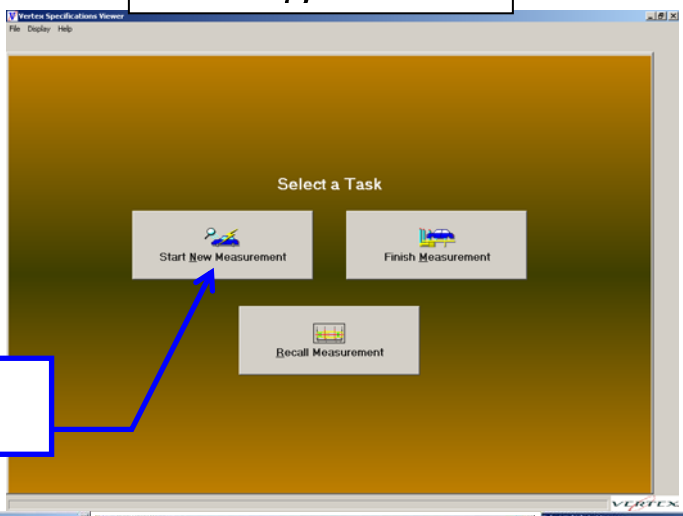
VERTEX™


Revised
05/04/2006

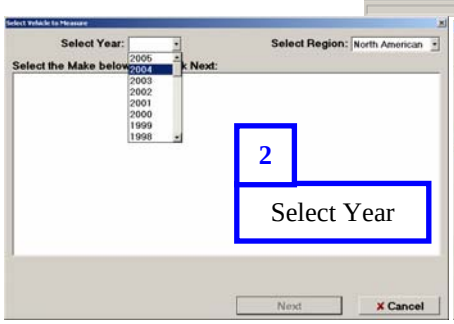
# Index

# Getting Started



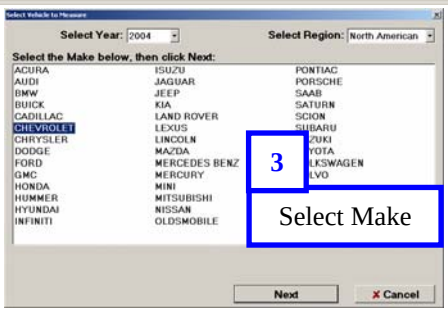

**1**

Click the Start New Measurement Button



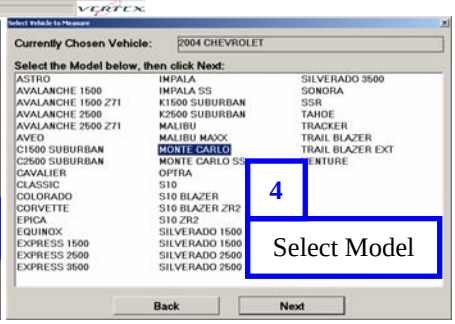

**2**

Select Year



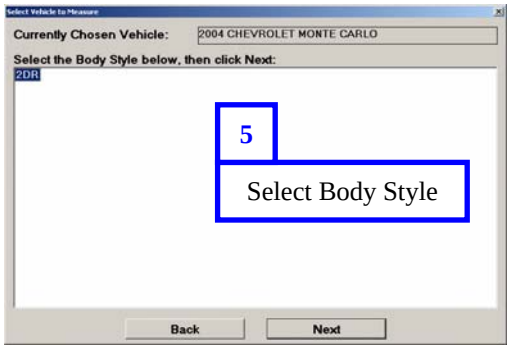

**3**

Select Make



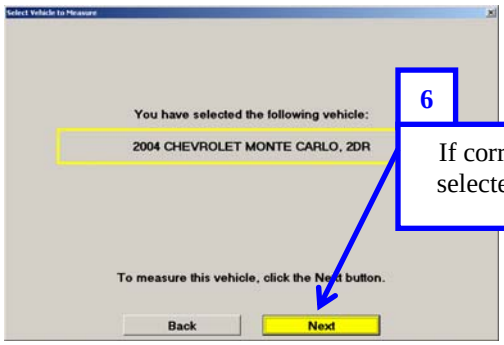

**4**

Select Model



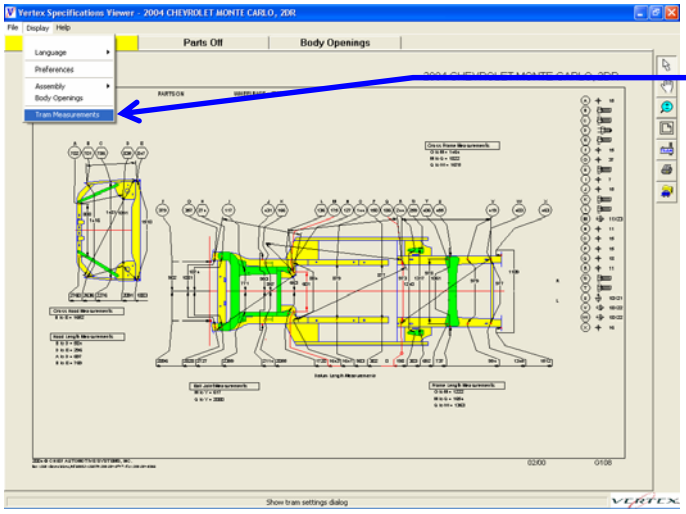

**5**

Select Body Style




**6**

If correct vehicle is selected, click next.



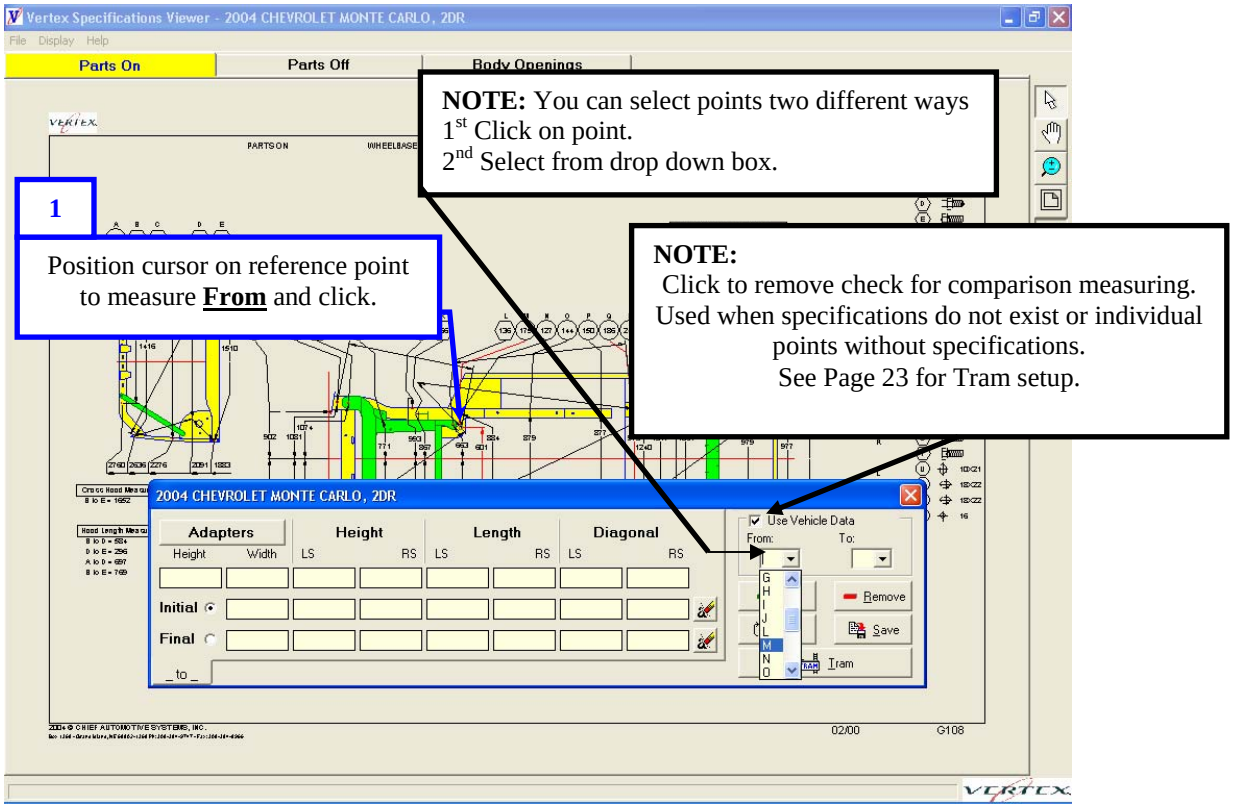

**7**

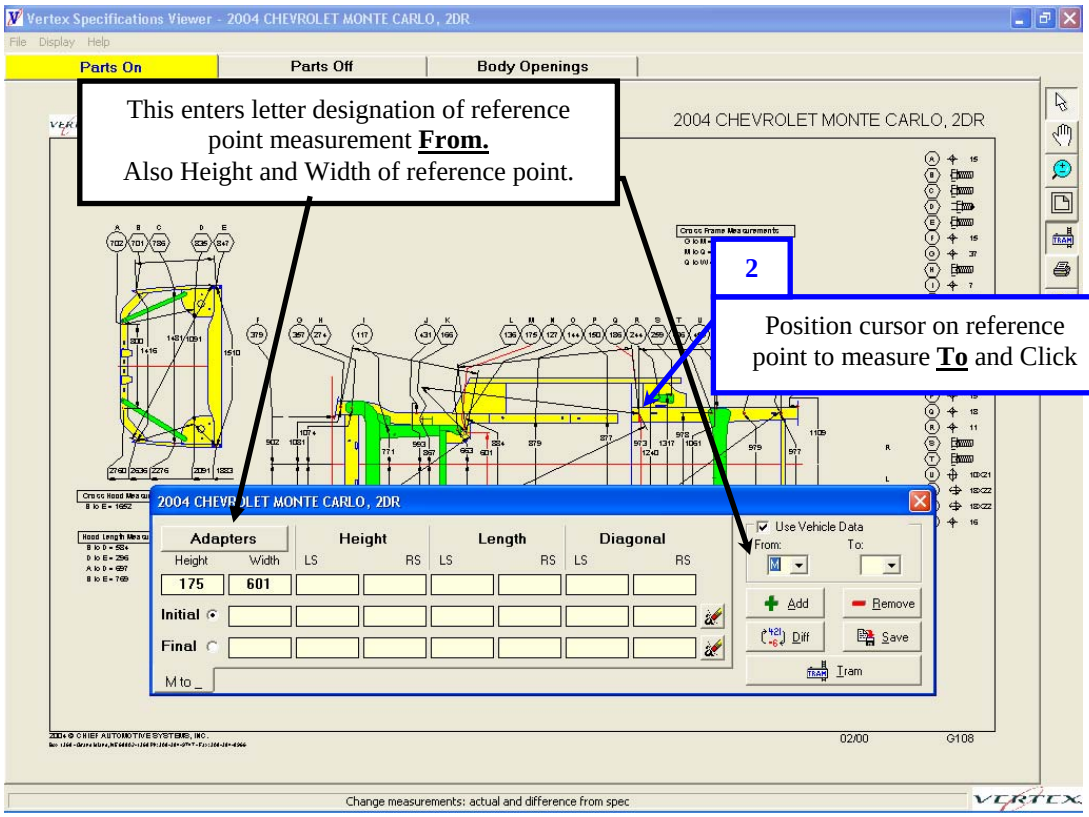
From the Menu, select **"Display"** click **"Tram Measurements".**

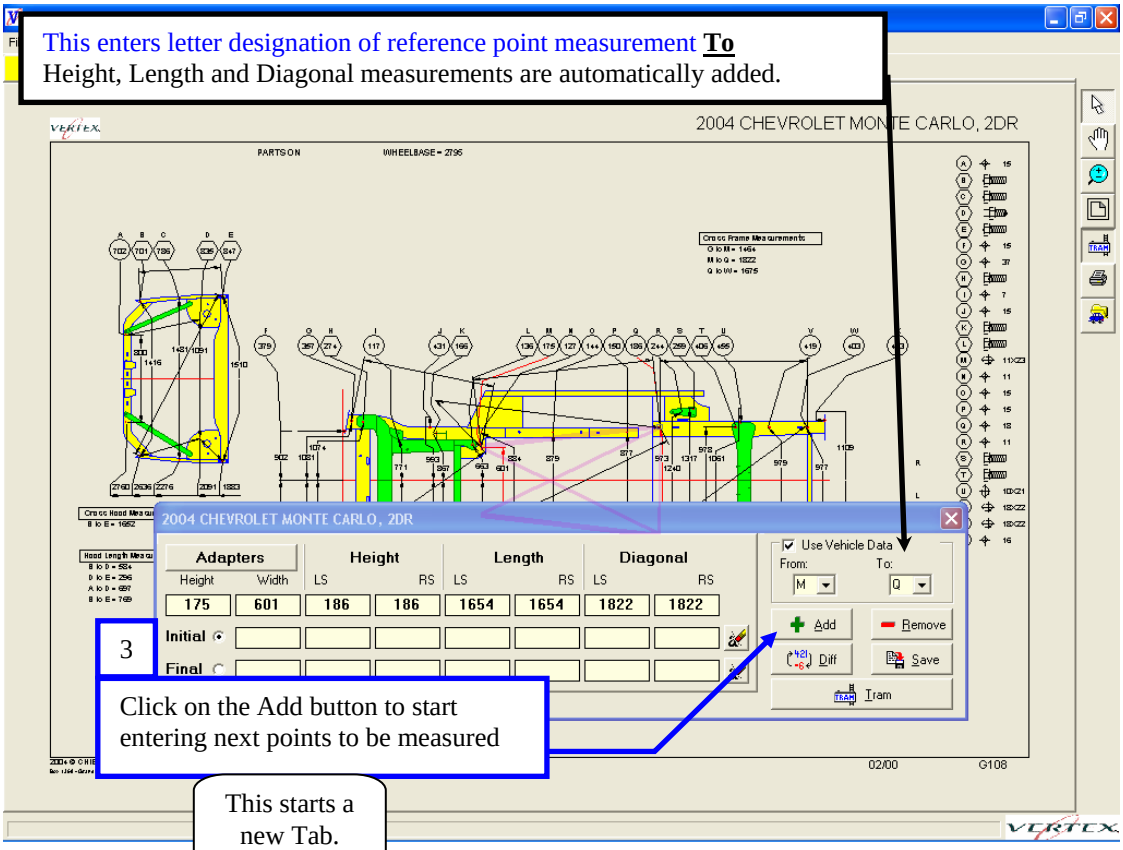
**8**

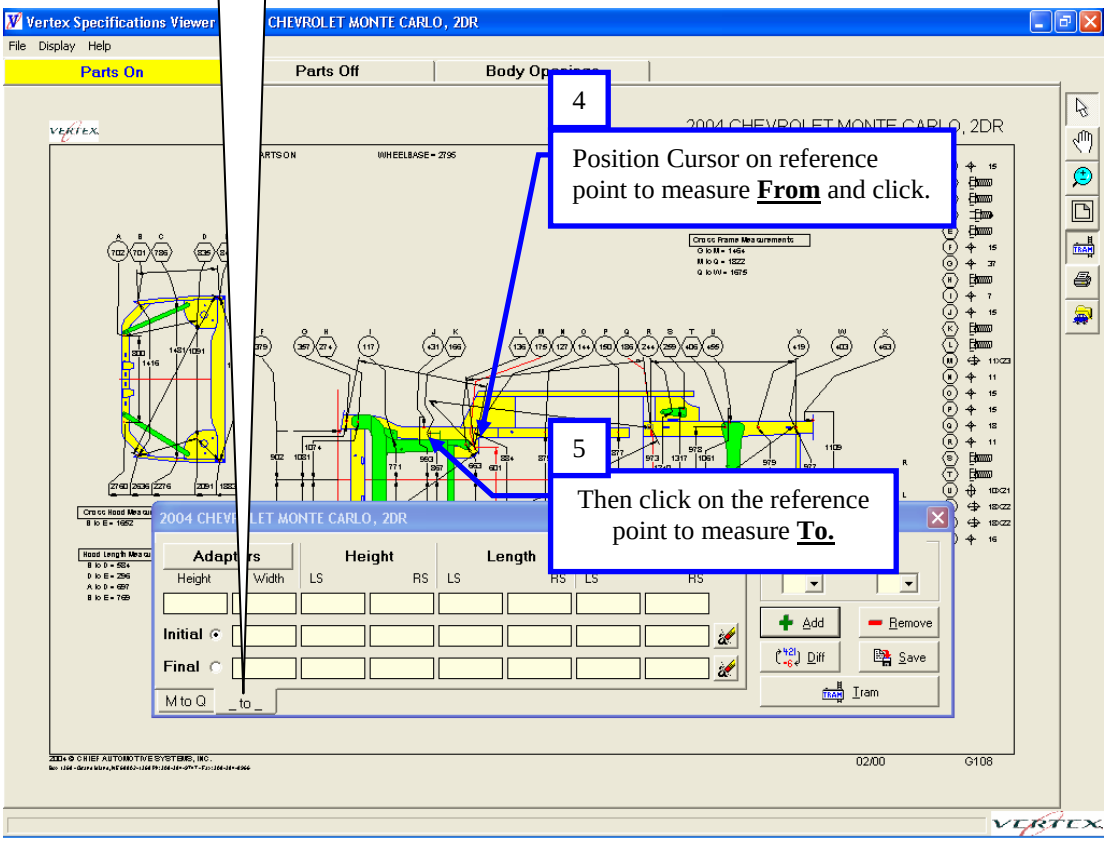
**Note:**
Determine the type of damage. This example is a front collision.
Starting point (body zero) will be at the cowl area.
First establish a Datum Plane
Then measure forward from body zero line.
Then the under hood area will be measured

