

Magnus 400 Quantum

Platesetter

Safety Precautions for Users

English

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Symbols Used in This Guide



DANGER: Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.



WARNING: Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury. It may be used to alert against unsafe practices.

NOTICE: Indicates a property damage message. This word is not used with safety messages.

Introduction

Read the following safety document carefully before operating or maintaining the Kodak® Magnus™ 400 Quantum platesetter and/or the Kodak Magnus 400 Quantum with Multi-Cassette Unit (MCU).

Note: This document refers to the Magnus 400 Quantum platesetter and the Magnus 400 Quantum platesetter with MCU.

These products are Class 1 laser products, according to IEC60825-1 and USA 21 CFR 1040. This implies that there is no hazardous laser radiation, providing that the user and service safety precautions are followed.

Magnus 400 Quantum safety at a glance - how to avoid exposure hazards?



WARNING: The laser beam and radiation may be visible or invisible to the eye.

1. Keep all external doors and internal protective barriers of the platesetter complete, unharmed and intact.
2. Never defeat the laser or any other interlock switch.
3. Never leave any object between the laser thermal head and the drum.
4. Do not open any internal doors or covers. Do not use any tools.
5. Do not operate the platesetter if there is any doubt regarding the above. Contact your service engineer.

Extensive means were taken in the design and manufacturing of the platesetter to eliminate the hazards for the operator and service personnel.

Carefully follow the instructions in this document to ensure your safety and the safety of others when operating or maintaining the platesetter.

Device Views

Platesetter



Figure 1: Magnus 400 Quantum platesetter, front view



Figure 2: Magnus 400 Quantum platesetter, rear view

Figure 3: This figure is left blank intentionally

Platesetter With MCU



Figure 4: Magnus 400 Quantum platesetter with MCU



Figure 5: MCU with tray opened



Figure 6: MCU with left door opened

Installation Safety Precautions

Installation must be done only by authorized service personnel.

The Magnus 400 Quantum platesetter is installed and serviced exclusively by specialized technicians. These technicians are trained, authorized and certified in the proper procedures for working with, and adjusting the laser system, and working with the mechanical, cooling and electrical systems of the platesetter.



WARNING: Do not connect the platesetter to the power supply before it is installed by authorized service personnel.



WARNING: Only certified service personnel are allowed to service the Magnus 400 Quantum platesetter.



WARNING: Only certified service personnel are allowed to attach the MCU to the Magnus 400 Quantum platesetter.

Only certified service personnel are allowed to dismantle the MCU from the Magnus 400 Quantum platesetter.

Disconnecting the Main Power Supply

The platesetter is equipped with a main circuit breaker**,** located on the distribution box on the lower rear panel of the platesetter; and two identical (yellow) on/standby pushbuttons located on both sides of the rear panel of the platesetter.

Special circuit breakers for the drum power and drum vacuum pump are located near the main power circuit breaker**.**



WARNING: Total disconnection from the mains supply can only be achieved by deactivating the main power circuit breaker (set to 0), or by unplugging the main power cable from power outlet.

Disconnecting the Pneumatic Air Pressure

Switching the air pressure off is done by switching off the air supply. The Magnus 400 Quantum platesetter receives pneumatic air pressure from the filtration unit located on the wall. Turn the valve to shut off the air pressure.

Basic and Laser Safety Precautions

The basic and laser safety precautions section includes the following topics:

- Thermal imaging laser head
- Enclosures
- Safety interlocks
- Warning labels



WARNING: Use of controls or adjustments, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

The platesetter is equipped with a highly hazardous laser system that exposes the media. However, the platesetter as a whole, is a Class 1 laser product, according to IEC60825-1 and the USA 21 CFR 1040. This implies that the operator and service engineer cannot access hazardous laser radiation, providing that the user and service safety precautions are followed.



WARNING: The laser beam and radiation of the platesetter contain invisible and visible components, both are hazardous to the eye and skin. In the presence of flammable material, the laser beam is also a fire hazard. Even brief exposure of the eyes to the laser radiation or beam, or its reflections from shiny or matte objects may cause permanent loss or permanent degradation of eyesight.



WARNING: Whenever in doubt, the platesetter should never be operated until it is checked and approved for operation by an authorized service engineer.



WARNING: If you must enter the room where the platesetter is located when the platesetter is on, and you suspect that any of the following precautions was somehow violated, then you must disconnect the power supply to the platesetter before entering the room.

