



ONULIS

WRAP Pro & Prime

User Guide



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It is the responsibility of the user to determine that a material is safe, lawful, and suitable for the intended application, and to identify the proper material disposal method, consistent with local environmental regulations.

Except as provided in Onulis' standard terms and conditions of sale, Onulis shall not be responsible for any loss resulting from any use of products described herein.

WARRANTY

The WRAP comes with a 1-Year Parts Warranty and Email Support. The Warranty only applies to the WRAP machine. Irradiance values of the WRAPCure Certified lights are covered for manufacturing defects for 1-Year. Consumables are covered for manufacturing defects for 30 days. All replacement parts are covered for the 30 days or by the remaining time in an existing Warranty, whichever is greater. Warranty is voided by the use of third-party consumables, improper use of resins, and incorrect electrical connection.

MAINTENANCE PLAN

The WRAP Maintenance Plans offer 1-Year Maintenance and Email Support. The Plan only applies to the WRAP machine. The Plan begins after the WRAP machine Warranty expires. All replacement parts are covered for the 30 days or by the remaining time in an existing Maintenance Plan, whichever is greater. Maintenance Plan is voided by the use of third-party consumables, improper use of resins, and incorrect electrical connection.

DISCLAIMER

User acknowledges that the contents of this document and all Onulis products are subject to its standard terms and conditions of sale, available at <https://onulis.com/legal/terms-and-conditions-of-sale>, and incorporated herein by reference.

Specifications in this document are subject to change without notice.

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For any questions about your purchase, please reach out to the following:

- **General Inquiries:** info@onulis.com
- **Support Request:** maintenance@onulis.com
- **Purchases:** orders@onulis.com

* Settings only available for WRAP Prime systems.

SYSTEM MODES

MODE	USE
Print	Print Mode – Transform expired UV resin into fully cured plastic stock.
Cure	Cure Mode – UV post-cure DLP parts to material manufacturer's specifications.

UV LED ARRAY CERTIFICATION

To ensure that resin is fully cured in Print Mode and that the system meets material manufacturer's technical data sheet (TDS) requirements, each UV LED Array and Driver Pack is audited prior to machine shipment. Certification of Inspection Forms are included with each shipment.

PASS Requirements:

- Wavelength Acceptance Value: ± 5 nm from 405 nm.
- Irradiance Acceptance Value: ± 5 mW/cm² from 78 mW/cm²

To audit the system, Onulis offers the Self-Audit Kit and UV Recharge Pack. Both are available on the Onulis website or through the Onulis Reseller Network.

Inspection Form Example Below:

ONULIS CERTIFICATION OF INSPECTION

FORM TITLE: UV LED ARRAY CERTIFICATION FORM
FORM NUMBER: ONULIS-001
ISSUE DATE: 05/20/2024

Project: 1112 Array Pack
Date: 05/20/2024
Inspector: J. Smith





Inspection Results:
Wavelength: 405.1 nm (PASS)
Irradiance: 78.5 mW/cm² (PASS)

MEASUREMENTS

Parameter	Value 1	Value 2	Pass/Fail
Wavelength	405.1 nm	405.1 nm	PASS
Irradiance @ 50 mm	78.5 mW/cm ²	78.5 mW/cm ²	PASS
Value 1	78.5 mW/cm ²	78.5 mW/cm ²	PASS
Value 2	78.5 mW/cm ²	78.5 mW/cm ²	PASS
Average	78.5 mW/cm ²	78.5 mW/cm ²	PASS
Standard Deviation	0.5 mW/cm ²	0.5 mW/cm ²	PASS

www.onulis.com | info@onulis.com | 650.473.8864

WARNING LABELS

SYMBOL	MEANING
	Wear protective nitrile or neoprene gloves when handling uncured resin or operating printer.
	Wear protective goggles when handling uncured resin or operating printer.
	Vapors from uncured resin can irritate the respirator system. WRAP's carbon filtration system limits vapors. Read safety precautions before operating machine.
	Ultraviolet radiation is emitted from machine's UV lamps. Read safety precautions before operating machine.

SAFETY PRECAUTIONS

In Print Mode, this machine is intended to be used with unused or expired UV/EB resin. In Cure Mode, it is intended to post-cure DLP parts. Do not use this product for anything other than its intended purpose. If the WRAP is not operated as specified, the user's safety may be compromised.

Material Handling

- Always wear safety goggles, nitrile or neoprene gloves, and a proper face mask when handling resin.
- Keep resin away from areas where food or beverages are stored, prepared, or consumed.
- Clean up any resin spills with disposable towels or another absorbent, non-renewable material. Rinse the spill area with isopropyl alcohol (IPA), followed by soap and water. Dispose of absorbent material in accordance with local regulations.
- Any contaminated clothing should be professionally cleaned; do not wash at home. Absorbed resin may re-expose user when items are worn.
- Resin vapors can be irritating to the respiratory system. If irritation occurs, seek fresh air immediately.
- Consult your local municipality to confirm disposal of hard plastic waste.

Power

- Only connect the power plug to an outlet that has a ground wire. If not, the operator may be exposed to serious danger from electric shock.
- Keep the power cord away from high temperatures and/or water.
- If the power cord is damaged, do not operate machine.

Machine Operation

- This machine has been designed for indoor and non-extreme temperature conditions only. Store and operate machine in 65 – 95°F (18 – 35°C) temperatures.
- Do not operate or store machine in direct sunlight.
- Although the machine contains carbon filtration, harmful fumes may still be emitted during machine loading and operation. Operate machine in a well-ventilated area, away from people. An exhaust adapter kit is available for purchase on the Onulis website.
- Clearance is required on the side of machine for carbon filters.
- Clearance is required above the machine for loading.
- Keep fingers and all other body parts clear of door when opening and shutting.
- Do not attempt to open the door during machine operation.
- If door lock fails, do not operate machine.
- Clean Drip Catch by spraying with isopropyl alcohol after every use in Print Mode.
- UV lamps will remain hot after use. Do not touch.
- UV lamps emit dangerous radiation. In the case of a system failure resulting in the UV lamps remaining on when the door is open, do not stare directly and immediately shut down unit.
- All persons operating the WRAP should know the location of first aid and emergency equipment and how to use it.

