# SHOCKWAVE

MARINE SUSPENSION SEATING

## Operations & Service Manual

with Illustrated Parts Breakdown

# ICE

## INTEGRATED CONTROL ENVIRONMENT


**SHOCKWAVE MARINE SUSPENSION SEATING**
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SHOCKWAVESEATS.COM

SW-07441 REV01

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# HOW TO GET HELP

**We are here to help.** Call or email us if you have any problems, questions or concerns.

| | |
|---|---|
| **ADDRESS** | 2074 Henry Avenue, Sidney BC Canada, V8L 5YI |
| **PHONE** | +I.778.426.8544 |
| **FAX** | +I.250.655.4334 |
| **EMAIL** | support@shockwaveseats.com |
| **HOURS** | 8 AM to 5 PM Pacific Standard Time |
| **WEBSITE** | shockwaveseats.com |


# SERVICE TIPS

- Drawings and an Illustrated Parts Breakdown are supplied according to the specific ICE configuration ordered. Additional copies of these documents can be requested by contacting support@shockwaveseats.com.
- Tell us what the concern is. Be sure to answer all the Who, What, When, Where and Whys of the situation so we have a clear understanding and can provide the best advice.
- Please identify the SHOCKWAVE product by supplying the serial number, which is typically located inside the front hatch on the helm side.
- Tell us who you are and what your relationship is with the product.
- Provide both wide angle and close-up photos of the item or area of concern.
- Let us know where you are located and your contact information.
- Tell us the urgency of the request.
- Refer to the Warranty Claim Procedure section of this document for more information.

# IMPORTANT SAFETY INFORMATION



## DANGER

Your SHOCKWAVE ICE will mitigate the effects of shock and vibration, reducing the potential of injury, but it will **NOT** prevent the possibility of injury. The increased level of comfort and control provided by the SHOCKWAVE ICE will allow for the operation of the craft at higher speeds in sea states which create high shock loads on the craft and potentially the occupants; **SHOCK LOADS THAT COULD POTENTIALLY EXCEED THE ICE'S CAPABILITIES TO MITIGATE.**

Operating marine craft in a high shock load environment is inherently hazardous. Tolerance to the effects of shock and vibration vary from person to person and it is the responsibility of the craft operator to ensure the safety of each person onboard. Pain and/or discomfort are indicators of a potential injury. Constantly monitor the physical state of the craft and the personnel onboard. Hazardous operation of the craft may result in serious injury, death or damage to the craft.

## WARNING

- Do not modify the equipment by drilling extra holes, removing material, or adding extra equipment. **Serious injury can result.**
- Do not use the ICE if it is, or appears to be, damaged. **Serious injury can result.**
- Do not use seating if the seat to ICE attachments are loose. **Serious injury can result.**
- Do not use the ICE if the resting height is lower than normal. This may be an indication of a damaged or leaking system. **Serious injury and damage can result.**
- Do not operate the console with insufficient air pressure in shocks to prevent bottoming. **Serious injury and damage can result.**

## CAUTION

- Do not use the ICE for uses other than its intended purpose. **Damage to the equipment or bodily harm may result.**
- Do not use the ICE if fasteners are loose. **Damage to the equipment or bodily harm may result.**
- Do not attempt to open, perform maintenance or repair the ICE while the craft is underway. **Damage to the equipment or bodily harm may result.**
- Do not place items under or around the ICE that may interfere with the ICE's range of motion. **Damage to the equipment or bodily harm may result.**

## IMPORTANT

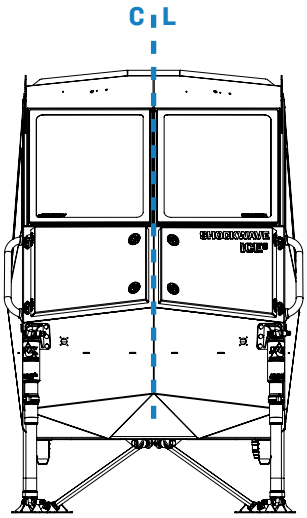
Follow **IMPORTANT** instructions located throughout the Operations and Service Manual to prolong the appearance and service life of your SHOCKWAVE ICE Console.

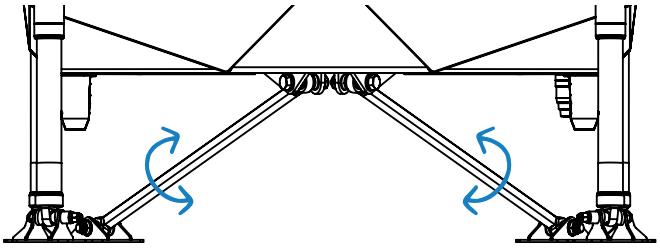
# MOUNTING INSTRUCTIONS

## DANGER

Incorrectly installed ICE consoles can cause damage to the ICE and vessel, as well as cause serious injury or death.

- There must be enough deck structure to support the weight of the ICE and occupants within the vessel's operational envelope. Deck loading estimates are available by contacting SHOCKWAVE at support@shockwaveseats.com.
- There must be no flex in the mounts or deck plate when the ICE is loaded.
- The shock brackets, linkage brackets, sway bar brackets and the ICE must not be modified.
- Do not mount the ICE on a curved deck if it was not specifically designed for the curved deck by SHOCKWAVE.
- Do not mount the ICE in the middle of an unsupported deck plate.
- Ensure that the movement of the ICE does not interfere with the vessel structure or equipment.
- Check operation of the ICE after installation by filling and draining the system. It must not bind or stick.
- Do not attach any equipment to the ICE without first consulting SHOCKWAVE at support@shockwaveseats.com.
- All the ICE deck mounts must be positioned as per SHOCKWAVE specification. CAD files or a metal drill template for deck mount position can be sourced from support@shockwaveseats.com.
- Ensure the ICE is true to the deck by using a plumb bob to find the center of the front and rear of the ICE and ensure the ICE is aligned with the centerline of the mounts. Adjust the ICE by rotating the center shaft of the control arms to extend or reduce the length.



## WARNING

Control arms should be kept as short as possible. Do not extend more than 0.25" [6.35mm] per link end from fully retracted position.

