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Setting Standards for Safer Boating

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ISO 9001

BAYSTAR™

CAPILANO™

SEASTAR™

OPERATING INSTRUCTIONS

AND OWNER'S MANUAL

www.seastarsolutions.com



SEASTAR™


Power Purge Sr. & Power Purge Jr.
Bleeding Systems



**SEASTAR
SOLUTIONS®**




*Before you do it your way,
please try it our way*

Notice to Boat Manufacturer or Installer

Throughout this publication, Warnings and Cautions (accompanied by the International Hazard Symbol ) are used to alert the manufacturer or installer to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly.

Observe Them Carefully!

These “safety alerts” alone, cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the installation and maintenance plus “common sense” operation are major accident prevention measures.

 DANGER	 WARNING	 CAUTION	NOTICE
Immediate hazards which WILL result in severe personal injury or death.	Hazards or unsafe practices which COULD result in severe personal injury or death.	Hazards or unsafe practices which COULD result in minor injury or product or property damage.	Information which is important to proper installation or maintenance, but is not hazard-related.

WARNING

Cleaning fluids containing ammonia, acids or any other corrosive ingredients MUST NOT be used for cleaning any part of this Hydraulic Steering System. Failure to comply will cause serious damage to the steering system, resulting in possible loss of steering, causing property damage, personal injury and/or death.

Don't compromise performance... use genuine SeaStar parts only!

- SeaStar helms
- SeaStar hoses
- SeaStar Cylinders
- SeaStar Oil

Substituting non SeaStar parts in any part of the SeaStar hydraulic steering system, may seriously compromise system performance.

SAFETY INFORMATION

WARNING

The safety information provided below is intended to inform you of the dangers that may be present before, during and after the installation. It is critical that you read and understand ALL the points noted.

The safe operation of the steering system is dependant upon proper installation and maintenance, common sense, safe judgment and the knowledge/expertise of the operator. Every installer/user of the steering system should know the following requirements 'before' installing/using the steering system.

If you have any questions regarding any of these warnings, contact SeaStar Solutions.

To reduce risk of severe injury or death. Always wear a Coast Guard Approved personal flotation device (PFD) and use an engine shut-off cord (lanyard).

Before installation

1. Read and understand the Installation and Owner's Manuals provided with your steering components.
2. Ensure that all components required to complete the installation are on hand (including hoses, fittings, oil and the proper tools required for the installation).
3. SeaStar components are highly engineered and safety tested to ensure system integrity, DO NOT substitute any component with non-SeaStar components as this may compromise system performance/reliability.

Installation

CAUTION

-3 steering cylinders are fitted with ORB hose fittings. DO NOT use NPT fittings. irreparable damage to cylinder WILL occur.

1. Install components as directed in all Installation Manuals (including helm pumps, hoses and fitting kits).
2. DO NOT modify or substitute any component in any way without written consent from SeaStar Solutions.
3. Comply with all system ratings/regulations (boat/engine, U.S.C.G.).
 - Cylinder MUST be compatible with engine(s) installed.
 - Cylinder MUST be rated for use on the engine(s) installed.
4. Confirm that there is no interference between the steering cylinder(s), tiebars and the transom, splashwell, outboard engine or jackplate or any combination of these parts by performing the following steps:
 - a) With engine fully tilted DOWN, turn steering wheel from hard over to hard over and confirm that no interference occurs.
 - if using a hydraulic jack plate the above must also be performed at all the positions of the jack plate.
 - b) Repeat step 4a) with engines tilted UP.
 - c) Perform step 4a) with each engine in DOWN/UP positions confirming that independent TRIM/TILT can be done without any interference.
5. Confirm that the steering cylinder can be fully stroked in both directions as well as full tilt and trim without stretching, chafing, rubbing and/or kinking of the hydraulic hoses.
6. Confirm that extruded nylon tubing has NOT been substituted for SeaStar Steering Hose.
7. DO NOT use a wire coil type trim switch with a hydraulic steering system as the wire can wind up tight around the steering wheel shaft and prevent further steering.
8. Conduct Oil Level and System Check as outlined on page 11 of this manual.

Safety Information Continued

WARNING

The safety information provided below is intended to inform you of the dangers that may be present before, during and after use. It is critical that you read and understand **ALL** the points noted.

Prior to every use

1. Check Fluid level in highest helm pump (see system Installation and Owner's Manual for proper fluid level setting).
2. Verify immediate steering response when turning steering wheel(s). (Ensure engine turns when steering wheel is turned.)
3. Visually inspect all steering hoses and fittings for wear, kinking and/or leaks.
4. Check for binding, loose, worn or leaking steering components.

DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.

During use

1. WEAR A COAST GUARD-APPROVED PERSONAL FLOTATION DEVICE (PFD).
2. ATTACH ENGINE SHUT-OFF CORD (LANYARD) TO YOUR PFD.
3. Never allow anyone not familiar with the operation of the steering system operate the boat at any time.
4. Know and adhere to the operator restrictions for your area including;
 - Federal Laws/Regulations,
 - State Laws/Regulations and
 - Municipal Laws/Regulations.

DO NOT OPERATE BOAT IF ANY COMPONENT IS NOT IN PROPER WORKING CONDITION.

After use

1. Rinse off steering system thoroughly using 'fresh, clean water only'.
 - Cleaning fluids containing ammonia, acids or any other corrosive ingredients **MUST NOT** be used for cleaning any part of the hydraulic steering system.

