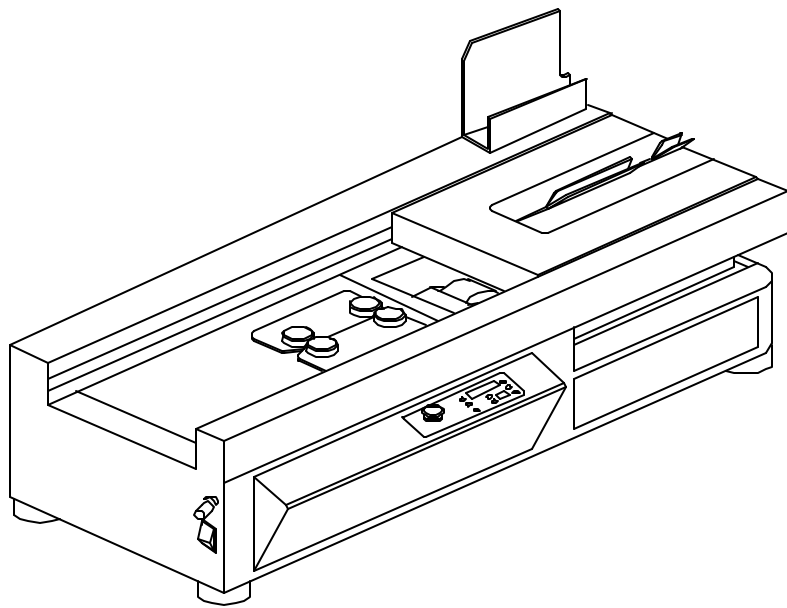


PERFECT BINDER
DB-200
OPERATION MANUAL



Duplo USA Corp.

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Safety Notes

Keep the following in mind for safe operation.

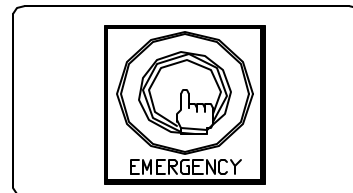
- Only experienced technicians are allowed to remove covers and repair the machine.
 - Do not place any items on top of the machine to avoid dropping them into the machine.
 - Use the proven power outlet in order to prevent an electrical overload of the machine.
 - Pay close attention to the warning signs on the machine that indicates a dangerous or “no-touch” area of the machine.
 - The machine should be placed on a safe, firm and solid table.
 - Do not place the machine next to water or heat that may cause for damage.
 - Keep hands and fingers away from glue tank and notching station.
 - Use only the suggested hot melt glues with the following characteristics:
Application temperature: 293 °F (145 °C) to 338 °F (170 °C)
Working Glue Viscosity: 1,500 to 2,600 CPS
- Warning:** Duplo USA is not responsible for the quality of the binding that is produced by the non-suggested glues.

In case of THERMOSTAT FAILURE :

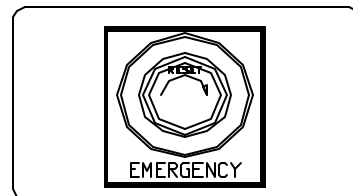
DB-200 has implemented the secondary thermostat to protect the glue tank temperature over 392 °F (200 °C). When it occurs, the power of DB-200 will be automatically turned off. You have to wait for the glue tank to cool down before you can restart the machine. If this problem occurs again, call your authorized dealer for service.

In case of EMERGENCY :

1. Press the “EMERGENCY” button when you encounter a problem during operation or bookbinding. This will shut down all the actions of DB-200, which include the stations and motors. Meanwhile, the LED DISPLAY of the control panel will display and flash the “STOP” symbol.

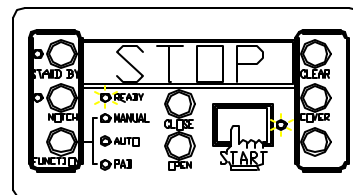


2. Correct the problem. Then turn the “EMERGENCY” stop button to the right in order to reset the machine. The “START” LED will be lit.



Note: You can use “OPEN” and “CLOSE” buttons to open or close the clamp at this time.

3. This will clear the problem on your DB-200. Press the “START” button to restart your DB-200. The LED display of the control panel will display and flash “LOAD BOOK”.

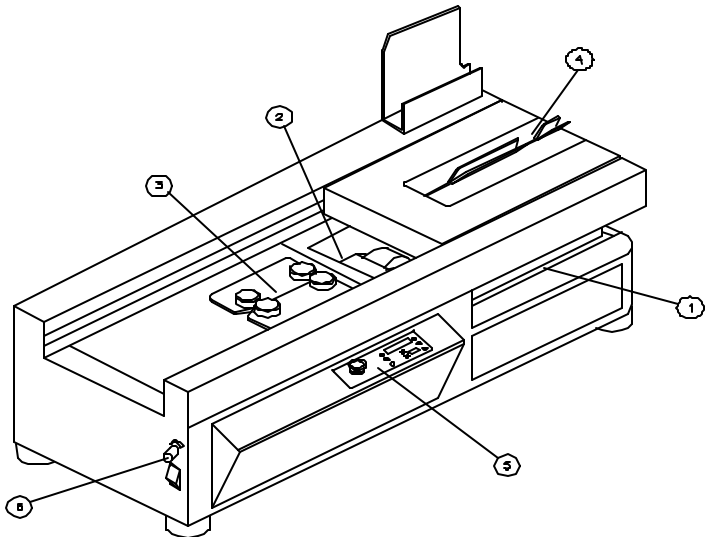


- Note:** (A) If you receive an error (ERR=Lx), please refer to the Appendix and follow the step 1 to 3 to reset your DB-200.
- (B) Call for service if the error message is still there.

