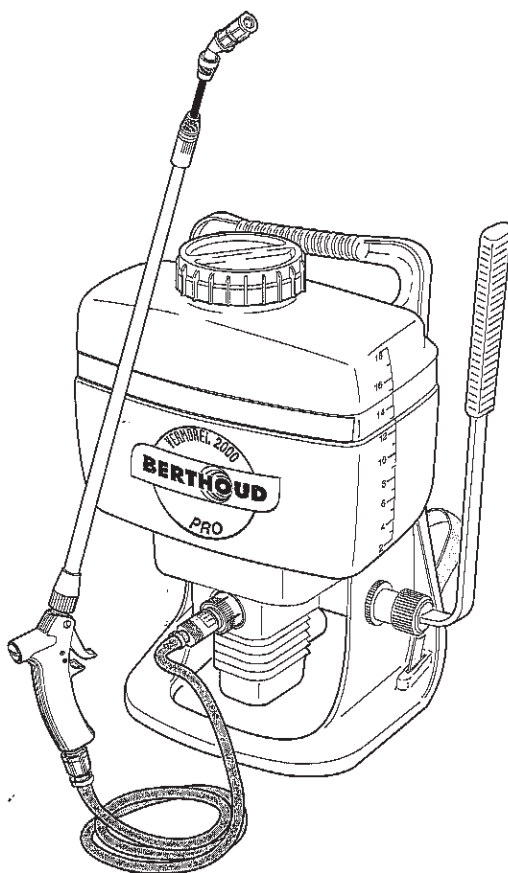


BERTHOUD

VERMOREL 2000 PRO

Réf. : 102.022



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Notice d'utilisation

ENGLISH
User's manual

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Bedienungsanleitung

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Gebruikshandleiding

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Instrucción de utilización

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Руководство по экс

TÜRKÇE
Kullanma Klavuzu

ČESKY
Návod k použití

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13 - Vue éclatée / pièces détachées

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13 - Exploded view / parts list

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13 - Explosionsansicht / Zubehör

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13 - Opengewerkte tekening / Wisselstukkenlijst

ESPAÑOL
13 - Vista detallada / piezas de repuesto

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13 - Esposo / ricambi

PO POLSKU
13 - Schemat wygazania / części zamienne

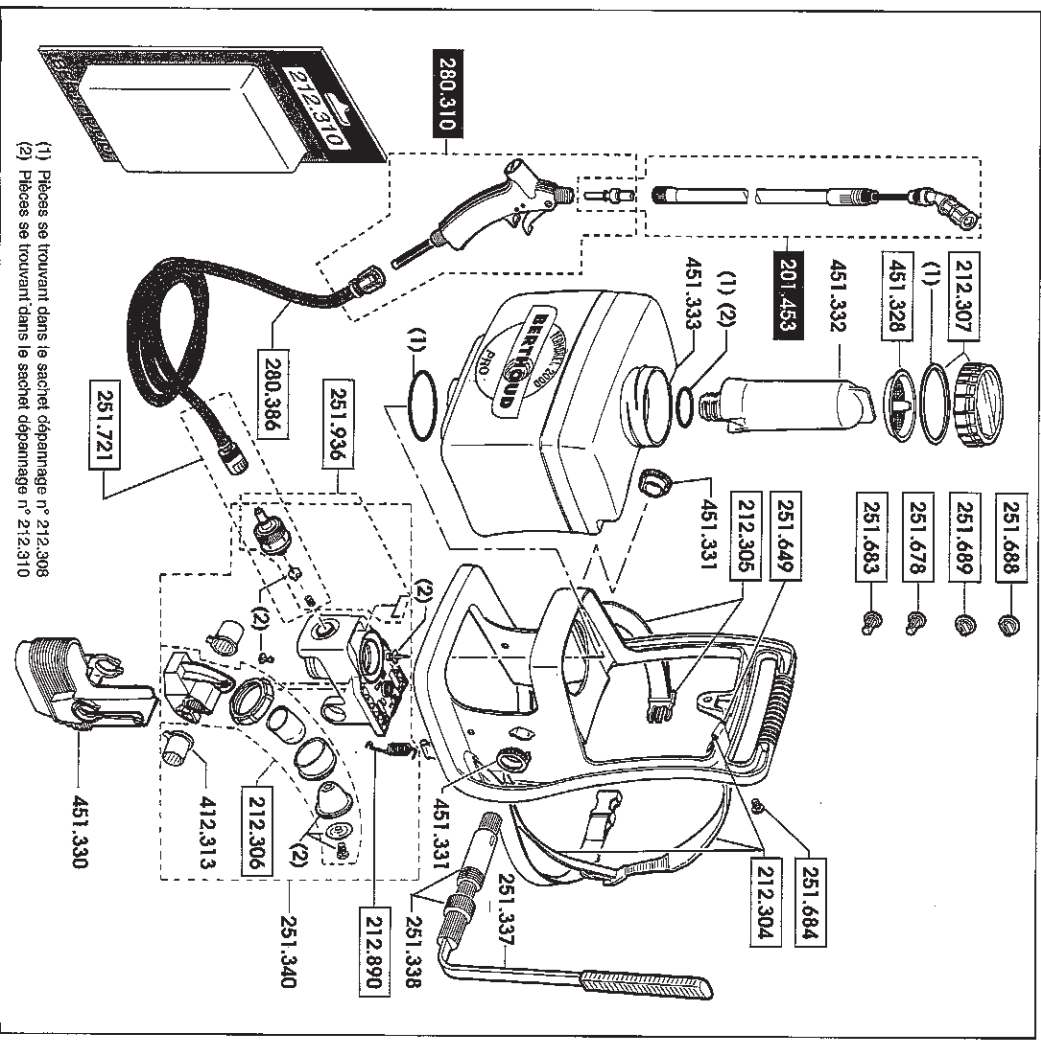
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13 - Αναλυτικό διάγραμμα συλλαμολόγησης

