TRAC ECOLOGICAL Marine Products

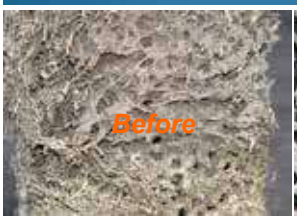
Barnacle Buster®

Marine growth remover

Barnacle Buster® es una solución ambiental segura y efectiva a todos sus problemas de crecimiento marino.

Barnacle Buster® elimina el crecimiento marino , no es tóxico y es biodegradable. Está específicamente formulado para satisfacer la necesidad de una alternativa rápida, segura y económica a la limpieza mecánica de equipos refrigerados por agua.

Con un mínimo desmantelamiento de los equipos necesarios, **Barnacle Buster®** puede recircularse de manera segura a través de sistemas de enfriamiento de agua de mar, la eliminación de percebes, mejillones cebra, calcio, óxido, cal y todos los demás depósitos minerales. ¡La mayoría de las aplicaciones se pueden completar en 4 horas!



Barnacle Buster® junto con nuestras Advance Descaling Technologies® tienen muchas ventajas, incluyendo la ejecución rápida, velocidades de corrosión bajas y la capacidad de lavar todo el sistema o punto limpio.

Barnacle Buster® puede utilizarse con seguridad para quitar el crecimiento marino de:
• Motores • Sistemas de refrigeración de agua dulce y salada de motores principales, auxiliares, generadores • Condensadores de sistemas de aire acondicionado y refrigeración • Sistemas de agua potable • Intercambiadores de calor • Torres de refrigeración • Enfriadores de quilla • Neveras y refrigeradores • Calderas • Depósitos • Hélices • Fondos de barcos • Hélices • Ejes

Diagrama de circulación de motor	
TAMAÑO DEL MOTOR	***Horas***
Light 10 – 250 Hp	1 to 2
Small 250 – 800 Hp	2 to 4
Medium 800- 1800 Hp	4 to 6
Large 1800 +	6 to 12

Barnacle Buster® viene en formato concentrado por lo que para utilizarlo debe realizar una dilución de: 1:4 (1 parte de Buster Concentrate en 4 partes de agua). Esta dilución debe realizarse antes de aplicar el producto.

Seguridad

- ***Barnacle Buster®*** es biodegradable y puede eliminarse a través del sistema de drenaje regular.
- ***Barnacle Buster®*** Ha pasado la prueba de ensayo California de toxicidad sobre vida marina. Departamento de sustancias peligrosas (Internacional NSF estándar 60).

Basado en las directrices actuales de la EPA, Barnacle Buster® está clasificado como inflamable y cumple todos los requisitos sobre materiales peligrosos y peligrosos

RÁPIDO - SEGURO - NO TÓXICO - BIODEGRADABLE - NO CORROSIVO - NO PELIGROSO

TRAC ECOLOGICAL Marine Products

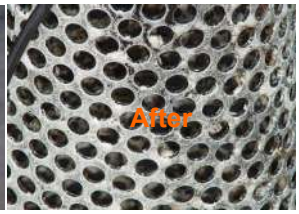
Barnacle Buster®

Marine growth remover

Barnacle Buster® is a safe, effective environmental solution to all your marine growth problems

Barnacle Buster® is a safe, non-toxic, and biodegradable marine growth remover. It is specifically formulated to meet an industry wide need for a fast, safe, & cost effective alternative to mechanical cleaning of water cooled equipment. With minimal dismantling of equipment required, ***Barnacle Buster®*** can safely be recirculated through sea water cooling systems, dissolving barnacles, zebra mussels, calcium, rust, lime and all other mineral deposits. Most applications can be completed within 4 hours!

Barnacle Buster® along with our ***Advance Descaling Technologies®*** have many advantages including rapid execution, low corrosion rates, & the ability to either spot clean or flush the entire system .



Types of Applications

Barnacle Buster® can safely be used to remove marine growth from:

- Engines seawater cooling systems
- A/C & refrigeration cooling systems
- Hulls
- Seacocks
- Sea strainers
- Boat bottoms
- All types of heat exchangers
- Bow thrusters
- Water makers
- Propellers
- Pumps
- Piping

Engine circulation chart	
Engine Size	**Hours**
Light 10 – 250 Hp	1 to 2
Small 250 – 800 Hp	2 to 4
Medium 800- 1800 Hp	4 to 6
Large 1800 +	6 to 12

Availability

1 gallon , 5 gallon pail, 55 gallon drum or a 250 gallon tote tank

Barnacle Buster® is also available in a concentrated format: ***Buster Concentrate's®*** dilution rate is 1:4 (1 part of Buster Concentrate in 4 parts of water). This dilution must be performed prior to all applications.

Safety

- ***Barnacle Buster®*** is biodegradable & can be disposed of through regular sewer system.
- ***Barnacle Buster®*** is safe for your personnel
- ***Barnacle Buster®*** passed the California Fish Toxicity Assay Test, Department of Hazardous Substances (Title 22) and complies with NSF International standard 60.
- Based on current EPA guidelines, ***Barnacle Buster®*** is classified as non-flammable and meets all requirements regarding hazardous and dangerous materials.

