WSM

WORKSHOP MANUAL DUMPER

KC300 HR-5



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1		KC305	
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1. SAFETY FIRST

A SAFETY FIRST

- This "Safety Alert Symbol" is used in this manual and on labels on equipment to indicate important issues and warn of the danger of personal injury. Read and follow these warnings carefully.
- · It is important that you thoroughly read these instructions and safety rules prior to working on the equipment and that you always follow them.



DANGER

Indicates that failure to follow the warning will result in serious injury or death.



Indicates that failure to follow the warning may result in serious injury or death.



A CAUTION

Indicates that failure to follow the warning may result in injury.

IMPORTANT

Indicates that failure to follow the warning may result in damage to or a breakdown of the equipment.

NOTE

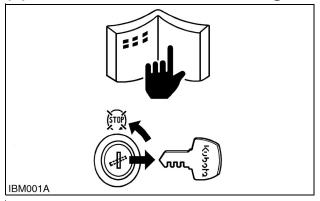
Indicates supplementary explanations that will be helpful when using the equipment.

• Indicates other supplementary information to take note of.

2. IN THE INTEREST OF WORK SAFETY

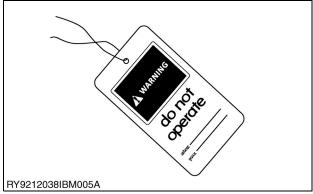
[1] WORKING SAFELY WITH THE EQUIPMENT MEANS ALWAYS FOLLOWING THESE INSTRUCTIONS:

(1) Precautions Before Working

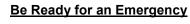


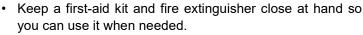
Before starting any service or maintenance work,

- Read all the general and safety instructions in this manual, as well as the decals on your equipment.
- Always stop the engine whenever you leave the driver's seat to inspect or clean the machine or its devices, or to inspect or adjust parts.
- Choose a safe spot for inspecting the equipment--on flat, hard ground.

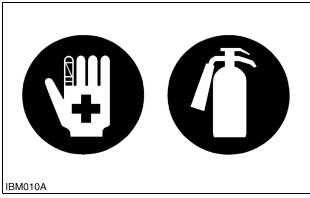


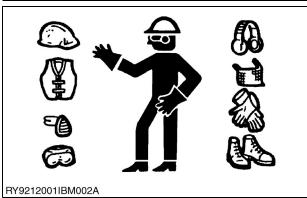
- When performing maintenance on the equipment, hang the DO NOT OPERATE sign where it will be obvious from and around the driver's seat.
- When performing maintenance or repairs, always lower attachments to the ground, stop the engine and set the brake.
- When performing maintenance on the equipment, always disconnect the negative battery cable.
- Before using tools, make sure you understand how to use them correctly and use tools in good condition and of the right size for the job.





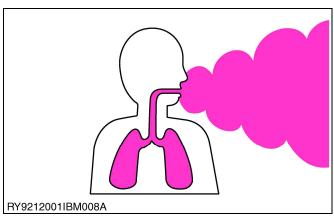
 Keep emergency contact information for doctors, hospitals and ERs handy.





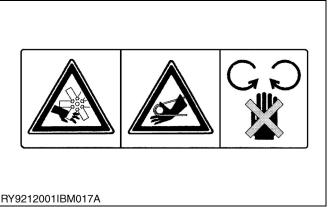
- Wear clothes appropriate for working on equipment. Do not wear loose-fitting clothes as they may catch on the machine controls.
- When working on the equipment, use all safety gear, such as a helmet, safety glasses and shoes, that are required by law or regulation.
- Never perform maintenance while drowsy or under the influence of alcohol or drugs.

(2) Precautions Before Working on the Equipment









- Stop the machine on a hard and level location and make sure the area around the machine is free of obstacles and hazardous materials. When parking the machine indoors, select a spot that can be properly ventilated.
- When performing work such as with a hammer, fragments may go flying, so make sure only authorized persons are around the machine.
- Before servicing the machine, clean it off so there is no mud, debris, oil or the like sticking to it.

 Before getting on/off of the machine, clean off around the steps so there is no mud on them.
 Always give yourself 3-point support when getting on/off the machine.

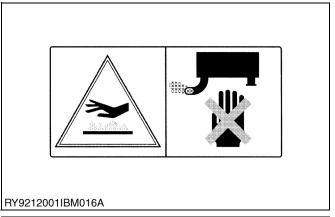


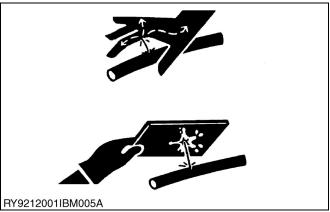
CAUTION

3-point support means using both legs and one hand or both hands and one leg as you climb up/down.

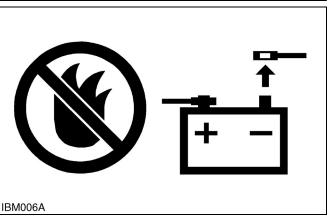
Starting the Machine Safely

- Before starting the engine, always sit in the driver's seat and make sure the area is safe and
- clear. As it is dangerous, never start the engine from anywhere but the driver's seat.
- Always check and make sure control lever(s) are not engaged before starting the engine.
- Never start the engine by hot-wiring the starter circuit. This is not only dangerous, but may damage the machine.
- Whenever it is necessary to open the engine covers or hood in order to service the machine, always prop them open.
- If it is absolutely necessary to run the engine while working on the machine, make sure you are clear of all rotating or moving parts. Also take care not to leave anything, such as tools or rags, near any moving parts.









- The engine, muffler, radiator, hydraulic line, etc., have parts that remain very hot even after the engine has been stopped. Be sure to avoid these parts, as touching them can result in burns. Radiator coolant, hydraulic fluid and oil also remain hot. Therefore, do not attempt to remove caps and plugs, etc., before these fluids have sufficiently cooled.
- Make sure the coolant temperature has dropped sufficiently before opening the radiator cap. Also, since the inside of the radiator is pressurized, when removing the cap, first loosen it to release the pressure before removing the cap completely.

R

- The pressure in the hydraulic circuit stays at pressure even after the engine stops. Before removing parts, such as hydraulic devices from the machine, first release the pressure. Please note that when releasing residual pressure, the machine itself and/or implements may move without warning, so be very careful when releasing the pressure.
- Oil gushing out under pressure is extremely dangerous as it may pierce your skin or your eyes. Similarly, oil leaking out of pinholes is not visible. So when checking for oil leaks, always wear safety glasses and gloves and use a piece of cardboard or a wood block to shield yourself from oil.

R

No Smoking or Open Flames while Fueling

- Fuel is extremely flammable and dangerous. Never smoke near fuel. If fuel is spilled on the machine, its engine, or electrical parts, it may cause a fire. If fuel is spilled, wipe it all up immediately.
- Never smoke while filling the machine with fuel. And always tighten the fuel cap securely and wipe up any spilled fuel.

R

- Always wear safety glasses and gloves when handling the battery.
- The gas generated by the battery is flammable.
 Never weld or use tools like a grinder near the battery. And never smoke near it.
- When disconnecting the battery, always disconnect the negative cable first. When connecting the battery, always connect the positive cable first.

R



 Grease is under high pressure inside the hydraulic cylinder. It is very dangerous to loosen a grease nipple quickly as it may shoot off. Always loosen grease nipples slowly.

• And never face a grease nipple while loosening it.

R



Dispose of Waste Fluids Properly

- Never dispose of waste fluids on the ground, in the gutter, a river, pond or lake. Always dispose of hazardous substances like waste oil, coolant and electrolytic fluid in accordance with the relevant environmental protection regulations.
- Keep the safety plates clean so they can be read. If a safety plate is damaged and comes off or becomes illegible, put a plate with the same warnings back in its place.

3 LABELS DISPLAYED TO PROMOTE WORK SAFETY

Pos.	Name	Description	Picture
3	PleaseSee Manual	Please read carefully this manual before using the machine or performing any maintenance operations.	
4	Machine at work	Keep out of the machine's operating range while it is moving.	
26	SAFETY BELTS	Fasten safety belts before starting the dumper.	v mino
1	SKIP ROTARY CON- TROL LEVER		unanearo unanearo
2	SKIP ROLL-OVER LEVER		The second of th
25	ACCELERATOR PEDAL		
27	Danger of shearing	Indicates the areas that entail a crushing hazard for the upper limbs.	Vanci-robo
22	Anchoring eyelet	Indicates the correct fixing point for transporting the machine.	

Pos.	Name	Description	Picture
5	THROTTLE LEVER	Indicates the positions of the throttle lever to get the maximum or minimum engine speed.	TOWNS AND THE SECOND SE
9	Hydraulic Oil	Indicates oil filling.	THE TRANSPORT OF THE PARTY OF T
7	PROTECTIVE CLOTHING AND EQUIPMENT	When using the machine or during maintenance work, wear PPE suitable for the operations performed.	
6	Danger Of Crushing Feet	Indicates areas where there is a DANGER of crushing for the lower limbs of the operator.	<u>+</u>
8	Hydraulic Oil Filter	Indicates the position of the hydraulic oil filter.	T T T T T T T T T T T T T T T T T T T
11	Hydraulic Oil Level Indicator	Indicates the hydraulic oil level.	
15	BATTERY SWITCH	Indicates the position of the Battery switch.	17/2/556A

Pos.	Name	Description	Picture
10	Engine Oil Level	Indicates the position of the dipstick to check the engine oil level.	A COLUMN TO THE PART OF THE PA
17	Engine Air Filter	Indicates the position of the engine air filter.	- CERTAIN STATE OF THE STATE OF
14	LIFTING POINTS	Indicates the points to be used to lift the machine.	40000000
19	Hot Surface	Indicates a hot surface not to be touched.	ntillitation.
12	Diesel	Indicates the type of fuel for refueling.	DIESEL
13	DIESEL FILTER	Indicates the position of the diesel filter.	P. Worder 10
16	Engine oil filter	Indicates the position of the engine oil filter.	V ELST-CO

Pos.	Name	Description	Picture
20	Engine Coolant Level	Indicates the coolant level.	
28	Guaranteed Sound Level	Indicates the guaranteed sound level of the dumper.	Lwa 101 dB
21	BATTERY	Indicates the position of the battery.	05207 T38
18	PROHIBITION OF PERFORMING MAINTENANCE WORK WITH MECHANICAL EQUIPMENT IN MOTION	Indicates the prohibition of performing maintenance work with mechanical equipment in motion.	
24	Do not wash with water		
23	Greasing	indicates the machine's greasing points.	06138906

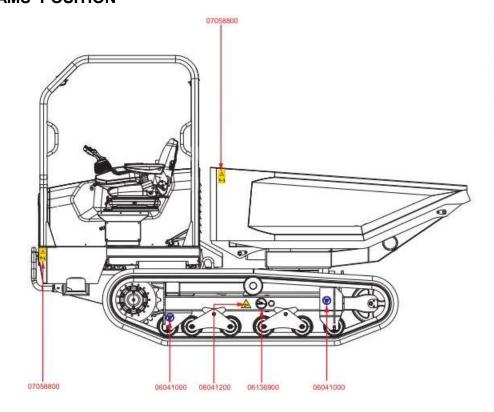


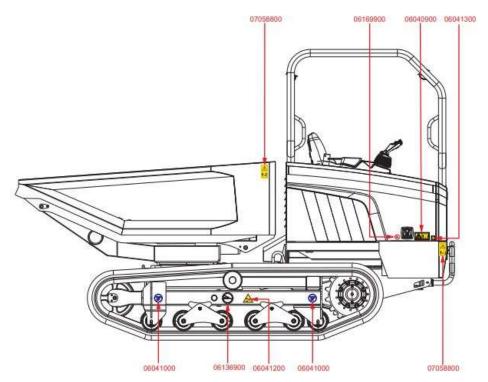
Replace stickers and labels when deteriorated.

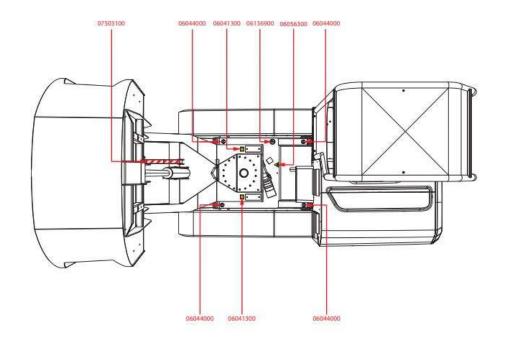
FAILURE TO COMPLY WITH ANY REQUIREMENTS DUE TO DETERIORATION, LOSS OR FAILURE TO READ ANY SAFETY STICKER MAY RESULT IN SERIOUS ACCIDENTS.

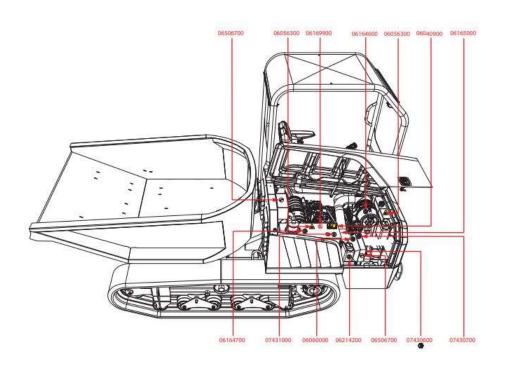
Makes sure that any new components or parts replaced bear the correct safety labels.

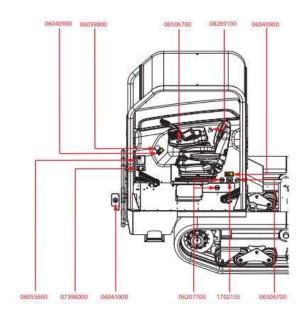
PICTOGRAMS' POSITION

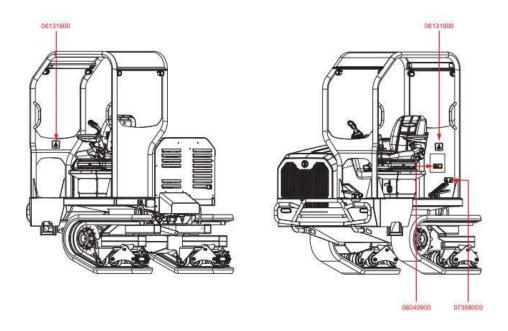












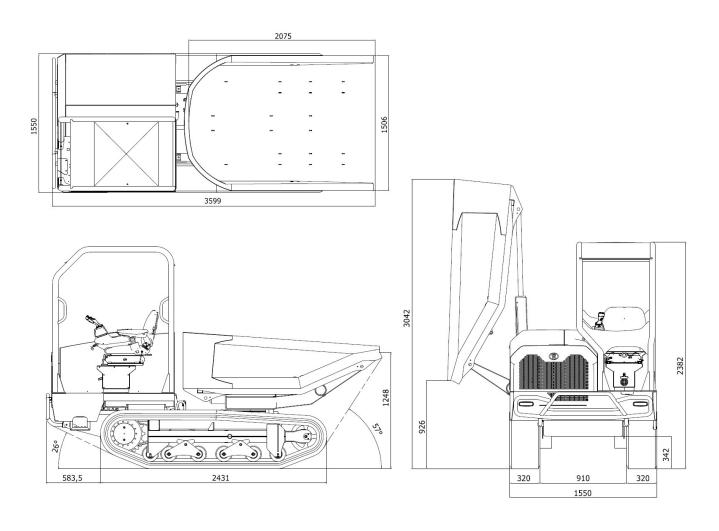
Position	Code	Quantity	Position	Code	Quantity
01	07397800	01	16	07430700	01
02	07397900	01	17	06164600	01
03	06040900	05	18	06169900	02
04	07058800	04	19	06056300	03
05	07397600	01	20	06214200	01
06	06041200	02	21	06207700	02
07	06059800	01	22	06041000	04
08	06164700	01	23	06136900	03
09	07431000	01	24	06506700	03
10	06060000	01	25	07398000	02
11	06165000	01	26	06131600	02
12	06043900	02	27	06041300	11
13	07430600	01	28	06055600	01
14	06044000	04	29	07503100	01
15	1702155	01			

4. MAIN SPECIFICATIONS

Engine	Model	Kubota V2403-CR-E5
	Number of Cylinders	4
	Displacement	2434 cm ³
	Power/rpm	35,9 kW (48,5 Hp)/2800
	Setting rpm	2700
	Cooling system	Liquid
Hydraulics	Track circuit	Rexroth closed circuit – 2 axial piton pump 220cc/rev each one
	Track motors	Radial piston motor 2 speed 820/410cc/rev
	Auxiliary circuit	Gear pump 16 cc
	Rated tracks pressure	350 bar
	Rated auxiliary pressure	130 bar (KC250/100), 160 bar (KC250/200)
	Rated low pressure line	27 bar, on KC250/200 is installed a valve calibrated at 16 bar
	Hydraulic oil cooling	Oil and air cooled
Undercarriage	Ground clearance	330 mm
	Track width	320 mm
	Bottom rollers for side	6 – 2 fixed + 4 floating
	Idler	Spring-release with greased tensioner
	Parking brake	Electrical parking brake managed by switch on the control panel
Dimensions	Max Length	3599 mm for standard bed version
	Max width	1550 mm (1660 with cabin installed)
	Max height	2382 mm
	Weight without operator (empty)	2750 Kg
Performance	Max gradeability front slope	26°
	Max gradeability side slope	25°
	Skip rotation	-90° / +90°
	Capacity struck volume	1,09 m ³ for standard bed version
	Capacity rated volume	1,49 m ³ for standard bed version
	Max skip capacity	2875 Kg
	Vibration transmitted at the operator hands/arms	3,46 m/s ²
	Vibration transmitted at the operator body	0,74 m/s ²
	Translation speed	6 - 11 Km/h

5. DIMENSIONS

STANDARD BED VERSION



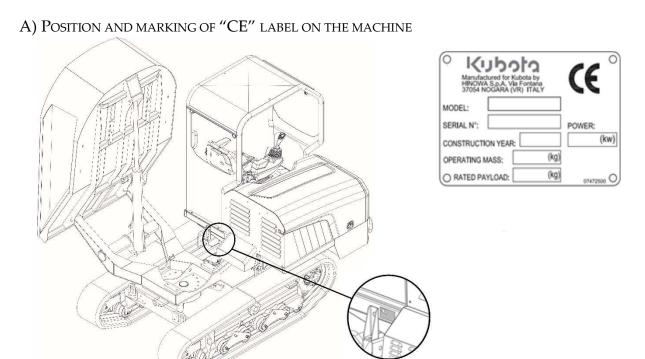
GENERAL

CONTENTS

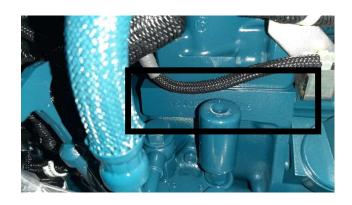
- 1. Machine identification
- 2. Engine identification
- 3. General precautions4. Precautions when handling electrical parts and wiring
- 5. Torque specification table
- 6. Oil and water capacity table
- 7. Maintenance interval
- 8. Description of parts

1. MACHINE IDENTIFICATION

When filing a request concerning this machine, the owner must have all the most important information available at hand, as for instance the model, serial number of the machine and of the engine.

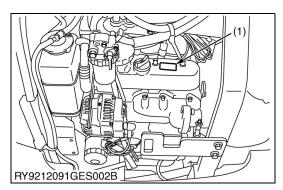


B) Engine Serial Number



KX018-4,KX019-4, WSM GENERAL

2. ENGINE INDENTIFICATION [1] MODEL AND ENGINE SERIAL NUMBER



Be sure to check the engine nameplate and serial number when you wish to consult about the engine.

The model and serial number of the engine need to be checked prior to servicing the engine or replacing any of its parts.

Engine Serial No.

The engine serial number is the numerical ID of the engine and is printed after the engine's model number.

The year and month of manufacture are indicated as follows

Year Manufactured

Letter or Number	Year	Letter or Number	Year	
1	2001	F	2015	
2	2002	G	2016	
3	2003	Н	2017	
4	2004	J	2018	
5	5 2005 K			
6	2006	2020		
7	2007	М	2021	
8	2008	N	2022	
9	2009	Р	2023	
Α	2010	R	2024	
В	B 2011 S		2025	
С	2012		2026	
D	2013	V	2027	
Е	2014			

*The letters I, O, Q, U and Z are not used.

Month Manufactured

Month	Lot Number					
January	A0001 to A9999	B0001 to BZ999				
February	C0001 to C9999	D0001 to DZ999				
March	E0001 to E9999	F0001 to FZ999				
April	G0001 to G9999	H0001 to HZ999				
May	J0001 to J9999	K0001 to KZ999				
June	L0001 to L9999	M0001 to MZ999				
July	N0001 to N9999	P0001 to PZ999				
August	Q0001 to Q9999	R0001 to RZ999				
September	S0001 to S9999	T0001 to TZ999				
October	U0001 to U9999	V0001 to VZ999				
November	W0001 to W9999	X0001 to XZ999				
December	Y0001 to Y9999	Z0001 to ZZ999				

*The letter I and O are not used.

(a) (b)(c) (d)

e.g. <u>V2607</u> - <u>8 HA001</u>

(a) Engine Model: V2607-DI

(b) Year Manufactured : The 8 indicates 2008.(c) Month : April is indicated by either G or H.

(d) Lot Number: (Either 0001 to 9999 or A001 to Z999)

(1) Engine Model and Serial Number

GENERAL KX018-4,KX019-4, WSM

3. GENERAL PRECAUTIONS



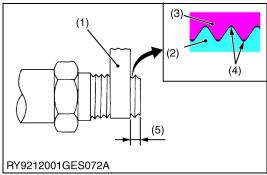
Whenever performing maintenance on the machine, always read the Safety Precautions in this manual and the Operator's Manual carefully, become familiar with them and perform the work safely.

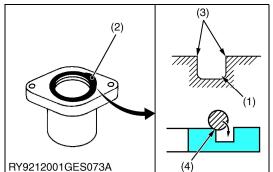
Before performing any maintenance on the machine, make sure it is sufficiently clean and choose a sufficiently clean location to perform any disassembly.

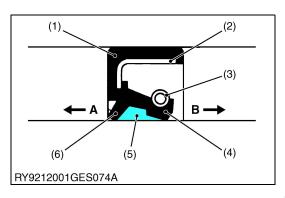
Before performing maintenance on the machine, always disconnect the negative battery cable first.

Whenever a special tool is required, use the special tool that KUBOTA recommends. Make any special tools that are not used very frequently according to the diagrams in this manual.

Always use genuine KUBOTA parts to maintain the performance and safety characteristics of the machine.







Plumber's Tape

- · Wrap plumber's tape on the threads before tightening taper couplings. After wrapping (2 wraps) the plumber's tape, tighten to the specified torque. Once the coupling is tightened, do not loosen it as this will cause an oil leak.
- (1) Plumber's Tape (4)Gap
- (2) External Thread (5)Leave 1 to 2 threads
- (3) Internal Thread

O-Ring

- Clean the groove the O-ring goes in and remove any burrs. Apply grease on the O-ring when inserting it in the groove. (Except floating
- When putting the O-ring in the groove, be careful as it is easy at the very end to twist the O-ring against the inside of the groove. If it gets twisted, roll it gently with your fingertip to untwist it.
- (1) O-ring Groove (4) If the ring touches this corner, it will
- (2) O-ring twist
- (3) Check for burrs

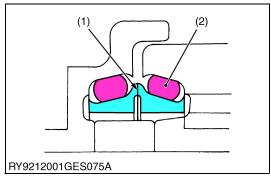
Oil Seal

- · Do not face the lip of the oil seal in the wrong direction. Face the main lip toward the material to be sealed.
- After oil seals are replaced, apply grease to the moving parts around the lip to prevent the dry surfaces from wearing against each other when the engine is started. If the seal has a dust lip, fill the gap between the lips with grease.
- As a general rule, use a press to insert the oil seal in place. If that is not possible, use an appropriate tool to gently and evenly tap it into place, taking care that it does not go in at a slant. Press the seal all the way so it seats in the boss.
 - (1) Gasket
 - A : Air (outside) B: Hydraulic chamber (inside) Metal Ring
 - (3) Spring

(2)

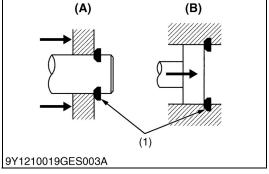
- (4) Main Lip
- (5) Grease
- (6) Dust Lip

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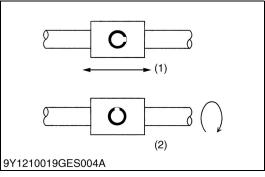
Floating Seal

- Be sure to wipe off any oil from the O-ring or surfaces that touch the O-ring. (For wheel motors, apply a light film)
- When putting an O-ring into a floating seal, make sure the O-ring does not twist.
- Apply a light film of oil to surrounding surfaces when working to get the floating seal with O-ring in place; take care that the surrounding surfaces, O-ring and housing are parallel with each other.
- After getting the seal in place, turn the engine over 2 or 3 revolutions, to both create a film of oil on surrounding surfaces and to properly seat the face of the seal.
 - (1) Surrounding Surfaces
- (2) O-ring



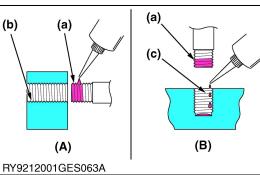
Snap Ring Related

- When installing external or internal snap rings, orient them as shown in the diagram so the angled side faces the direction of force.
- (1) Position so the angled part receives (A) External the force (B) Internal



Spring Pins

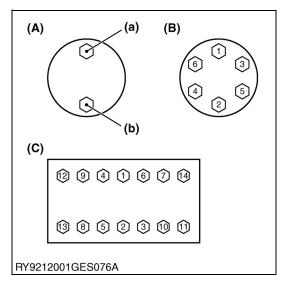
- When driving a spring pin, face the split in the direction that receives the force, as shown in the diagram.
- (1) With lateral movement
- (2) With rotational movement



Adhesive

- Clean and dry the area where adhesive will be applied with a solvent so it is free of moisture, oil and dirt.
- Apply adhesive all around the threads of the bolt except the first set of threads at the tip and fill the grooves between the threads. If the threads or the grooves are large, adjust the amount of adhesive accordingly and apply it all around the bolt hole as well.
- (A) Bolt Through-hole (nut)
- (B) Pocket Bolt Hold (capsule shape, etc.)
- (a) Apply here (b) Do not apply
- (a) Drin on
- (c) Drip on

KX018-4,KX019-4, WSM GENERAL



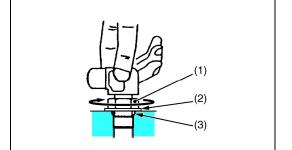
Tightening Bolts and Nuts

- Tighten bolts and nuts to their specified torque.
- Tighten nuts and bolts alternately top/bottom (a) (b), left/right so the torque is distributed evenly.
- (A) Top/bottom alternately
- (B) Across diagonally
- (C) Diagonally across the center

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Assembling Hydraulic Hoses

- · Tighten to their specified torque.
- Before assembling, wipe the inside of metal fittings clean of any dirt
- After assembly, put the fitting under normal pressure and check that it does not leak.

