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RS 502



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USER MANUAL **GB**
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Manual abstract:

Nilfisk will not be responsible for damages coming from failure to follow these instructions. The User Manual must be kept inside the machine cab, away from liquids and other substances that can cause damage to it. Figure A shows a copy of the documentation certifying the sweeper conformity with the law in force.

NOTE One copy of the original declaration of conformity is provided together with the machine documentation. *NOTE* If the machine is approved to be used on public roads, the machine is supplied with a special Certification of Conformity. The machine serial number and model are shown on the adhesive label (1, Fig. The diesel engine serial number and model are marked in the positions shown in the relevant Manual. The same engine data appear on another adhesive plate applied on the frame. This information is useful when ordering machine and diesel engine spare parts. Use the following table to write down the machine and diesel engine identification data for any further reference.

The sweeper is also supplied with the following manuals: *Â Diesel Engine Manual*, to be considered as integral part of this Manual. All necessary operating, maintenance and repair procedures must be performed by qualified personnel or by Nilfisk Service Centers. Only original spare parts and accessories must be used. Call Nilfisk for service or to order spare parts and accessories, specifying the machine model and serial number. Nilfisk constantly improves its products and reserves the right to make changes and improvements at its discretion without being obliged to apply such benefits to the machines that were previously sold.

Any change and/or addition of accessory must be approved and performed by Nilfisk. The following symbols indicate potentially dangerous situations. Always read this information carefully and take all necessary precautions to safeguard people and property. the operator's cooperation is essential in order to prevent injury. No accident prevention program is effective without the total cooperation of the person responsible for the machine operation.

Most of the accidents that may occur while working or moving around are caused by failure to comply with the simplest rules for exercising prudence. A careful and prudent operator is the best guarantee against accidents and is essential for successful completion of any prevention program. It indicates a dangerous situation with risk of death for the operator. It indicates a potential risk of injury for people or damage to objects. Pay careful attention to the paragraphs marked by this symbol. *CONSULTATION* It indicates that it is necessary to consult the User Manual before performing any procedure. Specific warnings and cautions to inform about potential damages to people and machine are shown below. *dANGER!* *Â This machine must be used by properly trained and authorised personnel only. moreover , the operator must: Â Be 18 years or older Â Not be under the effect of substances that alters the nervous system (alcohol, psycopharmaceuticals, drugs, etc.) Â Remove the ignition key before performing any maintenance/repair procedure.*

Â This machine must be used by properly trained and authorised personnel only. Children or disabled people cannot use this machine. Â Do not wear jewels when working near moving parts. Â Do not work under the lifted machine without supporting it with safety stands. Â Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapours. â Be careful , fuel is highly flammable. Â Do not smoke or bring open flames in the area where the machine is refuelled or where the fuel is stored. Â Refuel outdoors or in a well-ventilated area, with the engine off. Â Do not fill the fuel tank to the top, but leave at least 4 cm from the filler neck to allow the fuel to expand. â After refuelling , check that the filler cap is tightly closed.

Â If any fuel is spilled while refuelling, clean up the affected area and allow the vapours to dissipate before starting the engine. Â Avoid contact with skin and do not breathe in fuel vapours. Keep out of reach of children. Â Before performing any maintenance/repair procedure remove the ignition key, engage the parking brake and disconnect the battery. Â When working under open hoods/doors, make sure that they cannot be closed by accident.

Â When performing maintenance procedures with the lifted hopper, fix it with the support rods. Do not keep the engine running in a closed area. Â Do not lay any object on the engine. Â Before working on the diesel engine turn it off. to prevent the engine from starting accidentally , disconnect the battery negative terminal.

Â See also the SAFETY RULES in the Diesel Engine Manual, which is to be considered an integral part of this Manual. Â When lifting/lowering the hopper or the suction inlet, pay careful attention in order to avoid hitting the operator or other people. Â When the hopper door is open, or when manually opening the door, pay careful attention in order to avoid hitting the operator or other people. apply the safety rod. Â When the machine is moving and the brooms are rotating, pay careful attention to the broom bristles in order to avoid hitting the operator or other people. Â The machine has been designed to be used as a sweeper, do not use it for different purposes. Â While using this machine, take care not to cause damage to people and property. Â Do not use the machine as a means of transport. Â Do not leave the machine unattended with the ignition key inserted and the parking brake disengaged. Â Do not bump into shelves or scaffoldings, particularly where there is a risk of falling objects.

Â Pay careful attention when lifting and emptying the hopper. Â Adjust the operation speed to suit the ground conditions. Â Carefully read all the instructions before performing any maintenance/repair procedure. Â Take all necessary precautions to prevent hair, jewels and loose clothes from being caught by the machine moving parts. Â Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. Â Avoid contact with battery acid, do not touch hot parts. Â Do not allow the brooms to operate while the machine is stationary to avoid damaging the ground. Â In case of fire, use a powder fire extinguisher, not a water one. Â Do not wash the machine with corrosive substances.

â Do not use the machine in particularly dusty areas. Â Do not tamper with the machine safety guards and follow the ordinary maintenance instructions scrupulously. Otherwise, request assistance from the authorised personnel or from an authorised Service Center.



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Â In case of part replacement, order ORIGINAL spare parts from an authorised Dealer or Retailer. Â To ensure the proper and safe operation of the machine, have the scheduled maintenance, detailed in the relevant chapter of this Manual, performed by the authorised personnel or an authorised Service Center.

Â The machine must be disposed of properly, because of the presence of toxic-harmful materials (oils, batteries, plastics, etc.), which are subject to standards that require disposal in special centres (see Scrapping chapter). Â If the machine is used according to these instructions, the vibrations do not cause dangerous situations (see the Technical Data paragraph). Â While the engine is running the silencer heats up. Do not touch the silencer to avoid serious scalding or fire.

Â Do not run the engine if the oil level is low, to avoid damaging it seriously. Check the oil level with the engine off and the machine on a level surface. Â Do not run the engine if the air filter is not installed, to avoid damaging it. Â The engine coolant lines are under pressure. Perform any check when the engine is off and after having allowed it to cool down. Even when the engine is cool, open the radiator cap carefully. Â The engine is equipped with a fan; do not stand near the engine when it is hot, because the fan can start operating even if the machine is off. Â All diesel engine servicing procedures should be performed by an authorised Dealer. Â Only use original spare parts or parts of matching quality for the diesel engine. Using spare parts of lower quality can seriously damage the engine.

