



INSTALLATION INSTRUCTIONS

BY ACCEL MOTORCYCLE PRODUCTS

BILLET ALUMINUM DISTRIBUTOR WITH ELECTRONIC ADVANCE AND ADJUSTABLE REV LIMITER FOR 1936-69 HARLEY BIG TWIN MOTORCYCLES PART NO. A557

ELECTRICAL SYSTEM

A 12 volt electrical system is required. Check that the charging system is working properly and not producing over 16 volts.

DISTRIBUTOR CLAMP

A 1966-69 style distributor clamp (original or aftermarket) is required.

MODULE

This distributor uses an Accel Single/Dual Fire Ignition module part number 35496. See the enclosed form "Instruction Sheet Single/Dual Fire" for instructions on wiring, adjusting the rev limiter and selecting an advance curve.

COIL(S)

A coil(s) with a total primary resistance of 2 to 4 ohms is recommended.

INSTALLATION

Step 1

Turn the ignition switch to the off position. Rotate the engine until it is on the compression stroke for the front cylinder. Continue to rotate the engine until the TDC mark is visible through the timing hole. (see repair manual if necessary).

Step 2

Remove the existing distributor if still in the engine.

Step 3

Remove the two button head screws from the top of the Mallory distributor. Pull the top cover off the distributor. Remove the two hex standoffs and pull the module and upper housing off the distributor base assembly. Adjust the switches on the module for the desired advance curve and rev limit.

Step 4

Install the distributor base assembly in the engine with the screw holes and shutter wheel positioned as shown in Figures 1 and 2. It may be necessary to pull the distributor out, turn the shaft and reinstall to get the shutter wheel at the approximate angle shown. The slots should be at about the 11 o'clock and 7 o'clock positions. The screw holes should be at the 9 o'clock and 3 o'clock positions.

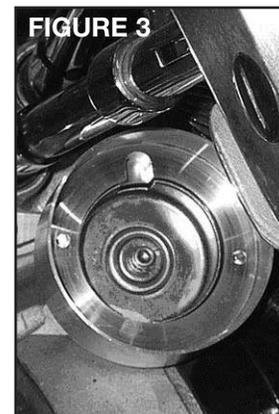


Step 5

Install the distributor clamp and tighten the clamp bolt lightly so the distributor can still be rotated.

Step 6

Set the upper housing on the base assembly as shown in figure 3. (The upper housing will only install one way because of the locating screw) Rotate the base assembly slightly if necessary so that the slot in the shutter wheel lines up with the slot in the upper housing. Tighten the distributor clamp.



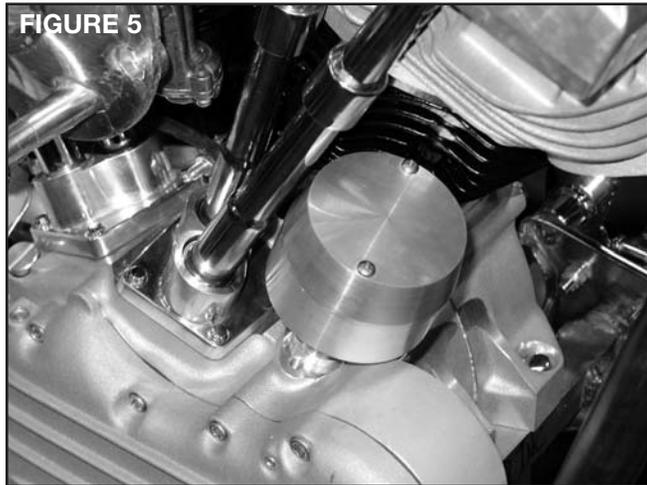
Step 7

Install the module in the upper housing using the two hex standoffs. Install the module so the standoffs are in the middle of the adjustment slots. A drop of removable Loctite on the threads is recommended to prevent the standoffs from vibrating loose. See Figure 4.



Step 8

Install the top cover using the two button head screws so that the wire harness will exit the top cover between the pushrod tubes and the cylinders. A drop of removable Loctite on the threads is recommended to prevent the screws from vibrating loose. See Figure 5.



Step 9

Run the wire harness between the pushrod tubes and the cylinders and up to the coil. Try to keep the harness away from the hot cylinder fins. Connect the wires to the proper places as indicated in the "Single Fire/Dual Fire Ignition" instruction sheet.

