



## 2.0L Ford cam chain measurement rig

### Operation overview

2/25/2015

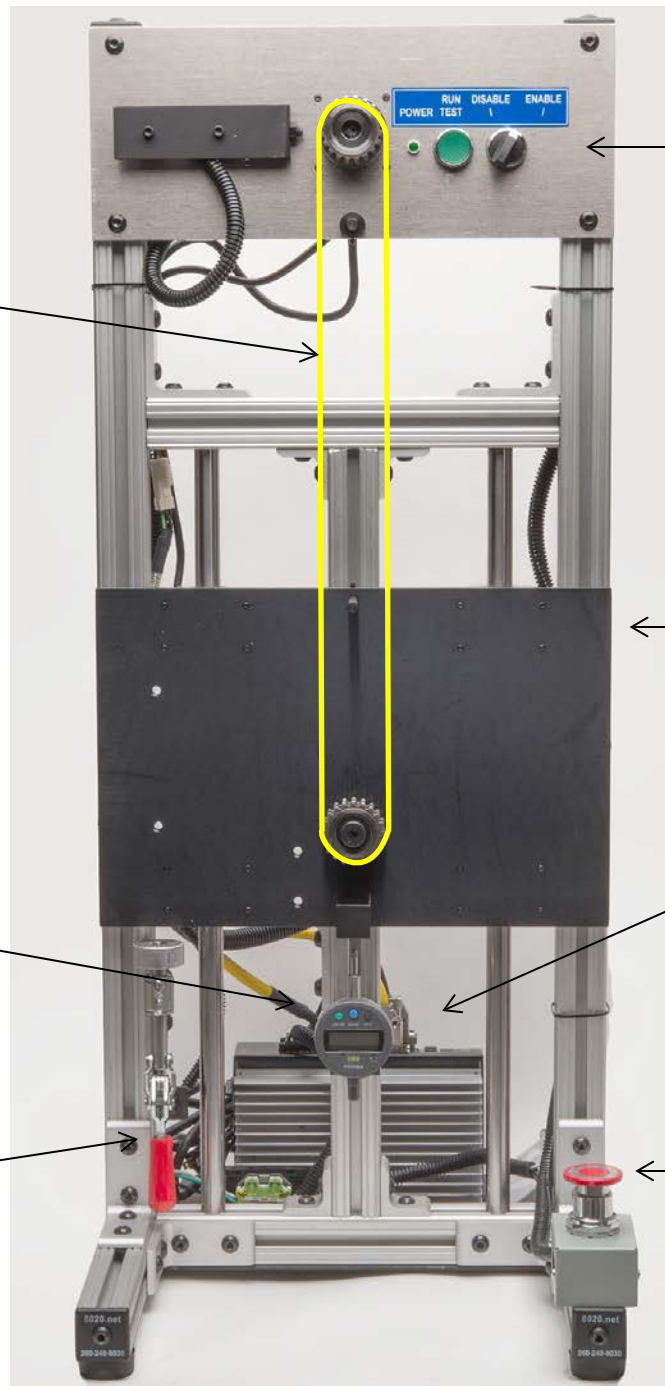
- The test rig will arrive ready to run
- Plug-n-play
- 110vac power
- USB connection to computer for data interface
- Includes calibration bar



Chain installed

Digital dial indicator

Table raising lever



Control panel

Sliding table

Indicator

E-stop / on-off switch

(rear view)

