
TANKMASTER™ 6

OWNER'S MANUAL



Dometic Corporation
13128 State Rt 226, PO Box 38, Big Prairie, OH 44611
SeaLand Product Hotline 1-800-321-9886
(8:00 a.m. - 5:00 p.m. ET)

TABLE OF CONTENTS

Safety Instructions	2		
Product Features	2	Wiring Diagrams	7
System Operation Diagram	3	Dimensional Specifications	8
Models and Accessories	4	Parts List	9
Specifications	4	Troubleshooting Guide	10, 11
Installation Instructions	5,	Manufacturer's One-Year Limited Warranty	12

SAFETY FEATURES

WARNING: When using this device, always exercise basic safety precautions, including the following:

- Read all instructions before installation or use.
 - Never connect this device to any electrical circuit with other than 12 or 24 volt Direct Current or exceed the amperage draw listed below.
 - Never install the control module in an atmosphere with potentially flammable or explosive vapors.
 - If installed within the hull, this product is not to be installed below the water line.
-

PRODUCT FEATURES

- Control module provides an output signal for the analog Wema gauge using six level indications (two level indicator caps, three floats per cap) for all tanks up to 45 inches in depth.
- Probe caps provide clean out for easy access to interior of tank.
- Two different modes, automatic or manual, for holding tank discharge pump control.
- The “manual” mode provides direct discharge pump control regardless of the level of the holding tank.
- The “automatic” mode will automatically maintain holding tank at empty level and eliminate stagnating sewage trapped in interconnecting hoses by wye valve operation.
- In the “automatic” mode, the 2nd, 3rd, 4th, or 5th float will turn on the discharge pump. This provides many levels of backup in case of float switch failure.
- Prevents accidental overboard discharge in restricted waters when control switch is turned to “off” position.
- Discharges sewage directly overboard in unrestricted waters while in the “automatic” mode.
- Simplifies plumbing by eliminating wye valves, seacocks, and vented loops for multiple toilet installations.
- Outputs provided for, but does not include: analog Wema gauge, selector switch for automatic or manual modes, full level alarm or light, ‘check seacock’ indicator light, seacock interlock switch, and discharge pump.
- 12 and 24 VDC models available.

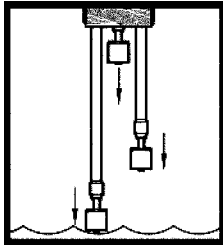
The TankMaster™ 6 Automatic Discharge Pump Controller is designed to provide several electrical output signals in order to monitor and empty a holding tank system. An output for the analog Wema gauge is obtained by making use of six level indication float switches. The TankMaster™ 6 also provides outputs for two different modes to empty a wastewater or greywater holding tank: either automatic or manual. In the automatic mode, the 1/3 float switch (2nd float) will activate the discharge pump. The pump will then run until the low-level switch (1st float) is de-activated. The manual mode turns on the discharge pump regardless of the liquid level in the holding tank.

NOTE: Keep in mind that once you enter a no discharge zone, your TankMaster™ must be switched to the “off” position and the key removed to prevent illegally discharging your holding tank. The United States Coast Guard will allow a key operated switch as a means to secure the overboard discharge pump system instead of securing it with a padlock or wire tie.

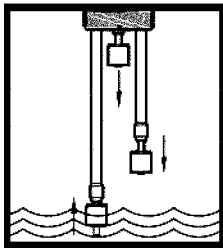
SYSTEM OPERATION DIAGRAM

TankMaster™ 4 Pump Controller

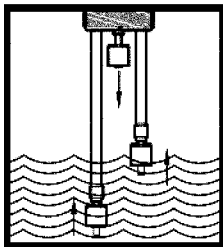
Automatic Mode: Automatically empties holding tank at mid-level, which is adjustable at time of installation. Full-level float will turn on pump if mid-level float fails.



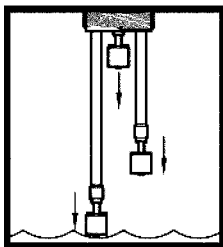
- Empty tank.



- Tank contents between empty and mid-level probe.

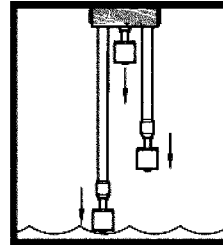


- Tank contents reach mid-level probe. Holding tank discharge pump starts automatically.
- Discharge pump light on.

