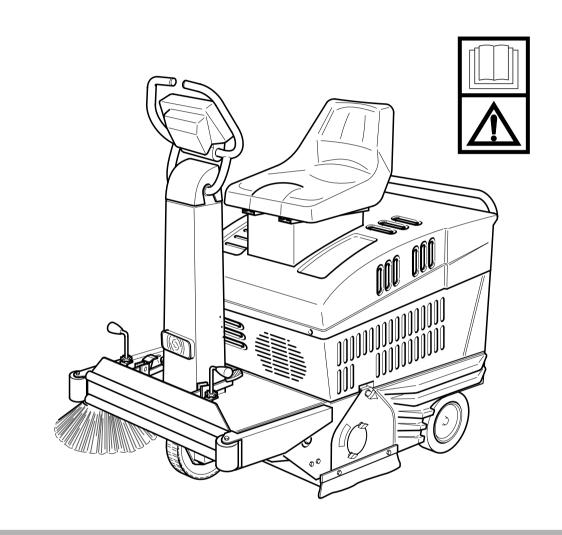
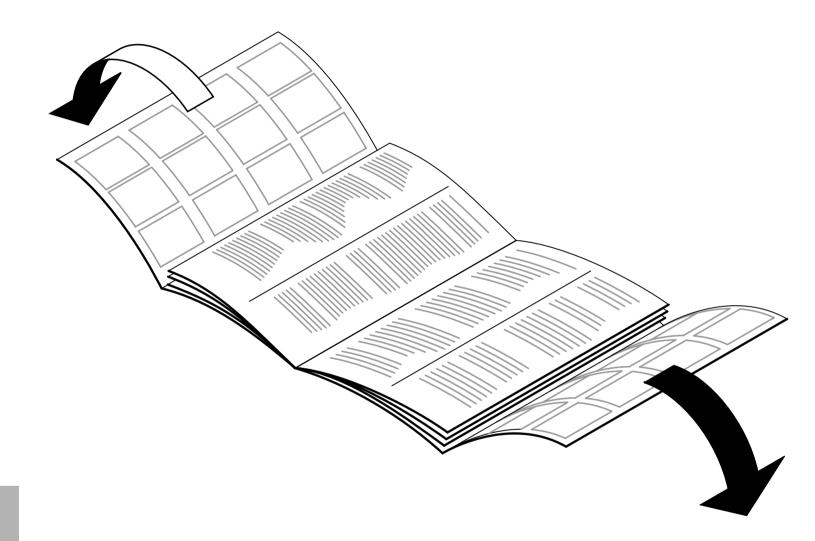
# **SWEEPER**

