ALPHA SYSTEM PLUS WITH bluefin HIGH DENSITY SIGNAL PROCESSING

Upgrade Information - FOR INTERNAL USE ONLY

ISSUE 10

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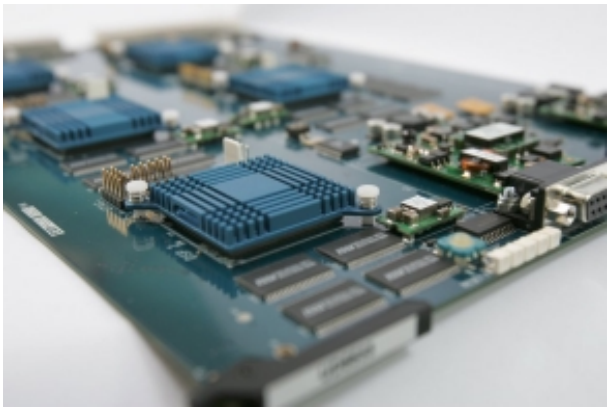


INTRODUCTION

Introducing Bluefin, a revolutionary new High Density Signal Processing system which provides 200% more processing power in 92% less physical space…and at no extra cost.

The Bluefin High Density Processing System provides 480 equivalent mono signal paths - and can provide this incredible power on just one card.

The Bluefin technology project has been in development for a number of years and elements of the technology have been used in the Alpha console since its launch in 1999. It is a proprietary architecture which is has been conceived and developed entirely within Calrec.

The reality of HD programming is that it will continue to create more demand for 5.1 content. This technology meets production needs for HD production and live to air delivery far into the future.

Bluefin processing provides benefits beyond size and functionality. Calrec Alpha products have an unrivalled history of reliability and Bluefin further enhances this. The design generates less heat, uses less power and back-plane activity is reduced. System resilience is improved by 100% redundancy of all processing elements through the provision of a second card – it is like having another console as a hot spare.

Calrec's continued commitment to customer value means Bluefin technology is fully retrofit-able to existing Alpha consoles. Having to increase console capacity to cope with HD television will not involve buying a new desk for existing Calrec users.

New Features
For Alpha, there will be 480 mono equivalent channels, configured as 162 stereo plus 156 mono channels, with the capability for up to 78 surround channels (constructed from the available resources). There will only be one pack size, and it will not be possible to swap stereo for mono in the config.

There are 96 pairs of assignable inserts (These are signals available, not ports).

All 8 groups can be mono, stereo or 5.1 surround.

EQ/Filters are now available on groups. There are an extra 2-band EQ and 2-band Filter dedicated to Dynamics on each channel and group.

Every channel and group can produce a direct output simultaneously. All surround channels and groups have surround direct outputs with the option to downmix the output to stereo instead. The mix-minus of a surround direct output is a true mix-minus of the whole surround channel or group.

PFL from surround paths to Main or Small LS and PFL to Mon are surround, but the PFL LS output is still stereo.

There are an extra 64 mono legs of buss/output metering (total now 256 mono legs) and the ability to have up to 128 phase meters (instead of 3) using 2 mono legs each.

Channel input delay increases to 256 mono legs of 2.73 seconds. There are 2.73 seconds of delay available on each group.

The amount of rack space needed is reduced as the DSP rack and fan tray are no longer required.

Power consumption and the amount of heat generated are reduced, and because far fewer components are used, reliability is enhanced as there is less to fail.

Input and Output Options (In Addition to Previous Combinations)
There are the following additional combinations of Bulk, WAB and AES cards:

5 Bulk/WAB + 1 WAB + 5 AES cards, or
5 Bulk/WAB + 2 WAB + 4 AES cards, or
5 Bulk/WAB + 3 WAB + 2 AES cards (note: 1 AES slot can't be used as the extra WAB needs these timeslots).

Therefore, Bluefin Alpha has the capacity for an additional 256 mono legs of I/O to be used simultaneously, using Hydra or MADI. The Bulk/WAB slots can still be AES if less Bulk/WAB cards are needed, but that reduces the total quantity of I/O possible.

To calculate the total I/O capability:
WAB cards provide 128 mono I/O. AES cards provide 16 stereo (32 mono). Therefore, the largest system (in terms of I/O) would have 8 WAB + 2 AES = 1024 mono on WAB + 32 stereo AES. If you allow for a redundant WAB, this reduces to 896 on WAB + 32 stereo AES. If all WAB I/O was AES on Hydra, you could have 448 + 32 = 480 stereo AES on the system. In addition, because it's Hydra more I/O can be connected, providing not all of it is patched at the same time.

Hardware

The new DSP card for Bluefin Alpha (**UD5533**) has the capacity for 480 mono equivalent channels. This card replaces **all** the DSP cards in the old system. A second provides redundancy.

A new core processor (**UN5469**) and rack processor (**UN5384**) are required.

The existing DSP rack is no longer required. For new consoles, Alpha and Sigma will use the same Digital I/O rack (**EA5494-2 with HN5489-2 backplane**).

During upgrades, the Alpha DSP rack and fan tray (if seperate) will be taken away. The RS422 FAST connection to the DSP Rack must be re-plugged up to the Digital I/O Rack. All of the DSP cards in the existing Digital I/O rack are removed, and the two new DSP cards are inserted into two of the empty slots.

Of the 11 AES card slots in the Digital I/O Rack, 8 can be occupied by bulk (max 5) or WAB cards. If a WAB is used in slot 15, then AES slot 20 cannot be used. Only use a WAB in slot 15 if the maximum 8 WAB cards are needed.

Digital I/O Rack Slot Arrangement		
SLOT	COMPATIBLE CARD	Unit Number(s)
1-7	DSP (ONLY 2 NEEDED - 1 PLUS HOT SPARE) USE SLOTS 2 AND 4	UD5533
8-9	RACK PROCESSOR	UN5384
10	AES, BULK OR WAB	JI5173, JD5174, OD5362
11	AES OR WAB	JI5173, OD5362
12	AES, BULK OR WAB	JI5173, JD5174, OD5362
13	AES OR WAB	JI5173, OD5362
14	AES, BULK OR WAB	JI5173, JD5174, OD5362
15	AES OR WAB	JI5173, OD5362
16	AES, BULK OR WAB	JI5173, JD5174, OD5362
17	AES	JI5173
18	AES, BULK OR WAB	JI5173, JD5174, OD5362
19	AES	JI5173
20	AES	JI5173

All VBUS leads are now removed, as are the RS422 & TCLK links to the Digital I/O Rack. The power link cable to the DSP rack from the Digital I/O rack should be removed, but the DSP power from the Bulk PSU should be plugged into either J100 or J101 on the Digital I/O Rack.

The debug connections from the processors to the rocket port may change due to losing the DSP rack processors.

There will be new EQ/Filter, Dynamics, Auxiliary, Aux Output, Channel Control, Input/Output, Memory & I/O Matrix, Routing and Delay panels. Panel changes will be introduced such that it will be possible to upgrade consoles in the field.

Software/Firmware

There will be two versions of software to be supported for Alpha, one for “Classic” Alpha and one for “Bluefin” Alpha.

There will be no DSP tasks as on the old DSP cards.

The DSP card (**UD5533**) will have to be preprogrammed with the correct software and firmware. A laptop can connect to the DSP card via an RJ45 ethernet port and network cable to reprogram the card in the field, using Hyperterminal. It should be possible for distributors to program these.

There will be new firmware required for some modules used in consoles with Bluefin. It must be stressed that cards or modules programmed with the firmware for Bluefin **WILL NOT** be compatible with classic consoles. There will be some customer support issues to address.

Existing customer memories are compatible with the new system, with some restrictions. Direct Outputs will not be retained after the memory upgrade. If LF/LMF/HMF/HF are switched into the Dynamics then their settings will not be retained. Any filter settings will be converted correctly.

Target Dates

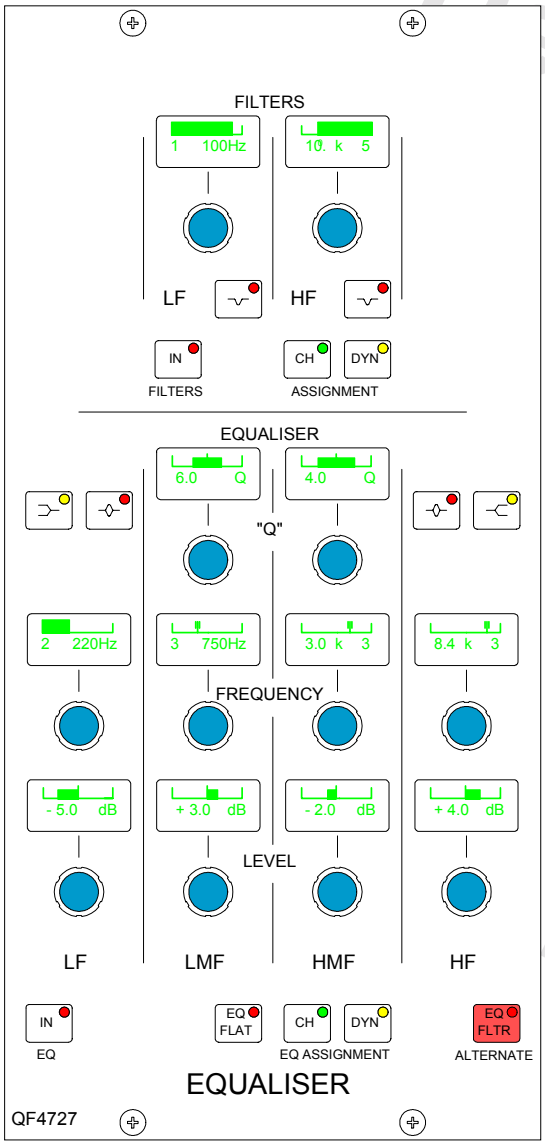
The first product release for Alpha is targeted for mid April, to be launched at NAB. Customers who have been promised Bluefin include SKY and CBS.

