

MEMBER  
**ABYC**  
Setting Standards for Safer Boating

# 79

SEVENTY NINE  
ISO 9001

OPTIMUS EPS  
BY SEASTAR

**BAYSTAR**<sup>™</sup>

**SEASTAR**<sup>™</sup>

## OPERATION INSTRUCTIONS

## AND USER'S MANUAL

[www.seastarsolutions.com](http://www.seastarsolutions.com)



i7700 Shift & Throttle System



**SEASTAR**  
**SOLUTIONS**<sup>®</sup>

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

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**California  
Proposition 65 Warning**

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm.

Wash hands after handling.

Thank you for choosing an i7700 Shift and Throttle Control System by SeaStar Solutions. You have chosen a state of the art system that will provide years of effortless and trouble free performance.

## About this Book

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This User's manual contains the information you need to safely operate and maintain your shift and throttle system. It must remain on the boat.

## Notice to the Operator

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Throughout this publication, Dangers, Warnings and Cautions (accompanied by the International Hazard Symbol ) are used to alert the user to special instructions concerning a particular service or operation that may be hazardous if ignored or performed incorrectly or carelessly. **Observe them carefully!**

These safety alerts alone cannot eliminate the hazards that they signal. Strict compliance with these special instructions during installation, operation, and maintenance, plus common sense operation, are important measures to prevent accidents.

**Failure to adhere to these notices may result in the loss of steering and shift/throttle control, leading to possible ejection from the vessel, causing property damage, injury and/or death.**

### DANGER

**IMMEDIATE HAZARDS WHICH, IF NOT ACTED UPON, WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH.**

### WARNING

**HAZARDS OR UNSAFE PRACTICES WHICH, IF NOT ACTED UPON, COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.**

### CAUTION

**Hazards or unsafe practices which could result in minor injury or product or property damage.**

### NOTICE

*Information which is important to proper use or maintenance, but is not hazard-related.*

# ABBREVIATIONS

The following abbreviations are used in this manual:

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ABYC	American Boat & Yacht Council
AP	Autopilot
AUX	Auxiliary
BAT	Battery
CAN	Controller Area Network
CAN Bus	Controller Area Network (data) Bus. (A harness of wires that carry digital signals and power between electronic modules)
ENG	Engine
EPS	Electronic Power Steering
EST	Electronic Shift and Throttle
FWD	Forward
GND	Ground
HI	High
LED	Light Emitting Diode
Lo	Low
MPH	Miles Per Hour
N	Neutral
NMEA	National Marine Electronics Association
NMEA 2000®	A protocol for digital communication on a CAN Bus
NTW	Neutral Throttle Warmup
N/C	No Connection
PCM	Pump Control Module
PTS	Power Train Sync
R	Reverse
RPM	Revolutions Per Minute
STBD	Starboard (right when facing forward)
SW	Switch
TM	Trolling Mode
WOT	Wide Open Throttle

*Note: Some abbreviations not listed here may be found in their respective sections.*

# INDEX

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<b>Abbreviations .....</b>	<b>ii</b>
<b>1.0 Safety Information .....</b>	<b>1-1</b>
1.1 Safety Labels .....	1-3
<b>2.0 System Overview .....</b>	<b>2-1</b>
2.1 System Description .....	2-1
2.2 System Overview Diagram.....	2-2
<b>3.0 System Operation .....</b>	<b>3-1</b>
3.1 Before Each use.....	3-1
3.2 First Time Use.....	3-1
3.3 Control Head Operation .....	3-2
3.3.1 Identification – Dual Lever (DTM) .....	3-2
3.3.2 Identification – Single Lever (STM) .....	3-6
3.3.3 Lever Adjustment .....	3-8
3.3.4 Station Selection and Station Select Protection ....	3-9
3.3.5 Two-Lever Sync.....	3-10
<b>4.0 System Faults &amp; Hazards .....</b>	<b>4-1</b>
4.1 Hazard Definitions.....	4-1
4.1.1 Danger .....	4-1
4.1.2 Warning.....	4-1
4.2 Manual Override.....	4-2
<b>5.0 Maintenance .....</b>	<b>5-1</b>
<b>6.0 Warranty .....</b>	<b>6-1</b>
6.1 Statement of Limited Warranty .....	6-1
6.2 Return Goods Procedure .....	6-1

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# 1.0 SAFETY INFORMATION

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**⚠ 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.**

---

**⚠ WARNING**

**THE I7700 SYSTEM MUST ONLY BE INSTALLED BY AN AUTHORIZED DEALER OR OEM.**

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Safe operation of the shift and throttle system depends upon proper installation and maintenance of the system, and the common sense, safe judgment, knowledge, and expertise of the operator. Every installer and operator of the shift and throttle system should know the following requirements before installing or operating the system.

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

**To reduce the risk of severe injury or death:**

- 1.** Always wear a Coast Guard Approved personal flotation device (PFD) and use an engine shut-off cord (lanyard).
- 2.** Read and understand this User's manual and the Quick Reference Card provided with your vessel control components.
- 3.** SeaStar and i7700 components are highly engineered and safety tested to ensure system integrity. **DO NOT** substitute any component. Substitution with non-SeaStar or non-i7700 components may compromise system safety, performance, and reliability.

---

**Prior to every use**

Perform a system inspection as outlined below. Refer to Section 3.1 for further details.

