

For Earth, For Life



KUBOTA Technical Support centre Europe

Benoît Weiss
KTSE, Manager

Keiichiro Yamamoto
KTSE, General Manager

Zweibrücken
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SERVICE – BULLETIN

Reference-N°: KTSE - SB - 1504

Preventive Measures against hydraulic Gear Pump Shaft breakage

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

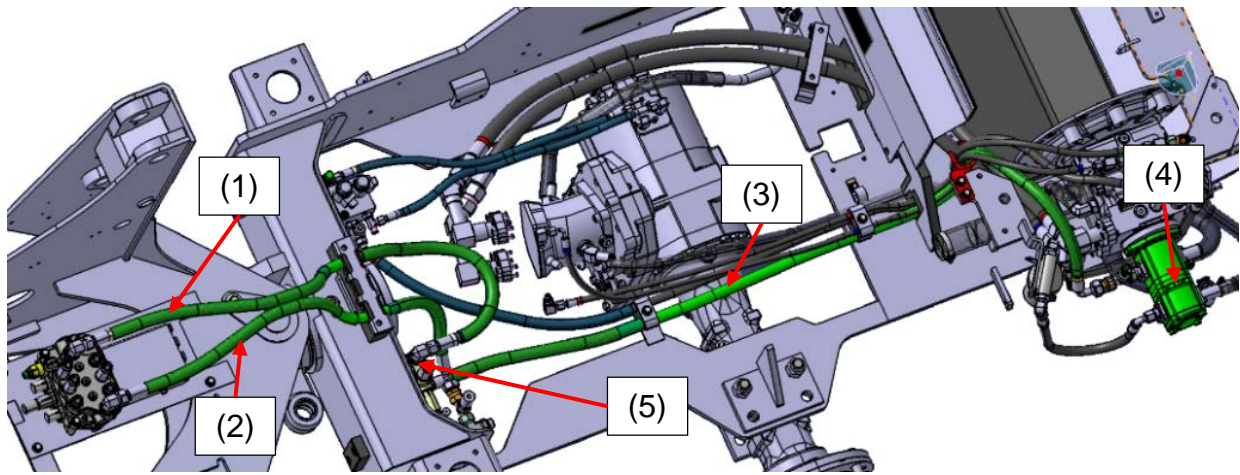
Model	Serial N°
R065	See list at the end of the bulletin

A. Subject

It has been noticed that the gear pump drive shaft provides insufficient torque resistance against pressure peaks. In the worst case the drive shaft can break.

As series countermeasure, a new gear pump with improved drive shaft torque resistance has been adopted. Additionally the back pressure in the gear pump's hydraulic circuit has been lowered by increasing the inner diameter of the main hydraulic hoses. Finally, the priority valve's machining process was stabilized in order to avoid the possibility of surge pressure generation.

We herewith inform you the preventive measures you need to take with highest priority on machines prior to above improvements.



Main improvement points:

- (1) Hydraulic hose priority valve -> control valve
- (2) Hydraulic hose control valve -> hydraulic tank
- (3) Hydraulic hose gear pump -> priority valve
- (4) Gear pump
- (5) Priority valve

B. Service Information

⚠ WARNING:

To avoid personal injury:

- Park the machine on a flat and level ground.
- 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.

Repair outline:

THE MANDATORY ACTIONS REQUESTED IN KTSE-SB-1504 (PRESENT ONE) AND KTSE-SB-1505 MUST BE TAKEN AT THE SAME TIME.

Case A- Systematic actions to be carried systematically on all affected units

A1- Test the priority valve for surge pressure generation. This test (very specific operation, not usual during normal machine operation) will reveal if the priority valve needs replacement or not.

Note: as the priority valve replacement need is estimated to be very rare, it is not necessary to order and take it to the machine beforehand. In worst case, although its efficiency would be slightly lowered, the upgraded pump installed can resist to the surge pressure generated by a bad priority valve. Therefore, a bad priority valve can be replaced during a later 2nd machine visit and there will be no machine downtime between the two visits.

A2- Replace the hydraulic hoses.

A3- Replace the gear pump.

Case B- Actions to be carried out during a second machine visit only on machines where the test A1 revealed that the priority valve needs replacement

B1- Replace the priority valve.

B2- Replace the gear pump again (to guarantee the full pump efficiency).

Tools:



(1) Allen wrenches 14mm, 8mm, 5mm (2x)	(2) Side cutter
(3) Claw type wrenches 27mm, 19mm, mandrel	(4) Combination wrench 27mm, 22mm
(5) Ratchet ½', socket 14mm (2x) Extensions 250mm and 75mm Joint	(6) Vacuum pump
(7) Connector M33x2 for vacuum pump	(8) Wrenches 27/24mm, 32/30mm (2x)
(9) Ratchet ring spanners 17mm, 14mm, 12mm	(10) Ratchet 3/8', socket 7mm
(11) Plastic hose clamp pliers for hose diameter 30mm (2x), 60mm (1x)	(12) Torque wrenches 5N·m -50N·m, 20N·m - 200N·m

Not shown items:

Car creeper, male and female plugs thread size DKOL8, DKOL15 and DKOL18

Note:

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

Case A: Actions to be carried out systematically on all units

Step 1:

(testing the priority valve)

Start the engine and, with parking brake engaged, increase engine rpm to max rpm. Lift the front arm up to end stroke (1) and steer the machine completely to the right (2). Keep the pilot lever activated in arm lift position and simultaneously keep force to right end stroke on the steering wheel for about five seconds. Then, with the pilot lever still activated, just get off your hands from the steering wheel (do not operate it in opposite direction).

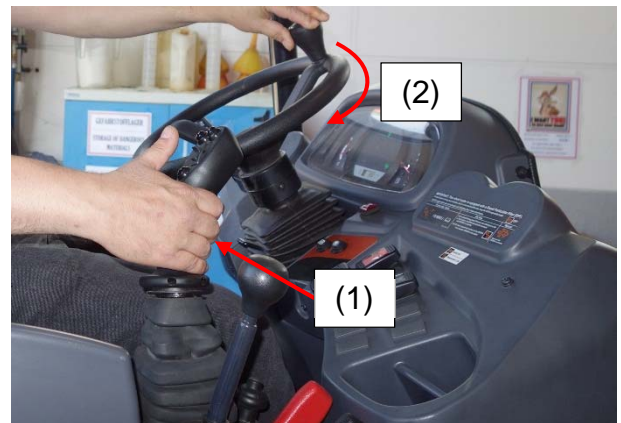
Repeat this procedure twice.

Judgment:

Case A- Normally, no damage would happen and all functions would be OK. This indicates that the priority valve is OK and does not require replacement. In this case please proceed to all steps (2 to 69) of Case A.

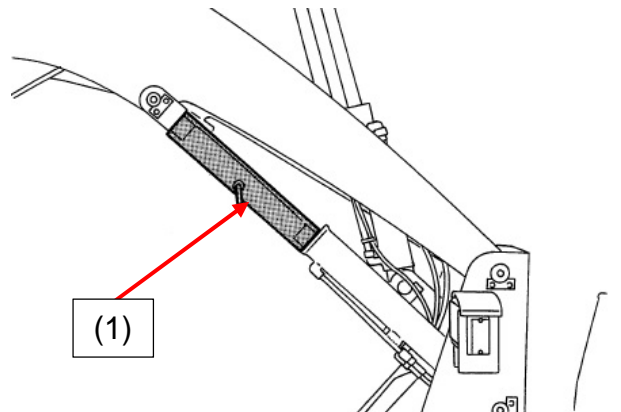
Case B- In very rare cases, some noise will occur and F/A and steering would not function anymore. This indicates that the gear pump shaft is broken because of a bad machining inside the priority valve. In those cases, please:

- immediately proceed to all further steps (2 to 69) of case A. The machine will be usable even with the bad priority valve. There will be no additional machine downtime.
- upon order and receipt of additional parts required for case B, revisit the machine and proceed to all steps (1 to 38) of case B.



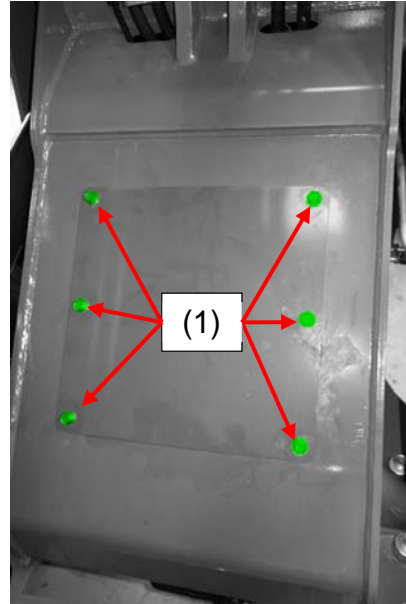
Step 2:

With the front arm lifted, attach the lift arm support device (1).



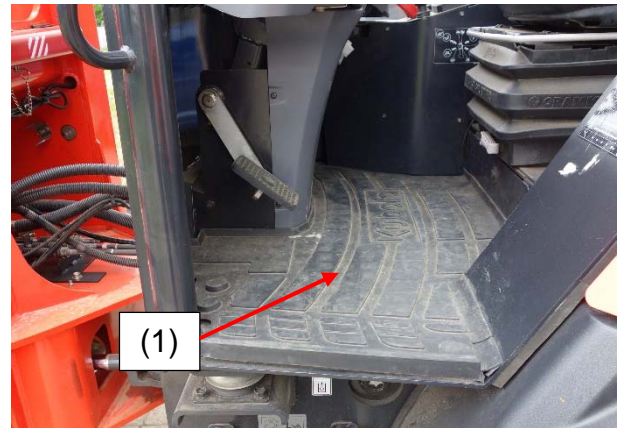
Step 3:

Remove the six bolts (1) and take off the front frame cover.



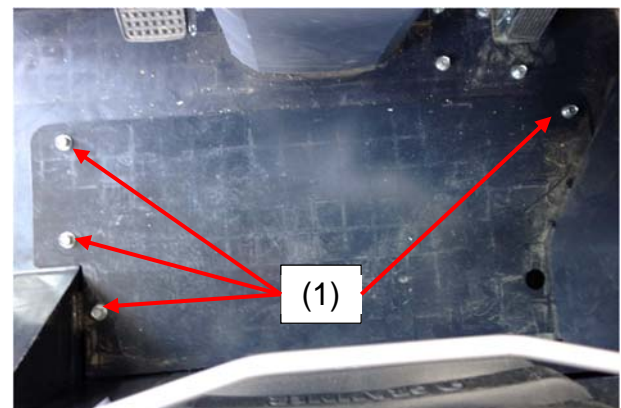
Step 4:

Remove the floor mat (1).



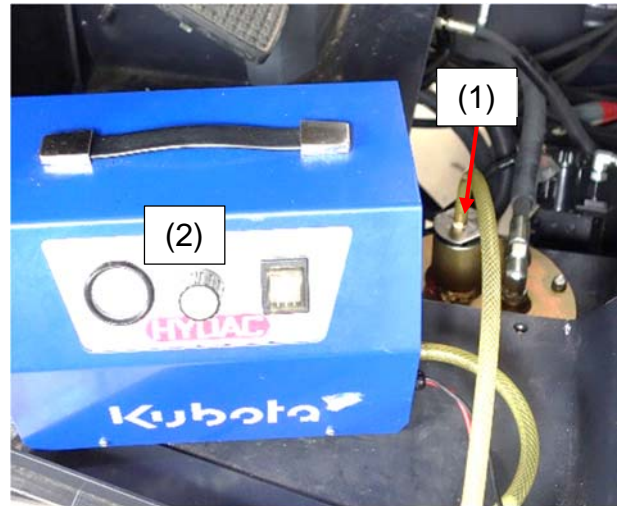
Step 5:

Remove the four bolts (1) and take out the floor plate.



Step 6:

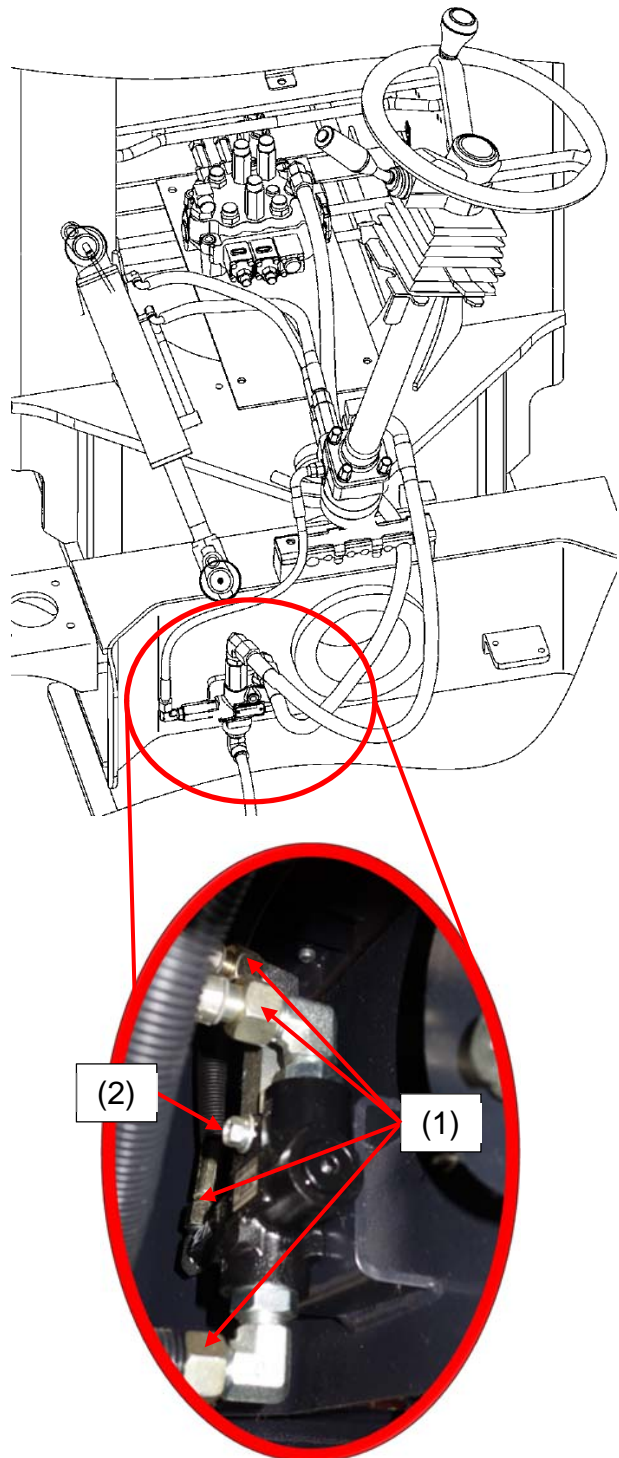
Remove the original plug of the hydraulic tank cover, install the vacuum pump adapter (1) and connect a vacuum pump (2).

