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CR 85-X
Type 5148/100

CR 75.0
Type 5146/105
(as of SN ≥ 6000)

► ## Purpose of this document

This document describes replacements and repair procedures for the digitizer.

► ## Document History

Edition. Revision	Release Date	Changes compared to previous version 2.0
2.1	09-2008	• Chapter 7 adapted (serial numbers added). • Chapter 8 added (Revive Board). • Updated structure of the document: Added required spare parts, required tools, required times, removal, re-install.

► ## Referenced Documents

Document	Title
Service Bulletin No. 49 (CR 75.0)	CR 75.0 Type 5146/105 (as of SN ≥ 6000) introduced, DD+DIS028.07E.

Edition 2, Revision 1
09-2008   printed in Germany
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AGFA HealthCare

► ## Manufacturer

Agfa HealthCare N.V.

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.

NOTE:

To verify the latest version of single documents and of Service Manuals refer to the
Document Type 'Order List' in the GSO library.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 2
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

LIST OF CONTENTS

DOCUMENT CONTROL NOTE:
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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 4
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

1 Safety Note

⚠️ **WARNING:**
Risk of electric shock!
Switch off the digitizer before performing any service interventions at the digitizer.

2 Replacements at the Erasure Unit

2.1 Removing the Erasure Unit

Required spare parts:

Spare part number*: Halogen Lamp CM+9 0450 6582 0

* 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.

Required tools:

N.a.

Required time:

Approximately 15 min

Removal:

(1) Press down the clamping plate on top of the erasure unit.

figure 1

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09-2008
CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000)
Chapter 3.5 / 5
Agfa Company Confidential

(2)   Pull out the erasure unit to the stop.

figure 2

(3)   Take the erasure unit with one hand and press down the other clamping plate on the top with the other hand and pull it out.
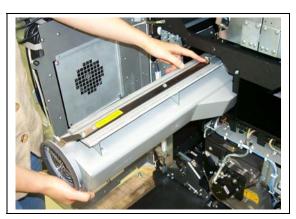
(4)   Lay down the unit on a save and stable place.

figure 3

✓ NOTE:

The glass bulbs of the new lamps must be clean. Use a soft cloth; do not touch with bare fingers.
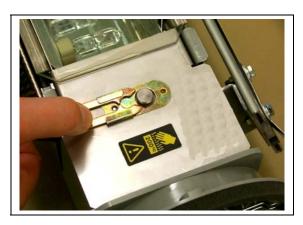
(5)   Open the two latches beside the glass.

figure 4

(6)   Swing up the glass covering of the lamps.

(7)   Pull the lamps which need to be replaced carefully out of the sockets.

(8)   Insert the new lamps carefully in the sockets and push them to stop position.

figure 5

Re-installation:

(1)   Follow the steps in reverse order.

(2)   Take care that the clamping plate locks into place by moving the erasure unit back into the digitizer.

Verification: Start the digitizer. The self test should be successful.

Result   Lamps of the erasure unit replaced and operative.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 7
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

3   Replacement of the Erasure Unit Fan

Required spare parts:

Spare parts order number*: Erasure Unit Fan CM+9 5146 3620 0

* 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.

Required tools:

Socket wrench 7 mm

Required time:

Approximately 10 minutes

Removal:

(1)   Unscrew the three screws (marked with white circles with a socket wrench (7mm).

IMPORTANT:

Do not try to unscrew the screw in the left upper position (see arrow in figure 6)!
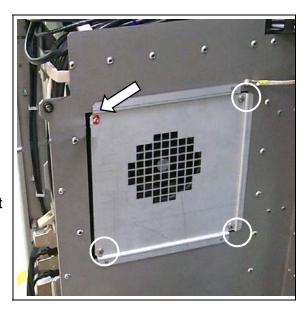It is secured by lacquer.

figure 6

(2)   Take out the fan carefully and
       unplug the cable.

figure 7

Re-installation:

(1)   Plug the cable of the new fan in the
       erasure fan unit (see figure 7).

(2)   Insert the fan.

(3)   Fasten the three screws (marked
       with white circles with a socket
       wrench 7mm (see figure 6).

Verification: Start the digitizer. The self test should be successful.

Result   Fan of the erasure unit replaced.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 9
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

4   Replacements at the Transport Units

4.1   Replacing the Vacuum Pump

NOTE:

For replacing the vacuum pump of the IP transport unit – postscan, it is necessary to take the complete frame out of the digitizer.

Required spare parts:

- Pump plate spare part number*: CM+9 5146 6230 3

- Only for sites, which are located between 2000 m and 4000 m above sea level: High Altitude Vacuum Pump spare part number*: CM+9 5148 6230 0 (for more information see DD+DIS278.07E, Service Bulletin No.04 of CR 85-X)

  * 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.

Required tools:

Socket wrench (5.5 mm)

Required time:

Approximately 20 minutes
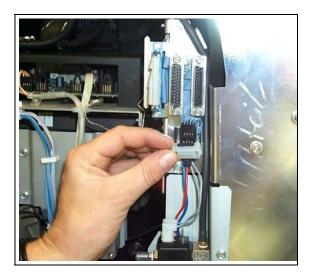
Removal:

(1)   Open the white plastic clamp.

figure 8

(2)   Unplug the black plug.
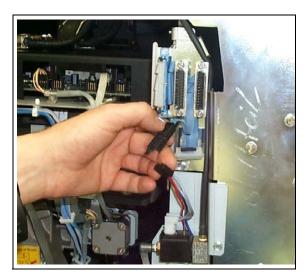

figure 9

(3)   Pull off the vacuum hose.

figure 10

(4) Unscrew the three mounting screws (see circles).

figure 11

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Edition 2, Revision 1
09-2008
CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential
Chapter 3.5 / 12
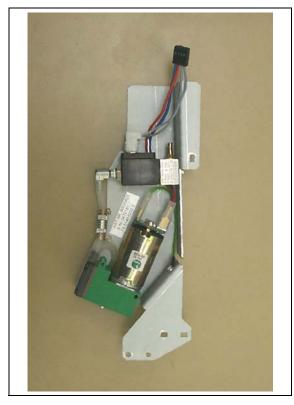
(5)   Remove the vacuum unit.

figure 12

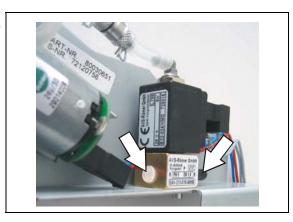(6)   Remove the dust cover (see arrows) on the High Altitude Vacuum Pump.

figure 13

Re-installation:

(1)   Follow the steps of Removal in reverse order.

