CruzPro®
RH60

$C \in$

RPM
Engine Hours/Elapsed Time

Adjusting Elapsed Time Clock Speed

If the clock is running too slow or fast, press and hold the ▼ key while applying power to the RH60. Press the ▼ key to slow the clock speed. Press the ▲ key to increase clock speed. Press the ✚ key to save the Clock Speed calibration information.

Adjusting Display Damping

Press and hold the ✚ key while applying power to the RH60. Press the ▼ key to lower the damping or the ▲ key to increase damping (3 minimum, 16 maximum). Press the ✚ key to save the new damping value. Don't use a value of display damping greater than 65000/MaxRPM. e.g. if MaxRPM will be 7000, then the highest allowable display damping is 65000/7000= 9.

Introduction

The RH60 RPM/Engine Hours/Elapsed Time gauge is a four digit digital display of engine RPM, total engine hours and elapsed time. The RH60 works with any engine and can be driven from a wide range of tacho signal frequencies and amplitudes. Front panel calibration is provided for spot-on accuracy to +/- 1 RPM. A separate engine hours countdown alarm can be set to warn you to perform needed maintenance every so many hours of engine running time. A high RPM alarm can be set and the RH60 keeps track of the maximum RPM seen. When activated, the RH60 built-in 85 dB alarm will sound and the display will flash. Five levels of backlighting can be selected and 13 levels of display damping. All calibration, alarm values and max rpm are saved to nonvolatile memory. You can select an external alarm output or use the output pin for NMEA 0183 compatible serial data.

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http://www.cruzpro.com   Made in New Zealand

Selecting NMEA 018/External Alarm/Test Output

The RH60 comes factory preset to use screw terminal pin (C) as a NMEA 0183 serial data output. To use it as an External Alarm output:

While viewing RPM, press and hold down both the ▼ and ▲ keys until you hear a long beep. This switches the output mode between NMEA 0183 and External Alarm. When the external alarm output is activated, a 5V signal (10 mA Max.) is output on terminal (C).

You can temporarily output a tacho test signal on screw terminal C by pressing and holding all three keys until you hear a long beep. Connect terminal C to teminal E to test the RH60. The test signal output is stopped when you remove power from the RH60.

Specifications

Power supply: 9.5 to 33.0 VDC, .035 amps nom.

Operating temperature: 32 to 122 F (0 to 50 C)

Size: 2.5" dia X 4.1" deep (61mm x 104 mm)

Range: 0 to 9,999 RPM, Wide Calibration Range

Cylinders: 1,2, 4, 6, or 8

Accuracy: Front panel adjustable to 1 RPM

Signal Inputs: Low, Med., & High voltage inputs

Alarms: Engine Hours countdown alarm settable from 1 to 9,999 hours, Maximum RPM Alarm.

Display: 4 digits, 5 levels of backlight.

Data output: NMEA 0183 output or External Alarm Output (User selectable).

Calibrating RPM

Turn off the power. Press and hold both the ▲ and ▼ keys and reapply power to enter the RPM Calibration mode. Press the ▲ and ▼ keys to adjust the display to read the correct RPM. Press the ✚ key to save the calibration information.

Presetting Engine Hours

If the engine is not new when connecting the RH60, you might wish to preset the Engine Hours to a value. Turn off the power. Press and hold the ▲ key while reapplying power to the RH60 to change the Engine Hours value. Use the ▲ and ▼ keys to adjust the engine hours and press the ✚ key to save the new value.

Setting the Maximum RPM Alarm Value

To set the Maximum RPM alarm value, press and hold the ▲ key for ten seconds (until you hear a long beep) while viewing RPM.

The factory default of 5000 RPM will be displayed. Press the ▲ key to raise the RPM alarm value or the ▼ key to lower the RPM alarm value. Press the ✚ key to save the Maximum RPM Alarm value to memory. Whenever the engine RPM exceed the Maximum RPM Alarm value, the built-in alarm will sound and the display will flash the RPM.

