AutoCAD Setup

**This setup is assuming that you will be setting up the software to work with an X Class laser system. If you are setting it up to work with a different laser system, you should substitute the 32 inches (812.8mm) x 18 inches (457.2mm) field size with a 24 inches (609.6mm) x 12 inches (304.8mm) field size for the M Class, or 24 inches (609.6mm) x 18 inches (457.2mm) for the V Class. **

AutoCAD 14 or 15 and AutoCAD LT 97 or 98 for Windows
AutoCAD for Windows requires some special setup and considerations when used to output files to the ULS laser machines. ULS lasers can be used like a typical peripheral plotter device and all the same features available to users of other graphics programs are available to users of AutoCAD. Both raster and vector motion can be used independently or in conjunction with each other.

AutoCAD 14 uses the laser system as a system-printing device. In order to print to our laser systems, it is recommended that the print driver be set as the Windows **DEFAULT** printer. When running AutoCAD, file setup will be the most important part of sending correctly formatted files to the laser. Files should be drawn or located within the engraving field size of the laser, e.g. (X0,Y0) and (X32,Y18) inches. If objects within a drawing are moved to within this area from coordinates outside of this area, printing errors will likely occur (more about this later). Once objects are drawn within the correct area, it should be noted that AutoCAD files have a **DIFFERENT ORIGIN** than other graphics software. The origin on the laser is in the LOWER left-hand corner of the machine. The rulers on the laser engraving table indicate (X0,Y18) at this point.

Pen Colors
It is recommended that line and text color be set to any of seven colors within the ULS Printer Driver (black, red, green, yellow, blue, cyan, and magenta).   These colors correspond to the AutoCAD standard colors assigned to pens 1 through 7. Colors can easily be changed or checked using the **DDMODIFY** command. AutoCAD White color corresponds to ULS Black color.   **Any other colors may cause errors during engraving/cutting**. If other pen colors are used, the ULS printer driver will try to match the color that most resembles the pen color used, although some colors may not be recognized at all.

Printer Setup
Open AutoCAD or AutoCAD LT. Select CANCEL if the Start Up window appears. Select FILE then PRINTER SETUP at which time a Preferences Window will appear. Select NEW, then highlight (single click) System Printer ADI 4.3 – by Autodesk, Inc and type in a printer name (X35 for example) in the Add a description box, then select OK. A window should appear named AutoCAD System Printer Configuration. There are three boxes in this window. Default to Control Panel Settings, Allow Dithered Output and Update Pen Table on Device Change. ALL three boxes should be DESELECTED. After which, select OK. The AutoCAD Text Window will then appear and ask if you want to change anything. Type N and press the ENTER key. The Preferences Window will appear. Select OK. You have completed the set up portion for our printer.

Printing Files From AutoCAD
The ULS Printer Driver can be accessed through the PRINT command. Select Device and Default Selection and select the printer that was just set up. Select CHANGE… (under Device Requirements) and then Properties. The only way to consistently print properly is to access the ULS Print Driver every time you print a file (even if you do not change any settings) and select OK when exiting. It is also necessary to check (and possibly modify) pen widths within the Pen Parameters settings window. From the Print/Plot Configuration window select PEN ASSIGNMENTS. Set pen widths to 0.001 inches for vector output, or above 0.008 for raster output.

For output viewing and proper printing, select WINDOW… then adjust the coordinates to (top line) 0,0 and (bottom line) 32, 18 then OK. (For M class machines, bottom line will be 24, 12). AutoCAD cannot plot the entire field. It will lose 0.07" on both X and Y axis. We have not determined why this is so, although it may be due to a page border default setting that we have not been able to modify. To preview file, select "FULL" then "PREVIEW" before selecting "OK". Previewing the print file is recommended before printing. To print file select OK.

Objects that are moved from outside the (X0,Y0) - (X32,Y18) area:
It has been experienced that some objects moved into the 32 x 18 area will not print correctly. If objects are moved, the first step when running into printing problems is to see the full print preview of the file. If there are printing problems, generally it is due to objects outside of the printing area. This problem can be identified by picking the print window coordinates (using PICK, after clicking on the Window… box) and by drawing a box around the objects that are to be printed, then looking at the actual coordinates that AutoCAD has chosen for the print window. Likely, the print window coordinates will be well outside of the desired X0,Y0 - X32,Y18 coordinates. If this occurs, the file will need to be printed by picking the window rather than typing in the desired window coordinates. Drawing a box on another layer which is set to be "unprintable" at a size of 31.93 x 17.93 (or 23.93 x 11.93) and selecting the lower left and upper right endpoints during the Pick Window routine is commonly done to properly place graphics on the laser cutting/engraving area.

For troubleshooting AutoCAD, check the following on your setup.

- Set all lines to one of the standard (pens 1 through 7) colors.
- Locate lines to within the engraving field area (ex: 32 x 18 inch area).
- AutoCAD origin (0,0) is lower left corner of machine.
- Set print area to print Window of appropriate size (ex: 32 x 18 inches).
- Set ULS Print Driver print area to match AutoCAD print Window area.
- Always preview print as full preview.
- Always check pen width in pen assignments.
- Is the file drawn 1=1 scale?
- Keep in mind that lines will be cut in the order that they are drawn. If objects are copied, then drawing order is randomized.
- Draw objects as POLYLINES for best results!