

Document No: DD+DIS152.08E

DRYSTAR 5500 / DRYSTAR 5503

Type 5364 / 100/300

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Problem / Solution



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Nice to know



FAQ



Tips & Tricks

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Manufacturer

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Publisher

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WARNING:

Improper operation or service activities may cause damage or injuries.



INSTRUCTION:

- (1) Read the "Generic Safety Directions" document (see MEDNET GSO => General Info => Agfa HealthCare => Publications => Service Manual) prior to attempting any operation, repair or maintenance task on the equipment.
- (2) Strictly observe all safety directions within the "Generic Safety Directions" and on the product.



IMPORTANT:

This Troubleshooting Guide describes adjustments and routines which must only be performed by qualified technical personnel.

The Agfa (trained) Field Service engineers and Clinical Application Specialists must have received adequate Agfa HealthCare training on the safe and effective use of the product before attempting to work with it. Training requirements may vary from country to country.

Agfa (trained) Field Service engineers and Clinical Application Specialists must make sure that training is received in accordance with local laws or regulations that have the force of law.

Your local Agfa HealthCare representative can provide further information on training.

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► Purpose of this Document

- The troubleshooting guide (TSG) is the complete collection of device symptoms, defects and solutions.
- It is updated regularly.
- Navigation in the PDF document is possible via drop down menus on the front page, the PDF bookmarks or the Adobe Reader full text search engine.
- The TSG additionally contains a section with Tips & Tricks as well as a FAQ (Frequently Asked Questions).

► Document History

This is the first version of the Troubleshooting Guide DRYSTAR 5500 / DRYSTAR 5503.

Version	Release Date	Changes
No. 01	08 - 2008	Initial release

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1 Symptoms and Solutions

1.1 Artifacts on the Film

1.1.1 Dmin too high

Symptom The minimum density on the clinical (white areas, e.g. text) and test images (white areas, e.g. 100% field of SMPTE test pattern) is more than 0.02 density units higher than before printing.

Example:

Fog level before printing 0.20 O.D.

Fog level after printing 0.25 O.D.

This fault can best be observed in the 100% square of the SMPTE test image.

Defect

- Film calibration not performed and/or
- MDM (Macrodensitometer) needs re-calibration.

Solution

- (1) Perform a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
- (2) Print the STI2 test image and measure the 100% square of the SMPTE test image in the STI2 image.
- (3) If Dmin is still not OK, perform an MDM calibration followed by a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
If problems appear during MDM calibration, reset the MDM calibration in the browser menu "Service Engineer Tools – Reset Calibration Data – Default MDM".
- (4) Print the STI2 test image and measure the 100% square of the SMPTE test image in the STI2 image.

Documents No separate documents are published for this symptom.

Reference n.a.

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1.1.2 Dmax too high or too low

Symptom The maximum density on the clinical (black areas, e.g. frame around the image) and test images (black areas, e.g. 0% field of SMPTE test pattern) is more than 0.1 density units lower or higher than the target Dmax.
Target Dmax (for X-Rite 310 densitometer):
- Blue base film = 3.20 O.D.
- Clear base film = 3.00 O.D.
- Mammo film = 3.80 O.D.
See also section 3.1 regarding density measurement.

Example:

Dmax = 2.9 O.D.

This fault can best be observed in the 0% square of the SMPTE test image.

- Defect*
- Film calibration not performed and/or
 - MDM needs re-calibration and/or
 - TPH profile needs to be calibrated and/or
 - Drum position needs adjustment
 - SW bug in SW < 2.03_C1
(in this case O.D. < 1.0 O.D. after a film calibration)

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- Solution*
- (1) Perform a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (2) Print the STI2 test image and measure the 0% square of the SMPTE test image in the STI2 image.
 - (3) If Dmax is still not OK, use another filmbatch (other emulsion number).
 - (4) Perform a film calibration.
 - (5) If Dmax is still not OK, perform an MDM calibration followed by a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (6) Print the STI2 test image and measure the 0% square of the SMPTE test image in the STI2 image.
 - (7) If Dmax is still not OK perform a Printhead profile calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (8) Perform a film calibration.
 - (9) Print the STI2 test image and measure the 0% square of the SMPTE test image in the STI2 image.
 - (10) If Dmax is still not OK, adjust the drum position according to the 'adjustment of the print drum position' procedure. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (11) Perform a film calibration.
 - (12) Print the STI2 test image and measure the 0% square of the SMPTE test image in the STI2 image.
 - (13) If Dmax is still not OK, order new film with other emulsion number.
 - (14) If installed SW < 2.03_C1 and Dmax is < 1.0 O.D. after a film calibration perform SW update or upgrade to latest free available software.

Documents No separate documents are published for this symptom.

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1.1.3 Density Reproduction not okay

Symptom Customer complains about 'on the monitor the image looks better than on the film'.

This fault requires to measure the 0% to 100% squares of the SMPTE image in the STI2 test image.

- Defect*
- Film calibration not performed and/or
 - MDM needs re-calibration and/or
 - TPH profile needs to be calibrated and/or
 - Drum position needs adjustment.

- Solution*
- (1) Perform a density reproduction check. See Technical Documentation DRYSTAR 5500/5503 chapter 3.6, Adjustments, section 'Checks'.
 - (2) If the density reproduction check is not OK, perform an MDM calibration followed by a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (3) Print the image STI2.tif and check the density reproduction. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (4) If the density reproduction is still not OK perform a Printhead profile calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (5) Perform a film calibration.
 - (6) Print the image STI2.tif and check the density reproduction.
 - (7) If the density reproduction is still not OK, adjust the drum position according to the 'adjustment of the print drum position' procedure. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (8) Perform a Film Calibration.
 - (9) Print the image STI2.tif and check the density reproduction.

Documents No separate documents are published for this symptom.

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1.1.4 Optimal perceivable Levels not okay

Symptom Customer complains about 'on the monitor the image looks better than on the film'. Some details are better visible on the monitor.

This fault can best be observed in the 256 squares in the STI test image. See Figure 1.

Each square differs from its neighbor by 2 density value (2 of 256). Each square has inside a small square which is 2 density units darker than the outside square.

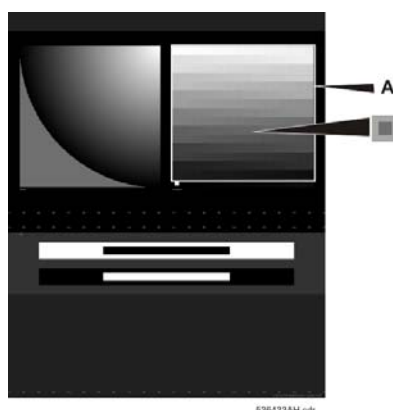


Figure 1: STI-test image

- Defect*
- Film calibration not performed and/or
 - MDM needs re-calibration and/or
 - Printhead profile needs to be calibrated.

- Solution*
- (1) Perform a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (2) Print a STI test image and check the squares in the field A (the density of the small square is always 2 density units lower than the density of the big square - starting with 253/255 and ending with 1/3). See Figure 1.
 - (3) If the small squares inside the bigger squares are not all visible, perform an MDM calibration followed by a film calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6.
 - (4) Print the STI test image and check the squares in the field A.
 - (5) If the squares are still not all visible, perform a Printhead profile calibration. Refer to Technical Documentation DRYSTAR 5000/5503, chapter 3.6.
 - (6) Perform a Film Calibration.

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(7) Print the STI test image and check the squares in the field A again.

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1.1.5 Contouring visible: 'Landscaping'

Symptom Gray shaded areas do **not** show a continuous grey shading but show visible, hard grey steps (also called 'landscaping', i.e. it looks like contour lines in a hiking map).

This fault can best be observed in the 'quarter circle continuous grey step' in the STI test image. Refer to Figure 2.

Defect

- Sensitometry far away from the real film characteristics - calibration not performed and/or
- Printhead profile needs to be calibrated.

Solution

- (1) Perform a film calibration.
- (2) Print the STI test image and check the contouring.
- (3) If the contouring is still not OK, perform an MDM calibration followed by a film calibration.
- (4) Print the STI test image and check the contouring.
- (5) If the contouring is still not OK perform a Printhead profile calibration.
- (6) Perform a film calibration.
- (7) Print the STI test image and check whether contouring is still visible.

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Symptom Gray shaded areas do **not** show a continuous grey shading but show visible, hard grey steps (also called 'landscaping', i.e. it looks like contour lines in a hiking map).

This fault can best be observed in the 'quarter circle continuous grey step' in the STI test image. Refer to Figure 2.

- Defect*
- Sensitometry far away from the real film characteristics - calibration not performed and/or
 - Printhead profile needs to be calibrated.

- Solution*
- (1) Perform a film calibration.
 - (2) Print the STI test image and check the contouring.
 - (3) If the contouring is still not OK, perform an MDM calibration followed by a film calibration.
 - (4) Print the STI test image and check the contouring.
 - (5) If the contouring is still not OK perform a Printhead profile calibration.
 - (6) Perform a film calibration.
 - (7) Print the STI test image and check whether contouring is still visible.

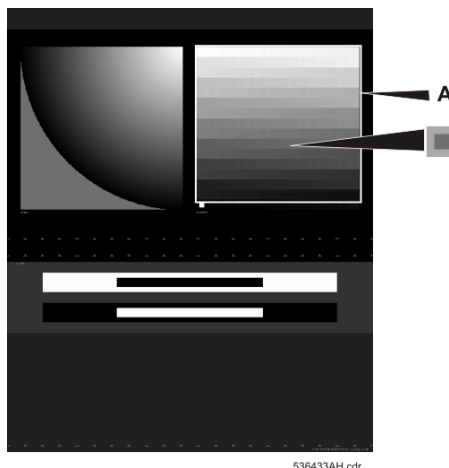


Figure 2

Documents No separate documents are published for this symptom.

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1.1.6 Contrast and/or Sharpness not okay

Symptom Contrast compared to image on the monitor not okay, or sharpness not okay.

This fault can best be verified in a medical image (MedicallImage.tif).

Defect

- Printer problem (film calibration, Printhead profile, MDM calibration)
- Modality wrong configured (e.g. taste LUT linear instead of Kanamori)
- Printer adjustment not correct (e.g. modality only can send taste LUT linear; a user profile needs to be made to correct the problem).

Solution

- Print the medical service test image (MedicallImage.tif).
- If the contrast and/or sharpness in the medical test image is not okay, see 8.1.3.
- If the contrast and sharpness in the medical test image are OK, optimize the user taste and/or the interpolation settings according to the image quality fine tuning procedure described in DRYSTAR 5500/5503 Technical Documentation, chapter 1, Controls, Connections and Setup Procedure.

Documents No separate documents are published for this symptom.

Reference n.a.

Home

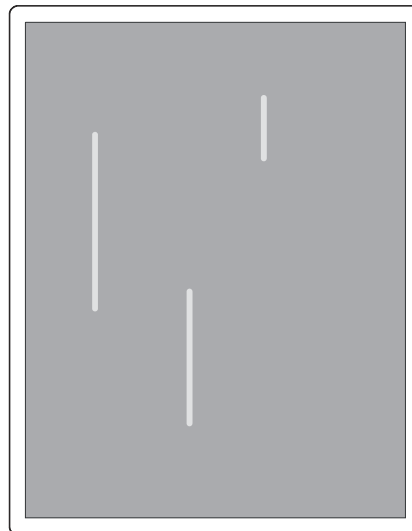


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1.1.7 Dust Stripes on the Film

Symptom Dust stripes are most often white, sometimes dark lines, and mostly ragged and not sharp. They are always in transport direction, and are from a few cms long up to the total length of the film.



536433SA.CDR

Figure 3

Defect 1 Dust on the film. The dust particle stays on the Print Head for a certain time. This leads to less heat on the film as long as the dust particle stays between the Print Head and the film.

Solution 1

- Normally okay after next film, otherwise clean the Print Head.
- For cleaning instructions see Technical Documentation DRYSTAR 5500/5503, chapter 3.6, 'Check for dust stripes'.

Defect 2 Cleaning rollers kit not installed or cleaning rollers need to be cleaned

Solution 2

- In case not yet installed: Install Cleaning Rollers Kit. Order number CM+3468400. It is installed by default in all DRYSTAR 5500 printers manufactured after September 2004. It is recommended to modify all printers where dust stripes are an issue.
- In case it is installed: Clean it with Agfa cleaning tissues. Advise the customer to clean the cleaning rollers whenever increased dust stripes are visible.

Defect 3 Possibly one or more of the foam seals is damaged.

