

1.6 Dog-less Zero Return

Since this model has an absolute position detection function, you do not need to do a zero return operation when you turn ON the NC power. However, NC alarm No. 300 “nth-axis origin return” is issued when one of the following occurs. In this case, do a dog-less zero return for the particular axis according to Section 1.6.2 “Zero Return Procedure”.

- NC memory was cleared.
- The absolute position program battery was dead.
- The absolute position detection wire or plug was disconnected.
- The absolute position detector or motor was replaced.
- The grid shift distance was changed.

1.6.1 Parameters

The following table shows a list of zero-return parameters. Some of the parameter settings differ depending on the machine specifications. Always set the parameters according to the parameter sheet attached to the machine.

No.	Axis	Default value	Content
1002		DLZ 0 0 0 0 0 0 0 0	DLZ [1] Dog-less zero return (all axes)
1005	X Y Z	DLZ 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0	DLZ [1] Dog-less zero return (individual axis)
1815	X Y Z	APC APZ 0 0 1 □ 0 0 0 0 0 0 1 □ 0 0 0 0 0 0 1 □ 0 0 0 0	APC [1] Absolute position detection APZ [0] Zero return incomplete [1] Zero return complete
1850	X Y Z	Differs depending on the machine. Differs depending on the machine. Differs depending on the machine.	Grid shift distance

Note The APZ is automatically set from “0” to “1” when the zero return operation is complete.

1.6.2 Zero Return Procedure

- (1) Confirm which axis the alarm is for.
- (2) Jog the axis at least 20 mm (0.79 in) at a 500 mm/min (20 in/min) feed rate in either the plus (+) or minus (-) direction.
- (3) Turn OFF operation ready, turn OFF the NC power.
- (4) Turn the NC power and operation ready back ON.
- (5) Repeat step (2) above. This establishes the grid points.
- (6) Use the **HANDLE** to position the axis about 10 mm (0.39 in) before the zero position (marked position).
- (7) Set the rapid traverse override to 1%.
- (8) Change the mode to the ZERO RETURN mode, then set the manual **FEED** select key to the direction that will return the axis to zero (either plus (+) or minus (-)). The axis stops at its zero position (the first grid).
- (9) Check the zero position is correct: the axis should be at the marked position. If the zero position is not correct, change the 1815-4 bit (APZ) parameter to "0", turn OFF the NC power once, then back ON to start over from step (3) above.
- (10) Check the Machine zero indicator lamp is lit, then press the **RESET** key to clear the zero return request alarm.
- (11) Turn OFF operation ready, then turn OFF the NC power.
- (12) Turn the NC power back ON, then turn ON the operation ready. Move each axis so it is inside its respective zero position once, then perform zero return again. Check the individual zero return positions are correct.

Note When you change the motor, reset parameter No. 1850 (grid shift distance). The zero position may be offset otherwise.