General Information

Main Assemblies

- (1) Nipping Station
- (2) Glue Tank
- (3) Notching Station
- (4) Clamp Station
- (5) Control Panel
- (6) Nipping Pressure Control



Specification

Model	DB-200 Perfect Binder
Maximum Book Size	12.6" x 15.75" (320mm x 400mm)
Minimum Book Size	3.15" x 1.97" (80mm x 50mm)
Maximum Binding Thickness	1.6" (40mm)
Glue Warm Up	25 minutes (varies depending upon glue type)
Glue Warm Up in Stand-by Mode	5 minutes
Cycle Speed	360 cycles per hour
Production Speed	Up to 200 books per hour
Power Source	110V, 60 Hz (Option: 220V, 50 Hz)
Power Consumption	10 Amps.
Machine Weight	255 LBS (116 Kg)
Machine Dimension	46"(L) x 22"(W) x 15"(H) (1150x560x370mm)

Accessories

Having unpacked your DB-200, you will find the accessories as follows:

Name	Specification	Quality
Cover-Sheet Holder		1
Bottom Cover		1
Screw Driver	6" (150mm)	1
Hex Wrench	0.16" (4mm)	1

Adhesive

AAG-DB250GLUE : Available in 50 lbs. boxes

Physical Properties:

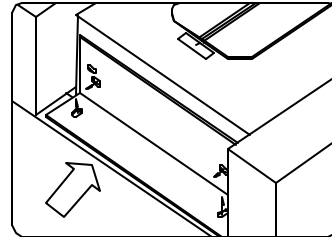
Appearance/Form: Opaque clear/Chips
 Working Temperature: 320 °F (160 °C)
 Working Glue Viscosity: 1,800 CPS @ 320 °F (160 °C)
 Open Time: 10 to 13 second

Installation

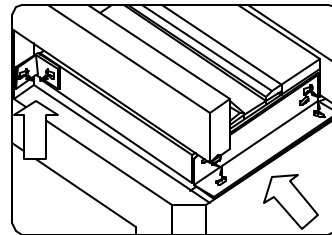
Note: You must remove the three red shipping brackets before installing your DB-200.

The procedures for installation:

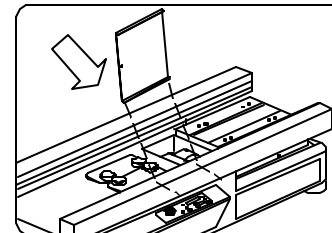
1. Remove the red shipping bracket located on the left side of the clamp station as shown. Then reinstall the screws in clamp station.



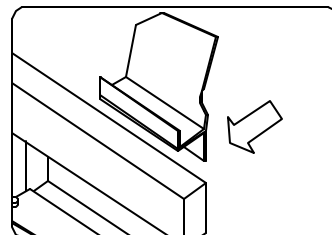
2. Remove two red shipping brackets that are located around the nipping station as shown.



3. Lift up your DB-200, then slide in the bottom cover (glue draining tray) underneath the glue tank as shown.

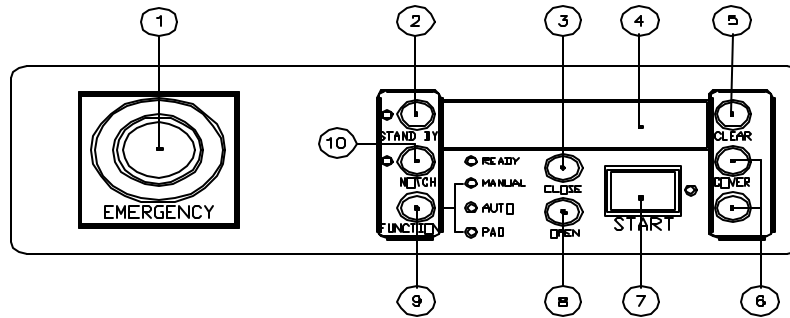


4. Place your DB-200 on a safe, firm and solid table. Then mount the cover-sheet holder to the right side of the machine as shown.



- Note:** (A) For **Adjusting the Glue, Replenishing the Glue Tank, Nipping Pressure Control** or **Glue Replacement**, please refer to the operation procedure (F), (G) and (H) for details.
- (B) You also can change the **factory settings** of your DB-200 operation if necessary. Note that we only recommend you to change TR1. For “SETUP FOR TIMERS”, please refer to APPENDIX on page 14.

