

YAMAHA® disklavier®

MX100A and MX100B

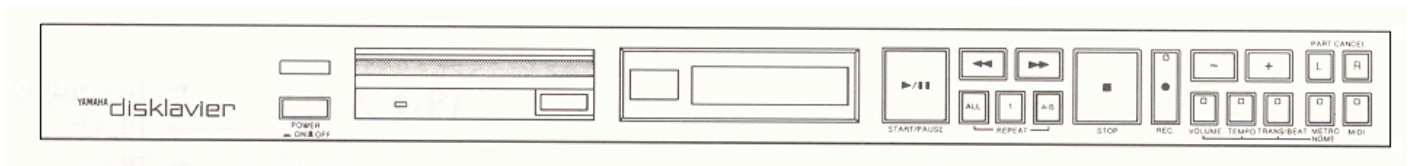


TABLE OF CONTENTS

MX100 A/B

PROCEDURE	PAGE
1. DEALER PREP REFERENCE CHART	3 - 4
2. RECORD AND PLAYBACK TEST	5
3. REMOVING CASE PARTS AND ACTION	6
4. MINIMUM ACOUSTIC REGULATION	7
5. PEDAL ADJUSTMENT	8 – 10
6. HAMMER SENSOR TEST AND ADJUSTMENT	11
7. KEY SENSOR TEST AND ADJUSTMENT	12
8. KEY DRIVE UNIT HEIGHT ADJUSTMENT	13
9. CONTROL UNIT TESTING	14

DISKLAVIER MX100 A/B

DEALER PREP REFERENCE CHART

MX100 A/B

<p>1. UNPACK</p> <p>Remove foam packing between hammer rest rail and bracket. Remove rubber band from action bracket.</p>
<p>2. PERFORM THE RECORD AND PLAYBACK TEST</p>
<p>3. REMOVE CASE PARTS</p>
<p>4. MINIMUM CHECKING AND ADJUSTMENT OF BASIC ACOUSTIC REGULATION</p> <ul style="list-style-type: none"> • Key height (approximately 20 mm above key slip. Shim balance rail if necessary) • Ease keys as needed • Capstan adjustment (lost motion none) • Let off (4mm in the bass, graduating to 2.5 mm in the treble)
<p>5. PEDAL ADJUSTMENTS</p> <p>DAMPER PEDAL:</p> <ul style="list-style-type: none"> • Adjust Pedal Cushion Unit • Adjust Damper lift by pedal. • Set solenoid gap 3mm <p>SHIFT PEDAL</p> <ul style="list-style-type: none"> • Adjust Pedal Cushion Unit • Adjust lost motion. • Set solenoid gap 5mm <p>MX100 B ONLY:</p> <p>Adjust the cord tension on the mute unit</p>
<p>6. PEDAL SENSOR TESTS</p> <p>Adjust pedal sensor tests.</p> <p>MX100 B ONLY</p> <ul style="list-style-type: none"> • Adjust the normal mode switch for the mute unit. • Adjust the soft mode switch.

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DEALER PREP REFERENCE CHART (continued)

MX100 A/B

7. SENSOR TESTS

KEY SENSOR

- Remove keys 8,32,57, and 81 to expose adjustment screws
- Depress and hold key near the adjusting screw. Beep should sound.
- Slowly release the key. Beep should stop as the damper starts to contact the strings.
- Turn adjusting screw to raise or lower key sensor rail until beep stops just as the damper contacts the string.

HAMMER SENSOR

- Beep should be heard when hammer is about 1mm from string. To adjust hammer sensor rail, insert or remove shims.

