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Authorized by:
Quality Assurance headquarters

Zweibrücken
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SERVICE-BULLETIN

Reference-N°: KTSE - SB - 1702

Measures against Failures caused by Fuel Contamination

Approved by:	<input checked="" type="checkbox"/> International Quality Assurance department
	<input type="checkbox"/> Kubota Technical Support centre Europe

Affected distributors:

- ☒ KBD
- ☒ KE
- ☒ KUK

Classification:

- ☐ 1. Information
- ☐ 2. Fix on a failure basis
- ☒ 3. Recommended product improvement
- ☐ 4. Mandatory campaign

Model	Serial N°
KX080-4	See list at the end of the bulletin
KX080-4Alpha	

A. Subject

We have noticed an increasing number of fuel injection system failures (injectors, high pressure pump, etc...).

Deep investigation of a large number of defective parts and concerned units' fuel samples has confirmed that nearby all cases were caused by:

- poor maintenance: water separator drainage warning ignored or fuel filter replacement interval not kept
- usage of fuel with sulphur contents exceeding 10ppm (not complying EN-590) and/or contaminated (water, sediments, ...) fuel
- usage of non-genuine filters

We'd like to remind the high importance of good maintenance and proper fuel usage especially on modern common rail injection system equipped machines.

Although nothing can replace proper fuel usage and customer's proper maintenance, with the objective to increase customer satisfaction, following measures have been taken in series production:

- the fuel filtration system has been upgraded by adopting an additional high performance fuel filter
- the water separator capacity has been increased
- the water level warning system was improved

Additionally, to support customers, we highly recommend and even financially support the retrofitting of above listed improvements on all field machines at next machine service opportunity.

B. Service Information

Repair outline:

Depending on the serial number of the machine select the pertinent Case A, B, or C and add the parts accordingly. The software update (described in Case C) is recommended for all cases and will improve the warning system.

	Case A	Case B	Case C
Model	KX080-4	KX080-4Alpha	KX080-4Alpha
S/N*	All	→ 40556	40557 → 41085
Action	Water separator replacement by a bigger one Kit RD829-9550-0 See fig.1	---	---
	Additional high performance fuel filter installation Kit RD829-9950-0 See fig. 2		---
	Warning system improvement (ECU software update) See fig. 3		
	Replacement of the Operators Manual		

***Note:**

The serial numbers indicated in this table are based on machine condition at assembly line. As some machines were repaired before delivery, it is in any case necessary to refer to the machine scope table at the end of this bulletin.

Fig. 1

Replace the original water separator by a new one having a bigger capacity.

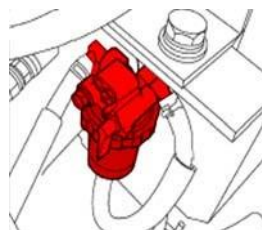
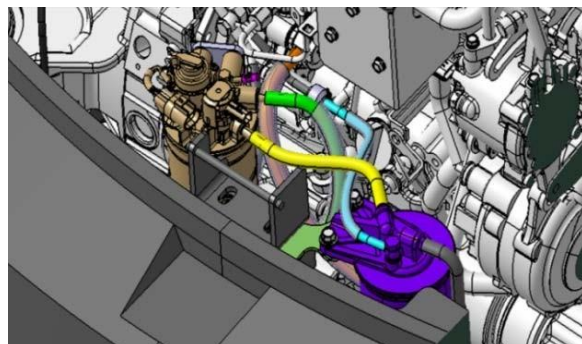
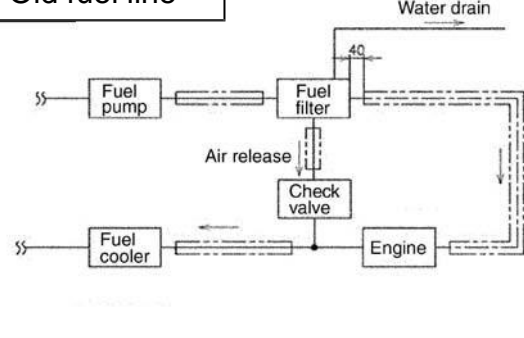


Fig. 2

Install an additional high performance fuel filter (purple colour) between the original one (brown colour) and the injection pump.



Old fuel line



New fuel line

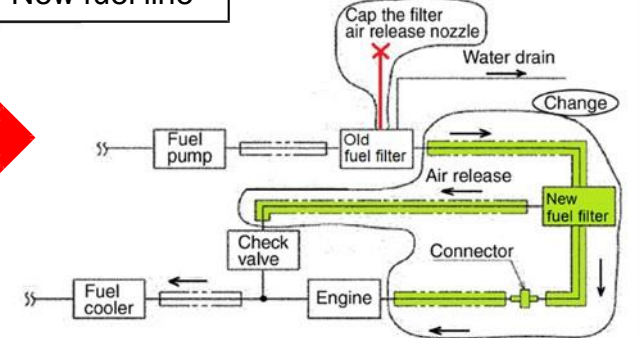


Fig. 3

Improvement of the water level warning system. The warning changed from a brief to a permanent accoustic sound, whenever the water level warning turns on.



⚠ WARNING:

To avoid personal injury:

- Park the machine on a flat and level ground.
- Keep the bucket or other attachment down on the floor.
- Stop the engine and remove the starter key.
- Release the residual pressure from the hydraulic circuit.
- Use working cloths and personal protective equipment to avoid personal injury.
- Follow the local safety directives in your country.
- If you work with other persons, make sure your signals are fully understandable and mutually communicative for added safety.
- Hydraulic components and engine parts can be hot. Wait until all components are cooled down to avoid burns.

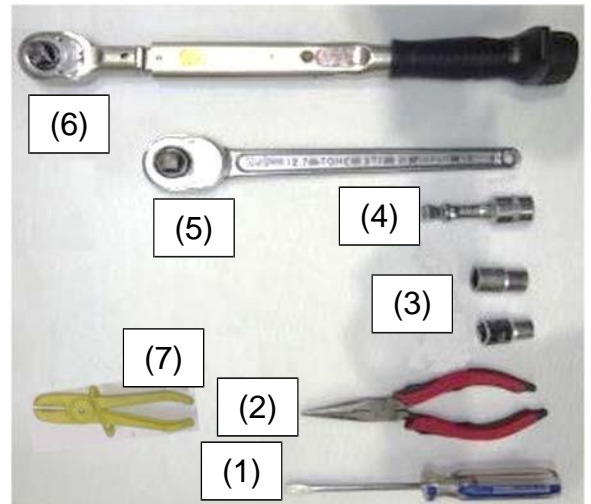
During repair work take special care to prevent contamination of the fuel system. Inobservance can result in malfunctions of the fuel pump and the injectors.

Tools and consumables:

- (1) Flat head screwdriver
- (2) Long nose pliers
- (3) Socket 12mm, 14mm
- (4) Extension bar 75mm
- (5) Ratchet
- (6) Torque wrench 20N·m-100N·m
- (7) Plastic hose clamp plier for hose diameter 15mm
- (8) PC or Notebook with operating system Windows 7, Windows 8 or Windows 10 (32 or 64 bit)
- (9) Connection cable MT998-0009-0

Note:

This connection cable for the software update should be ordered to Kubota spare part department only once per dealer branch.



Items not shown:

Cleaner, cloth

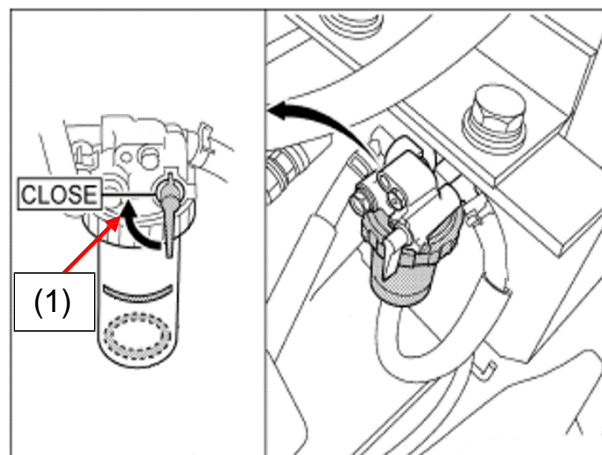
Note:

Tightening torques not indicated in the present service bulletin must be taken from the torque specification tables of the workshop manual.

