

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* gauge system.

This booklet uses the following signal words identifying important safety messages.

A DANGER

Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

A WARNING

Indicates a potentially hazardous situation which, if not avoided, CAN result in severe injury or death.

A CAUTION

Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate personal injury or property damage. It also may be used to alert against unsafe practices.

IMPORTANT: Identifies information that will help prevent damage to machinery and appears next to information that controls correct assembly and operation of the product.

These safety alert signal words mean: ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! Always follow common shop safety practices. If you have not had training related to common shop safety practices, you should do so to protect yourself, as well as the people around you.

It is understood that this booklet may be translated into other languages. In the event of any discrepancy, the English version shall prevail.

DO NOT perform any installation until you have read the instructions and checked the pictures relating to the installation procedures.

Be careful, and never rush or guess a service procedure. Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity with the product, and drugs and alcohol use, to name a few. Damage to a boat and outboard can be fixed in a short period of time, but injury or death has a lasting effect.

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

Torque wrench tightening specifications must be strictly followed. Replace any locking fastener (locknut or patch screw) if its locking feature becomes weak. Definite resistance to turning must be felt when reusing a locking fastener. If replacement is specified or required because the locking fastener has become weak, use only authorized *Evinrude/Johnson Genuine Parts*.

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

The following trademarks are the property of Bombardier Recreational Products Inc. or its affiliates.Evinrude®I-Command™Evinrude® E-TEC®Johnson®

† NMEA 2000 is a registered trademark of the National Marine Electronics Association or its subsidiaries.

† DeviceNet is a registered trademark ODVA.

† Deutsch is a registered trademark of The Deutsch Company.

© 2011 BRP US Inc. All rights reserved.

TM, ®, and the BRP logo are registered trademarks of Bombardier Recreational Products Inc. or its affiliates.

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.

A 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.

ICON Gauge Installation Guide

ICON GAUGE INSTALLATION GUIDE TABLE OF CONTENTS

TABLE OF CONTENTS

ICON Gauge Kits	5
5 in. (127 mm) Pro Series Tachometer and Speedometer	5
3.5 in. (89 mm) Pro Series Tachometer and Speedometer	5
5 in. (127 mm) 3-n-1 Series	6
3.5 in. (89 mm) Basic Series	
2 in. (51 mm)	7
Network Connections	8
Multiple Gauges	8
Warning Horns	8
Pressure Ports	8
Network Power and Grounds	8
Network Connectors	8
Network Reference Diagrams	9
Electronic Remote Control Network	9
Mechanical Remote Control Network with the I-Command Ignition and Trim/Tilt Harness	10
Mechanical Remote Control Network with the SystemCheck Harness	11
Gauge Dimensions	12
Drilled Hole Sizes	12
Instrument Panel Clearances	13
Gauge Spacing (center to center)	
Instrument Panel Thickness	
Hole Sizes	13
Fastening the Gauge	13
Gauge Back Clamp Kits	
Weather Plugs	
Tachometer Harness	15
Tachometer Harness 12 Socket Plug Connector Detail	
Tachometer Harness NMEA 2000 Connector Detail	
Tachometer Harness Gauge Buss Connector Detail	16
Tachometer to speedometer harness connection	16
Tachometer harness connection to 2 in. gauge	
Tachometer Harness Power Connection and Analog Inputs	18
Speedometer Harness	
Speedometer Harness 12 Socket Plug Connector Detail	
Speedometer Harness Gauge Buss Plug Connector Detail	
Speedometer Harness Gauge Buss Receptacle Connector Detail	
2 in. Gauge Harness	21
2 in. Gauge Harness Installation	21
Analog Input Harness	22
Analog Input Harness Installation to Auxiliary Fuel Tanks	22
ICON Gauge Backlight Adjustment Kit	23
Backlight Adjustment Kit Installation	
NMEA 2000 ACCESSORIES	24

ICON Gauge Kits

5 in. (127 mm) Pro Series Tachometer and Speedometer



Ref	P/N	Name of Part	Qty
1	766162	TACHOMETER, ICON Pro with LCD, 5 in Black	1
1	766185	TACHOMETER, ICON Pro with LCD, 5 in White	1
2	766170	SPEEDOMETER 80 MPH, ICON Pro with LCD, 5 in Black	1
NS	766169	SPEEDOMETER 50 MPH, ICON Pro with LCD, 5 in Black	1
2	766193	SPEEDOMETER 80 MPH, ICON Pro with LCD, 5 in White	1
NS	766192	SPEEDOMETER 50 MPH, ICON Pro with LCD, 5 in White	1

