Rimage Professional™ 3400 and 5400N
Diagnostic Tests

RIMAGE®

Contents

# Diagnostic Tests for the Rimage Professional™ 3400 and 5400N

This document provides the information needed to access, select and perform all diagnostic tests for the Rimage Professional 3400 and 5400N. The term "autoloader" is used throughout this document to refer to these products.

⚠ **Important!** Make sure that the autoloader is not in an error sate before you perform any of the diagnostic tests. For information about operation and maintenance of the autoloader, refer to the *Professional 3400 and 5400N User Guide*.

Access and Select Diagnostic Tests

Access Diagnostic Mode

1. Power on the **autoloader**.

2. Allow the system to initialize. This may take several minutes.

3. Open the **front door**.

4. Remove any **discs** from the autoloader.

5. Press and hold the **rotate carousel button (button 1)** until **[00 CHOOSE DIAGNOSTIC]** displays on the operator panel.
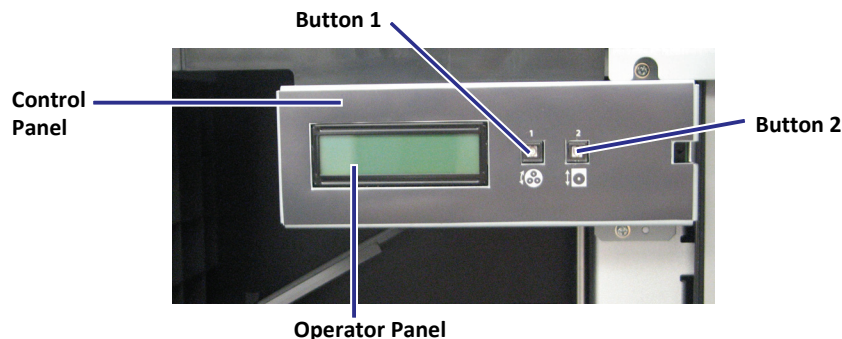
✎ **Note:** Other status messages display on the operator panel while button 1 is being held in. Do not release the button until the operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

6. Release **button 1**. The autoloader is in diagnostic mode.

Select a Diagnostic Test

1. Once in diagnostic test mode, press **button 1** the same number of times as the test number (indicated in the test title).

2. Hold **button 1** in on the last press for five seconds, or until a new message displays. Release the button to start the selected test.

   For example: To start diagnostic test 3 (calibration diagnostic), press **button 1** three times and hold it in on the third press for five seconds, or until the operator panel displays **[03 CAL LIFT LEN 1 DISC IN BIN 1]**.

   📖 **Tip:** To display each diagnostic test number and name, press button 1 at a rate that is slow enough to read the test on the operator panel. If you pass the desired diagnostic test, release button 1 and wait for the operator panel to display **[00 CHOOSE DIAGNOSTIC]**.

Exit Diagnostic Test Mode

1. If a diagnostic test is currently in process, press **button 1** once to stop the test.

2. When the diagnostic test is stopped, press **button 1** eight times and hold it in until the operator panel displays **[99 EXITING DIAGNOSTIC]**.

3. Release **button 1**. The autoloader exits diagnostic mode.

✎ **Note:** At the end of diagnostic test 3, the autoloader automatically exits the test and returns to diagnostic test mode.

Perform Diagnostic Tests

Test 1 – Solenoid Test Diagnostic

This test cycles the solenoid in the lift arm.

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Press and hold **button 1** until the operator panel displays **[01 SOLENOID TEST CYCLE = XXXXXX]**, where X is the number of solenoid cycles completed.

3. Release **button 1**. The test starts automatically.

   • The autoloader begins to cycle the solenoid in the lift arm.

   • The cycle count advances on the operator panel.

   ✎ **Note:** The autoloader continues to cycle the solenoid until you press button 1 to stop the test.

4. Press **button 1** once to stop the test and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Test 2 – Cycle Test Diagnostic

This test has 6 cycles. The cycles are determined by whether or not a disc is present and where it is placed in the autoloader. The cycle beings when the autoloader detects the location of the disc, if present.

