20 Capricorn Surround

This chapter describes the operation of three hardware options that can be used to extend the surround sound capabilities of the Capricorn console.

Standard Surround Features

The Capricorn console allows surround panning to sets of tracks (called Film Groups) as standard. The panning formats available are LCR, LCRS and Split Surround (also called 5.1). IMAX and 8-Way (7.1) formats can be purchased as software upgrades (they are included as standard with CXS and CSP).

CXS

This is a console section that allows full control of surround sound monitoring and Film Stem configuration. The Capricorn system software automatically detects the presence of the CXS and extends the functionality of configuration software for setting up Film Stems, direct playback inputs and speaker trims.

The CXS adds a full section to the console, consisting of a dedicated meter bridge (moving coil VU meters), a Joystick Module, faders for dialogue and music, and a main section for monitoring and stem control.

Joystick Module

The Joystick Module is used to provide intuitive control over the pan position of signals within a surround sound field. Up to two channels can be controlled simultaneously, and the module is fully automated to preserve panning that has already been completed.

A maximum of two Joystick Modules can be installed in a Capricorn console. Joystick Modules are compatible with the CSP or the CXS. Note that one Joystick Module is supplied as standard as part of the CXS.

Capricorn Surround Panel (CSP)

This alters the functionality of the transport panel to provide a complete set of surround monitoring facilities.

This option is not compatible with the CXS.

20.1   Standard Surround Features

This allows a set of consecutive Track Sends to be associated as a Film Group with a user selected surround sound format. Source paths can then be routed to the Film Group. A pan law is selected for each source path to determine how the signal is apportioned to the Track Sends in the Film Group. The pan law of a source path would normally match the surround format of a Film Group, although it does not have to.

20.1.1   To define Track Sends for Film Groups

➤ Click on the Tracks Setup icon.

The Tracks Setup screen will be displayed.

Track Setup							Close

ALL MONO	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8
	L 9	C 10	R 11	M 12	M 13	M 14	M 15	M 16
MONO	M 17	M 18	M 19	M 20	M 21	M 22	M 23	M 24
STEREO	M 25	M 26	M 27	M 28	M 29	M 30	M 31	M 32
LCR	M 33	M 34	M 35	M 36	M 37	M 38	M 39	M 40
LCRS	M 41	M 42	M 43	M 44	M 45	M 46	M 47	M 48
SPLT								
IMAX								
8-WAY								

• TS/TR Stereo Matching •

Machine A: TR: 1-48

TS TRIMS

➤ Click on the LCR, LCRS, SPLT, IMAX or 8-WAY button as required.

The button will turn yellow.

➤ Click on the track send that is going to be Left.

Note: There must be enough consecutive mono track sends following the track selected for Left for the assignment to take place.

The consecutive track sends (following the send selected for Left) will automatically be assigned as follows:

Left. Centre. Right
The next two adjacent Track Sends will become Centre and Right (this is illustrated in the example screen above).

Left. Centre. Right. Surround
The next three adjacent Track Sends will become Centre, Right and Surround.

Split Surround (5.1)
The next four adjacent Track Sends will become Centre, Right, Left Surround and Right Surround.

IMAX
The next five adjacent track sends will become Centre, Right, Left Surround, Top and Right Surround.

8-Way (7.1)
The next six adjacent track sends will become Left Extra, Centre, Right Extra, Right, Left Surround and Right Surround.

The speaker assignments will be indicated above the track numbers.

The sub-woofer must be designated manually for Split, IMAX and 8-way. It can be a track send or an aux. Using an aux for the sub-woofer has the advantage of allowing the source paths to contribute to the sub-woofer separately from the level and pan sent to the rest of the film group.

20.1.2   Routing to Film Groups

There are two quick methods of routing inputs to all track sends used for a film group: route a single input to a film group, or route multiple inputs to a film group simultaneously.

To route a single input to a film group

➤ Press the ⌨STEM/SEL⌨ key on the Routing panel.

The LED above the key will illuminate.

➤ Press the │ ACCESS │ key on the desired source path.

➤ Press one of the track send keys which corresponds to a track send in the film group.

The LEDs associated with the set of track sends for the film group will illuminate. Additional film groups can be selected.

➤ Press a different │ ACCESS │ key to change the source path.

➤ Press the ⌨STEM/SEL⌨ key on the Routing panel to turn it off and finish.

To route several inputs to a film group

➤ Press the ⌨STEM/SEL⌨ key on the Routing panel.

The LED above the key will illuminate.

➤ Press the │ ROUTE │ key.

The │ ROUTE │ key will flash.

➤ Press the number key for one of the track sends in a film group.

The path names on the console surface will flash.

➤ Press the │ ACCESS │ keys of the required source paths.

➤ Press the │ ROUTE │ key to end the process.

➤ Press the ⌨STEM/SEL⌨ key on the Routing panel to turn it off.

20.1.3   Panning Routed Inputs

Each path that is routed to a Film Group must have the pan law set (the default is stereo). The selected pan law determines the portions of the signal that will be sent to the Track Sends in the Film Group.

For instance, if there is an IMAX Film Group then the pan law on source paths would normally be set to match this. However, it is possible to use different pan laws to achieve different effects. In this example, the sound of a motorbike crossing the screen could have the pan law set to LCR so that the sound 'sticks' to screen (i.e. the front of the surround field).

Signals that are routed to the Film Groups can be panned using the optional Joysticks Module. The joysticks provide an intuitive control over surround panning and this is described later in this chapter in the section on the Joystick Module (see page 1:39).

Also, the FACs on the channel strips or the AFU can be used for panning.

To select the Pan Law

➤ Press the ▣ FILM key on the FAC selection panel.

The channel strip FACs now operate as follows:

> The top row of FACs select PAN LAW
> The second row of FACs control SPLIT between LS and RS
> The third row of FACs control FRONT/BACK PAN
> The fourth row of FACs control PAN, dependent on the law set.

➤ Rotate the top FAC to select the required Pan Law.

This will change the FAC assignments as follows:

FAC	Pan Law						
1 - Pan Law	MONO	STR	LCR	LCRS	SPLT	IMAX	8WAY
2 - LS/RS Split					LS/RS	LS, Top, RS	LS/RS
3 - F/B Pan				F/B	F/B	F/B	F/B
4 - Pan		Stereo pan	LCR	LCR	LCR	LCR	L, LE, C, RE, R
Width (AFU)	Stereo inputs only	Stereo inputs only	Width for stereo input, divergence for mono	Divergence	Divergence	Divergence	Divergence

Note: This also enables the corresponding pan axes for paths when they are called to the Joystick Module (if installed).

To pan with the channel strip FACs

➤ Press the ⬚ key on the FAC selection panel.

➤ Rotate FACs 2, 3 and 4 as required, according to the selected Pan Law.

Panning to Film Stems on the AFU

The PAN and WIDTH controls are available to the accessed path according to the current pan law. In addition, three of the FACs on the AFU can be set to control pan law, surround split and front/back pan.

To use the FACs on the AFU for film panning

➤ Press the ⬚ key on the Routing panel.

The three furthest to the right on the bottom row of AFU Aux FACs will become (from right to left) pan law, surround split and front/back pan controls (normally used for Auxes 12, 14 and 16).

The display in the middle of the AFU will show the current settings for the accessed path. It will also show which controls are available for the current pan law. If the display changes, it can be restored to show the film settings by touching one of the FACs enabled by ⬚. Alternatively, the display may be locked to showing the film panning settings with the ⬚ key.

20.2 CXS

The CXS consists of a dedicated meter bridge, a main panel for monitoring and stem control, a pair of faders for music and dialogue and a joystick module.

Meter Bridge
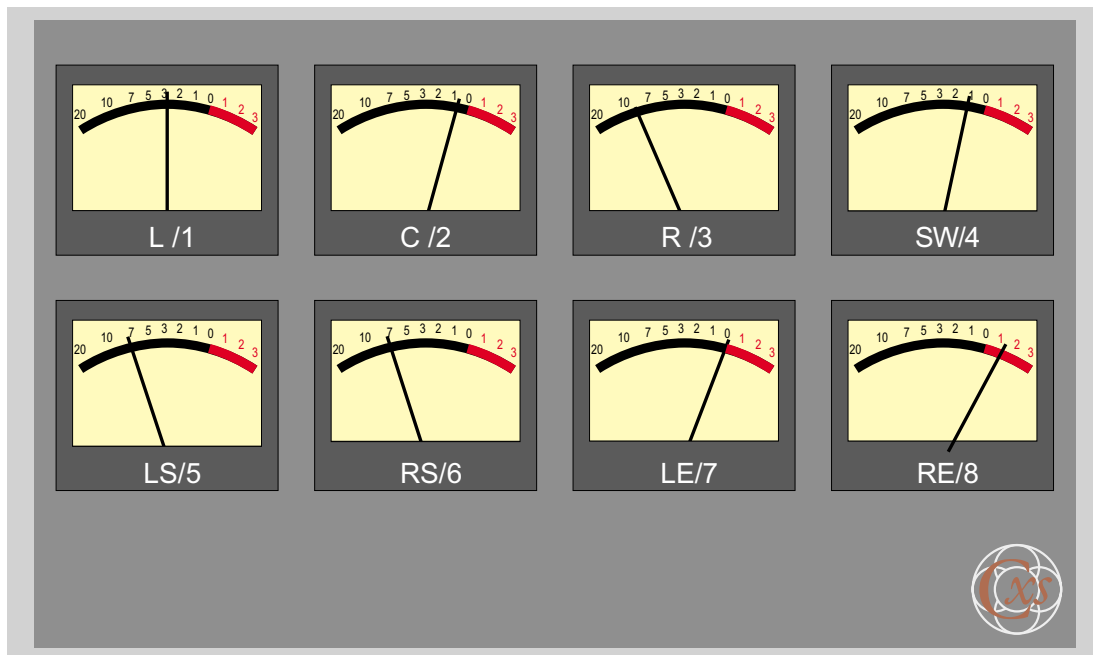
The dedicated meters show the analogue monitor level.

