User Guide

ProJet® MJP 5600

User Guide

Rev D

Original Instructions

Please refer back to http://infocenter.3dsystems.com/projetmjp5600/user-guide for the most up-to-date User Guide

INTRODUCTION

The ProJet® MJP 5600 3D printer system is a Multi-Jet Printer (MJP) printer. The solid imaging 3D printer produces plastic prototype parts from 3D solid Computer-Aided Design (CAD) models and through the 3D printer system client software. The parts are generated in a rapid prototype (RP) environment. The primary features of the printer are the user interface, build chamber including the print engine, and the material delivery module (MDM), which contains the materials and waste bag.

IMPORTANT SAFETY INFORMATION

Safety Symbols and Definitions

READ SYMBOL: Read the Service Manual before opening doors or removing panels. Access panels are for Service only and should be opened only by authorized service personnel or trained maintenance personnel.

UV RADIATION HAZARD: Invisible UV radiation is accessible in the vicinity of this sign or behind the panel. Radiation can cause eye injury or blindness, burn injury and/or fire. Access panels are for service only and should be opened only by authorized service personnel.

ELECTRICAL SHOCK HAZARD: High voltage electricity is accessible in the vicinity of this sign or behind the access panel. High voltage can cause severe burns or death, as well as fires. Access panels are for service only and should be opened only by authorized service personnel.

HOT SURFACE HAZARD: A hot surface is accessible in the vicinity of this sign or behind the access panel. Avoid contact. Hot surfaces can cause burn injury or fire. Allow surface to cool before touching. Access panels are for service only and should be opened only by authorized service personnel or trained maintenance personnel.

HARMFUL IRRITANT WARNING: Indicates that skin or eye irritation could result while exposed to a chemical composition.

CAUTION: Indicates the possibility of loss of data or damage to equipment.

WARNING: Indicates the possibility of injury or death to personnel.

CRUSH/PINCH HAZARD WARNING: A crush or pinch hazard is in the vicinity of this sign or behind the access panel. Access panels are for service only and should be opened only by authorized service personnel.

HAND ENTANGLEMENT WARNING: GEARS OR MOVING PARTS HAZARD IN THE VICINITY OF THIS SIGN OR BEHIND THE ACCESS PANEL. ACCESS PANELS ARE FOR SERVICE ONLY AND SHOULD BE OPENED ONLY BY AUTHORIZED SERVICE PERSONNEL.

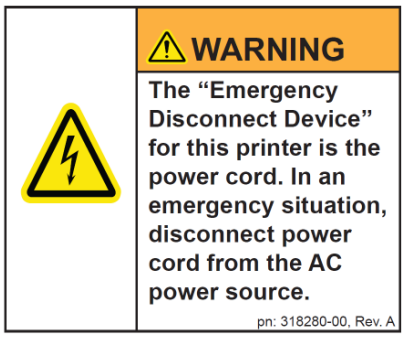
WEAR GLOVES: when handling certain materials or touching surfaces that may contain the materials.

ULTRAVIOLET RADIATION INSIDE: Exposure may cause eye damage. Do not operate without covers. Wear UV eye protection.

SPLASH HAZARD WARNING: Splashing liquid may be present in this area. Wear safety glasses with side shields to provide eye protection.

Emergency Disconnect Device

The power cord is classified as the emergency disconnect device for this 3D printer system. A 36 inch distance of unobstructed access around the printer is required. In an emergency situation, the user must have unobstructed access to the power cord.
The label below is located on the E-chassis of the 3D printer system.



Safety Guidelines

Before using the 3D printer system, your company should have a safety program in place. The safety program should:

- Label and point out hazardous equipment, materials, and procedures.
- Explain what to do in case of an emergency.
- Provide information about hazards of equipment and materials in the form of Global Health and Safety sheets. The Global Health and Safety sheets are provided with all materials supplied by 3D Systems.

General

The 3D printer system is designed with built in safety features. Improper use can lead to malfunctions that can cause injury to personnel. To prevent unsafe operation, the 3D printer system will automatically shut down if unsafe conditions are detected.

Follow these safety guidelines when operating the 3D printer system:

- Read and follow all 3D printer system instructions.
- Follow all safety rules and heed all cautions and warnings in this guide.
- Do not attempt to open chamber door while build in progress.
- Do not use any material without reviewing the Global Health and Safety Data Sheets (SDS).
- Dress power and communication cables behind 3D printer system to prevent tripping.
- **Do not attempt to access, service, or adjust 3D printer system components. Do not attempt to perform any maintenance procedures unless specifically trained to do so.**
- Do not operate the 3D printer system without all safety systems and guards in place and functional.

Operators are trained to operate 3D printer system and perform all necessary tasks to create a part.

Authorized service personnel are those who completed the 3D Systems service training package and were certified to perform service tasks. Certification may occur at different levels, and service providers should only perform tasks they are authorized and certified to complete.
Do not ignore warning signs posted during 3D printer system service operations. If an error message appears on the touchscreen refer to Troubleshooting section in the User Guide before resuming operation.
To prevent potential skin-irritation and sensitization due to contact with waste material, follow all guidelines in build material Safety in this section.
To prevent pinch injuries to the hand, use caution when replacing platform inside the build chamber.

Electrical

WARNING: HAZARDOUS VOLTAGE EXISTS INSIDE THE 3D PRINTER SYSTEM. INJURY OR DEATH FROM ELECTRICAL SHOCK CAN RESULT IF YOU REMOVE THE 3D PRINTER SYSTEM'S EXTERNAL PANELS. PANELS SHOULD ONLY BE REMOVED FOR SERVICE BY AUTHORIZED SERVICE PERSONNEL. TO PREVENT ELECTRICAL SHOCK, THE 3D PRINTER SYSTEM WILL NOT OPERATE UNLESS EXTERNAL PANELS ARE INSTALLED. VERIFY FACILITY'S ELECTRICAL SERVICE RATING BEFORE CONNECTING POWER TO THE 3D PRINTER SYSTEM.

Ultraviolet (UV) Light

WARNING: HAZARDOUS UV RADIATION EXISTS INSIDE THE 3D PRINTER SYSTEM'S BUILD CHAMBER DURING PRINT JOB. EYE INJURY OR BLINDNESS CAN RESULT IF THE CHAMBER DOOR IS OPENED WHILE A PRINT JOB IS IN PROGRESS. IF PRINT JOB IS RUNNING, ABORT PRINT JOB BEFORE ATTEMPTING TO OPEN CHAMBER DOOR. TO PREVENT EYE INJURY, ULTRAVIOLET (UV) LIGHT INSIDE THE CHAMBER WILL NOT OPERATE WHEN CHAMBER DOOR IS OPEN. WHEN CLOSED, THE CHAMBER DOOR KEEPS UV RADIATION FROM ESCAPING. THE CHAMBER DOOR REMAINS LOCKED IF PRINT JOB IS PAUSED.

The UV lamps in the 3D printer system have the following specifications:

- Irradiance at UV Emitting Window: 2W/cm2
- Emitting Window: 75x10mm, 110x10mm
- Total UV Power: Up to 22W
- Pure UV Output: 380-420nm

Build Material Safety

Users of the 3D printer system should be informed of potential hazards of build material prior to working with a 3D printer system, or performing duties which

may result in exposure to uncured build material, such as removal and disposal of empty material bottles and waste bag.

Disposal

- Disposal of fully cured build material produced by the 3D printer system is not subject to regulations of any known agency worldwide.
- Uncured build material waste is classified as regulated, and in some areas hazardous, and may require special packaging, transportation, and disposal. Waste bags filled with VisiJet support and build materials and the material bottles may be disposed of according to your local codes. The disposal of partially cured or uncured build material must comply with all local, state, and federal environmental safety regulations. Applicable build material "waste" includes bottles (empty or full) and waste bags. Any cleaning materials used to clean up spilled uncured build material should be disposed of in compliance with local, state, and federal environmental safety regulations.
- Do not contaminate drains, soil or surface waters with this material or its container. Reduce waste by attempting to utilize product completely. Dispose of this container and its contents in accordance with all local, state, and federal regulations. Do not reuse or refill.
- Support Material, cured or uncured, is not hazardous.

To find out facility disposal requirements, contact an approved waste disposal provider. Your local environmental regulatory agency should have a list of qualified providers. You will need to give disposal service provider a copy of the build material Global Health and Safety sheets, and possibly other forms included in the Appendix of your VisiJet Post Processing Guide, such as Waste Profile Worksheet and SNUR (Significant New Use Regulation - U.S. only). A report will be provided, indicating disposal requirements, as well as a quotation for regularly scheduled pickups. If assistance is needed locating a waste disposal provider, or completing a waste disposal form, contact 3D Systems Technical Support Hot line.

3D Systems assumes no liability or responsibility for proper disposal of uncured build material. Proper disposal of uncured material is the sole responsibility of the user.

Health Hazard / Irritant

Caution: Uncured VisiJet build material is a sensitizer. Skin or eye irritation could occur when exposed to the chemical composition of the material. Any chemical may exert harmful effects if it contacts or enters the body. VisiJet build material is a sensitizer and irritant.

Skin Sensitization: Uncured VisiJet build material is a sensitizer. Skin or eye irritation could occur when exposed to the chemical composition of the material

- Uncured material is a sensitizer and can cause allergic reactions if it contacts skin without protective gloves and sleeves. To avoid sensitization, do not allow uncured material to contact skin. Consult the GHS sheets for specific information about the sensitization potential.
- Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Ingestion: Uncured VisiJet build material is toxic if ingested.

- Uncured material is toxic if ingested. Uncured material must not be present where food and drink are stored, prepared, or consumed and must not be ingested. After handling materials, wash hands with soap and cold water before consuming or preparing food.

Inhalation: Under normal operation, inhalation is not an expected route of entry.

Contact With Uncured Material: Employees should be alerted to clean and rinse off any contacted surface promptly in order to prevent further contamination. Ensure a convenient washroom location is provided with access to soap, water, and disposable paper towels.

