COLOUR CORRECTION SUMMARY

DEFINITIONS

BALANCE	To **remove colour cast** & ensure blacks, whites and greys are free of colour
CHROMA (C)	**Chrominance** (Colour)
CLIPPING	**Washed out Highlights** (solid white block at head of Waveform)
CRUSHING	**Blocked-up Blacks** (shadows)
GAIN	**Increase** (or **decrease**) **Luminance** (usually by a multiple) (**BUT** Increasing gain can increase **grain**)
GAMMA	(a) **Mid-tones** or mid-range tones of a picture (b) The **curve or steepness** of a **transition from Black to White**
HUE	The **colour:** Each Hue has **256 values** (0 = fully transparent; 256 = fully opaque)
HSB or HSL	Hue, Saturation and Brightness (**Luminance**)
LIFT/PEDESTAL/SETUP	**Baseline** for indicating **Black**
LUMINANCE (Y)	**Brightness** or transparency
PRIMARY COLOURS	**Green, Red & Dark Blue**
RGB PARADE MODE	In **Waveform**: **shows** individual levels **of Red, Green & Blue Channels** (Primaries)
SATURATION	The **Intensity, Brilliance** or **Brightness** of a colour
SECONDARY COLOURS	**Yellow. Purple & Cyan Blue**

MEASURING TOOLS

TO OPEN ALL SCOPES: Ctrl + Alt + 2			
VECTORSCOPE	**WAVEFORM**	**HISTOGRAM**	**RGB PARADE**
Displays **Chrominance (Colour – C)** and **Hue:** Plots **Hue** & **Saturation** on colour wheel **Saturation** of colour measured by how far it extends from centre with **neutral** (**B&W** and **Grey)** as dot at centre **Hue** indicated by position around circle perimeter (i.e. angle from centre point) **Vector** is location of coordinates on Scope	Displays **luminance (Y)** with **brightest** at top and **darkest** at bottom (to include **Chroma** choose **Composite**): Reads frame from left to right **Lowest** 0 IRE **Highest** 100 IRE for luminance only **or** 110 IRE for luminance **and** chroma **Low Pass** = luminance only **Flat (Y/C mode)** = luminance + chroma Pure **white, black** & **grey** means Red, Green & Blue Channels all match regardless of level	Indicates **Tonal Range** (**Black** on **Left**, **Highlights** on **Right**) **AND** number of **pixels** in each tonal value: (**higher** the **peak** the **greater** the **luminance**) (i.e. **monitors colour levels AND contrast**). **Numbe**r of pixels at cursor shown in **top right corner** **Mean Values =** average intensity of all pixels & **Standard Deviation =** average percentage by which pixels vary from mean 1. Pixels concentrated to **left** or **righ**t = underexposed (dark) **or** overexposed (clipped) 2. Pixels **banded**=sharp changes between shades 3. Pixels in **U-shape=**high contrast 4. **Limited range** of pixels=faded image 5. Pixels **evenly distributed** or bell-shaped = balanced	Displays **Waveforms** for **RGB** components of video Shows **RGB values** from **0 to 255** on vertical axis (**Keep within range 16 to 234)**

COLOUR CORRECTION BASICS

PRIMARY COLOUR CORRECTION	Applies to **all** of **frame and event**
SECONDARY COLOUR CORRECTION	Alters **single colours** independently – can **stack** several adjustments
SECONDARY COLOUR	Lies **between two primary colours** on **Vectorscope** or **ColourWheel**
COMPLEMENTARY COLOUR	Lies directly **opposite** on **Vectorscope** or **Colour Wheel**
TO REDUCE A COLOUR	**Increase** its **complementary or decrease** the **other two primaries**
TO INCREASE A COLOUR	**Increase** the **other two primaries or decrease** its **complementary**
ADJUST GAMMA	**Compensate** for difference in **Brightness** between two sources **or correct brightness**

COLOUR CORRECTION WHEELS

COLOUR WHEEL	**Red** at 11.0 o'clock: **Blue** at 4.0 o'clock: **Green** at 7.0 o'clock.
LEFT EYEDROPPER	**Removes** a **colour** cast by selecting **complementary** colour: Use for whites, mids etc
RIGHT EYEDROPPER	**Adds** a **colour** cast

MOVE TOWARDS GREEN	**RAISES GREEN**	**LOWERS RED & BLUE**
" " YELLOW	**" RED & GREEN**	**" BLUE**
" " RED	**" RED**	**" BLUE & GREEN**
" " MAGENTA	**" RED & BLUE**	**" GREEN**
" " BLUE	**" BLUE**	**" RED & YELLOW**
" " CYAN	**" BLUE & GREEN**	**" RED**

