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INSTALLATION INSTRUCTIONS

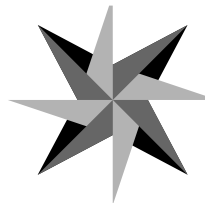
AND OWNERS MANUAL

Part # ISCH7800, Rev 1, 08/2013

www.seastarsolutions.com



MECHANICAL DUAL ENGINE CONTROL
CH7800P SERIES



SEASTAR
SOLUTIONS®

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

ch2200
ch2300
mt3
osprey
pro-trim
single s
twin s
sl-3

MANUFACTURED BY
MARINE ACQUISITION INCORPORATED
DBA SEASTAR SOLUTIONS
U.S.A.

MECHANICAL DUAL ENGINE CONTROL

CH7800P SERIES

NOTICE

Installer: these instructions contain important safety information and must be forwarded to the boat owner.

This SeaStar Solutions Control provides both shift and throttle operation for outboards, inboards or I/O's (stern drives). SeaStar Solutions Xtreme™ cables are recommended.

Standard Control Features:

- *Single lever shift and throttle operation.*
- *Neutral Throttle Warm-up.*
- *Neutral Safety Switch to prevent starting in gear.*
- *Friction Damper to prevent throttle creep*

Control Options:

- *Trim Switches*
- *Trim and Tilt Switches*

In addition to this control, the following components are required for a complete control system:

- *Four each SeaStar Solutions 3300/33C type cables, or four each OMC/BRP OEM type cables, or four each Mercury/Mariner/Force OEM Type cables. (2 for shift 2 for throttle)*
- *Throttle and Shift engine connection kits. (Refer to SeaStar Solutions catalog.)*

Adaptability of Control Cable: This control will connect to any current 3300/33C or OEM-type cable. The two cable nest kits (P/N 212151-003), which mates to the engine's shift and throttle cable, are included with this control. Unique cable nests, which are required for Mercury Gen II style control cables only, are included with the control connection kit.

NOTICE

Cable installation and connections must be made in accordance with the motor manufacturer's instructions.

To insure best performance, free operation of all linkages and the remote control is essential. Follow the manufacturer's recommended procedures for adjustment and lubrication.

All specifications and features are subject to change without notice.

WARNING

Before starting installation read these instructions and engine makers instructions thoroughly. Failure to follow either of these instructions or incorrect assembly can result in loss of control and cause property damage, injury, or death.

WARNING

DO NOT substitute parts from other manufacturers, they may cause a safety hazard for which SeaStar Solutions cannot accept responsibility.

NOTICE

SeaStar Solutions highly recommends the installation and usage of an engine shut off switch as a important emergency safety feature for boats. This switch should be connected by a cord to the boat driver. Should the driver be thrown from the helm position, the engine will automatically shut off.

This shut off switch is not a standard part of this control. It can, however, be obtained from most marine dealers and distributors.

Control Features and Operation

1. NEUTRAL THROTTLE WARM-UP BUTTON.

This feature provides a throttle only option to warm-up the engine before driving the boat.

When the Control Hand Lever is in Neutral, push and hold the bottom at the base of the handle. While holding the button (1), move the lever forward to throttle up the engine.

When you return the handle to the Neutral position, the button will reset automatically.

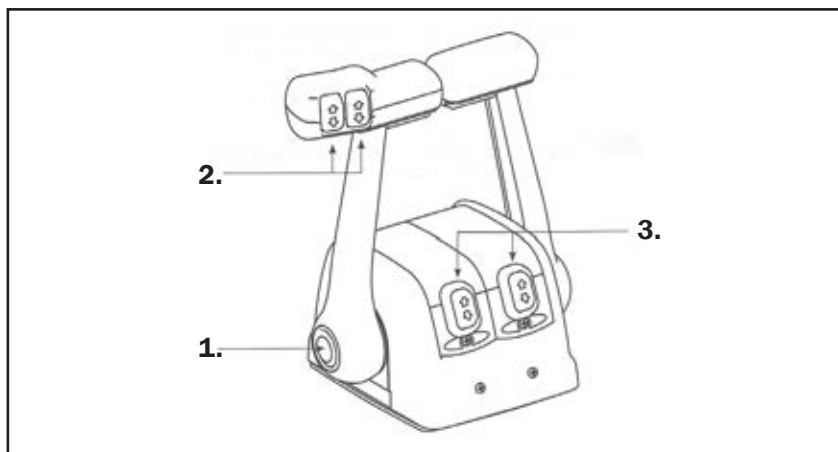
Once the button resets, the hand lever will work both shift and throttle functions.

2. ENGINE TRIM SWITCH.

Used to move the engine UP or DOWN to level the boat while underway. This switch controls trim and tilt on most outboards.

