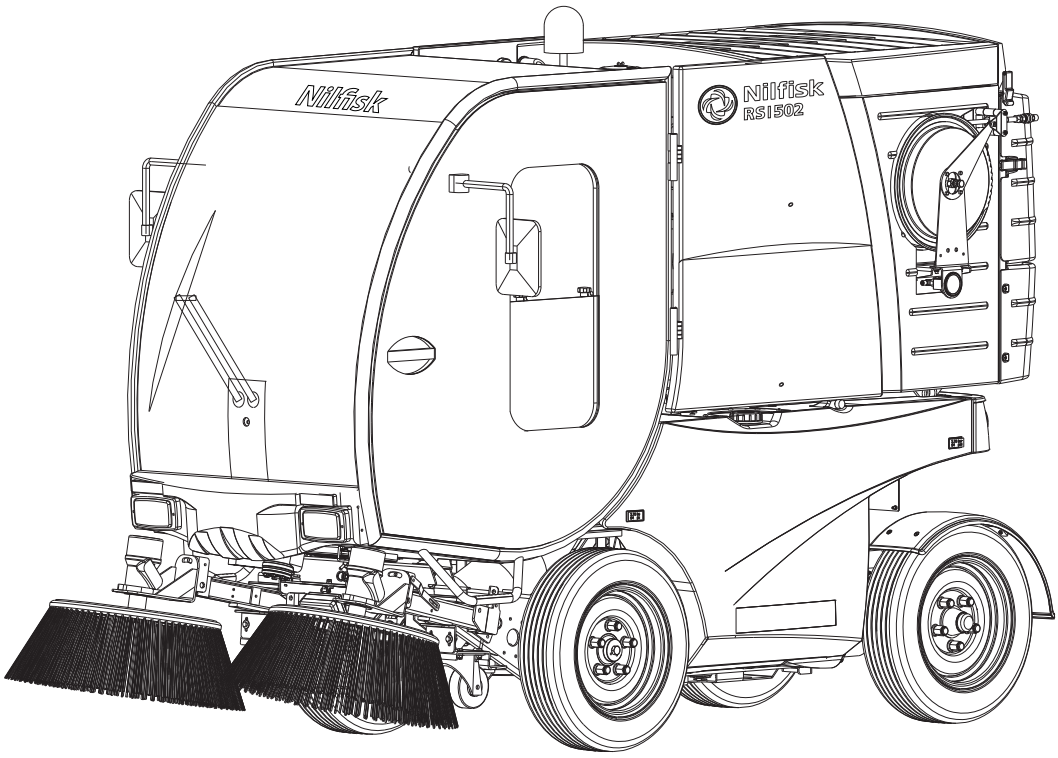
RS 501



SERVICE MANUAL

ENGLISH

Advance

33019746(2)2010-03

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GENERAL INFORMATION

NOTE
Forward, backward, front, rear, left or right are intended with reference to the operator's position, while on the driver's seat.

MACHINE LIFTING

WARNING!
Do not work under the lifted machine without supporting it with safety stands.

MACHINE TRANSPORT

(See the Instructions for use Manual)

WARNING!
Before transporting the machine, make sure that:
- ***All doors and covers are closed.***
- ***All moving parts are stopped.***
- ***The ignition key is removed.***
- ***The machine is securely fastened to the means of transport.***

PUSHING OR TOWING THE MACHINE

WARNING!
When pushing or towing the machine, carefully follow the relevant instructions given in the Instructions for use Manual. Failure to follow these instructions may cause damage to the machine.

OTHER AVAILABLE MANUALS

The following Manuals are available at Advance Literature Service Department:
- RS 501 Spare Parts List – Advance Form Number 33019744
- RS 501 Instructions for use Manual – Advance Form Number 33019745
- RS 501 Wiring Diagram – Advance Form Number 33019500

SAFETY

The following symbols indicate potentially dangerous situations. Always read this information carefully and take all necessary precautions to safeguard people and property.

DANGER!
It indicates a dangerous situation with risk of death for the operator.

WARNING!
It indicates a potential risk of injury for people.

CAUTION!
It indicates a caution or a remark related to important or useful functions.
Pay careful attention to the paragraphs marked by this symbol.

NOTE
It indicates a remark related to important or useful functions.

CONSULTATION
It indicates that it is necessary to consult the Instructions for use Manual before performing any procedure.

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GENERAL SAFETY INSTRUCTIONS

Specific warnings and cautions to inform about potential damages to people and machine are shown below.

DANGER!

– ***This machine must be used by properly trained and authorized personnel only.***
– ***Moreover, the operator must:***
  - ***Be 18 years or older***
  - ***Have a driving license***
  - ***Be in normal psycho-physical conditions***
  - ***Not be under the effect of substances that alters the nervous system (alcohol, psycopharmaceuticals, drugs, etc.)***
– ***Before performing any maintenance/repair procedure remove the ignition key, engage the parking brake and disconnect the battery.***
– ***Do not wear jewelry when working near electrical components.***
– ***Do not work under the lifted machine without supporting it with safety stands.***
– ***When working under open hoods/doors, make sure that they cannot be closed by accident.***
– ***When performing maintenance procedures with the lifted hopper, apply the relevant safety rods.***
– ***Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapors.***
– ***Be careful, fuel is highly flammable.***
– ***Do not smoke or bring naked flames in the area where the machine is refueled or where the fuel is stored.***
– ***Refuel outdoors or in a well-ventilated area, with the engine off.***
– ***Do not fill the fuel tank to the top, but leave at least 1.6 in (4 cm) from the filler neck to allow the fuel to expand.***
– ***After refueling, check that the filler cap is tightly closed.***
– ***If any fuel is spilled while refueling, clean up the affected area and allow the vapors to dissipate before starting the engine.***
– ***Avoid contact with skin and do not breathe in fuel vapors. Keep out of reach of children.***
– ***Do not tilt the engine too much to avoid fuel spillage.***
– ***During machine transportation, the fuel tank must not be full.***

WARNING!
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.

– ***Do not lay any object on the engine.***
– ***Before working on the diesel engine turn it off. To prevent the engine from starting accidentally, disconnect the battery negative terminal.***
– ***See also the SAFETY RULES in the Diesel Engine Manual, which is to be considered an integral part of this Manual.***

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WARNING!

- ***Carefully read all the instructions before performing any maintenance/repair procedure.***
- ***Take all necessary precautions to prevent hair, jewelry and loose clothes from being caught by the machine moving parts.***
- ***Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun.***
- ***Avoid contact with battery acid, do not touch hot parts.***
- ***Do not leave the machine unattended with the ignition key inserted and the parking brake disengaged.***
- ***Do not remove or modify the plates affixed to the machine.***
- ***To drive on public roads, the machine must follow local licensing requirements.***
- ***The machine has been designed to be used as a sweeper, do not use it for different purposes.***
- ***In case of part replacement, order ORIGINAL spare parts from an authorized Dealer or Retailer.***
- ***The machine must be disposed of properly, because of the presence of toxic-harmful materials (batteries, etc.), which are subject to standards that require disposal in special centers (see the Scrapping chapter in the Instructions for use Manual).***
- ***While the engine is running the silencer heats up. Do not touch the silencer to avoid serious scalding or fire.***
- ***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.***
- ***Do not run the engine if the air filter is not installed, to avoid damaging it.***
- ***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 must be opened with extreme care.***
- ***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.***
- ***See also the SAFETY RULES in the Diesel Engine Manual, which is to be considered an integral part of this Manual.***

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TECHNICAL DATA

Dimensions and weights	Values
Machine length	122.4 in (3,110 mm)
Machine width (broom bristles not included)	52.8 in (1,340 mm)
Distance between front and rear wheels	57.9 in (1,470 mm)
Front wheel base	37.6 in (955 mm)
Rear wheel base	34.6 in (880 mm)
Machine height	78.6 in (1,997 mm)
Minimum distance from the ground (skirts not included)	3.5 in (90 mm)
Maximum front working angle	18°
Maximum dumping height	57.5 in (1,460 mm)
Front tires	R165/70 R14C 89R
Rear tires	R165/70 R14C 89R
Tire pressure	54 psi (3.75 Bar)
Side broom diameter	28,3 in (720 mm)
Total machine weight, in running condition (with 70 kg-operator)	3,748 lb (1,700 kg)
Hopper maximum load	1,168 lb (530 kg)

Performance data	Values
Maximum forward speed (for transport only)	12.4 mph (20 km/h)
Maximum working speed	7.4 mph (12 km/h)
Maximum reverse speed	5 mph (8 km/h)
Gradeability at full load during transport	22%
Minimum inner turning radius	96.8 in (2,460 mm)
Maximum side broom speed	80 rpm
Collection system	Suction
Cleaning width	63 in (1,600 mm)
Filtering system	Metallic net
Vibration level at the operator’s arms/body	2.1/1.2 in/s^2 (0.652/0.371 m/s^2)
Sound pressure level at workstation (ISO/EN3744) at maximum working speed	81 dB(A)
Certified sound power (2000/14/EC) at maximum working speed	110 dB(A)
Measured sound power (ISO/EN3744) at maximum working speed	107 dB(A)
Hopper capacity	132 USgal (500 liters)
Hopper maximum load	838 lb (380 kg)
Dust control system	By water
Dust control system tank total capacity (No. 2)	63.4 USgal (240 liters)
Lighting and signaling system	Road type
Transmission	Hydrostatic servoassisted
Steering system	On the rear axle, power assisted
Brake	Hydraulic
Parking brake	Mechanic
Controls	Hydraulic

V1505T diesel engine data (*)	Values
Make	KUBOTA
Type	V1505T
Cylinders	4
Maximum speed	2,800 rpm
Maximum working speed	2,200 rpm
Maximum power at 2,800 rpm	40.8 HP (30.6 kW)
Idle speed	1,100 rpm
Displacement	0.4 USgal (1,498 cm^3)
Consumption while operating at 2,200 rpm (recommended speed)	4.6 L/h
Consumption during transport at 2,800 rpm (maximum speed)	4.3 L/h
Engine coolant	50% of AGIP antifreeze and 50% of water (**)
Engine oil	AGIP Sigma Turbo 15W/40 (***)

(*) For other diesel engine data/values, see the relevant Manual.
(**) See the coolant technical data and reference data tables below.

SPECIFICATIONS		
Boiling point	°C/°F	170/338
Boiling point in solution with 50% water	°C/°F	110/230
Freezing point in solution with 50% water	°C/°F	-38/-36,4
Color	/	Turquoise blue
Density at 59 °F (15 °C)	kg/l	1,13

REFERENCE DATA
CUNA NC 956-16 97
FF.SS cat. 002/132
ASTM D 1384

(***) See the engine oil technical data and reference data tables below.

SPECIFICATIONS		
SAE QUALITY	/	15W40
Viscosity at 212 °F (100 °C)	mm^2/s	13,7
Viscosity at 104 °F (40 °C)	mm^2/s	100
Viscosity at 5 °F (-15 °C)	mm^2/s	3.300
Viscosity index	/	138
Flash point COC	°C/°F	230/446
Pour point	°C/°F	-27/-16,6
Density at 59 °F (15 °C)	kg/l	0,885

REFERENCE DATA
ACEA E3
API Service CG-4/SG
CCMC D5, PD-2
US Department of the Army MIL-L-2104 E
US Department of the Army MIL-L-46152 E
MACK EO-L
MAN M 3275
Mercedes Benz 228.3
VOLVO VDS2
MTU typ 2
CAT TO-2
DEUTZ DQC-IV 05 level
DEUTZ DQC-II 05
ISOTTA FRASCHINI
ZF TE-ML-04 C

Refueling data	Values
Fuel tank capacity	8 USgal (30 liters)
Hydraulic system oil tank capacity	10.7 USgal (40.6 liters)
Hydraulic system capacity	15.3 USgal (58 liters)

Electrical system data	Values
System voltage	12 V
Starting battery	12 V – 80 Ah

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Hydraulic system data	Values
Maximum drive system pressure	3.626 psi (250 Bar)
Maximum accessory system pressure	1.740/2.901 psi (120/200 Bar)
Hydraulic system oil type (at ambient temperature above 50 °F (10 °C))	AGIP Arnica 46 (****)

NOTE
If the machine is to be used at ambient temperatures below 50 °F (10 °C), the oil should be replaced with equivalent oil having a viscosity of 32 cSt. For temperatures below 32 °F (0 °C), use oil with lower viscosity.

(****) See the hydraulic system oil technical data and reference data tables below.

TECHNICAL DATA			
AGIP ARNICA		46	32
Viscosity at 104 °F (40 °C)	mm^2/s	45	32
Viscosity at 100 °C	mm^2/s	7,97	6,40
Viscosity index	/	150	157
Flash point COC	°C/°F	215/419	202/395,6
Pour point	°C/°F	-36/-32,8	-36/-32,8
Density at 59 °F (15 °C)	kg/l	0,87	0,865

REFERENCE DATA
ISO-L-HV
ISO 11158
AFNOR NF E 48603 HV
AISE 127
ATOS Tab. P 002-0/I
BS 4231 HSE
CETOP RP 91 H HV
COMMERCIAL HYDRAULICS
Danieli Standard 0.000.001 (AGIP ARNICA 22, 46, 68)
EATON VICKERS I-286-S3
EATON VICKERS M-2950
DIN 51524 t.3 HVLP
LAMB LANDIS-CINCINNATI P68, P69, P70
LINDE
PARKER HANNIFIN (DENISON) HF-0
REXROTH RE 90220-1/11.02
SAUER-DANFOSS 520L0463

Climate control system data (optional)	Values
Gas type	Reclin 134a
Gas quantity	1.8 lb (0.8 kg)

Camera kit data (optional)	Values
Make	Continental VDO -
Type	LCD 5" color monitor Infrared color camera

ENVIRONMENTAL CONDITIONS

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:
– Temperature: 14 °F to + 104 °F (-10 °C to 40 °C)
– Humidity: 30% to 95%, not condensed
Store the machine indoor, in a clean and dry place, protected from bad weather conditions and with the following values:
– Temperature: 33.8 °F to + 122 °F (1 °C to 50 °C)
– Humidity: maximum 95%, not condensed

(*) When using the machine at ambient temperatures between 14 °F and 32 °F (-10 °C and 0 °C), the dust control system cannot be used; moreover the water tanks and the dust control system itself must be empty.

MAINTENANCE

The lifespan of the machine and its maximum operating safety are ensured by correct and regular maintenance.

WARNING!
See GENERAL INFORMATION and SAFETY paragraphs.

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.
The instructions relating to the maintenance procedures given in the following table are described in the next paragraphs.

SCHEDULED MAINTENANCE TABLE

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				(6)							
Tire pressure check				■							
Suction inlet and skirt height and operation check				■							
Side broom position check and adjustment				■							
Engine oil change	■			(7)(8)							
Dust control system water filter cleaning	■			■							
Parking brake check				■							
Alternator belt tension check			(7)								
Climate control system compressor belt tension check				(6)							
Engine valve clearance check							(2)				

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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 turbocharger check											(2)
Diesel engine oil filter replacement				(7)(8)							
Engine fuel filter replacement					(7)						
Engine air filter replacement											
Nut and screw tightening and leakage check	(6)			(6)							
Lubrication				(6)							
Engine coolant line sleeve check				(7)(6)							
Drive system pump oil filter check	(6)			(6)							
Hydraulic system oil drain filter replacement	(6)			(6)							
Hydraulic system oil suction filter replacement	(6)			(6)							
Alternator belt replacement						(3)(6)					
Cab air filter replacement						(1)					
Injector check									(2)		
Climate control system belt replacement									(6)		
Engine coolant change									(3)(6)		
Hydraulic system oil change									(3)(6)		
Brake system check										(6)	
Hydraulic system pump pressure check										(6)	
Turbocharger check											(2)(5)
Injection pump check											(2)(5)
Minor engine overhaul											(2)(4)
Major engine overhaul											(2)

(1) Or every 6 months
(2) Maintenance to be performed by Kubota authorized Service Center
(3) Or every two years
(4) After 5,000 hours
(5) After 3.000 hours
(6) For the procedure see the Service Manual, at any Advance Service Center
(7) Every year, if the machine is not frequently used
(8) If a lower-quality oil is used, change it every 125 hours.

MACHINE NOMENCLATURE

Throughout this Manual you will find numbers in brackets, for example: (2). These numbers refer to the components indicated in these two nomenclature pages. Refer to these pages whenever it will be necessary to identify a component mentioned in the text.

1. Cab
2. Left door
3. Hopper
4. Diesel engine
5. Suction fan
6. Flashing light
7. Dust control system left tank
8. Front fixed wheels
9. Rear steering wheels
10. Right broom
11. Left broom
12. Suction inlet
13. Right door
14. Meter and control panel
15. Rear axle
16. Dust control system right tank
17. Rear suction pipe (*)
18. Left door
19. Left door fasteners
20. Right door
21. Right door fasteners
22. Cab right panel
23. Cab left panel
24. Right door handle
25. Left door handle
26. Hopper door
27. Open door support rod
28. Lifted hopper locking pins
29. Lifted hopper locking pins housing
30. Lifted hopper locking pins holes
31. Suction filter
32. Drain filter
33. Hydraulic system oil tank
34. Battery
35. Hydraulic system oil cooler
36. Suction inlet-to-hopper pipe
37. Fuel tank
38. Hopper manual lifting hand pump (to be used in case of engine malfunction)
39. Hydraulic system oil drain filter
40. Hopper lifting device
41. Display scroll button
42. Left tank mounting screw
43. Working light switch
44. Right tank mounting screw
45. Front towing hook
46. Engine air filter
47. Fuel tank filler neck
48. Hopper top link
49. Left water tank filler plug
50. Right water tank filler plug
51. Brake fluid tank
52. Windscreen wiper fluid tank
53. Windscreen wiper motor
54. Combination switch
55. Steering wheel adjusting lever
56. Drive pedal
57. Brake pedal
58. Steering wheel
59. Driver’s seat
60. Suction inlet and brooms control lever
61. Driver’s seat safety belt (*)
62. Hopper lifting/lowering lever
63. Debris suction turbine control lever
64. Cab heater hot water control knob
65. Diesel engine throttle lever
66. Parking brake lever
67. Broom dust control system nozzle valve
68. Suction inlet dust control system nozzle valve
69. Flap lifting control joystick
70. Lifted hopper warning light (red)
71. Hazard warning light switch
72. Dust control system switch
73. Cab blower switch
74. Windscreen wiper/washer switch
75. Climate control system switch (*)
76. Ignition key
77. Emergency push-button
78. Warning buzzer (it activates together with the warning lights 87, 91, 93, 94)
79. Fuse box F3
80. Fuse box F2
81. Indicators and warning lights
82. Display (see the relevant functions)
83. Check engine warning light
84. Hydraulic system oil low level and hydraulic system fault warning light
85. High beam indicator light
86. Running light indicator light
87. Charged battery indicator light (together with the indicator light a buzzer activates with intermittent sound)
88. Parking brake indicator light (together with the indicator light a buzzer activates with continuous sound)
89. Engine glow plug pre-heating warning light
90. Battery hygrometer
91. Battery release device
92. Fuse box F1
93. Engine coolant high temperature warning light (a buzzer activates together with the warning light)
94. Engine oil pressure warning light (a buzzer activates together with the warning light)

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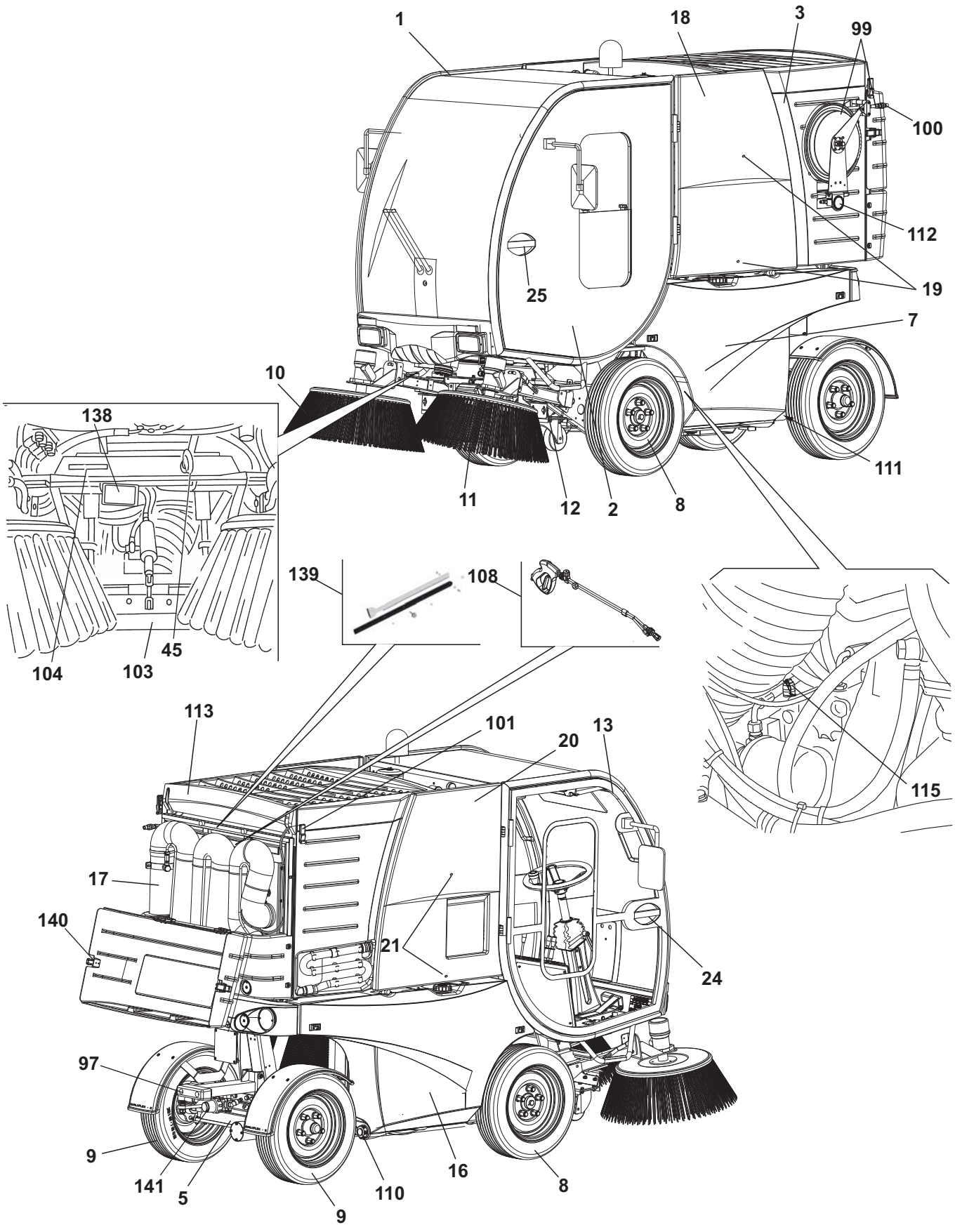
95. Turn signal indicator light
96. Hopper door opening/closing switch
97. Rear bumper
98. Diesel engine serial number/technical data plate (another plate showing the same data as the plate affixed on the diesel engine)(*)
99. High-pressure washing system hose with reel (*)
100. High-pressure water quick coupling (*)
101. Breather filter hood fasteners
102. Warning decal
103. Front skirt
104. Machine serial number
105. Hopper (dumping position)
106. Suction hose gasket
107. Hopper manual lifting hand pump lever
108. High-pressure water gun
109. Rear hood
110. Right water tank drain plug
111. Left water tank drain plug
112. High-pressure washing system pressure gauge
113. Breather filter hood
114. Hydraulic system oil filler plug
115. Hydraulic system pressure inlet (on drive system pump)
116. Hydraulic system pressure inlet (at suction fan pump)
117. Hydraulic system pressure inlet (at accessory and steering system pump)
118. Hopper door suction sealing gasket
119. Document holder
120. Hopper lifting/lowering lever safety flange
121. Suction inlet and broom lifting/lowering lever safety flange
122. Driver's seat forward/backward adjustment lever
123. Ashtray
124. High-pressure water gun sprinkler nozzle
125. Cigarette lighter
126. Can holder
127. Broom speed adjuster (*)
128. Hydraulic system oil level indicator
129. Jack
130. Jack control lever
131. Jack mounting handwheel
132. Fluid drain hose
133. Rear camera (*)
134. Display (*)
135. Sun visor
136. Ceiling light
137. Ceiling light switch
138. Working light
139. Rear suction pipe cleaning blade
140. Rear hood fastening hooks
141. Water filter
142. ON/OFF switch (*)
143. Fire extinguisher (*)
144. High pressure pump safety solenoid valve (*)

(*) Optional

MACHINE NOMENCLATURE (Continues)



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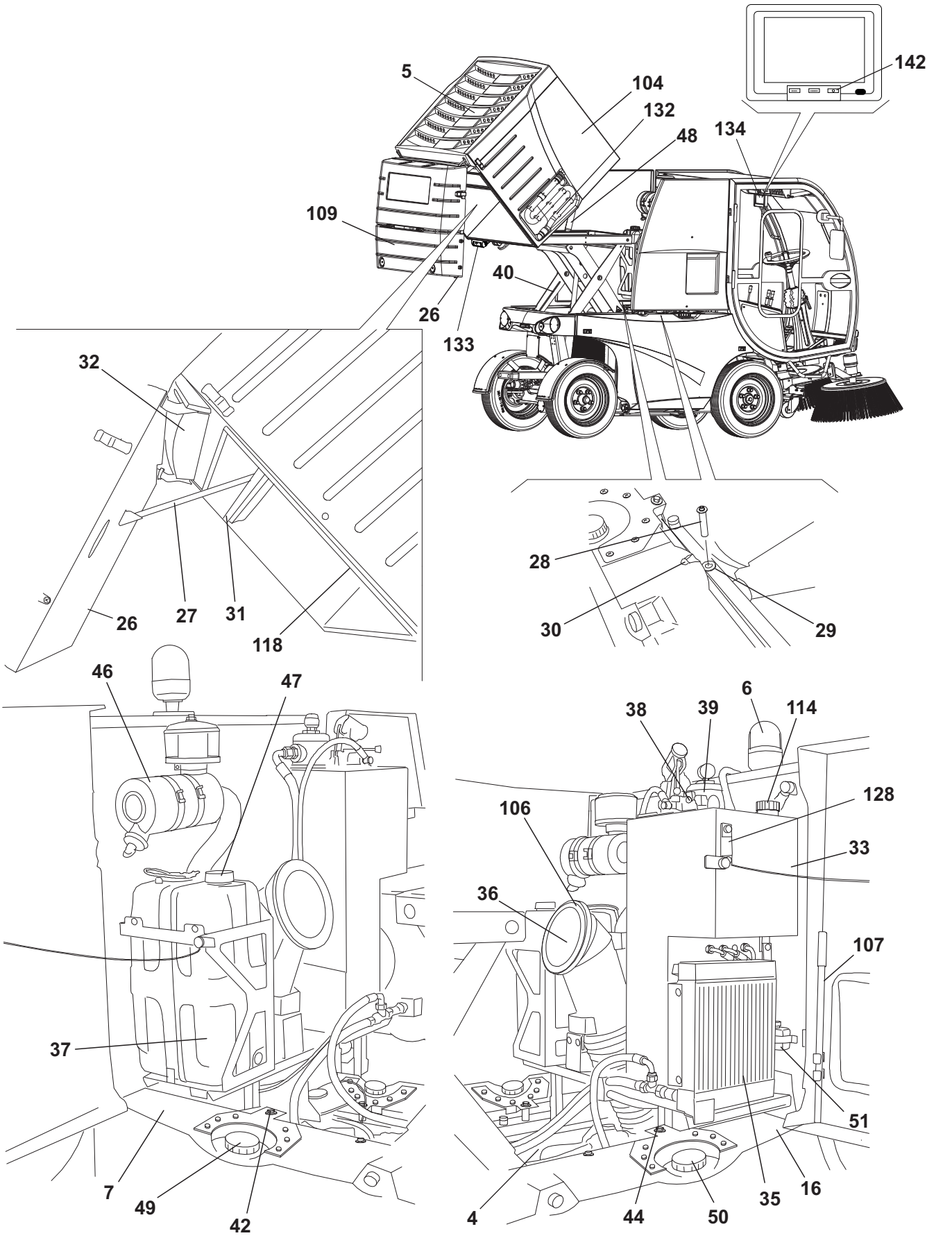
MACHINE NOMENCLATURE (Continues)



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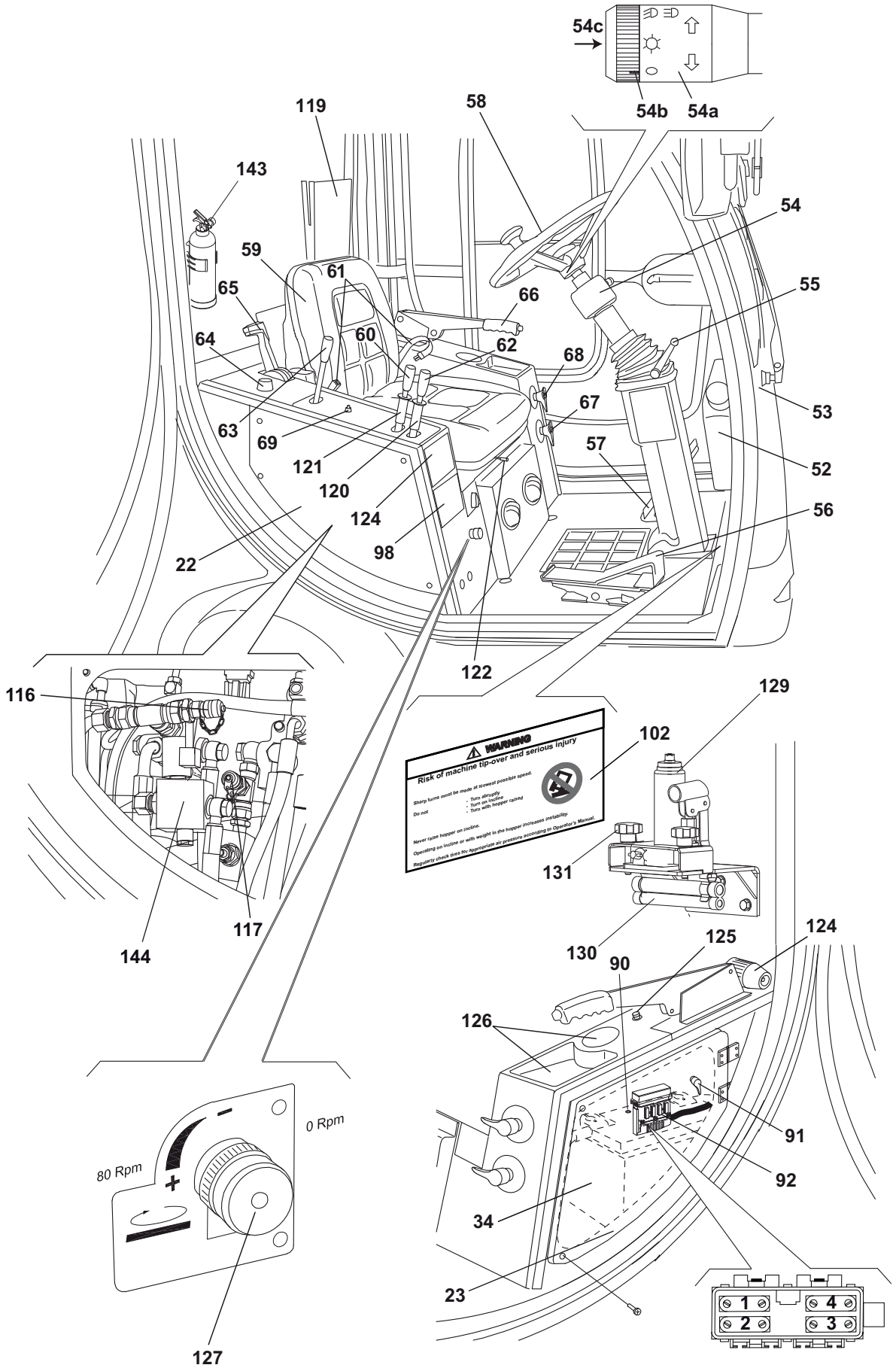

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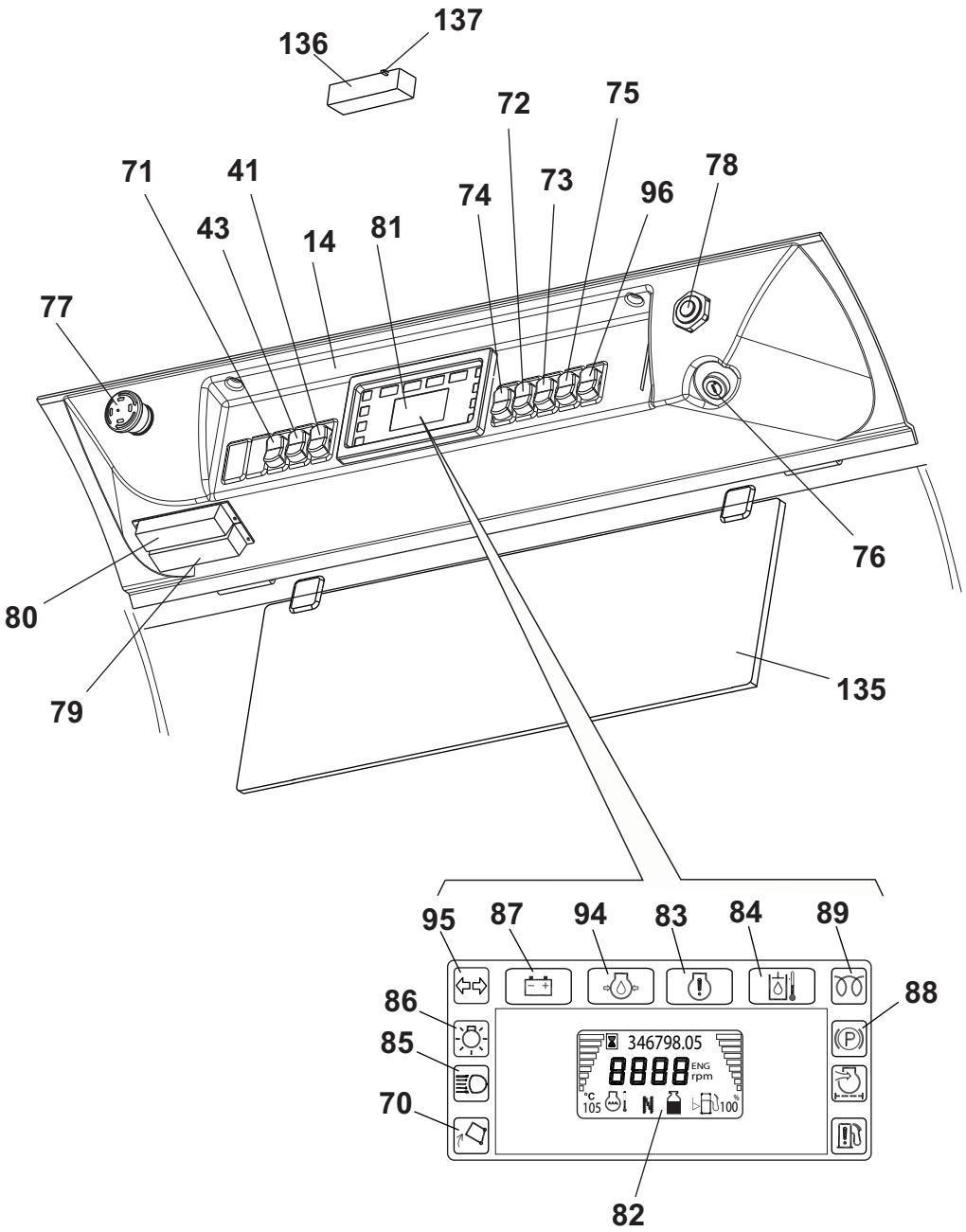

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SWEEPING SYSTEM

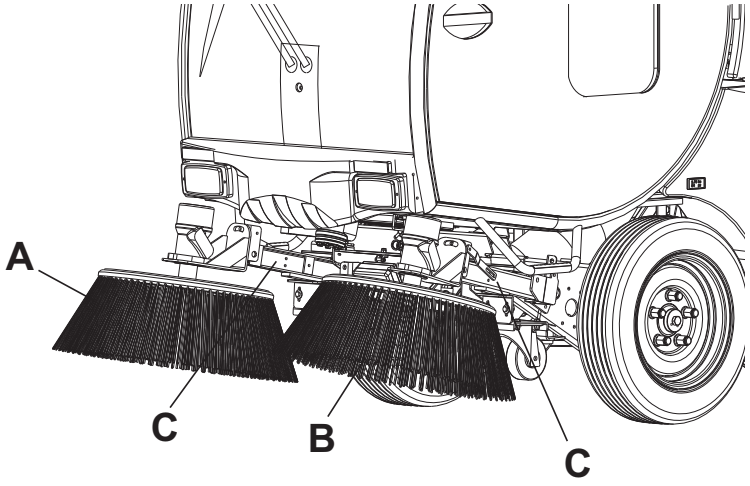
DESCRIPTION

The sweeping system consists of:

A) Right broom
B) Left broom
C) Broom arms

The brooms (A) and (B) are supported by arms (C) which are fastened to the machine frame.
Broom rotation is activated by hydraulic motors.
For proper sweeping and conveyance of dust and debris towards the suction inlet:

– Broom height and tilting must be properly adjusted;
– Proper brooms must be used according to the type of ground to be cleaned. The following types are available:
  • Polypropylene brooms
  • Polypropylene and steel brooms



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IMPIANTO DI SPAZZAMENTO

TROUBLESHOOTING

The brooms do not clean properly

Possible causes:

1. The brooms are not properly adjusted (adjust).
2. The broom speed is not correct (adjust).

The brooms do not rotate

Possible causes:

1. There are oil leaks from the hydraulic system hoses (replace the hoses).
2. The hydraulic motors are faulty (replace).
3. The accessory system hydraulic pump does not pressurize the oil in the circuit (check the hydraulic system oil pressure).

SIDE BROOM POSITION CHECK AND ADJUSTMENT

NOTE
Brooms of various hardness are available. This procedure is applicable to all types of brooms.

Check

1. Check the side brooms for proper height and tilting, according to the following procedure:
   - Drive the machine on a level ground.
   - While keeping the machine stationary, fully lower the side brooms and allow them to rotate for a few seconds.
   - Stop and lift the side brooms, then move the machine.
   - Check that the size and orientation of the prints left by the side brooms are as follows:
     – The right side broom must touch the ground along a circle arc (A) ranging from “11 o’clock” position to “4 o’clock” position.
     – The left side broom must touch the ground along a circle arc (B) ranging from “8 o’clock” position to “1 o’clock” position.

   Adjust the broom height when the prints are out of specification, according to the following procedure.
2. Engage the parking brake with the lever (66).
3. Turn the ignition key (76) to OFF position and remove it.

Broom height adjustment

4. On both sides of the machine, operate on the tensioning self-locking nut (C) of the spring (D) and consider the following:
   - To lower the broom, the nut (C) must be unscrewed;
   - To lift the broom, the nut (C) must be screwed.
5. Perform step 1 again.

Broom forward tilting angle adjustment

6. On both sides of the machine, loosen the screws (E) and (F), then adjust the forward tilting angle (G).
   When the adjustment is completed, tighten the screws (E) and (F).
7. Perform step 1 again.

Broom side tilting angle adjustment

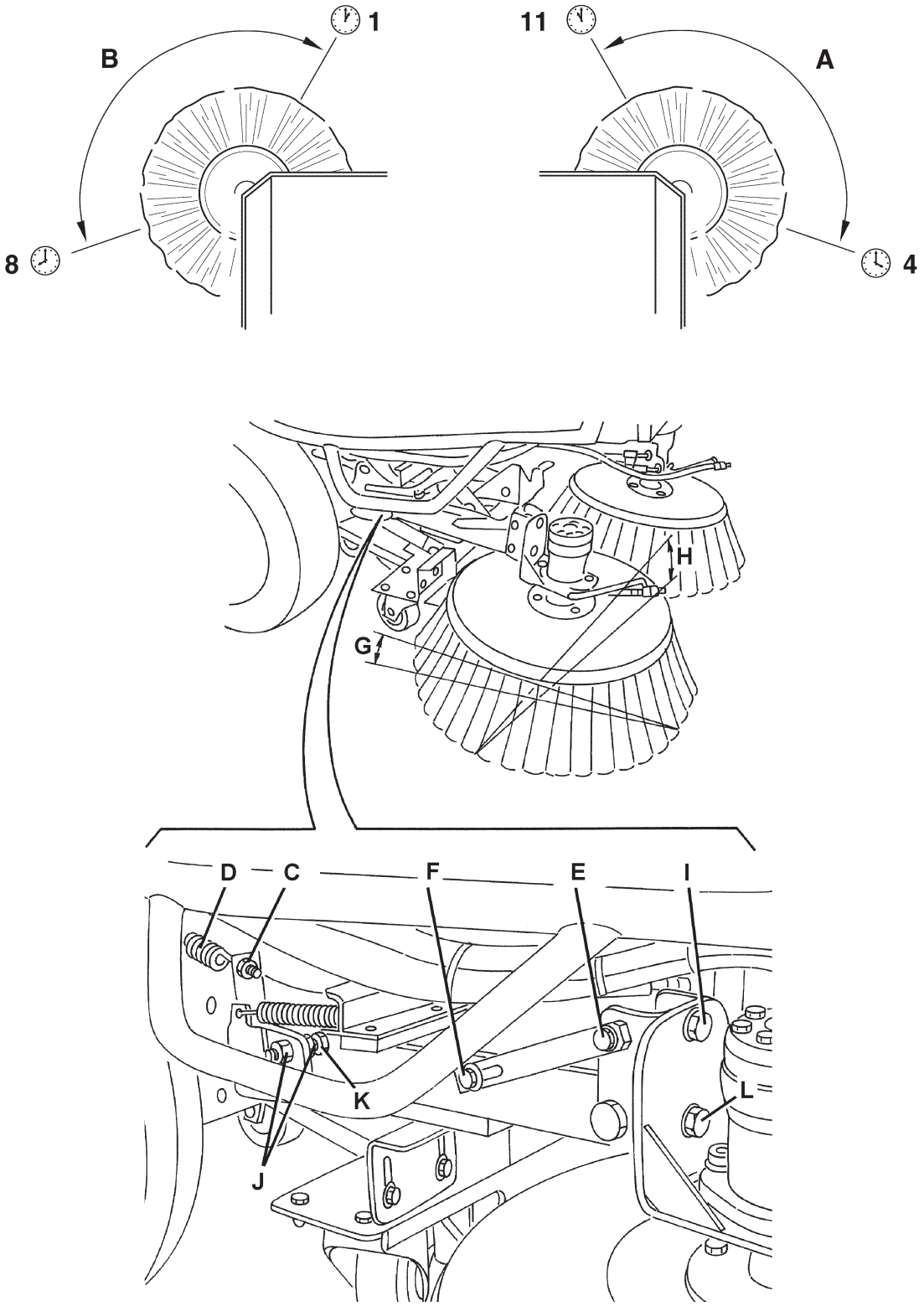
8. On both sides of the machine, loosen the screws (I) and (L), then adjust the side tilting angle (H).
   When the adjustment is completed, tighten the screws (I) and (L).
9. Perform step 1 again.

Broom side position adjustment

10. The purpose of this adjustment is to improve the side position of the brooms as to the suction inlet (12).
11. To perform the adjustment, loosen the nuts (J) and operate on the screw (K), thus changing the side position of the brooms.
12. When the side brooms are too worn out, the adjustment is not possible; replace the brooms according to the instructions in the relevant paragraph.

IMPIANTO DI SPAZZAMENTO

SIDE BROOM POSITION CHECK AND ADJUSTMENT (Continues)



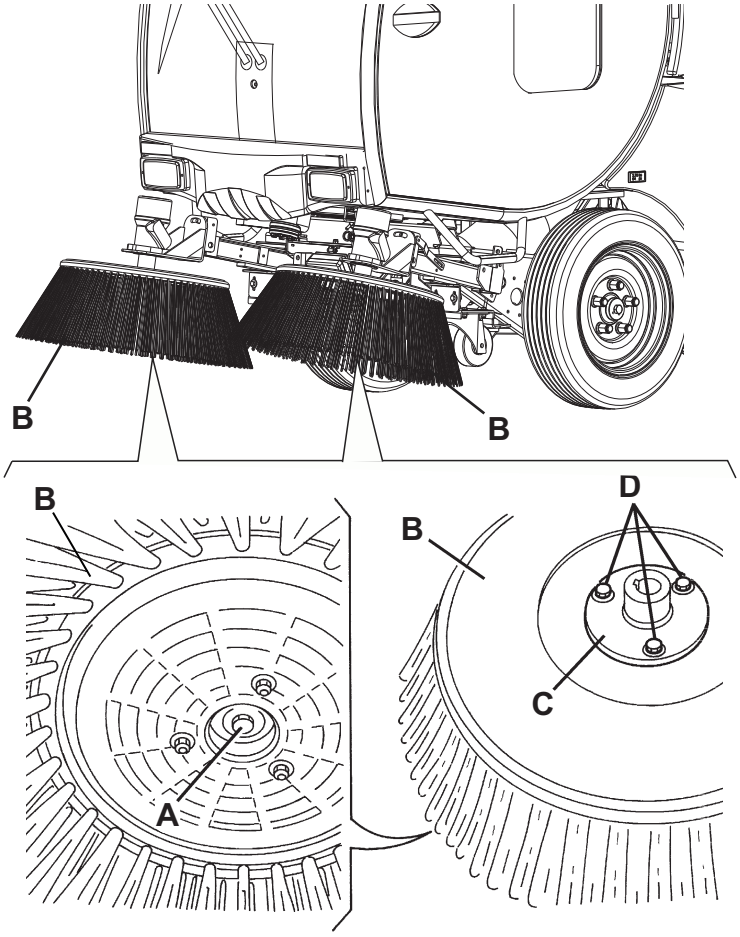
S301482

BROOM REPLACEMENT

NOTE
Brooms of various hardness are available. This procedure is applicable to all types of brooms.

CAUTION!
It is advisable to use protective gloves when cleaning the side brooms because there can be sharp debris between the bristles.

1. Lift the brooms and engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Remove the centre screw (A), then remove the broom (B) to be replaced. Recover the key.
4. Remove the screws (D), then remove the flange (C).
5. Install the flange (C) and secure it on the new broom with the screws (D).
6. Install the new broom (B) with the key, then tighten the centre screw (A).
7. Adjust the height of the new broom according to the procedure shown in the previous paragraph.



S341005

IMPIANTO DI SPAZZAMENTO

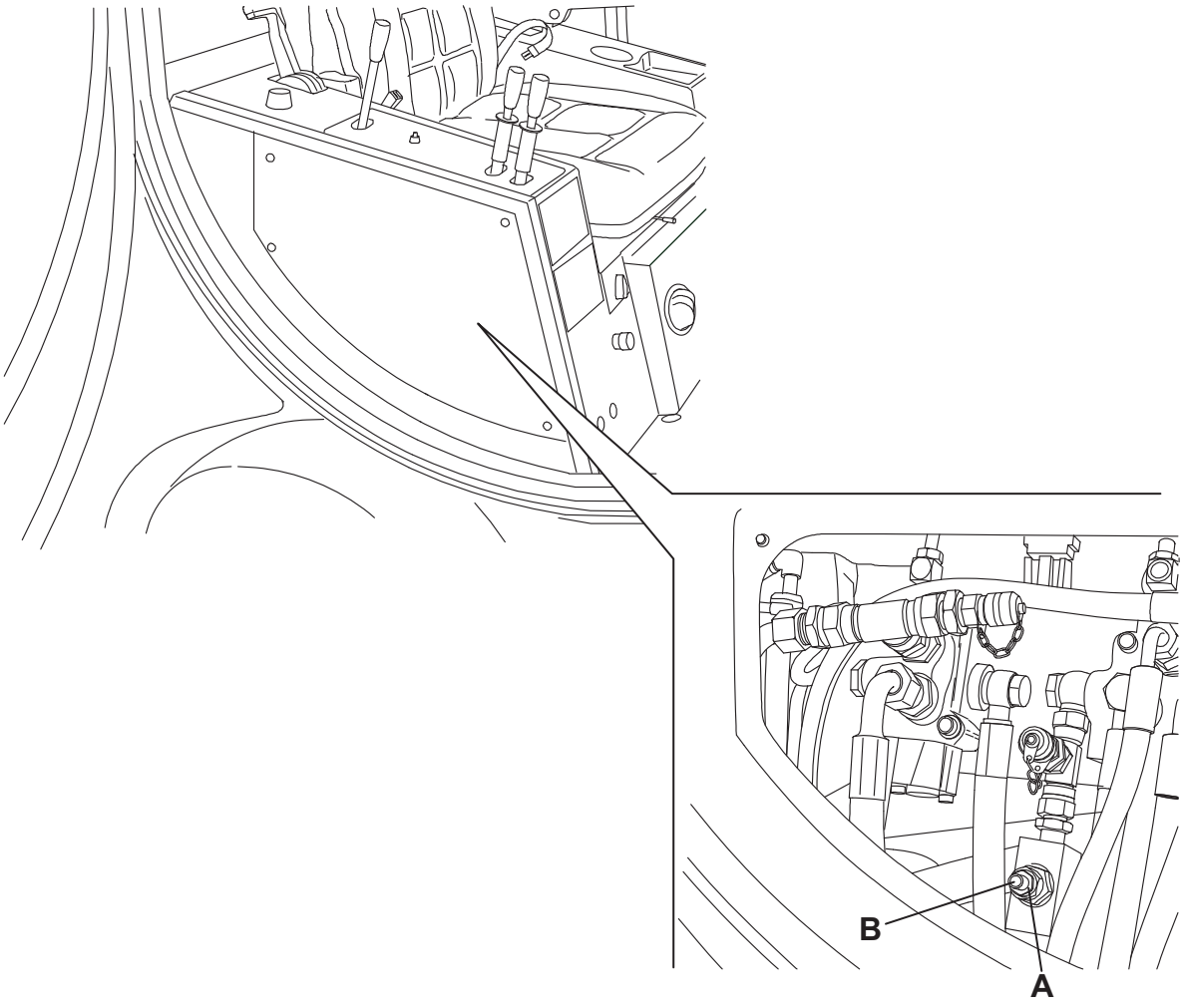
BROOM SPEED ADJUSTMENT

Speed measurement

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Connect a speed measurement indicator with a portable tachometer to the broom (10) or (11).
4. Start the machine and run the engine at maximum speed and set the broom speed adjuster (127) to maximum speed (as shown in the Instructions for use Manual). In this condition, measure the broom speed with the portable tachometer. Turn off the machine.
   The broom speed must be: 80 rpm
   If necessary, change the broom speed according to the following procedure.

Speed adjustment

5. Remove the screws and the right panel (22) in the cab.
6. To change the broom speed, loosen the locknut (A) and turn the screw (B), then tighten the locknut (A).
7. Perform step 4 again.



S301510

IMPIANTO DI RACCOLTA DETRITI E POLVERE

DUST AND DEBRIS COLLECTION SYSTEM

DESCRIPTION

The dust and debris collection system consists of:

A) Suction fan
B) Dust and debris suction filter
C) Hopper
D) Suction hose
E) Suction inlet
F) Skirt
G) Gasket between suction inlet and hopper
H) Hopper door
I) Hopper suction hole
J) Open door support rod
K) Lifted hopper locking pins
L) Lifted hopper locking pins housing
M) Lifted hopper locking pins holes
N) Air breather filter
O) Hoist
P) Top link
Q) Hopper door suction sealing gasket

The suction fan (A), activated by an hydraulic motor, creates vacuum inside the hopper (C). The vacuum determines the suction capacity of the suction inlet (E) through the suction hose (D).

The hopper (C) is made of steel.
It is fastened with two pins to a mechanic/hydraulic lifting system (O) (for hopper lifting) and to a dumping system (P) (for hopper tilting). The door (H), which can be opened with an hydraulic control system, allows for debris discharging.
Both the door (H) and the suction hole (I) are equipped with gaskets, which allow the suction inlet (E) to reach the maximum suction capacity.
Inside the hopper there are two stainless steel filters having the following functions:
– The suction filter (B) retains dust and debris during fan suction phase, and makes them settle in the hopper;
– The breather filter (N) retains dust and debris escaped from the suction filter, and does not allow them to be discharged externally.
Both filters can be easily removed and cleaned.

To perform checks and maintenance procedures safely with the hopper lifted and the door opened, perform the following procedures:
– Turn the rod (J) to lock the door (H) in open position.
– Remove the pins (K) from the housings (L) and place them into the holes (M) to lock the hopper (C) in lifted and dumped position.

The suction inlet is made of sheet steel.
It is equipped with three wheels, which allow it to follow the pattern of the surface to be cleaned.
On its front side there is a skirt (F) that must be lifted to collect bulky debris.