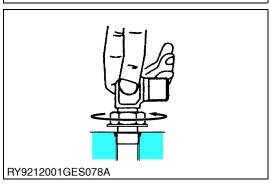


RY9212001GES077A

Elbow with Male Seat Assembly Procedure

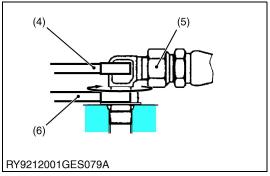
When assembling an elbow with male seat, adhere to the following procedures to prevent deformation of O-rings and leaks.

- 1. Connecting to Valves
 - Clean the blow with male seat and the surface of the seal opposite and mount with the lock-nut on top.
 - Finger tighten till it touches the washer



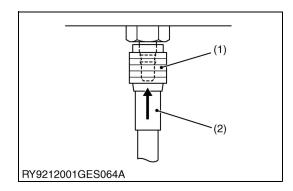
Positioning

• Turn the mouth of the elbow back so it faces the right direction. (not back over 1 turn)



- 5. Fasten lighten the lock-nut to the specified torque with a wrench.
- (1) Lock-nut
- (2) Washer
- (3) Seal (O-ring)

- (4) Wrench for holding
- (5) Hose
- (6) Torque wrench for tightening



Installing and Removing Quick Couplings

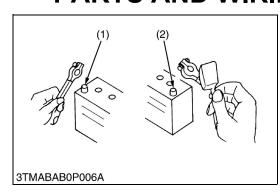
- To remove a quick hose coupling, push the fitting (2) in the direction of the arrow and pull on the plastic part (1) in the opposite direction.
- To attach a quick coupler, push it in firmly in the direction of the arrow. Then check that it will not pull off.

(1)Plastic part

(2) Fitting

RY9212001GEG0022US0

PRECAUTIONS WHEN HANDLING ELECTRICAL **PARTS AND WIRING**



Follow the precautions below for handling electrical parts and wiring to ensure safety and prevent damage to the machine and nearby equipment.

IMPORTANT

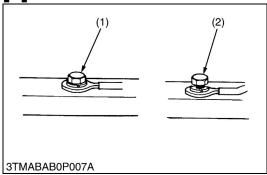
- Inspect electrical wiring for damage and/or loose connections.
- Do not alter or rewire any electrical parts or wiring.
- Always remove the negative battery cable first when disconnecting the battery and attach the positive cable first when connecting it.
- Battery Cable (-) Side (1)

R

R

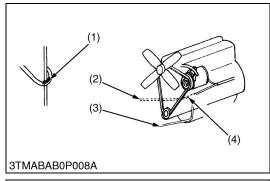
(2) Battery Cable (+) Side

[1] WIRING

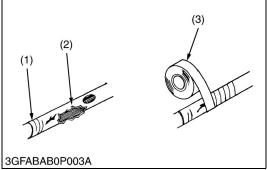


- Tighten wiring terminals securely.
- (1) Correct (Tightened securely)
- (2) Incorrect (Poor contact if loose)





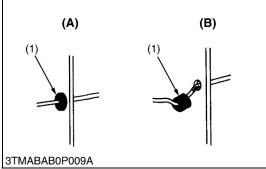
- Keep wiring away from hazards.
- (1) Hazardous Positioning
- Wiring Position (right)
- Wiring Position (wrong) (2)
- Hazardous Position



Immediately repair or replace old or damaged wiring.

(4)

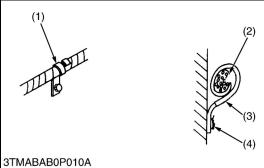
- (1) Damaged(3)
 - Torn
- **Electrical Tape**



· Insert grommet securely.

(1) Grommet

(A) Correct (B) Incorrect

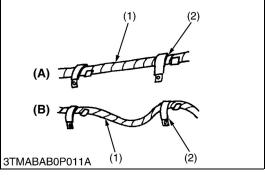


· Clamp wiring securely but do not damage wires with the clamp.

- (1) Clamp (Spiral clamp around wire)
- (3) Clamp

(2) Wire

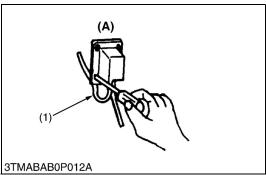
(4) Welding Mark



• Clamp wiring so it is not twisted, pulled too tight or sag too much. However, moving parts may require play in the wiring.

- (1) Wire
- (A) Correct
- (2) Clamp
- (B) Incorrect

R

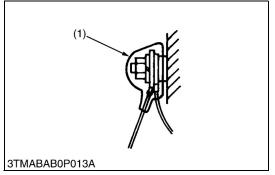


· Do not pinch or bind wiring when installing parts.

(1) Wire

(A) Incorrect

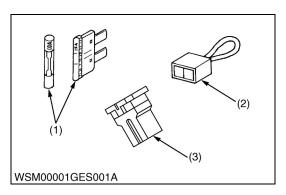
R



- · After wiring, double-check terminal protectors and clamps before connecting battery cables.
 - (1) Cover (Install covers securely)

R

[2] FUSES

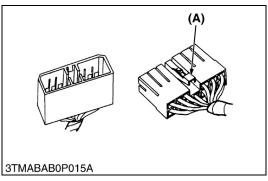


- Always use fuses of the specified capacity. Never use over or undersized fuses.
- Never use copper or steel wire in place of a fuse.
- Do not install accessories such as work lights, radios, etc., if your machine does not have an auxiliary circuit.
- Do not install accessories as they will exceed the capacity of fuses.
 - (1) Fuse

(3) Slow-blow Fuse

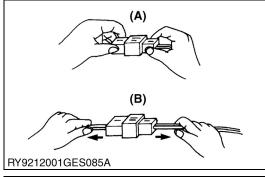
(2) Fusible Link

[3] CONNECTORS



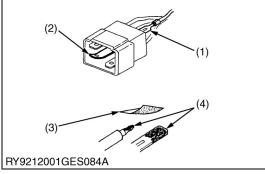
• Press the lock to disconnect locking connectors.

(A) Push



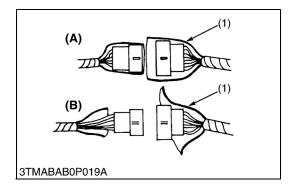
- Hold the connectors when separating them.
- Do not pull on the wire harness to separate the connectors.
 - (A) Correct

(B) Incorrect



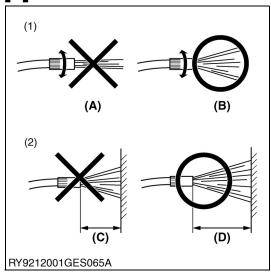
3TMABAB0P018A

- Straighten bent prongs and make sure none are sticking out or missing.
- Remove corrosion from terminals with sandpaper.
 - (1) Missing terminal
- (3) Sandpaper
- (2) Bent Prong
- (4) Corrosion
- Female connectors must not be spread too far open
 (A) Correct
 (B) Incorrect



- The plastic covers of connectors must cover them completely.
- (1) Cover (A) Correct
 - (B) Incorrect

[4] WASHING THE DUMPER WITH A HIGH-PRESSURE WASHER



Using a high-pressure washer incorrectly can lead to personal injury and/or damage, break or cause parts of the machine to fail, so use the power washer properly according to its operator's manual and labels.

A

CAUTION

- Stand at least 2 meters from the machine and adjust the nozzle for a wide spray so it does not cause any damage.
 If you blast the machine with water or wash it from too close a distance,
- It may cause a fire due to damaged or cuts in the insulation of electrical wiring.
- 2. An injury may result if hydraulic oil gushes out under high pressure, due to damaged hydraulic hoses.
- It may damage, break or cause parts of the machine to (Ex.)
- (1) Stickers or labels may come off
- (2) Electrical parts or the engine may fail due to water in them.
- (3) Damage glass, resins, etc. or the rubber of oil seals.
- (4) Tear off paint or the film from plating
- (1) Do not blast with water
- (2) Never wash from too close
- (A) Blasting
- (B) Wide Spray
- (C) Less than 2 m (80 in.)
- (D) Over 2 m (80 in.)

5. TORQUE SPECIFICATION TABLE [1] TORQUES FOR GENERAL USE NUTS AND BOLTS

Screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to the table below.

according to the table below															
Indication on top of bolt		No-grade or 4T					7 777					9 9T			
Indication on top of nut							lo-grad	de or 4	Г				(€		
Material of opponent part	Ore	dinarin	ess	Α	luminu	m	Ore	dinarin	ess	Α	luminu	m	Or	dinarine	ess
Unit	N·m	kgf∙m	lbf·ft	N·m	kgf∙m	lbf·ft	N·m	kgf∙m	lbf·ft	N·m	kgf∙m	lbf∙ft	N·m	kgf∙m	lbf∙ft
М6	7.9 to 9.3	0.80 to 0.95	5.8 to 6.8	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.9 to 8.8	0.80 to 0.90	5.8 to 6.5	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8	18 to 20	1.8 to 2.1	13 to 15	17 to 19	1.7 to 2.0	13 to 14	24 to 27	2.4 to 2.8	18 to 20	18 to 20	1.8 to 2.1	13 to 15	30 to 34	3.0 to 3.5	22 to 25
M10	40 to 45	4.0 to 4.6	29 to 33	32 to 34	3.2 to 3.5	24 to 25	48 to 55	4.9 to 5.7	36 to 41	40 to 44	4.0 to 4.5	29 to 32	61 to 70	6.2 to 7.2	45 to 52
M12	63 to 72	6.4 to 7.4	47 to 53	_	_	-	78 to 90	7.9 to 9.2	58 to 66	63 to 72	6.4 to 7.4	47 to 53	103 to 117	10.5 to 12.0	76.0 to 86.7
M14	108 to 125	11.0 to 12.8	79.6 to 92.5	-	_	1	124 to 147	12.6 to 15.0	91.2 to 108	_	_	1	167 to 196	17.0 to 20.0	123 to 144
M16	167 to 191	17.0 to 19.5	123 to 141	-	_	_	197 to 225	20.0 to 23.0	145 to 166	_	_	_	260 to 304	26.5 to 31.0	192 to 224
M18	246 to 284	25.0 to 29.0	181 to 209	-	_	-	275 to 318	28.0 to 32.5	203 to 235	_	-	-	344 to 402	35.0 to 41.0	254 to 296
M20	334 to 392	34.0 to 40.0	246 to 289	-	_	-	368 to 431	37.5 to 44.0	272 to 318	-	_	_	491 to 568	50.0 to 58.0	362 to 419

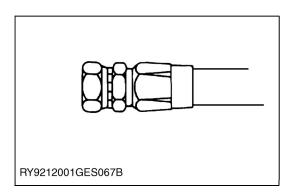
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[2] TORQUES OF STUD BOLTS

Material of opponent part	Or	dinarin	ess	Aluminum			
Unit	N⋅m	kgf∙m	lbf·ft	N·m	kgf∙m	lbf·ft	
	12	1.2 to	8.7	8.9	0.90	6.5	
M8	to	1.6	to	to	to	to	
	15		11	11	1.2	8.6	
	25	2.5	18	20	2.0	15	
M10	to	to	to	to	to	to	
	31	3.2	23	25	2.6	18	
	30	3.0	22				
M12	to	to	to	31	3.2	23	
	49	5.0	36				
	62	6.3	46				
M14	to	to	to	_	-	–	
	73	7.5	54				
	98.1	10.0	72.4				
M16	to	to	to	_	_	_	
	112	11.5	83.1				
	172	17.5	127				
M18	to	to	to	_	_	_	
	201	20.5	148				

[3] TORQUE FOR HYDRAULIC HOSE FITTINGS

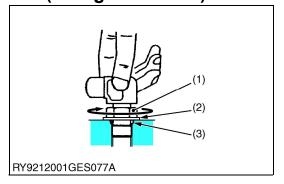
(1) Torque for Hydraulic Hose Fittings



Hose size	Thread size	Wrench size	Torque
DN 4 - 1 / 8	M12 × 1.5	14 mm	15 to 20 N·m 1.5 to 2.0 kgf·m 11.1 to 14.8 lbf·ft
DN 6 - 1 / 4	M14 × 1.5	17 mm	15 to 20 N·m 1.5 to 2.0 kgf·m 11.1 to 14.8 lbf·ft
DN 8 - 5 / 16	M16 × 1.5	19 mm	30 to 35 N·m 3.1 to 3.6 kgf·m 22.1 to 25.8 lbf·ft
DN 10 - 3 / 8	M18 × 1.5	22 mm	40 to 45 N·m 4.1 to 4.6 kgf·m 29.5 to 33.2 lbf·ft
DN13 - 1 / 2	M22 × 1.5	27mm	50 to 55 N·m 5.1 to 5.6 kgf·m 36.9 to 40.6 lbf·ft

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(2) Torques of Lock-Nuts for Elbows with Male Seats and Adaptors with O-rings (Straight Threads)

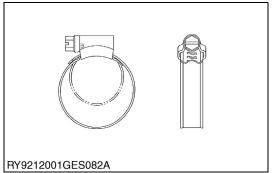


Hose size	Thread size	Wrench size	Torque
1/8	M10 × 1.0	14 mm	15 to 20 N·m 1.5 to 2.0 kgf·m 11.1 to 14.8 lbf·ft
1/8	M12 × 1.5	17 mm	25 to 35 N·m 2.6 to 3.6 kgf·m 18.4 to 25.8 lbf·ft
1 / 4	M14 × 1.5	19 mm	34 to 45 N·m 3.5 to 4.6 kgf·m 25.1 to 33.2 lbf·ft
1 / 4	M16 × 1.5	19 - 22 mm	40 to 55 N·m 4.1 to 5.6 kgf·m 29.5 to 40.6 lbf·ft
3/8	M18 × 1.5	22 - 24 mm	45 to 65 N·m 4.6 to 6.6 kgf·m 33.2 to 47.9 lbf·ft
1/2	M22 × 1.5	27 mm	70 to 80 N·m 7.1 to 8.2 kgf·m 51.6 to 59.0 lbf·ft
1/2	M24 × 1.5	27 mm	80 to 90 N·m 8.2 to 9.2 kgf·m 59.0 to 66.4 lbf·ft
3/4	M26 × 1.5	32 mm	100 to 120 N·m 10.2 to 12.2 kgf·m 73.8 to 88.5 lbf·ft
1	M30 × 2.0	36 mm	120 to 140 N·m 12.2 to 14.3 kgf·m 88.5 to 103.3 lbf·ft
(1) Lock-nut	(3) Seal	(O-ring)	

⁽³⁾

⁽²⁾ Washer

[4] HOSE CLAMP SCREW TORQUE



	Φ10-Φ16	69741-72873	2.5 to 3.5 N·m 0.3 to 0.4 kgf·m 1.8 to 2.6 lbf·ft
	φ ₁₃₋ φ ₂₀	69481-11163	2.5 to 3.5 N·m 0.3 to 0.4 kgf·m 1.8 to 2.6 lbf·ft
	φ15- <i>φ</i> 24	69741-72814	4.0 to 5.0 N·m 0.4 to 0.5 kgf·m 3.0 to 3.7 lbf·ft
	Φ22-Φ32	69741-72844	4.0 to 5.0 N·m 0.4 to 0.5 kgf·m 3.0 to 3.7 lbf·ft
Tightening torque	Φ26-Φ38	69741-72824	4.0 to 5.0 N·m 0.4 to 0.5 kgf·m 3.0 to 3.7 lbf·ft
	Φ40-Φ60	69481-15184	5.0 to 6.0 N·m 0.5 to 0.6 kgf·m 3.7 to 4.4 lbf·ft
	Φ38-Φ50	69741-72834	5.0 to 6.0 N·m 0.5 to 0.6 kgf·m 3.7 to 4.4 lbf·ft
	φ ₅₀₋ φ ₆₅	69741-72854	5.0 to 6.0 N·m 0.5 to 0.6 kgf·m 3.7 to 4.4 lbf·ft
	Φ68-Φ85	69481-04591	5.0 to 6.0 N·m 0.5 to 0.6 kgf·m 3.7 to 4.4 lbf·ft

6. OIL AND WATER CAPACITY TABLE

Item	Capacity (L)
Engine oil	9,5 L
Fuel	45 L
Hydraulic oil	61 L (37 in the oil tank)
Coolant	10 L (6,5 H2O + 3,5 Cooling)

7. MAINTENANCE INTERVAL

HYDRAULIC SYSTEM

Part		Interval (hours)					
		10	50	100	150	250	1000
Hydraulic oil	Check level	X1		X		I	
	Replace						Х
Hydraulic oil filter	Replace		X1			Х	

 X^1 = First time

Before any operation on the hydraulic system, verify that all the fluid under pressure are eliminate.

- Stop the dumper on a flat surface and on a solid terrain, with the bucket closed or open with its lock, in function of what must be done
- Stop the engine and remove the key from the control panel
- Open the filler cap following the indication in the paragraph hydraulic oil
- Position itself on the control station and check no people are around the dumper
- Move several times all the distributor levers on each direction

Operation in this mode, all the pressure in the hydraulic pipes has been downloaded. Take however attention because it is possible there is residual pressure in the hydraulic pipes.

ENGINE

Frequency	Description	Note
5 50 haves	Check fuel hose and tightening strap	M - @
Every 50 hours	Clean air filter element	X1 - @
	Clean fuel filter	
Every 100 hours	Check fan belt tension	
	Clean radiator	
	Change engine oil	•
Every 200 hours	Change oil filter cartridge	•
•	Check air intake suction pipe	@
Every 200 hours or every 6 months	Check radiator flexible hoses and fixing clamps	М
Every 400 hours	Change fuel filtering element	@
5 500 h	Eliminate deposit in fuel tank	
Every 500 hours	Replace fan belt	М
Every 800 hours	Check valve clearance	М
Every 1500 hours	Check fuel injectors pressure	X3 - @
Every 3000 hours	Check injection pump	X3 - @
Every year	Change air filter	X² - @
	Change radiator coolant (Long-life cooling liquid)	
Every two years	Replace radiator flexible hoses and fixing clamps	М
	Replace fuel hoses and fixing clamps	M - X ³ - @
	Replace air intake suction pipe	X4 - @

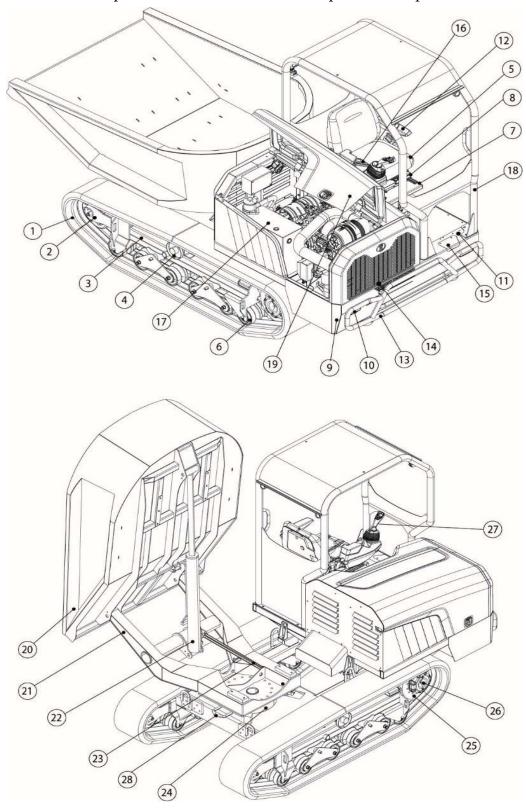
IMPORTANT

- Parts marked by this symbol must be replaced after the first 50 working hours
- X¹ In high dusty environmental, clean the air filter more often
- X² After 6 cleanings
- X³ Contact your local Kubota engine dealer
- X⁴ Replace if necessary
- Interventions marked by this symbol are registered as critical parts by Kubota due to their exhaust gas emission, in accordance with the directives concerning off-road emission of U.S. EPA (Environmenthal protection Agengy)
- M Refer to the Use and Maintenance Engine Manual, or contact your Kubota Engine dealer

8. DESCRIPTION OF PARTS

NOMENCLATURE

To facilitate the reading of safety, maintenance and operating instructions for the dumper KC305 HR-5, please find the names of its important components below:



KEY

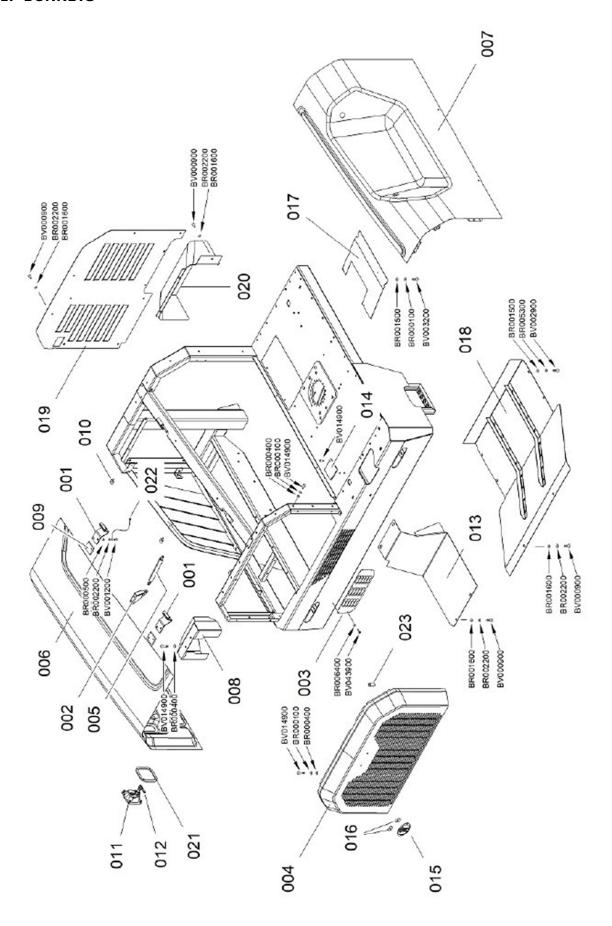
	·
1	Track
2	Track tightening wheel unit
3	Undercarriage frame
4	Upper roller
5	Seat
6	Lower roller
7	Seat swerving chassis
8	Seat support
9	Upper frame
10	Headlights
11	Accelerator pedal
12	Armrest
13	Front bull-bar
14	Radiator
15	Fuel tank
16	Control panel
17	Hydraulic oil tank
18	Rops-Fops protective structure
19	Engine hood
20	Skip
21	Skip support
22	Skip roll-over cylinder
23	Skip safety stop
24	Skip rotation chassis
25	Wheel drive
26	Hydraulic drive engine
27	Dumper controls
28	Towing hook

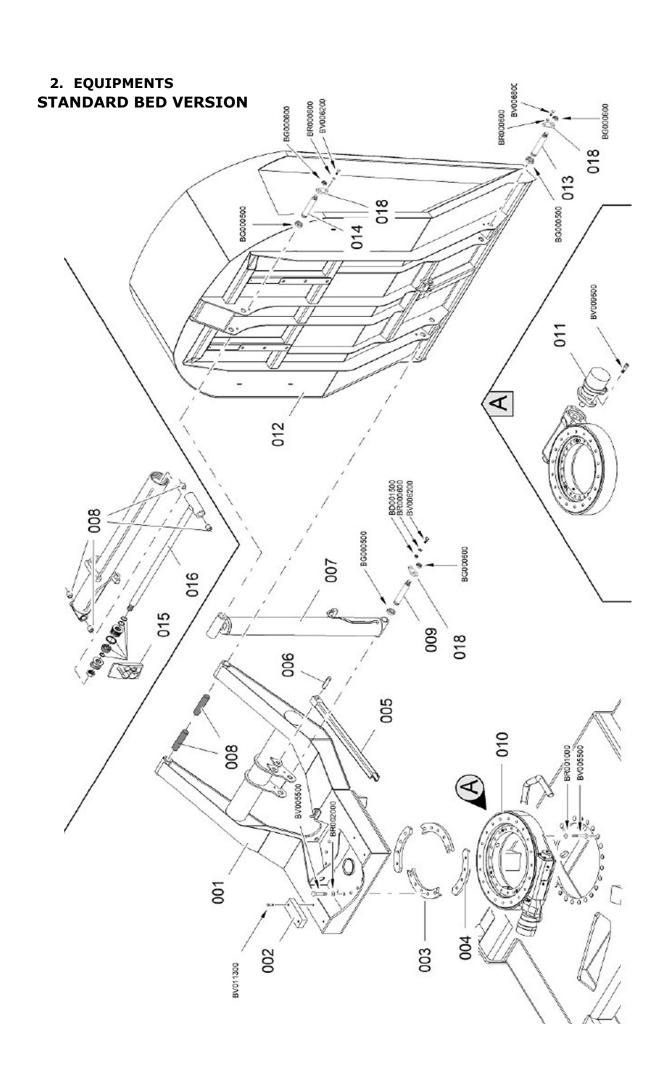
MACHINE BODY

CONTENTS

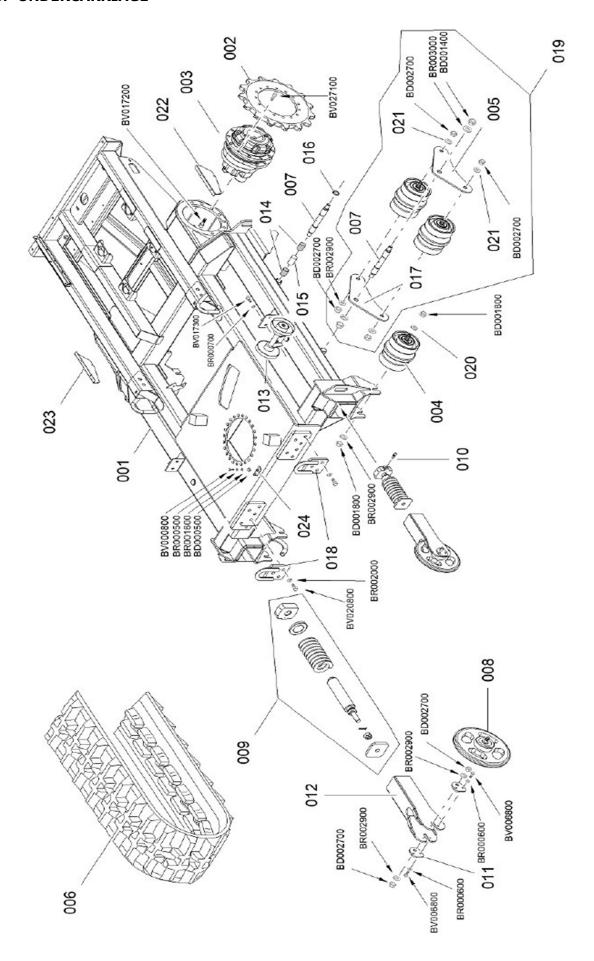
- 1. Bonnets
- 2. Equipments
- 3. Undercarriage
- 4. Rubber tracks maintenance and disassembly/assembly
- 5. Grease points
- 6. Track motors disassembly/assembly
- 7. Idler wheels disassembly/assembly
- 8. Track rollers disassembly/assembly
- 9. Body disassembly/assembly
- 10. Slew ring disassembly/assembly

1. BONNETS





3. UNDERCARRIAGE



4. RUBBER TRACKS MAINTENANCE AND DISASSEMBLY/ASSEMBLY

CHECKING TRACK TENSION

Bring the machine to a halt on solid and flat ground, turn it off and remove the ignition key from the panel.