Verification: Start the digitizer. The self test should be successful.

Result   Vacuum pump replaced.

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4.2   Replacing the Transport Units (Pre- and Postscan)

Required spare parts:

- Frame output spare part number*: CM+9 5148 6600 1

- Frame input spare part number*: CM+9 5146 6300 0

* 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.

Required tools:

N.a.

Required time:

Approximately 10 minutes.

Removal:

(1)   Unplug both plugs.

figure 14

NOTE:

By repositioning the transport unit take care of the guiding bar on the bottom of the digitizer.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 14
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential
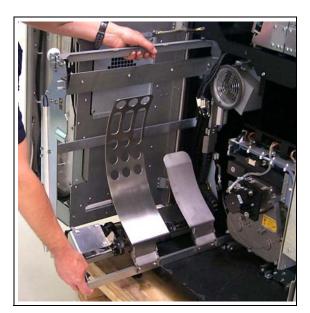
(2)   Pull out the transport unit.

figure 15

Re-installation:

(1)   Push the transport unit in the digitizer.

(2)   Plug in the 2 plugs.

Verification: Start the digitizer. The self test should be successful.

Result   Transport unit replaced.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 15
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

4.3   Replacing the Stepper Motor Boards of the Robot

Required spare parts:

PCB IOB-SIN-STEP spare part number*: CM+9 9499 8140 6

* 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.

Required tools:

Socket wrench 5,5 mm

Required time:

Approximately 20 minutes.

Removal:

(1)   Remove the IP-transport unit from the machine.

(2)   Move the robot manually to the top of the frame.

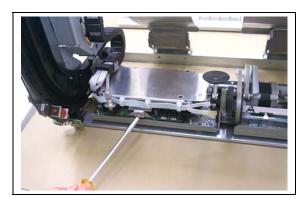(3)   Unscrew the covering plate with a socket wrench (5,5mm).

figure 16

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 16
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

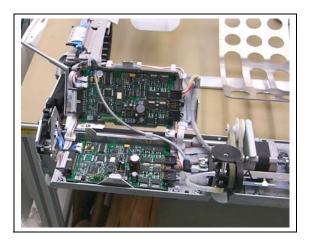(4)   Swing up the covering plate.

figure 17

(5)   Unplug the cables of the board.

(6)   Press the black plastic clamp
        carefully and lift the board off the
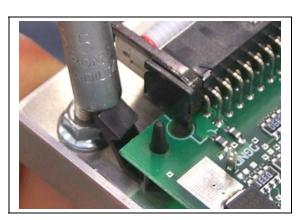   four pins. Remove the board.

figure 18

Re-installation:

(1)   Follow the steps of Removal in reverse order.

Verification: Start the digitizer. The self test should be successful.

Result   Stepper motor board of the robot replaced.

5   Replacements at the Scan Unit

5.1   Safety Note

CAUTION:
Risk of injury when removing the scan unit!
To remove the scan unit safely, use the digitizer ramp. Check that both adjustable feet are touching the ground before removal of the scan unit.

5.2   Sliding out the Scan Unit

Required spare parts:

N.a.

Required tools:

Screwdriver

Required time:

Approximately 5 minutes

Removal:

(1)   Unlock the scan unit by loosening two screws (**1**) - only half a turn.

(2)   Pull out the scan unit to its stop.
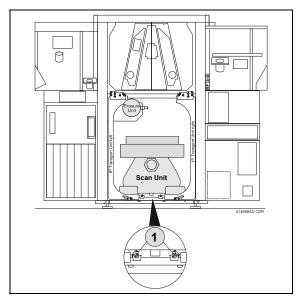

figure 19

Re-installation:

(1)   Push the scan unit until it stops.

(2)   Fasten the two screws
       (see figure 20).

Verification: Start the digitizer. The self test should be successful.

Result   Scan unit is ready for operation.

5.3   Replacing the 5fold Stepper Motor Board at the Scan Unit

Required spare parts:

PCB IOB SIN 5Step spare part number*: CM+ 9 9499 8130 0

* 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.

Required tools:

N.a.

Required time:

Approximately 15 minutes

Removal:

Slide out the scan unit as described in section 5.2, page 18.

NOTE:

Wear a grounding strap (spare part number*: CM+9 9999 0830 0) when touching the
stepper motor board.

* 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.

(3)   Press the plastic clips of the black
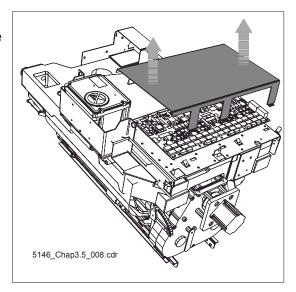   covering plate a little inside and take
      away the covering.

5146_Chap3.5_008.cdr

figure 20

(4)   Unplug all cables at the stepper
      motor board and lift it off the studs.
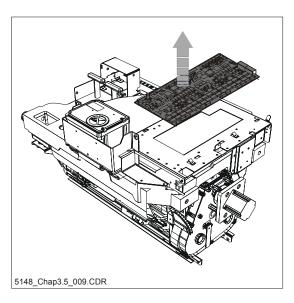

5148_Chap3.5_009.CDR

figure 21

Re-installation:

(1)   Follow the steps of Removal in
      reverse order.

Verification: Start the digitizer. The self test should be successful.

Result   5fold Stepper Motor Board replaced.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 20
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

5.4   Replacing the Optic Module

5.4.1   Safety Note

⚠ **WARNING:**

Risk of electric shock!

Make sure that the digitizer is switched off, before you remove the optic module.

🔍 IMPORTANT:

There are no serviceable parts inside the optic module.

Do not open sealed parts of the module.

figure 22

5.4.2   Removing the optic module

🛈 **CAUTION:**

Risk of injury when removing the scan unit!

To remove the scan unit safely, use the digitizer ramp. Check that both adjustable feet are touching the ground before removal of the scan unit.

📦 Required spare parts:

Lens Assembly spare part number*: CM+9 5148 2700 2

* 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.

🔧 Required tools:

*   Socked wrench 5,5 mm

*   Allen key 4 mm

🕐 Required time:

Approximately 30 minutes

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09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

Removal:

(1)   Unlock the scan unit by loosening two screws **1** - only half a turn.
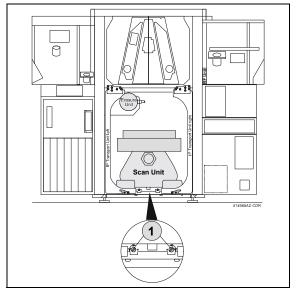
(2)   Pull out the scan unit to its stop.

figure 23

(3)   Undo the shielding clamp A with a 5.5 mm socket wrench.
Unplug the polygon plug B (the connection is unmistakable).