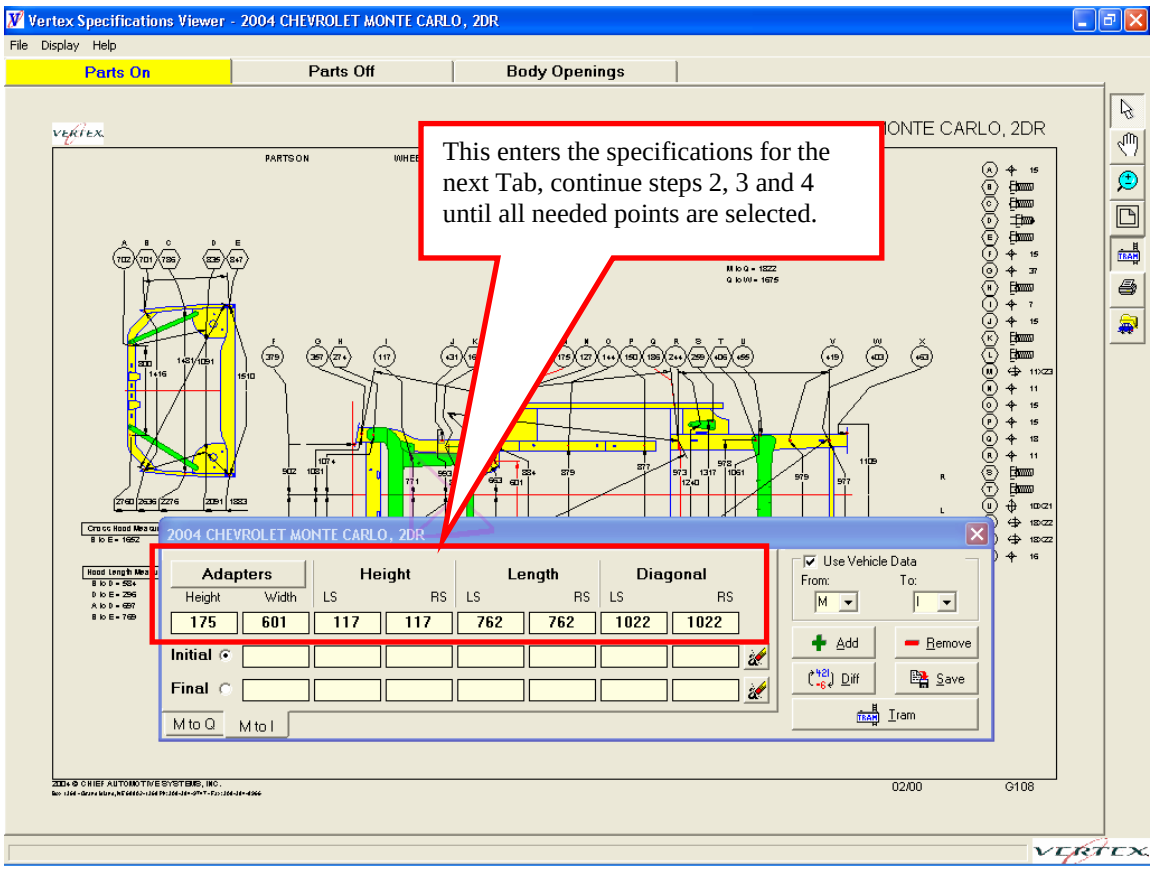
# Choose reference points to measure "From"



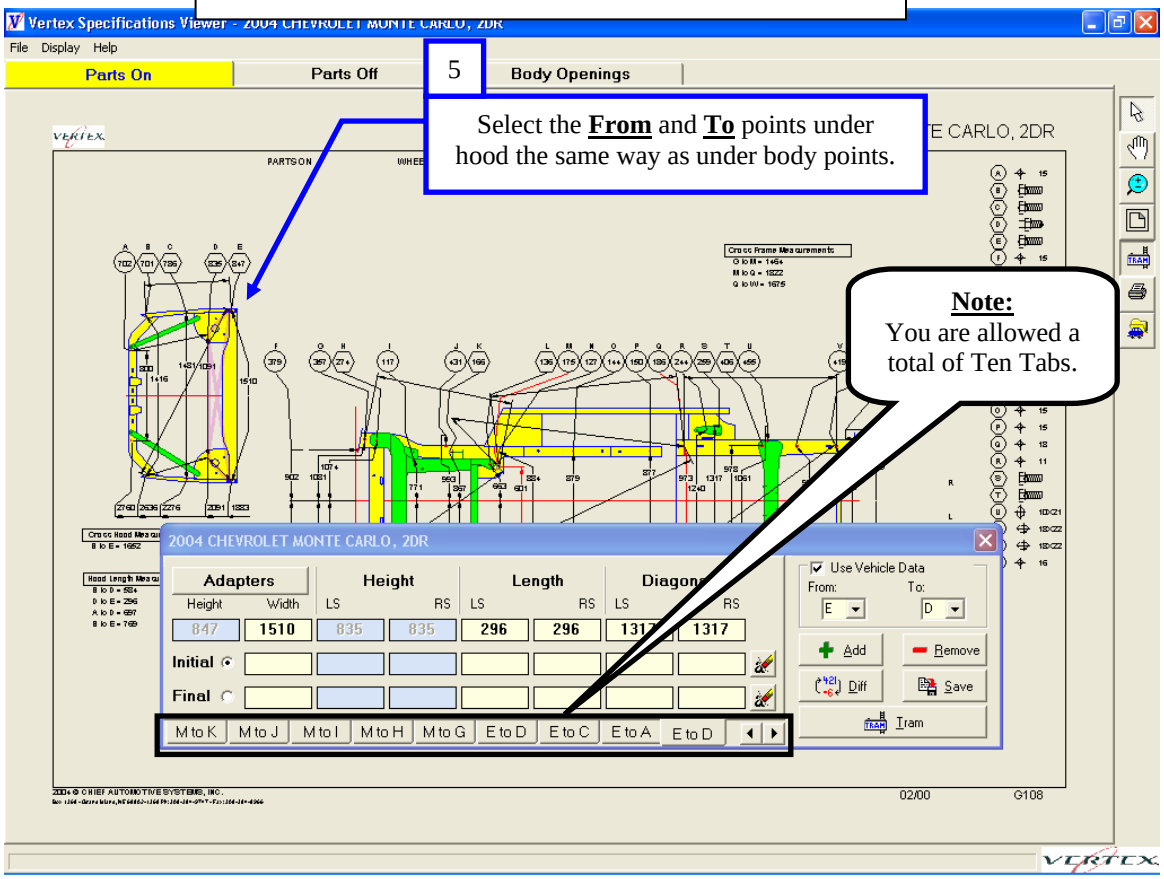



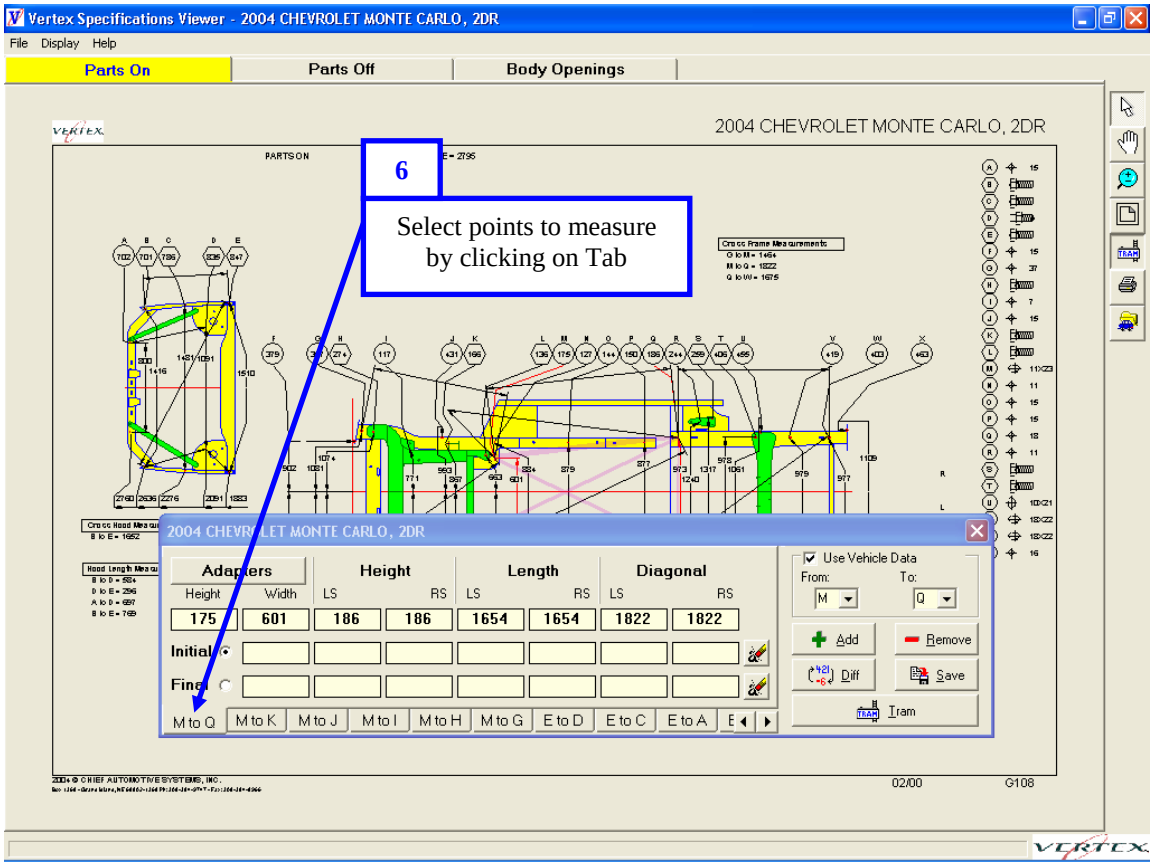

This enters letter designation of reference point measurement **To**
Height, Length and Diagonal measurements are automatically added.
2004 CHEVROLET MONTE CARLO, 2DR
Adapters
Height
Length
Diagonal
Height
Width
LS
RS
175
601
186
186
1654
1654
1822
1822
Initial
Final
Use Vehicle Data
From:
To:
Add
Remove
Diff
Save
Tram
3
Click on the Add button to start entering next points to be measured
This starts a new Tab.


Vertex Specifications Viewer
CHEVROLET MONTE CARLO, 2DR
File
Display
Help
Parts On
Parts Off
Body Openings
4
Position Cursor on reference point to measure **From** and click.
5
Then click on the reference point to measure **To.**
Initial
Final
M to Q
_ to _
Add
Remove
Diff
Save
Tram

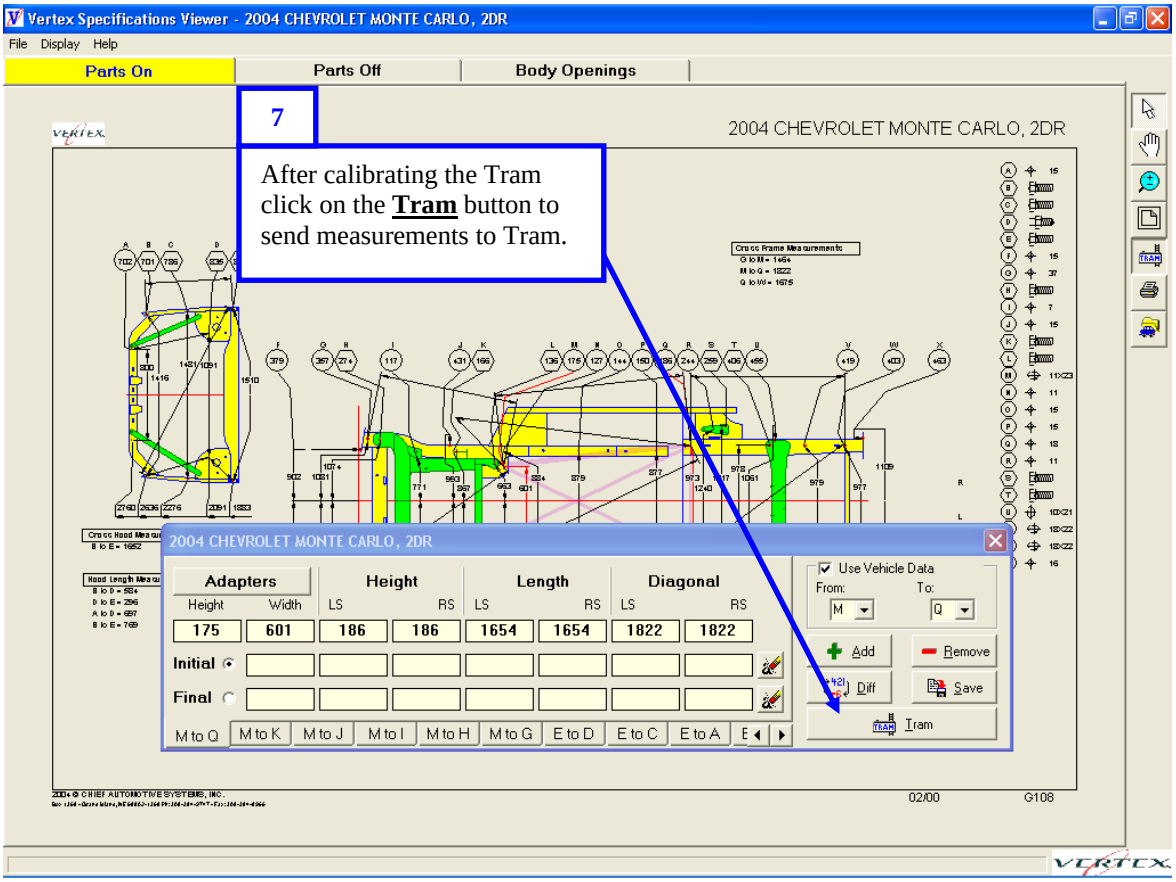



# Under Hood Measuring





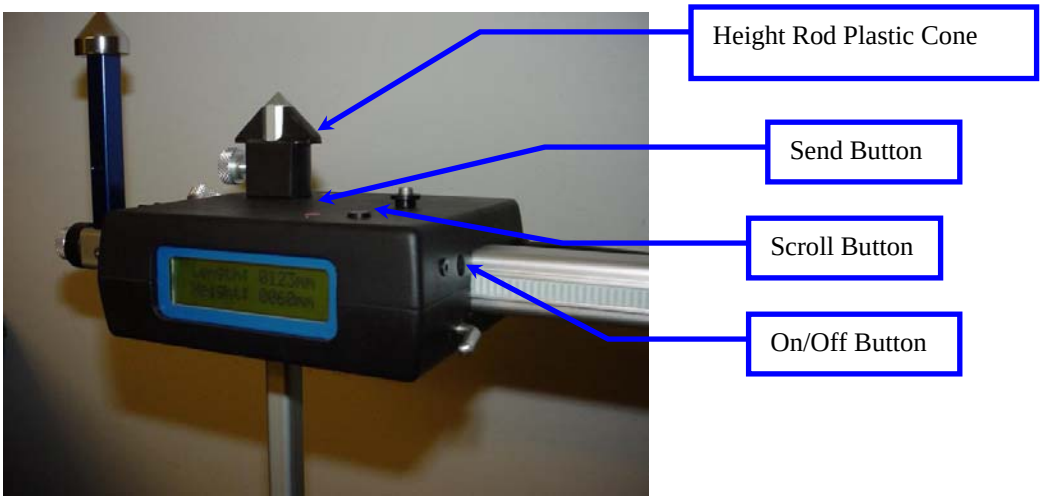

# Prepare & Calibrate Tram (For Details See Page 8)



# Calibrating the Tram

**To Calibrate Tram**:

1. Collapse Tram completely (telescoping section)
2. Slide LCD display box all the way to telescoping end of tram.
3. Install Height Rod and lower to plastic cone.
4. Turn on Tram (this calibrates the Tram)
5. Press the Scroll Button (Length and Height) will appear in LCD screen




**Follow LCD Screen information by using the Scroll button.**

(RS = Right Side) PS = Passenger Side

(LS = Left Side) DS = Drivers Side

W = Width

L = Length

H = Height

D = Diagonal

S = Strut

MANF = Specifications

MEAS = Actual measurements

DIFF = Difference between specifications and measurements

# ***Tram Operation*** ***(measuring)***

**Select 1st Tab**

1. Calibrate Tram (see page 10)
2. Install adapters at starting points (Body Zero)
3. Follow steps 1-7 to prepare for measuring.
4. Establishing datum plane (see page 12)
5. Click “Tram” button to send specifications to Tram.
6. With equal length pointers, measure width at adapters (send to computer)
7. Measure the center section height (ds/ps) (send to computer)
8. Measure the center section length (ds/ps) (send to computer)
9. Measure center section diagonal (ds/ps) (send to computer)
10. Click “Tram” button to stop communication with Tram.

**Select 2nd Tab**

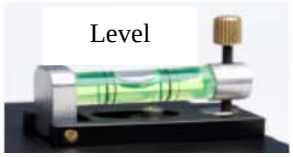
1. Click “Tram” button to send specifications to Tram.
2. With equal length pointers, measure width at adapters (send to computer)
3. Measure from adapter to damaged area (sending each to the computer)
    - Measure the damaged area height (ds/ps) (send to computer)
    - Measure the damaged area length (ds/ps) (send to computer)
    - Measure damaged area diagonal (ds/ps) (send to computer)
    - Click “Tram” button to stop communication with Tram.

**Select 3rd Tab**

1. Click “Tram” button to send specifications to Tram.
2. With equal length pointers, measure width at adapters (send to computer)
3. Measure from adapter to damaged area (sending each to the computer)
    - Measure the damaged area height (ds/ps) (send to computer)
    - Measure the damaged area length (ds/ps) (send to computer)
    - Measure damaged area diagonal (ds/ps) (send to computer)
    - Click “Tram” button to stop communication with Tram.

