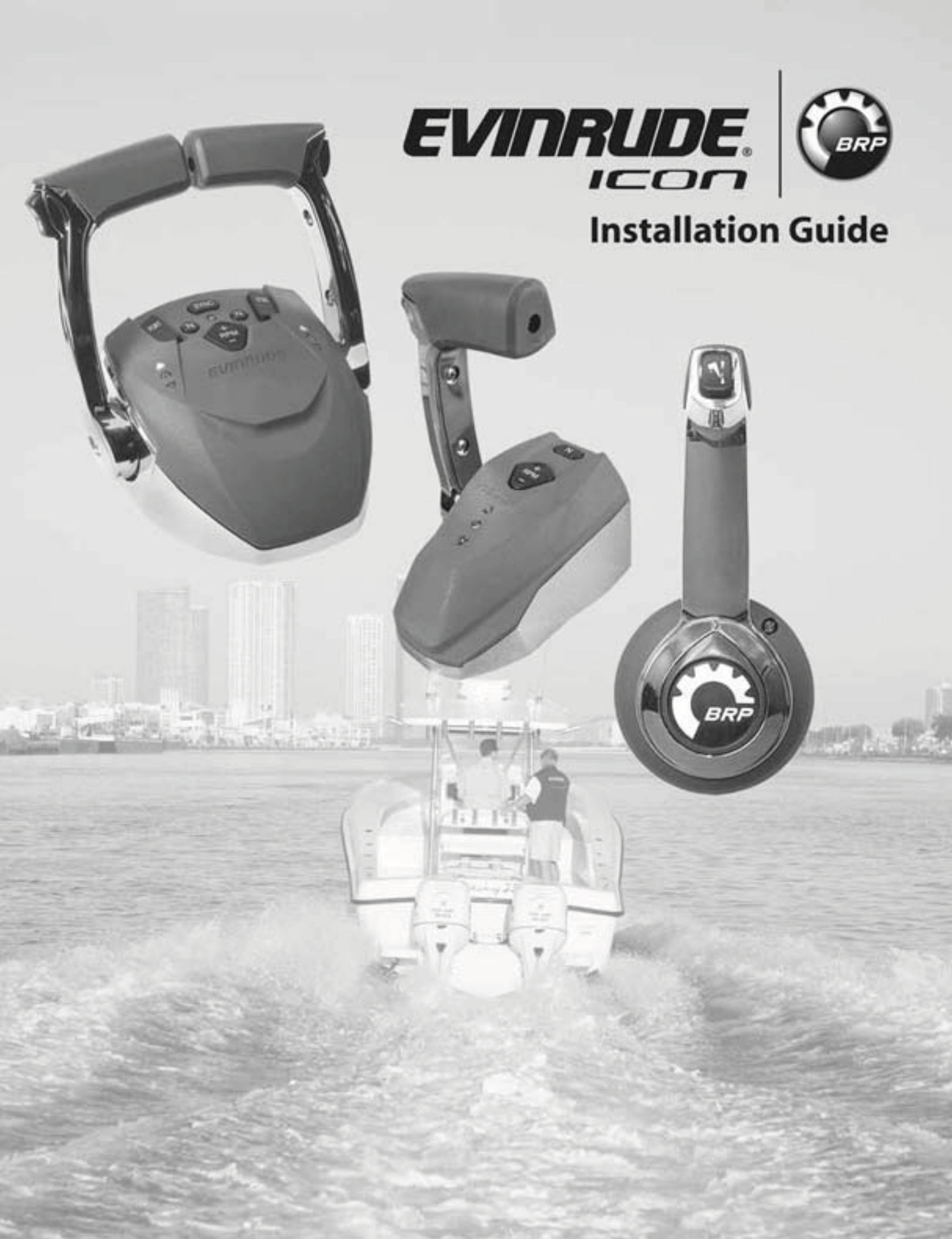
EVINRUDE ICON

Installation Guide



Evinrude ICON Remote Control System

Installation Guide

SAFETY INFORMATION

This booklet is written for qualified, factory-trained technicians who are already familiar with the use of *Evinrude®/Johnson®* Special Tools. This booklet is not a substitute for work experience. It is an organized guide for installation of the *ICON* remote control system.

The following symbols and/or signal words may be used in this document:

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury

⚠ CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

NOTICE **Indicates an instruction which, if not followed, could severely damage engine components or other property.**

These safety alert signal words mean:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

IMPORTANT: Identifies information that controls correct assembly and operation of the product.

DO NOT perform any work until you have read and understood these instructions completely.

Torque wrench tightening specifications must strictly be adhered to.

Should removal of any locking fastener (lock tabs, locknuts, or patch screws) be required, always replace with a new one.

When replacement parts are required, use *Evinrude/Johnson Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Use of substandard parts could result in injury or product malfunction.

Always wear EYE PROTECTION AND APPROPRIATE GLOVES when using power tools.

Unless otherwise specified, engine must be OFF when performing this work.

Always be aware of parts that can move, such as flywheels, propellers, etc.

Some components may be HOT. Always wait for engine to cool down before performing work.

If you use procedures or service tools that are not recommended in this manual, YOU ALONE must decide if your actions might injure people or damage the outboard.

This document may be translated into other languages. In the event of any discrepancy, the English version shall prevail.

Before working on any part of the outboard, read the following SAFETY information.

⚠ DANGER

Contact with a rotating propeller is likely to result in serious injury or death. Assure the engine and prop area is clear of people and objects before starting engine or operating boat. Do not allow anyone near a propeller, even when the engine is off. Blades can be sharp and the propeller can continue to turn even after the engine is off. Remove propeller before servicing and when running the outboard on a flushing device.

DO NOT run the engine indoors or without adequate ventilation or permit exhaust fumes to accumulate in confined areas. Engine exhaust contains carbon monoxide which, if inhaled, can cause serious brain damage or death.

⚠ WARNING

Wear safety glasses to avoid personal injury, and set compressed air to less than 25 psi (172 kPa).

The motor cover and flywheel cover are machinery guards. Use caution when conducting tests on running outboards. DO NOT wear jewelry or loose clothing. Keep hair, hands, and clothing away from rotating parts.

During service, the outboard may drop unexpectedly. Avoid personal injury; always support the outboard's weight with a suitable hoist or the tilt support bracket during service.

To prevent accidental starting while servicing, disconnect the battery cables at the battery. Twist and remove all spark plug leads.

The electrical system presents a serious shock hazard. DO NOT handle primary or secondary ignition components while outboard is running or flywheel is turning.

Gasoline is extremely flammable and highly explosive under certain conditions. Use caution when working on any part of the fuel system.

Protect against hazardous fuel spray. Before starting any fuel system service, carefully relieve fuel system pressure.

Do not smoke, or allow open flames or sparks, or use electrical devices such as cellular phones in the vicinity of a fuel leak or while fueling.

Keep all electrical connections clean, tight, and insulated to prevent shorting or arcing and causing an explosion.

Always work in a well ventilated area.

Replace any locking fastener (locknut or patch screw) if its locking feature becomes weak. Definite resistance to tightening must be felt when reusing a locking fastener. If replacement is indicated, use only authorized replacement or equivalent.

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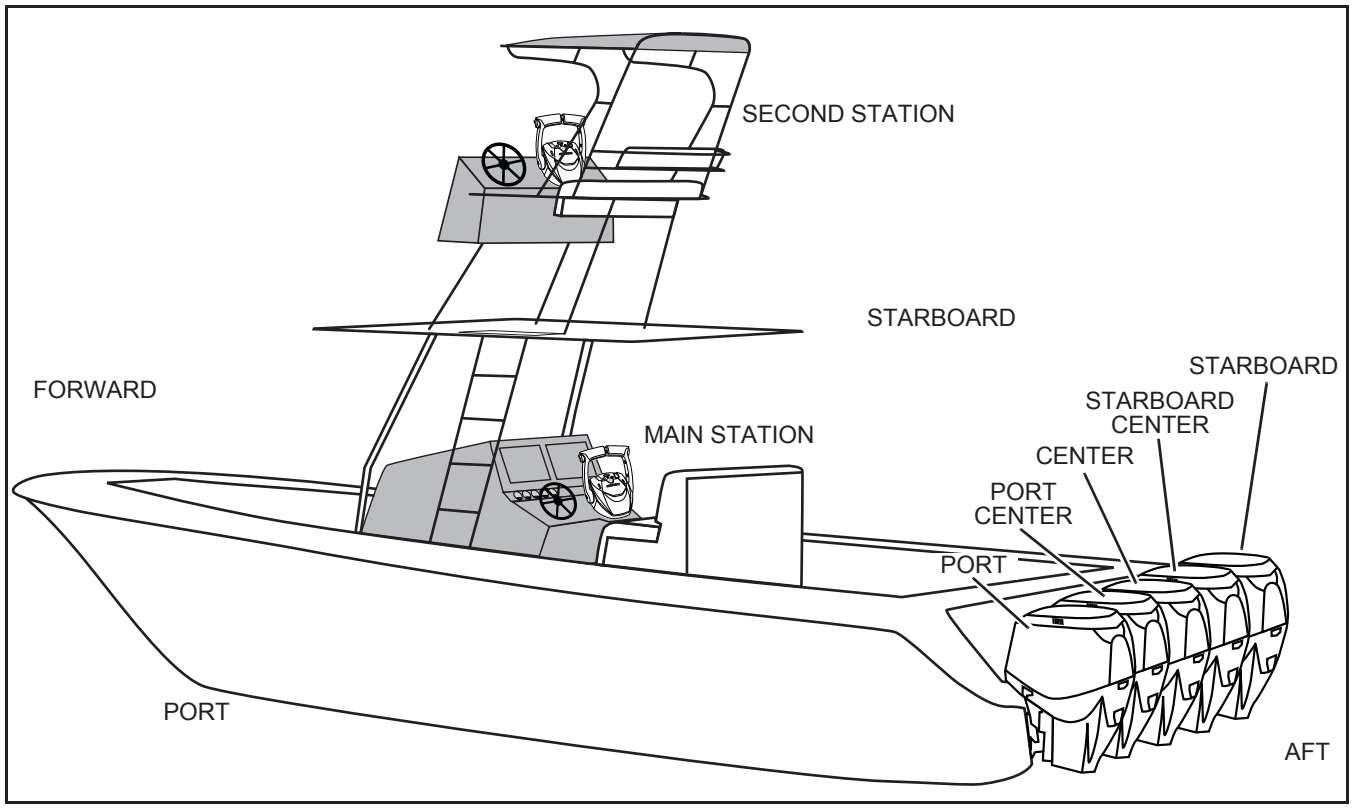
About This Installation Guide

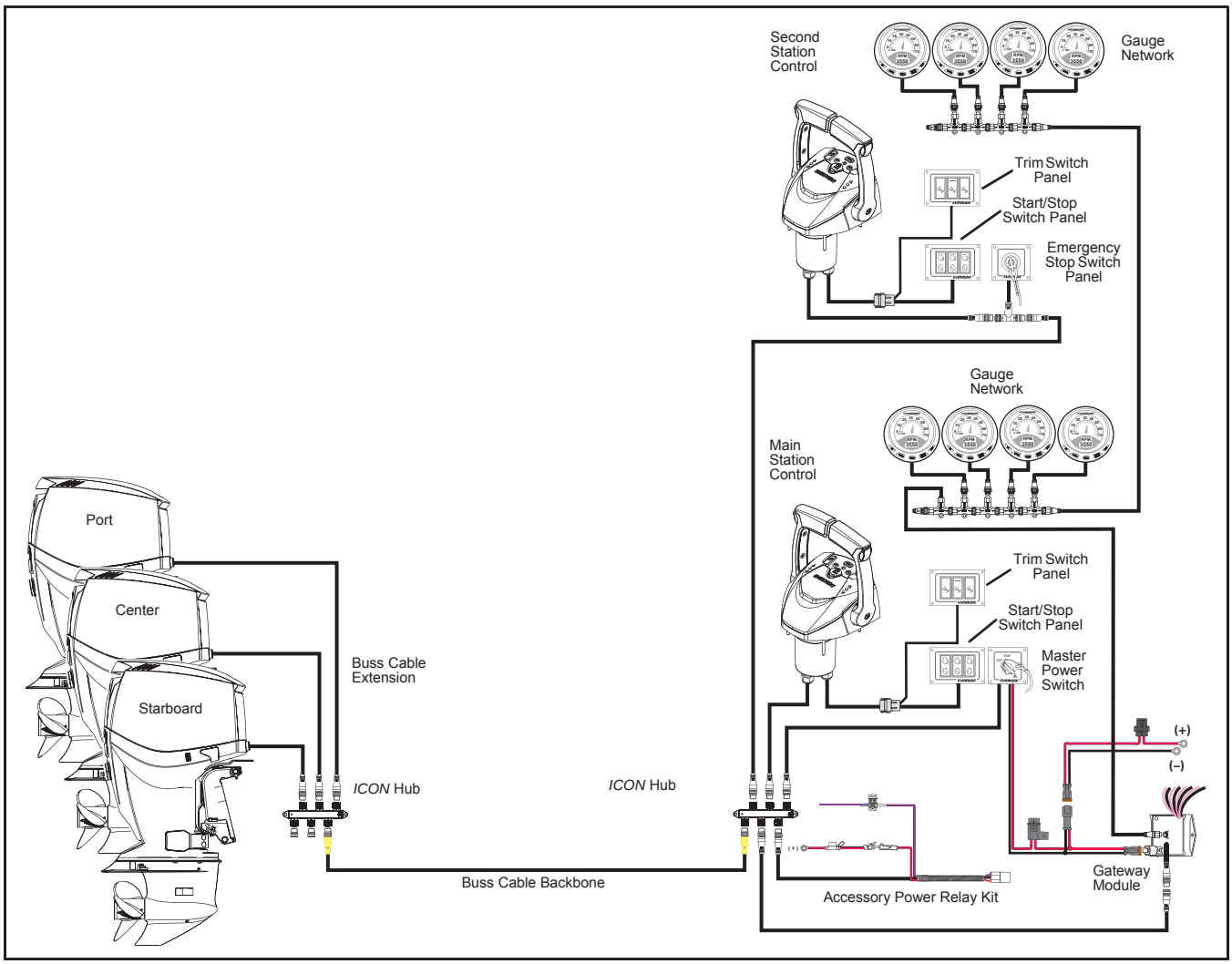
Installers should be familiar with nautical orientation. This Installation Guide often identifies outboards, parts or procedures using terms shown in the diagram below.



Evinrude ICON System Description

The *Evinrude ICON* electronic shift and throttle control system is a digitally controlled user interface system for *Evinrude E-TEC* outboard engines. The *Evinrude ICON* control system uses a proprietary “plug and play” networking technology to provide communications through a serial data network utilizing a Controller Area Network (CAN) integrated circuit (IC).

The high-speed network incorporates a gateway which allows multiple electronic devices to be connected together on a common channel for easy information sharing. Multiple digital displays can be used to monitor and broadcast equipment and engine data.

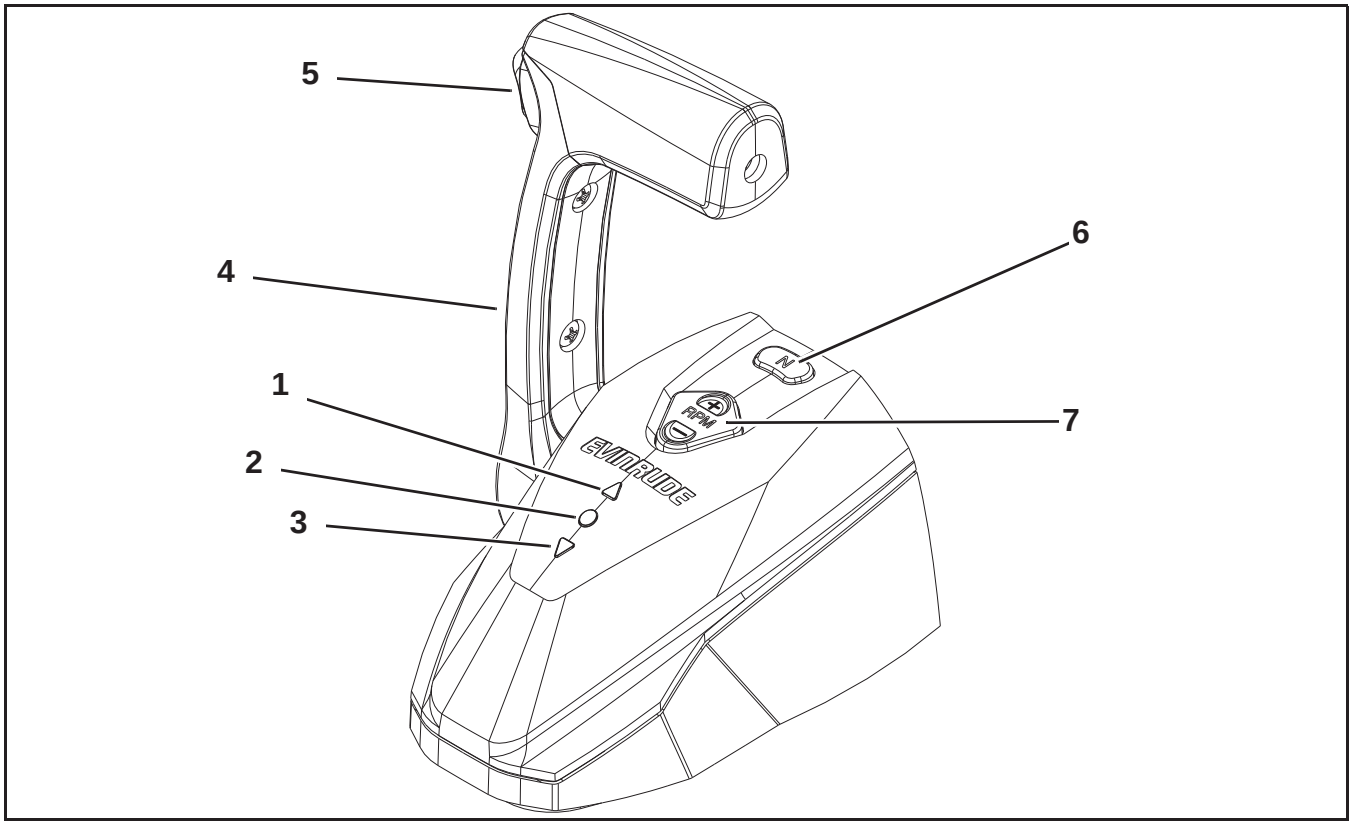


I-Command digital displays are designed specifically for *NMEA 2000* certified *Evinrude E-TEC* outboards. These displays provide enhanced engine and boat performance information. Multiple functions are integrated into the easy-to-use displays. Additional displays and accessories can be added with the plug and play design.

ICON Rigging Kit Selection Chart

Step 1: Select number of engines.	1		2	3	4	5
Step 2: Select appropriate remote control.	Concealed Side Mount	Single Lever Binnacle Mount	Dual Lever Binnacle Mount			
Step 3: Order P/N for main or single station rigging kit.	**Rigging Kit P/N 764990**	**Rigging Kit P/N 764980**	**Rigging Kit P/N 764982**	**Rigging Kit P/N 764984**	**Rigging Kit P/N 764986**	**Rigging Kit P/N 764988**
Main Station Rigging Kits include:						
ICON Remote Control, P/N	765412	765381	765382	765383	765384	765385
Master Power/Key Switch, P/N	765371	765373	765374	765371	765371	765371
Start/Stop Switch Panel, P/N	765378	–	–	765375	765376	765377
Trim Switch Panel, P/N	–			765388	765389	765390
Network Power Cable, P/N	764921					
ICON Gateway Module Kit, P/N	764922					
ICON Accessory Power Relay, P/N	765296					
ICON Hubs (2), P/N	764943					
Buss Cable Extension 15ft (4.57m), P/N (Kit includes 1 buss cable per engine)	764948					
Buss Cable Backbone 20ft (6.1m), P/N	764950		–			
Buss Cable Backbone 25ft (7.4m), P/N	–		764951			
Engine Identity Plug ID#1, P/N	–		764916			
Engine Identity Plug ID#2, P/N	–			764917		
Engine Identity Plug ID#3, P/N	–				764918	
Engine Identity Plug ID#4, P/N	–					764919
ICON Remote Control User's Guide, P/N	765410	764954				
Installation Instructions Included:						
ICON Remote Controls, P/N	355248	355084				
ICON Switch Panels, P/N	355085	355085				
ICON Gateway Module & Cable Kit, P/N	355086	355086				
ICON Accessory Power Relay Kit, P/N	355087	355087				
ICON Quick Connect Guide, P/N	765409	764953				
Step 4 (optional): Order P/N for second station rigging kit.	**Concealed Side Mount Rigging Kit Not Available**	**Rigging Kit P/N 764981**	**Rigging Kit P/N 764983**	**Rigging Kit P/N 764985**	**Rigging Kit P/N 764987**	**Rigging Kit P/N 764989**
Second Station Rigging Kits Include:						
ICON Remote Control, P/N		765381	765382	765383	765384	765385
Emergency Stop Switch Panel, P/N		765379	765380	765372	765372	765372
Start/Stop Switch Panel, P/N		–		765375	765376	765377
Trim Switch Panel, P/N		–		765388	765389	765390
Buss Cable Extension 15ft (4.57m), P/N		764948		–		
Buss Cable Extension 20ft (6.1m), P/N		–		764949		
Installation Instructions Included:						
ICON Remote Controls, P/N		355084				
ICON Switch Panels, P/N		355085				
ICON Quick Connect Guide, P/N		764953				

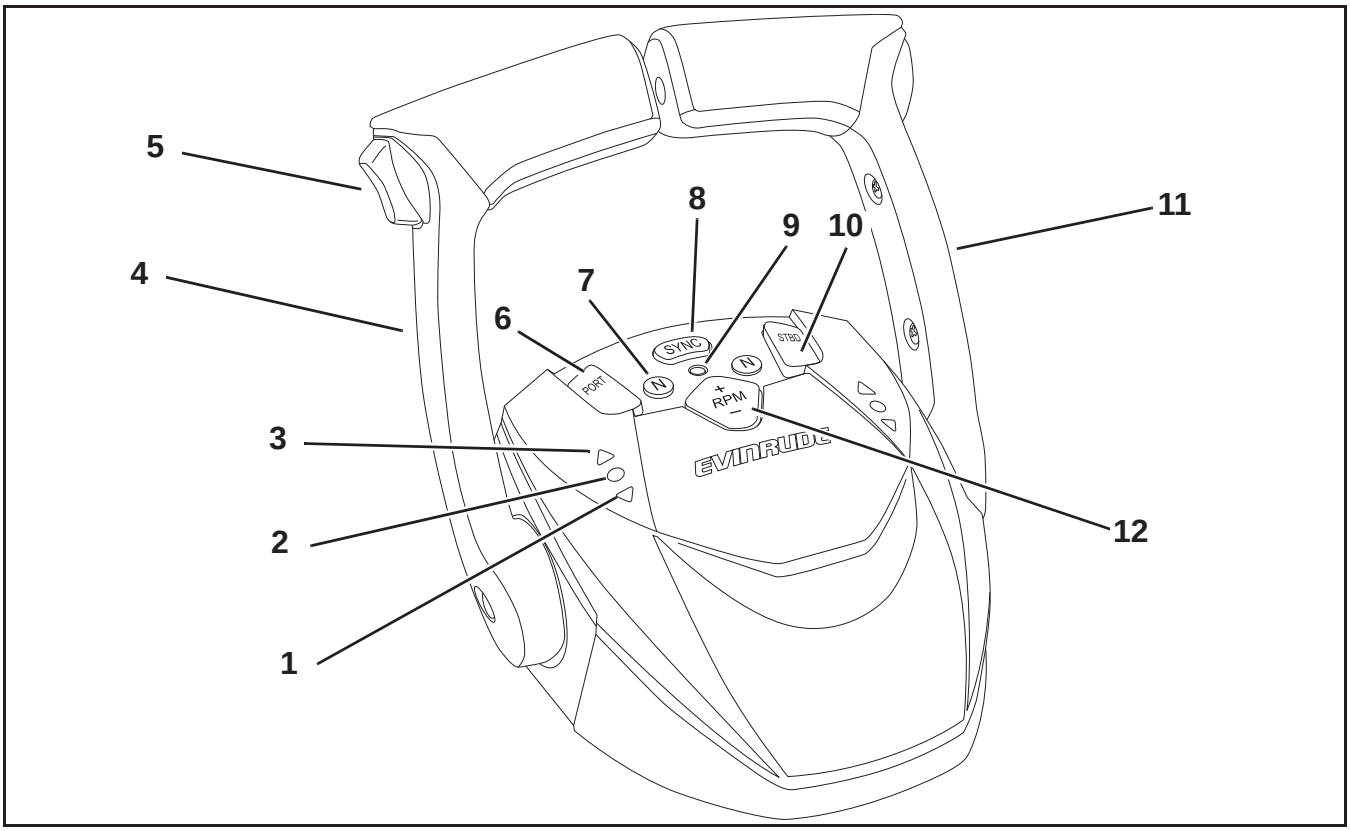
SIngle Lever Binnacle Mount Remote Control Features



	Feature	Function
1	FORWARD Gear Indicator LED	Turns green when control lever is shifted into FORWARD gear.
2	NEUTRAL Indicator LED	Turns yellow when control lever is shifted into NEUTRAL position.
3	REVERSE Gear Indicator LED	Turns green when control lever is shifted into REVERSE gear.
4	Control Lever	Controls shift and throttle function.
5	Master Trim and Tilt Switch	Press to adjust trim setting of outboard.
6	**N** (NEUTRAL) Throttle Switch	Press to disengage shift function. Allows for throttle only function.
7	**RPM** Switch	Press **+** or **–** to make slight adjustments to engine speed.

P/N (Included in *ICON* Rigging Kit)	**P/N** (Use for service replacement)	**Application**
764909	765381	Single Engine/Single Station or Dual Station

Dual Lever Binnacle Mount Remote Control Features

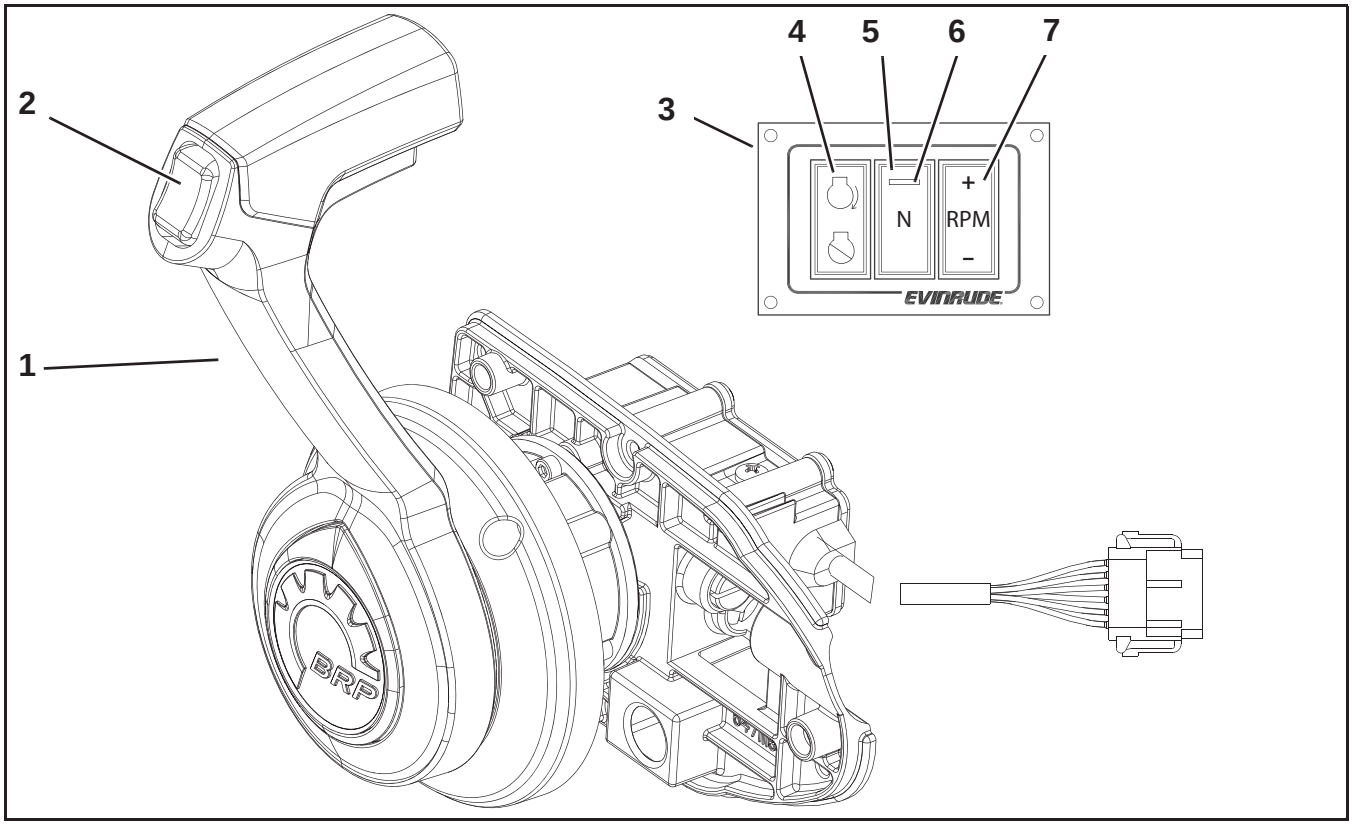


	Feature	Function
1	FORWARD Gear Indicator LED	Turns green when control lever is shifted into FORWARD gear.
2	NEUTRAL Indicator LED	Turns yellow when control lever is shifted into NEUTRAL position.
3	REVERSE Gear Indicator LED	Turns green when control lever is shifted into REVERSE gear.
4	Port Control Lever	Controls shift and throttle function for port and center outboards. Functions as a “master” control lever when SYNC is engaged.
5	Master Trim and Tilt Switch	Press to adjust trim setting of all outboards.
6	**PORT** Trim Switch	Press to trim or tilt the port outboard.
7	**N** (NEUTRAL) Throttle Switch	Press to disengage shift function. Allows for throttle only function.
8	**SYNC** Switch	Press to control 2 to 5 outboards with port control lever.
9	SYNC Indicator LED	Turns red when SYNC is active.
10	**STBD** Trim and Tilt Switch	Press to trim or tilt the starboard outboard.
11	Starboard Control Lever	Controls shift and throttle function for starboard outboards.
12	**RPM** Switch	Press **+** or **–** to make slight adjustments to engine speed.

P/N (Included in *ICON* Rigging Kit)	**P/N** (Use for service replacement)	**Application**
764910	765382	Two Engine/Single or Dual Station
764911	765383	Three Engine/Single or Dual Station
764912	765384	Four Engine/Single or Dual Station
764913	765385	Five Engine/Single or Dual Station

Dual lever binnacle mount remote controls use different programming to operate two, three, four or five engines. When installing dual lever binnacle mount remote controls, it is important to install the correct remote control for the number of engines installed on the boat. Check the BRP part number printed on the remote control identification label.

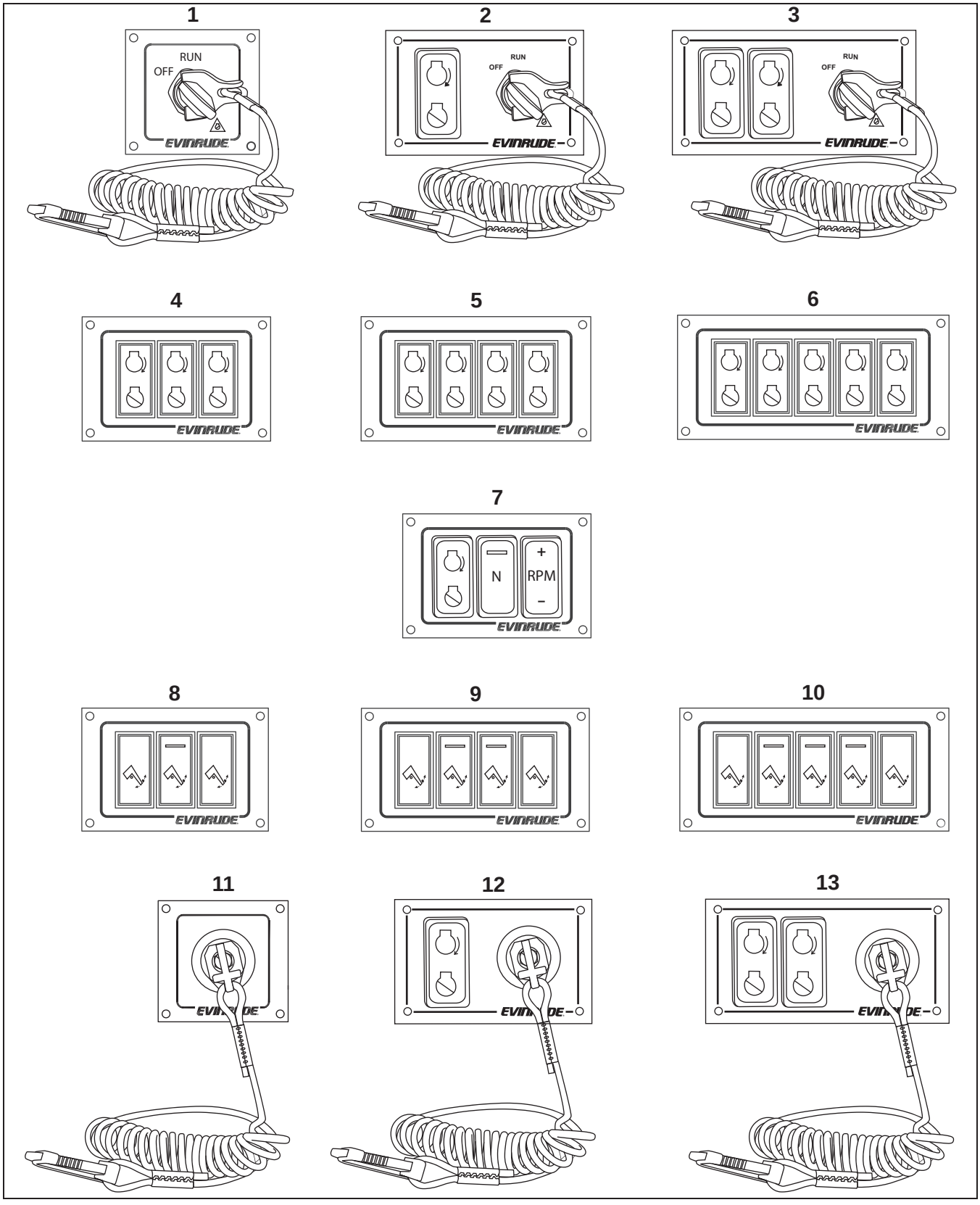
Concealed Side Mount Remote Control Features



	Feature	Function
1	Control Lever	Controls shift and throttle function for outboard.
2	Master Trim Switch	Press to adjust trim setting of all outboards.
3	Switch Panel	Contains Neutral Throttle, RPM and START /STOP switches.
4	START/STOP Switch	Press to START or STOP the engine.
5	**N** (NEUTRAL) Throttle Switch	Press to disengage shift function. Allows for throttle only function.
6	NEUTRAL Indicator LED	Turns yellow when control lever is shifted into NEUTRAL position.
7	**RPM** Switch	Press **+** or **–** to make slight adjustments to engine speed.