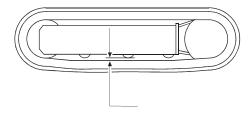
Clean the undercarriage, getting rid of any rocks and debris.

Lift the dumper about 200 mm off the ground on one side, applying a hammer jack beneath the frame beams.

Place firmly stable supports under the frame to withstand the weight.

MEASURE THE DISTANCE **A** from the bottom of the rollers inside the rigid core of the rubber tracks where the two central rollers of the undercarriage are. Track tension is per specifications if measure **A** ranges between 10 and 15 mm.

If track tension is not within the above range, is too loose or tight, follow the procedures described in the next paragraph.

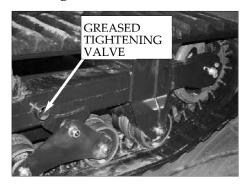


TIGHTENING THE TRACK

The grease inside the hydraulic track is pressurized.

When gravel or mud get stuck between the toothed wheel and the track link, remove them before tightening the track.

- To tighten the track, connect a grease gun to the greasing tightener valve and add grease until track tension falls within the specified range (preferably use a pneumatic pump with an operating pressure of 200 bar).
- Wipe away any trace of leaked grease.



REMOVING THE RUBBER TRACK

1. Bring the machine to a halt on solid and flat ground, turn it off and remove theignition key from the panel.

Clean the undercarriage, getting rid of any rocks and debris.

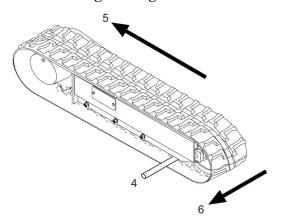
Lift the dumper about 200 mm off the ground on one side, applying a hammer jack beneath the frame beams.

Place firmly stable supports under the frame to withstand the weight.

2. To loosen the track, slowly unscrew the greasing tightener valve counter-clockwise by no more than a full turn. A single turn of the valve is enough to loosen off the track.



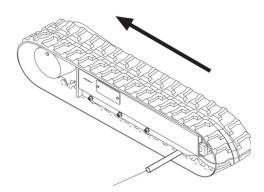
- 3. If grease does not start draining, slowly turn the track.
- 4. Use an appropriately long lever (4) to make a tooth of the rubberized track to joltout of the track tightening wheel, then slowly turn track (5), prompting it to come off, if necessary, with the aid of a lever. Apply force (6) sideways to slide the track and lift it off the track tightening wheel.



INSTALLING THE RUBBER TRACK



- 1. Make sure conditions are safe at all times, with the machine lifted to proceedwith assembly of the track, as instructed in the previous paragraph.
- 2. Check that the grease inside the hydraulic cylinder has been removed.
- 3. Gear the track link with the toothed wheel and place the other end of the trackon the track tightening wheel.
- 4. Run the wheel drive in reverse slowly (7), pushing the soles of the track inside. Use a lever (8) if necessary, especially to make the first row of teeth to reach beyond the track tightening wheel.



- 5. Make sure the track links are properly geared in the toothed wheel and in thetrack tightening wheel.
- 6. Adjust the track tension.
- 7. Lay the dumper on the ground.

5. GREASE POINTS

FOR STANDARD BED VERSION

There are five grease points on the machine, three available from the top, and other two available from the bottom.



Three upper grease points



Lower grease points

6. TRACK MOTORS DISASSEMBLY/ASSEMBLY

TRACK MOTOR DISASSEMBLY

- 1. Remote the tracks from the side you have to remove the motor (see tracks removal paragraph). Lift this dumper side.
- 2. Remove all the oil pipes from the track motor (see hydraulic pipes paragraph) and protect pipes and plug by caps



3. Remove all the screws in the back side motor

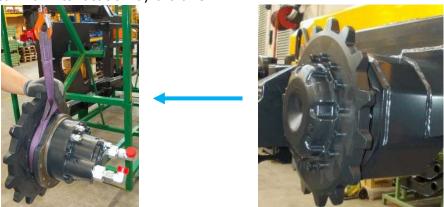




Note for installation:



4. Extract track motor from its location by a crane



5. Remove traction wheel





Note for installation:



TRACK MOTOR ASSEMBLY

Follow the above procedure on the reverse side

7. IDLER WHEELS DISASSEMBLY/ASSEMBLY

TRACK MOTOR DISASSEMBLY

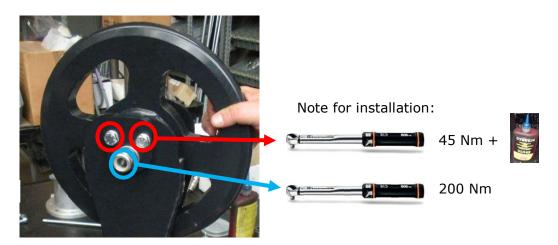
1. Remote the tracks from the side you have to remove the motor (see tracks removal paragraph). Lift this dumper side.



2. Extract the complete idler as showed in the picture. Use a crane for safety reasons



3. Remove wheel screws and bolts



TRACK MOTOR ASSEMBLY

Follow the above procedure on the reverse side

8. TRACK ROLLERS DISASSEMBLY/ASSEMBLY

TRACK ROLLERS DISASSEMBLY

1. Remove the tracks from the side you have to remove the roller (see tracks removal paragraph). Lift this dumper side.



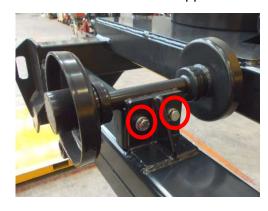


Upper roller

Lower rollers

UPPER ROLLER

Remove the bolts to extract the upper rollers



Note for installation:







LOWER FIXED ROLLERS

Remove the bolts to extract the upper rollers



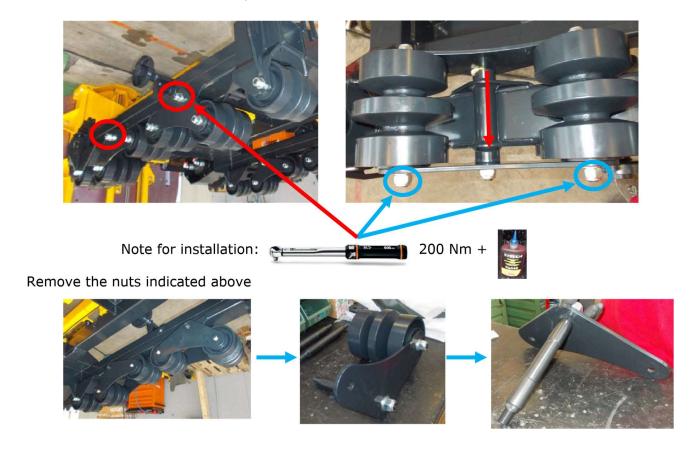


Note for installation:



Lower fluctuating rollers

Remove the nuts showed in the picture

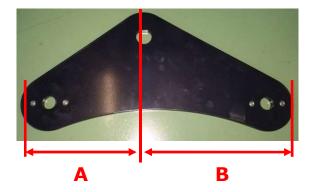


FLOATING ROLLERS ASSEMBLY PROCEDURE ASSEMBLY PROCEDURE

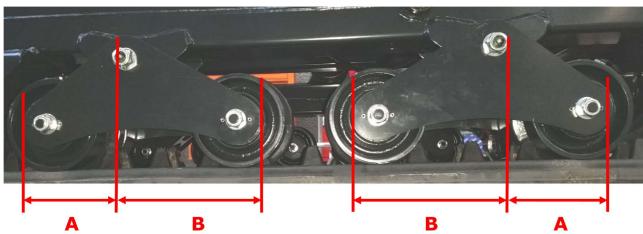
Note 1

Plates are not symmetric.

Longest side has to be fitted towards the internal undercarriage side (i.e. toward the other floating rollers group).

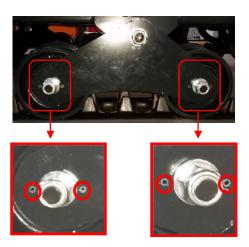


A = Shortest plate sideB = Longest plate side



Note 2

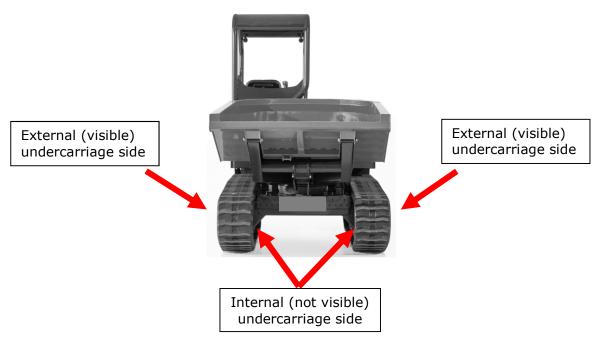
Perforated plate for elastic pins has to be installed in the external (visible) undercarriage side; as consequence not perforated plate has to be installed internally (no visible side)



Perforated Plate installed in external undercarriage side



Not Perforated Plate installed in in internal undercarriage side



Step 1





Fix plate pin W21CSH0191 to the external (perforated) plate W21CSH0980

(washer Ø20 and nut M20). Greaser has to be in the plate side.

Note: Nut has just to be laid, not screwed

Step 2

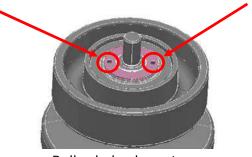


Clean and grease pin plate location

Step 3

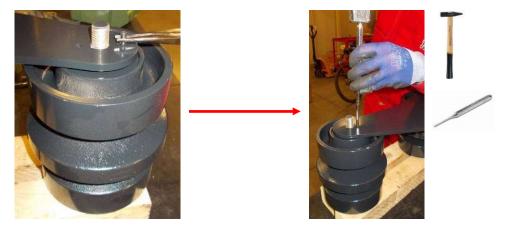


Insert rollers in the perforated plate



Roller holes have to correspond with plate holes

Step 4



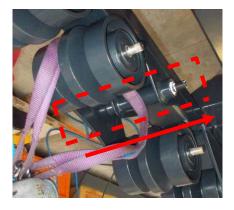
Fasten rollers to the perforated plate by the elastic pins code W21CSH0964 (hammer + pin punches Ø8mm)

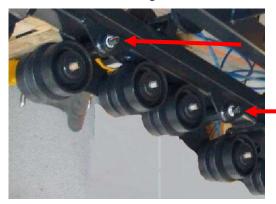
Step 5



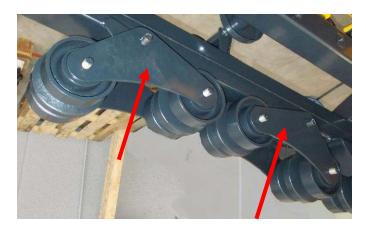
Install washer Ø18 and nut M18 on the rollers

Step 6Install the floating rollers group. Plates pin must be inserted in its support. Attention: perforated plate has to be in the external undercarriage side



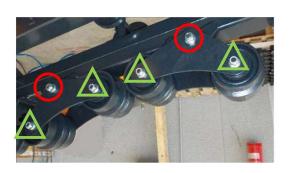


Step 7



Install the internal not perforated plate W21CSH0196

Step 8Fix the nuts on the internal plate, and tight them at 200Nm using threadlock







Step 9Unscrew completely the nuts on the external undercarriage side, then screw then again at 200Nm using threadlock







Step 10

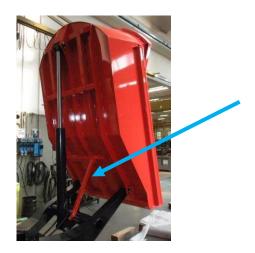


By a grease pump, grease the pin by the greaser. Grease has to come out from the back

9. BODY DISASSEMBLY/ASSEMBLY (STANDARD BED VERSION)

BODY DISASSEMBLY

 $1. \ \ \, \text{Open completely the body, and install the safety retainer}$

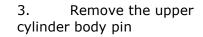


2. Fasten the body to a crane or a fork lift by ropes or chains.





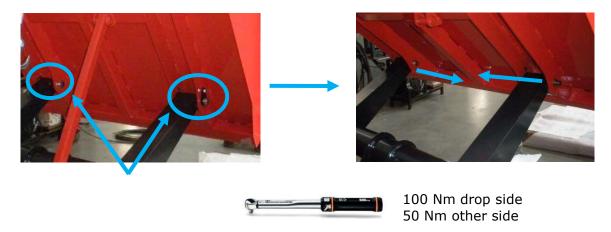






100 Nm drop side 50 Nm other side

4. Remove the lower pins



5. Lift the body and remove it



BODY ASSEMBLY

To reinstall the body follow the above procedure on the reverse side, respecting the tightening specification indicated. $\ \ \,$

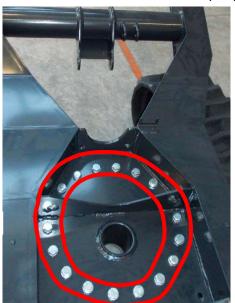
10. SLEW RING DISASSEMBLY/ASSEMBLY (STANDARD BED VERSION)

SLEW RING DISASSEMBLY

1. Remove the body (see "body disassembly/assembly (standard bed version)" chapter) and body cylinder (see "body cylinder disassembly/assembly (standard bed version)" chapter). Pass through the cylinder pipes from the slew ring holes



2. Remove the bolts between the body support and the slew ring





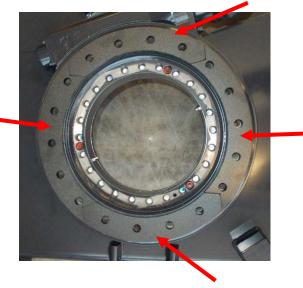
250 Nm

3. Remove the body support y a crane

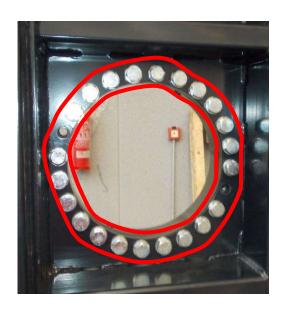




4. Remove the spacer from the slew ring



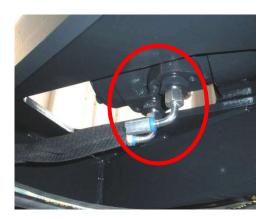
5. From the lower side machine, remove the lower slew ring bolts





250 Nm

6. Remove the hydraulic oil tubes from the slew ring motor. Seal the tubes by caps.



7. Sign the exact slew ring position, in order to reinstall it correctly. Remove the slew ring by a crane or a fork lift



SLEW RING ASSEMBLY

To reinstall the slew ring follow the above procedure on the reverse side, respecting the tightening specification indicated.

CONTENTS

- Engine general information
 Engine recommended oil
 Engine oil check and replacement
 Engine disassembly/assembly
- 5. Fuel and fuel filter
- 6. Engine maintenance

2. ENGINE RECCOMENDED OIL

The engine oil must be higher than CC class (API).

The type of engine oil must be changed depending on the environmental temperature.

above 25°C	SAE30 or SAE10W-30 SAE10W-40
0°C up to 25°C	SAE20 or SAE10W-30 SAE10W-40
below 0°C	SAE10W or SAE10W-30 SAE10W-40

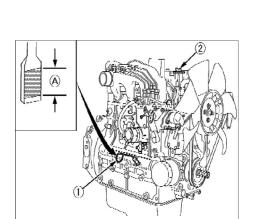
If you use a different type of oil than the above, make sure you drain out all the oil previously contained in the tank, before you top-up the new oil through the tank plug.

3. ENGINE OIL CHECK AND REPLACEMENT

ENGINE OIL LEVEL CHECK AND TOP-UP

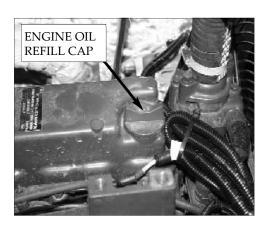
- 1. Check the engine oil level before starting themachine, or when more than 5 minutes have past since it stopped.
- 2. Remove the oil deepstick, clean it thoroughlyand fit it back on.
- 3. Extract the oil deepstick again and check theoil level.
- 4. If the oil level is too low, take off the oil capand add oil until it reaches the prescribed level.
- 5. Add oil, wait more than 5 minutes and checkthe level again. This time is necessary for the oil to reach the oil cup.

Engine oil quantity: 9,0 litres.



- (1) Oil deepstick
- (2) Refill hole cap

[Bottom end of oil deepstick] (A) The engine oil level is appropriate (if within this range)



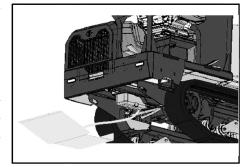
ENGINE OIL CHANGE



CAUTION

To avoid personal injury:

- Make sure to turn off the engine before changing its oil.
- If the engine oil is dripping, place a container beneath the engine and proceed with its disposal, in accordance with local waste collection standards.
- Do not drain out the oil immediately after having started the engine. Let the engine cool down to an appropriate temperature.
- 1. Change the oil after the first 50 hours of serviceand then every 200 hours.
- 2. Remove the protective housing under the oil cup.
- 3. Take off the oil drain cap located on the bottom of the engine and drain out all the old oil. The oil will drain out easier and better if the engine is still warm.
- 4. Add new oil to the engine up to the top level of the oil sight glass.



ENGINE BOTTOM PROTECTIVE HOUSING



ENGINE OIL DRAIN CAP

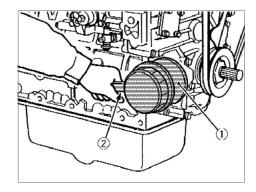
REPLACING THE OIL FILTER CARTRIDGE



CAUTION

To avoid personal injury:

- Change the oil filter cartridge only when the engine is off.
- Allow the engine to cool down sufficiently, as the oil may be very hot and cause skin burns.
- 1. Remove the protective housing under the oilcup.
- 2. Extract the worn filter cartridge with the aid of wrench.
- 3. Apply a thin layer of oil on the gasket for thenew cartridge.
- 4. Screw the cartridge tight with your hands. When the gasket is sealed to the surface, tighten the cartridge just enough with your hands. Using a wrench instead of the hands would tighten the cartridge too much.
- 5. The oil level usually drops a little when thecartridge is replaced. For this reason, let the engine run idle for a while and check for oil leakage from the sealing gasket, before you check the oil level. If necessary, add more oil.

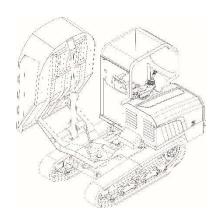


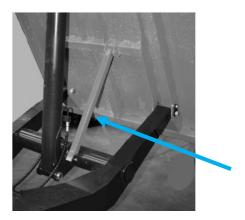
- (1) Oil filter cartridge
- (2) Detach with wrench for filters. (Tighten firmly with hand).

Note: thoroughly clean the machine of any oil residue.

4. ENGINE DISASSEMBLY/ASSEMBLY

1. FOR STANDARD BED VERSION Rotate the body as indicated in the draw, and fix it by the lock.



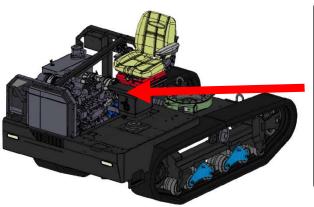


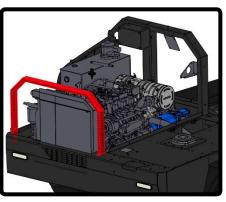
3. Disconnect battery cutter switch, then disconnect the battery poles from the battery





4. Remove all the covers and the bonnets (see paragraph "bonnets").

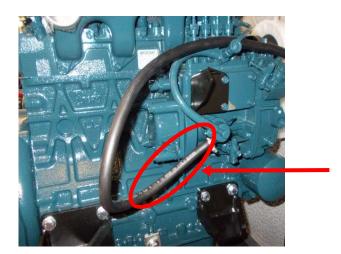




5. Remove lower engine cover plates



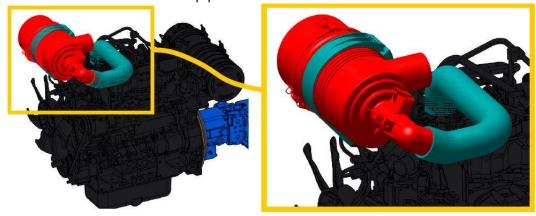
- 6. Remove coolant liquid from cooling system (see paragraph "engine maintenance")
- 7. Disconnect fuel pipe from the engine and seal it (attention: fuel can be present and spurt out)



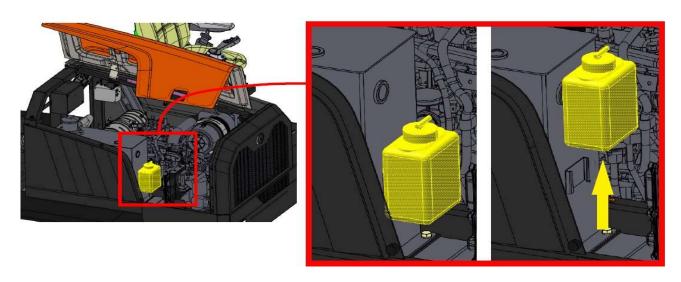
8. Disconnect fuel pipes from the fuel filter, than remove completely fuel filter and its support



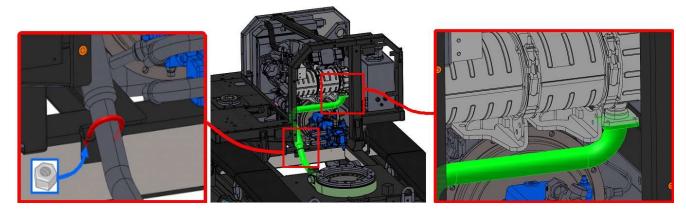
9. Remove the air filter and its pipes



10. Remove expansion tank

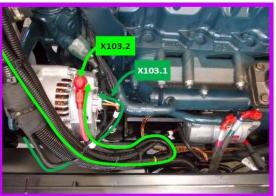


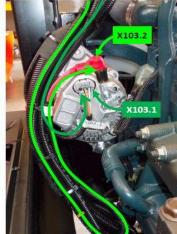
12.Remove muffler and exhaust pipe

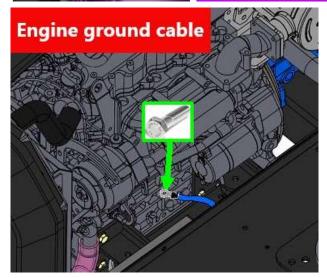


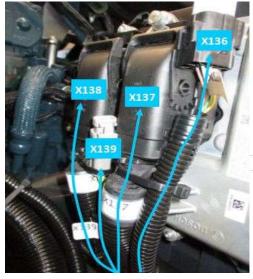
12. Remove all electrical engine connexions

