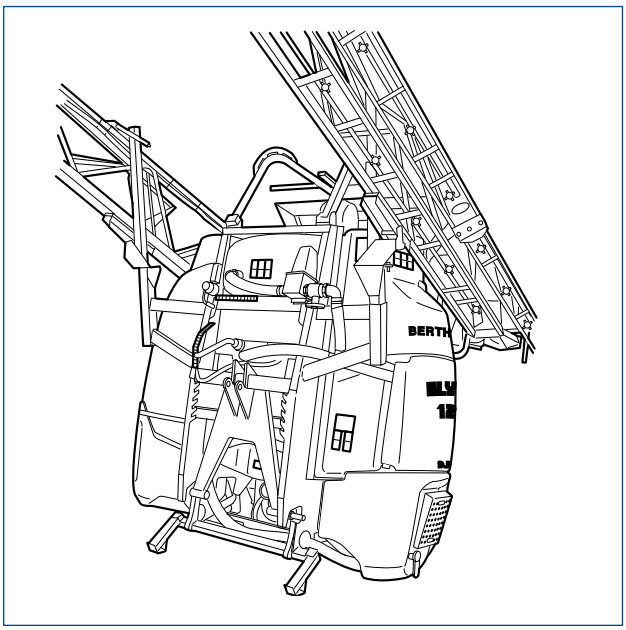
BERTHOUD®

*Forward together**



# ELYTE 1000/1200/1600 RANGE CARRIED

## D.P. TRONIC regulation

*(D.P.E. = Proportional Rate per Electronics)*

## D.P. CONTROL REGULATIONS - AUTOREGULATOR

*(D.P.M. = Output proportional to tractor engine speed)*

**82.473-G** ***ENGLISH***

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**Read carefully and keep for future reference**

| | | | |
|---|---|---|---|
| Safety, checks, maintenance: | **see manual 82.471** | Berjust *2000*: | **see manual 82.441** |
| DP Tronic regulation: | **see manual 82.465** | AXIALE boom: | **see manual 82.438** |
| DP Control regulation: | **see manual 82.469** | MULTIS boom: | **see manual 82.474** |
| Nivélec: | **see manual 82.425** | RLD boom: | **see manual 82.450** |
| Nivomatic: | **see manual 82.426** | Ulys boom: | **see manual 82.489** |
| Nozal nozzles: | **see manual 82.486** | Elypse boom: | **see manual 82.512** |

*Wiring diagrams:* ***Agent manual no. 589.492***

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# GENERAL POINTS AND SAFETY

Warnings.
Compliant use of the crop sprayer
General safety instructions.
Towing, unhitching .
Maintenance.
Adaptation of the transmission shaft.
Counter-indications.
Meaning of the safety stickers

**See "Safety, Checks and Maintenance of crop sprayers" manual No. 82.471.**

# TECHNICAL CHARACTERISTICS

**ELYTE range, Autoregulator regulations, D.P. Control, D.P. Tronic**

**Capacities 1000, 1200, 1600 litres**

- **FRAME** UHR polyester powder coated monobloc with a retractable step for access to the manhole. Boom lift on pantograph and suspension with nitrogen ball.
- **TANK** High density polyethylene with drain valve. Large filling hole and inspection hole. Nominal capacity 1000/1200/1600 litres. Translucent outer gauge.
- **TANKS:**
  - 15 litres handwash with liquid soap support,
  - 125 litres rinsing (1000 and 1200 litres) and 165 litres (1600 litres).
- **FILLING** on the suction of the pump. Connection by quick coupling with isolation valve and 6m filling pipe. Retractable mixing hopper with canister rinse.
- **Hydraulic MIXING** by returning non-sprayed liquid and HYDROMAX to the tank.
- **FILTRATION:**
  - on filling (sieve with 8/10 mesh),
  - on suction (filter valve 6/10 mesh),
  - and on discharge (filter 1/4 turn, 4/10 mesh).
- automatic triangulated **TOWING**.
- **TRANSMISSION** with cardan shafts.
- **PUMP** volumetric with 3 pistons,

  GAMA 101 (105 l/mn) or GAMA 130 (130 l/mn).

  BP 280 pump with diaphragm pistons.
- **REGULATIONS:**
  - **Autoregulator regulation:**
    D.P. Elec with electrically controlled control valve ensuring constant volume/ha (D.P.M).
  - **D.P. Control regulation:**
    Electrically operated regulating valve ensures constant volume/ha (D.P.M).
  - **D.P. Tronic regulation:**
    D.P. Tronic electronic regulation. with backup memory (D.P.E). Management of the simple cumulations and Management of cumulations over 10 plots.
- **DISTRIBUTION:**
  - Single command and control unit in the cab (with multi-pin connection socket).
  - Electrical control in cab with general electrical cut-out on control unit.
  - Electrical flap valves (V.E.C,) with multiple returns:
    3 valves (for booms less than 15 m) or 4 valves (for booms greater than 15 m).
- **IMPLEMENTATION:**
  - Berlogic: Display of the valve positions enabling the various functions.
  - Lave'ton for cleaning the main tank.
  - Storage box.
- **OPTIONS:**
  - V.E.C. 5, 6 or 7 sections instead of 4.
  - Drum gauge.
  - Berjust *2000*.
  - Lower protection plate (from production with AXIALE boom).
  - GAMA 160 pump instead of GAMA 101 or GAMA 130.
  - Nivélec.
  - Nivomatic.
  - Cabin control for rinsing the tank and the boom.
  - Reset for variable geometry and cant (with AXIALE boom).
  - Multi-function handle (with AXIALE boom).
  - Transfer valve.
  - External washing

# NOISE MEASUREMENTS

**<u>Overhead noise emitted by</u>:**

***Ported ELYTE crop sprayer, D.P. Tronic regulation, D.P. Control or Autoregulator.***

| | *Tractor and crop sprayer at work* | *Tractor PTO disengaged Crop sprayer at rest* |
|---|---|---|
| - Maximum sound pressure level: | | |
| - at the product mixer | 78 dB (A) | 73.5 dB (A) |
| - at the tractor driving station 76 kW | 72 dB (A) | 70 dB (A) |

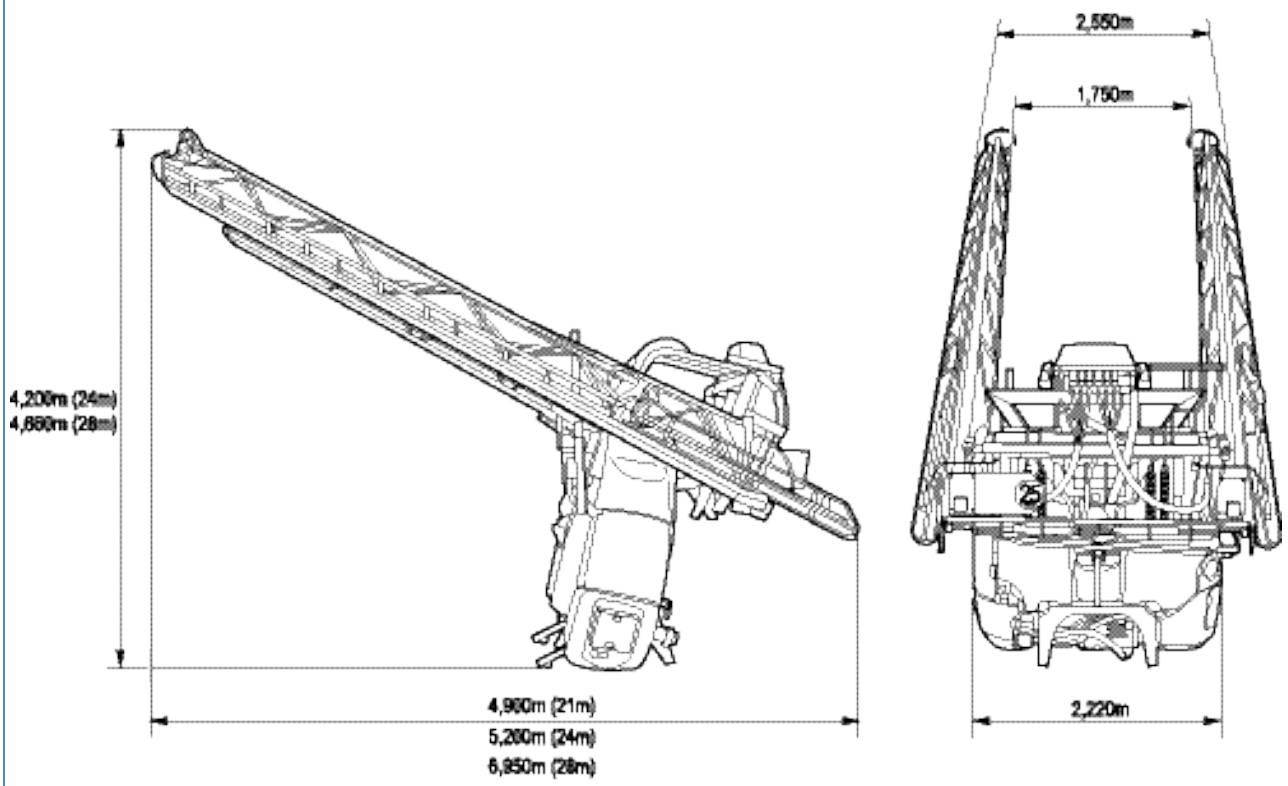
- Maximum sound power level:
  - tractor alone = **99.1 dB (A)**
  - tractor and crop sprayer = **101.2 dB (A)**

***Comply with the legislation in force and, when necessary, use hearing protection.***

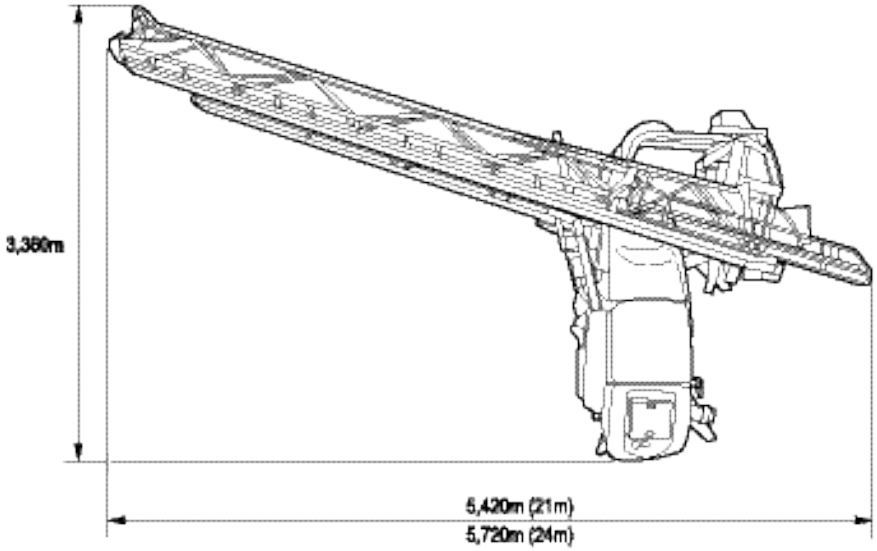
# DIMENSIONS (AXIALE BOOM)

**with AXIALE boom 21/24/28 m.**

Apparatus in rest position (on the ground)



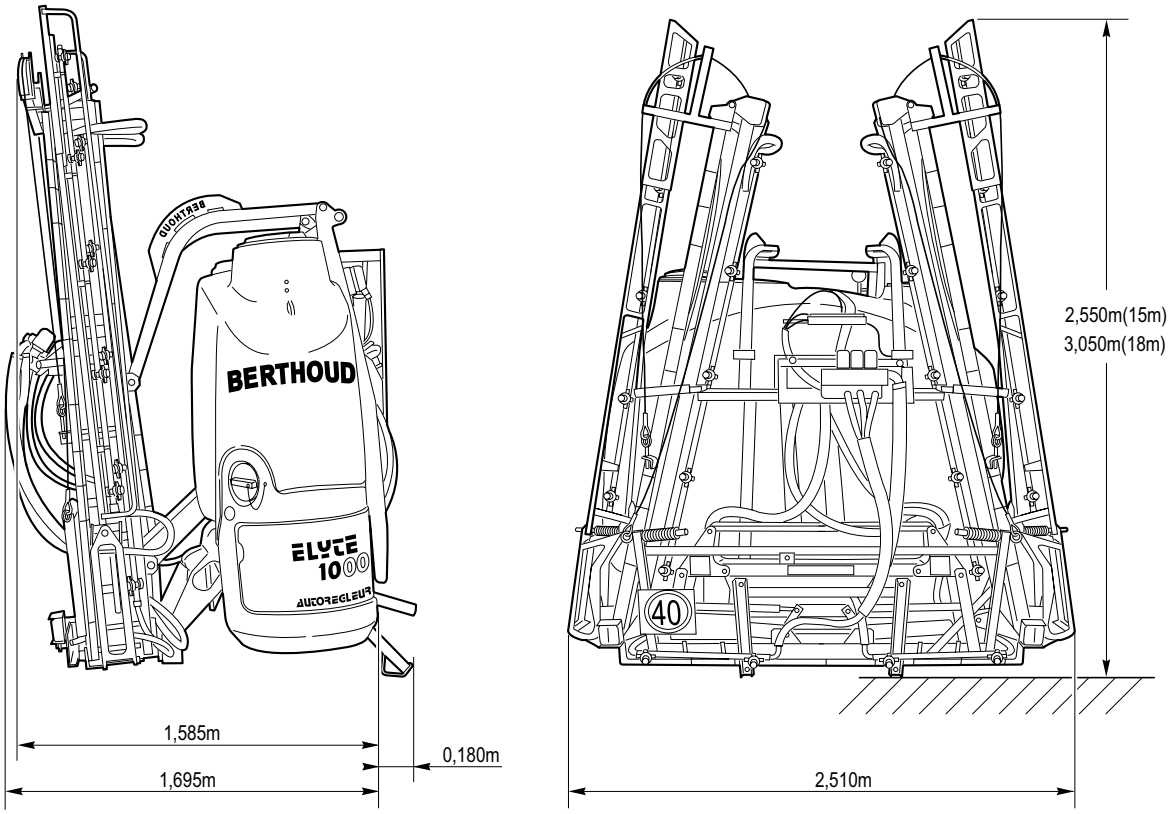

Apparatus in working position (mounted on tractor)