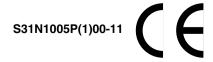
**SR 1005P** 

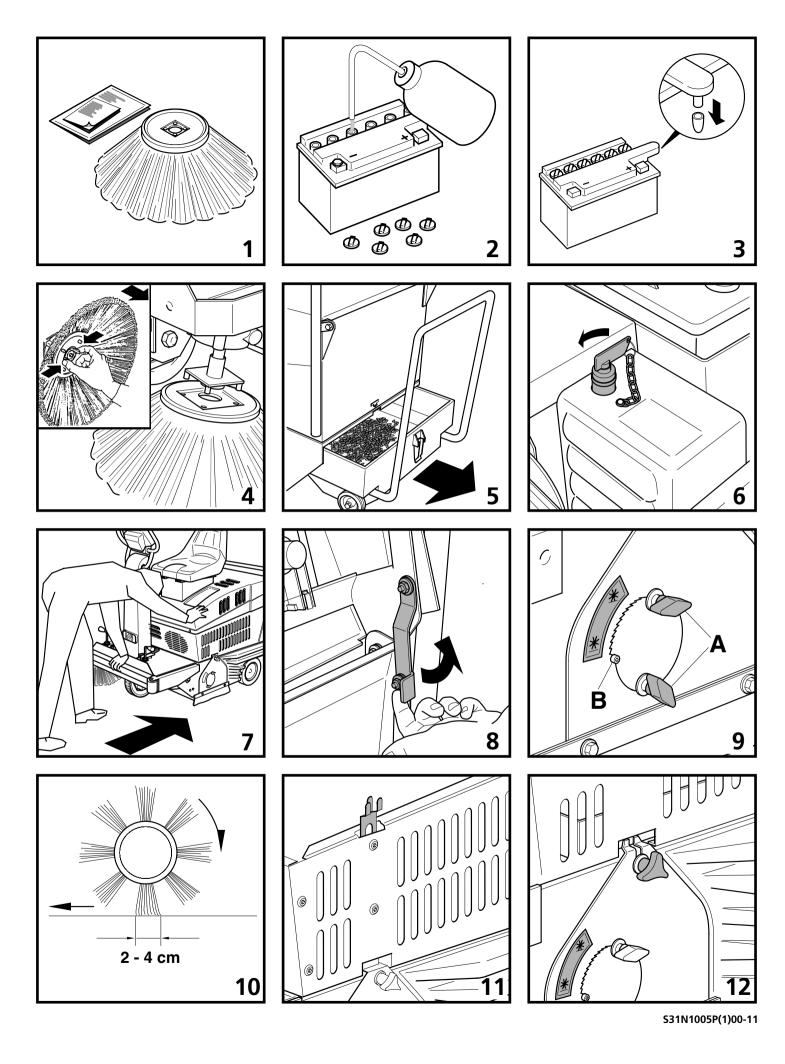


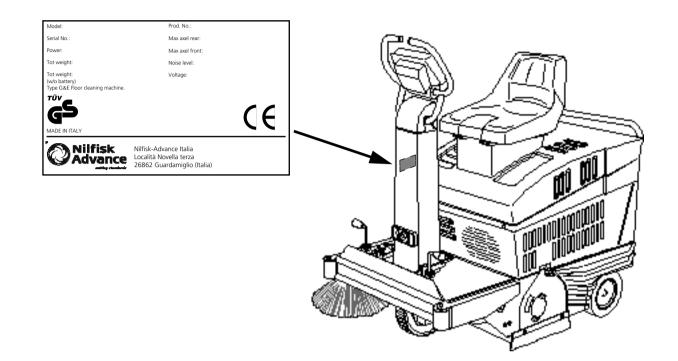
MANUALE D'USO E MANUTENZIONE
INSTRUCTION MANUAL FOR USE AND MAINTENANCE
MODE D'EMPLOI ET D'ENTRETIEN
BEDIENUNGS UND WARTUNGSANLEITUNG











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# INTRODUCTION

AND TROUBLESHOOTING

This manual will help you get the most from your Nilfisk SR 1005 P. Read it thoroughly before operating the machine. Specifications and details are subject to change without prior notice.

**PAG.16** 

### **SPARE PARTS AND MAINTENANCE**

Repairs, when required, should be performed by Nilfisk-Advance service personnel using Nilfisk-Advance original replacement parts and accessories. Any "left,, or "right,, indication are always defined with reference to the machine forward movement direction.

When calling Nilfisk-Advance for repair parts or service, please specify the Model and the Serial Number when discussing your machine.

### **CHANGES AND IMPROVEMENTS**

Our company 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 machine that were previously sold.

# NAME PLATE

The Model and the Serial Number of your machine are shown on the Name plate located on the steering column. This information is needed when ordering repair parts for the machines. Use the space below to note the Model and the Serial Number of your machine for future reference.

MODEL	
SERIAL NUMBER	 

### **GENERAL SAFETY RULES**

Carefully follow the rules described below to avoid injury to the operator and damage to the machine. Carefully read the labels on the machine, do not cover them for any reason and replace them immediately if they become worn or damaged.

- The machine storage temperature range should be between -25 °C and 55°C
- The machine working temperature is from 0°C to 40°C
- Humidity range should be between 30% and 95%.
- Do not use the machine in an explosive atmosphere environment
- Do not use the machine as a transport vehicle.
- Do not allow the brushes to operate while the machine is stationary to avoid damaging the floor.
- In case of fire, use a powder extinguisher.
- Do not bump into shelves or scaffolding where there is a risk of falling objects.
- Adjust the operating speed to the floor conditions.
- Do not exceed the declared slope limit to avoid an unstable condition.
- When the machine is parked, remove the key and engage the parking brake.
- When machine-operating malfunction occur, make sure that they are not caused by a lack of routine maintenance. If not, request assistance from the service centre.
- If parts must be replaced, request ORIGINAL spare parts from a dealer or Authorised Retailer.
- Before any maintenance operations, disconnect the electric power supply from the batteries.
- Do not remove guards which require the use of tools to be disassembled.
- Do not wash the machine with pressurised water, or with corrosive substances.
- A service centre should inspect the machine every 200 hours of operation.
- The machine must be disposed of properly, because of the presence of toxic-harmful materials (battery acid, oil, etc.) which are subject to standards that require disposal in special centres.
- The machine will not generate damaging vibration.

