ProJet® 660*Pro* and 860*Pro*

Quick Reference Guide

It will be necessary to register your ProJet 3-D Production System, to access the ProJet Online User Guide. To register, type in http://3dscentral.3dsystems.com in the web browser. You will be asked to supply a "User ID" and "Password" which should be something that is easily remembered. The printer's serial number that is located on the back side of the machine is also required during registration. Once registered, an email confirmation will be sent to you with a link to 3D Systems' 3DS Central login page. (http://3dscentral.3dsystems.com). Please log in using your user name and password to access the user guide.

1 CUSTOMER'S 3D CENTRAL ACCESS

This quick reference guide will give you basic instructions on how to get your printer ready to successfully build your first part.
For more detailed instructions, please access the ProJet™ 660*Pro and* 860*Pro* User Guide by logging into http://3dscentral.3dsystems.com.

A. Enter your email address and the password that was sent in the confirmation email.
B. Once in 3DS Central, click on "Product" located at the top menu bar.
C. Next, click on ProJet X60 Series located on the side bar; your user guides and other valuable printer documents are located here. Click on the document to open or download a copy to save.

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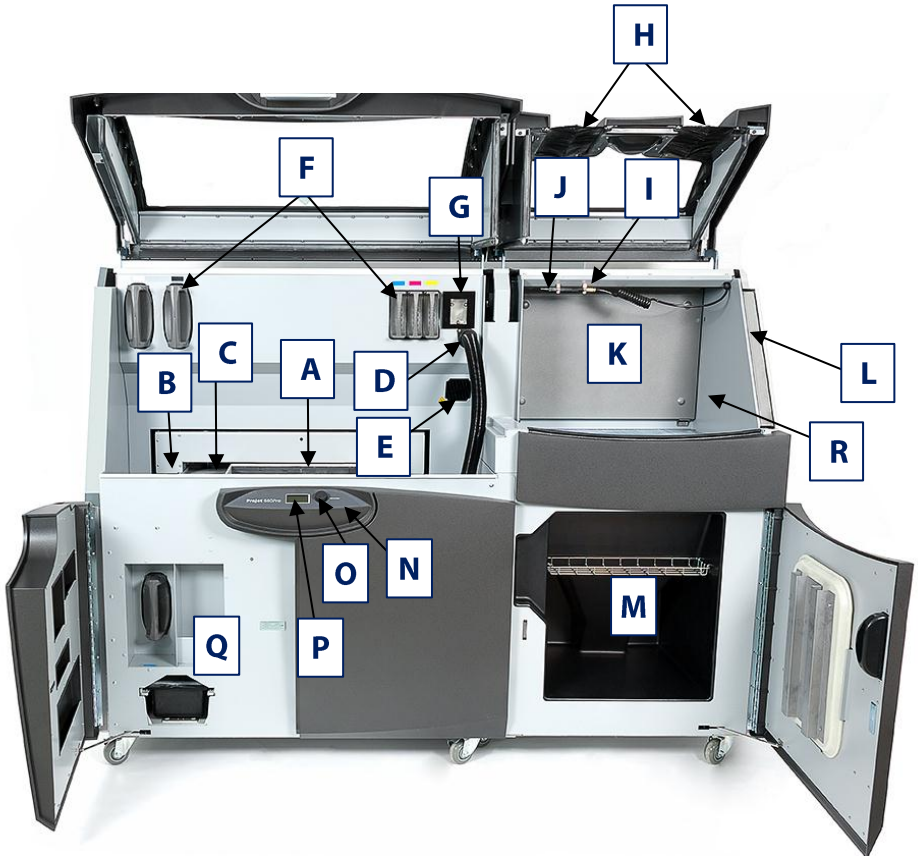
2 FAMILIARIZATION ProJet® 660*Pro*

This Guide is intended as a reference for users who are familiar with their 3D printer and needs to start a first build of a part. Your 3DPrint™ Software is installed and ready to run . Ensure that the software is properly configured for your printer and choice of Core. For more detailed instructions, please refer to the ProJet® 660*Pro* & 860*Pro* User Guide.