Maintenance

1. Maintain steering system at a minimum of twice per year.
 - See maintenance section of your system Installation and Owner's Manual.
2. Maintain Power Purge SR/JR unit as instructed on page 12 of this manual.

Keep our waters clean for all current and future users. Dispose of ALL fluids in accordance with your local regulations.

INTRODUCTION

Before proceeding with the installation, read these instructions thoroughly. SeaStar Solutions cannot accept responsibility for installations where instructions have not been followed, where substitute parts have been used, or where modifications have been made to our products.

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HYDRAULIC FLUID REQUIREMENTS

⚠ WARNING



HA5430-1L, HA5440-1G, HA5458-5G.

Any non-approved fluid may cause serious damage to the steering system resulting in possible loss of steering, causing property damage, personal injury and/or death.

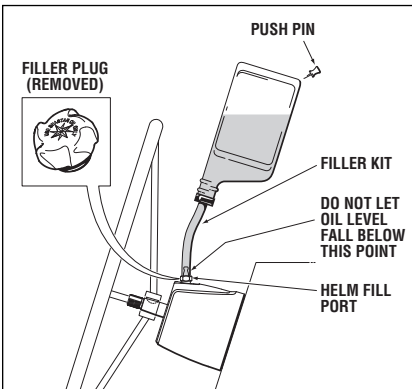
Due to recent upgrades in our steering system components, SeaStar Solutions recommends use of SeaStar Steering Fluid **ONLY** in our hydraulic steering systems. SeaStar Steering Systems have been engineered and validated using our proprietary SeaStar Hydraulic Steering Fluid. SeaStar Steering fluid is engineered with special additive package that contains anti-foaming and anti-rusting agents, anti-oxidants, viscosity stabilizers, corrosion inhibitors, wear additives as well as water emulsification additives. It is highly recommended that SeaStar Steering Fluid be used to ensure optimum system performance and safety.

Use of any non-approved fluid may result in the following;

- Higher steering effort, particularly at ambient or lower temperatures and/or over time due to oil degradation and breakdown
- Increased steering slip and/or drift resulting in lost motion
- Foaming or air entrapment causing a bumpy feel during steering
- High rates of moisture absorption causing internal component corrosion
- Scratched steering cylinder bores and shafts due to contamination or elevated wear rates
- Seal degradation – incompatibility with various proprietary seal compounds used in our products

Optional Filler Kit

Part# HA5438



In an emergency, SeaStar EPS Fluid, any MD-3/4 rated ATF or MIL-PRF-5606H equivalent fluid that is filtered through a fine mesh screen can be used. The system **MUST** be thoroughly flushed as soon as possible with genuine SeaStar Steering Fluid after using an emergency fluid.

In an **EXTREME** emergency, any non-toxic, non-flammable fluid that is filtered through a fine mesh screen may provide temporary steering.

⚠ WARNING

Use of non-standard fluids will require an immediate and complete system flush using approved fluids, by an approved steering technician.

⚠ WARNING

Never fill or mix brake fluids, triglycerides or polyalkylene glycols within a hydraulic steering system.

NOTICE

SeaStar Hydraulic Steering Fluid can be used in Hynautic, BayStar and BayStar Plus steering systems.

NOTICE

Help protect your boating environment by ensuring that all used oil is disposed of properly.

HA5447 POWER PURGING SYSTEM

NOTICE

Ensure steering cylinder is able to fully stroke out hard over to hard over. If cylinder is not able to fully stroke it must be disconnected from the engine steering arm during the bleeding procedure.

SINGLE CYLINDER—Power Purge Operation

NOTICE

For Dual Cylinder installations please refer to page 9 of this manual.

STEP 1. CONNECTION

1. Starting with the lower of a multiple helm station boat, screw quick coupling adapter into the helm pump filler port **HAND-TIGHT** (See figure 1c on page 4).
2. Install a non-venting cap into ALL other steering stations to prevent oil spillage during the purge procedure.
3. Pull required length of **HELM** hose from the top of the power purger cart and connect both hoses to the helm pump coupling adapter. Push the quick connect fittings onto adapter ensuring they are locked in place.
4. Pull the required length of **CYLINDER** hose from the bottom of the power purge cart and connect to both steering cylinder bleed fittings. Push the quick connect fittings onto adapter ensuring they are locked in place.
5. OPEN both bleeder fittings 1/2 – 1 turn.

STEP 2. PURGING

NOTICE

For Dual Cylinder purging please refer to page 9.

NOTICE

For bleeding a Power Assist or Liquid Tiebar application, refer to the bleeding details included in your Power Assist/Liquid Tiebar Valve Installation and Owner's Manual.

1. Turn Power Purge ON. At this time you should see fluid entering/exiting the helm purge lines.
2. Wait at least 30 seconds for helm to fill with oil.
3. Quickly turn steering wheel "clockwise" until the steering cylinder shaft is fully extended (you may need to manually move steering cylinder shaft/body).
4. Slowly continue to turn steering wheel "clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.
5. Quickly turn the steering wheel "counter-clockwise" until the cylinder shaft is fully extended on the opposite side (you may need to manually move the steering cylinder shaft/body).
6. Slowly continue to turn steering wheel "counter-clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.
7. If fitted, manually jog autopilot pump to both directions for about 30 seconds per side.
8. Turn OFF Power Purge.
9. Tighten BOTH steering cylinder bleed fittings.
10. Repeat at each and every steering station. **NOTE:** *Ensure ALL stations NOT being purged are fitted with a non-venting cap to prevent oil leakage at these stations.*

HA5447 Power Purge Sr.

