



Owner's Manual

Analog Handlebar and Console Gauge Kits



Thunder Heart Performance Corporation
120 Industrial Drive
White House, TN 37188
www.thunder-heart.com

MANUAL P/N EI4345
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CONTACTING THUNDER HEART PERFORMANCE CORP.

Mailing Address	P.O. Box 76 White House, TN 37188
Shipping Address	120 Industrial Drive White House, TN 37188
Phone	615-672-8811
Fax.....	615-672-1353
Tech Support E-mail.....	techsupport@thunder-heart.com
Website.....	www.thunder-heart.com

CHAPTER 1 INTRODUCTION

1.1 General Information

This owner's manual contains information pertaining to all Thunder Heart Performance handlebar gauge kits.

1.2 Preparation and Painting of the Console (Console Kits Only)

Some kits include a console. Your console is made of Lexan®, which is a clear, durable plastic. It can be painted on the *inside* (so that outside scratches will not affect the paint), or on the outside. For the best paint results, thoroughly clean the console *only* with the following cleaners:

- Isopropyl Alcohol
- Windex®
- 409®
- Mr. Clean®

WARNING USE OF ANY OTHER CLEANER, DEGREASER, OR THINNER MAY DAMAGE THE CONSOLE AND/OR NOT ALLOW THE PAINT TO ADHERE TO THE CONSOLE

CHAPTER 2 ELECTRICAL CONNECTIONS

2.1 LED Indicator Connections; Overview

Some handlebar gauge kits are designed for use with ONLY a P/N ASM4250D Thunder Heart Performance Electronic Harness Controller (EHC), while other models are designed for standard 12V+ indicators, including a P/N ASM4260 Thunder Heart Performance Micro Harness Controller (MHC). Use the following table to determine which model is correct for your wiring application:

Table1—Handlebar Gauge Kit Indicator Connection Compatibility

Gauge Kit P/N	Indicator Compatibility	Harness Connector
ASM4343	ASM4260 "MHC", 12V+	Cut
ASM4344	ASM4250D "EHC" ONLY!	DO NOT cut
ASM4345	ASM4250D "EHC" ONLY!	DO NOT cut
ASM4346	ASM4260 "MHC", 12V+	Cut
ASM4347	ASM4260 "MHC", 12V+	Cut
ASM4349	ASM4250D "EHC" ONLY!	DO NOT cut

In addition, each gauge kit includes a RSE4145 harness. The harness includes a connector that plugs directly into an ASM4250D Thunder Heart Performance Electronic Harness Controller (EHC). See Chapter 2.2.

For wiring systems **other** than an ASM4250D Thunder Heart Performance Electronic Harness Controller (EHC), the connector must be removed and the wires stripped and spliced into your wiring. See Chapter 2.3.

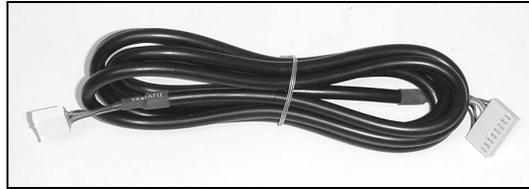


Figure 1—Harness P/N RSE4145 (Included)

2.2 LED Indicator Connections; EHC ONLY Applications (ASM4344, ASM4345, ASM4349)

A harness P/N RSE4145 is included with your gauge kit. Plug the mating end into the indicator connector on the back of the indicator board, and the opposite end to your ASM4250D Thunder Heart Performance Electronic Harness Controller (EHC). Refer to the instructions included with your EHC kit for further information.

2.3 LED Indicator Connections; MHC and 12V+ Applications (ASM4343, ASM4346, ASM4347)

A harness P/N RSE4145 is included with your gauge kit. Plug the mating end into the indicator connector on the back of the indicator board, and trim the opposite side off. Strip and splice each wire to your wire controller's appropriate indicator output wires according to the following table:

Table 2—Trimmed Harness Wire Color Assignments and Functions

Color	Function	MHC Pin & Color
BROWN	RIGHT SIGNAL	PIN 11, BLUE
RED	HIGH BEAM	PIN 17, WHITE
ORANGE	12V+ (OIL)	N/A (OIL SWITCH)
YELLOW	12V+ (NEUTRAL)	N/A (NEUTRAL SWITCH)
GREEN	NEUTRAL	N/A (NEUTRAL SWITCH)
BLACK	LEFT SIGNAL	PIN 13, VIOLET
BLUE	OIL PRESSURE	N/A (OIL SWITCH)
VIOLET	GROUND (RIGHT SIGNAL, LEFT SIGNAL, HIGH BEAM)	PIN 19, BLACK (GROUND)