- 1.** Check your vessel's steering system.
- 2.** Inspect all mechanical and electrical cables for wear, kinks, or leaks.
- 3.** Check for binding, loose or worn shift/throttle control components.
- 6.** Verify proper shift and throttle response for all control levers.

---

**⚠ WARNING**

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

## 1.0 Safety information (continued)

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### **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 vessel control system to operate the boat at ANY time.
  4. Know and adhere to all applicable federal, state, and municipal laws and regulations that govern boating in your area.
- 

### **WARNING**

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

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### **After use**

No special care is required after using the i7700 system. Periodically clean the control head with a damp cloth and a mild detergent, if necessary.

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### **Maintenance**

Maintain your i7700 System as directed in Section 5 of this manual.

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# 1.1 Safety Labels

## ⚠ WARNING

**THE LABELS BELOW SHOULD CALL ATTENTION TO THE POSSIBLE HAZARDS ASSOCIATED WITH THE EQUIPMENT SHOWN LATER IN THIS MANUAL.**

### Component labels

The labels shown below are found on the i7700 actuators.

**SEASTAR SOLUTIONS**  
RICHMOND, BC, CANADA

## AC7700 ACTUATOR

IGNITION PROTECTED  
ISO 8846-MARINE  
SAE J1171

ISO 25197  
**ABYC** CE  
seastarsolutions.com

# SEASTAR™

**MANUAL OVERRIDE OPERATION**

Using the actuator override system may severely limit your boat's control. It should be used in an emergency if you are unable to call for assistance. Always try alternative controlling devices. Proceed with extreme caution, read User's Manual, always wear a PFD and lanyard.

1. Leave engine running. DO NOT key off when attempting to engage manual override. Allow actuator to remain in disabled state. DO NOT operate controls while attempting to manual override. Crank mechanism poses pinch hazard at all times.
2. Remove cover.
3. On **SHIFT** control mechanism, remove cotter pin and slide eye terminal off post. Pull or push control cable into desired gear.
4. Confirm desired gear is engaged before applying throttle.
5. On **THROTTLE** control mechanism, remove cotter pin and slide eye terminal off post.
6. Very slowly pull or push control cable to increase '+' rpm. No more than 1" or 25mm should be required.
7. Key off ignition to slow and stop vessel.

**NOTICE**

*U.S. Coast Guard requires start-in-gear protection. If your engine does not have this feature, this control system will provide start-in-gear protection meeting U.S.C.G. requirements of 33 CFR part 183, sub part 1. Consult Installation Manual.*

**⚠ WARNING**

**Install and maintain in accordance with SeaStar Solutions Installation Manual. Secure all connections. Failure to comply with above may result in loss of vessel control, leading to possible ejection from vessel causing property damage, personal injury and/or death.**

Assembled in China for SeaStar Solutions 277045

Figure 1-1. Actuator decal, PID# 277045.

<b>STARBOARD ENGINE THROTTLE</b>		<b>STARBOARD ENGINE THROTTLE</b>	
<b>STARBOARD ENGINE SHIFT</b>		<b>STARBOARD ENGINE SHIFT</b>	
<b>CENTER ENGINE THROTTLE</b>		<b>CENTER ENGINE THROTTLE</b>	R
<b>CENTER ENGINE SHIFT</b>		<b>CENTER ENGINE SHIFT</b>	
<b>PORT ENGINE SHIFT</b>		<b>PORT ENGINE SHIFT</b>	F
<b>PORT ENGINE THROTTLE</b>		<b>PORT ENGINE THROTTLE</b>	
STARBOARD	PORT	IDLE	+

Figure 1-2. Actuator decal sheet, PID# 277044.

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# 2.0 SYSTEM OVERVIEW

## 2.1 System Description

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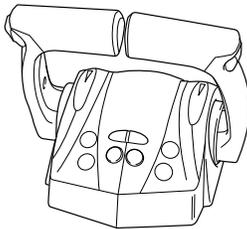
SeaStar i7700 is an electromechanical system that replaces a traditional cable-operated engine remote control with an electronic control. Shift and throttle settings are sent over a serial data network to electro-mechanical actuators, where they are converted to cable motion. The elimination of mechanical cables to the control head simplifies multi-station installations, especially when a station is installed onto a flybridge or tower that is removed for shipping. The system supports the installation of up to three control heads.

The i7700 system consists of the major components listed below.

### **CAN Network**

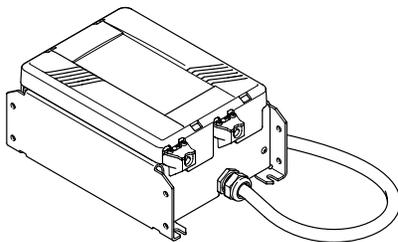
CAN (controller area network) is a serial network protocol that is widely used in marine and automotive control systems. Each device (node) on the network can send and receive data using specially formatted messages. The ability to reliably communicate data between devices is what enables the functionality of i7700.

i7700 implements the high-speed CAN protocol using DeviceNet harnesses and connectors. We refer to the network as CAN2 in the documentation to distinguish it from other CAN protocols used on SeaStar products.