Before starting the installation, please read this entire section first. Be sure to install the bulkhead gasket before you install the instrument. Finger tighten the screws that mount the instrument bracket - do not use tools.
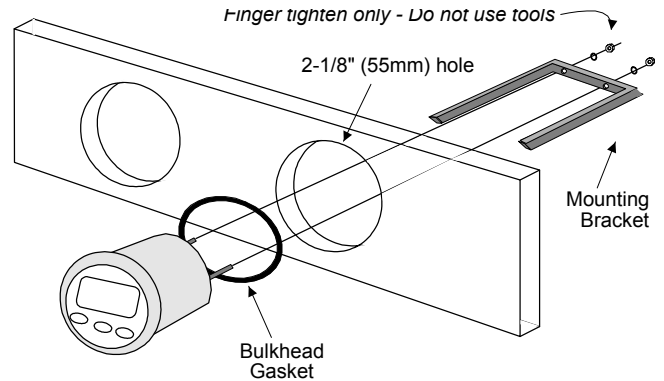

Finger tighten only - Do not use tools

2-1/8" (55mm) hole

Mounting Bracket

Bulkhead Gasket

Figure 1

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seen since the last reset will be displayed. The maximum RPM seen is always saved to nonvolatile memory, therefore is not lost if the power is removed from the RH60. Press any key to return to the Engine RPM display.

Resetting Maximum RPM Seen Memory

While viewing the "Maximum RPM Seen" display, press and hold the ✚ key for three seconds (until you hear a long beep). The Maximum RPM Seen will be cleared to zero and you will be returned to viewing engine RPM.

screwdriver to make the connections to the screw terminal on the instrument case back as shown in figure 2. Use the least sensitive RPM sender input line that works reliably. Try RPM input "D" first.
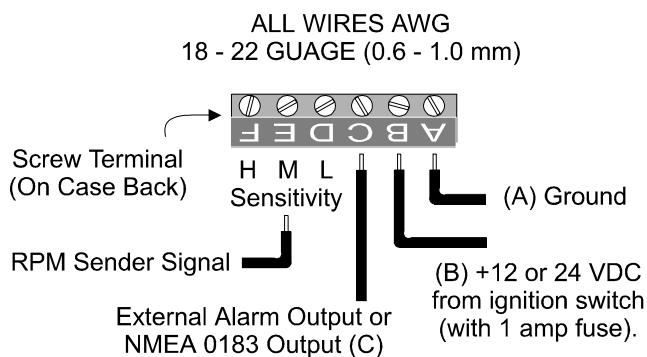
● Carefully check all your wiring against those shown in figure 2. If everything is wired correctly, start the engine and check operation of the RH60.

If there is no RPM reading, move the RPM sender wire to the medium sensitivity terminal "E" and try again. Use terminal "F" only if terminals D and E do not work reliably. When mounting the RH60 in the instrument hole, be sure the bulkhead gasket is in place and use only finger tension to tighten the bracket hold-down nuts *Do not overtighten the bracket or you may damage the case.*

Mounting and Wiring

● Drill a 2-1/8" (55mm) mounting hole where you desire to mount the instrument (Figure 1).

● Bring the RPM sender wire, ground, and power lines out of the mounting hole and use a small flat

ALL WIRES AWG
18 - 22 GUAGE (0.6 - 1.0 mm)

Screw Terminal (On Case Back)

H M L Sensitivity

(A) Ground

RPM Sender Signal

External Alarm Output or NMEA 0183 Output (C)

(B) +12 or 24 VDC from ignition switch (with 1 amp fuse).

Setting the Maintenance Alarm

While displaying Engine Hours, press and hold the ✚ key for ten (10) seconds. You will hear a long beep and the RH60 will display the Maintenance Alarm value in full hours. Press the ▲ and ▼ keys to set the desired alarm value (0 to 9,999 hours). Press the ✚ key to save your entry. The maintenance alarm will count down to zero whenever power is applied to the RH60. When it reaches zero, the alarm will sound and the display will flash the engine hours. Press any key to silence the maintenance alarm. A value of zero disables this feature.

Operation

Key Functions

The ▼ ✚ ▲ keys are used to select RPM, Engine Hours, Elapsed time, set backlight levels, display damping, calibrate the instrument, set the engine hours maintenance and maximum alarm values. After changes are made, the new information is automatically saved to memory.

Backlight Intensity

Press the ✚ key for 1/2 second to adjust the backlight level for nighttime viewing. Each time you press the "+" key, the level will get brighter 1, 2, 3, 4, OFF, 1, 2, ... , etc.

Displaying RPM, Engine Hours, Elapsed Time

To display RPM press the ✚ key. The RH60 will display engine RPM. To display Elapsed Time, press the ▼ key. To display Engine Hours press the ▲ key.

Clearing Elapsed Time

While viewing Elapsed Time, press and hold the ✚ key for ten (10) seconds. You will hear a long beep and the elapsed time will restart counting from 0:00.

Displaying Maximum RPM Seen

While viewing engine RPM, press and hold down the ✚ key for ten (10) seconds. The maximum RPM