⚠ **Important!** Before you begin diagnostic test 2, remove all discs from the autoloader. Make sure that the printer tray, recorder trays, carousel, and output bin are empty.

Select Diagnostic Test 2

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Press **button 1** twice and hold it until the operator panel displays **[02 CYCLE TEST SETUP DEVICES]**.

3. Release **button 1**. The autoloader pauses, allowing you to place media in the appropriate place. Follow the instructions on **pages 3 through 6** for the cycle you wish to perform.

   📖 **Tip:** Once media is placed and the devices are set up for a cycle, press and hold button 1 to display an option menu on the operator panel. Each option displays for 3 seconds. Release button 1 while an option is displayed to select the option and begin the cycle. Choose from the following options:

   [02 CYCLE TEST EXIT W/O RUNNING]

   [02 CYCLE TEST SIM OUTPUT FULL]

   [02 CYCLE TEST SIM OUTPUT EMPTY]

   [02CYCLE TEST SIM OUTPUT NORM]

   ✎ **Note:** The autoloader continues to perform each cycle until you press button 1 to stop it.

Cycle 1: Cycle a Disc at the Printer

1. Select diagnostic test 2. Refer to page 3.

2. Press the **printer tray button (button 2)** to open the printer tray.

3. Place **one disc** on the printer tray.

4. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

   • The lift arm picks and places the disc at the printer tray.

   • The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

5. Press **button 1** to stop the cycle and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

6. Remove the **disc** from the printer tray.

7. Press **button 2** to close the printer tray.

Cycle 2: Cycle a Disc at the Recorder

1. Select diagnostic test 2. Refer to page 3.

2. Open the **recorder tray**.

    ⚠ **Important!** Make sure the printer tray is closed.

3. Place **one disc** on the recorder tray.

4. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

    - The lift arm picks and places the disc at the recorder tray.

    - The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

5. Press **button 1** to stop the cycle and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

6. Remove the **disc** from the recorder tray.

7. Close the **recorder tray**.

8. Repeat **steps 1 – 7** for the second recorder tray.

Cycle 3: Cycle a Disc between the Recorder and the Printer

1. Select diagnostic test 2. Refer to page 3.

2. Press **button 2** to open the printer tray.

3. Open the **recorder tray**.

4. Place **one disc** on the recorder tray.

5. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

    - The lift arm begins to cycle the disc between the open recorder tray and printer tray.

    - The printer tray opens and closes with each cycle.

    - The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

6. Press **button 1** to stop the cycle and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

7. Remove the **disc** from the printer or recorder tray.

8. Press **button 2** to close the printer tray.

9. Close the **recorder tray**.

10. Repeat **steps 1 – 9** using the second recorder.

Cycle 4: Cycle Discs at the Carousel

1. Select diagnostic test 2. Refer to page 3.

2. Make sure the printer tray and recorder trays are closed.

3. Place **discs** (Qty. 50) in carousel bin 1.

   ⚠ **Important!** Make sure that carousel bins 2 and 3 are empty.

4. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

   - The autoloader checks all the carousel bins for discs.

   - The lift arm picks discs from bin 1 and places them in the output bin. This cycle continues until the output bin is full.

     ✎ **Note:** The output bin holds 8 discs.

   - When the output bin is full, the lift arm begins to cycle the discs around the carousel, placing discs in a bin until it is full.

   - The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

5. Press **button 1** to stop the cycle and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

6. Remove the **discs** from the carousel and the output bin.

Cycle 5: Cycle Discs between the Carousel and the Printer

1. Select diagnostic test 2. Refer to page 3.

2. Select **diagnostic test 2**. The operator panel displays **[02 CYCLE TEST SETUP DEVICES]**.

3. Press **button 2** to open the printer tray.

   ⚠ **Important!** Make sure that both recorder trays are closed.

4. Place **discs** (Qty. 50) in carousel bin 1.

   ⚠ **Important!** Make sure that bins 2 and 3 are empty.

5. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

   - The autoloader checks all the carousel bins for discs.

   - The lift arm picks a disc from bin 1, places it on the printer tray, and then places the disc in the output bin. This cycle continues until the output bin is full.

