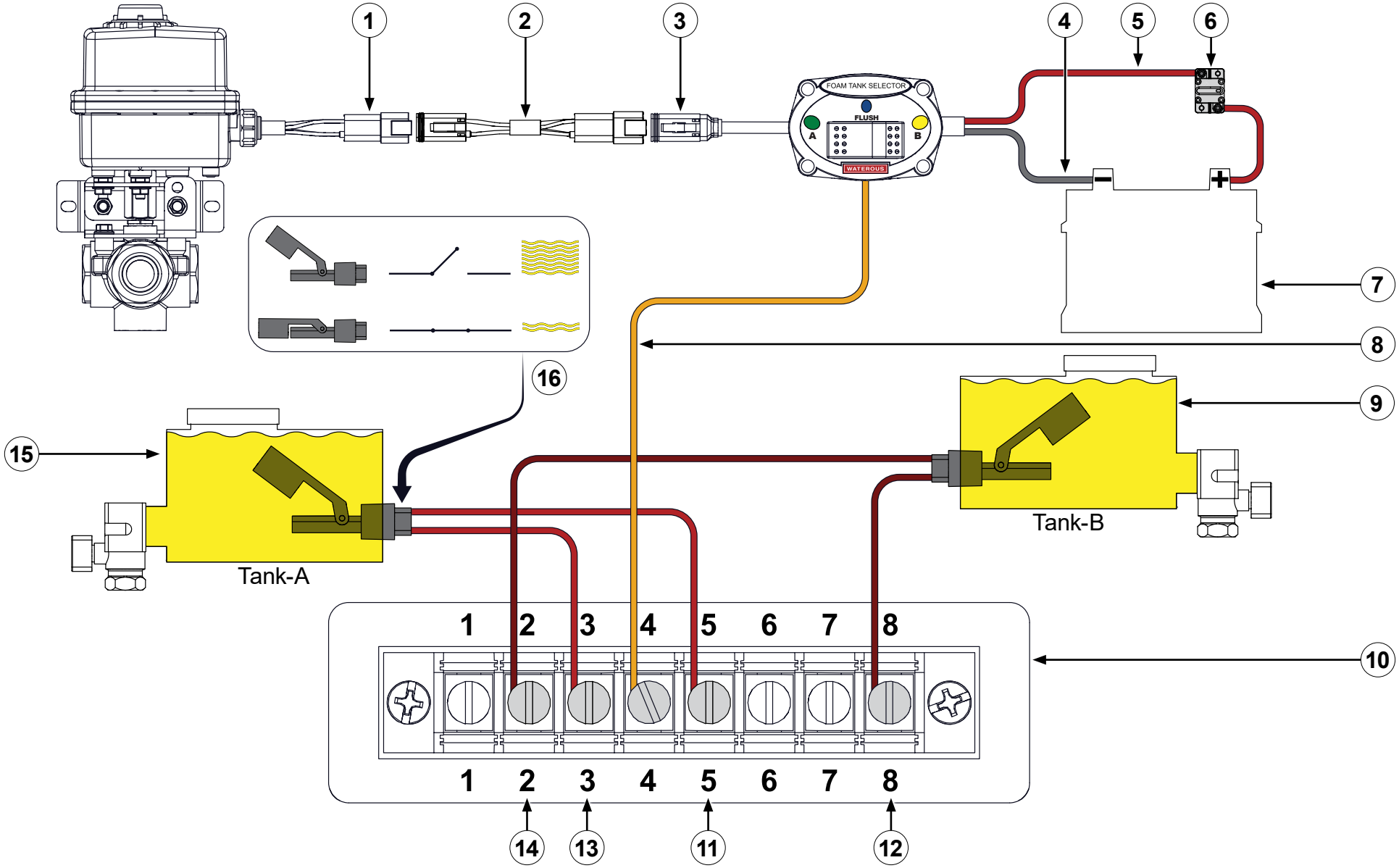


Hose Connections—Auxiliary Supply

	Feature	Description
1	Tank-A	This holds the foam concentrate—installer supplied.
2	Tank-A Shut-off valve	This shuts off the concentrate supply—installer supplied.
3	Clear water line	This is the clear water supply for flushing the system after use—supplied with the Waterous hose and fitting kit.
4	Electric valve	This directs which source is routed to the foam pump—supplied with the system.
5	Supply hose	This routes the concentrate from the tank to the electric valve—supplied with the Waterous hose and fitting kit.
6	Auxiliary supply	This draws the foam concentrate directly from the supply container—available from Waterous.
7	Valve-discharge hose	This routes the concentrate from the electric valve to the foam pump—available as part of Waterous hose and fitting kit.