# RECOMMENDED FASTENER TORQUE

All fasteners are prone to becoming loose from sustained high-performance use. SHOCKWAVE recommends that all bolts should be visually inspected for signs of being loose. Always use a thread-locker on fasteners to prevent loosening. Please use the reference table below:

| SIZE | PITCH | TORQUE (STAINLESS) | |
|---|---|---|---|
| | | Dry | Lubricated |
| **IMPERIAL** | | | |
| #6 | 32 | 10 in-lbs | 9 in-lbs |
| #8 | 32 | 21 in-lbs | 17 in-lbs |
| #10 | 24 | 23 in-lbs | 20 in-lbs |
| | 32 | 33 in-lbs | 28 in-lbs |
| 1/4” | 20 | 6 ft-lbs | 6 ft-lbs |
| | 28 | 8 ft-lbs | 7 ft-lbs |
| 5/16” | 18 | 11 ft-lbs | 9 ft-lbs |
| 3/8” | 16 | 20 ft-lbs | 17 ft-lbs |
| 7/16” | 14 | 32 ft-lbs | 27 ft-lbs |
| 1/2” | 13 | 45 ft-lbs | 38 ft-lbs |
| | 20 | 47 ft-lbs | 40 ft-lbs |
| 5/8” | 11 | 96 ft-lbs | 82 ft-lbs |
| 3/4” | 10 | 131 ft-lbs | 111 ft-lbs |
| 1” | 8 | 299 ft-lbs | 254 ft-lbs |
| **METRIC** | | | |
| M5 | 0.8 | 45 in-lbs | 40 in-lbs |
| M6 | 1.0 | 6 ft-lbs | 6 ft-lbs |
| M8 | 1.25 | 15 ft-lbs | 14 ft-lbs |
| M10 | 1.5 | 31 ft-lbs | 27 ft-lbs |
| M12 | 1.75 | 54 ft-lbs | 48 ft-lbs |

# UNDERSTANDING THE BASICS



SHOCKWAVE ICE is designed to mitigate shock and vibration encountered in high speed vessel operation on rough seas. Following the suggestions in this section will ensure that you are getting the most out of the product.

### SET THE RIDE HEIGHT

The suspension must be allowed to compress and extend as designed. Ensure the ICE is SET after each time the payload on the ICE changes. This should allow the ICE to sit 2" [50mm] less than full shock extension.

### OPERATE IN THE VESSEL'S DESIGN ENVELOPE

Driving the boat beyond its limitations can have damaging effects on the hull, engines and equipment. The SHOCKWAVE ICE is designed to provide shock mitigation to the occupants. It will not protect the occupants from injury caused from operating the vessel outside of its operational envelope.

### OPERATE THE VESSEL IN YOUR CREWS PHYSICAL CONDITIONING ENVELOPE

Personal fitness is a limiting factor to the amount of sustained G loads a person can endure without injury. If you have inexperienced, relatively unfit or overweight persons aboard, extra caution must be exercised to prevent injury. The helmsman must be keenly aware of the shock loads being transmitted to passengers not in the ICE or standing, as serious injury can occur. Installation of the SHOCKWAVE ICE provides an extra level of protection, but the ICE will not protect a person from ALL shock loads.

### OPERATE IN YOUR OWN ABILITY ENVELOPE

The SHOCKWAVE ICE will increase the confidence of the helmsman. Overconfidence can lead to loss of boat control. Generally, the ICE will permit greater control of the vessel and the helmsman should focus on using the control advantages of the shock mitigated ICE to better look after the vessel and crew.

### DO NOT TIE THE BOAT UP WITH THE ICE

As tempting as it may be, the SHOCKWAVE ICE is not designed to tie up the boat.

### ENSURE THAT THE ICE IS FUNCTIONING PROPERLY

Refer to the Caution Notes in the preceding sections. The following is provided as a general checklist.

Do not operate the ICE if:

- The shock ride height is incorrect.
- Any components are loose, broken or missing.
- The ICE makes a strange noise when being operated.

### USE SEAT BELTS – IF SUPPLIED

Seat belts prevent occupants from being ejected from the vessel and the seat. When not in use, the seat belt buckle clasp should be fastened to prevent damage to the ICE.

### SET FORE AND AFT SEAT ADJUST CORRECTLY – IF SUPPLIED

Correct ergonomics and posture enhance the ability to operate the vessel safely and reduces the risk of shock and vibration related injury. Take the time to adjust the seat so that it is comfortable.

### DO NOT SIT IN SEATS WITH HARD OR SHARP OBJECTS. DO NOT WALK ON SEATS

Ensure that sharp objects and heavy gear are worn so that they will not tear the upholstery.

### RINSE ICE WITH FRESH WATER AFTER EACH USE

Rinse the ICE and the seats with fresh water after each use, or every week if being stored outside, to prevent a buildup of salt and debris.

### COVER SEATS WHEN NOT IN USE

Seat covers are available from SHOCKWAVE to cover all the seats.

### TIE EVERYTHING DOWN

Pay attention to how you have stowed your gear. Elastic shock cords and ratchet tie downs should be used to secure all gear. Plastic containers of oil and other fluids must be protected from chafing and puncture. Electronic equipment must be secured to prevent damage from shock loads.

### CHECK ALL EQUIPMENT

Conventional mounting brackets for heavy items such as fire extinguishers are subject to much more loading than without shock mitigation. Make sure all your equipment brackets are tight. Recheck major equipment bolts regularly. Wiring, cables and fluid hoses should be bundled tightly and not allowed to flail. Do not allow any objects under the ICE. The objects will limit the stroke of the ICE and damage the objects or damage the ICE.

### REMOVE OR PAD BODY STRIKE HAZARDS

Hard objects, particularly in the head strike zone, need to be rounded and padded. When assessing your body strike hazards consider a generous portion of clearance, as the body will stretch in a high G situation.

# USING AUTOTUNE 1 SYSTEM

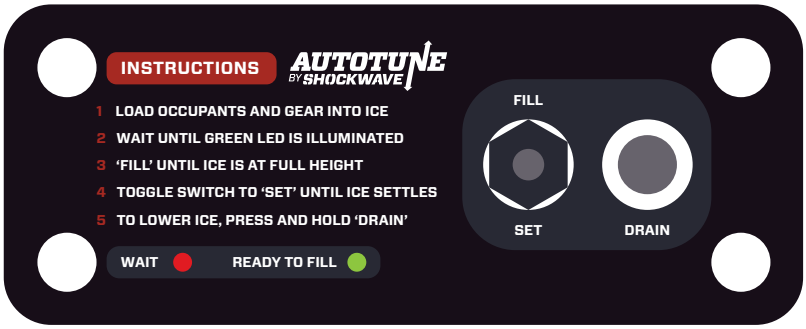
The ICE is typically equipped with the SHOCKWAVE AUTOTUNE system that allows for simple filling and setting of the ICE system. To get the most out of your ICE, it is important to always setup the suspension properly when weight is either added or removed from the ICE.