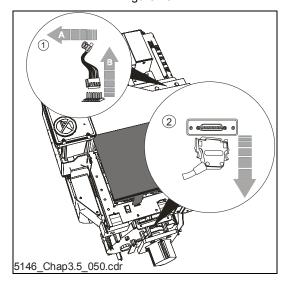(4)   Unplug activation plug of the optic module (Sub-D plug, 25 pins).

figure 24

NOTE:

Locking clips prevent the plug from working loose.

(5)   Press the plastic clips of the black
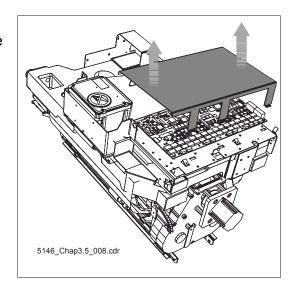   covering plate a little inside and take
      away the covering.

5146_Chap3.5_008.cdr

figure 25

(6)   Loosen quick action closure **1** and
      snap lock **2** of the holder of the 5fold
      stepper motor board.

(7)   Unplug all connections at the 5 fold
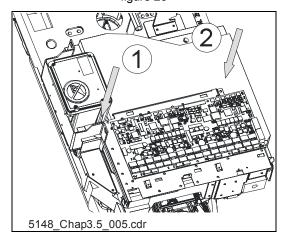   stepper motor board.

5148_Chap3.5_005.cdr

figure 26

(8)   Turn up the holder to its stop.

5146_Chap3.5_020.cdr

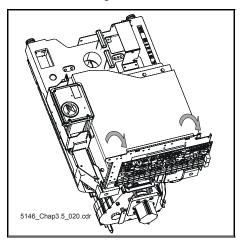figure 27

(9)   Undo four Allen screws
       of the optic module
       (4 mm Allen key).
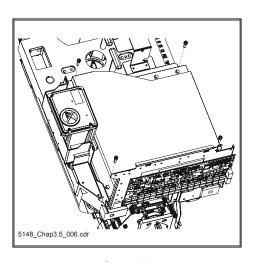

5148_Chap3.5_006.cdr

figure 28

(10)   Unscrew the handles from the
       platform and fit it to the provided
       bore holes.
       Lift up the optic module cautiously
       by using the two handles and
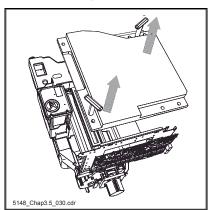   remove it from the scan unit.

5148_Chap3.5_030.cdr

figure 29

Re-installation:

(1)   Insert the new optic module by
       using the two handles: make sure
       that both centering pins
       (**1**-**2**) have engaged.

(2)   Tighten four Allen screws of the
       optic module.

(3)   Re-connect all cables.

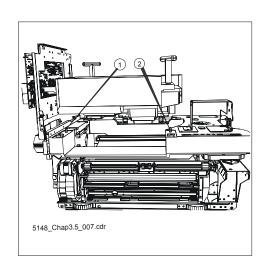(4)   Turn down the 5fold stepper motor
       board and mount cover.

5148_Chap3.5_007.cdr

figure 30

(5)   An IP center calibration and a shading calibration must be done after the
       installation (see chapter 3.6).

5.4.3 Putting the new optic module in operation

    (1)   Switch on the Digitizer.

    (2)   Install the optics specific data from the enclosed floppy disk via the Service Menu at the user terminal.

✓ **NOTE:**

In case that a digitizer with new cPCI-Rack and USB is used (CR 85-X SN ≥ 4000; CR 75.0 SN ≥ 6500), copy the floppy disk to a USB memory stick.

,   (3)   Select
             <5 INSTALL data>[*]
             <4 Optics parameters>.

    (4)   The system requests:
             - to compare the S/N on the optic module and the S/N stored on the floppy disk.
             After confirmation the parameters are loaded.
             The serial number of the exchange part is automatically entered in the info counter file under "HW Replacement history" together with date and counter stamp.
             - to update the backup

    (5)   Make an IP center calibration, see chapter 3.6.

    (6)   Make a shading calibration of all formats, see chapter 3.6.

    (7)   Update the backup to save the calibration data.

    (8)   Select
             <3 SAVE data>[*]
             <2 Machine specific data>.

    (9)   Follow the on-line instructions.

    (10)   Enter the serial number of the Digitizer on the label of the optic module floppy disk.

    (11)   Check the image quality with flatfield exposures (if available, also with test sheet), see chapter 3.6.

Verification: Start the digitizer. The self test should be successful.

Result   Optic module replaced.

* Labelling of menu entries depends on the software version of the digitizer.
   In software versions older than ACP_5007 the term "data" is called "floppy".

5.5 Replacing the Photomultiplier Module (PMM)

CAUTION:

Risk of injury when removing the scan unit!

To remove the scan unit safely, use the digitizer ramp. Check that both adjustable feet are touching the ground before removal of the scan unit.

Required spare parts:

Photomultiplier Module (PMM) with Light Collector (Acrylic light gude assembly)
spare part number*: CM+9 5148 2280 6

* 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.

Required tools:

- Allen key 2,5 mm
- Allen key 7 mm
- Screwdriver

Required time:

Approximately 30 minutes

5.5.1 Removing Components of the Scan Unit

Removal:

(1) Unlock the scan unit by loosening two screws (1) - only half a turn.
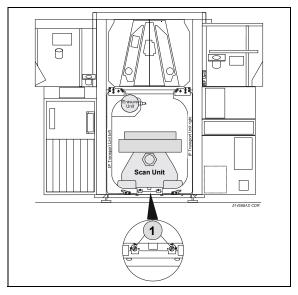
(2) Pull out the scan unit to its stop.

figure 31

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(3)   Remove the cover of the 5fold
      Stepper Motor Board and turn it up
      till its stop.
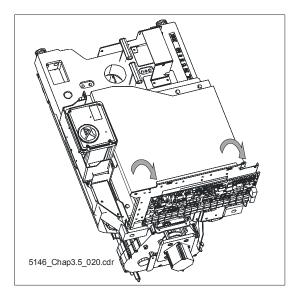

5146_Chap3.5_020.cdr

figure 32

(4)   Undo the four
      fastening screws (1-4) of
      the optic module with a
      4 mm Allen key.
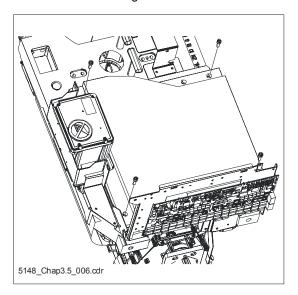

5148_Chap3.5_006.cdr

figure 33

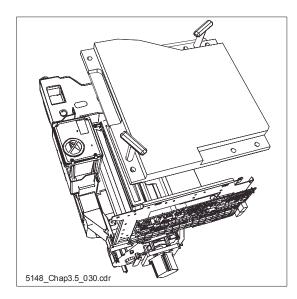(5)   Lift up the optic module cautiously and remove it from the scan unit.