(SeaStar, SeaStar PRO & BayStar Systems **ONLY**)

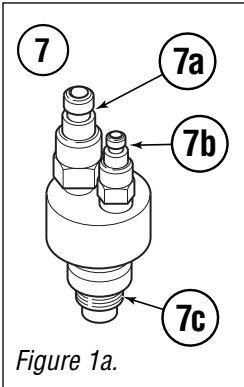


Figure 1a.

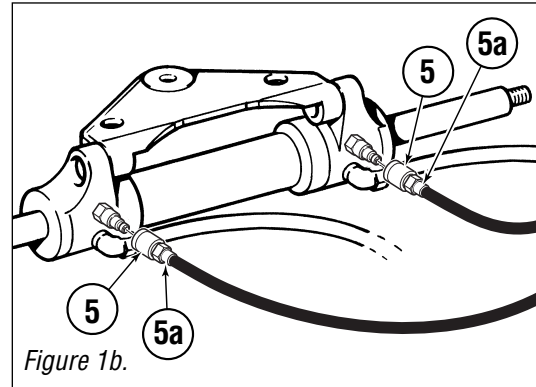


Figure 1b.

NOTICE

Filter **MUST** be replaced after every 100 boats purged.

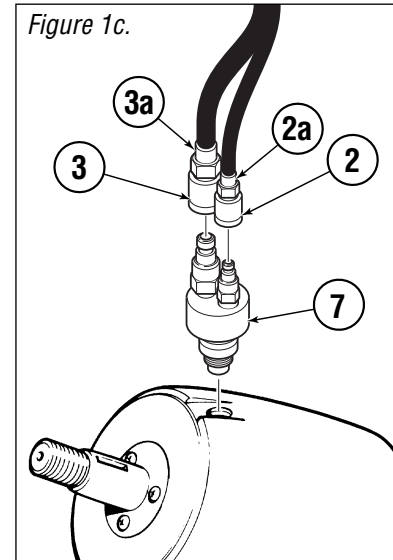
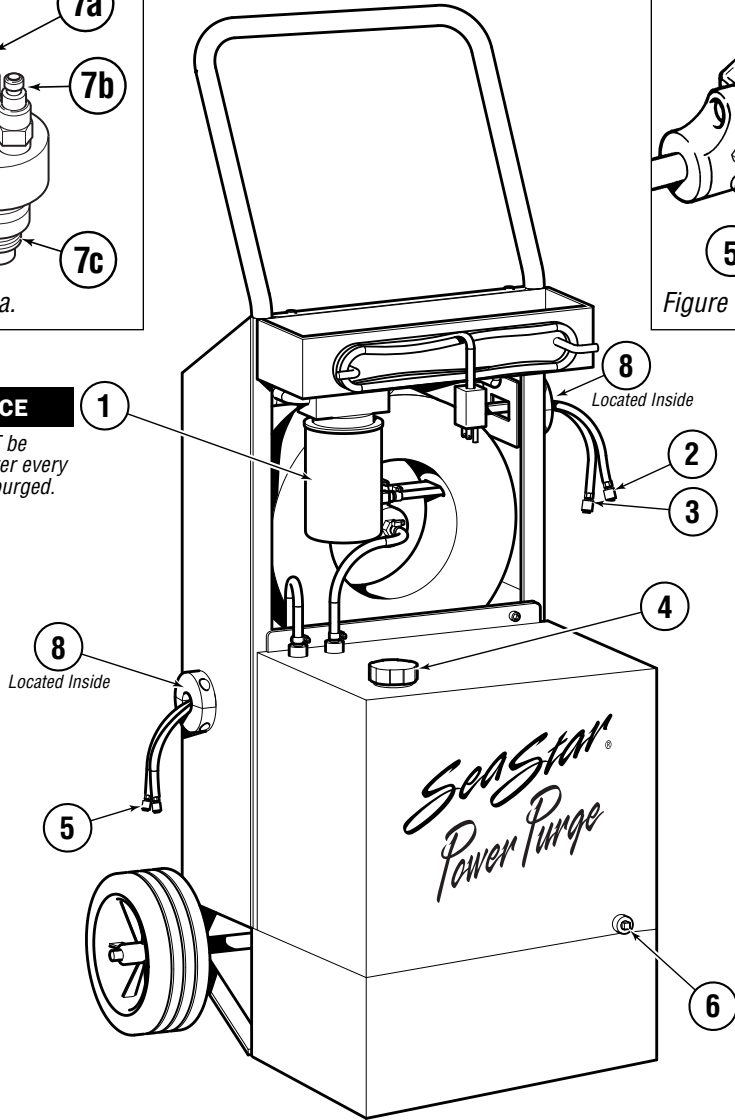


Figure 1c.

Figure 1.