Thermal Imaging Laser Head

The Magnus 400 Quantum platesetter has a highly hazardous thermal imaging laser head inside that exposes the media. The laser imaging head uses two separate laser emitters:

- Invisible write laser
- Visible (red) auto focus laser



WARNING: Do not operate the Kodak thermal imaging head outside the platesetter or with any doors or panels open, nor bypass any of the laser safety mechanisms. The laser output or reflections from shiny or matte objects can cause severe and permanent eye and skin damage and is a fire hazard in the presence of flammable materials.



DANGER: Even brief exposure of the eyes to the laser radiation or beam, or its reflections from shiny or matte objects may cause permanent loss or permanent degradation of eyesight.

The write laser beam is invisible to the eye (Class IV, approximately 830 nm).

The write laser interlocks are never to be defeated either by operator or service personnel.

The auto focus laser is visible (red) (Class IIIB, approximately 670 nm).

The auto focus laser interlock may be defeated by authorized service engineer only, while following all safety instructions listed in the service safety documentation.



DANGER: Do not look directly or indirectly into the auto focus laser. The laser radiation can cause permanent eye damage if reflected directly or indirectly into the eye.

Enclosures

Together with the laser interlock system, the platesetter enclosure is designed to protect anyone in the platesetter vicinity from exposure to the laser radiation by enclosing the laser radiation within the platesetter. The enclosure includes the external doors and panels, and the internal protective barriers. The internal barriers that may be dismantled by service engineer have warning labels on them indicating that the barrier must be in place. The internal protective barriers prevent the laser radiation from escaping through the platesetter loading/unloading openings through the ventilation openings and through the gaps between the external doors and panels. This protection depends upon the completeness and correct assembly of the outer enclosure and the internal protective barriers.



WARNING: You are forbidden, under any circumstances, to dismantle any external door or panel, or internal protective barrier from the platesetter.



WARNING: After performing any service activity and before switching on the platesetter, the service engineer must check and ensure that all external and internal enclosures and doors are complete, not broken or cracked, and properly assembled to the platesetter.



DANGER: If the platesetter is on and the enclosure is damaged or incomplete, and even with the external doors closed, then visible and/or invisible laser radiation of up to several watts may be present. This radiation is hazardous to the eye or skin. Even brief exposure of the eye to this radiation or its reflection from shiny or matte objects can cause permanent degradation or permanent loss of eyesight.



CAUTION: The opening of the two upper and front doors is controlled by a spring loaded mechanism. Make sure your head is not near the door when opening the door.



WARNING: You are forbidden to open any door, barrier, or panel that requires the use of a tool (for example, side doors when the upper rear door is closed, laser source protective barrier, distribution box, and the PC located behind the right door).



WARNING: You are forbidden to use tools.

Safety Interlocks

Safety interlocks provide the main protective means against the severe laser and mechanical hazards involved with the platesetter, providing that you carefully follow all the safety precautions detailed in this chapter.



WARNING: The safety interlock does not disconnect hazardous electrical voltage from parts and wires inside the platesetter and MCU. These parts, however, require tools to access.



WARNING: It may take up to two seconds for the laser interlock system to shut off the laser sources. Therefore, when opening a door, do not rush to access inside the platesetter.

Interlock switches are designed to disconnect power from the laser system, drum motor and other motors when:

- The platesetter front door, rear upper door, side doors, or the MCU upper door is opened.
- The platesetter rear or front lower panels are removed.
- The MCU is disassembled from the platesetter.
- The left or right internal MCU side covers are removed.



WARNING: The user is not, under any circumstances, allowed to defeat any interlock switch.

- Authorized service personnel are forbidden to defeat the write laser interlocks, but are allowed to defeat the focus laser, drum motor and other mechanical interlocks while keeping the appropriate safety instructions.

The following tables are included to provide the operator with information about the safety measures included in the platesetter. The operator is strictly forbidden to defeat any interlock switch or actuate any defeat switch, or use a tool.

