

Colorimetric and Resolution requirements of cameras

Alan Roberts

ADDENDUM 17 : Sony HDCAM, HDW730S

Data for this section is taken from examination of a production model of the Sony HDW730S (serial number 10005). This model is a 1080-line camcorder, physically smaller and lighter than the HDW900, nearly identical to the HDW750 (and numerical settings for this camera and the 750 appear to be interchangeable). However, it runs only at 59.95 or 50 Hz interlaced, there is no progressive (psf) mode. It records using the same HDCAM algorithm and data rate, tapes are interchangeable.

The camera is housed in an IMX camcorder shell. It has many internal menus for setting the performance, such that it can then be used without external controls. It is not ideally suited to multi-camera operation, although it can be controlled remotely. The HD viewfinder can be replaced with an SD one, especially useful when the camera is to be genlocked to an SD source. A standard option is a live down-converter to SD, so the camera can be used in mixed environments. Video output is analogue or SDI, both at HD and SD. An 8-second buffer allows the camera to capture pictures before the record button is pressed, thus power can be saved by not keeping the tape transport in Stand By mode. The camera has no neutral-density filter wheel, and some of the minor controls are slightly different from those on the HDW750.

The menu settings result from only one measurement session, without access to the manual for the camera. The same assessment procedure was used as for other HD cameras, mostly attempting to get a good “film-look” (despite there being no progressively scanned option), and the settings reflect that. It is useful to think of the camera, when used in this way, to be mimicing a film camera and telecine, with “best light” transfer to tape, with about 11 stops of tonal range. Due to the extraordinary flexibility of the controls, it is possible to make it mimic negative or positive film, and resolution can be tailored to 35mm or 16mm, to taste (but not the progressive-scan attribute of film, output is always interlaced). Assuming that a grading operation will be used in post-production, the settings give the colourist the same range of options as with film. The values for Gamma, Black Gamma and Knee allow about 2.5 stops of over-exposure and one of under-exposure relative to normal operation. The “film” gamma mode has a built-in knee, combining this with the main knee function gives smooth reproduction of highlights. This setup approaches a film-look, enhanced by the separated Detail and Aperture controls (detail enhancement can be set negative, to reduce in-band sharpness, leaving aperture correction to work at high frequencies). With both Detail and Aperture off, images are generally sharper than even for 35mm film, this can be an issue for production. For use in Sport or Light Entertainment, it would probably be beneficial to switch off the Black Gamma, and to set Detail Level to zero (factory setting).

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ADDENDUM 17 : settings for Sony HDCAM, HDW730S

Since the camera settings offer great flexibility, it has been possible to derive several “BBC settings” for it. Setting values are given for:

- “Best-light” negative film {n}
- Reversal film {r}
- Super16mm resolution {16}
- 35mm resolution {35}
- Standard video {v}

The “film” settings are identical to those for the 750P and appear to give the same performance, the menus are only slightly different but a data value for one camera appears to have the same effect in the other. Even so, it is unlikely that a setup card (memory stick) recorded on one camera will properly set the other. The “video” setting is a good compromise for exposure and detail, achieving high detail without excessive ringing on contrast edges.

Where different values are needed for these settings, they are marked e.g. thus: ON{n}OFF{16}. Note that the “film” settings are not intended to precisely reproduce the performance of any particular film stock, merely to give a “look” that is representative of a generic film type.

Many of the menu items have little or no effect on image quality. Those that have significant effect are highlighted. The full set of menu items is given for completeness. In boxes with a range of numeric settings, e.g. -99~99, the values indicate the range, and zero means no alteration to factory setting, not zero effect, and no scales are given. For each item, the factory setting is given if it is known, and the range offered by the camera under test. Values in parenthesis are relative and depend on other settings, the values shown were those in the camera under test. “BBC” settings are in the last column, where appropriate.

The data files are used in “layers”, Factory, Service, Preset, User. The effect of a numeric data value in the user menus is the sum of all values for that item in all these layers. Only those in the Factory layer are absolute, thus it is vital to have all layers correctly set when entering new values, if the setup is to be copied from camera to camera. To return to Standard Setup (i.e. factory condition), go to menu FILE02 USER FILE 2 and select CLEAR USR PRESET, or FILE03 ALL FILE and select CLEAR ALL PRESET, and press the rotary encoder. Then values can be entered via menus or Memory Stick to achieve a specific setup. The range of values available in some items may not be those quoted in the camera manual, this is due to settings in the Factory layer which must not be altered.

| TOP MENU | |
|---------------------|--|
| USER | Go to daily routine settings, 5 pages that can be customised |
| USER MENU CUSTOMISE | Customise user menu pages |
| ALL | Go to all menu pages |
| OPERATION | Settings for shot-by-shot control |
| PAINT | Settings that normally need lab facilities to control properly |
| MAINENANCE | Camera maintenance, usually best avoided |
| FILE | Load/save reference files etc |
| DIAGNOSIS | Check status of hardware/software |
| SERVICE | Keep out of here if at all possible |

USER MENUS (5 pages) as set up in CUSTOMISE pages, can contain anything from:-

OUTPUT SEL, FUNCTION1, VF DISP1, VF DISP2, “!” LED, MARKER1, GAIN SW, VF SETTINGS, AUTO IRIS, SHOT ID, SHOT DISP, SET STATUS, USER FILE, LENS FILE

OPERATION MENUS

OPERATION01 OUTPUT SEL

setting output signals

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|------------------|------------------------------------|------------|
| HD SDI OUT | ON | OFF/ON | Switch off to save power | ON |
| REAR BNC OUT SEL | OFF | OFF/VBS/SDI | Optional downconvert, vbs=PAL comp | SDI |
| TEST OUT SELECT | HD | HD/SD | Socket on camera side | HD |
| DOWN CON MODE | CROP | SQEZE/LETTR/CROP | Format of downconverter from 16:9 | SQEZE |

