Kodak

ThermoFlex Narrow and Mid II Hybrid
Platesetter

Safety Precautions for Service
English

731-01196A-EN Rev B

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Introduction

Read this safety guide carefully before installing, operating or servicing the Kodak® ThermoFlex® Hybrid platesetter.

Note: Unless otherwise specified, ThermoFlex Hybrid in this document refers to all ThermoFlex Narrow Hybrid and ThermoFlex Mid II Hybrid platesetters, including those with the magnetic drum or offset option.

Read the operator safety precautions for the ThermoFlex Hybrid, an indispensable part of the service engineer's precautions. See *ThermoFlex Narrow and Mid II Hybrid Platesetter Safety Precautions for Operator* (part number 731-01195A-EN.)

The ThermoFlex Hybrid platesetter is a Class 1 laser product, according to International Safety Standard IEC60825-1 and USA regulation 21 CFR 1040. This implies that the operator and service engineer cannot access hazardous laser radiation, providing that the operator and service safety precautions are followed.

Note: The front of the platesetter is the side from which you load and unload the media.



DANGER: This indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury. This does not alert you to a property damage accident unless personal injury risks are associated with the accident.



WARNING: This indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury. This does not alert you to a property damage accident unless personal injury risks are associated with the accident.



CAUTION: This indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. This may also alert you to unsafe practices or potential property-damage-only accidents.

Note: A note provides additional information that you may need to consider.



Figure 1: ThermoFlex Narrow Hybrid platesetter front view



Figure 2: Mid II Hybrid front view

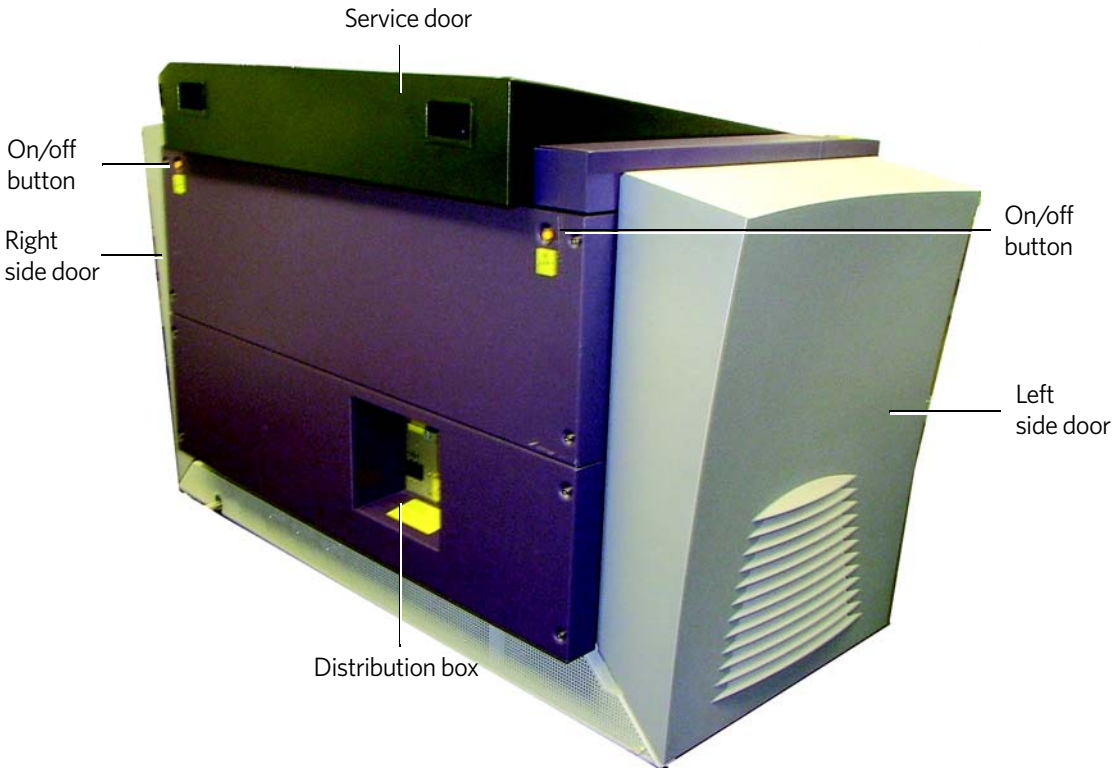


Figure 3: Mid II Hybrid platesetter rear view

General Safety Precautions

- Many service procedures can be performed when the entire platesetter or some of its assemblies are turned off. Whenever possible, perform service when the platesetter is off.
- When the platesetter is off, use the metal bar near the main power switch to prevent you or others from accidentally turning on the platesetter (see Figure 4 on page 8).
- You must not under any circumstances defeat a laser interlock.
- While taking appropriate precautions, you are allowed to defeat the motor interlock switches. Do so only when no alternative service option is possible.
- Two yellow On/Off buttons are located on the front panel, as shown in Figure 5 and Figure 6 on page 9. These buttons are *not* Emergency Stop buttons.



WARNING: When you push a yellow On/Off button or when you activate the main power circuit breaker, it takes the drum several minutes to stop rotating.

- If you have any doubt regarding the proper functioning of the laser interlock system, or whenever you suspect that the platesetter protective cover or barrier is broken, cracked, or otherwise damaged, you must turn the platesetter off and not turn it on again until it is checked and found to be OK.
- On ThermoFlex Mid II Hybrid, the opening of the loading table is controlled by a spring-loaded mechanism. When opening the loading table, make sure that your head is not near the loading table and that nobody is passing behind the platesetter.

Laser Safety at a Glance: Avoiding Exposure Hazards



WARNING: The laser beam and radiation are hazardous, but are invisible to the eye.

- Keep all external doors and internal protective barriers of the platesetter complete and undamaged.
- Never defeat the laser interlock switches. Defeat motor interlock switches only when necessary.
- If you need to handle an optical fiber or a laser diode, follow the specific service instructions for these components and handle them with extreme caution.
- Never cut or damage the protective tubing that covers the optical fibers.
- Never allow an optical fiber to extend from the laser box.
- Never leave any object between the optical head and the drum.
- Do not operate the platesetter if you have any doubt regarding the preceding points.

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

Follow the instructions in this document to ensure your safety and the safety of others when installing, operating, or servicing the platesetter.

Before Beginning Service

Never perform service on the platesetter until you take the following precautions:

- Post the following sign close to the keyboard and the platesetter: "CAUTION: Machine in service–do not operate." This sign will caution people not to operate the platesetter while it is being serviced.
- Remove any clothing or objects that could get caught in a moving part of the platesetter. For example, remove ties, roll up long sleeves, remove rings and bracelets, and gather long hair.
- Remove jewelry, wristwatches, and any reflective objects from your hands, wrists, and shirt. Use non-reflective tools. This reduces the risk of hazardous laser reflection in case of a failure in the laser interlock system or in a protective barrier.

Power and Electrical Elements

The following elements provide protection from electrical hazards:

- Electrical enclosures
- Doubly insulated wiring
- Grounding

Many service procedures can be performed when the entire platesetter or some of its assemblies are turned off. Whenever possible, perform service when the platesetter is off.



DANGER: Electronic boards and modules may have places and components at hazardous electrical voltage. Do not touch.

Electrical Enclosures

The electrical enclosures are grounded metal boxes that require a tool to open. These enclosures may have warning labels with the symbol of lightning in a triangular border (see label 374A7B951).



DANGER: Electrification hazard: The electrical circuits are located inside protective electrical enclosures that require a tool to open. The electrical hazards are *not* removed by the interlock system.

Doubly Insulated Wiring

Wires that carry hazardous voltages have double insulation.



WARNING: Wires may be singly insulated near connectors. Do not touch singly insulated wires.

Grounding

The device must be grounded.



DANGER: There is a hazard of fatal electric shock if a safety ground is not provided!



WARNING: Do not alter the internal grounding means.