Platesetter Interlock Functions and Locations

Location on Platesetter	Function	Description	Serviceman Bypass
Front door	Disable lasers and motors	2 interlock switches	no
Lower front panel	Disable lasers and motors	1 interlock switch	no
Upper rear door	Disable lasers and motors	2 interlock switches	no
Upper rear door	Right: enable motors Right and left together: enable motors and focus laser	2 bypass switches	yes
Rear panel	Disable lasers and motors	1 interlock switch	no
Left platesetter door	Disable lasers and motors	1 interlock switch	no
Right platesetter door	Disable lasers and motors	1 interlock switch	no

MCU Interlock Functions and Locations

Location on MCU	Function	Description	Serviceman Bypass
Left internal cover	Disable lasers and motors	2 laser interlock switches	no
Left internal cover	Enable motors	1 motor interlock switch	yes
Right internal cover	Disable lasers and motors	2 laser interlock switches	no
Right internal cover	Enable motors	1 motor interlock switch	yes
Upper door	Disable lasers and motors	2 laser interlock switches	no
Upper door	Enable motors	1 motor interlock switch	yes
Cassette trays	Disable motors	Motor magnetic interlock switch	no

WARNING: It may take up to two seconds for the laser interlock system to shut off the laser sources. Therefore, when opening a door, do not rush to access inside the platesetter.

DANGER: If a door or panel is open and an interlock switch is defeated, or if the interlock system failed, then severe mechanical hazards and visible and/or invisible laser radiation of up to several watts may be present. The laser radiation is hazardous to the eye and skin. Even brief exposure of the eye to this radiation or its reflection from shiny or matte objects can cause permanent degradation or permanent loss of eyesight.

Note: The write laser interlock system is equipped with a buzzer. If a failure is detected in the operation of the write laser interlock system, the buzzer is activated and the write laser is shut off. In any case, not every possible failure can be detected, especially failure of a single interlock switch.

WARNING: If the buzzer is activated, shut down the platesetter and do not operate it again until it has been checked and approved for operation by an authorized service engineer.

Warning Labels

The following pages show the warning labels and their locations.

Make sure that the warning labels are in good order; notify your service engineer if a label needs to be replaced.

Note: The machine supplied to you should have the warning labels provided in your local language.

WARNING: Notify your service engineer if your local language is not provided on the warning labels.

The warning labels are provided for user and service personnel safety. Do not fail to comply with the warnings.



Label 1: 382-00888A



Label 1: 382-00889A



Label 2: 382-00956A



Label 3: 382-01051A



Label 3: 382-01052A



Label 4: 382-01068A



Label 4: 382-01069A



Label 5: 382-00980A



Label 5: 382-00981A



Label 8: 382-00905A



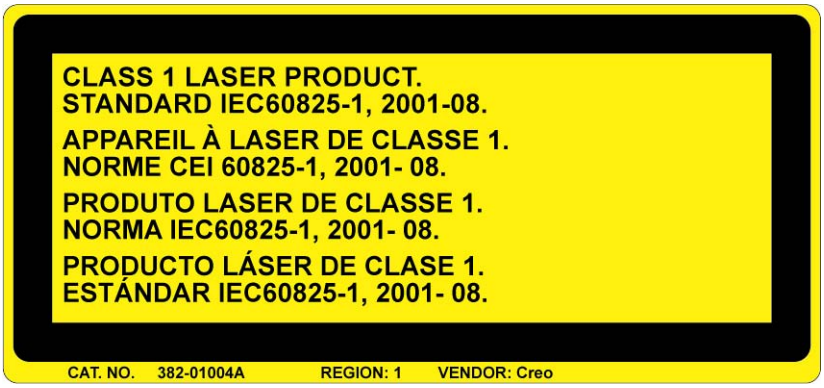
Label 8: 382-00906A



Label 10: 382-00939A



Label 10: 382-00940A



Label 12: 382-01004A



Label 16: 382-01016A



Label 19: 382-01028A



374A7B678



374A9C009



374A7B951



382-01209A

Magnus 400 Quantum Warning Label Locations

WARNING: Some of the figures show protective panels and internal covers removed. The operator is forbidden to dismantle any panel or cover that require a tool to do so.