Point of Contact - Trish Blackburn

EQ PANEL QF5579 (PREVIOUSLY QF4727-2)

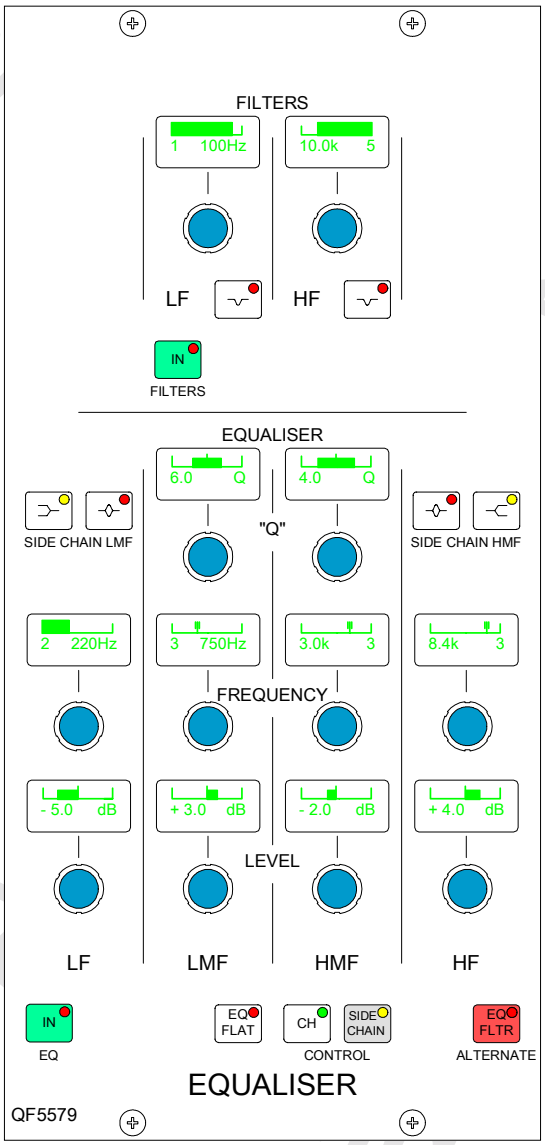
There is no longer the need to switch the EQ/Filters into the side chain. There are 4 bands permanently available in the side chain in addition to the 6 bands available for channels. The console just needs to know whether it is controlling the EQ in the channel, or the EQ in the side chain. Therefore, the CH and DYN buttons in the filters section are no longer required, and those in the EQ section are now used to choose which to control for the whole panel.

Old Panel



QF4727-2

New/Upgraded Panel



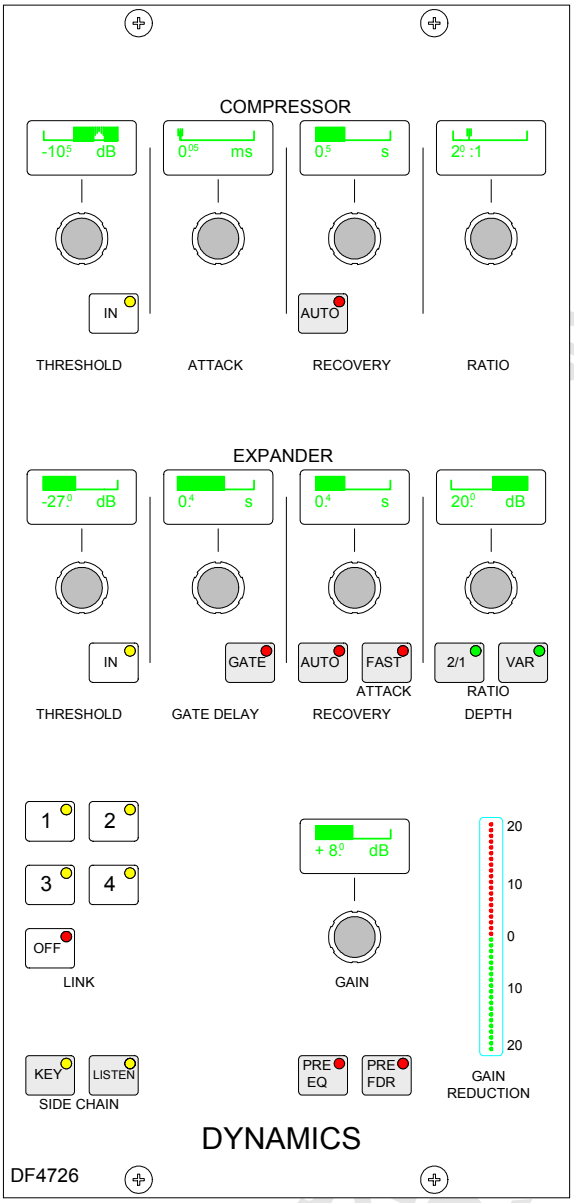
QF5579

For Upgrades:

- Change IN buttons to spearmint green (270-159)
- Remove CH and DYN caps, switch bases and light guides
- Replace DYN button in EQ section with grey SIDE CHAIN button (270-139)
- Replace front panel metalwork (616-012, 2 x 748-041 & 2 x 748-042)

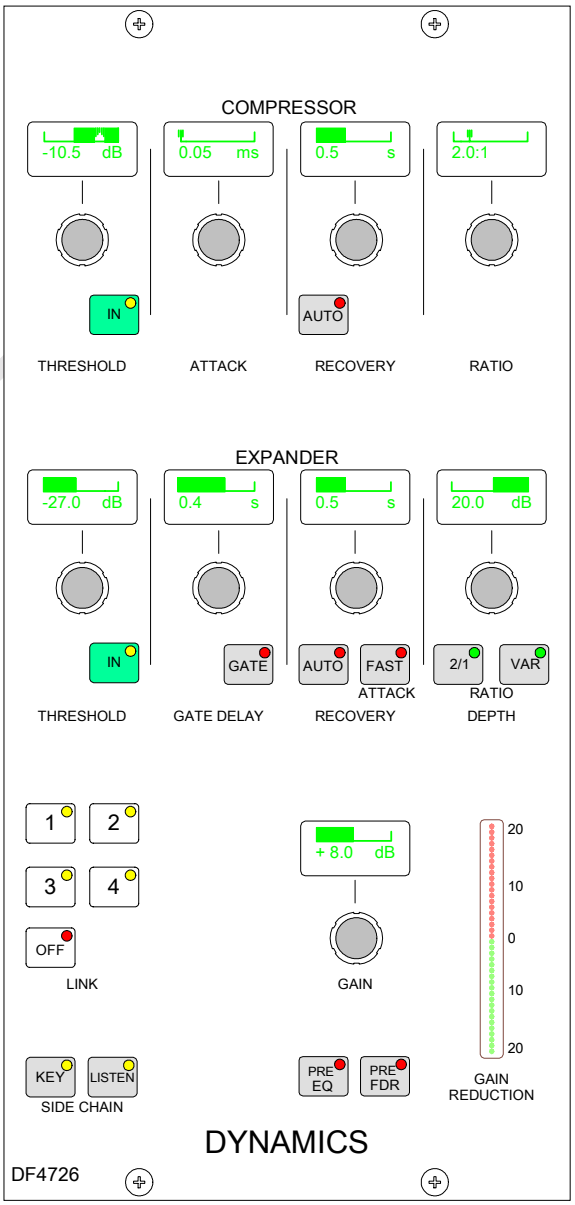
DYNAMICS CONTROL PANEL DF4726-3 (PREVIOUSLY DF4726-2)

Old Panel



DF4726-2

New/Upgraded Panel



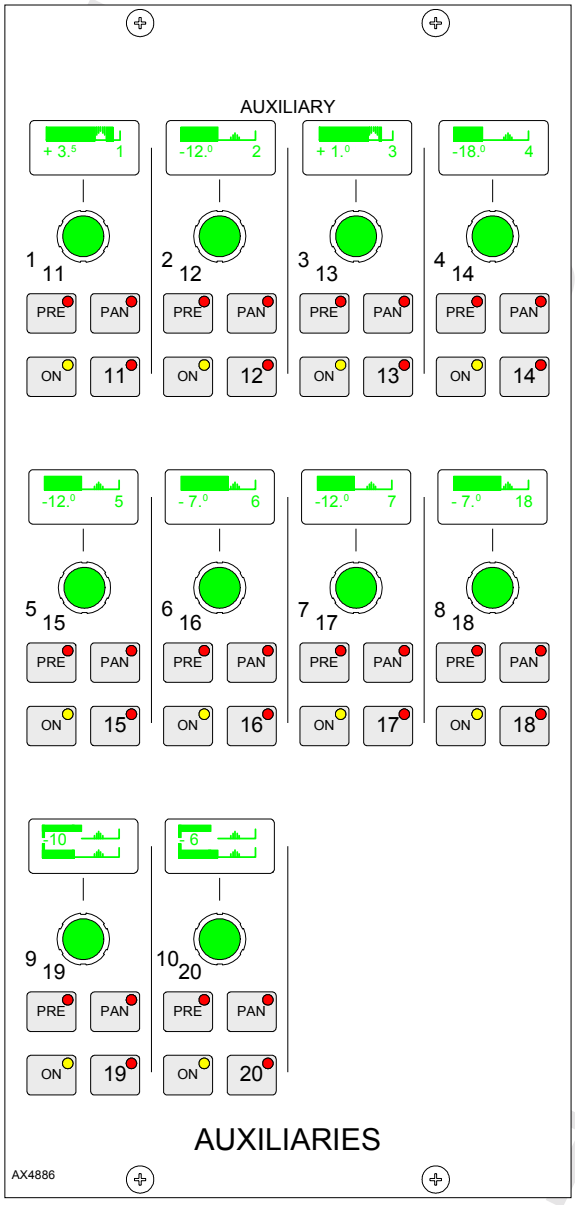
DF4726-3

For upgrades:

- Change IN buttons to spearmint green (270-159)

