

VUTEkh Series

Superwide Hybrid Inkjet Printer



Maintenance Guide

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5,109,241, 5,150,454, 5,170,182, 5,212,546, 5,260,878, 5,276,490, 5,278,599, 5,335,040, 5,343,311, 5,398,107, 5,424,754, 5,442,429, 5,459,560, 5,467,446, 5,506,946, 5,517,334, 5,537,516, 5,543,940, 5,553,200, 5,563,689, 5,565,960, 5,583,623, 5,596,416, 5,615,314, 5,619,624, 5,625,712, 5,640,228, 5,666,436, 5,682,421, 5,729,665, 5,745,657, 5,760,913, 5,799,232, 5,818,645, 5,835,788, 5,859,711, 5,867,179, 5,937,153, 5,940,186, 5,959,867, 5,970,174, 5,982,937, 5,995,724, 6,002,795, 6,025,922, 6,035,103, 6,041,200, 6,065,041, 6,081,281, 6,112,665, 6,116,707, 6,122,407, 6,134,018, 6,141,120, 6,166,821, 6,173,286, 6,185,335, 6,201,614, 6,209,010, 6,215,562, 6,219,155, 6,219,659, 6,222,641, 6,224,048, 6,225,974, 6,226,419, 6,238,105, 6,239,895, 6,256,108, 6,269,190, 6,271,937, 6,278,901, 6,279,009, 6,289,122, 6,292,270, 6,299,063, 6,310,697, 6,321,133, 6,327,047, 6,327,050, 6,327,052, 6,330,071, 6,330,363, 6,331,899, 6,337,746, 6,340,975, 6,341,017, 6,341,018, 6,341,307, 6,347,256, 6,348,978, 6,356,359, 6,366,918, 6,369,895, 6,381,036, 6,400,443, 6,429,949, 6,449,393, 6,457,823, 6,476,927, 6,487,568, 6,490,696, 6,501,565, 6,519,053, 6,539,323, 6,543,871, 6,546,364, 6,549,294, 6,549,300, 6,550,991, 6,552,815, 6,559,958, 6,572,293, 6,590,676, 6,599,325, 6,606,165, 6,616,355, 6,618,157, 6,633,396, 6,636,326, 6,637,958, 6,643,317, 6,647,149, 6,657,741, 6,660,103, 6,662,199, 6,678,068, 6,679,640, 6,687,016, 6,707,563, 6,741,262, 6,748,471, 6,753,845, 6,757,436, 6,757,440, 6,778,700, 6,781,596, 6,786,578, 6,816,276, 6,825,943, 6,832,865, 6,836,342, 6,850,335, 6,856,428, 6,857,803, 6,859,832, 6,866,434, 6,874,860, 6,879,409, 6,885,477, 6,888,644, 6,905,189, 6,930,795, 6,950,110, 6,956,966, 6,962,449, 6,967,728, 6,974,269, 6,977,752, 6,978,299, 6,992,792, 7,002,700, 7,023,570, 7,027,187, 7,027,655, 7,031,015, 7,046,391, 7,054,015, 7,058,231, 7,064,153, 7,073,901, 7,081,969, 7,090,327, 7,093,046, 7,095,518, 7,095,528, 7,097,369, 7,099,027, 7,105,585, 7,116,444, 7,177,045, 7,177,049, 7,177,472, 7,204,484, 7,206,082, 7,212,312, 7,229,225, 7,233,397, 7,233,409, 7,239,403, 7,245,400, 7,248,752, 7,259,768, 7,259,893, 7,280,090, 7,296,157, 7,301,665, 7,301,667, 7,301,671, 7,302,095, 7,302,103, 7,304,753, 7,307,761, 7,342,686, 7,343,438, 7,349,124, 7,365,105, 7,367,060, 7,367,559, 7,389,452, 7,396,119, 7,396,864, 7,397,583, 7,397,961, 7,426,033, 7,431,436, 7,433,078, 7,453,596, 7,460,265, 7,460,721, 7,461,377, 7,463,374, 7,466,441, RE36,947, RE38,732, D341,131, D406,117, D416,550, D417,864, D419,185, D426,206, D426,206, D439,851, D444,793.

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Revision History

Ver.	Date	Description	Request				
А	09/22/2018	First released version.					
В	09/28/2018	Updated all Maintenance Video Links.					
С	10/16/2018	Removed Maintenance Item, Every 40 Hours, "Clean Acrylic Glass and Wipe Down printer using 409 Cleaner." Added a new part, <u>CLEANER, PLASTIC</u> to use for cleaning glass. <i>Customer can clean printer as desired</i> .					
D	11/12/2018	Moved and updated <u>7. Perform Printer Calibrations</u> . to every 40 hours of production. Added MAG- NETIC and IMPLANTED MEDICAL DEVICE warnings to _ and <u>5.4 Clean linear encoder strip</u> . Updated lamp filter part descriptions. Added a step to Power OFF Printer before cleaning static eliminators. Added <u>6.10 Grease carriage rail bearings</u> .					
E	02/05/2019	Added Wiping Station Maintenance; updated bearing locations, <u>6.10 Grease carriage rail bearings</u> . Combined cleaning the Datum Bar with <u>5.2 Clean UV light deflectors and datum bar</u> . Various administrative edits.					
F	02/07/2019	Updated Grease Fitting Location, 6.10 Grease carriage rail bearings.					
G	02/25/2019	Redacted version.					
Н	03/04/2019	Updated Lamp filter Part Number/Description: <u>45242755</u> , <u>FILTERS, AIR, 10 PACK, IAF, FJ200, 375</u>					
I	05/03/2019	New grease names: changed Kluberplex 450 G CA to Kluberplex 41-132 and changed Kluberplex GE 14-151 to Klubersynth GE 14-151.					
]	06/28/2019	New layout style. Removed step to clean carriage laser lens. Changed frequency of Grease Carriage Rail Bearings	DR 5725 DR 5775 DR 5740				
К	07/17/2019	Removed duplicate Monthly task listing from Maintenance Log	DR 5861				
L	07/22/2019	Task 6.9 Grease Carriage Lift: changed grease type to LUBRICANT, BEARING, KLUBERSYNTH GE 14-151	DR 5867				
М	08/27/2019	Updated video links on several tasks	DR 5891				
Ν	10/17/2019	Removed Formula 409 from Required Items list. No longer used.	DR 5977				
0	10/24/2019	Updated photos/steps in several 4-Hour and 8-Hours tasks.	DR 5973				
Р	01/15/2020	Removed 45116069 FILTER, ROLL PLYESTR, 12INX180 from the Required Items list. No longer used.	DR 6130				

