

BR 652, BR 752, BR 752C

Instructions for use

Bedienungshandbuch
Instructions d'utilisation
Instructions for use
Gebruiksaanwijzing

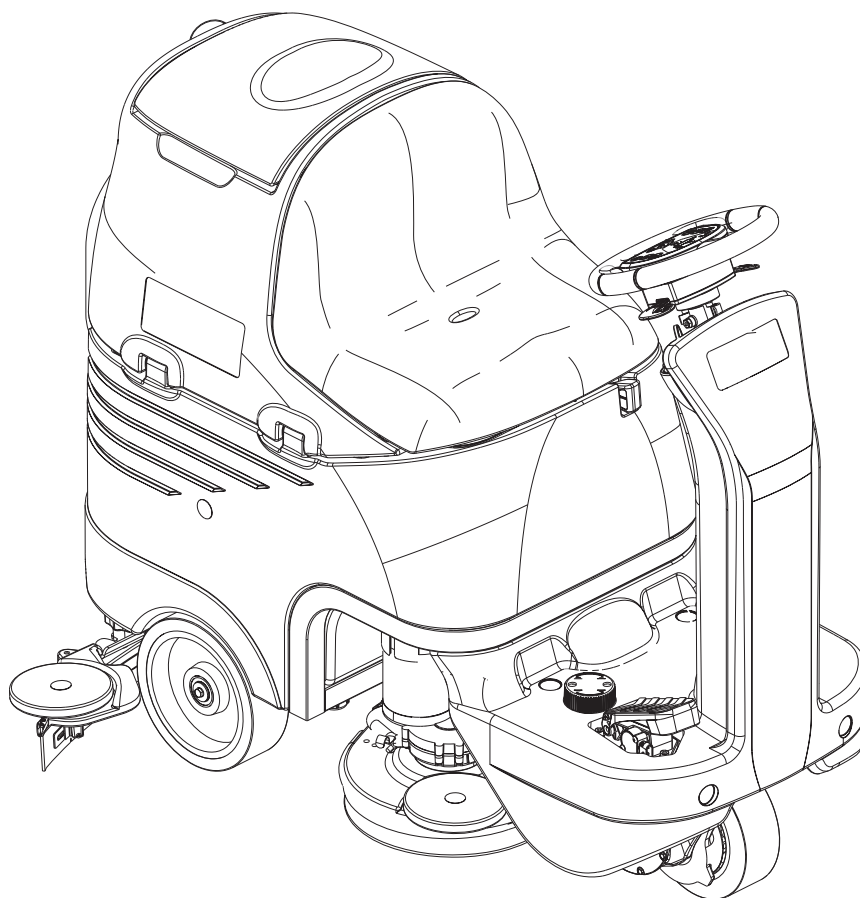


05/2010 Revised 03/2018
(D)
9098684000



ecoflex™

Deutsch
Français
English
Nederlands



Model No.:
9087260020, 9087261020, 9087262020,
9087263020 (9087264020, 9087265020 discontinued)

Сертификат за съответствие
Osvědčení o shodě
Konformitätserklärung
Overensstemmelsecertifikat
Declaración de conformidad
Vastavussertifikaat
Déclaration de conformité
Yhdenmukaisuustodistus
Conformity certificate

Πιστοποιητικό συμμόρφωσης
Megfelelősségi nyilatkozat
Potvrda sukladnosti
Dichiarazione di conformità
Atitikties deklaracija
Atbilstības deklarācija
Konformitetssertifisering
Conformiteitsverklaring
Declaração de conformidade

Deklaracja zgodności
Certificat de conformitate
Заявление о соответствии
Överensstämmelsecertifikat
Certifikát súladu
Certifikat o ustreznosti
Uyumluluk sertifikası

Модел / Model / Modell / Model / Modelo / Mudel / Modèle / Malli / Model
/ Μοντέλο / Modell / Model / Modello / Modelis / Modelis / Modell / Model
/ Modelo / Model / Model / Модель / Modell / Model / Model / Model :

BR 652, BR 752, BR 752C

Тип / Typ / Typ / Type / Tipo / Tüüp / Type / Tyypki / Type / Τύπος /
Típus / Vrsta / Tipo / Tipas / Tips / Type / Type / Tipo / Typ / Tip / Тип /
Typ / Typ / Tip / Tip :

SCRUBBER-DRYER

Сериен номер / Výrobní číslo / Seriennummer / Seriennummer / Número de serie / Seerianumber / Numéro de série / Sarjainumero / Serial number /
Σειριακός αριθμός / Sorozatszám / Serijski broj / Numero di serie / Serijos numeris / Sērijas numurs / Seriennummer / Seriennummer / Número de série /
Numer seryjny / Număr de serie / Серийный номер / Seriennummer / Výrobné číslo / Serijska številka / Seri Numarası :

Година на производство / Rok výroby / Baujahr / Fabrikationsår / Año de fabricación / Våljalaskeasta / Année de fabrication / Valmistusvuosi / Year of
construction / Έτος κατασκευής / Gyártási év / Godina izgradnje / Anno di costruzione / Pagaminimo metai / Izgatavošanas gads / Byggeår / Baujaar /
Ano de fabrico / Rok produkcji / Anul fabricației / Год выпуска / Tillverkningsår / Rok výroby / Leto izdelave / Leto izdelave / İmal yılı :

BG Допълнителният потвърждава, че горепоменатият модел е произведен в съответствие със следните директиви и стандарти. Техническият файл е съставен от производителя.

GB The undersigned certify that the above mentioned model is produced in accordance with the following directives and standards. The technical file is compiled by the manufacturer.

P A presente assinatura serve para declarar que os modelos supramencionados são produtos em conformidade com as seguintes directivas e normas. A ficha técnica é redigida pelo fabricante.

CZ Niže podepsaný stvrzuje, že výše uvedený model byl vyroben v souladu s následujícími směrnici a normami. Autorem technického listu je výrobce.

GR Ο κάτωθι υπογεγραμμένος πιστοποιεί ότι η παραγωγή του προαναφερθέντος μοντέλου γίνεται σύμφωνα με τις ακόλουθες οδηγίες και πρότυπα. Το τεχνικό αρχείο συντάσσεται από τον κατασκευαστή.

PL Niżej podpisany zaświadcza, że wymieniony powyżej model produkowany jest zgodnie z następującymi dyrektywami i normami. Dokumenty techniczne zostały przygotowane przez producenta.

D Der Unterzeichner bestätigt hiermit dass die oben erwähnten Modelle gemäß den folgenden Richtlinien und Normen hergestellt wurden. Die technische Dokumentation wird vom Hersteller erstellt.

H Alulírottak igazoljuk, hogy a fent említett modellt a következő irányelvek és szabványok alapján hoztuk létre. A műszaki fájlt a gyártó készítette.

RO Subsemnatul atest că modelul susmenționat este produs în conformitate cu următoarele directive și standarde. Fișierul tehnic este redactat de către producător.

DK Undertegnede attesterer herved, at ovennævnte model er produceret i overensstemmelse med følgende direktiver og standarder. Den tekniske fil er udarbejdet af fabrikanten.

HR Potpisani potvrđujem da gore spomenuti model proizveden u skladu sa sljedećim direktivama i standardima. Tehničku dokumentaciju sastavlja proizvođač.

RUS Настоящим удостоверяется, что машина вышеуказанной модели изготовлена в соответствии со следующими директивами и стандартами. Техническая документация составлена производителем.

E El abajo firmante certifica que los modelos arriba mencionados han sido producidos de acuerdo con las siguientes directivas y estándares. El fascículo técnico está redactado por el fabricante

I Il sottoscritto dichiara che i modelli sopra menzionati sono prodotti in accordo con le seguenti direttive e standard. Il fascicolo tecnico è redatto dal costruttore.

S Undertecknad intygar att ovannämnda modell är producerad i överensstämmelse med följande direktiv och standarder. Den tekniska filen är sammanställd av tillverkaren.

EST Allakirjutana kinnitab, et ülalnimetatud mudel on valmistatud kooskõlas järgmistele direktiivide ja normidega. Tehnilise dokumentatsiooni koostab tootja.

LT Toliau pateiktu dokumentu patvirtinama, kad minėtas modelis yra pagamintas laikantis nurodytų direktyvų bei standartų. Techninę bylą sudarė gamintojas.

SK Dolu podpísaný osvedčuje, že hore uvedený model sa vyrába v súlade s nasledujúcimi smernicami a normami. Technický súbor vytvoril výrobca.

F Je soussigné certifie que les modèles ci-dessus sont fabriqués conformément aux directives et normes suivantes. Le dossier technique est rédigé par le fabricant.

N Undertegnede attesterer att ovennævnte modell är producerad i överensstämmelse med följande direktiv och standarder. Den tekniske filen er opprettet av produsenten.

SLO Spodaj podpisani potrjujem, da je zgoraj omenjeni model izdelan v skladu z naslednjimi smernicami in standardi. Spis s tehnično dokumentacijo pripravi izdelovalec.

FIN Allekirjoittaja vakuuttaa että yllämainittu malli on tuotettu seuraavien direktiivien ja standardien mukaan. Valmistaja kääntää teknisen tiedoston.

NL Ondergetekende verzekert dat de bovengenoemde modellen geproduceerd zijn in overeenstemming met de volgende richtlijnen en standaards. Het technische bestand is door de fabrikant samengesteld.

TR Aşağıda imzası olan kişi, yukarıda bahsedilen model cihazın aşağıda verilen direktiflere ve standartlara uygunlukta imal edildiğini onaylar. Teknik dosya üretici tarafından derlenmiştir.

EC Machinery Directive 2006/42/EC

EN ISO 12100, EN ISO 13857, EN 349, EN 982

EN 60335-1, EN 60335-2-72, EN 50366

EC EMC Directive 2014/30/EU

EN 55014-1, EN 55014-2, EN 61000-6-2

Производителя / Výrobce / Hersteller / Fabrikanten /
Fabricante / Tootja / Fabricant / Valmistaja / Manufacturer
/ Κατασκευαστή / Gyártó / Proizvođač / Costruttore
/ Gamintojas / Ražotājs / Produzenten / Fabrikant /
Fabricante / Producenta / Producător / Производителем /
Tillverkaren / Výrobca / Izdelovalec / Üretici :

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Date:

Signature:

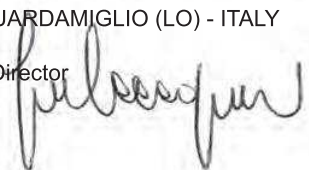


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INTRODUCTION



NOTE

The numbers in brackets refer to the components shown in Machine Description chapter.

MANUAL PURPOSE AND CONTENTS

The purpose of this Manual is to provide the operator with all necessary information to use the machine properly, in a safe and autonomous way. It contains information about technical data, safety, operation, storage, maintenance, spare parts and disposal. Before performing any procedure on the machine, the operators and qualified technicians must read this Manual carefully. Contact Nilfisk in case of doubts concerning the interpretation of the instructions and for any further information.

TARGET

This Manual is intended for operators and technicians qualified to perform the machine maintenance.

The operators must not perform procedures reserved for qualified technicians. Nilfisk will not be answerable for damages coming from the non-observance of this prohibition.

HOW TO KEEP THIS MANUAL

The Instructions for Use Manual must be kept near the machine, inside an adequate case, away from liquids and other substances that can cause damage to it.

DECLARATION OF CONFORMITY

The Declaration of Conformity, supplied with the machine, certifies its conformity with the law in force.



NOTE

Two copies of the original declaration of conformity are provided together with the machine documentation.

IDENTIFICATION DATA

The machine serial number and model name are shown on the plate (21) on the steering column.

Year of production (Date code: A18 means January 2018) and product code are marked on the same plate.

This information is useful when requiring machine spare parts. Use the following table to write down the machine identification data.

Model
Model Number
Serial Number

OTHER REFERENCE MANUALS

- Electronic battery charger Manual (to be considered as integral part of this Manual)

Moreover, the following Manuals are available:

- Spare Parts List (supplied with the machine)
- Service Manual (that can be consulted at Nilfisk Service Centers)

SPARE PARTS AND MAINTENANCE

All necessary operating, maintenance and repair procedures must be performed by qualified personnel or by Nilfisk Service Centers. Only original spare parts and accessories must be used.

Contact Nilfisk for service or to order spare parts and accessories, specifying the machine model, product code and serial number.