3. TRAILER TILT SWITCH.

Used to raise the engine for trailering the boat. This switch normally is used on I/O applications.



OEM Equipment Applications

OMC/BRP applications would include:

Outboards: Evinrude and Johnson
I/O's (Stern Drives): OMC, some Volvo

Mercury applications would include:

Outboards: Mercury, Mariner, most Force
I/O's (Stern Drives): MerCruiser
Inboards: Mercury and MerCruiser

Where a particular engine brand is noted in the illustrations on page 6, those cable mounting locations are what you follow to get the proper throw and action on your cables.

TOOLS FOR INSTALLATION:

Phillips & Standard screwdrivers	Electrical Tape
Saber saw	Box end wrench set
Power drill	1/8" - 1/2" drill bits
Optional: 3/4", 1", & 3.5" hole saws (See Cutout patterns)	

Installation

SECTION 1: LOCATION OF CONTROL.

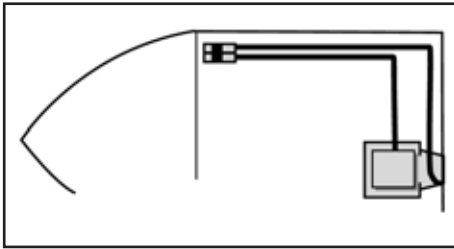
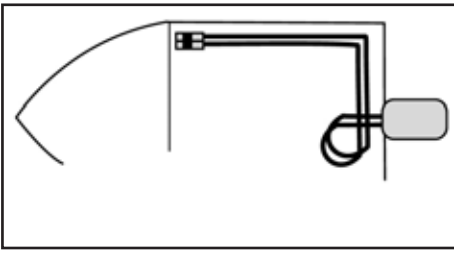
STEP 1. Allow adequate clearance for hand lever swing (forward and reverse positions).

STEP 2. Allow adequate clearance under the console or in the gunwale for the cables AND **allow a minimum of 36" from the cable nest connection with no restraint.** When supporting the cables beyond 36", do not tie or clamp tightly.

STEP 3. After a suitable location for the control is determined, use the separate mounting template.

STEP 4. Closely follow the instructions provided on the template. Cut and drill the mounting holes required.

On all models, the cover will have to be removed to expose the mounting holes.



SECTION 2: MEASURING THE CABLES.

Measure the cable routing path from the control head connection to the engine connection.

OUTBOARDS:

Measure from the control connection—along an unobstructed cable routing—to the center of the outboard engine. **Add four (4) feet** to the measurement to allow for a loop which provides unrestricted engine movement. Round **UP** to the next whole foot and order the required cable part number.

(Last two digits of the SeaStar Solutions cable number equal the length of the cable in feet.)

INBOARDS AND STERNDRIVES:

Measure from the control connection—along an unobstructed cable routing—to the shift or throttle connection. Round this dimension **UP** to the next whole foot and order the required cable part number.

(Last two digits of the SeaStar Solutions cable number equal the length of the cable in feet.)

Installation of Cables

A. BEND RADIUS. When routing the control cables, select a path with the minimum number of bends, making the bends as large as possible. Sharp or frequent bends will result in difficult throttle or shift control, loss of motion, and premature cable wear. **DO NOT MAKE BENDS OF LESS THAN THE RECOMMENDED MINIMUM BEND RADIUS AS NOTED BELOW.**

Cable Type	Minimum Bend Radius
Standard	8"
Xtreme	4"

For best performance, SeaStar Solutions recommends using Xtreme cables with this control.

B. SUPPORTING THE CABLE. Do not tie or clamp the cable within 36 inches of the control. When supporting the cable beyond 36 inches of the control, cables should be loosely clamped or tied for support at regular intervals.

⚠ CAUTION

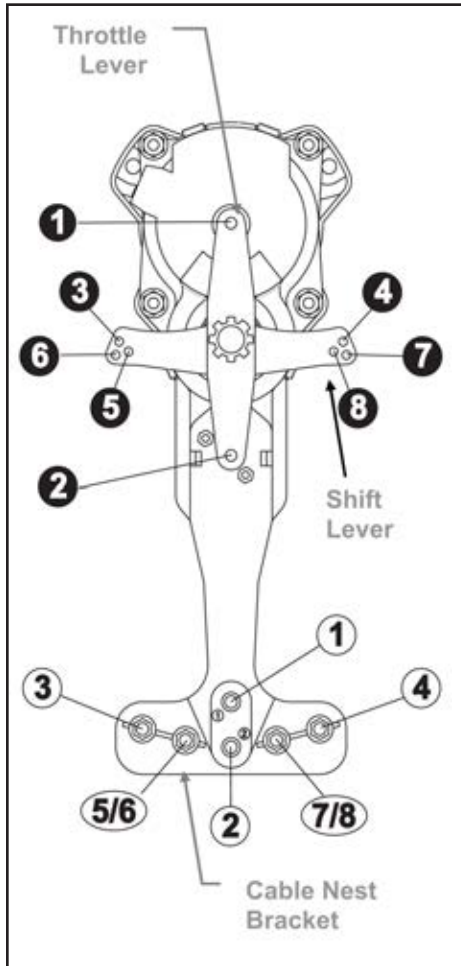
Cables must not be bundled together with electrical wiring.
Cables must not rest on sharp edges which can cause chafing.

