Test File View Window

Test programs are called Test Sequence Files (TSF). Use the COMPEND **Test Sequence Menu** to open a previously created Test Sequence File (**Open**) or to create a new program starting with a Blank File (**Create Blank**). This will open a TSF into the Test File View window and create the Test Control Panel window.

Once the TSF is open, pull it up to full screen to view more clearly. Default tiling can be reset by pressing **Arrange** on the COMPEND tool bar.

The TSF is presented in a tabular form with 50 steps as the default length of the program. The left hand column is the **Step Number**, following the sequence 1 through 50.

The second column is the **Next Step**, defining the sequence that the steps are to be executed. The sequence can include loops and calls to sub-routines of steps.

The third column is the **Loop Count**, defining in the case of logical loops the number of times that the loop is to be executed.

The fourth column is the **Step Time** in seconds. Instead of time this can also be configured to be a condition for moving on to the next step or for quitting a loop.

The fifth column is the **Data Mode**, defining the speed of data collection for that step. Every step may have a different data collection rate, with or without averaging of the data.

The next columns have the active Analogue Outputs or Set-points for the machine. Each set-point is accompanied by a ramp time in seconds. Alternatively the new set-point value may be set RELATIVE to the immediately previous value.

The last columns are the Digital Outputs, controlling the status of hardware on the machine and the internal counter used for a cumulative count of revolutions.

In each case, settings are edited by right clicking with the mouse on the box and making setting changes. Keyboard entry of data, followed by pressing the ENTER key is also a valid data entry method.

Creating the Test Sequence File will be detailed in a later section.

File Menu

Use this menu to **Save** the file currently being edited or **Save As** for a new name.

Always use Save As having started with a Blank File.

View Menu

The TSF contains a large number of hidden settings, which may be viewed from the View Menu. In general, the options hidden are all available on the right click of a button in the individual boxes in the TSF table.

View Generic Channel Names simply replaces the Column Headings with the relevant Channel Identity from the Setup File (for example, Load SP = SLIM 1 ANOUT 1 = Analogue Output 1 on the first SLIM unit).

Reveal Hidden Columns displays the full extent of the TSF table, including all the setting options that are accessed by the right click of the mouse in individual table box positions.

Reveal Comment Column displays a column to the left of the **Step Number**. In this table the user may write free-form text to explain what is happening in

the current step. This feature is useful in the archiving of TSFs to serve as a reminder of what is happening.

Since the **Test File View** Window is always active during a test, the Comment Column can be left revealed during a test so that the operator can see what is happening in the current step of the program.

Variable Table

The **Variable Table** displays a table with 16 entries labelled V1 to V16. Variables can be used in place of numerical set-points in the TSF structure. Instead of putting, for instance, a Load SetPoint of 100 N (Load SP box = 100), the Load SP box can be set to use one of the Variables, for example, V1:
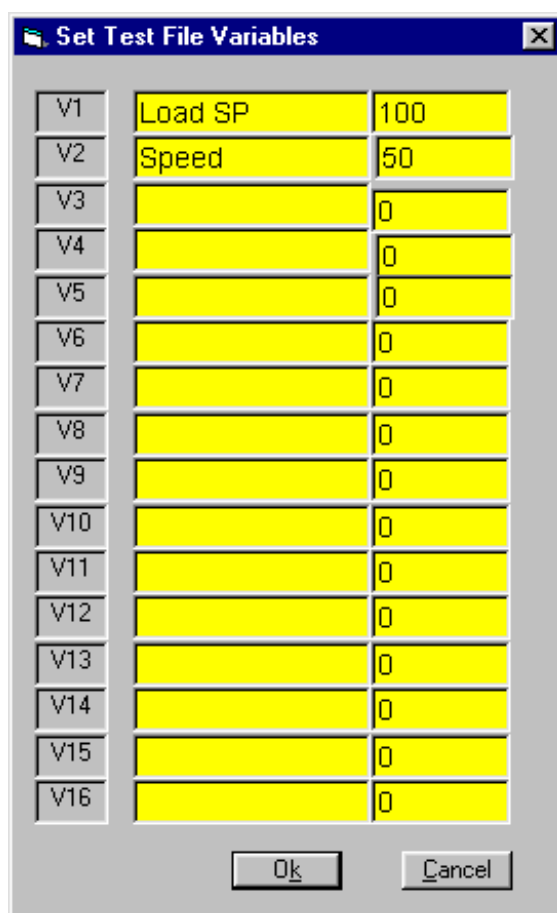
The **Variable Table** is then edited to have V1 as, for instance, Applied Load. The right hand column of the **Variable Table** can have the starting value, which is by default zero.

When the TSF is RUN, the program determines that V1 is in use and will prompt the operator to provide a value of V1 = Applied Load.

In this way, a number of tests can be run where all other conditions are the same, except the value of Applied Load. Instead of having to write many TSFs,

each with a change only to the Load SP, one TSF may be written with the variable being used for Load SP.

Alarms Menu

Analogue Inputs and Derived Channels have **Default Alarms** as described above. These are the "global" protection alarm levels for the machine.

Alarms can be adjusted relative to these default values in the Test Sequence File on a step-by-step basis as required.

The Alarms are edited separately from the main TSF table by pressing **Alarms**.

The **Test Step Alarm Settings** Window is then displayed:
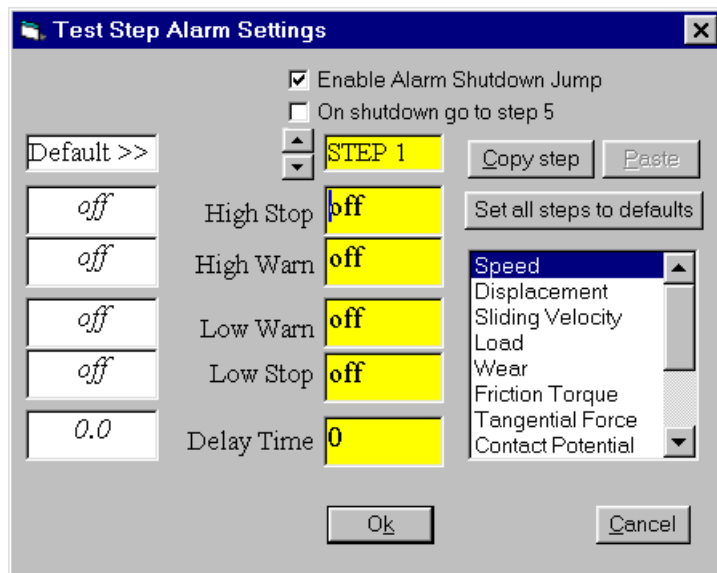
The current step is shown in the topmost yellow box. The current alarms for the highlighted parameter are shown in the next four yellow boxes (Speed in the above example). Every single parameter in the parameter field has a set of alarms. It would be a huge task to set these all individually and it is not usually required so to do.

Instead, the Default (Setup File) Values may be used. This can be done on a step-wise basis by dragging the Default value to the yellow box or for the whole TSF using the **Set all steps to defaults** button.

Values in a single step (for all parameters) can be copied to another step by using **Copy step** and then **Paste**.

When an alarm is triggered, the Test Sequence File ends and set-points, switches etc. return to their zero settings. Alternatively, when an alarm is triggered, the program can be made to jump to another part of the sequence,

which can be used as a controlled Shutdown Sequence. In order to do this, the Step Number for the Shutdown Sequence must be set.

Simply increase the Step Number using the arrow keys until the Step Number corresponding to the start of the Shutdown Sequence is reached. Check the **On shutdown go to Step X** box. The current step number will now be identified.

In all the other steps of the program, the alarm can be made to jump to this step by checking the **Enable Alarm Shutdown Jump** box. This is a global setting.

Having created a call to a Shutdown Sequence, it is ESSENTIAL that this sequence of steps is now written in the TSF!

Edit Menu

The TSF table has some simple editing features as follows:

Insert New Step

Insert New Step inserts a step immediately above the step currently being worked on. This results in the current step increasing by one and the new step being numbered with the current step number. The step will be empty of settings, but any loops and subroutines will be modified to account for the additional step.

Where the step is inserted into a sequence of steps, the sequential step ordering is preserved.

Delete Step

Delete Step deletes the current step being worked on. This results in all steps below being re-numbered and any loops and subroutines will be modified to account for the removed step.

Where the step is deleted from a sequence of steps, the sequential step ordering is preserved.

Copy Step

Copy Step takes the contents of the current step being worked on and with **Paste** will paste the same settings onto the chosen step. Any logic in the copied step will also be pasted.

One level of undo is provided with the **Undo Step Paste**.

Edit While Running

The Test File view window is visible while a test is running. The user can chose to be able to modify the numbers, settings etc in the Test Sequence File while the test is running by permitting the test to be edited while running. This is a toggle action and when checked, the user may edit the TSF during a running test.