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Solution 3 Replace the damaged foam seal by one of the foam seals kit: CM+346170.4*

Defect 4 Dust abrasion coming from front doors of printers with SN < 1189.

Solution 4 Install new front door

- Documents*
- For defect 2/ solution 2: DRYSTAR 5500 Service Bulletin No. 20, DD+DIS231.04E
 - For defect 3/ solution 3: FSB 19, Symptom "Dust Stripes": Check foam seals for damage. Replace foam seals if required.
 - For defect 4/ solution 4: DRYSTAR 5500 Service Bulletin No. 11, DD+DIS280.03E

Reference n.a.

Home

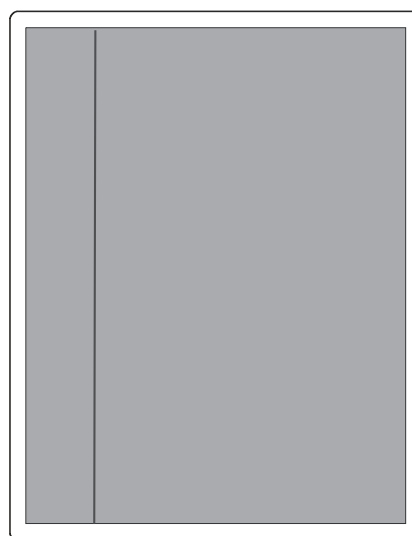


* The last digit in the spare part number indicates the spare part revision at release of this document. When ordering, the actual revision of the spare part is delivered.

1.1.8 Dark Line(s) < 1mm in Print Direction

- Symptom*
- Width can be < 1 mm (Sub mm TPH banding) or 0.05 mm (one pixel line).
 - Can be one or more lines.
 - Line can be intermittent.
 - Can be a combination of dark and white lines.

This fault can best be observed in the STI2 test image.



536433SB.CDR

Figure 4

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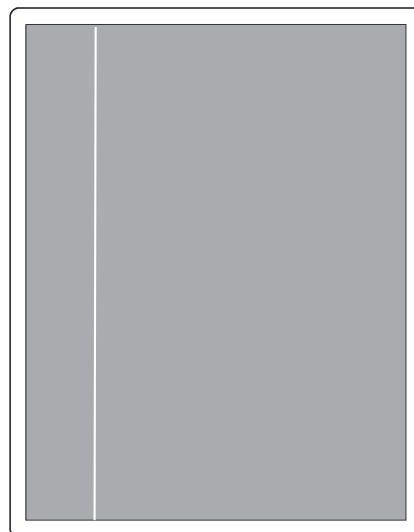
<i>Defect</i>	<ul style="list-style-type: none">• One or more defective resistors of the Print Head (sharp lines)• Shift of the resistor values of the resistor elements (unsharp lines)• Deposits on the Print Head
<i>Solution</i>	<p>(1) Clean the Print Head. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, 'Check for dust stripes'. This check also contains a 'Resistor check' in case wet Print Head cleaning does not improve the fault and a Print Head profile calibration in case dry cleaning does not improve the fault.</p> <p>(2) If this does not help exchange the Print Head.</p>
<i>Documents</i>	No separate documents are published for this symptom.
<i>Reference</i>	n.a.

Home

1.1.9 White or bright Line(s) < 1mm in Print Direction

<i>Symptom</i>	<ul style="list-style-type: none">• Width can be < 1 mm (Sub mm TPH banding) or 0.05 mm (one pixel line).• Can be one or more lines.• Line can be intermittent.• Can be a combination of dark and white lines.
----------------	--

This fault can best be observed in the STI2 test image.




536433SC.CDR

Figure 5

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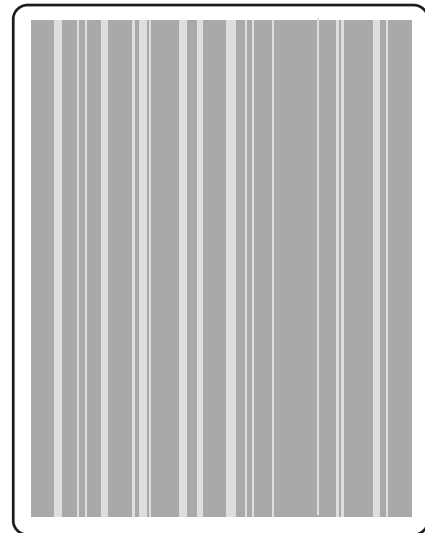
<i>Defect</i>	<ul style="list-style-type: none">• One or more defective resistors of the Print Head (sharp lines)• Shift of the resistor values of the resistor elements (unsharp lines)• Scratches<ul style="list-style-type: none">○ Film moves along a sharp mechanical part inside the printer○ Contamination of the Print Head
<i>Solution</i>	<ul style="list-style-type: none">• Clean the Print Head: See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, 'Check for dust stripes'. This check also contains a 'Resistor check' in case wet Print Head cleaning does not improve the fault and a Print Head profile calibration in case dry cleaning does not improve the fault.• If the fault is still visible, check the film for scratches. See section "8.5, Surface artifacts"• In case the fault is still visible exchange the Print Head.
<i>Documents</i>	No separate documents are published for this symptom.
<i>Reference</i>	n.a.
<i>Home</i>	

1.1.10 Bright vertical Lines over the whole Film Length

Symptom

- The stripes can be very small (< 1 mm) to quite wide (> 2 mm).
- The distance from line to line is irregular.
- By keeping the film horizontally with light in the background small scratches can be seen on the emulsion side of the film.

This fault can best be observed in the STI2 test image.



536433SQ.CDR

Figure 6

Defect

Film backing layer deposits on the Print Head after printing the film on the wrong side.

Solution

Clean the Print Head with the Print Head cleaning procedure. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, Adjustments and Calibrations

Documents

DRYSTAR 5500 Service Bulletin No. 30, DD+DIS173.05E

Reference

n.a.

Home



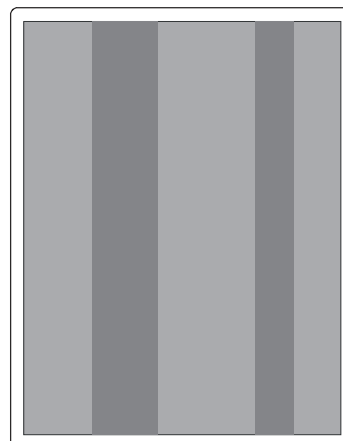
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1.1.11 Narrow (between 1 and 5 mm) to wide (> 5 mm) Lines in Print Direction

Symptom Lines can be brighter or darker. This fault is named "mm TPH banding" (1 to 5 mm) or "Macro TPH banding" (> 5 mm).

This fault can best be observed in the STI2 test image.



536433SE.CDR

Figure 7

- Defect*
- Dirt on the Print Head
 - Dirt on the print drum
 - Print Head resistor drift
 - Print Head driver defective. See also example images next page.

- Solution*
- (1) Clean the Print Head: See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, 'Check for dust stripes'.
 - (2) Print a STI2 test image. See note below.
 - (3) If problem is still visible, perform a printhead calibration. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, Adjustments and Calibrations.

Documents No separate documents are published for this symptom.

Reference n.a.

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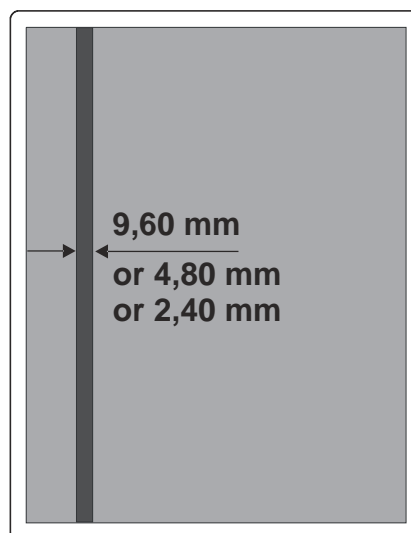
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1.1.12 Persistent dark line in print direction. The width of the dark Line is 2.40 or 4.80 or 9.60 mm.

Symptom In comparison to TPH banding (see previous symptom) the dark line is more pronounced.

This fault is called "TPH driver banding".

This fault can best be observed in the STI2 test image.



536433KE.CDR

Figure 8

Defect Print Head driver defective

Solution (1) Replace the Print Head.

Documents No separate documents are published for this symptom.

Reference n.a.

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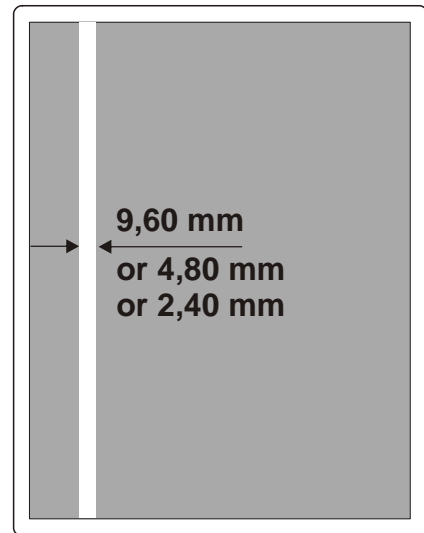
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1.1.13 Persistent blank line in print direction. The width of the blank Line is 2.40 or 4.80 or 9.60 mm.

Symptom This fault is called "TPH driver drop".

This fault can best be observed in the STI2 test image.



536433SL.CDR

Figure 9

Defect Print Head driver defective.

Solution (1) Replace the Print Head.

Documents No separate documents are published for this symptom.

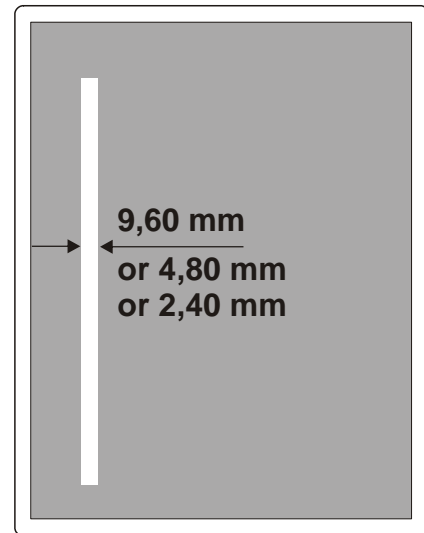
Reference n.a.

Home 

1.1.14 Intermittent blank line in print direction. The width of the blank Line is 2.40 or 4.80 or 9.60 mm.

Symptom This fault is called "Intermittent TPH driver drop".

This fault can best be observed in the STI2 test image.



536433SM.CDR

Figure 10

Defect Print Head driver defective.

Solution Replace the Print Head.

Documents No separate documents are published for this symptom.

Reference n.a.

Home



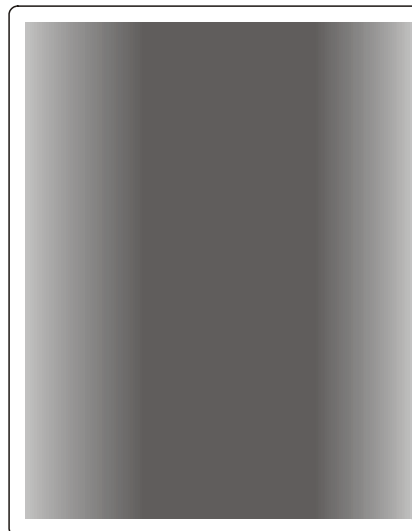
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1.1.15 Wide Bands with lower Density at the left and/or right Hand Side of the Film

Symptom Uneven density at the right and/or left hand side of the image. Density is too low compared to the middle part of the image.

This fault can best be observed in the STI2 test image.



536433SH.CDR

Figure 11

Defect 1 After exchange of the print drum the Printhead profile was not executed.

Solution 1 Perform a Printhead profile calibration.

Defect 2 Print Head compartment not properly closed.

Solution 2 Close Print Head compartment.

Defect 3 On or more of the springs, which press the Print Head against the film are not completely hooked in.

Solution 3 Check whether all springs that press the Print Head against the film are completely hooked in.

Defect 4 Aging of the print drum: Different elasticity of the print drum rubber over the drum width.

Solution 4 Perform a Printhead profile calibration.

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In case this does not help, exchange the print drum.

Documents No separate documents are published for this symptom.

Reference n.a.

Home



NOTE:

The reason for this fault in general can be classified as

- Print Head related problems or
- aged print drum (changed elasticity of the rubber of the drum).