P/N (Included in *ICON* Rigging Kit)	**P/N** (Use for service replacement)	**Application**
764914	765412	Single Engine/Single Station

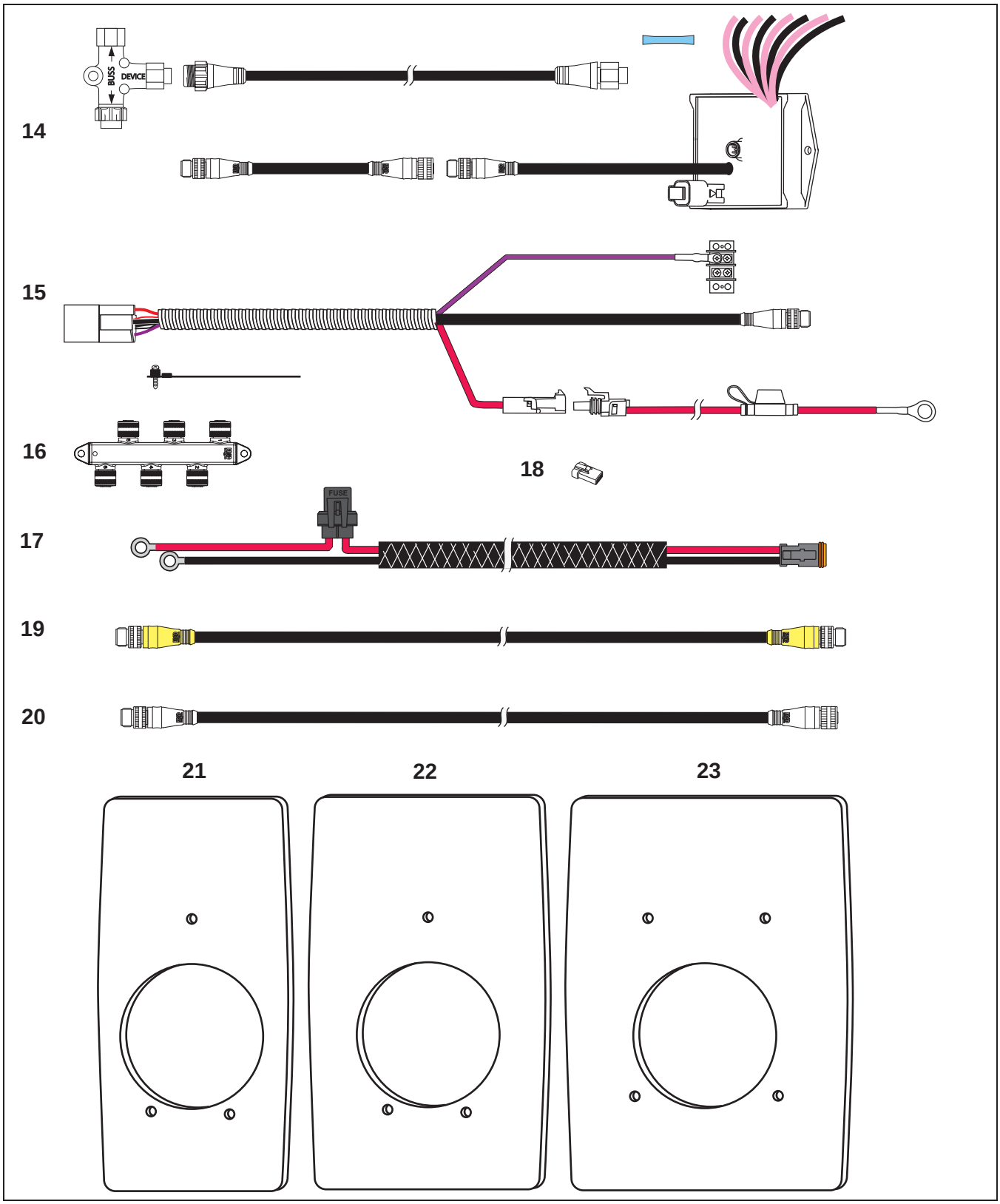
ICON Switch Panel Kits



ICON Switch Panel Kits

No.	Description	P/N	
		Switch Ay (Included in *ICON* Rigging Kit)	**Complete Switch Kit** (Use for service)
	Master Power/Key Switch Kits		
1	Master Power/Key Switch	764923	765371
2	Master Power/Key Switch, with Single Start/Stop Switch	764925	765373
3	Master Power/Key Switch, with Dual Start/Stop Switch	764926	765374
	START/STOP Switch Kits		
4	Start/Stop Switch, 3 engine	764927	765375
5	Start/Stop Switch, 4 engine	764928	765376
6	Start/Stop Switch, 5 engine	764929	765377
	Concealed Side Mount Switch Kit		
7	Start/Stop, RPM, N Switch	764930	765378
	Trim and Tilt Switch Kits (3, 4, or 5 engines)		
8	Trim and Tilt Switch, 3 engine	764963	765388
9	Trim and Tilt Switch, 4 engine	764964	765389
10	Trim and Tilt Switch, 5 engine	764965	765390
	Emergency Stop Switches		
11	Emergency Stop Switch	764924	765372
12	Emergency Stop Switch, with Single Start/Stop Switch	764931	765379
13	Emergency Stop Switch, with Dual Start/Stop Switch	764932	765380

ICON System Components



ICON System Components

No.	Description						P/N
14	Gateway Module and Cable Kit						764922
15	Accessory Power Relay Kit						765296
16	*ICON* Hub (6-Port)						764943
17	Network Power Cable 10 ft. (3.05 m)						764921
No.	**Accessories**						**P/N**
	Engine Identity Plugs						
18	Engine 1 (Instance 0)						764915
	Engine 2 (instance 1)						764916
	Engine 3 (Instance 2)						764917
	Engine 4 (Instance 3)						764918
	Engine 5 (Instance 4)						764919
No.	**Buss Cables**	**P/N**					
	Cable Lengths	**1 ft. (0.3 m)**	**2 ft. (0.6 m)**	**4 ft. (1.2 m)**	**10 ft. (3.05 m)**	**15 ft. (4.57 m)**	**20 ft. (6.1 m)**	**25 ft. (7.6 m)**
19	Buss Cable Backbone						764950	764951
20	Buss Cable Extensions	764944	764945	764946	764947	764948	764949	765052
	***ICON* Remote Control Trim Plates**							**P/N**
21	Trim Plate, Single binnacle to *ICON* single lever binnacle (white)							765075
	Trim Plate, Single binnacle to *ICON* single lever binnacle (off-white)							765076
22	Trim Plate, Single binnacle with key switch to *ICON* single lever binnacle (white)							765077
	Trim Plate, Single binnacle with key switch to *ICON* single lever binnacle (off-white)							765078
23	Trim Plate, dual binnacle to *ICON* dual lever binnacle (white)							765079
	Trim Plate, dual binnacle to *ICON* dual lever binnacle (off-white)							765080

Installation

Disconnect the battery cables at the battery.

Test operation after installation is complete.

⚠ WARNING

Failure to properly install and test remote control operation may result in remote control malfunction and the loss of boat control.

ICON Binnacle Mount Remote Controls

Refer to the *ICON* System Quick Connection Guide, P/N 764953 for *ICON* System Diagram.

IMPORTANT: Confirm the part number of dual lever binnacle mount remote controls before installing. Dual lever binnacle mount remote controls use unique programming based on the number of engines installed. Remote controls are not interchangeable for different engine configurations.

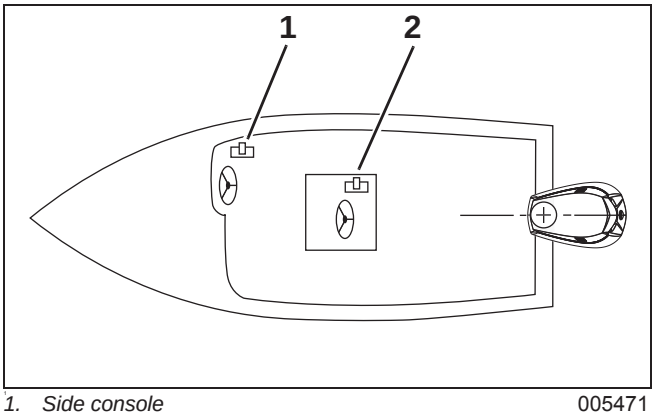
Note: If upgrading from BRP cable-type binnacle mount remote controls (P/N's 5006186, 5006184, or 5006182), to an *ICON* remote control, *ICON* remote control trim plates are available.

Trim plates cover existing mounting holes and provide pre-drilled mounting for the *ICON* remote control.

Refer to **ICON System Components** on p. 14 for trim plate selection.

Mounting Location

Select an appropriate location based on the boat configuration.



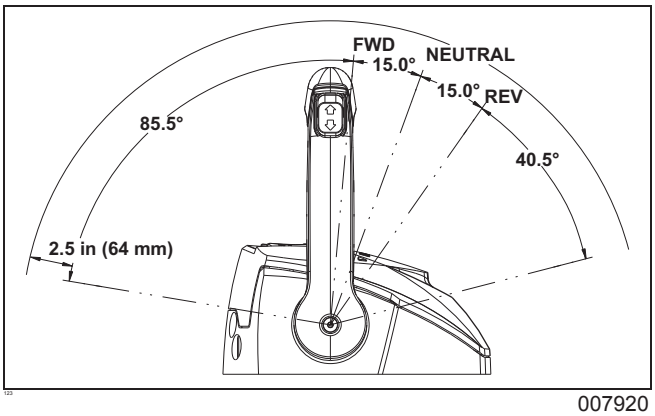
1. *Side console*
2. *Center console*

005471

IMPORTANT: The mounting location must be a flat surface and must be strong enough to provide rigid support. Strengthen mounting surface as necessary.

Refer to ***ICON* Single Lever Binnacle Mount Control Profile Drawing** on p. P-2. and ***ICON* Dual Lever Binnacle Mount Control Profile Drawing** on p. P-3.

Place remote control at proposed location and check clearance around remote control lever at full throttle in FORWARD and then at full throttle in REVERSE. There must be at least 2.5 in. (64 mm) of clearance between the handle and any part of the boat throughout the control lever travel.



007920

There must be at least 5 in. (127 mm) of clear space below the control for the housing and cable routing.

Mounting Holes

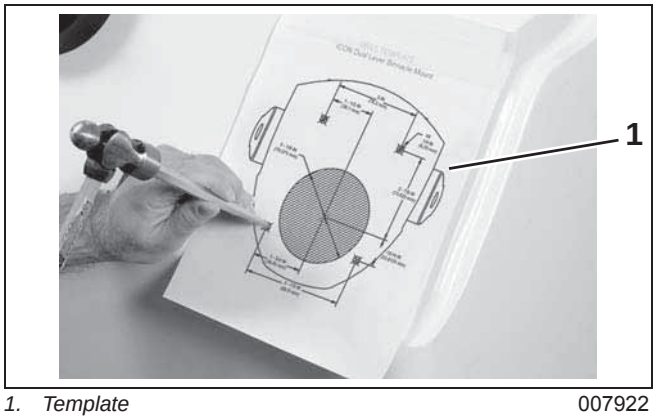
Refer to ***ICON*** **Single Lever Binnacle Mount Control Drill Template** on p. T-2 and ***ICON*** **Dual Lever Binnacle Mount Control Drill Template** on p. T-4. Use appropriate drill template to cut mounting holes.

IMPORTANT: Make sure the mounting location has **all** the required clearances before drilling or cutting.

Protect mounting surfaces from damage while drilling. Apply masking tape to fiberglass surfaces. Use appropriate protection for other surfaces.

1. Masking tape 007921

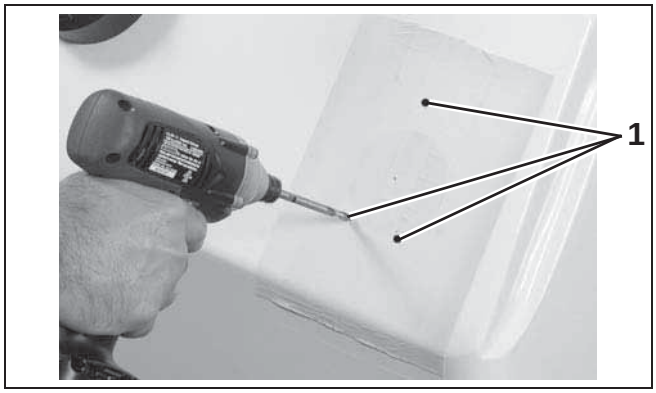
Position template. Use center punch to mark the centers of drill locations.



1. Template 007922

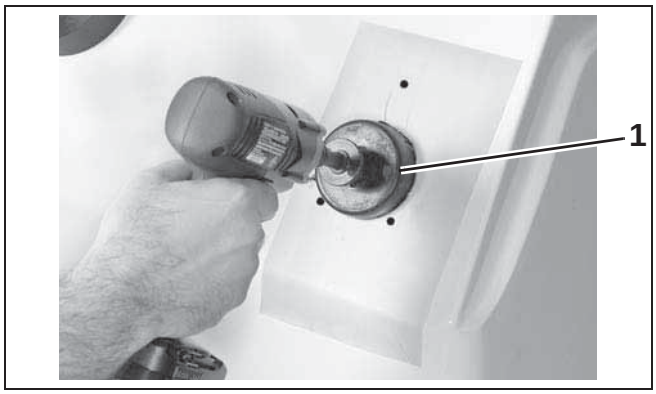
Single Lever Controls

Drill three (3) 1/4 in. (6.3 mm) holes at the three mounting stud locations.



1. Three mounting stud locations 007923

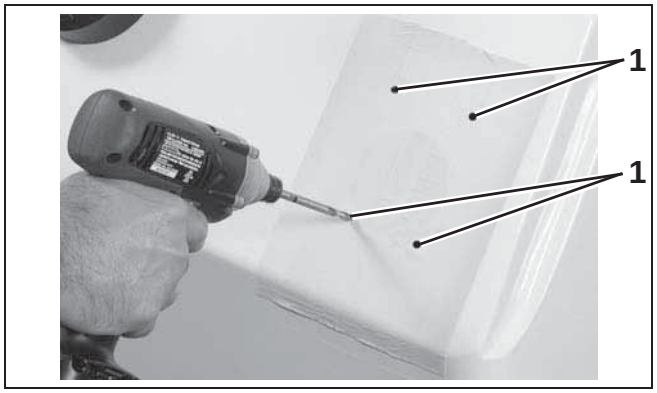
Use a 3 in (76 mm) hole saw to cut out for the control base.



1. 3-inch hole saw 007933

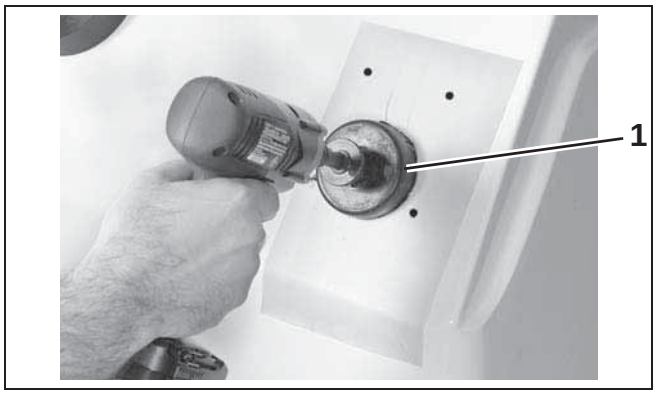
Dual Lever Controls

Drill four (4) 1/4 in. (6.3 mm) holes at the four mounting stud locations.



1. Four mounting stud locations 007934

Use a 3-1/8 in (79 mm) hole saw to cut out for the control base.



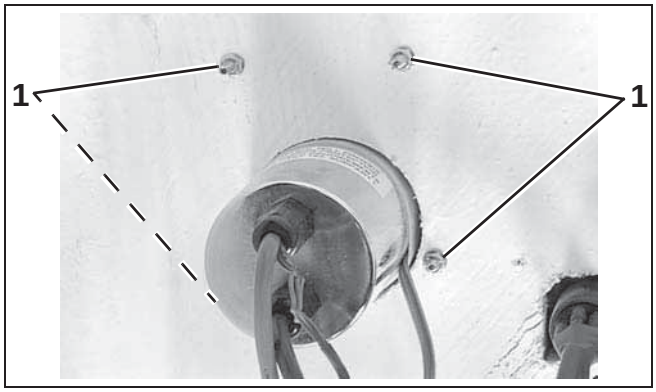
1. 3 1/8-inch hole saw 007924

Mounting Control

Install control on console.

007925

From under console, install washers and #10 locknuts on studs of control. Tighten locknuts to a torque of 24 to 36 in. lbs. (2.7 to 4 N·m).



1. Locknuts 007926

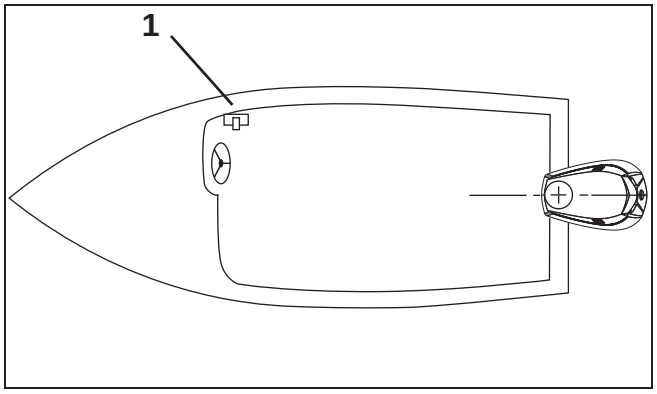
IMPORTANT: Make sure remote control assembly is secured to console and does not move during operation.

ICON Concealed Side Mount Remote Control

Refer to the *ICON* System Quick Connection Guide, P/N 765409 for *ICON* System Diagram.

Mounting Location

Select an appropriate location based on the boat configuration.

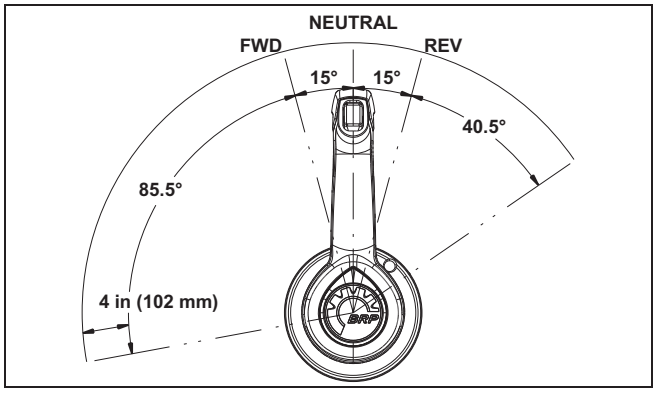


1. Starboard side mounting 006152A

IMPORTANT: The mounting location must be a flat surface and must be strong enough to provide a rigid support. Strengthen mounting surface as necessary. **Remote control cannot be installed if thickness of mounting surface exceeds 1-3/16 in. (30 mm).**

Refer to ***ICON* Concealed Side Mount Control Profile Drawing** on p. P-4.

Place remote control at proposed location and check clearance around remote control handle at full throttle in FORWARD and then at full throttle in REVERSE. There must be at least 4 in. (102 mm) of clearance between the handle and any part of the boat throughout the control handle travel.



007973

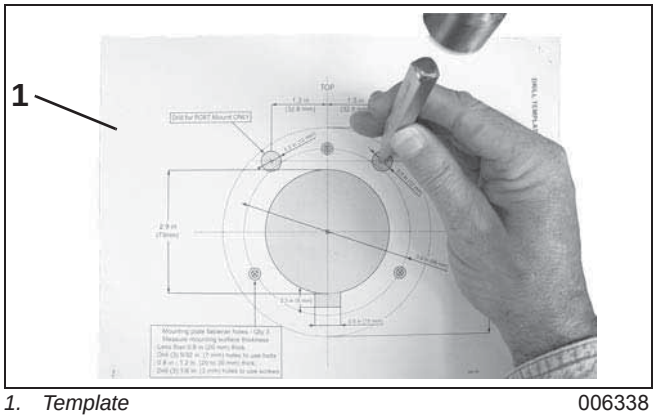
There must be sufficient clear space behind the control for the housing and cable routing.

Mounting Holes

Refer to ***ICON* Concealed Side Mount Control Drill Template** on p. T-6. Use appropriate drill template to cut mounting holes.

IMPORTANT: Make sure the mounting location has **all** the required clearances before drilling or cutting.

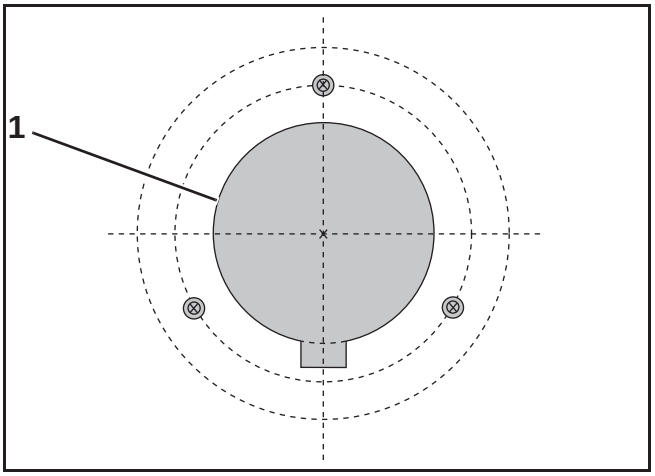
Position the template. Use center punch and mark the centers of drill locations.



1. Template 006338

Cut along the outer line of shaded area. Use appropriate cutting tools. A 2 7/8 in.(73mm) hole

saw can be used for main through hole. Notch bottom of hole for trim and tilt wiring.

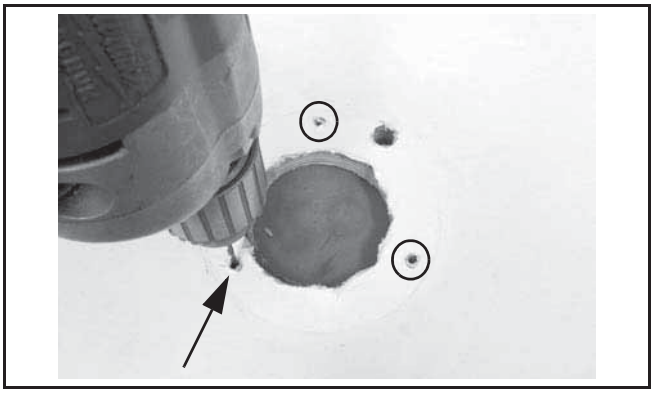


1. Shaded area 006303

Select proper fasteners and drill bit size. Determine thickness of mounting surface.

- Less than 13/16 in. (20 mm) thickness: Drill three (3) 9/32 in. (7 mm) diameter holes to use 8 mm bolts and nuts and washers provided.
- 13/16 in. to 1-3/16 in. (20 - 30mm) thickness: Drill three (3) 1/8 in. (3 mm) holes to use screws provided.

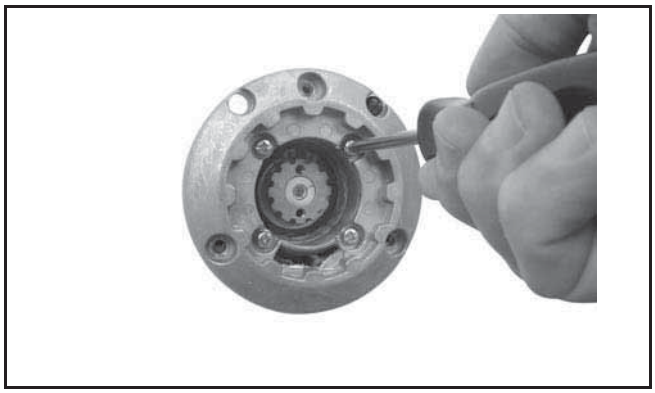
Drill three holes at mounting hole locations.



006339

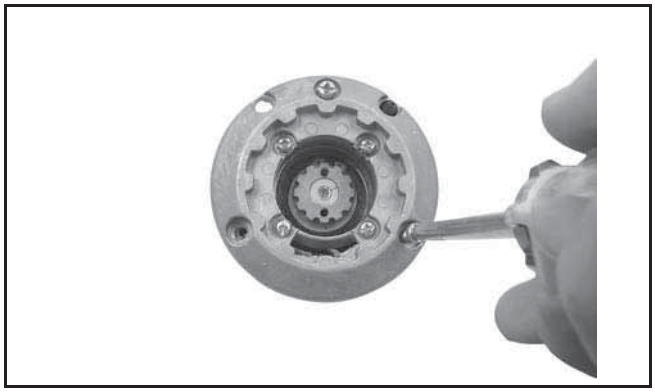
Mounting Control

Position remote control behind mounting surface. Align mounting plate with remote control. Install four washers and screws and tighten screws to 35 in./lbs.(4 N·m).



006340

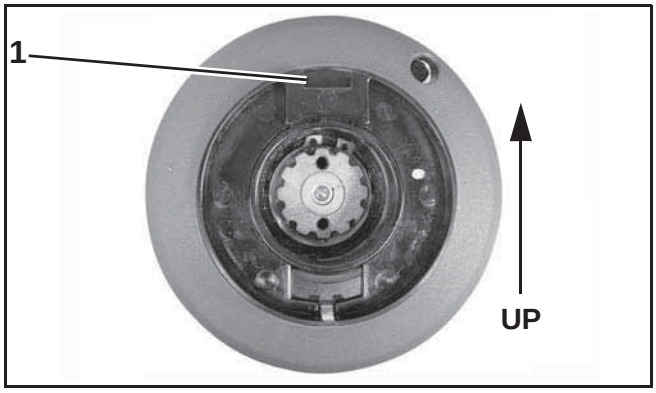
Align mounting plate with holes and secure to mounting surface. Use bolts and nuts if surface thickness is less than 13/16 in. (20mm) thick and screws for surface thicknesses between 13/16 (20mm) and 1-3/16 in. (30mm) thick. Tighten screws or bolts and nuts to 53-71 in./lbs.(6-8 N·m).



006341

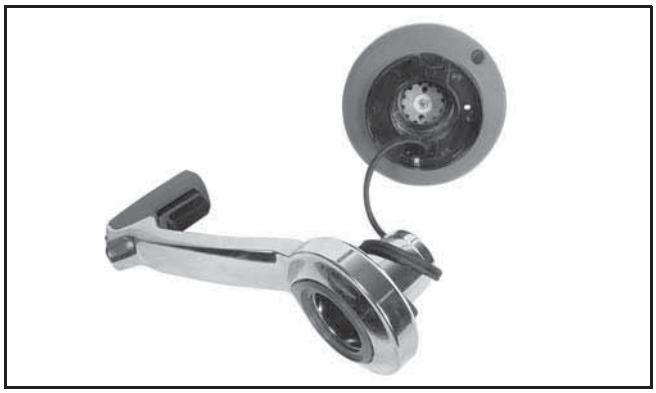
IMPORTANT: Make sure remote control assembly is secure and does not move during operation.

Position lock ring in mounting plate. Orient notch for neutral lock lever UP as shown.



1. Notch, lock ring 006374

Route trim/tilt switch wiring. Make two (2) loops of trim wire around lever as shown



006349

Position remote control lever on splines of remote control. Install retaining washer and screws and washers to secure lever to output shaft of remote control.

006351

Install cover.

006352

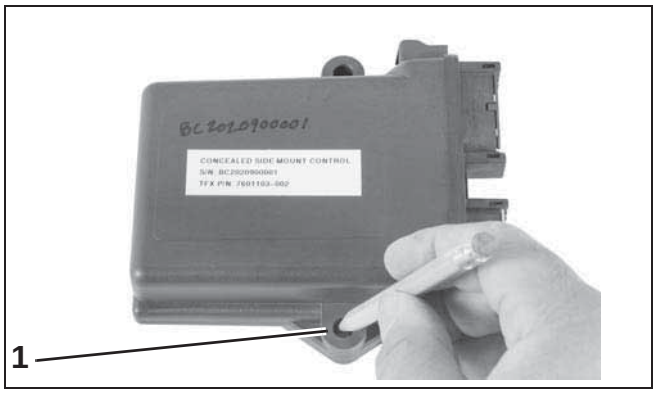
Mounting Control Module

Select an appropriate mounting location within 2 ft. (0.6 m) of an *ICON* hub.

The mounting location must provide:

- protection from the weather
- access for cable connections and wiring
- a flat surface which is rigid enough to prevent control module movement

Position the control module. Mark mounting tabs to install control module.

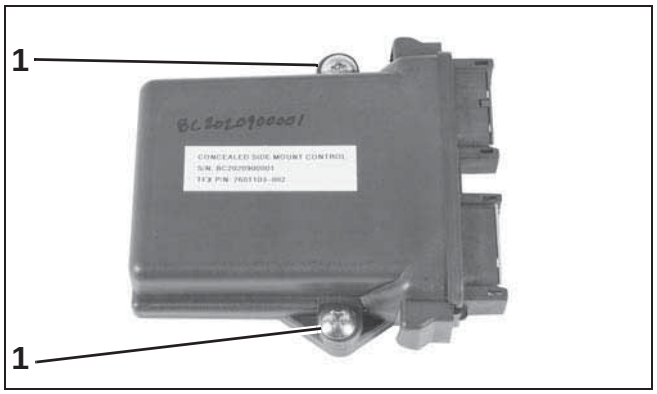


1. Mounting tab 007963

Select proper fasteners and drill bit size. Determine thickness of mounting surface.

- Less than 13/16 in. (20 mm) thickness: Drill two (2) 9/32 in. (7 mm) diameter holes to use 8 mm bolts and nuts and washers provided.
- 13/16 in. - 1.3/16 in. (20 - 30mm) thickness: Drill two (2) 1/8 in. (3 mm) holes to use screws provided.

Install control module and secure with two screws or bolts and nuts. Tighten screws or bolts and nuts to 53-71 in./lbs.(6-8 N·m).



1. Screws 007964

ICON Switch Panels

Select an appropriate location based on the boat's configuration, side console or center console.

IMPORTANT: The mounting location must be a flat surface and must be strong enough to provide rigid support. Strengthen mounting surface as necessary.

Place switch panel at proposed location and check clearances around the switches.

ICON start/stop switch kits should be mounted within 30 in. (76 cm) of remote control due to wire harness length.

ICON master power/key switch kits should be mounted close to the start/stop switch kit.

On second station installations, the start/stop switch kit should be mounted close to the emergency stop switch kit.

Position the switch panel in a location that allows proper access to the switches. There must be adequate space behind the switch panels for wire and cable routing; and to make switch connections.

Mounting Holes

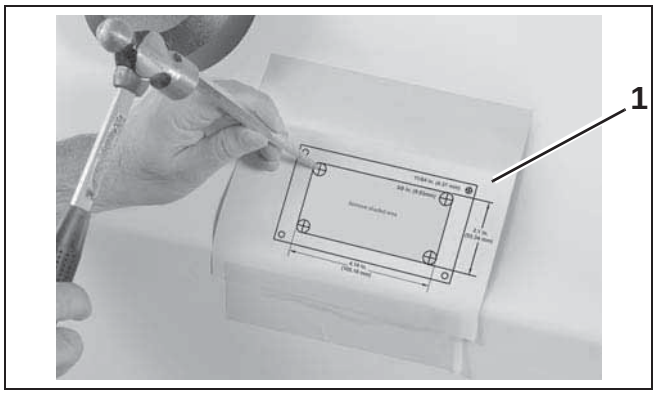
Select the correct drill template (see ***ICON* Switch Panel Drill Templates** on p. T-8) to cut mounting holes for the switch panel.

IMPORTANT: Make sure the switch panel location has **all** the required clearances before drilling or cutting.

Protect mounting surfaces from damage while drilling. Apply masking tape to fiberglass surfaces. Use appropriate protection for other surfaces.

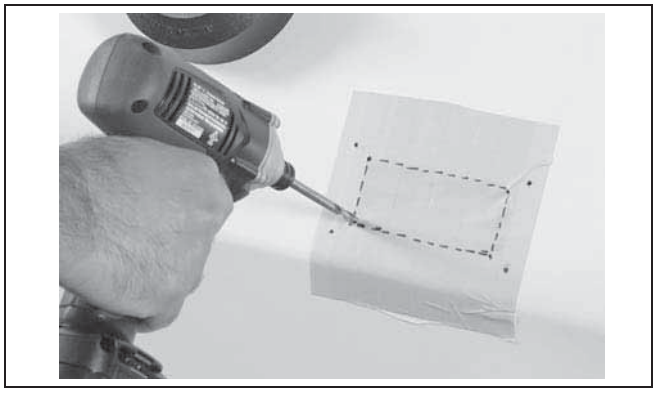
1. Masking tape 007876

Position the template for the switch panel. Use center punch to mark the drill locations.



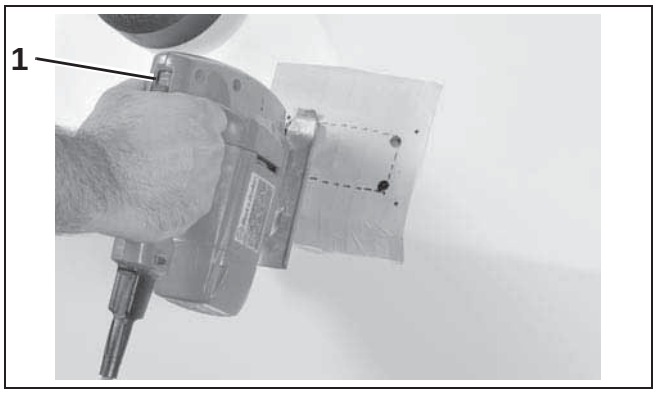
1. Template 007877

Drill a 3/8 in. (9.5 mm) hole at each corner of the shaded area of the template.



