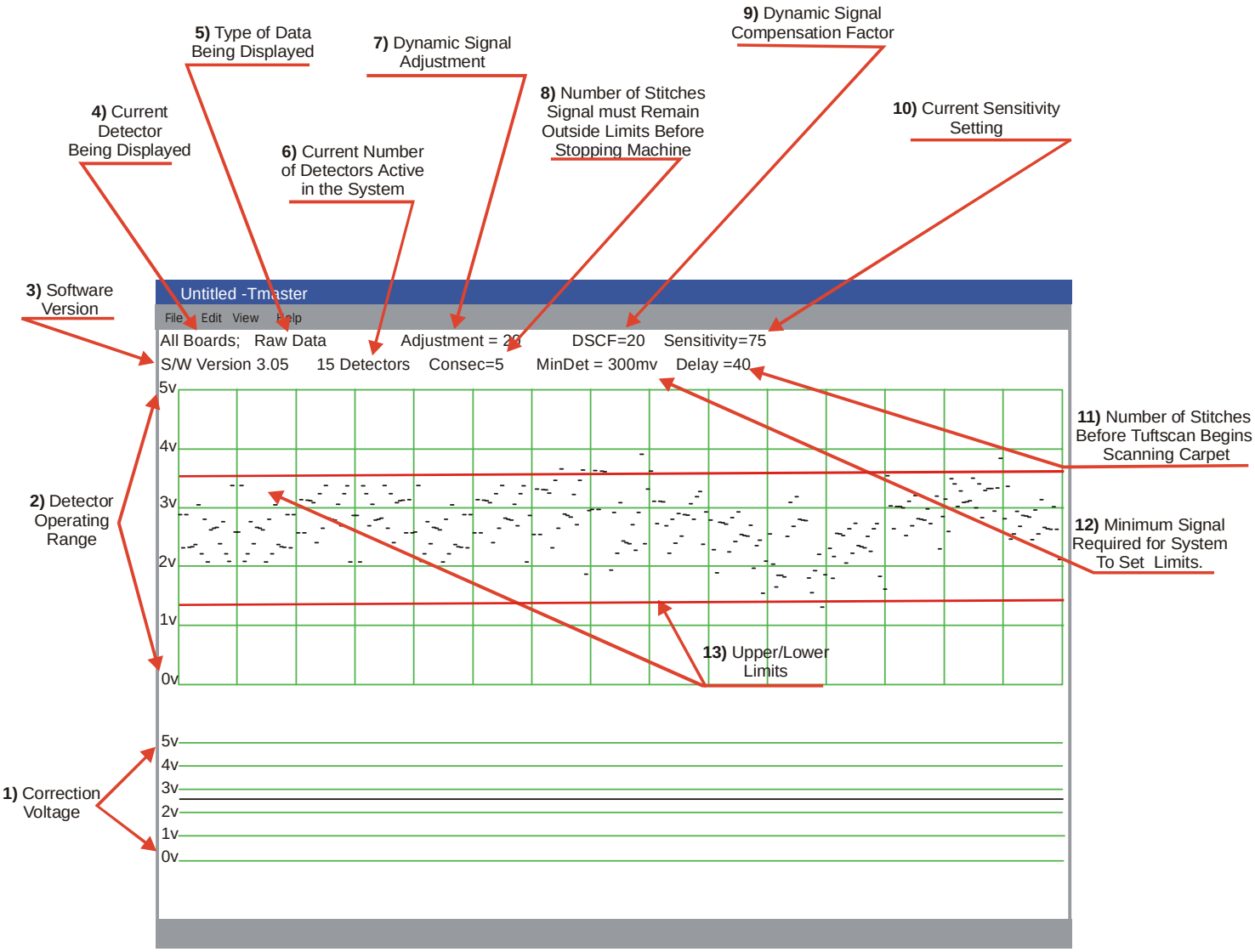
New Style Set-Up Procedure

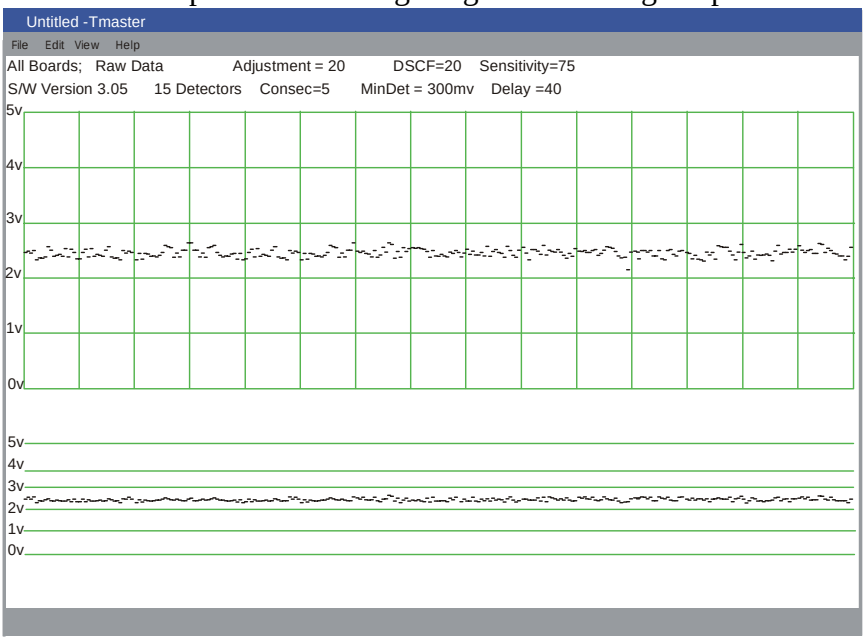
The Tuftmaster Software (Win 95/98/2000)
Copy the Tuftmaster software from the Floppy Disk provided to your PC.

Connect any PC computer via the serial port to this connection on the control unit PRIOR to running the Tuftmaster software.

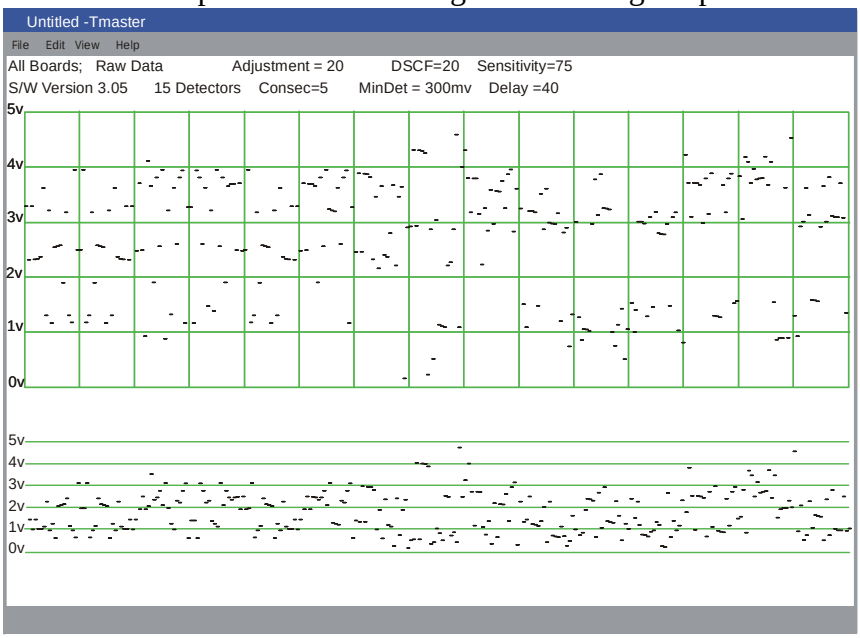


1) **Correction Voltage** – This is indicative of the amount of compensation that is required to force the detector's signals to 2.5vdc. It basically is an indication as to whether there is too much or not enough light penetrating the carpet. The correction voltage is set during the "Learn" and will not change unless the "Learn" button is pressed. The correction voltages after the "Learn" is complete should be at least between 2v and 3v. If it is less there is not enough light penetrating the carpet. The correction voltages should not be more than 3.5 V and no less than 1.5 V. (Except where the selvedge edge clamps are placed and where there is no carpet). When the range exceeds the 1.5v to 3.5v range there is too much light penetrating the carpet. See examples below.

Example of Not Enough Light Penetrating Carpet



Example of Too Much Light Penetrating Carpet



2) **Detector Operating Range** – This is indicative of the amount of signal each individual detector is receiving from the carpet. This information can be displayed 3 ways.

