

UV-Cure Printers

Maintaining Jetting & Evaluating Jetting Performance



Introduction

ColorSpan Legacy UV-cure printers use sixteen piezoelectric printheads, each with 96 jets. Piezo printheads, when properly maintained, are reliable and long-lived. In addition to the inherent robustness of the technology, the printer has built-in software features that can identify jets that, for whatever reason, are not firing as expected, and “map out” or replace the non-working jets with substituted, good jets. This document summarizes the recommended practices for maintaining good jetting, recovering missing jets, and evaluating the usability of a printhead that does have missing jets. Consult the printer’s *User Manual* and other documents mentioned here for additional details.

Clean the Printheads Daily

Regular cleaning of the printheads is crucial to long and reliable printhead performance. ColorSpan Tech Note 2736, *DisplayMaker UVR & UVX: Daily Cleaning Procedures*, describes the step-by-step cleaning process that should be performed each day.

When Cleaning does not Recover Jets

When jets are not adequately recovered through the normal cleaning process, additional steps may be taken to attempt to restore them. The follow is a brief list of steps to take to try to recover jets further. Detailed descriptions of each item may be found in the printer’s *User Manual*. See also Tech Note 2739, *Recovering Jets on UV-Cure Printers*.

1. Use the standard Purge found on the Front Page of the printer’s control panel.
2. Use the Recover Jets Pattern found in the Maintenance menu of the printer’s control panel.
3. Use the Performance Purge found in the Maintenance menu of the printer’s control panel.
4. Identify missing jets using either AutoJet calibration or Manual Jet Mapping and let the printer substitute other jets in place of the jets that are not working.

Evaluate Jetting Performance

When evaluating the condition of a printhead, all tests and calibrations should be performed in Production mode. Billboard mode has no jet replacement whatsoever; High Quality mode has twice the amount of jet replacement options compared to Production mode. (Bidirectional vs. Unidirectional, Fine Text mode, or any other printmode variations do not impact jet replacement.)

AutoJet and Manual Jet Mapping identify the jets that are not firing. Once the non-working jets are known, the printer automatically assigns alternative jets to replace the bad jets. AutoJet prints a summary report that will indicate if any of the bad jets cannot be replaced. Note that AutoJet will report on all three print modes simultaneously, but Production mode remains the mode on which to focus. When Manual Jet Mapping is used, a separate pattern, the Print Jet-Out Lines, can be used to confirm both that (1) all missing jets have been identified and (2) all bad jets have been replaced successfully. Be sure that the printer is configured for Production mode prior running the Print Jet-Out Lines page.

The Print Jet-Out lines pattern can be found in both the Calibrate Printer-> Manual Calibrations menu and the Maintenance menu. The same pattern is printed by either selection. The Print Jet-Out Lines pattern is similar in appearance to the Prime Bar pattern, but with several important differences. First, the Print Jet-Out Lines pattern is printed in whatever Print Mode the printer is currently configured to use (the Prime Bar prints is a single pass regardless of other printer configuration). Second, any jet locations that have been identified as not working by AutoJet or Manual Jet Mapping will be shown with a small black tic mark in the pattern. Third and most importantly, the substitute jets will be used by the printer to fill in any locations identified as bad jets. The illustration below shows the two possible results of the Print Jet-Out Lines page.

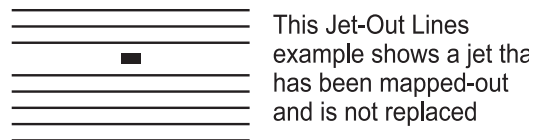
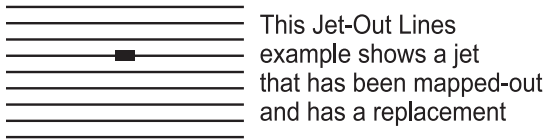
The example on the left is the desired outcome. The fourth jet from the top has been marked as bad, as shown by the black mark, but a replacement jet has been found by the printer and has printed a line at that location. This indicates that the jet has been replaced and printer output should be unaffected.

The example at right indicates that although the fourth jet from the top has been marked as bad, no replacement jet could be used in its place. Printer output may show banding from this missing jet.

When Jets can not be Replaced in Production Mode

The printer's warranty clearly defines the criteria under which a printhead will be replaced at the manufacturer's expense. Printheads that develop missing jets through any other conditions, including but not limited to headstrikes, exposure to poor environmental conditions, or neglected routine maintenance, are not subject to warranty replacements.

Printheads not covered by warranty that develop unreplaceable missing jets in Production mode may find continued utility in High Quality mode, which has additional jet replacement capability.



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