

ACE24 POWER REQUIREMENT: 9V RMS AC or DC at 600mA
UK MAINS POWER ADAPTOR: 220/240V AC Nominal, 50/60Hz

For other supplies please use a Mains Adaptor with 9V output as above to suit your local mains supply and meeting all local safety regulations with a standard 2.1mm * 5.5mm * 12mm plug. Polarity is unimportant.

SAFETY NOTE: Power source maximum voltage 10VAC or 12VDC. Current rating from 600mA to 1Amp if 9V. 600mA Maximum if 12V. The adaptor must be fully isolated and self-protected against overload.

PLEASE NOTE: The ACE24 has been designed to meet all relevant standards but the performance of the ACE24 may be impaired if it is subjected to strong RF fields or irregular mains voltage supplies. Screened cables should always be used for all inter-connections.

CE

GUARANTEE

Any defects which appear under proper use in the ACE24 or accessories within a period of twelve months after delivery and which are due to faulty materials, workmanship or design will be made good by us either by repair or, at our option, by replacement, with free postage back to you, provided that the ACE or accessories are returned to us, carriage paid and suitably packaged, within the twelve month period, together with a claim in writing with proof of the purchase date. You are also advised to use a means of transport providing proof of delivery in case of loss in transit. Please check carefully as return postage is charged if no fault is found!

Except for any liability which we may incur for death or personal injury resulting from negligence or under Part 1 of the Consumer Protection Act 1987 (UK) we shall not be liable in any way whatsoever whether in contract, or in tort, in misrepresentation or under statute or common law or otherwise for any consequential or other loss, damage or injury however caused and whether caused by our negligence which may arise out of or in connection with supply of the ACE and accessories to you.

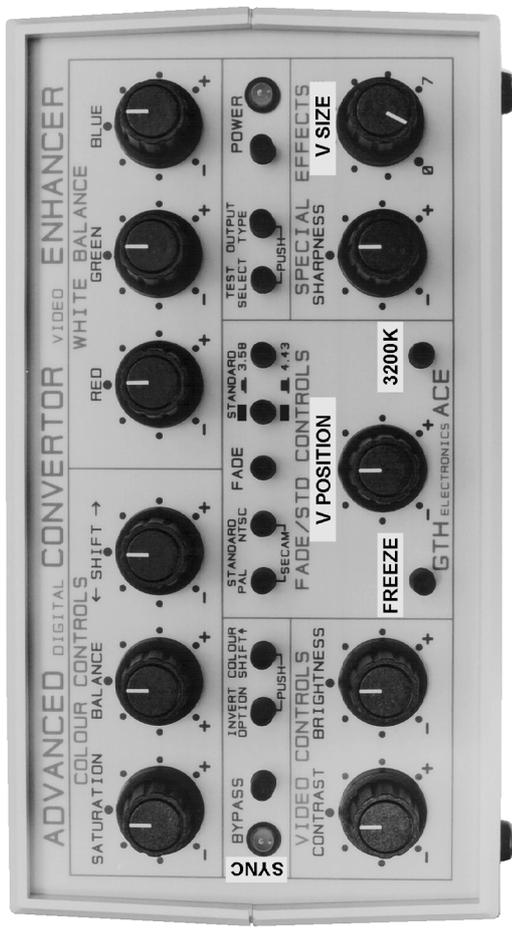
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GTH
ELECTRONICS

“ACE24”

Advanced Converter Enhancer

Microprocessor Control. Full Digital 4:2:2 Processing



Instruction Manual

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SPECIFICATIONS

This unit is designed for Standards Conversion from Any World Video Standard to 24Hz Film Rate with any version of PAL, NTSC or SECAM. It also provides Full Colour Correction and offers TimeBase Correction. The ACE24 can work in one of two modes set by the 4 Standard Buttons: With Both Left Hand Buttons OUT the output standard always matches the input standard, ideal for simple colour correction on stable sources. For Standards Conversion simply set the required standard as described. In both modes Vertical Sizing is available as well as Vertical Position to allow compensation for over scanning of TVs or Monitors at 48Hz rate.