Indications to distinguish between Print Head related problems and an aged print drum:

Print Head related problems (see Defect 1 to 3 above):

- The uneven density is more pronounced.
- The Dmax decreases to a very low level, sometimes to zero.
- The uneven density most often shows up right after the installation of a Print Head.

Aged print drum (see Defect 4 above)

- the Dmax decrease is less pronounced compared to bad TPH pressure.

Uneven density related to an aged print drum will come up after a certain number of films. With a drum life time of 100.000 prints the uneven density is probably caused by drum aging.

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1.1.16 Regular Line Structure vertical to Print Direction: Banding

Symptom in General

Regular line structure 90° to print direction, also called 'banding' or 'transport shocks'. Usually only visible in low density areas.

This fault can best be observed in the STI2 test image.

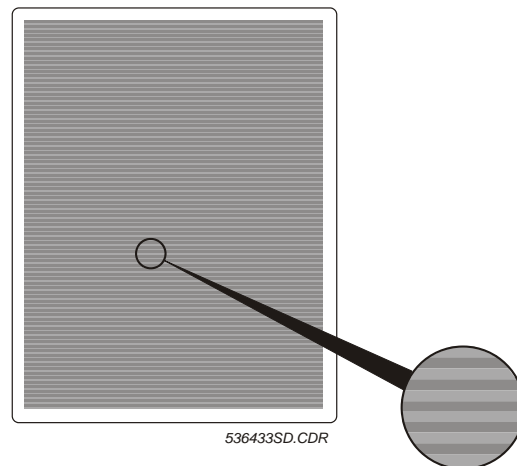


Figure 12

Symptom 1

3.46 mm image banding in film transport direction

Image banding in the film transport direction at a repeating interval of about 3.46 mm.

Defect 1

Run out of the drum drive shaft. This happens mainly at printers with > 130.000 prints.

Solution 1

Replace drum motor by improved drum motor, spare part number* CM+326021.1.

Symptom 2

20 mm image banding in film transport direction

Image banding in the film transport direction at a repeating interval of about 20 mm.

Defect 2a

Run out of the encoder shaft (shaft with toothed pulley MXL 200 teeth and 20mm flat pulley on, connected to encoder) (Run out should be less than 0.05mm).
→ smooth banding lines

Solution 2a


Replace encoder shaft by the spare part* "CM+339274.2 – Glued encoder shaft assy".

* The last digit in the spare part number indicates the spare part revision at release of this document. When ordering, the actual revision of the spare part is delivered.

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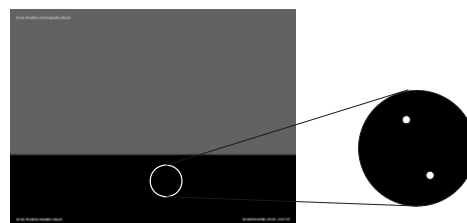
<i>Defect 2b</i>	Loose connection between encoder shaft and encoder. → sharp banding lines
<i>Solution 2b</i>	Put some silicone rubber into the hollow encoder shaft or replace encoder shaft and/or encoder.
<i>Symptom 3</i>	22.7 mm image banding in film transport direction Image banding in the film transport direction at a repeating interval of about 22.7 mm.
<i>Defect 3</i>	Toothed belt with one irregularity.
<i>Solution 3</i>	Replace toothed belt.
<i>Symptom 4</i>	48-56 mm image banding in film transport direction Repeating image banding, distance fluctuating between 48 and 56 mm.
<i>Defect 4</i>	Misalignment between tooth of toothed belt and tooth profile of the pulley. A tooth of the belt will not run into the tooth groove on the pulley but remains a while on top of the tooth before sliding into the groove. Probably caused by insufficient rounding at top edges of teeth of pulley. This problem does not appear immediately but after several weeks/months of operation (by creep extension of toothed belt).
<i>Solution 4</i>	For a short-term solution replace the toothed belt as the problem does not appear with a 'fresh' belt. For a long-term solution replace both belt and pulley.
<i>Symptom 5</i>	110.6 mm image banding in film transport direction Image banding in the film transport direction at a repeating interval of about 110,6 mm.
<i>Defect 5</i>	<ul style="list-style-type: none">• Horizontal mark on print drum or• Unevenness on flat belt pulley or• Defective drum bearings

<i>Solution 5</i>	Check print drum, flat belt pulley and drum bearings.
<i>Symptom 6</i>	129.5 mm image banding in film transport direction Image banding in the film transport direction at a repeating interval of about 129,5 mm.
<i>Defect 6</i>	Flat belt with one irregularity.
<i>Solution 6</i>	Replace Flat belt.
<i>Symptom 7</i>	Banding line 97 mm from trailing edge One banding line approx. 97 mm from the trailing film edge.
<i>Defect 7</i>	Film vibrates when it leaves the cleaning module rollers CM+346840.2 (and smaller index).
<i>Solution 7</i>	Install latest version of cleaning module kit.
<i>Documents</i>	No separate documents are published for this symptom.
<i>Reference</i>	n.a.
<i>Home</i>	

1.1.17 Point Artifacts - Pinholes

Symptom Pinholes errors show as small transparent and isolated dots, typically < 0.2mm.

This fault can best be observed in the DrumPos_5500.tif test image.



536333TB.CDR

Figure 13

Defect

- Pinholes are present in the film before printing.

Solution

- Pinholes must be regarded as a film problem (which cannot be avoided).

Documents No separate documents are published for this symptom.

Reference n.a.

Home

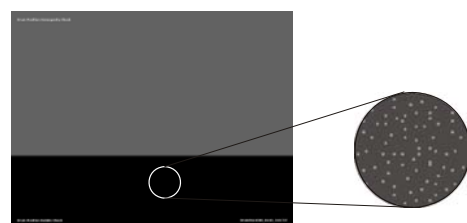


1.1.18 Point Artifacts - Bubbles

Symptom Bubbles show up as clusters of small pinholes, usually in the Dmax area of the film.

Bubbles must be evaluated with a magnifying glass.

Bubbles disappear by lowering the print drum position.



536333TA.CDR

Figure 14

This fault can best be observed in the DrumPos_5500.tif test image.

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Defect • Drum position not optimized.

Solution

- (1) Perform a film calibration.
- (2) Print the image DrumPos_5500.tif and check for bubbles.
- (3) If the bubbles are still present do the density reproduction check, if necessary perform an MDM calibration followed by a film calibration.
- (4) Print the image DrumPos_5500.tif and check for bubbles.
- (5) If the bubbles are still present, adjust the drum position according to the procedure 'Adjustment drum position'. Refer to Technical Documentation DRYSTAR 5500/5503, chapter 3.6, Adjustments.
- (6) Perform a film calibration.
- (7) Print the image DrumPos_5500.tif and check for bubbles.
- (8) If the bubbles are still present, use film with different emulsion number, if possible.
- (9) Perform a film calibration.
- (10) Print the image DrumPos_5500.tif and check for bubbles.

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

1.1.19 Oval or round Spot with a lower or higher Density

Symptom Oval or round spot with a lower (or higher) density. There is sometimes a zone of higher density in the center of this area. The error is repeated a few times on the film.

Distance between errors equals the drum perimeter (=110 mm)

This fault can best be observed in the STI2 test image.

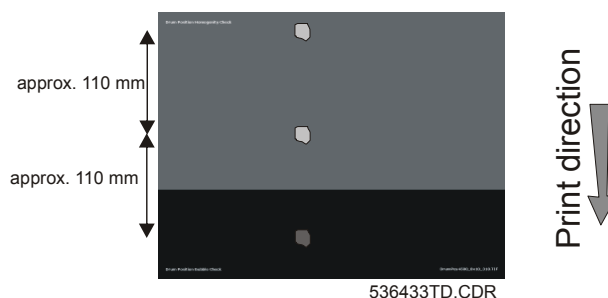



Figure 15

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Defect	<ul style="list-style-type: none">Dust/dirt on the print drum. Drum errors are easy to detect since the diameter of the drum is small compared to the length of the film. This results in the same drum error a number of times on the same printed film having a distance between errors equal to the drum diameter (=110 mm)
Solution	(1) Print the STI2 test image (2) Clean the print drum with a cleaning tissue soaked in water (3) Print again the STI2 test image.
Documents	No separate documents are published for this symptom.
Reference	n.a.
Home	

1.1.20 Transparent Spots, usually a black Particle can be seen in the Middle of the transparent Spot

Symptom This fault can best be observed in the STI test image.

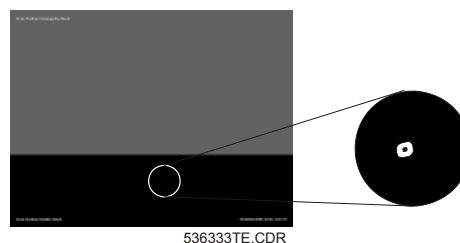


Figure 16

Defect	Dust particles or aggregates in the top layer of the film
Solution	Dust particles in the film are a general film problem which cannot be avoided 100%.
Documents	No separate documents are published for this symptom.
Reference	n.a.

[Home](#)

1.1.21 Blemish: The Artifact looks like Dirt spread out on the Surface of the Film.

Symptom Blemish is also visible on the light box.

This fault can best be observed in the Dmax area of the DrumPos_5500.tif test image.



536333TF.CDR

Figure 17

Defect Drum position not optimized.

- Solution**
- (1) Perform a film calibration.
 - (2) Print the image DrumPos_5500.tif and check for blemish.
 - (3) Check the TPH temperature, check if the temperature of the TPH is clearly higher than the ambient temperature (Print Head temperature only available in Specialist Tools - Print Engine).
 - (4) If the TPH temperature is not OK, check if the print head heater foil is still working,
 - (5) Check if the TPH thermistors are still working, temp. > 50°C.
 - (6) Check if the print head thermo switch is still working.
 - (7) If the TPH temperature is OK, check Dmax, if not OK go to trouble shooting Dmax,
 - (8) if Dmax is OK, adjust the print drum position according to the procedure 'Fine adjustment drum position'
 - (9) If blemish is still present, use another film batch.

Documents No separate documents are published for this symptom.

Reference n.a.

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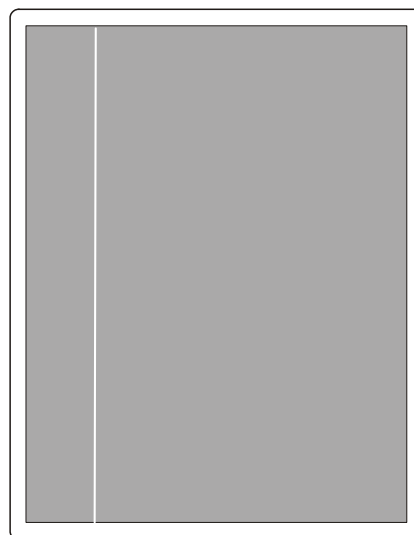
[Home](#)

1.1.22 Scratches: One or more bright Line over the whole Length of the Film

Symptom

To judge whether a bright line is caused by a scratch, take the film from the light box and check the surface at both sides of the film by keeping it horizontally with light in the background. In addition scratches can be felt with the finger nail.

This fault can best be observed in the STI2 test image.



536433SC.CDR

Figure 18

Defect

- Most likely contamination of the Print Head
- Mechanical part inside the printer (unlikely)

Solution

- (1) Clean the Print Head. See Technical Documentation DRYSTAR 5500/5503, chapter 3.6, section "Check for dust stripes".
- (2) In case this does not improve the stripes, print the image 'footprint_horizontal.tif' (for horizontal stripes) or 'footprint_vertical.tif' (for vertical stripes) from the service menu "8 Adjust & Calibrate - 4 Print Test image - Footprint_xxx.tif". See Figure 34 and Figure 35.
The mechanical part which possibly causes the line artifact will be indicated by the scratch on the film.
- (3) In case the mechanical part which causes the scratch(es) cannot be detected, most likely persistent deposits on the Print Head are the cause of the scratches. In this case replace the Print Head.