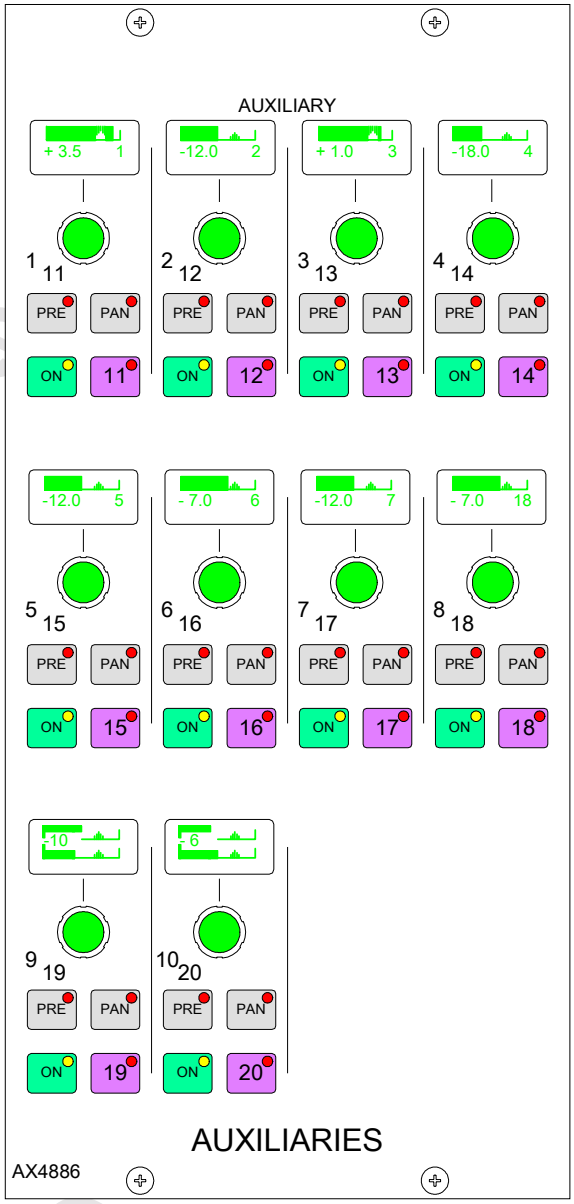
AUXILIARY CONTROL PANEL AX4886-3 (PREVIOUSLY AX4886-2)

Old Panel



AX4886-2

New/Upgraded Panel



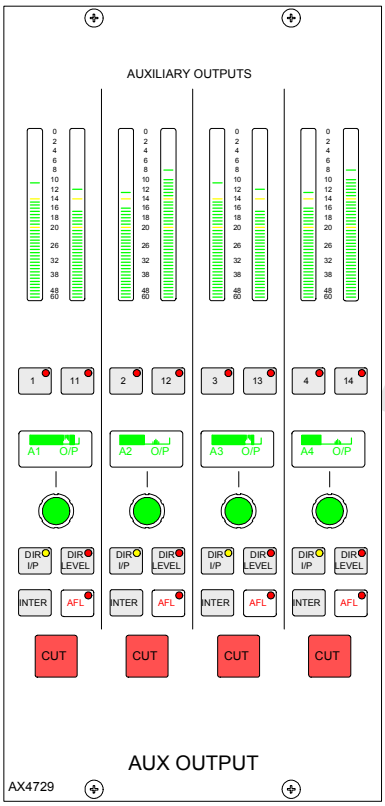
AX4886-3

For upgrades:

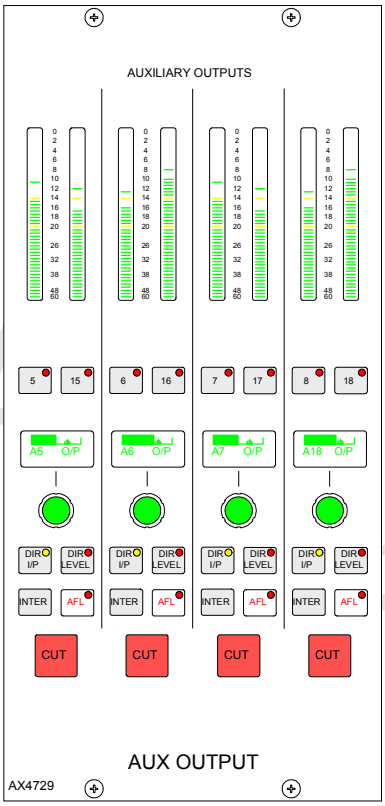
- Change ON buttons to spearmint green (270-159).
- Change numbered Aux 11-20 selection buttons to lilac (270-160).

AUX OUTPUT PANELS AX4729-3 AND AX4730-3 (PREVIOUSLY AX4729-2 AND AX4730-2)

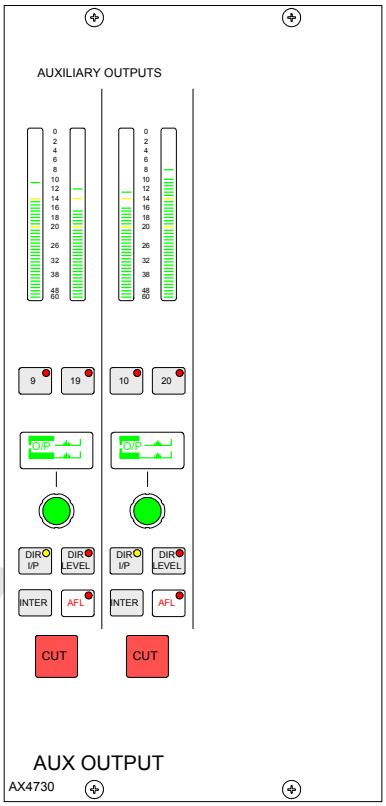
Old Panels



AX4729-2

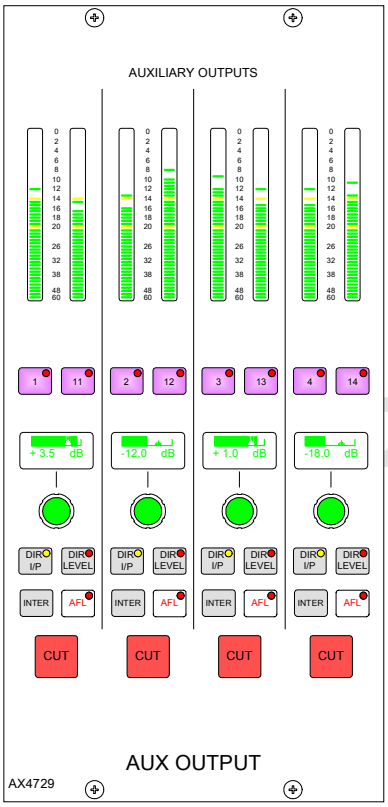


AX4729-2

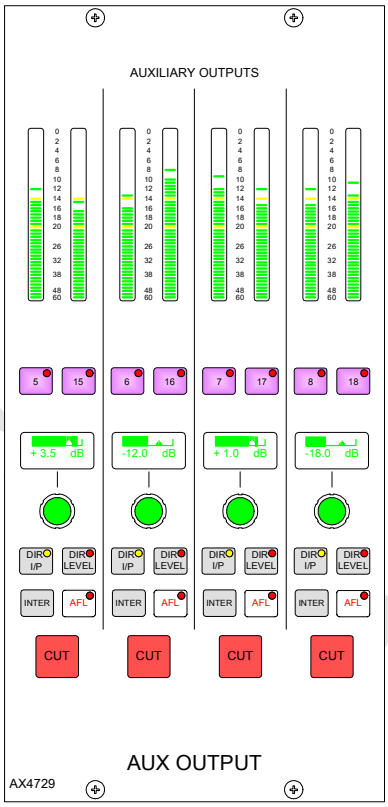


AX4730-2

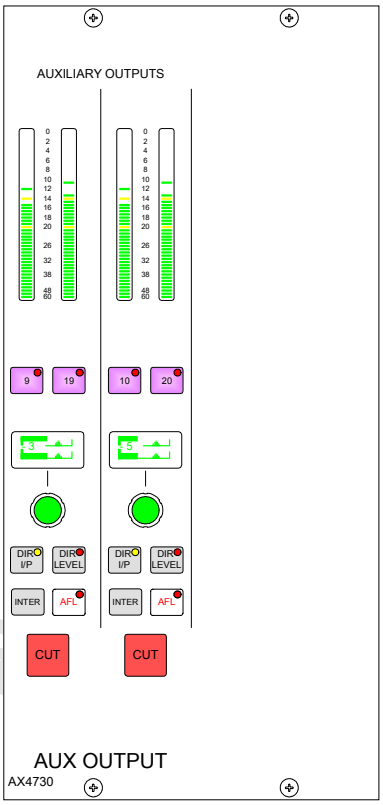
New/ Upgraded Panels



AX4729-3



AX4729-3



AX4730-3

For upgrades:

- Change numbered Aux 1-20 selection buttons to lilac (270-160).

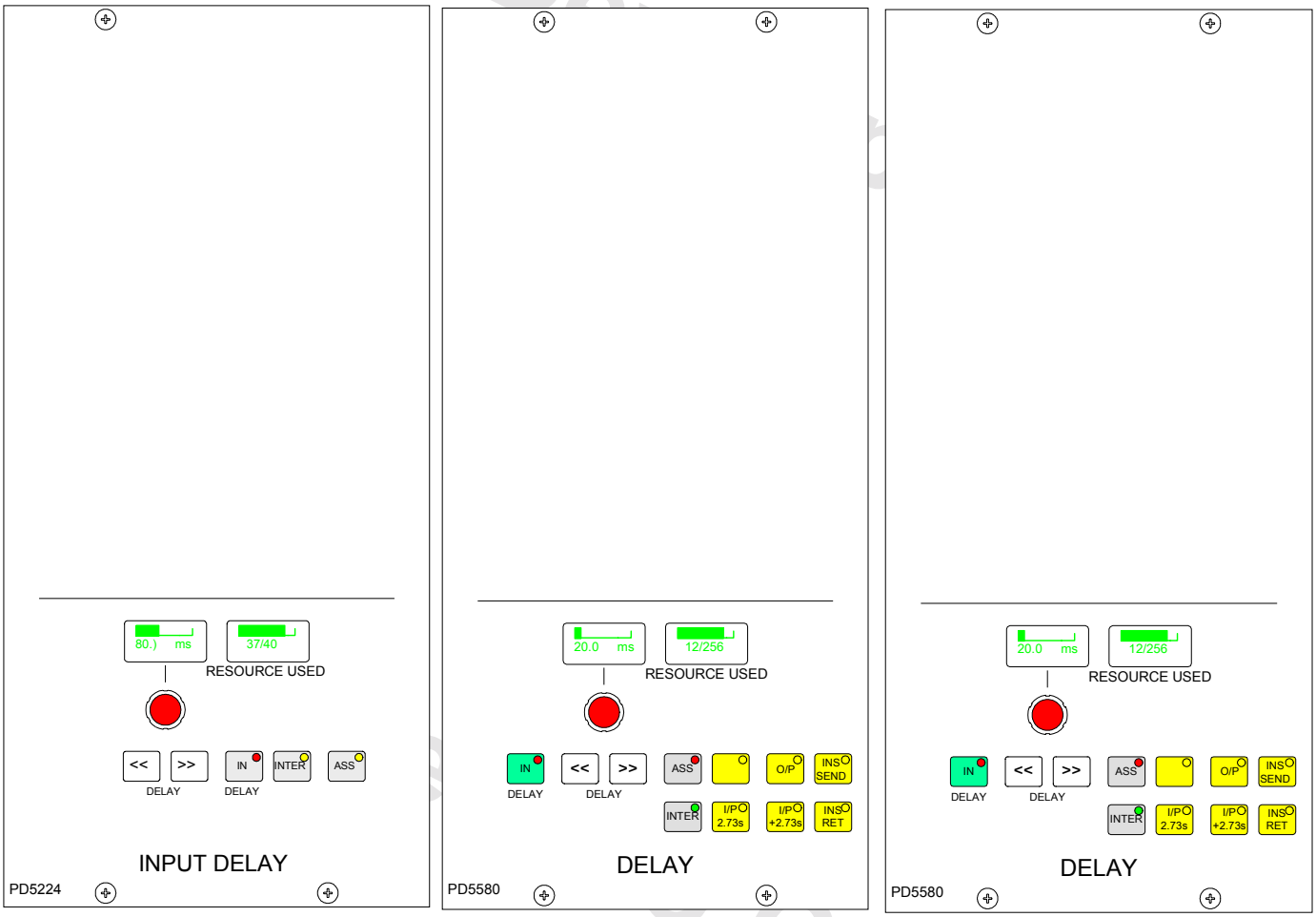
DELAY CONTROL PANEL PD5580 OR PD5580-2 FOR UPGRADES (PREVIOUSLY PD5224)