Â See also the SAFETY RULES in the Diesel Engine Manual, which is to be considered an integral part of this Manual. Carbon monoxide (CO) can cause brain damage or death. The internal combustion engine of this machine can emit carbon monoxide. do not inhale exhaust gas fumes. Only use indoors when adequate ventilation is provided, and when an assistant has been instructed to look after you. The machine is delivered already assembled and ready-to-use, unpacking/installation procedures are not necessary. Please check that the following items have been supplied with the machine: Â Technical documents: Â This sweeper has been designed and built to be used by a qualified operator to clean (by sweeping and suctioning) roads, smooth and solid floors, in civil and industrial environments, and to collect dust and light debris under safe operation conditions. Forward, backward, front, rear, left or right are intended with reference to the operator's position, while on the driver's seat (17, Fig. Running light indicator light 8. Engine glow plug pre-heating warning light 11. Check engine warning light 15. Engine lubricating oil pressure warning light 16. Turn signal indicator light 17. Hydraulic system oil low level and hydraulic system fault warning light 24. Warning buzzer (it activates together with the warning lights 8, 12, 14, 15) 28.

When the key is turned to ON When the ignition key (17, Fig. D) is turned to the first position, the display (11) shows for a few seconds the first page (1, Fig. h) with numbers or symbols that indicate the machine condition. The parameters that can be checked are shown below. H) indicates the scheduled maintenance at 200 hours, while MA1 (6) indicates the scheduled maintenance at 800 hours.

If one of the intervals is nearly expired or expired (negative number), maintenance procedures must be performed as shown in the relevant chapter. Number of transport hours (3, Fig. It counts the number of alarms occurred after the last reset of the control unit. If the number is different from zero, contact a Nilfisk Service Center to reset the system. Road sweeper identification number (7, Fig. h). The number "006" identifies the RS 502 model, with Kubota V1505T engine. H) warns that the seat belts must be fastened. Engine coolant temperature: the temperature level is shown by the horizontal bar indicator (11, Fig. If the coolant temperature is high, the engine stops and a continuous warning buzzer signals the problem.

The warning buzzer can be reset by pressing the button (12, Fig. If the temperature sensor is faulty, the display shows warning messages according to the type of fault (short or open circuit) (for the alarm coding see the Alarm Description paragraph). Transport mode visualisation When the key is turned to ON, the display (11, Fig. The screen (10) remains even after the engine has been turned on. It shows the following parameters. â· Engine speed: 4-digit number (16, Fig. H) with the ENG following symbol rpm (14). cAUTION! If the engine speed sensor is faulty, the switches on the display are not illuminated. The last bars indicate the reserve, they flash when the level is low. If the fuel level is low, a continuous warning buzzer signals the problem.

The warning buzzer can be reset by pressing the button (12, Fig. If the level sensor is faulty, the display shows warning messages according to the type of fault (short or open circuit) (und power (2000/14/EC) at maximum working speed e Measured sound power (ISO/EN3744) at maximum working speed Hopper capacity Hopper maximum load Dust control system Dust control system tank total capacity (no. Diesel engine data (*) Make Type Cylinders Maximum speed Maximum working speed Maximum power at 2,800 rpm Idle speed Displacement Consumption while operating at 2,200 rpm (recommended speed) Consumption during transport at 2,800 rpm (maximum speed) Engine coolant Engine oil Values KUBOTA V1505T 4 2,800 rpm 2,200 rpm 40. (*) For other diesel engine data/values, see the relevant Manual. SPECIFICATIONS Boiling point Boiling point in solution with 50% water Freezing point in solution with 50% water Colour Density at 15 Â°C SPECIFICATIONS SAE QUALITY Viscosity at 100 Â°C Viscosity at 40 Â°C Viscosity at -15 Â°C Viscosity index Flash point COC Pour point Density at 15 Â°C / mm2/s mm2/s / Â°C/Â°F Â°C/Â°F kg/l 15W40 13.

3 VOLVO VDS2 MTU typ 2 CAT TO-2 DEUTZ DQC-IV 05 level DEUTZ DQC-II 05 ISOTTA FRASCHINI ZF TE-ML-04 C Refuelling data Fuel tank capacity Hydraulic system oil tank capacity Hydraulic system oil capacity Values 8 USgal (30 litres) 10. Maximum accessory system pressure Hydraulic system oil (at ambient temperature above 10 Â°C) NOTE If the machine is to be used at ambient temperatures below 10 Â°C, the oil should be replaced with equivalent oil having a viscosity of 32 cSt. For temperatures below 0 Â°C, use oil with lower viscosity. In the environment where the machine operates, there must not be any danger of explosion. To avoid inhaling exhaust gas, the machine must be used only where there is a proper ventilation.

The machine operates properly (*) in the following environmental conditions: Â Temperature: -10 Â°C to +40 Â°C Â Humidity: 30% to 95% (*) When using the sweeper at a temperature between -10 Â°C and 0 Â°C the dust control system cannot be used; moreover the water tanks and the dust control system itself must be empty.



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At the left side of the control panel there are two fuse boxes (24 and 25, Fig. D), with a transparent cover, containing the following fuses: High pressure pump safety solenoid valve (*) (*) Optional 2: Brake light, brake pedal microswitch, reverse gear buzzer and horn fuse (10 A) F2. 7: Ignition key lock, main relay, combination switch and +30 audio unit fuse (10 A) F2. 4: Water pump, windscreen wiper, windscreen washer system pump, climate control system compressor and high pressure pump safety solenoid valve fuse (20 A) F3. 5: Warning light panel power supply, safety electronic board, drive sensor, ceiling light and +15 audio unit fuse (15 A) F3. E) placed in the relevant fuse box, which distribute the electrical power to the electrical accessories. The fuse functions are shown below. A manual battery release device (100 A), connected on battery negative terminal and frame, does not allow for machine startup if it is not activated. An emergency push-button on the left side of the dashboard disables all the accessories except the hazard warning lights.

I) and by some symbols which identify the source (4) and the seriousness (3) of the alarm. I) resets after a countdown of 20 seconds, then a message appears (6). Alarm which does not compromise the machine operation. check/replace the component which caused the alarm. Serious alarm which does not cause the machine shutdown. contact a Nilfisk Service Center. Serious alarms which cause the machine shutdown. I) (the engine is automatically shut-off) Â Engine oil low pressure (8, Fig. I) (the engine is automatically shut-off) Â Hydraulic system oil low level (10, Fig. I) Â Open or disconnected engine oil pressure sensor (9, Fig.