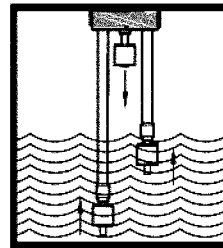


- Discharge pump shuts off automatically when tank level drops below empty probe.
- Discharge pump light off.

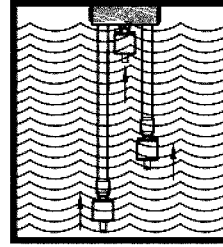
Manual Mode: Holding tank discharge pump runs only when keyed switch is held in “manual” position.



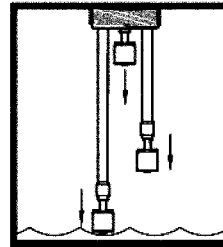
- Empty tank.



- Tank contents at mid-level.



- Holding tank discharge pump started by holding switch in the manual position.
- Discharge pump light on.



- Discharge pump shuts off when key switch is released from the manual position.
- Discharge pump light off.

TABLE OF CONTENTS

Item Number	Description
313806012	TM6-12 (12 VDC) TankMaster 6
313806024	TM6-24 (24 VDC) TankMaster 6
317301200	T-12 (12 VDC) Discharge Pump
317302400	T-12 (24 VDC) Discharge Pump
600343497	Seacock Interlock Switch for Congraco 1-1/2-inch Seacock Only
600343675	Seacock Interlock Switch for Groco 1-1/2-inch Seacock Only
307230272	Universal Flange (3-inch NPT) with gasket and stainless steel hardware

SPECIFICATIONS

Product Name: TankMaster™ 6 Automatic Discharge Pump Controller

Electrical:

Output Current Capability

Maximum Relay Rating for 12 or 24 VDC Discharge Pump: 40 amps inrush, 30 amps continuous.

Float Switch Rating: 20 watts with resistive load.

Current Consumption

Current ratings include the Wema gauge only; they do not include any other accessories such as a discharge pump and optional indicator lights.

	Maximum (full level)		Minimum (empty level)	
	12 VDC	24 VDC	12 VDC	24 VDC
Gauge Readout Only:	0.082 amps	0.041 amps	0.049 amps	0.025 amps
Manual Mode:	0.190 amps	0.095 amps	0.164 amps	0.082 amps
Automatic Mode:	0.410 amps	0.205 amps	0.049 amps	0.025 amps

Maximum Tank Pressure: 25 PSI

Materials:

Control Module Housing	-----	ABS
Tank Mounted Float Switch Cap	-----	PVC
Float Switch Body	-----	Polypropylene
O-Rings	-----	Nitrile
Adjustable Stems	-----	Cross Linked Polypropylene
Compression Nut	-----	Glass Reinforced Polypropylene

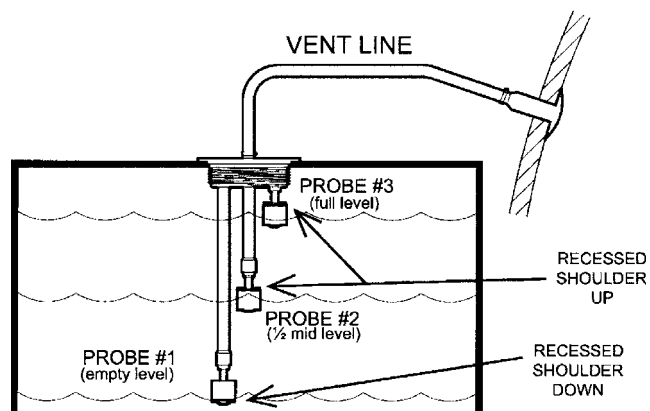
INSTALLATION INSTRUCTIONS

CONTROL PANEL

1. Select a mounting location away from direct contact with water and oil. Dry locations in the bathroom, salon, or galley are most desirable.
2. Confirm clearances for the panel behind walls, hull liner or bulkhead.
3. Cut out mounting hole for control panel. (See template for cut-out and hole locations.)
4. Do not mount the control panel until wiring is routed and secured to the terminal block or rear of the control panel housing.
5. Route wiring following the wiring diagram for blackwater or graywater applications.