OPERATION02 FUNCTION1

switch functions

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|---------------|----------------|-----------------------------------|------------------------------|------------|
| ASSIGN SW <1> | EZ-FC | OFF/F.MIC/LOOPR/CHARA/MARKR/EZ-FC | Set assignable switches, see | EZ-FC |
| ASSIGN SW <2> | F.MIC | OFF/F.MIC/LOOPR/CHARA/MARKR | handbooks | CHARA |
| END SEARCH | OFF | OFF/ON | Search for end of recording | ON |

OPERATION03 FUNCTION2

more switch functions

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|----------------------------------|------------|
| WHITE SWITCH | MEM | MEM/ATW | White bal B, Auto Tracing/Memory | MEM |
| SHOCKLESS WHITE | 1 | OFF/1/2/3sec | Smooth transitions in auto white | OFF |
| ATW SPEED | | 1-5 | Auto white speed | |
| LOW LIGHT | OFF | OFF/ON | Warning message, low light level | |
| LOW LIGHT LEVEL | 0 | (-99~99) | Threshold | |
| BATTERY WARNING | 10% | 10%/20% | Anton Bauer warnings, 0.67/1.33V | |

OPERATION04 VF DISP1

viewfinder display options

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|---------------|----------------|--------------|----------------------------|------------|
| VF DISP | ON | OFF/ON | All on or off except menus | |
| VF DISP MODE | 3 | 1/2/3 | 1=least info, 3=most | |
| DISP EXTENDER | ON | OFF/ON | Lens range extender | |
| DISP FILTER | ON | OFF/ON | Filter wheels | |
| DISP WHITE | ON | OFF/ON | White balance setting | |
| DISP GAIN | ON | OFF/ON | Gain switch | |
| DISP SHUTTER | ON | OFF/ON | Shutter speed | |
| DISP AUDIO | ON | OFF/ON | Audio levels | |
| DISP TAPE | ON | OFF/ON | Tape left | |
| DISP IRIS | ON | OFF/ON | Iris setting | |

OPERATION05 VF DISP2

viewfinder display options

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------------|----------------|--------------|-----------------------------|------------|
| DISP ZOOM | ON | OFF/ON | Lens zoom | |
| DISP COLOR (sic) TEMP | OFF | OFF/ON | Colour temperature | |
| DISP VOLT | OFF | OFF/ON | Battery (DC IN) voltage | ON |
| DISP WRR RF LVL | OFF | OFF/ON | Radio mic receiver rf level | |
| DISP TIME CODE | OFF | OFF/ON | Time code | |

OPERATION06 ! LED

viewfinder warnings options

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|--------------|---|------------|
| GAIN | ON | OFF/ON | If gain < 0dB | |
| SHUTTER | ON | OFF/ON | If shutter is ON | |
| WHT PRESET | ON | OFF/ON | If WHITE BAL is PRST | |
| ATW RUN | ON | OFF/ON | If Auto White Tracing is ON | |
| EXTENDER | ON | OFF/ON | If extender is in | |
| FILTER | OFF | OFF/ON | If filter(s) not at position 1 | |
| OVERRIDE | ON | OFF/ON | If auto-iris ref is not at standard value | |

| OPERATION07 MARKER1 | | | | viewfinder markers, also on side socket monitor output |
|----------------------------|----------------|-----------------------|---|--|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| MARKER | OFF | OFF/ON | All markers on/off | ON |
| CENTER (sic) | OFF | OFF/ON | | |
| CENTER MARK | 3 | 1/2/3/4 | Variants of centre cross marker | |
| SAFETY ZONE | OFF | OFF/ON | | ON |
| SAFETY AREA | 90% | 80/90/92.5/95% | Linear size of safety zone marker | 90% |
| ASPECT | OFF | OFF/ON | Aspect ratio marker | ON |
| ASPECT SELECT | 4:3 | 14:9/13:9/4:3/VISTA/C | Vistavision=1.85:1, Cinemascope=2.35:1 | 14:9 |
| ASPECT MASK | OFF | OFF/ON | Darkens outside the mask in vf only | OFF |
| ASPECT MASK LVL | 0 | 0~8 | Degree of darkness | |
| 100% MARKER | OFF | OFF/ON/SD | Edge of raster, smaller in SD mode* | OFF |

* This marks the edge of the camera image. In "HD" mode it marks the edge pixels and lines, but is narrower in "SD" mode. This is to take account of the ITU Rec.601 image size of 702 (or perhaps 704) pixels width rather than 720. If an edge-of-raster box is required, use the "HD" mode, since there is no guarantee that downconversion will not use the full 1920 pixels width.

| OPERATION08 MARKER2 | | | | viewfinder markers, also on side socket monitor output |
|----------------------------|----------------|----------------|--|--|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| USER BOX | OFF | OFF/ON | User defined marker box | OFF |
| USER BOX WIDTH | 240 | 1~479 | In 4-pixel steps | |
| USER BOX HEIGHT | 135 | 1~269 | In 4-line steps | |
| USER BOX H POS | 0 | -479~479 | 4-pixel/line steps. Limited by box size, | |
| USER BOX V POS | 0 | -268~268 | not allowed to go off edge of screen | |
| CENTER H POS | 0 | -479~480 | In 4-pixel/line steps, moves centre | 0 |
| CENTER V POS | 0 | -270~269 | marker | 0 |
| ASPECT SAFE ZONE | | ON/OFF | | |
| ASPECT SAFE AREA | | 80/90/92.5/95% | | |

| OPERATION09 GAIN SW | | | | gain switch settings |
|----------------------------|----------------|------------------------|-------------------------------------|----------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| GAIN LOW | 0dB | -3dB / 0dB / 6dB / 9dB | Usual gain settings | 0dB |
| GAIN MID | 6dB | / 12dB / 18dB / 24dB / | | 6dB |
| GAIN HIGH | 12dB | 30dB / 36dB / 42dB | | 12dB |
| GAIN TURBO | 42dB | | | 42dB |
| TURBO SW IND | OFF | OFF/ON | Disables L/M/H switch when in turbo | OFF |