### **SAFETY- ACCIDENT PREVENTION**

No accident prevention program is effective without the complete co-operation of the person directly responsible for operating the machine. Most of the accidents that may occur in a company, on the job or during transfers are caused by not-observing fundamental safety rules. A careful and cautious user is the best guarantee against accidents and is more effective than any type of prevention program. While using the machine pay attention to your surroundings and people nearby, especially to children.

### **SAVE THESE INSTRUCTIONS!!**

# UNPACKING

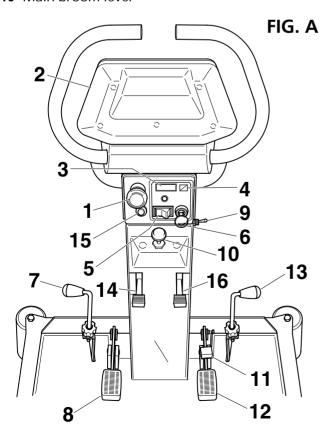
When the machine is delivered, carefully inspect the shipping carton and the machine for damage. If damage is evident, save the shipping carton so that it can be inspected by the carrier that delivered it. Contact the carrier **immediately** to file a freight damage claim.

Please check that the following items are supplied with the machine: **(Fig. 1)** 

Documents (Spare Parts Catalog, Manual for Use and Maintenance , Service Manual, Instruction Manual for petrol engine )
Side broom

# **CONTROL PANEL DESCRIPTIONS**

- 1- Emergency stop switch
- 2- Drive control (paddle)
- 3- Display
- 4- Voltmeter/ hour meter button
- 5- Light switch
- 6- Ignition key
- 7- Left side brush lever (optional)
- 8- Front flap lifter pedal
- 9- Speed selector switch
- 10- Starter (Choke)
- 11- Parking brake pedal
- 12- Brake pedal
- 13- Right side brush lever
- 14- Dust control lever
- 15- Filter shaker button
- 16- Main broom lever



# TECHNICAL DATA

TECHNICAL DATA	VALUES	
Engine type	Petrol Honda G150 K1	
Max power at 3600 RPM	3,8Hp 2,6kW	
Regulation at 3100 RPM	3Hp - 2,2kW	
Starter	Electric	
Front drive motor rating	200W-180RPM	
Fan-main brush motor	750W-3500RPM	
Side brush motor	60W-70RPM	
Forward speed	Max 5,2 km/h (3,2mph)	
Reverse speed	Max 2,7 km/h (1,7mph)	
Max slope	16%	
Main brush	Ø265mm x 600mm – 635RPM	
Side brush	Ø420mm – 70RPM	
Cleaning width with 1 side brush	820 mm (32 in)	
Cleaning width with 2 side brushes	1000 mm (40 in)	
Panel paper filter (std.)	2,5m <sup>2</sup> (0.19 sq ft.)–from5 to 8μm	
Panel polyester filter (opt.)	2,5m <sup>2</sup> (0.19 sq ft.)–5µm	
Antistatic filter (opt)	2,5m <sup>2</sup> (0.19 sq ft.)–1µm	
Electrical filter shaker	24V- 30W	
Fan	3500 RPM	
Vacuum in main brush compartment	5-22mmH <sup>2</sup> O (0,2-0,9in/H <sup>2</sup> O)	
Traction front wheel	Ø200mm (7.8 in)	
Rear wheels (qty 2)	Ø200mm (7.8 in)	
Hopper container capacity	53I (14 gal)	
Machine length	1250mm (50 in)	
Width	720mm (28 in)	
Height	1050mm (41 in)	
Weight	170 kg	
Fuel tank capacity	2,51	
Engine oil tank	0,71	

# PRELIMINARY OPERATIONS

# **BATTERY ACTIVATION**

Usually the batteries are supplied without acid solution

**NOTE**: in some countries the batteries are supplied with acid solution.

In this case the level of acid in each cell must be checked and , if necessary, filled with **distilled** water. (Fig.2)

In case the batteries are supplied without acid solution, they must be filled up.