CHANGES AND IMPROVEMENTS

Nilfisk constantly improves its products and reserves the right to make changes and improvements at its discretion, without being obliged to apply such benefits to the machines that were previously sold.

Any change and/or addition of accessory must be approved and performed by Nilfisk.

OPERATION CAPABILITIES

This scrubber-dryer is used to clean (scrubbing and drying) smooth and solid floors, in commercial or industrial environment, under safe operation conditions by a qualified operator.

The scrubber-dryer cannot be used for fitted carpet and carpet cleaning.

CONVENTIONS

Forward, backward, front, rear, left or right are intended with reference to the operator's position, that is to say on the driver's seat (17).

UNPACKING/DELIVERY

To unpack the machine, carefully follow the instructions on the packing.

To move the machine manually, see the Pushing/Towing The Machine paragraph.

Upon delivery carefully check that the machine and its packing have not been damaged during transportation. In case of visible damages, keep the packing and have it checked by the carrier that delivered it. Call the carrier immediately to fill in a damage claim.

Check that the machine is equipped with the following features:

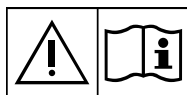
- Technical documents:
 - Scrubber-dryer Instructions for use Manual
 - Electronic Battery Charger Manual (if equipped)
 - Scrubber-dryer Spare Parts List
- No. 2 lamellar fuses
- No. 1 battery connector (only for machines without on-board battery charger)
- No. 2 shims for 6 V battery housing

SAFETY

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

The operator's cooperation is essential in order to prevent injury. No accident prevention program is effective without the total cooperation of the person responsible for the machine operation. Most of the accidents are caused by failure to comply with the simplest rules for exercising prudence.

VISIBLE SYMBOLS ON THE MACHINE



WARNING!

Carefully read all the instructions before performing any operation on the machine.



WARNING!

Do not wash the indicated area with direct or pressurized water jets.



WARNING!

Do not use the machine on slopes with a gradient exceeding the specifications.

SYMBOLS THAT APPEAR ON THIS MANUAL

**DANGER!**

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

**WARNING!**

It indicates a potential risk of injury for people or damage to objects.

**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 the necessity to refer to the Instructions for Use Manual before performing any procedure.

GENERAL INSTRUCTIONS

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

**DANGER!**

- Before performing any machine maintenance, repair, cleaning or replacement procedure, disconnect the battery connector and remove the ignition key.
- This machine must be used by properly trained operators only.
- Do not wear jewels when working near electrical components.
- Do not work under the lifted machine without supporting it with safety stands.
- Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapours. This machine is not suitable for collecting dangerous powders.
- When using lead (WET) batteries, keep sparks, flames and smoking materials away from the batteries. During the normal operation explosive gases are released.
- When using lead (WET) batteries, battery charging produces highly explosive hydrogen gas. During battery charging, lift the recovery tank and perform this procedure in well-ventilated areas and away from naked flames.

**WARNING!**

- Carefully read all the instructions before performing any maintenance/repair procedure.
- Before using the battery charger, ensure that frequency and voltage values, indicated on the machine serial number plate, match the electrical mains voltage.
- Do not pull or carry the machine by the battery charger cable and never use the battery charger cable as a handle. Do not close a door on the battery charger cable, or pull the battery charger cable around sharp edges or corners. Do not run the machine on the battery charger cable.
- Keep the battery charger cable away from heated surfaces.
- Do not use the machine if the battery charger cable or plug is damaged. If the machine is not working as it should, has been damaged, left outdoors or dropped into water, return it to the Service Center.
- To reduce the risk of fire, electric shock, or injury, do not leave the machine unattended when it is plugged in. Before performing any maintenance procedure, disconnect the battery charger cable from the electrical mains.
- Do not smoke while charging the batteries.
- To avoid any unauthorized use of the machine, remove the ignition key.
- Do not leave the machine unattended without being sure that it cannot move independently.
- Always protect the machine against the sun, rain and bad weather, both under operation and inactivity condition. This machine must be used indoors in dry conditions, it must not be used or kept outdoors in wet conditions.
- Before using the machine, close all doors and/or covers as shown in the Instructions for Use Manual.

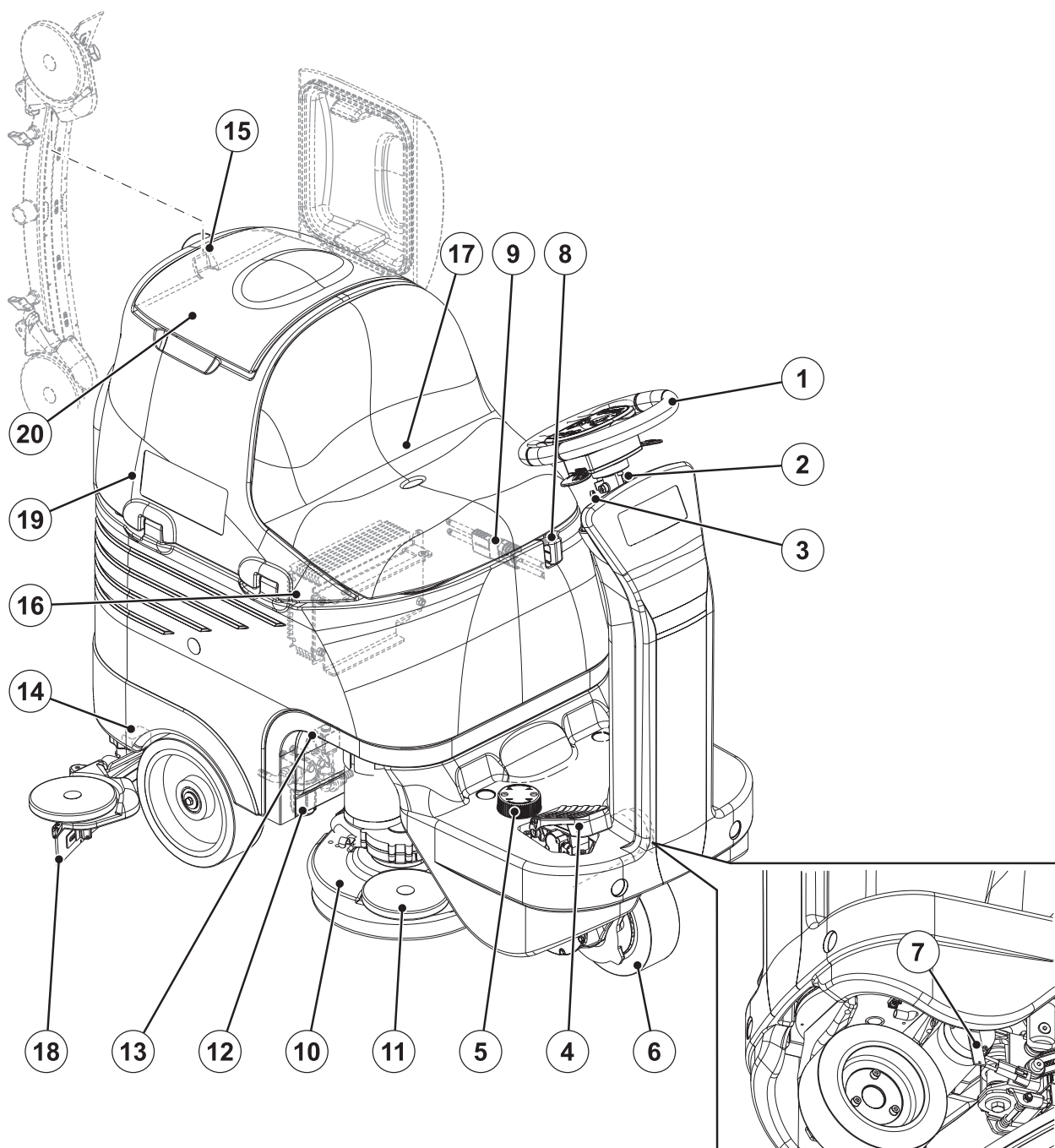
**WARNING!**

- *This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety. Children should be supervised to ensure that they do not play with the machine.*
- *Close attention is necessary when used near children.*
- *Use only as shown in this Manual. Use only Nilfisk's recommended accessories.*
- *Check the machine carefully before each use, always check that all the components have been properly assembled before use. If the machine is not perfectly assembled it can cause damages to people and properties.*
- *Take all necessary precautions to prevent hair, jewels and loose clothes from being caught by the machine moving parts.*
- *Do not use the machine on slopes.*
- *Do not tilt the machine more than the angle indicated on the machine itself, in order to prevent instability.*
- *Do not use the machine in particularly dusty areas.*
- *Use the machine only where a proper lighting is provided.*
- *If the machine is to be used where there are other people besides the operator, it is necessary to install the pivoting light and the reverse gear buzzer (optional).*
- *While using this machine, take care not to cause damage to people or objects.*
- *Do not bump into shelves or scaffoldings, especially where there is a risk of falling objects.*
- *Do not place liquid containers on the machine, use the relevant can holder.*
- *The machine working temperature must be between 0 °C and +40 °C.*
- *The machine storage temperature must be between 0 °C and +40 °C.*
- *The humidity must be between 30% and 95%.*
- *When using floor cleaning detergents, follow the instructions on the labels of the detergent bottles.*
- *To handle floor cleaning detergents, wear suitable gloves and protections.*
- *Do not use the machine as a means of transport.*
- *Do not allow the brushes to operate while the machine is stationary to avoid damaging the floor.*
- *In case of fire, use a powder fire extinguisher, not a water one.*
- *Do not tamper with the machine safety guards and follow the ordinary maintenance instructions scrupulously.*
- *Do not allow any object to enter into the openings. Do not use the machine if the openings are clogged. Always keep the openings free from dust, hairs and any other foreign material which could reduce the air flow.*
- *Do not remove or modify the plates affixed to the machine.*
- *To manually move the machine, the electromagnetic brake must be disengaged. After moving the machine manually, engage the electromagnetic brake again. Do not use the machine when the electromagnetic brake handwheel is screwed down.*
- *When the machine is to be pushed for service reasons (missing or discharged batteries, etc.), the speed must not exceed 4 km/h.*
- *This machine cannot be used on roads or public streets.*
- *Pay attention during machine transportation when temperature is below freezing point. The water in the recovery tank or in the hoses could freeze and seriously damage the machine.*
- *Use brushes and pads supplied with the machine or those specified in the Instructions for Use Manual. Using other brushes or pads could reduce safety.*
- *In case of machine malfunctions, ensure that these are not due to lack of maintenance. If necessary, request assistance from the authorised personnel or from an authorised Service Center.*
- *If parts must be replaced, require ORIGINAL spare parts from an Authorised Dealer or Retailer.*
- *To ensure machine proper and safe operation, the scheduled maintenance shown in the relevant chapter of this Manual, must be performed by the authorised personnel or by an authorised Service Center.*
- *Do not wash the machine with direct or pressurised water jets, or with corrosive substances.*
- *When WET batteries are installed on the machine, do not tilt the machine for more than 30° from the horizontal plane to prevent the highly corrosive acid from leaking out of the batteries. If the machine must be tilted to perform any maintenance procedure, remove the batteries.*
- *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 centres (see Scrapping chapter).*