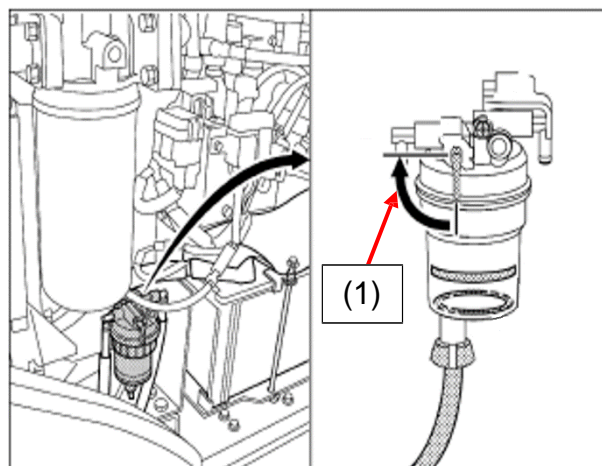
Step 1:

(Only Case A and Case B)

Close the water separator's cock (1).



KX080-4



KX080-4Alpha

Step 2:

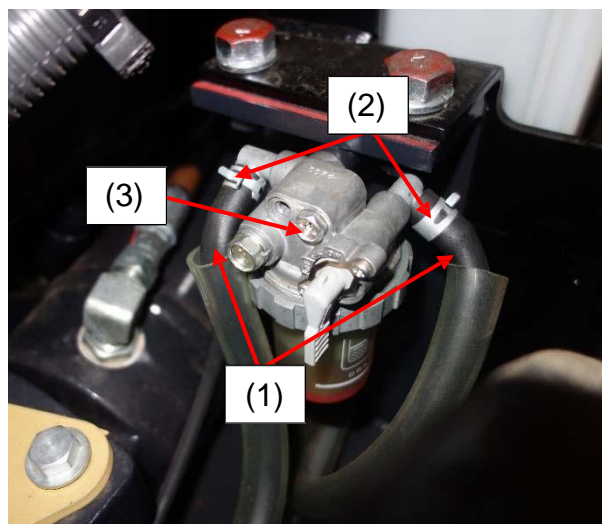
(Only Case A)

Disconnect the hoses (1) and plug them with the pins included in the kit. Make sure to mark *IN* and *OUT* for later reassembly. The hose clamps (2) can be reused.

Step 3:

(Only Case A)

Remove the bolt (3) and the water separator.

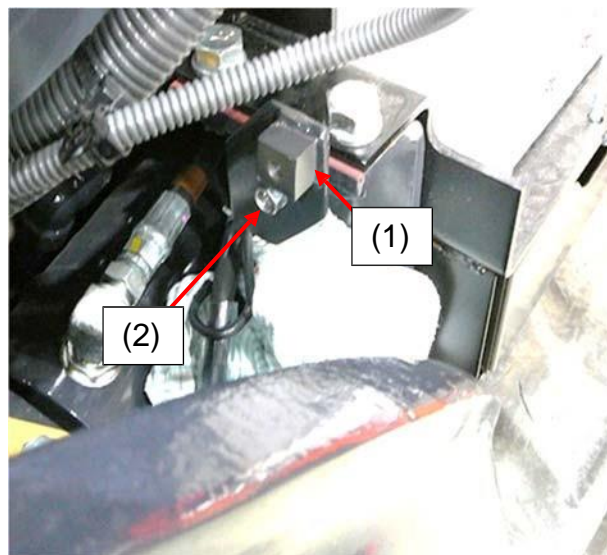


Step 4:

(Only Case A)

Attach the bracket (1) (RD829-9749-0) with the bolt (2) (01123-5082-0).

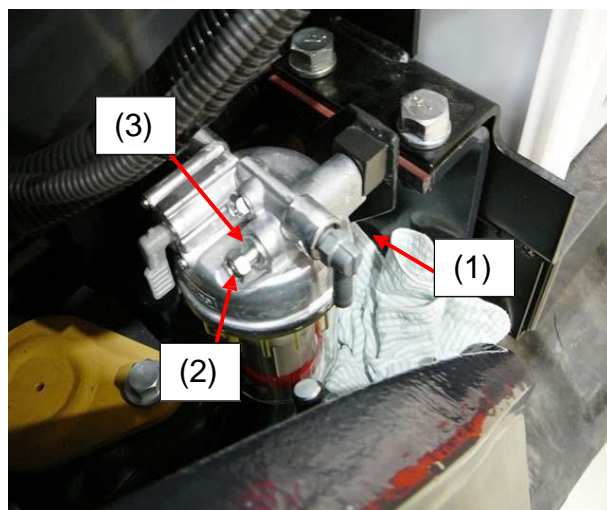
Tightening torque: 23,5N·m-27,5N·m

**Step 5:**

(Only Case A)

Attach the new water separator (1) with the bolt (2) (01123-50875) and the washer (3) (04013-5008-0).

Tightening torque: 23,5N·m-27,5N·m

**Step 6:**

(Only Case A)

Connect the drain hose (1) to the water separator.

Step 7:

(Only Case A)

Remove the plugs from the fuel hoses, connect them to the water separator and secure them with the hose clamps (2).

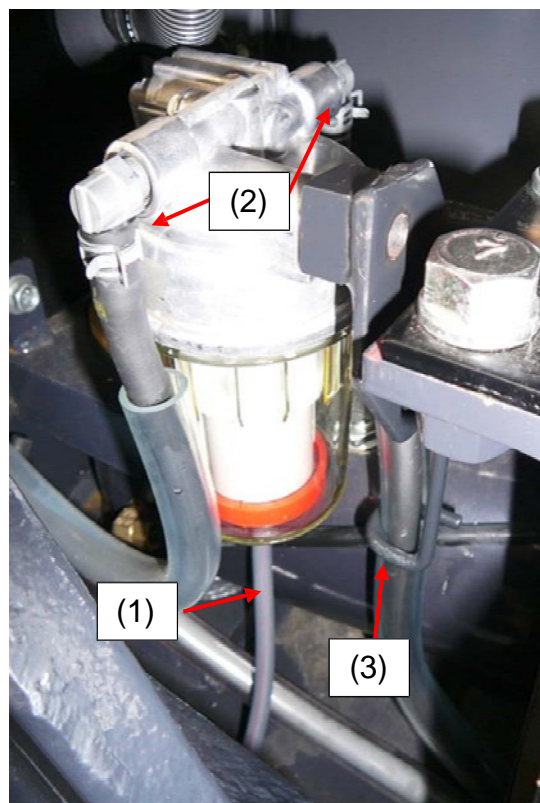
Note:

Make sure to not invert "IN" and "OUT" connections.

Step 8:

(Only Case A)

Route the "IN" fuel hose through the hook (3) of the bracket.



Step 9:

(Only Case A and Case B)

Disconnect the fuel filter temperature sensor connector (1).

Step 10:

(Only Case A and Case B)

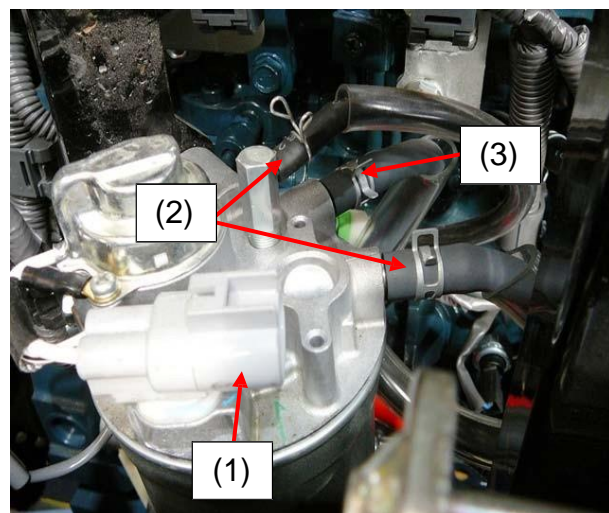
Disconnect the breather hose and the fuel hoses (2).

The hose clamps will be reused.

The hose (3) remains on the filter.