3.5 in. (89 mm) Pro Series Tachometer and Speedometer



NS	766167	SPEEDOMETER 50 MPH, ICON Pro with LCD, 3.5 in Black
2	766191	SPEEDOMETER 80 MPH, ICON Pro with LCD, 3.5 in White

NS 766190 SPEEDOMETER 50 MPH, ICON Pro with LCD, 3.5 in. - White

1

1

ICON GAUGE INSTALLATION GUIDE ICON GAUGE KITS

5 in. (127 mm) 3-n-1 Series



			۹.,
1	766160	TACHOMETER, ICON Basic Multi Function with Temp and Trim, 5 in Black	1
1	766183	TACHOMETER, ICON Basic Multi Function with Temp and Trim, 5 in White	1
2	766166	SPEEDOMETER 80 MPH, ICON Basic Multi Function with Fuel and Volt, 5 in Black	1
2	766189	SPEEDOMETER 80 MPH, ICON Basic Multi Function with Fuel and Volt, 5 in White	1

3.5 in. (89 mm) Basic Series



Ref	P/N	Name of Part	Qty
1	766159	TACHOMETER, ICON Basic Single Function, 3.5 in Black	1
1	766182	TACHOMETER, ICON Basic Single Function, 3.5 in White	1
2	766165	SPEEDOMETER 80 MPH, ICON Basic Single Function, 3.5 in Black	1
NS	766164	SPEEDOMETER 50 MPH, ICON Basic Single Function, 3.5 in Black	1
NS	766163	SPEEDOMETER 30 MPH, ICON Basic Single Function, 3.5 in Black	1
2	766188	SPEEDOMETER 80 MPH, ICON Basic Single Function, 3.5 in White	1
NS	766187	SPEEDOMETER 50 MPH, ICON Basic Single Function, 3.5 in White	1
NS	766186	SPEEDOMETER 30 MPH, ICON Basic Single Function, 3.5 in White	1

2 in. (51 mm)

	10 20 0 +0+30 447ER PRES 1	$ \begin{array}{c} \begin{array}{c} \end{array}{}\\ \end{array} \\ \end{array} \\ 2 \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ 3 \\ \end{array} \\ \begin{array}{c} \end{array} \\ 4 \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} $ } \\ \end{array}		
Ref	P/N	Name of Part		008608
1		WATER PRESSURE, 30 PSI, 2in Black	А	Qty 1
1		WATER PRESSURE, 30 PSI, 2in White	A	1
-		WATER PRESSURE, 60 PSI, 2in Black	В	1
-		WATER PRESSURE, 60 PSI, 2in White	В	1
NS	5008300	WATER PRESSURE SENSOR KIT, 30 PSI		1
		WATER PRESSURE SENSOR KIT, 60 PSI		1
2		TRIM, 2 in Black		1
2		TRIM, 2 in White		1
3		OIL LEVEL, 2 in Black	C	1
3		OIL LEVEL, 2 in White	С	1
NS 4		*SINGLE ENGINE OIL LEVEL SENDING UNIT KIT, 1.8 Gal tank		1
4		WATER TEMPERATURE, Engine, 2 in Black WATER TEMPERATURE, Engine, 2 in White		1
4 5		FUEL LEVEL, Tank 1, 2 in Black		1
-		FUEL LEVEL, Tank 2, 2 in Black		1
5		FUEL LEVEL, Tank 1, 2 in White		1
-		FUEL LEVEL, Tank 2, 2 in White		1
-		FUEL LEVEL, Auxiliary Tank (Tank 3), 2 in White	D	1
NS		*HARNESS, Analog Input		1
6	766179	VOLT, Battery 1, 2 in Black		1
-		VOLT, Battery 2, 2 in Black		1
-		VOLT, Battery 3, 2 in Black		1
6		VOLT, Battery 1, 2 in White		1
-		VOLT, Battery 2, 2 in White		1
-		VOLT, Battery 3, 2 in White	-	1
NS NS		PLUG, Weather PLUG, Weather	E F	1
NS		HARNESS, 2 in. Gauge to Gauge, 12 in. (30 cm)	E	1
NS		INSTRUCTION SHEET, ICON Gauge	E, F	1
		-	<u> </u>	
A	-	water pressure sensor kit, 30 psi, P/N 5008300 water pressure sensor kit, 60 psi P/N 5008640		
В	requires	water pressure sensor kit, ou psi rin suuou40		