Step 10

The timing should now be close enough to start the engine. If not, loosen the distributor clamp slightly and turn the distributor slightly either direction until the engine starts.

Step 11

Once the engine has warmed up a few minutes the timing can be set with a timing light (see repair manual if necessary). Adjustments to timing can be made by removing the top cover and rotating the module or by rotating the entire distributor. Using a combination of both methods will usually allow the distributor to be timed correctly AND be positioned so the distributor is at an angle that allows the wire harness to run smoothly between the pushrod tubes and the cylinders. If not, remove the distributor and rotate the shaft one gear tooth and reinstall.

SINGLE/DUAL FIRE IGNITION Part #35496

WIRING

RED = POWER

BLACK = GROUND

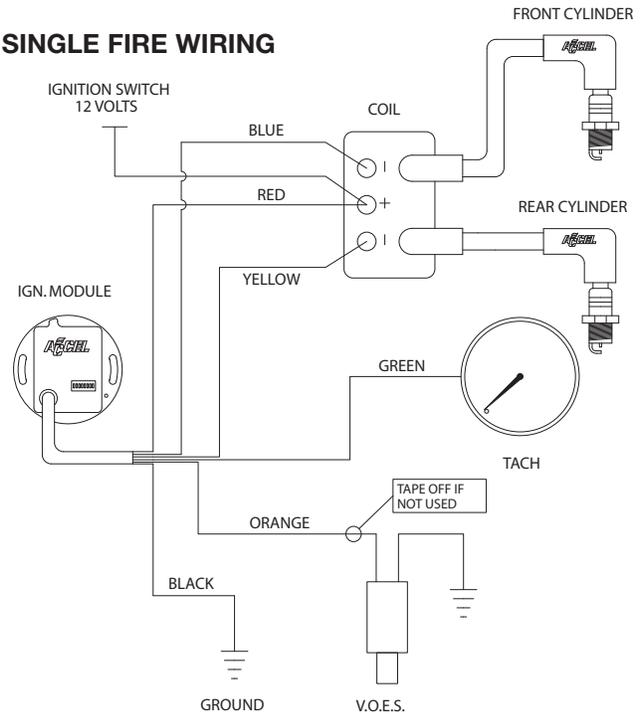
ORANGE = VACUUM OPERATED ELECTRONIC SWITCH

GREEN = TACHOMETER

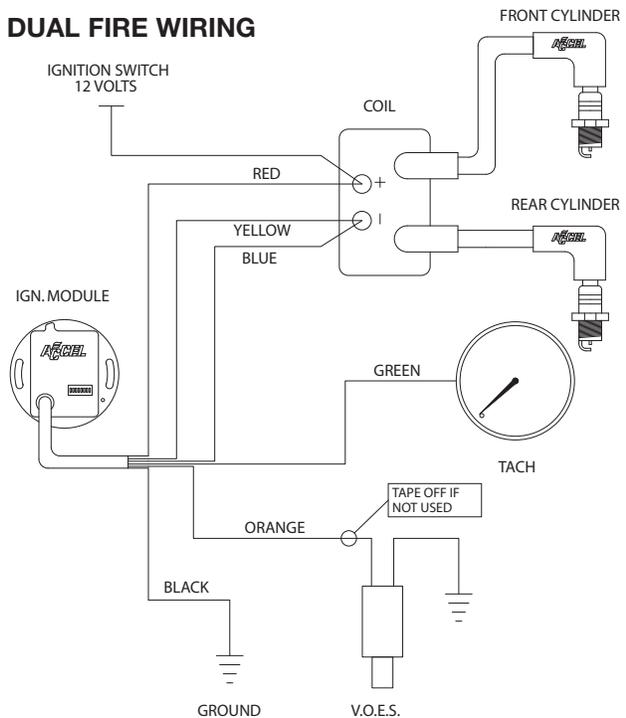
BLUE = FRONT CYLINDER COIL

YELLOW = REAR CYLINDER COIL

SINGLE FIRE WIRING



DUAL FIRE WIRING



SWITCH FUNCTIONS

Position 1 controls the single fire/dual fire mode:

Switch position 1 off-dual fire on-single fire

Switch position 2-4 controls the Rev Limit:

<u>Rev. Limit Produced</u>	<u>Switches in the On Position</u>
6272	4
6528	3
6784	3, 4
7040	2
7296	2, 4
7552	2, 3, 4
Stock Applications	4, 8

On all others off. If using single fire mode add 1 on.