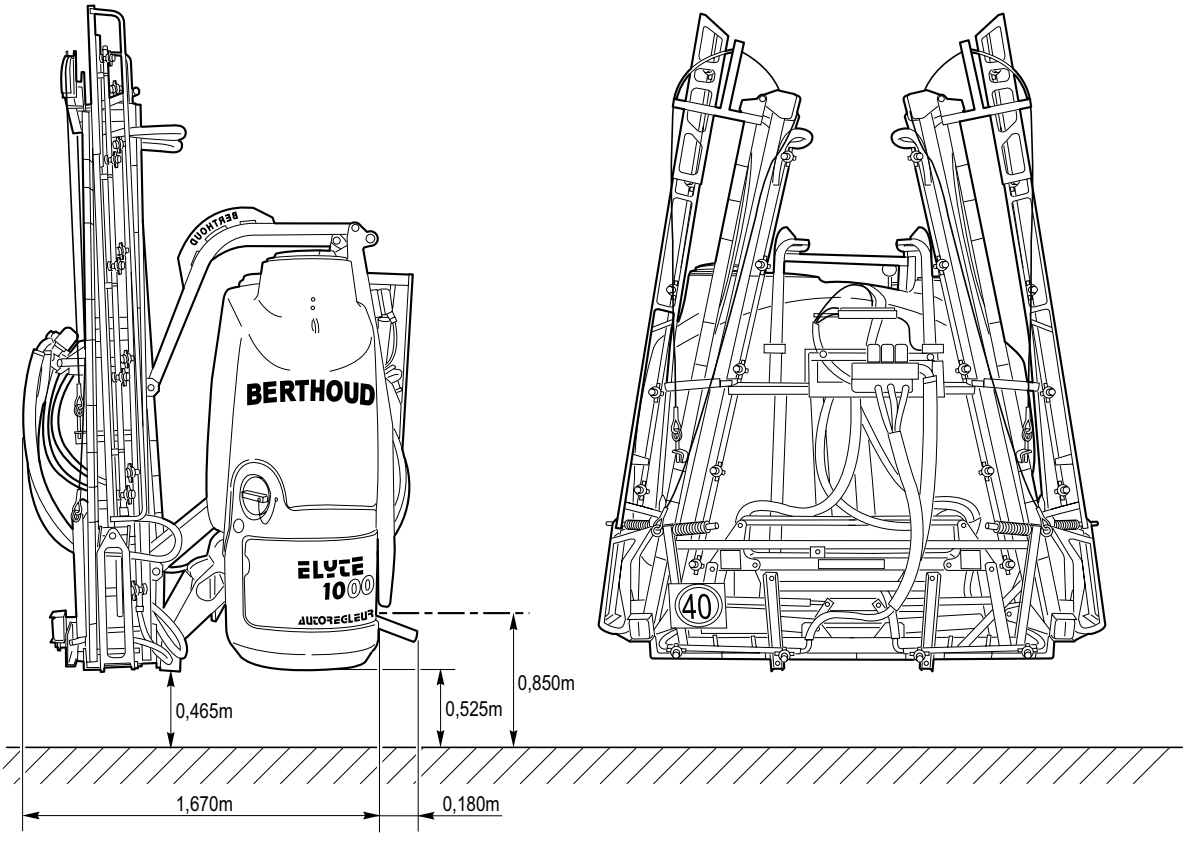
# DIMENSIONS (MULTIS BOOM)

**with MULTIS boom 15/18 m.**

Apparatus in rest position (on the ground)



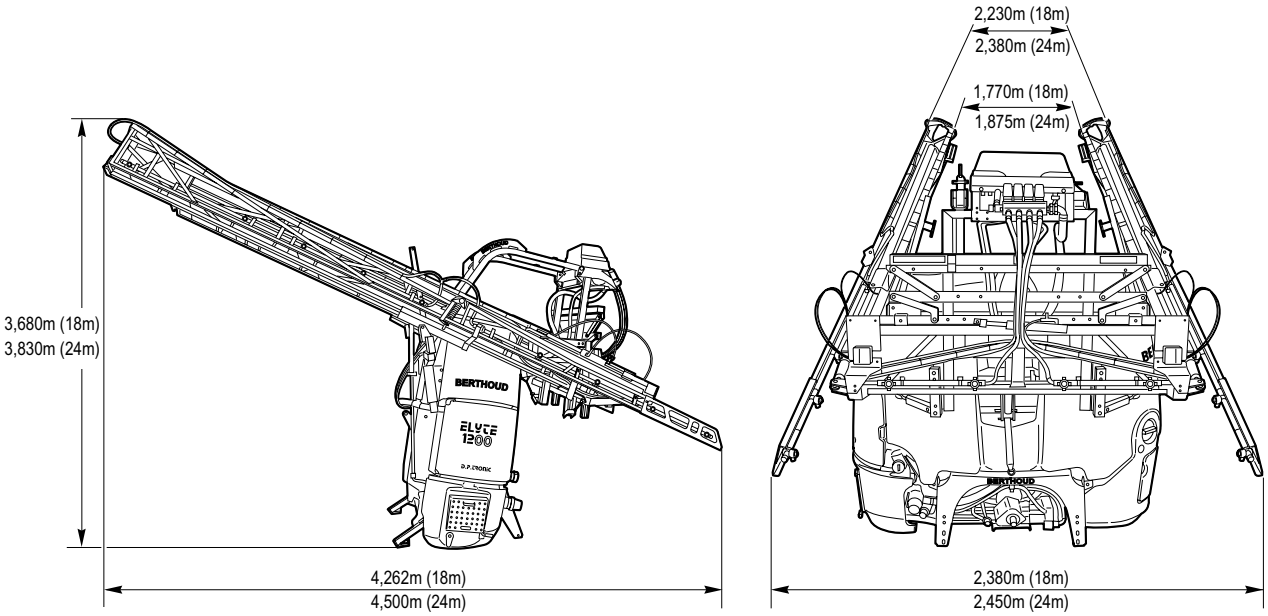

Apparatus in working position (mounted on tractor)



# DIMENSIONS (RLD BOOM)

**with RLD boom 18 to 24 m.**

Apparatus in rest position (on the ground)



# NAMEPLATE

- The location of your machine's nameplate is given on view 3/4 page 11.

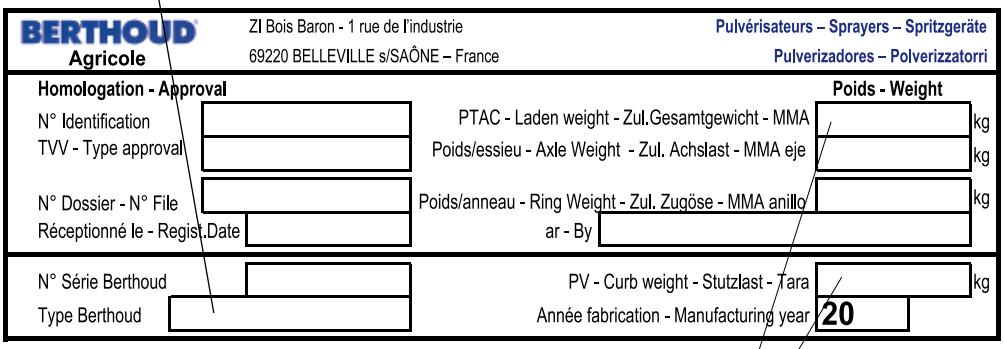
- The Type box contains 10 characters.
- Example: ELY E 12 AX24

**AX 24** = AXIAL BOOM 24 m *(21 = 21 metres, 28 = 28 metres).*
MT = MULTIS BOOM(*15 or 18 metres*).
RD = RLD BOOM(*18 to 24 metres*).

**12** = Capacity 1200 litres *(10 = 1000 litres, 16 = 1600 litres).*

**E** = D.P. Tronic regulation *(B = D.P.Control regulation, A = Autoregulator regulation).*

**ELY** = ELYTE machine.



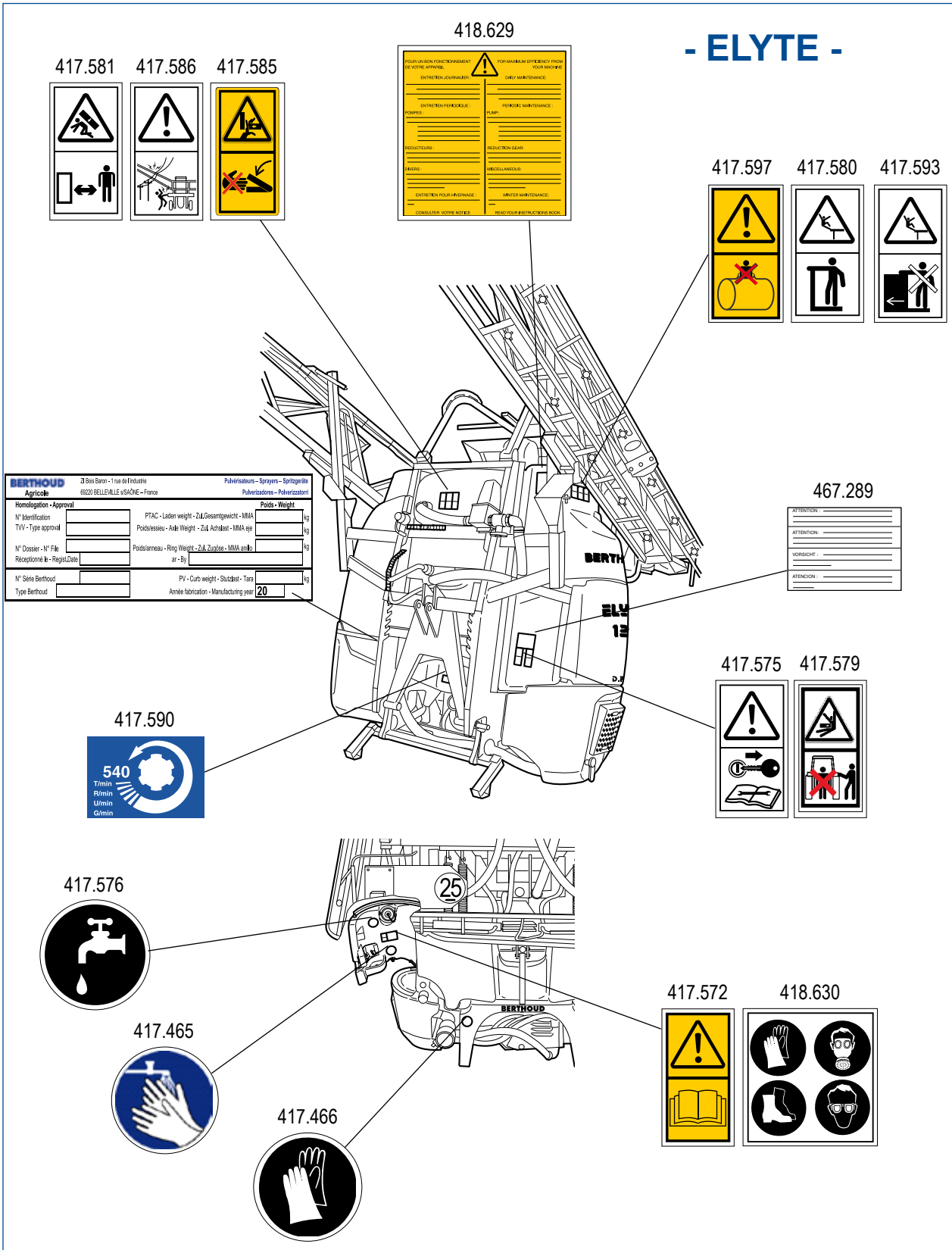

The empty weight and G.V.W.R. boxes use the data from the table below.