ITEM	PART #	QTY	DESCRIPTION
1	HP6140	1	10 Micron Filter
2	800112	1	Fitting, QD 5/32" Barb-Series 20
2a	800117	1	Hose 'O' Clamp, 5/16"
3	800111	1	Fitting, QD 5/16" Barb-Series 21
3a	800116	2	Hose Clamp, 3/8"
4	800121	1	Filler Cap, Tethered
5	800113	2	Fitting, QD 1/4" Barb-Series 21
5a	800118	2	Hose 'O' Clamp, 1/2"
6	430122	1	1/4" NPT Drain Plug
7	800136	1	Assembly Fitting, Power Purge Helm
7a	800114	1	Fitting QD 1/8" NPT, series 21
7b	800115	1	Fitting QD 1/8" NPT, series 20

ITEM	PART #	QTY	DESCRIPTION
7c	014925	1	'O' Ring, 0.110 70 DUR N
8	903929	2	Grommet, Base Assembly 1-1/2"
SPARE PART KITS			
HP6140	Oil Filter		
HP6060	FULL KIT		(Ships with all quick connect fittings, helm adapter and oil filter.)
HP6148	Helm Adapter ONLY		
HP6170	Quick Connect Fittings ONLY		

**STEP 3. DISCONNECTION
AND TESTING**

1. Disconnect ALL the hoses and retract them into the Power Purge cart.
2. Remove helm coupling adapter and replace the filler plug into the helm(s). **NOTE:** *Install "venting" caps into all single station, or, the highest helm in a multi-station application. All other helm stations are to be fitted with a "non-venting" cap.*
3. Push on steering cylinder to ensure it does not move more than 1/16" – 1/8" in either direction (if movement is greater than 1/8" further bleeding is required).
4. Conduct Oil level and System Check as outlined on page 11 of this manual.

HA5445-2 POWER PURGING SYSTEM**NOTICE**

Ensure steering cylinder is able to fully stroke out hard over to hard over. If cylinder is not able to fully stroke it must be disconnected from the engine steering arm during the bleeding procedure.

SINGLE CYLINDER—Power Purge Operation**STEP 1. CONNECTION**

1. Starting with the lower of a multiple helm station boat, screw quick coupling adapter into the helm pump filler port **HAND-TIGHT** (See figure 2c on page 7).
2. Install a non-venting cap into ALL other steering stations to prevent oil spillage during the purge procedure.
3. Remove the blue, **HELM** hose from the Power Purge box and connect both hoses to the helm pump coupling adapter. Push the quick connect fittings onto adapter ensuring they are locked in place.
4. Remove the clear, **CYLINDER** hose, from the Power Purge box and connect to both steering cylinder bleed fittings. Push the quick connect fittings onto adapter ensuring they are locked in place.
5. OPEN both bleeder fittings 1/2 – 1 turn.

⚠ WARNING

If 12V power source is in an area where flammable fumes may be present, FULLY vent area BEFORE continuing to next step.

6. After area is fully vented free of fumes, attach the alligator type electrical connectors to your 12V power source.

STEP 2. PURGING**NOTICE**

For bleeding a Power Assist or Liquid Tiebar application, refer to the bleeding details included in your Power Assist/Liquid Tiebar Valve Installation and Owner's Manual.

1. Turn Power Purge ON. At this time you should see fluid entering/exiting the helm purge lines.
2. Wait at least 30 seconds for helm to fill with oil.
3. Quickly turn steering wheel "clockwise" until the steering cylinder shaft is fully extended (you may need to manually move steering cylinder shaft/body).
4. Slowly continue to turn steering wheel "clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.
5. Quickly turn the steering wheel "counter-clockwise" until the cylinder shaft is fully extended on the opposite side (you may need to manually move the steering cylinder shaft/body).
6. Slowly continue to turn steering wheel "counter-clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.
7. If fitted, manually jog autopilot pump to both directions for about 30 seconds per side.
8. Turn OFF Power Purge.
9. Tighten BOTH steering cylinder bleed fittings.
10. Repeat at each and every steering station. **NOTE:** *Ensure ALL stations NOT being purged are fitted with a non-venting cap to prevent oil leakage at these stations.*

STEP 3. DISCONNECTION AND TESTING

1. Disconnect ALL the hoses and return them to the Power Purge box.
2. Remove helm coupling adapter and replace the filler plug into the helm(s). **NOTE:** *Install "venting" caps into all single station, or, the highest helm in a multi-station application. All other helm stations are to be fitted with a "non-venting" cap.*
3. Push on steering cylinder to ensure it does not move more than 1/16" – 1/8" in either direction (if movement is greater than 1/8" further bleeding is required).
4. Conduct Oil level and System Check as outlined on page 11 of this manual.

