Kodak

Automatic Pallet Loader

Shutter Series 4 Upgrade Procedure

Document Number
719-00971A-A

13 Mar 2008

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Revision History

Revision	Date	Author	Comments
1	04 Jan 2008	S.Damiano	First draft
2	30 Jan 2008	A.Blignaut	Edited and revised
3	13 Mar 2008	A.Blignaut	Edited cabling procedure

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1. OVERVIEW

This document describes how to upgrade the APL Shutter to Series IV readiness. The upgrade involves adding two shutter lock sensors and the sensor cables.

2. PARTS/TOOLS NEEDED

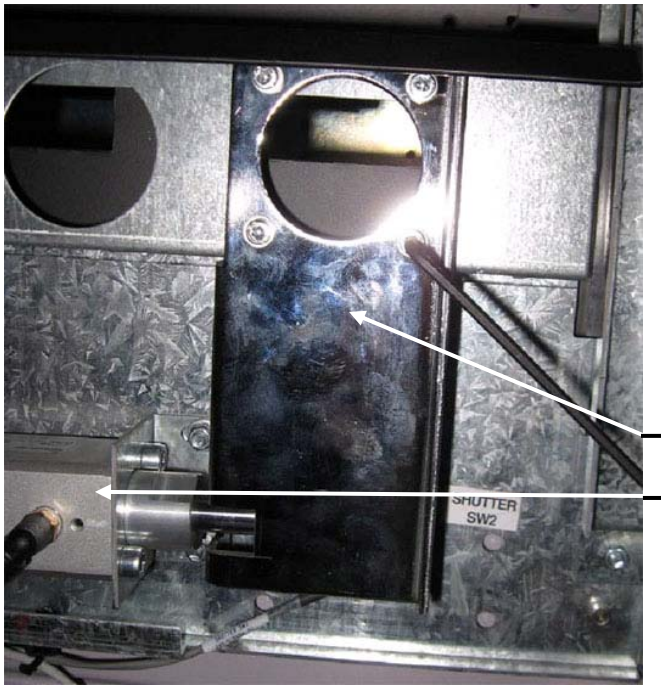
Shutter upgrade kit – 518-03109A

3. UPGRADING THE SHUTTER

3.1 Installing the Shutter Lock Sensors

There are two shutter lock cylinders on the APL shutter—one on either side of the shutter. A shutter lock sensor must be installed on both shutter locks and the procedure is identical for each side.

1. Turn the APLs compressed air supply to OFF.
2. On one of the shutter locks, use a 3 mm hex key to remove the four M4X10 SHCS from the shutter lock flange and remove the flange.



3. Note the position of the air tubes on the shutter lock cylinder and disconnect them.
4. Remove the shutter lock cylinder—two M6X12 SHCS.

5. Mount the sensor (220-01544A) and tab (252-14197A) onto the cylinder using a M3X8 SEM—note the orientation of the sensor to the flat side of the cylinder.