Installation



WARNING: Only qualified service personnel are allowed to install or service the ThermoFlex Hybrid platesetter.

These technicians are trained in the proper procedures for working with, and adjusting the laser system, and working with the mechanical and electrical systems of the platesetter.

Electrical Connections

Power Line

The total power consumed by the system is determined by the selected system configuration. Remember to allow sufficient margin for system expansion when calculating the required electrical capacity. Prior to connecting the electrical power supply, ensure that all voltage settings, fuses, and cords are in full accordance with local standards.

The dedicated branch circuit for the main power of the following components must be supplied from the same AC supply panel to ensure that both branch circuits are at the same ground potential:

- Output device
- Workstation
- Debris removal
- External venting

Platesetter Connections



WARNING: The E-box fuse holder incorporates double pole fusing (L1, L2 or L1, neutral).



WARNING: A certified electrician should perform all power connections, including the connection of the transformer that is supplied by Kodak and connections inside this transformer.

Two configurations are available for the ThermoFlex Narrow Hybrid platesetter:

- **60 Hz power output:** Line voltage must be 208 V AC (±6%) 60 Hz 1.5%
- **50 Hz power output:** Line voltage must be 200–240 V AC 50 Hz 1.5%

Two configurations are available for the ThermoFlex Mid II Hybrid platesetter:

- **60 Hz power output:** Line voltage must be 3 x 120 V AC (±6%) 60 Hz 1.5%
- **50 Hz power output:** Line voltage must be 3 x 200–240 V AC 50 Hz 1.5%

  Note: To transform the voltage to 3 x 120 V AC, a transformer (supplied by Kodak) is added to the configuration.

Note: For Norway only, equipment is suitable for use on an IT power system, which must include the external transformer as part of the entire system.

Transformer

For ThermoFlex Mid II Hybrid, Kodak supplies a step-down transformer (PN 160-00012A). The transformer contains 4-V AC tapings:

- 346/200
- 380/220
- 400/230
- 416/240

Select the relevant taping according to the line voltage that is measured at the customer site.

The output voltage of the transformer is 208/120 V AC (3 phase) + neutral + ground.

To protect the transformer, a 3-pole circuit breaker must be provided in the power line that feeds the transformer. The circuit breaker must be rated 10 KA IEC 947.2, 230/400 V AC, 16 A, tripping curve D or K.

Power Cord Plug

The plug on the power cord of the ThermoFlex Hybrid output device is:

- **Narrow**: 2-pole, 3-wire, 250 V, 32 A, 6 o'clock (6 o'clock orientation of the ground connection) plug
- **Mid II**: NEMA 3-pole + N + PE, 5-wire, 250 V, 30 A plug (supplied with the device)

Debris Removal Cabinet Power

For the Universal Debris Removal Cabinet (UDRC) electrical requirements, see the *UDRC Site Preparation and Requirements* document (725-00089A).

Power-Line Disturbances

The reliable operation of computer systems depends on the availability of relatively noise-free AC power.

Lighting, line faults, or power switching, commonly found in machinery or equipment in office or factory environments, can generate line transients which far exceed the peak value of the applied voltage. If not attenuated, these microsecond pulses can disrupt system operation. The power line to the machine should be run away from electrically noisy power cables. If power line disturbances affect the operation of the machine, the use of a power stabilizer is highly recommended. Dips in power should not exceed 30% of nominal voltage, having maximal duration of 10 ms. Fast transient disturbances on the power line should not exceed 1.0 kV.

Disconnecting From the Main Power Supply

The platesetter is equipped with circuit breakers (switches) that disconnect power from the entire platesetter, or from one of its systems.

Description	Location
Main power circuit breaker	Distribution box
Drum motor power circuit breaker	Distribution box
Drum vacuum pump power circuit breaker	Distribution box
Laser Box (L-box) power circuit breaker	L-box cover (inside the platesetter)
Electronics Box (E-box) power circuit breaker	E-box cover (inside the platesetter)
On/Off buttons	• Narrow Hybrid: Front panel • Mid II Hybrid: Upper-rear panel

.

WARNING: Do not use the On/Off buttons to disconnect power for service purposes, because the On/Off buttons do not completely disconnect the power.

WARNING: To totally disconnect from the main power supply, you must set the main power circuit breaker to **0**, or unplug the main power cable from the main power supply outlet.

Use the metal bar near the main power circuit breaker to prevent you or others from accidentally turning on the power.

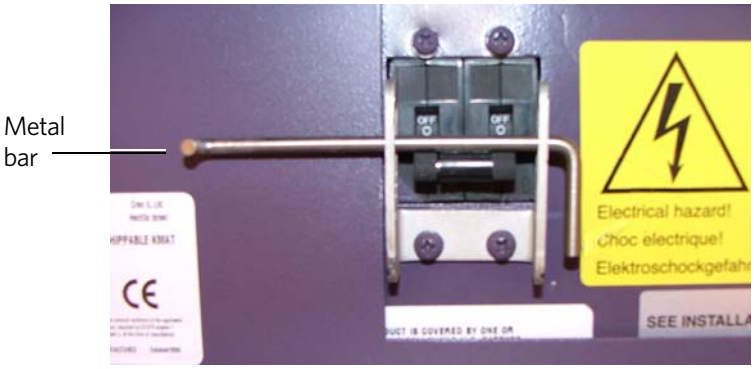


Figure 4: Metal bar used to keep the main power circuit breaker off



Figure 5: Main power circuit breaker and On/Off buttons on Mid II rear panels

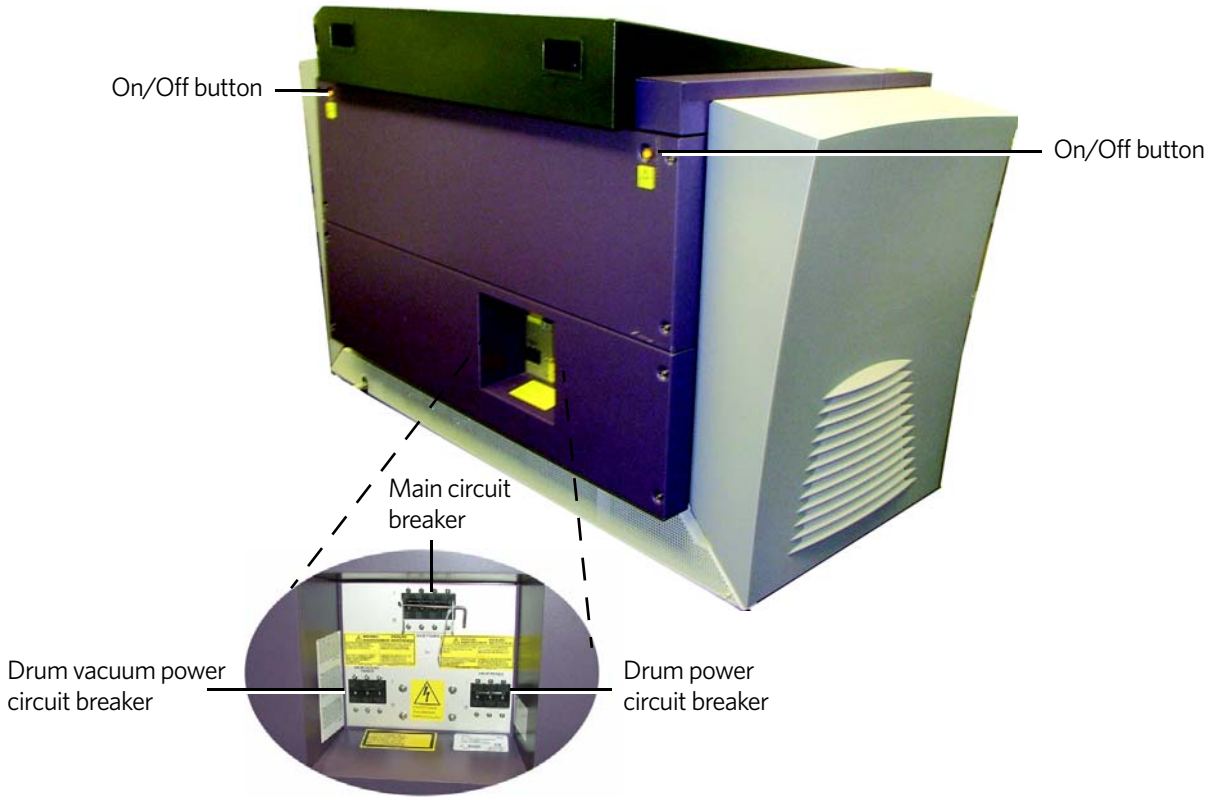


Figure 6: Main power circuit breaker and On/Off buttons on Narrow front panel



Figure 7: L-box power circuit breaker



Figure 8: E-box power circuit breaker

Precautions to take when servicing boards or power supply:

- Turn off the power by first pressing one of the yellow On/Off buttons, and then setting the main power **circuit breaker** on the distribution box to **0**.
- Use the metal bar near the main **circuit breaker** to prevent you or others from accidentally turning on the power.