NOTICE

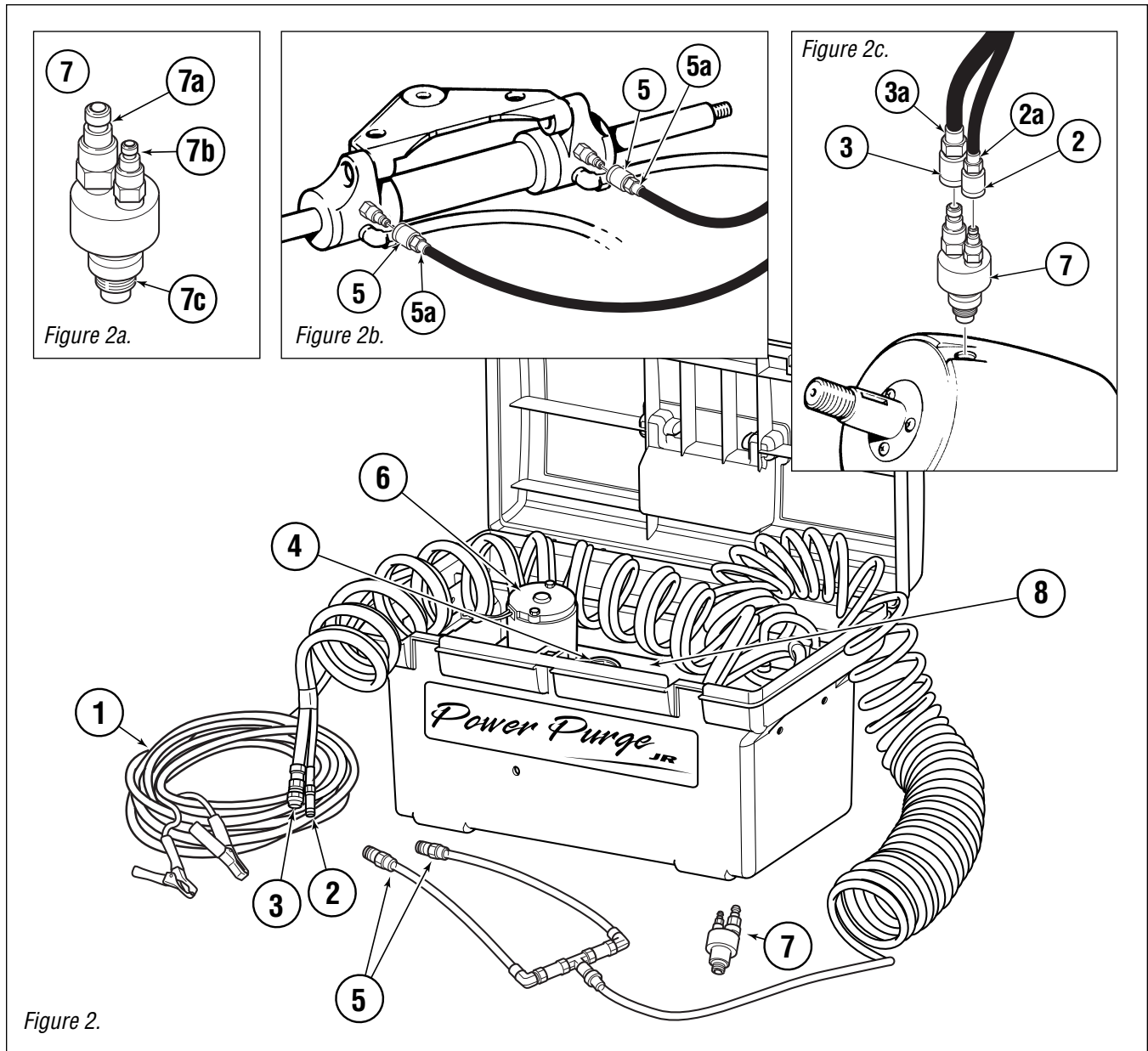
For dual helm applications, install non-vent plug in upper helm and perform procedure described above on lower helm first. Once complete, install non-vent plug in lower helm and repeat procedure with upper helm.

⚠ CAUTION

Failure to install non-vent plugs during this procedure will result in oil leakage from other helm.

HA5445-2 Power Purge Jr.

(SeaStar and BayStar Systems)



ITEM	PART #	QTY	DESCRIPTION
1	Harness	1	Harness, electrical inc switch & clamps
2	800112	1	Fitting, QD 5/32 Barb-series 20
2a	800117	1	Hose O clamp, 5/16"
3	800111	1	Fitting, QD
3a	800116	1	Hose Clamp, 3/8"
4	470220	1	Tank Cap with gauge
5	800113	1	Fitting, QD 1/4" Barb-series 21
5a	800118	1	hose O clamp, 1/2"
6	470500	1	Pump set
7	800136	1	Assembly fitting, helm/hose connector
7a	800114	1	Fitting QD 1/8" NPT, series 21

ITEM	PART #	QTY	DESCRIPTION
7b	800115	1	Fitting QD 1/8" NPT, series 20
7c	014925	1	'O' Ring 0.110 70 DUR N
8	470200	1	Tank

SPARE PART KITS			
HP6060	FULL KIT	<i>(Ships with all quick connect fittings, helm adapter and oil filter.)</i>	
HP6148	Helm Adapter ONLY		
HP6170	Quick Connect Fittings ONLY		

HA5461 Dual Cylinder Purge Kit

(SeaStar Systems **ONLY**)