Figure 7: Front view, doors open, panels removed, with loading tray

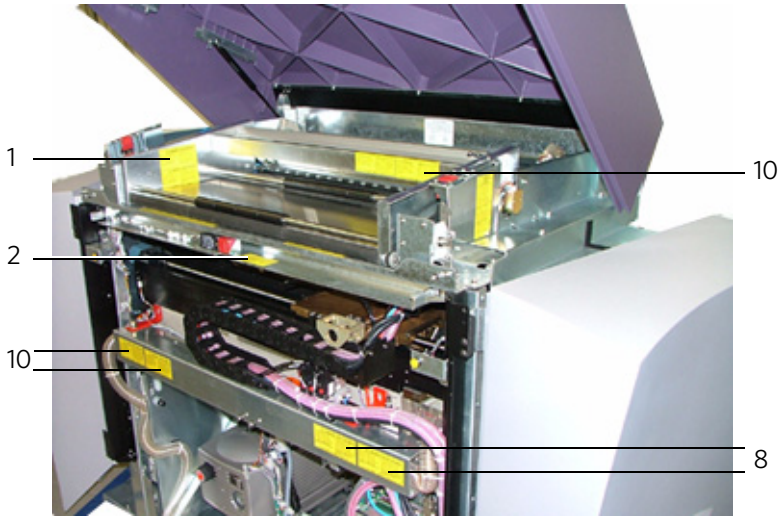


Figure 8: Rear view, upper door open, panels removed, with unloading tray



Figure 9: Rear view, panel closed

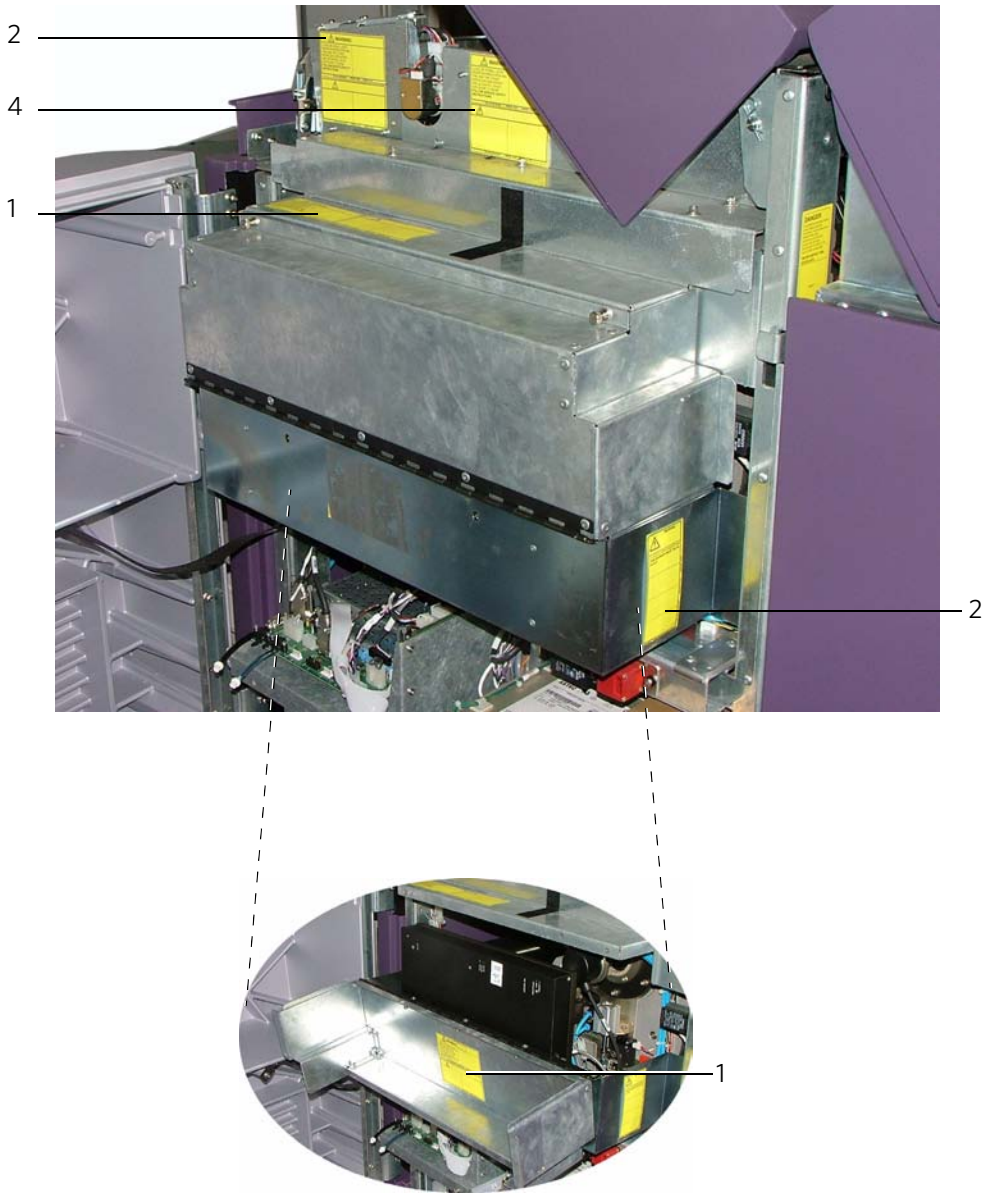


Figure 10: Left side door open