Control Panel

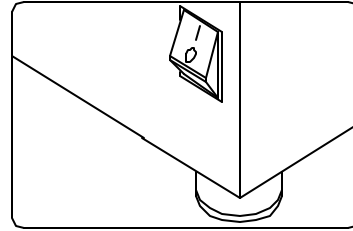


<u>No.</u>	<u>Name</u>	<u>Description</u>	<u>LED Display / Example</u>
1	EMERGENCY	Stop all the actions of the machine. Except when “HOT” shows on the LED DISPLAY.	“STOP” (flashing)
2	STAND BY / LED	Temporarily lowers the temperature of glue tank so it won’t burn the glue when the machine is not operated.	WARM_
3	CLOSE	Close clamp.	
4	LED DISPLAY	1) The amount of books bound. 2) Operating status. 3) Perform self-test and stir the hot melt glue. 4) Error messages.	____100 BIND S-TEST ERR = L1
5	CLEAR	Clear the display counter for books bound.	____0
6	(reserved)	For future options	
7	START / LED	Indicates the “START” button is ready for proceeding to the next operation.	
8	OPEN	Open clamp.	
9	FUNCTION / LED	Select one of the function modes - MANUAL, AUTO, or PAD.	One of the mode indicators will be lit.
10	NOTCH / LED	Select the notching function during the bookbinding operation.	

Operation Procedures

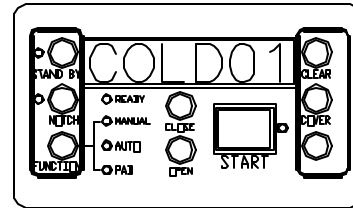
(A) STARTUP :

1. Turn ON the power switch of DB-200 as shown.
(where "I" for ON; "O" for OFF)
The heater of DB-200 will automatically heat the glue to the preset working temperature and display the status of the heating processes.

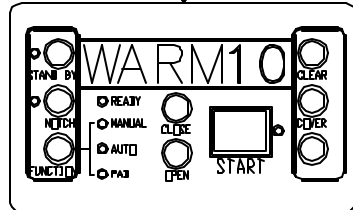


- The 4 leftmost spaces of LED: the status of heating process (COLD, WARM, or HOT).
- The 2 rightmost spaces of LED: The elapsed time of heating.

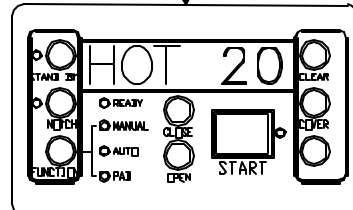
2. Start melting the glue.
The status is COLD and the elapsed time is one minute for this example as shown.



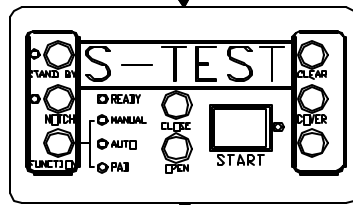
3. Melting glue is processing.
The status is WARM and the elapsed time is 10 minutes for this example as shown.



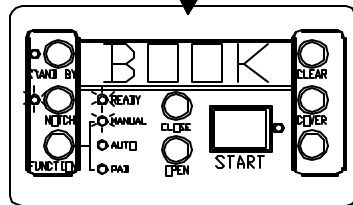
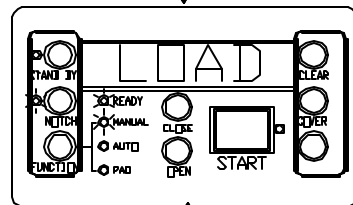
4. After heating for a while, the glue temperature has reached HOT status. The elapsed time is 20 minutes for this example as shown.



5. When the glue temperature has reached the working temperature, DB-200 performs the self-test and stirs the melting glue.



6. DB-200 is ready for bookbinding and set to MANUAL mode for your desired operation.
At this moment, the control panel will display and flash "LOAD BOOK" for your attention.
For binding operations, please refer to the MANUAL, AUTO and PAD operations.



(B) MANUAL MODE :

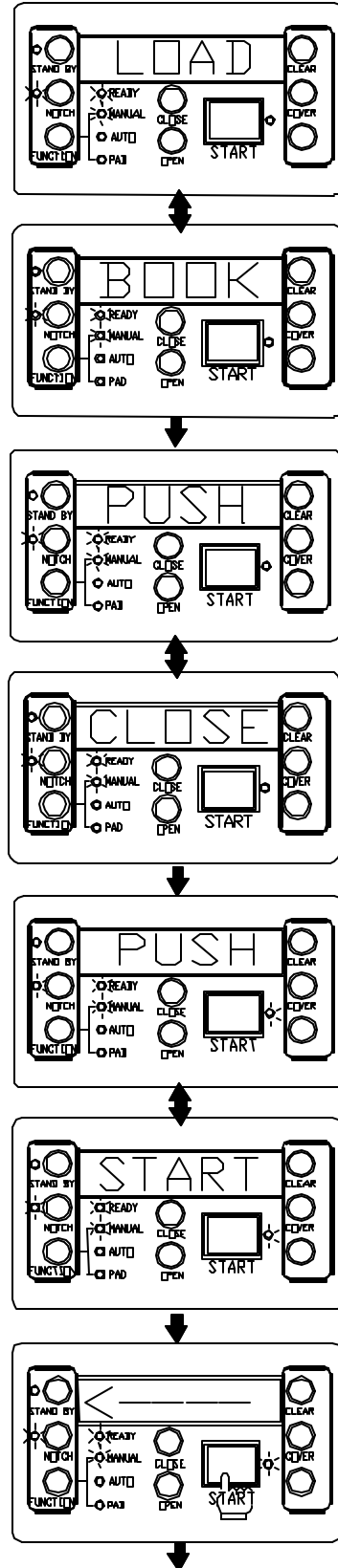
After the “STARTUP” procedures, the DB-200 will automatically set itself MANUAL operation and flashing "LOAD BOOK" display. Note that the “NOTCH” LED is ON.