COLOUR CORRECTION SUMMARY

COLOUR CORRECTION TECHNIQUES

CHECK EXPOSURE	**1**	Convert to **greyscale** using **B & W filter or HSL Saturation**
	2	Use **Levels** to adjust exposure
	3	Use **Waveform**: upper limit 100 IRE, lower 0 IRE to avoid/reduce clipping & crushing
	4	Set **Black** at 7.5 IRE & **white** at 100 IRE (16.5 & 234 RGB)
	5	Remove **B & W filter**
SET WHITE BALANCE	**1**	Use **Colour Corrector**
	2	**Select white** tone (white & high end hues) with **Left** eyedropper
	3	**Similarly for mid** (facial colours, clothing & almost all else in focus) **& dark** (shadows & black) tones **(**not always necessary to use both)
USE COLOUR CURVES	**1**	**Horizontal** axis **= Input or source level**: **Vertical** axis **= Output level**
	2	**Lower handle** adjusts **darker** tones (down & right to darken)
	3	**Upper** handle adjusts **highlights** (up & left to brighten)
	4	**Steeper** the curve the **greater** the **contrast**
	5	**S shape** is often **ideal**
	6	To change **Gamma**: **Create point** (2 x L cl) in **mid-curve** and **drag** up or down
	7	To change **Black level**: 2 x L cl on bottom right corner and drag up (to increase) or right (to reduce)
	8	To change **Highlight level**: 2 x L cl on top right corner and drag down (to reduce) or left (to increase)
	9	**EXAMPLES**: See Hullfish pp 107 – 112
USE COLOUR CORRECTOR	**1**	See **SET WHITE BALANCE** as above **OR**
	2	**Add/Remove colour cast** (see **COLOUR CORRECTION WHEELS** above) using right/left eyedropper
	3	**Adjust colour** by **moving centre point** around wheel
USE SECONDARY COLOUR CORRECTOR	**1**	Use **Select Effect Range** Eye Dropper to identify colour to be modified (drag to colour to select)
	2	Click **Show Mask** to **identify** area selected
	3	Use **Luminance** sliders to **define** exact area of mask (occasional need to use **Saturation** & **Hue** sliders)
	4	Add/Remove **colour cast** (see **COLOUR CORRECTION WHEELS** above) using right/left eyedropper
	5	**Adjust colour** by **moving centre point** around wheel
	6	Use **Saturation** & **Hue** Sliders as or if necessary as well as **Gamma, Gain, Offset etc**
	7	Use **new** Secondary Colour Corrector for **each** subsequent colour adjustment
USE WAVEFORM	**1**	Use **RGB Parade Mode** to set **within 16 – 234 range**
	2	Use **Levels** to set blacks/shadows (0 IRE) & Highlights (80 – 100 IRE)
USE VECTORSCOPE	**1**	Use **Colour Correction** Wheels
	2	Correct **Blacks** and **Highlights**
	3	Select and **correct casts** with **Right Eyedropper** by dragging towards complementary
USE LEVELS	**1**	Used to **correct colours and brightness (exposure)** by matching input and output sources – **re-maps total range** of the colour(s)
	2	**Select Colour Channel (“All”** is **similar** to adjusting **luminance**)
	3	Use **Input Start/End Sliders** to adjust luminosity by amplifying whites and narrowing blacks
	4	Use **Output Start/End Sliders** to adjust luminosity by boosting blacks and narrowing whites
	5	If event **inside 0 - 100** range use **Inputs** to boost to fill Waveform graph
	6	If event **out of range** use **Outputs** to cut to size & then use **Inputs** if more spread then needed
	5&6	**E.G.** If **Output** used to cut whites no **Input** movement will take it over this limit
	7	Use **Gamma** to compensate for difference in brightness between different sources **and to** correct brightness in final event (**greater than 1** to **brighten** & **less than 1** to **darken**)
USE SATURATION	**1**	Drag **Amount Slider** to **boost** or **cut saturation levels**
	2	Drag **Centre Slider** to set **centre of range** of colours to be adjusted (to **find** setting set **Spread** to **low** level, **increase Amount** setting & **drag Centre Slider** to find required range)
	3	Drag **Spread Slider** to set **range of Hues** to be adjusted around centre value
	4	Drag **Low Slider** to **boost** or **cut Saturation** from **low end of spread to left end of graph**
	5	Drag **High Slider** to **boost** or **cut Saturation** from **high end of spread to right end of graph**
	6	Use **Gamma** to adjust for **brightness differences between sources**
USE HSL	**1**	**Hue** changes **colours** in image (each end of Slider leaves hue unaltered)
	2	**Saturation** controls **intensity of selected Hue** (as in 1). Move all way to left (to 0) removes all Hue to show as B & W
	3	**Luminance** controls **overall brightness** (value of 1,000 leaves at original level)
USE COLOUR GRADIENT	**1**	**Change tones** (warm or cool) (warm appears to flatten and cool to increase contrast)
	2	Use like a **filter**
	3	Use for **masks** or **fades** (useful in **titles**)
USE COLOUR BALANCE	**1**	To adjust **Primaries** overall **or** separately in **Highlights, Mid-Tones or Shadows**
MATCH SCENES	**1**	**Select master** event (preferably a wide angle shot for range of colours)
	2	**Ensure master** is as required **for White Balance** (see above) **and** for **legal Colours** (use Levels and Waveform for shadows & highlights) and **save** to **clipboard**
	3	**Select event for correction** & show in Preview
	4	**Split** Preview screen to show both events (i.e. including event on clipboard) (positions can be adjusted)
	5	**Correct** new event as necessary (for **White Balance, Colours & Casts etc**) (by **eye or** with **Waveform** etc**): Colour Correction** for **colour** and **Levels** or **Colour Curves** for **Gamma**
	6	Use **Saturation, Gain** and **Gamma** as necessary
	7	**If necessary** work with **both** events in **Black & White** to start with for setting levels
DO NOT USE BRIGHTNESS/CONTRAST PLUG-IN UNLESS ABSOLUTELY NECESSARY		