Q	07/29/2020	Added notes re: printing with clear ink to 3.1 Clean print head plate and print head guards., 3.2 Clean print heads. and 4.6 Clean LED lamp and nitrogen applicators.				
R	08/25/2020	Added tasks in Every 40 Hours to Calibrate Media Roll, Calibrate Carriage Lift Gap, and Calibrate Media Measurement Sensor (MMS), with link to Operations Guide.				
S	06/09/2021	Updated 6.9 Grease carriage lift. for new grease fitting and single pump of grease.				
Т	01/11/2022	Updated European customer service contact addresses				
U	09/08/2022	Updated video links.	DR 6969			
V	02/27/2023	Added instructive images to 5.1 Check and replace LED lamp intake filters.	DR 7307			
W	04/03/2023	Updated note on Page 59.	DR 7340			
Х	06/29/2023	Updated air filter part number in 9.0 Required Items List	DR 7447			
Y	08/08/2023	Added 5.10 Confirm carriage collision detector height.	DR 7480			
Z	09/15/2023	Updated fluids to UV MAINTENANCE FLUID and INK JET PURGE AND LT STORE FLUID	DR 7529			

Table of Contents

1.0	INTRODUCTION	8
1.1	Welcome	8
1.2	Before You Begin	8
1.3	Safety	9
1.4	Customer Support	10
1.5	Maintenance Videos	11
1.6	Performing Maintenance	11
1.7	Printer Maintenance Log	11
1.8	Safety Labels - Printer Beam	12
1.9	Fluid Emergency	12
1.10	First Aid - Inks and Solvents	13
2.0	SCHEDULED MAINTENANCE	15
2.1	Importance of Maintenance	15
2.2	8 Hour Daily Production	15
3.0	EVERY 4 HOURS	17
3.1	Clean print head plate and print head guards.	17
3.2	Clean print heads.	19
4.0	EVERY 8 HOURS	22
4.1	Wipe top and bottom carriage rail ends.	22
4.2	Clean waste tray.	23
4.3	Clean cleaning station.	25
4.4	Check primary ink tank levels.	30
4.5	Check/Empty waste container level.	31
4.6	Clean LED lamp and nitrogen applicators.	33
4.7	Check air compressor and air filter systems.	37
5.0	EVERY 40 HOURS	39
5.1	Check and replace LED lamp intake filters.	39
5.2	Clean UV light deflectors and datum bar.	41

5.3	Clean media edge detector.	42
5.4	Clean linear encoder strip.	43
5.5	Clean media in-feed and out-feed rollers.	44
5.6	Clean the FOD trays.	45
5.7	Calibrate media roll.	46
5.8	Calibrate carriage lift gap.	46
5.9	Calibrate media measurement sensor (MMS).	46
5.10	Confirm carriage collision detector height.	46
6.0	MONTHLY MAINTENANCE	48
6.1	Clean cable carrier assemblies and shelf.	48
6.2	Replace carriage cover air filters.	49
6.3	Inspect/clean two exhaust fans/ports.	50
6.4	Check/replace nitrogen system filter status.	51
6.5	Replace power supply air filters.	53
6.6	Replace electronics compartment air inlet filter.	55
6.7	Clean static eliminator probes.	56
6.8	Clean carriage safety stop assembly.	58
6.9	Grease carriage lift.	59
6.10	Grease carriage rail bearings.	60
7.0	QUARTERLY MAINTENANCE	62
7.1	Clean printer compartments and components.	62
7.2	Check print head maintenance fluid level.	63
8.0	SEMI-ANNUAL MAINTENANCE	65
8.1	Replace all primary ink filters.	65
8.2	Replace Simriz filters on bleeder hoses.	67
8.3	Grease carriage lift bearings.	68
9.0	REQUIRED ITEMS LIST	71

VUTEK H SERIES MAINTENANCE LOG

73

Maintenance Guide

1.0 Introduction

1.0 Introduction

The guide provides instruction for certified operators to perform the required routine maintenance tasks. Download the latest version of this document at <u>https://inkjet.support.efi.com</u>.

1.1 Welcome

Welcome to the EFI Printer Maintenance Guide. Please take the time to get well acquainted with your printer by reading this document and the corresponding Operations Guide. The more you know and understand about your printer, the greater safety and production value you will derive from it.

Additional information is available in separate documents, which can be found here: https://inkjet.support.efi.com

For more information on EFI and it's products, visit: <u>www.efi.com</u>

1.2 Before You Begin

Before performing any scheduled maintenance procedure, operators are required to complete Operator Certification Training. For more information, visit: <u>https://inkjet.support.efi.com/training/</u>

Ensure all required items are on-hand before beginning any maintenance procedure. Required items can be found in the <u>Required Items List</u> section of this document.

NOTE: You must read and understand the following documents prior to operating or servicing this printer.

- <u>http://inkjet.support.efi.com/doc.php?doc=683</u> **Inkjet Solutions Printer Safety Guide**
- <u>http://inkjet.support.efi.com/doc.php?doc=4468</u> **VUTEk h Series Operations Guide**
- <u>http://inkjet.support.efi.com/doc.php?doc=4469</u> **VUTEk h Series Maintenance Guide**

These documents are available at <u>http://inkjet.support.efi.com</u>.

1.3 Safety

Use caution when performing maintenance tasks on your printer. Adhere to all safety precautions described in the <u>Inkjet</u> <u>Printer Safety Guide</u>. Make sure nothing gets caught in moving parts. Do not perform maintenance procedures while the printer is in production. Keep all open flames and other burning materials (such as cigarettes) away from the printer. Safety comments and instructions should be read and observed to avoid personal injury and/or printer damage. These comments are highlighted as follows:

WARNING:

- Comments in a red highlighted box with triangle symbol
- Used when failure to follow will result in operator injury or printer damage

Example:



Warning: Contact between the moving carriage and a foreign object can cause injury and damage.