9) **Raw Data** – This is the signal fresh from the detector without any signal processing whatsoever. This is normally with the Correction Voltage display to establish the correct amount of light that penetrates the carpet.

10) **Filtered Data** – This displays the signal after the DSCF is applied.

11) **Adjusted Data** – This data is used by the system to actually stop the machine for a defect. The "Adjustment" setting is applied along with the DSCF. If this signal exceeds the limits the machine will stop.

The above types of displays can be selected by holding the "ALT" key on the computer and pressing the "R" key.

3) **Software Version -** This simply displays the software currently being used by the system.

4) **Current Detector Being Displayed –** This displays the current board being displayed. To "Zoom" to a specific board simply click the mouse on the board desired.

5) **Type of Data Being Displayed –** This will display either RAW, FILTERED OR ADJ. depending on what is selected by pressing "ALT R".

6) **Current Number of Detectors Active in the System –** This displays the number of detector boards currently active. Each board is 30cm. long. A 5 meter system will have 15 detectors, 3 meter will have 9, etc.

7) **Dynamic Signal Adjustment**- This is a filtering system built into the software that compensates for signal drifts, the higher the number the more filtering, keep in mind it is possible to filter out the defects as well.

8) **Number of Stitches the Signal must remain outside the limits before stopping the machine –** This setting is used to prevent false stopping on patterns or styles that are very active. This allows for short burst of signal the only go outside the limits for short periods. Keep in mind, the higher the number, the longer the defect.

9) **DSCF – Dynamic Signal Compensation Factor (Active Signal Filtering) -** The DSCF is implemented to smooth any sporadic signals to reduce false stops. For example: If the DSCF is set to 5 then the signal will be averaged over a period of 5 stitches and that will be displayed. Once the next sample arrives the first of the 5 samples will be dropped, the new one averaged in and then displayed.

10) **Current Sensitivity Setting –** The sensitivity determines the location of the limits. The higher the number the nearer the limits to the signal.

11) **Number of Stitches Before Tuftscan Begins Scanning Carpet –** This setting is to allow defects to pass under the Tuftscan detector rail before the Tuftscan begins scanning. ***This delay only applies when the Tuftscan detects a defect.***

12) **Minimum Signal Required to Set Limits –** This setting allows the Tuftscan to determine where there is carpet and where there is not. The final stage during the learn examines the RAW signals for all detectors. It

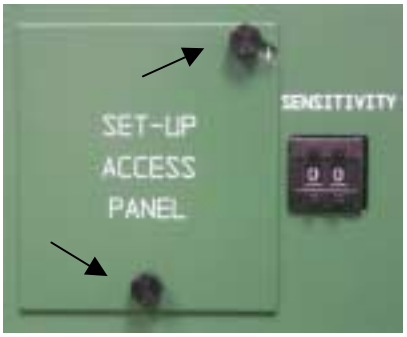
starts looking at the ends of the rails. Once it detects signal equal to or greater that this setting it applies the limits. This avoids false stops created in areas where there is no carpet.

13) **Upper/Lower Limits –** These red lines indicate where the sensitivity is currently set. If the ADJUSTED data crosses the limit and remains there for the duration of the CONSEC. setting the machine will stop.

First Time Set-Up

1) Set the sensitivity to "0".

2) Loosen the Acess Panel screws **1** turn and open panel.



3) Rotate Set–Up Access Panel Counter Clockwise to gain access to the serial port and set-up switches.

4) Set SW 5 – SW 8 to "0" as shown.

5) Press SW 2 (Board Select) to verify the correct number of detector boards is shown on the 2 Segment LED display. There are 3 detector boards per meter. In other words for a 3 meter there are 9 boards, 4 meter – 12 boards, 5 Meter – 15 boards. etc.

6) Set Switch SW 7 to 5 as shown. This sets the CONSECUTIVE number of stitches to 5 requiring the ADJ. signal to equal or exceed the UPPER/LOWER limits for at least 5 stitches.

7) Set Switch SW 6 to 3 as shown. This sets the MINIMUM DETECT to 300mv. This requires the RAW signal to be at least 300mv max/min for the Tuftscan to acknowledge there is carpet present.

