2.9.21 TOOL RADIUS COMPENSATION C (G40, G41, G42)† (CONT'D)

9. Cautions and remarks in tool radius compensation C

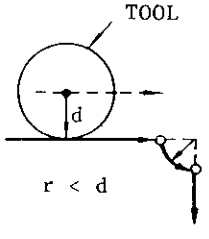
A. Maximum programmable value (Refer to Table 2.3.6.1) is not changed even in tool radius compensation C.

B. Programmed shapes that produce input errors

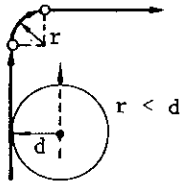
Input error "045" occurs with the following programmed shapes.

(1) When programming an inside arc with tool compensation, if

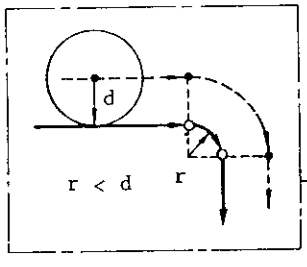
Programmed arc radius r + 5 ≤ tool radius d



(a) Inside compensation error



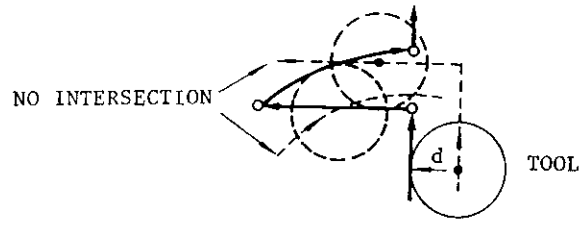
(b) Inside compensation error



Outside compensation is correctly made even when r < d

Fig. 2.52

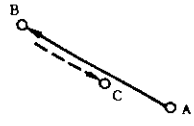
(2) When no intersection point exists on the locus of the offset tool center.

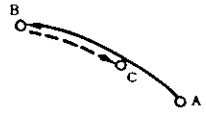


No-intersection error occurs when tool radius is too large relative to the programmed shape.

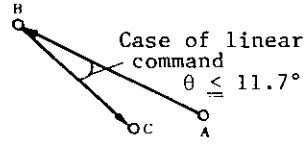
Fig. 2.53

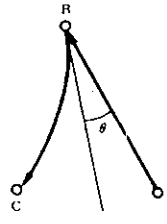
(3) When reversing command or an angle close to reversing command is programmed in M97 (Outside Corner Circular Arc Point Off) mode.





(a) Reversing command





(b) Command close to reversing

Note: With the circular arc command, tangent angle θ alone is insufficient.

Fig. 2.54

In M96 mode, all of the above shapes are correctly compensated.