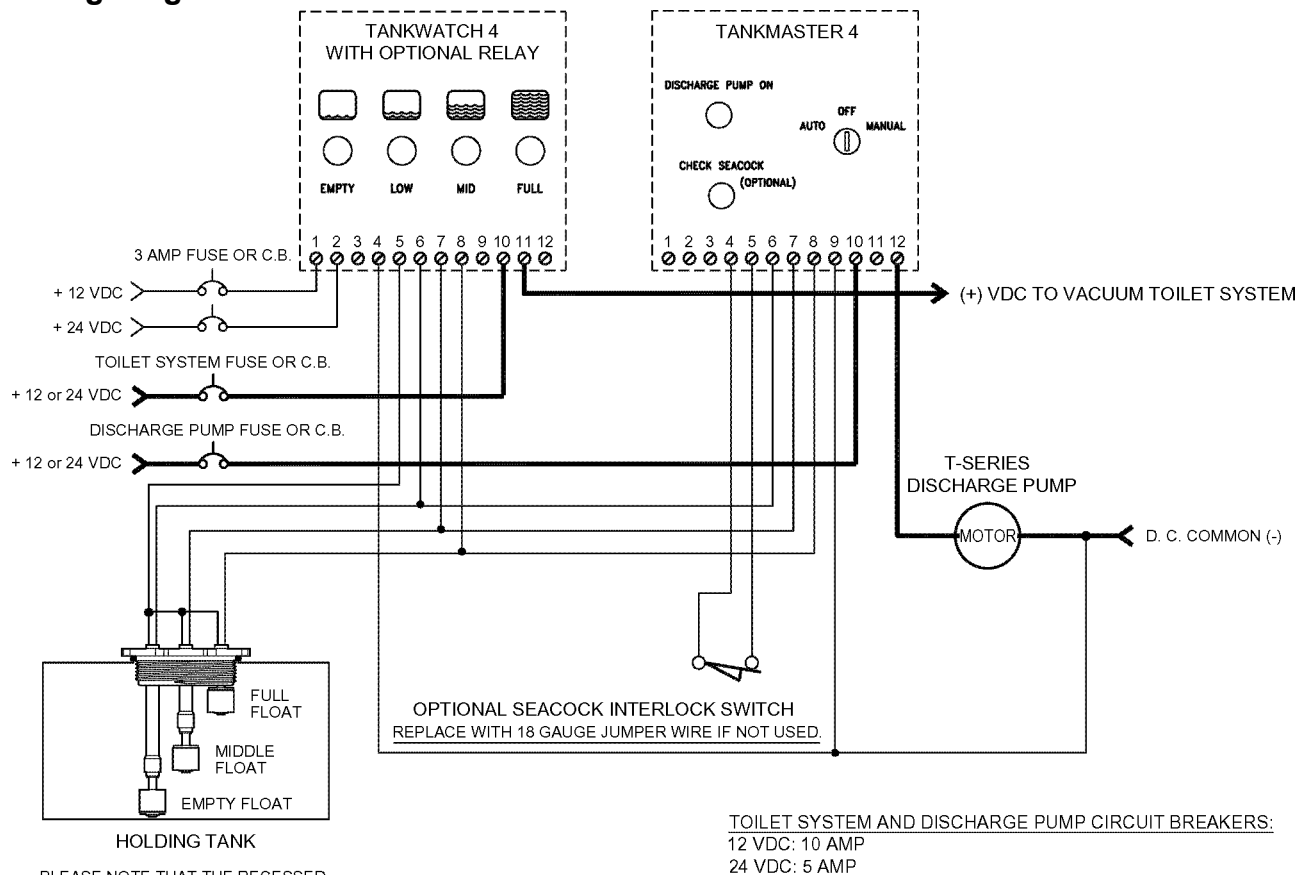
PLEASE NOTE: remove jumper wire between pins 4 and 5 if the optional seacock interlock switch is installed.