# Establishing Datum Plane

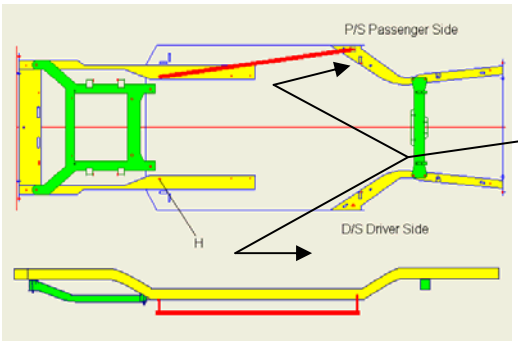
**Datum Line-** an imaginary straight line below the vehicle from which all height dimensions are referenced. The Rocker panel of a vehicle is parallel to the datum line. Most major pulling and measuring equipment mount the vehicle on to the lower sill flanges and measure up from the platform.



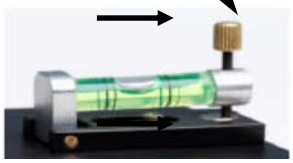

Mount Level on the Tram Bar shoulder screw located on the top of the display box.
Send the data that has been entered in (**Page 4,Steps 1 & 2** ) to the display box by clicking on the **"Tram"** button.
Adjust the height rod until the Difference column on the display box reads zero. Lock this height by tightening the height set screw. Extend the tram to the point. Touch the tip of the height rod to the surface beside the hole when measuring to a hole. Touch the tip of the height rod to the tip of the bolt head when measuring to a bolt. When tram is positioned, adjust the Level until it becomes level.
This establishes the Datum Plane.

**IMPORTANT NOTE:**
**Remember which direction (Front to Rear) the thumbscrew on the Vial\Level is facing when creating a datum line. Always keep this direction when measuring.**
**Following Example is a front-end collision.**

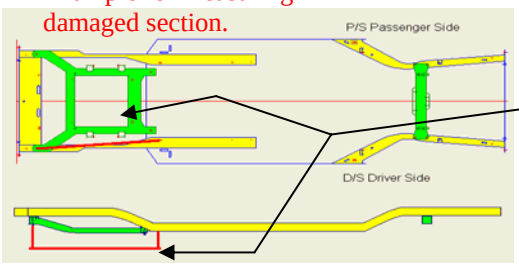
Example for establishing a Datum Plane



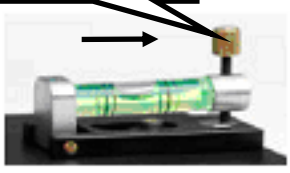

Direction of level for setting Datum



Example for measuring damaged section.




Direction of level for measuring

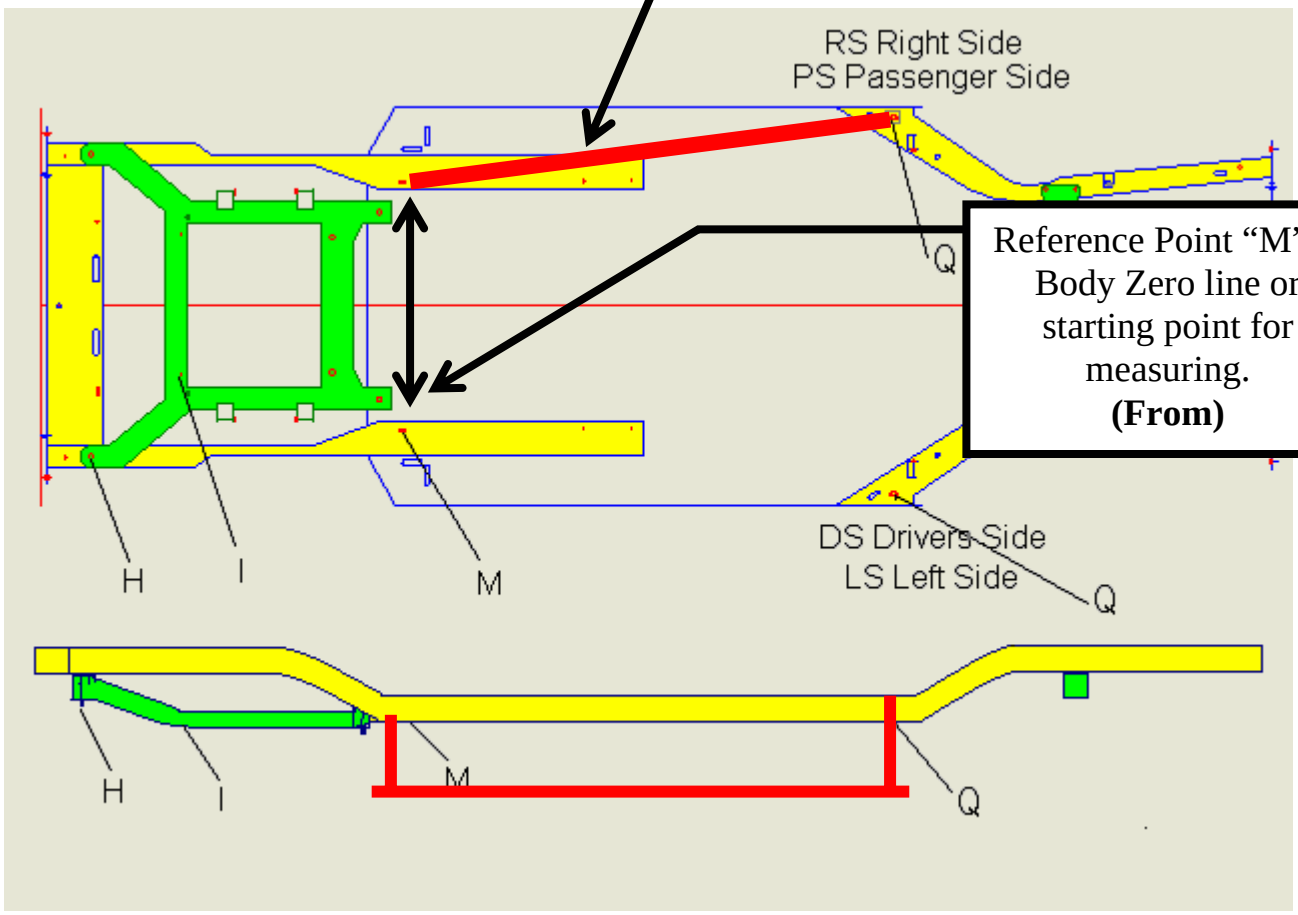


# Measurements **“To”**

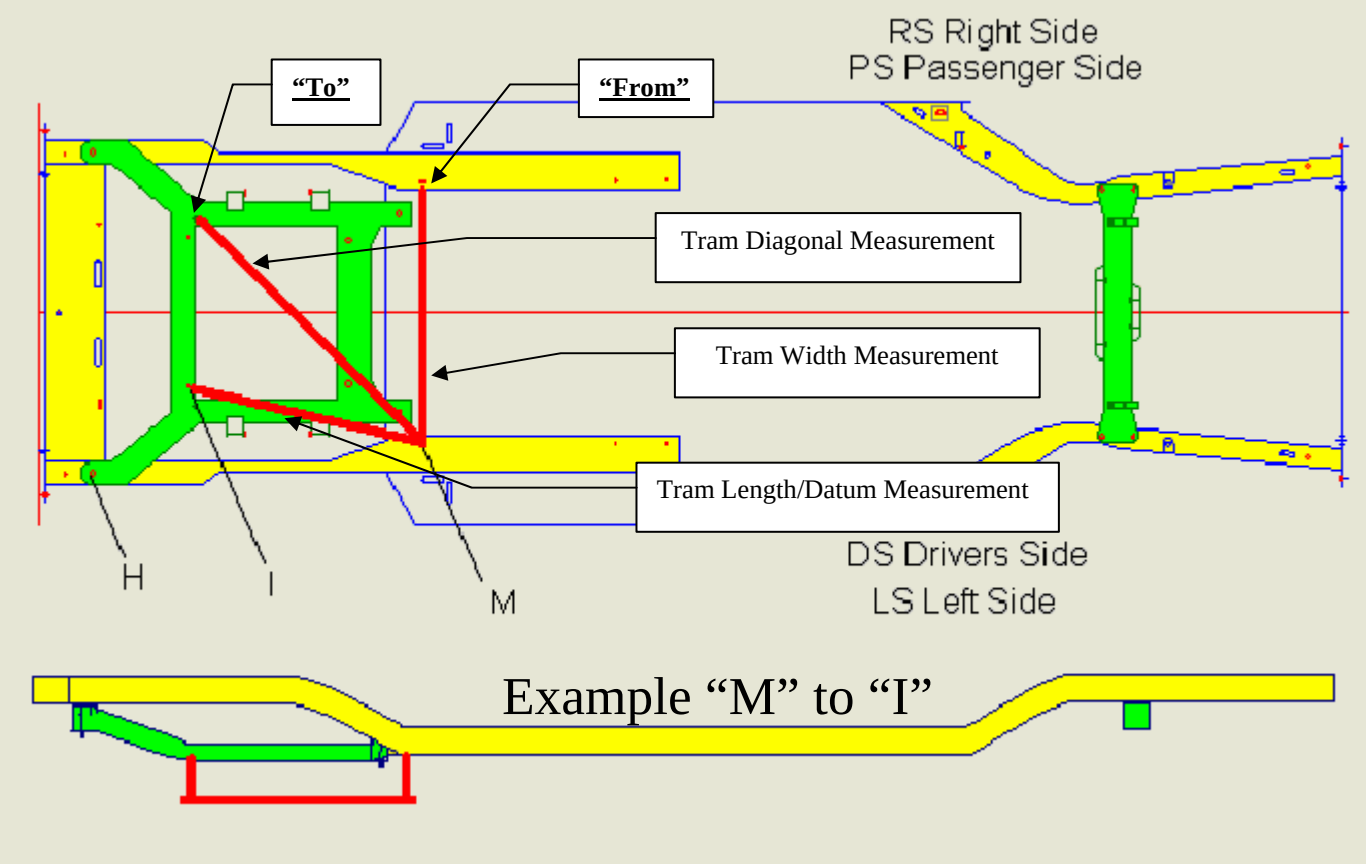
All Height measurements to holes are the surface next to the hole.

When measuring to bolts measure to the center of the bolt head.

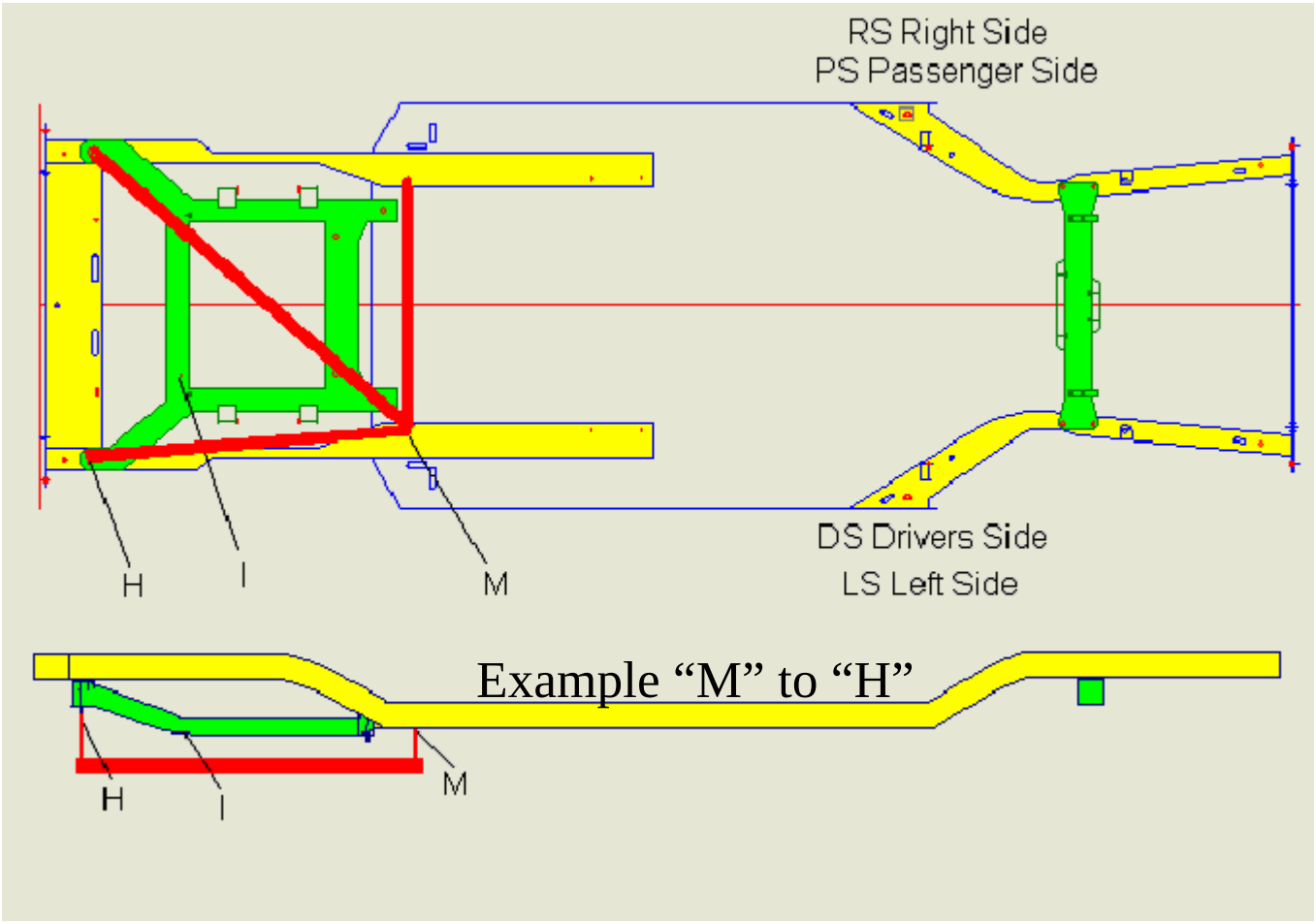
Reference “M” to “Q” used to set Datum



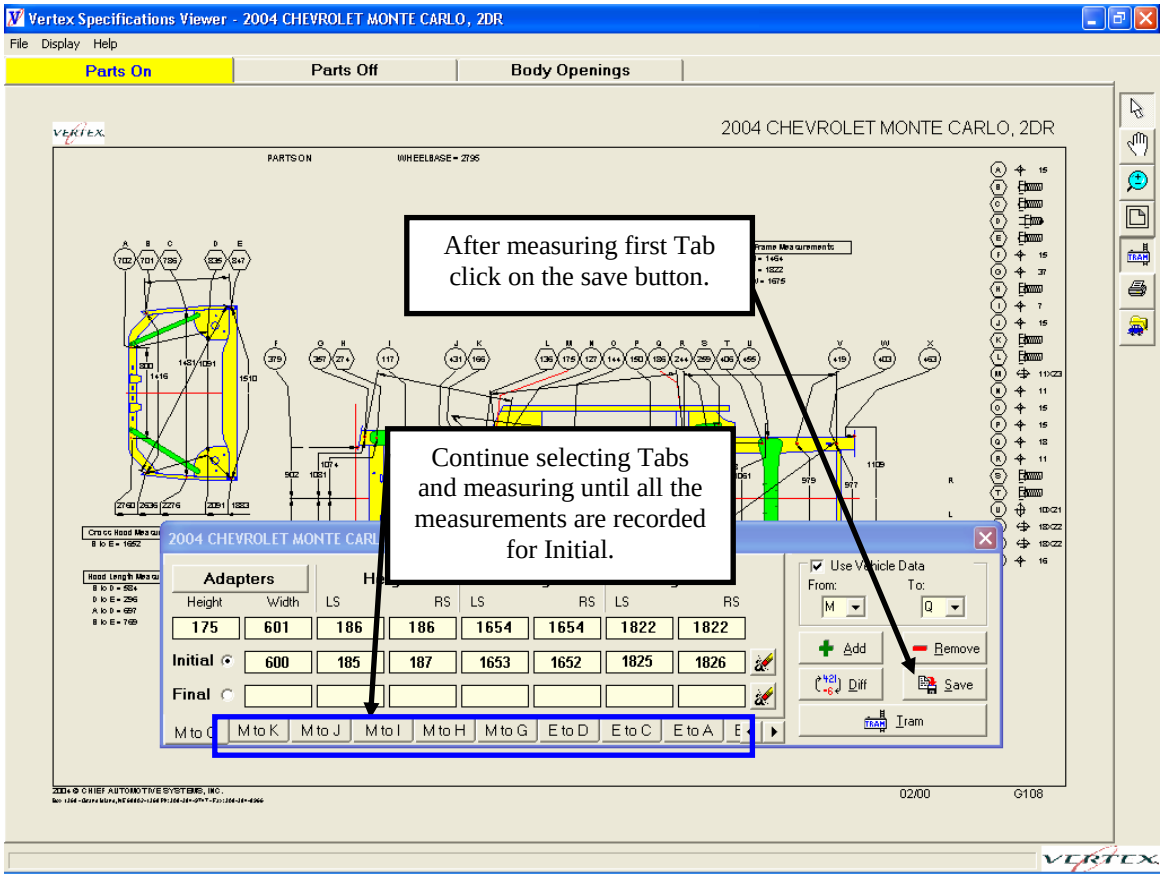

Reference Point “M” is Body Zero line or starting point for measuring.
**(From)**