| OPERATION10 VF SETTING | | | | more on the viewfinder |
|-------------------------------|----------------|--------------|--|------------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| ZEBRA | OFF | OFF/ON | | ON |
| ZEBRA SELECT | 1 | 1/2/BOTH | | BOTH |
| ZEBRA1 DET LEVEL | 0 | (0~199) | Set for skin, 45=65% on grey scale | 45 |
| ZEBRA2 DET LEVEL | 0 | (-49~149) | Set for white, 0=100% on grey scale | 0 |
| ASPECT | OFF | OFF/ON | Duplicates setting in OPERATION07 | ON |
| VF DETAIL LEVEL | 0 | (-120~78) | Software detail enhancer, no affect on | 0 |
| VF DTL H LEVEL | 0 | (-99~99) | recording or output (vf also has | 0 |
| VF DTL V LEVEL | 0 | (-99~99) | peaking), helps with focus checks | 0 |

| OPERATION11 AUTO IRIS | | | | |
|------------------------------|----------------|-----------------|--|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| IRIS OVERRIDE | OFF | OFF/ON | Allows aim point control, ± 1 stop | OFF |
| IRIS SPEED | 2 | 1/2/3/4/5 | 1=fast, 5=slow | |
| CLIP HIGHLIGHT | OFF | OFF/ON | Ignores signal over 100% | |
| IRIS WINDOW | 1 | 1/2/3/4/5/6/VAR | Detection box shape | |
| IRIS WINDOW IND | OFF | OFF/ON | Checks iris window against box cursor | |
| IRIS VAR WIDTH | 240 | 1~479 | VARIABLE box, set in in 4-pixel/line | |
| IRIS VAR HEIGHT | 135 | 1~269 | steps, same as box cursor | |
| IRIS VAR H POS | 0 | -479~479 | 4-pixel/line steps. Limited by box size, | |
| IRIS VAR V POS | 0 | -268~268 | not allowed to go off edge of screen | |

| OPERATION12 SHOT ID | | | | identifying shots for tape |
|----------------------------|----------------|--------------|---------------------------------|----------------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| ID-1 | | | | |
| ID-2 | | | 4 lines, each of 12 characters, | |
| ID-3 | | | alphanumerics, symbols, spaces | |
| ID-4 | | | allowed | |

OPERATION13 SHOT DISP

this goes over colour bars as a caption

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------|----------------|--------------|----------------------------|------------|
| SHOT DATE | OFF | OFF/ON | | OFF |
| SHOT TIME | OFF | OFF/ON | | OFF |
| SHOT MODEL NAME | OFF | OFF/ON | Camera model name | OFF |
| SHOT SERIAL NO | OFF | OFF/ON | Camera serial number | OFF |
| SHOT ID SEL | OFF | OFF/ID-1~4 | Selection from OPERATION12 | OFF |
| SHOT BLINK CHAR | OFF | OFF/ON | Characters can flash | OFF |

OPERATION14 SET STATUS

select what comes up when STATUS switch is ON

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------|----------------|--------------|---|------------|
| STATUS ABNORMAL | ON | OFF/ON | Enables the “!” warnings: shows GAIN, SHUTTER, WHT PRESET, ATW RUN, EXTENDER, FILTER, OVERRIDE | ON |
| SATUS FUNCTION | ON | OFF/ON | Enables function screen: shows ASSIGN SW1, ASSIGN SW2, LOOP REC, REAR BNC, TEST OUT, HD SDI | ON |
| STATUS AUDIO | ON | OFF/ON | Enables audio status screen: shows EMPHASYS, CH1/2/3/4 SOURCE, sound levels | ON |

OPERATION15 TEST OUT

what comes out of the side socket marked TEST

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|----------------------------------|------------|
| TEST OUT MARKER | OFF | OFF/ON | All vf markers | OFF |
| TEST OUT VF DISP | OFF | OFF/ON | All vf text | OFF |
| TEST OUT MENU | OFF | OFF/ON | All menus | OFF |
| TEST OUT ZEBRA | OFF | OFF/ON | Zebra as set for vf | OFF |
| OUTPUT SELECT | Y | Y/R/G/B | HD monitor, Y becomes VBS for SD | OFF |

OPERATION16 OFFSET WHITE

deliberate offsets from white balance

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|---|------------|
| OFFSET WHITE <A> | OFF | OFF/ON | Settings work only if auto white is off | OFF |
| WARM COOL <A> | 3200 | 1592~27585K | Coarse R/B balance | |
| COLOR FINE <A> | 0 | (-99~99) | Fine R/B balance | |
| OFFSET WHITE | OFF | OFF/ON | Settings work only if auto white is off | OFF |
| WARM COOL | 3200 | 1592~27585K | Coarse R/B balance | |
| COLOR FINE | 0 | (-99~99) | Fine R/B balance | |

OPERATION17 SHT ENABLE

shutter speeds/modes for the external shutter switch

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|----------------|----------------|--------------|---------------------------------------|------------|
| SHUTTER ECS | ON | OFF/ON | Extended Clear Scan, dialable shutter | ON |
| SHUTTER 1/60 | ON | OFF/ON | 1/100 for shooting at 59.94 Hz | ON |
| SHUTTER 1/125 | ON | OFF/ON | | ON |
| SHUTTER 1/250 | ON | OFF/ON | | ON |
| SHUTTER 1/500 | ON | OFF/ON | | ON |
| SHUTTER 1/1000 | ON | OFF/ON | | ON |
| SHUTTER 1/2000 | ON | OFF/ON | | ON |

OPERATION18 LENS FILE

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|------------------|------------|
| LENS FILE SELECT | OFF | OFF/1~5 | Select lens file | OFF |
| F.ID | | | Display file ID | |

PAINT

PAINT01 SW STATUS

main controls

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|------------------------|--|--------------|
| GAMMA | ON | OFF/ON | | ON |
| BLACK GAMMA | OFF | OFF/ON | | ON{n} OFF{r} |
| MATRIX | OFF | OFF/ON | | ON |
| KNEE | ON | OFF/ON | | ON |
| WHITE CLIP | ON | OFF/ON | | ON |
| DETAIL | ON | OFF/ON | | ON |
| APERTURE | ON | OFF/ON | | ON |
| FLARE | ON | OFF/ON | | ON |
| EVS | OFF | OFF/ON | Enhanced Vertical resolution System | OFF |
| TEST SAW | OFF | OFF/ANALOG/ DIGITAL | Analog replaces the ccd signal. works only if BARS are OFF. | OFF |