IMPIANTO DI RACCOLTA DETRITI E POLVERE

DESCRIPTION (Continues)

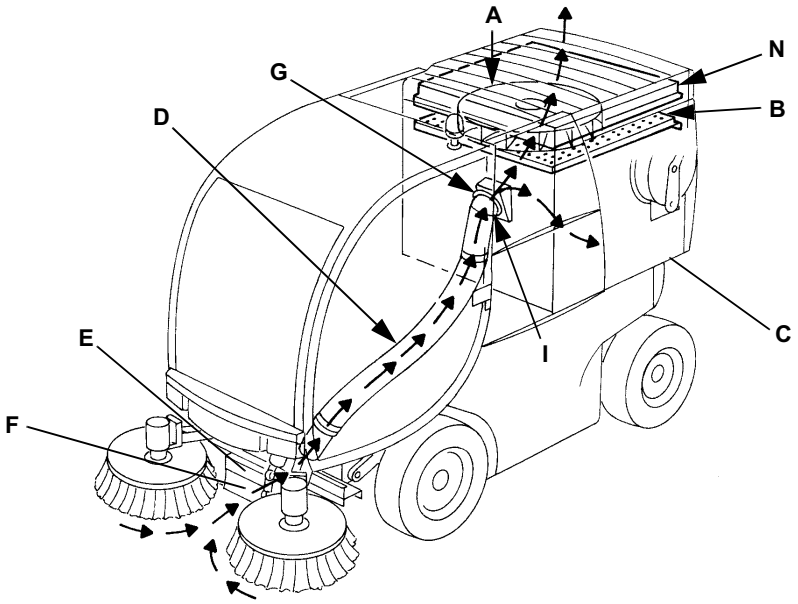
The suction fan (A), activated by an hydraulic motor, creates vacuum inside the hopper (C). The vacuum determines the suction capacity of the suction inlet (E) through the suction hose (D).
The hopper (C) is made of steel and it is fastened with two pins to a mechanic/hydraulic lifting system (O) (for hopper lifting) and to a dumping system (P) (for hopper tilting). The door (H), which can be opened with an electric control system, allows for debris discharging. Both the door (H) and the suction hole (I) are equipped with gaskets, which allow the suction inlet (E) to reach the maximum suction capacity.
Inside the hopper there are two stainless steel filters, which can be easily removed and cleaned. These have the following functions:

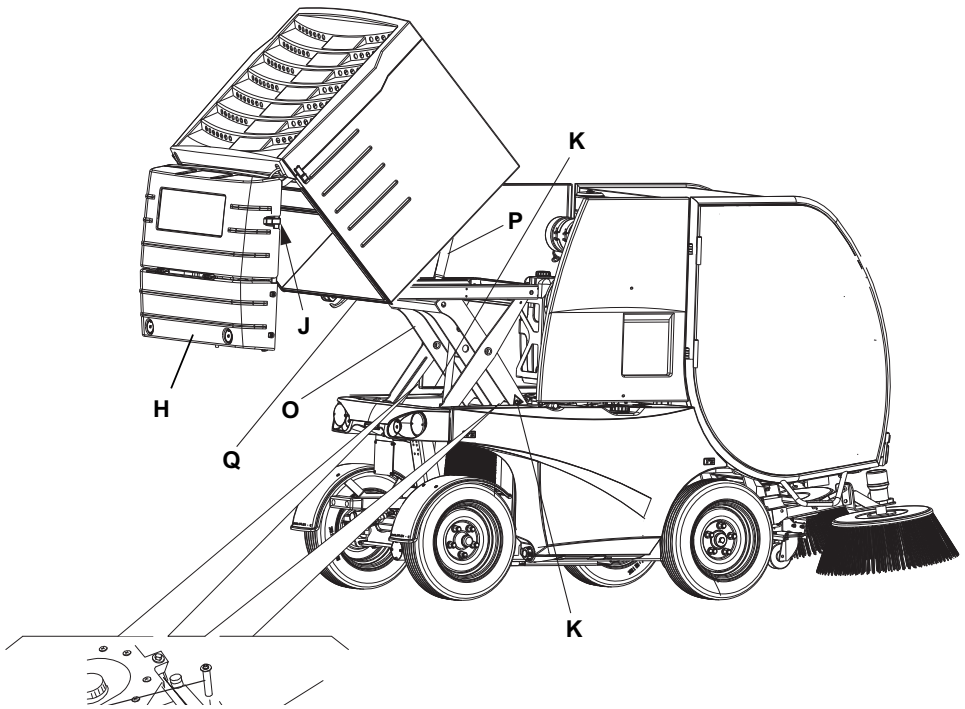
– The suction filter (B) retains dust and debris during fan suction phase, and makes them settle in the hopper;
– The breather filter (N) retains dust and debris escaped from the suction filter, and does not allow them to be discharged externally.

To perform checks and maintenance procedures safely with the hopper lifted and the door opened, perform the following procedures:

– Turn the rod (J) to lock the door (H) in open position.
– Remove the pins (K) from the housings (L) and place them into the holes (M) to lock the hopper (C) in lifted and dumped position.

The suction inlet is made of sheet steel and is equipped with two wheels, which allow it to follow the pattern of the surface to be cleaned. On its front side there is a skirt (F) that must be lifted to collect bulky debris.





TROUBLESHOOTING

The suction fan is noisy
Possible causes:
1. The motor is faulty (replace).

The suction fan turns but it is not efficient
Possible causes:
1. The filters are clogged (clean).
2. The suction hose is clogged (clean).
3. The suction hose is cut/torn (replace).
4. The gasket between the suction inlet and the hopper is broken or misadjusted (replace or adjust).
5. The hopper door gasket is broken (replace).
6. There is no pressure at the suction fan motor drive pump (adjust the pump pressure).

The suction fan does not turn
Possible causes:
1. The motor is faulty (replace).
2. The distributor is stuck (repair).
3. The pump is faulty (replace).

The suction inlet does not collect debris efficiently
Possible causes:
1. The suction inlet position is incorrect (check the suction inlet and skirt height and efficiency).

The skirt opening force is not sufficient
Possible causes:
1. The skirt opening pressure is incorrect (adjust).

The hopper does not lift/lower
Possible causes:
1. The distributor is stuck (repair).
2. The cylinder gaskets are worn (repair the cylinder).

The rear door does not open/close
Possible causes:
1. There is no voltage in the actuator (repair the electrical system).
2. The actuator is faulty (repair/adjust the actuator cams).

IMPIANTO DI RACCOLTA DETRITI E POLVERE

HOPPER, FILTER AND SUCTION HOSE CLEANING, AND GASKET CHECK

WARNING!
Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun.

Preliminary operations

1. Empty the hopper (3), drive the machine to a cleaning/washing appointed area, then engage the parking brake with the lever (66).
2. Lift and dump the hopper (3), as shown in the Instructions for use Manual.
3. Install the door support rod (27).

Hopper cleaning

4. Clean the hopper (A) with pressurized water from a hydrocleaner (B).
5. Carefully check the suction sealing gasket (C) for integrity, and replace it if necessary.

Suction hose cleaning

6. Thoroughly clean the suction hose (D) inside, up to the suction inlet, with pressurized water.
7. Carefully check the suction sealing gasket (E) for integrity, and replace it if necessary.

Suction filter cleaning

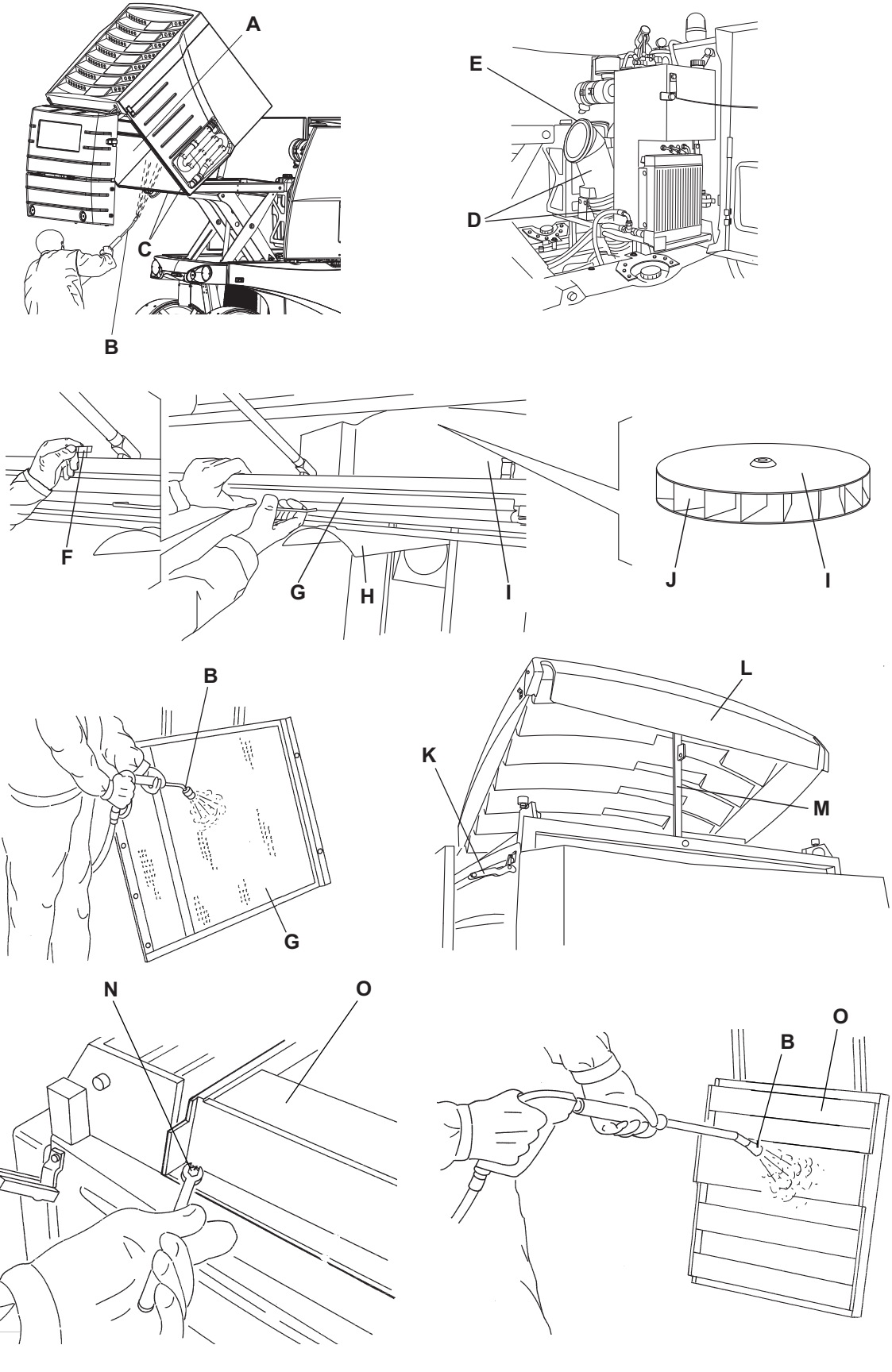
8. Inside the hopper, remove the suction filter mounting handwheel (F).
9. Remove the suction filter (G).
10. Wash the deflector (H) and the fan (I) with pressurized water from a hydrocleaner (B); check that all fan sectors (J) are clean.
11. Clean the suction filter (G) with pressurized water from a hydrocleaner (B).
12. Install the suction filter (G) and secure it with the handwheel (F).
13. Remove the door support rod (27) and lower the hopper (3) according to the procedure shown in the Instructions for use Manual.
14. Turn the ignition key (76) to OFF position and remove it.

Breather filter cleaning

15. With a ladder and the help of an assistant, disengage the fasteners (K) of the breather filter hood (L).
16. Open the hood (L) and install the safety pin (M).
17. Remove the mounting screws (N), then remove the breather filter (O).
18. Clean the drain filter (O) with pressurized water from a hydrocleaner (B).
19. Install the breather filter and its hood performing steps from 15 to 17 in reverse order.

IMPIANTO DI RACCOLTA DETRITI E POLVERE

HOPPER, FILTER AND SUCTION HOSE CLEANING, AND GASKET CHECK (Continues)



S341007

IMPIANTO DI RACCOLTA DETRITI E POLVERE

SUCTION INLET AND SKIRT HEIGHT AND OPERATION CHECK

Preliminary operations

1. Engage the parking brake with the lever (66).
2. Lift the suction inlet (12), according to the procedure shown in the Instructions for use Manual.
3. Turn the ignition key (76) to OFF position and remove it.

Suction inlet wheel check

4. Check that the three wheels (A) 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 (B) is not lower than some millimeters. If necessary replace the wheels (A) (see the procedure in relevant paragraph).

Sliding panel check

5. Check that the main sliding panel (C) and the front (D) and (E) and rear (H) sliding panels are in good conditions and that their thickness (F) is not lower than 0.2 in (5 mm), otherwise replace them (see the procedure in the relevant paragraph).
   It is important to replace the sliding panels (C), (D), (E), and (H) when they are not completely worn, to avoid damaging the relevant mounting screws and making them difficult to remove.
   Replace the sliding panels (C), (D), (E), and (H) as a unit, to avoid steps in the union areas (G), caused by different levels of wear.

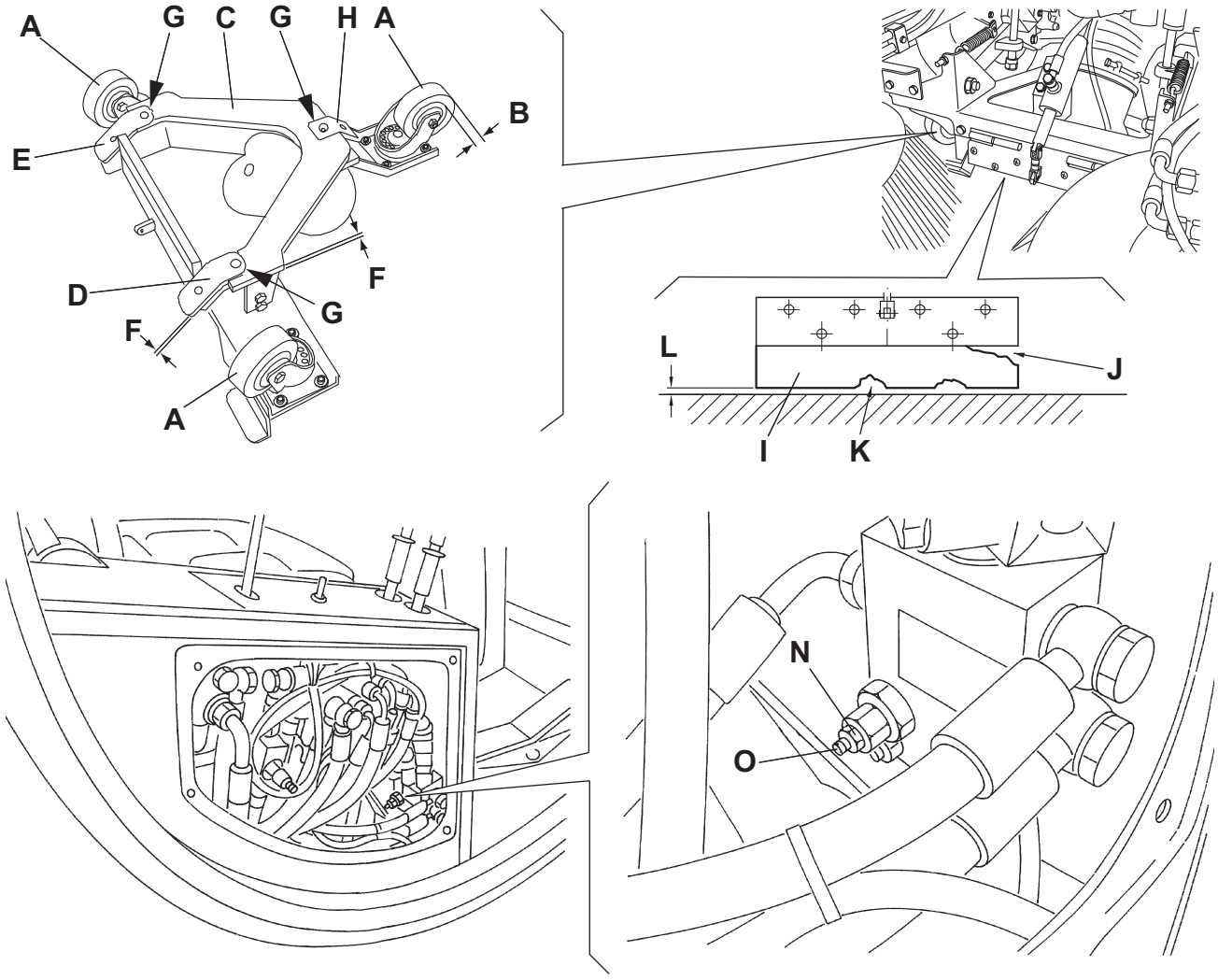
Suction inlet skirt and wheel adjustment check

6. Check that the skirt (I) is integral and that it does not have excessive tears (J) or lacerations (K), which can affect the suction inlet operation.
   If necessary replace the skirt (I) (see the procedure in the relevant paragraph).
7. Drive the machine on a level ground and lower the suction inlet (12) according to the procedure shown in the Instructions for use Manual.
8. Turn the ignition key (76) to OFF position and remove it.
9. Check that the distance (L) of the skirt from the ground is not bigger than 0.39 in (1 cm). Greater distances can affect the suction inlet operation.
   If necessary replace the skirt (K) (see the procedure in the relevant paragraph).
10. Also check that, when the three wheels (A) contact the ground, the sliding panels (C), (D), (E), and (H) do not touch the ground, otherwise the wheels (A) must be replaced to avoid an excessive wear of the sliding panels (for wheel replacement procedure, see the relevant paragraph).
11. Start the machine according to the procedure shown in the Instructions for use Manual, then press the switch (69) and check that the skirt (I) 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 (I) according to the following procedure:
    - Turn off the machine.
    - Remove the screws and the right panel (22) in the cab.
    - Loosen the control valve locknut (N) and turn the screw (O) as necessary, reminding that:
      – The opening force decreases by loosening the screw;
      – The opening force increases by tightening the screw.
    - When the adjustment is completed, tighten the locknut (N).
    - Install the right panel (22) in the cab and tighten the screws.

Reset

12. Assemble the components in the reverse order of disassembly.

SUCTION INLET AND SKIRT HEIGHT AND OPERATION CHECK (Continues)



S301484

IMPIANTO DI RACCOLTA DETRITI E POLVERE

SUCTION INLET WHEEL DISASSEMBLY/ASSEMBLY

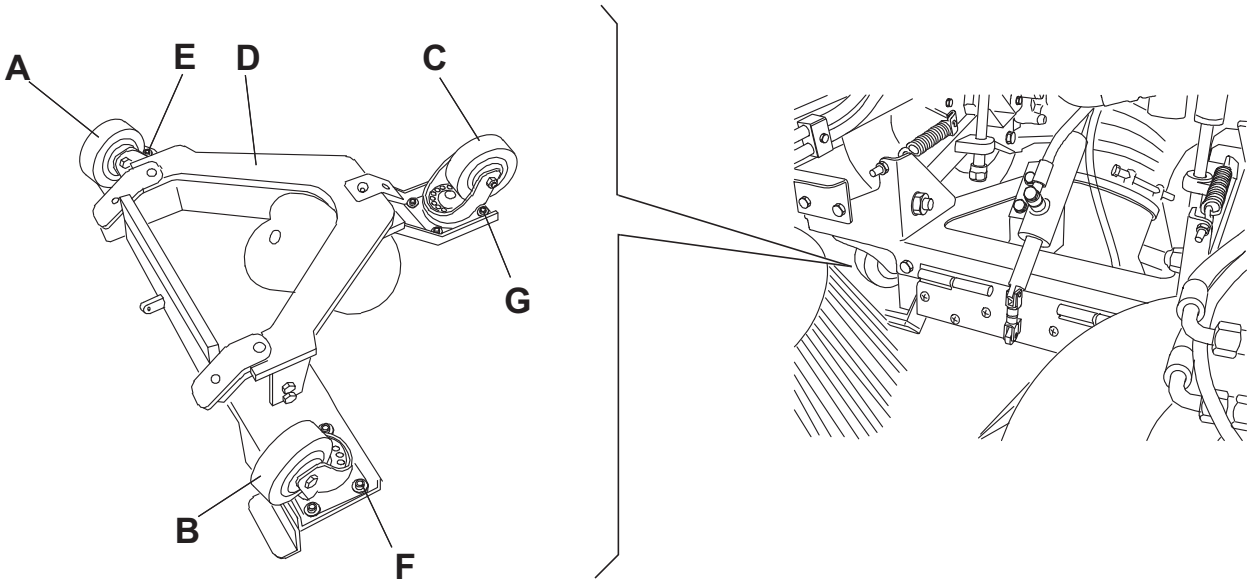
NOTE
To remove the rear wheel (C), the machine must be lifted with an appropriate hoisting system. Otherwise, remove the suction inlet assembly (D) according to the procedure shown in the relevant paragraph. See the following disassembling procedures.

Front wheels (A) and (B) removal/installation

1. Engage the parking brake with the lever (66).
2. Lift the suction inlet (12), according to the procedure shown in the Instructions for use Manual.
3. Turn the ignition key (76) to OFF position and remove it.
4. On both sides of the machine, loosen the screws (E) and (F), then remove the front wheels (A) and (B).
5. Install the new front wheels (A) and (B) and fasten them with the screws (E) and (F).
6. If necessary, perform the suction inlet and skirt height and operation check (see the procedure in the relevant paragraph).

Front wheels (A) and (B), and rear wheel (C) removal/installation

7. Place the machine on the appropriate hoisting system (if present) and lift it.
   If the hoisting system is not available, remove the suction inlet assembly (D) (see the procedure in the relevant paragraph).
8. Remove the screws (E), (F) and (G), then remove the wheels (A), (B) and (C).
9. Install the new wheels (A), (B) and (C) and fasten them with the screws (E), (F) and (G).
10. Perform step 1 again.
11. If necessary, perform the suction inlet and skirt height and operation check (see the procedure in the relevant paragraph).

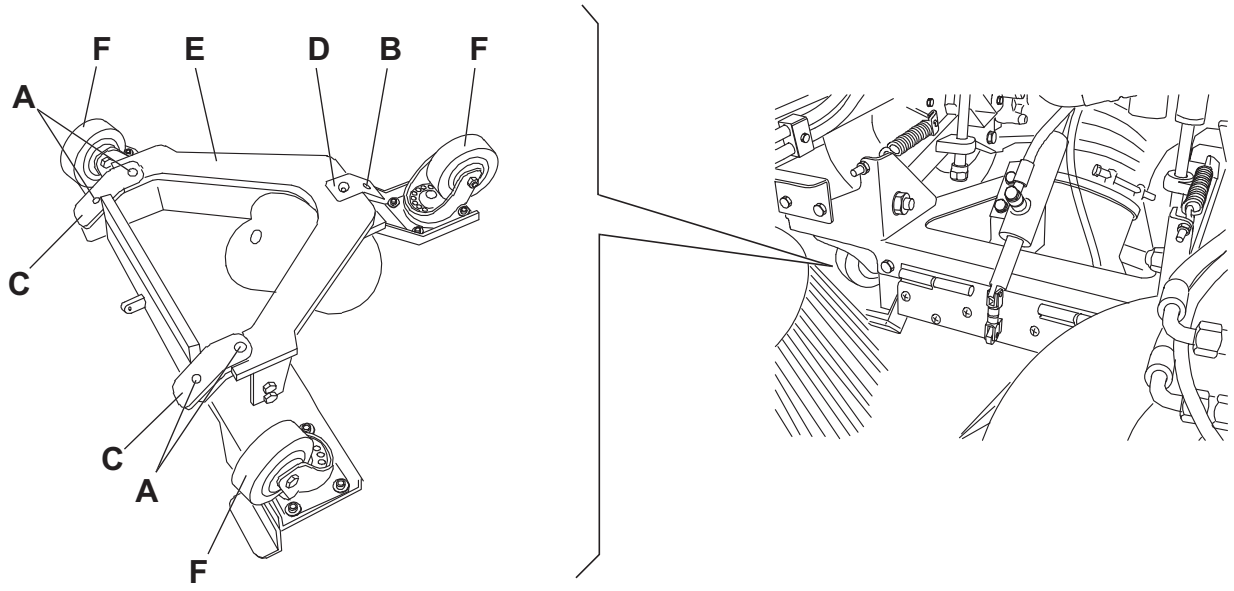


S301485

SUCTION INLET SLIDING PANELS DISASSEMBLY/ASSEMBLY

NOTE
To remove the suction inlet sliding panels, the machine must be lifted with an appropriate hoisting system. Otherwise, remove the suction inlet assembly (D) as shown in the relevant paragraph. See the following disassembling procedures.

1. Place the machine on the appropriate hoisting system (if present) and lift it.
   If the hoisting system is not available, remove the suction inlet assembly (D) (see the procedure in the relevant paragraph).
2. Remove the mounting screws (A), and (B), then remove the sliding panels (C), (D), and (E).
3. Install the new sliding panels (C), (D), and (E) and fasten them with the screws (A), and (B).
4. Also check that, when the wheels (F) contact the ground, the sliding panels (C), (D), and (E) do not touch the ground, otherwise the wheels (F) must be replaced to avoid an excessive wear of the sliding panels (for wheel replacement procedure, see the relevant paragraph).
5. Perform step 1 again.
6. If necessary, perform the suction inlet and skirt height and operation check (see the procedure in the relevant paragraph).



S301486

IMPIANTO DI RACCOLTA DETRITI E POLVERE

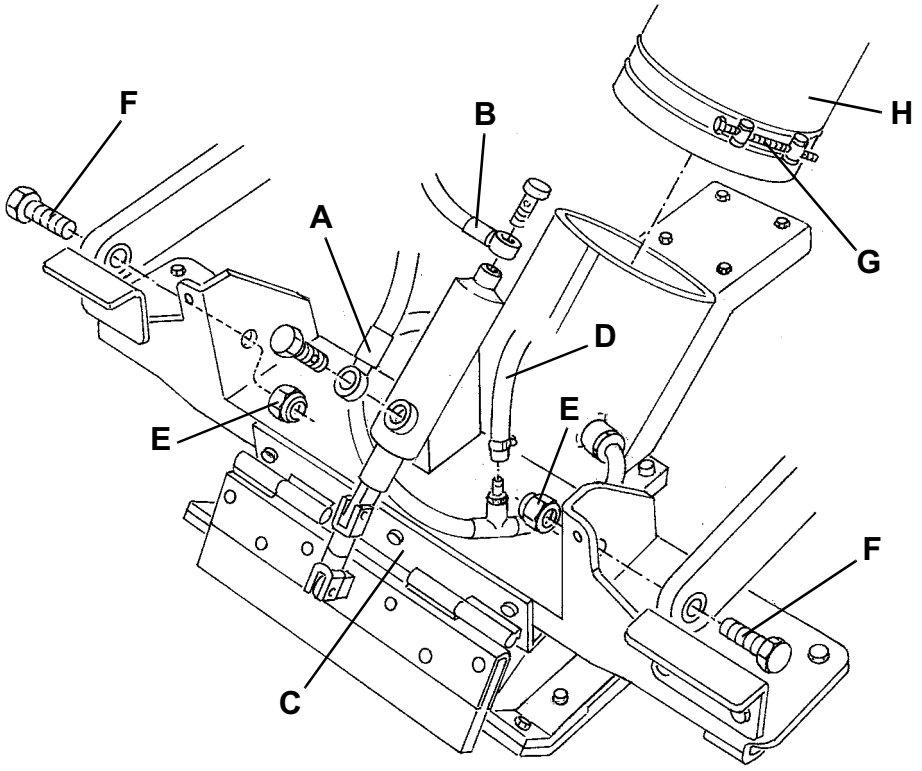
SUCTION INLET DISASSEMBLY/ASSEMBLY

Disassembly

1. Remove the side brooms (see the procedure in the relevant paragraph).
2. Lower the suction inlet (12), as shown in the Instructions for use Manual.
3. Engage the parking brake with the lever (66).
4. Turn the ignition key (76) to OFF position and remove it.
5. Disconnect the hydraulic system hoses (A) and (B) from the suction inlet (C) and plug them.
6. Disconnect the dust control system water hose (D).
7. Remove the nuts (E) and pins (F).
8. Move the suction inlet (C) forward, and loosen the suction hose clamp (G).
9. Disconnect the suction hose (H) from the suction inlet.
10. Remove the suction inlet (C).

Assembly

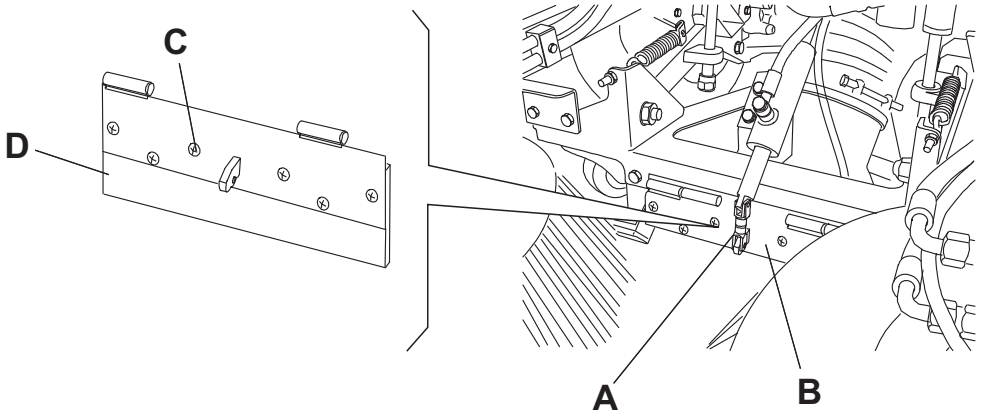
11. Assemble the components in the reverse order of disassembly.
    If necessary, perform the suction inlet and skirt height and operation check (see the procedure in the relevant paragraph).



S301487

SKIRT GASKET REPLACEMENT

1. Lower the suction inlet (12), as shown in the Instructions for use Manual.
2. Engage the parking brake with the lever (66).
3. Turn the ignition key (76) to OFF position and remove it.
4. Remove the clip (A) and the skirt (B).
5. Remove the screws (C), then remove the skirt gasket (D).
6. Install the new skirt gasket (D) and fasten it with the screws (C).
7. Install the skirt (B) and the clip (A).
8. Lift the suction inlet (12), according to the procedure shown in the Instructions for use Manual.



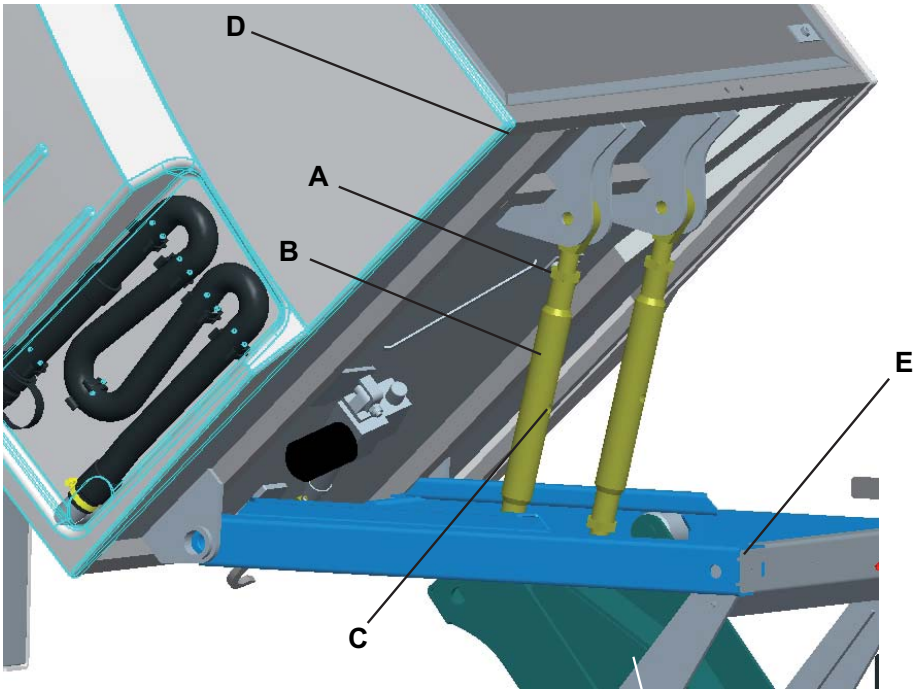
S341008

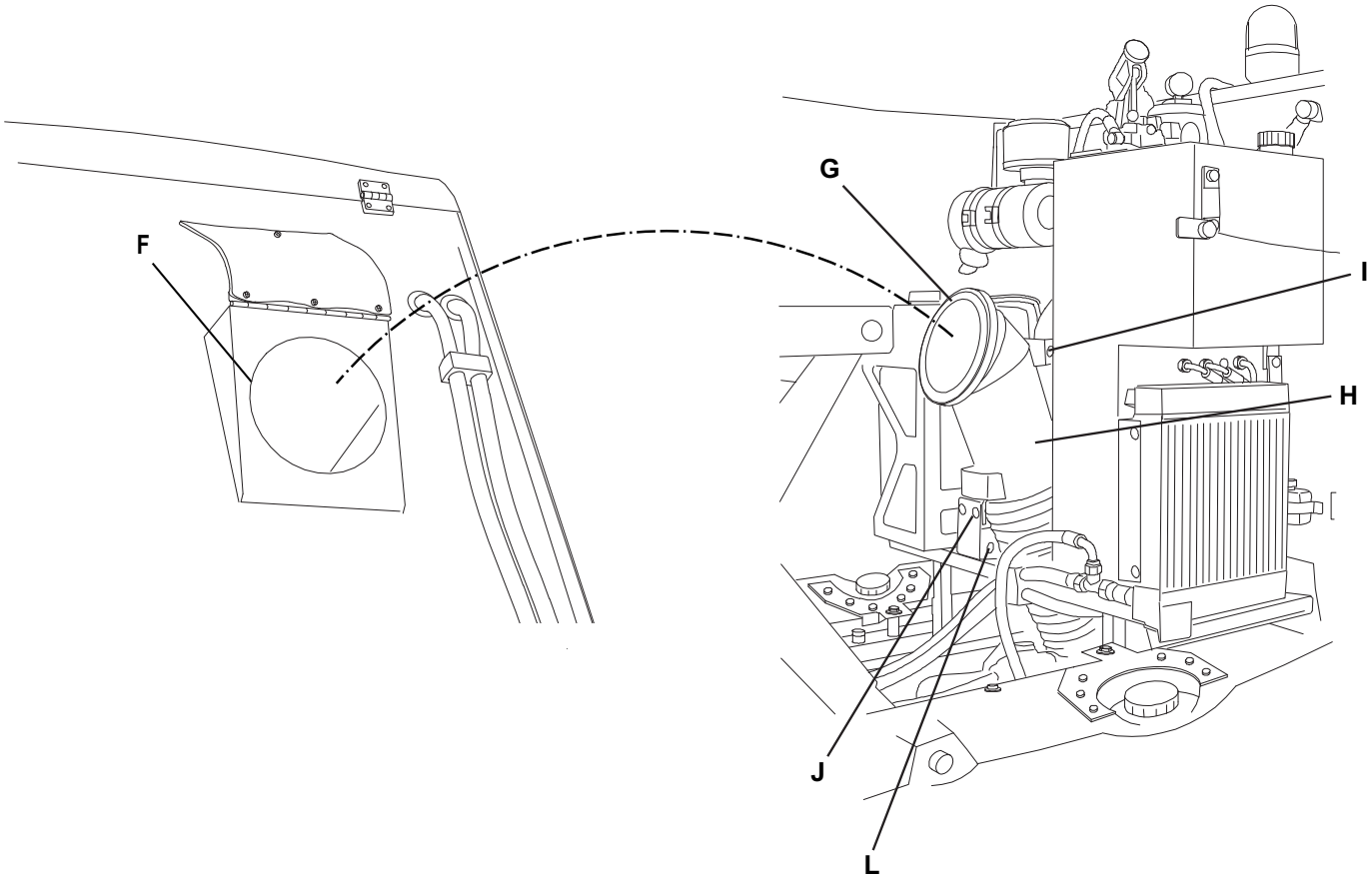
IMPIANTO DI RACCOLTA DETRITI E POLVERE

HOPPER POSITION ADJUSTMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
4. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
5. Turn the ignition key (76) to OFF position and remove it.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Loosen the locknut (A). Perform the same procedure on the left side.
8. Insert a lever into the hole (C), then turn the top link lever (B) as necessary. Perform the same procedure on the left side.
9. Remove the locking pins (28) and place them into the holes (29).
10. Lower the hopper (3), according to the procedure shown in the Instructions for use Manual, and check that the profile (D) match the frame profile (E) on both right and left side.
11. If necessary, perform steps 4, 5, 6, 8, 9 and 10 again.
12. Then perform steps 3, 4, 5 and tighten the locknuts (A).
13. Lower the hopper (3), according to the procedure shown in the Instructions for use Manual, and check that the hopper suction hole (F) match the suction hose gasket (G). If necessary, adjust the position of the suction hose (H) according to the procedure shown in the following steps.
14. Perform steps 4, 5 and 6 again.
15. Loosen the left and right side screws (I) (J) and (L), then adjust the position of the suction hose (H). Tighten the left and right side screws (I) (J) and (L).
16. Lower the hopper (3), according to the procedure shown in the Instructions for use Manual, and check that the hopper suction hole (F) match the suction hose gasket (G).
17. Close the right and left doors (20) and (18) by engaging the fasteners (21) and (19) with the supplied key.

HOPPER POSITION ADJUSTMENT (Continues)





S341011

IMPIANTO DI RACCOLTA DETRITI E POLVERE

HOPPER DOOR CLOSING ACTUATOR ADJUSTMENT

Preliminary operations

1. Empty the hopper (3), according to the procedure shown in the Instructions for use Manual.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Remove the screws (A), then remove the cover (B) and the gasket (C) of the actuator (R), under the rear side of the hopper.

Door safety hook closing

8. According to the procedure shown in the Instructions for use Manual, turn the safety hook (D) of the door (E) to closing position (as shown in the figure); in this condition, loosen the security dowel (F) of the cam (G), and then turn the cam until the microswitch (H) activates.

Open safety hook warning light adjustment

9. When the safety hook (D) of the door (E) is turned to closing position (as shown in the figure), loosen the security dowel (I) of the cam (J), and turn the cam until the corner (K) causes the microswitch (L) to activate and the warning light to turn off.

Door safety hook opening end-of-stroke adjustment

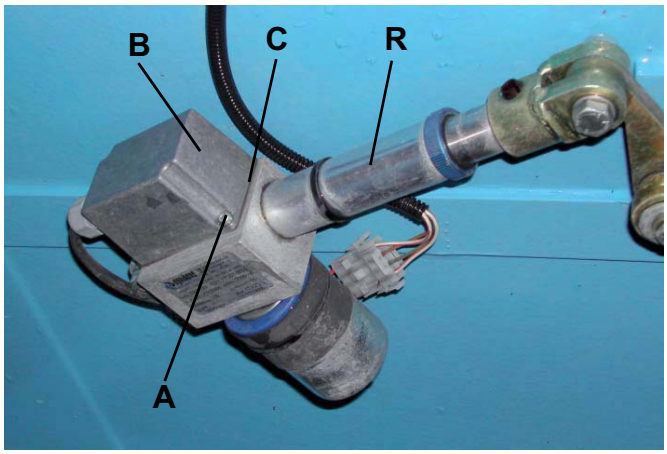
10. According to the procedure shown in the Instructions for use Manual, turn the safety hook (D) of the door (E) to the opening end-of-stroke; in this condition, loosen the security dowel of the cam (N), and then turn the cam until the microswitch (O) activates.

NOTE
To maximize cam adjustment consider the following:
– *The cam turns in the direction shown by the arrow (P) when the hook (D) opens;*
– *The cam turns in the direction shown by the arrow (Q) when the hook (D) closes.*

11. To check the cam proper adjustment, open and close the hook (D) several times.

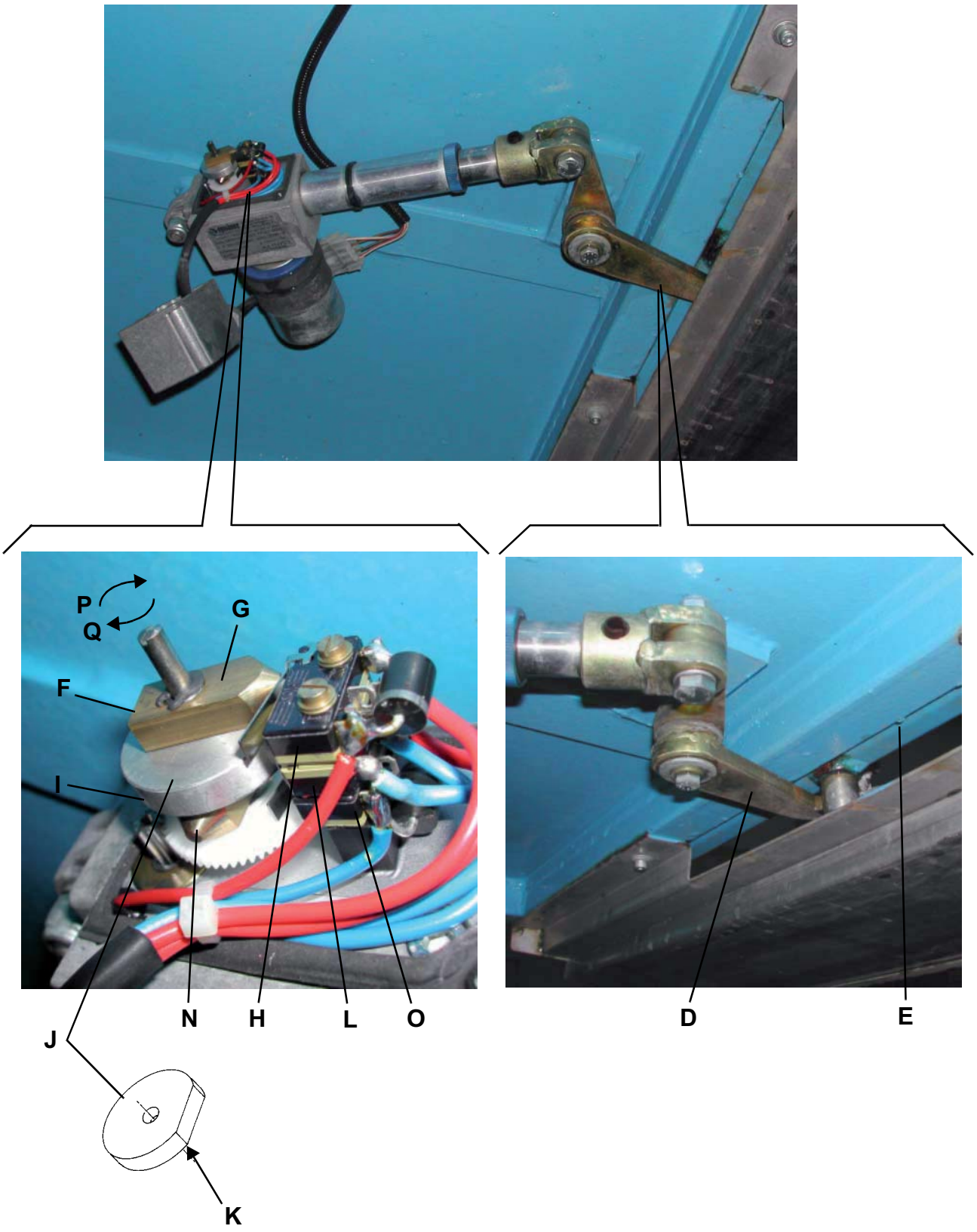
Reset

12. Perform steps 3 to 7 in the reverse order.



S300964

HOPPER DOOR CLOSING ACTUATOR ADJUSTMENT (Continues)



S300965

IMPIANTO DI RACCOLTA DETRITI E POLVERE

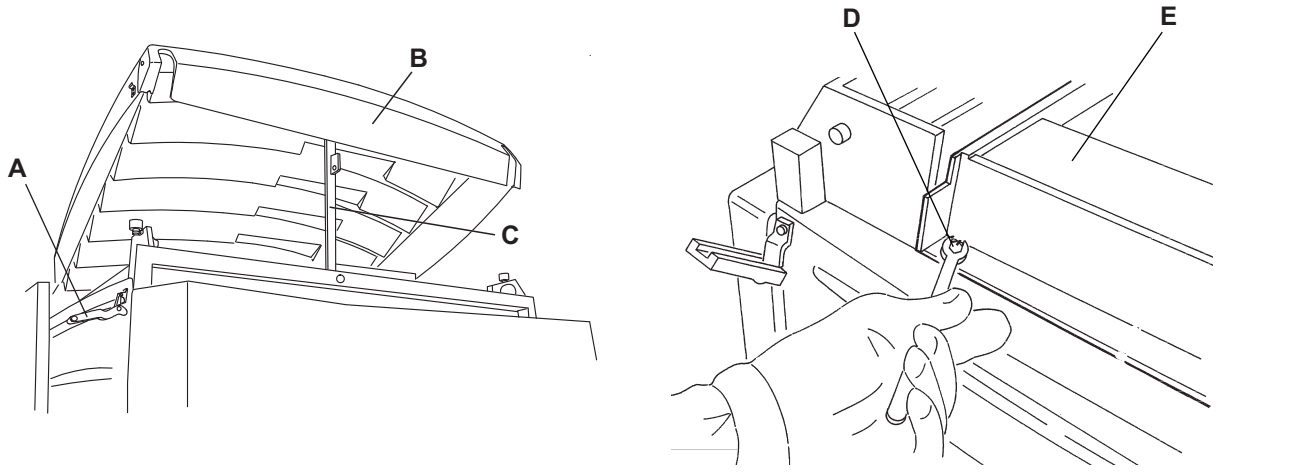
MOTOR AND SUCTION FAN DISASSEMBLY/ASSEMBLY

Disassembly

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. With a ladder and the help of an assistant, disengage the fasteners (A) of the breather filter hood (B).
4. Open the hood (B) and install the safety pin (C).
5. Remove the mounting screws (D), then remove the breather filter (E) by dumping the hood (B).
6. Disconnect the hoses joints (G) and (H) from the suction fan motor (I).
7. Remove the mounting nuts (J) of the flange (M).
8. With an appropriate hoisting system, remove the suction fan motor assembly (K) by removing the silicone along the perimeter (L) of the flange (M), then sling the assembly (K) by placing a rope around the motor (I) and the fittings (N).
9. At the workbench, remove the screw (O) and the fan (P).
10. Remove the nuts (Q) from the screws (F).
11. Remove the motor (I) from the flange (M).

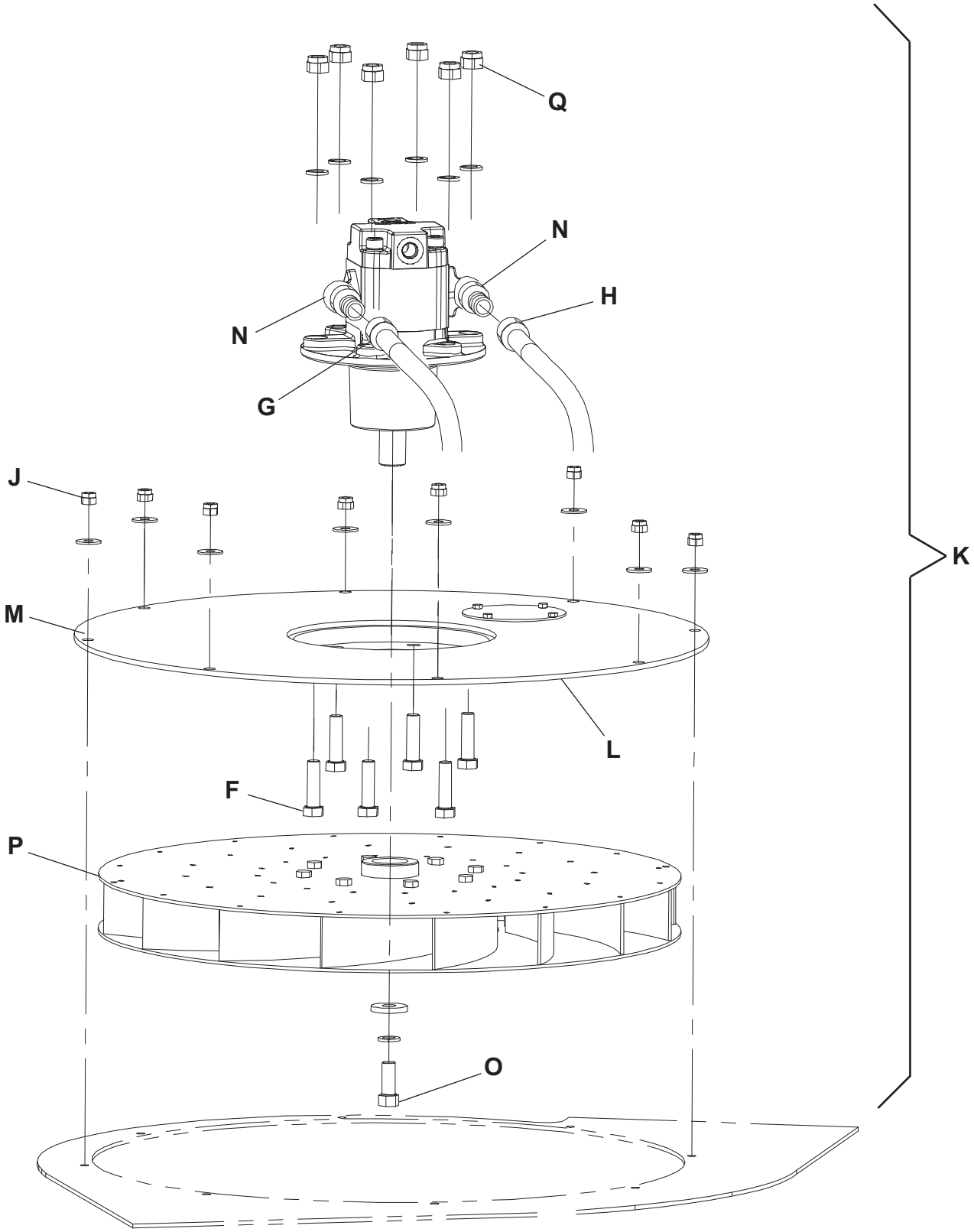
Assembly

12. Assemble the components in the reverse order of disassembly and note the following:
    - Remove the silicone along the perimeter (L) of the flange (M) and from the flange housing on the hopper.
    - Apply new silicone along the perimeter (L) of the flange (M).



S341009

MOTOR AND SUCTION FAN DISASSEMBLY/ASSEMBLY (Continues)



S341010

IMPIANTO DI RACCOLTA DETRITI E POLVERE

SUCTION HOSE DISASSEMBLY/ASSEMBLY

Preliminary operations

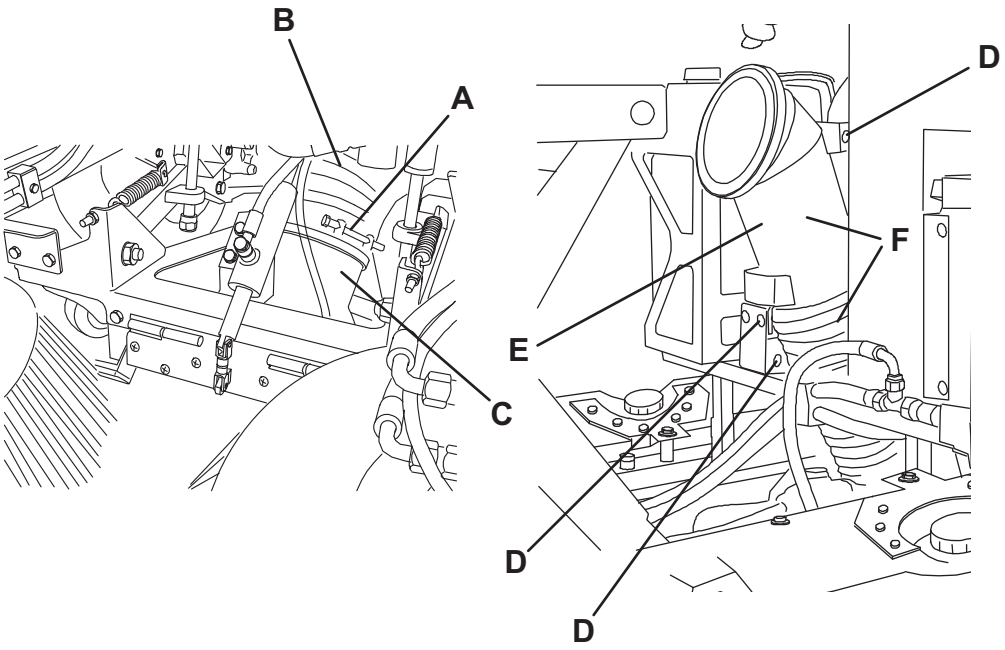
1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).

Disassembly

7. Loosen the clamp (A) and disconnect the suction hose (B) from the suction inlet (C).
8. Loosen the left and right side mounting screws (D) of the suction hose upper end (E).
9. Remove the suction hose (F) by pulling it upwards.

Assembly

10. Assemble the components in the reverse order of disassembly and note the following:
    - For a easier installation of the suction hose (B) into the suction inlet (C), apply a thin coat of grease on the sliding parts.



S341012

WATER SYSTEM

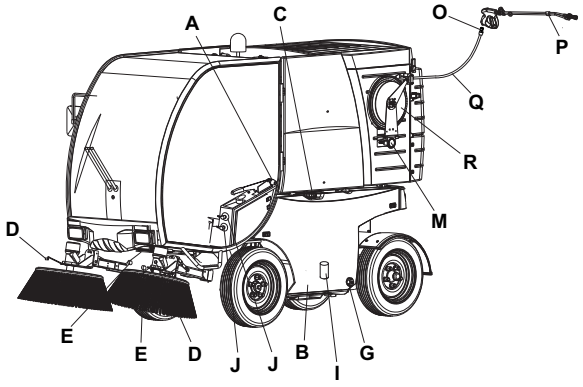
DESCRIPTION

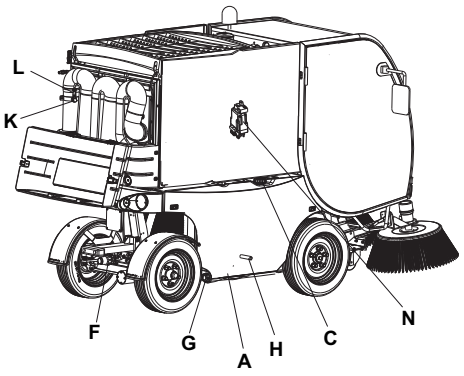
The dust control system consists of:

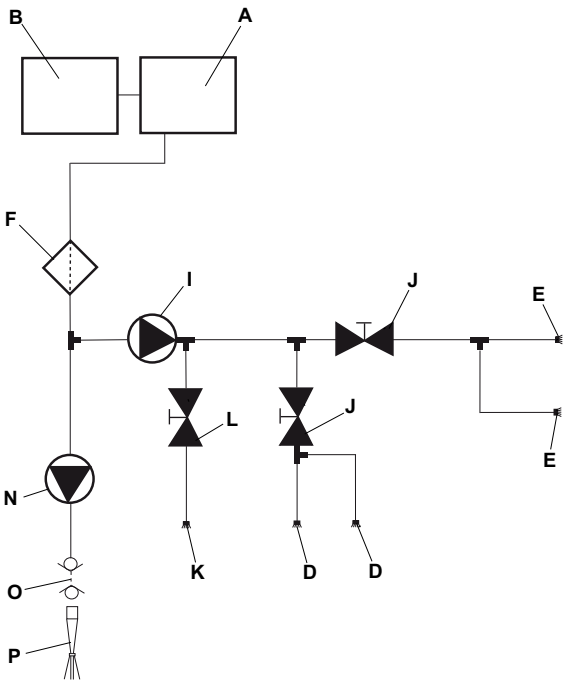
A) Right water tank
B) Left water tank
C) Tank filler plugs
D) Broom nozzles
E) Suction inlet nozzles
F) Water filter
G) Tank drain plugs
H) Water level sensor
I) Nozzle pump
J) Valves
K) Rear suction pipe nozzle
L) Opening valve

The water gun connected to the dust control system consists of:

M) Pressure gauge
N) Water gun pump
O) Quick coupling
P) Water gun
Q) Hose
R) Reel







S341013

IMPIANTO IDRICO

TROUBLESHOOTING

No water from the nozzles
Possible causes:
1. The water filter is clogged (clean/replace).
2. The nozzles are clogged (clean).
3. Run out of water (fill in).
4. The water pump is off (press the switch to turn it on).