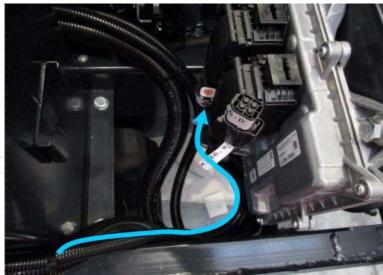


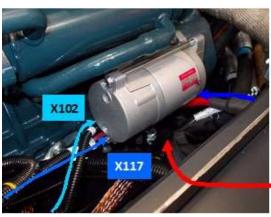






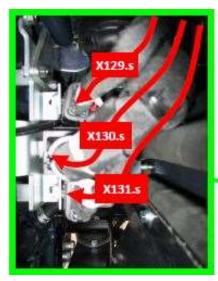


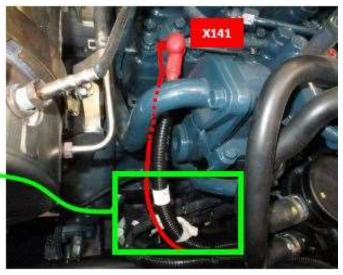




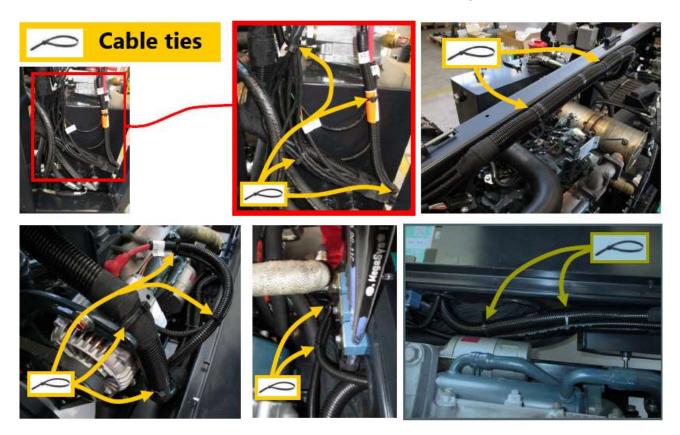




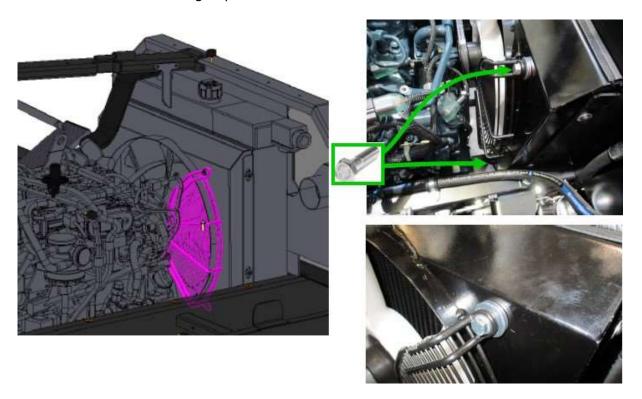




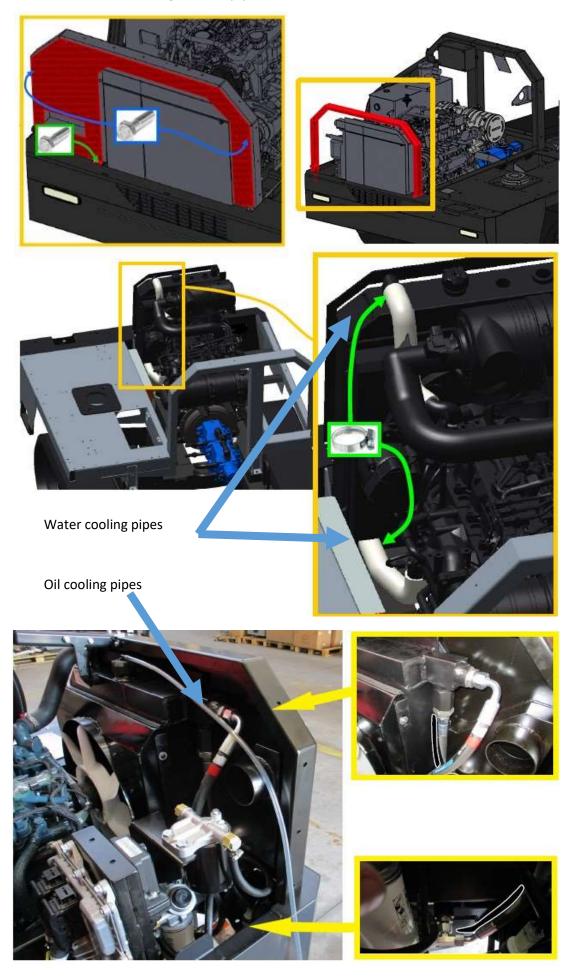
13. Cut cable ties of the cables and tubes connected at the engine



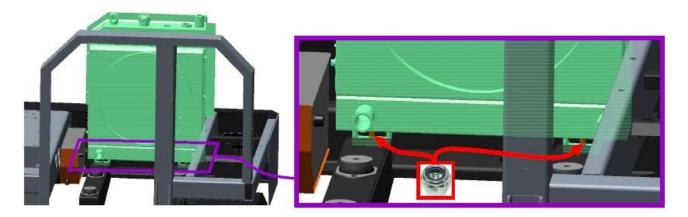
14. Remove back fan grill protection



15. Remove all the cooling and oil pipes connected at the radiator



17. Remove radiator from the chassis



18. Locate the oil tubes and the cable on the engine, in a way they will not disturb during the engine extraction





19. Attention: Oil pump is not directly fixed at the chassis. Disconnecting it from the engine, oil pump will remain hanged only by oil tubes; it is necessary to locate a support between the oil pump and the chassis in order to hold it up.



Use this chassis part to keep raise the oil pump

20. Remove screws between oil pump and engine







21.Remove the four screws indicated in the pictures below from the engine support





Left side

22. Move back oil pump in order to disengage it from the engine $% \left(1\right) =\left(1\right) \left(1\right) \left($





Engine side

Oil pump side

23. Lift up the engine by a crane

Machine front side



ENGINE INSTALLATION

To install the engine, follow the removal procedure on reverse side.

5. FUEL AND FUEL FILTER



DANGER

Fuel is flammable and can prove dangerous. Handle it with caution.



CAUTION

To avoid personal injury:

- Do not mix Diesel fuel with gasoline or alcohol. This mixture may induce an explosion.
- Be careful not to spill fuel when refueling the machine. If this should happen, clean it at once, as it could cause a fire.
- Always remember to stop the engine before topping up the fuel. Keep the engine far from fire.
- Make sure to turn off the engine during daily and regular maintenance, whentopping up fuel and during repairs and cleaning. Do not smoke when working near the battery or when refueling.
- If you should spill fuel or lubricant, refuel the engine after it has cooled down.
- Always clean the fuel and lubricant spill.

Checking fuel level and top-up

- 1. Check that the fuel level is above the minimum red highlighted by the fuel levelindicator light on the control panel.
- 2. If there is little fuel, refuel the tank without exceeding the maximum limit.
- 3. The plug to top-up the fuel is in the engine hoodand is marked by this symbol:



There is a visual sight-glass on the side of the tank to be used when topping up fuel.



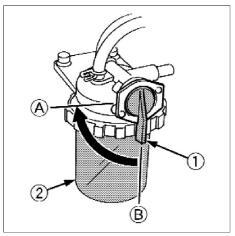
IMPORTANT

- When topping up fuel, always use a filter, as dirt and sand may cause serious damage to the fuel injection pump.
- Be careful not to empty out the fuel tank completely, as this may cause air to flow inside the fuel supply system, which would have to be vented out before turning the engine on again. If this should happen, refer to the engine manual.

CLEANING THE FUEL FILTER TRAY

Clean the fuel filter every 100 hours of operation. Be sure to perform this task in a clean place, so as to prevent dust intrusion.

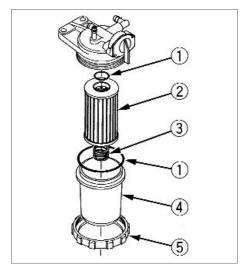
- 1. Shut the fuel filter valve.
- 2. Remove the upper cap and rinse out the innerpart with gasoline.
- 3. Pull out the element and rinse it with gasoline.
- 4. When you are done cleaning, reassemble thefuel filter, protecting it from dust and dirt.
- 5. Purge the injection pump.



- (1) Fuel filter valve
- (2) Fuel filter tray
- (A) "OPEN"
- (B) "CLOSED"

IMPORTANT

Dust and dirt entering the filter may cause the fuel injection pump and nozzle to malfunction. Regularly wash the fuel filter cup.



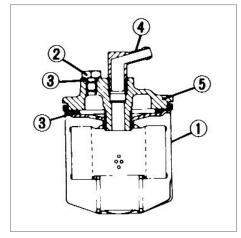
- (1) O-ring
- (2) Filtering element
- (3) Spring
- (4) Filter tray
- (5) Threaded ring nut

REPLACING THE FUEL FILTER CARTRIDGE

- 1. Remove the protective housing beneath the oil cup in the top part of the dumper.
- 2. Replace the fuel filter cartridge with a new one every 400 hours of operation.
- 3. Apply a thin layer of gasoline on the gasket, then tighten the cartridge firmlywith your hands.
- 4. Finally, vent out air from the system.



The fuel filter cartridge must be regularly replaced, so as to avoid premature wear of the plunger or sprayer of the injection pump due to impurities seeping into the fuel.



- (1) Fuel filter cartridge
- (2) bleeder screw
- (3) O-ring
- (4) Pipe joint
- (5) Cover

6. ENGINE MAINTENANCE

RADIATOR

If the coolant is topped up all the way before starting the engine, it will last a full day's work. As such, be sure to check the coolant level regularly before starting the machine.



To avoid personal injury:

- Do not suddenly stop the engine; stop it after it has been running 5 minuteswithout a load.
- Commence work only after the engine and radiator have cooled down completely (more than 30 minutes after it has been stopped).
- Do not remove the radiator cap while the engine is very hot. Once it has cooleddown, slightly loosen the until it emits a fizzy sound, in order to release the excess pressure, then remove it completely.
 - If the engine overheats, steam may come out of the radiator or reserve tank. This could cause serious accidents.

CHECKING THE COOLANT LEVEL AND ADDING COOLANT

- 1. Remove the radiator cap and check that the coolant reaches the refueling plug.
- 2. Check the coolant level in the compensationtray. If it is ranging between "FULL" and "LOW", there is enough coolant to last a full day's work.
- 3. When the coolant level drops due to evapora-tion, add water only until it reaches the full mark.
- 4. Check the two outlets; one is fitted on thebaseplate and the other in the bottom part of the radiator (see the figures).

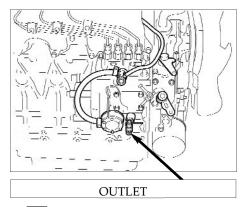


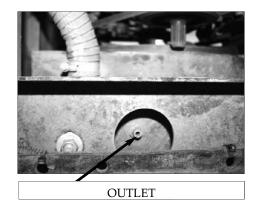


- If you must remove the radiator cap, apply the precautions listed below and firmly re-tighten it.
- If water leaks from the radiator, contact your KUBOTA dealer.
- Use clean, soft and anti-freeze water to refill the storage tank.
- Make sure that no marine water mud seeps into the radiator.
- Do not fill up the reserve tank with coolant above the "FULL" mark.
- Make sure you have sealed the radiator cap safely. If the cap is loose or not tightenough, the coolant may drip and the level rapidly drop.

CHANGING THE COOLING LIQUID

- 1. To drain out the coolant, always open both outlets and simultaneously open also the radiator cap. It is impossible to fully drain out the water if the radiator cap is tightened all the way.
- 2. Remove the pressurized cap channeling hose of the radiator to empty out thereserve tank.







SOLUTIONS FOR A SUDDEN SHORTAGE OF COOLANT

- 1. Check for the presence of dust or dirt between the radiator fins and the hose. If there is any, clean it off the fins and hose.
- 2. Check that the ventilation belt is tight. If it is not, tighten it firmly.
- 3. Check the inner lock of the flexible sleeve of the radiator. If deposits form on thesleeve, clean it with an anti-corrosive or similar product.

CLEANING THE RADIATOR (OUTDOOR)

Remove the outer protective grilles on the radiator, as shown in the images below.

Get rid of any trace of dirt or debris on the radiator.

If dust gets caught between the fin and hose, rinse it with tap water.

The radiator should look as shown in the image below when done.



IMPORTANT

•Do not use solid tools such as brushes or screwdrivers to clean the radiator. These could damage the fin or the hose and could therefore cause coolant to leak or cooling efficiency to slag.



CAUTION

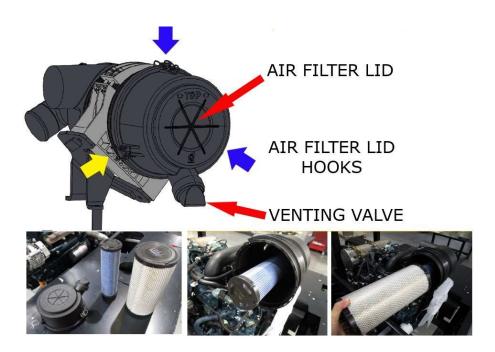
If the temperature of the coolant approaches or exceeds boiling point, also known as "Overheating", be sure to take the following precautions if the alarm light goes on.

- 1. turn off the engine in a safe place and let it runidle at minimum rpm;
- 2. do not abruptly stop the engine, but only afterit has been running for 5 minutes at minimum rpm;
- 3. if the engine stalls after about 5 minutes run-ning idle, abandon the machine at once and keep at a distance. In no circumstance open the hood or other parts;
- 4. Keep at a distance from the engine for another 10 minutes (or while steam isventing out) and make sure that no one draws close to it;
- 5. check there is no hazard of skin burns and eliminate the cause of the overhea-ting. Finally, start the engine again.

AIR FILTER

The air filtering element is a dry type; as such, it does not need to be oiled.

- 1. In normal operating conditions, the venting valve needs to be opened only oncea week, or every day if employed in a dusty environment, in order to remove any dust and minor impurities.
- 2. Clean both the cartridges inside the air filter with a cloth or similar fabric if it isdirty or damp.
- 3. Try to avoid touching the filtering element, except if you are cleaning it.
- 4. If the dust should stick to the element, remove it blowing compressed air from the inside outward, rotating the element. The pressure of the compressed air must be less than 205 kPa (2,1 kgf/cm , 30 psi).
- 5. Replace the filtering element once a year or every 6 cleaning sessions.





IMPORTANT

- Make sure that the hooks of the air filter lid for the filtering element are tightened all the way. If they are loose, the dust and dirt may be sucked in, wearing out the cylinder and sealing ring, thereby impairing engine performance.
- Do not overly service the air filtering element. This could cause dirt to enter the engine and wear it out prematurely.

FAN BELT

ADJUSTING FAN BELT TENSION



CAUTION

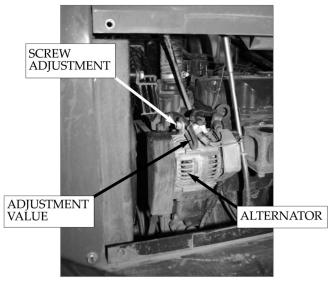
To avoid personal injury:

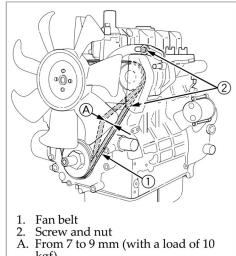
- Stop the engine and pull out the ignition key before checking fan belt tension.
- Make sure to reassemble the guards removed once you are done with maintenance or routine checks.

Correct fan belt tension:

The belt must curve from 7 to 9 mm when pressed halfway between the pulleys.

- 1. Stop the engine and pull out the ignition key. Access the engine hood as described previously and remove the fan grille.
- 2. Apply moderate pressure on the belt between the pulleys with a thumb, acces-sing it after having removed the guard located beneath the control panel.





- 3. If the belt tension is not up to standard, loosen the alternator mounting boltsand, with the aid of a lever placed between the alternator and engine unit, turn the alternator until the belt flexes within an acceptable range.
- 4. Replace the fan belt if it is damaged.
- 5. When you are done with the tasks, make sure to reassemble the fan grille andthe removed guards.



IMPORTANT

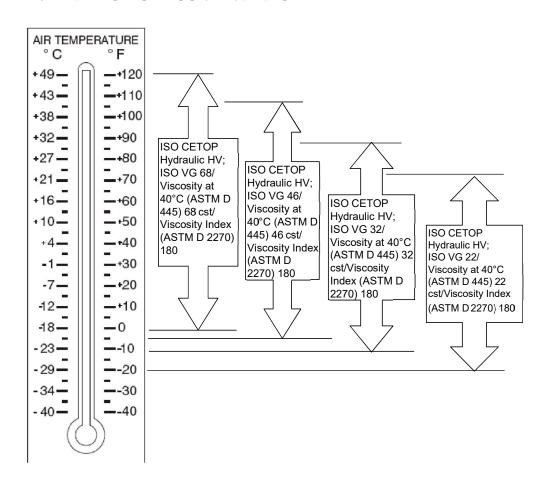
If the belt is loose or damaged, or the fan piece is, the system may overheat or battery charge may be insufficient. Solve the problem or replace the item.

HYDRAULIC SYSTEM

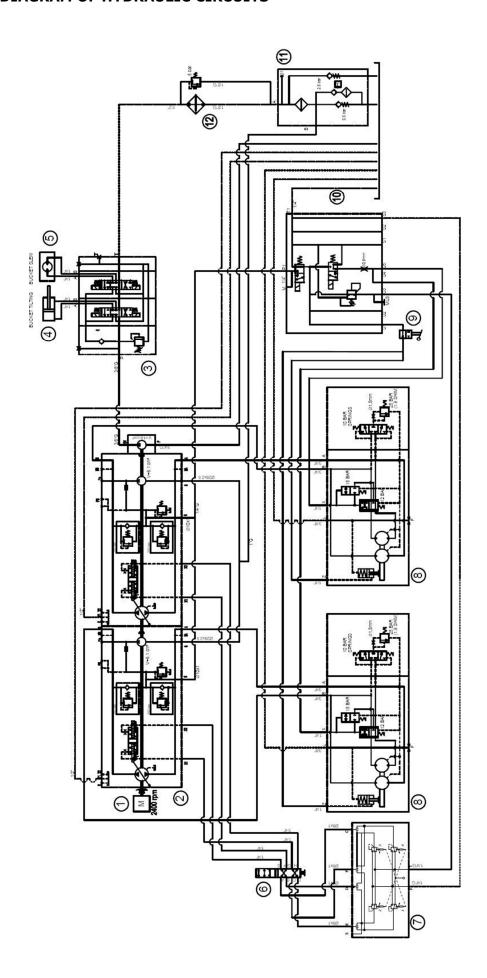
CONTENTS

- 1. Hydraulic recommended oil
- 2. Diagrams of hydraulic circuits
- 3. Hydraulic devices layout
- 4. Hydraulic components
- 5. Hydraulic oil check and replacement
- 6. Hydraulic oil filter
- 7. Hydraulic pressure set
- 8. High pressure circuit charging
- 9. Hydraulic pump disassembly/assembly
- 10. Hydraulic pipes
- 11. Body cylinder disassembly/assembly (standard bed version)

1. HYDRAULIC RECOMENDED OIL



2. DIAGRAM OF HYDRAULIC CIRCUITS



Position	Description	
1	Engine	
2	Hydraulic oil pump	
3	Valve block for body movements	
4	Body lifting cylinder	
5	Slew body ring	
6	Valve block under the seat (for tracks movements)	
7	Valve block for tracks movements (handles)	
8	Hydraulic track motors	
9	Parking brake tap	
10	Collector for brake and second speed	
11	Hydraulic oil filter	
12	Water-oil cooler	

Hydraulic components pictures







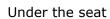
Under the body handles











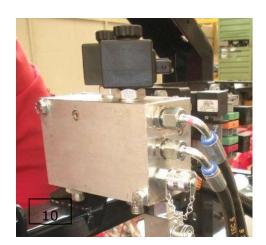








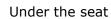


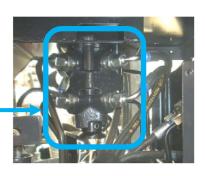








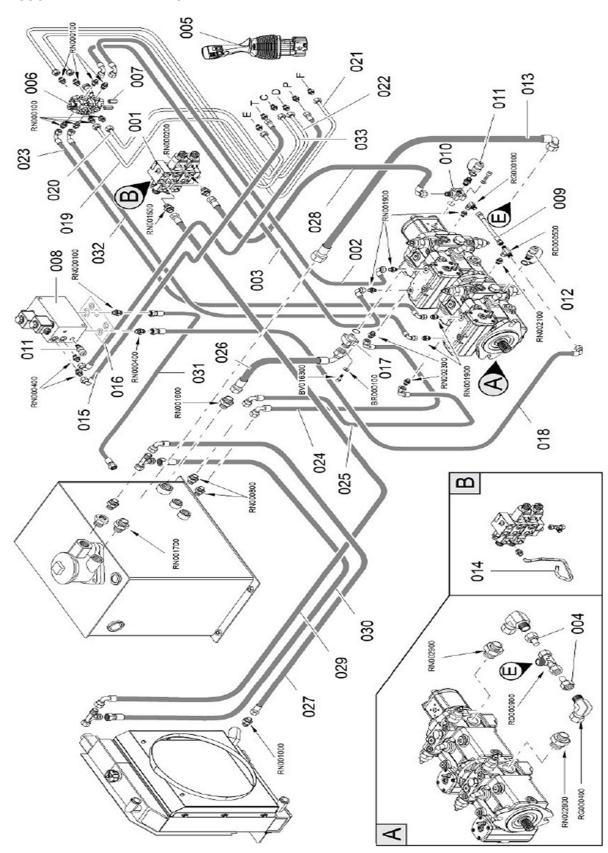


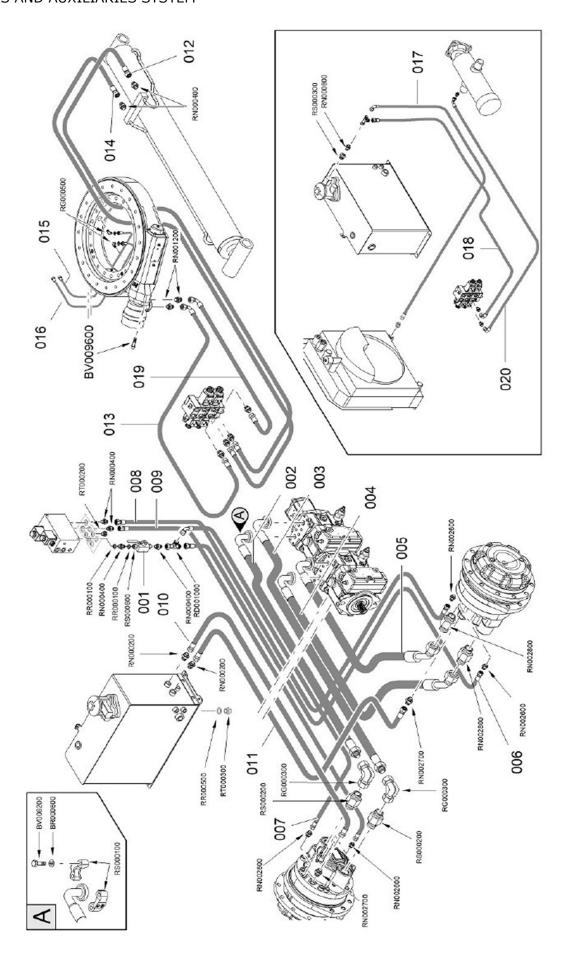


3. HYDRAULIC DEVICES LAYOUT

FOR STANDARD BED VERSION

PRESSURE AND TANK LINES

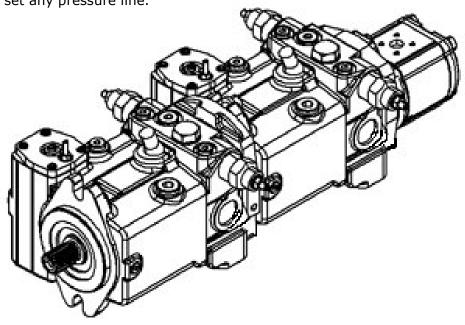




4. HYDRAULIC COMPONENTS

HYDRAULIC OIL PUMP

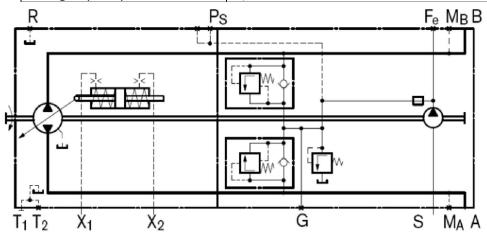
Hydraulic oil pump is made by two variable axial piston pump and one gear pump. Pump unit cannot be disassembled. Oil pressures are pre-calibrated; it is not possible to modify or set any pressure line.

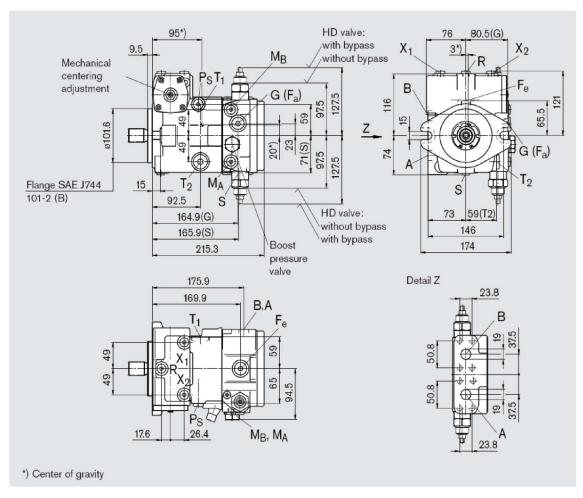




VARIABLE PISTON PUMP DATA

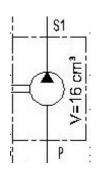
Kind	AV10VG28VG/10
Displacement	28 cm3
Displacement boost pump	6,1 cm3
Max continuous speed	3900 rpm
Minimum speed	400 rpm
Flow at V max	109 l/min
Power ($\Delta p = 300 \text{ bar}$)	54,6 kW
Torque ($\Delta p = 300 \text{ bar}$)	134 Nm
Filling capacity	0,64 L

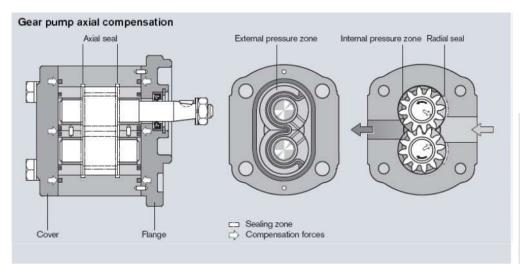




GEAR PUMP DATA

Kind	AZPF
Displacement	16 cm3
Max operating pressure	280 bar
Max rotation speed	3000 rpm
Minimum speed	400 rpm
Flow at V max	109 l/min
Power ($\Delta p = 300 \text{ bar}$)	54,6 kW
Torque ($\Delta p = 300 \text{ bar}$)	134 Nm
Filling capacity	0,64 L

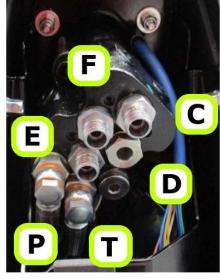


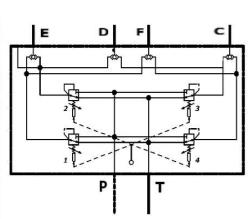




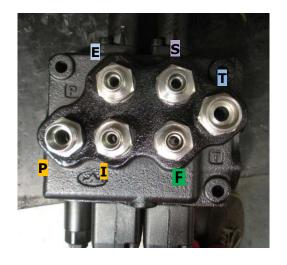
TRACKS VALVE BLOCK

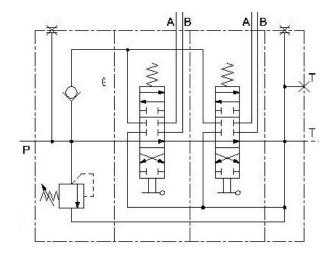






BODY VALVE BLOCK (STANDARD BED)





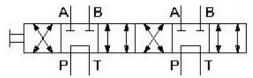
8 ways valve block under the seat

8 ways valve block has the function to maintain the same function of the track level independently about the position of the seat.