The batteries must be filled up in a well-ventilated area.

WARNING: the battery acid is corrosive and if it comes in contact with the skin or eyes, rinse thoroughly with water and consult a physician.

### **FILLING UP THE BATTERIES**

For filling the batteries follow these instructions: lift the seat cover

disconnect the battery power cable and remove the batteries from their compartment to make it easier to fill them with acid

Remove all the 12 caps and fill each battery cell with acid (sulphuric acid solution density not less than 1,270kg/l at 25°C) up to the level indicated on the batteries.

Wait one hour and recheck the acid level, fill if necessary. Let the batteries rest for another hour; then proceed with recharging the batteries.

**WARNING**: Remove the air venting hole cap from the batteries. **(Fig. 3)** 

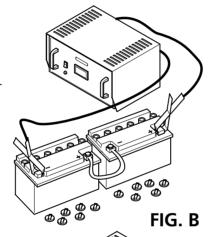
### **RECHARGING THE BATTERIES**

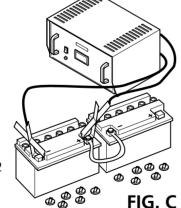
Before installing batteries, which have already been filled up, charge them with a suitable battery

charger. During this operation all battery caps must be open.

CASE 1: with a 24 Volt battery charger the two 12-Volt batteries must be connected in series. (Fig. B)

**NOTE**: the charging current must be about 2 Ampere.





CASE 2: with a 12 Volt battery charger each battery must be charged separately. (Fig. C)

**NOTE**: the charging current must be about 2 Ampere.

After the batteries have been charged, replace the caps and clean off any acid that may have spilled on the casing. Put the batteries back in the battery compartment.

Connect the battery cables being very careful not to create contacts between the ( + ) and the ( - ) poles of the batteries. Proceed with connecting the POSITIVE POLE FIRST , then cover it with an insulator. Then connect the bridge and insulate the

poles, the bridge connects the two batteries in series

Last, connect the NEGATIVE POLE and cover it with the insulator.

Close the seat cover. (Fig. 8)

Each time the batteries are charged, repeat the above procedure.

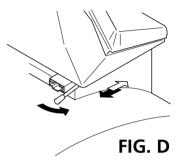
### TANK REFUELLING AND OIL CHECKING

### Fill the fuel tank with UNLEADED FUEL only.

Check the oil level as specified in the Engine Instruction Manual.

# SIDE BROOM INSTALLATION

Install the brush as indicated in the **figure** 4, climb onto the machine and adjust the seat to find the most comfortable position. (Fig. D)



Now the machine is ready to be used.

# **STARTING**

To start the engine, pull the starter CHOKE knob all the way out. (item 10 Fig. A).

Insert the ignition key into the panel (item 6 Fig. A) and turn it clockwise to the ON position. After about three seconds the battery voltage will appear on the display (item 3 Fig. A).

Now turn the key to the START position.

Once the engine is running, release the ignition key and slowly push the start choke knob in. (item 10 Fig. A)

If the engine does not start, repeat the operations described above.

Starting the engine will activate the main brush and the suction fan.

# In order to stop the main broom raise its control lever. (item 16 Fig. A)

Sometimes, also when the engine is warm, the machine should be started pulling the starter knob. NOTE: do not try to start the engine for more than 5 seconds at a time. Subsequent attempts to start the engine should be made at intervals of at least 10 seconds.

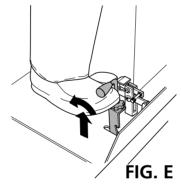
### **DISPLAY**

The display has three functions:

- a) voltmeter
- b) hour meter
- c) safety code display
- a) The voltmeter will activate the block function during a low voltage condition and the side and main brooms will not operate when the battery voltage drops below 20 Volts, but the drive motor will continue to operate (the display flashes code "190). At 19 Volts the machine is totally blocked including the drive. Recharge the battery as described in the PRELIMINARY OPERATION section.
- **b**) To access the hour meter function, press the button 4 indicated in the figure A ONCE. The display will show the number of machine service hours. Press the button again to display the number of machine service minutes.
- c) If an electronic circuit has malfunctioned, the display indicates a safety codes that corresponds to the type of fault and the machine stops. (See the TROUBLESHOOTING chapter for the safety code table).

