Mallory Digital Electronic Advance External Control Box Installation Instructions

READ THIS FIRST!

IMPORTANT

Before starting the installation of your Electronic Advance distributor, make sure that your vehicle has the proper amount of ballast resistance. One way to find out is to examine the service manual for your vehicle. If you are not sure, use a voltmeter to measure the voltage at the coil "+" terminal with the engine idling. If the measured voltage is within 1 volt of the battery voltage (for example: Battery measures 13.5V, the coil "+" lead measures 13.2V) then you must provide a ballast resistor (such as a Mallory #700) between the ignition switch wire and the coil "+" terminal as shown in the illustrations. If the voltage at the coil "+" terminal is lower than this (9-11 V, for example) then an additional ballast resistor is not needed. If you are using the Electronic Advance ignition to drive another aftermarket ignition amplifier, follow the directions for the additional unit regarding the use of ballast resistors. Failure to use a ballast resistance when driving a coil (if the test above shows that it is required) will result in the eventual failure of the ignition system.

The Mallory Digital Electronic Advance has been designed to be easily installed into your vehicle by following the instructions and illustrations below.

NOTE: To minimize the effects of radiated electrical noise, this ignition system *requires* the use of a complete carbon core or spiral wound (such as Mallory Sidewinder®) type spark plug wire set.

In the plastic bag furnished with your system there is a wire harness which connects to your vehicle. The ignition system has a connector which will allow you to plug into this harness, (or an existing Unilite® ignition system wire harness, if you are upgrading from a Unilite® distributor).

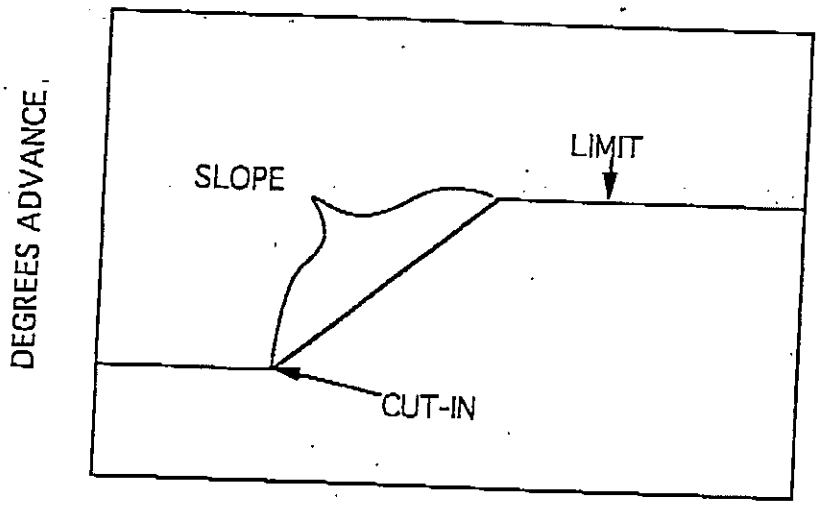
The advance curve of the system is set, not by changing springs or moving advance stops, but by setting different combinations on an 8 position switch which is plugged into a socket on the circuit board in the control box (see illustration). Once the system is installed, you can easily change and experiment with the advance curve *without having to remove the distributor from the engine!* Also, you can be sure that the curve will be exactly as shown in the accompanying illustrations.

Keep in mind that the initial advance will still be determined by distributor position. Therefore, if you set 10 degrees of initial, and a maximum of 24 degrees in the electronic advance, your total timing is 34 degrees. In other words, it is just like using any other distributor, except that you now have exact control over the advance curve.