Future releases will allow some of the delay to be assigned to different places. To aid this, 6 new buttons will be available with which to tell the console where to switch the delay in.

Buttons have been moved around slightly. The IN button is now spearmint green.

The delay spec will increase, as the new DSP card provides 1398 seconds (2 blocks of 699) of delay.

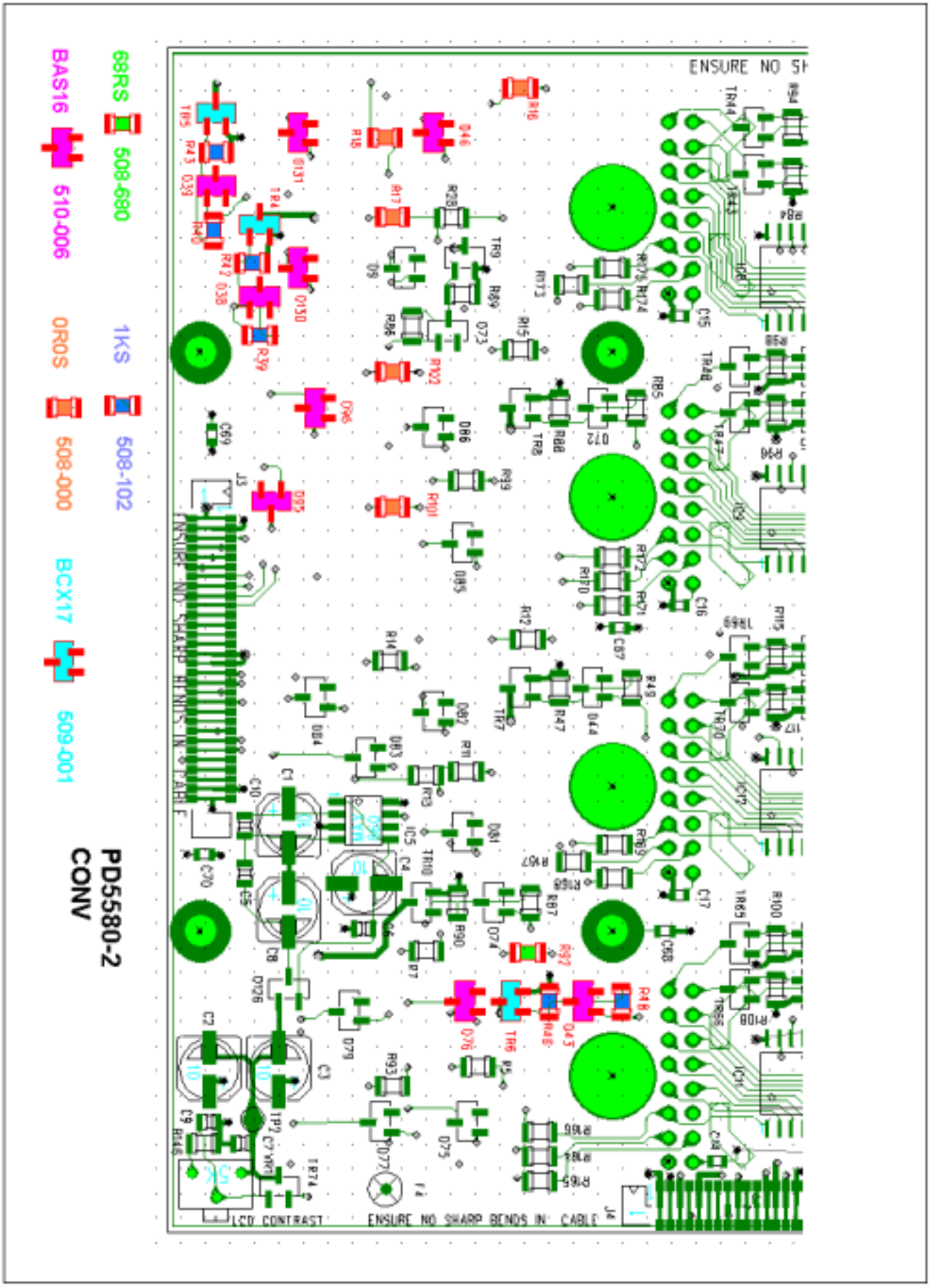
Old Panel | **Upgraded Panel** | **New Panel**



PD5224 | **PD5580-2** | **PD5580**

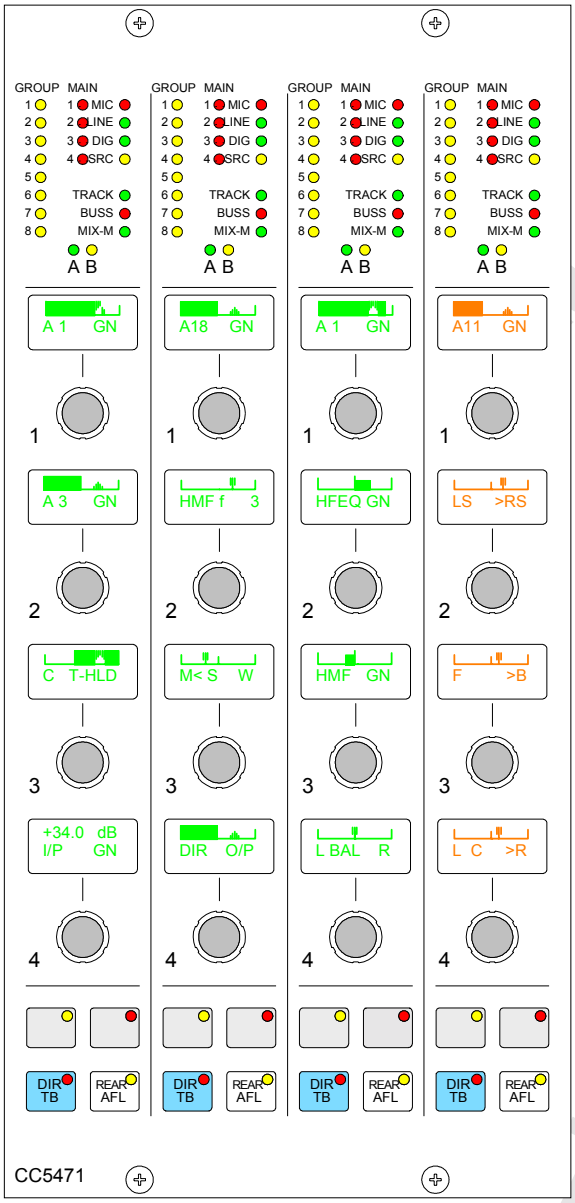
For upgrades:

- Old Delay In button becomes ASS (swap button cap)
- Old INTER button changes to blank yellow (270-151)
- Old ASS button changes to blank yellow (270-151)
- Add 4 new yellow buttons (270-151) with yellow LEDs (520-025)
- New INTER button's LED is green (520-024)
- New location Delay IN button is spearmint green (270-159)
- New location Delay IN button's LED is red (520-023)
- Replace Front Panel metalwork (615-104 & 748-041)
- New panel firmware V1.0
- New panel software V1.0


68RS 508-680
BAS16 510-006
0R0S 508-000
1KS 508-102
BCX17 509-001
PD5580-2
CONV
ENSURE NO SHARP BENDS IN CABLE
LCD CONTRAST
ENSURE NO SHARP BENDS IN CABLE

