755 Phoenix Drive, Ann Arbor MI, 48108, USA
Phone: 734 668-2930 • Fax: 734 668-2877 • Email: info@carsim.com

Migrating from "Control: Clutch Shifting Parameters" to "Control: Clutch Shifting Timelines"

This Technical Memo provides instructions for migrating from the deprecated browser screen and library **Control: Clutch Shifting Parameters (Closed Loop)** to its replacement **Control: Clutch Shifting Timelines (Closed Loop)** in CarSim, TruckSim, and BikeSim.

> **Note** The library **Control: Clutch Shifting Parameters (Closed Loop)** was removed in version 2021.1. In order to migrate data from this screen, you will have to work from version 2021.0 or older.

From time to time, the addition of new features or support for more detail in existing features causes the introduction of new library screens with substantially similar function (though most often with new, additional capabilities). The older, less capable screens are retained in the product to ensure backward compatibility and support updates of older databases. However, after a time the older screens are removed.

With the release of Version 2020.1, the **Control: Clutch Shifting Parameters (Closed Loop)** screen and library has been deprecated (i.e., marked for retirement). Normal policy is to retain a deprecated screen for two releases before removal. In other words, this deprecated screen will be carried in the 2020.1 and 2021.0 scheduled releases, and no longer appear in Version 2021.1.

Differences Between the Libraries

Figure 1 shows a **Control: Clutch Shifting Parameters (Closed Loop)** screen and Figure 2 shows a **Control: Clutch Shifting Timelines (Closed Loop)** screen.

Both screens perform the same function. They coordinate the modulation of the clutch & throttle and make the gear change in a manual transmission vehicle during closed-loop shifting control. They differ in the ways they specify the timing of events.

As shown in Figure 1, the **Control: Clutch Shifting Parameters (Closed Loop)** assigns durations to parts of the coordinated control related to other parts in various ways. Many users found the method confusing and had difficulty choosing parameters to control the timing of throttle operation with respect to clutch operation.

In Figure 2, the **Control: Clutch Shifting Timelines (Closed Loop)** sets the timing of all parts of the coordinated control of a shift with respect to the moment the shift command is given (there is one exception). With this method, users found it easier to configure the timing of clutch

disengagement/re-engagement with throttle release/apply and the actual gear change. The exception to this method is the part clutch dwell time, discussed in more detail below.

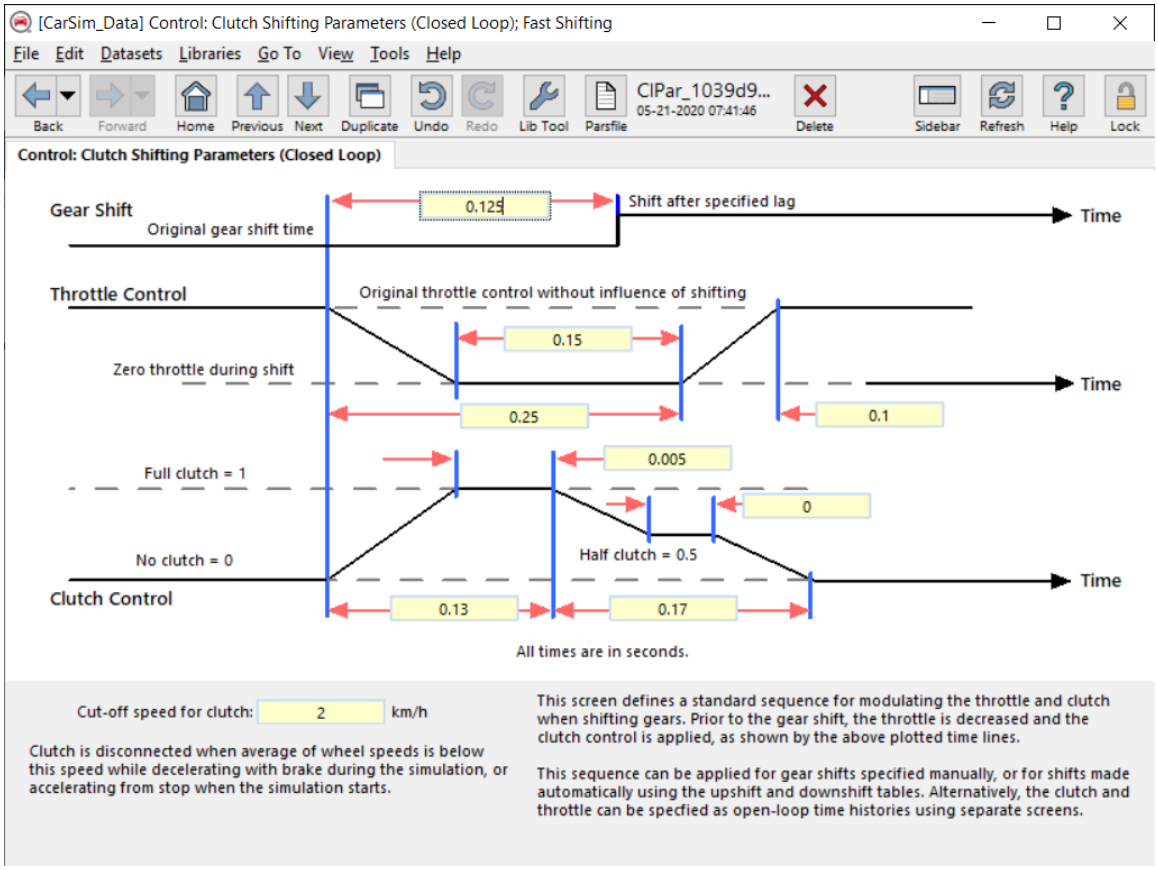

Figure 1.Control: Clutch Shifting Parameters screen.

The shorter names **Parameters** and **Timelines** will be used for brevity in most of the remainder of this document.

Migrating the Data – Preparing a Screen

To assist you in moving to the newer screen, it is a good idea to first navigate to the **Parameters** screen for the dataset you want to replace. Use the **Parsfile** toolbar button to open the Parsfile for this dataset in your text editor.

In the read-write copy that you have open, use the **Libraries** menu item to navigate to **Control: Clutch Shifting Timelines (Closed Loop).** You will create a dataset in this library for each dataset you need to transfer from the **Control: Clutch Shifting Parameters (Closed Loop).** To do this, Use the **File** menu item and select "New Dataset (Empty)". In the dialog that opens, type in the category name and title from the read-only copy. (Remember you are creating a replacement in a different library, so the same category and title is a good idea). Note that all the fields in the new screen are empty as shown in Figure 2.

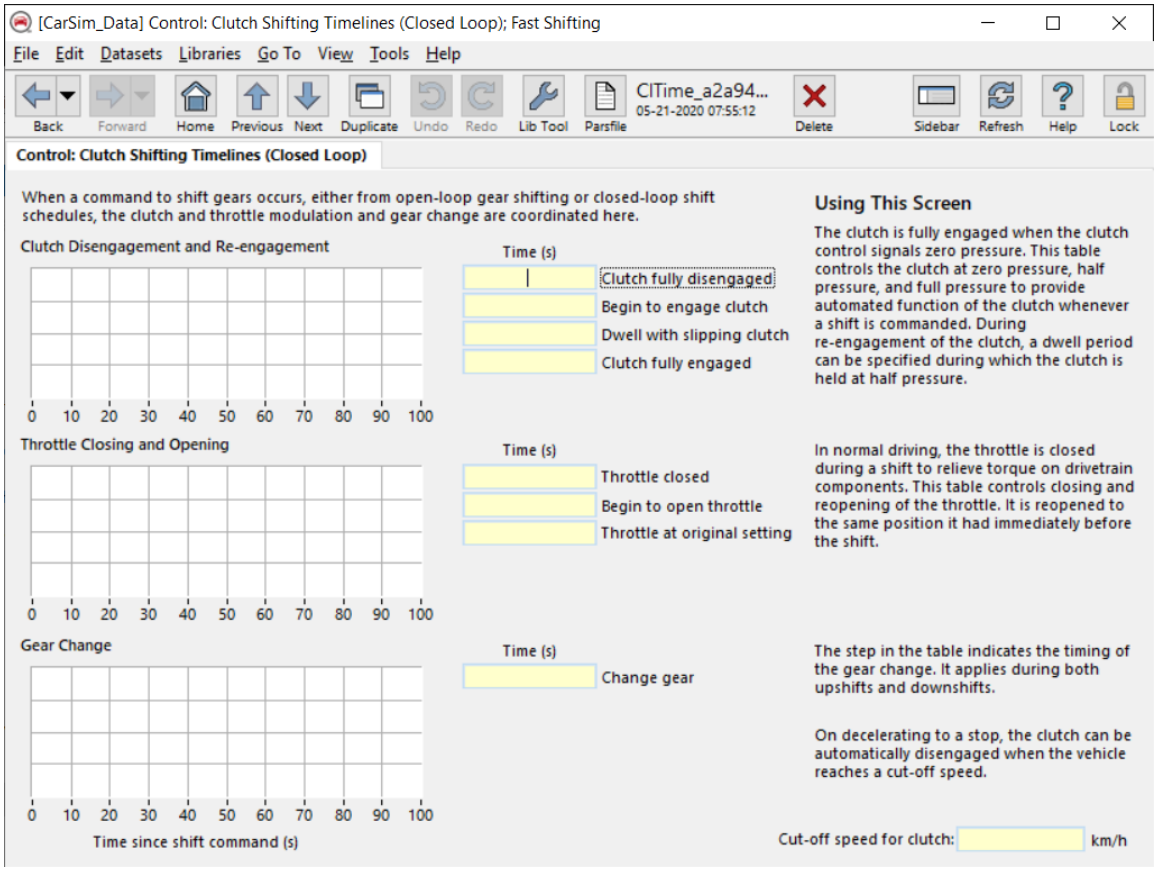

Figure 2 New, empty Control: Clutch Shifting Timelines screen.

Migrating the Data

Figure 3 shows the Parsfile for a **Parameters** screen like the one that you opened as instructed previously. The data you will transfer to the **Timelines** dataset you just created is in the highlighted section.

Select the same region in your editor and copy the data to the clipboard (Ctrl-C).

Return to the empty dataset you just created in the **Timelines** library and use the **Parsfile** button to open the dataset Parsfile in the text editor. Figure 4 shows an example. Select the highlighted are and replace it with the contents from your clipboard (Ctrl-V).

Edit the Parsfile Data

Take special note of the parameter names that have expressions (for example, `T_CL_RE_ENGAGE 0.17 + 0.13`). The **Parameters** screen wrote these for the math model to evaluate and write to the **Echo** file. In the **Timelines** screen, these parameters are used directly. The math model can interpret and evaluate expressions, but the Browser (GUI) cannot. Therefore, you must replace each expression with its value. For example, replace `T_CL_RE_ENGAGE 0.17 + 0.13` with `T_CL_RE_ENGAGE 0.3`.

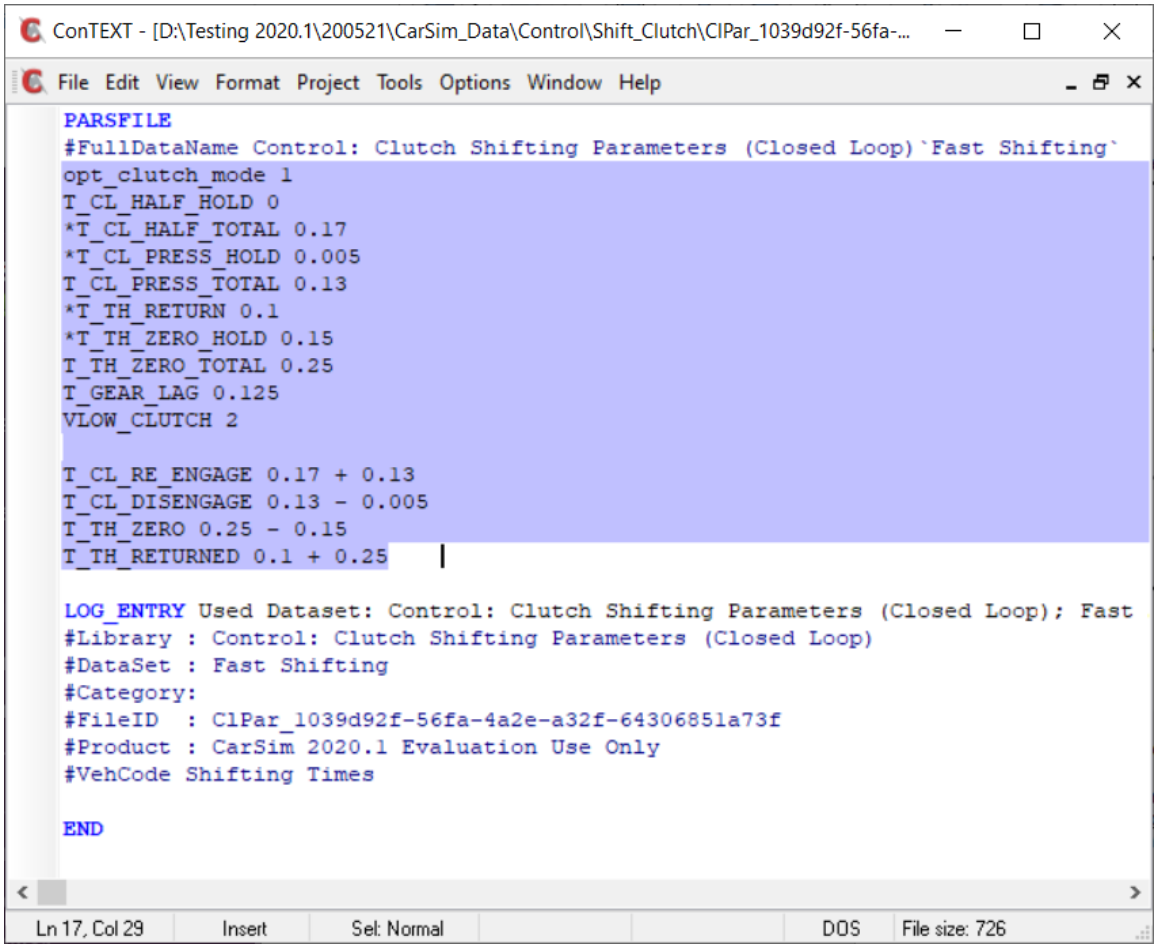

Figure 3. Clutch Shifting Parameters Parsfile with data highlighted.

Finishing Up

After creating the new datasets in **Control: Clutch Shifting Timelines (Closed Loop)**, close the read-only window and navigate to the **Control: Clutch Shifting Parameters (Closed Loop)** library again. For each dataset, use **Tools** from the menu and choose **Find All References to This Dataset** to find the places that linked to it. One by one, double-click the listed items to go to the screen where the **Parameters** dataset is linked, and change that link to the new **Timelines** dataset just created.

Complete the above steps for each dataset in the **Control: Clutch Shifting Parameters (Closed Loop)** library. Once you are sure the data has been transferred correctly and is linked to the datasets that use it, it's a good idea to delete the **Control: Clutch Shifting Parameters (Closed Loop)** datasets so you won't use them in the future. Remember, when the screen is retired any data for that dataset will not be available.

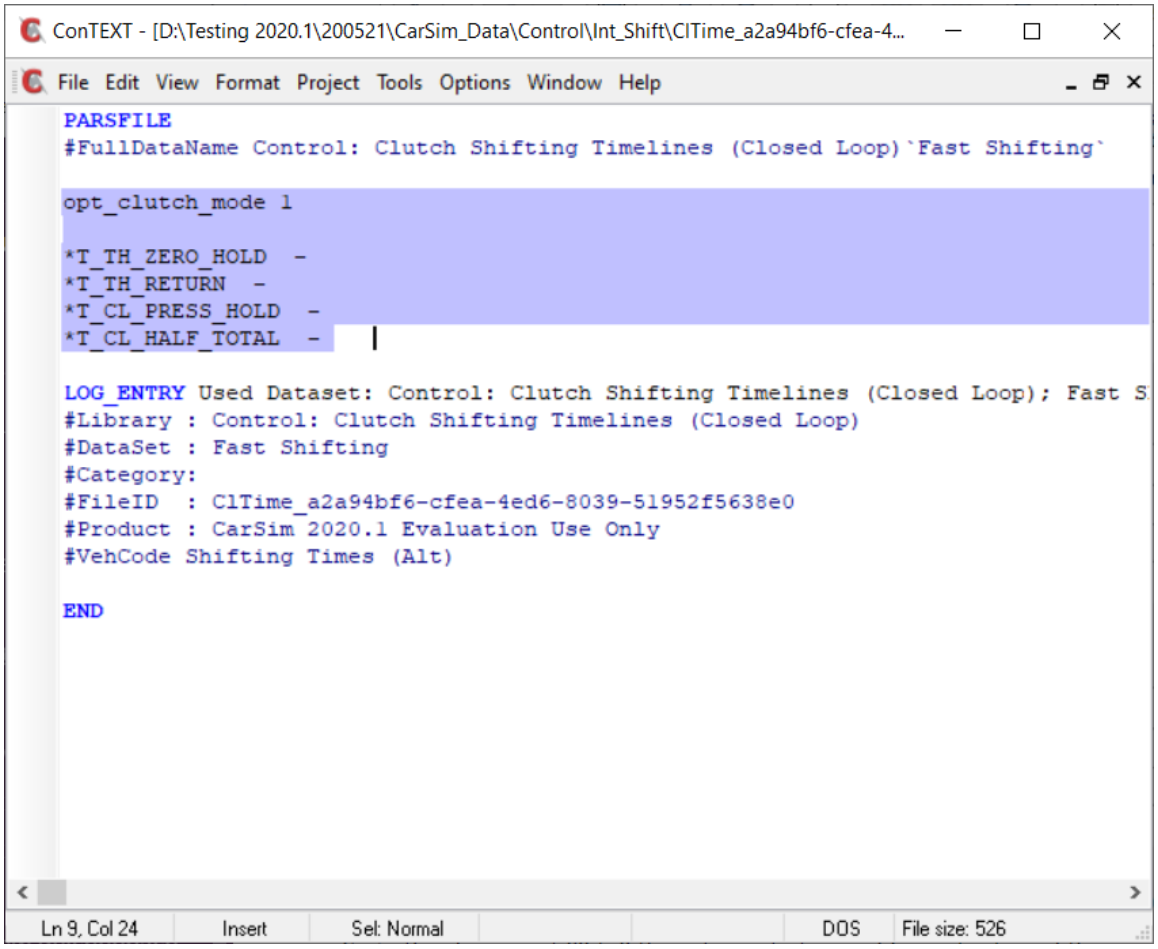

Figure 4 Parsfile for an empty Clutch Shifting Timelines dataset.