### **Control Head**

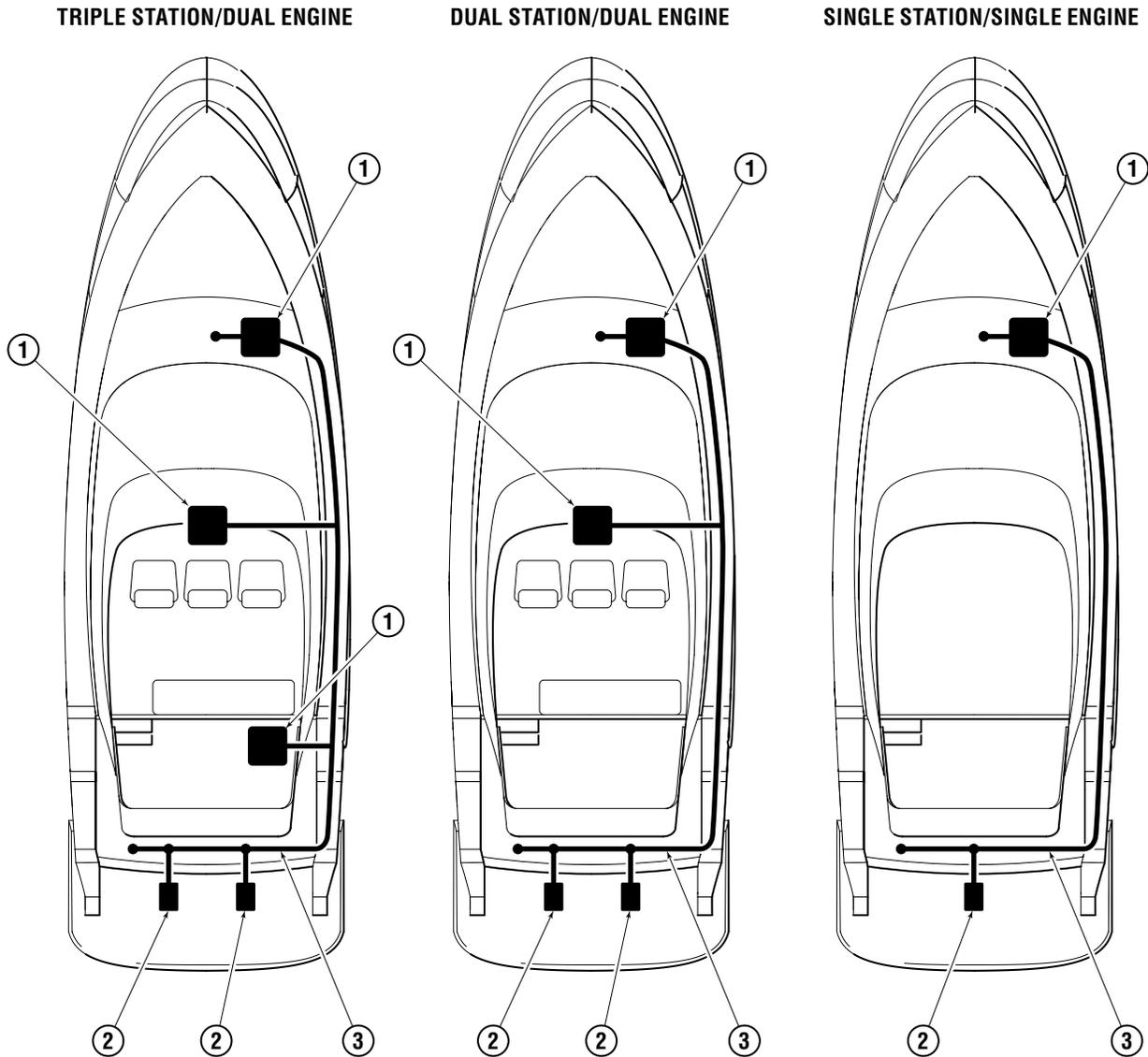
The control head looks much like a conventional mechanical remote control, but it is an electromechanical device that converts lever position into digital messages that are sent over CAN2 to the shift and throttle actuators. The control head features adjustable lever feel, status lights, a synchronous trim switch (optional), and control buttons for added functionality.



### **Shift and Throttle Actuator**

The actuators are electromechanical devices that receive digital commands on the CAN2 network and convert these commands into movement of a mechanical cable for gear selection and throttle control.

## 2.2 System Overview Diagram



1. Control Head
2. Throttle/Shift Actuator
3. CAN Network Bus

Figure 2-1. System Overview.

# 3.0 SYSTEM OPERATION

## 3.1 Before Each Use

 **WARNING**

**FAILURE TO ADHERE TO THESE WARNINGS MAY RESULT IN LOSS OF BOAT CONTROL, LEADING TO POSSIBLE EJECTION FROM VESSEL; CAUSING PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.**

**1. Check your steering system.**

If your vessel has a hydraulic steering system, ensure that the fluid level is correct. Check that the steering responds immediately and correctly when you turn the steering wheel(s), and that the hydraulic hoses move freely through the range without snags or hang-ups.

**2. Inspect all and mechanical cables and electrical harnesses for wear, kinks, or damage.**

Check all electrical harnesses and mechanical cabling for abrasion, wear, rubbing or chafing. Check that all connections are tight and free of corrosion.

**3. Check for binding, loose or worn shift/throttle control components.**

Check all shift and throttle cables and harnesses for signs of wear, damage or chafing. Check that all linkages and cables move freely and are not binding or corroded.

**4. Verify proper shift and throttle response for all control levers.**

Check that all shift and throttle levers operate freely and cause the engines to shift accordingly. Put the engines in neutral idle mode and confirm that the throttle responds correctly and returns to idle.

**5. Verify that no faults or warnings are indicated on the Shift and Throttle Control Head.**

Rapidly flashing LEDs on the control head indicate that there is a Warning or Danger fault. Refer to section 4 for more information.