VIDEO INPUT and OUTPUT LEVELS and IMPEDANCES:

“S” Video Luminance	1V peak to peak into 75 Ohms
Chrominance	0.3V peak to peak into 75 Ohms
Composite (4 Outputs Available)	1V peak to peak into 75 Ohms
RGB/YUV Outputs on SCART	0.7V peak to peak into 75 Ohms

VIDEO BANDWIDTH:

“S” Video Luminance	5.5MHz (True “S” Processing)
Chrominance	1MHz (True “S” Processing)
Composite Luminance	5.5MHz (Using Comb Filtering)
Chrominance	1MHz

VIDEO SIGNAL/NOISE RATIO: >50dB (Sync and Burst Replaced)

CONTRAST & SATURATION: 0 (Zero) to +6dB (Double)

VIDEO SHARPNESS: ± 3dB at 3MHz

HORIZONTAL COLOUR SHIFT: 0 ± 740ns in 10 Steps each way

VERTICAL COLOUR SHIFT: 0 to 3 Lines Lift in 1 Line Steps

MASTER SYNC FREQUENCY STABILITY:

24 FPS ± 0.0005 FPS (± 20 parts per million) over 0°C to 40°C

MASTER SYNC OUTPUT LEVEL and IMPEDANCE:

1.2V Peak to Peak from 75 Ohms Typical, DC Coupled.

SLAVE SYNC INPUT LEVEL and IMPEDANCE:

0.35V Minimum Peak to Peak into 75 Ohms Typical. AC Coupled.

FAULT FINDING GUIDE

NOTE: Severe Colour Shift can occur on some PAL TVs and on a few NTSC TVs. This is not a fault but due to a different line length on 24Hz. PAL TVs use line delays for colour decoding and some NTSC TVs also use line delays for comb filtering. If these are not adaptive to line length then colour shift errors will occur. This can be solved by using RGB or YUV connection as appropriate, avoiding the built-in colour decoders.

If you have any other problems with the use of your ACE24 then please try the following in order as required:

No Power (POWER LED Out)

- Check Mains Power Adaptor properly connected and POWER switch depressed. If OK Check Mains Socket with another unit.
- If fault persists call GTH Electronics or return unit for service.

No Video Out

- Press TEST SELECT in and then release with BYPASS released.
- If No Video, Check your monitor wiring. If wiring OK turn off ACE and back on again after 20 seconds minimum and re-check.
- Check all leads, using them to connect other equipment together.
- If fault persists call GTH Electronics or return unit for service.

No Video but Patterns OK

- Check INPUT SELECT is correctly set and depress BYPASS.
- If No Video check Video Input by direct connection to monitor.
- Use the same leads in turn to ensure all leads are OK. If Source and leads are OK call GTH Electronics or return unit for service.

No Video Except With BYPASS

- Check Video CONTRAST and Colour SATURATION are not at Minimum anti-clockwise. Check FADE Button is Released.

Controls Do Not Work

- Check BYPASS Released (There is No Bypass Warning LED)
 - Check FREEZE Released (Not all controls work during Freeze)
 - Check 3200K Released (White Balance doesn't work otherwise)
- Patterns Do Not Work
- Check BYPASS Released (There is No Bypass Warning LED)

INTRODUCTION

We congratulate you on your choice and thank you for purchasing our "ACE24" Advanced Convertor Enhancer. Please read this manual before you use your ACE for the first time and keep it with your ACE for future reference. After unpacking and before use we also suggest you release all push buttons and set all rotary controls to 12 o'clock except the V SIZE Control which should be set to about 3 o'clock. Then press in 'POWER'.

The UK version of ACE is mains powered via a 13A plug top adaptor. It is designed to be connected between any tape, disc or off-air video source and up to four TVs or Monitors. Video signal type connections must be used throughout as the unit does NOT handle Aerial signals.