PAINT02 WHITE

colour temperatures stored by the WHITE A/B switch

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|----------------|----------------|---------------|-----------------------------------|------------|
| COLOR TEMP <A> | 3200 | (2088~19000K) | Tweaks R/B gains indirectly | |
| COLOR FINE <A> | 0 | (-99~99) | Fine control | |
| R GAIN <A> | 0 | (-99~99) | Tweaking these changes the colour | |
| B GAIN <A> | 0 | (-99~99) | temperature setting | |
| COLOR TEMP | 3200 | (2088~19000K) | Tweaks R/B gains indirectly | |
| COLOR FINE | 0 | (-99~99) | Fine control | |
| R GAIN | 0 | (-99~99) | Tweaking these changes the colour | |
| B GAIN | 0 | (-99~99) | temperature setting | |

PAINT03 BLACK/FLARE

master black settings

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|---------------|----------------|--------------|-----------------------------------|------------|
| MASTER BLACK | 0 | (-101~97) | | 0 |
| R BLACK | 0 | (-101~97) | | 0 |
| B BLACK | 0 | (-101~97) | | 0 |
| MASTER FLARE | 0 | (-99~99) | | 0 |
| R FLARE | 0 | (-99~99) | | 0 |
| G FLARE | 0 | (-99~99) | | 0 |
| B FLARE | 0 | (-99~99) | | 0 |
| FLARE | ON | OFF/ON | | ON |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | Y |

PAINT04 GAMMA

main gamma controls

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|---------------|----------------|--------------|--|---------------------|
| GAMMA | ON | OFF/ON | All curve bending | ON |
| MASTER GAMMA | 0 | | These controls have huge range, limits | 0 |
| R GAMMA | 0 | | and centres depend on whether STD or | 0 |
| G GAMMA | 0 | | FILM gamma is selected, and on the | 0 |
| B GAMMA | 0 | | contents of lower menu layers | 0 |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicated in OPERATION15 | Y |
| GAMMA SEL | STD | STD/FILM | FILM gamma has built-in soft knee | FILM{n} STD{r,v} |
| GAMMA SEL | 3 | 1~4 | 1="Digibeta" (3.5x), 2=SMPTE240 (4x), 3=ITU709 (4.5x), 4=BBC (5x) | 4{n} 3{r,v} |

PAINT05 BLK GAMMA

independent slope at black

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|----------------------|-----------------------------------|------------|
| BLACK GAMMA | ON | OFF/ON | | ON{n} |
| BLK GAMMA RANGE | HIGH | LOW/L.MID/H.MID/HIGH | 3.6/7.2/14.4/28/8% of luma | OFF{r,v} |
| MASTER BLK GAMMA | 0 | (-101~97) | Raises slope to about 7.5x | H.MID |
| R BLK GAMMA | 0 | (-101~97) | | 60 |
| G BLK GAMMA | 0 | (-101~97) | | 0 |
| B BLK GAMMA | 0 | (-101~97) | | 0 |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | 0 |
| | | | | Y |

PAINT06 KNEE

highlight compression

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|--------------------------------------|----------------------|
| KNEE | ON | OFF/ON | | ON |
| KNEE POINT | 95.0 | 50%~109% | Two soft bends, this sets the lower | 100{n} 85{r,v} |
| KNEE SLOPE | 0 | (-136~62) | Affects both segment slopes (curved) | -116{n} - 15{r,v} |
| KNEE SATURATION | ON | OFF/ON | Not needed, True Eye keeps colours | OFF |
| KNEE SAT LEVEL | 0 | (-99~99) | right | |
| WHITE CLIP | ON | OFF/ON | | ON |
| WHITE CLIP LEVEL | 108.0 | 100.0~109.5% | | 108% |

PAINT07 DETAIL1

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|--|---------------------------|
| DETAIL | ON | OFF/ON | All DETAIL comensation | ON |
| APERTURE | ON | OFF/ON | Separate APERTURE correction | ON |
| DETAIL LEVEL | 0 | (-128~70) | Overall level | -70{35} -90{16} -25{v} |
| APERTURE LEVEL | 0 | (-1~14) | Overall level | 5{35,v} 4{16} |
| DETAIL H/V RATIO | 0 | (-145~53) | Only changes vertical amount | 0 |
| CRISPENING | 0 | (-77~121) | Signal level range that gets crispened | 0 |
| LEVEL DEPEND | ON | OFF/ON | Detail level dependency | 0 |
| LEVEL DEPEND LVL | 0 | (-37~161) | Detail level range affected | ON |
| DETAIL FREQ | 0 | (-99~99) | Frequency of detail compensation | 99{35,v} 65{16} |

PAINT08 DETAIL2

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|--------------------|----------------|--------------|-------------------------------------|------------|
| KNEE APERTURE | ON | OFF/ON | Extra detail above knee point | OFF |
| KNEE APT LEVEL | 0 | (0~199) | | |
| DETAIL WHT LIMIT | 0 | (-175~23) | Detail +ve excursion limit | |
| DETAIL BLK LIMIT | 0 | (-157~41) | Detail -ve excursion limit | |
| DETAIL V-BLK LIMIT | 0 | (-61~137) | Vertical detail -ve excursion limit | |

PAINT09 SD DETAIL

extra controls for downconverter, if fitted

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|----------------|------------|
| SD DETAIL | ON | OFF/ON | All as for HD | OFF |
| SD DETAIL LEVEL | 0 | (-50~148) | | |
| SD CRISPENING | 0 | (0~15) | | |
| SD DTL WHT LIMIT | 0 | (-101~97) | | |
| SD DTL BLK LIMIT | 0 | (-101~97) | | |
| SD LEVEL DEPEND | ON | OFF/ON | | |
| SD LV DEPEND LVL | 0 | (-8~7) | | |
| SD DTL FREQ | 0 | (-2~1) | | |
| SD DTL H/V RATIO | 0 | (-3~4) | | |
| SD CROSS COLOR | 0 | (0~15) | | |