8. ADJUST KEY DRIVE UNIT HEIGHT

1. PLAY THE TEST FLOPPY DISK








(Check for proper playback performance)

2. TUNE AND VOICE

3. REPEAT THE RECORD AND PLAYBACK TEST

Record and Playback Test

MX100 A/B

PROCEDURE	RESULT	ADJUSTMENTS & COMMENTS
1. Press the  button.	Scrolling message is displayed on LCD.	
2. Insert a formatted disk. Careful! right side up etc..		
3. Press the  button.	Green LED to the left of the  button will flash. Song number is displayed in 7 segment LCD to the left of the main display.	DKV is waiting for next command.
4. Press the  button to start recording.	Beep is heard.	The DKV is waiting for you to start playing.
5. Play each key chromatically, then depress and release right and left pedal.		Play each key slowly enough so that during playback you will be able to observe that each key performs correctly.
6. Press the  button.	LCD will display: <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">WRITING TO DISK, PLEASE WAIT</div>	
7. Press the  button to begin song playback.	Song number is displayed in 7 segment LCD to the left of the main display. Song begins to play.	
8. Press the  button.		

HOW TO REMOVE THE CASE PARTS AND ACTION

MX100 A/B

Case Parts

1. Lift the top board and secure it in position by pressing in the center of the lid support hinge until the hinge is completely straight and in locked position.
2. Loosen the L bracket, and move it to a new out of the way position before removing the upper front board.
3. Remove lock screw from lower front board spring in order to remove lower front board.

Removing the Action

1. Turn off MAIN power switch (below keyslip at treble end of piano) or unplug Disklavier.
 2. Disconnect the connectors on both the treble and bass ends of the action.
 3. Remove the action bracket nuts and lift the action out using the same routine as with a traditional acoustic piano.
- Be sure to reconnect all connectors (bass & treble ends) after reinstalling the action!

Be sure to replace the L bracket and lock screw in their original positions after reassembling the case parts.

MINIMUM ACOUSTIC ACTION REGULATION

MX100 A/B

REGULATE:	SPECIFICATION & PROCEDURE
Key height	Approximately 20mm above key slip. Shim balance rail if necessary
Key fitting	<ol style="list-style-type: none"> 1. Should be very free. 2. Check front and key button bushing by moving key from side to side. 3. Check balance rail by raising key 10mm and releasing it. Key should fall freely. Check front.
Lost motion	Adjust capstan so there is no lost motion. The objective is to have the hammer supported by both the air damper (which replaces the hammer rest rail) and, to a smaller degree, the jack. The air dampers should support approximately 60% of the weight of the hammer and the jack should support approximately 40% of the weight of the hammer. This is verified by playing the note and VERY SLOWLY releasing the key to verify that the jack remains approximately 2mm from the butt felt, and further, that when the back of the key is tapped slightly, the jack easily slips under the hammer butt. Another test is that when the air damper is pulled back slightly, the hammer will follow for approximately 1.5mm.
Let off	4mm in bass graduated to 2.5mm in treble. Let-off should be set approximately 1mm wider than it would be set on a non Disklavier piano.
Pedals	Pedal regulation is also necessary. There are significant differences between normal acoustic pedal regulation and Disklavier pedal regulation. Because pedal adjustment can have an impact on the overall calibration of the Disklavier, these procedures are discussed in depth in the Pedal Adjustment section.

Note:

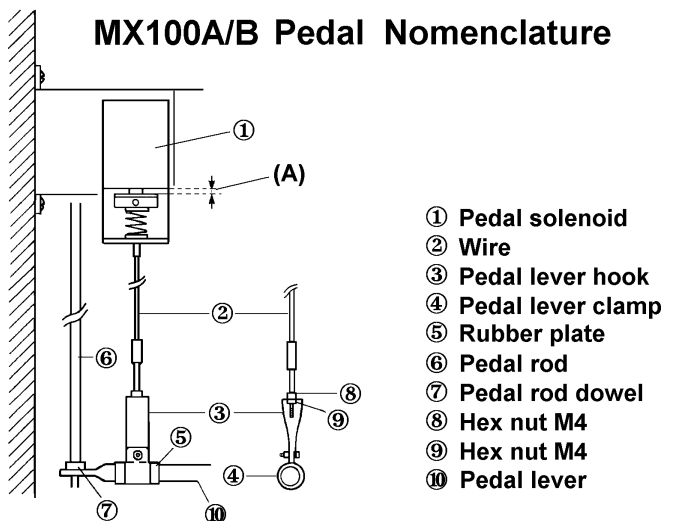
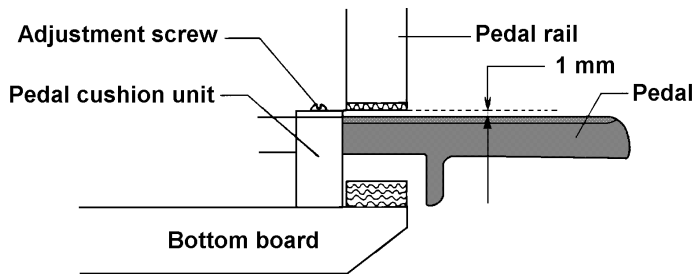
Of the points listed above, Key fitting and lost motion are the most important in uprights. Other regulation steps could be necessary. REMEMBER: the more precisely the action is regulated, the better the Disklavier can be calibrated!