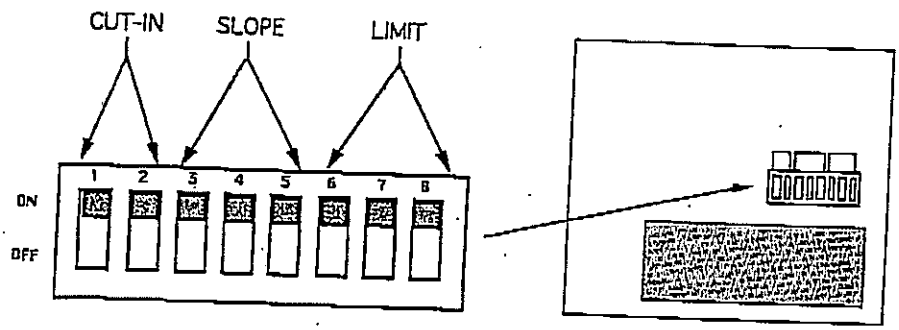
In this instruction sheet you will see a set of 4 curve sheets. Each shows a set of slope and limit combinations for the 4 cut-in speeds available. *The ignition system control unit comes preset from the factory with a cut-in speed of 1000 RPM, a slope of 12 degrees per 1,000 rpm, and a limit of 24 degrees. This results in 24 degrees distributor advance at 3000 rpm.*

Using the curve sheets:

A typical distributor advance curve has three basic parts: The cut-in speed, which is where the ignition system begins to advance the timing; the slope, which is the number of degrees per thousand rpm that the ignition advances; and limit, which is the maximum amount of advance that the system will allow. The illustration below shows these three parts.



By selecting the right combination of switch settings, you can get just about any curve you need. Shown below is an illustration that indicates which sections of the switch control the three different areas.



ARROW POINTS TO LOCATION OF SWITCH INSIDE CONTROL BOX

To set the curve, select the curve sheet for the cut-in speed you want, and set switches 1 & 2 as shown. Then set switches 3,4, and 5 for the slope, and switches 6,7, and 8 for the limit, as shown on the appropriate curve sheet.

Installing the Mallory Electronic Advance Distributor

NOTE: Please read the section about ballast resistors on page 1 before beginning your installation.

1. Locate the No. 1 cylinder spark plug wire on the existing distributor cap, and mark the distributor housing in line with the spark plug connection. If this is not easily accessible, use some other means to point at the No. 1 cylinder plug wire.

2. Remove the distributor cap, but **DO NOT** remove the plug or coil wires yet. Remove the vacuum hose from the distributor (if used) and plug the hose end.

3. Use a remote starter switch to briefly crank the motor over until the rotor tip points at the No. 1 cylinder mark made in step 1, and the timing marks on the harmonic balancer are in the proper position. (See a service manual for your vehicle if you are not sure how the timing marks should line up.) After locating the engine in this position, **DO NOT** crank the engine again until after the new distributor is installed.

NOTE: Temporarily removing the spark plugs during step 3 will make it easier to crank the engine.

4. Remove all wires between the distributor and the coil. If a Mallory Unilite® distributor is being replaced, unplug the Unilite® from the wire harness attached to the coil.

5. Remove the existing distributor from the engine.

NOTE: If the Mallory distributor does not come equipped with a gear or drive coupling, and one is required, remove the gear or drive coupling from the distributor just removed and install it on the Mallory distributor as follows:

Pull the distributor shaft down and install the thrust washer and gear or coupling onto the distributor shaft. Place an .020" feeler gauge between the gear or coupling and thrust washer. Drill through, and pin gear or coupling to shaft with pin provided.