FAST SAFE NON-TOXIC BIODEGRADABLE NON CORROSIVE NON HAZARDOUS

TRAC ECOLOGICAL Marine Products

Seawater Engine Cooling Systems

Small to medium engines (5-500 horsepower)

Small to medium engine raw water cooling system cleaning instructions.

What product do I use?

- For ***ALL*** seawater application ***Barnacle Buster®*** is the only choice for safe, fast, and consistent results.
- Also available in a concentrated form, one gallon of ***Buster Concentrate®*** makes five gallons of ***Barnacle Buster®***

How much Barnacle Buster® do I need?

- First, measure the lengths and diameters of all hoses and piping associated with the raw water cooling system.
- Next, cross reference them with the pipe gallonage chart (*see separate sheet).*
- Finally, add up all your finding. *Remember to add enough for your flushing equipment.*

As a guide, the adjacent chart reflects the most common requirements as related to horsepower.

Horsepower	Gallons of Barnacle Buster®
0-15	1
15-30	2
30-105	2.5
105-450	3
450-600	5

Cleaning Options:

There are two methods to choose from when cleaning your seawater system.

- ***IMMERSION:*** This is the simplest method of cleaning but also the longest. It involves filling the entire system and allowing it to work overnight.
- ***OPEN-LOOP RECIRCULATION:*** This is the quickest and most preferred method. It requires recirculation of the product and the aid of a flushing system.

TRAC recommends open-loop flushing for systems with large amounts of growth .

When do I to use Barnacle Buster® ?

- As a general rule of thumb, flushing your engine once a year is a good preventative maintenance measure. *This is especially important on engines with flexible rubber impellers. Marine growth is the most common cause of impeller failure!*
- Monitoring your engines temperature is crucial. A consistent temperature increase of 5-10 degrees could mean a problem is starting to form within your cooling system. *Flushing before the problem gets worse could save you a world of headaches!*
- On most engines, seawater discharged from the engine is used to cool the exhaust gases exiting the engine. If this water flow is reduced, steam (or white smoke) will begin to exit from the exhaust. One reason for this may be a clogged heat exchanger or after cooler. Flushing the engine may prove to be an inexpensive troubleshooting technique for a boat owner.
- If all else fails and your engine does overheat, keeping ***Barnacle Buster®*** onboard could save both your pride and money by avoiding a tow back to the marina.

TRAC ECOLOGICAL Marine Products

Seawater Engine Cooling Systems

Small to medium engines (5-500 horsepower)

Small to medium engine raw water cooling system cleaning instructions.

Open Loop Recirculation method:

*Make Certain to secure the engine by removing the key, disconnecting the battery and **CLOSING ALL SEA VALVES.***

- First, find the best locations to inject and recover your Barnacle Buster solution. One of the biggest advantages of using any of ***TRAC's*** products is the ability to not only include the engine and heat exchanger, but all the adjoining pipe and hose work as well. With this in mind try to choose an injection point as close the seawater sea valve (or seacock) as possible, thus including as much of the system as possible.

  Inlet: REMEMBER TO CLOSE THE SEA VALVE!
  On most engines there is a provision for either a zinc anode or a vent/priming fitting cast right into the housing of the raw water pump. Other engines may use a flexible hose between the sea valve and the pump inlet. Either one of these locations is perfect for injecting Barnacle Buster® into the system. Usually on engines of this size, the raw water pump will have a flexible impeller. If this is the case you will need to remove it before proceeding. These types of pumps do not allow fluids to pass through them and will inhibit flushing. If you do not want to remove the impeller you might be able to find an injection point after the pump.

  Recovery or Outlet: The outlet is usually a bit easier to find. Look for a hose or fitting just after the heat exchanger. Most often, this hose will lead to the exhaust/water mixing elbow or spray ring. Remove the end attached to the exhaust elbow and use it as a product recovery point.
- Now, with both your injection and recover points ready, hook up your flushing gear. Connect the discharge from the Port-O-Flush Jr.® *(or your own flushing unit)* to the inlet point on the engine. Then connect the recovery point to the return hose.
- Before starting, make certain there are no other systems connected to your raw water cooling system. In some cases, the shaft seal is cooled by this loop, if so, it will need to be isolated. Since other systems like the gear or fuel coolers are most likely plumbed in series to your engine, no action needs to be taken to isolate them.
- Now you are ready to recirculate and clean your engine! TRAC recommends that first you do a test-flush with water to make certain you have no leaks. If everything looks good, replace the water with your predetermined amount of Barnacle Buster. Recirculate for at least 2 to 3 hours. If there is an excessive amount of buildup recirculate for 3 to 6 hours.
- When flushing is complete, rinse the system with freshwater to remove any loose debris or leftover Barnacle Buster. Reassemble the system and run the engine to ensure there are no leaks.

NOTE: Magnesium/Zinc anodes will need to be removed before you start flushing or replaced after flushing is complete.