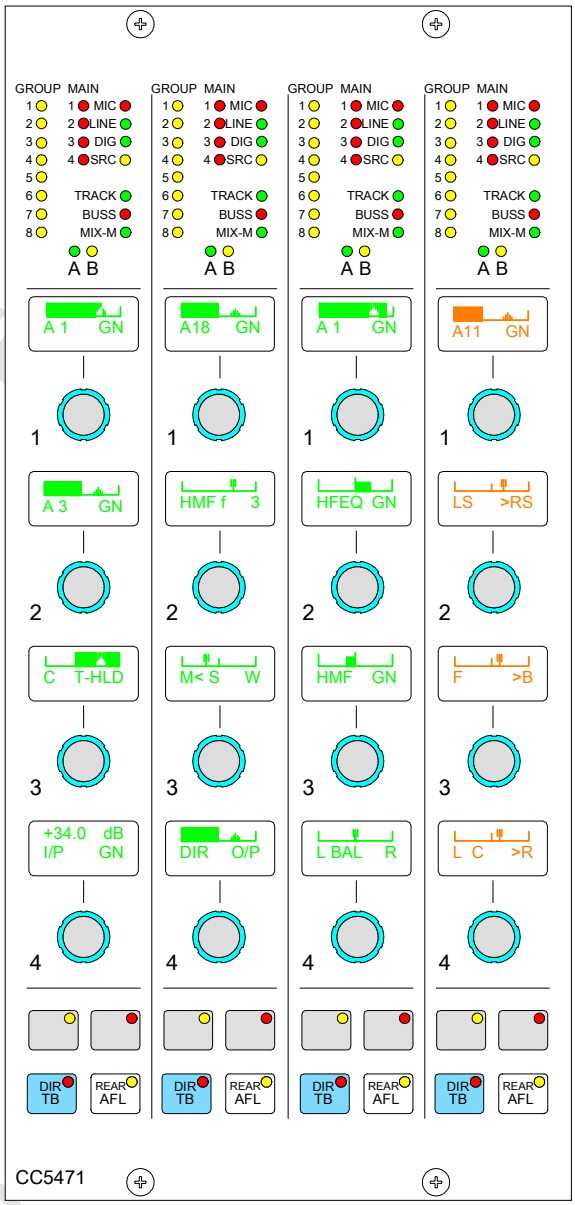
CHANNEL CONTROL PANEL CC5471-2 (PREVIOUSLY CC5471)

Old Panel



CC5471

New/Upgraded Panel



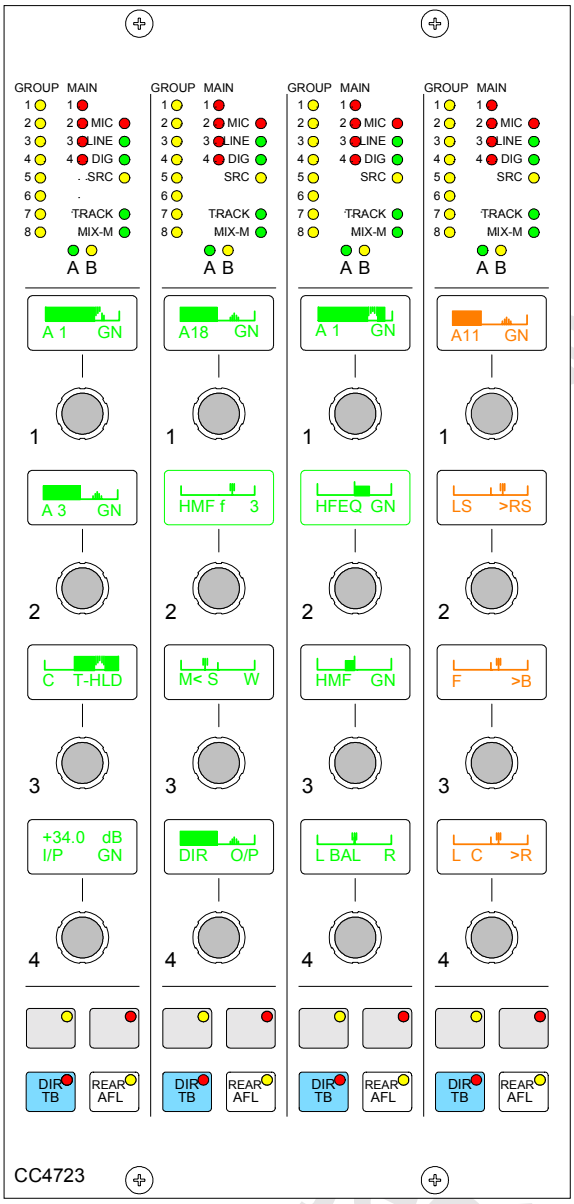
CC5471-2

For upgrades:

- Change Wild control knobs to pale blue (341-099) with grey caps (314-077). 16 sets per panel.

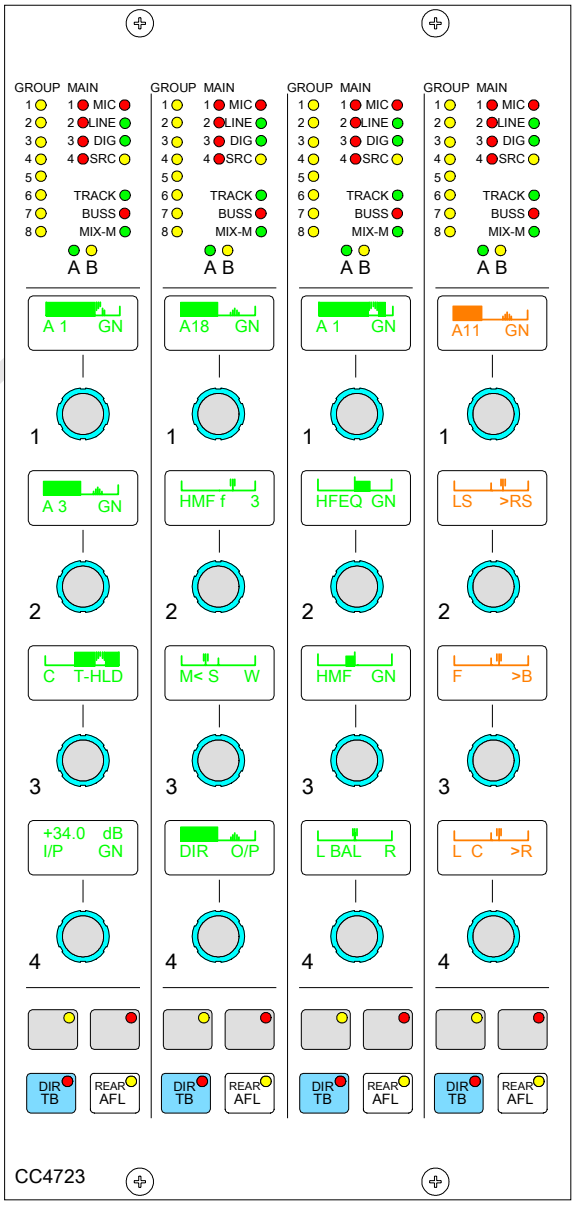
CHANNEL CONTROL PANEL CC4723-5 (PREVIOUSLY CC4723-4)

Old Panel



CC4723-4

New/Upgraded Panel



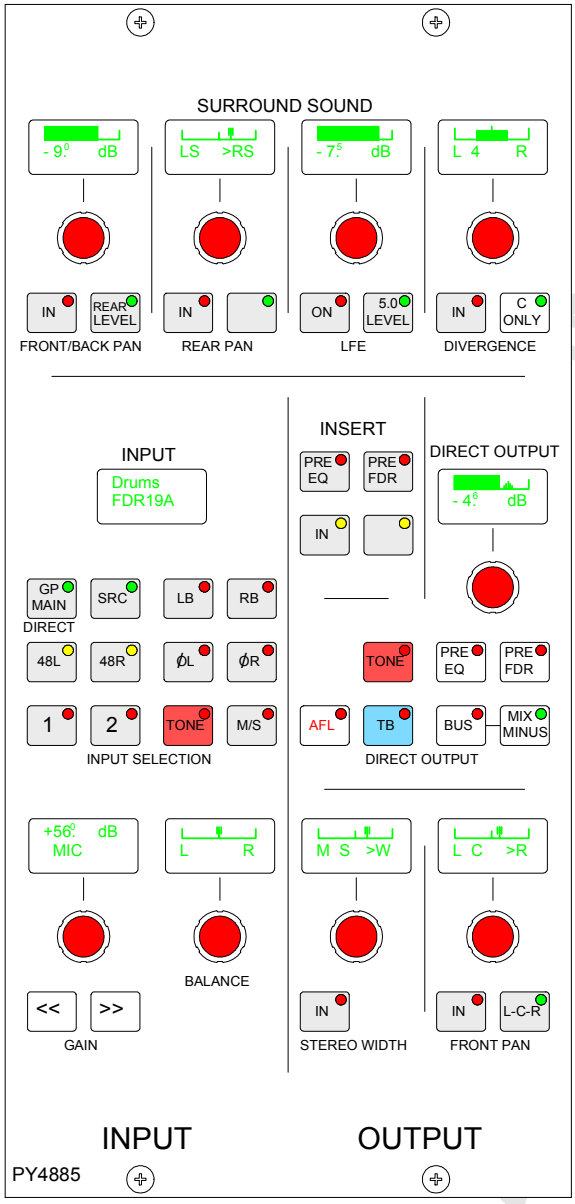
CC4723-5

For upgrades:

- Change Wild control knobs to pale blue (341-099) with grey caps (314-077). 16 sets per panel.

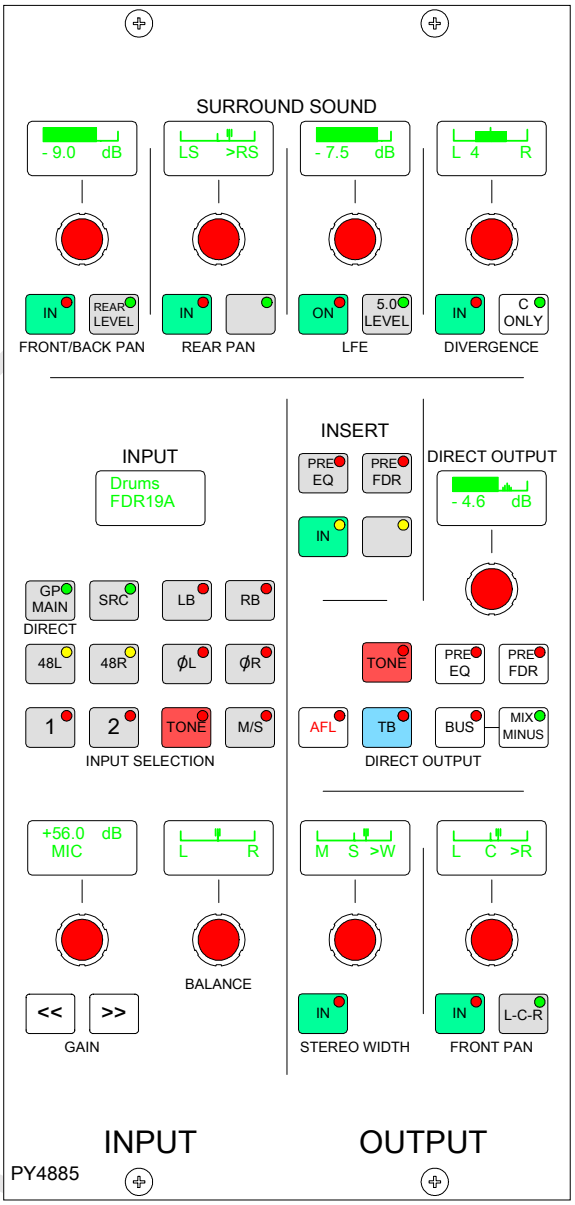
INPUT/OUTPUT CONTROL PANEL PY4885-3 (PREVIOUSLY PY4885-2)