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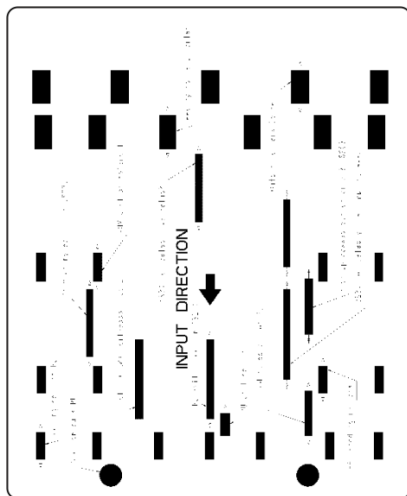


Figure 34: Test image
"footprint_vertical.tif"

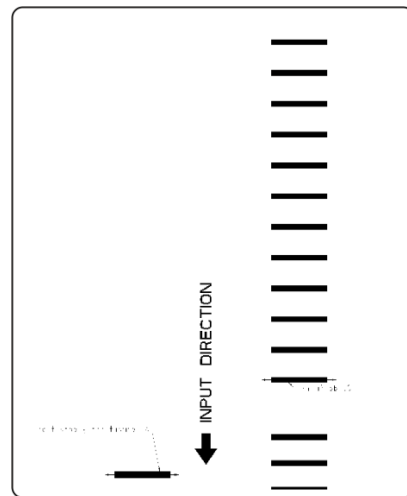


Figure 35: Test image
"footprint_horizontal.tif"

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

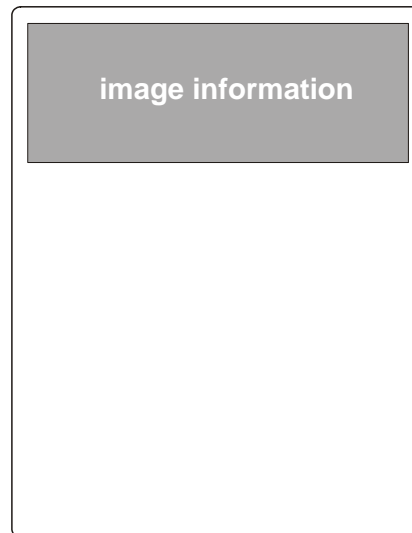
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1.1.23 Partly printed Films

Symptom

- In addition to the symptoms 'partly printed films' the following error codes are logged in the infocounter and shown on the local display:
 - HC10003 if fault is caused by Crius CPU.
 - HC10053 if fault is caused by Themis CPU.
- The film is re-printed immediately after the partly printed film.
- This fault can be seen in any clinical image - no special test image is required.



536433ST.CDR

Figure 21

Defect

- Broken spring holder at the heat sink of the Crius or Themis CPU: Reduced pressure of the heat sink on the CPU leads to higher temperature and so to less CPU performance.
- This fault should only appear at a few printers. Meanwhile the mounting method of the heat sink is changed. The change was not recorded in production. As of approx. SN2190 the improved mounting method was introduced.

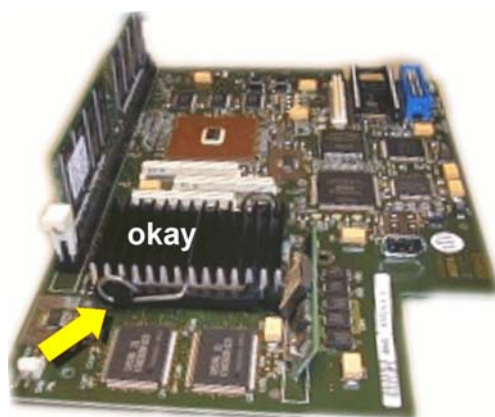


Figure 22

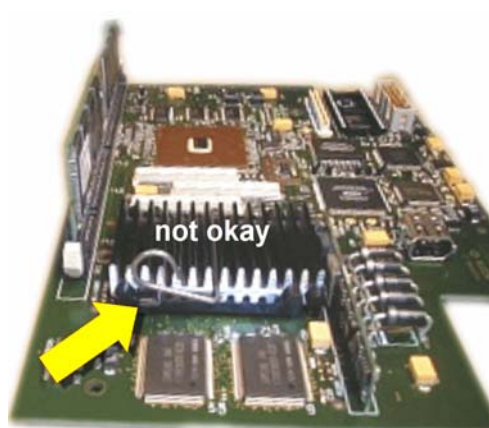


Figure 23

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- Solution*
- (1) Check the spring holder of the heat sink of the Themis CPU.
 - (2) In case it is defective replace it with spare part* CM+346039 3.

* The last digit in the spare part number indicates the spare part revision at release of this document. When ordering, the actual revision of the spare part is delivered.

Documents FSB 15, DD+DIS120.04E: Symptom partly printed Films in Combination with Underruns

Reference n.a.

Home



1.1.24 Image is approx. 2.5 cm too short.

Symptom The image is complete, however printed condensed.

This fault can be seen in any clinical image - no special test image is required.

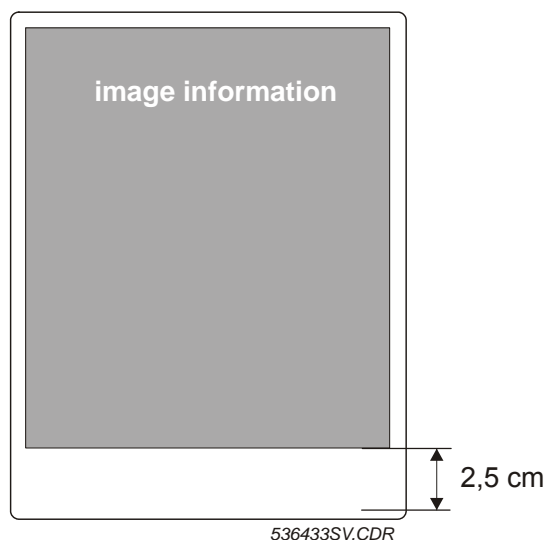


Figure 24

Defect Flat belt mounted with the rough side towards the pulley.

Solution Mount the flat belt with the smooth side towards the pulley.

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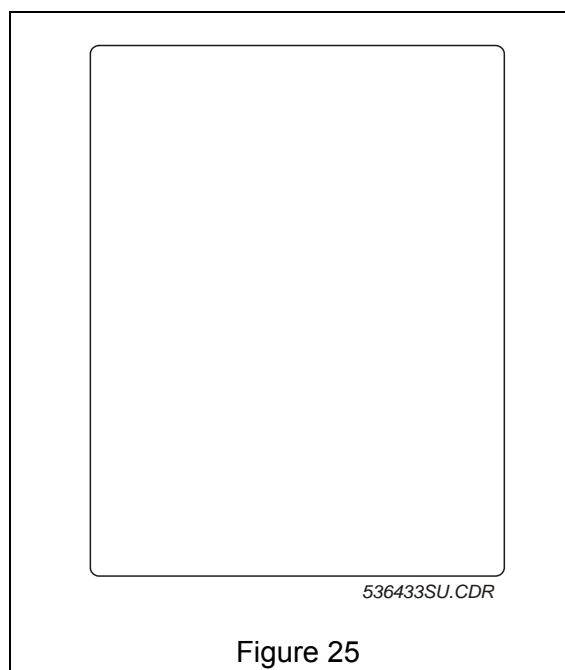
Documents DRYSTAR 5500 Service Bulletin No. 3, DD+DIS184.03E

Reference n.a.

Home 

1.1.25 Spoardic or persitant Blank Films

Symptom This fault can can be seen in any clinical image - no special test image is required.



Defect 1 Corrupted film sensitometry file after film calibration failure.

Solution 1 Possibility 1:

- (1) Connect to the printer via telnet (network) or terminal program (serial cable).
- (2) Delete file D:\input\uppertray\new.fmsen in case the blank films are coming from the upper tray or D:\input\lowertray\new.fmsen in case the blank films are coming from the lower tray.
- (3) Reset the printer. Now a default new.fmsen file is created.

Possibility 2:

- (1) Go to browser pages "Service Engineer tools - Reset Calibration Data".
- (2) Select "Default Lower Film cal" and "Default Lower Film Cal".

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Defect 2 Communication problem between MEC2 board and power supply – only for MEC2 rev. A328189.12

Solution 2 Install latest revision of MEC2 board.

Documents For defect 2 / solution 2: DRYSTAR 5500 Service Bulletin No. 8, DD+DIS270.03E

Reference n.a.

Home 



NOTE:

In case the printer is still equipped with software rel. 2: Installing software patch 2.03_C1 (or a higher software version) prevents a corrupted film sensitometry file.

1.1.26 10" Films with approx. 3 cm shifted Image Information

Symptom 10" films with approx. 3 cm shifted image information.

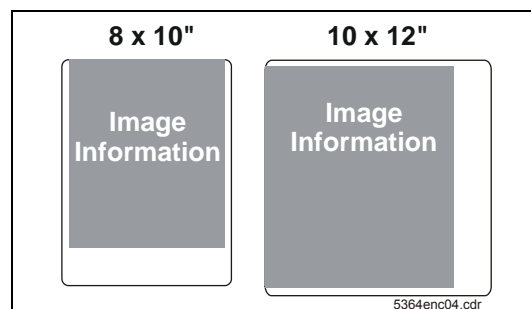


Figure 26: Shifted image information

Defect Due to strong film curl variations of the unprinted films the film may jam between film tray and printhead section or may be transported askew through the printer.

Solution Install "Film Curl Upgrade Kit" CM+355597.0.

Documents DRYSTAR 5500 Service Bulletin No. 37, DD+DIS170.06E

Reference HQ_0602170001

Home 

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1.1.27 Film Curl if Film is hanging at the Lightbox

Symptom Curl of the film in case it is hanging at the lightbox for a long time.
This phenomenon can be seen at any kind of DT2 B / DT2 C / DT2 Mammo film.

Defect "Bimetal effect" due to asymmetric structure of dry films.

Solution There is no solution for curl increase at the lightbox.
Note: After printing curl is no issue for DT2 films.

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

1.2 No LCD Display

1.2.1 Blank LCD Display

Symptom After power on, the printer does not start up: The LCD display stays blank more than 10 secs.

Defect 1 Power or data cable to the hard disk is not connected, the supply voltage is not present or the hard disk is defective.

How to check:

- (1) Connect service PC (see Technical Documentation DRYSTAR 5500/5503, chapter 3.2, Tools).
- (2) Open a terminal session.
- (3) Check the prompt of the printer:
pmon> → printer did not boot from the hard disk: Hard disk defective. Power or data cable to the hard disk not connected
login: → hard disk is accessible. Reason must be defective or disconnected LCD keypad (see below, Defect 2).
No prompt: Reason must be defective CPU.

Note: In case no prompt is present, also check the CPU LED's (see Technical Documentation DRYSTAR 5500/5503, chapter 3.4, Electrical and mechanical codes, fuse tables and LED's), as it might be possible, that the **RS232 cable** or the **terminal session parameters** are not correct.

- Solution 1*
- Check power and data cable to the harddisk
 - Exchange hard disk. Install the software as explained in Technical Documentation DRYSTAR 5500/5503, chapter 3.2, Machine specific tools, Software tools and auxiliary means.

Defect 2 LCD display defective or not properly connected.

How to confirm: The printer boots up correctly. Films sent from the host modalities are printed. During boot-up different motors are activated.

- Solution 2*
- Check cabling of LCD display.
 - Exchange the Key5 board.

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Defect 3 CPU defective.

How to confirm: See description at Defect 1 above, hard disk defective: No prompt.

Solution 3 Exchange CPU board.

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

1.3 Error and Warning Messages

1.3.1 Error Message 'HCXXXXX' at the local Display

Symptom After power on or during operation the printer shows an error message on the local display, beginning with 'HC..'

Defect The online diagnosis software detected a defect during startup or operation.

Solution 1 (1) Look up 'Meaning - Reason - Cure' of the error:

(2) In the service menu select '4 Show error - 1 Last error code'.

The complete list of all possible errors with 'Meaning - Reason - Cure' is also available in the appendix of chapter 3.3 Troubleshooting.

Solution 2 Perform the tests supplied in the Service menu 'Test & Diagnose'.

Solution 3 Perform the printer diagnostics supplied in the Service menu 'Test & Diagnose'.

Documents No separate documents are published for this symptom.

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Reference n.a.



NOTE:

For a list of sensors and motors tested with the printer diagnosis see Technical Documentation DRYSTAR 5500/5503, chapter 3.2 'Machine specific tools, software tools and auxiliary means'

Home



1.3.2 Warning Message at the local Display

Symptom After power on or during operation the printer shows a warning message on the local display, e.g. 'Thermal head out of range'.

Defect The online diagnosis software detected a problem (which is internally interpreted as a problem with less importance than a defect and so reported as a 'warning') during startup or operation.

To solve the problem a service intervention is required.

Nevertheless, without solving the problem, printing can continue with reduced quality, functionality or performance.

Solution Look up 'Meaning - Reason - Cure' of the error.
In the service menu select '4 Show error - 1 Last error code'.