No water to the nozzles
Possible causes:
1. The water pump relay is burned (replace).
2. The pump does not work (repair/replace).
3. There is an open in the fuse (replace).
4. The engine is off (start the engine).
5. The display enabling is not present (check the connections/replace).
6. The speed sensor signal is not present (check the connections/replace).
7. The water pump does not work (replace).
8. The water pump is off (press the switch to turn it on).
9. The safety control unit fuse is open (replace).

The water pump does not stop
Possible causes:
1. The water pump relay is faulty (replace).
2. The water tank level sensor is stuck (replace).
3. The display enabling is short circuited (check the connections/replace).
4. The water pump switch is damaged (replace).

The high-pressure washing system water pump stops automatically
Possible causes:
1. The water level in the dust control system tanks is low (fill-in).
2. The water tank level sensor is short-circuited (replace).
3. The high-pressure pump safety valve is faulty (replace).

The high-pressure washing system water pump does not stop automatically when the water level is low
Possible causes:
1. The water tank level sensor is open (replace).
2. The high-pressure pump safety valve is faulty (replace).

HIGH PRESSURE PUMP REMOVAL/INSTALLATION

High-pressure pump pressure check:

1. Use the high-pressure washing system as shown in the Instructions for use Manual.
2. If the water gun (108) does not work properly, check its operating pressure with the pressure gauge (112). The pressure must be 2,610 psi (180 Bar) approximately.
3. If the pressure is normal, the problem is in the water gun (108).
4. If the pressure is irregular, check the operating pressure of the high-pressure pump according to the procedure shown in the paragraph “Pressure check at the suction fan pump”.
   - If the pressure is irregular the accessory pump and suction fan must be checked/replaced, as shown in the relevant paragraph.
   - If the pressure is regular the high-pressure pump must be checked/replaced as described below.

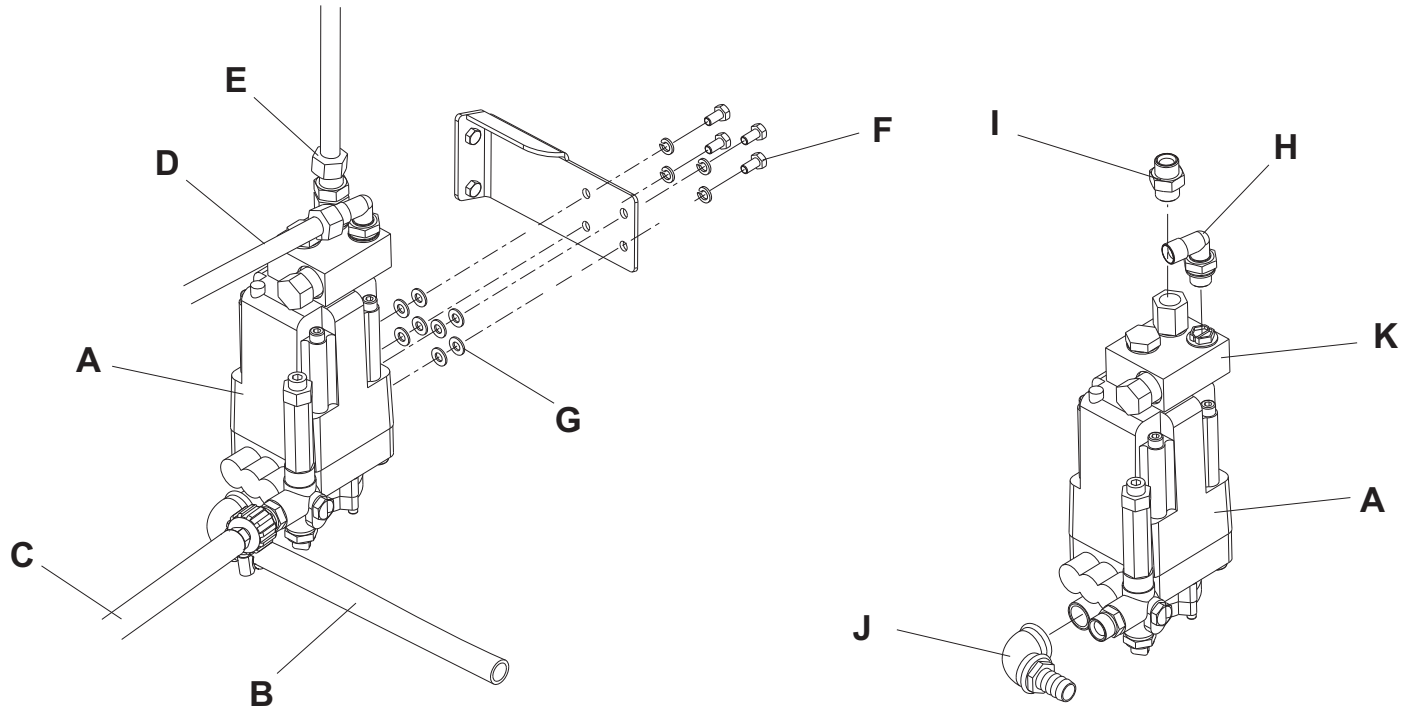
CAUTION!
The fault can be caused by the flow regulator (K) of the high-pressure pump.
This component can be replaced separately.

High pressure pump removal/installation:

1. Lift the hopper as shown in the Instructions for use Manual.
2. Engage the parking brake with the lever (66).
3. Turn the ignition key (76) to OFF position and remove it.
4. Insert the safety pins as shown in the Instructions for use Manual.
5. Disconnect the water hoses (B and C) from the high-pressure pump (A) and plug them immediately.
6. Disconnect the hydraulic hoses (D and E) from the high-pressure pump (A) and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

7. Remove the screws (F) and recover the washer (G) to be reused when reassembling. Then remove the high-pressure pump (A).
8. At the workbench, unscrew the fittings (H, I and J) from the high-pressure pump (A).
9. Assemble the components in the reverse order of disassembly.
10. Check the hydraulic system oil level (see the procedure in the relevant paragraph).



S341081

IMPIANTO IDRICO

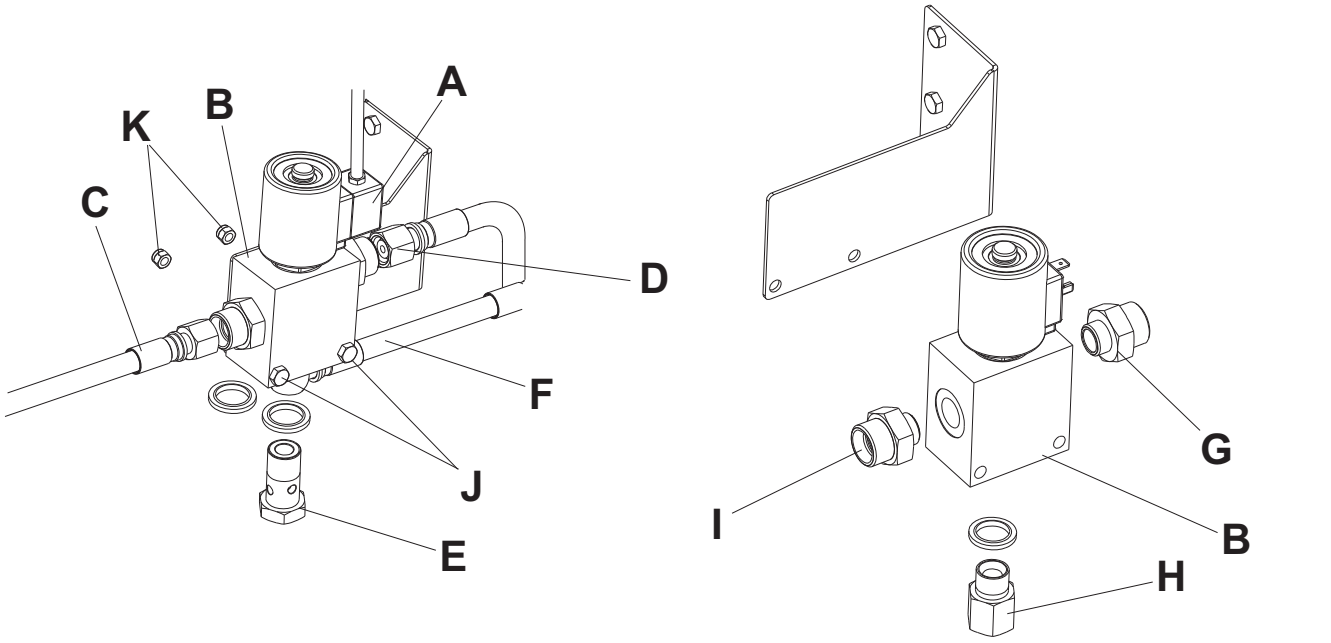
HIGH-PRESSURE PUMP SAFETY SOLENOID VALVE DISASSEMBLY/ASSEMBLY

Sub-tank water level sensor disassembly/assembly:

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Remove the screws and the right panel (22) on the right side of the cab.
4. Disconnect the electrical connection (A) from the solenoid valve (B).
5. Disconnect the hydraulic hoses (C e D) from the solenoid valve (B) and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

6. Remove the through bolt (E) and disconnect the hydraulic hose (F) from the solenoid valve (B) and plug it.
7. Remove the screws (J) and the nuts (K), then remove the solenoid valve (B).
8. At the workbench, unscrew the fittings (G, H and I) from the solenoid valve (B).
9. Assemble the components in the reverse order of disassembly.
10. Check the hydraulic system oil level (see the procedure in the relevant paragraph).

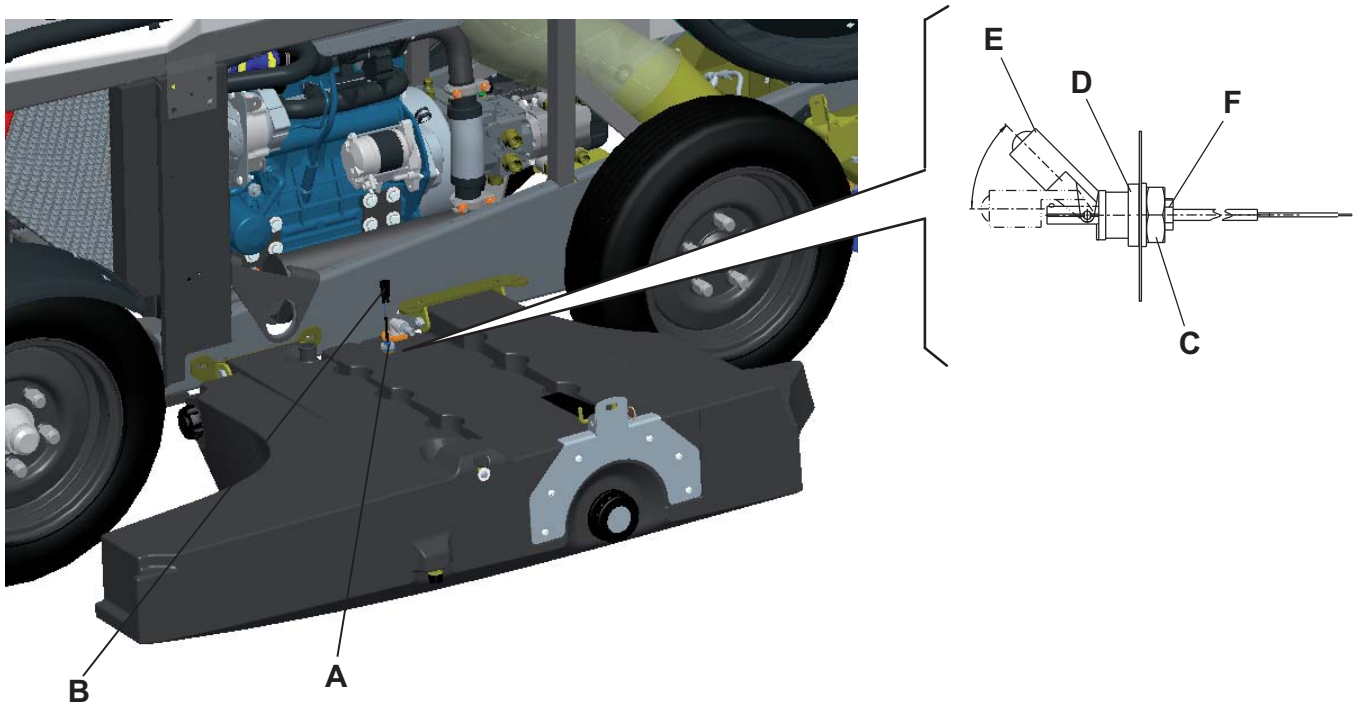


S341080

WATER LEVEL SENSOR DISASSEMBLY/ASSEMBLY

Sub-tank water level sensor disassembly/assembly:

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Empty the dust control system water tanks as shown in the “Water tank emptying” paragraph.
4. Open the right water tank (16) by loosening the mounting screw (44). If necessary, disconnect the fastener.
5. Locate the water tank level sensor (A).
6. Disconnect the electrical connection (B).
7. Loosen the nut (C) to release the expansion ring nut (D), then remove the sensor (F).
8. Assemble the components in the reverse order of disassembly and note the following:
   - Place the sensor (F) on the tank housing so that the float (E) activates by turning upwards, as shown in the figure.



S341016

IMPIANTO IDRICO

NOZZLE AND FILTER CLEANING

WARNING!
Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun.

Preliminary operations

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.

Cleaning of nozzles and filters on brooms

3. Unscrew the ring nuts (A).
4. Clean the nozzles (B) and filters (C) with compressed air. Remove calcium deposits. If necessary, replace the filters (C).
5. Install the filters and nozzles, and secure them with the ring nuts. Nozzle holes must be directed down when tightening.

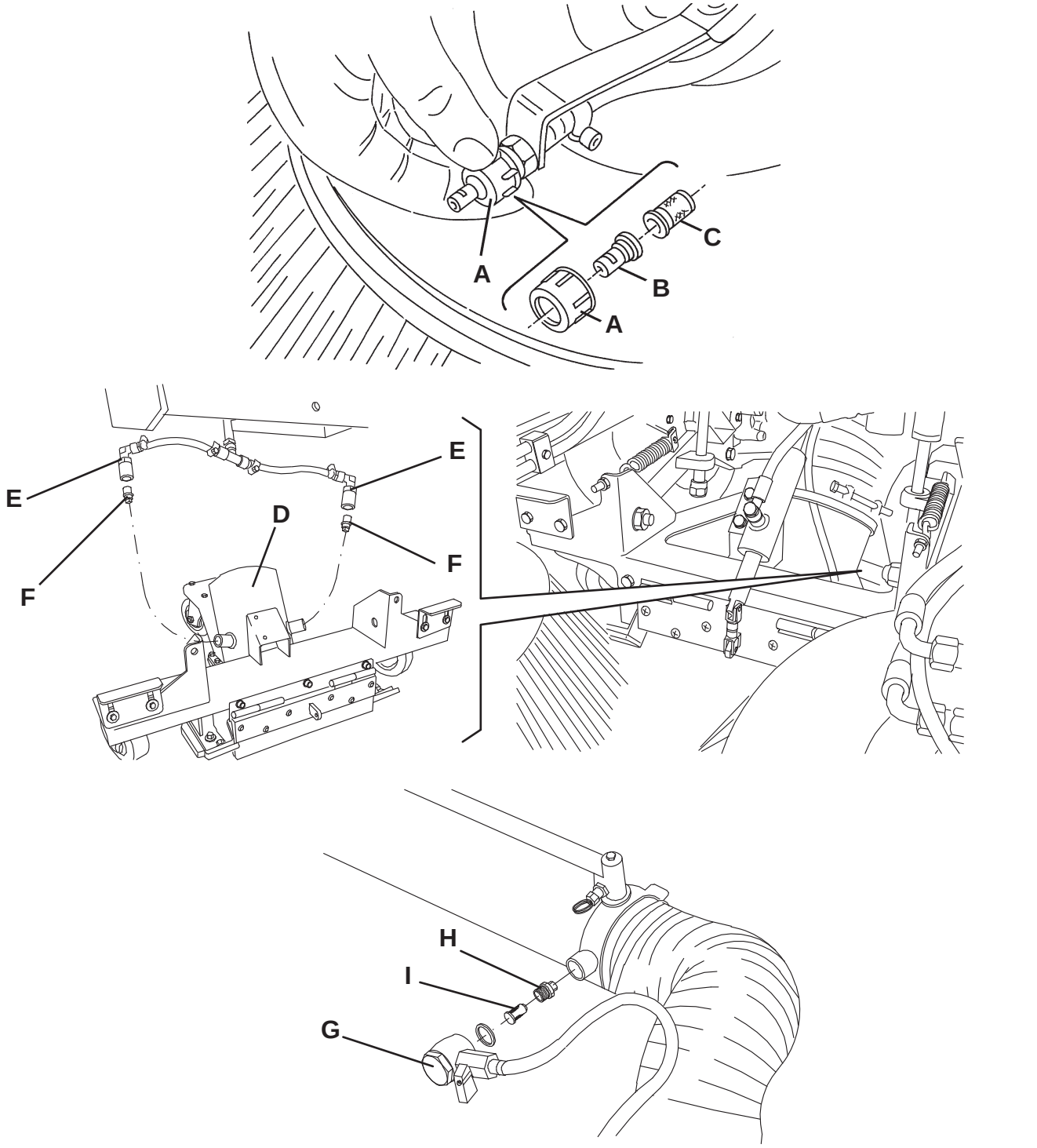
Cleaning of nozzles inside the suction inlet

6. On both sides of the suction inlet (D), remove the screws (E) together with the nozzles (F).
7. Clean the nozzles (F) and screws (E) with compressed air. Remove calcium deposits.
8. Assemble the components in the reverse order of disassembly.

Cleaning of nozzle and filter in the rear suction pipe

9. Remove the screw (G), the nozzle (H) and the filter (I).
10. Clean the nozzle (H) and filter (I) with compressed air. Remove calcium deposits. If necessary, replace the filter (I).
11. Assemble the components in the reverse order of disassembly.

NOZZLE AND FILTER CLEANING (Continues)



S301490

IMPIANTO IDRICO

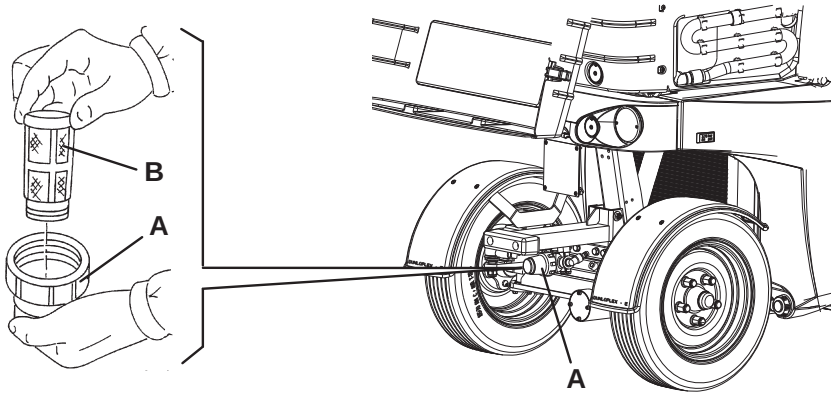
WATER FILTER CLEANING

WARNING!
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.

Preliminary operations

1. Turn the ignition key (76) to OFF position and remove it.
2. Engage the parking brake with the lever (66).
3. In the area under the rear bumper (97), remove the water filter cover (A) together with the filter element (B).
4. Separate the filter element (B) from the cover (A), then wash and clean it. If necessary, replace the filter element (B).
5. Install the filter element (B) and the cover (A).
6. If necessary, fill the water tanks.

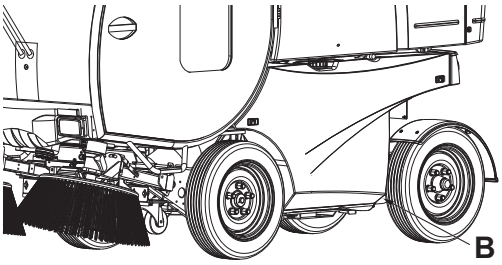


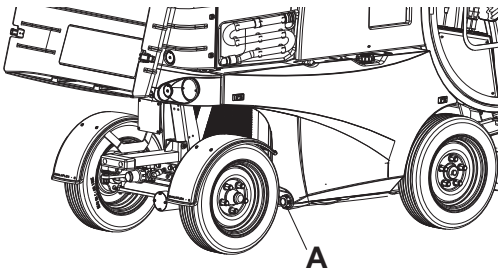
S341014

WATER TANK EMPTYING

When necessary, empty the dust control system water tanks (7 and 16) according to the following procedure.

1. Turn the ignition key (76) to OFF position and remove it.
2. Engage the parking brake with the lever (66).
3. Remove the water tank drain plugs (A) and (B) and drain all the water from the tanks.
4. Install the plugs (A) and (B).





S341015

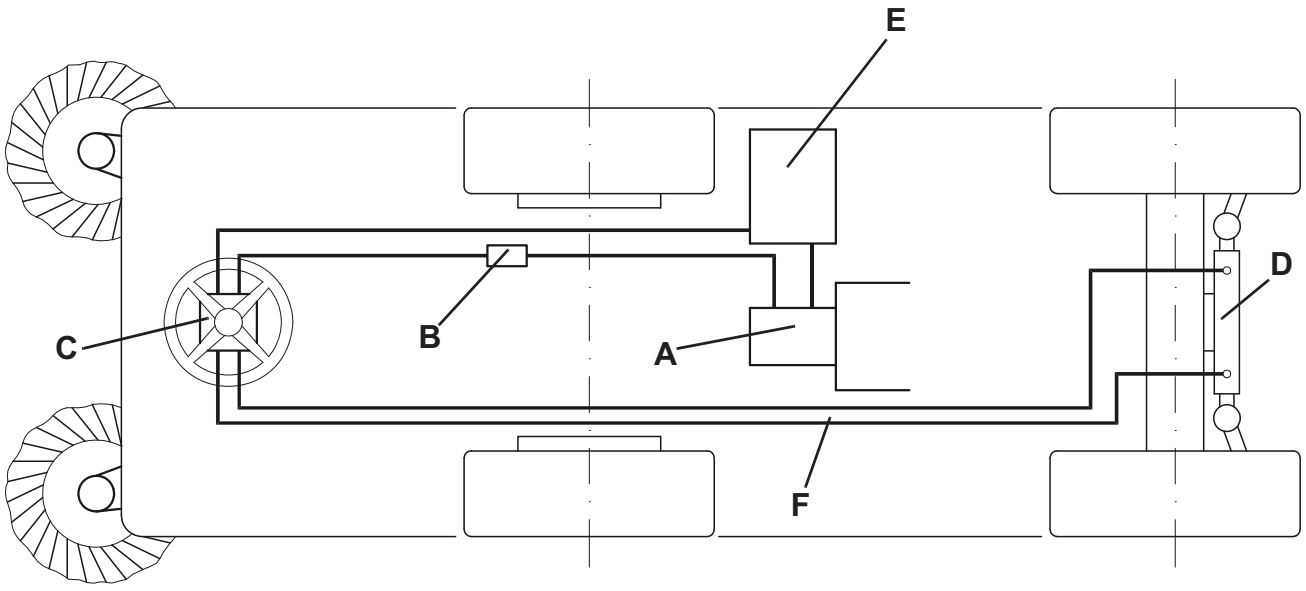
STEERING SYSTEM

DESCRIPTION

The steering wheel activates the power steering which controls a double-effect hydraulic cylinder that operates on the rear wheels assembled on a steering axle.

The steering system consists of:

A) Hydraulic pump
B) Priority valve
C) Power steering
D) Rear wheel control hydraulic cylinder
E) Hydraulic system oil tank
F) Hydraulic system hoses



S300878

STERZO

TROUBLESHOOTING

The machine does not move straightforward

Possible causes:

1. The rear axle toe-in is incorrect (adjust).

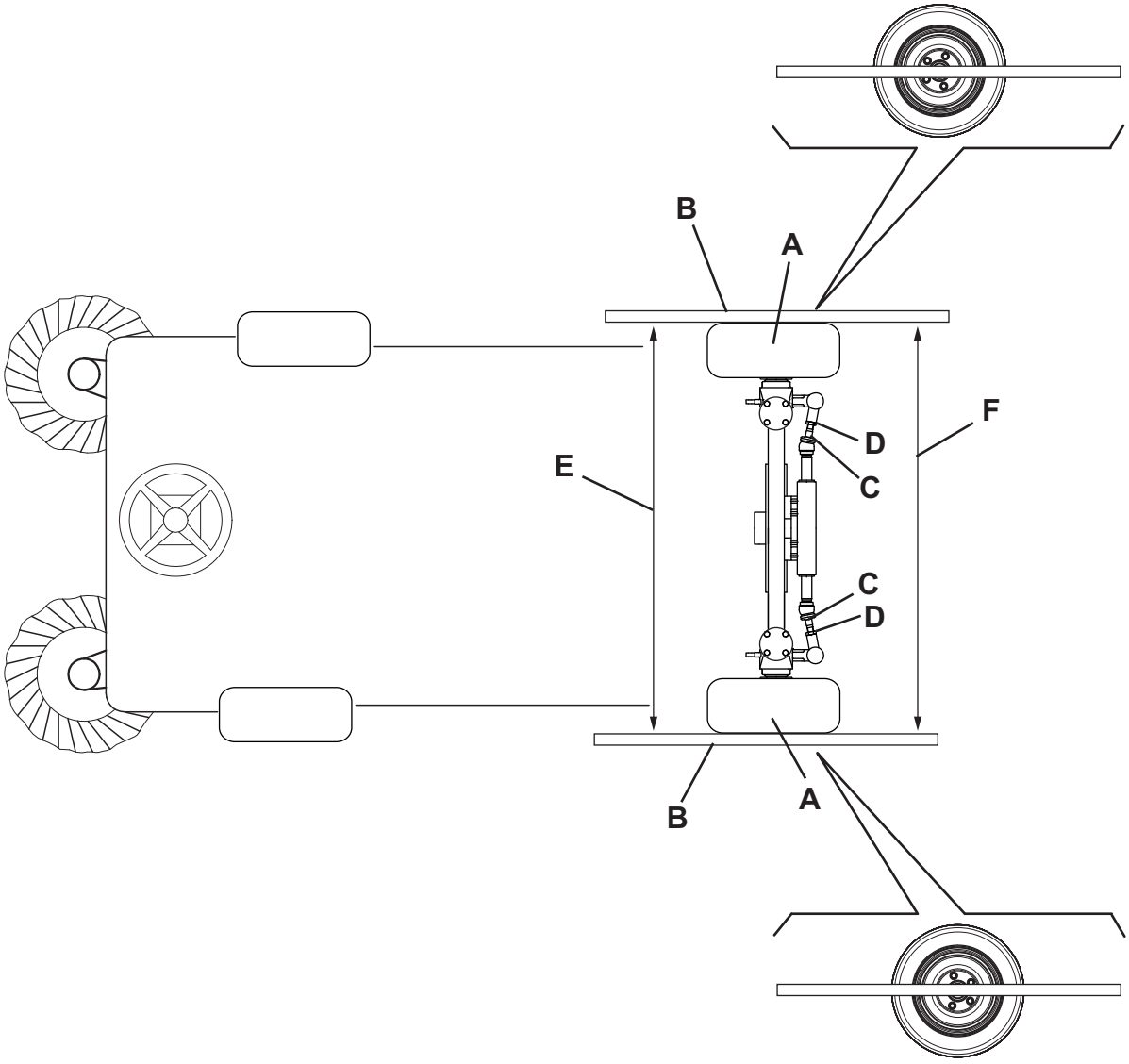
The steering is hard

Possible causes:

1. The power steering is faulty (replace).
2. The priority valve is faulty (replace).
3. The rear wheel hydraulic control cylinder is faulty (replace).

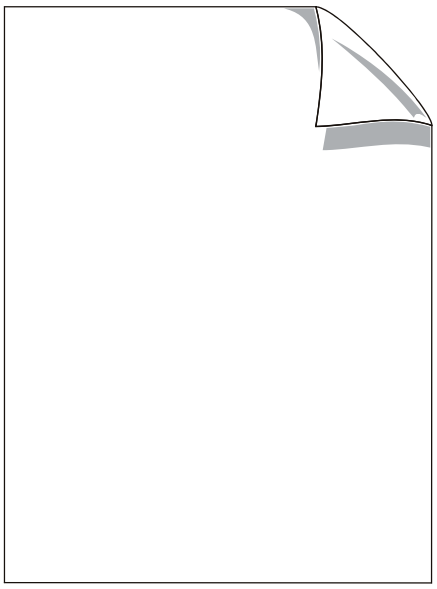
REAR AXLE TOE-IN ADJUSTMENT

1. Drive the machine on a solid and level ground and keep the rear wheels (A) in a straightforward position, then engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Prepare two metal plates (B) to be used as reference lines. The plates must be a little longer than the wheel diameter.
4. Place the plates (B) on the external surface of the wheels (A), at the centre of the wheels and parallel to the ground, as shown in the figure.
   Do not place the plates (B) where the tire surface is irregular.
5. Keeping the plates (B) in the above-mentioned position, check that the distances (E) and (F), measured on the front and on the back of the wheels (A), are the same. A maximum difference of 0.16 in (4 mm) between the two distances is admitted. If necessary, adjust the distances by loosening the nuts (D) and turning the tie rods (C). Then tighten the nuts (D).



S341017

STERZO



BRAKE SYSTEM

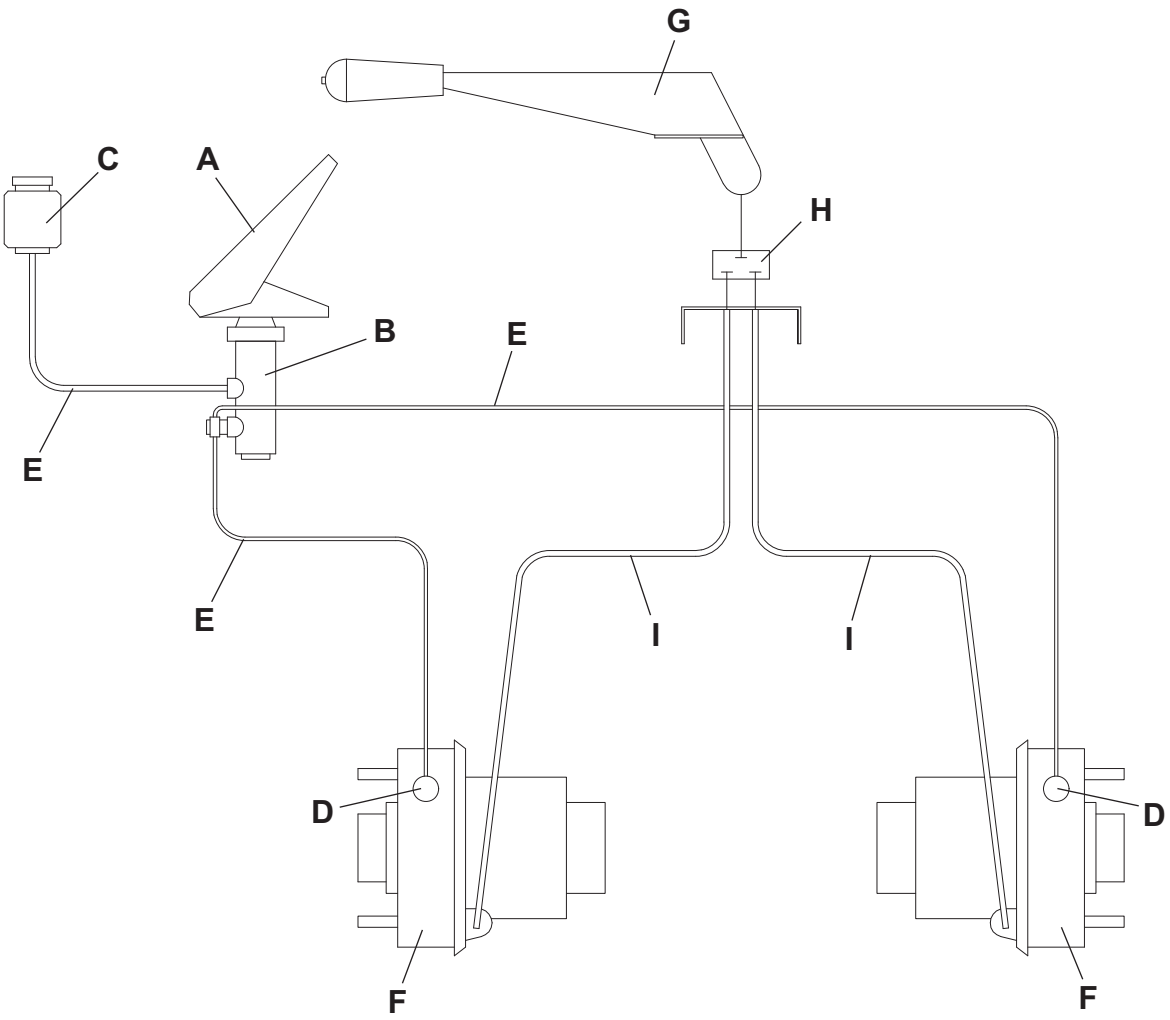
DESCRIPTION

The machine is equipped with an hydraulic brake system controlled by pedal, which actuates on the drum brakes of the front wheels.

The brake system consists of:
A) Brake pedal
B) Brake fluid pump
C) Hydraulic system oil tank
D) Brake cylinders
E) Pipes
F) Drum brakes

The parking brake is mechanic, manually controlled, and actuates on the drum brakes of the front wheels.

The parking brake consists of:
G) Drum brakes
H) Parking brake lever
I) Bracket
J) Control cable



S341018

IMPIANTO FRENI

TROUBLESHOOTING

The machine brake system is not efficient

Possible causes:

1. The brake fluid is insufficient (check the fluid level).
2. The brake fluid pump is faulty (replace).
3. There is air in the system (bleed).
4. The drum brake cylinder is faulty (replace).
5. The braking masses are worn or greasy (replace).

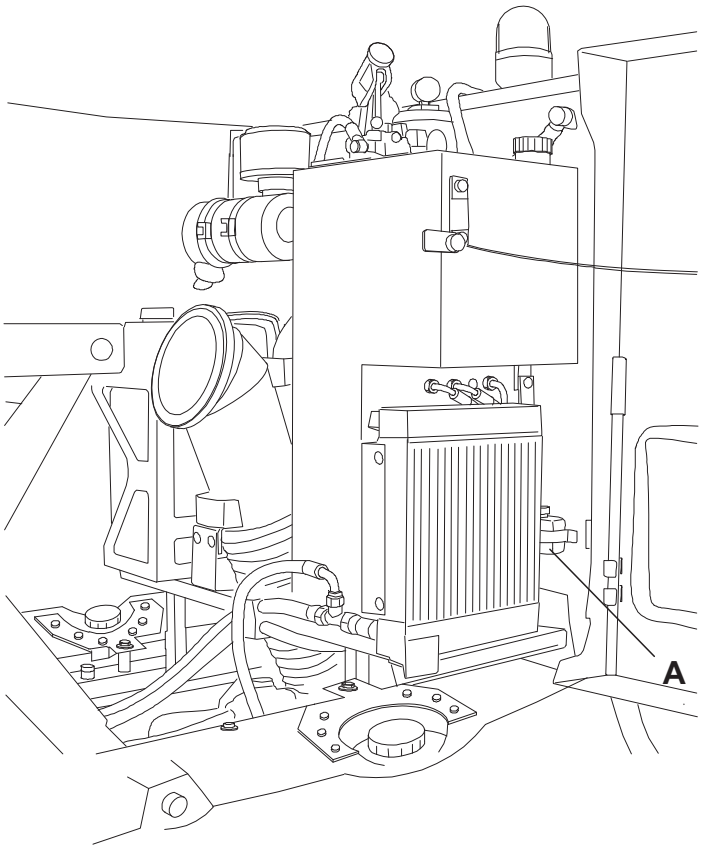
The parking brake is not efficient

Possible causes:

1. The brake is misadjusted (adjust).

BRAKE FLUID LEVEL CHECK

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Open the right door (20).
4. Check that the fluid level in the tank (A) is approximately at 0.4 in (1 cm) from the filler neck.
   If necessary, top up using the same type of fluid that is in the line.
   Type of fluid used: DOT4.
5. Close the right door (20).



S341019

IMPIANTO FRENI

PARKING BRAKE CHECK AND ADJUSTMENT

Check

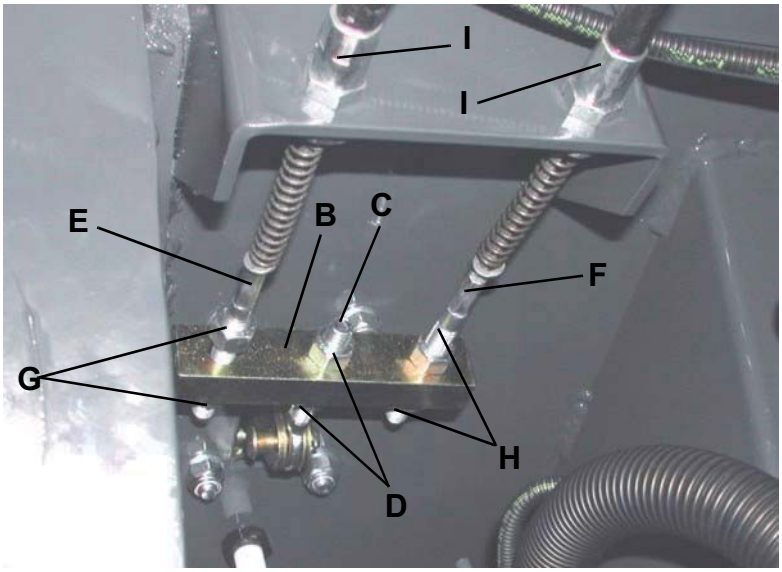
1. Engage the parking brake lever (66) and check for proper operation. Check also that the brake operates in the same way on both the front wheels.
   If necessary, adjust the parking brake according to the following procedure.

Adjustment

2. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
3. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
4. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
5. Turn the ignition key (76) to OFF position and remove it.
6. Open the left door (18) by releasing the fasteners (19) with the supplied key.
7. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
8. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
9. Remove the screw (42) and open the left tank (41).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

10. Operating under the parking brake lever (66), adjust the brake control cables according to the following procedure depending on the type of adjustment (same adjustment for both wheels, or adjustment of one wheel only if braking is unbalanced):
    - To adjust both cables (I) in the same way: loosen the locknuts (D), move the bracket (B) as necessary along the tie rod (C), then tighten the locknuts (D); or loosen the locknuts (G) and (H), give the tie rods (E) and (F) the same number of turns, then tighten the locknuts (G) and (H).
    - To adjust just one of the cables (I): loosen the locknuts (G) or (H), turn the tie rods (E) or (F), then tighten the locknuts (G) or (H).
11. Perform steps 4, 5, 6, 7 and 9 in the reverse order.
12. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



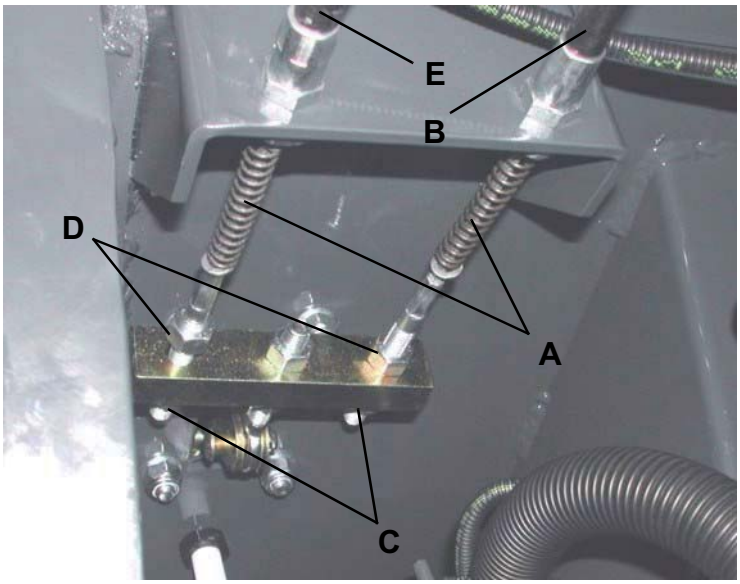
S300883

PARKING BRAKE CONTROL CABLE REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (41).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

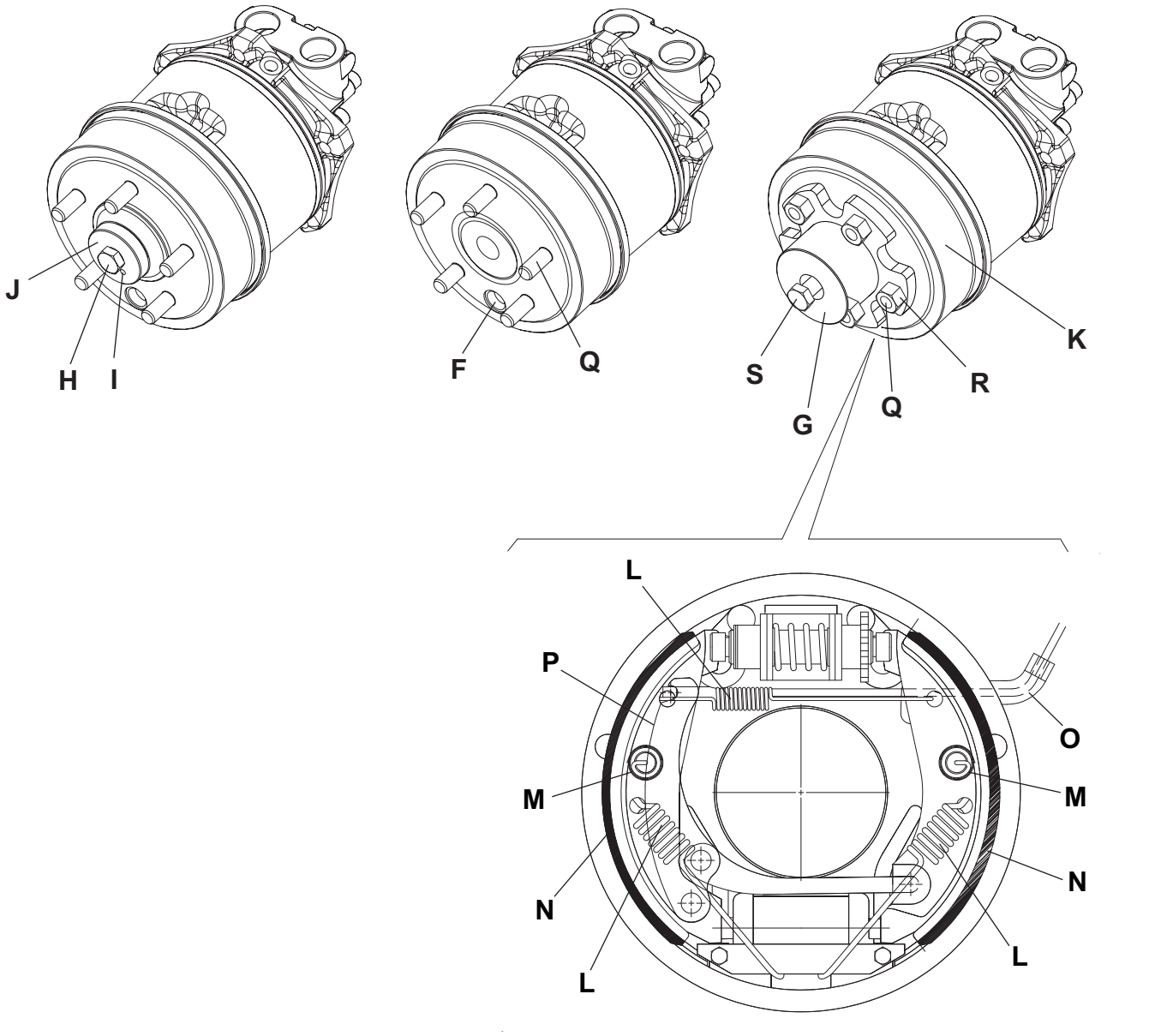
9. Operating under the parking brake lever (66), unscrew the locknuts (C) and (D), disconnect the control cable (E) or (B) and recover the relevant spring (A).
10. Remove the front wheel (see the procedure in the relevant paragraph).
11. Place safety stands under the machine side sill.
12. Remove the screw (H) and the screws (I), then remove the washer (J).
13. Through the hole (F), turn the inner roller so that the shoes withdraw. When the shows are withdrawn, the drum can turn freely.
14. Place the puller (G) on the drum (K) and match the puller holes with the drum columns (Q).
15. Fasten the puller (G) with the wheel mounting nuts (R).
16. Remove the drum (K) by slightly hammering the screw (S).
17. Remove the three springs (L).
18. Remove the shoe retaining springs (M).
19. Remove the shoes (N) by disengaging the parking brake control cable (O) from the lever (P).
20. Perform steps 3 to 6 and 8 to 19 in the reverse order.
21. Adjust the parking brake (see the procedure in the relevant paragraph).
22. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341022

IMPIANTO FRENI

PARKING BRAKE CONTROL CABLE REPLACEMENT (Continues)



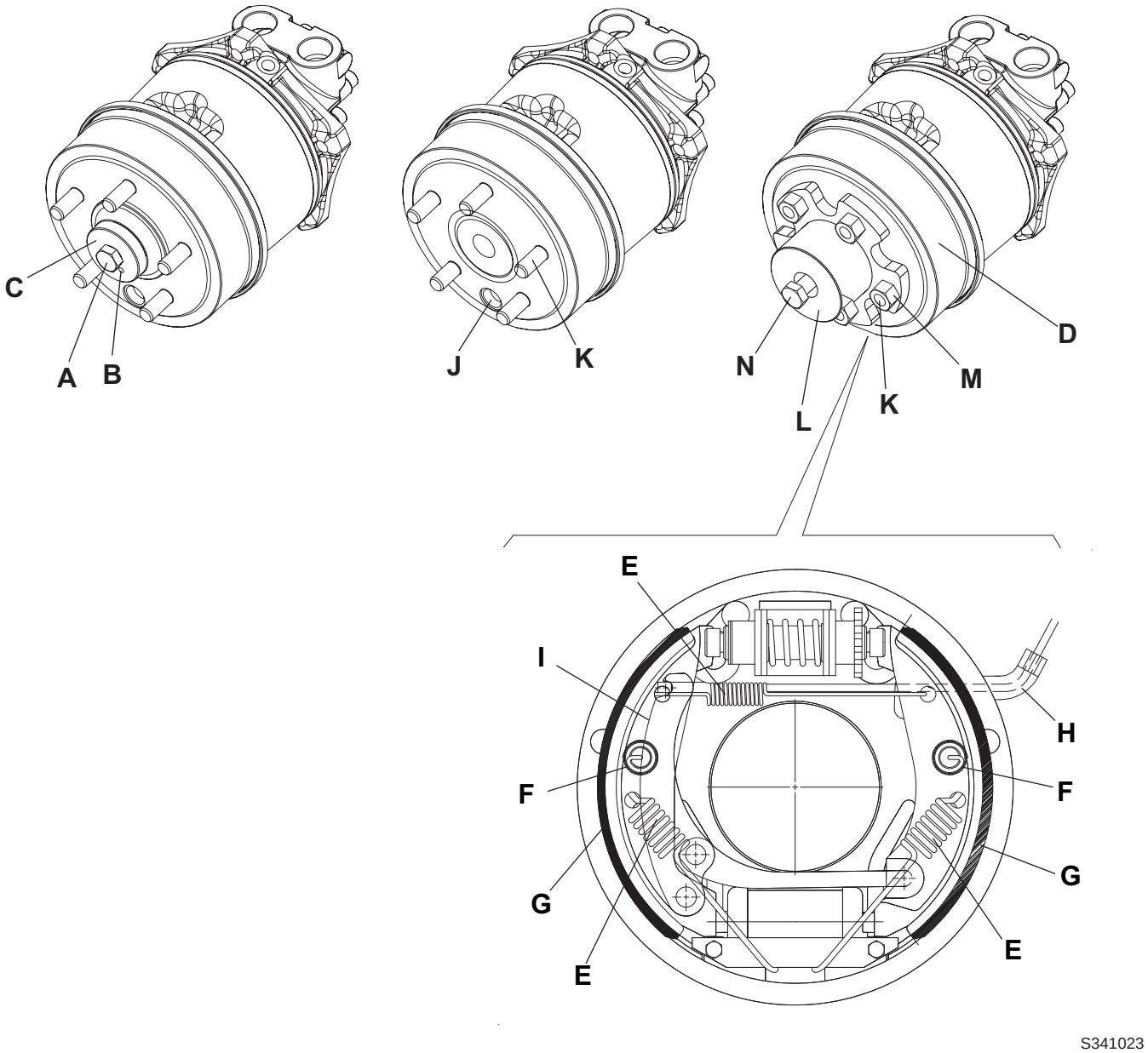
S341021

BRAKE SYSTEM CHECK

1. Check the brake fluid level (see the procedure in the relevant paragraph).
2. Press the brake pedal (57) several times, and check that brakes operate properly.
3. Check that there are no leaks from the brake system.
4. If necessary, check/replace the brakes (see the procedure in relevant paragraph).
5. If necessary, bleed the brake system (see the procedure in the relevant paragraph).

BRAKING MASSES REPLACEMENT

1. Remove the front wheel (see the procedure in the relevant paragraph).
2. Place safety stands under the machine side sill, on the side where the wheel has been removed.
3. Remove the screw (A) and the screws (B), then remove the washer (C).
4. Through the hole (J), turn the inner roller so that the shoes withdraw. When the shows are withdrawn, the drum can turn freely.
5. Place the puller (L) on the drum (D) and match the puller holes with the drum columns (K).
6. Fasten the puller (L) with the wheel mounting nuts (M).
7. Remove the drum (D) by slightly hammering the screw (N).
8. Remove the three springs (E).
9. Remove the shoe retaining springs (F).
10. Remove the shoes (G) together with the braking masses, by disengaging the parking brake control cable (H) from the lever (I).
11. Perform steps 1 to 10 in the reverse order.



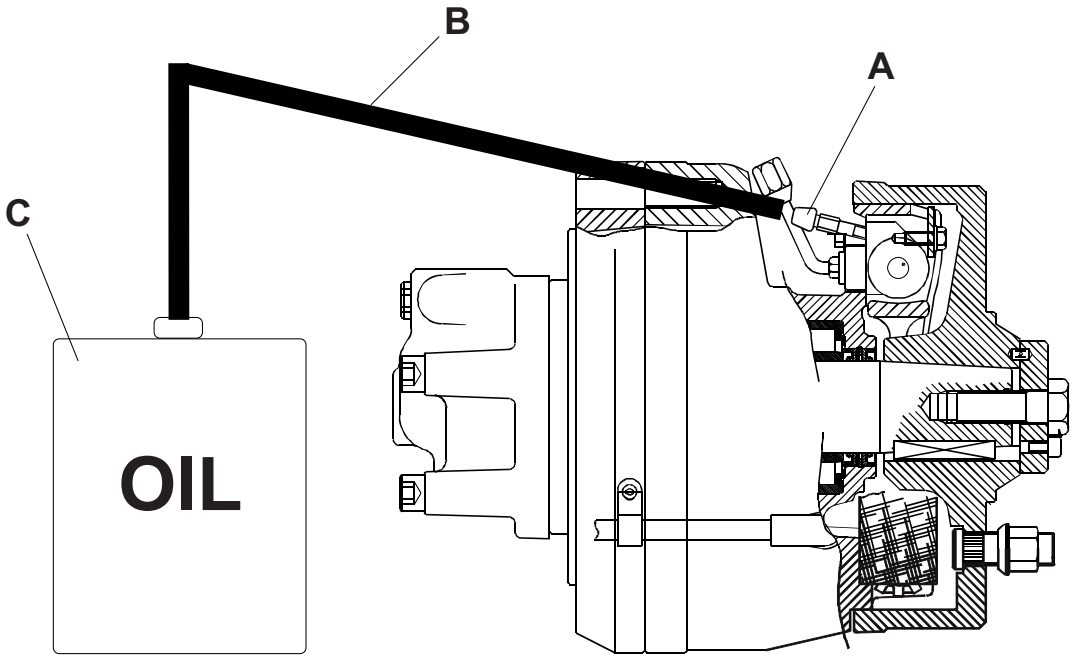
S341023

IMPIANTO FRENI

BRAKE SYSTEM BLEEDING

WARNING!
Brake system bleeding must be always performed with the system opened.
It must also be performed on both front wheels.