CAUTION:

- Comments in a yellow highlighted box
- Used when failure to follow could result in operator injury or printer damage

Example:



Caution: Do not apply excessive pressure. Do not try to insert the corners of the wipes into the print head nozzles.

NOTE:

- Comments in italics
- Used when failure to follow could result in printer errors
- Used when describing helpful tips

Example:

NOTE: The second wiping must be with a dry wipe to prevent print head cleaning fluid from potentially entering the print head.

1.4 Customer Support

	North & South	Americas	Europe, Middle East, Africa	Asian Pacific (APAC)						
	Customer Care									
	U.S	855-EFI-4HLP (855-334-4457)	+31 20 658 8070	+1 650 357 4790						
			eurosupport@efi.com							
	Canada Mexico South America	+1 650 357 4790								
	Technical Support https://inkjet.support.efi.com									
	US Canada	855-EFI-4HLP (855-334-4457)	+32 2 749 94 50	+65 6221 2765						
J.										
	Mexico South America	+1 412 690 4321	DE +49 2102 745 4500 NL +31 20 658 8080/8069 UK +44 12462 98085							
j≣i	Order Parts									
	US	Inkjet.Orders@efi.com	EMEA.inkjetorders@efi.com	InternationalOrders@efi.com						
	Canada Mexico South America	InternationalOrders@efi.com								

1.5 Maintenance Videos

A series of Maintenance Videos is available for users to review prior to completing any maintenance procedure. Each procedure contains a link to review the related maintenance video.



1.6 Performing Maintenance

Most efficient maintenance routine:

- Read each maintenance task fully before starting.
- Verify that you have all the materials required to complete each maintenance procedure.
- Perform all maintenance tasks as scheduled in the maintenance log.
- Perform maintenance activities either before or after printing production shifts.

1.7 Printer Maintenance Log

The <u>VUTEk h Series Maintenance Log</u> is at the end of this document.

The Printer Maintenance Log lists the maintenance tasks, as well as the means for tracking the completion of each item. Print the first side once per week for daily and weekly tasks, and print the second page once per year for less frequent maintenance. When filling out the Maintenance Log, record the current date and time (if applicable), and write your initials in the space provided. Please retain copies of the Maintenance Log. Field Engineers will often ask to review your maintenance records during service visits.

1.8 Safety Labels - Printer Beam

The Printer Beam contains powerful magnets that assist the carriage movement. Persons with implanted medical devices must take extreme caution to avoid being within or contacting these magnets. Operators and Technicians must take extreme caution when using tools or other metal objects within 24" (61 cm) of the Printer Beam Magnets.



A Beam Magnet

Figure 1-2 : Printer Beam warning labels - Magnets and implanted medical device warnings

1.9 Fluid Emergency

If an emergency situation involving inks or maintenance fluids arises, contact local emergency services and download any SDS (Safety Data Sheets) and make available to emergency service personnel.

SDS are available on the Inkjet Support Site, <u>https://inkjet.support.efi.com/main.php</u> under Documents > SDS (Safety Data Sheets).

1.10 First Aid - Inks and Solvents

Follow first aid directions based on these situations.

Eye contact

- Immediately flush with cool water (≥15 minutes)
- Seek medical attention

Ingestion

- Do not induce vomiting; drink two glasses of water
- Seek medical attention

Skin contact

- Remove contaminated clothing
- Flush with plenty of cool water and non-abrasive soap
- Seek medical attention if irritation develops

Inhalation

- Move person to fresh air
- Seek medical attention if symptoms develop

Maintenance Guide

2.0 Scheduled Maintenance

2.0 Scheduled Maintenance

Scheduled maintenance is essential to promoting greater printer reliability, increased print quality, and greater production results. Use only recommended fluids, lubricants and parts, as described in EFI documents.

2.1 Importance of Maintenance

Routine maintenance can help to:

- Maintain printer up time
- Maximize productivity
- Maintain peak image quality

To help you service your printer, we provide a Maintenance Log which makes tracking routine maintenance easy. The Maintenance Log provides you with a list of preventative maintenance tasks, as well as the means for tracking the completion of each task. Please keep your maintenance log up to date. Your EFI Service Engineer will review your maintenance log during scheduled visits.

2.2 8 Hour Daily Production

The maintenance guidelines are based on an eight hour print production schedule, five days per week. Adjust your maintenance intervals if your operating shifts are longer than eight hours, five days per week.

Maintenance Guide

3.0 Every 4 Hours

3.0 Every 4 Hours

The following maintenance tasks must be performed every 4 hours of production.

NOTE: Perform these tasks every 2 hours when printing with clear ink.



Directions:

1. Click the **Move Carriage Lift to Top Position** icon on the **Device Settings > Motion** tab to raise the print carriage to maximum height.



Figure 3-2 Move Carriage Lift to Top Position icon on Motion tab

- 2. Open the carriage compartment door, <u>Figure 3-1</u> location (A), to access the printer carriage.
- 3. Fold a clean room wipe 3 times and saturate with UV maintenance fluid.



4. Wipe the perimeter of the carriage plate and around the print heads, removing all visible ink and debris, using a single motion.





Figure 3-4 Wipe Perimeter of Print Head Plate and Between Print Heads

3.2 Clean print heads.

NOTE: Perform this task every 2 hours when printing with clear ink.

- **PPE Items:** GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES
- Required Items:WIPES 9X9 CLEAN ROOM
INK JET UV MAINTENANCE FLUID

How-to Video:



Directions:

1. Fold a clean room wipe 3 times and saturate with UV maintenance fluid.





Figure 3-5 Fold wipe

2. Place wipe parallel to the print head plate at the carriage rear and wipe the print head faces of one color in one motion toward the carriage front. Take care to wipe only one print head at a time. To prevent contamination, do not allow the wipe to contact the adjacent print heads.



Figure 3-6 Wipe Each Print Head



Do not apply excessive pressure. Do not try to insert the corners of the wipes into the print head nozzles. 3. Pull the used portion of wipe through your fingers as ink accumulates on the wipe. When no clean portion remains, discard the wipe.



Figure 3-7 Advancing to clean portion of wipe, Left, and discarded wipe, Right

- 4. Repeat steps <u>1.</u> through <u>3.</u> for the remaining colors.
- 5. From the printer control bar, click the **Purge**, **Options** button, **Options**. The Purge Mode pop-up opens.