TRAC Tip:
Reversing the flow midway thru your flushing will dramatically reduce your flushing time!
Do this by switching your supply and return lines on the Port-O-Flush Jr.®

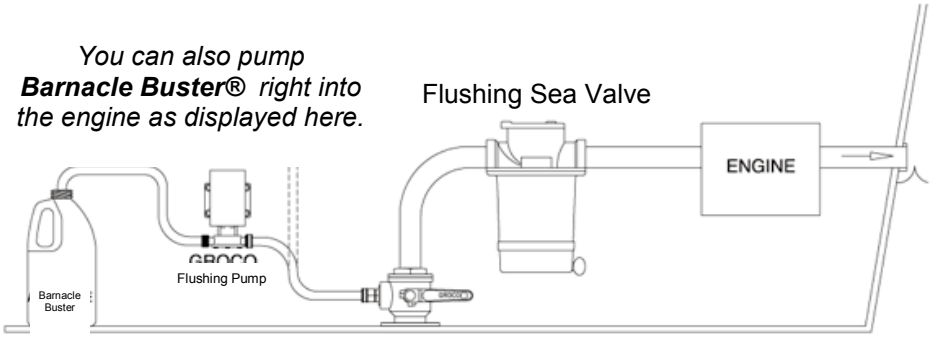
TRAC Tip:
Save time by linking multiple engines together in series, allowing you to flush both engines at the same time!!

Small to medium engine raw water cooling system cleaning instructions.

Immersion Cleaning Instructions

- First, run your engine and bring it up to temperature.
- Disable engine by turning off the battery switch and closing the sea valve.
- Making certain the sea valve is closed, remove the suction hose attached to the valve and place it in a bucket filled with Barnacle Buster®.
- Next, start the engine and wait until you see Barnacle Buster® coming out of the overboard discharge.
- Now, secure the engine and allow the product to work in your system for 12-18 hours.
- Finally, reconnect the suction hose, open the sea valve, and run the engine for 5-10 minutes, making certain you have removed all of the Barnacle Buster® solution.

You can also pump ***Barnacle Buster®*** *right into the engine as displayed here.*



TRAC Tip:
For best results on severely clogged engines, add more Barnacle Buster® every 4 hours.
Do this by repeating step 3.

TRAC Tip:
There are many aids available to help make flushing your equipment a snap! Contact our technical support team to find out where to get them. ***Pictured below are just a few examples.***

TRAC ECOLOGICAL Marine Products

Air Condition Systems

Small boat, self-contained systems

Self-contained air conditioning condenser cleaning instructions.

What product do I use?

- For ***ALL*** seawater applications, ***Barnacle Buster™*** is the only choice for safe, fast, and consistent results.
- Also available in a concentrated form, one gallon of ***Buster Concentrate™*** makes five gallons of ***Barnacle Buster™***

How Much Barnacle Buster™ do I need?

- First, measure the lengths and diameters of all hoses and piping associated with the raw water cooling system.
- Next, cross reference them with the pipe gallonage chart (*see separate sheet).*
- Finally, add up all your finding. *Remember to add enough for your flushing equipment.*

As a guide, the adjacent chart reflects the most common requirements.

BTU's	100-5000	7000	5000- 12000	7000- 20000	12000- 24000-UP
Gallons of Barnacle Buster™	1	2	2.5	3	5

Cleaning Options:

There are two methods to choose from when cleaning your seawater system.

- ***OPEN-LOOP RECIRCULATION:*** This is the quickest and most preferred method. It requires recirculation of the product and the aid of a flushing system or system pump.
- ***IMMERSION:*** This is the simplest method of cleaning but also the longest. It involves filling the entire system and allowing it to work overnight.

TRAC recommends open-loop flushing for systems with large amounts of growth .

When to use Barnacle Buster™?

- As a general rule of thumb, flushing your air conditioning system once a year is a good preventative maintenance measure. *This is especially important on systems that operate in warm seawater.*
- Monitoring your air conditioning system's amperage draw is an excellent way to determine system efficiency. As growth forms inside the condenser coil, heat transfer will be greatly decreased causing efficiency to drop. This will cause the compressor to work much harder thus increasing amperage draw. *Flushing before the problem gets worse could save you a world of headaches!*
- The easiest way to monitor you're A/C's seawater system is to keep a good eye on the seawater discharge stream. Overtime, as growth forms you will notice a change in the flow of seawater. This is a great indication that flushing is needed.

Self-contained Air Conditioning condenser cleaning instructions.

Open Loop Recirculation Method:

Make certain to secure the air conditioning system by turning off the supply power breaker and ***CLOSING ALL SEA VALVES.***

- First, find the best locations to inject and recover the Barnacle Buster™. One of the biggest advantages of using any of ***TRAC's*** products is the ability to not only include the condenser coil, but all the adjoining pipe and hose work as well. With this in mind, try to choose an injection point as close to the seawater sea valve (or seacock) as possible.

Inlet: REMEMBER TO CLOSE THE SEA VALVE
On most installations, a flexible hose connects the sea valve and the strainer (or pump). This is an excellent location to introduce Barnacle Buster™ into your system. In addition, most systems use a variable displacement pump or centrifugal pump. This is great because Barnacle Buster™ can easily pass through these types of pumps without having to remove the impellor. Keep in mind that you want to inject into the lowest point on your A/C system. This will make certain all the air is removed from the system.

Recovery or Outlet: The outlet is usually a bit easier to find. Look for a hose leading away from the A/C system towards an overboard thru-hull fitting. Remove this hose and connect it to your return line.