 **WARNING**

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

 **WARNING**

**IT IS RECOMMENDED THE FULL SYSTEM INSPECTION BE REVIEWED ON A REGULAR BASIS TO RETAIN FAMILIARITY.**

## 3.2 First Time Use

Before starting the engines for the first time, familiarize yourself with the shift and throttle controls and the features described in section 3.3. With the engines and control system off, move the control levers over the full range until you are familiar with the feel. The lever feel can be adjusted if desired. See section 3.3.3.

## 3.3 Control Head Operation

### **⚠ WARNING**

**BE VERY CAUTIOUS WHEN FIRST ENGAGING THE GEARS TO ESTABLISH THAT FORWARD IS TRULY FORWARD AND REVERSE IS TRULY REVERSE. A QUICK IN-AND-OUT OF GEAR TEST IS RECOMMENDED. ENSURE THAT THE BOAT IS CLEAR OF ALL OBSTACLES FORWARD AND AFT BEFORE CONDUCTING THIS TEST.**

The control head is the user interface for shift and throttle control. There are two types of control head used with the i7700 system: single lever (STM), used on single-engine applications, and dual lever (DTM), used on multi-engine applications. Both types of control head are top-mounted; a side-mount single lever control head is not available for the i7700 system.

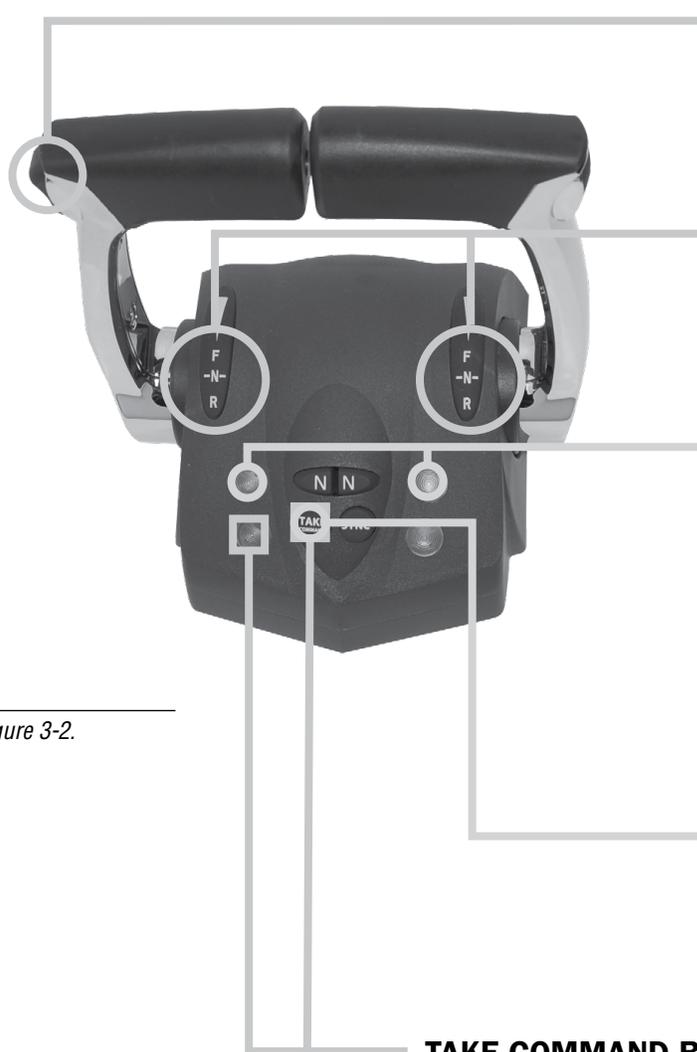
The i7700 Quick Reference Guide provides a summary of the control head operation and should be kept on the vessel at all times.



*Figure 3-1. i7700 Dual Lever Control Head.*

### **3.3.1 Identification – Dual Lever (DTM)**

The following figures identify the components and features of the control head. This information is also found on your i7700 Quick Reference Guide. Please take some time to familiarize yourself with the controls and features before going out on the water for the first time.



**ENGINE TRIM CONTROL (OPTIONAL):**

Provides simultaneous trim control of all engines.

**LEVER POSITION INDICATORS**

**NEUTRAL INDICATOR LAMPS:**

These lamps have four states:  
 Steady green – engine is in neutral ●  
 Slow flashing green (0.5s on, 0.5s off) – Neutral Throttle Warmup is engaged ⚙  
 Very slow flashing green (1s on, 2s off) – Trolling Mode is engaged ⚙  
 Fast flashing red – A danger fault is active ⚙  
 See section 4.

**INDICATOR DIMMING FEATURE:**

When the control head is active, pressing **Take Command** repeatedly will cycle through five available indicator brightness levels.

**TAKE COMMAND BUTTON AND LAMP:**

Used to activate a control head.

**To take command with a control head:**

- Put control levers in neutral and press **Take Command**.
- The adjacent lamp signals the transfer status as follows:
  - Steady blue – station is active and in control of shift and throttle. ●
  - Flashing blue – station transfer from one station to another is underway. You have five seconds to match the control lever positions with those of the active station to complete the transfer. ⚙
  - Fast flashing blue – A warning fault is active. See section 4.
  - Lamp off – station is inactive

Note: If the lamp does not come on when you press **Take Command**, Station Protection may be enabled. See section 3.3.4.