Figure 3-8 Control Bar

- 6. Select **Quick Purge** from the drop down menu.
- 7. Click the **Purge** button. The printer purges ink through the print heads for six (6) seconds.
- 8. If your printer is equipped with a Cleaning Station, proceed to step <u>10.</u>
- 9. Fold a dry wipe and position parallel to the print head plate, and repeat wiping. The second wiping must be with a dry wipe to prevent UV maintenance fluid from potentially entering the print head.
- 10. Close the carriage compartment door and wait for **Ready to Print** message.
- 11. Load a piece of test media.
- 12. In the **Default Print Options** dialog, select **Center**.
- 13. Print a **Checkjets** test and **Analyze** for nozzle outs.
 - If the Checkjets test is not acceptable, go to step <u>1.</u>
 - If the Checkjets test is acceptable, the procedure is complete.

NOTE: If the Checkjets test is acceptable, do not wipe the print heads!

Maintenance Guide

4.0 Every 8 Hours

4.0 Every 8 Hours

The following maintenance tasks must be performed every 8 hours of production.

4.1 Wipe top and bottom carriage rail ends.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM

How-to Video:



Directions:

1. From the Motion tab, Carriage Maintenance pane, click Carriage (Center) Maintenance



The carriage moves to the center position.

- 2. Open the carriage (location A) and operator-end (location B) compartment doors. See Figure 4-1.
- 3. Wipe down carriage rail ends.



Figure 4-2 Wiping carriage rail ends

4. Close doors.



Figure 4-1 Printer Front View

4.2 Clean waste tray.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM INK JET UV MAINTENANCE FLUID .

How-to Video:

Directions:

- From the Motion tab, Carriage Maintenance pane, click Carriage (Center) Maintenance Position.
 The carriage moves to the center position.
 - The carriage moves to the center position.
- 2. Open the carriage compartment door, <u>Figure 4-3</u> location (A).

CLICK TO PLAY

3. Pour 1-2 ounces of UV maintenance fluid into the purge tray. (Figure 4-4)

VUTEk h Series Maintenance Guide







4. Clean the purge tray with clean room wipes. (Figure 4-5)



Figure 4-5 Clean Purge Tray with Clean Room Wipes

5. Close the carriage compartment door.



Figure 4-6 Purge Tray After Cleaning

4.3 Clean cleaning station.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE Safety Glasses

WIPES 9X9 CLEAN ROOM **Required Items:** ISOPROPLY ALCOHOL (IPA) INK JET UV MAINTENANCE FLUID ROLL, CLEANING MATERIAL, 2 INCH.

How-to Video:

Directions:

From the Motion tab, Carriage Maintenance pane, click Carriage (Center) Maintenance Position. 1.

VUTEk h Series Maintenance Guide

The carriage moves to the center position.

2. Open the carriage compartment door, Figure 4-7 location (A).

CLICK TO PLAY

3. Using a clean room wipe saturated with alcohol, clean the cleaning station rails.









4. Pour 1-2 ounces of UV maintenance fluid into the cleaning station purge tray.



Figure 4-9 Pour Print Head Maintenance Fluid into Cleaning Station Purge Tray

- 5. Clean tray with clean room wipes.
- 6. Repeat this process under the purge tray.



Figure 4-10 Clean Under Purge Tray

7. Advance the cleaning station forward by clicking Main Menu > Motion > Clean In/Out button.



Figure 4-11 Clean In/Out Button

8. Remove the wiping material to expose the black foam area.



Figure 4-12 Exposed Black Foam Area

9. Pour 1-2 ounces of UV maintenance fluid on the black foam.



Figure 4-13 Pour Print Head Maintenance Fluid on Black Foam

- 10. Replace wiping material.
- 11. Blot the black foam with the wiping material.



Figure 4-14 Blot Black Foam

- ≡ ← DIAGNOSTICS PRINT HEADS INKS Encode **(** (iii) (\rightarrow) 🛃 Auxi Lift Ga \odot **a** 🖻 **(** • + Z^{z^i} <1 ₽ • ••• READY
- 12. Advance the wiping material by clicking **Main Menu** > **Motion** > **Step Forward**.

- Figure 4-15 Step Forward Button
- 13. Close the carriage compartment door.

4.4 Check primary ink tank levels.

Required Items: Software only

How-to Video:



Directions:

- 1. On the main **Jobs Queue** screen, the Ink levels for the **Primary Tanks** display at the bottom left side for each color.
- 2. Refill low/empty ink tanks as outlined in the printer *Operations Guide*.
 - NOTE: Check ink tank levels more often during times of increased print production. Never allow ink levels of less than 10%.

	All		~			PRINTI	NG HELI	D JOBS)	Print started before	cure lamps reached oper Wed Jul 12 2017 10	atin 23:20
Add to	-) (Print D	elete Import	Archive	Reset	Layout	() Multilayer	Queue					
	READY TO PR	RINT JOBS (15)			TYPE	COPIES	MEDIA	CURE INTER	NSITY RESOLUTION	I PRI	NT MODE	EDIT
	9	BentleyBreitling_8c9 rtl	000x1200_170	716.rtl			60 inch Web	High	▶ 900 x 1200	Def	aultNoSmoothing600x	1
	••••	ColorBurst_QA_Test rtl	_8c900x1200_	170716.rtl			60 inch Web	High	900 x 1200	Def	aultNoSmoothing600x	1
		EliseBack_8c900x12 rtl	200_170716.rt				60 inch Web	High	900 x 1200	Def	aultNoSmoothing600x	i
		GS3_newTest_8c90 rtl	0x1200_17071	6.rtl			60 inch Web	High	900 x 1200	Def	aultNoSmoothing600x	1
	L 	GS_JetAligBiDirStep rtl	_8c900x1200_	_170716.rtl			60 inch Web	High	900 x 1200	Def	aultNoSmoothing600x	1
		Mckinley5Deep_8C_ rtl	Voltage_Fire_(Order_Test			60 inch Web	High	900 x 1200	М5	NoSmoothing900x1200	1
		Mckinley5Deep_8C_ rtl	Voltage_Fire_(Order_Test	rti		60 inch Web	High	900 x 1200	М5	NoSmoothing900x1200	1
52%	69%	54% 60% 52%	58% 48%	68% 66	5% 69%							
	Run Test	Scan Media	Purge		Jog Media		READY		Step Media	Media Fence M	Aedia Roller Vacu	um
						- :	1 16 7-1-		_			

Figure 4-16 Jobs Queue

4.5 Check/Empty waste container level.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: CLOTH CLEANING MICROFIBER 16" X 16" CONTAINER WASTE 13 LITER

How-to Video:







Directions:

- 1. Open waste container compartment doors, <u>Figure 4-17</u> location (A).
- 2. Check waste container level. If tank is greater than 3/4 full, proceed to the next step. If less than 3/4 full, no action is necessary.



