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Contribution to Re-strike of Arc Affected by Electromagnetic Force in Magnetic Driven Arc. YUTARO INUZUKA, KAZUKI KAWASAKI, TAKASHI YAMATO, YOSHIFUMI MAEDA, TORU IWAO, Tokyo City University — Magnetic driven arc has been applied to DC breaker. However, several phenomena in magnetic driving arc have not been elucidated. In this paper, the electromagnetic force acting on magnetic driven arc in external magnetic field is calculated. Also, the process of re-strike of arc affected by external magnetic field in magnetic driven arc is elucidated. Specifically, the behavior of magnetic driven arc with external magnetic field is measured by using the oscilloscope and HSVCiHigh Speed Video Cameraj. The additing an external magnetic field was applied by helmholtz coil. As a result, the electromagnetic force increases with increasing the external magnetic field. The arc mean moving speed increases with increasing the external magnetic field. The re-strike of arc time increases and stagnation time decreases with increasing the external magnetic field. Therefore, the anode spot moving speed increases because the re-strike of arc occurs easily with the external magnetic field. The distance between the arc column and anode becomes shorter and re-strike of arc occurs easily because the arc column precedes the anode spot with the external magnetic field. The re-strike of arc occurs on the extension of electromagnetic force. Therefore, the direction of the electromagnetic force contributes to the re-strike of arc.

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