Service Information Bulletin

This Bulletin is for information only.

Upgrade of DX-D 100 / DX-D 100 Wireless to System Version 4.4

Task

Timing		Category
Next service	○	**Apply at all sites**
	◉	**Apply at affected sites as listed below**
	○	**Optional to improve functionality of product**

Task Tracking

After completion of your task the following entry in your Service Report is required:	**DD+DIS006.14E** *

* Insert the document number into the field "Comment" (SMS form).

Purpose of this document:

- This document contains all information for upgrading the DX-D 100 / DX-D 100 Wireless to system version 4.4.

List of contents

1 Introduction/purpose

This document contains all necessary information required for an upgrade from DX-D 100 / 100 Wireless system version 4.3 to system version 4.4.

2 Prerequisites

2.1 Ralco R221F Collimator

SPARE PARTS:

The two new Ralco collimators can be ordered by using the following spare part numbers:

- New standard collimator, SC+6693-25N
- New optional collimator, SC+6693-25F2L, containing:
  - a manual filtration wheel
  - a laser SID
- SPARE PART A520402-01, consisting of
  - the previous metal plate with a meter tape at the front side
  - the previous skin guards.
- SPARE PART A520402-02, consisting of
  - the new metal plate with a meter tape at the rear side
  - the new skin guards.

This spare part is needed for the new collimator

- UPGRADE KIT A520402-03, consisting of:
- the previous metal plate (with meter tape at the front side)
- the new skin guards.

This upgrade kit allows the installation of the new skin guards in the previous collimator.

REFERENCED DOCUMENTS:

DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual

The Manual is available on the *Agfa HealthCare Library*:

Direct Radiography > DX-D 100 > DX-D 100 Generic > Service Manual

2.2 Remote control

NOTE:
The remote control is an optional component that can be ordered additionally for systems that have been ordered without remote control and the customer wants to add this feature.

SPARE PARTS:

- Remote Exposure Control Kit SC+A8010-01, including the following components:
  - Remote control kit
    - 2 Remote control devices and 1 cradle
    - Sensor
    - Remote control PCB
    - Remote control interface cable
  - Base of the remote control sensor
  - Remote control PCB
  - Remote control harness
  - Assorted hardware.

TOOLS:

- Drill machine with assorted bits
- Socket wrench 7 mm
- Crimping tool (crimping in-line connectors) or soldering

REFERENCED DOCUMENTS:
DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual
The Manual is available on the *Agfa HealthCare Library*:
Direct Radiography > DX-D 100 > DX-D 100 Generic > Service Manual

2.3 DAP meter

NOTE:
The DAP meter is an optional component that can be ordered additionally for systems that have been ordered without DAP meter and the customer wants to add this feature.

SPARE PARTS:

- SC+A9447-10 kit for installing a Vacudap 1580013 internal dose meter in the DX-D 100 / DX-D 100 Wireless, consisting of:
  - Radiation meter cables kit, consisting of 3 cables, see following page:

Cable 1:

Cable 2:

Cable 3

  - Radiation meter PCB
  - Screws and washers for mounting the radiation meter PCB
  - DAP chamber model
  - Pair of collimator guides for installation of DAP chamber
  - Interface cable 6 meters
  - EPROM U24 of ATP console PCB with DAP option included. (optionally: U5 of HT controller)

TOOLS:

- Chip extractor

REFERENCED DOCUMENTS:

- *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual*

The manual is available on the *Agfa HealthCare Library*:
Direct Radiography > DX-D 100 > DX-D 100 Generic > Service Manual

2.4 Access Point – only applicable for DX-D 100 Wireless

NOTE:
The manufacturer of the current access point (CISCO) has communicated the obsolescence of the component AIR-AP1262N-x-K9.

The current access point is going to be replaced by AIR-SAP1602E-x-K9.

In order to make compatible the new access point with the current assembly, a new metal plate (adapter) has been designed.

This metal plate is part of part of the delivery when a new access point is ordered.

HARDWARE:

(1) Order the access point as specified in the Mobile X-ray Unit spare parts list:

REFERENCED DOCUMENTS:

The manuals are available from the *Agfa HealthCare Library:*

- *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit - Spare Parts List*
  Direct Radiography > DX-D 100 / DX-D 100 Wireless > DX-D 100 Generic, DX-D 100 Wireless Generic > Service Spare Parts
- DX-D 30C / 35C Detector Service Manual:
  Direct Radiography > DX-D Detectors > DX-D 30C/DX-D 35C > Service Manual

NOTE:
Only the Cisco firmware version listed below must be used with the Cisco AIR-SAP-1602E-x-K9 wireless access point.

SOFTWARE

- Cisco firmware: ap1g2-k9w7-tar.152-2.JB

  The Access Point 1602E Firmware 15.2(2)JB can be downloaded from the *Agfa HealthCare Library*:
  Direct Radiography > DX-D Detectors > DX-D 30C/DX-D 35C > Software
- PuTTY application. Download the latest version from the internet and follow the instructions.

TOOLS:

Portable storage medium (checked to be virus-free, e.g. USB flash drive)

2.5 Software updates

SOFTWARE:

- Organize a new ALF file for the NX via ELMS.
- Download the following software from the *Agfa HealthCare Library* to a USB flash drive (checked to be virus-free).

Softconsole generator software:

- Sedecal SoftConsole version 5.3

IMPORTANT:
Upgrade of the generator firmware to version V7R1b73 is absolutely necessary for use with the new Sedecal SoftConsole software.

For ordering of the relevant EPROM refer to referenced documents listed below.

