Kodak

FCO 512-00424A

Modified TH2 carriage for the Magnus 800 platesetter

Document number: 719-00817A Rev C

Release date: 21 May 2008

Product: Kodak® Magnus™ 800 platesetter (serial number 80364 and lower)

FCO priority: Next thermal head failure

Time required: 4 hours

Component: Carriage

Tools required:

- Kit 516-00029A carriage, tools and jigs regional, mgs800.
  This kit is supplied by the Output Device department as an original kit. The kit includes a lead screw pulley key (690-01151A) and a tool/jig, lead screw, belt, tension jig (690-01158A).
- Metric hex keys
- 3/16-in. hex key
- Torque wrench capable of achieving 20 newton meters (N m)
- 27-mm open wrench
- 8-mm socket ratchet

Issues resolved

- Unwanted appearance of image artifacts on the plate



Figure 1: Image artifacts appear on the plate

- Carriage can now accept 30-mm radial roller bearings (part number 368-00136), ensuring a smooth carriage movement along the length of the carriage tracks.

Solution

- Replace the existing carriage with a modified carriage (500-04859A).

Overview

- The existing carriage cannot accept 30-mm radial roller bearings. This causes the carriage to move erratically along the carriage tracks and causes unwanted image artifacts. The modified carriage resolves both of these issues.

FCO 512-00424A

Parts supplied

Part Number	Part Name	Quantity
500-04859A	Assembly mech. carriage	1
304-00026	Ribbed lock washer, M6,ST	4
252-09435A	Sponge	1
380A57170	SOC CAP STST A2 DIN912 M6X30	4
304-00028	Ribbed lock wash, M4,ST	4
380A55110	SOC CAP STST A2 DIN912 M4X16	4
382D55000	HEL.SP.L/W STST A2 DIN127B M4	4
304-00013	Wash, flat, M4, STST, DIN 125A	4
380A57110	SOC CAP STST A2 DIN912 M6X16	3
380S58090	SOC. set STST A2 DIN913 M8X12	1
59-3674	Sprng, comp, 3 wave, OD1.37", ID1.09" T.016	3
FCO updater utility	651-00731A	1
FCO document	719-00817A Rev C	1

Procedure

Remove the existing carriage

1. Run the test plot applets *plot 11 double burn* and *plot 28*. These two plots will be used as a reference. After the modified carriage has been installed, the test plots will be repeated and the results will be compared with the reference results.
2. In Kodak Magnus 800 Controller software, move the head to home position.
3. From the main power supply, turn off the Magnus 800 platesetter.
4. Remove the two screws securing the stopper bracket to the optomech and put the stopper bracket to one side.



Figure 2: Remove the stopper bracket

5. To gain greater access to the carriage, manually move the carriage to its service position.
6. Support the leadscrew by inserting a sponge (252-09435A) between the leadscrew and the optomech.

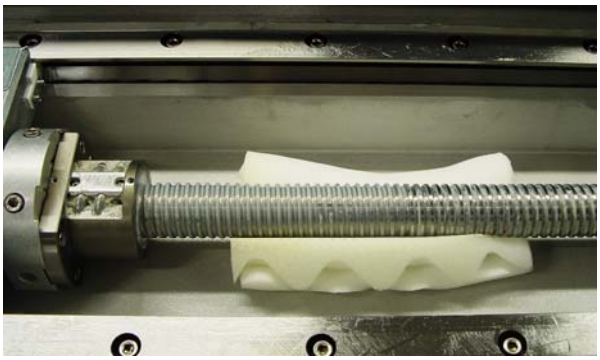


Figure 3: Support the leadscrew with sponge

7. Remove the thermal 2 head from the platesetter. See TechPlanet procedure, *Installing a thermal 2 head on a Magnus 800 platesetter* (http://techplanet.creo.com/output/computer_to_plate/magnus800/content/Procs/Optomech/M8_proc_InstallTH2.htm).

8. Remove the carriage fan's housing. See TechPlanet procedure *Replacing the carriage motor assembly* (http://techplanet.creo.com/output/computer_to_plate/magnus800/content/Procs/Optomech/ M8_proc_ReplaceCarriageMotAss.htm).
9. Use an 8-mm socket ratchet to release, but not remove, the four screws securing the carriage motor to the optomech. When the screws are loosened, the tension on the carriage motor belt decreases.