- (1) Press the “OPEN” button and place the book block inside the clamps. Be sure to follow the label instructions on the clamp to load the book block to the RIGHT of the red line, then slide the book block to the far LEFT of the clamps and you will see the flashing "PUSH CLOSE" display.

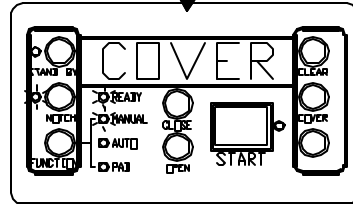
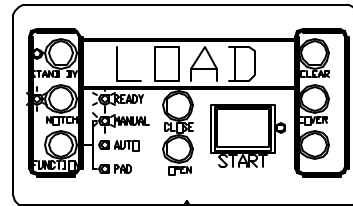
Step 1:
Load book to the
RIGHT of the red line.
Step 2:
Slide the book to
The far LEFT.

- (2) Then press the “CLOSE” button to clamp down the pages and you will see the flashing "PUSH START" display.

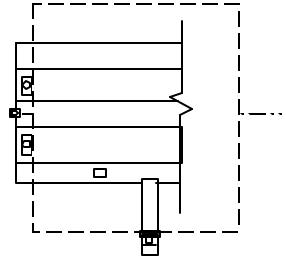
- (3) Press the “START” button after the “START” LED has been lit. The LED display of control panel will show a “←” sign and the clamp station will move over the notching station for notching.



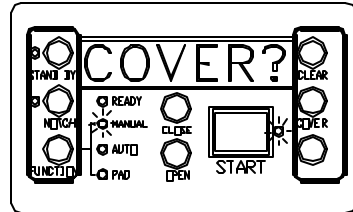
- After the first notching process, the clamp station will remain to the left side of DB-200 and the LED display of the control panel will display and flash "LOAD COVER".



- Center the cover sheet and adjust the side guide: Measure the width of the book plus half the thickness of the spine. Then set side guide accordingly.



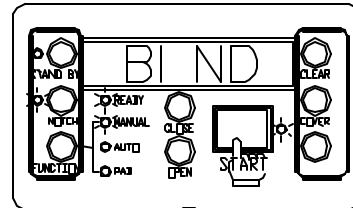
- Place the cover on the nipping station, the "START" LED will be lit and flashing "PUSH START". Then press the "START" button to move the clamp station over the nipping station starting the binding process for the pages and cover sheet.



Note:

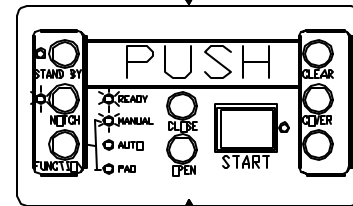
If you accidentally remove or drop the cover sheet during the clamping station returning to the nipping station, the control panel will show "COVER?". At this moment, you have to place the cover on the nipping station and press "START" button to resume the process.

- When the display indicates "PUSH OPEN", press the "OPEN" button to open the clamps. Then, remove the finished book from the right end of the clamp station.

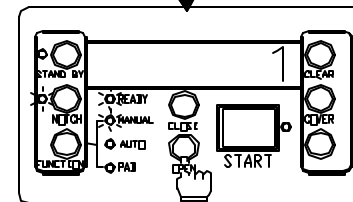
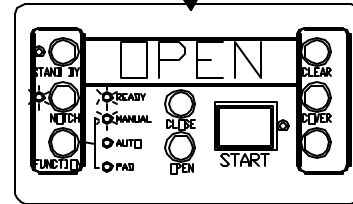


Having completed one bound book, the LED display of control panel will count once for the total binding amount as shown.

Then the control panel will display and flash "LOAD BOOK" for binding next book.



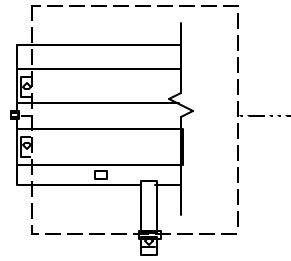
- Repeat step 1 to 5 for more books in "MANUAL" operation.



(C) AUTO MODE :

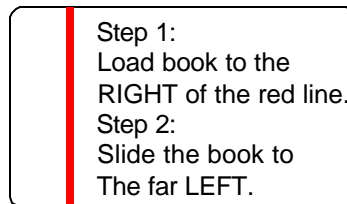
Note: All books done in this mode must be same thickness.