C. CABLE ROUTING. Cables shall not be installed in areas of excess heat such as on, or close to, exhaust manifolds where temperatures may exceed 212°F (100°C).

SECTION 3: SHIFT & THROTTLE CABLE CONNECTION-CONTROL END.

- **PUSH/PULL** refer to the direction of cable motion to shift into “forward” or to “open” the throttle.
- Refer to the appropriate manufacturer’s manual for shift and throttle direction and adjustments.
- **Numbered holes on mechanism chassis correspond to holes in shift and throttle levers** (for example: connect cable mount to hole 4 on chassis and cable end fitting to hole 4 on lever).
- Cables and wiring should be pre-installed on control before final mounting is made.

Cable Connection Guide



Cable Mounting Diagram

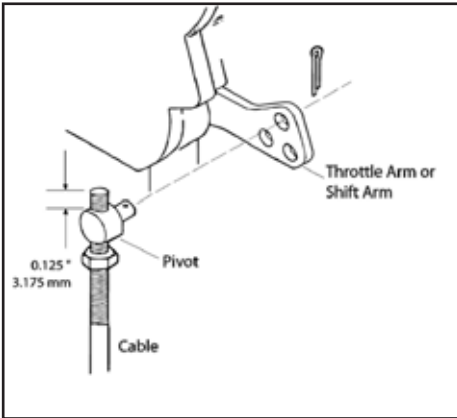
NOTE:
I/O = Inboard/Outboard or Sterndrive.
O/B = Outboard.

PUSH to OPEN THROTTLE				
	PORT		STARBOARD	
MANUFACTURER	CABLE NEST KIT	THROTTLE LEVER	CABLE NEST KIT	THROTTLE LEVER
Mercury 18 & 25 HP	#1	#1	#1	#1
Johnson/Evinrude	#1	#1	#1	#1
BRP/OMC I/O	#1	#1	#1	#1
Yamaha 90HP & up	#1	#1	#1	#1
US Marine	#1	#1	#1	#1
Suzuki	#1	#1	#1	#1

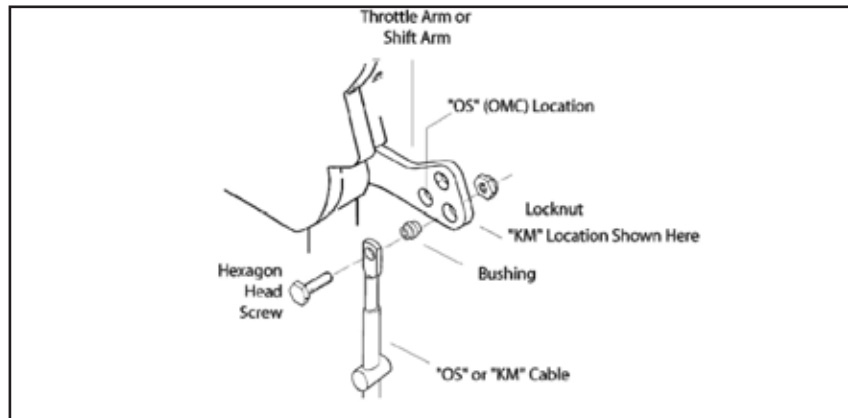
PULL to OPEN THROTTLE				
	PORT		STARBOARD	
MANUFACTURER	CABLE NEST KIT	THROTTLE LEVER	CABLE NEST KIT	THROTTLE LEVER
MerCruiser Mercury I/O & OB	#2	#2	#2	#2
Volvo	#2	#2	#2	#2
Yamaha 70HP & Under	#2	#2	#2	#2
Honda	#2	#2	#2	#2
Nissan/Tohatsu	#2	#2	#2	#2

PUSH for FORWARD SHIFT				
	PORT		STARBOARD	
MANUFACTURER	CABLE NEST KIT	SHIFT LEVER	CABLE NEST KIT	SHIFT LEVER
Volvo I/O & Inboards	#3	#3	#4	#4
3300 Cables	#3	#3	#4	#4
Mercury 18 & 25 HP	#5/6	#6	#7/8	#7
Inboards	#3	#3	#4	#4