8	Foam pump	The foam pump transfers pressurized concentrate or clear-water from the supply tank(s) into the waterway or through the bypass line.
9	Nipple fitting	This connects fittings to the electric valve—3 are supplied with the system.
10	Check valve	This prevents back-flow in the hose—3 are supplied with the system.
11	Wye strainer	This filters debris in the hose—2 are supplied with the system.
12	Supply hose	This routes the concentrate from the tank to the electric valve—supplied with the Waterous hose and fitting kit.

Electrical Connections Overview

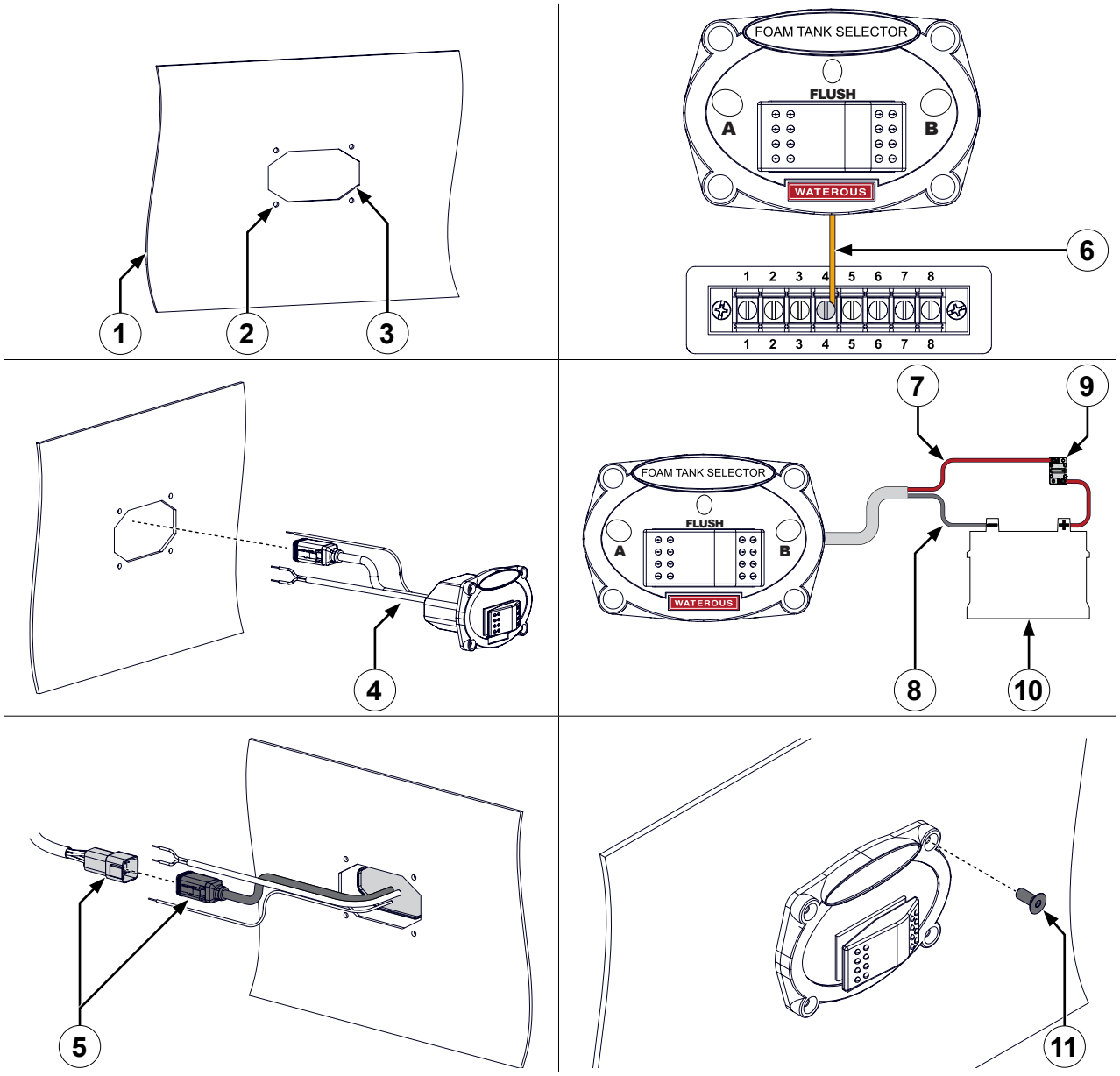
Use the illustration and instructions in following sections to connect the electrical components in the system.



