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Service Technician Instruction	ST-170	24 April 2015

Engine type **Engines with DIA.NE XT4**

Subject **Intel® Solid-State Drive (SSD) for the DIA.NE XT4 controller**
Check and possible update of the SSD firmware required

Service Technician Instruction ST-170 describes measures that must be taken on plants/engines with DIA.NE XT4.

AFFECTED ENGINES / SCOPE OF THIS BULLETIN

Plants with DIA.NE XT4 engine control systems/visual display units built up to and including October 2014. These are included in the Affected Unit List (AUL) of Quality Escape QE-70.

DESCRIPTION OF THE CONTENT

The latest generation of the engine control system/visual display unit for Jenbacher gas engines (DIA.NE XT4) includes a robust industrial PC (IPC, controller). It is mounted on the inside of the module control cabinet door and equipped with a solid-state drive (SSD).

The type of this SSD must be determined on all the plants defined above. If it is an Intel® DC S3700 Series product, the SSD firmware version must be checked as well and possibly an update needs to be installed to ensure that the SSD is not damaged by a falling battery voltage.



Fig. 01: DIA.NE XT4 controller on the inside of the module control cabinet door

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PLANNING AND CARRYING OUT THE MEASURES

The measures defined here necessitate a visit to the plants in question, co-ordinated by means of Quality Escape QE-70 and the allocation of service requests/tasks.

NECESSARY EQUIPMENT FOR PREPARING THE VISIT TO THE PLANT

Before a technician can travel to the plant in question, a few preparations must be made that require the following equipment (documents, hardware, software):

✓ **DOCUMENT: Service Technician Instruction ST-170**

We have tried to explain all the necessary work steps in this bulletin document in a clear manner.

✓ **DOCUMENT: Intel_SSD_Firmware_Update_Tool_2 0 3_User_Guide_322570-006US**

This Intel® guide (unfortunately only available in English) describes the update of the SSD firmware in detail. Download the document from the Jenbacher web portal (at ST-170) or from the Intel® download center at: <https://downloadcenter.intel.com/download/18363>



Fig. 02: How to obtain a detailed description from the Intel® download center

✓ **HARDWARE: Empty USB stick**

The stick **MUST** have a storage capacity of **at least 64MB and at most 4GB**.

✓ **HARDWARE: Computer with Windows operating system, Internet connection and a USB port**

The computer is needed to download documents and software, and to prepare the USB stick.

✓ **SOFTWARE: issdfut_2.0.13.iso (approx. 32MB)**

The ISO file is provided by Intel® to update the SSD firmware. Download the ISO file from the Jenbacher web portal (at ST-170) or from the Intel® download center at: <https://downloadcenter.intel.com/download/18363>



Fig. 03: How to obtain the ISO file from the Intel® download center

✓ **SOFTWARE: unetbootin-windows-608.exe (approx. 4.6MB)**

UNetbootin (Universal Netboot installer) is an open-source tool with which various operating systems can be booted directly from a USB stick or from where they can be installed on a hard disk (without a CD or DVD drive). We use the free software to prepare the USB stick (ISO file on the stick) and to update the SSD firmware. Download the EXE file from the Jenbacher web portal (at ST-170) or from the Internet



WORK STEPS IN PREPARATION FOR VISITING THE PLANT

This point contains the download of the Intel® description and software package and the preparation of the USB stick so that it can be used at the plants/engines concerned to update the SSD firmware.

➤ **DOWNLOAD THE DOCUMENT "Intel_SSD_Firmware_Update_Tool_2.0.3_User_Guide_322570-006US"**

Download the document, store it on the computer and if required print it out for the visit to the plant

➤ **DOWNLOAD THE SOFTWARE "issdfut_2.0.13.iso"**

Download the software (see above) and store it on the computer

➤ **DOWNLOAD THE SOFTWARE "unetbootin-windows-608.exe"**

Download the software (see above) and store it on the computer

➤ **PREPARE THE USB STICK**

Plug the USB stick into the computer and start the "unetbootin-windows-608.exe" software to install the ISO file "issdfut_2.0.13.iso" on the stick

