



Owner's Manual

Digital Ignition Module for 2004-up
Carbureted Harley Davidson Motorcycles
P/N ASM5077



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

MANUAL P/N EI5077
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TABLE OF CONTENTS

- CHAPTER 1 INTRODUCTION 1**
 - 1.1 Special Note Regarding Speedometer Calibration 1
- CHAPTER 2 IGNITION INSTALLATION..... 2**
 - 2.1 Dyna Models 2
 - 2.2 Touring Models..... 2
 - 2.3 Softail Models 3
 - 2.4 Sportster Models 3
- CHAPTER 3 AUXILIARY INPUTS/OUTPUTS 4**
- CHAPTER 4 IGNITION MODULE PROGRAMMING 5**
 - 4.1 Ignition Programming Using Built-In Buttons 5
 - 4.2 Ignition Programming Using (Available Separately) SmartLink Software and Interface Cable 6
- CHAPTER 5 IGNITION OPERATION..... 6**
- WARRANTY 7**

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

Zipper's Performance Products and Thunder Heart Performance Corporation have joined forces as the "J1850 Alliance" to create products that are "J1850 compatible" for 2004-later Harleys. Thunder Heart's cutting-edge technology combine with Zipper's expertise in performance to provide the rider with the best products possible.

The latest product of this alliance is their Digital Ignition Module for 2004-later carbureted Harleys

Users can program the module by either using the module-mounted pushbuttons and digital display, or using the (sold separately) Smartlink Software and Interface Cable. Users can also "offset" a pre-programmed curve up to +/-5 degrees without having to link the software up to the module!

The ASM5077 has three additional outputs to control a "2-Stage" rev limiter, a shift light, and an analog tachometer output for use with most aftermarket tachometers. It's a great way to configure the ZAP on your 2004-later Harley!

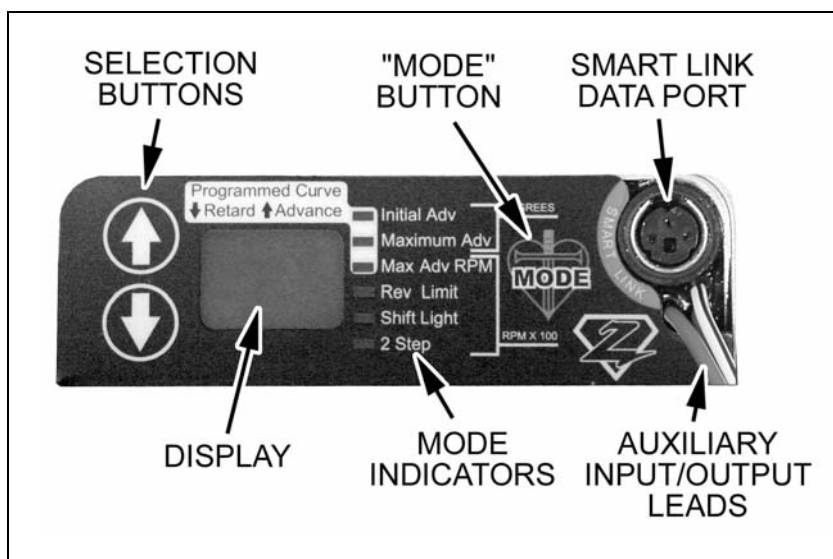


Figure 1—Digital Ignition Module component identification

1.1 Special Note Regarding Speedometer Calibration

Your module is shipped with a speedometer calibration value for a Softail (except FXSTD). However, if you own a different motorcycle, or have made modifications to your motorcycle that affect the speedometer calibration (such as pulley ratios or replaced the tire with different diameter), you will need to adjust the speedometer calibration.

Refer to the (included) SMART LINK III IGNITION SOFTWARE OWNER'S MANUAL, "Basic Settings", "Speedo Cal" section for instruction on how to change the speedometer calibration value.

CHAPTER 2 IGNITION INSTALLATION

2.1 Dyna Models

1. Disconnect the negative battery cable.
2. Grasp the sides of the electrical caddy (located next the ignition coil) and pull outward to remove.
3. Remove the relay and fuse panels from the electrical caddy.
 - a. Insert a small screwdriver into the slot under each fuse and relay panel.
 - b. Using a screwdriver, disengage the panel from the electrical caddy.
4. Disconnect the main fuse connector from the electrical caddy
 - a. Remove the main fuse from the connector
 - b. Insert small screwdrivers into the slots on each side of the main fuse
 - c. Depress the tabs of the main fuse connector to disengage it from the electrical caddy
5. Depress the tab located on the electrical caddy securing the TSM/TSSM. Pull it from the electrical caddy. Disconnect the TSM/TSSM connector.
6. Slide the data link connector towards the front of the motorcycle to disengage it from the electrical caddy.
7. Disconnect the ignition control module connector.
8. Disconnect the ignition coil connector and spark plug cables from the coil.
9. Remove the electrical caddy fasteners (3 total).
10. Remove the wiring from the electrical caddy.
11. Remove the fasteners securing the factory ignition control module from the electrical caddy.
12. Installation of the Digital Ignition Module is the reverse of removal.

