

# **SUPERFLUSH SYSTEMS**

## **500-SERIES**

INSTALLATION AND OPERATING INSTRUCTIONS:  
FOR RAW & CLOSED COOLED ENGINES  
INCLUDING TURBO & SUPERCHARGED UNITS

### **SERIES 500 SYSTEM**

**MARINE ENGINE FLUSHING AND CORROSION CONTROL SYSTEMS**  
MADE AND PATENTED IN THE U.S.A.

**for:**  
**DETROIT DIESEL**  
**CATEPILLAR**  
**CUMMINS**  
**VOLVO PENTA**  
**MTU**  
**AND OTHERS**

# TABLE OF CONTENTS

## Introduction

About the System .....	1
Use of Chemicals .....	1
Precautions .....	1

## Installation Overview

Parts List... ..	2
Tools Required .....	2
Overview .....	3

## Installing the System

Installing Fresh Water Hose Access Panel .....	4
Installing the SuperFlush Unit .....	6
Determining Engine Block Group .....	6
Block I Installation Instructions .....	7
Block II Installation Instructions .....	8
Block III Installation Instructions .....	9
Block IV Installation Instructions .....	10
Block V Installation Instructions .....	11
Testing your Installation .....	12
Warranty Information .....	12

# INTRODUCTION

## About the System

The SuperFlush™ permanently mounted flushing system back-flushes from top to bottom with the engines off.

The operator connects a dockside water source to a hose connection access panel located in the aft cockpit of the boat. The flushing operation takes approximately four minutes to fully cycle through the entire engine water system.

## Use of Chemicals with the SuperFlush™ System

SuperFlush offers the following chemicals and accessories as approved materials for use with the system :

1. SuperFlush Chemical Induction Kit
2. FlushClear
3. RustGuard
4. Any approved automobile anti-freeze solution

Only SuperFlush approved materials are warranted for use with this system.

## PRECAUTIONS!

1. The SuperFlush should only be installed on the recommended engine system it is designed for.
2. ***If your engine has mufflers in a through transom exhaust system, make sure that during the flush cycle, water can free flow out of the engine. If not, call Technical support at 850-769-3465***
3. Flush the engine for approximately four minutes minimum.
4. Be sure to disconnect the dockside water source from the SuperFlush system before leaving the boat.
5. When flushing the engine with the boat in the water, make sure sea conditions are calm (less than one and a half feet of chop).
6. **Never run the engines while the SuperFlush system is in use.\***

**\* Engines may be ran briefly for test purposes. Do not exceed 1100 R.P.M.**

# INSTALLATION OVERVIEW

## PARTS LIST

PART NUMBER	DESCRIPTION	MATERIAL	QUANTITY	UOM
33016	3/8hbx1/2npt 90	Black Poly	4	each
353905	5/8 hbX1/2 Npt 90	Gray tee	1	each
160-85-a-26	City water Flange/Inlet	White poly	1	each
2364-2	5/16" X 7/8" clamps	S steel	8	each
2366-2	7/16 X 1 clamps	S steel	2	each
28-157	1/4 barstock st 90	Brass	2	each
28-199	1/4 x 1/2 reducer	Brass	4	each
28-246	1/4 Barstock St Tee	Brass	2	each
32-012	3/8hbx1/4npt	Brass	3	each
32-041	3/8hbX1/4npt 90	Brass	2	each
3A1238G	3/8hbx1/2mpt Straight	Black Poly	4	each
9631-03	11" Zip Ties	Black Poly	10	each
B-604	8X3/4 ss screw	Ssteel	3	each
K1156-06X500	3/8" Blue Hose	Blue hose	20	feet
K1156-10X500	5/8" Blue Hose	Blue hose	13	feet
S260	1/2 x 260 Teflon Tape	Teflon	1	role
	Installation Book	Paper	1	each
	Operating Instructions	Paper	1	each
	Warranty Card	Paper	1	each
	SuperFlush Label	Plas	1	each

**Be sure to inspect the kit for all parts before beginning installation. If any parts are missing or damaged, please call SuperFlush Technical Support at (850-769-3465) and leave a detailed message, including your telephone number.**

## Tools Required

- Pair of hose cutters or Razor Knife
- 8" long #2 Phillips Head Screwdriver
- 2" long #2 Flat Head Screwdriver
- 8" long #2 Flat Head Screwdriver
- S.A.E. Socket and Wrench Set
- 1/2" Power Drill
- 1/8" Drill Bit
- 1 1/4" Hole Saw for Single Inlet Fitting
- Jig Saw with Wood Blade for the Multi-Inlet Fitting
- Small Supply of Hand Cleaner and a Towel
- Pencil
- Tape Measure

## Overview

Although it is recommended that this system be installed by a professional, most do-it-yourselfers should be able to install the system.

### **IMPORTANT!**

1. Do not begin installation of the system until you have thoroughly read through this manual.
  2. Make sure that you have all of the necessary tools to complete the project before starting, including all of the parts listed above.
- \* For safety, please disconnect batteries, or turn battery switch to the **Off** position.

