Tachometer & Trim Combination Gauge 110mm

Tech Support 1-800-265-1818
http://usa.vdo.com

Instruction Sheet # A2C59519669 Rev. -

NOTE: Failure to use an isolated ground will cause inaccurate gauge readings and/or erratic operation!

Gauge Installation:

1. Select the desired mounting location of the instrument.
2. Depending on your mounting situation it might be necessary to configure the gauge before installation.
3. Mount the gauge and secure with the VDO Spin-Lok™ Clamp.

(See page 6 for mounting options and instructions)

Wiring the Gauge (Illustration A):

1. Route wires from the instrument to:
   (a) The battery (+) constant power after the fuse box or user supplied in-line fuse – 5 amp fast-blow.
   (b) The battery (+) after the ignition switch and after the fuse box or user supplied in-line fuse – 1 amp fast-blow.
   (c) The light switch after the fuse box or user supplied in-line fuse -1 amp.
   (d) A dedicated ground location, such as the engine block or negative side of the battery. **DO NOT USE A SHARED GROUND WITH ANY OTHER ELECTRONICS.**
   (e) Signal source – (Tachometer) Ignition coil negative terminal, Alternator "W" terminal, grey tachometer signal wire or outboard engine alternator
   (f) Signal source – (Trim Gauge) outdrive or outboard trim sender

2. Connect the harness according to the following wiring Matrix:

	8 Pin Connector (A)
Pin	**Description**
1	Red - Battery constant (+12V)
2	Black - Ground
3	Blue/Black – Tachometer Sender Signal (-)
4	Brown - Battery switched (+12V)
5	Green – Tachometer Sender Signal (+)
6	Blue/Red - Illumination (+12V)
7	Yellow/Black – Trim Sender (-)
8	Yellow/Red – Trim Sender Signal (+)
	Note: 14 pin connector (B) is not used
Use 18 AWG wire for wire harness	

Read these instructions thoroughly before installation. Do not deviate from assembly or wiring diagram. Always disconnect battery ground before making any electrical connections.

Parts List

Item	Description	Qty
1	110mm Gauge	1
2	Spin-Lok™ Clamp	1
3	Gasket	1
4	8 pin Harness*	1
5	Instruction Sheet	1

**Not included in bulk packaging*

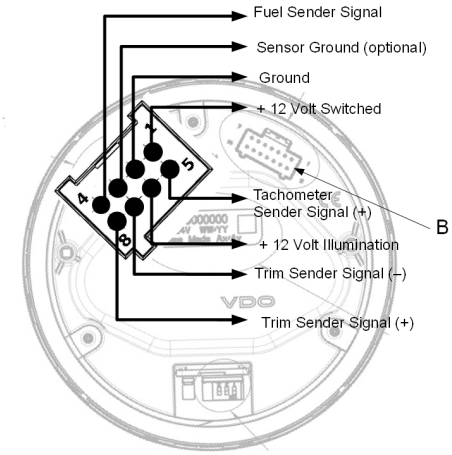


Illustration A

When installing the gauge into an existing harness, see the enclosed ABYC Wire Code chart (A2C59519389) to determine the correct wire to splice into.

Dip Switch Setting (Illustrations B and C)

1. Set the impulse number according to the following table.
2. Ensure that switch position "ON" points toward the center of the instrument.

Pulses per Revolution	Switch 1	Switch 2	Switch 3
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
8	ON	ON	ON
Program via Software*	OFF	OFF	OFF

See the following pages to determine the number of pulses required.

Tachometer Signal from Ignition Coil, 4 stroke gasoline engines only (Illustration D)

The number of pulses are, in most applications, ½ the number of cylinders.

Most 4 cylinder applications = 2 pulses/revolution
Most 6 cylinder applications = 3 pulses/revolution
Most 8 cylinder applications = 4 pulses/revolution

Note: In some special applications, your number of pulses may not be ½ the number of cylinders and will require a different Dip Switch setting.

Most late model boats will have a grey tachometer signal wire in the dashboard or engine compartment. If there is no grey signal wire, the tachometer signal can be obtained from the (-) negative side of the ignition coil as shown (Illustration D)