Figure 3-2.



Figure 3-3.

### **NEUTRAL THROTTLE WARMUP (NTW):**

NTW allows you to control engine throttle without gear engagement, so that you can warm up your engines at a higher RPM. A slow flashing green neutral indicator lamp tells you that NTW is engaged for the corresponding engine. ⚡

#### **To engage Neutral Throttle Warmup:**

- Move the engine's control lever to the Neutral position. The neutral indicator lamp will light steady green. ●
- Press the corresponding **N** button. The neutral indicator lamp will flash green to indicate that NTW is engaged. ⚡
- You can now increase throttle and the engine will stay in neutral.

#### **To disengage Neutral Throttle Warmup:**

- Return the engine's lever to the Neutral position.
- Press the corresponding **N** button. The lamp will light steady green. The engine and transmission will now respond normally to lever commands. ●

### **TROLLING MODE (TM):**

- Provides greater throttle sensitivity: moving an engine's control lever to full forward will only produce a percentage of wide open throttle. The default TM throttle limit is 50% in forward gear, 100% in reverse gear.
- Very slow flashing (one second on, two seconds off) green neutral indicator lamps indicate that trolling mode is engaged. ⚡

#### **TO ENGAGE Trolling Mode:**

- Move one or both control levers to the forward idle or reverse idle positions. The other lever must be in the same position or in neutral.
- Press either **N** button. Both lamps will flash green slowly to indicate that TM is engaged. ⚡

#### **TO DISENGAGE Trolling Mode:**

- Move both control levers to forward idle, reverse idle, or neutral position.
- Press either **N** button. The flashing green lamps will go out to indicate that TM is disengaged. ○

### POWER TRAIN SYNC (PTS) BUTTON AND LAMP:

PTS synchronizes engines and transmissions so that the port lever controls shift and throttle of all engines.

The lamp adjacent to the **Sync** button indicates PTS status. A steady blue lamp means PTS is engaged. ●

#### To engage Power Train Sync:

- Press **Sync**. The blue lamp will flash. ☀
- Match control lever positions within 5% of each other. The lamp will go steady blue to indicate that power trains are in sync. ●

#### To disengage Power Train Sync:

- Press **Sync**. The blue lamp will flash. ☀
- Match control lever positions within 5% of each other. The blue lamp will go off – PTS is now disengaged. ○



### ADJUSTABLE LEVER FEEL

Turn screw in to tighten the lever feel, and turn screw out to loosen the lever feel.

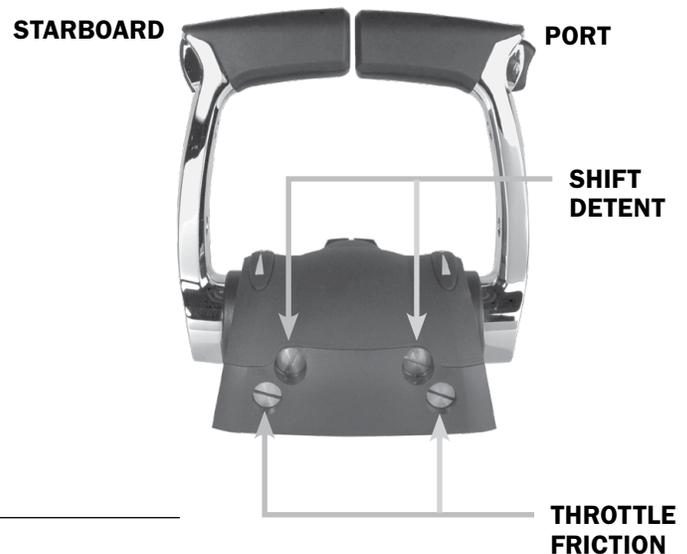


Figure 3-4.