Documents No separate documents are published for this symptom.

Reference n.a.



NOTE:

The complete list of all possible errors with 'Meaning - Reason - Cure' is also available in the appendix of Technical Documentation DRYSTAR 5500/5503, chapter 3.3, Troubleshooting.

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1.3.3 Error HC11113 or HC11114

Symptom Distance between densitometer spindle and motor not 2 mm but less than 1 mm. At printers with SN 1262 to 1280 the screw A that keeps the densitometer spindle at the motor, was possibly not mounted on the D-shaped surface, but on the round part of the axle.

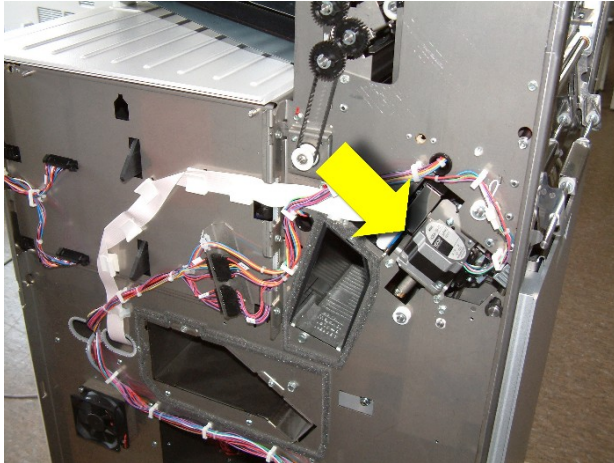


Figure 27: Densitometer motor

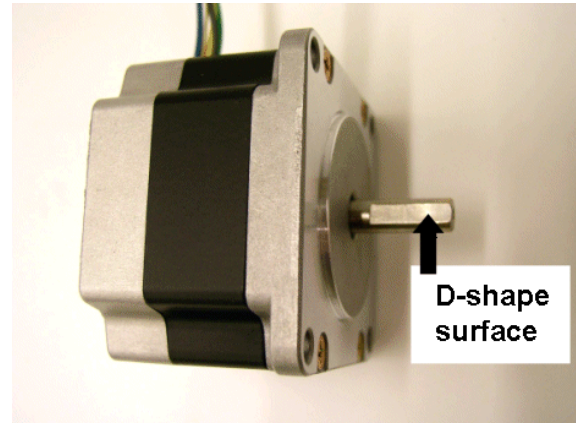


Figure 28: D-shaped surface of the densitometer motor

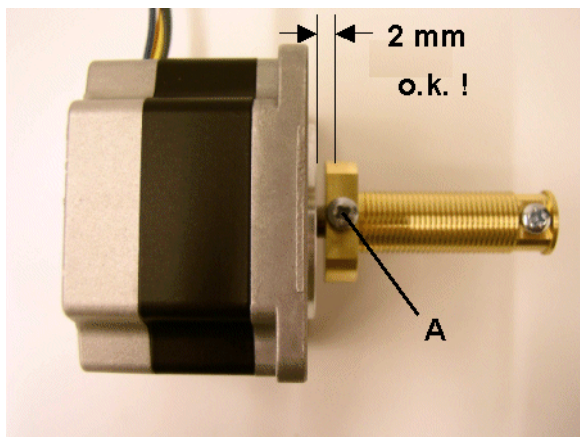


Figure 29: Correct mounted spindle

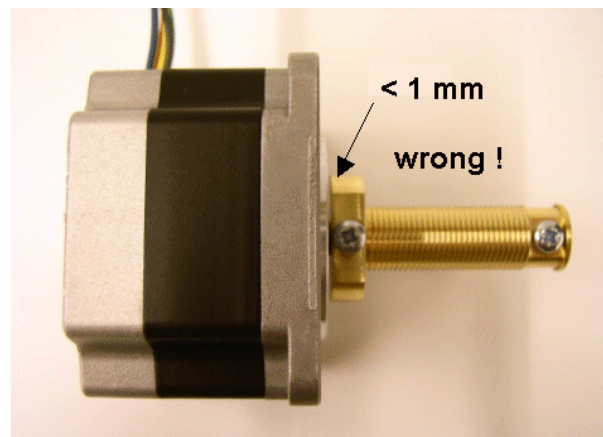


Figure 30: Wrong mounted spindle

Defect Fault in production

Solution Open screw and adjust the distance between motor and spindle to 2 mm.

Documents DRYSTAR 5500 Service Bulletin No. 6, DD+DIS256.03E

Reference n.a.

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1.3.4 Error Code HC10903 in Combination with Banding Lines

Symptom Error code HC10903: Defective MEC board in combination with banding lines.

The banding lines are vertical to the print direction in a distance of 3.46 mm.

In the area of the drum motor black dust is visible – the motor shaft shows radial play.

Defect MEC board failure due to current peaks of drum motor M1: The higher current can cause the motor controller components on the MEC board to fail.

Solution In case of failure replace the MEC board **and** drum motor M1.
To prevent the problem, replace drum drive motor M1 at the next preventive maintenance if the printer has > 100.000 films printed or will reach 100.000 films before the next preventive maintenance.

Documents DRYSTAR 5500 Service Bulletin No. 31, DD+DIS188.05E

Reference HQ_0510140003

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1.3.5 Sporadic Film Jams: Error Code HC11207 in the Infocounter

Symptom At printers with Thermal Head CM+341916.1 and cleaning module (all versions) the films may hit an edge of a thin metal layer on the IC cover at the TH.

This may lead to sporadic film jams (mainly 8x10" and 12x10" films) before the TH and error message "Remove film jam in print section". In the infocounter error message HC11207 is logged.

Defect Possible film jam at edge of TH CM+341916.1

Thermal Head CM+341916.1 was delivered as spare part between July and November 2005. It was not used in printers delivered from production. So only printers are affected, where the original TH was replaced by TH CM+341916.1.

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The spare parts stock has been cleared up: Only THs CM+341916.2 are on stock.

How to recognize THs which have to be replaced:

THs with spare part number CM+341916.1 have a thin metal layer mounted on the IC cover, which helps to prevent "bubbles" and "vertical print stripes".

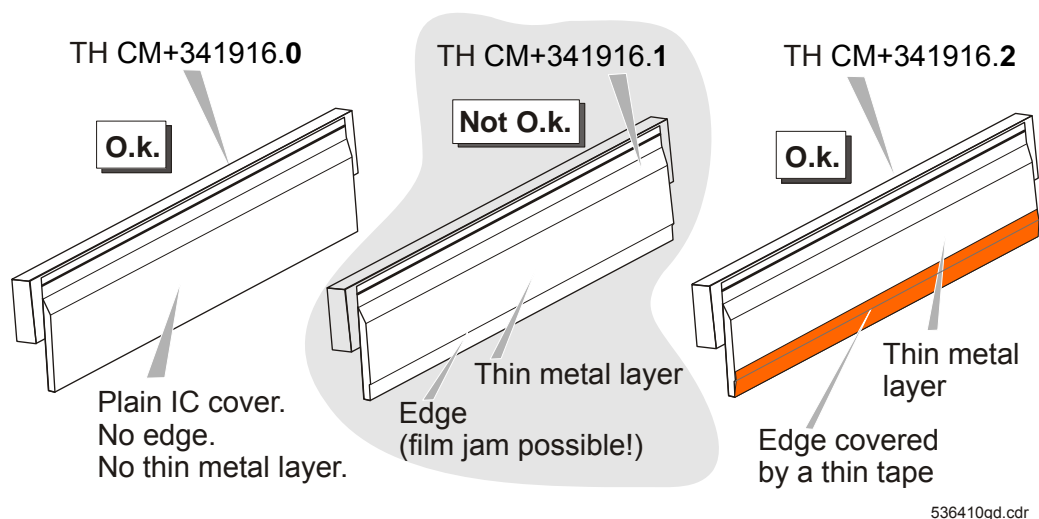


Figure 31

Solution Replace Thermal Head CM+341916.1 by TH on stock.

Documents DRYSTAR 5500 Service Bulletin No. 33, DD+DIS445.05E

Reference n.a.

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1.3.6 Printer sporadically does not boot-up

Symptom DRYSTAR 5503 Printer sporadically does not boot-up:
 It stops booting with display "Error system failure" or "Please wait - Selftest proceeding".
 Another switch off/on usually solves the problem.

Affected serial number(s) / batch: SN 10829 to 10860, except 10840, 10843, 10848, 10851, 10858, 10859.

Defect Crius and/or Themis CPU with mechanically damaged CPU chip: Depending on the mechanical damage the CPU never fails (little damage) or fails after weeks or months after installation (severe damage). The affected CPU chip can be recognized at its date code printed on the chip: Only printers with date code 02XX and 03XX are affected.

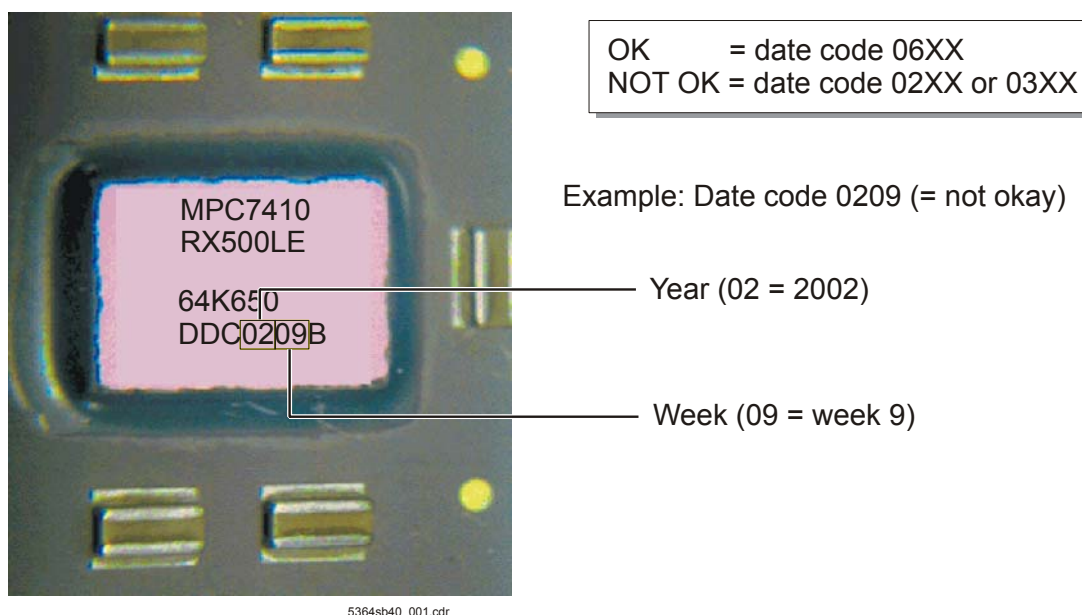


Figure 32: Date code printed on CPU Chip

Solution

- (1) At the next service intervention remove the heatsink and thermal conductive tape on the Crius and Themis CPU.
- (2) check the date code which is printed on the Crius and/or Themis CPU chip. Refer to Figure 32.
 - If date code = 06XX: No action required.
 - If date code on Themis CPU = 02XX or 03XX: Replace Themis CPU
 - If date code on Crius CPU = 02XX or 03XX: Replace Crius CPU

Documents DRYSTAR 5500 Service Bulletin No. 39, DD+DIS003.07E

Reference HQ_0701100005

Home



1.3.7 Sporadic Warning Message: No Identification Code detected for current Film Pack

- Symptom*
- The message appears sporadically at insertion of a new film pack or after switch on / reboot.
 - At 2nd insertion, the tag reader either reads the tag, or – if not -depending on the setting for parameter "6 Configure – 2 Printer Settings – 5 RF Tag following will happen:
 - RF tag "enable" → Dmax is limited to 2.00 O.D.
 - RF tag "disable" → Printing disabled from this tray (preferred setting)

Defect Disturbances in the tag reader signal

Solution 1 Replace tag reader by tag reader CM+339267.3 (or spare part with higher index): This one has a filter included, which avoids disturbances in the signal.

The improved tag filter is built in for devices \geq SN4262. See also note below.

Solution 2 Install SW \geq Rel. 4.0.0_C1: This software has an improved tag reading algorithm.



NOTE:

Devices between SN2167 and SN4261 have a tag filter built in, which also reduces disturbances. This tag filter is mounted on the MEC board.

In case this tag filter is built in already, the new tag reader will not improve the reading reliability.