PAINT10 SKIN DETAIL

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|--------------|--|------------|
| SKIN DETAIL ALL | OFF | OFF/ON | All skin detail on/off | OFF |
| SKIN DETECT | EXEC | | Press rotary encoder to detect skin colour | |
| SKIN AREA IND | OFF | OFF/ON | Zebra display of target area | |
| SKIN DTL SELECT | 1 | 1/2/3 | 3 separate banks of skin detail controls | |
| SKIN DETAIL | ON | OFF/ON | Separate controls for each bank | |
| SKIN DETAIL LEVEL | 1 | (-81~117) | Detail level | |
| SKIN DTL SAT | 0 | (-24~174) | Saturation change | |
| SKIN DTL HUE | 0 | (0~359) | Hue change | |
| SKIN DTL WIDTH | 40 | (0~359) | Target hue angle width | |

PAINT11 MTX LINEAR

camera matrix

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|--------------|---|------------|
| MATRIX | OFF | OFF/ON | All matrices | ON |
| MATRIX (USER) | OFF | OFF/ON | Roll your own matrix | OFF |
| MATRIX (PRESET) | OFF | OFF/ON | Standard matrices | ON |
| MATRIX (PRST) SEL | 2 | 1~6 | SMPTE240/ITU709/SMPTE-WIDE/ NTSC/EBU(i.e.PAL)/ITU601 | 2 |
| MATRIX (USER) R-G | 0 | (-99~99) | | |
| MATRIX (USER) R-B | 0 | (-99~99) | | |
| MATRIX (USER) G-R | 0 | (-99~99) | | |
| MATRIX (USER) G-B | 0 | (-99~99) | | |
| MATRIX (USER) B-R | 0 | (-99~99) | | |
| MATRIX (USER) B-G | 0 | (-99~99) | | |

PAINT12 MTX MULTI

multi-linear matrix, for advanced knob twiddlers only

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--|---|------------|
| MATRIX | OFF | OFF/ON | All matrices | ON |
| MATRIX (MULTI) | OFF | OFF/ON | Roll your own multi-segment matrix | OFF |
| MATRIX AREA IND | OFF | OFF/ON | Use zebra to show active region | |
| MATRIX COLOR DET | EXEC | | Press rotary encoder to select current area | |
| MTX (MULTI) AXIS | B | B/B+/MG-/MG+ /R/R+/YL- /YL+/G-/G+/CY/CY+/B- | 14 hue angle zones | |
| MTX (MULTI) HUE | 0 | (-99~99) | Adjustment | |
| MTX (MULTI) SAT | 0 | (-99~99) | Adjustment | |

PAINT13 V MODULATION

temporary white V sawtooth lens shading correction

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|----------------|----------------|--------------|-----------------------------------|------------|
| VMOD | OFF | OFF/ON | | OFF |
| MASTER VMOD | 0 | (-99~99) | Collective control | |
| R VMOD | 0 | (-99~99) | | |
| G VMOD | 0 | (-99~99) | | |
| B VMOD | 0 | (-99~99) | | |
| OUTPUT SETLECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | |

PAINT14 LOW KEY SAT

extra saturation control for dark bits

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------|----------------|--------------------------|----------------------------------|-------------------|
| LOW KEY SAT | OFF | OFF/ON | | OFF |
| L KEY SAT LEVEL | 0 | (-175~23) | Collective control | |
| L KEY SAT RANGE | HIGH | LOW/L.MID/H.MID/ HIGH | up to 3.6/7.2/14.4/28.8% of luma | |
| Y BLACK GAMMA | OFF | OFF/ON | Keeps saturations right | OFF{n} ON{r,v} |
| Y BLK GAM LEVEL | 0 | (-100~98) | Slope | -61 |
| Y BLK GAM RANGE | HIGH | LOW/L.MID/H.MID/ HIGH | up to 3.6/7.2/14.4/28.8% of luma | H.MID |

PAINT15 SCENE FILE

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|--------------|----------------|--------------|--|------------|
| 1 | | open/blot | Select scene file or factory STANDARD. Always load STANDARD first when setting up a camera. Open box indicator to read from camera, filled box indicator to read from memory stick. | |
| 2 | | open/blot | | |
| 3 | | open/blot | | |
| 4 | | open/blot | | |
| 5 | | open/blot | | |
| STANDARD | | open/blot | | |
| SCENE RECALL | EXEC | | Press rotary encoder to read/recall it | |
| SCENE STORE | EXEC | | Press rotary encoder to save it | |
| F ID | | | 16 character file ID | |

MAINTENANCE

MAINTENANCE01 WHT SHADING

lens corrections

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|--------------|------------------------------------|------------|
| SHADING CH SELECT | R | R/G/B | Select channel, lower items change | |
| OUTPUT SELECT | Y | OFF/ON | Duplicates setting in OPERATION15 | Y |
| R WHITE H SAW | 0 | (-110~88) | | 0 |
| R WHITE H PARA | 0 | (-78~120) | | 0 |
| R WHITE V SAW | 0 | (-109~89) | | 0 |
| R WHITE V PARA | 0 | (-99~99) | | 0 |
| WHITE SAW/PARA | ON | OFF/ON | All on/off | ON |

MAINTENANCE02 BLK SHADING

lens corrections

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|--------------|--------------------------------------|------------|
| SHADING CH SELECT | R | R/G/B | Select channel, lower items change | |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | Y |
| R WHITE H SAW | 0 | (-88~110) | | 0 |
| R WHITE H PARA | 0 | (-112~86) | | 0 |
| R WHITE V SAW | 0 | (-95~103) | | 0 |
| R WHITE V PARA | 0 | (-103~95) | | 0 |
| WHITE SAW/PARA | ON | OFF/ON | All on/off | ON |
| MASTER BLACK | 0 | (-101~97) | | |
| MASTER GAIN (TMP) | 0dB | -3dB to 42dB | Gain changes only for this operation | 12dB |