Figure 4-18 Waste container compartment

В	Maintenance Fluid bottle
С	Waste Tank

3. Unscrew waste container cover.



Figure 4-19 Unscrew Waste Container Cover

- 4. Remove waste container and empty into an approved waste container.
- 5. Reinstall waste container and tighten cover.

Every 8 Hours

4.6 Clean LED lamp and nitrogen applicators.

NOTE: Perform this task every 2 hours when printing clear ink.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA) RAZOR BLADE HANDLE.

How-to Video:







Directions:

1. From the **Motion** tab, **Lift Step Distance** pane, click the **Max Lift Position** button. (1) The carriage moves to top position.



Figure 4-21 VUTEk UI Motion screen - Max Lift Position

- 2. Open the carriage compartment door, Figure 4-20 location (A).
- 3. Wipe down lamp lenses with a clean room wipe dampened with isopropyl alcohol.



Figure 4-22 Wipe LED Cure Lamp Lens

4. Wipe down the nitrogen applicators with a clean room wipe dampened with isopropyl alcohol.

Lamp Glass

В



Figure 4-23 Wipe Nitrogen Applicators

C Nitrogen Applicator

Every 8 Hours

5. Use a straight edge razor to remove stubborn debris.



Figure 4-24 Straight Edge Razor Removing Debris

NOTE: Avoid scratching Lamp lens surfaces; do not touch the lens surface with your hands.

- 6. Clean the lens again using a clean room wipe saturated with alcohol
- 7. Close the carriage compartment door.
- 8. From the **Motion** tab, click **Carriage Right Maintenance Position** button.
- 9. Open the carriage compartment door and repeat wiping procedure beginning at step <u>3.</u>
- 10. Close the door and click the **Carriage Home** button.
4.7 Check air compressor and air filter systems.

Required Items: Compressed Air Quality Specification document, <u>https://inkjet.support.efi.com/doc.php?doc=975</u>



Directions:

1. Follow all manufacturer recommendations for maintenance and care of the facility compressed air system, point of use air filtration/drying systems, and any other third-party compressed air quality control equipment in order to maintain a constant, clean, and dry compressed air supply to the printer.

Maintenance Guide

5.0 Every 40 Hours

5.0 Every 40 Hours

The following maintenance tasks must be performed every 40 hours of production.

5.1 Check and replace LED lamp intake filters.

- **PPE Items:** GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES
- **Required Items:** KIT, AIR FILTER IAF, FJ200

How-to Videos:



Directions:

- 1. Open carriage access door to access the printer carriage, Figure 5-1 (A).
- 2. Grasp a filter and remove, Figure 5-2 (B).
- 3. Discard old filter.



Figure 5-2 LED Lamp, Filter and Basket



Figure 5-1 Printer Front View

4. Install the new filter with the plastic bezel facing away from the lamp. Ensure each filter is fully seated in the filter frame, slotted into the holding tabs with no openings around the edges.





Figure 5-3 Badly Seated Filters Are Ineffective





Figure 5-4 New Filter Not Seated in Holding Tab

5. Repeat for remaining filters, four total.



Figure 5-5 Correctly Seated Filter

Every 40 Hours

Figure 5-6 Printer Front View

5.2 Clean UV light deflectors and datum bar.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA)

How-to Video:



Directions:

- 1. Move carriage to the center maintenance position.
- 2. Open the carriage (A) and operator-end (B) compartment doors. See Figure 5-6.
- 3. On each printer end, wipe down UV light deflectors, Figure 5-7 (C), with a clean room wipe and IPA to remove debris and ink.
- 4. Wipe the datum bar, Figure 5-7 (D), clean on the carriage home end.



Figure 5-7 Carriage Home End UV Light Deflector and Datum Bar (Left), and Operator End Light Deflector (Right)

С	Light Deflector
D	Datum Bar

5.3 Clean media edge detector.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA)

How-to Video:



Directions:

- 1. Open the carriage compartment door, Figure 5-5 location (A).
- 2. Clean the lens of the media edge detector at the left, rear of carriage using a clean room wipe dampened with IPA.



Figure 5-9 Media Edge Detector

B Media Edge Detector

3. Close the door.





Figure 5-8 Printer Front View

5.4 Clean linear encoder strip.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items:WIPES 9X9 CLEAN ROOMISOPROPYL ALCOHOL (IPA)

How-to Video:



Directions:

- 1. Dampen a clean room wipe with IPA.
- 2. Wipe down the linear encoder strip to remove ink and debris, moving carriage as necessary.



A	Linear Motor Magnetic Track
В	Linear Encoder Strip

Figure 5-10 Linear Encoder Strip



Caution: The printer beam contains powerful magnets along the entire length of the beam to assist carriage movement. Persons with implanted medical devices must take extreme caution to avoid being within or contacting these magnets. Operators and technicians must take extreme caution when using tools or other metal objects within 12" (30 cm) of the printer beam magnets.

Every 40 Hours

5.5 Clean media in-feed and out-feed rollers.

- **PPE Items:** GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES
- Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA)

How-to Video:



Directions:



Figure 5-11 Printer Front View

1. Using a lint free wipe dampened with IPA, wipe down the metal media infeed and outfeed rollers to remove any ink, debris and contaminants.



Figure 5-12 Media infeed roller (C) and Media out feed roller (D)

5.6 Clean the FOD trays.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA)

How-to Video:



Directions:

- 1. Open the printer front door.
- 2. Wipe down the inside of the left and right FOD (foreign object and debris) trays to remove debris.



Figure 5-14 Left FOD tray



Figure 5-15 Right FOD tray



Warning: Ensure the FOD tray is fully seated after cleaning.





