Time Distance – V-TRAX

Overview: Animates up to four vehicles in various acceleration, deceleration or constant velocity scenarios while allowing two of the vehicles to execute turning maneuvers.

Entry into Module:

This module of the program is normally entered by clicking on the **REC-TEC** block in the upper left of the **REC-TEC Window** causing the drop-down menu to appear. Place the cursor on the **Time - Distance** block and click on **V-TRAX - Animation** on the sub-menu to initiate this module.

Under certain circumstances, the user may choose to use the **Files** block instead of the drop-down menu approach. Selecting any file with a **.TRX** extension in the **Dialog box** accessed from either the **Open Single File** or **Open Multiple Files** block opens this module.

Selecting **AutoLoad [ON]** from either the **Setup Menu** or the **AutoLoad Icon** on the upper right side (third line) of the **REC-TEC Window** automatically loads the scenario that was on the screen when the module was closed, either individually, or when the program was closed. With **AutoLoad [OFF]** on the main **REC-TEC Window,** modules will start without loading a file.

Data Entry:

This module is used to animate two to four vehicles and give first approximations of some of the Time/Distance information. This module does not replace **SMAC** and may show results that defy the laws of physics. **V-Trax** is user-friendly but it may take many hours of twiddling to get a scenario to look right.

Configuration:

- **Total Number of Vehicles – 2 to 4 vehicles.** The two primary units can be accelerated (speed and direction). The two secondary units must travel in straight lines and must be at constant velocities.

- **Zoom: Distance from center reference Point (0 = Zoom Off) –** Zoom can be changed by during Animation and this change is reflected in the **Configuration** module.

- **Offset Distance from Center Reference Point (CRP):**
  - **Horizontal Offset –** Changed by movement during Animation
  - **Vertical Offset –** Changed by movement during Animation

- **AutoTime (1/10000) – Checkbox – slows screen animation prior End time to**

show collision

- **Terminate Motion at Final Speed – Checkbox**
- **Total Time – Sets maximum time for animation**
- **Time Frame – Sets time interval for update of vehicle position calculations.**

Input – Unit (Number) - Primary Units

These units can be in Acceleration, Deceleration or Constant Velocity

- **Mu** - required for Acceleration and Deceleration and includes modifications for grade and braking)

Two (2) of the following four (4) inputs are required

- **Distance**
- **Time**
- **Speed (Initial)**
- **Speed (Final) - Acceleration/Deceleration)**

Vehicle Specifications (Vehicles 1 - 4)

- **Import File –** Calls **Dialog box** for importation of **.CRS (Crush)** vehicle. Cursor on Button will show vehicle file as ToolTip.
- **Width** – Vehicle Width
- **Length** – Vehicle Length
- **Lane Width** – Width of "lanes" used in animation
- **Offset –** (Vehicles 2 – 4) Distance of center of "lane" of Vehicle 1

Initial Conditions (Vehicles 1 – 4)

- **Angle** – Intercept or Heading Angle
- **PRT** – Time prior to commencing accelerated maneuver (Vehicles 1 & 2)
- **Speed –** Speeds of Vehicles 3 & 4
- **Distance** – Initial Distance from Central Reference Point

Vehicle 1 (Turn Maneuvers)

- **None**
- **Swerve**
- **S & R (1) – Swerve and Return (1)**
- **S & R (2) – Swerve and Return (2)**
- **S & R & S – Swerve and Return and Swerve**

After selecting maneuver, labeled boxes appear to allow user to define the parameters of the different turning maneuvers including Lateral f (g) Radius, Angle, Maximum

Distance and Start Times for maneuvers. A check box is provided to switch to Vehicle 2 accelerated maneuver configurations.

Post Impact Track

- **Command Buttons** bring up **Dialog** boxes for **Motion Analysis** files that will define post-impact tracks for **Vehicle 1** and **Vehicle 2.**

Options:

Several **Command Buttons** appear in a frame located at the lower right corner of the module Window. The **Command Buttons** allow the user to engage options including the option to **Open** and **Save** the data required to generate the scenario shown on the screen at the time the file was saved.

- **Open .TRX File –** Calls up a **Dialog box**, which **Opens** any pre-existing **.MAN** file and displays the output results.

- **Save .TRX File –** Calls up a **Dialog box**, which **Saves** data on the screen to files with any user-selectable filenames. This is independent of the automatic saving as "**LastFile.TRX**" of the data at the close of this module or the close of the program.

- **Animation –** Toggles Animation of Input information. Animation screen Command Buttons include:

    - **Zoom +** (Zooms in)
    - **Zoom –** (Zooms out)
    - **Up** – Moves scene Up
    - **Down** – Moves scene Down
    - **Left** – Moves scene Left
    - **Right** – Moves scene Right
    - **Generic/Scale** – Toggles between Generic and Scale (if invoked) Vehicles
    - **Damage** – Toggles display of damage for Scale vehicles
    - **V1/V2 and V3/V4** – Toggles between V1/V2 and V3/V4 (if applicable)
    - **Time (I)** – Changes time increment for position computations
    - **Pause/Resume** – Pauses and resumes Animation
    - **Start** – Re-starts animation
    - **Repeat/Stop** – Toggles auto-repeat of Animation

    The animation screen also shows important data including Speed, Time, Distance, and Angles for all vehicles in a color-coded text block field. [**Esc**] to Exit.

- **N** – This button toggles a graphical number pad on the screen that can be used to

enter data into the input boxes without using your keyboard number pad. This may be useful for presentations as data entry can be accomplished using a wired/wireless mouse.