5148_Chap3.5_030.cdr

figure 34

(6)   Undo the Allen screw at the light well (close to the gear box, 3mm Allen key)

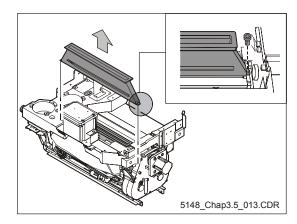(7)   Lift up the light well.

5148_Chap3.5_013.CDR

figure 35

5.5.2   Removing the Photomultiplier Module (PMM) with Light Collector

CAUTION:

Risk of damage!
Photomultiplier and light collector are glued and must be treated as one component.

Removal:

(1)   Loosen the four
Allen screws at the corners of the
photomultiplier (**1**-**4**) with
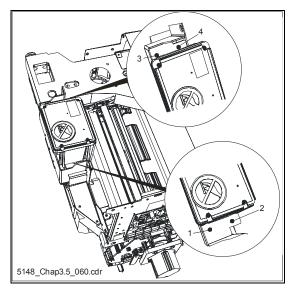2.5 mm Allen key.

figure 36

(2)   Loosen the four Allen screws at the
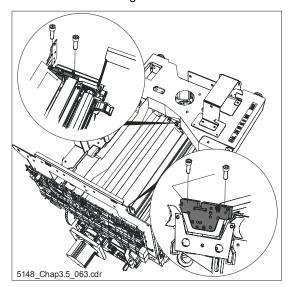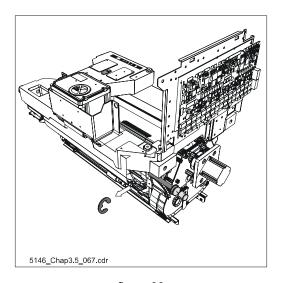light collector
(7mm Allen key).

figure 37

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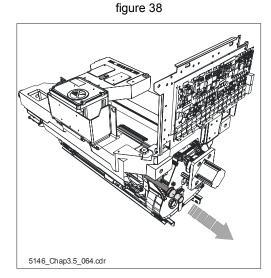
(3) Remove retaining ring of the dust brush.

5146_Chap3.5_067.cdr

figure 38

(4) Draw the dust brush to its outermost position
(to avoid bending of
the brush).

5146_Chap3.5_064.cdr

figure 39

(5) Thread the cabling of the brush through the guidance.

5146_Chap3.5_064.cdr

figure 40

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 30
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

(6)   Pull out the PMM with the right side
       ahead.

       Take the module with both hands on
       top of the light collector
       (left and right from the
       photomultiplier).

5146_Chap3.5_066.cdr

figure 41

(7)   Put down the PMM carefully.

5146_Chap3.5_069.cdr

figure 42

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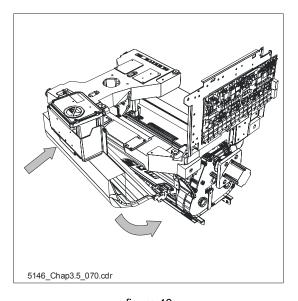
5.5.3 Installing the new Photomultiplier Module (PMM) with Light Collector

Re-installation:

(1) Install the new PMM, put in with left side ahead.

5146_Chap3.5_070.cdr
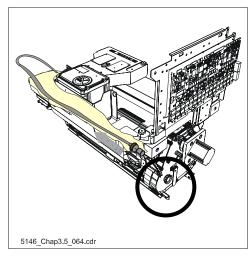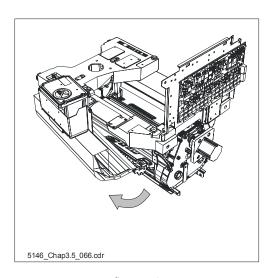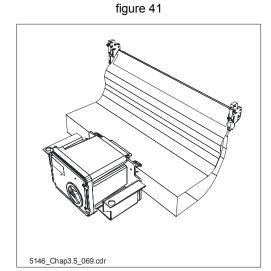
figure 43

(2) Thread the cabling of the brush through the guidance.

5146_Chap3.5_071.cdr

figure 44

(3) Draw the dust brush to its outermost
     position
     (to avoid bending of
     the brush).

5146_Chap3.5_064.cdr
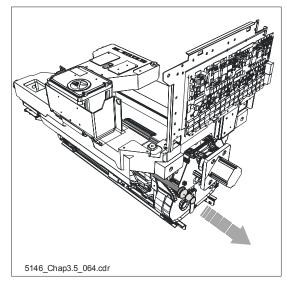
figure 45

(4) Put retaining ring of the dust brush
     back in place.

5146_Chap3.5_072.cdr
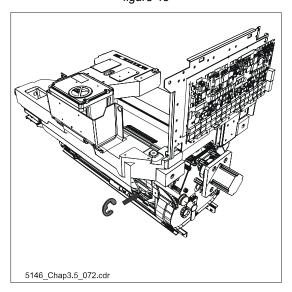
figure 46

(5) Tighten the four
Allen screws at the corners of the
photomultiplier
(2.5 mm Allen key).
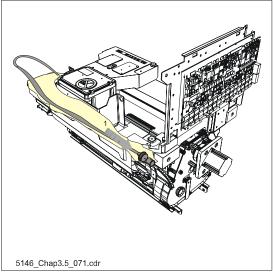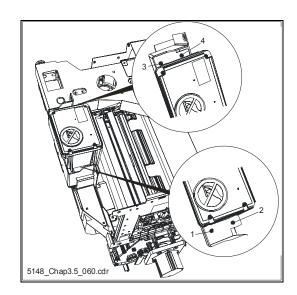

figure 47

(6) Tighten the four Allen screws at the
light collector
(7 mm Allen key).
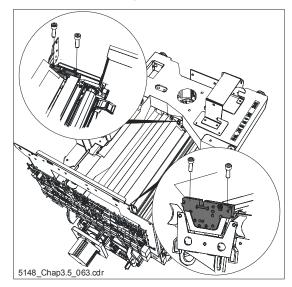
figure 48

(7) Return the dust brush to its park position.