Electrical Connections Overview

	Feature	Description
1	Electric valve connector	This connects to the control panel connector.
2	Wire harness extension	This extends the distance between the control panel and electric valve.
3	Control panel connector	This connects to the electric valve connector.
4	Control panel ground (–) wire	This connect to the control panel to ground.
5	Control panel power(+) wire	This connect to the control panel to power.
6	Circuit breaker	This illustrates the circuit breaker in the apparatus—installer supplied.
7	Power source	This illustrates the apparatus-power supply—installer supplied.
8	Tank-B select wire	This communicates that tank-B is connected to the AQUIS™ foam pump.
9	Tank-B	This is foam supply tank-B on the apparatus—installer supplied, not used with auxiliary supply.
10	AQUIS terminal strip	This is the terminal strip on the AQUIS foam pump control box.
11	Supply tank-level sensor ground (–)	This is the ground (–) connection for the tank-level sensors on the terminal strip.
12	Tank-B select	This is the tank-B select connection for the AQUIS foam pump.
13	Tank-A level sensor	This is the connection for the tank-A level sensor on the AQUIS foam pump—available through Waterous.
		Note: *Not used with overboard pick-up system.*
14	Tank-B level sensor	This is the connection for the tank-B level sensor on the AQUIS foam pump—available through Waterous, not used with overboard pick-up.
15	Tank-A	This is foam supply tank-A on the apparatus—installer supplied.
16	Tank-level switch setup	This illustrates the required setup for the tank-level sensors. Open=Supply not low. Closed=Supply low.