FIRST AID FOR UNCURED RESIN EXPOSURE

Avoid direct eye contact with uncured resin. If contact occurs, wash the area immediately and thoroughly with water, and follow the first aid instructions below. If large areas of skin have been exposed, or in the case of prolonged contact, seek medical attention. If contact with eyes occurs, seek medical attention. If ingestion occurs, seek medical attention. If respiratory irritation occurs, seek medical attention.

Contact with Skin

If uncured resin comes in contact with skin, wash the affected area immediately and thoroughly with soap and cool water. When cleansing skin, pay attention to areas of the body that are not easily cleaned (hair, ears, nose, etc.). Remove any contaminated clothing.

- Do not use hot water. Cool water prevents skin pores from opening, making it difficult for uncured resin to penetrate the skin.
- Do not use solvents to clean skin.
- If skin contact results in prolonged irritation, seek medical attention.
- Avoid accidental transfer of uncured resin from the hands to other areas of the body and other surfaces.
- Professionally clean contaminated clothing; do not wash at home.
- Dispose of contaminated shoes or leather items in accordance with local regulations.

Contact with Eyes

If uncured resin comes in contact with eyes, flush immediately with cool water for 15 minutes and seek medical attention. Avoid sources of ultraviolet radiation (sunlight, fluorescent light, etc.).

The use of contact lenses when handling uncured resin is not recommended. If resin comes in contact with eyes when contact lenses are worn, immediately remove and follow the above cleaning procedure.

- Clean and disinfect contaminated contact lenses.
- Do not wear contact lenses until eye irritation disappears.

Ingestion

Vapors from uncured resin can irritate the respiratory system. Always wear a proper face mask when handling uncured resin. In the case of ingestion, seek medical attention immediately.