6. Include wiring for any of the optional electrical accessories that may be part of the installation and shown in separate wiring diagrams.
7. Mount the control panel with the (4) #6 x 1-inch long black, oval-head screws provided.
8. Insert the correct color lens in the appropriate hole from the front side of the faceplate, snapping the matching light into the lens firmly. Color coding is as follows:
 - a) Green: Discharge Pump On
 - b) Yellow: Check Seacock (optional)
9. Tuck the lead wires back into the housing so that the tension is taken off the switch in order to allow the key to be turned freely. Insert the two (2) small tabs on the left side of the faceplate into the housing, and snap the large center tab on the right of the faceplate into the housing to secure it.
10. **NOTE: The TankMaster® 4 comes with the lead wires (with female terminals from the circuit board) attached to the keylock switch numbered tabs as follows:**
 - a) Terminal 1: Red
 - b) Terminal 2: Brown
 - c) Terminal 7: Blue
 - d) Terminal 8: Red



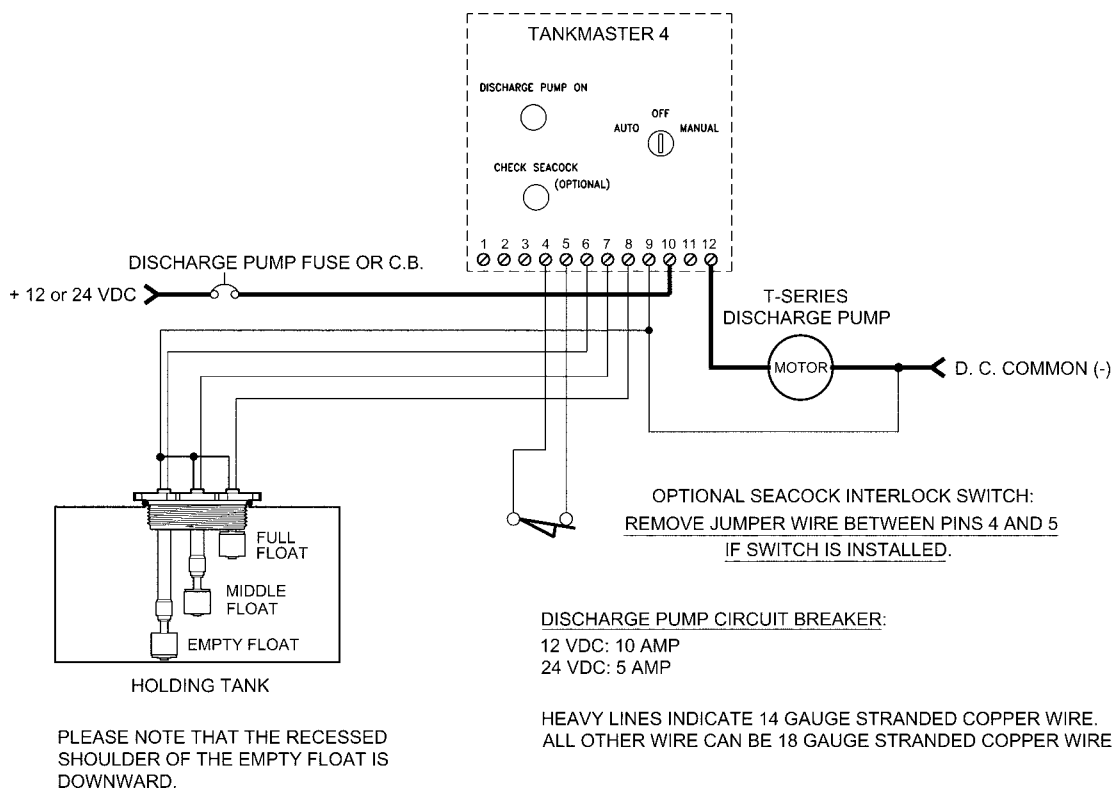
WIRING DIAGRAMS

Wiring Diagram with TankMaster™ 4 and TankWatch® 4



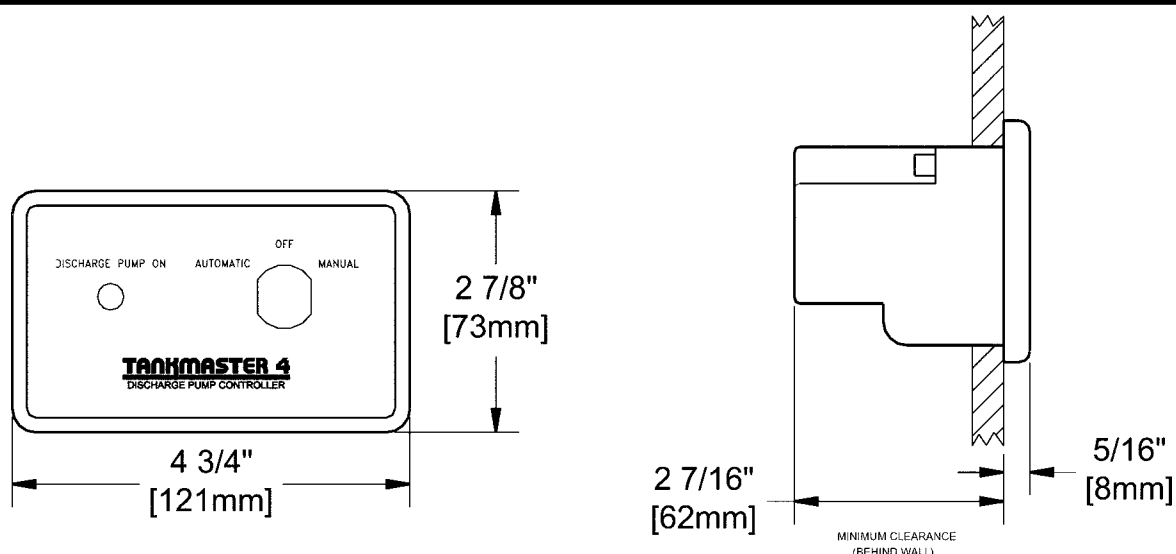
HEAVY LINES INDICATE 14 GAUGE STRANDED COPPER WIRE.
ALL OTHER WIRE CAN BE 18 GAUGE STRANDED COPPER WIRE.

Wiring Diagram with TankMaster™ 4 Only

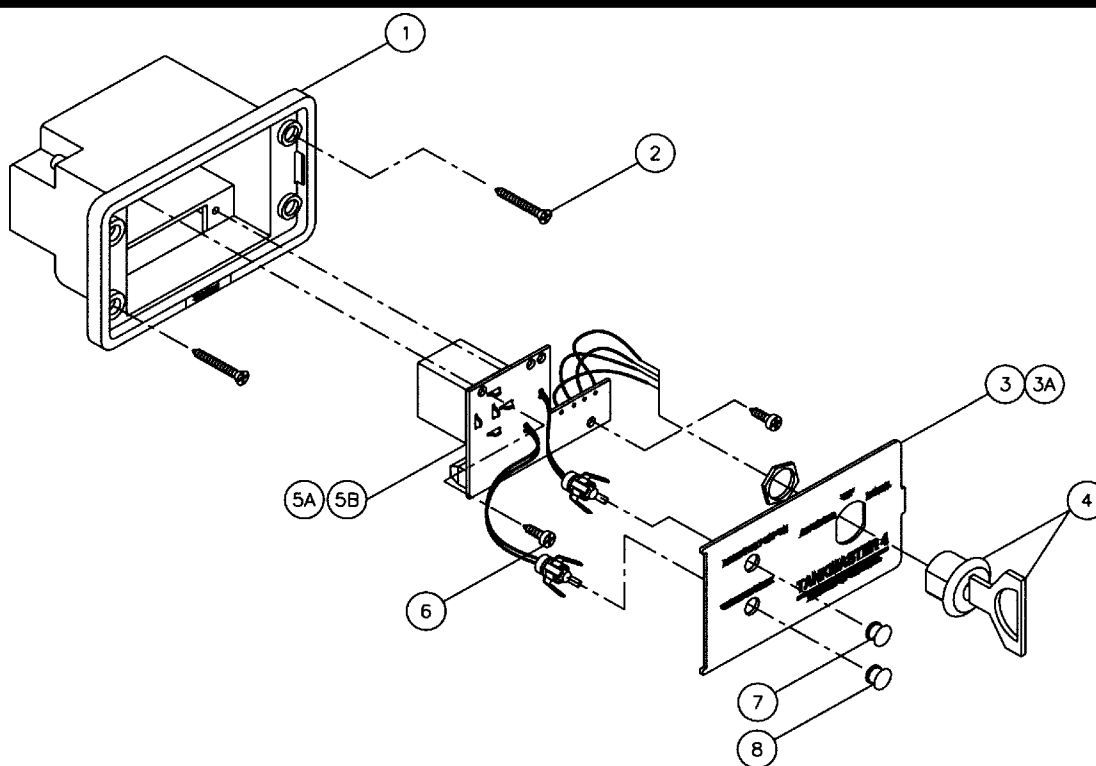


HEAVY LINES INDICATE 14 GAUGE STRANDED COPPER WIRE.
ALL OTHER WIRE CAN BE 18 GAUGE STRANDED COPPER WIRE.