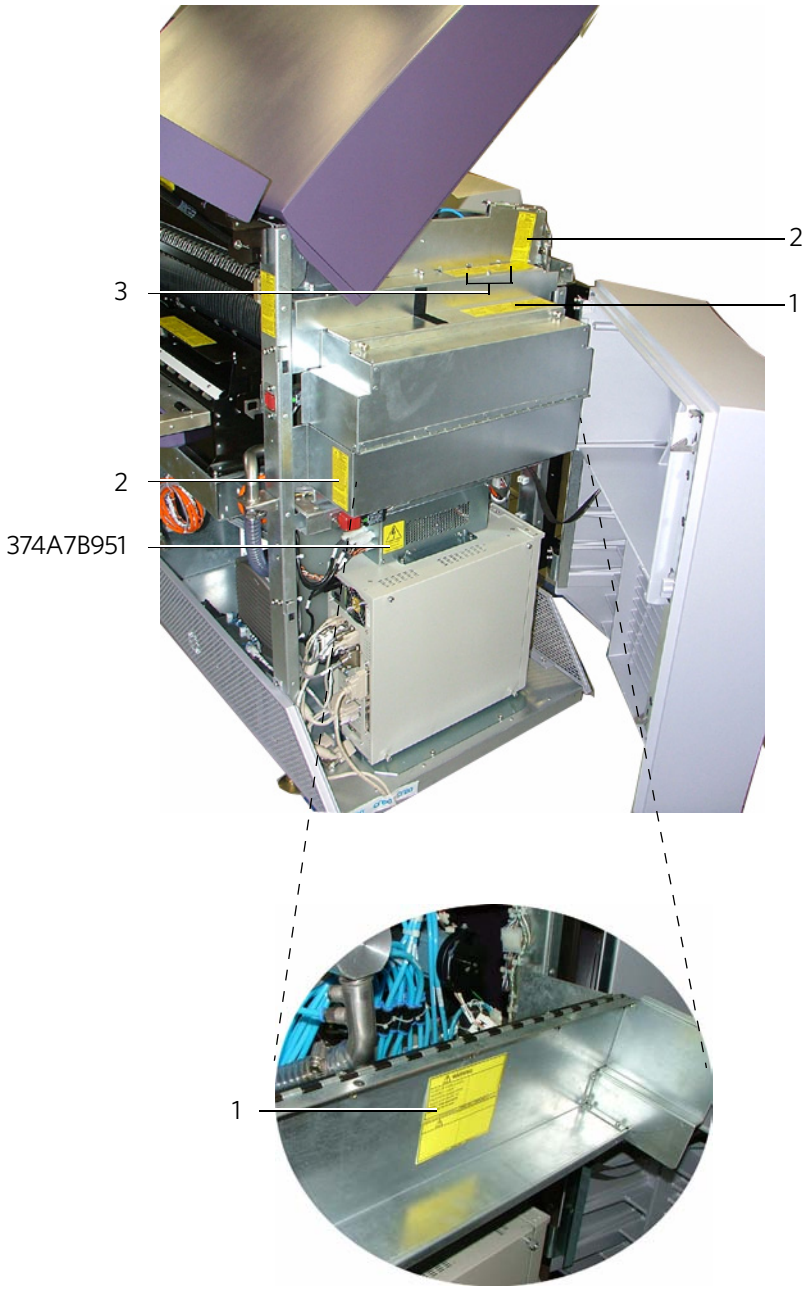


Figure 11: Right side door open

MCU Warning Label Locations



Figure 12: MCU right side door open

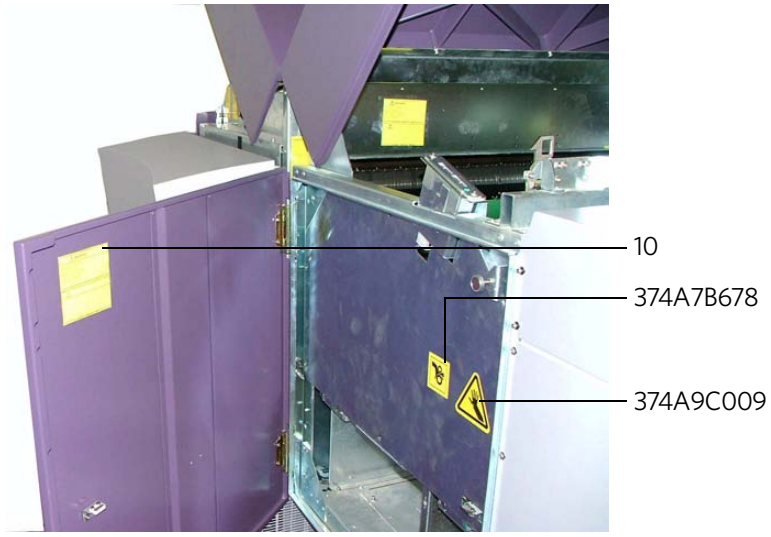


Figure 13: MCU left side door open



Figure 14: MCU right side view, right and upper doors open, right panel removed