1. Check the brake fluid level (see the procedure in the relevant paragraph).
2. Remove one of the front wheels (see the procedure in the relevant paragraph).
3. Place safety stands under the machine side sill, on the side where the wheel has been removed.
4. Remove the brake system bleed valve plug (A) and connect the pipe (B) to bleed the fluid.
5. Press the brake pedal (57) until the pedal resistance increases. In this condition, keep the pedal pressed and unscrew the valve (A) slightly. Let the oil and air bleed from the pipe (B) into the container (C) until no more air comes out, but oil only. Then screw down the valve (A) and release the brake pedal (57).
6. Perform steps 2 to 4 in the reverse order.
7. Bleed the brake system also on the other front wheel, by performing steps from 2 to 6 again.



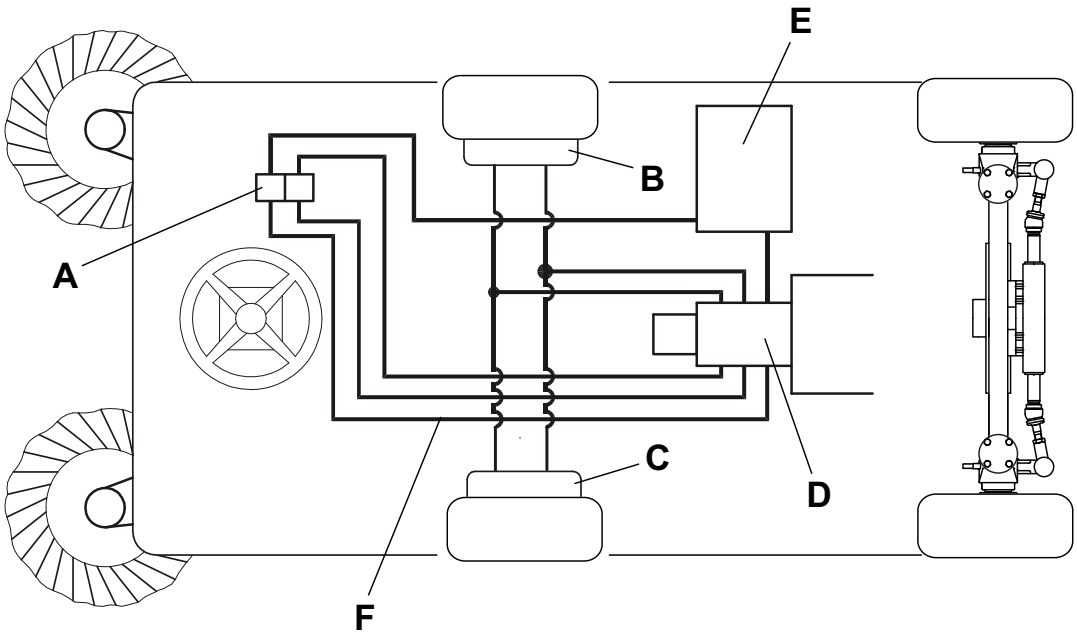
S341024

DRIVE SYSTEM

DESCRIPTION

The drive pedal controls two independent drive system hydraulic motors applied to the front wheels.
Front and rear wheels are pneumatic.

The drive system consists of:
A) Drive pedal
B) Right drive system motor
C) Left drive system motor
D) Drive system pump
E) Hydraulic system oil tank
F) Hoses



S341020

IMPIANTO DI TRAZIONE

TROUBLESHOOTING

The machine stability is reduced
Possible causes:
1. The tires are not properly inflated (check tire pressure).

The rear axle is noisy
Possible causes:
1. The wheel bearings are worn (replace).

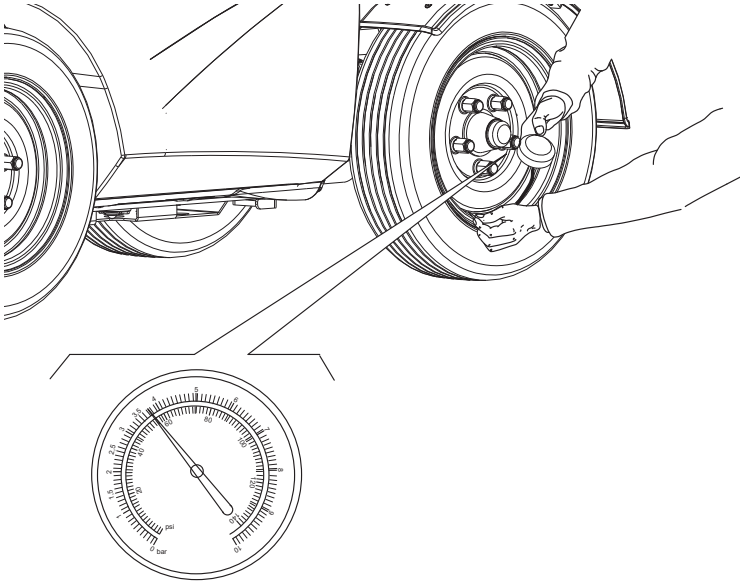
The machine power is reduced
Possible causes:
1. The drive system motors are worn (replace).
2. The drive pedal is faulty (replace).
3. The drive system pump power decreases (check the oil pressure at the drive system pump).

The machine does not move
Possible causes:
1. The drive system pump deactivation screw for machine pushing/towing is unscrewed (screw down).
2. There are oil leaks from the hydraulic system (repair).
3. The drive system pump is broken (replace).
4. The drive system motor is broken (replace).

The machine moves even if the drive pedal is released
Possible causes:
1. The drive pedal is misadjusted (adjust).

TIRE PRESSURE CHECK

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. The tire pressure should be as follows:
   - Front tires: 54 psi (3.75 Bar)
   - Rear tires: 54 psi (3.75 Bar)



S341025

IMPIANTO DI TRAZIONE

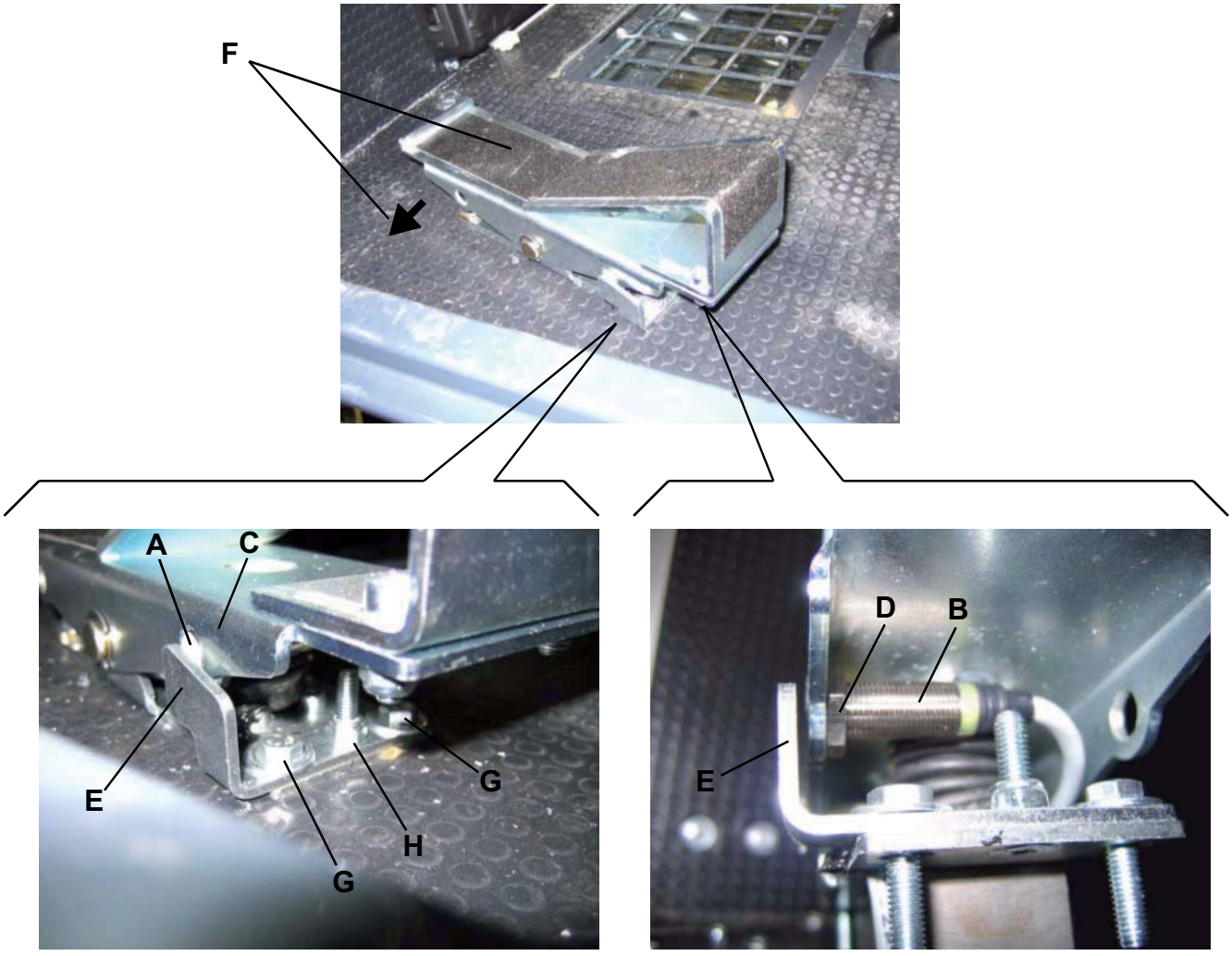
REVERSE GEAR BUZZER CHECK AND REVERSE GEAR BUZZER ACTIVATION SENSOR ADJUSTMENT

Check

1. Check that, when the machine moves in reverse, the relevant buzzer sounds.
   If necessary, adjust the relevant sensor according to the following procedure.

Adjustment

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Check that the surface (A) of the sensor (B) is flush with the surface (C) of the drive pedal.
   If necessary, loosen the sensor mounting nut (D) and adjust the sensor position. When the adjustment is completed, tighten the nut (D).
4. Check that the distance between the sensor surface (A) and the bracket (E) is within 0.59 and 0.98 in (1.5 and 2.5 mm). When checking, move the drive pedal (F) towards the bracket (E) to cancel the drive pedal end play.
   If necessary, loosen the nuts (G) and the nut (H), and adjust the position of the bracket (E). When the adjustment is completed, tighten the nuts (G) and (H).
5. Perform step 1 again.



S301410

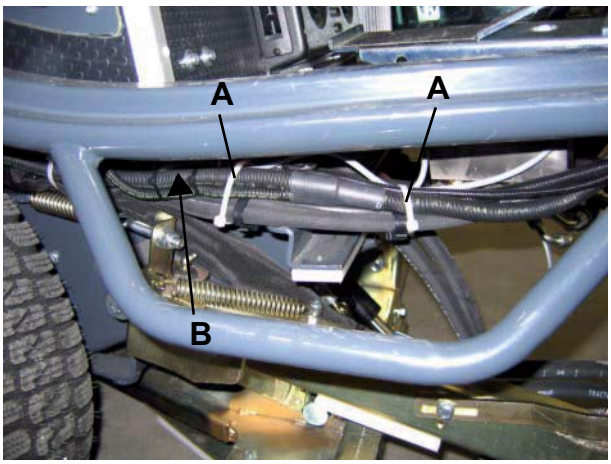
REVERSE GEAR BUZZER SENSOR DISASSEMBLY/ASSEMBLY

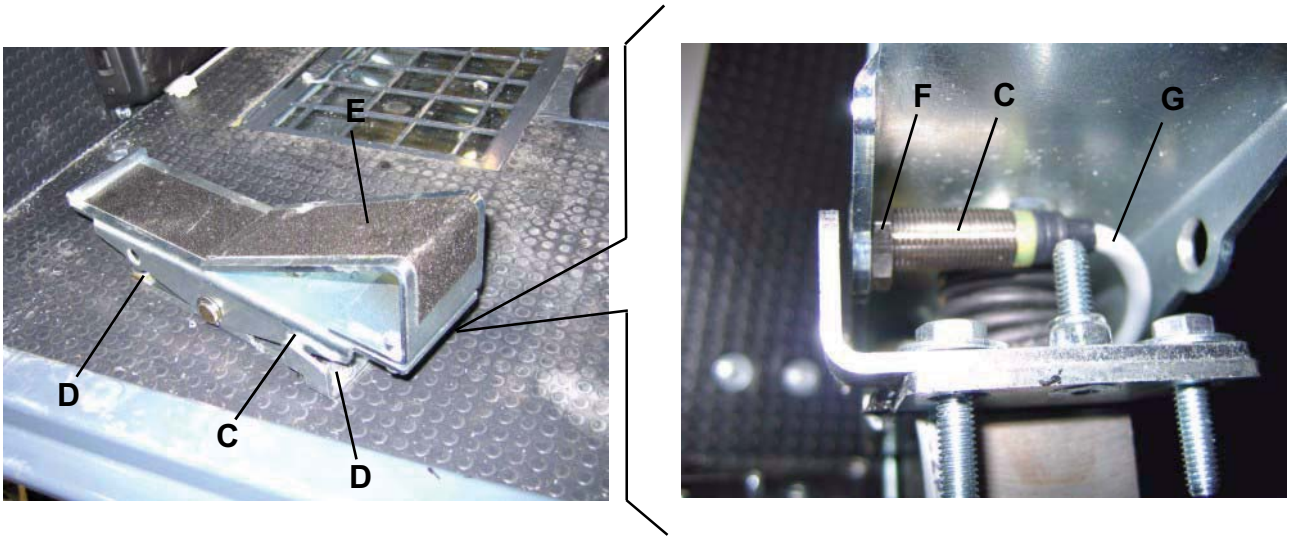
Disassembly

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Cut the cable clamp (A) under the right side of the cab.
4. Disconnect the reverse gear buzzer activation sensor connector (B).
5. Remove the four mounting screws (D) of the drive pedal (E).
6. Slightly lift the drive pedal (E) and remove the mounting nut (F) of the sensor (C).
7. Remove the sensor (C), the harness (G) and the connector.

Assembly

8. Assemble the components in the reverse order of disassembly.
9. Adjust the reverse gear buzzer activation sensor (see the procedure in the relevant paragraph).





S301411

IMPIANTO DI TRAZIONE

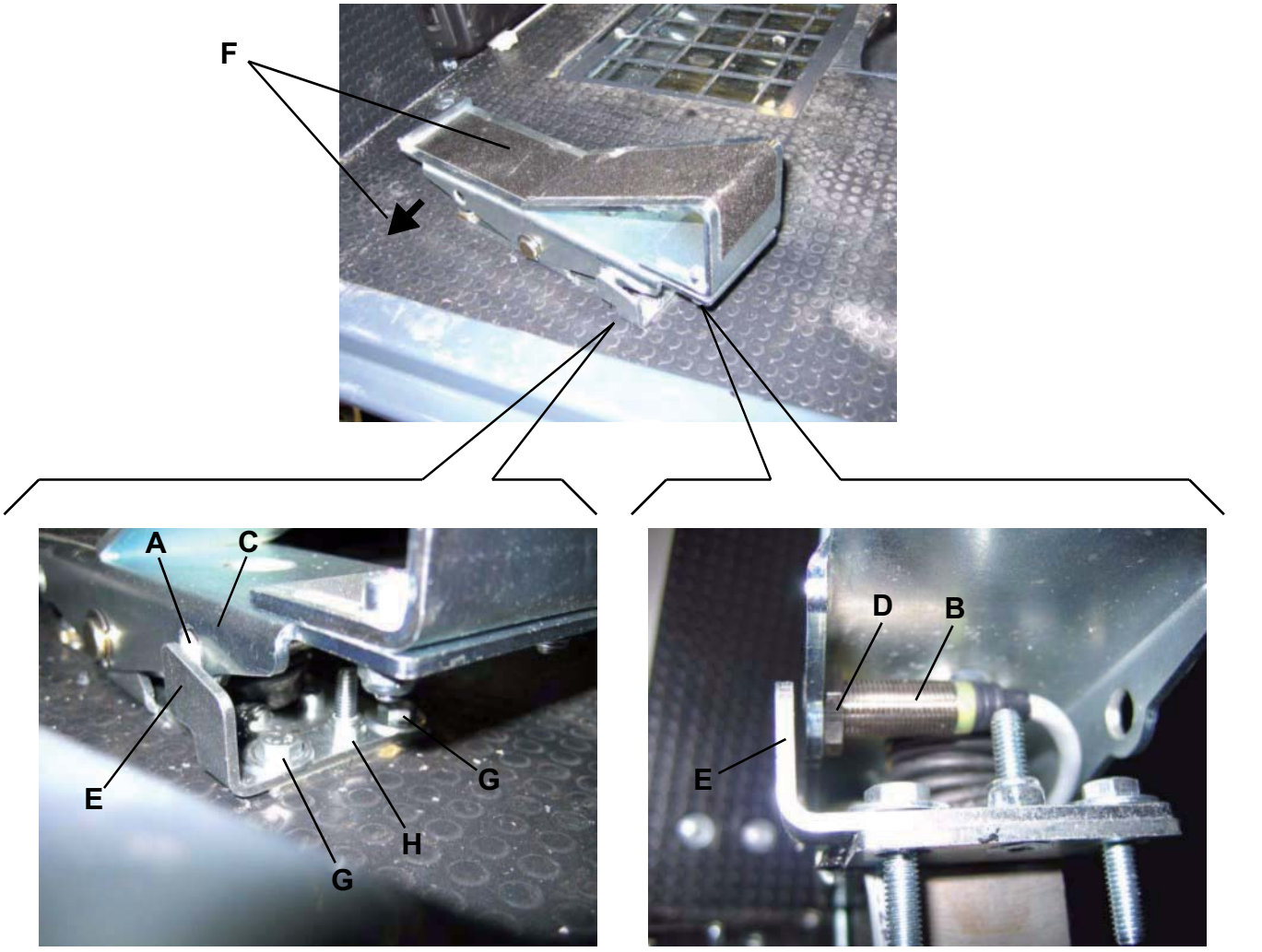
ENGINE START-UP INHIBITION SYSTEM CHECK AND ADJUSTMENT OF THE RELEVANT SENSOR

Check

1. Check that, when one of the two sensors located in the lower part of the pedal, does not read (the sensor LED is off), the engine does not start.
   If necessary, adjust the relevant sensor according to the following procedure.

Adjustment

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Check that the surface (A) of the sensor (B) is flush with the surface (C) of the drive pedal.
   If necessary, loosen the sensor mounting nut (D) and adjust the sensor position. When the adjustment is completed, tighten the nut (D).
4. Check that the distance between the sensor surface (A) and the bracket (E) is within 0.59 and 0.98 in (1.5 and 2.5 mm). When checking, move the drive pedal (F) towards the bracket (E) to cancel the drive pedal end play.
   If necessary, loosen the nuts (G) and the nut (H), and adjust the position of the bracket (E). When the adjustment is completed, tighten the nuts (G) and (H).
5. Perform step 1 again.



S301410

ENGINE START-UP INHIBITION SYSTEM SENSOR DISASSEMBLY/ASSEMBLY

Disassembly

1. Proceed as shown in the “Reverse gear buzzer sensor disassembly/assembly” paragraph.

Assembly

2. Proceed as shown in the “Reverse gear buzzer sensor disassembly/assembly” paragraph.

IMPIANTO DI TRAZIONE

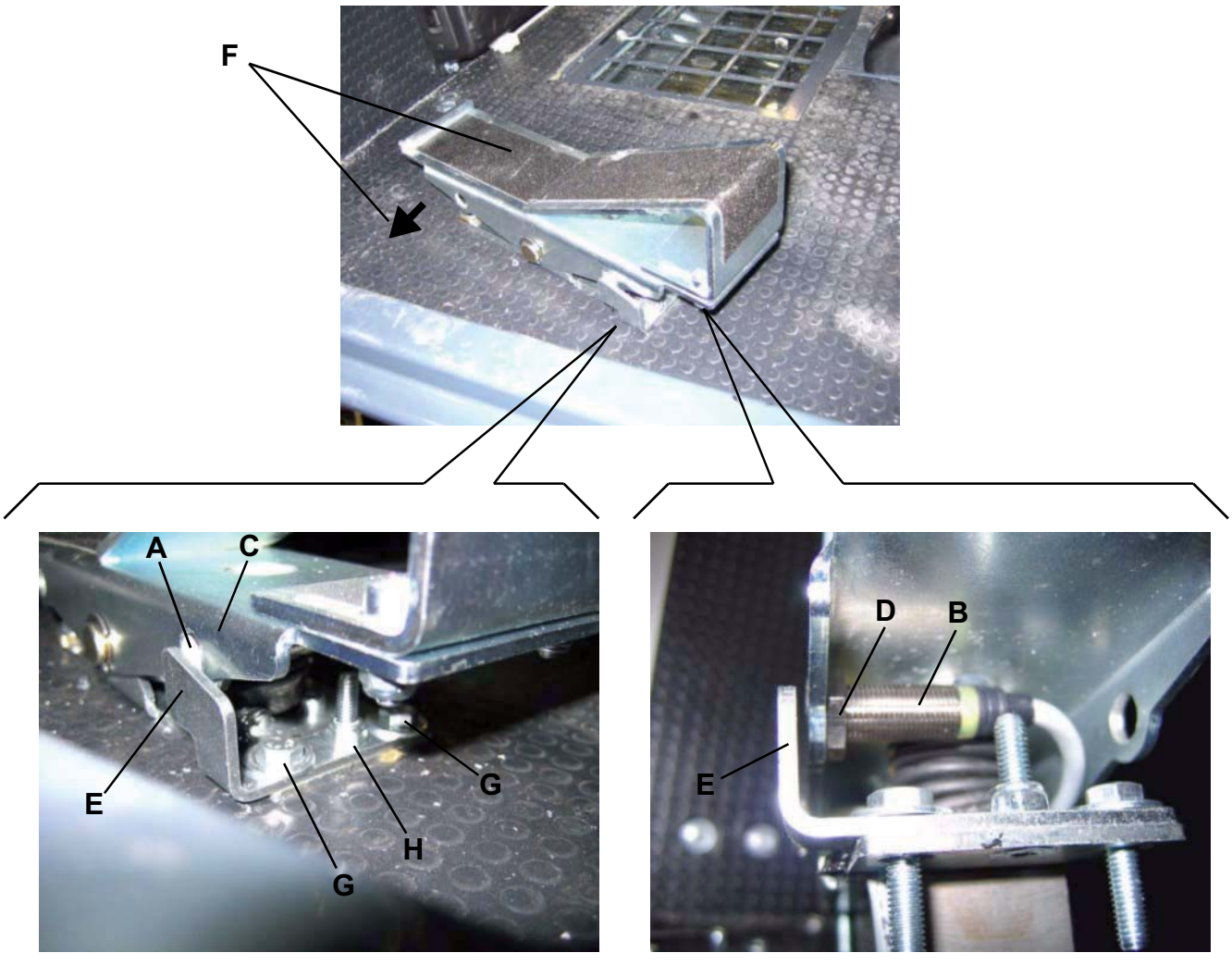
HOPPER DOOR OPENING INHIBITION SYSTEM CHECK AND ADJUSTMENT OF THE RELEVANT SENSOR

Check

1. Check that, when one of the two sensors located in the lower part of the pedal, does not read (the sensor LED is off), the hopper door (26) does not open.
   If necessary, adjust the relevant sensor according to the following procedure.

Adjustment

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Check that the surface (A) of the sensor (B) is flush with the surface (C) of the drive pedal.
   If necessary, loosen the sensor mounting nut (D) and adjust the sensor position. When the adjustment is completed, tighten the nut (D).
4. Check that the distance between the sensor surface (A) and the bracket (E) is within 0.59 and 0.98 in (1.5 and 2.5 mm). When checking, move the drive pedal (F) towards the bracket (E) to cancel the drive pedal end play.
   If necessary, loosen the nuts (G) and the nut (H), and adjust the position of the bracket (E). When the adjustment is completed, tighten the nuts (G) and (H).
5. Perform step 1 again.



S301410

ENGINE START-UP INHIBITION SYSTEM SENSOR DISASSEMBLY/ASSEMBLY

Disassembly

1. Proceed as shown in the “Reverse gear buzzer sensor disassembly/assembly” paragraph.

Assembly

2. Proceed as shown in the “Reverse gear buzzer sensor disassembly/assembly” paragraph.

WHEEL REMOVAL/INSTALLATION

Preliminary operations

1. Turn the ignition key (76) to OFF position and remove it.
2. Engage the parking brake with the lever (66).
3. Check that the machine cannot move with one wheel lifted (the parking brake operates only on the front wheels). If necessary keep the machine stationary by placing wedges on the wheels contacting the ground.
4. Remove the wheel according to the following procedure.

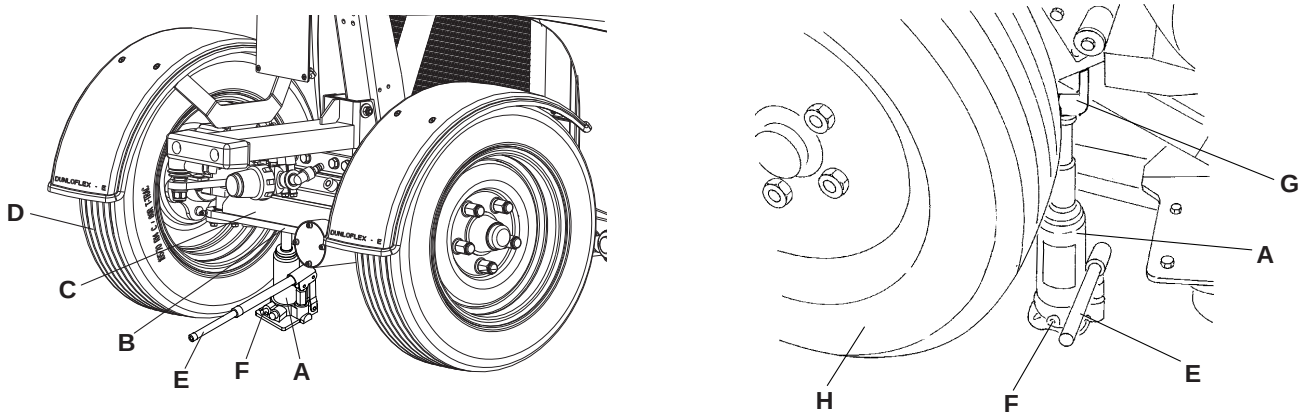
Rear wheel removal/installation

5. Place the jack (A) (not equipped) under the relevant housing (B) in the rear axle (C), as shown in the figure.
6. Carefully activate the jack (A) with the lever (E) and lift the wheel (D) until it is slightly detached from the ground.
7. Remove the mounting nuts, then remove the wheel (D).
8. Install the wheel (D) by performing steps from 5 to 7 in the reverse order.
   Wheel mounting nut tightening torque: 295 lb·ft (400 N·m)

Front wheel removal/installation

9. Place the jack (A) (not equipped) under the relevant housing (G) on the machine side sill, in front of the wheel (H), as shown in the figure.
10. Carefully activate the jack (A) with the lever (E) and lift the wheel (H) until it is slightly detached from the ground.
11. Remove the mounting nuts, then remove the wheel.
12. Install the wheel by performing steps from 9 to 11 in the reverse order.
    Wheel mounting nut tightening torque: 295 lb·ft (400 N·m)

WARNING!
Use a suitable jack with a minimum lifting capacity of 4,409 lb (2 ton).

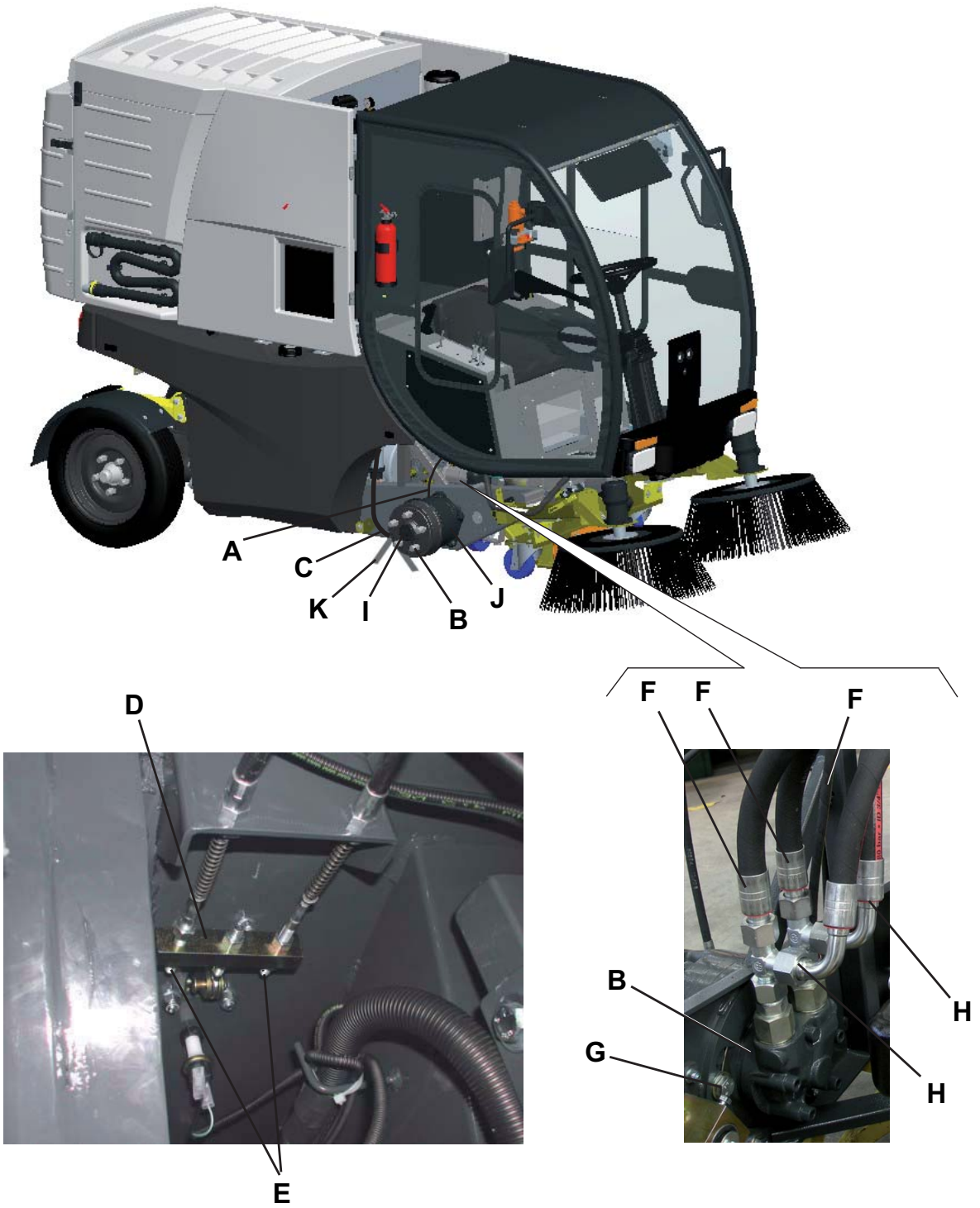


S341026

IMPIANTO DI TRAZIONE

DRIVE SYSTEM MOTOR DISASSEMBLY/ASSEMBLY

1. Remove the suction inlet (see the procedure in the relevant paragraph).
2. Remove the front wheel (see the procedure in the relevant paragraph). Place safety stands (K) under the machine side sill, on the side where the wheel has been removed.
3. Disconnect the brake system pipe (A) from the brake assembly (B) and plug it immediately.
4. Remove the right or left nut (E), then disconnect the parking brake control cable (C) from the bracket (D).
5. Disconnect the hoses (F) and the hoses (H) from the drive system motor (J) and plug them immediately. The hoses (H) are on the right drive wheel only.
6. Remove the five mounting screws (G), then remove the drive system motor (J) together with the brake assembly (B).
7. Assemble the components in the reverse order of disassembly and note the following:
   - Before assembling the wheel, bleed the brake system (see the procedure in the relevant paragraph).
8. Check the brake system (see the procedure in the relevant paragraph).
9. Adjust the parking brake (see the procedure in the relevant paragraph).



S341030

DRIVE PEDAL CHECK AND ADJUSTMENT

Preliminary operations

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.

Check

2. Drive the machine on a level and smooth ground, and, with the engine on, check that the machine does not move forward or backward when the drive pedal (56) is not pressed.
   If the machine moves, even though slightly, check the drive pedal, according to the following procedure.

Drive pedal check

3. Engage the parking brake with the lever (66).
4. Turn the ignition key (76) to OFF position.
5. Check that the drive pedal (56) turns freely on its shaft and that it does not bind/slow down, which may prevent the pedal from resuming the neutral position.
   If necessary, remove the possible cause for binding/slowing down, then repeat step 1.
   If the problem persists, adjust the drive system pump as shown below.

Drive system pump adjustment

6. Disengage the parking brake with the lever (66).
7. Stop the left front wheel with two wedges (A).
8. Remove the right front wheel as shown in the relevant paragraph.
9. Place safety stands (B) under the machine side sill, on the side where the wheel has been removed.
10. Lift the hopper (3) for 7.9 in (20 cm), according to the procedure shown in the Instructions for use Manual.
11. Turn the ignition key (76) to OFF position and remove it.
12. Open the right door (20) by releasing the fasteners (21) with the supplied key.
13. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
14. Remove the screw (44) and open the right tank (43).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

15. Turn on the diesel engine with care.

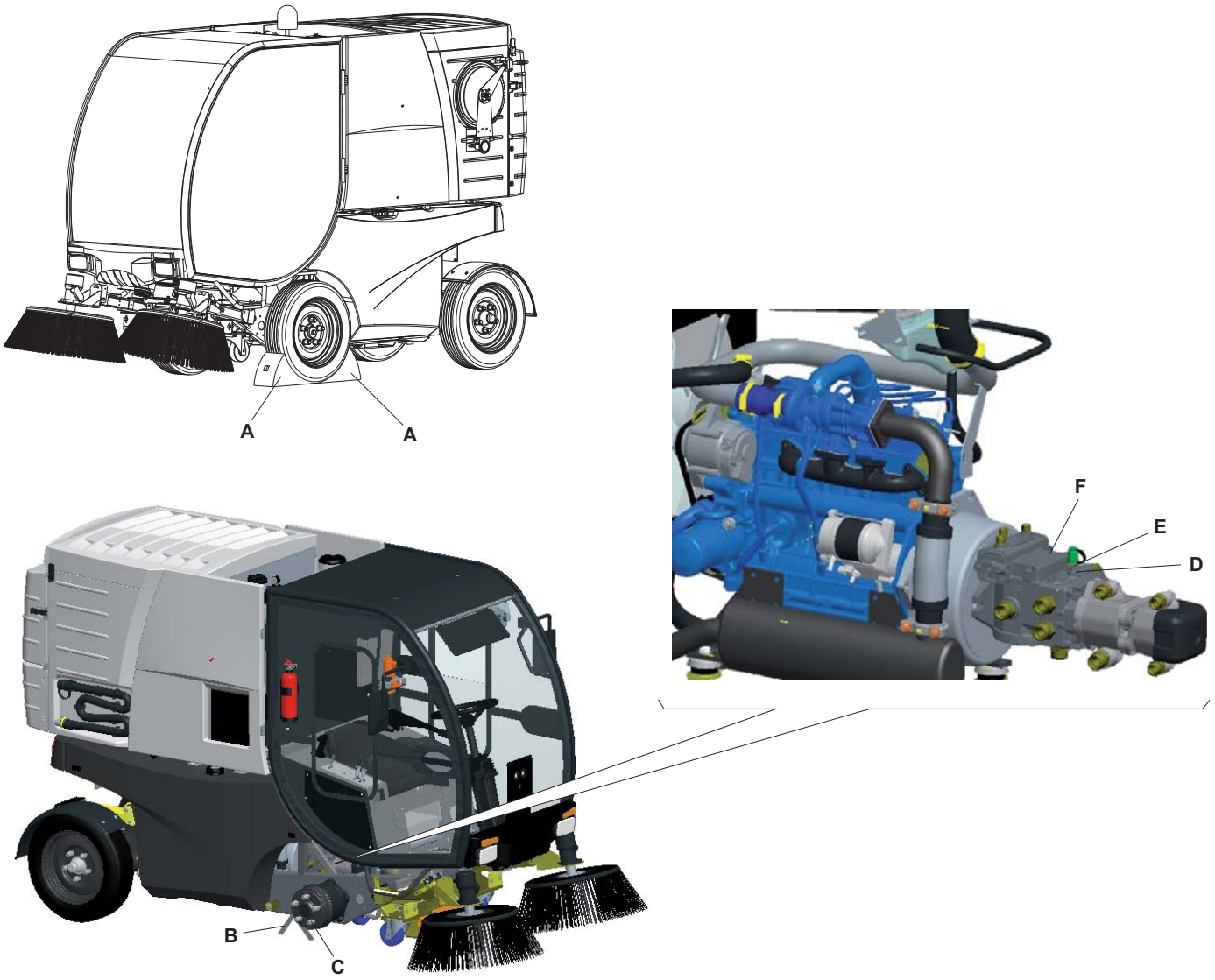
WARNING!
When the diesel engine is running, the wheel hub (C) can be rotating.

16. Check that the machine is in the following conditions:
    - Diesel engine is running
    - Drive pedal (56) is not pressed
    - Brakes and parking brake are not activated

    In these conditions, operating on the drive system pump (F), loosen the locknut (D) then turn the threaded dowel (E) clockwise or counter-clockwise, until the hub (C) stops.
    Tighten the locknut (D).
17. Engage the parking brake with the lever (66).
18. Turn the ignition key (76) to OFF position.
19. Perform steps 6 to 12 in the reverse order.
20. Perform step 1 again.
21. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

IMPIANTO DI TRAZIONE

DRIVE PEDAL CHECK AND ADJUSTMENT (Continues)



S341027

KUBOTA V1505T ENGINE

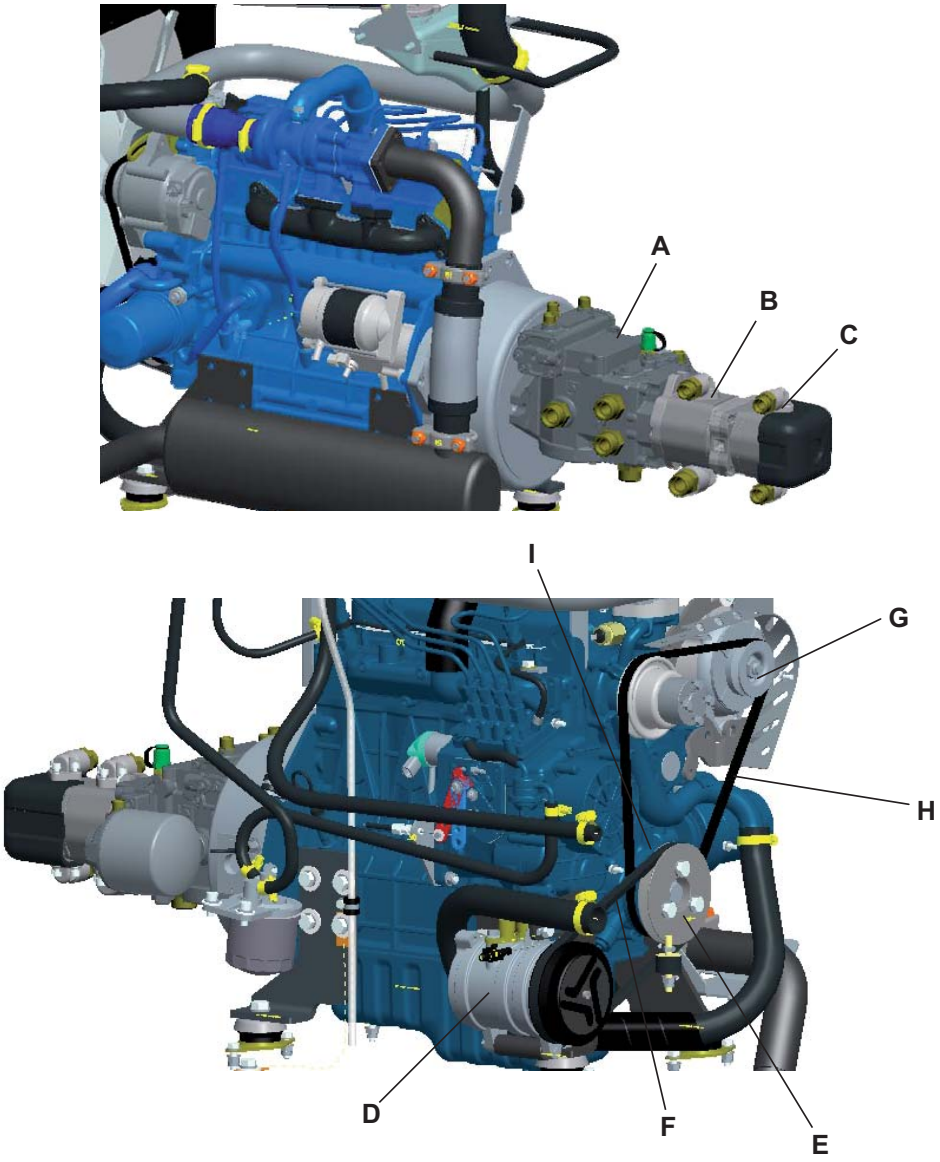
DESCRIPTION

The machine is equipped with a four-cylinder diesel engine. The engine activates the hydraulic system pumps, the 12 V alternator (that charges the electrical system) and the climate control system compressor.
For diesel engine data see the “Technical data” chapter and the Diesel Engine Manual.

– The hydraulic system pumps connected to the engine are the following:
  A) Accessory and power steering pump (10 cc)
  B) Suction fan pump (14 cc)
  C) Drive system pump (21 cc)

– When the machine is equipped with the climate control system, the following components are installed on the engine:
  D) Compressor
  E) Compressor pulley
  F) Drive belt

– The alternator (G) is driven by the belt (H) through the pulley (I).



S341028

MOTORE KUBOTA V1505T

TROUBLESHOOTING

The diesel engine does not start

Possible causes:

1. The drive pedal is pressed (release).
2. The sensor for engine start-up inhibition is misadjusted/broken (adjust/replace).

NOTE

For diesel engine complete troubleshooting, see the relevant Manual.

ENGINE OIL LEVEL CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (49) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Check the oil level according to the procedure shown in the Diesel Engine Manual.
10. If necessary, add oil according to the procedure shown in the Diesel Engine Manual.
11. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
12. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

ENGINE OIL CHANGE

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (44) and open the right tank (16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Change oil according to the procedure shown in the Diesel Engine Manual.

NOTE
In the engine under guard there is hole through which the screw can be removed and the oil pan drained.

10. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
11. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

MOTORE KUBOTA V1505T

ENGINE OIL FILTER CHANGE

NOTE
This procedure must be performed when the engine oil has been drained.

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (44) and open the right tank (16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Replace the oil filter according to the procedure shown in the Diesel Engine Manual.
10. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
11. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

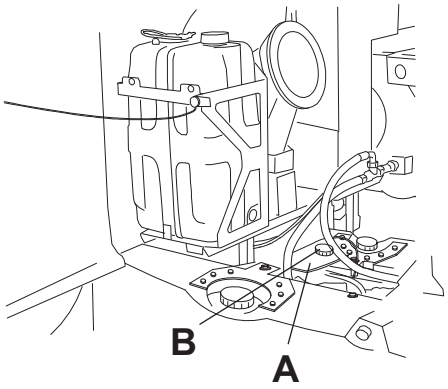
ENGINE COOLANT LEVEL CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).

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 (B) must be opened with extreme care.

7. Check that the coolant level in the tank (A) is between the minimum and maximum marks, according to the procedure shown in the Diesel Engine Manual. If necessary, unscrew the plug (B) and top up.
   Coolant components:
   - 50% of AGIP antifreeze
   - 50% of water

   After top up, tighten the plug (B).
8. Perform steps 3 to 6 in the reverse order.



S341031

MOTORE KUBOTA V1505T

ENGINE AIR FILTER CLEANING

WARNING!
Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning operations using compressed air gun.

Preliminary operations

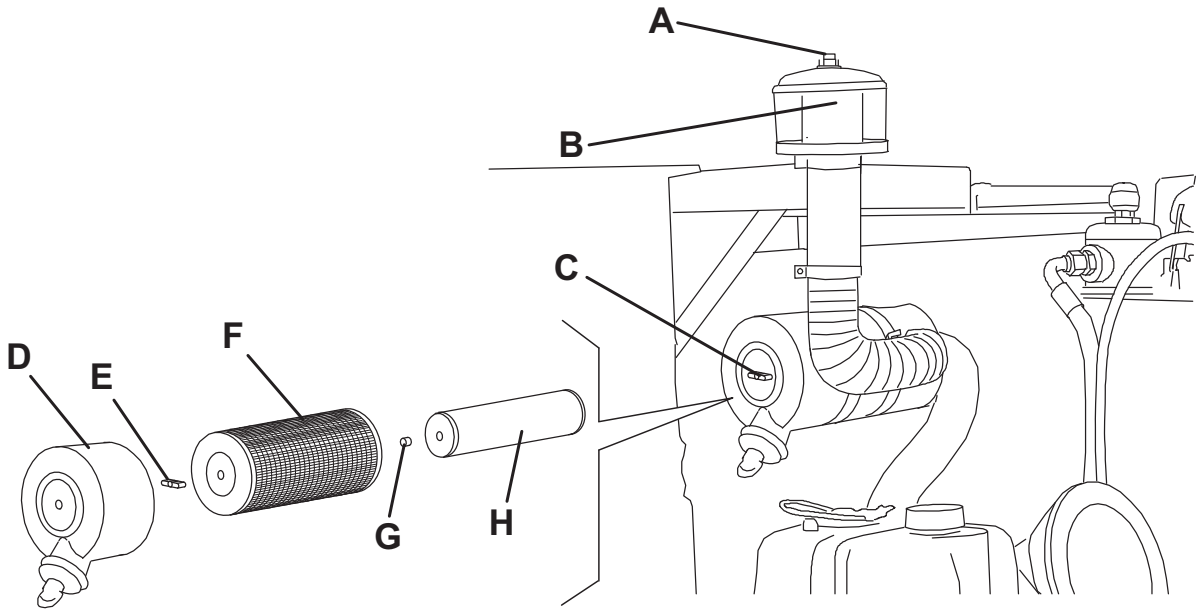
1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Open the left door (18) by releasing the fasteners (19) with the supplied key.

Pre-filter cleaning

4. Remove the screw (A), then remove the pre-filter (B).
5. Clean and wash the pre-filter, then install it. Replace it if necessary.

Filter cleaning

6. Remove the knob (C), then remove the cover (D).
7. Remove the mounting knob (E) and remove the air filter element (F).
8. Remove the mounting nut (G) and remove the air filter element (H).
9. Clean the air filter elements (F) and (H) carefully with compressed air (maximum 87 psi (6 Bar)) and replace them, if necessary.
10. Reinstall the air filter elements (F) and (H).
11. Install the cover (D) and fasten the knob (C).
12. Close the left door (18) by engaging the fasteners (19) with the supplied key.



S341032

FUEL FILTER REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Replace the fuel filter according to the procedure shown in the Diesel Engine Manual.
10. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
11. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

MOTORE KUBOTA V1505T

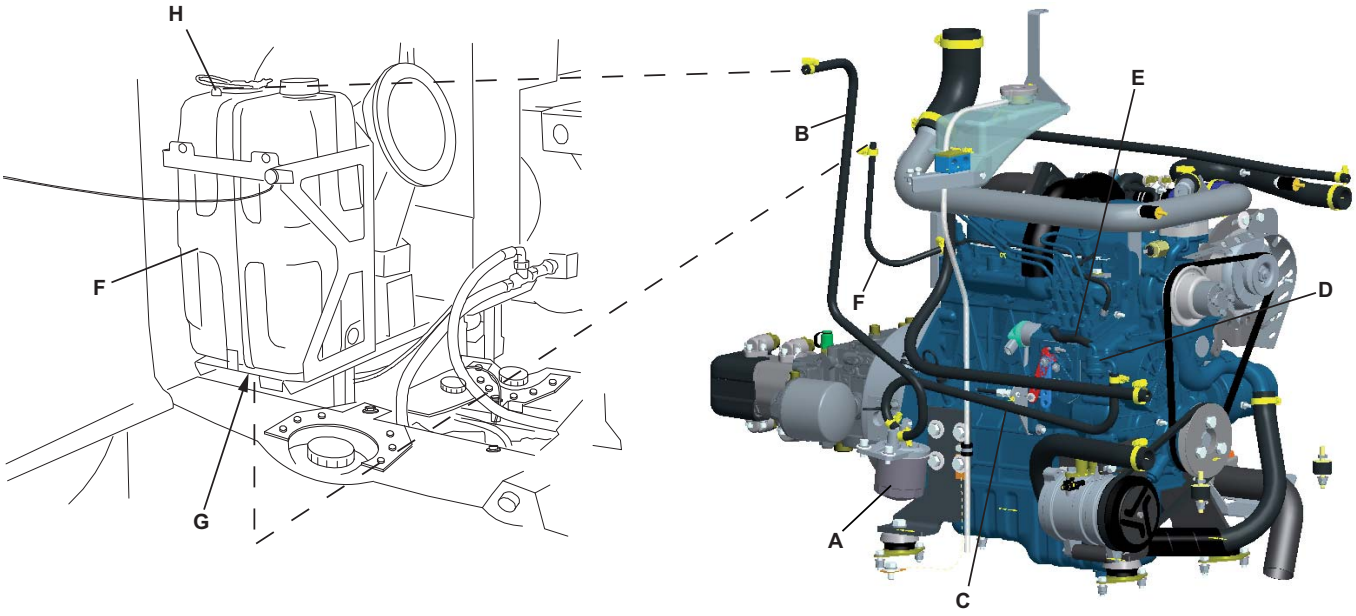
FUEL HOSE AND FITTING CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Check the fitting seal on the fuel filter (A) and on the injection pump (D). Replace if necessary.
10. Check the seal of the lower fitting (G) and upper fitting (H) on the fuel tank (F). Replace if necessary.
11. Check the integrity of the fuel system hoses on the fuel filter (A) and on the injection pump (D):
    - Fuel filter - fuel tank hose (B)
    - Fuel filter - injection pump hose (B)
    - Injection pump - injectors hose (E)
    - Engine body - fuel tank hose (F)

    If the clamps are loose, apply oil on the clamp screw and then tighten the clamp.
    If the hoses are worn and/or damaged, replace them together with the clamps.
12. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
13. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



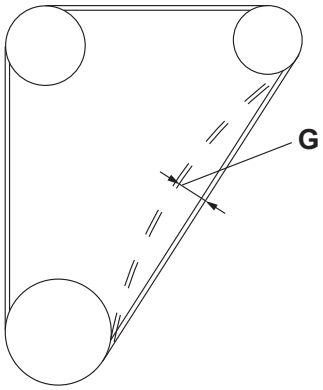
S341033

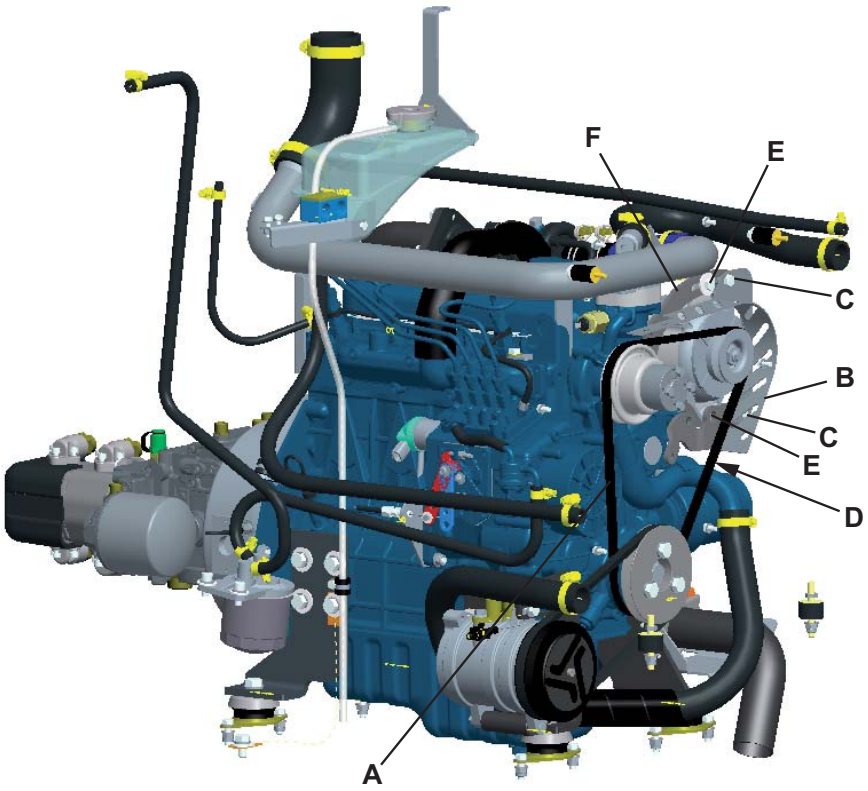
ALTERNATOR BELT TENSION CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (44) and open the right tank (16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. To check the tension of the alternator belt (A) remove the protection (B) by unscrewing the mounting screws (C).
10. In the point between the two pulleys (D) press with the thumb with a force of 22 lb (10 kg), the alternator belt (A) must bend (G) within 0.27 to 0.35 in (7 to 9 mm).
11. If the tension of the belt (A) is not properly adjusted, loosen the two mounting screws (E) of the alternator. By using the tie rod (F) change the position of the alternator so that the tension of the belt (A) is within acceptable limits.
12. Tighten the two screws (E) and check the tension of the belt (A) again. If ok, perform steps 3, 4, 5, 6, 8 and 9 in the reverse order.
13. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.