### **The Installation is a Four Step Process as follows:**

1. Installation of the Access Panel
2. Installation of the SuperFlush Unit
3. Installation of the Injectors
4. Installation of the Flush Lines

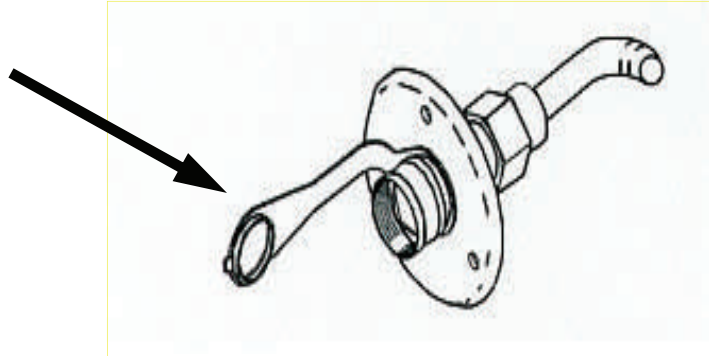
# Installing the System

## Installing the Fresh Water Hose Connection Access Panel

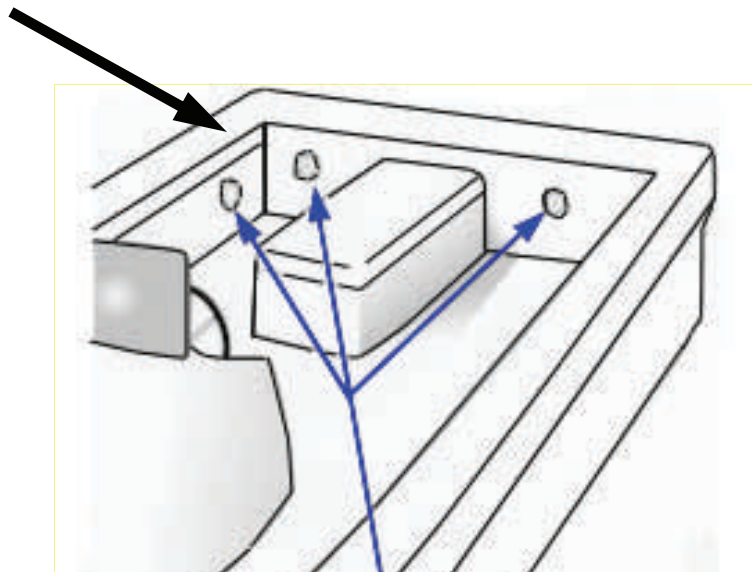
1. The hose connection access panel can be mounted on any aft surface including outside of the hull.

Notes:

- 1) A good place is the area above the rub rail in front of or behind the blower cowling. This provides access to the unit while the boat is on a lift or trailer without having to reenter the boat.
- 2) Make sure the location selected is within the length of hose provided to reach the valve unit which will usually be mounted on the engine.
- 3) Prior to drilling, make sure that there is nothing behind the location you have chosen and verify that there is direct access to the engine compartment.
- 4) Do not attempt to integrate the system with any other fitting on the boat. A dedicated access panel is required for engine flushing purposes.



Extruded Panel comes standard with each single engine kit. For installation, you will need a 1 1/4 inch hole saw.

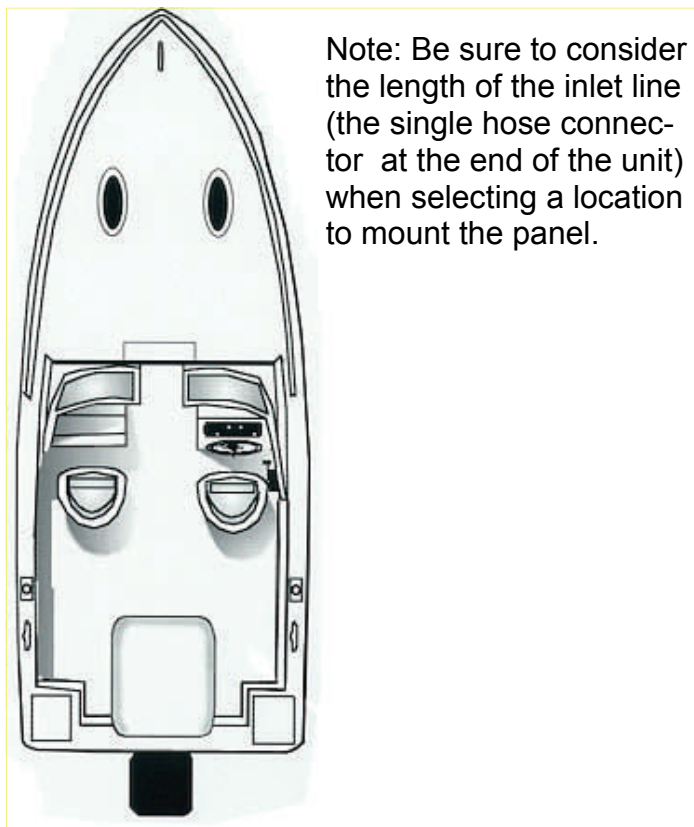
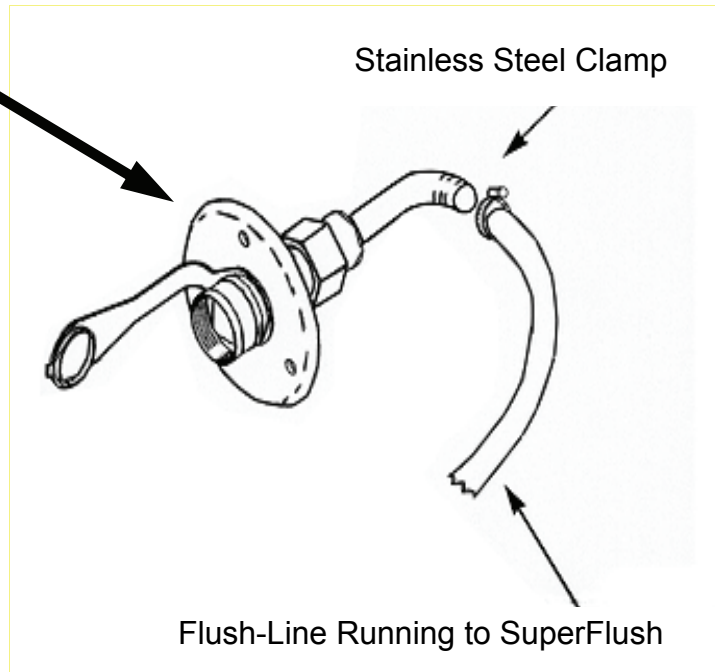