**STEP 1:** Ensure the ICE is set up with its full occupants and gear weight in place.

**STEP 2:** If the red 'WAIT' light is illuminated the compressor is running to fill up the air tank. This can take up to 5 minutes. Once the green 'READY TO FILL' light is illuminated the air tank is full.

**STEP 3:** Lift and hold the momentary toggle switch in the 'FILL' position to fill all shocks. Hold the switch until the ICE is at full height.

**STEP 4:** Set the ICE console to 'SET' height by holding the switch in the 'SET' position. This generally takes 5-10 seconds.




# USING AUTOTUNE 2 SYSTEM

**STEP 1:** Ensure the ICE console is set up with its full occupants and gear weight.

**STEP 2:** Lift the 'ON/OFF' toggle switch to the up position. The 'FILL' light should be blinking.

**STEP 3:** Lift the 'FILL' toggle switch to the up position and wait until the 'FILL' light has stopped blinking.

**STEP 4:** When the system is ready, the 'SET' light will be flashing. At this time hold the 'SET' toggle down until the light stops blinking. At this point the 'STATUS' light should be solid green in the "READY" state.

# DAILY OPERATIONAL CHECKS

**IMPORTANT**

The SHOCKWAVE ICE does not have to be drained after every use. It is acceptable to leave your ICE console filled for extended periods of time, but it will still need to be set properly before its next use.

Before each use, ensure there are no missing, damaged or cracked components on or under the ICE.
Check for equipment that might have been placed under the ICE.

Before sitting in the ICE, raise the zip tie travel indicators up on the exposed shock until they rest against the upper shock body. Setup the ICE as per instructions on page 8. Once the console is “SET”, check to see if there is a gap between the shock body and the zip tie. If a gap exists, there is a potential for an air leak in the system which has caused the ICE to settle since its last operation. Monitor the shock in question and follow the trouble shooting guide on page 11 if any problems arise.

# MAINTENANCE SCHEDULE

## 15 YEAR LIFE CYCLE MAINTENANCE PROGRAM - BASED ON 400 HRS./YR.

Service at the indicated hours or months - whichever comes first.

| HOURS | 400 | 800 | 1200 | 1600 | 2000 | 2400 | 2800 | 3200 | 3600 | 4000 | 4400 | 4800 | 5200 | 5600 | 6000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTHS | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 |

| MAINTENANCE TASK | |
|---|---|
| Cover seating with Boat Cover or Seat Cover | WHEN NOT BEING USED OR IF STORED OUTSIDE |
| Clean ICE - Fresh Water or Wash with Car or Boat Wash | AFTER EVERY EXPOSURE TO SALT WATER SPRAY |
| Inspect Shock Mounts and Shock Bolts for damage or bends | EVERY 200 HRS OR AFTER EXPOSURE TO EXTREME IMPACTS |
| Clean Upholstery – Boat or Automotive Detail Spray Cleaner | AS REQUIRED (REMOVING ANY BUILDUP OF DIRT OR SALT) |
| Clean Console Underside and Deck Mounts – Fresh Water or Wash with Car or Boat Wash | AFTER EVERY EXPOSURE TO SALTWATER SPRAY |
| Lubricate Link Ends – LPS 3, triple guard grease or equivalent | WEEKLY |
| Protect Metal Surfaces and Fasteners – LPS 1® or equivalent | EVERY 40 HOURS (AFTER SEATS HAVE DRIED FROM CLEAN) |
| Clean and Lubricate Fox Shock Absorber Shaft – After cleaning apply LPS 1® | WEEKLY |
| Check Fastener Torques | EVERY 125 HOURS |
| Use Soapy water to check for air leaks | EVERY 200 HOURS |

| | HOURS | 400 | 800 | 1200 | 1600 | 2000 | 2400 | 2800 | 3200 | 3600 | 4000 | 4400 | 4800 | 5200 | 5600 | 6000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MONTHS | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 | 156 | 168 | 180 |
| Replace Link End Heim Joints | | | X | | X | | X | | X | | X | | X | | X | |

# GENERAL TROUBLESHOOTING

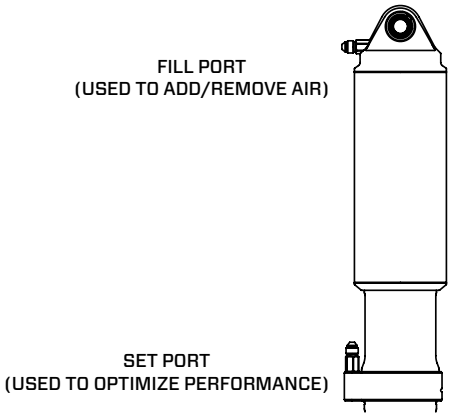
| CONDITION | CAUSE | REMEDY |
|---|---|---|
| Squeaks when in use | • Rod end bearings of the ICE links are dry<br>• Sway bar links are dry | • Lubricate with heavy duty marine grease.<br>• Remove sway bar arm and lubricate bearing area with heavy duty marine grease. |
| Clunking Noise During Operation | • Loose bolts or cracked components | • Check bolt torques and inspect for loose, cracked or bent parts. Start by checking the upper shock bolts and work your way down to the deck, checking all fasteners and brackets. |
| Zip tie travel indicator below “Safe Travel Zone Marker” | • Insufficient air pressure in shocks<br>• Console overweight | • Follow: Finding an air leak on the subsequent pages.<br>• Remove excess weight from the console. |

# TROUBLESHOOTING – AUTOTUNE OVERVIEW



The AUTOTUNE systems contain valves, hoses, compressors and shocks which work together to manipulate the SHOCKWAVE ICE with simple toggle switches. While the ICE configurations vary slightly due to body shape and space availability the general layout is consistent throughout the SHOCKWAVE ICE product line.

- Each shock has two air connections. The fill port is used to add/remove air from the shock. The set port is used to automatically drain a certain amount of air from the shock to provide the correct ride height.