GUI software:

- Agfa Softconsole version 1.1

Direct Radiography > DX-D Components > Generator > Software

Canon detector software:

- CDI 3.2

Direct Radiography > DX-D Detectors > DX-D 30C/DX-D 35C > Software

Varian detector software:

- VRN 7.3

Direct Radiography > DX-D Detectors > DX-D 10/DX-D 20/DX-D Fixed > Software

REFERENCED DOCUMENTS:

DX-D 100 / 100 Wireless - Service Bulletin - Introduction of additional new spare parts for the different generator EPROMS
The Document is available on the *Agfa HealthCare Library*:

Direct Radiography > DX-D 100 / 100 Wireless > DX-D 100 / 100 Wireless Generic > Service Bulletin

3 Installation

REQUIRED TIME:
Total: approximately 9 hours

- For Ralco R221F collimator: approximately 3 hours
- For DAP meter and remote control in the field approximately 4 hours
- For Cisco access point 1602E: approximately 1,5 hours
- For softconsole and detector software: approximately 0,5 hours
  - Varian detector software
  - Sedecal SoftConsole
  - CDI detector software
  - Agfa Softconsole

3.1 Ralco R221F Collimator

Order the new Ralco collimator by using the appropriate spare part numbers.
See section 2.1 in this document.

For installation instructions refer to the *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual.* See section 2.1, *Referenced Documents,* in this bulletin.

For all three collimators that are used with the DX-D 100 / DX-D 100 Wireless, new SID guards have been introduced.

The new SID guards are part of the three different new spare parts listed in the *Prerequisites* section, 2.1 in this document.

NOTE:
The old SID guards are just removed and the new guards mounted in place.

For installation details regarding these parts, refer to the *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual.* See section 2.1, *Referenced Documents* in this bulletin.

NOTE:
Installation of the appropriate spare part solves the PR1308120002.

3.2 Remote exposure control

CAUTION:
Keep the unit turned off and isolated from the power supply.

IMPORTANT:
Before using the remote exposure control, make sure there are no other DX-D 100 / DX-D 100 Wireless operating this kind of device at the same time.
This includes units behind a window or lead glass.
Turn off the rest of the units working with the remote control before operation.

Follow these steps for the installation of the remote exposure control kit:

(1) Dismount the cover from the DX-D 100 / DX-D 100 Wireless.

For detailed instructions how to disassemble the cover, refer to the Troubleshooting chapter in the *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual.*
See section 2.1, *Referenced Documents* in this bulletin

(2) Dismount the front cover from the DX-D 100 / 100 Wireless.

(3) Drill holes into the front cover as indicated in the following illustration and the detail drawing:

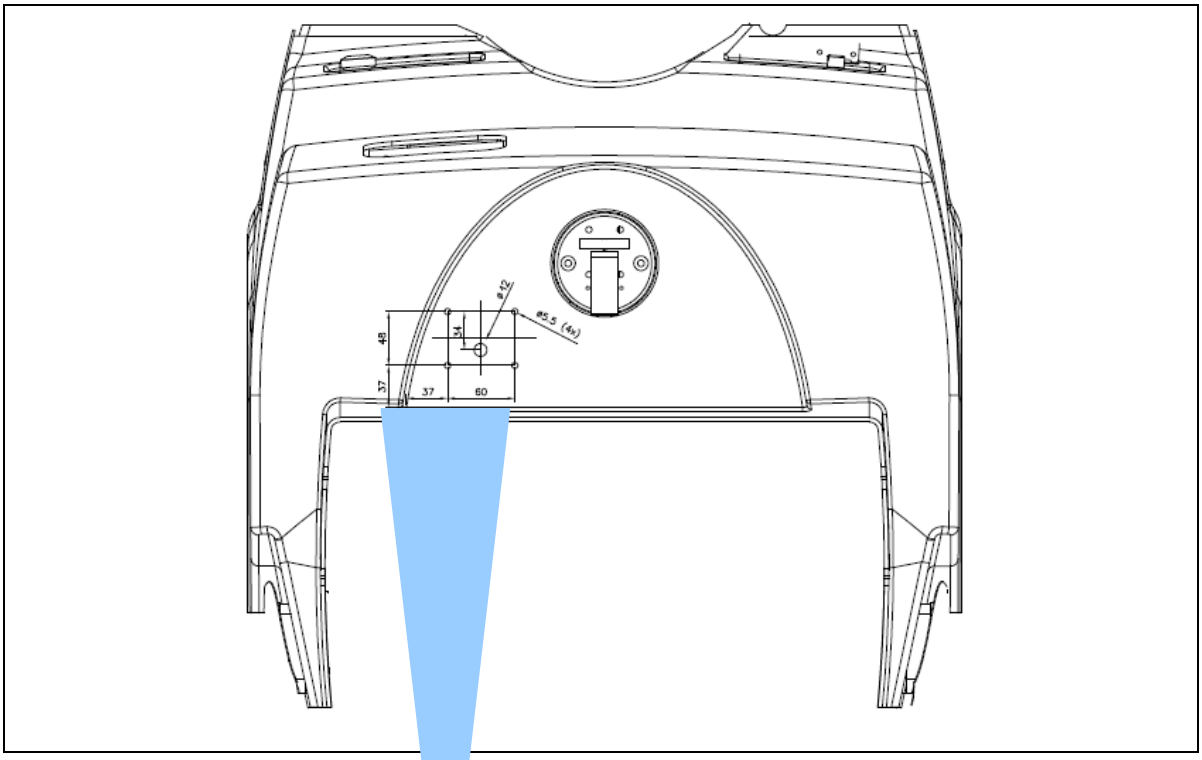

Figure 1: Front cover

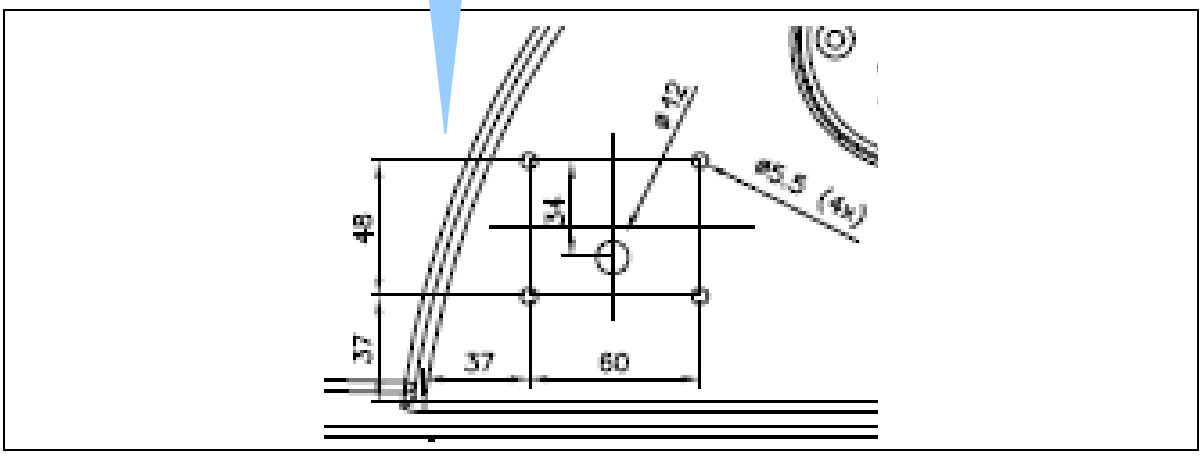

Figure 2

(4) Pass the signal cable of the remote control sensor through the base of the remote control sensor. See figure 3.

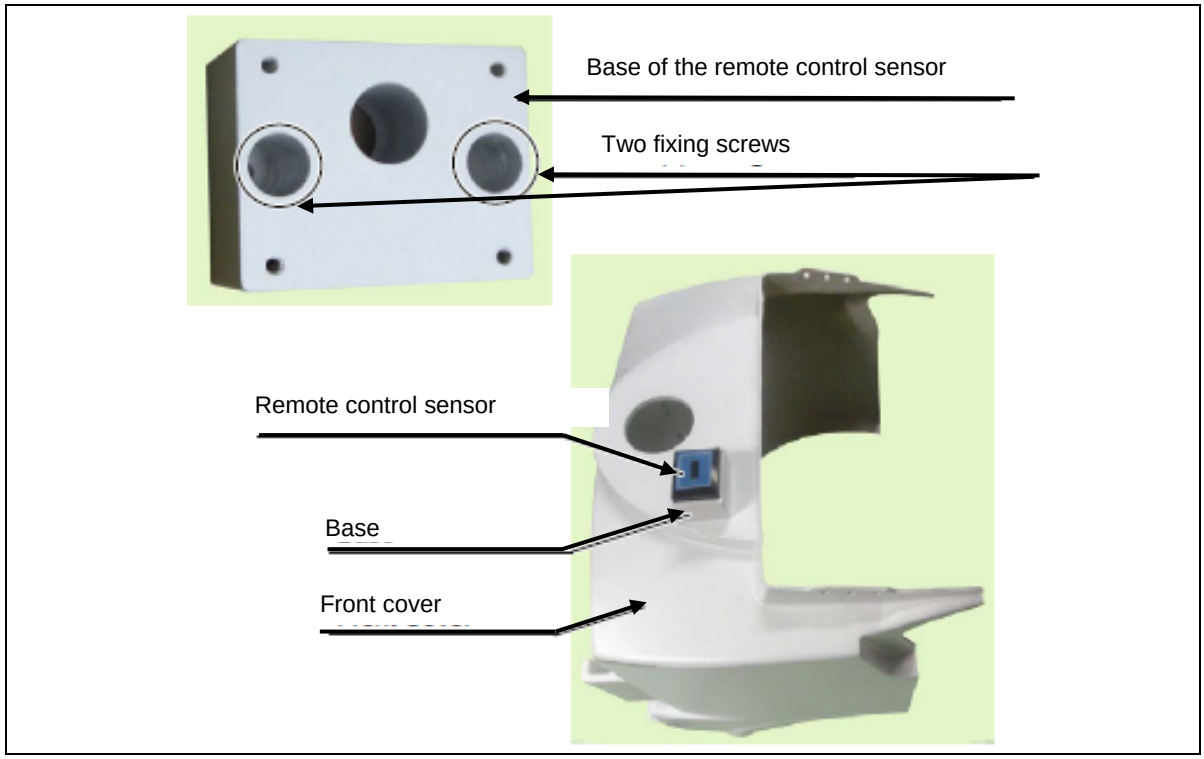

Figure 3

(5) Attach the remote control sensor to the front cover base with two fixing screws using a 7 mm socket wrench.

(6) Pass the signal cable through the front cover hole and then install the remote control sensor with its base on the front cover with four fixing screws included.

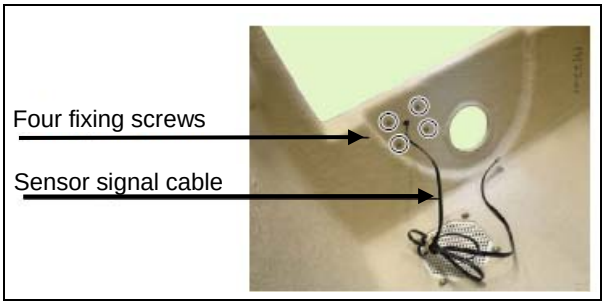

Figure 4

(7) Install the remote control PCB on the chassis by fixing the four screws in the existing holes. See *Chassis holes* in the left-hand picture in figure 5.

NOTE:
For old units without the holes, use the double-face adhesive tape to fix the PCB.
Connect the sensor signal cable in the remote control PCB.