Old Panel



PY4885-2

New/Upgraded Panel



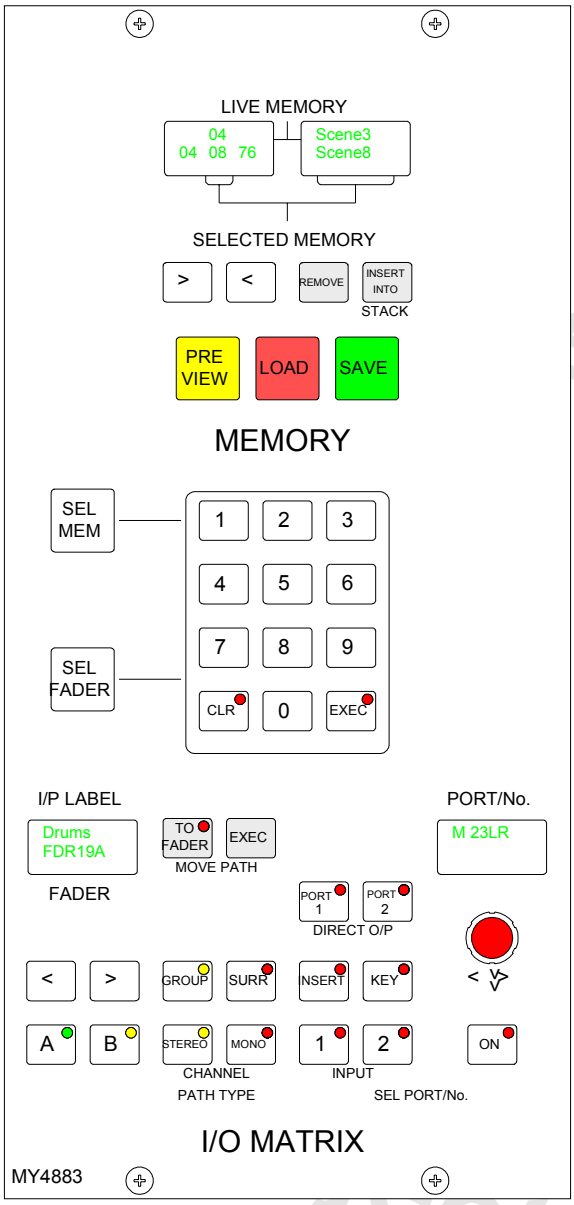
PY4885-3

For upgrades:

- Change IN and ON buttons to spearmint green (270-159).

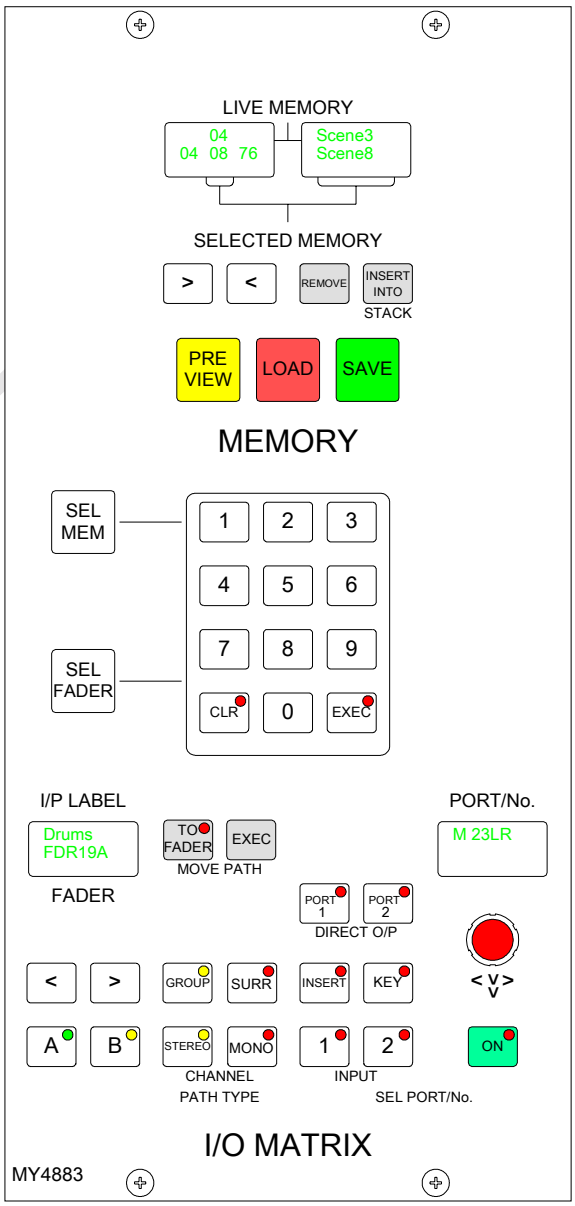
MEMORY AND I/O MATRIX CONTROL PANEL MY4883-4 (PREVIOUSLY MY4883-3)

Old Panel



MY4883-3

New/Upgraded Panel



MY4883-4

For upgrades:

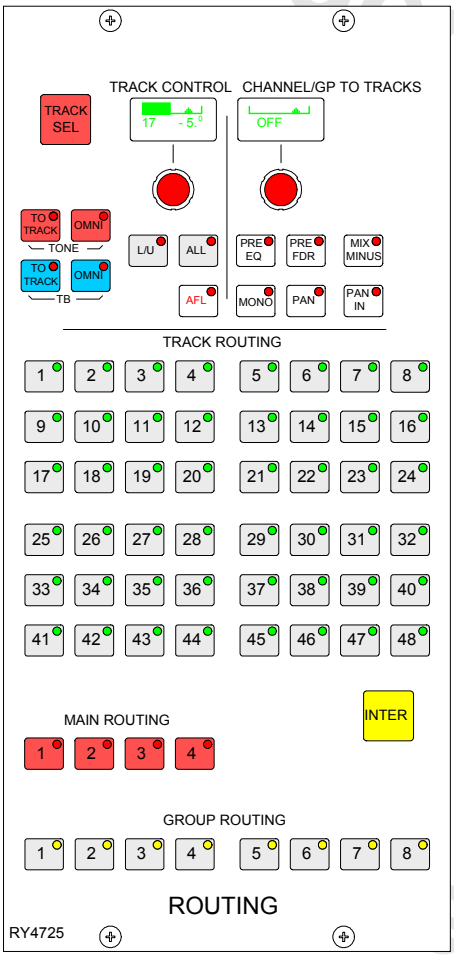
- Change Port Select ON button to spearmint green (270-159).

ROUTING PANEL RY5581 OR RY5581-2 FOR UPGRADES (PREVIOUSLY RY4725-2)

The Mix-minus to tracks button will no longer be functional.

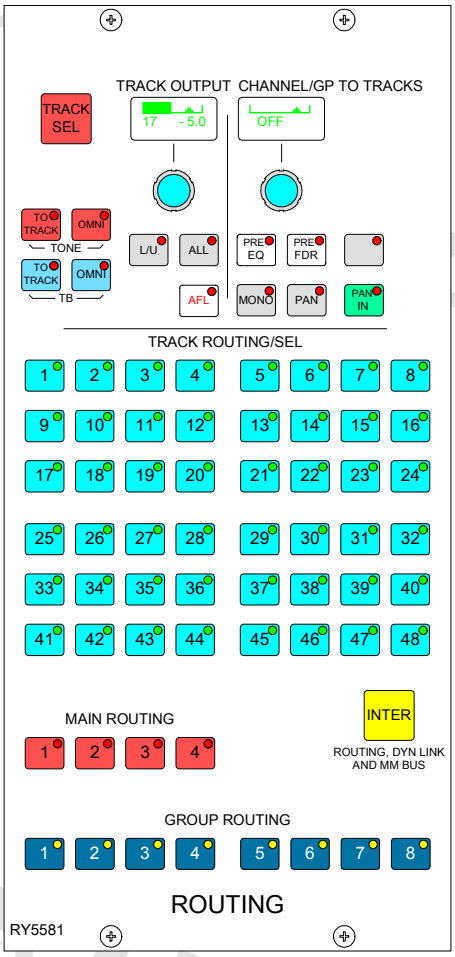
New consoles will use RY5581. This has LED colour changes.