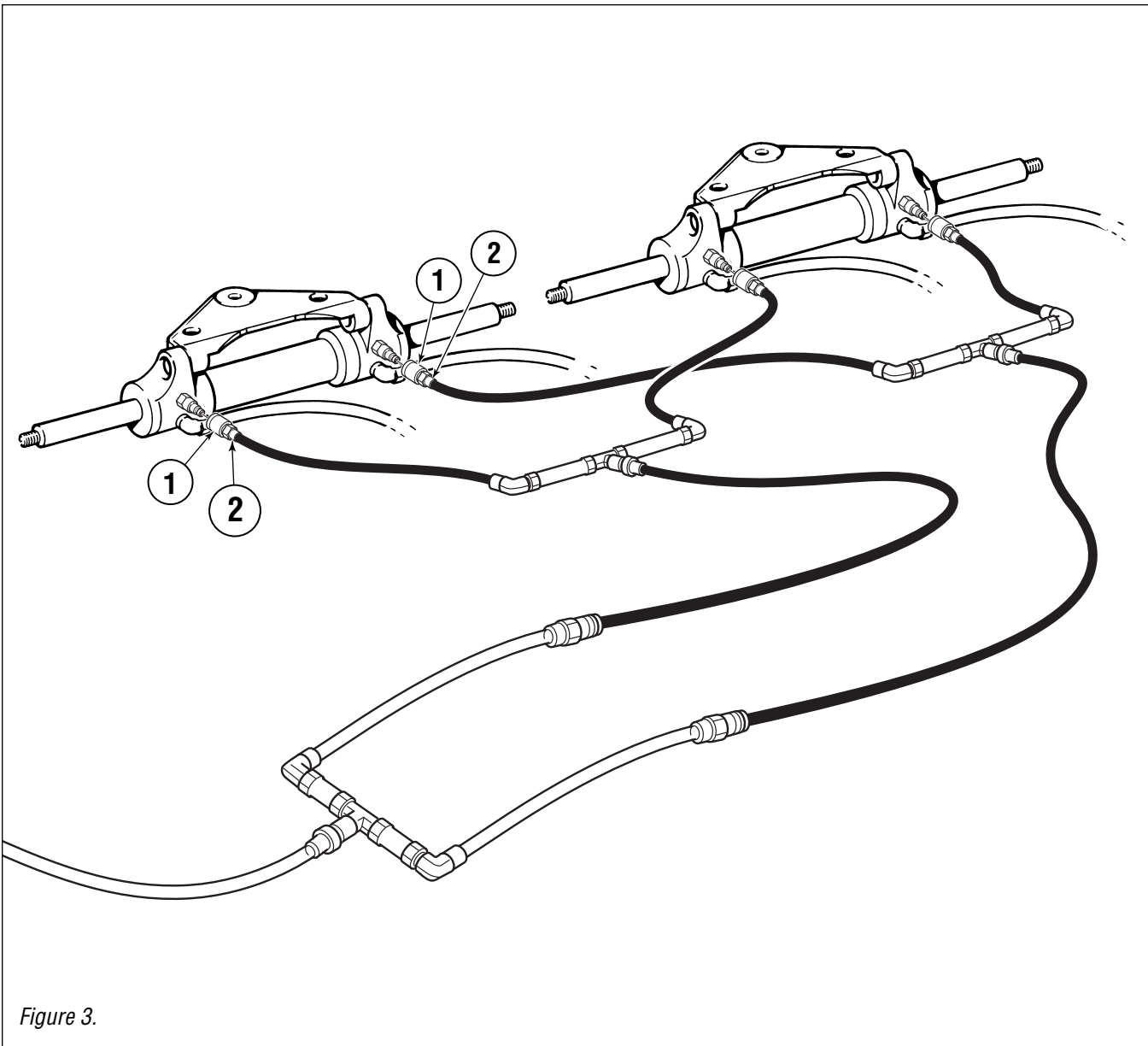


Figure 3.

ITEM	PART#	QTY	DESCRIPTION
1	800113	4	Fitting, QD 1/4" Barb-Series 21
2	800118	4	Hose O Clamp, 1/2"
3	470714	1	Decal (Not Shown)

ITEM	PART#	QTY	DESCRIPTION

HA5461 DUAL CYLINDER PURGE KIT

NOTICE

Ensure steering cylinder is able to fully stroke out hard over to hard over. If cylinder is not able to fully stroke it must be disconnected from the engine steering arm during the bleeding procedure.

DUAL CYLINDER—Power Purge Operation

STEP 1. CONNECTION

1. Starting with the lower of a multiple helm station boat, screw quick coupling adapter into the helm pump filler port **HAND-TIGHT** (See figure 1c on page 4).
2. Install a non-venting cap into ALL other steering stations to prevent oil spillage during the purge procedure.
3. Remove the blue, **HELM** hose from the Power Purge box and connect both hoses to the helm pump coupling adapter. Push the quick connect fittings onto adapter ensuring they are locked in place.
4. Remove the clear, **CYLINDER** hose, from the Power Purge box and connect to one of the Dual Cylinder Purge Kit hoses, then connect both Dual Cylinder Purge lines to the port side bleeders of "both" steering cylinders. Repeat to the starboard side of "both" cylinders. Push the quick connect fittings onto adapter ensuring they are locked in place.
5. OPEN both bleeder fittings 1/2 – 1 turn.

⚠ WARNING

If 12V power source is in an area where flammable fumes may be present, FULLY vent area BEFORE continuing to next step.

6. After area is fully vented free of fumes, attach the alligator type electrical connectors to your 12V power source.

NOTICE

For dual helm applications, install non-vent plug in upper helm and perform procedure described below on lower helm first. Once complete, install non-vent plug in lower helm and repeat procedure with upper helm.

⚠ CAUTION

Failure to install non-vent plugs during this procedure will result in oil leakage from other helm.

STEP 2. PURGING

NOTICE

For bleeding a Power Assist or Liquid Tiebar application, refer to the bleeding details included in your Power Assist/Liquid Tiebar Valve Installation and Owner's Manual.

1. Turn Power Purge ON. At this time you should see fluid entering/exiting the helm purge lines.
2. Wait at least 30 seconds for helm to fill with oil.
3. Quickly turn steering wheel "clockwise" until the steering cylinder shaft is fully extended (you may need to manually move steering cylinder shaft/body).
4. Slowly continue to turn steering wheel "clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.