ACCESSORIES

Four Leads are supplied with your ACE24. Two are Stereo Audio leads with pairs of Phono Plugs at each end and can be used for sync or video.

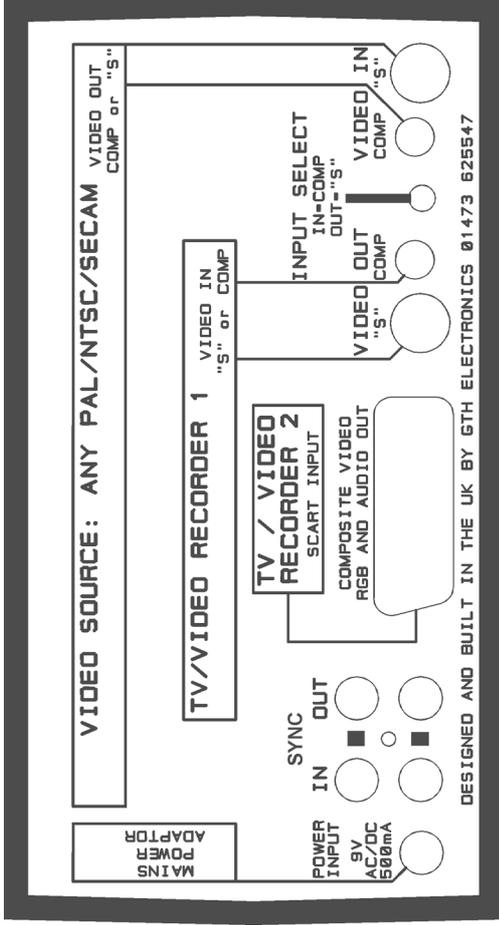
The third, "S" Video Lead, is for equipment with "S" video connections.

The fourth Special Lead has "S" connector one end and two phono plugs the other end. For a total of Four Composite Video Outputs connect this between the ACE24 "S" Video Output and the Composite Video Inputs of your extra two units. Press "OUTPUT TYPE" button **once** to select Dual Composite mode (press again to revert to "S" Output; see page 7). (If you get lost then turning power Off will reset to normal "S" output.) Extra Audio Outputs can be taken using standard "Y" Phono Splitters.

NOTE: The UK Mains Power Adaptor which we supply is protected by a "Thermal Fuse". In the event of a fault or if the plug at the end of the adaptor cable is "Shorted Out" then this fuse will cut out and will NOT reset. Normal operation when the Power switch is depressed is indicated by the associated Red LED on the ACE. See Fault Finding Guide.

<p>WARNING <u>NOTES FOR YOUR SAFETY</u> WARNING ALL POWER ADAPTORS MUST MEET THE SPECIFICATIONS ON PAGE 14. DO NOT LEAVE THE POWER ADAPTOR PLUGGED IN WHEN NOT IN USE. ALL MAINS POWER ADAPTORS HAVE DANGEROUS VOLTAGES INSIDE, SO DO NOT REMOVE ANY COVERS; DO NOT EXPOSE TO RAIN OR MOISTURE. REFER SERVICING OF ACE OR UK ADAPTOR TO GTH ELECTRONICS.</p>
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CONNECTIONS



NOTE: Please connect relevant Source Video Output to ACE24 Video Input and relevant ACE24 Video Output to Display or VCR Video Input. ACE24 can act as Sync Master to any number of Slaves via a Video D/A or using daisy chain connection. SYNC LED indicates incoming Sync. Sync Master and Slave Must be set for 48Hz Output (See pages 4 & 8). It is our experience that most problems are due to incorrect connections. So please check them thoroughly before trying more desperate measures.

STANDARD CONNECTIONS (For More Detail See Opposite)

POWER: Plug the lead from the Mains Power Adaptor in to the ACE24 **POWER INPUT** connector and then plug the Mains Power Adaptor into a standard Mains Outlet Socket of the correct voltage. Depress **POWER**.