TRAC Tip:

Reversing the flow midway through your flushing will dramatically reduce your flushing time!
Do this by switching your supply and return lines on the Port-O-Flush Jr.™ .

- Now, with both your injection and recover points ready, hook up your flushing gear. Connect the discharge from the Port-O-Flush Jr.™ *(or your own flushing unit)* to the inlet point. Then connect the recovery point to the return hose. *You can also use your systems pump and a five gallon bucket, if you so desire.*
- If you have multiple A/C units, fed from one central pump. You can clean all units at the same time—just make certain that all discharges return to your bucket.
- Now you are ready to recirculate and clean you're A/C system. TRAC recommends that you do a test-flush with water to make certain you have no leaks. If everything looks good, replace the water with your predetermined amount of Barnacle Buster™. Recirculate for at least 2 to 3 hours. If there is an excessive amount of buildup recirculate for 3 to 6 hours.
- When flushing is complete, rinse the system with freshwater to remove any loose debris or leftover Barnacle Buster™. Reassemble the system and run the unit to ensure there are no leaks.

Self-contained air conditioning condenser cleaning instructions.

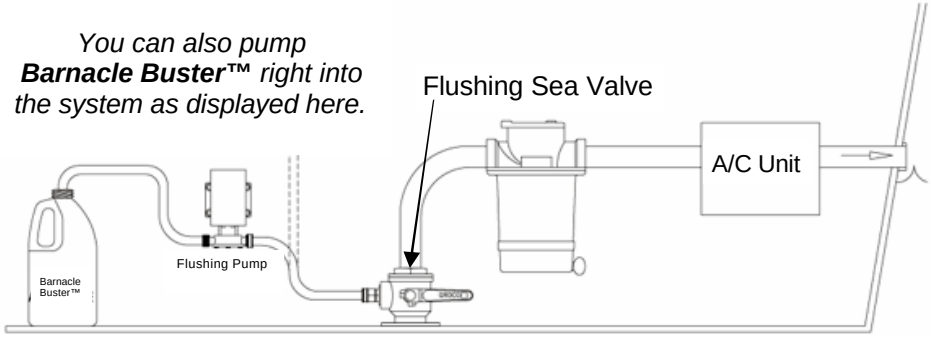
Immersion Cleaning Instructions

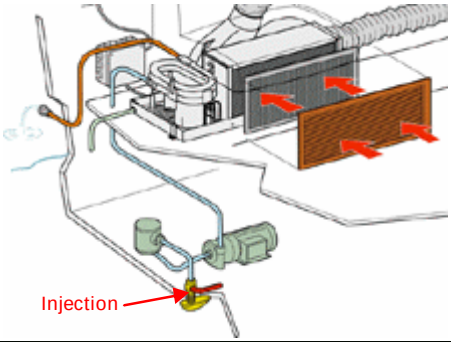
Make certain to secure the air conditioning system by turning off the supply power breaker and ***CLOSING ALL SEA VALVES.***

- Making certain the sea valve is closed, remove the suction hose attached to the valve and place it in a bucket filled with Barnacle Buster™.
- Start the A/C raw water pump until you see Barnacle Buster™ coming out of the overboard discharge.
- Next, secure the pump and allow the product to work in your system for 12-18 hours.
- When complete, reconnect the suction hose, open the sea valve, and run the system for 5-10 minutes making certain you have removed all of the Barnacle Buster™ solution.

TRAC Tip:
For best results on severely clogged engines, add more Barnacle Buster™ every 4 hours. .

You can also pump ***Barnacle Buster™*** *right into the system as displayed here.*





TRAC Tip:
There are many aids available to you to help make flushing your equipment a snap! Contact our technical support team to find out where to get them. ***Pictured below are just a few examples.***

TRAC ECOLOGICAL Marine Products

Air Condition Systems

Chiller Plants—Seawater cooling water

Chiller condenser coil cleaning instructions.

What product do I use?

- For ***ALL*** seawater applications, ***Barnacle Buster™*** is the only choice for safe, fast, and consistent results.
- Also available in a concentrated form, one gallon of ***Buster Concentrate™*** makes five gallons of ***Barnacle Buster™***

How much Barnacle Buster™ do I need?

- First, measure the lengths and diameters of all hoses and piping associated with the raw water cooling system.
- Next, cross reference them with the pipe gallonage chart (*see separate sheet).*
- Finally, add up all your finding. *Remember to add enough for your flushing equipment.*

As a guide, the adjacent chart reflects the most common requirements.

Unit Tons	0 ~ 8	8 ~ 15	15 ~ 24	30 ~ 40	50 ~ 75
Gallons of Barnacle Buster™	6	12	18	25	30

Cleaning Options:

There are two methods to choose from when cleaning your seawater system.

- ***OPEN-LOOP RECIRCULATION:*** This is the quickest and most preferred method. It requires the recirculation of the product and the aid of a flushing system or system pump.
- ***IMMERSION:*** This is the simplest method of cleaning but also the longest. It involves filling the entire system and allowing it to work overnight.

TRAC recommends open-loop flushing for systems with large amounts of growth .

When to use Barnacle Buster™?