### 3.3.2 Identification – Single Lever (STM)

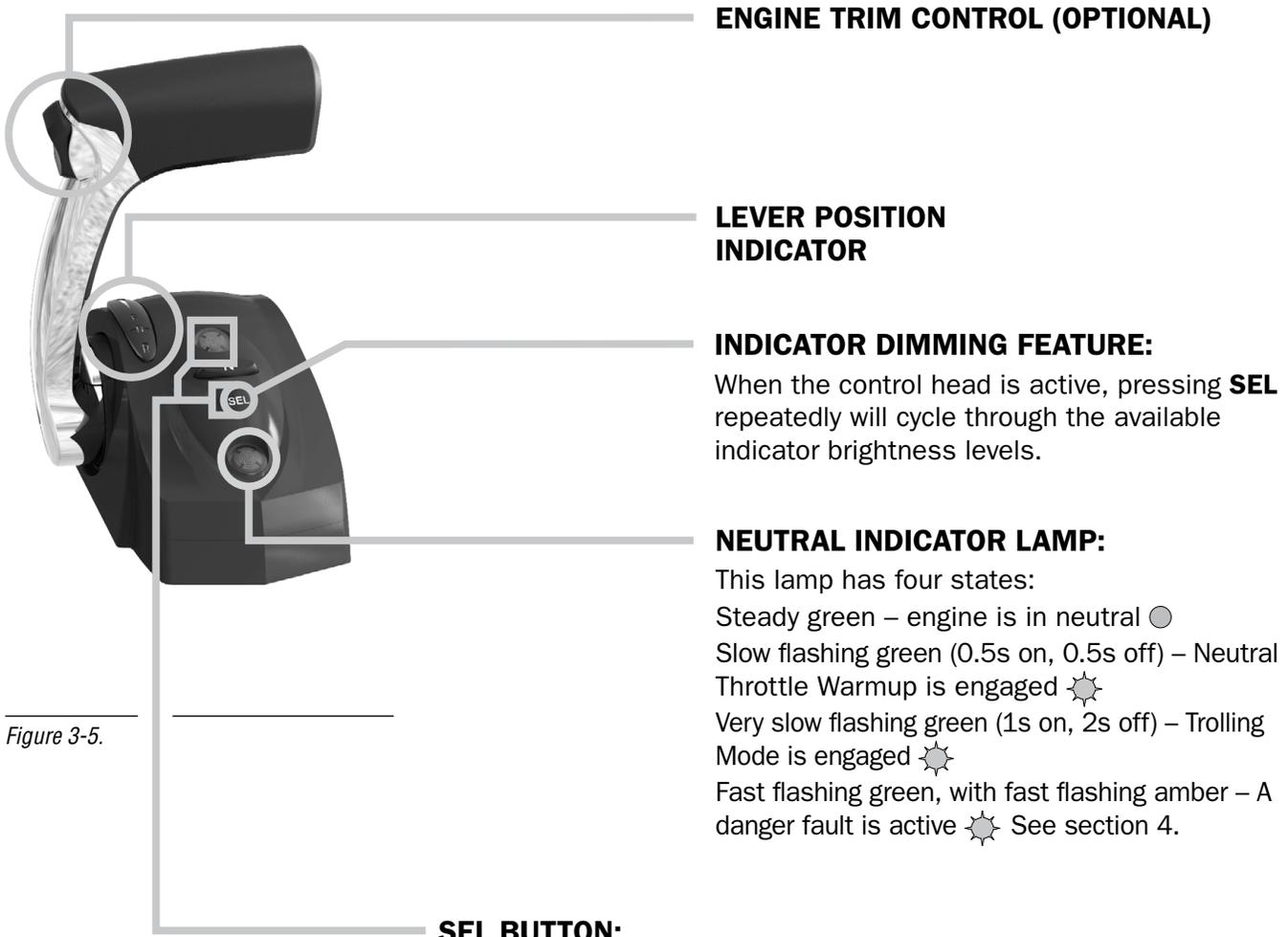


Figure 3-5.

**ENGINE TRIM CONTROL (OPTIONAL)**

**LEVER POSITION INDICATOR**

**INDICATOR DIMMING FEATURE:**

When the control head is active, pressing **SEL** repeatedly will cycle through the available indicator brightness levels.

**NEUTRAL INDICATOR LAMP:**

This lamp has four states:

- Steady green – engine is in neutral ●
- Slow flashing green (0.5s on, 0.5s off) – Neutral Throttle Warmup is engaged ⚙
- Very slow flashing green (1s on, 2s off) – Trolling Mode is engaged ⚙
- Fast flashing green, with fast flashing amber – A danger fault is active ⚙ See section 4.

**SEL BUTTON:**

Used to activate a control head.

**To activate a control head:**

- Put control lever in neutral and press **SEL**.
- The amber lamp signals the transfer status as follows:
  - Steady amber – station is active and in control of shift and throttle. ●
  - Slow flashing amber – station transfer from one station to another is underway. You have five seconds to match the control lever positions with those of the active station to complete the transfer. ⚙
  - Fast flashing amber – A warning fault is active. See section 4.
  - Lamp off – station is inactive

Note: If the lamp does not come on when you press **SEL**, Station Protection may be enabled. See section 3.3.4.



Figure 3-6.

### NEUTRAL THROTTLE WARMUP (NTW):

NTW allows you to control engine throttle without gear engagement, so that you can warm up your engine at a higher RPM. A slow flashing green neutral indicator lamp tells you that NTW is engaged. ⚙️

#### To engage Neutral Throttle Warmup:

- Move the control lever to the Neutral position. The neutral indicator lamp will light steady green. ●
- Press the **N** button. The neutral indicator lamp will flash green to indicate that NTW is engaged. ⚙️
- You can now increase throttle and the engine will stay in neutral.

#### To disengage Neutral Throttle Warmup:

- Return the lever to the Neutral position.
- Press the **N** button. The lamp will light steady green. The engine and transmission will now respond normally to lever commands. ●

### TROLLING MODE (TM):

- Provides greater throttle sensitivity: moving the control lever to full forward will only produce a percentage of wide open throttle. The default TM throttle limit is 50% in forward gear, 100% in reverse gear.
- A very slow flashing (one second on, two seconds off) green neutral indicator lamp indicates that trolling mode is engaged. ⚙️

#### TO ENGAGE Trolling Mode:

- Move the control lever to the forward idle or reverse idle positions.
- Press the **N** button. The lamp will flash green slowly to indicate that TM is engaged. ⚙️

#### TO DISENGAGE Trolling Mode:

- Move the control lever to forward idle or reverse idle position.
- Press the **N** button. The flashing green lamp will go out to indicate that TM is disengaged. ●

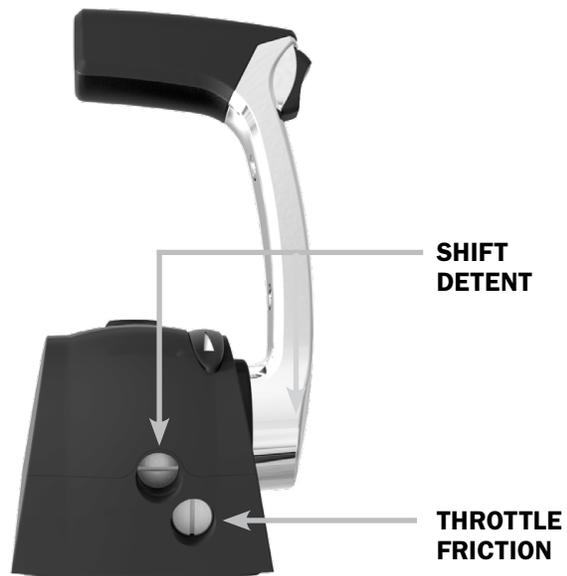


Figure 3-7.