# USE

To activate the side brooms, lower the left (item 7 Fig. A) or right (item 13 Fig. A) or both levers depending on the kind of work to be done; the brush will begin operating as the lever is lowered.



Check that the dust control is on (lever 14 in up position figure A).

**Note**: If the machine must be used on a wet surface, protect the dust control filter by turning the dust control fan off (pressing the lever down item 14

To move the machine forward or backward push the accelerator paddle (item 2 Fig. A) forward or backward.

The speed can be adjusted from 0 to the maximum setting depending on the pressure applied to the accelerator paddle. (item 2 Fig. A)

To stop the machine, release the accelerator paddle until it is in its neutral position.

It is possible to reduce the maximum forward speed of the machine by setting the speed switch (item 9 in Fig. A) to the

"turtle" symbol. Set the switch to the "hare" symbol for a faster speed as required.

Turn on the front light, if necessary, using the button 5 indicated on the figure A.

To stop the machine quickly, press the brake pedal (item 12 Fig. A).

The right pedal can also be used as parking brake. Press both brake lever controls until the pedal is locked in the lowered position. (item 11 and 12 Fig.

To release the pedal, press only the pedal 12 shown in the **figure A**.

**Note**: this machine is equipped with an emergency stop button (item 1 Fig. A). Pushing it will cause all machine functions to stop, including the drive motor.

To reactivate the machine, turn the button clockwise.

To collect light and bulky waste materials, raise the flap momentarily by using the left pedal (item 8 Fig.

Do not press the pedal down for a long time.

For efficient dust control, the filter must always be clean.

To clean the filter, follow the instructions described

Turn the dust control fan off by pressing lever (item 14 Fig. A)

Push the filter shake button (item 15 Fig. A)

**Note**: the shaker can be operated with the machine on, provided the dust control function is off.

Repeat this operation every 15-20 minutes, before emptying the bin and when the job is finished. (the frequency can be calculated according to the volume of dust).

The bin should be emptied after each work period and every time it is full. (Fig. 5)

Note: after working and before leaving the machine, make sure that the side brooms are raised off the ground, that the parking brake is engaged and that the ignition key is in the OFF position. In case the machine should be moved by pushing it check the following points: verify that the machine is off (ignition key turned

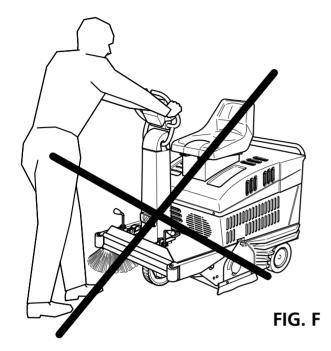
counterclockwise item 6 Fig. A)

lift the seat/ holder cover and deactivate the drive motor by turning the red key (Fig. 6), if available,

counterclockwise. To reactivate the drive wheel, turn the red key clockwise

**WARNING**: do not apply any pressure to the steering column! Push the machine backwards only. **(Fig. 7)** 

Before closing the cover do not forget to release its support bracket. (Fig. 8)



# CENTRAL BRUSH ADJUSTMENT AND REPLACEMENT

WARNING: these operations must be carried out with the machine stopped and on level ground, the key switched off.

When the main broom becomes fairly worn, its height must be adjusted to provide the best sweeping performance.

Loosen the bolts **A** on both sides of the machine and lower the broom to the ground by moving the indicator **B** on the proper height **(Fig. 9)**. The **B** indicator must be placed in the same position on both sides of the machine.

Check that the brush's pattern on the floor is from 2 cm to 4 cm (Fig. 10)

Repeat the adjustment if the brush does not operate efficiently. When the broom is heavily worn, it must be replaced.

To replace the main broom, lift the seat cover in order to release the main broom safety device (Fig. 11). Then loosen the bolt on the left side of the machine as shown in figure 12.

Remove the cover by pushing it down. (Fig.13)

Pull out the worn broom. **(Fig. 14)** 

In case the new broom does not have a flange, remove the flange from the old broom core and replace it on the new one keeping the broom in the same orientation figure 15.

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See also figure G.

**Note**: before inserting the new broom, rotate the adjustment devices to the position that is farthest away from the ground.