Handling Finished Parts: Finished (cured) parts can be handled or disposed of the same as standard household plastic products. VisiJet parts are not recyclable. VisiJet materials are not intended for, and cannot be used for medical implant or food or drink handling applications.

Exposure Control: The 3D printer system has a variety of built-in engineering controls which are designed to prevent operator exposure. Do not try to change or disable these controls.

Appropriate hygienic practices should be followed, including washing with soap and cold water before meals, breaks, smoking, applying cosmetics, using toilet facilities, and after work.

Material Handling

Emergency
Chemtrec USA (800) 424-9300; Europe +1-703-527-3887

Packaging Inspection: VisiJet materials are supplied in bottles. These bottles are packaged with cardboard packing material inside the shipping carton. Upon receipt of material shipments, inspect cardboard carton exterior for signs of damage and leakage. If leakage is observed, DO NOT open carton, contact 3D Systems Field Service Engineer or 3D Systems authorized service personnel. If no leakage is observed, store shipping carton until material is used.

Building: If uncured material is observed on the part or platform after build, this is an abnormal condition, and is an indication the 3D printer system requires servicing by 3D Systems or an authorized servicing reseller. Assume any liquid or paste-like material is build material. Do not directly touch uncured build material without protective gloves and protective sleeves. Discontinue use of the 3D printer system, pending service by a 3D Systems Technical Support Representative or your servicing reseller.

Flammability and Combustibility: Do not expose materials to heat at or above 230°F (110°C), flames, sparks, or any source of ignition. (Though the U.S. Department of Transportation does not consider VisiJet materials a "flammability hazard," they do classify them "combustible" based on flash points.) For more information on VisiJet material flash points and combustibility, see the VisiJet Post Processing Guide.

Personal Protective Equipment

Skin Protection: Performing some procedures in this manual will expose the user to uncured build material. To prevent contact, wear a chemically resistant apron or lab coat, protective sleeves (Tyvex) and chemically resistant protective gloves. Nitrile gloves are recommended. Do not use Latex gloves.
For some procedures, heat resistant gloves are required. Where a "heat resistant glove" is referenced, 3D Systems recommends wearing a thermal liner with a nitrile glove worn over the liner. The thermal liner must be capable of withstanding temperatures up to 90 degrees C.

Eye protection: In the event of a leak or spill of uncured build material, wear safety glasses with side shields to provide eye protection.

Respiratory protection: Because of the 3D printer system's built in engineering controls, respiratory protection is not necessary during normal operation. A NIOSH-approved (or equivalent) dust mask is recommended when dry sanding cured material parts.

First Aid Measures

General Information: Ensure that eyewash stations and safety showers are close to the workstation location.

In case of inhalation: May cause respiratory irritation. Move affected person to fresh air. If respiratory irritation occurs or if breathing becomes difficult, seek medical attention immediately.

In case of skin contact: May cause irritation or sensitization by skin contact , including redness and/or swelling. Immediately flush skin with plenty of cold water. After the area has been thoroughly rinsed, use soap and cold water to cleanse the area. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse.

In case of eye contact: Irritating to eyes. Causes redness, swelling and pain. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses immediately. Get medical attention if symptoms persist.

In case of ingestion: Irritating to mouth, throat and stomach. If ingested, drink plenty of water and seek immediate medical attention. Do not induce vomiting.
Self-protection of the first aider: Put on appropriate protective equipment (see section 7). Move exposed person to fresh air. Remove contaminated clothing and shoes.

Ecological Information

Ecotoxicity: The aquatic toxicity of the product is unknown; however based on components, it is predicted that uncured build material may be harmful to aquatic organisms or cause long-term adverse effects in the aquatic environment. Prevent contamination of soil, drains and surface waters.

Regulatory Information

VisiJet support material has no known regulatory requirements.

In the U.S., uncured material is subject to special EPA disposal regulations and record-keeping requirements. “Uncured VisiJet material” includes any build material bottles (empty or full) and waste bag, and about half of the material in a waste bag is uncured build material. For complete disposal regulation details, see the Post Processing Guide.

In the U.S., the following disposal records must be kept for five years after the date of disposal:

- The quantity of build material received (new or “virgin”).
- The name and address of the shipping location (the “responsible party” - generally your waste disposal service provider).
- The quantity of build material shipped (disposed). For further information, see the Post Processing Guide.

For assistance, contact 3D Systems Technical Support.

Spilled VisiJet Material

Spills of material are highly unlikely and should NOT occur in normal operation of the 3D printer system.

The first priority is to protect users from inadvertently touching material. Spills of support material can be cleaned without use of protective gear, and disposed of as office trash. Handling uncured build material requires use of gloves, protective sleeves and other personal protective equipment to ensure no direct contact with uncured build material. If you don’t know which material it is, assume it to be uncured build material, and handle accordingly with the recommended personal protective equipment.

Promptly clean up spilled material, dispose of clean up materials and waste material per local regulatory requirements. Discontinue use of the 3D printer system, and contact 3D Systems Technical Support for a service visit to determine and repair the source of leakage.

Small spills of uncured liquid build material can be cleaned up using disposable towels, non-reusable rags, or absorbing materials such as sawdust, clay, diatomaceous earth, or activated charcoal. If spilled material is hot (liquid), wait until cools and gels before wiping up. After wiping up the spill, wipe surface with denatured or isopropyl alcohol and clean thoroughly with soap and water.

Advise the service provider involved of the spilled material, and provide

other material information prior to contact with the material. Advise them of disposal requirements for build material and clean-up products if build material (uncured) is the spilled material.

Tools contaminated with build material should be cleaned prior to reuse. Solvents such as denatured alcohol or Isopropyl Alcohol (IPA), are normally required to clean equipment and tools. Wash with soap and water to remove any traces of excess build material or solvent. Contact solvent suppliers for information on proper handling of solvents if used for clean-up.

Waste Removal

WARNING: UNCURED BUILD MATERIAL IS A SENSITIZER. SKIN OR EYE IRRITATION COULD OCCUR WHEN EXPOSED TO THE CHEMICAL COMPOSITION OF THE MATERIAL.

Wear protective gloves and protective sleeves before removing any waste product from the 3D printer system. Be careful not to spill, drop, or expose others to these materials - particularly build material bottles or waste bag. Dispose of all waste material appropriately per local regulatory requirements. Please refer to the Safety Data Sheets for information regarding material safety and handling.

- Open waste drawer.
- Remove the waste bag from the waste bag holder by lifting the waste bag straight up and out of the waste drawer.
- Seal bag and dispose according to your local regulatory guidelines.
- Replace new waste bag by reversing the previous process. Close waste drawer after waste bag is installed.

Material handling and Storage

SUPPORT MATERIAL		BUILD MATERIAL	
VisiJet S500		**VisiJet CR-CL, CE-NT, CR-WT, CE-BK, CR-BK**	
Shelf life	5 yr.	**Shelf life**	2 yr.
Climate	Cool, dry area with adequate ventilation	**Climate**	Cool, dry area with adequate ventilation
Storage Class	N/A	**Storage Class 10**	Environmentally hazardous liquids

Storage Temperature	Below 95°F (35°C)	**Storage Temp**	Below 95°F (35°C)
Environmental Conditions	No direct sunlight, heat, flames, or UV energy.	**Environmental Conditions**	No direct sunlight, heat, flames, or UV energy.

NOTE: For optimal results, keep stored cartons closed, and do not open until bottle is ready for use.

Always check bottle's expiration date before loading. Do not load bottles into 3D printer system if they are about to expire. When 3D printer system detects an expired bottle, it aborts the build and rejects the bottle if the expiration date has expired for support material or more than one year past the expiration date for build material.

NOTE: When storing material bottles that have been used but still have materials in them, do not place the bottles on their side; stand bottles in the upright position. Also, in the case where used bottles with materials are removed from the MDM and are still warm, it must be stored with the cap vented. If the warm bottle is not vented, the wax will contract during cooling and the bottle's bottom may become flat which will prevent re-engagement in the MDM. See "Material Delivery Modules (MDM) and Material Bottles" on page 25 for a description of the MDM.

Support material bottles must be loaded in the left side material delivery module. The build material bottles must be loaded in the right material delivery module. Before loading material bottles into the 3D printer system, inspect bottles for signs of damage or leakage. Do not load a damaged or leaking bottle. Dispose of them according to local regulations.

ProJet® MJP 5600 PRINTER

FEATURES

Build Modes

The ProJet® MJP 5600 3D Professional System features four build modes and improved print speed to deliver high fidelity prototypes for a variety of applications. The build area in all modes is 518 x 381 x 299 mm, (20.4 x 15 x 11.8 inches), (x,y,z).
UHD, Ultra High Definition Mode – Allows the user to build very high resolution parts with exceptional surface finish and superior accuracy. UHD mode prints at 16 micron layer thickness.
UHDS, Ultra High Definition Mode (Single Material) – Allows user to print very high resolution parts with exceptional surface finish, superior accuracy and higher throughput (print speed). UHDS mode will print the entire build in one of the base materials loaded on the printer. The user can select which material to run in this single material mode. UHDS mode prints at 16 micron layer thickness.
XHD, Extreme High Definition Mode - Allows the user to build at the very highest resolution and surface quality. XHD mode prints at 13 micron layer thickness.
XHDS, Extreme High Definition Mode (Single Material) – Allows the user to build at the very highest resolution and surface quality and higher throughput (print speed). XHDS mode will print the entire build in one of the base materials loaded on the printer. The user can select which material to run in this single material mode. XHDS mode prints at 13 micron layer thickness.

Part Stacking and Nesting

Stacking: The user can utilize the entire build area by stacking parts vertically in the z-direction to fill up the entire build envelop with parts. The user can control the space between layers to minimize support material usage and build time. Hours can be saved by stacking parts and submitting single, long builds overnight and weekends.
Nesting capability allows parts to be placed within the boundaries of one another but not overlapping the part structure itself.