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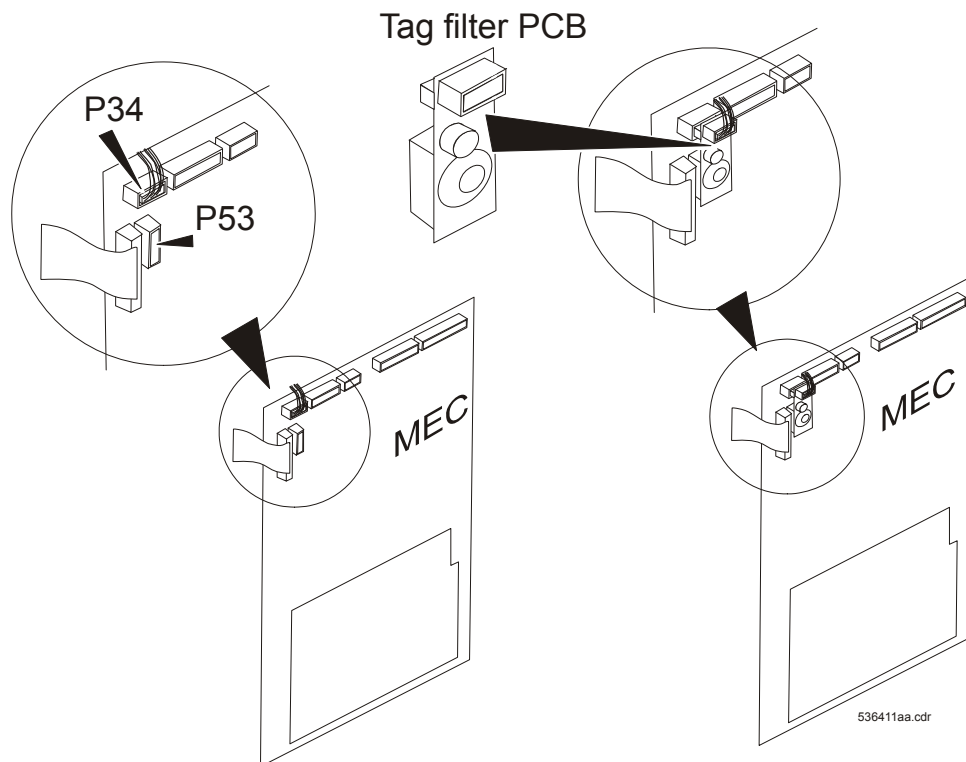


Figure 33: Tag filter PCB as intermediate solution for printers between SN2167 and SN4261

- Documents*
- For solution 1: DRYSTAR 5500 Service Bulletin No. 21, DD+DIS235.04E
 - For solution 2: DRYSTAR 5500 Service Bulletin No. 34, DD+DIS349.05E

Reference n.a.

Home



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1.3.8 Message “100 films printed with this code. Please insert other Film Pack”

Symptom “100 films printed with this code. Please insert other film pack. ”

Defect

- Tray is empty (after film pick-up)
- Valid from Odin 6.0: More than 110 films printed (after film pick-up) with the same RF-tag (limit: max. 110 films per RF-tag)

Solution Load new film pack

Documents DRYSTAR 5500 Service Bulletin No. 41, DD+DIS003.07E

Reference HQ_0509290002
HQ_0705140001

Home 

1.3.9 Message: No identification Code detected

Symptom “No identification code detected for current film pack or identification code read error.”
or
“No valid identification code detected. Printing from input tray is disabled.”

Defect

- No RF-tag found
- Failing reader
- Software does not recognize RF-tag
- Defect RF-tag (mechanical connection)
- Incorrect loading of the film
- Incorrect film pack

Solution

- Install latest software.
- Only original AGFA-material may be used.
- Observe correct film loading.

Documents DRYSTAR 5500 Service Bulletin No. 41, DD+DIS003.07E

Reference HQ_0509290002
HQ_0705140001

Home 

1.3.10 Message: “Identification Code Error”

Symptom “Identification code error”

Defect

- Wrong material (other sales type)
- Corrupt RF-tag
- Corrupt RF-tag history file on machine
(only applicable up to Software version R4.0 DS5500)
- Problem with tray-locking SN<1088 (see SB4)

Solution

- Install latest software
- Only original AGFA-material may be used.
- Observe correct film loading

Documents DRYSTAR 5500 Service Bulletin No. 41, DD+DIS003.07E

Reference HQ_0509290002
HQ_0705140001

Home 

1.3.11 Warning message “Calibration failed” after a film calibration

<i>Symptom</i>	<ul style="list-style-type: none">• The warning message can appear after an automatic film calibration (after insertion of a new film pack) or after a film calibration initiated via key-operator or service menu.• A second or third film calibration can be successful.• The warning message can be associated with a film jam.
<i>Defect 1</i>	Inadvertently changed technical specification of transport rope of the macrodensitometer (MDM) due to a new supplier. Only following printers are affected: SN2690 to SN2766 except SN2760, SN2762 and SN2764.
<i>Solution 1</i>	<p>Exchange the MDM. MDMs on stock do not have the fault of changed technical specification of the transport rope.</p> <p>A temporary solution before the spare part arrives can be to switch off the automatic film calibration (Key Operator menu: 3 Change Settings - 5 Image Quality - 1 General - Select Default for Film Calibration).</p>
<i>Defect 2</i>	Deformation of the V-shaped film guide in the MDM. See Figure 9. In case of a deformed V-shaped film guide the film sometimes can be jammed during calibration. See Figure 10.
<i>Solution 2</i>	<p>Exchange the MDM. Densitometers on stock with CM+339 1943 or higher index (index = last figure of spare part number) are improved.</p> <p>A temporary solution before the spare part arrives can be to switch off the automatic film calibration (Key Operator menu: 3 Change Settings - 5 Image Quality - 1 General - Select Default for Film Calibration).</p>

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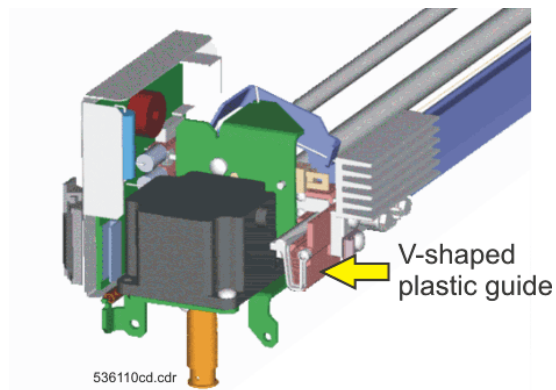


Figure 34

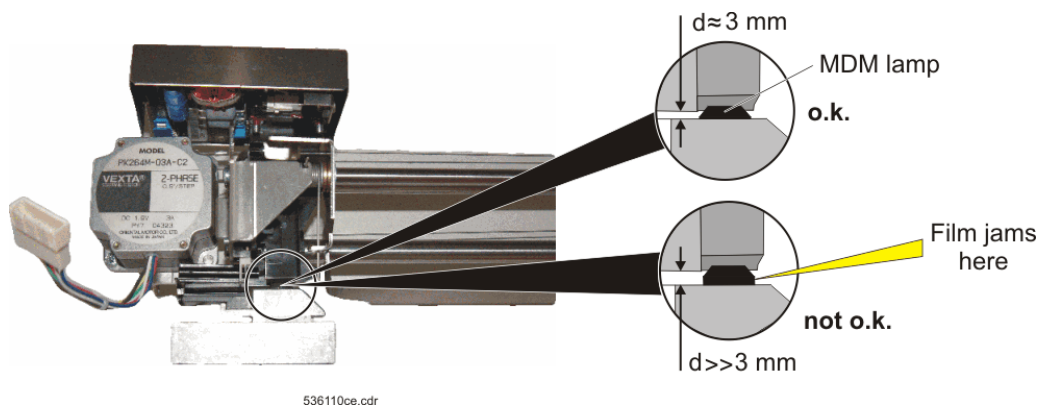


Figure 35

Documents DRYSTAR 5500 Service Bulletin No. 27, DD+DIS033.05E

Reference n.a.

Home 

1.3.12 Printer stops booting at 98%

Symptom After changing the hostname to 'ds5500_2' or changing the IP address to 10.0.2.X (X = 0 255) the printer stops booting at 98%.

Defect Using the hostname 'ds5500_2' as well as using the IP addresses 10.0.2.X (X = 0....255) gives a conflict in the internal DRYSTAR 5500 communication.

Solution Do not use hostname 'ds5500_2' / IP address 10.0.2.X. Any other hostname (ds5500_1 or ds5500 or printer1 etc.) and other IP address okay.

Documents DRYSTAR 5500 Service Bulletin No. 1, DD+DIS152.03E

Reference n.a.

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1.4 Image Transfer Problems

1.4.1 Images are not shown in the Printer Queue

Symptom An image which was sent from the host modality to the printer is not displayed in the printer queue.

- Defect 1*
- Network cable disconnected or defective
 - Wrong network configuration at the host modality or the printer
 - Defective network hub or router
 - Defective Crius CPU (networking part)

How to check:

- (1) In the service menu select '7 Test & Diagnose - 4 Test communication' - 1 Network': This sends a 'ping' to the selected host modality.
- (2) Select the corresponding host.

- Solution 1*
- (1) Check cabling, e.g. use a crossed network cable, make a direct connection from the printer to the Service PC and send a ping from the Service PC to the printer. See Technical Documentation DRYSTAR 5500/5503, chapter 3.2, Machine specific tools, software tools and auxiliary means (section 'Adaptation of the PC IP address') for detailed information regarding network connection from printer to Service PC.
 - (2) If cabling is okay, check printer AE-title at the host modality or printer IP address. Check modality AE title and IP address entered at the printer.

Defect 2 Hang-up of the communication between host modality and printer.

Solution 2 Reset printer and host modality.

Defect 3 Mismatch in DICOM communication between host modality and the printer.

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- Solution 3*
- (1) Start up ADVP (AGFA DICOM Visual Print) on the Service PC.
 - (2) Send an image from the modality to the laptop.
 - (3) Send an image from ADVP to the printer.
 - For more info to ADVP see Technical Documentation DRYSTAR 5500/5503, chapter 3.2 Machine specific tools, software tools and auxiliary means, section 'ADVP'.
 - Possibly send the logfile to your GSC for evaluation.

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

1.4.2 Communication Hang-up with Syngo-based Siemens Modalities

Symptom Printer destination becomes unreachable after the first print job sent from the modality.

Defect At Siemens modalities which operate on the so-called Syngo platform, the connectivity between the DRYSTAR 5500 (as well as DRYSTAR 4500, LR DICOM Controller and Multiflex) and the Siemens modality experiences problems when negotiating the Meta Color Print SOP class.

Solution To resolve this problem with Siemens (Syngo based) modalities deselect the BASIC_COLOR_PM_META_SOP_CLASS in that hostprofile, which was prepared specifically for this Siemens (Syngo based) modality.

Documents DRYSTAR 5500 Service Bulletin No. 1, DD+DIS152.03E

Reference n.a.

Home 

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1.5 Film Jams

1.5.1 Message: Remove Film Jam

Symptom Frequent Input jams. Message 'remove film jam' at the local display.

Defect 1 Mechanical problem in the area of the film input.

Solution 1 (1) Look up 'Meaning - Reason - Cure' of the error in the service menu select '4 Show error - 1 Last error code'.
(2) Troubleshoot according to the displayed 'Reason - Meaning - Cure'.

Defect 2 Drive assembly in Horizontal Alignment (HAL) not properly installed. See Figure 36.

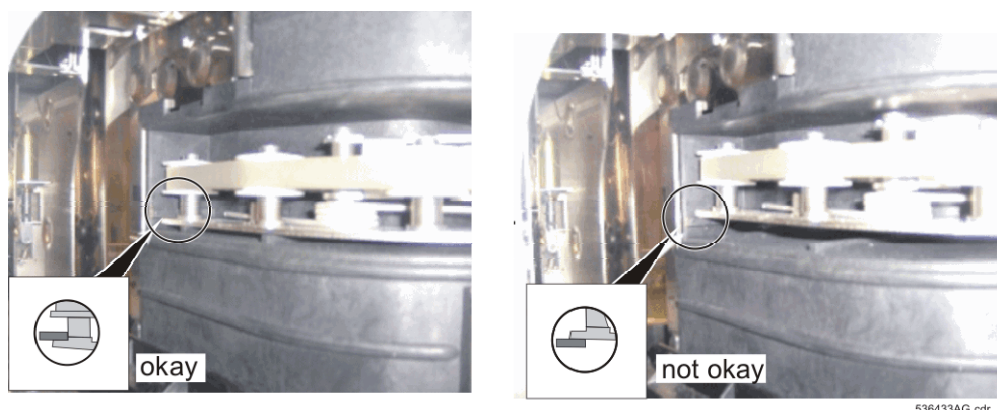



Figure 36

Solution 2 Remount drive assembly in HAL correctly.