VIDEO SOURCE: Connect **SOURCE Video Out** ("S" or Composite) to **ACE VIDEO IN** ('S' or COMP) using the leads provided ('S' preferred) **NOTE:** Set **INPUT SELECT** button IN for Composite, **OUT** for "S".

TV and MONITOR: Connect the **ACE VIDEO OUTPUTS** (COMP, "S" and/or SCART) to TV or Monitor Video Input & Film Camera Adaptor. Audio must be fed separately to the TV as ACE24 does not handle audio.

SYNC: If more than one ACE24 is to be used then connect one ACE24 **SYNC OUTPUT** to another **SYNC INPUT** directly or via a Video D/A.

USEFUL TIPS

YUV Output Connections

The ACE's YUV output on the SCART connector does not have sync on Y (Luminance). However Y (Luminance) with sync is available from the "S" video output connector. To use this just plug the special "S" to two Phono (RCA) plugs lead supplied into the "S" video output of the ACE. Now connect the Red Phono (RCA) plug of this lead into the Y input of your TV (other plug unused). Connect the U & V outputs of the optional SCART to RGB/YUV adaptor to the U(Cb) & V(Cr) inputs of the TV. Press the "Output Type" button of the ACE exactly twice after power-up for the YUV with "S" combination (See page 7 for more details).

Alternatively if you have bought the Option "Y" then there will be YUV on the SCART by default instead of RGB. No further setting is required.

With Option "Y" pressing the "Output Type" button will cycle through 4 output combinations on the "S" Video Output & SCART Connectors: The "S" Output Connector alternates between "S" and Dual Composite. The SCART Connector RGB Pins cycle through YUV/YUV/RGB/RGB.

NOTE: There is no problem with RGB on SCART with European TVs.

Viewing Negatives

Press **INVERT OPTION** button Once to select Video & Colour Invert. (Press Three times with Mirror Option "M"). Adjust Video **CONTRAST** and **BRIGHTNESS** and set the Colour **SATURATION** near Maximum (Fully Clockwise) for the best picture. Adjust **RED, GREEN** and **BLUE** to remove the unwanted bluish colour in the dark parts of the picture due to the orange colour of the negative. Typically this will require the **BLUE** to be reduced and **RED** advanced slightly. The Colour **BALANCE/HUE** control will also help to achieve correct colour rendering of skin tone etc.

Creating Sepia Effects

To generate a Sepia Effect to simulate old black and white photographs simply turn Colour Saturation to Minimum (Fully Anti-Clockwise), then: Turn up the **RED** control to the 3 o'clock position, turn down the **BLUE** control to the 9 o'clock position and leave the **GREEN** control central. Adjust **RED, GREEN** and **BLUE** until you get the desired effect.

POWER-UP OPTIONS

These features are accessed by pressing and holding in one of the four non-latching push buttons when the Power button is pressed each time the unit is used. They are cancelled when the power is turned off again. After power-up the buttons can be released and used in the normal way.

Automatic Input Switching: Selected with Invert Option

This turns on Automatic Input switching between the rear panel "S" and Composite Video Inputs. The ACE then ignores the rear panel switch and switches automatically providing the unwanted input becomes inactive.

Colour Standard Lock: Selected with Colour Shift

This option locks out the automatic input colour standard detection on the ACE to prevent any colour problems with faulty or worn PAL tapes. In this mode the unit will only accept PAL/50/4.43 or NTSC/60/3.58.

Camera Phasing Test: Selected with Test Select

This turns on a test condition where alternate fields are normal video and a green screen. This is not cancelled by BYPASS and can only be reset by turning Power Off and On again with the Test Select button released. This Phasing Test is cancelled by the normal Test Patterns if selected. Adjust phasing until ONLY green screen OR normal video are recorded.

The normal ACE Converter Timebase Correction Disable is not required as there is no separate Timebase Correction Mode on ACE24. Timebase Correction is always Off when in Direct Mode and On when Converting.