Simultaneously use Two Materials for Part Building

The ProJet® MJP 5600 provides the simultaneous use of two build materials along with a support material. The 3D printer

system has a total of four material delivery modules, (MDM). Each MDM holds two bottles of material. This provides for a total of four bottles of support material and four bottles of build material.
Support material is loaded into both MDMs located on the left side of the machine, for a total of four bottles.
Build material is loaded into the MDMs located on the right side of the machine. The upper MDM is designated MDM “A” and the lower MDM is designated MDM “B”. Two bottles of build material A are placed into MDM “A” and two bottles of part material B are placed into MDM “B”.

The following build materials are available for the ProJet® MJP 5600:

- VisiJet® CR-CL, Rigid Clear Build Material
- VisiJet® CR-BK, Rigid Black Build Material
- VisiJet® CR-WT, Rigid White ABS-like Build Material
- VisiJet® CE-NT, Elastomeric Natural Build Material
- VisiJet® CE-BK, Elastomeric Black Build Material

The following support materials are available for the ProJet® MJP 5600:

- VisiJet® S500.

NOTE: For more detailed information regarding ProJet 5600 material characteristics please click here.

AT A GLANCE

The ProJet® MJP 5600 Printer

The ProJet® MJP 5600 is a multi-jet 3D printing system. The solid imaging 3D printer system produces plastic prototype parts from 3D solid Computer-Aided Design (CAD) models. File types include: .stl, .ctl, .obj, .ply, .zpr, .zbd, .amf, .wrl, .3ds, .fbx, .mjpddd, .bdz, .iges, .igs, .step, .stp and .slc, The primary components are the touchscreen, build chamber, material delivery modules (MDMs), and waste drawers.

The three dimensional solid parts built by the 3D printer system consist of one support material and one (or two) part materials. The support material is a wax based material providing adhesion to the print platform, as well as, providing supports for the part material to build the model.

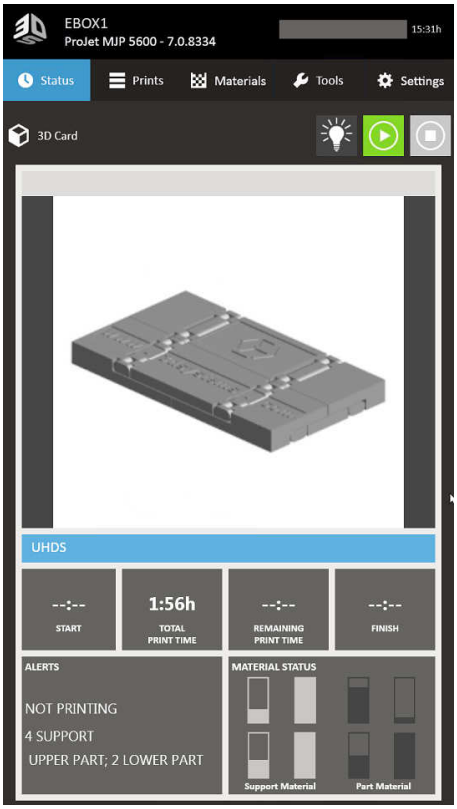
The part material used to build parts is an ultraviolet (UV) curable material. After a layer of material is deposited in the build chamber, the part is exposed to a UV flash lamp. The UV energy is absorbed by the material converting the liquid build material to a solid polymer. When the build is complete the part is adhered to the print platform by means of the support material.

Touchscreen Control Panel

The ProJet® MJP 5600 touchscreen control panel provides a graphical user interface (GUI) for the user. With the exception of submitting print jobs, the touchscreen control panel provides full control of the 3D printer system including:

- Set up
- Selecting, starting, pausing and aborting print jobs
- Diagnostics
- Test prints and demo prints

The full functionality of the 10" touchscreen control panel is described later in this chapter.


EBOX1
Projet MJP 5600 - 7.0.8334
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Status
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Materials
Tools
Settings
3D Card
UHDS
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START
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TOTAL PRINT TIME
--:--
REMAINING PRINT TIME
--:--
FINISH
ALERTS
NOT PRINTING
4 SUPPORT
UPPER PART; 2 LOWER PART
MATERIAL STATUS
Support Material
Part Material

Material Delivery Modules (MDM) and Waste Drawers

The 3D printer system has a total of four material delivery modules (MDM), shown open in the figure below. There are two MDMs for support material (left side) and two MDMs for part material (right side). Each MDM holds two bottles of material. This provides for a total of four bottles of support material and four bottles of build material.

The support material is delivered in 1.75 kg. plastic bottles and the part material is delivered in 2 kg. plastic bottles. The bottles are placed in the machine's MDM. The ProJet® MJP 5600 allows for the simultaneous use of two different part materials.

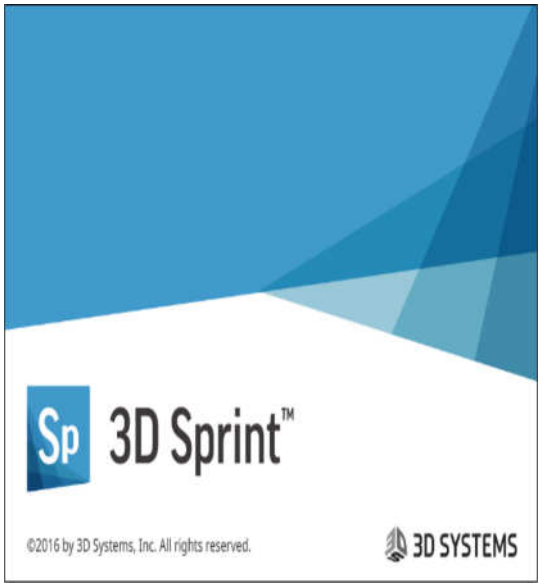
The ProJet® MJP 5600 has two waste drawers, (left and right). The waste drawers are located adjacent to the upper MDMs and can be accessed by opening the MDM. The right waste drawer collects waste from the waste tank and the left waste drawer (not shown), collects waste from the Head Maintenance Station, (HMS).

Build Chamber

The figure below shows the ProJet® MJP 5600 with the build chamber door open. The user will access the build chamber to install a print platform before each build and to remove the completed parts at the completion of a build. The build chamber door is equipped with an interlock which prevents the user from accessing the build chamber during a build. This prevents the user from access to moving parts and protects the user from exposure to the UV curing lamps.

3D SPRINT

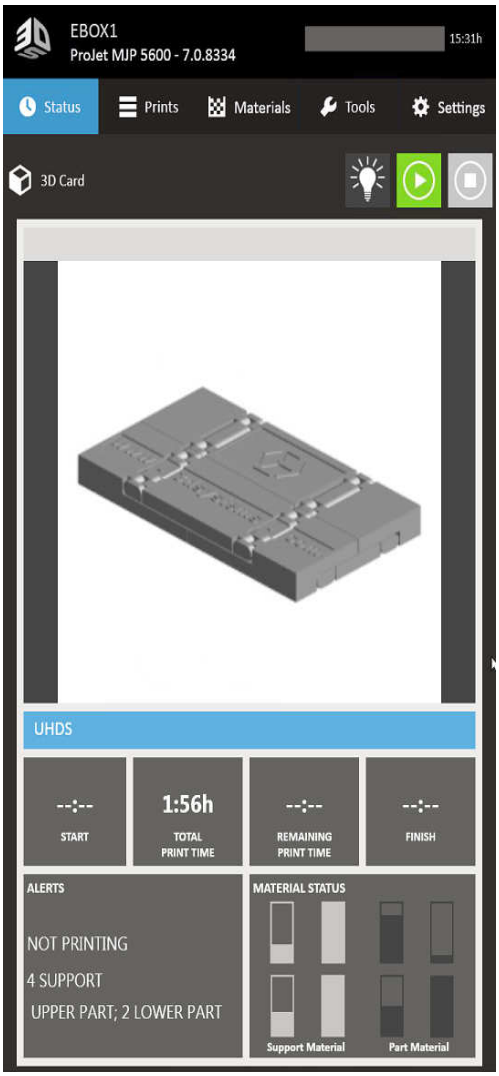
3D SPRINT is a client workstation software package that is used to manipulate the .stl, .ctl, .obj etc. files that are subsequently sent to the ProJet® MJP 5600 as print jobs. Print jobs cannot be submitted locally (at the 3D printer system itself), and must be submitted through 3D SPRINT.



Touchscreen Control Panel

Throughout this document, the touchscreen control panel will be referred to as the “touchscreen”.

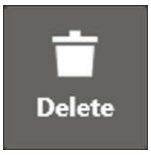
The top portion of the touchscreen displays the printer name, the 3D printer system type, software version and print time remaining. Depending on the tool selected, the toolbar section of the touchscreen will display various screens in relation to the selected tool. The tool buttons allow the user to perform various tasks and provides printing information during the printing process.



INDICATION & NAVIGATION ICONS

Warm up Select this icon when the machine is in a Standby or Conserve state. This will begin warming the machine.

Delete Select a print job and press this key to delete the print job from the print queue.



Copy Select a print job and press this key to duplicate the print job.

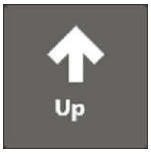
The duplicate will appear in the print queue.

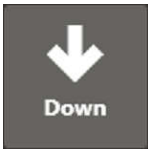
Move to Top Select a print job and press this key to move the print

job to the first position in the print queue.

Move Up Select a print job and press this key to move the print job

“up” one position in the print queue.



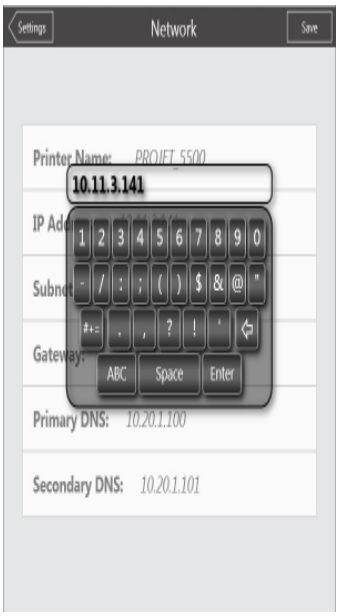
Move Down Select a print job and press this key to move the print job “down” one position in the print queue.	
Back Arrow Returns you back to the previous window	
Navigates to another table or screen	
Queue Displays the print files waiting to be printed	
History Displays the print history of the machine	

The touchscreen also provides a pop-up keypad for entering any required data. For example, the network screen requires data to be entered for each field, (3D printer system Name, IP Address, etc.).