PEDAL ADJUSTMENT LOUD & SOFT

MX100 A/B

PROCEDURE	RESULTS	ADJUSTMENTS & COMMENTS
1. Adjust Pedal Cushion Unit (Loud Pedal & Soft Pedal) (SEE DIAGRAM BELOW).	A 1mm gap between the pedals and bottom sill.	a. Turn adjustment screw clockwise to lower pedal b. Turn adjustment screw counterclockwise to raise pedal. If there is no gap between the pedals and bottom sill, pedal rebound noise can occur. If there is too much gap between the pedals and the bottom sill, the dampers may be held away from the strings.
2. Adjust Damper Lift by Pedal.	Damper lift by pedal should be the same as damper lift by black key. (After adjustment, lost motion should be the same as acoustic standards. If not, some compromise between lost motion and damper lift may be necessary.)	Rotate wing nut on loud pedal
3. Adjust lost motion in soft pedal.	Same as acoustic standards. (No lost motion)	Rotate wing nut on soft pedal. Caution: do not over adjust and raise hammer rest rail.





(Continued on next page)



PEDAL ADJUSTMENT LOUD & SOFT (CONT.)

(SEE PEDAL UNIT DIAGRAM ON PAGE 8)

MX100 A/B

PROCEDURE	RESULTS	ADJUSTMENTS & COMMENTS
<p>4. Adjust Pedal Drive Solenoid Gaps (Loud pedal & soft pedal).</p>	<p>Solenoid gap for the Soft pedal = 5mm</p> <p>Solenoid gap for the Loud pedal = 3mm</p>	<p>The solenoid gaps (A) of both pedals are adjusted by changing their wire lengths (2).</p> <p>To change the solenoid gap:</p> <ol style="list-style-type: none"> Secure the wire clamp with an adjustable wrench; Loosen hex nut (8) with a 7mm wrench while still securing wire clamp; Pull down on wire and rotate hex nut (9) by hand: <ul style="list-style-type: none"> Clockwise to lengthen the wire length therefore making the solenoid gap (A) narrower (less) <p style="text-align: center;">And</p> Counterclockwise to shorten wire therefore making the solenoid gap (A) wider (more) After adjustments are made, secure wire clamp with an adjustable wrench <p>Retighten hex nut (8) with 7mm wrench while still securing wire clamp.</p> <p>Caution: Set the wire so that it is positioned vertically, both front & back & side directions. If the wire is slanted, it deviates from the center of the solenoid axis which will cause mechanical noise !</p>
<p>5. While pressing the  buttons, press the  button.</p>	<p>LCD will display:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">TEST MODE</div>	<p>NOTE:</p> <p>On the earliest model MX100A, with a ROM version prior to 1.40, you must use an external tone generator with MIDI connections to perform the sensor tests.</p>
<p>6. Press the “+” button 8 times.</p>	<p>The chromatic scale will start to play and the LCD will display:</p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">(8)PIANO TEST GET DATA=xx</div>	<p>The note number is displayed in the 7 segment LCD to the left of the display.</p> <p>“xx” represents the velocity of the hammer in hexadecimal.</p>
<p>7. Immediately press the  button.</p>	<p>This pauses playing of the chromatic scale. You are now in “SENSOR TEST MODE”.</p>	<p>NOTE:</p> <p>DON'T PRESS THE  BUTTON!!</p>

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PEDAL ADJUSTMENT LOUD & SOFT (CONT.)