DIMENSIONAL SPECIFICATIONS



PARTS LIST



Item	Part No.	Description
1	342400	Housing, Indicator Panel
2	340471	Screw, #6 x 1" Pan Oval Head Phillips SS – Black
3	343778	Plate, TankMaster™ 4 w/ Check Seacock
3A	343785	Plate, TankMaster™ 4 w/o Check Seacock
4	343779	Switch, Keylock SP 3-Position 45-index
5A	310726	Kit, TankMaster™ 4 Control Panel, 12 VDC
5B	310727	Kit, TankMaster™ 4 Control Panel, 24 VDC
6	340488	Screw, #8 x 3/8" Long Pan Phillips Head SMS
7	342495	Lens, Green
8	343598	Lens, Yellow (Check Seacock Model Only)

TROUBLESHOOTING GUIDE (cont'd)

- ➡ If reading is equal to the control voltage, check for the following:
 - Incorrect switch wiring or bad connections – confirm the wires are attached to the keylock switch in the following way:
 - Red wires: terminal 1 and terminal 8 on switch
 - Brown wire: terminal 2 on switch
 - Blue wire: terminal 7 on switch
- ➡ If reading is still equal to the control voltage, keylock switch is defective.
- ➡ If reading is not equal to the control voltage:
 - Defective circuit board - internal relay K1 or transistor Q2

Symptom 3: Discharge pump will not run in the auto or manual modes.

Step A

- ⌘ Check input voltage to system by placing (-) voltmeter lead on pin 9 and (+) voltmeter lead on pin 10 of the terminal block.
 - ➡ If voltage is present, go to step B-1.
 - ➡ If there is no voltage present, check for the following:
 - Defective DC power supply and/or defective electrical connections in main power line
 - Blown fuse or tripped circuit breaker

Step B-1 (If your TankMaster DOES NOT use a seacock interlock switch.)

- ⌘ Confirm there is a jumper wire between pins 4 and 5 of the terminal block.
 - ➡ If the jumper wire is present, check for continuity between pins 4 and 5 of the terminal block.
 - If there is no continuity, check for the following:
 - Loose connections within jumper wire – pins 4 and 5
 - ➡ If there is continuity, go to step C.
 - ➡ If this jumper wire is missing:
 - Cut and strip a short piece of 18-gauge wire and secure it across pins 4 and 5.

