
Technical Bulletin

Modification to Improve Reliability of Marquee Focus Module

**This bulletin explains what modifications
are required to ensure reliable Focus Module operation.**

*Applies to Focus Module (FCM)
with printed circuit board #50-002034-02P used in
Marquee 8110, 8500, 8500LC, 9500LC series projectors
manufactured between July 1st 1997 and April 20th 1998.
Also applies to service modules at issue 1 or 2.*

● **Background**

We have recently seen a higher than normal failure rate of the focus module used in Marquee series projectors. As a result of an investigation of the modules that have been returned we have found that the failures have been concentrated in projectors manufactured between June and October of 1997, with many of the failures occurring on projectors built in July 1997.

● **Symptoms**

Red, Green or Blue focus adjustment does not work properly or the Low Voltage Power Supply (LVPS) pulses on and off. Replacing the FCM alleviates the problem.

● **Cause**

We have determined that this symptom is caused by a bad batch of components (specifically U101, U201 and U301) that fail and can short the power supply's $\pm 15V$ output when the cathode ray tubes (CRTs) experience an internal arc. This arcing is also known as flash-over or internal high voltage discharge, an inherent characteristic of CRTs. While arcs can occur throughout the life of the CRTs, they occur most frequently on newer CRTs and are not necessarily audible.

● **Action**

Our solution will add protection resistors to the module to prevent damage to these components in the future. Check the sticker on the edge connector (P11) of the replacement FCM for the issue level. If it is marked "Issue 1" or "Issue 2", you must perform the following modifications to the replacement FCM before installing it in a projector.

Return the defective FCM to Electrohome.

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NOTE: FCMs produced after April 21, 1998 will be corrected for this problem, including service replacement modules as well those in new projectors. These modules will be marked as Issue 3 and will have the modifications described below.

● How to Correct

IF YOUR FCM HAS ALREADY FAILED:

1. Remove the failed FCM from the projector and return it to Electrohome. Do not attempt to repair the module.
2. Replace it with an FCM Issue 3 or higher (see instructions below for upgrading to Issue 3).

FOR FUNCTIONAL FCMs:



Note: This modification requires 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.

1. Check the sticker on the FCM edge connector (P11). If it is at "issue 1" or "issue 2", you must perform the following modifications before installing the replacement FCM in a projector. **Do not modify boards having a higher issue level.**
2. On the solder side of the FCM, locate the trace which runs between U101 pin 12 and TP104. Note that if TP104 is populated with a test point, it must be unsoldered and removed. Cut the trace approximately 3mm from TP104. **Be careful not to cut any of the adjacent traces.** See Figure 1.
3. On the solder side of the FCM, locate the trace which runs between U201 pin 12 and TP204. Note that if TP204 is populated with a test point, it must be unsoldered and removed. Cut the trace approximately 3mm from TP204. **Be careful not to cut any of the adjacent traces.** See Figure 1.
4. On the solder side of the FCM, locate the trace which runs between U301 pin 12 and TP304. Note that if TP304 is populated with a test point, it must be unsoldered and removed. Cut the trace approximately 3mm from TP304. **Be careful not to cut any of the adjacent traces.** See Figure 1.

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5. On the component side of the board, locate U101. Solder one leg of a 10k resistor (Electrohome part no. 80-110025-11P) to U101 pin 12, solder the other leg to TP104. The body of the resistor should be positioned on top of U101. See Figure 2.
6. On the component side of the board, locate U201. Solder one leg of a 10k resistor (Electrohome part no. 80-110025-11P) to U201 pin 12, solder the other leg to TP204. The body of the resistor should be positioned on top of U201. See Figure 2.
7. On the component side of the board, locate U301. Solder one leg of a 10k resistor (Electrohome part no. 80-110025-11P) to U301 pin 12, solder the other leg to TP304. The body of the resistor should be positioned on top of U301. See Figure 2.
8. Use a digital multimeter to check your work. You should measure about 10k Ω between TP104 and U104, etc. If you measure about 0 Ω , the trace has not been cut properly.

● ***Determining If Your Projector Requires Modification By The Date Code Stamped On The Outside Of The Box***

Projectors which are date stamped after April 21st 1998 are factory modified to include the above modifications and require no corrective action to be taken. A date code is stamped in ink on the outside of the projector box near one of the serial number/bar code labels. If two different date codes are stamped, the most recent one applies.

The format of the date code is Year, Month, Day, Hour. For example, April 21st 1998 is **8D21B**, where 8 represents 1998, D represents April (A would be January, B would be February etc.), 21 represents the day of the month and the B indicates the hour.

For preventative maintenance, we recommend performing the modifications for projectors date stamped between July 1st and April 20th 1998.

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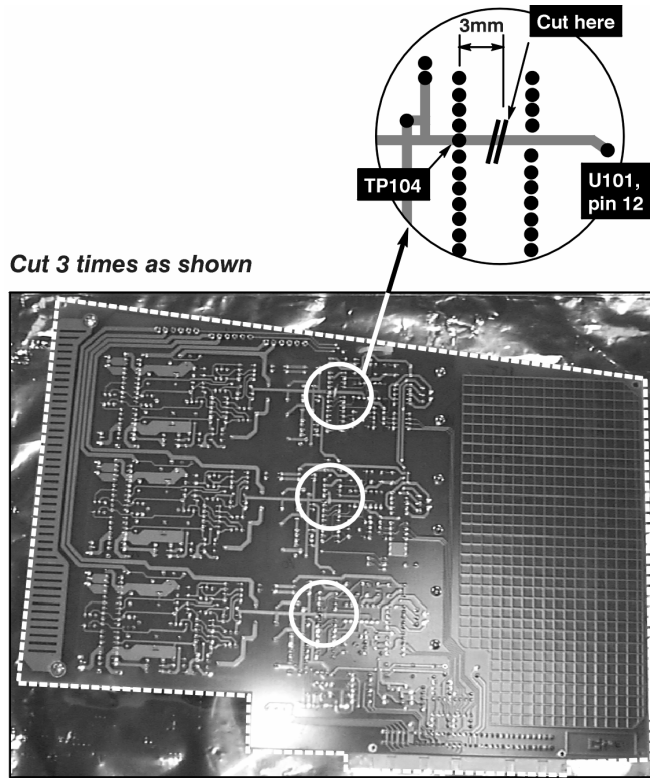


Figure 1

Install new resistors

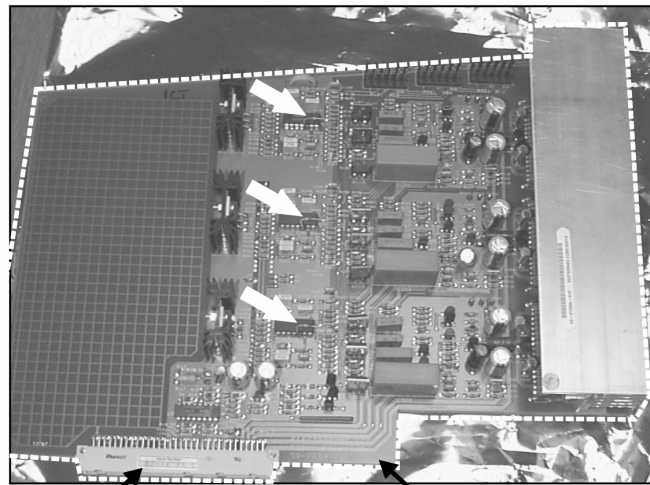


Figure 2

Issue 1 or 2 —
mark as issue 3
after modifying

ELECTROHOME LTD.
FOCUS BD. (FCM)
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