
Technical Bulletin

Upgrade to U41 Programmed IC on VIM Restores S-Video Functionality and Allows Sync-Tip Clamping

Applies to: 8110+, 8500, 8500LC, 9500LC Marquee series projectors with Video Input Module (VIM) printed circuit board (PCB) nos. 50-2035-02P or 50-2035-03P only.

Symptoms: There are two distinct independent symptoms:

- 1) S-Video (Y/C) sources cannot be displayed and/or will not synchronize when used in conjunction with a Marquee Switcher into Input 01 (or 02) or when connecting the S-Video directly into Input 01 (or 02) of the projector.
- 2) Some older Intergraph workstations may display an image that is unusually dim. This may also occur when connecting other sources that have video with an extremely short or no back-porch. Also, the overall intensity of the image varies depending on image content, that is, there appears to be a video black-level clamping problem.

Action: Check U41 on the VIM. If it is labeled as "VIM U41, SYNC1.0" replace it with "VIM U41, SYNC2.0". To obtain the "VIM U41, SYNC2.0" programmed part, contact an authorized Electrohome service depot. Order part number 03-VIMU41-02P.

Background: The Marquee VIM was redesigned for the introduction of the Marquee 8500/9500 series. The chart below shows the assembly and PCB numbers for the older 8000 series VIM and the two possible new 8500 series VIM's. The two VIM's allowed for the 8500 series projectors are functionally identical. The ability to use either one is necessary for Electrohome manufacturing purposes only.

Marquee Model	VIM Assembly No.	VIM PCB No.
8000, 9000, some 8110 manufactured in March 1996	02-270305-06P	50-2005-03P
8110+, 8500, 8500LC, 9500LC	02-270335-02P or 02-270335-03P	50-2035-02P or 50-2035-03P

One of the design changes implemented on the two possible new VIM's is that a PAL (Programmable Array Logic) device is used for output sync and video clamping prioritization. The PAL is a socketed device and is designated as U41 on the PCB (the same designator is used on both layouts). The previous VIM design incorporated an inflexible "hard wired" approach.

The programmability of the PAL allowed Electrohome the opportunity to correct a limitation in the operation of the ASR (Automatic Source Recall) feature when using a Composite Video (NTSC, PAL etc.) source. At the same time another limitation of the older design was corrected,

Technical Bulletin

namely, that misadjustment of the “Horiz Phase” control could result in improper black level clamping of the incoming video signal, often resulting in a dim or shaded image being displayed unnecessarily. A PAL with this programming can be identified by its version label, which reads “VIM U41, SYNC1.0”.

Unfortunately, the SYNC1.0 version of the PAL has disabled the ability of the projector to synchronize to and display S-Video (Y/C) sources if the source is connected to the projector via a Marquee Switcher through Input 01 or 02 or directly into Input 01 or 02 (Y into Red BNC and C into Blue BNC). S-Video sources connected directly into a Marquee Multistandard Decoder (Input 05 or 06) will be displayed and operate normally.

The SYNC1.0 version of the PAL also removes any functionality of the “Auto Clamp” feature (item 7 in the PIC menu). That is, the menu item can be selected and will toggle on/off but this will not result in any changes to the operation of the projector or appearance of the projected image.

About the Marquee Sync Routing System:

The Marquee sync routing system allows various sync and video combinations to be made to the Input 01 (or 02) on the VIM. Video with Separate sync (R,G,B,H/C,V), Composite sync (R,G,B,H/C) or Sync-On-Green (R,Gs,B) signals can be connected.

As well, the system allows Composite Video signals to be connected through the Green BNC and routed to the Marquee Decoder as long as the Recall (or Input) memory assigned to the Composite Video source is set for routing as Composite Video. From the PIC menu select “Signal Routing” (item 9), then select “As Composite” (item 2) in order to force the routing to the Marquee Decoder.

Similarly, the system allows S-Video (Y/C) signals to be connected through the Red (for Y) and Blue (for C) BNC’s and routed to the Marquee Decoder as long as the Recall (or Input) memory assigned to the S-Video source is set for routing as S-Video. From the PIC menu select “Signal Routing” (item 9), then select “As S-Video” (item 3) in order to force the routing to the Marquee Decoder.

The PAL on the VIM determines the prioritization and routing of incoming and outgoing sync. Also, the VIM includes Sync-On-Green circuitry which strips sync information from signals connected to the Green BNC. The PAL then outputs the appropriate sync from the VIM to the Deflection Processor Board (DPB) which locks the operating frequency of the projector to the sync it receives.

Improvements: In order to alleviate the above stated limitations of PAL version SYNC1.0, the PAL has been reprogrammed to version SYNC2.0, namely “VIM U41, SYNC2.0”.

Technical Bulletin

Version SYNC2.0 makes use of the “Auto Clamp” menu item in two ways. Setting it appropriately will alleviate the above stated symptoms.

1) **If the routing is set to “As Composite” or “As S-Video”**, setting “Auto Clamp” to “On” routes the sync to the DPB from the Decoder * . This is the setting required for S-Video to operate properly. It also allows Composite Video to operate. Setting “Auto Clamp” to “Off” routes the sync to the DPB from the Sync-On-Green circuitry. This is valid for Composite Video operation only since the Composite Video is connected to the Green BNC **. Unfortunately this inhibits S-Video operation since the sync information is Sync-On-Y, that is, it is connected to the Red BNC. The version SYNC1.0 PAL routes only the sync from the Sync-On-Green circuitry to the DPB. This explains why S-Video functionality is inhibited with the version SYNC1.0 PAL.

2) **In all other cases**, that is, when not routing the signal to the decoder, setting “Auto Clamp” to “On” results in back-porch clamping. If Sync-Tip clamping is required, set “Auto Clamp” to “off”. This setting should alleviate symptom 2) described above.

** If using a Composite Video source with ASR, “Auto Clamp” must be set to “off”. This is required for source change detection which is an integral part of the operation of ASR. When “Auto Clamp” is set to “off” the “Horiz Phase” sidebar will need to be set to approximately 25 due to a phase delay between the sync from the decoder and the sync from the Sync-On-Green circuitry.

* The “On” and “Off” settings for the “Auto Clamp” feature are valid for Marquees with main software version V3.3 or higher. Units with V3.1 have the “On” and “Off” menu text reversed, that is, if you have V3.1 use “Off” where “On” is recommended above and use “On” where “Off” is recommended.

Note: **The above modifications require handling of electronic components and should be performed by qualified service personnel only.** Please use proper Electrostatic Discharge (ESD) procedures. If you are uncomfortable with performing the above modification, it can be done for you at an authorized Electrohome service depot.