MX100 A/B

PROCEDURE	RESULTS	ADJUSTMENTS & COMMENTS
8. Adjust Pedal Sensors (Loud pedal & Soft pedal)	<ol style="list-style-type: none"> 1) Loud Pedal sensor detect beep sounds when the dampers lift 1mm off strings. 2) Soft pedal sensor detect beep sounds when the hammer rail has moved 2-3mm 	<p>If the sensor detect beep sounds early or late on either pedal, loosen the (2) Phillips head screws and adjust the sensor position. Raising the sensor will cause the beep to sound later. Lowering the sensor will cause the beep to sound earlier. Once each sensor is adjusted, retighten the (2) Phillips head screws.</p> <p>NOTE: Each pedal has its own sensor.</p>
9. Turn off Power on the control unit.		
For MX100 B only:		
<ol style="list-style-type: none"> 1) Adjust the cord tension on the mute unit. 	Mute unit cord is not excessively loose or tight when the soft mode is off.	Adjust the cord tension by loosening the (2) Phillips head screws (7)(in picture) and adjust the cord holder (8) (in picture) up or down on the soft pedal rod. Once adjusted, retighten the (2) Phillips head screws.
<ol style="list-style-type: none"> 2) Turn on power on the control unit and insert TEST FLOPPY DISK 		<ol style="list-style-type: none"> 1) After inserting the Test Floppy Disk wait until song #1 is displayed on the LCD. 2) Press the volume button, LCD will display: Volume 3) Press the + or – buttons and watch the LCD until 0 volume is indicated.
<ol style="list-style-type: none"> 3) Adjust the normal mode switch for the mute unit. 	The switch should be open in normal mode at a volume range of 0 to -8.	<ol style="list-style-type: none"> 1) Press the Volume button, make sure the LCD reads volume. (If it doesn't, press the volume button again) 2) Press the - button until -8 is displayed on the LCD. The mute motor should not turn on at a volume setting of -8 3) If the mute motor did turn on, loosen the (2) Phillips head screws on the normal mode switch(9)(in picture) and raise or lower the switch on the soft pedal rod so that the mute motor does not turn on at a volume range of 0 to -8.
<ol style="list-style-type: none"> 4) Adjust the Soft Mode Switch. 	Hammer blow distance is 17mm +/- 3mm in soft mode. The volume range is -9 to -10.	<ol style="list-style-type: none"> 1) Press the - button until -9 is displayed on the LCD. 2) If the mute motor brought the hammer blow distance to close or not close enough to the strings: Loosen the (2) Phillips head screws on the soft mode switch(10) and adjust it up or down on the soft pedal rod.
FOR MX100 A & B:		
<ol style="list-style-type: none"> 8. Do a Pedal Only RECORD and PLAY/BACK test 	Check all pedal adjustments.	

HAMMER SENSOR TEST

MX100 A/B






NOTE: On MX100A, if the ROM version is less than 1.40A, you must use a tone generator connected to the MIDI OUT port to perform the sensor tests.

PROCEDURE	RESULT	ADJUSTMENT & COMMENTS
1. While pressing and holding the   buttons, press the  button.	LCD will display: <div style="border: 1px solid black; padding: 5px; text-align: center;">TEST MODE</div>	
2. Press the + button 8 times.	The chromatic scale will start to play and the LCD will display: <div style="border: 1px solid black; padding: 5px; text-align: center;">(8)PIANO TEST GET DATA=xx</div>	The note number is displayed in the 7 segment LCD to the left of the display. “xx” represents the velocity of the hammer in hexadecimal.
3. Immediately press the  button.	This pauses playing of the chromatic scale. You are now in “SENSOR TEST MODE”.	NOTE: DON'T PRESS THE  BUTTON!!
4. Check Hammer Sensor rail position at each adjusting point by placing a 2mm thick strip (plastic Yamaha gauge) between the selected hammer and the strings. Move hammer slowly toward string, (ignore the first beep). Sensor detect beep should turn on and continue to stay on as the hammer is lightly pressed into the plastic gauge	Second beep should occur when hammer is 1.5mm (\pm 0.8mm) from the string. Hammer sensor adjustment is usually needed only after filing hammers. It should be checked, however, to ensure recording accuracy. If sensor rail is too close to the strings, the beep will not be heard when the hammers is pressed into the plastic gauge. If sensor rail is too far away from the strings, the beep will be heard before the hammer is pressed into the plastic gauge.	Sensor rail position is changed by adding or removing shims between the sensor rail and the action brackets.
5. Retighten sensor rail mounting screws.		