FOD Trays

С

5.7 Calibrate media roll.

• See the h Series Operations Guide section on Media Roll Calibration at https://inkjet.support.efi.com/doc.php?doc=4468.

5.8 Calibrate carriage lift gap.

- See the h Series Operations Guide section to Calibrate Carriage Lift Gap at: https://inkjet.support.efi.com/doc.php?doc=4468.
- 5.9 Calibrate media measurement sensor (MMS).
 - See the h Series Operations Guide section to Calibrate Media Measurement Sensor at: <u>https://inkjet.support.efi.com/doc.php?doc=4468</u>.

5.10 Confirm carriage collision detector height.

• See the h Series Operations Guide section to Confirm Carriage Collision Detector Height at: <u>https://inkjet.support.efi.com/doc.php?doc=4468</u>.

NOTE: Collision detector height should be reconfirmed after any collision.

Maintenance Guide

6.0 Monthly Maintenance

6.0 Monthly Maintenance

The following maintenance tasks must be performed monthly.

6.1 Clean cable carrier assemblies and shelf.

Required Items: SHOP VACUUM, WITH BRISTLE ATTACHMENT.

How-to Video:



Directions:

 With carriage in Home position, open the printer front (location A) and rear (location B) doors and carriage (location C) and operator-end (location D) compartment doors to expose the cable carriage support shelf. See <u>Figure 6-1</u>.

Е

Support Shelf

2. Vacuum the cable support shelf.



Figure 6-2 Cable Carrier Support Shelf

- 3. Close all doors.
- 4. From the **Motion** tab, click **Carriage Right Maintenance Position** button 🔶



to place carriage in **Right** Maintenance Position.

- 5. Repeat cleaning procedure for remaining portion of cable carrier shelf.
- 6. Close all doors.



Figure 6-1 Printer Front View

6.2 Replace carriage cover air filters.

Required Items:

FILTER ELEM 40MM ASSY FILTER FAN CARRIAGE

How-to Video:



Directions:

- 1. Place carriage in home position.
- 2. Open carriage access door, Figure 6-3 location (A), to access the printer carriage. Filters are located on the carriage cover, front and top.
- 3. Pry off a filter cover, remove old filter, and discard it.





Figure 6-4 Removing a single filter

4. Replace filter and snap on cover.



B	Filter (x2)
С	Filter (x12)

Figure 6-5 Carriage Cover and Air Filters

5. On carriage cover top, replace two top, inside filters, and snap on covers.

NOTE: Replace filter cover and housing if damaged.



Figure 6-3 Printer Front View

6.3 Inspect/clean two exhaust fans/ports.

Required Items: SHOP VACUUM, WITH BRISTLE ATTACHMENT

CLICK TO PLAY

How-to Video:



- 1. Open the printer front door, Figure 6-6 location (A).
- 2. Clean the fan guards using a vacuum cleaner with bristle attachment.
 - NOTE: Exhaust fans may have been removed at installation for facilities with >1,100 CFM central exhaust capacity.
- 3. For excessively dirty fans, first place a protective sheet under the fans to protect the media belt from debris.
- 4. Turn printer off and remove the fan guard.
- 5. Vacuum clean and reinstall.



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Caution: Do not stand on the media belt. Never apply excessive, concentrated pressure to media table, or table denting may occur.



Figure 6-7 Exhaust Fan

VUTEk h Series Maintenance Guide



Figure 6-6 Printer Front View

Monthly

6.4 Check/replace nitrogen system filter status.

Required Items:

CARTRIDGE, MICRO FILTER MS6-LFM-A CARTRIDGE, ACTIVATED CARBON MS6-

How-to Video:



Directions:

- 1. Open the waste compartment doors, Figure 6-8 location (A).
- 2. Locate the two nitrogen filters in the compartment top, left corner.
- 3. On the filter housing top, check the filter status window.
 - Green indicates good status.
 - Yellow indicates reduced efficiency status; print quality may be degraded.
 - Red indicates replace status; print quality is degraded.



Figure 6-9 Nitrogen Filter Packs, Left, and Filter Status Viewing Window, right

- 4. To replace the filters, turn the printer off.
- 5. Pull down the blue locking clip and turn the filter cover 90 degrees to the left (counter clockwise).



Figure 6-8 Printer Rear View

6. Pull down the filter cover.



Figure 6-10 Removing filter cover

7. Unscrew the filter and discard.



Figure 6-11 Carbon filter, LEFT, and Micro Filter, RIGHT

- 8. Install the new <u>CARTRIDGE, MICRO FILTER MS6-LFM-A</u> filter and replace the cover.
- 9. Repeat the procedure for the second filter using the CARTRIDGE, ACTIVATED CARBON MS6-.

6.5 Replace power supply air filters.

Required Items: FILTER FOR 2.36 IN FAN

How-to Video:



Directions:

- 1. Power off printer.
- 2. Open carriage compartment door, Figure 6-12 location (A), and go to the printer rear.



Figure 6-12 Printer Rear View



Figure 6-13 Power Supply Cooling Fan and Filter with Acrylic cover

B Carriage Power Supply

3. With a screwdriver or flat tool, remove power supply filter cover at carriage rear.



Figure 6-14 Printer Sheet Metal Panel with filter cover, LEFT, and cover removed, RIGHT

- 4. Remove existing filter and discard.
- 5. Install new filter and replace cover.
- 6. Repeat for the two filters inside the electronics compartment and the one inside the waste compartment.



Figure 6-15 Additional Power Supply Fans, Electronics Compartment, Left, and Waste Compartment, Right

Monthly

6.6 Replace electronics compartment air inlet filter.

Required Items: FILTER, 203 X 235 X 25.4MM.

How-to Video:



Directions:

1. Lift up and remove the sheet metal cover containing the electronics compartment air inlet, Figure 6-16 location (A).



Figure 6-17 Metal Covering Electronics Air Inlet

- 2. Remove existing filter and discard.
- 3. Install new filter.
- 4. Re-install the cover.



Figure 6-16 Printer Rear View

6.7 Clean static eliminator probes.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: CLEANING KIT, STATIC ELECTRODE

How-to Video:



Directions:

1. Raise carriage to top position to gain access to the static eliminators, .



Figure 6-19 Static eliminator assembly

- 2. Power off printer.
- 3. Open the carriage compartment door, Figure 6-18 location (A).
- 4. Turn a static eliminator electrode probe clockwise.