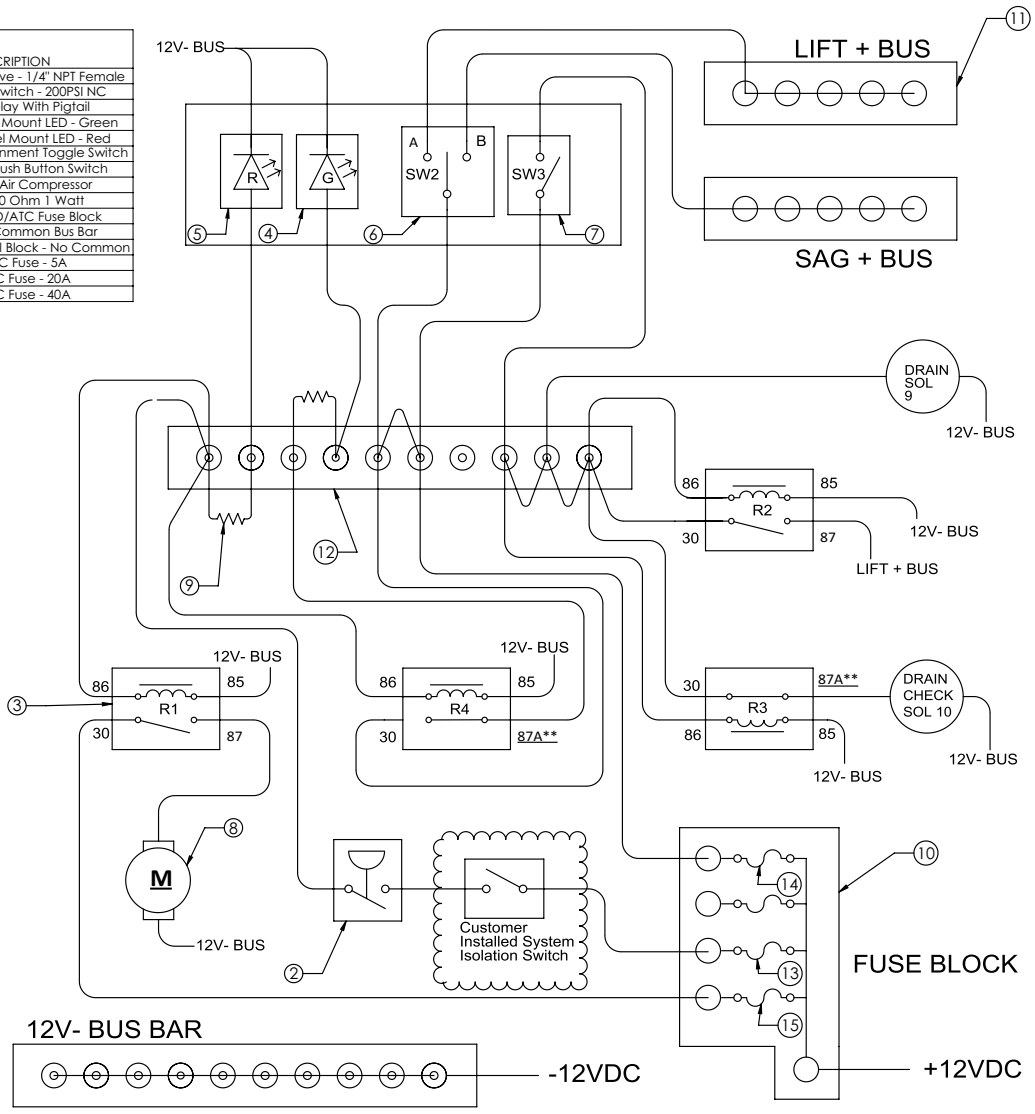


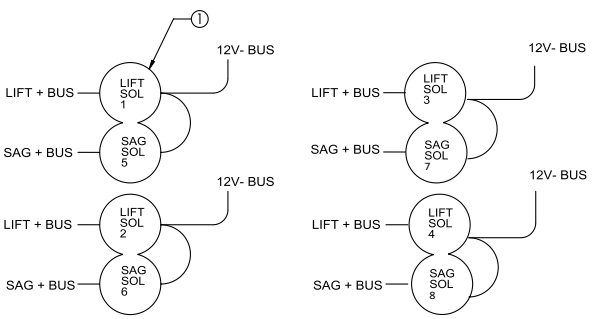

- The compressor, tank, and water separator are typically located in the rear lower section of the ICE.
- The fill and set solenoid valves are typically located just inside the body of the ICE near the shock mounts. Each shock has its own 'FILL' and 'SET' solenoid valve.
- The main fill solenoid valve is typically located near the air/water separator and the main drain solenoid is typically located near the distribution manifold.

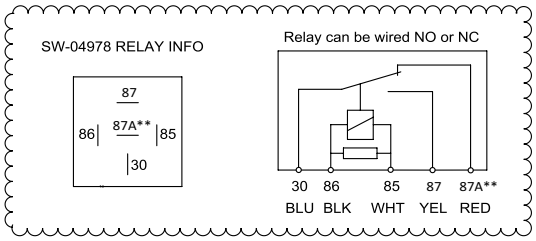
# AUTOTUNE 1 TROUBLESHOOTING ELECTRICAL DIAGRAM



| ITEM | QTY. | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 10 | SW-04968 | 12V Solenoid Valve - 1/4" NPT Female |
| 2 | 1 | SW-04973 | 12V Pressure Switch - 200PSI NC |
| 3 | 4 | SW-04978 | 12V 30A Relay With Pigtail |
| 4 | 1 | SW-04979 | 12V 4MM Panel Mount LED - Green |
| 5 | 1 | SW-04980 | 12V 4MM Panel Mount LED - Red |
| 6 | 1 | SW-04982 | SPDT Harsh Environment Toggle Switch |
| 7 | 1 | SW-04985 | Seadog 30A Push Button Switch |
| 8 | 1 | SW-05071 | VIAIR 480C Air Compressor |
| 9 | 2 | SW-05098 | Resistor 680 Ohm 1 Watt |
| 10 | 1 | NOT SUPPLIED | 4 Position ATD/ATC Fuse Block |
| 11 | 2 | NOT SUPPLIED | 4 Position - Common Bus Bar |
| 12 | 1 | NOT SUPPLIED | 8 Position Terminal Block - No Common |
| 13 | 1 | NOT SUPPLIED | ATD/ATC Fuse - 5A |
| 14 | 1 | NOT SUPPLIED | ATD/ATC Fuse - 20A |
| 15 | 1 | NOT SUPPLIED | ATD/ATC Fuse - 40A |