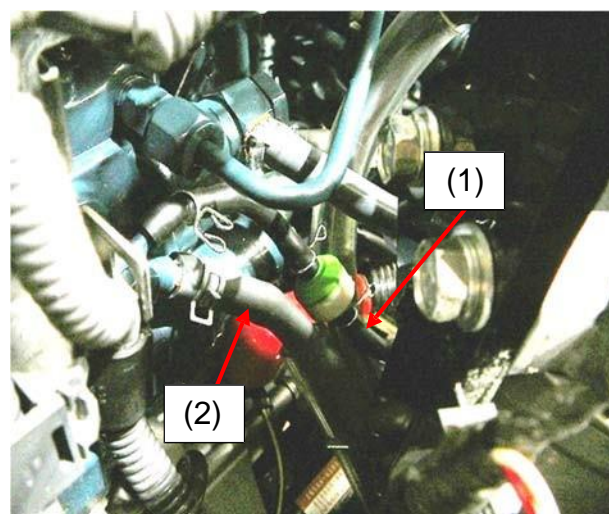
Note:

Prevent fuel spills.

**Step 11:**

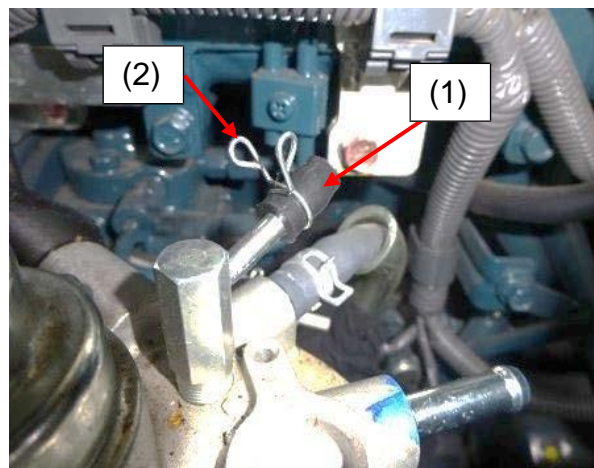
(Only Case A and Case B)

Disconnect the breather hose (1) on the check valve lower side and the fuel hose (2) on engine side. Remove the hoses. The hoses can be scrapped.

**Step 12:**

(Only Case A and Case B)

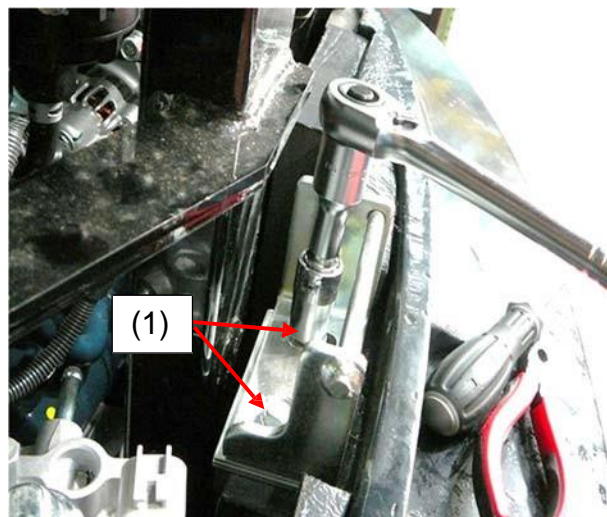
Plug the fuel filter breather hose connection with the cap (1) (14781-4279-0) and secure it with the clamp (2). This breather connection remains closed after the modification.



Step 13:

(Only Case A and Case B)

Remove the two bolts (1) and remove the engine bonnet stay. Please mind the shim's number and position under the stay.

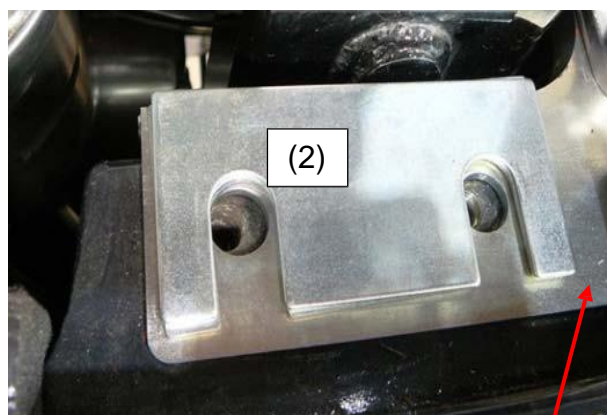
**Step 14:**

(Only Case A and Case B)

Position the bracket (1) (RD829-9749-0) and the shims (2).

Note:

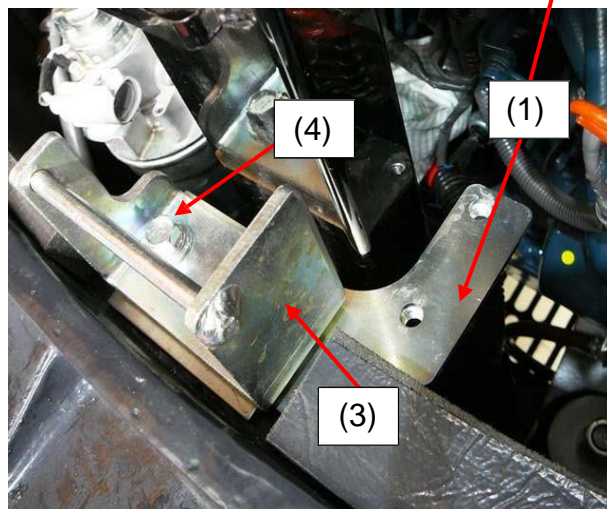
Reduce the height by removing one shim

**Step 15:**

(Only Case A and Case B)

Add the stay (3) on top of the shims (2) and secure with two bolts (4).

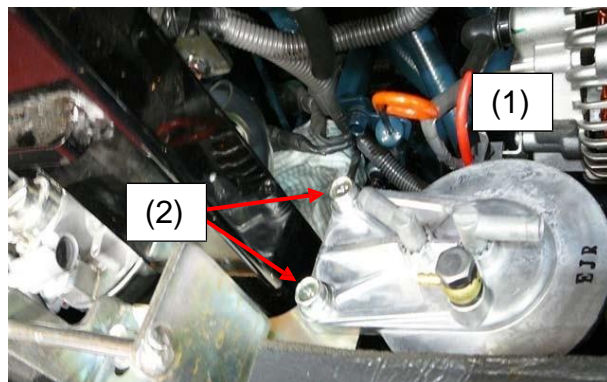
Tightening torque: 48,1N·m-55,9N·m

**Step 16:**

(Only Case A and Case B)

Attach the additional fuel filter (1) to the new bracket and tighten it with the two bolts (2) (01125-5082-5).

Tightening torque: 23,5N·m-27,5N·m



Step 17:

(Only Case A and Case B)

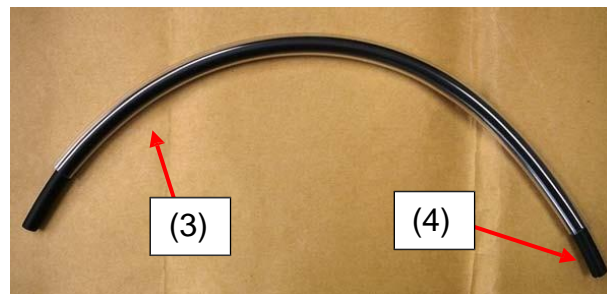
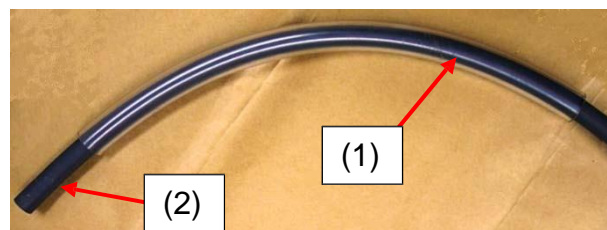
Assemble the protective hoses (1 and 3) to hose (2 and 4) as shown in the picture.