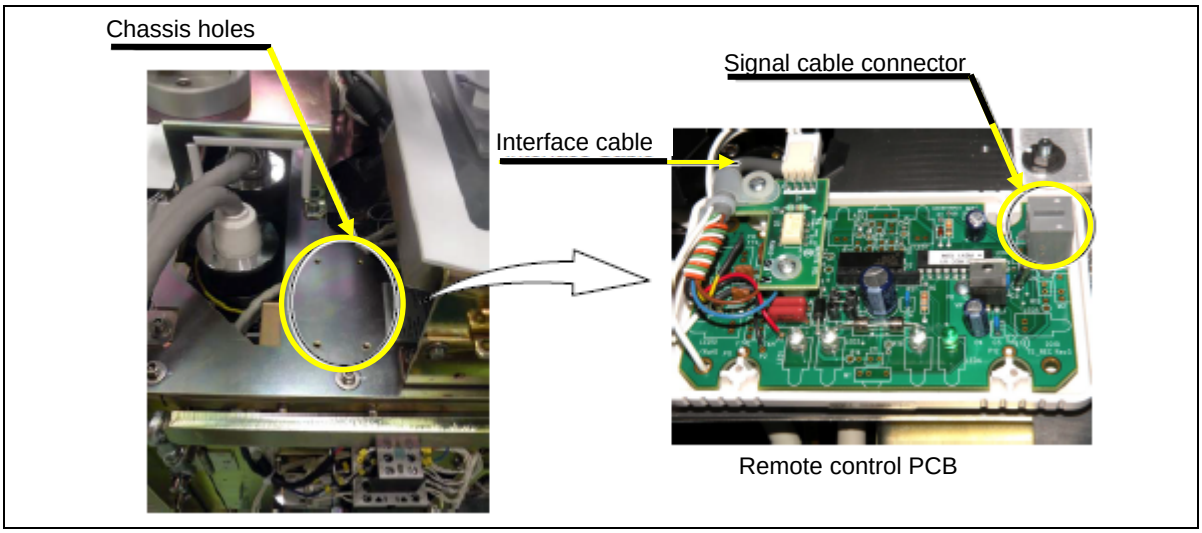

Figure 5

For cable connections, refer to the *General Schematic (Battery Mobile-Interface)* in the DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual.
See section 2.3, *Referenced documents* in this bulletin.

For a basic overview of the cable connections, see figure 6.

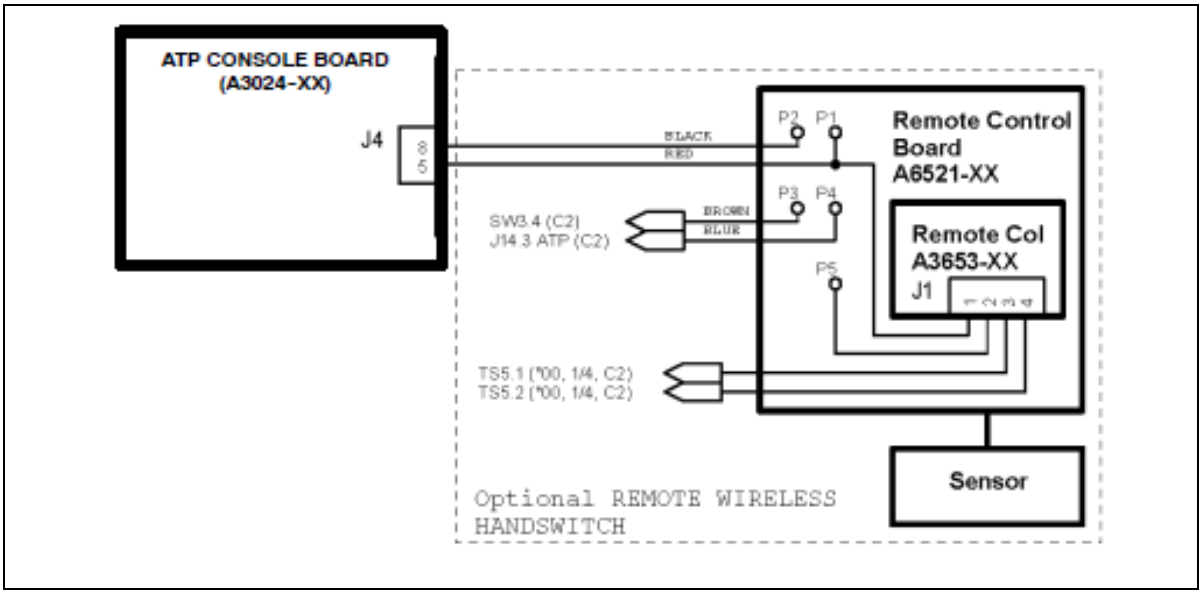

Figure 6: Remote control connections

(8) Route the two wires from the J1 connector of the remote control PCB to the terminal strip TS5.

(9) Connect J1-3 toTS5-1 and J1-4 to TS5-2
See figure 7.

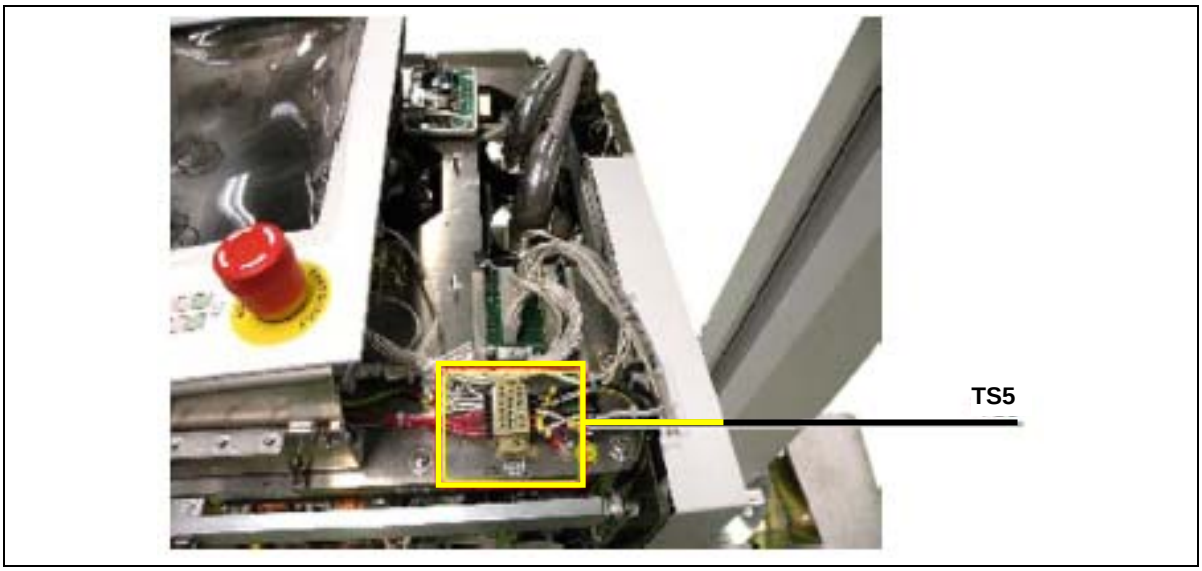

Figure 7

(10) Open the PC door.