# TABLE OF WEIGHTS

| MACHINES | BOOMS > | MULTIS 15 | MULTIS 18 | RLD 18 | RLD 20/21 | AXIALE 20/21 | AXIALE 24 | AXIALE 24 | AXIALE 28 | ULYS 18 | ULYS 20/21 | ULYS 24 | ELYPSE 24 | ELYPSE 28 | ELYPSE 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELYTE 1000 | Empty weight (kg) | 960 | 986 | 1100 | 1145 | 1190 | 1470 | 1490 | 1580 | 1340 | 1370 | 1460 | 1516 | 1570 | 1580 |
| | G.V.W.R. (kg) | 2204 | 2220 | 2350 | 2385 | 2440 | 2700 | 2720 | 2965 | 2565 | 2595 | 2685 | 2657 | 2710 | 2720 |
| ELYTE 1200 | Empty weight (kg) | 970 | 996 | 1109 | 1160 | 1220 | 1480 | 1500 | 1600 | 1480 | 1500 | 1600 | 1480 | 1500 | 1600 |
| | G.V.W.R. (kg) | 2434 | 2460 | 2525 | 2565 | 2625 | 2930 | 2950 | 3365 | 2930 | 2950 | 3365 | 2930 | 2950 | 3365 |
| ELYTE 1600 | Empty weight (kg) | 1070 | 1100 | 1260 | 1310 | 1370 | 1580 | 1600 | 1700 | 1580 | 1600 | 1700 | 1580 | 1600 | 1700 |
| | G.V.W.R. (kg) | 2840 | 2870 | 3155 | 3205 | 3265 | 3345 | 3365 | 3465 | 3345 | 3365 | 3465 | 3345 | 3365 | 3465 |

# POSITIONS OF THE SAFETY STICKERS

## - ELYTE -




*It is very important to keep the safety stickers in place and in good condition. They attract your attention to the possible dangers and refer to the user manual. Check their location on the sprayer and refer to the SAFETY instructions no. 82,471 for their meaning.*

# COMMISSIONING
# THE CROP SPRAYER

PTO speed control.
Checking the tractor forward speed.
Engine speed control.
Check the volume/hectare
Effective circumference length of the tractor wheel.

**See "Safety, Checks and Maintenance" manual no. 82.471.**

# RINSING BEFORE FIRST USE

***Before using your sprayer for the first time with a phytosanitary agent (herbicide, insecticide, etc.), rinse the machine thoroughly.***

- Unscrew the nozzles if they are fitted.
- Unscrew the end plugs on the pipes.
- Fill 1/5 of the volume of the tank with water.
- Spray (refer to the "Crop spraying" chapter, see pages 22, 30 and 38).
- Disassemble and clean the filters.
- Re-tighten the end plugs on the pipes.
- Fit the nozzles.

- Any foreign particles which may be in the hydraulic circuit will therefore be eliminated and not risk plugging the nozzle outlets.

# CHECKS BEFORE EACH START-UP

- Make sure that the transmission shaft protectors are in good condition.
- Make sure that no foreign bodies remain in the tank.
- Check the system for raising the boom.
- Check the oil and grease levels of the various components (see the "Lubrication and greasing" chapter).
- Check that the filters are clean.
  - on suction
  - on discharge

# CALCULATION OF THE BOOM FLOW/MINUTE

- To obtain the desired flow/minute at the boom, the following formula is applied:

$$\text{Boom flow} = \frac{\text{Volume hectare x Width treated x Feed speed}}{600}$$

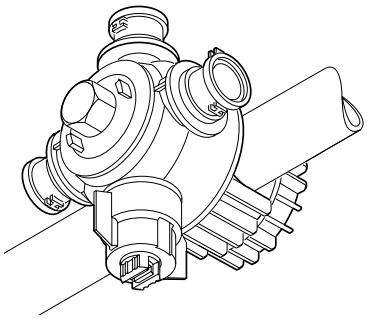
**Example:** We want to spread 500 litres per hectare with a 24 metres boom at the calibrated speed of 6.8 km/h.

In other words: Boom flow/minute = $\frac{500 \times 24 \times 6.8}{600}$ = 136 litres/minute

- It is very important that the maximum flow of the pump can meet the requirements of the desired treatment (speed of movement, volume / ha, width treated).
- The flow/minute of the ramp must be 10% lower than the maximum flow of the pump.

| Pump | Max. flow Pump | Max. flow boom | Return into mini-tank |
|---|---|---|---|
| GAMA 101 | 105 l/mn | 95 l/mn | 10 l/mn |
| GAMA 130 | 130 l/mn | 117 l/mn | 13 l/mn |
| GAMA 160 | 160 l/mn | 144 l/mn | 16 l/mn |

# CHOICE OF NOZZLES AND FLOW TABLES



**See manual no. 82.467**
**NOZAL nozzles**

# USING THE CROP SPRAYER

## WARNINGS

- **For a pleasant user experience, the electronic control unit has been programmed with theoretical values corresponding to the characteristics of your sprayer. You must in all cases check and if necessary correct the set values.**

## ON START-UP:

- Turn on the engine.
- Switch on the control unit using the switch (1) (page 17 or 18).
- Engage the power take-off .

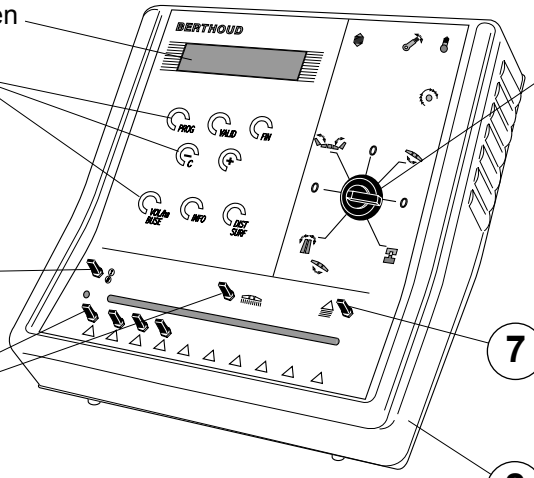
## CHECK

- At the start of the spraying season, always check the nozzle flow rate at a pressure of 3 bar for 1 minute.
- Reset the new value. If this value is greater than the initial value by 10%, it is necessary to replace the nozzles.

## WARNING

- **ALL VALVE OPERATIONS MUST BE PERFORMED WITH THE PTO OFF**.

# D.P.TRONIC/D.P.CONTROL UNIT OVERVIEW




Control screen

Electronic control adjustment buttons
***(see instructions:***
***D.P.Tronic No. 82.465***
***D.P.Control No. 82.469)***

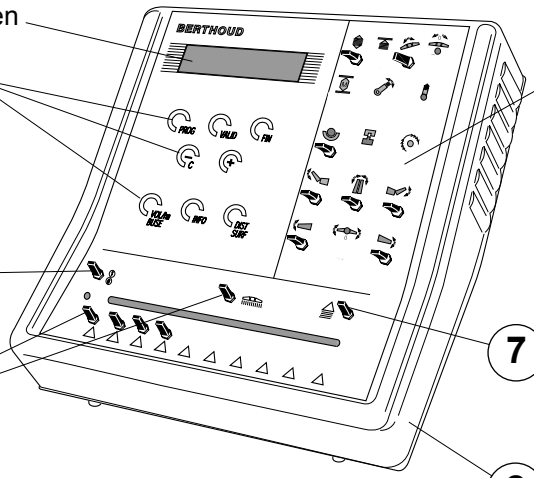
Control of the AXIALE boom ***(see instructions no. 82.438)***
or the MULTIS boom ***(see instructions no. 82.474)***
or the RLD boom ***(see instructions no. 82.450)***

1 Switch to power up the unit

7 Regulator valve control switch

8 Switches to control the crop spraying
***(see pages: 22/23 D.P.Tronic***
***30/31 D.P.Control)***

2




Control screen

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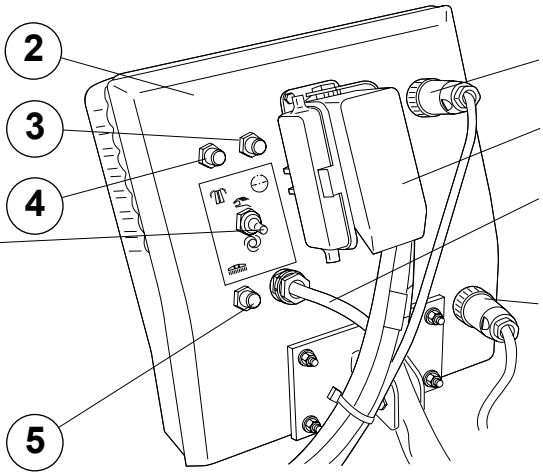
7 Regulator valve control switch

8 Switches to control the crop spraying
***(see pages: 22/23 D.P.Tronic***
***30/31 D.P.Control)***

2



2 Pressure sensor socket

3 40-pin socket

4 Power lead: (battery, 12 volts, direct current)

Speed sensor socket

5

***D.P.Tronic case***

Changeover 6 to switch the regulating valve from automatic mode to manual mode (switch 7)

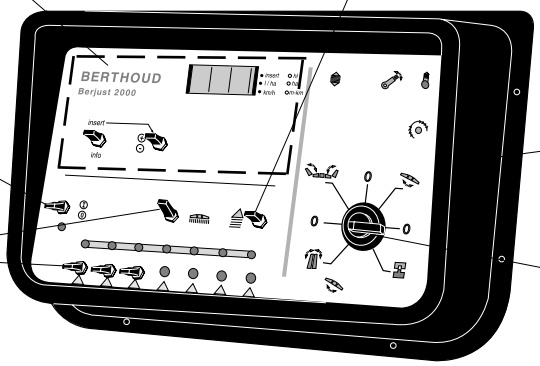
**NOTE**

**- Fuse:** The control unit (2) is protected by three fuses of the Ø 5 x 20 mm type:
- 5 amps fast blow for the D.P.TRONIC/D.P.CONTROL board (item 3),
- 10 amps for the boom control board (item 4),
- 10 amps for the power sections control board (item 5),

# OVERVIEW OF THE AUTOREGULATOR CONTROL UNIT WITH OR WITHOUT THE BERJUST OPTION

BERJUST ***2000*** function
***(see manual No. 82.441)***

D.P.Elec (Autoregulator) regulator valve control switch



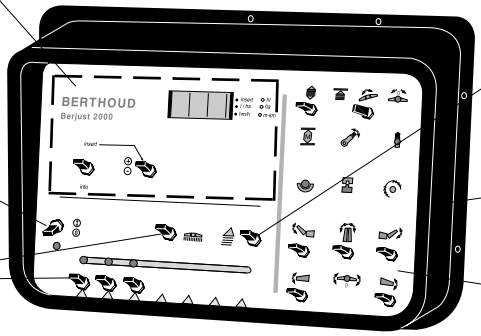

1 Switch to power up the unit

2

6 Switches to control the crop spraying ***(see pages: 38/39)***

Control of the AXIALE boom ***(see instructions no. 82.438)***
or the MULTIS boom ***(see instructions no. 82.474)***
or the RLD boom ***(see instructions no. 82.450)***

BERJUST ***2000*** function
***(see manual No. 82.441)***




Control switch for the regulating valve D.P.Elec (Autoregulator)

1 Switch to power up the unit

2

6 Switches to control the crop spraying ***(see pages: 38/39)***

Control of the AXIALE boom ***(see instructions no. 82.438)***
or the MULTIS boom ***(see instructions no. 82.474)***
or the RLD boom ***(see instructions no. 82.450)***

**Berjust option**

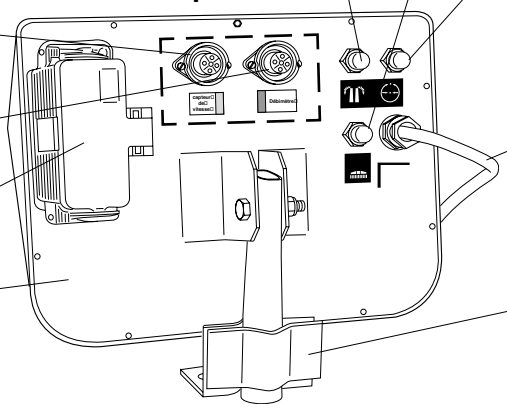
3 4 5

Speed sensor socket

Flowmeter socket

40-pin socket

2



Power lead: (battery, 12 volts, direct current)

Control unit bracket to be fixed in the cab of the tractor

**NOTE**

- **Fuse:** The control unit (2) is protected by three fuses of the Ø 5 x 20 mm type:
  - 10 amps for the boom control board (item 3),
  - 10 amps for the crop sprayer control board (item 4),
  - 3.15 amps for the BERJUST function control board (item 5),

# D.P. TRONIC REGULATION

## MAIN FUNCTIONS OF THE CROP SPRAYER

*FILLING*
*MIXING HOPPER*
*CROP SPRAYING*
*RINSES*

# FILLING/MIXING HOPPER
## *(D.P. Tronic)*

### FILLING THE TANK

• Via the external suction device:
- Connect the filling hose (6) to the fire-department connection for the valve (F) (figure 1).
- Place (see figure 3):
  - valves (D), (E), in position ▲ ,
  - valves (B), (F), (G) and (H) in position ❷.
- Pour through the filling hole, through the sieve, about 30 to 50 litres of water to prime the pump.
- Immerse the pipe (6) (figure 1) in the liquid to be pumped.
- Engage the tractor's power take-off and bring it to 540 rpm.
- When the filling operation is completed, remove the filling pipe (6) (figure 1).