Installing the Control Panel

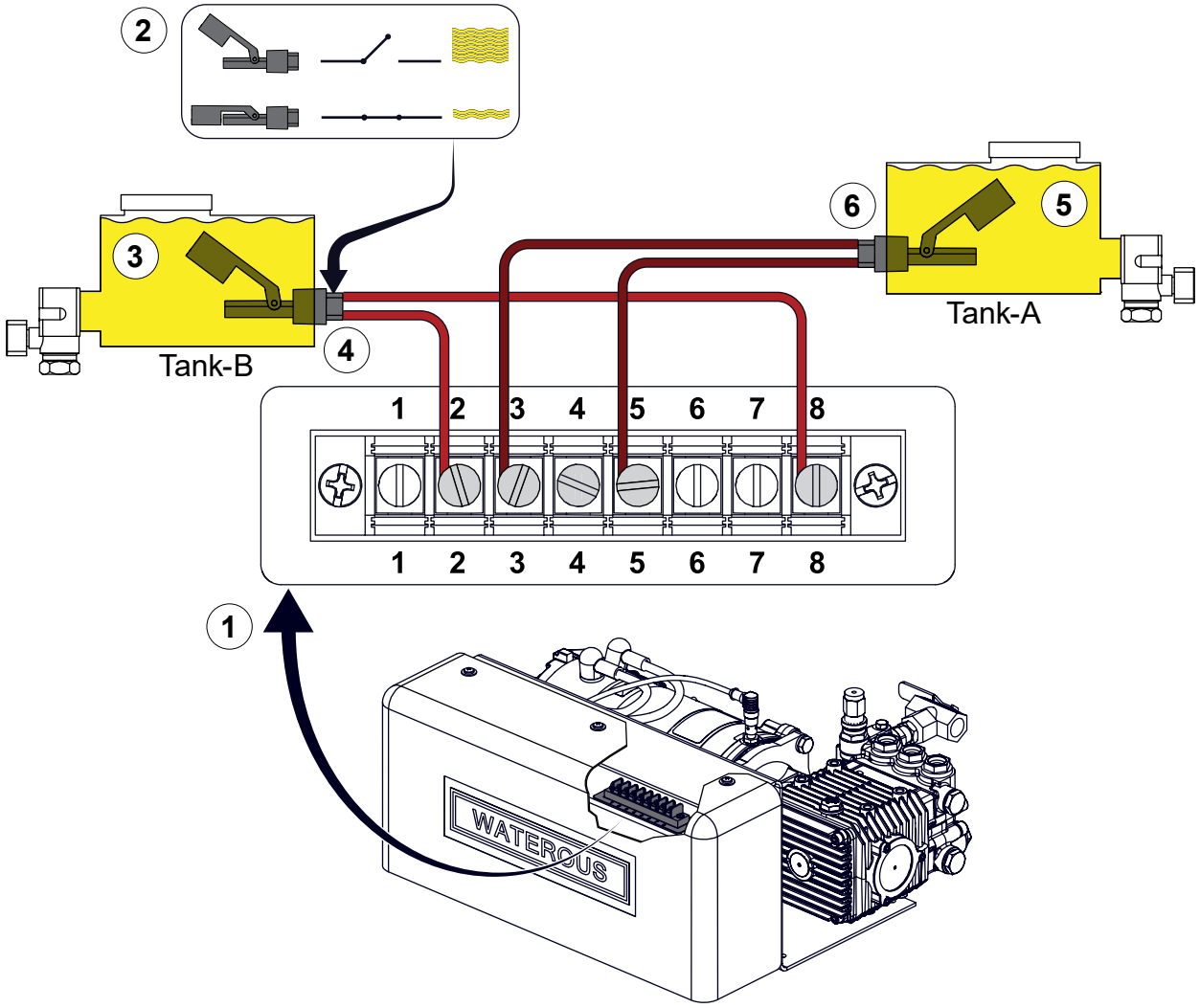


Use the illustrations and instructions to install the control panel.

1	Apparatus panel plate.
2	Locate and drill the mounting holes.
3	Locate and cut the opening.
4	Insert the control panel wiring into the opening.
5	Connect the control panel connector to the wire harness extension connector.
6	Connect the orange wire to terminal 4 on the foam pump terminal strip.
7	Connect the positive wire (+) to the circuit breaker.
8	Connect the negative wire (–) to ground.
9	Install an appropriately sized circuit breaker between the control panel and power source.
10	Power source
Note: *The control panel and electric valve in the system draw 3 amps.*	
11	Use locally sourced hardware to secure the control panel to the apparatus.

Note: *Secure the wire harness to the apparatus. Refer to:* **"Determining Cable and Wire Routing" on page 16**.

Connecting the Tank-Level Sensors



Use the illustrations and instructions to connect the tank-level sensors to the foam pump. The sensors are not supplied in the system, but are available from Waterous. Contact Waterous for more information.

1 Locate and access the terminal strip on the foam pump control box. To access connections on the foam pump, refer to the *AQUIS Foam System Installation, Operation, and Maintenance Instructions*.

2 Use a circuit tester, or a similar device, to orientate the tank-level sensors. Install the tank level sensors to indicate the following:

- With sufficient supply—circuit is open.
- With low supply—circuit is closed.

Note: *Not used with auxiliary system.*

3 Tank-B

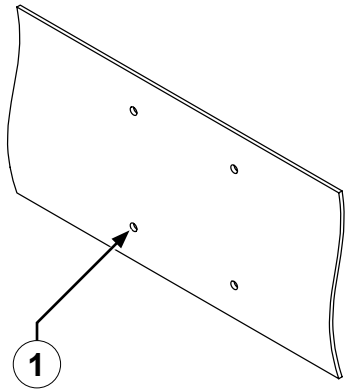
4 Connect the tank-B sensor to terminals 2 and 8 on the terminal strip. Use the extension wire if necessary.