The aft area of the boat makes an excellent location for the installation of the fresh water hose connection access panel. The above picture shows possible locations for the placement of the panel.

1. To install the single inlet fitting, simply place drill in desired location and drill one, 1/8" hole.
2. Insert access panel and mark holes for other screws.
3. Remove panel and drill three 1/8" holes.
4. Insert hose onto hose barb and clamp hose to the hose barb on the access panel and secure access panel with S.S. Screws provided.
5. Route the inlet line connected to access panel down to the engine.

Notes:

- 1) The line should be routed along the edges of the compartment so as not to obstruct any future work on other systems.
- 2) If necessary, you may secure the hose line to existing wire harness by wire ties to facilitate a clean installation.



## Installing the SuperFlush Unit

There are two recommended locations to install the SuperFlush unit.

1. **Secure the SuperFlush unit to the transom wall using #14 flathead screws provided.** First, drill a 1/4" hole approximately 1 1/2" in depth.
2. **The unit may also be through-bolted to a gunnel wall or other suitable location** using the 1/4" x 20 machine screw washer and nut provided. A slightly larger hole must be drilled to accommodate the bolt.

## Determining which Engine Block Group your engine falls under.

**Block I Super Charged or Turbocharged Inline:** Engine Block, Head (s), Exhaust Manifold (s) are Closed Cooled with antifreeze solution. Exhaust Riser, Inter or After cooler, Heat Exchangers, Oil Coolers, Transmission Coolers are cooled by Sea Water.

**Block II Normally Aspirated Inline:** Engine Block, Head (s), Exhaust Manifold (s) are Closed Cooled with antifreeze solution. Exhaust Riser, Heat Exchangers, Oil Coolers, Transmission Coolers are cooled by Sea Water.

**Block III Normally Aspirated Inline:** Engine Block, Head (s) are Closed Cooled with antifreeze solution.. Exhaust Manifold (s) Exhaust Riser, Heat Exchangers, Oil Coolers, Transmission Coolers are cooled by Sea Water.

**Block IV Normally Aspirated V-8/V-12:** Engine Block, Head (s) are Closed Cooled with antifreeze solution. ). Exhaust Manifold (s) Exhaust Riser, Heat Exchangers, Oil Coolers, Transmission Coolers are cooled by Sea Water.