MACHINE DESCRIPTION

MACHINE STRUCTURE

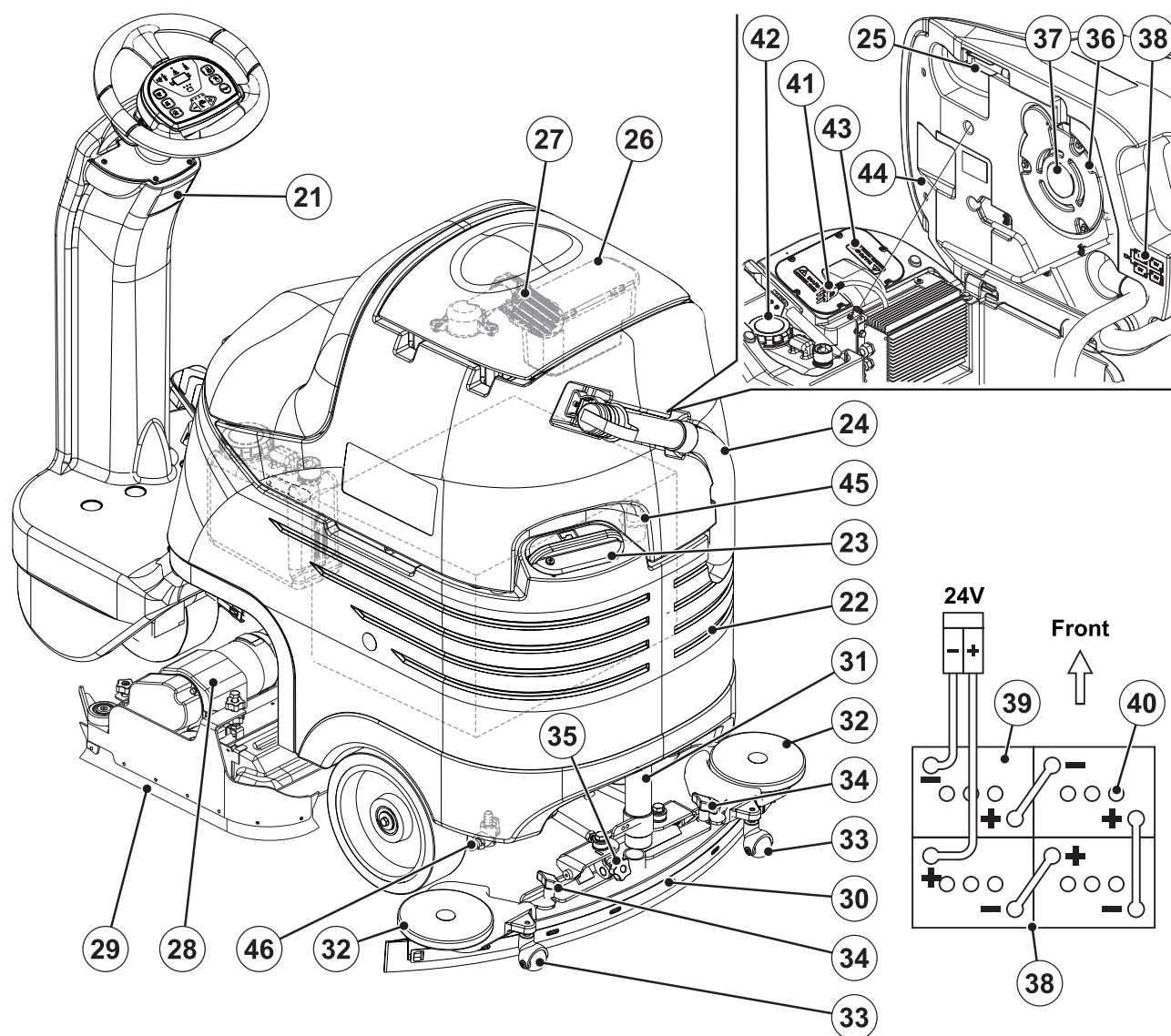
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|--|------------------------------------|
| 1. Steering wheel with control panel (see the following paragraph) | 11. Bumper wheel |
| 2. Steering wheel height control lever | 12. Solution filter |
| 3. Ignition key | 13. Solenoid valve |
| 4. Drive pedal | 14. Solution opening/closing valve |
| 5. Heel support height adjustment | 15. Squeegee hook |
| 6. Front steering, driving and braking wheel | 16. Battery charger (optional) |
| 7. Electromagnetic brake unlocking lever | 17. Seat |
| 8. EMERGENCY push-button, to stop immediately all functions | 18. Squeegee blades |
| 9. Battery connector | 19. Dumping recovery tank |
| 10. Disc brush deck | 20. Recovery tank cover |



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MACHINE STRUCTURE (Continues)

- 21. Serial number plate/technical data/conformity certification
 - 22. Solution tank
 - 23. Solution/clean water tank filler neck with removable filler hose
 - 24. Recovery water drain hose
 - 25. Tank assembly stand
 - 26. Container with debris collection grid
 - 27. Vacuum grid with automatic shut-off float
 - 28. Cylindrical brush deck
 - 29. Cylindrical brush deck side skirt
 - 30. Squeegee
 - 31. Squeegee vacuum hose
 - 32. Squeegee bumper wheels
 - 33. Squeegee support wheels
 - 34. Squeegee mounting handwheels
 - 35. Squeegee balance adjusting handwheel
 - 36. Vacuum system motor
 - 37. Vacuum system motor filter
 - 38. Battery connection diagram
 - 39. Batteries
 - 40. Battery caps (for WET batteries only)
 - 41. Battery charger cable (optional)
 - 42. Detergent tank (*)
 - 43. Electronic component compartment cover
 - 44. Recovery tank (lifted)
 - 45. Solution draining adapter
 - 46. Solution tank drain tap
- (*) Only for machine with EcoFlex system (optional)



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STEERING WHEEL WITH CONTROL PANEL

51. Reverse gear activation/deactivation lever
52. Reverse gear LED
53. Detergent flow control push-button (*)
54. Washing detergent flow control activation LED (*)
55. Mute function push-button
56. Mute function activation LED
57. Horn switch
58. Ignition key
59. Solution flow increase push-button
60. Solution flow decrease push-button
61. Solution flow quantity LED bar
62. Battery charge LED bar
 - Green LED - charged battery
 - Yellow LED - semi-discharged batteries
 - Red LED - discharged batteries
63. Vacuum system push-button
64. Vacuum system activation LED
65. Extra-pressure push-button (**)
66. Extra-pressure LED
67. One-Touch™ Scrub ON/OFF push-button
68. One-Touch™ push-button LED:
 - LED flashing - brush deck and squeegee lifting/lowering
 - LED on - machine working

69. EcoFlex activation/deactivation lever (*)
70. EcoFlex system LED (*):
 - LED on - EcoFlex system on
 - LED flashing - EcoFlex override
71. Hour counter and solution level display:
 - When the machine is started, it displays for a few seconds the number of working hours which have been performed.
 - While using the machine, it displays the solution level in the tank (in litres).
 - When the level is above 70 litres, the display indicates "FUL".
 - When the level is under 30 litres, the display indicates "LO".
 - When the tank is almost empty, "LO" starts flashing.



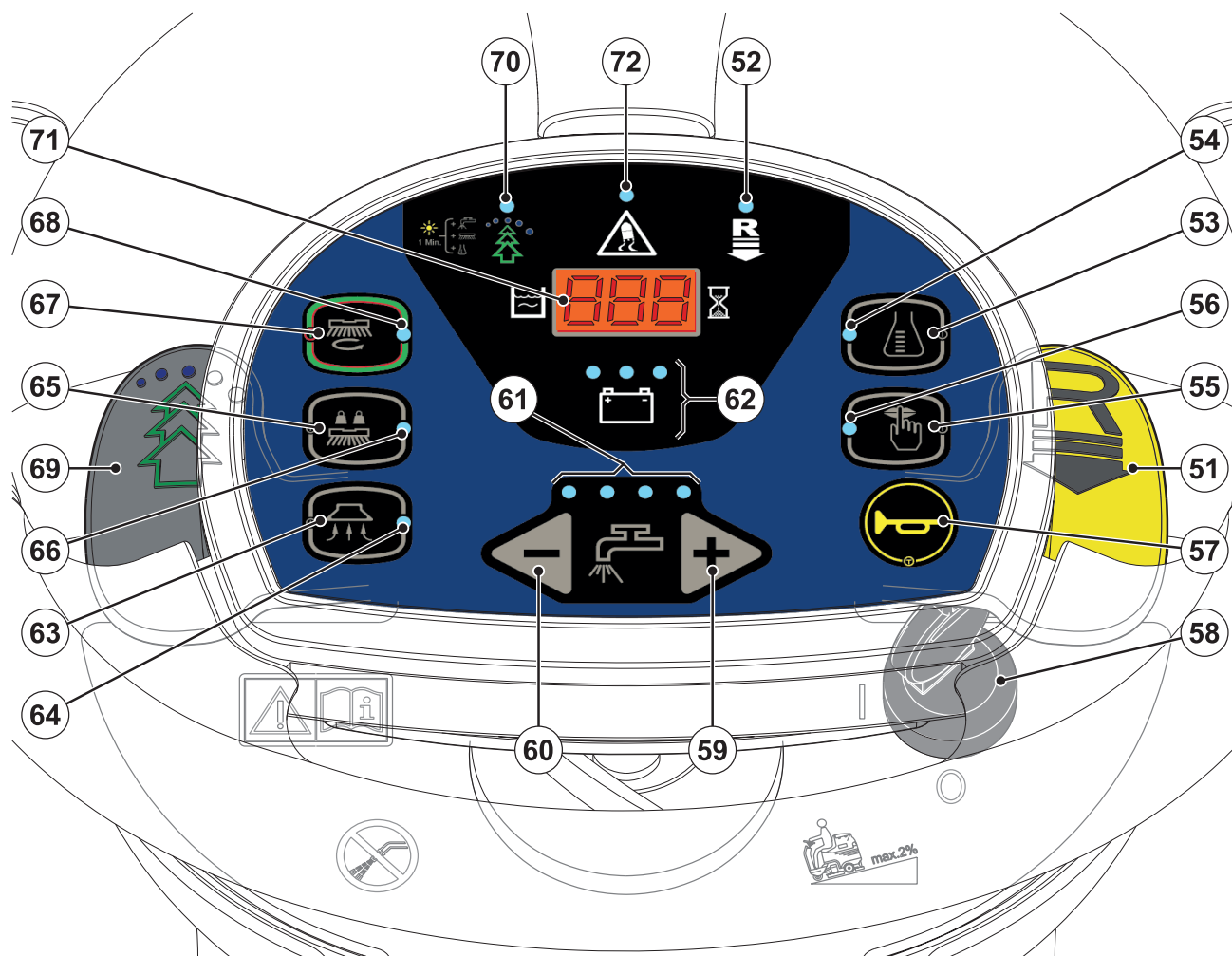
NOTE

The display could indicate "LO" even if the tank is not completely empty, thus allowing to complete the cleaning cycle; in any case, it is recommended to check the actual solution flow supplied to the brushes.

72. Anti-skid control activation LED

(*) Only for machine with EcoFlex system (optional)

(**) Only for BR 652, BR 752



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ACCESSORIES/OPTIONS

In addition to the standard components, the machine can be equipped with the following accessories/options, according to the machine specific use:

- GEL/AGM batteries
- Electronic battery charger
- Brushes and cylindrical brushes of different materials
- Pads of different materials
- Squeegee blades of different materials
- EcoFlex
- Flashing light
- Mop a trash kit
- 670 W vacuum system motor

For further information concerning the optional accessories, contact an authorised Retailer.

TECHNICAL DATA

Model	BR 652	BR 752	BR 752C
Solution tank capacity	80 litres		
Recovery tank capacity	80 litres		
Machine maximum length	1,360 mm		
Machine width without squeegee	670 mm	748 mm	810 mm
Squeegee width	890 mm		
Machine height	1,190 mm		
Turning space for U-turns	1,500 mm		
Cleaning width	660 mm	710 mm	
Rear wheel diameter	250 mm		
Rear wheel specific pressure on the floor	0.9 N/mm²		
Front steering, driving and braking wheel diameter	225 mm		
Front wheel specific pressure on the floor	0.5 N/mm²		
Brush diameter	330 mm	355 mm	-
Cylindrical brush size (diameter x length)	-	-	145 x 690 mm
Brush pressure with extra pressure function turned off	30 kg	32 kg	35 kg
Brush pressure with extra pressure function turned on	48 kg	50 kg	-
Solution flow	1 to 3 litres/min		
Sound pressure level at workstation (ISO 11201, ISO 4871, EN 60335-2-72) (LpA)	65 dB(A) ± 3 dB(A)		
Machine sound power level (ISO 3744, ISO 4871, EN 60335-2-72) (LwA)	82 dB(A)		
Vibration level at the operator's arm (ISO 5349-1, EN 60335-2-72)	< 2.5 m/s²		
Vibration level at the operator's body (ISO 2631-1, EN 60335-2-72)	0.8 m/s²		
Maximum gradient when working	2%		
Drive system motor power	300 W		
Maximum speed	6 km/h		
Vacuum system motor power	420 W		
Vacuum system capacity	1,000 mmH₂O		
Brush motor power	2 x 400 W		2 x 600 W
Brush speed	230 rpm		720 rpm
Total absorbed power	1.5 kW		
IP protection class	X4		
Battery compartment size (length x width x height)	380 x 540 x 300 mm		
Battery type	4 6 V batteries, 180 Ah C5 (WET)		
	4 6 V batteries, 180 Ah C5 (GEL/AGM)		
Weight without batteries and with empty tanks	175 kg	177 kg	180 kg
Weight with batteries and empty tanks	303 kg	305 kg	308 kg
Gross vehicle weight (GVW)	446 kg	448 kg	451 kg
Shipping weight	207 kg	209 kg	212 kg