**Step 7:**

Remove the four hydraulic hoses (1) from the priority valve and plug the connections.

Step 8:

Remove the fixation bolt (2), then the priority valve.



Step 9:

Fix the priority valve in a vice and remove the adapters in sequence (1), (2), (3).

Note:

The adapters (1) and (3) will be replaced by new ones. The adapter (2) will be reused, but must be removed temporary.

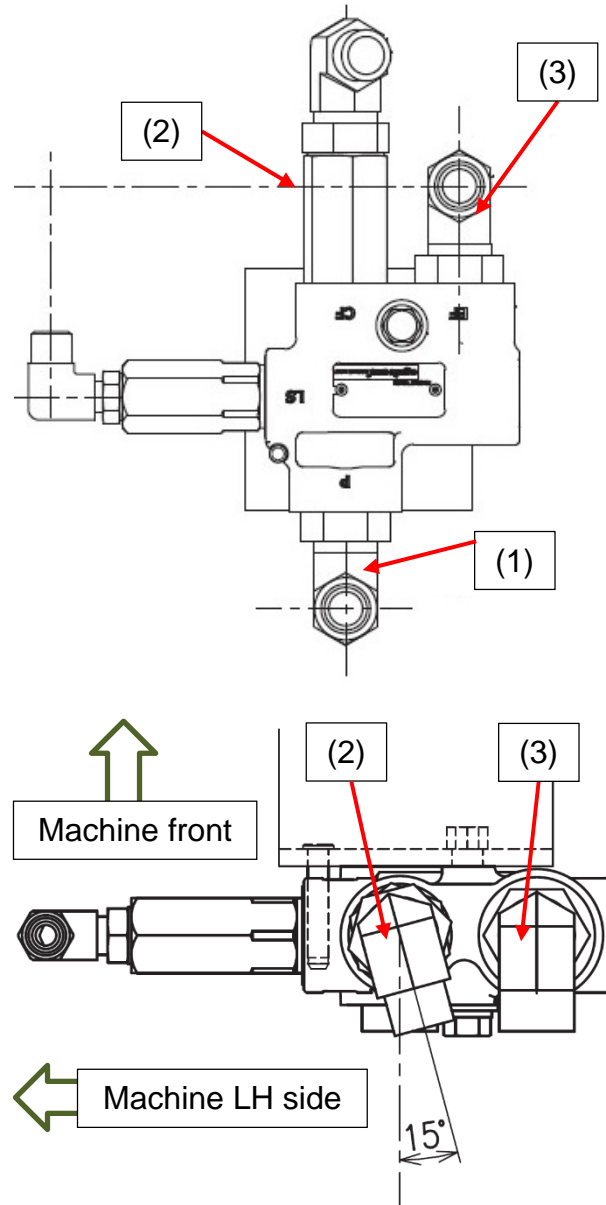
Step 10:

Install the new adapters (1) and (3) (R5611-6251-3). Reinstall the original adapter (2) again. The adapter (2) should be mounted with a 15° angle.

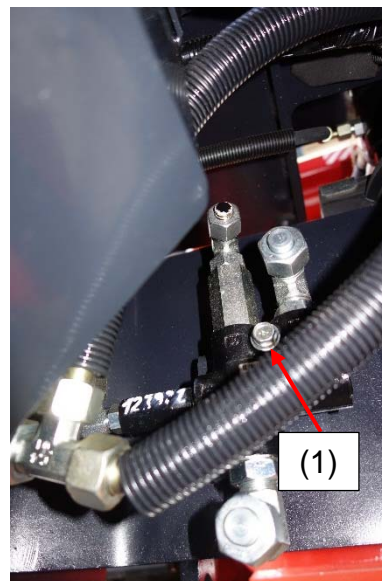
Tightening torque:

Position 1, 3: 115N·m-125N·m

Position 2: 70N·m-75N·m.

**Step 11:**

Reattach the priority valve and fix it with the bolt (1).



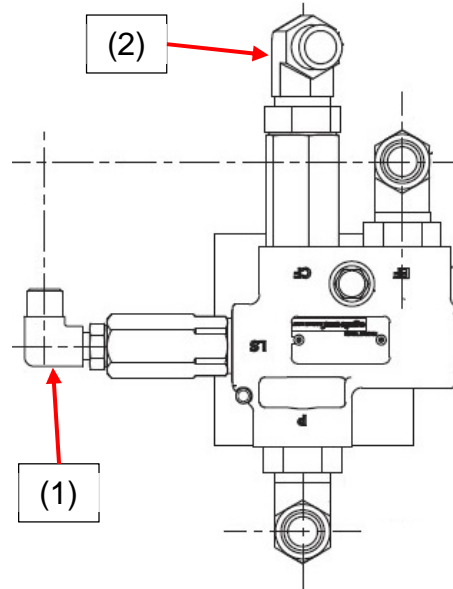
Step 12:

Connect the hoses to the adapters (1) and (2).

Tightening torque:

Position 1: 15N·m-20N·m

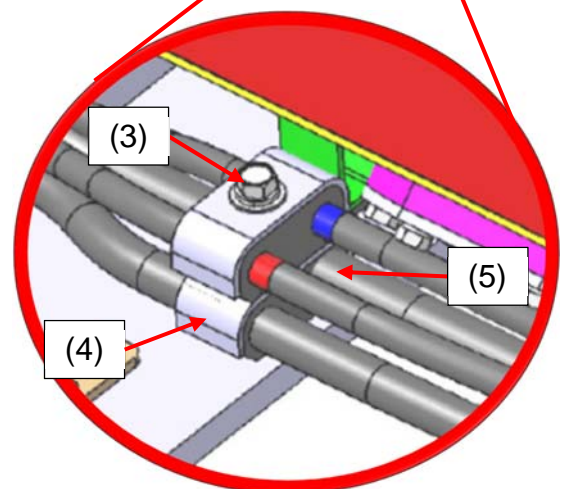
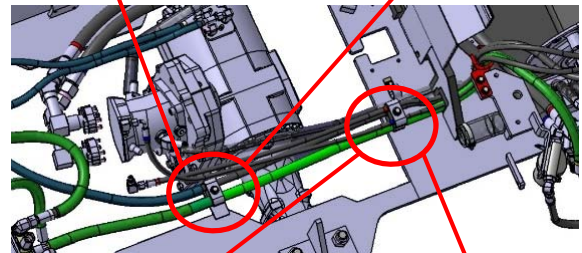
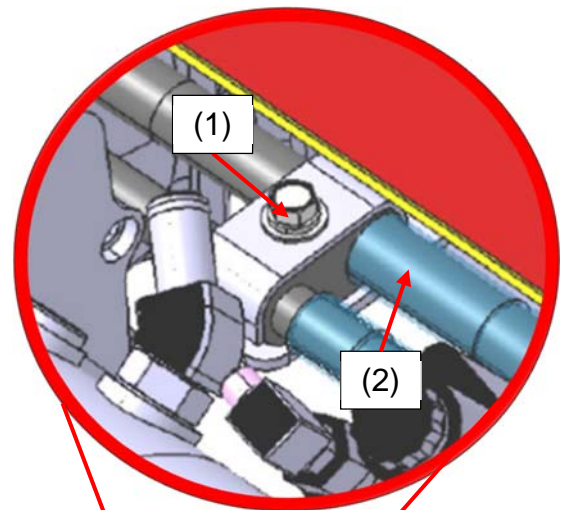
Position 2: 40N·m-45N·m

**Step 13:**

Remove the hose clamp mounting bolt (1) and take the hose (2) out of the clamp.

NOTE:

The fixation bolt of this clamp will be reused.

**Step 14:**

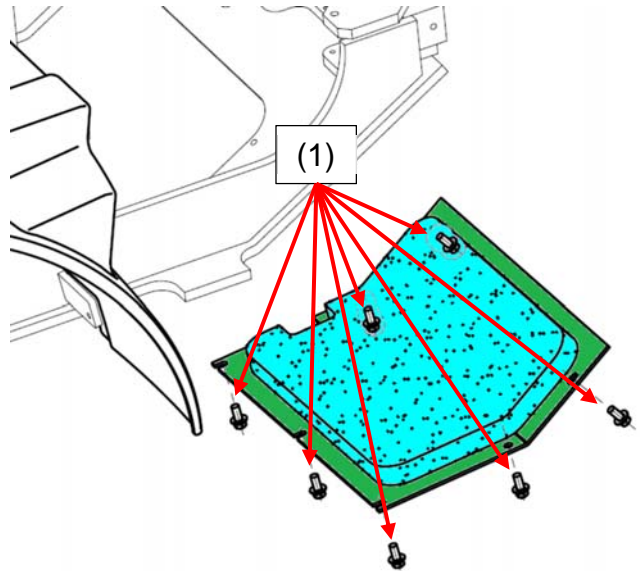
Remove the mounting bolt (3), lift the upper metal retainer and the upper rubber part with the hoses inside to gain access to the lower metal retainer (4). Take the hose (5) out of the clamp.

Note:

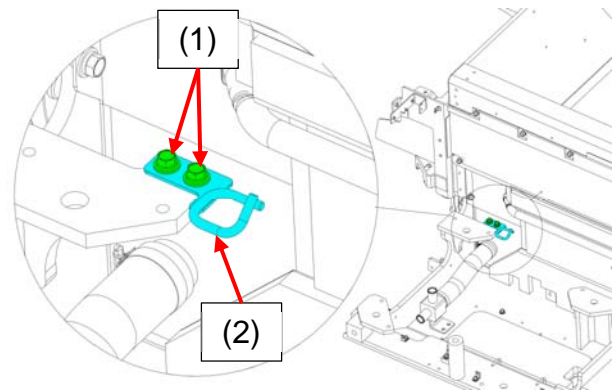
The fixation bolt (3) of this clamp will be reused.

Step 15:

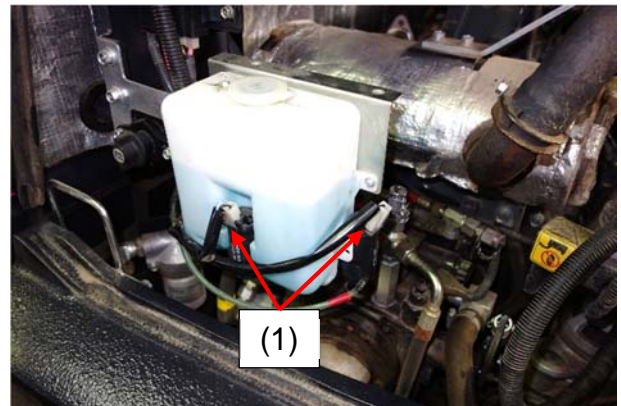
Remove the seven bolts (1) and the cover under the engine.

**Step 16:**

Remove the two bolts (1) of the hose bracket (2). Pull out the hydraulic hoses and remove the bracket. The bracket can be scrapped.

**Step 17:**

(This step is only for cabin version).
Disconnect the two electric connectors (1) of the water tank.

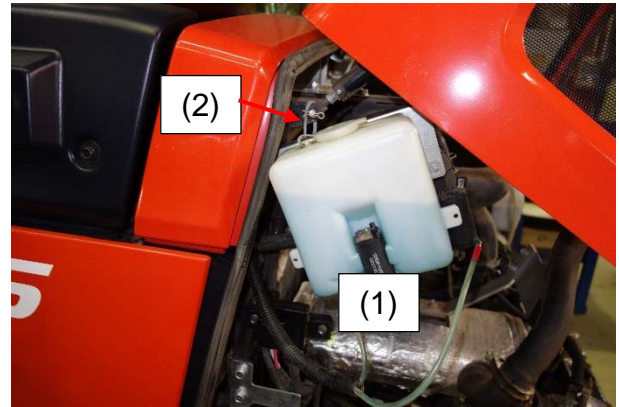
**Step 18:**

(This step is only for cabin version).
Remove the two bolts (1) of the water tank stay.



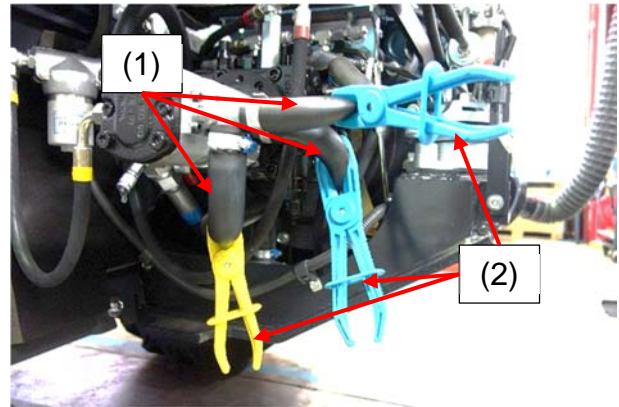
Step 19:

(This step is only for cabin version).
Attach the water tank (1) temporary with a cable tie (2) to the bonnet to avoid spilling and keep it in an upright position.

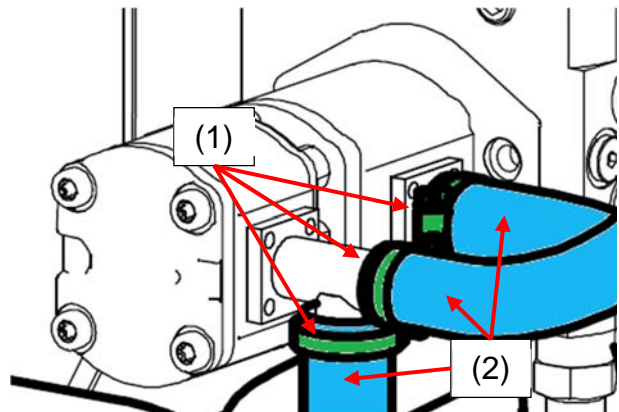
**Step 20:**

Close the three suction hoses (1) at the gear pump with plastic hose clamp pliers (2).