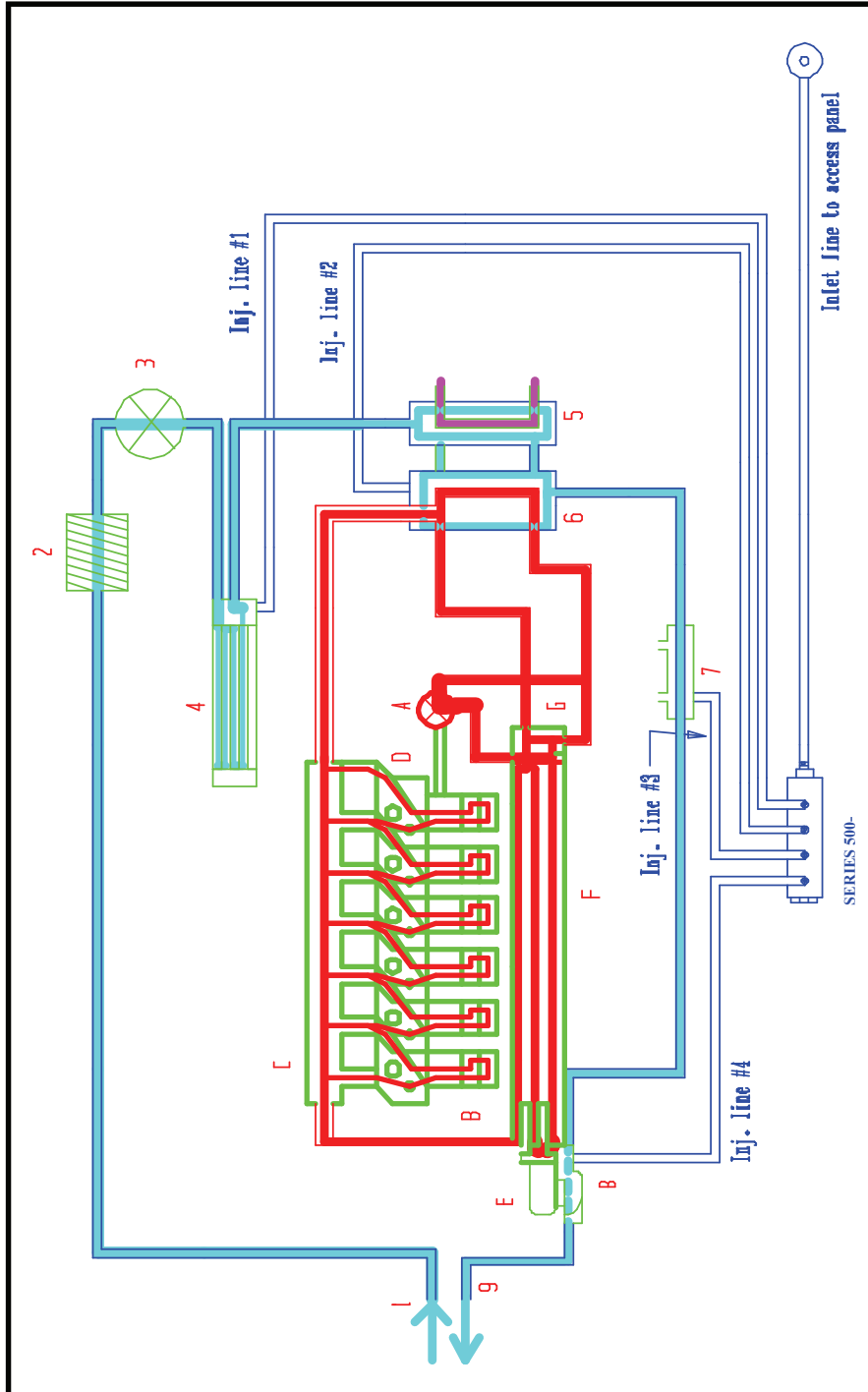
**Block IV Super Charged or Turbocharged V-8/V-12:** Engine Block, Head (s) are Closed Cooled with antifreeze solution. Exhaust Manifold (s) Exhaust Riser, Heat Exchangers, Oil Coolers, Transmission Coolers are cooled by Sea Water.

If you are unable to identify which Block your engine fits into, please call SuperFlush Systems Technical Support at 850-769-3465



## SUPERFLUSH SERIES 500-SERIES BLOCK I SCHEMATIC

1. Injector line 1 from the SERIES 500 unit connects to the Intercooler (4), either by removing a drain plug or a zinc.
2. Injector line 2 from the SERIES 500 unit connects to the Heat Exchanger (6) by removing a drain plug or a zinc.
3. Injector line 3 from the SERIES 500 unit connects to the Transmission Oil-Cooler, (7) by removing a drain plug .
4. Injector line 4 from the SERIES 500 unit connects to the turbocharger (E), either by removing a drain plug . If the turbo charger is not cooled, route injector to the exhaust elbow.



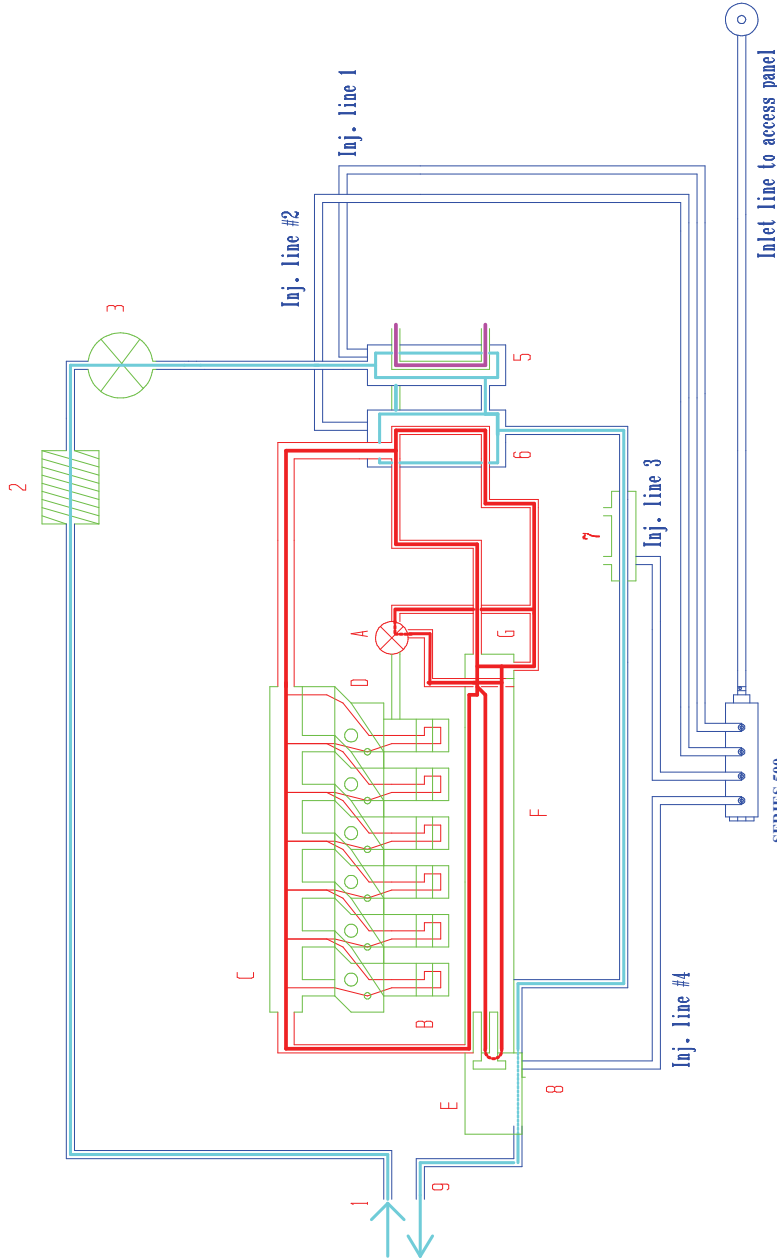
1. Seawater Inlet
2. Seawater Strainer
3. Seawater Pump
4. Intercooler
5. Engine Oil Cooler
6. Heat Exchanger
7. Transmission Oil Cooler
8. Exhaust Pipe Water Jacket
9. Seawater Outlet (exhaust)