Zoom & Aspect Ratio Conversion: Selected with Output Type

This function is permanently enabled as a height adjustment only with full vertical positioning to enable height and position adjustment on TVs when used with 48Hz Scanning rate. It is also available in Direct Mode which is used for simple colour correction without field rate conversion. (In Direct Mode, Output standard matches the Input with no conversion.)

The V SIZE control adjusts the image height from a minimum of 3/4 full screen when anti-clockwise to over full screen height in 7 steps of 5.5%.

NOTE: The image is normal height at V SIZE control position 6 out of 7. V POSITION knob adjusts vertical position when height is less than full screen and allows the image to be moved over the whole screen height.

CONNECTOR DETAILS, WORKING FROM LEFT TO RIGHT:

POWER INPUT: Connect the Mains Power Adaptor supplied or bought. NOTE: UK Mains Power Adaptor is protected internally. If it cuts out it cannot be reset but must be replaced. Page 14 has adaptor specifications.

SYNC IN: Either input will accept a 24Hz square wave used to lock both horizontal & vertical sync to the positive going edge but a square wave is needed. Slave Sync Detection is automatic and indicated by SYNC LED. (Either input connector can be used but only one can be used at a time.)

SYNC OUT: This gives a square wave at 24Hz for driving Film Cameras via a suitable adaptor or other ACE24 units directly or via a Video D/A. This is a copy of the Slave Sync if present or else is internally generated.

SCART AUDIO/VIDEO EURO CONNECTOR (Video Output Only):

Composite Video plus RGB or YUV are available. This connector is ideal for an RGB or YUV monitor (see Useful Tips on Page 11) but not for "S" input TVs which should be connected to the "S" Video Output.

"S" VIDEO OUT: This connector has separate Video and Colour signals for use with a VCR or TV with "S" Video connections. It is also the preferred Video Output connector for connection to another processor. Alternatively it can be set by OUTPUT TYPE for 2 Composite Outputs. Two TVs may then be connected with the special "S" to 2 Phono lead.

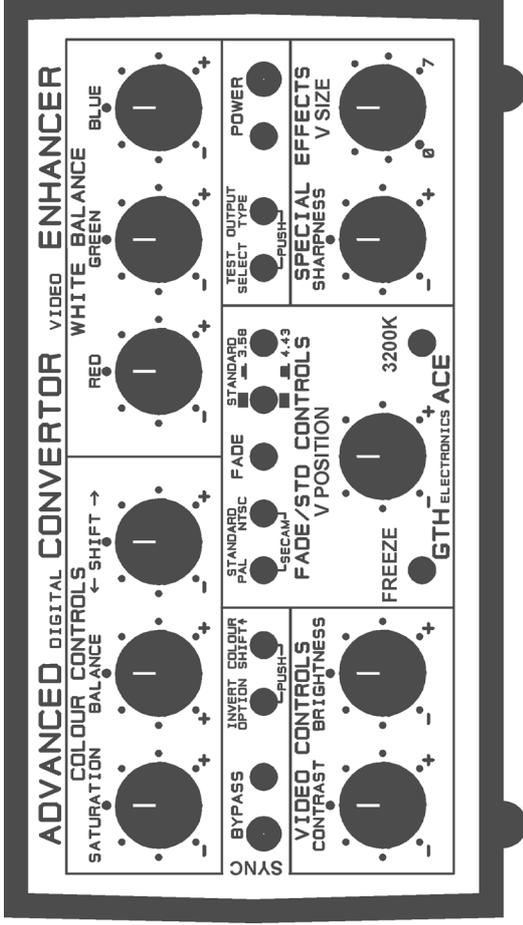
COMPOSITE VIDEO OUT: This connector has Composite Video for connection to any VCR or TV without "S" Video connections or to a second VCR (if not connected to SCART connector) or Monitor TV etc.

INPUT SELECT SWITCH: This Switch allows selection between either the "S" Video Input (Switch left OUT) or the Composite Video Input (Switch Pressed IN). It is important that this switch is set correctly or you will not see the video you want to see!