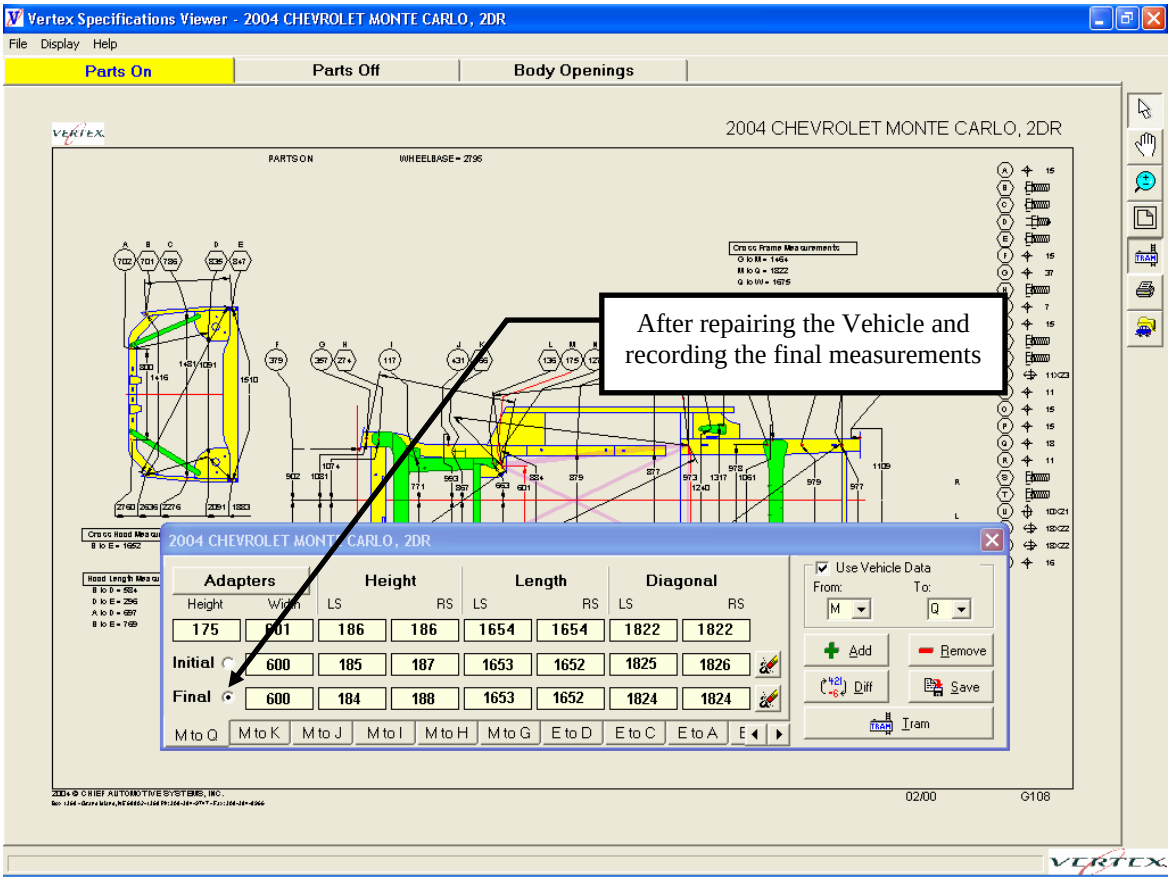


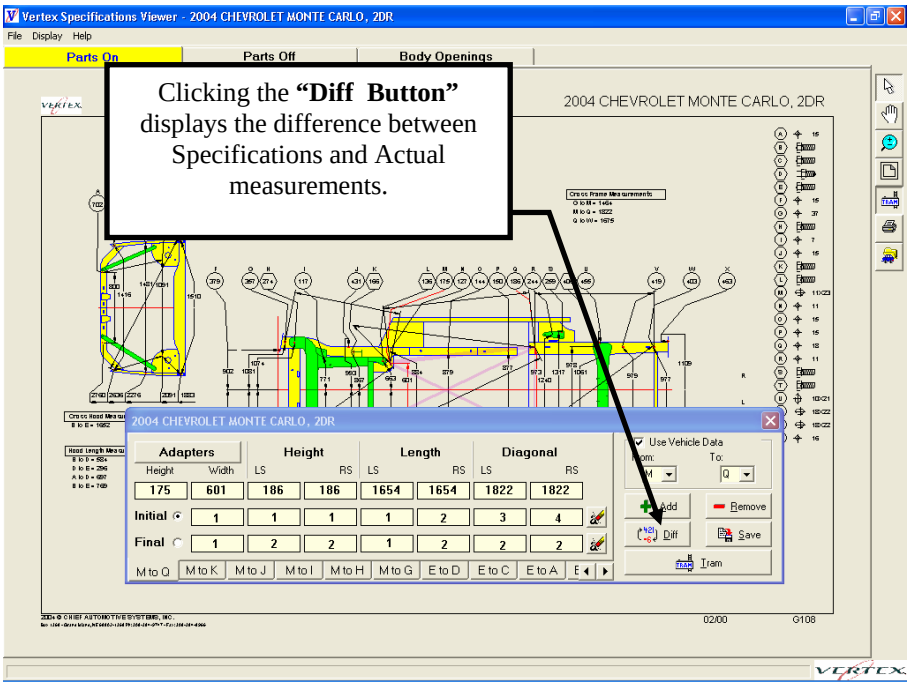

Example "M" to "I"

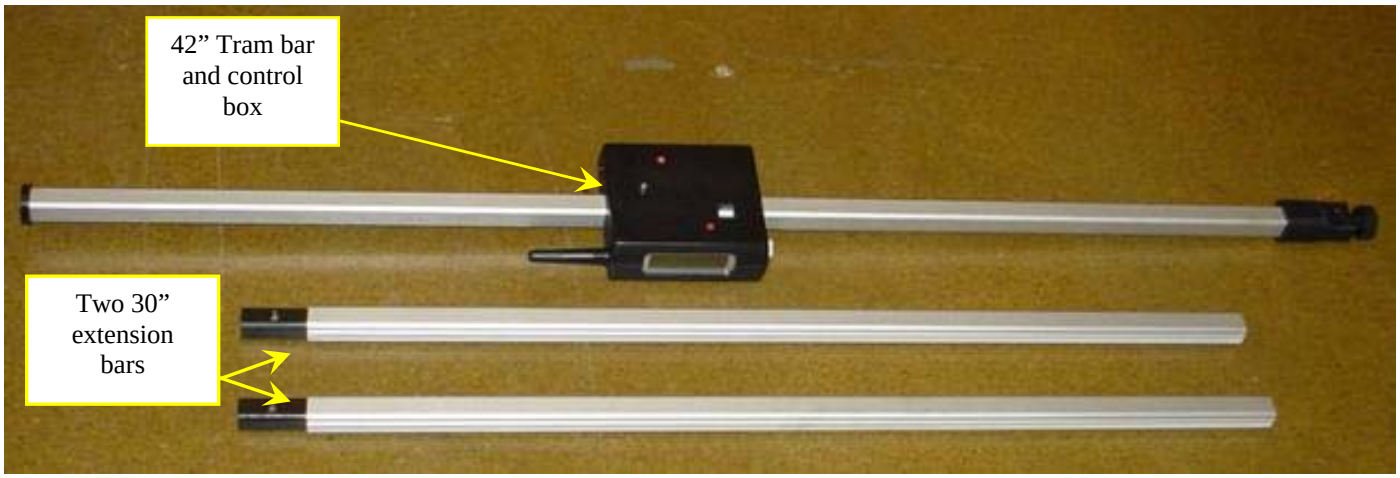



Example "M" to "H"

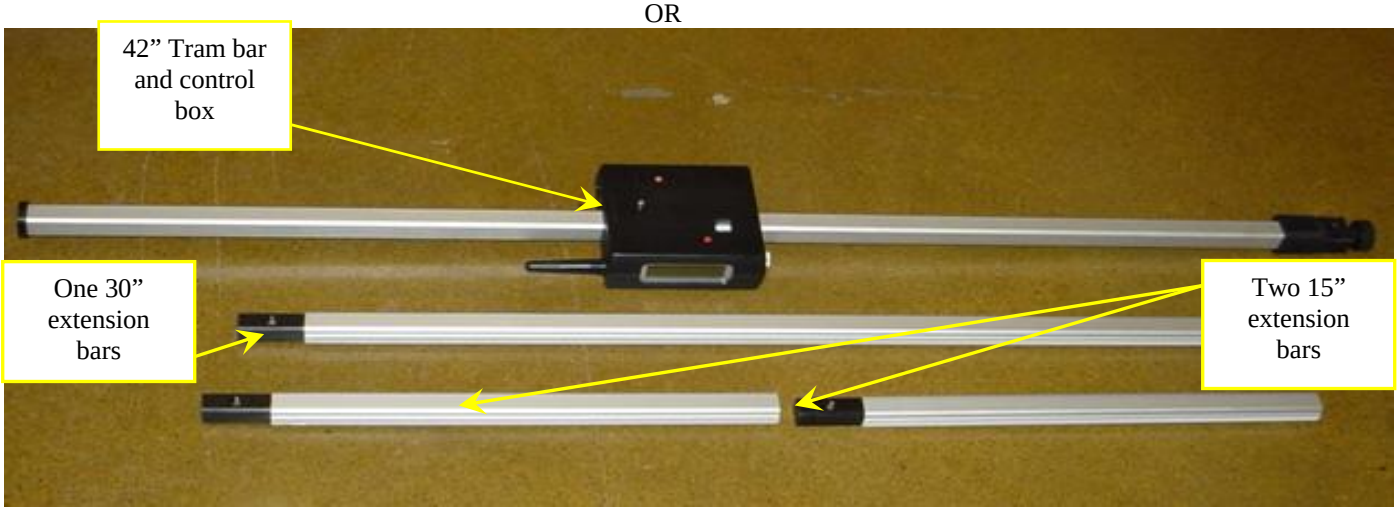

Vertex Specifications Viewer - 2004 CHEVROLET MONTE CARLO, 2DR
File Display Help
Parts On
Parts Off
Body Openings
2004 CHEVROLET MONTE CARLO, 2DR
After measuring first Tab click on the save button.
Continue selecting Tabs and measuring until all the measurements are recorded for Initial.
Adapters
Height
Width
LS
RS
Initial
Final
Use Vehicle Data
From:
To:
Add
Remove
Diff
Save
Tram
M to Q
M to K
M to J
M to I
M to H
M to G
E to D
E to C
E to A
02/00
G108


Vertex Specifications Viewer - 2004 CHEVROLET MONTE CARLO, 2DR
File Display Help
Parts On
Parts Off
Body Openings
2004 CHEVROLET MONTE CARLO, 2DR
After repairing the Vehicle and recording the final measurements
2004 CHEVROLET MONTE CARLO, 2DR
Adapters
Height
Length
Diagonal
Width
LS
RS
Initial
Final
Use Vehicle Data
From:
To:
Add
Remove
Diff
Save
Tram
M to Q
M to K
M to J
M to I
M to H
M to G
E to D
E to C
E to A
02/00
G108

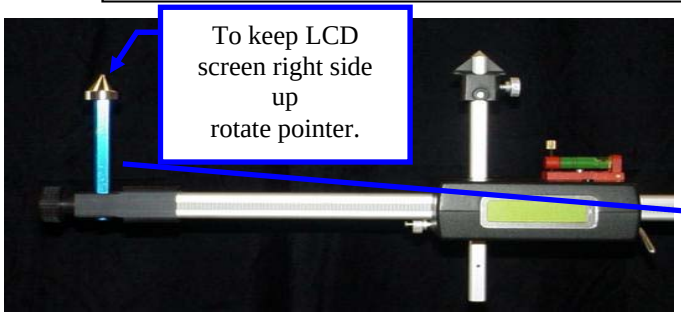

Vertex Specifications Viewer - 2004 CHEVROLET MONTE CARLO, 2DR
File Display Help
Parts On
Parts Off
Body Openings
Clicking the "Diff Button" displays the difference between Specifications and Actual measurements.
2004 CHEVROLET MONTE CARLO, 2DR
Adapters
Height
Length
Diagonal
Use Vehicle Data
Add
Remove
Diff
Save
Tram
M to Q
M to K
M to J
M to I
M to H
M to G
E to D
E to C
E to A
02/00
G108


42" Tram bar and control box
Two 30" extension bars

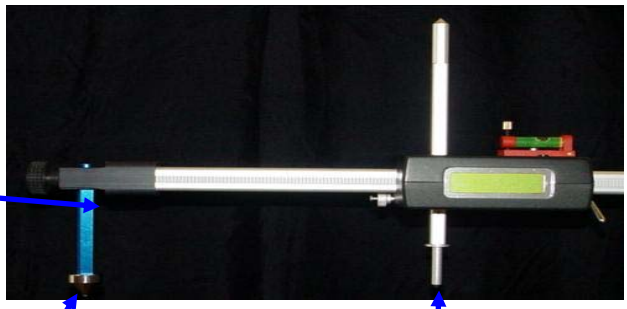
OR

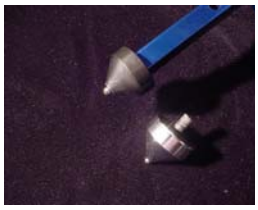

42" Tram bar and control box
One 30" extension bars
Two 15" extension bars

# Tram setup for under hood measuring



To keep LCD screen right side up rotate pointer.

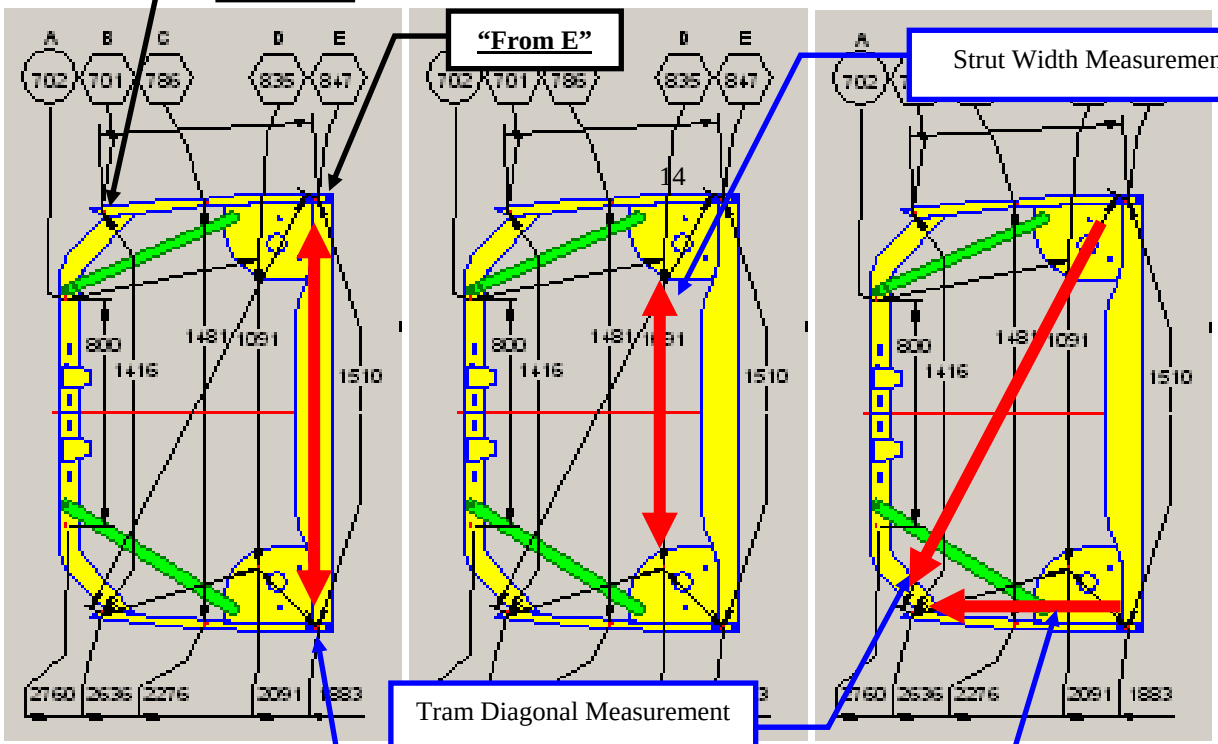


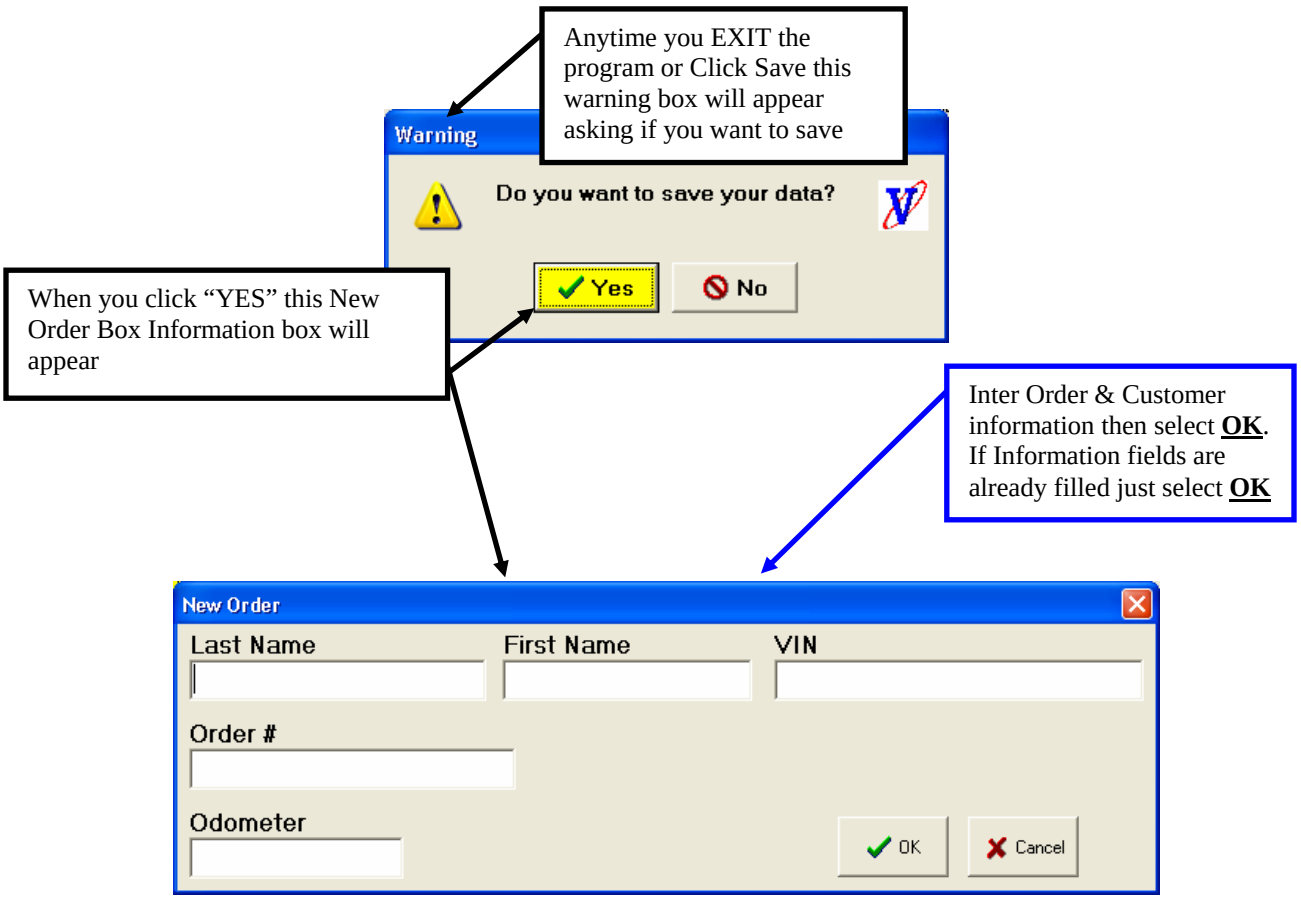


Replace all metal end with plastic end. (less magnetic force)