PORTUGUÊS
13 - Plano de conjunto

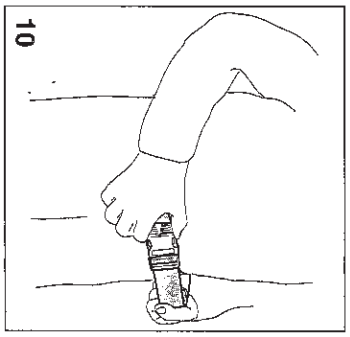
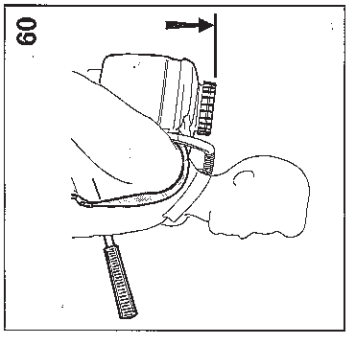
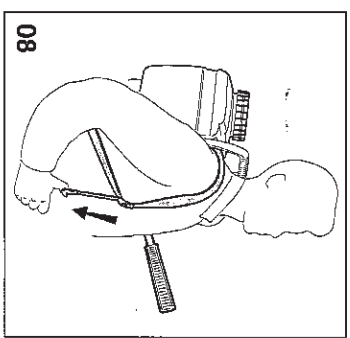
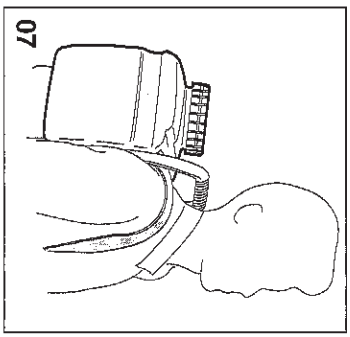
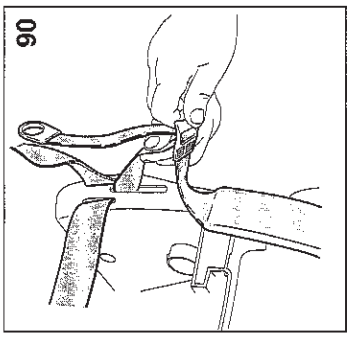
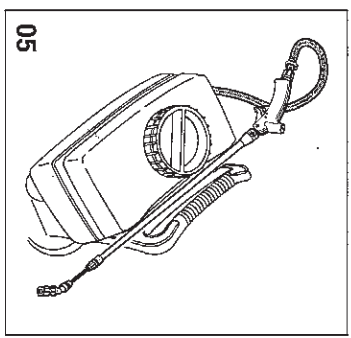
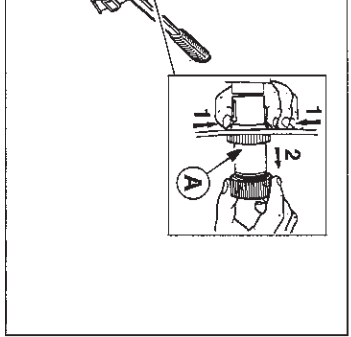
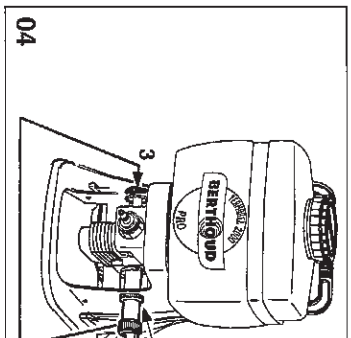
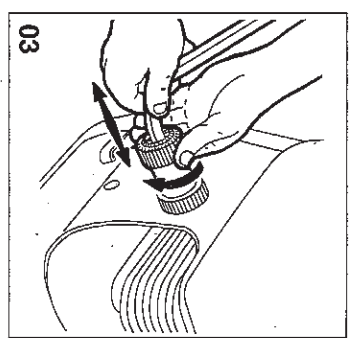
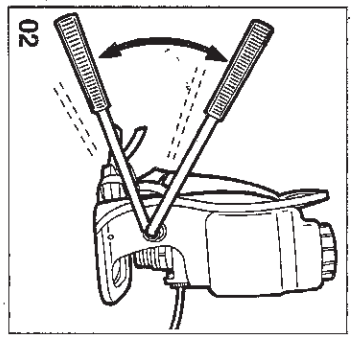
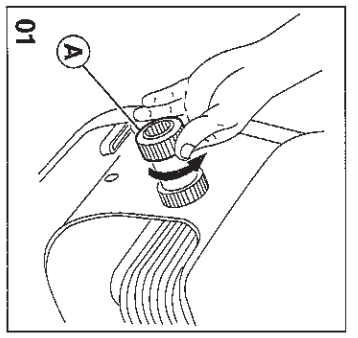
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13 - Parçali bakış / yedek parçalar