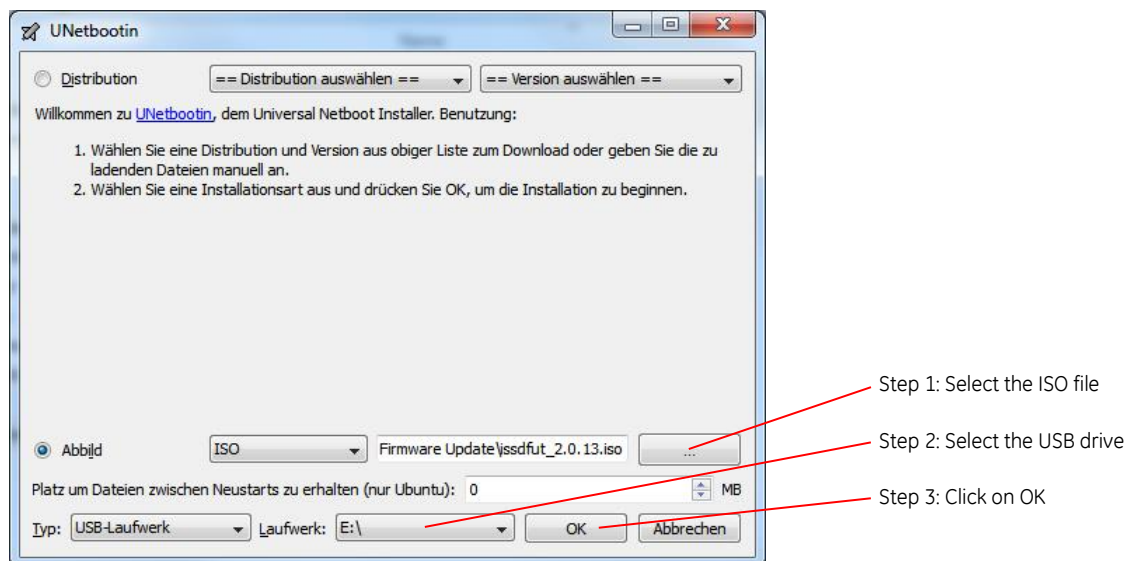


Fig. 04: Preparing the USB stick (ISO file on the stick) using the UNetbootin free software

NECESSARY EQUIPMENT AT THE PLANT

✓ **Torx T20 screwdriver (M4)**

The screwdriver is needed to open the cover of the DIA.NE XT4 controller.

✓ **USB stick with the ISO file "issdfut_2.0.13.iso" installed**

The USB stick with the ISO file is needed to update the SSD firmware (see above).

✓ **Keyboard with a USB port**

The keyboard is connected to the DIA.NE XT4 controller when updating the SSD firmware.

✓ **Permanent marker**

After an update the new firmware version must be marked on the SSD.

WORK STEPS AT THE PLANT

See points 1 (Determining the SSD Type) to 4 (Completing the Work) on the following pages.



1. DETERMINING THE SSD TYPE

On all the plants defined above (see the section "Affected Engines / Scope of this Bulletin"), the type of solid-state drive (SSD) in the DIA.NE XT4 controller must be determined.

- Open the cover of the DIA.NE XT4 controller

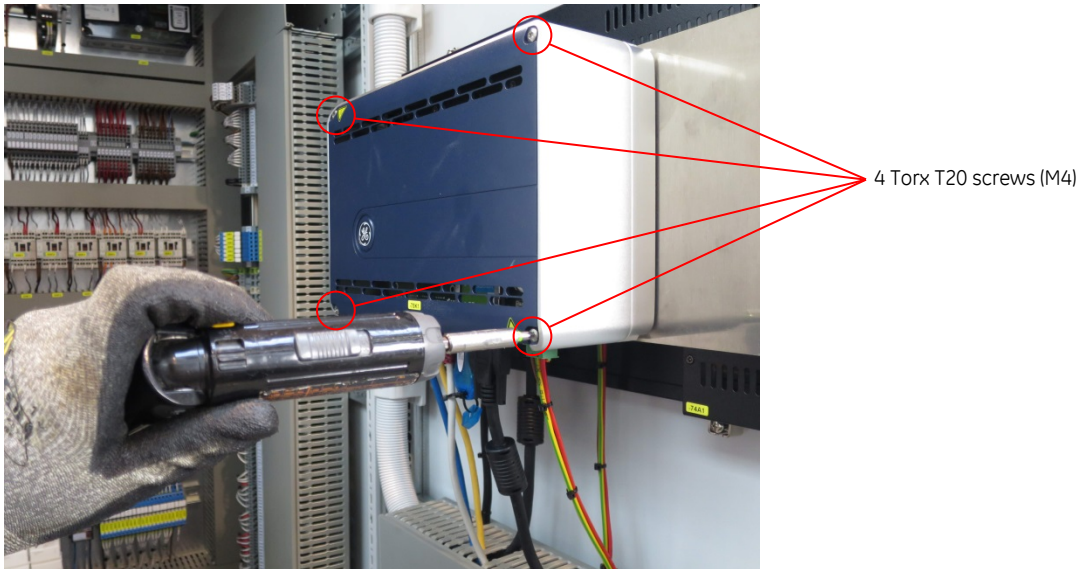


Fig. 05: Opening the cover of the DIA.NE XT4 controller

- Read off the SSD type

CAUTION: Do not touch anything in the system without ESD precautions (ESD...ElectroStatic Discharge).