S341034

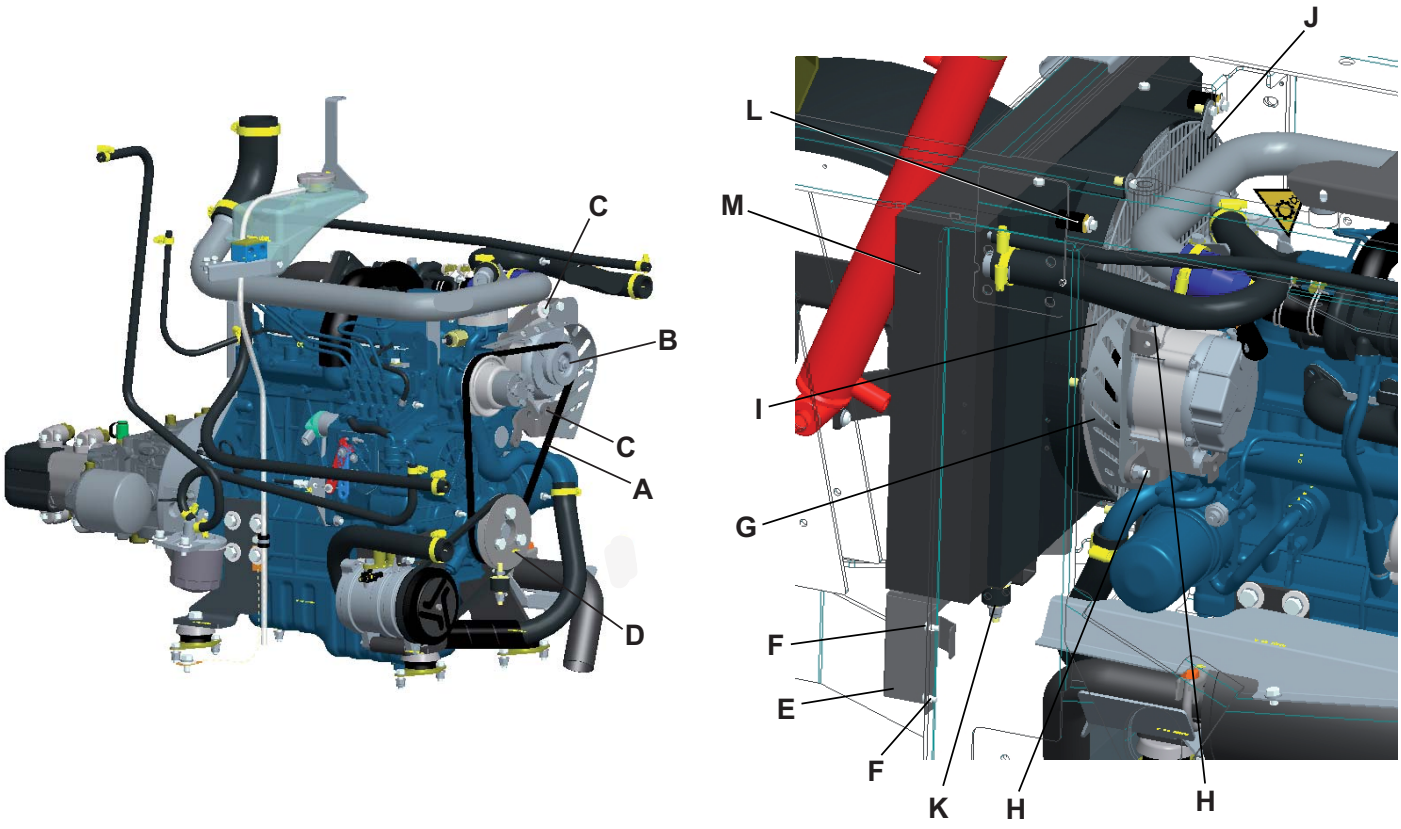
MOTORE KUBOTA V1505T

ALTERNATOR BELT REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screws (42 and 44) and open the right and left tanks (7 and 16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Remove the protection (E) under the radiator (M) by loosening the screws (F) on both sides.
10. Remove the alternator belt protection (G) by loosening the screws (H).
11. The fan protection grid (I and J) by loosening the mounting screws.
12. On the frame side, remove the lower vibration-dampers (K) of the radiator (M) on both sides.
13. On the frame side, remove the upper vibration-dampers (L) of the radiator (M) on both sides.
14. Pull out the engine cooler (M) as necessary to create a minimum space between the fan and the deflector.
15. If the compressor pulley (D) is installed on the machine, it must be removed.
16. Loosen the screws (C) and move the alternator (B) toward the inside, to loosen the tension of the alternator belt (A).
17. Remove the alternator belt (A) through the fan.
18. Remove the belt (A) and adjust the tension as shown in “Alternator belt tension check” paragraph.
19. Perform steps 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17 in the reverse order.
20. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341035

RADIATOR FIN CHECK AND CLEANING

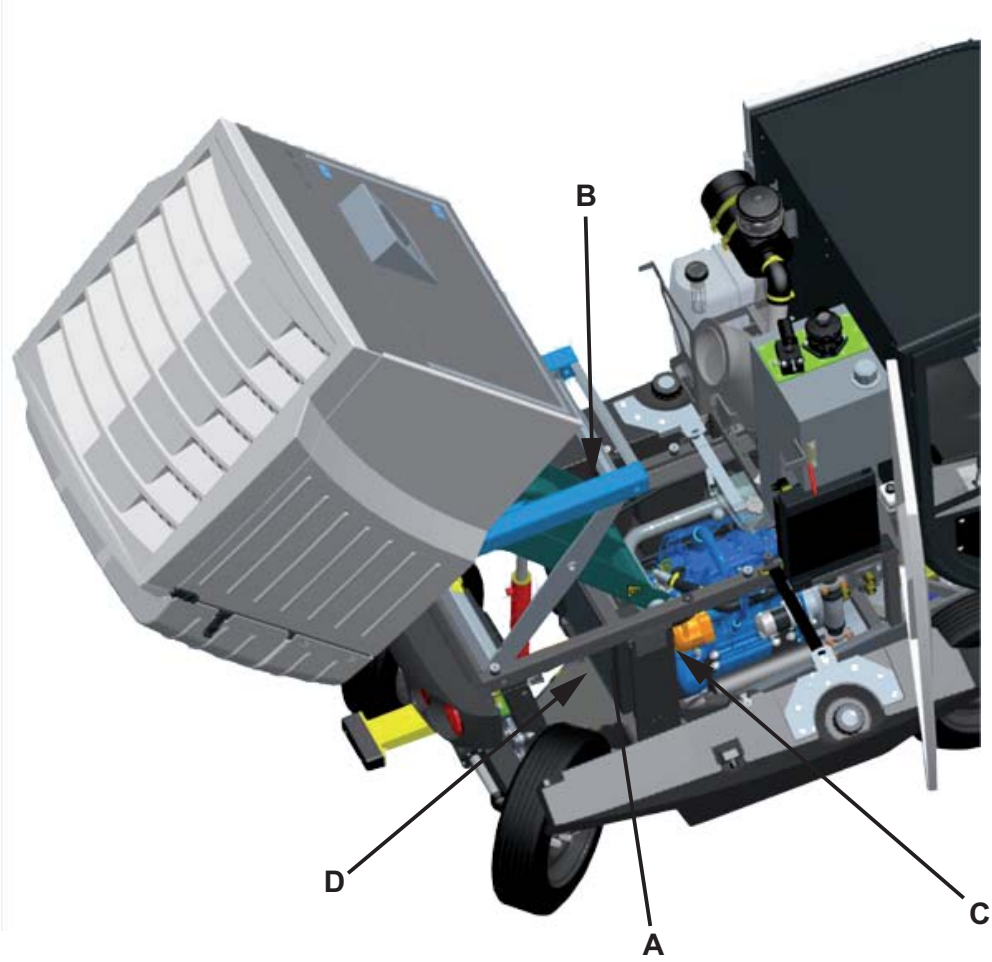
1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. On both sides of the machine, loosen the screws (42 and 44), and open the right and left tanks (7 and 16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Clean the engine radiator (A) with pressurized water, both inside (D) and outside (B and C).

WARNING!
Especially when cleaning the outer side of the radiator (A) with pressurized water keep a distance of 59 in (1.5 m) from the radiator, in order not to bend the fins or damage the radiator.

10. Check the radiator fin cleaning according to the procedure shown in the Diesel Engine Manual.
11. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
12. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341036

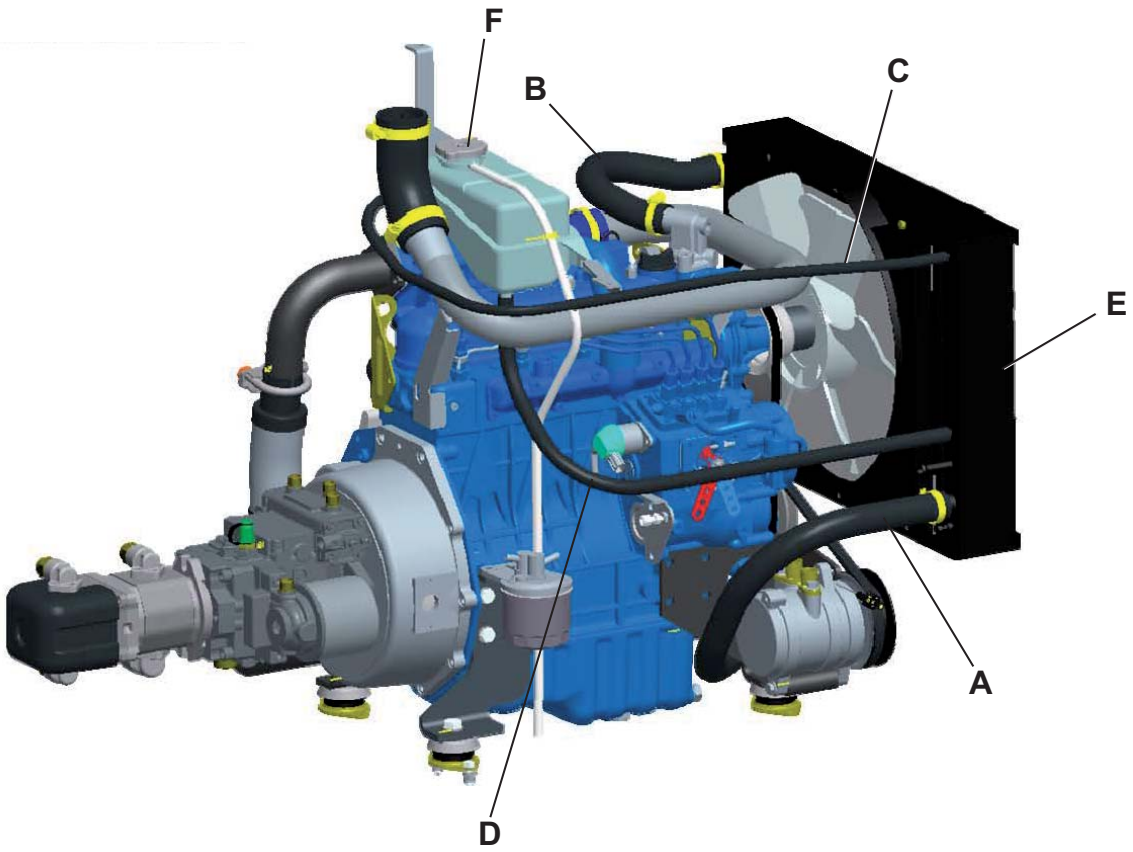
MOTORE KUBOTA V1505T

ENGINE COOLANT LINE SLEEVE CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screws (44) and (42) and open the right (16) and left tanks (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Check that the radiator hoses (E) are fastened and integral. Check:
   - The lower sleeve (A) both on the engine side and the expansion tank side (F)
   - The upper sleeve (B) both on the engine side and the expansion tank side (F)
   - The lower sleeve (D) both on the radiator side (E) and the expansion tank side (F)
   - The upper sleeve (D) both on the radiator side (E) and the expansion tank side (F)
10. If the sleeve clamps are loosen, apply oil on threads and fasten securely.
11. If the sleeves are worn and/or damaged replace them together with the clamps. If it necessary to replace one or more sleeves, it is advisable to drain the cooling system.
12. Perform steps 3, 4, 5, 6, 8 and 9 in the reverse order.
13. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341037

ENGINE COOLANT CHANGE

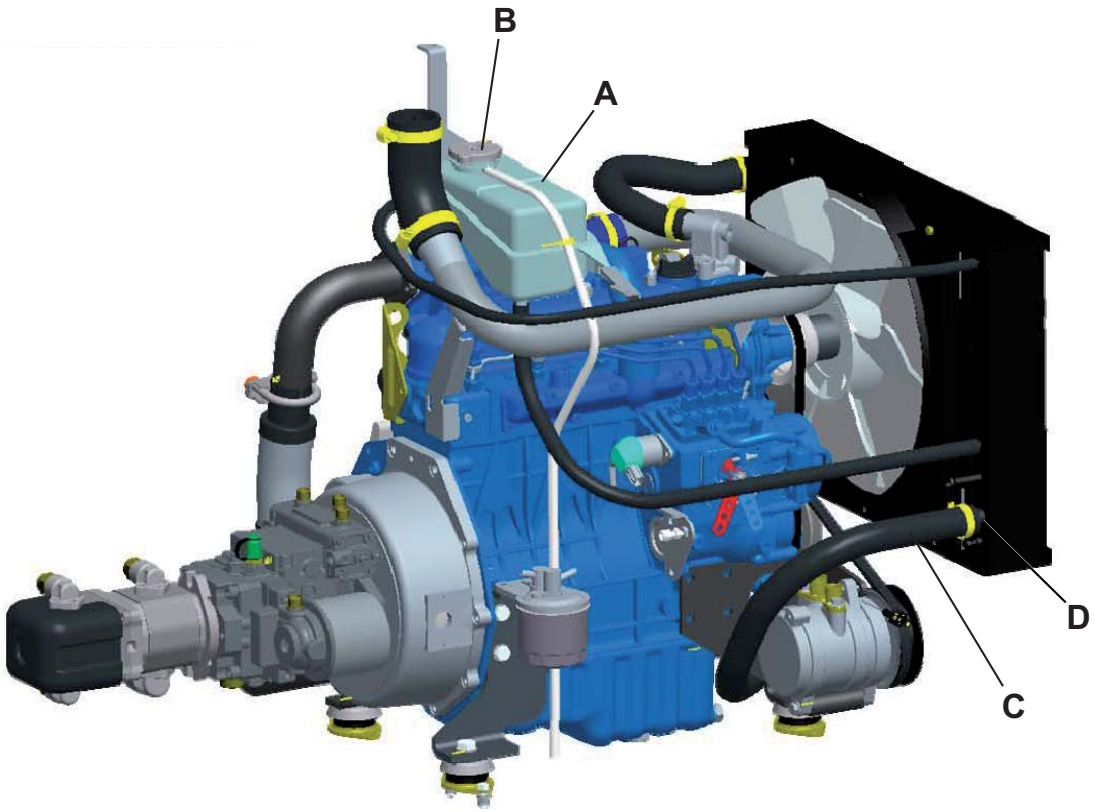
1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Open the expansion tank by removing the plug (B).

WARNING!
Do not remove the expansion tank plug (B) when the engine is hot. Slightly unscrew the plug to the first click to release the pressure, then remove it.

10. Place a container (minimum capacity 2.6 USgal (10 liters)) under the filler neck (D) to collect the engine coolant.
11. Disconnect the radiator lower sleeve (C) and drain the coolant inside the container.
12. Reconnect the sleeve (C).
13. Pour new coolant in the expansion tank filler neck (A) up to the “MAX” level.
14. Tighten the plug (B) firmly.
15. Start the engine and let it run for a few minutes.
16. Turn off the engine and let it cool down. Check the level again. If it is still under the “MAX” level, top up again.
17. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
18. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341038

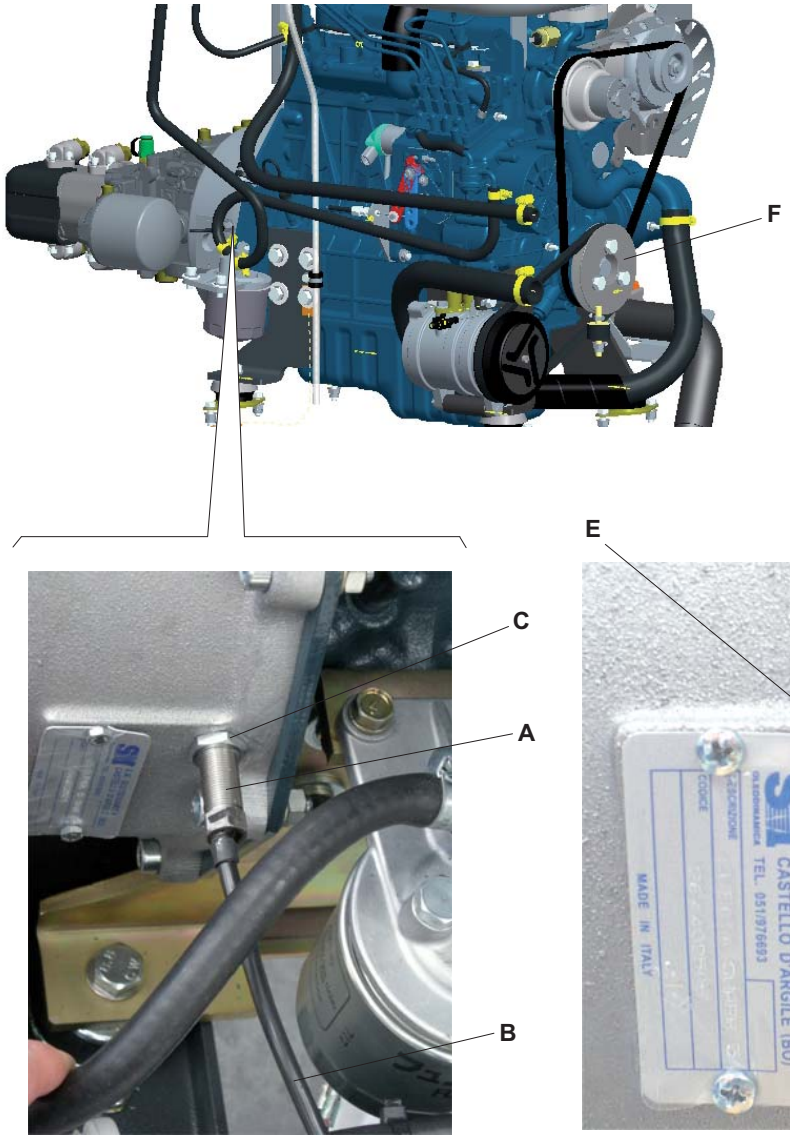
MOTORE KUBOTA V1505T

ENGINE SPEED SENSOR REPLACEMENT

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Disconnect the cable (B) from the engine speed sensor (A).
4. Loosen the mounting nut (C).
5. Ensure that the flywheel tooth (D) is at the centre of the hole (E). If necessary move the tooth (D) by turning the pulley (F).
6. Screw down the new sensor (A) until it is flush with the tooth (D).
7. Then, unscrew the sensor (A) for one turn.

CAUTION!
Apply a thread locking compound to the engine speed sensor (A).

8. Connect the cable (B).
9. Start the machine and check that, when the accelerator is fully pressed, the display shows 2,800 rpm.
10. Fasten the sensor with the nut (C).



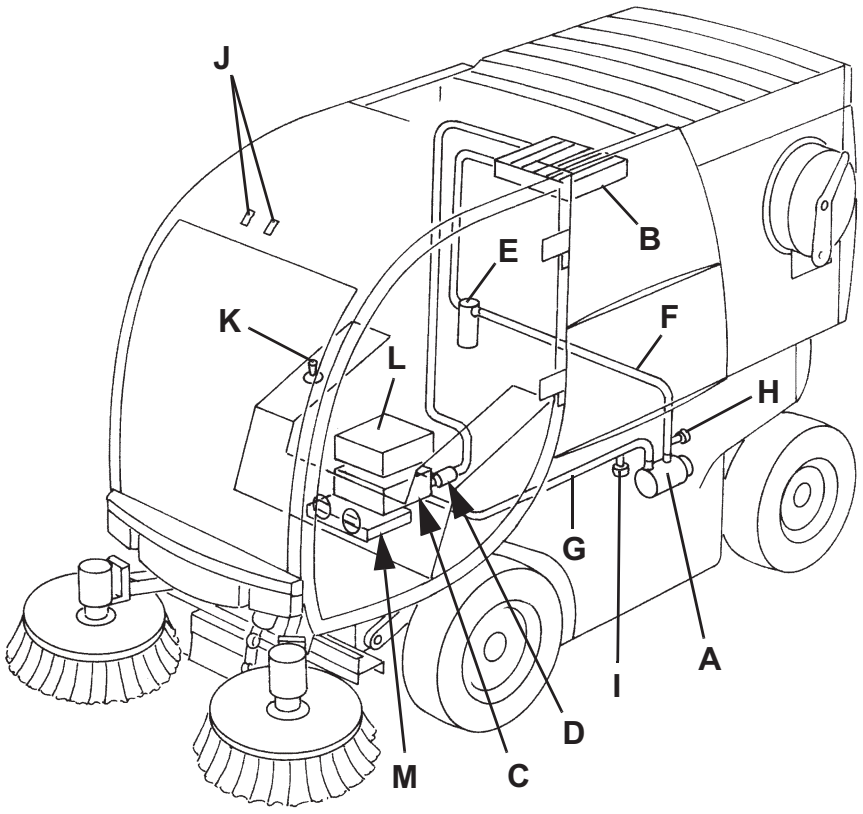
S341029

CLIMATE CONTROL SYSTEM

DESCRIPTION

The climate control system consists of:

A) Compressor
B) Condenser
C) Cooler
D) Expansion valve
E) Filter drier
F) High pressure hose
G) Low pressure hose
H) High pressure connection
I) Low pressure connection
J) Cooling controls
K) Heating controls
L) Heater
M) Air filter



S300899

IMPIANTO DI CLIMATIZZAZIONE

TROUBLESHOOTING

No fresh air from the climate control system

Possible causes:

1. The compressor does not turn because the drive belt is loosen/broken (tension/replace the belt).
2. There are gas leaks from the system (repair the leak and integrate the gas).
3. The expansion valve is faulty (replace).

No hot air from the climate control system

Possible causes:

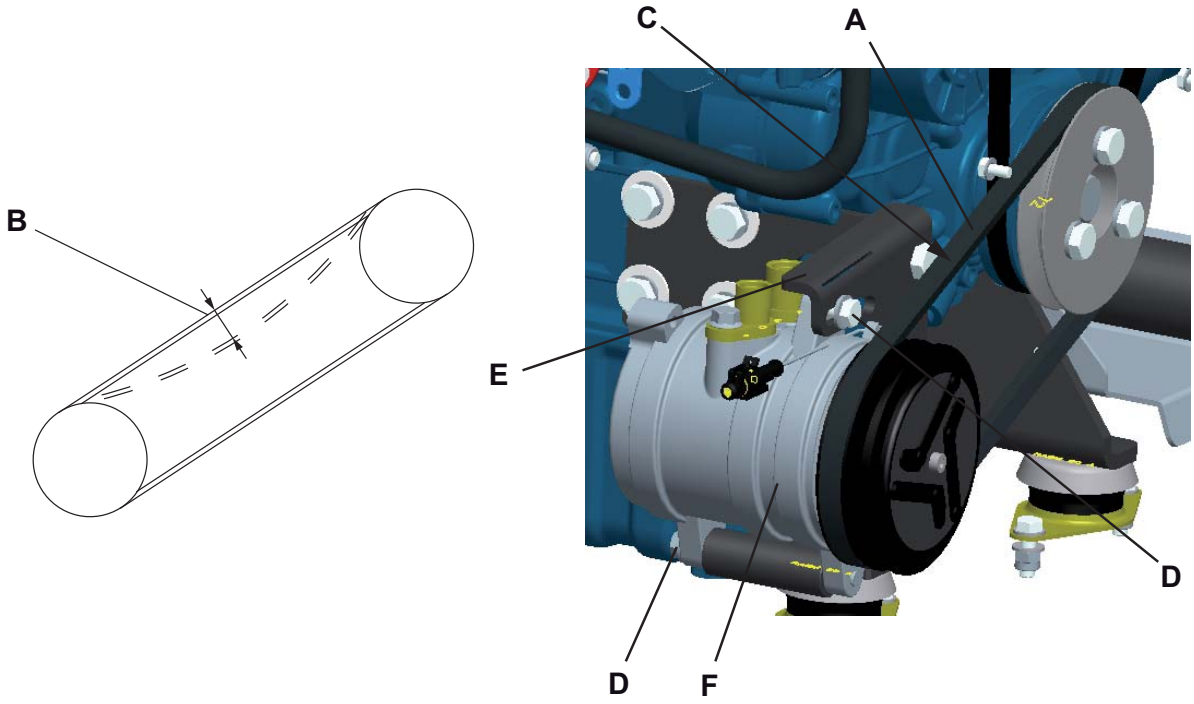
1. The hot water hoses are broken (replace).
2. There are water leaks from the heater (replace).

COMPRESSOR BELT TENSION CHECK (LDW 1603/B2 engine)

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. In the point between the two pulleys (C) press with the thumb with a force of 22 lb (10 kg), the alternator belt (A) must bend (B) within 0.27 to 0.35 in (7 to 9 mm).
10. If the tension of the belt (A) is not properly adjusted, loosen the two mounting screws (D) of the alternator. By using the tie rod (E) change the position of the alternator (F) so that the tension of the belt (A) is within acceptable limits.
11. Tighten the two screws (D) and check the tension of the belt (A) again. If ok, perform steps 3, 4, 5, 6 and 8 in the reverse order.
12. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



S341039

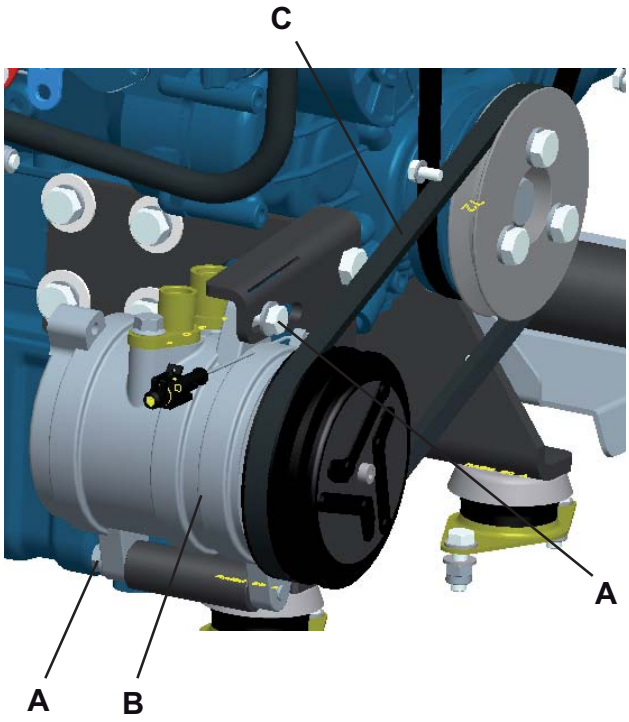
IMPIANTO DI CLIMATIZZAZIONE

COMPRESSOR BELT REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Loosen the mounting screws (A) of the compressor (B).
10. Move the alternator (B) toward the inside, to loosen the tension of the belt (C).
11. Remove the belt (C) from the pulleys.
12. Place the new belt (C) on the pulleys.
13. Adjust the compressor belt tension according to the procedure shown in the previous paragraph.
14. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
15. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



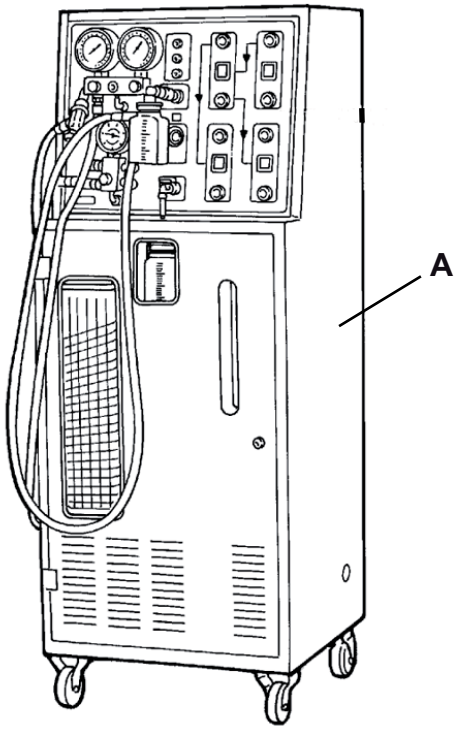
S341040

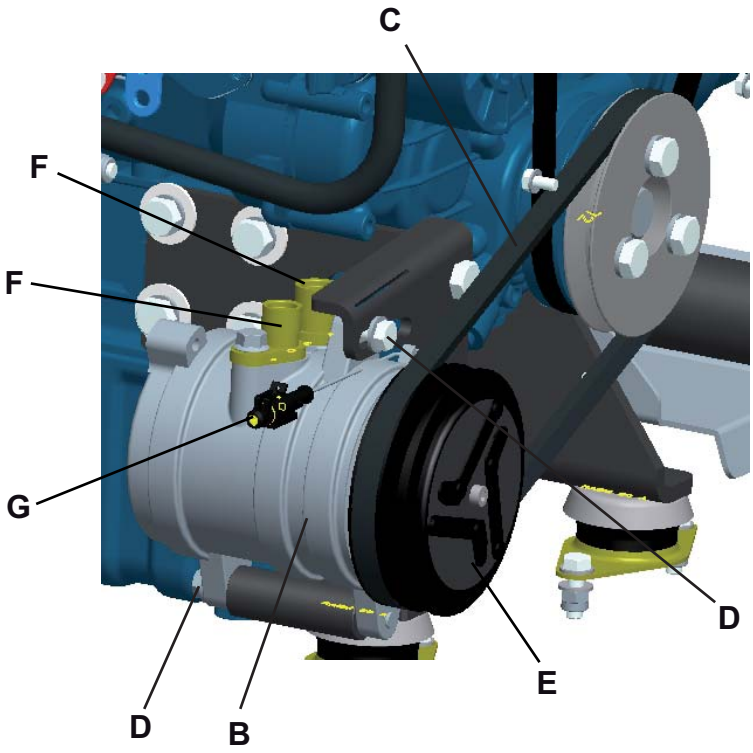
COMPRESSOR REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (42) and open the left tank (7).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Use a recharging station to recovery the R134A coolant (A).
10. Before disconnecting the climate control system hoses, check if the system can be repaired without discharging the gas. If it is not possible, recover the gas as shown in the recharging station Manual.
11. Disconnect the hoses on the fittings (F).
12. Disconnect the connector (G).
13. Remove the mounting screws (D) of the compressor (B).
14. Move the alternator (B) toward the inside, to loosen the tension of the belt (C).
15. Remove the belt (C) from the compressor pulley (E).
16. Install the new compressor by performing steps 11, 12, 13, 14 and 15 in the reverse order.
17. Adjust the compressor belt tension according to the procedure shown in the previous paragraph.
18. Create vacuum in the system as shown in the recharging station Manual.
19. Charge the system as shown in the recharging station Manual.
20. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
21. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



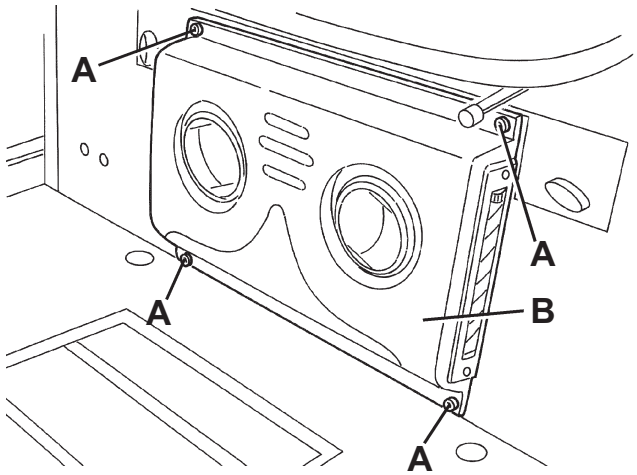


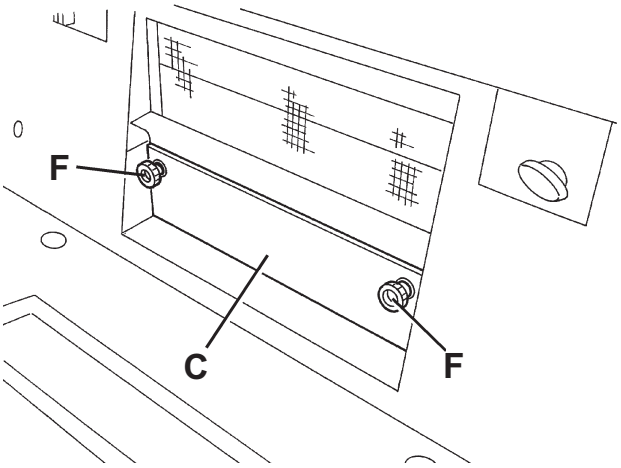
S341042

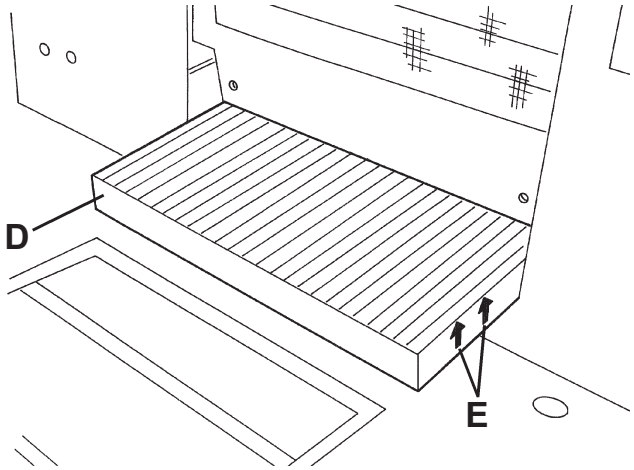
IMPIANTO DI CLIMATIZZAZIONE

AIR FILTER REPLACEMENT

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Remove the screws (A) and the panel (B) in the cab.
4. Unscrew the knobs (F) and remove the panel (C).
5. Remove the cab air filter (D).
6. Install the new filter (D) with the arrows (E) pointing in the direction of the air flow (upwards).
7. Perform steps 3 and 4 in the reverse order.







S341041

OTHER SYSTEMS

NUT AND SCREW TIGHTENING AND LEAKAGE CHECK

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Open the right and left doors (20) and (18) by releasing the fasteners (21) and (19) with the supplied key.
4. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
5. Turn the ignition key (76) to OFF position and remove it.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screws (42 and 44) and open the right and left tanks (7 and 16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Inspect the machine accessible parts and check for:
   - Tightening of mounting screws and nuts;
   - Correct position of the fasteners;
   - Visible faults in the components;
   - Leaks of fluids (oil, etc.).
10. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
11. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

IMPIANTI VARI

LUBRICATION

1. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Lubricate the rear axle knuckles with the grease nipples (A). If necessary, steer the rear wheels to reach the grease nipples easily.
   Grease quantity to be applied:
   - 2 - 3 pumping, in case of a manual pump.
   - 8 - 12 seconds of injection, in case of an air pump.

S341043

HYDRAULIC SYSTEM

DESCRIPTION

The hydraulic system consists of three independent circuits, supplied by one tank.

The first circuit is supplied by a variable delivery pump (21 cc), activated by the diesel engine. This pump activates two drive system motors, which operate on the front wheels. The circuit is monitored by a pressure inlet (115).
The forward and reverse drive speed is adjusted by the drive pedal, which is connected to the pump.

The second circuit is supplied by a gear pump (14 cc), activated by the diesel engine. This pump activates the suction fan motor by means of the distributor. The circuit is monitored by a pressure inlet (116).

The third circuit is supplied by a gear pump (9.6 cc) with priority valve, activated by the diesel engine. The circuit is monitored by a pressure inlet (117).
This pumps, by means of the distributor, performs the following functions:
– Side broom motor activation
– Hopper lifting and dumping
– Suction inlet lifting
– Rear wheel control hydraulic cylinder activation (by means of the oil taken from the priority valve).

All circuits are protected by suction filters and safety valves.

NOTE
The hydraulic fittings is DIN type.

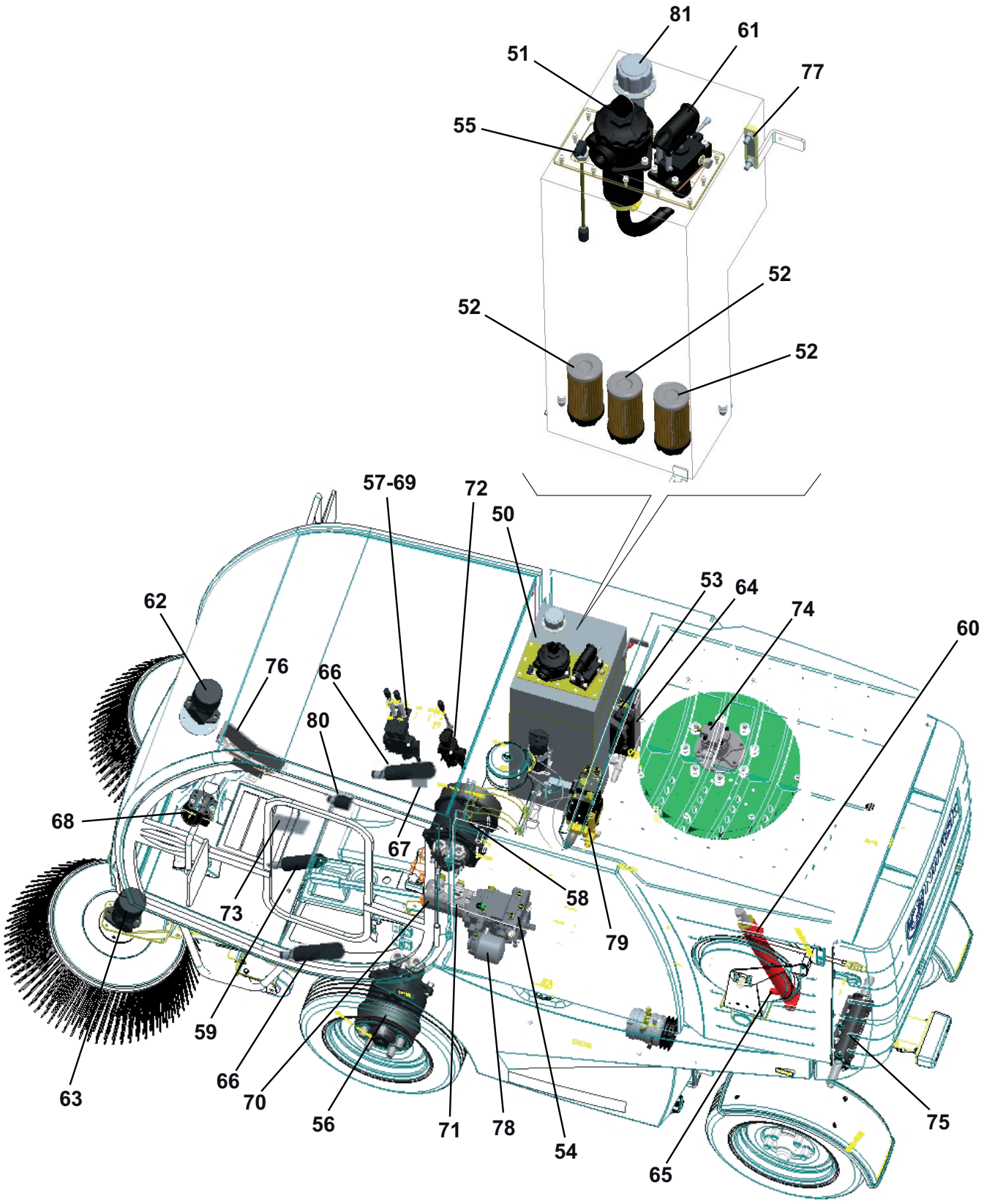
IMPIANTO IDRAULICO

COMPONENT LOCATION

50. Hydraulic system oil tank
51. Drain filter
52. Suction filter
53. Oil cooler bulb
54. Drive system pump
55. Hydraulic system oil level float
56. Left drive system motor
57. Suction inlet/hopper distributor
58. Right drive system motor
59. Skirt cylinder
60. Hopper lifting cylinder
61. Hand pump
62. Right broom motor
63. Left broom motor
64. Hydraulic system oil cooler
65. Parachute valve
66. Suction inlet and broom lifting cylinder
67. Check valve
68. Power steering
69. Flow separator (priority valve)
70. Accessory and steering system pump
71. Suction fan pump
72. Fan/optional distributor
73. Skirt solenoid valve
74. Suction fan motor
75. Power steering cylinder
76. Drive pedal assist
77. Hydraulic system oil level indicator
78. Drive system pump oil filter
79. High-pressure washing system pump (*)
80. Broom speed adjuster (*)
81. Hydraulic system oil filler plug

(*) On some versions only
(**) Optional

COMPONENT LOCATION (Continues)



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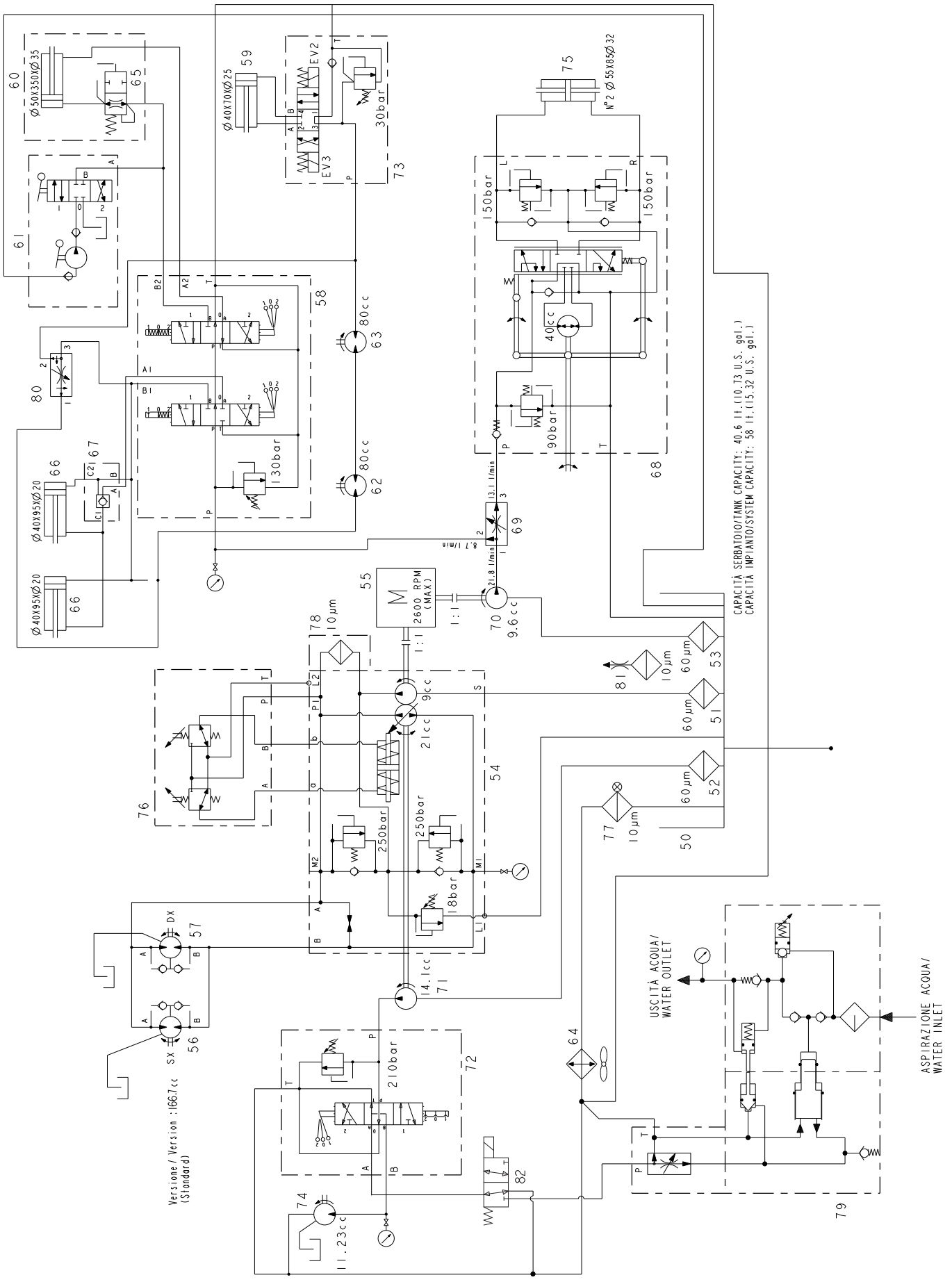
IMPIANTO IDRAULICO

HYDRAULIC DIAGRAM

50. Hydraulic system oil tank
51. Suction filter
52. Suction filter
53. Suction filter
54. Drive system pump
55. Diesel engine
56. Left drive system motor
57. Right drive system motor
58. Distributor
59. Skirt cylinder
60. Hopper lifting cylinder
61. Hand pump
62. Right broom motor
63. Left broom motor
64. Hydraulic system oil cooler
65. Parachute valve
66. Suction inlet and broom lifting cylinder
67. Check valve
68. Power steering
69. Flow separator (priority valve)
70. Accessory and steering system pump
71. Suction fan pump
72. Distributor
73. Solenoid valve
74. Suction fan motor
75. Power steering cylinder
76. Drive pedal assist
77. Oil drain filter
78. Drive system pump oil filter
79. High-pressure washing system pump (*)
80. Flow regulator (**)
81. Breather/filler plug
82. High pressure pump safety solenoid valve (*)

(*) On some versions only
(**) Optional

HYDRAULIC DIAGRAM (Continues)



S341073

IMPIANTO IDRAULICO

TROUBLESHOOTING

See the previous chapters related to the use of the hydraulic system.

HYDRAULIC SYSTEM OIL LEVEL AND DRAIN FILTER EFFICIENCY CHECK

CAUTION!
This procedure must be performed with the hopper (3) fully retracted.

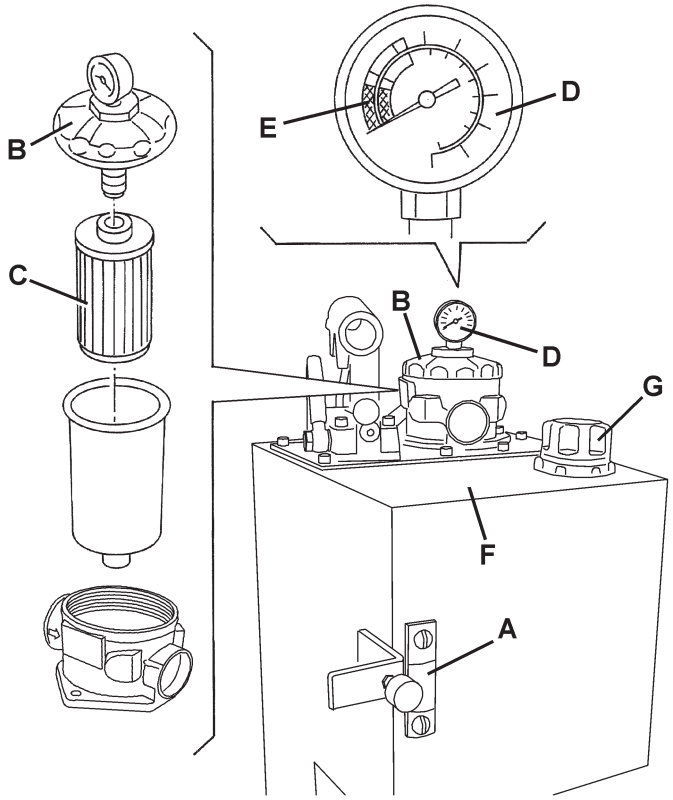
1. Engage the parking brake with the lever (66).
2. Start the diesel engine and run it at 1.500 rpm, according to the procedure shown in the Instructions for use Manual.
3. Open the right door (20) by releasing the fasteners (21) with the supplied key.
4. Check that the needle of the efficiency indicator (D) of the drain filter (C) is in the green area (E), otherwise the filter (C) must be replaced (see the procedure in the relevant paragraph).
5. Check that there are no oil leaks in the upper area (F) of the hydraulic system oil tank.
6. Turn the ignition key (76) to OFF position and remove it.
7. Using the indicator (A), check that the oil level in the tank is between the MIN and MAX marks.

CAUTION!
If the hydraulic oil level is low, the warning light (84) turns on and the machine stops after 20 seconds.

8. If necessary, unscrew the plug (G) and top up. For the types of oil to be used, see the Technical Data chapter.

NOTE
Top up by using the same type of oil that is in the tank.

9. Screw down the plug (G).
10. Close the right door (20) by engaging the fasteners (21) with the supplied key.

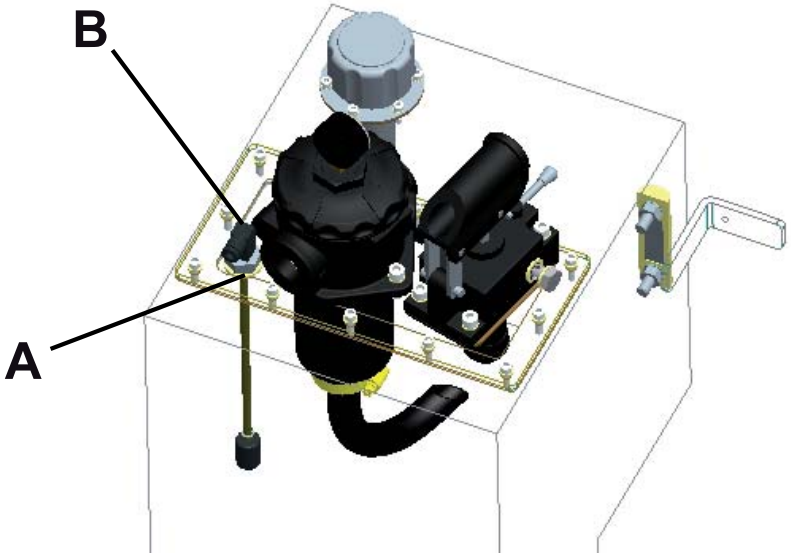


S301620

HYDRAULIC SYSTEM OIL LEVEL SENSOR REPLACEMENT

CAUTION!
When there is a short in the level sensor, the detection system determines that the oil level is low and stops the machine after about 20 seconds. When there is an open in the lever sensor, the detection system determines that the oil level is high.

1. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
2. Open the right door (20) by releasing the fasteners (21) with the supplied key.
3. With a suitable ladder, reach the upper side of the hydraulic oil tank (33).
4. Locate the level sensor (A).
5. Disconnect the connector (B).
6. With a Ø27 socket wrench, unscrew the sensor (A) and replace it.
7. Connect the connector (B) to the sensor.
8. Close the right door (20) by engaging the fasteners (21) with the supplied key.



S341046

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL AND SUCTION FILTER REPLACEMENT

CAUTION!
This procedure must be performed with the hopper (3) fully retracted (as shown in the figure).

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Open the right door (20) by releasing the fasteners (21) with the supplied key.
4. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
5. Remove the screw (44) and open the right tank (16).

WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

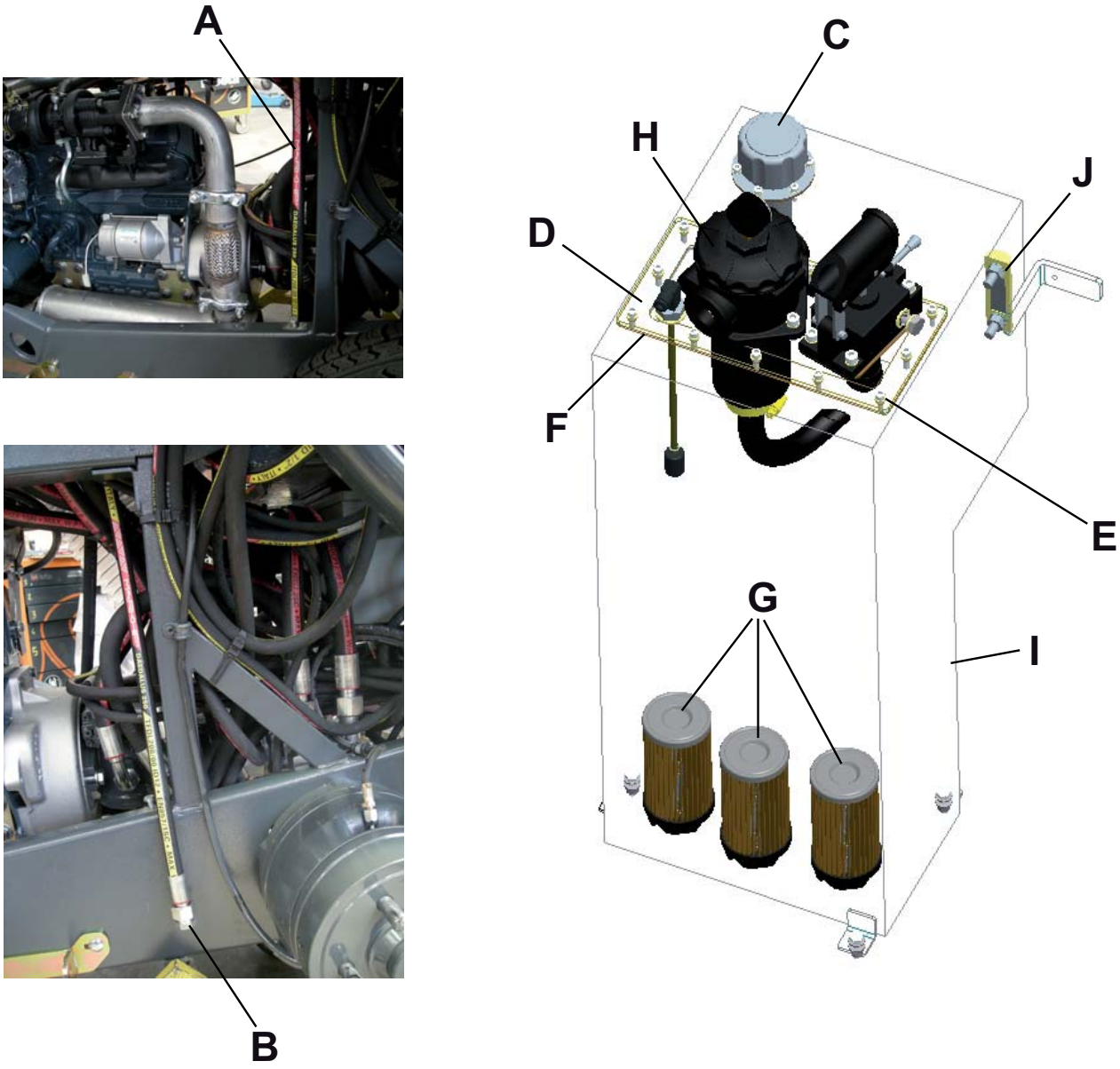
6. Remove the oil drain hose (A) from under the tank (33), place a container (minimum capacity 15.8 USgal (60 liters)) under the hose (A), then unscrew the plug (B) and drain the oil into the container.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

CAUTION!
The hydraulic system oil should be disposed of properly according to the environmental Laws in force.

