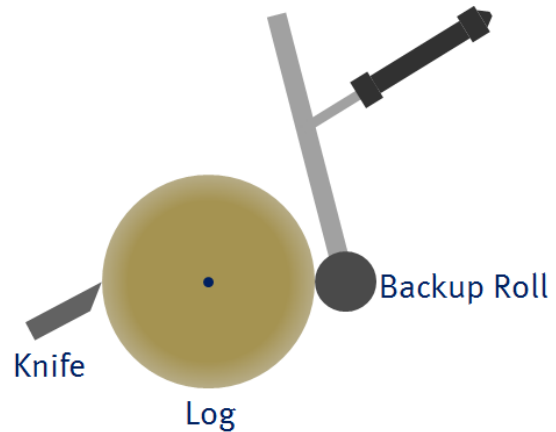Consider a veneer lathe backup roll. As the knife
cuts veneer off the rotating log, the backup roll
provides back pressure so that the log does not
break from the force of the knife. The backup roll
must be precisely cammed to the knife position, or
to the log rotation.

The backup roll is mounted on an arm which is
moved with a hydraulic cylinder. Therefore, the
position of the cylinder rod is not the same as the backup roll. However, the only position
feedback we have is from the cylinder rod! We cannot simply cam the cylinder directly to the
knife and expect the backup roll to be at the right position.

This problem can be solved in the following manner:

1. Determine the mathematical relationship between the knife and the backup roll.
2. Create a curve using the mathematical relationship.
3. Use the curve to gear (cam) the backup roll to the knife.

Do this:

1. A curve has been pre-made for you. Import this curve to your project. The curve file is
   BackupRollCurve.rmccrvs.
   Notice that the Endpoint Behavior is set to Natural, which is usually required for
   camming.
   The x-axis of the curve is the knife axis, axis 0. The zero position is at the center of the
   log. As the knife peels, it moves from a larger position toward zero.
   The y-axis of the curve is the position of the backup roll, axis 1.
2. Make a user program that does the following:
   a. Moves the knife axis to some beginning position where it will start peeling (to
      some positive position, like 12).
   b. Sends the Curve Start Advanced command to start the curve on the backup roll
      axis. The master register should be the knife axis, axis 0. The Options parameter
      should be 6 (**Absolute Master** and **Truncate**).

c. <u>Before</u> sending the Curve Start Advanced, sends a Transition Rate command to get the axis to where it needs to be. <u>After</u> sending the Curve Start Advanced command, waits for the transition to complete (using the TG SI Busy bit).

d. Moves the knife to a small position, such as 2. The backup roll axis should now automatically cam to this motion.

e. Moves both axes to home positions, for example, move the knife axis to 20, and the backup roll to zero.

3. Start a trend, run the user program and look at the plot. You should see how the backup roll tracks the knife according to the curve.