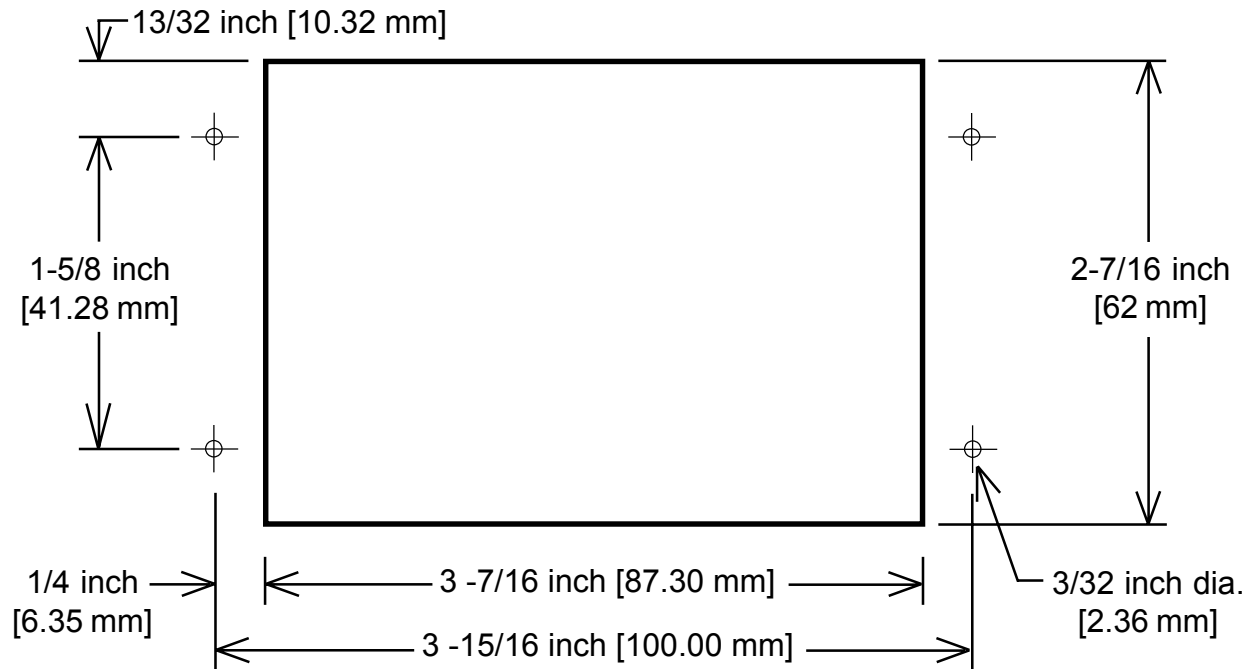
Step B-2 (If your TankMaster DOES use a seacock interlock switch.)

- ⌘ Place a jumper wire across pins 4 and 5 of the terminal block.
- ⌘ Place the (-) voltmeter lead on pin 9 and (+) voltmeter lead on pin 12 of the terminal block.
- ⌘ Turn the key to the manual position.
 - ➡ If reading is equal to the control voltage, check for the following:
 - Loose connections within seacock interlock switch wiring
 - Defective seacock interlock switch
 - ➡ If reading is not equal to the control voltage, go to step C.

Step C

- ⌘ Follow all troubleshooting steps for Symptom 1 and Symptom 2 to determine if the keylock switch is defective.
 - ➡ If there are no problems found, check the following:
 - Loose connections within discharge pump motor wiring
 - Faulty discharge pump motor

CONTROL PANEL MOUNTING TEMPLATE



TROUBLESHOOTING GUIDE (cont'd)

Symptom 4: Discharge pump continually runs while in the auto mode.

Step A

⌘ Confirm the low-level float is not adjusted too low within the holding tank. This float should be at least 1.5" above the bottom of the holding tank. This assures the float will be positioned above both the residual fluid level and the dip tube opening. If not positioned correctly, the low float will never drop down and trigger the discharge pump to shut off.

- ➡ If the float adjustment is incorrect, adjust the float accordingly.
- ➡ If the float adjustment is correct, go to step B.

Step B

⌘ Remove the TankMaster™ 4 faceplate.

⌘ Confirm the wires are attached to the keylock switch in the following way:

- Red wires: terminal 1 and terminal 8 on switch
 - Brown wire: terminal 2 on switch
 - Blue wire: terminal 7 on switch
- ➡ If the wiring is incorrect, reattach the lead wires to the correct terminals.
 - ➡ If the wiring is correct, go to step B.

Step C

⌘ Place the (-) voltmeter lead on pin 9 and (+) voltmeter lead on pin 12 of the terminal block.

⌘ Turn the key to the off position.

- ➡ If reading is equal to the control voltage, check for the following:
 - Short between red and brown lead wires attached to switch
 - Keylock switch may be defective
- ➡ If reading is not equal to the control voltage, check for the following:
 - Make sure the float switches are not shorted or stuck.

Symptom 5: "Discharge Pump On" light will not illuminate when pump is running.

Step A

⌘ Remove the TankMaster™ 4 faceplate.

⌘ Confirm the LED leads are still attached to the circuit board.

⌘ Confirm the LED leads are soldered in correctly:

- White lead wire into square-plated hole
- Red lead wire into round-plated hole

⌘ Replace the control panel if the LED is defective.

Symptom 6: "Check Seacock" light will not illuminate when seacock is closed.

Step A

⌘ Remove the TankMaster™ 4 faceplate.

⌘ Confirm the LED leads are still attached to the circuit board.