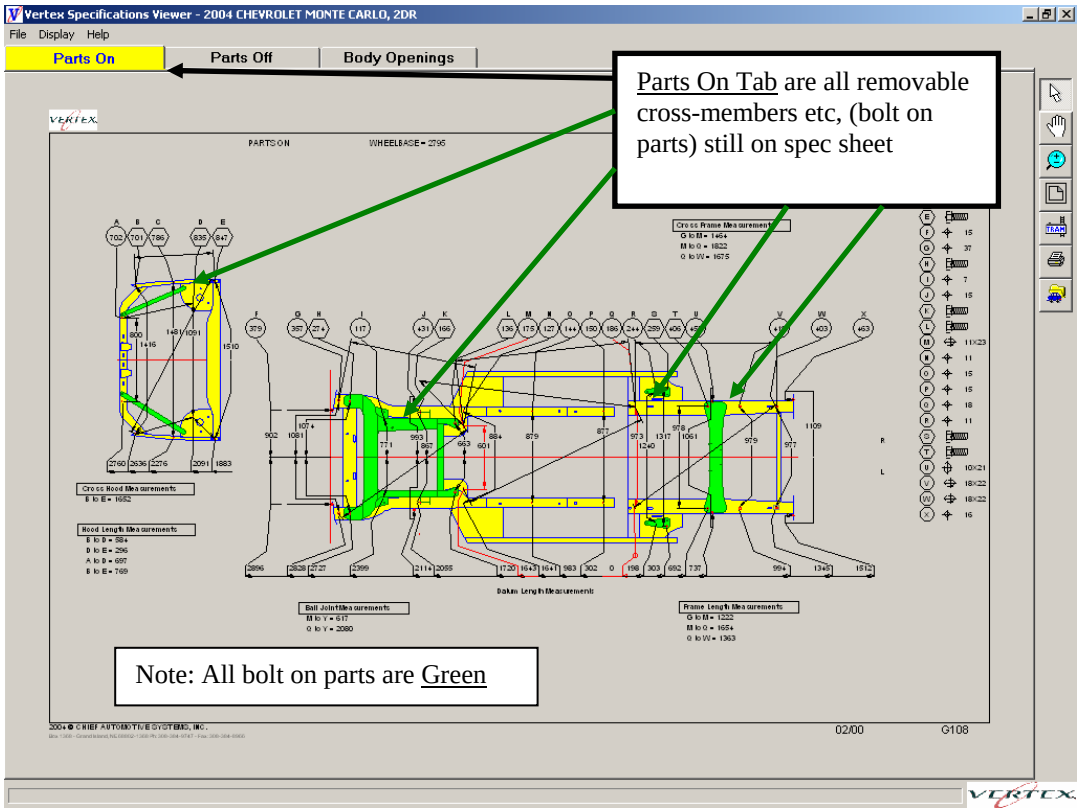
Add magnetic pointer to end of height rod. Adjust Height Rod to 137mm and lock.

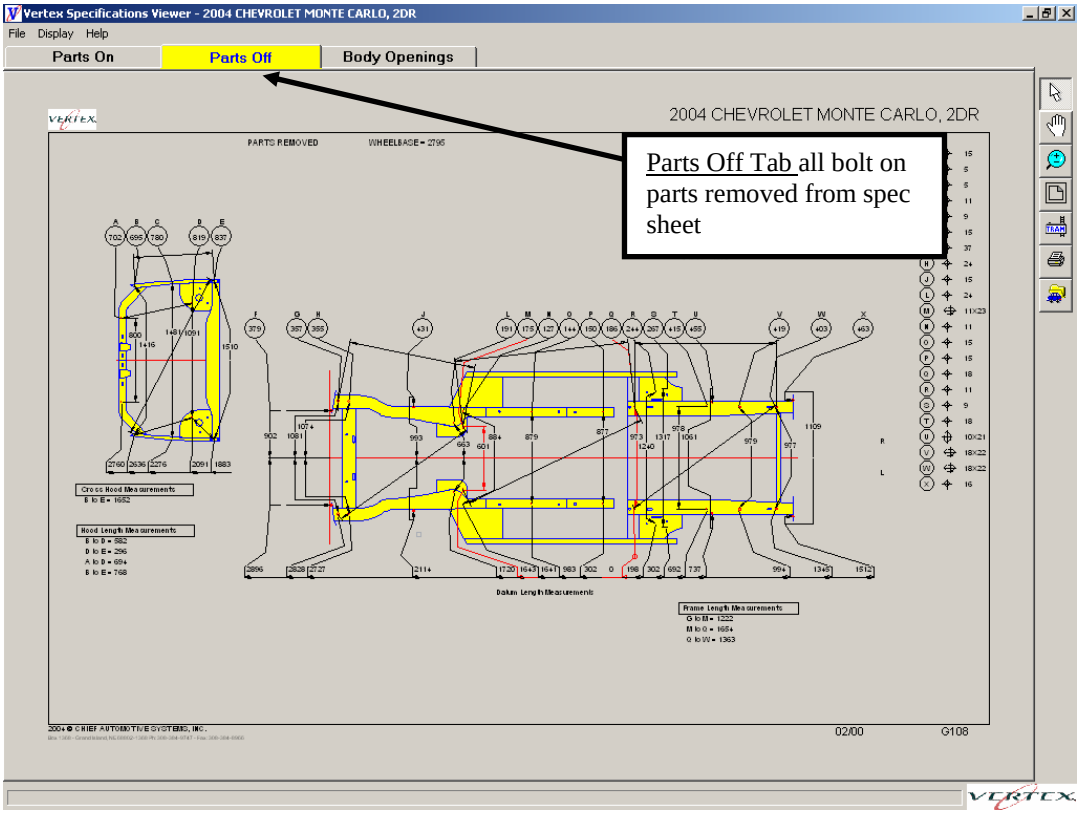
## Under Hood View



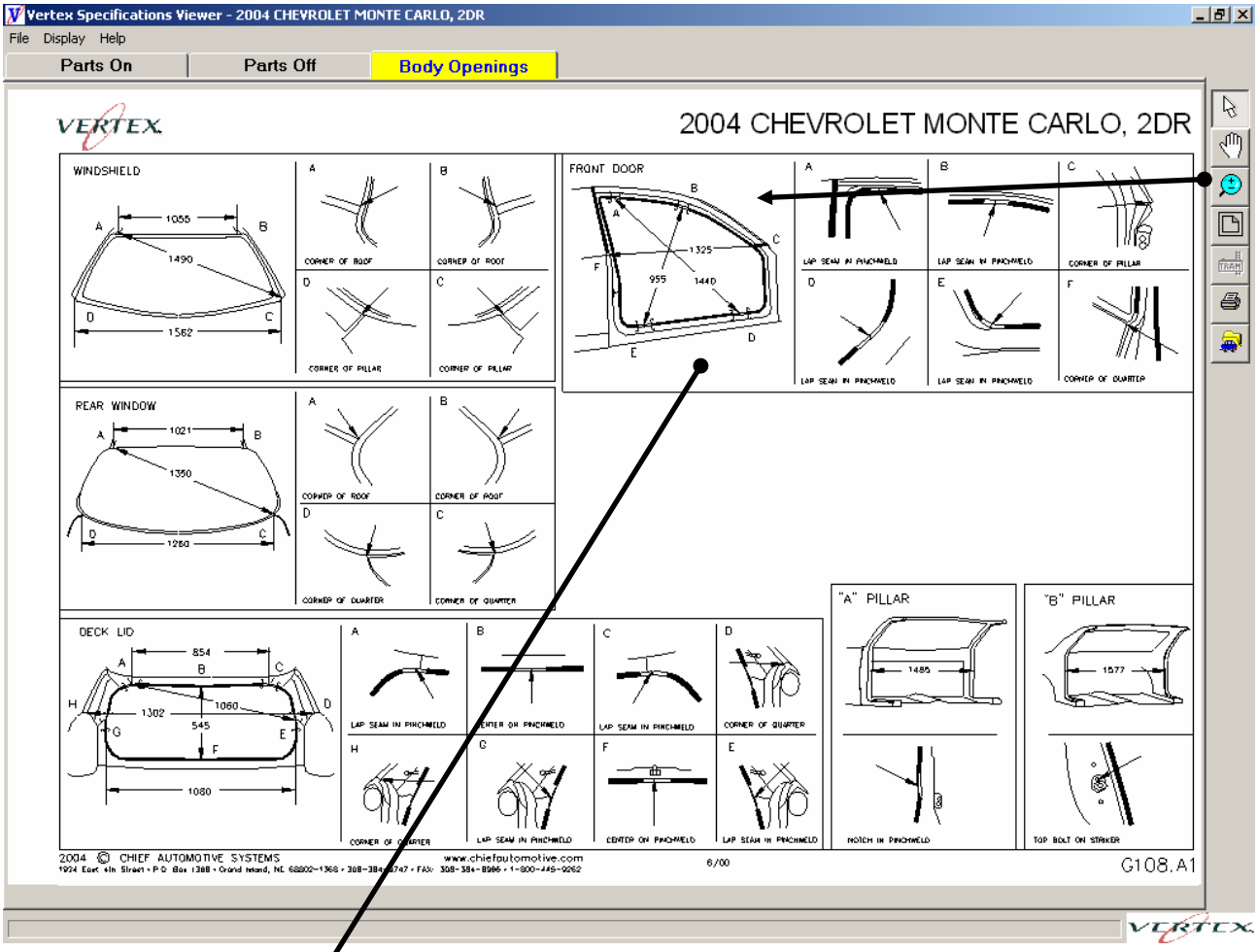

Anytime you EXIT the program or Click Save this warning box will appear asking if you want to save
Warning
Do you want to save your data?
Yes
No
When you click "YES" this New Order Box Information box will appear
Inter Order & Customer information then select OK. If Information fields are already filled just select OK
New Order
Last Name
First Name
VIN
Order #
Odometer
OK
Cancel

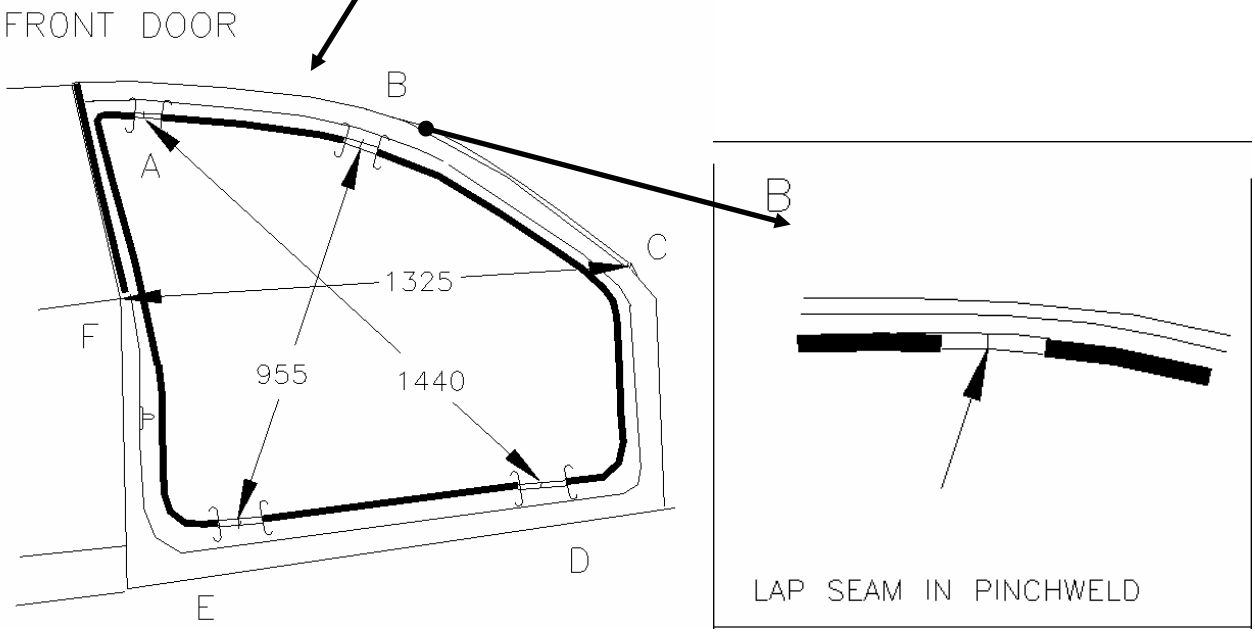
# Parts ON/Off


Vertex Specifications Viewer - 2004 CHEVROLET MONTE CARLO, 2DR
File Display Help
Parts On
Parts Off
Body Openings
Parts On Tab are all removable cross-members etc, (bolt on parts) still on spec sheet
PARTS ON
WHEELBASE = 2795
Note: All bolt on parts are Green
02/00
G108

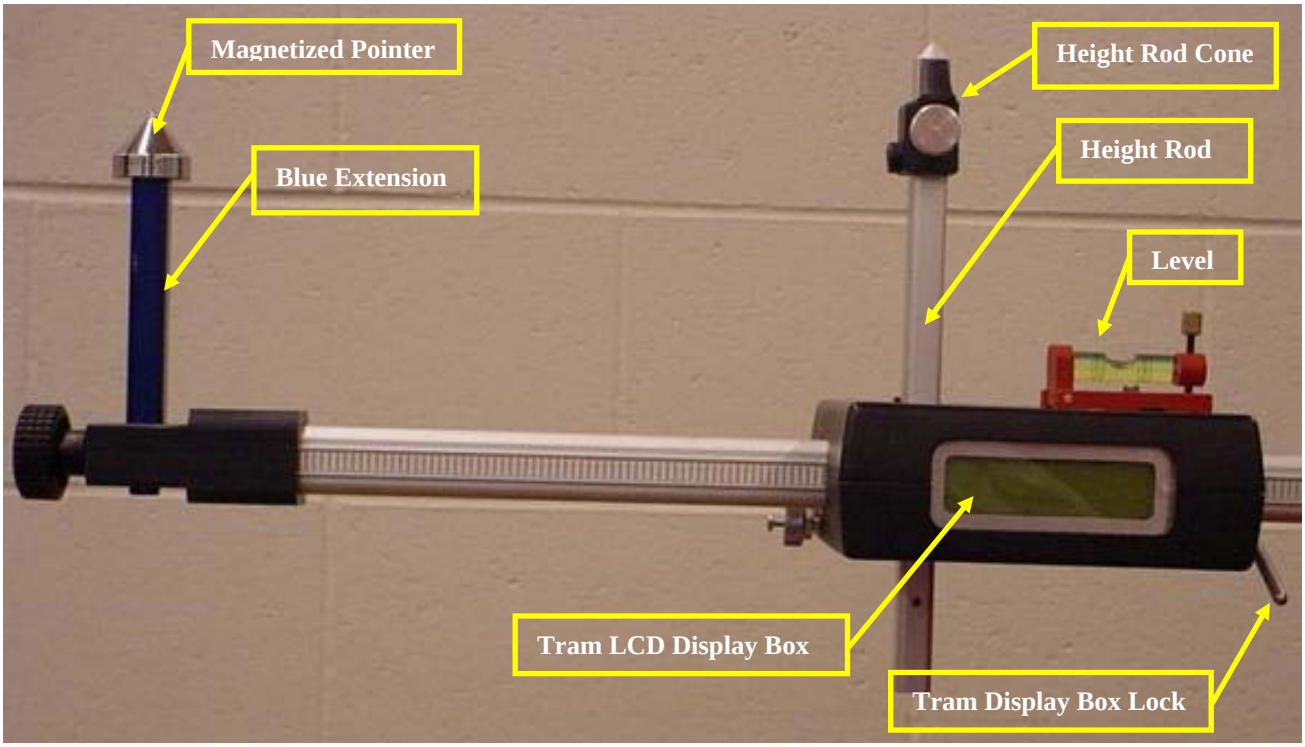

Vertex Specifications Viewer - 2004 CHEVROLET MONTE CARLO, 2DR
File Display Help
Parts On
Parts Off
Body Openings
2004 CHEVROLET MONTE CARLO, 2DR
Parts Off Tab all bolt on parts removed from spec sheet
PARTS REMOVED
WHEELBASE = 2795
02/00
G108