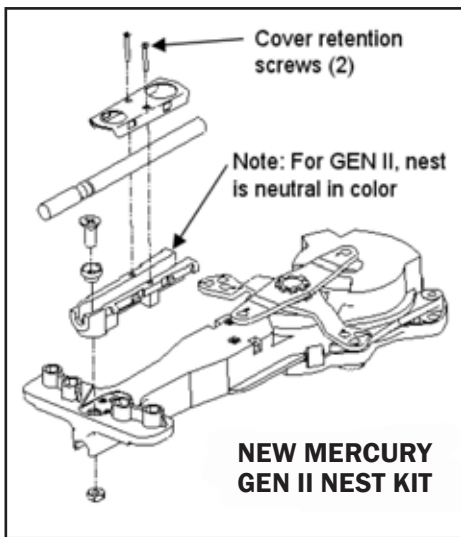
PULL for FORWARD SHIFT				
	PORT		STARBOARD	
MANUFACTURER	CABLE NEST KIT	SHIFT LEVER	CABLE NEST KIT	SHIFT LEVER
3300 Cables	#4	#4	#3	#3
MerCruiser Mercury I/O & OB	#7/8	#7	#5/6	#6
BRP/OMC I/O Evinrude/Johnson	#7/8	#8	#5/6	#5
Honda/Nissan/Suzuki	#4	#4	#3	#3
Tohatsu/US Marine	#4	#4	#3	#3
Yamaha	#4	#4	#3	#3
Inboards	#4	#4	#3	#3



Shift Arm Cable Terminal Connection for 3300/33C Cable.



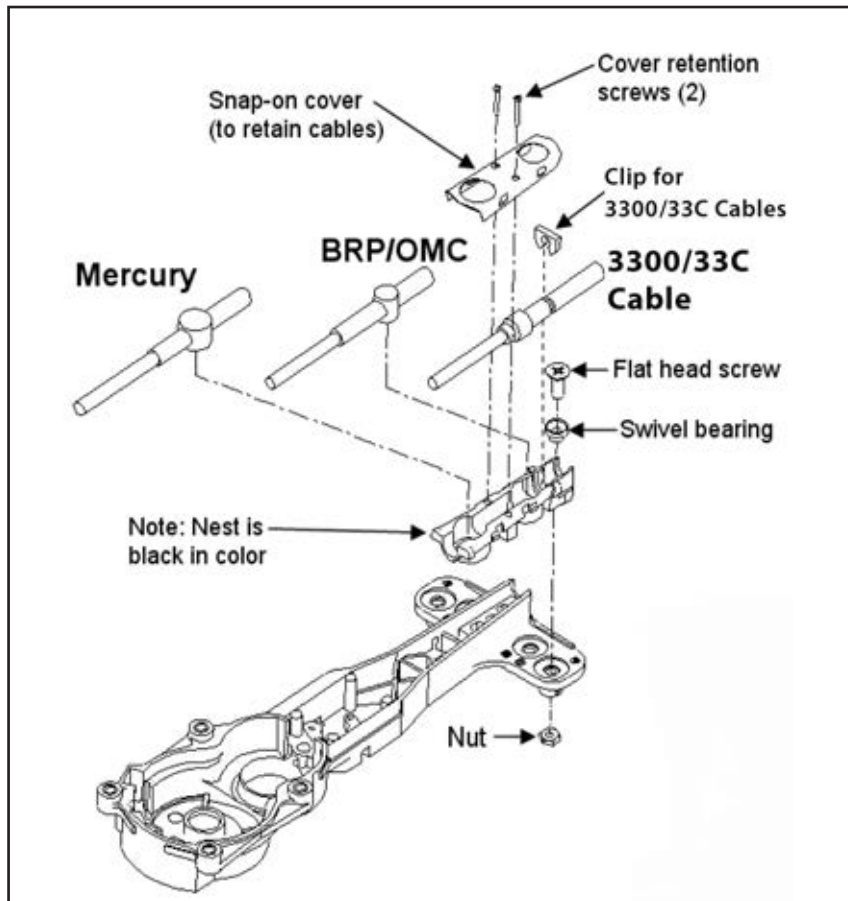
Shift Arm Cable Terminal Connection for "OS" is BRP/OMC/Johnson and Evinrude. "KM" is Mercury, MerCruiser.