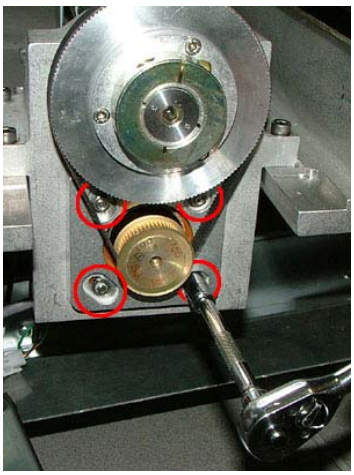


Figure 4: Release the four screws securing the carriage motor

10. Remove the carriage motor belt.
11. Use a 3/16-in. hex key to remove the securing ring. Make sure you do not release the three screws securing the pulley to the middle thread.



Figure 5: Remove the securing ring

12. Install the carriage pulley key (690-01151A) onto the end of the leadscrew pulley.
13. Insert a torque wrench onto the end of the carriage pulley key.
14. Use a 27-mm open wrench to securely clamp the leadscrew.

15. Make sure the pins on the torque wrench jig are fully inserted into the flange.
Using the 27-mm open wrench as a counterforce, rotate the torque wrench until the leadscrew pulley becomes loose. Whilst rotating the wrench, place one hand on the back of the jig to ensure the pins do not move in the flange. Remove the leadscrew pulley and put it aside.

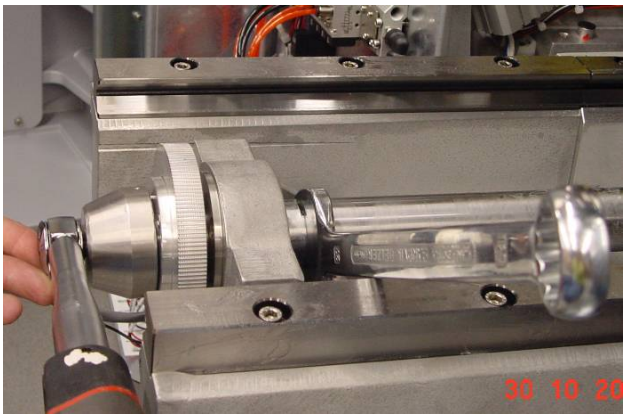


Figure 6: Remove the leadscrew pulley

16. Extract the leaf spring washers and dispose of them. This FCO kit supplies new leaf washers.
17. Rotate the inner flange, located on the lead screw, until it is loose and then remove the flange.

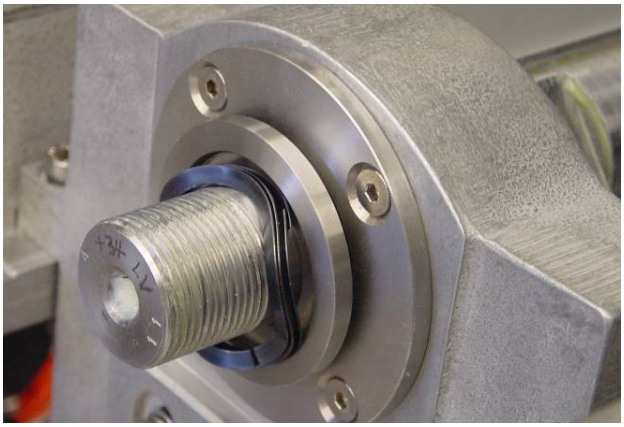


Figure 7: Remove the flange

18. At the carriage end position, use a 5-mm hex key to remove the four coupling screws securing the carriage to the leadscrew.



Figure 8: Remove the coupling screws

19. Using an M5 hex key, remove the four M6x25 screws securing the home position bearing house to the optomech, see Figure 9.
20. Using protective gloves, slightly raise the home bearing house and gently extract it from the leadscrew. Ensure you do not also extract the leadscrew from the away bearing house. If required, enlist help to secure the leadscrew in place.

