

## Programmable Ignition System spark limitations

I have discovered a possible drawback with your Programmable Ignition System project from the March-May 2007 issues ([www.siliconchip.com.au/Series/56](http://www.siliconchip.com.au/Series/56)).

First, consider a conventional distributor. Irrespective of how much vacuum advance or how much centrifugal advance is introduced, the rotor will always point to the same point on the distributor cap when the points open, or when any other trigger system takes effect.

This point, of course, should be when the rotor is in direct line with the associated spark plug lead.

With the Programmable Ignition System, the trigger point is always the same and the advance, or firing point, is calculated from this electronically. This means that the firing/rotor position is now advanced relative to the cap.

With a possible maximum advance in the order of 40° of engine rotation or 20° of distributor rotation and taking a typical Holden distributor as an example, the rotor, 33mm long, will be over 11mm from its correct position.

There is 60° between each spark plug lead, and the rotor is out of position by 1/3 of that distance. This could possibly cause misfiring under high advance, high ignition load conditions.

What do you think? (J. B., Upper Caboolture, Qld)

● It is true that the ignition system can't be set for excessive advance or retard since as you say, the rotor is not going to be in the correct position at

firing. In practice, this does not tend to be an issue since that much spark advance or retard is not necessary or advisable on a street car engine and the rotor contact caters for a wide range of timing, due to its length.

However, if the programmed advance means that the rotor does not line up with the distributor cap, the entire ignition map can be readjusted in the programming to add some overall retardation to the timing. To compensate for this retardation in timing, the physical timing point can then be readjusted for more advance.

That will allow for plenty of spark advance while the rotor is still in position to allow the plugs to fire.