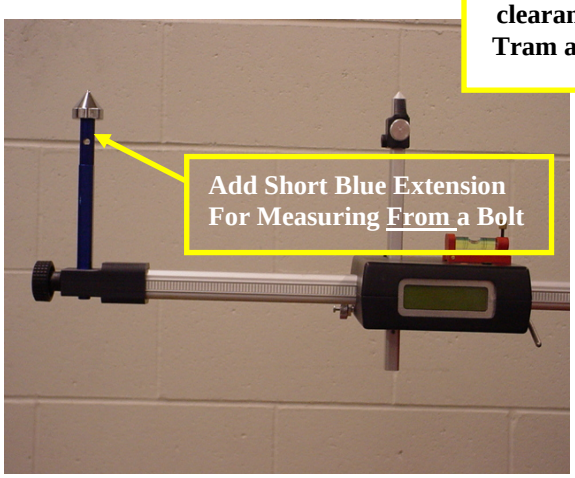
# Body Openings



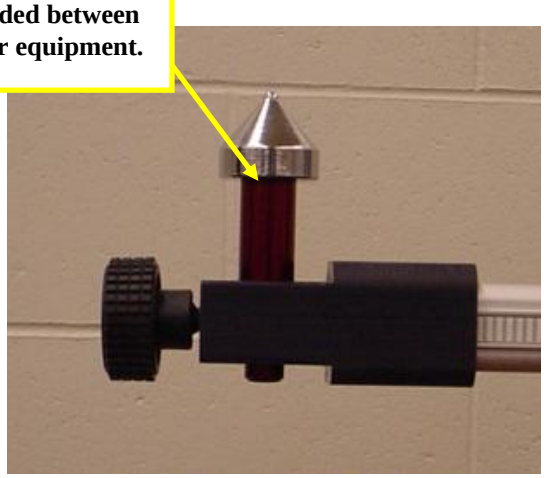



# Measuring **From** Hole **To** Hole



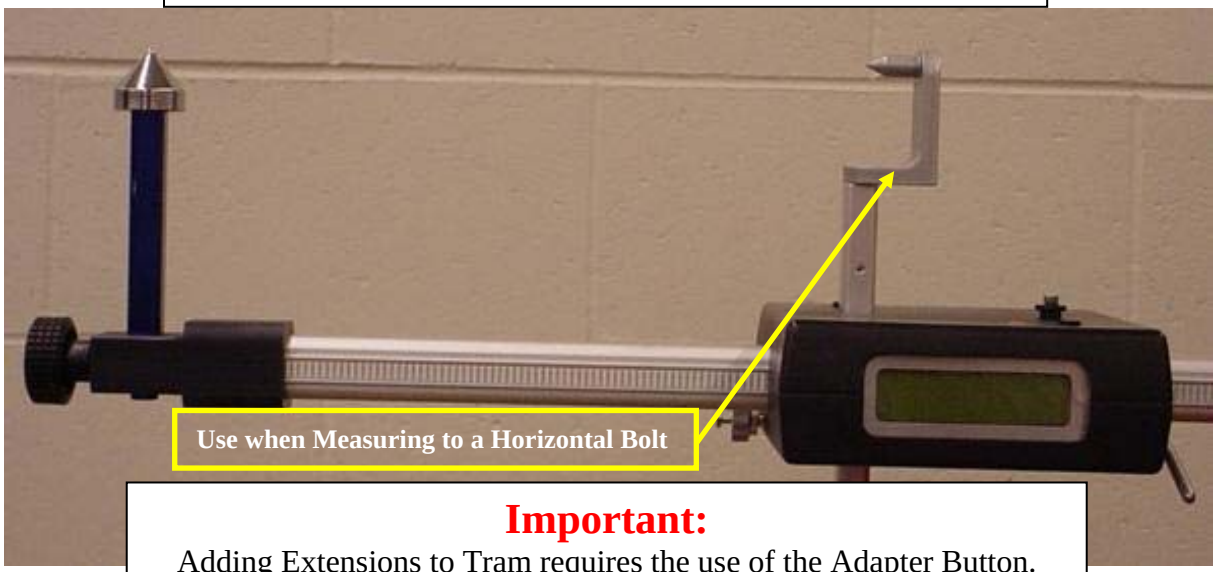




**Red Extension used if added clearance is needed between Tram and repair equipment.**



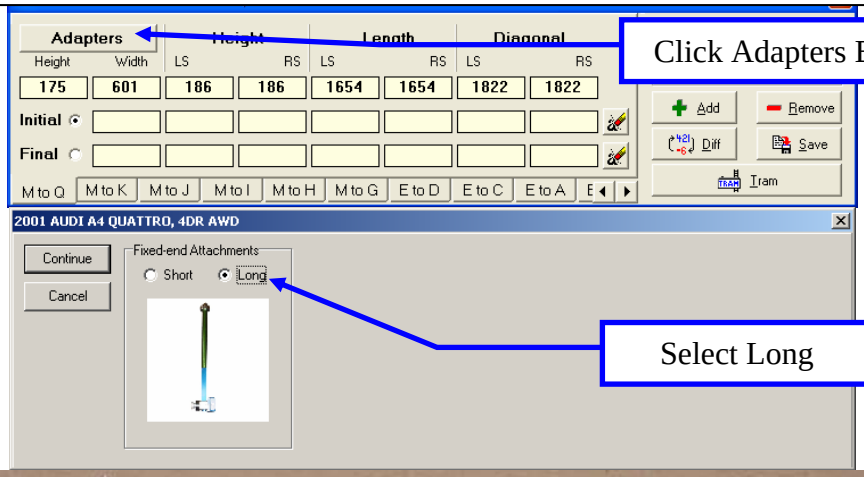
Attachments used **From** Bolts. See Page 22

Setup for measuring **From** hole **To** horizontal bolt.



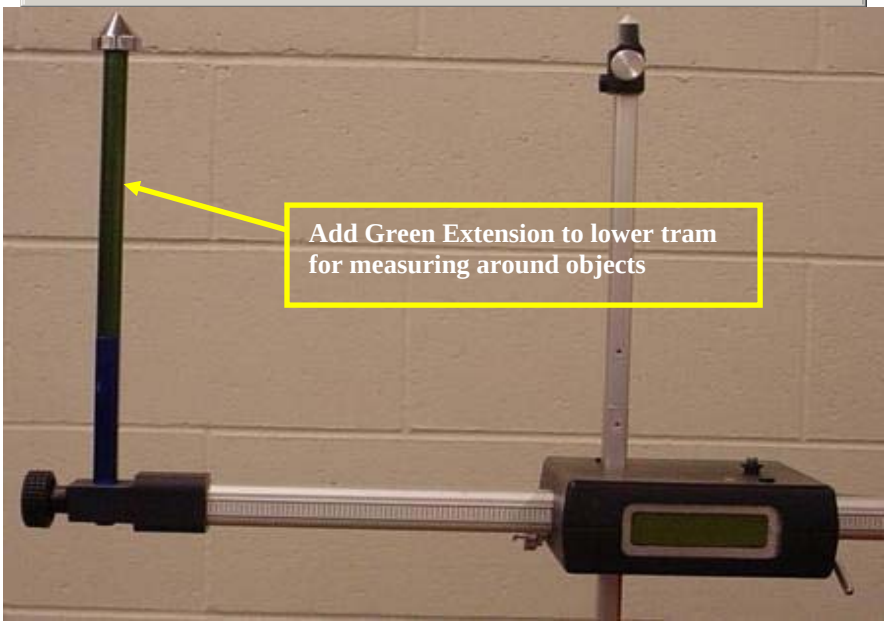

**Important:**

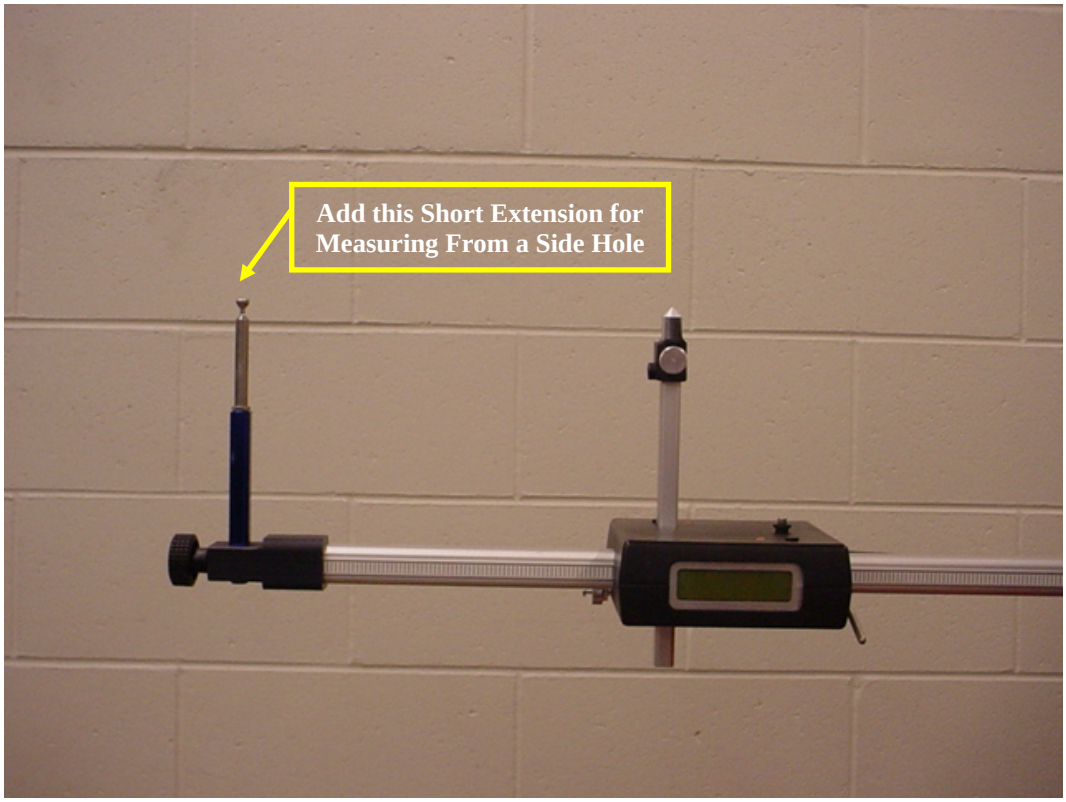
Adding Extensions to Tram requires the use of the Adapter Button.
Default setting is Short

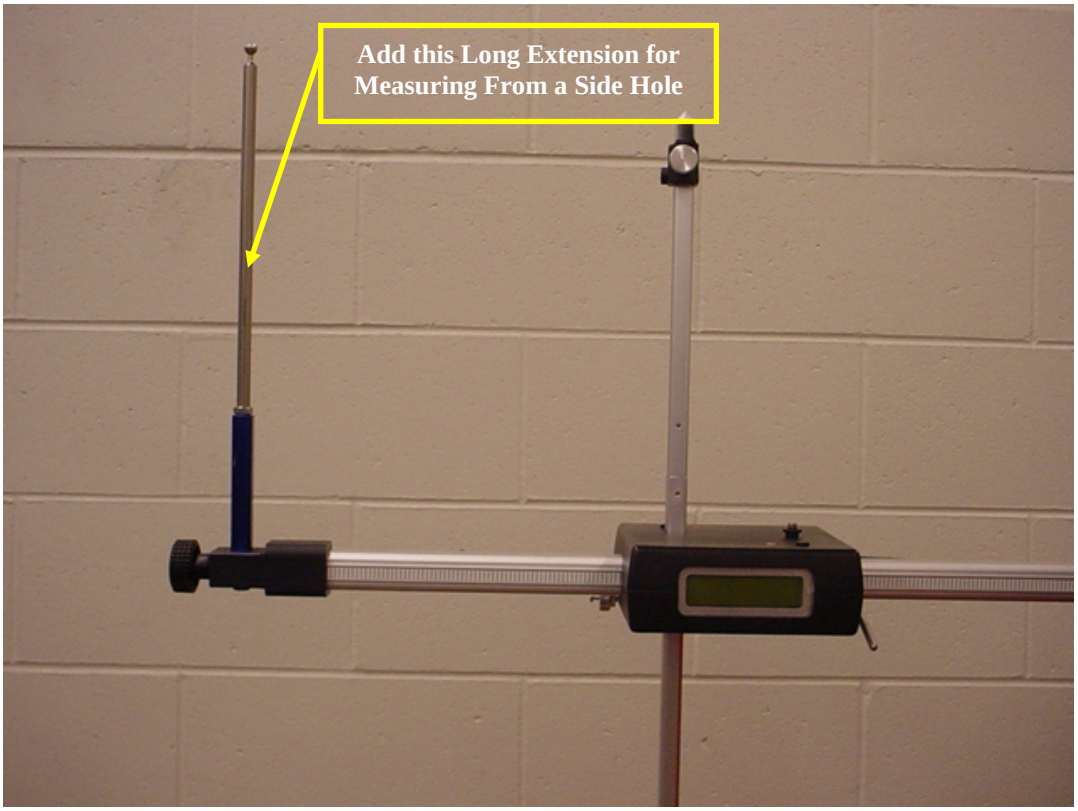


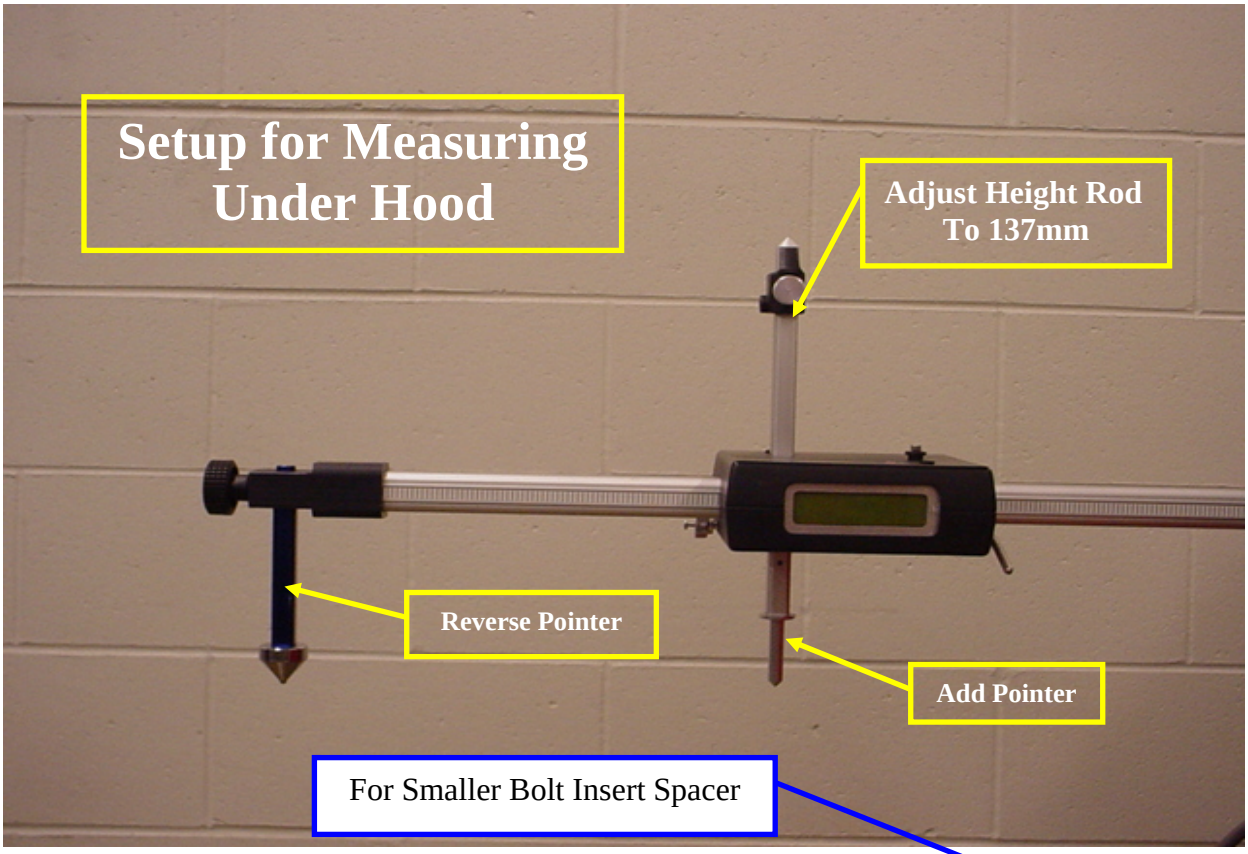

Click Adapters Button

Select Long



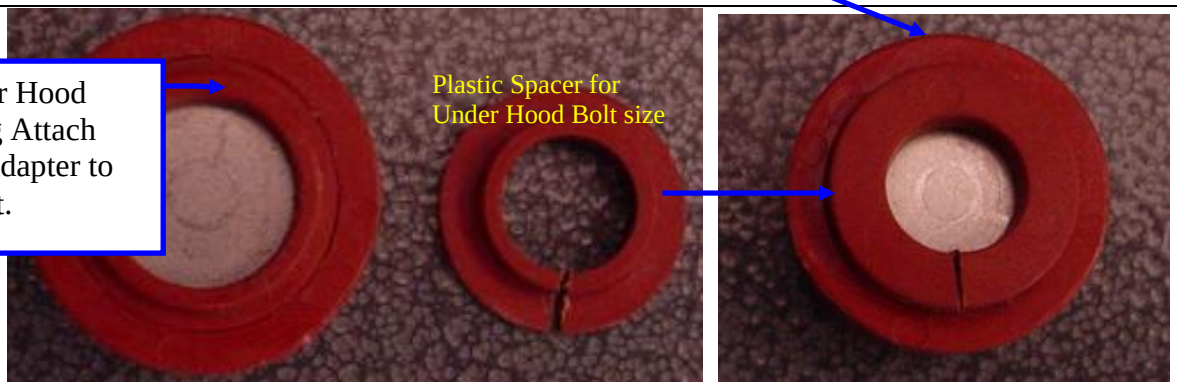

Add this Short Extension for
Measuring From a Side Hole


Add this Long Extension for
Measuring From a Side Hole




For Smaller Bolt Insert Spacer

For Under Hood Measuring Attach Magnetic Adapter to Bolt.