### 3.3.3 Lever Adjustment

The control lever feel can be adjusted by means of adjusting screws on the forward face of the control head.

- The friction drag on the lever is adjusted with the throttle friction adjuster screw (see figure 3-4 or figure 3-7). Turn the screw clockwise to increase the friction on the lever, counter-clockwise to reduce the friction.
- The force required to move in and out of the shift detents is adjusted with the Shift Detent adjuster screw. The detents are meant to prevent accidental gear engagement, so bear that in mind as you make adjustments. Clockwise increases force, counter-clockwise decreases.

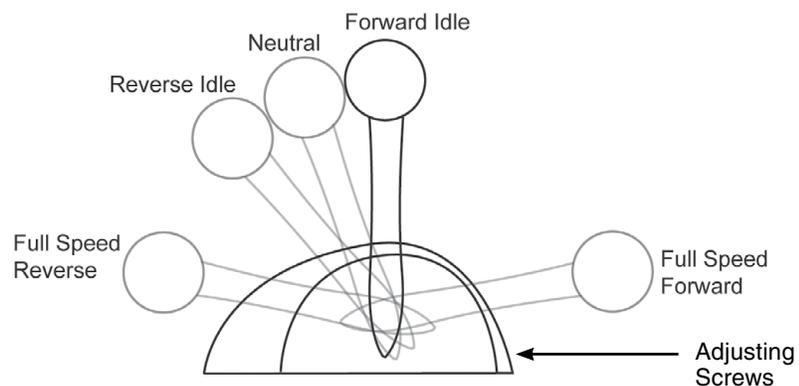


Figure 3-8. Control Head lever positions.

### 3.3.4 Station Selection and Station Select Protection

The way in which you activate a control station depends on whether the Station Select Protection (SSP) feature has been enabled. SSP prevents unauthorized or inadvertent activation of a control head and can only be enabled by an authorized dealer. By default, SSP is not enabled.

#### SSP Not Enabled (Default)

On single station boats the control head is always active when the ignition is on, but on multi-station boats the control head must be activated. This can be done in two ways:

- the Smart Select feature will automatically activate a control head if the levers are moved out of the neutral position. This feature only works when the ignition is first turned on.
- the control head can be manually activated using the **SEL** button (STM control heads) or the **Take Command** button (DTM control heads) with the lever(s) in neutral.

An active control head is indicated by an LED lamp: solid amber (STM) or solid blue (DTM).

#### SSP Enabled

When SSP is enabled there is no automatic activation of control heads. A specific sequence of button presses is always required to activate a control head.

Dual lever control head:

1. Press **Take Command** twice.
2. Press **N** once.
3. Press **Take Command** again.
4. If the blue light turns on solid the station is active.
5. If the blue light flashes, match the lever position with the originally active station and the blue light will go solid to indicate that the transfer has been completed.

Single lever control head:

1. Press **SEL** twice.
2. Press **N** once.
3. Press **SEL** again.
4. If the amber light turns on solid the station is active.
5. If the amber light flashes, match the lever position with the originally active station and the amber light will go solid to indicate that the transfer has been completed.

## WARNING

**UNTIL THE BLUE (DTM) OR AMBER (STM) LIGHT IS ON SOLID, THE ORIGINAL ACTIVE STATION RETAINS CONTROL OF THE SHIFT AND THROTTLE.**

### **3.3.5 Two-Lever Sync**

When enabled on a dual lever control, this feature will synchronize engine speeds on multiple engines when both levers are in forward gear and within 5% throttle of each other.

The feature requires engine RPM feedback (not all vessels will be so equipped) and can only be enabled or disabled by an authorized dealer. Contact your dealer to determine if your vessel has this feature enabled.

# 4.0 SYSTEM FAULTS & HAZARDS

Should a fault occur, it will be communicated to the user through the control head LEDs. Section 4.1 defines the types of hazards you may experience with the system and how the system will handle each.

## NOTICE

*When a serious fault occurs, consider your options. While the system has many features to allow the boat to return to port in a slow and safe manner, local conditions or operator skills may dictate that calling for assistance is the prudent thing to do.*

## 4.1 Hazard Definitions

### 4.1.1 Danger

A danger fault is a critical system fault which will result in limited or no shift and throttle performance and requires immediate action.

Depending on the nature of the fault a variety of conditions might occur all designed to provide the safest situation for returning to port. Some examples are:

- Shift and throttle control may be unavailable for all engines.
- The shift and/or throttle may require manual override (section 4.2).

#### **Indication**

Dual lever control: both neutral indicator lamps will flash red quickly (5 times per second) until the levers are moved to neutral. When the levers are in neutral the red lamp will flash on the faulted side only.

Single lever control: Both the amber and green lamps will flash quickly.