7. With a suitable ladder, reach the upper side of the hydraulic oil tank (33).
8. Unscrew and remove the filler plug (C).
9. Remove the cover (D) by unscrewing the mounting screws (E).
10. Unscrew and replace the suction filter (G).
11. Replace the drain filter element (H) (see the procedure in the relevant paragraph).
12. Reinstall the cover (D) and fasten it with the screws (E). Also check the gasket (F) for integrity, and replace it if necessary.
13. Screw down the plug (C) and reinstall the oil drain hose (A) under the tank.
14. Pour oil in the tank (I) through the plug filler neck (C). For oil types and quantity, see the Technical Data chapter.
    Fill the tank until the oil level reaches the MAX mark of the indicator (J).
15. Screw down the filler plug (C).
16. Start the diesel engine as shown in the relevant Manual. Run the system for a few minutes.
17. Check the hydraulic oil level by means of the indicator (J). If the level is under the MAX mark, top up through the filler plug (C).
18. Close the right door (20) by engaging the fasteners (21) with the supplied key.
19. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

HYDRAULIC SYSTEM OIL CHANGE (Continues)



S341047

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL DRAIN FILTER REPLACEMENT

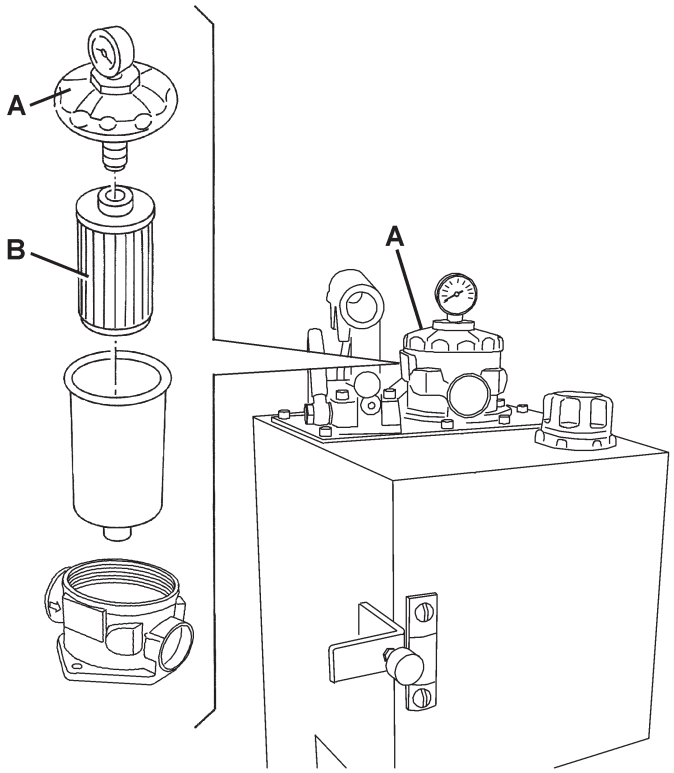
CAUTION!
This procedure must be performed with the hopper (3) fully retracted.

1. Engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Open the right door (20) by releasing the fasteners (21) with the supplied key.
4. Unscrew and remove the cover (A).

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

CAUTION!
The hydraulic system oil and filters should be disposed of properly according to the environmental Laws in force.

5. Remove the drain filter (B) and replace it with a new one.
6. Install the cover (A).
7. Close the right door (20) by engaging the fasteners (21) with the supplied key.



S301623

DRIVE SYSTEM PUMP OIL FILTER REPLACEMENT

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (44) and open the right tank (16).

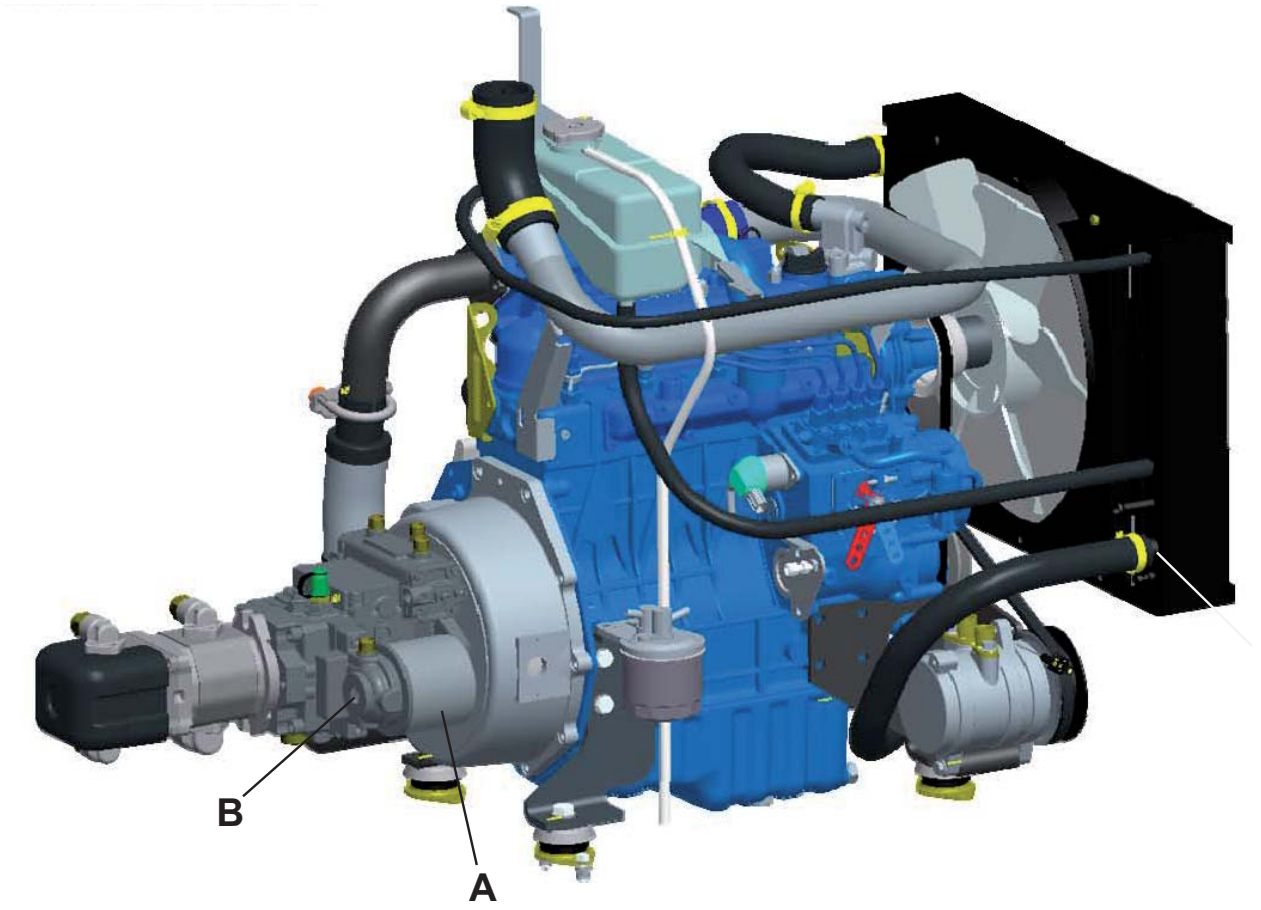
WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Remove the screw (A) and the filter (B) behind the right front wheel.
   If necessary, to reach the filter, remove the right front wheel according to the procedure shown in the relevant paragraph.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

CAUTION!
The hydraulic system oil and filters should be disposed of properly according to the environmental Laws in force.

10. Install a new filter (B) and fasten it with the screw (A).
11. Perform steps 3, 4, 5, 6 and 8 in the reverse order.
12. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.



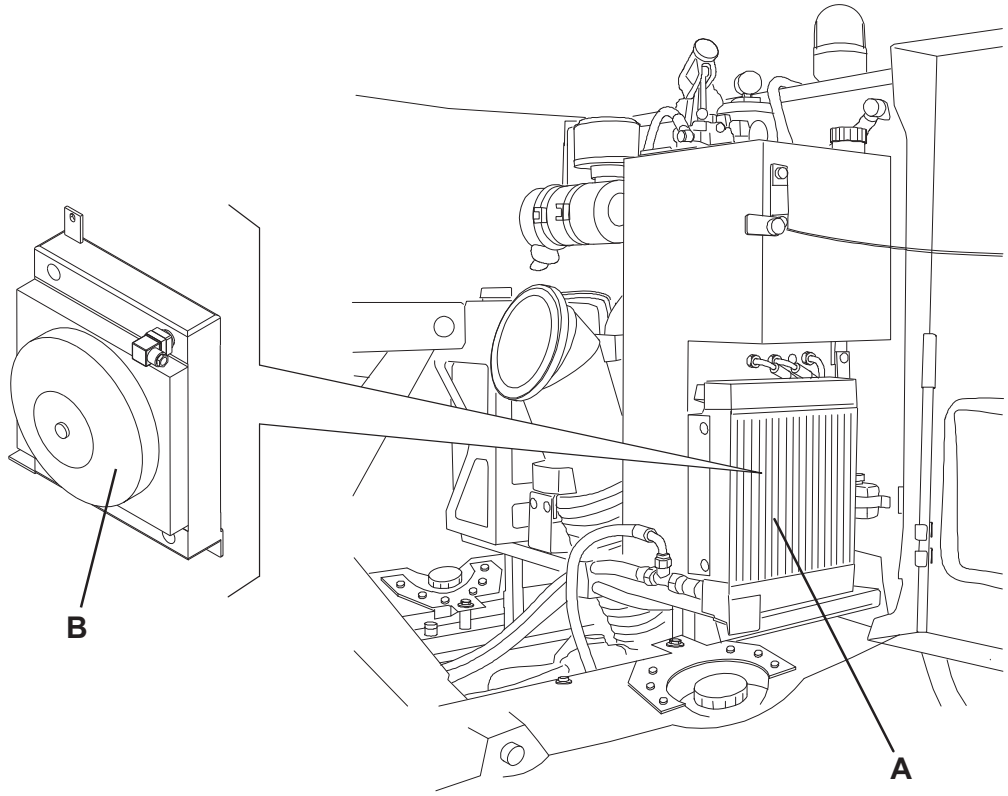
S341048

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL COOLER FIN CLEANING CHECK

WARNING!
Protect body parts (eyes, hair, hands, etc.) properly, when performing cleaning procedures using compressed air or water gun.

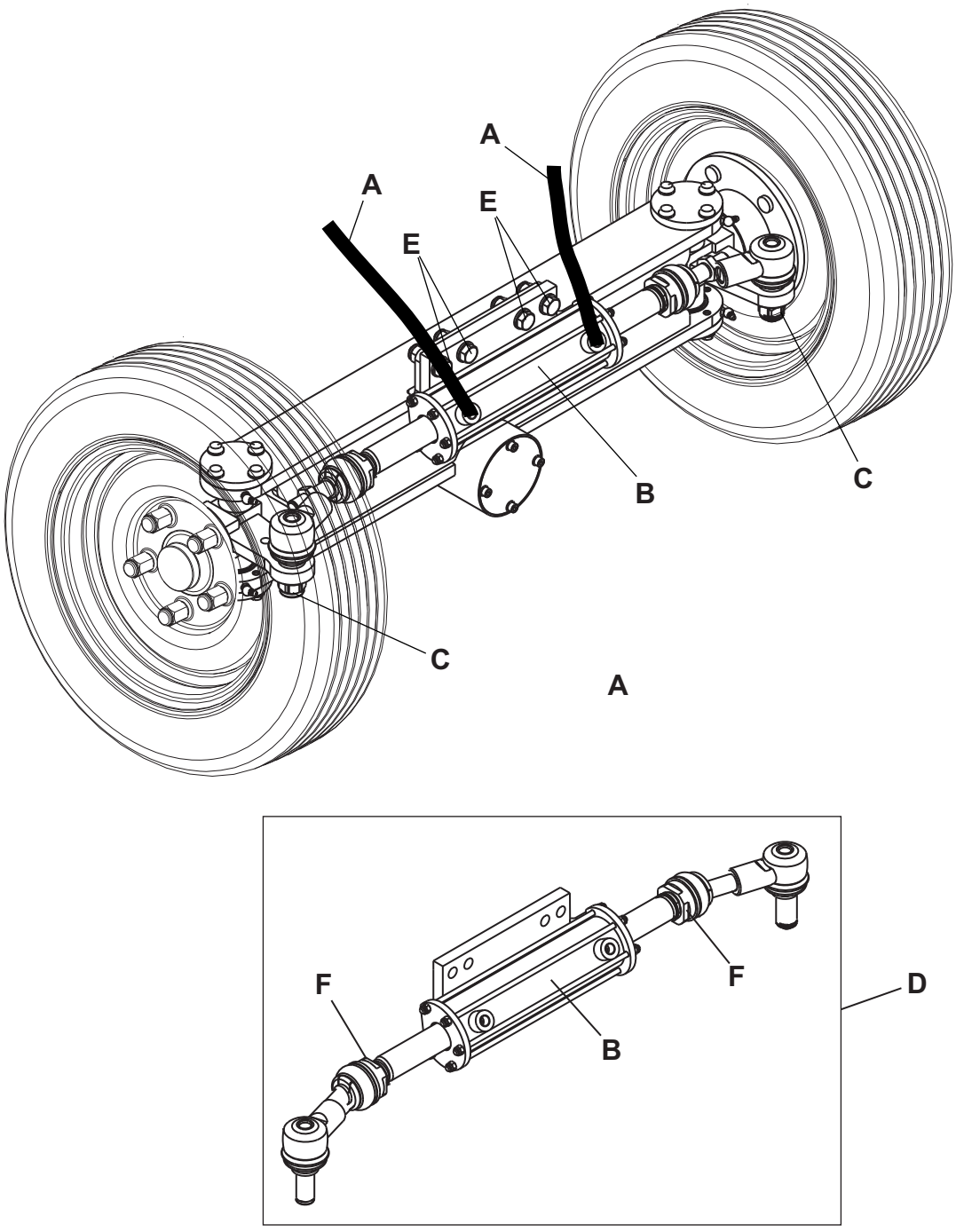
1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the right door (20) by releasing the fasteners (21) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Clean the hydraulic system oil cooler fins (A) with compressed air (max. 87 psi (6 Bar)). If necessary, point the compressed air in the opposite direction of the cooling air.
8. Inside the radiator (A), check that the fan (B) turns freely.
9. Perform steps 3 to 6 in the reverse order.



S341049

STEERING CYLINDER DISASSEMBLY/ASSEMBLY

1. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Disconnect the hoses (A) from the rear wheel control hydraulic cylinder (B) and plug them immediately.
4. Unscrew the nuts (C) fastening the cylinder assembly (D) to the rear axle forks.
5. Remove the screws (E), then remove the steering cylinder assembly (D).
6. Remove the articulations (F) and install them on the new steering cylinder.
7. Install the steering cylinder assembly performing steps 3 to 5 in the reverse order.
8. Adjust the rear axle toe-in (see the procedure in the relevant paragraph).
9. Check the hydraulic system oil level (see the procedure in the relevant paragraph).



S341050

IMPIANTO IDRAULICO

HYDRAULIC CYLINDER DISASSEMBLY/ASSEMBLY

CAUTION!
If necessary, remove the bonded sealing washers and replace them.

Disassembly/assembly of the following hydraulic cylinders:
– Suction inlet right cylinder (A)
– Suction inlet left cylinder (A)
– Skirt cylinder (C)

CAUTION!
This procedure must be performed with the hopper (3) fully retracted.

1. Engage the parking brake with the lever (66).
2. Bring the suction inlet in the most suitable position.
3. Turn the ignition key (76) to OFF position and remove it.
4. Disconnect the hoses from the hydraulic cylinder and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

5. Disconnect and remove the hydraulic cylinder and, if necessary, support appropriately the components connected to the cylinder.
6. Perform steps 2 to 5 in the reverse order.
7. Start the machine and check that the hydraulic cylinder operates properly, then stop the machine, check the hydraulic system oil level and, if necessary, top up (as shown in the Instructions for use Manual).

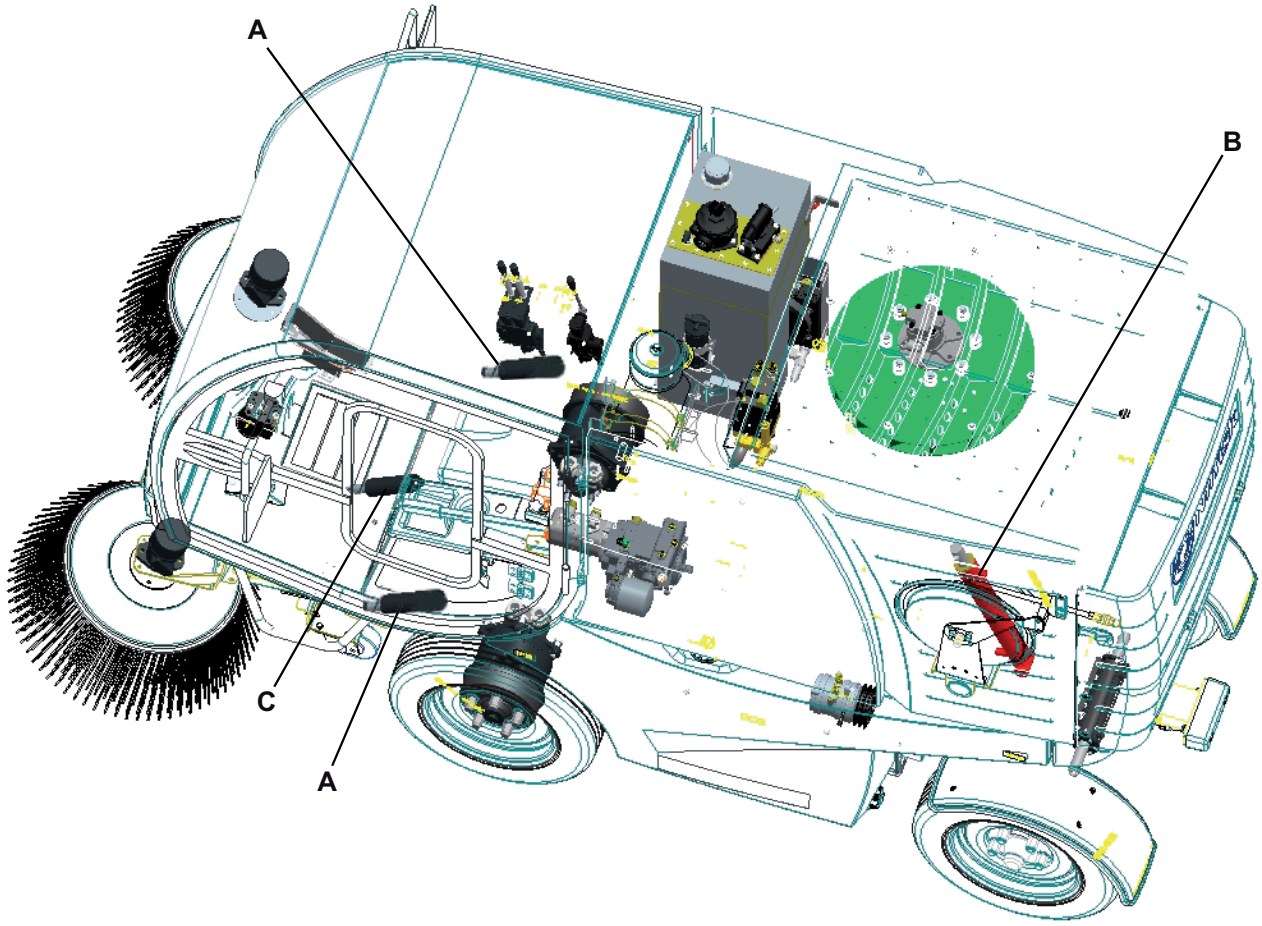
Disassembly/assembly of the following hydraulic cylinder:
– Hopper lifting cylinder (D)

8. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
9. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
10. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
11. Turn the ignition key (76) to OFF position and remove it.
12. Open the right door (20) by releasing the fasteners (21) with the supplied key.
13. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
14. Disconnect the hoses from the hydraulic cylinder and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

15. Disconnect and remove the hydraulic cylinder and, if necessary, support appropriately the components connected to the cylinder.
16. Perform steps 3 to 8 in the reverse order.
17. Start the machine and check that the hydraulic cylinder operates properly, then stop the machine, check the hydraulic system oil level and, if necessary, top up (as shown in the Instructions for use Manual).

HYDRAULIC CYLINDERS DISASSEMBLY/ASSEMBLY (Continues)



S341051

IMPIANTO IDRAULICO

SUCTION FAN DISTRIBUTOR REMOVAL/INSTALLATION

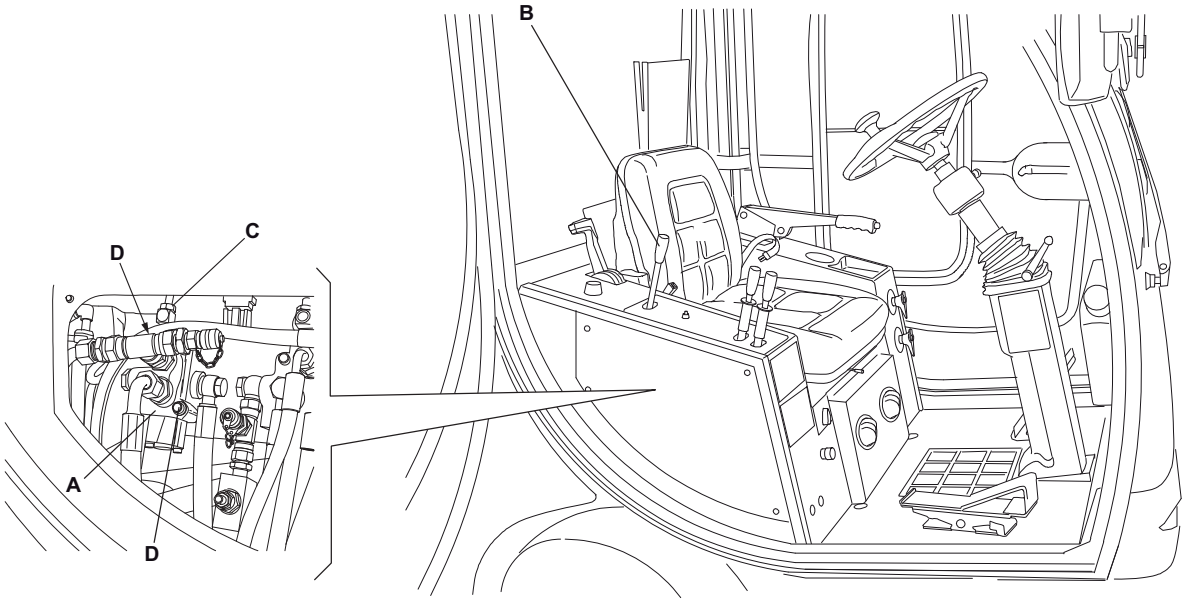
CAUTION!
This procedure must be performed with the hopper (3) fully lowered.

CAUTION!
If necessary, remove the bonded sealing washers and replace them.

1. Remove the screws and the right panel (22) on the right side of the cab.
2. Disconnect all the hoses from the suction fan distributor (A) and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

3. Loosen the locknut (C) and remove the lever (B).
4. Remove the screws (D), then remove the distributor (A).
5. If necessary, remove the fittings and the distributor at the workbench.
6. Assemble the components in the reverse order of disassembly.
7. Check the hydraulic system oil level (see the procedure in the relevant paragraph).
8. Check the hydraulic system oil pressure at the suction fan pump (see the procedure in the relevant paragraph).



S341052

ACCESSORY SYSTEM DISTRIBUTOR REMOVAL/INSTALLATION

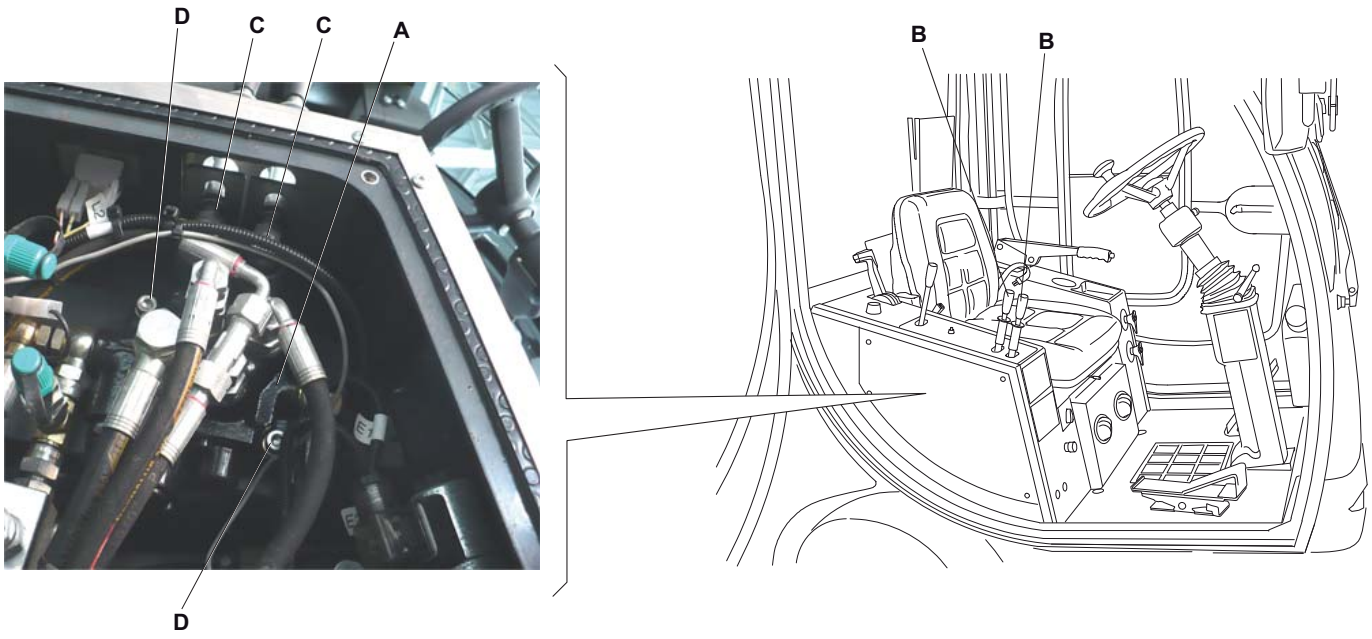
CAUTION!
This procedure must be performed with the hopper (3) fully lowered.

CAUTION!
If necessary, remove the bonded sealing washers and replace them.

1. If necessary, bleed the hydraulic system oil from the tank (see the procedure in the relevant paragraph).
2. Remove the screws and the right panel (22) on the right side of the cab.
3. Mark the position of the hoses connected to the accessory system distributor (A) (for proper reassembly).
4. Disconnect all the hoses from the distributor (A) and plug them immediately.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

5. Loosen the locknut (C) and remove the levers (B).
6. Remove the screws (D), then remove the distributor (A).
7. If necessary, remove the fittings and the distributor at the workbench.
8. Assemble the components in the reverse order of disassembly.
9. Pour oil in the tank (see the procedure in the relevant paragraph) until the level reaches the MIN mark of the indicator.
10. Start the machine, use the drive system and lift/lower the hopper a few times. Check that controls (60), (62) and (63) operate properly. Then stop the machine, check the hydraulic system oil level and, if necessary, top up (as shown in the Instructions for use Manual).
11. Check the hydraulic system oil pressure at the accessory and steering system pump (see the procedure in the relevant paragraph).



S341053

IMPIANTO IDRAULICO

ACCESSORY AND SUCTION FAN PUMP DISASSEMBLY/ASSEMBLY

CAUTION!
This procedure must be performed with the hopper (3) fully retracted (as shown in the figure).

CAUTION!
If necessary, remove the bonded sealing washers and replace them.

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Lift the hopper (3), according to the procedure shown in the Instructions for use Manual.
4. Turn the ignition key (76) to OFF position and remove it.
5. Open the left door (18) by releasing the fasteners (19) with the supplied key.
6. Remove the locking pins (28) from the housings (29) and place them into the holes (30).
7. Empty the dust control system water tanks (7 and 16) according to the procedure shown in the relevant paragraph.
8. Remove the screw (44) and open the right tank (16).

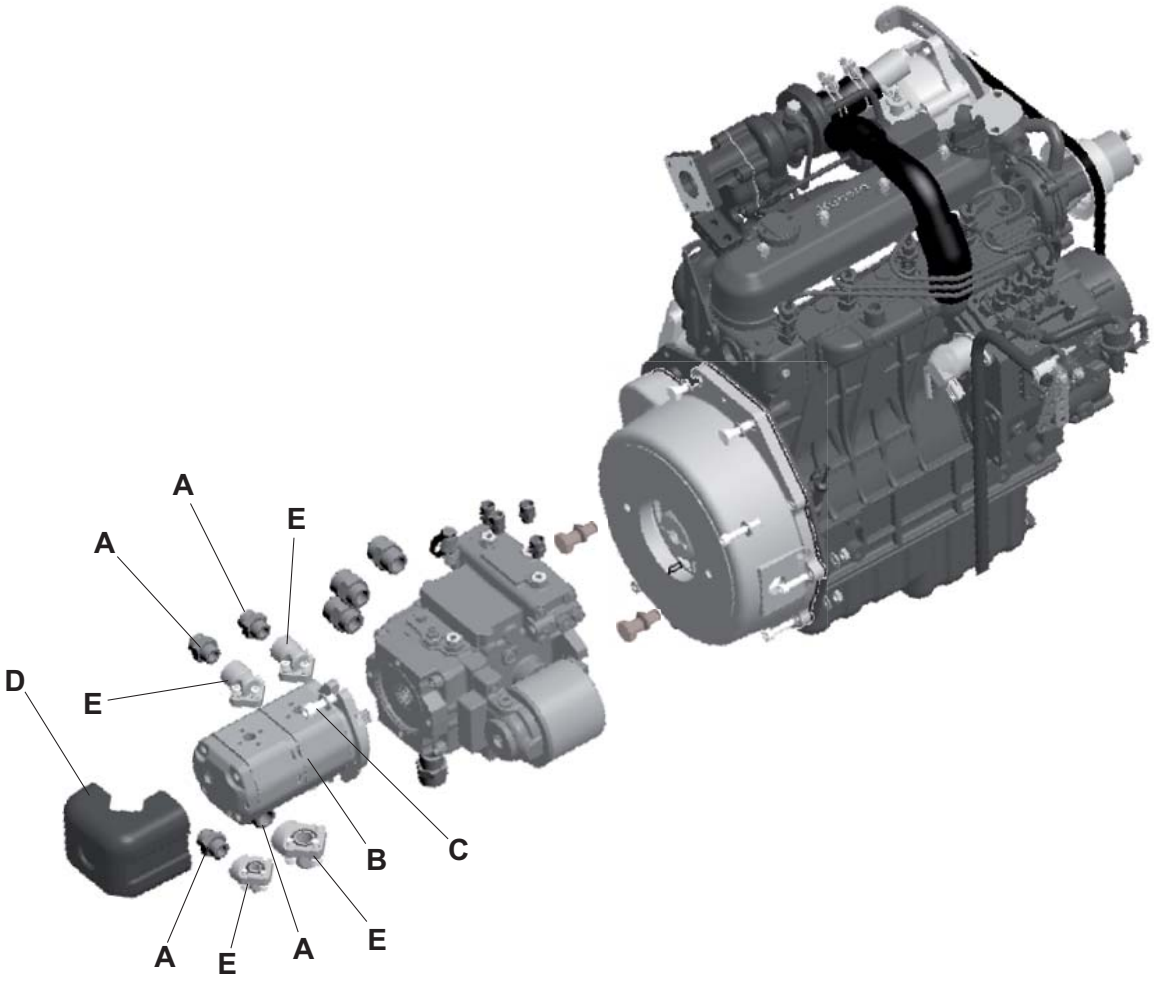
WARNING!
Open the tanks (7 and 16) only if they are empty: Each tank contains 264.5 lb (120 kg) of water approximately.

9. Remove the suction inlet (see the procedure in the relevant paragraph).
10. Mark the position of the hoses connected to the fittings (A) of the tandem pump (B) (for proper reassembly).
11. Disconnect the hoses from the fittings (A) of the tandem pump (B) and plug them immediately. Collect the hydraulic system oil that comes out of the hoses before plugging them.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

12. Remove the screws (C), then remove the tandem pump (B).
13. Recover the protection (D) of the pump (B).
14. Recover the fittings (E) of the tandem pump at the workbench.
15. Assemble the components in the reverse order of disassembly.
16. Start the machine, lift/lower the hopper and activate the brooms a few times, then stop the machine, check the hydraulic system oil level and, if necessary, top up (as shown in the Instructions for use Manual).
17. Check the oil pressure at the pressure inlets (see the procedure in the relevant paragraph).
18. If necessary, fill the dust control system water tanks according to the procedure shown in the Instructions for use Manual.

ACCESSORY AND SUCTION FAN PUMP DISASSEMBLY/ASSEMBLY (Continues)



S341054

IMPIANTO IDRAULICO

DRIVE SYSTEM PUMP DISASSEMBLY/ASSEMBLY

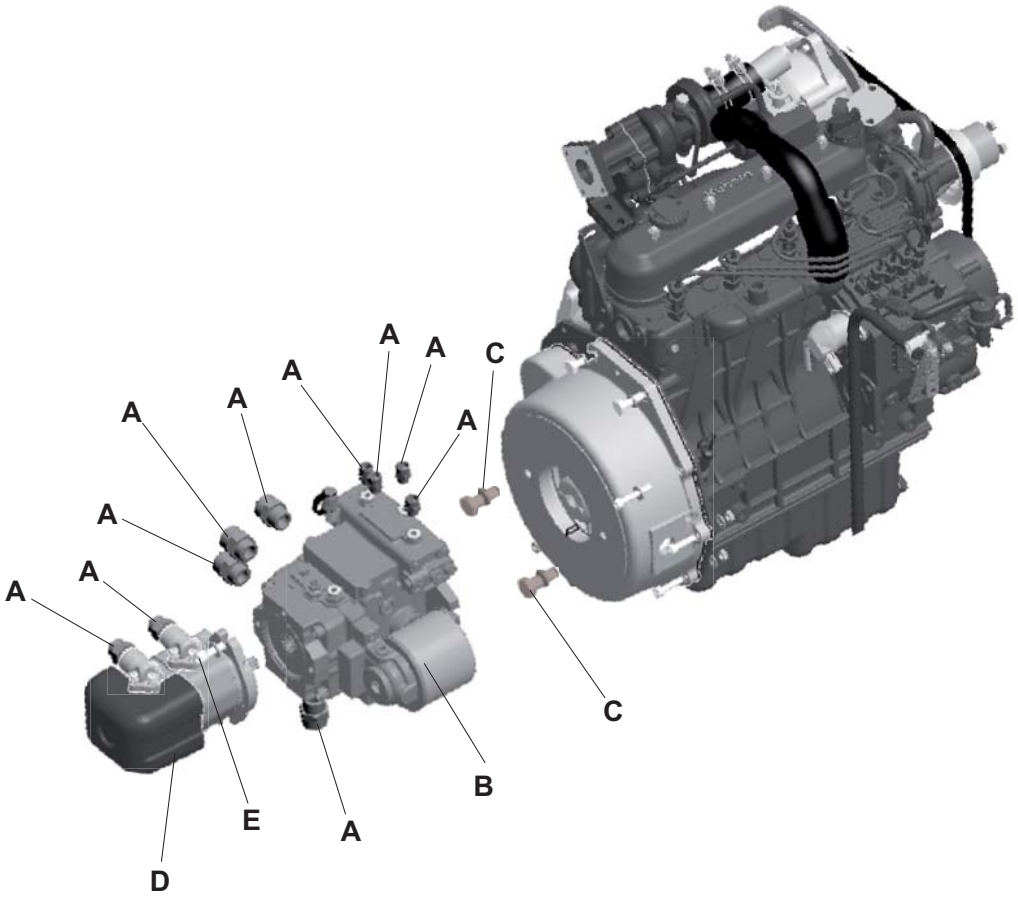
CAUTION!
This procedure must be performed with the hopper (3) fully retracted.

CAUTION!
If necessary, remove the bonded sealing washers and replace them.

1. Remove the suction inlet (see the procedure in the relevant paragraph).
2. Mark the position of the hoses connected to the fittings (A) of the drive system pump (B) and of the tandem pump (D) (for proper reassembly).
3. Disconnect the hoses from the fittings (A) of the drive system pump (B) and of the tandem pump (D), and plug them immediately. Collect the hydraulic system oil that comes out of the hoses before plugging them.

WARNING!
Hydraulic system oil is highly corrosive, wear rubber gloves.

4. Remove the screws (C), then remove the coupled pumps (B) and (D).
5. Recover the drive system pump fittings (A) at the workbench.
6. Remove the screws (E), then separate the tandem pump (D) from the drive system pump (B).
7. Assemble the components in the reverse order of disassembly.
8. Start the machine, use the drive system and activate the accessories, then stop the machine, check the hydraulic system oil level and, if necessary, top up (as shown in the Instructions for use Manual).
9. Check the hydraulic system oil pressure at the pressure inlets (see the procedure in the relevant paragraph).



S341055

HYDRAULIC SYSTEM OIL PRESSURE CHECK AT THE SUCTION FAN PUMP

NOTE
This check is necessary in case of malfunction of the suction fan.

Preliminary operations

1. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.
3. Remove the screws and the right panel (22) on the right side of the cab.
4. Connect a pressure gauge (A), with a minimum scale of 3,626 psi (250 Bar) equipped with capillary tube (B), to the pressure inlet (C).
5. Measure the suction fan pump pressure according to the following procedure.

Pressure measurement

6. Start the machine and run the engine at maximum speed (as shown in the Instructions for use Manual). In this condition, turn the lever (D) to “OPT” position and check that the pressure measured by the pressure gauge (A) is 3,191 psi (220 Bar) approximately.
   - If the pressure is normal, disengage the lever (D) and turn off the machine.
   - If the pressure is higher or lower, it can be adjusted according to the following procedure, while keeping the machine accelerated and the lever (D) engaged.

Pressure adjustment

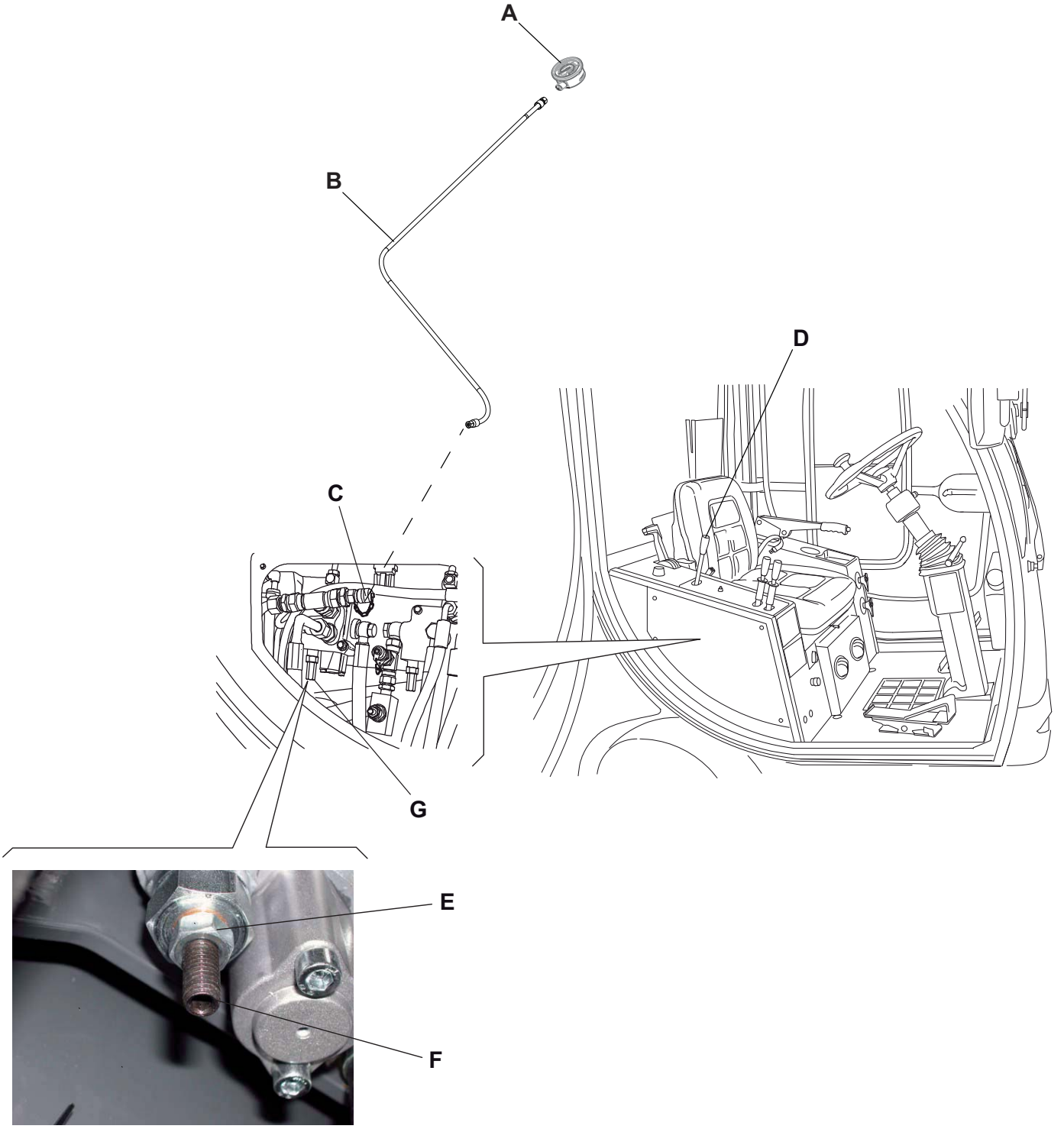
7. Unscrew the cap (G).
8. Loosen the locknut (E) and slightly turn the internal threaded dowel (F) to adjust the pressure. If the pressure cannot be adjusted to normal values, probably the pump needs to be replaced (see the procedure in the relevant paragraph).
9. Disengage the lever (D) and turn off the machine.
10. Tighten the locknut (E) and screw down the cap (G).

Reset

11. Perform steps 3 and 4 in the reverse order.

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL PRESSURE CHECK AT THE SUCTION FAN PUMP (Continues)



S341056

HYDRAULIC SYSTEM OIL PRESSURE CHECK AT THE ACCESSORY SYSTEM PUMP

NOTE
This check is necessary in case of malfunction of the accessory system and steering system.

Preliminary operations

1. Empty the hopper (3); if it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
3. Turn the ignition key (76) to OFF position and remove it.
4. Remove the screws and the right panel (22) on the right side of the cab.
5. Connect a pressure gauge (A) with a minimum scale of 2,176 psi (150 Bar) equipped with the capillary tube (B).
6. Measure the accessory pump pressure according to the following procedure.

Pressure measurement

7. Start the machine and run the engine at maximum speed (as shown in the Instructions for use Manual). In this condition, engage the lever (D) to lift the hopper and check that the pressure measured by the pressure gauge (A) is 1,740 psi (120 Bar) approximately.
   - If the pressure is normal, disengage the lever (D) and turn off the machine.
   - If the pressure is higher or lower, it can be adjusted according to the following procedure, while keeping the machine accelerated and the lever (D) engaged.

Pressure adjustment

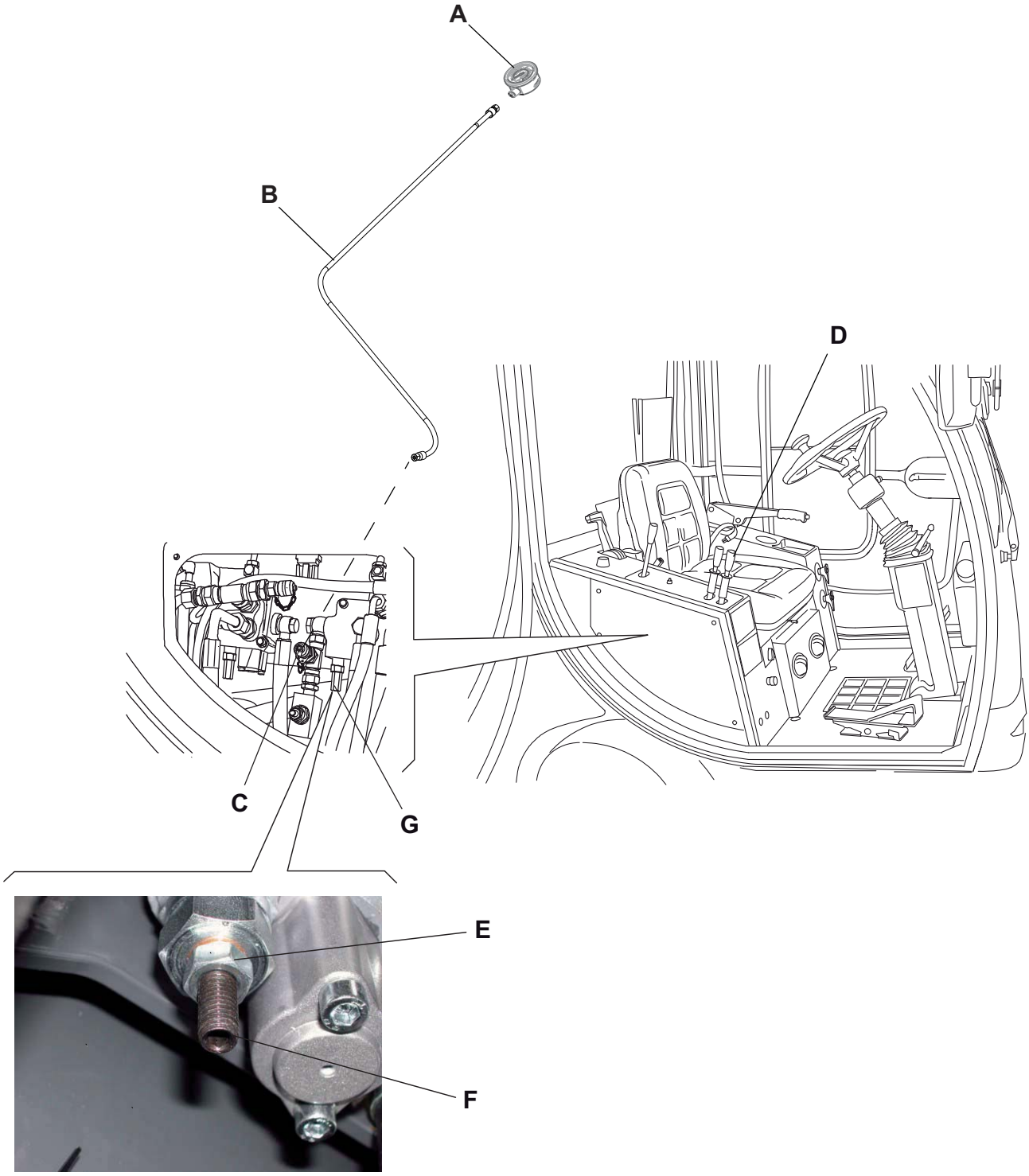
8. Unscrew the cap (G).
9. Loosen the locknut (E) and slightly turn the internal threaded dowel (F) to adjust the pressure. If the pressure cannot be adjusted to normal values, probably the pump needs to be replaced (see the procedure in the relevant paragraph).
10. Disengage the lever (D) and turn off the machine.
11. Tighten the locknut (E) and screw down the cap (G).

Reset

12. Perform steps 4 and 5 in the reverse order.

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL PRESSURE CHECK AT THE ACCESSORY SYSTEM PUMP (Continues)



S341057

HYDRAULIC SYSTEM OIL PRESSURE CHECK ON DRIVE SYSTEM PUMP

NOTE
This check is necessary in case of malfunction of the drive system.

Preliminary operations

1. Empty the hopper (3). If it contains a small quantity of waste, it is not necessary to dump it.
2. Drive the machine on a solid and level ground and engage the parking brake with the lever (66). To perform the inspection, indicated in the next step 9, in a safe condition, the ground opposite the machine have to be free from obstruction and leveled.
3. Turn the ignition key (76) to OFF position and remove it.
4. Remove the screw (42), open the left water tank (7) and disconnect the fastener, then fully open the tank.

WARNING!
Open the left tank (7) only when it is empty: the tank contains 264 lb (120 kg) of water approximately.

5. Connect a pressure gauge (E), with a minimum scale of 4,351 psi (300 Bar) equipped with the extension, to the pressure inlet (B) of the drive system pump.
6. Measure the drive system pump pressure according to the following procedure.

Pressure measurement

7. Start the machine and run the engine at maximum speed (as shown in the Instructions for use Manual).
8. Fully engage the parking brake with the lever (66).

WARNING!
To perform the inspection, indicated in the next step 9, in a safe condition, keep the personnel away from the front of the machine and remove any obstructions.

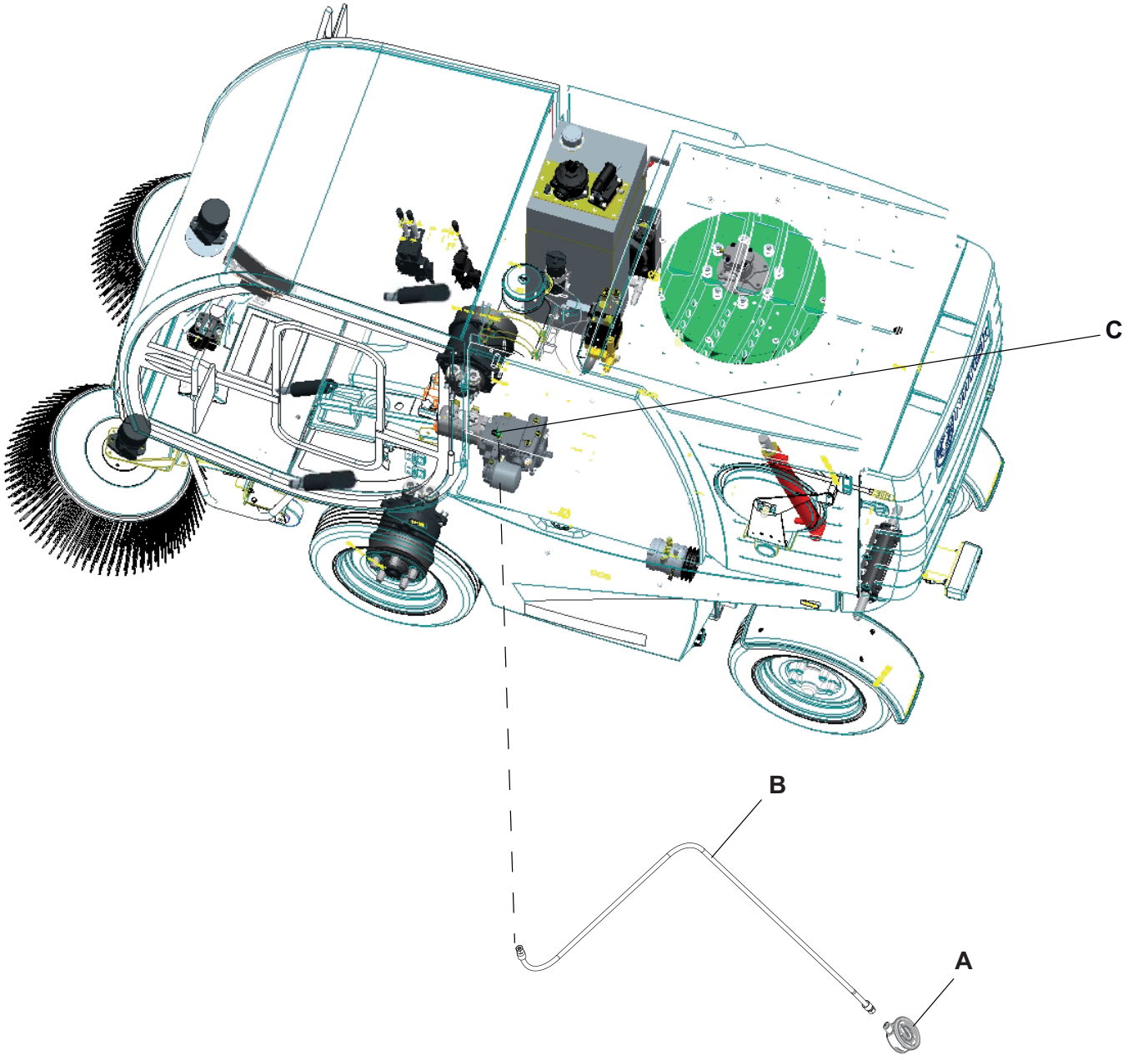
9. Press and hold the brake pedal (57), then fully press the drive pedal (56) (if the machine moves, release the drive pedal (56), then try again by firmly pressing the brake pedal (57)). Check that the pressure on the pressure gauge (A) is within 2,901 and 3,626 psi (200 and 250 Bar).
   - If the pressure is normal, release the drive pedal (56) and turn off the machine.
   - If the pressure is lower than specified, check if the fault is related to the drive system pump or to the drive pedal assist.

