

Collision Avoidance – Passing Maneuvers

Overview: Computes the Time and Distance required to complete a passing maneuver based.

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 **Collision Avoidance** block and click on **Passing Maneuvers** 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 **.PSM** 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 contains the following data entry blocks within the leftmost frame:

- **Pass () L () R** - V1 past to Left or Right of V2 (Animation output files)
- **V1 Speed (I)** – Speed at start of Maneuver
- **V2 Speed (I)** – Speed at start of Maneuver
- **V1 Length**
- **V2 Length**
- **Lane Centers (D)** – Distance between Lane centers
- **Separation (I)** – Initial Separation Distance (X-Axis) between Vehicles after first Lateral acceleration (lane change)
- **Accel (V1) – Initial** – Initial Acceleration factor (X-Axis) if V1 accelerating
- **Lat. Accel (V1-1)** – Lateral (Y-Axis) Acceleration factor (required)
- **Pass Accel (V1)** – Passing Phase Acceleration factor (X-Axis) Required if V1 accelerating
- **Pass Accel (V2)** – Passing Phase Acceleration factor (X-Axis) Required if V2 accelerating
- **Lat. Accel (V1-2)** – Return Lateral (Y-Axis) Acceleration factor (required)
- **Accel (v1) – Final** – Final Acceleration factor (X-Axis) if V1 accelerating
- **Separation (F)** – Final Separation Distance (X-Axis) between Vehicles before second Lateral acceleration (lane change)

Output:

The output from this module consists of the repeated input variables plus deceleration rates and V1 final speed expressed in the primary and secondary configurations. Animation Output files for V1 and V2 are automatically generated.

The top frames on the right side of the screen shows the Lateral Distance Center to Center of the lanes.

The upper middle two frames show the **1st** and **2nd** **Lane Change Phases**.

(N) Lane Change Phase

- **Distance:** Longitudinal distance for Lane Change
- **Hypotenuse:** Straight line from start to completion of lane change

Combined Arcs

- **Angle:** Subtended Angle
- **Radius:** Radius of Arc

Data – (N) Lane Change

- **Distance:** Actual Track Distance
- **Time:** Time required

- **Speed (I):** Initial Speed (Primary)
- **Speed (I):** Initial Speed (Secondary)

- **Speed (F):** Final Speed (Primary)
- **Speed (F):** Final Speed (Secondary)

Passing Phase:

- **Distance:** **Distance** required for Passing Phase
- **Time:** **Time** required for Passing Phase

Total Passing Maneuver

- **Distance:** **Total Distance** required for Pass
- **Time:** **Total Time** required for Pass

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 .PSM File** – Calls up a **Dialog box**, which **Opens** any pre-existing **.PSM** file and displays the output results.
- **Save .PSM 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.PSM**” of the data at the close of this module or the close of the program.
- **Diagram** – The Diagram displays the Maneuvers plus the Speeds Times and Distances of both. **[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.