Main CXS Panel
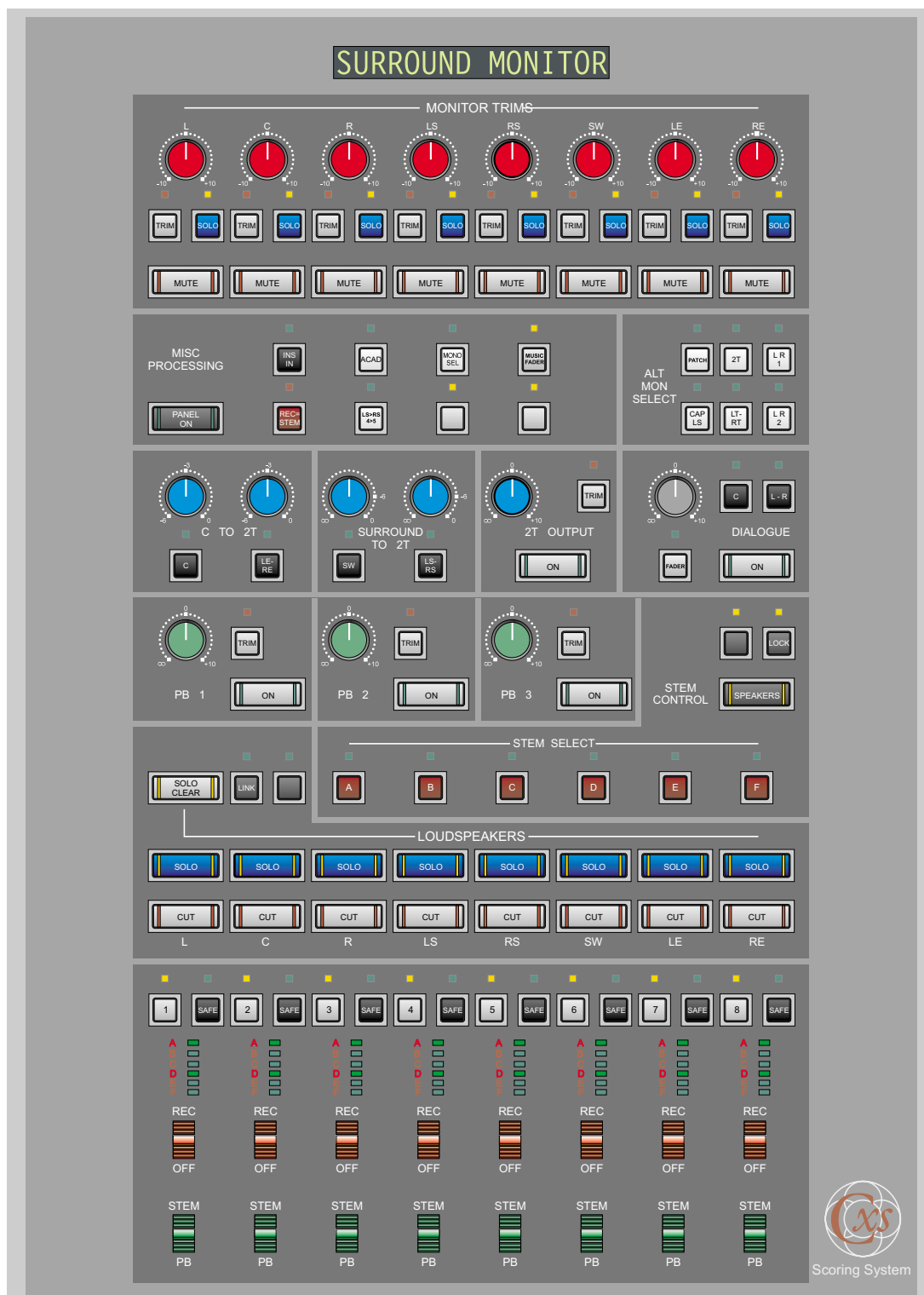
The main CXS panel controls the stems, playbacks, surround monitoring and the 2-track mix.

Faders and Joysticks
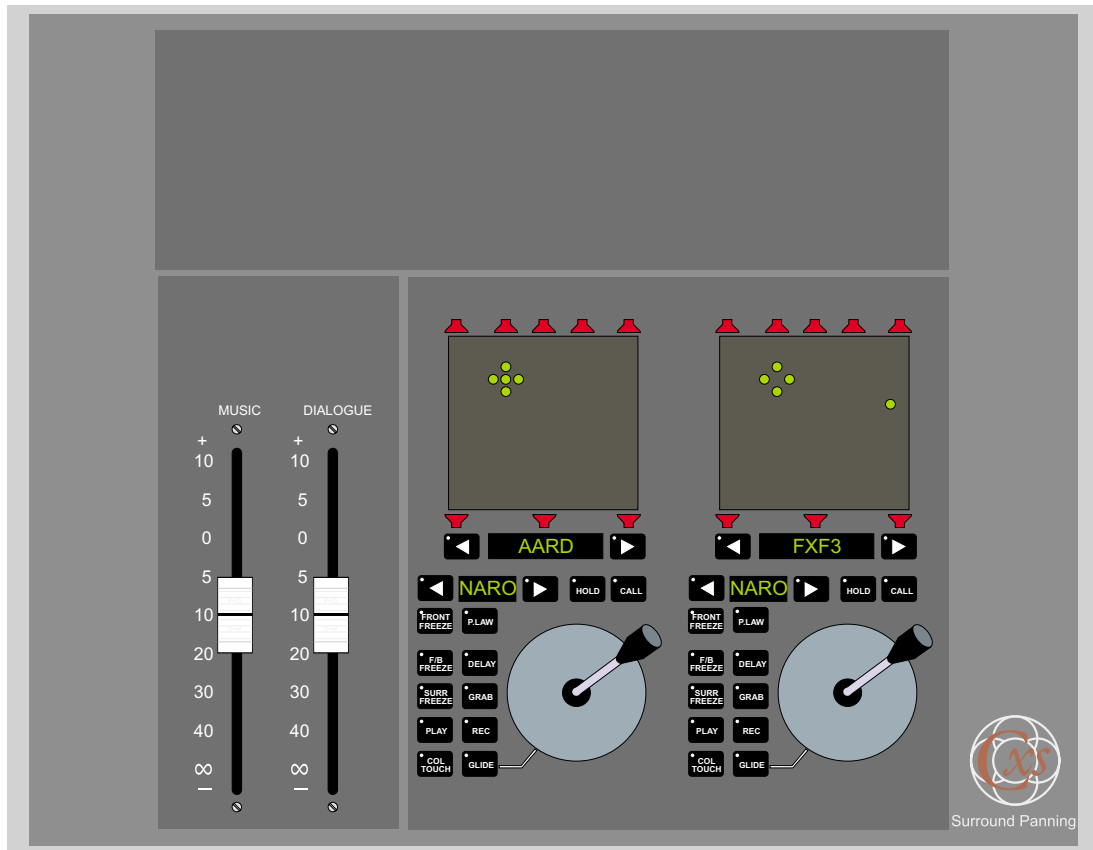
The faders provide dedicated level control for dialogue and musical score inputs. The joysticks are used for panning channels across film stems. The joysticks are identical to the standalone Joystick Module (see page 1:39 for operational details on the joysticks).

20.2.1   How CXS Operates

The CXS uses Film Stems which are film groups that have been labelled with a letter from A to F. A film group is a set of Track Sends which have been grouped together according to a surround sound output format (e.g. Split Surround - also known as 5.1 format). The film group is created as normal in the Tracks Setup screen and then labelled as a stem.
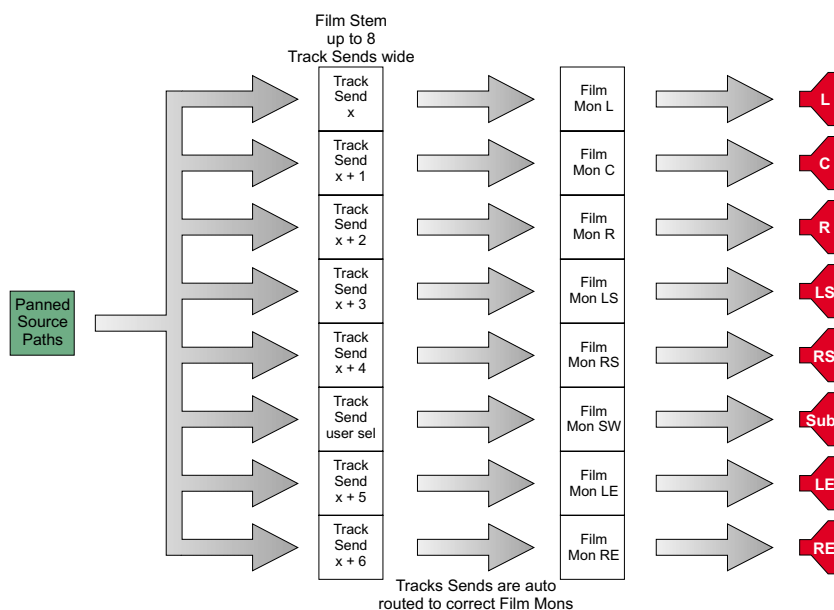
A source path can then be routed to all the Track Sends in a Stem in a single operation. The source signal is apportioned to the Track Sends according to the pan control settings and the pan law for the speaker that each Track Send corresponds to. The routing of the Track Sends in a Stem to the correct Film Monitors is transparent and automatic when a Stem is selected for monitoring.
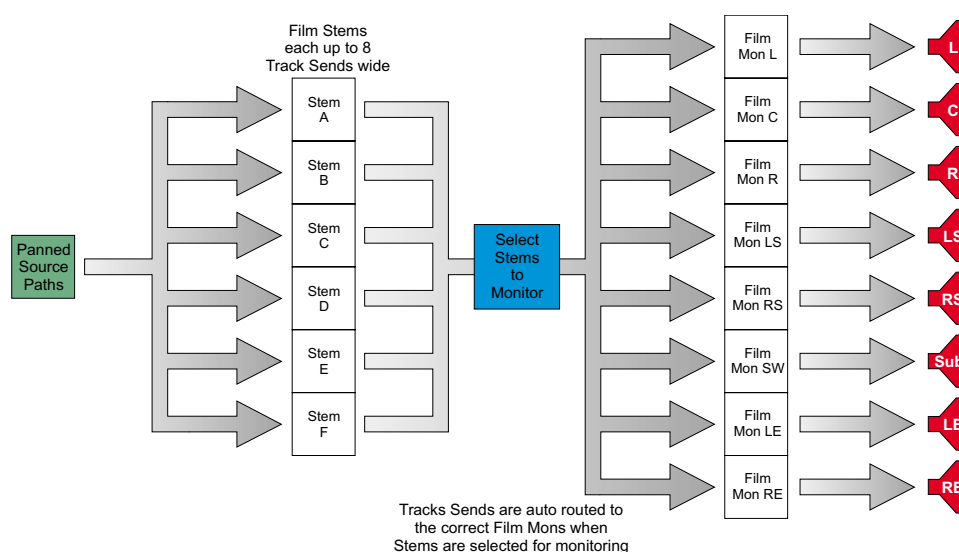
Labelling the Film Stems from A to F is a convenient reference technique and is used on the CXS for Stem Selection, both for monitoring purposes and for recorder control.