MACHINE OVERVIEW

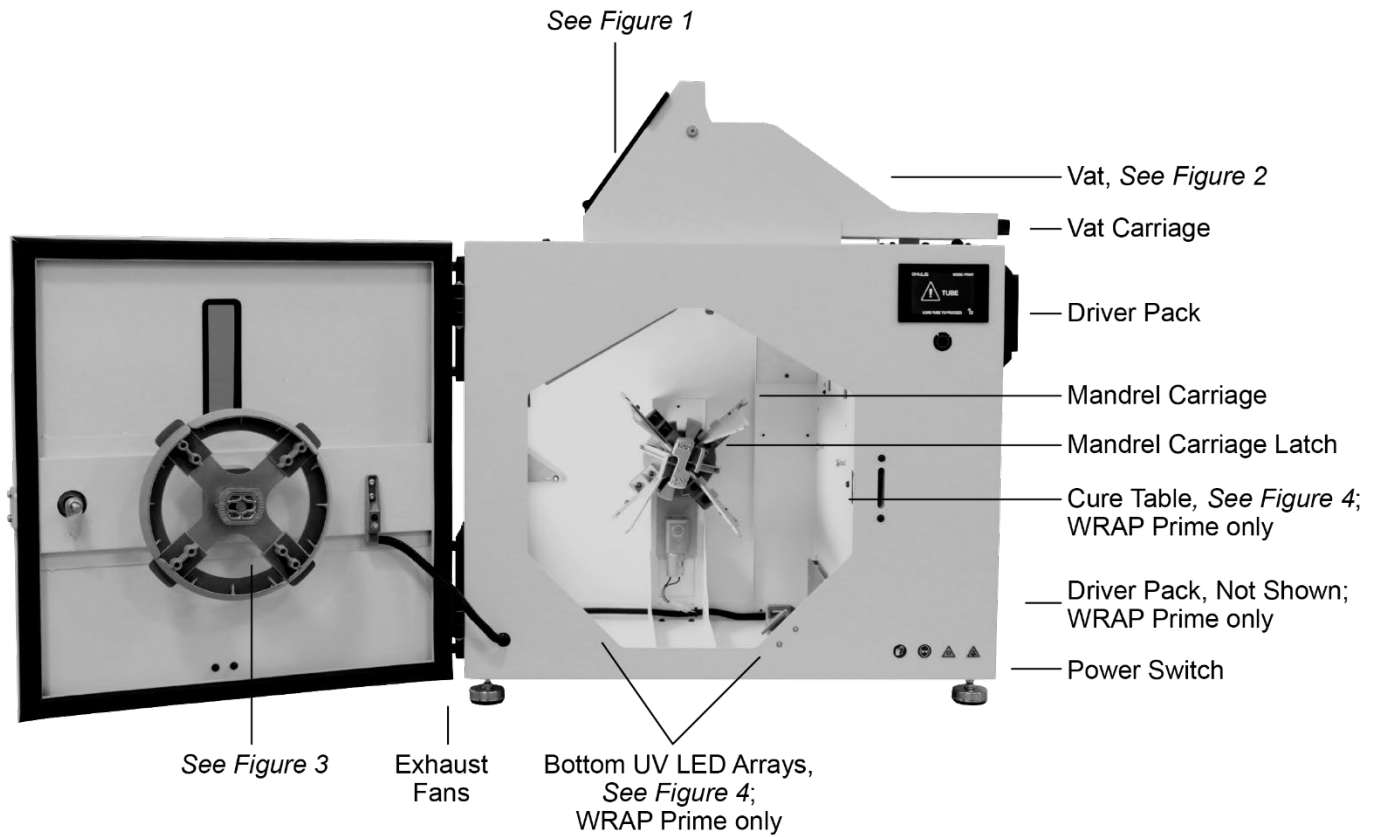


Figure 1

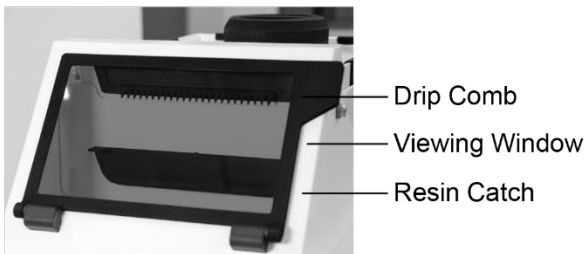


Figure 2

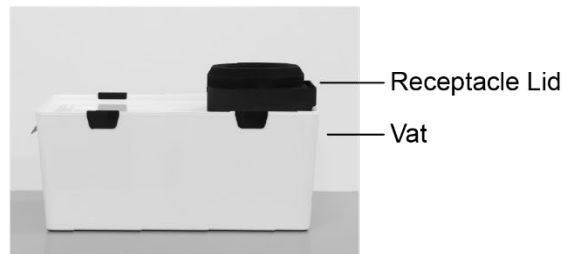


Figure 3

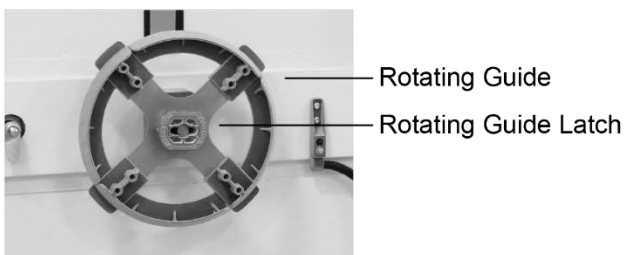
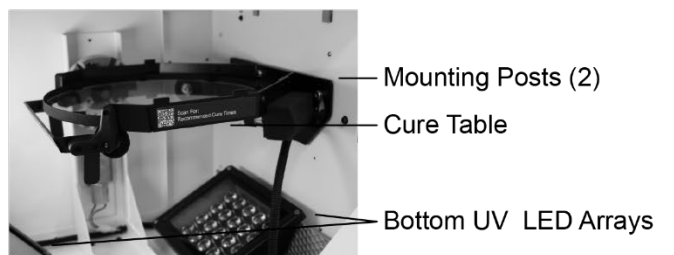


Figure 4



PATENTS PENDING

ELECTRICAL REQUIREMENTS

Power

A stable, reliable source of power is required. Power to the system (or the UPS) should be supplied directly from the main electrical panel. Other electrical outlets should not be connected to the line.

System Power Rating: 100 - 120 VAC, 50 - 60 Hz, 6A, 1 phase

Grounding

The printer is grounded through a single-phase, AC plug. Make sure that the AC outlet is properly grounded, in accordance with local electrical codes.

Neutral to Ground Rating: 0 volts – not to exceed 3 volts

INSTALLATION

1. Unbox product. Remove all packaging materials from outside and inside of machine.

2. Ensure the contents of shipment:

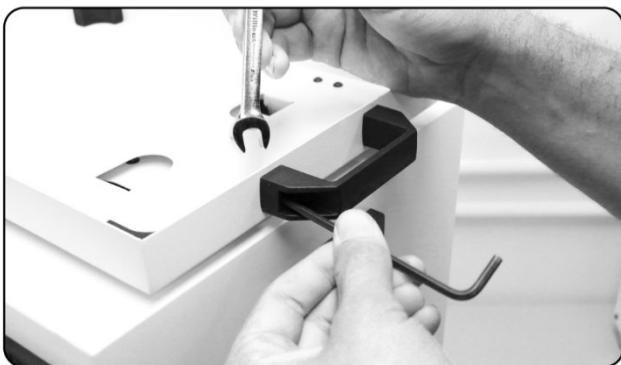
a. WRAP Pro:

- Certified LED Arrays (2) & Driver Pack (1)
- Calibration & Traceability Documentation for LED Arrays
- Low Viscosity Vat
- Vat Viscosity Testing Tool
- Vat Carriage Handle
- Vat Cleaning Tool
- Disposable Tubes (3; 1 in machine, 2 in separate container)
- Disposable Filler Filter (3)
- Disposable Light Shroud (3)
- Plastic Bottle for Isopropyl Alcohol
- Scraper
- Power Cord

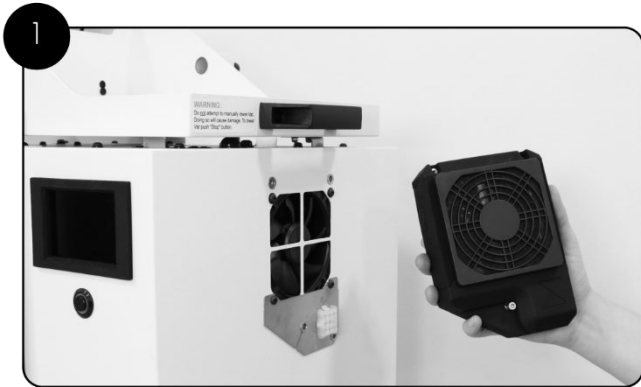
b. WRAP Prime Upgrade Kit:

- Every Item Listed Above
- WRAP Prime Badge
- Certified LED Arrays (2) & Driver Pack (1)
- Calibration & Traceability Documentation for LED Arrays
- Rotating Cure Table
- Static Table

3. Put the WRAP on a flat, solid table. Attach the handle to the Vat Carriage, as shown below. Do not block exhaust fans. To avoid unwanted effects of natural UV light, do not place machine near windows or in direct sunlight.



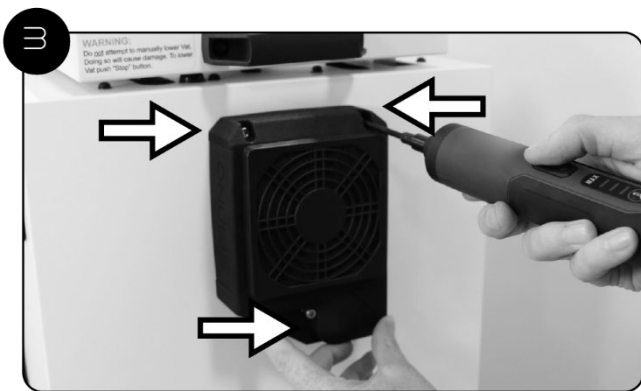
4. Install the Driver Pack.



The Driver Pack for the top of the machine is packaged inside the machine.



Line the screws in the Driver Pack up with the mount holes on the machine.