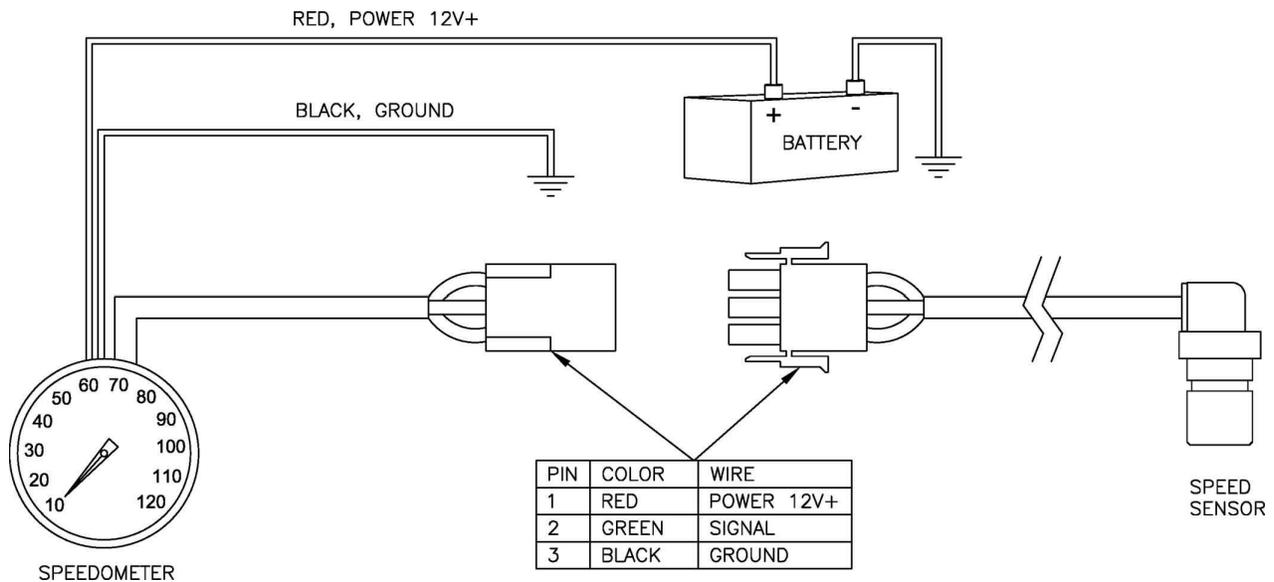
1. Ensure that all power is off to the bike, and that the battery cables are disconnected.
2. Locate the right turn signal wire on the bike. Trace this wire from the right turn signal bulb to a point on the wire close to the installation area of the indicator dash. Splice this wire with the brown wire that is in the indicator

harness. This will ensure that the right turn signal indicator is active when the turn signal is operative.

3. Repeat the previous step for the high beam (red), neutral (green), left turn signal (black), and oil pressure (blue) wires.
4. Locate a power wire (11.5v to 14v) that is near the installation area for the dash indicator. Splice this wire with the orange wire on the indicator adapter harness. This will ensure that the oil pressure indicator has power and that the indicator is active when the oil pressure switch is activated.
5. Locate another power wire as in the previous step, and splice it to the yellow wire on the indicator adapter harness for the neutral switch.
6. Locate a ground wire that is adjacent to the installation area for the dash indicator. Splice this wire with the purple wire on the indicator adapter harness. This will ensure that the right signal, left signal, and high beam indicator has a proper ground and that the right signal, left signal, and high beam indicator is active when its respective component is operative.

2.4 Speedometer Connections

Use the wiring diagram below to connect the speedometer for proper operation:



CHAPTER 3 ELECTRONIC SPEEDOMETER ADJUSTMENT AND OPERATION

Calibration of the VDO® speedometer with LSC display is a relatively simple procedure, and can be accomplished in any of three ways:

- Automatic calibration when driving on a road with the exact distance of 1 mile clearly defined; or on a dynamometer
- Input of the known pulse-per-mile (kilometer) for the vehicle and sensor being used with the speedometer
- Using a reference point for adjustment or fine-tuning

You gain access to the calibration functions by pressing the button on the front of the speedometer and holding it in while you turn on the ignition. As you continue to hold in the button, the display will change...scrolling through three calibration methods and stopping on each one for about two seconds.

The three calibration modes, as displayed on the LSD are:

- AutoCL
- PuLSE
- AdJuSt

The display lists the auto-calibrate mode as **AutoCL**, the pulse-per-mile mode as **PuLSE**, and the reference/fine tune mode as **AdJuSt**.

3.1 Autocalibration (AutoCL)

The auto-calibration function can be used successfully on: 1) a road with the distance of one mile accurately designated, or 2) a dynamometer.

Automatic Calibration Procedure

1. Press the button on the front of the speedometer and hold it in.
2. Start the engine (while keeping the button pressed).
3. Release the button when the display reads "AutoCL." After three seconds, the word "bUttOn" will show on the display.
4. When you are ready to begin your calibration run, press the button. The display will begin flashing the word "StArt"
5. Drive the reference distance of one mile (or 1 kilometer).

Note: As you drive this distance, the speedometer needle will not register or move. This is normal during the autocalibration process.

6. When you have gone *exactly* one mile, press the button again. If the electronic impulse rate detected by the speedometer's microprocessor is within the calibration range limits of 500 to 399,999, the rate will be shown on the LCD display.