MAINTENANCE03 LEVEL ADJ

main output signal levels

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|---------------|----------------|--------------|-----------------------------------|------------|
| Y LEVEL | 0 | (-129~69) | | 0 |
| SYNC LEVEL | 0 | (-95~103) | | 0 |
| Pr LEVEL | 0 | (-117~81) | | 0 |
| Pb LEVEL | 0 | (-117~81) | | 0 |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | |

MAINTENANCE04 SD LEVEL ADJ

downconverter output signal levels

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------|----------------|--------------|----------------|------------|
| SD VBS LEVEL | 0 | (-112~86) | | 0 |
| SD VF Y LEVEL | 0 | (-86~112) | | 0 |
| SD VF R-Y LEVEL | 0 | (-82~116) | | 0 |
| SD VF B-Y LEVEL | Y | (-82~116) | | 0 |

MAINTENANCE05 BATTERY

voltage parameters, sets warning levels

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|--------------|---------------------------------|------------|
| <Sony info> | | | | |
| BEFORE END 1 | 5% | 5%~100% | Sony Infolithium | |
| END 1 | 0% | 0%~5% | | |
| <Sony> | | | | |
| BEFORE END 2 | 11.3 | 11~17V | Settings used for IDX batteries | 11.3 |
| END 2 | 11.0 | 10.5~11.5V | | 11.0 |
| <Others, EXT DC> | | | | |
| BEFORE END | 11.3 | 11.0~13.0V | | 11.3 |
| END | 11.0 | 10.5~11.5V | | 11.0 |

MAINTENANCE06 VTR MODE-1

vtr signal routing

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|--------------|----------------------------------|------------|
| VIDEO OUT (F/R) | EE | EE/PB | Output during FF/REW | |
| AUDIO OUT (F/R) | CUE | CUE/EE | Output during FF/REW | |
| REC AUDIO OUT | EE | EE/SAVE | Output while recording | |
| CAMERA ADAPTER | ENBLE | ENBLE/DSABL | | |
| AUDIO CH 3/4 MODE | CH1/2 | CH1/2/SW | | |
| REAR XLR AUTO | ON | OFF/ON | Rear XLR can detect audio itself | 11.0 |
| FRONT MIC REF | -60dB | -50/-60dB | | |
| REAR 1 MIC REF | -60dB | -50/-60dB | | |
| REAR 2 MIC REF | -60dB | -50/-60dB | | |

| MAINTENANCE07 VTR MODE-2 | | | | vtr audio controls |
|---------------------------------|----------------|------------------|-------------------------------------|--------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| AU REC EMPHASIS | OFF | OFF/ON | | ON |
| CUE REC | ON | OFF/ON | | ON |
| AU REF LEVEL | -18dB | -18dB/-20dB | | -20dB |
| AU REF OUT | 0dB | 0dB/+4dB/-3dB | | 0dB |
| AU SG (1kHz) | OFF | ON/OFF/AUTO | Tone with bars | AUTO |
| MIC CH1 LEVEL | FRONT | SIDE1/FRONT/F+S1 | Selects knob to control front mic L | |
| MIC CH2 LEVEL | FRONT | SIDE2/FRONT/F+S2 | Selects knob to control front mic R | |
| REAR1/WRR LEVEL | SIDE1 | SIDE1/FRONT/F+S1 | Selects knob to control radio mic L | |
| REAR2/WRR LEVEL | SIDE2 | SIDE2/FRONT/F+S2 | Selects knob to control radio mic R | |

| MAINTENANCE08 VTR MODE-3 | | | | vtr time-code and user bits |
|---------------------------------|----------------|--------------|--|-----------------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| TC/OUT | AUTO | AUTO/GENE | | AUTO |
| EXT-LK UBIT | INT | INT/EXT | LTC user bits lock to INT/EXT source | INT |
| LTC UBIT | FIX | FIX/TIME | | FIX |
| VITC UBIT | FIX | FIX/TIME | | FIX |
| WATCH AUTO ADJ | ON | OFF/ON | Auto time correction of built-in watch | ON |
| UBIT GROUP ID | 000 | 000/101 | | 000 |

| MAINTENANCE09 VTR MODE-4 | | | | vtr odds & sods |
|---------------------------------|----------------|-------------------|--|-----------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| REC TALLY BLINK | ON | OFF/ON | Tally blinks near end of tape or battery | ON |
| REC START/STOP | OFF | OFF/ON | Beep at tape start/stop | OFF |
| MODE SEL | SEL | SEL/OFF/CONT | TC display after switch off, SEL setting | OFF |
| TIMER SET | 1H | 1H/3H/8H | in hours after switch off | |
| STBY OFF TIMER | 5MIN | OFF/5/10/30/60MIN | | 5MIN |
| STOP KEY FREEZE | OFF | OFF/FRAME/FIELD | Frame or field freeze when tape stops | FRAME |

| MAINTENANCE10 VTR MODE-5 | | | | vtr markers |
|---------------------------------|----------------|-----------------------|------------------------------------|-------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| LTC UB-MARKER | SET | SET/ALL/OFF | Controls whether to write into LTC | |
| REC START MARKER | OFF | OFF/ON | | |
| SHOT MARKER 1 | OFF | OFF/ON | | |
| SHOT MARKER 2 | OFF | OFF/ON | | |
| SHOT TIME DISPLAY | MD:HM | MD:HM/DM:HM/ D:HMS | Time format | |

| MAINTENANCE11 PRESET WHT | | | | white balance tweaker |
|---------------------------------|----------------|----------------|---|-----------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| COLOR TEMP | 3200 | 2088~very high | Coarse tweak of colour temperature | |
| COLOR FINE | 0 | (-99~99) | Fine control | |
| R GAIN | 0 | (-99~99) | These controls reflect into colour temp | |
| B GAIN | 0 | (-99~99) | | |
| AWB ENABLE | OFF | OFF/ON | Sets auto white as preset | OFF |