5. Quickly turn the steering wheel "counter-clockwise" until the cylinder shaft is fully extended on the opposite side (you may need to manually move the steering cylinder shaft/body).
6. Slowly continue to turn steering wheel "counter-clockwise" while holding the steering cylinder shaft in this position for approximately 30 seconds or until you see NO Air bubbles escaping through the cylinder hoses.
7. If fitted, manually jog autopilot pump to both directions for about 30 seconds per side.
8. Turn OFF Power Purge.
9. Tighten BOTH steering cylinder bleed fittings.
10. Repeat at each and every steering station. **NOTE:** *Ensure ALL stations NOT being purged are fitted with a non-venting cap to prevent oil leakage at these stations.*

STEP 3. DISCONNECTION AND TESTING

1. Disconnect ALL the hoses and return them to the Power Purge box.
2. remove helm coupling adapter and replace the filler plug into the helm(s). **NOTE:** *Install "venting" caps into all single station, or, the highest helm in a multi-station application. All other helm stations are to be fitted with a "non-venting" cap.*
3. Push on steering cylinder to ensure it does not move more than 1/16" – 1/8" in either direction (if movement is greater than 1/8" further bleeding is required).
4. Conduct Oil level and System Check as outlined on page 11 of this manual.

WARNING

DO NOT store Dual Cylinder Adapter Kit (HA5461) or any other object in Power Purge Jr. Carrying Case. This may cause irreparable damage to the reservoir tank resulting in the failure of the pumpset.

OIL LEVEL & SYSTEM CHECK

STEP 1 – OIL LEVEL SETTING

⚠ WARNING The oil level **MUST** be checked and maintained **BEFORE EACH** use to ensure safe steering operation. Failure to adhere to this warning may lead to loss of steering control resulting in persons being ejected from vessel or collision with an obstacle, leading to property damage, personal injury and/or death.

⚠ CAUTION

Side mount and Splashwell mount cylinder are unbalanced. To set the oil level in the helm pump the cylinder rod **MUST** be fully “retracted (cylinder shaft all the way in the cylinder body). Failure to adhere to this caution **WILL** result in oil spillage at the helm filler port and/or stiff steering operation.

- For helms mounted with the wheel shaft completely horizontal **MUST** be filled to the bottom of filler hole **AT ALL TIMES**. **DO NOT** allow oil level to drop more than 1/4” below filler threads.
- For helms mounted on a 20 degree angle, or, with wheel shaft in the vertical position, oil level should be within 1/2” of filler hole.

STEP 2 – SYSTEM CHECK

⚠ WARNING The system check **MUST** be completed after installation. Doing so will ensure the safe operation of your steering system and will any fault/leak will show at this time. Failure to adhere to this warning/check may result in the loss of steering control leading to ejection from the vessel, or, collision with an obstacle resulting in property damage, personal injury and/or death.

- Turn steering wheel hard over to hard over to confirm unrestricted movement of the steering system and hoses. Repeat this procedure in ALL trim/tilt positions of the engine(s). If interference occurs, or, hoses are being stretched this **MUST** be removed prior to operating your boat.
- Confirm that engine(s) are deflecting to the proper direction when steering wheel is turned.
- If no interference is noticed, or, any interference is corrected, go to next step.
- Take steering wheel hard over to starboard (any helm can be used on a multi-station boat). Once the wheel reaches its stop point (cylinder is fully stroked out), continue to force the wheel one (1) full turn past stop. Leave wheel in this position while you check all **PORT** side connections, fittings, seals and hoses for leaks.

NOTICE *This step will NOT harm the system and any noise made during this step should not be considered a fault in the steering system.*

- If leaks are noticed they **MUST** be repaired prior to operating boat. After repair repeat bleeding procedures as outlined in this manual
- Repeat to the Port direction and inspect ALL starboard side connections, fittings, seals and hoses for leaks.

NOTICE *This step will NOT harm the system and any noise made during this step should not be considered a fault in the steering system.*

- If leaks are noticed they **MUST** be repaired prior to operating boat. After repair repeat bleeding procedures as outlined in this manual.

⚠ WARNING

Failure to complete the above noted step or, failure to correct a problem may result in loss of steering control leading to ejection from the vessel or collision with an obstacle resulting in property damage, personal injury and/or death.

MAINTENANCE

Maintenance schedules vary drastically with the Power Purge SR/JR units. In some cases maintenance will need to be performed after each use, whereas in other areas maintenance will be very limited. The maintenance is all dependent on how and what systems are being bled. As an example. A Power Purge SR unit that is only used to fill new steering systems and never used for steering systems that have been in use, maintenance will be limited, whereas a Power Purge JR unit that is used frequently on existing/older steering systems may have to have maintenance performed on a regular basis. It is good mechanical practice to “always” inspect the Power Purge Units to ensure performance and to avoid contaminating other steering systems with bad, or incorrect fluid.

WARNING

Failure to comply with maintenance and inspection procedures noted below may lead to contamination of a steering system resulting in loss of steering control. Loss of steering control may result in unpredictable boat behavior, collision with an obstacle and/or ejection from vessel, leading to property damage, personal injury and/or death

INSPECTION

To be performed every 3–6 months, or, after each use if using to purge “older/existing steering systems”

- Inspect tanks and fittings for oil leakage or damage. Replace if damage or wear is noted.
- Inspect hoses and grommets for any signs of wear, kinking or damage. Replace if damage or wear is noted.
- Inspect ALL electrical connections to ensure wires are secure and show no signs of abrasion or chaffing. Replace or repair if outer jacket is damaged.
- Inspect fluid “inside” of power purge for cleanliness. If fluid is contaminated or fluid is not the recommended type the unit **MUST** be flushed and cleaned prior to use (see flushing details below).
- Oil filter change recommendations (Power Purge SR. models ONLY).
 - Every 3 months if pump is used more than 5 times per day.
 - Every 6 months if pump is used less frequently (3 times a day or less).