(11) Open the generator module front door by removing the two Allen screws.

(12) Pre-route the remote control interface cable from the remote control PCB to J14 of the ATP console CPU board placed at the generator module front door, as illustrated below.

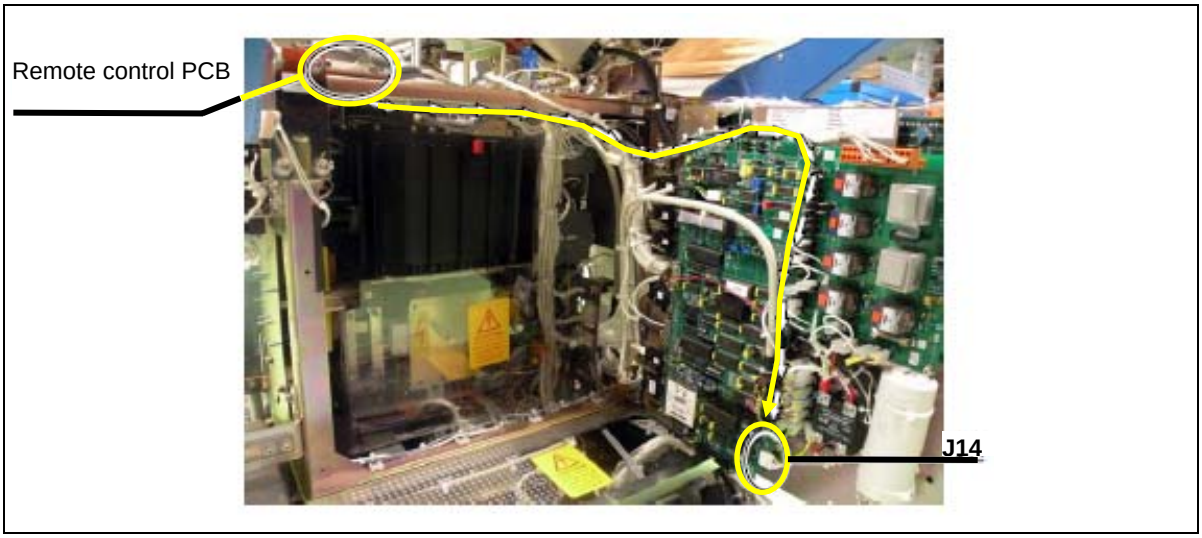

Figure 8

(13) Disconnect J14 from the ATP console CPU Board.

(14) Depending on the DX-D 100 type, proceed as follows:

For DX-D 100 / X-D 100 Wireless provided with X-Ray inhibitor:

(1) Switch SW3 located at the column base, disconnect J14-3 and isolate it.
(2) Connect wire marked *Expose* to J14-3.
(3) Route the *Rotor* wire as shown figure 10.
(4) Cut the terminal and perform a jumper with SW3-4.

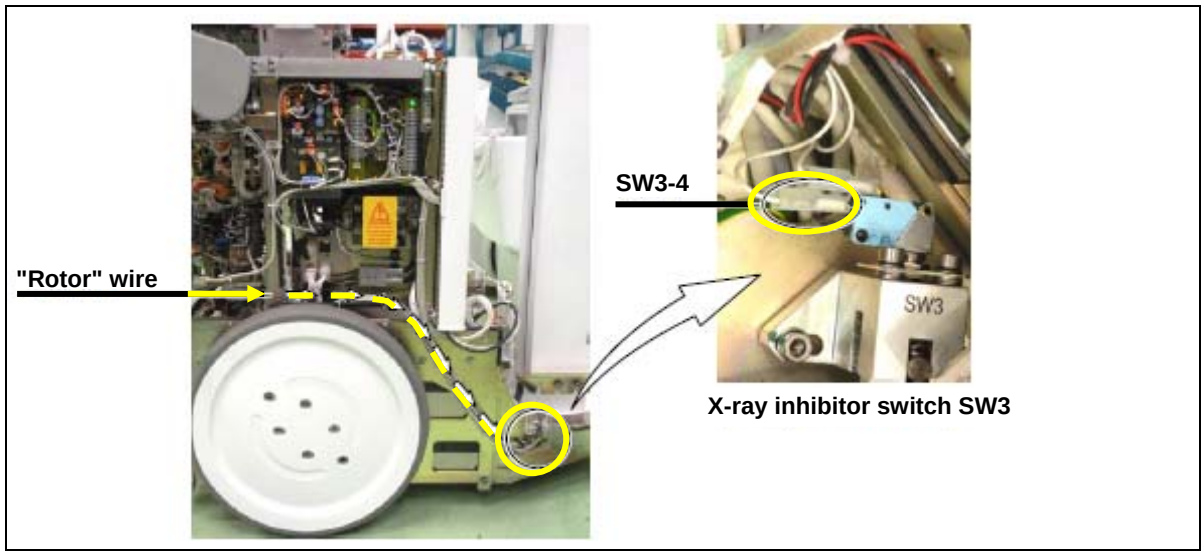

Figure 9

For old DX-D 100 / X-D 100 Wireless without X-Ray inhibitor switch SW3:

(1) Disconnect J14-2 and J14-3 and isolate both wires.

(2) Connect wire marked *Rotor* of the remote control interface cable in J14-2 and the wire marked *Expose* in J14-3. See figure 10.