Switch positions 5-8 control the advance curve.

TIMING LED

This can be used for static timing and as a diagnostic aid. The LED should light up when the ignition key is turned on. The timing LED will go off when the crankshaft is rotated past TDC. During cranking the LED will blink. The LED light will stay on while the engine is running.

TIMING PROCEDURE

For most 1984 and later models, most aftermarket ignition system installation does not require resetting the ignition timing. For earlier models where a new trigger rotor or camshaft position sensor is installed, you must reset the timing.

The TDC and advance timing marks are located on the flywheel and can be observed via an inspection hole (refer to the shop manual for details). Early Style includes most 1980 and earlier models. Late Style includes most 1981-95 models. If the shop manual is not available, remove spark plugs, turn engine until front piston is at TDC on compression stroke and identify TDC mark on the flywheel.

INITIAL STATIC TIMING PROCEDURE

If the engine will not start or runs very rough, you can use the following static timing procedure. Remove spark plugs and turn engine until TDC mark appears in observation hole. Ground spark plugs with an alligator clip so you will not shock yourself.

Turn on ignition. Loosen the standoffs holding camshaft position sensor and rotate it clockwise until timing LED goes out. The point at which LED goes off is TDC. Timing is now set approximately at TDC, which is correct for cranking conditions.

Turn off ignition and reinstall spark plugs.

ADVANCE TIMING PROCEDURE - USING STANDARD TIMING LIGHT

This timing procedure requires that a VOES switch be connected to the ignition module. For racing applications without a VOES switch, you must ground the VOES input while setting the timing. Connect a timing light to the front cylinder. Set the ignition module advance slope switch to midrange. Run the engine at 2,400 to 2,500 RPM. Rotate camshaft position sensor until advance timing mark is centered in the observation hole. Tighten the standoffs and verify that timing has not shifted.

SETTING PRECISE ADVANCE TIMING FOR RACING USING DIAL BACK TIMING LIGHT

Determine the advance you want at 2,500 RPM. Use a dial-back timing light. Set the amount of advance you want, say 35 degrees, on the dial-back timing light. Connect the dial-back timing light to the front cylinder. If the VOES is used, disconnect the VOES input while setting the timing with this procedure. Set the ignition module advance slope switch for maximum advance. Run the engine at 2,500 RPM. Rotate camshaft position sensor until TDC timing mark is centered in the observation hole. You will now have the amount of advance you dialed into the timing light. Tighten the standoffs and verify that timing has not shifted. Some dial-back timing lights are not compatible with odd firing H-D® V twin engines. **NOTE: APPLICABLE TO SINGLE FIRE MODE ONLY. MOST DIAL-BACK TIMING LIGHTS WILL NOT WORK CORRECTLY IN DUAL FIRE MODE.**

TROUBLESHOOTING

Did the engine run properly before installation of the ignition module? Was there a hesitation or a miss before the module was installed? If not, remove the ignition module, reinstall the OEM ignition or another known good unit and then find and correct the original problem. Using this module with an existing ignition misfire will only make the misfire more noticeable.

Did the ignition module function correctly before the problem occurred? If the answer is yes, did you change anything that may have affected it? Try going back to the last setup that worked OK to help isolate the problem.

Are your dip switches set correctly? Make sure your #1 dip switch is set correctly for Single Fire or Dual Fire mode. Also, double check that wiring to the coil is correct for the coil your using. A single fire coil must be used when in Single Fire mode and a Dual Fire coil should be used when in Dual Fire mode.

Damage to the ignition module circuitry may have occurred if 12 volts was applied to the green tachometer wire at any time.

If the engine will not start, or runs rough or intermittently, use the following checklist steps:

ENGINE WILL NOT START

Check that timing LED lights up when ignition key is first turned on. If not, check for +12 volts on red wire to COIL+.

Check that timing LED blinks while engine is cranked. If not, camshaft position sensor or ignition module may be defective.

If the timing LED blinks, but engine will not start, recheck all wire harness connections or replace coil(s).