C Includes single engine oil level sending unit kit (1.8G tank), P/N 764271

- D Includes analog input harness, P/N 765510
- *E* Included with 2 in. gauges
- **F** Included with tachometers and speedometers

Network Connections

Read the ICON Gauge User's Guide, P/N 766075, prior to network assembly.

ICON gauges can be installed with electronic or mechanical remote control networks and are compatible with "*DeviceNet*" and "*NMEA 2000*" networks.

Connect ICON gauge components to a new or existing:

- Electronic Remote Control Network
- Mechanical Remote Control Network with the I-Command Ignition and Trim/Tilt harness
- Mechanical Remote Control Network with the SystemCheck harness

See Network Reference Diagrams on pages 9, 10, and 11.

Multiple Gauges

Any *ICON* tachometer can be assembled with it's equal *ICON* speedometer or any number of *ICON* 2 inch accessory gauges.

Warning Horns

All *ICON* tachometers and speedometers have internal warning horns. The warning horns have a resonant frequency of 4200 +/- 500 Hz. The sound level is 95 db at 30 cm.

The warning horn will sound:

- For one second each time power is turned ON for the system
- For customized warnings such as fluid level or trim level. See the *ICON* gauge user's manual, P/N 766075, for a complete list of customized warnings
- When an error message is initiated by the EMM of the engine
- For engine gear position changes
- For each button press on the PRO tachometer or PRO speedometer

The warning horn feature can be enabled or disabled within the audio menu of the PRO tachometer or PRO speedometer gauge.

IMPORTANT: The horn included with the *SystemCheck* harness is not used with *ICON* gauge networks.

Pressure Ports

ICON Basic and *ICON* 3-n-1 tachometers have pressure ports which are used to support pitot speed input. *ICON* PRO tachometers do NOT have pressure ports.

Network Power and Grounds

Identify which battery supplies power to the system. Connect all power supply batteries in parallel.

For electronic remote control networks, connect the tachometer purple power wire (pin 5) to the accessory power terminal block. See **Electronic Remote Control Network** on p. 9.

Ground the *ICON* gauge system directly to the negative terminal of the PRIMARY or power supply battery.

See BATTERY INSTALLATION in the current *Evinrude E-TEC* Predelivery and Installation Guide.

Network Connectors

Apply Dielectric Grease only to the seals of network connectors.

ICON GAUGE INSTALLATION GUIDE NETWORK REFERENCE DIAGRAMS

Network Reference Diagrams

Electronic Remote Control Network



ICON GAUGE INSTALLATION GUIDE NETWORK REFERENCE DIAGRAMS

Mechanical Remote Control Network with the *I-Command* Ignition and Trim/Tilt Harness





Mechanical Remote Control with the SystemCheck Ignition Harness

ICON GAUGE INSTALLATION GUIDE NETWORK REFERENCE DIAGRAMS

Gauge Dimensions



Instrument Panel Clearances

Gauge Spacing (center to center)

- 5 3/8 in. (144 mm) between 5 in. instruments
- 4 1/8 in. (105 mm) between 5 in. instruments and 2 in. instruments
- 3 15/16 in. (100 mm) between 3.5 in. instruments
- 3 1/4 in. (83 mm) between 3.5 in. instruments and 2 in. instruments
- 2 3/4 in. (70 mm) between 2 in. instruments

Instrument Panel Thickness

One inch (26 mm) maximum.

Hole Sizes

IMPORTANT: Check space behind panel for adequate instrument clearance.

- 4 3/8 in. (111 mm) for 5 in. instruments
- 3 3/8 in. (86 mm) for 3.5 in. instruments
- 2 1/16 in. (53 mm) for 2 in. instruments

Fastening the Gauge

Insert instrument into panel hole. Install back clamp, washers and wing nuts. Tighten wing nuts finger tight.