(8) Re-install the light-well and the optic module in reverse order as described
above.

(9) Turn down the 5fold Stepper Motor Board.

(10) Push scan unit back into the digitizer and tighten the fastening screws.

(11) Close doors.

(12) Continue with 5.5.4.

Edition 2, Revision 1
09-2008

CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000)

Chapter 3.5 / 34

Agfa Company Confidential

5.5.4   Putting the new Photomultiplier in Operation

(1)   Switch on the Digitizer.

(2)   Install the mfa / mfb parameters from the enclosed floppy disk via the Service Menu at the user terminal.

NOTE:

In case that a digitizer with new cPCI-Rack and USB is used (CR 85-X SN ≥ 4000; CR 75.0 SN ≥ 6500), copy the floppy disk to a USB memory stick.

(3)   Select
      <5 INSTALL data>[*]
      <3 PMT settings (mfa/mfb)>.

      The system requests:

      -     to compare the serial number on the photomultiplier module and the serial number stored on the floppy disk. After confirmation the parameters are loaded.
            The serial number of the exchange part is automatically entered in the info counter file under "HW Replacement history" together with date and counter stamp.

      -     to update the backup

(4)   Calibrate all formats, see chapter 3.6.

(5)   Update the backup to save the calibration data.

(6)   Select
      <3 SAVE data>[*]
      <2 Machine specific data>.

(7)   Follow the on-line instructions.

(8)   Enter the serial number of the Digitizer on the label of the photomultiplier floppy disk.

(9)   Check the image quality with flatfield exposures (if available, also with test sheet), see chapter 3.6.

Verification: Start the digitizer. The self test should be successful.

Result: Photomultiplier Module (PMM) with Light Collector replaced.

      * Labelling of menu entries depends on the software version of the digitizer.
        In software versions older than ACP_5007 the term "data" is called "floppy".

5.6   Removing the Scan Unit completely from the Digitizer

5.6.1   Sliding the Scan Unit onto the Ramp

CAUTION:

Risk of injury when removing the scan unit!

To remove the scan unit safely, use the digitizer ramp. Check that both adjustable feet are touching the ground before removal of the scan unit.

In order to remove the scan unit safely, always wear safety shoes with steel toe cap.

Foot protection

Required spare parts:

n.a.

Required tools:

Allen key 3 mm

Required time:

Approximately 20 minutes

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09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

5148_Chap3.5_003.CDR

figure 49

Removal:
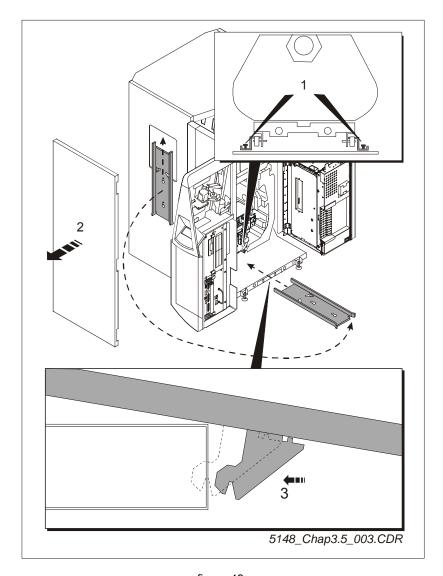
(1)   Unlock the scan-unit by removing the locking device (3 mm Allen key).

(2)   Remove the ramp of the scan unit; it is hidden behind the left side panel.

(3)   Hook the ramp into the gaps between the two feet of the digitizer.

(4)   Let the scan unit slide onto the ramp.

5.6.2   Removing the Energy Chain

(1)   Open all cable clamps.

(2)   Remove screw **1.**

(3)   Remove energy chain with metal plate **2.**

figure 50

(4)   Press the plastic clips of the black covering plate a little inside and take away the covering.

figure 51

(5)   Unplug connectors (1-4).

(6)   Take all cables out of the clamps.

figure 52

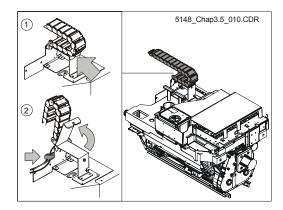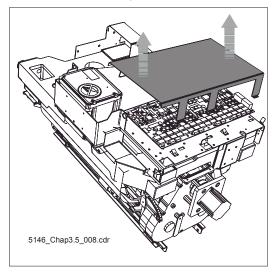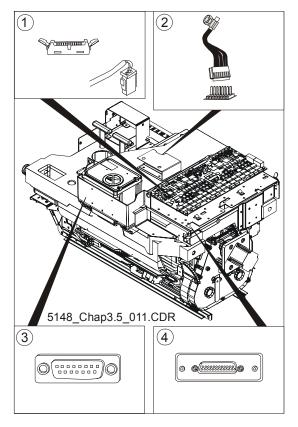(7)   Let the scan unit slide smoothly to the floor.

5.7   Removing modules from a defective Slow Scan Unit

To replace a complete slow scan unit, first remove the following modules from the defective slow scan unit as described before:

- 5fold stepper motor board at Scan Unit (see 5.3),

- Optic Module (see 5.4.2),

- The light-well-module (see 0),

- Photomultiplier Module (PMM) with light collector and dust brush (see **5.5.2**).

5.7.1   Installing a new Slow Scan Unit

Required spare parts:

Slow scan unit spare part number*: CM+9 5148 2220 2

* 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.

Required tools:

n.a.

Required time:

Approximately 20 minutes (excluding tasks named in 5.7)

Re-installation:

(1)   Unpack the new scan unit as described in the enclosed Installation Instructions.

(2)   For sending back the old scan unit use the packing of the new one and follow the unpacking instructions in reverse order.

NOTE:

Mind to fill out the **Defect Label** in a correct and detailed way for the old scan module!

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 40
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

(3)   Install the new scan unit (see
       delivery condition in figure beside)

5146_Chap3.5_018.cdr
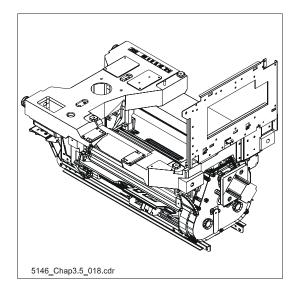
figure 53

(4)   Re-install
            - the PMM with light collector and dust-brush,
            - the light-well
            - the optic module
            - and the 5fold stepper motor board in reverse order as described above.

(5)   Slide back the scan unit onto the
       ramp and into the digitizer.

(6)   Remove the ramp.