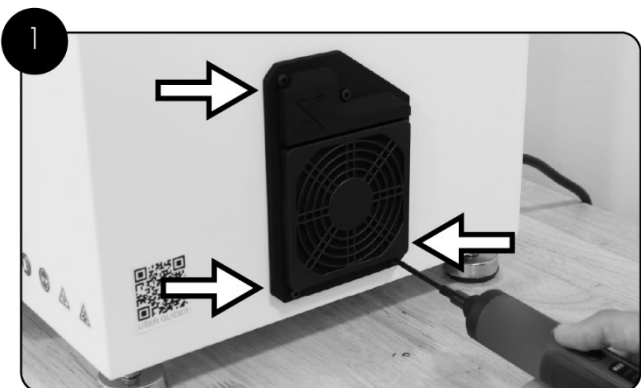
Tighten all three screws. Locations pictured above.



Final result pictured above.

For WRAP Pro users, skip to step 6.
For WRAP Prime users, continue below.

5. WRAP Prime Upgrade Kit Installation: Install Driver Pack and Lower UV LED Arrays.

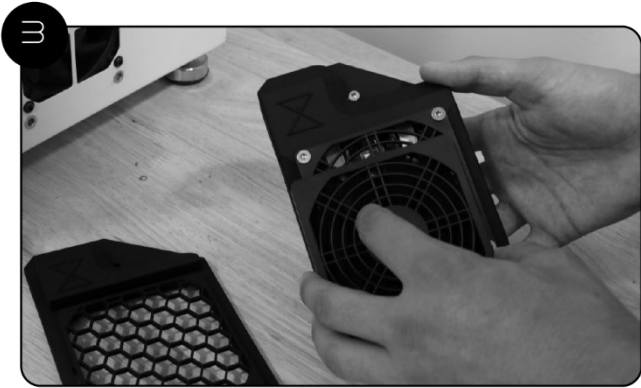


Install the Lower Driver Pack.

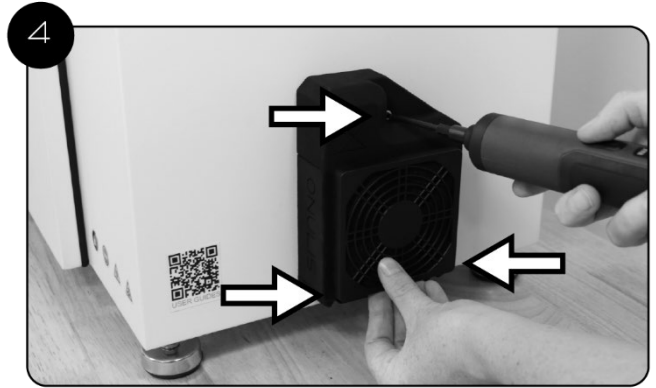
Remove all three screws from bottom cover.
Locations pictured above.



Remove fan filter from fan cover.



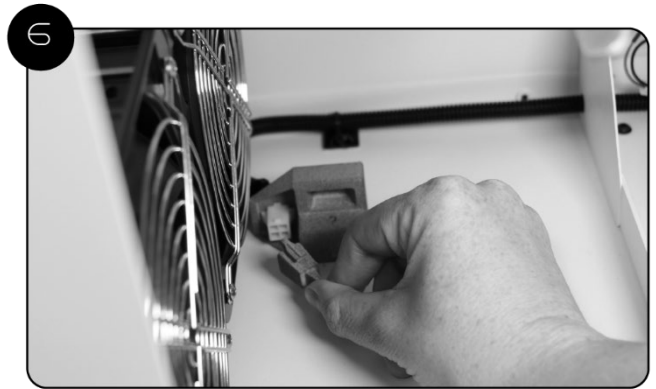
Attach fan filter to Driver Pack.



Line the screws in the Driver Pack up with the mount holes on the machine. Locations pictured above.



Install the Lower UV LED Arrays.

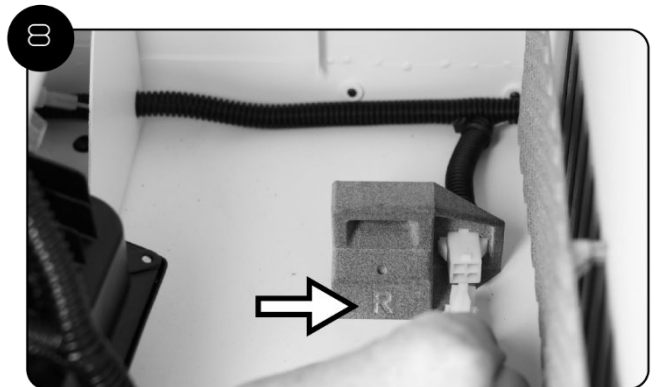


Pull to remove plug cover. Repeat on other side.

Push down lever to remove cover. Repeat on other side.

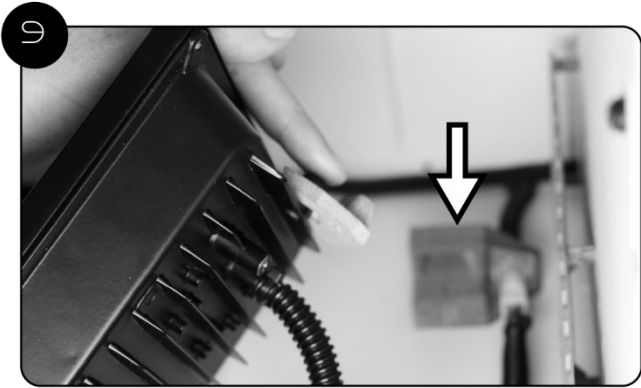


Each light is unique per side. Identify label on side of light to determine where it should be installed.



Plug cable on light into corresponding socket in back of machine.

Note: Side identification.



Insert locator on light mount to corresponding socket in back of machine.



Insert plug on front of light into corresponding socket in front of machine.

Repeat steps 7 – 10 on other side.