007878

Use a reciprocating saw to cut out for the hole for the switch panel.



1. Saw 007879

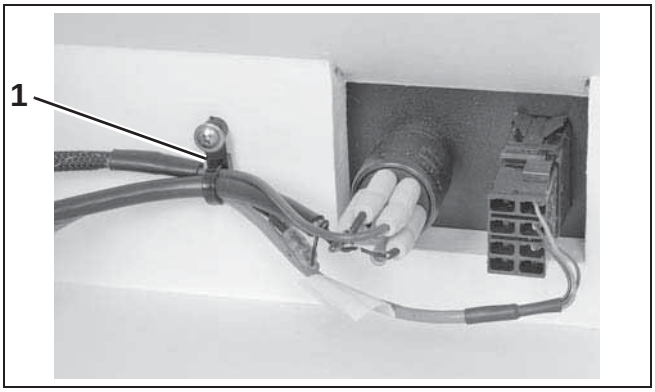
Install the switch panel on console.

Drill four (4) 3/32 in. (2.4 mm) holes to mount the switch panel. Secure the switch panel with four screws. Tighten screws securely.

1. 007880

IMPORTANT: Make sure switch panel is secured to the console and does not move during operation.

Use tie straps to secure master power/key switch wiring.



1. Tie strap 007881

ICON Hubs (6-Port)

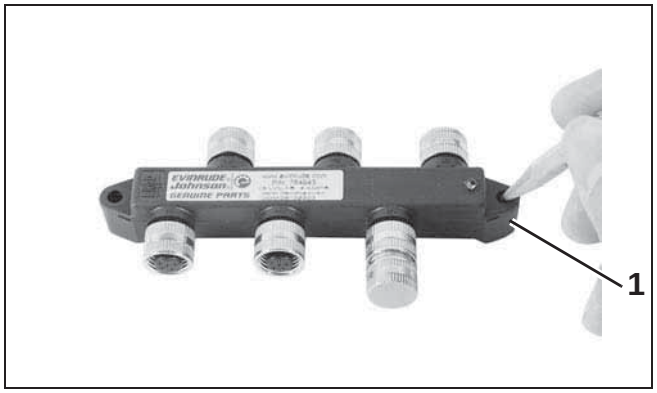
ICON hubs are used to connect remote controls, gateway module, master power/key switch and other devices to the system.

IMPORTANT: Two hubs MUST be installed in the *ICON* remote control system. Refer to the ***ICON* System Diagram**. Install protective covers on unused connections.

Select appropriate locations to mount *ICON* hubs. Install one hub under the console of the boat. Install the second hub in a location in the back of the boat.

The mounting locations must provide:
- protection from the weather
- access for cable connections and wiring

Position the hub. Mark mounting tabs to install hub.

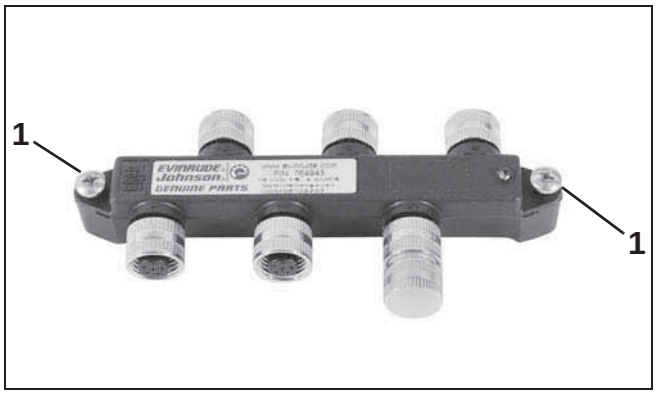


1. Mounting tab 007965

Drill two 9/64 in. (3.57 mm) holes to mount hub.

To prevent misaligned connections, connect *ICON* buss cables to *ICON* hubs before fastening hubs to its mounting location.

Install hub and secure with two #10 screws. Tighten screws securely.



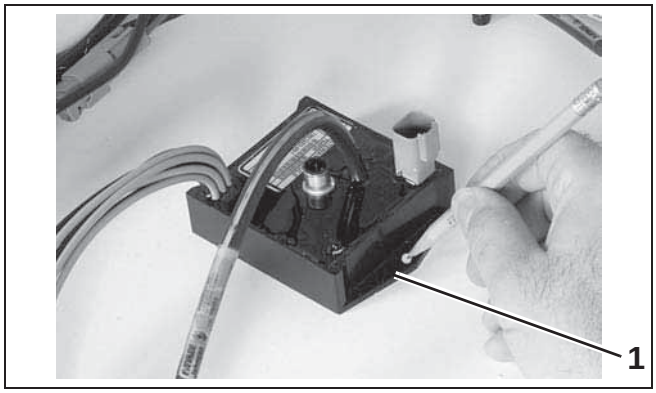
1. Screws 007966

ICON Gateway Module

Select an appropriate mounting location within 25 ft. (7.6 m) of an *ICON* hub.

The mounting location must provide:
- protection from the weather
- access for cable connections and wiring
- a flat surface which is rigid enough to prevent gateway module movement

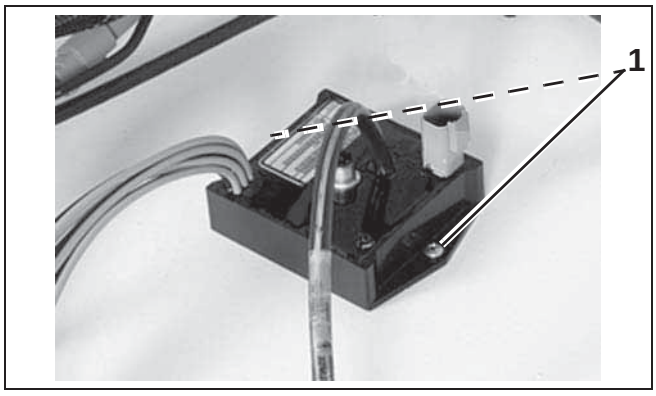
Position the gateway module. Mark mounting tabs to install gateway module.



1. Mounting tab 007914

Drill two 9/64 in. (3.57 mm) holes to mount gateway module.

Install gateway module and secure with two #10 screws. Tighten screws securely.



1. #10 screws 007915

ICON Accessory Power Relay Kit

The *ICON* Accessory Power Relay Kit, P/N 765296, must be used to provide power to boat accessories that require switched B+.

This kit is used in place of connecting accessories to the “A” terminal of the key switch. Connect accessories to the terminal block provided with the accessory power relay kit. Connecting accessories to the “A” terminal of the key switch can cause low current, resulting in erratic operation of the remote control system.

Accessories connected to the accessory power relay should not exceed 7 amps.

Select an appropriate mounting location within 25 ft. (7.6 m) of the *ICON* hub.

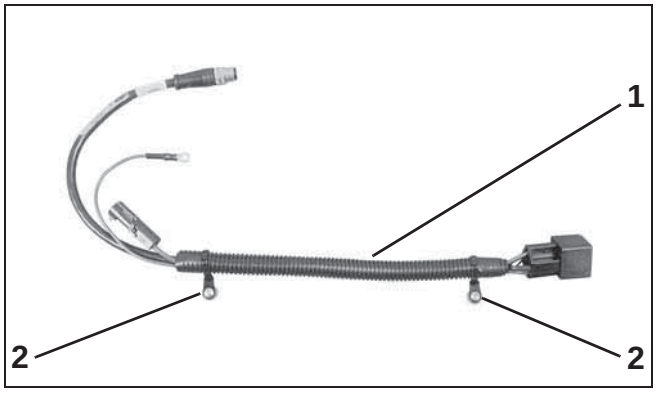
The harness and relay mounting location must provide:

- protection from the weather
- access for cable connections and wiring

The harness and relay kit can be attached to an existing boat harness with tie straps, or can be mounted on a flat surface using mounting tie straps provided in the kit.

Position the harness and relay. Mark two mounting positions 9.5 inches (241 mm) apart. Drill two (2) 9/64 in. (3.57 mm) holes to mount relay and harness.

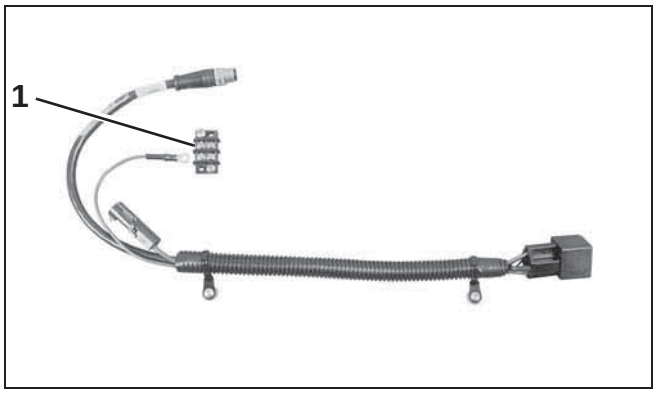
Install harness and relay with two mounting tie straps as shown.



1. Harness and relay 007908
2. Mounting tie straps

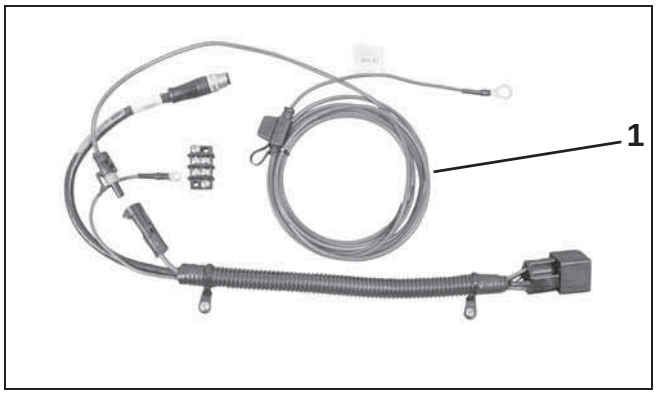
Position the terminal block. Mark mounting tabs to install terminal block. Drill two (2) 9/64 in. (3.57 mm) holes to mount terminal block.

Install terminal block with two #10 screws (obtain locally). Tighten screws securely.



1. Terminal block 007909

Identify power cable routing. Install power cable in boat.

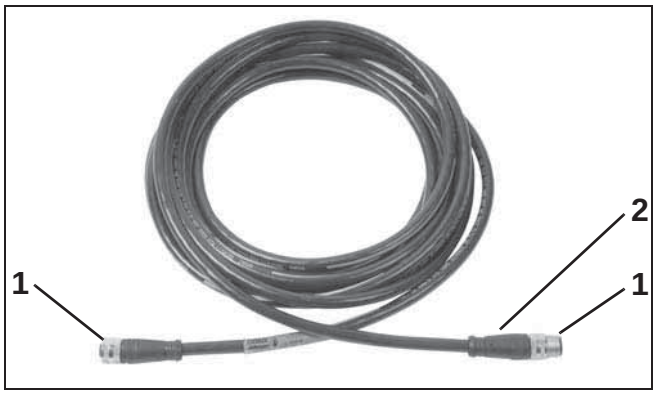


1. Power cable 007910

ICON Buss Cables

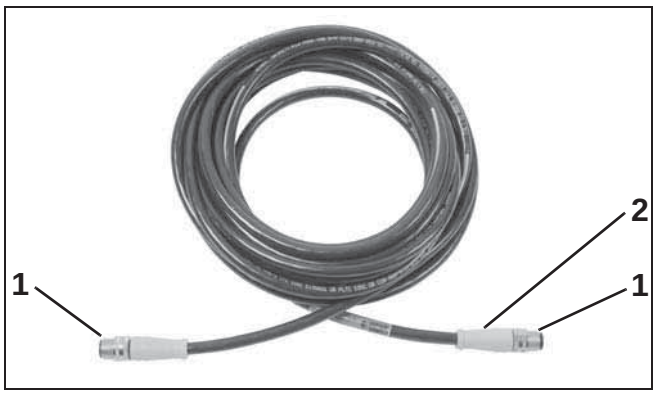
Two types of *ICON* buss cables are available.

Buss cable extensions use opposite gender (male and female) connectors. Buss cable extension connectors have black covers. Use buss cable extensions to connect devices to the *ICON* remote control system.



Buss Cable Extension 007970
1. *Opposite gender connectors*
2. *Black cover*

Buss cable backbones use the same gender (male) connectors on both ends. Backbone buss connectors have yellow covers. Use backbone buss cables to connect two hubs.



Buss Cable Backbone 007971
1. *Same gender connectors*
2. *Yellow cover*

Buss cable connector configuration is as shown.

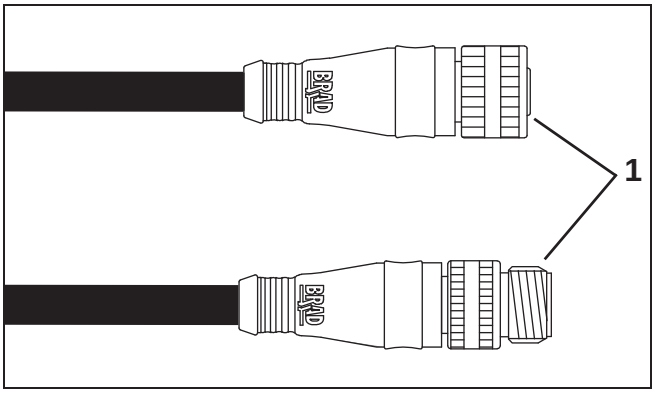
Buss cable lengths:

- Buss cable backbones are available in 20 ft. (6.1 m) and 25 ft. (7.6 m) lengths
- The buss cable backbone can be extended to a maximum length of 50 ft. (5.24 m) with one buss cable extension
- Buss cable extensions are available in lengths of 1 ft. (0.3 m), 2 ft. (0.61 m), 4 ft. (1.22 m), 10 ft. (3.05 m), 15 ft. (4.57 m), 20 ft. (6.1 m) and 25 ft. (7.62 m) Refer to **Buss Cables** on p. 15.

IMPORTANT: Use no more than one buss cable extension. Use the shortest buss cable extension possible. Do NOT strain connections.

ICON Buss Cable Connections

The *ICON network* buss cables with proprietary 6-pin threaded, Molex-type connectors.



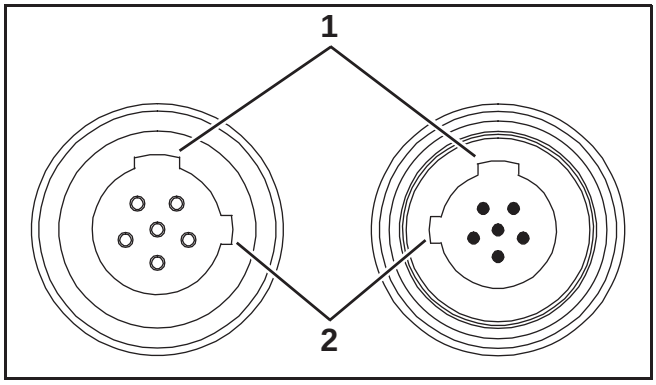
1. ICON buss cable connectors 007882

IMPORTANT: Do not force connectors or locking rings. Properly aligned connectors assemble easily.

Do not use *Electrical Grease* on *ICON* buss cable connectors.

To assemble the connectors:

- Use the large tabs and small tabs to carefully align buss cable connectors.
- Carefully align pins and sockets of connectors. Do NOT force connectors together.
- Tighten locking rings of buss connectors finger tight. Do NOT use locking rings to force connectors together.

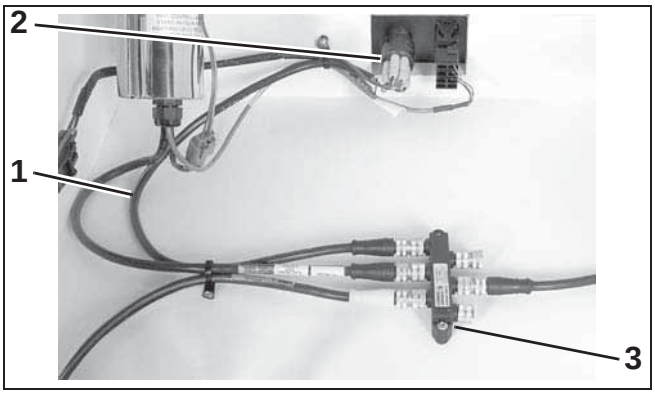


1. Large tabs 007883
2. Small tabs

Do not rotate connectors until they align. This could result in a mismatched connection. It is possible for each pin to enter a socket even if the tabs are misaligned. Look at the tabs to ensure connector alignment prior to making the connection.

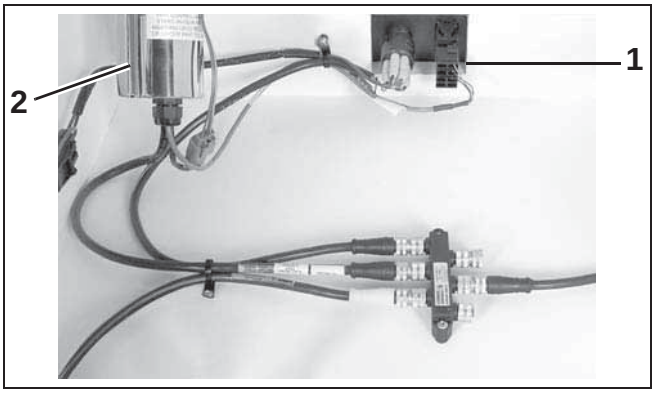
ICON Remote Control and Switch Connections

Connect the buss cable from the *ICON* master power/key switch or the *ICON* emergency stop switch to an *ICON* hub (6 ports). If the installation requires a buss cable extension, use no more than one extension.



1. Buss cable 007884
2. ICON master power/key switch
3. ICON hub (6 ports)

Connect the *ICON* start/stop switch to the *ICON* remote control.

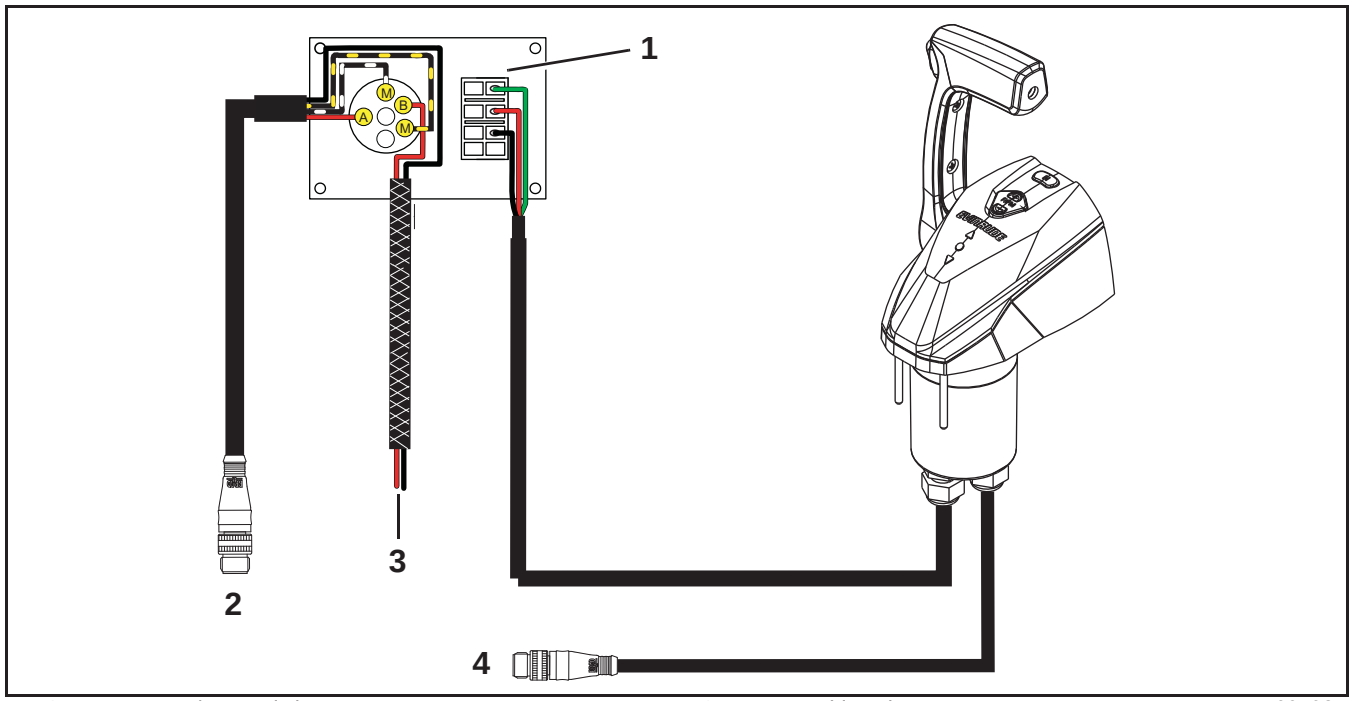


1. ICON start/stop switch 007884
2. ICON remote control

After all switch and cable connections are complete and the installation is completed, connect the battery cables. Always connect the positive cable first and the ground cable last.

Single Lever Binnacle Mount Remote Control (Single Station)

Install connector from remote control onto START/STOP switch until latched.

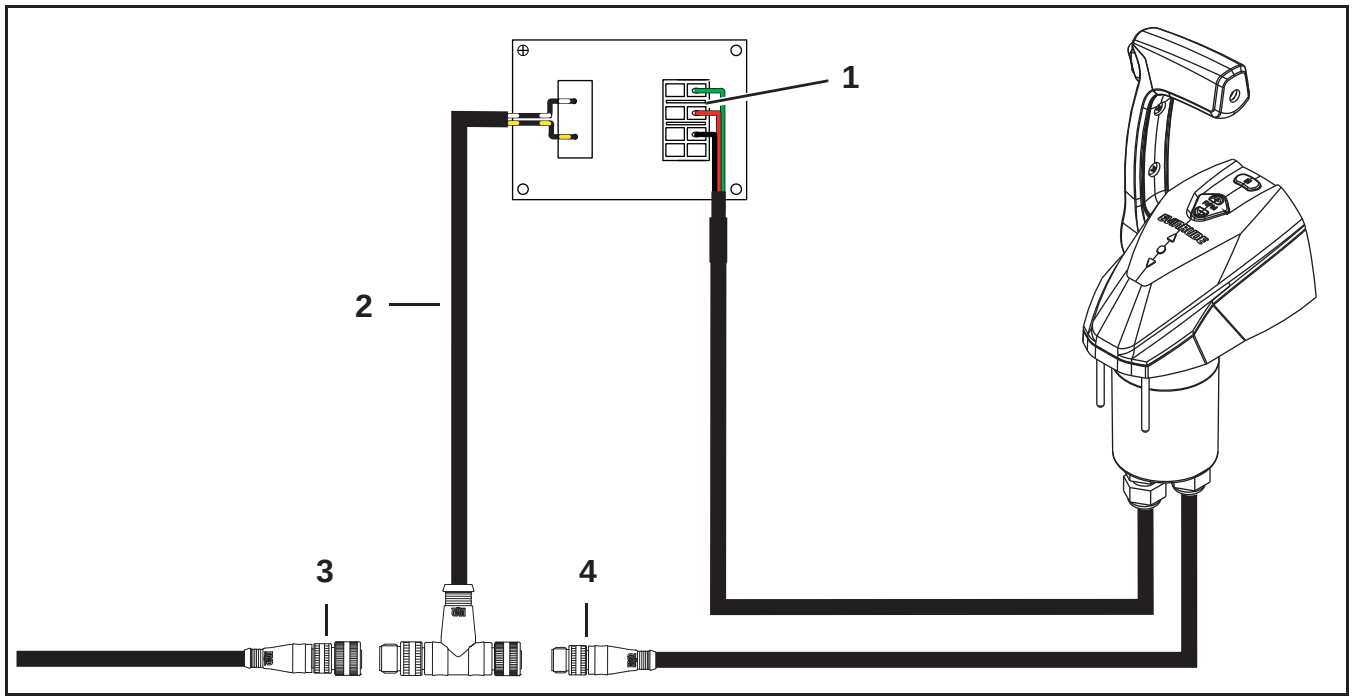


1. *Connector, start/stop switch*
2. *Buss cable, master power/key switch to ICON hub*
3. *Power cable to battery*
4. *Buss cable, remote control to ICON hub*

007927

Single Lever Binnacle Mount Remote Control (Second Station)

Install connector from remote control onto START/STOP switch until latched.

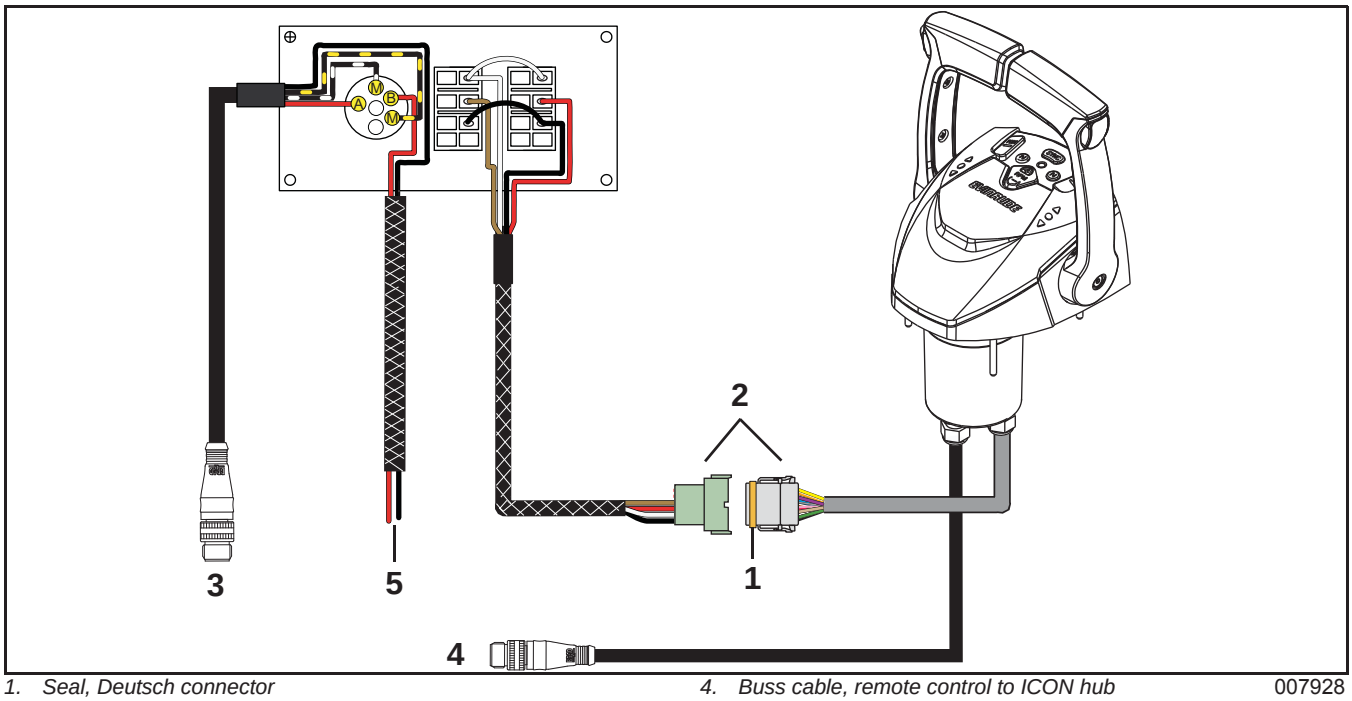


1. *Connector, start/stop switch*
2. *Buss cable, ICON emergency stop switch*
3. *Buss cable, connected to an ICON hub*
4. *Buss cable, ICON remote control*

007929

Dual Lever Binnacle Mount Remote Control (Single Station)

Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connector. Push connectors together until latched.

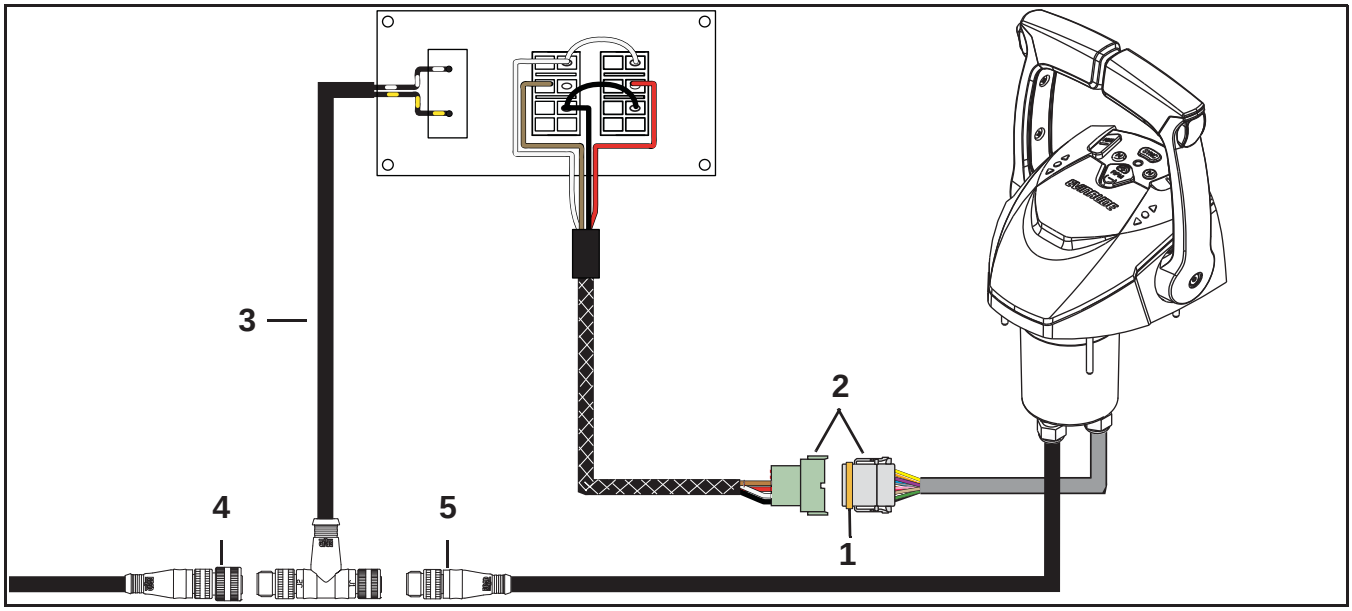


1. *Seal, Deutsch connector*
2. *Connector, start/stop switches*
3. *Buss cable, master power/key switch to ICON hub*
4. *Buss cable, remote control to ICON hub*
5. *Power cable to battery*

007928

Dual Lever Binnacle Mount Remote Control (Second Station)

Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connector. Push connectors together until latched.

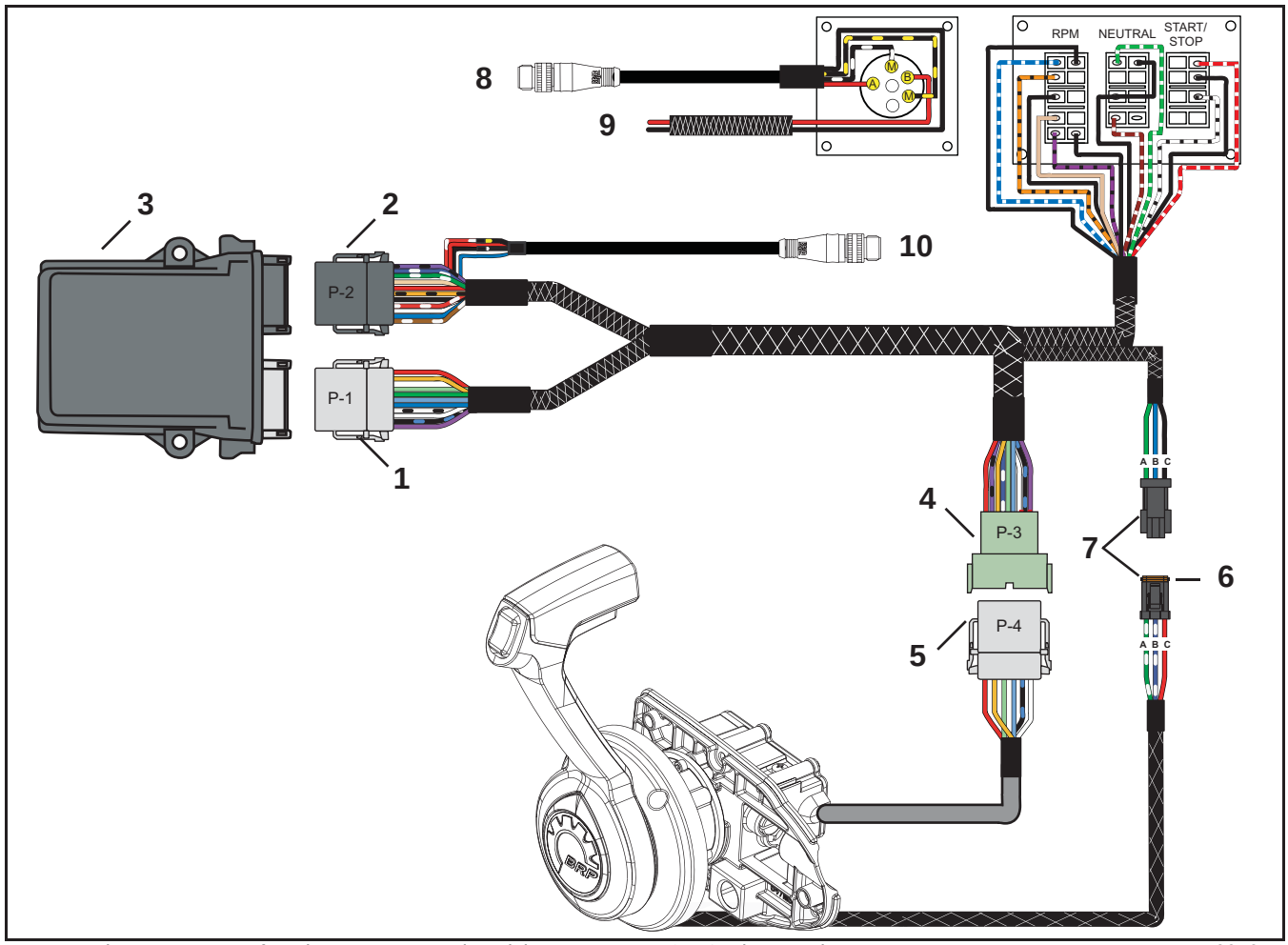


1. *Seal, Deutsch connector*
2. *Connector, start/stop switches*
3. *Buss cable, ICON emergency stop switch*
4. *Buss cable, connected to an ICON hub*
5. *Buss cable, ICON remote control*

007930

Concealed Side Mount Remote Control

Connect P-1 and P-2 *Deutsch* connectors from harness to Control Module. Push connectors together until latched. Connect P-3 and P-4 *Deutsch* connectors together. Push connectors together until latched. Apply a light coat of *Electrical Grease* onto the seal of the trim and tilt connector. Push connectors together until latched.