- A. Circulating Pump– Closed Coolant
- B. Engine Block-upper Section of liners
- C. Water Manifold
- D. Cylinder Heads
- E. Turbocharger
- F. Exhaust Manifold
- G. Thermostat

**Important Notes:**  
 This block diagram is intended for use by qualified maintenance personnel.  
 Access points should all be plumbed into the **BLUE circuit only**. **The red circuitry is the closed part of the cooling system!! No SERIES 500 injectors should be installed in any red indicated lines or subsystems!!**  
 If you have any doubts, please call Technical Support at 850-769-3465.

## SUPERFLUSH SERIES 500-SERIES BLOCK II SCHEMATIC

1. Injector line 1 from the SERIES 500 unit connects to the Engine Oil Cooler (5), by removing a drain plug.
2. Injector line 2 from the SERIES 500 unit connects to the Heat Exchanger (6) by removing a drain plug.
3. Injector line 3 from the SERIES 500 unit connects to the Transmission Oil-Cooler, (7) by removing a drain plug.
4. Injector line 4 from the SERIES 500 unit connects to the exhaust riser (8) by removing a drain plug.



1. Seawater Inlet
2. Seawater Strainer
3. Seawater Pump
4. Intercooler
5. Engine Oil Cooler
6. Heat Exchanger
7. Transmission Oil Cooler
8. Exhaust Pipe Water Jacket
9. Seawater Outlet (exhaust)

- A. Circulating Pump— Closed Coolant
- B. Engine Block-upper Section of liners
- C. Water Manifold
- D. Cylinder Heads
- E. Turbocharger (if equipped)
- F. Exhaust Manifold
- G. Thermostat

### **Important Notes:**

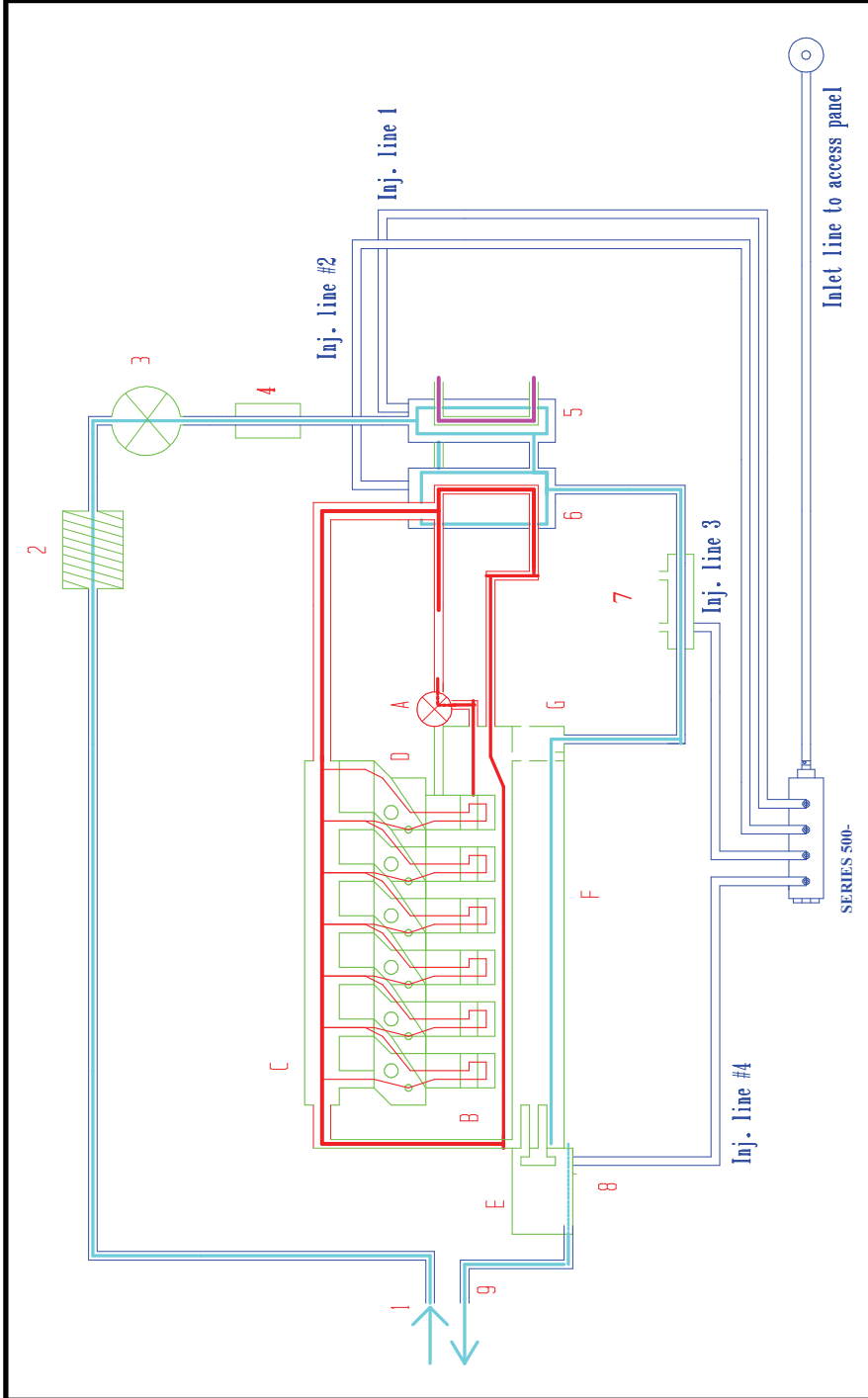
This block diagram is intended for use by qualified maintenance personnel.