6. Level machine, as shown below. Adjust machine feet as necessary.



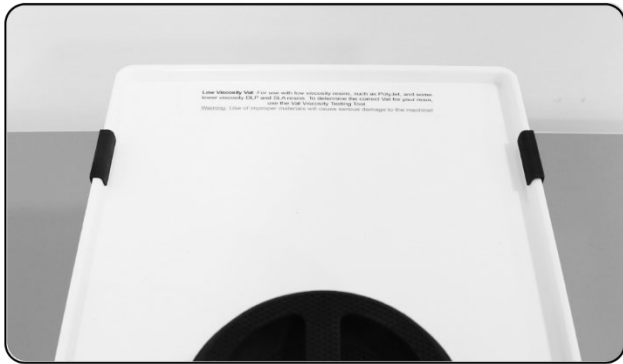
7. Plug power cord into grounded 100 – 120 VAC outlet.

PRINT MODE GUIDE

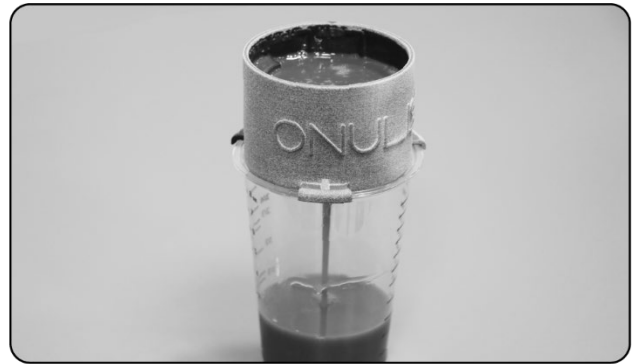
1. Selecting the Correct Vat

Determine the viscosity of your resin before filling the Vat. The Low, Medium, and High Viscosity Vat are designed for specific material properties. Only pour a material into a Vat that matches the measured viscosity. As resin sits its viscosity can change. Pouring resin into the incorrect Vat will cause serious damage to the machine.

To determine the correct Vat for your resin, use the Vat Viscosity Testing Tool. Refer to Vat Viscosity Testing Tool User Guide for instructions or see page 10.



Vat Identification Label can be found on the top of Vat.
See above.



Pictured Above: Vat Viscosity Testing Tool

Note: WRAP Pro and Prime ships with the Low Viscosity Vat. The Medium and High Viscosity Vat are available through your local reseller, or on the Onulis site.

2. Mix Resin Prior To Printing

To ensure a consistent print, it is highly recommend mixing your resin prior to filling the Vat. When resin sits, mineral oil rises to the surface of the mixture. Stirring the resin prevents an excess of mineral oil in each print.

Use a paint mixer to stir the resin.

Example on the right.

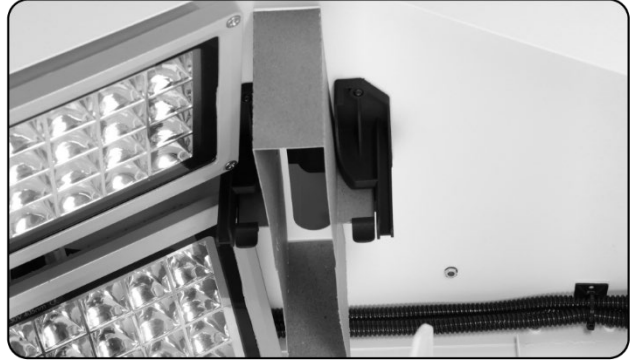


3. Disposable Light Shroud

The Disposable Light Shroud is designed to mitigate cured resin droplets on the internal walls of the WRAP.

During normal use, when uncured resin droplets release from the Drip Comb, small micro-drops will randomly land on various internal surfaces of the WRAP. These drops are formed through a break in the resin's surface tension when the drop separates from the Drip Comb. These droplets are fully cured and release easily from various surfaces.

For Light Shroud installation instructions, refer to page 18. For WRAP cleaning instructions, refer to the PM Kit User Guide.



Very Important: The Light Shroud is a disposable item and should be replaced every time the Disposable Tube is replaced.

4. Disposable Tube

The Disposable Tube should be replaced after every use.

5. Essential Machine Operation

Important: When transferring the Vat to and from Vat Carriage, always keep the Vat level. Tilting may cause the uncured resin to spill.

The position of the Vat Carriage during machine operation is shown below.



Vat Carriage in POWER OFF or STOP position. Door is unlocked. Only open machine door when Vat Carriage is down.



Vat Carriage in POWER ON or PRINTING position. Door is locked.

6. Solid Plastic Stock

The solid plastic stock printed on the WRAP is fully cured resin, and safe for disposal¹ as standard household waste.

When curing PolyJet waste resin that has support mixed in, there may be small amounts of mineral oil on the surface of the solid plastic stock. The resin is fully cured. If desired, mineral oil can be wiped off with a power towel or cloth.



¹Consult your local municipality to confirm disposal of hard plastic waste.

7. Vat Disposal

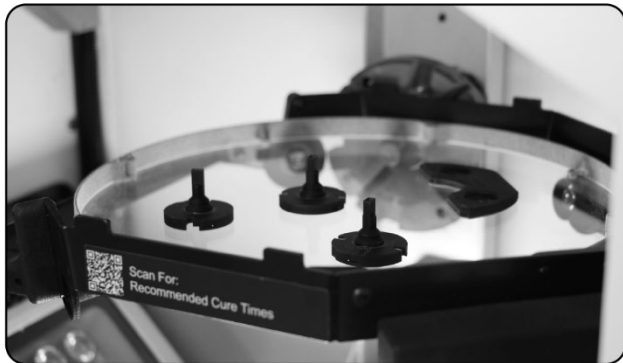
If disposing of Vat, refer to the PM Kit User Guide for instructions.

CURE MODE GUIDE

For the material to meet the material manufacturer's technical specifications, the part(s) must be cured for the appropriate amount of time. Onulis provides an easy-access Cure Time Guide on the Onulis website.

The information is available here: <https://onulis.com/cure-time-guide>

The link is also provided via QR code on the curing table (pictured below).



The appropriate post-curing duration for any UV and thermal post-curing time for each material is also available on the material manufacturer's technical data sheet (TDS).

OPERATION: PRINT MODE

Note: Ensure proper gloves, goggles, and face mask are on prior to operating equipment. To convert machine from Print Mode to Cure Mode, see page 24.