I) The above-mentioned alarms are also indicated by the activation of the relevant warning lights shown in Description of the Control Area paragraph, and by a continuous warning buzzer. This warning buzzer can be muted by pressing the button (12, Fig. Moreover, upon request the machine can be equipped with: Â Brooms with harder or softer bristles Â Comfort driver's seat Â Audio unit kit Â Fenders Â Broom speed adjuster Â Camera kit Â Jack Â Working light Â Rear suction pipe cleaning blade Â 1 kg-fire extinguisher On some points of the machine there are some adhesive plates indicating: Â DANGER Â WARNING Â CAUTION Â CONSULTATION While reading this Manual, the operator must pay particular attention to the symbols shown. Do not cover these plates for any reason and immediately replace them if they are damaged. This machine is designed as a high performance, high capacity sweeper that can clean in tight and congested areas.

By design this means a narrow wheel base with tight steering capability. These design requirements can under certain conditions create instability during machine operation. Instability can be caused by a combination of machine travel speed, abrupt manoeuvring, operation on an incline, low tyre pressure, weight in the hopper and or raised hopper. For this reason the machine must be driven by a qualified operator who must be properly instructed on how to use it and be aware of the potential risks. The following are situations known to cause instability in the machine and care should be taken by the operator to assure safe operation: Â Lifting the hopper on an incline Â Manoeuvring the machine with the hopper lifted Â Abrupt steering Â Manoeuvring with speed, on a slope and/or with weight in the hopper Â Low tyre pressure Inside the cab there is a decal (33, Fig.

If necessary, open the left upper door (4, Fig. G) by releasing the fasteners (5) with the supplied key, and refuel the machine through the filler neck (28, Fig. Do not fill the fuel tank to the top, but leave at least 4 cm from the filler neck to allow the fuel to expand. Check and, if necessary, top up the dust control system water tanks, and check which symbol (19, Fig. In this condition, the dust control system turns off after about 10 seconds. If necessary, supply water according to the following procedure: Â disengage the fasteners (5 or 17, Fig. G) with the supplied key, then open the left or right door (4 or 16). F), through the filler neck (18 or 22): pour the water through one of the filler necks only, because the tanks are connected. Â Close the filler neck (18 or 22, Fig. Close the left or right door (4 or 16, Fig.

Insert the battery by turning the key of the release device (37, Fig. To switch the release device key position, first press and turn the key. NOTE The machine is equipped with a safety system that does not allow for engine start up when the operator is not on the driver's seat. When the operator is not on the driver's seat, the engine can be started only if the parking brake (7) is engaged. The emergency push-button stops and prevents the engine from starting. with the lever (22, Fig. E), adjust the seat for a comfortable position. For the operator's safety, the seat belts must always be fastened. NOTE When turning the ignition key to ON, the display first page (1, Fig. H) shows a symbol (5) that warns that the seat belts must be fastened.

Turn the engine throttle lever (16, Fig. e) to idle by pressing the lever on the handle at the same time. Check that the brooms are lifted, otherwise keep into consideration that, when starting the engine, broom immediate rotation can cause damages. NOTE The machine is equipped with a safety system that does not allow for engine start up when the drive pedal (4, Fig. D), press it, turn it clockwise and hold it in the first position.

Then, the brake lights will flash for 30 seconds and on the warning light panel (2, Fig. D) all the warning lights turn on temporarily, the following ones only stay on: Â Diesel engine glow plug pre-heating warning light (10, Fig. Engine oil pressure warning light (15, Fig. D) automatically shows in sequence the first page and then the transport/working mode even if the engine is running. to know the display options and information, see Display Functions paragraph. When the glow plug pre-heating warning light (11, Fig. D) turns off, turn the ignition key clockwise, to the end of stroke, and then release it when the diesel engine starts. wARNING! To switch the starter key to the position for engine cranking, first press and turn the key. Preheating times must be respected especially in harsh climate areas, to avoid excessive smoke. When starting the diesel engine, do not keep the ignition key in cranking position too long (maximum 15 seconds) to avoid damaging the starter. If the engine does not start, wait a minute before trying again. Before trying to start the engine again, turn the ignition key counterclockwise, to the initial position. If the engine does not start after two attempts, do not persist, ask for help from the person responsible for the machine.



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12. Check that, when the engine is running, all the warning lights are off and the suction inlet is lifted.

NOTE The machine is equipped with a system that turns on all the machine controls except the switches (12 and 28, Fig. D) when the engine is running. If this function does not operate, check the engine speed sensor for proper operation. E) in an intermediate position, let the engine run for a few minutes to allow it to warm up, especially when the air temperature is low. Turn the engine throttle lever (16, Fig. E) to idle by pressing the lever on the handle at the same time, and hold it in this position for a few minutes to let the system stabilize. Turn the ignition key (17, Fig. In case of immediate danger for the operator or other people, press the emergency push-button to stop the engine. Do not use the emergency push-button to stop the engine under normal conditions. The machine can be started and set to: \hat{A} Transport mode \hat{A} Working mode The relevant procedures are shown below.

wARNING! When steering, avoid abrupt direction changes, pay careful attention and drive the machine at slow speed, especially when the hopper is full or when operating on inclines. *CAUTION!* Before operating the machine, check that the tyre pressure is correct (3. To transport the machine (without sweeping), it is necessary to set the transfer mode according to the following procedure: 1. E), then lift the suction inlet and side brooms with the lever (12). 5.

Gradually push the engine throttle lever (16, Fig. It is advisable to respect the suggested speed, that is to say 2,800 rpm. If the speed exceeds 3,050 rpm, the problem will be signalled by a continuous warning buzzer and by the flashing of the engine speed value on the display (16, Fig. @@@@ 7. Start to transport the machine, by keeping the hands on the steering wheel (2, Fig.

E) and gradually pressing the pedal (4), on the front side to move forward and on the rear side to move backward. The drive speed can be adjusted from zero to maximum speed by increasing the pressure on the pedal. Use rearview mirrors to see rear end of machine when manoeuvring. *wARNING!* In case of obstacles (for example a footpath), remind to lift the suction inlet. Turn the engine throttle lever (16, Fig. E) to idle, and hold it in this position for a few minutes to let the system stabilize. *NOTE* When the operator leaves the driver's seat with the ignition key turned to ON, an intermittent warning buzzer signals that the parking brake is disengaged. 4. Turn off the engine, by turning the ignition key (17, Fig. Before setting the machine to working mode, check that alarms or expired maintenance intervals are not shown on the display (11, Fig.

d) (see Display Functions paragraph). Set the machine to working mode according to the following procedure: 1. Check and, if necessary, top up the dust control system water tanks, and check which symbol (19, Fig. Main tank and sub-tank are full main tank and sub-tank are empty. In this condition, the dust control system turns off after about 10 seconds. *CAUTION!* A safety system turns off the water pumps if the water level in the tanks is insufficient for an interval of 10 seconds or more. 4. Gradually push the engine throttle lever (16, Fig. E) stops in the proper position for the working mode shown on the display (2,200 rpm). to increase the speed, press the lever on the lever handle (16, Fig.