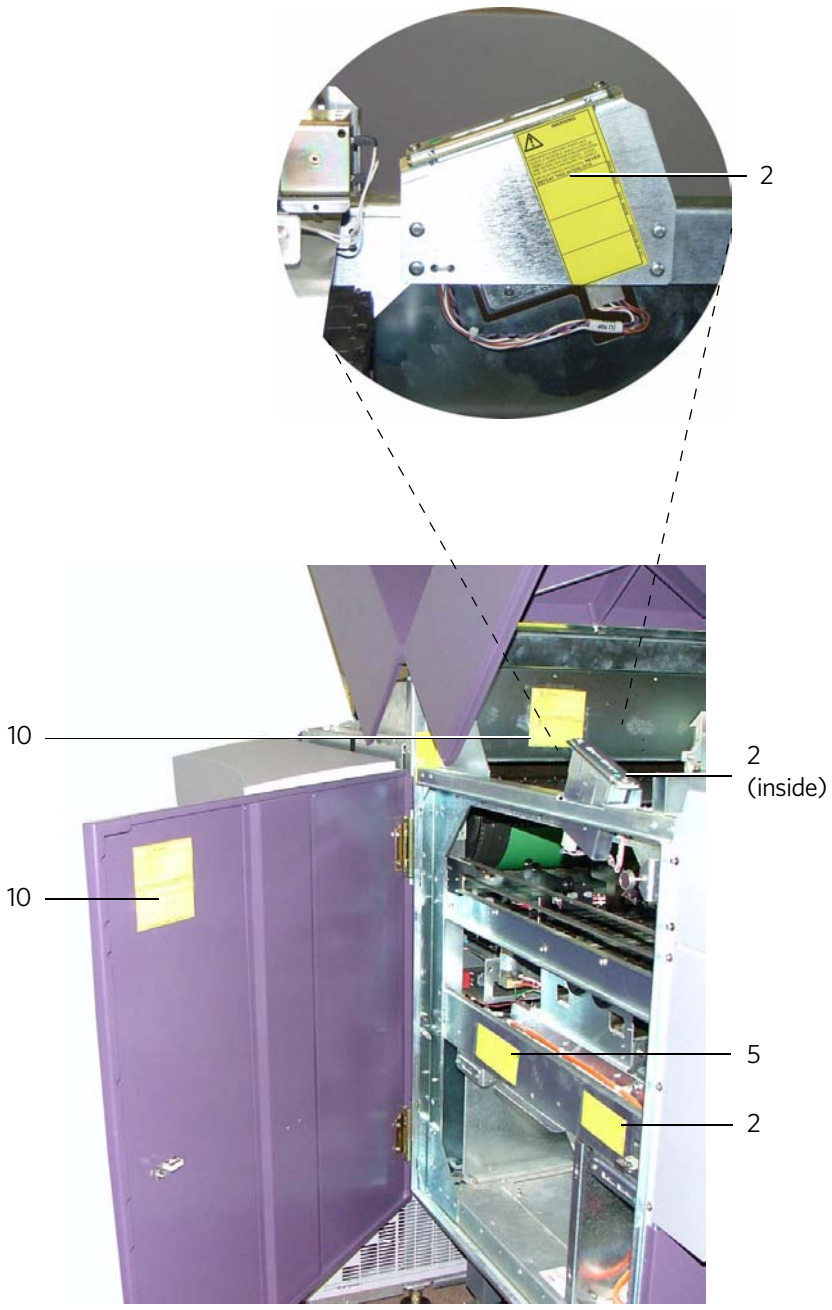


Figure 15: MCU, left side and upper doors open, internal left panel removed

Drum Safety Precautions

The Magnus 400 Quantum platesetter contains a drum that revolves inside the platesetter. The plates are loaded, wrapped onto the drum, exposed and unloaded.