• Via the manhole.
- Open the lid on the step side.

### MIXING HOPPER

- Allows to add phytosanitary powders or liquids while the crop sprayer is being filled with water
- This device ensures perfect mixing of the product in the water, while facilitating the work.

**- HOPPER OPERATION**
- Fill the tank partially (see filling procedure above).
- Press with your foot on the pedal (A) and pull the hopper by the handle towards yourself (B) (figure 2).
- Remove the lid and fill the hopper with phytosanitary product.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❸Berlogic function)**
- Place (see figure 3):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C), (G) and (H) in position ❸ .

**2 - Using the <u>water in the rinsing tank</u>:**
**(❸Berlogic function)**
- Place (see figure 3):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸ ,
  - the valves (F) and (G), in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❸Berlogic function)**
- Place (see figure 3):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸ ,
  - the valves (F) and (G), in position ❷.

- Engage the tractor's power take-off and bring it to 540 rpm.
- To empty the hopper quickly:
  - replace the lid,
  - open the valve (E) in position ❸ (Figure 3).
- The product is sucked in and mixed into the crop sprayer tank.

**- HOPPER RINSING:** With clean water.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (fig. 3)

**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (fig. 3)
- Place the valves (F) and (G) in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (fig. 3)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
Open valve (D) in position ❻, (figure 3); this activates the rinsing boom (9) (figure 4).

**- RINSING THE DRUMS:** With clean water.

**3 possibilities:**

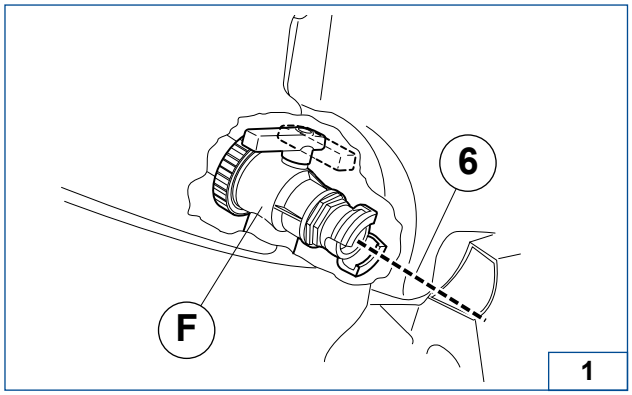
**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (fig. 3)

**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (fig. 3)
- Place the valves (F) and (G) in position ❹.

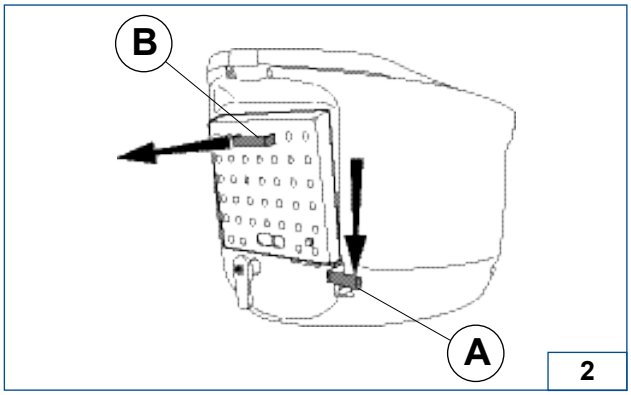
**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (fig. 3)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
- Place the valve (D) in position ▲ (figure 3).
- Position the product drum on the part (10) (figure 4).
- Press on the drum to activate the cleaning nozzle (11) (figure 4).

**- AFTER THE MIXING PROCEDURE:**
- Place the valve (E) in position ▲ (figure 3).
- Finish filling the tank.
- After the filling operation, remove the pipe (6) and replace the plug on the fire-department connection of the valve (F) (figure 1).


6
F

1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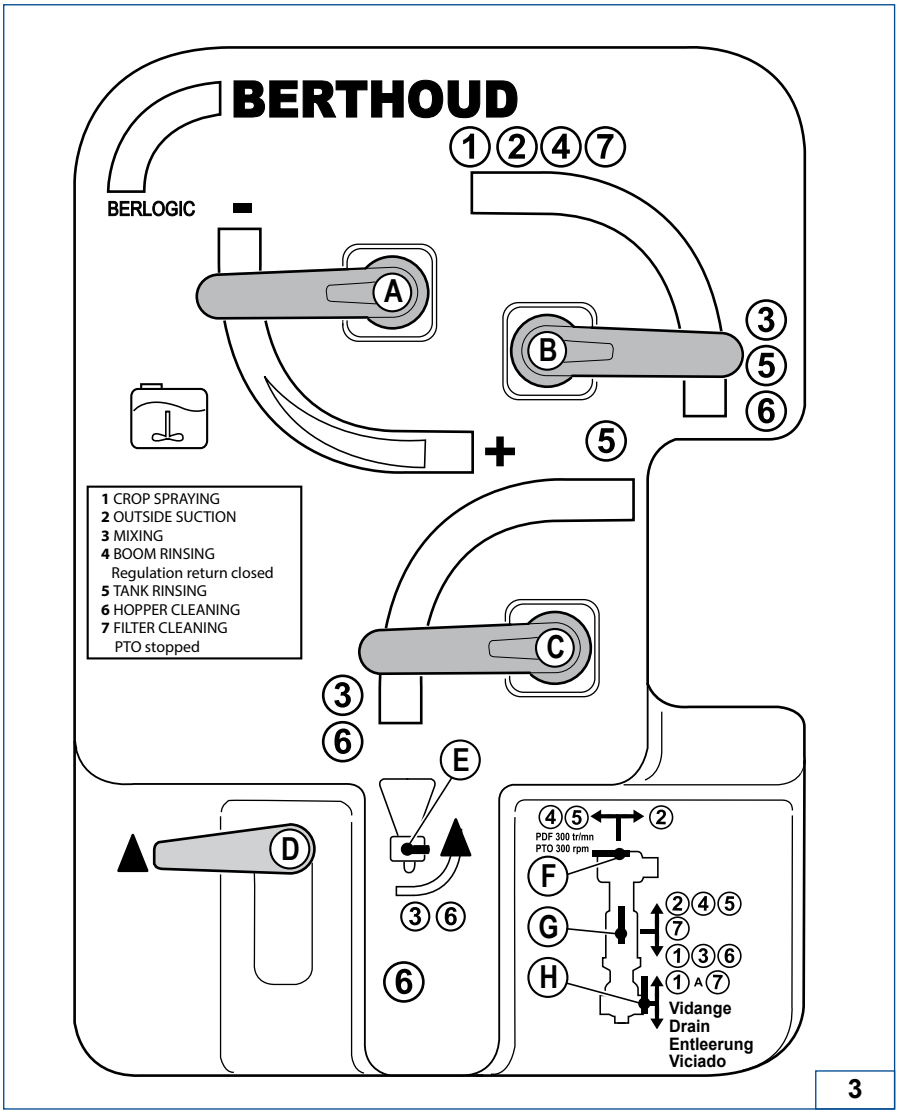
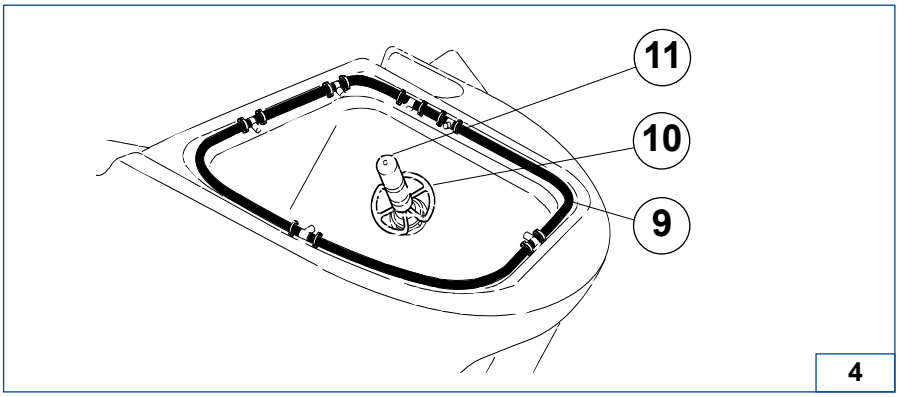
A

2


BERTHOUD
1 2 4 7
BERLOGIC
A
B
3
5
6
5
+
1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
C
3
6
E
D
3 6
6
4 5 2
PDF 300 tr/mn
PTO 300 rpm
F
G
H
2 4 5
7
1 3 6
1 A 7
Vidange
Drain
Entleerung
Viciado

3


11
10
9

4

# CROP SPRAYING/RINSING *(D.P. Tronic)*

## CROP SPRAYING

### CROP SPRAYING CONTROL (❶Berlogic function)

- **WITH MIXING** (figure 6)
  - Place:
    - the valves (D) and (E), in position ▲ ,
    - the valve (A) in position ⊕.

**NOTE:** The mixing is adjustable from ⊕ to ⊖ (valve (A), figure 6).

- **WITHOUT MIXING** ***(very foamy products)***
  - Place (figure 6):
    - the valves (D) and (E), in position ▲ ,
    - the valve (A) in position ⊖.

### PREPARING THE CONTROL UNIT

(figure 7)

- With the PTO stopped:
  - switch on the control unit by raising the switch (1), the indicator (a) comes on,
  - switches (2) and (3) in the high position.
- Program the D.P. Tronic unit *(see manual no. **82.465**)*.

YOUR MACHINE IS READY TO OPERATE

### OPERATION

- Engage the tractor's power take-off and bring it to 540 rpm.

**TO SPRAY** (figure 7)

- Lower the switches (3); the lights (c) come on.
- Lower the switch (2).

**TO STOP CROP SPRAYING** (fig. 7)

**TOTALLY**

- Lift the switch (2).

**PARTIALLY**

- Lift the switch (3) corresponding to the sections you wish to stop.

## RINSES

### RINSING OF THE SPRAY CIRCUIT (without return to the main tank)

**WITH RINSE TANK** ***(Main tank filled or half filled)***

- Stop the power take-off .
- Place:
  - the valve (V) in position Ⓕ (closed) (figure 5).
  - the valves (D) and (E), in position ▲, (figure 3),
  - the valves (B), (F) and (G) in position ❹ (figure 3).
- Switch on the control unit (switch (1), page 17).
- Bring the inverter (6) (page 17) *(at the rear of the control unit)*: into manual position.
- Move the regulator valve control switch (7) (page 17): upwards for **10 to 12 seconds**.
- Open the lowered spraying switches (8) (page 17).
- Engage the power take-off at idling speed (300 rpm).

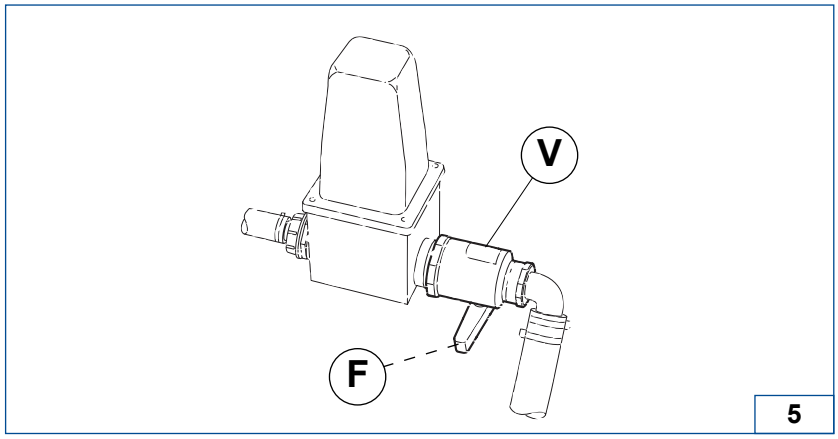
Do not exceed this speed. Risk of overpressure.