The CXS has three playbacks. These can be taken directly from Inputs or Monitors and one playback at a time can be used in the monitor mix.

A 2-Track Mix can be created - this must enabled in addition to enabling the CXS. The 2-Track Mix starts with the Left and Right Film monitors. Adjustable contributions can then be added from the other Film Monitor paths and the overall output level can be trimmed.

The Music fader is used to control the overall output level to the speakers. This can be switched to operate from the main Control Room Level pot.

The Dialogue fader is used to control the level of the analogue dialogue input. This is mixed directly with the analogue output to the Centre speaker or the Left and Right speakers. The level control can be switched to the pot on the Dialogue section.

20.2.2   Configuring for CXS

The system must be configured correctly before the CXS can be used. This has three main steps:

- Enable the CXS (and 2-Track Mix if required).
- Select which Tracks will belong to which Film Stems.
- Route source paths to the Film Stems.

To enable CXS

➤ Click the Path Numbers icon.

The System Path Allocations screen will be displayed.

```
┌──────────────────────────────────────────────────────┐
│ System Path Allocations                      │ Close │ │
│                • Old: •    • New: •    • Limits: •     │
│   Input            0          10          30          │
│   Monitor          0          2           30          │
│   Group            8          8           24          │
│   Main Output      0          2           8           │
│   Aux Master       0          2           16          │
│   Cue Send         0          2           16          │
│   Total            8          26                      │
│   Free            22          4                       │
│ ┌ Preset System Parameters ──────────────────────────┐│
│ │   24   Track Sends          8   Talkback Inputs     ││
│ │   4    Monitoring Ouputs    8   Talkback Outputs    ││
│ │   16   External Inputs     30   Total available paths││
│ └─────────────────────────────────────────────────────┘│
│ ┌ CXS options ───────────────────────────────────────┐│
│ │  ▢   CXS enable           ▢   2T enable             ││
│ └─────────────────────────────────────────────────────┘│
│                              │ Cancel │ Execute │      │
└──────────────────────────────────────────────────────┘
```

Two extra buttons are available at the bottom of the screen because the CXS is installed.

➤ Click the CXS enable button.

This automatically allocates Cues 9 to 16 for use as Film Paths. If necessary, the number of Cue Sends allocated will be increased by up to 8. The current usage of Cues 9 to 16 will be cancelled. The 2T enable button will become available.

➤ If required, click the 2T enable button.

This automatically allocates Cues 7 and 8 for use as the 2-Track mixdown bus. If necessary, the number of Cue Sends allocated will be increased by up to 2. The current usage of Cues 7 and 8 will be cancelled.

Note: There is no Execute required for CXS enable and 2T enable.

Note: Each Cue that is used as a Film Monitor can feed up to four output ports. At least one of these outputs from each Film Monitor must feed the analogue part of the surround sound monitoring system. The additional ports could be used, for instance, for simultaneous track laying.

To define Film Stems

➤ Click on the Tracks Setup icon.

The Tracks Setup screen will be displayed.

Track Setup							Close

ALL MONO	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8
	L 9	C 10	R 11	M 12	M 13	M 14	M 15	M 16
MONO	M 17	M 18	M 19	M 20	M 21	M 22	M 23	M 24
STEREO	M 25	M 26	M 27	M 28	M 29	M 30	M 31	M 32
LCR								
LCRS	M 33	M 34	M 35	M 36	M 37	M 38	M 39	M 40
SPLT								
IMAX	M 41	M 42	M 43	M 44	M 45	M 46	M 47	M 48
8-WAY								

• TS/TR Stereo Matching •

Machine A: TR: 1-48

A D
B E
C F

PB/SW setup   TS TRIMS

The CXS has been enabled so there are now buttons available for Film Stems A to F and PB/SW setup (playback and sub-woofer).

A Film Group with the desired surround format is created first, and then the Film Group is labelled as a Film Stem.

To make a Film Group

➤ Click on the LCR, LCRS, SPLT, IMAX or 8-WAY button as required.

The button will turn yellow.

➤ Click on the track send that is going to be Left.

Note: There must be enough consecutive mono track sends following the track selected for Left for the assignment to take place.

The consecutive track sends (following the send selected for Left) will be automatically assigned as follows:

LCR   The next two adjacent Track Sends will be Centre and Right.

LCRS   The next three adjacent Track Sends will be Centre, Right and Surround.

Split (5.1)   The next four adjacent Track Sends will become Centre, Right, Left Surround and Right Surround.

IMAX   The next five adjacent track sends will become Centre, Right, Left Surround, Top and Right Surround.

8-Way (7.1) The next six adjacent track sends will become Left Extra, Centre, Right Extra, Right, Left Surround and Right Surround.

The speaker assignments will be indicated above the track numbers.

To label a Film Group as a Film Stem

➤ Click the required Stem button, A to F.

The button will turn yellow.

➤ Click any of the Tracks that have been assigned to to the Film Group.

The speaker assignment legends will change to show the Stem letter and the speaker. The following example shows Split Surround starting on Track 1 assigned as Stem A:

```
┌─────────────────────────────────────────────────────────────────┐
│  Track Setup                                          │  Close    │
│                                                                   │
│  ┌──────────┐   ┌────┬────┬────┬─────┬─────┬────┬────┬────┐       │
│  │   ALL    │   │ AL │ AC │ AR │ ALS │ ARS │ M  │ M  │ M  │       │
│  │  MONO    │   │ 1  │ 2  │ 3  │  4  │  5  │ 6  │ 7  │ 8  │       │
│  └──────────┘   ├────┼────┼────┼─────┼─────┼────┼────┼────┤       │
│                 │ M  │ M  │ M  │  M  │  M  │ M  │ M  │ M  │       │
│                 │ 9  │ 10 │ 11 │ 12  │ 13  │ 14 │ 15 │ 16 │       │
│  ┌──────────┐   ├────┼────┼────┼─────┼─────┼────┼────┼────┤       │
│  │  MONO    │   │ M  │ M  │ M  │  M  │  M  │ M  │ M  │ M  │       │
│  ├──────────┤   │ 17 │ 18 │ 19 │ 20  │ 21  │ 22 │ 23 │ 24 │       │
│  │  STEREO  │   ├────┼────┼────┼─────┼─────┼────┼────┼────┤       │
│  ├──────────┤   │ M  │ M  │ M  │  M  │  M  │ M  │ M  │ M  │       │
│  │  LCR     │   │ 25 │ 26 │ 27 │ 28  │ 29  │ 30 │ 31 │ 32 │       │
│  ├──────────┤   ├────┼────┼────┼─────┼─────┼────┼────┼────┤       │
│  │  LCRS    │   │ M  │ M  │ M  │  M  │  M  │ M  │ M  │ M  │       │
│  ├──────────┤   │ 33 │ 34 │ 35 │ 36  │ 37  │ 38 │ 39 │ 40 │       │
│  │  SPLT    │   ├────┼────┼────┼─────┼─────┼────┼────┼────┤       │
│  ├──────────┤   │ M  │ M  │ M  │  M  │  M  │ M  │ M  │ M  │       │
│  │  IMAX    │   │ 41 │ 42 │ 43 │ 44  │ 45  │ 46 │ 47 │ 48 │       │
│  ├──────────┤   └────┴────┴────┴─────┴─────┴────┴────┴────┘       │
│  │  8-WAY   │                                                     │
│  └──────────┘                              ┌───┐        ┌───┐     │
│  • TS/TR Stereo Matching •                 │ A │        │ D │     │
│  ┌──────────────────────────────┐          ├───┤        ├───┤     │
│  │      Machine A:   TR: 1-48    │          │ B │        │ E │     │
│  ├──────────────────────────────┤          ├───┤        ├───┤     │
│  │                              │           │ C │        │ F │     │
│  ├──────────────────────────────┤          └───┘        └───┘     │
│  │                              │      ┌───────────┐  ┌─────────┐ │
│  └──────────────────────────────┘      │ PB/SW setup│  │ TS TRIMS │
│                                         └───────────┘  └─────────┘ │
└─────────────────────────────────────────────────────────────────┘
```

Note:　　　　A stereo pair can also be labelled as a Film Stem, if required.

If Split Surround, IMAX or 8-Way has been selected

The Sub-Woofer must be assigned individually.

➤ Click the PB/SW setup button.

The PB/SW setup screen will be displayed.

```
┌─────────────────────────────────────────────────────────┐
│  • PB/SW setup •                               │ Close   │
│  ┌─Sub-woof select──────────────────────────────────┐   │
│  │ ┌─┐   TS 7    ┌─┐   ----                          │   │
│  │ │A│          │D│                                  │   │
│  │ └─┘          └─┘                                  │   │
│  │ ┌─┐   ----    ┌─┐   ----                          │   │
│  │ │B│          │E│                                  │   │
│  │ └─┘          └─┘                                  │   │
│  │ ┌─┐   ----    ┌─┐   ----                          │   │
│  │ │C│          │F│                                  │   │
│  │ └─┘          └─┘                                  │   │
│  └──────────────────────────────────────────────────┘   │
│  ┌─Playback select──────────────────────────────────┐   │
│  │          L    C    R    LS   RS  Sub   LE   RE     │   │
│  │ Playback 1  ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  │ Playback 2  ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  │ Playback 3  ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  └──────────────────────────────────────────────────┘   │
│  ┌─Speaker Trims────────────────────────────────────┐   │
│  │          L    C    R    LS   RS  Sub   LE   RE     │   │
│  │ Set 1  +0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0    │   │
│  │ Set 2  +0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0    │   │
│  │ Set 3  +0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0|+0.0    │   │
│  └──────────────────────────────────────────────────┘   │
└─────────────────────────────────────────────────────────┘
```

➤ Click the button for the required Stem in the Sub-woof Select box.

The Sub-woof select dialogue box will be displayed.

```
• Sub-woof select •                    Close
Aux   1   :   abcd
Aux   2   :   AbCd
TKS  17   :   TS17
TKS  18   :   TS18
TKS  19   :   TS19
TKS  20   :   TS20
TKS  21   :   TS21
TKS  22   :   TS22
TKS  23   :   TS23
TKS  24   :   TS24
TKS  25   :   TS25
TKS  26   :   TS26

                        Cancel    Execute
```
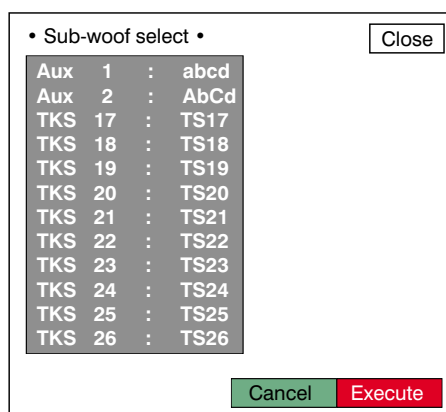
➤ Select the required path from the list.

