$$F_c = \frac{\tau_s \cdot A_c}{\sin\phi} \cdot \frac{\cos(\beta-\alpha)}{\cos(\phi+\beta-\alpha)} = \tau_s \cdot A_c \cdot \cos(\beta-\alpha) \cdot \frac{1}{\sin\phi \cdot \cos(\varphi+\beta-\alpha)}$$ 에서

$$\frac{dF_c}{d\phi} = \tau_s \cdot A \cdot \cos(\beta-\alpha) \cdot \frac{0 - [\frac{1}{2}\{\sin(2\phi+\beta-\alpha)-\sin(\beta-\alpha)\}]' \times 1}{[\sin\phi \cdot \cos(\phi+\beta-\alpha)]^2}$$

$$* \sin\chi \cdot \cos y = 1/2[\sin(\chi + y) + \sin(\chi - y)]$$

$$= \tau_s \cdot A \cdot \cos(\beta-\alpha) \cdot \frac{0 - 1/2 \cdot \cos(2\phi+\beta-\alpha) \times 2}{[\qquad]^2} = 0$$

$$\therefore \cos(2\phi+\beta-\alpha)=0$$

$$\therefore 2\phi+\beta-\alpha = \pi/2$$