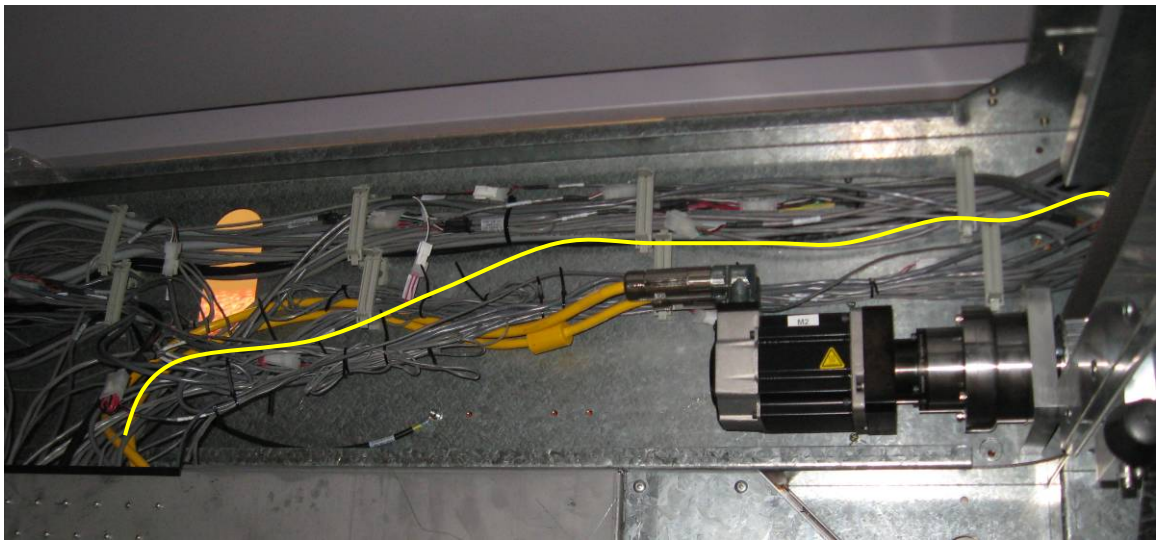


6. Reinstall the cylinder—apply LOCTITE 242 to the two M6X12 SHCS.
7. Connect the red and black tubes to the shutter lock cylinder.
8. Reinstall the shutter lock flange.
9. Repeat steps 1-6 to install a sensor on the other lock cylinder.

3.2 Installing the Sensor Cable

A shutter lock sensor cable must be run from the new sensors to the LIONEL 4 board in the APL power box. For three segment APLs only, two additional cables must be installed—220-02348A and 220-02349A.

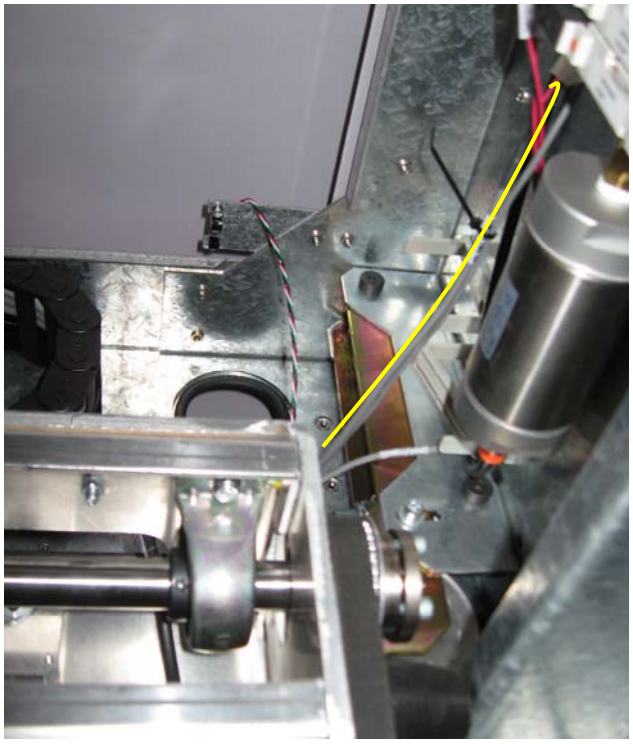
1. Turn the APL power to OFF and remove the power box panel.
2. Inside the power box, locate LIONEL 4 board and disconnect plug J7.
3. Insert the new cable (220-02558A) pins into J7. See Appendix A for details on how to do this.
4. Run the other end of the cable out the top of the power box, along the inside of the end cap to the outside of the APL rear beam.



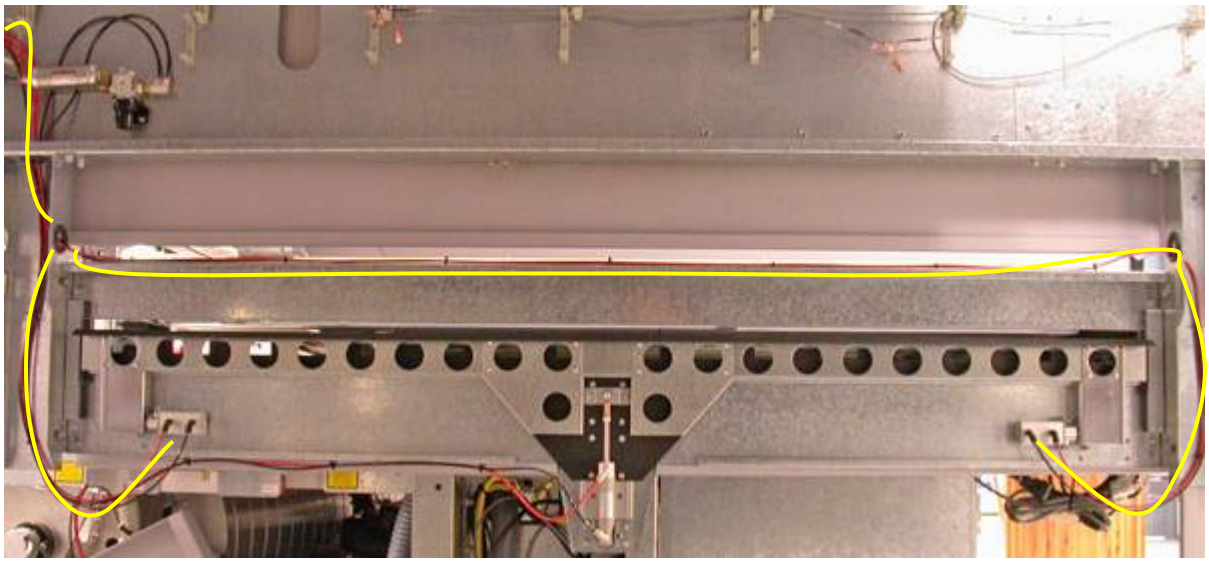
5. On the outside, run the cable the length of the APL to the eject side of the frame.