1. In the MANUAL mode, make one book.
Centering the cover to the centered point and adjust the side guide.

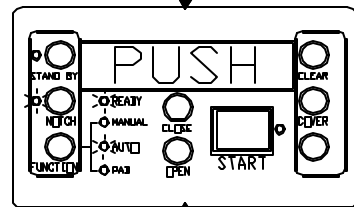
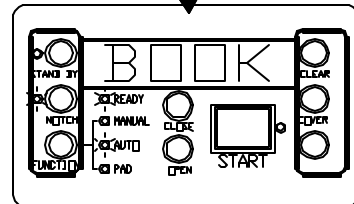
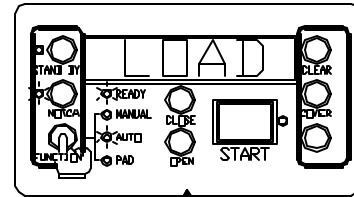


2. Press "FUNCTION" button to switch to "AUTO" operation. The "AUTO" LED will be lit as shown.

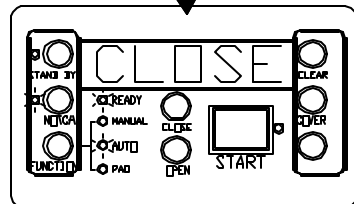
Note: The "NOTCH" LED is ON.



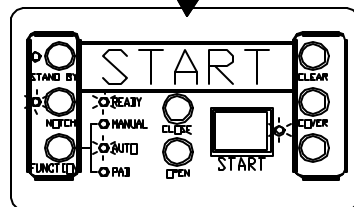
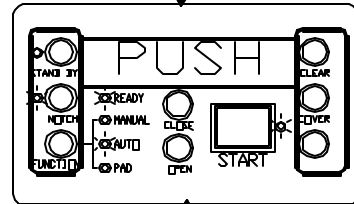
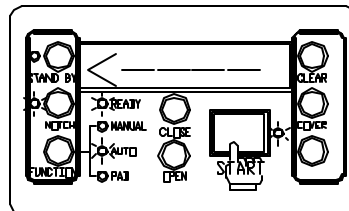
3. (1) Press the "OPEN" button. Be sure to follow the label instructions on the clamp to load the book block to the RIGHT of the red line, then slide the book block to the far LEFT of the clamps and you will see the flashing "PUSH CLOSE" display.



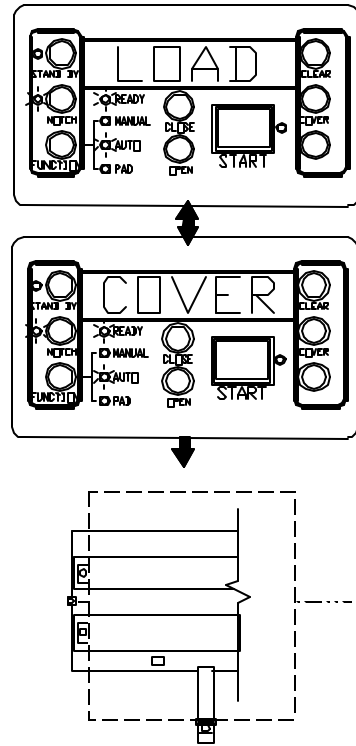
- (2) Then press the "CLOSE" button to clamp down the pages and you will see the flashing "PUSH START" display.



- (3) Press the "START" button right after the "START" LED has been lit. The LED DISPLAY of control panel will show the "←" sign. The clamp station will move to the left side of DB-200 and will remain there.

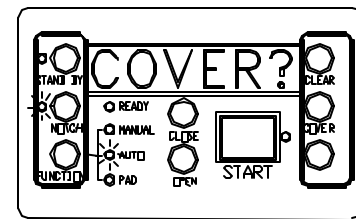


4. Place the cover sheet onto the nipping station when the display flashing "LOAD COVER". The clamp station will automatically move back to the position above the nipping station and start the binding process for the pages and cover sheet.

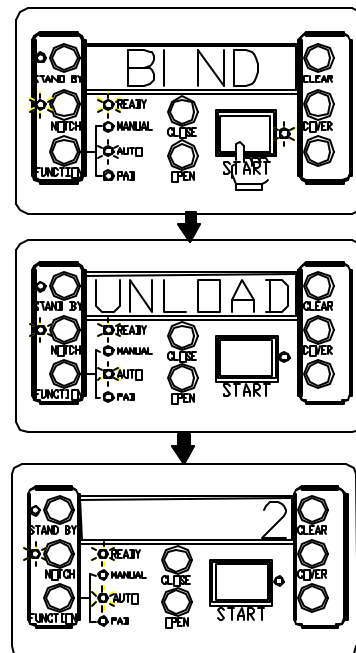


Note:

If you accidentally remove or drop the cover sheet during the clamping station return to the nipping station, the control panel will show "COVER?". At this moment, you have to place the cover on the nipping station and press "START" button to recover the process.



Having completed one bound book, the clamp will automatically open and display "UNLOAD" so that you can remove the finished book from the right end. Meanwhile, the LED display of control panel will count once for the total binding amount as shown. The DB-200 will flash "LOAD BOOK" display.



