INSTRUCTIONS

-J02360 REV. 08-29-2002

Kit Number 32942-02

SCREAMIN' EAGLE SELECTABLE-CURVE RACE IGNITION MODULE

General

This ignition module fits 1998 and later 883 and 1200 XL models, except 1200 Sport; and 1998 and later Buell Blast models equipped with a stock ignition coil.

This ignition module is not compatible with single-fire ignition coils on XL applications.

BUELL BLAST COMPATIBILITY NOTE

Installing this module in a Buell Blast requires that the Blast is equipped with a stock low-primary-resistance (0.4 – 0.6 ohm) coil.

XL COMPATIBILITY NOTE

This ignition module requires that the vehicle is equipped with a dual-fire coil with a primary resistance of 2.5 – 3.5 ohms. Harley-Davidson recommends Screamin' Eagle coil part numbers 31653-97, 31654-97, or 31620-88A. Stock coil part number 31614-83A is also acceptable.

CAUTION

This engine-related performance part is intended for high-performance or racing applications and is not legal for sale or use on pollution-controlled motor vehicles. This kit voids the limited vehicle warranty. Engine-related performance parts are intended for the experienced rider only.

CAUTION

This Screamin' Eagle ignition module can be set to allow the engine to reach 8000 RPM. It is extremely important that the rider use the tachometer to avoid harmful, excessive RPM. See your Harley-Davidson dealer for product recommendation.

CAUTION

Spiral-core or metal-core spark plug wires may cause ignition malfunction. Use only spark plug wires with 2000 – 7000 ohms-per-foot resistance. Harley-Davidson recommends Screamin' Eagle spark plug wires. Harley-Davidson stock spark plug wires are also acceptable.

Kit contents:

QTY	DESCRIPTION
1	Screamin' Eagle Ignition Module
1	Deutsch pin plug

NOTE

Faulty ignition-module operation may result from wiring-harness problems. If this Screamin' Eagle ignition system malfunctions, inspect the motorcycle's wiring harness to determine if it is faulty. If the existing wiring harness is faulty, repair or replace it before installing the new ignition module.

NOTE

Ignition modules being replaced under warranty must be submitted with all wire terminals intact. Warranty claims are rejected for modules submitted with wires cut and/or terminals removed. Regardless of warranty considerations, do not splice the wires of the new ignition module to the wires of the original module's wiring harness.

⚠WARNING

A Service Manual is required to install this kit. The rider's safety depends upon the correct installation of this kit. If the procedure is not within your capabilities or you do not have the correct tools, have your Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury.

NOTE

A service manual for your model motorcycle is available from your Harley-Davidson dealer.

Installation - XL

⚠WARNING

To protect against shock and accidental start-up of vehicle, disconnect the battery cables, negative cable first, before proceeding. Inadequate safety precautions could result in death or serious injury.

⚠WARNING

Always disconnect the negative battery cable first. If the positive battery cable should contact ground with the negative cable installed, the resulting sparks may cause a battery explosion which could result in death or serious injury.

1. Disconnect the battery, negative cable first. Refer to the Service Manual for your model motorcycle.
2. Remove the outer and inner timing covers. Refer to the Service Manual for your model motorcycle.
3. See Figure 3. Scribe alignment marks in the V-notch, located on the module mounting plate, for approximate ignition timing during installation.
4. Remove the screws from the module plate.
5. See Figure 1. Remove and disconnect the ignition-module connector, a 6-pin Deutsch connector, from the T-stud on the frame.
6. Remove the pins from the female Deutsch-connector body. Save the connector body for installation.
7. Cut the cable strap fastening the wire harness to the frame.

