

Operation Manual

Diff97

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Getting Started

1.1 What is Diff97

Diff97 is used to create setup information for the GEMS TC60 differential controller. All of the controller calibration parameters can be set and both Accel and Deccel maps can be viewed in a three dimensional mode for easy visualisation. Programming of the TC60 unit is via a serial link between the PC and the controller.

Diff97 supports earlier GEMS diff controller file formats (.do files) and these can be imported into Diff97 to form the basis of a new setup.

1.2 What's New in this Release

Version 1.04 - 21/11/97

► **New Features:**

- A file compare function has been added. Choose **File | Compare** and select the two files to compare. A report of the differences between the two files will be shown. Note that the compare function only works for .dff files and the files must be of the same type i.e. both Front or both Centre.

1.3 Notation

Menu commands are signified in bold type with a pipe symbol, |, between each level of the menu.

For example, **File | Open** indicates that you should click on the **Open** option in the **File** menu.

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Step by Step Procedures

2.1 Creating a Setup

To create a setup, select **File | New** followed by **Front** for a front diff setup or **Centre** for a Centre diff setup. The setup editor will then be shown.

► The setup editor consists of 6 pages as follows:

- **Accel Table:** The Accel Table specifies the calibration when the diff is in Accel Mode. The left hand column specifies the diff speed site (front shaft speed - rear shaft speed for centre diff, fastest speed - slowest speed for front), the top row specifies the actual diff speed (front shaft for centre, average shaft speed for front). The rest of the table specifies the control pressure in bar for each site. See editing a map for more information.
- **Deccel Table:** The Deccel table specifies the calibration when the diff is in Deccel Mode. The table layout is the same as the Accel Table. See editing a map for more information.
- **TPS Lock** (Centre diff only): This table specifies the throttle position (right hand column) at which lock mode will be entered for several front shaft speeds.
- **Options:** The options specify various control parameters. See Front Diff Options or Centre Diff Options for more information.
- **Calibrations:** Specifies how sensors used by the controller are calibrated. See Calibrations for more information.
- **Misc.:** Allows additional parameters to be set.
- **Notes:** These allow comments about the setup to be attached to the file. Such comments are displayed in the file open dialog box when browsing through files.

► Additional controls are as follows:

- **Calibration:** The *TC60* controller can store 4 separate calibration sets which can be selected by the driver as required. The calibration group specifies which calibration set is currently being edited. A calibration set consists of an Accel table, a Deccel table, a TPS Lock table and a set of Options.
- **Show Accel Map:** Clicking this button shows a 3D representation of the Accel table.
- **Show Deccel Map:** Clicking this button shows a 3D representation of the Deccel table.
- **Save:** Saves the setup.
- **Upload:** Uploads the setup to the *TC60* controller via the serial link.

2.2 Viewing Maps in 3D

Using the 3D mode, the structure of a map can be seen clearly. From within a front or centre setup, click on the Show Accel Map or Show Deccel Map buttons to show the 3D map

Once in the 3D map editor the map can be rotated or zoomed using the buttons or keyboard. The cursor

can be moved through the sites using the Ctrl Key with the cursor keys. The values at the currently selected site are show in the status bar.

► The 3D map buttons and their corresponding keys are shown below:

► The following buttons are equivalent to the cursor keys:



Rotates the map clockwise about the x axis.



Rotates the map anti-clockwise about the x axis.



Rotates the map clockwise about the y axis.



Rotates the map anti-clockwise about the y axis.

► The following buttons are equivalent to the Page Up and Page Down keys.



Zooms in on the map.



Zooms out of the map.

► The following buttons are equivalent to *Shift* with the cursor keys:



Moves the map left.



Moves the map right.



Moves the map up.



Moves the map down.



Resets the map to the original view. The *Home* key also has the same effect.

2.3 Programming a Diff Controller

► To program a setup into the TC60 unit:

- Open or create a setup file (see creating a setup).
- Connect the PC and TC60 unit together using a serial cable.
- Click the Upload button in the setup editor. A bar will appear showing the progress of the upload.
- The upload can be cancelled at any time by pressing the Cancel button.

2.4 Importing Old .do Files

Old format .do files from earlier GEMS diff controllers can be imported into Diff97 to form the basis of a new setup.

► To import an old file:

- Select **File | Import Front** for an old front diff setup or select **File | Import Centre** for an old style Centre setup.
- The file will be imported. Check the setup to ensure that all parameters have sensible values. The setup can then be saved to disk using the *Save* button or **File | Save**.

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Diff97 Reference

3.1 Menu Commands

3.1.1 File Menu

New	Use to create a new front or centre setup.
Open	Opens a Diff97 file for editing and uploading.
Compare	Compares two Diff97 files. Files must be either both front or both centre.
Save	Saves a Diff97 file.
Export	Exports a Diff97 file as an old format .do file.
Import	Imports an old style front or centre .do file.
Exit	Quits Diff97.

3.1.2 Edit Menu

Copy	Copies the selected range into the Diff97 paste buffer.
Paste	Pastes data currently stored in the paste buffer into the setup at the currently selected point.
Fill	Prompts for a fill value to be entered and then fills the selected range with that value.
Function	Applies the entered function to the selected range.

3.1.3 Window Menu

Tile	Arranges windows in a tiled format.
Cascade	Arranges windows in a cascaded format.
Arrange Icons	Arranges iconized windows.

The numbered list at the foot of the Window menu can be used to make the desired window active.

Notes

- Cascaded windows appear on the screen diagonally, from upper left to lower right, overlapping so that the title bar of each window remains visible.
- Tiled windows are distributed to each corner of the screen, so that each window is visible and none overlap.
- Icons (or reduced windows) appear at the bottom of the Diff97 main window. Each icon remains visible. Double-click an icon to activate that window.

3.1.4 Help Menu

Help Topics Display the Help Topics dialog box:

► **To find a topic in Help:**

- Click the Contents tab to browse through topics by category.
- Click the Index tab to see a list of index entries: either type the word you're looking for or scroll through the list.
- Click the Find tab to search for words or phrases that may be contained in a Help topic.

About Display program version information.

Context sensitive help can be obtained by pressing the **F1** key.

Help can also be obtained in dialog boxes by clicking on the **?** in the top right of the dialog box and then clicking on the item for which you require help.

3.2 ShortCuts

3.2.1 Keyboard

The following keyboard shortcuts are available with Diff97:

► **Editor:**

- The **cursor keys** can be used to navigate around tables.
- **Ctrl + C**: Copies the selected area from the table into the paste buffer.
- **Ctrl + V**: Pastes the contents of the paste buffer into the table at the currently highlighted point.
- **Ctrl + F**: Fills the selected region with the entered value.

► **3D Map:**

- The **cursor keys** rotate the map.
 - **Shift + cursor keys** moves the map.
 - **Ctrl + cursor keys** moves the marker point around the map.
 - **Page Up** zooms in.
 - **Page Down** zooms out.
 - **Home** resets all view parameters.
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