     ✎ **Note:** The output bin holds 8 discs.

   - When the output bin is full, the lift arm begins to cycle the discs from the printer to the carousel, placing discs in a bin until it is full.

   - The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

7. Press **button 1** to stop the cycle and return to diagnostic test mode.

8. Remove the **discs** from the printer tray, output bin, and carousel.

Cycle 6: Cycle the Lift Arm

1. Select diagnostic test 2. Refer to page 3.

2. Make sure that the printer tray and recorder trays are closed.

3. Make sure that carousel bins 1, 2, and 3 are empty.

4. Press **button 1** to begin the cycle. The operator panel displays **[02 CYCLE TEST CHECKING DEVICES]**.

    -   The autoloader checks all the carousel bins for discs.

    -   The lift arm moves in and out of each carousel bin.

    -   The operator panel displays **[02 CYCLE TEST CYCLE = XXXXXX]**, where X is the number of cycles completed.

5. Press **button 1** to stop the cycle and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Test 3 – Calibration Test Diagnostic

This test calibrates the lift arm and carousel.

✎ **Note:** When diagnostic test 3 is complete, the autoloader automatically exits the test and returns to diagnostic test mode.

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Remove all media from the autoloader. Make sure the printer tray, recorder trays, carousel, and output bin are free of discs.

3. Press **button 1** three times and hold it until the operator panel displays **[03 EMPTY CAROUSEL DISC ON GRIPPER]**. The indicator light on button 1 flashes and the system pauses.

4. Place one **disc** on the lift arm.

    📖 **Tip:** Press the disc into the gripper while pressing the disc release button on top of the lift arm.

5. Press **button 1**.

    -   The lift arm moves into position above carousel bin 1.

    -   The indicator lights on buttons 1 and 2 flash.

    -   The operator panel displays **[03 CAL CAR POS ORIGIN +00000]**.

        📖 **Tip: ORIGIN +00000** is the default carousel position when the lift arm is positioned at carousel bin 1.

    -   The autoloader pauses.

6. Check the position of the carousel.

   ✎ **Note:** When the carousel is positioned correctly, the disc should not touch any part of the carousel.

   a. Manually, lower the **lift arm** and attached disc all the way into bin 1.

      - If the disc touches the carousel at any point, adjust the default carousel position.

      - If the disc does not touch the carousel, the default carousel position does not need to be adjusted. Continue to **step 7**.

   b. Adjust the default carousel position.

      - Press **button 1** to raise the position measurement displayed on the operator panel. The carousel adjusts its position to match the measurement.

      - Press **button 2** to lower the position measurement displayed on the operator panel. The carousel adjusts its position to match the measurement.

   c. Repeat **steps a and b** until the carousel position is adjusted correctly.

7. Press and hold **button 1** and **button 2** for three seconds to save the carousel position measurement.

   The lift arm drops the disc into carousel bin 1 and the autoloader automatically begins to take the following measurements:

   Carousel bin top measurement

   - The autoloader measures the distance between the top of the lift column and the top edge of the carousel.

   - The operator panel displays **[03 CAL CAR TOP O: XXXXX N: XXXXX]**.

     📖 **Tip:** O: XXXXX is the old carousel top measurement, and N: XXXXX is the new carousel top measurement, based on the current position of the carousel.

   Carousel bin bottom measurement

   - The autoloader measures the distance between the top of the lift column and the bottom of the carousel.

   - The operator panel displays **[03 CAL CAR BOT O: XXXXX N: XXXXX]**

     📖 **Tip:** O: XXXXX is the old carousel bottom measurement, and N: XXXXX is the new carousel bottom measurement, based on the current position of the carousel.

   Gripper plunger length measurement

   - The lift arm moves into bin 1 and begins picking and dropping the disc. This cycle continues several times and the autoloader calibrates the lift arm.

   - The operator panel displays **[03 CAL GRIPPER 0: XXXXX N: XXXXX]**

     📖 **Tip:** O: XXXXX is the old lift arm measurement, and N: XXXXX is the new lift arm measurement.