Lithium Battery

The platesetter CPU board contains a lithium battery. Only qualified service personnel should replace the battery. Operators may not replace the battery.



WARNING: There is danger of explosion if the battery is incorrectly replaced.

Precautions to take when replacing the battery:

Important: You must observe *all* safety precautions in this document when installing or servicing the ThermoFlex Hybrid platesetter. *In addition* to all other precautions mentioned in this document, you must observe the following task-specific precautions.

- Turn off the power by setting the main power **circuit breaker** on the distribution box to **0**.
- Use the metal bar near the main power **circuit breaker** to prevent you from accidentally turning on the power.
- Follow the battery manufacturer's instructions.
- Replace the battery with the same or an equivalent type recommended by the manufacturer.
- Never short the battery terminals.
- Install the new battery in the correct polarity.
- Dispose of the used battery according to the manufacturer's instructions.

Laser Elements



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, it is a Class 1 laser product, according to International Safety Standard IEC60825-1 and USA regulation 21 CFR 1040. This means that the operator cannot access hazardous laser radiation, providing that the user and service safety precautions are followed.

The following platesetter components conduct the laser energy:

- Laser box and laser diodes
- Optical fibers
- Laser head

The following elements provide protection from the laser energy:

- Platesetter enclosures
- Interlocks
- Warning labels



WARNING: The laser beam and radiation of the platesetter are invisible and are hazardous to the eyes and skin. Even brief exposure of the eyes to the laser radiation or beam, or its reflections from shiny or matte objects may cause permanent degradation or permanent loss of eyesight.



WARNING: In the presence of flammable material, the laser beam is also a fire hazard.



WARNING: Whenever in doubt, do not operate the platesetter until you have checked and repaired it.



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 were somehow violated, then you must disconnect the power supply to the platesetter before entering the room.

Laser Box

The laser box that is located behind the side door of the platesetter contains the laser diodes that generate the hazardous laser radiation. Each laser diode is connected to an optical fiber that conducts the laser radiation. The fibers form a bundle that is contained inside a plastic tube and routed out of the laser box and toward the laser head.



WARNING: After performing any service activity and before turning on the platesetter, you must check and ensure that all the laser fibers are properly connected and routed, and that no optical fibers emerge from the laser box, or from the plastic tube. When closing the laser box door, make sure you do not damage any of the fibers.



WARNING: If an optical fiber is damaged or cut inside or outside the platesetter, even when the doors are closed, invisible laser radiation of up to several hundred milliwatts at a wavelength of from 810 to 860 nanometers may radiate outside the platesetter through the side door openings or other openings. This laser radiation is hazardous to the eyes 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**.



WARNING: Never activate the platesetter when the laser box is not in its proper location, and the laser box door closed and properly fastened.



CAUTION: Always use the static electricity discharge tool before performing service inside the laser box or working with the laser diodes. The static electricity discharge tool is located inside the laser box.

Precautions to take when servicing the laser box or replacing a faulty laser diode:

Important: You must observe *all* safety precautions in this document when installing or servicing the ThermoFlex Hybrid platesetter. *In addition* to all other precautions mentioned in this document, you must observe the following task-specific precautions.

- Turn off the power to the platesetter by setting the main power circuit breaker on the distribution box to **0**. Use the metal bar to secure the main power circuit breaker in off position.
- As an additional safety precaution, always keep the side door open to keep the interlock disconnected while handling the laser box or diodes.
- Always use the static electricity discharge tool (located inside the laser box) before servicing inside the laser box or working with the laser diodes.
- If you need to handle an optical fiber or a laser diode, follow the specific service instructions for these components and handle them with extreme caution.
- Do not cut or damage the plastic tubing that covers the optical fibers.
- When closing the laser box door, make sure you do not damage any of the fibers.

- Before operating the platesetter, verify that all optical fibers are complete, not cut or broken, and not abruptly bent. Make sure that no optical fiber emerges from the laser box or from the plastic tubing.
- If you replaced a faulty laser diode, be sure to correctly place the protective shrink tube. It must be centered over the fused area and overlap the shielded fibers at both ends. When reinstalling the replaced diode, be sure to place the protective shrink tube horizontally inside the bracket and secure the bracket properly.

Optical Fibers

Laser energy is generated in the laser diodes that are located in the laser box and conducted to the plotting head through optical fibers, which are contained in plastic tubing. Up to 1 watt of invisible laser radiation at a wavelength of from 810 to 860 nanometers may be conducted in each fiber. This laser radiation is hazardous to the eyes and skin.



DANGER: If the platesetter is on and an optical fiber extends from the laser box or protective tubing, or is broken inside the protective tubing, or if a fiber is damaged inside or outside the platesetter, and even when the doors are closed, invisible laser radiation of up to 1 watt at a wavelength of from 810 to 860 nanometers may be present. Even brief exposure of the eyes to this radiation or its reflection from shiny or matte objects can cause permanent degradation or permanent loss of eyesight.

Precautions to take when handling the optical fiber bundle:

Important: You must observe *all* safety precautions in this document when installing or servicing the ThermoFlex Hybrid platesetter. *In addition* to all other precautions mentioned in this document, you must observe the following task-specific precautions.

- Turn off the power to the platesetter by setting the main power circuit breaker on the distribution box to **0**. Use the metal bar to secure the main power circuit breaker in off position.
- As an additional safety precaution, always keep the side door open to keep the interlock disconnected while handling the laser box or diodes.
- Ensure that all optical fibers are complete, not cut or broken, and not abruptly bent.
- If you need to handle an optical fiber or a laser diode, follow the specific service instructions for these components and do so with extreme caution.
- Do not cut or damage the optical fibers' plastic tubing.
- Never allow an optical fiber, even if not cut, to extend from the plastic tubing.
- Never allow an optical fiber to extend from the laser box, nor from the outer enclosure.

Laser Head

The optical fibers conduct the laser energy in the platesetter from the laser box to the laser head.



DANGER: The laser head must never be activated if it is removed from its position on the carriage. In addition, the laser head must never be activated when it is not in its proper position facing the drum, and with all the internal protective barriers assembled and all the doors closed.



DANGER: Up to several tens of watts of invisible laser radiation at a wavelength of from 810 to 860 nanometers may be present at the output of the laser head. This laser radiation is hazardous to the eye and skin. Even brief exposure of the eye to this radiation or to its reflection from shiny or matte objects can cause permanent degradation or permanent loss of eyesight.



WARNING: Never place any object in the path of the laser beam between the laser head and the drum.

Precautions to take when servicing the laser head:

Important: You must observe *all* safety precautions in this document when installing or servicing the ThermoFlex Hybrid platesetter. *In addition* to all other precautions mentioned in this document, you must observe the following task-specific precautions.

- Turn off the power to the platesetter by setting the main power circuit breaker on the distribution box to **0**. Use the metal bar to secure the main power circuit breaker in off position.
- As an additional safety precaution, always keep the door with an interlock open while handling the laser head to ensure that no laser radiation is present and that no mechanical movement can occur.