WIRING DIAGRAM**Key**

BAT	24 V battery box
BE	Flashing light (optional)
BRK	Electromagnetic brake
BZ1	Reverse gear warning buzzer/horn
C1	Battery connector
C2	Battery charger main connector
C3	Battery charger sub-connector
C4	Brush deck connector
CH	Battery charger (optional)
EB1	Function electronic board
EB2	Display electronic board
EB3	Dashboard instrument electronic board
ES1	Brush electromagnetic switch
EV1	Solenoid valve
F0	Battery fuse
F1	Brush deck fuse
F2	Main electronic board fuse
F3	Signal circuit fuse
F4	Actuator fuse
K1	Ignition switch
M1.1,2	Brush motor
M2	Vacuum system motor
M3	Drive system motor
M4	Detergent pump (optional)
M5	Brush deck actuator motor
M6	Squeegee actuator motor
m0	Squeegee actuator position 0 microswitch
m1	Squeegee actuator position 1 microswitch
m2	Squeegee actuator position 2 microswitch
PR1	Detergent level pressure switch
RV1	Drive pedal potentiometer
SW1	Seat microswitch

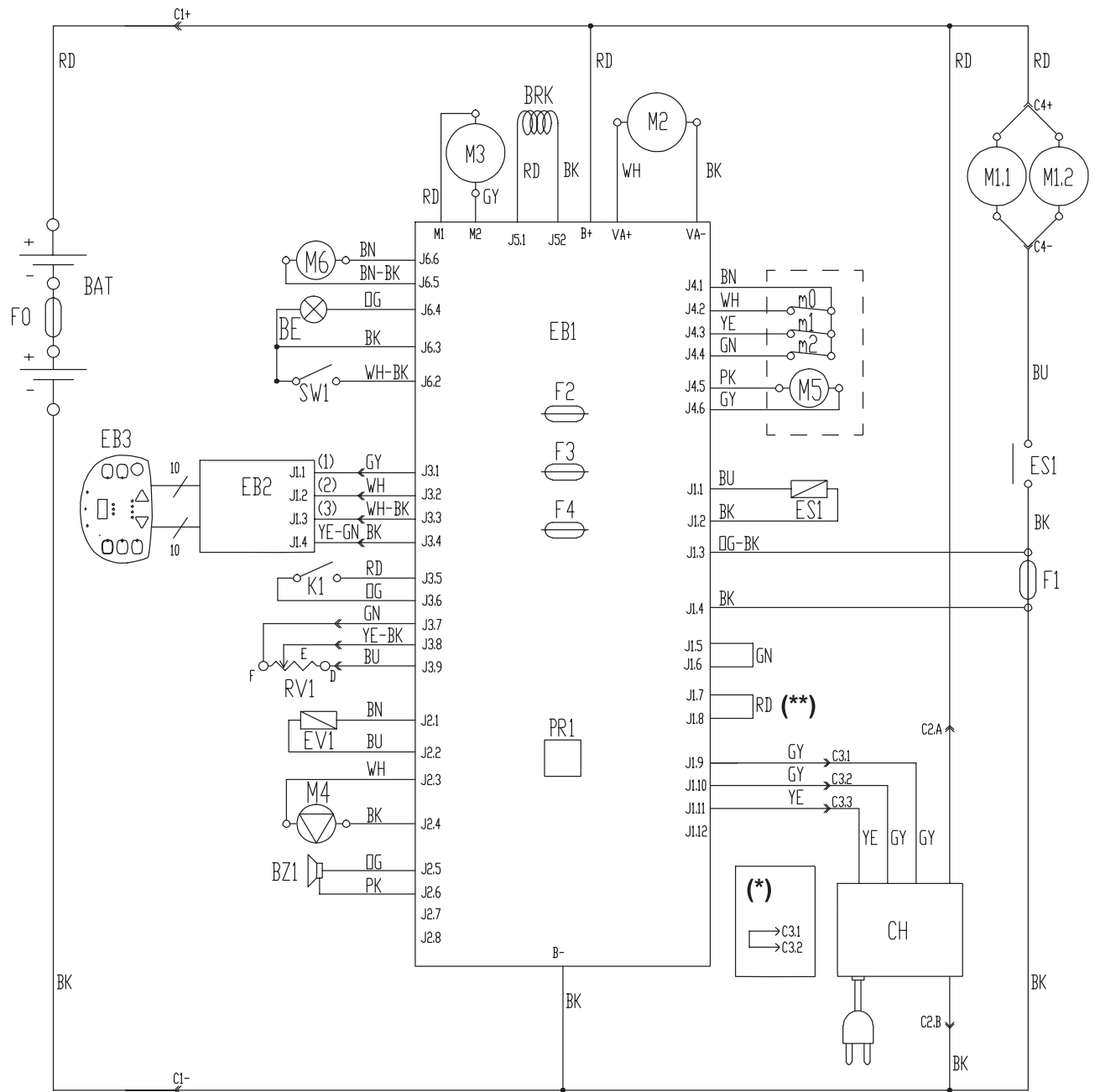
Colour codes

BK	Black
BU	Blue
BN	Brown
GN	Green
GY	Grey
OG	Orange
PK	Pink
RD	Red
VT	Violet
WH	White
YE	Yellow

(*) Versions without on-board battery charger

(**) Only for BR 652, BR 752

WIRING DIAGRAM (Continues)



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USE/OPERATION

**WARNING!**

On some points of the machine there are some adhesive plates indicating:

- **DANGER**
- **WARNING**
- **CAUTION**
- **CONSULTATION**

While reading this Manual, the operator must pay particular attention to the symbols shown on the plates.

(See Visible Symbols On The Machine paragraph).

Do not cover these plates for any reason and immediately replace them if damaged.

BATTERY CHECK/SETTING ON A NEW MACHINE

**WARNING!**

The electric components of the machine can be seriously damaged if the batteries are either improperly installed or connected. The batteries must be installed by qualified personnel only. Set the function electronic board according to the type of batteries installed (WET or GEL/AGM).

Check the batteries for damage before installation.

Disconnect the battery connector and the battery charger plug.

Handle the batteries with great care.

Install the battery terminal protection caps supplied with the machine.

The machine requires 4 6 V batteries, connected according to the diagram (38).

The machine can be supplied in one of the following modes:

Batteries (WET or GEL/AGM) already installed and ready to be used

1. Open the cover (20) and check that the recovery tank (19) is empty, otherwise empty it with the drain hose (24).
2. Close the cover (20).
3. Carefully lift the recovery tank (44).
4. Check that the batteries are connected to the machine with the connector (9).
5. Carefully lower the recovery tank (44).
6. When first using the machine with new batteries, perform a full charging cycle (see the procedure in Maintenance chapter).

Without batteries

1. Buy appropriate batteries (see Technical Data paragraph).
For battery choice and installation, apply to qualified battery Retailers.
2. Set the machine according to the type of batteries installed (WET or GEL/AGM) (see the following paragraph).
3. Install the batteries (see the following paragraph).
4. Charge the batteries (see the procedure in Maintenance chapter).

BATTERY INSTALLATION AND BATTERY TYPE SETTING (WET OR GEL/AGM)

Battery Installation

1. Open the cover (20) and check that the recovery tank (19) is empty, otherwise empty it with the drain hose (24).
2. Close the cover (20).
3. Carefully lift the recovery tank (44).
4. Install the batteries and connect them according to the diagram (38).

Battery type setting

Set the electronic board of the machine and the battery charger (optional) according to the type of batteries installed (WET or GEL/AGM) as shown below:

5. Turn the ignition key (58) to "I" and, in the very first seconds of machine operation, detect the current setting by counting the number of flashes of the battery warning lights (62), as shown in the following table:

SETTING	DISPLAY (71)	BATTERY WARNING LIGHT INDICATION (62)	BATTERY TYPE	CHARGING CURRENT
1	WET 20A	4 flashes of the red warning light	WET	STANDARD
2	GEL 20A	4 flashes of the green warning light	GEL-AGM	
3	GEE 20A	4 flashes of the yellow warning light	GEL EXIDE® type	
4	WET 15A	2 flashes of the red warning light	WET	REDUCED (see note)
5	GEL 15A	2 flashes of the green warning light	GEL-AGM	
6	GEE 15A	2 flashes of the yellow warning light	GEL EXIDE® type	

6. If the setting is to be changed, perform the following procedure.
7. Turn off the machine by turning the ignition key (58) to "0".
8. Press and hold the push-buttons (67) and (63) at the same time, then turn the ignition key (58) to "I".
9. Release the push-buttons (67) and (63) at least 5 seconds after starting the machine.
10. Within 3 seconds, shortly press the push-button (63) to go to the next setting (1 to 6 in cyclic sequence).



NOTE

When performing steps 9 and 10, the settings are shown on the display (71) too, by the code in the table.



NOTE

When using batteries with a capacity lower than 160Ah@5h (in case of doubt, refer to the battery documents), to avoid battery overheating during charging procedure, use the REDUCED charging current with setting 4, 5 or 6 shown in the table, according to the type of batteries installed.



NOTE

The battery charger (optional) must be set according to the type of batteries.

Battery Charging

11. Charge the batteries (see the procedure in Maintenance chapter).

BEFORE MACHINE START-UP**WARNING!**

At every machine start-up, check that, between the deck (10 and 28) and the machine or between the squeegee (30) and the machine, there is no foreign material which may prevent the deck and the squeegee from lifting. This check is necessary because, if the machine has been turned off without lifting the deck and the squeegee, the deck and the squeegee will lift automatically at next machine start-up.

Brush installation/removal (only for BR 652, BR 752)

According to the kind of cleaning to be performed, the machine can be equipped either with brushes (A, Fig. 1) or pad-holders (B) with pads (C) together with the appropriate deck.

For the installation/removal, proceed as follows.

1. Insert the ignition key (58) and turn it to "I".

**WARNING!**

Before pressing the One-touch push-button (67), always check that, between the deck (10) and the machine there is no foreign material which may prevent the deck from lifting.

2. Raise the deck by pressing the One-Touch push-button (67).
3. Turn the ignition key (58) to "0" and remove it.
4. Install the brushes (A) or pad-holders (B) in the drive hub (D) under the deck, then turn them in the opposite direction to their rotation direction, until they reach the end of stroke (E).
5. To remove the brushes perform steps 1 to 3, then manually release the brush from the hub by turning it abruptly in its normal rotation direction (F).

**WARNING!**

If the machine is not perfectly assembled it can cause damages to people and properties. Always check that all components are assembled before starting the machine. Carefully inspect the machine before using it.