COMPOSITE VIDEO IN: This connector is for connection from the Video Output of any Video Source without an "S" Video connector.

"S" VIDEO IN: This connector is for connection from the Video Output of any Video Source with an "S" Video output connector. It is also the preferred Video Input connector for connection from another processor. With an "S" input, Video and Colour are processed entirely separately.

CONTROLS



Simple Conversion Set-up

The ACE has **Automatic Input Standard detection** so accepts anything. If you don't want to adjust the video then press the **BYPASS** button IN. If you don't want conversion then leave the **PAL** and **NTSC** buttons out. Any unit can be Sync Master, or a Slave with indication by **SYNC LED**.

For **UK PAL** Output press in the **PAL** button, leaving out the other three "standard" buttons, to obtain 625/48 "Slow PAL" from ANY video input. For **SECAM** press in the **PAL** **and** **NTSC** buttons. 60 / 3.58 don't work. For **USA NTSC** press in the **NTSC** **and** "3.58" buttons with "PAL" Out. This gives 625/48 "Slow NTSC". For other standards please see page 8.

General Advice

The range of the controls has been deliberately kept as wide as possible to allow you full control over all video parameters. However this does allow for settings which can make the picture disappear completely and give the appearance of a fault. If this happens, pressing in the **BYPASS** button cancels all settings apart from **INPUT SELECT**, **STANDARDS**, **FREEZE**, **V SIZE** & **V POSITION** and allows you to check whether the problem is due to your control setting or not. If in doubt Press **BYPASS!** **BYPASS** should of course be **OUT** if you want to adjust the video at all.

Bottom Centre Controls:

FREEZE: When Pressed In this button holds the last two fields captured. By default these two fields are averaged and the result displayed for both output fields to avoid motion flicker. However the **INVERT OPTION** button gives a choice of display modes. Pressing this button allows you to cycle through the options in order: Both Fields Averaged & Repeated / Both Fields Displayed in sequence / Field 1 Repeated / Field 2 Repeated. We suggest you simply press this button to select a mode by eye for the best results, noting that when both input fields are shown there may be motion jitter. This changes to a static blur when both fields are averaged.

PLEASE NOTE: Those controls which operate on the video input, i.e. Contrast, Brightness, Saturation, Balance/Hue (NTSC in), Video Invert & Vertical Size will not function normally during freeze frame mode so these settings should be adjusted correctly before selecting freeze frame. Vertical Position, White Balance Correction, Colour Shift, Test Patterns and Output Type controls all operate normally during freeze frame mode.

3200K: When Pressed In this button selects a fixed colour correction to convert the normal TV colour temperature of around 5500K to 3200K. White Balance controls are disabled. 3200K is cancelled by **BYPASS**.

V POSITION: This is used in conjunction with the **V SIZE** control and adjusts the vertical position over the full TV screen height when image size is reduced. This will help compensate for vertical positioning errors when **NTSC** or **PAL** TVs are used with 48Hz scanning when they are likely to overscan. **V SIZE / V POSITION** are not cancelled by **BYPASS**.

SETTING UP YOUR TV

The Colour Bar Pattern is ideal for checking and adjusting the setting of your TV. First turn down the Colour Saturation on the TV to minimum. Now adjust the TV Contrast and Brightness so that the far right hand bar is just black but all other bars are visible with the contrast adjusted to suit your preference, remembering that the far left hand bar is full white level. Now turn up the TV Colour Saturation control just until the colours are bright and pure. The Blank Screens should look pure all over the screen. Odd coloured patches (or 'Impurity') require service engineer attention.

Fade/Standard Controls:

STANDARD: The ACE has **Automatic Input Standard detection** so accepts anything. These four buttons control the Output Video Standard and Timebase Correction action of the ACE for a wide variety of modes:

For Simple Colour Correction: Set Both PAL and NTSC buttons OUT. In this Direct Mode, Output Standard will always match Input Standard. Standards Conversion and Timebase Correction, and 3.58 are Disabled.