A. Build Bed
B. Service Station (Hidden)
C. Fast Axis
D. Vacuum Hose
E. Heater Vent
F. Binder containers
G. Debris Separator
H. Arm Holes
I. Air Wand Control Nut
J. Air Wand
K. Post-Processing Tray (shown raised)
L. Accessory Tray Arm
M. Post-Processing Storage
N. Control Panel
O. Control Knob
P. Display Panel
Q. Printing Storage
R. Cleaning Station

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3 FAMILIARIZATION ProJet® 860*Pro*

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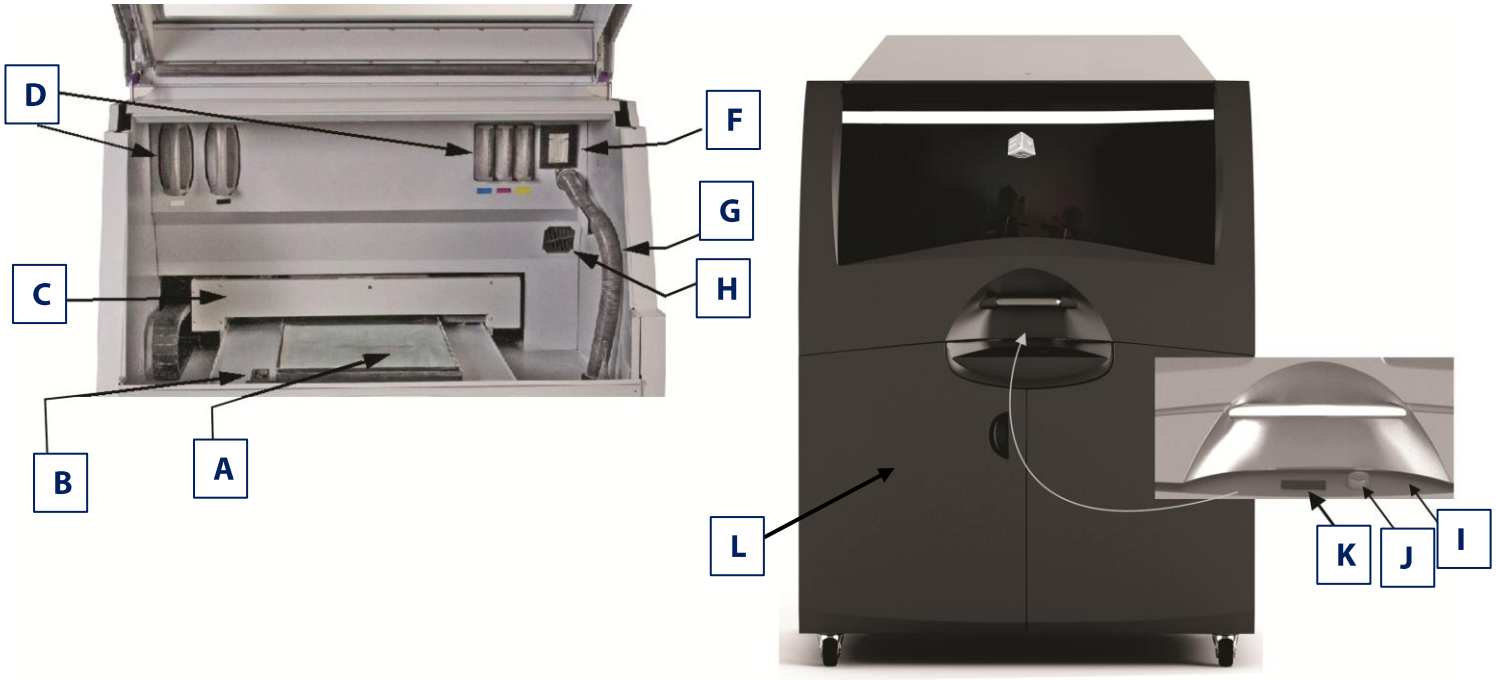

A. Build Bed
B. Service Station
C. Fast Axis
D. Binder Cartridges
G. Debris Separator
H. Heater Vent
I. Control Panel
J. Control Knob
K. Display Panel
L. Printing Storage

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4 POWER SUPPLY

Verify facility's electrical service rating before connecting power to the printer.

Electrical requirement:

Printer in operation

100 - 120V~, 50-60 Hz, 5.5 Amps.

230V~, 50-60 Hz, 2.75 Amps.