Old Panel



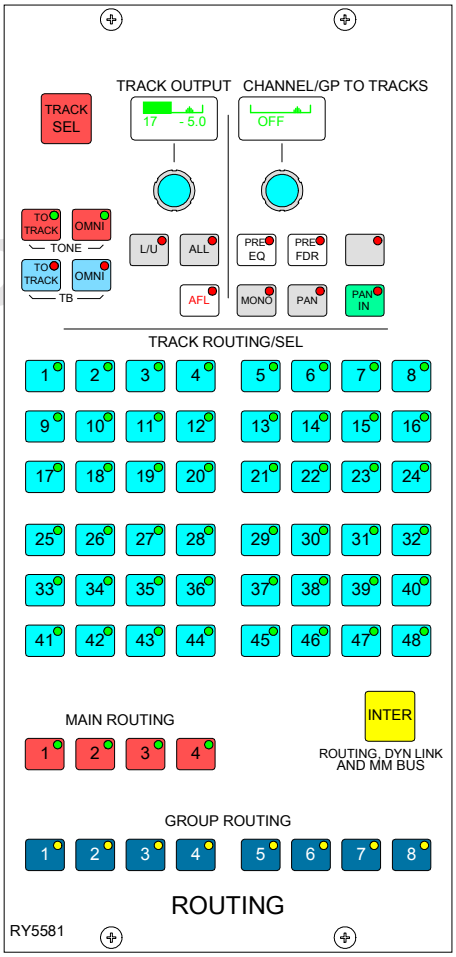
RY4725-2

Upgraded Panel



RY5581-2

New Panel



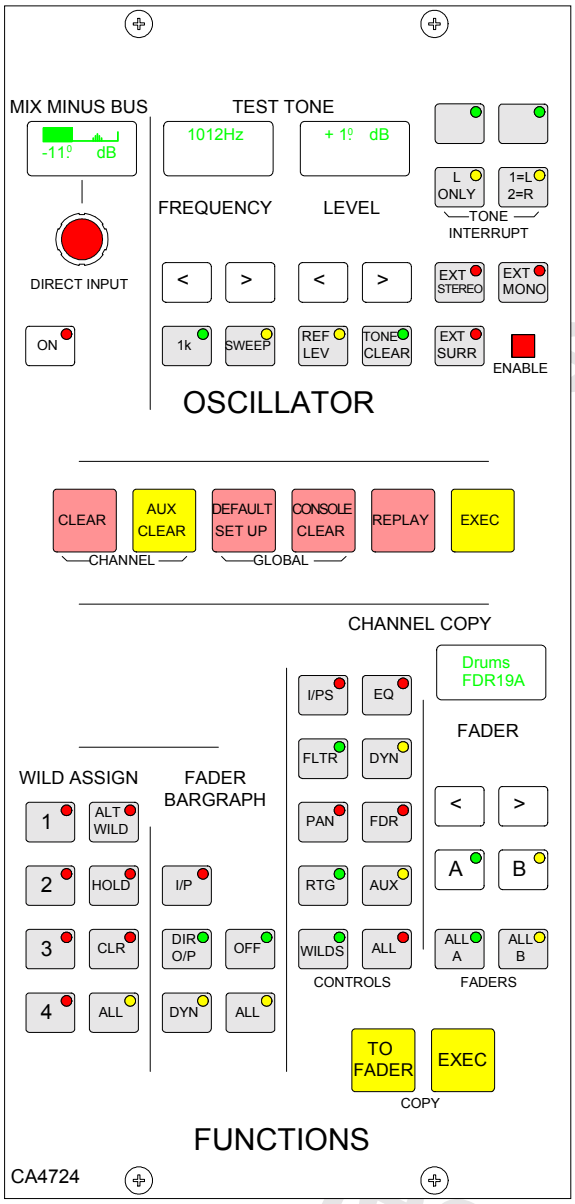
RY5581

For upgrades:

- Change track routing selection buttons to pale blue (270-157)
- Change group routing selection buttons to pacific blue (270-158)
- Change PAN IN button to spearmint green (270-159)
- Change MONO and PAN buttons to grey (270-139)
- Replace mix minus to track button with blank button cap (270-159)
- Change track output and channel/group to track knob caps to pale blue (341-100).
- Replace Front Panel metalwork (617-061 & 748-041)

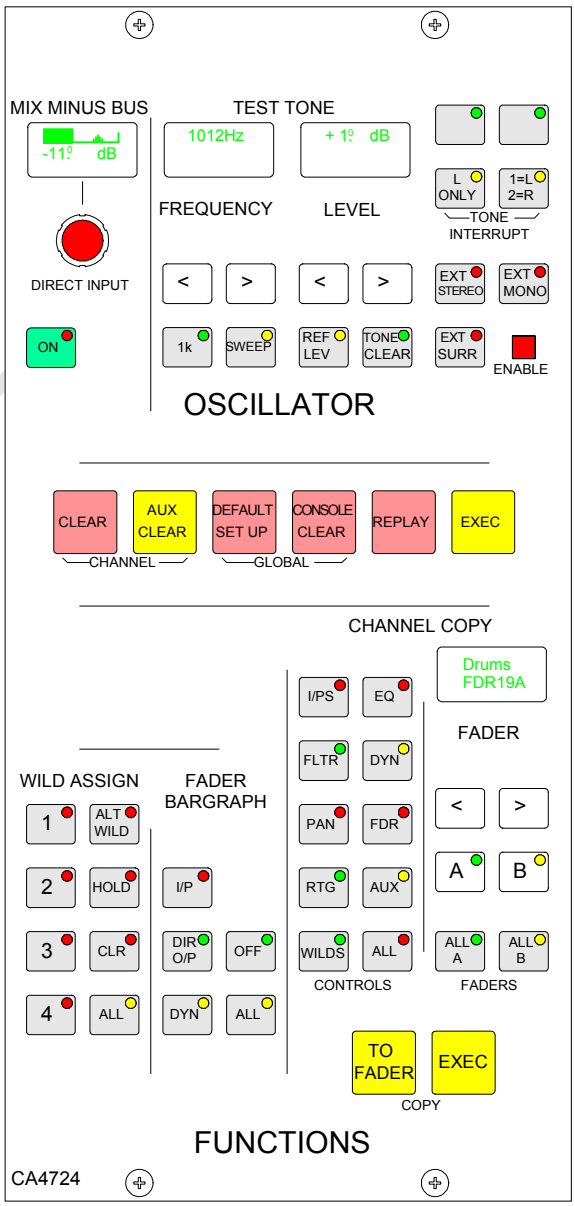
FUNCTIONS PANEL CA4724-4 (PREVIOUSLY CA4724-3)

Old Panel



CA4724-3

New/Upgraded Panel



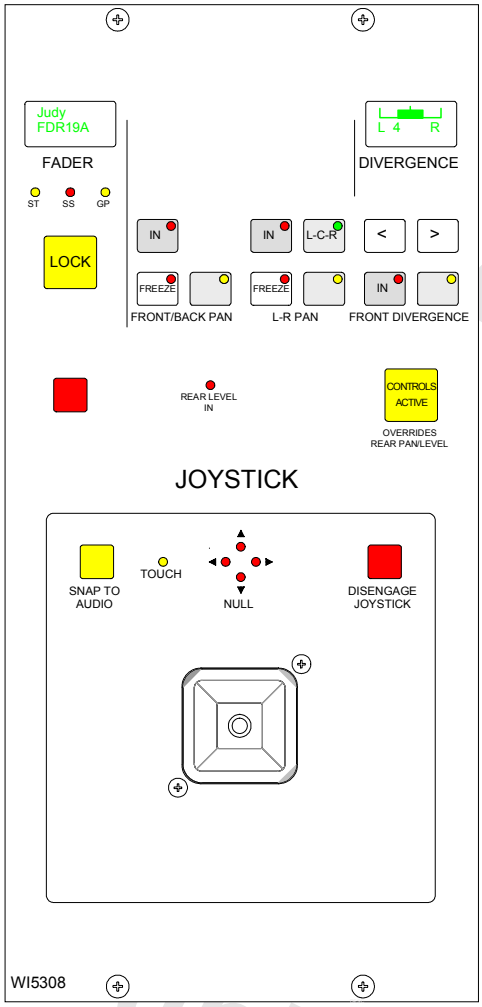
CA4724-4

For upgrades:

- Change ON button to spearmint green (270-159)

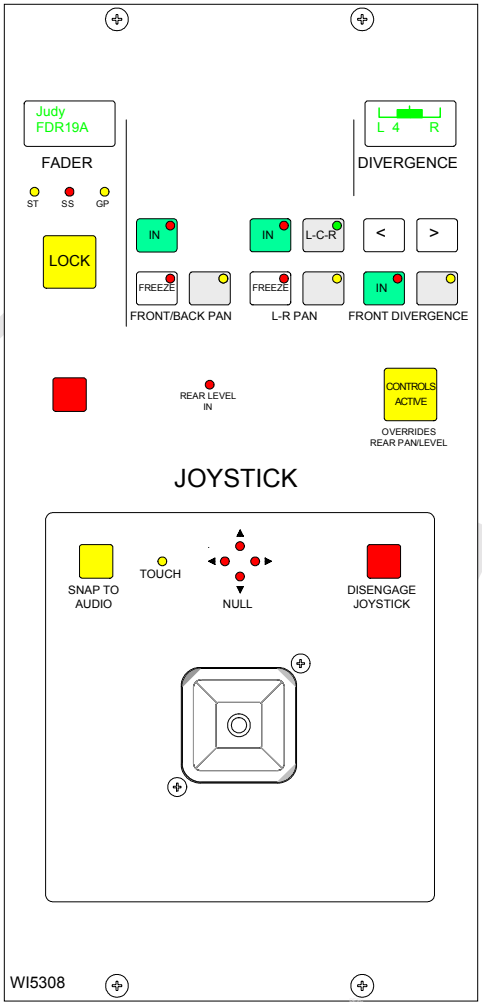
SINGLE JOYSTICK PANEL WI5308-2 (PREVIOUSLY WI5308)