- As a general rule of thumb, flushing your air conditioning system once a year is a good preventative maintenance measure. *This is especially important on systems that operate in warm seawater.*
- Monitoring your air conditioning system's amperage draw is an excellent way to determine system efficiency. As growth forms inside the condenser coil, heat transfer will be greatly decreased causing efficiency to drop. Thereby causing the compressor to work much harder—thus increasing amperage draw. *Flushing before the problem gets worse could save you a world of headaches!*

Chiller condenser coil cleaning instructions.

Open Loop Recirculation Method:

Make certain to secure the air conditioning system by turning off the supply power breaker and ***CLOSING ALL SEA VALVES.***

- First, find the best locations to inject and recover Barnacle Buster™. One of the biggest advantages of using any of ***TRAC's*** products is the ability to not only include the condenser coil, but all the adjoining pipe and hose work as well. With this in mind, try to choose points which will include as much of the system as possible.

  Inlet: REMEMBER TO CLOSE THE SEA VALVE!
  On most installations, the chiller plant has provisions for connecting to a shore-side cooling tower for use when the vessel is out of the water. This is an excellent location to inject Barnacle Buster™.

  Recovery or Outlet: As with the inlet, the cooling tower outlet connection serves as a great location to recover the Barnacle Buster™ solution.

- Now, with both your injection and recover points ready, hook up your flushing gear. Connect the discharge from the Port-O-Flush *(or your own flushing unit)* to the inlet point. Then connect the recovery point to the return hose. *You can also use your systems pump and a bucket if you desire. On larger systems you can even use the sea strainer as the bucket.*

> ***TRAC Tip:***
>
> *Reversing the flow, mid-flush, will greatly reduce your flushing time.*

- Now you are ready to recirculate and clean you're A/C system. *TRAC* recommends that you do a test-flush with water first to make certain you have no leaks. If everything looks good, replace the water with your predetermined amount of Barnacle Buster™.
- Recirculate for at least 2 to 3 hours. If there is an excessive amount of buildup recirculate for 3 to 6 hours.
- When flushing is complete, rinse the system with freshwater to remove any loose debris or leftover Barnacle Buster™. Reassemble the system and run the unit to ensure there are no leaks.

Immersion Cleaning Instructions:

Make certain to secure the air conditioning system by turning off the supply power breaker and ***CLOSING ALL SEA VALVES.***

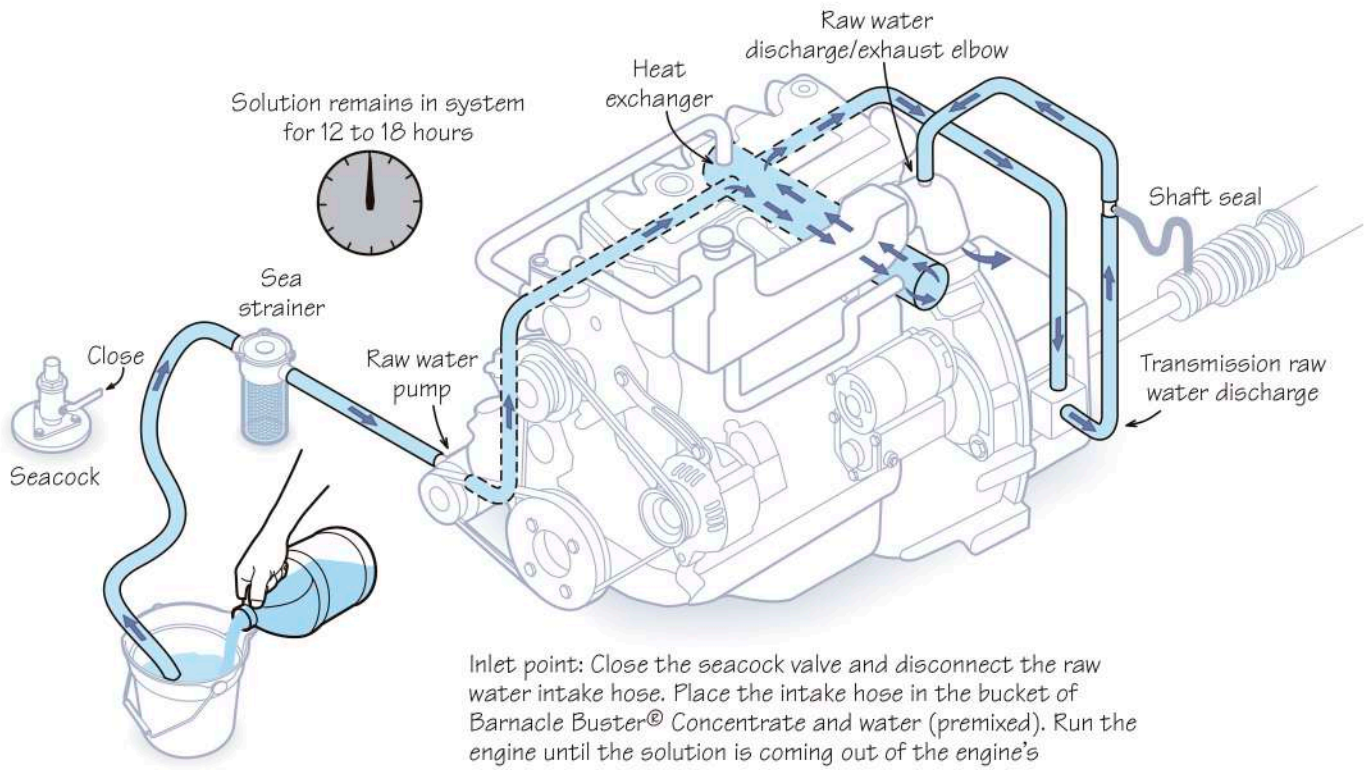
- Making certain the sea valve is closed, remove the suction hose attached to the valve and place it in a bucket filled with Barnacle Buster™ .
- Start the A/C raw water pump until you see Barnacle Buster™ coming out of the overboard discharge.
- Next, secure the pump and allow the product to work in your system for 12-18 hours.
- When complete, reconnect the suction hose, open the sea valve, and run the system for 5-10 minutes making certain you have removed all of the Barnacle Buster™ solution.