### 4.1.2 Warning

A warning is a non-critical system fault which may cause the boat speed to be reduced.

Although a warning fault may not always adversely affect shift and throttle performance, it is an indication of a problem in the system and should be remedied. In some cases the fault can be reset by cycling the system power, but it may require attention from a certified technician.

#### **Indication**

Dual lever control: the blue Take Command lamp will flash quickly (5 times per second).

Single lever control: The amber lamp will flash quickly.

## 4.2 Manual Override

### **⚠ WARNING**

**MANUAL OVERRIDE OF SHIFT AND THROTTLE CONTROLS MAY SEVERELY LIMIT YOUR BOAT CONTROL. IT SHOULD ONLY BE USED IN AN EMERGENCY, AND IF YOU ARE UNABLE TO CALL FOR ASSISTANCE. PROCEED WITH EXTREME CAUTION. ALWAYS WEAR A PFD AND LANYARD.**

### **Engaging the Actuator(s)**

Using the actuator override system may severely limit your boat's control. It should be used in an emergency if you are unable to call for assistance. Always try alternative controlling devices. Proceed with extreme caution, read User's Manual, always wear a PFD and lanyard.

1. Leave engine running. Do not key off when attempting to engage manual override. Allow actuator to remain in disabled state. Do not operate controls while attempting to manual override. Crank mechanism poses pinch hazard at all times.
2. Remove cover.
3. On shift control mechanism, remove cotter pin (A) and slide eye terminal off post. Pull or push control cable (B) into desired gear.
4. Confirm desired gear is engaged before applying throttle.
5. On throttle control mechanism, remove cotter pin and slide eye terminal off post.
6. Very slowly pull or push control cable to increase '+' rpm. No more than 1" or 25mm should be required.
7. Key off ignition to slow and stop vessel

### **NOTICE**

*If the lever cannot be rotated it is likely the fault is in the engine not the control system.*

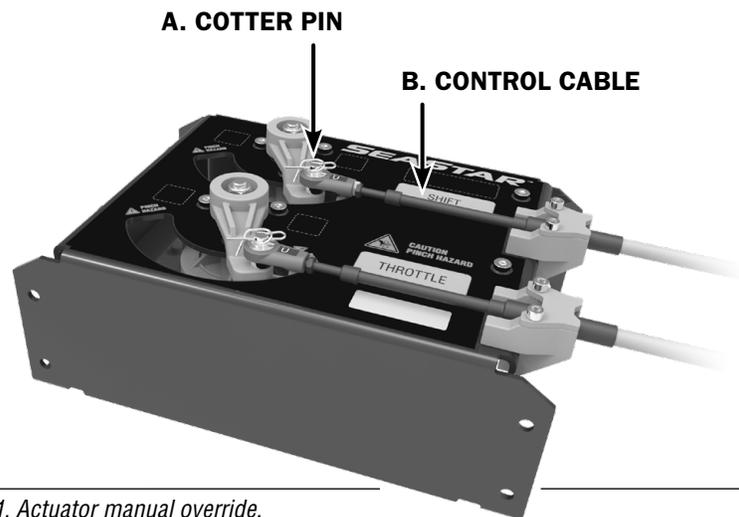


Figure 4-1. Actuator manual override.

### **⚠ CAUTION**

**Use extreme care when overriding neutral start protection. Only use this feature if the actuator has failed and the actuator's manual override has been used to place the engine in neutral.**

### **Neutral Start Protection Override**

In the event that an actuator fails in gear the neutral start protection function of the i7700 actuator can be overridden. To override neutral start protection depress the "N" button on the control head, hold it for 5 seconds and then start the engine with the button still depressed. Once the "N" button is no longer depressed the override of the neutral start protect function is no longer active.

# 5.0 MAINTENANCE

## WARNING

**FOLLOWING THE ROUTINE MAINTENANCE SCHEDULES OUTLINED BELOW WILL ENSURE YEARS OF SERVICE FROM YOUR I7700 SHIFT AND THROTTLE SYSTEM, AS WELL AS KEEP YOU AND YOUR PASSENGERS SAFE FROM THE DANGERS THAT ARE PRESENT ON AND OFF THE WATER.**

### **1. Owner(s) (End Users)**

**Prior to every use (see Section 3.1 for further details):**

1. Check your steering system.
2. Inspect all mechanical and electrical cables for wear, kinks, or damage.
3. Check for binding, loose, or worn or shift/throttle control components.
4. Verify proper shift and throttle response at all control levers.
5. Verify that no faults or warnings are shown on the Control Head.

## WARNING

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

### **2. Qualified Marine Mechanic**

**After the first 20 hours, then every 100 hours or 6 months thereafter (whichever comes first).**

1. All points noted above.
2. Check tightness of ALL fasteners/fittings throughout the vessel control system. Tighten to correct torque specifications as required.
3. Check for mechanical play or slop throughout vessel control system, correct as required.
4. Check for signs of corrosion. If corrosion is present contact your dealer or SeaStar Solutions.
5. Check all electrical harnesses and mechanical cables for chafing and wear.

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# 6.0 WARRANTY

## 6.1 Statement of Limited Warranty

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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.

## 6.2 Return Goods Procedure

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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

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### Technical Support

Phone: 604-248-3858

email: [seastar@seastarsolutions.com](mailto:seastar@seastarsolutions.com)

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

Web: [www.seastarsolutions.com](http://www.seastarsolutions.com)

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