### RINSING THE MAIN TANK

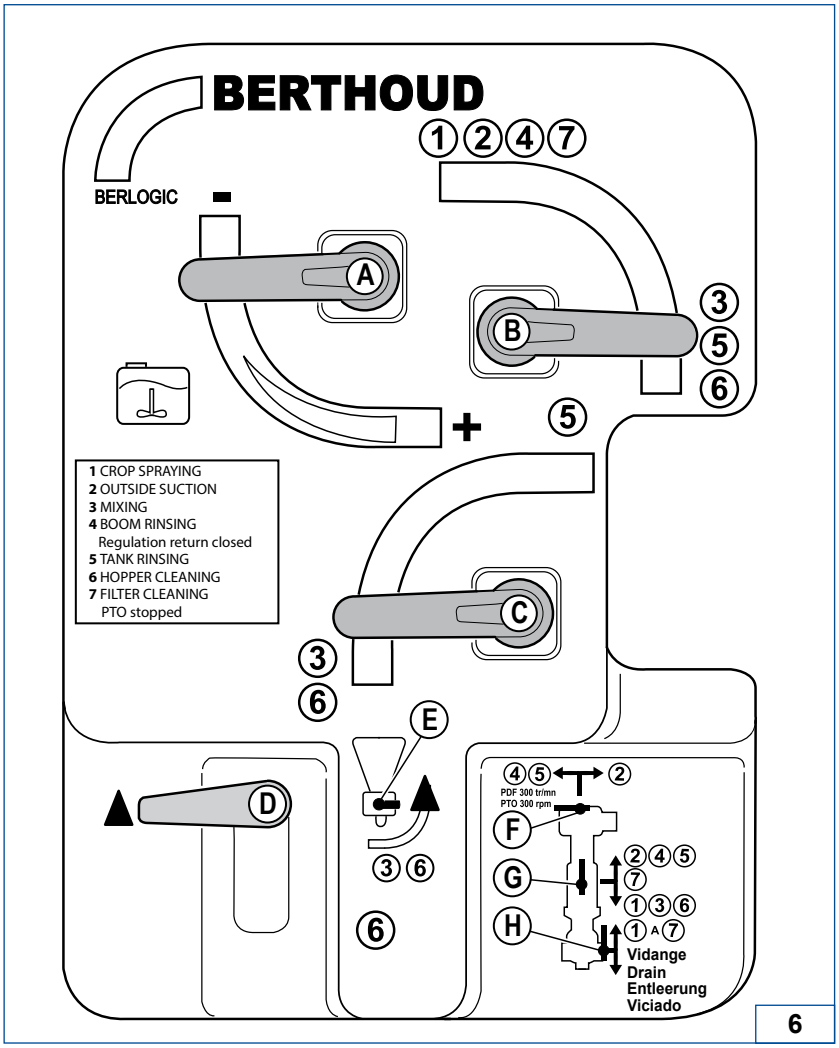
- Place:
  - valves (D) and (E), in position ▲, (figure 6),
  - valves (B), (C), (F) and (G) in position ❺, (figure 6).

### COMPLETE CIRCUIT RINSE FOR A PRODUCT CHANGE

- Place clean water in the main tank (see "Filling" paragraph on page 20).
- Clean the tank with the rinsing balls (see "Rinsing" paragraph above).
- Switch to mixing (see "Hopper" paragraph on page 20).
- Switch to spray (closed sections) (see above).


V
F

5


BERTHOUD
1 2 4 7
BERLOGIC
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1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
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4 5 2
PDF 300 tr/mn
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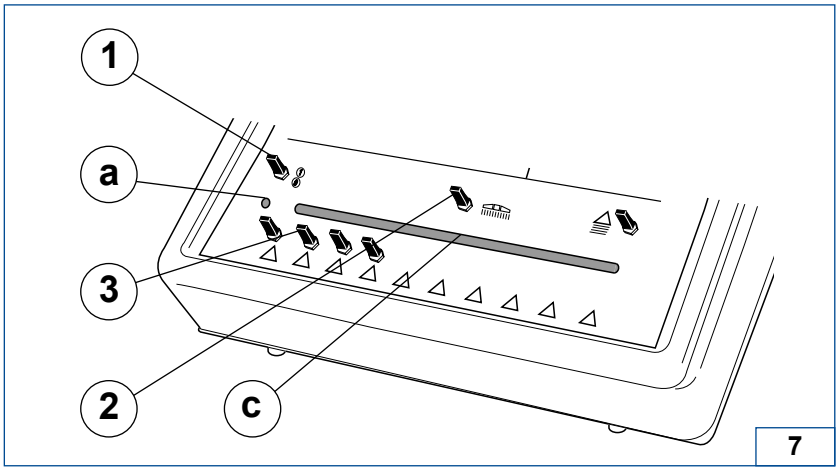
Drain
Entleerung
Viciado

6


1
a
3
2
c

7

# D.P. CONTROL REGULATION

## CROP SPRAYER ADJUSTMENT

*ADJUSTING THE COMPENSATED RETURN*

## MAIN FUNCTIONS OF THE CROP SPRAYER

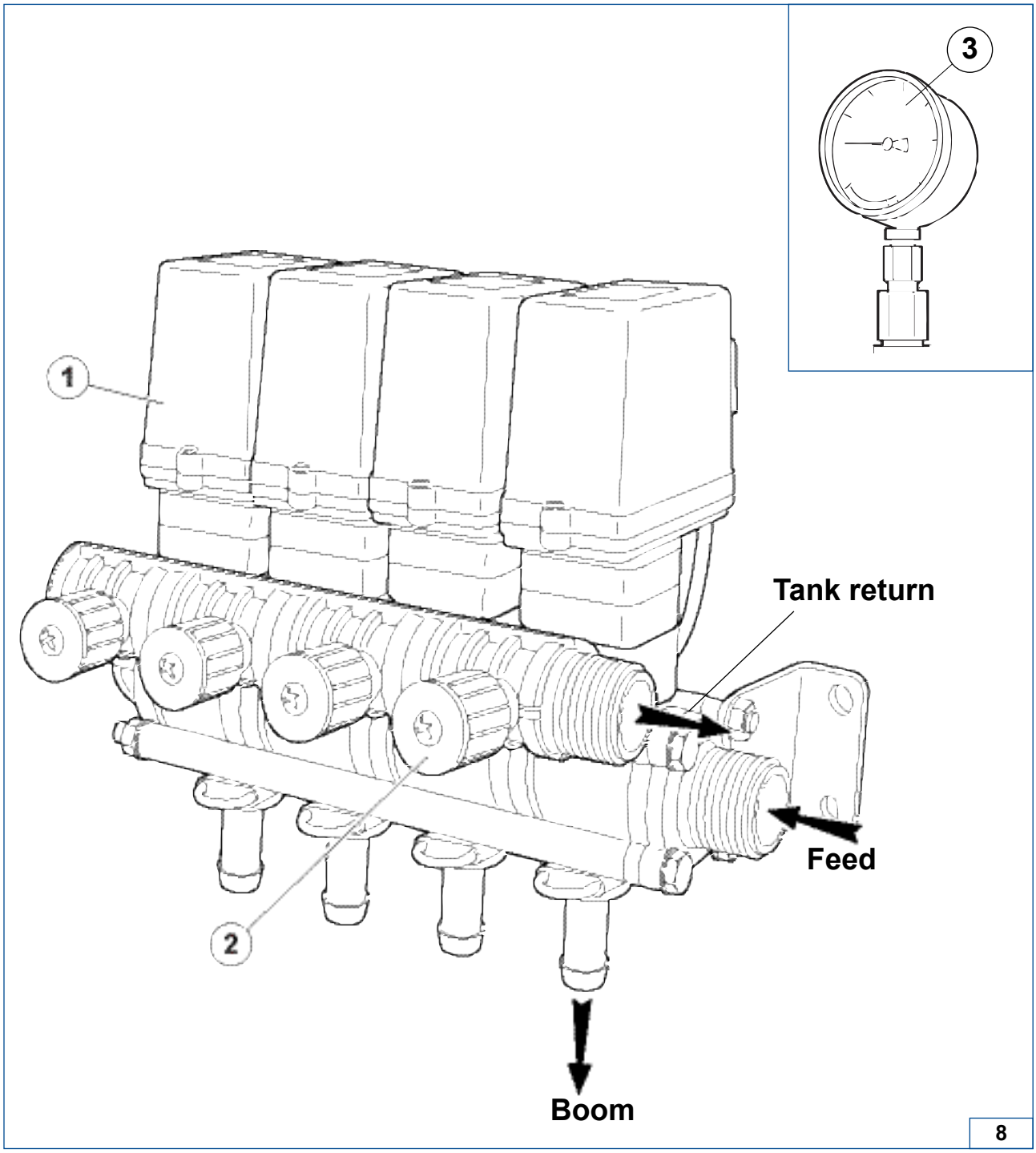
*FILLING*
*MIXING HOPPER*
*CROP SPRAYING*
*RINSES*

# ADJUSTING THE COMPENSATED RETURN *(D.P. Control)*

- The valve block consists of electric flap valves (V.E.C.) (1) (figure 8), for each boom section.
- These electric flap valves feed each boom section when they are in the "open" (spraying) position and return to the tank when they are in the "closed" position.
- They are placed on the front of the unit.

## ADJUSTING THE COMPENSATED RETURN

- The return to the tank is calibrated by means of a micrometer screw (2).
- Adjust the screw (2) in such a way as to obtain the same pressure on the manometer (3) in the "closing" and "opening" (spraying) positions. *(Do this for each electric flap valve)*.
- Operate the electric switches to open and close the spray.




8

# FILLING/MIXING HOPPER *(D.P. Control)*

## FILLING THE TANK

• Via the external suction device:
- Connect the filling hose (6) to the fire-department connection for the valve (F) (figure 9).
- Place (see figure 11):
  - valves (D), (E), in position ▲,
  - valves (B), (F), (G) and (H) in position ❷.
- Pour through the filling hole, through the sieve, about 30 to 50 litres of water to prime the pump.
- Immerse the pipe (6) (figure 9) in the liquid to be pumped.
- Engage the tractor's power take-off and bring it to 540 rpm.
- When the filling operation is completed, remove the filling pipe (6) (figure 9).

• Via the manhole.
- Open the lid on the step side.

## MIXING HOPPER

- Allows to add phytosanitary powders or liquids while the crop sprayer is being filled with water
- This device ensures perfect mixing of the product in the water, while facilitating the work.

### - HOPPER OPERATION

- Fill the tank partially (see filling procedure above).
- Press with your foot on the pedal (A) and pull the hopper by the handle towards yourself (B) (figure 10).
- Remove the lid and fill the hopper with phytosanitary product.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❸Berlogic function)**
- Place (see figure 11):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C), (G) and (H) in position ❸ .

**2 - Using the <u>water in the rinsing tank</u>:**
**(❸Berlogic function)**
- Place (see figure 11):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸,
  - the valves (F) and (G), in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❸Berlogic function)**
- Place (see figure 11):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸,
  - the valves (F) and (G), in position ❷.

- Engage the tractor's power take-off and bring it to 540 rpm.
- To empty the hopper quickly:
  - replace the lid,
  - open the valve (E) in position ❸ (Figure 11).
- The product is sucked in and mixed into the crop sprayer tank.

### - HOPPER RINSING: With clean water.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (figure 11)

**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (figure 11)
- Place the valves (F) and (G) in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (figure 11)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
Open valve (D) in position ❻, (figure 11); this activates the rinsing boom (9) (figure 12).

### - RINSING THE DRUMS: With clean water.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (figure 11)

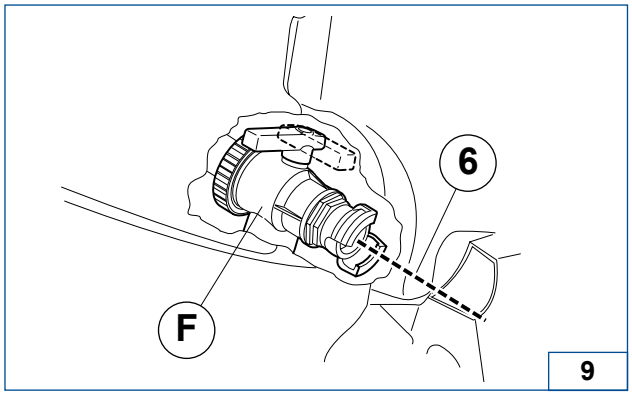
**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (figure 11)
- Place the valves (F) and (G) in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (figure 11)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
- Place the valve (D) in position ▲ (figure 11).
- Position the product drum on the part (10) (figure 12).
- Press on the drum to activate the cleaning nozzle (11) (figure 12).