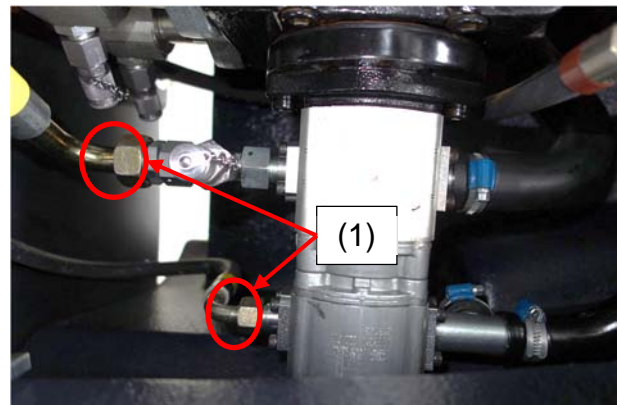
(for better understanding, the picture shows the situation without counterweight)

**Step 21:**

Loosen the three hose bands (1) and remove the three suction hoses (2).

**Step 22:**

Remove the two hydraulic hoses (1).

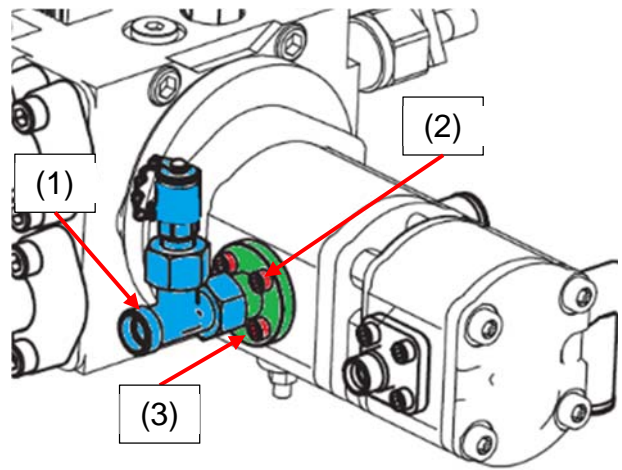


Step 23:

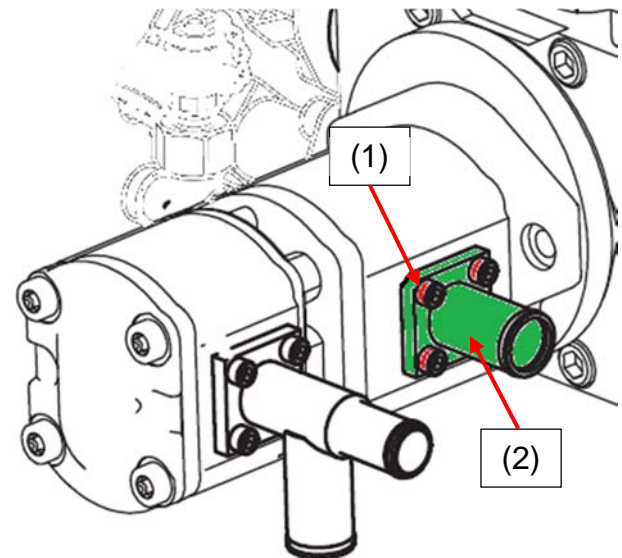
Remove the T-joint (1).

Step 24:

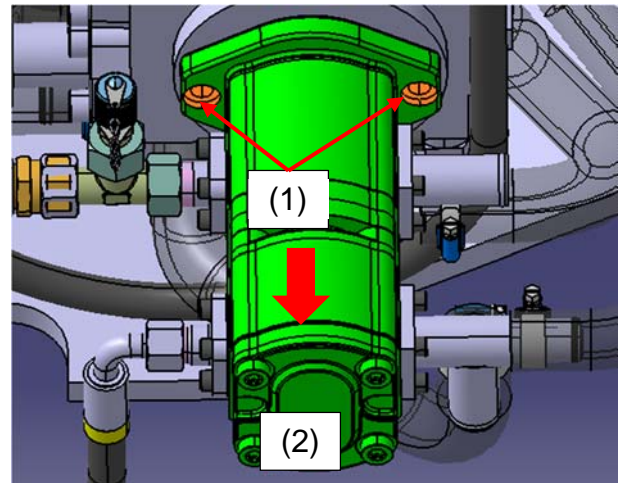
Remove the four bolts (2) and the flange (3).

**Step 25:**

Remove the four bolts (1) and the flange (2). These parts can be scrapped.

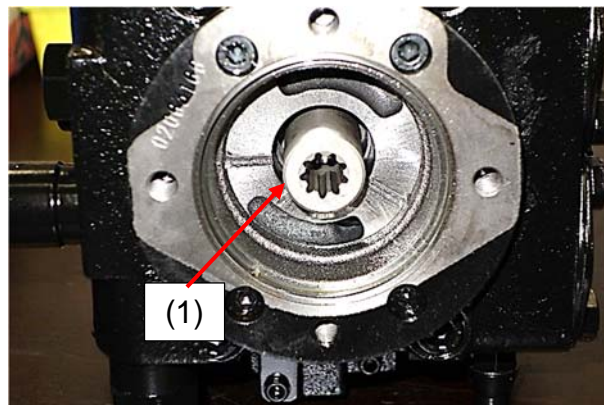
**Step 26:**

Remove the two bolts (1) and pull out the gear pump assembly (2) from the HST pump.



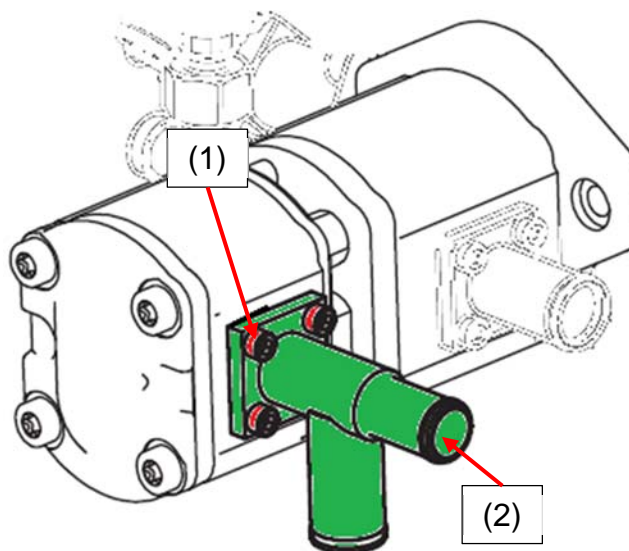
Note:

If the coupling (1) remains on the HST pump, remove and scrap it.



Step 27:

Remove the four bolts (1) and the flange (2) from the gear pump.



Step 28:

Remove the four bolts (1) and the flange (2) of the gear pump (R5511-7601-2).

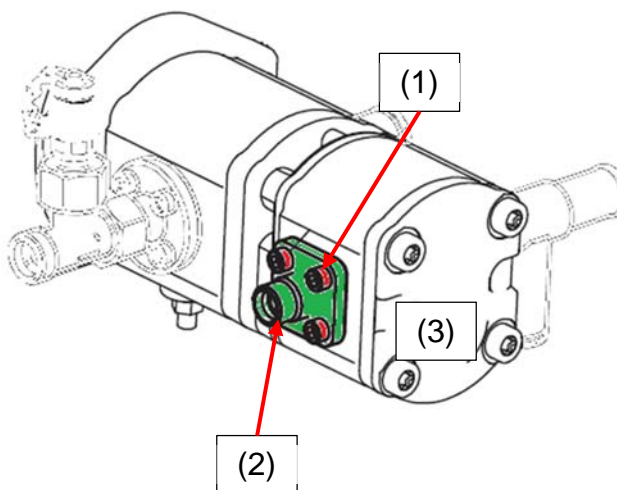
Step 29:

Install the flange (2) with the four bolts (1) onto the new gear pump (3) (R5511-7601-2).

Tightening torque: 7,8N·m-9,3N·m.

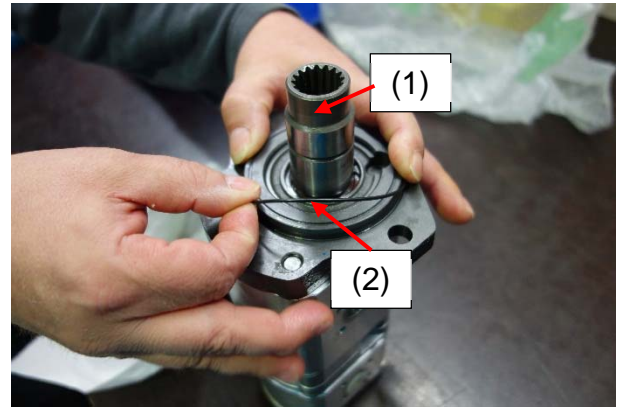
Note:

Ensure correct seating of the O-ring!



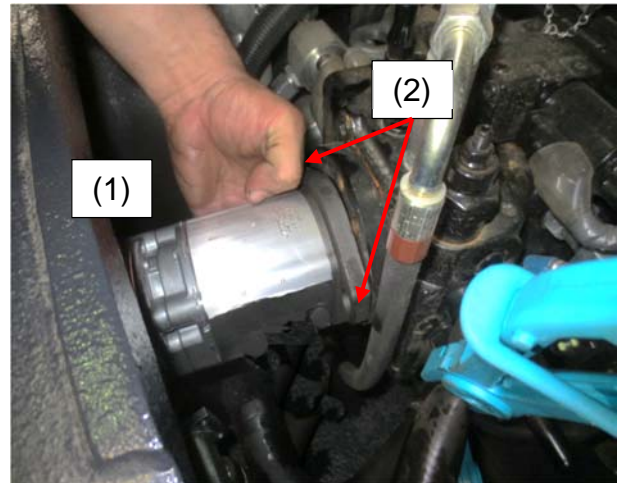
Step 30:

Put the new coupling (1) (R5511-7588-2) onto the shaft of the gear pump and install a new O-ring (2) (R5611-7574-0) on the housing.

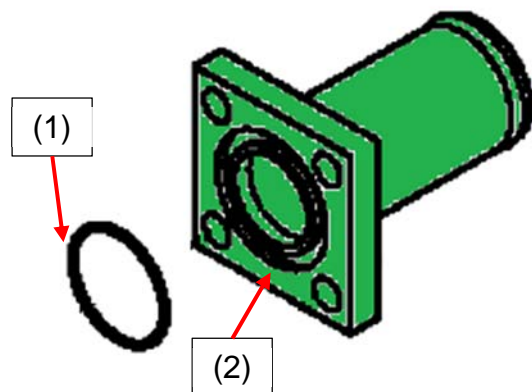
**Step 31:**

Attach the gear pump (1) to the HST pump and tighten the two bolts (2).

Tightening torque: 43N·m.

**Step 32:**

Place the new O-ring (1) (04817-0032-0) into the groove of the new flange (2).

**Step 33:**

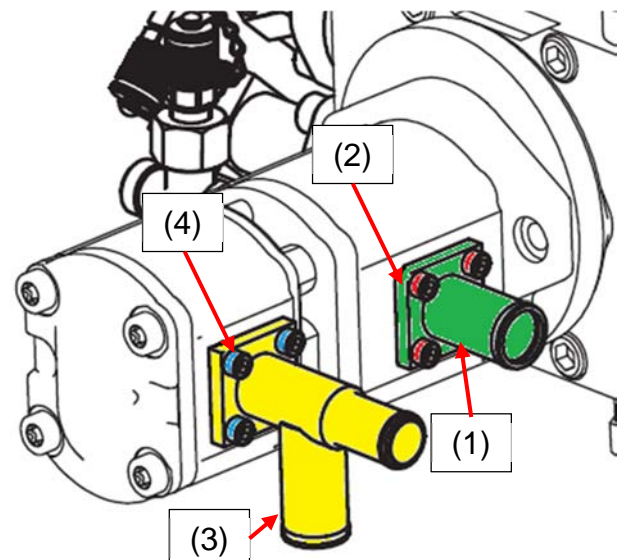
Assemble the new flange (1) (R5511-6395-2) with the four new bolts (2) (01311-1082-0) to the gear pump.

Tightening torque: 17,7N·m-20,6N·m.

Step 34:

Assemble the flange (3) with the four bolts (4).

Tightening torque: 7,8N·m-9,3N·m.



Step 35:

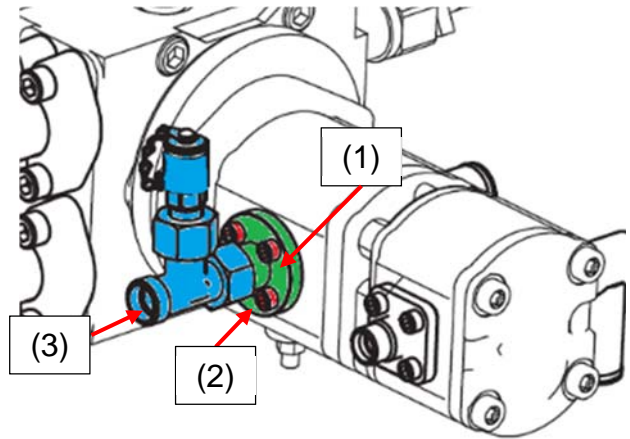
Assemble the flange (1) with the four bolts (2) to the gear pump.

Tightening torque: 7,8N·m-9,3N·m.

Step 36:

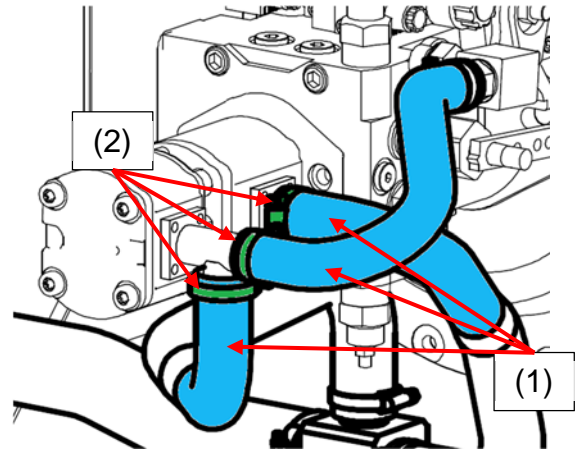
Attach the T-joint (3) to the flange.

