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From the Menu, select “Display” and click “Tram Measurements”.

If correct vehicle is selected, click next.

Select Year
Select Make
Select Model
Select Body Style

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”

1. Position cursor on reference point to measure From and click.

2. Position cursor on reference point to measure To and click.

NOTE: You can select points two different ways
1st Click on point.
2nd Select from drop down box.

NOTE: Click to remove check for comparison measuring. Used when specifications do not exist or individual points without specifications. See Page 23 for Tram setup.

This enters letter designation of reference point measurement From. Also Height and Width of reference point.
This enters letter designation of reference point measurement To.

Height, Length and Diagonal measurements are automatically added.

3. Click on the Add button to start entering next points to be measured.

This starts a new Tab.

4. Position Cursor on reference point to measure From and click.

5. Then click on the reference point to measure To.
This enters the specifications for the next Tab, continue steps 2, 3 and 4 until all needed points are selected.

Under Hood Measuring

Select the From and To points under hood the same way as under body points.

Note: You are allowed a total of Ten Tabs.
After calibrating the Tram, click on the Tram button to send measurements to Tram.

Select points to measure by clicking on Tab.
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.
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.
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)

RS Right Side
PS Passenger Side

DS Drivers Side
LS Left Side
Tram Diagonal Measurement
Tram Width Measurement
Tram Length/Datum Measurement

"From"  "To"

Example “M” to “I”
Example “M” to “H”
After measuring first Tab click on the save button.

Continue selecting Tabs and measuring until all the measurements are recorded for Initial.

After repairing the Vehicle and recording the final measurements.
Clicking the “Diff Button” displays the difference between Specifications and Actual measurements.

- **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

“From E”

“To B”

Strut Width Measurement

Tram Diagonal Measurement

Tram Length/Datum Measurement

Tram Width Measurement
Anytime you EXIT the program or Click Save this warning box will appear asking if you want to save.

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**.
Parts ON/Off

Parts On Tab are all removable cross-members etc, (bolt on parts) still on spec sheet

Note: All bolt on parts are Green

Parts Off Tab all bolt on parts removed from spec sheet
Body Openings
Measuring **From** Hole **To** Hole

Attachments used **From** Bolts. See Page 22
Important:
Adding Extensions to Tram requires the use of the Adapter Button. Default setting is Short

Use when Measuring to a Horizontal Bolt

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

Add Green Extension to lower tram for measuring around objects
Add this Short Extension for Measuring From a Side Hole

Add this Long Extension for Measuring From a Side Hole
For Under Hood Measuring Attach Magnetic Adapter to Bolt.

For Smaller Bolt Insert Spacer

Adjust Height Rod To 137mm

Reverse Pointer

Add Pointer

Measuring From Bolts Under Body

Remove Screws

Install Ring to fit bolt

Install Magnet Adapter
Setup for using as a tram with equal length pointers.

Setup For Comparison Measuring

- Install Black Pointer
- Set Height Rod To 152mm

When checked information will be printed on report

Enter Shop Information

Company
Address
Phone
Fax
Select Com-port Setting

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.

CD-ROM Drive

JPEG-Export Path

CD-Rom Drive Letter

Location and size of Electronic File.
Select Language for Printing Report

Check Information to be printed on report

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.

Check when using VIN Decoder
## Parts and Accessories

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<th>Part No.</th>
<th>Description</th>
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<td>1</td>
<td>788730</td>
<td>Tram Rest Hook</td>
</tr>
<tr>
<td>2</td>
<td>788731</td>
<td>Magnetic Plastic Base</td>
</tr>
<tr>
<td>3</td>
<td>788732</td>
<td>Level</td>
</tr>
<tr>
<td>4</td>
<td>788733</td>
<td>Steel Spacer</td>
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<tr>
<td>5</td>
<td>788734</td>
<td>Side Mount Rod (Long)</td>
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<td>6</td>
<td>788735</td>
<td>Side Mount Rod (Short)</td>
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<tr>
<td>7</td>
<td>788736</td>
<td>Cone Rod (34mm Blue)</td>
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<td>8</td>
<td>788737</td>
<td>Hole Adapter (2ea)</td>
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<td>788738</td>
<td>Bolt Adapter (2ea)</td>
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<td>21</td>
<td>788750</td>
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<td>22</td>
<td>788751</td>
<td>Magnetic Pointer</td>
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<td>23</td>
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<td>Vertex Bolt Attachment Ring Kit</td>
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<td>Vertex Bolt Att.Ring,10mm</td>
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<td>Vertex Bolt Att.Ring,12mm</td>
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<td>799200</td>
<td>VIN Reader</td>
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<td>34</td>
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<td>Short Extension (Optional)</td>
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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.

(Requires High-Speed Internet connection)
When a problem stops the repair process and help is needed.
1. From the menu click Help
2. Click on Chief E-Access Help
   This allows linking to Tech Support through the internet.
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.
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 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.