These applications will require the gauge to be programmed by the selling dealer

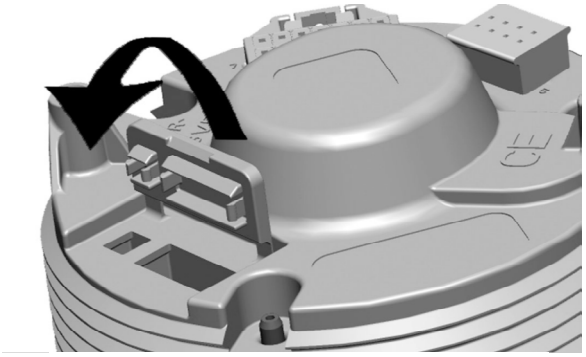


Illustration B

Illustration C

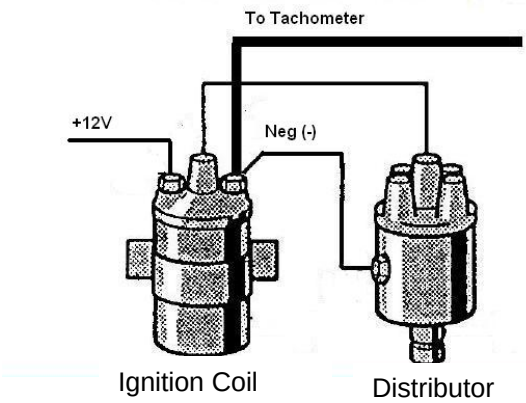


Illustration D

Important: In applications where the tachometer signal from the alternator is not a whole number or is greater than 8 pulses per revolution, it will be necessary to have your tachometer programmed via VDO software by the store or dealer that you purchased it from (the software is *not* available for purchase). If you require your tachometer to be programmed by the store or dealer, the Dip Switches must be set to OFF/OFF/OFF.

Tachometer Signal from Alternator (Illustration E)

See below formula to determine the number of pulses per revolution from your alternator. You will be required to know the number of poles your alternator has in order to complete the calculation.

Divide the diameter of the crankshaft pulley (ØA) by the diameter of the alternator pulley (ØB). Multiply the result by ½ the number of poles in the alternator:

Pulses = (ØA /ØB) x (1/2 x # of poles)

The number of poles in your alternator can be obtained from the manufacturer of the alternator.

If you know the frequency (Hz) of the alternator signal at a given RPM, you can calculate the number of pulses per revolution:

$$\text{Pulses} = \frac{\text{Hz at know RPM x 60}}{\text{The Known RPM}}$$

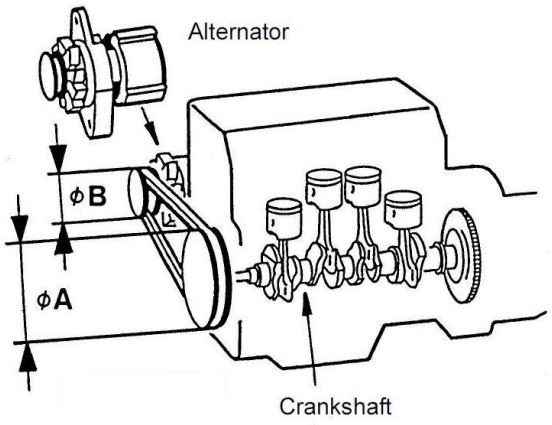


Illustration E

Tachometer Signals for Outboard Engines

For outboard engines, find your make, model & year and the associated number of signal pulses

MAKE	YEAR	MODEL	ALTERNATOR # OF POLES	Number of Pulses
Chrysler	1968-83	All	12	6
	Except	55hp&60hp	20	10*
Evinrude/Johnson	Up to 2008	All V Models 3 Cylinder Engines	12	6
	Except 1996-2004	2 cylinder 9.9-35hp	10	5
	Except 1977-1991	2 cylinder 4-35hp	10	5
	Except 2005 & newer	2 cylinder 4-35hp	10	5
	Except 1971-1976	2 cylinders 40-60hp	10	5
	Except 2001 or newer	9.9-15hp 4 stroke	6	3
Force	1984-1999	All	12	6
	Except 1987 & older	50hp (A,B models)	8	4
	Except 1994 & older		20	10*
Honda	2008 and older		4	2
	2005 & older	BF35/ 45 BF40/50	6	3
		BF 8D/9.9D BF 15D/20D including power thrust models	12	6
NOTE : 2008 & older tiller models require Honda harness 32197-ZH8-003 . 2005 & older 40/50HP before require 06383-ZV5-316 tach kit				
Mercury/Mariner	1977-2008	All	12	6
	Except 1999 & older	8,9.9 hp	6	3
	Except 2002 & newer	8 & 9.9 hp	6	3
		All 50 hp 4 stroke	6	3
	Except 1999 & newer	6-25 hp	10	5
	Except 2002 & up	6-25 hp (requires adapter 17461A9or 17461T1)	10	5
	Except 1983 & older	18,25,48,60hp Mariner	4	2
	Except 1998-2004	8,9.9,15,25hp (4 stroke)	4	2
	Except 1999 - older	40hp (up to serial number 582399)	4	2
NOTE: 75,90,115hp 4 stroke EFI require Mercury tach adapter 17461A8 or A10 (service p/n 56-883040A1)				

** These applications will require the gauge to be programmed by the selling dealer*

Analog Tachometer Signals for Outboard Engines (continued)