Tightening torque: 7,8N·m-9,3N·m.

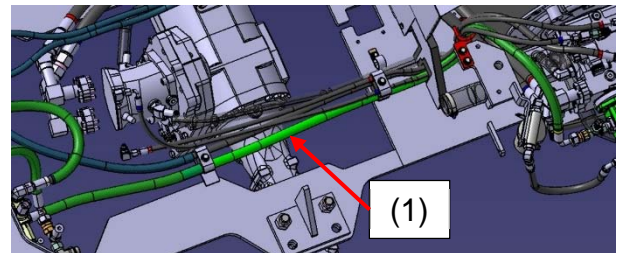
**Step 37:**

Attach the three suction hoses (1) to the flanges and tighten the hose bands (2).

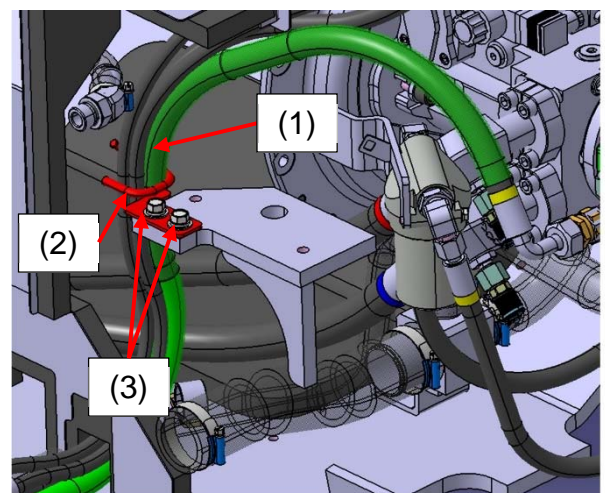
Tightening torque: 4,0N·m.

**Step 38:**

Replace the hydraulic hose (1) connecting hydraulic pump and priority valve by the new one (R5511-6321-4) without fixing it with the clamps.

**Step 39:**

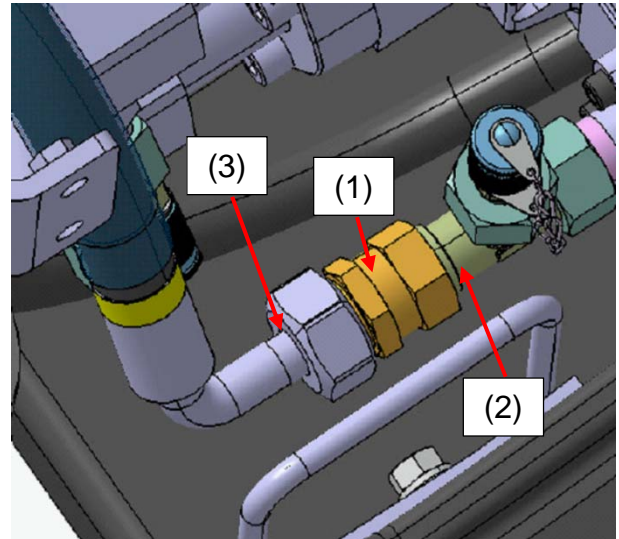
Insert the hydraulic hoses into the hose bracket (1) and fix the new bracket (2) (R5611-6416-2) with two bolts (3).



Step 40:

Attach the new adapter (1) (R5611-6262-0) to the T-joint (2) at the gear pump.

Tightening torque: 70N·m-80N·m.

**Step 41:**

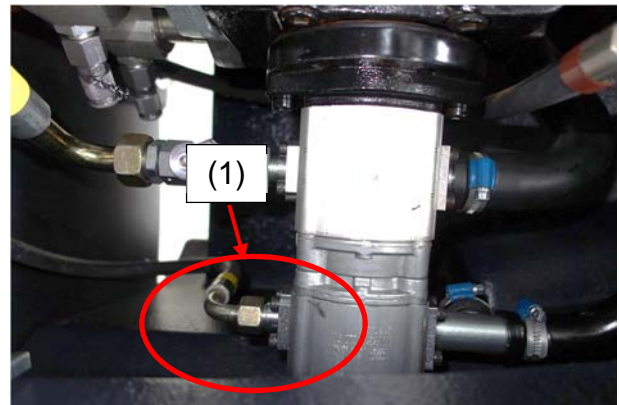
Connect the new hydraulic hose (3) (R5511-6321-4) to the adapter (2).

Tightening torque: 50N·m-55N·m.

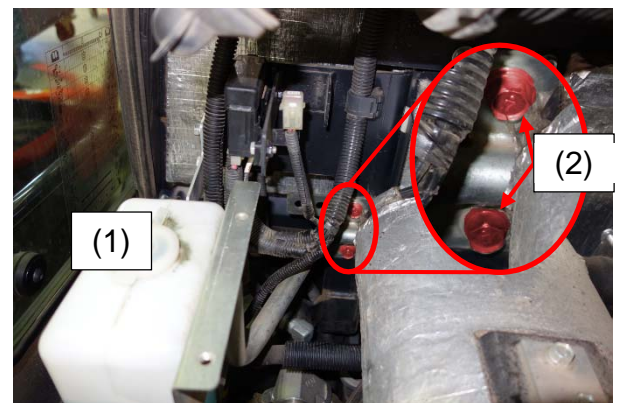
Step 42:

Reconnect the hydraulic hose (1) to the gear pump.

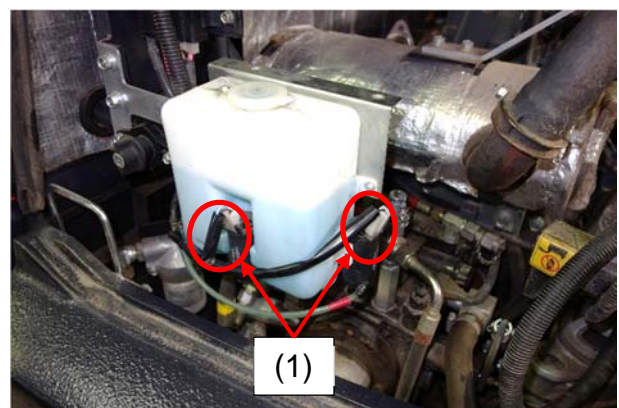
Tightening torque: 40N·m-45N·m.

**Step 43:**

(This step is only for cabin version).
Fix the water tank (1) with the two bolts (2).

**Step 44:**

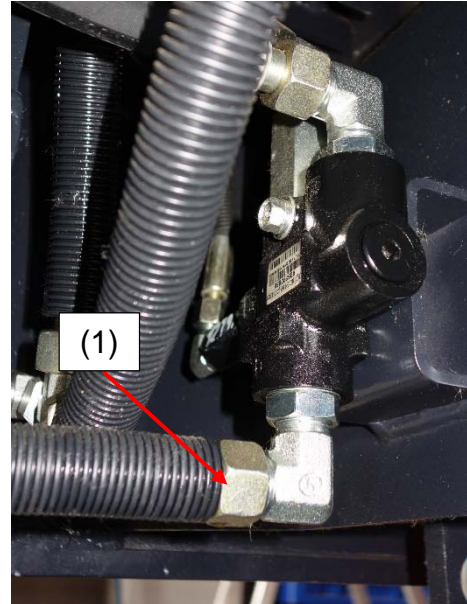
(This step is only for cabin version).
Reconnect the two electric connectors (1) to the pumps of the water tank.



Step 45:

Connect the hydraulic hose (1) to the adapter of the priority valve.

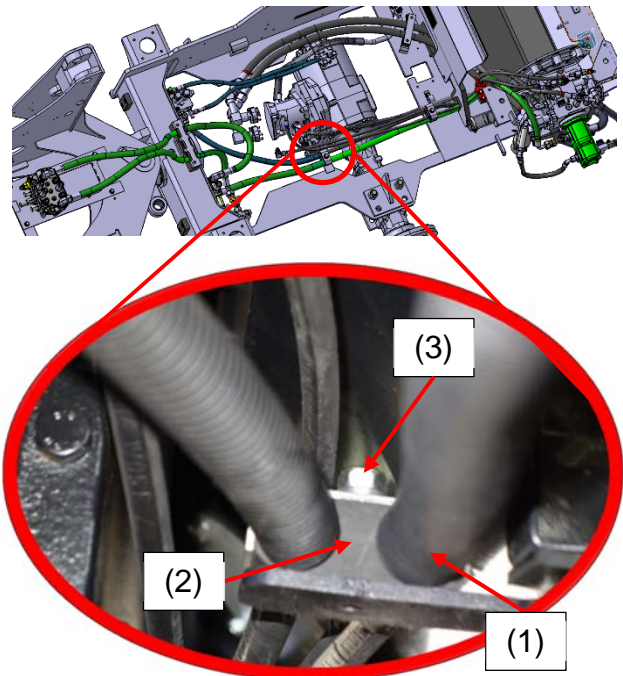
Tightening torque: 50N·m-55N·m.

**Step 46:**

Install the new front clamp (R5611-6425-0, R5611-6427-2). Install the hose (1) into the front clamp (2) and tighten the bolt (3).

Note:

Ensure that the hose (1) does not sag between priority valve and the clamp (2).

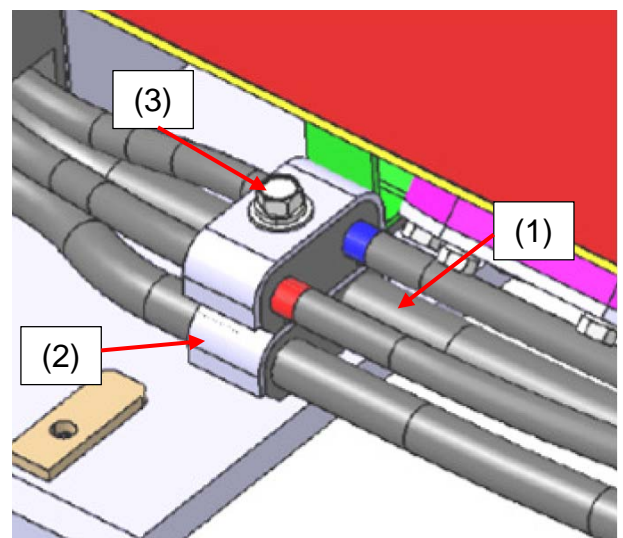
**Step 47:**

Install the new rear lower clamp (2) (R5511-6425-2, R5611-6427-2).

Install the hose (1) into the new rear hose clamp (2) and tighten the bolt (3).

Note:

Ensure that the hose does not sag between the front clamp and the rear clamp (2).

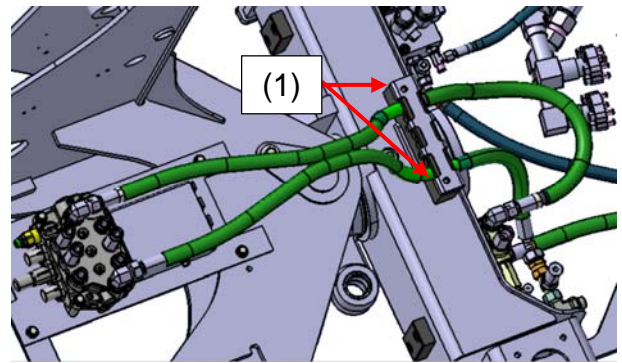


Step 48:

Remove the two bolts (1) of the hose clamp, located at the front cross bar of the rear frame.

Note:

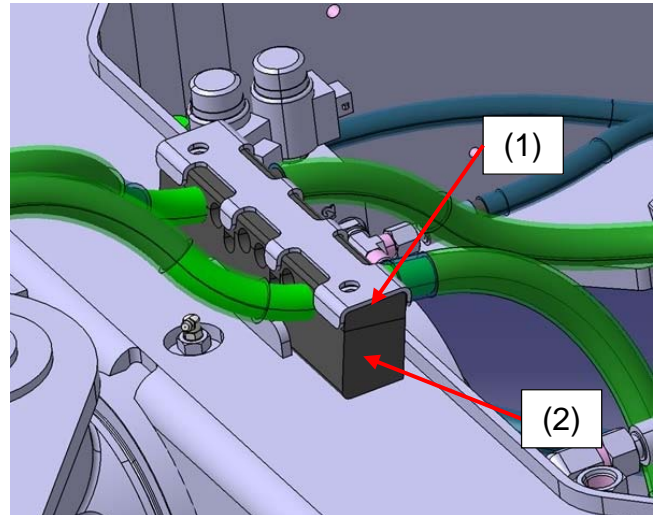
The fixation bolts of this clamp will be reused.

**Step 49:**

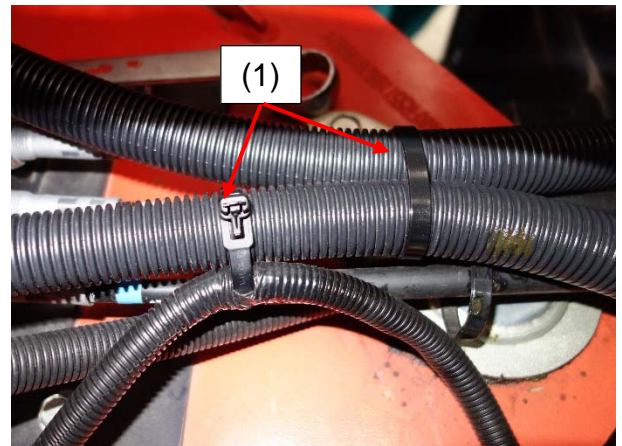
Remove the metal retainer and take out the upper rubber part (1). Then replace the lower rubber part (2) of the hose clamp by the new one (R5611-6434-2).

Note:

Pay attention to the mounting direction of the hose clamp!

**Step 50:**

Remove the two cable ties (1) on the front frame and scrap them.

**Step 51:**

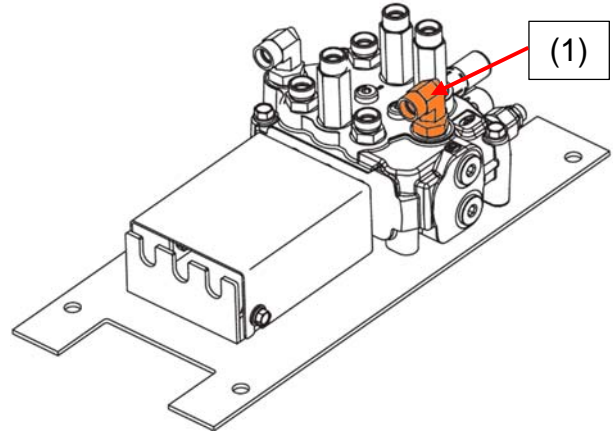
Remove the hydraulic hose (1) from the main control valve (P-port).