For Conversion to 24fps Film Rate: Select the Output Colour Standard:

PAL: When depressed with NTSC button OUT selects the PAL Colour Standard. The Right Hand buttons then select various formats available.

NTSC: When depressed with PAL button OUT selects the NTSC Colour Standard. The Right Hand buttons then select various formats available.

SECAM: When Both PAL & NTSC buttons are depressed the SECAM Colour Standard is selected. The Right Hand buttons do NOT Operate.

60Hz: This button, with labels blacked out, has no function on ACE24. 3.58MHz: When depressed selects 3.58MHz Colour instead of 4.43MHz.

<u>Output Format</u>	<u>Version</u>	<u>Fields</u>	<u>Colour</u>		<u>STANDARD BUTTONS</u>	
			<u>Fsc</u>	<u>Colour</u>	<u>PAL</u>	<u>NTSC</u>
PAL	<u>Slow PAL</u>	<u>48</u>	<u>4.43</u>	<u>IN</u>	<u>OUT</u>	<u>OUT</u>
	<u>Slow PAL</u>	<u>48</u>	<u>3.58</u>	<u>IN</u>	<u>OUT</u>	<u>IN</u>
	<u>Slow NTSC</u>	<u>48</u>	<u>3.58</u>	<u>OUT</u>	<u>IN</u>	<u>IN</u>
NTSC	<u>Slow NTSC</u>	<u>48</u>	<u>4.43</u>	<u>OUT</u>	<u>IN</u>	<u>OUT</u>
	<u>Slo SECAM</u>	<u>48</u>	<u>4 - FM</u>	<u>IN</u>	<u>IN</u>	<u>Any Position</u>

FADE: This button initiates a fully Automatic Fade. Pressing it IN will cause the picture to fade to black in about 1 second. Releasing the button to OUT will cause the picture to be restored by a reverse fade. (With Option "Q" the Automatic Fade In or Out takes just 0.5 seconds.) This control has been deliberately placed central with a clear gap above so that it can be operated easily and precisely by right or left handed people using the thumb, with the other fingers resting on top of the unit.

Colour Controls:

SATURATION (CHROMA): This control allows you to adjust the level of colour in the picture from zero, i.e. Black and White only, up to twice the normal colour level. The normal position is with pointer at the top.

BALANCE(HUE): This control alters colour balance of coloured areas without affecting white balance and is especially useful for correcting any residual faults in skin tone when white balance has been corrected. It is also needed for colour correction of some negatives (See 'Useful Tips'). Clockwise movement makes skin tone more yellow, anti-clockwise movement makes it more pink. Normal position is with pointer at top. **NOTE:** With NTSC inputs this control changes to NTSC HUE control.

<-SHIFT->: After recording and video processing you will often find that the colour seems to 'bleed' out of the coloured areas. This is caused by faults in the video processing which can move the colour sideways compared to the black and white parts of the picture and is particularly evident with multiple generation copies. This control allows the colour part of the picture to be moved horizontally left and right to line up the colour properly and eliminate the colour bleed. The colour moves in the same direction as the top of the control. In most cases the control will need to be near central. See COLOUR SHIFT^ for Vertical Correction.

White Balance:

RED, GREEN and BLUE: These controls affect only the white and lighter parts of the picture and affect coloured and non-coloured areas alike. They allow correction of colour balance faults caused when the camcorder does not properly compensate for the colour of the lighting. These controls can also be used creatively to add tints and create sepia effects etc. (See Useful Tips). Combined with the digitise control and video invert they can be used to improve/colour hand drawn captions. Clockwise rotation increases the relevant colour level, anti-clockwise decreases it. So, starting with all three pointers at the top, turn up any colour(s) you want increased and turn down any you want decreased. Moving all three controls together in the same direction has no effect. Conversely the greatest effect is achieved with one or two controls at maximum clockwise and the rest at minimum anti-clockwise settings.