2.2 Touring Models

1. Disconnect the negative battery cable.
2. Remove the right saddlebag.
3. Gently pull the side cover from the frame downtubes (no tools required).

4. Depress the external latches and use a rocking motion to remove the electrical connector from the ignition control module.
5. Remove the two socket screws to detach the ignition control module from the electrical bracket.
6. To install the Digital Ignition Module, install and tighten the socket screws to 50-60 **in-lbs**. The remainder of installation is the reverse of removal.

2.3 Softail Models

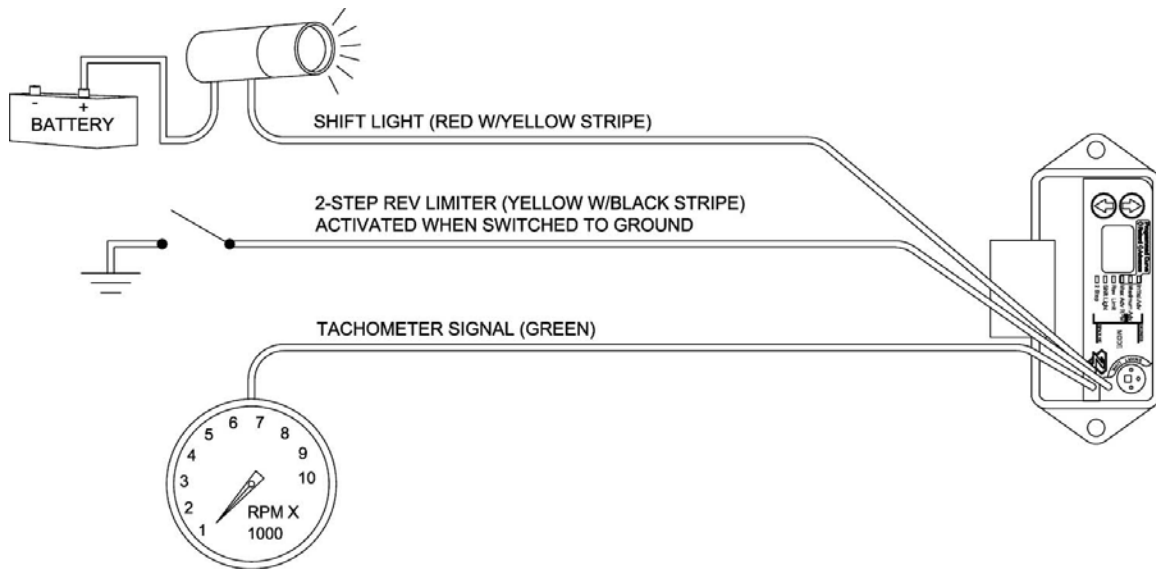
1. Remove the seat.
2. Disconnect the negative battery cable.
3. Remove the two screws to free the ignition control module from the mounting bracket.
4. Depress the external latches and use a rocking motion to remove the electrical connector from the ignition control module.
5. To install the Digital Ignition Module, install and tighten the socket screws to 15-21 **in-lbs**. The remainder of installation is the reverse of removal.

2.4 Sportster Models

1. Remove the seat.
2. Disconnect the negative battery cable from the crankcase, and disconnect the positive battery cable from the battery.
3. Depress the external latches and use a rocking motion to remove the electrical connector from the ignition control module.
4. Remove the two lock nuts securing the ignition module from the motorcycle.
5. To install the Digital Ignition Module, install and tighten the lock nuts to 12-15 **in-lbs**. The remainder of installation is the reverse of removal.

CHAPTER 3 AUXILIARY INPUTS/OUTPUTS

The Digital Ignition Module is supplied with additional auxiliary inputs and outputs. These are “flying leads” that run directly from the ignition module face (see Figure 1). Use the following wiring diagram to hook up these features:



Shift Light (Red with Yellow Stripe)

This wire supplies ground to a shift light. Connect the other wire of your shift light to 12v+

2-Step Rev Limiter (Yellow with Black Stripe)

When this wire is grounded, the 2-step rev limiter is activated. This is generally connected to a momentary pushbutton that connects to ground.

Tachometer Signal (Green)

Connect this wire to the signal input of an aftermarket tachometer.