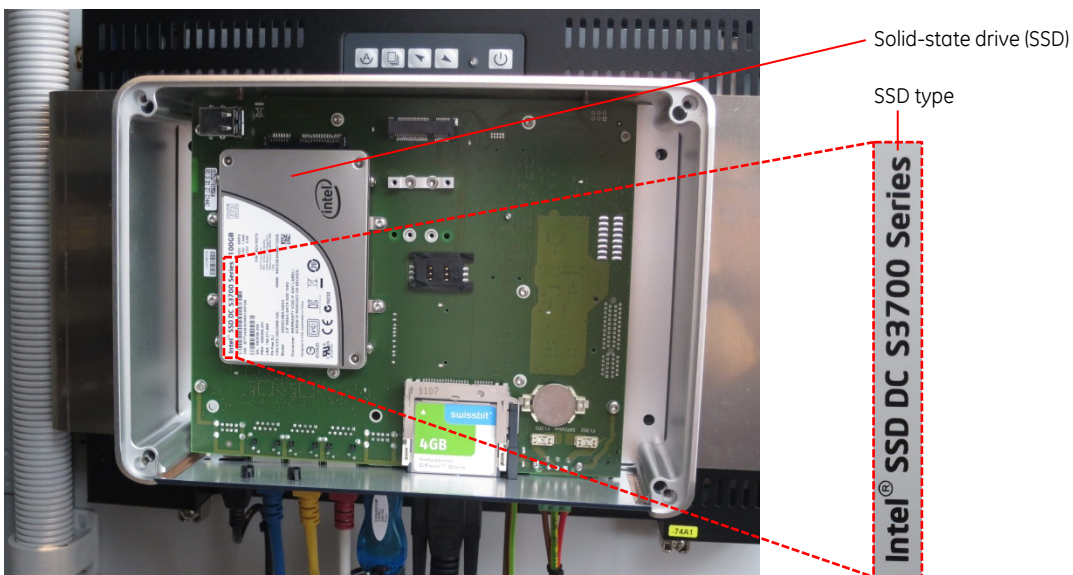


Fig. 06: Reading off the SSD type

POSSIBLE SSD TYPES AND REQUIRED MEASURES

SSD TYPE	REQUIRED MEASURES
Intel® DC S3700	Check the SSD firmware version and update the SSD firmware if necessary Go to point 2 (Checking the SSD Firmware Version) of this bulletin
Other	SSD firmware OK; NO update necessary Go to point 4 (Completing the Work) of this bulletin

Table 01: Possible SSD types and required measures



2. CHECKING THE SSD FIRMWARE VERSION

The SSD firmware version must be checked on all plants with a Type DC S3700 Intel® solid-state drive (SSD) in the DIA.NE XT4 controller.

- Read off the SSD firmware version

CAUTION: Do not touch anything in the system without ESD precautions (ESD...ElectroStatic Discharge).