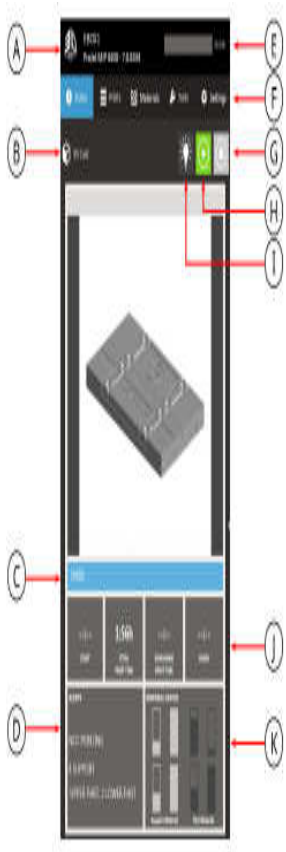
To enter the name, press the data field adjacent to Printer Name. The keypad is displayed. Enter the text needed and press the Enter key.

To enter the IP Address, press the data field adjacent

to “IP Address”. The keypad is displayed.
Press the 123 key to enter numeric data.
When the field is complete, press the Enter key.



STATUS SCREEN



A	**Systems Information** - Provides printer name, printer type and software version
B	**File Name** - Displays name of the current build
C	**Build Quality** - Indicates the build quality for the current print

D	**Alerts -** Displays the current status of the printer
E	**Progress Bar -** The solid bar shows the progress of warm-up time, printing time, bottle melt time or current progress of an operation. Text indicates time remaining of current progress.
F	**Menu Bar -** Press the icons to gain access to additional printer controls
G	**Abort Build -** When displayed red, press to abort the current build job

H	**Start/Pause** - Press to place the printer on/off or to start/pause a build job
I	**Chamber Light** - Toggles the chamber light on and off
J	**Build Time** - Indicates the start time, total print time, remaining print time and finish time of the current build
K	**Material Status** - Indicates the levels of the installed material

Print Screen

Print Queue: When you press Prints on the Menu Bar, the touchscreen presents the Print Queue window. All print jobs that have been submitted to the 3D printer

system are listed.

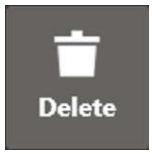
This window displays all the build files by name and mode. Press the arrow key for a print job to display specific details about the print.

Print Queue : Press the

 key

to access the specific print job. The edit keys allow you to delete, copy and change the order of the print jobs.

Delete Select a print job and press this key to delete the print job from the print queue.



Copy Select a print job and press this key to duplicate the print job. The duplicate will appear in the print queue.

Move to Top Select a print job and press this key to move the print job to the first position in the print queue.

Move Up Select a print job and press this key to move the print job “up” one position in the print queue.

Move Down Select a print job and press this key to move the print job “down” one position in the print queue.

Print History: Press the History key and the touchscreen will show all print jobs that have been submitted to the 3D printer system.

When selecting the arrow beside the print name, a window will open displaying print name, print mode, estimated/actual print time, estimated/actual part material use, estimated/actual support material use. If

the
file
has
been
printed,
this
window
will
also
display
the
print
start
and
completed/aborted
time.

Materials Screen

The
material
screen

represents the 3D printer system's four Material Delivery Modules, (MDM) and provides information for each material bottle position within the MDM.

Touch the screen to select a particular bottle and Information for that bottle is displayed in the support material or part material message boxes.

A	Indicates a partially full support material bottle. The larger icon indicates the active support material bottle in the upper MDM.
B	Indicates a full support material bottle. The smaller icon indicates the inactive support material bottle in the upper MDM.

C	Indicates there are no support material bottles present in this position.
D	Indicates a full support material bottle. The smaller icon indicates the inactive support material bottle in the lower MDM.
E	Provides specific information about the selected support material bottle.
F	Indicates a full part material bottle. The larger icon indicates the active part material bottle in the upper MDM.

G	Indicates a partially full support material bottle. The smaller icon indicates the inactive support material bottle in the upper MDM.
H	Indicates a full part material bottle. The larger icon indicates the active part material bottle in the lower MDM.
I	Indicates there are no part material bottles present in this position.
J	Provides specific information about the selected part material bottle.

Tools Screen

This screen will provide diagnostic information about the 3D printer system.

Print Diagnostics: Allows you to select the **Quick Test Print**, **Drop Mass**, **Tag Test**, **Verification**, and **Saber Angle**.

Printer Info: Provides information about the **Control Version**, **Print3D Version**, **Machine Type**, **IP Address**, **Mac Address** and **Serial Number**.

Printer Usage: Provides 3D printer system usage information in hours, minutes, and seconds. Also indicates the amount of part and build material that have been used.

Material Change Wizard: If a different material

is needed, the Material Change Wizard purges the old material out of the 3D printer system and primes the system with newly chosen material.

Printer Shutdown: Press on the tab to shutdown the 3D printer system. Press the tab to reboot the 3D printer system or to restart the 3D printer system software.

Settings Screen

The settings screen allows you to select the 3D

printer system you want to use, configure the network settings for that 3D printer system, configure the user interface that is presented and configure the recipients and type of alerts that will be issued.

Alerts: press “Alerts” to display

e-mail alerts, machine e-mail and administrator e-mail.

E-mail Alert: You can control e-mail alerts by sliding the “On” button to receive alerts or sliding to “Off” to stop alerts.

Material Changeover Alerts:

Machine E-mail: Provides the e-mail server set up of the 3D printer system that is currently being used.

Admin Email: Admin of the network, can control email alerts by sliding the “On/Off” button to avoid notification of various 3D printer system states.

Send a Test Email: After network and email setup is completed, a test email can be sent to your email to ensure that the machine email and the admin

email
are
communicating.
This
function can
be
found
under
the
Admin
Email
tab.

Network:
This
screen
displays
the
network
set
up
of
the
selected
3D
printer
system
and
also
allows
the
settings
to
be
changed.
The
network
settings

for a 3D printer system will be assigned by the customers IT department.

Select Machine: The user can select from the list of 3D

printer systems that are presented on the touchscreen. After selecting a 3D printer system, press the Use button. After communication with the selected 3D printer system is established, the 3D printer system name is displayed in the Current Printer field.

User Interface: Displays the font size, language and the color scheme of the touchscreen.

PRINTER

SETUP

The purpose of this section is to execute the following:

- Power the 3D printer system on.
- Load support and build material cartridges into the material delivery modules.
- Install a print platform.
- Perform a successful Quick Test Print.
- Remove the

finished parts from the 3D printer system.

- Empty the waste drawers.
- Switch the 3D printer system off.

Completion of this process will familiarize you with all of the “basic” 3D printer system operations needed to build parts on the printer. It is strongly recommenced that you complete this section

before moving on to larger more sophisticated builds.

Power the 3D printer system On

1. Connect power cord to the printer (A) and plug into facility receptacle.
   Place power switch (B) located at the rear of printer,

to
the
ON
position.
Wait
2.5 hours
for
printer
to
warm
up
before
attempting
to
start
a
build
job.
Because
the
materials
also
require
a
warm
up
period,
proceed
to
the
next
step
of
adding

material to the material delivery modules.

NOTE: Build files can not be submitted to the printer while it is warming up.

Material Delivery Modules (MDM) and Material Bottles

The 3D

printer system has a total of four material delivery modules (MDM). Each MDM holds two bottles of material. This provides for a total of four bottles of support material and four bottles of build material.

Support material is loaded into both MDMs located on the left side of the machine, for a total of

four bottles. All bottles of support material must be the same type.

Build material is loaded into the MDMs located on the right side of the 3D printer system. The upper MDM is designated MDM “A” and the lower MDM is designated MDM “B”. The distinguishing feature of this 3D printer system is

that you may use two different types of part material.

Two bottles of build material are placed into Upper A and two bottles of build material are placed Lower B.

Do not place different materials into the same MDM.

Placing different build materials in the same MDM will generate a mixed material part.

A	Build Chamber
B	Support Material Upper A
C	Support Material Lower B
D	Operator's Touchscreen
E	Build Material Upper A
F	Build Material Lower B

Install Material Bottles

For

the purpose of the Quick Test Print, we will use only two bottles of support material and two bottles of build material. Make certain that the two bottles of build material are the same type.

1. Unpack the material bottles from the cartons. Save cardboard sleeves and material carton

to store partially used material bottles.

2. Press and release the upper left material delivery module to open it.
   Install two bottles of support material into the MDM.
   Press on the top of the

material bottle until you hear a click to make certain the bottles are fully seated. Vent the bottles by loosening each cap 1/2 turn.

3. Press and release the upper right material delivery module

to
open
it.
Install
two
bottles
of
part
material
into
the
MDM.
Press
on
the
top
of
the
material
bottle
until
you
hear
a
click
to
make
certain
the
bottles
are
fully
seated.
Vent

the bottles by loosening each cap 1/2 turn.

As previously stated, only two MDM are loaded with material for the Quick Test Print. Subsequent print jobs will require all MDMs to be fully loaded with both support and part material.

Install Waste Bags in the Waste Drawers

1. Open the upper left and upper right MDM.
2. Slide both waste drawers completely out of the 3D

printer system.

3. Install a plastic waste bag into each drawer.
4. Close waste drawers and MDMs.
5. Press the Start key to resume.

Install Print Platform

1. Clean the platform (both front and back), using 91% isopropyl alcohol before installing the platform into the 3D printer system. Also, ensure that the platform plate mount is clean of materials

residue from previous build.