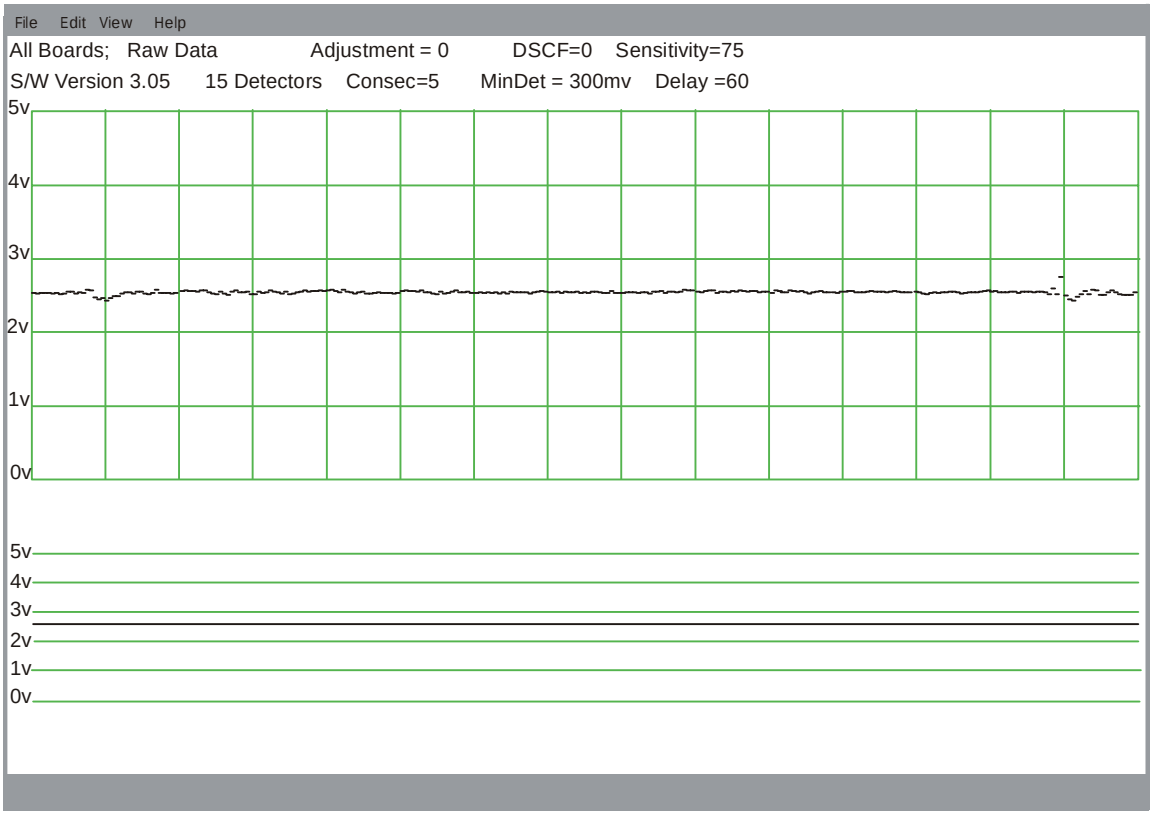
8) Measure the average number of stitches produced from the needles to the detector. This will be the STITCH DELAY setting. The stitch delay is adjusted in multiples of 20. In other words, a setting at switch SW 5 of 3 will be a 60 stitch delay to allow the defect to clear the detector rail before the Tuftscan begins scanning the carpet.

9) Use the up and down push buttons to set the sensitivity to 75. 