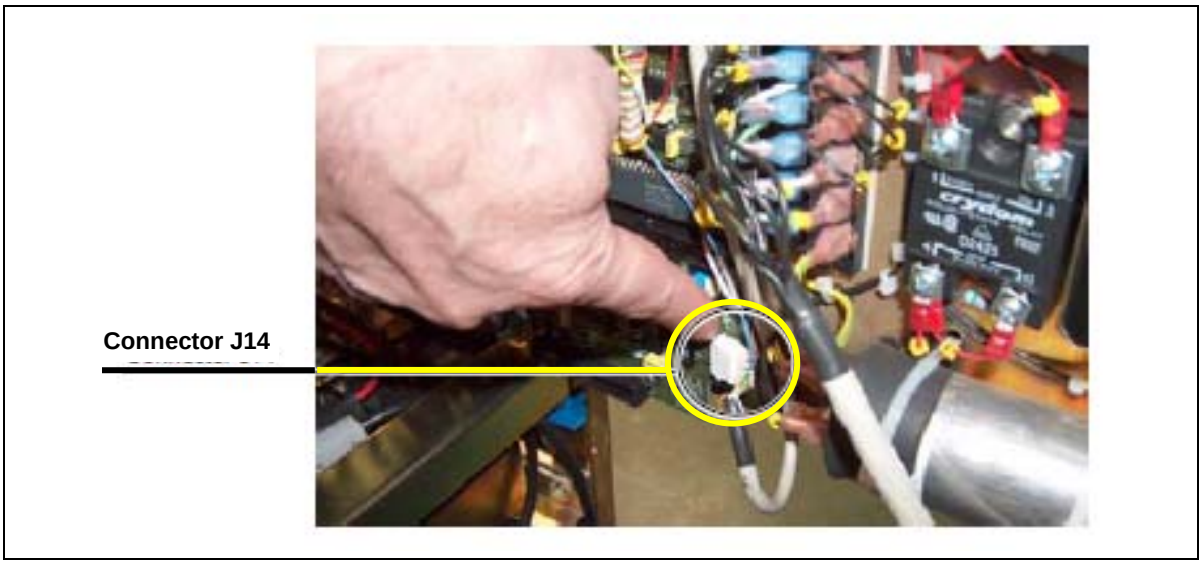

Figure 10

(15) Connect J14 back in ATP console CPU board (A3024-XX).

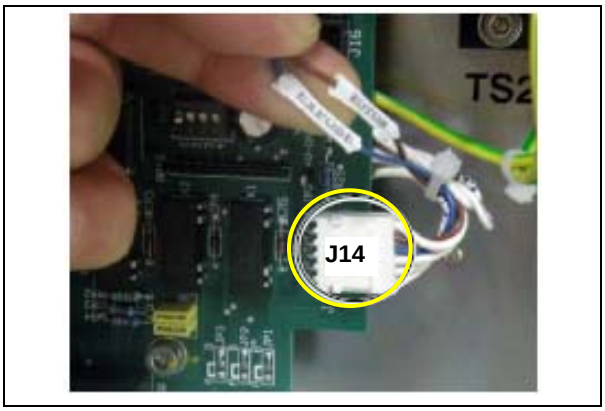

Figure 11

(16) Connect the SUB-D connector to J4 of the ATP console CPU board (A3024-XX).

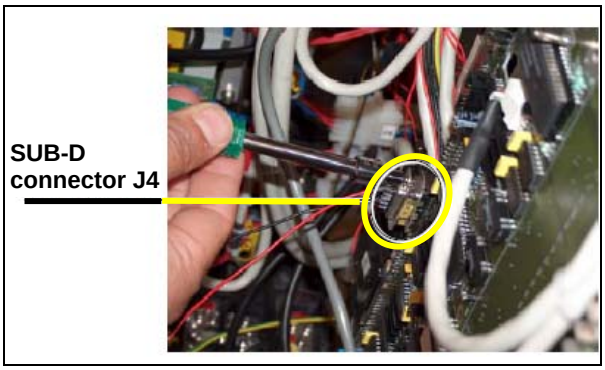

Figure 12

(17) Fix the cables that have been routed in steps (12) and (15) along the routing with tie wraps and secure the generator module front door.

(18) Turn on the unit.

(19) Perform an exposure with the remote control device for checking the system.

(20) Turn the unit off.

(21) Re-install the covers in reverse order.

3.3 DAP meter

Follow these steps for the installation of the DAP meter:

NOTE:
For installation of the Vacudap 1580013 internal DAP meter in DX-D 100 / DX-D 100 Wireless, certain covers must be removed.

Make sure to read the *General Procedures* section in the *DX-D 100 / DX-D 100 Wireless - Mobile X-Ray Unit Service Manual* for instructions on how to remove the covers.
Refer to section 2.3 of this document.

(1) Turn the DX-D 100 / DX-D 100 Wireless off and isolate it from the power line.