(1) Protective hose RC788-5145-0

(2) Fuel hose 09661-7040-0

(3) Protective hose RD829-5163-0

(4) Breather hose 09664-4038-0

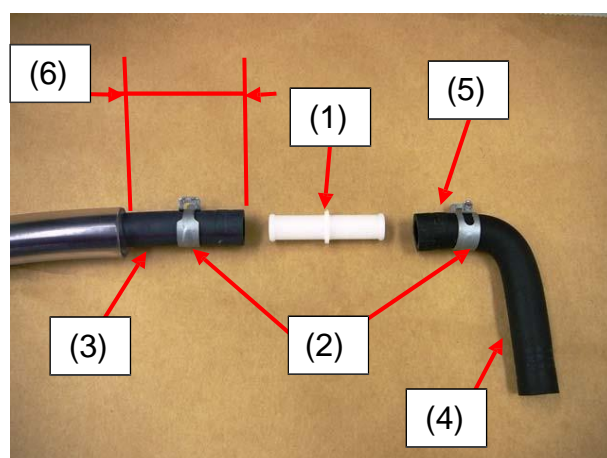
**Step 18:**

(Only Case A and Case B)

Use the connector (1) (3C131-4246-0) and the two hose clamps (2) (14911-4275-0) to connect the fuel hose (3) (09661-7040-0 and RC788-5145-0) to the L-shape hose (4) (RB238-5136-0).

Note:

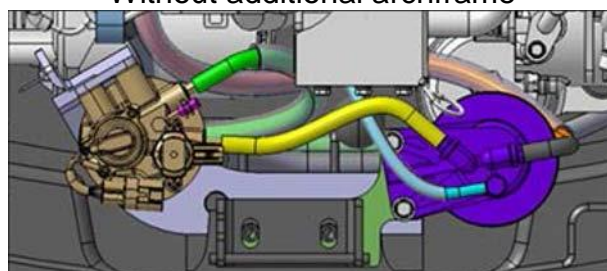
Assemble the short side (5) of the L-shape hose (4) to the fuel hose (3). Distance (6) should be approximately 30mm.

**Note:**

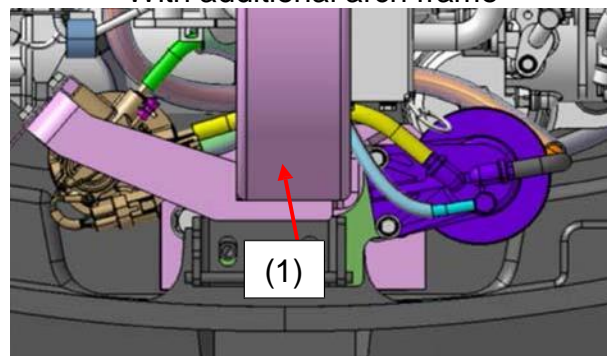
The length and type of the hoses are the same for machines with or without additional arch frame (1).

Avoid over tension, slacking or kinking of the hoses during assembling.

Without additional archframe



With additional arch frame



Step 19:

(Only Case A and Case B)

Connect the breather hose (1) (09664-4038-0 and RD829-51630) to the new filter and the check valve (2). Secure it with the original hose clamps. The distance (3) between protective hose and connector should be approximately 30mm.

Step 20:

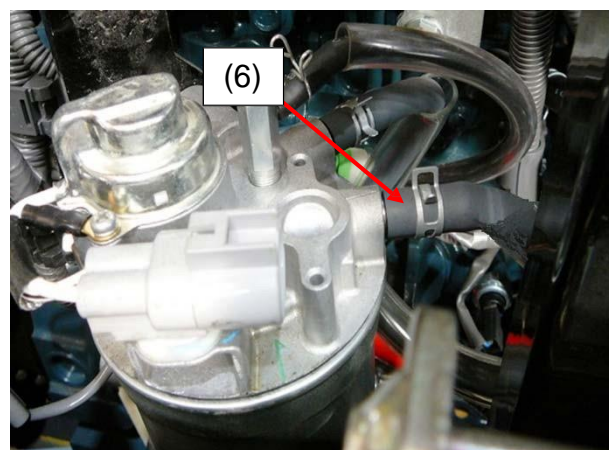
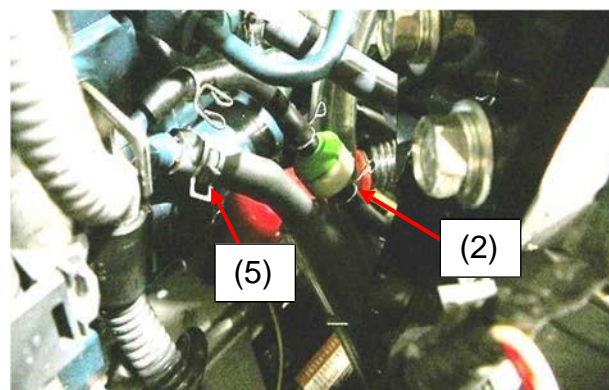
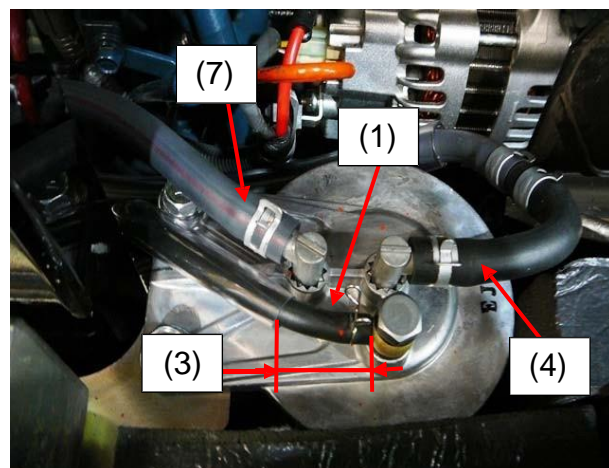
(Only Case A and Case B)

Connect the L-shape hose end (4) of the hose assembled in step 18 to the new filter and its other end (5) to the engine. Secure the connections with hose clamps.

Step 21:

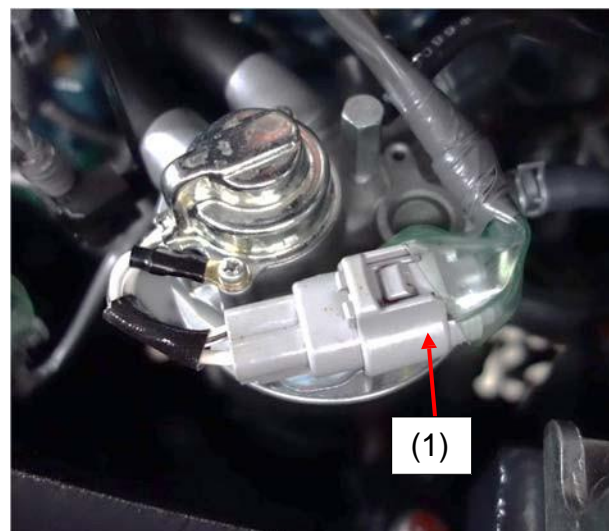
(Only Case A and Case B)

Connect the fuel hose (09661-7020-0) to the original filter's "OUT" port (6) and to the new filter's "IN" port (7). Secure the connections with hose clamp.

**Step 22:**

(Only Case A and Case B)

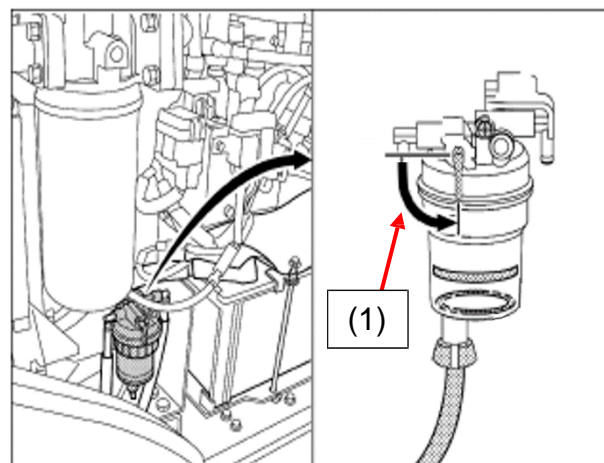
Reconnect the temperature sensor (1).



Step 23:

(Only Case A and Case B)

Open the water separator's cock (1).