2. Open the chamber door.
3. The view below shows the bottom of the print platform. The recessed area on the bottom of the platform is placed toward the front of

the
3D
printer
system.

4. Place
the
platform
on
the
Z-carriage
so
the
rear
edge
of
the
platform
is
positioned
in
front
of

the rear brackets.

5. Slide the platform toward the rear of the 3D printer system until it is firmly pressed against the rear brackets. Press down on

the platform at the points indicated to make certain the platform is “seated” onto the Z-carriage.

6. Close the front door and press the **Start key** on

the
touchscreen
to
bring
the
3D
printer
system
online.

QUICK TEST PRINT

1. On
   the
   touchscreen,
   press
   the
   Tools
   icon.
2. Press
   Print
   Diagnostics.
3. Press

Quick Test Print.

4. Select Upper or Lower for a single material Quick Test Print.
5. Select Multi for a multi-material Quick Test Print.

6. Select the mode for the Quick Test Print.
7. For a single material Quick Test Print, the available modes are UHD and XHD only.

8. For a multi-material Quick Test Print, the available modes are **UHD** and **XHD** only.

9. The system displays **Purge and continue? Y?N**. Select Yes.

This will home X and Y and perform a printhead cleaning.

10. The system displays PLATFORM

EMPTY & DOOR CLOSED? Y/N.

11. Make certain the platform is empty, the door is closed and press YES.

12. The 3D printer system starts the Quick Test

Print.

13. The **Quick Test Print** will take approximately 2-3 minutes.
14. Remove Print from machine and confirm a test print was performed.

Remove Print Platform

When the touchscreen shows DONE: <job_name>, you can remove the print platform.

1. Open the chamber

door.

2. To remove the platform, Pull the platform forward until you feel it contact the stops.

3. Place your hands on either side of the platform to lift and remove it from the

3D

printer

system.

Remove Part from Print platform

To remove your part from the print platform:

- Place the platform in a freezer for ten to fifteen minutes. As the parts and platform cool,

they contract at different rates and separate.

- Alternatively, the parts can be mechanically separated from the print platform by force using a tool with a stiff thin blade such as a putty knife. Make certain you do not mark the platform. For

more information on how to clean parts, refer to the VisiJet Post Processing Guide.

Empty Waste Drawers

Personal protection equipment is required before opening waste drawer.

Follow all material handling and disposal guidelines.

Always follow Global Health and Safety guidelines and local regulations regarding handling and disposal of regulated materials.

Keep disposal records if local law requires.

CAUTION: Wear protective gloves and sleeves before removing any waste material. Be careful not to spill, drop, or expose others to these materials. Dispose the material according to your local regulatory guidelines.

Note: When removing the draped portion of the bag, be careful not to spill the material that may be on the top portion of the bag.

1. Open

the upper left and upper right MDM.

2. Slide both waste drawers completely out of the 3D printer system.
3. Remove waste bags from waste drawers and place into a hazardous waste container.
4. Replace the

plastic waste bag for each drawer.

5. Close waste drawers and press Start to resume.

Standby and Conserve Mode

NOTE: If the 3D printer

system is to be used within 7 to 10 days of the last build, it is recommended to leave your 3D printer system in either standby or conserve mode, instead of powering off the 3D printer system.

If the 3D printer system is idle more than 5 hours, it enters Standby mode. If the 3D printer system is idle more than 36 hours, it enters Conserve mode. In these energy-

saving states, the heaters are partially cooled and many other components are disabled. It takes much less time for the 3D printer system to warm up from Standby or Conserve mode than it does from full shutdown/power off, (see table below). To increase or decrease wait time before the 3D printer system enters

Standby mode or Conserve mode, contact 3D Systems Technical Support

Mode	Time
Off to ready	2.5hrs.
Standby to ready	15 min
Conserve to ready	25 min
Ready to standby	5 hrs.
Standby to conserve	12 hrs.

3D printer system Shutdown and Power Off

NOTE: Before shutdown and power off, verify that there is no need to build parts again soon.

CAUTION: Switching off or disconnecting the 3D printer system power without performing the following shutdown procedure can damage the 3D printer system. Always perform the shutdown procedure before switching off the 3D printer system power unless an immediate power off is necessary for safety reasons.

1. Verify

the 3D printer system is not building.

2. Press **Tools**.
3. Press **Printer Shutdown**.
4. The touchscreen displays **SHUTDOWN MODELER?: Y/N**. Press Yes.
5. The touchscreen displays **Windows Shutdown**:
6. The touchscreen displays **Shutdown in Progress**

Please Wait.

After 15 seconds the touchscreen goes black.

7. After the touchscreen goes black, switch the power switch on the back of the 3D printer system to OFF.

3D

SPRINT

SOFTWARE

3D SPRINT™ is a client application that is offered for your printer. Please review the "help" section that covers the entire application and will also help you to fully utilize the power of 3D SPRINT.

If you are using this application for the first time, please read

the "Help" document thoroughly to get a basic understanding about the application and its uses.

To open and use the help documentation, click here.

Shrink Compensation for VisiJet Part Material

Material shrinkage occurs in thermoplastics as they transition from liquid state to solid (change in density). In the case of photo-polymers used in the Multi-Jet building process, this shrinkage can occur during the curing stage of printing. 3D Sprint has features built in to allow a user to compensate for the

natural shrinkage of the material and also fine tune the accuracy of a part. The VisiJet Material Shrink Compensation Tools are provided for this purpose. The kit includes instructions, a worksheet, two .STL files and will explain the process for entering shrink compensation and fine tuning part accuracy using scaling factors.

TOUCHPAD

OPERATION

Pause

A

Job

Pause a Print job

1. To pause an active print job, press the Pause key.

2. A message will display **PAUSE JOB? Y/N**. Select **Yes**.

3. The message bar will display PAUSE ACKNOWLEDGED until the 3D printer system has completed printing the current layer.

4. After the current layer is complete, the message bar will display PRINT PAUSED.
5. The message bar will also display AUTO RESUME: 05:00, indicating that the 3D printer

system will automatically resume printing in five minutes.

6. The user may also manually resume the print job by pressing the

   Start key.

Abort A Job

Abort a Print job

1. To abort an active print job,

press the **Abort key**.

2. Press **Yes** to the message, **ABORT JOB? Y/N**.

3. The message bar will display

ABORT

ACKNOWLEDGE.

4. Select

Yes

to

continue.

5. The message bar will display FINISHING PRINT.

6. The 3D printer system will continue multiple curing cycles so the user will not be exposed to uncured

material when removing the print. The 3D printer system will continue to display FINISHING PRINT during the curing cycles.

7. After the 3D printer system has completed the curing cycles, the message, REMOVE PRINT

is

displayed.

8. Press

OK

to

the

REMOVE

PRINT

message.

Open

the

build

chamber

and

remove

the

print

job

from the build chamber.

Copy A Job

Copy a Print job

1. Select **Prints** icon, then select the key for the job you want to copy.
2. The **Print Queue**

screen
is
displayed.

3. Print
job
you
selected
is
displayed.

4. Press the copy icon.

5. Press **Yes** to the displayed message, Copy selected job?

6. The print job is placed at the end of the print queue.

If you need to position the copied print job to a different position in the print queue:

7. Press

key for the job

you would like to reposition in the print queue.

8. Use the arrow keys to move the print job to a different position in the the print queue.

Delete A Job

Delete a Print Job

1. Select the Prints icon from the

tool bar.

2. The **Print Queue** screen is displayed.
3. On the **Print Queue** screen press

key for the job you wish to delete.

5. Press the **delete** icon.

6.

7. Press **Yes** to the displayed message, **Delete job:** ?

6. The print job is deleted from the print queue.

MAINTENANCE

MCO

-

Material

Changeover

Procedure

Material Change (Material Changeout Wizard)

Before Beginning this Procedure

- Check the Software Version. The printer must be running software version xxxxxxxx or later. Install

new software if needed.

- Pre-Existing Service Issues. If the printer has any pre-existing service issues, do not attempt to perform this procedure. Resolve any existing issues before beginning this procedure.
- Check the Build Chamber. Make certain the build platform

and build chamber are clear from any obstructions that may prevent the free movement of the print head, (e.g. tools, parts, etc.).

- Observe the Specified Wait Times. In several steps of this procedure you will see the statement, “This may take

up to 20 minutes. Please wait". Please be extremely patient and wait the specified time. Although the printer may appear idle, do not deviate from the procedure.

- Do Not Deviate from the Procedure. This procedure must be completed in order

and in its entirety.

Caution: Modifying the procedure may cause serious damage to the printer.

Check for Materials on Hand

Make certain you have the following available:

- Two cartridges of MCO Cleaner 5600
- Two cartridges of the new material you are switching to
- Lint

free cloth
- Nitrile gloves
- Safety glasses
- 2 -2.5hrs or your time

Check the Printer State When the printer is in an energy saving state such as Standby or Conserve, the material heaters are partially cooled and many other components are disabled. The printer and materials must be at normal operating

temperatures before the material change procedure can be performed.

Check the Message Bar on the user interface. If the message displayed is STANDBY NOT

PRINTING or CONSERVE NOT PRINTING, the printer will need time to warm up before beginning this procedure. The amount of warm up time for each mode is:

- Standby

  15 minutes
- Conserve

  25 minutes

If you see either of the adjacent messages (outlined in red), proceed as follows:

1. Press the Start key.
2. Cancel any prompts

that

appear.

3. Wait

the

time

specified

above

for

the

printer

to

warm

up.

When
the
Message
Bar
displays
READY
TO
PRINT,
you
may
proceed
to
the
next
page
to
begin
the
material
change
procedure.

1. On

the

touchscreen,

press

the

Status

key and verify the printer is READY TO PRINT, (not in Standby or Conserve mode.)

2. Install a new HMS waste bag, (left waste bag).

3. On the touchscreen, select Tools -> Material Change Wizard.

4. Press the grey Start key to start the material change process.

5. You will be prompted with the adjacent dialog box "Commence Material Change?".
6. Select **Yes** to continue. Pressing

No

will terminate the material change process.

