30-02 *Solution*

Applying G40/G41/G42

➲ Figure **30-02-A** matches program number **O3053**

This program is correct, but the tool approach should clear in the Y-axis, rather than terminating at Y0 (position 2). In feedrate mode, the cut may longer than necessary. Rapid mode cannot be used, as there will be collision with the stock.

➲ Figure **30-02-B** matches program number **O3055**

This program is correct, and also the most efficient. The programmed clearance of 13 mm takes into consideration the stock size, the tool radius, and a reasonable physical clearance for the selected tool. Compare with Figure ***30-02-D***.

➲ Figure **30-02-C** matches program number **O3056**

This program is incorrect - the part will be a scrap. The reason is that the cutter radius was canceled too early. G40 should have been applied in the motion from position 6 to position 7.

➲ Figure **30-02-D** matches program number **O3052**

This is a correct program, and one commonly used. If the start point is selected carefully, it can also be an efficient way of programming. Compare with Figure ***30-02-B***.

➲ Figure **30-02-E** matches program number **O3051**

This program is incorrect - the part will be a scrap. The reason is that the cutter radius was applied too late. G41 should have been applied in the motion from position 1 to position 2.

➲ Figure **30-02-F** matches program number **O3054**

This program is correct, but not very efficient. The only justification for this method could be a bypass of an obstacle, such as a clamp.

➲ Answer to the question:

Program **O3055** is the most efficient. In second place can be program **O3052**, providing the start point is in the right place.