Note that Auxes can be used for the Sub-Woofer.

➤ Click Execute.

The Sub-woof select dialogue box will be removed and the selected path will be indicated next to the selected Stem. This is also shown next to the Stem letter on the Tracks Setup screen.

Playbacks and Speaker Trims

The PB/SW screen is also used to select the inputs for the Playbacks and for trimming the analogue output level to the speakers.

To change the playback inputs

➤ Click the PB/SW setup button in the Tracks Setup screen.

The PB/SW setup screen will be displayed.

```
• PB/SW setup •                                    Close
┌Sub-woof select──────────────────────┐
│  ┌─┐                  ┌─┐            │
│  │A│   TS 7           │D│   ----     │
│  ├─┤                  ├─┤            │
│  │B│   ----           │E│   ----     │
│  ├─┤                  ├─┤            │
│  │C│   ----           │F│   ----     │
│  └─┘                  └─┘            │
└─────────────────────────────────────┘
┌Playback select──────────────────────────────────────┐
│               L    C    R    LS   RS   Sub  LE   RE   │
│  ┌─────────┐                                          │
│  │Playback 1│ ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  ├─────────┤                                          │
│  │Playback 2│ ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  ├─────────┤                                          │
│  │Playback 3│ ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- │
│  └─────────┘                                          │
└──────────────────────────────────────────────────────┘
┌Speaker Trims─────────────────────────────────────────┐
│               L    C    R    LS   RS   Sub  LE   RE   │
│  ┌─────┐                                              │
│  │Set 1│  +0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 │
│  ├─────┤                                              │
│  │Set 2│  +0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 │
│  ├─────┤                                              │
│  │Set 3│  +0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 |+0.0 │
│  └─────┘                                              │
└──────────────────────────────────────────────────────┘
```

Each playback can have up to eight inputs, corresponding to each speaker position. There are no default Playback inputs.

➤ Click the Playback 1, Playback 2 or Playback 3 button.

The Playback Select dialogue box will be displayed.

```
• Playback Select •                  Close
┌──────────────────┐   ┌──────────┐
│ Inp  1   :  I 1  │   │  Input   │
│ Inp  2   :  I 2  │   ├──────────┤
│ Inp  3   :  I 3  │   │ Monitor  │
│ Inp  4   :  I 4  │   └──────────┘
│ Inp  5   :  I 5  │
│ Inp  6   :  I 6  │
│ Inp  7   :  I 7  │
│ Inp  8   :  I 8  │
│ Inp  9   :  I 9  │
│ Inp  10  :  I 10 │
│ Inp  11  :  I 11 │
│ Inp  12  :  I 12 │
└──────────────────┘
                      ┌────────┬─────────┐
                      │ Cancel │ Execute │
                      └────────┴─────────┘
```

➤ Click on the required Inputs or Monitors that will feed the playback.

Up to eight can be selected. They will be highlighted.

Note: The playbacks are intended for routing finished tracks on a tape machine directly to the surround monitors, so the selected Inputs or Monitors would normally be consecutive. (This does not preclude other uses.)

➤ Click Execute.

The Playback Select dialogue box will close and the selected paths will be displayed in ascending order from left to right against the selected Playback. The order in which the paths are designated to speakers may not be changed.

To change the analogue speaker trims

➤ Click the PB/SW setup button in the Tracks Setup screen.

The PB/SW setup screen will be displayed.

➤ Click the Set 1, Set 2 or Set 3 button as required.

The Edit speaker trims dialogue box will be displayed.

```
• Edit speaker trims •              [ Close ]

Speaker set 1
L     [ 0.0 ]
C     [ 0.0 ]
R     [ 0.0 ]
LS    [ 0.0 ]
RS    [ 0.0 ]
Sub   [ 0.0 ]
LE    [ 0.0 ]
RE    [ 0.0 ]
                          [ Cancel ][ Execute ]
```
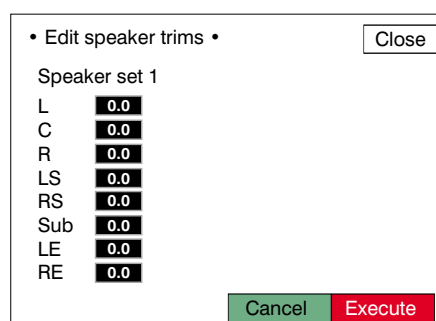
➤ Click in the box for the required level.

➤ Enter a trim value with the keypad or roll the trackball left/right to scroll the value.

➤ Click when the value is correct.

➤ Change other speaker trims as required.

➤ Click Execute.

The Edit speaker trims dialogue box will close and the trim values will be shown in the PB/SW setup screen.

Note: If Set 3 is selected then only the trim values for L and R will have an effect. Speaker Set 3 has outputs for Left and Right only.

Routing to Film Stems

There are two quick methods of routing source paths to track sends used for film stems: routing a single input to a film stem, or routing multiple inputs to a film stem simultaneously.

To route a single input to a film stem

➤ Press the ⬛ key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ⬛ACCESS⬛ key on the desired source path.

➤ Press one of the track send keys which corresponds to a track send in the Film Stem.

The LEDs associated with the set of track sends for the Film Stem will illuminate. Additional Film Stem can be selected.

➤ Press a different ⬛ACCESS⬛ key to change the source path.

➤ Press the ⬛ key on the Routing panel to turn it off and finish.

To route several inputs to a film stem

➤ Press the ⬛ key on the Routing panel.

The LED above the key will illuminate.

➤ Press the ⬛ROUTE⬛ key.

The ⬛ROUTE⬛ key will flash.

➤ Press the number key for one of the track sends in a Film Stem.

The path names on the console surface will flash.

➤ Press the ⬛ACCESS⬛ keys of the required source paths.

➤ Press the ⬛ROUTE⬛ key to end the process.

➤ Press the ⬛ key on the Routing panel to turn it off.

Panning Routed Inputs

Each path that is routed to a Film Stem must have the pan law set according to the desired signal to be sent to the Track Sends in the Stem. This is described on page 1:5.

For instance, if there is an IMAX stem then the pan law on source paths would normally be set to match this. However, it is possible to use different pan laws to achieve different effects. In this example, a the sound of a motorbike crossing the screen could have the pan law set to LCR so that the sound 'sticks' to screen (i.e. the front of the surround field).

Signals that are routed to the Film Stems can be panned using the joysticks that are supplied as part of the CXS. The joysticks provide an intuitive control over surround panning and this is described in the following section on the Joystick Module (see page 1:39).

Also, the FACs on the channel strips or the AFU can be used for panning as usual. See page 1:5.

20.2.3   Using CXS

A Capricorn console with CXS installed supports two monitoring systems: standard stereo monitoring and surround sound monitoring. There are three sets of speakers and the Left and Right speakers are shared by the two monitoring systems. The CXS panel must be switched on to take control of the monitoring system.

To enable CXS to control surround monitoring

➤ Press the [PANEL ON] key.

The key will illuminate and the monitoring system will switch to eight speaker surround output controlled by CXS.

The direct feeds to Left and Right from the standard control room monitoring system will be cut. They can still be selected as a source using the Alternative Monitor Select section (see page 1:32).

Note: It is advisable to move the Music fader to its minimum setting and turn down the level control pot on the Control Room Monitoring section before switching control between standard and surround monitoring. This will prevent sudden loud noises.

Stem Control

The Stem Controls consist of two sets of paddle switches for Stem/Playback selection (also called Bus/Tape switching) and recorder control, a matrix of indicators showing the status of all Stems, track safe keys, cut, solo and stem selection. Stems can be linked so that paddle switches operate in unison.
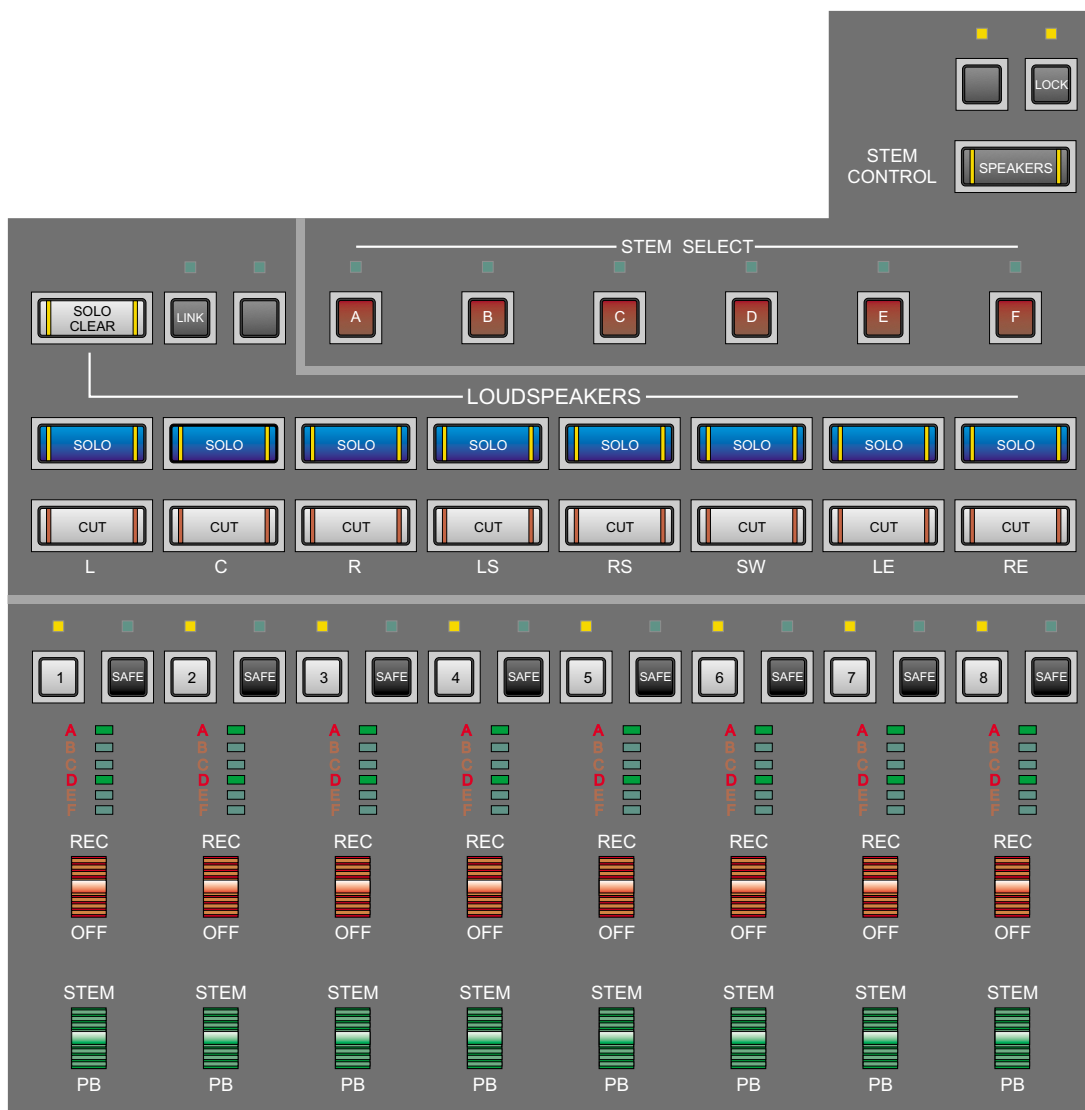
The Stem Select keys (A to F) and Loudspeakers keys (cut and solo) are shared between Stem Control and Monitoring.