Step 52:

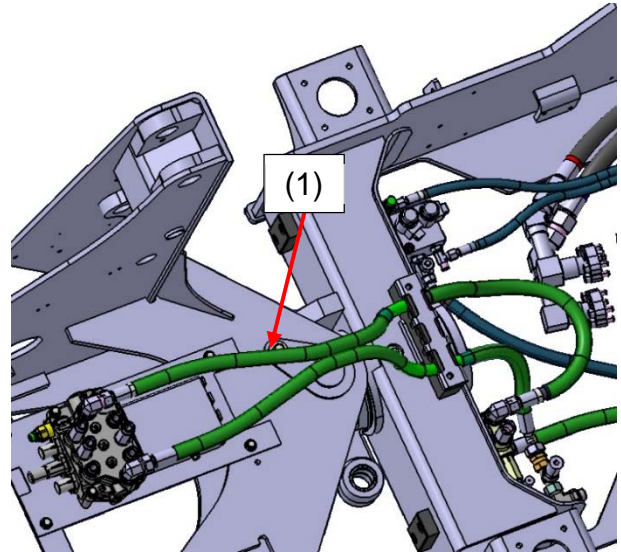
Replace the adapter (1) on the main control valve by the new one (R5611-6251-3).

Tightening torque: 115N·m-125N·m.

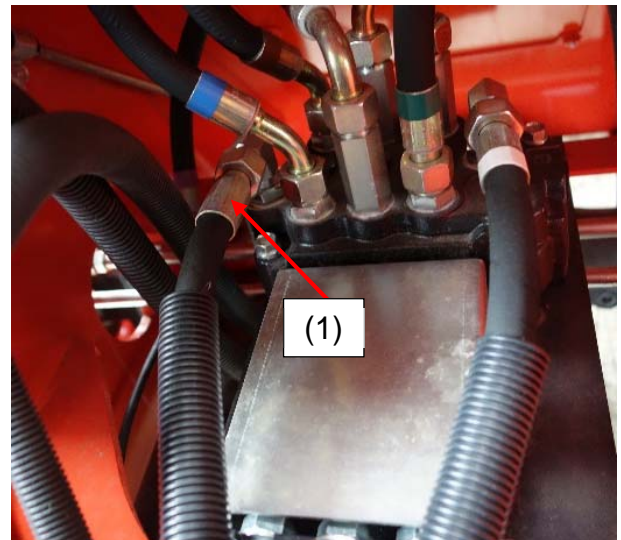
**Step 53:**

Install the new hydraulic hose (1) (R5611-6323-3) and connect it to the priority valve as well as on the main control valve.

Tightening torque: 50N·m-55N·m.

**Step 54:**

Disconnect the hydraulic hose (tank line) (1) from the main control valve and install a plug on the control valve adapter.



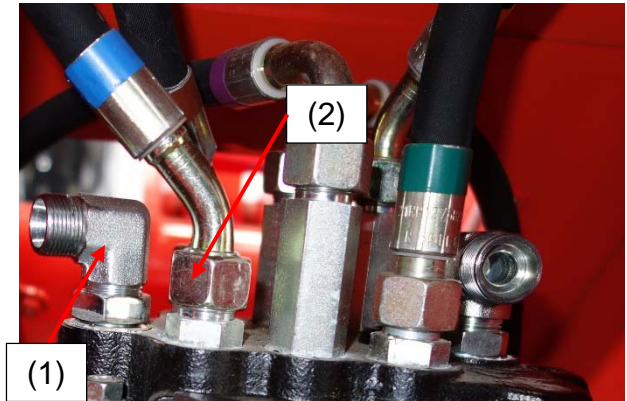
Step 55:

Replace the adapter (1) of the tank line on the main control valve by the new one (R5611-6251-3). To change the adapter it is necessary to temporarily disconnect the hose (2). Reconnect this hose after adapter (1) is replaced.

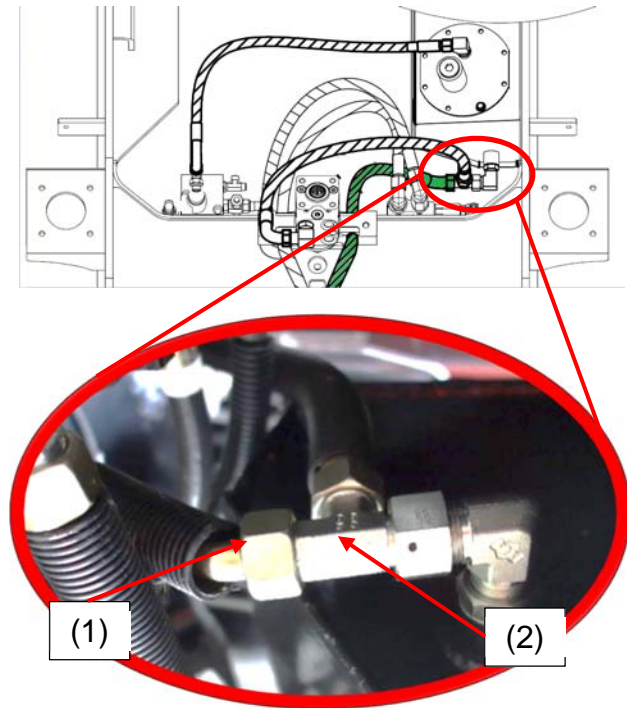
Tightening torque:

Position 1: 115N·m-125N·m

Position 2: 50N·m-55N·m.

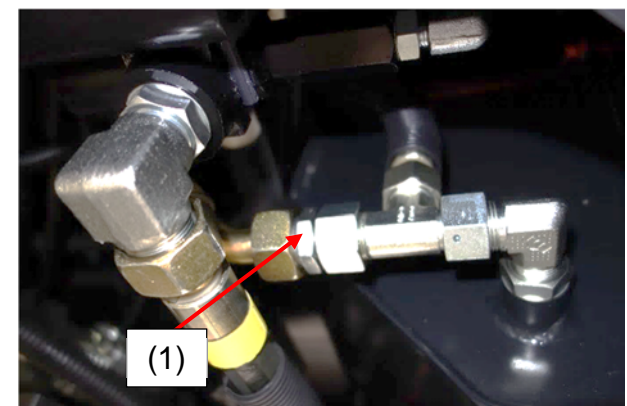
**Step 56:**

Disconnect the hydraulic hose (1) from the hydraulic oil tank T-joint (2).

**Step 57:**

Attach the additional adapter (1) (R5611-6262-0) to the T-joint.

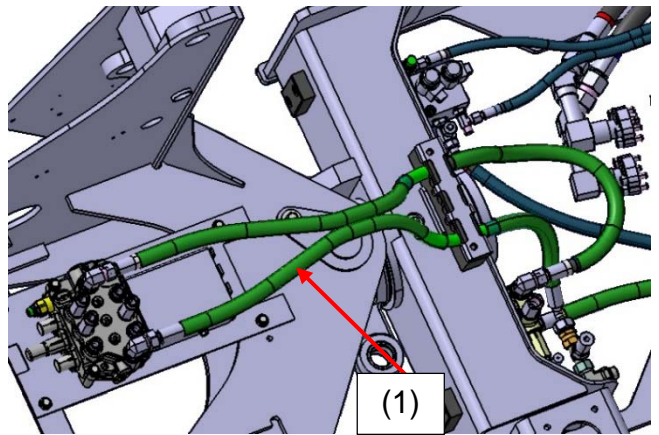
Tightening torque: 70N·m-80N·m.



Step 58:

Route the new hose (1) (R5611-6275-3) from the main control valve to the hydraulic oil tank T-joint. Connect and tighten the hose at both ends.

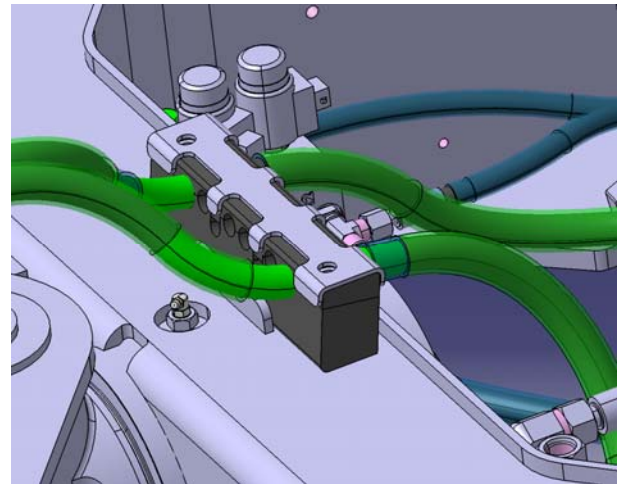
Tightening torque: 50N·m-55N·m.

**Step 59:**

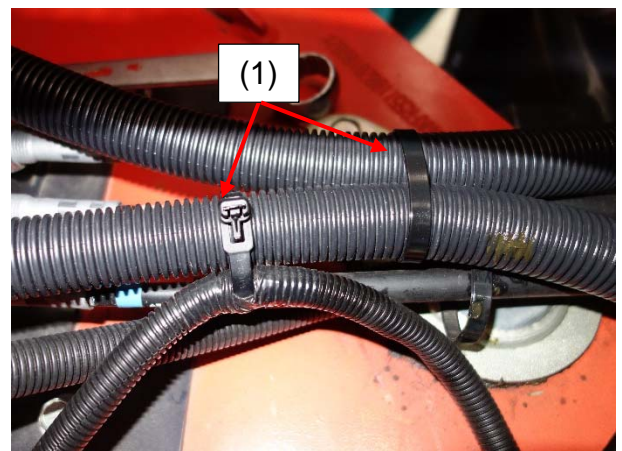
Route the newly installed hoses through the appropriate slots (outer left and right) of the hose clamp. Put the new upper part (R56116433-2) of the clamp into position. Tighten the hose clamp with the two bolts after attaching the steel retainer.

Note:

Pay attention to the mounting direction of the hose clamp!

**Step 60:**

Put the two new cable ties (1) (69481-1119-0) in position and fix them.

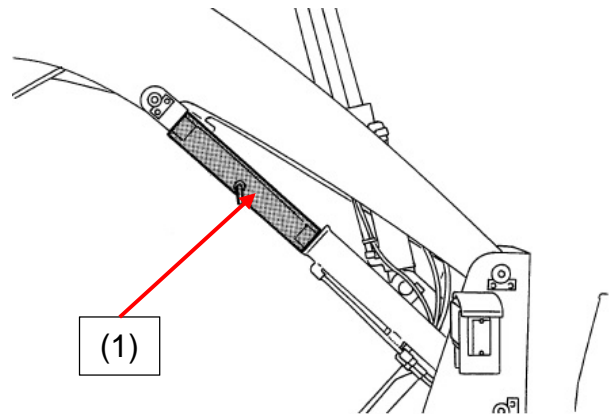
**Step 61:**

Disconnect the vacuum pump and remove its adapter from the hydraulic oil tank cover (1).



Step 62:

Start the engine carefully with idle rpm. Remove the lift arm support device (1) and lower the bucket to the ground. Check all connections for leaks.

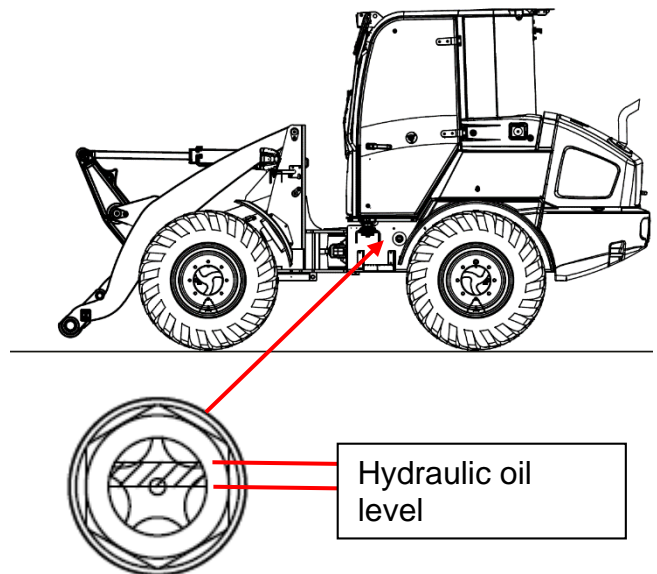
**Step 63:**

Set the machine to the checking position:

- Arm in the lowest position
- Bucket (quick coupler) in crowd position
- Front frame in straight position

Stop the engine and check the oil level in the hydraulic tank, but do not close the hydraulic tank after refilling the oil.

Hydraulic oil level should be filled up $\frac{1}{2}$ to $\frac{3}{4}$ of the gauge glass.

**Step 64:**

Start the engine carefully with idle rpm. Lift up the lift arm, close the bucket and turn the steering to the right. Stop the engine and close the hydraulic tank with the plug.

Installing the tank cover plug in this position is important to avoid vacuum in the hydraulic tank.

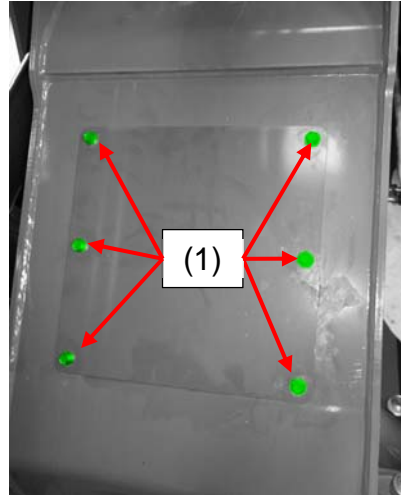
Tightening torque: 40N·m – 45N·m

**Step 65:**

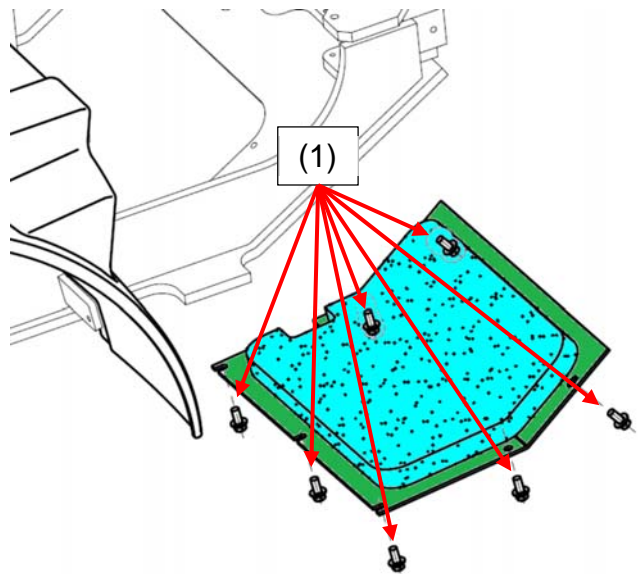
Start the engine and lower the front attachment to the ground, then stop the engine.