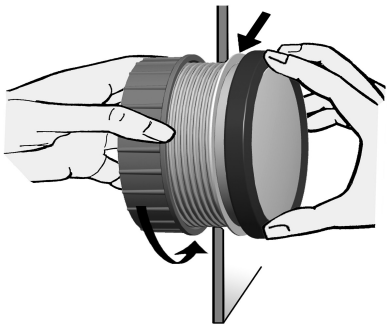
MAKE	YEAR	MODEL	ALTERNATOR # OF POLES	Number of Pulses
Suzuki	2008 and older	All	12	6
	Except	55 hp	4	2
	Except 1985 & older	60,65hp	4	2
	Except	50,60hp Cabrea	4	2
	Except	DF4-30hp (4 stroke)	6	3
	Except 1993 & newer	25-30hp	6	3
	Except 1985 & older	65hp	6	3
Tohatsu/Nissan	2008 & older	All	4	2
	Except	2 stroke N40D,40D2,50D, 50D, 70B, 70C	6	3
	Except	All 3 cylinders	6	3
	Except	2 stroke/ 4 cylinder 115,120,140hp	12	6
	Except	4 stroke 8-30hp & EFI 25-30hp	12	6
NOTE: TLDI engines require use of indication light kit 3Y9762510 & harness 3T5710420 purchased through the engine dealer				
Yamaha	1984-2008	All	6	3
	Except 1984-87	6-25hp 2 cylinder	4	2
	Except 1985-91	FT9.9	4	2
	Except	C25-C55 2 cylinder	4	2
	Except 1993-97	C30 2 cylinder	4	2
	Except	F/T25-F250,	12	6
	Except	HPDI 150-300	12	6
	Except	80SX250	12	6
	Except	F/T 9.9 (early 92)	12	6
	Except	C75-150	12	6
	Except	P75-P200	12	6
	Except	V/V150-250 & F15C/F20	12	6

VDO

110mm

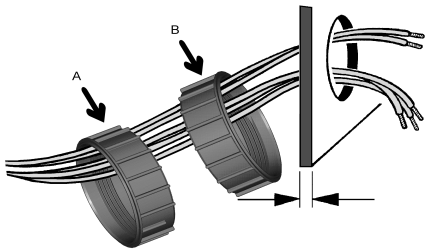
Conventional (Included)

Instrument is put into the drilled hole from the front. The maximum panel thickness is 20mm. The drilled hole must have a diameter of 111mm.



* Make sure the seal lays flat between the panel and the front ring.

For 110mm instruments, the Spin-Lok™ nut can be mounted at position A or B. This allows you two clamping depths.

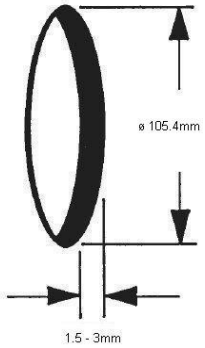


Version A 10mm

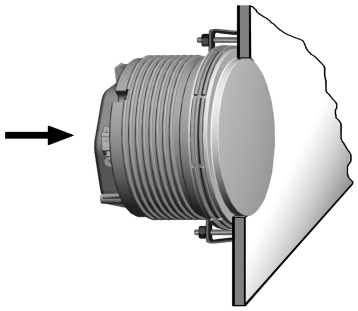
Version B 20mm

Flush (Optional)

When flush mounting (i. e., from the back so that the instrument glass and the panel form one plane), the front ring must be removed. Press on the instrument glass with both thumbs, while at the same time pulling the front ring forward from the instrument with both index fingers.



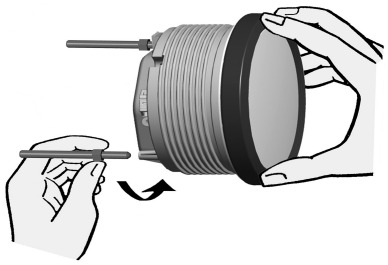
The recommended panel thickness is 1.5 to 3 mm. The drill hole must have a diameter of 105.4mm. Ensure that the installation location is level and has no sharp edges.



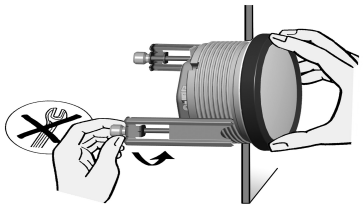
Place the flush mount seal on the instrument glass. Put the instrument into the drill hole from the back. Adjust the instrument so that the gauge is level and fasten it to the stud bolts (not included) on the rear side of the panel, using the flush mount fixing brackets.

Stud (Optional)

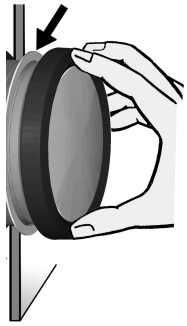
If you would like to omit the fastening nut, you may use the stud mount as an alternative. This is recommended if the installation location is subject to extreme vibrations.
Screw the stud bolts into the drilled holes on the rear of the instrument housing. Max. stud bolt torque is 1.5Nm.



Place the bracket on the stud bolt and tighten the knurled nut. Do not over-tighten.



* Make sure the seal lays flat between the panel and the front ring.



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