

Research on Burning Arc between Contacts and Basic Study on Contact Bouncing of DC Relays

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Abstract: Relay can produce arc between contacts either opening or closing the circuit. There is no doubt that the arc between contacts will make the contact work condition bad, depress the reliability and work life of contacts deeply. So it is necessary for us to do some research on the characteristics of the arc in order to discuss its influence on the contacts. This paper aimed at the arc between contacts of DC relay with short burning time and little brightness, designed the arc high-speed photograph experiment and made use of digital high-speed camera to capture the whole change process of arc shape. Then it took the important info such as arc radius, length and grey level from the photos by digital image processing technology. It also combined the waveforms of voltage and current to analysis and drew some conclusions on arc burning. On the other side, bounce happens at the moment of contacts opening or closing, which will bring instability of work circuit controlled by relay. This paper got the move speed curves of contacts when opening and closing by dealing with the relative part in the photos, which may be referred when producers set down the craftwork parameters of DC relay.

Key Words: Relay, DC arc, Contact, Bounce, High-speed photograph