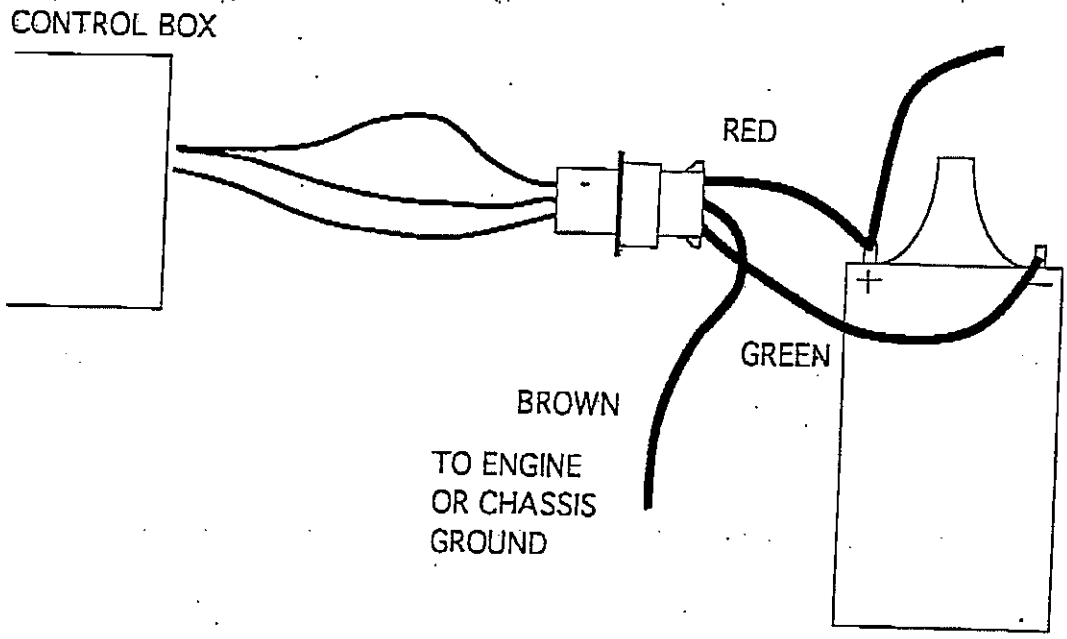
6. Remove cap from Mallory distributor. Place the Mallory distributor in the engine. It may require several tries in different positions until the oil pump drive and the camshaft gear line up correctly.

NOTE: Make sure that the distributor is fully seated in the engine before continuing.

7. Temporarily place the cap on the Mallory distributor and note which spark plug terminal the rotor tip is closest to. Mark the distributor body directly below this terminal and remove the cap. Rotate the distributor body until the rotor tip points directly toward the mark on the distributor body. This should cause the timing to be close enough to start the engine. Tighten the distributor clamp until the distributor is held in place, but can still be moved to adjust the timing.

8. Install the distributor cap. Remove the No. 1 plug wire from the old distributor cap and install it in the new cap at the position marked in step 7. This becomes the new No. 1 cylinder location. Remove the rest of the plug wires from the old cap and install them in the same order on the new cap. Remove the coil wire from the old cap and install it in the Mallory cap.

9. The three wire harness supplied with the Mallory control box is connected as shown below:



Typical wiring diagram. If the original wiring *does not* have a ballast resistor or loom resistor wire, a ballast resistor *must* be added in the wire from the ignition switch. See page 1 of this instruction sheet for more information.

RED WIRE: Connect this to the coil "+" terminal. This terminal may also be labeled "BATT".
GREEN WIRE: Connect this to the coil "-" terminal . This terminal may also be labeled "DIST" or "DEC".
BROWN: This wire is connected to the engine block or other good chassis ground.

10. Connect a timing light. MAKE SURE that the timing light wires, clothing, and all parts of your body are clear of moving engine parts when you time the engine. Remember that air from the cooling fan can blow wires and loose clothing around. Start the engine, then adjust the timing to the recommended initial value. Where legally allowed, advancing the initial timing to the point where the engine pings OCCASIONALLY under load, and then retarding 2 degrees, can improve both economy and performance.

COIL AND PLUG GAP INFORMATION

The Mallory electronic advance ignition system is designed to be used with a wide variety of coils, including most aftermarket high performance coils. It is NOT intended to be used with very low inductance coils made for C-D systems, such as the Mallory 28880, unless the electronic advance is being used ONLY to trigger the C-D system. If your vehicle already has a ballast resistor or loom resistance wire (see page 1 of the instructions) then you WILL NOT need the additional ballast resistor that may be supplied with your Mallory coil.