Because of this part, moving the track handles forward the machine run in the direction of the operator eyes, independently about the position of the seat. The same result moving the handles backwards.



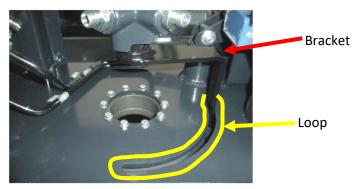




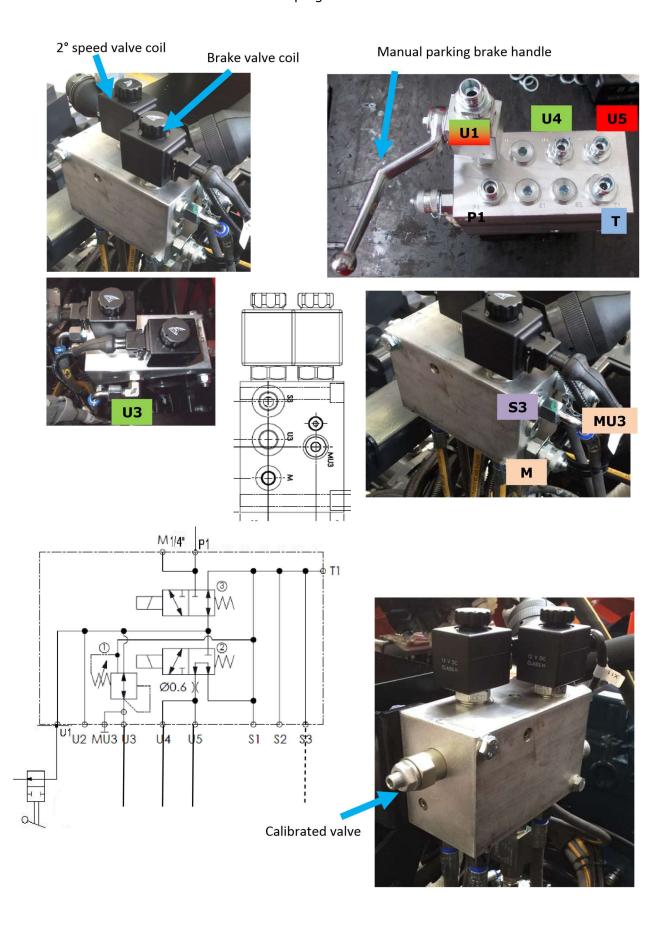
Very important note:

In case of 8 ways valve block dismounting or replacement, it is absolutely essential to locate the bracket in a way it doesn't touch the seat support during the complete stroke. It has to perfectly run inside the loop.

In case of contact or interferences, bracket can be damaged and blended, so valve block will be not able to work correctly.



SECOND SPEED AND PARKING BRAKE VALVE BLOCK (KC250/200) It has been had a calibrated valve with its plug MU3.

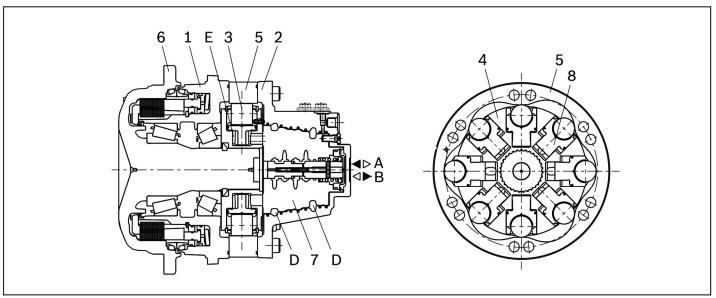


TRACK MOTORS

2

MCR-T Series 3X | Functional description

Functional description



Hydraulic motors type MCR-T are specially designed radial piston motors for track drives.

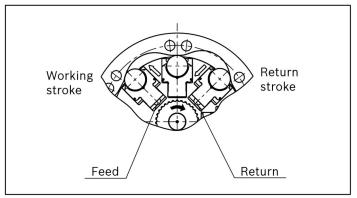
Construction

Two part housing (1, 2), rotary group (3, 4, 8), cam (5), drive shaft (6) and flow distributor (7)

Transmission

The cylinder block (4) is connected to the shaft (6) by means of splines. The pistons (8) are arranged radially in the cylinder block (4) and make contact with the cam (5) via rollers (3).

Torque generation



The number of working and return strokes corresponds to the number of lobes on the cam x number of pistons in the cylinder block.

Bosch Rexroth AG, RE 15221/06.2012

Flow paths

The ports A and B which are located at the rear case carry oil through the distributor to the cylinder chambers (E).

Bearings

Tapered roller bearings capable of transmitting high axial and radial forces are fitted as standard.

Freewheeling

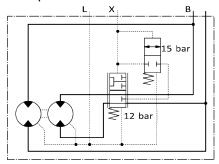
In certain applications there may be a requirement to freewheel the motor. This may be achieved by connecting ports A and B to zero pressure and simultaneously applying a pressure of 2 bar to the housing through port L. In this condition, the pistons are forced into

Functional description | MCR-T Series 3X the cylinder block which forces the rollers to loose contact with the cam thus allowing free rotation of the shaft.

Two speed operation (2W)

In mobile applications where vehicles are required to operate at high speed with low motor loads, the motor can be switched to a low-torque and high-speed mode. This is achieved by operating an integrated valve which directs hydraulic fluid to only one half of the motor while continuously re-circulating the fluid in the other half. This "reduced displacement" mode reduces the flow required for a given speed and gives the potential for cost and efficiency improvements. Maximum speed of the motor remains unchanged. Bosch Rexroth has developed a special spool valve to allow smooth switching to reduced displacement whilst on the move. This is known as "soft-shift" and is a standard feature of 2W motors. The spool valve requires either an additional sequence valve or electro-proportional control to operate in "soft-shift" mode.

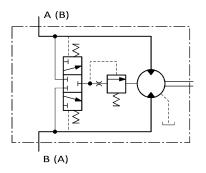
▼Two-speed motor



Flushing valve

In a closed circuit, the same hydraulic fluid continuously flows between the pump and the motor. This could therefore lead to overheating of the hydraulic fluid. The function of the flushing valve option is to replace hydraulic fluid in the closed circuit with that from the reservoir. When the hydraulic motor is operated under load, either in the clockwise or counter-clockwise direction, the flushing valve opens and allows a fixed flow of fluid through an orifice from the low pressure side of the circuit. This flow is then fed to the motor housing and back to the reservoir normally via a cooler. In order to charge the low pressure side of the circuit, cold fluid is drawn from the reservoir by the boost pump and is fed to the pump inlet through the check valve. Thus the flushing valve ensures a continuous renewal and cooling of the hydraulic fluid. The flushing feature incorporates a relief valve which is used to maintain a minimum boost pressure and operates at a standard setting of 14 bar (other options available on request). Different orifice sizes may be used to select varying flows of flushing fluid. The following table gives flushing rate values based on a boost / charge pressure of 25 bar.

Motor with flushing valve



▼Mounting

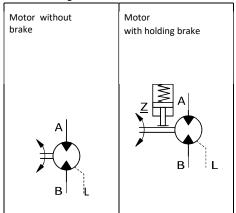
In MCRT, the brake is integrated into the motor itself. The brake parts that are attached to the shaft can rotate while the ones that are attached to the front case remain stationary.

▼Brake application

As a safety requirement in mobile applications a parking brake is provided to ensure that the motor cannot turn when the machine is not in use. The parking brake provides holding torque by means of discs that are compressed by a disc spring. The brake is released when oil pressure is applied to brake port "Z" and the pressure in the annular area compresses the disc spring allowing the brake discs to turn independently.

Note: This brake is provided solely for static use - not to be used dynamically.

▼Schematic diagrams



MCR-T Series 3X | Functional description

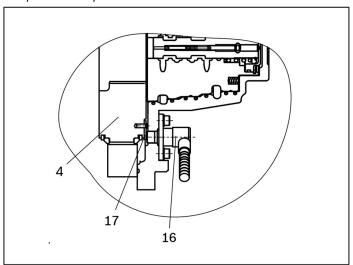
Speed sensor

4

A Hall-effect speed sensor (16) may be fitted as an option, giving a two-channel output of phase-displaced square waves, and enabling detection of speed and direction. A toothed target disc (17) is fitted to the motor cylinder block (4), and the sensor, fitted to a port in the rear case, produces a pulse on each channel as each tooth passes in front of it. The frequency of the pulses is proportional to the rotational speed.

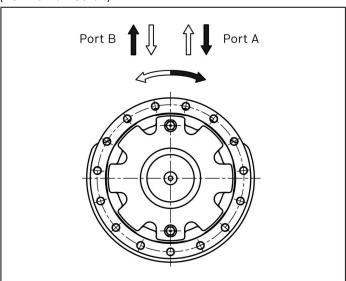
Versions are available for use with regulated supplies (code P1) and for direct connection to a 12 V or 24 V unregulated supply (code P2).

The motor can also be supplied fitted with a target disc and with a speed sensor port machined, but covered and sealed with a blanking plate (code PO). These "sensorready" motors may be fitted with a sensor at a later date.



Direction of shaft rotation with flow

(view from drive shaft)

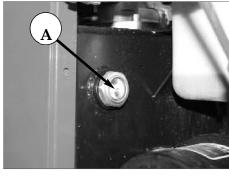


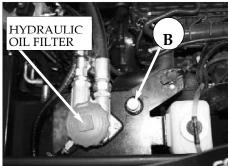
5. HYDRAULIC OIL CHECK AND REPLACEMENT

Check

To check the level of the hydraulic oil, position the machine on a flat surface, with its skip closed and check that the oil level is approximately halfway of the visual level **A** that can be viewed from the side compartment.

If it is not, pour in oil through the oil refill cap **B**.





Replacement



CAUTION

To open the refill cap, loosen the cap by a full turn and let the pressurized air inside the tank flow out. Then, unscrew the cap all the way.



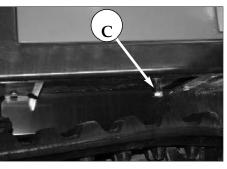
IMPORTANT

Opening the cap and more in general, parts of the hydraulic system may lead to debris and

dirt entering the oil tank (even microscopic quantities), which may considerably impair the life of the hydraulic components. Seal up the hydraulic system as soon as possible.

To completely replace the hydraulic oil, proceed as follows:

- open the top-up cap **B**;
- unscrew the drain cap **C** at the bottom of the tank;
- drain out the oil in the tank completely. Tighten the drain cap C and fill up the tank through the top-up cap B, being careful not to mix oils of different manufacturers.



6. HYDRAULIC OIL FILTER

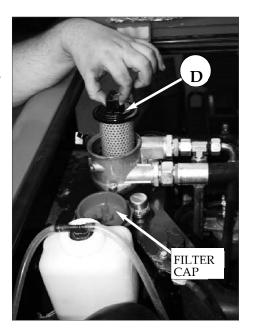
• Replacement

The hydraulic oil filter is located on the top part of the hydraulic oil tank inside the engine hood. To access it, after having opened the engine hood and unscrewed the hydraulic oil cap, unscrew the filter cap and take it off. Finally, replace cartridge

D.

Reassemble the lid, making sure that the cap is tightened.

Check the hydraulic oil level and top-up if need be.



7. HYDRAULIC PRESSURES SET

HIGH PRESSURE CIRCUITS

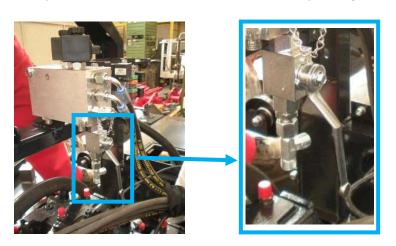
It is possible to check the hi pressure circuit pressures, however it is not possible to set these pressures.

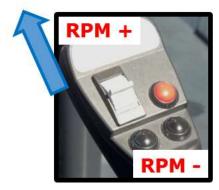
In order to check high pressure circuits, follow the hereby instructions:

1. Connect the pressure gauges at the high pressure plugs



- 2. Turn on the engine and warm engine and hydraulic oil
- 3. Open the bonnets and close the manual parking brake handle





4. Accelerate at the max rpm (2300 rpm 0/+100rpm)

Move one handle at the time till the end of the stroke (for a short time to avoid machine damages).

Max pressure has to be

350 bar -10bar/+30bar



AUXILIARY PRESSURE CIRCUIT

1. Connect the pressure gauge at the low pressure plug



- 2. Turn on the engine and warm engine and hydraulic oil
- 3. Accelerate at the max rpm (2300 rpm 0/+100rpm)

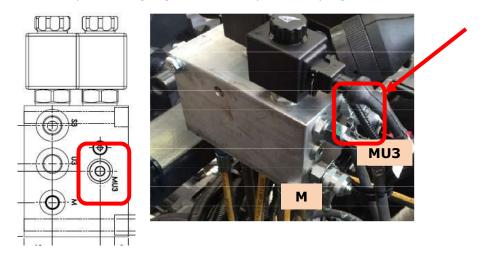


4. Close the body till the hand of the stroke. Max pressure has to be

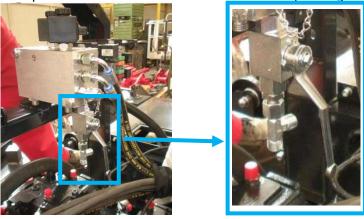
160 bar -3bar/+3bar

LOW PRESSURE CIRCUIT

1. Connect the pressure gauge at the low pressure plug



2. Open the bonnets and close the manual parking brake handle



- 3. Turn on the engine and warm engine and hydraulic oil4. Accelerate at the max rpm (2300 rpm 0/+100rpm)



5. Move one handle at the time till the end of the stroke (for a short time to avoid machine damages). Max pressure has to be 16 bar (KC250/200)



6. In case of need, low max pressure can be set from the hydraulic block



8. HIGH PRESSURE CIRCUIT CHARGING

In case of oil pump replacement or disassembly, it is necessary to fill up hydraulic oil inside high pressure pumps <u>BEFORE</u> to turn on the engine.

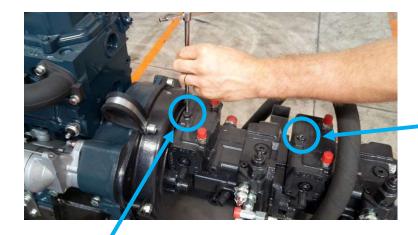
Turning on the engine with the high pressure pumps not completely filled, can potentially damage them irremediably.

PROCEDURE TO FILL UP HIGH PRESSURE PUMP

1. Remove breathing valve from hydraulic oil tank



2. Remove breather caps from both high pressure pumps



Second high pressure pump

First high pressure pump

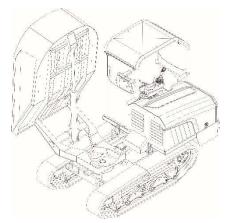
- 3. Fill up as slowly as possible hydraulic oil by breather cap hoses (one at the time). As soon as hydraulic oil comes out from the pump, install immediately its breather cap. Repeat this procedure for both the pumps, then leave the machine off without turn on the engine
- 4. Install breather cap on the hydraulic oil tank
- 5. After 30 minutes, remove both the breather caps in order to allow at the residual air inside the pumps to come out. Fill up again hydraulic oil till the maximum level possible
- 6. Turn on the engine and leave it at the idle at least for some minutes

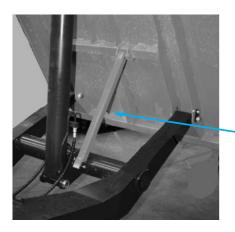
NOTE: Fix up the body by it safety lock during the operation on the pump

9. HYDRAULIC PUMP DISASSEMBLY ASSEMBLY

OIL PUM DISASSEMBLY

1. Rotate the body as indicated in the draw, and fix it by the lock.





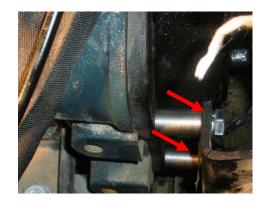
3. Disconnect battery cutter switch



- 4. Remove all the pipes from the pump (see paragraph "10 hydraulic pipes hydraulic oil pump connexion pipes"). Signe all the pipes in different way by a marker before the removal, in order to find easily their location during the re-assembly
- 5. Remove screws between oil pump and engine

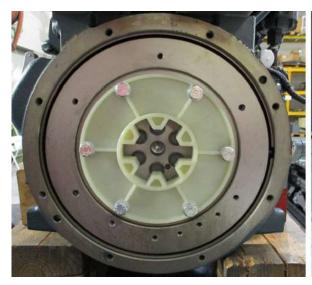






NOTE: Attention: without screws and pipes pumps can fall down on the chassis

6. Move oil pump backward in order to release it from the engine





7. Remove oil pump from the machine from the up.



8. In case of difficulties because of the restrict working area, it is possible to remove back gears pump from the pump unit

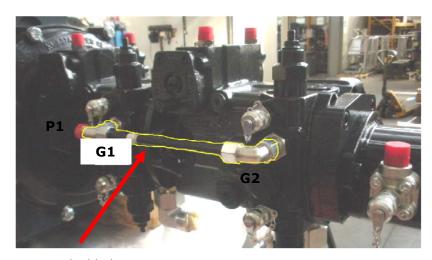


OIL PUMP ASSEMBLY

- 1. Install oil pump following the above procedure on the reverse side
- 2. <u>Very Important Note:</u> Before to start on the engine, fill up hydraulic oil in high pressure pumps (see paragraph "8 high pressure circuit charging")

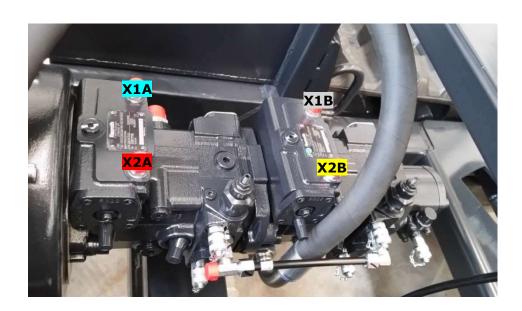
10. HYDRAULIC PIPES

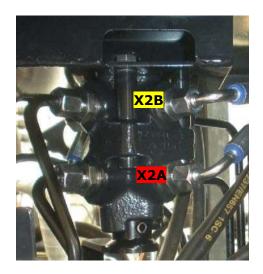
HYDRAULIC OIL PUMP CONNEXION PIPES

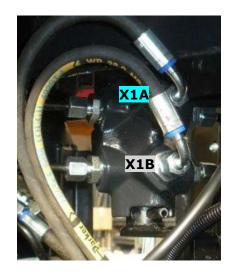


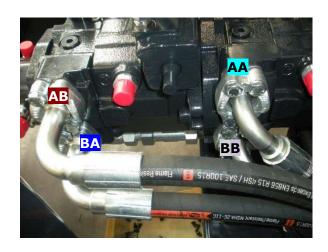


External added pipe

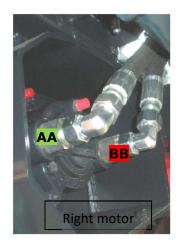


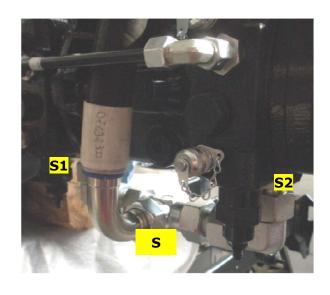


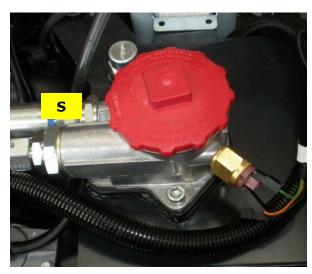




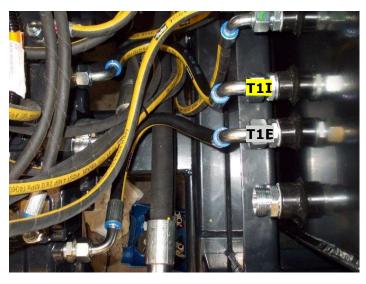


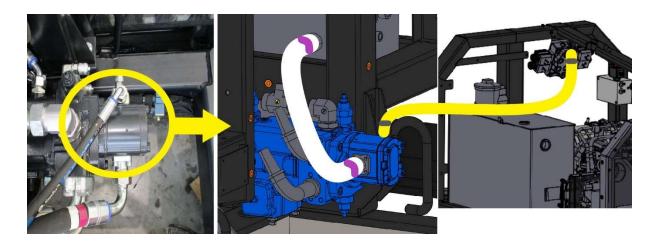






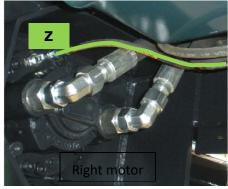


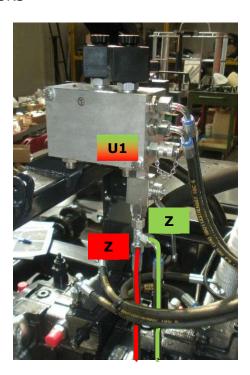




PARKING BRAKE PIPES ON THE MOTORS







DRAIN PIPES ON THE MOTORS

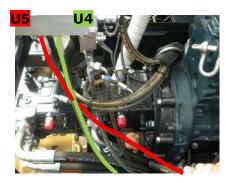






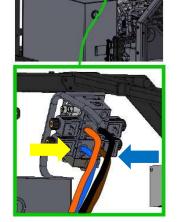
SECOND SPEED LINE ON THE MOTORS



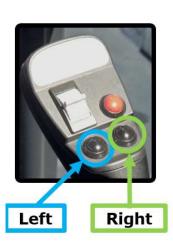




PIPES FOR SLEW ROTATION RING



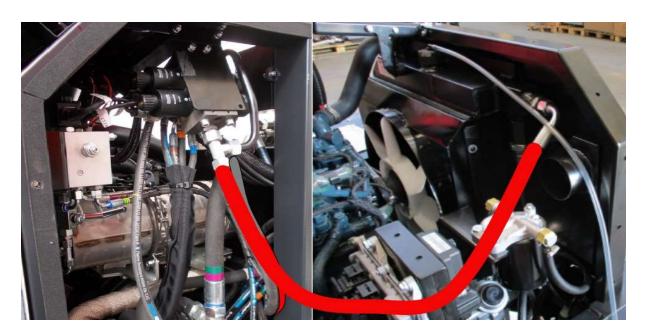




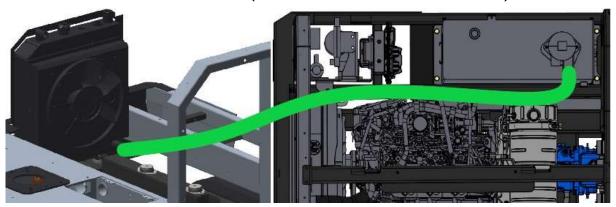
PIPES FOR BODY LIFTING



PIPES FROM BODY VALVE BLOCK TO RADIATOR



PIPES FROM RADIATOR TO OIL FILTER (ONLY FOR STANDARD BED VERSION)



11. BODY CYLINDER DISASSEMBLY/ASSEMBLY (STANDARD BED VERSION)

BODY CYLINDER DISASSEMBLY

1. Open completely the body, and install the safety retainer



2. Fasten the body to a crane or a fork lift by ropes or chains.





3. Remove the upper cylinder body pin





100 Nm drop side 50 Nm other side

4. Close completely the cylinder, then disconnect the oil pipes from the body cylinder. To avoid hydraulic oil leakages, seal the pipes by caps



5. Remove the lower cylinder body pin, then remove the cylinder



BODY CYLINDER ASSEMBLY

To install the cylinder, follow this procedure on the reverse side, respecting the tightening specifications indicated.