Access points should all be plumbed into the **BLUE circuit only**. **The red circuitry is the closed part of the cooling system!! No SERIES 500 injectors should be installed in any red indicated lines or subsystems!!**

If you have any doubts, please call Technical Support at 850-769-3465.

**SUPERFLUSH  
SERIES 500-SERIES  
BLOCK III  
SCHEMATIC**

1. Injector line 1 from the SERIES 500 unit connects to the Engine Oil Cooler (5) by removing a drain plug.
2. Injector line 2 from the SERIES 500 unit connects to the Heat Exchanger (6) by removing a drain plug.
3. Injector line 3 from the SERIES 500 unit connects to the Transmission Oil-Cooler, (7) by removing a drain plug.
4. Injector line 4 from the SERIES 500 unit connects to the exhaust manifold riser by removing a drain plug..



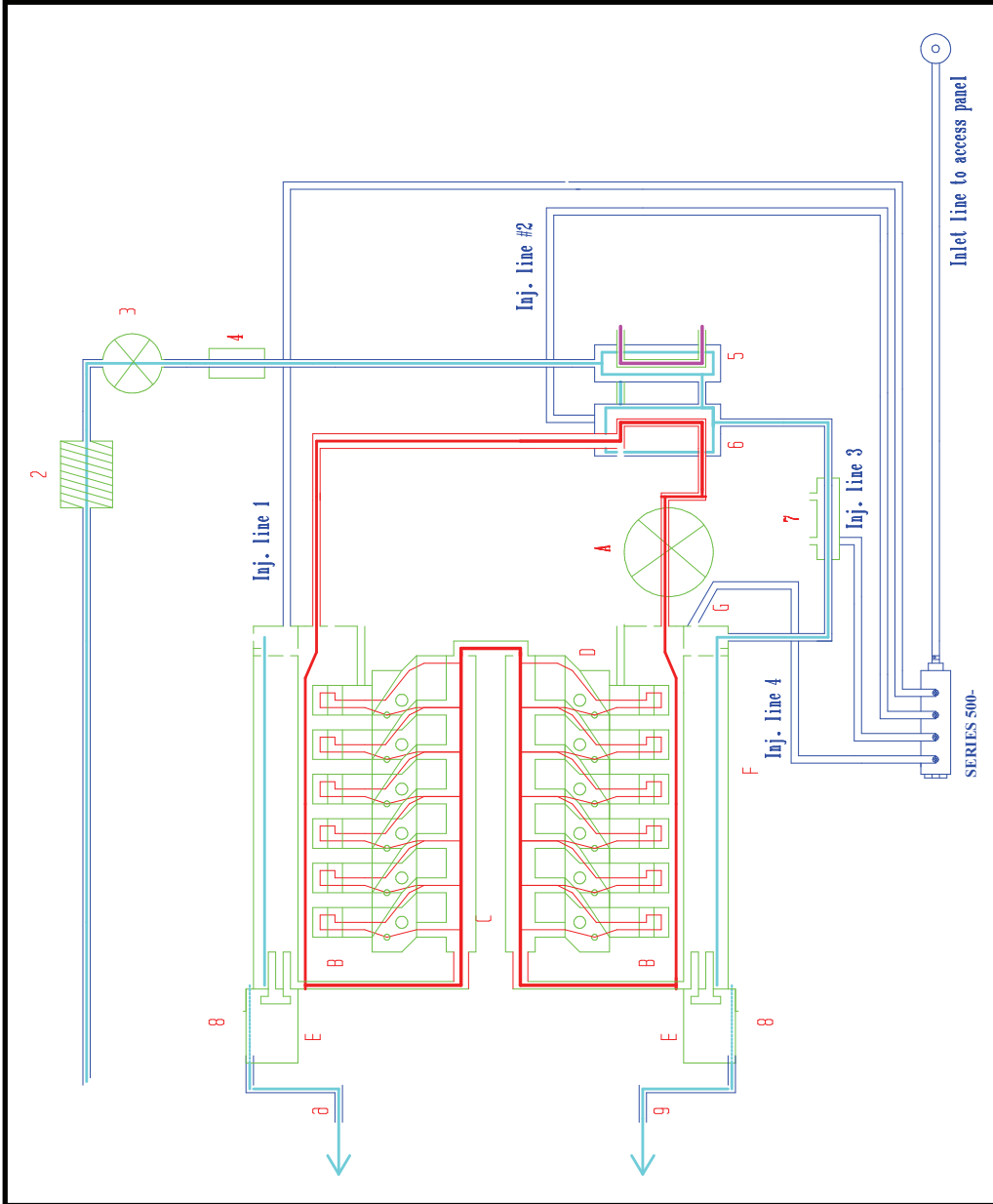
**Important Notes:**  
This block diagram is intended for use by qualified maintenance personnel.  
Access points should all be plumbed into the **BLUE circuit only**. **The red circuitry is the closed part of the cooling system!! No SERIES 500 injectors should be installed in any red indicated lines or subsystems!!**  
If you have any doubts, please call Technical Support at 850-769-3465.