(7)   Install, the energy chain and plug in
       all plugs at the scan unit

(8)   An IP center calibration and a
       shading calibration must be done
       after installation (see chapter 3.6 of
       service documentation).

(9)   Continue with 5.7.2.

5.7.2   Putting the new Slow Scan Unit in Operation

(1)   Switch on the Digitizer.

(2)   Install the mfa / mfb parameters from the enclosed floppy disk via the Service
        Menu at the user terminal.

NOTE:

In case that a digitizer with new cPCI-Rack and USB is used (CR 85-X SN ≥ 4000;
CR 75.0 SN ≥ 6500), copy the floppy disk to a USB memory stick.

(3)   Select
        <5 INSTALL data>[*]
        <3 PMT settings (mfa/mfb)>

        The system requests:

              - to compare the serial number on the photomultiplier module and the
                serial number stored on the floppy disk. After confirmation the
                parameters are loaded.
                The serial number of the exchange part is automatically entered in the
                info counter file under "HW Replacement history" together with date and
                counter stamp.

              - to update the backup

(4)   Install the optics specific data from the enclosed floppy disk via the Service
        Menu at the user terminal.

(5)   Select
        <5 INSTALL data>[*]
        <4 Optics parameters>

                The system requests:
              - to compare the S/N on the optic module and the S/N stored on the
                floppy disk.
                After confirmation the parameters are loaded.
                The serial number of the exchange part is automatically entered in the
                info counter file under "HW Replacement history" together with date and
                counter stamp.

              - to update the backup

(6)   Install the scanner parameters from the enclosed floppy disk via the Service
        Menu at the user terminal.

(7)   Select
       <5 INSTALL data>[*]
       <5 Scanner parameters>

       The system requests:

              - to compare the serial number on the photomultiplier module and the
                serial number stored on the floppy disk. After confirmation the
                parameters are loaded.
                The serial number of the exchange part is automatically entered in the
                info counter file under "HW Replacement history" together with date and
                counter stamp.

              - to update the backup

(8)   Calibrate all formats, see chapter 3.6.

(9)   Update the backup to save the calibration data.

(10)   Select
       <3 SAVE data>[*]
       <2 Machine specific data>

(11)   Follow the on-line instructions.

(12)   Enter the serial number of the Digitizer on the label of the
       photomultiplier floppy disk.

(13)   Check the image quality with flatfield exposures (if available, also with test
       sheet), see chapter 3.6.

Verification: Start the digitizer. The self test should be successful.

Result   Slow scan unit replaced.

       *   Labelling of menu entries depends on the software version of the digitizer.
           In software versions older than ACP_5007 the term "data" is called "floppy".

6   Replacement of the Cassette Unit

6.1   Preparations

Required spare parts:

• Cassette Unit 1 spare part number*: CM+9 5146 5100 1

• Cassette Unit 2 spare part number*: CM+9 5146 5400 1

* 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.

Required tools:

Socket wrench 7 mm

Required time:

Approximately 30 minutes
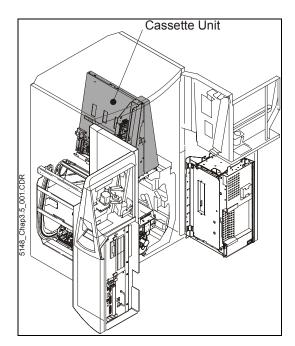
Removal:

(1)   Open the doors of the Digitizer.
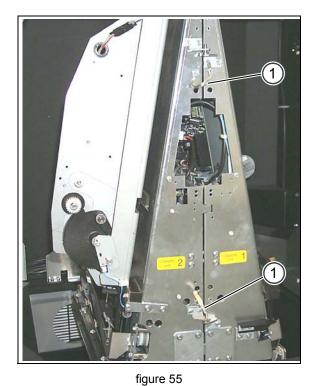

figure 54

(2) Turn cassette unit by 180° and loosen two grounding cables (**1**) (7 mm socket wrench).

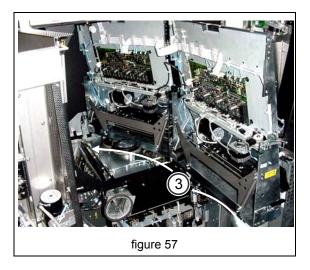(3) Turn cassette unit by 180° again.

figure 55
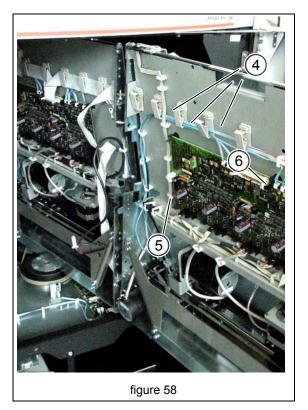
(4) Open quick action closure (2).

figure 56

Edition 2, Revision 1
09-2008
CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000)
Chapter 3.5 / 45
Agfa Company Confidential

6.2   Removing Cassette Module 2 from the Digitizer

(1)   Pull cassette module 2 cautiously out of the machine (**3**).

figure 57

(2)   Unplug data cable (**6**).

(3)   Unclip cable supports (**4**).

(4)   Unplug power supply cable (**5**).

figure 58

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09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000)   Agfa Company Confidential

(5)   Lift cassette module 2 cautiously
        until it disengages from
        the hinges (**7**).

(6)   Put cassette module 2 aside.
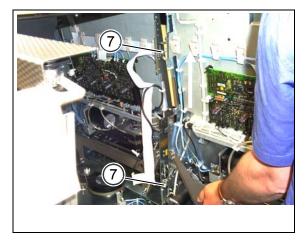   Mind a solid stand of the module.

figure 59

6.3   Removing Cassette Module 1 from the Digitizer

(1) Turn cassette module 1 by 90°.

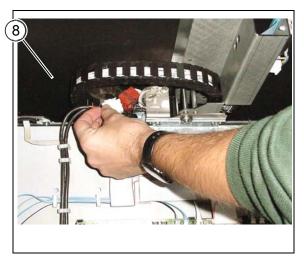(2) Unplug power supply cable at the top of the module (**8)**.

figure 60

(3) Unplug data cable (**9)**.

figure 61

(4) Loosen two screws (**10)** at the mounting of the energy chain (**11)** (7 mm socket wrench).
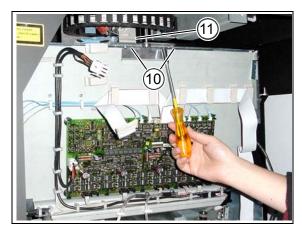

figure 62

✓ NOTE:

Take care that the screws cannot fall into the digitizer.