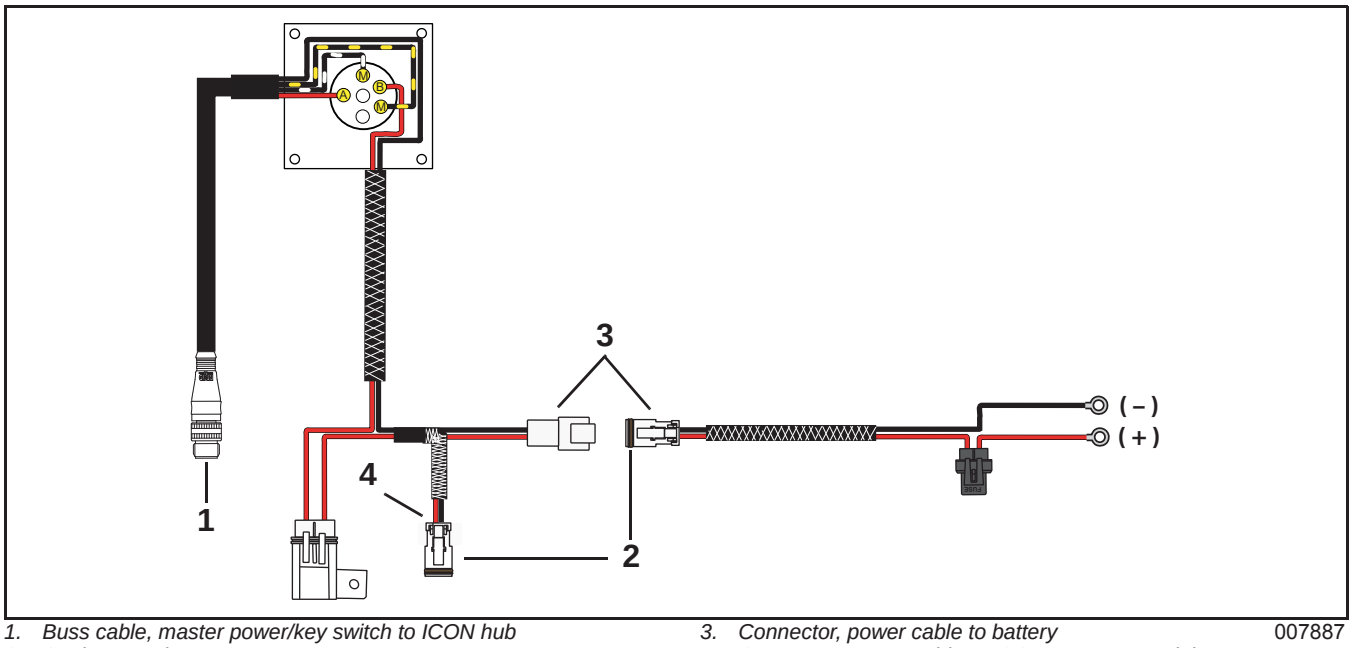


1. *Deutsch connector, P-1 from harness to control module*
2. *Deutsch connector, P-2 from harness to control module*
3. *Control module*
4. *Deutsch connector, P-3 from harness to remote control*
5. *Deutsch connector, P-4 from remote control to harness*
6. *Seal, Deutsch connector*
7. *Trim and tilt connectors*
8. *Buss cable, master power/key switch to ICON hub*
9. *Network power cable to battery*
10. *Buss cable, remote control harness to ICON hub*

007974

Master Power/Key Switch

Connect the buss cable from the *ICON* master power/key switch to the *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connectors. Push power cable connectors together until latched.

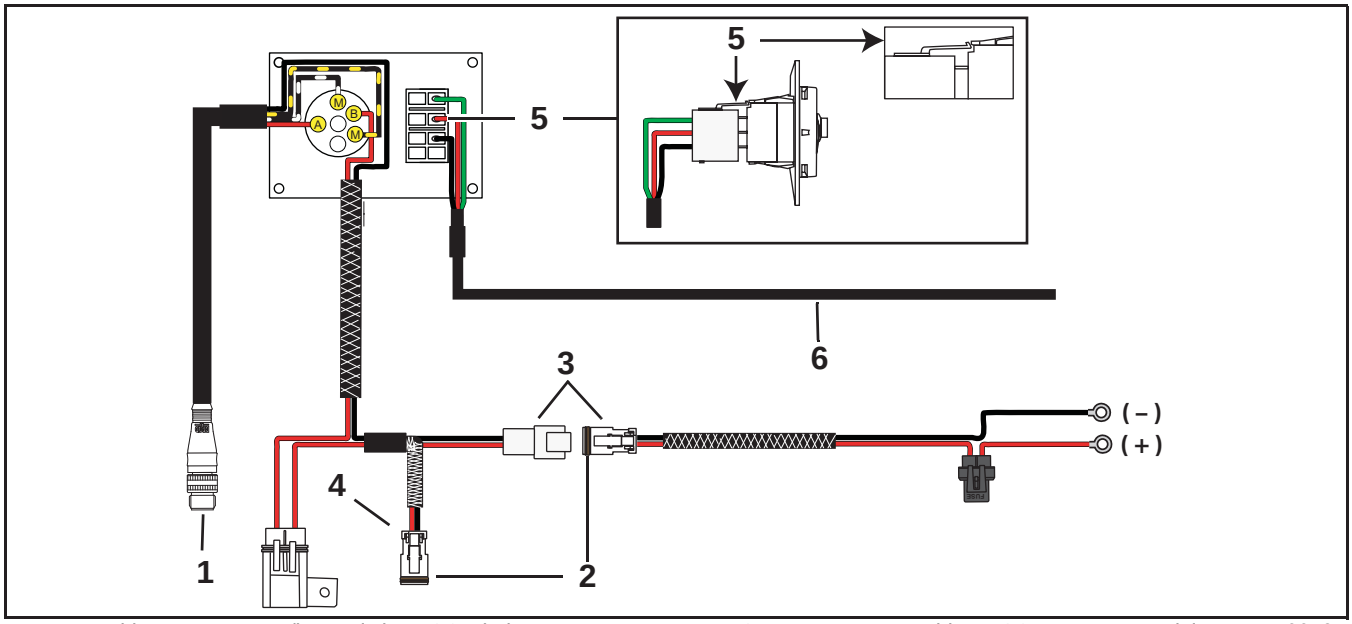


1. *Buss cable, master power/key switch to ICON hub*
2. *Seal, Deutsch connectors*
3. *Connector, power cable to battery*
4. *Connector, power cable to ICON gateway module*

007887

Master Power/Key Switch with Single Engine START/STOP Switch

Connect the buss cable from the *ICON* master power/key switch to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connectors. Push power cable connectors together until latched. Install the connector from remote control onto START/STOP switch until latched.

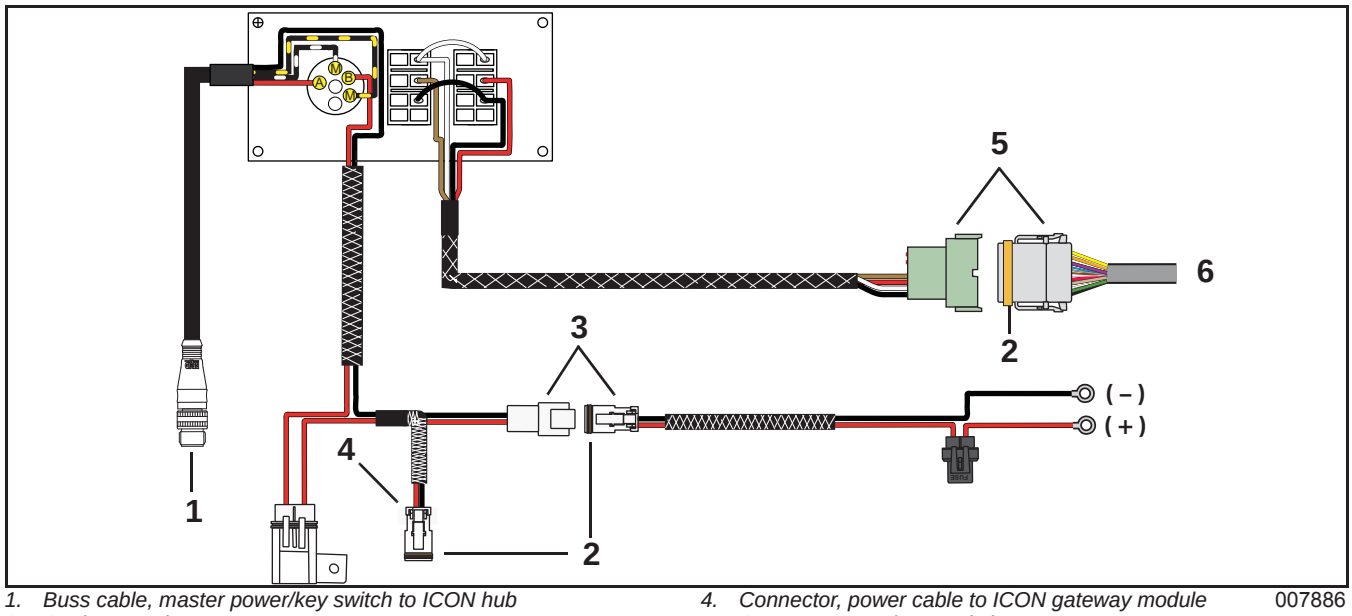


1. *Buss cable, master power/key switch to ICON hub*
2. *Seal, Deutsch connectors*
3. *Connector, power cable to battery*
4. *Connector, power cable to ICON gateway module*
5. *Connector, start/stop switch*
6. *Wire harness from remote control*

00785

Master Power/Key Switch with Dual Engine START/STOP Switch

Connect the buss cable from the *ICON* master power/key switch to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connectors. Push power cable connectors together until latched. Install the connector from remote control into the connector of the START/STOP switches until latched.

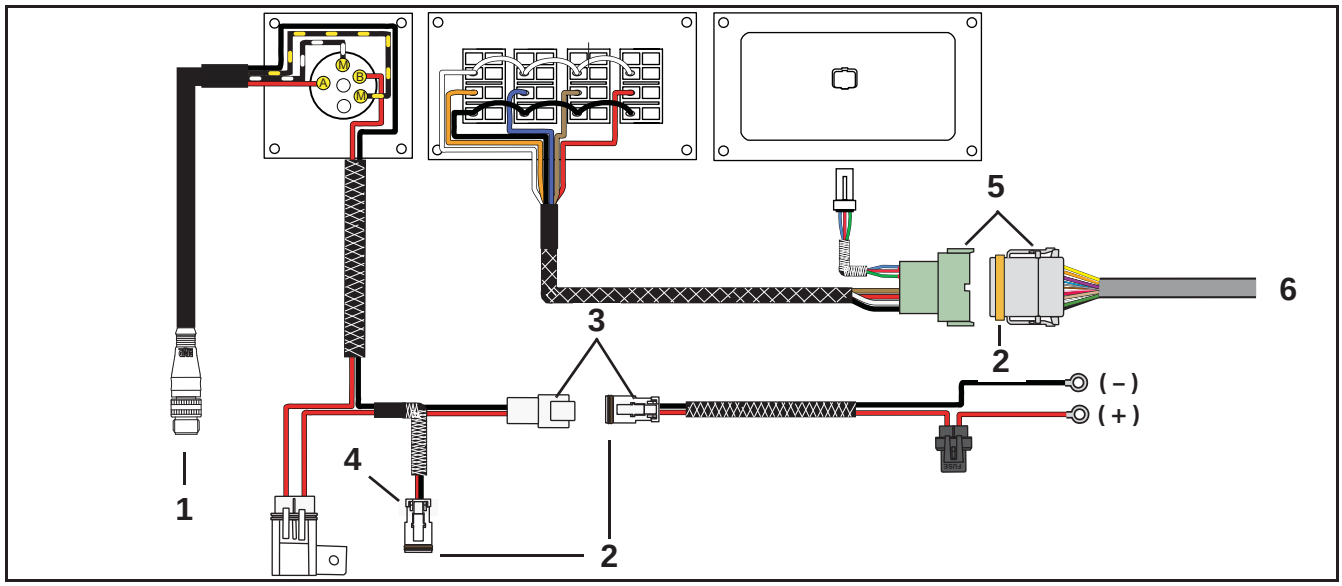


1. *Buss cable, master power/key switch to ICON hub*
2. *Seal, Deutsch connector*
3. *Connector, power cable to battery*
4. *Connector, power cable to ICON gateway module*
5. *Connector, start/stop switches*
6. *Wire harness from remote control*

007886

Master Power/Key Switch with Multiple Engine START/STOP and Trim and Tilt Switches

Connect the buss cable from the *ICON* master power/key switch to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connectors. Push power cable connectors together until latched. Install the connector from remote control into the connector of the START/STOP switches until latched.

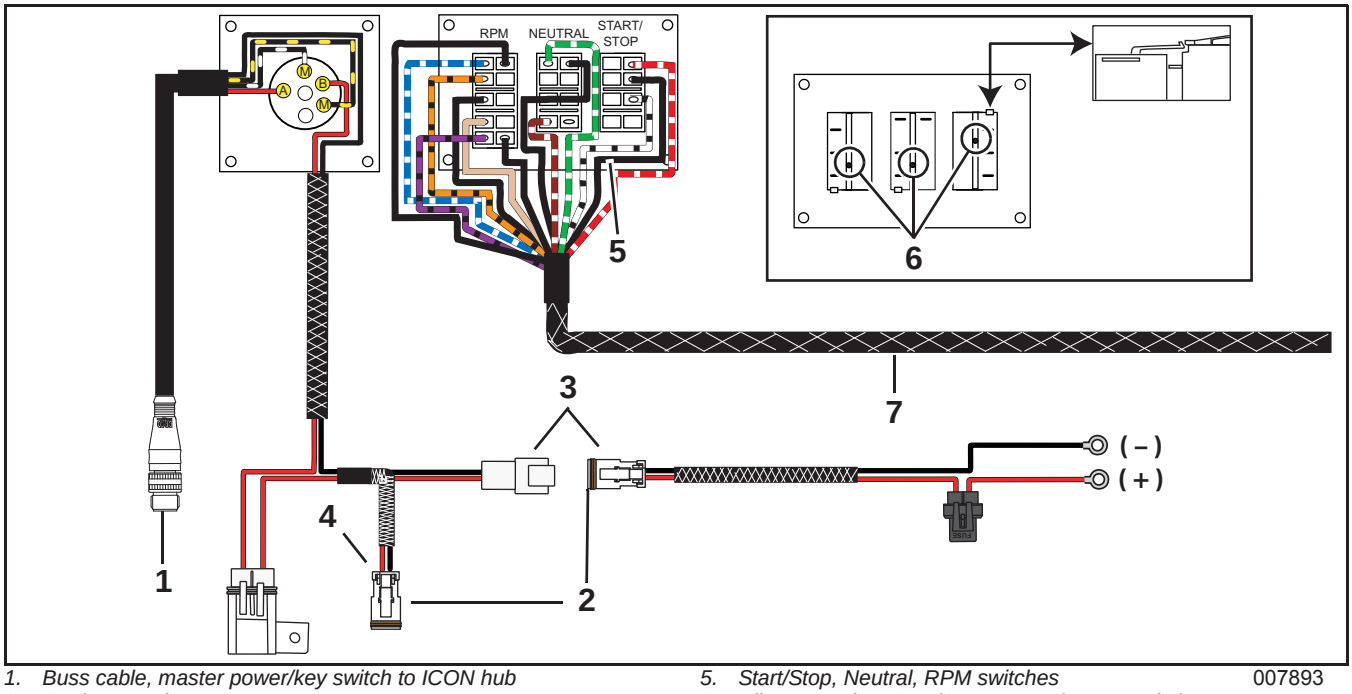


1. *Buss cable, master power/key switch to ICON hub*
2. *Seal, Deutsch connector*
3. *Connector, power cable to battery*
4. *Connector, power cable to ICON gateway module*
5. *Connector, start/stop switches*
6. *Wire harness to remote control*

007888

Concealed Side Mount START/STOP, NEUTRAL, RPM Switch

Connect the buss cable from the *ICON* master power/key switch to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connectors. Push power cable connectors together until latched. Install connectors from control module harness onto START/STOP, NEUTRAL and RPM switches until latched. See diagram for the locations of the alignments pins.

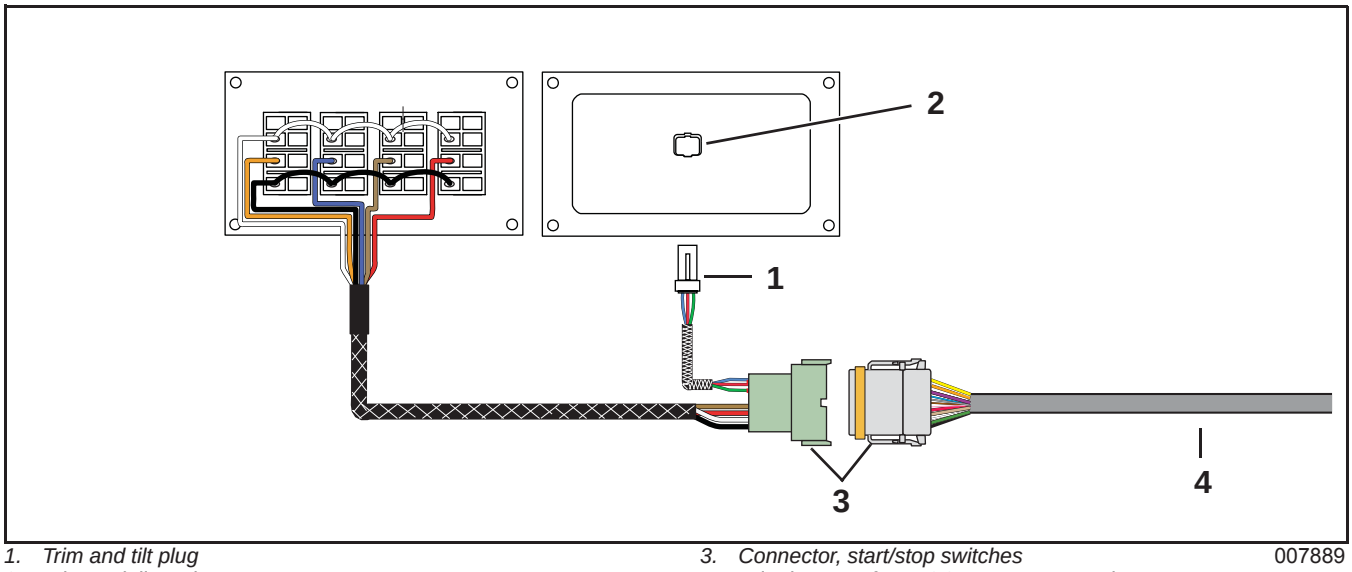


1. *Buss cable, master power/key switch to ICON hub*
2. *Seal, Deutsch connector*
3. *Connector, power cable to battery*
4. *Connector, power cable to ICON gateway module*
5. *Start/Stop, Neutral, RPM switches*
6. *Alignment pins, Start/Stop, Neutral, RPM switches*
7. *Wire harness from ICON control module*

007893

Multiple Engine Trim and Tilt Switch (3, 4, or 5 engines)

Push the trim and tilt plug into the trim and tilt socket of the trim and tilt switch until latched.

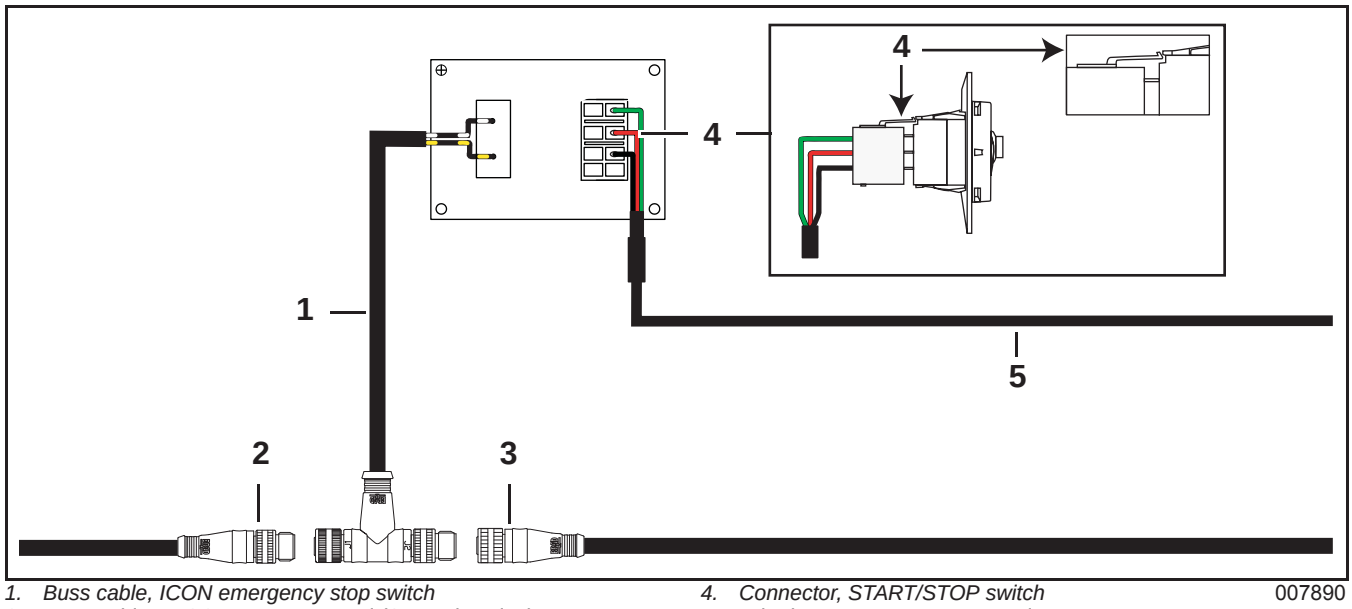


1. *Trim and tilt plug*
2. *Trim and tilt socket*
3. *Connector, start/stop switches*
4. *Wire harness from ICON remote control*

007889

Emergency Stop Switch with Single Engine START/STOP Switch

Connect the buss cable from the *ICON* emergency stop switch to the second station *ICON* remote control and to a buss cable connected to an *ICON* hub. Install connector from remote control onto START/STOP switch until latched. Refer to **ICON Buss Cable Connections** on p. 26.

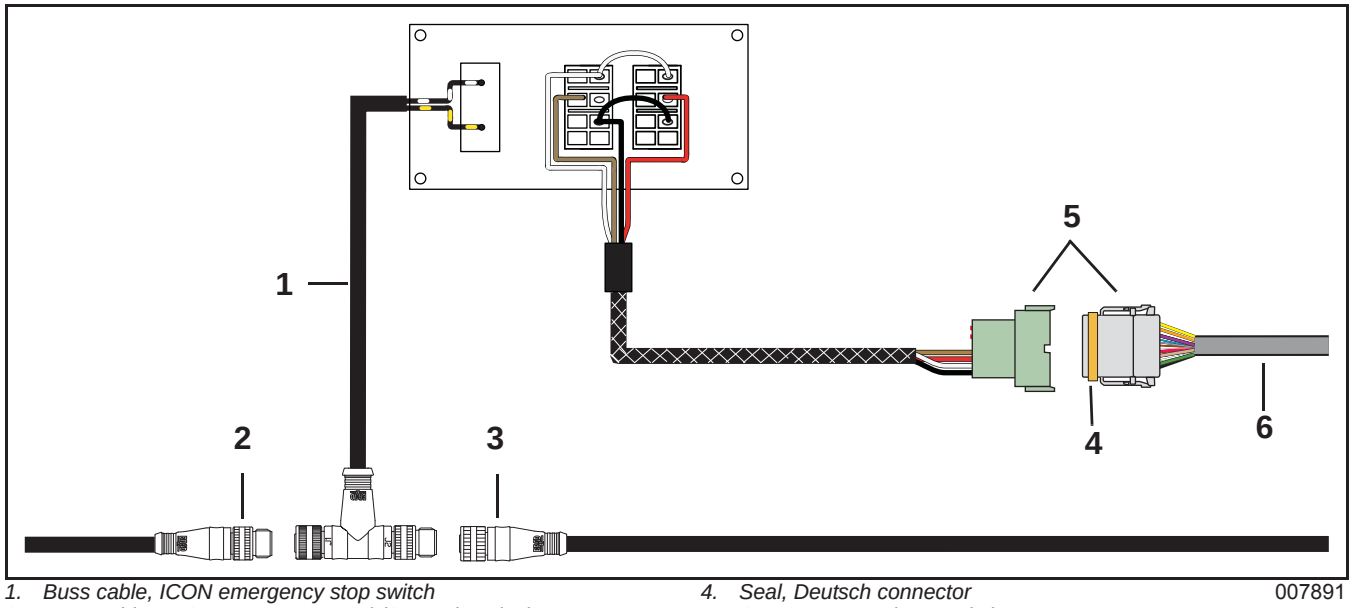


1. *Buss cable, ICON emergency stop switch*
2. *Buss cable to ICON remote control (Second station)*
3. *Buss cable connected to an ICON hub*
4. *Connector, START/STOP switch*
5. *Wire harness to remote control*

007890

Emergency Stop Switch with Dual Engine START/STOP Switch

Connect the buss cable from the *ICON* emergency stop switch to the second station *ICON* remote control and to a buss cable connected to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connector. Install connector from the remote control into the connector of the START/STOP switches until latched. Refer to **ICON Buss Cable Connections** on p. 26.

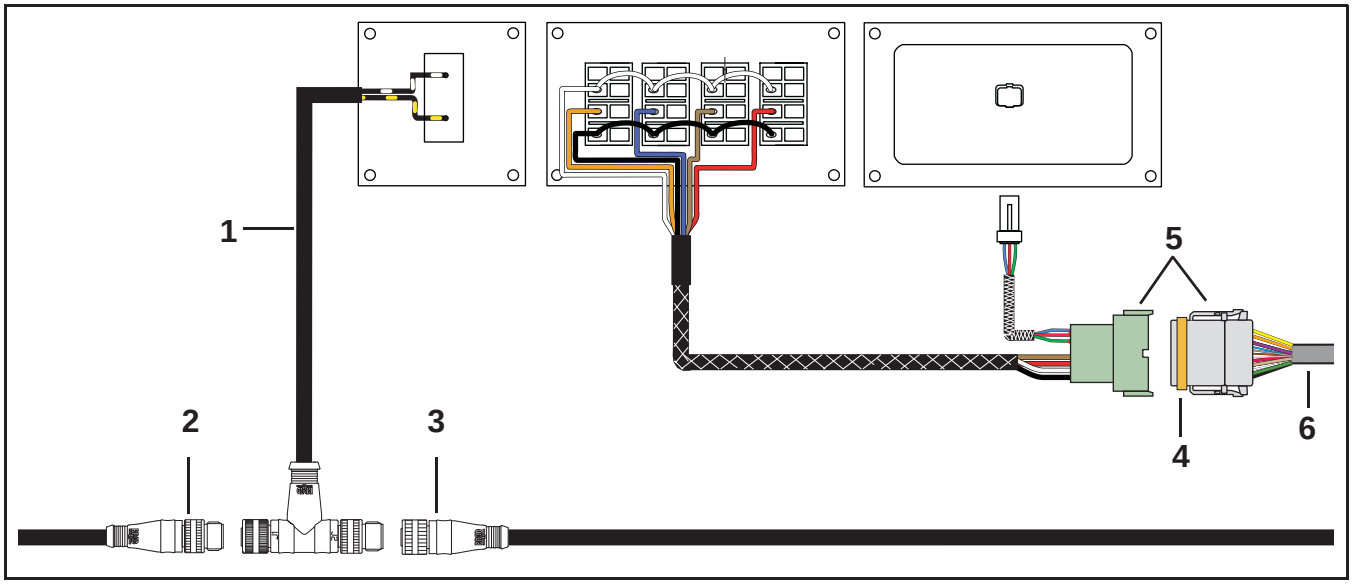


1. *Buss cable, ICON emergency stop switch*
2. *Buss cable to ICON remote control (Second station)*
3. *Buss cable connected to an ICON hub*
4. *Seal, Deutsch connector*
5. *Connector, start/stop switches*
6. *Wire harness to remote control*

007891

Emergency Stop Switch with Multiple Engine START/STOP Switches

Connect the buss cable from the *ICON* emergency stop switch to the second station *ICON* remote control and to a buss cable connected to an *ICON* hub. Apply a light coat of *Electrical Grease* onto the seal of the *Deutsch* connector. Install connector from the remote control into the connector of the START/STOP switches until latched. Refer to **ICON Buss Cable Connections** on p. 26. Four engine switch panel shown.



1. *Buss cable, ICON emergency stop switch*
2. *Buss cable to ICON remote control (Second station)*
3. *Buss cable connected to an ICON hub*
4. *Seal, Deutsch connector*
5. *Connector, start/stop switches*
6. *Wire harness to remote control*

007962

ICON Gateway Module Connections

Refer to **Gateway Module Diagram** on p. 37.

ICON Gateway Module Connection

Connect gateway module buss cable to *ICON* hub. Refer to **ICON Buss Cable Connections** on p. 26.

If the installation requires a buss cable extension, use no more than one extension.

ICON Gateway Module Power Connection

Network Power Cable

A 10 Amp ATO type fuse protects the gateway module. A 3 Amp ATO type fuse protects the master power switch and the remote control system.

The network power cable can be extended to a maximum length of 20 feet (6.1 m). Maintain correct wire color-coding. Extend the network power cable with #14 AWG wire and heat shrink butt connectors, such as P/N 502526

Apply a light coat of *Electrical Grease* onto the Deutsch connector seal.

Connect the electrical connector from the master power/key switch harness to the power connector of the gateway module. Make sure connector latches.

NMEA 2000 Network/Gauge Connection

Install the t-connector from the kit to the *NMEA 2000* network.

Connect the *NMEA 2000* network cable to the t-connector of the gauge network.

Connect the *NMEA 2000* network cable to the *NMEA 2000* connector of the gateway module. Refer to the current I-Command Installation Guide.

Do not force connectors or locking rings. Properly aligned connectors should assemble easily.

Fuel Level Sender Connection

Use heat shrink butt connectors, P/N 502526, to connect pink and black wires from fuel level sender(s) to gateway module pink and black wires.

Gateway module fuel sender wires are labeled for connection to specific fuel tanks.

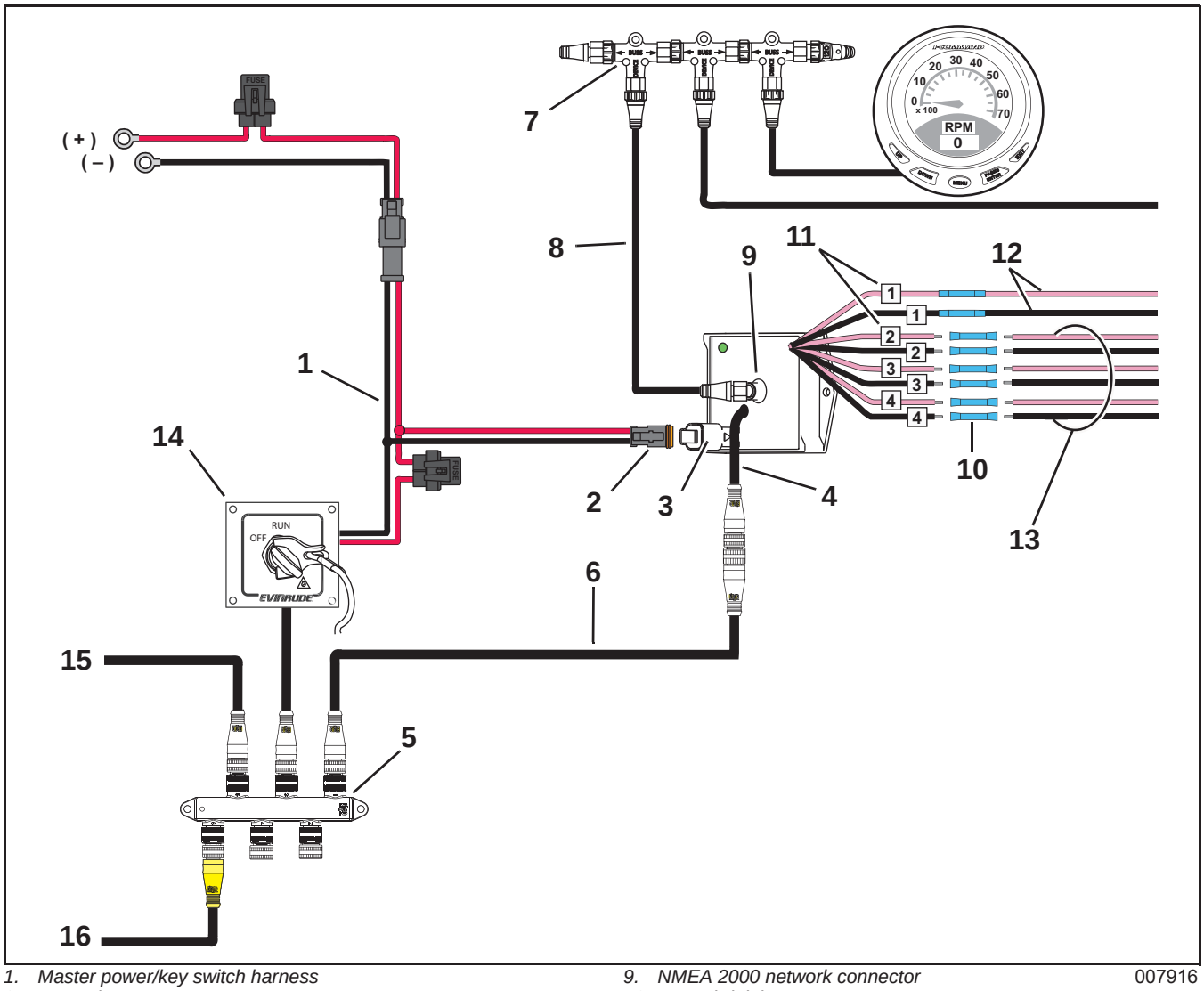
Connect fuel level sender wires labeled “1” from gateway module to main (or single) fuel tank wires. Connect remaining fuel level sender wires from gateway module to other fuel tank(s) wires in numerical order.