NOTE: 1996 AND LATER MODELS (1995 AND LATER FOR EXPORT MODELS) HAVE A TIMING MARK AT 20° BTDC FOR SETTING THE TIMING WITH THE O.E. IGNITION MODULE. DO NOT USE THIS MARK FOR SETTING THE TIMING WITH THE IGNITION MODULE. IN MOST CASES AN ADDITIONAL MARK WILL REMAIN AT 35° BTDC (SEE FIGURE 7). USE THIS MARK TO SET THE TIMING WITH A TIMING LIGHT AS DESCRIBED BELOW.

CHECK FOR LOW VOLTAGE FROM A FAULTY OR MARGINAL CHARGING SYSTEM AND BATTERY. FAULTY CHARGING SYSTEM COMPONENTS COULD CAUSE PREMATURE FAILURE OF THIS IGNITION MODULE.

CHECKING FOR SPARK

For safety concerns, we suggest using an appropriate spark testing tool to accurately check for spark.

MISFIRE OR INTERMITTENT OPERATION

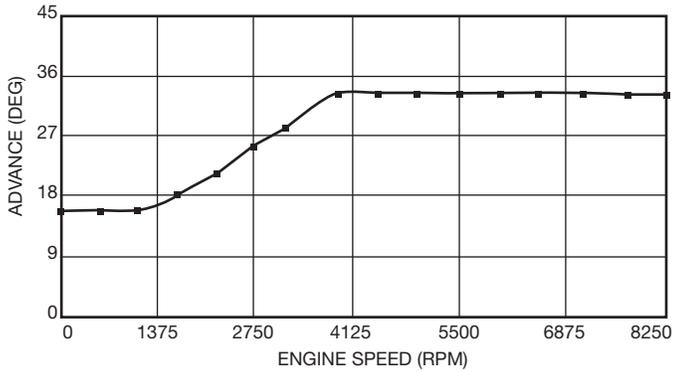
Our field experience has shown that popping back through the carburetor, misfiring, and intermittent failure (especially after the engine gets hot) are usually not caused by electrical problems within the ignition module. Carburetor problems, fouled spark plugs, coil failure, and loose wire harness connections are the most common culprits.

Improper spark plug wires can cause module failure. Verify that suppression type spark plug wires and resistor spark plugs are being used. This module is sensitive to RFI noise, be sure to NOT use a solid core or stainless core plug wire, as this will allow RFI noise back to the module which will cause eventual failure to the module.

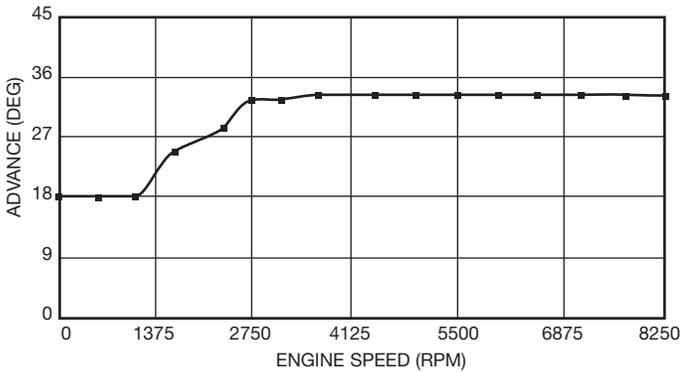
TACH INOPERATIVE

If the tach is inoperative after installation of the ignition in single fire mode, you may require a tach adapter. Most ignition module tach output is compatible with ground sensing tachs which includes most O.E. and aftermarket tachs. Damage to the ignition module circuitry may have occurred if 12 volts was applied to the tach wire at any time.