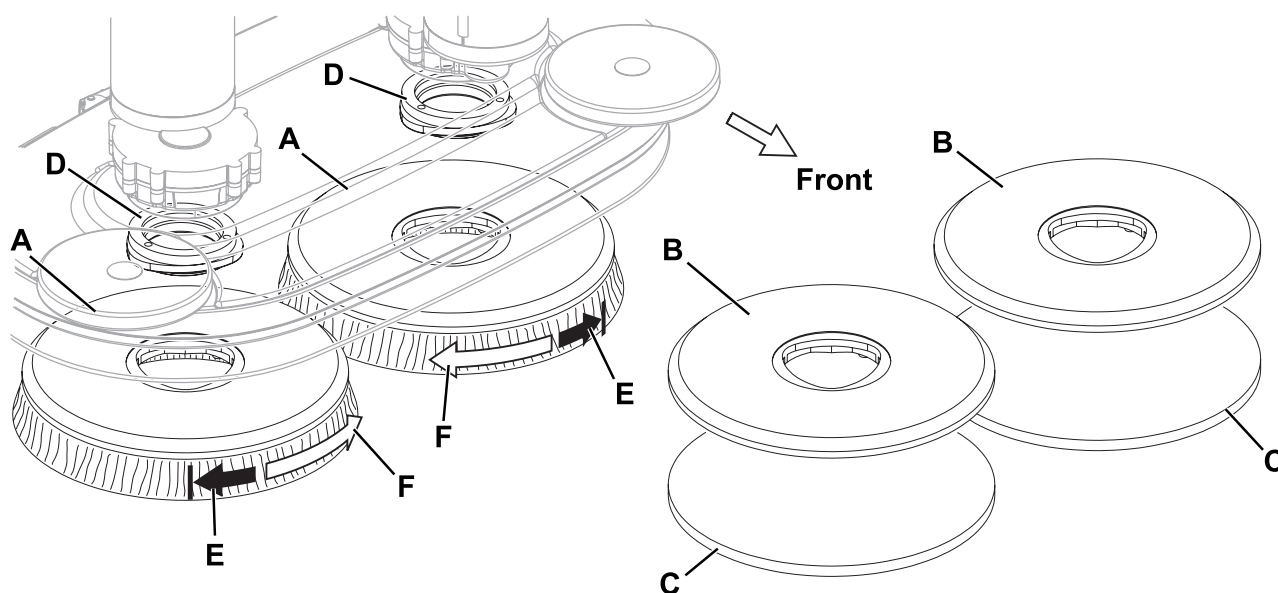


Figure 1

P100362

Available brushes and their relevant application guides (suggestions only)

Models	MIDLITE GRIT 180	MIDGRIT 240	PROLENE	PROLITE	UNION MIX
General cleaning:					
Concrete					
Terrazzo floor					
Ceramic tiles/quarrrystones					
Marble					
Vinyl tiles					
Rubber tiles					
Polishing:					
Rubber tiles					
Marble					
Vinyl tiles					

Cylindrical brush installation/removal (only for BR 752C)

1. Insert the ignition key (58) and turn it to "I".

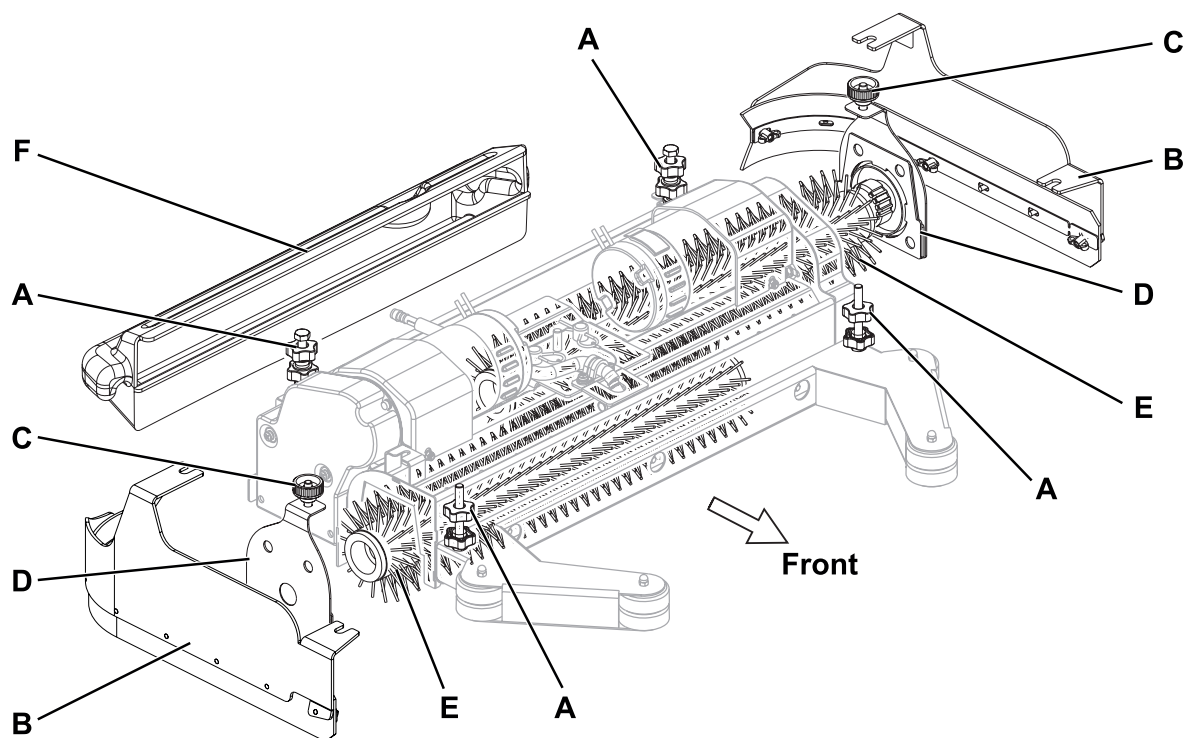
**WARNING!**

Before pressing the One-touch push-button (67), always check that, between the deck (28) and the machine there is no foreign material which may prevent the deck from lifting.

2. Raise the deck by pressing the One-Touch push-button (67).
3. Turn the ignition key (58) to "0" and remove it.
4. On both sides of the machine, unscrew the knobs (A, Fig. 2) and remove the side skirt assemblies (B).
5. Unscrew the knobs (C) and remove the lids (D) by pushing the knobs downwards.
6. Install the cylindrical brushes (E), or remove them to install new ones.
The cylindrical brushes must be installed on either sides.
7. Install the lids (D) and fasten them with the knobs (C).
8. Install the side skirt assemblies (B) and fasten them with the knobs (A).

**WARNING!**

If the machine is not perfectly assembled it can cause damages to people and properties. Always check that all components are assembled before starting the machine. Carefully inspect the machine before using it.

**Figure 2**

P100363

Available cylindrical brushes and their relevant application guides (suggestions only)

Models	MAGNA GRIT 46	DYNA GRIT 80	MIDLITE GRIT 180	PROLENE	PROLITE	UNION MIX
General cleaning:						
Concrete						
Terrazzo floor						
Ceramic tiles/quarrrystones						
Marble						
Vinyl tiles						
Rubber tiles						

Squeegee installation

1. Install the squeegee (30) and fasten it with the handwheels (34), then connect the vacuum hose (31) to the squeegee.
2. With the handwheel (35), adjust the squeegee so that the rear blades (18) - in all its length - touches the floor and the front blade is slightly detached from the floor.

Solution tank filling**NOTE**

If the machine is equipped with EcoFlex system (optional) pour clean water in the tank, otherwise pour solution.

**CAUTION!**

Use only low-foam and non-flammable detergents, intended for automatic scrubber applications.

**WARNING!**

*When using floor cleaning detergents, follow the instructions on the labels of the detergent bottles.
To handle floor cleaning detergents, wear suitable gloves and protections.*

1. Open the filler neck (23).
2. **(For machines without EcoFlex system)**
Use the removable filler hose to fill the tank (22) with a solution suitable for the work to be performed.
Do not fill the tank (22) completely, leave a few inches from the edge of the filler neck (23).
Always follow the dilution instructions on the label of the chemical product used to prepare the solution.
The solution temperature must not exceed 40 °C.
(For machines with EcoFlex system)
Fill the tank (22) with clean water by using the removable filler hose.
Do not fill the tank (22) completely, leave a few inches from the edge of the filler neck (23).
The water temperature must not exceed 40 °C.

Detergent Tank Filling

(For machines with EcoFlex system)

1. Open the cover (20) and check that the recovery tank (19) is empty, otherwise empty it with the drain hose (24).
2. Close the cover (20).
3. Carefully lift the recovery tank (44).
4. Open the detergent tank plug (42).
5. Fill the tank with a detergent suitable for the work to be performed (highly concentrated detergent).
Do not fill the tank completely, leave a few inches from the edge.

**NOTE**

If the detergent tank is empty (in case of new system, system emptied for cleaning, etc.), in order to fill the hose quickly, it may be useful to drain EcoFlex system once or several times (see the procedure in Maintenance chapter).

Driver's position adjustment

1. Adjust the height of the steering wheel (1) with the lever (2) and the height of the heel support (5) to reach a comfortable position.

MACHINE START AND STOP

Starting the machine

1. Prepare the machine as shown in the previous paragraph.
2. Turn the ignition key (58) to "I" without pressing the drive pedal (4). Check if the battery green LED (62) turns on. If the yellow or red warning light turns on, turn the ignition key (58) back to "0" and charge the batteries (see the procedure in Maintenance chapter).
3. Drive the machine to the working place, by starting it with the hands on the steering wheel and by pressing the pedal (4). The drive speed can be adjusted from zero to maximum speed according to the pressure on the pedal (4).
4. The forward/reverse gear is selected with the relevant lever (51) which is at the right of the steering wheel.



NOTE

The driver's seat (17) is equipped with a safety sensor, which allows the machine to be driven by pressing the pedal (4) only when the operator is on the driver's seat.



NOTE

The machine is equipped with an anti-skid safety system (LED (72) flashing) that reduces the speed when turning and when the machine tilts laterally, irrespectively of the pressure on the pedal. In this case, the reduction of speed is not a malfunction but a characteristic that improves the machine stability and safety in every condition.

5. Lower the brush deck and the squeegee by pressing the One-Touch push-button (67).
6. Press the solution flow control push-buttons (59 and 60) according to the type of cleaning to be performed.
7. Start scrubbing, by starting it with the hands on the steering wheel (1) and by pressing the pedal (4) as necessary.



NOTE

The machine is equipped with a safety system that turns on the brushes and vacuum system only when the machine is moving.

Stopping the machine

8. Release the pedal (4).
9. It is not necessary to lock the machine during stopping or parking, because the electromagnetic brake on the wheel turns on automatically when the drive pedal is not pressed.
10. Lift the brush deck and the squeegee by pressing the One-Touch push-button (67).



CAUTION!

In the event of an emergency, to stop all machine functions immediately, firmly press the push-button (8). To reset the machine operation, lift the recovery tank (44) and reconnect the battery connector (9).

MACHINE OPERATION (SCRUBBING/DRYING)

1. Start the machine as shown in the previous paragraph.
2. If necessary, adjust the solution quantity by pressing the push-buttons (59 and 60).
3. If necessary, to reduce the noise, turn on the mute function by pressing the switch (55).



NOTE

It is suggested to use the mute function only on smooth floors without joints.



NOTE

For correct scrubbing/drying of floors at the sides of the walls, Nilfisk suggests to go near the walls with the right side of the machine as shown in figure 3.

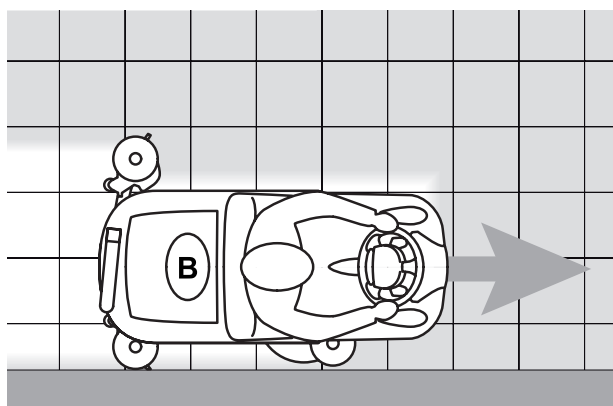
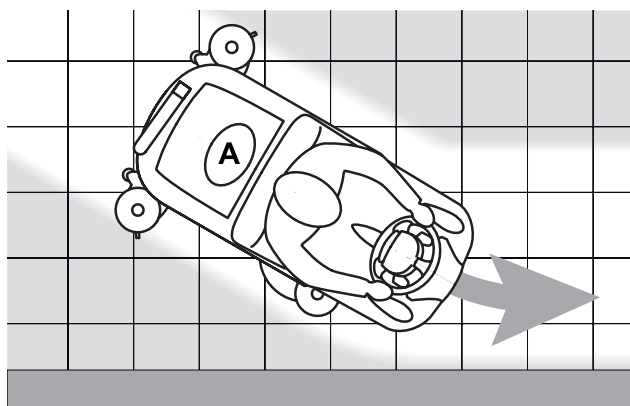


Figure 3

P100364

Squeegee adjustment

1. If necessary, stop the machine and turn the squeegee adjusting handwheel (35) so that the rear blade touches the floor along all its length.

Adjustment of the detergent concentration in the solution

(For machines with EcoFlex system)

The system used to mix the detergent with the washing water can be activated by pressing the detergent flow control push-button (A, Fig. 4): when the LED (B) is on, the detergent is added to the washing water.

The display (C) shows the detergent concentration level in the solution as shown in the table in Figure 5.

In order to change the actual detergent concentration, proceed as follows:

1. Turn off the detergent flow control push-button (A) (the LED (B) must be OFF).
2. Press and hold the detergent flow control push-button (A) until the LED (B) flashes.
3. Release the push-button (A). Press it again shortly to go to the next level shown by the display (C) as shown in the table in Figure 4; repeat the procedure until the desired setting is reached.
4. Wait until the LED (B) stops flashing: the new level is now set.



NOTE

Detergent percentage setting is stored into memory, even if the machine is switched off.