To assign the Stem Select, cut and solo keys to Stem Control

➤ Press the [SPEAKERS] key so that it is not illuminated.

To select which Stem to work with

➤ Press the A B C D E or F key.

The LED above the key will illuminate and the keys and paddles will show the status of the Stem.

To select multiple Stems to work with

➤ Press the LOCK key.

The LED above the key will illuminate. The currently selected Stem will remain active.

➤ Press the A B C D E and F keys as required.

The most recently selected stem is active on the keys and switches. If the active stem is de-selected then the active stem will default to the first one available from left to right.

All the selected Stems will be switched by the paddles, CUT SOLO and SAFE keys. When a paddle or key is used then the same switch on other stems will be forced to follow the state of the paddle or key for the active stem.

For instance, Stems A, C and F have been selected and Stem C is active. If the SAFE key for Centre is toggled off then it will also be forced off on Stems A and F.

To switch a Track between the tape send and tape return

➤ Push the required paddle to STEM to monitor the tape send.

➤ Push the required paddle to PB to monitor the tape return.

The paddle will illuminate green when it is switched to PB. The corresponding green LED in the stem status matrix will also illuminate.

To record a Track

The tape machine must be record ready and the Track must not be safe.

➤ Push the required paddle to REC.

The paddle and the corresponding letter indicator in the stem status matrix will flash red until a Rec Tally is returned from the tape machine. The paddle and the indicator will then illuminate red steady.

➤ Push the paddle to OFF when the required material has been recorded.

To make a Track safe

➤ Press the required **SAFE** key.

The LED above the key will illuminate. If the Track was recording then this will be turned off. The default status is all tracks safe.

To force STEM selection when going into REC

➤ Press the **REC= STEM** key.

The LED above the key will illuminate.

When a record paddle is switched to REC, the corresponding STEM/PB switch will be forced to STEM.

To link a group of Stems

➤ Press the **LINK** key.

The LED above the key will flash. The LED above the currently selected Stem will cease to be illuminated.

➤ Press one of the **A** **B** **C** **D** **E** or **F** keys.

The LED above the key will flash. This indicates that the selected Stem is the temporary master for setting up the link.

➤ Press other Stem Select keys.

The LEDs above further selected keys will illuminate steady. Each time a Stem Select key (other than the link master) is pressed the Stem will be toggled in and out of the link.

➤ Press the **LINK** key again to end link setup.

The LED above the key will stop flashing and the LED above the currently selected Stem will illuminate again.

When a Stem in a link is selected then all the other Stems in the link will be selected at the same time, regardless of the status of the **LOCK** key. The LEDs above the appropriate **A** **B** **C** **D** **E** and **F** keys will illuminate.

Multiple links can be setup as required, but they may not overlap. When setting up links, selecting any Stem in an existing link will make it the temporary master for link setup.

To un-link Stems

➤ Press the LINK key.

➤ Press any of the A B C D E or F keys that belong to the required link.

The LED above the key will flash to show it is the temporary master.

➤ Press the keys for the other link members until they are all de-selected.

To link paddle switches, CUT keys, SOLO keys or SAFE keys

➤ Press the LINK key.

The LED above the key will flash.

➤ Push the required paddle switch down (to OFF or PB) or press the required CUT , SOLO or SAFE key.

The paddle, key or LED will flash as appropriate.

The LED above the active stem key will illuminate. This shows that the switches or keys are being linked for that stem. If there is no active stem then the switches or keys may not be linked.

➤ Switch additional paddles or keys as appropriate (e.g. if making a solo group then press SOLO keys).

➤ Press the flashing paddle or key when the link is complete.

➤ If required, make a link for any of the other paddles or switches.

➤ Press the LINK key again to finish.

The link can be deconstructed in the same way as deconstructing a link of stems, as described above (i.e. go to link mode, select a link, remove non-flashing members).

To cut a Track

➤ Press the required [CUT] key.

The key will illuminate.

The signal will no longer be sent to the surround monitors. This does not affect the tape send or return.

To solo a Track

➤ Press the required [SOLO] key.

The key will illuminate. The [SOLO CLEAR] key will flash. The [CUT] keys for all other Tracks in the Stem will illuminate. All the Tracks in other Stems will also be cut.

Only the signal from the path in solo will be sent to the surround monitors.

➤ Press additional [SOLO] keys to monitor a custom combination of Tracks.

Tracks from other Stems can also be monitored by selecting the Stem and then pressing the appropriate [SOLO] keys.

Each time a [SOLO] key is pressed it will be toggle on or off.

To cancel solo

➤ Toggle off all the [SOLO] keys that are on.

or

➤ Press the [SOLO CLEAR] key.

Surround Monitoring with CXS

The Stem Select keys (A to F) and Loudspeakers keys (cut and solo) are shared between Stem Control and Monitoring.

To assign the Stem Select, cut and solo keys to Monitoring

➤ Press the [SPEAKERS] key so that it is flashing.

To adjust the overall monitor level

➤ Rotate the Control Room Level pot to the required setting.

or

➤ Press the [MUSIC FADER] key.

The LED above the key will illuminate. Level control will be transferred to the Music Fader.

➤ Move the Music Fader to the required setting.

To select a Stem for monitoring

➤ Press the [A] [B] [C] [D] [E] or [F] key.

The LED above the key will illuminate. If another Stem was selected it will be de-selected.

To select no Stems to the monitor

➤ Press the [A] [B] [C] [D] [E] or [F] key that is currently selected.

The LED above the key will cease to be illuminated. This is useful for listening to a Playback or the Dialogue input by itself.

To select multiple Stems to the monitor

➤ Press the [LOCK] key.

The LED above the key will illuminate.

➤ Press the required [A] [B] [C] [D] [E] and [F] keys.

The LEDs above the selected keys will illuminate. The Stems will be summed to the monitors.

To monitor a Playback

➤ Press the [ON] key for the required Playback.

The selected Playback will be added to the monitor mix.
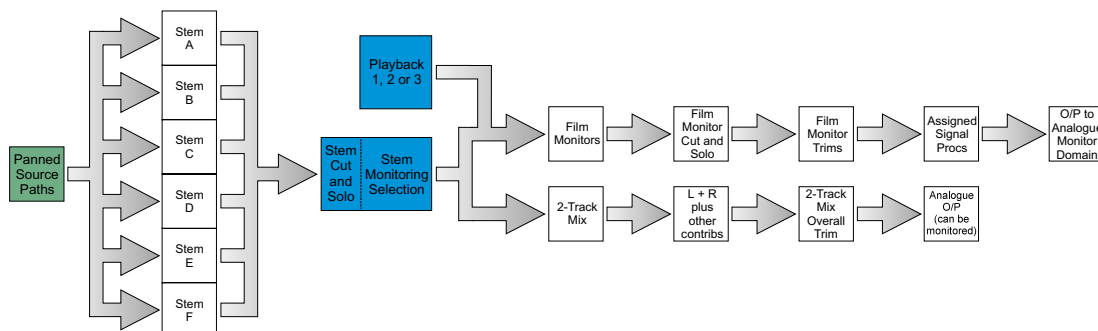
Only one Playback can be selected at a time. If a different Playback is selected then the current Playback will be de-selected.

To adjust the level of the Playback

➤ Press the [TRIM] key for the required Playback.

The LED above the key will illuminate.

➤ Rotate the adjacent trim pot to the required level.

The level will be shown in the alphanumeric display at the top of the panel.

The trim pot has the same range as a standard Capricorn fader.

Note: It is advisable to set the trim pot to 0dB (unity gain) or below to prevent sudden jumps in level. The level defaults to 0dB when trim control is off.

To monitor the analogue Dialogue input

➤ Press the Dialogue [ON] key.

The key will illuminate.

➤ Press the [C] or [L-R] key.

The LED above the selected key will illuminate.

The [C] causes the Dialogue to be summed to the Centre speaker and the [L-R] key sends the left and right legs of the Dialogue to the Left and Right speakers.

➤ Rotate the level control pot the the required setting.

The setting will be shown on the alphanumeric display at the top of the panel.

Note: Dialogue is not included in the signal shown on the meters.

To use the Dialogue Fader to control the Dialogue level

➤ Press the [FADER] key.

The LED above the key will illuminate. The Dialogue level will change to match the fader level.

To switch the insert into the Film Monitor

➤ Press the [INS IN] key.

The LED above the key will illuminate.

This is a standard insert that is added to the Film Monitor paths (Cues 9 to 16) with Path Configuration (see page :).

Note: The insert can be switched in and out of individual Film Monitors (Cues) using the AFU.

To switch in the Academy Filter

➤ Press the [ACAD] key.

The LED above the key will illuminate and the Academy Filter will be switched into the analogue monitoring path.

To monitor a selectable mono mix

➤ Press the [MONO SEL] key.

The LED above the key will flash.