1

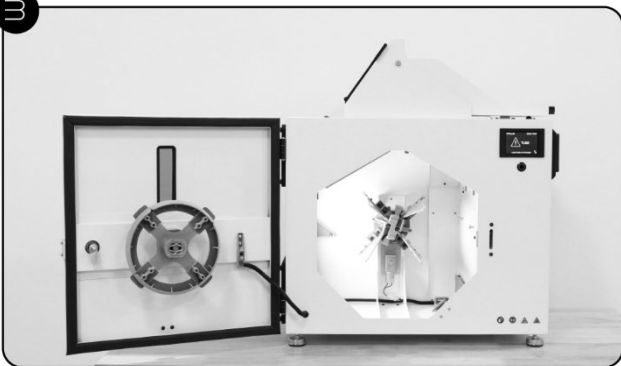
Refer to Installation Guide for proper machine placement and setup.

2



Power on.

3



Open door.

4

Form Disposable Light Shroud:

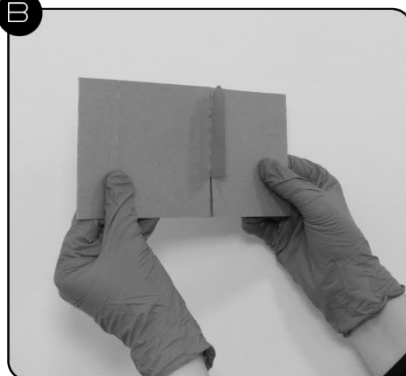
- A** Exercise flaps on both sides of Disposable Light Shroud by folding in both directions.
- B** Crease dotted fold lines on opposing corners of Disposable Light Shroud.
- C** Apply pressure at flaps to open Disposable Light Shroud.

See below.

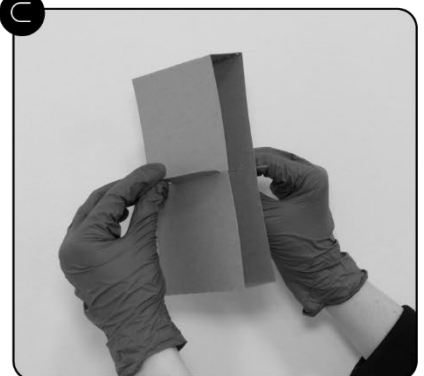
A

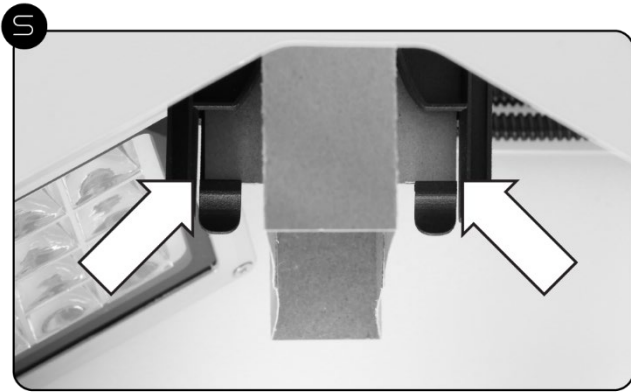


B



C





Place Disposable Light Shroud in machine. Move Disposable Light Shroud upward, until latches are fully engaged, as shown.



Place Disposable Tube on Mandrel Carriage.

Note: Disposable Tube must be removed in order to install Disposable Light Shroud.

The Light Shroud is disposable and should be replaced every time a new Tube is used.



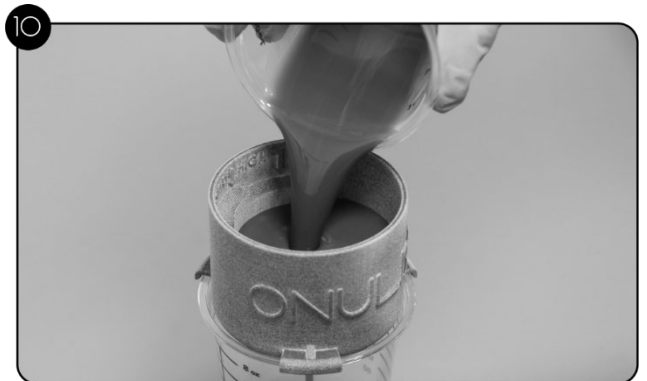
Close and latch door. Apply light pressure, turn latch handle, and fold down to secure.



Note: "Ready" highlighted on machine readout.

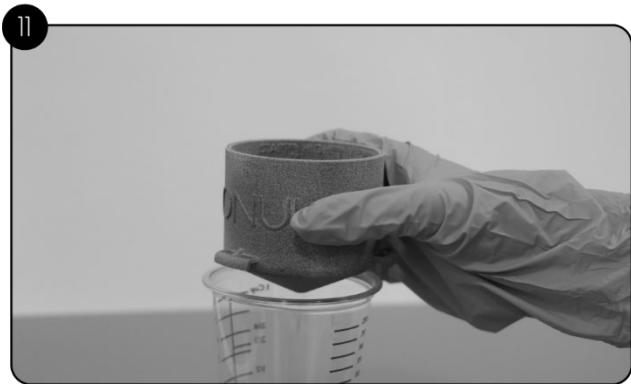


Recommended: To ensure a consistent print, mix your resin prior to filling the Vat. When waste resin sits, mineral oil rises to the surface of the mixture. Stirring the resin prevents an excess of mineral oil in each print.

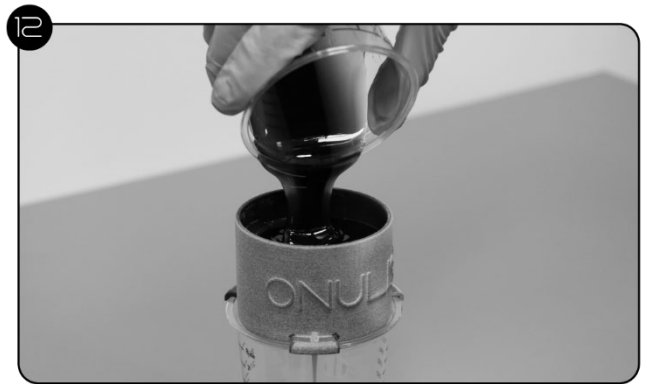


Use the Vat Viscosity Testing Tool to determine the correct Vat to your resin.