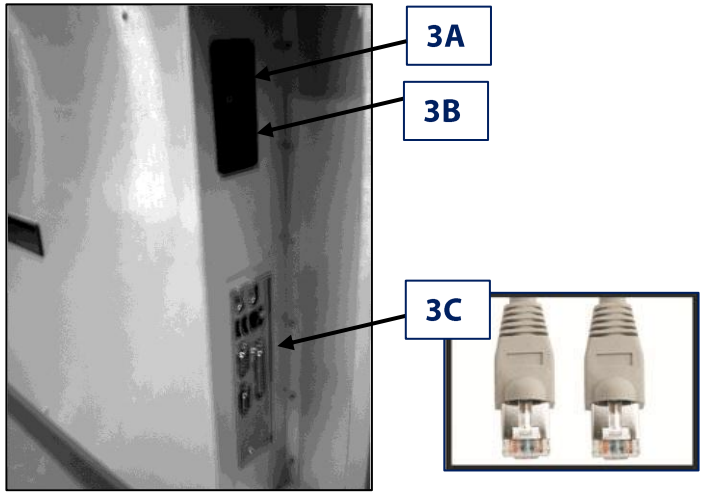
Printer in Sleep Mode - 48 W

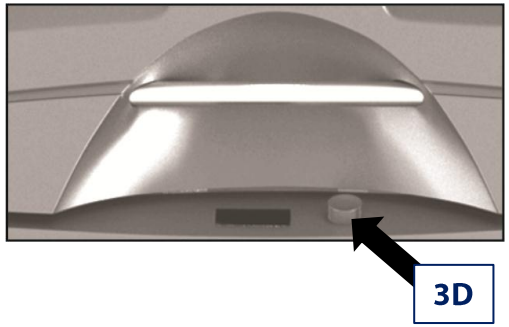
100 - 120V~, 50-60 Hz, 0.4 Amps.

230V~, 50-60 Hz, 0.2 Amps.

- Plug power cord into power outlet(**3A**) (located at the backside of printer) and into facility's power outlet.
- Switch power on (**3B**).
- Plug RJ-4C cable (**3C**) into terminal (located at the backside of printer) and into computer's USB terminal.

NOTE: A shielded Ethernet cable is required when connecting from the printer to your computer.





Push the Control Knob (**3D**) once to:

- Bring up the printer menu.
- Select a menu command.
- Start/Stop/Cancel a menu function.

Turn the Control Knob left/right to highlight menu items.

When selecting the **Raise/Lower Platform** commands, hold the Control Knob down to raise/lower the platform.

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5 SETTING UP YOUR PRINTER

NOTE: Before starting your first part, please ensure that the printer is clean and that it is kept well maintained. Please see the ProJet® 660*Pro* & 860*Pro* User Guide for further instructions on properly cleaning your printer.

Add Binder

To add binder, follow the steps below.

- Before inserting the container into the housing, check the expiration date, and also ensure the container label is in the correct orientation.
- Insert container into its housing. Ensure it is pushed all the way in; you should feel it gently snap into place.
- **Important:** If a container does not snap into place, *do not force it*. Check the orientation and that it is the correct type of container and try again.
- If there is not enough binder in the container, 3DPrint displays BINDER LOW in the **Printer Status** dialog.
  Important: Do not add binder unless you are prompted to in the 3DPrint **Printer Status** dialog.

Add VisiJet PXL Core

We suggest loading about 50kg (6.5 Small Containers or 3.5 Large Eco-Drums) of Core to allow you to complete the installation process. More Core can be added later if printing a large build.

NOTES: The LCD display will not update and show Core levels until after the first 1-2 containers are loaded. This is normal. The first container "primes" the feeder and the second starts to supply usable Core. 50kg of Core will yield about 2.5 inches of Core in the feeder. *It takes a total of approximately 85kg (10.5 small containers or 6 larger Eco-drums) of Core to fill the feeder.*

- Register your Core material by placing the container close to the RFID reader on the printer.
- Open the Core container using a knife to cut the tape.
- On the LCD, select VACUUM; the vacuum starts.
- Using the User Hose, vacuum up Core into the printer.
- Observe the Debris Separator – if Core is loading into the printer, you will see Core swirling in the Separator.
- The vacuum will automatically shut off when Core stops flowing into the feeder or is full
  Repeat the steps above with 5.5 more new small Core containers or 2.5 more new Eco-Drums. When the last of this Core has been added, select GO ONLINE. **Six and a half containers of Core will yield about 2.5 inches of Core in the feeder.**

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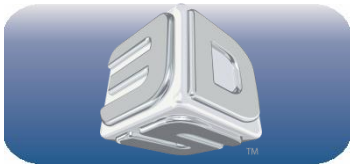

6 SETTING UP A BUILD TO PRINT

NOTE: Before starting your first part, please ensure that the printer is clean and that it is kept well maintained. Please see the ProJet® 660*Pro* & 860*Pro* User Guide for further instructions on properly cleaning your printer.