Step 66:

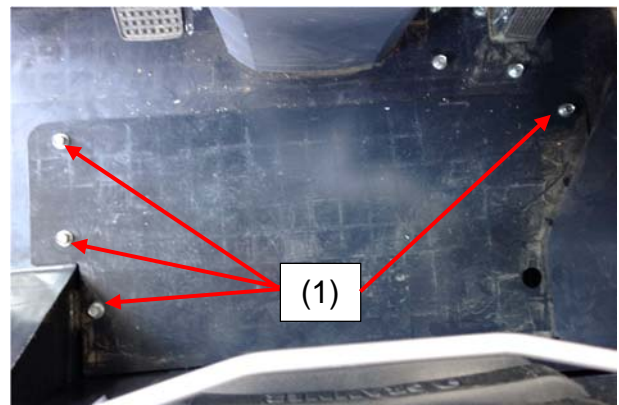
Reattach the cover on the front frame with the six bolts (1).

**Step 67:**

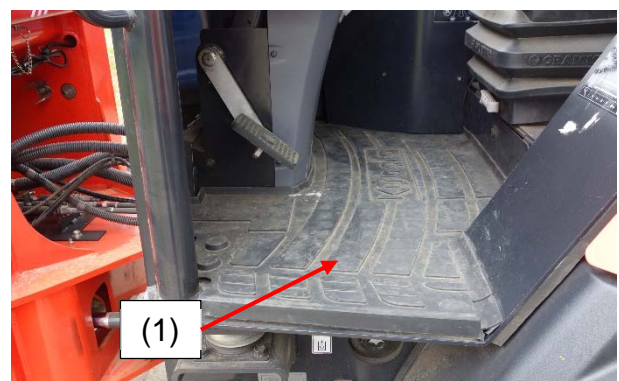
Reattach the engine cover with the seven bolts (1) to the machine.

**Step 68:**

Reattach the floor plate with the four bolts (1).

**Step 69:**

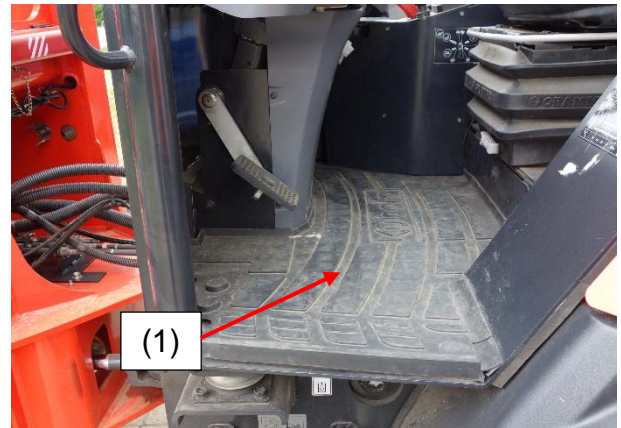
Install the floor mat (1).



Case B: In case the pump shaft was broken during test conducted in Case A, Step 1:

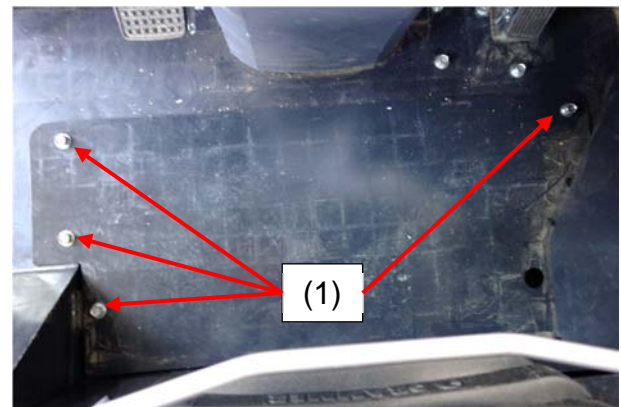
Step 1:

Remove the floor mat (1).



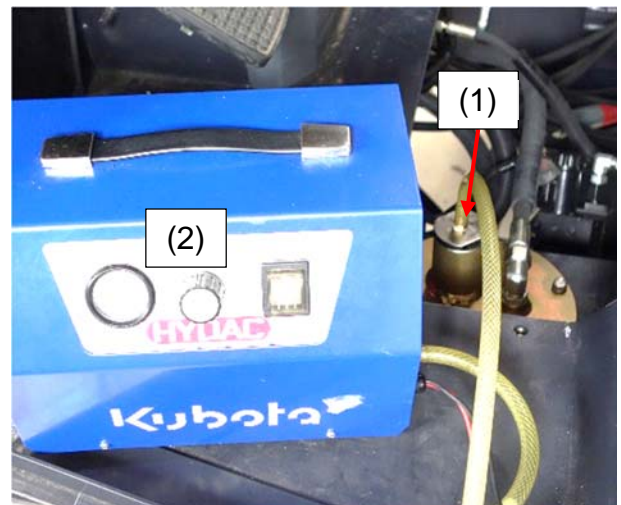
Step 2:

Remove the four bolts (1) and take out the floor plate.



Step 3:

Remove the original plug of the hydraulic tank cover, install the vacuum pump adapter (1) and connect a vacuum pump (2).

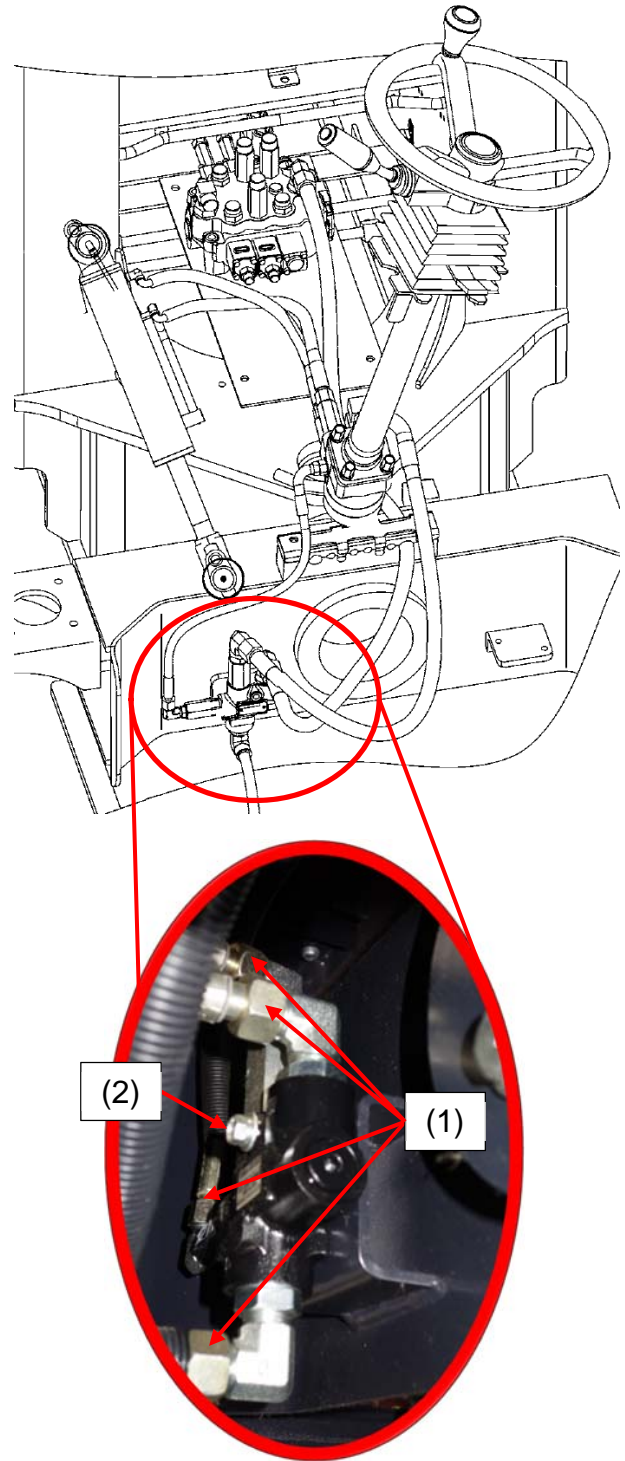


Step 4:

Remove the four hydraulic hoses (1) from the priority valve and plug the connections.

Step 5:

Remove the fixation bolt (2), then the priority valve.



Step 6:

Fix the priority valve in a vice and remove the adapters in sequence (1), (2), (3) and (4).

Step 7:

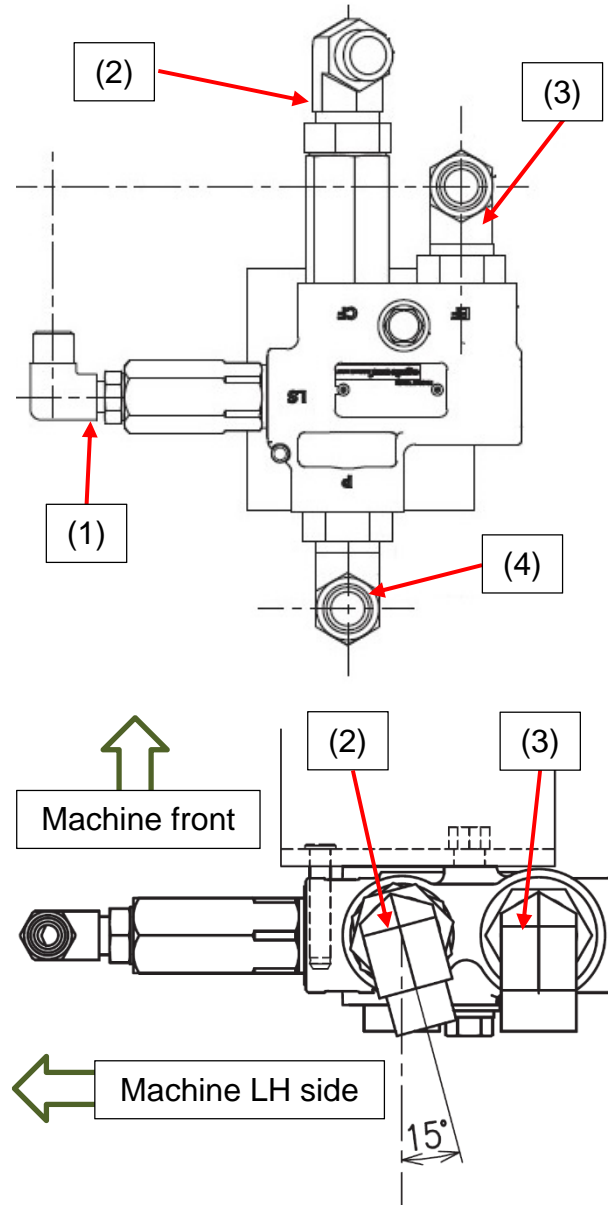
Replace the priority valve by the new one (R5611-6136-0) and reinstall the original adapters again. The adapter (2) should be mounted with a 15° angle.

Tightening torque:

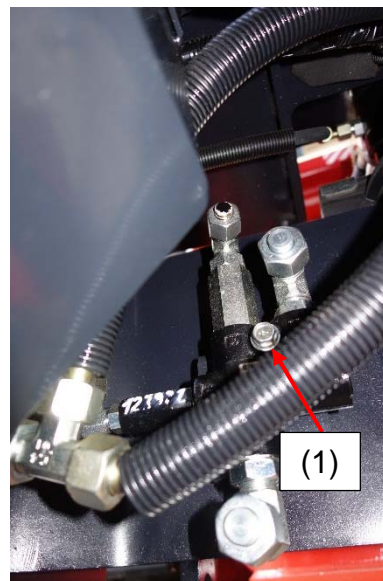
Position 1: 25N·m-30N·m

Position 2: 70N·m-75N·m

Position 3, 4: 115N·m-125N·m.

**Step 8:**

Reattach the priority valve and fix it with the bolt (1).



Step 9:

Remove the plugs from the hoses and connect them onto the adapters.

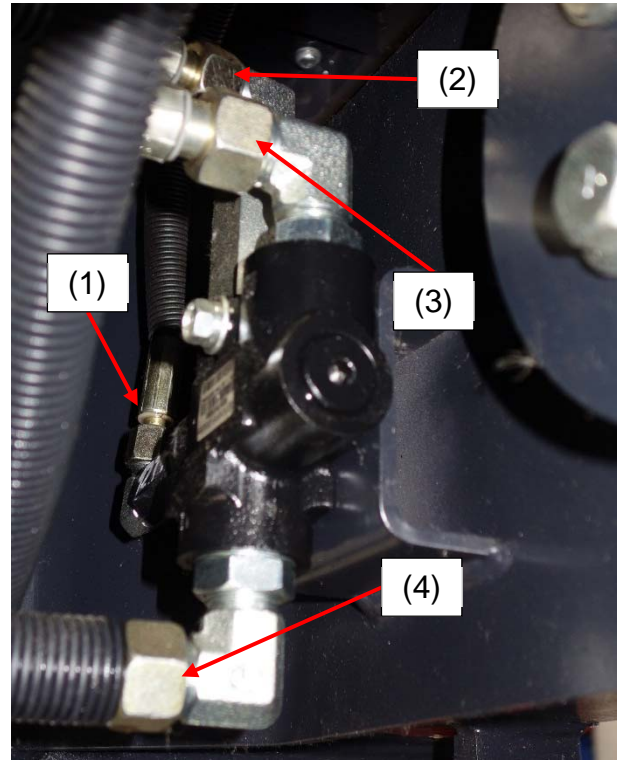
- (1) "LS": from steering valve
- (2) "CF": to steering valve
- (3) "EF": to control valve
- (4) "P": from gear pump

Tightening torque:

Position 1: 15N·m-20N·m

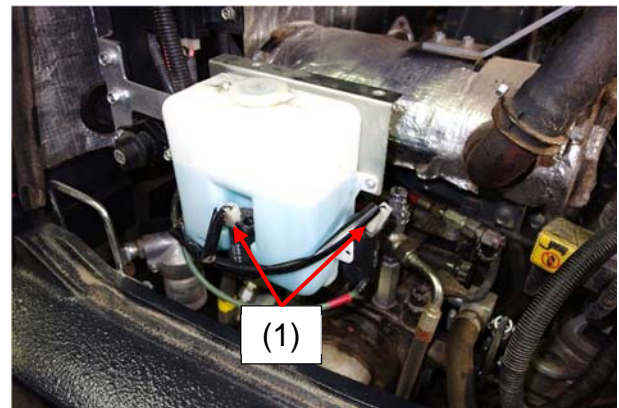
Position 2: 40N·m-45N·m.