FLUSHING THE POWER PURGE

If flushing is required it is recommend to use Dexron ATF. Fluid being flushed out is NOT to be reused.

POWER PURGE SR.

- OPEN drain plug on front of unit (see page 4, item 6).
- Drain fluid into a catch can.
- OPEN fluid filler cap.
- Using a wet/dry vacuum, clean internal reservoir.
- Install reservoir drain plug.
- Fill reservoir with 4 bottles of Dexron ATF.
- Attach helm lines to helm adapter.
- Direct helm adapter into a catch can.
- Turn power purge ON.
- Pump all Dexron ATF out of reservoir.
- Discard flushed fluid properly.
- Refill with SeaStar Steering fluid and continue use.

POWER PURGE JR.

- Remove power purge motor (see page 7, item 6).
- Tilt power purge on its side, draining out fluid.
- Add 1–2 bottles of Dexron ATF to reservoir.
- Rotate reservoir swishing the Dexron ATF on the inside.
- Tilt power purge on its side, draining out fluid.
- Using a wet/dry vacuum, clean internal reservoir.
- Add 1–2 bottles of Dexron ATF.
- Attach helm lines to helm adapter.
- Direct helm adapter into a catch can.
- Turn power purge ON.
- Pump all Dexron ATF out of reservoir.
- Discard flushed fluid properly.
- Clean mesh filters located on bottom of power purge motor.
- Replace motor into reservoir.
- Fill with SeaStar Steering Fluid and continue use.

TROUBLESHOOTING

If properly maintained, your SeaStar Power Purge will provide years of safe and reliable performance. Most faults occur when installation instructions have not been followed, unit has not been stored with care or maintenance schedules have not been followed. Below are the most common faults and their likely cause and solution.

FAULT	CAUSE	SOLUTION
1. Flow from power purge seems weak.	<ul style="list-style-type: none">• Low voltage from power supply.• Restriction in oil supply line.• Clogged or dirty filters.• Faulty Power Purge motor.	<ul style="list-style-type: none">• Confirm ample power is being supplied to unit (load test batteries, or, connect to known good battery).• Confirm helm quick connect fittings are “clicked” into place.• Change filter (Power Purge SR.), or, clean mesh filters (Power Purge JR). <i>NOTE: Power Purge JR. filters are located underneath the power purge motor.</i>• Replace Purge motor.
2. Power Purge does NOT turn ON.	<ul style="list-style-type: none">• Low/weak voltage from power supply.• Faulty power purge switch.• NEG/POS clamps attached to wrong side of battery.	<ul style="list-style-type: none">• Confirm ample power is being supplied to unit (load test batteries, or, connect to known good battery).• Confirm switch harness is in good working order and all connections are tight.• Confirm that you are connected to the correct side of the battery terminals.
3. Air is seen leaving the helm return side of the power purge helm lines (smaller 'blue' line).	<ul style="list-style-type: none">• Low fluid in power purge reservoir.• Clogged/dirty filters.• Low/weak voltage from power supply.	<ul style="list-style-type: none">• Confirm that there is ample amount of fluid in power purge reservoir.• Change filter (Power Purge SR.), or, clean mesh filters (Power Purge JR). <i>NOTE: Power Purge JR. filters are located underneath the power purge motor.</i>• Confirm ample power is being supplied to unit (load test batteries, or, connect to known good battery).

Statement of Limited Warranty

We warrant to the original retail purchaser that **Marine Canada Acquisition Inc. DBA SEASTAR SOLUTIONS** (herein forward referred to as **SeaStar Solutions**) products have been manufactured free from defects in materials and workmanship. This warranty is effective for two years from date of purchase, excepting that where **SeaStar Solutions** products are used commercially or in any rental or income producing activity, then this warranty is limited to one year from the date of purchase.

We will provide replacement product without charge, for any **SeaStar Solutions** product meeting this warranty, which is returned (freight prepaid) within the warranty period to the dealer from whom such product were purchased, or to us at the appropriate address. In such a case **SeaStar Solutions** products found to be defective and covered by this warranty, will be replaced at **SeaStar Solutions** option, and returned to the customer.

The above quoted statement is an extract from the complete **SeaStar Solutions** products warranty statement. A complete warranty policy is available in our **SeaStar Solutions** products catalogue.

Return Goods Procedure

Prior to returning product to **SeaStar Solutions** under warranty, please obtain a *Return Goods Authorization number* (claim number).

Be sure to label the goods with:

- a) the name and address of the sender, and
- b) the return goods authorization number (claim number)

Please address the returned goods as follows:

From U.S.A.

RGA # ?
SeaStar Solutions
c/o UPS-SCS
19308 70th Ave S.
Kent, WA 98032

From Canada

RGA # ?
SeaStar Solutions
3831 No. 6 Road
Richmond, B.C.
Canada V6V 1P6

Technical Support

Phone: 604-248-3858

email: seastar@seastarsolutions.com

Hours: Monday - Friday 05:00 – 15:30 PST

Web: www.seastarsolutions.com



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SOLUTIONS®**

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