

## First Impressions of ColorSpan Mach 12 Installation of this 72" 12-color printer at FLAAR facilities at Bowling Green State University



Arrival of the Mach 12 ColorSpan at our facilities in BGSU

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## Purpose

The purpose of this exercise was to evaluate the ease at which a ColorSpan Mach 12 could be assembled and connected using the documentation that came with the printer.

## Assignment

The ColorSpan Mach 12 was to be setup by an individual who had no relationship to any printer manufacturer and they should use only the printer's user manual for assistance. The assignment stipulated that tech support was not to be contacted.

## Delivering the Printer

Because our lab has had a ColorSpan Series XII printer for some time, I expected the Mach 12 to be very large. Nonetheless, seeing the 11' 5" long, 31" wide and 42" high crate on the truck that Monday made me feel a bit overwhelmed. The crate consisted of two pallets joined together carefully with a heavy duty cardboard packing box covering the contents. The printer shipped with four other smaller boxes that contained the computer and monitor for the RIP, the inks and print heads, and two 50"x100' sample rolls of photo gloss paper.

Fortunately, we have a large overhead door going into one of the Technology Building's labs with plenty of floor space to assemble the printer. With the assistance of Barry Piersol driving the fork lift, we were able to unload the printer from the truck. The crate was constructed with the center of balance placed so you could use a forklift to pick the crate up from one end.

If you are considering the purchasing this printer, there are several important issues to keep in mind.

1. Look at the site specifications and power requirements. One 110 V connection is needed to run the printer, and two separate 220 V connections are needed for the dryers. We do not have 220 V connections in our current lab so we will just run with air drying until we move into our new facility.
2. Be sure you have the means of getting the equipment off of the truck. Most carriers do not provide lifts.
3. Make sure you have adequate space to assemble the printer and move it to where it will be used. Moving the printer to another floor would be daunting because of the length and weight of the printer. Most elevators and some stairwells will not accommodate it.



Barry Piersol and Brent Cavanaugh using a forklift to move the ColorSpan Mach 12 from the delivery truck to its new home in the College of Technology.

Tuesday afternoon Jeff Ohlman arrived to begin the assembly and installation. James Senkar, our COOP student lab technician assisted us with the process since he will also be operating the printer the rest of the summer. We repositioned the crate with the fork lift to have enough room to work. We removed the staples holding the cardboard carton to the pallet and lifted off the carton. The printer was shipped assembled except for the legs, the ink supply supports, and the inks and print heads.

### Assembling the Printer

Instructions for assembling the printer were provided in the printer's user manuals. The crate had been carefully constructed to make the installation process very simple. We started by bolting the leg assembly together. Then, we bolted the preassembled wooden frames to the side of the pallet, and then rolled the printer assembly on its back. We were then able to use the frames that were holding the printer in place to hold the leg assembly in position so we could attach them to the printer assembly. Once we had connected the legs to the printing unit, we carefully raised the printer back into its upright position. In order to perform these steps safely, two or three people are needed.

Next, we attached the trays for the inks and plugged them in. Then, we were able to move the printer to its operating location. We moved the printer and the RIP computer to our lab, and once we had the Mach 12 in its final resting position, we removed the packing materials restraining the print head carriage. Automatically, the print head carriage moved toward the center of the printer. This portion of the installation took about an hour.

The Mach 12 comes with many alternatives for configuring the number of inks you can use with the printer; you can install four, six, or eight colors of ink. (ColorSpan is also developing a twelve-color system and a four-tone grayscale ink system.) We chose to install the eight-color Endura-Chrome dye system with the possibility of upgrading to twelve later.

There have been several positive changes to the design of the ink and print head assemblies as compared to the Series XII. Each ink and profiler is now one unit which plugs into the trays positioned above the printer. The trays are much more convenient to reach and the ink is now gravity fed to the print head (rather than using a vacuum system.) This should prevent the problem of air getting into the ink heads as was common with the Series XII.



*The additional boxes shipped with the Mach 12.*



*Removing the packaging staples.*



*The preassembled printing unit.*



*Attaching the legs to the printer.*





Four, six, and eight color ink system: installing an eight-color Endura-Chrome dye system.



The ink tubing is preinstalled in the printer. The tubing has a quick release, self sealing connector on each end to attach to the ink cartridge and print head. The print heads install separately into the print head tray. On the Mach 12, the tray “flips up” allowing easy access to the print head jets for cleaning. The tray releases by unlocking the two levers on each side of the tray, and gently lifting the tray in the front. Conveniently, you do not have to remove the print heads for normal maintenance.