5. Place the same thickness of pages onto the clamp and slide sheets to left. The clamp station will automatically clamp down the pages and repeat step 4 for more books in "AUTO" operation.

(D) PADDING MODE:

“PAD” is one of the DB-200 operations that apply to special binding applications such as binding without cover sheet.

1. Press “FUNCTION” button to switch to “PAD” operation. The “PAD” LED will be lit and display flashing “LOAD PAD” as shown.

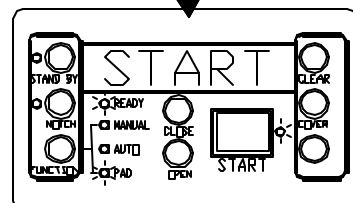
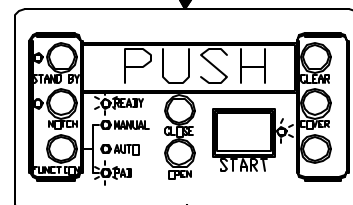
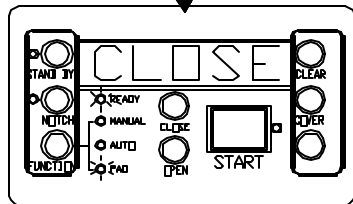
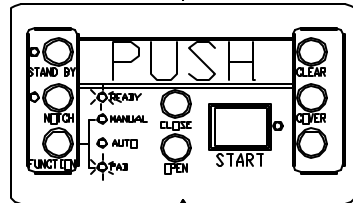
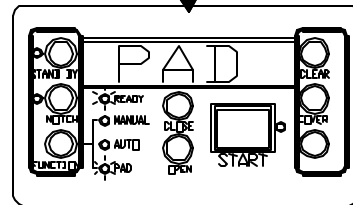
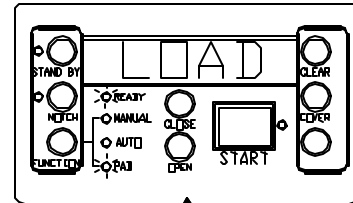
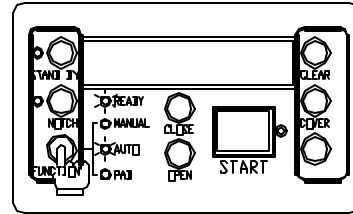
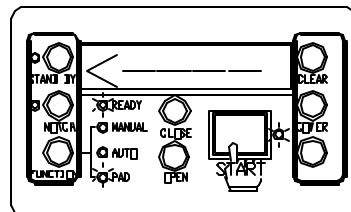
Note : The “NOTCH” LED is normally OFF. But you can press “NOTCH” button to actuate it, if desired.

2. (1) Press the “OPEN” button. Be sure to follow the label instructions on the clamp To load the book block to the RIGHT of the red line, then slide the book block to the far LEFT of the clamps and you will see the flashing "PUSH CLOSE" display.

Step 1:
Load book to the RIGHT of the red line.
Step 2:
Slide the book to The far LEFT.

- (2) Then press the “CLOSE” button to clamp down the pages and you will see the flashing "PUSH START" display.

3. (1) Press the “START” button after the “START” LED has been lit. The LED display of control panel will show a “←” sign and the clamp station will move over the notching station and return to clamp station.



(2) Having moved to the left position of DB-200, the clamp station will automatically move back to the right position and display "BIND".

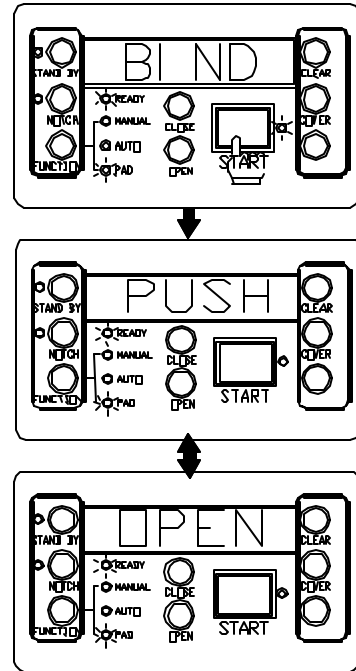
(3) Wait for a few seconds until the LED display of control panel displays "PUSH OPEN" as shown.

4. Then press the "OPEN" button to open the clamp so that you can withdraw the bound pages. Meanwhile, the LED display of control panel will count once for the total binding amount.

Then the control panel will display and flash "LOAD PAD" for padding next book.

Note : If glue is too thick on spine, adjust thickness in accordance with (F) Glue Adjustment.