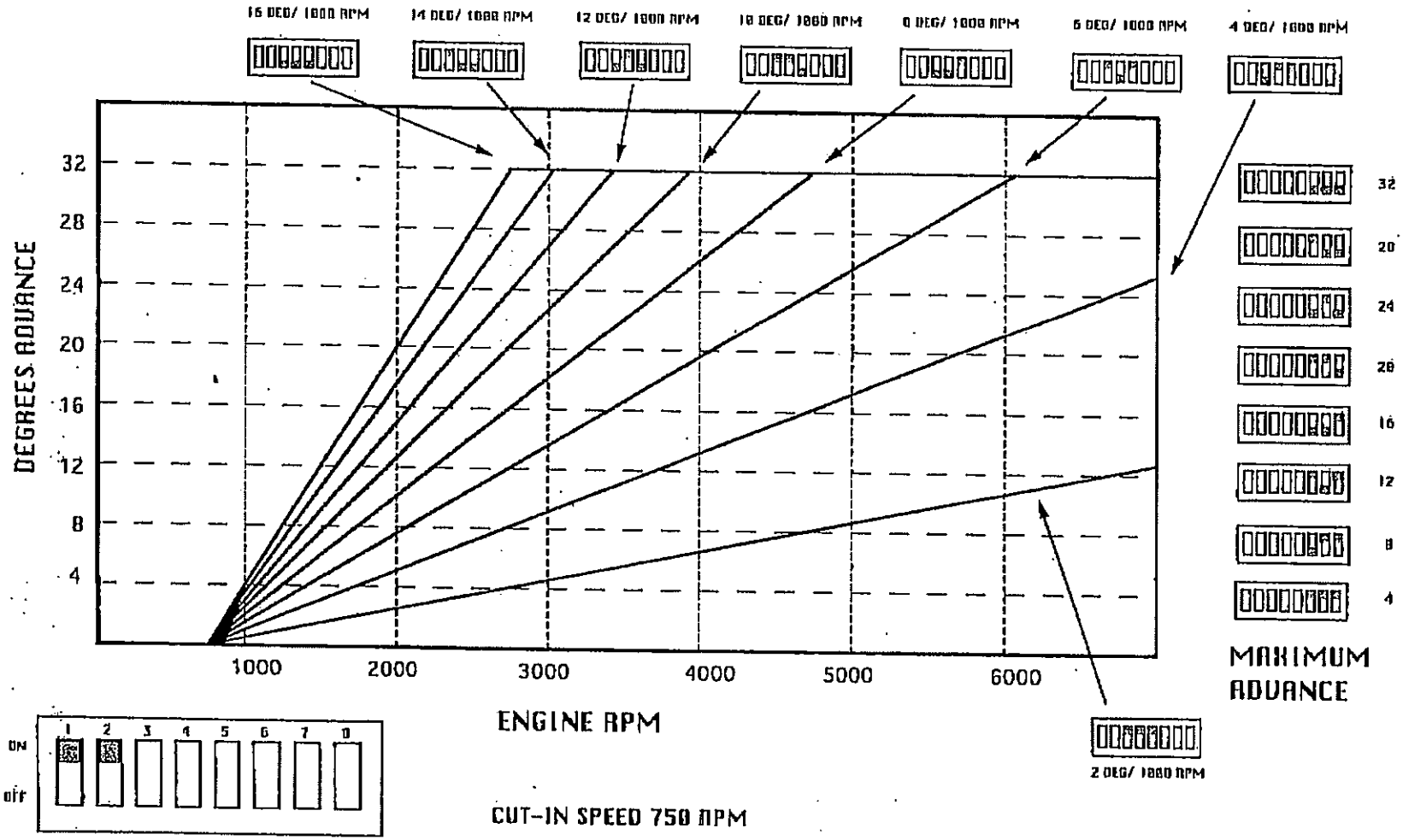
Mallory PROMASTER® coil part numbers are shown below:

No. 28720: For stock engines, RPM range to 5000 (V-8).
No. 29440: For stock or mildly modified engines, RPM range to 6000.
No. 29625: For mildly to heavily modified engines, RPM range to 7500.