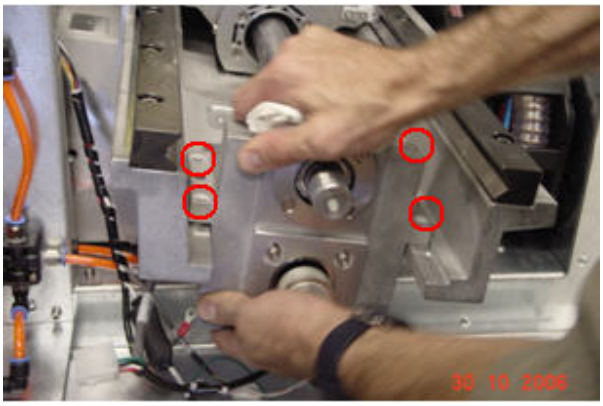


Figure 9: Remove the home position bearing house and extract the leadscrew

21. Carefully extract the carriage from the leadscrew and place it on a work table.

22. Turn the extracted carriage upside down so that the flex tube is exposed.



Figure 10: Turn the carriage upside down

Place the modified carriage (500-04859A) on the same work table.

Remove the carriage components

1. Remove the carriage clamp located on the home position flag side of the carriage.
   a. Remove the M5 set screw and put it aside.

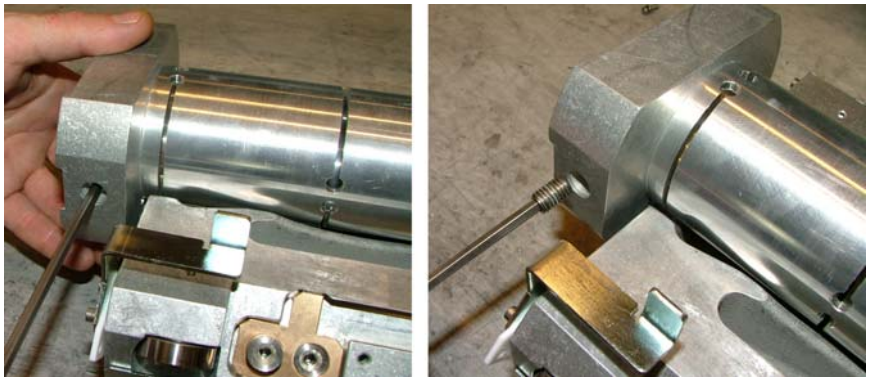


Figure 11: Remove the carriage clamp

b. Remove the three M6 screws and put them aside.



Figure 12: Remove the three M6 screws

c. Extract the carriage clamp and put it aside.

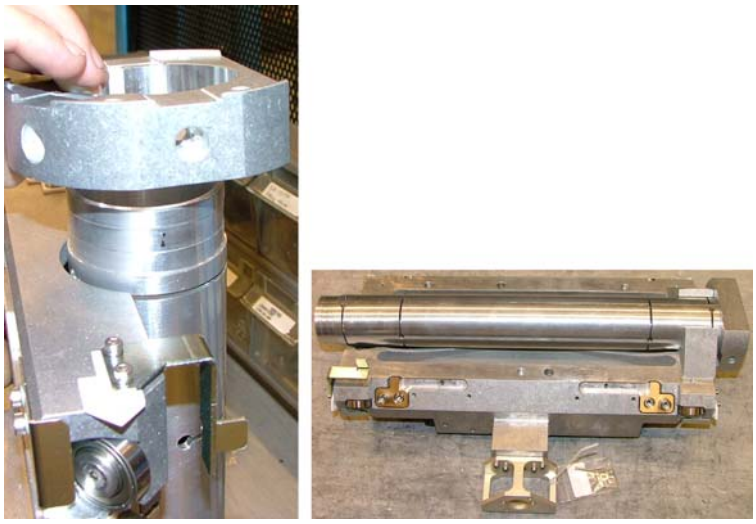


Figure 13: Remove the carriage clamp

2. Remove the five M6 screws from the carriage clamp that previously connected the carriage to the leadscrew, and then remove the carriage clamp. Put the screws and carriage clamp aside.