(5)   Push the mount of the energy chain
       upwards (**11)** until the pins have left
       the holes (**12)**.
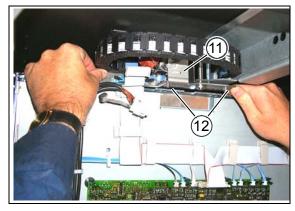
figure 63

(6)   Lift and cant cassette module 1 a
       little until the bolts of the rotation
       unit are free (**13)**.

(7)   Put cassette module 1 aside.
       Mind a solid stand of the module.
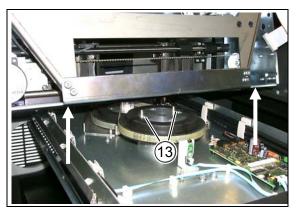
figure 64

6.4   Re-installing the Cassette Unit

Re-installation:

(1)   Re-install the cassette unit in reverse order as described in 6.1 - 6.3.

Verification: Start the digitizer. The self test should be successful.

Result   Cassette unit replaced.

7 cPCI-Rack (up to CR 85-X SN < 4000; CR 75.0 SN < 6500)

7.1 Replacing a defective Hard Disk (HDD)

7.1.1 Removal of the old Hard Disk

WARNING:

Risk of electric shock!

Switch off the digitizer and disconnect the machine from the mains.
Safety instructions for electronical parts see Chapter 3.1 and Generic Safety Directions for HealthCare and Imaging Products.

Required spare parts:

Hard disk spare part number*: CM+9 0486 1354 0

* 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.

Required tools:

Screwdriver

Required time:

Approximately 30 minutes (including Software installation)

NOTE:

In order to avoid any damage at the storage board, replace the HDD very cautiously.

NOTE:

Always use the Antistatic wrist strap when working inside the digitizer.

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Edition 2, Revision 1 | CR 85-X Type 5148/100 | Chapter 3.5 / 50
09-2008 | CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential |

Removal:

(1)   Open the front doors. The cPCI-rack
      with the storage board (1) is placed
      in the frame of the left door.
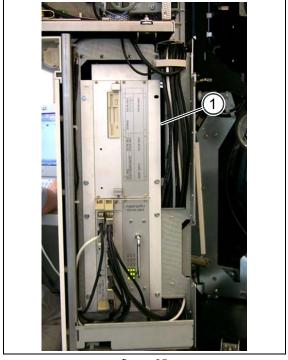
figure 65

(2)   Remove the storage board by
      loosen the four Phillips screws
      (black circles).
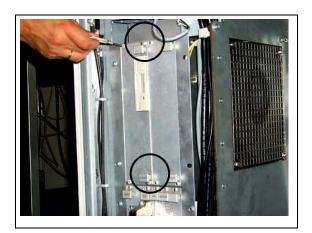
figure 66

✓   NOTE:

These are captive screws. They cannot be removed completely.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 51
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

(3)   Pull out the storage board
       cautiously.

figure 67

(4)   Disconnect the electric connections:

(5)   Loosen the two terminal rails (**3**).

(6)   Disconnect the ribbon cables (**4**)
       and **5** from floppy disk drive (**7)** and
       hard disk **6.**

(7)   Disconnect the connector (2) of the
       5 V power supply.
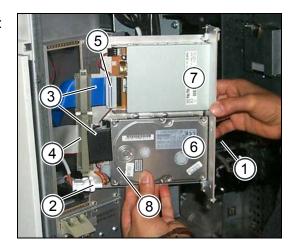

figure 68

1 Storage board
2 Connector
3 Terminal rail
4 Ribbon cable for hard disk
5 Ribbon cable for floppy disk
6 Hard disk
7 Floppy disk drive
8 Connector

(8) Figure 69 shows the storage board with inserted hard disk.

figure 69

(9) Loosen four round-head screws at the rear of the storage board (black circle) to separate the hard disk from storage board.

figure 70

NOTE:

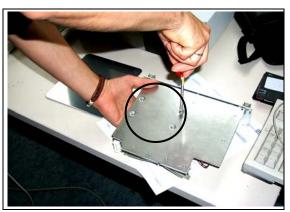Hold the hard disk firmly in one hand (see figure 70), while you remove the four round-head screws with a mid-size screw driver.

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Edition 2, Revision 1
09-2008

CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000)

Chapter 3.5 / 53
Agfa Company Confidential

(10) Disconnect the connector of the 5 V power supply from the hard disk.

(11) Remove the hard disk from the storage board.

figure 71

7.1.2 Installation of the new Hard Disk

Re-installation:

(1) To install the new hard disk follow the instructions in reverse order.

Result   Hard disk replaced. Continue with installing the software.

NOTE:

For installation instructions of the software on a virgin hard disk refer to the enclosure delivered with the software. The software can be downloaded from:
MEDNET GSO => Computed Radiography => CR Digitizer => CR 85-X => Freeware => CR 85-X - Software - Device Software - ACP_5007

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 54
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

8 New cPCI-Rack (as of CR 85-X SN ≥ 4000; CR 75.0 SN ≥ 6500)

8.1 Replacing a defective Hard Disk (HDD)

WARNING:

Risk of electric shock!

Switch off the digitizer and disconnect the machine from the mains.
Safety instructions for electronical parts see Chapter 3.1 and Generic Safety Directions for HealthCare and Imaging Products.

Required spare parts:

- Hard disk spare part number*: CM+ 9 0486 1428 0

- Cable set spare part number*: CM+ 9 5148 1490 0

  * 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.

Required tools:

Screwdriver

Required time:

Approximately 20 minutes (including installation)

NOTE:

- In order to avoid any damage at the storage board, replace the HDD very cautiously.

- Always use the Antistatic wrist strap when working inside the digitizer.

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Edition 2, Revision 1   CR 85-X Type 5148/100   Chapter 3.5 / 55
09-2008   CR 75.0 Type 5146/105 (as of SN ≥ 6000) Agfa Company Confidential

Removal:

(1)   Open the front doors of the digitizer.
       The cPCI-rack with the storage
       board (A) is placed in the frame of
       the left door.

figure 72

(2)   Unplug the 8 cables.

(3)   Loose the 4 Allen screws
       (see circles).

NOTE:

It is sufficient to loosen the Allen screws.
It is not necessary to remove them
completely.

figure 73

(4)   Pull out the revive board cautiously.

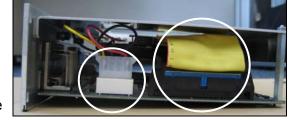(5)   Disconnect the 2 cables (power and IDE cable, see circles in figure 74).

NOTE:
Do not pull the cable itself. Always pull the plug.

figure 74

(6)   Loose the 4 screws (see circles in figure 75).