Documents No separate documents are published for this symptom.

Reference n.a.

Home 

1.5.2 Message: Remove Film Jam in Print Section

- Symptom*
- Error message "Remove Film jam in Print Section"
 - Error HC11217 in the infocounter
 - Each film jams in the TPH section
- Defect 1*
- Screw that fixes the gear wheel at motor M3 (drum positioning motor) gets loose: The gear wheel can fall down.
 - For other possible reasons see the error descriptions of error HC11217 in Technical Documentation DRYSTAR 5500/5503, chapter 3.3, Appendix, error catalogue.
- Solution 1*
- Tighten the screw at the gear wheel (M3) and secure it with a protection lacquer.



NOTE:

It is recommended to check the screw at gear wheel of M3 at all devices with **SN < 2561** at the next maintenance or service intervention. As of SN2561 the gear wheel is secured with a starlock and the screw is fixed with loctite.

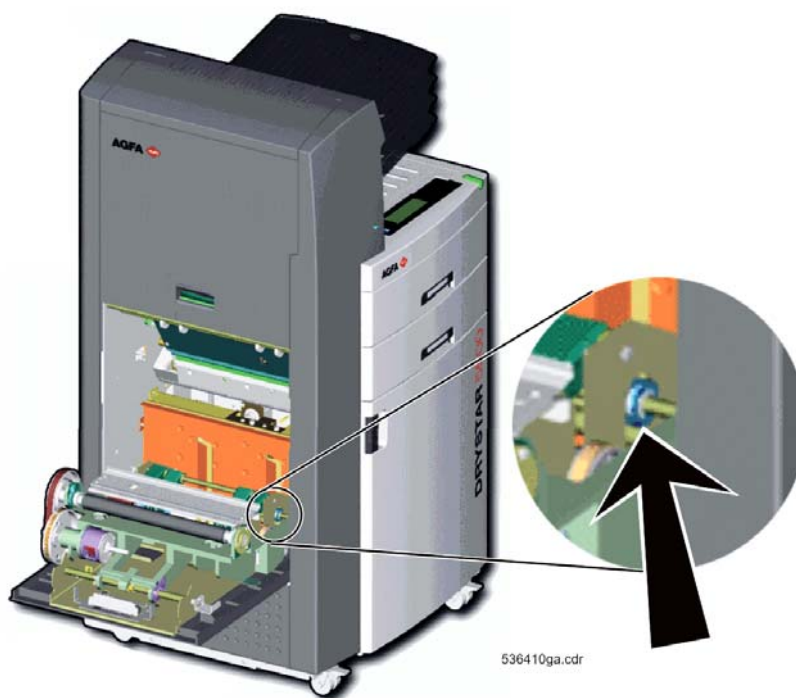



Figure 37: Gear wheel at motor M3

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Documents DRYSTAR 5500 Service Bulletin No. 22, DD+DIS236.04E

Reference n.a.

Home 

1.5.3 8x10" Films printed skewed in combination with Film Jam

Symptom Sporadically 8 x 10" films are printed skewed. The image information is partly printed. See Figure 38.

Error message 'remove film jam in drum & TPH section' is displayed at the local keypad.

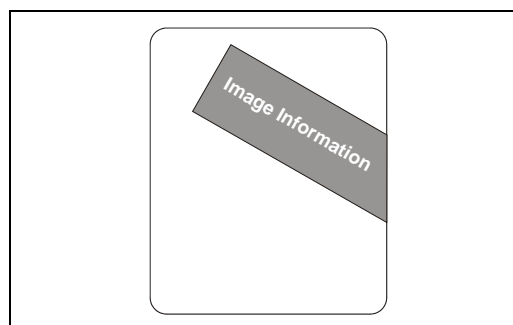


Figure 38

Defect Films of size 8 x 10" are falling down uncontrolled to the bottom plate and are sporadically laying skewed before film is transported to the vertical alignment.

Solution Install guide plate of upgrade kit CM+343391.0 (this guide plate prevents the uncontrolled skewing of the 8x10" films):

- (1) Loosen the 3 screws A.
- (2) Mount the new guide plate by means of the same screws.
- (3) Print a few test images 8x10" to confirm that the fault is corrected.



Note: The guide plate of upgrade kit CM+343391.0 is already mounted in DRYSTAR 5500 with SN ≥ 1354.

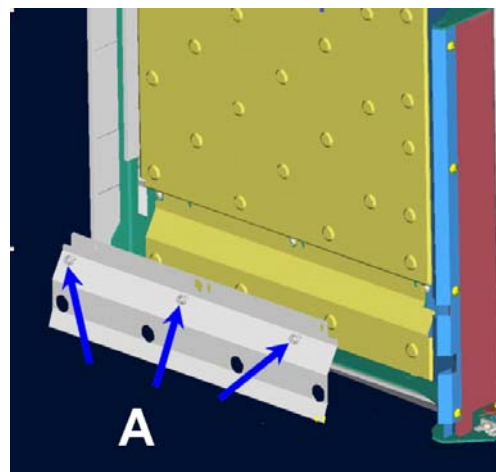


Figure 39

Documents DRYSTAR 5500 Service Bulletin No. 10, DD+DIS279.03E

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Reference n.a.

Home 

1.5.4 Frequent Film Jams in Front Door Section

Symptom Frequent film jams in the front door section:

- Message "Remove Input Jam" or "Remove front door jam"
- One or more of following Error codes in the infocounter:
 - HC11207
 - HC11210
 - HC11211
 - HC11213
 - HC11214
 - HC11231
 - HC11232
 - HC11233

Defect 1 Due to strong film curl variations of the unprinted films the film may jam between film tray and printhead section or may be transported askew through the printer.

Solution 1 Install "Film Curl Upgrade Kit" CM+355597.0*

Defect 2 The film guide plate is not proper mounted and the film is tilted in the film guide.

Solution 2 Re-position the film guide plate, that all 7 teeth are proper inserted in the corresponding slots. See DRYSTAR 5500 Service Bulletin No. 42, DD+DIS162.07E for details.

Defect 3 Lower feeding axle for DRYSTAR 5503 < SN10070 (except with SN 10063, 10067 and 10068) requires modification.

Solution 3 Replace lower feeding axle CM+356192.1*. See DRYSTAR 5500 Service Bulletin No. 42, DD+DIS162.07E for details.

Documents

- For defect 1/ solution 1: DRYSTAR 5500 Service Bulletin No. 37, DD+DIS170.06E.
- For defects 2, 3 and 4 / solution 2, 3 and 4: DRYSTAR 5500 Service Bulletin No. 42, DD+DIS162.07E.

Reference HQ_0602170001

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* The last digit in the spare part number indicates the spare part revision at release of this document. When ordering, the actual revision of the spare part is delivered.

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1.5.5 Frequent Film Jams in the Print Head Section

- Symptom* Frequent film jams in the print head section.
- Message "Remove film jam in Printhead Section"
 - In addition images may be partly printed only - image information is not parallel to the film edge.
See Figure 40

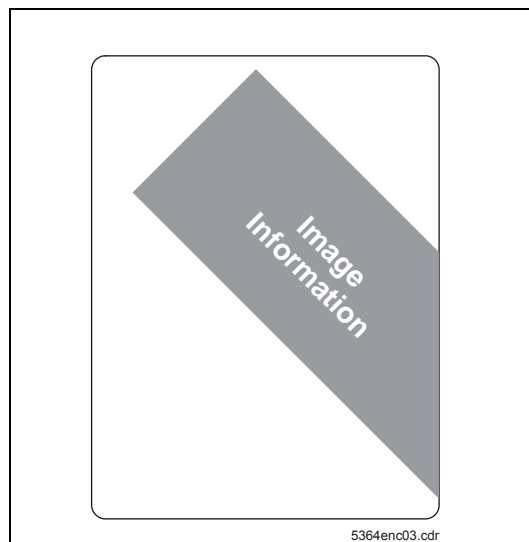


Figure 40: Partly printed images

Defect Due to strong film curl variations of the unprinted films the film may jam between film tray and printhead section or may be transported askew through the printer.

Solution Install "Film Curl Upgrade Kit" CM+355597.0

Documents DRYSTAR 5500 Service Bulletin No. 37, DD+DIS170.06E

Reference HQ_0602170001

Home

1.6 Other Faults

1.6.1 Automatic Film Calibration switched off after Reboot

- Symptom* **Automatic film calibration after reboot switched off**
- Automatic film calibration with insertion of new film pack not executed.
In case you switch it on it is switched off again after a reboot.

- Defect** At a few printers in the range of SN 1000 to 3470 directory D:\production was erroneously not erased in production. The automatic film calibration is always switched off after a reboot in this case.
- Normally directory D:\production is deleted at the end of the final printer tests. A check at 32 printers that were already prepared to leave production showed that at 2 printers directory D:\production was still present.
- Printers that were originally delivered with SW rel. 1.8 and got a software upgrade to SW rel. 2 will not be affected, as directory D: gets formatted during SW upgrade.

- Solution** Possibility 1: Perform software upgrade to latest software. Directory D:\production is erased with a software upgrade.
- Possibility 2: At the next service intervention, check whether directory D:\production is present and delete it if applicable.

Proceeding:

Action	Command / Remark
(1) Connect to the printer via serial cable (terminal program) or via network connection (telnet).	Remark: Username "mega" Password "*****"
(2) When the shell> prompt appears, check whether directory D:\production is still available.	cd d: <ENTER> dir p* <ENTER>
(3) In case directory D:\production is still available reboot the printer without the Java Virtual Machine started up.	c: <ENTER> nboot <ENTER>
(4) Delete directory D:\production.	rmdir D:\production -do <ENTER>
(5) Switch the printer off/on.	Remark: It takes approx. 5 minutes until the printer shows READY.
(6) Switch on automatic film calibration in key-operator menu '3 Change settings – 5 Image Quality – 1 General – 1 Film Calibration.	--

Documents DRYSTAR 5500 Service Bulletin No. 25, DD+DIS392.04E

Reference n.a.

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2 FAQ

2.1 Software related Questions

Question Does the printer use any service software?

Answer The service software for the printer is "built-in". It can be accessed

- via the service menu of the local keypad.
- via the Service Engineer Tools in the DRYSTAR 5500 web pages.

Question Is a service PC required for installation, repair or maintenance?

Answer In general no service PC is required for installation, repair or maintenance.

Following exceptions exist:

When the keypad is defective, the printer can be accessed via its homepage from any PC in the network with a browser (e.g. Internet Explorer 5.X).

As an alternative, a crossed network cable can be used for connection to the service PC. In this case, the service PC needs to have an IP-address that belongs to the same network class (e.g. printer IP-address = 10.5.6.101, use e.g. 10.5.4.102 for the service PC). In case subnetting is used, and you do not get a connection, try an address that is below the printers IP-address (e.g. 10.5.6.100).

In case of DICOM configuration problems (wrong media type sent from the modality or wrong taste LUT etc.), only the home page of the printer offers the possibility to adapt different attributes to the required values (DICOM profile editor).

Question Which possibilities exist to install software on the printer?

Answer **Re-Installation of the SW**

- From printer hard disk; via local keypad or browser

SW Update: Loading a SW patch:

- Via floppy or via browser

SW Upgrade: Upgrade to a higher major SW release (e.g. SW Rel. 2 to 3)

- Via Floppy or browser

SW Installation on an empty, new hard drive:

- Via floppies or via batch file (network connection)

Emergency SW installation

- Via floppies or via batch file (network connection)


Note 1: SW installation via batch only works as of SW Rel. 3.0.0.

A SW Upgrade from 2.0X to 3.0.0 can be made via batch file. SW 2.0X cannot be installed via batch file.

Note 2: Difference between SW installation on empty HD and Emergency SW installation: At SW installation on an empty HD the machine specific data have to be re-loaded after SW Installation. At Emergency SW installation the machine specific data can be preserved during the SW installation procedure.

Question Is it possible to erase the entire print queue?

Answer It is possible to format the partition E: of the printer if connected via terminal. To connect to the terminal level however, a password is required.

Via the local keypad it is possible to erase single print jobs: press the 'delete  key' on the local keypad. The 'Delete print job' window will open, from where single print jobs can be erased (only those that are in 'waiting' status).