⌘ Confirm the LED leads are soldered in correctly:

- White lead wire into square-plated hole
- Red lead wire into round-plated hole

⌘ Replace the control panel if the LED is defective.

- ❖ If reading is equal to the control voltage, go to step C.
 - If reading is less than the control voltage, check for the following.
 - Defective DC power supply and/or defective electrical connections in main power line
 - Blown fuse or tripped circuit breaker

Step C

- ❖ Follow all troubleshooting steps for Symptom 1 and Symptom 2.
- ❖ If no problems are found, check the following:
 - Loose connections within discharge pump motor wiring
 - Faulty discharge pump motor

Symptom 4: Discharge pump continually runs while in the auto mode

Step A

- ❖ Confirm the wires are attached to the selector switch properly by using the enclosed wiring diagram.
 - If the wiring is incorrect, reattach the lead wires to the correct terminals.
 - If the wiring is correct, go to step B.

Step B

- ❖ Place the (-) voltmeter lead on (-) DC and (+) voltmeter lead on the red 14-gauge lead wire from circuit board hole location B7.
- ❖ Turn the key to the off position.
 - If reading is equal to the control voltage, check for the following:
 - Short between the common and manual mode terminals of the selector switch.
 - Selector switch may be defective
 - If reading is less than the control voltage, check for the following:
 - Fouled float switches #1 or #2

Symptom 5: Full level alarm or light will not illuminate when the tank is full

Step A

- ❖ Confirm the alarm or light is connected properly and is not burnt out.
 - Then check for the following:
 - Loose connections within level indicator cap wiring
 - Loose connections within control module wiring – circuit board hole location B1
 - Fouled tank full float switch #6

Symptom 6: “Check Seacock” light will not illuminate when seacock is closed

Step A

- ❖ Confirm the light is connected properly and is not burnt out.
 - Then check for the following:
 - Loose connections within level indicator cap wiring
 - Loose connections within control module wiring – circuit board hole location B4 (12 VDC) or B5 (24 VDC)
 - Loose connections within seacock interlock switch wiring
 - Defective circuit board – internal relay K1
- ❖ NOTE: this output is in series with a current limiting resistor within the circuit in order to connect directly to an LED.

Symptom 7: Gauge will not read properly

Step A

- ❖ Confirm the gauge is connected properly and there are no bad connections.
 - Then check for the following:
 - Fouled float switches

MANUFACTURER'S ONE-YEAR LIMITED WARRANTY

SeaLand warrants, to the original purchaser only, that this product, if used for personal, family or household purposes, is free from defects in material and workmanship for a period of one year from the date of purchase.

If this SeaLand product is placed in commercial or business use, it will be warranted, to the original purchaser only, to be free of defects in material and workmanship for a period of ninety (90) days from the date of purchase.

SeaLand reserves the right to replace or repair any part of this product that proves, upon inspection by SeaLand, to be defective in material or workmanship. All labor and transportation costs or charges incidental to warranty service are to be borne by the purchaser-user.

EXCLUSIONS

IN NO EVENT SHALL **SEALAND** BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, FOR DAMAGES RESULTING FROM IMPROPER INSTALLATION, OR FOR DAMAGES CAUSED BY NEGLIGENCE, ABUSE, ALTERATION OR USE OF UNAUTHORIZED COMPONENTS. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE LIMITED TO A PERIOD OF ONE YEAR FROM DATE OF PURCHASE.

IMPLIED WARRANTIES

No person is authorized to change, add to, or create any warranty or obligation other than that set forth herein.

Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one (1) year from the date of purchase for products used for personal, family or household purposes, and ninety (90) days from the date of purchase for products placed in commercial or business use.

OTHER RIGHTS

Some states do not allow limitations on the duration of an implied warranty, and some states do not allow exclusions or limitations regarding incidental or consequential damages; so, the above limitations may not apply to you. This warranty gives you specific legal rights and you may have other rights which may vary from state to state.

To obtain warranty service, first contact your local dealer from whom you purchased this product.



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Dometic Corporation
13128 State Rt 226, PO Box 38, Big Prairie, OH 44611-0038 USA
SeaLand Product Customer Service
1-800-321-9886
330-496-3211 (8:00 a.m.-5:00 p.m. ET)
Fax: 330-496-3097