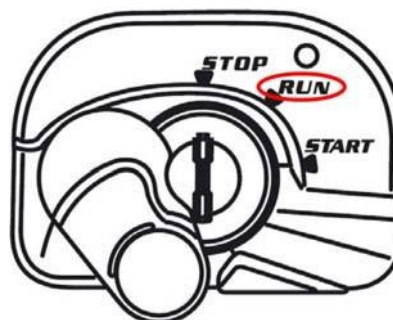
**Step 24:**

(Only Case A and Case B)

Turn the key switch to "RUN" (do not start the engine) and wait for about 60 seconds, then start the engine.

Note:

If the engine doesn't start or the engine stops again, the air bleeding was not sufficient; repeat this procedure again.

**Step 25:**

(Only Case A and Case B)

Check the new installed parts for any fuel leakages.

Step 26:

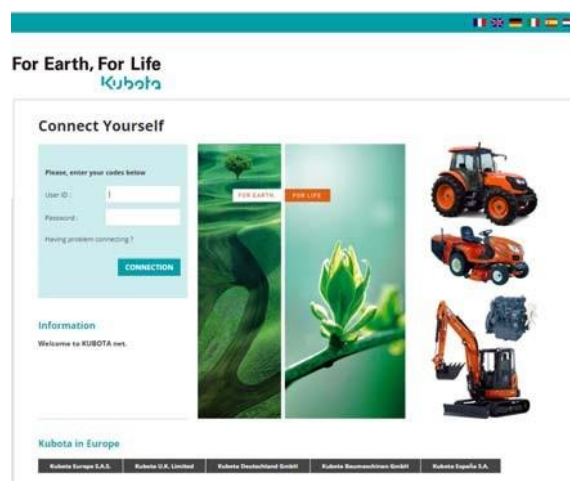
(Only Case A and Case B)

Close the bonnets and adjust the engine bonnet stay position if necessary.

Steps 27 to 44 are needed for software download and installation on a laptop.

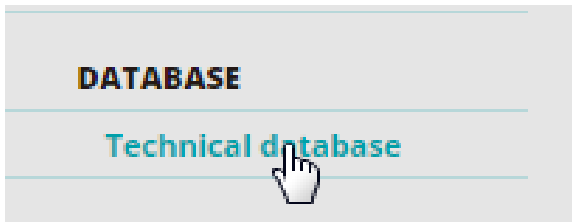
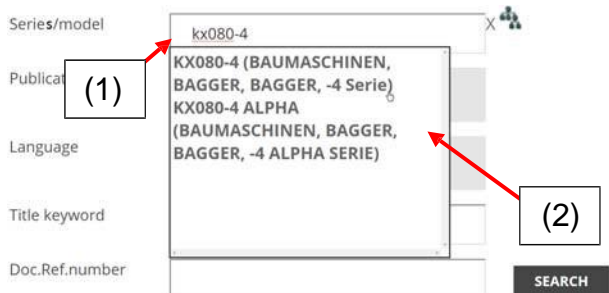
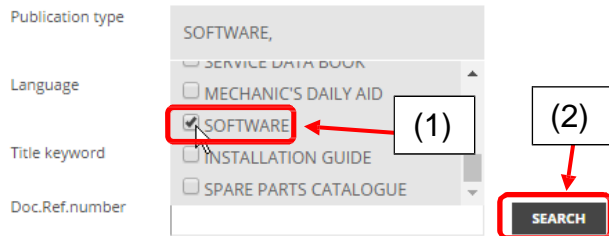
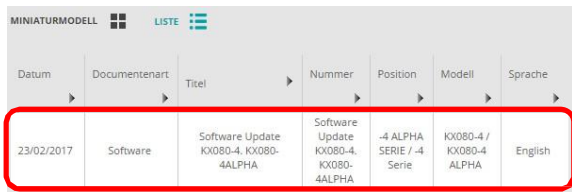
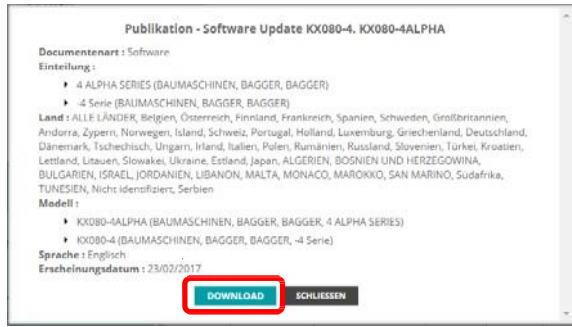

Step 27:

Log in into Kubota Net with your dealer account.

**Step 28:**

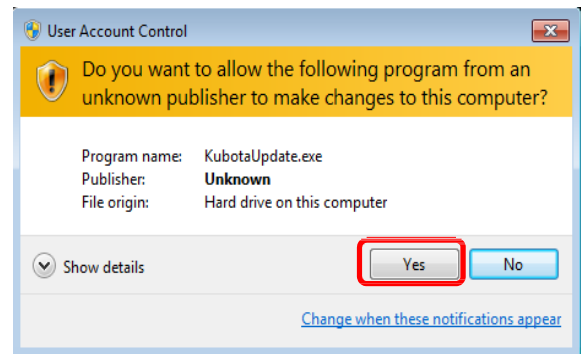
Select "APPLICATIONS".



<p>Step 29: Select "Technical database".</p>															
<p>Step 30: Enter the model name in the field (1) and select the model (2).</p>															
<p>Step 31: Select publication type "SOFTWARE" (1) and click on "SEARCH".(2)</p>															
<p>Step 32: Select the software.</p>	 <table><tr><th>Datum</th><th>Dokumentenart</th><th>Titel</th><th>Nummer</th><th>Position</th><th>Modell</th><th>Sprache</th></tr><tr><td>23/02/2017</td><td>Software</td><td>Software Update KX080-4, KX080-4ALPHA</td><td>Software Update KX080-4, KX080-4ALPHA</td><td>-4 ALPHA SERIE / -4 Serie</td><td>KX080-4 / KX080-4 ALPHA</td><td>English</td></tr></table>	Datum	Dokumentenart	Titel	Nummer	Position	Modell	Sprache	23/02/2017	Software	Software Update KX080-4, KX080-4ALPHA	Software Update KX080-4, KX080-4ALPHA	-4 ALPHA SERIE / -4 Serie	KX080-4 / KX080-4 ALPHA	English
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23/02/2017	Software	Software Update KX080-4, KX080-4ALPHA	Software Update KX080-4, KX080-4ALPHA	-4 ALPHA SERIE / -4 Serie	KX080-4 / KX080-4 ALPHA	English									
<p>Step 33: Click on "DOWNLOAD".</p>															
<p>Step 34: Open the folder on your hard disk drive where the file was saved to and double click on the "setup" icon.</p>															

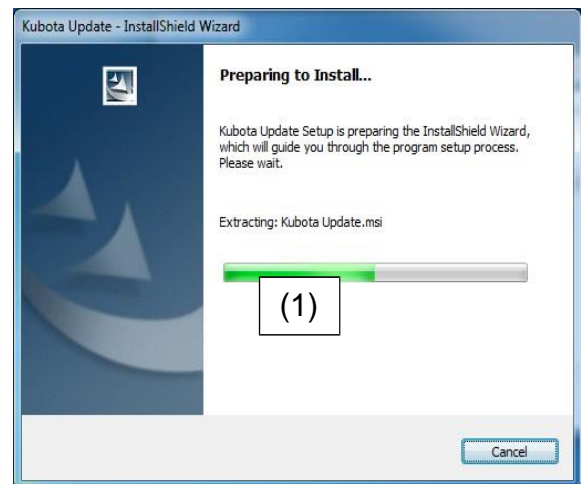
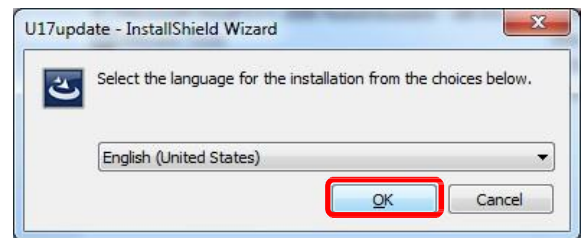
Step 35:

If your notebook's security settings request the installation authorization, select "Yes".