### - AFTER THE MIXING PROCEDURE:

- Place the valve (E) in position ▲ (figure 11).
- Finish filling the tank.
- After the filling operation, remove the pipe (6) and replace the plug on the fire-department connection of the valve (F) (figure 9).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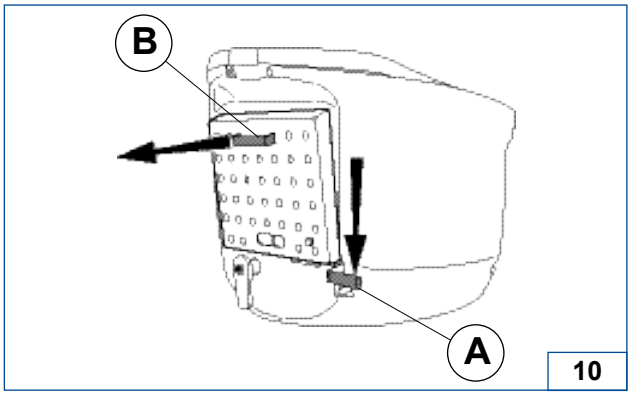
B
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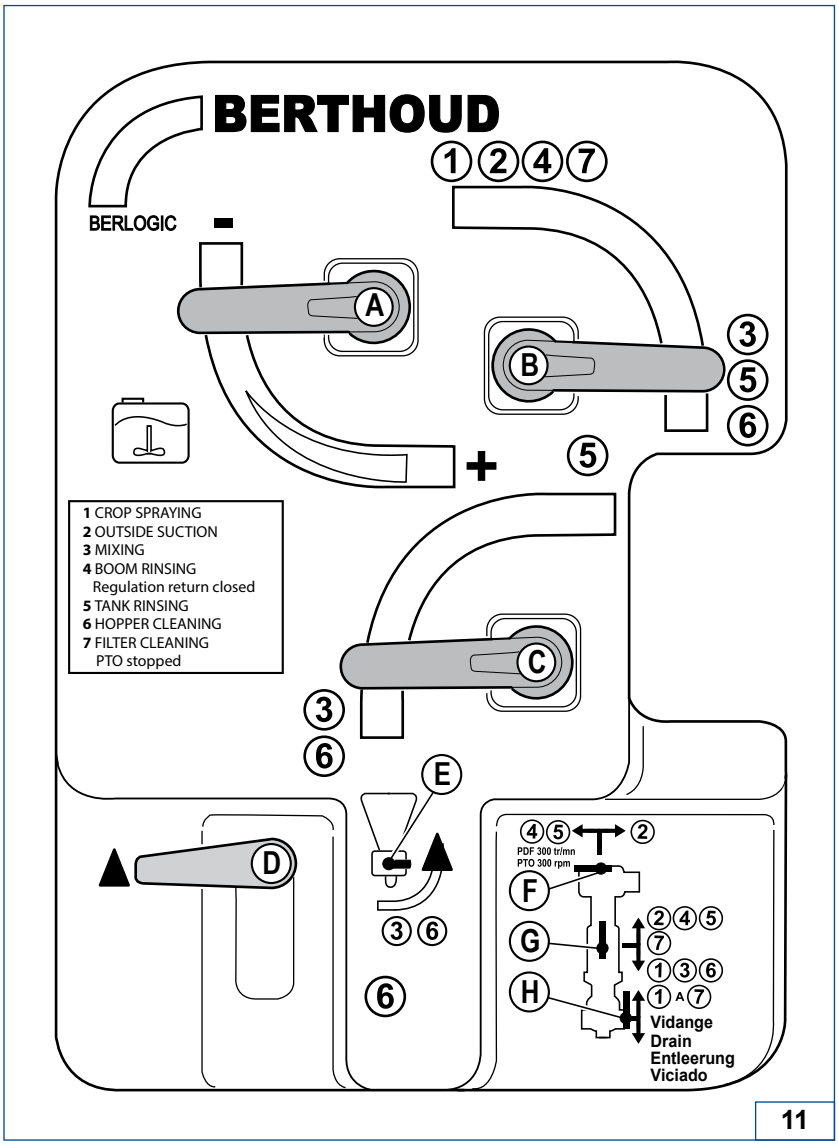
10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BERLOGIC
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1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
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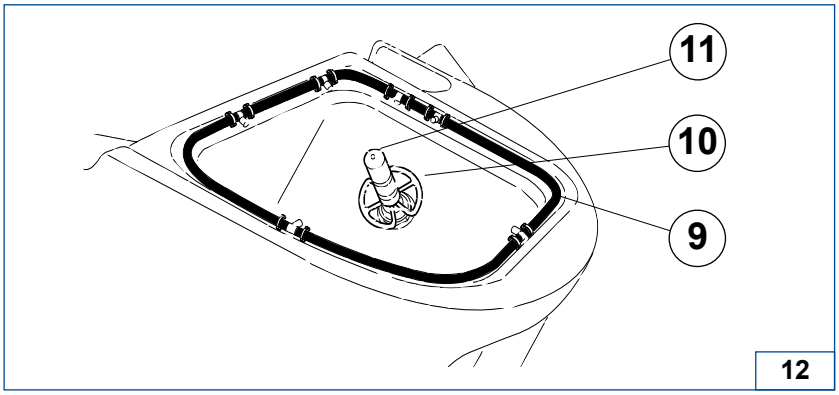
Vidange
Drain
Entleerung
Viciado

11


11
10
9

12

# CROP SPRAYING/RINSING *(D.P. Control)*

## CROP SPRAYING

### CROP SPRAYING CONTROL (❶Berlogic function)

**- WITH MIXING**

- Place:
  - the valve (3) in open position ⓐ, (figure 13),
  - the valves (D) and (E), in position ▲, (figure 14),
  - the valve (A) in position ⊕ (figure 14).

**NOTE:** The mixing is adjustable from ⊕ to ⊖ (valve (A), figure 14).

**- WITHOUT MIXING *(very foamy products)***

- Place:
  - the valve (3) in open position ⓐ, (figure 13),
  - the valves (D) and (E), in position ▲, (figure 14),
  - the valve (A) in position ⊖ (figure 14).

### PREPARING THE CONTROL UNIT (figure 15)

- With the PTO stopped:
  - switch on the control unit by raising the switch (1), the indicator (a) comes on,
  - switches (2) and (3) in the high position.
- Program the D.P. Control unit *(see instructions no. **82.469**)*.

YOUR MACHINE IS READY TO OPERATE

### OPERATION

- Engage the tractor's power take-off and bring it to 540 rpm.

### TO SPRAY (figure 15)

- Lower the switches (3); the lights (c) come on.
- Lower the switch (2).

### TO STOP CROP SPRAYING (fig. 15)

#### TOTALLY

- Lift the switch (2).

#### PARTIALLY

- Lift the switch (3) corresponding to the sections you wish to stop.

## RINSES

### RINSING OF THE SPRAY CIRCUIT (without return to the main tank)

#### WITH RINSE TANK *(Main tank filled or half filled)*

- Stop the power take-off .
- Place:
  - the valve (3) in position ⓑ (closed) (figure 13),
  - the valves (D) and (E), in position ▲, (figure 14),
  - the valves (B), (F) and (G) in position ❹ (figure 14).
- Switch on the control unit (switch (1), figure 15).
- Open the lowered spraying switches (2) and (3) (figure 15).
- Engage the power take-off at idling speed (300 rpm).

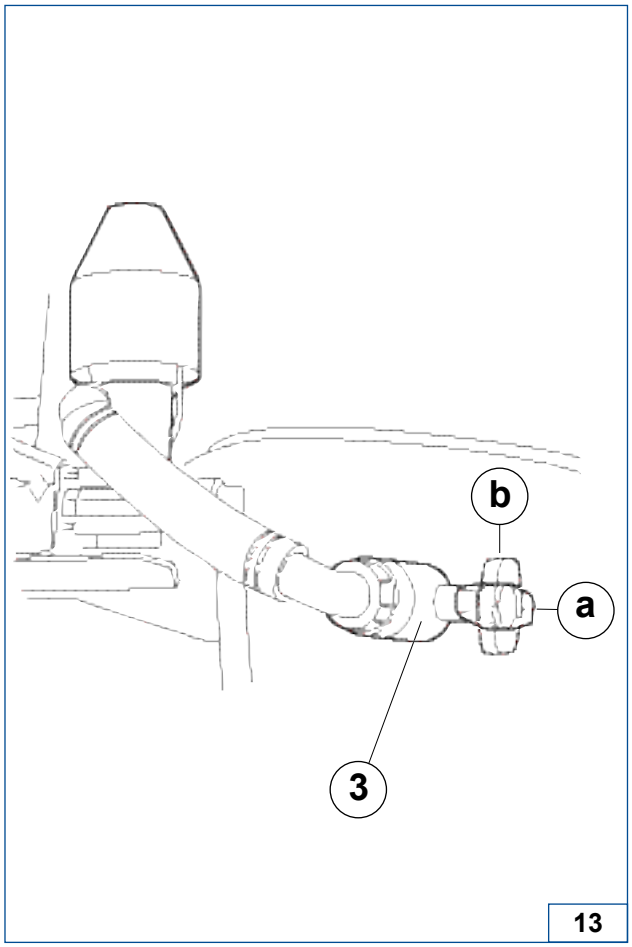
Do not exceed this speed. Risk of overpressure.

### RINSING THE MAIN TANK

- Place:
  - valves (D) and (E), in position ▲, (figure 14),
  - valves (B), (C), (F) and (G) in position ❺, (figure 14).

### COMPLETE CIRCUIT RINSE FOR A PRODUCT CHANGE

- Place clean water in the main tank (see "Filling" paragraph on page 28).
- Clean the tank with the rinsing balls (see "Rinsing" paragraph above).
- Switch to mixing (see "Hopper" paragraph on page 28).
- Switch to spray (closed sections) (see above).


b
a
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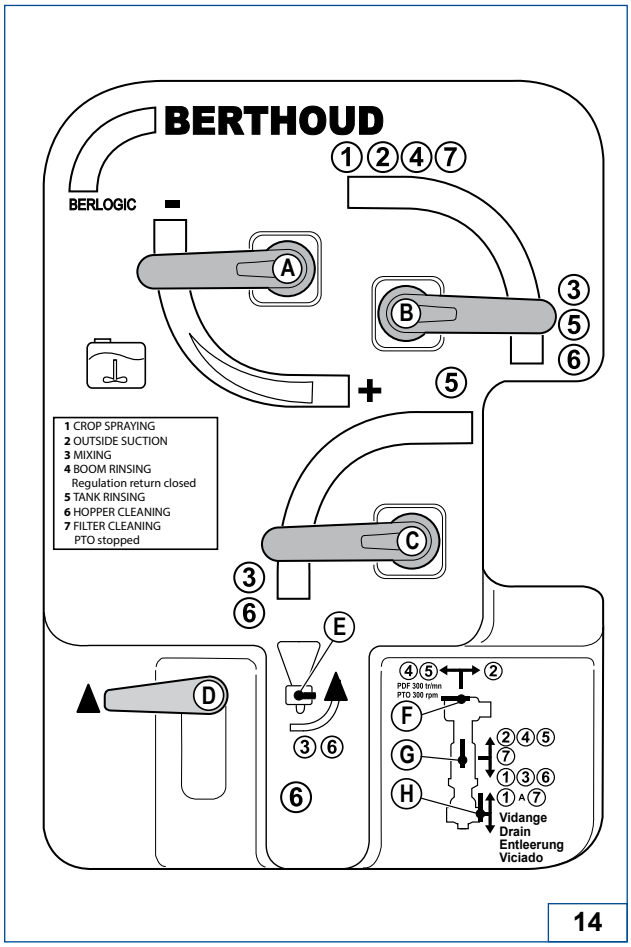
13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1 2 4 7
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1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
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4 5 2
PDF 300 tr/mn
PTO 300 rpm
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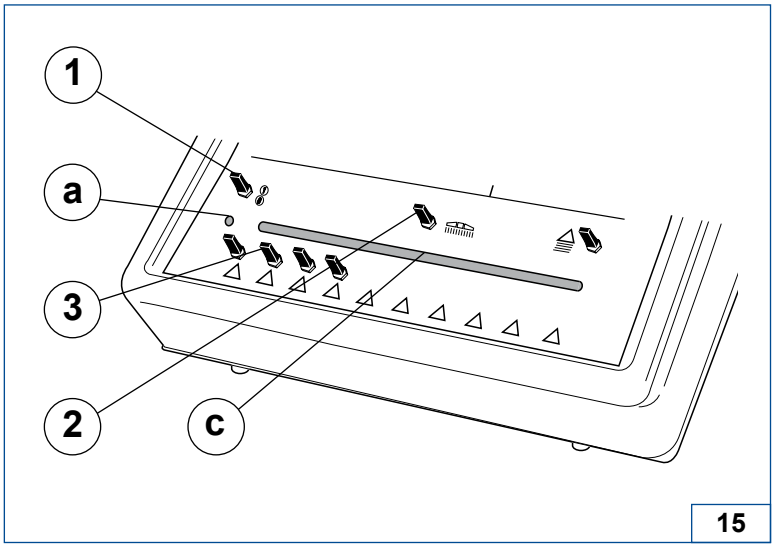
Drain
Entleerung
Viciado

