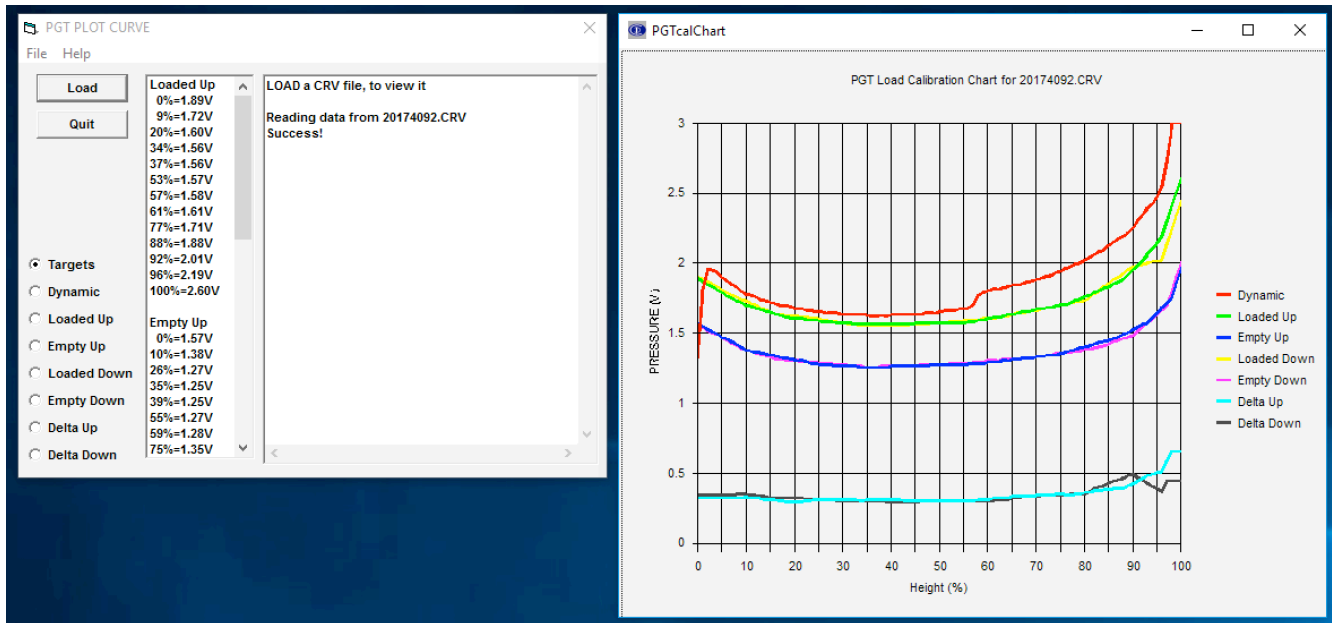




General Features

- Runs on IBM compatible PCs running Windows 98, XP or later (tested OK with Windows 10)
- Processes GETCURVE “CRV” files from PGT EZcal Pro
- Displays PGT Height/Pressure curve graphically & numerically



General Usage

- Calibrate height/pressure overload on a PGT controller equipped machine
- Use EZcal Pro GETCURVE function to collect curve data from controller
- Connect EZcal Pro to PC to transfer collected curve data “CRV” file
- Install PLOTCURVE program
- Run PLOTCURVE program; open “CRV” file from EZcal Pro
- Chart will be drawn and all numeric data will be available for viewing



Detailed Usage

When valid curve calibration data is collected, the **selection buttons** on the lower left will be enabled to allow viewing of the curve numeric data – you can click on any **selection button** to see the appropriate numeric data in a list format.

The **Targets** list shows data for all four calibration phases (loaded up, loaded down, empty up, empty down), while the other **selection buttons** show all the curve points for one calibration phase, from height=0% to height=100%; the pressure is shown as a voltage measurement and should be between 0.5V=0 pressure and 4.5V=maximum pressure:

PGT PLOT CURVE

File Help

The screenshot shows the PGT PLOT CURVE software interface. On the left, there are two buttons: "Load" and "Quit". Below these are several radio buttons for selection: "Targets", "Dynamic", "Loaded Up" (which is selected and has a dotted border), "Empty Up", "Loaded Down", "Empty Down", "Delta Up", and "Delta Down". To the right of these buttons is a list of data points, each consisting of a percentage followed by a voltage value. The list is scrollable, with a vertical scrollbar on the right side. The data points are: 48%=1.57V, 49%=1.57V, 50%=1.57V, 51%=1.57V, 52%=1.57V, 53%=1.57V, 54%=1.57V, 55%=1.57V, 56%=1.58V, 57%=1.58V, 58%=1.59V, 59%=1.59V, 60%=1.60V, 61%=1.61V, 62%=1.61V, 63%=1.62V, 64%=1.63V, 65%=1.63V, 66%=1.64V, 67%=1.65V, 68%=1.65V, 69%=1.66V, 70%=1.67V, and 71%=1.67V. The items 53%, 57%, and 61% are highlighted in blue.

Load	48%=1.57V
	49%=1.57V
	50%=1.57V
	51%=1.57V
	52%=1.57V
	53%=1.57V
	54%=1.57V
	55%=1.57V
	56%=1.58V
	57%=1.58V
	58%=1.59V
	59%=1.59V
	60%=1.60V
	61%=1.61V
	62%=1.61V
	63%=1.62V
	64%=1.63V
	65%=1.63V
	66%=1.64V
	67%=1.65V
	68%=1.65V
	69%=1.66V
	70%=1.67V
	71%=1.67V



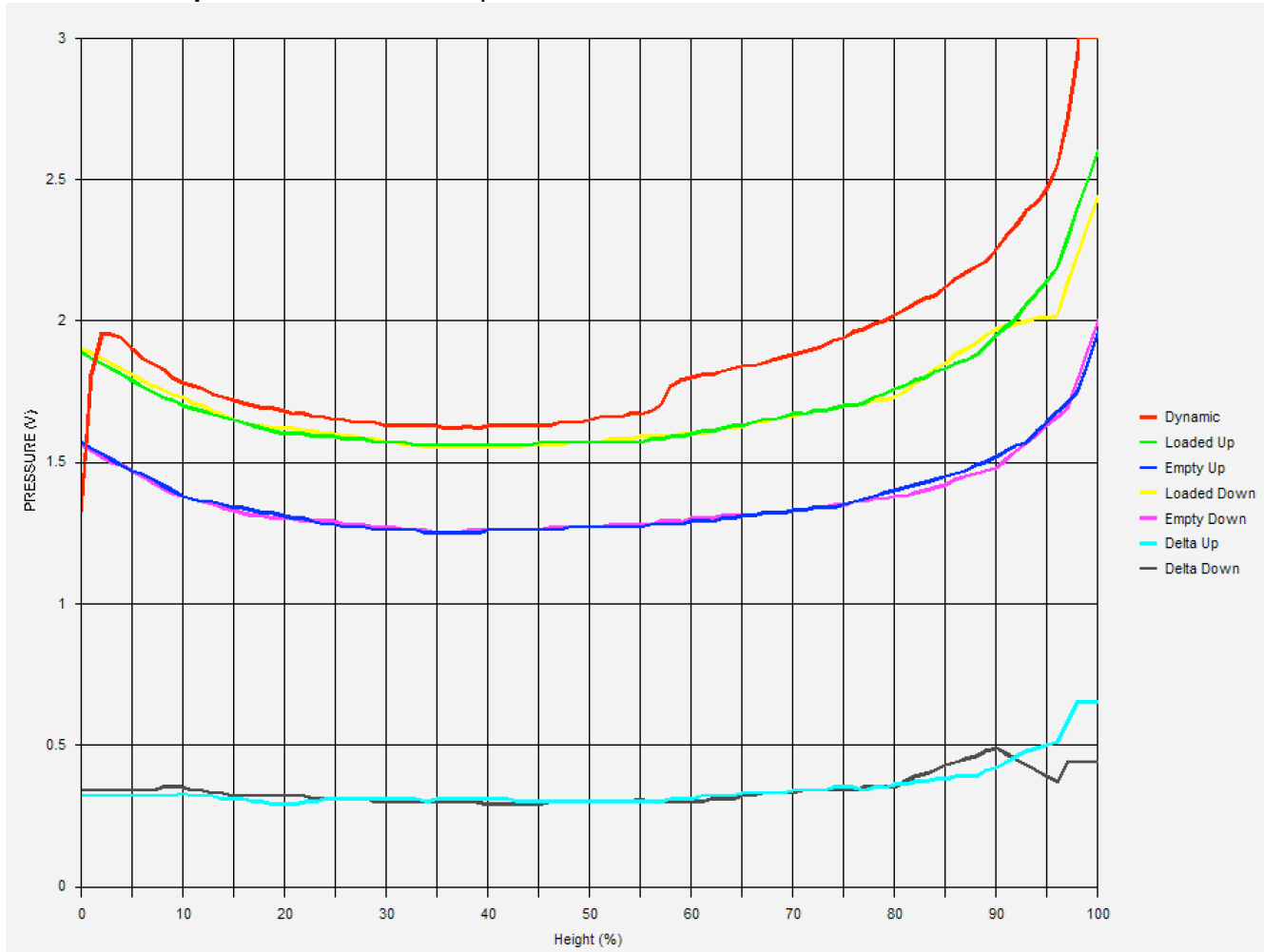
The meaning of the data shown by the selection buttons is:

- **Targets**
 - **Targets** are the individual (static) measurements taken at each stop during the four calibration phases (loaded up, loaded down, empty up, empty down)
 - Each **Target** will be a height/pressure pair
 - The **Target** heights are determined using the shape of the **Dynamic** curve collected during height calibration
 - The final curve data is created by *interpolating* between each **Target**, so the location and accuracy of the **Target** is critical to overall performance
- **Dynamic**
 - The **Dynamic** (moving) curve is created by continually sampling height & pressure during the initial continuous lift, when the height sensor is calibrated
 - The **Dynamic** curve should be with the platform fully loaded and should be a higher pressure than all the static (stopped) curves
 - The shape of the **Dynamic** curve determines **Target** heights for later calibration
- **Loaded Up**
 - The **Loaded Up** (static) curve is constructed from the **Loaded Up Targets**, collected by stopping to take measurements while lifting when the platform is fully loaded (note that each **Target** is highlighted in the data)
 - In between each **Target** the curve is created by *interpolating* to give a smooth curve
 - Below the first **Target** and after the last **Target**, the curve is filled in to match the shape of the **Dynamic** curve
- **Empty Up**
 - The **Empty Up** (static) curve is constructed in the same way as for **Loaded Up**, but using **Empty Up Targets**, collected by stopping to take measurements while lifting when the platform is empty
- **Loaded Down**
 - The **Loaded Down** (static) curve is constructed in the same way as for **Loaded Up**, but using **Loaded Down Targets**, collected by stopping to take measurements while lowering when the platform is fully loaded
- **Empty Down**
 - The **Empty Down** (static) curve is constructed in the same way as for **Loaded Up**, but using **Empty Down Targets**, collected by stopping to take measurements while lowering when the platform is empty
- **Delta Up**
 - The **Delta Up** curve is created by GETCURVE subtracting the **Empty Up** curve from the **Loaded Up** curve
 - The “size” of **Delta Up** influences the accuracy of the load estimate; for example a size of 0.5V gives a best accuracy of +/-2%
 - For most machines, the Delta Up curve should be relatively “flat” except near the ends (very low and very high heights, where mechanics limits measurement accuracy & repeatability)
- **Delta Down**
 - The **Delta Down** curve is created like the **Delta Up** curve, by subtracting the **Empty Down** curve from the **Loaded Down** curve
 - The same comments for “size” and “flatness” apply, as for **Delta Up**



The PLOT CURVE chart

In addition to the numeric data, the curves **Dynamic**, **Loaded Up**, **Empty Up**, **Loaded Down**, **Empty Down**, **Delta Up** and **Delta Down** are plotted on a chart:



Using the chart it should be easy to confirm that the **Dynamic** curve is the highest pressure, the **Loaded Up** and **Loaded Down** curves are similar pressures, the **Empty Up** and **Empty Down** curves are also similar pressures, and there is sufficient difference between the **Loaded & Empty** curves, confirmed by the **Delta Up** and **Delta Down** curves.

The chart also shows any anomalous non-smooth parts of the curve, which might cause erroneous load estimates – any such anomalies should be investigated by checking the load estimate at various heights.

NOTE: due to machine mechanics, there is always likely to be some anomalies at the very bottom and top of the curve, where pressure cannot be reliably measured.