ELECTRICAL SYSTEM

CONTENTS

1. Electric wiring diagrams

ELECTRIC DIAGRAM

DE	ESCRIPTION	ERENCE
•	How to read the electric wiring diagrams	
•	Joystick - Horn	Α
•	Parking brake – Second speed Electro Valve – Start/Stop button	В
•	Head lamps - Beacon	С
•	Rear camera – Canview – Generator signal - Hydraulic oil filter sensor	D
•	Seat switches – Fuel level sensor - Accelerator pedals	Е
•	Can Bus Line	F
•	Kubota engine diagnosis plug – OBD – 12 Volt plug	G
•	Ignition key – Starter – Glow plugs – fuses box feed	Н
•	Bucket Electro Valves	I
•	Main relay – Air flow sensor – Fuel pump – Fuel filter sensor	J
•	Electronic controller feeds – EGR relay feed – Battery main switch – Generator ca	able K
•	Engine Intermediate connectors	L
•	Engine ECU feed – Fuel injectors	М
•	Fuse boxes	N
•	Engine ECU Pin Out	0
•	Components location	Р
•	Component abbreviations meaning	Q
	Connectors lavout	R

SCHEMA ELETTRICO

DE	SCRIZIONE	RIFERIMENTO
•	Come leggere gli schemi elettrici	
•	Joystick – Avvisatore acustico	Α
•	Freno di parcheggio – Valvola seconda velocità – Pulsante Start/Stop	В
•	Fari - Lampeggianti	С
•	Retro camera - Canview - Segnale generatore - Sensore filtro olio idraulico	D
•	Interruttori sedile - Sensore livello carburante - Pedali acceleratore	E
•	Linea Can Bus	F
•	Presa di diagnosi Kubota – OBD – Presa 12 Volt	G
•	Accensione – Motorino di avviamento – Candelette preriscaldo – Alimentazione fusibili	Н
•	Elettro valvole benna	I
•	Relay principale – Sensore massa d'aria – Pompa carburante – Sensore filtro carburante	J
•	Alimentazione scheda elettronica – Alimentazione relè EGR – Stacca batterie – Cavo generatore	К
•	Connettori intermedi motore	L
•	Alimentazione ECU motore – Iniettori motore	М
•	Scatole fusibili	N
•	Pin Out ECU motore	0
•	Locazione componenti	Р
•	Significato abbreviazione componenti	Q
•	Lavout connettori	R

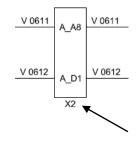
INSTALACIÓN ELÉCTRICA

DE	SCRIPCION	REFERENCIA
•	Como leer la instalación eléctrica	
•	Joystick - Clacson	А
•	Freno de estacionamiento - Válvula segunda velocidad - Pulsador Start/Stop	В
•	Faros - Luces parpadeantes	С
•	Cámara trasera - Canview - Señal del generador – Sensor del filtro de aceite hidráulico	D
•	Interruptores del asiento - Sensor de nivel de combustible - Pedales del acele	erador E
•	Linea Can Bus	F
•	Toma de diagnóstico Kubota - OBD - Toma de 12 Volt	G
•	Encendido - Motor de arranque - Bujías de precalentamiento – Alimentaciones fusibles	Н
•	Electro válvulas cajon	I
•	Relé principal - Sensor de masa de aire - Bomba de combustible - Sensor del filtro de combustible	J
•	Alimentación placa electrónica - Alimentación relé EGR - Saca batería - Cable del generador	K
•	Conectores intermedios del motor	L
•	Alimentación ECU motor - Inyectores motor	М
•	Cajas de fusibles	N
•	Pin Out ECU motor	0
•	Colocación componentes	Р
•	Significado abreviatura componentes	Q
•	Layout conectores	R

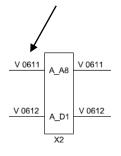
PLAN ÉLECTRIQUE

DES	SCRIPTION RÉFÉREN	ICE
•	Comment lire les plans électriques	
•	Joystick – Klaxon	Α
•	Frein de stationnement - Valve de deuxième vitesse - Bouton Start/Stop	В
•	Lumieres Feux clignotants	С
•	Chambre arrière - Canview - Signal générateur - Capteur de filtre à huile hydraulique	D
•	Interrupteurs de siège - Capteur de niveau de carburant - Pédales d'accélérateur	Е
•	Ligne Can Bus	F
•	Prise de diagnostic Kubota - OBD - Prise 12 Volts	G
•	Allumage - Démarreur - Préchauffage des bougies de préchauffage – Alimentation par fusibles	Н
•	Electrovannes godets	I
•	Relais principal - Débitmètre d'air massique - Pompe à carburant - Capteur de filtre à carburant	J
•	Alimentation de la carte électronique - Alimentation du relais EGR - Coupe-batterie - Câble générateur	K
•	Connecteurs intermédiaires du moteur	L
•	Alimentation ECU moteur - Injecteurs moteur	М
•	Boîtes fusibles	Ν
•	Pin Out ECU du moteur	О
•	Disposition composants	Р
•	Signifie abréviations des composants	Q
•	Layout connecteurs	R

- HOW TO READ THE WIRING DIAGRAMS
- COME LEGGERE GLI SCHEMI ELETTRICI
- CÓMO LEER LOS ESQUEMAS ELÉCTRICOS
- COMMENT LIRE LES PLANS ÉLECTRIQUES
- Letter X always identify connectors
- La lettera X identifica sempre connettori
- La letra X identifica siempre conectores
- La lettre X indique toujours connecteurs



- Every wire is identified by the color and, if present, a number
- Ogni cavo è identificato dal colore e, se presente, da un numero
- Todos los cables son identificados da el color y, si presente, da un numero
- Chaque câble est identifié par le couleur et, si présente, par le nombre



COLOUR CODES

A = AZURE

B = BLACK

BL = BLUE

BR = BROWN

G = GREEN

GR = GREY

OR = ORANGE

P = PINK

R = RED

V = PURPLE

W = WHITE

Y = YELLOWSCH = SHIELDING TABELLA COLORI

A = AZZURRO

B = NERO

BL = BLU

BR = MARRONE

G = VERDE

GR = GRIGIO

OR = ARANCIO

P = ROSAR = ROSSO

V = VIOLA

W = BIANCO

Y = GIALLOSCH = SCHERMATURA TABLA COLORES

A = AZUL

B = NEGRO

BL = AZULBR = MARRÓN

G = VERDE

GR = GRIS

OR = NARANJA

P = ROSA

R = ROJO

V = VIOLETA

W = BLANCO

Y = AMARILLOSCH = CRIBADO TABLEAU COULEURES

A = BLEU CLAIR

B = NOIR

BL = BLEU

BR = MARRON

G = VERT

GR = GRIS

OR = ORANGE

P = ROSE

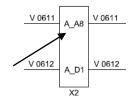
R = ROUGEV = VIOLET

W = BLANC

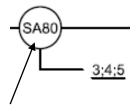
Y = JAUNE

SCH = BLINDAGE

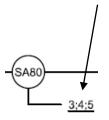
- Figures in the connectors, shows the pin numbers
- Le cifre all'interno dei connettori, indicano il numero del pin
- Las cifras dentro de los conectores, indican el numero del los contactos
- Les chiffres dans les connecteurs, indiquent le nombre des goupilles

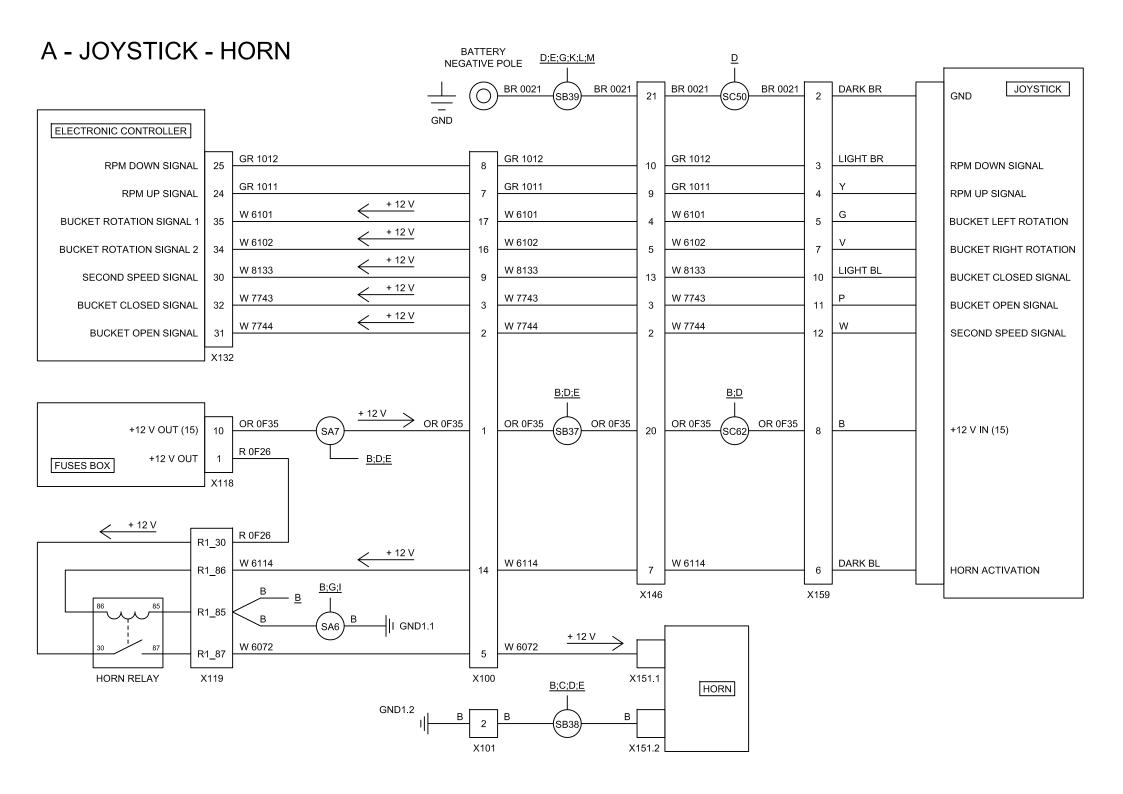


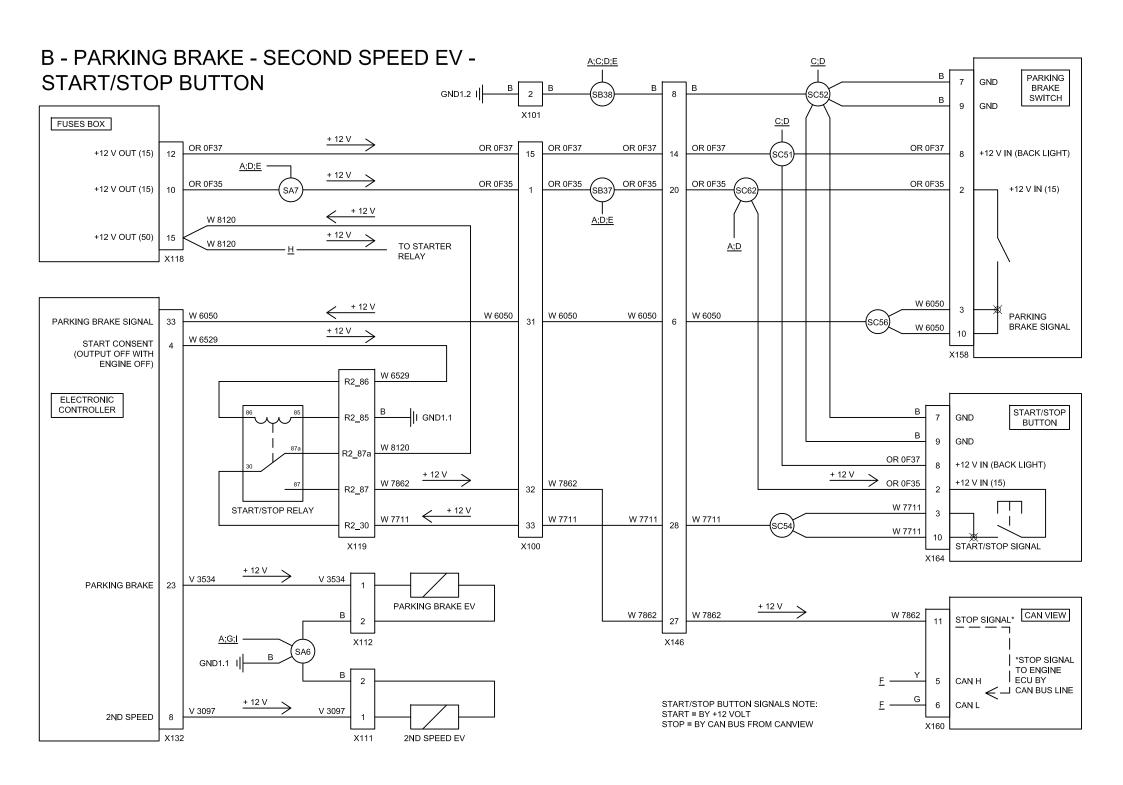
- Circles show welds with two or more wires. Each weld hasn a identification number
- I cerchi mostrano saldature con due o più cavi. Ogni saldatura ha un numero identificativo
- Los circulo maestra soldaduras con dos o más cables. Cada soldadura tiene un numero de identificación
- Les cercles indiquent les soudures avec deux ou plusieurs câbles. Chaque soudure a un numéro **d'identifi**cation

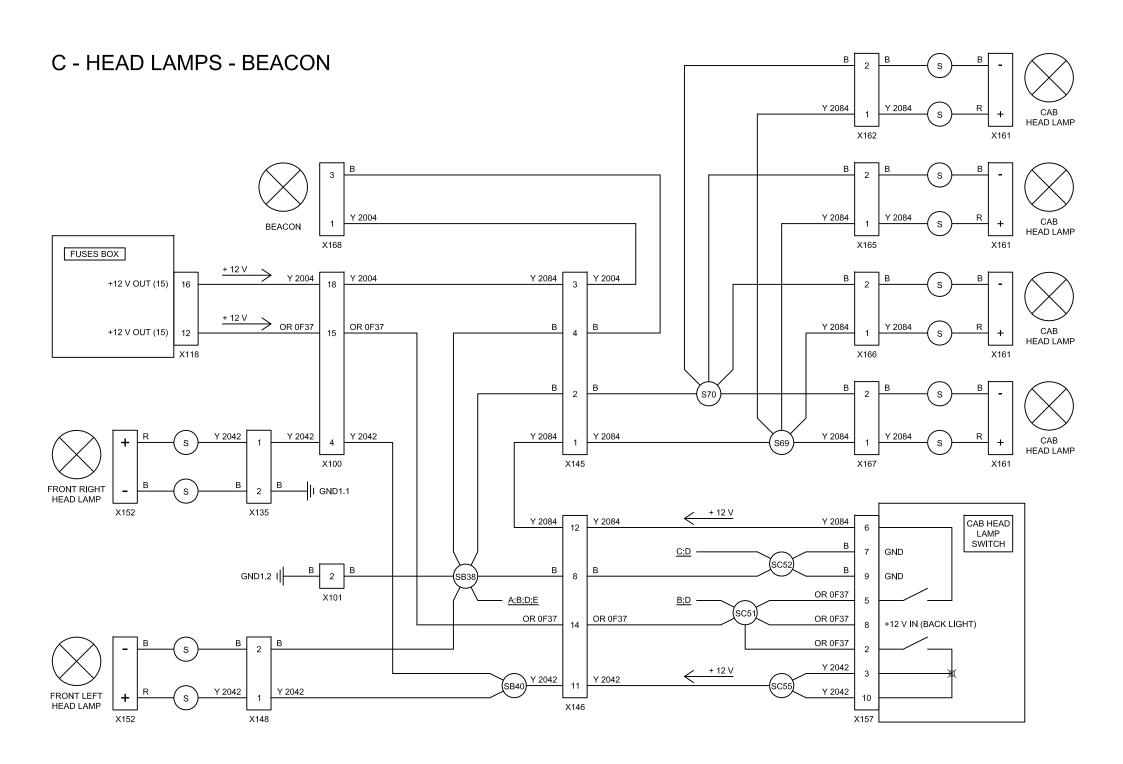


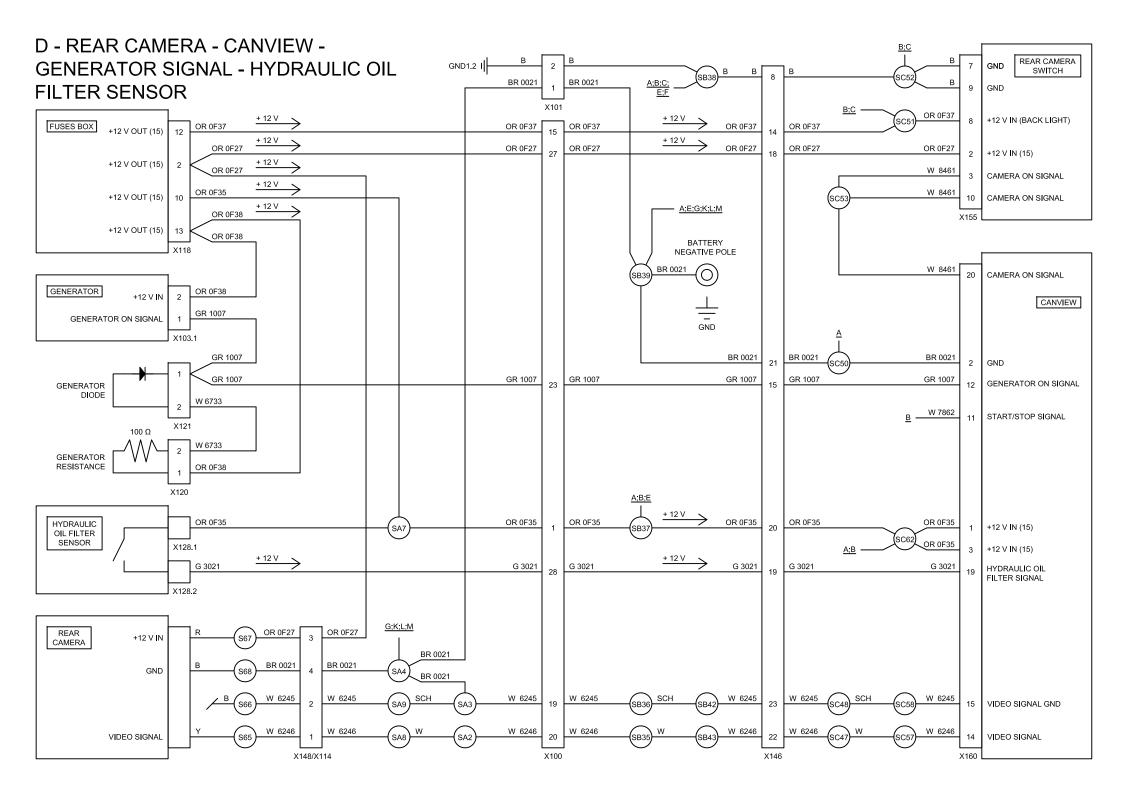
- Underlined letters show the page where the component is present too
- Le lettere sottolineate indicano le altre pagine dove il componente è presente
- Las letras subrayadas indican las otras páginas en donde el componente está presente
- Les lettre soulignées indiquent les autres pages ou le composant est présent









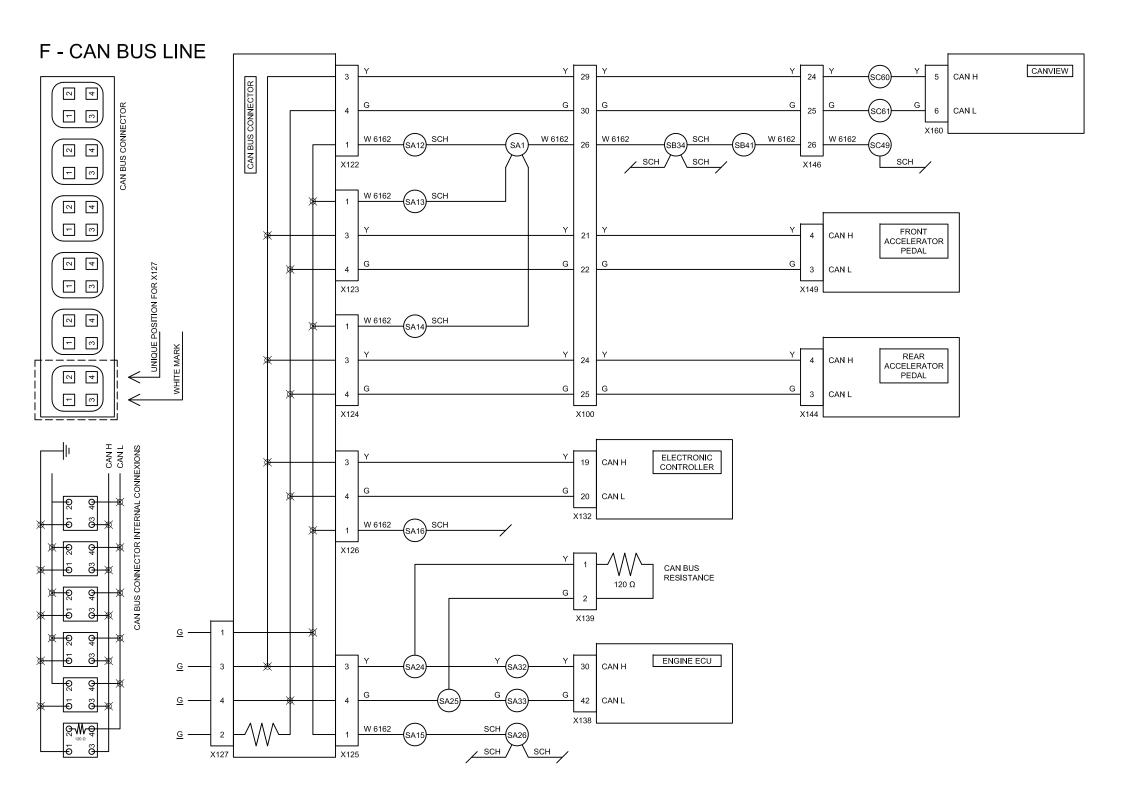


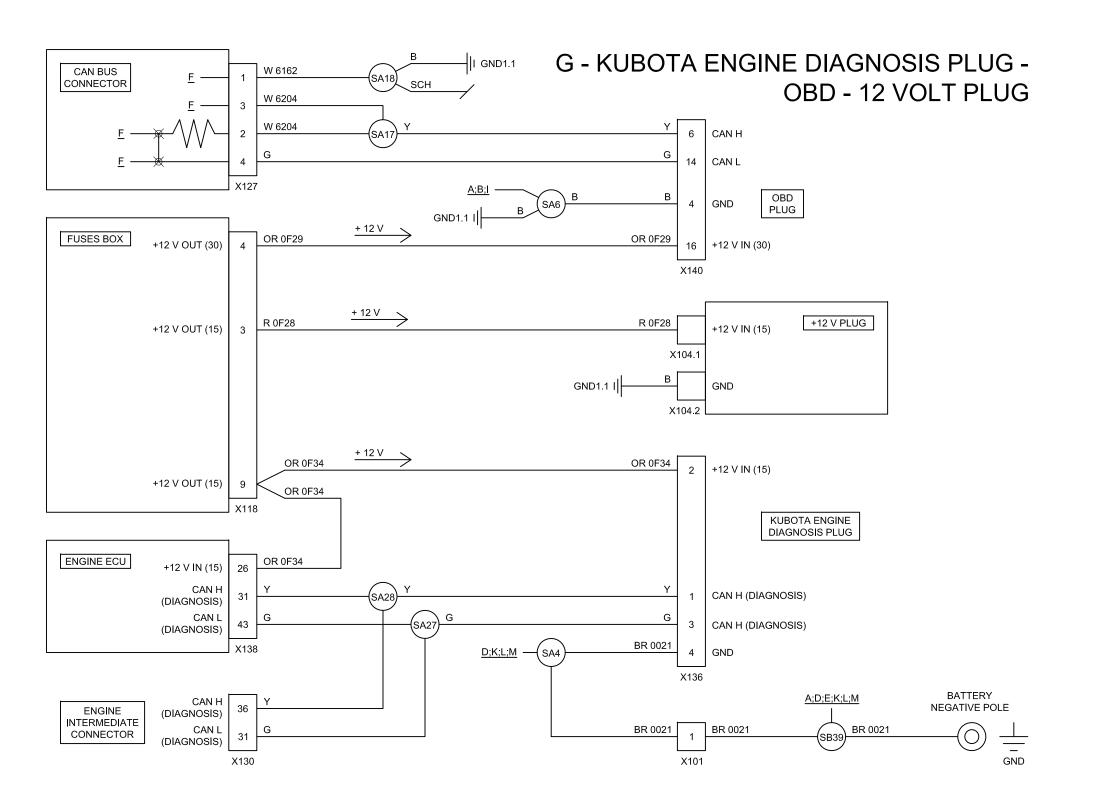
A;D;E;G;K;L;M E - SEAT SWITCHES -GND BR 0021 BR 0021 BR 0021 FRONT GND **FUEL SENSOR -**ACCELERATOR PEDAL + 12 V **ACCELERATORS PEDALS** (OPTIONAL) OR 0F35 **NEGATIVE POLE** +12 V IN (15) X149 BR 0021 REAR <u>A;B;D</u> -GND ACCELERATOR + 12 V FUSES BOX PEDAL + 12 V (OPTIONAL) OR 0F35 OR OF35 OR OF35 OR 0F35 +12 V OUT (15) +12 V IN (15) X118 X144 A;B;D OR 0F35 R SEAT SWITCH (MAN PRESENT) W 7472 W 7472 W 6078 W 7472 W 6078 В MAN PRESENT SIGNAL X163.1 X150 ELECTRONIC CONTROLLER ARMREST SWITCH OR 0F35 DIRECTION SEAT SWITCH ← + 12 V W 8465 W 8465 DIRECTION SEAT SWITCH SIGNAL REAR SIDE SHOWED OR 0F35 BL SEAT IN CORRECT 3 POSITION SWITCH W 8464 W 8464 W 8464 W 8464 BR FRONT SEAT ALIGNED SIGNAL 26 X147 X153 W 6021 W 6021 W 6021 W 6021 W 6021 FUEL LEVEL SIGNAL 28 FUEL LEVEL SENSOR SIGNAL X100 X154.1 A;B;C;D FUEL LEVEL SENSOR В В GND1.2 I 2 2 GND (SB38