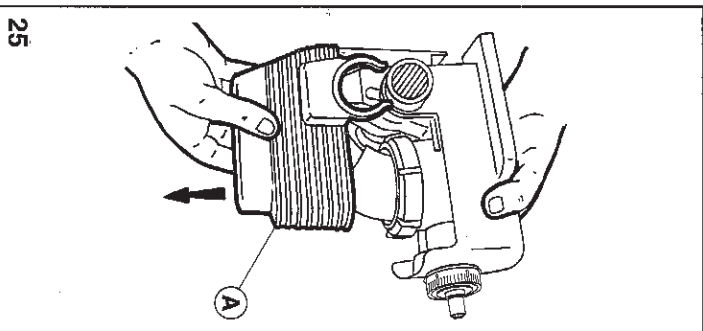
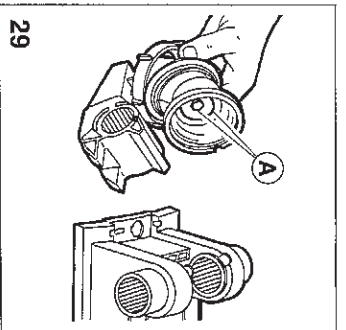
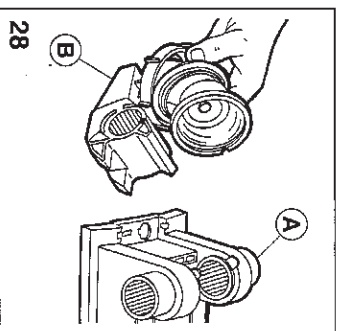
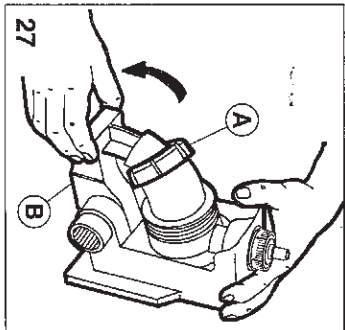
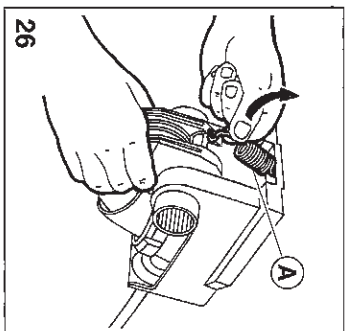
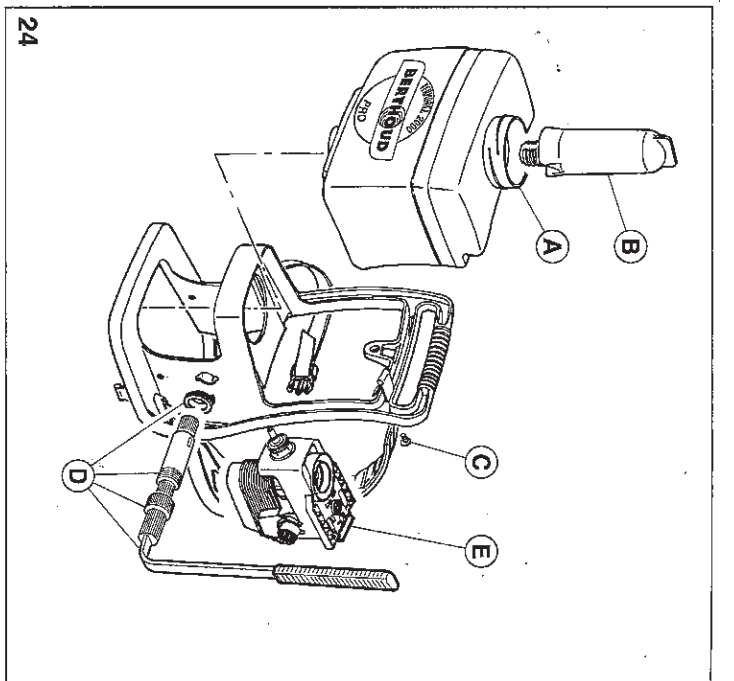
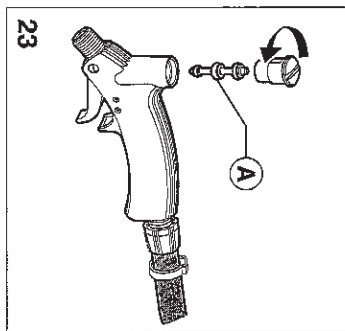
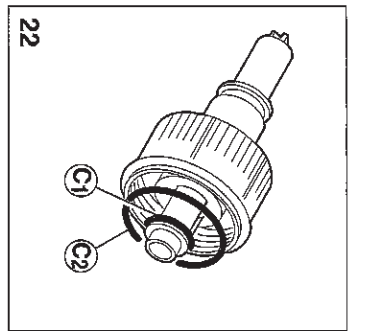
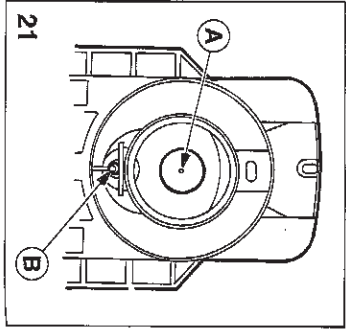
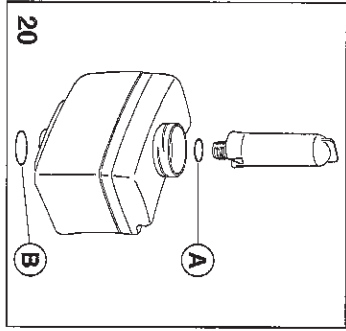
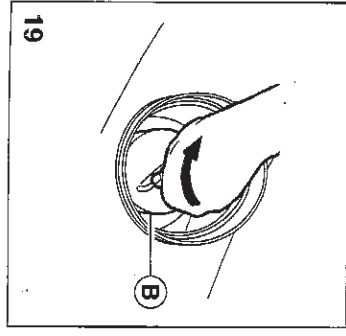
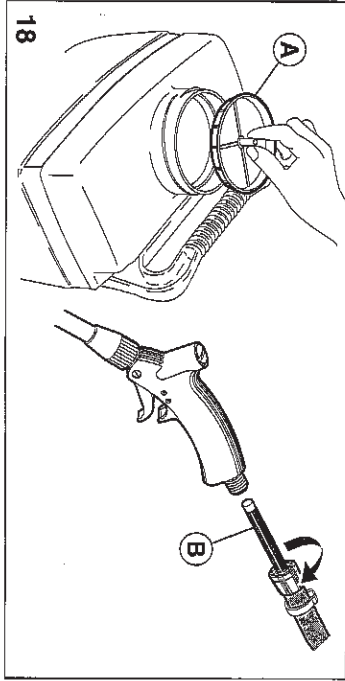
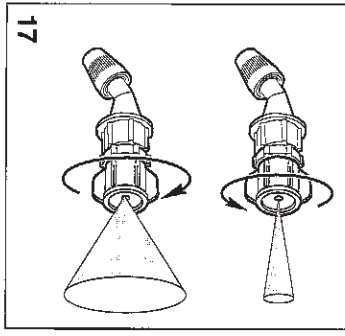
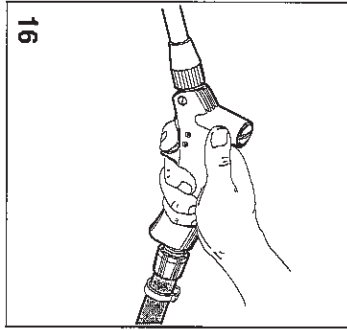
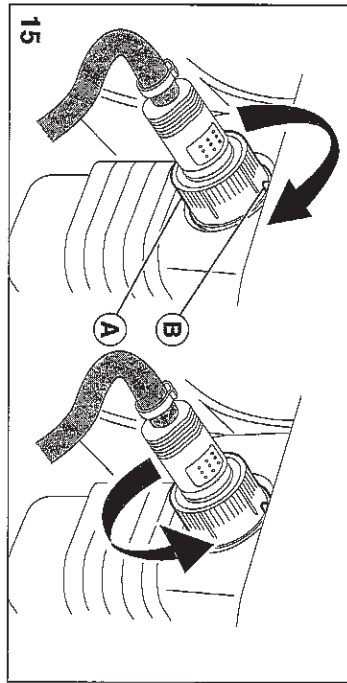
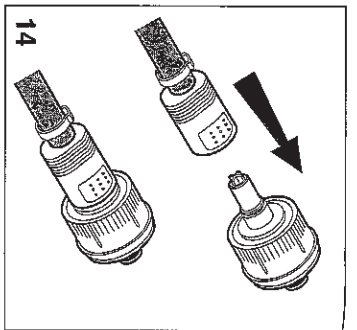
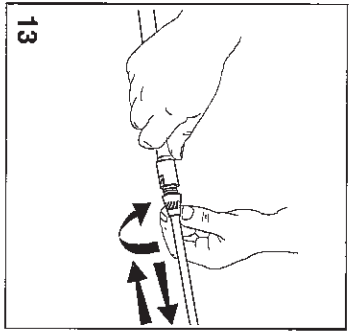
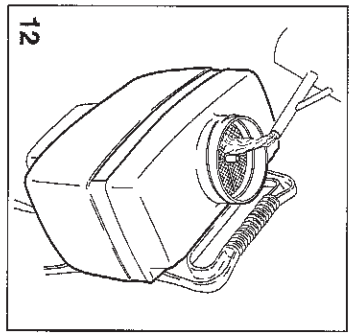
ČESKY
13 - Rozbrané schéma / náhradní díly

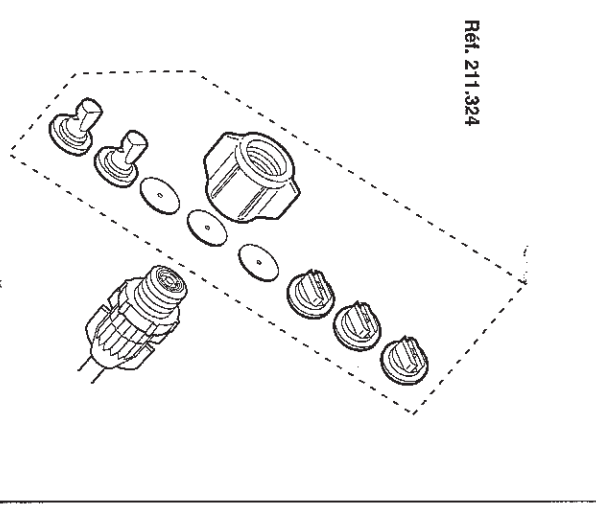
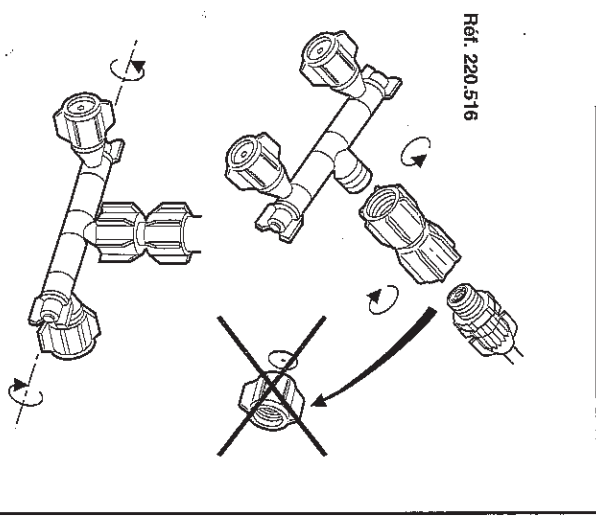
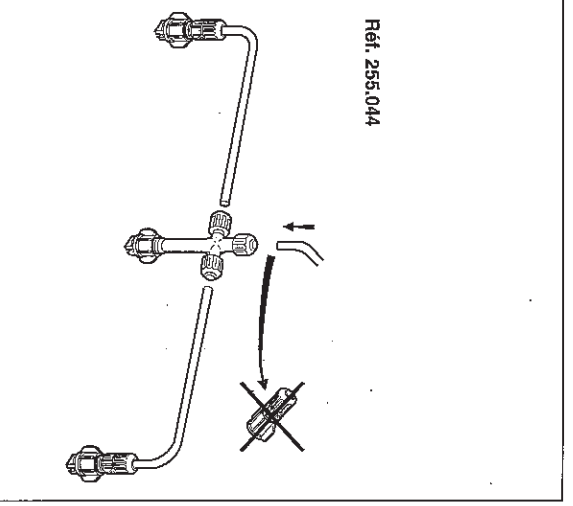
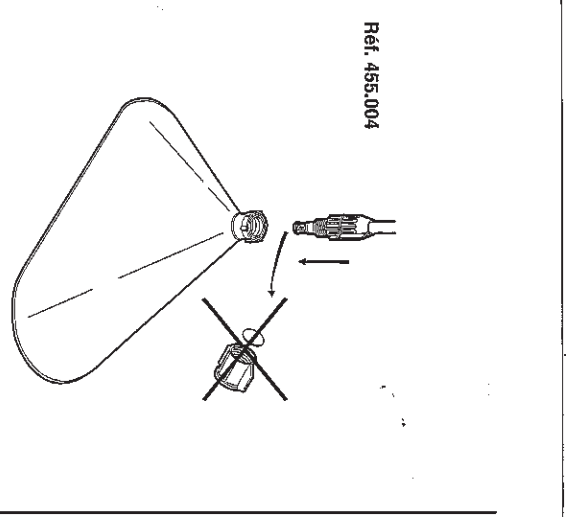
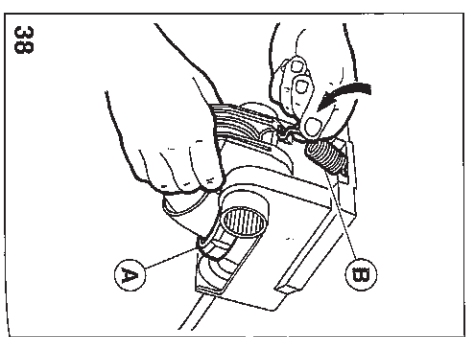
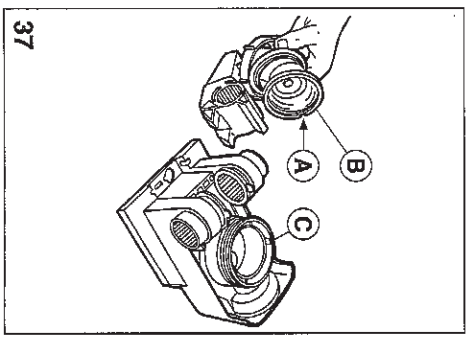
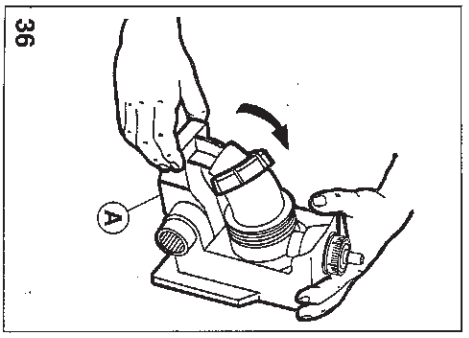
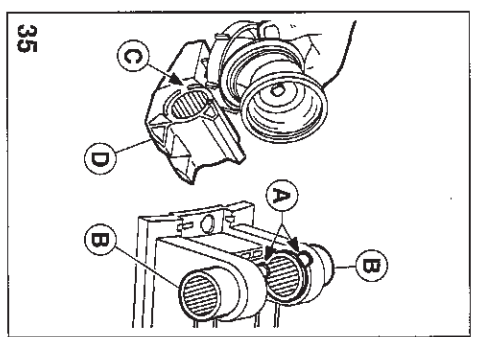
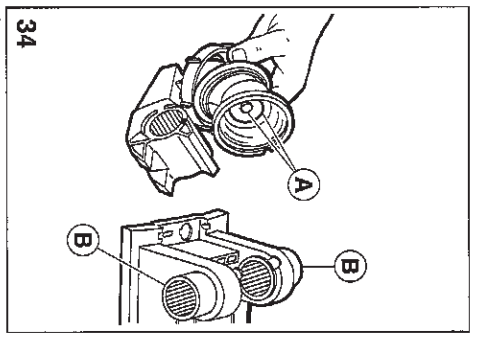
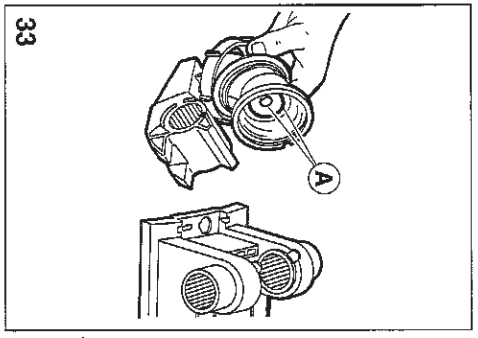
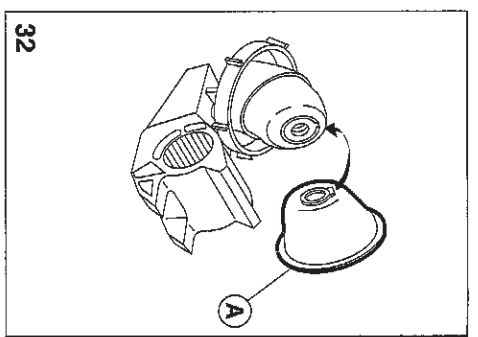
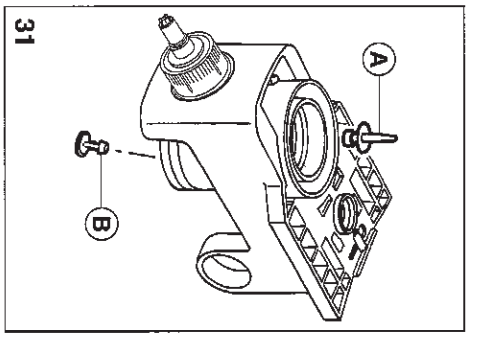
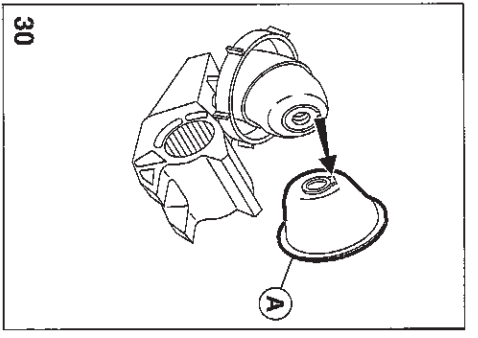


(1) Pièces se trouvant dans le sachet dépannage n° 212.308
(2) Pièces se trouvant dans le sachet dépannage n° 212.310



02092 P1002





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- 2 - SCOPE OF APPLICATION
- 3 - TECHNICAL FEATURES
- 4 - PREPARATION OF THE SPRAYER
- 5 - START-UP
- 6 - THE CHOICE OF NOZZLES
- 7 - ASSEMBLY AND FLOW RATES OF NOZZLES
- 8 - PRECAUTIONS / CHECKS
- 9 - OPERATION
- 10 - CLEANING / MAINTENANCE
- 11 - TROUBLESHOOTING
- 12 - ADAPTABLE ACCESSORIES
- 13 - EXPLODED VIEW / PARTS LIST

2 - SCOPE OF APPLICATION

- Our recommendations set out in these instructions meet the requirements of the BPA.
- This sprayer is specially designed for the application of GARDEN CHEMICALS (fungicides, herbicides, insecticides). For any other application, particularly for applying disinfectants at premises used for animal rearing, it is VERY IMPORTANT to consult the MANUFACTURER.
- This appliance is intended for use:
 - On fruit crops, in market gardening, greenhouses and fields, on hops and special crops,
 - In ornamental horticulture, nurseries and forestry,
 - On uncultivated land, meadows and pasture land.

3 - TECHNICAL FEATURES

- Knapsack sprayer, continuous action by pumping lever.
- Polyethylene tank
- Transparent visible level.
- Graduated gauge
- Capacity: 16 litres.
- Reinforced, adjustable carriage straps, adjustable belly strap.
- Left-hand pump handle.
- Pump lever which can be adjusted to the ideal position (adapts to fit the user's requirements).
- 0 to 5 bar operating pressures.
- Composite telescopic rod spraygun with adjustable nozzle stem and inox disk Ø 15/10.
- Sprayer operating temperature range: 5° C - 50° C.
- The water used for mixing the product should not exceed a temperature of 25° C.
- Empty weight: 5 kg.
- Total height of appliance: 600 mm.
- Total width of appliance: 400 mm.
- Depth of the appliance: 300 mm.
- Mesh size of the reservoir filter: 1 mm.
- Mesh size of handle filter: 1 mm.

4 - PREPARATION OF THE SPRAYER

- Assemble the pump lever (e.g. for a RIGHT-HANDED user the lever will be on the left).
- Unscrew the tightening ring (A) (fig. 01).
- Set the angular position of the pump lever (fig. 02).
- Set the lateral position of the pump lever than screw the tightening ring into position (fig. 03).
- Assembling the pump lever on the right.
- Remove the lever ring (A) by pressing the clips (1) and pulling away from the sprayer (2). Position it on the opposite side of the sprayer (3) (fig. 04).
- Fixing of the spraygun on the lock (fig. 05).
- Loosen the straps (fig. 06).
- Put the sprayer on the back (fig. 07).
- Adjust the straps by pulling the buckles (fig. 08).
- The tank should be as high as possible (fig. 09).
- Close and adjust the belly strap (fig. 10).
- After the adjustments, put off the sprayer: Open the belly

- strap (A) and relax the carrying straps by lifting the pulps (B) (fig. 11).

5 - START-UP

- Fill the tank (Sieve mounted) (fig. 12).
- Adjust the length of the spraygun (fig. 13).
- Connect the tubing to the sprayer using a quick connector (fig. 14).
- Starting from maximum fastening, unscrew the ring (A) to obtain the desired pressure indicated by the figures 4, 3, 2 and 1, opposite to the tab (B) (fig. 15).

6 - ADVICE ON CHOICE OF NOZZLE ACCORDING TO TYPE OF TREATMENT

	(A)	(B)	(C)
- Fungicide/insecticide			
- Non-selective herbicide			
- Selective herbicide			
- Liquid fertilizer			
GOOD			
AVERAGE			
POOR			

7 - ASSEMBLY AND YIELD OF NOZZLES (l/min)

(A)	Pressure	8/10	10/10	12/10	15/10
1 bar	0.18	0.24	0.28	0.35	
2 bar	0.24	0.31	0.37	0.47	
3 bar	0.28	0.37	0.50	0.56	
4 bar	0.32	0.44	0.52	0.65	

(B)	Pressure	orange	red	blue
1.5 bar	0.56	0.84	1.12	
2 bar	0.65	0.97	1.29	
2.5 bar	0.72	1.08	1.44	
3 bar	0.79	1.18	1.58	

(C)	Pressure	orange	yellow	blue
1 bar	0.46	1.15	2.31	
1.5 bar	0.57	1.41	2.83	
2 bar	0.65	1.63	3.27	
2.5 bar	0.73	1.83	3.65	

8 - PRECAUTIONS / CHECKS

- Ensure the sprayer is in good working order: check it is leaktight by pulling a few litres of water in the reservoir.
- Spray only in calm, wind-free weather.
- Wear clothes covering the whole body or a protective suit.
- Respect the chemical manufacturer's instructions (proportions, method of application, flushing).
- Example of calculation for obtaining adequate suitable dosing. According to the use data, it is indicated, for example:
 - Area to be treated: 100 sq.m.
 - Use: Herbicide treatment.
 - Dose: 0.6 litres per 100 sq.m. (information provided by the manufacturer of the garden chemical).
 - The following recommendations are deduced from this:
 - Spraying pressure: 3.0 bars.

NOZZLE FLOW RATE: 0.56 litres per minute (see table of nozzle flow rates).

- Distance of nozzle from ground: 0.30 m.
- Spraying width: 0.60 m.
- Speed of progress: 2 km per hour, ie 33.33 metres per minute. Thus:
 - Surface treated in one minute = 33.33 (m per minute) x 0.6 m = 20 sq.m.
 - Quantity of mix required = Surface to be treated / Surface treated in 1 minute x Nozzle flow rate in ml/minute = 100 (sq.m.) / 20 (sq.m.) x 0.56 (litres per minute) = 2.8 litres or 2.8 - 0.6 = 2.2 litres water and 0.6 litres of herbicide.
- The calculation is given for information only. When using the appliance, refer to the information provided by the manufacturer of the garden chemical and the data shown in the table of nozzle flow rates.

DRESSING USE

- Wear PROTECTIVE GLOVES, GOGGLES and MASK.
- Do not SMOKE, DRINK or EAT when using the appliance.
- Do not spray in the direction of PEOPLE or PETS.
- To protect the ENVIRONMENT, spray only trees and bushes NEVER near water.
- NEVER reassemble any part of the sprayer without having PREVIOUSLY turned off the pressure.

AFTER USE

- Remove any residual pressure which may be left over in the sprayer by completely emptying the air vessel.
- Drain out any remaining liquid and flush the sprayer before storing.
- Avoid the risk of pollution by recovering unused solution and its packaging.
- Wash the face and hands after treatment.
- Never store the sprayer without having released all the PRESSURE.
- Never use the sprayer to store the solution to be applied.
- Do not leave the sprayer in HOT or COLD conditions.
- Keep the SPRAYER AWAY FROM CHILDREN.

9 - OPERATION

- It is easy to dose the garden chemical correctly using the graduations on the reservoir.
- Preparing the spray solution:
 - a) POWDER products (soluble or wettable):
 - Prepare only the quantity needed for the desired application.
 - Prepare the solution in a bucket before transferring it into the reservoir, via the filter inlet hole, using a filter.
 - b) LIQUID-based products:
 - Pour 1 to 2 litres of water into the reservoir, add the dose of liquid product, then add more water until the desired quantity is attained.
- Pump 8 to 10 times with the lance closed, to build up the pressure, then spray by actuating the handle (fig. 16).
- Pump from time to time to keep the pressure.
- Set the angle of the spray jet (fig. 17).
- End of spraying:
 - Spray until air appears in the jet, then stop spraying.
 - The residual volume in your sprayer is: 100 ml.
 - Add TEN times as much water as the value of the residual volume.
- Start-up the sprayer to rinse all of the sprayer components.
- This rinsing mixture should never be poured down the drain, but should be disposed of by spraying it outside of the area which has already been treated.

10 - CLEANING / MAINTENANCE

- After each use:
 - Recover any REMAINING liquid from the reservoir.
 - Rinse the reservoir and the sieve (A) and clean the lance filter (B) (fig. 18).
 - At regular intervals, check that the air vessel is securely in place (3) (fig. 19).
 - At regular intervals, at least once every season, grease all the seals (SKP 219374).

11 - TROUBLESHOOTING

- The air vessel is not pressurised:
 - Check:
 - a) That there is no leakage between the pump outlet and the end of the lance.
 - b) The leak tightness between the air vessel and the pump (Seal A) (fig. 20).
 - If necessary, grease or replace it (see part 212310).

12 - ADAPTABLE ACCESSORIES (fig. 39).

- Herbicide container (ref. 455004).
- 5-jet herbicide boom (ref. 255044).
- Vegetable garden boom (ref. 220516).
- All-purpose nozzles (ref. 211324).
- See accessory assembly diagram (fig. 39).

ENGLISH

- c) That the pump valves (A) and (B) are correctly in place (fig. 21).
- If they are not in position or worn, consult the chapter entitled PUMP MAINTENANCE.
- d) The presence of the valve (A), the spring (B) (fig. 22) and the seals (C) and (D) on the pressure relief valve (fig. 22).
- If any of the above are not in position or are damaged, replace them (see part 211721).

The air vessel is not pressurised and the pump is leaking from underneath:

- Check:
 - a) That the diaphragm is correctly positioned and in good condition.
 - To do so, consult the chapter entitled PUMP MAINTENANCE.
- Liquid is coming out of the nozzle without the switch having been pressed:
 - Check:
 - a) The state of the shutter seal (A) (fig. 29).
 - If it is worn, clean or replace it.

PUMP MAINTENANCE

- DISASSEMBLY OF THE PUMP (fig. 24).
- Disconnect the tubing.
- The tank (A) must be empty.
- Unscrew and relieve the compression tank (B).
- Dismount the screw (C).
- Remove the tank (A).
- Take off the pumping lever (D).
- Remove the pump assembly (E).

DISASSEMBLY OF THE PUMP

- Retrieve the protective cap (A) (fig. 25).
- Take away the recall-spring (A) (fig. 26).
- Unscrew the screw (A) and pull back the piston (3) (fig. 27).
- Remove the piston-diaphragm unit (B) from the pump assembly (A) (fig. 28).
- Disassemble the screw and the washer (A) (fig. 29).
- Remove the diaphragm (A) to clean it (replace it when necessary - see part 212310) (fig. 30).
- Check the valves (A) and (B) (replace them if necessary - see part 212310) (fig. 31).

REASSEMBLY OF THE PUMP

- WARNING: check the position of the diaphragm (A) while reassembling (fig. 32).
- Put in the screw with washer (A), tighten between 0.3 and 0.4 mNkg (fig. 33).
- Replace the piston (A) after having greased it and reassembled the bearings (B) (fig. 34).
- Make sure that the tabs (A) of the bearings (B) are perfectly positioned in their housings (C) of the piston (D) (fig. 35).
- Click the piston-diaphragm(A) unit back into its starting position (fig. 36).
- Make sure that the spur (A) of the diaphragm (B) fits well into the purpessment (C) (fig. 37).
- Tighten the ring (A) and reassemble the spring (3) and the protective cap (fig. 36).

The reassembly of the pump is the backwards procedure of its disassembly.

ALL THE PLASTIC SCREWS HAVE TO BE HAND-TIGHTENED.

- See accessory assembly diagram (fig. 39).

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