E) until the display shows the required speed. Turn on the suction fan with the lever (14, Fig. E), then lower the suction inlet and side brooms with the lever (12). *wARNING!* Do not leave the sweeper stationary with the suction inlet lowered and the brooms rotating. *NOTE* Side brooms turn only when the suction inlet is lowered.

E): Open it always, except when the floor to be cleaned is wet. E): Open it when the floor is dry and dusty. Turn on the dust control system water pump with the switch (19, Fig. @@@@ 10. Start sweeping, by keeping the hands on the steering wheel (2, Fig.

E) and gradually pressing the pedal (4), on the front side to move forward and on the rear side to move backward. The drive speed can be adjusted from zero to maximum speed by increasing the pressure on the pedal. While working, the machine picks up both light materials such as dust, paper, leaves, etc. G) and the brooms (8 and 9) can be lifted or lowered when the machine is moving. The brooms do not turn when they are lifted. Turn off the dust control system water pump with the switch (19, Fig. E), then lift the suction inlet and side brooms with the lever (12). 6. Turn off the suction fan with the lever (14, Fig. Turn the engine throttle lever (16, Fig.

E) to idle, and hold it in this position for a few minutes to let the system stabilize. Turn off the engine, by turning the ignition key (17, Fig. Avoid stopping for a long time with the machine in the same position and the brooms rotating: this could create unwanted marks on the floor. Note that, while the skirt is lifted, the machine suction power decreases. To lower the front skirt (24, Fig. If necessary, to collect bulky debris, it is also possible to remove the front skirt (24, Fig. @@@Turn on the machine and start working again. @@@If necessary, adjust the broom speed with the knob (28, Fig. After each working cycle, and when the hopper (12, Fig. Dump the hopper according to the following procedure.

1. Turn off the dust control system water pump with the switch (19, Fig. E), then lift the suction inlet and side brooms with the lever (12). 4. Turn off the suction fan with the lever (14, Fig.

@@@@Do not move the machine when the hopper is lifted! @@@@ the warning light of the switch (28, Fig. @@@@@Keep the lever activated until the warning light (26, Fig. D) turns off, which means that the hopper is completely lowered. 10. @@@@Keep the switch pressed until the door is completely closed.

12. The machine is ready to start working again. @@ 1. @@With a suitable ladder, carefully remove the screw (1, Fig. @@ 5.

@@@@@@@@Gradually bring forward the engine throttle lever (16, Fig. @@@@@While working, the machine picks up both light materials such as dust, paper, leaves, etc. If necessary, release the suction hose (4, Fig. Q) by tightening the screw (3), then insert the tool in the suction hose (4) to clean it. Turn the ignition key clockwise and hold it in the first position.

To turn on the cab heating, turn the knob (15, Fig. e) counterclockwise as necessary. Choose one of the two blower speed with the switch (21, Fig. d). To turn off the cab heating, turn off the blower with the switch (21, Fig. Turn on the climate control system by pressing the lower part of the switch (18, Fig. d). To turn off the climate control system, turn the switch (18, Fig. To turn on the lighting and signalling system, use the combination switch (1, Fig. E), having the following functions: \hat{A} Headlights off, with mark (1b) at the symbol O \hat{A} Running lights on, with mark (1b) at the symbol .

To turn on the running lights the ignition key must be turned clockwise and held in the first position.



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. \hat{A} Low beam on, with mark (1b) at the symbol To turn on the low beam, the engine must be running. and lowered lever (1a). \hat{A} High beam on, with mark (1b) at the symbol To turn on the high beam, the engine must be running.

\hat{a} High beam temporary on, lifting the lever (1a). To turn on the high beams temporarily, the ignition key must be turned clockwise and held in the first position. \hat{A} Right turn signal on, bringing the lever (1a) forward. To turn on the turn signals the ignition key must be turned clockwise and held in the first position. \hat{A} Left turn signal on, bringing the lever (1a) backward.

To turn on the turn signals the ignition key must be turned clockwise and held in the first position. \hat{a} Horn activation, pushing the lever (1a) in the direction shown by the arrow (1c). The horn activates also when the key is turned to on. Turn on the working lights with the switch (13, Fig. D), after turning on the low beams. The working lights do not turn on if the high beams are already turned on. Turn on the hazard warning lights with the switch (22, Fig. d). The hazard warning lights can be turned on even if the ignition key is turned to off. Turn on the ceiling light (30, Fig.

d) with the switch (31). The courtesy light can be turned on even if the ignition key is turned to off. Check that the machine is on a solid and level ground, especially if the hopper (12, Fig. g) is full. Turn off the engine, by turning the ignition key (17, Fig. U) to the lifting position (to lift the hopper turn the selector on the right, to lower the hopper turn the selector on the left) and, if necessary, try to pump with the lever (1). F) from the housings (10), and place them into the holes (11). remove the two locking pins (9, Fig. F) from the holes (11) and place them into the housings (10). bring the selector (3, Fig. U) in lowering position and activate the pump (2) with the lever (1) until the hopper is completely lowered. U) from the pump and place it in its housing (29, Fig. F), it is necessary to install the locking pins (9) according to the following procedure. **wARNING!** For safety purposes, before working under the lifted hopper, it is necessary to install the locking pins (9, Fig. f).