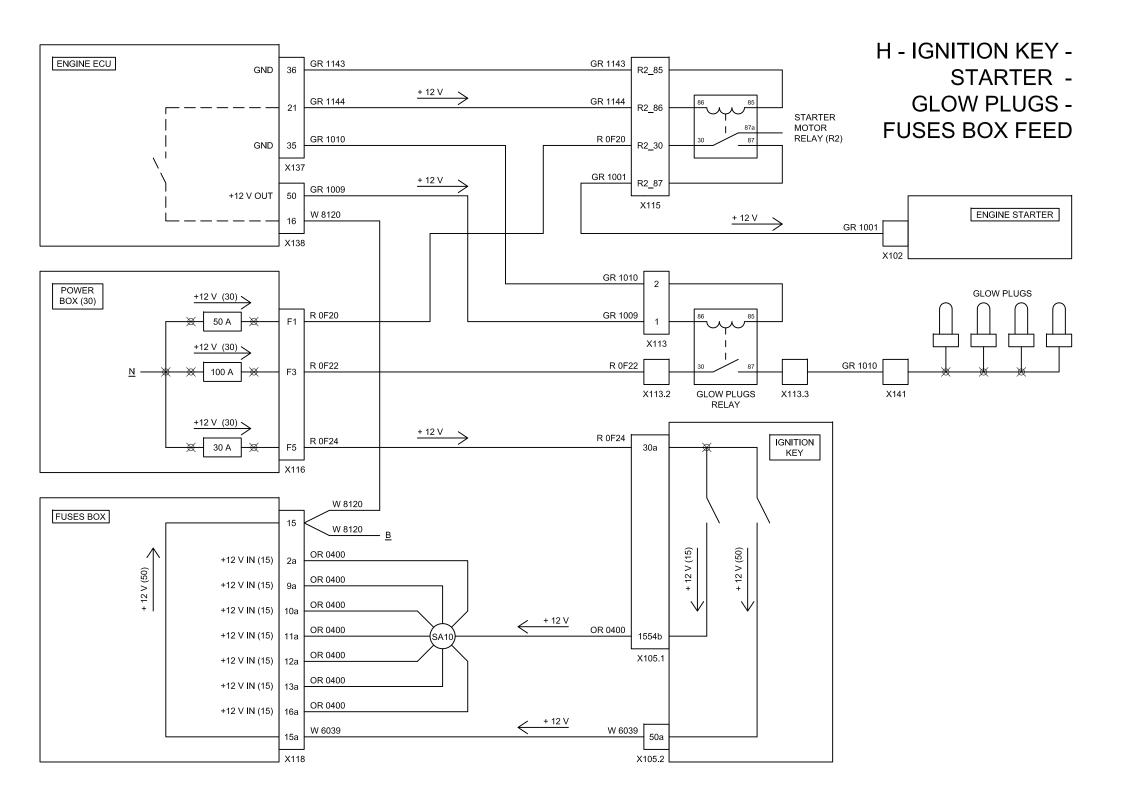
X143

X154.2

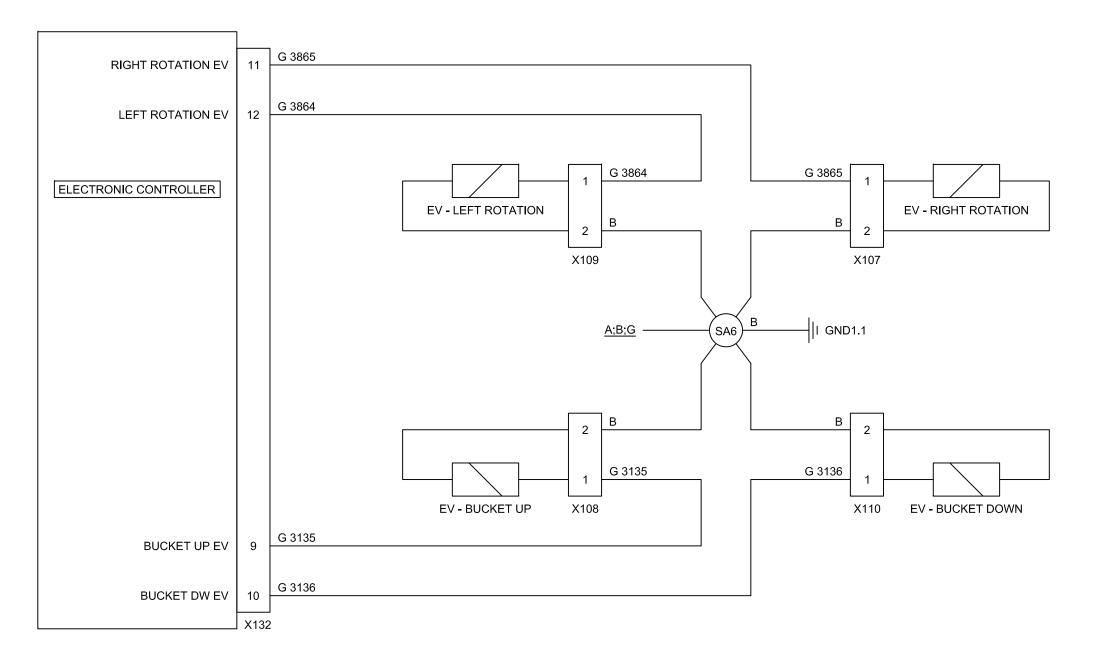
X101



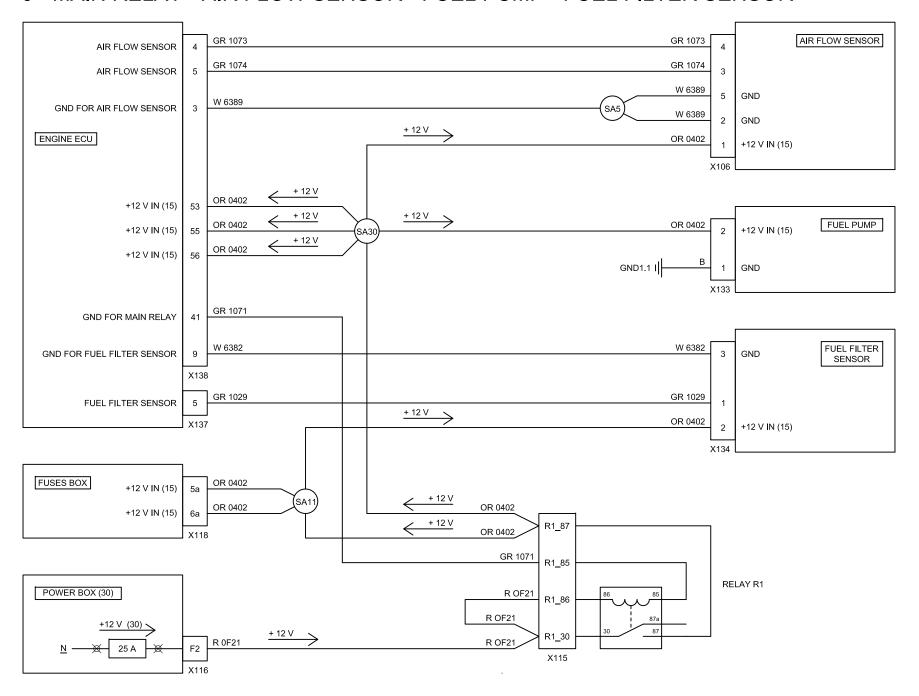


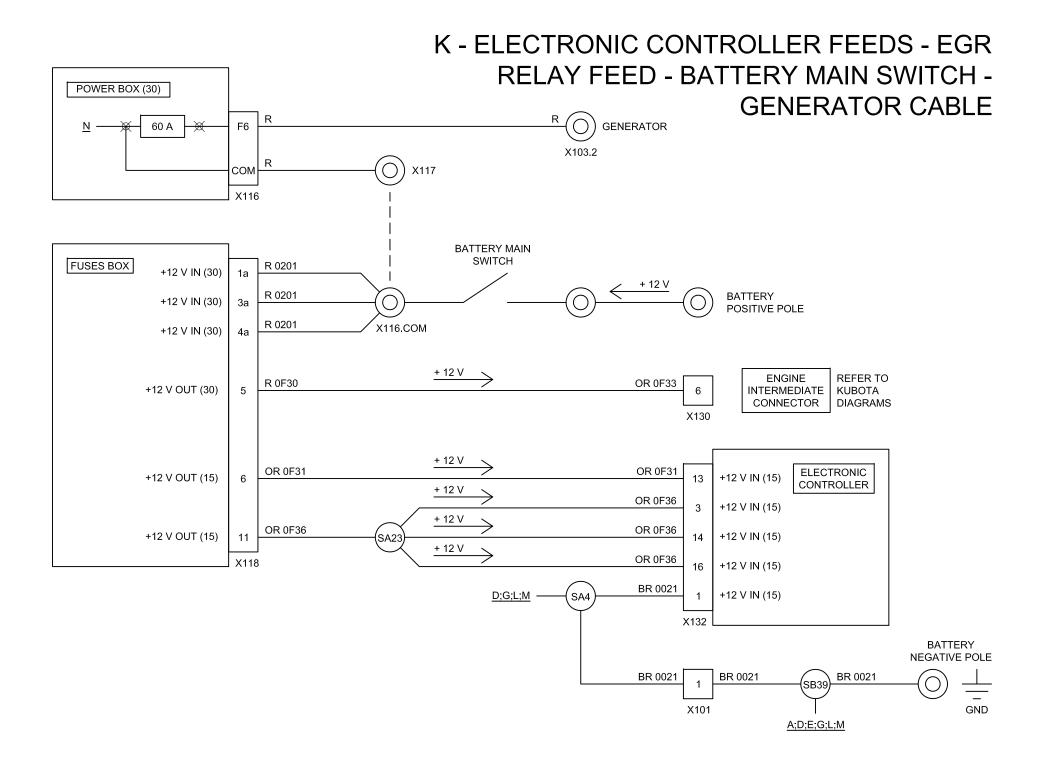


I - BUCKET ELECTRO VALVES (EV)

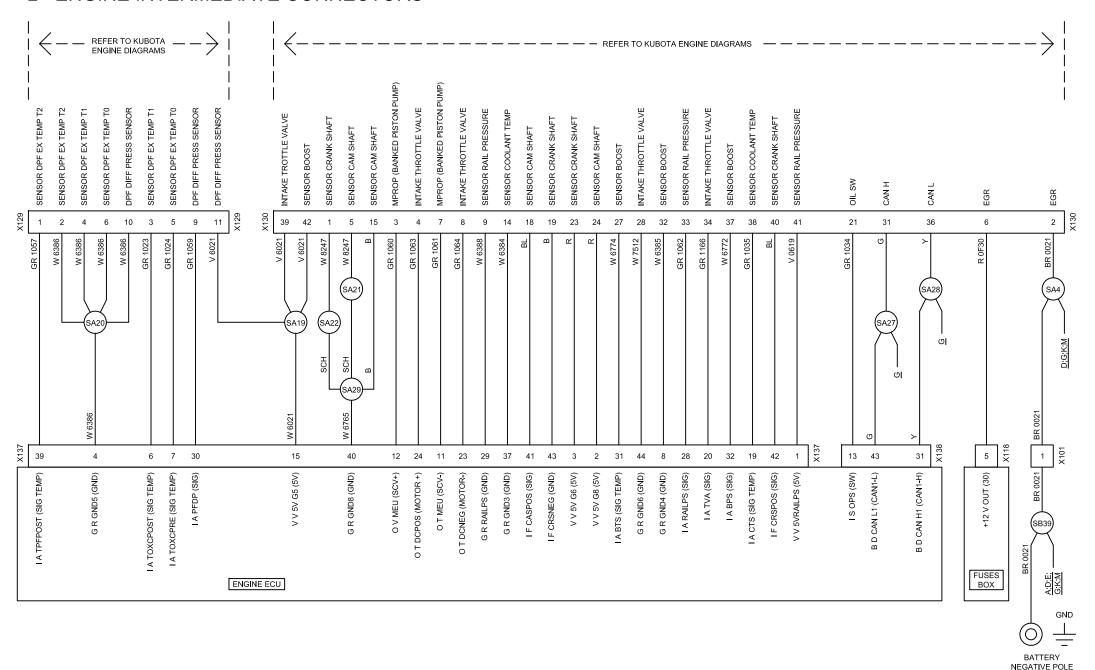


J - MAIN RELAY - AIR FLOW SENSOR - FUEL PUMP - FUEL FILTER SENSOR

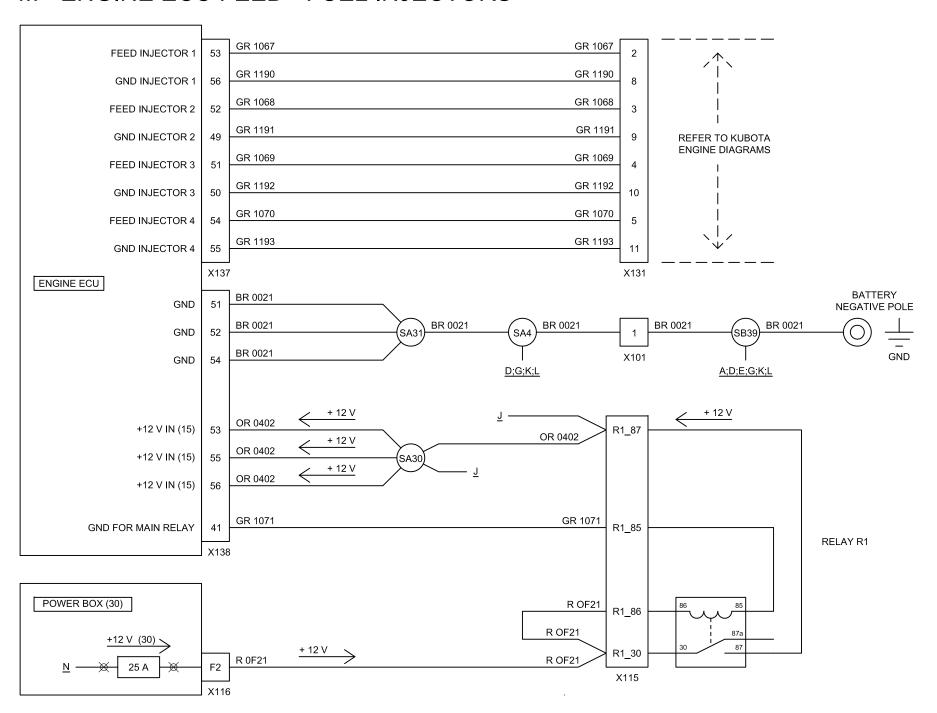




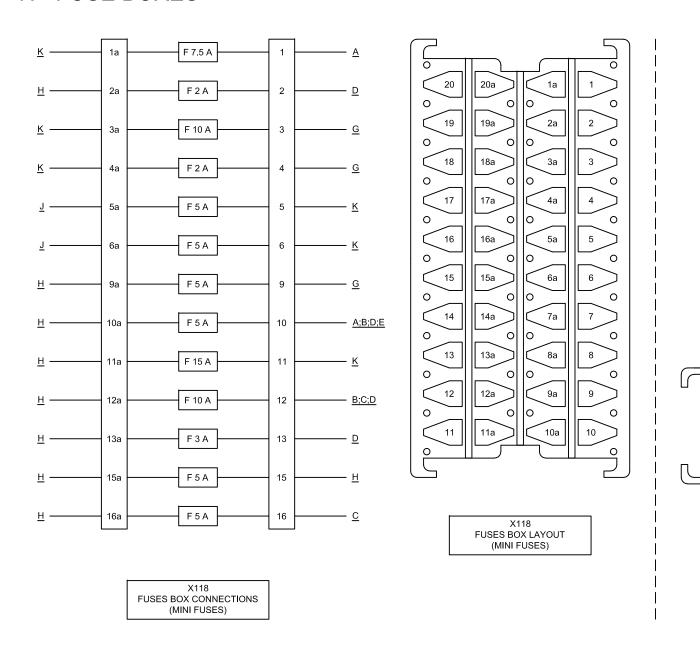
L - ENGINE INTERMEDIATE CONNECTORS

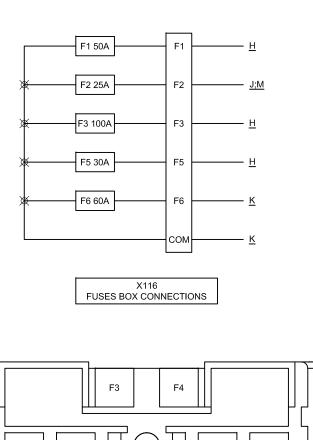


M - ENGINE ECU FEED - FUEL INJECTORS



N - FUSE BOXES





X116 FUSES BOX LAYOUT

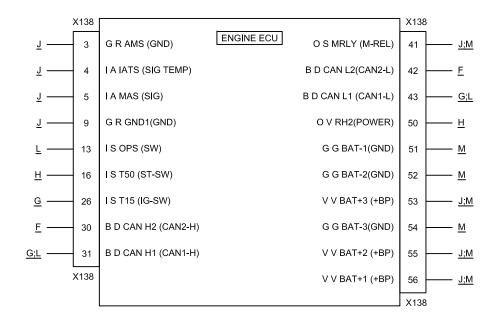
F1

F2

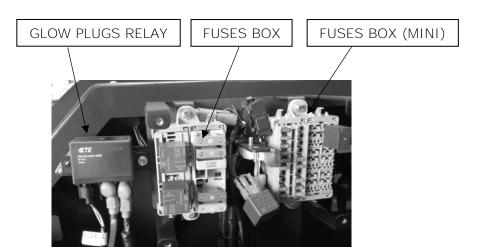
F1

O - ENGINE ECU PIN OUT

:	X137			X137	
<u>L</u> —	1	V V 5VRAILPS (5V)	I A BTS (SIG TEMP)	31	<u> — Г</u>
<u>L</u> ——	2	V V 5V G8 (5V)	I A BPS (SIG)	32	<u> — Г</u>
<u>L</u> ——	3	V V 5V G6 (5V)	O S IMPH (G-REL)	35	— <u>н</u>
<u>L</u> ——	4	G R GND5 (GND)	I A BPS (SIG)	36	— <u>н</u>
<u>J;L</u> ——	5	I A SED	G R GND3 (GND)	37	<u> </u>
<u>L</u> ——	6	I A TOXCPOST (SIG TEMP)	I A TPFPOST (SIG TEMP)	39	<u> — Г</u>
<u>L</u> ——	7	I A TOXCPRE (SIG TEMP)	G R GND8 (GND)	40	<u> </u>
<u>L</u> ——	8	G R GND4 (GND)	I F CASPOS (SIG)	41	<u> — </u>
<u>L</u> ——	11	O T MEU (SCV-)	I F CRSPOS (SIG)	42	<u> </u>
<u>L</u> ——	12	O V MEU (SCV+)	I F CRSNEG (GND)	43	<u> — Г</u>
<u>L</u> ——	15	V V 5V G5 (5V)	G R GND6 (GND)	44	<u> </u>
<u>L</u>	19	I A CTS (SIG TEMP)	O P SVL22 (TWV4)	49	<u>м</u>
<u>L</u> ——	20	I A TVA (SIG)	O P SVL21 (TWV2)	50	<u>м</u>
<u>н</u> ——	21	O S STRTH (POWER)	O P SVH21 (TWV2)	51	<u>м</u>
<u>L</u> ——	23	O T DCNEG (MOTOR-)	O P SVH22 (TWV4)	52	<u>м</u>
<u>L</u> ——	24	O T DCPOS (MOTOR +)	O P SVH11 (TWV1)	53	<u>м</u>
<u>L</u> ——	28	I A RAILPS (SIG)	O P SVH12 (TWV3)	54	<u>м</u>
<u>L</u> ——	29	G R RAILPS (GND)	O P SVL12 (TWV3)	55	<u>М</u>
<u>L</u> ——	30	I A PFDP (SIG)	O P SVL11 (TWV1)	56	<u>М</u>
	X137			X137	



P - COMPONENTS LOCATION

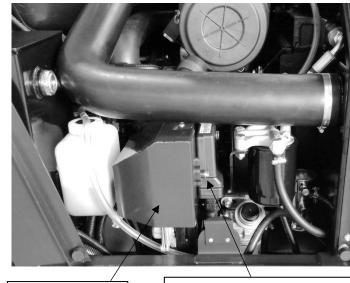


HYDRAULIC OIL FILTER SENSOR

BUCKET VALVE BLOCK

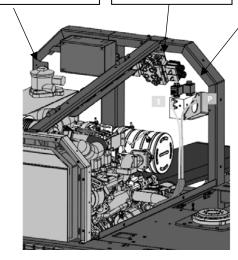
VALVE BLOCK

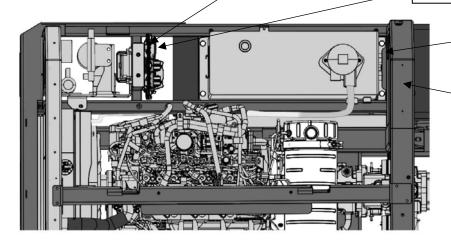
PARKING BRAKE & 2ND SPEED



ENGINE ECU

ELECTRONIC CONTROLLER

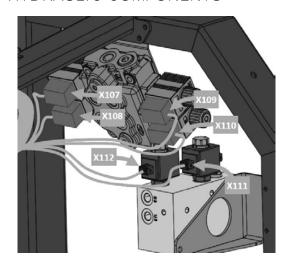


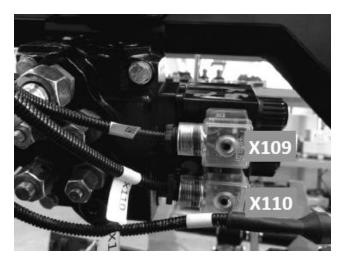


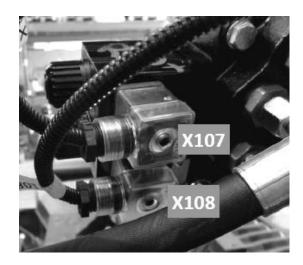
FUSES BOXES

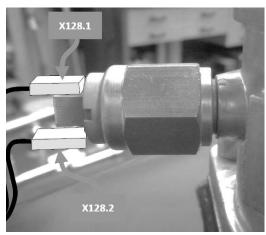
CAN BUS CONNECTOR

HYDRAULIC COMPONENTS

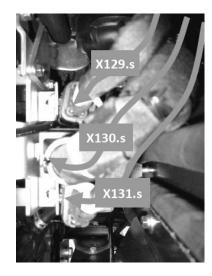








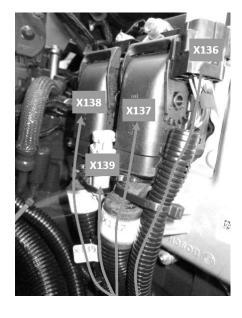
ENGINE CONNECTORS

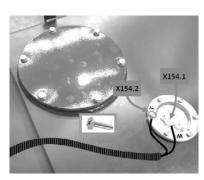




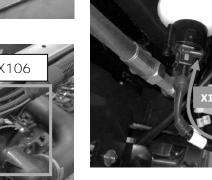




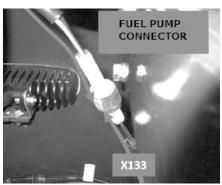




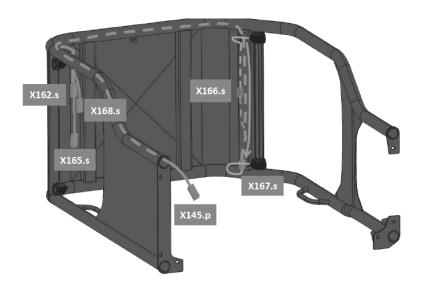


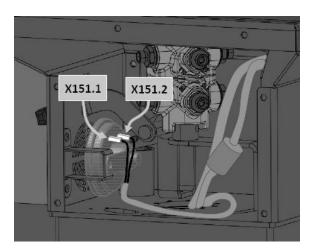


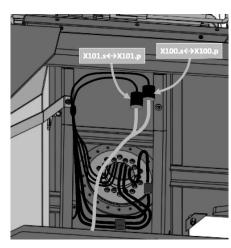


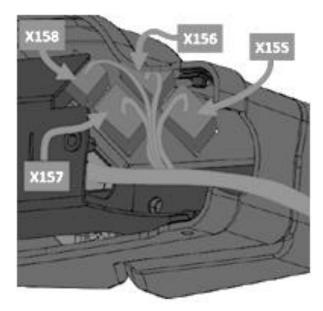


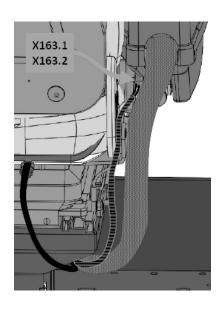
CAB AND SEAT

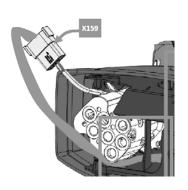


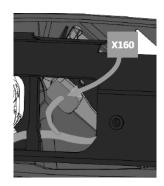




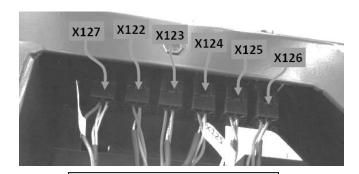








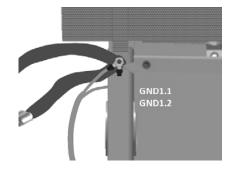
OTHER CONNECTORS



CAN BUS CONNECTOR







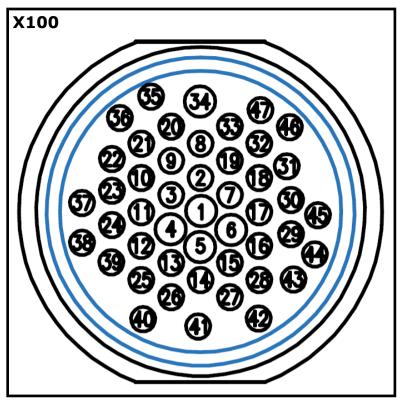


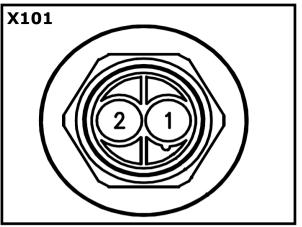
- **Q COMPONENTS ABBREVATION MEANING**
- **Q SIGNIFICATO ABBREVIAZIONI COMPONENTI**
- **Q SIGNIFICADO ABREVIATURA COMPONENTES**
- **Q SIGNIFICATION ABREVIATION COMPOSANT**