Old Panel



WI5308

New/Upgraded Panel



WI5308-2

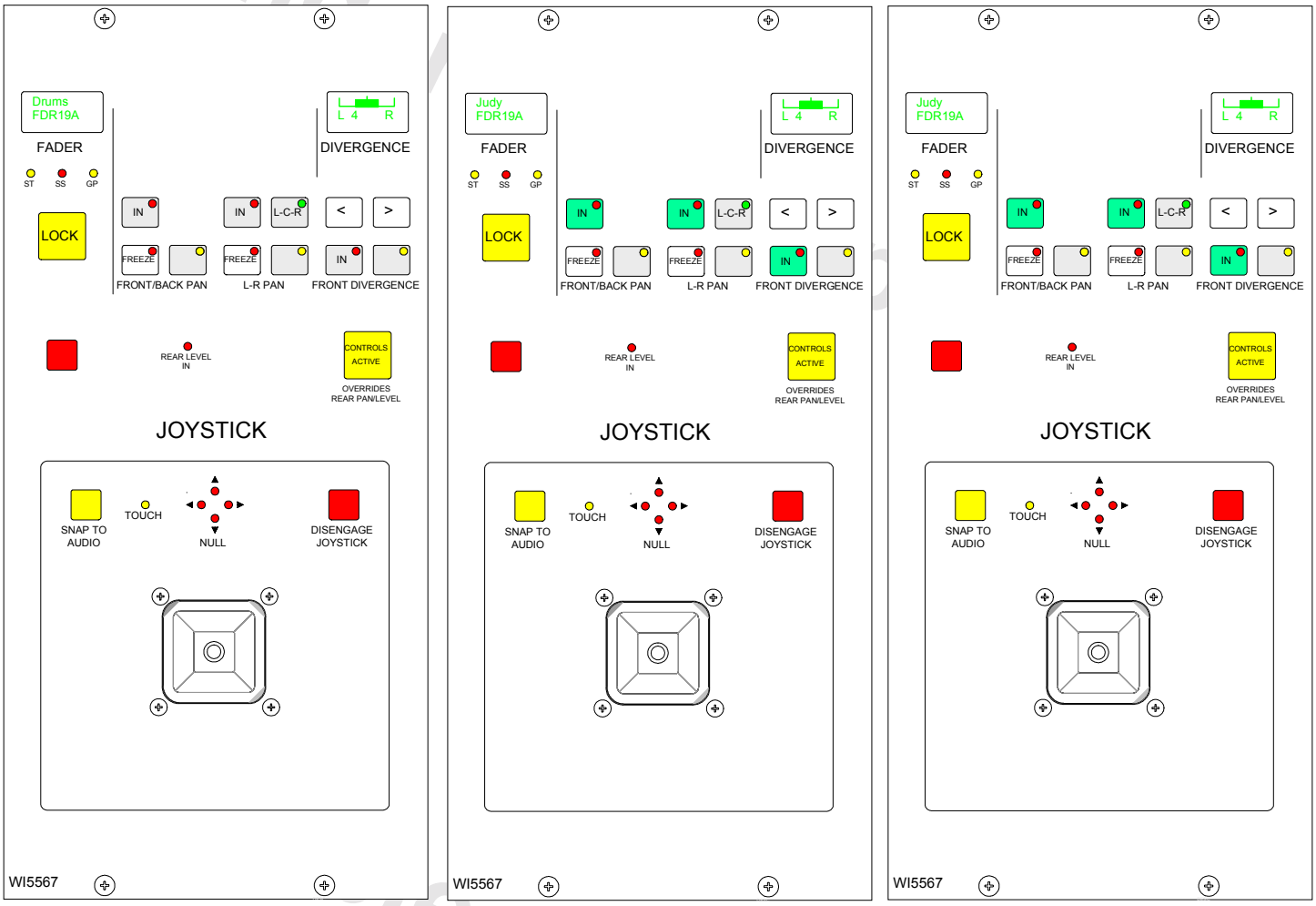
For upgrades:

- Change IN buttons to spearmint green (270-159)

SINGLE JOYSTICK - WI5567-4 OR WI5567-2 FOR UPGRADES (PREVIOUSLY WI5567)

New consoles will receive WI5567-4 which is lead-free. During upgrades, consoles which have the WI5567 leaded version of the panel will only have the button change, meaning that the unit still has leaded parts, and so becomes a WI5567-2.

Old Panel | **Upgraded Panel** | **New Panel**



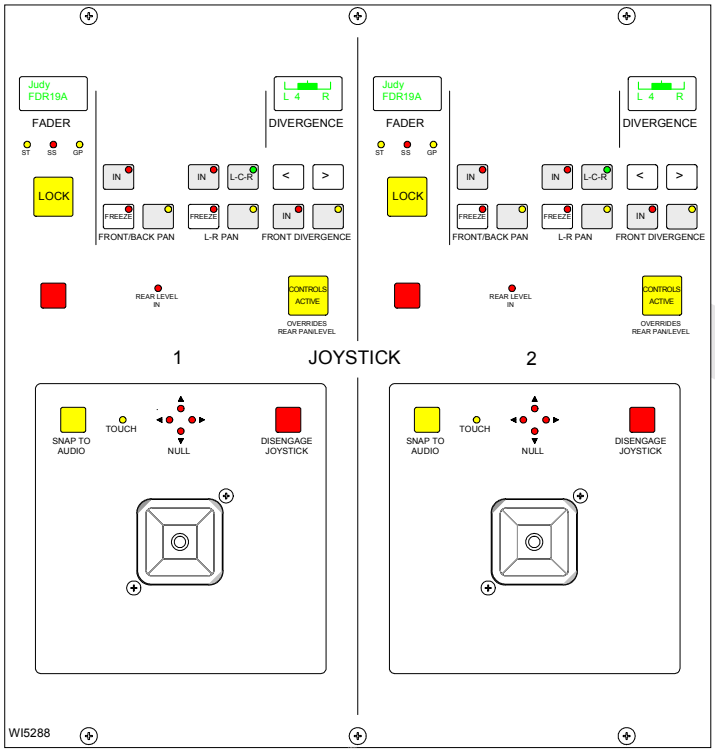
WI5567 | **WI5567-2** | **WI5567-4**

For upgrades:

- Change IN buttons to spearmint green (270-159)

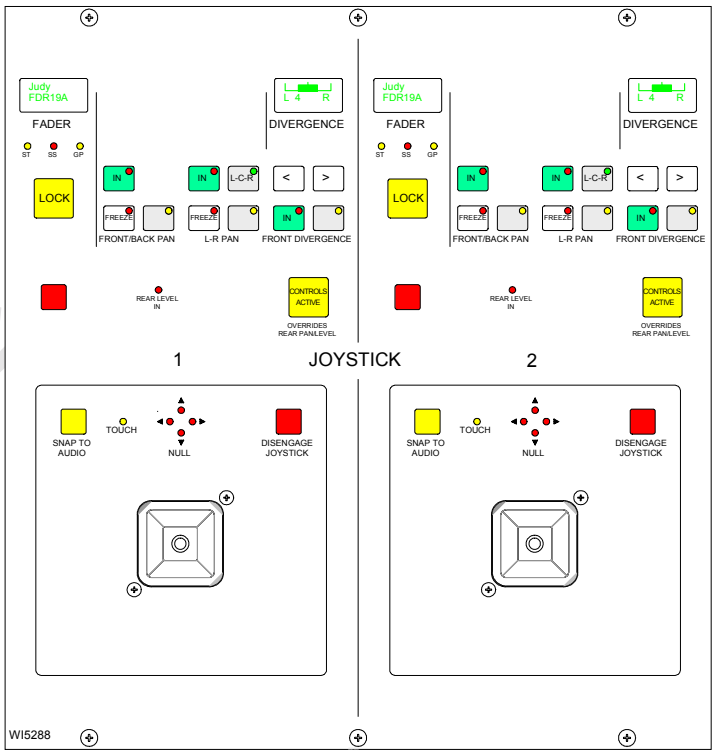
TWIN JOYSTICK PANEL WI5288-2 (PREVIOUSLY WI5288)

Old Panel



WI5288

New/Upgraded Panel

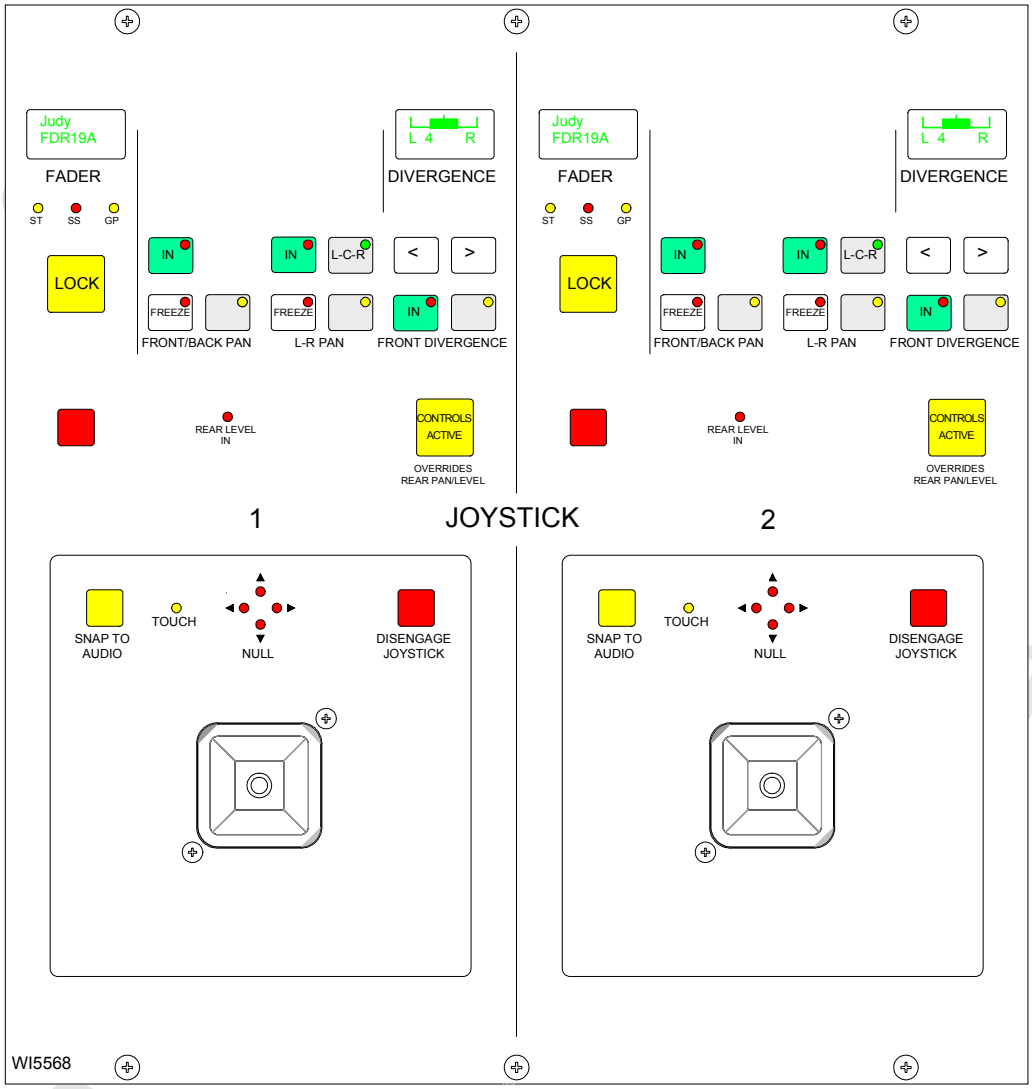


WI5288-2

For upgrades:

- Change IN buttons to spearmint green (270-159)

TWIN JOYSTICK PANEL WI5568-4 FOR NEW CONSOLES ONLY



WI5568-4

(926-096 Iss.10)