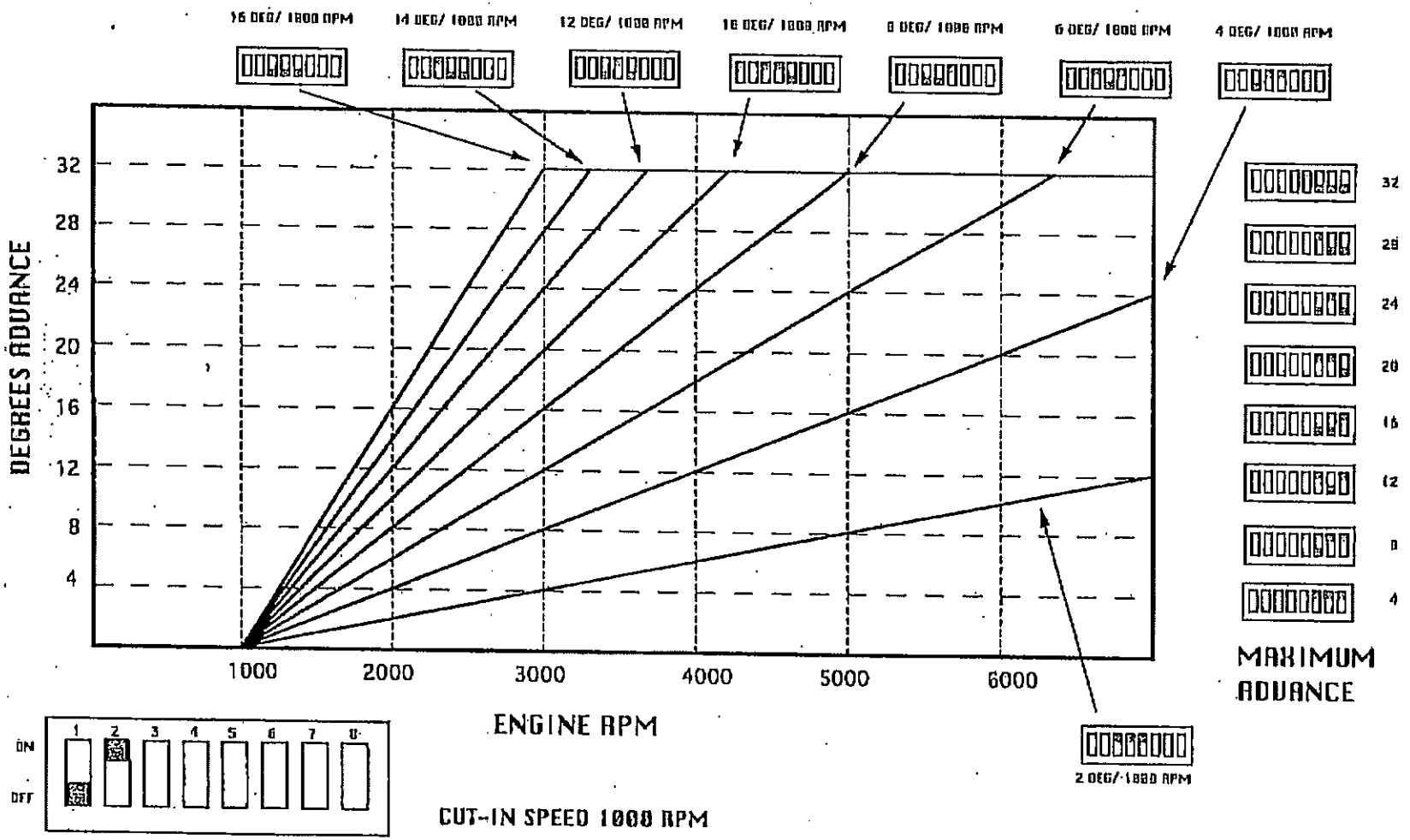
NOTE: The RPM figures shown above are for comparative purposes only, and Mallory, Inc. does not guarantee that your engine will attain these values.
RPM ranges higher than shown above, or high compression/ nitrous oxide/ super or turbocharging may require the use of an additional C-D type ignition system (such as the Mallory HyFire® 667, 690, 692 or 697 ignition systems) to obtain satisfactory results.

Plug gaps when using the electronic advance system should be in the .035" to .045" range for most applications. It is generally better to start at the smaller values and increase gradually until no further improvement in the engine operation is noticed. The use of an aftermarket C-D ignition may allow you to run higher plug gaps, but the exact value must be determined by experiment.