Video Controls:

CONTRAST: This operates exactly as the contrast on your TV except that it probably has a wider range. It is used to correct video which has either a too low or a too high contrast. At its minimum anti-clockwise setting the contrast is zero and all that will be seen is the colour in the picture, assuming the Colour SATURATION is not set to zero as well. At its maximum clockwise setting the contrast is twice the normal level. Standard setting is with the pointer at the top.

BRIGHTNESS: This again operates exactly as the brightness on your TV and is used to correct pictures which are too dark or too light. Standard setting is with the pointer at the top.

NOTE: The "ACE" automatically limits the video to permitted levels.

Special Effects:

SHARPNESS: In its normal position with pointer at top the sharpness, or detail, of the picture is unaffected. However by a clockwise rotation this control allows you to boost the sharpness to compensate for losses often found after copying. Conversely the control when turned anti-clockwise will reduce sharpness if already excessive and at the same time reduce any graininess of the video (video 'noise'). Be careful not to use more boost than necessary for best results.

V SIZE: This is the only rotary control which should normally be set nearly fully clockwise at about the 3 o'clock position (6th step out of 7) as this is the position in which it has no effect on the picture height.

At the minimum setting the image height will be reduced by 3/4. This is intended to compensate for overscanning of TVs when operated at 48Hz. The V SIZE control will allow the image to be expanded vertically in 6 steps of 5.5% back up to full height and at the 7th position to overscan. When the V SIZE control is set below position 6 of the possible 7 steps the V POSITION control can be used to move the image vertically over the available output height range to allow images to be correctly centred.

NOTE: All pushbuttons latch IN except those with "PUSH" underneath. These cycle through four "Options", resetting to "Normal" at Power Up.

Left Hand Push Buttons:

BYPASS: Depressing this button cancels ALL control settings except INPUT SELECT, STANDARDS, FREEZE, V SIZE and V POSITION. Pressing this button IN allows you to compare the effects you create to the original i.e. 'Before' and 'After' processing. It can also be used to check all controls are zeroed, as only then will it cause no change.

INVERT OPTION: Pressing this button allows you to cycle through the options in order: Normal / Negative / Colour Invert / Video Invert. With Option "M" the order is: Normal / Video Invert + Mirror Imaging / Mirror Imaging Only / Video Invert Only. (Mirror is lateral inversion.) In Negative Mode it is possible to view colour negatives, assuming you have a slide converter and film strip holder or can improvise. (See 'Tips') Separate Video and Colour Inversion can be used for special effects.

COLOUR SHIFT ^: Pressing this button allows you to cycle through the Vertical Colour Shift range of 0 to +3 lines and back to 0, to get rid of "droopy" colour often resulting after several generations of copying.

Right Hand Push Buttons:

TEST SELECT: Pressing this button allows you to cycle through the test patterns in order: Input/Colour Bars/Blue Screen/Red Screen. (With Special Option "G" a Green Screen replaces the Red Screen.) The Broadcast standard Colour Bar Test Pattern and the Red and Blue Blank Screens are all 625/48 and set by V SIZE and V POSITION and can be used to check your equipment performance or your display TV's Contrast, Brightness and Colour Saturation settings as described below. Video Colour Standard is set by the standard buttons like normal video.

NOTE: Test Select button over-rides all other controls except BYPASS.

OUTPUT TYPE: On the standard ACE this button will cycle through 4 output combinations on the "S" Video Output & SCART Connectors. The "S" Output Connector alternates between "S" and Dual Composite. The SCART Connector RGB Pins cycle through RGB/RGB/YUV/YUV. Overall order is : "S"+RGB / 2Comp+RGB / "S"+YUV / 2Comp+YUV. (Option "Y" has: "S"+YUV / 2Comp+YUV / "S"+RGB / 2Comp+RGB.)

POWER: The operation of this button will come as no surprise. It must be depressed for normal operation! The Red LED will then light.