   - The autoloader automatically exits diagnostic test 3 and returns to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Test 4 – Sensors Test Diagnostic

This test verifies the functionality of the motion detectors and sensors in the 3400 and 5400N. There are 2 motion detectors and 5 sensors and in the autoloader.

When diagnostic test 4 has been selected, the operator panel displays the following screen:

```
X  X  X  X      0  1  1  1  1
L  M  C  M      D  G  O  L  C
```

- Each letter on the bottom row of the screen stands for a motion detector or sensor:
    - **LM: Lift motion detector** located inside the left arm
    - **CM: Carousel motion detector** located inside the carousel
    - **D: Door sensor** located on the front of the autoloader frame
    - **G: Gripper plunger sensor** located inside the lift arm
    - **O: Output bin sensor** located inside the output bin, on the left side of the autoloader
    - **L: Lift home sensor** located at the top of the lift column, inside the autoloader
    - **C: Carousel home sensor** located beneath the carousel

- The top row of the screen displays the status of the motion detectors and sensors during each test:
    - **X X:** Indicates the various **digital values** for the lift motion and carousel motion detectors.

      ✎ **Note:** These digital values change continuously while the lift arm and carousel are in motion.

    - **0:** Indicates that the sensor path is clear or the switch is closed.
    - **1:** Indicates that the sensor path is interrupted or the switch is open.

Select Diagnostic Test 4

1. Remove all **discs** from the autoloader. Make sure the printer tray, recorder trays, carousel, and output bin are empty.

2. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

3. Press **button 1** four times and hold it until the following screen displays on the operator panel:

```
X  X  X  X      0  1  1  1  1
L  M  C  M      D  G  O  L  C
```

4. Release **button 1**.

5. Follow the instructions on **pages 9 and 10** for the motion detector or sensor that you wish to test.

    ✎ **Note:** When you are finished with diagnostic test 4, press button 1 once to exit the test and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Lift Motion Detector (LM)

The lift motion detector senses when the lift arm is in motion.

When the lift arm is in motion, the operator panel displays a digital value, signified by 'X'.

✎ **Note:** These digital values change continuously while the carousel is in motion.

X	**X**	X	X		0	1	1	1	1
L	**M**	C	M		D	G	O	L	C

Carousel Motion Detector (CM)

The carousel motion detector senses when the carousel is in motion.

When the carousel is in motion, the operator panel displays a digital value, signified by 'X'.

✎ **Note:** These digital values change continuously while the lift arm is in motion.

X	X	**X**	**X**		0	1	1	1	1
L	M	**C**	**M**		D	G	O	L	C

Door Sensor (D)

The door sensor is located on the right side of the control panel on the front of the autoloader. It detects when the front door is open and closed.

1. Close the **front door**. The operator panel displays:

X	X	X	X		**1**	1	1	1	1
L	M	C	M		**D**	G	O	L	C

2. Open the **front door**. The operator panel displays:

X	X	X	X		**0**	1	1	1	1
L	M	C	M		**D**	G	O	L	C

Gripper Plunger Sensor (G)

The gripper plunger sensor is located inside the lift arm. It detects when a disc is present on the lift arm.

1. Place a **disc** on the lift arm. The operator panel displays:

X	X	X	X		0	**0**	1	1	1
L	M	C	M		D	**G**	O	L	C

2. Remove the **disc** from the lift arm. The operator panel displays:

X	X	X	X		0	**1**	1	1	1
L	M	C	M		D	**G**	O	L	C

Output Bin Sensor (O)

The output bin sensor is located inside the output bin, on the left side of the autoloader. It detects when the output bin is full.

✎ **Note:** The output bin holds 8 discs.

1. Place **discs** (Qty. 8) in the output bin. The operator panel displays:

X	X	X	X		0	1	**0**	1	1
L	M	C	M		D	G	**O**	L	C

2. Remove the **discs** from the output bin. The operator panel displays:

X	X	X	X		0	1	**1**	1	1
L	M	C	M		D	G	**O**	L	C

Lift Home Sensor (L)

The lift home sensor is located at the top of the lift column, inside the autoloader. It detects when the lift arm reaches the top of the lift column.