5. Repeat step 2 to 4 for more books in "PAD" operation.

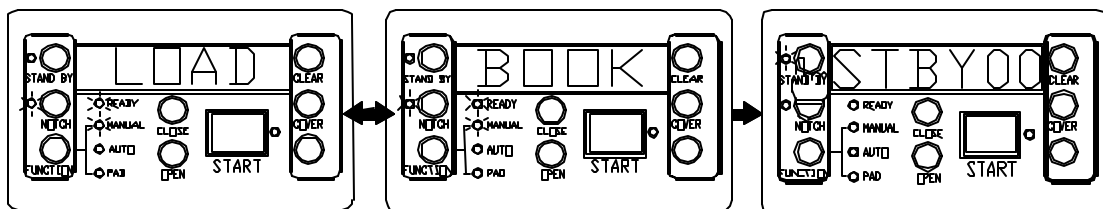


(E) STANDBY MODE:

Press "STANDBY" button, the DB-200 will temporarily lower the temperature of glue tank so it won't burn the glue when the machine is not operated. The LED displays "STBY00" as shown below. Where "00" is the timer display for the during of the standby period.

Press "STANDBY" button again when the "STANDBY" LED is on, the DB-200 will reheat the glue tank to the working temperature, then the "READY" LED will be lit and waiting for your desired operation.

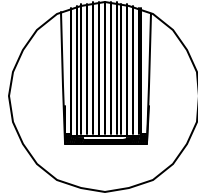
Note that you have to wait a few minutes when LED displays "WARM00" status. The glue tank of DB-200 will be reheated, then the control panel will display and flash "LOAD BOOK" after "HOT" status.



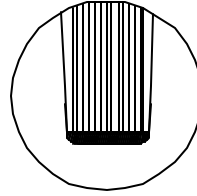
(F) GLUE LEVEL ADJUSTMENT :

The glue level may require adjustment when the thickness of the book or pad varies. Use the following book spine illustrations for guidelines.

- Increasing the hot-melt glue when



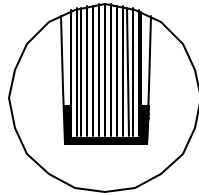
Hollow middle



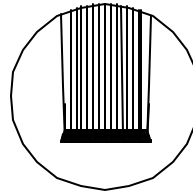
Round

OR

- Decreasing hot-melt glue when



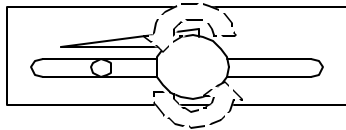
Too much glue on both sides



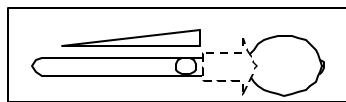
Nail head

- Adjusting the glue level :

- 1.) Turn the glue adjustment lock knob counter clockwise to loosen.

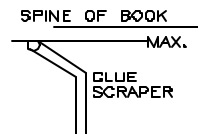


- 2.) Increase the amount of glue by sliding the knob to the right at the appropriate position.

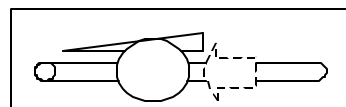


MIN

MAX

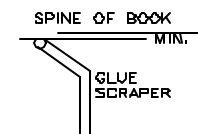


Decrease the amount of glue by sliding the knob to the left at the appropriate position.

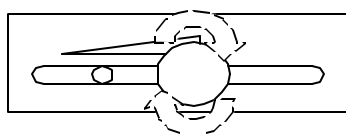


MIN

MAX



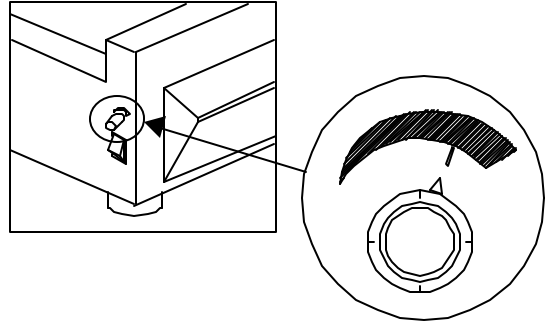
- 3.) Turn the knob clockwise to lock the setting



- Note that the thickness of the cover sheet is an important factor for you to make a good spine. Use only the suitable thickness of the cover sheet associated with the appropriate glue-meter position to make a good book.

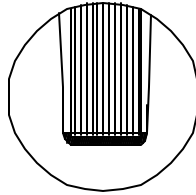
(G) NIPPING PRESSURE CONTROL :

The nipping pressure control knob is located on the left-side of the machine (next to the power switch). It allows you to adjust the nipping pressure based on the thickness of the books and the quality of the book spine. Normally the thinner the books, the more the nipping pressure. The factory setting is set to the mark on the scale.



- Turn the knob clockwise to increase the nipping pressure when

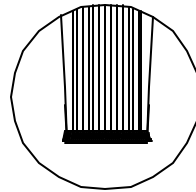
round spine occurs



or making thinner books.

- Turn the knob counter clockwise to decrease the nipping pressure when

nail head spine occurs



or making thicker books.

(H) REPLENISHING THE GLUE TANK :

CAUTION: Great care must be taken when handling hot molten glue.

Be sure not to place an excessive amount of glue in the tank at one time. Keep it at such a level that the glue will not go over the redline in the tank while the application drum is rotating. This will prevent glue from spilling out of the tank.