This procedure is necessary even if the hopper lifting cylinders are equipped with parachute valves that prevent the hopper from lowering accidentally in case of break/leakage from a pipe/fitting on the hydraulic system. Turn off the engine with the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). If necessary, start the machine and slightly lift the hopper to release the locking pins. remove the two locking pins (9, Fig. F) from the holes (11) and place them into the housings (10). F), it is necessary to install the support rod (8) according to the following procedure. F) from the housing and lift the door as necessary, then install the rod in the housing (30). The machine is equipped with a safety system that deactivates or does not allow for the activation of the high pressure pump if the water level in the tanks is insufficient for an interval of 10 seconds or more. The following procedure refers to the high-pressure water gun use. Pick up the high-pressure water gun (39, Fig. G) and connect the gun (39) to the quick coupling (27). E) and screw it to the water gun end (39, Fig. @@@@ Start the diesel engine at idle speed, as shown in the relevant paragraph. Turn on the high-pressure pump with the lever (14, Fig.

e). If necessary, bleed the air from the system by turning the water gun knob completely counter-clockwise and by pressing the water gun lever until the water comes out constantly and at low pressure. Release the water gun lever and turn the knob clockwise to use the high pressure nozzle. 9. Run the engine at the desired speed (do not exceed 2,200 rpm). 10. Check the water pressure with the pressure gauge (32, Fig. Use the water gun by pressing the relevant trigger. **wARNING!** Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. **wARNING!** Do not run the high pressure pump for long periods without using the water gun. 12. After using the water gun, perform steps from 1 to 5 in the reverse order. The machine is equipped with a high-pressure water system (optional) to be used for washing the machine or other purposes. The video-camera system can be turned on manually or automatically with the drive pedal.

When the machine is in "neutral" (drive pedal not pressed), to turn on the video system (35, Fig. F) and the camera (34), press the switch (37) when the ignition key (17, Fig. d) is inserted. The display shows the images received from the rear camera. When the ignition key (17, Fig. d) is inserted, the video (35, Fig. F) and the camera (34) turn on when pressing the drive pedal. The display shows the images received from the rear camera when the drive pedal is either in forward or reverse gear. After working, before leaving the machine, perform the following operations. 1. Turn off the dust control system water pump with the switch (19, Fig. E), then lift the suction inlet and side brooms with the lever (12). 4. Turn off the suction fan with the lever (14, Fig. Turn the engine throttle lever (16, Fig.

E) to idle, and hold it in this position for a few minutes to let the system stabilize. Turn off the engine, by turning the ignition key (17, Fig. The headlights must be turned off. When necessary, empty the dust control system water tanks (6 and 18, Fig. G) according to the following procedure. 1. Turn off the engine, by turning the ignition key (17, Fig. If it contains a small quantity of waste, it is not necessary to dump it. To avoid machine unbalance, perform the hopper dumping on a solid and level ground, especially if the hopper is nearly full and it is not possible to dump it. @ @ If it is necessary to move the machine when the hopper is lifted, move very slowly (maximum speed 1 km/h).

Turn off the engine, by turning the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. To transport the machine with a trailer, use the hooks and anchors shown below. The machine is equipped with the following hooks: \hat{A} No.

\hat{A} Anchor the machine with the front and rear towing hooks (1 and 2, Fig. B), placed over the rear axle support (6), and on the front left and right cab footboards (3) respectively. If the machine is not going to be used for more than 30 days, proceed as follows: 1. Empty the dust control system water tanks according to the following procedure. Store the machine indoor, in a clean and dry place, protected from bad weather conditions and with the following values: \hat{A} When the machine is to be transported or stored at ambient temperatures below 0 \hat{A} °C, check that water tanks are empty, disassemble and drain the water filter housing.



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After the first period of use (first 8 hours) it is necessary to perform the following procedures: Check the fastening and connecting elements for proper tightening. check the visible parts for integrity and leaks. After the first 50 working hours, perform checks and replacements shown in the Scheduled Maintenance Table. The lifespan of the machine and its maximum operating safety are ensured by correct and regular maintenance. the following table provides the scheduled maintenance. The intervals shown may vary according to particular working conditions, which are to be defined by the person in charge of the maintenance. **wARNING!** Maintenance procedures must be performed when the machine is off (ignition key removed). Moreover, read carefully the instructions in Safety chapter before performing any maintenance procedure. **wARNING!** When performing maintenance procedures on the dust control system water tanks, pay attention to the hoses in the lower inner part of the water tanks in order to avoid pinching them, especially when opening and then closing the water tanks. **cAUTION!** To perform maintenance procedures on the diesel engine, refer to the Diesel Engine Manual supplied with the machine.

all scheduled or extraordinary maintenance procedures must be performed by qualified personnel , or by an authorised Service Center. This Manual contains the Scheduled Maintenance Table and describes only the easiest and most common maintenance procedures. For other maintenance procedures contained in the Scheduled Maintenance Table or for extraordinary maintenance procedures see the Service Manual that can be consulted at any Service Center.

Maintenance Running-in period (after the first 50 hours) Every 10 hours or before use Every 100 hours Every 200 hours Every 400 hours Every 500 hours Every 800 hours Every 900 hours Every 1,200 hours Every 2,400 hours Long periods Engine oil level check Engine air filter cleaning Engine radiator fin check and cleaning Engine coolant level check Battery fluid level check Hydraulic system oil level and drain filter efficiency check Hydraulic system oil cooler fin check and cleaning Hopper, filter and suction hose cleaning, and gasket check Water nozzle and filter cleaning Brake fluid level check Reverse gear buzzer operation check Disengaged parking brake buzzer operation check Operation check of the system for engine start-up inhibition when the parking brake is not engaged and the operator is not on the driver's seat Diesel engine start-up safety system check Tyre pressure check Suction inlet and skirt height and operation check Side broom position check and adjustment (6) **Running-in period (after the first 50 hours)** Every 10 hours or before use Every 100 hours Every 200 hours (7)(8) Every 400 hours Every 500 hours Every 800 hours Every 900 hours Every 1,200 hours Every 2,400 hours Engine oil change Dust control system water filter cleaning Parking brake check Alternator belt tension check Climate control system compressor belt tension check Engine valve clearance check Engine turbocharger check Diesel engine oil filter replacement Engine fuel filter replacement Engine air filter replacement Nut and screw tightening and leakage check Lubrication Engine coolant line sleeve check Drive system pump oil filter check Hydraulic system oil drain filter replacement Hydraulic system oil suction filter replacement Alternator belt replacement Cab air filter replacement Injector check Climate control system belt replacement Engine coolant change Hydraulic system oil change Brake system check Hydraulic system pump pressure check Turbocharger check Injection pump check Minor engine overhaul Major engine overhaul (6) (6) (6) (6) (7) Or every 6 months Maintenance to be performed by Kubota authorised Service Center Or every two years After 5,000 hours After 3,000 hours For the procedure see the Service Manual, at any Nilfisk Service Center Every year, if the machine is not frequently used If a lower-quality oil is used, change it every 125 hours. Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. G), drive the machine to a cleaning/washing appointed area, then engage the parking brake (7, Fig. F) inside, up to the suction inlet, with pressurised water. Turn off the engine, by turning the ignition key (17, Fig. Install the breather filter and its hood performing steps from 15 to 17 in reverse order.

Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. Turn the ignition key (17, Fig. AA) and the screw (1), then remove the filter (3). Install the filter, the nozzle and the screw in the reverse order of removal.

Nozzle holes must be directed down when tightening. Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. **NOTE** When the filter is removed, the water inside the tanks comes out up to the filter level. Turn off the engine, by turning the ignition key (17, Fig.

S) from the cover, then wash and clean it. This procedure must be performed with the hopper (12, Fig. Start the diesel engine as shown in the relevant paragraph and run it at 1,500 rpm. AD) of the hydraulic system drain filter (2) is in the green area (3), otherwise the filter (2) must be replaced (see the procedure in the Service Manual). Check that there are no oil leaks in the upper area (4, Fig. aD) of the hydraulic system oil tank. Turn off the engine, by turning the ignition key (17, Fig. AD), check that the oil level in the tank is between the MIN and MAX marks. For the types of oil to be used, see the Technical Data paragraph. **NOTE** Top up by using the same type of oil that is in the tank.

Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun. G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig. Turn off the engine, by turning the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). Clean the hydraulic system oil cooler fins (16, Fig. Protect body parts (eyes, hair, hands, etc. Turn off the engine, by turning the ignition key (17, Fig. E), turn the key of the release device (37, Fig.

The battery must be refilled with distilled water. If necessary, clean the battery. check the battery terminal connections for oxidation. Close the cab left door (19, Fig. e) and tighten the screws. Insert the battery by installing and turning the key of the release device (37, Fig.

To switch the release device key position, first press and turn the key. Turn off the engine, by turning the ignition key (17, Fig. Check that the level of the oil in the tank (15, Fig. f) is approximately at 1 cm from the filler neck. If necessary top up using the same type of fluid that is in the line.

If necessary, adjust the relevant sensor according to the instructions in the Service Manual.



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Check that, when the key is turned to on and the parking brake is disengaged, if the operator is not on the driver's seat the intermittent warning buzzer turns on. If necessary, adjust the parking brake microswitch according to the instructions in the Service Manual. Turn off the engine, by turning the ignition key (17, Fig. The manufacturer rating is based on standard drive speed and standard load rating, different from the actual machine application. Turn off the engine, by turning the ignition key (17, Fig. AF) of the suction inlet are in good conditions and turn freely (they must not be bent/ misshapen because of bumps or excessive pressure, etc.). Check also that the rubber thickness (2) is not lower than some millimetre. AF), the front sliding panels (4) and (5), and the rear sliding panel (6) are in good conditions and that their thickness (7) is not lower than 5 mm, otherwise replace them (see the procedure in the Service Manual).

It is important to replace the sliding panels (3), (4), (5) and (6) when they are not completely worn, to avoid damaging the relevant mounting screws and making them difficult to remove. Replace the sliding panels (3), (4), (5) and (6) as a unit, to avoid steps in the union areas (8), caused by different levels of wear. AF) is integral and that it does not have excessive tears (10) or lacerations (11), which can affect the suction inlet operation. Drive the machine on a level ground and lower the suction inlet (10, Fig. Turn off the engine, by turning the ignition key (17, Fig. AF) of the skirt from the ground is not bigger than 1 cm. AF) contact the ground, the sliding panels (3), (4), (5) and (6) do not touch the ground. Otherwise the wheels (1) must be replaced to avoid an excessive wear of the sliding panels (see the procedure in the Service Manual). 11. Start the machine according to the procedure shown in the relevant paragraph, then lift the skirt (9, Fig.

aF) and check that it lifts freely. Check that it lifts also when a force of some kg is applied (simulating to move bottles or other heavy objects that must then be collected). If necessary, adjust the opening force of the skirt (9) according to the following procedure: \hat{A} AE) and turn the screw (2) as necessary, reminding that: \hat{A} The opening force decreases by loosening the screw; \hat{A} The opening force increases by tightening the screw. Check the side brooms for proper height and tilting, according to the following procedure: \hat{A} While keeping the machine stationary, fully lower the side brooms and allow them to rotate for a few seconds. Check that the size and orientation of the prints left by the side brooms are as follows: \hat{A} The right side broom must touch the ground along a circle arc ranging from "11 o'clock" position to "4 o'clock" position (1, Fig.

aH). \hat{A} The left side broom must touch the ground along a circle arc ranging from "8 o'clock" position to "1 o'clock" position (2, Fig. aH). Adjust the broom height when the prints are out of specification, according to the following procedure. Turn the ignition key (17, Fig.

To lower the broom, the nut (1) must be unscrewed; \hat{A} AG), then adjust the forward tilting angle (3). The purpose of this adjustment is to improve the side position of the brooms as to the suction inlet (10, Fig. NOTE When the side brooms are too worn out, the adjustment is not possible; replace the brooms according to the instructions in the relevant paragraph. It is advisable to wear protective gloves when replacing the side brooms because there can be sharp debris between the bristles. Turn off the engine, by turning the ignition key (17, Fig. AI) and secure it with the screws (3) on the new broom. install the new broom (2, Fig. AI) with the key, then tighten the centre screw (1). Adjust the height of the new broom according to the procedure shown in the relevant paragraph. Check also that the brake operates in the same way on both the front wheels.

If necessary, adjust the parking brake according to the instructions in the Service Manual. empty the hopper (12, Fig. G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig. Turn off the engine, by turning the ignition key (17, Fig. d) counterclockwise, to the end of stroke, then remove it. Open the left and right doors (4 and 16, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. If necessary, add oil as shown in the Diesel Engine Manual.

perform steps 3, 4, 5, 6 and 8 in the reverse order. If necessary, fill the dust control system water tanks according to the procedure shown in Before Start-Up paragraph. empty the hopper (12, Fig. G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig.

Turn off the engine, by turning the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. If necessary, fill the dust control system water tanks according to the procedure shown in Before Start-Up paragraph. NOTE This procedure must be performed when the engine oil has been drained.

G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig. Turn off the engine, by turning the ignition key (17, Fig. d) counterclockwise, to the end of stroke, then remove it. Open the left and right doors (4 and 16, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. If necessary, fill the dust control system water tanks according to the procedure shown in Before Start-Up paragraph. Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun.

Turn off the engine, by turning the ignition key (17, Fig. Clean and wash the pre-filter, then install it. AK) carefully with compressed air (maximum 6 Bar) and replace them, if necessary. Close the left door (4, Fig. G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig. Turn off the engine, by turning the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. If necessary, fill the dust control system water tanks according to the procedure shown in Before Start-Up paragraph.

G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig.