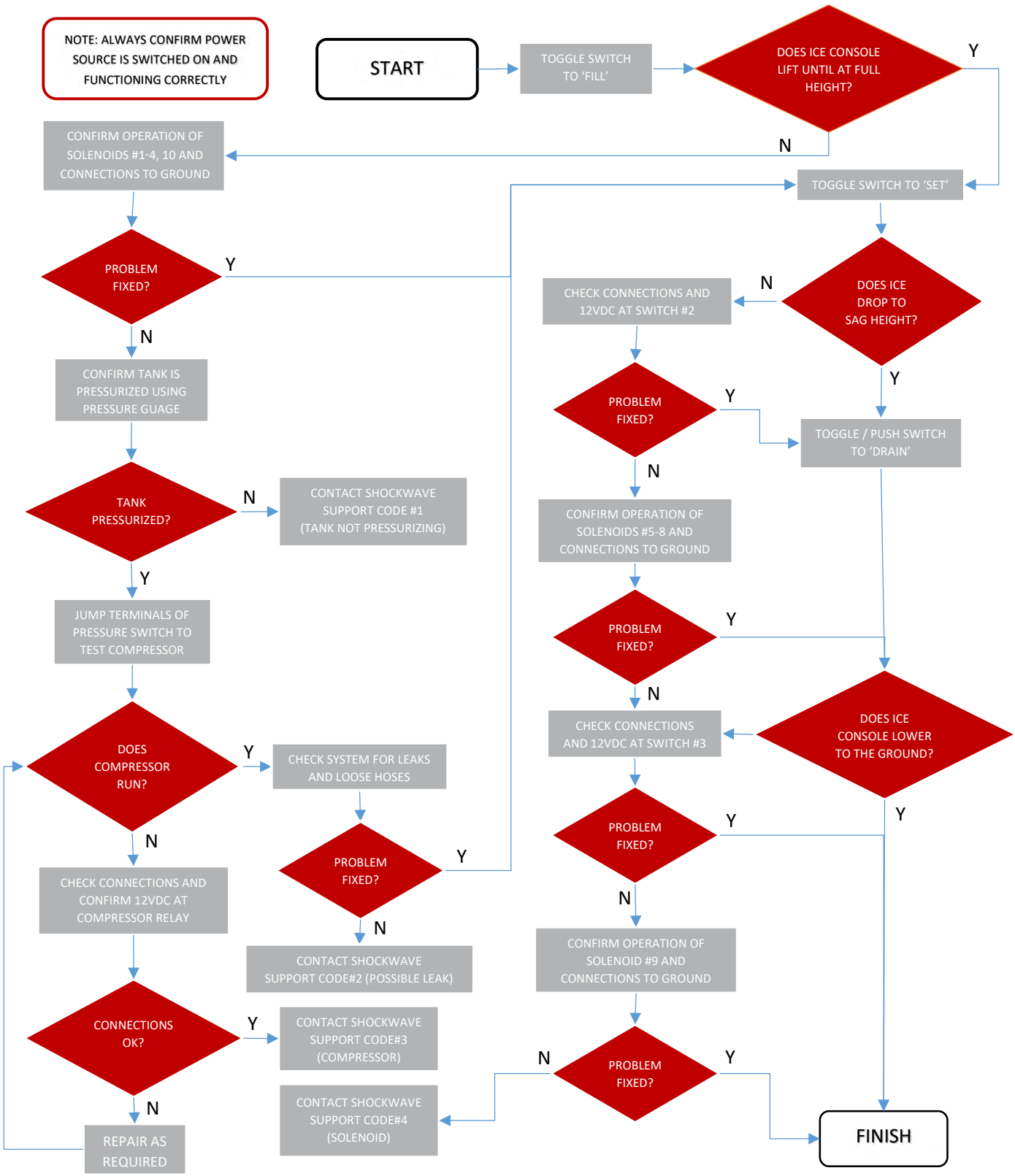


# AUTOTUNE 1 TROUBLESHOOTING FLOW DIAGRAM

**See Electrical Diagram on page page 13 for reference.**



# AUTOTUNE 1 TROUBLESHOOTING

| CONDITION | CAUSE | REMEDY |
|---|---|---|
| System will not fill | • Loss of power to the system | • Check Autotune fuse<br>• Ensure wiring is not damaged, pinched or corroded. |

# AUTOTUNE 2 TROUBLESHOOTING

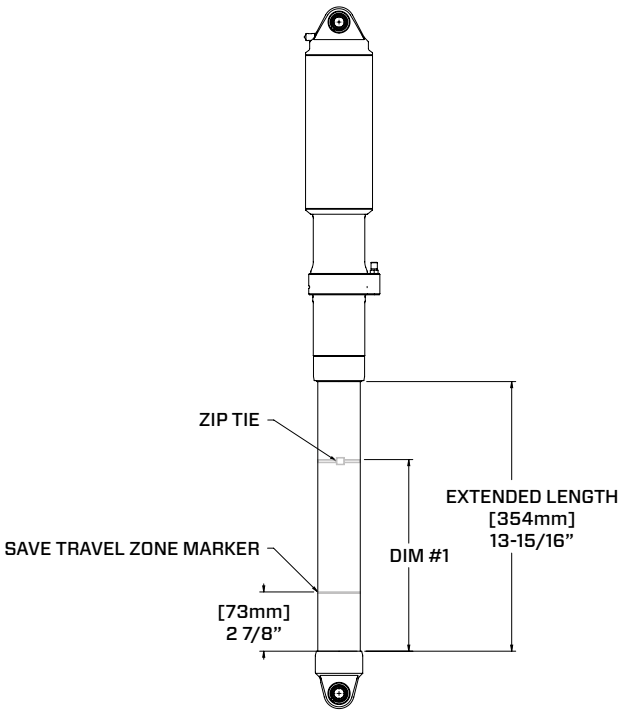
| CONDITION | CAUSE | REMEDY |
|---|---|---|
| ON/OFF light won't illuminate | • No power to the system | • Check Autotune fuse<br>• Ensure wiring is not damaged, pinched or corroded |
| FILL light will not stop blinking | • System cannot reach maximum operating pressure (MIN 190 PSI) | • Check for air leaks around the tank, compressor and shocks<br>• Re-calibrate the system |
| SET light does not stop blinking | • System has not detected significant air flow during SET process<br>• Console was not able to get above the SET point | • Reduce weight in the ICE<br>• Re-calibrate the system |
| Status lights not illuminating but system still functioning | • Status light shave burnt out<br>• Dimmer switch turned down | • Adjust dimmer switch to maximum brightness<br>• Remove panel and check for voltage at LED's Replace if necessary |

# TROUBLESHOOTING – FINDING AN AIR LEAK

If there are operational problems with the console bottoming out or not holding air, the procedure below can help to narrow down the problem.

**STEP 1:** Fill the system to max pressure using the fill toggle switch on the AUTOTUNE system. Allow the shocks to fully extend by allowing the compressor to reach maximum pressure (around 200psi on the tank gauge) and record the tank pressure.

**STEP 2:** If the red 'WAIT' light is illuminated the compressor is running to fill up the air tank. This can take up to 5 minutes. Once the green 'READY TO FILL' light is illuminated the air tank is full.




**STEP 3:** Allow the console to sit for 3-4hrs or overnight if possible. Do not allow anyone to enter or add gear to the ICE during this time.