Cable End Options

- 3300/33C (Universal) (note black nest color)
- BRP/OMC/Johnson/Evinrude (note blacknest color)
- Mercury, MerCruiser (note black nest color)
- Mercury Gen II Cables (note neutral nest color)

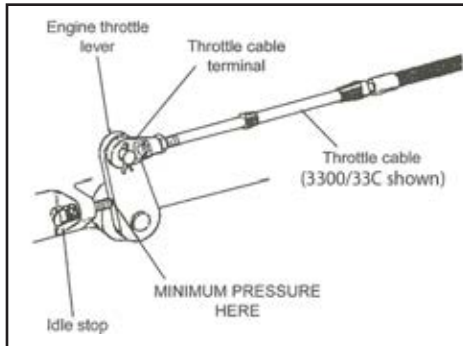
Each cable type connects differently.



SECTION 4: SHIFT & THROTTLE CABLE CONNECTION-ENGINE END.

⚠ CAUTION

The throttle cable must be disconnected from the motor before making motor idle adjustments. Adjustment of the motor idle while the throttle cable is connected to the motor may cause jamming action against the idle stop. As a result, the control may not function properly and damage to the control, the cable and/or the motor may occur.



Please Note: This figure does not represent any particular engine.

STEP 1. Make sure the Control is in *NEUTRAL DETENT*.

STEP 2. The Engine Throttle Lever should rest lightly against the “Idle Stop” on the carburetor.

STEP 3. Connect the Throttle Cable to the Engine Throttle Lever.

STEP 4. Before connecting the shift lever to transmission lever, put both the control lever and the transmission lever into forward gear position. Adjust the cable end to the position where it easily slides onto transmission lever.

STEP 5. If using 3300/33C cables, tighten all jamb nuts against adaptors.

NOTICE

Throttle Cable must be free of load (NO LOAD) when throttle lever is in the idle position to prevent hard shifting.

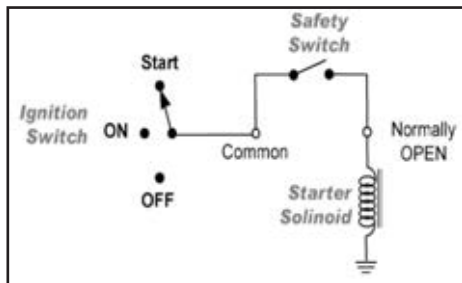
SECTION 5: ELECTRICAL CONNECTIONS.

NEUTRAL SAFETY SWITCH.

This control is provided with a Neutral Safety Switch for each engine. This switch is used to prevent the engine from starting in gear.

NOTICE

Use a battery-powered test light or test meter to check continuity.



STEP 1. With the Control in NEUTRAL, connect one wire of the tester to the common terminal, and one wire to the “NO” (Normally Open) Terminal. The test light MUST light.

STEP 2. Connect the neutral safety switch between the ignition switch (start lead) and the starter solenoid.

⚠ CAUTION

Use a multimeter or continuity tester to make sure that there is electrical continuity only when the control is in neutral position. When the control is in forward or reverse gear there must not be electrical continuity. The multimeter or tester should show an open circuit.

TRIM AND TILT.

Refer to the wiring diagrams (Page 8) for the correct “Trim” and “Tilt” switch connections and wire accordingly.

NOTICE

On both 3-wire AND 5-wire systems: reverse the blue and green connections for opposite “trim” operation.

Abbreviations:

DN = Down

UP = Up

Color Key:

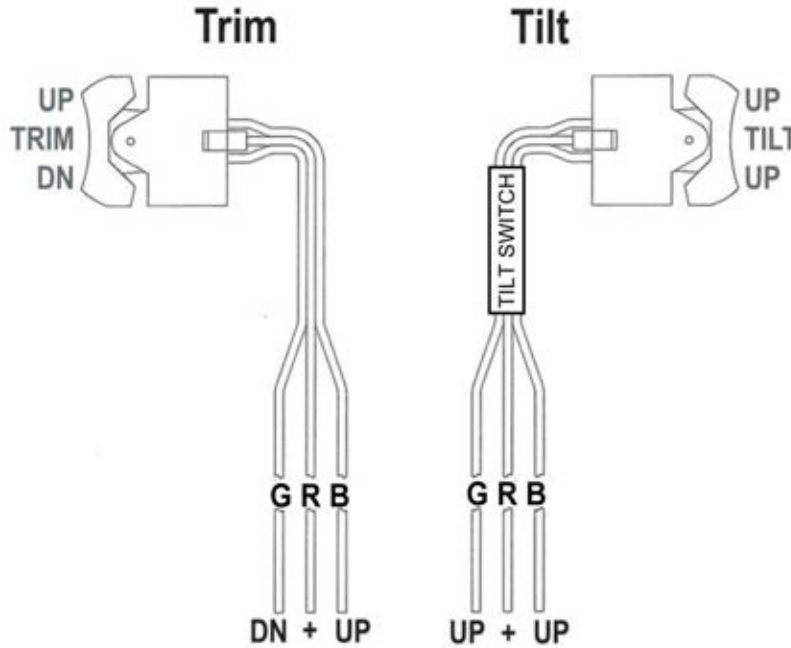
B = Blue

G = Green

V = Violet

R = Red

W = White



Note for Tilt:

1. Connect Blue and Green together, then connect to engine tilt signal wire.

2. Connect Red to engine power wire.

3. Not all engines are wired the same, especially older engines. Check with the engine manufacturer for wiring specifications.