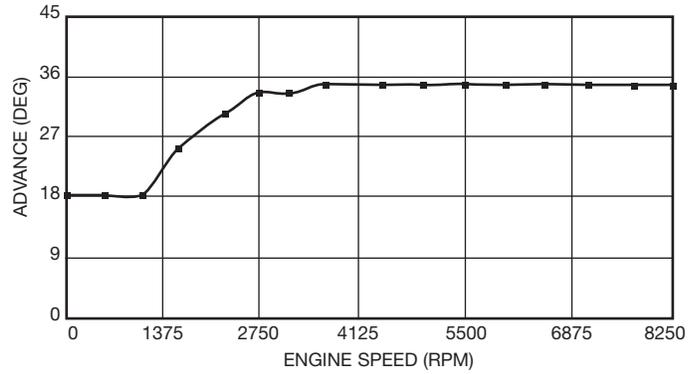
Switches in the ON position - 8



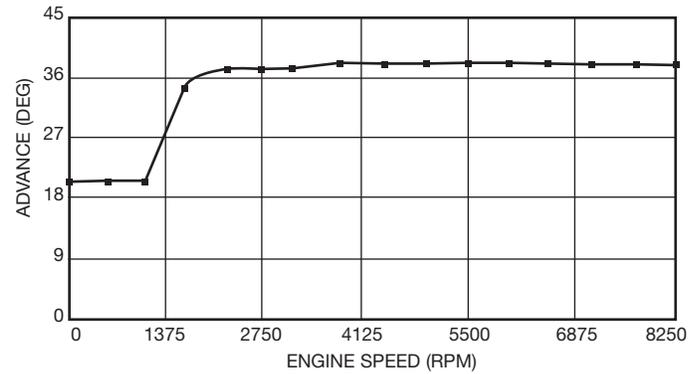
Switches in the ON position - 7



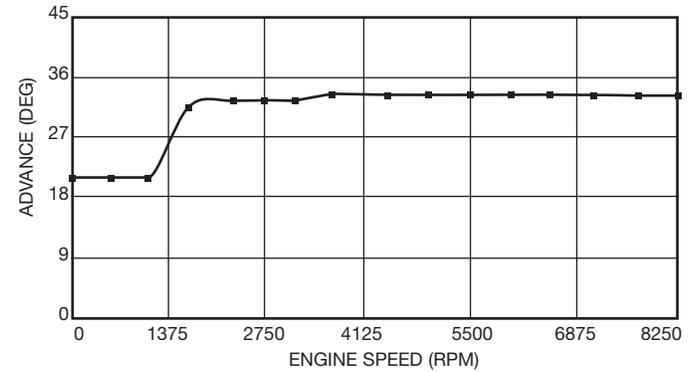
Switches in the ON position - 6, 8



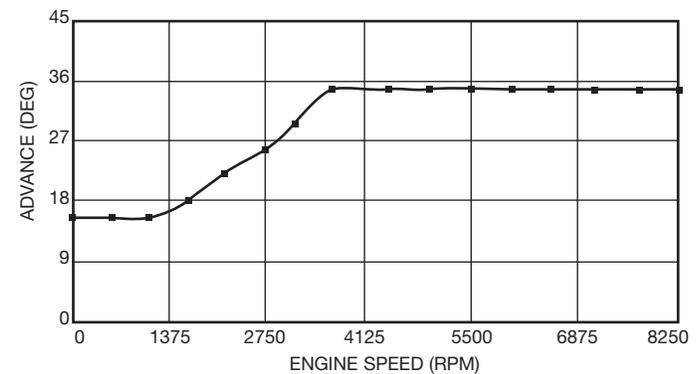
Switches in the ON position - 5



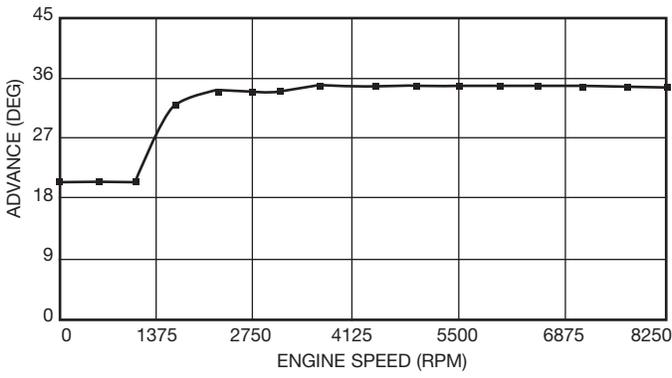
Switches in the ON position - 7, 8



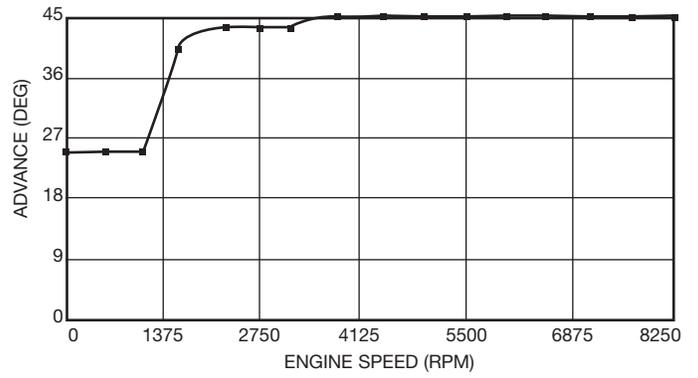
Switches in the ON position - 6