Position 3, 4: 50N·m-55N·m.

**Step 10:**

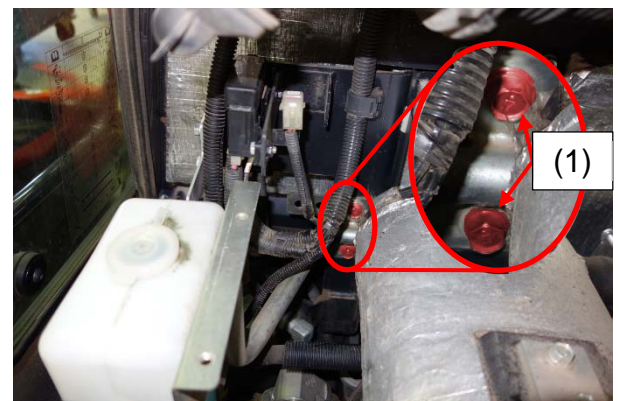
(This step is only for cabin version).

Disconnect the two electric connectors (1) of the water tank.

**Step 11:**

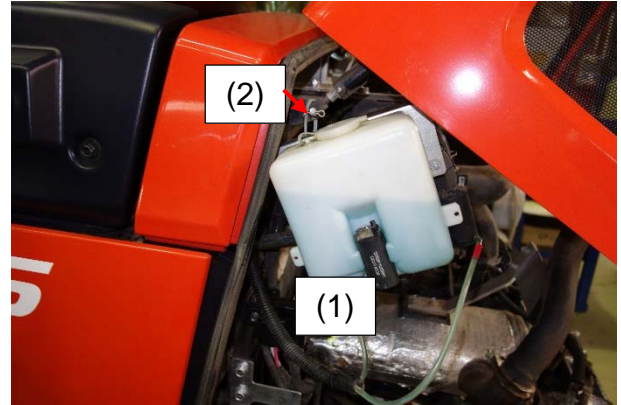
(This step is only for cabin version).

Remove the two bolts (1) of the water tank stay.



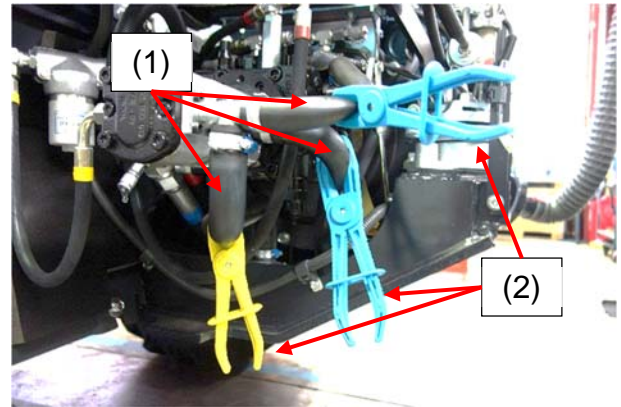
Step 12:

(This step is only for cabin version).
Attach the water tank (1) temporary with a cable tie (2) to the bonnet to avoid spilling and keep it in an upright position.

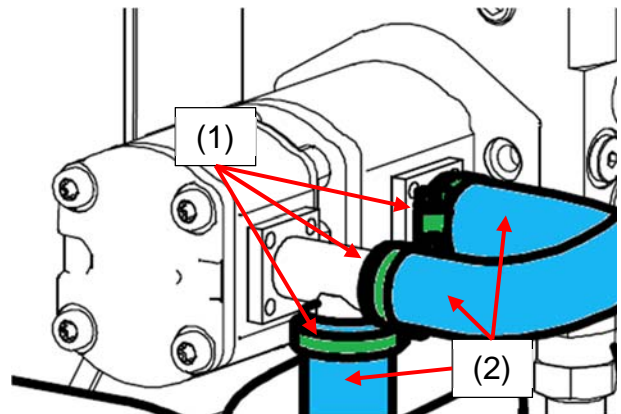
**Step 13:**

Close the three suction hoses (1) at the gear pump with plastic hose clamp pliers (2).

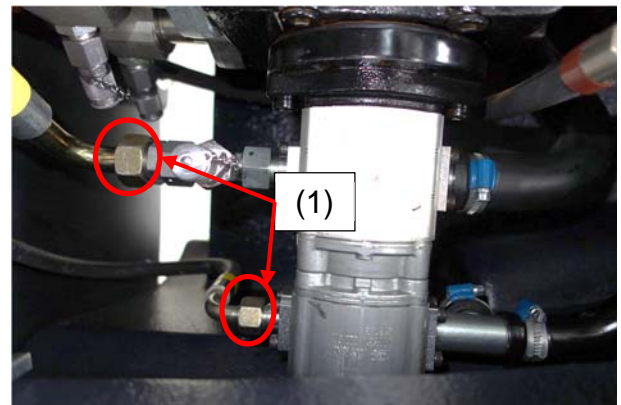
(for better understanding, the picture shows the situation without counterweight)

**Step 14:**

Loosen the three hose bands (1) and remove the three suction hoses (2).

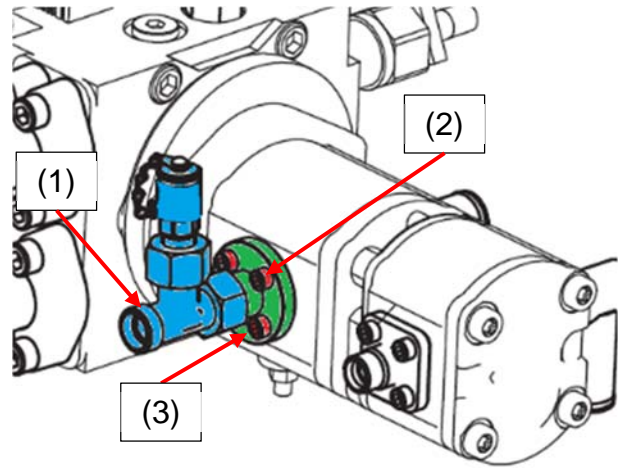
**Step 15:**

Remove the two hydraulic hoses (1).



Step 16:

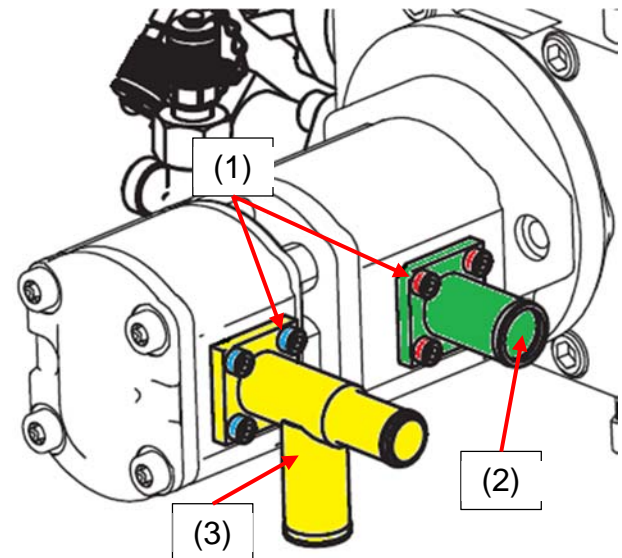
Remove the T-joint (1).

**Step 17:**

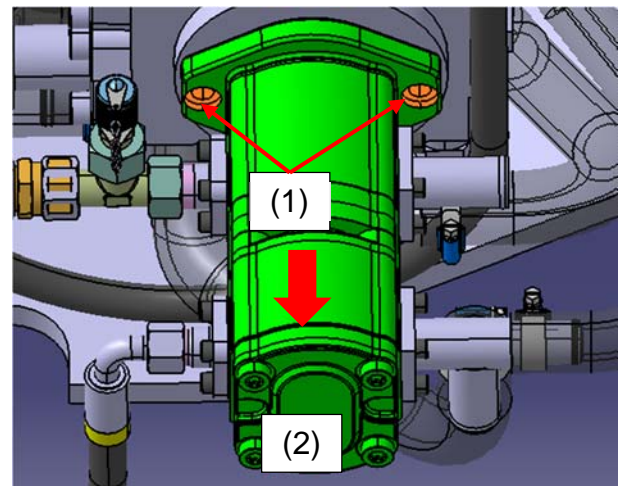
Remove the four bolts (2) and the flange (3).

Step 18:

Remove the eight bolts (1) and the flanges (2) and (3) from the gear pump.

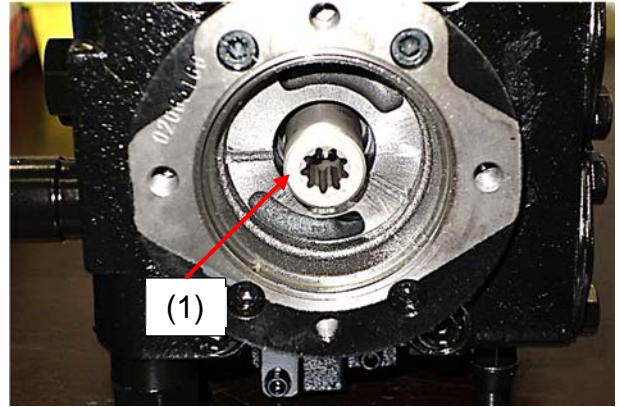
**Step 19:**

Remove the two bolts (1) and pull out the gear pump assembly (2) from the HST pump.



Step 20:

If the coupling (1) remains on the HST pump, remove it.

**Step 21:**

Remove the four bolts (1) and the flange (2) from the gear pump.

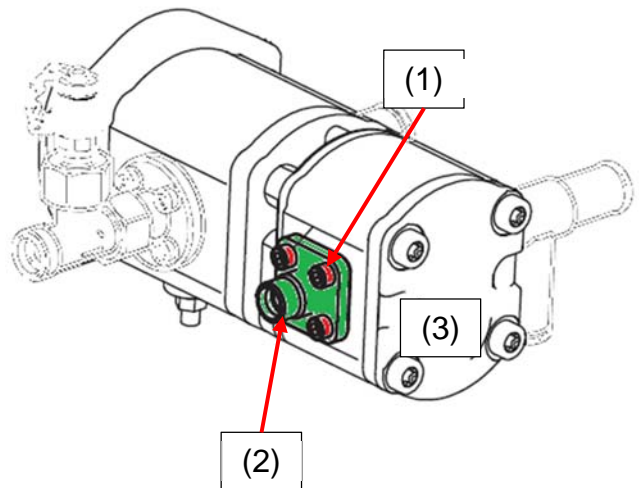
Step 22:

Install the flange (2) with the four bolts (1) onto the new gear pump (3) (R5511-7601-2).

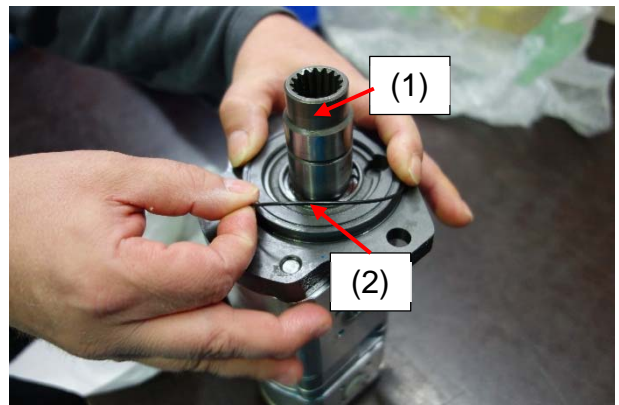
Tightening torque: 7,8N·m-9,3N·m.

Note:

Ensure correct seating of the O-ring!

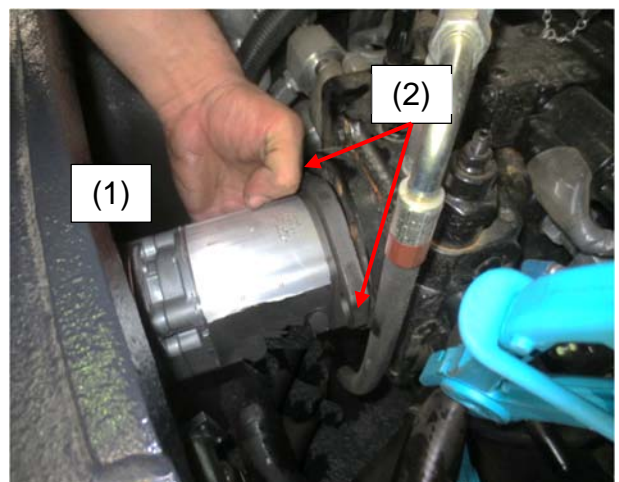
**Step 23:**

Put the coupling (1) onto the shaft of the gear pump and install a new O-ring (2) (R5611-7574-0) on the housing.

**Step 24:**

Attach the new gear pump (1) to the HST pump and tighten the two bolts (2).

Tightening torque: 43N·m.