Advance Curve Sheet
External Control Box
Electronic Advance

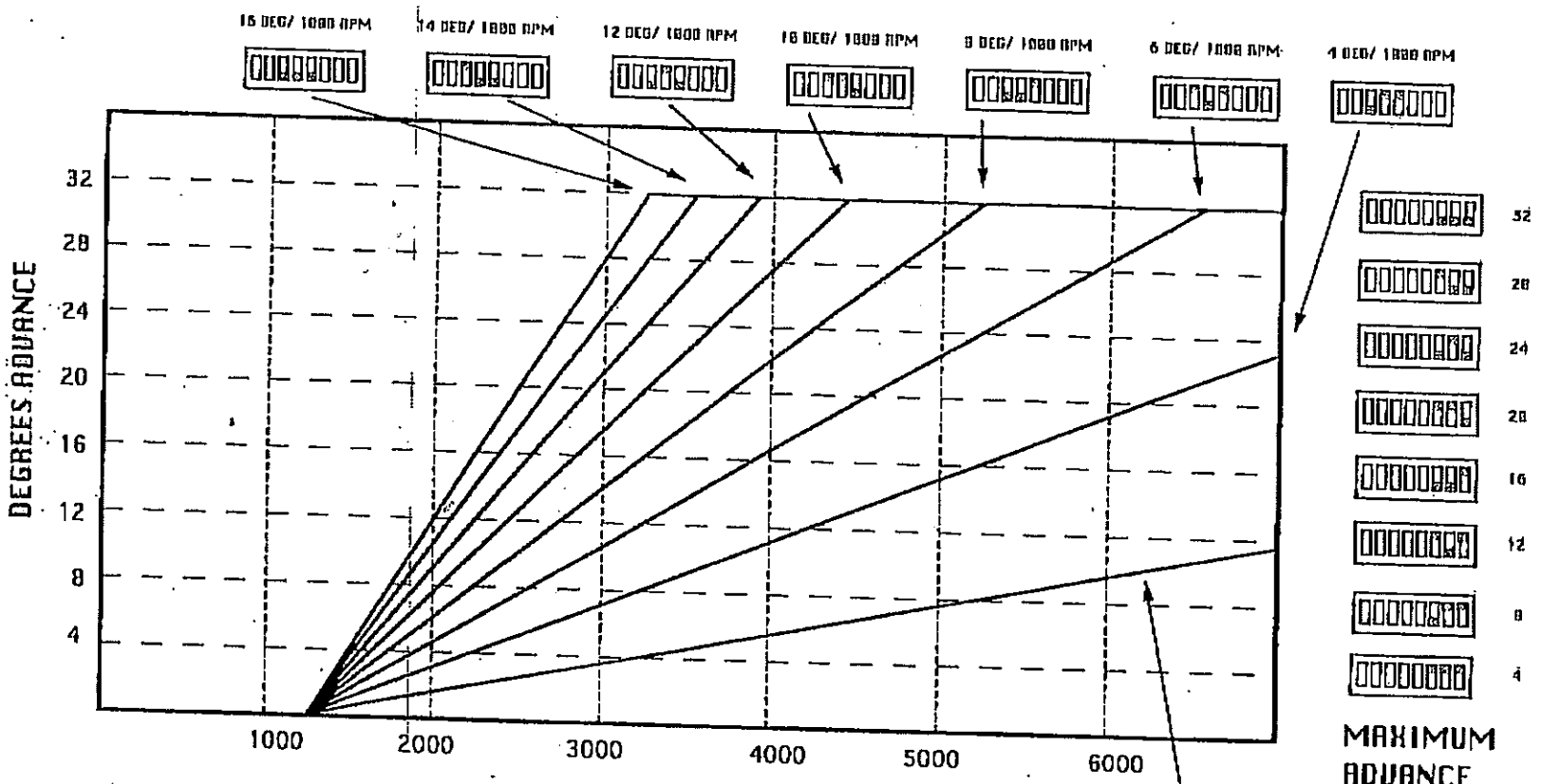


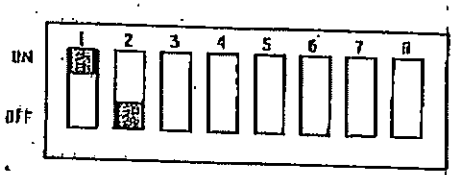
Advance Curve Sheet
External Control Box
Electronic Advance



CUT-IN SPEED 1000 RPM

Advance Curve Sheet
External Control Box
Electronic Advance





CUT-IN SPEED 1250 RPM

Advance Curve Sheet
External Control Box
Electronic Advance