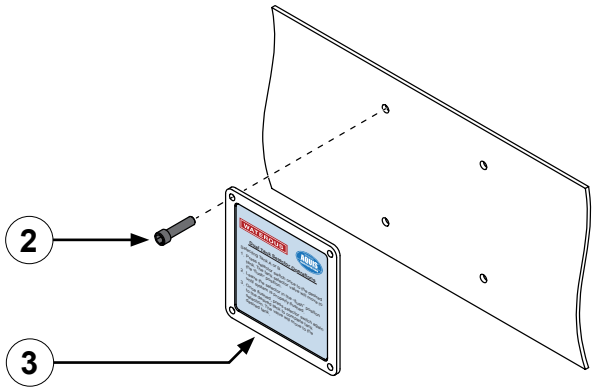
5 Tank-A

6 Connect the tank-A sensor to terminals 3 and 5 on the terminal strip. Use the extension wire if necessary.

Note: *Secure the wiring to the apparatus.*
Refer to: **"Determining Cable and Wire Routing" on page 16**.

Installing the Instruction Plate



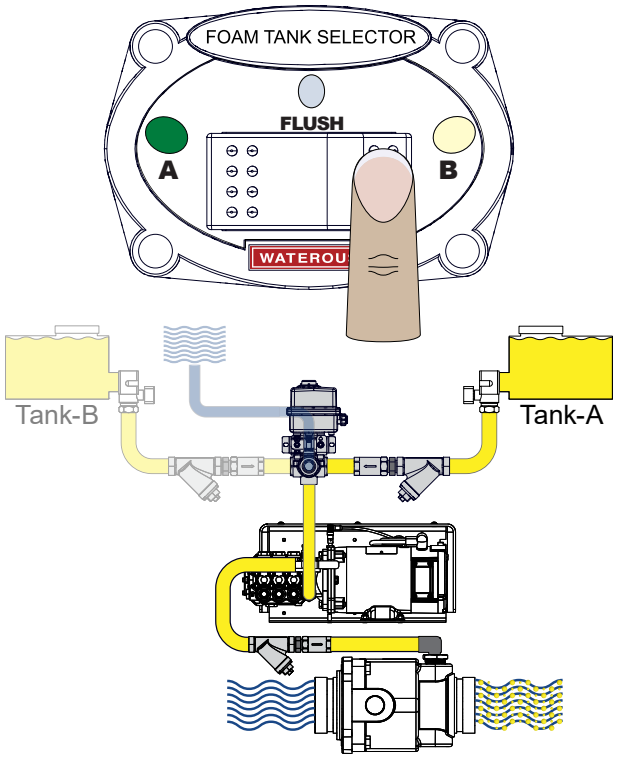


Use the illustrations and instructions to install the instruction plate. Refer to: **"Determining the Control Panel, Instruction Plate, Electric Valve, and Connection Locations" on page 16**.

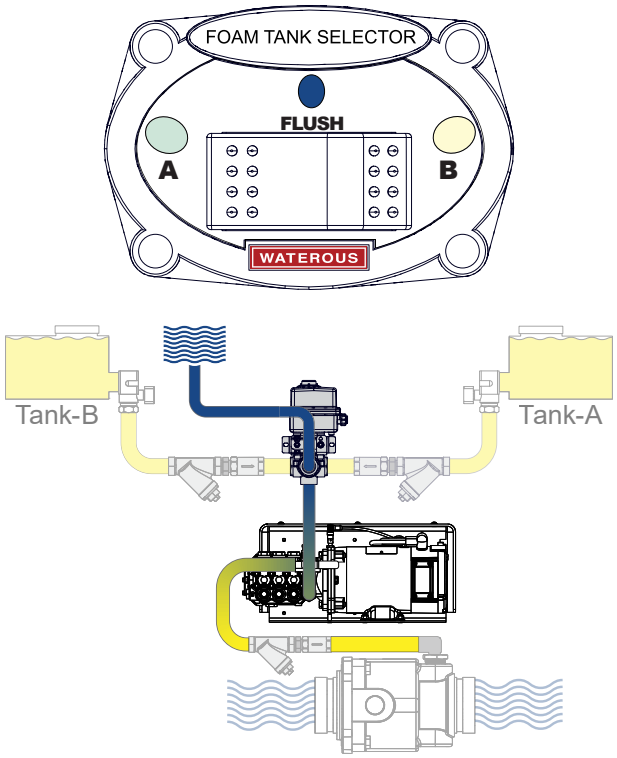
1	Locate and drill the mounting holes.
2	Use locally sourced hardware to secure the component to the apparatus.
3	Instruction plate

Switching Between Sources

Use the switch on the control panel to route foam concentrate from 1 of 2 supply tanks, or 1 supply tank and auxiliary supply. A clear water flush is available to remove any residual concentrate from the lines when switching between sources. Know that tank-A or tank-B can replaced by an auxiliary supply.