7. The system will allow you to select the **Upper** or

Lower MDM. For this example we will select the lower MDM.

8. You will be prompted with the

adjacent dialog box.

9. Select **Yes** to continue. Pressing **No** will terminate the material change process.

10. Open the

lower MDM.

11. Remove both material cartridges from the lower MDM.
12. Close the lower MDM.
13. Select **Yes** to continue. Pressing **No** will terminate the material change process.

14. Make certain the HMS **waste bag** is empty.
15. Make certain the **platform** is empty.
16. Select **Yes** to

continue.

Pressing **No** will terminate the material change process.

17. Make certain the **waste reservoir bag** (right waste

bag), is empty.

18. Machine will now home X,Y & Z.
19. The printhead will move over the HMS station.
20. The system will begin pumping the existing material out of the MDM and the printhead.

21. This process of pumping out the existing material will take approximately 20-30 minutes.
22. The status of

the process is indicated by the changing progress bars.

24. When the adjacent dialog box is displayed, open the lower MDM.
25. Use a lint free cloth to wipe out the MDM holders to remove

any

residual

material.

WARNING: THE MDM HOLDER AND MOLTEN MATERIAL WILL BE HOT; AVOID TOUCHING THE SIDES OF THE HOLDER DURING THE CLEANING PROCESS. WEAR PROTECTIVE HEAT RESISTANT GLOVES, PROTECTIVE SLEEVES AND GOGGLES. DISPOSE OF THE MATERIAL ACCORDING TO ALL LOCAL, STATE AND FEDERAL REGULATORY GUIDELINES.

28. Install two cartridges of MCO Cleaner, into the lower MDM.
29. Close the lower MDM.
30. Wait a minimum

of
20-30 minutes
to
allow
the
MCO
Cleaner
to
warm
up.

31. This dialog
box
is
displayed
if
the
MCO
Cleaner
5600
has
not
been
installed
into
the
MDM.

29. This dialog box is displayed when the MCO Cleaner 5600 is being installed into the MDM.

30. Once the machine has successfully installed the cleaners, the machine will automatically begin to flush MCO Cleaner through

the MDM and Printhead.

Note: If bottles are cold, warm up could take as long as 30 minutes.

34. When the machine has completed

the cleaning process, the following prompt will appear.

35. Select **Yes** to continue. Pressing **No** will terminate the material change process.
36. Remove both of the MCO Cleaners cartridges from the MDM.
37. **Close** the lower

MDM

drawer.

36. The system will pump the remaining cleaner out of the system and into the HMS

waste bag.

37. This may take up to 10 to 15 minutes, please wait.

37. When you are prompted

by this screen, open the lower MDM.

38. Use a lint free cloth to wipe out the MDM

holders to remove any residual cleaner material.

Make certain you use a lint free cloth to avoid manifold contamination.

WARNING: THE MDM HOLDER AND MOLTEN MATERIAL WILL BE HOT; AVOID TOUCHING THE SIDES OF THE HOLDER DURING THE CLEANING PROCESS. WEAR PROTECTIVE HEAT RESISTANT GLOVES, PROTECTIVE SLEEVES AND GOGGLES. DISPOSE OF THE MATERIAL ACCORDING TO ALL LOCAL, STATE AND FEDERAL REGULATORY GUIDELINES.

45. Install two material cartridges of the new material.
46. Close the lower

MDM.

47. Select **Yes** to continue. Pressing **No** will terminate the material change process.
48. This **status screen** is displayed while the **new material is pumped** into the system.
49. This may take up to **40 minutes**

for
the
new
cartridges
to
warm
up. Please
wait.

46. This
screen
is
displayed
when
the
changeover process
is
on

the
last
cycle
of
completion.

48. This
screen
is
displayed
when
the
changeover process
is
completed.
49. Select
OK.

Changing the Carbon Filter

Changing the Carbon Filter

The carbon filter will need to be

replaced every 90 days to ensure the 3D printer system will perform at it's optimal level. The part number for the carbon filter is 318587-00.

WARNING: YOU MUST WEAR NITRILE GLOVES AND PROTECTIVE SLEEVES WHEN PERFORMING THIS PROCEDURE.

1. Make certain the 3D printer system is not building.
2. Switch the 3D printer

system off as described in "3D Printer System Shutdown and Power Off."

3. Open the build chamber door.

4. Pull open the cover panel

located below the chamber door.

5. Use a flat bit screwdriver to loosen the screws on the bracket and remove bracket.

6. Remove the carbon filter.
7. Install the new carbon filter.
8. Install bracket to secure filter and tighten screws.
9. Replace the cover panel.
10. Close

the
build
chamber
door.

Cleaning

MDM

Holders

Cleaning MDM Holders

When changing material bottles during printing, molten material may

be present in the MDM holder after the bottle is removed. If a large pool of material is present (latch is submerged and walls of MDM are reached), do not place a clean material bottle into holder. The holder will require cleaning before inserting a new bottle.

WARNING: THE MDM HOLDER AND MATERIAL MAY BE HOT; AVOID TOUCHING THE SIDES OF THE HOLDER DURING THE CLEANING PROCESS. WEAR PROTECTIVE HEAT RESISTANT GLOVES, PROTECTIVE SLEEVES AND GOGGLES. DISPOSE OF THE MATERIAL ACCORDING TO ALL LOCAL, STATE AND FEDERAL REGULATORY GUIDELINES.

1. Make certain the 3D printer system is not

building and press the pause key.

2. Insert a lint free cloth to absorb the material in the MDM holder.
3. Using a long tool, such as tongs, remove the saturated cloth from the holder

and place in a waste bag.

Continue to clean the holder until all material is removed.

4. After the holder is clean, ensure there is no debris or lint left inside of holder.

5. Dispose

of

waste

material

and

all

used clothes according

to

your

local

codes.

Surface

Cleaning

Cleaning 3D printer system Surfaces

NOTE: Do not remove any outer panels when cleaning the 3D printer system. Panels must only be removed by qualified 3D Systems Technical Support Representatives.

WARNING: You must wear nitrile gloves and protective sleeves when performing this procedure.

- Remove dust from outer surfaces of the 3D printer system by wiping with a clean dry, lint-free cloth.
- Dust and clean the outside surfaces only. DO NOT dust inside

the build area.

- Remove dirt and grease from the outer surfaces by spraying an all purpose cleaner on a clean cloth and gently wiping.
- Use only non-abrasive, alcohol-free cleaners to clean surfaces. Spray the cleaner on the cloth, not

on the surface. DO NOT use all purpose cleaners containing petroleum-based polishing agents such as liquid wax.

- DO NOT use any cleaning solvents on the build chamber window as this can damage its protective UV coating.

Empty

Waste

Bags

Empty Waste Bags

Personal protection equipment is required before opening waste drawer. Follow all material handling and disposal guidelines. Always follow Global Health and Safety guidelines and local regulations regarding handling and

WARNING: WEAR PROTECTIVE HEAT RESISTANT GLOVES, PROTECTIVE SLEEVES AND GOGGLES BEFORE REMOVING ANY WASTE MATERIAL. BE CAREFUL NOT TO SPILL, DROP, OR EXPOSE OTHERS TO THESE MATERIALS. DISPOSE OF THE MATERIAL ACCORDING TO YOUR LOCAL REGULATORY GUIDELINES.

NOTE: When removing the draped portion of the bag, be careful not to spill the material that may be on the top portion of the bag.

1. Make certain the 3D printer system is not building and press the pause key.
2. Open the upper left and upper right MDMs.
3. Slide both waste drawers completely out of the 3D printer system.

4. Remove waste bags from waste drawers and place into a hazardous waste container.
5. Replace the plastic waste bag for each drawer.
6. Gently scrape any material stuck onto interior surface of waste drawer bin.

Use a flexible plastic scraper to avoid damaging the paint.

7. Vacuum inside waste drawer to remove scraping.
8. Wipe inside surfaces of waste drawer using a clean cloth.

STATUS AND ERROR MESSAGES

There are three primary types of messages which could appear on the touchscreen of your 3D printer system. The primary types of messages found will be Build, Material, and Status and Message Lines.

Build Messages

Use these messages to help

you manage print jobs before, during, and after printing. The causes of and actions to take in response to various messages are described in the following table:

MESSAGE	CAUSE	ACTION

XX:XX.....XX:XX 7 SUPPORT....7 PART PRINTING	The 3D printer system is currently building. The touchscreen shows the elapsed and remaining build time on the top line and the number of bottles in each feed slot on the second line. **NOTE: Add material when the number of bottles in a slot is 3 or less.**	**NONE**
NOT BUILDING	The 3D printer is ready to build	**Press Start to build**
ProJet [X.X] month dd yyyy TIME XX:XX:XX	When 3D printer system is initially powered-up the latest version of firmware is briefly displayed.	**NONE**

Material Messages
Use the following messages

to help manage print jobs before, during, and after building. The causes and actions to take to various messages are described below:

MESSAGE	CAUSE	ACTION
#X PART	The current number of modeling material bottle in the right material delivery system.	NONE
#X SUPPORT	The current number of support material bottle in the left material delivery systems	NONE

ADD PART	The maximum number of model material bottles in the right material delivery system is four (4) bottles.	**Add model material bottles**
ADD SUPPORT	The maximum number of support material bottles in the left material delivery system is four (4).	**Add support material bottles**

Status and Messages Lines

Messages appear either on the Status line or the Message line. Read both lines together to determine the exact

state of the 3D printer system. The Status line generally indicates current state of the 3D printer system. The Message line shows the action to take to complete a function and move to the next step.