EcoFlex function

Lift the EcoFlex lever (D, Fig. 4) whenever a stronger washing power is required.

When lifting the lever (D) (LED (E) flashing) the solution flow increases, the extra pressure function activates and (for machines with EcoFlex system) the detergent concentration in the solution increases (moreover, if the detergent mixing function is not activated, it activates automatically).

The original settings can be restored by lifting the lever (D) once again (LED (E) on).

**NOTE**

If the lever (D) is not lifted once again, the original settings are restored automatically after 60 seconds.

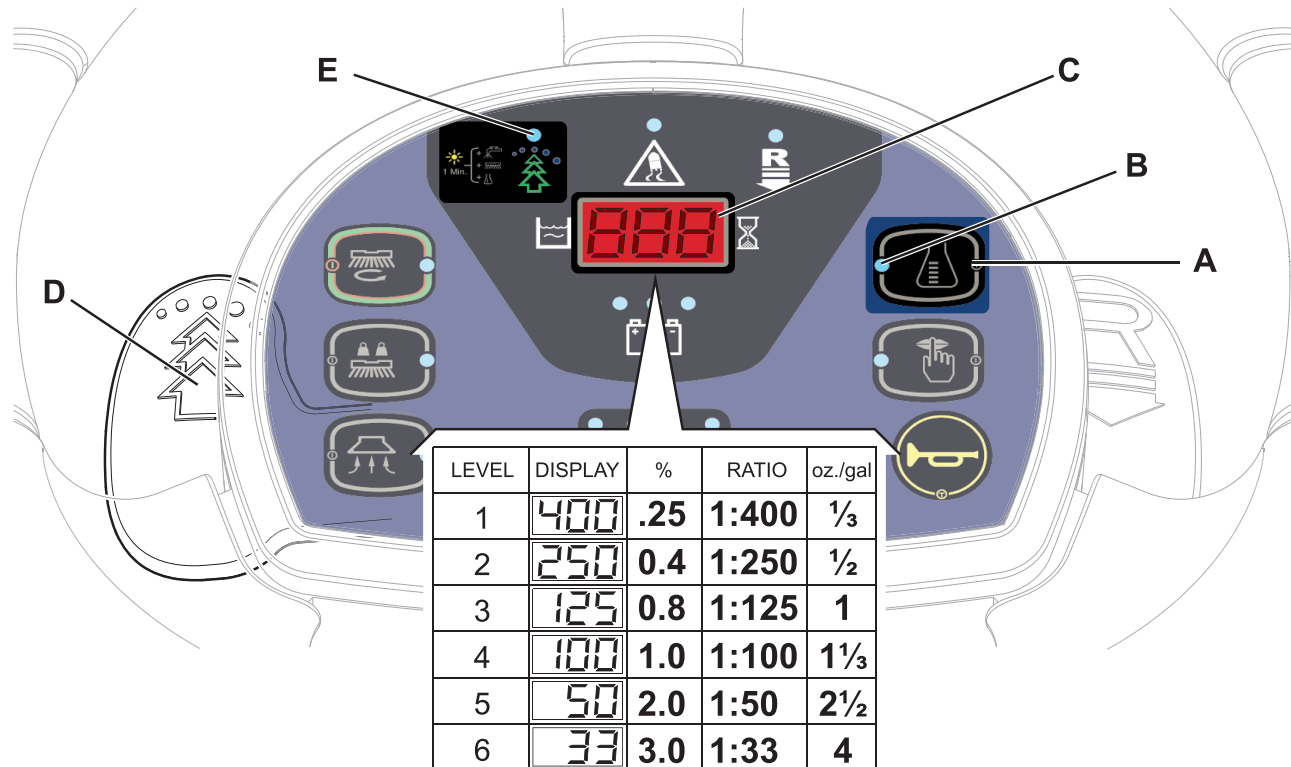


Figure 4

P100365N

Working with brush extra pressure function turned on (only for BR 652, BR 752)

1. If the floor proves to be particularly difficult to clean, it is possible to turn on the brush/pad-holder extra pressure function by pressing the push-button (65).
2. To return to normal pressure, press the push-button (65) again.
The push-button (65) is enabled only when the deck (10) is lowered and the LED (68) of the One-Touch push-button (67) is on.

**CAUTION!**

In case of brush motor overload, due to foreign bodies which prevent the brushes from turning or to excessively aggressive floors/brushes, the safety system stops the brushes after about a minute of continuous overload.

The overload is shown by the three battery warning lights (62) flashing simultaneously.

If the overload takes place when the extra pressure function is on, the system automatically reduces the pressure on the brushes, thus turning the extra pressure function off. If the overload persists, the brushes stop. To start scrubbing again after a brush stop due to overload, stop the machine by turning the ignition key (58) to "0". Turn on the machine by turning the ignition key (58) to "I".

Battery discharge during operation

1. Until the green warning light (62) stays on, the batteries allow the machine to work normally.
When the green warning light turns off and first the yellow warning light then the red warning light turn on, the batteries must be charged.
 - When the yellow warning light turns on the machine residual autonomy will last for a few minutes (depending on the characteristics of the battery).
 - When the red warning light turns on the machine autonomy is over: after a few seconds the brushes are automatically stopped and the deck is automatically lifted. Only vacuum and drive systems still operate, just to dry the wet floor and move the machine to the appointed charging area.

**CAUTION!**

Do not use the machine with discharged batteries, to avoid damaging the batteries and reducing the battery life.

**NOTE**

In case the machine drive system cannot be used in order to move the machine, see Pushing/Towing The Machine paragraph.

TANK EMPTYING

An automatic float shut-off system (27) turns off the vacuum system when the recovery tank (19) is full.

The vacuum system deactivation is signalled by a sudden increase in the vacuum system motor noise frequency, and the floor is not dried.

**CAUTION!**

If the vacuum system turns off accidentally (for example, when the float is activated because of a sudden machine movement), to resume the operation: turn off the vacuum system by pressing the push-button (63), then open the cover (20) and check that the float inside the grid (27) has gone down to the water level. Then close the cover (20) and turn on the vacuum system by pressing the push-button (63).

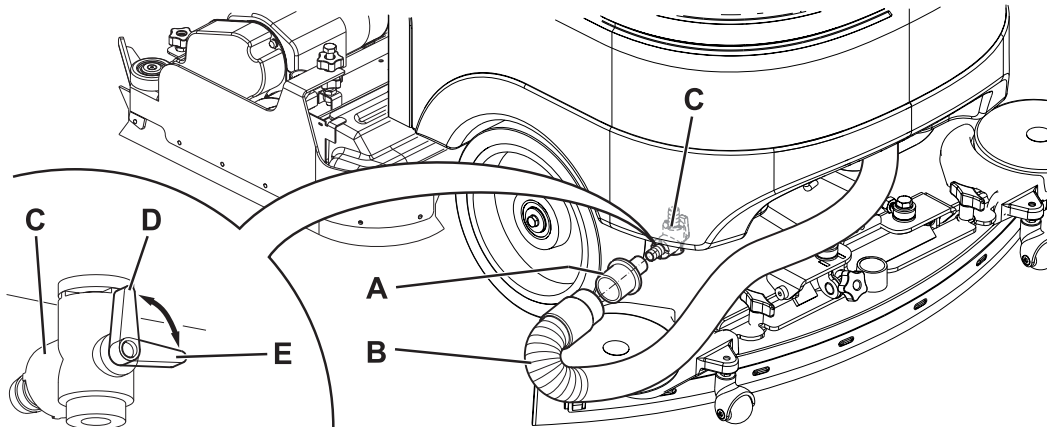
When the recovery tank (19) is full, empty it according to the following procedure.

Recovery tank emptying

1. Stop the machine by releasing the pedal (4).
2. Lift the brush deck and the squeegee by pressing the One-Touch push-button (67).
3. Drive the machine to the appointed disposal area.
4. Empty the recovery water tank with the hose (24).
5. Remove the container with debris collection grid (26), empty it and clean it with clean water. Then install it on the suction hose in the tank.
6. Then, rinse the tank with clean water.

Solution tank emptying

7. Perform steps 1 to 3.
8. Remove the adapter (45) from its housing inside the battery compartment.
9. Install the adapter (A, Fig. 5) on the squeegee vacuum hose (B), then fasten it to the drain tap (C).
10. Turn the ignition key (58) to "I" and turn on the vacuum system with the push-button (63).
11. Open the drain tap (C) to drain the tank (22).
The tap (C) is open when it is in the position (D) and it is closed when it is in the position (E).
12. Then, turn off the vacuum system and drain the recovery tank (19) with the hose (24).
13. When the procedure is over, close the drain tap (C), remove the adapter (A) and install the vacuum hose (B) on the squeegee (30).

**Figure 5**

P100366

Cylindrical brush debris container emptying (only for cylindrical brush deck)

14. Stop the machine.
15. Lower the cylindrical brush deck and remove the debris container (F, Fig. 2).
16. Empty and wash the debris container (F), and then install it on the relevant stand.

AFTER USING THE MACHINE

After working, before leaving the machine:

1. Remove the brushes as shown in the relevant paragraph.
2. Remove the ignition key (58).
3. Empty the tanks (19 and 22) as shown in the previous paragraph.
4. Remove the squeegee (30) and clean it with hot water. Open the recovery tank cover (20) and hang the squeegee on the recovery tank by using the relevant hook (15).
5. Perform the daily maintenance procedures (see the Maintenance chapter).
6. Store the machine in a clean and dry place, with the brushes and the squeegee lifted or removed.

PUSHING/TOWING THE MACHINE

To push/tow the machine easily when the drive system cannot be used (for example in case of missing batteries, discharged batteries, etc.), disengage the electromagnetic brake by pulling the lever (7) and locking it with a spacer.

When the operation is over, remove the spacer under the lever (7) to activate the electromagnetic brake again.

**WARNING!**

If the lever (7) is not disengaged after pushing/towing the machine, the electromagnetic brake is disengaged.

**WARNING!**

Do not start the machine when the electromagnetic brake is disengaged.

For safety reasons, it is recommended to disengage the electromagnetic brake only for the time necessary to manually move the machine.

MACHINE LONG INACTIVITY

If the machine is not going to be used for more than 30 days, proceed as follows:

1. Perform the procedures shown in After using the machine paragraph.
2. For versions with EcoFlex system, empty the detergent tank (38) and clean the system with a draining cycle (see the procedure in Maintenance chapter).
3. Close the solution tank valve (14).
4. Press the emergency push-button (8) to disconnect the battery connector (9).
5. Keep the recovery tank assembly (19) lifted by using the stand (25).

MAINTENANCE

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

The following chart provides the scheduled maintenance. The intervals shown may vary according to particular working conditions, which are to be defined by the person in charge of the maintenance.



WARNING!

The procedures must be performed with the machine off and the battery disconnected.
Moreover, carefully read the instructions in the Safety chapter.

All scheduled or extraordinary maintenance procedures must be performed by qualified personnel, or by an authorised Service Center.

This Manual describes only the simplest and most common maintenance procedures.



NOTE

For other maintenance procedures shown in the Scheduled Maintenance Table, refer to the Service Manual that can be consulted at any Service Center.

SCHEDULED MAINTENANCE TABLE

Procedure	Daily, after using the machine	Weekly	Every six months	Yearly
Battery Charging				
Squeegee Cleaning				
Brush/pad cleaning				
Tank, debris collection grid and vacuum grid with float cleaning, and cover gasket check				
EcoFlex system (optional) cleaning and draining				
Squeegee Blade Check and Replacement				
Side skirt check (only for BR 752C)				
Solution Filter Cleaning				
Vacuum system motor filter cleaning				
Battery (WET) fluid level check				
Removal of outside dust around each motor				
Check and adjustment of driving belts between motors and cylindrical brushes (only for BR 752C)			(1)	
Electromagnetic brake efficiency check			(1)	
Brush motor carbon brush check or replacement				(1)
Vacuum system motor carbon brush check or replacement				(1)
Drive system motor carbon brush check or replacement				(1)

(1) This maintenance procedure must be performed by an authorised Nilfisk Service Center.

MACHINE WORKING HOUR CHECK

1. Insert the ignition key (58) and turn it to "I".
2. In the first 2 seconds of machine operation, the display (71) shows the total number of working hours (scrubbing/drying) performed by the machine.
Turn the ignition key (58) to "0".

BATTERY CHARGING



NOTE

Charge the batteries when the yellow or red LED (62) turns on, or at the end of every working cycle. Keeping the batteries charged make their life last longer.