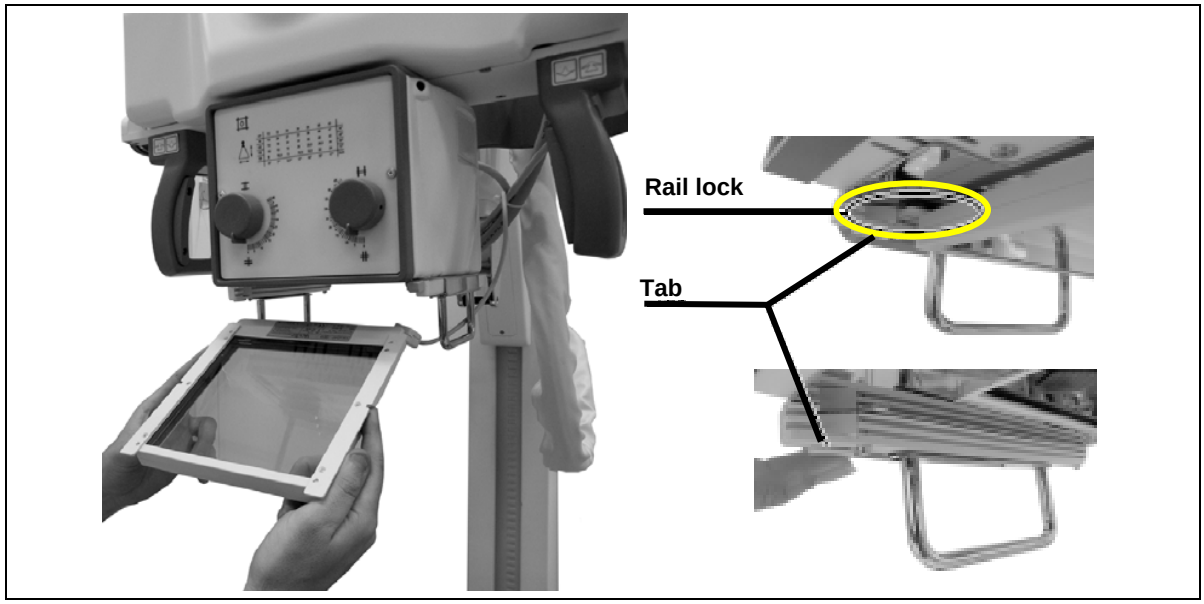

Figure 13

(2) Remove the column back cover.

(3) Pass the 6-meter interface from the bottom of the collimator through the column (along the high voltage cables).

(4) Pass the cable through the base of the column.

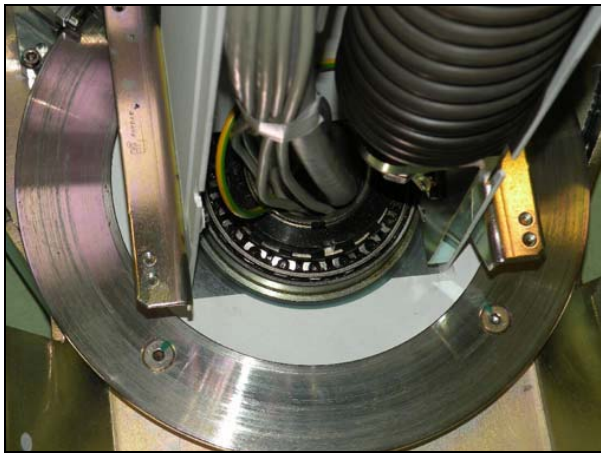

Figure 14

(5) Continue routing the cable on the right side of the unit. See red line in figure 15.

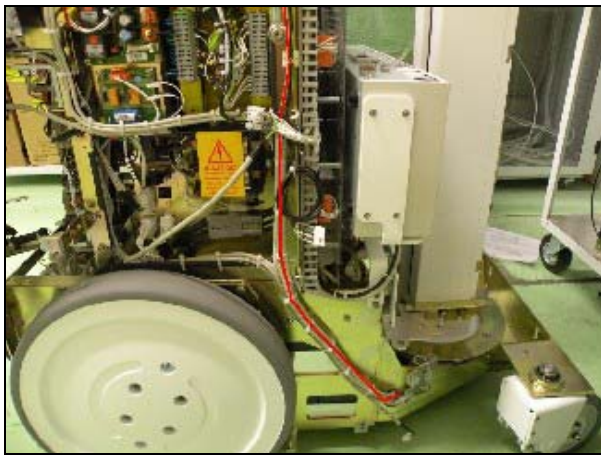

Figure 15

(6) Mount the radiation meter PCB at the plate under the screen as indicated in figures 16 and 17.

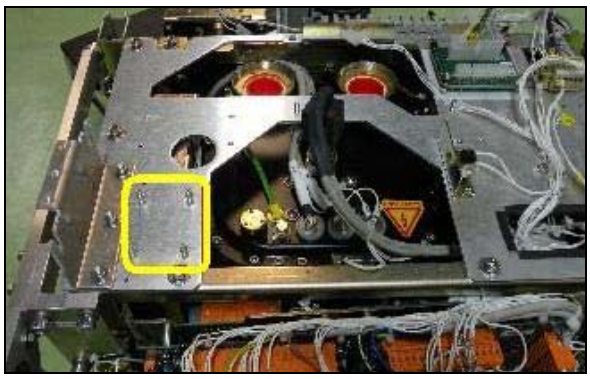

Figure 16

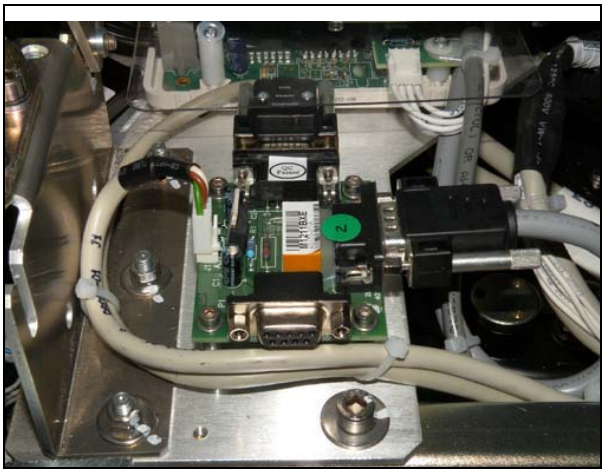

Figure 17

(7) Connect the radiation meter cables kit (3 cables) to the radiation meter PCB:

Cable # 1:

- Connect the white connector J1 to the corresponding connector of the radiation meter and route the cable to connect the end to the following positions:
  - o Connector P1-12 of HT CONTROLLER PCB
  - o Connector P5-16 of INTERFACE CONTROL (24V)
  - o Connector P1-2 of INTERFACE CONTROL (GND)

Cable # 2:

- Connect the DB9 connector J3 to the corresponding connector of the radiation meter and route the cable to the connector J7 of the ATP console PCB.

IMPORTANT:

Do no connect J7 to the ATP console yet! Refer to step 11 on page 22.

Cable # 3:

(1) Connect the DB9 connector P2 to the corresponding connector of the radiation meter PCB.

(2) Route the cable to be connected to the connectors of the 6-meter interface cable.

The connection of both cables may lie in the area under the screen marked in figures below.