- A. Circulating Pump– Closed Coolant
- B. Engine Block-upper Section of liners
- C. Water Manifold
- D. Cylinder Heads
- E. Turbocharger
- F. Exhaust Manifold
- G. Thermostat

1. Seawater Inlet
2. Seawater Strainer
3. Seawater Pump
4. Intercooler
5. Engine Oil Cooler
6. Heat Exchanger
7. Transmission Oil Cooler
8. Exhaust Pipe Water Jacket
9. Seawater Outlet (exhaust)

## SUPERFLUSH SERIES 500-SERIES BLOCK IV SCHEMATIC

1. Injector line 1 from the SERIES 500 unit connects to the Starboard Exhaust Manifold, by removing a drain plug.
2. Injector line 2 from the SERIES 500 unit connects to the Heat Exchanger (6) by removing a drain plug.
3. Injector line 3 from the SERIES 500 unit connects to the Transmission Oil-Cooler, (7) by removing a drain plug.
4. Injector line 4 from the SERIES 500 unit connects to the Port Manifold by removing a drain plug.



- A. Circulating Pump— Closed Coolant
- B. Engine Block-upper Section of liners
- C. Water Manifold
- D. Cylinder Heads
- E. Turbocharger
- F. Exhaust Manifold
- G. Thermostat

1. Seawater Inlet
2. Seawater Strainer
3. Seawater Pump
4. Intercooler
5. Engine Oil Cooler
6. Heat Exchanger
7. Transmission Oil Cooler
8. Exhaust Pipe Water Jacket
9. Seawater Outlet (exhaust)

### Important Notes:

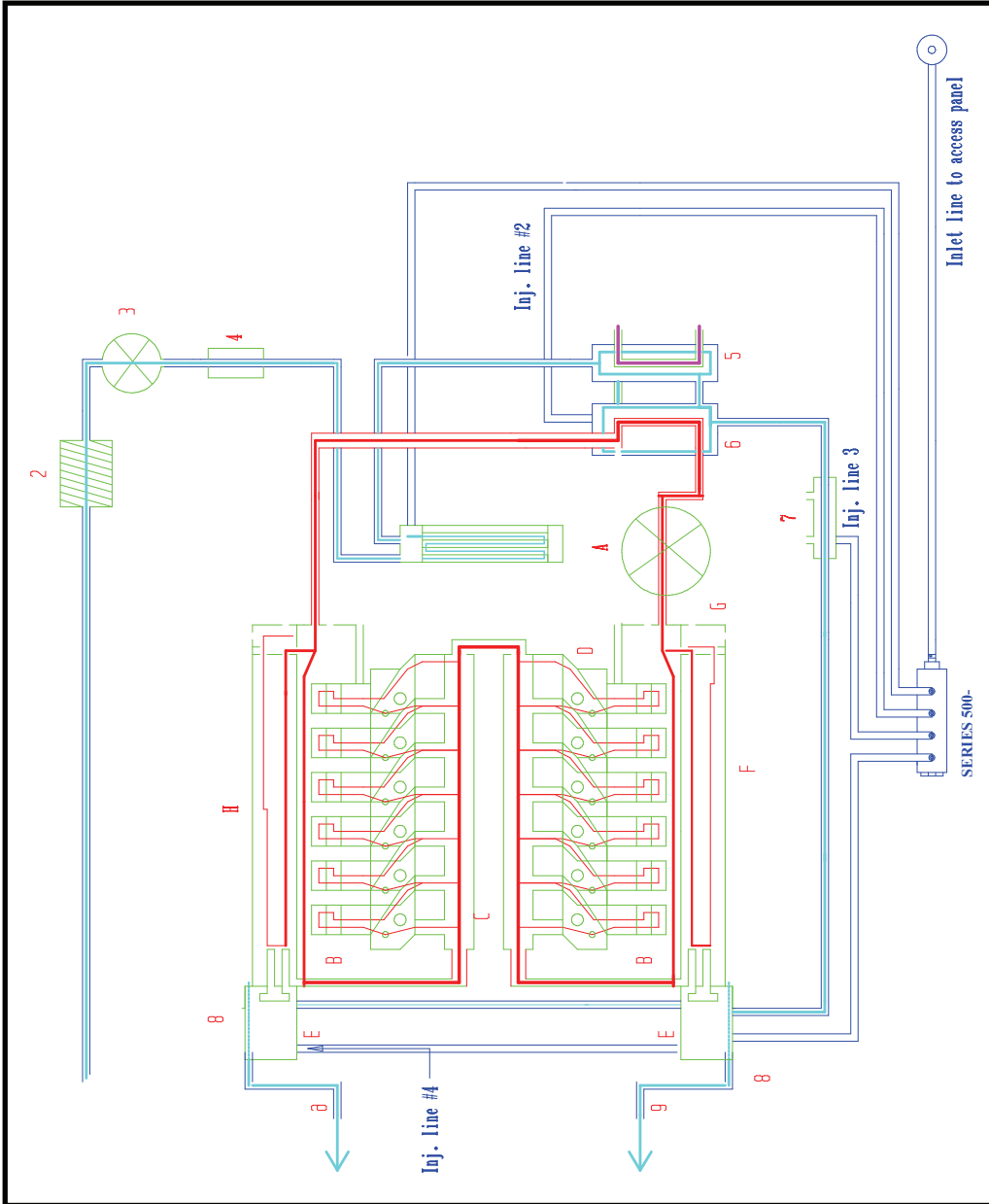
This block diagram is intended for use by qualified maintenance personnel.