CAUTION!

When the batteries are discharged, charge them as soon as possible, as that condition makes their life shorter. Check for battery charge at least once a week.



WARNING!

When using lead (WET) batteries, battery charging produces highly explosive hydrogen gas. Charge the batteries in well-ventilated areas and away from naked flames. Do not smoke while charging the batteries. While charging the battery, always keep the tank assembly open with the relevant stand (25).



WARNING!

Pay careful attention when charging lead batteries (WET) as there may be battery fluid leakages. The battery fluid is corrosive. If it comes in contact with skin or eyes, rinse thoroughly with water and consult a physician.

Preliminary operations

1. Drive the machine to the appointed recharging area.
2. Ensure that the machine is off and the ignition key (58) has been removed.
3. Lift the cover (20) and check that the recovery tank (19) is empty; if not, empty it using the drain hose (24).
4. Close the cover (20).
5. Carefully lift the recovery tank (44).
6. (For WET batteries only): Check the level of electrolyte inside the batteries (39). If necessary, unscrew the plugs (40) and top up.
When the correct level is restored, close the plugs (40) and clean the tops of the batteries.

Charging the Batteries with an External Battery Charger

1. Check that the external battery charger is suitable by referring to the relevant Manual. The battery charger voltage rating must be 24 V.



CAUTION!

The battery charger must be appropriate for the batteries installed on the machine.

2. Disconnect the battery connector (9) and connect it to the external battery charger.
3. Connect the battery charger to the electrical mains.
4. After charging, disconnect the battery charger from the electrical mains and from the battery connector (9).
5. Connect the battery connector (9) to the machine.
6. Carefully lower the recovery tank (44).



WARNING!

Never connect the battery charger to the opposing part of the connector fixed to the machine. The electronic system could be irreparably damaged.

Charging the Batteries with an (Optional) Battery Charger Installed on the Machine

1. Connect the battery charger cable (41) to the electrical mains (the electrical mains voltage and frequency must be compatible with the battery charger values shown on the machine serial number plate).



NOTE

When the battery charger is connected to the electrical mains, all machine functions are automatically cut off.

The red warning light (62) is on when the battery charger is charging the batteries.

The yellow warning light (62) is on when the battery charger is completing the battery charging.

2. When the green warning light turns on, the battery charging is completed.
3. Disconnect the battery charger cable (41) from the electrical mains and place it in its holder behind the battery charger.
4. Carefully lower the recovery tank (44).
5. Now the machine is ready to be used.



NOTE

For further information about the operation of the battery charger (16), see the relevant Manual.

SQUEEGEE CLEANING



NOTE

The squeegee must be clean and its blades must be in good conditions in order to get a good drying.



CAUTION!

It is advisable to wear protective gloves when cleaning the squeegee because there may be sharp debris.

1. Drive the machine on a level floor.
2. Insert the ignition key (58) and turn it to "I".
3. Lower the squeegee (30) by pressing the push-button (63).
4. Turn the ignition key (58) to "0".
5. Disconnect the vacuum hose (31) from the squeegee.
6. Loosen the handwheels (34) and remove the squeegee (30).
7. Wash and clean the squeegee. In particular, clean the compartments (A, Fig. 6) and the vacuum hole (B). Check that the front blade (C) and the rear blade (D) are integral and free from cuts and lacerations; if necessary replace them.
8. Assemble in the reverse order of disassembly.

SQUEEGEE BLADE CHECK AND REPLACEMENT

1. Clean the squeegee (Fig. 6) as shown in the previous paragraph.
2. Check that the edge (E) of the front blade (C) and the edge (F) of the rear blade (D) lay down on the same level, along their length; otherwise adjust their height according to the following procedure:
 - Remove the tie rod (G), disengage the fastener (M) and adjust the rear blade (D); then engage the fastener and install the tie rod.
 - Loosen the handwheels (I) and adjust the front blade (C); then tighten the handwheels.
3. Check the front blade (C) and rear blade (D) for integrity, cuts and tears; if necessary replace them as shown below. Check that the front corner (J) of the rear blade is not worn; otherwise, overturn the blade to replace the worn corner with an integral one. If the other corners are worn too, replace the blade according to the following procedure:
 - Remove the tie rod (G), disengage the fastener (M) and remove the retaining strip (K), then replace/overturn the rear blade (D).
 - Install the blade in the reverse order of removal.
 - Unscrew the handwheels (I) and remove the retaining strip (L), then replace the front blade (C).
 - Install the blade in the reverse order of removal.

After the blade replacement (or overturning), adjust the height as shown in the previous step.
4. Connect the vacuum hose (31) to the squeegee.
5. Install the squeegee (30) and screw down the handwheels (34).
6. If necessary, adjust the squeegee balance adjusting handwheel (35).

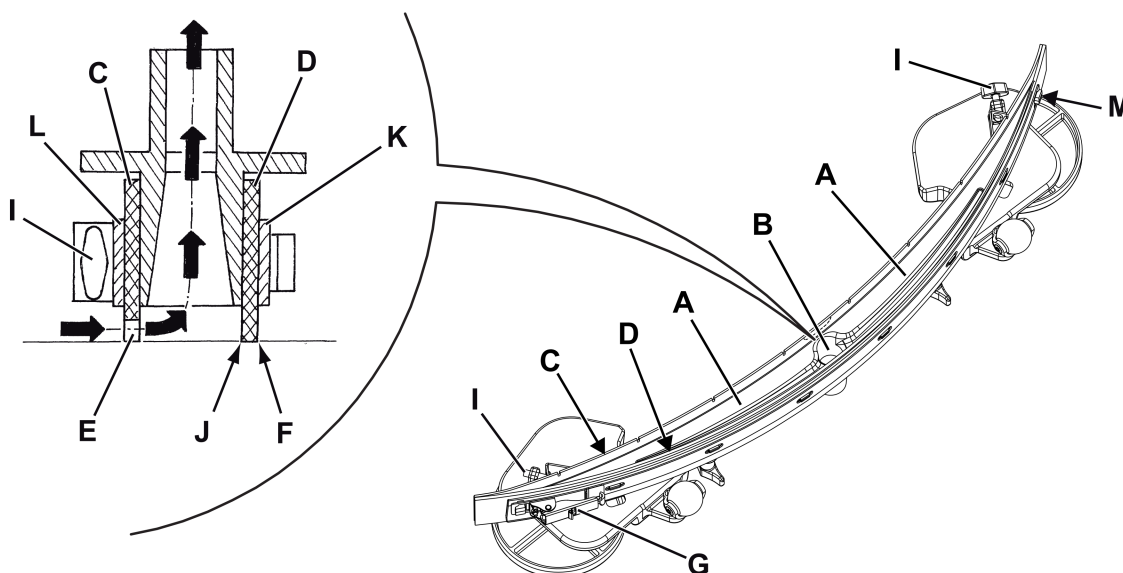


Figure 6

P100367

BRUSH/CYLINDRICAL BRUSH CLEANING



CAUTION!

It is advisable to wear protective gloves when cleaning the brushes, because there may be sharp debris.

1. Remove the brushes/pads as shown in Use/Operation chapter.
2. Clean and wash the brushes with water and detergent.
3. Check the brush bristles for integrity and wear; if necessary, replace the brushes.

RECOVERY TANK CLEANING

1. Drive the machine to the appointed disposal area.
2. Turn the ignition key (58) to "0".
3. Open the cover (20).
4. Clean and wash with clean water the cover (20) and the tank (19).
Drain the water in the tank through the hose (24).
5. Clean the vacuum grid (27), release the fasteners (A, Fig. 7), open the grid (B) and recover the float (C) then clean it carefully and reinstall it.
6. Clean the container with debris collection grid (26), remove the container (G), remove the cover (H), then clean carefully and reinstall the vacuum hose.
7. Check the tank cover gasket (D) for integrity.



NOTE

The gasket (D) creates vacuum in the tank that is necessary for vacuuming the recovery water.

If necessary replace the gasket (D) by removing it from its housing (E). When assembling the new gasket, install the joint (F) in the lower area, as shown in the figure.

7. Check that the seating surface (I) of the gasket (D) is integral, clean and adequate for the gasket itself.
8. Close the cover (20).

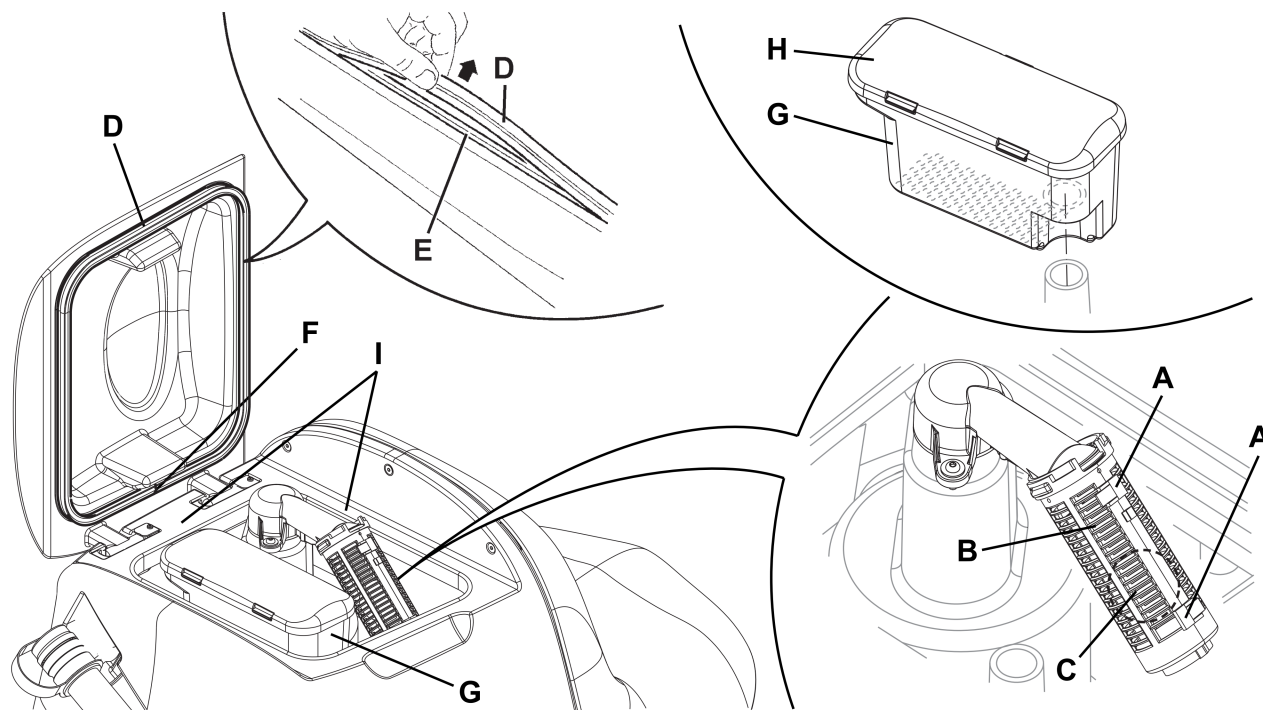


Figure 7

P100368

SIDE SKIRT CHECK AND REPLACEMENT (ONLY FOR BR 752C)

Check

1. Drive the machine on a level floor.
2. Turn the ignition key (58) to "0".
3. On both sides of the machine, loosen the knob (A) and remove the side skirt assemblies (B).
4. Wash and clean the skirt.
5. Check that the skirt lower edge (C):
 - lays down on the same level, along all its length;
 - is integral and free from cuts and lacerations;
 - has the inner corner (D) that is not worn;
 Otherwise overturn or replace the skirts according to the following procedure.

Overturning or replacement

6. Remove the wing nuts (E), then remove the retaining strip (F).
7. Remove the skirt blade (G) and, if possible, overturn the blade to replace the lower inner corner (D) with the opposite one. If the other corner is worn too, replace the blade.

Assembly and height adjustment

8. Assemble the blades (G) and skirt assembly (B) in the reverse order of disassembly.
9. Start the machine and lower the cylindrical brush deck (28), then check that the side skirt blades (G):
 - slightly touch the floor;
 - collect the solution.
10. If necessary stop the machine and adjust the skirt height by loosening the knob (A) and turning the knobs (H).
11. After adjusting, tighten the knob (A).