Reset

10. Perform steps 4 and 5 in the reverse order.

IMPIANTO IDRAULICO

HYDRAULIC SYSTEM OIL PRESSURE CHECK ON DRIVE SYSTEM PUMP (Continues)



S341058

ELECTRICAL SYSTEM

DESCRIPTION

The electrical system is power-supplied from the alternator, which is activated by the diesel engine.
The battery is 12 V.
The accessory electrical circuit are protected by lamellar fuses located in the fuse boxes inside the dashboard.
The power electrical circuits are protected by Maxi fuses located inside the cab left panel (23).
A manual battery release device (100 A), connected on battery negative terminal and frame, does not allow for machine start-up 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.

COMPONENT LOCATION

A1	Control electronic board
A2	Display electronic board
F1.0	Power fuse terminal board
F1.1	Glow plug fuse (40 A)
F1.2	Line fuse (60 A)
F1.3	Start-up fuse (40 A)
F1.4	Alternator fuse (60 A)
F2.0	Fuse box inside the cab
F2.1	Turn signal fuse (30) (10 A)
F2.2	Brake light/brake light microswitch/reverse gear buzzer/horn fuse (10 A)
F2.3	Running light fuse (10 A)
F2.4	Running light fuse (10 A)
F2.5	Low beam fuse (15 A)
F2.6	High beam fuse (15 A)
F2.7	Key lock, main relay, combination switch/audio unit fuse (+30) (10 A)
F2.8	Accessory socket power supply fuse (15 A)
F3.1	Oil cooler electric fan and solenoid valve control fuse (20 A)
F3.2	Fuel solenoid valve, engine stop, +15 alternator fuse (15 A)
F3.3	Rotating beacon/climate control system switch/climate control system fan fuse (20 A)
F3.4	Water motor pump/windscreen wiper/washer system pump/ climate control system compressor and high pressure pump safety solenoid valve fuse (20 A)
F3.5	Dashboard power supply/safety electronic board/sensors/ ceiling light/audio unit fuse (+15) (15 A)
F3.6	Turn signal fuse (+15) (15 A)
F3.7	Climate control system compressor fuse (15 A)
F3.8	Hydraulic jack/switch back-light fuse (15 A)
G1	Battery
G2	Alternator
H1	Disengaged parking brake buzzer
H10	Left front low beam
H11	Right front low beam
H12	Left front high beam
H13	Right front high beam
H14	Left brake light
H15	Left front turn signal
H16	Right front turn signal
H17	Left rear turn signal
H18	Right rear turn signal
H19	Horn
H2	Fuel level warning buzzer
H20	Reverse gear buzzer
H21	Cigarette lighter socket light
H22	Ceiling light bulb
H23	Lifted hopper warning light
H24	High beam indicator light
H25	Running light indicator light
H26	Turn signal indicator light
H27	Charged battery indicator light
H28	Engine oil low pressure warning light
H29	Check engine warning light
H3	Rotating beacon
H30	Hydraulic system oil low level and hydraulic system fault warning light
H31	Glow plug pre-heating warning light
H32	Engaged parking brake warning light
H33	Right brake light
H4	Suction inlet working light
H5	License plate light
H6	Left rear running light
H7	Right rear running light
H8	Left front running light
H9	Right front running light
K1	Glow plug activation relay
K10	Engaged parking brake warning light relay
K11	Running light relay
K12	Climate control system compressor relay
K13	Climate control system fan relay
K14	Engine shutdown relay

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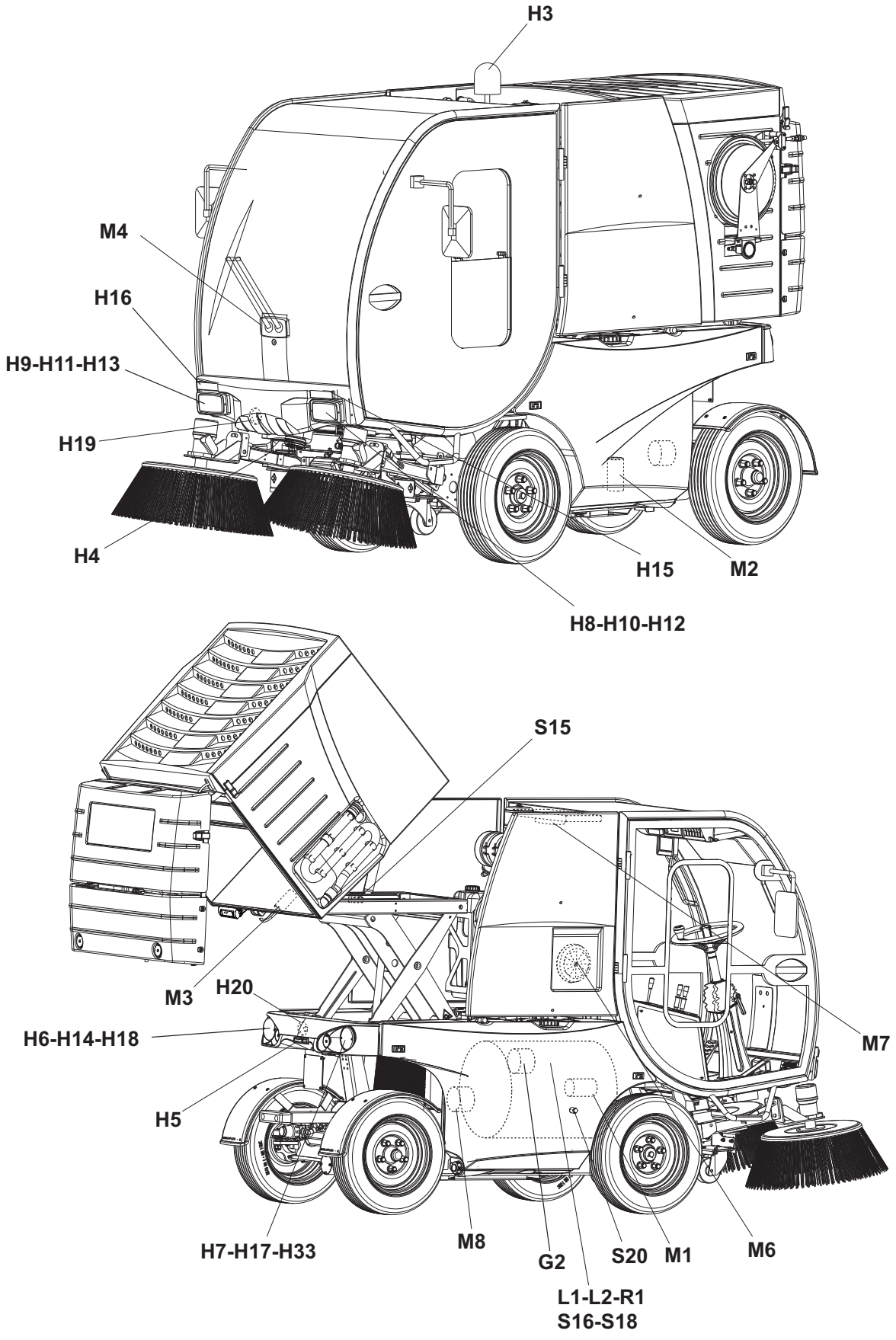
COMPONENT LOCATION (Continues)

K2	Main relay
K3	Gear enabling valve power supply/jack enabling relay
K4	Engine start relay
K5	Brake light relay
K6	Water delivery relay
K7	Low beam/working light relay
K8	High beam relay
K9	Actuator unlock relay
L1	Fuel solenoid valve holding solenoid valve
L2	Fuel solenoid valve energizing solenoid valve
L3	High pressure pump safety solenoid valve
L4	Skirt opening solenoid valve
L5	Skirt closing solenoid valve
M1	Starter
M2	Dust control system water motor pump
M3	Door opening/closing actuator
M4	Windscreen wiper motor
M5	Windscreen washer system pump motor
M6	Hydraulic system oil cooling fan motor
M7	Climate control system exchanger motor
M8	Climate control system compressor clutch
M9	Cab blower
R1	Pre-heating glow plugs
R3	Cab blower rheostat
S1	Forward gear sensor
S10	Suction inlet light switch
S11	Battery release switch
S12	Ignition switch
S13	Service brake microswitch
S14	Hazard warning light switch
S15	Lifted hopper limit switch
S16	Engine oil low pressure switch
S17	Driver’s seat microswitch
S18	Water temperature sensor
S19	Fuel level sensor
S2	Reverse gear sensor
S20	Engine speed sensor
S21	Windscreen wiper/washer switch
S22	Hydraulic system oil level sensor
S23	Hydraulic system oil cooling thermostat
S24	Skirt opening selector
S25	Skirt closing selector
S26	Climate control system fan 2-speed switch
S27	Climate control system switch
S28	Climate control system maximum pressure switch
S29	Climate control system control knob
S3	Emergency push-button
S30	Ceiling light switch
S4	Engaged parking brake microswitch
S5	Water tank level sensor
S6	Dust control system switch
S7	Door opening/closing switch
S8	Light switch
S9	Display selector
X15	Cigarette lighter socket

COMPONENT LOCATION (Continues)



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(*) See the Diesel Engine Manual

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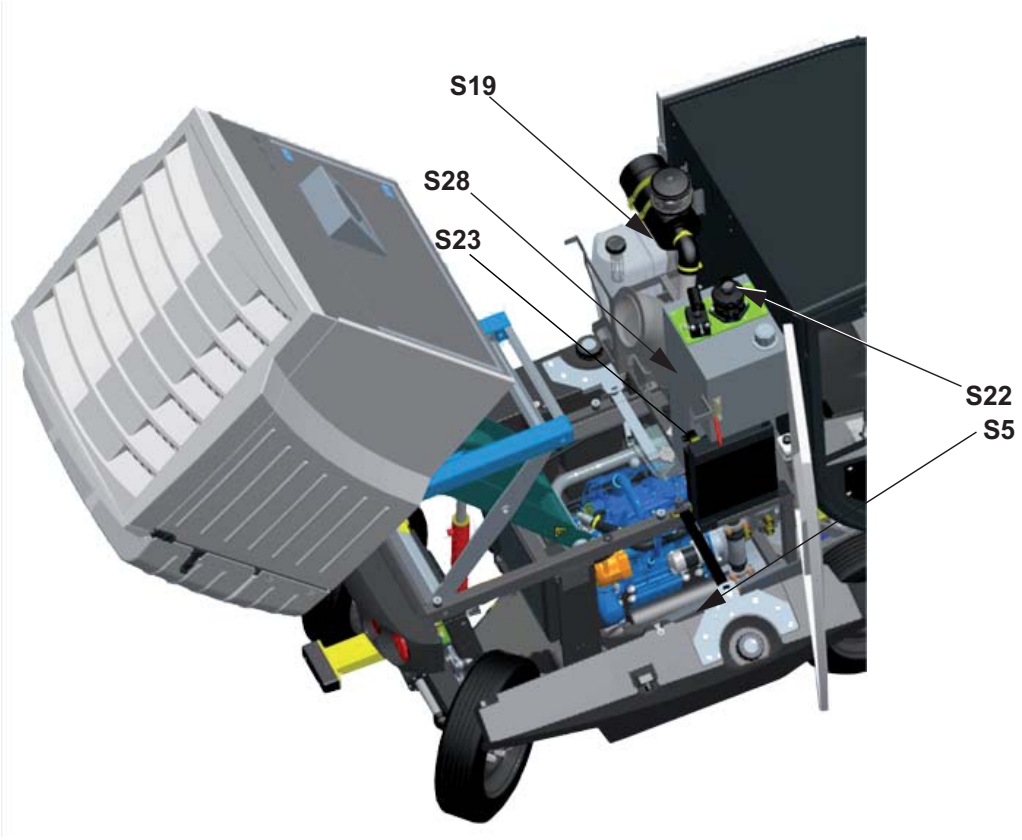
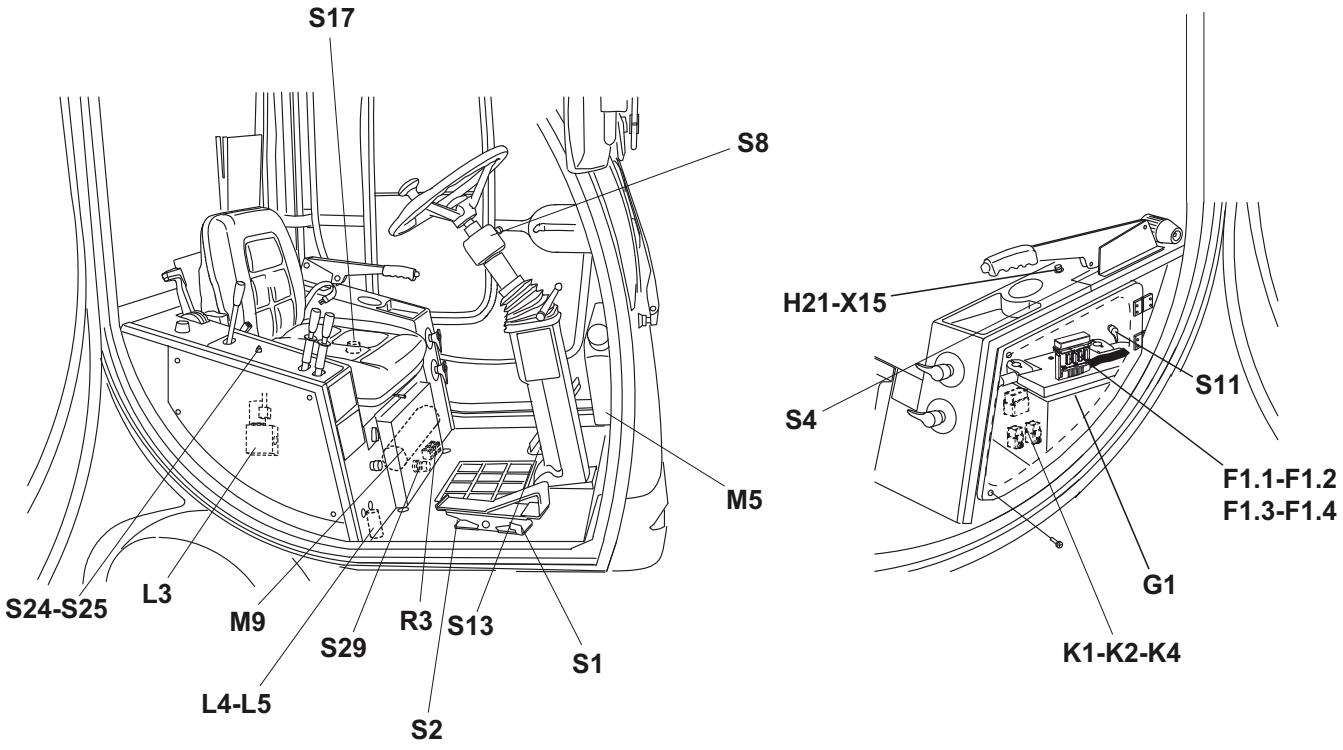
COMPONENT LOCATION (Continues)





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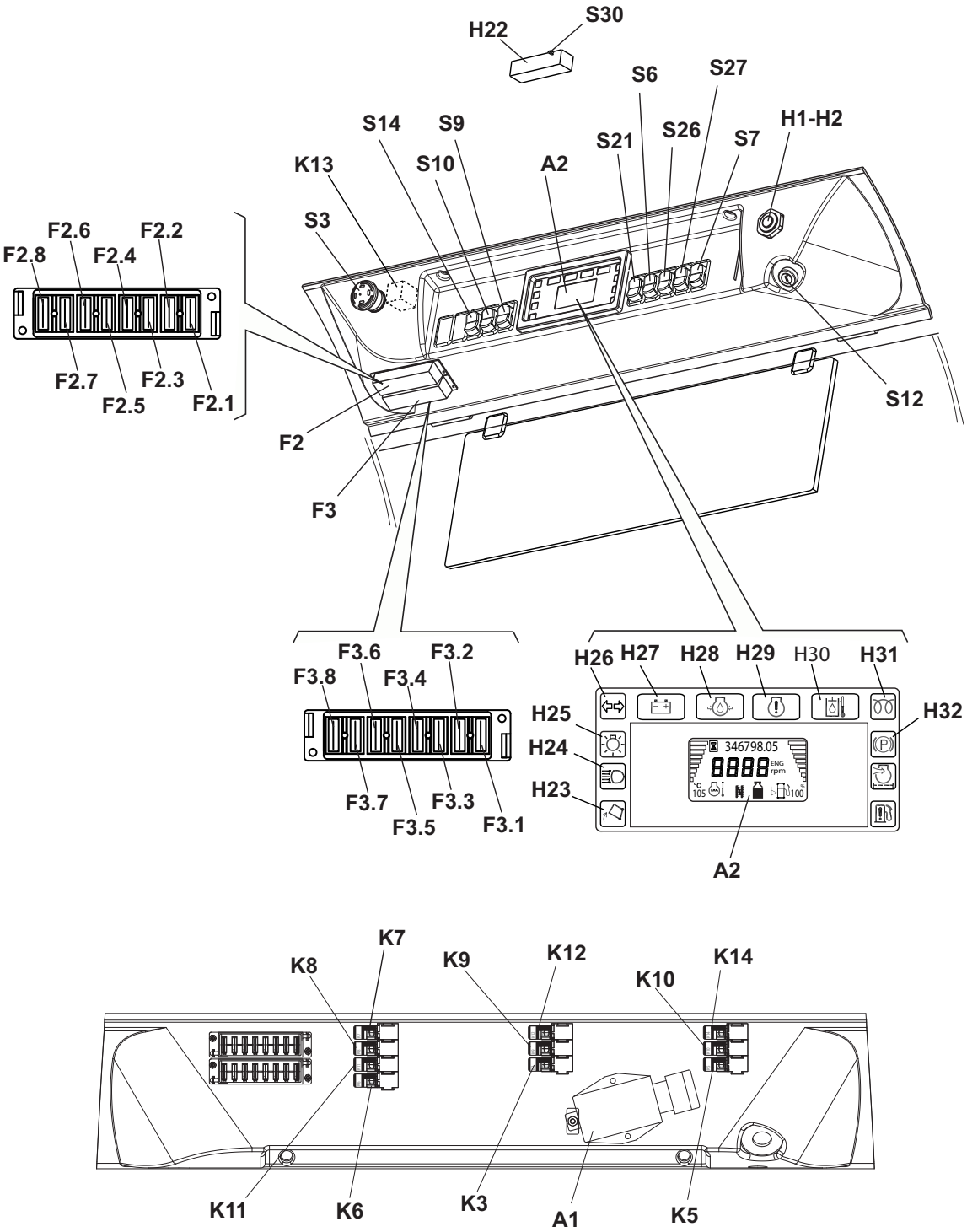
COMPONENT LOCATION (Continues)



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TROUBLESHOOTING

See the previous chapters related to the use of the electrical system.
Other possible causes:

1. The battery is not efficient (perform maintenance/replace).
2. The fuses are open (replace).
3. The relays are faulty (replace).
4. The control panel display is faulty (replace).
5. The harness is cut or pressed (repair).

BATTERY FLUID LEVEL CHECK

WARNING!
Protect body parts (eyes, hair, hands, etc.) properly, when performing battery check and cleaning procedures.

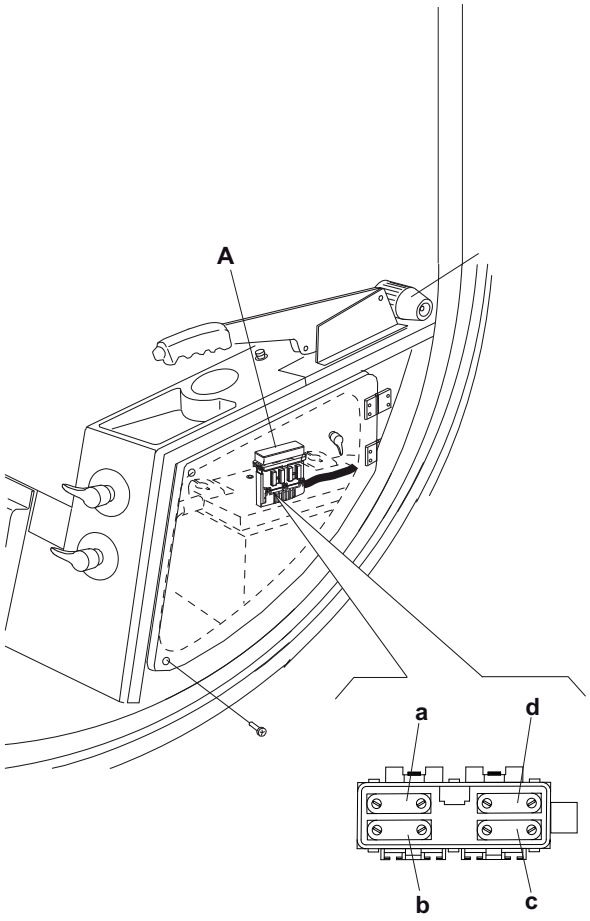
1. Engage the parking brake with the lever (66).
2. Turn off the engine, by turning the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Remove the 2 screws and open the cab left door (23).
5. Check the color of the hygrometer (90); if it is green the battery is ok, if is red:
   - The battery must be refilled with distilled water
   - The battery must be charged.

   If the hygrometer color is still red, the battery must be replaced.
6. If necessary, clean the battery.
7. Check the battery terminal connections for oxidation.
8. Close the cab left door (23) and tighten the screws.
9. Insert the battery by installing and turning the key of the release device (91) to horizontal position.

IMPIANTO ELETTRICO

POWER FUSE REPLACEMENT

1. Engage the parking brake (66).
2. Turn the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Remove the 2 screws and open the cab left door (23).
5. Remove the cover (A) of the fuse box (92) and replace the relevant fuse among the following:
   A) Glow plug fuse (40 A)
   B) Line fuse (60 A)
   C) Start-up fuse (40 A)
   D) Alternator fuse (60 A)
6. Install the fuse box cover (A) and close the cab left door (23).
7. Insert the battery (34) by installing and turning the key of the release device (91) to horizontal position.



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ACCESSORY FUSE REPLACEMENT

1. Engage the parking brake (66).
2. Turn the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Operating on the cab dashboard, remove the transparent cover of the fuse box (F2) or (F3) and replace the suspected fuse among the following:

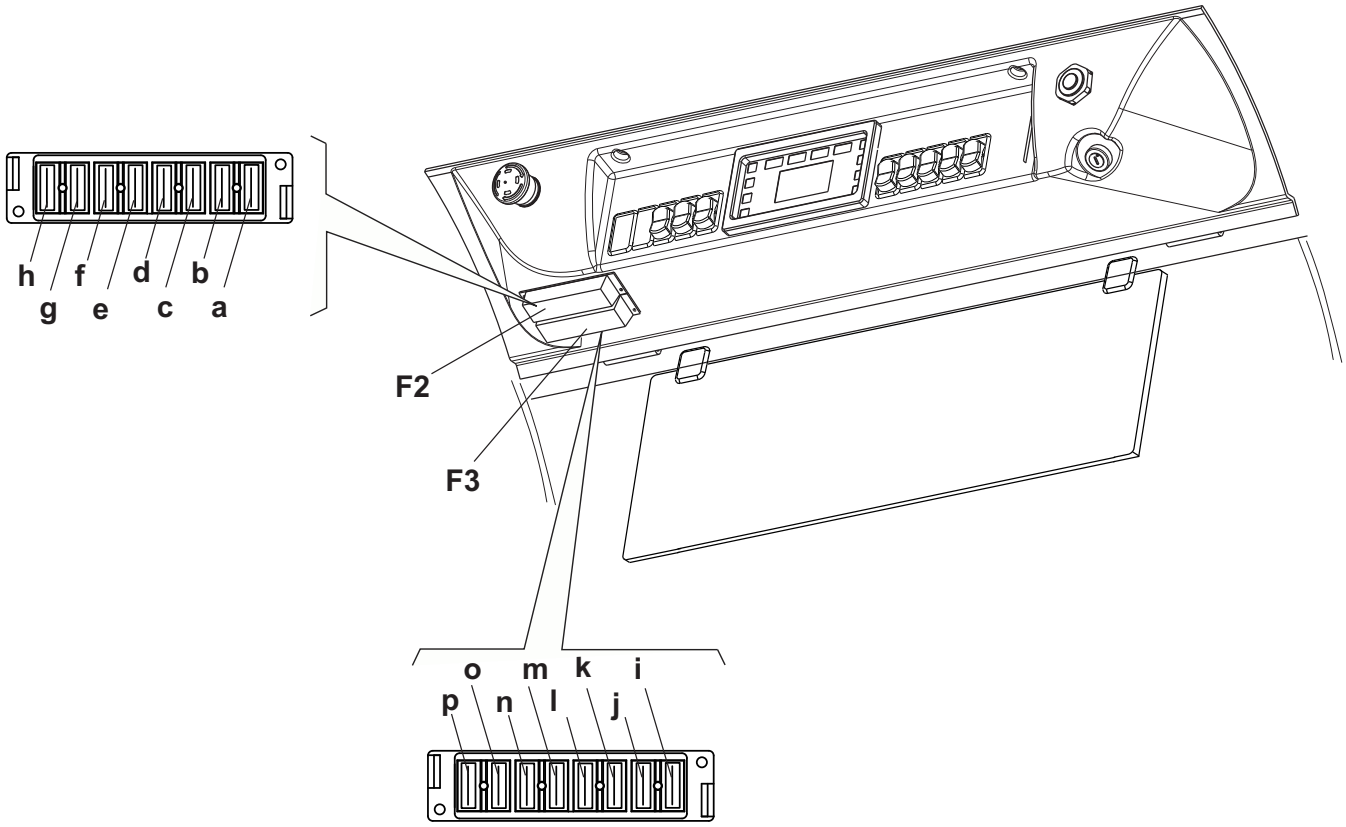
Fuse box F2

a) F2.1: Turn signal fuse (10 A)
b) F2.2: Brake light, brake pedal microswitch, reverse gear buzzer and horn fuse (10 A)
c) F2.3: Running light fuse (10 A)
d) F2.4: Running light fuse (10 A)
e) F2.5: Low beam fuse (15 A)
f) F2.6: High beam fuse (15 A)
g) F2.7: Ignition key lock, main relay, combination switch and +30 audio unit fuse (10 A)
h) F2.8: Accessory socket power supply fuse (15 A)

Fuse box F3

i) F3.1: Oil cooler electric fan and solenoid valve control fuse (20 A)
j) F3.2: Fuel solenoid valve, engine off relay and +15 alternator fuse (15 A)
k) F3.3: Flashing light, climate control system switch and cab fan switch fuse (20 A)
l) F3.4: Water pump, windscreen wiper, windscreen washer system pump, climate control system compressor and high pressure pump safety solenoid valve fuse (20 A)
m) F3.5: Warning light panel power supply, safety electronic board, drive sensor, ceiling light and +15 audio unit fuse (15 A)
n) F3.6: +15 turn signal fuse (15 A)
o) F3.7: Climate control system compressor fuse (15 A)
p) F3.8: Door actuator and switch back-light fuse (15 A)

5. Insert the battery (34) by installing and turning the key of the release device (91) to horizontal position.



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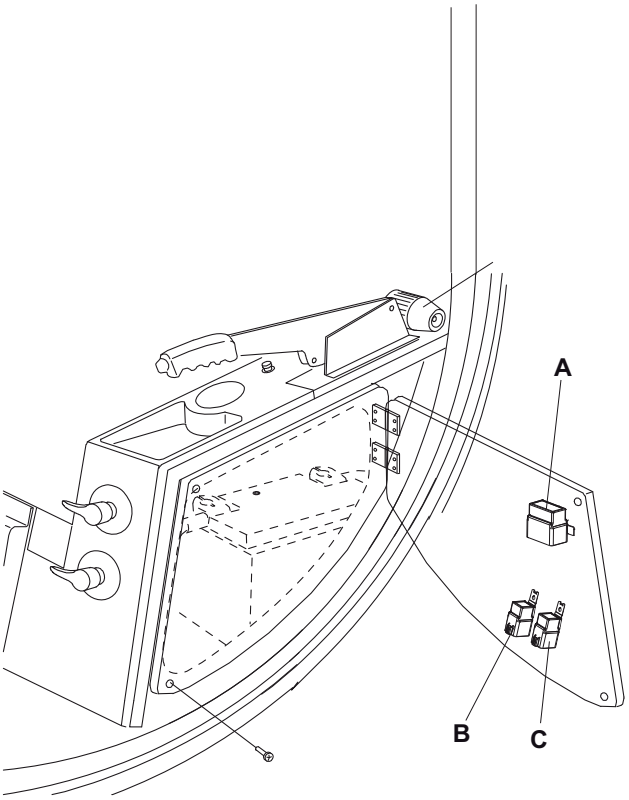
IMPIANTO ELETTRICO

POWER RELAY REPLACEMENT

1. Engage the parking brake (66).
2. Turn the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Remove the 2 screws and open the cab left door (23).
5. Replace the relevant relay among the following:
   A) Main relay
   B) Engine start relay
   C) Glow plug relay
6. Install the fuse box cover (A) and close the cab left door (23).
7. Insert the battery (34) by installing and turning the key of the release device (91) to horizontal position.



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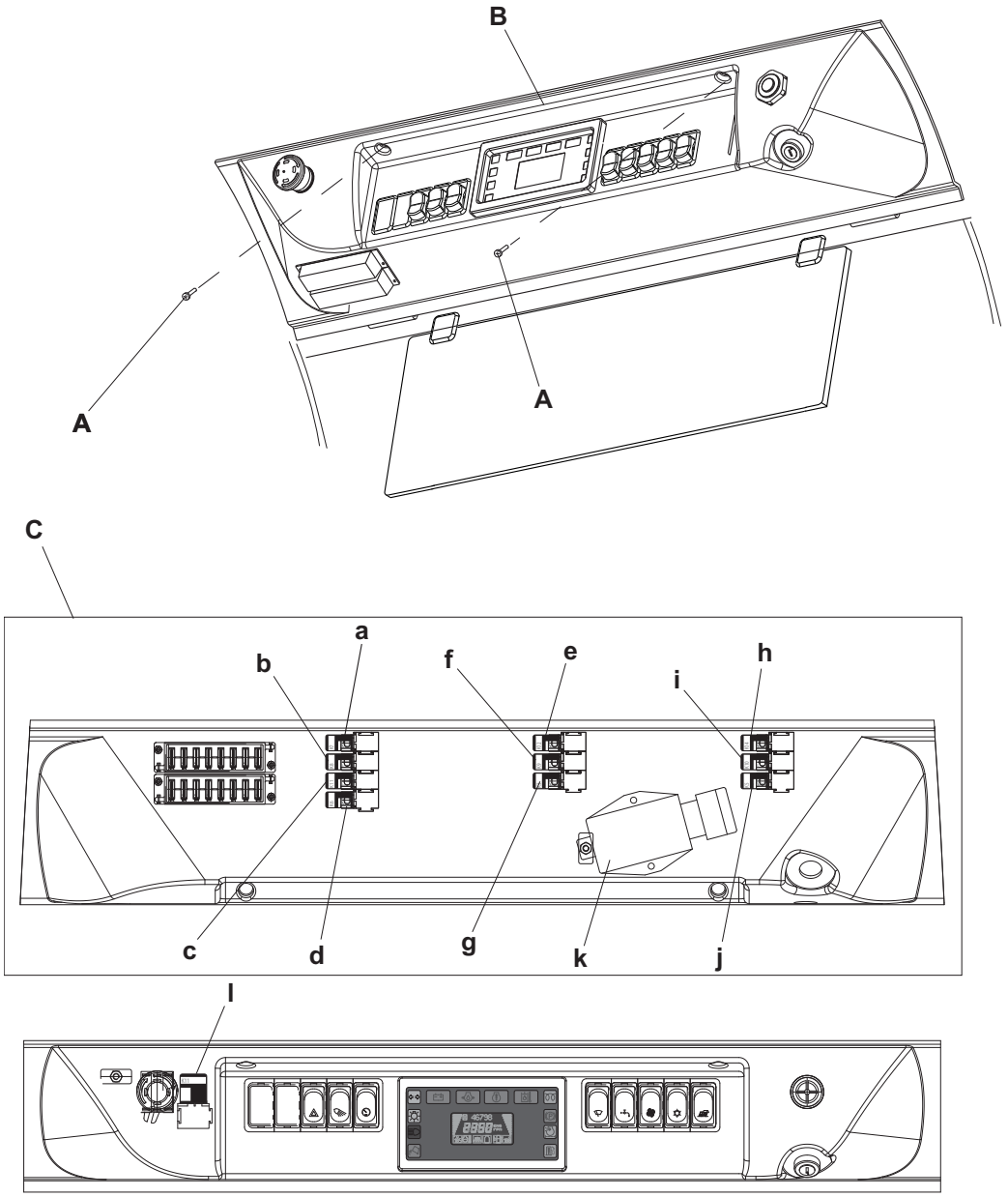
ACCESSORY RELAY REPLACEMENT

1. Engage the parking brake (66).
2. Turn the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Remove the screws (A) and lower the dashboard panel (B) in the cab.
5. Remove the suspected relay among the following:
   a) K7: Low beam/working light relay
   b) K8: High beam relay
   c) K11: Running light relay
   d) K6: Water delivery relay
   e) K12: Climate control system compressor relay
   f) K9: Actuator unlock relay
   g) K3: Gear enabling power supply/door actuator unlock relay
   h) K14: Engine shutdown relay
   i) K10: Engaged parking brake warning light relay
   j) K5: Brake light relay
   k) A1: Function electronic board
   l) K13: Climate control system fan relay

NOTE
The component view (C) is from above and inside the dashboard panel (B).

6. Assemble the components in the reverse order of disassembly.



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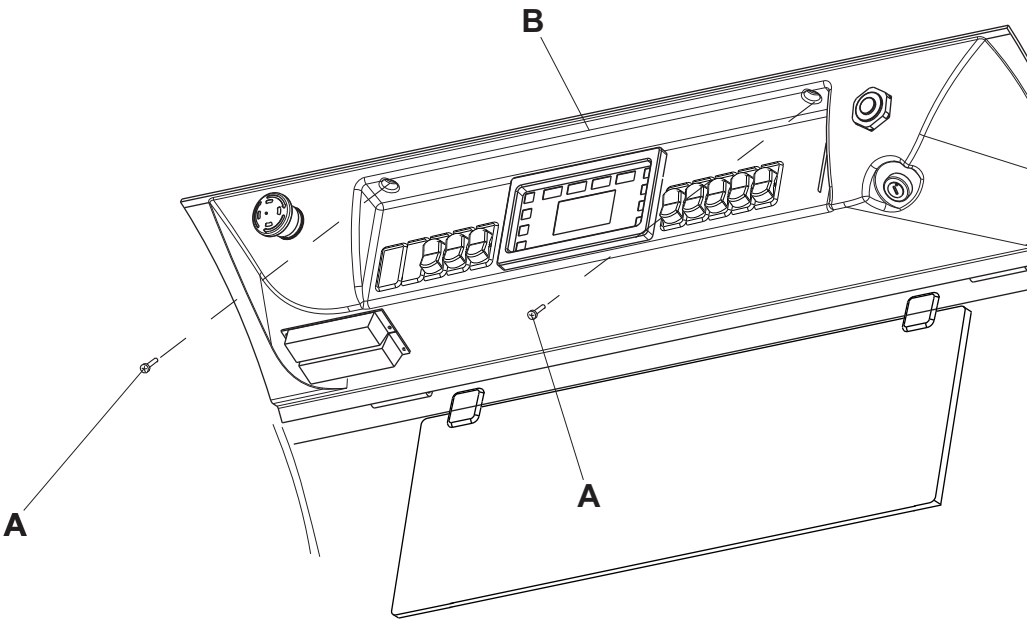
IMPIANTO ELETTRICO

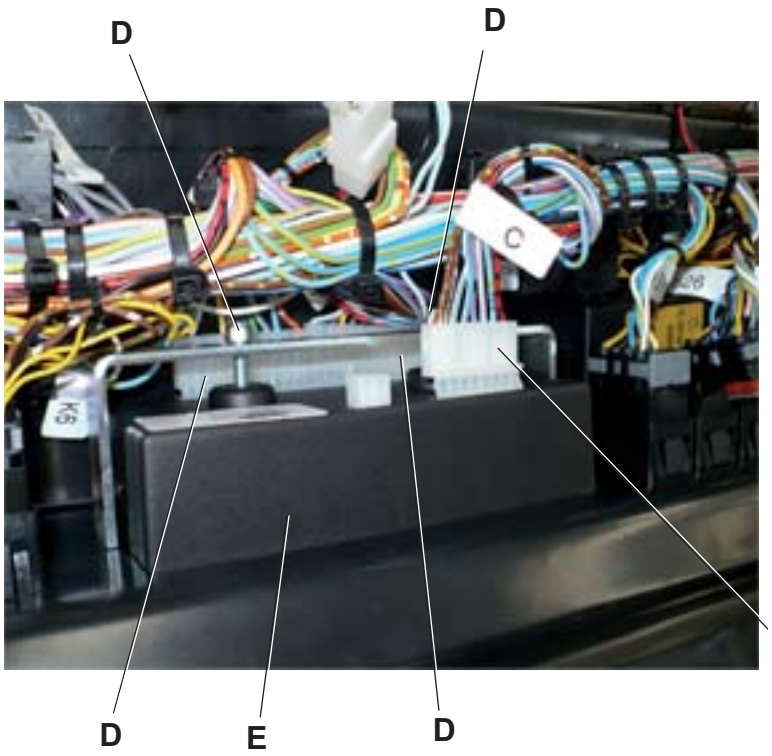
CONTROL PANEL DISPLAY REPLACEMENT

1. Engage the parking brake (66).
2. Turn the ignition key (76) counterclockwise, to the end of stroke, then remove it.
3. To disconnect the battery (34), turn the key of the release device (91) and then remove it.
4. Remove the screws (A) and lower the dashboard panel (B) in the cab.
5. Disconnect the connectors (C).
6. Remove the nuts (D).
7. Remove the display (E) and replace it with a new display.

NOTE
The spare parts display can be installed as it is, no calibration is required.

8. Assemble the components in the reverse order of disassembly.





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LOW BEAM AND HIGH BEAM ADJUSTMENT AND BULB REPLACEMENT

Preliminary operations

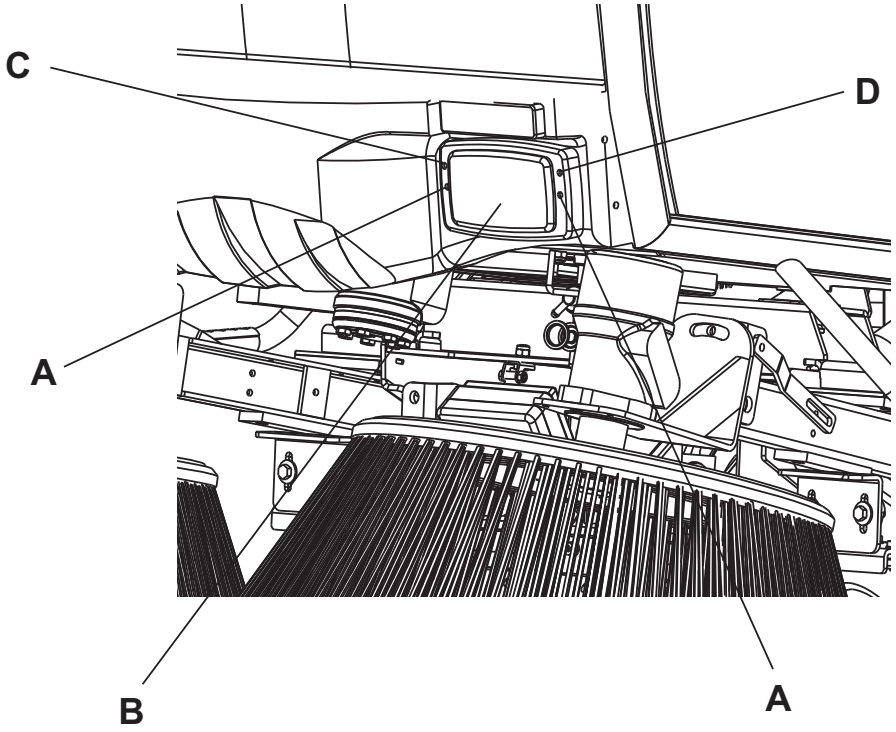
1. Drive the machine on a solid and level ground, then engage the parking brake with the lever (66).
2. Turn the ignition key (76) to OFF position and remove it.

Bulb replacement

3. Remove the screws (A) and the headlight (B) paying attention to the electrical connections.
4. Replace the burned bulbs.
5. Install the headlight (B) and fasten it with the screws (A).
6. Adjust the headlights according to the following procedure.

Low beam adjustment

7. Use the screws (C) and (D), in the following way:
   - To adjust the beam vertically, turn the screws (C) and (D) simultaneously;
   - To adjust the beam horizontally, turn the screws (C) and (D) individually.



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IMPIANTO ELETTRICO

CONTROL PANEL DISPLAY FUNCTIONS

1. When the key is turned to ON

When the ignition key (76) is turned to the first position, the display (82) shows for a few seconds the first screen (A) with numbers or symbols that indicate the machine condition. The parameters that can be checked are shown below.

- **Scheduled maintenance intervals**. MA0 (D) indicates the scheduled maintenance at 200 hours, while MA1 (F) 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.

NOTE
When one of the maintenance intervals has expired, one of the symbols (D or F, Fig. H) flashes for a few seconds at machine start-up.

Display functions:

- **Active transport hour calculation** (B).

WARNING!
If the symbol is not shown, but the key appears on the display, it means that the maintenance interval has expired. Proceed as shown in the relevant chapter.

- **Number of transport hours** (C).
- **Alarm counter** (H). It counts the number of alarms occurred after the last reset of the control unit. If the number is different from zero, contact a Advance Service Center to reset the system.
- **Software overhaul** (I).
- **Road sweeper identification number** (G). The number “006” identifies the RS 501 model, with Kubota V1505T engine.
- **Fasten the seat belts**. The flashing symbols (E) warns that the seat belts must be fastened.

2. Transport mode visualization

When the key is turned to ON, the display (82,) automatically shows the transport/working mode visualization (J) thus replacing the screen (A). The screen (J) remains even after the engine has been turned on. It shows the following parameters.

- **Engine speed**: 4-digit number (P) with the following symbol ENG rpm (N).

CAUTION!
If the engine speed sensor is faulty, the switches on the display are not illuminated. Repair the circuit and replace the engine speed sensor, see the relevant procedure.

- **Fuel level**: the fuel level is shown by the horizontal bar indicator (O). The last bars indicate the reserve, they flash when the level is low. The fuel level instantaneous value in % (Q) is shown too.

CAUTION!
If the fuel level is low, a continuous warning buzzer signals the problem. The warning buzzer can be reset by pressing the button (41) on “SEL”.

CAUTION!
If the level 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). Repair the circuit and replace the level sensor, see the relevant procedure.

CAUTION!
If the level sensor is faulty, a continuous warning buzzer signals the problem. The warning buzzer can be reset by pressing the button (41) on “SEL” for several seconds.

The symbol (R) indicates that the fuel level indicator is activated.

CONTROL PANEL DISPLAY FUNCTIONS (Continues)

- **Engine coolant temperature**: the temperature is shown by the horizontal bar indicator (K). The bars flashes in case of overheating. The temperature instantaneous value (V) is shown too. The symbol (U) indicates that the temperature indicator is activated.

  CAUTION!
  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 (41) on "SEL" for several seconds.

  CAUTION!
  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). Repair the circuit and replace the temperature sensor, see the relevant procedure.

- **Dust control system tank water level** with the relevant indicator (S):
  – 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.

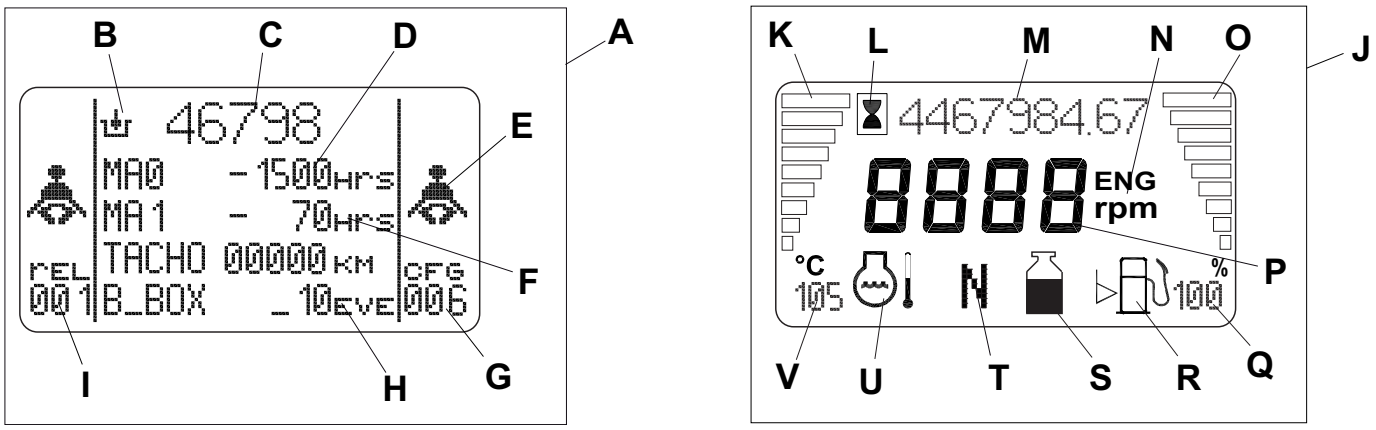
- **Machine operation mode** with the relevant indicator (T):
  – **N**, machine movement mode is not regular.

  When pressing the drive pedal, the "N" symbol is replaced by the symbol .

  WARNING!
  When the drive pedal is pressed, if the symbol is not shown, but the letter "N" still appears on the display, it means that the parking brake is engaged (release the lever) or that the pedal sensors are faulty.

- **Engine operation hours** (M) with the relevant symbol (L).

  WARNING!
  If the symbol is not shown, but the key appears on the display, it means that the maintenance interval has expired. Proceed as shown in the relevant chapter.



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CONTROL PANEL DISPLAY FUNCTIONS (Continues)

3. Alarm visualization

When the engine is running, in case of machine malfunctions, the alarms will be shown on the display (82).
These alarms are shown in the visualization (A).

WARNING!

– ***The alarms are shown for up to 5 seconds. Then the alarm is stored in the B_BOX (see the relevant paragraph).***
– ***The alarms are shown also in the ALARM LIST (refer to ALARM.01 and ALARM.02 in the relevant paragraph).***

The alarms are indicated by the name “ALARM” (B) and by some symbols which identify the source (C) and the seriousness (D) of the alarm. The visualization shown on the second line of the text identifies the alarm description (E). For some serious alarms, the machine will be automatically shutdown. In this case the counter (F) resets after a countdown of 20 seconds, then a message appears (G).
In the alarm indications, the seriousness symbol can be different:

-  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. Follow the relevant procedure to repair the fault.

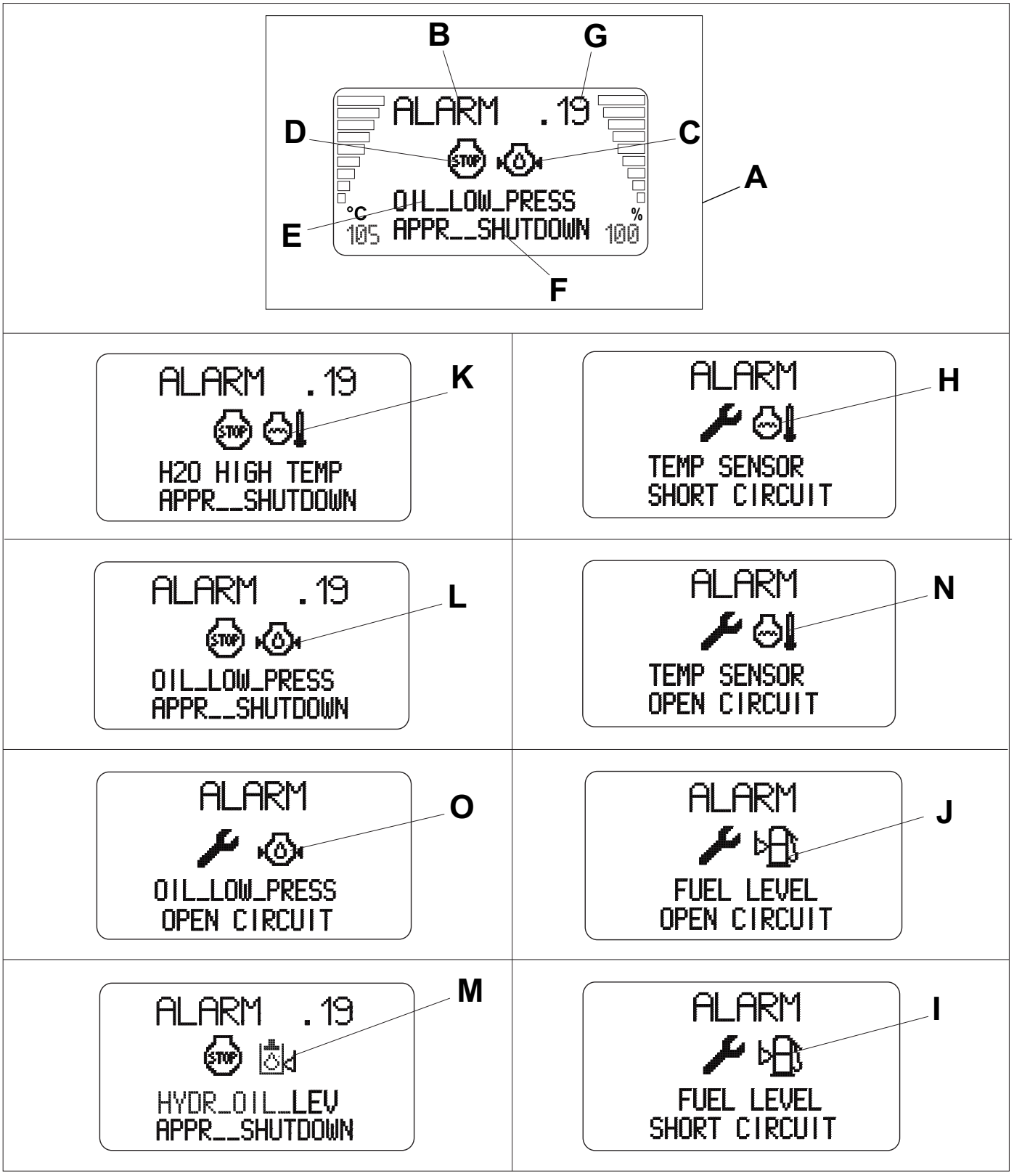
- 

Serious alarms which causes the machine shutdown. Follow the relevant procedure to repair the fault.

The alarms recognized and shown on the display (82) are shown below:
– Fuel level sensor short-circuited (I)
– Open fuel level sensor (J)
– Engine coolant overtemperature (K) (the engine is automatically shut-off)
– Engine oil low pressure (L) (the engine is automatically shut-off)
– Hydraulic system oil low level (M)
– Open or disconnected engine coolant temperature sensor (N)
– Coolant temperature sensor short-circuited (H)
– Open or disconnected engine oil pressure sensor (O)

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. The warning buzzer can be reset by pressing the button (41) on “SEL” for several seconds.

CONTROL PANEL DISPLAY FUNCTIONS (Continues)



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CONTROL PANEL DISPLAY FUNCTIONS (Continues)

4. Machine memory visualization

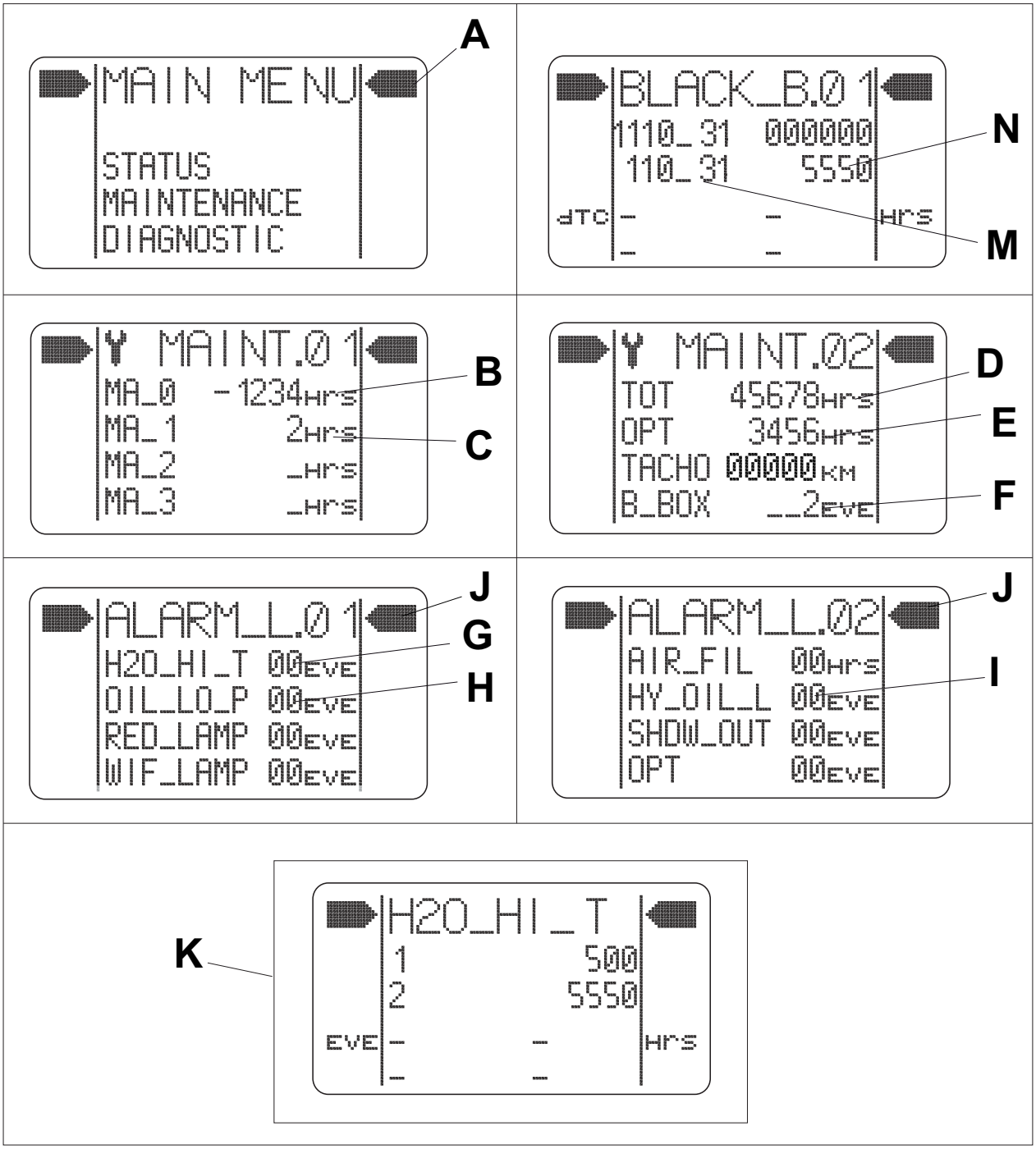
CAUTION!
This reading and/or check must be performed with the machine stopped, in order not to distract attention from driving.