Insert the new brush and make sure that the hub is inserted correctly onto the drive flange.
Replace the cover and tighten the locking screw.

# SIDE BRUSH ADJUSTMENT AND REPLACEMENT

WARNING: these operations must be carried out with the machine stopped and on level ground, the key switched off, the parking brake set.

When the side brooms become fairly worn, its height must be adjusted to provide the best performance.

To adjust the height of the side brushes, follow the instructions below:

Lower the brush to the ground, loosen the handwheel **A (Fig. 16)** and turn the lever **B** clockwise or counterclockwise until the brush touches the ground as required.

**NOTE**: when the broom(s) are replaced check that all the height adjustment mechanisms, have been reset to their original position.

After adjusting, re-tighten the hand wheel **A** to lock the lever **B**.

To check the broom pattern start the brush and verify that it touches the ground as shown in **figure 17**. If necessary, repeat the adjustment procedure until the pattern is correct.

If the broom(s) are heavily worn, they must be replaced. Remove the side brush by squeezing the two tabs together as shown in **Fig. 4**. To reassemble the new brush, firmly press it onto the hub. **Note**: when the broom(s) are replaced check, that the height is adjusted to its original position, corresponding to a new brush.

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# FILTER CLEANING

The panel filter must be cleaned regularly. Depending on the machine working condition (amount of dust). To clean the panel filter it must be removed from the machine. To remove it: lift the cover and rotate the two levers (Fig. 18) situated on both side of the filter cover of 180°. Next widen the lever support brackets as shown in figure 18.

Disconnect the filter-shaker wires (Fig. 19) in order to move the filter cover forward Pull out the panel filter. (Fig. 20)

Blow compressed air through the filter, max. 6 bar, only from the grate protected side. (Fig. 21)

Before reassembling the filter make sure that the filter has not been damaged. If it is damaged or if it is not possible to clean it, it should be replaced.

Ask your Nilfisk dealer the requested spare parts.

**Note**: washable polyester filters and antistatic filters are available as option. (see OPTIONALS chapter)

### **MAINTENANCE**

Given that the user carefully reads the petrol engine (Honda G150 K1) Use and maintenance Manual, we also provide the following tips.

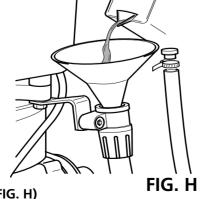
Periodically check the engine oil level using the special dip stick **(Fig. 22)**; for oil filling up use the type specified in the Engine Use and maintenance Manual.

The engine oil can be changed as follows: unscrew the four screws to remove the side hatch as shown in the **figure 23**.

unhook the engine oil emptying pipe slip off the engine oil level stick **(Fig. 22)** remove the cap from the waste pipe and allow the used oil to drain out

Note: drain out the used oil always by warm engine and dispose it in special containers, according with the norms for the guardianship of the environment.

Keep the emptying pipe in vertical position without fitting back its cap. (FIG. H)



With the aid of a funnel pour the new oil (TYPE SAE 15W40) through the level control hose, put the level stick back to place and put the cap back on the waste pipe. (Fig. H)

After filling operation, check the oil level with the special dip stick Clean periodically the engine air filter. (Fig. I)

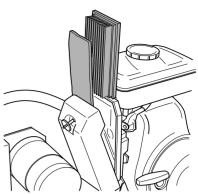


FIG. I

# **MAINTENANCE**

**Warning**: these operations must carried out with the machine stopped, the parking brake set and with the key switched off. All periodic or extraordinary maintenance operations must be performed by skilled personnel, or by an authorized service center.

СНЕСК	UPON DELIVERY	TWICE A WEEK	EVERY WEEK	EVERY 20/ hours	EVERY 50/ hours	EVERY 100/ hours	EVERY 400/ hours
Battery liquid level and voltage level	•		•				
Engine filter cleaning				•			
Panel filter cleaning					•		
Engine oil level check	1 <sup>st</sup> time	•					
Engine oil replacement				1 <sup>st</sup> time or within a month		or within 8 month	
Engine RPM check and adjustment (*)						•	
Check the brushes of all electric motors and replace them if worn							•
Belt tension	•					•	
Brake adjustment	•					•	
Filter-shaker					•		
Nut and screw tightness						•	
Side and central brush condition					•		
Filter gasket seals and flars	•				•		
Drive wheel chain: clean using an appropriate solvent or diesel fuel						•	

(\*) 3050 to 3100 engine shaft RPM with no function working (suction closed and main broom disengaged) and battery voltage at about 27 Volt.