Figure 14: Remove the five M6 screws

3. Carefully extract the flex tube from the clamp and put it aside.

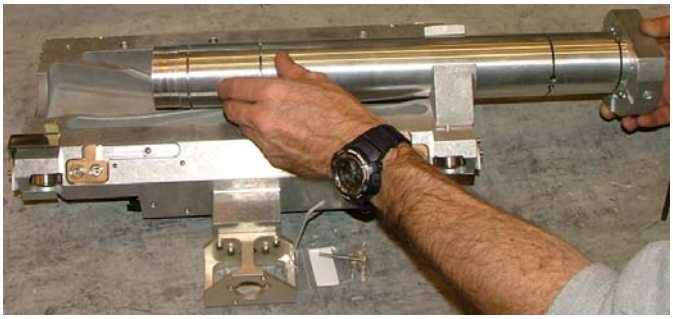


Figure 15: Extract the flex tube

4. Remove the four M4 screws securing the z-stage bracket to the carriage. Put the z-stage bracket and screws aside.

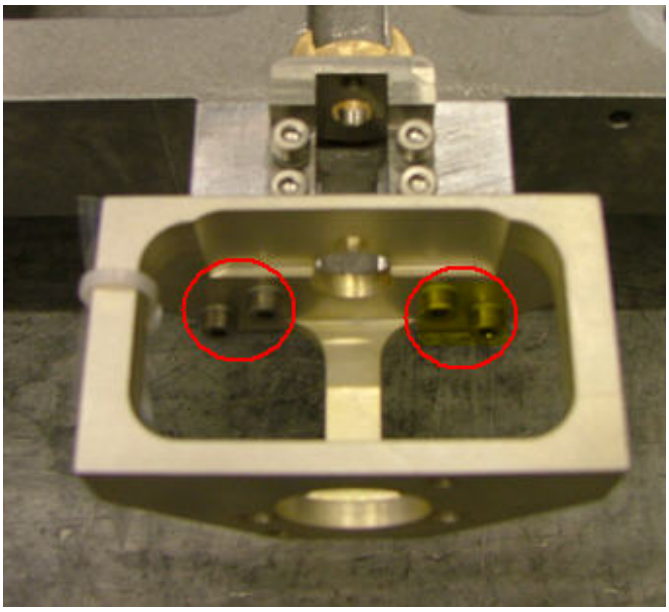


Figure 16: Remove the four M4 screws

5. Using a 3-mm hex key, remove the four M4 screws securing the z-stage locator cylinder to the carriage. Put the z-stage locator cylinder and screws aside.

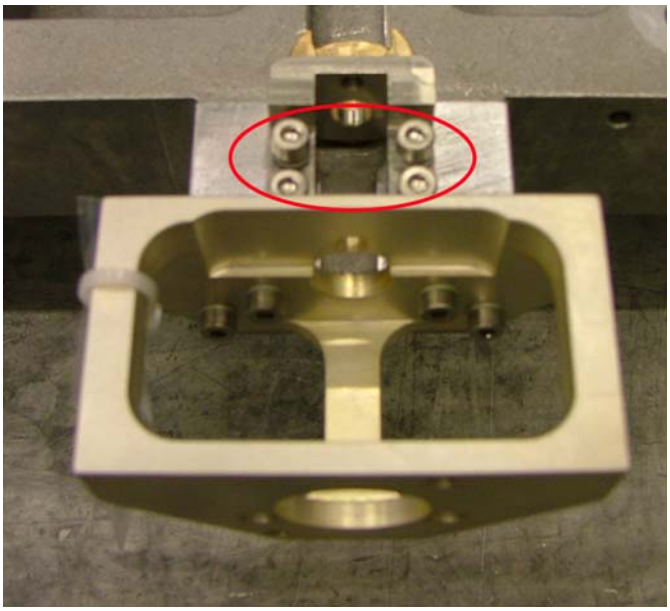


Figure 17: Remove the four M4 screws

6. Remove the two M3 screws securing the carriage home position flag and put it aside.
   Note: S300 model platesetters have a slightly longer flag and three screws (as opposed to two screws on the S100 model platesetters).