Steps 11 – 14 show how to use the Vat Viscosity Testing Tool.



Place Viscosity Testing Tool on top of cup.



Pour resin sample into Tool, filling to slightly above START ledge, approximately 100ml.



As soon as resin reaches the first ledge, start one minute timer.

14 When timer is done, check to see the lowest visible ledge, as pictured below. The visible ledge will show what Vat should be used for each print.



If "HIGH" is showing, use "High Viscosity Vat."



If "MEDIUM" is show, use "Medium Viscosity Vat."



If Tool is empty, use "Low Viscosity Vat."



WARNING: Pouring the incorrect resin in a Vat will cause serious damage to the machine!

Fill Vat:

- Remove Vat from Vat Carriage and place on flat counter.
- Remove Vat Receptacle Lid.
- Place Disposable Filler Filter in Vat receptacle.
- Slowly pour desired quantity of resin into Disposable Filler Filter. Do not fill Vat past MAX Fill line.
- Remove Disposable Filler Filter.
Note: Ensure residual resin on Disposable Filler Filter is fully cured by exposing it to sunlight prior to disposal. Dispose according to local regulations.
- Replace Receptacle Lid, turning clockwise until locked.
- Hold Vat horizontally and place in Vat Carriage. Do not tilt Vat during transport.



Click button to set print time. Programmable 1 hour intervals, from 6 – 1 hours.



To Power: Lift Vat Carriage handle to upright position until electromagnet holds it in place. Resin will begin dripping on rotating mandrel.



When stopped, Vat Carriage will automatically return to horizontal position.

To Stop Operation:

- To manually end operation, press "Stop" button.
- Machine will automatically stop after set print time, or machine will automatically stop when Disposable Tube is full, whichever occurs first.
- In the event of power outage, Vat will lower and dripping will stop.



Final Cure will begin ensuring all resin is fully cured prior to Disposable Tube removal. To stop Final Cure, push button.



To remove cured resin, open door and remove Disposable Tube from mandrel carriage.

Note: Some mixed waste resins will contain mineral oils. If present on surface of solid plastic stock, wipe off with disposable towel.



Very Important: Remove Disposable Light Shroud from machine and dispose.

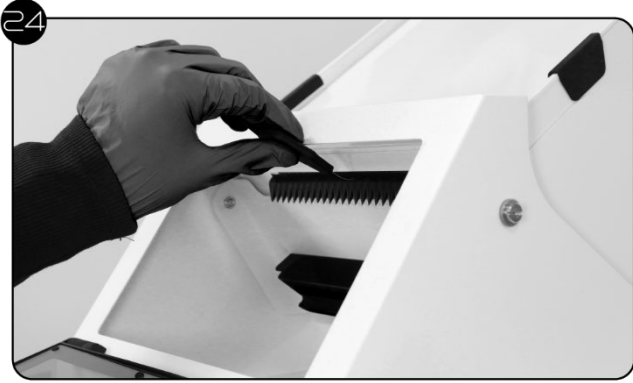
Ensure all resin is fully cured prior to disposal. Expose to sunlight if necessary.



Shut and latch machine door.



Very Important: To avoid clogging, spray isopropyl alcohol on Drip Comb face. Allow it to drain into Resin Catch.



Push Vat Cleaning Tool into holes above Drip Comb using a downward U-shape motion. Move Cleaning Tool back and forth, letting any resin drip into Resin Catch.



Empty Resin Catch:

- a. Remove Vat from Vat Carriage and place on flat counter.
- b. Remove Vat Receptacle Lid.
- c. Open Viewing Window.
- d. Remove Resin Catch by lifting upwards, disengaging keyhole slot. Keep Resin Catch Level.
- e. Pour any resin from Resin Catch into Vat.



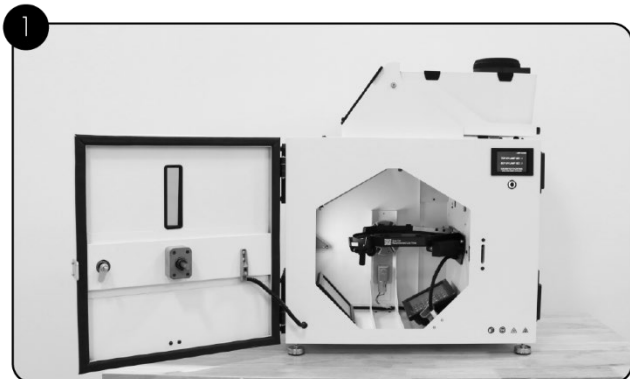
Power off machine.

For WRAP Prime Machines:

To convert machine to Cure Mode, proceed to next page.

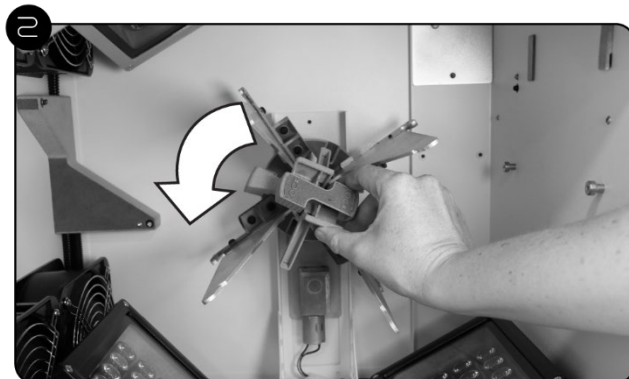
CONVERTING TO: CURE MODE

Important: Lower UV LED Arrays and second driver must be installed prior to using Cure Mode. For installation details, see page 11.



Open door.

Note: Disposable Tube must be moved to convert unit from Print Mode to Cure Mode.



Pinch sides of Mandrel Carriage Latch and rotate counterclockwise until Latch releases.

Remove and set aside.



Hold spokes of Mandrel Carriage, pulling forward to remove from machine. Set aside.



Locate Rotating Guide on inner face of door.



Pull Latch to release Rotating Guide and remove it from door.