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2.2 Questions to Calibrations

Question Do we have separate calibrations for blue and clear based films?

Answer For each film type, which is defined by film size and film type (blue based / clear based) an own sensitometric curve is stored on the printer: A film calibration is printing a 52 steps grey wedge on a film, measuring the different steps with the internal MDM, adapting the Dmax to 3.0 and storing the 52 grey wedge values as sensitometric curve.

By default the film calibration is initiated, whenever the film magazine was empty and a new film package is inserted. The automatic calibration can be switched off/on and the calibration frequency can be adapted in the 'Change settings → Image quality → General settings' screen in the key-operator menu.

Question Are the calibrations logged in the infocounter?

Answer In the infocounter entry '3.5 Calibration history' all calibrations are logged: date, number of films printed and type of calibration (film / MDM / print head profile).

Question Why are there 2 grey steps on the sensitometry test film?

Answer This is to minimize the effects of print head profile and drum irregularities. The measurement is made at the lower edge of the film.


Question Where do I find the menu for the MDM calibration?

Answer The only place you can find the calibration for the MDM is the service menu session in the browser pages. Reason: As a MDM calibration should be required very seldom, this menu is "hidden" now in the browser pages.

2.3 Questions to the Print Queue

Question If a print job can not be printed for any reason, what status will be displayed for this job?

Answer If the job in general can be printed, but the correct media size or type is not present, the job will be displayed in the print queue with the desired film type/size in first row (instead of 'printing' or 'calculating' or 'waiting' e.g. 'blue 10x12" will be displayed). This print job will stay in the queue, until the problem (wrong film size or wrong film media) is solved.

Jobs that have got the correct film size and media, but cannot be printed because of an unknown reason get a 'waiting' entry and will stay in the queue forever. They can be deleted by pressing the 'delete  key' on the local keypad.

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Question Is there an image queue on the DRYSTAR 5500 after the image is printed - a reprint type of function of say the last 10 images?

Answer No. As such functionality is usually built in the modality, the DRYSTAR 5500 does not offer it.

Question When can I move the images in the queue with the Emergency button?

Answer Only when they are in the "Waiting" state, NOT in the "Calculating" or the "Printing" state.

Question If the power or anything is interrupted during the image transfer to the DRYSTAR 5500, how will the images be printed?

Answer The images will be printed in the layout as requested by the Modality.

Question What is the meaning of the display messages in the print queue?

Answer

- Waiting: The job is in the printer queue, waiting to be further processed
- Calculating: The image map for this job is calculated (sensitometry is applied; Dmax is adjusted; compensations are applied; image processing as defined in the host profile is applied)
- Printing: A film for this print job is between film magazine and film output.
- Blue 10x12: (this is just an example; can be any other film type and format): The desired film size / type is not available.
- Stop: The printer has stopped accepting new jobs and is ready printing its current jobs. The printer can be powered off or opened (e.g. to fill tray) now. To initiate this status, the 'stop' button has been pressed.

Question If a film jams somewhere in the DRYSTAR 5500, would this film be automatically reprinted?

Answer Yes, jammed films are always reprinted. A film is only erased from the printer queue in case no film jam or other error was reported during printing. The image is erased, if following condition is fulfilled:

Sensor S27 'Sorter output' has detected film and is cleared now. This means: only if the output jam comes behind sensor S27 (which is unlikely to happen), the image is not reprinted.

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Question When will a print job be deleted from the printer harddisk?

Answer The image to-be-printed is erased if the following conditions are fulfilled:

- Sensor S27 'Sorter output' has detected film and is cleared now.
- No error was reported during printing.

2.4 Printer Configuration related Questions

Question Why does it sometimes take approx. 1 min until the Key-operator or Service session browser pages are loaded?

Answer The browser pages for the Key-operator menu and the Service menu have to be generated first after each reboot. This takes approx. 45 secs.

When they are generated once, loading of these pages takes less than 1 sec - after a reboot they have to be generated again however.

Question How are the layouts defined in the Printer?

Answer The newer DRYSTAR's (4500, 5300, 5500, 5302) do not have layouts in the software like the older DRYSTAR's 2000 & 3000 (.idf files). The modality sends the desired layout via DICOM print. Newer DRYSTAR's map it to the printable area on film defined by the pixel matrices per film size. The pixel matrices are shown in Technical Documentation DRYSTAR 5500/5503, chapter 11, Installation Planning and in the appendix of the Hardcopy Application Manual.

Question How does the DRYSTAR 5500 treat open DICOM associations, which are not automatically closed by the modality?

Answer The association is kept open for 15 minutes if there is no activity and the host profile parameter "association timeout" is left at default = 0. This parameter can be changed from 0 to 86,400 secs and the timeout will change from 15 minutes to a possible 24 hours. This can be useful for modalities that do NOT break the association (i.e. Siemens,

Picker/Marconi/Philips, etc..). The modality can have problems re-establishing the connection with the printer if the association timeout as defined in the host profile causes the association to be broken.

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Question What is APIPA?

Answer Automatic Private IP Addressing (APIPA) is a feature of Windows-based operating systems (Windows 98, ME, 2000, and XP) that enables a computer to automatically assign itself an IP address. As of SW Rel. 3.0.0_C1 the printer offers this feature.

Consequences of APIPA for DRYSTAR 4500:

- The default IP address of the printer changed from 0.0.0.0 to 169.254.10.10
- The default subnet mask is 255.255.0.0

Consequences of APIPA for DRYSTAR 4500 Installations:

- After unpacking and switch-on, it is after approx. 2 min. possible to connect via network hub or crossed network cable to the web pages of the printer. It is not required anymore to wait for the complete printer boot-up, before the printer configuration can start.
- Also at "Emergency Software Installation" without saving of the machine specific data the default IP address is set to 169.254.10.10 to allow a browser connection approx. 2 min. after switch-on.

PC Settings for APIPA:

Windows 98 / Windows ME / Windows 2000:

Select "Control Panel – Network – Properties – Internet Protocol (TCP/IP) – Properties – Obtain an IP address automatically".

Note: The path may differ for different operating systems.

Windows XP:

Select "Control Panel – Network Connections – Local Area Connection – Properties – Internet Protocol (TCP/IP) – Properties – Tab: Alternative Configuration – Automatic Private IP address".

Question What is meant by key-operator menu "select default for film calibration"?

Answer In this menu can be set whether automatic film calibration when inserting a new film package should be switched OFF or ON. Default = ON. In this menu it is also possible to define the frequency for film calibration: This is adjustable between 1 and 9 film packs.

Question What is the purpose of key-operator menu "printing mode"?

Answer In this menu can be set whether the 'Back-view printing' should be applied. 'Back-view printing' means that the film is printed mirrored on the film. In this case, the curl of the film will be towards the lightbox.

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Question What is the printer doing in the service menu "Extended system check". Is it the same as the selftest after a reset?

Answer The test is more extended than the selftest after reset or switch-on.

Question Why is the "Re-install print head" menu offered in service menu. Why should I install it when it is already installed?

Answer One possible application: To be able to reload the original TH data when the TH profile was done on a dirty TH and the original TH data needs to be loaded in order to get rid of the gray lines in the images (due to the TH profile being done on a dirty TH).

2.5 DRYSTAR Mammo Printing related Questions

Question Which functions do not work, as long as the Mammo License in Software $\geq 4.0.0_C1$ is not activated yet?

Answer

- DRYSTAR 5500 DT2 Mammo film will **not** be recognized by ID tag reader: Error message HC11319 at the local display.
- Selection of Mammo = yes in host profile and Mammo CWR rotation = yes is possible however.

Question My customer wants to have the Mammography Print Functionality. What do I have to order?

Answer To support the Mammo print functionality, the printer has to have the Mammo license activated. The Mammo license has to be ordered via sales (ABC Code: ER3N3). This sales kit also contains a software CD ROM to upgrade the printer to software 4.0.0_C1, in case this is not done yet. Only software 4.0.0_C1 supports Mammo print functionality.

2.6 Questions to Technical Data of the Printer

Question What is the difference between film throughput and access time?

Answer Throughput is measured in films per hour. This is measured in the factory with a simulated standard configuration, e.g. a modality sends DICOM images in "image mode".

Access time is this time between pressing "PRINT" at the modality until the film is in the film tray of the printer. The access time for the first film is always approx. 20 secs. longer than for the following films, as the printer is able to do printing and processing simultaneously for following films.

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2.7 Questions related to Differences between DRYSTAR Printers

Question Why is there a difference in TH cleaning procedure for DRYSTAR 4500 and DRYSTAR 550X?

Answer At DRYSTAR 5500 the TH cleaning procedure comprises two additional steps (refer to Technical Documentation DRYSTAR 500/5503, chapter 3.6: Check for dust stripes):

- A resistor check: The resistor measurement of DRYSTAR 4500 is not accurate enough to be used for the detection of resistor errors.
- A dry TPH cleaning (with an ink eraser): In case DT2 films used in DRYSTAR 5500 are printed at the wrong side, they make a strong contamination of the thermal head, which only can be removed by dry cleaning. This persistent contamination doesn't show up with DT1 films in DRYSTAR 4500.

Question Is it possible to install a 3rd Input Tray in DRYSTAR 5500?

Answer DRYSTAR 5500 of type 5364/100 does not allow installing a 3rd input tray in the field. Three input trays are only available for DRYSTAR 5503, type 5364/300.

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3 Tips & Tricks

3.1 Density measurement of DRYSTAR Films

- For density measurement of DRYSTAR films a calibrated densitometer MacBeth TR-924, X-Rite 331, X-Rite 341, X-Rite 301, X-Rite 310 or Gretag D200-2 is required.
- The densitometers must be calibrated with the calibration wedge of the supplier according to the instructions of the supplier.
- The target Dmax depends on the default densitometer which is configured in Key-operator menu "3 Change Settings - 5 Image Quality - 1 General".

Densitometer	Target Dmax DT2B	Target Dmax DT2C	Target Dmax DT2 Mammo
X-Rite 310	3.20 O.D.	3.00 O.D.	3.80 O.D.
X-Rite 331	3.11 O.D.	2.91 O.D.	3.57 O.D.
X-Rite 341	3.10 O.D.	2.92 O.D.	3.58 O.D.
X-Rite 301	3.05 O.D.	2.86 O.D.	3.55 O.D.
MacBeth	3.12 O.D.	2.93 O.D.	3.66 O.D.
Gretag D200	3.07 O.D.	2.89 O.D.	3.58 O.D.

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3.2 Correlation between Print Head Position and Dust Stripes

Never try to reduce dust stripes by changing the Print Head position. Deviations of the original drum position might slightly improve dust stripes, on the other hand other image artefacts like pinholes, decreasing Dmax or inhomogeneous printing are the result. See Figure 41.

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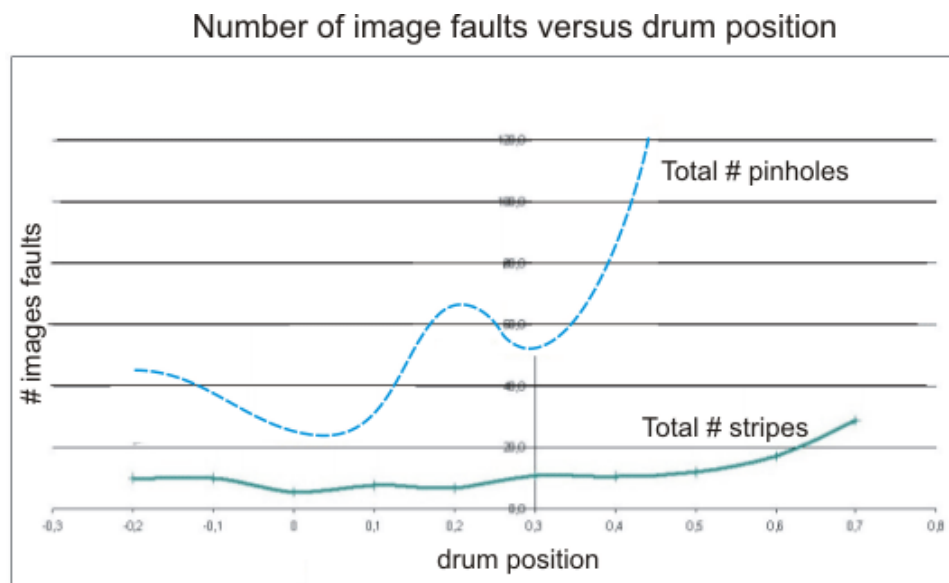


Figure 41

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