The [SOLO] and [CUT] keys in the Loudspeakers section will now control selection of the mono mix.
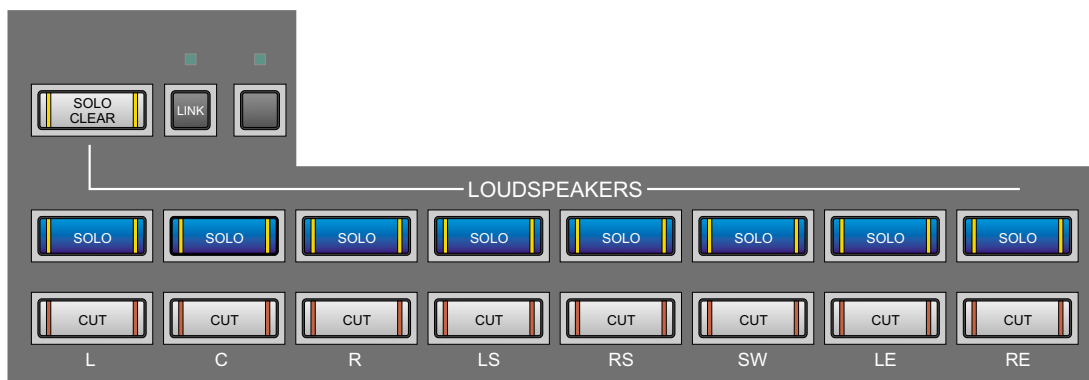
The [SOLO] keys select the sources - the sources are the analogue feeds to the speakers according to the current monitoring selection (see diagram on following page). The [CUT] keys select which speakers the mix will be monitored on.

The previous selection is restored when the mono mix is engaged.

➤ Press the required [SOLO] keys to toggle the sources on and off.

➤ Press the required [CUT] keys to toggle the speaker destinations on and off.

LS and RS are selected as a pair. LE and RE are selected as a pair. At least one destination must be selected (i.e. if there is only one destination selected it may not be turned off).

Note: This does not affect or include the Dialogue input.

➤ Press [MONO SEL] or [SPEAKERS] to return to cancel mono mix selection.

To listen to the mono mix

➤ Press the [MONO] key on the Control Room Monitoring section.

This can be done at the same time as selecting the mono mix to listen to various combinations as they are made.

To monitor an alternative source

➤ Press the required key in the Alt Mon Select section.

The LED above the key will illuminate.

The selected source will replace the feed from the Film Monitors. The keys are interlocked, so that selecting one will cancel the existing selection.

The following simplified diagram shows how the current monitor source is used in the analogue domain of the CXS:

Direct output from Capricorn stereo monitoring (CAP LS) to selected speaker set when CXS is switched off (PANEL ON key not illuminated)
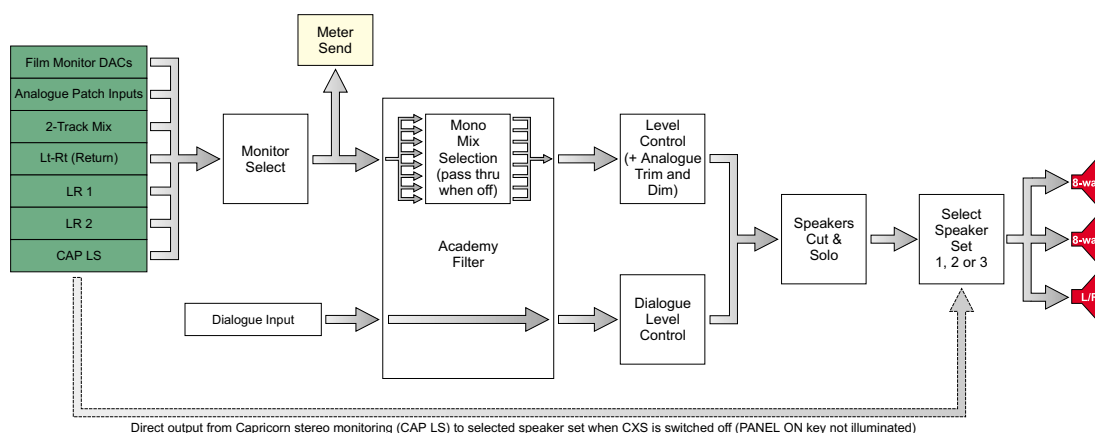
The PATCH key selects the analogue patch input. This could be used for a Dolby Encoder/Decoder return, for instance.

The LT-RT key selects the Lt-Rt return from the Dolby Matrix Encoder.

The 2T key selects the analogue output from the 2-Track Mix.

The CAP LS key selects the output from the standard Capricorn monitoring system, as set on the Control Room Monitoring section (including phase reversal, cut right/left, etc.). This does not bypass the rest of the analogue monitoring system unless the PANEL ON key is turned off (as shown above).

Note: When a speaker set is selected, it is changed on both the normal Capricorn monitoring system and the CXS.

The $\boxed{\substack{L\,R\\1}}$ and $\boxed{\substack{L\,R\\2}}$ keys select the first and second spare analogue Left/Right inputs.

To solo the Film Monitors

➤ Press the required [SOLO] key.
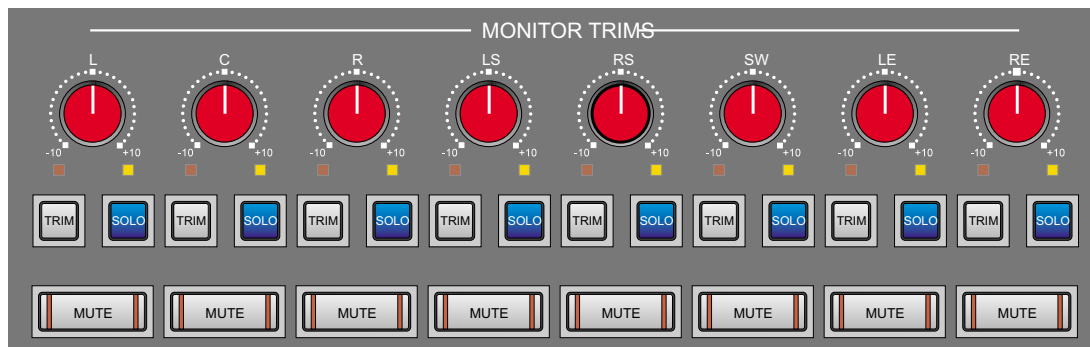
The LED above the key will illuminate and the [MUTE] keys for the other Film Monitors will illuminate. The muted Film Monitors will send no signal to the analogue part of the monitoring system.

➤ Press additional [SOLO] keys as required.

➤ Press the active [SOLO] keys to cancel solo.

Note: This is separate from the normal solo mechanism that operates on the Capricorn console. Solo on a Film Monitor (Cue) from a channel strip or the AFU will be sent to the APL bus.

To cut individual Film Monitors

➤ Press the required [MUTE] keys.

The key will illuminate. The muted Film Monitors will send no signal to the analogue part of the monitoring system.

Note: Film Monitor cut and solo do not affect the 2-Track Mix or Dialogue input.

To solo the analogue speaker outputs

➤ Press the ⟦SPEAKERS⟧ key so that it is flashing.

➤ Press the ⟦SOLO⟧ key for the required speaker.

The key will illuminate and the ⟦CUT⟧ keys for the other speakers will illuminate. The ⟦SOLO CLEAR⟧ key will flash.

➤ Press ⟦SOLO⟧ keys for additional speakers as required.

➤ Press ⟦SOLO CLEAR⟧ or turn off the individual ⟦SOLO⟧ keys to end speaker solo.

To cut the analogue speaker outputs

➤ Press the ⟦SPEAKERS⟧ key so that it is flashing.

➤ Press the ⟦CUT⟧ keys for the required speakers.

The keys will illuminate. The selected speakers will receive no audio.

➤ Press the ⟦CUT⟧ keys again to restore audio to the speakers.

To select the set of speakers in use

➤ Press the ⟦SPK1⟧ ⟦SPK2⟧ or ⟦SPK3⟧ key in the Control Room Monitoring section as required.

The LED above the selected key will illuminate.

Note: The ⟦SPK3⟧ key selects output to a stereo pair only. This could be used for testing a mix on near field speakers, for instance.

To use both rear speakers for monitoring LCRS format

➤ Press the ⟦LS>RS 4>5⟧ key.

The LED above the key will illuminate.

The signal being fed to the Left Surround speaker will now also be fed to the Right Surround speaker. This will replace the normal feed to the Right Surround speaker.

2-Track Mix

The 2-Track Mix is a stereo mix created from the current selection of monitored Stems. Cut and solo on the Stems also affects the 2-Track Mix.
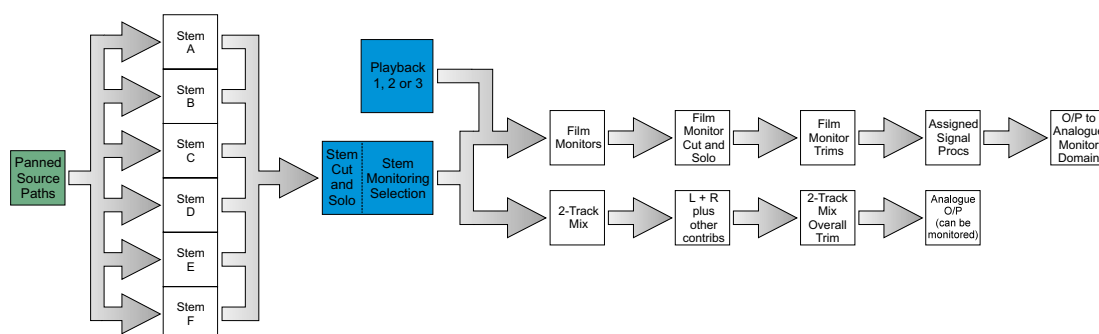
The basic 2-Track Mix uses the whole of the signal for Left and Right. The signals for Centre, Sub-Woofer, LS/RS (as a pair) and LE/RE (as a pair) can be switched into the mix and trimmed as required. The resulting stereo mix then has an overall level trim.

Note: The 2-Track Mix must be enabled in the Path Assignment Screen (see page 1:12).

To switch on the 2-Track Mix

➤ Press the [ON] key in the 2T Output section.
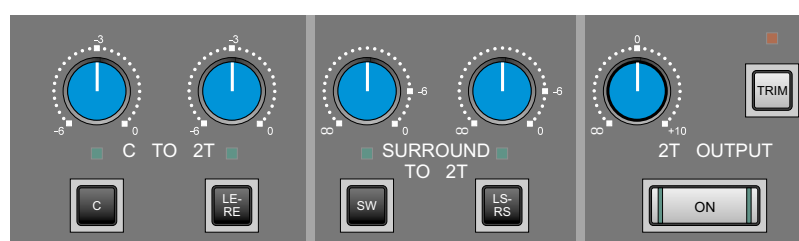
To adjust the overall 2-Track Mix output level

➤ Press the [TRIM] key in the 2T Output section.

➤ Rotate the trim pot to the required level.

The level will be shown in the alphanumeric display at the top of the panel.

Note: When the [TRIM] key is off the signal will be passed through at unity gain.

To add the Centre signal to the 2-Track Mix

➤ Press the [C] key in the C To 2T section.

The LED above the key will illuminate. The signal will be divided evenly across the left and right legs (i.e. no pan).

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Left Extra and Right Extra signals to the 2-Track Mix

➤ Press the [LE-RE] key in the C To 2T section.