## Measuring From Bolts Under Body

Vertex Bolt Attaching Rings

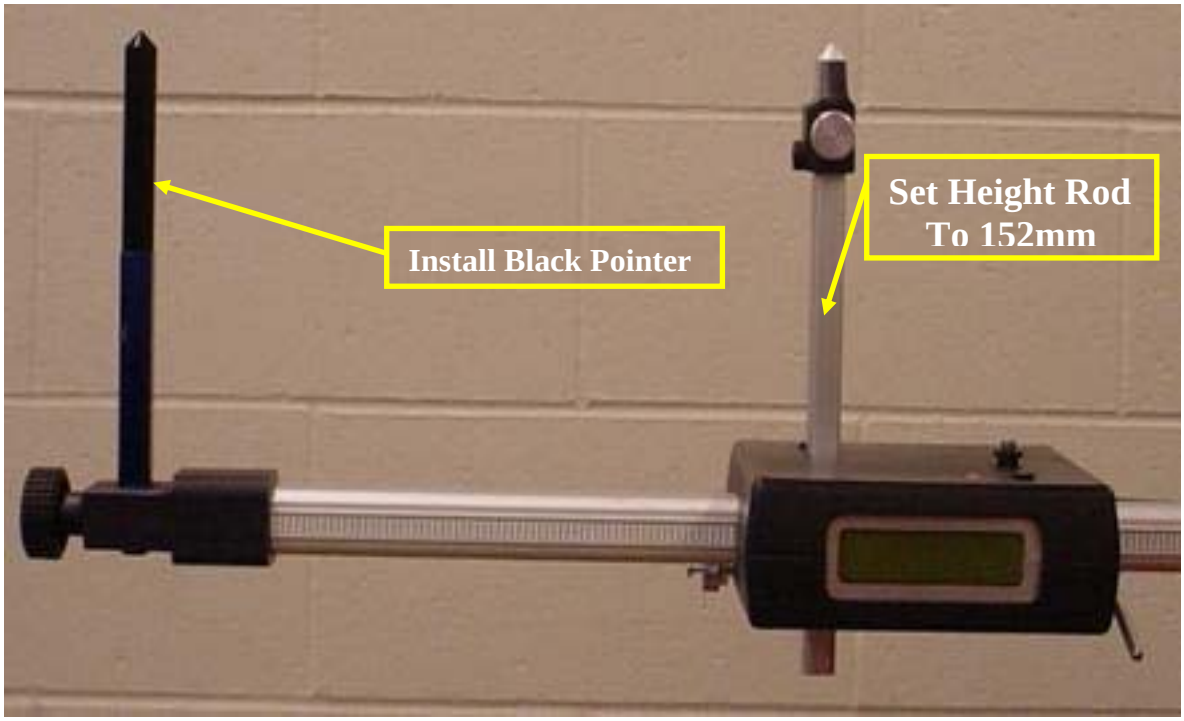
Remove Screws

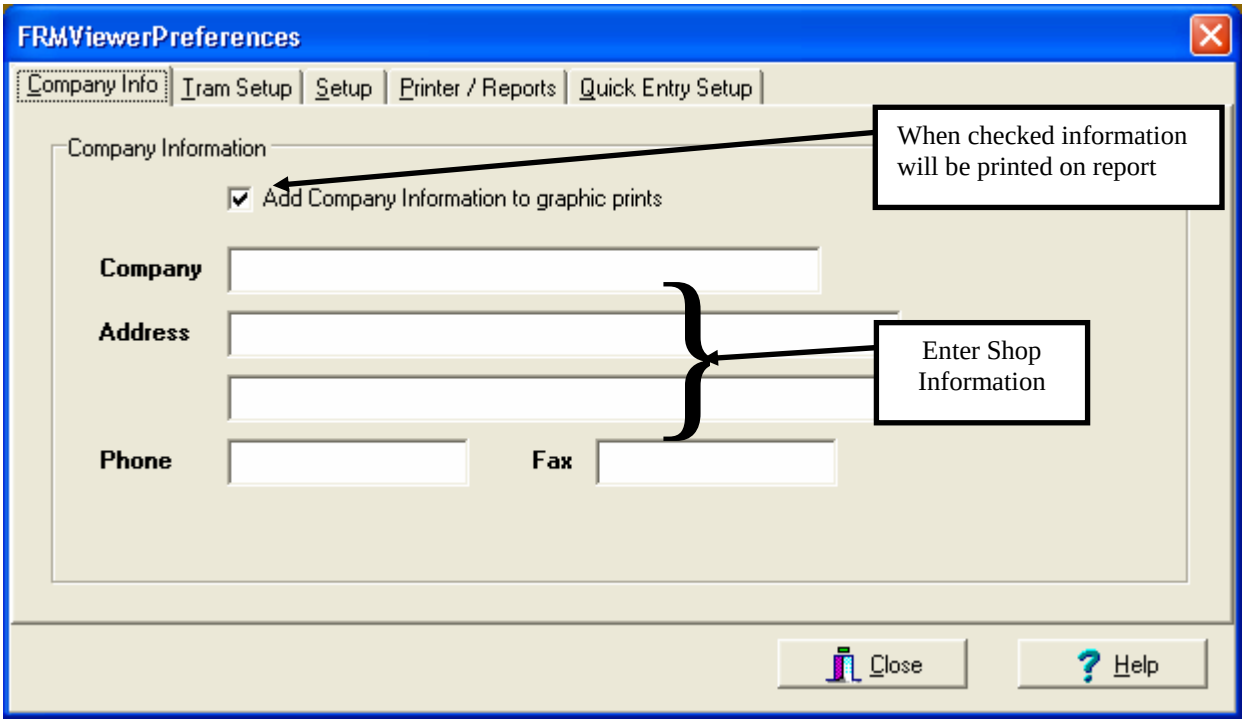
Install Ring to fit bolt

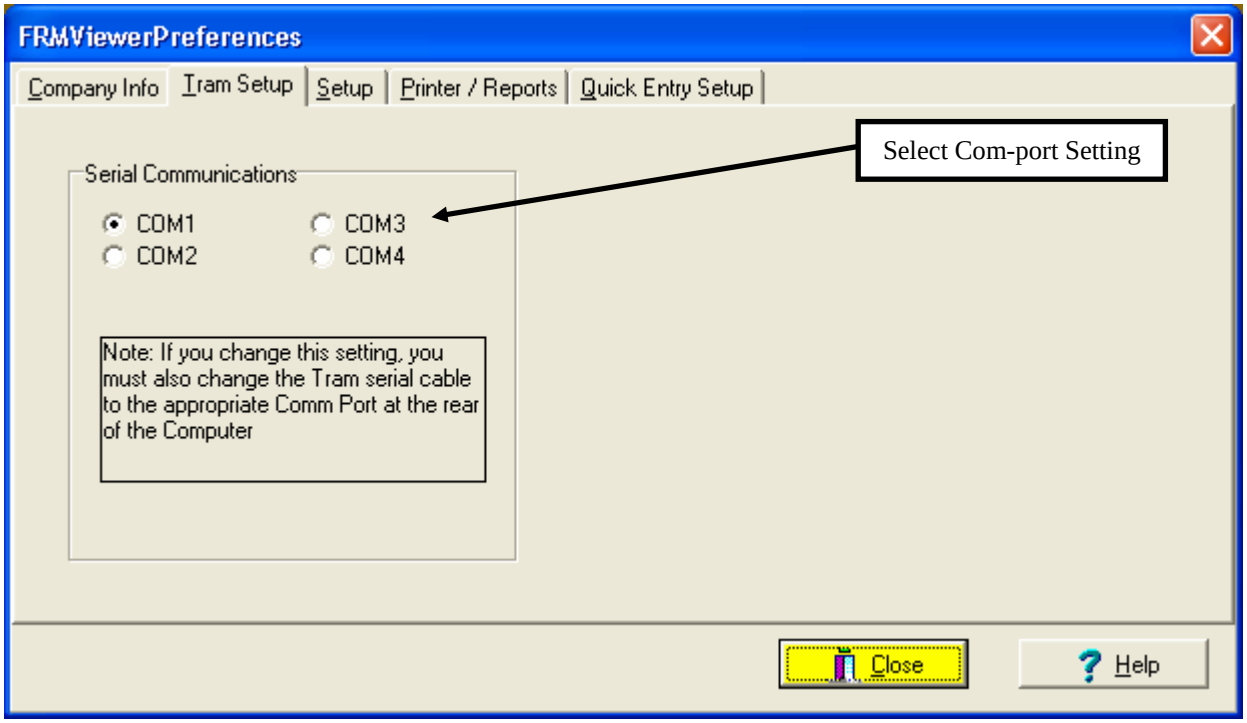
Install Magnet Adapter

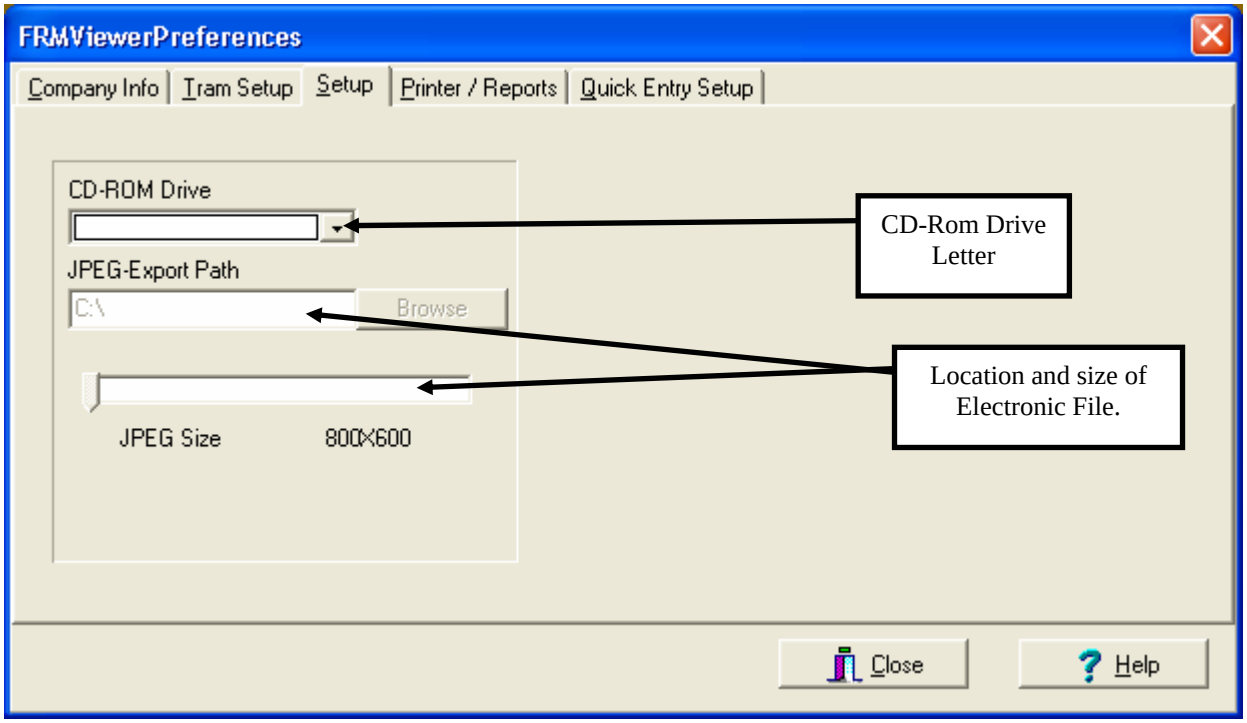
# Setup for using as a tram with equal length pointers.

