

V-Twin Mfg.
Electronic Distributor Top w/Electronic Ignition Module Auto advance
VT No.32-0821 & 32-0822

This is a custom application and rider safety depends on proper installation. This product should only be installed by a knowledgeable and trained motorcycle technician. V-Twin Mfg. accepts no responsibility for improper installation.

The 1936-1947 kit fits Harley-Davidson models: 45" WL WLA WLC (1938-1947); 74" & 80" Knuckle and Flathead. The unit has the following features.

- Automatic advance/retard regulated by the Electronic Ignition module.
- Tunable top to chose your best kickstart moment; this is non critical. The engine will run on several settings. So don't worry.
- Engine starts on kickstart moment and runs about 10 seconds at the kickstart setting before it sets to full retard (late).
- Two colored LEDs help to check the kickstart setting
- Coil charging moment is calculated for optimal charging moment and minimal charging time.
- Acceleration and deceleration is measured using two separate memory positions for accurate timing calculations.
- Front and rear cylinder data is kept for accurate timing.
- Automatic coil current shut off after three seconds idle. This prevents the coil from overheating and saves the battery.
- 9 advance curves to chose from.
- Timing is easy: identical to points timing.
- Switch setting "0" is used for carburetor adjustment. The ignition is set to full advance at any RPM at this setting (don't forget to set the switch back to 1-9 after finishing)! Also, this setting can be used if you want to use the ignition in the original setting and use the advance retard handle.



1936-1946 ignition base

One has to check the ignition timing base model fitted on the bike. Some bikes have a wrong model ignition system mounted in respect to the year of the bike. This can be very confusing. Especially in the year 1947

The module replaces the Condenser and Breaker Points. It is designed to work on 6Volt and 12Volt battery powered systems.

DUE TO SHORT OPENING TIME SPARK IS 60% IMPROVED

No moving parts; timing is set "forever"

The kit consists of the following items:

- Electronic Ignition Module with mounting flange
- 75 cm wire loom
- Trigger rotor; split model
- 3x Flag terminals
- Installation instructions
- 2x Hex key; 1.5mm and 2.5mm

Installation Instructions:

1. Switch main dashboard switch to "off" position (Ignition& light switch)
2. Disconnect negative (ground) cable from the Battery
3. Remove the Condenser and Breaker points from the circuit breaker timing base.
4. Disconnect advance/ retard cable from timing base.
5. Remove timing base from timer shaft and housing (see your manual for instructions).
6. Remove circuit breaker wire stud or circuit breaker to coil wire assembly from timing base.
7. Remove circuit breaker wire from Ignition coil, and mark terminal on coil with piece of tape.
8. Install the Electronic Ignition Module on the timing base. **Feed the short wire and the two long wires through the hole where the stud was located. All three wires pass this hole via the rubber grommet.**
9. Mount the short black wire under one on the timer base screws by keeping some slack in this wire so the timing base can turn free. Solder the flag terminal to this short black wire and mount it under the Timer to motor bolt. This way of mounting provides a good grounding.
10. Reinstall the timer base on the timer shaft housing, and keep some slack in the wires before protruding the hole in the timer shaft housing, and secure with ground spring and cover retainer. Reconnect the advance/retard cable to the timer base.
11. Route the two long wires to the ignition coil. Check in the HD service manual for a proper route to the ignition coil. (Keep away from hot surfaces like exhaust systems). Cut the wires to the exact length necessary for mounting.
12. Determine the exact length of the wire loom. Keep in mind that one end of the loom enters the timer shaft housing by 1cm. Cut the loom to the proper length.
13. Insert both wires in the loom. Strip both wire ends and solder the two flag terminals on the wires.
14. Connect the red wire to the ignition coil, on the terminal where the 6 or 12 volt is supplied to. This terminal has at minimum one wire connected which runs to the main switch.
15. Connect the black wire to the ignition coil on the terminal which is empty, and has piece of tape on it. (Old place where the circuit breaker wire was connected to).
16. Install the trigger rotor on the timer shaft cam, and tighten the hex screw by using the hex key tool. Do not over tighten the screw! Adjust the rotor so that the **top of the hex** screws of the rotor, level with the **top/surface of the casted** ignition module.
17. Check for clearance between trigger rotor and Electronic Ignition Module. Appropriate clearance is between **0,5mm and 1,5mm**. Minor adjustments can be made by unlocking the two screws and slightly shift/move the Electronic Ignition Module. Check if the rotor moves free.
18. Fixate the timer base so it cannot be moved/rotated any more by the advance retard lever/handle. **Set the timer base to full advance!** This position remains for all time!
19. Reconnect the negative (ground) cable to the battery.
20. Switch main power to "on" position. The red light in the Electronic Ignition Module might already light up. If not, turn the kick starter slowly; you should see the red LED go on and off, while kicking.

Timing instructions:

Remove the spark plugs from the engine, but keep them connected to the spark coil cables and engine ground. This enables normal operation of the spark, and prevents unwanted engine firing on compression stroke. **See service manual or handbook for timing instructions of your model.**

KICKSTART timing

You can set the timing moment for kickstarting yourself by choosing the best fire moment for your engine! You can choose any moment from 10 to 20 degrees by turning the tunable top of the rotor. Although not critical, two indicator LEDs help you with checking the kickstart moment you chose.