6. At the eject side, run the cable back inside the APL past the shutter manifold and down to the two shutter lock cylinders.



7. Connect the cable to the new shutter lock cylinder sensors and secure it with cable ties wherever needed.



8. Install the power box panel.
9. Turn the compressed air supply ON.
10. Close all APL doors.
11. Turn the APL power to ON.

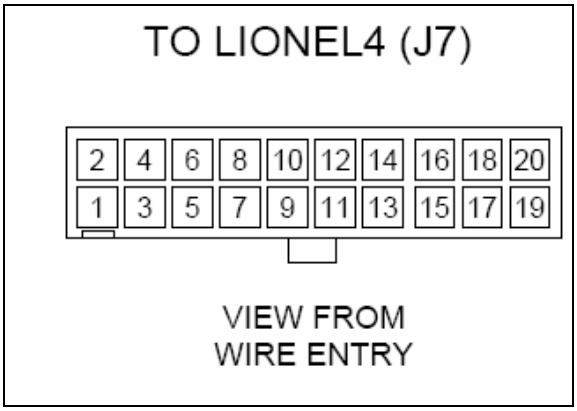
4. TESTING THE SHUTTER LOCK SENSORS

1. Type `>>apl shutter down` to open the shutter.
2. Type `>> scan frm_sensorshutterlockon .`
   The *FRM_SensorShutterLockOnvalue* should be **0**.
3. Type `>>apl shutter up` to close the shutter.
4. Type `>> scan frm_sensorshutterlockon .`
   The *FRM_SensorShutterLockOnvalue* should be **1**.

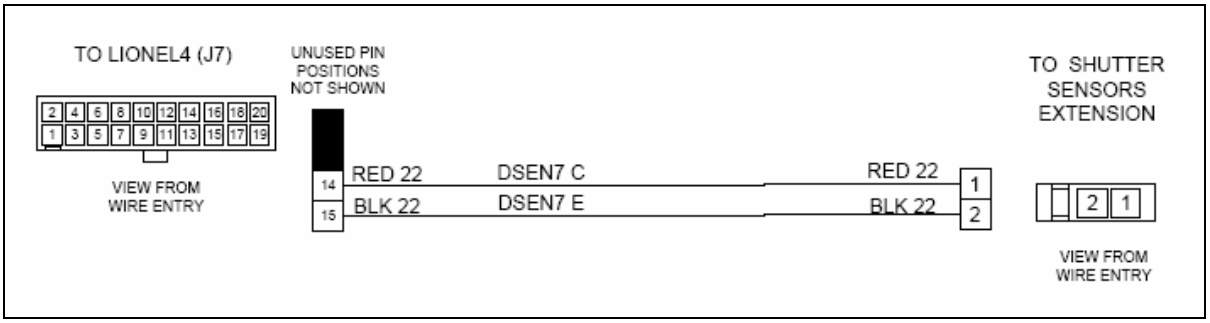
5. APPENDIX A

Adding pins from upgrade cable 220-02558A to connector J7 of cable 220-02267A:

1. Using the pin removal tool (690-0032A), remove pins 14 and 15 from connector J7.



2. Insert the upgrade cable pins into connector J7 pins 14 and 15—red wire in pin 14 and the black wire in pin 15.



Note: If a pin does not lock in place, then the connector tab could have been damaged during the removal of the pins. If this happens, then connector J7 must be replaced with a new connector provided in the upgrade kit.
Using the pin removal tool, remove all 20 wires from the broken plug J7 and install them in the same location on the new plug. Move the wires one by one to avoid installing them in the wrong place.

3. Plug the connector back into J7 on the LIONEL 4 board.