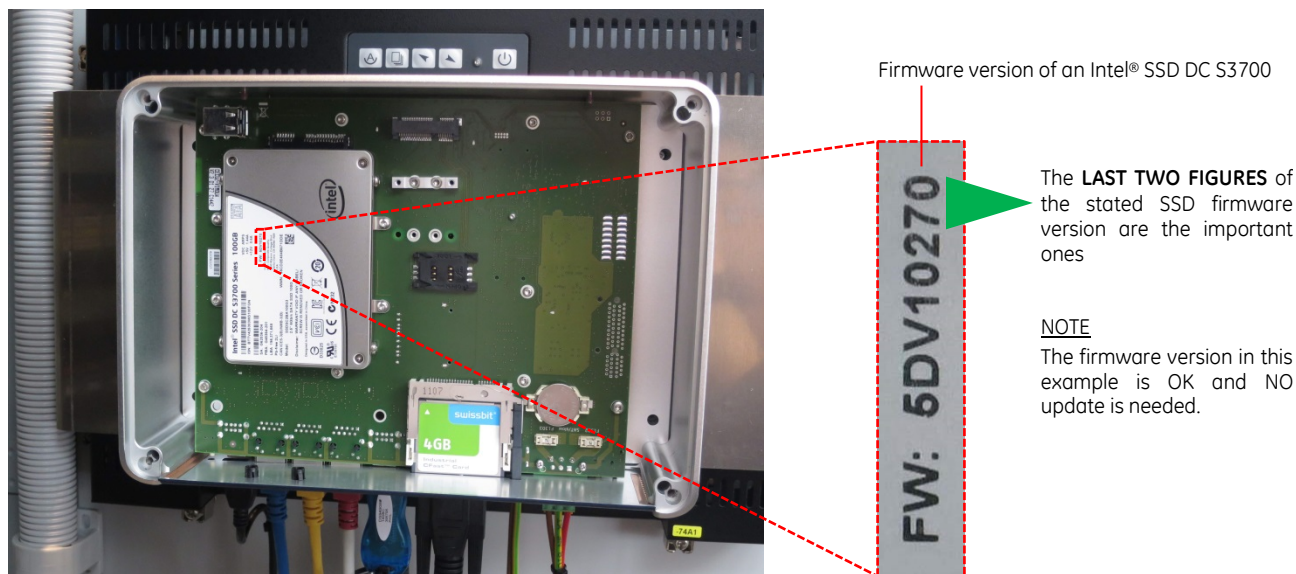


Fig. 07: Reading off the SSD firmware version

POSSIBLE SSD FIRMWARE VERSIONS AND REQUIRED MEASURES

The **LAST TWO FIGURES** of the stated SSD firmware version are the important ones.

SSD FIRMWARE VERSION	REQUIRED MEASURES
FW: 65	SSD firmware update necessary Go to point 3 (Updating the SSD Firmware) of this bulletin
FW: 70	SSD firmware OK; NO update necessary Go to point 4 (Completing the Work) of this bulletin

Table 02: Possible SSD firmware versions and required measures

NOTE

Table 02 only applies to plants with an Intel® DC S3700 solid-state drive (SSD) in the DIA.NE XT4 controller. This "firmware identification" based on the last two figures cannot be used on any other SSDs. The firmware of these is OK and NO update is necessary.



3. UPDATING THE SSD FIRMWARE

The SSD firmware must be updated on all plants with an Intel® DC S3700 solid-state drive (SSD) in the DIA.NE XT4 controller if the firmware number does not end with the figures 70 (see above). The update must be carried out in accordance with this Service Technician Instruction or the instructions provided by Intel® (see above).

NOTE

According to Intel®, all the data on the SSD remains unaffected during the update. Our own tests have confirmed this as well.

- Disconnect the power supply to the DIA.NE XT4 controller
- Remove the CFast card from the DIA.NE XT4 controller
- Connect the USB stick and USB keyboard to the DIA.NE XT4 controller
- Reconnect the power supply
Display of the SSD firmware update on the DIA.NE XT4 screen
A blue UNetbootin screen will appear by default, which does not require any input.

COMMENT: Press F11 on the USB keyboard at the beginning of the boot process and then select the USB stick manually as boot device in case the system does not automatically boot up via the stick but start Windows.

- Accept the licence agreement
The SSD firmware update will be carried out until at the end the message "Firmware has been updated to..." or "Firmware is up to date" appears.
- Mark the firmware version on the SSD with a permanent marker
- Close the above message
The DIA.NE XT4 controller goes into "ready for operation" mode
- Remove the USB stick and USB keyboard
- Plug in the CFast card
- Restart the DIA.NE XT4 controller

4. COMPLETING THE WORK

- Close the cover of the DIA.NE XT4 controller
- Process and close the Oracle tasks and service request
- Send the following information back to Ms. Katharina KNUE (katharina.knue@ge.com) at Jenbach:
 - RE/Subject: DIA.NE XT4 Controller – SSD Firmware Update
 - Name and J-number of the plant
 - Engine number
 - Company and name of the technician
 - Date of visit to the plant
 - SSD type
 - OLD and NEW SSD firmware versions



RELEVANT DOCUMENTS

When working on GE Jenbacher modules, all applicable local regulations must of course be observed in addition to our documentation. We would particularly like to emphasise observation of the following documents in connection with this Service Technician Instruction:

- Intel_SSD_Firmware_Update_Tool_2 0 3_User_Guide_322570-006US: Intel® SATA Solid-State Drive, Firmware Update Tool, User Guide, Software Version 2.0.3 (unfortunately only available in English, see above)
- Technical Instruction TA 1100-0111: General conditions – Operation and maintenance
- Technical Instruction TA 2300-0005: Safety regulations

REVISION CODE

INDEX	DATE	DESCRIPTION / REVISION SUMMARY
03	Apr. 24, 2015	Added a note that the required USB stick must have a storage capacity of at least 64MB and at most 4GB
02	Apr. 11, 2015	Added a comment on how to proceed in case of boot issues in point 3 (Updating the SSD Firmware)
01	Mar. 13, 2015	First version of this document

Table 03: Revision history