4. Use either the upper or lower Tilt switch to bring Tilt UP. To bring Tilt DOWN, use Trim DOWN switch.

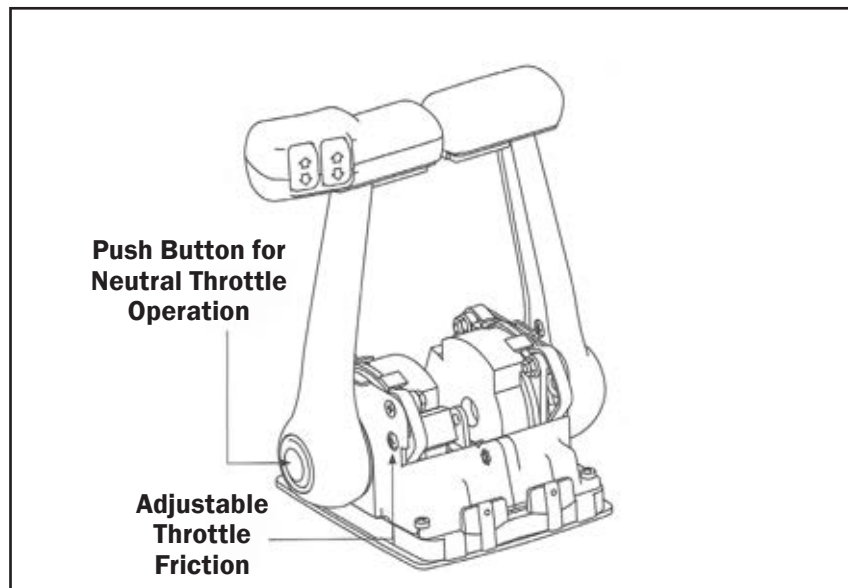
CH7800 Operation

PUSH BUTTON FOR NEUTRAL THROTTLE WARM UP.

Used for starting or engine warm-up. When the hand lever is in the neutral detent position, depress the button in the center of the handle and hold while moving the lever forward. This will enable operation of the throttle without engaging forward or reverse gear. When warm-ups is completed, return the lever to the neutral position: the button will pop back out, making the control ready for normal operation.

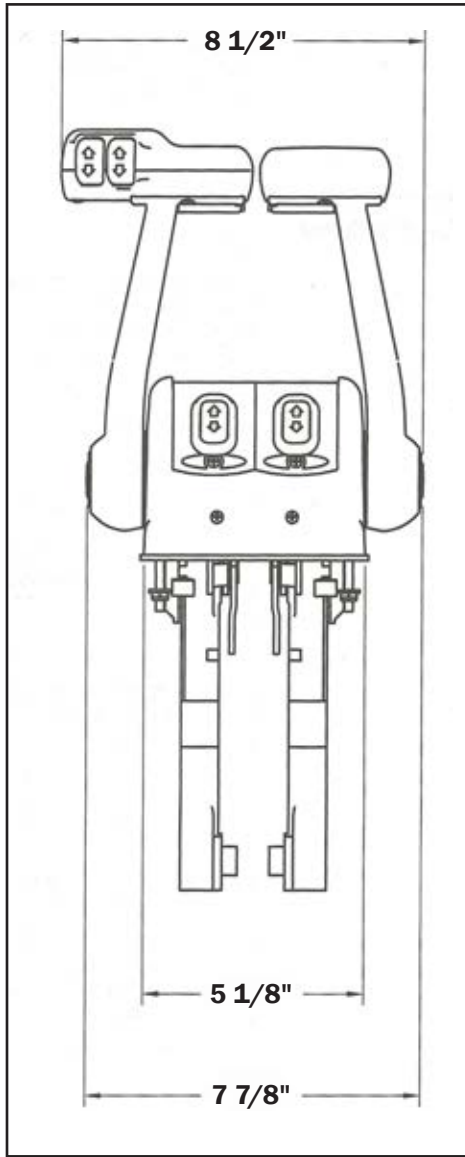
FRICTION ADJUST SCREW.