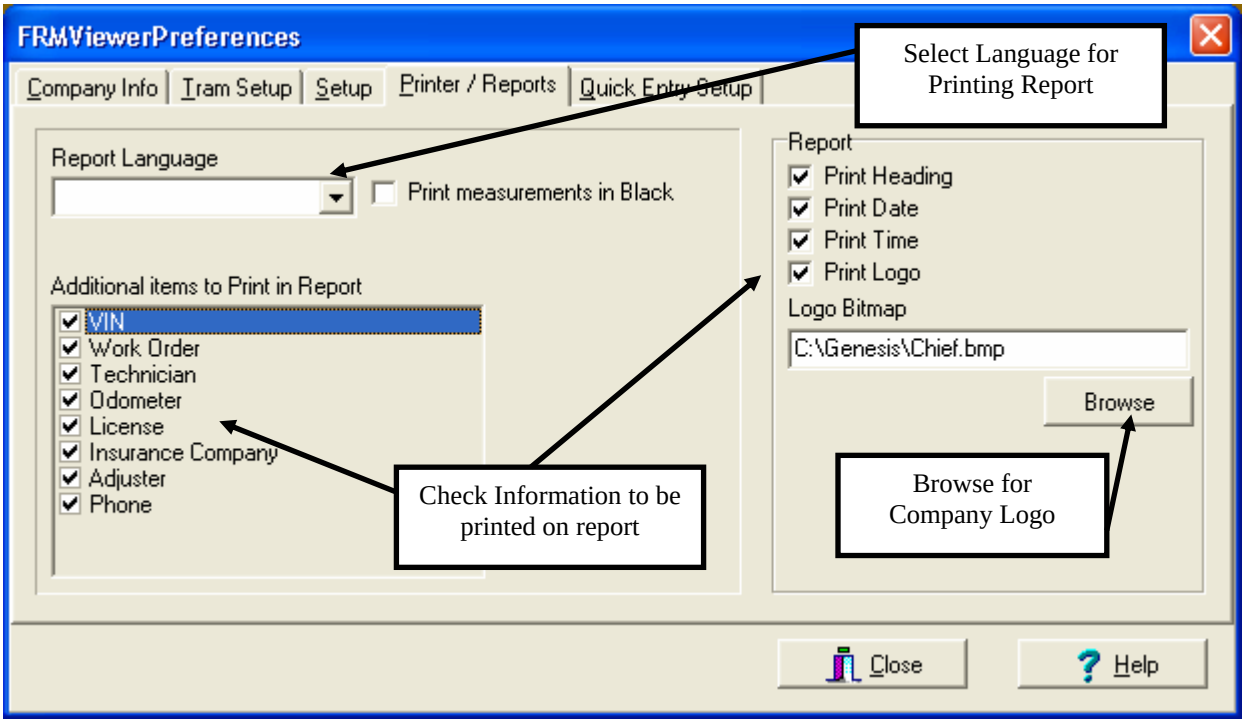
## Setup For Comparison Measuring

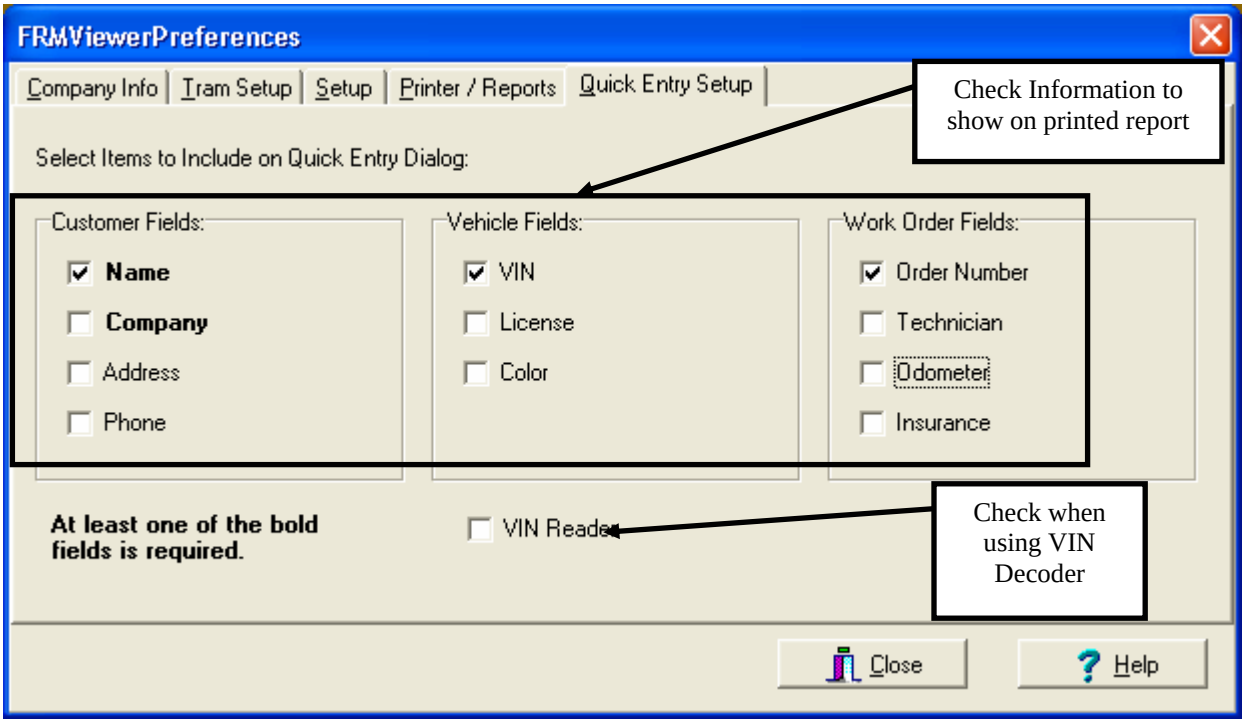


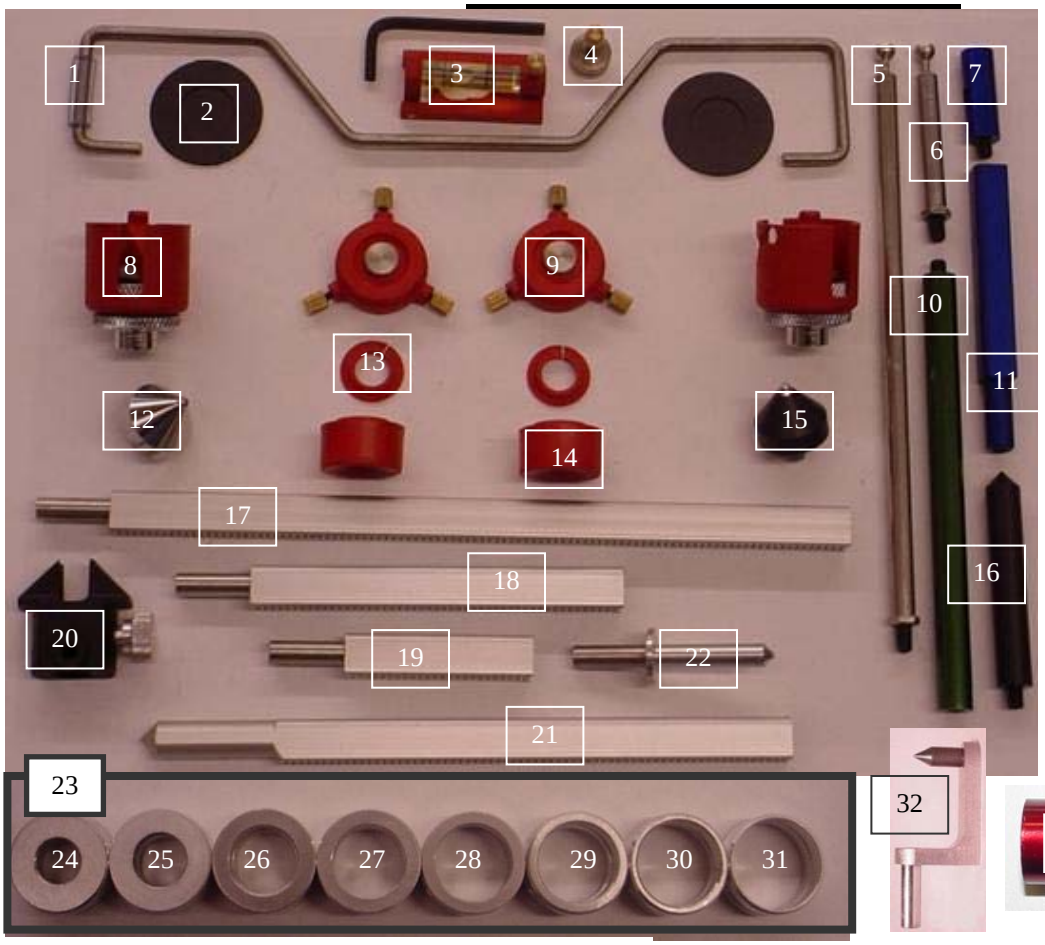

FRMViewerPreferences
Company Info
Tram Setup
Setup
Printer / Reports
Quick Entry Setup
Serial Communications
COM1
COM2
COM3
COM4
Note: If you change this setting, you must also change the Tram serial cable to the appropriate Comm Port at the rear of the Computer
Select Com-port Setting
Close
Help


FRMViewerPreferences
Company Info
Tram Setup
Setup
Printer / Reports
Quick Entry Setup
CD-ROM Drive
JPEG-Export Path
C:\
Browse
JPEG Size
800X600
CD-Rom Drive Letter
Location and size of Electronic File.
Close
Help


FRMViewerPreferences
Company Info
Tram Setup
Setup
Printer / Reports
Quick Entry Setup
Report Language
Print measurements in Black
Additional items to Print in Report
VIN
Work Order
Technician
Odometer
License
Insurance Company
Adjuster
Phone
Report
Print Heading
Print Date
Print Time
Print Logo
Logo Bitmap
C:\Genesis\Chief.bmp
Browse
Close
Help
Select Language for Printing Report
Check Information to be printed on report
Browse for Company Logo


FRMViewerPreferences
Company Info
Tram Setup
Setup
Printer / Reports
Quick Entry Setup
Select Items to Include on Quick Entry Dialog:
Customer Fields:
Name
Company
Address
Phone
Vehicle Fields:
VIN
License
Color
Work Order Fields:
Order Number
Technician
Odometer
Insurance
At least one of the bold fields is required.
VIN Reader
Close
Help
Check Information to show on printed report
Check when using VIN Decoder

# Parts and Accessories





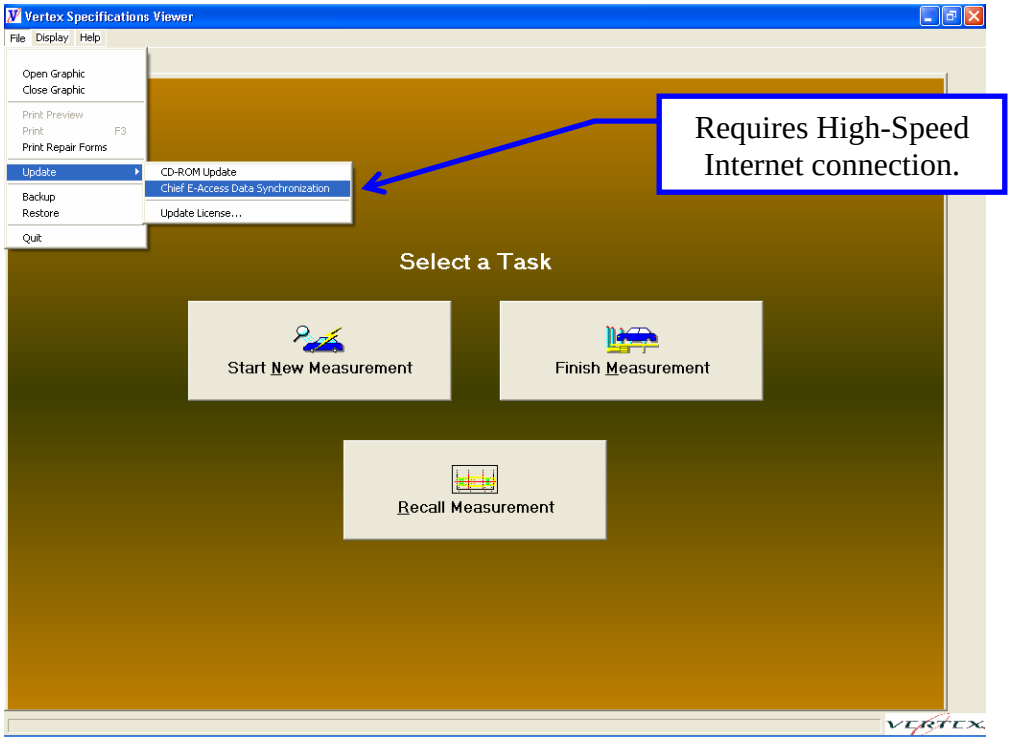




| Ref. | Part No. | Description |
|---|---|---|
| 1 | 788730 | Tram Rest Hook |
| 2 | 788731 | Magnetic Plastic Base |
| 3 | 788732 | Level |
| 4 | 788733 | Steel Spacer |
| 5 | 788734 | Side Mount Rod (Long) |
| 6 | 788735 | Side Mount Rod (Short) |
| 7 | 788736 | Cone Rod (34mm Blue) |
| 8 | 788737 | Hole Adapter (2ea) |
| 9 | 788738 | Bolt Adapter (2ea) |
| 10 | 788739 | Cone Rod (152mm Green) |
| 11 | 788740 | Cone Rod (78mm Blue) |
| 12 | 788741 | Steel Cone |
| 13 | 788742 | Plastic Spacer (2ea) |
| 14 | 788743 | Magnetic Adapter |
| 15 | 788744 | Plastic Cone |
| 16 | 788745 | Tram Rod (74mm Black) |
| 17 | 788746 | Height Rod (250mm) |
| 18 | 788747 | Height Rod (125mm) |
| 19 | 788748 | Height Rod (62.5mm) |
| 20 | 788749 | Height Rod Cone |
| 21 | 788750 | Height Rod (215mm) |
| 22 | 788751 | Magnetic Pointer |
| 23 | 788480 | Vertex Bolt Attachment Ring Kit |
| | | |

| Ref. | Part No. | Description |
|---|---|---|
| 24 | 788481 | Vertex Bolt Att.Ring,10mm |
| 25 | 788482 | Vertex Bolt Att.Ring,12mm |
| 26 | 788483 | Vertex Bolt Att.Ring,15mm |
| 27 | 788484 | Vertex Bolt Att.Ring,16mm |
| 28 | 788485 | Vertex Bolt Att.Ring,17mm |
| 29 | 788486 | Vertex Bolt Att.Ring,18mm |
| 30 | 788487 | Vertex Bolt Att.Ring,19mm |
| 31 | 788488 | Vertex Bolt Att.Ring,21mm |
| 32 | 788725 | Side Pointer Assm. |
| 33 | 799200 | VIN Reader |
| 34 | | Short Extension (Optional) |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

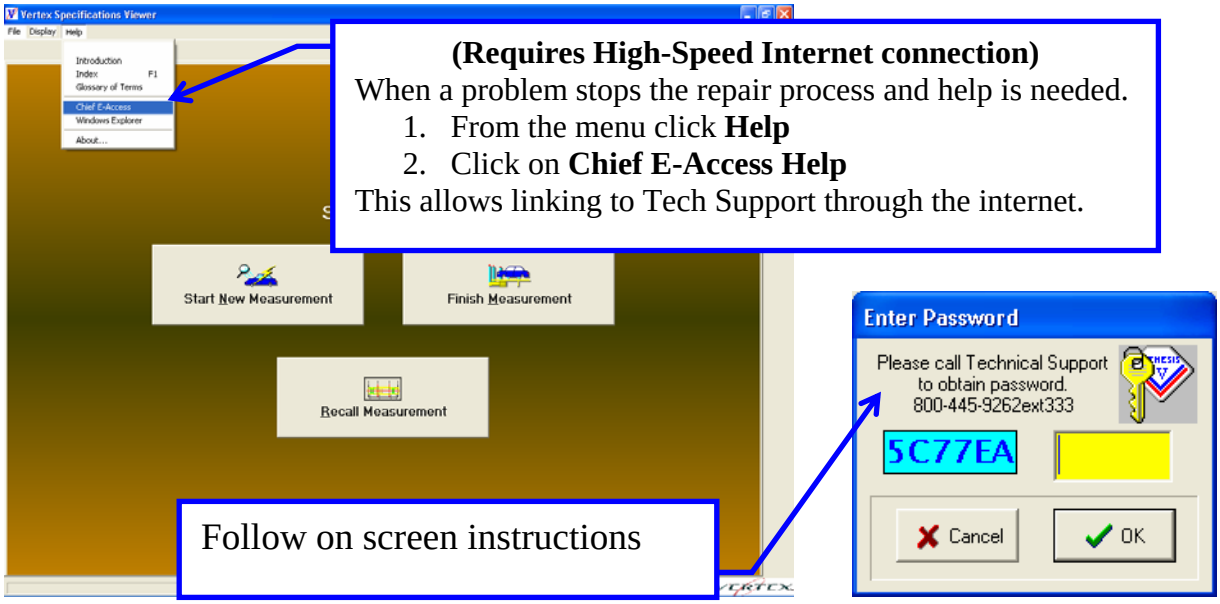
# Chief E-Access




**Procedures for Chief E-Access:**

**Note: Requires High-Speed Internet access and valid (site key).**

1. To manually update, access File from Main Window.
2. Click Update.
3. Click Chief E-Access Data Synchronization.
4. Follow instructions on screen.



## Update:

When new data is available for Computerized Measuring program, it is provided in either 3.5 inch floppy diskette, CD's or Chief E-Access (Internet). Procedures for installing each type follow:

### Procedures for Diskette Update:

1. Access Computerized Measuring Main Menu Window.
2. Insert update Diskette into Drive 'A' and select Update from list of items below File heading.
3. Select {bmc CANCELA.BMP} when Computerized Measuring CD Update Dialog Box appears.
4. Select {bmc OK1.BMP} when Computerized Measuring Update Dialog Box appears.
5. Follow instructions on screen.

### Procedures for CD Update:

1. Access Computerized Measuring Main Menu Window.
2. Insert CD into CD-Rom Drive and select Update from list of items below File heading.
3. Select {bmc OK1.BMP} when Computerized Measuring CD Update Dialog Box appears.
4. Select **Yes** when Computerized Measuring Startup Notice Dialog Box appears.
5. When Computerized Measuring Setup/Update Program Dialog Box appears select {bmc OK1.BMP} to update.

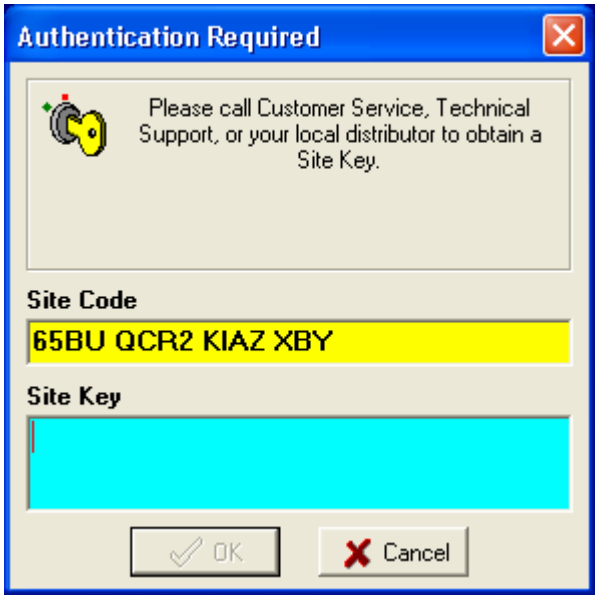
### Procedures for Chief E-Access:

**Note:** Requires High Speed Internet access and valid contract (Site Key).
Updates automatically at pre-set time and date.

1. To manually update access **File** from Main Menu Window.
2. Click Update.
3. Click Chief E-Access Data Synchronization.
4. Follow instructions on screen.

### License Update:

Used to add special features after contacting customer service.
Follow on screen instructions.



## FCC ID QTY JMAMARKOO2

This Device Complies with part 15 of the FCC Rules.
Operation is subject to the following two conditions.
1.) This Device may not cause harmful interference.
2.) This Device must accept any interference received
including interference that may cause undesired operation

# Frequently Asked Questions

*1. Should the datum plane be established every time a vehicle is measured?*
Keep in mind the main purpose of the datum plane is for sheet metal alignment. (door to fender gap or quarter to door line)
Datum is established in the center section, and is a height measurement in the end sections for sheet metal alignment.
Many times a vehicle is involved in a light to medium collision or hit on one side or the other and many times the sheet metal on the undamaged side is aligned correctly. This means that datum is not necessary in this case. Simply adjust the tram level on the good side. And then make the damaged side the same height.

*2. Is the calibration of the tram important:*
When comparing the length, width and height to specifications it is important that the tram be calibrated.

*3. How many points should be measured?*
This will depend on the severity of the collision, however keep in mind a damaged vehicle must first be divided into three sections. And the datum is established in the center section.
The end sections must be divided into two sections, from the center to the suspension and from the suspension to the end of the structure.

*4. Should the vehicle be level for measuring?*
Remember that a level is used to set the tram to a level (datum) position, so in theory if the vehicle is perfectly level to the world there would be no need to keep the level in the same direction as when the datum was established. However because the vehicle is not perfectly level always keep the thumbscrew on the level pointing the same way when measuring datum.

*5. What is the purpose of the two styles of screw on pointers (all metal-silver) (plastic-black).*
The all metal one is used under the vehicle for holding the end of the tram in place, the plastic one is used when measuring under hood, less magnetic holding power. (either can be used under hood, however; the metal (silver) pointer used under body).

*6. Why are there two extensions for measuring from side hole?*
This depends on how far up on the side rail the reference hole is located. The tram must be at a reasonable height for measuring.

*7. When in preference section (Quick Entry Setup) what does it mean when "VIN Reader" box is checked?*
When clicking on **"Start New Measurement",** customer information dialog box will appear first.
When not checked, clicking on **"Start New Measurement"** accesses Vehicle selection dialog boxes.

*8. What numbers should appear in LCD display after calibrating tram?*
Length = 0126mm
Height = 0059mm

*9. Why is level position important when measuring for the datum plane.*
If the vehicle is anchored perfectly level to the world and the pulling equipment is also level, the position of the level is not important, however; perfect level will almost never happen. Observing the position of the level adjusting screw when setting datum, and keeping the level adjusting screw in the same direction (relative to the vehicle) when measuring the damaged section will create a correct datum plane.