Enclosures

Together with the laser interlock system, the platesetter enclosures are designed to protect anyone near the platesetter from exposure to laser radiation by enclosing the laser radiation within the platesetter. The enclosures include the external doors and panels and the internal protective barriers.

The internal protective barriers prevent the laser radiation from escaping through the loading/unloading openings, and the ventilation openings on the side doors and panels. This protection depends upon the completeness and correct assembly of the outer enclosure and the internal protective barriers.



DANGER: If the platesetter is turned on and the enclosure is damaged or incomplete, even with the external doors closed, invisible laser radiation of up to several watts may be present. This radiation is hazardous to the eyes 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**.



WARNING: After performing any service activity and before turning 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.



WARNING: It takes up to three seconds for the laser interlock system to shut off the laser sources. Therefore, when opening a door or a panel, do not rush to access inside the platesetter.



CAUTION: A spring-loaded mechanism controls the opening of the top door. Make sure your head is not near the door when opening it.

Safety Interlocks

Interlock switches disconnect power from all laser sources and from mechanically hazardous parts when an interlocked platesetter door is open or an interlocked panel is removed.



DANGER: The service engineer must not under any circumstances defeat any of the laser interlock switches.

The interlocked doors and panels are listed in the table below. Also listed is the mechanical motors interlock defeat switch. When the motors interlock defeat switch is activated, the motors interlock is defeated.

Note: The drum does not rotate when the motors interlock defeat switch is activated.

Table 1: Laser/Motor Interlock Locations

Platesetter Enclosure	Number of Laser/Motor Interlock Switches	Notes
Narrow		
Top door	1	On the left side of the top door is an additional, defeatable motor interlock switch.
Front panel	1	
Rear panel	1	
Left door	1	
Right door	1	
Mid II		
Loading table	1	The clutch motor is enabled when the loading table is open.
Front panel	2	
Left door	1	
Right door	1	
Service door	2	There is an additional motor interlock defeat switch.
Upper rear panel	1	
Lower rear panel	1	

Motor Interlocks

The service engineer may activate the mechanical motor interlock defeat switch only after taking appropriate safety measures.

Important: If you must defeat the motor interlock, use only the dedicated defeater (part number 290B2P411) that is supplied for ThermoFlex Hybrid service. Use of any other interlock defeater is unsafe and forbidden.

Laser Interlocks



DANGER: The service engineer must not under any circumstances defeat any of the laser interlock switches.



DANGER: If a door or panel is open and if any of the laser interlock switches is defeated, or the interlock system fails, then severe mechanical hazards and invisible laser radiation of up to 1 watt at a wavelength of from 810 to 860 nanometers may be present in each of the optical fibers, and up to several watts at the output of the optical head (between the optical head and drum). The laser radiation is hazardous to the eyes 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.



WARNING: It takes up to three seconds for the laser interlock system to turn off the laser sources. Therefore, when opening a door or a panel, do not rush to access inside the platesetter.



WARNING: If there is any doubt regarding the proper function of the laser interlock system, or if you suspect that the platesetter protective cover or barrier is broken, cracked, or otherwise damaged, turn off the platesetter. Do not turn the platesetter on until you check and fix the problem.

The laser interlock system is equipped with a buzzer. If a failure is detected in the operation of the laser interlock system, the buzzer is activated and the laser is shut off. However, not every possible failure in the interlock system can be detected.



WARNING: If the buzzer is activated, shut the platesetter off and do not operate it again until you have checked it and approved it for operation.

Drum

The ThermoFlex Hybrid platesetter drum revolves inside the platesetter. You load and unload the plates manually. Special safety precautions prevent rotation of the drum while the user is loading or unloading media. These precautions include solenoids and the interlock system. When a door is open or an interlocked panel removed, an electromechanical relay, driven by the laser interlock switch, cuts the power to the drum motor.



WARNING: When you open the top door from the ThermoFlex Controller software, the solenoids that lock the door are released. You can then open the door on the platesetter. By this time, the drum must be almost stationary. If, after the door is unlocked, it takes more than five seconds for the drum to become stop revolving, you must check and repair the platesetter.

The drum revolves at approximately 500 revolutions per minute. If an object hits the rotating drum, the object may damage the safety system, optical head, or optical fibers, or force the top door to open, or penetrate the platesetter enclosures.

Since serious personal injury to the operator, service engineer or anyone in the vicinity may occur if an object touches the revolving drum, the following precautions must be observed.

Precautions to take when accessing the drum area:

Important: You must observe *all* safety precautions in this document when installing or servicing the ThermoFlex Hybrid platesetter. *In addition* to all other precautions mentioned in this document, you must observe the following task-specific precautions.

- Be sure not to leave any object, tool, or part inside or on the platesetter enclosure. The object may get caught in the revolving drum or other moving parts, penetrate the enclosure, and injure a person standing nearby.
- Because of the potential danger of loose parts inside the platesetter, be sure to replace, reconnect, or adjust any drum component exactly according to the correct procedure.
- Before performing any service task, remove any piece of clothing or object that could get caught in the revolving drum or other moving parts. Remove ties, roll up long sleeves, remove jewelry, and gather long hair.
- If you must insert your fingers or hands anywhere near the drum, take care not to get them caught in the narrow gaps in the drum area.

Magnetic Drum Option

The magnetic drum has a strong magnetic force that enables plates to stay attached to the revolving drum.



DANGER: If you have a heart pacemaker, do not install, maintain, service, or operate the ThermoFlex Hybrid platesetter with magnetic drum option.



WARNING: Make sure that no parts or tools become attached to the drum by the magnetic force.



CAUTION: Beware of the strong magnetic field. Remove your wristwatch and any other metal objects before getting close to the drum.

Universal Debris Removal Cabinet

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



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



WARNING: Read the *Safety* chapter of the *Universal Debris Removal Cabinet Operator Guide* (731-00103).

Remote Support

To provide remote support, the remote response center can remotely control the platesetter. If an interlock is defeated while the platesetter is operated from a remote location, the service engineer or a Kodak-certified operator on site may be exposed to hazardous motor and/or focus laser radiation. Therefore, it is important to coordinate remote support between the remote response center and the service engineer or Kodak-certified operator.

Although the platesetter can be operated via a remote location under any of the following three conditions, the first method is considered unsafe and is forbidden:

- Doors, panels, or hoods that have no interlocks are open. This is an unsafe method of remotely operating the platesetter, and you must avoid it.



WARNING: It is strictly forbidden to remotely operate the platesetter if any doors, panels, or hoods of the platesetter (or the Magnus™ 400 MCU, including Quantum) that have no interlocks are open.

- All doors, panels, and hoods of the platesetter (or Magnus 400 MCU, including Quantum) are closed. This is the safest method of remotely operating the platesetter.
- Doors, panels, and hoods that have interlocks are open and the mechanical interlock is defeated only by the service engineer or by the Kodak-certified operator. This is a potentially unsafe method of remotely operating the platesetter, and it should be employed only when strictly adhering to all information and warnings in the following remote support-related sections:



WARNING: The remote response center must contact the local site by telephone before beginning to operate the platesetter from a remote location.

Interlock Defeat Permissions

	Write laser interlock defeat	Focus laser interlock defeat	Mechanical interlock defeat
Service engineer	Not allowed	Allowed	Allowed
Kodak-certified operator	Not allowed	Not allowed	Allowed
Operator	Not allowed	Not allowed	Not allowed

Note: ThermoFlex Hybrid platesetters contain only "write" lasers, and do not contain focus lasers.



WARNING: Only a service engineer or a Kodak-certified operator who has undergone specialist training regarding safety interlocks is permitted to defeat the mechanical interlock (by inserting *one* red, rectangular dedicated defeater into the platesetter's mechanical defeater switch).



WARNING: Only a service engineer, located on the site, is allowed to defeat the focus laser interlock, while adhering to service safety instructions.