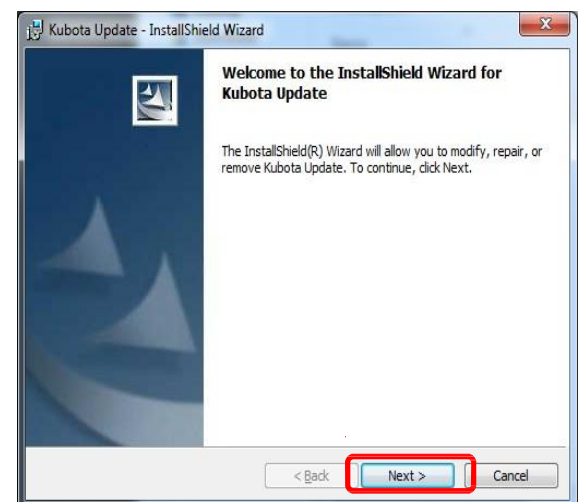
Step 36:

Select the language then click on "OK" and wait for execution (1).



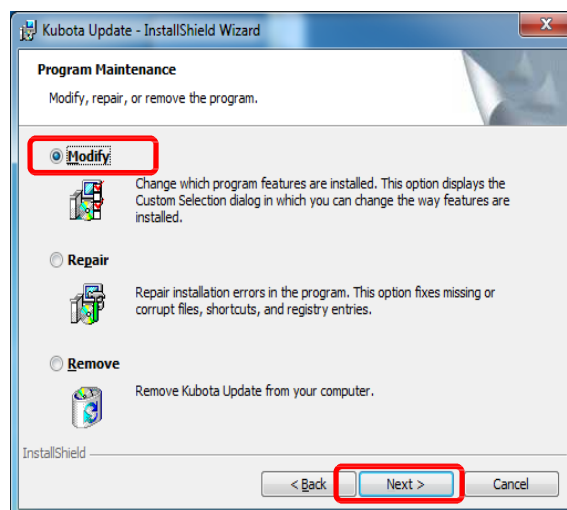
Step 37:

Click on "Next".

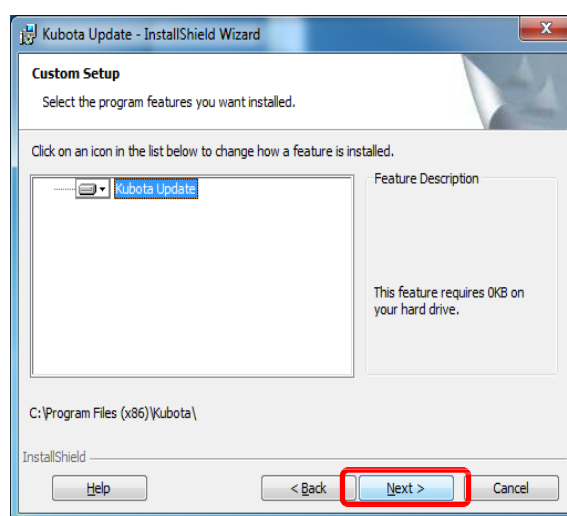


Step 38:

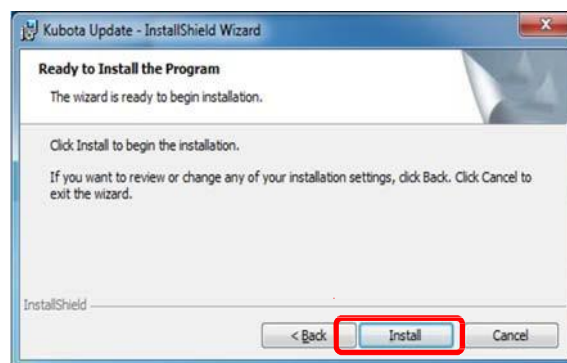
(Only if overwriting is required)
Select "Modify" and click on "Next".

**Step 39:**

(Only if overwriting is required)
Select "Kubota Update" and click on "Next".

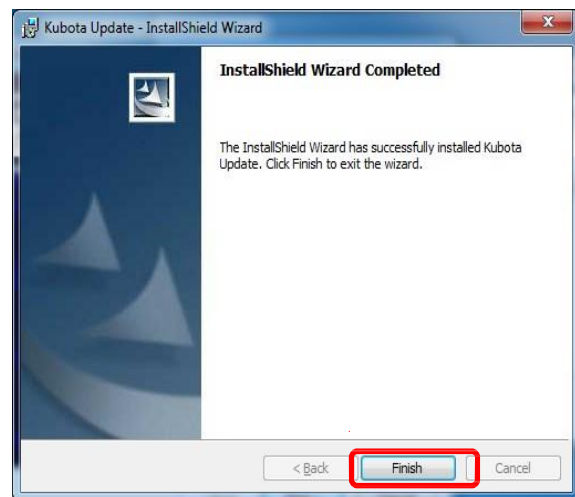
**Step 40:**

(Only if overwriting was required)
Click on "Install". Wait until the installation window disappears.

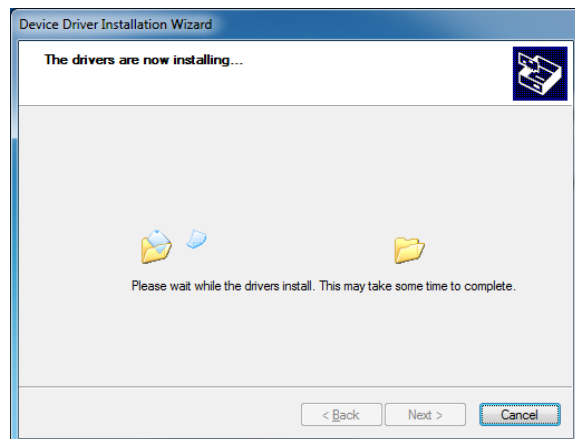
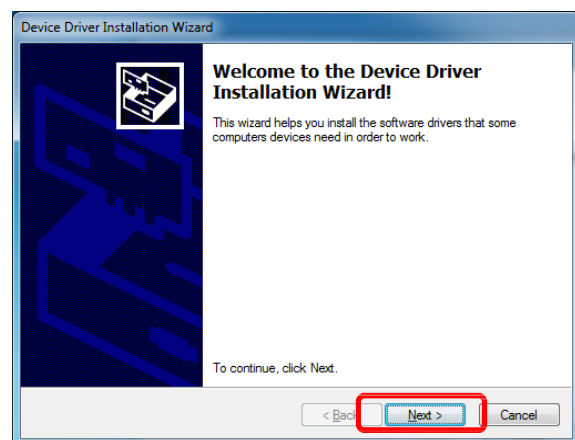


Step 41:

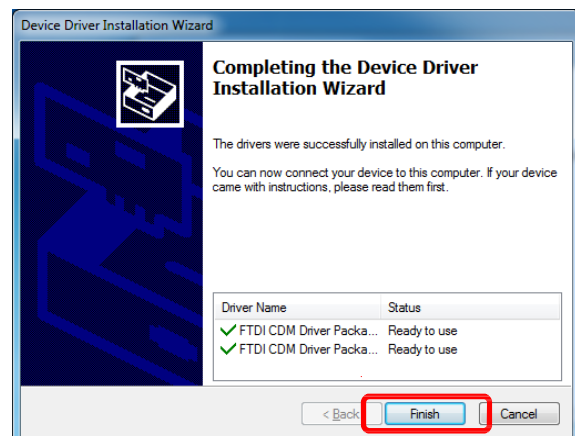
Click on "Finish".

**Step 42:**

Click on "Next" to install the device driver.
Wait for execution.

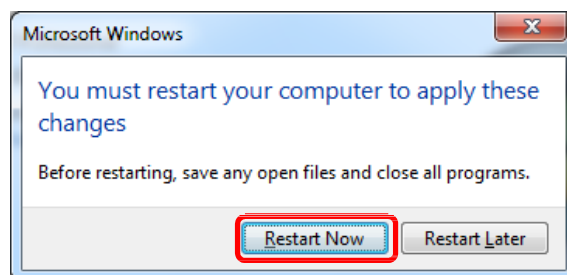
**Step 43:**

Click on "Finish".