14


1
a
3
2
c

15

# AUTOREGULATOR REGULATION

## CROP SPRAYER ADJUSTMENT

*ADJUSTING THE COMPENSATED RETURN*

## MAIN FUNCTIONS OF THE CROP SPRAYER

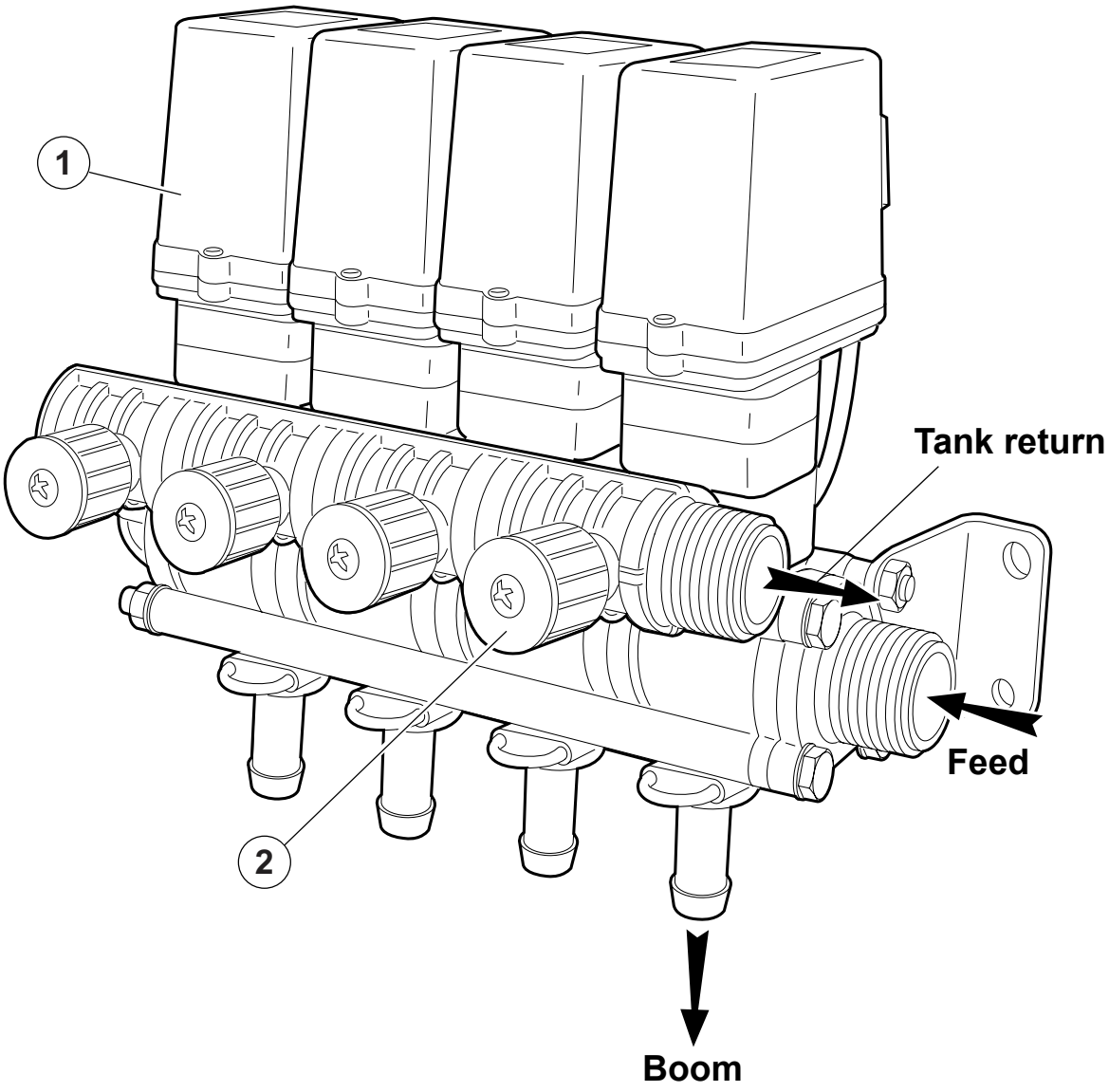
*FILLING*
*MIXING HOPPER*
*CROP SPRAYING*
*RINSES*

# COMPENSATED RETURN CONTROL *(Autoregulator)*

- The valve block consists of electric flap valves (V.E.C.) (1) (figure 16), for each boom section.
- These electric flap valves feed each boom section when they are in the "open" (spraying) position and return to the tank when they are in the "closed" position.
- They are placed on the front of the unit.

## ADJUSTING THE COMPENSATED RETURN

- The return to the tank is calibrated by means of a micrometer screw (2).
- Adjust the screw (2) in such a way as to obtain the same pressure on the manometer in the "closing" and "opening" (spraying) positions. *(Do this for each electric flap valve)*.
- Operate the electric switches to open and close the spray.




16

# FILLING/MIXING HOPPER *(Autoregulator)*

## FILLING THE TANK

• Via the external suction device:
- Connect the filling hose (6) to the fire-department connection for the valve (F) (figure 17).
- Place (see figure 19):
  - valves (D), (E), in position ▲ ,
  - valves (B), (F), (G) and (H) in position ❷.
- Pour through the filling hole, through the sieve, about 30 to 50 litres of water to prime the pump.
- Immerse the pipe (6) (figure 17) in the liquid to be pumped.
- Engage the tractor's power take-off and bring it to 540 rpm.
- When the filling operation is completed, remove the filling pipe (6) (figure 17).

• Via the manhole.
- Open the lid on the step side.

## MIXING HOPPER

- Mixes the phytosanitary powders or liquids to be mixed in while the crop sprayer is filled.
- This device ensures perfect mixing of the product in the water, while facilitating the work.

### - HOPPER OPERATION

- Fill the tank partially (see filling procedure above).
- Press with your foot on the pedal (A) and pull the hopper by the handle (B) (figure 18).
- Remove the lid and fill the hopper with phytosanitary product.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❸Berlogic function)**
- Place (see figure 19):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C), (G) and (H) in position ❸ .

**2 - Using the <u>water in the rinsing tank</u>:**
**(❸Berlogic function)**
- Place (see figure 19):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸ ,
  - the valves (F) and (G), in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❸Berlogic function)**
- Place (see figure 19):
  - the valves (D) and (E), in position ▲ ,
  - the valves (B), (C) and (H) in position ❸ ,
  - the valves (F) and (G), in position ❷.

- Engage the tractor's power take-off and bring it to 540 rpm.
- To empty the hopper quickly:
  - replace the lid,
  - open the valve (E) in position ❸ (Figure 19).
- The product is sucked in and mixed into the crop sprayer tank.

### - HOPPER RINSING: With clean water.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (figure 19)

**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (figure 19)
- Place the valves (F) and (G) in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (figure 19)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
Open valve (D) in position ❻, (figure 19); this activates the rinsing boom (9) (figure 20).

### - RINSING THE DRUMS: With clean water.

**3 possibilities:**

**1 - Using the <u>water in the main tank</u>:**
**(❻Berlogic function)** (figure 19)

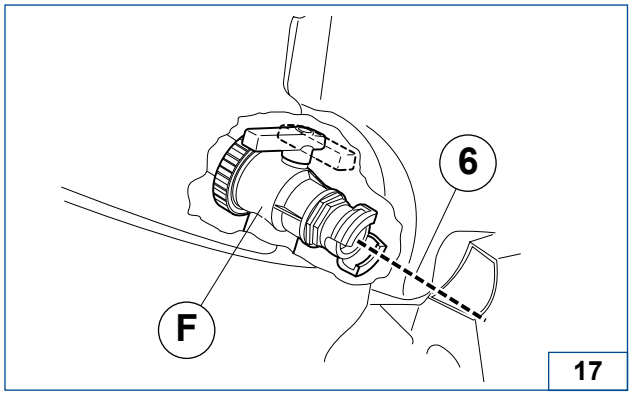
**2 - Using the <u>water in the rinsing tank</u>:**
**(❻Berlogic function)** (figure 19)
- Place the valves (F) and (G) in position ❹.

**3 - Using the <u>water in exterior suction</u>:**
**(❻Berlogic function)** (figure 19)
- Place the valves (F) and (G) in position ❷.

**In all three cases:**
- Place the valve (D) in position ▲ (figure 19).
- Position the product drum on the part (10) (figure 20).
- Press on the drum to activate the cleaning nozzle (11) (figure 20).

### - AFTER THE MIXING PROCEDURE:

- Place the valve (E) in position ▲ (figure 19).
- Finish filling the tank.
- After the filling operation, remove the pipe (6) and replace the plug on the fire-department connection of the valve (F) (figure 17).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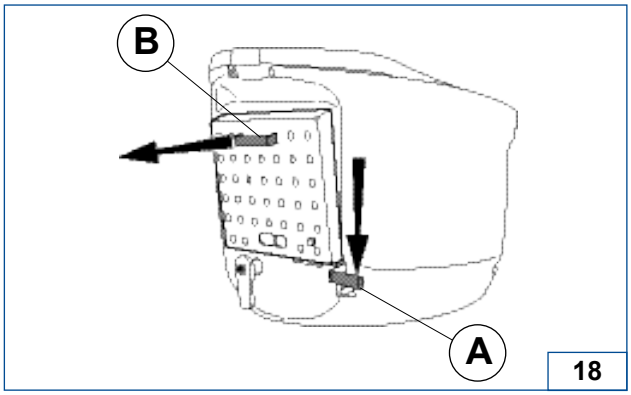
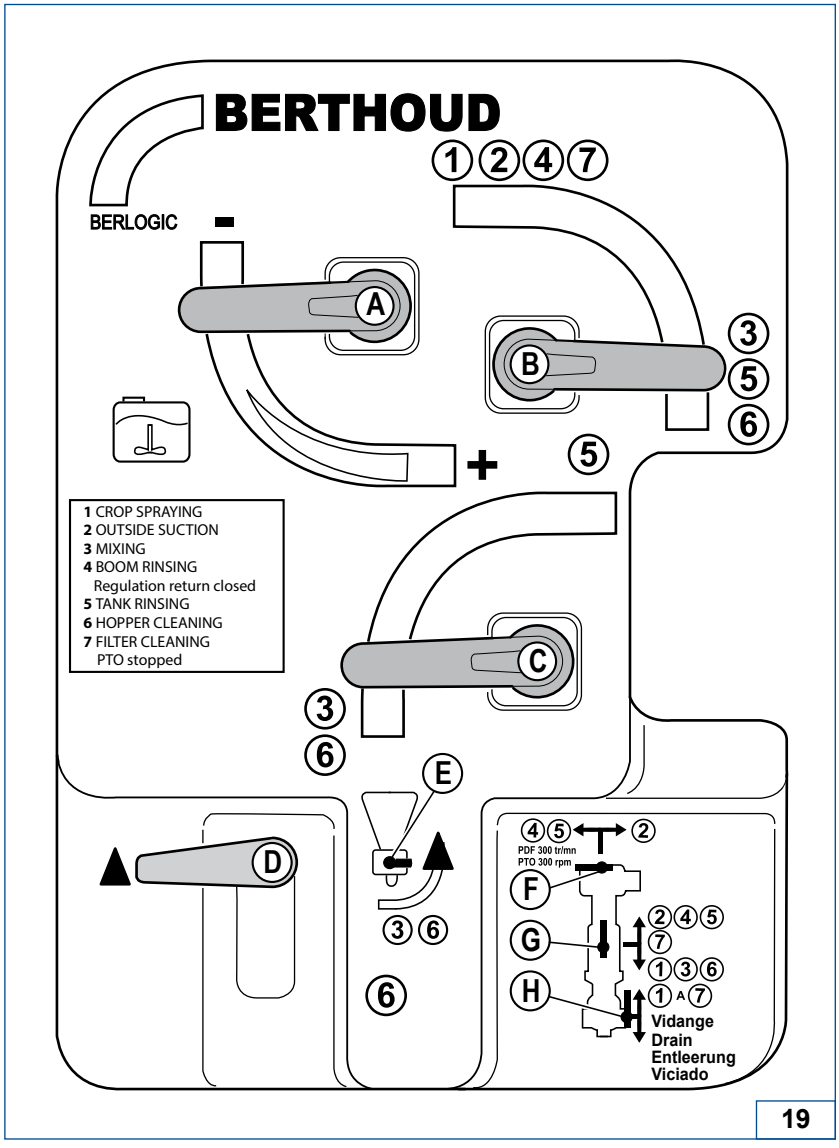
17


B
A

18


BERTHOUD
1 2 4 7
BERLOGIC
A
B
3
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6
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1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
C
3
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D
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PDF 300 tr/mn
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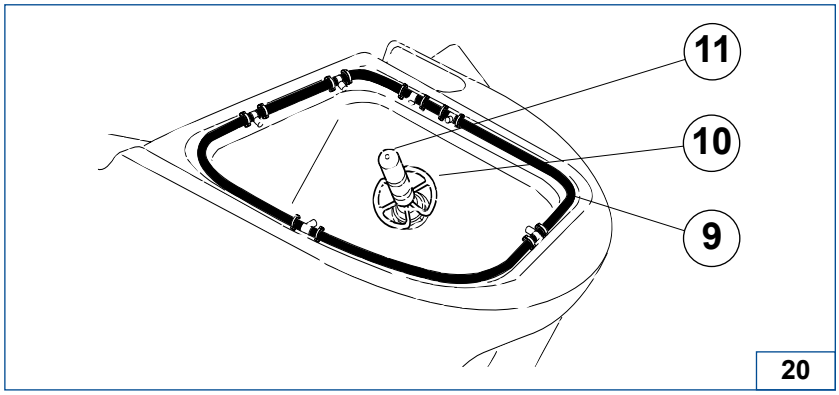
Drain
Entleerung
Viciado

19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20

# CROP SPRAYING/RINSING *(Autoregulator)*

## CROP SPRAYING

### TO GET YOUR VOLUME/HECTARE

- Fit the selected nozzles.
- **NOTE: Adjusting the compensated return** (see page 35).
- Bring the power take-off speed to 540 rpm.
- Show on the manometer (1) (figure 21) the pressure read previously on the flow table, by pressing the switch (4) (figure 22) which controls the regulating valve (D.P. Elec) (2) (Fig. 21).
- From this moment on, you can work on and for a wide range of PTO speed variation, therefore from the engine speed, your **VOLUME/HECTARE WILL REMAIN CONSTANT**.