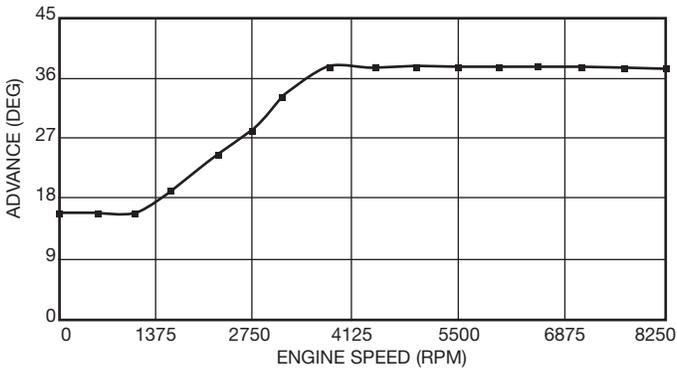
Switches in the ON position - 6, 7



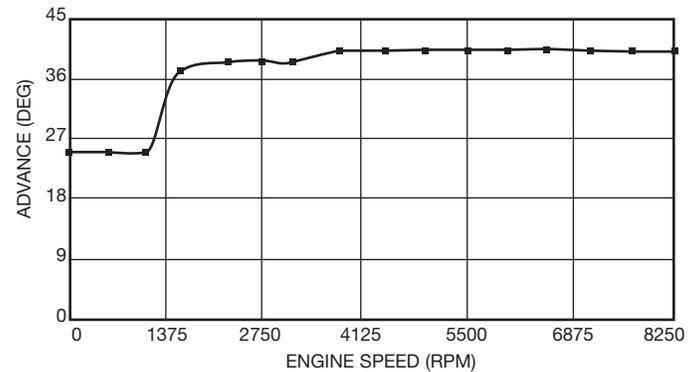
Switches in the ON position - 5, 6, 7



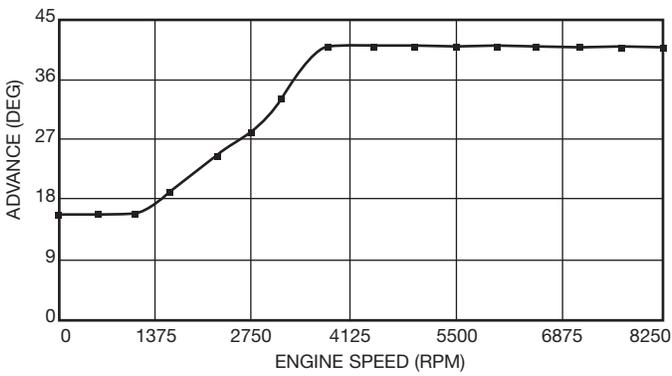
Switches in the ON position - 6, 7, 8



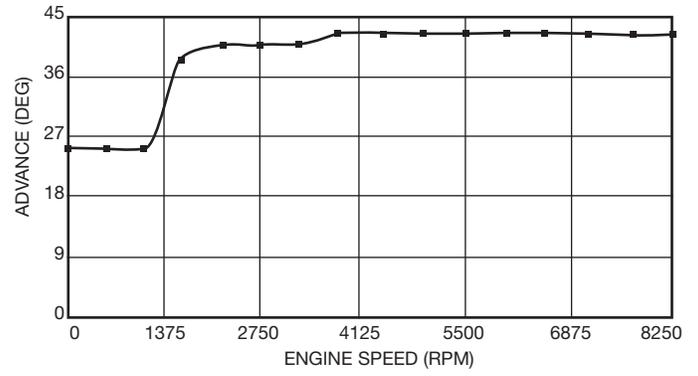
Switches in the ON position - 5, 6



Switches in the ON position - 5, 7



Switches in the ON position - 5, 6, 8



Switches in the ON position - 5, 7, 8