**STEP 4:** Measure all the shocks on the ICE and record the extended length as well as the tank pressure.

| CONDITION | CAUSE | REMEDY |
|---|---|---|
| Tank pressure has dropped but shocks are still measuring the same extended length. | • Potential air leak between compressor and "FILL" solenoid | • Check all fittings with soapy water, replace or tighten any loose fittings. |
| Tank is still at max pressure but extended length of one or more shocks has dropped. | • Potential leak of shock or fitting between "FILL" Solenoid and "SET" solenoid. | • Check the shock body fittings with soapy water, replace or tighten any loose fittings. If the shock is leaking through its main seal it will need to be removed and repaired or replaced. |

# TROUBLESHOOTING – FIXING AN AIR LEAK

**STEP 1:** Drain the system ensuring the ICE is securely resting on the deck and all the air has been released from the shocks.

**STEP 2:** If there is obvious damage to the fitting such as a crack or a hole, replace the fitting with a new one sourced from a hydraulic supply shop or purchase directly from SHOCKWAVE.

**STEP 3:** Ensure the compressor does not turn on by turning off either the boat power or the auxiliary power switch for the compressor if supplied.

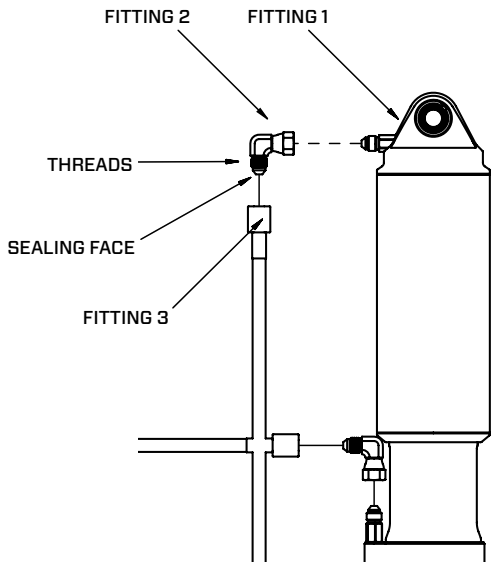
**WARNING**

When removing combined fittings, always hold both fittings so you only loosen the required fitting. I.e. Removing Fitting 2 from 1, hold Fitting 1 with a wrench and loosen fitting 2 (See drawing below).

**STEP 4:** Remove the leaking fittings, in some instances there are multiple fittings connected to generate the proper hose routing.

**CAUTION**

Do not remove Fitting I unless there are clear signs of leakage. If removed, the O-ring on this fitting needs to be replaced.

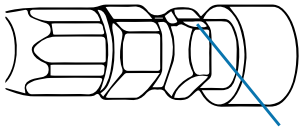



**STEP 5:** Clean the inside and outside of all fittings using a green Scotch-Brite pad or equivalent. Ensure all contamination is removed from the sealing flanges and threads.

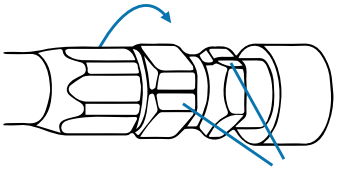
**STEP 6:** Apply Loctite 5452 to the sealing face (taper) of the fitting and on the threads.

**STEP 7:** Reinstall all fittings and tighten using the method of flats.

a) Tighten the fitting until it bottoms against the seat.
b) Using a marker, draw a line lengthwise on the fitting and extend it onto the adapter
c) Using a wrench, rotate the fitting to tighten by turning the fitting the I-I/2 to I-3/4 hex flat rotations.



MARK A LINE ON THE FITTING AND ADAPTER BEFORE TIGHTENING.



MISALIGNMENT OF THE MARK SHOWS AMOUNT WHICH THE FITTING WAS TIGHTENED.

**STEP 8:** If the leak continues, replace the fittings or hoses and repeat steps 6-8.

# TROUBLESHOOTING – SOLENOID ORIENTATION CHECK

Ensuring that the solenoids are installed correctly is critical to the safety and operational performance of the ICE. To diagnose the solenoid orientation correctly, the rest of the system must be airtight. Ensure the troubleshooting step "Finding an Air Leak" (page 16) is completed before proceeding.

**STEP 1:** Fill the system to max pressure, ensure the tank pressure reads over 190 psi.

**STEP 2:** Measure and record the extended length of the shock.

**STEP 3:** Turn off the compressor, this might require the vessel power to be turned off depending on how the system is powered.

**STEP 4:** Pull the pressure relief valve on the tank.

**CAUTION**

Do not put your hands near the pressure relief valve and wear ear and eye protection as the release of air will be very loud and can potentially cause injury.

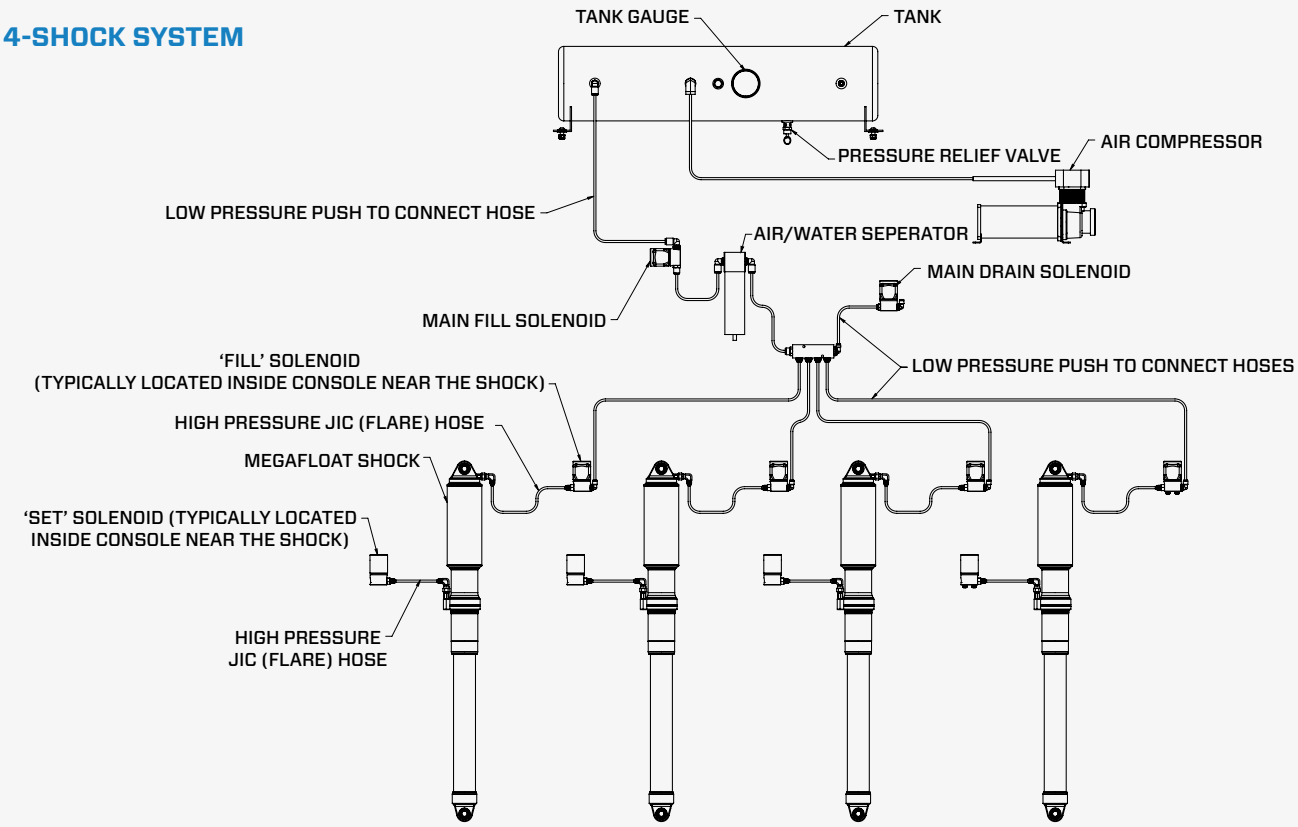
**STEP 5:** Allow the ICE to sit for 3-4 hrs.