KEY SENSOR TEST

MX100 A/B

NOTE: On MX100A, if the ROM version is less than 1.40A, you must use a tone generator connected to the MIDI OUT port to perform the sensor tests.

PROCEDURE	RESULT	ADJUSTMENT & COMMENTS
1. Remove keys 8, 32, 57, 81	Exposes the key sensor rail adjusting screws.	The key sensor rail adjusting screws are located on the front side of the sensor rail. DO NOT TIGHTEN THE SCREWS ON THE BACK OF THE RAIL!
2. While pressing and holding the   buttons, press the  button.	LCD will display: <div style="border: 1px solid black; padding: 5px; text-align: center;">TEST MODE — <PUSH> +</div>	
3. Press the + button 8 times.	The chromatic scale will start to play and the LCD will display: <div style="border: 1px solid black; padding: 5px; text-align: center;">(8)PIANO TEST GET DATA=xx</div>	The note number is displayed in the 7 segment LCD to the left of the display. “xx” represents the velocity of the hammer in hexadecimal.
4. Immediately press the  button.	This pauses playing of the chromatic scale. You are now in “SENSOR TEST MODE”.	NOTE: DON'T PRESS THE  BUTTON!!
5. Play and hold a white key near the adjusting screw.	Sensor detect beep should sound.	
6. SLOWLY release the key until the damper just touches the string.	Sensor detect beep should stop sounding.	Raise or lower the sensor rail until the sensor detect beep stops sounding as the damper just touches the string. TO RAISE THE SENSOR RAIL: Loosen the appropriate adjustment screw(s). TO LOWER THE SENSOR RAIL: Tighten the appropriate adjusting screws














KEYDRIVE UNIT Height Adjustment

MX100 A/B

PROCEDURE	RESULT	ADJUSTMENTS & COMMENTS
1. Remove the case parts.		This includes the top board, fallboard, and the 2 keystop rails.
2. Remove keys #8,32,57,81	Exposes the adjusting Phillips head screws used to raise or lower the keydrive unit.	There are 4 pairs of adjustment screws. The keydrive unit adjustment screws are located on the top side of the keydrive unit cover. They are the ones that are recessed in the cover .
3. Raise the keydrive unit height if the gap between the keydrive unit and keys is greater than 2mm.	The gap between the keydrive unit and keys should be set at 2mm. The keydrive unit must be parallel to the key.	<u>Turn the 2 adjustment screws in each section clockwise</u> Note: If the keydrive unit is set too high, the keys will knock on the keydrive unit cover screws.
4. Lower the keydrive unit height if the gap between the keydrive unit and keys is less than 2mm.	The gap between the keydrive unit and keys should be set at 2mm. The keydrive unit must be parallel to the key.	<u>Turn the 2 adjustment screws in each section counter-clockwise.</u> Note: If the keydrive unit is set too low, the solenoids will knock under the keys.

CONTROL UNIT TESTING

MX100 A/B

Operation	Content of test
1. Power up with   buttons	LCD will display: <div style="border: 1px solid black; padding: 2px; width: fit-content;">Test Mode</div>
2. Press “+” button	LCD will display: <div style="border: 1px solid black; padding: 2px; width: fit-content;">Test Mode MDR Sheet</div>
3. Press  button	7 seg and LED test
4. Press  button	LCD test
5. Press  button	Buzzer test
6. Press  button	Switch and Remote Controller test
7. Press  button. Press the  button to execute test	RAM test
8. Press  button. Press the  button to execute test	ROM test
9. Press  button	MIDI test NOTE: Connect MIDI in & MIDI out with cable.
10. Press  button	Piano play test (chromatic scale played)
11. Press  button (Don't perform this test, it erases the disk!)	FDD test