WARNING: No one is allowed to defeat the write laser interlock.

Activating Remote Control

The response center must request permission from the local site before the platesetter can be remotely operated.
The following request message appears on the local monitor (at the site):

```
Machine Name\User Name is requesting to control your session
remotely. Do you accept the request?
```

The request message has a time-out of 30 seconds. If the service engineer or Kodak-certified operator does not accept the request within 30 seconds, it is automatically canceled.

WARNING: Before accepting a request message to operate the platesetter from a remote location, the service engineer and/or Kodak-certified operator must make sure of the following:

- No person can be potentially exposed to either mechanical or laser hazards.
- Constant telephone contact is maintained between the remote response center and the service engineer or Kodak-certified operator.

WARNING: Never defeat the laser interlock.

Terminating Remote Control

Remote control of the platesetter can be terminated (disconnected) by any of the following methods:

- By pressing an Emergency Stop button (if one exists on the platesetter)
- By removing the red rectangular dedicated defeater from the platesetter's mechanical defeater switch
- By pressing the stop motors button or one of the two On/Off yellow buttons (if either of these exist on the platesetter).
- By turning the main power circuit breaker to off
- Via the remote response center's computer
- Via the local computer by double-clicking the remote support icon on the local desktop and confirming that you want to terminate the session by clicking **Yes**



Offset-Specific Information

Introduction

ThermoFlex Hybrid platesetters with offset option image both offset and flexo plates.

Note: The term "offset plates" refers to aluminum plates.

This section describes the differences that are unique to the ThermoFlex Hybrid platesetter with Offset option. The differences relate to the following components:

- Registration pins
- Registration pin holder (with interlock)
- Side-to-side optical detector
- Laser head position
- Plate loading and unloading roller

For more detailed information about the offset option, see the *ThermoFlex Narrow and Mid II Hybrid Platesetter Safety Precautions for Operators* (731-01195A).



WARNING: Never attempt to operate the platesetter if any registration pins are missing from the pin holder. If a pin flies off the rotating drum or collides with the laser head, it can cause mechanical damage and therefor create laser and mechanical hazards.

The ThermoFlex Hybrid platesetter with offset option has numerous safety mechanisms to help ensure that registration pins will not damage the platesetter and potentially injure the operator. These precautions include:

- The registration pin holder is connected to the mechanical interlock system.
- The registration pin holder is magnetically stabilized so that the platesetter's vibrations will not cause the pins to loosen.
- The side-to-side detector detects whether a pin is in the drum.
- The registration pins are large enough so that if one of them falls into the front of the platesetter (or the rear of the ThermoFlex Mid II Hybrid), the pin cannot become stuck in any opening of less than three centimeters.
- You must retrieve any pin that falls into the platesetter.



WARNING: If a pin falls into the platesetter, you must retrieve it, verify that there is no damage to the platesetter or pin, and return the pin to the pin holder.



WARNING: If you find any damage or suspect any damage to the platesetter or to the registration pin, do not operate the platesetter until you have repaired the damage.



WARNING: If a pin falls into the rear of the ThermoFlex Narrow Hybrid, only the service engineer may remove the rear panel and retrieve the pin.

- For customers' safety, Kodak does not supply spare registration pins.

- The laser head moves to home position upon startup, and when the ThemoFlex Narrow Hybrid top door or the ThermoFlex Mid II Hybrid loading table or service door is opened.

Despite these precautions, before you close the top door or loading table, it is imperative to visually confirm that no registration pin remains in the drum.

Laser Head Position

The ThermoFlex Hybrid platesetter with Offset option automatically moves the laser head to home position upon start-up and upon opening the ThemoFlex Narrow Hybrid top door or the ThermoFlex Mid II Hybrid loading table or service door. This is to prevent damage to the platesetter as a result of registration pins being left in the drum and colliding with the laser head.

Note: Do not click the **Preventive Maintenance** button in the ThermoFlex Controller software to check the laser head position. The **Preventive Maintenance** button opens the service door, but the laser head moves to the center position.



WARNING: When you open the service door, if the laser head is not in home position, mechanical and potential class 4 laser radiation hazards may be present due to the possibility of registration pins in the drum hitting laser or mechanical or safety parts. There is danger to your personal safety and to the platesetter. Turn off the platesetter and do not operate it until you repair it.

Plate Roller

A plate roller is used to make the plate adhere to the drum. A roller knob operates the lever, and the lever moves the roller onto the drum.

Closing the Narrow Hybrid top cover or the Mid II Hybrid loading table automatically moves the plate roller away from the drum. If the plate roller does not move away from the drum, damage to mechanical, laser, or safety-related parts may occur.



Figure 9: Narrow Hybrid plate roller, roller lever and roller knob

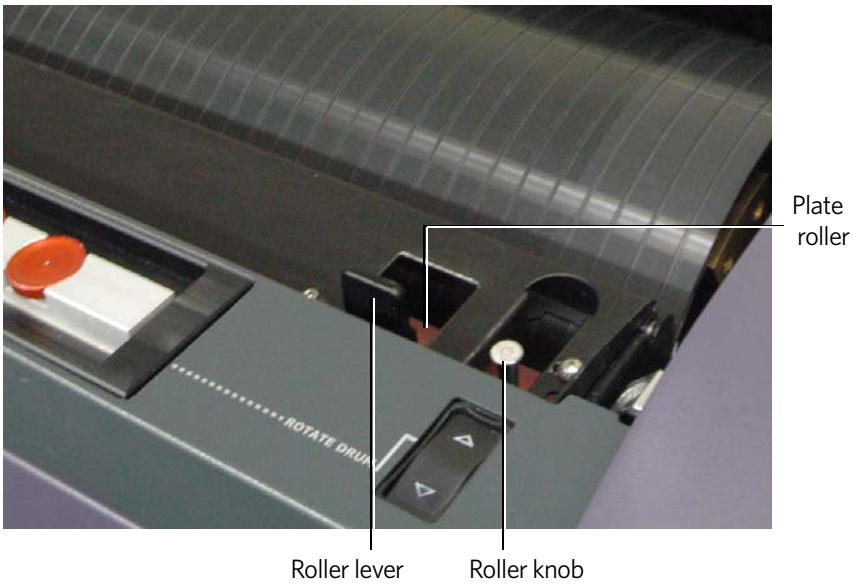


Figure 10: Mid II Hybrid roller lever, roller knob and plate roller in the default positions

WARNING: Laser and mechanical hazards may be present if the roller lever or roller knob do not function and the roller does not disengage from the drum. If you see any damage or suspect any damage to these parts or to the screws that secure them, do not operate the platesetter until you have repaired it.

Summary of Offset-Related Safety Precautions

- When you open the service door, the laser head must be in home position.
- No registration pins may remain in the drum after you load the plate.
- No registration pins may be missing from the registration pin holder when you operate the platesetter.
- The plate roller knob and lever must be in good condition and the fastening screws firmly in place. The roller must move away from the drum as the Narrow Hybrid top door or the Mid II Hybrid loading table is closed.

Warning Labels and Their Locations

WARNING: The warning labels are provided for operator and service personnel safety. Always comply with the warnings.

The following pages show the laser and other warning labels, and their locations on the ThermoFlex Narrow Hybrid and the ThermoFlex Mid II Hybrid.

Make sure that the warning labels are in good condition.

Note: When a language other than English is spoken at the site, the service engineer should attach the translated labels (supplied with the platesetter) in the relevant locations.