Figure 6-20 Removing Static Eliminator head



Figure 6-18 Printer Front View

5. Insert a cotton swab dampened with IPA into probe center to clean it. (See Figure 6-21.)



Figure 6-21 Cleaning Probe

6. Insert probe into probe cleaner. (See Figure 6-22.)



Figure 6-22 Static Probe (Left) and Probe Cleaner (Right)

7. To re-install, twist probe counterclockwise until it locks in place and keys are aligned.



Figure 6-23 Probe Alignment Keys

B Probe Alignment Keys

8. Repeat steps for the remaining probes, both carriage sides.

6.8 Clean carriage safety stop assembly.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

CLICK TO PLAY

Required Items: WIPES 9X9 CLEAN ROOM ISOPROPYL ALCOHOL (IPA)

How-to Video:

Directions:

3.

On the Motion tab, Carriage Maintenance pane, click Carriage (Center) Maintenance Position. 1.

The carriage moves to the center position.

Click Move Carriage Lift to Top Position 2.



VUTEk h Series Maintenance Guide

- Open the printer front door, Figure 6-24 location (A).
- Wipe down the LH carriage safety stop assembly with a clean room wipe dampened with IPA. 4.
- 5. Repeat for the RH carriage safety stop assembly.



Figure 6-25 Carriage Safety Stop Assembly

В Carriage Safety Stop Assembly



Figure 6-24 Printer Front View





6.9 Grease carriage lift.

Required Items: DISPENSER, GREASE LUBRICANT, BEARING, KLUBERSYNTH GE 14-151

How-to Video:



Directions:

- 1. Power printer off.
- 2. Open carriage access door, Figure 6-26 location (A).
- 3. Locate the carriage lift grease fitting at carriage rear.



Figure 6-27 Carriage Rear - Lift Grease Fitting

- 4. Connect grease gun to carriage lift grease fitting Figure 6-27 location (B).
- 5. Dispense grease with a single pump of the grease gun.
- 6. Wipe up any overflow.
- 7. Power printer on.

NOTE: If the Zerc fitting is not present, contact EFI Support and inquire about the "MOD 28 - Carriage Lift Grease Point Upgrade" for the h Series printers.



Figure 6-26 Printer Front View

6.10 Grease carriage rail bearings.

Required Items: DISPENSER, GREASE HOSE, EXTENSION, 18" FLEXIBLE NEEDLE, GREASE NOZZLE, 1/8 FNPT LUBRICANT, BEARING, KLUBERPLEX, 41-132

How-to Video:



Directions:

- 1. Open carriage compartment door, Figure 6-28 location (A).
- 2. Insert needle into grease fitting at carriage bearing ends, Figure 6-29.
- 3. Dispense until overflow appears at this fitting.
- 4. Wipe off excess grease.
- 5. Place carriage in RH maintenance position to access and grease the opposite side bearings.



Figure 6-29 Carriage bearings, Left and Right sides, respectively, with detail



Figure 6-28 Printer Front View

Maintenance Guide

7.0 Quarterly Maintenance

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VUTEk h Series Maintenance Guide

7.0 Quarterly Maintenance

The following maintenance tasks must be performed quarterly.

7.1 Clean printer compartments and components.

Required Items: SHOP VACUUM, WITH BRISTLE ATTACHMENT.

How-to Video:



Directions:

- 1. Power off printer and perform a lockout/tagout procedure.
- 2. Using a shop vacuum with brush attachment, gently vacuum the computer compartment, power compartment, waste compartment and pneumatics compartment to remove all dust and debris.



Caution: Take care when vacuuming all components, fans and boards. Be sure not to disconnect any cables or wires.



Figure 7-1 Motion compartment



Figure 7-2 Waste compartment

Quarterly

7.2 Check print head maintenance fluid level.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: CLOTH CLEANING MICROFIBER 16" X 16" INK JET PURGE AND LT STORE FLUID

How-to Video:



Directions:

- 1. Open waste compartment doors, Figure 7-3 location (A).
- 2. Unscrew bottle top and place on a clean room wipe.
- 3. Check the maintenance fluid level.
- 4. Add maintenance fluid, if required, to 3/4 FULL and tighten cover.
- 5. Re-tighten maintenance fluid bottle top.



Figure 7-4 Waste compartment, Maintenance Fluid bottle





Figure 7-3 Printer Rear View

Maintenance Guide

8.0 Semi-Annual Maintenance

8.0 Semi-Annual Maintenance

The following maintenance tasks must be performed every 6 months.

8.1 Replace all primary ink filters.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: CLOTH CLEANING MICROFIBER 16" X 16" FILTER, 3 MICRON, UV RESISTANT

How-to Video:



Directions:

- 1. Shut down printer.
- 2. Open the ink drawer, <u>Figure 8-1</u> location (A).
- 3. Locate the first primary ink filter.



Figure 8-2 Primary Ink Filter

B Primary Ink Filter



Figure 8-1 Printer Front

4. Insert flat blade screwdriver into filter clamp at position (A) in Figure 8-3 and twist to release clip.



Figure 8-3 Filter Clamps

- 5. Disconnect the bleeder hose fitting from the filter top and connect to top of new filter.
- 6. Disconnect top ink line connector and connect to top of new ink filter.
- 7. Repeat for bottom ink line connections.
- 8. Discard old filter in accordance with facility guidelines.
- 9. Repeat process for all filters, **one at a time**.

NOTE: Perform the replacement one at a time to ensure ink lines are not mixed.

10. When completed, power on the printer and perform 10 Quick Purges to establish pressure in the ink system.

8.2 Replace Simriz filters on bleeder hoses.

PPE Items: GLOVES NITRILE DISPOSABLE BOX LARGE SAFETY GLASSES

Required Items: CLOTH CLEANING MICROFIBER 16" X 16" FILTER, 20 MICRON LUER SIMRIZ .





Directions:

- 1. Release bottom quick disconnect, Figure 8-4 (B) on the Simriz filter (A).
- 2. Unscrew filter at top and remove old filter.
- 3. Screw in new filter to top of bleeder line and attach quick connector.