Use a multi-purpose crimp tool, such as P/N 500906, to install connectors onto wiring. Heat butt connectors to provide water-resistant seal.

Use tie straps to secure harnesses and cables once installation of all components is complete.

IMPORTANT: Do not connect gateway module to other types of fluid level senders. Refer to the current *I-Command* Installation Guide for accessory fluid level sensors.

Gateway Module Diagram



1. *Master power/key switch harness*
2. *Deutsch connector*
3. *Gateway module power connector*
4. *Gateway module buss cable*
5. *ICON hub*
6. *Buss cable, extension*
7. *T-connector*
8. *NMEA 2000 network cable*
9. *NMEA 2000 network connector*
10. *Heat shrink butt connectors*
11. *Gateway module fuel sender wire labels*
12. *Fuel sender wires to main fuel tank*
13. *Fuel sender wires to other fuel tank(s)*
14. *Master power/key switch*
15. *Buss cable from ICON remote control*
16. *ICON buss cable, backbone*

007916

ICON Accessory Power Relay Connections

Refer to **ICON Accessory Power Relay Diagram** on p. 39.

Connect harness and relay buss cable to *ICON* hub. Refer to **ICON Buss Cable Connections** on p. 26.

If the installation requires a buss cable extension, use no more than one extension.

Relay Power Connections

Attach purple wire from the harness and relay to the terminal block.

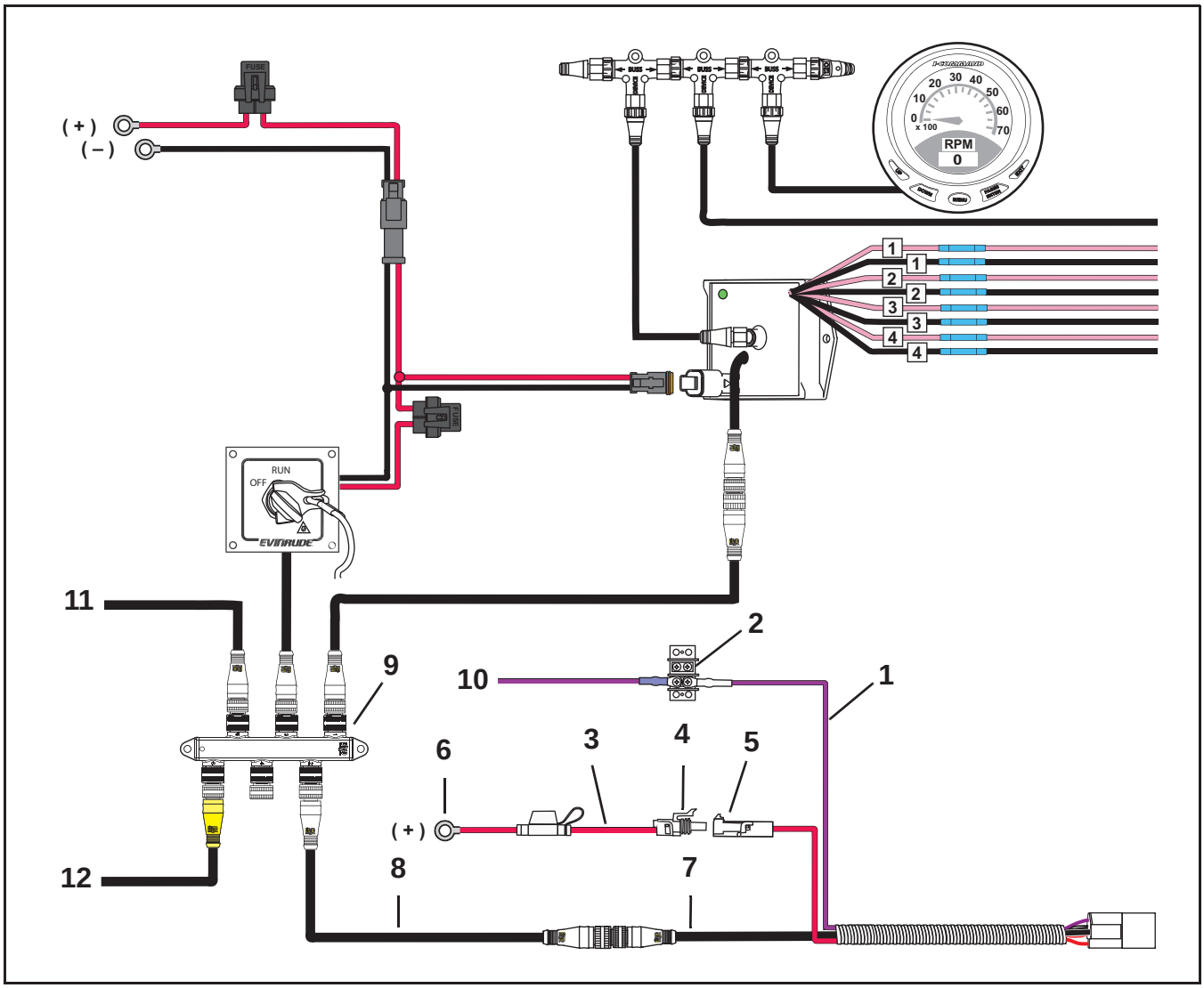
Connect positive (**+**) wire(s) from accessory to the terminal block.

Connect power cable connector to harness connector. Make sure connector latches.

Connect the ring terminal from the harness and relay power cable to a positive (**+**) 12 volt source.

Use additional tie straps to secure harnesses and cables once installation of all components is complete.

ICON Accessory Power Relay Diagram

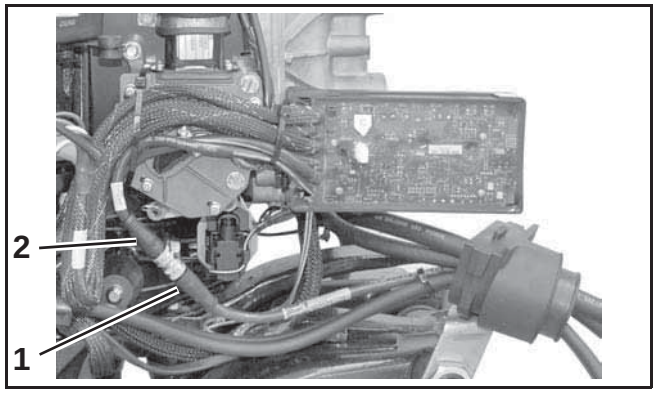


1. *Purple wire*
2. *Terminal block*
3. *Power Cable*
4. *Power cable connector*
5. *Harness connector*
6. *Ring terminal to positive (+) 12 volt source*
7. *Buss cable, accessory power relay*
8. *Buss cable, extension*
9. *ICON hub*
10. *Switched B+ to boat accessories*
11. *Buss cable from ICON Remote Control*
12. *ICON buss cable, backbone*

007912

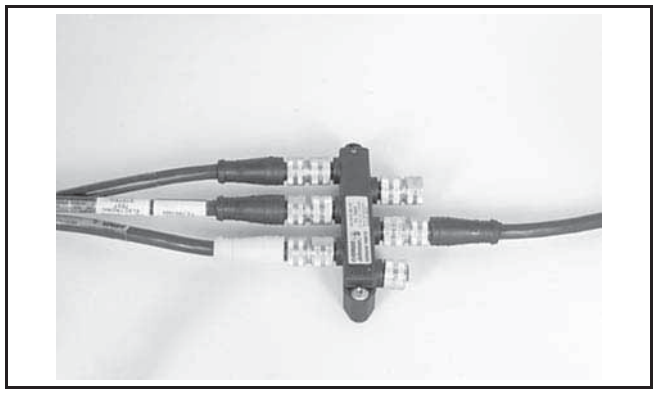
Outboard to *ICON* Hub Connection

Route buss cable extension connector in through the rigging grommet. Connect buss cable extension to ESM buss cable.



1. *Buss cable extension connector* 008040
2. *ESM buss cable*

Connect buss cable extension to *ICON* hub. Install protective covers on unused hub connections.



007884A

Settings

Shift and Throttle Calibration

Outboards with *ICON* electronic shift and throttle installed at the factory do not require calibration.

For outboards with an *ICON* conversion kit installed, refer to the installation instructions provided with the conversion kit or the appropriate service manual for the shift and throttle calibration procedure.

Station Protect

In a dual station installation, the “Station Protect” feature limits use of control stations.

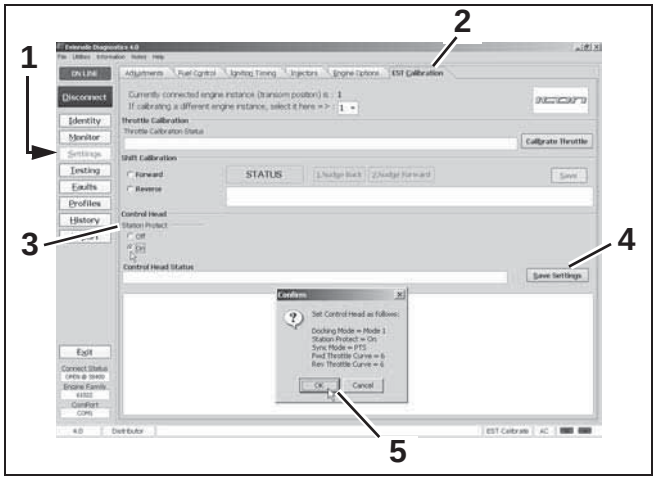
When Station Protect is turned ON, a unique key sequence must be entered to activate a station and start, run and control all outboards.

Use *Evinrude Diagnostics* software, version 4.0 or higher to enable Station Protect.

Press the “Settings” button. Select the “EST Calibration” tab.

Under “Station Protect” select “ON.”

Press the “Save Settings” button. When the confirmation box appears, press the “OK” button.

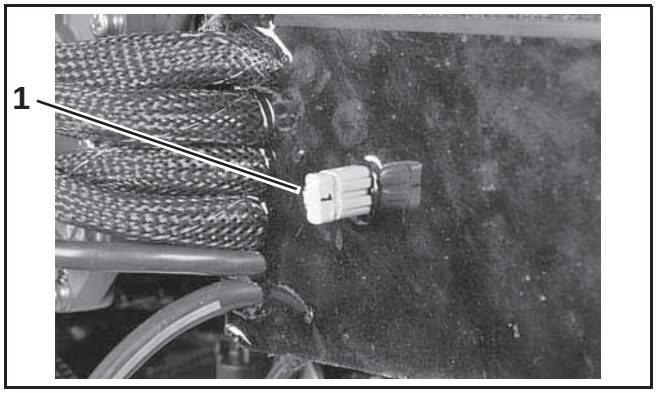


1. *Settings button* 007975
2. *EST Calibration tab*
3. *Station Protect*
4. *Save Settings*
5. *OK button*

Set Engine Identity (Instance)

Multi-engine applications require the transom position of the outboard be identified on the *ICON* remote control system.

Engine identity is set by an Engine Identity Plug installed in the ESM. Outboards are identified as Instance 0 through 4, from port to starboard, up to five engines. Each identity plug is stamped with its instance number.



1. Engine Identity plug 007505

If the outboard is a single engine or the port engine in a multi-engine application, no changes are required.

For all other outboards, engine identity must be set by replacing the original plug (0) with the plug that corresponds to the outboard's position on the transom.

Number of Outboards	Identity Numbers				
	Port	Port Center	Center	Starboard Center	Starboard
1	0				
2	0				1
3	0		1		2
4	0	1		2	3
5	0	1	2	3	4

IMPORTANT: The Engine Identity Plug overrides any previous *EMM* instance setting.

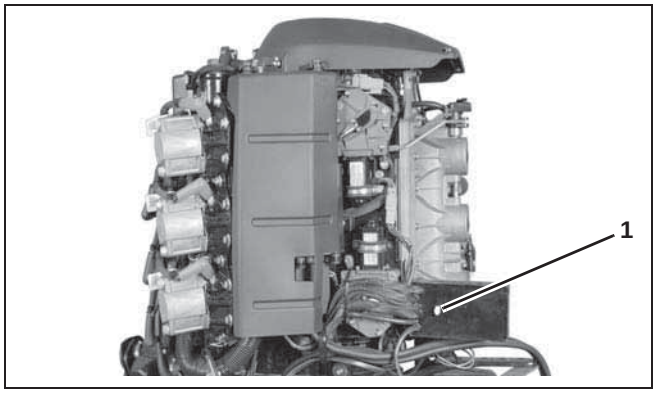
The first time the system is turned ON, it automatically checks engine identity numbers. During this time, the controls will not respond to operator inputs.

IMPORTANT: Allow approximately 3 seconds per engine for this check to complete.

If duplicate engine identity numbers are detected, the affected outboard's NEUTRAL indicator LED will flash rapidly.

The system will enable one of the duplicates and disable the remaining duplicates. Outboards with a disabled ESM will not operate.

Check the engine identity plug number and be sure the engine identity plug is installed as outlined in the table.



90° V6 Models 007525

1. Engine identity plug

IMPORTANT: Do not exchange ESMs or *EMM*s between outboards. Severe engine damage can result from improper replacement of ESM or *EMM*.

Operational Tests

After operational tests are complete, turn the master power/key switch to the OFF position.

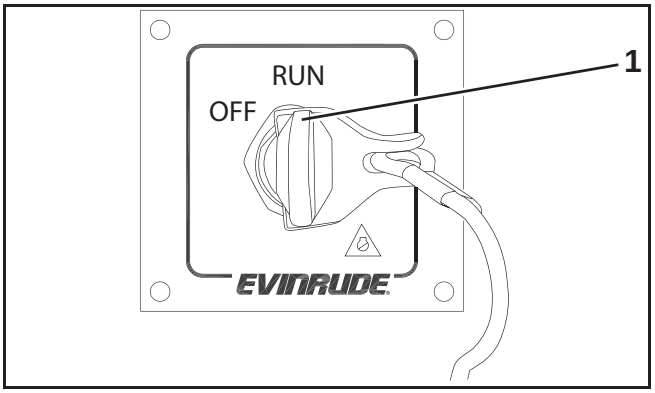
NOTICE **DO NOT run outboard without a water supply to the outboard's cooling system. Cooling system and/or powerhead damage could occur. Be sure the water intake screens are below the water surface.**

Master Power/Key Switch

The master power/key switch turns power ON and OFF to the:

- *ICON* remote control
- Outboard(s)
- *NMEA 2000* network/gauge network
- Boat accessories (requires Accessory Power Relay Kit, P/N 765296)

Turn the master power/key switch to the RUN position. All devices connected to the *ICON* remote control system, gauge network and accessory power relay should turn on.



1. RUN position 007894

Turn the master power/key switch to the OFF position. All devices connected to the *ICON* remote control system, gauge network and accessory power relay should turn off.

Note: Turning the master power/key switch to the OFF position also stops all outboards and turns off power to all stations.

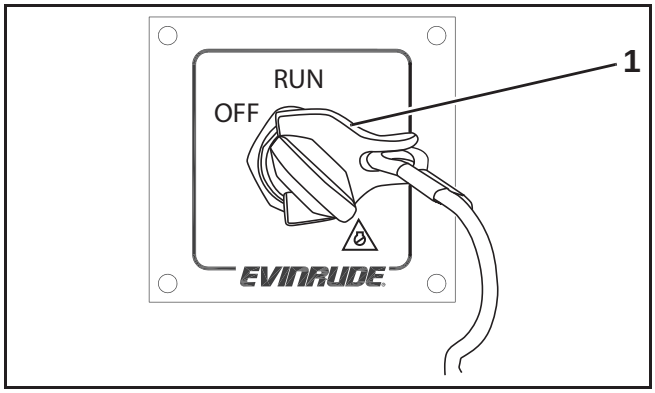
Emergency Stop Test

Main Station

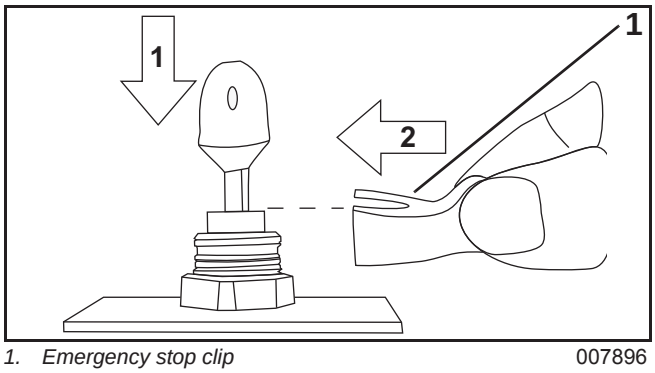
Check emergency stop function. Push clip of emergency stop lanyard onto master power/key switch.

IMPORTANT: If boat is equipped with an optional second or remote station an emergency stop lanyard must be installed on the emergency stop switch of the second station. Engine(s) will not start without emergency stop clip in place. Refer to Second or Remote Station.

Start the outboard(s). Refer to **Engine START/STOP Switches** on p. 44.



1. Emergency stop clip 007895



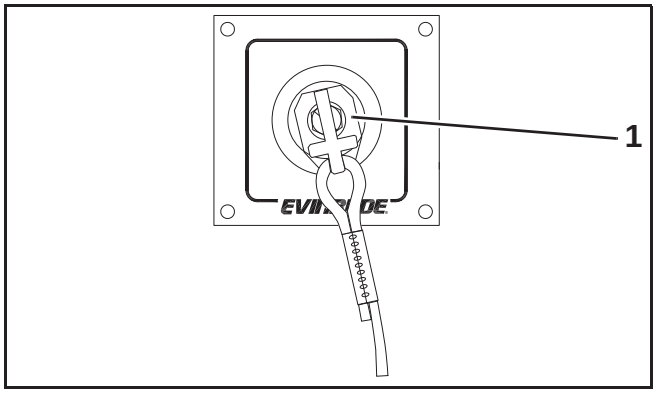
1. Emergency stop clip 007896

With outboard(s) running, remove emergency stop lanyard. Outboard(s) must STOP. If outboard does not stop, check master power/key switch and wiring. Repair as needed.

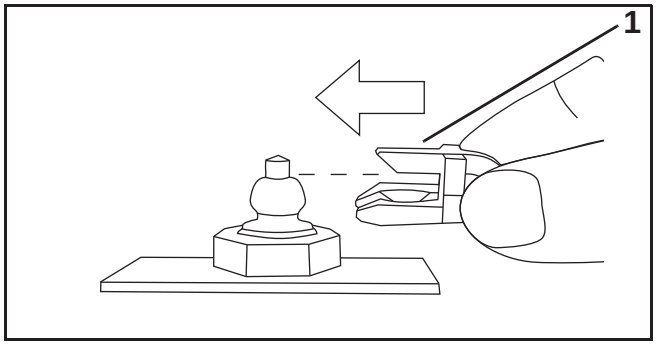
Reinstall clip on master power /key switch.

Second or Remote Station

Push clip of emergency stop lanyard onto emergency stop switch. Restart outboard(s).



1. Emergency stop clip 007897



1. Emergency stop clip 007898

With outboard(s) running remove emergency stop lanyard from second station emergency stop switch. Outboard(s) must STOP. If outboard does not stop, check emergency stop switch and wiring. Repair as needed.

Station Select

Station select is the process of activating a remote control station during system power up.

⚠ CAUTION

If Station Protect is enabled, a unique key sequence must be entered to activate the station. Refer to *Station Select* in I*CON User's Guide.*

Turn the master power/key switch to the RUN position.

In single station installations, the remote control activates automatically.

In dual station installations, the operator must select a station:

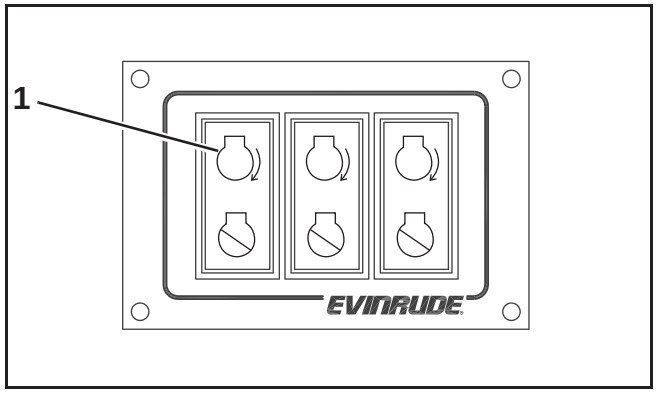
- Go to the master station or the remote or second station in the boat.
- Press any switch on the remote control, or press the START symbol of the START/STOP to activate the station.

Position control lever(s) in the NEUTRAL position to start or stop outboard. NEUTRAL indicator Light Emitting Diodes (LEDs) turn ON.

Engine START/STOP Switches

One START/STOP switch is used for each engine. START/STOP switches are used at each operator station.

Turn the master power/key switch to the RUN position. Press the START symbol of switch to start the outboard. Crank the engine no longer than 20 seconds.

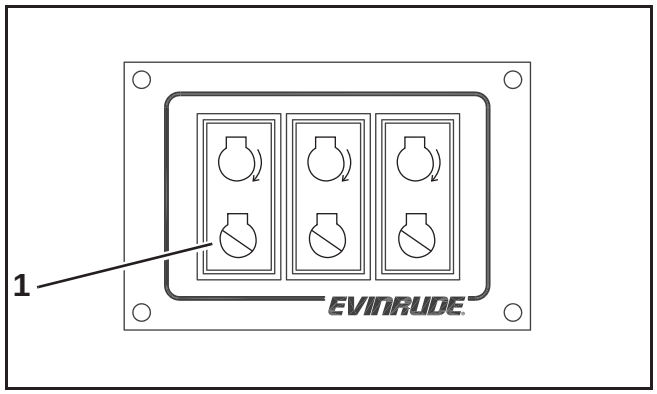


1. START symbol 007899

NOTICE **The starter motor can be damaged if operated continuously for more than 20 seconds.**

Upon start-up, release the switch.

Press and release the STOP symbol of switch to stop the outboard.



1. STOP symbol 007899

Check Start in Gear Protection

⚠ WARNING

Make certain starter will not operate when the outboard is in gear. The start-in-gear prevention feature is required by the United States Coast Guard to help prevent injuries.

Refer to the ***ICON*** **User's Guide** or outboard's operator's guide for start procedure and remote control operation.

Start the outboard and shift into FORWARD gear.

Turn outboard OFF while remote control is in FORWARD.

Try to restart the outboard. Outboard should not start.

Shift into NEUTRAL and restart outboard.

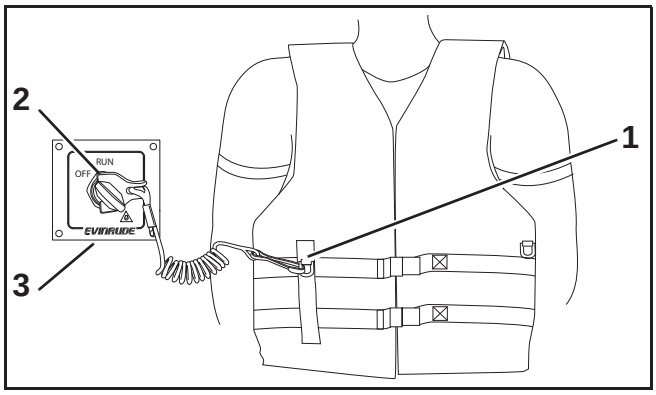
Shift into REVERSE gear. Turn outboard OFF while remote control is in REVERSE.

Try to restart the outboard. Outboard should not start.

On Water Test

Secure boat to dock to prevent motion. Snap the emergency stop lanyard to a **secure** place on the operators clothing or life vest – not where it might tear away instead of activating the stop switch.

Push clip of emergency stop lanyard onto master power switch.



1. *Lanyard* 005499A
2. *Clip*
3. *Master power switch*

⚠ WARNING

Emergency stop lanyard MUST be securely attached to operator, and clip MUST be installed on master power switch. DO NOT operate outboard with clip removed from switch, except in an emergency.

Refer to the ***ICON* User's Guide** for remote control operation.

Control lever(s) must be in the NEUTRAL position to start or stop outboard.

Turn master power/key switch to RUN position.

Press START symbol of Start/Stop switch. Release switch as soon as outboard starts.

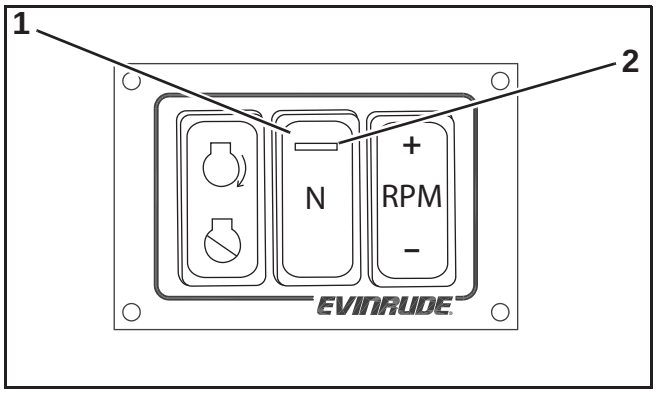
Check shift operation. Check that outboard shifts into FORWARD gear when control is shifted to FORWARD, and shifts to REVERSE gear when control is shifted to REVERSE.

START/STOP, NEUTRAL and RPM Switch Panel

A START/STOP, NEUTRAL and RPM switch panel kit is used with concealed side mount remote controls.

The NEUTRAL Throttle switch (**N**) allows operation of the throttle without shifting the outboard into FORWARD or REVERSE gear.

Press the **N** switch. The NEUTRAL indicator LED flashes. Advance the control lever to increase engine speed.



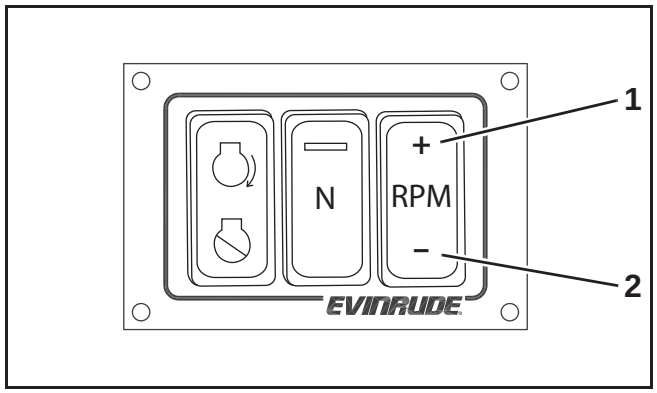
1. *NEUTRAL throttle switch* 007900
2. *NEUTRAL indicator LED*

The **RPM** adjustment switch allows the operator to gradually adjust engine RPM.

RPM adjustment range is limited to 5% of the throttle setting. Each press of the RPM switch changes throttle setting 1%. The adjustment range is approximately 100 to 200 RPM depending on engine speed.

IMPORTANT: To use the RPM adjustment feature, the control lever MUST be in FORWARD gear and engine speed must be above 500 RPM.

Press the **+** side of the **RPM** switch to increase engine speed. Press the **–** side of the **RPM** switch to decrease engine speed.



1. "+" side of RPM switch
2. "–" side of RPM switch
007900

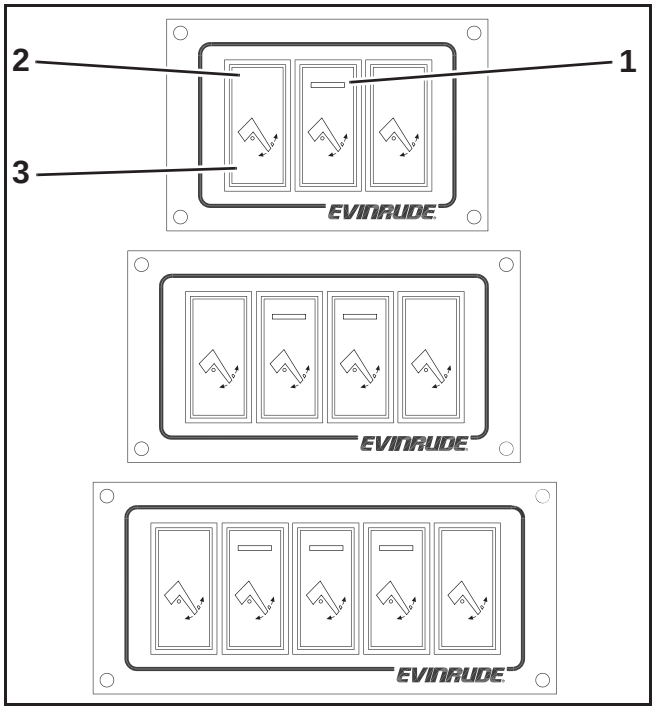
To cancel the RPM adjustment switch setting move the control lever to a faster or slower position.

Trim and Tilt Switches

Installations of three, four or five outboards use a dashboard mounted trim and tilt switch panel to adjust trim on individual outboards. Indicator LEDs will turn ON when outboard is in NEUTRAL.

Press the upper part of the trim and tilt switch to trim/tilt the outboard up.

Press the lower part of the trim and tilt switch to trim/tilt the outboard down.



1. Indicator LEDs
2. Press to trim or tilt UP
3. Press to trim or tilt DOWN
007901

ICON Remote Control System Troubleshooting Chart

Note: Items listed in this chart will not result in setting of *ICON* fault codes.

Observation	Possible Cause	Troubleshooting Procedure
ICON system does not power up. Remote control is OFF. *I-Command* gauges are OFF.	Battery switch is OFF. Battery is discharged. Network power cable 10 Amp fuse has failed. Master power/key switch/network 3 Amp fuse has failed.	• Turn battery switch ON. • Check condition of battery. • Check 10 Amp fuse. Check network power cable and connectors for damage. • Check 3 Amp fuse. Check master power/key switch power cable, buss cables, and connectors for damage. • Disconnect power cable from gateway module.
Starter motor of outboard does not operate. Remote control is ON. Trim & tilt system operates.	START/STOP switch or harness is faulty. Engine wiring harness, starter solenoid, or *EMM* is faulty. Remote control is faulty. ESM is faulty	• Check START/STOP switch(es) and harness for damage. Swap known good START/STOP switch(es). • Check engine wiring harness for damage, swap known good starter solenoid. • Swap a known good remote control. • Check ESM, swap known good ESM
Starter motor of outboard does not operate. Remote control is ON. Indicator LEDs are flashing. Trim & tilt system does not operate.	Outboard is not connected to *ICON* system. ESM 30 Amp fuse has failed.	• Check buss cables and *ICON* hubs for damage. • Swap known good buss cables or *ICON* hub. • Check 30 Amp fuse. Check power cable, actuator harness and connectors for damage.
Outboard(s) will not shut off with START /STOP switch. Remote control is ON. Trim & tilt system operates.	START/STOP switch or harness is faulty Remote control is faulty.	• Check START/STOP switch(es) and harness for damage. • Swap a known good remote control.
Outboard(s) will not shut off with START /STOP switch. Remote control is ON. Trim & tilt system does not-operate.	Outboards must have *ICON*–compatible engine management software installed in the Engine Management Module (*EMM*).	• If this problem has occurred after installing an *ICON* conversion kit, make sure updated engine management software has been installed in *EMM*.
Outboard does not shift. Remote control is ON. Indicator LEDs display normally.	Shift actuator is not calibrated. Shift linkage is not installed or damaged. Shift actuator arm is loose or damaged.	• Check shift actuator stroke. Calibrate if necessary. • Check shift linkage. • Check shift actuator arm.
Outboard(s) will not trim/tilt up and/or down. Remote Control is OFF.	Master power/key switch must be in RUN position.	• Turn master power/key switch to RUN position.

ICON REMOTE CONTROL SYSTEM TROUBLESHOOTING CHART

Observation	Possible Cause	Troubleshooting Procedure
Master trim and tilt switch does not operate power trim and tilt system of outboards. Remote control is ON. Individual trim and tilt switches operate.	Master trim and tilt switch or harness is faulty Remote control is faulty.	• Check master trim and tilt switch. • Check harness from master trim and tilt switch to remote control. • Swap a known good remote control.
Individual trim and tilt switches do not operate power trim and tilt system of outboards (dual lever binnacle control only). Remote control is ON. Master trim and tilt switch operates.	Remote control is faulty.	• Swap a known good remote control.
Trim and tilt switch panel (3, 4 or 5 outboards only) does not operate power trim and tilt system of outboards.	Outboards must have *ICON*–compatible engine management software installed in the Engine Management Module (*EMM*). Trim and tilt switch harness or switch panel is faulty	• If this problem has occurred after installing an *ICON* conversion kit, make sure updated engine management software has been installed in *EMM*. • Check harness from trim and tilt switch panel to remote control. • Swap a known good trim and tilt switch panel.
NMEA 2000 network/ *I-Command* gauges are OFF. Remote control is ON.	Gateway module is OFF. Gateway power harness is not connected or faulty. *NMEA 2000* buss cable from gateway module to *NMEA 2000* network is not connected or faulty. Buss cable from *ICON* hub to gateway module is not connected or faulty. Gateway module is faulty.	• Check power cable and connections from master power/key switch to gateway module. • Check *NMEA 2000* buss cable and t-connector. • Check buss cable connection from gateway module to *ICON* hub. • Check *ICON* hub LED is ON. Swap known good hub. • Check Gateway module LED is ON. Confirm 12V power and ground to gateway module. • Swap a known good gateway module.
NMEA 2000 network/ *I-Command* gauges are ON, but do not display engine data. Remote control is ON. Gateway module LED is ON.	*NMEA 2000* buss cable or t-connector is not connected or is damaged. Gauge is faulty. Gateway module is faulty.	• Check *NMEA 2000* buss cable and t-connector. • Swap a known good *NMEA 2000* buss cable or t-connector. • Check *I-Command* gauge set up for correct engine instance. • Swap a known good gauge. • Swap a known good gateway module.
NMEA 2000 network/ *I-Command* gauges are ON, but do not display engine data. Remote control is ON. Gateway module LED flashing.	Gateway module is not receiving data from *ICON* remote control system. Buss cable from ICON hub to gateway module is faulty.	• Check buss cable and connections from gateway module to *ICON* hub. • Swap a known good *ICON* hub or buss cable extension. • Swap a known good gateway module.