**STEP 6:** Measure the extended length of the shock.

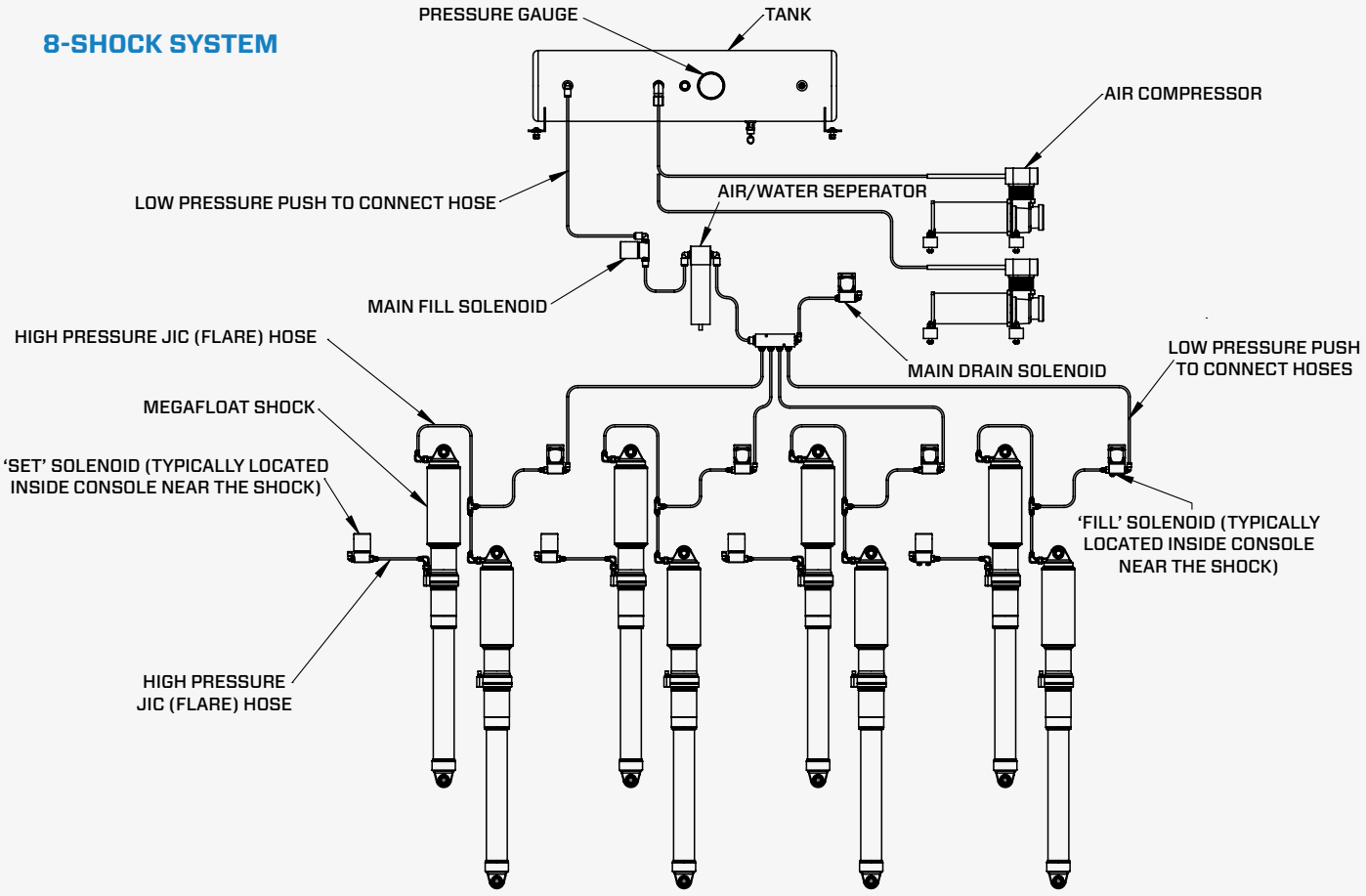
| CONDITION | CAUSE | REMEDY |
|---|---|---|
| Extended shock length has been reduced. | • Potential incorrect orientation of the FILL or SET solenoids. | • Install solenoid in the correct orientation; see AUTOTUNE Installation Instructions at the back of this manual. |

# SHOCK CONFIGURATION

## 4-SHOCK SYSTEM




## 8-SHOCK SYSTEM



# WARRANTY



SHOCKWAVE Seats expressly warrants that all mechanical seat components in its MARINE AND OTHER and SUSPENSION SEATS shall be free from defects in material and workmanship for one year from the date-of-sale provided such seats are subject to normal use and receive proper maintenance. SHOCKWAVE Seats expressly warrants that the cushions and seat covers shall be free from defectively sewn seams for a period of 90 days or 750 hours of use, whichever comes first, excluding normal wear and tear. Rips, tears, abrasions and installation damages are not covered by warranty.