Gauge Back Clamp Kits



C Included with 5 in. gauge

ICON GAUGE INSTALLATION GUIDE FASTENING THE GAUGE

Weather Plugs

Install weather plugs to seal open receptacles.



B Included with 2 in. gauges

Tachometer Harness

IMPORTANT: Required power connections for all tachometers:

- Black Gauge Ground wire (pin 4) to ground
- Purple Gauge Power wire (pin 5) to accessory switched B+
- 5-pin NMEA 2000 connector to a NMEA 2000 backbone t-connector



A Included with tachometer gauge

Tachometer Harness 12 Socket Plug Connector Detail



Tachometer Harness NMEA 2000 Connector Detail



Tachometer Harness Gauge Buss Connector Detail



Tachometer to speedometer harness connection:

This connection is REQUIRED when a speedometer is installed on the gauge buss.

Connect the 12-pin connector to the tachometer.

Connect the 4-socket plug to the 4-pin receptacle of the speedometer harness.

ICON GAUGE INSTALLATION GUIDE TACHOMETER HARNESS

Connect the 5-pin NMEA 2000 connector to the device port of a t-connector on the NMEA 2000 network.



1. 12-pin connector

- 2. Tachometer
- 3. 4-socket plug
- 4. 4-pin receptacle
- 5. 5-pin NMEA 2000 connector
- 6. T-connector
- 7. Speedometer

Tachometer harness connection to 2 in. gauge:

This connection is required when a speedometer is NOT installed on the gauge buss.

Connect the 12-pin connector to the tachometer.

Connect the 4-socket plug to position B on the 2 in. gauge.

Connect the 5-pin NMEA 2000 connector to the device port of a t-connector on the NMEA 2000 network.



1. 12-pin connector

- 2. Tachometer
- З. 4-socket plug
- 4. 2 in. gauge
- 5. 5-pin NMEA 2000 connector
- 6. T-connector

008617

Tachometer Harness Power Connection and Analog Inputs

Power connections are required for each tachometer, analog input connections are optional.

Pro Series Gauge

Required power connections:

- Black **Ground** wire (pin 4) to ground
- Purple Power wire (pin 5) to accessory switched B+
- 5-pin NMEA 2000 connector to a NMEA 2000 backbone t-connector

Optional analog inputs: Fuel, Ballast, Baitwell, Fresh Water, Gray Water, and Black Water Levels; Rudder and Trim Position.

Optional analog input connections:

- White Analog IN 1 wire (pin 6) to analog device signal wire
- White Analog IN 2 wire (pin 7) to analog device signal wire
- White Analog IN 3 wire (pin 8) to trim signal wire

Basic or 3-n-1 Series Gauges

Required power connections:

- Black **Ground** wire (pin 4) to ground.
- Purple Power wire (pin 5) to switched B+
- 5-pin NMEA 2000 connector to the NMEA 2000 backbone t-connector

Optional analog inputs: Fuel Tank 1, Trim, and Fuel Tank 2.

Optional analog input connections:

- White Analog IN 1 wire (pin 6) to fuel tank 1 signal wire
- White Analog IN 2 wire (pin 7) to trim signal wire
- White Analog IN 3 wire (pin 8) to fuel tank 2 signal wire

Installation for Analog Inputs



1. Tachometer Harness

008619

Speedometer Harness

Power connections are not required for the speedometer. Power is supplied to the speedometer directly from it's connection to the tachometer harness.



A Included with speedometer gauge

Speedometer Harness 12 Socket Plug Connector Detail



Speedometer Harness Gauge Buss Plug Connector Detail



Speedometer Harness Gauge Buss Receptacle Connector Detail



Speedometer Harness Installation

Connect the 12-pin connector to the speedometer. Connect the 4-socket plug to position B on the 2 in. gauge. Connect the 4-pin receptacle to the 4-socket plug on the tachometer harness.



1. 12-pin connector

2. Speedometer

3. 2 in. gauge

4. Tachometer harness

2 in. Gauge Harness

Use the 2 in. gauge to gauge harness to connect 2 in. gauges together.