ICON Remote Control System Fault Messages

Note: *ICON* fault codes are grouped by fault type.

Fault Code: Description	**LED Indicators**	**Possible Cause**	**Fault Description/ Troubleshooting Procedure**
108:RPM Reduction, *ICON* System Fail-safe Mode Fault code 108 will appear with another code that explains why the engine(s) entered RPM reduction.	See other codes	See other codes	See other codes
149: Throttle Actuator Sensor Fault (fault code 108 will appear with this fault code). Throttle actuator sensor cannot determine throttle position.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, only the NEUTRAL indicator LED associated with the engine that has a fault flashes.	RFI due to excessive spark plug gap, damaged or worn spark plugs. Throttle actuator harness is damaged. Throttle actuator position sensor is faulty. ESM is faulty.	• Check spark plug condition. Gap and install new spark plugs. • Check harness from ESM to throttle actuator for damage. • Swap a known good throttle actuator. • Swap a known good ESM.
150: Throttle Actuator Motion Fault (no other fault code appears with this fault code). Throttle cannot move toward open position.	FORWARD or REVERSE indicator LED flashes (depending on gear position when fault occurred).	Throttle actuator has an open circuit. Throttle actuator is not calibrated. Throttle linkage is damaged. Throttle actuator is faulty.	• Move control lever(s) to NEUTRAL position. • Turn master power/ key switch OFF and then back to RUN position to reset system. • Check throttle actuator harness for damage. • Calibrate throttle actuator. • Check throttle linkage for obstructions • Swap a known good throttle actuator.
150: Throttle Actuator Motion Fault (fault code 108 will appear with this fault code). Throttle cannot move toward closed position.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, only the NEUTRAL indicator LED associated with the engine that has a fault flashes.		

ICON REMOTE CONTROL SYSTEM FAULT MESSAGES

Fault Code: Description	LED Indicators	Possible Cause	Fault Description/ Troubleshooting Procedure
151: Shift Actuator Sensor Fault (fault code 108 will appear with this fault code). Shift actuator sensor cannot determine gear position.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, only the NEUTRAL indicator LED associated with the engine that has a fault flashes.	RFI due to excessive spark plug gap, damaged or worn spark plugs. Shift actuator harness is damaged. Shift actuator position sensor is faulty. ESM is faulty.	• Check spark plug condition. Gap and install new spark plugs. • Check harness from ESM to shift actuator for damage. • Swap a known good shift actuator. • Swap a known good ESM
152: Shift Actuator Motion Fault (no other fault code appears with this fault code). Shift is unable to move to FORWARD or REVERSE gear or NEUTRAL position.	FORWARD, NEUTRAL or REVERSE indicator LED flashes to indicate which gear position it is not able to move to.	Engine stalled while underway. Shift actuator has an open circuit. Shift actuator is not calibrated. Shift linkage is damaged. Shift actuator is faulty	• Retry shifting • Turn master power/ key switch OFF and then back to RUN position to reset system. • Check shift actuator harness for damage. • Calibrate shift actuator. • Swap a known good shift actuator.
107: Control Communication Error (fault code 108 will appear with this fault code). Outboard *EMM* cannot communicate with *ICON* remote control.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, only the NEUTRAL indicator LED associated with the engine that has a fault flashes.	Buss cable or *ICON* hub is not connected or damaged. ESM harness is faulty or damaged 10 Amp fuse for outboard engine harness has failed (*only* if fuse failed with engine running). Battery voltage is low.	• Turn master power switch OFF and back to RUN position to reset system. • Check buss cables and *ICON* hubs from remote control to ESM for damage. • Swap known good buss cables or *ICON* hubs. • Check harness from ESM to outboard *EMM* for damage. • Check 10 Amp fuse. Check engine harness for damage. • Check condition of batteries, battery connections and/or battery switches.

Fault Code: Description	LED Indicators	Possible Cause	Fault Description/ Troubleshooting Procedure
109: Control Hardware Fault (fault code 108 will appear with this fault code). Control lever position sensor failure.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, the LED indicator associated with the faulty control lever will turn OFF.	Remote control is faulty.	• Turn master power/ key switch OFF and then back to RUN position to reset system. • Swap a known good remote control.
110: Trim Switch Module Communication Fault (no other fault code appears with this fault code). *ICON* remote control cannot communicate with trim and tilt switch panel (3, 4, or 5 engines only).	None	Trim and tilt switch harness is faulty. Trim and tilt switch panel is faulty.	• Turn master power/key switch OFF and then back to RUN position to reset system. • Check harness from trim and tilt switch panel to remote control for damage. • Swap a known good trim and tilt switch panel.
111: ESM Communication Fault (fault code 108 will appear with this fault code). *ICON* remote control cannot communicate with ESM.	All LED indicators flash until control levers and shift actuators are in NEUTRAL. Afterwards, only the NEUTRAL indicator LED associated with the engine that has a fault flashes.	Buss cable or *ICON* hub is not connected or damaged. ESM harness is damaged or faulty. Battery voltage is low.	• Turn master power/ key switch OFF and then back to RUN position to reset system. • Check buss cables and *ICON* hubs from remote control to ESM. Swap known good buss cables or *ICON* hubs. • Check harness from ESM to outboard *EMM*. • Check condition of batteries, battery connections and/or battery switches.

ICON Remote Control System Specifications

Specifications

Supply Voltage (Boat System)	9 to 18 VDC
Operating Voltage (*ICON* Remote Control System)	5 VDC
Engine Control	1, 2, 3, 4, or 5 outboards
Reverse Polarity Protection	Continuous
Fuse, Network Power Cable	10 Amp, ATO Type, P/N 967545
Fuse, Master Power Switch	3 Amp, ATO Type, P/N 764538
Fuse, Electronic Servo Module	30 Amp, Minifuse Type, P/N 5032630
Fuse, Accessory Power Relay Kit	10 Amp, Minifuse Type, P/N 514766
Network Interface	Proprietary
Operating Temperature Range	-13° to 167° F (-25° to 75° C)
Maximum Current Draw (with Master Power Switch OFF)	10µA

Compass Safe Distance

The table below lists the minimum distance a compass should be installed from certain *ICON* network devices.

Device	1 Degree Deflection	0.3 Degree Deflection
ICON Gateway Module	4 in. (100 mm)	4 in. (100 mm)
ICON Single Lever Binnacle Mount Remote Control	8 in. (200 mm)	12 in. (300 mm)
ICON Dual Lever Binnacle Mount Remote Control	12 in (300 mm)	16 in. (400 mm)

Cable Requirements

NMEA 2000 specifies wire requirements as follows:

NMEA 2000 Cable (Light/Micro Buss)	
Maximum Current	4 AMPS
Resistance - Power Wire(s)	5.40 Ω per 100 M
Power Wire Size	22 AWG
Data Wire Size	24 AWG

NMEA 2000 specifies wire colors as follows:

***NMEA 2000* Wire Designation**	**Color**
Power supply (+VDC)	Red
Ground (–VDC)	Black
Shield (Drain)	Bare
Data HI (Signal)	White
Data LOW (Signal)	Blue

ICON system wire colors as follows:

ICON Wire Designation	Color
Power supply (+VDC)	Red
Ground (–VDC)	Black
Data HI (Signal)	White
Data LOW (Signal)	Blue
Stop Circuit	Black/Yellow
Stop Circuit (Return)	Black/White

Grounding Requirements

The *ICON* remote control system should be grounded at a SINGLE location. This is normally done at the network power cable connection and should be robustly connected to the boat's grounding system. There must be no other ground connections on the *ICON* remote control system to avoid ground loops, which can cause problems with system performance.

Maximum Number of Devices

A maximum of 10 devices can be attached to the *ICON* remote control system. The number of devices is limited by the number of hub connections.

All devices must connect to an *ICON* hub.

IMPORTANT: Only connect *ICON* components to the *ICON* remote control system.

Open Device Connectors

Install protective covers on "open" or unused device connectors.

ICON Remote Control System Requirements

The *ICON* remote control system requires the following components:

- One *ICON* remote control
- One master power/key switch
- One START/STOP switch for each engine
- One trim switch panel (3, 4, or 5 engine installations only)
- Two *ICON* hubs
- One *ICON* gateway module
- One backbone buss cable to connect the hubs
- One, two, three, four or five outboards

Installations using an optional second station require the following additional components:

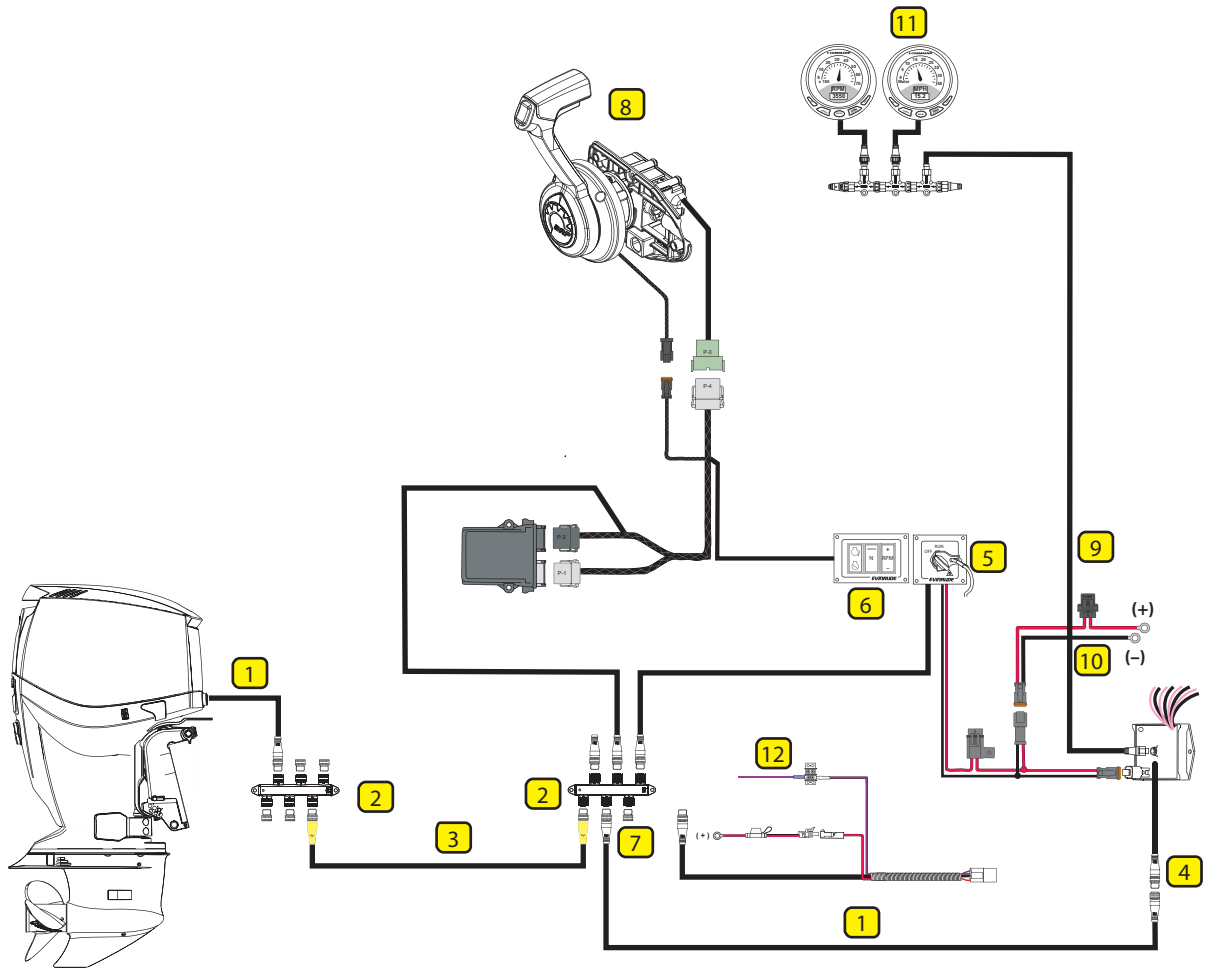
- One *ICON* remote control
- One emergency stop switch
- One START/STOP switch for each engine
- One trim switch panel (3, 4, or 5 engine installations only)

Load Equivalency

The Engine Management Module (*EMM*) on *Evinrude E-TEC* outboards has a load equivalency number of 1. Less than 50 mA of the network's (CAN) power is used by the *EMM*.

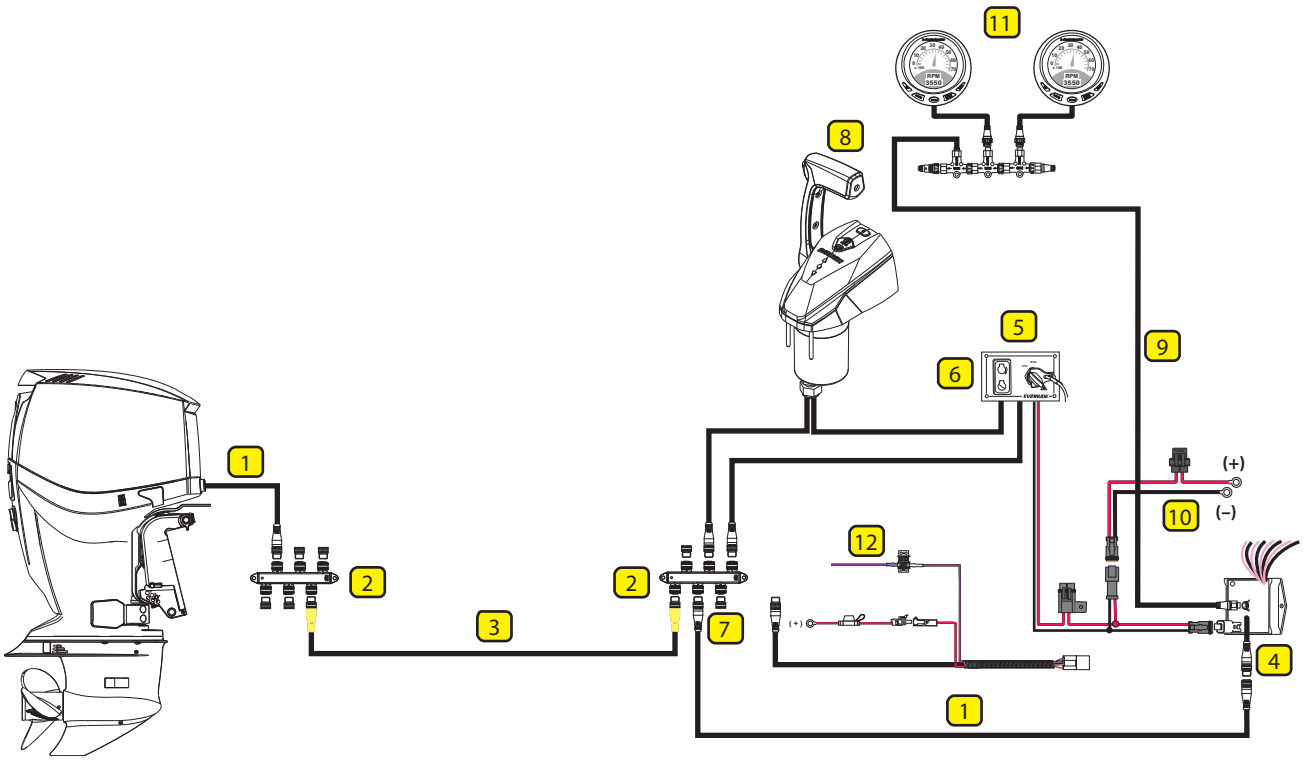
ICON Connection Diagrams

One Engine, One Station (Concealed Side Mount Remote Control)



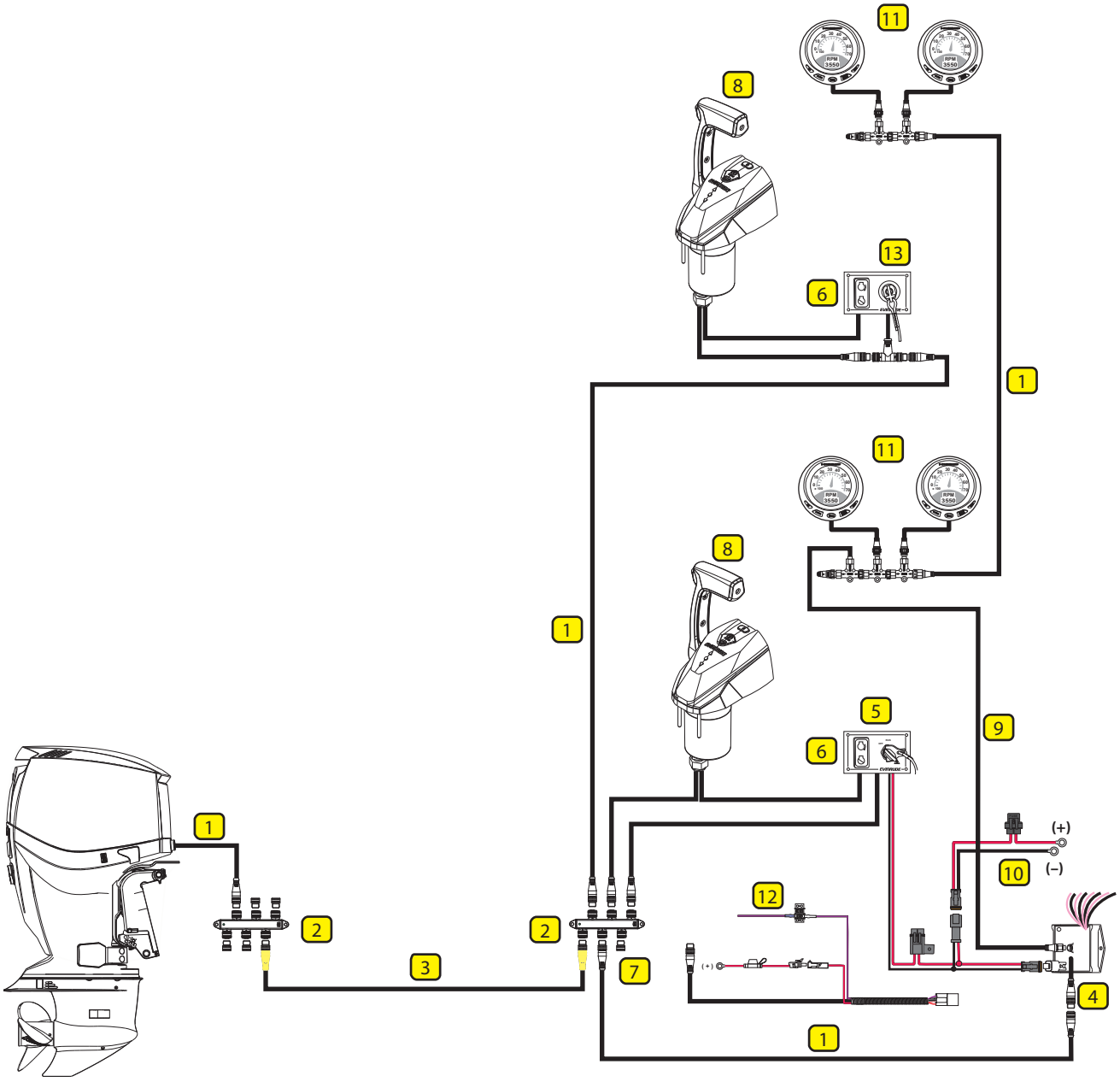
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Switch Panel, Start/Stop, Neutral, RPM		
7	Protective Cap		

One Engine, One Station (Single Lever Binnacle Mount Control)



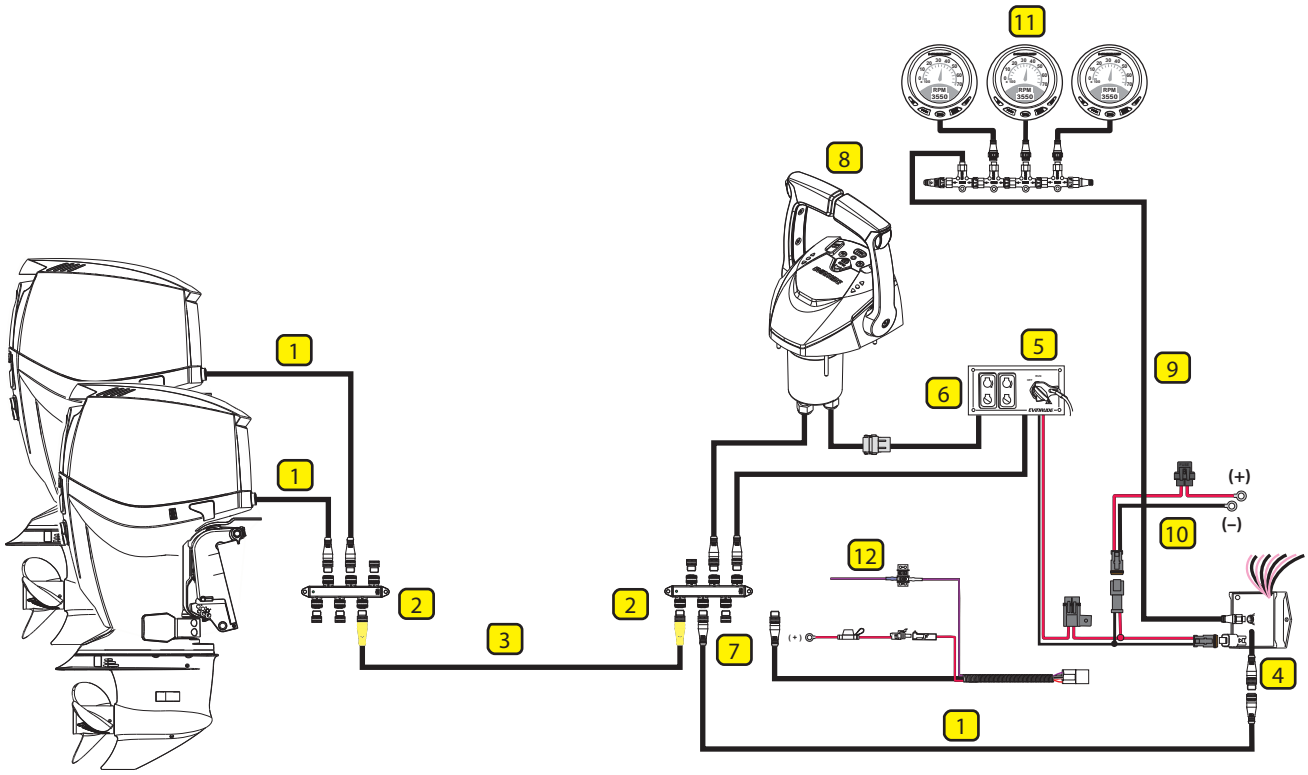
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch		
7	Protective Cap		

One Engine, Two Stations (Single Lever Binnacle Mount Control)



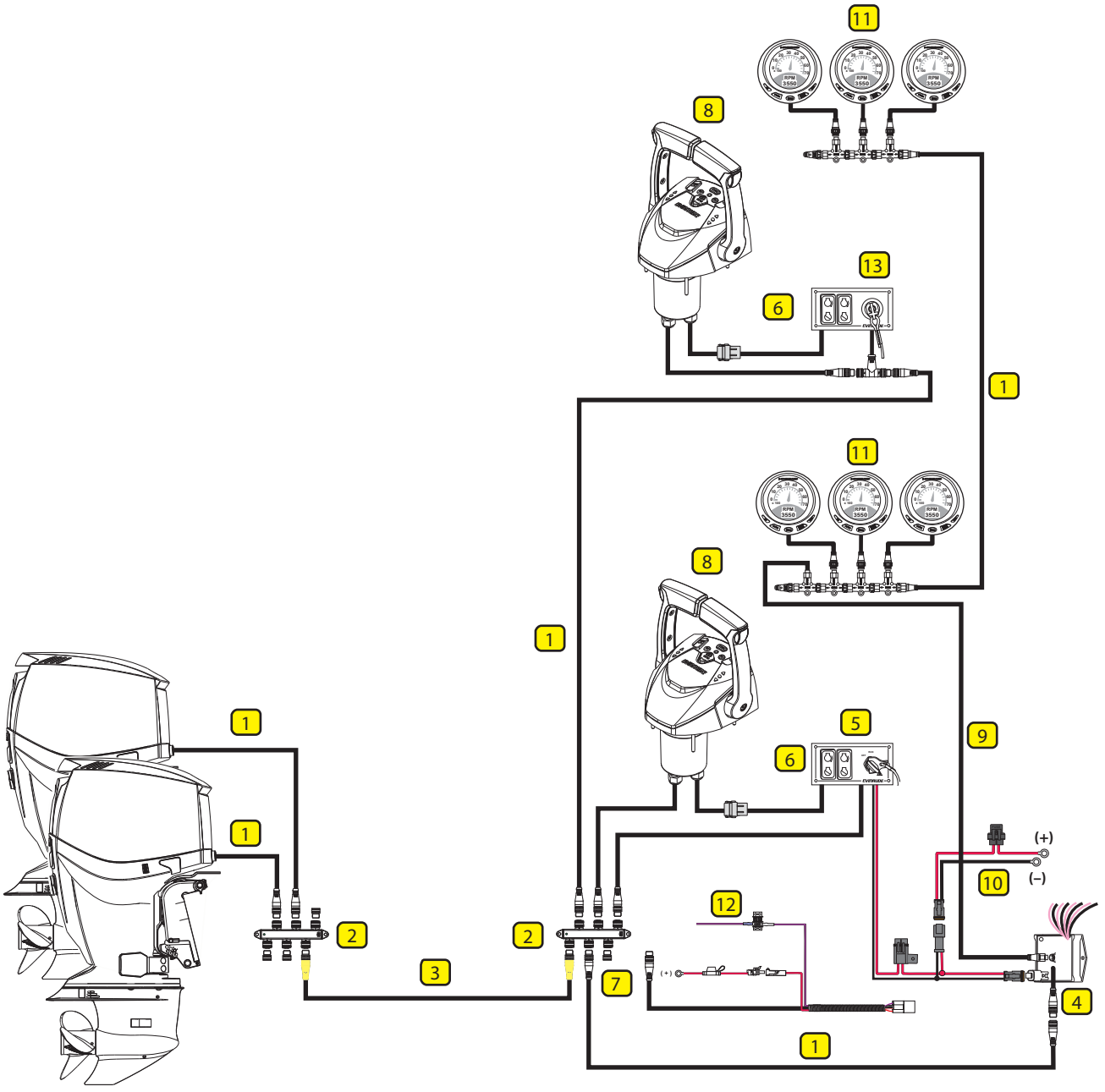
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch	13	Emergency Stop Switch
7	Protective Cap		

Two Engines, One Station (Dual Lever Binnacle Mount Control)



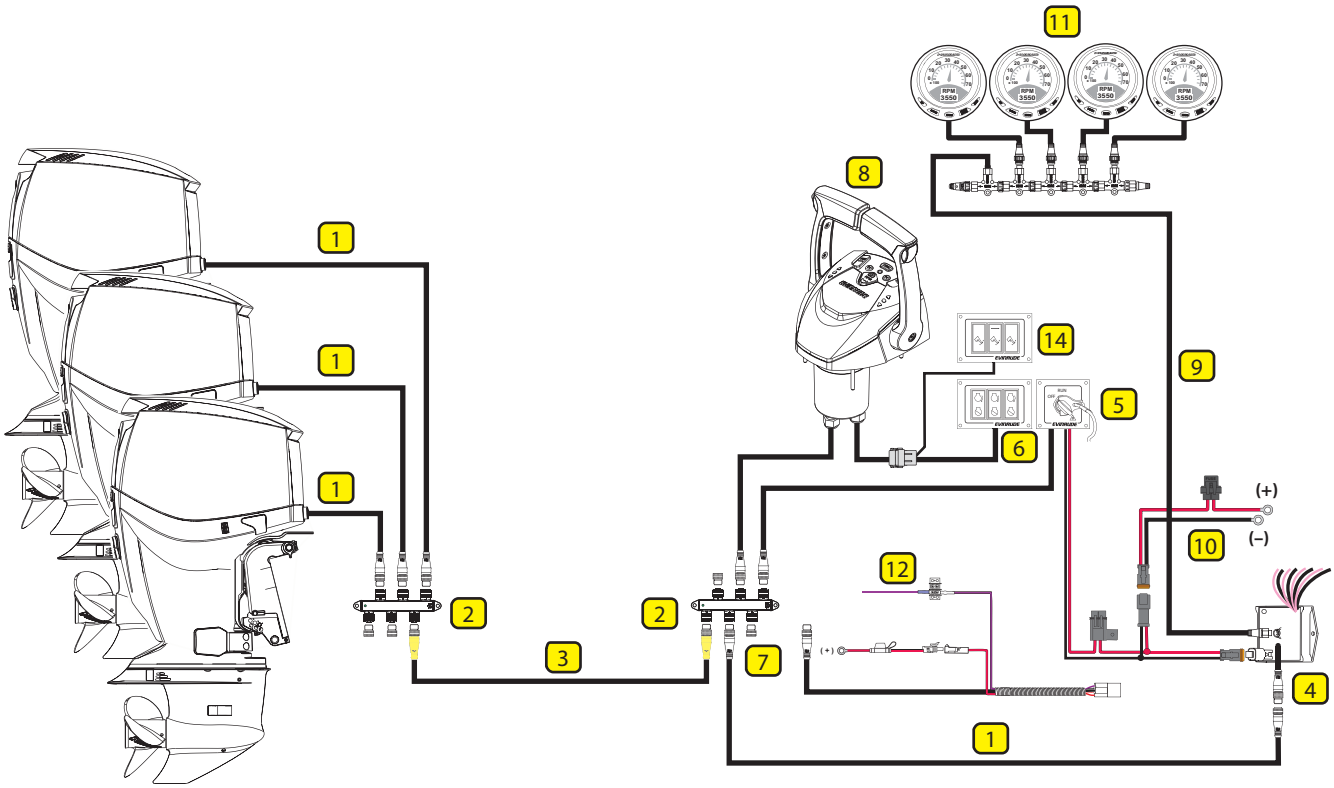
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch		
7	Protective Cap		

Two Engines, Two Stations (Dual Lever Binnacle Mount Control)



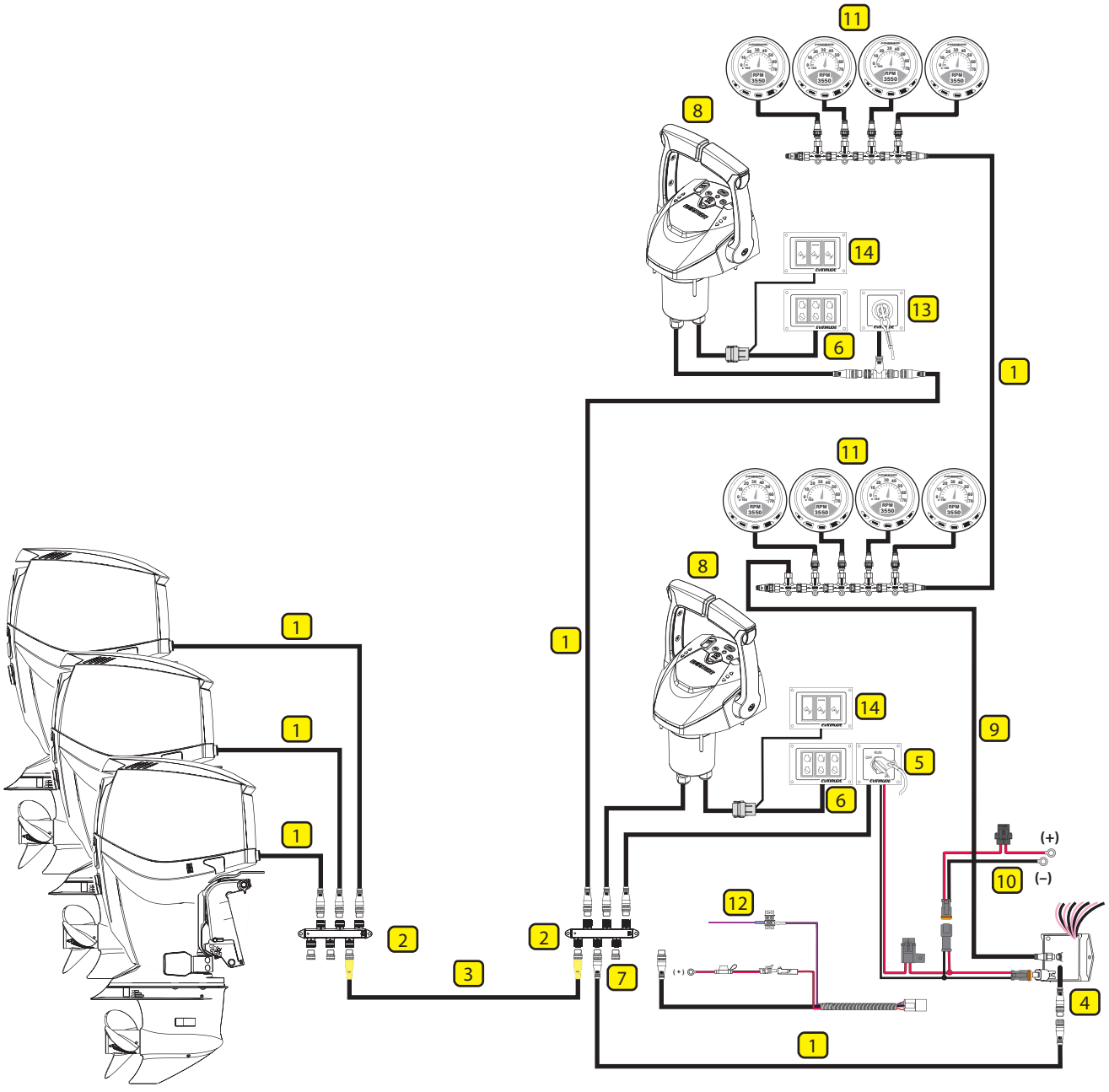
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch	13	Emergency Stop Switch
7	Protective Cap		