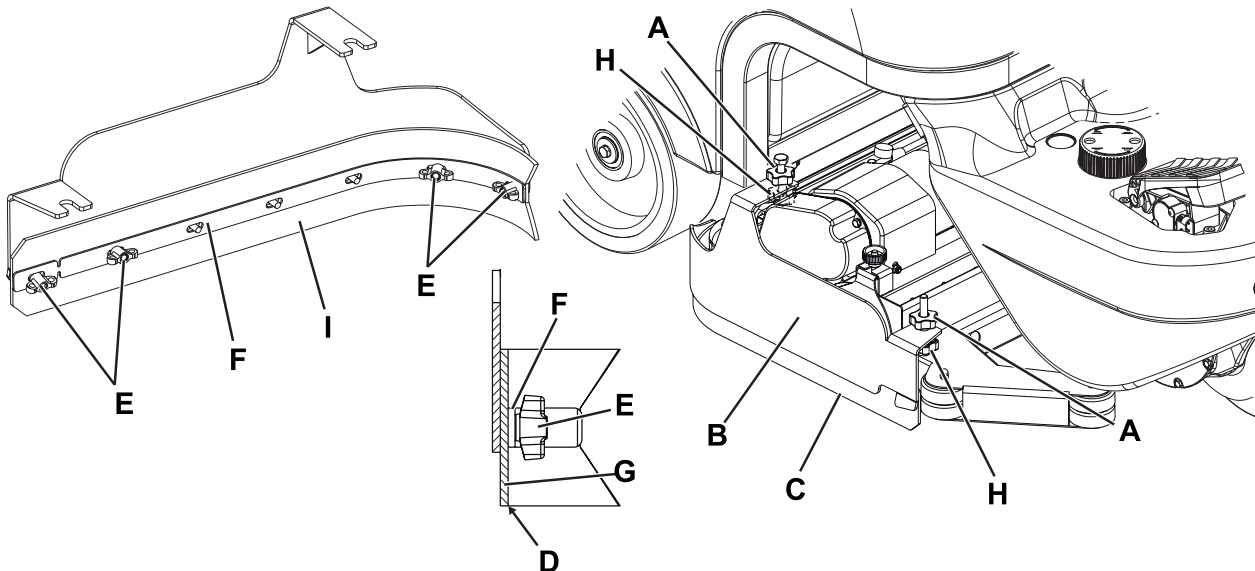


Figure 8

P100369

VACUUM SYSTEM MOTOR FILTER CLEANING

1. Drive the machine on a level floor.
2. Turn the ignition key (58) to "0".
3. Open the cover (20) and check that the recovery tank (19) is empty, otherwise empty it with the drain hose (24).
4. Close the cover (20).
5. Carefully lift the recovery tank (44).
6. Check that the filter (37) is clean. If necessary clean it with water and compressed air, then install it.

SOLUTION FILTER CLEANING

1. Drive the machine on a level floor.
2. Turn the ignition key (58) to "0".
3. Close the solution tap (A, Fig. 9) under the machine, behind the right rear wheel. The tap (A) is closed when it is in the position (B) and it is open when it is in the position (C).
4. Remove the transparent cup (D), recover the gasket (E), then remove the filter strainer (F) under the machine, in front of the right rear wheel. Clean them with water and install them on the support (G).

**NOTE**

The filter strainer (F) must be correctly positioned on the housing (H) of the transparent cover (D).

5. Open the valve (A).

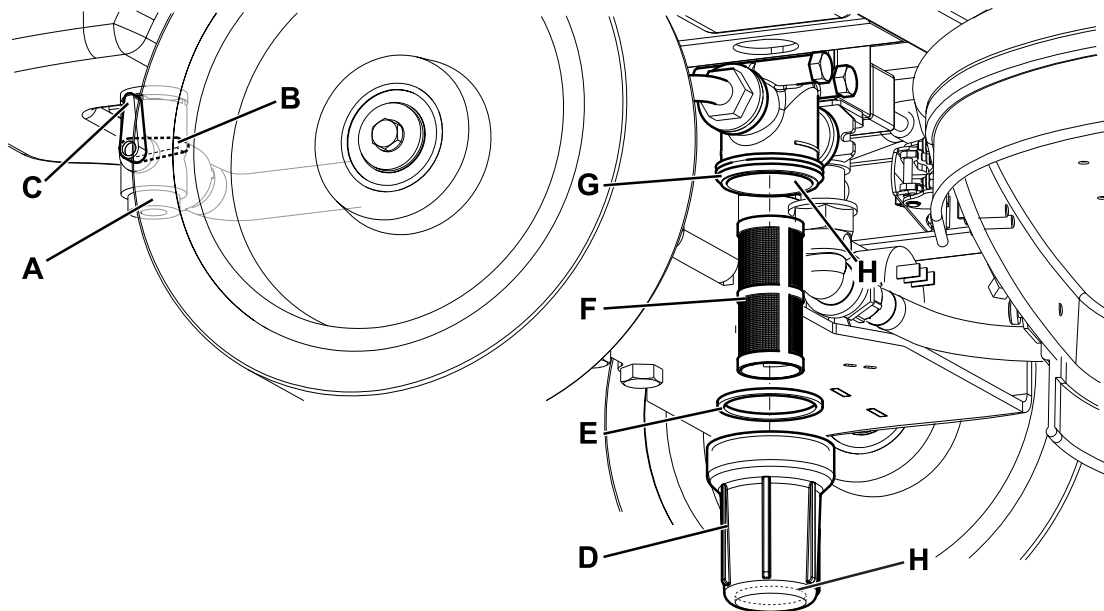


Figure 9

P100370

DETERGENT TANK CLEANING

(For machines with EcoFlex system)

Clean the detergent tank (42) as follows:

1. Drive the machine to the appointed disposal area.
2. Open the cover (20) and check that the recovery tank (19) is empty, otherwise empty it with the drain hose (24). Close the cover (20).
3. Carefully lift the recovery tank (44).
4. Unscrew the plug and disconnect the hose (A, Fig. 10) from the tank (B).
5. Remove the tank.
6. Wash the tank in the appointed disposal area.
7. Install the tank (42) in the position shown in the figure and connect it to the hose (A).
8. When the detergent tank has been drained, it may be necessary to drain the EcoFlex system too (see procedure in following section).

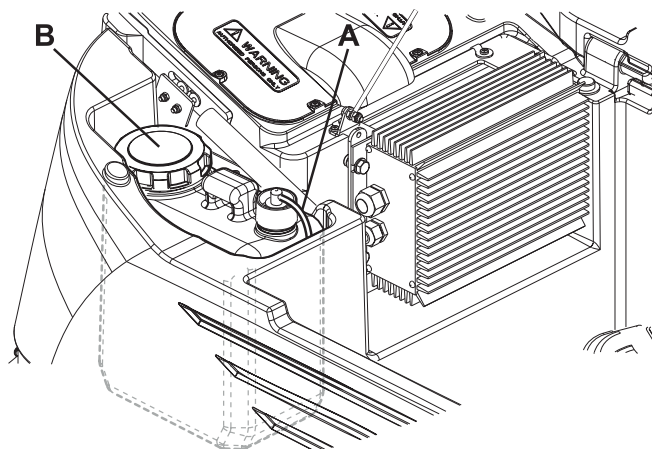


Figure 10

P100371

DRAINING THE ECOFLEX SYSTEM

(For machines with EcoFlex system)

Clean the detergent tank as shown in the previous section.

To remove residual detergent from the detergent hoses and pump, proceed as follows.

1. Turn on the machine by turning the ignition key (58) to "I".
2. Press the push-button (53). Check that the push-button LED (54) turns on.
3. Press the push-buttons (53 and 59) at the same time, until the LED (54) starts flashing (after about 5 seconds).
4. Release the push-buttons and wait for the LED (54) to stop flashing and for the vacuum system to turn on.
5. Collect the detergent remained on the floor.
6. Turn the ignition key (58) to "0".
7. Raise the tank (19), then check that the detergent tank hose (42) is empty; if not, perform steps 2 to 6 again.



NOTE

The draining cycle lasts about 30 seconds, then the vacuum function automatically turns on, which allows to remove the detergent remained.

The draining cycle can also be performed with the detergent tank (42) full of water, thus cleaning the system thoroughly. It is advisable to perform this type of draining to clean the EcoFlex system from dirt and deposits if the machine has not been used/cleaned for a long time.

The draining cycle can also be performed to quickly fill the detergent supply hose when the tank (42) is full but the system is still empty.

If necessary, the draining cycle can be performed several times in succession.

FUSE CHECK/REPLACEMENT



NOTE

All machine electrical circuits are protected by auto-resettable electronic devices. The safety fuses activate only in case of serious damage.

It is recommended to have the fuses replaced by qualified personnel only.

Refer to the Service Manual available at any Nilfisk Retailer.

SAFETY FUNCTIONS

The machine is equipped with the following safety functions.

EMERGENCY PUSH-BUTTON

The emergency push-button (8) is located in an easily accessible position. Press it firmly in case of immediate necessity to stop all machine functions.

To reset the machine operation, lift the recovery tank (44) and reconnect the battery connector (9).

ANTI-SKID SAFETY SYSTEM

This system reduces the speed when turning and when the machine tilts laterally to avoid sudden skids, this increasing the machine stability in any condition. The system activation is shown by the LED (72).

DRIVER'S SEAT MICROSWITCH

It is located inside the driver's seat and it does not allow the machine drive system to operate if the operator is not seated on the driver's seat.

ELECTROMAGNETIC BRAKE

It is built-in the front wheel (6) and keeps the machine braked when the machine is off or stopped.

TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	REMEDY
The motors do not work; no warning light turns on.	The battery connector is disconnected.	Connect.
	The batteries are completely discharged.	Charge the batteries.
The machine does not move and the display (71) shows the error code: 	Machine turned on with pedal pressed.	Release the drive pedal. If the problem persists, contact an authorised Service Center.
At machine start-up, the LED (68) of the One-Touch push-button (67) flashes and the brushes do not work.	Machine switched off without first raising the brush deck.	Wait for the deck to raise before turning the brushes on again by pressing the switch.
The brushes do not work; the red warning light flashes.	The batteries are discharged.	Charge the batteries.
The 3 warning lights (62) flash simultaneously.	Brush motor overload.	Use less aggressive brushes and/or avoid working with extra pressure turned on.
	There are foreign materials (tangled threads, etc.) preventing the brushes from rotating.	Clean the brush hubs.
The display (71) shows an error code as:  where "00" is replaced by a code different from "t4".	The machine electronic control system is in alarm condition.	Turn off the machine and then turn it on again. If the problem persists, contact an authorised Service Center.

TROUBLE	POSSIBLE CAUSE	REMEDY
The dirty water vacuuming is insufficient.	The recovery tank is full.	Empty the tank.
	The vacuum grid is clogged or the float is stuck closed.	Clean the vacuum grid.
	Debris collection filter container clogged.	Clean.
	The hose is disconnected from the squeegee.	Connect.
	The squeegee is dirty or the squeegee blades are worn or damaged.	Clean the squeegee or overturn/replace the blades.
	The tank cover is not properly closed, or the gasket is damaged.	Correctly close the cover or clean/replace the gasket.
The solution flow is insufficient.	Empty detergent solution tank.	Fill.
	The solution filter is dirty.	Clean the filter.
	Dirty/encrusted EcoFlex system tank (optional).	Clean with the drain cycle.
The squeegee leaves marks on the floor.	There is debris under the squeegee blades.	Remove the debris.
	The squeegee blades are worn, chipped or torn.	Overturn or replace the blades.
	The squeegee has not been balanced with the handwheel.	Adjust the squeegee.

**NOTE**

If the machine has a battery charger installed, the machine cannot operate if the charger is not on board. In case of battery charger malfunction, contact an authorised Service Center.

For further information, contact Nilfisk Service Centers.

SCRAPPING

Have the machine scrapped by a qualified scrapper.

Before scrapping the machine, remove and separate the following materials, which must be disposed of properly according to the Law in force:

- Batteries
- Brushes
- Plastic hoses and components
- Electrical and electronic components (*)

(*) Refer to the nearest Nilfisk Center especially when scrapping electrical and electronic components.

Machine material composition and recyclability

Type	Recyclable percentage	Machine weight percentage
Aluminium	100 %	9 %
Electric motors - various	29 %	18 %
Ferrous materials	100 %	42 %
Wiring harness	80 %	3 %
Liquids	100 %	0 %
Plastic - non-recyclable material	0 %	3 %
Plastic - recyclable material	100 %	1 %
Polyethylene	92 %	23 %
Rubber	20 %	1 %