MESSAGE	CAUSE	ACTION
ABORT	ABORT button pressed.	**Press YES or NO to cancel the command.**
ABORT ACKNOWLEDGED	You confirmed an abort command. The 3D printer system is aborting the current job.	**NONE**

BUILD PAUSED	PAUSE button pressed during the build. The print platform moves forward and the chamber door and waste drawer remain locked. When you press the PAUSE button during a build, the 3D printer system completes its current task before stopping.	**Press PAUSE to continue.**
CLEANING PRINTHEAD	The 3D printer system is cleaning the build jets.	**NONE. (This occurs automatically before every build.)**
CLOSE DOORS	The chamber door is open.	**Close the chamber door.**
CONFIRM PLATFORM CLEAR OR CANCEL	The 3D printer system is prompting you to verify the platform is clean and clear of obstructions.	**Verify the platform is clean and clear, then press YES to continue / press ABORT to cancel.**
PRESS PAUSE TO CONTINUE	The 3D printer system is paused.	**Press PAUSE to continue / ABORT to cancel**

CYCLE POWER TO CONTINUE	A severe error occurred. The 3D printer system cannot recover from it and must be switched off.	**Cycle power to the 3D printer system. If the error message occurs again, contact your Certified 3D Systems Service Provider**
DONE REMOVE BUILD	The 3D printer system completed building the current job.	**Remove the platform**
HOMING PRINTHEAD	The 3D printer system is initializing the Z-axis prior to building. NONE	**NONE**
HOMING X - Y	The 3D printer system is initializing the X-axis and Y-axis prior to building.	**NONE**
INSTALL PLATFORM	The 3D printer system does not detect a platform.	**Install a clean platform.**
NOT BUILDING	The 3D printer system is ready to build.	**Press Start to build.**

OK TO POWER OFF	The 3D printer system completed its internal shutdown procedure and is ready to be shutdown.	**Toggle power switch on 3D printer system rear panel to the OFF position.** **NOTE: Before you switch power off, verify you will not need to build parts again soon. It can take several hours for the 3D printer system to warm up after you switch power back on.**
ONLINE/MENU?	The 3D printer system is ready to build.	**Press Start to build.**

PAUSE ACKNOWLEDGE	The PAUSE button was pressed. The 3D printer system is acknowledging and complying with the command.	NONE NOTE: If you press PAUSE during a print job, the current layer or process is completed before the pause takes effect.
PLEASE WAIT	The 3D printer system is cooling to shutdown temperature	Wait for the 3D printer system to complete its shutdown procedures.
PRE-JOB CHECKS	Briefly displayed during 3D printer system build preparation.	NONE
BUILDING	The 3D printer system is currently building.	Allow the print job to continue or press PAUSE or ABORT to stop building.
RAISING PLATFORM	The 3D printer system is raising the printhead so you can remove the platform.	NONE

REMOVE BUILD	The 3D printer system completed a print job and unlocked the chamber door so you can remove the platform	**Remove the platform and replace it with a clean platform.**
SHUTDOWN IN PROGRESS	You selected the SHUTDOWN menu option, then pressed YES twice. The 3D printer system is cooling down so power can be switched off.	**NONE.** **NOTE: DO NOT switch off the 3D printer system while shutdown is in progress.**

SHUTDOWN COMPLETE	3D printer system cool down is complete; 3D printer system is ready for power off.	**Wait for OK TO POWER OFF message, then switch power off at the 3D printer system's rear panel.** **NOTE: Before you switch power off, verify you will not need to build parts again soon. It can take several hours for the 3D printer system to warm up after you switch power back on.**

STANDBY	The 3D printer system is in energy-saver mode. All internal subsystems are partially cooled and the 3D printer system is inactive.	**NONE. The 3D printer system will warm to operating temperature when you press any button or submit a print job.**
WAITING FOR JOB	The 3D printer system is online, but there is no print job in it's queue. The 3D printer system is ready to build as soon as it receives a job.	**Submit a print job to the 3D printer system.**
WARMING STAGE [4,3,2,1]	The material heaters and printhead jet heaters gradually warm up to either standby or build temperature.	**NONE. The numbers on the touchscreen count down as the 3D printer system warms up. At Warming Stage 1, all heaters and material are at build temperature.**

TROUBLESHOOTING

If problems occur with the 3D printer system, error messages appear on the touchscreen. Refer to the appropriate troubleshooting table for assistance. There may be times when an unrecoverable error message will appear and will require a call to your Certified 3D Systems Service Provider.

Prior to contacting Certified 3D

Systems Service Provider, make certain you have the following information:

- The serial number of the 3D printer system. The serial number is located on the product label on the center-rear panel.
- A brief description of the problem, including exact error message displayed

on the touchscreen.

- The conditions under which the problem occurred (for example, while submitting a job, during the beginning or end of the build, after power off recovery, etc.)

COMMUNICATION ERRORS

MESSAGE	CAUSE	ACTION

RT_ERROR: No machine Identification (ID)	No network connection.	Ensure you have a valid network connection. Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider
evm6x_hpi_open()	A communication error occurred.	Cycle power to the 3D printer system. If this does not restore communication, contact your Certified 3D Systems Service Provider.
ProJet [X.X] month dd yyyy TIME XX:XX:XX	A communication error occurred.	Cycle power to the 3D printer system. If this does not restore communication, contact your Certified 3D Systems Service Provider.

HEAD MAINTENANCE ERRORS

MESSAGE	CAUSE	ACTION

HMS ERROR Recovery	An error occurred during printhead maintenance (cleaning the printhead before beginning a build).	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.

MATERIAL FEED AND WASTE SYSTEM ERRORS

A just loaded cartridge did not engage correctly during the material feed cycle or the printhead sensors did not detect the required material level.

MESSAGE	CAUSE	ACTION

RT_ERROR: material feed 1 (or 2) can't fill head	A just loaded bottle did not engage correctly during the material feed cycle or the printhead sensors did not detect the required material level.	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.

THERMAL SHUTDOWN

MESSAGE	CAUSE	ACTION
RT_ERROR:******* Out of Range For example: RT_ERROR: Adapter Temp Counts=2291.temp=75.5362 Out of Range	The temperature of a heater exceeded the set range of temperatures. The system issues a Real Time (RT)error, shuts off all heaters and stops the build. The touchscreen will display "Press Yes to Restart".	Press "Yes" to restart. If the error message occurs again, do not restart. Contact your Certified 3D Systems Service Provider.

MATERIAL QUALITY GUARANTEE ERRORS

MESSAGE	CAUSE	ACTION
Support (or build) material bottles not detected	3D printer system is out of material bottles, a bottle mis-fed, or the material identification system is faulty.	**The build will abort if it needs to use the questionable bottle to finish the build.** • Add the specified material bottle, install a clean print platform and repeat the print job. • If error message occurs again, contact your Certified 3D Systems Service Provider.

Support (or build) material bottle not melted	A cold bottle was added to the material delivery system and it did not have enough time to melt before the 3D printer system requested material.	**The build will abort if it needs to use the questionable bottle to finish the build.** • Add the specified material bottle, install a clean print platform and repeat the print job. • If error message occurs again, contact your Certified 3D Systems Service Provider.
Support (or build) material bottle expired	The material identification system detected expired material.	**Follow the discard instructions posted to the touch screen.**

Support (or build) material bottle incorrect type	A material bottle was inserted into the wrong feed slot	**The build will abort if it needs to use the questionable bottle to finish the build.** • Follow discard instructions posted to touchscreen. • If error message occurs again, contact your Certified 3D Systems Service Provider.

MATERIAL WASTE ERRORS

MESSAGE	CAUSE	ACTON

RT_ERROR: drain tank not responding	Fault detected in control circuitry.	**Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.**
RT_ERROR: Drain tank Position error	Fault detected in control circuitry.	**Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.**

RT_ERROR: Drain tank timeout error	Fault detected in control circuitry.	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.
RT_ERROR: can't empty drain tank	Sensor or valve malfunctioned	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.

MOTION SYSTEM ERRORS

MESSAGE	CAUSE	ACTON

X-Following ERROR	An attempt to open the build chamber door was made, or position sensor errors occurred.	**Ensure the build chamber door is secured, then cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.**
Negative Firing Delay	Variations in scanning axis velocity.	**Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.**

Pause Timeout ERROR	Position sensor contamination	**Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.**

UV SUBSYSTEM ERRORS

MESSAGE	CAUSE	ACTON

RT_ERROR: UV Lamp Power Too Low	UV sensor detected a possible fault.	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider. CAUTION: TO PREVENT SKIN EXPOSURE TO UNCURED PART MATERIAL, DO NOT HANDLE PARTS IN A BUILD WITHOUT WEARING GLOVES AND FULL PROTECTIVE SLEEVES IF A UV LAMP PROBLEM OCCURRED DURING THE BUILD.

VACUUM REGULATOR ERRORS

MESSAGE	CAUSE	ACTON

RT_ERROR: Printhead Vacuum Low	Indicates a fault within the vacuum system.	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.
RT_ERROR: Printhead Vacuum High	Indicates a fault within the vacuum system	Cycle power to the 3D printer system. If error message occurs again, contact your Certified 3D Systems Service Provider.

Power Outage

If you are present during a power outage, or discover the main

power OFF, complete the following steps:

1. Switch power OFF on 3D printer system's rear panel so it does not automatically start when power is restored. This prevents 3D printer system damage due to power flickers and

surges.

2. When power is restored and stable, switch 3D printer system power **ON** located on the rear panel.

If power outage occurs and is restored before anyone can take action, the 3D printer system will recover as follows:

1. The

3D printer system advances through warming stages until reaching the required build temperatures.

- If 3D printer system was not building when power outage occurred, the message line on the touchscreen will display **Not Building** and bottom line will

display Online/Menu?

- The 3D printer system is ready to accept a print job.

If 3D printer system was building when the power outage occurred:

1. The touchscreen will display Power Off Recovery.

- After power is restored and 3D printer system has

reached build temperature. This safety feature prevents accessing incomplete build until all build conditions are satisfied.

2. Once occurred, the job will end, the touchscreen will display **Done** **Remove** **Build** and the print platform will move forward,

and

can

be

removed

and

repeat

print

job

if

desired.

NOTE: If the 3D printer system is in Power Off Recovery, the build chamber will not be able to open until 3D printer system completes recovery.