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Turn off the engine, by turning the ignition key (17, Fig. F) from the housings (10), and place them into the holes (11). **wARNING!** The coolant line is pressurized; do not perform any check until the engine has cooled down and, even if the engine is cold, the tank plug (1, Fig.

AL) must be opened with extreme care. AL) is between the minimum and maximum marks, as shown in the diesel engine Manual. G); if it contains a small quantity of waste, it is not necessary to dump it. Drive the machine on a solid and level ground, then engage the parking brake (7, Fig. Turn off the engine, by turning the ignition key (17, Fig.

d) counterclockwise, to the end of stroke, then remove it. Open the left and right doors (4 and 16, Fig. F) from the housings (10), and place them into the holes (11). F) outwards, only if they are empty: each tank contains 120 kg of water approximately. If necessary, fill the dust control system water tanks according to the procedure shown in Before Start-Up paragraph. Turn the ignition key (17, Fig. d) counterclockwise, to the end of stroke, then remove it. Inside the cab, remove the screw (1, Fig. AO) with the arrows (2) pointing in the direction shown in the figure (direction of the air flow). Turn the ignition key (17, Fig.

Check that the machine cannot move with one wheel lifted (the parking brake operates only on the front wheels). Remove the wheel according to the following procedure. Use a suitable jack with a minimum lifting capacity of 2 tons. AP) carefully, and lift the wheel (3) until it is slightly detached from the ground. Use a suitable jack with a minimum lifting capacity of 2 tons. AQ) carefully, and lift the wheel (3) until it is slightly detached from the ground. Turn the ignition key (17, Fig. E), turn the key of the release device (37, Fig. e) and then remove it. Remove the transparent cover of the fuse box (24 or 25, Fig.

d) and replace the relevant fuse among those described in the Electrical Fuses paragraph. Install the transparent cover of the fuse box (24 or 25, Fig. E) and close the left door (19, Fig. E) by installing and turning the key of the release device (37, Fig. To switch the release device key position, first press and turn the key.

In winter, perform the following maintenance procedures carefully. Procedures for machine storage or for machines working at less than 0 °C Turn on the water pump (see the procedure in the relevant paragraphs) to let the antifreeze flow through the system until it comes out from the broom nozzles, from the suction hose nozzle and from the rear pipe nozzle (if equipped). When the antifreeze comes out from the nozzles, stop the pump. start the diesel engine as shown in the relevant paragraph. Turn on the high-pressure washing system pump (see the procedure in the relevant paragraphs) and let the antifreeze flow through the high-pressure washing system until it comes out of the water gun.

When the antifreeze comes out, stop the pump. **wARNING!** Do not use the dust control system when the outside temperature is lower than 0 °C because it can create ice sheets on the pavement. Procedures to perform when the machine has been stored for two months Replace the engine oil and oil filter (see the relevant paragraphs). Each month connect a battery charger and keep the battery charged for 12/24 hours. Procedures to perform when the machine has been stored for three months The machine is equipped with the following safety functions. The machine is equipped with a sensor and a buzzer to indicate that the machine is moving in reverse. The hopper lifting/lowering lever can be activated only after having lifted the locking device flange. The suction inlet and broom lifting/lowering lever can be activated only after having lifted the locking device flange. The machine is equipped with a sensor that does not allow for engine start up when the drive pedal is pressed. The machine is equipped with a manual battery release device to protect the machine when it is stored for long periods, during maintenance or when it is left unattended.

The machine is equipped with a sensor that does not allow for engine start up when the operator lifts from the driver's seat for more than 2 seconds and the parking brake is disengaged. The engine can be started if the operator is not on the driver's seat but the parking brake is engaged. The machine is equipped with an emergency push-button to stop the engine in case of immediate danger. The machine is equipped with a buzzer that sounds when one of the main alarms occurs (see Alarm Description paragraph). The following table shows the most common problems that may arise when using the machine, the possible causes and the suggested remedies to solve them. The suggested remedies must be performed by qualified personnel, according to the instructions shown in this Manual, if present, otherwise contact a Nilfisk Service Center, where it is possible to consult the Service Manual. Problem General electric problem When

the key is turned to ON, the machine is not powered The battery is disconnected The emergency push-button is activated/disconnected The K2 line electromagnetic switch is disconnected/faulty The F2. 7 fuse is open The F1. 2 line fuse is open The ignition switch is damaged/disconnected Brooms The brooms do not clean properly The brooms do not rotate The brooms are not properly adjusted The broom speed is not correct There are oil leaks from the hydraulic system fittings/hoses The motor is faulty The accessory system pump does not pressurise the oil in the circuit Suction fan The suction fan is noisy The suction fan turns but it is not efficient The motor is faulty The dust filters are clogged The suction pipe is clogged The suction pipe is cut/torn Repair Clean Clean Replace Adjust Adjust the speed Repair/replace Replace Check the oil pressure in the hydraulic system Connect the battery cables Reset the emergency push-button Replace Replace Replace Replace/connect Possible cause Remedy The gasket between the suction inlet and the hop- Replace/adjust per is broken or misadjusted (replace or adjust) There is no pressure at the suction system motor The suction fan does not turn The distributor is stuck The motor is faulty Pump failure Suction inlet and skirt The suction inlet does not collect debris efficiently The suction inlet does not lift The suction fan is not engaged The suction inlet position is incorrect The distributor is stuck The cylinder gaskets are worn There is no pressure at the hydraulic system The suction inlet does not lower The skirt opening force is not sufficient The skirt does not open/close There is no pressure at the parachute valve The skirt opening pressure is incorrect The switch is turned off/damaged The F3. 1 fuse is open The solenoid valve is burnt Engage the suction fan Check the suction inlet and skirt height and operation Repair Overhaul the cylinder Check the pump pressure Check the suction fan distributor pressure Adjust the opening pressure Turn on Replace Replace Adjust the pump pressure Repair Replace Replace Possible cause The pressure is insufficient The distributor is stuck Remedy Increase the pressure Repair Overhaul the cylinders Replace Start the engine Replace Replace/connect Replace/connect Replace/connect Replace/connect Replace Release the drive pedal/replace Replace/replace Replace/connect Start the engine Replace/replace Replace/replace Replace/connect Replace/connect The hopper does not return to horizontal posi- The cylinder gaskets are worn tion/lower The hopper door does not open/close The actuator is faulty The engine is not running The F3.