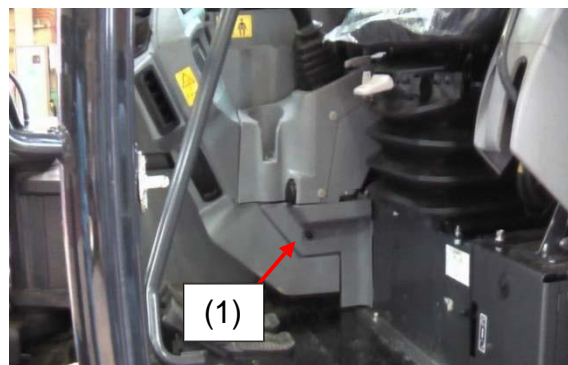


Step 44:

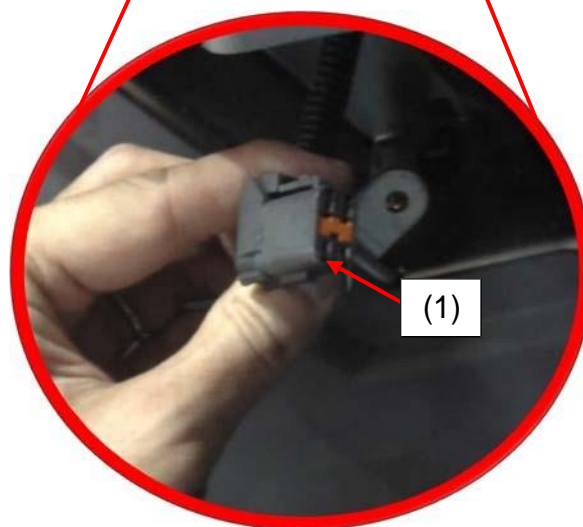
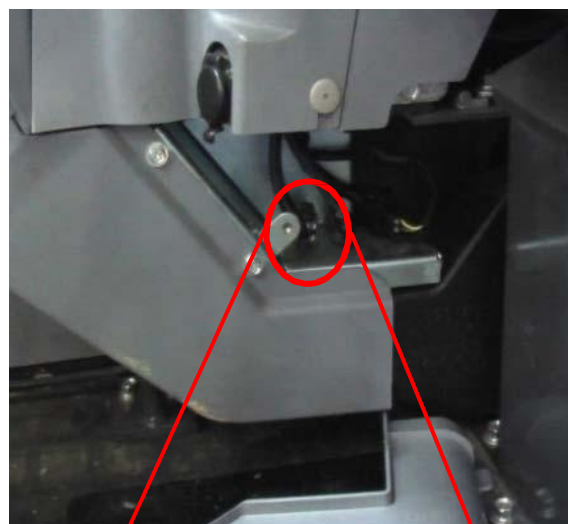
Restart your computer by clicking on "Restart Now" to complete the installation.

**Steps 45 to 60 software installation on the machine****Step 45:**

Remove the cover (1).

**Step 46:**

Remove the cap (1) of the connection cable (4 pin connector).

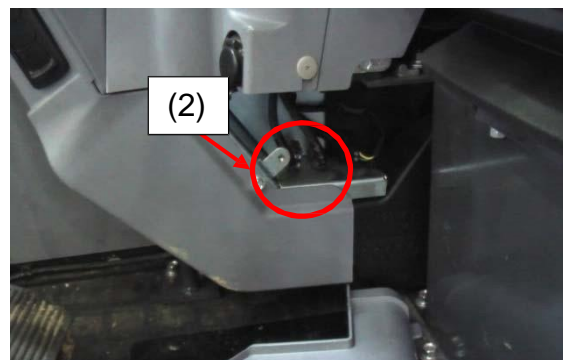
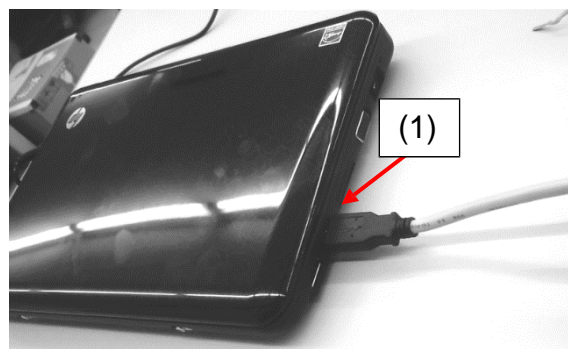


Step 47:

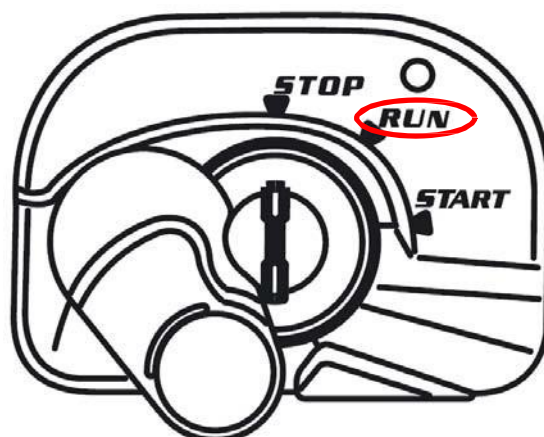
Connect your notebook (1) to the machine (2) with the connection cable MT998-0009-0.

Note:

A normal USB to serial converter cannot be used.

**Step 48:**

Turn the key switch to “RUN” (do not start the engine).

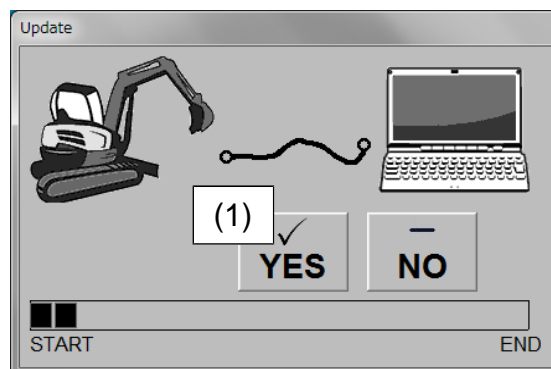
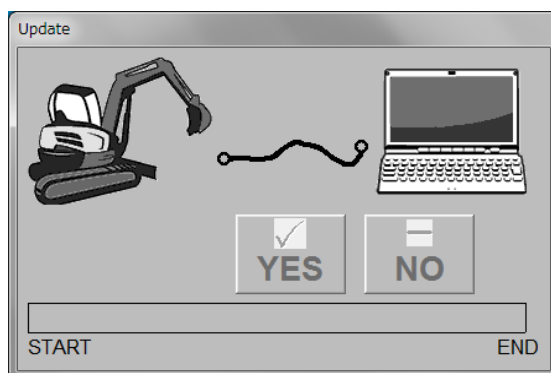
**Step 49:**

After your PC starts, double-click on the icon “KX080_Update” or “KX080alpha_Update” located on the desktop.



Step 50:

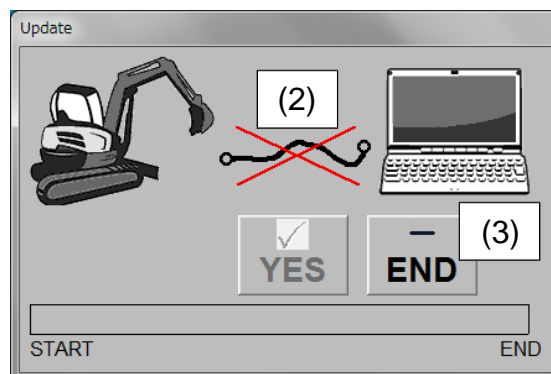
Wait until the connection is confirmed and click on "YES" (1) when the button is active.



If the button "END" turns active but the cable is red x-ed out (2) the communication failed. You need to select "END" (3) and then make sure:

- the starter switch is on "RUN" position
- the connections between notebook and machine side are OK

Then, restart from step 49.

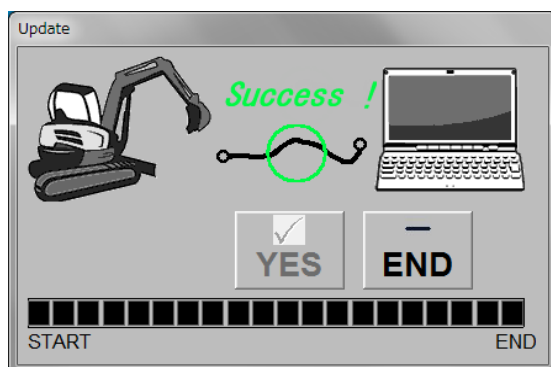
**Step 51:**

After "Success" appears on the screen, click "END".