(7)   Pull the defective hard disk carefully out of the rack.

NOTE:
Pull the hard disk in opposite direction of the board connections. Be carefull with the cables, they should not get stuck on the revive board.
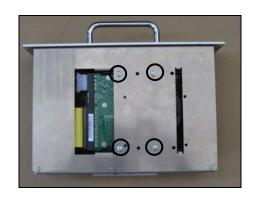

figure 75

(8)   Disconnect the Power- and the IDE-cable (see circles in figure 76) from the defective hard disk.
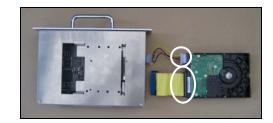

figure 76

Re-installation:

(1)   Connect the Power and the IDE-cable at the ordered hard disk.

(2)   Insert the new hard disk into the rack.

NOTE:
Push it in opposite direction of the board connections. Be carefull with the cables, they should not get stuck on the revive board.

(3)   Connect power and IDE cables of the hard disk with the rack (see figure 74).

Edition 2, Revision 1
09-2008
CR 85-X Type 5148/100
CR 75.0 Type 5146/105 (as of SN ≥ 6000)
Chapter 3.5 / 57
Agfa Company Confidential

(4) Fix the hard disk by fasten the 4 screws (figure 75).

(5) Plug the revive board into the rack of the digitizer.

(6) Fasten the 4 screws of the rack (figure 73).

(7) Connect the 8 connectors into the particular sockets.

(8) Close the front doors of the digitizer.

(9) Install the latest digitizer software.

NOTE:

For installation instructions of the software on a virgin hard disk refer to the enclosure delivered with the software. The software can be downloaded from:
MEDNET GSO => Computed Radiography => CR Digitizer => CR 85-X => Freeware

Software version must be at least ACP_5007 to support the new cPCI-hardware.

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Edition 2, Revision 1

09-2008

CR 85-X Type 5148/100

CR 75.0 Type 5146/105 (as of SN ≥ 6000)

Chapter 3.5 / 58

Agfa Company Confidential

8.2 Replacing the fan

Required spare parts:

Fan spare part number*: CM+ 9 5148 1425 0

*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.

Required tools:

Screwdriver
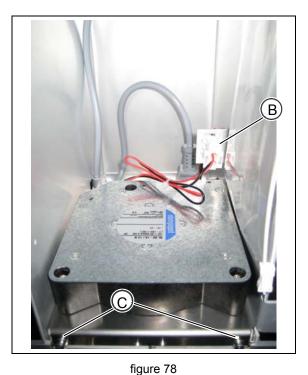
Required time:

Approximately 10 minutes

Removal:

(1) Open the front doors. The new cPCI-rack with the storage board (A) is placed in the frame of the left door. The fan is placed on top of the new cPCI-rack.

figure 77

(2) Disconnect the power cable of the fan by pressing the connector (B) together.

(3) Loose the 2 screws of the bracket (C). The screws must not be removed completly.

(4) Take the bracket with fan out of the digitizer.
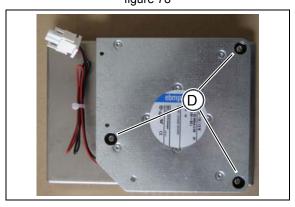
figure 78

(5) Loose the 3 screws (D) on top of the fan.

figure 79

Re-installation:

(1) Replace the defect fan with ordered fan.

(2) Fasten the 3 screws on top of the fan to fix the fan to the bracket.

(3) Remount the bracket into the digitizer.

(4) Fasten the 2 screws of the bracket.

(5) Connect the power cable.

(6) Close the front doors.

Verification: Switch on the digitizer. The fan must rotate easily.

Result Fan of the Revive Rack replaced.

8.3   Replacing the Revive Board

Required spare parts:

Revive board spare part number*: CM+9 5148 9020 0

* 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.

Required tools:

Screwdriver

Required time:

Approximately 15 minutes

Removal:

(1)   Remove the revive board like described in 8.1.

(2)   Remove the hard disk from the defective revive board.

Re-installation:

(1)   Install the hard disk into the new revive board (according to 8.1).

(2)   Remount the revive board like described in 8.1.

NOTE:

The replacement of the revive board does not require a new installation of the digitizer software.

Verification: Switch digitizer on and wait for successful self test.

Result   Revive Board replaced.

8.4   Replacing the power supply

Required spare parts*:

Power supply spare part number*: CM+9 5146 1430 2

* 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.

Required tools:

Screwdriver

Required time:

Approximately 15 min.

Removal:

(1)   Open the front doors. The power supply (A)
        with the storage board is placed in the frame
        of the left door.

(2)   Loose the 4 allen screws
        (see circles in figure 79).
        Pull out the power supply cautiously.

NOTE:

The 4 Allen screws coming with the spare part
power supply can be used, but are only alternative
screws.

figure 80

Re-installation:

(1)   Remount the new power supply.

(2)   Fasten the 4 screws.

(3)   Close the front doors of the digitizer.

Verification: Switch on the digitizer. Self test must be performed successfully.

Result   Power supply replaced.

8.5   Replacing the new cPCI-rack

Required spare parts:

Revive Rack spare part number*: CM+9 5148 9010 0

* 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.

Required tools:

Screwdriver

Required time:

Approximately 15 min.

Removal:

(1)   Open the front doors. The cPCI-rack is placed in the frame of the left door.

(2)   Disconnect any cable of the revive board.

(3)   Remove revive board, fan and power supply as described in 8.1, 8.2 and 8.4.

(4)   Loose the 6 screws (A) of the rack.

(5)   Take the rack carefully out of the digitizer.

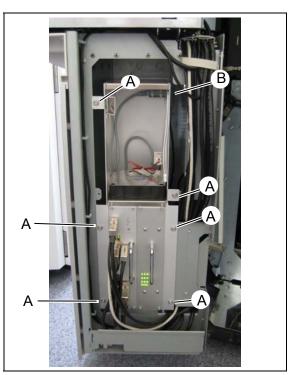(6)   Diconnect the cable on the right external side of the rack (B).

figure 81

Re-installation:

(1)   Connect the grey cable to the external right side of the new rack (see figure 81).

(2)   Mount the new cPCI-rack.

(3)   Fasten the 6 screws of the rack.

(4)   Remount revive board, Power Supply and fan as described in 8.1, 8.2 and 8.4.

(5)   Connect any connectors to the sockets.

(6)   Close the front doors of the digitizer.

Verification: Switch on the digitizer. Self test must be performed successfully.

Result   Revive Rack replaced.