Title: Solution for MOVE TO Statements Ending at the Wrong Position.

Purpose:

To describe a solution to a problem which can cause a MOVE TO statement to end at the wrong position.

Syntax Affected

Only the following syntax is affected.

MOVE [axis] TO position [AT speed] [USING [Aa[ , Ad]]]

This syntax can cause problems regardless of whether "AT speed" and "USING Aa, Ad" are specified or whether the statements use the SPD.MAX@, ACL.MAX@ or DCL.MAX@ values

Description:

If the speed, acceleration and/or deceleration values used are such that the axis accelerates or decelerates in less than 2 DSP update ticks, the axis may fail to update the internally stored value for the last target position. This causes the next MOVE TO statement to calculate its move distance based on the wrong starting point resulting in the axis moving to the wrong position. This only occurs if the MOVE TO statements are queued, i.e. the axes is not allowed to complete one MOVE TO before the next MOVE statement of any type is executed. For applications using the default value of LOOP.RATE@ (3000 Hz), acceleration/deceleration times greater than 1 ms will not encounter problems.

Since the axis may move to the wrong position and/or in the wrong direction, this problem could cause personal injury and damage to the machine. We strongly recommend that customers review their programs and implement the recommended modifications if they are needed.

Solution:

Adjust these acceleration and deceleration rates so that for the lowest speed you use, the acceleration and deceleration times are at least 1 ms.