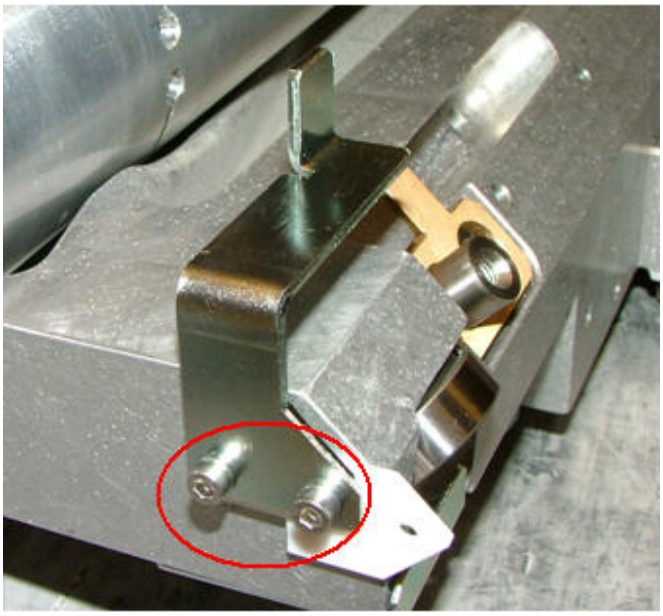


Figure 18: Remove the carriage home position flag

Install the carriage components onto the modified carriage

Apply Loctite® 242 adhesive to all screw threads.

1. Using the five M6 screws previously removed; install the flex tube onto the modified carriage, see Figure 14 and Figure 15.
2. Install the carriage clamp onto the flange located on the home position flag side of the modified carriage.
   a. Make sure the carriage clamp is fully inserted into the flex tube.



Figure 19: Fully insert clamp into flex tube

b. Turn the modified carriage upside down. Make sure the flange located on the home position flag is facing in the same direction as fixed flange, located on the opposite side of the carriage.

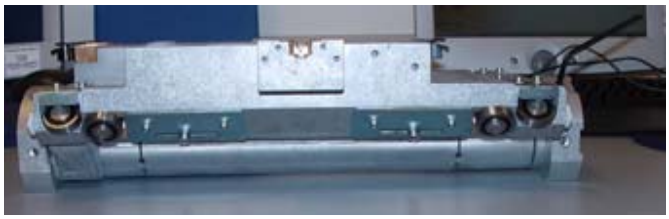


Figure 20: Make sure both flanges are facing in the same direction

c. Using the M5 set screw and the three M6 screws previously removed; secure the flange to the modified carriage.



Figure 21: Install the carriage clamp

3. Install the z-stage bracket, see Figure 16 .
4. Install the z-stage locator, see Figure 17.
5. Install the carriage home position flag, see Figure 18.

Install the modified carriage onto the platesetter

Apply Loctite 242 adhesive to all screw threads.

1. Carefully install the carriage onto the leadscrew.
2. Install the home bearing house.
   a. Make sure the registration pins are fully inserted into the home bearing house.

b. Use four M6 screws to secure the home bearing house to the optomech, see Figure 9.



Figure 22: Install the home bearing house

3. Using the washers and screws supplied in this FCO kit, secure the modified carriage to the coupling, see Figure 8.
4. Remove the foam support from underneath the leadscrew.
5. Install the inner flange and the supplied leaf spring washers (59-3674) onto the leadscrew.



Figure 23: Install the inner flange and leaf spring washers

6. Install the carriage pulley key onto the end of the carriage pulley, see Figure 6.
7. Insert a torque wrench, set to 20 newton meters (N m), onto the end of the carriage pulley key. Make sure the pins on the torque wrench jig are fully inserted into the flange.
8. Use a 27-mm open wrench to securely clamp the leadscrew.