1. Open your 3D file in 3DPrint.
2. Under **Settings** tab, press "Materials."
3. Check your printer settings to be sure the correct printer and material set are displayed.

NOTE: If you need to change any settings, refer to the Setup and Print the Build section of the *User Guide*.

4. In **Home** tab press "Build" icon.
5. Check the Printer Status window. If all the **Print Head**, **Core**, and **General** items display **OK**, the **Print** button is enabled.

NOTE: If any items need attention, the *Print* button is disabled. Refer to the Additional Operations section of the ProJet® 660*Pro* & 860*Pro* User Guide. There you'll find details on how to get the printer ready and clear any messages.

6. Select any Print Options for this build. If the part has delicate features, deselect the option for **Empty Build Piston After Printing** (ProJet 460*Plus* only).
7. Click **Print** to start your build.
8. The **Printing** dialog opens and reports the status of the print job as the build progresses.
9. Click **Pause** to pause the current print job, Click again to resume printing.
10. Click **Cancel** to cancel printing this job.

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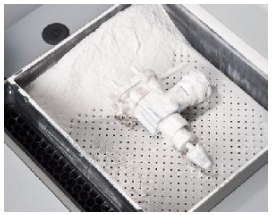
7 FINISHING BUILD

Gross Core Removal
When the build is finished, you will need to remove the Core around the part.

Automatic Core Removal
When the build is finished, the printer starts an automatic heated drying cycle. A counter on the printer LCD counts down the time remaining before the part is dry.
After the drying cycle completes, the printer automatically removes excess Core by vibrating the Build Bed and vacuuming through the bottom of the Build Bed.

- Remove the part and carefully transfer it to the Cleaning Station.



Manual Core Removal
When the build is finished, the printer starts an automatic drying cycle. A counter on the printer LCD counts down the time remaining before the part is dry.

- Close the top cover, then select **VACUUM** on the LCD menu. Open the cover. The vacuum starts.
- Vacuum Core from around the part. Be careful around delicate sections. Use the Control Knob to move the Build Platform up as needed.
- Carefully move the part to the Cleaning Station or Core Recycling Station.

Fine Core Removal (660Pro Only)
Any loose Core on the part must be removed before proceeding with the post-processing steps.

- Close the top cover, then select **CLEAN PARTS** on the LCD menu. The vacuum and compressor start.
- Test the air flow against your hand and adjust as needed. Turn the Control Knob left to decrease pressure, or right to increase pressure.
- Using the Air Wand, remove all remaining Core on the part.
- Push the Control Knob once to turn the air compressor off. Return the Air Wand to its clip. Allow the part to dry longer in the Cleaning Station

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7 FINISHING BUILD (Cont'd)

Fine Core Removal (860*Pro* Only)
The freshly printed part will still have core clinging to it, which must be removed before proceeding with the post-processing steps.

1. With your part in the Core Recycling Station and the top cover closed, turn the compressor and suction system on by turning the user switch to **ON**. It will take approximately 15 seconds for the suction system to fully turn on.
2. Choose either the Air Gun or the Air Wand to remove core. The Air Gun is ideal for removing large amounts of core. The Air Wand is ideal for clearing out tight spaces of core and bringing out details in a part.
3. Test the air flow against your hand and adjust as needed. Adjust the air pressure on the Air Gun with the trigger. Adjust the pressure on the Air Wand by turning the control nut located at the connection between the Air Wand and its air hose.

Important: For thin-walled or delicate parts, start with light air pressure.

4. Using the Air Wand or Air Gun, remove all remaining core on the part. The vacuum will collect the core through the perforated floor of the core Recycling Station and recycle it into the core Tray underneath.

Important: When finished, use the Air Wand or Air Gun to clean the interior of the core Recycling Station of any remaining core.