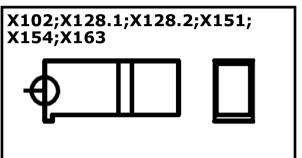
NAME	DESCRIPTION	DESCRIZIONE	DESCRIPCIÓN	DESCRIPTION
+12 V PLUG	+12 V PLUG	PRESA + 12 VOLT	ENCHUFE + 12 VOLTIOS	PRISE + 12 VOLT
AIR FLOW SENSOR	AIR FLOW SENSOR	SENSORE MASSA D'ARIA	CAPTEUR DE MASSE D'AIR	CAPTEUR DE MASSE D'AIR
ARMREST SWICTH	ARMREST SWITCH	INTERRUTTORE BRACCIOLO	INTERRUPRO REPOSABRAZO	INTERRUPTEUR ACCOUDOIRS
BATTERY NEGATIVE POLE	BATTERY NEGATIVE POLE	POLO NEGATIVO BATTERIA	POLO NEGATIVO BATERIA	POLO NEGATIF BATTERIE
BATTERY POSITIVE POLE	BATTERY POSITIVE POLE	POLO POSITIVO BATTERIA	POLO POSITIVO BATERIA	POLO POSITIF BATTERIE
BEACON	BEACON	LAMPEGGIANTE	LUCE INTERMITTENTE	FEU CLIGNOTANT
BUCKET DW	BUCKET DW	BENNA GIU'	CUCHARÓN ABAJO	GODET BAS
BUCKET UP	BUCKET UP	BENNA SU	CUCHARÓN ARRIBA	GODET SUR
CAB HEAD LAMP	CABIN HEAD LAMP	FARO CABINA	FARO CABINA DELANTERO	PHARE DE CABIN
CAN BUS CONNECTOR	CAN BUS CONNECTOR	CONNETTORE CAN BUS	CONNECTOR CAN BUS	CONNECTEUR CAN BUS
CANVIEW	CAN VIEW SISTEM	SISTEMA CAN VIEW	SISTEMA CAN VIEW	SYSTEME CAN VIEW
DIRECTION SEAT SWITCH	DIRECTION SEAT SWITCH	INTERRUTTORE DIREZIONE SEDILE	INTERRUPTOR DE DIRECCIÓN DU SIÈGE	INTERRUPTEUR DE DIRECTION DU SIÈGE
ELECTRONIC CONTROLLER	ELECTRONIC CONTROLLER	SCHEDA ELETTRONICA	TARJETA	FICHE ÉLECTRONIQUE
ENGINE ECU	ENGINE ECU	ECU MOTORE	ECU MOTOR	ECU MOTEUR
ENGINE INTERMEDIATE CONNECTOR	ENGINE INTERMEDIATE CONNECTOR	CONNETTORI INTERMEDI MOTORE	CONECTORES INTERMEDIOS DE MOTOR	CONECTORES INTERMEDIOS DE MOTOR
EV	ELECTRO VALVE	ELETTRO VALVOLA	ELECTROVALVULA	ELECTROVANNE
FRONT ACCELERATOR PEDAL	FRONT ACCELERATOR PEDAL	PEDALE ACCELERATORE ANTERIORE	PEDAL ACELERADOR DELANTERO	PÉDALE D'ACCÉLÉRATEUR AVANT
FRONT LEFT HEAD LAMP	FRONT LEFT HEAD LAMP	FARO ANTERIORE SINISTRO	FARO DELANTERO IZQUIERDO	PHARE AVANT GAUCHE
FRONT RIGHT HEAD LAMP	FRONT RIGHT HEAD LAMP	FARO ANTERIORE DESTRO	FARO DELANTERO DERECHO	PHARE AVANT DROIT
FUEL FILTER SENSOR	FUEL FILTER SENSOR	SENSORE FILTRO CARBURANTE	SENSOR DE FILTRO DE COMBUSTIBLE	CAPTEUR DE FILTRE COMBUSTIBLE
FUEL LEVEL SENSOR	FUEL LEVEL SENSOR	SENSORE LIVELLO CARBURANTE	CAPTEUR DE NIVEAU DE CARBURANT	CAPTEUR DE NIVEAU DE CARBURANT
FUEL PUMP	FUEL PUMP	POMPA CARBURANTE	BOMBA COMBUSTIBLE	BOMBA COMBUSTIBLE
FUSES BOX	FUSES BOX	SCATOLA FUSIBILE	BOÎTE FUSIBLES	BOÎTE FUSIBLES

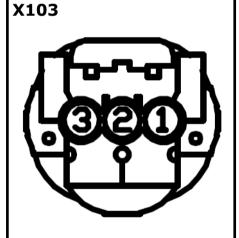
NAME	DESCRIPTION	DESCRIZIONE	DESCRIPCIÓN	DESCRIPTION
GENERATOR	GENERATOR	GENERATORE	GENERADOR	GENERADOR
GLOW PLUGS	GLOW PLUGS	CANDELETTE	BUJÍA	BOUGIES
HORN	HORN	AVVISATORE ACUSTICO	CUERNO	KLAXON
HYDRAULIC OIL FILTER SENSOR	HYDRAULIC OIL FILTER SENSOR	SENSORE FILTRO OLIO IDRAULICO	SENSOR DE FILTRO DE ACEITE HIDRAULICO	CAPTEUR DE FILTRE À HUILE HYDRAULIQUE
IGNITION KEY	IGNITION KEY SWITCH	INTERRUTTORE A CHIAVE	INTERRUOTOR DE LLAV	INTERRUPTEUR A CLEF
JOYSTICK	JOYSTICK	JOYSTICK	JOYSTICK	JOYSTICK
KUBOTA ENGINE DIAGNOSIS PLUG	KUBOTA ENGINE DIAGNOSIS PLUG	PRESA DI DIAGNOSI MOTORE KUBOTA	TOMA DE DIAGNOSTICO MOTOR KUBOTA	PRISE DE DIAGNOSTIC DU MOTEUR KUBOTA
LEFT ROTATION	LEFT ROTATION	ROTAZIONE SINISTRA	ROTACIÓN IZQUIERDA	ROTATION GAUCHE
PARKING BRAKE	PARKING BRAKE	FRENO DI PARCHEGGIO	FRENO DE MANO	FREIN À MAIN
POWER BOX	POWER BOX	POWER BOX	POWER BOX	POWER BOX
REAR ACCELERATOR PEDAL	REAR ACCELERATOR PEDAL	PEDALE ACCELERATORE POSTERIORE	PEDAL ACELERADOR TRASERO	PÉDALE D'ACCÉLÉRATEUR ARRIERE
REAR CAMERA SWITCH	REAR CAMERA SWITCH	INTERRUTTORE TELECAMERA POSTERIORE	INTERRUPTOR DE CÁMARA TRASERA	INTERRUPTEUR DE CAMÉRA ARRIÈRE
RELAY	RELAY	RELE'	RELE	RELAIS'
RIGHT ROTATION	RIGHT ROTATION	ROTAZIONE DESTRA	ROTACIÓN DERECHA	ROTATION DROIT
SEAT SWICTH	SEAT SWICTH	INTERRUTTORE SEDILE	INTERRUPTOR DE SIÈGE	INTERRUPTEUR DE SIÈGE
STARTER	ENGINE STARTER	MOTORINO DI AVVAMENTO	MOTOR DE ARRANQUE	DÉMARREUR
SWITCH	SWICTH	INTERRUTTORE	INTERRUPTOR	INTERRUPTEUR

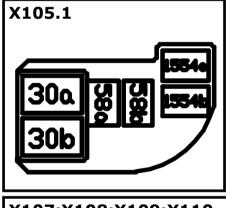
R-CONNECTORS LAYOUT

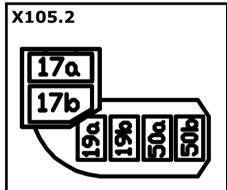


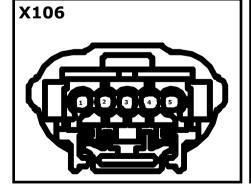


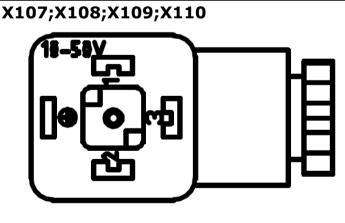


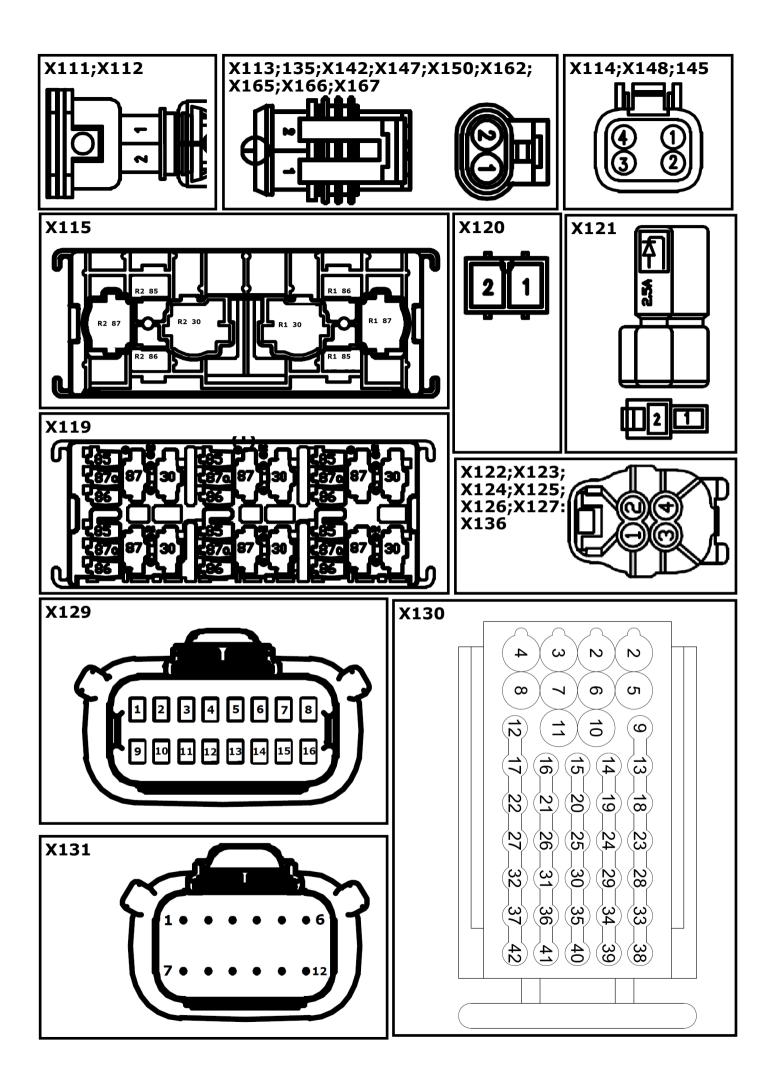


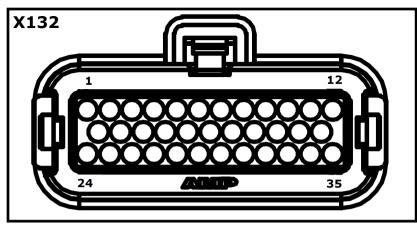


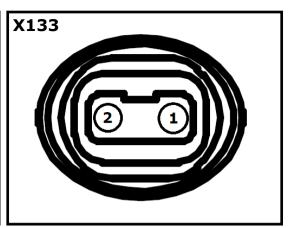


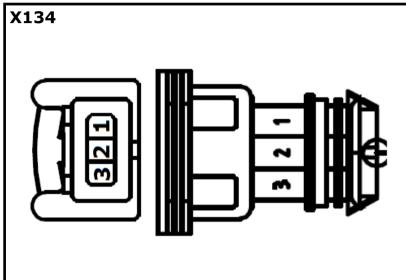


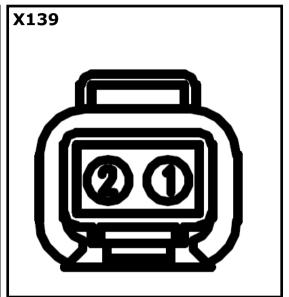


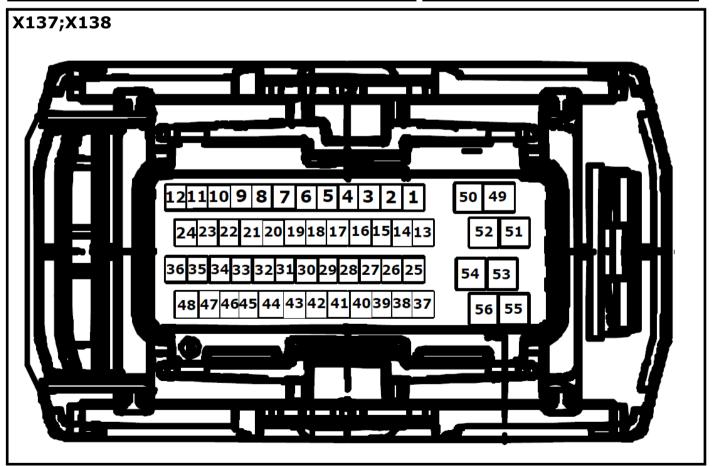


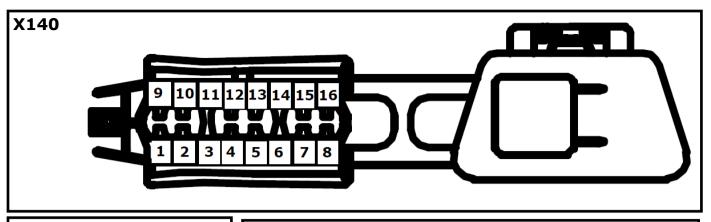


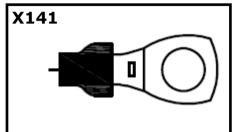


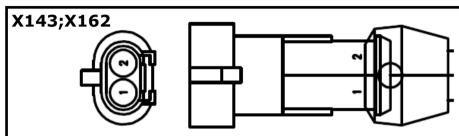


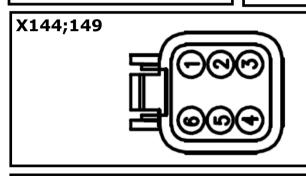


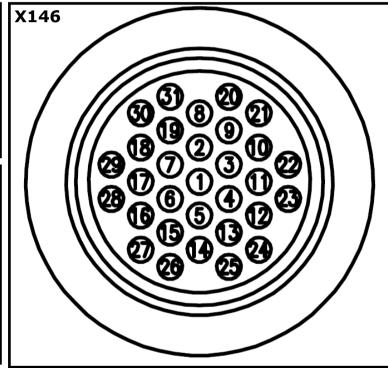


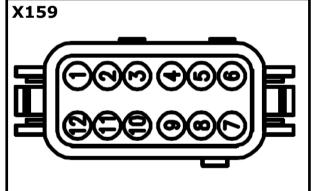


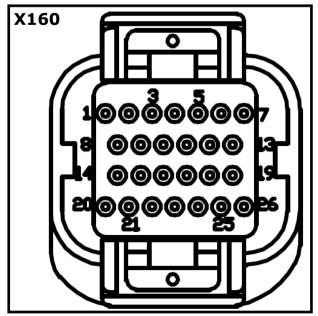


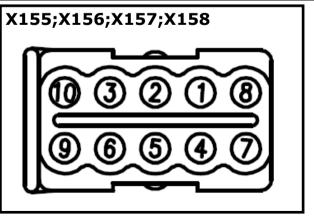












REVISIONS LIST

WDTX3005000A00		

KUBOTA KC300H5 TECHNICAL TRAINING



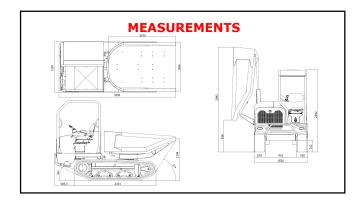
TECNICAL DATA

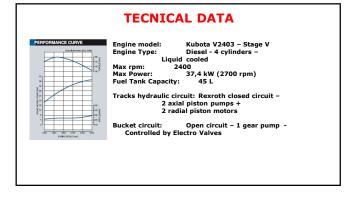
Operating Weight: 2750 Kg Max Load Capacity: 2875 Kg

Struck Volume (ISO6483): 1,09 m3 Rated Capacity (ISO6483): 1,49 m3 Bucket Siew Angle: -90° / +90°

1° speed: 0-6 Km/h 2° speed: 0-11 Km/h Length: 2430 mm Width: 1550 mm Ground Clearance: 330 mm Track Width: 320 mm

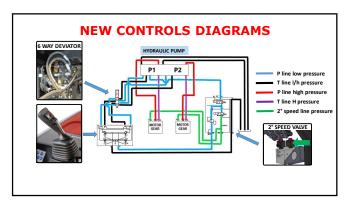
Max gradeability (front side): 20° Max gradeability (lateral side): 25°



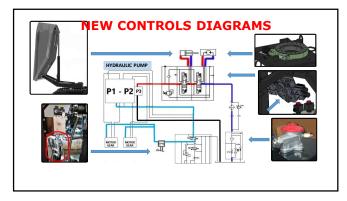


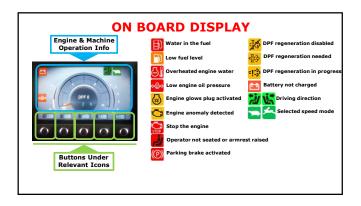
OPERATIVE FEATURES



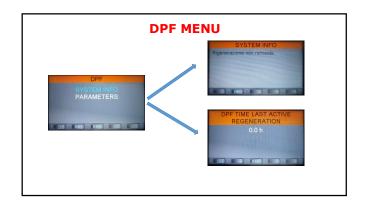




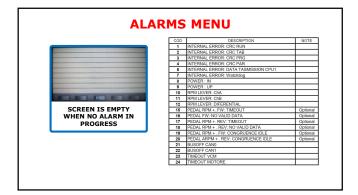


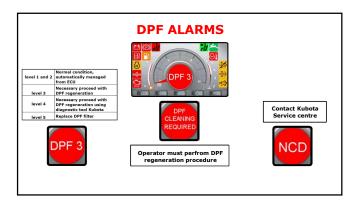




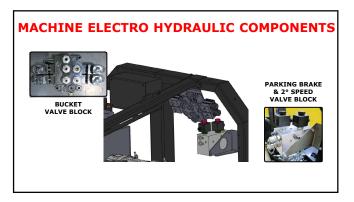


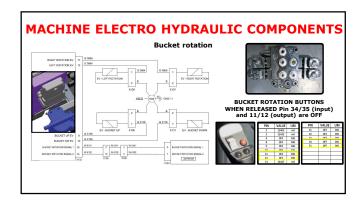


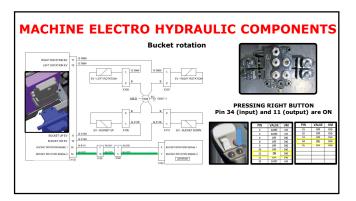


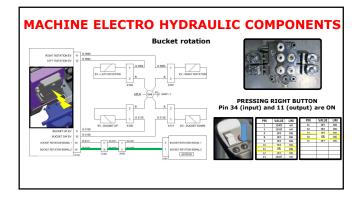


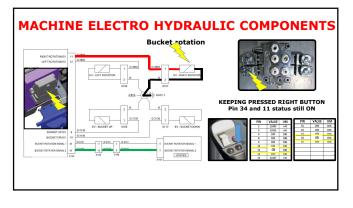


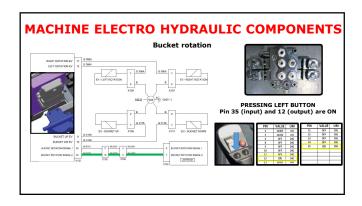


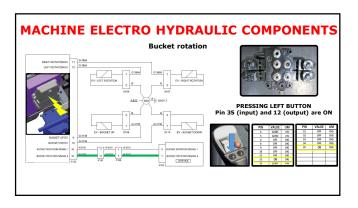


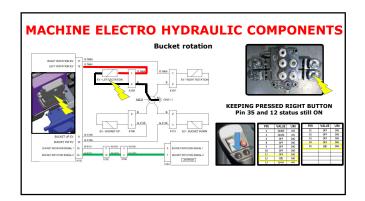


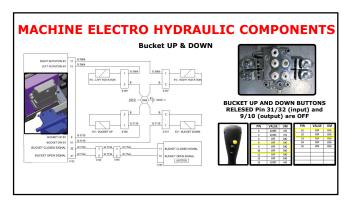


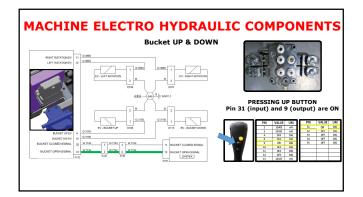


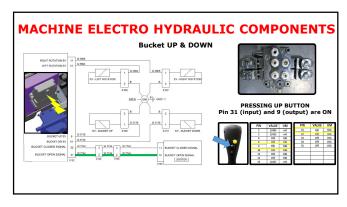


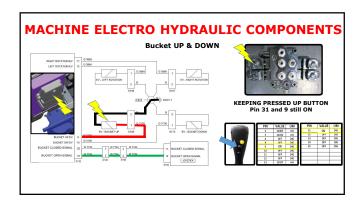


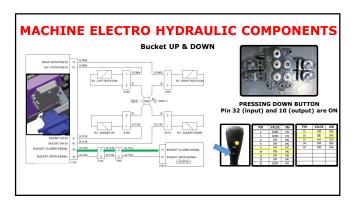


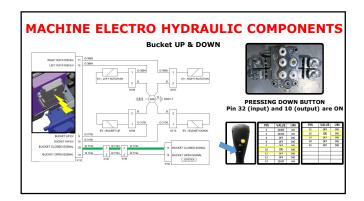


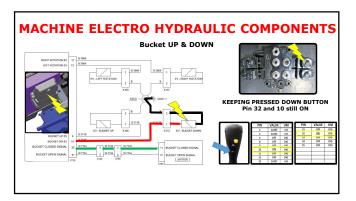


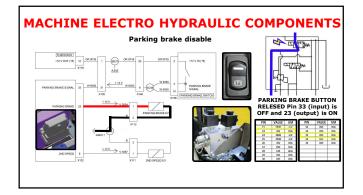


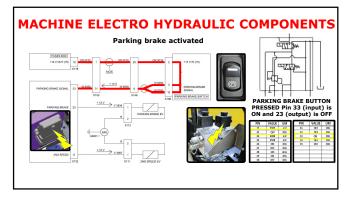


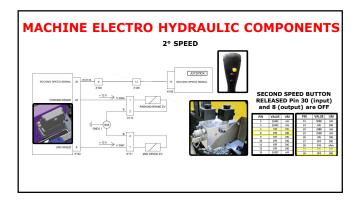


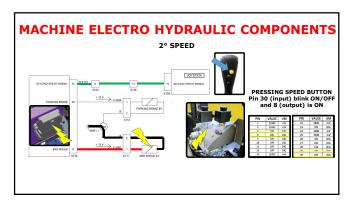


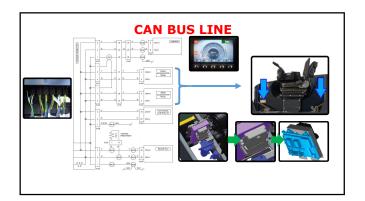


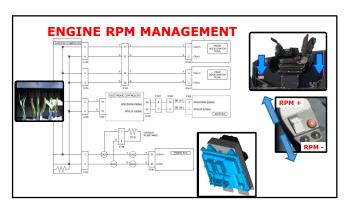


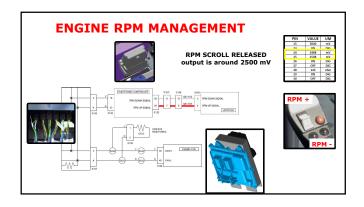


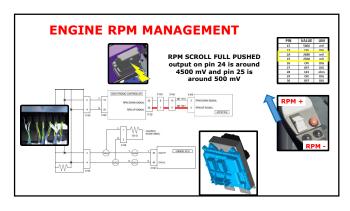


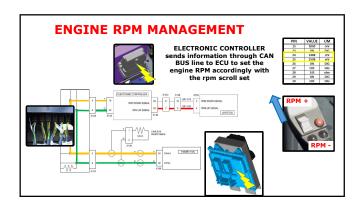


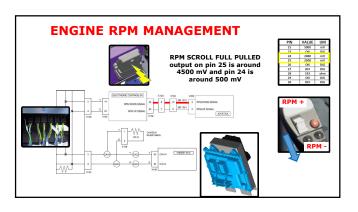


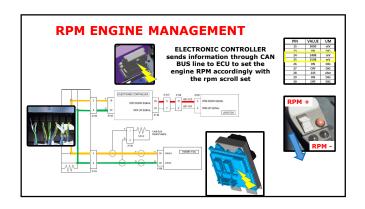


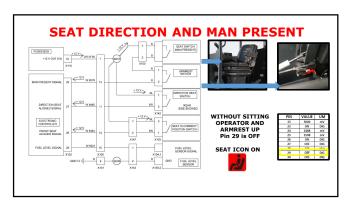


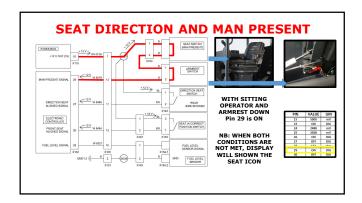


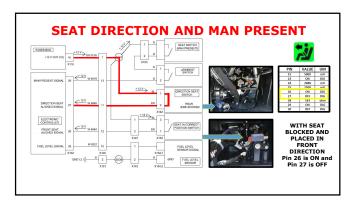


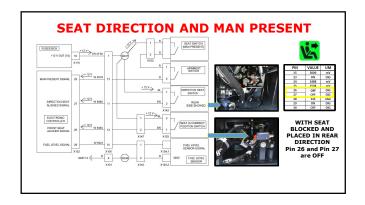


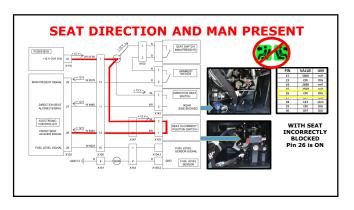


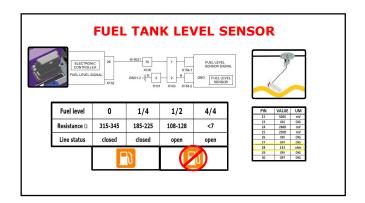


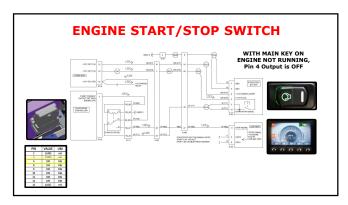


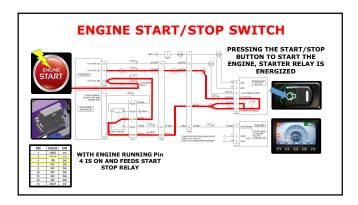


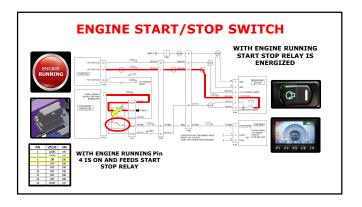


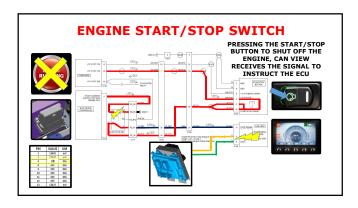












KUBOTA KC300H5

PEDAL ENABLE SETTING PROCEDURE