1. Manually move the **lift arm** away from the top of the lift column. The operator panel displays:

X	X	X	X		0	1	1	**0**	1
L	M	C	M		D	G	O	**L**	C

2. Move the **lift arm** to the top of the lift column. The operator panel displays:

X	X	X	X		0	1	1	**1**	1
L	M	C	M		D	G	O	**L**	C

Carousel Home Sensor (C)

The carousel home sensor is located beneath the carousel. It detects the bin position of the carousel.

1. Manually rotate the **carousel**. When the carousel sensor detects the "home" position of the carousel (between bins 1 and 2), the autoloader beeps and operator panel displays:

X	X	X	X		0	1	1	1	**0**
L	M	C	M		D	G	O	L	**C**

2. Rotate the **carousel** away from the carousel "home" position. The operator panel displays:

X	X	X	X		0	1	1	1	**1**
L	M	C	M		D	G	O	L	**C**

Test 5 – Cycle Carousel Test Diagnostic

This test continuously cycles the carousel between bins 1 and 3.

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Press **button 1** five times and hold it until the operator panel displays **[INDEX: XXXXX CYCLE = XXXXX]**.

   📖 **Tip:** INDEX: XXXXX is the top carousel rotation speed. CYCLE = XXXXX is the number of cycles completed.

3. Release **button 1**. The test starts automatically.

   • The carousel rotates back and forth between bins 1 and 3.

   • The cycle count **[CYCLE = XXXXX]** advances with each rotation.

   ✎ **Note:** The autoloader continues to cycle the carousel until you press button 1 to stop the test.

4. Press **button 1** to stop the test and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Test 6 – Cycle Lift Test Diagnostic

This test continuously cycles the lift arm in and out of bin 1.

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Press **button 1** six times and hold it until the operator panel displays **[INDEX: XXXXX CYCLE = XXXXX]**.

   📖 **Tip:** INDEX: XXXXX is the top lift arm speed. CYCLE = XXXXX is the number of cycles completed.

3. Release **button 1**. The test starts automatically.

   • The lift arm moves in and out of carousel bin 1.

   • The cycle count **[CYCLE = XXXXX]** advances with each carousel rotation.

   ✎ **Note:** The autoloader continues to cycle the lift arm until you press button 1 to stop the test.

4. Press **button 1** to stop the test and return to diagnostic test mode. The operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

Test 7 – Currents Test Diagnostic

This test sets the current values for the lift arm and the carousel.

1. Make sure the autoloader is in diagnostic test mode. Refer to the *Access and Select Diagnostic Tests* section on page 1.

2. Press **button 1** seven times and hold it until the operator panel displays **[07 TEST CURRENTS 100%**].

3. Release **button 1**.

4. Press **button 1** to toggle between the two current values. The operator panel displays **[07 TEST CURRENTS 100%]** and **[07 TEST CURRENTS 80%]**.

5. Press and hold **button 1** to save the 80% or 100% value and exit the test. The autoloader returns to diagnostic test mode and the operator panel displays **[00 CHOOSE DIAGNOSTIC]**.

   ✎ **Note:** The current values are used for all motions while the autoloader is in diagnostic test mode as well as normal operation mode. The values are stored in temporary memory. The 100% value will be used after the autoloader has been powered off.

Support information

Contact Rimage US, Asia/Pacific, Mexico/Latin America:	When you contact Rimage Support, please provide:
Web: www.rimage.com/support **KnowledgeBase:** http://rimage.custhelp.com **North America:** 800-553-8312 **Asia/Pacific, Mexico/Latin America:** 952-946-0004	• Unit serial number and software version. • Functional and technical description of the problem. • Exact error message received.
Contact Rimage Europe: **Web:** www.rimage.de **Email:** support@rimage.de **Tel:** +49-(0) 1805-7462-43 **Fax:** +49-(0) 6074-8521-101	Rimage Corporation reserves the right to make improvements to the equipment and software described in this document at any time without any prior notice. Rimage Corporation reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of Rimage Corporation to notify any person or organization of such revisions or changes.