Warning Labels



Label 1: 382-00888A



Label 1: 382-00889A



Label 2: 382-00956A



Label 5: 382-00980A



Label 5: 382-00981A



Label 8: 382-00905A



Label 8: 382-00906A



Label 9: 382-00922A



Label 9: 382-00923A



Label 10: 382-00939A



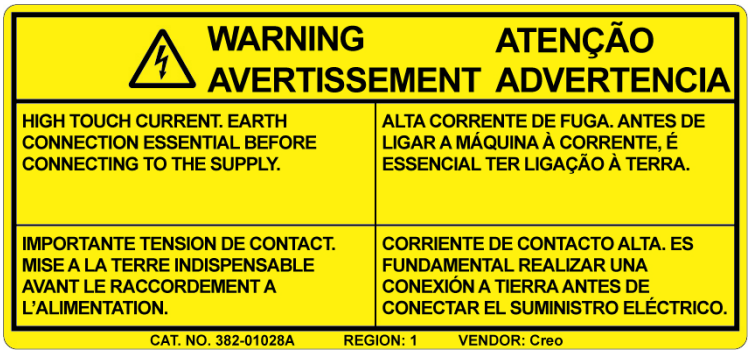
Label 10: 382-00940A



Label 12: 382-01285A



Label 16: 382-01016A



Label 19: 382-01028A



374A7B951 (374A30170)



382-01146A



374A6B678 (Mid II only)



382-01210A (Mid II only)



Figure 11: 382-01209A



Figure 12: 374A9C009

Magnetic Drum Option Label

The following label is unique to the ThermoFlex Hybrid With Magnetic Drum Option. It indicates that a magnetic field exists and that you must observe the relevant precautions.

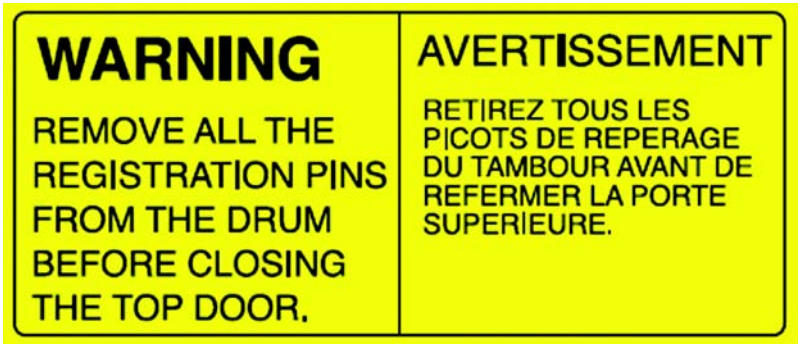


382-00744A

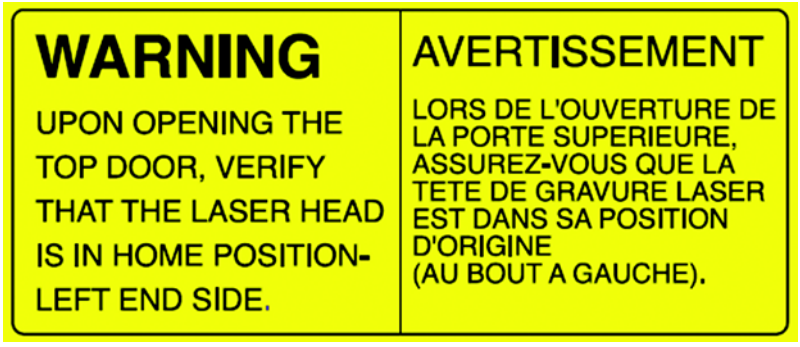
Offset Option Labels

The following three labels are unique to the ThermoFlex Hybrid With Offset Option.

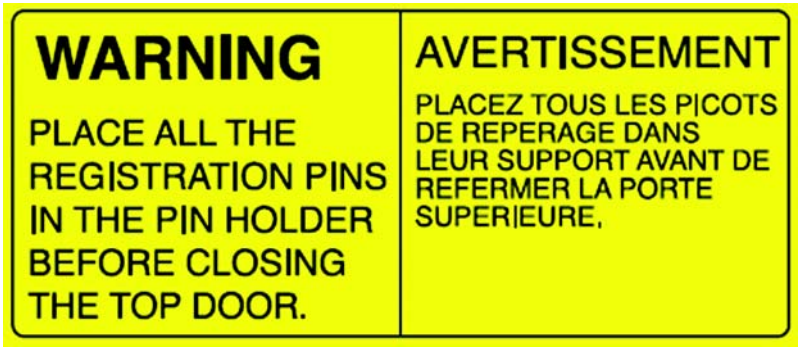
Note: The English and French versions of the labels are shown next as examples, but labels are provided in the language of the country in which the platesetter is installed.



382-01513A



382-01514A



382-01515A

Warning Label Locations

See the following figures for locations of warning labels on the ThermoFlex Hybrid platesetter.

Make sure that all warning labels are in good condition; renew warning labels if needed.

Note: When a language other than English is spoken at the site, the service engineer should attach the translated labels (supplied with the platesetter) in the relevant locations.

ThermoFlex Narrow Hybrid Label Locations



Figure 13: Narrow Hybrid with top door, front panel, and side doors closed

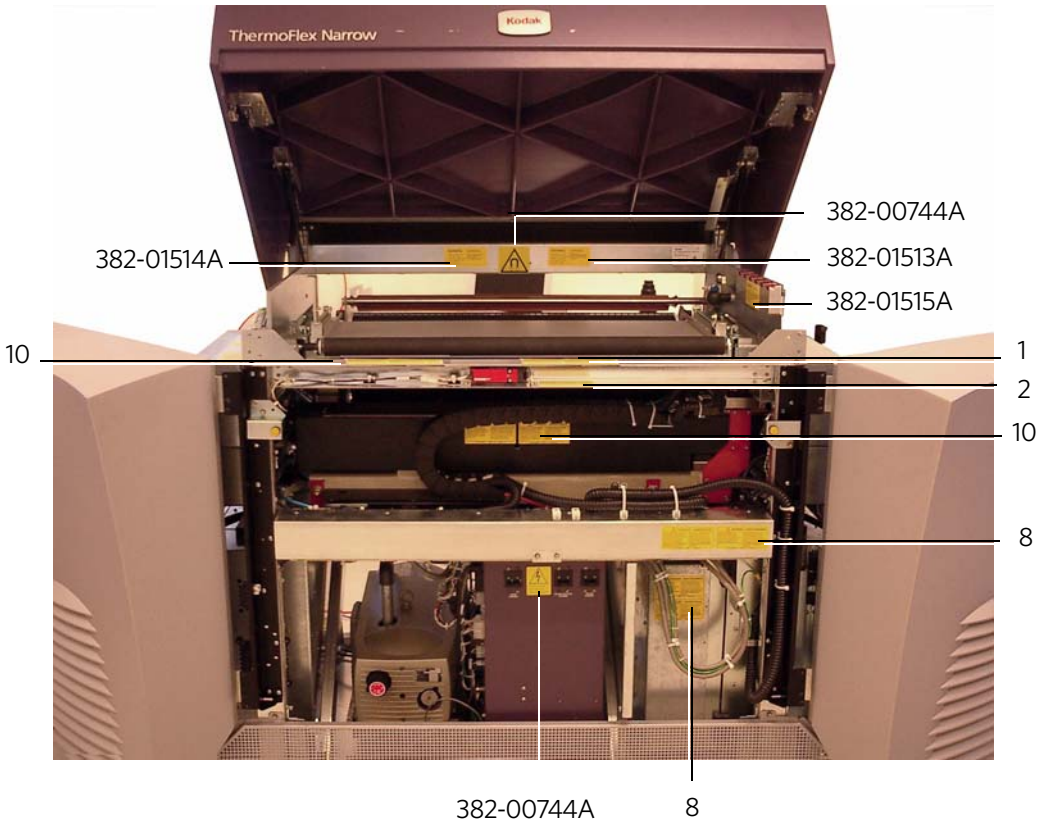


Figure 14: Narrow Hybrid with magnetic drum and offset options, upper door, front panel, and side doors open