The LED above the key will illuminate. Left Extra will go to the left leg and Right Extra will go to the right leg of the 2-Track Mix.

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Sub-Woofer signal to the 2-Track Mix

➤ Press the [SW] key in the Surround To 2T section.

The LED above the key will illuminate. The signal will be divided evenly across the left and right legs (i.e. no pan).

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

To add the Left Surround and Right Surround signals to the 2-Track Mix

➤ Press the [LS-RS] key in the Surround To 2T section.

The LED above the key will illuminate. Left Surround will go to the left leg and Right Surround will go to the right leg of the 2-Track Mix.

➤ Rotate the trim pot above the key to the required setting.

The maximum is unity gain (0dB).

20.3   Joystick Module

The Joystick Module is an option for the Capricorn and allows full panning control of up to two paths. The controls are fully automated.
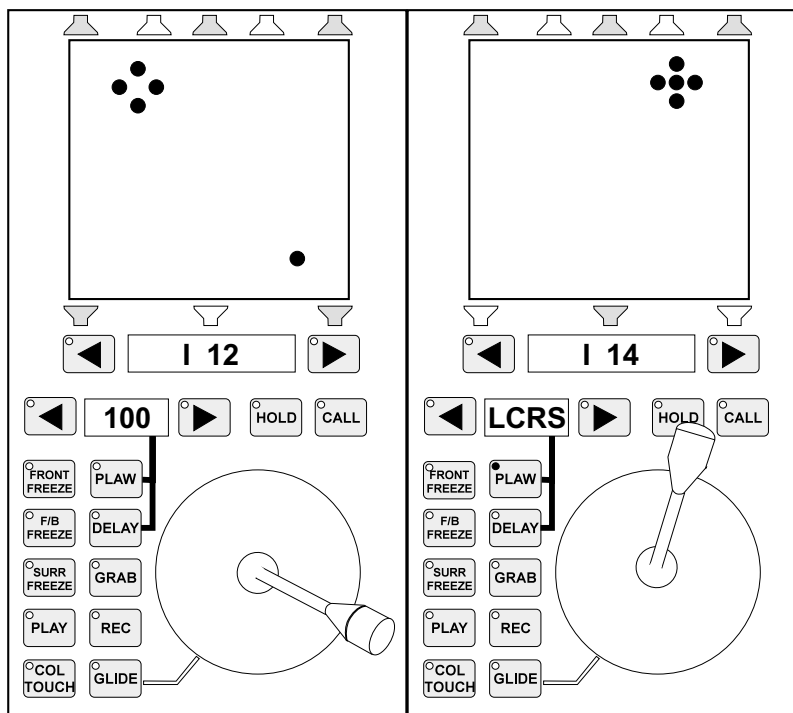
20.3.1   Joystick Module Displays

The green LED matrix display panel shows a diamond of four dots and a separate dot.

The diamond shows the pan position within the soundfield (i.e. where the audio sounds like it is coming from to someone sat in the middle of the surround field), and the dot shows the joystick position.

The diamond and the dot can move independently or together, depending on the controls being used.

The red speaker symbols above and below the LED matrix show the speakers which correspond to the current pan law as they would be used in the final listening environment. The top row are for L, LE, C, RE and R speakers. The bottom row are for LS, CS (or TOP) and RS speakers.

The larger alpha display (immediately below the surround speaker symbols) shows the current path and the smaller alpha display shows the width/divergence setting or the current pan law.

20.3.2   Control Replication

The joystick is used to replicate the actions of the three surround panning FACs (front speaker pan, front/back pan and surround split) which are active when the `FILM` key on the FAC Selection panel is enabled. The `FILM` key does not need to be enabled for the joystick to pan the sound.

The `PLAW` key replicates the top FAC on the channel strip for pan law selection.

The `PLAY` `REC` `COL TOUCH` and `GLIDE` keys replicate the strip automation keys.

Changes to controls on the Joystick Module will show on the strip for the currently selected path and vice versa. The changes will also register on the AFU if the path on the joystick is accessed and panning control changes will show on the AFU if the `FILM MODE` key is enabled.

20.3.3   Selecting the Path to Pan

The path to pan with a joystick can be selected by calling a path into the AFU or using the path stepping keys below the joystick.

To call the path into the AFU and the Joystick Module

➤ Press the `ACCESS` key on the required path.

The path will be called to all joysticks which are not held (see below).

The diamond on the green LED matrix will jump to the pan position set for the path and the speaker symbols will illuminate according to the selected pan law.

To select the path using the path stepping keys

➤ Press the `◄` or `►` key next to the large alpha display.

The alpha display will step through the user defined path names on the primary access bank.

The diamond on the green LED matrix will jump to the pan position set for the path and the speaker symbols will illuminate according to the selected pan law.

To hold the current path and prevent selection with the `ACCESS` key

➤ Press the `HOLD` key.

The [ACCESS] keys will be prevented from changing the current path on the joystick.

The [◀] and [▶] keys will still operate for path selection.

To take the path off the joystick

➤ Press the [◀] and [▶] keys together.

The alpha displays will go blank, the red speaker symbols will cease to be illuminated and the LED matrix will show only the joystick position dot.

20.3.4   Pan Law

The pan law may be selected using keys on the Joystick Module in addition to using FACs on the strip and AFU.

To select the pan law

➤ Press the [PLAW] key.

The integral LED will illuminate.

➤ Press the [◀] or [▶] key next to the smaller alpha display.

The alpha display will step through the available pan laws.

The red speaker symbols above and below the green LED matrix will illuminate according to the pan law selected.

20.3.5   Panning the Sound

The main joystick display (green LED matrix) shows a diamond and a dot which can move independently or together as a solid cross. The diamond shows the panned position of the source within the sound field. The dot shows the current position of the joystick.

The diamond may be 'grabbed' to the joystick position or picked up as the dot passes through it.

To pick up the diamond

➤ Press the [CALL] key.

The integral LED will illuminate red.

➤ Move the joystick so that the dot passes through the diamond.

The integral LED on the [CALL] key will turn green.

Note: If the LED flashes red, this indicates a touch conflict with another film or pan control on the console.

Note: The [CALL] key puts the joystick into touch on the three pan control functions. This means the corresponding FACs on the strip and AFU will be locked out (if they are in film mode) and will indicate touch conflict if an attempt is made to use them.

Further movement of the joystick will pan the sound. The diamond and the dot will move together as a cross.

To grab the diamond

➤ Press the [GRAB] key.

The diamond will jump to the position of the dot and the integral LED on the [CALL] key will turn green.

Movement of the joystick will pan the sound. The diamond and the dot will move together as a cross.

To release the diamond

➤ Press the [CALL] key.

The LED will cease to be illuminated.

The dot will move away from the diamond when the joystick is moved.

Joystick touch sensitivity

The joystick itself is not touch sensitive. The [CALL] key puts the joystick into touch so that it takes control of the panning functions.

20.3.6   Width/Divergence

Width/divergence is controlled using the [◀] and [▶] keys on either side of the small alpha display.

To adjust width/divergence

➤ Ensure the LED in the [PLAW] key is not illuminated.

➤ Press the ◀ or ▶ key on either side of the small alpha display to decrease or increase the setting.

The alpha display will show a range from NARO to WIDE with a range of 1 to 27 in between (i.e. NARO is 0 and WIDE is 28).

20.3.7   Pan Freezing

Three keys are used to freeze each aspect of panning. They restrict the movement of the diamond to show the effect of reduced axis panning.

To freeze a panning axis

➤ Press the [FRONT FREEZE] [F/B FREEZE] or [SURR FREEZE] key as required.

The [FRONT FREEZE] key freezes panning across the front speakers.

The [F/B FREEZE] key freezes panning between the front and rear surround speakers.

The [SURR FREEZE] key freezes panning across the rear surround speakers.

The integrated LED on the key pressed will illuminate.

Any combination of keys may be pressed (assuming the selected pan law allows the relevant panning action).

Movement of the joystick will now cause the dot and diamond to separate as the diamond moves to show the panned position of the sound.

Note: When a freeze key is enabled, the corresponding pan function is taken out of touch on the joystick. This means the FAC on the strip or AFU can be used to adjust the value while the freeze key is enabled.

To un-freeze a panning axis

➤ Press the required freeze key which has its LED illuminated.

The diamond will snap to a new position based on the current joystick position and any remaining freeze keys which are active.

If only one freeze key was active, the diamond will snap to the dot.

20.3.8   Joystick Automation

The automation system only records changes to the settings for the three pan controls, the width/divergence setting and the pan law selection. No recording is made of which controls on the console surface were used to set the value.

This means that when a mix is replayed, the joystick or the panning FACs can be used in any combination to change the mix.

Note: When CALL key is enabled (i.e. green LED), the panning functions are in touch and the pan position will overwrite existing moves until the key is released.

Tip - Grabbing a moving diamond

The GRAB key is useful when replaying a mix. If a path is panning rapidly, the diamond on the LED matrix will move to reflect this rapid panning. This can make the diamond hard to pick up when using the CALL key. The GRAB key will cause the diamond to snap to the dot and give control to the operator.

Glide

Releasing the CALL key in auto-glide mode will cause the diamond to glide back to match the current mix/pass position.

The CALL key will be forced to release control of the panning functions when the GLIDE key is pressed and the diamond will glide back to match the current mix/pass position.

Tape machine controls

The CALL key will be released when the tape machine drops out of play (i.e. when it is stopped, put into fast forward, etc.).

20.4   Capricorn Surround Panel (CSP)

The Capricorn Surround Panel is an option which uses keys which replace the top three rows of transport keys, as shown below.
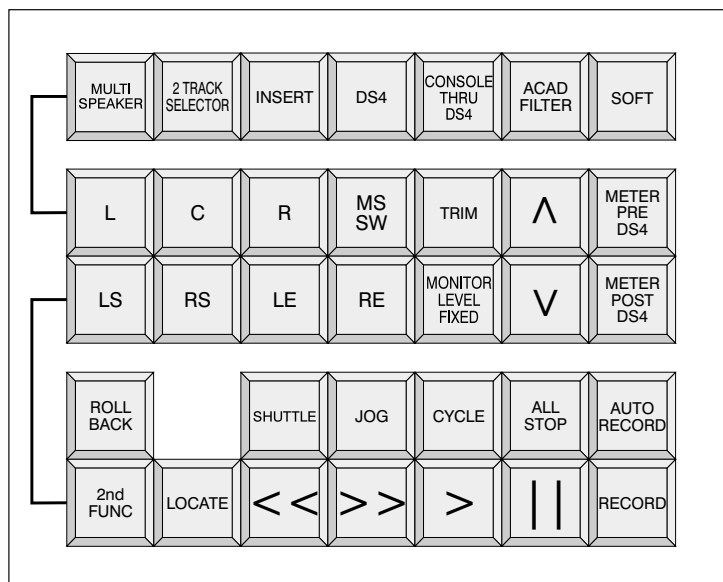
20.4.1   Enabling and Disabling the CSP

The CSP must be enabled before any of its functions will operate.