> ***TRAC Tip:***
> *If the system is already hooked up to a cooling tower, simply add Barnacle Buster™ to the towers catch pan and watch it go to work. Using this method you can leave the unit online while cleaning it!! Make certain not to leave Barnacle Buster™ in the system for more than 24 hours.*

> ***TRAC Tip:***
> *For best results on severely clogged engines, add more Barnacle Buster™ every 4 hours.*

NOTE: Magnesium/Zinc anodes will need to be removed before you start flushing or replaced after flushing is complete.

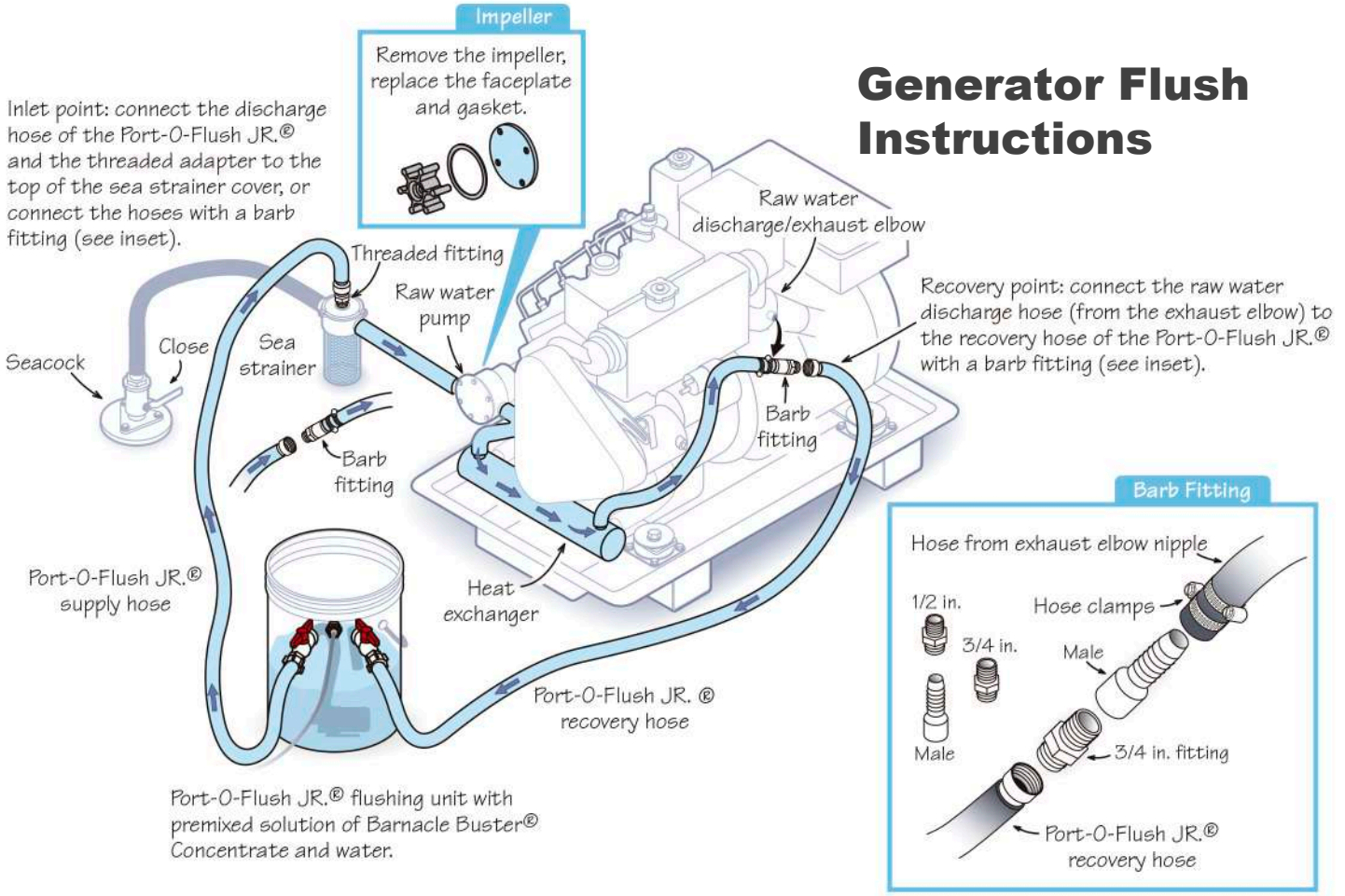
Static Flush Instructions



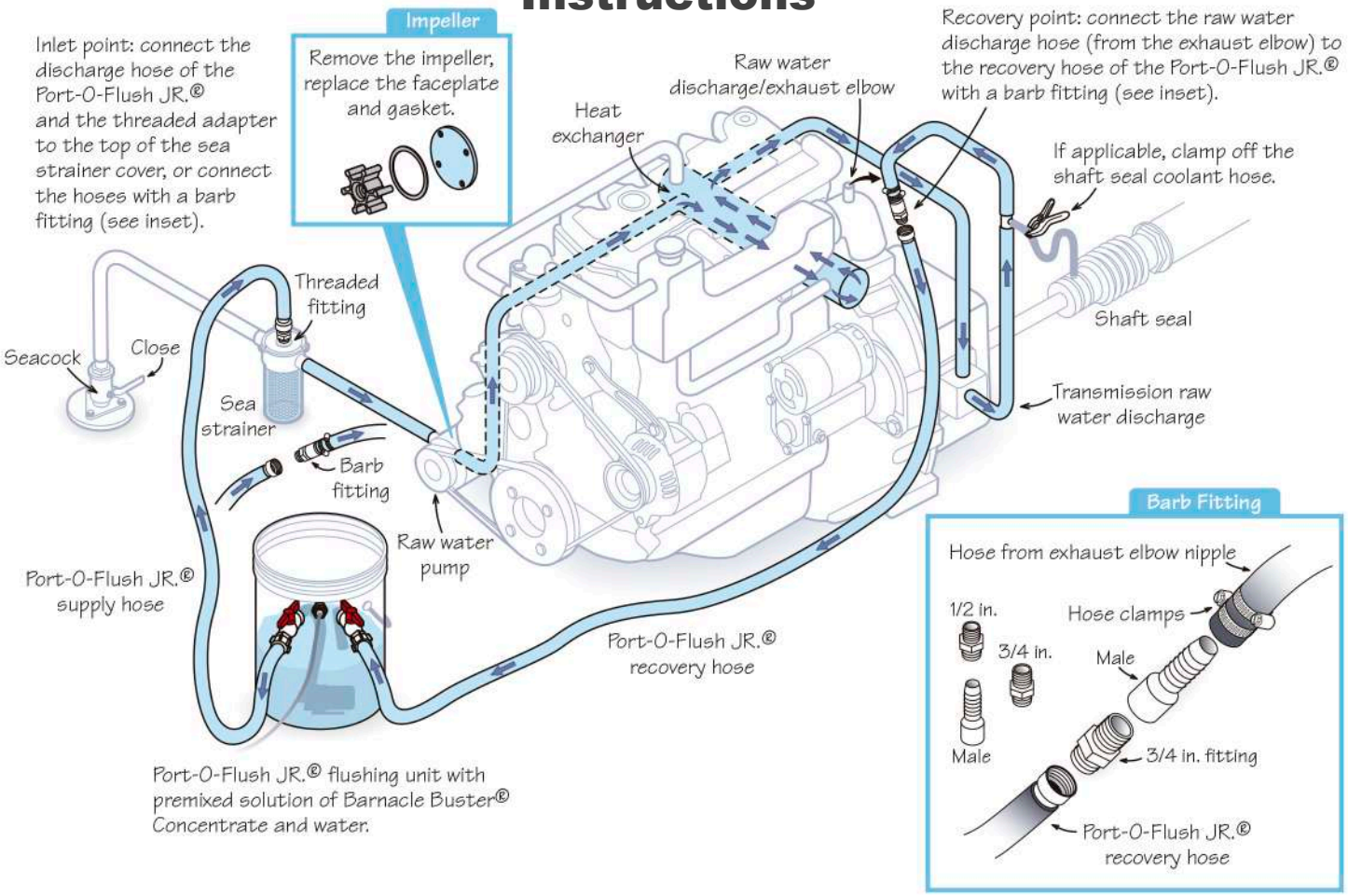
Pour the premixed solution of Barnacle Buster® Concentrate and water into a bucket.

Inlet point: Close the seacock valve and disconnect the raw water intake hose. Place the intake hose in the bucket of Barnacle Buster® Concentrate and water (premixed). Run the engine until the solution is coming out of the engine's overboard discharge. Secure the engine and allow the solution to work in the system for 12 to 18 hours. Finally, reconnect the raw water intake hose to the seacock, open the valve and run the engine for 5 to 10 minutes to ensure all of the Barnacle Buster® Concentrate is removed from the system.