Figure 8-4 Simriz filter, White channel

Simriz Filter

Quick Disconnect

A B

8.3 Grease carriage lift bearings.

Required Items: DISPENSER, GREASE HOSE, EXTENSION, 18" FLEXIBLE NEEDLE, GREASE NOZZLE, 1/8 FNPT; LUBRICANT, BEARING, KLUBERPLEX, 41-132

How-to Video:



Directions:

- 1. Open carriage compartment door, <u>Figure 8-5</u> location (A).
- 2. Insert needle into top Z axis bearing, Figure 8-6.



Figure 8-5 Printer Front



Figure 8-6 Top Z Axis Bearing Grease Fitting

- 3. Dispense until overflow appears at this fitting.
- 4. Wipe off excess grease.
- 5. Repeat greasing for bottom Z axis bearing.
- 6. Place carriage in RH maintenance position and repeat the steps to grease the opposite side bearings.



Figure 8-7 Fitting Detail

8.3.1 Grease Guns

Two grease guns are included with your printer. Prepare one gun with a 12" (30.5cm) flexible hose for greasing carriage bearings and an 18" (45.7 cm) flexible hose for greasing the lift screw (packed separately)

NOTE: Consult product packaging when preparing grease tubes.

- A. Use $\underline{45167948}$ with the 12" flexible hose and Bearing grease tip to <u>Grease carriage lift bearings.</u>
- B. Use <u>45173660</u> with the 18" flexible hose and Bearing grease tip to <u>Grease carriage lift.</u>



Figure 8-9 Bearing grease tip



Figure 8-10 Carriage Lift Screw flexible



Figure 8-8 Grease gun

- 1 Head assembly
- 2 Metal tube
- 3 Plunger rod handle
- 4 Flexible hose

Maintenance Guide

9.0 Required Items List

9.0 Required Items List

This section lists all items required to perform scheduled maintenance.

DESCRIPTION	PART #	DESCRIPTION	PART #
ASSY FILTER FAN CARRIAGE	45102844	ISOLATION STRIP	45164926
BOTTLE 8 OZ JET WASH	P1380-A	LUBRICANT, BEARING, KLUBERPLEX, 41-132	45167948
CARTRIDGE, ACTIVATED CARBON MS6-	45187808	LUBRICANT, BEARING, KLUBERSYNTH GE 14-151	45173660
CARTRIDGE, MICRO FILTER MS6-LFM-A	45187807	NEEDLE, GREASE NOZZLE, 1/8 FNPT	45087932
CLEANER, PLASTIC	45176840	Q-TIPS	45074615
CLEANING KIT, STATIC ELECTRODE	45128890	ROLL, CLEANING MATERIAL, 2 INCH	45191864
CLOTH CLEANING MICROFIBER 16" X 16"	45187448	WEAR STRIP UHMW	45164925
CONTAINER WASTE 13 LITER	45129561	WIPES 9X9 CLEAN ROOM	45077321
DISPENSER, GREASE	45086491		
FILTER, 20 MICRON LUER SIMRIZ	45072843	ADDITIONAL ITEMS	NO PART #
FILTER, 203 X 235 X 25.4MM	45176905	Isopropyl alcohol (IPA)	
FILTER, 3 MICRON, UV RESISTANT	45098981	Razor Blade Handle	
FILTER ELEM 40MM	45118474	Safety Glasses	
FILTER FOR 2.36 IN FAN	P4970-A	Shop vacuum, with bristle attachment	
FILTERS, AIR, 10 PACK, IAF, FJ200, 375	45242755		
GAUGE, GO/NO-GO, CRASH DETECT HEIGHT, 0.05 AND 0.06	45214415	CLEANING AND MAINTENANCE FLUIDS	
GLOVES NITRILE DISPOSABLE BOX LARGE	P3777-A	INK JET PURGE AND LT STORE FLUID 5L	45225793
GLOVES SURGICAL LATEX	P3494-A	INK JET UV MAINTENANCE FLUID TF 5L	45225794
HOSE, EXTENSION, 18" FLEXIBLE	45090366		

Maintenance Guide

VUTEk h Series Maintenance Log
VUTEk h Series Maintenance Log

The maintenance guidelines are based on a production schedule of eight hours of printing, five days/week. Adjust your maintenance intervals if your operating shifts are longer than eight hours of printing.

Every 4 Hours		Sun		Mon				Tue		Wed			Thurs		S	Fri			Sat			
1.	Clean print head plate and print head guards.																					
2.	Clean print heads.																					
Every 8 Hours		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1 2	2 3	3
1.	Wipe top and bottom carriage rail ends.																					
2.	Clean waste tray.																					
3.	Clean cleaning station.																					
4.	Check primary ink tank levels.																					
5.	Check/Empty waste container level.																					
6.	Clean LED lamp and nitrogen applicators.																					
7.	Check air compressor and air filter systems.																					
Every 40 Hours						1				2						3						
1.	Check and replace LED lamp intake filters.																					
2.	Clean UV light deflectors and datum bar.																					
3.	Clean media edge detector.																					
4.	Clean linear encoder strip.																					
5.	Clean media in-feed and out-feed rollers.																					
6.	Clean the FOD trays.																					
7.	Calibrate media roll.																					
8.	Calibrate carriage lift gap.																					
9.	Calibrate media measurement sensor (MMS).																					
10.	Confirm carriage collision detector height.																					

Week: ____/___/____ Serial #: _____

VUTEk h Series Maintenance Log

The maintenance guidelines are based on a production schedule of eight hours of printing, five days/week. Adjust your maintenance intervals if your operating shifts are longer than eight hours of printing.

Monthly		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.	Clean cable carrier assemblies and shelf.												
2.	Replace carriage cover air filters.												
3.	Inspect/clean two exhaust fans/ports.												
4.	Check/replace nitrogen system filter status.												
5.	Replace power supply air filters.												
6.	Replace electronics compartment air inlet filter.												
7.	Clean static eliminator probes.												
8.	Clean carriage safety stop assembly.												
9.	Grease carriage lift.												
10.	Grease carriage rail bearings.												
Quarterly (Every 3 Months)			3			6			9			12	
1.	Clean printer compartments and components.												
2.	Check print head maintenance fluid level.												
Semi-Annually (Every 6 Months)				(5					12	2		
1.	Replace all primary ink filters.												
2.	Replace Simriz filters on bleeder hoses.												
3.	Grease carriage lift bearings.												

Year: ______ Serial #: _____