| MAINTENANCE12 DCC | | | | auto knee |
|--------------------------|----------------|----------------------|--------------------------------------|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| DCC FUNCTION SEL | DCC | DCC/ADP.K/FIX | FIX=600%, ADP.K tries to do the best | DCC |
| DCC POINT | 500% | 400/450/500/550/600% | | 600% |
| DCC D RANGE | 0 | (-99~99) | | 0 |
| DCC GAIN | 0 | (-99~99) | | 0 |
| DCC PEAK FILTER | 0 | 0/1/2/3 | | 0 |
| DCC DELAY TIME | 0 | (-4~194) | | 0 |

| MAINTENANCE13 IRIS2 | | | | auto iris |
|----------------------------|----------------|-----------------|--|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| IRIS WINDOW | 1 | 1/2/3/4/5/6/VAR | 6 shapes and variable | |
| IRIS WINDOW IND | OFF | OFF/ON | Shows iris box in vf | |
| IRIS LEVEL | 0 | (-49~149) | Convergence level | |
| IRIS APL RATIO | 0 | (-79~119) | High=average, low=peak | |
| IRIS VAR WIDTH | 240 | -479~479 | 4-pixel/line steps. Limited by box size, | |
| IRIS VAR HEIGHT | 135 | -268~268 | not allowed to go off edge of screen | |
| IRIS VAR H POS | 0 | -479~480 | In 4-pixel/line steps, moves centre | |
| IRIS VAR V POS | 0 | -270~269 | marker | |
| IRIS SPEED | 2 | 1/2/3/4/5 | 1=fast, 5=slow | |
| CLIP HIGH LIGHT | OFF | OFF/ON | Limits detection level to 100% | |

MAINTENANCE14 FUNCTION3

more odds & sods

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------------|----------------|----------------------------------|--|------------|
| WHT FILTER INH | OFF | OFF/ON | Inhibits separate white balance values being stored for each filter position | OFF |
| COLOR BAR SEL | 100% | SMPTE/100%/75%/4:3-1/4:3-2/4:3/3 | | SMPTE |
| RM COMMON MEMORY | OFF | OFF/ON | Remote control, ON keeps changes after disconnection, OFF loses them | OFF |
| VTR START/STOP | RM | RM/CAM/PARA | Remote control of vtr | |
| USER AND ALL ONLY | OFF | OFF/ON | Memory allocations | |

MAINTENANCE15 GENLOCK

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-----------------|----------------|--------------|---------------------------------------|------------|
| GENLOCK | ON | OFF/ON | Genlocks to HD trisync | ON |
| RETURN VIDEO | OFF | OFF/ON | Show HD return feed on press Lens Ret | ON |
| GL PHASE COARSE | 0 | (-99~99) | | |
| GL PHASE FINE | 0 | (-99~99) | | |

MAINTENANCE16 FORMAT

operating mode

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|--------------|--------------------------------------|------------|
| CURRENT | display | | | |
| NEXT | | 59.94i/50i | Set this then power off/on to change | 50i |

FILE**FILE01 USER FILE**

lens corrections

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|----------------|----------------|----------------------|---------------------------------------|------------|
| USER FILE LOAD | EXEC | Press rotary encoder | load/save USER file from memory stick | |
| USER FILE SAVE | EXEC | | | |
| F.ID | | text | 16 characters | |
| USER PRESET | EXEC | | Resets USER menus to standard | |

FILE02 USER FILE 2

customising, memory stick operations

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|----------------------|---------------------------------------|------------|
| STORE USR PRESET | EXEC | Press rotary encoder | Save USER data and use as PRESET | |
| CLEAR USR PRESET | EXEC | | Return USER data to factory settings | |
| CUSTOMIZE PRESET | EXEC | | Reset customised menus to factory | |
| LOAD CUSTOM DATA | OFF | OFF/ON | Load customised menus | |
| LOAD OUT OF USER | OFF | OFF/ON | Load items in USER categories as well | |
| BEFORE FILE PAGE | OFF | OFF/ON | Save only data from before USER page | |
| USER LOAD WHITE | OFF | OFF/ON | Read out WHITE data | |

FILE03 ALL FILE

powerful customising, memory stick operations

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|------------------|----------------|----------------------|--|------------|
| ALL FILE LOAD | EXEC | Press rotary encoder | Read all menu items from stick | |
| ALL FILE SAVE | EXEC | | Save all menu items to stick | |
| F.ID | | | 16 characters | |
| ALL PRESET | EXEC | | Reset all menu items to standard settings. numeric ranges go back to e.g. -99~99 | |
| STORE ALL PRESET | EXEC | | Save all menu items and use in PRESET layer, changes numeric ranges. | |
| CLEAR ALL PRESET | EXEC | | Return all menus to factory settings | |
| 3SEC CLR PRESET | OFF | | Allows PRESET layer to return to factory settings when CANCEL switch pressed for 3 seconds | |

FILE04 SCENE FILE

less dangerous memory stick stuff

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|--------------|----------------|----------------------|--|------------|
| 1 | | open/blot | | |
| 2 | | open/blot | RECALL/CANCEL scene file, Open | |
| 3 | | open/blot | box reads file from memory stick, filled | |
| 4 | | open/blot | box cancels scene file | |
| 5 | | open/blot | | |
| STANDARD | | open/blot | Returns to standard setting | |
| SCENE RECALL | EXEC | Press rotary encoder | Brings up secondary menus to | |
| SCENE STORE | EXEC | | save/load scene files | |
| F.ID | | | 16 characters | |

| FILE05 REFERENCE FILE | | | | less dangerous memory stick stuff |
|------------------------------|----------------|----------------------|---|-----------------------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| REFERENCE STORE | EXEC | Press rotary encoder | Save REF file in main unit | |
| REFERENCE CLEAR | EXEC | | Reset REF file to factory settings | |
| REFERENCE LOAD | EXEC | | Read REF file from memory stick | |
| REFERENCE SAVE | EXEC | | Save Ref file to memory stick | |
| F.ID | | | 16 characters | |
| SCENE WHITE DATA | OFF | OFF/ON | Allow/disallow white data in scene file | |