Glue Replacement

1. Warm up the DB-200 as described in the STARTUP section on page 5.
2. Make sure the draining tray is warped by Aluminum foil and positioned underneath the glue tank so that the tank drains into it.
3. Use the 6 mm Allen wrench to loosen (Counter Clockwise) the glue drain Allen screw, which is located on top of the glue tank.
Do not attempt to remove the draining tray until the glue cools down.
4. Close (Clockwise) the glue drain Allen screw when the glue stops flowing.
5. Add new glue to the glue tank Be sure to keep the glue level not going over the red line.
6. Remove the glue drain tray and discard the cold drained glue.

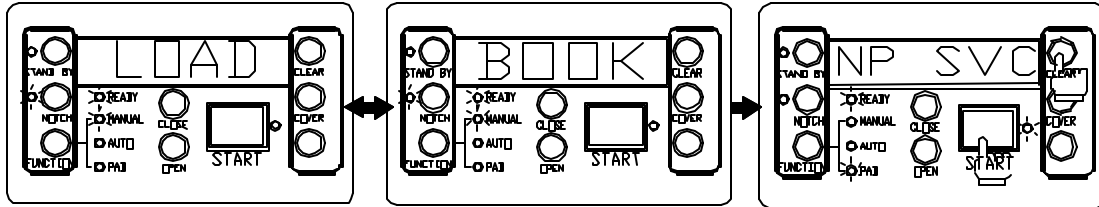
Note that it's not necessary to drain the glue frequently if the machine is used constantly under normal working conditions. However, in case the glue has been left unused for a long period of time with the unit in the "ON" position, and the quality is found to be unacceptable, use the Glue Replacement procedures or call your authorized dealer.

Maintenance

Cleaning Procedures

After you have finished using the binder for the day, follow the following steps:

1. Close the clamps while the LED display flashing "LOAD BOOK" or "LOAD PAD".
2. press "START" and "CLEAR" keys simultaneously. The clamp station will automatically move to the left of the machine and LED display "NP SVC".
3. Clean the residual glue that might be on the nipping plates and plate surfaces.
4. Press the "START" key, the clamp station will return to its home position. Open the clamps to the maximum position. Clean their surfaces and wax them.
5. Turn the DB-200 off.



APPENDIX

SETUP FOR TIMERS:

To enter the timer setup menu, you will need to press and hold down both the "OPEN" and "CLOSE" buttons, then turn the power on. You should see "SET TR" in the LED DISPLAY. Press the "FUNCTION" button to sequentially display TR1, TR2, TR3, TR4, TR5, TR6, "SAVE", "CANCEL", and "RESET". Once you have selected the setting to change, you need to press the "OPEN" to increase the time and the "CLOSE" to decrease the time within their ranges. Press "FUNCTION" button until you see "SAVE" in the LED DISPLAY. Then press the "START" button to change it. Or select "CANCEL" and press "START" button to exit. To return all settings to default, please use "RESET" followed by "START" button to recover the factory settings.

WARNING: We only recommend you to change TR1.

Below are the default times for each TRx and it's description:

<u>Name</u>	<u>Default Time</u>	<u>Range</u>	<u>Description</u>
TR1	4 sec.	2.0 - 10 sec.	Nipping time.
TR2	1 sec.	0.5 - 5 sec.	Auto mode: After loading the cover, the delay time before clamp station returns.
TR3	2 sec.	1.0 - 5 sec.	Auto mode: Clamp closing time for the book.
TR4	1 sec.	0.5 - 5 sec.	Auto mode: Clamp opening time for the book.
TR5	.5 sec.	0.5 - 5 sec.	Auto mode: The clamp detecting time right after closing.
TR6	5 sec.	3.0 - 10 sec.	Padding mode: The closing time of clamp before opening it.

The fastest speed of settings that AUTO mode can perform is:

TR1 = 2 sec., TR2 = 0.5 sec., TR3 = 1 sec., TR4 = 0.5 sec., TR5 = 0.5 sec.

- **Note that the book making speed depends on thickness of the book and the loading technique for the paper and cover.**

ERROR DISPLAY:

<u>LED Display</u>	<u>Description</u>	<u>Cause of Error</u>
ERR = L1	Clamp station is not in the home position.	1. MT1 - fuse blown. 2. LS1 - sensor is bad. 3. MT1 - motor problem.
ERR = L2	Clamp station is not in the left holding position.	1. MT1 - fuse blown. 2. LS2 - sensor bad. 3. MT1 - motor problem.
ERR = L3	Nipping station is unable to reach the lowest position.	1. MT2 - fuse blown. 2. LS3 - sensor bad. 3. MT2 - motor problem.
ERR = L4	Nipping station is unable to reach the highest position.	1. MT2 - fuse blown. 2. LS4 - sensor bad. 3. MT2 - motor problem.
ERR = T1	After warm up more than one hour, binder is not ready to bind.	1. Heater fuse blown. 2. Temperature switch bad. 3. Heater bad.
TEMP ERROR	Temperature too low.	1. Heater fuse blown. 2. Temperature switch bad. 3. Heater bad.
HALF00	Skip from Cold to Hot.	1. Stand by sensor bad. 2. Thermostat bad.

Note: Check all electrical connectors of appropriate items when troubleshooting errors.