Access points should all be plumbed into the **BLUE circuit only**. **The red circuitry is the closed part of the cooling system!! No SERIES 500 injectors should be installed in any red indicated lines or subsystems!!**

If you have any doubts, please call Technical Support at 850-769-3465.

## SUPERFLUSH SERIES 500-SERIES BLOCK V SCHEMATIC

1. Injector line 1 from the SERIES 500 unit connects to the Intercooler (4), by removing a drain plug.
2. Injector line 2 from the SERIES 500 unit connects to the Heat Exchanger (6) by removing a drain plug.
3. Injector line 3 from the SERIES 500 unit connects to the Transmission Oil-Cooler, (7) by removing a drain plug.
4. Injector line 4 from the SERIES 500 unit connects to the Exhaust Risers (8), by removing a drain plug.



1. Seawater Inlet
2. Seawater Strainer
3. Seawater Pump
4. Intercooler
5. Engine Oil Cooler
6. Heat Exchanger
7. Transmission Oil Cooler
8. Exhaust Pipe Water Jacket
9. Seawater Outlet (exhaust)

- A. Circulating Pump— Closed Coolant
- B. Engine Block-upper Section of liners
- C. Water Manifold
- D. Cylinder Heads
- E. Exhaust Risers
- F. Exhaust Manifold
- G. Thermostat

### Important Notes:

This block diagram is intended for use by qualified maintenance personnel.

Access points should all be plumbed into the **BLUE circuit only**. **The red circuitry is the closed part of the cooling system!! No SERIES 500 injectors should be installed in any red indicated lines or subsystems!!**

If you have any doubts, please call Technical Support at 850-769-3465.

### III. Testing and Operating Instructions

**Before testing the unit**, inspect your work. Make a visual inspection of all connections. This test as well as all future operations is done with the engine off.

1. Connect a garden hose to the hose coupling panel on the remote fresh water access panel.
2. Turn on water. Adjust for maximum output. If your water pressure is extremely high, it may be necessary to reduce the flow of water by turning the spigot down.
3. Place your hand on the valve unit (you should feel a slight vibration, this tells you that your unit is functioning properly).
4. Check water outlet ports on the outdrive and exhaust pipes (if applicable). There should be a steady flow of water flowing out.
5. Shut off water, disconnect the hose. Your system test is complete.

If you experience any problems, contact SuperFlush Systems at:  
85-760-3465

Our website: <http://www.Superflushsystems.com>

#### **WARRANTY POLICY**

SFS warrants your new SuperFlush to you, the original purchaser, for as long as you own the boat on which the SuperFlush has been installed, and warrants any of the supplied components for one year from the date of purchase by the original purchaser. If your SuperFlush fails due to parts failure, defect or poor workmanship during the warranty period, return it and we will send you a replacement unit at no charge. You must send in your completed warranty registration card providing the boat and engine identification data requested within 30 days of product purchase to receive a full lifetime warranty. Products with no warranty registration only carry a two-year warranty from date of purchase. This SuperFlush warranty does not cover fittings, hangers, hoses or other system components, which may be required at the time of replacement. There is no other express warranty and this warranty supersedes all prior warranties. SuperFlush Systems, Inc., any retailer or representative thereof shall not be liable for incidental, consequential, or special damages arising out of or in connection with product use or performance except as might otherwise be accorded by law (which varies from state to state). If your SuperFlush requires service under the terms of this warranty, send your unit and this warranty certificate, to the address shown below. This warranty gives specific legal rights. You also may have other rights, which vary, from state to state.

**Super Flush Systems  
2347 St. Andrews Blvd.  
Panama City, Fl. 32401**