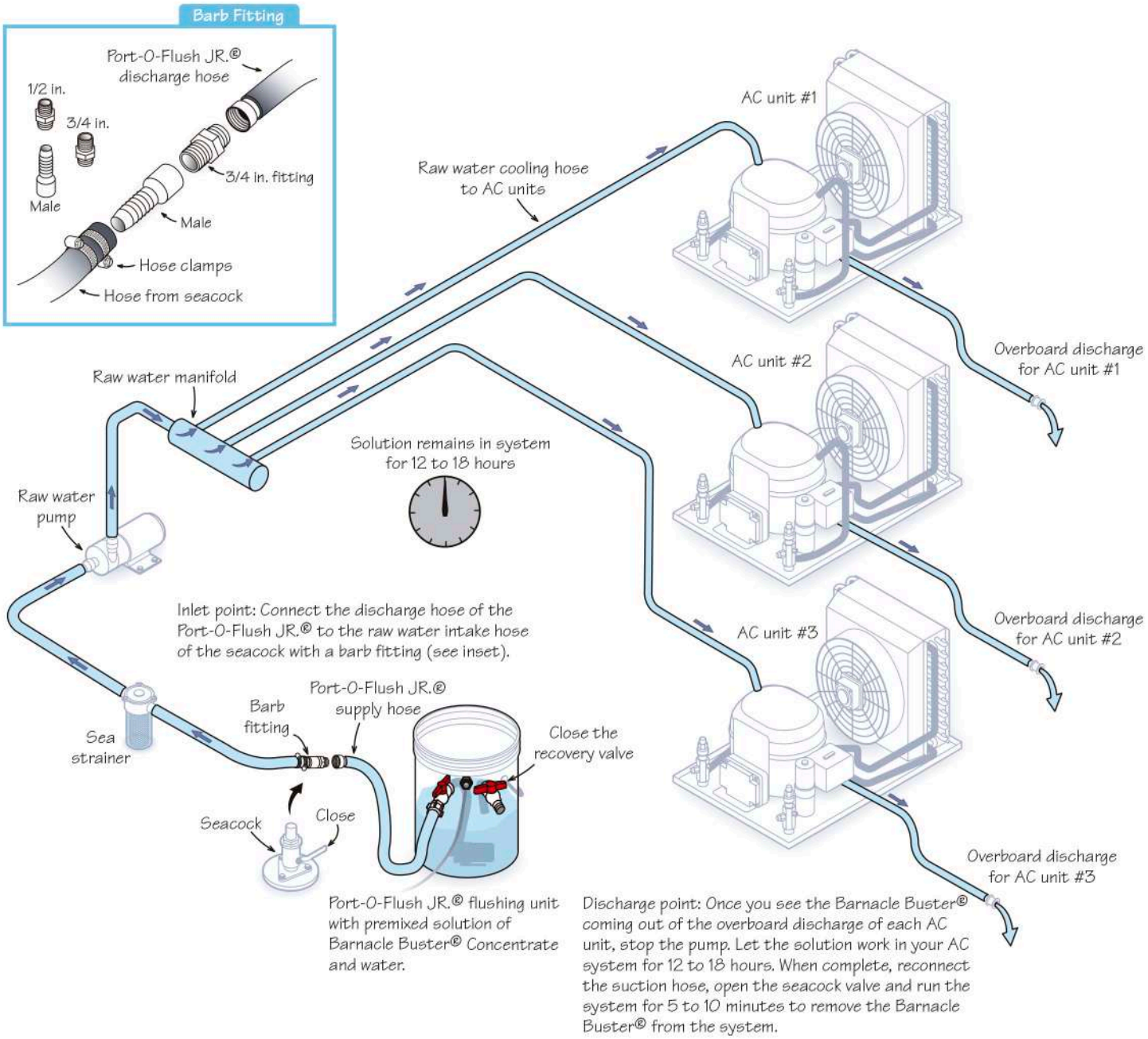
Generator Flush Instructions



Engine Flush Instructions



AIR CONDITIONER Flush Instructions



TRAC ECOLOGICAL Green Products

PIPE GALLONAGE CHART

The results in this chart are in gallons (*to convert to liters, multiply by 3.7485*). If the desired length is not found on this chart, locate the desired diameter and multiply the number in the 1-foot column by the desired length. You can then add all your figures to obtain total system size.

Diameter	Length			
INCHES	1 foot	5 feet	10 feet	20 feet
1	0.04	0.20	0.40	0.80
2	0.16	0.80	1.60	3.20
3	0.37	1.84	3.68	7.36
4	0.65	3.26	6.52	13.0
5	1.02	5.10	10.2	20.4
6	1.47	7.34	14.7	29.4
7	2.00	10.0	20.0	40.0
8	2.61	13.0	26.0	52.0
9	3.31	16.5	33.0	66.0
10	4.08	20.4	40.8	81.6
11	4.94	24.6	49.2	98.4
12	5.88	29.4	58.8	118.
13	6.90	34.6	69.2	138.
14	8.00	40.0	80.0	160.
15	9.18	46.0	92.0	184.
16	10.4	52.0	104.	208.
17	11.8	59.0	118.	236.
18	13.2	66.0	132.	264.
19	14.7	73.6	147.	294.
20	16.3	81.6	163.	326.
21	18.0	90.0	180.	360.
22	19.8	99.0	198.	396.
23	21.6	108.	216.	432.
24	23.5	118.	235.	470.
25	25.5	128.	255.	510.
26	27.6	138.	276.	552.
27	29.7	148.	297.	594.
28	32.0	160.	320.	640.
29	34.3	171.	343.	686.
30	36.7	183.	367.	734.
32	41.8	209.	418.	836.
34	47.2	236.	472.	944.
36	52.9	264.	528.	1056.