The drum revolves normally at 450 revolutions per minute. If an object hits the rotating drum, the object may get dislodged inside the platesetter and cause damage (including damage to the safety system and laser head), or force the upper doors to open, or penetrate through the doors.

Opening the front, upper rear, and MCU upper doors is initiated from the Magnus 400 Controller software. This activates the solenoids that release the door locks, enabling the user to open the door. By this time, the drum must be almost stationary.



WARNING: If after a door is unlocked, it takes more than 3 seconds for the drum to become completely stationary, the machine must be repaired. Shut off the machine and call your service engineer.

Since serious personal injury to the operator, service engineer or anyone in the vicinity may occur by the revolving drum, the following precautions must be followed:



WARNING: Do not insert your fingers or hands anywhere near the drum, as they may get caught in the narrow gaps in the drum area.



WARNING: Be sure not to leave any object, tool or part inside or on the platesetter enclosure. If an object gets lodged, it may cause damage to the platesetter safety systems and endanger user and service personnel.



WARNING: You are forbidden, under any circumstances, to defeat any interlock switch.



WARNING: If the service engineer has defeated the drum interlock and a door is open, do not stand at any distance in front of the platesetter. Do not touch any moving part while it is in motion.



WARNING: If you need to open the cover to release stuck plates or other maintenance, remove any piece of clothing or object that may get caught in the revolving drum or other moving parts. Remove ties, roll up long sleeves, remove jewelry and gather long hair.

Universal Debris Removal Cabinet

The Universal Debris Removal Cabinet (UDRC) connected to the platesetter is part of the Magnus 400 Quantum configuration. The UDRC contains a filtering device that extracts dust, fumes, contaminants and solvent vapors that appear within the platesetter during normal operation and need to be removed.

The filter may be replaced only by the service engineer.



WARNING: The filtering device has been constructed according to recognized technical safety regulations. Nevertheless, danger to life of the user or third parties or damage to property can occur if the filter is not handled properly.

Fluid Cooling System

The platesetter is equipped with a cooling system which cools the laser thermal head. The system uses a water based coolant. The cooling system has no user serviceable parts. The cooling system is sealed and no coolant leakage should occur. If coolant leakage does occur, shut down the platesetter and call your service engineer.



DANGER: Electrical shock hazard and fire hazard if the cooling system leaks and the platesetter is not shut off.

Handling Plates



CAUTION: The plate edges are sharp so they should not be handled with bare hands. Wear gloves if you must handle the plate.



CAUTION: Do not touch the plate after it is placed in the MCU. Close the drawer and the drawer cover to enable automatic plate loading.

When ready to expose, the plate is automatically loaded. After expose, the plate is automatically unloaded from the plate exit at the rear side.



WARNING: Since the plate is automatically unloaded from the plate exit, be sure not to stand too close to this exit.



CAUTION: Be careful that your fingers do not get caught when closing the cassette drawer.

When working with the MCU, you may need to lift a box of 50 plates. The plates are heavy.



CAUTION: Make sure to lift the plates in a manner that will not cause injury to your back

Removing Stuck Plates

Special precautions are required when removing a plate that got stuck inside the platesetter.



WARNING: Before removing a plate, switch off the main power switch on the distribution box.



WARNING: Before removing a plate, remove objects or clothing that might get caught in the revolving drum or other moving parts, such as ties and jewelry. Fold long sleeves and gather long hair.

It is recommended to release the entire plate as one piece; do not attempt to cut the plate.

Electrical and Pneumatic Connections



WARNING: Do not change the power supply installed by the service engineer. Do not alter any electric wiring. Do not alter the pneumatic tubes.

Lithium Battery

The platesetter contains a Lithium battery. The battery cannot be replaced by the user. Only qualified service personnel are allowed to replace it.



WARNING: Danger of explosion if battery is incorrectly replaced.