Three Engines, One Station (Dual Lever Binnacle Mount Control)



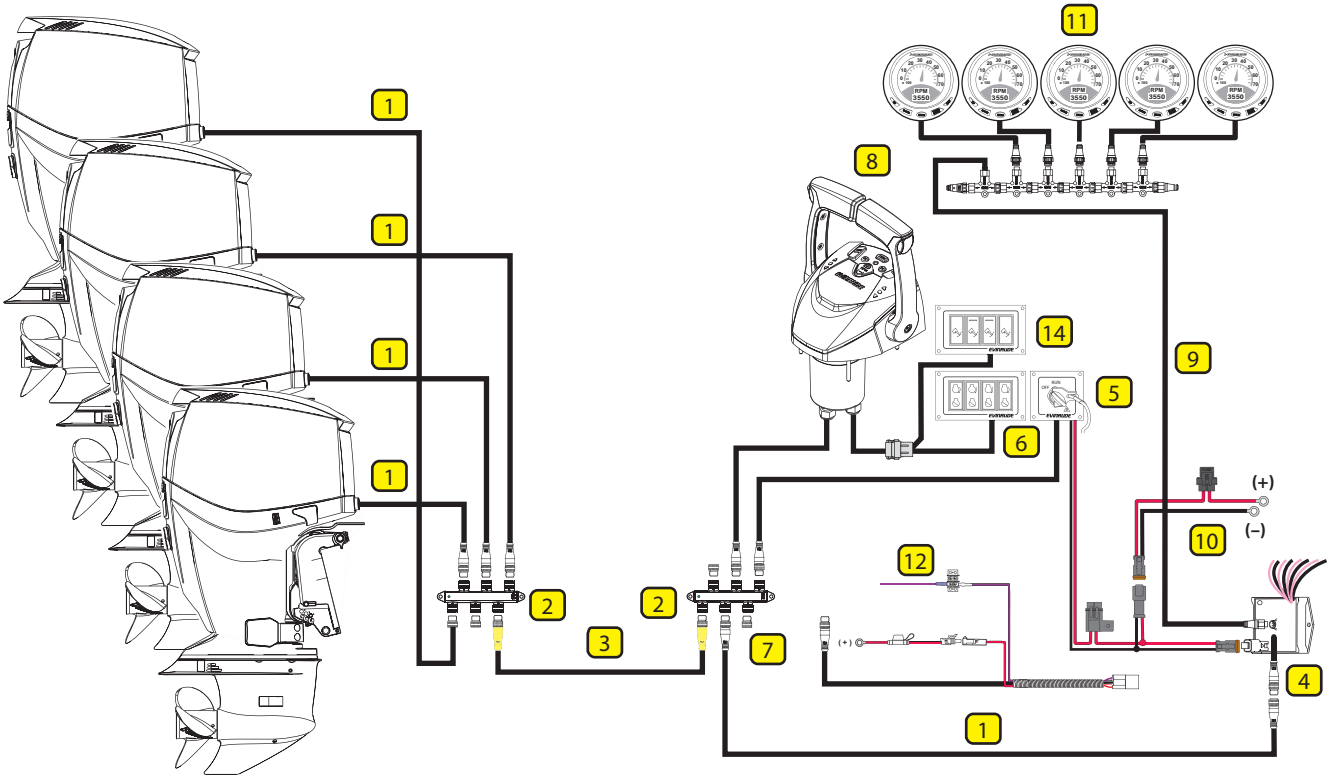
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch		
7	Protective Cap	14	Trim Switch Panel

Three Engines, Two Stations (Dual Lever Binnacle Mount Control)



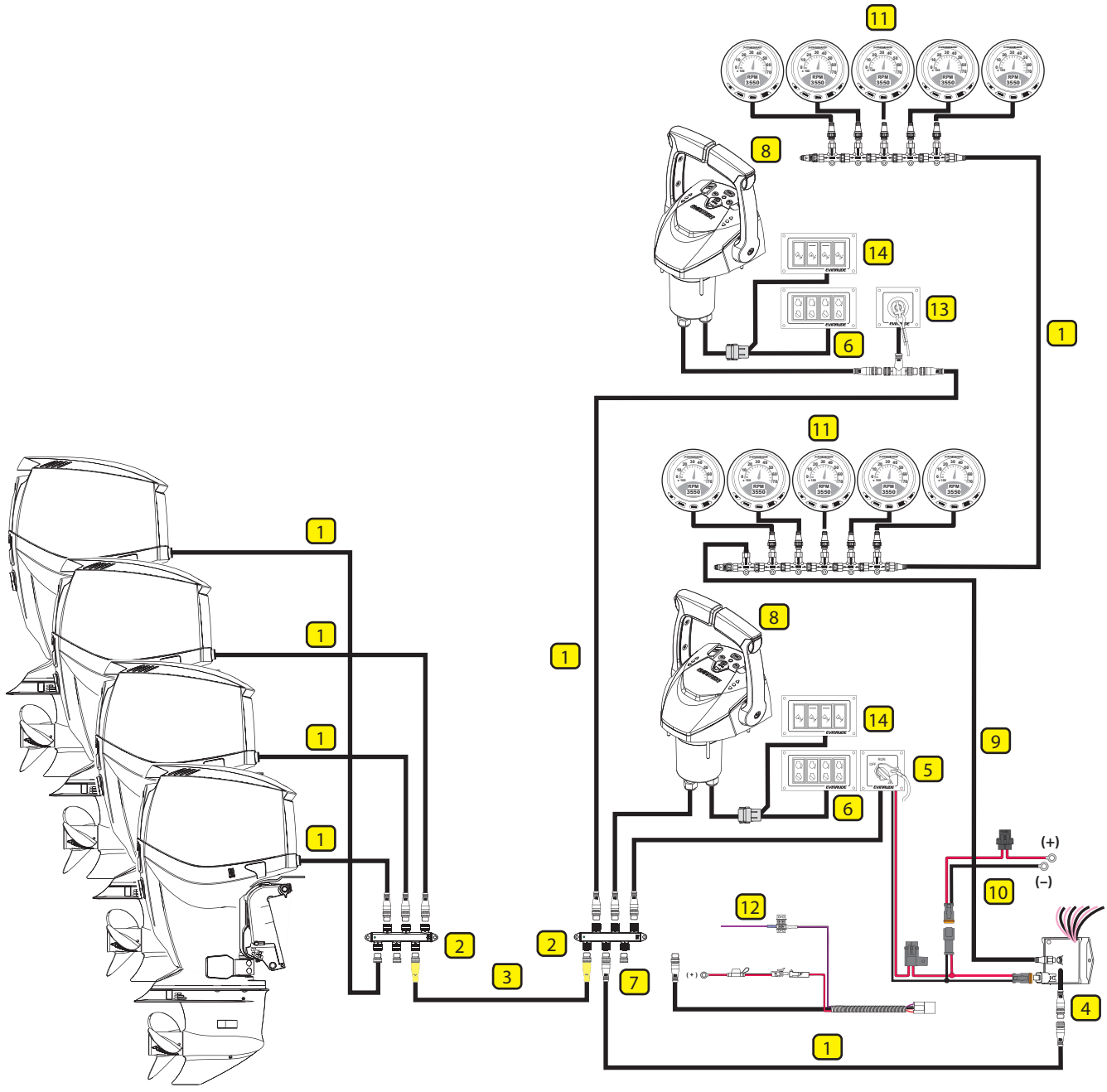
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch	13	Emergency Stop Switch
7	Protective Cap	14	Trim Switch Panel

Four Engines, One Station (Dual Lever Binnacle Mount Control)



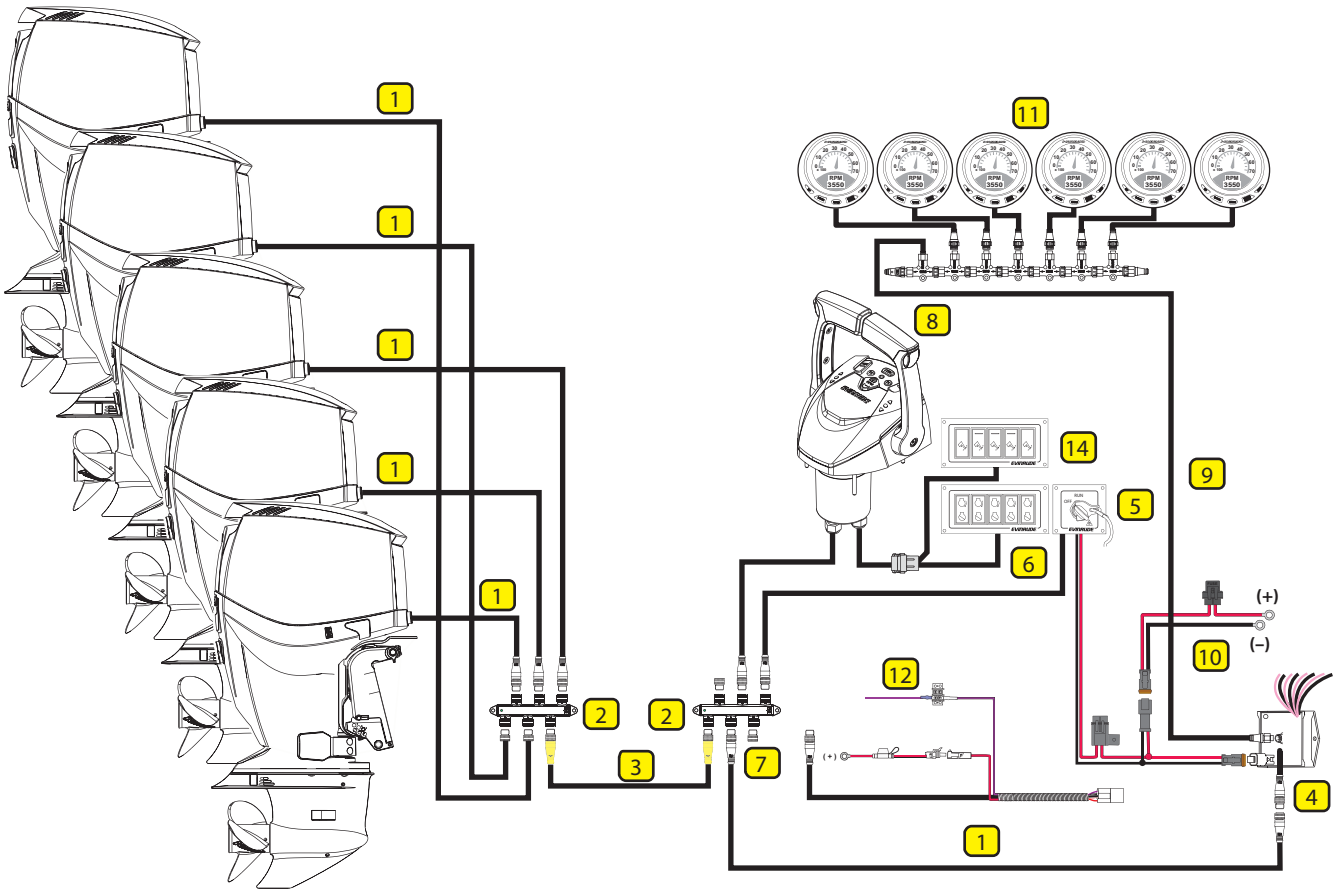
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch		
7	Protective Cap	14	Trim Switch Panel

Four Engines, Two Stations (Dual Lever Binnacle Mount Control)



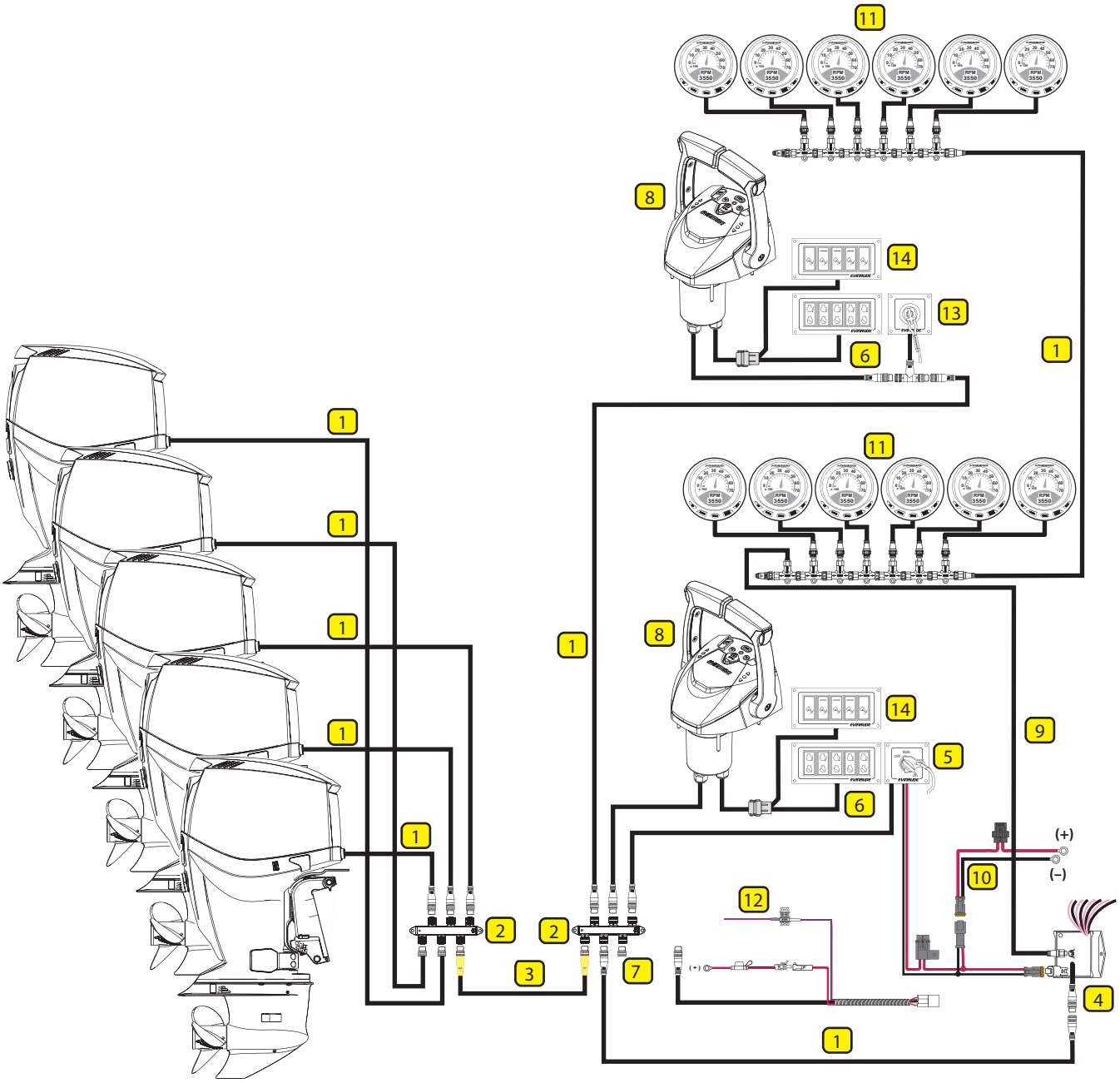
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch	13	Emergency Stop Switch
7	Protective Cap	14	Trim Switch Panel

Five Engines, One Station (Dual Lever Binnacle Mount Control)



Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch		
7	Protective Cap	14	Trim Switch Panel

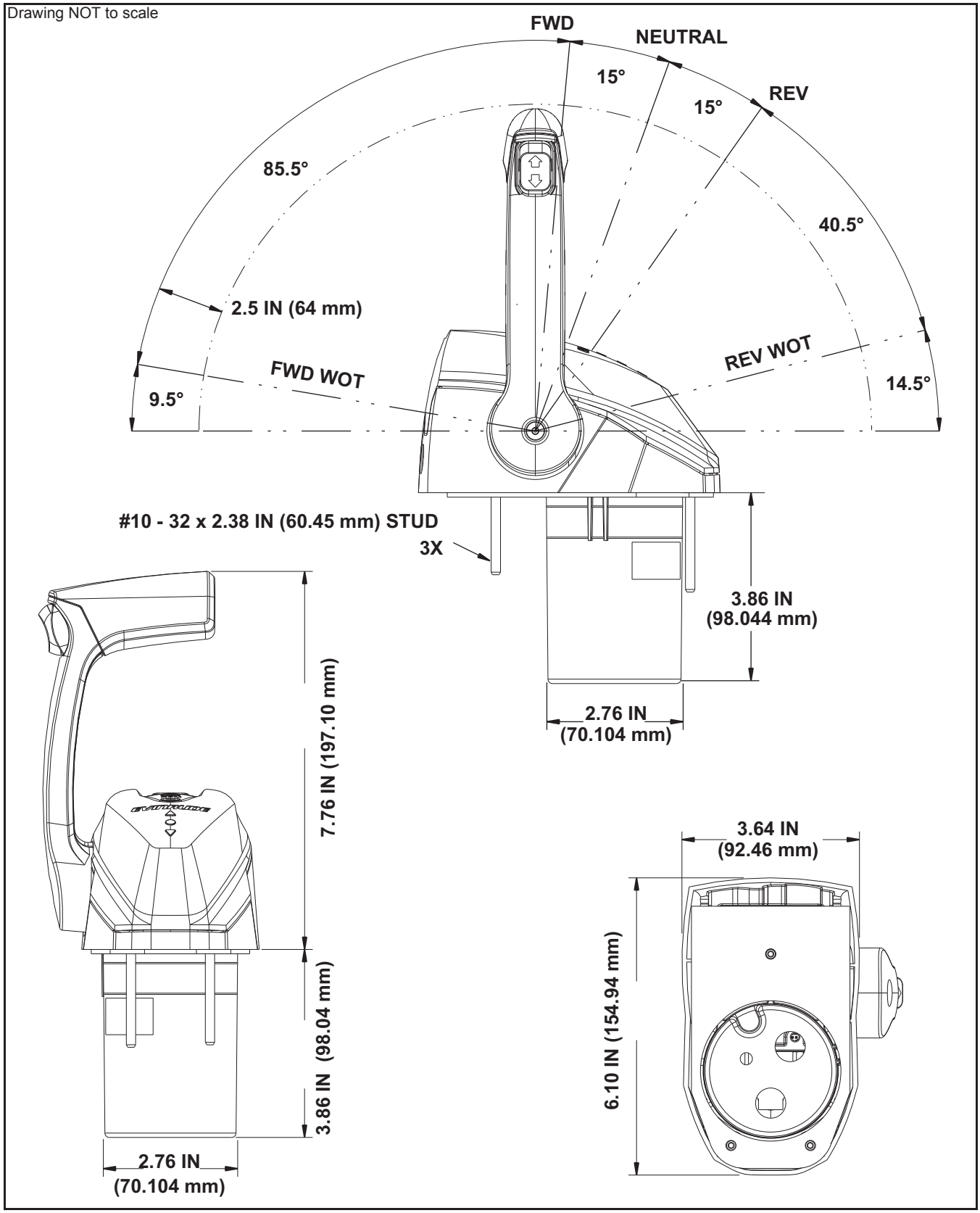
Five Engines, Two Stations (Dual Lever Binnacle Mount Control)



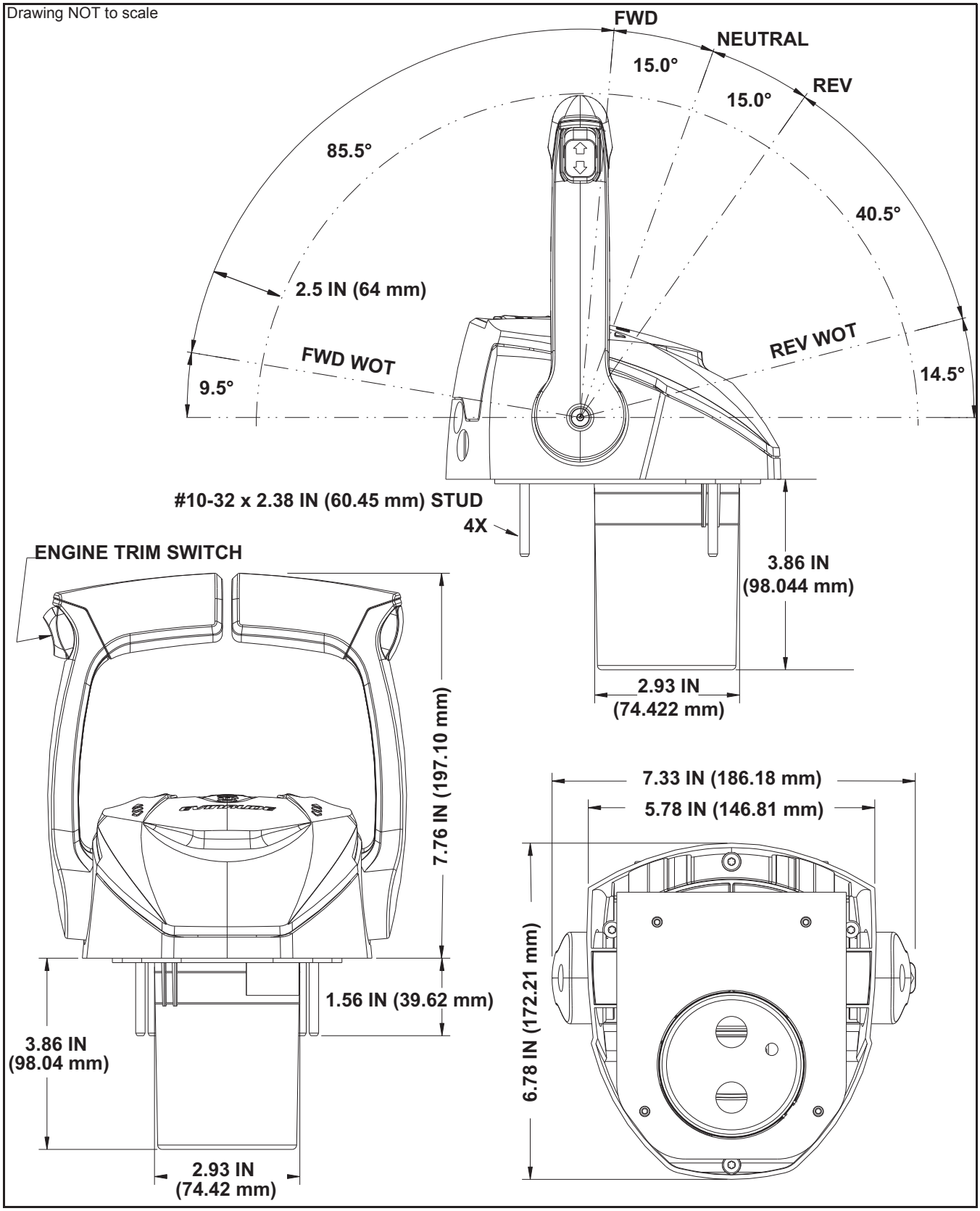
Item	Description	Item	Description
1	Buss Cable, Extension	8	Remote Control Assembly
2	Hub *ICON* Network	9	*NMEA 2000* Network Cable
3	Buss Cable, Backbone	10	Network Power Cable Assembly
4	Gateway module and Cable Kit	11	Gauges
5	Master Power/Key Switch	12	Accessory Power Relay Kit (optional)
6	Panel, Start/Stop Switch	13	Emergency Stop Switch
7	Protective Cap	14	Trim Switch Panel

ICON Remote Control Profile Drawings

ICON Single Lever Binnacle Mount Remote Control Profile Drawing

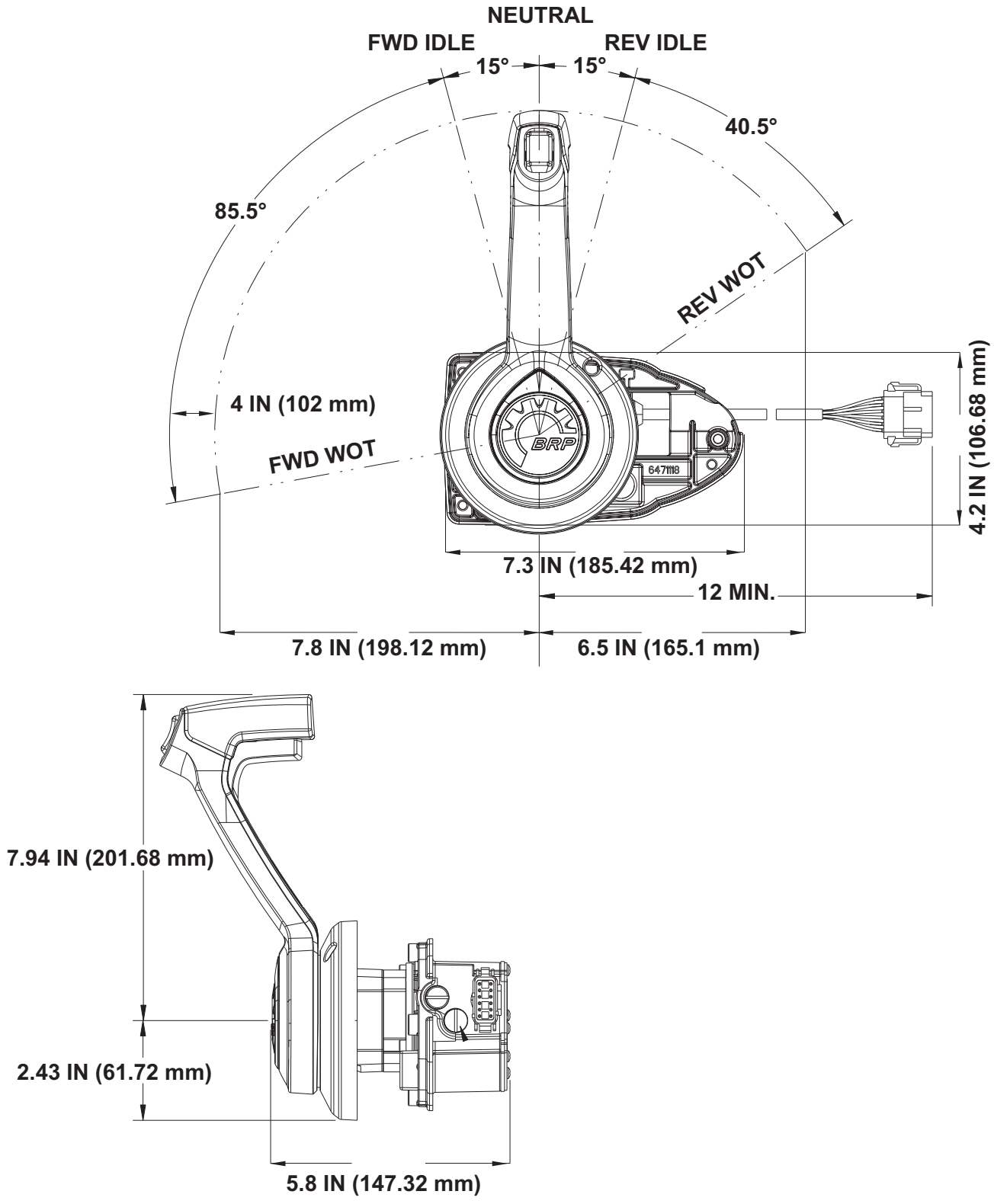


ICON Dual Lever Binnacle Mount Remote Control Profile Drawing



ICON Concealed Side Mount Remote Control Profile Drawing

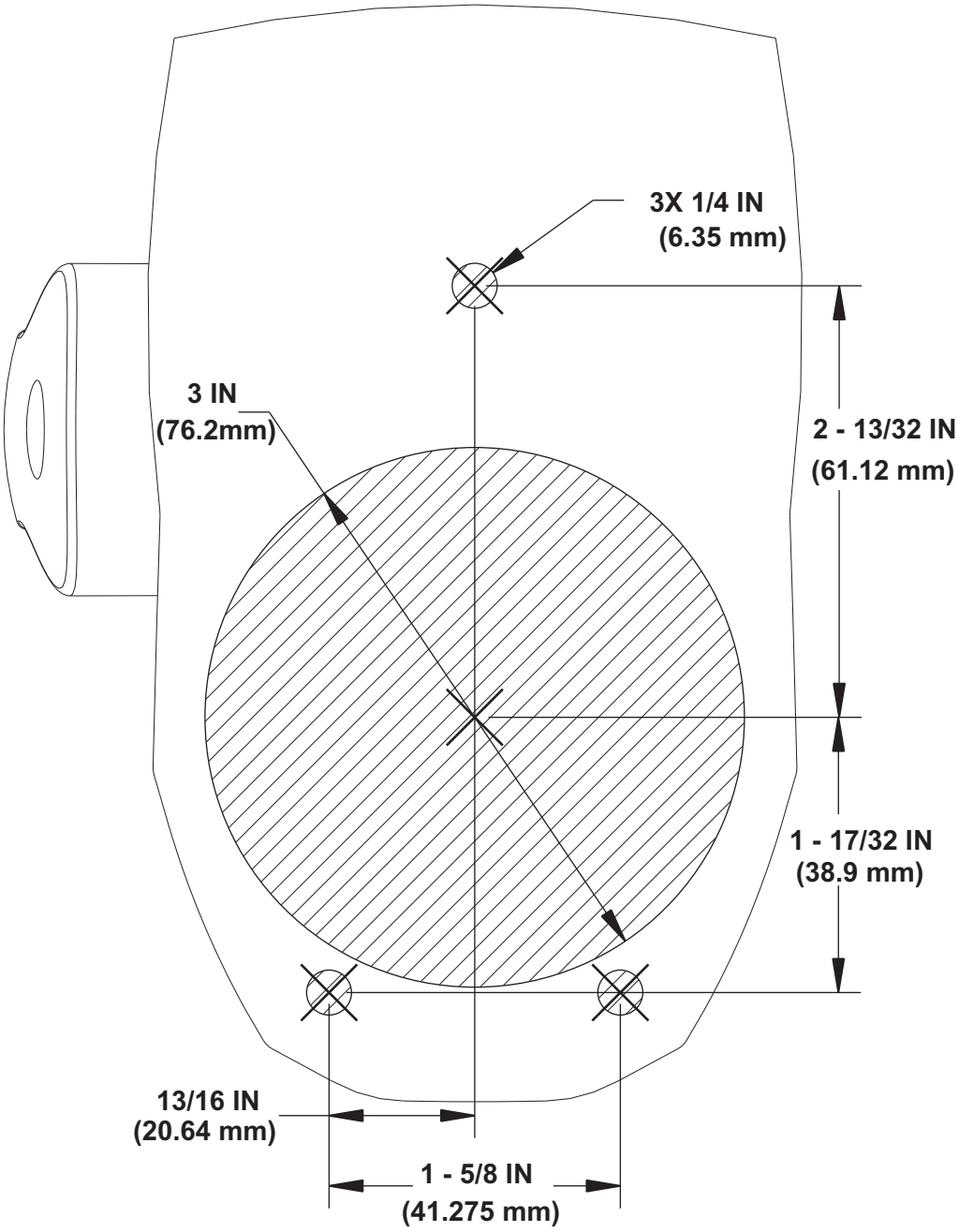
Drawing NOT to scale



ICON Remote Control and Switch Panel Drill Templates

ICON Single Lever Binnacle Mount Remote Control Drill Template

Drawing to scale
(Print setting at 100%)



ICON Dual Lever Binnacle Mount Remote Control Drill Template

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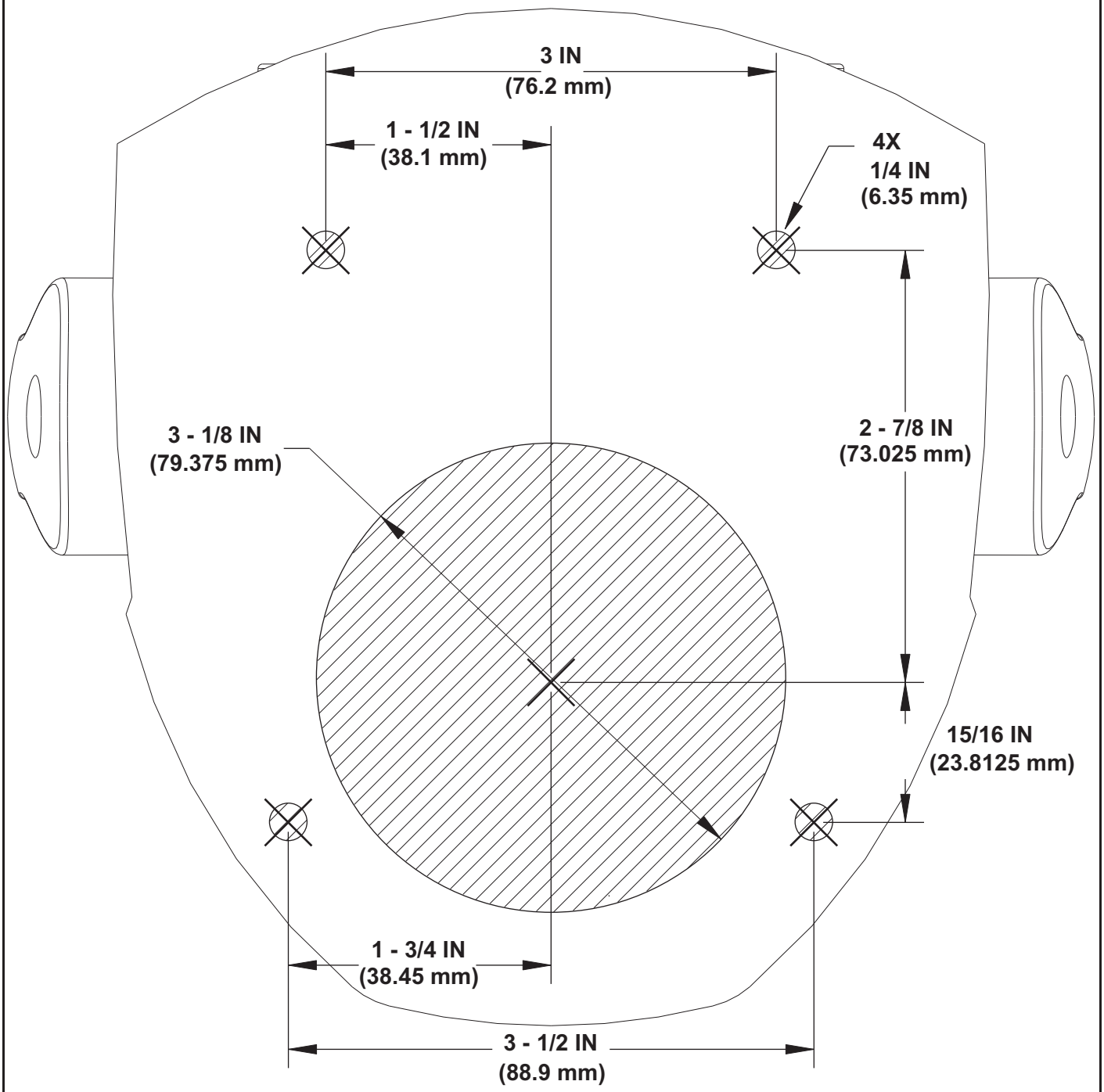