	1	
	A A - Gauge Buss Power - Red B B - Gauge Buss Data - White C C C D D - Gauge Buss Ground - Black/Shield	A B C D
		008611
Ref P/	N Name of Part	Qty
1 765	12 HARNESS, 2 in. Gauge, 12 in. (30 cm)	A 1
- 765	14 HARNESS, 2 in. Gauge, 24 in. (61 cm)	1
- 764	15 HARNESS, 2 in. Gauge, 30 in. (76 cm)	1

A Included with 2 in. gauge

2 in. Gauge Harness Installation

Connect one 4-socket plug to position A connector on the first 2 in. gauge.

Connect the opposite plug to position B connector on the second two 2 in. gauge.

Continue connecting additional harnesses from position A to position B as required for each 2 in. gauge on the network.



- 3. Opposite plug
- 4. Second 2 in. gauge

Analog Input Harness

Install this harness with ICON PRO tachometers to connect auxiliary fuel tank analog inputs.

Install with ICON Basic and ICON 3-n-1 tachometers to connect the Backlight Adjustment Kit, P/N 766108. See ICON Gauge Backlight Adjustment Kit on p. 23.

Install this harness with ICON Basic and ICON 3-n-1 tachometers in dual engine applications to assign a gauge to the starboard engine:

- Connect the harness to the required tachometer gauge
- Connect Analog IN 5 (pin-3) to ground

This allows the selected tachometer to display information for the starboard engine.



Analog Input Harness Installation to Auxiliary Fuel Tanks

Connect Analog IN 4 (pin-4) from harness to fuel tank #3 pink signal wire.

Connect Analog IN 5 (pin-3) from harness to fuel tank #4 pink signal wire.

Connect 6-socket plug of the analog input harness to the ICON PRO tachometer.



Analog IN 5 (pin-4) 2.

З. Six socket plug 4. ICON PRO tachometer

ICON Gauge Backlight Adjustment Kit

The *ICON* Basic and *ICON* 3-n-1 tachometers do not have an internal backlight adjustment feature. Install this kit with *ICON* Basic and *ICON* 3-n-1 tachometers to control backlight adjustment.

IMPORTANT: The backlight adjustment feature for *ICON* PRO tachometers is an internal function of the gauge. This kit is not used with *ICON* PRO tachometers.



Backlight Adjustment Kit Installation

Select a mounting location which is not exposed to elements of the weather.

Drill one 7/16 in. (11 mm) hole in dash. Install lighting dimmer switch through back of dash.

Install washer and base nut, tighten 10 to12 inch pounds (1 to 1.5 N·m).

Install knob-spacer nut and adjustment knob, tighten 10 to 12 inch pounds (1 to 1.5 N·m).

Connect **red and white** wires to Analog Input 5 (pin-4) of the analog input harness. Connect black wire to ground (negative terminal of the *ICON* gauge system power supply battery).

Connect the 6-socket plug of the analog input harness to the ICON Basic or ICON 3-n-1 tachometer.



NMEA 2000 ACCESSORIES

NMEA 2000 accessories available for interface to the ICON gauges.

Connect NMEA 2000 accessories to the device port of a t-connector on the NMEA 2000 network.

Description of Kit	P/N
Triducer, transom mount, Speed/Depth/Temp	764671
Triducer, thru-hull, Plastic, Speed/Depth/Temp	764673
Transducer, transom mount, Depth/Temp (no speed)	764672
GPS Receiver/antenna	765349
SOW Paddle Wheel Kit	764193
Oil Tank Level Kit, 1.8 Gallon – one engine one oil tank (instance 0)	764271
Oil Tank Level Kit, 1.8 Gallon – two engines two oil tanks (instance 0 and 1)	764273
Oil Tank Level Kit, 3.0 Gallon – one engine one oil tank (instance 0)	764272
Oil Tank Level Kit, 3.0 Gallon – two engines two oil tanks (instance 0 and 1)	764274
Oil Tank Level Kit, 3.0 Gallon – three engines three oil tanks (instance 0, 1 and 2)	764275
Oil Tank Level Converter Kit, 10 Gallon – one oil tank (instance 0)	763737
Block-Mounted Engine Water Pressure Sensor Kit 30 psi	5008300
Block-Mounted Engine Water Pressure Sensor Kit 60 psi	5008640
NMEA 2000 Single Engine Water Pressure Kit	765038
NMEA 2000 Dual Engine Water Pressure Kit	765045
NMEA 2000 Triple Engine Water Pressure Kit	765046