Adjustment of this screw enables the friction in the throttle operating mechanism to be increased and prevent unwanted handle movement. To adjust, place the lever in the forward or reverse throttle position (just beyond the shift position). Remove the cover and adjust the friction adjust screw: turning the screw clockwise increases the friction. Do not over-tighten.

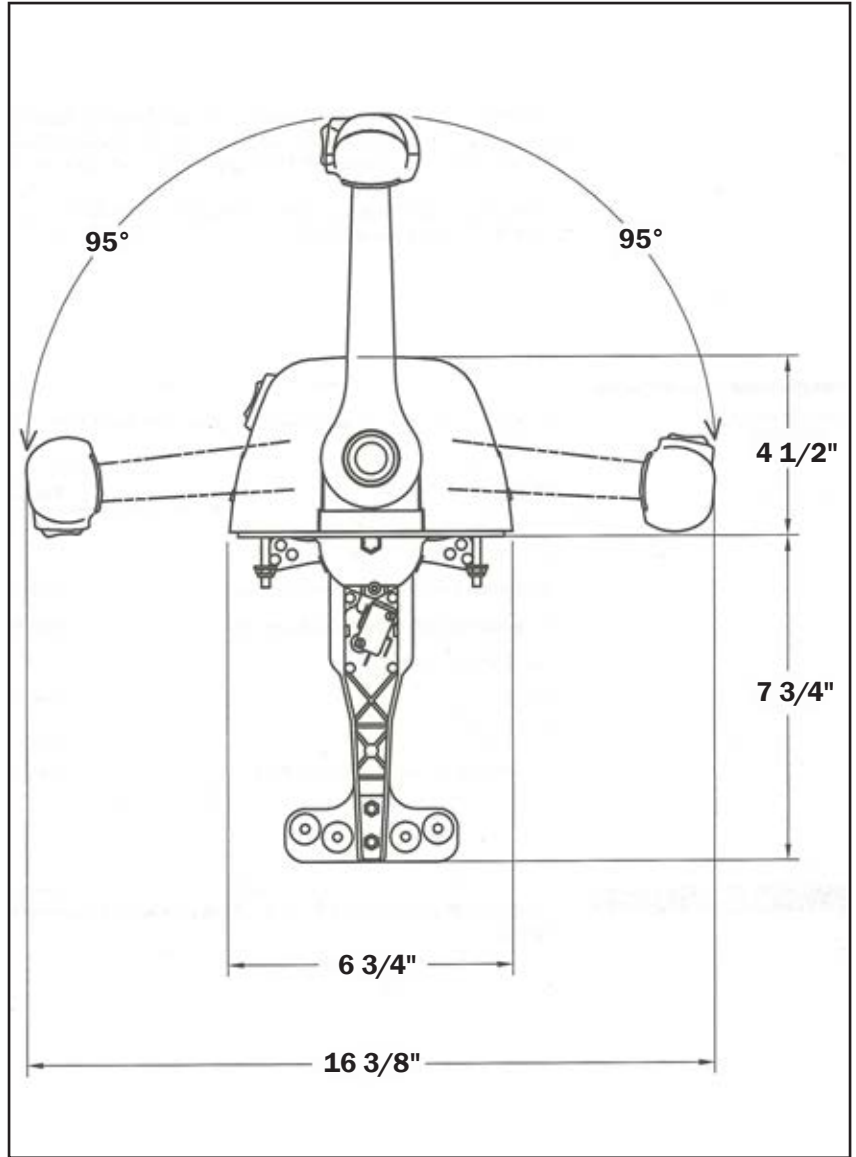


CH7800 General Dimensions

FRONT VIEW.



SIDE VIEW.



Service Parts Kits

All service parts can be purchased from your local SeaStar Solutions Distributor.

PART NUMBER	DESCRIPTION
212151-003	Cable Nest and Connection Kit (includes Mercury Gen II Nest)
7214311	Chrome Insert Kit (with and without tilt cut-out)
7214518	Black Insert Kit (with and without tilt cut-out)
309172	Flexible Button (Neutral Throttle Warm Up)
309184	White Plunger (Neutral Throttle Warm Up)
7206216	Tilt switch with Inserts (1 Chrome, 1 Black)

NOTICE

A quantity of two (2) is needed for all above products for complete control.

Maintenance Notes

1. After a few hours of operation and at frequent intervals thereafter, check all fasteners and the complete control system for security and integrity.

DANGER

Loosening or loss of one or more fasteners may cause failure of the control system and could cause property damage, injury, or death.

2. Keep all moving parts free from build-up of salt and other foreign material. This will affect their operation and create control problems.

3. Periodically inspect for corrosion. Any parts affected by corrosion must be replaced. Any replacement hardware must be as originally supplied (i.e. similar material and locking features).

