# MACHINE CONFIGURATION INITIALIZATION (MCI)
# QUICK REFERENCE

The complete, step-by-step instructions in excruciating detail are in *Chapter 3 - Installation & Start-Up* or *Appendix A,* depending on your User's Guide or Manual. This quick reference is for those who have done an MCI and only need their memory jogged. There is a flowchart on page 3.

The MCI procedure establishes the encoder zero reference. It ***must*** be performed in the following circumstances:
- When first installing the system,
- When replacing a motor/encoder and/or a motor driver board,
- When switching cables between axes,
- When installing new linear scales,
- When removing linear scales,
- When changing the DRO interface switch position.
- The MCI procedure is ***not*** needed when you replace a pendant.

*IF* your machine has motor ROMs version M4.1 or newer, the MCI requires Step 1 through Step 7 below. In Step 7, after you press the [SET] key, the [MANUAL] status light turns ON solid, not blinking. That means the pendant is in Manual mode. If the [MANUAL] status light is BLINKING, you have older versions of the motor ROMs and need to set working axis travel limits before you can exit Setup mode and complete the MCI.

## MCI PROCEDURE

**MCI QUICK REFERENCE**

+-----------------------------------------------------+
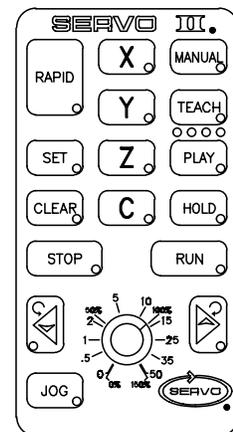| **WARNING**                                         |
| During the MCI, the quill must be up, the head with a Servo II |
| should be about 1" from the upper stop, and the table clear to |
| move its ***entire*** span on all axes controlled by the Servo II |
| System. Also make sure that all gib locks are loose. |
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*Step 1:* Turn power ON. Wait for [SET] to BLINK.

*Step 2:* Press [RAPID]+[MANUAL]+[CLEAR].

*Step 3:* Press [SET]. Motors move less than one revolution. [MANUAL] BLINKS & one [AXIS] light is ON steady.

*Step 4:* Set automatic calibration stops for each axis. The distance depends on whether the axis has linear scales. See *IF:*'s. (***Do not*** use the [STOP] key!)
- Press [X] and then move table to right
- Press [SET], then [DIRECTION>]
- Move table to left; press [SET], then [DIRECTION<]
- Repeat for Y and Z axes.

  *IF:* If the axis has a linear scale installed, the automatic calibration stops require a total of about 50% to 95% of travel on the X, Y, and Z axes, and about 180° rotation on the C axis.

  *IF:* If the axis does not have a linear scale, the automatic calibration stops require a total of about 2 inches of movement.

*Step 5:* Press [MANUAL]; The [RAPID], [MANUAL] and [SET] keys BLINK.

<div style="border:1px solid black">

**CAUTION**

If you *must stop* the axis movement after you press [RAPID], [MANUAL], [SET] in Step 6, use the red Emergency Stop knob or the POWER SWITCH. You must then turn power off. Wait 10 seconds. And restart at Step 1.

*Do not* touch the pendant during the movement in Step 6. If you do, you screw up the MCI. You must then turn the power off. Wait 10 seconds. And restart at Step 1.

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*Step 6:* Press [RAPID]+[MANUAL]+[SET].
The slides move immediately to the calibration stops at about 20 ipm feed rate.

*Step 7:* Press [SET].

*IF:* If [MANUAL] BLINKS, do Steps 8 and 9. (Your motor ROMs are version 4.0 or older.)

*IF:* If [MANUAL] is ON steady, you are done. (Your motor ROMs are version 4.1 or newer.)

*Step 8:* Set working axis travel limits.

*Step 9:* Press [MANUAL] to exit setup mode.

*IF:* If [MANUAL] is still BLINKing, at least one axis does not have limits set.

## To Drag Axis Travel Limits in Manual Mode

If you want to use the calibration stops as the working axis travel limits, the axis travel will stop within ± 1 motor revolution from the setting after the MCI. Or you can drag or move the limits to a different location. This is a short-cut procedure that can be used to move an existing axis travel limit while in Manual mode.

*Step 1:* To enter Manual mode:
Press and release the [MANUAL] key. The [MANUAL] status light and one axis status light are now ON steady.

*Step 2:* To select the axis you want to "drag" to a new position:
Press and release the [X], [Y], [Z], or [C] axis key. The axis status light turns ON steady.

*Step 3:* To move the axis to the existing limit:
Use the [DIRECTION] key to move the axis until it stops when reaching the limit.

*Step 4:* To "drag" the axis to the new limit:
While holding down the [CLEARm] key, press either [DIRECTION] key to move the axis to the new limit position. The new limit is automatically set when the [CLEAR] key is released.

### MCI FLOWCHART

```
                        ┌─────────────┐
                        │    Start    │
                        └─────────────┘
                              │
                              ▼
                         ◇ Is SET ─── No ──┐
                         ◇ blinking?       │
                              │            │
                             Yes           ▼
                              ▼       ┌──────────────┐
                     ┌──────────────┐ │ Cycle power. │    Force MCI procedure
                     │ Press RAPID  │ │Check Power On│
                     │ +MANUAL      │ │    flow.     │
                     │ +CLEAR       │ └──────────────┘
                     └──────────────┘
                              │
                              ▼
                     ┌──────────────┐
                     │ Press blinking│
                     │  SET key.     │
                     └──────────────┘
                              │
                              ▼
              No ──── ◇ Is MANUAL              ◇ Is SET ──── No
                      ◇ blinking?              ◇ blinking?
                              │                     │
                             Yes                   Yes          ┌──────────────┐
                              ▼                     ▼            │ Cycle power. │
                     ┌──────────────┐      ┌──────────────┐     │Check Power On│
                     │Set Calibration│     │Press blinking │     │flow. Check   │
                     │Stops "near    │     │  SET key.     │     │motor ROMs.   │
                     │extremes" on   │     └──────────────┘     └──────────────┘
                     │all axes.      │             │
                     └──────────────┘             ▼
                              │        No ──── ◇ Is MANUAL        Set
                              ▼                 ◇ on solid?    "working limits"
                     ┌──────────────┐                │        on all axes.
                     │Press blinking │              Yes
                     │MANUAL key.    │               ▼
                     └──────────────┘      Yes ── ◇ Use Calib.
                              │                    ◇ Stops as
              No ──── ◇ Are                        ◇ current axis
                      ◇ RAPID MANUAL SET           ◇ limits?
                      ◇ blinking?                      │
                              │                        No
                             Yes                        │
                              ▼                          ▼
                     ┌──────────────┐          ┌──────────────┐
                     │ Press         │          │Set working   │
                     │RAPID+MANUAL+SET│         │limits.       │
                     └──────────────┘          └──────────────┘
```