FINISHING

When the build is complete, refer to the Post Processing Guide for information on how to detach parts from print platform, remove support material from parts and clean parts.

PARTNER

/

CUSTOMER

SUPPORT

NOTE:
Whenever
you have
a
problem
or a
question
it is best
to
contact
your
Service
Provider
directly
first.

If
the
Service
Provider cannot
help
you
then
there
is
a
Customer
Support
Hotline

you can use. If you receive an unrecoverable error message, or if you need to contact us for another problem, you may contact our Customer Support Hotline. Before you call Customer Support with a problem or question, please make sure that you have the following information:

- The serial number of your ProJet® 5600

is printed on a label inside the filter door or by accessing the UI and selecting **Tools** > **Printer Info**.

- A brief description of the problem, including the exact error message.
- When the problem occurred; for example, when you submitted a

job, during the beginning or the end of a print, or after power off recovery, etc.

Customer Support Hotline

Please contact your Customer Support Hotline at one of the following numbers:

- US and Canada: 888-598-1438
- UK and EMEA: +44 1442

279883

- International: +1 803-326-3930

General

ProJet® 5600 service procedures must be performed only by a 3D Systems-certified service technician unless this guide explicitly states otherwise. If your 3D printer system needs service, contact 3D Systems Technical Support at the following numbers:

- In the United States or Canada,

call

800-793-3669

- In

  Europe,

  call

  +49-6151-357357

You can also contact your local 3D Systems Service Provider.

3D Systems' support portal is located at http://www.3dsystems.com/support

For material safety data sheet, go to http://infocenter.3dsystems.com/materials/professional-printer-materials

LEGAL

NOTICES

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FCC Notice

This equipment has been tested and found to comply with the limits for a class “A” digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment

is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the

user will be required to correct the interference at their expense. Changes or modifications not expressly approved by 3D Systems could void your authority to operate this equipment.

Radio Frequency Transmission

This product generates 13.56 MHz using an Inductive Loop System as a Radio Frequency Identification device (RFID). This RFID

device complies with the requirements specified in FCC Part 15, Industry Canada RSS-210, European Council Directive 99/5/EC, and all applicable local laws and regulations. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including

interference that may cause undesired operation. The device referenced in this guide contains transmitter, FCC ID: 2ADGF-SKTKM1 IC: 12666A-SKTKM1. Access to the transmitter for service technicians is available through common enclosure access methods including use of common tools and removal of covers. Note: Changes or modifications to this equipment not specifically

approved by 3D Systems may void the user's authority to operate this equipment.

LIMITATIONS OF WARRANTY AND LIABILITY

This information is provided by 3D Systems for the convenience of its customers. It is believed to be reliable, but NO REPRESENTATIONS, GUARANTEES, OR WARRANTIES OF ANY KIND ARE MADE AS TO

ITS ACCURACY, FITNESS FOR A PARTICULAR USE, OR THE RESULTS TO BE OBTAINED THEREFROM. The information is based in whole or in large part on laboratory work and does not necessarily indicate performance in all conditions. Notwithstanding any information provided by 3D Systems or its affiliates, the customer remains fully responsible for determining

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be bound should return this material to 3D Systems. Nothing contained herein is to be considered as permission, recommendation, or inducement to practice any patented invention without permission of the patent owner.

BASIC

REGULATIONS

3D Systems has tested this printer to electromagnetic emission and immunity standards. These standards are designed to mitigate interference caused or received by this printer in a typical office environment.

United States

This equipment has been tested and found to comply with the limits for

a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with

these instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Changes or modifications to this equipment not approved by 3D Systems can void

the authority of the user to operate this equipment.

Canada

Ce dispositif est conforme aÌ la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage preìjudiciable, et (2) ce dispositif doit accepter

tout brouillage rec?u, y compris un brouillage susceptible de provoquer un fonctionnement indeìsirable.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union

CAUTION: This is a Class A product. In a domestic environment, this product can cause radio interference in which case the user could be required to take adequate measures.

In order to allow the equipment to operate in close proximity to Industrial, Scientific and Medical (ISM) equipment, the external radiation from the ISM equipment may have to be limited or special mitigation measures

taken.

Changes or modifications to this equipment not approved by 3D Systems can void the authority of the user to operate this equipment.

GLOSSARY

Build Material - is a paste-like acrylic compound that is an ultraviolet (UV) curable material.

Print platform - metal surface used on which the 3D printer system builds parts. Support structures link the parts to the print platform and must be removed from the 3D printer system once complete.

Chamber

Door - the chamber door prevents harmful UV radiation from escaping the build chamber during the build process. The chamber door must be closed prior to starting or resuming a print job and is locked when a build is in progress.

Debug Log - is a text file used for obtaining information for

resolving potential problems that may occur with the 3D printer system.

Job Scale Percentage (Job Scale %) - is used to resize parts during the build process.

Material Delivery Module - stores and feeds the material to the 3D printer system during the build process. Each material delivery module (MDM) can hold

two (2) bottles of material. The 3D printer system is equipped with two (2) support material MDMs and two (2) build material MDMs.

Material Quality Guarantee

- the 3D printer system reads an encrypted RFID tag on the cartridge to communicate parameters and ensure optimum build quality.

Modeling

- the 3D printer

system uses materials and a print platform to create three dimensional plastic prototype prints.

Touchscreen - is used to display print job status, menu options, and command prompts for the 3D printer system.

Post Curing (Finishing) - is the final process to remove support material from parts and clean the parts to

a smooth finish prior to surface finishing and coating.

Shrink Comparison Percentage (Shrink Comp %) - is used to adjust for expected shrinkage during the build so actual part dimensions more closely match actual dimensions.

.STL File - is a file format used to produce prints.

Support Material - is a wax based

material that provides adhesion to the print platform and support for down facing surfaces and open volumes within the print.

Waste Material - is any support and/or uncured build material generated during a build process.

X-Axis - is the orientation of the part from left to right on the print platform.

Y-Axis - is

the orientation of the part from front to back on the print platform.

Z-Axis

- is the orientation of the part from up and down on the print platform.

FREQUENTLY ASKED QUESTIONS (FAQ)

What is rapid prototyping?

Rapid prototyping (RP) is the process of building a part from a 3D Cad model saved as an .STL file. When the printing event takes place in the 3D printer system, it is constructed layer by

layer using VisiJet materials.

What is 3D Printing?

A type of rapid prototyping, typically defined by faster, more affordable, and easier-to-use technologies.

How does 3D Printing fit into the design process?

For a growing segment of designers using 3D CAD drawing, the printer is quickly becoming an essential extension of

overall CAD systems and a critical part of the entire design process by:

- Accelerating Time to Market - through shortening design and development cycles and ultimately getting products to market more quickly enabling users to easily fine tune design and explore multiple design

configurations.

- Generating Savings - by helping companies significantly lower production costs and reducing expensive revisions late in the development cycle.
- Enhancing Communication and Collaboration - through bringing ideas off flat screens and producing functional 3D prints that can be easily shared,

critiqued, and improved upon.

- Creating Better Designs - designers are no longer limited to the number of models they can produce and test, resulting in more creative designs and better final products.
- Ensuring Confidentiality - eliminating the need to exchange confidential

design files with service providers, allowing companies to maintain product confidentiality and control.

How does the 3D printing process work?

The 3D printer system builds functional 3D prints from the bottom up, one layer at a time. STL files are imported into the 3D printer system where the

files are sliced and any necessary support structures are created. The materials are fed into the 3D printer system from material bottles and accurately deposited in layers upon the print platform. After completion of the build, support structures are removed during post-processing.

How durable are the build material?

VisiJet materials create

accurate, detailed, and durable prints from your 3-D CAD designs. Popular applications include concept models, casting forms, prototype parts, and specialty tools. All the specific physical and process characteristics of VisiJet materials are detailed in VisiJet material GHS documentation.

Is post-processing required?

Yes, upon removing the part from the printer you

will need to remove the support material from VisiJet parts. The parts finisher makes removing bulk support material from VisiJet parts efficient and easy. Forced airflow and precision temperature control deliver faster, shorter, and more predictable VisiJet part finishing times. See the ProJet MJP 5600 Part Post Processing .

Are there any special

facility requirements or operating systems necessary to install and operate the 3D printer system?

Refer to the ProJet MJP 5600 Facility Requirements Guide .

Can more than one user process files and build parts?

Multiple users can send files to the 3D printer system build queue, move, delete, and set build priorities

in the build queue. Depending on the size of the print, multiple files can be added onto the print platform in one build application.

Can prints be sanded, painted, dyed, and glued?

The parts can be sanded to remove imperfections or layer lines from the surface. You may use any automotive grade

primer to prime the part. After priming, the parts can be painted using any oil- or water-based paint that is compatible with the primer, or you can dye VisiJet parts with candle-craft dyes. You can also use super glue to join parts together.

What is Computer-aided design (CAD)?

Computer-

aided design (CAD) is use of a wide range of computer based tools that assist engineers, architects and other design professionals in their design activities. It is the main geometry authoring tool within the Product Lifecycle Management process and involves both software and sometimes special-purpose hardware.

What is an .STL file?

An .stl file is a format used by Stereolithography software to generate information needed to produce 3D prints on stereolithography machines or other 3D printing systems. It is a triangular representation of a three dimensional object. The surface of the object is broken into a logical series of triangles. These triangles represent the

surface of the object.

How do I export an STL file from my 3D CAD program?

Most CAD software offers .STL file conversion add-ins under the “Save As” or export functions.

Are the print platforms reusable?

Yes the print platforms are reusable.

If material runs out of both material bottles

in an MDM before the print has completed the build process, does the build abort?

Yes the build will be aborted. Ensure that there is sufficient amount of materials in the MDMs to complete the build.

When submitting a build, will the 3D printing client software inform me if the amount of

material is sufficient for completing a build?

The client software will tell you how many bottles of material are required to complete the build.

How do I order parts for the 3D printer system?

To order replacement parts you will need to contact 3D Systems' Customer Support.

EC DECLARATION OF CONFORMITY