9. Using the 27-mm open wrench as a counterforce, rotate the torque wrench until the leadscrew pulley is secure.

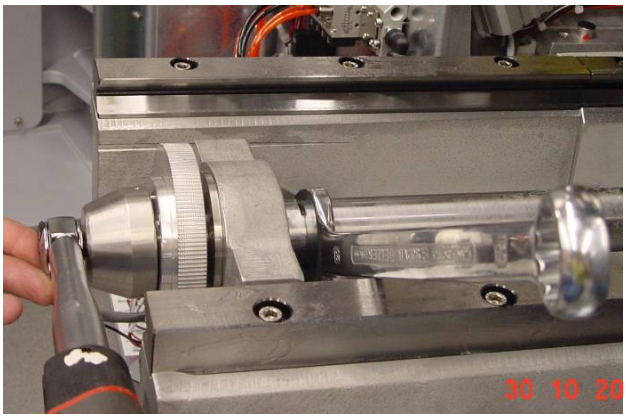


Figure 24: Secure the leadscrew

10. Use a 3/16-in. hex key to reinstall the securing ring, see Figure 5.
11. Install the timing belt and the carriage fan's housing. See TechPlanet procedure *Replacing the carriage motor assembly* (http://techplanet.creo.com/output/computer_to_plate/magnus800/content/Procs/Optomech/M8_proc_ReplaceCarriageMotAss.htm).
12. Use the belt tension jig (690-01158A) to increase the tension on the carriage motor belt.
    a. Ensure the jig's two screws are fully tightened.
    b. The correct tension can only be achieved if the jig's screw is fully closed.

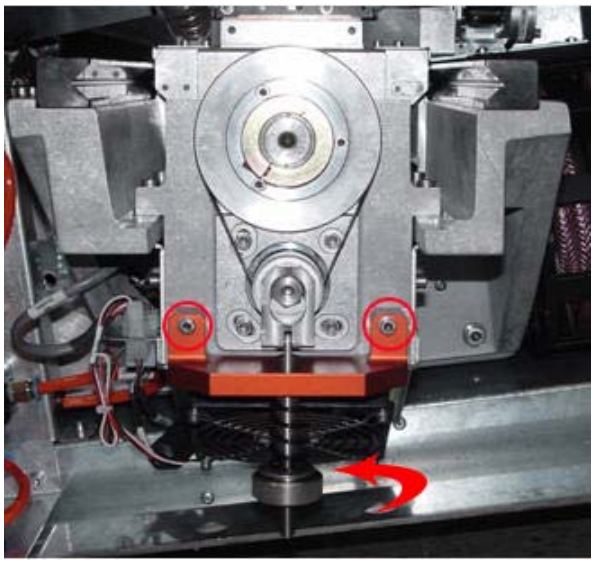


Figure 25: Increase the tension on the carriage motor belt

c. Ensure that the nut is correctly positioned inside the jig.

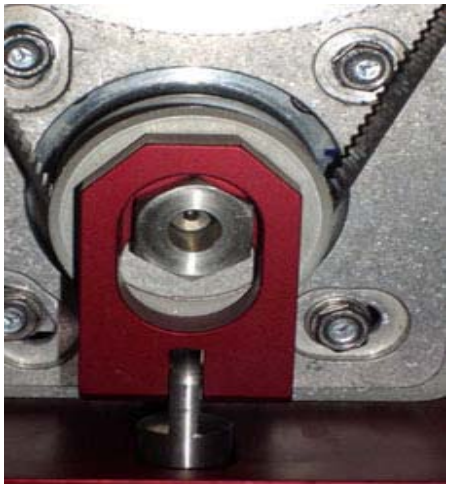


Figure 26: Nut must sit correctly inside the jig

13. Use an 8-mm socket ratchet to secure the carriage motor.
14. Remove the belt tension jig.
15. Install the cable track, z-stage, and thermal 2 head onto the platesetter. See TechPlanet procedure, *Installing a thermal 2 head on a Magnus 800 platesetter* (http://techplanet.creo.com/output/computer_to_plate/magnus800/content/Procs/Optomech/M8_proc_InstallTH2.htm).
16. If required, configure the thermal 2 head. See TechPlanet procedure, *Installing a thermal 2 head on a Magnus 800 platesetter* (http://techplanet.creo.com/output/computer_to_plate/magnus800/content/Procs/Optomech/M8_proc_InstallTH2.htm).

Test the modified carriage

1. Run the test plot applets *plot 11 double burn* and *plot 28*. Compare the results with the reference test plot results.
2. Verify that the image quality has significantly improved. If there are still some visible artifacts, you may have to reduce the tension by rotating the jig screw by two full turns.
   Note: Small artifacts may still appear on positive plates when using plot 11 double burn - this is acceptable.
3. Expose a customer's job and verify the image quality.

Technical contact	Yaron Shifman
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