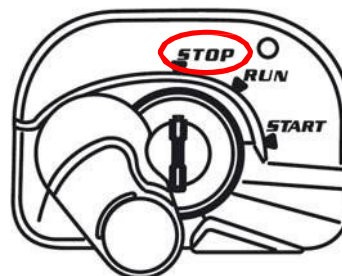
Note:

It takes about 5min for the update.

During the update the message "Engine Sys Err" can appear on the meter panel. This message can be ignored.

**Step 52:**

Turn the starter switch to "STOP" position.

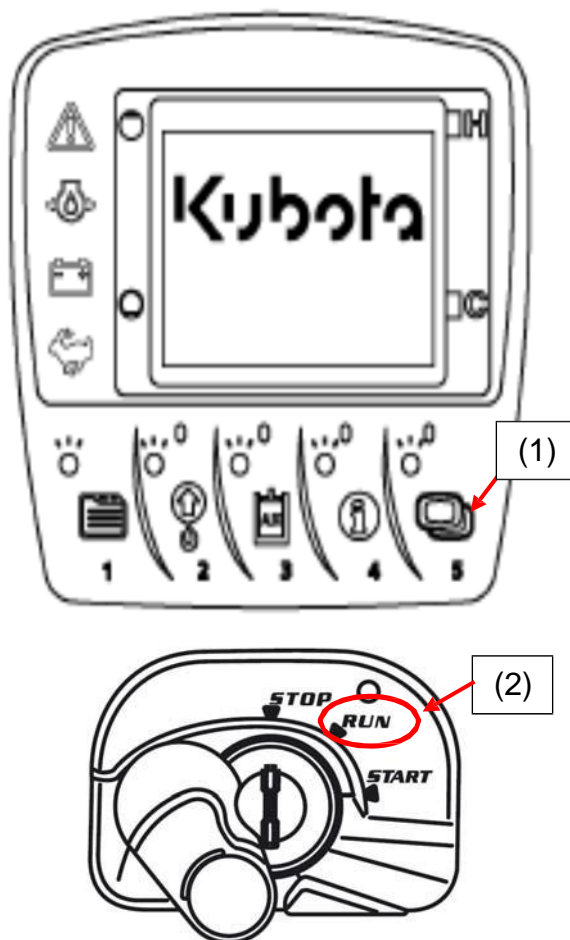


Step 53:

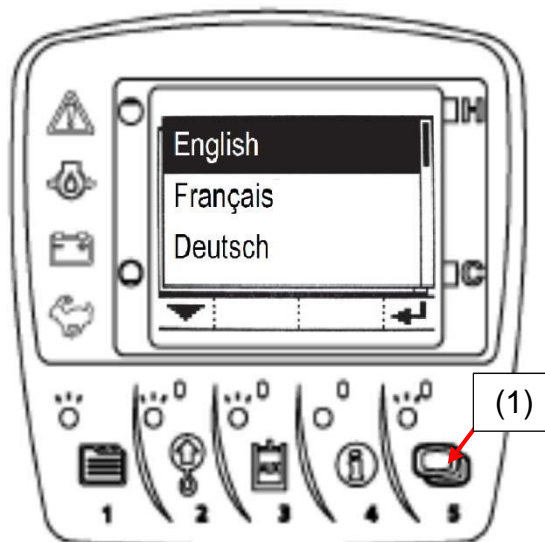
Disconnect the connection cable at machine side and reinstall the connector cap; reassemble the cover.

**Step 54:**

Push and hold the switch 5 (1) and turn the starter key (2) to "RUN" position.

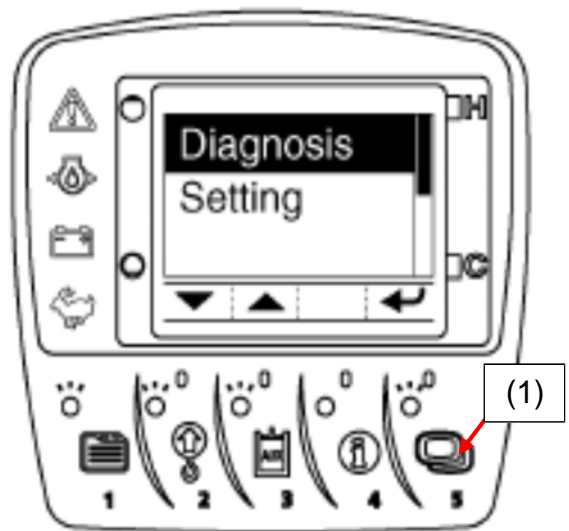
**Step 55:**

Select the language and push switch 5 (1).



Step 56:

Select "Diagnosis" and push switch 5 (1).

**Step 57:**

Select "Tester" and push switch 5 (1).

**Step 58:**

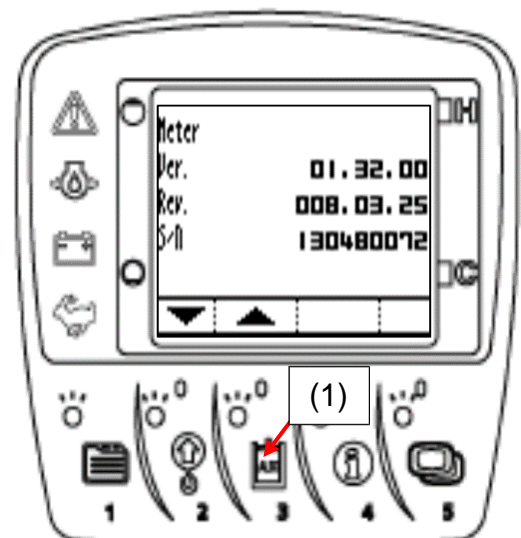
Push switch 3 (1) until the display in the photo appears. The display should read:

KX080-4	
Ver.	15.02.03
Rev.	016.09.22

KX080-4Alpha	
Ver.	24.23.04
Rev.	016.10.21

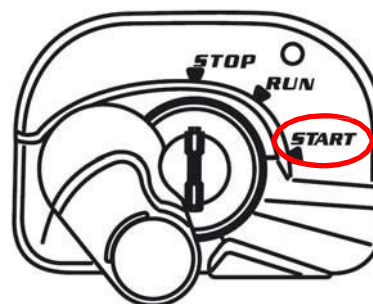
Note:

If the revision numbers don't match, the update was not successful. Repeat the update procedure starting with step 45.



Step 59:

Start the engine and let it run for about 5min.
In case of any trouble, repeat the software update procedure.

**Step 60:**

Hand over the updated operator's manual to the customer and scrap the original one.
Explain to the customer:

- the change of water level warning pattern
- the maintenance procedure and interval of the new filtration system
- the importance of using EN-590 complying (sulphur fuel <10ppm)
- the importance of fuel contamination prevention
- the importance of using Kubota genuine filters.

C. Spare Part Information

Part number	Part name	Qty
RD829-9950-0	FILTER, KIT	1
RD829-9749-0	BRACKET	1
RD828-5150-0	FILTER, ASSY	1
01125-5082-5	BOLT, W SEMS	2
09661-7020-0	TUBE, FUEL	1
RB238-5136-0	TUBE, FUEL	1
3C131-4246-0	CONNECTOR(HOSE)	1
09661-7040-0	TUBE, FUEL	1
RC788-5145-0	TUBE	1
09664-4038-0	TUBE, FUEL	1
RD829-5163-0	TUBE	1
14911-4275-0	CLIP, PIPE	6
14971-4275-0	CLIP, PIPE	2
14781-4279-0	CAP	1
14971-4275-0	CLIP, PIPE	1

Part number	Part name	Qty
RD829-9550-0	SEPARATOR, KIT	1
RD829-9551-0	BRACKET	1
01123-5082-0	BOLT, SEMS	1
RD451-5140-0	FILTER, ASSY(W, SEPARATOR)	1
04013-5008-0	WASHER, PLAIN	1
01123-5087-5	BOLT, SEMS	1
09661-5018-0	TUBE, FUEL	1
05122-5083-0	PIN, JOINT	2