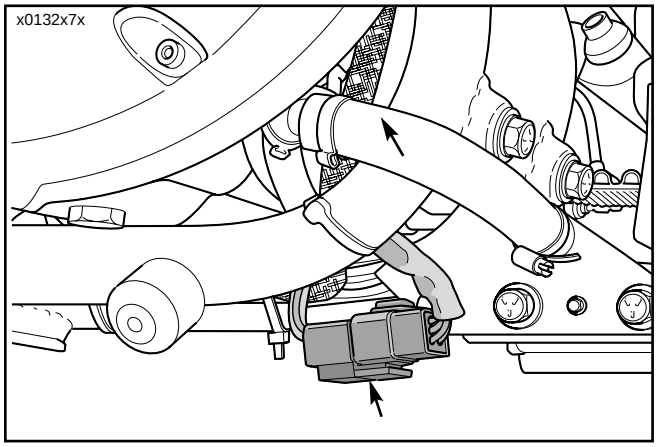

Figure 1. Ignition Module Connector

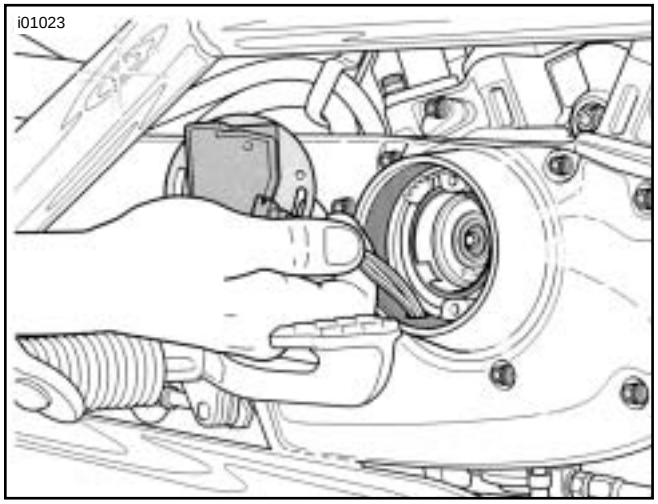

Figure 2. Remove the Module Plate

8. See Figure 2. Remove the module plate and wires.

9. See Figure 3. Position the new ignition module in the gearcase and route the wires back to the connector location.

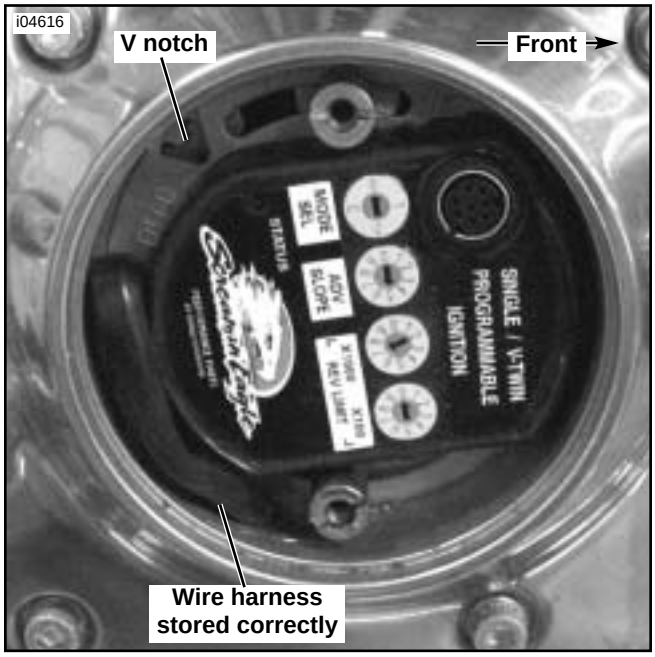

Figure 3. Ignition Module Correctly Installed

CAUTION

To prevent tachometer damage, do not allow the brown tachometer wire to contact +12V.

10. Loosely fasten the module to the gearcase using two screws. Do not tighten the screws.

11. Install pins, as shown below, into the stock Deutsch connector body from step 6.

XL Deutsch Connector Pin-Outs

Pin	Wire Color	Function
1	white/black	Ignition switch
2	violet/white	VOES
3	violet/orange	Not used
4	pink	Coil
5	green/gray	Bank-angle sensor
6	pin plug	Ground (not used)

NOTE

XL installations do not use the violet/orange wire. Cut the pin off the wire and securely tape the cut end of the wire. The brown wire from the module is for a direct-splice connection to an add-on tachometer.

12. Install the pin plug from this kit into the Deutsch-connector number 6 pin location.

13. Mate the connector halves.

14. Wrap excess wire and fasten to the frame with a cable strap.

Installation - Buell Blast

⚠WARNING

To protect against shock and accidental start-up of vehicle, disconnect the battery cables, negative cable first, before proceeding. Inadequate safety precautions could result in death or serious injury.

⚠WARNING

Always disconnect the negative battery cable first. If the positive battery cable should contact ground with the negative cable installed, the resulting sparks may cause a battery explosion which could result in death or serious injury.

1. Disconnect the battery, negative cable first. Refer to the Service Manual for your model motorcycle.

2. Remove the timing cover. Refer to the Service Manual for your model motorcycle.

3. Remove the locknut and clamp fastening the wire harness and hoses to the right side of the motorcycle.

4. See Figure 4. Disconnect the ignition-module connector [10], a 6-pin Deutsch connector on the left side of the frame backbone.

5. Remove the pins from the female Deutsch-connector body. Save the connector body for installation.

CAUTION

Always wear proper eye protection when drilling. Flying debris could cause serious eye injury.

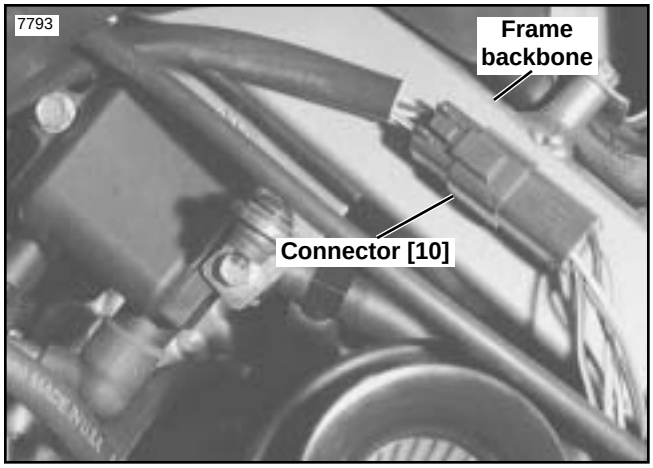

Figure 4. Ignition Module Connector [10]

CAUTION

Drilling a hole in the cover in a location other than that specified could damage the module plate. Drill carefully only where indicated to avoid damaging the module plate, located behind the cover.

CAUTION

Do not pry the timing cover from the gearcase or damage to the gearcase or ignition module may result.

6. See Figure 5. Drill a hole in the outer timing cover at the 5 o'clock position and approximately 1/2 inch (13 mm) from the outside edge of the cover. Use a 90-degree pick or similar tool to pull the outer timing cover from the gearcase.

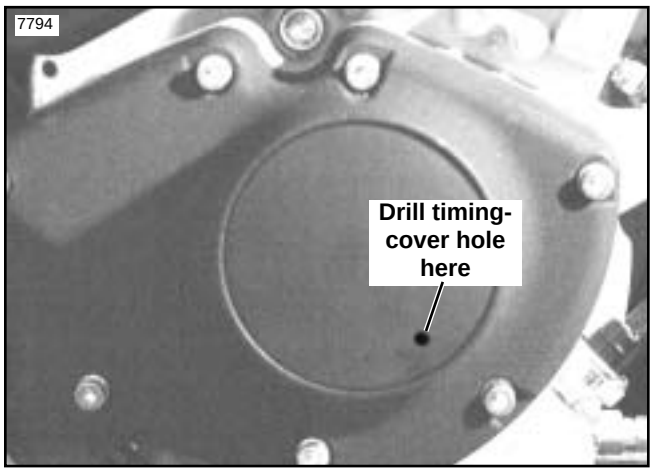

Figure 5. Drilling and Removing the Timing Cover

7. Remove the two module-plate mounting screws to remove the module plate from the gearcase.

8. See Figure 3.Position the new ignition module in the gearcase and route the wires back to the connector location.

9. Loosely fasten the module to the gearcase using the two screws from step 7. Do not tighten the screws.

10. See Figure 3. Scribe alignment marks in the V-notch, located on the module mounting plate, for approximate ignition timing during installation.

11. Install pins, as shown below, into the stock Deutsch connector body saved in step 5.

Blast Deutsch Connector Pin-Outs

Pin	Wire Color	Function
1	white/black	Ignition switch
2	violet/white	TPS
3	violet/orange	Auto-enrichener
4	pink	Coil
5	green/gray	Bank-angle sensor/ side stand
6	pin plug	Ground

NOTE

The brown wire from the module is for a direct-splice connection to an add-on tachometer.

12. Install the pin plug from this kit into the Deutsch-connector number 6 pin location.

13. See Figure 4. Mate the connector halves.

14. Fasten the wire harness and hoses to the right side of the motorcycle using hardware removed in step 3.

15. Loosely fasten the module to the gearcase using two screws. Do not tighten the screws.

Configuring the Module

See Figure 6. Four dial switches, located on the front of the module, allow you to custom-configure the module. Make sure each switch is in the proper position before you start the motor. Refer to the mode descriptions later in this instruction sheet.

Set the Timing

WARNING

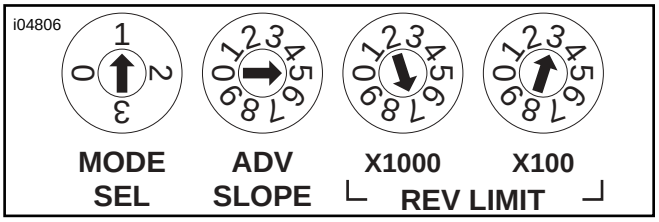

Figure 6. Ignition Module Switches

Always connect the positive battery cable first. If the positive cable should contact ground with the negative cable installed, the resulting sparks may cause a battery explosion which could result in death or serious injury.

1. Connect the battery cables to the battery, positive cable first.

2. Statically time the engine:

   a. Remove the spark plugs from the engine.

   b. Remove the timing-window plug from the crankcase.

   c. Raise the rear wheel of the motorcycle.

d. Shift the transmission into fifth gear. Standing on the left side of the motorcycle, slowly rotate the rear wheel in a counterclockwise direction until the front intake valve opens and closes, as viewed through spark plug holes.

e. Rotate the rear wheel until the vertical TDC mark is centered in the timing window.

f. Loosen the module-plate screws.

g. Turn the ignition to the ON position.

h. Slowly rotate the module plate until the red LED is not illuminated, then tighten the module plate screws to 15-30 **in-lbs** (1.7-3.4 Nm).

3. Lower the rear wheel of the motorcycle and install the spark plugs.

4. Verify timing with a timing light. Refer to the procedures in the appropriate service manual.

5. Install the timing cover(s). Install a **new** timing cover on Buell Blast models.

Switch Descriptions

See Figure 3. This section describes ignition-module switches and switch functions.

MODE SELECT (MODE SEL)

Select 0 for XL models.
Select 2 for Buell Blast models.

ADVANCE SLOPE (ADV SLOPE)

See Figure 7. The slope of the advance curve is adjustable over a wide range. Setting the advance-slope switch to zero (0) results in minimum advance; switch setting 9 results in maximum advance. Switch settings 1 through 8 are advance curves between the minimum and maximum curves shown in Figure 4. Higher switch settings result in more aggressive slopes above idle and more advance at high RPM. Start with switch setting 5 and adjust from there.

Stock and modified engines (mild cam, low-restriction air cleaner, aftermarket exhaust) may benefit from a more aggressive advance slope on vehicles using 93 or higher octane gasoline. High-compression race engines may require a less aggressive slope to eliminate spark knock.

Rotate the entire ignition module, relative to the gear housing, to adjust initial timing. If knock occurs only at low RPM, the initial timing can be reduced but maintain a relatively aggressive advance slope for maximum power at mid and high RPM.

Used together, initial-timing and advance-slope adjustments provide broad flexibility for fine-tuning a particular engine. In general, use the highest settings possible without audible spark knock.

RPM LIMITER (REV LIMIT)

Two rotary switches digitally set the RPM limit within a range of 1500 to 8000 RPM in 100-RPM increments. The two switch settings together are a multiple of 100 RPM. For example, 5 on the x1000 switch and 9 on the x100 switch is 59 x 100, or 5900 RPM. Always select a rev limit **less than** the RPM redline for your engine.

RPM settings above 8000 RPM revert back to a maximum 8000 RPM.

The maximum RPM for stock valve-train components is 6000 RPM for XL models and 6500 RPM for Buell Blast models.

CAUTION

To avoid engine damage, ensure that all engine components are designed to handle the stresses of higher RPM applications.

Diagnostic LED

When power to the ignition is turned on, a diagnostic LED on the front of the module illuminates, indicating that the microprocessor in the ignition module is functioning. If the pickup rotates past TDC, the illuminated LED turns off.

When ignition power is ON and the engine is cranked over, the LED blinks ON and OFF. This indicates that the pickup is generating timing pulses and the module is receiving the pulses.

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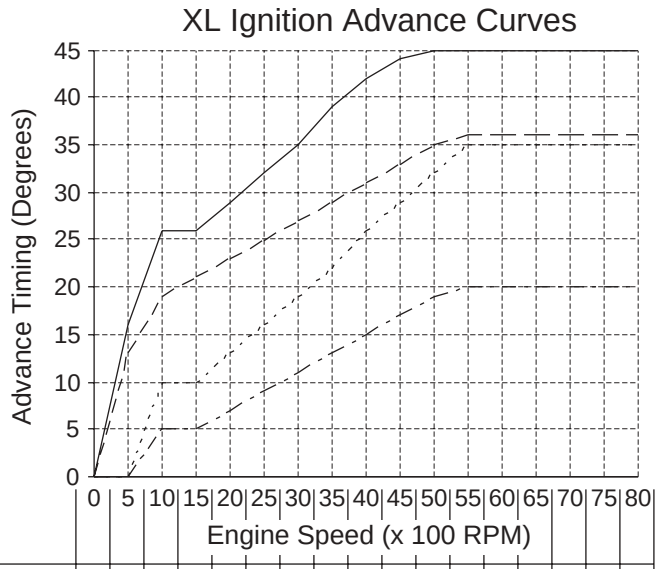
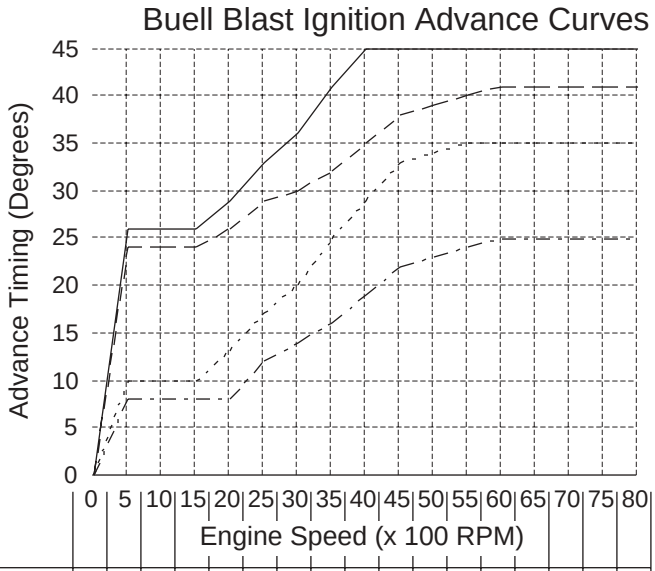


	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
——— Maximum Advance – Part Throttle, Curve 9	0	16	26	26	29	32	35	39	42	44	45	45	45	45	45	45	45
– – – Maximum Advance – WOT, Curve 9	0	13	19	21	23	25	27	29	31	33	35	36	36	36	36	36	36
- - - - - - Minimum Advance – Part Throttle, Curve 0	0	0	10	10	13	16	19	22	26	29	32	35	35	35	35	35	35
– - – - Minimum Advance – WOT, Curve 0	0	0	5	5	7	9	11	13	15	17	19	20	20	20	20	20	20



	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
——— Maximum Advance – Part Throttle, Curve 9	0	26	26	26	29	33	36	41	45	45	45	45	45	45	45	45	45
– – – Maximum Advance – WOT, Curve 9	0	24	24	24	26	29	30	32	35	38	39	40	41	41	41	41	41
- - - - - - Minimum Advance – Part Throttle, Curve 0	0	10	10	10	13	17	20	25	29	33	34	35	35	35	35	35	35
– - – - Minimum Advance – WOT, Curve 0	0	8	8	8	8	12	14	16	19	22	23	24	25	25	25	25	25

Figure 7. Timing-Advance Graphs