This kickstart moment is independent from the timing moment. This feature solves the problem of difficult starting, especially for models that use mechanical weights for the advance system. They are set on late (retard) and make starting very difficult.

Two LEDs have multi functional tasks:

The LED closest to the small 10 position rotary switch (red LED) is used for timing when the engine is not running. The LED indicator turns ON (old situation; points start to open) indicating the exact timing moment.

While the engine runs, the green LED and the red LED indicate you what the kickstart setting is you chose. The engine must run just above idle speed to activate this function for the two LEDs.

It indicates 3 fixed positions: 10 degrees, 15 degrees and 20 degrees.

	Red LED	Green LED	Degrees
All OFF	OFF	OFF	WRONG! Angle smaller than 10 degrees or greater than 20 degrees
Red LED ON	ON	OFF	10 Degrees
Green LED ON	OFF	ON	20 Degrees
Red& Green LED ON	ON	ON	15 Degrees

By rotating the top half of the rotor the kickstarting moment can be set. Although it is not critical at all, the two LEDs helps you to find the actual setting. Or just set the tunable top to a smooth starting position. Secure hex screws after adjustment of the rotor.

Check for the Flywheel timing mark of your model

It is important that the timing is set for the compression stroke of the front cylinder, and the ignition is fully advanced by turning the handlebar ignition control.

Turn the engine in the direction it normally runs, by cranking the kick starter, until the front cylinder is on compression stroke. Continue to turn it slowly until the flywheel timing mark indicates the ignition must fire. The position of the timing mark in the inspection hole depends on the model you have. (Sidevalve: mark in center, OHV: in right position of hole).

At this timing mark position the red light must change to ON. Adjust the timing moment by adjusting band of the timing base (1936-1946), and rotate the timing base until light goes ON. (a spark will not occur at this full advance moment; but some degrees later//10-15 degrees).

Repeat and check timing procedure several times, until accurate timing is achieved.

Do not move the flywheel back and forwards, since the endplay of the gears prevent accurate timing.

START THE ENGINE

What if it is not working?

All Electronic Ignition Modules are fully tested.

1. Check with a voltmeter between the ignition coil terminal where the red wire is connected, and ground. This terminal must have a voltage of 6 Volt for a 6 Volt system, or 12 Volt for a 12 Volt system. Lower voltages indicate low battery or a voltage drop in the wiring system or main switch.
2. Check if the timing base has a good grounding. Avoid rust, paint and a worn out timing base. By placing a voltmeter on the timing base and the crankcase, a voltage drop can be measured in case grounding fails. Re-check ground spring and cover retainer.
3. Check with a voltmeter at the ignition coil terminal where the black wire is connected. The voltmeter must swing (while cranking the kick starter) between 1-6Volts for a 6 Volt system or 1-12 for a 12 Volt system.
4. Make sure the Electronic Ignition Module has a proper ground. Check for proper grounding of the timer to motor bolts.
5. Be sure the engine makes proper grounding to the frame and battery.
6. Check if battery is fully charged. The module operates from a starting voltage of 4.5 Volts.
7. Check ignition coil and spark plugs

Warnings

- Do not electrically weld on the bike while the Electronic Ignition Module is installed
- Do not reverse polarity of the battery or the connection wires of the Electronic Ignition Module.
- Be very sure the electrical installation of the bike is in good condition.
- **Never connect a battery charger to the electrical system with the ignition module installed.** Many chargers generate a high Voltage spike while connecting or disconnecting the clamps, which can damage the ignition module. Always disconnect the battery from the wiring circuit and charge the battery separate.

Specifications:

Temperature range : -20C <-> 80C
Operating Voltage : 6 Volt and 12 Volt
Absolute maximum ratings : module operates from 4,5Volt till 16 Volt
Maximum RPM : 9000 RPM
Coil resistance : for 6 Volt systems 1.0 Ohm **absolute minimum**
Coil resistance : or 12 Volt systems 2.0 Ohm **absolute minimum**

Advantages:

1. Better starting, no moving points, so no maintenance.
2. Automatic advance retard setting done by the computer.
3. Works on 6 Volt and 12 Volt systems (investment protected).
4. Accurate timing, even at high RPM.
5. Simple installation.
6. Conversion not visible from the outside.
7. Timing LED for easy timing procedure.

Fast installing procedure for experienced classic Harley mechanics:

1. Remove old points/condenser /wire terminal and wire to coil.
2. Install Electronic ignition instead of points and place rotor on shaft.
3. Lead the three long wires through terminal hole and connect red wire to positive coil terminal and black wire to negative coil terminal and the short black wire under the timer base screws!
4. Adjust timing as per H-D instruction for the model required.
5. When the red led indicator turns on, you have set the full advance moment.
6. START THE BIKE.....

Adjust top half of the rotor by rotating it for best kick starting moment. Recheck timing after 500 miles.