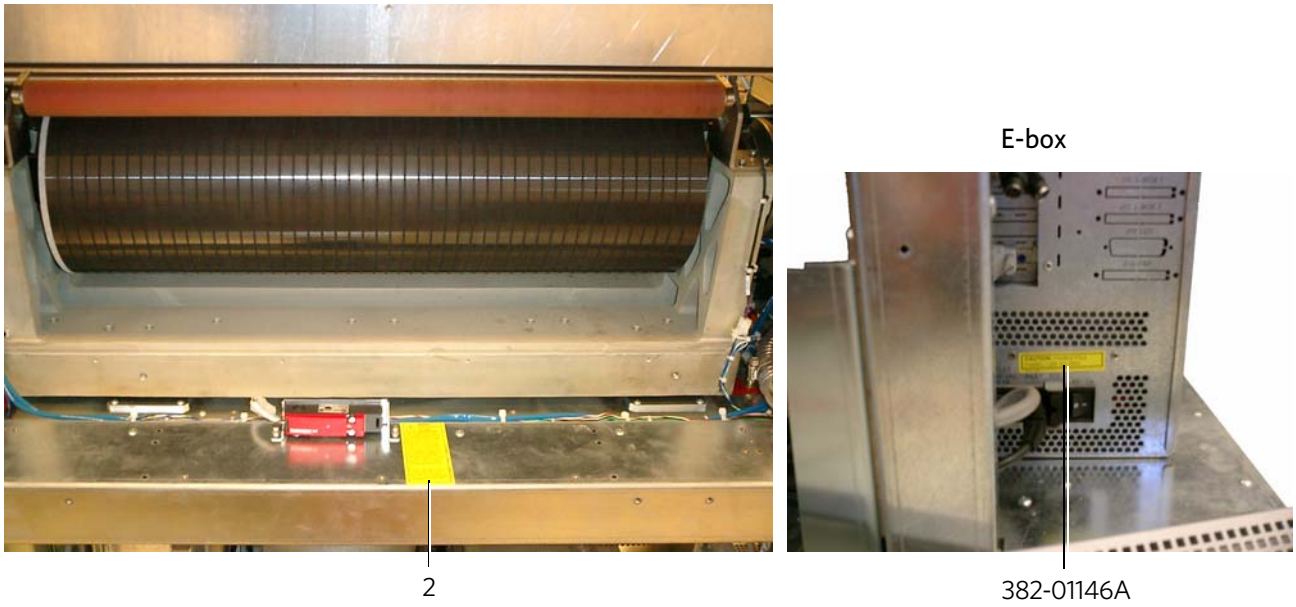


Figure 15: Narrow Hybrid rear panel open

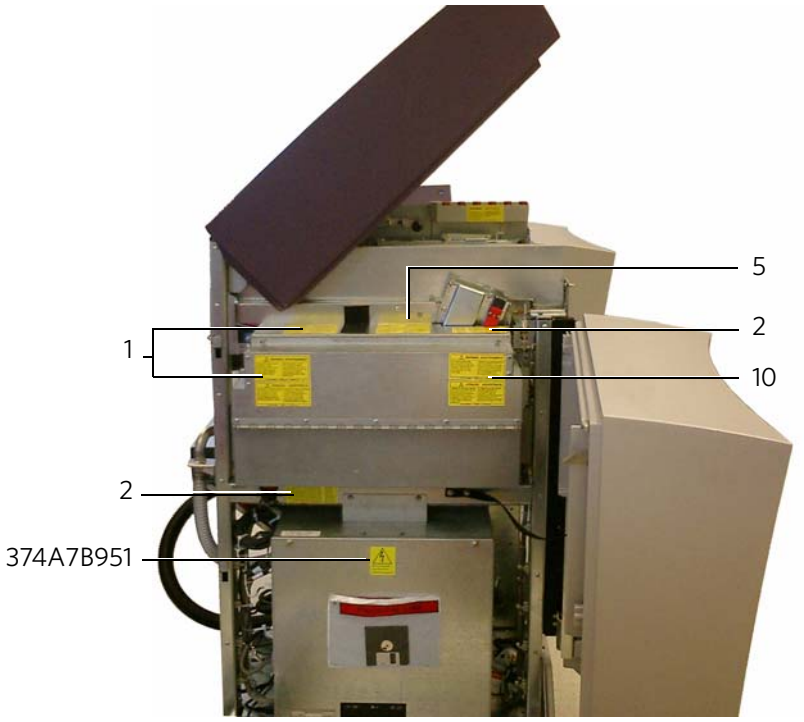


Figure 16: Narrow Hybrid left side door open

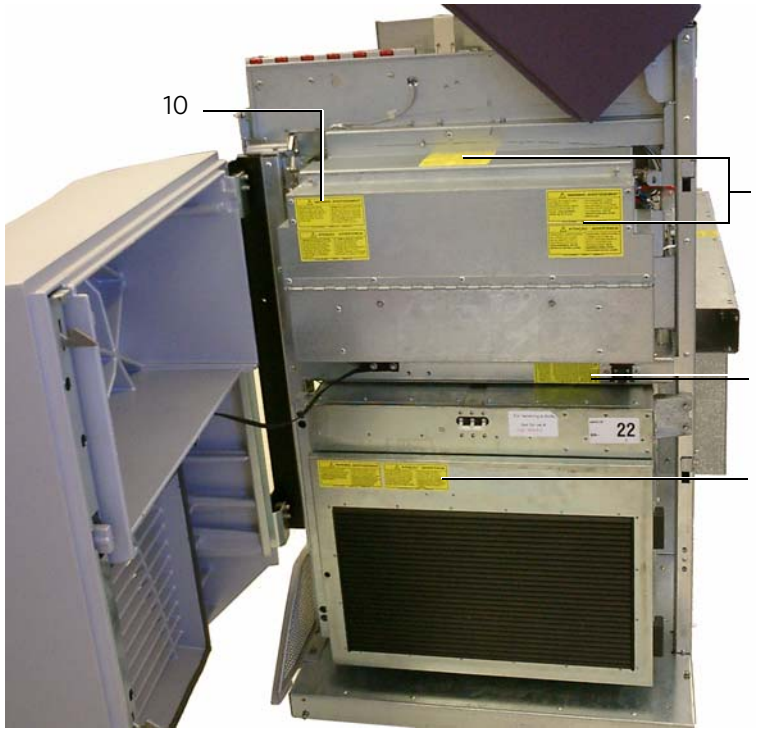


Figure 17: Narrow Hybrid right side door open



Figure 18: Narrow Hybrid interior of front panel



Figure 19: Narrow Hybrid interior of rear panel

Narrow With Offset and Magnetic Drum Options Labels



Figure 20: Narrow Hybrid with magnetic drum and offset options top door open

Note: The registration pin holder in the photo may vary slightly from the registration pin holder on the customer's platesetter.

ThermoFlex Mid II Hybrid Label Locations

See the following figures for locations of warning labels on the ThermoFlex Mid II Hybrid platesetter.

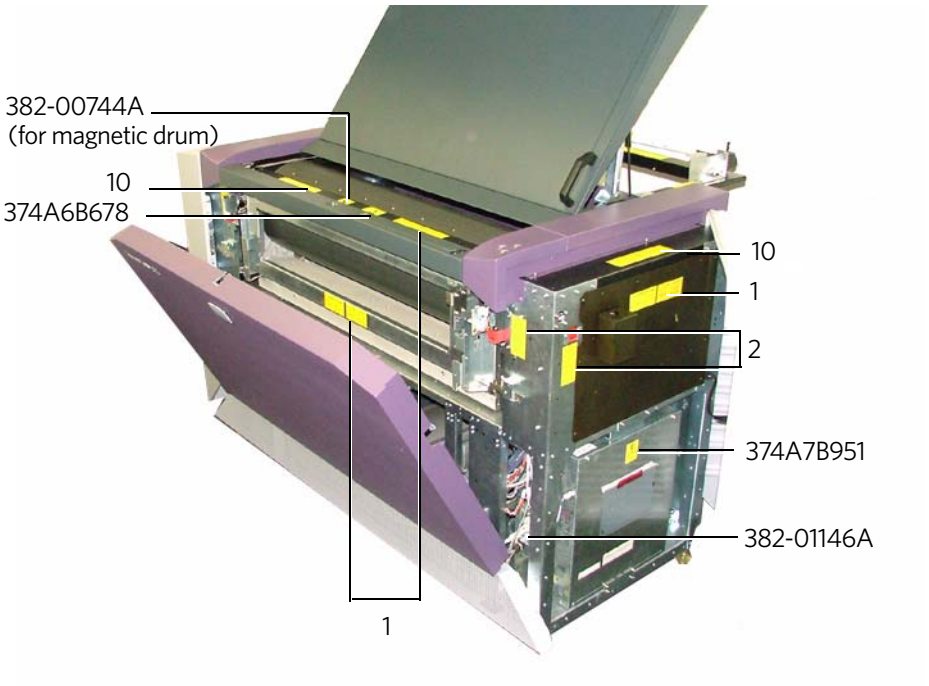


Figure 21: Mid II Hybrid front panel, right side door, and loading table, and service door open