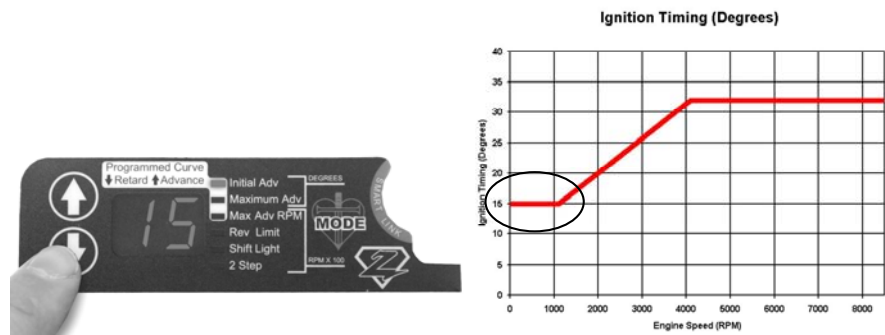
CHAPTER 4 IGNITION MODULE PROGRAMMING

The Digital Ignition Module can be programmed one of two ways: with the built-in MODE and ARROW buttons, or with the (available separately) SmartLink cable and software.

4.1 Ignition Programming Using Built-In Buttons

To program the Digital Ignition Module using the built-in buttons on the face of the ignition, follow this procedure:

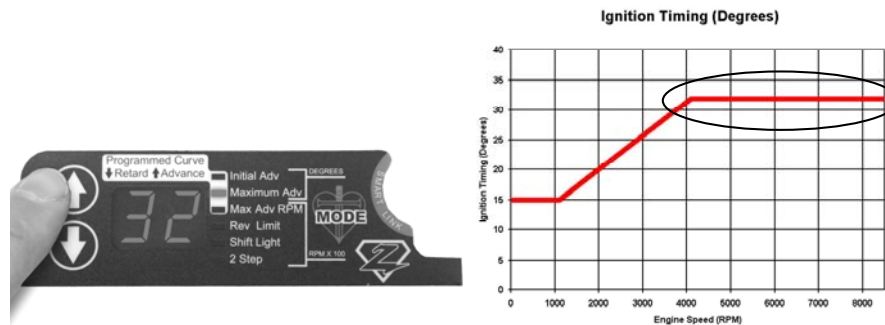
1. Turn the motorcycle key to ON, but do not start the motorcycle.
2. Press the MODE button to select "Initial Adv."
3. Use the arrow keys to select the desired initial advance.



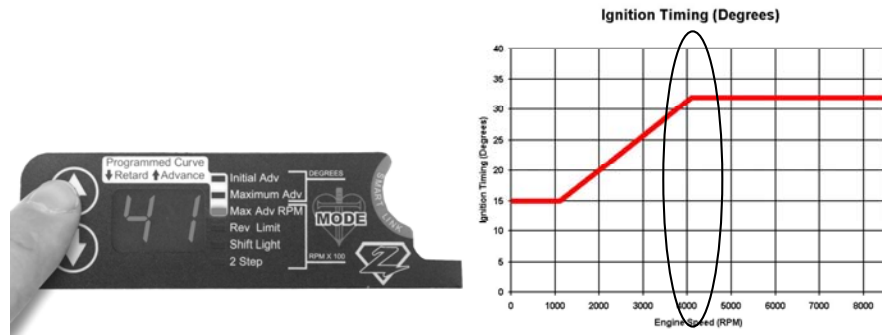
4. Press the MODE button to select "Maximum Adv."



5. Use the arrow keys to select the desired maximum advance.



6. Press the MODE button to select "Max Adv RPM."
7. Use the arrow keys to select the desired maximum advance.



8. To program the other features of the Digital Ignition Module, use the MODE and “arrow” buttons. The following is a list of each feature and its range:

Initial Advance (Initial Adv) is the ignition timing in crankshaft degrees (before top dead center), the module will use until 1000rpm.
Range: 5-20 degrees

Maximum Advance (Maximum Adv) is the ignition timing in crankshaft degrees (before top dead center), the module will use as its maximum value.
Range: 24-45 degrees

Maximum Advance RPM (Max Adv RPM) is the engine speed (in RPM X 100) that the ignition reaches its maximum advance value. A lower RPM makes the advance slope “steeper.”
Range: 2000-5300 RPM

Rev Limit Activation (Rev Limit) is the engine speed (in RPM X 100) that the ignition’s main rev limiter is activated. Under acceleration, the engine will not rev past this point.
Range: 5100 to 8000 RPM

Shift Light Activation (Shift Light) is the minimum engine speed (in RPM X 100) the ignition will supply a 12v+ signal to the red w/yellow stripe auxiliary output wire.
Range: 5100 to 8000 RPM

2-Step Rev Limit Activation (2-Step) is the engine speed (in RPM X 100) that the ignition will limit the engine when the yellow w/black strip auxiliary input wire is grounded (useful for drag racing).
Range: 2000 to 5100 RPM

4.2 Ignition Programming Using (Available Separately) SmartLink Software and Interface Cable

To program the Digital Ignition Module with the SmartLink Software and Interface Cable, please refer to the instructions supplied with that kit.

CHAPTER 5 IGNITION OPERATION

When the motorcycle is running, the current ignition timing will appear on the display.

Note: The value displayed may differ slightly from the value you programmed because the ignition automatically adds a few degrees of advance based upon manifold vacuum. This is for improved part-throttle and cruising performance. The values you programmed will be used for wide-open-throttle situations.

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: