

A17 EXP - A17 EXPW

Instructions for Use

Vacuum meets the requirements for in Class I, Group D and Class II, Groups E, F and G hazardous environments.*

**Special modifications may be necessary to meet Group E requirements. Nilfisk CFM reserves the right to evaluate on a case-by-case basis.*

A17 EXP Models A17/100DAXXX and A17/100DXXX

Edition: 8/2009

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1

General information

1.1 - Introduction

The operational safety of the machine in your possession is entrusted to those who work with it each day.

These persons must therefore have detailed information about how to correctly use, operate, service and repair the vacuum.

This manual has been compiled in order to inform machine users about the prescriptions and basic regulations able to ensure their safety and allow the vacuum to remain in a good working condition for the longest possible time.

Personnel authorized to work with the machine must read this manual before the machine is started.

Keep the manual near the machine, in a protected and dry place ready at hand for future consultation when required.

Ask for another copy from your Dealer or the manufacturer if this manual is lost. Inform the manufacturer about the name and address of the new owner if the machine is sold to third parties.

1.2 - Machine operators

Caution: To insure the safe use of this vacuum machine, operators must read and understand the following instructions before attempting to place the machine in service.

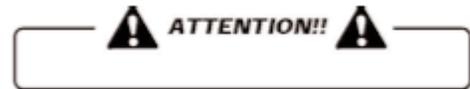
1.3 - Symbols used in this manual

ATTENTION!!



This symbol is used to call your attention to dangerous operations or machine parts that could cause personal injuries or even the death of the operator, or could cause irreparable damage to the machine.

Note: . Indicates important procedures or instructions.



For explanatory purposes, some of the illustrations in this manual depict the machine or machine parts with their panels or casings removed.

Never ever use the machine without these protections.

1.4 - Testing

1.4.1 - Testing

The machine will have been tested in our plant in order to ensure that it operates correctly.

Tests are carried out to ascertain the correct vacuuming values during the test phase.

This ensures that the vacuum has been optimized according to the job for which it was designed.

1.5 - How to request assistance

Contact the Manufacturer's technical Assistance Service in the case of operational faults and breakdowns where the intervention of the "Manufacturer's Technician" is required.

2

General descriptions

2.1- Manufacturer's identification data

C.F.M. S.p.A

Via Porrettana, 1991

41059 Zocca (MO) Italy

Tel. 059/987802 - Fax 059/986253

Telex 522231 CFMASP I

2.2 - Identification data

Always state the identification data (machine model, serial number) of the machine in your possession whenever you contact the **CFM** "Technical After-Sales Service".

As a memo, we suggest you write the data of your machine in the following table:

Machine model
Serial number
Year of manufacture
Category

The identification plate with the machine data is represented in fig. 2.2.1

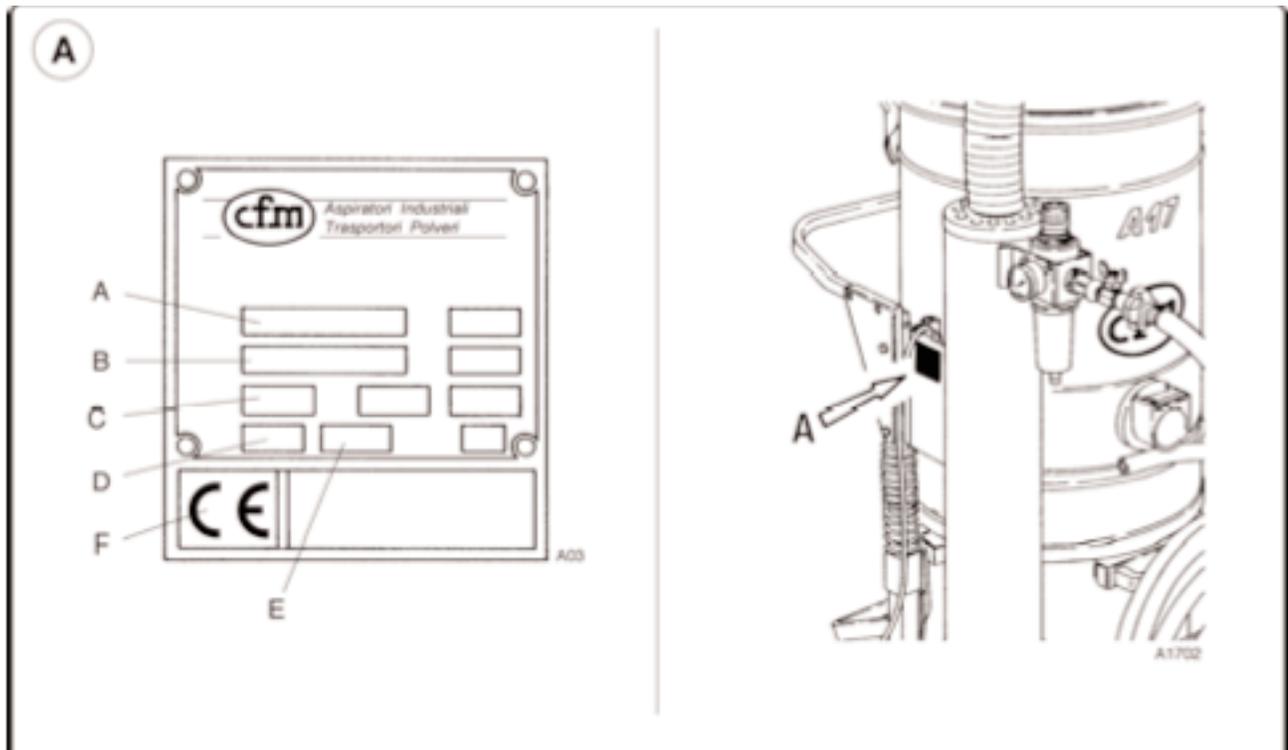


Fig 2.2.1

- A = Vacuum model
- B = Serial number
- C = Category
- D = Weight of the machine
- E = Year of manufacture
- F = Machine built in compliance with Machine

2.3 - Main Parts (fig. 2.3.1)

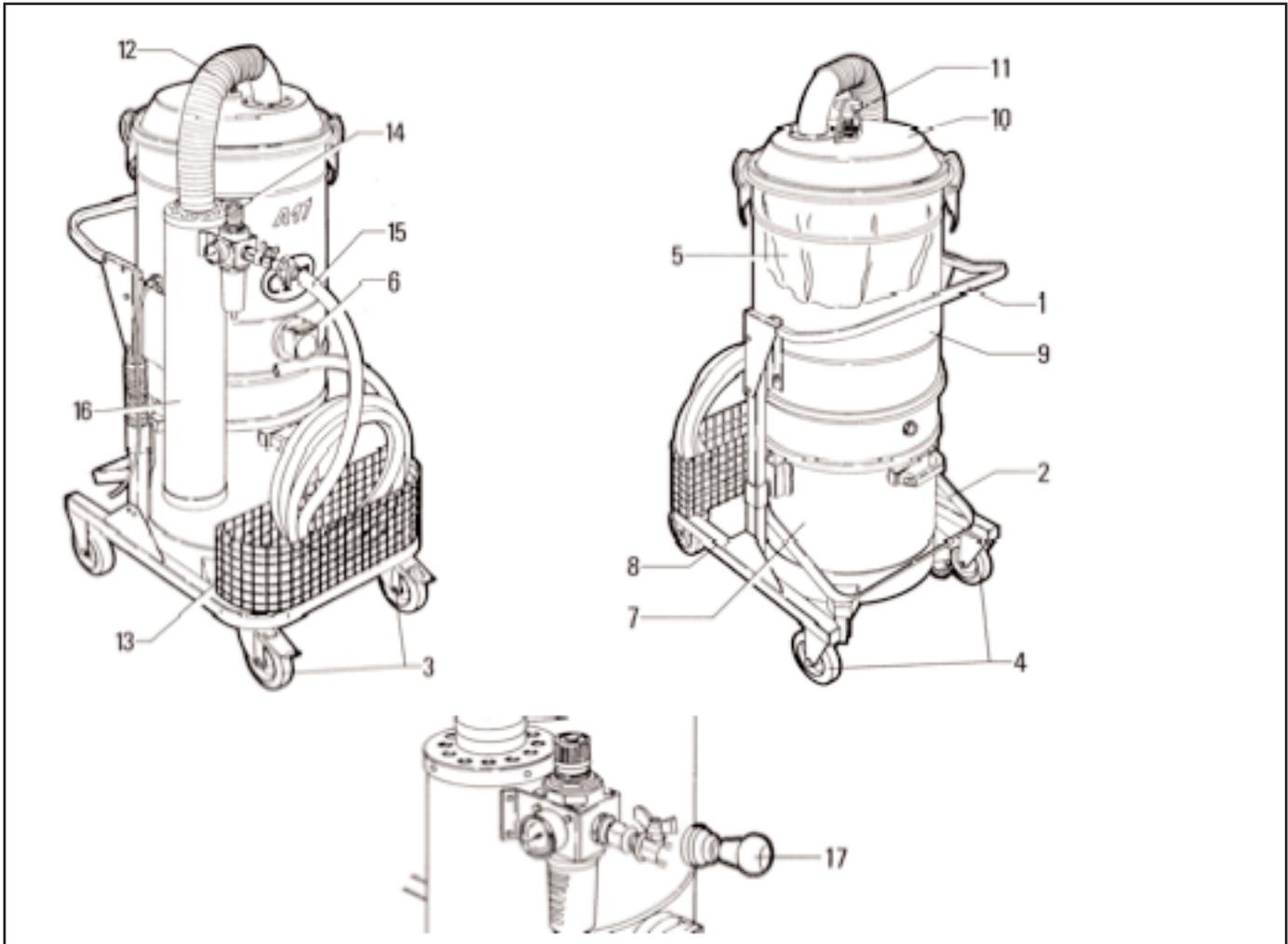


Fig. 2.3.1

- 1 - Handle to transport the vacuum cleaner
- 2 - Handle to release the waste container
- 3 - Castors with parking brake (antistatic)
- 4 - Fixed wheels (antistatic)
- 5 - Antistatic filter
- 6 - Vacuum Inlet
- 7 - Waste container
- 8 - Frame
- 9 - Filtering chamber
- 10 - Filtering chamber cover
- 11 - Filter shaking knob
- 12 - Antistatic suction hose
- 13 - Accessory holder
- 14 - Pressure regulator
- 15 - Antistatic air hose
- 16 - Filtered air exhaust pipe
- 17 - Radial filter shaker knob

2.4 - Description of the machine

The machine in your possession has been designed to vacuum dust, solid waste and liquids. (optional float shut-off valve required for liquid collection).

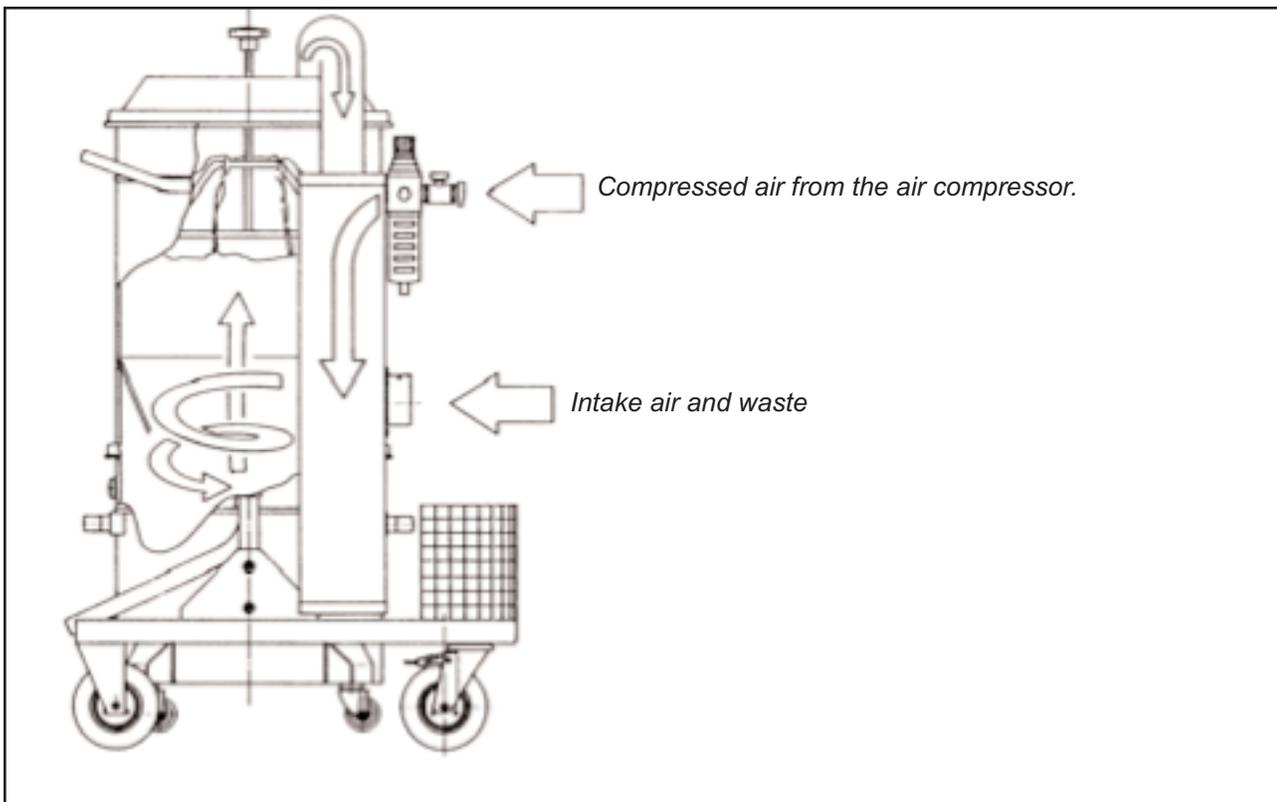
The vacuum cleaner operates with compressed air by means of the "Venturi" principle.

The machine is mounted on tough rubber wheels, two of which swivel in order to make the machine easy to handle. It also has brakes to safely lock the machine in place.

The vacuumed material is subjected to a centrifugal action inside the container where the heavier items drop down into the tank. The air passes through a filter that traps the smaller particles suspended in the airstream.

2.5 - Operating principle

Fig. 2.5.1



The compressed air blown inside the silencer uses the "Venturi" principle and creates a vacuum in the filtering chamber which is used to collect waste/debris.

2.6 Overall dimensions and weights

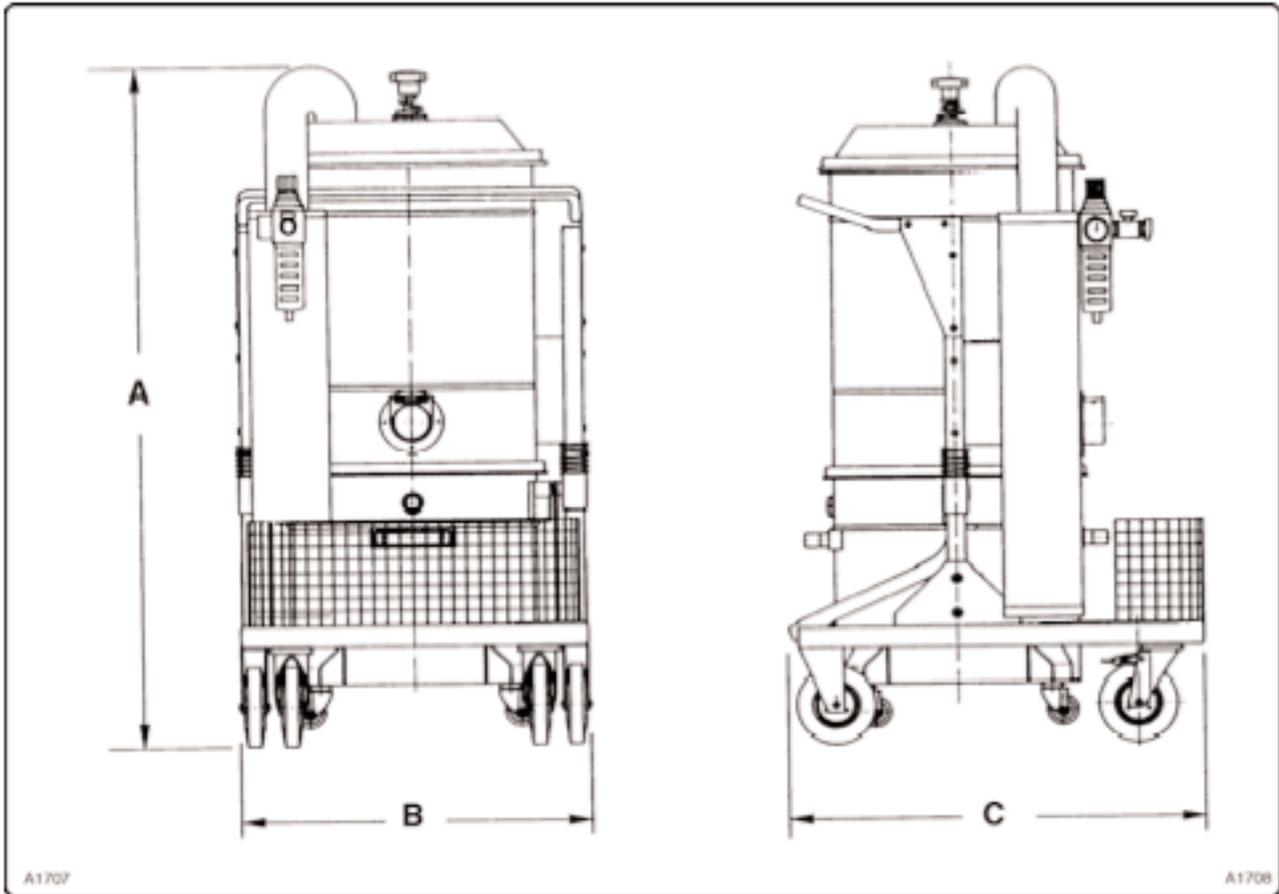


Fig. 2.6.1

Model	A (in)	B (in)	C (in)
A17 EXP	54	27	34

2.7 Technical Data

Parameter	Unit of Measurement	A17/100
Air consumption	cfm	56
Required pressure	psi	70-120
Max. vacuum	in. H2O	177
Max. of air flow rate	cfm	240
Filtering area	ft ²	21
Noise rating	dBA	78
Intake	mm	70
Capacity	gallons/liters	26/100
Airline diameter	in	1/2
Airline length	ft	20
Weight	lbs	150
Absolute filter efficiency according to D.O.P. method	%	99.97 @ 0.3 microns

2.8. - Environmental conditions of use

Unless established differently on order, the vacuum cleaner is designed to operate in the following environmental conditions:

- altitude: not more than 800 m.;
- ambient temperature: minimum: -5 C; maximum: +40 °C;
- relative humidity: not more than 50% at 40C.

2.9 - Improper uses

The following is a list of machine uses that should be **STRICTLY AVOIDED!!**

- Never open the container while the machine is operating.
 - Never suck up lighted cigarette ends. This could cause the filter to catch fire.
- Do not use to vacuum:
- radioactive substances;
 - substances which, when combined, could create fire outbreaks or explosion;
 - substances liable to cause the risk of biological or microbiological contamination;
 - Never use the vacuum on irregular ground or on slopes exceeding 5%.
 - When using the vacuum, the solid and liquid waste must never exceed the level marked on the container.

3

Safety Prescriptions

3.1 - General prescriptions

Become thoroughly familiar with the contents of this manual before starting, using, servicing or operating on the vacuum in any way.

Never allow unauthorized personnel to work on the vacuum.

Never wear unbuttoned or loose clothing such as ties, scarves or torn garments as could become caught up by the vacuum.

Wear appropriate clothing for accident-prevention purposes.

Consult your employer about the current safety provisions and specific accident-preventing devices to use in order to ensure personal safety.

Never start the machine if it is faulty.

Before using the machine, always check that any hazardous condition has been eliminated and inform the persons in charge about any operational fault.

Repairs must only be carried out when the machine is at a standstill and disconnected from the air supply.

Comply with the maintenance and technical assistance procedures and information given in this manual.

Never ever use gasoline, solvents or other inflammable liquids as detergents.
Only use commercially available authorized nonflammable and non-toxic solvents.

Never use compressed air to clean the machine or its components. When this is absolutely unavoidable, protect the eyes by wearing goggles with side guards and limit the pressure to 30psi at most.

Never lubricate the machine or open the waste container while the vacuum is operating.

Do not move the vacuum cleaner by pulling the feed tube since this could damage or impair the air connection.

3.2 - Warning plates (fig. 3.2.1)



Comply with the data plate warnings. Failure to do this could cause personal injuries and even death.

Check that the data plates are always affixed and legible. Replace them if this is not the case. Fig. 3.2.1

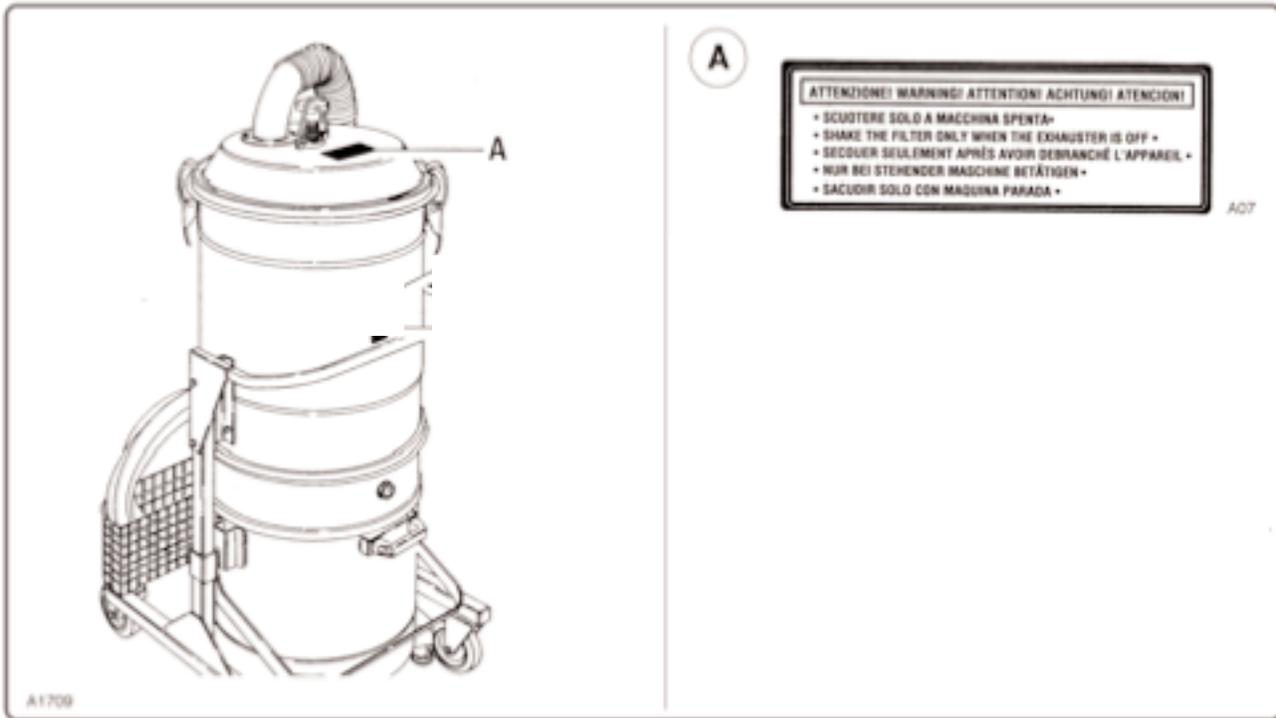


Fig. 3.2.1

A - Attention plate

Data plate code: 817107

Draws the operator's attention to the fact that the filter must only be shaken when the machine is off.

Failing this, the manoeuvre would have no effect while the filter itself could be damaged.



Lift the machine with a truck of adequate carrying capacity.

When conveying the vacuum, keep the load as low as possible to ensure greater visibility and stability, and to work in safety.

The forks must be widened and positioned in the center of the machine.

4

Handling and delivery

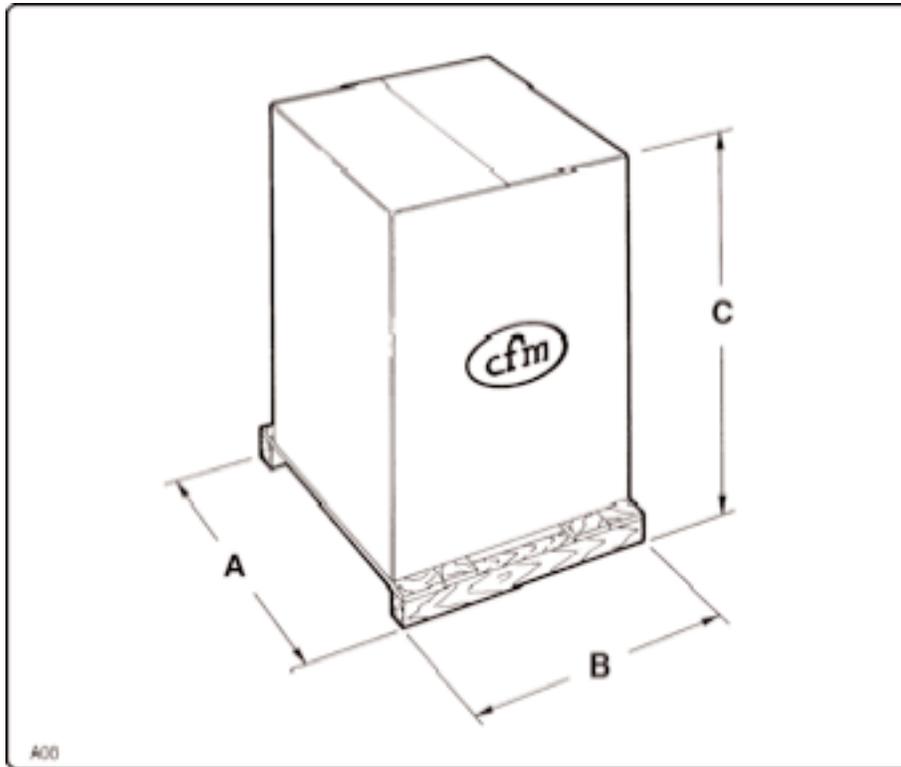
4.1 – Handling & Delivery

The vacuum cleaner is fixed to a pallet and covered by a box (fig. 4.2.1).

On arrival, check the machine to see that it has not been damaged during transport. Lodge an immediate complaint with the haulage contractor if damage is discovered.

Use a lift truck to lift and convey the vacuum.

4.2 Weights and dimensions of the packed machine



Cardboard Packaging	
Model	A17/100
A (in)	32
B (in)	28
C (in)	70
Weight (lbs.)	177

4.3 - Storage

If the Customer stores the machine before it is used, it must be kept in a sheltered place protected against strong temperature variations.



Do not stack the packs as this could damage the machine underneath. The machine should also be prevented from overturning as this could create accidents.

The packs have not been designed for stacking.

Make sure that unauthorized persons are unable to access the storage area and that the floor is able to bear the weight of the stored machine(s).

4.4 - Unpacking and disposal formalities

Remove the cardboard covering and free the machine from the pallet.

The packing materials should be stored for reuse or destroyed.

If the packing is destroyed, this must be carried out in compliance with the laws in force in the country where the machine itself is installed, in relation to the nature of the materials themselves.

5

Installation

5.1- Prior operations at the customer's charge

The customer should provide the following items:

- an air supply line with condensation free air;
- a male quick coupling at one end of the antistatic air-line.

5.2 - Air plant connection (fig. 5.2.1)

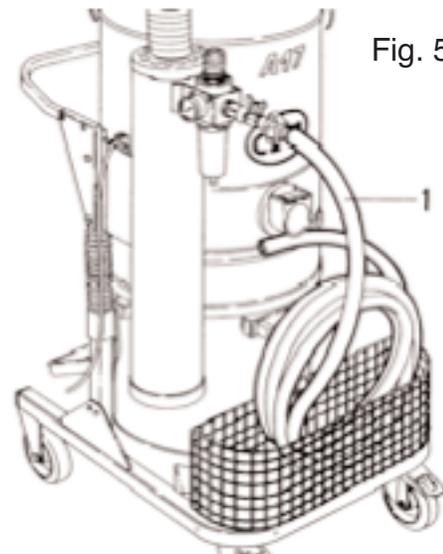


Fig. 5.2.1

Connect the 20 foot length of 1/2" antistatic rubber air-line "1" to a suitable air system.

5.3 – Ground continuity test



Test for ground continuity before each use!

- The compressed airline with the A17 EXP/W machine is impregnated with carbon for the purpose of transferring static charge to an earth ground source. Check to insure that there is electrical conductivity between the body of the vacuum and the hose fitting attached to the compressed airline. The resistance of the grounding continuity path shall not exceed 0.1 ohm.

- Connect the conductive, collection hose to the inlet of the stainless steel tank and check to insure that there is electrical conductivity between end of the hose and the tank inlet. The resistance of the grounding continuity path shall not exceed 0.1 ohm.

Note: This vacuum must be connected to an earth ground source. If the vacuum cleaner should malfunction or break down, grounding provides a path of least resistance for electrical

current to reduce the risk of electrical shock. For added safety, an auxiliary grounding clamp has been included with the machine.

Warning: If unacceptable results are recorded, **DO NOT OPERATE THE CLEANER.** Using a continuity tester, check for continuity between each connection of the vacuum cleaner (example: tool to wand, wand to hose, hose to machine, etc.) If the problem can not be corrected refer the unit to an **AUTHORIZED SERVICE CENTER ONLY.**

6

Using the vacuum cleaner

Caution: Operators should test the vacuum machine for ground continuity before each use.

Warning: A HEPA filter must be installed in the vacuum machine while working with hazardous material. Failure to do so will expose people in the work area and others to hazardous materials which is a serious health risk.

Emptying: If the vacuum cleaner is used to collect hazardous materials, do not attempt to open or empty its contents without personal protective clothing and respiratory protection. All disposed filters, bags, debris should be treated as a hazardous substance and must be disposed of in accordance with all federal, state and local regulations.

Warning: This equipment is intended for explosion-proof operation, only if used with supplied or recommended hose and tools. Any alteration to this equipment by a third party will nullify its warranty.

The Nilfisk CFM A17EXP and A17EXPW meets the requirements for use in the following hazardous environments:

Class I/Group D Atmospheres containing: gasoline, petroleum, naphtha, benzine, butalie, propane, alcohol, acetone, benzol, lacquer solvent vapors or natural gas.

Class II/Group E* Atmospheres containing metal dusts

Class II/Group F Atmospheres containing carbon, black coal or coke dust.

Class II/Group G Atmospheres containing flour, starch or grain dust.

Warning: Do not use this or any other Nilfisk CFM vacuum for the purposes of cleaning or extracting fuel residues from airplanes or ships.

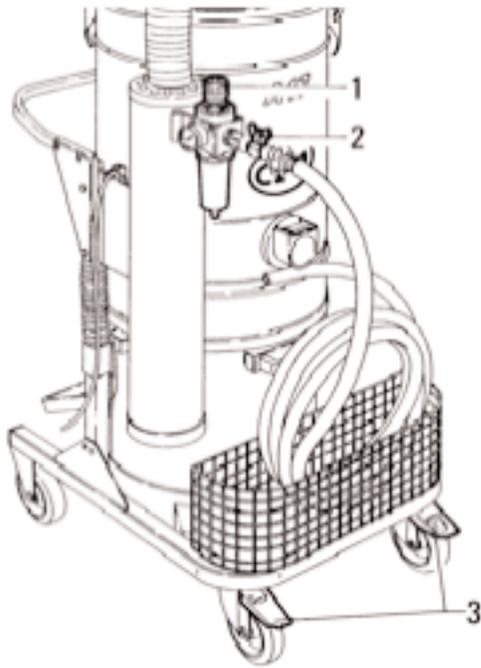
**Special modifications may be necessary to meet Group E requirements. Nilfisk CFM reserves the right to evaluate on a case-by-case basis.*

Grounding Instructions

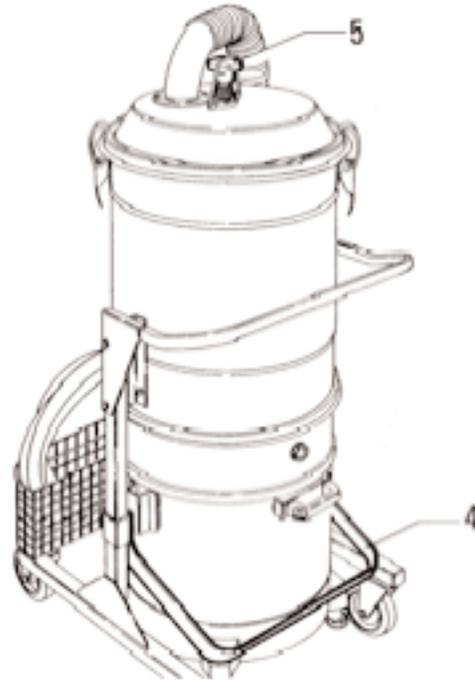
This vacuum must be connected to an earth ground source. If the vacuum cleaner should malfunction or break down, grounding provides a path of least resistance for electrical current to reduce the risk of electrical shock. For added safety, an auxiliary grounding clamp has been included with the machine.

Tools and attachments

Warning: This equipment is only intended for explosion-proof operation if it is equipped with the proper conductive hose and tools. Any alteration to this equipment by a third party will nullify its warranty.

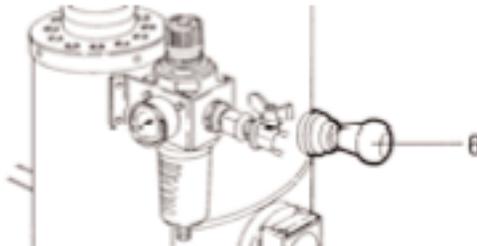


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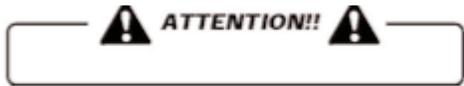
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6.1 Controls

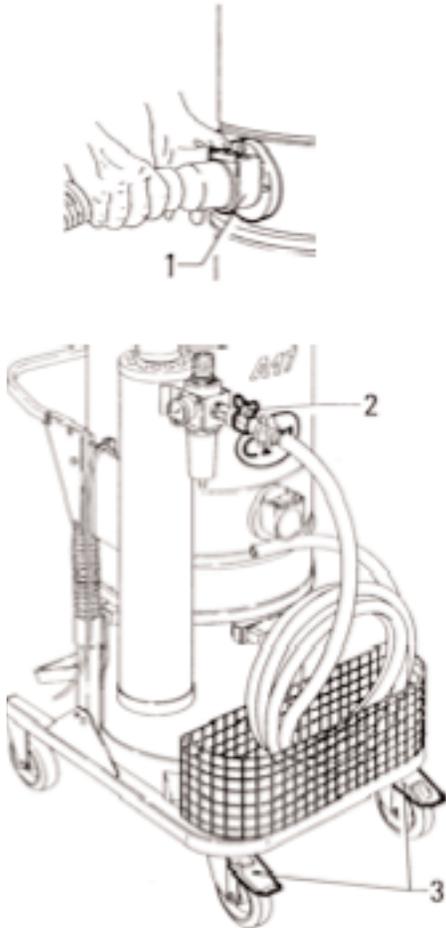


- 1** - Pressure regulator.
Used to regulate the suction pressure.
- 2** - Lever
Used to start and stop the vacuum cleaner.
- 3** - Parking brake levers.
Press on the levers to lock the castors of the vacuum cleaner.
- 4** - Lever to lock and release the waste container.
- 5** - Primary filter shaker knob.
- 6** - Knob to shake the primary filter

6.2 Starting



Unauthorized personnel are forbidden to use the vacuum.



- Fit the accessories on suction inlet "1."
- Place the vacuum near the place of use then lock the front wheels by pressing levers "3" downwards.
- Connect the machine to the compressed air supply.
- Make sure that the compressed air is properly connected.
- Start the vacuum cleaner by turning lever "2" counterclockwise.

6.3 - Stopping (fig. 6.2.1)

Turn lever "2" clockwise to stop the vacuum cleaner.

6.4 Correct use of the vacuum

Before beginning the suction cleaning work, connect the suction pipe to the snap-fitting "1" as indicated in paragraph 6.2.

The snap-fitting is shaped so that the pipe can turn, thus preventing it from becoming twisted.

Keep long suction pipes as straight as possible. Do not allow them to become bent or twisted as this will cause easy wear and clogging.

Note *Periodically check the quantity of vacuumed product in the waste container to prevent overfilling of the machine.*

6.5 Cleaning the primary filter (fig. 6.5.1)

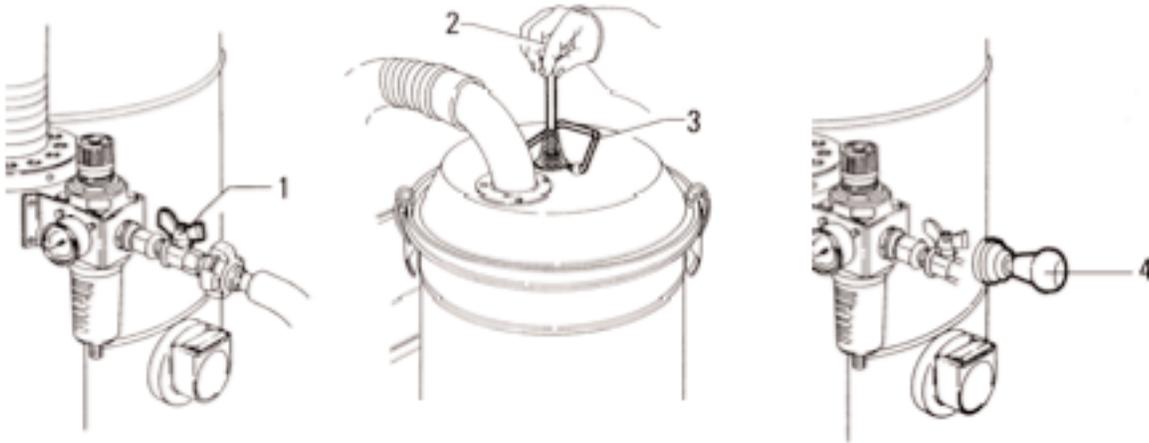


Fig. 6.5.1

Clean the primary filter as outlined below if performance drops during use.:

- shut off the air supply using lever "1" to stop the vacuum cleaner.
- Lower stop "3" which holds the knob down in the stretched filter position.
- Vigorously lift and lower shaker knob "2" (fig. 6.5.1) several times in order to shake the dust from the filter.
- Wait a few minutes for the dust to deposit at the bottom of the container, then empty this as described in paragraph 6.6.

Note

The following situations may result in a loss of performance:

- the suction pipe or one of the accessories may be clogged and not the filter; in this case, the relative parts must be cleaned.
- The air pressure may be insufficient. Increase either the volume or pressure of air to increase performance.

6.6 - Emptying the container

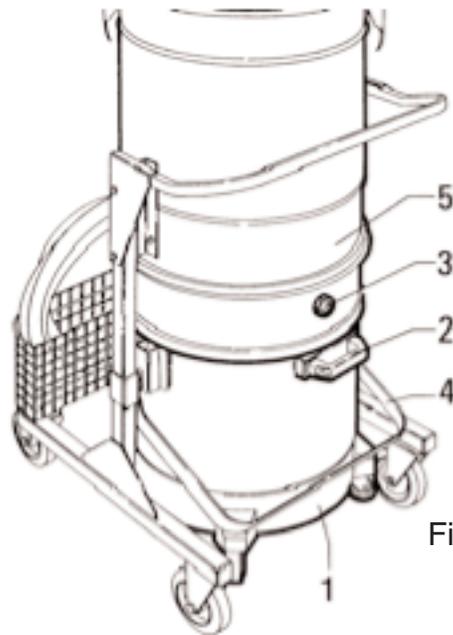


Fig. 6.6.1

Check the amount of waste in the container according to the job in hand to prevent overfilling.

Indicator "3" indicates the degree to which container "1" has filled, warning the operator when the container itself must be emptied.

- *Before emptying container "1", first switch off the vacuum by turning the lever clockwise.*
- *It is also advisable to clean the primary filter by using the shaker knob as described in paragraph 6.5.*
- *Wait a few minutes for the dust to detach from the filter and deposit in container "1".*
- *Lift lever "4".*
- *Container "1" will lower until it rests with its wheels on the floor.*
- *Grip handle "2" and remove the container, then empty out its contents.*
- *To remount the container, fit it under filter unit "5" checking to see that indicator "3" remains on the outside.*

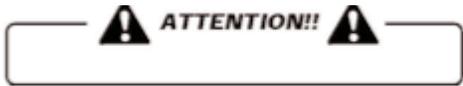
Push lever "4" downwards, allowing container "1" to lift until it seals against filter chamber "5".



After remounting container, check to see that container is sealed against filter chamber. Proceed as described in paragraph 7.3.4 if adjustments are needed.

To facilitate the container emptying and cleaning operations, it is advisable to use nylon bags "1" as indicated in figure 6.6.2.

In this case, install the option described in paragraph 6.10.3.



These bags cannot be used when the waste contains liquids or sharp items.

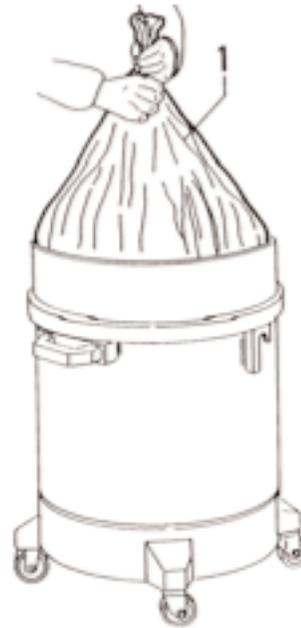
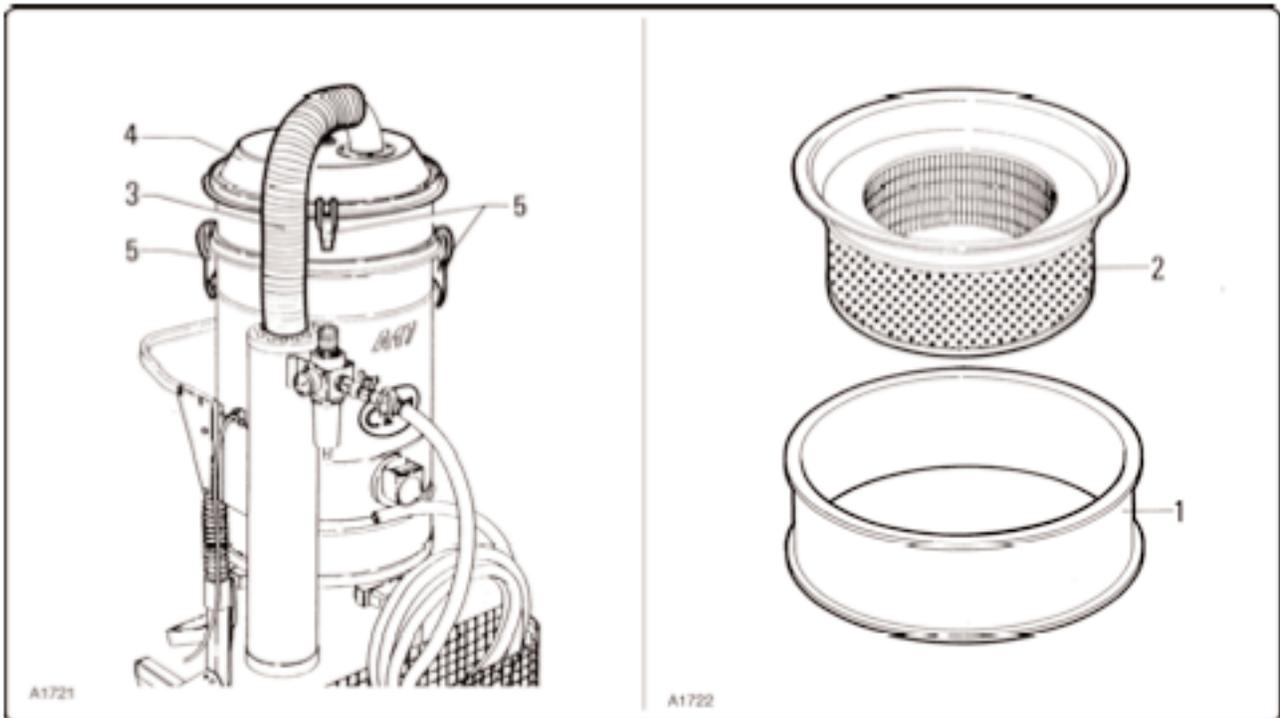


Fig. 6.6.2

6.8 - Installing HEPA filter

Fig. 6.8.1

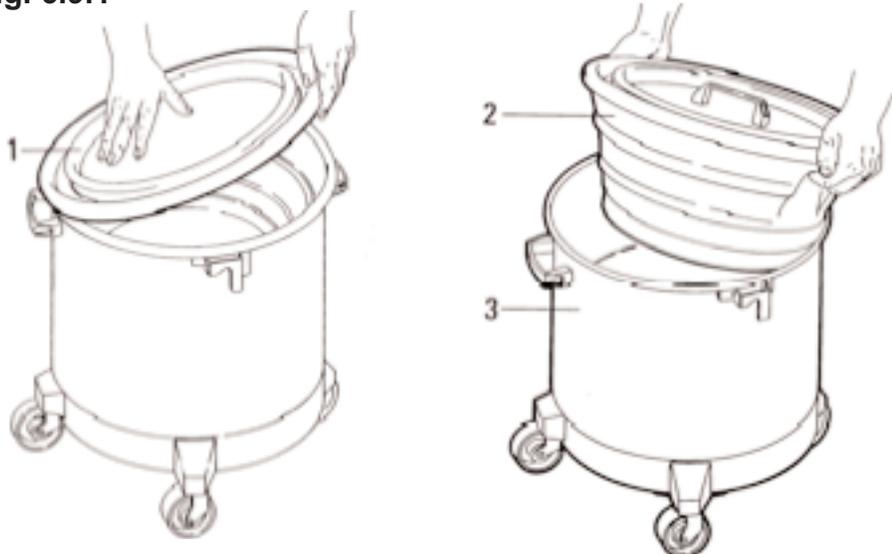


- Remove connecting pipe "3" (fig. 6.8.1);
- remove the cover from the filtering chamber;
- mount extension "1" on the filtering chamber and mount absolute filter "2" complete with seal;
- mount the cover "4" of the filtering chamber with clip "5";

- lock the extension and cover in place using clips "5";
- connect a longer suction pipe "3" (fig. 6.8.1) than the previous one.

Note: In order to mount a HEPA filter onto the machine the filter shaker must be relocated to the side of the vacuum. Contact Nilfisk CFM sales office if HEPA filter is required.

6.9 - Emptying the optional ABS container
- fig. 6.9.1



Shut off the compressed air supply before emptying the container.
Shake the filter a number of times and give the dust chance to settle.

- Release the container using the lever.
- Remove the container from the machine.
- Carefully close cover "1" of the waste container.
- Remove closed waste container "2".
- Fit a new container inside waste container "3".

Carefully check that the waste container "3" (when mounted) is sealed against the filtering chamber.

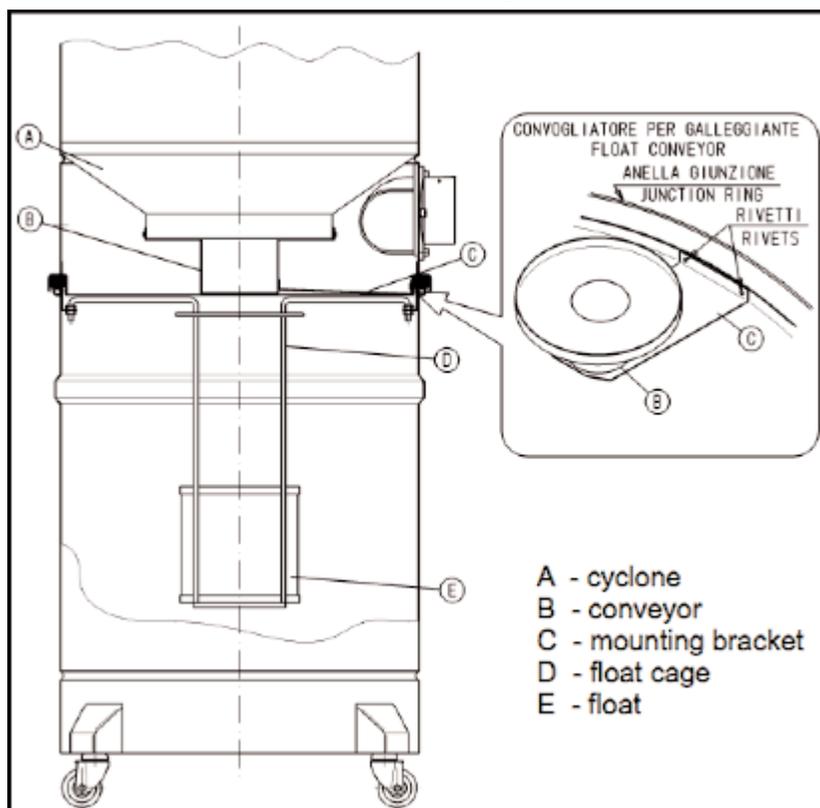
Fig. 6.9.1
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6.10 - List of optionals

The following pages list the options that can be used with the vacuum.

6.10.1 Mechanical float shut-off for collecting liquids

Fig. 6.10.1



6.10.2 - Removable cyclone separator (fig. 6.10.2)

Separator "1" divides the filtering chamber from the container, protecting the filter from sharp scraps and splashing liquids.

Consult sub-section 7.3.7 for cleaning or replacing the separator.

6.10.3 - Retention plate (fig. 6.10.3)

Use of the retention plate is required when solid waste mixed with liquids are vacuumed. It allows the mixture to be decanted and the solids to be removed from the liquid.

A valve "3" to drain off the collected liquid is also supplied with the retention plate "2".

To mount this accessory, make a hole in the container about 40 mm from the bottom and mount tap "3", locking it in place from the inside with the nut.

Now insert plate "2" which rests on the bottom of the container.

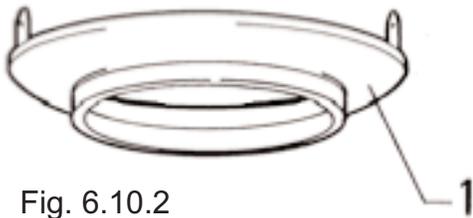


Fig. 6.10.2

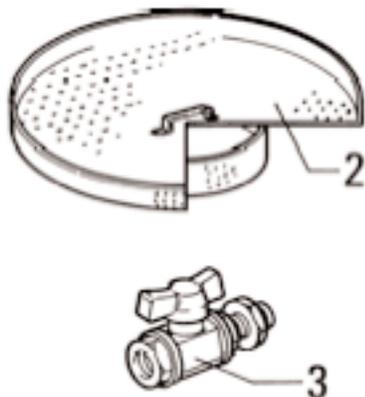


Fig. 6.10.3

6.10.4- Grate and bypass hose (fig. 6.10.4)

The grate and bypass hose are mounted when waste is vacuumed into a nylon bag fitted into the container. Besides grate "1", the kit includes suction pipe "4" which connects the container to the filter chamber.

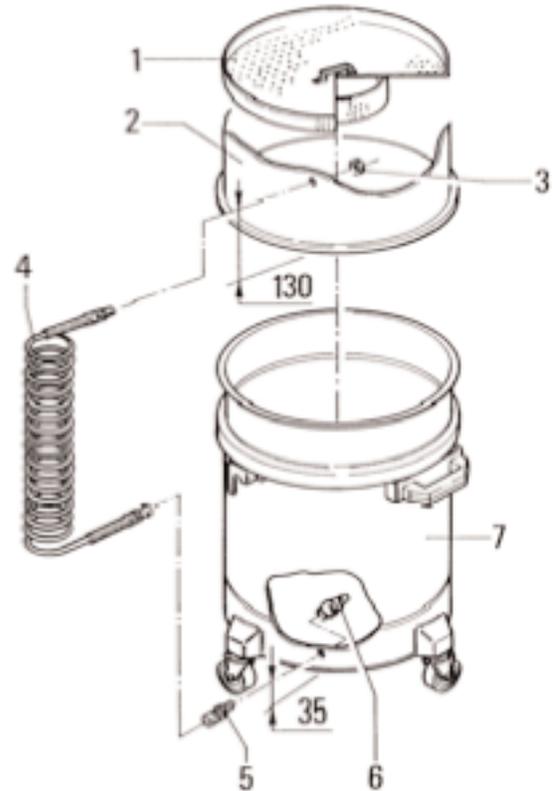


Fig. 6.10.4

Make a 17 mm hole in container "7" and a second hole of equal diameter in filtering chamber "2", as indicated in the drawing 6.10.4.

Mount suction pipe "4" in filter chamber "2", locking it in place from the inside with check nut "3".

Mount quick coupling "5" on container "7", locking it in place from the inside with fitting "6".

Lastly, rest retention plate "1" at the bottom of container "7".

6.11 - List of accessories

Ask your Nilfisk CFM sales office for details about the complete range of accessories

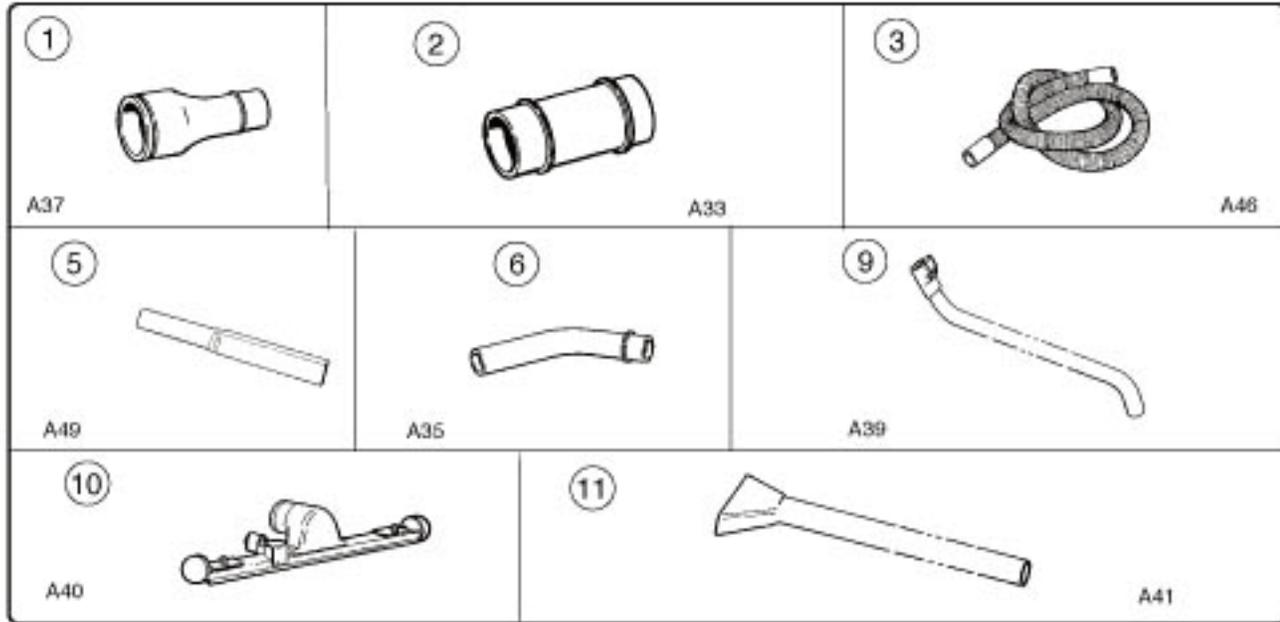
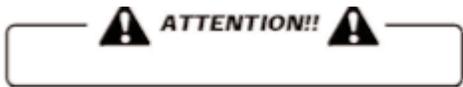


Fig. 6.11.1

Pos.	Part No.	Dimension	Description	Function
1	7-22001	Ø 70 Ø 50	Inlet reducer	Connects the vacuum and flexible hose
2	7-21002	Ø 50	Connector	For connecting hose to tools
3	7-24087	Ø 50	Antistatic rubber hose	For collecting dust and materials
5	7-21026	Ø 50	Crevice nozzle	To suck liquid waste and dust from corners
6	7-21012	Ø 50	Curved fitting	To collect waste from hard-to-reach places
9	7-22291	Ø 50	Wand	To clean floors together with floor nozzle
10	7-22295	Ø 50	Floor nozzle	To collect dust and liquids from the floor
11	7-22034	Ø 50	Gulper tool	To clean around machines/benches

7 Maintenance

7.1 - Foreword



All maintenance and cleaning operations must be carried out when the vacuum is off and disconnected

Remember, that correct use and servicing are essential if the safety and efficiency of the vacuum are to be maintained.

To ensure consistent operation to prevent the warranty from becoming void, use only genuine Nilfisk CFM spare parts when repairs are needed.

7.2- Routine maintenance

Strictly comply with the following operations to ensure that the vacuum remains in a reliable condition.

7.2.1 - Before each work shift:

- perform ground continuity test as outlined in para 5.3
- check that all warning and danger plates are affixed and legible. Replace them if they are damaged or incomplete.
- Check that the waste container is empty. Empty it if this is not the case. See paragraph 6.6.

7.2.2 - Every 200 hours service (monthly)

- Check the seal of the vacuum. There must be no leaks.
- Check the condition of the suction hose and accessories. They must not be torn, slit or broken since this would lower the suction efficiency.
- Make sure that the air supply tube is not damaged or crushed. Replace it if this is the case.
- Check the condition of the primary filter. It must be undamaged, i.e. there must be no tears, holes or other damage. Change the filter if it has been damaged.

7.3- Routine maintenance operations

The routine maintenance operations are described below in order to inform the user about the correct procedure to follow.

7.3.1 - Primary filter replacement (version without HEPA filter)

Never replace the filter while the machine is operating.



The operator must wear breathing apparatus, gloves and protective garments to replace the primary filter when the machine is used to vacuum harmful substances.

Work outdoors if possible. The old filter must be disposed of in accordance with all applicable federal, state, and local laws.

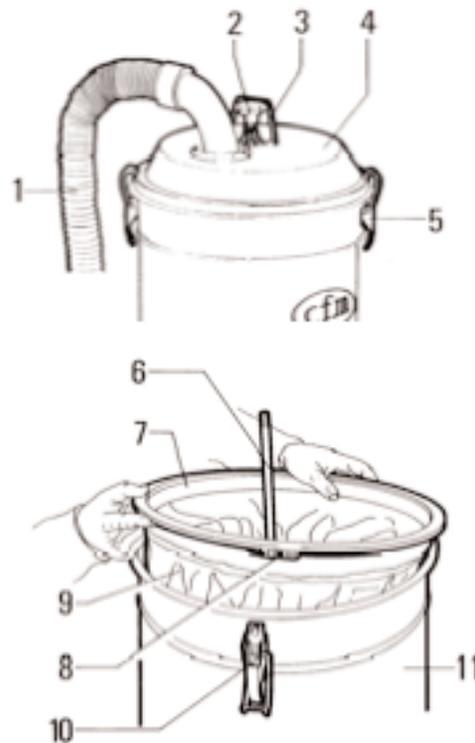
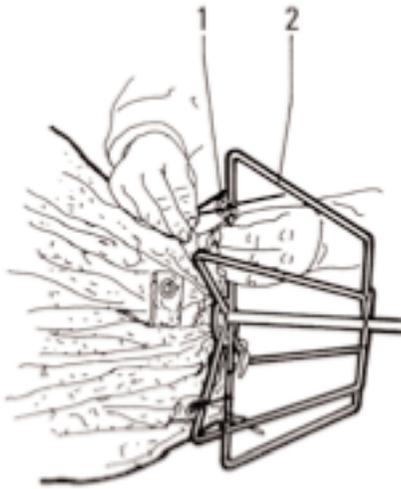


Fig. 7.3.1

- Remove the suction hose "1" from its fitting.
- Release stop "3" that retains knob "2" and then unscrew filter shaker knob "2".
- Release the two closing hooks "5" and remove cover "4".
- Lift the filter "9" and unscrew the clamp "8" that holds the filter on the bearing ring "7".

- Remove cage "6" and overturn the filter, exposing clips "1" fig. 7.3.2.
- Cut the clips and detach the cage from the filter



- Filter replacement is an important operation.**
The filter must be replaced with one of identical characteristics. Failure to comply with these regulations could jeopardize the performance of the vacuum.
- Fit the clamp and retention ring from the old filter on to the new one.
 - Insert cage "2" fig. 7.3.2 and mount it on to the filter by means of clips "1" on the bottom of the filter.
 - Fit the filter into filtering chamber "11" fig. 7.3.1 then mount cover "4" and lock it in place with the two closing hooks "5".
 - Mount the filter shaker knob and lock it in a lowered position with holder "3" so that the filter is kept permanently taut.
 - Fit the suction hose back on the fitting.

7.3.2 - Primary filter replacement (version with HEPA filter)



The operator must wear breathing apparatus, gloves and protective garments to replace the primary filter when the machine is used to vacuum harmful substances.

Work outdoors if possible. The old filter must be disposed of in accordance with all applicable federal, state, and local laws

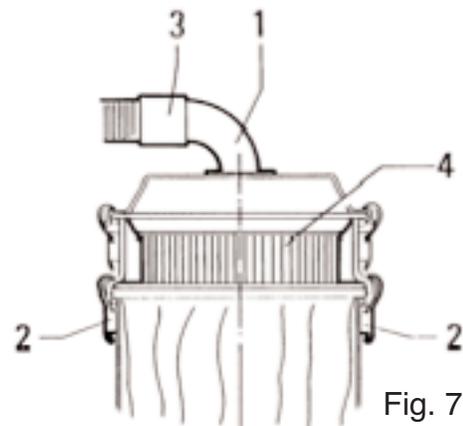
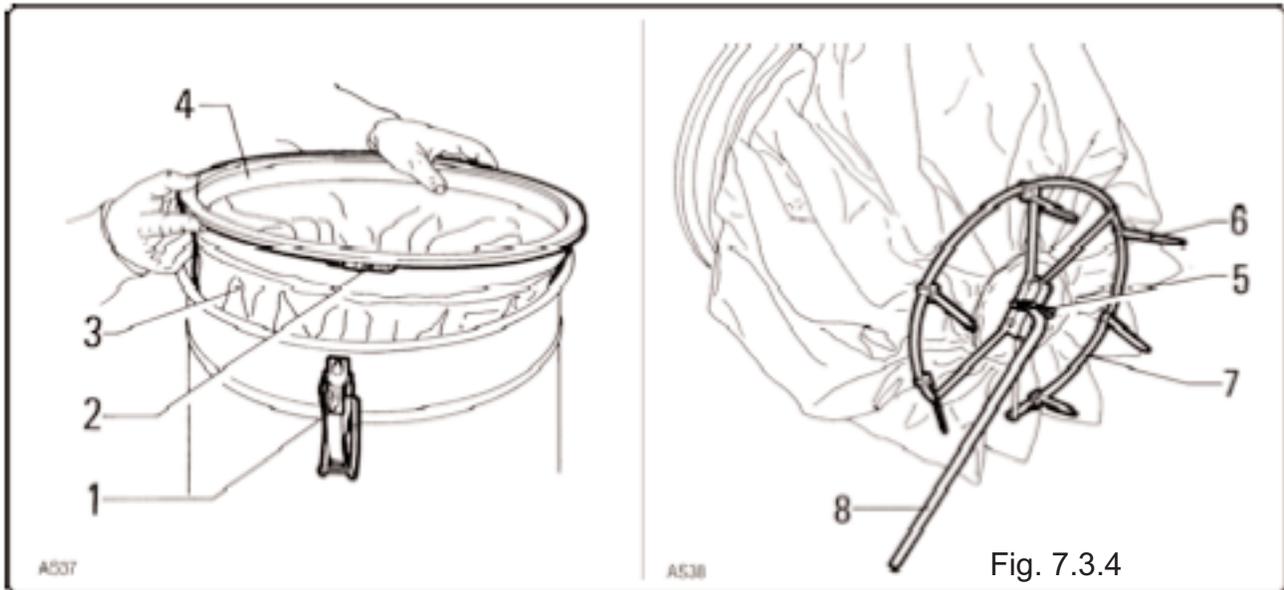


Fig. 7.3.3

- Shut off the air valve lever.
- Remove tube "3" from fitting "1".
- Release the two closing hooks "2" and remove cover "4" along with the extension and HEPA filter.
- Slightly lift the filter "3" fig. 7.3.4. Insert one hand inside the exhauster in order to reach split pin "5". Remove it, thus freeing filter shaker lever "8" from the ring "7".
- Lift filter "3", exposing the clamps "6".
- Cut the plastic ties and detach the cage from the filter.
- Unscrew clamp "2" of the filter holder from filter ring "4", remove it from the filter and recover the ring.



Filter replacement is an important operation.
The filter must be replaced with one of identical characteristics. Failure to comply with these regulations could jeopardize the performance of the vacuum.



When fitting the new main filter however, you must ensure that the ground wire "A" is not broken at the filter ring connection.

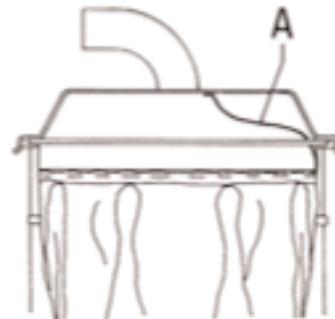


Fig. 7.3.5

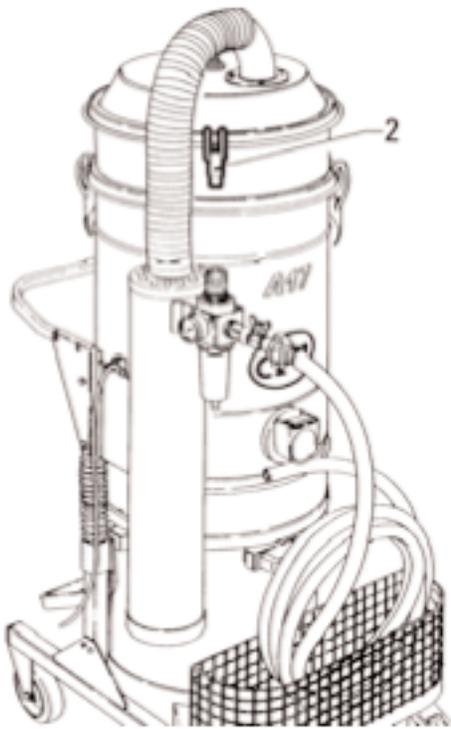


Fig. 7.3.6

7.3.3 Replacing the HEPA filter

The HEPA filter (when installed) is replaced in the following way:

- remove cover "1" by means of clamps "2";
- lift the absolute filter "4";
- remove the seal "3" and fit it into the new filter if it is still in a good condition;
- refit the new filter, following the above steps in reverse order;
- the old HEPA filter should be disposed of in accordance with all applicable federal, state and local laws.

7.3.4 - Checking the upper seal of the filter chamber (fig. 7.3.7)

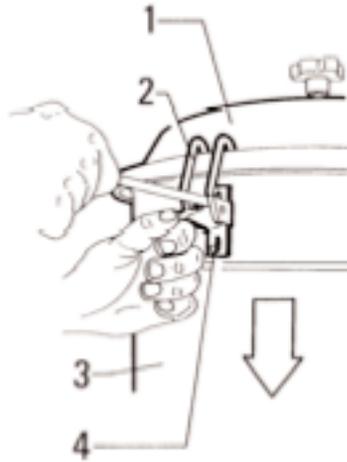


Fig. 7.3.7

Check that cover “1” makes a tight seal with filtering chamber “3”. Unscrew screws “4” if the seal under the cover “1” needs adjustment.

Lower the clips until there is a tight seal between the cover and suction chamber, then tighten the screws “4”.

7.3.5 Checking the lower seal of the filter chamber (fig. 7.3.8)

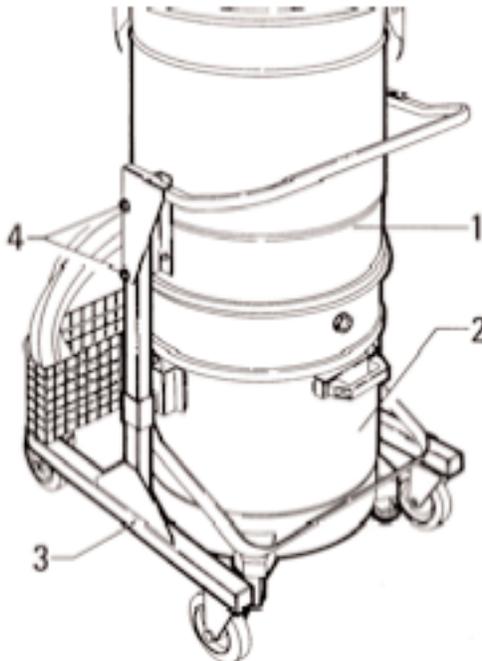


Fig. 7.3.8

After a certain period of time, the seal between container “2” and filtering chamber “1” tends to become slack and no longer tight.

The seal must be replaced if it becomes torn or split.

If the seal is undamaged, adjust the filter chamber as described below:

- loosen the four screws “4” that lock filter chamber “1” against vacuum structure “3”.
- Allow filter chamber “1” to lower down the relative slots and relock screws “4” once it has reached the proper position.

7.3.6 Checking the condition of the hoses (fig 7.3.9)

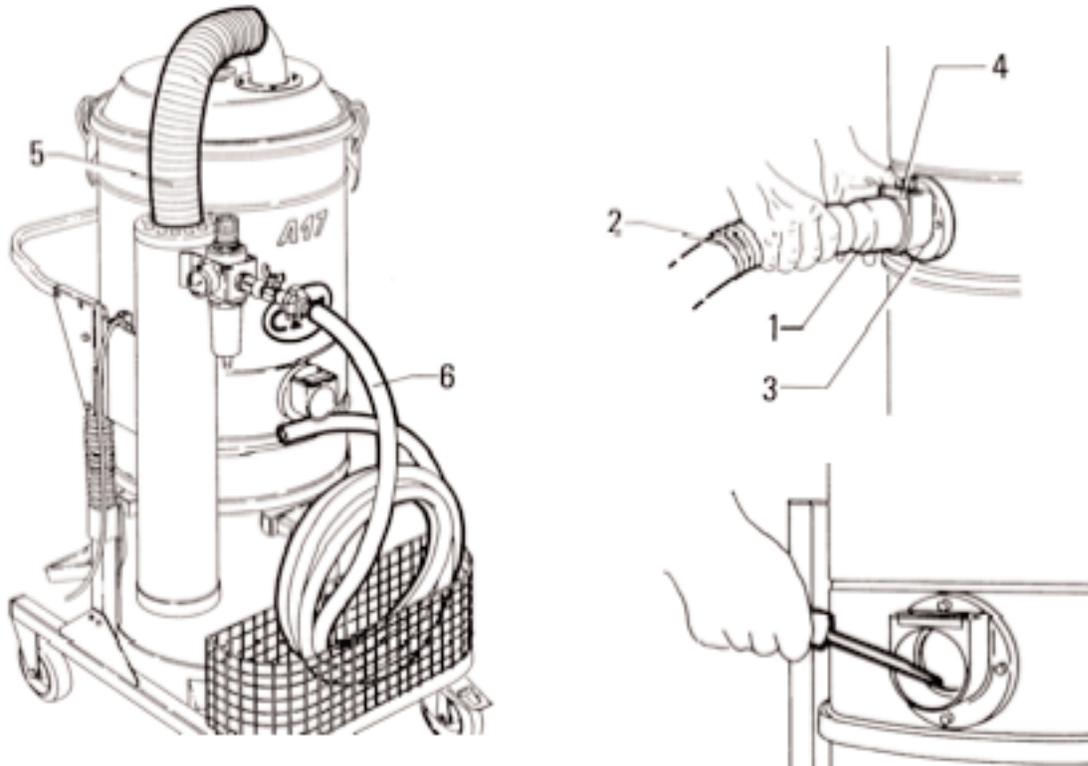


Fig. 7.3.9

To ensure the vacuum operates in the best possible way, the entire air suction circuit must be sealed tight. In addition to checking the filter chamber seals (as described in sect. 7.3.6), it is also necessary to make sure that tube "5", connecting the silencer to the filter chamber, and suction hose "6" are in a good condition.

Replace the tubes if there are tears or breakages.

When the vacuum is used to collect sticky materials, check that there is no clogging throughout the system.

Also check the condition of the hose "2".

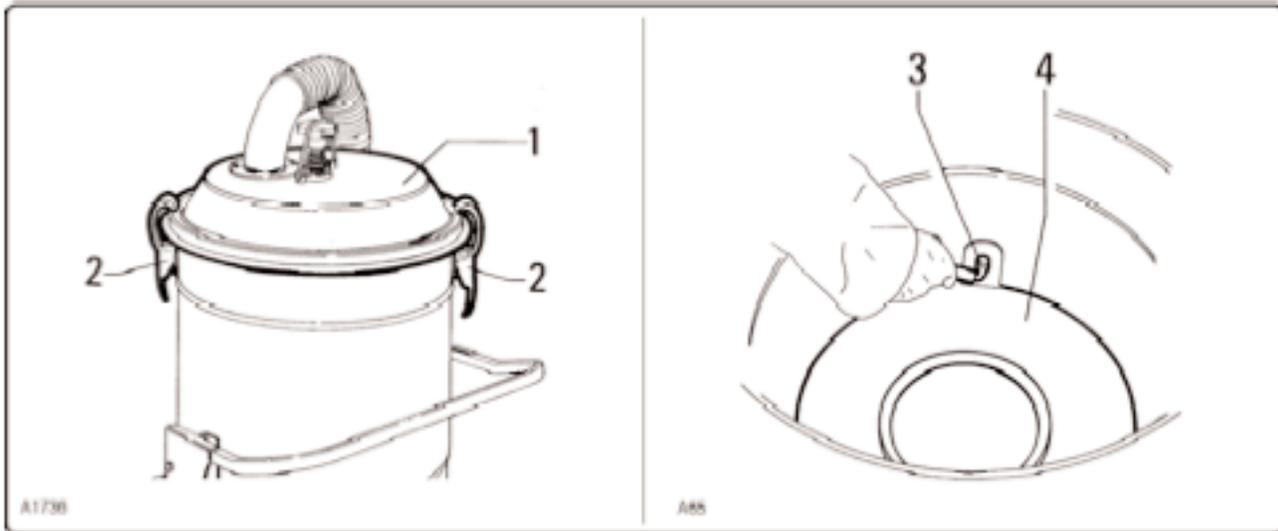
Periodically check this hose and immediately replace it if it is damaged.

To remove hose "2", just press plate "4" on outlet "3" as indicated in fig. 7.3.9.

When sticky materials are treated, check for possible clogging along hose "2", in outlet "3" and on the baffle in the filtering chamber.

Scrape outside the outlet and remove the deposited waste as indicated in fig. 7.3.9.

7.3.7 - Cleaning or replacing the separator



Separator "4" should first be removed in order to be cleaned.

- Release hooks "2" that close cover "1" and remove the cover.
- Remove the filter for access to separator "4".
- Unscrew the two screws "3" holding separator "4" and remove it from the container.
- Clean the separator, removing any hardened material from its sides.

Replace the part if it is worn.

- Refit separator "4" and allow it to rest against the relative edging.
- Lock it in position by remounting the two screws "3" that hold the separator in place on the container.
- Refit the filter and close cover "1", locking it in place with the two closing hooks "2".

If there is only a dust deposit on separator "4", allow the dust to drop through the central hole without removing any component.

7.4 - Spare parts

7.4.1 - How to order spare parts

Spare parts must be ordered from your Nilfisk CFM sales office.

7.4.2 - Recommended spares

The following is a list of recommended spare parts. Users are advised to keep a stock of these available in order to speed up any maintenance operations.

7.5 Cleaning

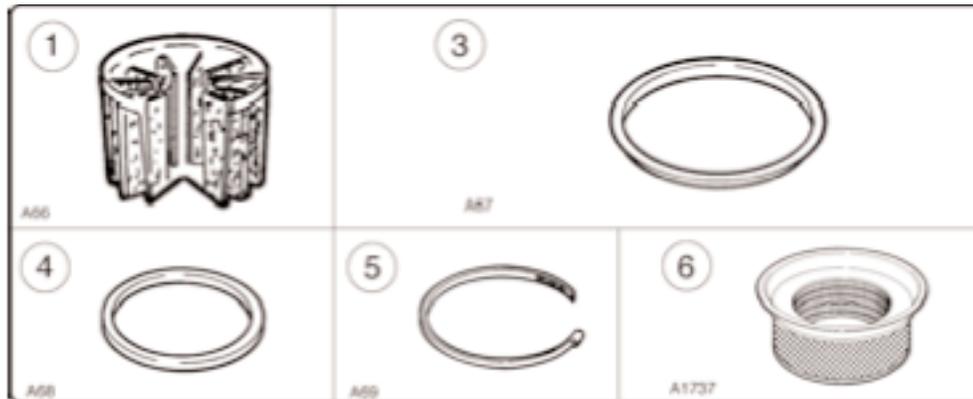


Fig. 7.4.1

List of recommended spare parts			
Pos.	Description	Dimensions (mm)	Part No.
1	Star-shaped filter	Ø 460	8-17141
3	Filter ring	Ø 460	8-15010
4	Filter ring seal	Ø 460	8-17126
5	Filter clamp	Ø 460	8-18079
6	HEPA filter	Ø 400x150	8-17263



Wear safety goggles to protect the eyes and a mask to protect the respiratory tract to clean the filters. The person responsible for safety in the plant must evaluate the risks and dangers of any toxic or harmful products and inform the machine users about how to proceed and which individual protections they must use. It is forbidden to clean the vacuum cleaner with jets of water.

Never use gasoline or flammable solvents as detergents. Always use non flammable and non toxic commercially available solvents. Disconnect the vacuum cleaner from its air supply before proceeding with cleaning operations.

7.5.1 - Washing the filter

The filter can be washed. Do NOT wash filter in a washing machine! Use water with the addition of a mild detergent soap (if required) at a temperature of no more than 60 C to wash the filter. Do not rub or squeeze the filter or its characteristics could be impaired. Allow the water to drip from the filter and dry it at an ambient temperature.

7.6 - Demolition

Demolition operations must be carried out by specialized personnel.

The person responsible for safety in the plant must evaluate the risks and dangers of any toxic or harmful products and inform the machine users about how to proceed and which individual protections they must use.

The vacuum cleaner must only be demounted after having been disconnected from the air supply and with the waste container empty.

7.6.1 - Disposal

Separate the machine components according to the nature of the material and consign them to authorized centers where the polluting parts can be separated according to the laws in force in the country where the machine is installed.

8 Troubleshooting

Fault	Causes	Remedies
<i>The vacuum suddenly stops</i>	<i>Clogged primary filter</i> <i>Clogged suction hose</i> <i>Insufficient air</i>	<i>Shake the filter. Replace it if shaking or cleaning is not sufficient.</i> <i>Check the suction hose and clean it.</i> <i>Increase the inlet air pressure.</i> <i>Make sure that the pressure and volume of air is adequate.</i>
<i>Dust leaks from the vacuum</i>	<i>The filter is torn</i> <i>Inadequate filter</i>	<i>Change it for another identical type.</i> <i>Contact sales office for recommendation for alternate filter.</i>
<i>Electrostatic charge build up on the vacuum</i>	<i>Insufficient grounding</i>	<i>Make sure that the machine has been properly grounded.</i> <i>It is essential for the suction hose to be of the conductive type.</i> <i>A conductive suction hose must be used with this vacuum. Use only Nilfisk CFM hoses!</i>

Warranty

Nilfisk warrants that its equipment will be free of defects in workmanship or material for a period of two years from the date of delivery. If the vacuum fails to meet these warranty standards, Nilfisk shall, upon notification within such time period, correct such non-conformity, at its option, either by repairing any defective part or parts, or by replacing a part or parts provided that the equipment is returned to an authorized Nilfisk service facility. In all cases freight both ways will be at expense of the customer. Equipment shall not be returned without advance notice to, and consent of Nilfisk.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, NILFISK MAKES NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING WITHOUT LIMITATION ANY AND ALL WARRANTIES OF MERCHANTABILITY, FITNESS OF PURPOSE, OR OTHER WARRANTIES, ALL OF WHICH ARE EXPRESSLY DISCLAIMED AND EXCLUDED. NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PRODUCTION, LOSS OF PROFITS OR ANY OTHER SIMILAR INDIRECT LOSSES WHICH MIGHT OCCUR AS A RESULT OF DEFECTS, PARTIAL OR TOTAL FAILURE OF THE PRODUCT TO PERFORM AS SPECIFIED.

Correction of non-conformities or defects in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Nilfisk to the customer, whether based on contract, negligence or otherwise with respect to, or arising out of such equipment. The remedies set forth herein are exclusive, and the inability of Nilfisk with respect to this sale or anything done in connection therewith, whether in contract, in tort, under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the equipment or part on which such liability is based.

This warranty does not cover repairs due to normal wear and tear, accident, neglect, misuse or abuse, incorrect installation or use other than as described in the instruction booklet. Breaks in hoses and cables are not covered. This warranty is rendered void if the motor number plate is removed or defaced or if repairs are made or attempted by persons not authorized by Nilfisk. Some states do not allow exclusion of implied warranties or limitations on how long an implied warranty lasts so the above exclusions or limitation of implied warranties may not apply. Some states do not allow exclusion or limitation of incidental or consequential damages so the above exclusion or limitation of incidental or consequential damages may not apply. Limited warranties set forth above give specific legal rights. Customer may have other rights which vary from state to state.

DISCLAIMER

The purchaser and intended user of this Nilfisk EXP vacuum acknowledge that their Authority Having Jurisdiction (AHJ) as defined in Article 100 of the National Electric Code (NEC – NFPA 70) has determined this specific type of vacuum equipment is suitable for use in the intended applications and hazardous environments. Nilfisk-Advance, the product manufacturer, is not an AHJ and cannot approve any particular EXP vacuum product for any specific application or use. It is the purchaser's and the intended user's responsibility to ensure that the vacuum is used properly as described in the instruction manual and in accordance with the AHJ's approval. By issuing a purchase order, the purchaser and intended user acknowledge understanding the role of their AHJ along with the capabilities and limitations of the vacuum equipment. If you require assistance in identifying your AHJ, please contact your local Nilfisk District Manager for assistance.

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