When the key is turned to ON and the machine is stopped, it is possible to check the data about the machine condition by performing:

- **Consultation of maintenance intervals**, in “MAIN MENU” on the display (82). To do this, repeatedly press the push-button (41) in the “STORE” position until the above-mentioned item appears. Confirm by pressing the push-button (41) in the “SEL” position. The arrow cursor (A) will be placed near the word “STATUS”. Press the push-button (41) in the “SEL” position again to bring the arrow cursor near the word “MAINTENANCE”. Confirm by pressing the push-button (41) in the “STORE” position. On the display (82) the page “MAINT.01” will be displayed. The number of hours (B) indicates how many hours there are before maintenance MA_0 will expire (200 hours), while the number of hours (C) indicates how many hours there are before maintenance MA_1 will expire (800 hours). By pressing the push-button (41) in the “STORE” position again, the display (82) will show the page “MAINT.02”. The number of hours (D) indicates the diesel engine running hours, the number of hours (E) indicates the machine working hours, while the number (F) indicates the alarms occurred after the last system reset.
- **Consultation of ALARM LIST**, in “MAIN MENU” on the display (82). To do this, repeatedly press the push-button (41) in the “STORE” position until the above-mentioned item appears. Confirm by pressing the push-button (41) in the “SEL” position. The arrow cursor (A) will be placed near the word “STATUS”. Press the push-button (41) in the “SEL” position again to bring the arrow cursor near the word “DIAGNOSTIC”. Confirm by pressing the push-button (41) in the “STORE” position. On the display (82) the page “ALARM_L.01” is shown. By pressing the upper part of the push-button (41) again, the page “ALARM_L.02” will be shown. These two pages contains the alarms shown in “Alarm description” paragraph. The numbers (G, H and I) indicates how many times the alarm occurred. If one of these numbers is different from zero, it is possible to check when the malfunction occurred. Press the push-button (41) in the “SEL” position until the arrow cursor (J) is placed near the required data. By pressing the push-button (41) in the “STORE” position again, the page of the required alarm will be shown. For example, the screen (K) shows the “engine coolant overtemperature” alarm occurred for the first time after 500 hours, and the second time after 5,550 hours.
- **Consultation of B_BOX** (F), where all the alarms occurred after the last memory reset are stored. The alarm is identified by a number code that can be displayed as shown below: repeatedly press the “STORE” part of the push-button (41) until “MAIN MENU” appears. Confirm by pressing the push-button (41) in the “SEL” position. The arrow cursor (A) will be placed near the word “STATUS”. Press the “SEL” part of the push-button (41) again to bring the arrow cursor near the word “MAINTENANCE”. Confirm by pressing the push-button (41) in the “STORE” position. On the display (82) the page “MAINT.01” is shown; when pressing the “STORE” part of the push-button (41) again, the page “MAINT.02” is shown. When pressing the “SEL” part of the push-button (41), the cursor aligns with B_BOX, then enter the B_BOX by pressing the “STORE” part of the push-button (41). In this page, the first series of numbers (M) indicates the alarm identification number, while the second series of numbers (N) indicates the time at which the alarm occurred. The stored alarms are up to 16 displayed on four pages, which can be scrolled by pressing the push-button (41) repeatedly.

CAUTION!
In the B_BOX the alarms are stored one after the other, so when the alarms are detected, always check for the time at which the alarm occurred to have a real chronology of the alarms.

CONTROL PANEL DISPLAY FUNCTIONS (Continues)



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CONTROL PANEL DISPLAY FUNCTIONS (Continues)

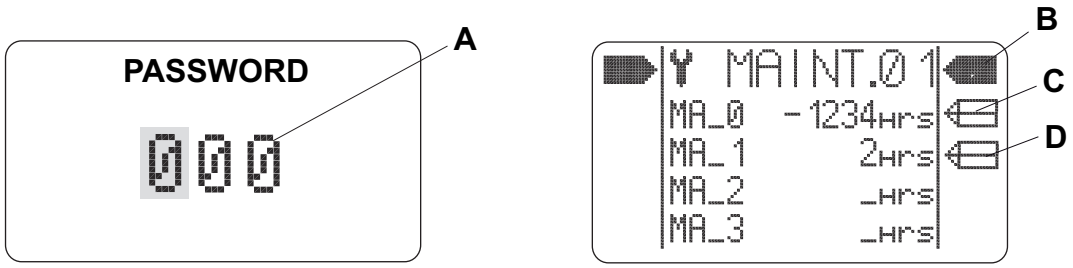
5. Maintenance interval reset

The Service Center must reset the maintenance intervals at 200 hours (MA_0) and 800 hours (MA_1) on the display, as shown below:

- Press and hold the display scroll button (41) on the “STORE” position then turn the ignition key (76) to the first position.
- Press and hold the display scroll button (41) for a few seconds until the password entering screen (A) is shown.
- Insert the password 376 by pressing the push-button (41) on the “SEL” position to increase the number and on the “STORE” position to shift the cursor to the next digit. When the number 376 is set, press and hold the push-button (41) on the “STORE” position until the first screen is shown.
- Proceed as shown in the previous paragraph until the MAINT.01 is shown.
- Press the push-button (41) on the “SEL” position to shift the cursor (B) to the maintenance interval which has to be reset (C or D).

NOTE
The pencil shaped cursor indicates the possibility to modify.

- Press and hold the push-button (41) on the “STORE” position until the value returns to 200 or 800 hours, depending on the maintenance which has been performed.



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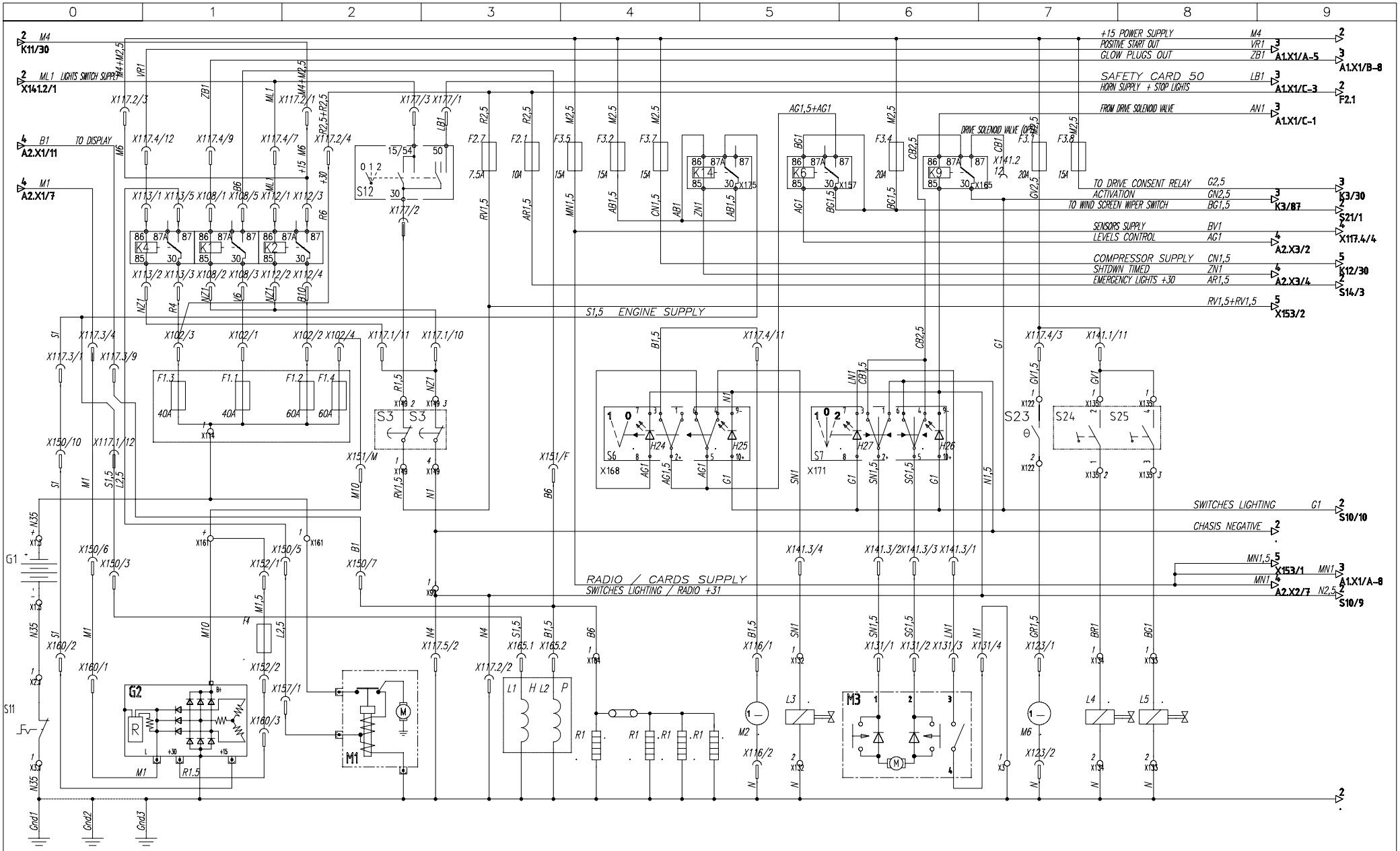

Dis. N.	33019500
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File	33019500.dwg
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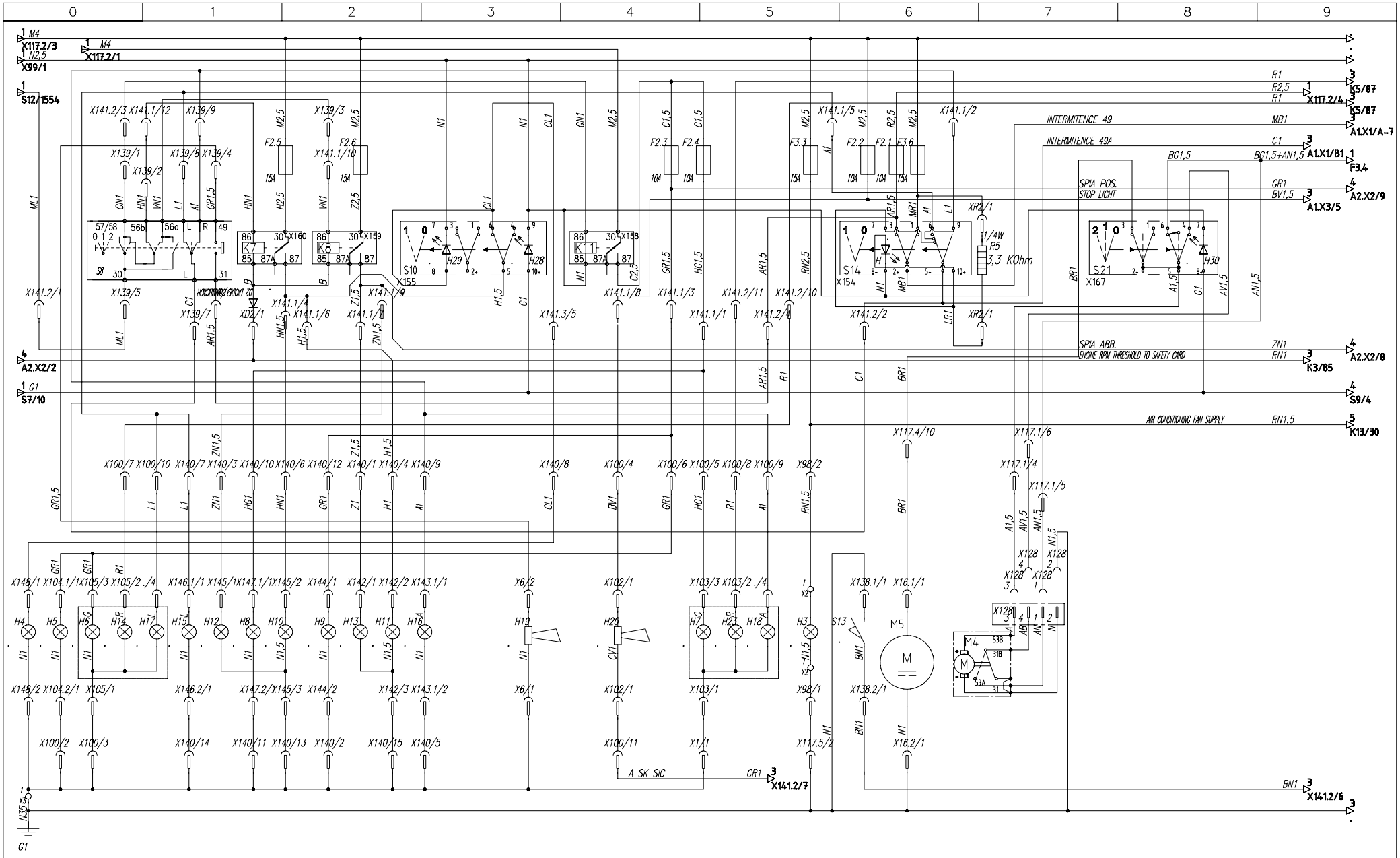
Data	9/7/2009
Impianto	Functional wiring diagram Electrical diagram
Denominazione	DISTRIBUZIONE ENERGIA ENERGY DISTRIBUTION
Ordine	.
Commessa	Rs502
Esecutore	Marchini
	Nilfisk Advance NILFISK-ADVANCE ITALIA SPA GUARDAMIGLIO – (LO)
FOGLIO	1
	SEGUE



IL PRESENTE DISEGNO E' DI PROPRIETA' DELLA NILFISK-ADVANCE ITALIA CHE NE TUTELA I PROPRI DIRITTI A TERMINI DI LEGGE, PERTANTO NON PUO' ESSERE RIPRODOTTO NE' COMUNICATO A TERZI SENZA PREVENTIVA AUTORIZZAZIONE SCRITTA

Dis. N.	33019500
Spe_N.	__
File	33019500.dwg
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Data	9/7/2009

Impianto

Functional wiring diagram
Electrical diagram

Denominazione

COMANDO LUCI E TERGI
WIPER AND LIGHTS CONTROL

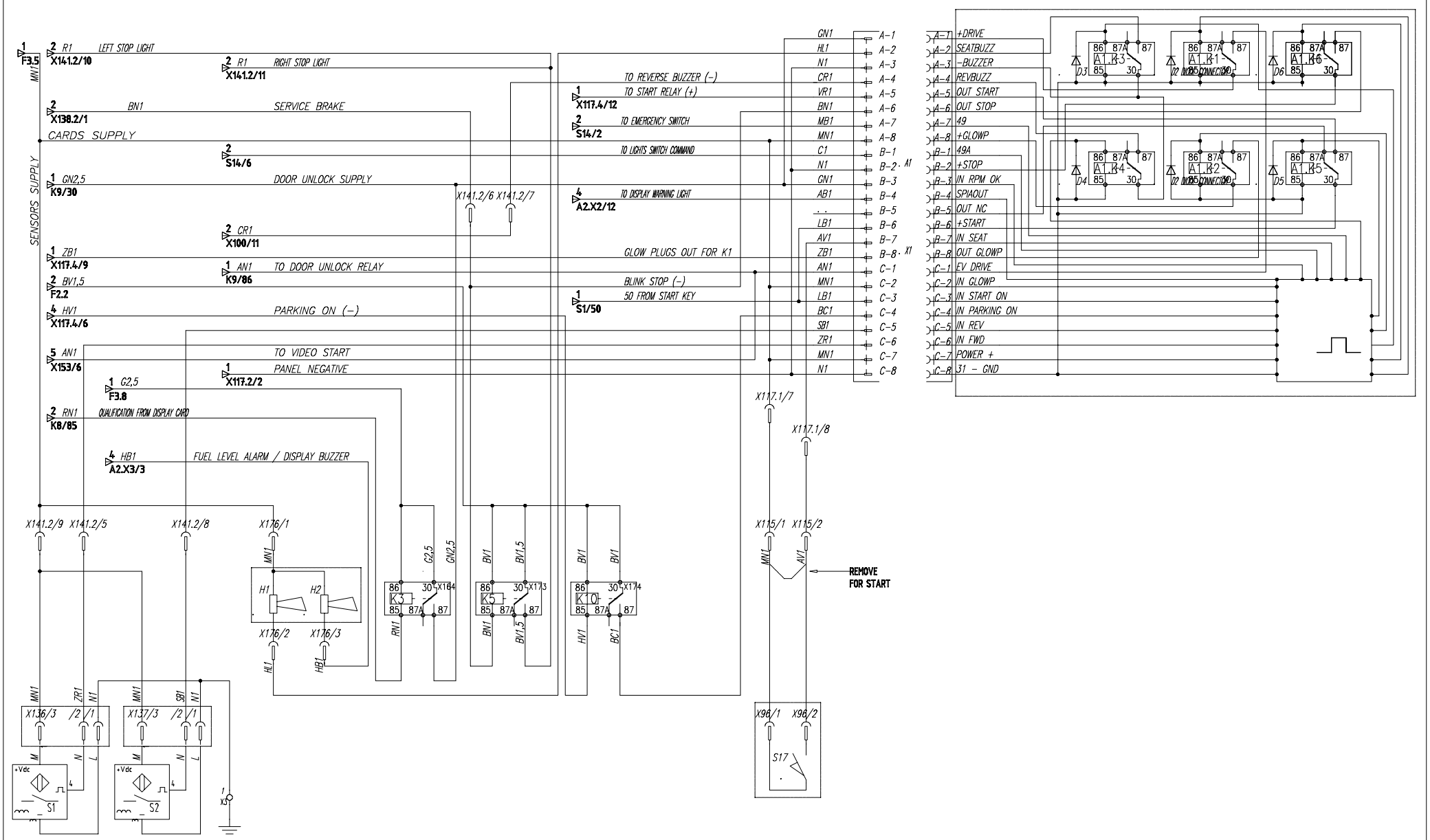
Ordine	.
Commessa	Rs502
Esecutore	Marchini

Nilfisk Advance

NILFISK-ADVANCE ITALIA SPA
GUARDAMIGLIO – (LO)

FOGLIO 2

SEGUE



Dis. N.	33019500
Spe_N.	__
File	33019500.dwg
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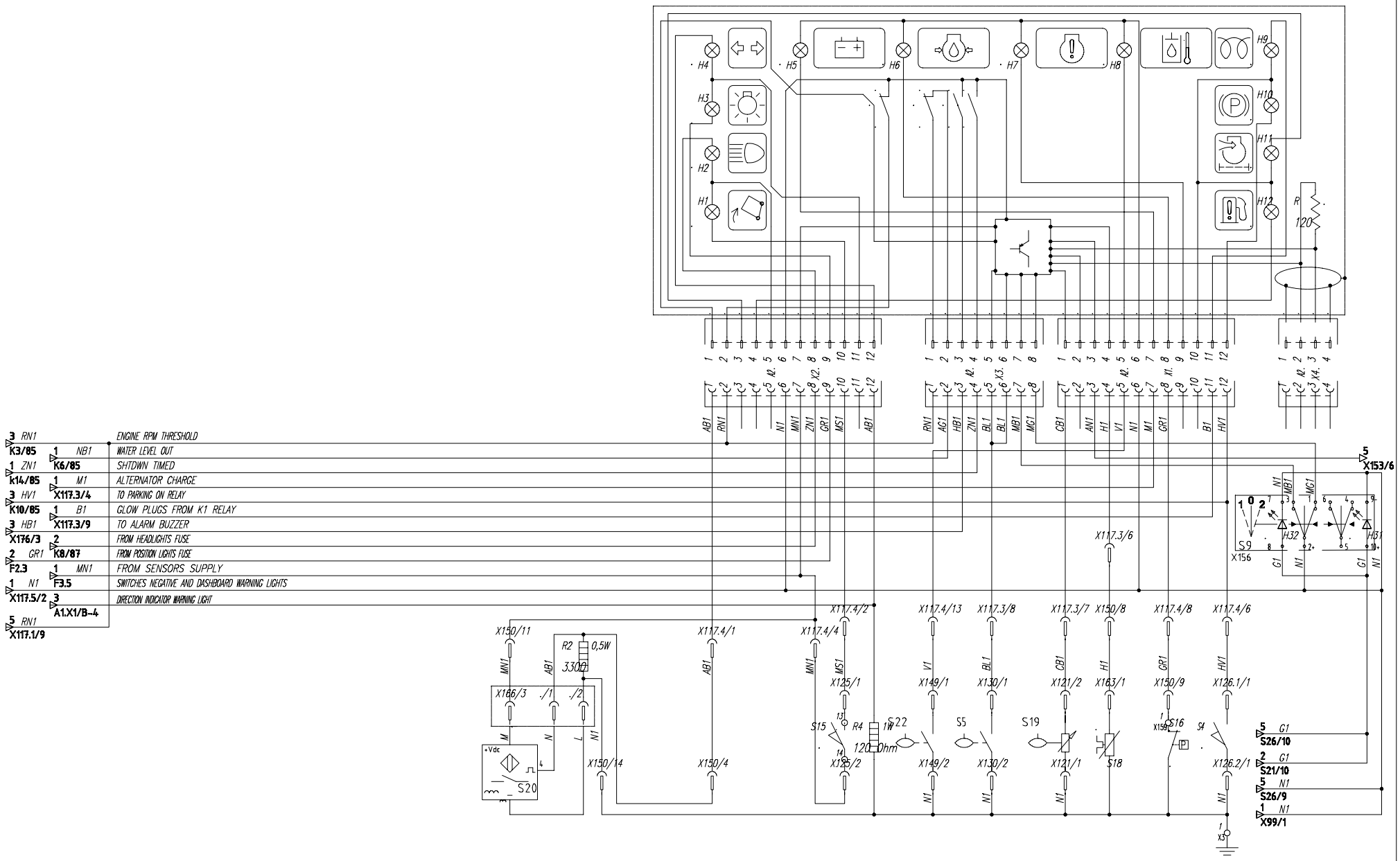
Data	9/7/2009
Impianto	Functional wiring diagram Electrical diagram
Denominazione	SCHEDA CONTROLLO CONTROL CARD
Ordine	.
Commessa	Rs502
Esecutore	Marchini
	Nilfisk Advance NILFISK-ADVANCE ITALIA SPA GUARDAMIGLIO - (LO)
FOGLIO	3
	SEGUE



Dis. N.	33019500
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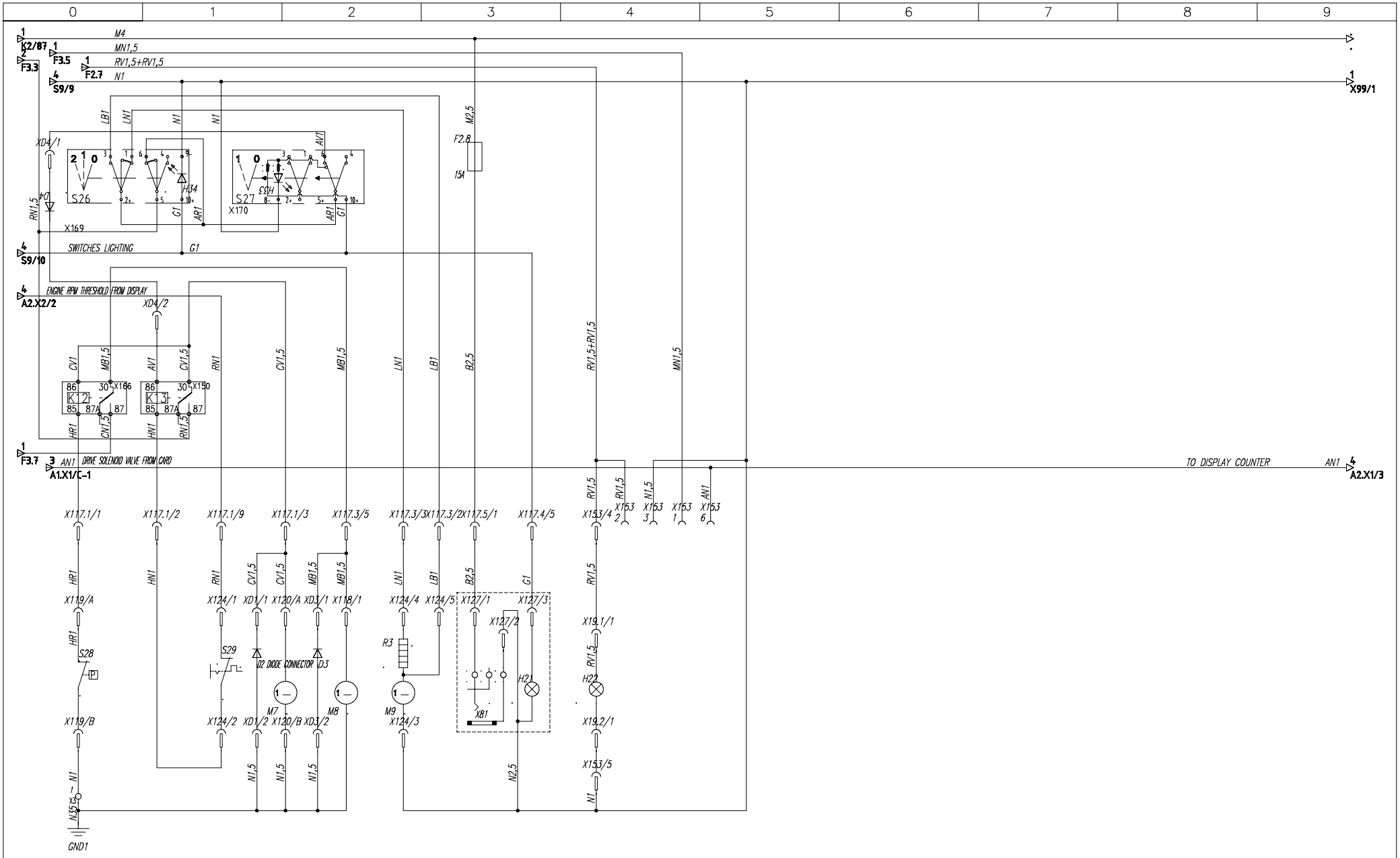
File	33019500.dwg
	P:\schemi\Elettrici\ECOLOGICA\Schemi elettrici\RS 502
Data	9/7/2009
Impianto	Functional wiring diagram Electrical diagram
Denominazione	display multifunzione MULTIFUNCTION DISPLAY
Ordine	.
Commessa	Rs502
Esecutore	Marchini
	Nilfisk Advance NILFISK-ADVANCE ITALIA SPA GUARDAMIGLIO – (LO)
FOGLIO	4
	SEGUE



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File	33019500.dwg
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Data	9/7/2009
Impianto	*Functional wiring diagram Electrical diagram*
Denominazione	CLIMATIZZATORE – OPTIONALS *AIR CONDITIONING – OPTIONAL*
Ordine	.
Commessa	Rs502
Esecutore	Marchini

Nilfisk Advance

NILFISK-ADVANCE ITALIA SPA GUARDAMIGLIO – (LO)

FOGLIO 5

SEGUE

0	1	2	3	4	5	6	7	8	9

FOGLIO	DESCRIZIONE	DESCRIPTION
2	COMANDO LUCI E TERGI	WIPER AND LIGHTS CONTROL
3	SCHEDA CONTROLLO	CONTROL CARD
4	display multifunzione	MULTIFUNCTION DISPLAY
5	CLIMATIZZATORE – OPTIONALS	AIR CONDITIONING – OPTIONAL
6	LEGENDA SCHEMA .	system key
7	legenda componenti	components list
8	legenda componenti	components list
		.
		.

REV	ODM	DATE	ENG	DESCRIZIONE / DESCRIPTION
4	.	.	.	.
3	.	.	.	.
2	.	.	.	.
1	.	03/12/08	.	Stesura - modificato ingressi scheda sicurezza - inserito diodo D4

Dis. N. 33019500

Spe_N. __

File 33019500.dwg

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Data 9/7/2009

Impianto

Functional wiring diagram
Electrical diagram

Denominazione

LEGENDA SCHEMA

.

Ordine .

Commessa Rs502

Esecutore Marchini

Nilfisk Advance

NILFISK-ADVANCE ITALIA SPA
GUARDAMIGLIO – (LO)

FOGLIO 6

SEGUE

0	1	2	3	4	5	6	7	8	9

NOME	FUNZIONE	DESCRIPTION	NOME	FUNZIONE	DESCRIPTION	NOME	FUNZIONE	DESCRIPTION
A1	SCHEDA CONTROLLO	CONTROL CARD	H9	LUCE DI POSIZIONE ANTERIORE DESTRA	RIGHT FRONT POSITION LIGHT	X104	CONNETTORE LUCE TARGA	PLATE LIGHT CONNECTOR
A2	SCHEDA DISPLAY	DISPLAY CARD	K1	RELE INSERIMENTO CANDELETTE	GLOW PPLUG RELAY	X105	CONNETTORE FANALE POSTERIORE SX	LEFT REAR LIGHT CONNECTOR
D1	DIODO ANTIRICIRCOLO ELETTROVENTOLE CLIMATIZZATORE	AIR CONDITIONING FAN ANTI-RECIRCULATION DIODE	K10	RELE' SPIA STAZIONAMENTO INSERITO	HAND BRAKE ON WARNING LIGHT RELAY	X112	CONNETTORE RELE' LINEA	LINE RELAY CONNECTOR
D2	DIODO ANTIRICIRCOLO RELE' LUCI	LIGHTS RELAY ANTI-RECIRCULATION DIODE	K11	RELE' LUCI DI POSIZIONE	POSITION LIGHTS RELAY	X113	CONNETTORE RELE' START	START RELAY CONNECTOR
D3	DIODO ANTIRICIRCOLO COMPRESSORE CLIMA	COMPRESSOR ANTI-RECIRCULATION DIODE	K12	RELE' CLIMATIZZATORE - COMPRESSORE	COMPRESSOR RELAY	X114	CONNETTORE SCATOLA PORTAFUSIBILI DI POTENZA	POWER FUSES HOLDER BOX CONNECTOR
D4	DIODO ANTIRICIRCOLO COMPRESSORE CLIMA	COMPRESSOR ANTI-RECIRCULATION DIODE	K13	RELE' CLIMATIZZATORE - VENTOLE	AIR CONDITIONING FAN RELAY	X115	CONNESSIONE MICRO SEDILE	SEAT MICROSWITCH CONNECTION
F1.0	MORSETTIERA PORTAFUSIBILI DI POTENZA	POWER FUSES HOLDER TERMINAL BOARD	K14	RELE' SPEGNIMENTO MOTORE	ENGINE STOP RELAY	X115	CONNESSIONE PREDISPOSIZIONE MICRO SEDILE	SEAT MICROSWITCH PREDISPOSITION CONNECTOR
F1.1	FUSIBILE CANDELETTE	GLOW PLUG FUSE	K2	RELE PRINCIPALE	MAIN RELAY	X116	CONNETTORE ELETTROPOMPA ACQUA	WATER PUMP CONNECTOR
F1.2	FUSIBILE LINEA	LINE FUSE	K3	RELE' ALIMENTAZIONE VALVOLA DRIVE / ABILITAZIONE MARTINETTO	DOOR ACTUATOR/DRIVE SOLENOID VALVE SUPPLY RELAY	X117.2	CONNETTORE POTENZA LINEA CRUSCOTTO	DASHBOARD POWER LINE CONNECTOR
F1.3	FUSIBILE AVVIAMENTO	START FUSE	K4	RELE' START MOTORE	ENGINE START RELAY	X117.3	CONNETTORE INTERFACCIA LINEA CRUSCOTTO	DASHBOARD LINE INTERFACE CONNECTOR
F1.4	FUSIBILE ALTERNATORE	ALTERNATOR FUSE	K5	RELE' LUCI STOP	STOP LIGHTS RELAY	X117.4	CONNETTORE INTERFACCIA LINEA CRUSCOTTO	DASHBOARD LINE INTERFACE CONNECTOR
F2.0	PORTAFUSIBILI IN CABINA	CABIN FUSES HOLDER	K6	RELE' EROGAZIONE ACQUA	WATER PUMP RELAY	X117.5	CONNETTORE INTERFACCIA LINEA CRUSCOTTO	DASHBOARD LINE INTERFACE CONNECTOR
F2.1	FUSIBILE LUCI DIREZIONE (30) E OPZIONALE	OPTIONAL AND DIRECTION INDICATOR FUSE	K7	RELE' LUCI ANABBAGLIANTI / FARO LAVORO	WORKING LIGHT/ DIPPED LIGHTS RELAY	X118	CONNESSIONE COMPRESSORE	COMPRESSOR CONNECTION
F2.2	FUSIBILE LUCI STOP / MICRO STOP / SIRENA RETRO / CLACSON	HORN/REVERSE BUZZER/STOP MICROSWITCH/ STOP LIGHTS FUSE	K8	RELE' LUCI ABBAGLIANTI	HEAD LIGHTS RELAY	X119	CONNETTORE PRESSOSTATO CLIMATIZZATORE	AIR CONDITIONING MANOSTAT CONNECTOR
F2.3	FUSIBILE LUCI POSIZIONE	POSITION LIGHTS FUSE	K9	RELE' SBLOCCO ATTUATORE	ACTUATOR UNLOCKING RELAY	X120	CONNETTORE VENTOLE SCAMBIATORE CLIMATIZZATORE	AIR CONDITIONING FAN CONNECTOR
F2.4	FUSIBILE LUCI POSIZIONE	POSITION LIGHTS FUSE	L1	SOLENOIDE MANTENIMENTO ELETTROVALVOLA GASOLIO	DIESEL SOLENOID VALVE	X121	CONNESSIONE LIVELLO GASOLIO	DIESEL LEVEL CONNECTION
F2.5	FUSIBILE ANABBAGLIANTI	DIPPED LIGHTS FUSE	L2	SOLENOIDE ECCITAZIONE ELETTROVALVOLA GASOLIO	DIESEL SOLENOID VALVE HOLD SOLENOID	X122	CONNETTORE TERMOSTATO VENTOLE OLIO IDRAULICO	OILHYDRAULIC OIL FAN THERMOSTAT CONNECTOR
F2.6	FUSIBILE ABBAGLIANTI	HEAD LIGHTS FUSE	L3	ELETTROVALVOLA ALTA PRESSIONE	DIESEL SOLENOID VALVE PULL SOLENOID	X123	CONNETTORE MOTORE VENTILATORE RAFFREDDAMENTO OLIO IDRAULICO	
F2.7	FUSIBILE BLOCCO CHIAVE, MAIN RELAY, DEVIO LUCI / AUTORADIO (+ 30)	RADIO/LIGHTS SWITCH/MAIN RELAY/START KEY FUSE	L4	ELETTROVALVOLA APERTURA FLAP	FLAP OPENING SOLENOID VALVE	X124	CONNETTORE VENTOLE CLIMATIZZATORE	AIR CONDITIONING FAN CONNECTOR
F2.8	FUSIBILE ALIMENTAZIONE PRESA ACCESSORI	ACCESORY SOCKET SUPPLY FUSE	L5	ELETTROVALVOLA CHIUSURA FLAP	FLAP CLOSING SOLENOID VALVE	X125	CONNETTORE MICRO CASSONE SOLLEVATO	HOPPER MICROSWITCH CONNECTOR
F3.1	FUSIBILE ELETTROVENTOLA RADIATORE OLIO E COMANDO ELETTROVALVOLE	SOLENOID VALVE CONTROL AND ELECTROFAN OLI RADIATOR FUSE	M1	MOTORINO AVVIAMENTO	starter motor	X126	CONNETTORE MICRO FRENO STAZIONAMENTO	AHND BRAKE MICROSWITCH CONNECTOR
F3.2	FUSIBILE ELETTROVALVOLA GASOLIO, ARRESTO MOTORE, +15 ALTERNATORE	+15 ALTERNATOR/ENGINE STOP/DIESEL SOLENOID VALVE FUSE	M2	ELETTROPOMPA ACQUA ABBATTIMENTO POLVERI	WATER PUMP	X127	CONNETTORE PER PRESA ACCENDISIGARI	LIGHTER SOCKET CONNECTOR
F3.3	FUSIBILE LUCE GIREVOLE / INTERRUTTORI CLIMATIZZATORE / VENTOLE CLIMATIZZATORE	AIR CONDITIONING FAN/AIR CONDITIONING SWITCH/BEACON FUSE	M3	ATTUATORE APERTURA/CHIUSURA PORTELLO	DOOR ACTUATOR	X128	CONNETTORE TERGICRISTALLO	WINDSCREEM WIPER CONNECTOR
F3.4	FUSIBILE ELETTROPOMPA ACQUA / TERGICRISTALLO / POMPA LAVAVETRI / FRIZIONE CLIMATIZZATORE	COMPRESSOR/WIPER PUMP/WINDSCREEN WIPER/WATER PUMP FUSE	M4	MOTORINO TERGICRISTALLO	WINDSCREEN WIPER MOTOR	X130	CONNETTORE LIVELLOSTATO SERBATOIO ACQUA	WATER TANK LEVEL SENSOR CONNECTOR
F3.5	FUSIBILE ALIMENTAZIONE CRUSCOTTO / SX SICUREZZA / SENSORI / PLAFONIERA / AUTORADIO (+15)	RADIO +15/OVERHEAD LIGHT/MARCH SENSORS/SAFETY CARD/DASHBOARD FUSE	M5	MOTORINO ELETTRICO POMPA LAVAVETRO	WINDSCREEN WIPER PUMP	X131	CONNETTORE MOTORE ATTUATORE	DOOR ACTUATOR CONNECTOR
F3.6	FUSIBILE LUCI DIREZIONE (+15)	DIRECTION INDICATOR +15 FUSE	M6	MOTORE ELETTROVENTILATORE RAFFREDDAMENTO OLIO IDRAULICO	OIL RADIATOR ELECTROFAN	X132	CONNETTORE ELETTROVALVOLA ALTA PRESSIONE ACQUA	WATER HIGHT PRESSURE SOLENOID VALVE CONNECTOR
F3.7	FUSIBILE FRIZIONE CLIMATIZZATORE	COMPRESSOR FUSE	M7	MOTORE ELETTROVENTILATORE SCAMBIATORE CLIMATIZZATORE	AIR CONDITIONING RADIATOR ELECTROFAN	X133	CONNETTORE ELETTROVALVOLA APERTURA FLAP	FLAP OPENING SOLENOID VALVE CONNECTOR
F3.8	FUSIBILE MARTINETTO IDRAULICO / VALVOLA NEUTRO (OPT) / ILLUMINAZIONE INTERRUTTORI	SWITCHES LIGHTS/NEUTRAL MARCH SOLENOID VALVE/DOOR ACTUATOR FUSE	M8	FRIZIONE COMPRESSORE CLIMATIZZATORE	COMPRESSOR	X134	CONNETTORE ELETTROVALVOLA CHIUSURA FLAP	FLAP CLOSING SOLENOID VALVE CONNECTOR
F4	FUSIBILE REGOLATORE ALTERNATORE	ALTERNATOR REGULATOR FUSE	M9	ELETTROVENTILATORE CABINA	CABIN ELECTROFAN	X135	CONNETTORE SELETTORE AP/CH FLAP	FLAP OPEN/CLOSE SELECTOR CONNECTOR
G1	BATTERIA AVVIAMENTO	BATTERY 12V 95AH	R1	CANDELETTE PRERISCALDO	GLOW PLUG	X136	CONNETTORE SENSORE MARCIA FORWARD	FORWARD MARCH SENSOR CONNECTOR
G2	ALTERNATORE	ALTERNATOR	R2	RESISTENZA PULLDOWN SENSORE GIRI MOTORE	ENGINE TURNS SENSOR PULLDOWN RESITENCE	X137	CONNETTORE SENSORE MARCIA REVERSE	REVERSE MARCH SENSOR CONNECTOR
Gnd1	CONNESSIONE MASSA TELAIO PRINCIPALE	CHASIS GND CONNECTION	R3	REOSTATO VENTILATORE CABINA	CABIN FAN RHEOSTATE	X138	CONNETTORE MICRO FRENO SERVIZIO	BRAKE MICROSWITCH CONNECTOR
Gnd2	CONNESSIONE MASSA TELAIO - CABINA	CABIN GND CONNECTION	R4	RESISTENZA PULLDOWN SPIA FRECCIE	DIRECTION INDICATOR WARNING LIGHT PULLDOWN RESISTENCE	X139	CONNETTORE DEVIOLUCI	LIGHTS SWITCH CONNECTOR
Gnd3	CONNESSIONE MASSA TELAIO - MOTORE	ENGINE GND CONNECTION	R5	RESISTENZA SPIA RICERCA INTERRUTTORE EMERGENZA	EMERGENCY SWITCH SEARCH WARNING LIGHT RESISTENCE	X140	CONNETTORE FANALE POSTERIORI	REAR LIGHTS CONNECTOR
H1	BUZZER SEGNALAZIONE FRENO DI STAZIONAMENTO NON INSERITO	HAND BRAKE SAFETY BUZZER	S1	SENSORE MARCIA FORWARD	FORWARD MARCH SENSOR	X142	CONNETTORE FARO ANT. DX	RIGHT FRONT LIGHT CONNECTOR
H10	FARO ANABBAGLIANTE ANTERIORE SINISTRO	LEFT FRONT DIPPED LIGHT	S10	INTERRUTTORE LUCE BOCCA	WORKING LIGHT SWITCH	X143	CONNETTORE FRECCIA ANT. DX	RIGHT FRONT DIRECTION INDICATOR CONNECTOR
H11	FARO ANABBAGLIANTE ANTERIORE DESTRO	RIGHT FRONT DIPPED LIIGHT	S11	INTERRUTTORE STACCABATTERIA	BATTERY DISCONNECTION SWITCH	X144	CONNETTORE LUCE POSIZIONE ANT. DX	RIGHT FRONT POSITION LIGHT CONNECTOR
H12	FARO ABBAGLIANTE ANTERIORE SINISTRO	LEFT FRONT HEAD LIGHT	S12	QUADRO AVVIAMENTO	IGNITION SWITCH	X145	CONNETTORE FARO ANT. SX	LEFT FRONT LIGHT CONNECTOR
H13	FARO ABBAGLIANTE ANTERIORE DESTRO	RIGHT FRONT HEAD LIGHT	S13	MICRO FRENO DI SERVIZIO	SERVICE BRAKE MICROSWITCH	X146	CONNETTORE FRECCIA ANT. SX	LEFT FRONT DIRECTION INDICATOR CONNECTOR
H14	LUCE STOP SINISTRA	LEFT STOP LIGHT	S14	INTERRUTTORE LUCI EMERGENZA	EMERGENCY LIGHTS SWITCH	X147	CONNETTORE LUCE POSIZIONE ANT. SX	LEFT FRONT POSITION LIGHT CONNECTOR
H15	LUCE DIREZIONE ANTERIORE SINISTRA	LEFT FRONT DIRECTION INDICATOR	S15	FINECORSA CASSONE SOLLEVATO	RAISED HOPPER MICROSWITCH	X148	CONNETTORE FARO LAVORO BOCCA	WORKING LIGHT CONNECTOR
H16	LUCE DIREZIONE ANTERIORE DESTRA	RIGHT FRONT DIRECTION INDICATOR	S16	PRESSOSTATO BASSA PRESSIONE OLIO MOTORE	ENGINE OIL MANOSTAT	X149	CONNETTORE FUNGO EMERGENZA IMPIANTO	EMERGENCY SWITCH CONNECTOR
H17	LUCE DIREZIONE POSTERIORE SINISTRA	LEFT REAR DIRECTION INDICATOR	S17	MICRO SEDILE OPERATORE	SEAT MICROSWITCH	X149	CONNETTORE LIVELLOSTATO OLIO IDRAULICO	HYDRAULIC OIL LEVEL SENSOR CONNECTOR
H18	LUCE DIREZIONE POSTERIORE DESTRA	RIGHT REAR DIRECTION INDICATOR	S18	SENSORE DI TEMPERATURA ACQUA	WATER TEMPERATURE SENSOR	X150	CONNETTORE LINEA MOTORE	ENGINE LINE CONNECTOR
H19	CLACSON	CLACSON	S19	SENSORE LIVELLO GASOLIO	DIESEL LEVEL SENSOR	X151	CONNETTORE POTENZA LINEA MOTORE	ENGINE LINE POWER CONNECTION
H2	BUZZER ALLARME LIVELLO GASOLIO	DIESEL LEVEL BUZZER	S2	SENSORE MARCIA REVERSE	REVERSE SENSOR	X152	CONNETTORE FUSIBILE REGOLATORE ALTERNATORE	ALTERNATOR REGULATOR FUSE CONNECTOR
H20	SIRENA RETROMARCIA	REVERSE BUZZER	S20	SENSORE GIRI MOTORE	ENGINE TURNS SENSOR	X153	CONNETTORE ALIMENTAZIONE OPZIONALE	OPTIONAL SUPPLY CONNECTOR
H21	ILLUMINAZIONE PRESA ACCENDISIGARI	CIGARETTE LIGHTER LAMP	S21	INTERRUTTORE TERGI + LAVAVETRO	WINDSCREEN WIPER SWITCH	X154	CONNETTORE INTERRUTTORE LUCE BOCCA	WORKING LIGHT SWITCH CONNECTOR
H22	LAMPADA PLAFONIERA	OVERHEAD LIGHT LAMP	S22	LIVELLOSTATO OLIO IDRAULICO	HYDRAULIC OIL LEVEL SENSOR	X155	CONNETTORE INTERRUTTORE LUCE BOCCA	WORKING LIGHT SWITCH CONNECTOR
H23	LUCE STOP DESTRA	RIGHT STOP LIGHT	S23	TERMOSTATO RAFFREDDAMENTO OLIO IDRUALICO	HYDRAULIC OIL THERMOSTAT	X156	CONNETTORE INTERRUTTORE DISPLAY	DISPLAY SWITCH CONNECTOR
H24	LED SEGNALAZIONE POMPE ACQUA IN FUNZIONE	WATER PUMP ON LED	S24	SELETTORE APERTURA FLAP	FLAP OPENING SELECTOR	X157	CONNETTORE MOTORINO AVVIAMENTO	STARTER CONNECTOR
H25	LED RICERCA INTERRUTTORE POMPE ACQUA	WATER PUMP SWITCH SEARCH LED	S25	SELETTORE CHIUSURA FLAP	FLAP CLOSING SELECTOR	X158	CONNETTORE RELE' CANDELETTE	GLOW PLUG RELAY CONNECTOR
H26	LED RICERCA INTERRUTTORE PORTELLO	DOOR SWITCH SEARCH LED	S26	INTERRUTTORE 2 VELOCITA' VENTOLE CLIMA	AIR CONDITIONG FAN 2 SPEED SWITCH	X159	CONNETTORE PRESSOSTATO OLIO MOTORE	ENGINE OIL MANOSTAT CONNECTOR
H27	LED SEGNALAZIONE PORTELLO APERTO	OPEN DOOR LED	S27	INTERRUTTORE CLIMATIZZATORE	AIR CONDITIONG SWITCH	X160	CONNETTORE SEGNALI ALTERNATORE	ALTERNATOR SIGNAL CONNECTOR
H28	LED RICERCA INTERRUTTORE LUCE BOCCA	WORKING LIGHT SWITCH SEARCH LED	S28	PRESSOSTATO DI MASSIMA CLIMATIZZATORE	AIR CONDITIONING MANOSTAT	X161	CONNETTORE ALTERNATORE	ALTERANTOR CONNECTOR
H29	LED SEGNALAZIONE LUCE BOCCA INSERITA	WORKING LIGHT ON LED	S29	TERMOSTATO CLIMATIZZATORE	AIR CONDITIONING THERMOSTAT	X163	CONNETTORE SENSORE TEMPERATURA ACQUA	WATER TEMPERATURE SENSOR CONNECTOR
H3	GIROFARO	TURNING LIGHT	S3	FUNGO EMERGENZA IMPIANTO	EMERGENCY SWITCH	X164	CONNESSIONE CANDELETTE	GLOW PLUG CONNECTION
H30	LED RICERCA INTERRUTTORE TERGICRISTALLO	WIPER SWITCH SEARCH LED	S4	MICRO FRENO STAZIONAMENTO INSERITO	HAND BRAKE ON MICROSWITCH	X165	CONNETTORE ELETTROVALVOLA GASOLIO	DIESEL SOLENOID VALVE CONNECTOR
H31	LED RICERCA INTERRUTTORE DISPLAY	DISPLAY SWITCH SEARCH LED	S5	LIVELLOSTATO VASCA ACQUA	WATER TANK LEVEL SENSOR	X166	CONNETTORE SENSORE GIRI MOTORE	ENGINE TURNS SENSOR CONNECTOR
H32	LED RICERCA INTERRUTTORE DISPLAY	DISPLAY SWITCH SEARCH LED	S6	INTERRUTTORE ACQUA ABBATTIMENTO POLVERI	WATER PUMP SWITCH	X167	CONNETTORE INTERRUTTORE TERGI	WINDSCREEN WIPER SWITCH CONNECTOR
H33	LED SEGNALAZIONE CLIMATIZZATORE INSERITO	AIR CONITIONING ON LED	S7	INTERRUTTORE APERTURA/CHIUSURA PORTELLO	DOOR OPENING/CLOSING SWITCH	X167	CONNETTORE INTERRUTTORE TERGICRISTALLO	WIND SCREEN WIPER SWITCH CONNECTOR
H34	LED RICERCA INTERRUTTORE VENTOLE	FAN SWITCH SEARCH LED	S8	INTERRUTTORE LUCI	LIGHTS SWITCH	X168	CONNETTORE INTERRUTTORE POMPE ACQUA	WATER PUMP SWITCH CONNECTOR
H4	FARO LAVORO BOCCA	WORKING LIGHT	S9	SELETTORE PER DISPLAY	DISPLAY SELCTOR	X169	CONNETTORE INTERRUTTORE VENTOLE CLIMATIZZATORE	AIR CONDITIONING FAN SWITCH CONNECTOR
H5	LUCE TARGA	NUMBERPLATE LIGHT	X1.3	CONNESSIONE A VITE POLI BATTERIA	BATTERY CONNECTION	X170	CONNETTORE INTERRUTTORE CLIMATIZZATORE	AIR CONDITIONING SWITCH CONNECTOR
H6	LUCE POSIZIONE POSTERIORE SINISTRA	LEFT REAR POSITION LIGHT	X100	CONNETTORE FANALI POSTERIORI	REAR LIGHTS CONNECTOR	X171	CONNETTORE INTERRUTTORE AP./CH. PORTELLO	DOOR OPEN/CLOSE SWITCH CONNECTOR
H7	LUCE POSIZIONE POSTERIORE DESTRA	RIGHT REAR POSITION LIGHT	X102	CONNETTORE SIRENA RETROMARCIA	REVERSE BUZZER CONNECTION	X176	CONNETTORE BUZZER ALLARMI	ALARMS BUZZER CONNECTOR
H8	LUCE DI POSIZIONE ANTERIORE SINISTRA	LEFT FRONT POSITION LIGHT	X103	CONNETTORE FANALE POSTERIORE DX	RIGHT REAR LIGHT CONNECTOR	X177/1	CONNETTORE 50 QUADRO AVVIAMENTO	START KEY 50 CONNECTOR

Dis. N. 33019500

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File 33019500.dwg

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Data 9/7/2009

Impianto

Functional wiring diagram
Electrical diagram

Denominazione

legenda componenti

Ordine .

Commessa Rs502

Esecutore Marchini

Nilfisk Advance

NILFISK-ADVANCE ITALIA SPA
GUARDAMIGLIO - (LO)

FOGLIO 7

SEGUE

0	1	2	3	4	5	6	7	8	9

NOME	FUNZIONE	DESCRIPTION
X177/2	CONNETTORE 30 QUADRO AVVIAMENTO	START KEY +30 CONNECTOR
X177/3	CONNETTORE 15/54 QUADRO AVVIAMENTO	START KEY 15/54 CONNECTOR
X19	CONNETTORE PLAFONIERA	OVERHEAD LIGHT CONNECTOR
X2	CONNETTORE GIROFARO	BEACON CONNECTOR
X2.1	CONNESSIONE A VITE NEGATIVO BATTERIA	BATTERY NEGATIVE CONNECTION
X3.1	CONNESSIONE A VITE CAVO NEGATIVO STACCABATTERIA E TELAIO	BATTERY DISCONNECTION SWITCH NEGATIVE CABLE CONNECTION
X6	CONNETTORE CLACSON VEICOLO	HORN CONNECTOR
X99	CONNESSIONE MASSE SU CRUSCOTTO	DASHBOARD GND CONNECTION
XD1	CONNETTORE DIODO D1	D1 DIODE CONNECTOR
XD2	CONNETTORE DIODO D2	D2 DIODE CONNECTOR
XD3	CONNETTORE DIODO D3	D3 DIODE CONNECTOR
XD4	CONNETTORE DIODO D4	D4 DIODE CONNECTOR

Dis. N. 33019500

Spe_N. __

File 33019500.dwg

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Data 9/7/2009

Impianto

Functional wiring diagram
Electrical diagram

Denominazione

legenda componenti

Ordine .

Commessa Rs502

Esecutore Marchini

Nilfisk Advance

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SEGUE

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