To enable the CSP

➤ Press the [MULTI SPEAKER] key.

The key will illuminate.

The multi speaker monitor system will be engaged.

The other CSP keys will be enabled.

To disable the CSP

➤ Press the [MULTI SPEAKER] key again.

The key will cease to be illuminated.

The other CSP keys will be disabled.

20.4.2   Speaker Selection

Eight keys are provided for speaker selection:
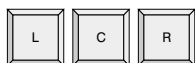
| L | C | R | Left, Centre and Right

| LS | RS | LE | RE | Left Surround, Right Surround, Left Extra and Right Extra

| MS SW | Mono Surround and Sub Woofer

Note: When the CSP is enabled, the speaker select keys [SPK1] [SPK2] and [SPK3] in the monitor section are used to select between three sets of speakers. Each set of speakers has 8 speaker outputs. This provides a total of 24 speaker feeds.

To select the speaker outputs

➤ Press the [L] [C] [R] [LS] [RS] [LE] [RE] and [MS SW] keys as required.

Each key will illuminate when it and the associated speaker is enabled.

To trim the loudspeaker output level

➤ Press the [TRIM] key.

The key will blink.

➤ Press the required speaker selection key.

The key will illuminate.

The 16 character display on the CSP meter bridge will show the current trim for the selected speaker.

➤ Press the [∧] or [∨] keys.

Each press will step the trim up or down by 0.1dB.

The display will show changes in the trim value.

To zero the trim value

➤ Press the ⌃ and ⌄ keys together.

To change the trim value rapidly

➤ Hold down the ⌃ or ⌄ key as required.

The trim valued will change at the rate of 10 steps per second.

Note: Trims are individual for each loudspeaker in a group of loudspeakers.

Note: Trim values are stored and recalled when the system is powered down and up again.

20.4.3   Monitoring Other Sources

Sources other than the CSP monitor output may be monitored when the CSP monitor is active. The output from the alternative source is sent to the control room left and right speakers via the headphones output. The headphones output is effectively placed into Follow Monitor mode for this function.

To select an alternative monitor source with CSP active

➤ Press the ⌧EXT⌧ ⌧AUX⌧ ⌧CUE⌧ or ⌧FOL ACC⌧ key in the Control Room Monitor panel.

The associated LED will illuminate.

The ⌧2 TRACK SELECTOR⌧ key will illuminate.

The selected source will be heard on the left and right speakers instead of the CSP monitor signal.

OR

➤ Press the ⌧O/P⌧ key.

The associated LED will illuminate.

The ⌧2 TRACK SELECTOR⌧ key will now control whether the CSP monitor source or control room monitor 2-track output is sent to the speakers.

➤ Press the ⌧2 TRACK SELECTOR⌧ key.

The key will illuminate.

The 2-track output will be heard on the left and right speakers instead of the CSP monitor signal.

Note: The level of the left and right speakers is still controlled by the level set using the control room monitor level control, plus trim applied in the CSP.
The headphones level control will have no effect.

20.4.4   Inserts

To enable an analogue insert across all eight monitor paths

➤ Press the [INSERT] key.

The key will illuminate.

The insert return will be switched in.

Note: The send is always hot.

To enable a second insert across all eight monitor paths

➤ Press the [DS4] key.

The key will illuminate.

The DS4 insert will follow the insert engaged by the [INSERT] key (as above) in the signal path.

Note: This is intended for switching Dolby DS4 or a similar encode/decode device into the monitor feeds.

Note: If the [2 TRACK SELECTOR] key is enabled (lit) then this insert will be disabled. The [CONSOLE THRU DS4] key can be used to force [DS4] to be active as described below.

To enable DS4 when monitoring a different source

i.e. Enable [DS4] when the [2 TRACK SELECTOR] key is illuminated.

➤ Press the [CONSOLE THRU DS4] key.

The key will illuminate.

➤ Ensure the [DS4] key is illuminated.

The selected source will now be monitored via the DS4 insert.

Note: The most recent status of the ⬜DS4 key is stored. If it was enabled

and then cut out by engaging the ⬜2 TRACK SELECTOR key (or other monitor

source) then ⬜DS4 will engage as soon as ⬜CONSOLE THRU DS4 is pressed.

Note: ⬜CONSOLE THRU DS4 has no effect if the CSP is not enabled.

20.4.5   Mono Mixes and Academy Filters

A mono mix can be monitored through an Academy Filter with one of three pre-defined curves - X (Standard), Small Room and Cascade.

To select a mono mix from the CSP feeds

➤ Hold down the ⬜MONO key (in the Control Room Monitoring section) and press the desired speaker selection keys in the CSP.

The LED associated with the ⬜MONO key will illuminate.

The selected speaker keys will illuminate.

A mono mix of the selected feeds will be heard on the centre or left and right speakers.

Note: As more channels are summed, the level is adjusted to maintain

constant output level.

To select a mono mix from the standard mix bus

➤ Hold down the ⬜MONO key (in the Control Room Monitoring section) and press any speaker selection keys in the CSP which are illuminated.

This will deselect all feeds to the mono mix from the CSP.

The mono mix will be taken from the Control Room Monitoring selection.

MONO Group will be displayed on the CSP meter bridge display.

To select the Academy Filter curve

➤ Hold down the [ACAD FILTER] key.

The 16 character display on the CSP meter bridge will cycle through the three curve options - X, Small Room and Cascade.

➤ Release the [ACAD FILTER] key when the desired curve is displayed.

To enable the Academy Filter

➤ Press the [MONO] key if it is not already enabled.

Note: The Academy Filter will not become active if [MONO] is not enabled.

➤ Press the [ACAD FILTER] key.

The key will illuminate.

Note: The on/off state of the [ACAD FILTER] key is stored when mono mode is disabled, ready for the next time mono is used.

To select the mono mix output speakers

➤ Ensure that mono is active on the console, i.e. the LED for the [MONO] key is illuminated.

➤ Press the [L] [C] and [R] keys on the CSP as required.

Note: Valid combinations are Centre or Left and Right, but not all three.

Note: The mono mix output can only be routed to these three speakers.

To trim the mono output level

➤ Hold down the [MONO] and press the [∧] and [∨] keys.

Each press of the [∧] and [∨] keys will adjust mono sum output in 0.1dB steps.

20.4.6   Solo

The CSP has the facility to allow a solo signal through to the control room speakers when a solo is engaged on the console. This will cut the output from the CSP so that only the solo is heard.

To enable solo to be heard when the CSP is enabled

➤ Engage a solo anywhere on the console.

➤ Press the [SOFT] key.

The [MULTI SPEAKER] key will flash.

Note: If there is no solo active on the console the [SOFT] key will have no effect.

The CSP monitor output will switch to the [2 TRACK SELECTOR] path and the SOLO signal will go to the speakers.

To exit solo mode

➤ Press RESET on the console.

This will deselect the [2 TRACK SELECTOR] monitor immediately.

OR

➤ Release the SOLO directly.

The [MULTI SPEAKER] key will stop flashing.

The solo will time out after approximately 250ms after the last transition of the RESET lamp.

20.4.7   Speaker Level Fixed

The CSP provides a facility for using a fixed speaker level which also prevents the Control Room Monitoring level control from adjusting the output level to the loudspeakers.

To select a fixed output level to the speakers

➤ Press the [MONITOR LEVEL FIXED] key.

The key will illuminate.

The Control Room Monitoring level control will not have any effect on the output level or the value shown in its associated display.

Note: Use caution when using [MONITOR LEVEL FIXED] for the first time. First selecting DIM on the console will prevent excessively high output levels.

Note: Any adjustment made with the Control Room Monitoring level control will have effect when [MONITOR LEVEL FIXED] is released.

To adjust the fixed output level

➤ Hold the [MONITOR LEVEL FIXED] key down and press the [∧] or [∨] keys.

The level will be adjusted in 0.1dB steps.

The loudspeaker output level will change.

To zero the fixed output level to 85dB reference

➤ Press the [MONITOR LEVEL FIXED] [∧] and [∨] keys together.

To adjust the fixed level relative to the control room level

➤ Hold the [MONITOR LEVEL FIXED] and [TRIM] keys down and press the [∧] or [∨] keys.

The reference level displayed in the Control Room Monitoring level display will be adjusted in 1dB steps.

This sets the level displayed for the fixed level relative to the level in the control room when 0 is displayed on the Control Room Monitoring level display.

The level from the loudspeakers will not be changed.

To zero the display reference to 85dB

➤ Press the [MONITOR LEVEL FIXED] [TRIM] [∧] and [∨] keys together.

20.4.8   Metering Point

The pick off point for the CSP meters may be selected between pre and post the DS4 encoder/decoder insert.

To meter the signal before the DS4 insert

➤ Press the [METER PRE DS4] key.

The key will illuminate.

If the [METER POST DS4] key is illuminated, it will cease to be illuminated.

To meter the signal after the DS4 insert

➤ Press the [METER POST DS4] key.

The key will illuminate.

If the [METER PRE DS4] key is illuminated, it will cease to be illuminated.

Note: The [METER PRE DS4] and [METER POST DS4] keys are interlocked.

To disable CSP metering

➤ Press the [METER PRE DS4] or [METER POST DS4] key which is illuminated.

No signal will be fed to the CSP meter bridge.

20.4.9   Resetting The Console

If the console has been reset, the CSP may not get the correct message from Capricorn. This may cause the CSP to cease operating correctly. There are two ways to force the CSP to operate correctly.

There is also an initial 3 minute delay to allow Capricorn to boot up. The operator can override the delay to allow immediate use of the CSP.

To force the CSP to operate immediately after a console reset

➤ Press the [MULTI SPEAKER] and [SOFT] keys together.

The CSP will be forced into active mode and the 3 minute delay will be overridden.

To force a full reset of the CSP

➤ Turn the control room monitor level control all the way to down to -103dB.

Note: If this is not done, output signal levels may be excessively high when the CSP is restarted.

➤ Press the [MULTI SPEAKER] [SOFT] and [MONITOR LEVEL FIXED] keys together.

A full reset of the CSP will be forced, and the CSP RAM buffers will be flushed.

Loudspeaker offset levels will be lost.

➤ Re-enable the CSP by pressing [MULTI SPEAKER] and [SOFT] as above.