**Note**: The battery life will depend on the level of periodic maintenance (checking the electrolyte level and density). If the machine is not used for a long time (ex. 4 to 6 weeks) it will be necessary to recharge the batteries to make sure their voltage does not drop below 20 Volts. Note: unused batteries discharge themselves.

# **OPTIONAL**

In addition to the standard accessories supplied with the machine, the following optional are also available:

### filters:

- -filter BIA US grade
- -filter BIA US GC grade
- -brushes with different characteristics depending on use
- -mini dirt containers

- -flashing beacon
- -back-up alarm
- -front bumper roller

For further information regarding each option ( article number, price, etc. ) please contact Nilfisk directly.

# SAFETY FUNCTIONS AND TROUBLESHOOTING

### **SAFETY MICROSWITCH**

It is activated when the seat cover is lifted, and it stops the petrol engine as well as the fan and the main broom. (Fig. 24)

### **MAIN BROOM SAFETY DEVICE**

The operator has to lift the cover to reach the lid latch of the main broom compartment (Fig. 11).

When the cover is lifted the micro switch is activated and the main broom stops.

If the safety functions are activated the multifunction display on the control panel will show the corresponding safety codes ( as shown in the chart bellow).

SAFETY CODE-EVENT	MACHINE BEHAVIOR	POSSIBLE INTERVENTION	NOTES
190: battery discharged	Automatic stop of side brushes, (except the traction)	Re-charge the battery	
302: trouble with the electronic control of the drive function	The machine automatically stops.	Before replacing the electronic board: - check the continuity of the connection cables between the electronic board and the drive motor - check the operation of the two relay on the electronic board - Check the operation of the dyna - motor and of its carbon brushes.	For further details see the workshop manual or call a service personnel.
<b>306</b> : over temperature on the power electronic board	All machine electric functions automatically stop. (side brush and wheel drive)	Turn-off the key and wait for the electronic board to cool ( at least 20 minutes). Then check that the rotation of the drive motor is free.	If the front wheel turns regularly but the 306 code occurs frequently call a service personnel.
incorrect machine-starting sequence: the accelerator paddle was out of the neutral position when turning on the key	The machine does not start	Put the accelerator paddle wheels in the neutral position.	In the event that the 307 code is still flashing call a service personnel.
308: the wires of the potentiometer are cut	The machine is not able to work	<ol> <li>Check the wire connections for the potentiometer dedicated to the speed control.</li> <li>If the potentiometer wire connections are good replace the potentiometer ( call a service personnel)</li> </ol>	The interventions indicated must be done by a qualified assistant personal

The machine has a shut down device for power overload condition. If the battery voltage exceeds 28 Volts as indicated on the display, the machine will stop.

This occurs when the revolution number of the petrol engine is too high, as specified in the chapter "MAINTENANCE".

13	14	15
B 16	17	18
19	20	21
222		24

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Nilfisk-Advance Pty. Ltd. ACN 003 762 623 Head office: 17 Leeds Street, Rhodes, N. S. W. 2138 Tel.(02) 9736 1244 - Fax (02) 9736 3910 Customer Responce Centre:

Tel.1 800 011 013

BELGIOUE/BELGIË/LUXEMBOURG

Nilfisk-Advance s.a./n.v. Doornveld/Sphere Business Park Industrie Asse 3, nr 11- bus 41 1731 Zellik-Asse Tel.(02) 467.60.50 Fax (02) 463.44.16

CANADA

Nilfisk-Advance Ltd 396 Watline Avenue Mississauga, Ontario L4Z 1X Tel.(905) 712-3260 - Fax (905) 712-3255

DANMARK

Nilfisk-Advance Nordic A/S Myntevej 3, 8900 Randers Tel.86 42 84 33 - Fax 86 41 19 55

DEUTSCHLAND

Nilfisk-Advance AG Siemensstraße 25-27 25462 Rellingen Tel.(04101) 3990 - Fax ( 04101) 399191

Zentraler Kundenservice / Customer Hotline Tel.0180 53 56 797

ESPAÑA

Nilfisk-Advance, S.A. Central: 08349-Cabrera de Mar (Barcelona) Camì del Mig, s/n Cami dei Mig, \$\( \text{SN} \)
Tel. 93 759 6160 - Fax 93 759 55 10
nilfisk@nilfisk-advance.es
Teléfono nacional de servicio Comercial: 902 200 201
Teléfono nacional de servicio Técnico: 902 300 301

Delegaciones, Distribuidores y Servicio Técnico a domicilio en todas las regiones de Espagña.