Motor

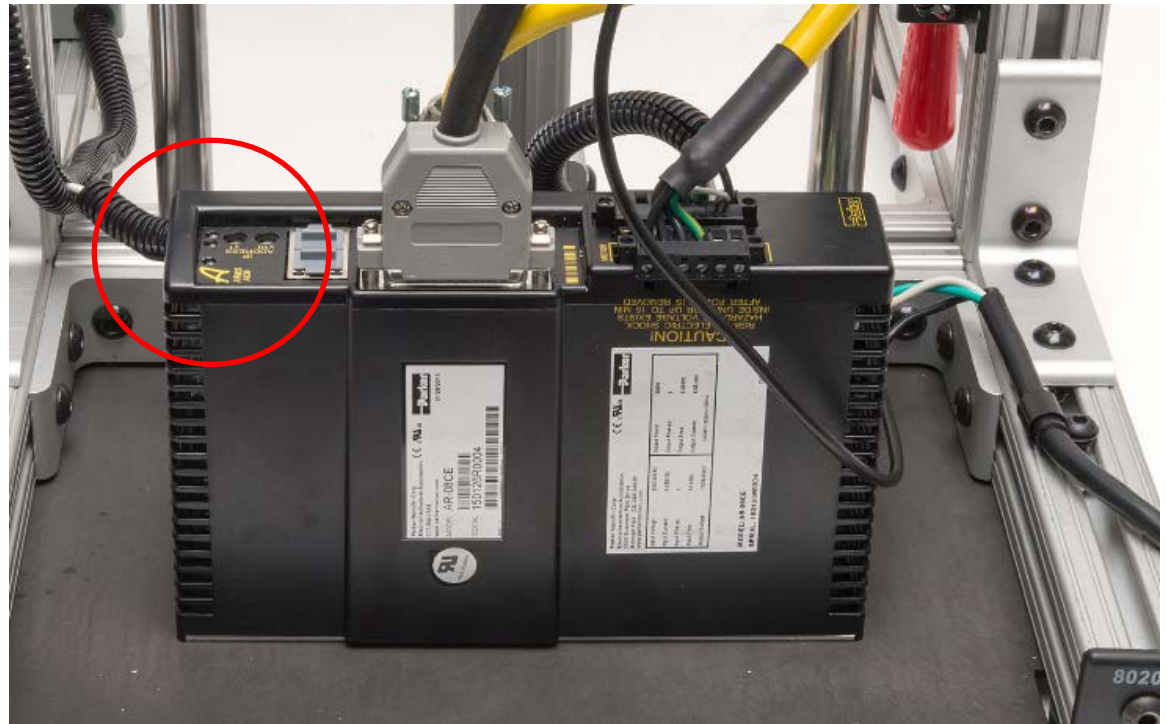
Linear bearings

Motor controller



# Power connection

- Plug into 110VAC outlet
- Make sure the red mushroom E-stop is in the up position
- LED light on controller unit will blink then turn green



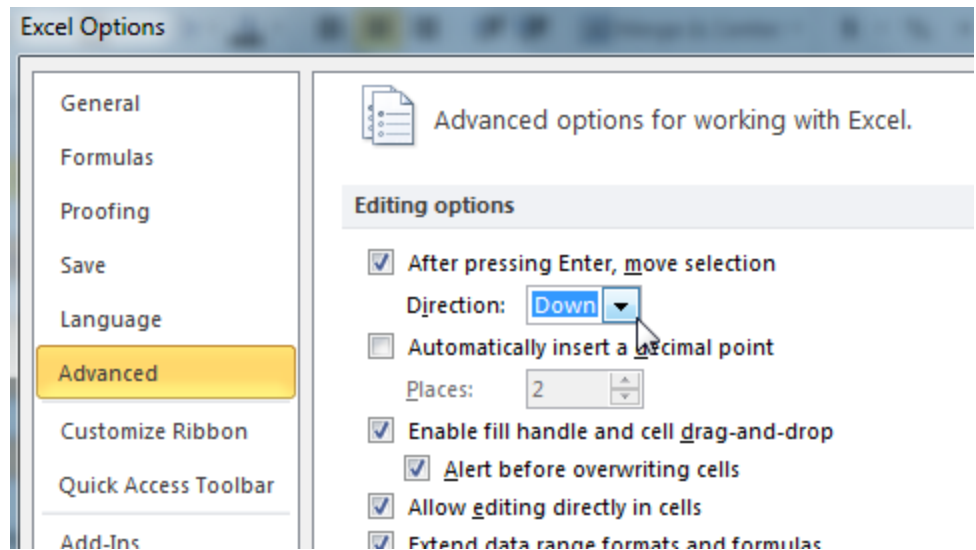
# Calibration:

1. Raise sliding table with lever (circled)
2. Install bar (shown in yellow) on pins located on upper plate and sliding table, with arrow up
3. Push bar all the way back so it contacts both table and plate
4. Adjust bar to obtain a consistent reading (the largest value)
5. Zero indicator using the “Origin” button



# Computer connection

- The digital dial indicator is connected to an interface box, and that is connected via USB cable to your computer
- Windows may want to install a driver for the device
- In Excel, make sure your settings is “Down” after Enter (default)



# Operation

1. Insure upper sprocket has alignment mark in the 12 o'clock position
  - If not, turn switch to “Disable” and turn sprocket
  - Switch to “Enable”
  - Sprocket is locked in “Enable” position





# Operation

2. Raise table using lever
3. Install chain with dark colored “key” link in the 12 o’clock position on upper sprocket (locked)
4. Install chain on lower sprocket with sprocket aligned with mark (similar to upper)

# Operation

5. Lower the table using the lever (make sure it's all the way down)
6. Insure the spreadsheet is ready
7. Insure "Enable" is switched
8. Push "Run"



# Operation

- Motor will run 207 sprocket revolutions
  - (828 measurements)
- If problem, hit “Disable” (or E-stop)
- Will need to realign sprockets and chain before starting new measurement
- When complete, raise table and remove chain

# Digital indicator interface

Two magnetic switches (sensors) are wired in series, as normally open switches. When the table lever is down, that switch is closed, and when the magnets pass by the sprocket sensor the circuit is closed and the Mitutoyo interface box sends the measurement from the dial indicator thru the USB cable to the computer.