Figure 22: Mid II Hybrid operation panel removed

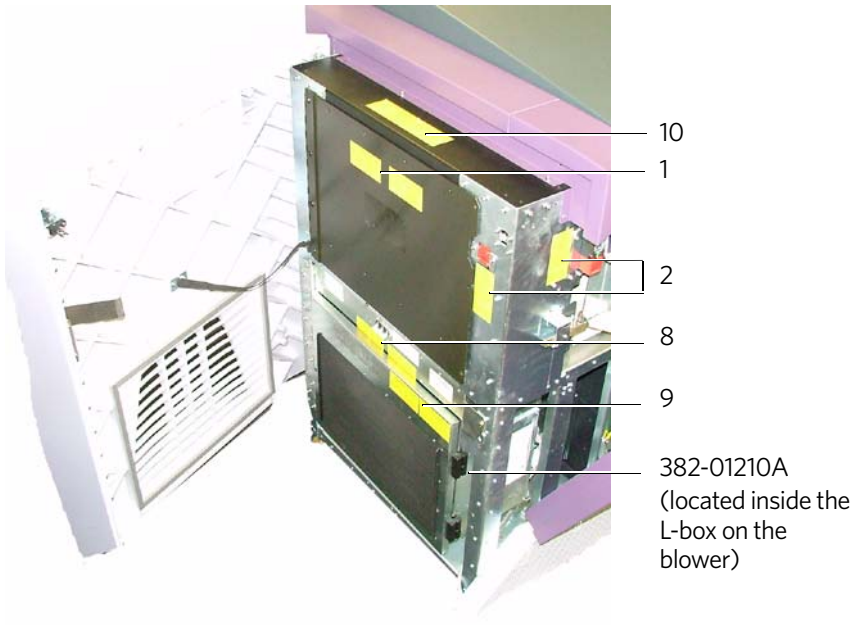


Figure 23: Mid II Hybrid left side door open

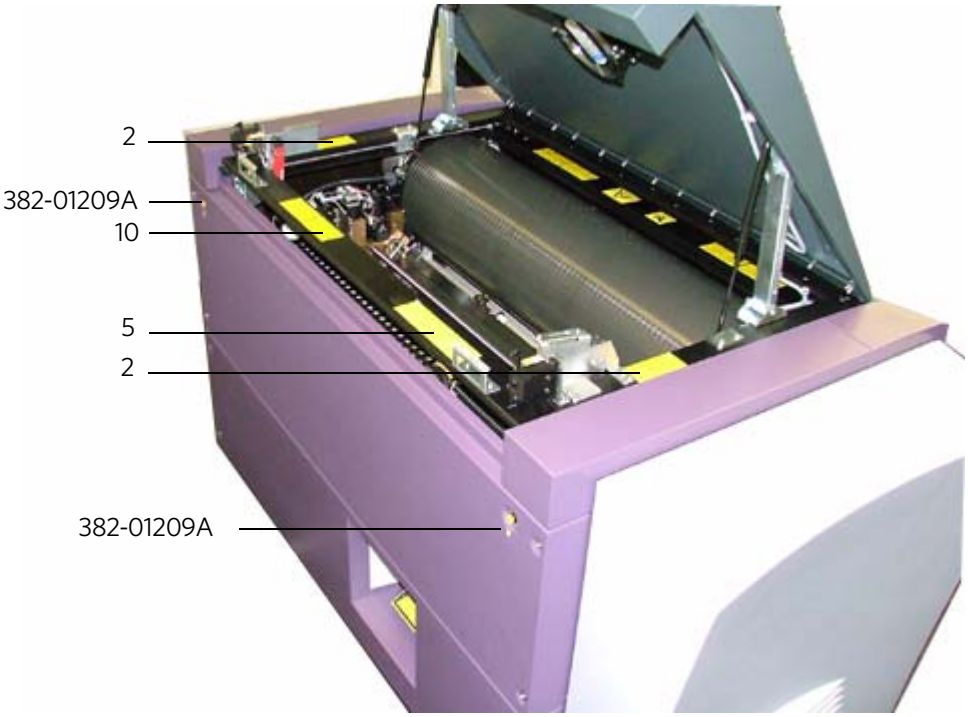


Figure 24: Mid II Hybrid rear view with service door open



Figure 25: Rear panel removed

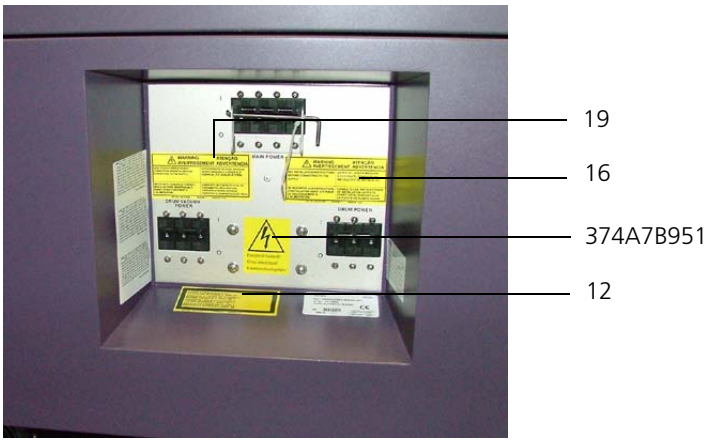


Figure 26: Distribution box

Mid II With Offset Option Labels



Figure 27: Mid II Hybrid With Offset Option loading table open

Note: The registration pin holder in the photo may vary slightly from the registration pin holder on your platesetter.

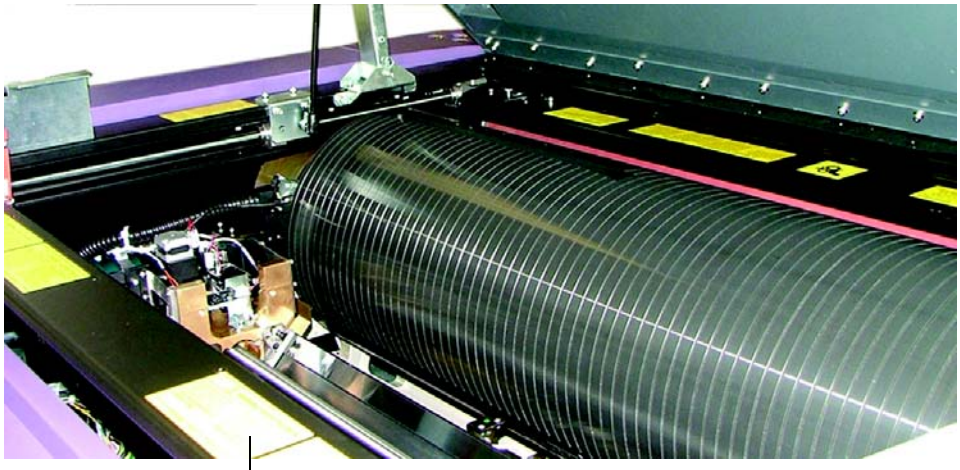


Figure 28: Mid II Hybrid With Offset Option service door open