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@@@@5 safety electronic board fuse is open The water pump does not stop The water pump relay is shorted The float is stuck Enabling from display is shorted The water pump switch has a welded contact Fill the tank Turn on the pump Clean/replace Clean Replace Replace Start the engine Replace/connect Repair/connect Repair/replace Turn on Replace Replace Repair Reset Replace Problem Diesel engine The engine runs but does not start/does not start properly K14 engine off relay is welded/disconnected The display output is damaged/disconnected The F3. 2 fuse is open The fuel solenoid valve is damaged/disconnected The safety electronic board output for pulldown solenoid valve is damaged/disconnected The K1 glow plug relay is damaged/disconnected The F1. 1 fuse is open The safety electronic board is damaged/disconnected The F3. 5 safety electronic board fuse is open The key is inserted but the starter does not run The starter is damaged/disconnected The K4 start-up relay is damaged/disconnected The F1. 4 fuse is open The battery is disconnected The safety electronic board output is damaged/ disconnected The ignition switch is damaged/disconnected The engine is running/the safety electronic board input is active for fault Replace/connect Replace/connect Replace Replace/connect Replace/connect Replace/connect Replace Replace/connect Replace Replace/connect Replace/connect Replace Possible cause The operator is not on the driver's seat/the sensor The operator must sit on the driver's seat/ is faulty replace The machine is not in neutral/the sensors are faulty The parking brake is disengaged/the sensor is faulty The safety electronic board is damaged/disconnected The F3.

5 safety electronic board fuse is open The engine does not run smoothly The battery charge is insufficient/the battery does not charge The alternator is damaged/disconnected The F1. 4 alternator fuse is open The alternator adjuster fuse is open The battery feedback on alternator is open Glow plugs The glow plugs do not turn on when turning the key to ON The F1. 1 fuse is open The K1 glow plug relay is damaged/disconnected The connection to the display warning light is open The safety electronic board output is damaged/ disconnected The display warning light does not turn off after about 8 seconds The display warning light does not turn on after starting the engine The K1 glow plug relay is shorted The safety electronic board output is damaged/ shorted Replace Replace/connect Connect Replace/connect Turn off immediately and check for proper operation Turn off immediately and check for proper operation Release the drive pedal/replace Engage the parking brake/replace Replace/connect Replace Use a proper battery charger/replace the battery Replace/connect Replace Replace Check the connection on K14 and on alternator Problem Headlights The running lights do not turn on Possible cause The combination switch is damaged/disconnected Replace/connect The K11 running light relay is damaged/disconnected The machine does not power on The bulbs are blown/disconnected The F2. 3 and F2. 4 fuses are open Replace/connect See the remedies above Replace/connect The F2.

3 fuse turns on the running light indicator light (feedback) Replace/connect Replace/connect Replace Start the engine Replace/connect Replace Replace/connect Replace Replace/connect Remedy The low beams do not run on (suction inlet light) The combination switch is damaged/disconnected Replace/connect The K7 low beam relay is damaged/disconnected The bulbs are blown/disconnected The F2. 5 fuse is open The engine is not running Enabling from display is not present/damaged/ disconnected The F3. 5 fuse is open The engine speed sensor is damaged/disconnected The D2 door lock diode is damaged The brake lights do not turn on when pressing The service brake sensor is damaged/disconnected The F2. 2 brake light fuse is open The bulbs are blown/disconnected The turn signal warning light on the display is always on The turn signal warning light on the display is always off The high beams do not turn on The load resistor on the display is disconnected The input on the display is damaged/disconnected Check the safety electronic board output The combination switch is damaged/disconnected Replace/connect The K8 high beam relay is damaged/disconnected Replace/connect The bulbs are blown/disconnected The F2. 6 fuse is open The engine is not running Enabling from display is not present/damaged/ disconnected The F3. 5 fuse is blown The engine speed sensor is damaged/disconnected The D2 door lock diode is damaged Replace/connect Replace Start the engine Replace/connect Replace Replace/connect Replace Replace/connect Replace Replace/connect The brake lights do not flash when the gear is not engaged Enabling from safety electronic board is not present/damaged/disconnected The F3. 5 fuse is blown Neutral enabling on electronic board is not present/K10 engaged parking brake warning light relay is damaged/disconnected Neutral enabling on electronic board is not present/the sensors are damaged Neutral enabling on electronic board is not present/the driver's seat sensor is damaged The turn signals do not turn on 1 fuse (+15) is open Enabling from safety electronic board is not present/damaged/disconnected Replace/connect Replace Replace/connect Replace/connect 5 electronic board fuse is open The safety electronic board is damaged/shorted The parking brake is not engaged when the key is turned to ON and the operator is not on the driver's seat The parking brake microswitch is damaged/open on safety electronic board Check the alarm/reset Replace/reset Replace Replace/connect Replace Replace/reset Possible cause Engage the parking brake and the operator must sit on the driver's seat Replace/connect The driver's seat microswitch is damaged/open on Replace/connect the safety electronic board Never on The buzzer is damaged/disconnected The F3. The parking brake input on safety electronic board N is shown on the display is always present The driver's seat microswitch input on the safety electronic board is always present Steering system The machine does not move straightforward The steering is hard The rear axle toe-in is incorrect The power steering is faulty The priority valve is faulty The steering wheel drive hydraulic cylinder is faulty Brakes The parking brake is not efficient The parking brake is engaged but it is not indicated The machine brake system is not efficient The brake is misadjusted The warning light is off/always on because it has not been adjusted or the microswitch is faulty The brake fluid level is low The braking masses are worn or greasy There is air in the line The drum brake cylinder is faulty The brake fluid pump is faulty Stability When the machine moves the stability is reduced The tyres are not properly inflated Check the tyre pressure Adjust Adjust or check the connection (display) Check the brake fluid level Replace Bleed the system Replace Overhaul Adjust Replace Replace Replace Check the driver's seat microswitch Problem Wheels The rear wheels are noisy Drive power Possible cause The wheel bearings are worn The drive pedal is faulty The by-pass is open The drive system pump power decreases The drive system motors are worn Replace Replace Check the by-pass screw tightening Check the hydraulic system oil pressure on the drive system pump Replace Deactivate Repair Replace Replace Adjust Remedy The drive system pump deactivation screw for machine pushing/towing is unscrewed There are oil leaks from the hydraulic system The drive system pump is broken The drive system motor is broken Drive pedal The machine moves even if the drive pedal is released Cab heating There is no hot air The fans do not turn Cab climate control system There is no fresh air The compressor does not turn because the drive belt is loosen/broken There are gas leaks from the system The expansion valve is faulty The S27 climate control system switch is turned off The S26 fan switch is turned off The engine is not running The F3.



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