| FILE06 LENS FILE 1 | | | | |
|---------------------------|----------------|----------------------|---|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| LENS FILE RECALL | EXEC | Press rotary encoder | Brings up secondary menus, load/save | |
| LENS FILE STORE | EXEC | | up to 5 files to camera or memory stick | |
| F.ID | | | 16 characters | |
| LENS NO OFFSET | EXEC | | Resets lens file data to factory settings | |
| SOURCE | | display only | Displays lens file memory number | |

| FILE07 LENS FILE 2 | | | | |
|---------------------------|----------------|--------------|--------------------------------------|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| LENS M VMOD | 0 | -99~99 | Master V Mod correction | |
| LENS CENTER H | 0 | -480~479 | Centre marker position in steps of 2 | |
| LENS CENTER V | 0 | -270~269 | pixels/lines | |
| OUTPUT SELECT | Y | Y/R/G/B | Duplicates setting in OPERATION15 | |
| LENS R FLARE | 0 | -99~99 | | |
| LENS G FLARE | 0 | -99~99 | | |
| LENS B FLARE | 0 | -99~99 | | |
| LENS W-R OFST | 0 | -99~99 | | |
| LENS W-B OFST | 0 | -99~99 | Red and Blue white gain offsets | |

| FILE08 LENS FILE 3 | | | | |
|---------------------------|----------------|--------------|------------------------------------|------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| SHADING CH SELECT | 0 | Y/R/G/B/RGB | Master V Mod correction | |
| OUTPUT SELECT | Y | Y/R/G/B/RGB | Like setting in OPERATION15 | |
| LENS R H SAW | 0 | -99~99 | | |
| LENS R H PARA | 0 | -99~99 | Sawtooth and parabola settings for | |
| LENS R V SAW | 0 | -99~99 | whichever channel(s) selected | |
| LENS R V PARA | 0 | -99~99 | | |

| FILE09 MEMORY STICK | | | | memory stick options |
|----------------------------|----------------|--|--|----------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| FORMAT | EXEC | Press rotary encoder | Wipes it clean | |
| MS IN JUMP TO | OFF | OFF/USER/ALL/SCENE / LENS/REF/USER1 | Action on inserting memory stick, jump to a menu page | |

| FILE10 TELE FILE | | | | format stick |
|-------------------------|----------------|----------------------|--|--------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| TELE FILE CLEAR | EXEC | Press rotary encoder | | |
| ID | | | 20 characters | |
| SIZE | 0000KBYTE | | Memory label capacity | |
| REMAIN | 00% | display only | Memory label free space | |
| STATUS | STANDBY | | STANDBY=write enabled, NO LABEL= not attached, WRITE PROTECT, UNKOWN FORMAT=write disabled, NO CASSETTE, UNFORMAT=not formatted, MEMORY FULL | |

DIAGNOSIS

| DIAGNOSIS01 HOURS METER | | | | vtr usage meters |
|--------------------------------|----------------|----------------------|--|------------------|
| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
| RESET METER | EXEC | Press rotary encoder | Menu to reset any of lower four meters | |
| DRUM RUNNING | | | Drum rotation hours | |
| TAPE RUNNING | | | Tape running hours | |
| OPERATION | | | Power-on hours | |
| THREADING | | | Number of threadings | |
| DRUM RUNNING 2 | | | | |
| TAPE RUNNING 2 | | | | |
| OPERATION 2 | | | Resettable meters | |
| THREADING 2 | | | | |

DIAGNOSIS02 TIME/DATE

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|----------------------|----------------|------------|
| ADJUST | EXEC | Press rotary encoder | | |
| HOUR | 12 | | | |
| MIN | 55 | | | |
| SEC | 58 | | | |
| YEAR | 00 | | | |
| MONTH | 06 | | | |
| DAY | 24 | | | |

DIAGNOSIS03 ROM VERSION

software versions

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|--------------|--------------------|------------|
| AT : Ver | 1.80 | | IC38/AT-143 board | |
| SS : Ver | 1.83 | | IC8/SS-92 board | |
| FP : Ver | 1.52 | | IC801/FP-121 board | |
| EQ : Ver | 1.50 | | IC1101/EQ-88 board | |

DIAGNOSIS04 DEV STATUS

reports on hardware status checks

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|-------------|----------------|-----------------------|------------------------------|------------|
| I/O | | | Input/Ouput devices | |
| IFA | | | IC201, 204/IFA-11 board | |
| DR | | | IC33/DR-433 board | |
| VF1 | | OK=normal | IC inside vf | |
| VF2 | | NG=Abnormal | IC inside vf | |
| FP1 | | ---=state not defined | IC703/FP-121 board | |
| FP2 | | | IC704/FP-121 board | |
| RP1 | | | IC10/RP-123 board | |
| EEPROM | | | EEPROM checks | |
| IFA | | | IC202/IFA-11 board | |
| DCP | | | IC611/DCP-28 board | |
| DR | | | IC31/DR-433 board | |
| LSI | | | LSI checks | |
| SCVP | | | IC109/DCP-28 board | |
| SG | | | IC614/DCP-28 board | |
| DCON | | | IC23/DC-110 board | |
| SCI | | | SCI checks | |
| SS | | | Comms with SS microprocessor | |
| RM | | | Comms with remote control | |
| BATT | | | | |

DIAGNOSIS05 OPTION BOARD

reports on hardware option boards

| <i>item</i> | <i>factory</i> | <i>range</i> | <i>comment</i> | <i>BBC</i> |
|----------------|----------------|--------------|--------------------------------------|------------|
| DOWN CONVERTER | | O/- | O=installed, -=not installed | |
| HD-SDI OUTPUT | | O/- | | |
| PIC CACHE | | O/- | 8 second looping video store | |
| SLOW SHUTTER | | O/- | Slower than 1/50 shutter, uses cache | |

Further menus exist but are accessible only by setting internal switches. They are best left to qualified service personnel.