Your sole and exclusive remedy against SHOCKWAVE Seats arising from the purchase or use of MARINE AND OTHER and SUSPENSION SEATS is limited to repair or replacement of defective materials or defective workmanship, after verification by SHOCKWAVE Seats. Defective product or materials may be requested for return by SHOCKWAVE Seats for inspection prior to issuing any replacements. Freight charges for returns are to be covered by the user.

All warranty claims shall have prior approval from SHOCKWAVE Seats warranty department and must be accompanied by the information requested on the following Claim Form. Products will be repaired or replaced at the sole discretion of SHOCKWAVE Seats.

### THESE WARRANTIES WILL BECOME NULL AND VOID IF:

- The ICE is abused or altered
- The ICE is involved in an accident
- The ICE is improperly installed
- The ICE is used for other than its intended use, contrary to any of the instructions in the manual provided.
- There is damage to the ICE caused during installation or unpacking.
- There is damage to the cushions and covers caused by cuts, burns, or abuse

**The above expressed warranties shall be the exclusive warranties, and SHOCKWAVE seats makes no other warranties, expressed or implied. SHOCKWAVE seats expressly disclaims any implied warranties or merchantability and implied warranties of fitness for a particular purpose.**

**It is agreed that SHOCKWAVE seats shall not be liable for incidental or consequential damages,** including, but not limited to, loss of income, loss of use, lost profits, damage to other property, the cost of removing and reinstalling the INDUSTRIAL SEATING or SUSPENSION SEATS, attorney's fees, and any liability you may have with respect to any other person.

It is agreed that you have one year from the accrual of a claim to commence any legal action arising from the purchase or use of the MARINE AND OTHER or SUSPENSION SEATS, or be barred forever.

Failure to give prompt written notice within ten (10) days of the discovery of any defect in material or workmanship that occurs within the warranty period will void the warranty. Send notification and completed warranty claim form to:

### SHOCKWAVE SEATS WARRANTY DEPARTMENT

2074 Henry Avenue West, Sidney BC Canada V8L 5Y1
Email: support@shockwaveseats.com | Phone: +1.778.426.8544 | Fax: +1.250.655.4334

### WARRANTY CLAIM FORM MUST BE SUBMITTED

Download your Warranty Claim Form at **shockwaveseats.com/warranty**

To the extent any provision of this Limited Warranty contravenes the law of any jurisdiction, such provision shall be inapplicable in such jurisdiction, and the remainder of this Limited Warranty shall not be affected thereby.

# WARRANTY CLAIM FORM

Warranty Claims must be submitted on the following form. Submit accompanying photos, proof of purchase, and this form to support@shockwaveseats.com.

Technical Case Number (internal use only):

Please provide the following information:

Date: _____ Invoice Number: _____

First Name: _____ Last Name: _____

Organization or Company Name: _____

Phone Number: _____ Fax Number: _____

Email: _____ Serial Number: _____

Ship to Address: _____ City: _____

Province/State: _____ Postal/Zip Code: _____ Country: _____

Mailing Address: _____ City: _____

Province/State: _____ Postal/Zip Code: _____ Country: _____

Boat or Project Identification: _____ Type of Seat: _____

Date Vessel in Service: _____ Number of Seats Affected: _____

Nature of Problem: _____

Comments: _____


**ADDRESS** 2074 Henry Avenue, Sidney BC Canada, V8L 5YI

**PHONE** +1.778.426.8544

**FAX** +1.250.655.4334

**EMAIL** support@shockwaveseats.com

**HOURS** 8 AM to 5 PM Pacific Standard Time

**WEBSITE** shockwaveseats.com


# WARRANTY CLAIM PROCEDURE



I. Contact SHOCKWAVE Technical Support Engineers (TSE)
   - A. Submit a tech question through email **support@shockwaveseats.com**
   - B. Contact by phone: **+I.778.426.8544**

3. Our TSE will need to know/ask the following:
   - A. Complete contact information including e-mail and telephone.
   - B. Questions relative to the issues with the product and/or photographs.
   - C. Perform necessary trouble shooting functions to determine a cause of failure.

4. If the product is deemed defective and covered under warranty, the TSE will create a Technical Case with case number.
   - A. The technical case number is either issued to customer support for warranty replacement.
   - B. Or the technical case number is used to create a service technician request if deemed necessary by TSE.
   - C. Defective parts are to be returned unless waived by the TSE.

4. The Technical Case is used to create a warranty Sales Order (SO)
   - A. A warranty Work Order (WO) is created which creates demand for the product.
   - B. If product is in stock it will ship within 24 hours of dispatch from technical support.
   - C. Notification of shipment is emailed at time of shipment, which includes expected delivery date and tracking information.

4. The Technical Case is dispatched to Customer Support to create the Return Material Authorization number (RMA)
   - A. The RMA notification is emailed within two business days following the case dispatch from Technical support.
   - B. The RMA notification contains all the necessary return instructions including part number, quantity and return address.

# SERVICE AND REPAIR PROCEDURE

1. SHOCKWAVE Seats can provide complete service and repair of our products anywhere in the world. All repairs and service must be conducted by SHOCKWAVE technicians.

2. Contact SHOCKWAVE Technical Support Engineers (TSE)
    - A. Submit a quote request to **support@shockwaveseats.com**
    - B. Contact by phone: **+1.778.426.8544**

3. Our TSE will need to:
    - A. Complete contact information including e-mail and telephone.
    - B. Questions relative to the request including serial numbers and photographs.
    - C. Request some trouble shooting by the customer to determine a cause of the problem if possible.

4. If the customer request SHOCKWAVE to perform the work at the SHOCKWAVE facility, the TSE will provide:
    - A. A quotation based on a worse-case scenario that may be subject to change.
    - B. Cost of labour, lead time and shipping costs will be included in the quotation and are subject to change.
    - C. Sales order confirmations will be provided upon customer approval of the assessment. Sales orders may be changed upon completion of the work if previously unknown issues are discovered that require repair or part replacement.
    - D. Customer will be provided with updates on progress.

5. Should the customer require repairs anywhere in the world, a quotation including logistical costs for sending a technician and materials off site will be provided:
    - A. Travel time, hotel, labour and cost of transportation of necessary materials will be included in the quote.
    - B. Costs may change due to unforeseen items found in the inspection.

3. If the product is shipped to the SHOCKWAVE facility, the repair or replacement process will begin ASAP.
    - A. If components are in stock SHOCKWAVE will make every attempt to replace or repair ASAP.
    - B. Once the product is repaired or replaced it will ship within 24 hours.
    - C. Notification of shipment is emailed at time of shipment, which includes expected delivery date and tracking information.