FINLAND/ SUOMI

Oy Tecalemit AB Hankasuontie 13, 00390 Helsinki Tel.(89) 547 701- Fax (89) 547 1779

FRANCE

Nilfisk-Advance S.A BP 246 91944 Courtaboeuf Cedex Tel.(01) 69.59.87.00 Télécopie (01) 69.59.87.01

PORTUGAL Nilfisk-Advance Lda.

Rua Cândido de Figueiredo, 91-i, 1500-133 LISBOA Tel.01/7784142-Fax0l/7785613 Porto 02/526766 - Fax 02/520739 Açores 096/628092/3 - Fax 096/628129 Madeira 091/228965 - Fax 091/228796

SCHWEIZ / SUISSE

Nilfisk-Advance AG Ringstrasse 19, 9533 Kirchberg/Wil Tel.719 23 52 83 - Fax 719 23 84 44

SINGAPORE Nilfisk-Advance Pte. Ltd.

10, Woodlands Loop Singapore 738388 Tel.(65) 759 9100 - Fax (65) 759 9133

SVERIGE

Nilfisk-Advance AB Sjöbjörnsvägen 5, 117 67 Stockholm Tel.085 55 944 00 - Fax 085 55 944 30

TAIWAN

Nilfisk-Advance Ltd 1 F, No.23, Lane 132, Sec. 2 Ta An Road, Taipei Tel.700 22 68 - Fax 784 08 43 UNITED KINGDOM

Nilfisk-Advance Limited Newmarket Road Bury St. Edmunds Suffolk IP 33 3SR Tel.(01284) 763163 - Fax (01284) 750562

Nilfisk-Advance Inc. 14600 21st Avenue North Plymouth, MN 55447-3408 Tel. +1612 475 2235 - Fax 1612 473 1764

Nilfisk-Advance of America, Inc. 300 Technology Drive Malvern PA 19355 Tel.(610) 647 647-6427

ÖSTERREICH

Nilfisk-Advance GmbH Vorarlberg Allee 46 1230 Wien Tel.1616 58 30 - Fax 1616 58 30 40

HONG KONG

Nilfisk-Advance Ltd 2001, 20/F HK Worsted Mills Industrial Building 31-39 Wo Tong Tsui Street Kwai Chung, N.T. Tel.2427 59 51- Fax 2487 5828

IRELAND

Nilfisk-Advance Ltd 28 Sandyford Office Park Tel. +353 12943838 - Fax +353 12943845

ITALIA

Nilfisk-Advance Italia SPA Località Novella Terza 26862 Guardamiglio ( LO) I Tel. + 39 (0377) 451124 – Fax + 39 (0377) 51443

JAPAN

Nilfisk-Advance Inc. 3-4-9 Chigasaki Minami Tsuzuki-Ku Yokohama 224 Tel.045-942-7741- Fax 045-942-6545

MALAYSIA

Mlfisk-Advance Sdn Bhd Lot 2, 1st. Floor Lorong 19/1A 46300 Petaling Jaya Selangor Darul Ehsan Tel.03-7568188/03-7568189/03-7568388-Fax03-7566828

NEDERLAND

Nilfisk-Advance B.V. Flevolaan 7, Postbus 341 1380 AH Weesp Tel.0294-462121- Fax 0294-430053

**NEW ZEALAND** 

Nilfisk-Advance Limited 477 Great South Road, Penrose Auckland Tel.(09) 525 0092 - Fax (09) 525 6440

Nilfisk-Advance AS Enebakkvn, 119, 0680 Oslo, Postboks 196, Manglerud, 0612 Oslo Tel.22 08 63 50 - Fax 22 08 63 63



Nilfisk-Advance Italia S.p.A

Località Novella Terza 26862 Guardamiglio (Lodi) Italia www.nilfisk-advance.com Phone: +39 0377 451124 +39 0377 51443

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