ICON Single Lever Concealed Side Mount Remote Control Drill Template

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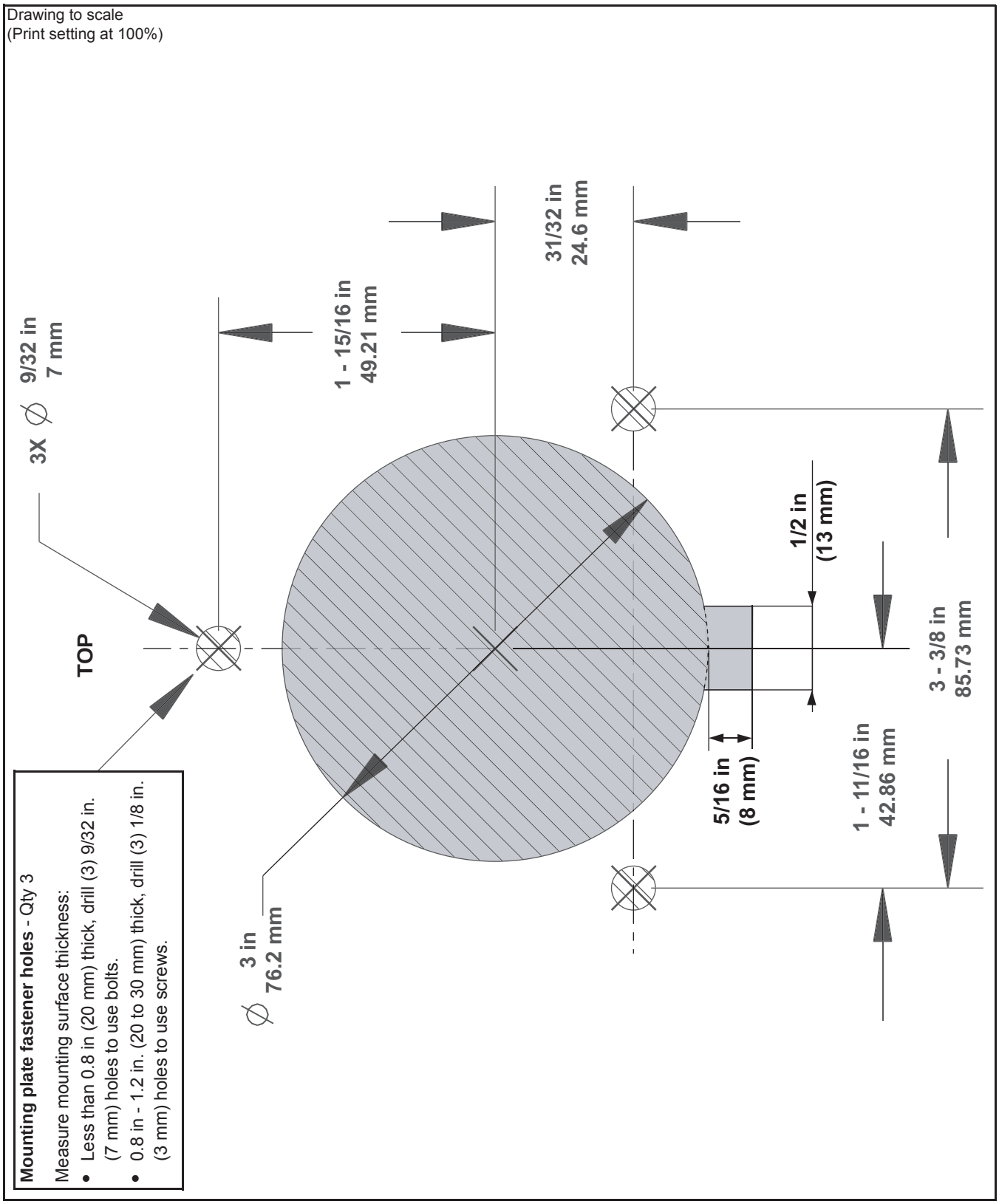
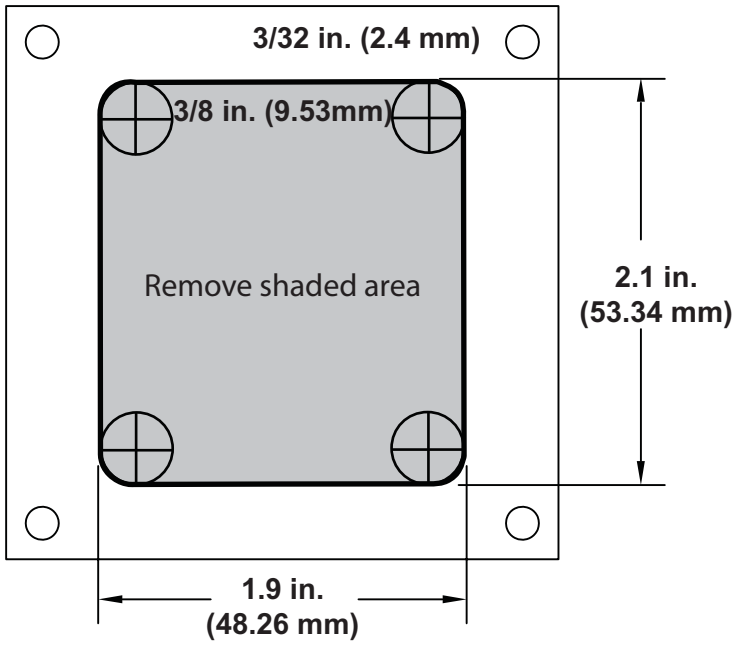


ICON Master Power/Key Switch, P/N 764923, 765371 Drill Template
ICON Emergency Stop Switch, P/N 764924, 765372 Drill Template

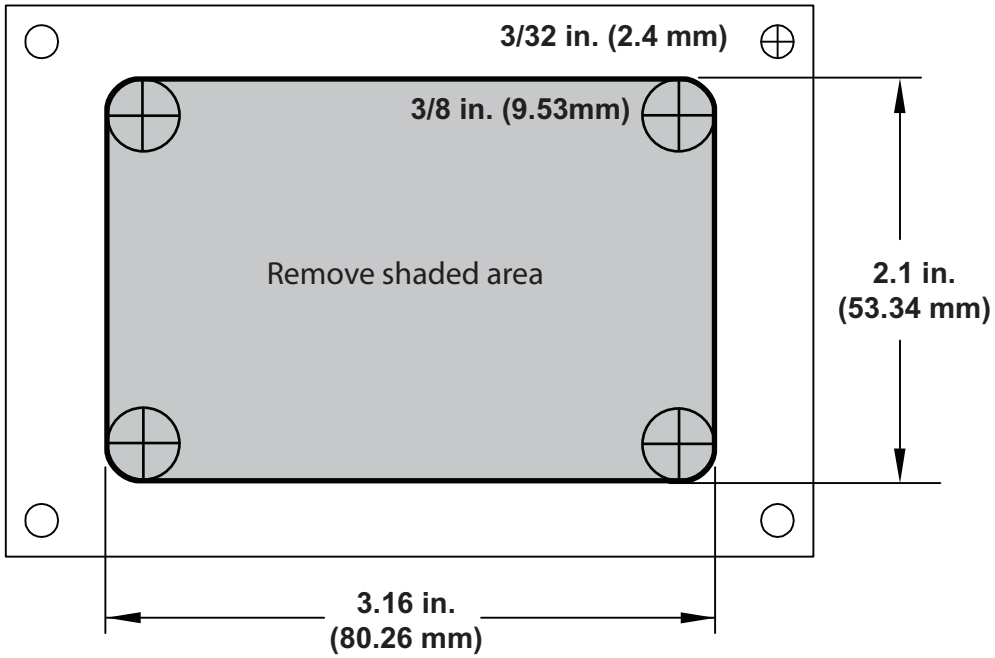
Drawing to scale (Print setting at 100%)



007902

ICON Master Power/Key Switch with Single Start/Stop Switch, P/N 764925, 765373 Drill Template
ICON Emergency Stop Switch with Single Start/Stop Switch, P/N 764931, 765379 Drill Template

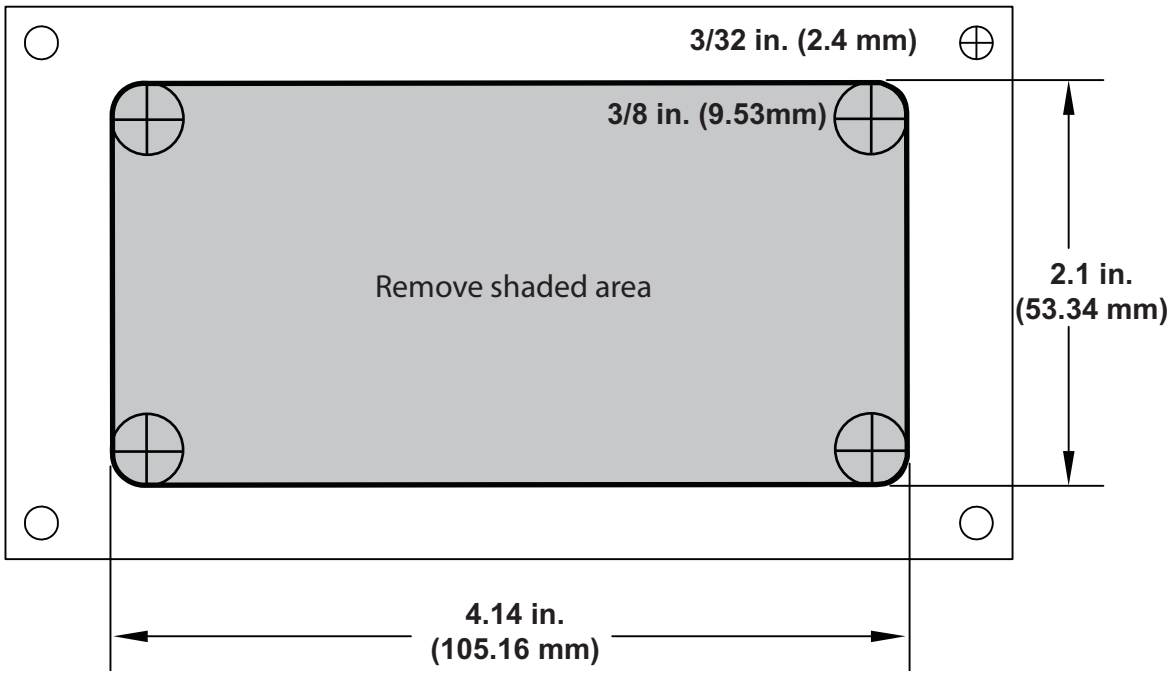
Drawing to scale (Print setting at 100%)



007903

ICON Master Power/Key Switch with Dual Start/Stop Switch, P/N 764926, 765374 Drill Template
ICON Emergency Stop Switch with Dual Start/Stop Switch, P/N 764932, 765380 Drill Template

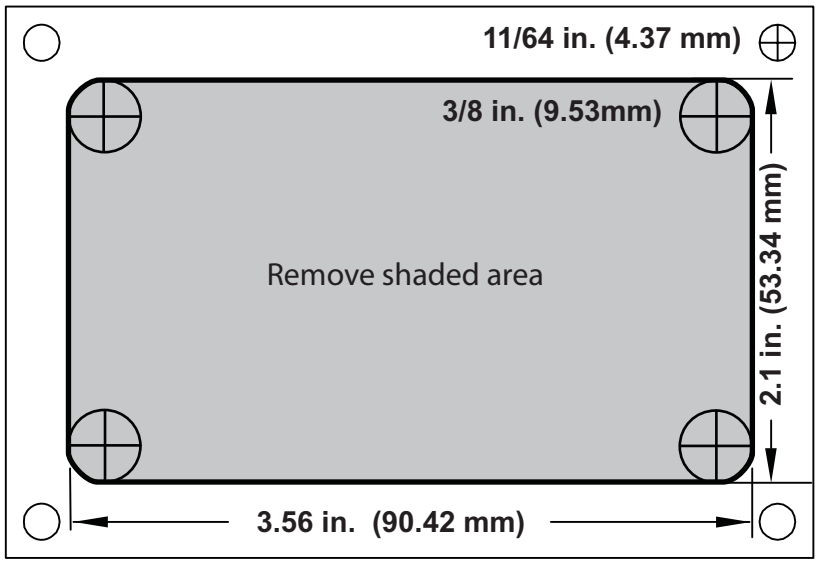
Drawing to scale (Print setting at 100%)



007904

ICON Start/Stop, N, RPM, Switch, P/N 764930, 765378 Drill Template
ICON Start/Stop Switch, 3 engine, P/N 764927, 765375 Drill Template
ICON Trim and Tilt Switch, 3 engine, P/N 764963, 765388 Drill Template

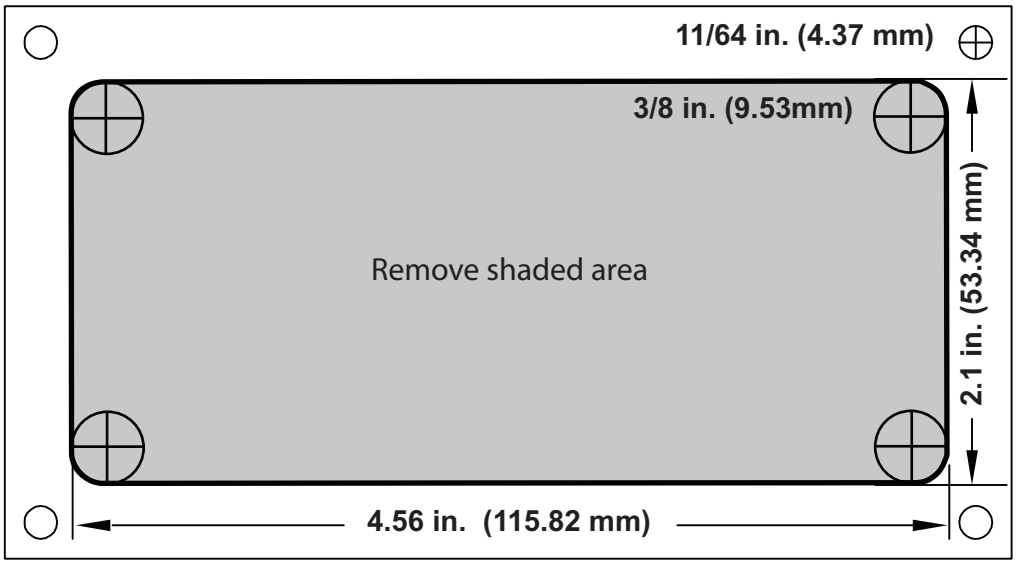
Drawing to scale (Print setting at 100%)



007905

ICON Start/Stop Switch, 4 engine, P/N 764928, 765376 Drill Template
ICON Trim and Tilt Switch, 4 engine, P/N 764964, 765389 Drill Template

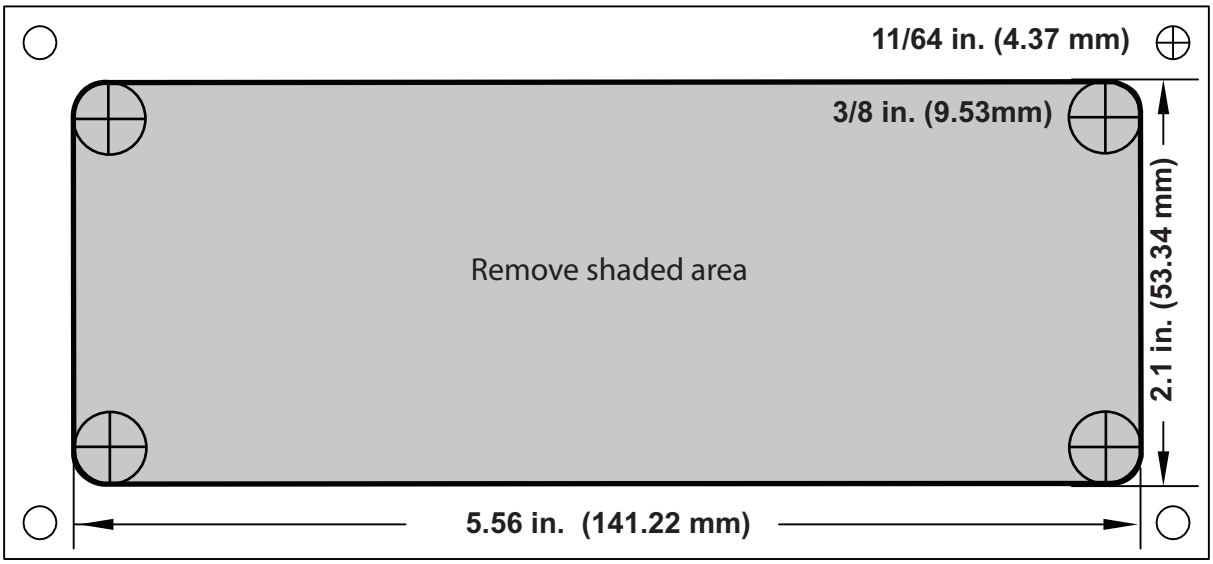
Drawing to scale (Print setting at 100%)



007906

ICON Start/Stop Switch, 5 engine, P/N 764929, 765377 Drill Template
ICON Trim and Tilt Switch, 5 engine, P/N 764965, 765390 Drill Template

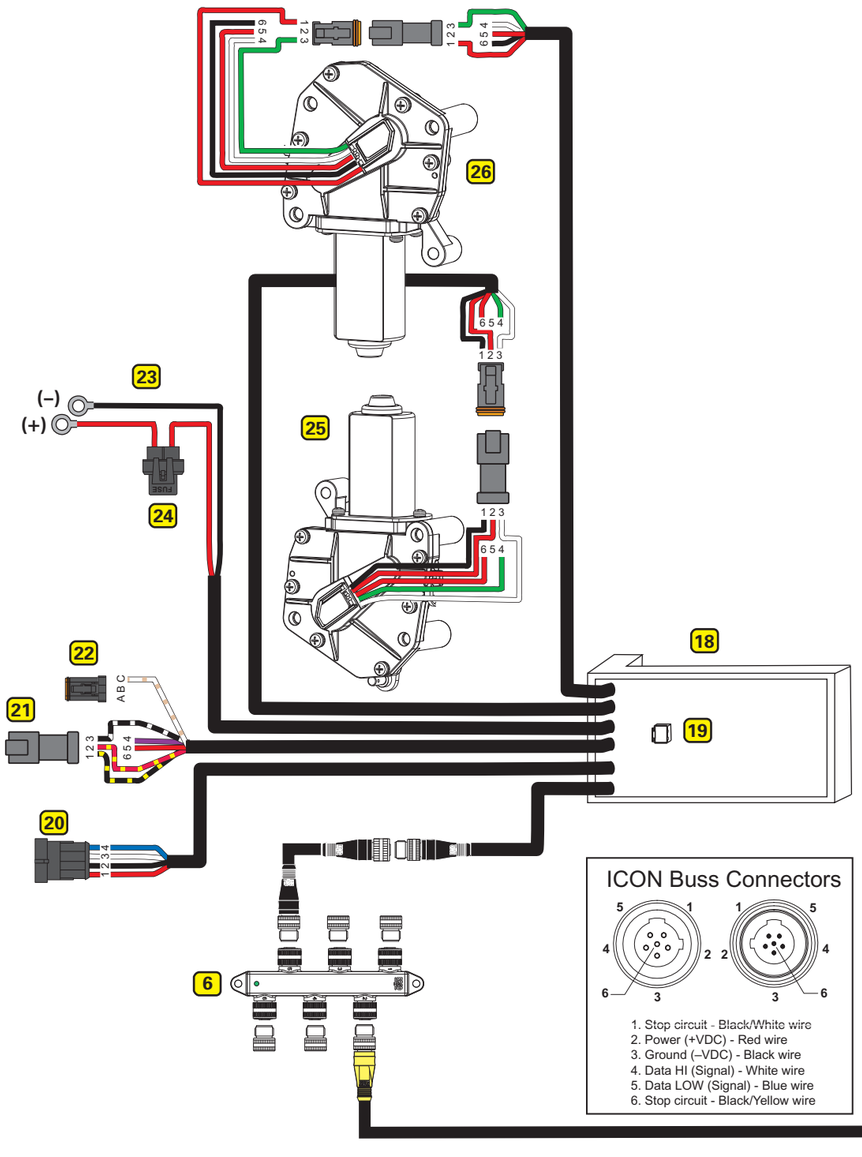
Drawing to scale (Print setting at 100%)

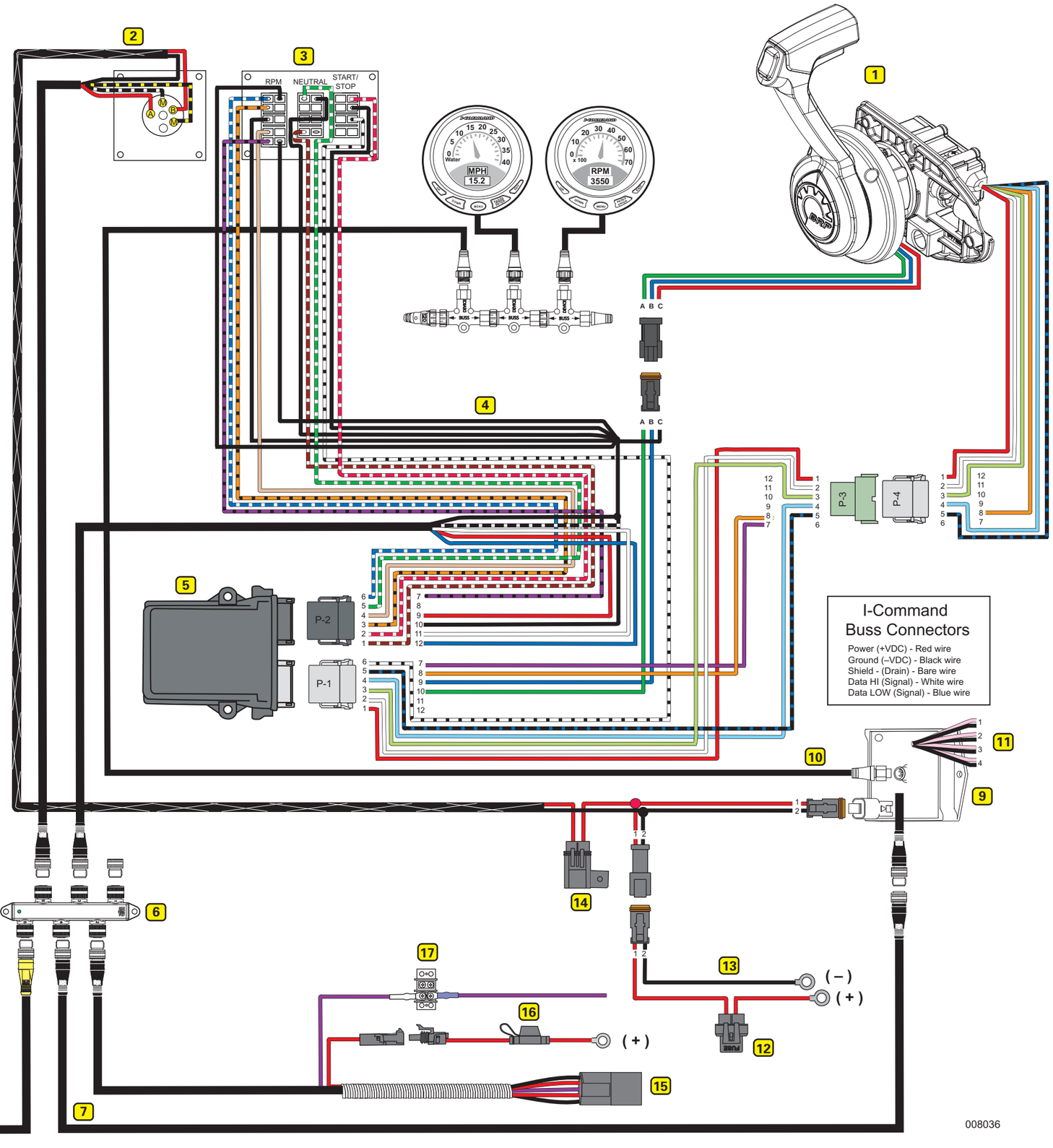


007907

ICON Concealed Side Mount

1. ICON Remote Control Assembly
2. Master Power / Key Switch
3. Switch Panel
4. Wire Harness
5. Control Module
6. ICON Network Hub
7. Buss Cable Extension
8. Buss Cable Backbone
9. Gateway Module and Cable Kit
10. To NMEA 2000 Network / Gauges
11. To Fuel Tank Sender (up to 4)
12. Network Power Cable Fuse, 10A
13. Network Power Cable
14. Master Power Switch Fuse, 3A
15. Accessory Power Relay
16. Accessory Power Relay Fuse, 10A
17. Terminal Block
18. Electronic Servo Module (ESM)
19. Engine Identity Plug
20. To Engine Canbus Connector
21. To Engine Key Switch Connector
22. To Engine Trim / Tilt Connector
23. To Engine Solenoid (NEG)
24. ESM Fuse, 30A
25. Shift Actuator
26. Throttle Actuator

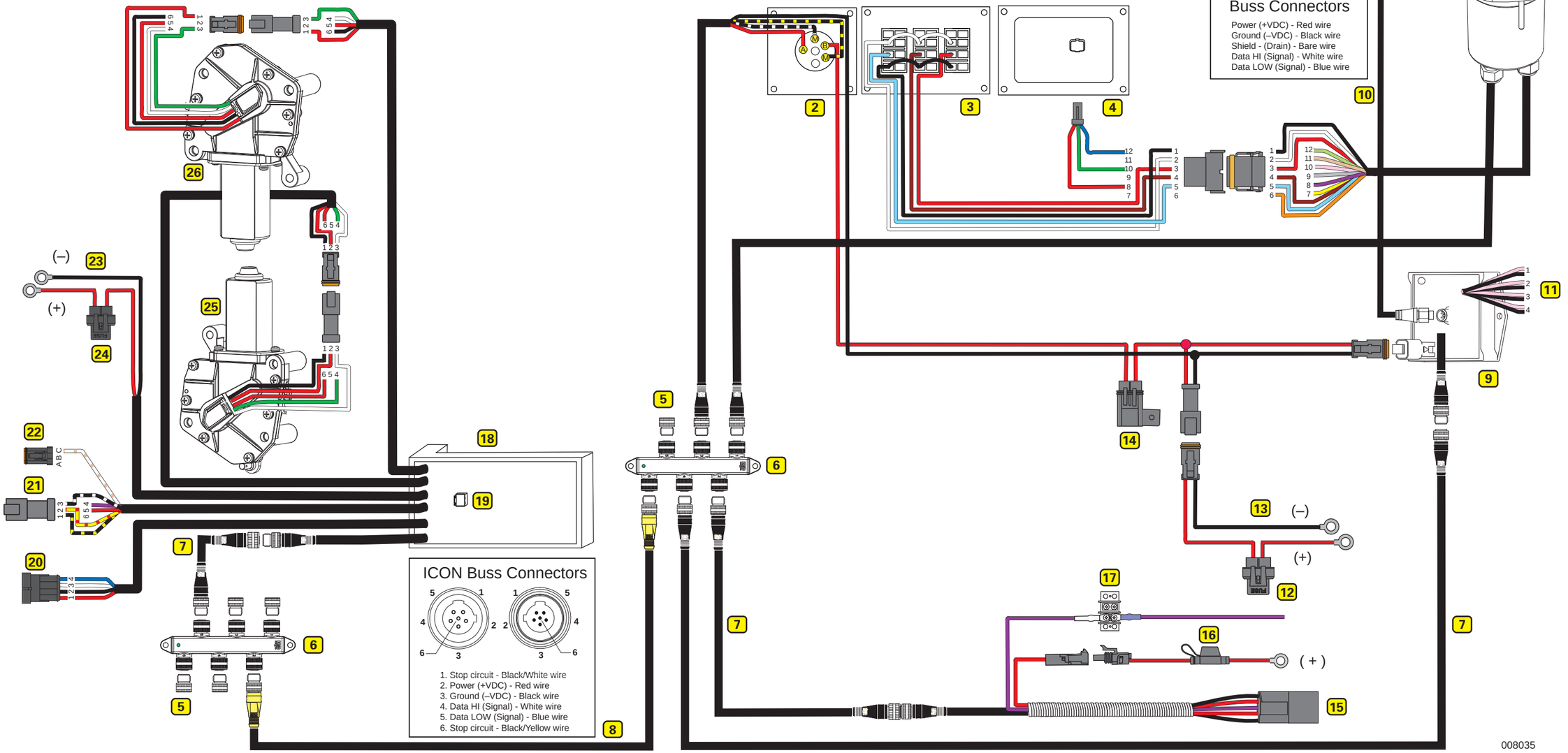


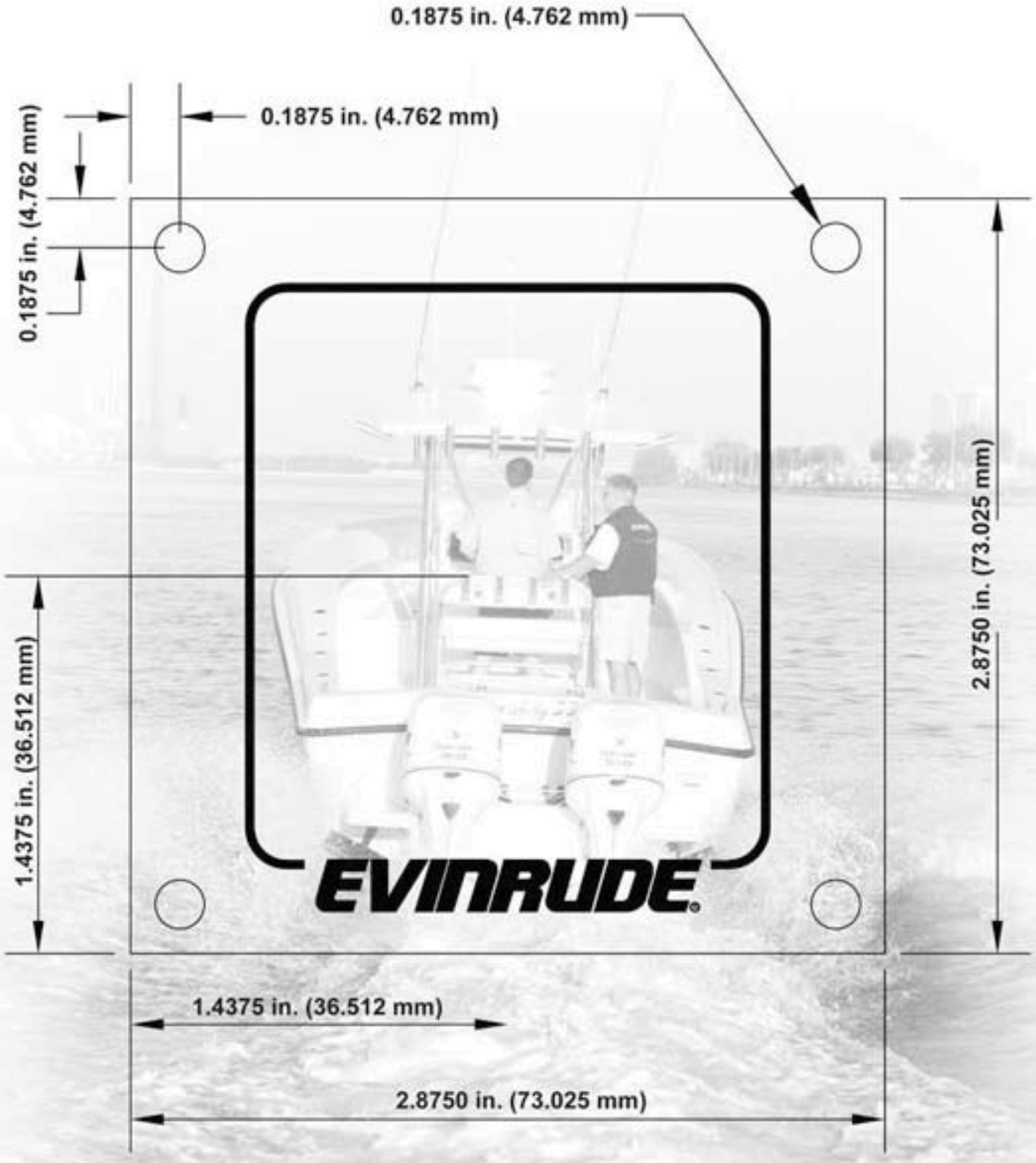


008036

ICON Dual Binnacle Mount

1. ICON Remote Control Assembly
2. Master Power / Key Switch
3. Start/Stop Switch Panel
4. Trim Switch Panel
5. Protective Cap
6. ICON Network Hub
7. Buss Cable Extension
8. Buss Cable Backbone
9. Gateway Module and Cable Kit
10. To NMEA 2000 Network / Gauges
11. To Fuel Tank Sender (up to 4)
12. Network Power Cable Fuse, 10A
13. Network Power Cable
14. Master Power Switch Fuse, 3A
15. Accessory Power Relay
16. Accessory Power Relay Fuse, 10A
17. Terminal Block
18. Electronic Servo Module (ESM)
19. Engine Identity Plug
20. To Engine Canbus Connector
21. To Engine Key Switch Connector
22. To Engine Trim / Tilt Connector
23. To Engine Solenoid (NEG)
24. ESM Fuse, 30A
25. Shift Actuator
26. Throttle Actuator




0.1875 in. (4.762 mm)
0.1875 in. (4.762 mm)
0.1875 in. (4.762 mm)
2.8750 in. (73.025 mm)
1.4375 in. (36.512 mm)
EVINRUDE
1.4375 in. (36.512 mm)
2.8750 in. (73.025 mm)