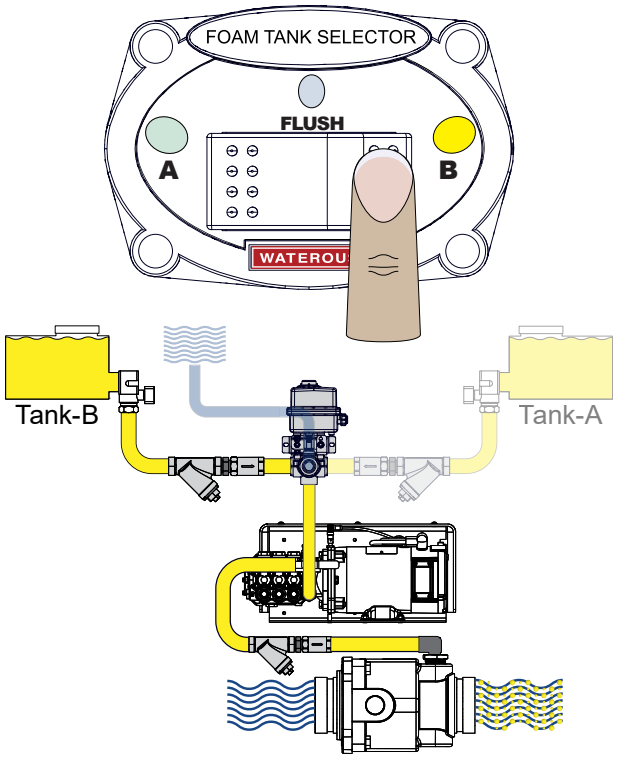


With tank-A selected, press the B side of the switch 1 time—the electric valve rotates from the tank-A position to the flush position.



The flush position allows a clear-water source to remove concentrate from the system. This prevents contamination between incompatible foam concentrates.

Note: *To perform a flush procedure, refer to the AQUIS Foam System Installation, Operation, and Maintenance Instructions, available at www.waterousco.com.*



Press the B side of the switch 1 more time to rotate the electric valve to the tank-B position. The concentrate from tank-B is routed to the foam pump.

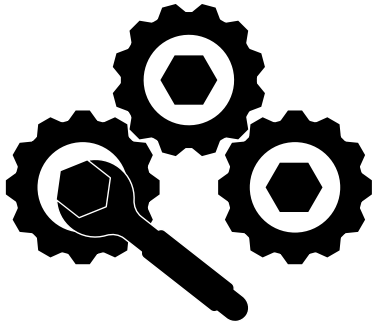
Press the A side of the switch to repeat the sequence in the opposite direction.

Flushing the Foam System

NOTICE

Maintenance

- **Not following maintenance procedures can damage your equipment.**
- **Perform all maintenance procedures as required.**



Leaving corrosive solution in the foam system damages the equipment.

You must flush the system under certain conditions. The environment, the concentrate used and other factors determine if or when you need to flush the pump. Refer to the apparatus and/or concentrate manufacturer to determine a protocol for flushing.

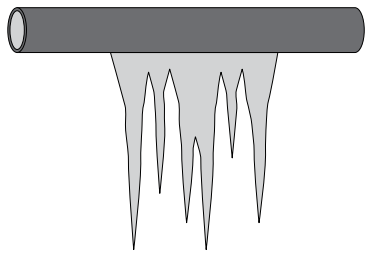
Refer to the AQUIS™ foam pump *Operator's Manual, available at www.waterousco.com,* for specific instructions to flush the system.

Preventing Freeze Damage

NOTICE

Freeze Damage

- **Do not allow fluid in the lines to freeze.**
- **Remove all freezable fluid from the lines before storing the apparatus.**



Leaving fluid in the foam system that can freeze causes damage to the equipment.

Never leave freezable fluid in the lines when environmental conditions can cause fluid in the lines to freeze. Remove fluids from the lines or fill the lines with non-freezable fluid when temperatures enable freezing.

Notes

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