5. Turn the user switch to **OFF**. It will take approximately a minute for the filters to go through their cleaning cycle before the Station switches off fully.
6. Allow the part to dry longer in the core Recycling Station while you perform the **Routine Cleaning** the user guide.

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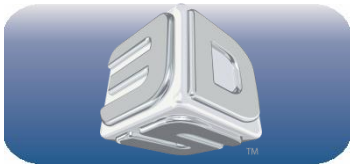

8 CLEANING

It is very important that you keep your printer well maintained. Please read the user guide pertaining to your printer to properly clean your printer. A clean, well-maintained printer produces better parts, has less downtime, and needs fewer service calls.

Routine Cleaning After Every Build

After every build, it is important to clean your printer following the steps below.

Routine cleaning includes the following steps:

- Vacuum Up Excess Core
- Empty The Debris Separator
- Clean The Rails and Carriage
- Clean The Service Station

Vacuum Up Excess Core

- Vacuum the Build Bed, the Fast Axis, and the Deck.
- Close the top cover, then select **VACUUM** on the LCD menu. Open the cover. The vacuum starts.

Vacuum the following areas:

- The top of the Fast Axis; also reach inside to vacuum the Rails and the Printhead Carriage.
- The Build Bed (but not the Feeder side).
- The deck around the Build Bed.

Note: Be careful not to vacuum inside the service station itself.

Press the Control Knob once to turn off the vacuum.

Empty and Clean The Debris Separator

- Pull the Debris Separator out of its holder on the printer.
- Empty the contents into a trash receptacle.
- Use the soft brush found in the Accessory Kit to brush caked on Core from the screen.
- Return the empty Debris Separator to its holder. Be sure to push the Separator flat against the panel for a secure fit.

Clean the Parking Caps

The Parking Caps keep the print heads from drying out between print jobs. Cleaning the Parking Caps after every build results in longer lasting print heads and precise accuracy during printing.

The Parking Caps are located on the right end of the Fast Axis. Before you begin, you will need:

- several dry paper towels.
- the squirt bottle included in your Accessories Kit.
- to fill the squirt bottle with distilled water.
- to wear disposable gloves.

- Pull the Fast Axis toward you and slide the Printhead Carriage to the left to expose the Parking Caps.
- Lay paper towels on the Build Bed under and around the Parking Caps. Be sure to cover the Front Overflow with paper towels to keep water out.
- Squirt the dis-tilled water onto the Caps. The water should drain out through the Spittoon under the Caps. Use a dry paper towel to wipe the caps clean.
- Remove the paper towels from the Deck and wipe up any water on the Fast Axis or Deck.
- Remove the paper towels from the front overflow and dry it thoroughly.
- Be sure the Parking Caps are completely dry before starting your next build.

Note: If the Caps are very dirty, or if washing them as above is not sufficient, then remove the Caps from the printer and wash them under running water. Dry them thoroughly before reinstalling them in the Fast Axis.

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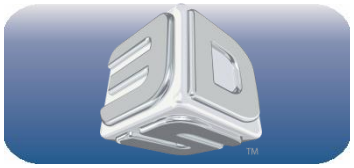

9 CLEANING (Cont'd)

Clean The Rails and Carriage

- Pull the Fast Axis out toward you.
- Using a paper towel dampened with distilled water, wipe the top and bottom Rails. Move the Carriage back and forth as needed to clean the entire length of both rails. Using a clean, dry paper towel, thoroughly dry both Rails.
- Using a fresh paper towel, wipe the Carriage to remove any Core. Also clean the Build Bed and Deck.

Clean The Service Station

- You will need several dry paper towels and a cotton swab; a squirt bottle filled with distilled water; disposable gloves; Pick and Syringe from the Accessories Kit.
- Open the printer top cover and the Service Station cover.
- Place paper towels around the Service Station. Also cover the front overflow and the Build Bed.
- Pull the Service Station wiper lever all the way forward until the rubber squeegees are fully exposed. Hold the lever in this Squirt water on and around the squeegees.
- **Important:** Don't get water in the front overflow or on the build bed.
- Wipe the front and back of the squeegees clean. Use the Pick to scrape away any excess Core.
- Thoroughly clean and dry the Service Station, Deck, Build Bed , Front Overflow. Push the wiper lever back to its original position

POST PROCESSING

For Please refer to the appropriate ProJet® 660Pro & 860Pro User Guide for part post processing instructions.

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