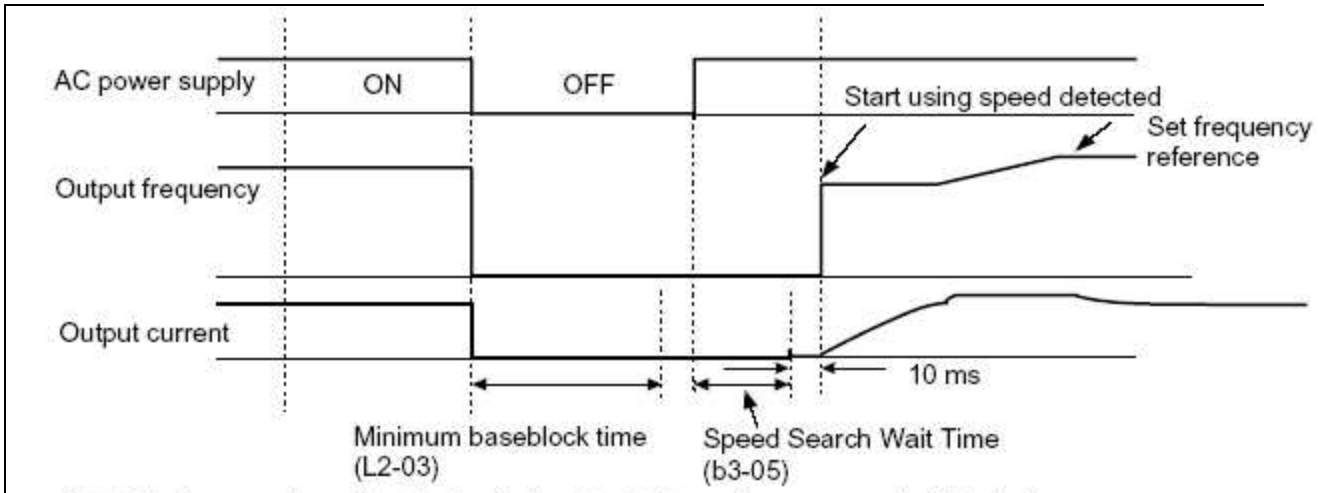
- **SPEED ESTIMATION METHOD**

For this application, the E7's **Speed Estimation** mode should be employed. Speed search by speed estimatin will allow the drive to determine the speed and direction of the coasting motor and begin to ramp the motor to a set speed without first having to bring it to a complete stop.

The Speed Estimation method will calculate the speed using measurements of residual motor fields. This version of speed search is **bi-directional** as motor speed and direction are determined by the E7 drive.

- To enable Speed Estimation speed search set E7 parameter **B3-01 = 1.**

NOTE: Auto-tuning must be performed prior to using the Speed Estimation method of speed search.



Note: If the frequency immediately before the baseblock is low or the power supply off time is long, operation may be the same as the search in case 1.

Fig. 11 Speed Search (Estimated Speed Method) after momentary power loss where the power loss time exceeds the minimum baseblock time

- **CURRENT DETECTION METHOD**

Another E7 speed search method is called "Current Detection".
The **Current Detection** method of speed search is not bi-directional so it wouldn't be able to find a windmilling fan rotating in the opposite direction. Current Detection method Its function is to searches for the motor from a predetermined frequency while monitoring the drive output current. The E7catches the motor when the drive output current has dropped to a low level. At this point the drives output speed (frequency) has matched the motor speed.

- To enable Current Detection speed search set E7 parameter **B3-01 =** 2 or 3**.**

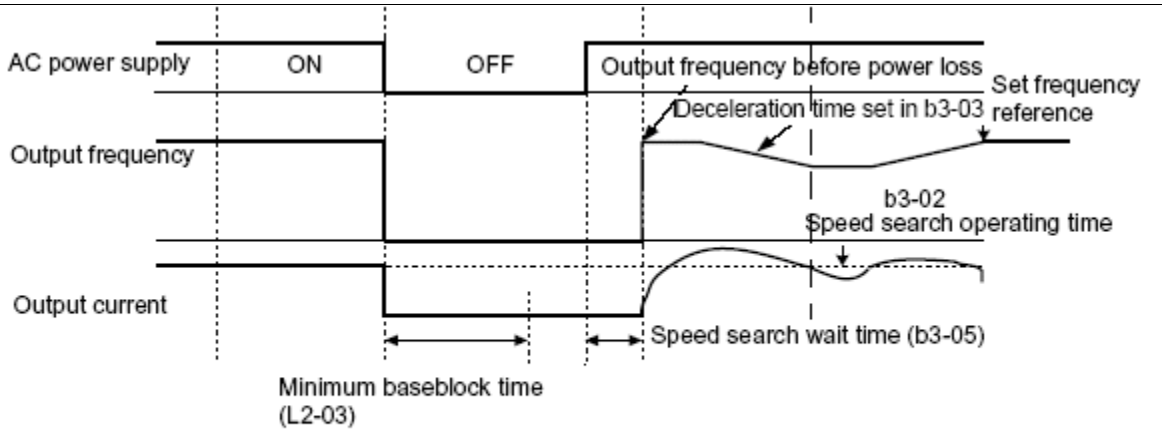


Fig. 14 Speed Search (Current Detection Method) after momentary power loss where the power loss time exceeds the minimum baseblock time

Other considerations:
Auto-tuning should be performed again if the cable length between the drive and motor is ever changed after the initial Auto-tuning.