Install Curing Table, aligning mounting holds on side of Curing Table Frame with Mounting Posts on right side of lower machine chamber.



Note: Cure Mode is now active.



Connect plug on Curing Table cord to socket located in lower right corner of mounting wall.

To use Cure Mode, continue to the next page.

OPERATION: CURE MODE

Note: Ensure proper gloves, goggles, and face mask are on prior to operating equipment.

1 Confirm your unit is in Cure Mode. See previous section for instructions.



Power on.



Open door. Place cleaned parts on Curing Table. For curing steps, reference Onulis' DLP Workflow Guide at: <https://onulis.com/dlp-workflow-guide>.

If parts are longer than 9.5 inches, use Static Curing Table. See next step for Static Curing Table installation.

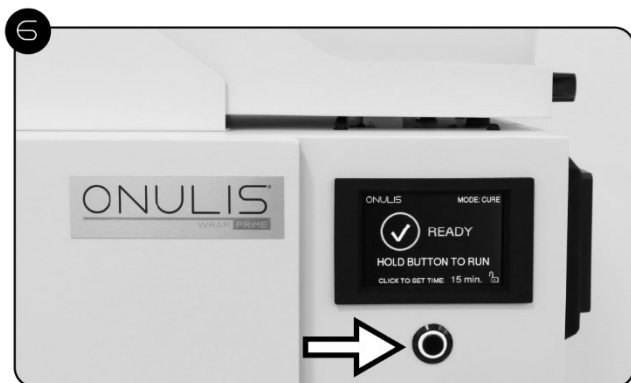


To use Static Table, remove standard Curing Table and set aside. Plastic Static Table on frame.

Place DLP parts on Static Table.



Reference Onulis' DLP Workflow Guide to see how long parts need to cure. To access, scan the QR Code on the Curing Table, or visit: <https://onulis.com/dlp-workflow-guide>.



Close door. Push button to set curing time.



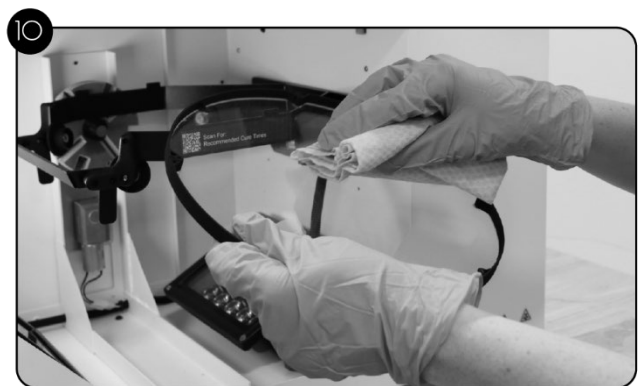
Depress and hold button to start curing cycle.



Curing will stop:
a. When timer ends, or
b. When button is pressed.



Open door and remove cured parts.



Wipe down Curing Table with isopropyl alcohol.

Note: Some materials require a thermal post-cure. Reference Onulis' DLP Workflow Guide (linked in Step 3 and Step 5) to see if material used requires thermal curing.



Power off machine.

To convert machine to Print Mode, proceed to next page.

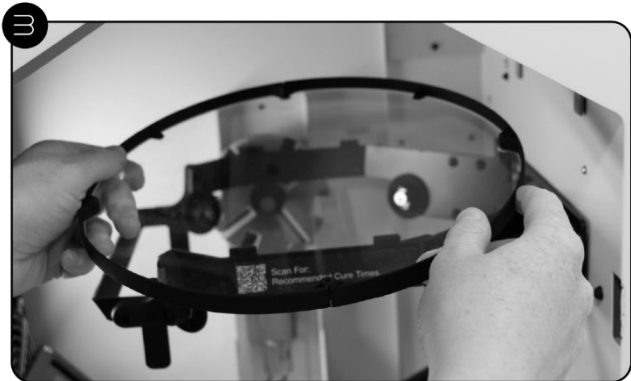
CONVERTING TO: PRINT MODE



Open door.



Unplug Curing Table cord from socket.



Remove Curing Table. Store safely.



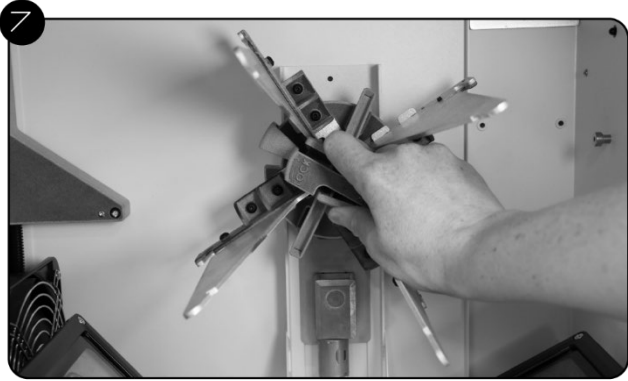
Hold sides of Curing Table Frame, lifting off Mounting Posts and remove from machine. Set aside.



Note: Print Mode is now active.

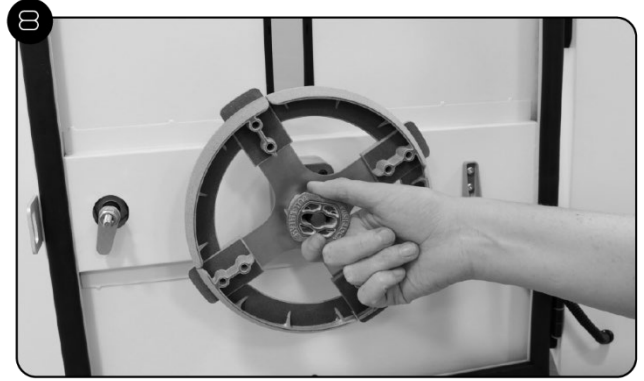


Insert Mandrel Carriage, installing on back machine post. Align spokes with slots in rear mount plate.



Push Mandrel Carriage Latch onto drive shaft, rotate clockwise until click.

Note: If Latch not engaging, remove, rotate latch 90°, and reinstall.



Insert Rotating Guide on machine door post. Push into lock.

Note: WRAP Mode is now active.

To use Print Mode, see page 18.