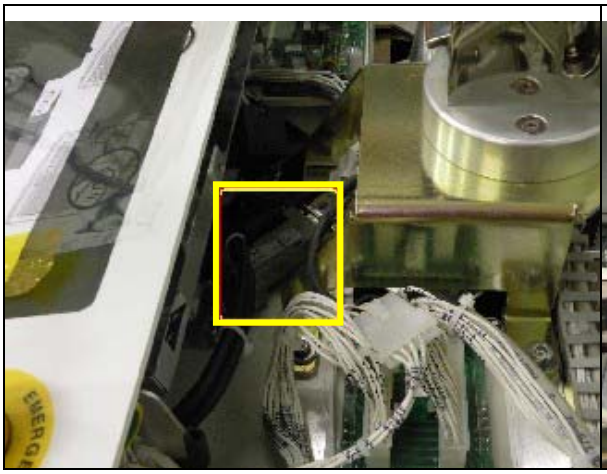

Figure 18

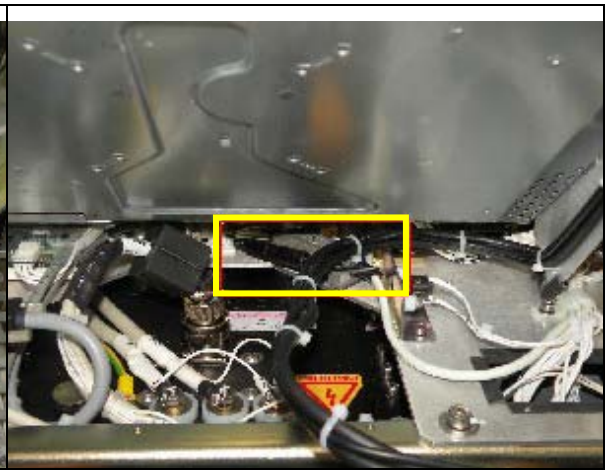

Figure 19

(3) Exchange the EPROM U24 on the ATP CONSOLE PCB and the microcontroller U5 of HT CONTROLLER PCB.

IMPORTANT:
Upgrade of the generator firmware to version V7R1b73 is absolutely necessary for use with the new Sedecal SoftConsole software.

(4) Remove the U24 EPROM on the ATP console with a chip extractor and mount the new U24 EPROM V7R1b73.

(5) Set the unit to SERVICE mode with the switch SW7 (ON) located on the right-hand side of the console. See figures 21 and 22.

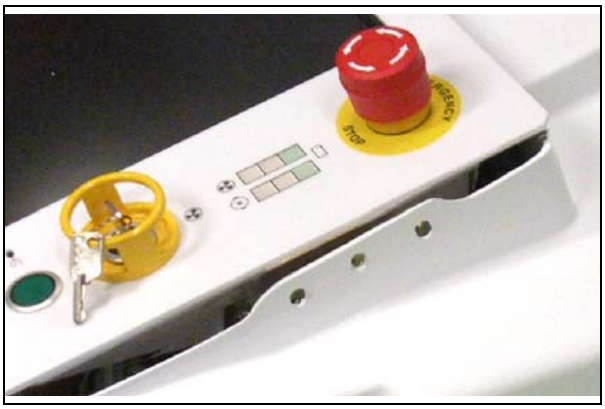

Figure 20

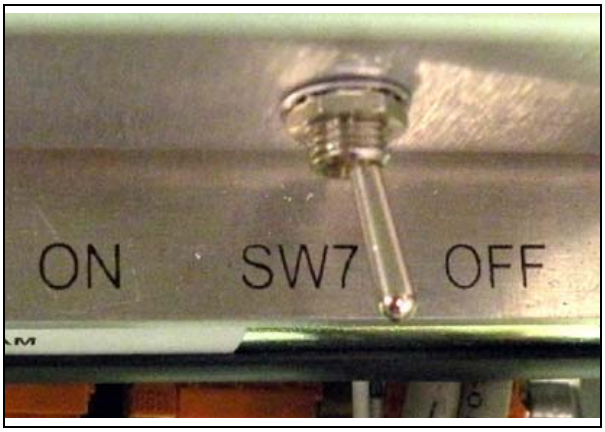

Figure 21

(6) Start up the system.
(7) Reset error E10 if it appears.
(8) Verify that the system completes the power-up routine normally.

NOTE:
Error code E98 may appear due to the unit is in service mode (SW7 to ON).

(9) Shut down the system.
(10) Set SW7 to OFF.
(11) Connect the connector J7 to the ATP console.
(12) Start up the system.
(13) Perform functional test.

3.4 Access Point

For the installation instructions of the Cisco access point and the installation of the necessary firmware, refer to section 4.5.2 in the *DX-D 30C / 35C Detector Service Manual*. See *Referenced Documents* in section 2.4 of this document.

3.5 Upgrading software on the NX workstation

Perform the following steps at NX 2.0.8800 / 3.0.8800 to upgrade to DX-D 100 / DX-D 100 Wireless System V4.4:

(1) Stop NX.

(2) Copy the applicable software installers to **C:\Agfa\Healthcare\NX\Installers** into the appropriate subdirectories on the NX.
If the folders do not exist, create them manually.

(3) Export the current NX configuration via NX configuration tool.

(4) Load the updated NX license file (.alf).

(5) Run the NX Activation Utility Helper.

IMPORTANT:
Running the NX Activation Utility Helper is absolutely necessary. If this is not done, all images and the complete configuration will be lost.

(6) Reload the previously saved NX configuration via NX configuration tool.

(7) Activate the configuration

IMPORTANT:
Upgrade of the generator firmware to version V7R1b73 is absolutely necessary for use with the new Sedecal SoftConsole software.

(8) Remove the U24 EPROM on the ATP console with a chip extractor and mount the new U24 EPROM V7R1b73.

4 Verification

The verification of the correct functionality of the installed DX-D 100 / 100 Wireless system in combination with NX Workstation version NX 2.0.8800 / 3.0.8800 is carried out by performing the following Acceptance Tests procedures:

- DX-D 100 / 100 Wireless System Acceptance Test
- NX workstation Acceptance Test procedure

5 Keywords

System V4.4, DAP Meter, remote control. Access Point 1602

6 Version history

Version	Change	Date
1.0	Initial version	02-2014