We completed the ink system setup and installed the service station tray without any difficulties. Jeff went over details on how to purge the print heads should severe jet clogging occur and gave us other maintenance tips including how to reseat the carriage if it gets knocked out of its track.

Next, we loaded a roll of the glossy 50” media provided with the installation. The media loaded from the back of the printer, and loading it was a very simple task. The Mach 12 has a toggle switch to move the paper both forward and backward (compared to the single direction switch on the Series XII).

The printer’s display was a touch screen that featured icons for the most commonly used functions, as well as access to the directory menu of all functions. Tasks and functions with icons included media and ink, status, autoset, prime bars, print mode, carriage movement, priming and loading, and unloading media. We printed some purge bars to make sure everything was firing properly. Also, we printed an advanced calibration and measured for accuracy. Then we performed an Autocal on the media.



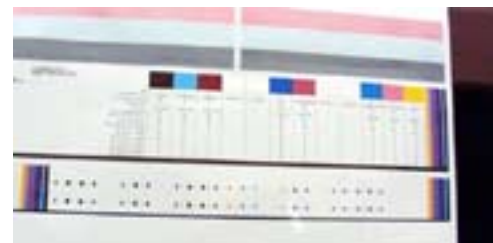
Packaged print heads.



A supplied Mach 12 print head.



Installing the print heads.



Printing an advanced calibration.

### Installing the RIP Software

The next task was to set up the computer and monitor for the RIP software. The ColorSpan software came preinstalled and was immediately ready to make a connection to the printer. Jeff noticed that we were missing an upgrade disk to the Colormark color management software, but luckily, he had a copy of his own that we installed. The computer system uses Windows NT as a base, but because of licensing you can only access limited Windows functions through the interface; however, you can access other functions through the DOS prompt if necessary.

We set up the printer input ports in the software, making them accessible to a PC using WinLink and to a Mac using Appletalk. (You could also use TCP/IP to connect.) The printer came with an installation disk for setting up the printer on both a Mac and a PC. We found connecting through the Laserwriter 8 in the Chooser produced better results than the connecting through the Adobe Postscript printer.

Initially, we had some trouble connecting the printer to a PC, but we later determined the PC did not have the Netbeui protocol installed, which is how the RIP connects to the PC without using TCP/IP. After we installed the Netbeui protocol, we were able to connect by installing it as a local printer. We finished by running a sample image of the Mach 12 logo through the RIP, and it printed successfully.

One of the features of the ColorSpan Series XII and Mach 12 is its ability to build its own ICC profiles for specific media and ink combinations using cameras in the print head assembly. The Mach 12 has two cameras compared to one in the Series XII. The second camera is a higher quality color measuring device specifically for color calibrating the printer. With the ColorMark + software you can also build and tune profiles.

### Printing Test Images

The next morning we spent most of our time configuring the software and RIP for printing, and we ran calibrations for the media feed and color. After calibrating (AutoSet) the printer we performed a color calibration of the media and ink through the Colormark software. It was mostly a one-button operation which prints color targets, reads the values, and builds the profile for the media and ink combinations. Also, we printed additional test images from ColorSpan and one from FLAAR with impressive results.



*The supplied computer for the RIP software.*



*Installing Colormark color management software.*



*Printing test images.*

Because Jeff frequently interfaces with the engineers at ColorSpan, he collects information on what he sees to help improve their printers. One of the discrepancies he noted was a slight color difference between images printed with four passes, six passes and eight passes. He intends to report this to ColorSpan. We intend to use eight-pass printing for the majority of our work.



Checking the test images.

**Installation Problems**

Although our assembly and installation experience was mostly positive, we did run into a few minor problems. For example, a 220 V US power cord was missing from the installation package, and the latest revision of color management software was not included although however, neither of these issues prevented us from printing.

In addition, we experienced a “blue screen of death” on the server computer that was unrecoverable. We had to reinstall the software from the provided software discs. The process took about an hour but it was very easy to perform because the the software led us through each step. We are uncertain as to what caused the problem.

**Conclusion**

We will be running several images on the two ColorSpan printers and the HP Designjet 5000PS the next few days to see how they compare. We will also be documenting the specific steps required to print from a PC and Mac.. The quality of the prints we have done so far on the Mach 12 has been excellent. I would rate the ease of installation as excellent as well. ColorSpan’s documentation and videos are very complete and will answer almost any questions. Their web site provides further technical information to help the user, and Jeff was very knowledgeable and presented the training well. We will be continuing to write reports in detail as we proceed with the use of the printer.



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