Step 25:

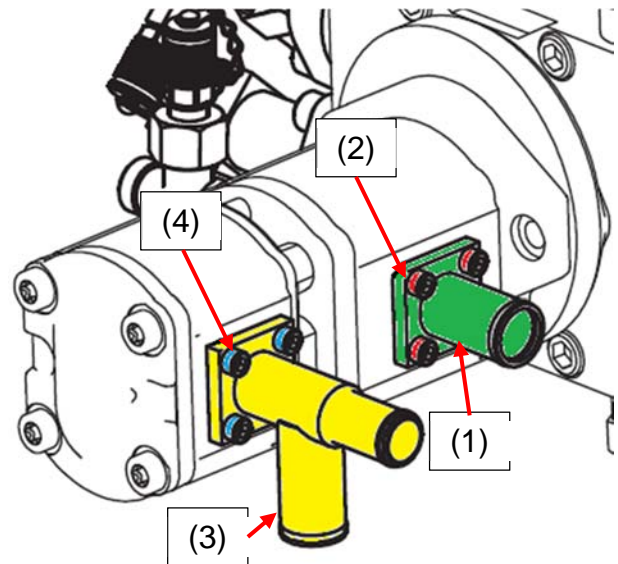
Assemble the flange (1) with the four bolts (2) to the gear pump.

Tightening torque: 17,7N·m-20,6N·m.

Step 26:

Assemble the flange (3) with the four bolts (4).

Tightening torque: 7,8N·m-9,3N·m.

**Step 27:**

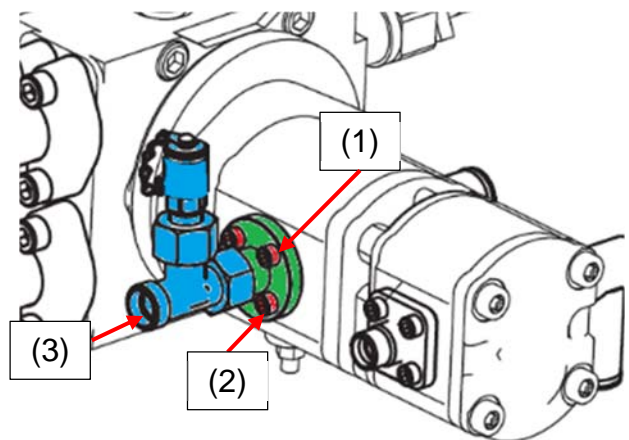
Assemble the flange (1) with the four bolts (2) to the gear pump.

Tightening torque: 7,8N·m-9,3N·m.

Step 28:

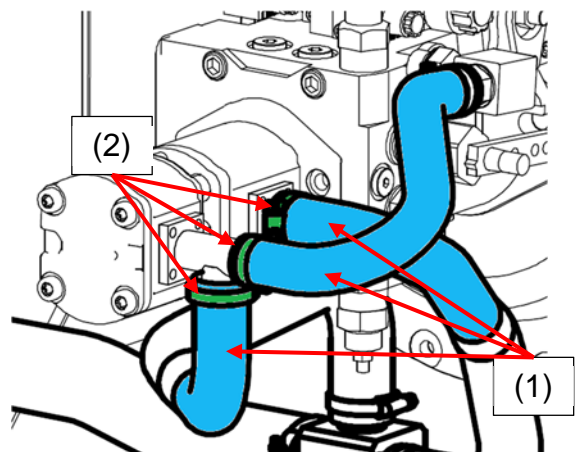
Attach the T-joint (3) to the flange.

Tightening torque: 7,8N·m-9,3N·m.

**Step 29:**

Attach the three suction hoses (1) to the flanges and tighten the hose bands (2).

Tightening torque: 4,0N·m.

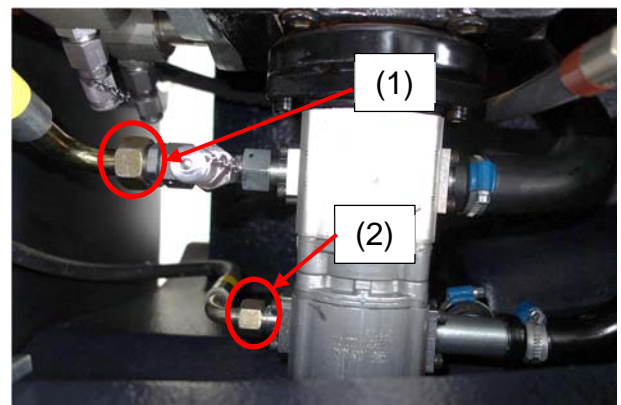
**Step 30:**

Reconnect the hydraulic hoses (1) and (2) to the gear pump.

Tightening torque:

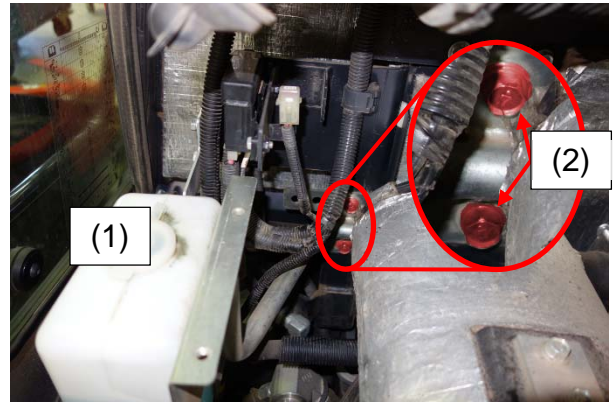
Position 1: 50N·m-55N·m

Position 2: 40N·m-45N·m.

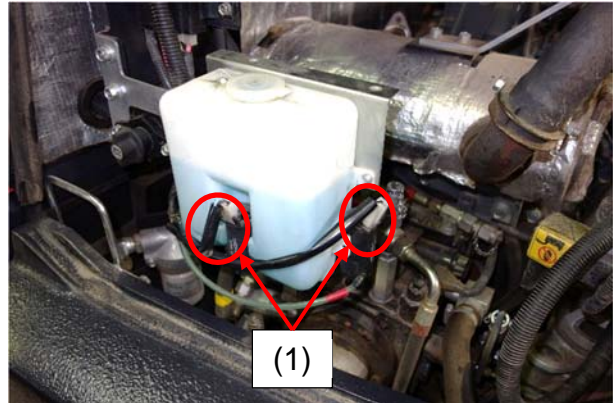


Step 31:

(This step is only for cabin version).
Fix the water tank (1) with the two bolts (2).

**Step 32:**

(This step is only for cabin version).
Reconnect the two electric connectors (1) to the pumps of the water tank.

**Step 33:**

Disconnect the vacuum pump and remove its adapter from the hydraulic oil tank cover (1).

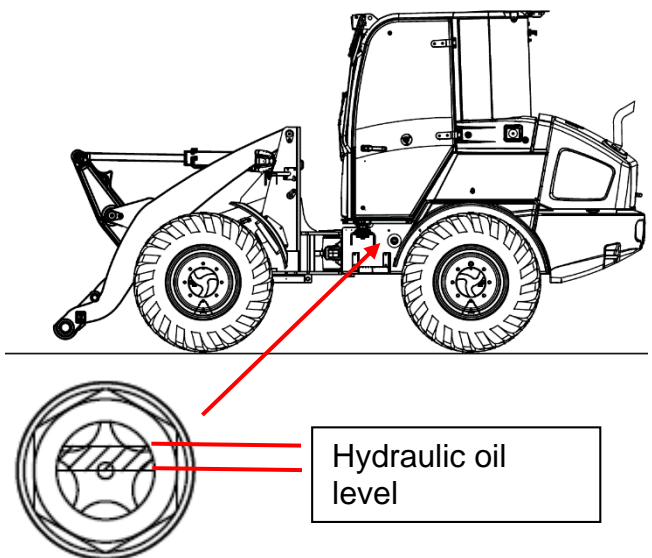
**Step 34:**

Set the machine to the checking position:

- Arm in the lowest position
- Bucket (quick coupler) in crowded position
- Front frame in straight position

Stop the engine and check the oil level in the hydraulic tank, but do not close the hydraulic tank after refilling the oil.

Hydraulic oil level should be filled up $\frac{1}{2}$ to $\frac{3}{4}$ of the gauge glass.



Step 35:

Start the engine carefully with idle rpm. Lift up the lift arm, close the bucket and turn the steering to the right. Stop the engine and close the hydraulic tank with the plug.

Installing the tank cover plug in this position is important to avoid vacuum in the hydraulic tank.

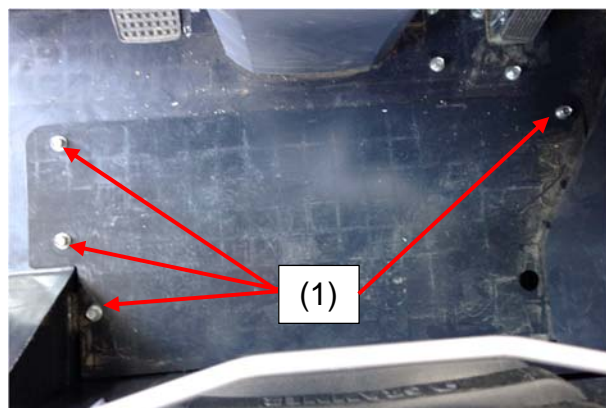
Tightening torque: 40N·m – 45N·m

**Step 36:**

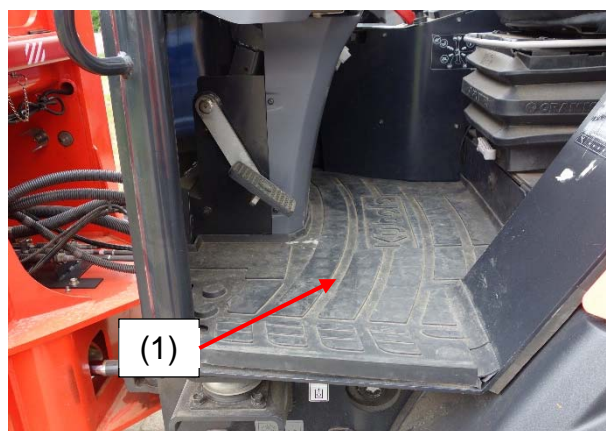
Start the engine and lower the front attachment to the ground, then stop the engine.

Step 37:

Reattach the floor plate with the four bolts (1).

**Step 38:**

Install the floor mat (1).



C. Spare Part Information

Case A: Parts needed for actions to be carried out systematically on all units

Part number	Part name	Qty
R5511-9610-0	PUMP (KIT)	1
R5511-7601-2	PUMP GEAR ASSY	1
R5511-7588-2	COUPLING	1
R5511-6395-2	FLANGE PIPE (IN)	1
04817-0032-0	O-RING	1
01311-1082-0	BOLT, M8X20	4
R5511-9611-0	MANUAL, INST(PUMP R065/R530)	1
R5611-7574-0	O-Ring	1
R5511-9620-0	HOSE, HYDR (KIT, DN16,R065/R530)	1
R5511-6321-4	HOSE, HYDR (5/8)	1
R5611-6323-3	HOSE, HYDR (5/8)	1
R5611-6275-3	HOSE, HYDR (5/8)	1
R5611-6251-3	JOINT,PIPE(L,7/8U,M26)	4
R5611-6262-0	JOINT,PIPE(S,M22-M26)	2
R5611-6425-0	CLAMP (HOSE)	1
R5511-6425-2	CLAMP (HOSE)	1
R5611-6427-2	CUSHION HOSE,3/8-5/8)	2
R5611-6433-2	CLAMP (HOSE,UPPER)	1
R5611-6434-2	CLAMP (HOSE,LOWER)	1
R5611-6416-2	GUIDE (HOSE)	1
69481-1119-0	Cable ties	2

Case B: Parts needed only if the priority valve was diagnosed as bad



Part number	Part name	Qty
R5511-7601-2	PUMP GEAR ASSY	1
R5611-7574-0	O-RING	1
R5611-6136-0	Priority valve	1

D. Warranty Information

IMPORTANT:

The below warranty conditions are based on the requested simultaneous completion of mandatory campaigns KTSE-SB-1504 (present one) and KTSE-SB-1505.

Still, it is mandatory to submit:

-  Individual warranty claims for KTSE-SB-1504 (present one) and KTSE-SB-1505.
-  Only one warranty claim for present KTSE-SB-1504 even if the machine was attended twice (in case the priority valve needed replacement).

1. Conditions:

Parts:	Yes
Labour:	Case A: 4,6 hours Case B: additional 2,6 hours
Mileage:	Case A: No (paid with KSTE-SB-1505) Case B: Yes (for second machine attendance)
Campaign allowance:	No (paid with KTSE-SB-1505)

2. Replaced parts:

☐ Return ☐ Store ☐ Attach photos to claim, then scrap ☒ Scrap

This instruction has priority to the ones given by Kubota Net at time of claim posting.

Ensure to mention this bulletin's reference number on the related warranty claim.

E. Termination date

This campaign must be completed as soon as possible and with hightes priority, and in any case at lates by: **31.12.2015**.

F. List of affected machines

Sales Company	Serial number			Sales Company	Serial number
KBD	00006	00076	00141	KE	00001
	00008	00077	00142		00003
	00009	00078	00143		00007
	00010	00079	00144		00011
	00013	00080	00145		00012
	00015	00081	00147		00014
	00016	00082	00148		00017
	00019	00083	00149		00018
	00022	00084	00150		00021
	00025	00086	00151		00024
	00027	00087	00152		00030
	00029	00088	00154		00035
	00031	00089	00155		00085
	00032	00090	00156		00092
	00033	00091	00157		00094
	00037	00093	00161		00095
	00039	00096	00162		00097
	00040	00098	00163		00099
	00041	00100	00166		00104
	00042	00101	00167		00105
	00043	00102	00168		00106
	00044	00103	00169		00110
	00045	00107	00170		00112
	00046	00108	00172		00113
	00047	00109	00175		00119
	00048	00111	00177		00126
	00049	00114	00178		00137
	00050	00115	00179		00138
	00051	00116	00181		00139
	00052	00117	00182		00146
	00053	00118	00183		00153
	00054	00120	00184		00158
	00055	00121	00188		00159
	00056	00122	00189		00160
	00057	00123	00190		00164
	00058	00125	00191		00165
	00059	00127	00192		00173
	00060	00128	00194		00176
	00061	00129	00195		00180
	00063	00130	00196		00185
	00064	00131	00197		00187
	00067	00132	00198		00203
	00069	00133	00199		00204
	00070	00134	00200		00206
	00071	00135	00202		00207
	00074	00136	00205		00213
	00075	00140			