4. Periodically inspect control cables for cracks and other damage. If any is found the cable must be replaced.

5. If cable is stiff in operation, it is unsafe to use and must be replaced immediately.

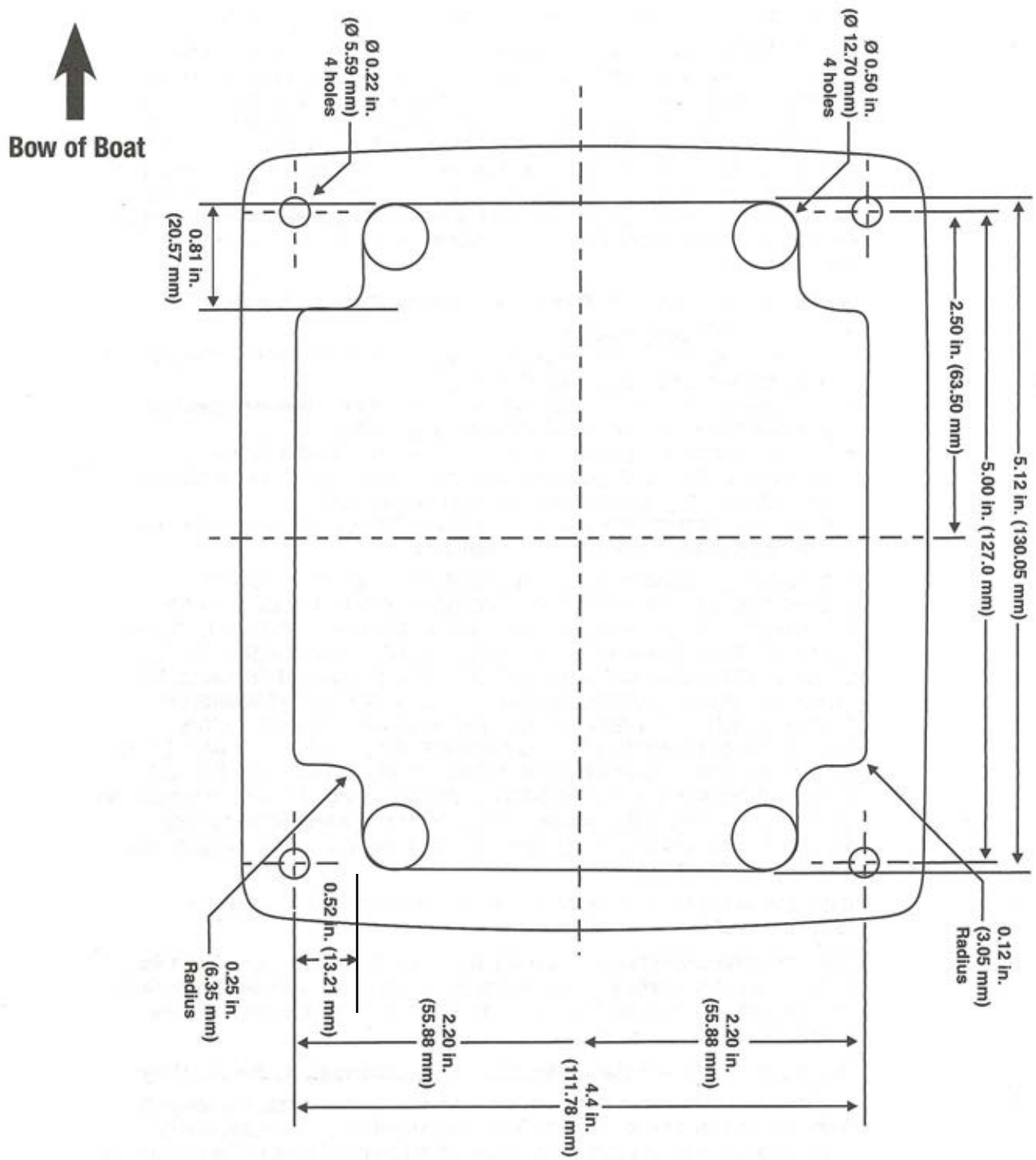
DANGER

DO NOT cover cracks with tape or other sealants. This will create a hazard in which the cable can fail suddenly without warning, resulting in property damage, injury, or death.

NOTICE

Boat builder and boat dealer, please supply these Installation Instructions and Owner's Manual with the delivery of boat. Boat owner keep these instructions with your boat for future reference. Boat owner consult with your boat builder, boat dealer, or SeaStar Solutions if you have any questions regarding these instructions.

Mounting Template



NOTICE

*This template is not be to scale. Its presence is for information purposes. A separate work template—**part number 309569**—has been included with this control.*



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