For example, your reading might be P16000 (Calibration range 16000). Such a display indicates that the impulse rate detected during the reference mile you drove exactly matches the microprocessor's programmed rate for 1 mile. That means the speedometer is now perfectly calibrated to provide the most accurate display possible for both speed and distance.

The speedometer finishes its autocalibration by moving the pointer through a full sweep, and then back to zero.

Note: If the speedometer detects any kind of error during your calibration run, the LCD will display the message "F 0.0". This means no usable impulse was detected. In this case, simply turn off the ignition, and start the process again.

Note: The speedometer will only be as accurate as the reference distance and the accuracy with which you pressed the button during autocalibration.

3.2 Manual Calibration with a Known Value (PuLSE)

If you know the exact calibration value for the vehicle and type of sensor you are using (pulse-per-mile or pulse-per-kilometer), you may use that value to manually calibrate the speedometer.

Manual Calibration Procedure (Known Value)

1. Press the button on the front of the speedometer and hold it in.
2. Start the engine (while keeping the button pressed).
3. Release the button when the display reads "PuLSE." After a few seconds, the display will start flashing a series of numbers (factory default setting) that you can change to represent the correct calibration impulse value.
For example, a number like 50000 will show on the display, with each digit flashing in turn (except for the last digit on the right, which is fixed); first, the second 0 from the right, the second 0 from the right, the next 0, and finally the 5.
4. As each number flashes, press and hold the button to scroll through the digits.
5. When the desired digit appears (that is, the number you wish to input), release the button.

For example, the number that represents the correct calibration value for your vehicle and sensor is 43850. When you begin the manual calibration process, the LCD displays a default value. Each digit, except the one farthest to the right, will flash, in turn, from right to left.

Wait until the second digit from the right starts to flash. When it does, press and hold the button to start cycling through the numbers available for this digit. When the number "5" appears, release the button.

Now the second digit from the left begins to flash. Again, press and hold the button until the number “8” appears, and release the button. Repeat the process to set the “3” and then the “4.”

The value in our example is now set. The value 43850 should be displayed on the LCD readout.

6. When you are satisfied you have properly entered the correct calibration value (when that value is displayed on the LSD readout), take your finger off the button and wait. After a few seconds, the value you have entered will be downloaded into the speedometer’s microprocessor, and the speedometer will revert back to normal operating mode. At this point, the manual calibration process is complete.

In the future, you can use this method to update the calibration value stored in the speedometer should it ever become necessary. This function also allows you to manually adjust the calibration value after you perform the automatic calibration process.

3.3 Manual Calibration (Fine Tuning) (AdJuSt)

You can fine tune the calibration of the speedometer’s analog display (the pointer showing the speed) by using speed test equipment and the “AdJuSt” function on the LSD readout. The pointer can be repositioned anywhere within the calibration range of the speedometer.

Manual Calibration Procedure (Target Speed)

1. Press the button on the front of the speedometer and hold it in.
2. Start the engine (while keeping the button pressed).
3. Release the button when the display reads “AdJuSt.”
4. Press the button once, and the word “uP” will be displayed on the LSD readout. Press it twice (in rapid succession), and “dn” (for “down”) will be displayed.
5. When “uP” or “dn” is showing, press and hold the button. If you hold the button for a short time, the pointer will move slowly either upwards or downwards, dependent upon which mode you selected. This allows for a very accurate adjustment of the pointer. Holding the button in for a longer period of time makes the pointer move faster.
6. When you have repositioned the pointer where you want it, release the button and wait. If no further adjustments are made within one minute, the speedometer will revert back to the normal operating mode.

Note If the pointer moves past the upper limit of the calibration range, the LSD will flash and you will only be able to adjust the pointer downward. If you move the pointer past the lower limit of the calibration range, the LSD will also flash, and you will only be able to adjust the pointer upward.

3.4 Speedometer Operation

When the speedometer is in operating mode, the LCD readout acts as an odometer, allowing you to display either total miles driven, or trip distance. Total mileage is counted up to 999,999.9 miles. Trip distance is counted up to 99,999.9 miles.

Displaying Trip Distance

Press the button. If the *total mileage* had been showing on the LCD readout, it will change to *trip distance* when you push the button. If the *trip distance* had been showing, the display will change to reveal *total mileage*.

Trip Distance Reset

Push and hold the button for about two seconds. The odometer will reset to 0.0 miles. Be aware that pushing and holding in the button will reset the trip distance to zero regardless of which display is currently showing on the LCD readout.

WARRANTY

Thunder Heart Performance Corp. will repair or replace any parts that have manufacturing defects only under the following conditions:

- The customer must return the product to the original place of purchase.
- The product must be returned within one year of the original distribution sale date.
- All returns must be accompanied with a copy of the receipt.
- The product must be individually tagged with a completed description of the problem or defect.
- All returned items must be packaged and shipped in the same manner as Thunder Heart originally shipped them to the dealer.

Thunder Heart Performance Corp. reserves the right to repair or replace the product at Thunder Heart's discretion. We do not offer refunds or credit for the returned product. In addition, any product that is misused or otherwise damaged by the end customer will be billed for any repair or replacement costs associated with the damage.

NOTES: