SOLID STATE

Capture for MultiSystem II Operation Guide CFMII-20/40/100/200/300

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Introduction

This organ is equipped with a powerful but easy to use capture system from Solid State called Capture For MultiSystem II. There are a variety of CFM systems each offering different features for different styles of instruments. This system is the most sophisticated of all and has a maximum of 300 levels of piston memory. Your system may be fitted with less memory and this will be reflected in the name. This manual refers to the CFMII-300 system. All of the features for the CFMII series are identical but are loaded with different amounts of memory. These systems are fully upgradeable by your organ technician with parts from Solid State.

The Use of Combination Capture Systems

As the name suggests, capture systems are used to capture the stop settings on the console and save them for later use. A capture system allows an organist to make simple or complicated registration changes quickly, with little, or no interruption to the music. There are a number of basic controls that are common to all capture systems, together with some more sophisticated ones that vary in operation from one organ to another.

A simple view of a console is shown below. This picture will be used in the following instructions to explain the setting procedure.
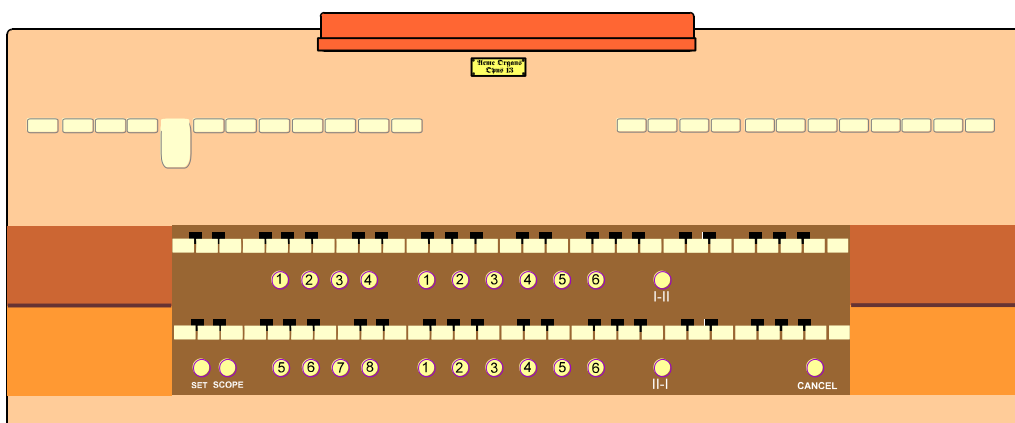
Basic Controls

Stops. Tab stops are used on the picture to illustrate open and closed stops. Currently one stop is open, drawstops follow the same principle.

Pistons. The pistons are used to operate the capture system.

Below each set of keys are grouped a set of pistons, usually marked 1,2,3,4... There may also be similar groups of pistons in other parts of the console. In the example above there are 11 pistons below the top manual and 14 below the bottom manual.

There are 6 pistons situated centrally under each manual. These pistons are normally used to control the stops associated with the manual above, and are called divisional or departmental pistons.

There are 8 pistons at the left side, 4 under each manual. These pistons normally control all of the stops on the instrument and are called General Pistons.

Each manual has a piston to the right of the 6 Divisional Pistons that is used to turn a Coupler on and off. These are called Reversibles.

In the bottom left corner are two pistons, one marked Set and the other marked SCOPE. The function of these and General Cancel (bottom right of the console) are described later in this guide.

Basic Functions

CFMII supports all of the basic capture system functions. As well as set, general cancel, programmable pistons and reversers, CFMII introduces a new basic function called Scope. Scope allows each piston on the console to control any group of stops from the whole specification. This enables the capture system to be configured with the usual divisional, general and reversible pistons. In addition Scope allows pistons to be re configured in the following ways:-

- If extra general pistons are required divisional pistons can be configured as generals.
- Divisional pistons can be configured to affect or not affect certain couplers.
- Any piston can be turned into a reverser.
- Any reverser can be turned into a divisional or general piston.

Each memory level (see below) has its own Scope to allow maximum flexibility.

General Cancel

General Cancel is used to turn off all the stops.

When General Cancel is pressed a number of events normally take place:

- All stops which are drawn at the console will be moved to their off position.
- All reversible tuttis will be cancelled, and their lamps will go off.
- All reversible ventils will be cancelled, and their lamps will go off.

Some of the above functions may not cancel with General Cancel, this depends on the configuration of your CFMII.

Setting Pistons
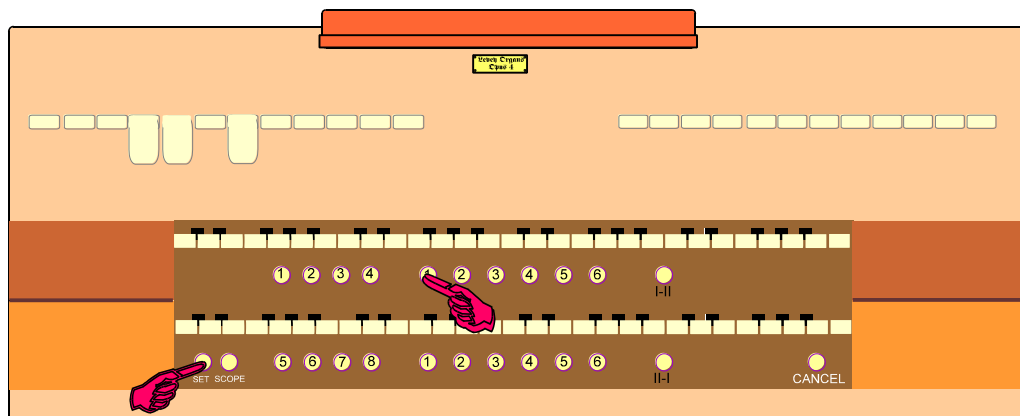
Set is used to program the pistons with their particular combination of stops.

If you wish to program a stop combination onto a piston:

1. Set up the required registration on the console as shown above
2. Hold in set (left hand)
3. Press the piston (right hand)
4. Press General Cancel
5. Press the piston to confirm your selection is correctly set

The set piston is not operational on a locked level.

Using Pistons

When a registration is set to a piston it remains in CFMII until changed. To recall the registration, push the piston at the required time when playing.

If you push another piston CFMII will override the previous one and any stops not set as part of the new registration will move off.

Scope

When a piston is pushed, only the stops that the piston has control over are moved. Using Scope it is possible to adjust the piston to control a different number of stops.

In short, you can 'teach' the piston its range of control, or if you prefer, the Scope of its operation!

Returning to our console diagram, pistons 1-6 under the top manual have been allocated to the 12 stops of the Swell Division. Those pistons therefore have their Scope set to the Swell Division.

Your instrument's pistons will already have their Scope set by your organ builder. If you wish, you can adjust this quickly and simply with the following procedures.

If you do not have a Scope piston on your console contact your organ builder and he will inform us.

Returning to our console for a moment there are 12 stops on the left side of the console, we wish to use these on the divisional pistons for the top manual.
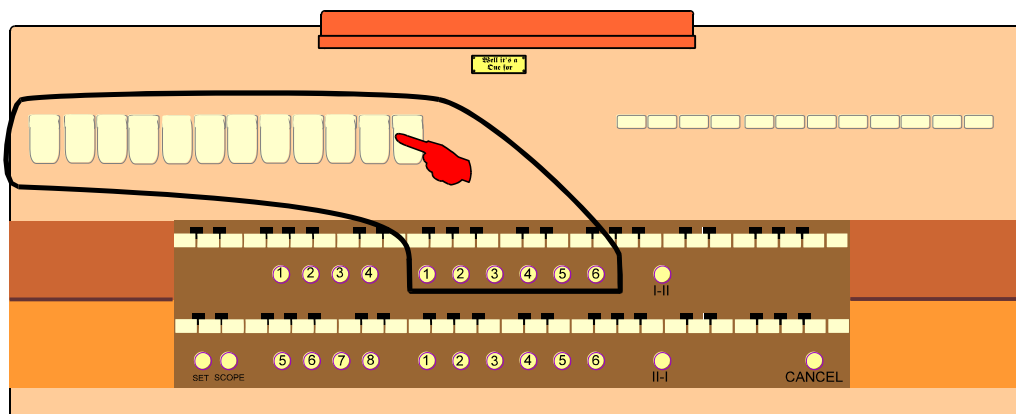
The Scope of the 6 pistons on the top manual needs to be set to cover the 12 stops shown. This will allow the 6 pistons to have a Scope of operation limited to the 12 stops selected.

Setting the Scope of a Piston
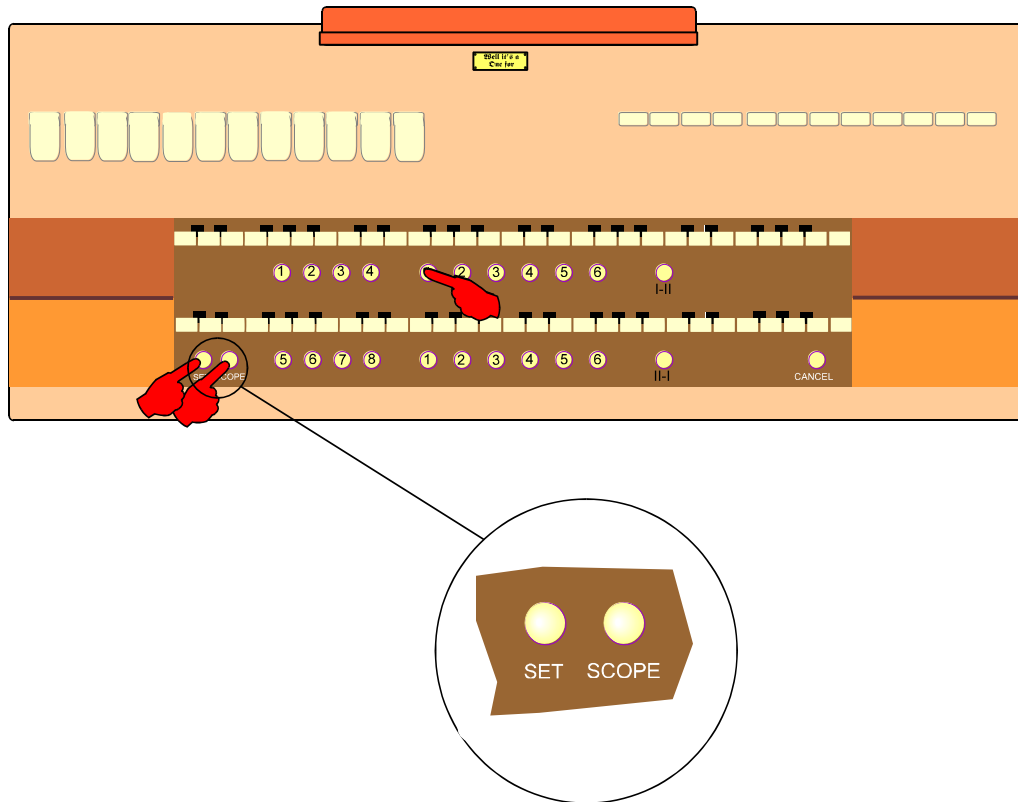
To change a piston's Scope do the following:

1. A good check is to always push General Cancel first to clear any unnoticed stops
2. Draw all stops which are to be affected by the piston. In this case the 12 stops shown as on the top manual
3. Hold in both the set and the Scope pistons
4. Press the piston(s) whose Scope you wish to set
5. Release the Set and Scope pistons

Now, only those stops which are within the Scope of the piston can be set onto the piston.

Viewing the Scope of a Piston

To view a piston's Scope, i.e. those stops which will be affected by the piston:

1. Hold in the Scope piston
2. Press the piston whose Scope you wish to view
3. The stops which move on are those which are within the Scope of the piston

Making a Piston a Reverser

Any piston can be configured to become reversible for any single stop. This is made possible by the Scope facility.

Setting a piston as a reverser is similar to setting the Scope of a piston.

1. A good check is to always push General Cancel first to clear any unnoticed stops
2. Select the stop that is to become reversible
3. Hold in both the Set and the Scope pistons
4. Press the piston you want to operate as the reversible
5. Release the Set and Scope pistons

Using the Scope feature in this way, any piston with a Scope of only one stop automatically becomes a reverser.

Blind Cancelling Couplers on Reversers

A reverser piston can be made to cancel sub and octave couplers when it turns off the unison coupler.

1. Set the scope of the reverser to the unison coupler as described above.
2. Turn on blind check.
3. Turn on the sub and octave couplers.
4. Hold in Set and press the reverser piston.
5. Turn off blind check.

The piston will now reverse the unison coupler, but will also cancel the sub and octave couplers when the unison coupler is reversed off.

Memory Functions

So far we have discussed a capture system with each piston controlling whichever stops are set as part of its scope. To increase the flexibility of the system even further we use a system of memory levels.

This allows each piston to be reusable for each level selected. Each level contains a completely independent setting for each of the pistons.
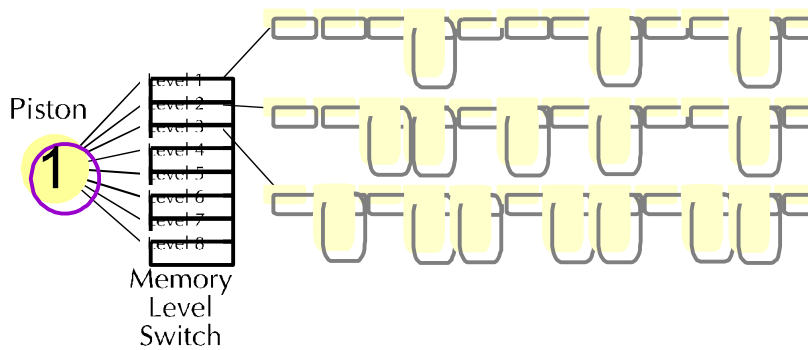
Individual levels are selected by means of a control panel fitted onto the console. The CFMII-300 has memory divided into banks for fast access. Each bank has 10 levels of memory A to J which are accessed using the up and down buttons on the left side of the panel. Banks are controlled by the up and down buttons on the right side of the panel.

Figure 1 The Master Control Panel

Auxiliary Control Panels

CFMII supports further controls for selecting and editing features beyond standard pistons. These controls are usually provided on control panels as shown below, but they may be provided as discrete pistons and lamps. Each panel has push buttons and lamps to report the status. Normally these push buttons act like reversers, the first push will light the lamp and the second extinguish it. However CFMII will also control the settings when required and the current status will be shown by the lamp.

Functions of the set-up panel.

Figure 2 The set up panel.

The set-up panel has four push buttons to control the set-up of the console. These controls are not normally required during playing but are invaluable when setting up the console prior to a performance.

Blind Check.

This control allows you to check blind functions on the console. A blind function is a stop or group of stops that will sound in the organ independently of the stops being drawn on the console. Typical examples being crescendo and tuttis, less obviously the blind check can also be used to show blind cancels such as ventils which are described later in this book.
When the blind check function is engaged the lamp will light. In this mode all blind stops will move on the console to display their function, thus allowing you to check them.
Blind Check will stay engaged until the push button is operated again to extinguish the lamp.

Crescendo Adjust

This control is only provided when an adjustable crescendo is fitted. It is used to set-up the crescendo. Select Crescendo A, B or C. Hold in SET and push the button once to enter Crescendo Adjust mode. The crescendo adjust lamp will light.

Clear

The clear function allows you to return a memory level to its default setting. This setting is normally commissioned by the organ builder with all pistons empty but it may have some default registrations for tuttis etc.

Copy

To those of you used to our earlier systems the copy function is new. As the name suggests this control allows you to copy from one setting to another. It is possible to copy piston memories and crescendos.

Clearing a Level

If the piston registrations on a level are no longer required, and you wish to use the level with completely different registrations then it may be appropriate to clear the level.

Clearing a level removes all of the piston registrations but the piston Scopes are unaffected as are the settings of blind functions (ventils, tuttis etc.).

A level may be cleared using the following procedure.

1. Select the level to be cleared
2. Hold in Set and press the Clear button
3. The Clear lamp will light to indicate the level has been cleared

The pistons on a locked level may be used, but they may not be cleared.

Restoring the Default Level

If the piston Scopes on a level have been changed and are no longer required, and you wish to use the level with different settings and Scopes it may be appropriate to restore the default level.

The default piston Scopes are restored including the default settings of blind functions (ventils, tuttis etc.) However restoring the default level removes all of the piston settings. The default level may be restored using the following procedure.

1. Select the level to be cleared
2. Hold in Set and press the Clear button twice, release Set
3. The pistons will now be returned to their default state with default scopes and default registrations (which may be empty depending on commissioning). The blind functions will be returned to their default settings. The pistons may be cleared of their registrations (but retaining their default Scopes) by clearing the level.

Copying Levels

Sometimes it is desirable to base the piston settings of one level on those already defined on another level. This can save a lot of time by avoiding the need to create a level from nothing. Copying a level is a two stage process:

- The first stage is to take a copy of the required level
- The second stage is to put that copy into the new level

Stage One
1. Select the level to be copied
2. Hold in set and press the copy button. The copy lamp will light indicating that a copy has been taken

Stage Two
3. Select the new level
4. Hold in set and press the copy button again
5. Copying a level can take several seconds
6. Please wait for the copy lamp to extinguish, indicating the copy has completed

Blind Functions

CFMII supports numerous blind functions, all of which are programmable. Blind functions are those which operate stops at the organ without moving them at the console. Blind functions include:-

- Ventils
- Tuttis, Sforzandos & Full Organ
- Crescendo

Blind function pistons may be programmed to operate as desired. An explanation of the setting procedure is given below.

Blind Check

Blind check is a facility that allows the registration and Scope of blind functions to be viewed and changed.

The Blind Check switch is a reversible which toggles CFMII in and out of blind check mode. The Blind Check lamp will light when the system is in blind check mode.

When the system is in Blind Check mode, all of the blind functions act as ordinary pistons. This allows the Scope and registration of blind functions to be changed in much the same way as that of normal pistons.

When the system is in blind check mode, all pistons act as general pistons. This is necessary for correctly viewing the stops set on blind functions.

Viewing Blind Functions

The stops associated with blind functions can only be viewed when the system is in Blind Check mode.

On a console with a Scope control, the Scope can be viewed in the same way as that of an ordinary piston.

Inclusive Tuttis

Except during commissioning the Scope of an inclusive tutti is ignored. The only stops it affects are those which it will bring on blind (its registration).

Tutti Piston

With Blind Check on push the Tutti Piston.

Stops come on that are stored in the Tutti Memory.

When Blind Check is cancelled the stop tabs are not affected by the Tutti.
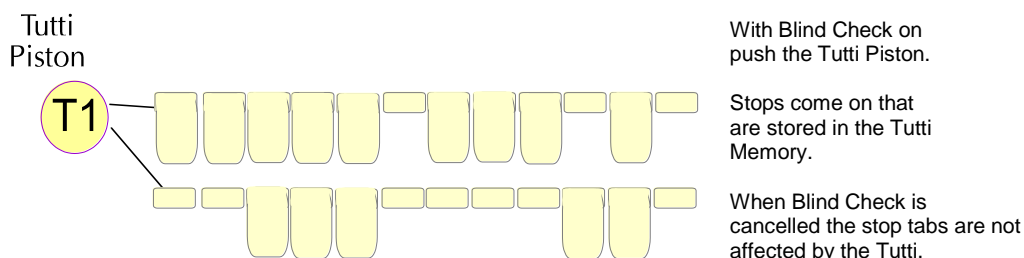
Exclusive Tuttis

The Scope of an exclusive tutti will show those stops which are affected by the tutti. The registration will show which of those stops will be turned on. All stops which are within Scope, but aren't in the registration will be forced off.

With Blind Check on push the Tutti Piston.

Stops come on that are stored in the Tutti Memory.

Hold SCOPE and push the Tutti Piston. There are more stops on.

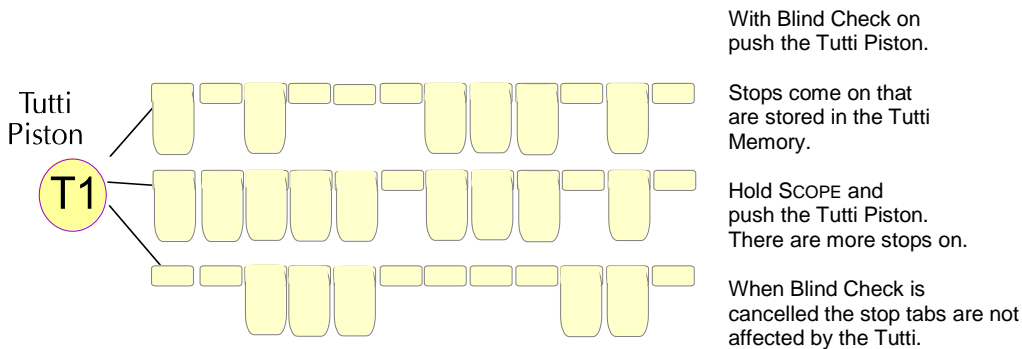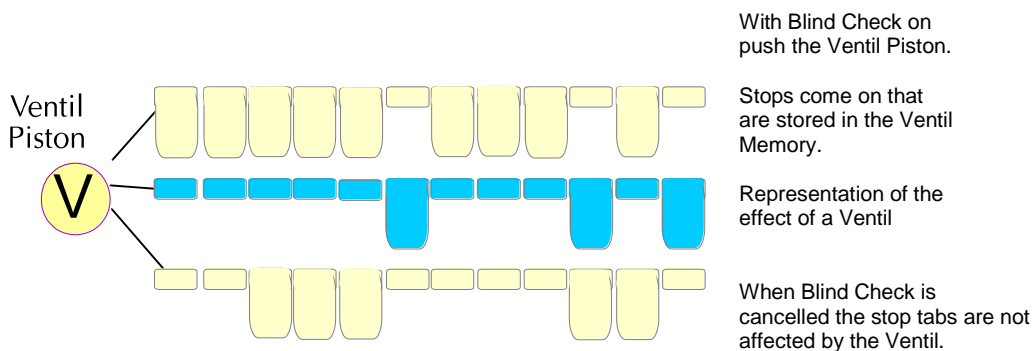When Blind Check is cancelled the stop tabs are not affected by the Tutti.

Ventils

Ventils operate in a similar way to other blind functions, with one difference. Ventils are designed to turn stops off not add them. The stops which are set onto a ventil will be turned off when the ventil is used.

With Blind Check on push the Ventil Piston.

Stops come on that are stored in the Ventil Memory.

Representation of the effect of a Ventil

When Blind Check is cancelled the stop tabs are not affected by the Ventil.

Setting an Inclusive Tutti

An inclusive tutti ignores the Scope and only uses the registration.
The only stops it affects are those which it will bring on blind (its registration).
Inclusive tuttis are set as follows:

1. Turn on blind check
2. Turn on only those stops which are to be brought on by the tutti
3. Set the piston to the selected stop combination

Setting an Exclusive Tutti

An exclusive tutti has a Scope which is broader than its registration.

It affects all stops within its Scope, turning those in its registration on, and the others off.

Exclusive tuttis are set as follows:

1. Turn on blind check
2. Turn on those stops which are to be affected by the tutti
3. Set the Scope of the tutti
4. Turn off those stops which are to be turned off by the tutti, leaving the others on
5. Set the tutti

Setting a Ventil

A ventil will turn off the stops which are set on it.

Ventils are set as follows:

1. Turn on blind check
2. Turn on those stops which are to be taken off by the ventil
3. Set the ventil

Changing blind piston types

The blind pistons may be configured as ventils, inclusive tuttis (sforzandos, full organ) or exclusive tuttis. The piston type will usually have been configured by your organ builder during commissioning.

An Inclusive Tutti adds stops to the registration. An Exclusive Tutti adds stops to the registration while turning other stops off. A Ventil turns stops off.

To select which type of function a blind piston will perform please carry out the following steps:

1. Turn on Blind Check.
2. Turn on some stops (2 or more).
3. Set the Scope of the blind piston or switch.
4. Turn off some stops as follows:
   - If it is an exclusive tutti turn off one or more (but not all) stops.
   - If it is an inclusive tutti leave the stops on.
   - If it is a ventil turn all of the stops off.
5. Set the blind piston or switch.
6. Turn off Blind Check.
7. Hold in Set and Scope and press the blind piston or switch. Don't inhibit me. Ventil

This last step will compare the stored registration to the stored Scope in order to determine the piston type. It only makes a comparison and doesn't change the Scope or registration. It will mark the piston as inclusive, exclusive or ventil base on this. This is the only way to change the operation type of a blind piston and ensures consistent operation during normal use.

Following this you should set the scope/registration of the blind function with Blind Check on:

- For an Exclusive Tutti the scope and the registration should both be set. Stops that are in the Scope but not in the registration will be inhibited when the tutti is used. Stops that are in the registration will come on when the tutti is used.
- For an Inclusive Tutti the Scope is ignored, only the registration needs to be set. Stops that are in the registration will come on when the tutti is used. All other stops will operate as normal.
- For a Ventil the Scope will limit the stops which can be affected by the ventil. It is recommended that all stops are set into the Scope to allow any stop to be set on the Ventil. If you wish to limit a Ventil to only ever be allowed to affect, say, the Swell division then set all of the Swell stops into the Scope of the Ventil.
  Set the registration of the Ventil with the stops which are to be turned off. Stops that are in Scope and which are set in the registration will be inhibited when the Ventil is used. All other stops will operate as normal.

Crescendo

Figure 3 The Crescendo Control panel.

CFMII supports 3 programmable Crescendos and one pre-programmed Crescendo. Crescendo Standard is set by the organ builder and Crescendo A, B and C are settable by the organist.

The Crescendo is an inclusive function which adds stops to those already drawn at the console.

Each Crescendo has 60 stages. The current stage of the Crescendo is displayed in green on the right of the master control panel whenever the Crescendo is active.

The Crescendo selector panel has 4 buttons with associated lamps. Crescendo Standard is the pre-programmed Crescendo and will have been set up by the organ builder. Crescendos A, B & C are fully programmable.

To select a Crescendo press the relevant button and the lamp will light. To disable the Crescendo press the button of the current Crescendo and the lamp will go out.

Crescendo Adjust

To program a Crescendo you need to turn on Crescendo Adjust. Crescendo Adjust is only available for Crescendos A, B & C.

1. Push and hold in the Set piston on the console.
2. Push Crescendo Adjust and make sure the lamp is lit.
3. Release Crescendo Adjust and the Set piston.

If the Crescendo is empty the clear lamp will light. If the Crescendo already contains a setting the blind check lamp will light.

It is now possible to set the Crescendo pattern.

Setting A New Crescendo

1. First select one of the settable Crescendos, A, B or C on the Crescendo panel.
2. Enter Crescendo Adjust mode by holding in Set and pressing Cres. Adj.

If the Clear lamp doesn't light then the Crescendo needs to be cleared first:

3. Hold in Set and Press Clear.
4. Select the first stage of the Crescendo by moving the pedal or by using the buttons on the right of the main display panel.

The current stage of the Crescendo is shown on the right side of the display panel in green.

5. Turn on all the stops you wish to have on for the first stage of the Crescendo and push the Set piston.

The red **S** in the display will flash to show the registration has been stored and the Crescendo will move on to the next stage.

6. Repeat the last step, changing the stops as required, until all 60 stages of the Crescendo have been programmed.

The Crescendo registrations can be reviewed using the Up and Down push buttons on the right side of the display panel whilst Blind Check is on.

The Crescendo registrations can also be reviewed using the Crescendo shoe in blind check.

Hint: You cannot adjust Crescendo Standard, if this setting is not as you wish it, please consult your organ builder.

Changing A Crescendo

1. First select one of the settable Crescendos, A, B or C on the Crescendo panel.
2. Enter Crescendo Adjust mode by holding in Set and pressing Cres. Adj.

The Blind Check lamp will light and the stops will move.

3. Select the Crescendo stage you wish to change by moving the pedal or by using the buttons on the right of the main display panel.

The stops will move to show what is set on the current stage.

4. Adjust the stops you wish to have on for this stage of the Crescendo and press the Set piston.

The Crescendo will move on to the next stage and the stops will move to reflect what is set on this stage.

5. Repeat these steps, changing the stops as required, until all the required changes have been made.

Hint: If you wish to program a stage that has been left blank then select the stage before, turn off blind check, then move to the blank stage. The stops will stay on and can be adjusted to the required registration.

Copying A Crescendo

Crescendos can be copied using the Copy Button whilst in Crescendo Adjust mode.

To Copy A Crescendo To A, B Or C From A, B, Or C

1. Select the Crescendo to copy from (A, B or C).
2. Enter Crescendo Adjust mode by holding in Set and pressing Cres. Adj.
3. Hold in Set and push the Copy Button.

The Copy Lamp will light to show the copy function is active.

4. Select the Crescendo (A, B or C) you wish to paste into.
5. Hold in Set and push the Copy Button.

The Copy Lamp will go out to show the copy has been used.
The currently selected Crescendo will now contain the copy.

To Copy A Crescendo To A, B Or C From Crescendo Standard

1. Select the Crescendo to copy to (A, B or C).
2. Enter Crescendo Adjust mode by holding in Set and pressing Cres. Adj.
3. Hold in Set and push the Clear Button.

The Clear Lamp will light to show the Crescendo has been erased.

4. Hold in Set and push the Clear Button again.

This will copy the setting from Crescendo Standard.
The currently selected Crescendo will now contain a copy of Crescendo Standard.

To Clear a Crescendo

1. Select the Crescendo to clear (A, B or C).
2. Enter Crescendo Adjust mode by holding in Set and pressing Cres. Adj.
3. Hold in Set and push the Clear Button.

The Clear Lamp will light to show the Crescendo contains no setting.

Using the system with the Scope control fitted as a switch

Scope Piston & Scope Switch

There are three mounting options for Scope:

1. Scope may have been mounted as a piston adjacent to the set piston. This allows the easiest access to the Scope facility.
2. Scope may have been mounted as a switch, possibly concealed in a drawer or behind the music stand
3. Scope may not be accessible, other than to the organ builder

Setting Scope with a Scope Switch

To change a piston's Scope do the following:

1. Switch on the Scope switch
2. Draw all stops which are to be affected by the piston. Turn all other stops off
3. Hold in the set piston
4. Press the piston whose Scope you wish to set
5. Switch off the Scope switch

Viewing Pistons with a Scope Switch

To view a pistons Scope, i.e. those stops which will be affected by the piston, do the following:

1. Switch on the Scope switch
2. Press the piston whose Scope you wish to view
3. The stops will move. The stops which are on are those which are within the Scope of the piston
4. Switch off the Scope switch

Using the system without a Scope control

Setting an Inclusive Tutti on systems without a Scope control

Assuming the Inclusive Tutti (Sforzando, Full Organ etc.) has already been configured it is possible to change the registration without using Scope.

1. Turn on blind check
2. Turn on those stops which are to be brought on by the tutti
3. Set the tutti

The stops that are set will come on with the tutti, other stops will not be affected.

Setting an Exclusive Tutti in systems without a Scope control

Assuming the Exclusive Tutti has already been configured it is possible to change the stops brought on without affecting the Scope.

1. Turn on blind check
2. Turn on those stops which are to be brought on by the tutti
3. Set the blind function

The Scope remains unaffected. Stops that are within the Scope of the tutti but not registered to come on will be turned off.

Setting a Ventil on systems without a Scope control

Assuming the Ventil has already been configured it is possible to change the stops it affects without using Scope.

The procedure is as follows:

1. Turn on blind check
2. Press the Ventil piston
3. This will turn on all stops that are be affected by the Ventil
4. Adjust the stops according to the change you want to make
5. Set the Ventil

Only stops which are in scope can be set on the Ventil (e.g. a Swell Ventil may not affect other divisions).