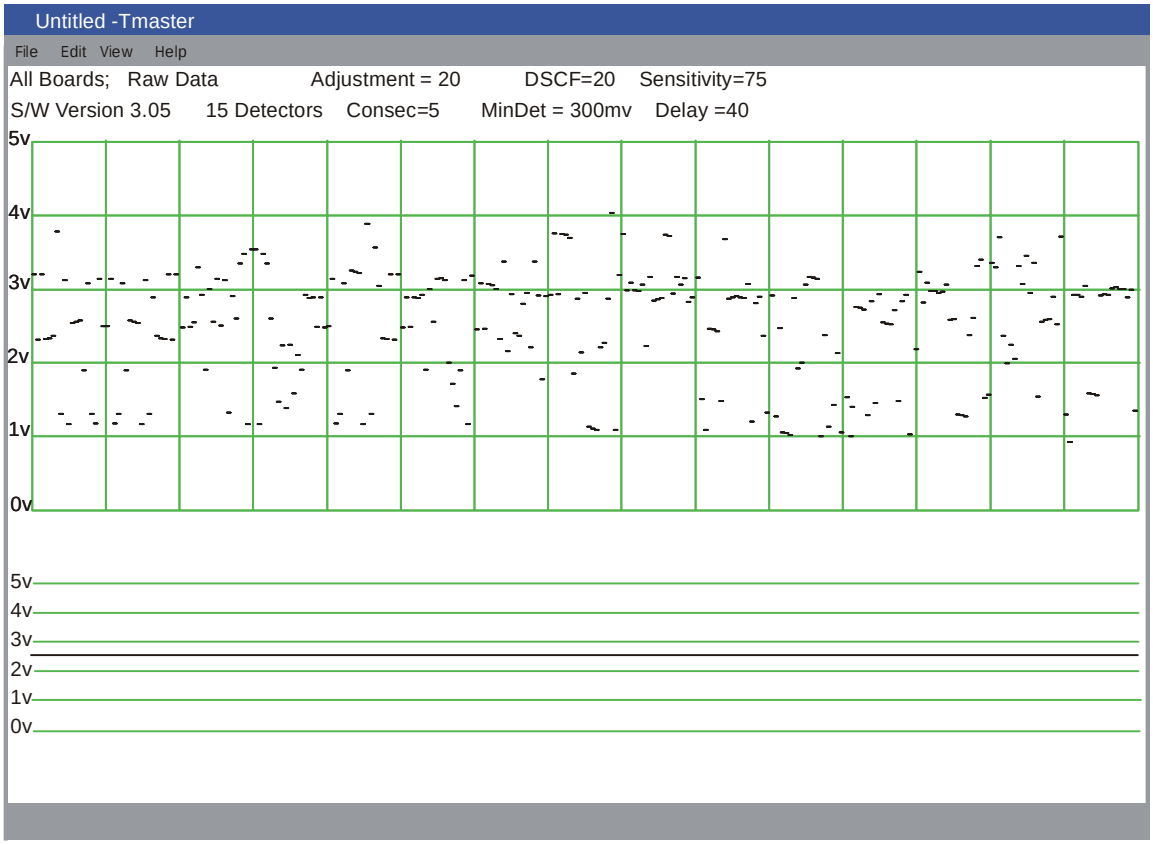
10) Press the “Learn” Button”. 

11) Light Control potentiometer is set to “0”. 

12) Note the display on the PC. The display should be as seen below. There may be some slight dips in the signal where the carpet edges are.



13) Begin increasing the Light Control until the signal across the detection rail ranges from approximately 1 – 4 volts as shown.



14) Set the DSCF and Adjustment to "10" by placing SW – 6 and SW – 8 to "1" as shown below.

15) Verify “LE” (Learn) is displayed in the 2 segment LED display on the front of the control unit.

16) Start machine and allow the Learn Cycle run its course. This will take approximately 900 stitches. **The carpet must be 100% perfect during this time.**
17) Once the learn cycle is finished the LED display will begin cycling which denotes the system is now monitoring the carpet.
18) On the PC display the signals should now be nearly centered (RAW Data Display) and operating between 1.5 and 3.5 volts peak. If they are more than this turn the light control down ½ turn. If the signals are operating between 2 – 3 volts increase the light ¼ turn. If any adjustments are made to the light control after the learn is completed the carpet must be re-learned.
19) Once the carpet is learned the system must be optimized for stopping as soon as possible once a defect reaches the detector and also to make sure there are no false stops. (Stopping when there is no defect present.)

The Learn Cycle

The primary purpose for the learn cycle is to allow the Tuftmaster system to analyze a sufficient amount of carpet to be to determine the running parameters. The learn cycle is used to determine the running parameters of the Tuftmaster for **each** style of carpet. This is performed based on the Dynamic Signal Compensation Factor **(DSCF)** and Correction Voltage Oversampling **(CVOS)** settings and the physical makeup of the carpet.

The first stage of the learn cycle will be used to manipulate the signals and force them to the center of the operating range. The second stage will determine the maximum and minimum signals and set the limits based on the sensitivity settings.