### CROP SPRAYING CONTROL (❶Berlogic function)

**- WITH MIXING**

- Place:
  - the valve (3) in open position ⓐ, (figure 21),
  - the valves (D) and (E), in position ▲, (figure 23),
  - the valve (A) in position ⊕ (figure 23).

**NOTE:** The mixing is adjustable from ⊕ to ⊖ (valve (A), figure 23).

**- WITHOUT MIXING** ***(very foamy products)***

- Place:
  - the valve (3) in open position ⓐ, (figure 21),
  - the valves (D) and (E), in position ▲, (figure 23),
  - the valve (A) in position ⊖ (figure 23).

### PREPARING THE CONTROL UNIT

(figure 22)

- With the PTO stopped:
  - switch on the control unit (1) by raising the switch (2), the indicator comes on,

YOUR MACHINE IS READY TO OPERATE

### OPERATION

- Engage the tractor's power take-off and bring it to 540 rpm.

### TO SPRAY (figure 22)

- Lower the switches (3) and (5), and start the application.

### TO STOP CROP SPRAYING (fig. 22)

**TOTALLY**

- Lift the switch (3).

**PARTIALLY**

- Lift the switch (5) corresponding to the sections you wish to stop.

## RINSES

### RINSING OF THE SPRAY CIRCUIT (without return to the main tank)

**WITH RINSE TANK** ***(Main tank filled or half filled)***

- Stop the power take-off .
- Place:
  - the valve (3) in position ⓑ (closed) (figure 21),
  - the valves (D) and (E), in position ▲, (figure 23),
  - the valves (B), (F) and (G) in position ❹ (figure 23).
- Switch on the control unit (switch (2), figure 22).
- Open the lowered spraying switches (3) and (5) (figure 22).
- Engage the power take-off at idling speed (300 rpm).

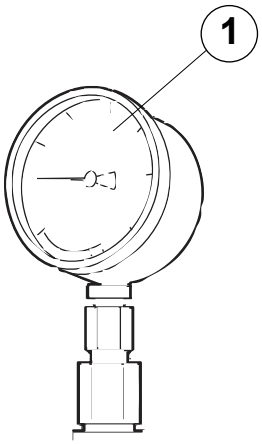
Do not exceed this speed. Risk of overpressure.

### RINSING THE MAIN TANK

- Place: - valves (D) and (E), in position ▲, (figure 23),
  - valves (B), (C), (F) and (G) in position ❺, (figure 23).

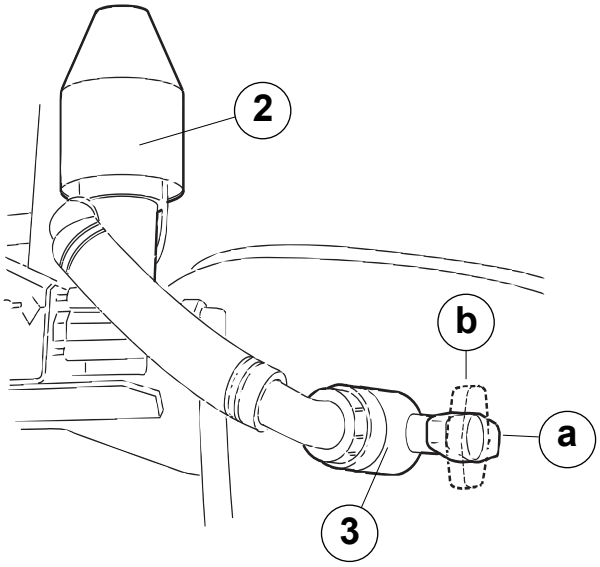
### COMPLETE CIRCUIT RINSE FOR A PRODUCT CHANGE

- Place clean water in the main tank (see "Filling" paragraph on page 36).
- Clean the tank with the rinsing balls (see "Rinsing" paragraph above).
- Switch to mixing (see "Hopper" paragraph on page 36).
- Switch to spray (closed sections) (see above).




There are two manometers:

- one placed on the electric flap valves (V.E.C.), to control the adjustment of the return in tank,
- the other placed at the front of the machine to control the pressure of the spray circuit.

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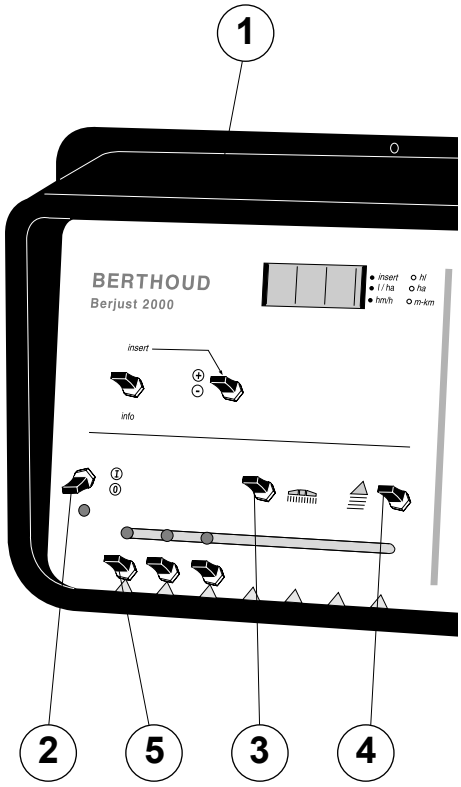


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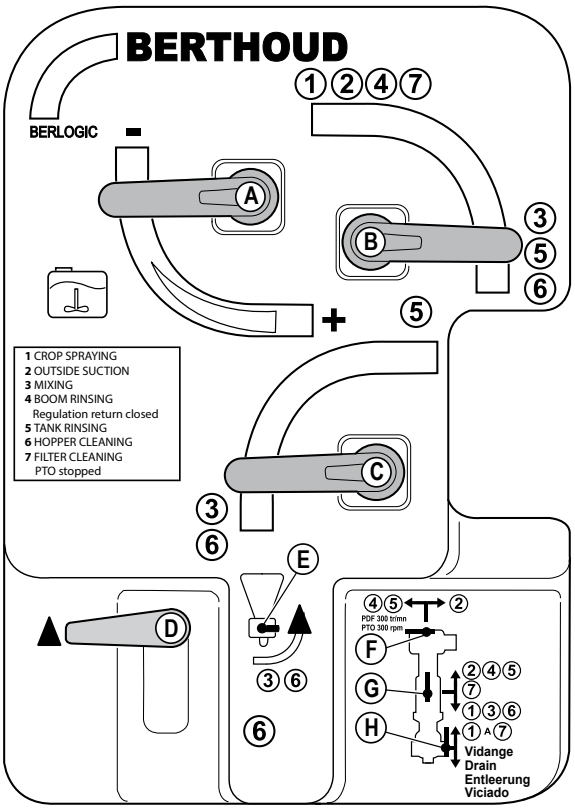



23

# OTHER CROP SPRAYER FUNCTIONS

# SAFETY VALVE

- The valve (figure 24) is attached directly to the pump discharge manifold.
- It is rated at 15 bar.
- The role of the valve is to avoid any overpressure that could create a false manoeuvre (water hammer).

# CLEANING FILTERS

**❼Berlogic function**

- Valves (D) and (E) in position ▲, (figure 27).
- Valves (B) and (G) in position ❼, (figure 27).

The regulation return must be closed:

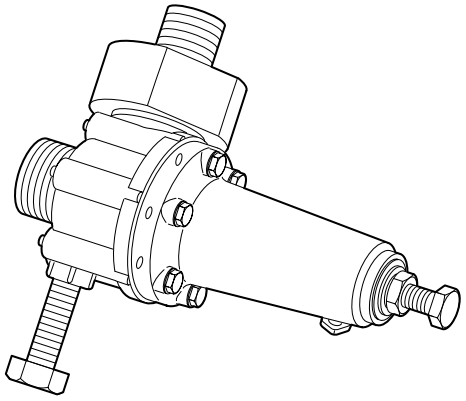
- D.P. Tronic: valve (V) in position Ⓕ (figure 5 on page 23).
- D.P. Control: valve (V) in position ⓑ (figure 13 on page 31).
- Autoregulator: valve (3) in position ⓑ (figure 21 page 39).

# DISCHARGE FILTER

- Placed between the pump and the distribution.
- Provides additional filtering.
- To remove the filter cartridge (mesh 4/10°), unscrew the bell (3) (figure 26) on the filter, using a size 27 wrench (wrench not provided with the machine).
- **The filter cartridge should be cleaned after each use. Grease the seals.**
- ***Reminder:*** *Original filter cartridge, 4/10° mesh, mounted originally (8/10° available as spares for liquid fertilizer).*

# SUCTION FILTER

- To remove the filter cartridge from the filter (1) unscrew the large nut (2) (figure 25).



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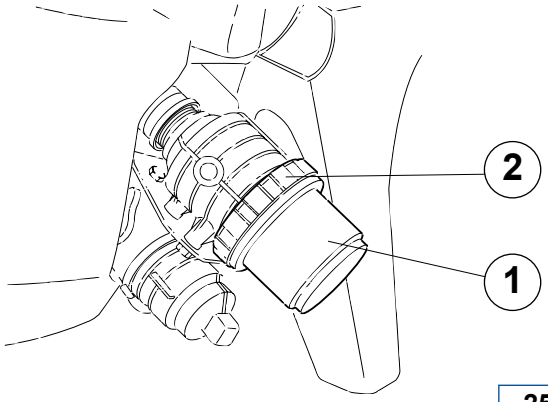
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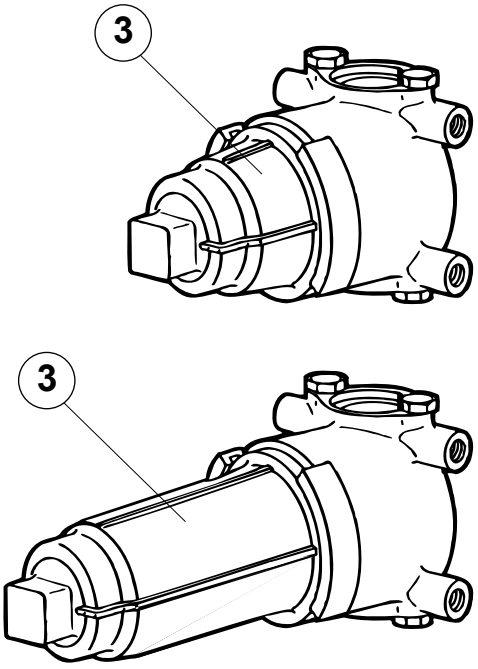
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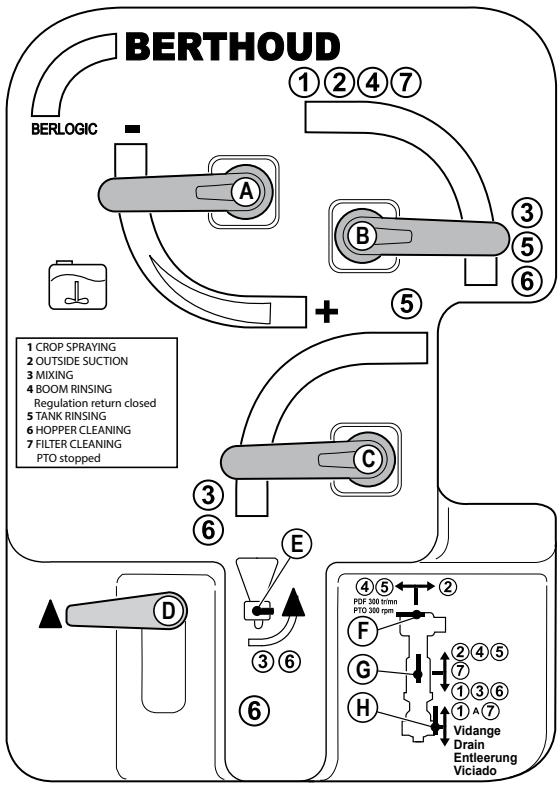
BERTHOUD
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1 CROP SPRAYING
2 OUTSIDE SUCTION
3 MIXING
4 BOOM RINSING
Regulation return closed
5 TANK RINSING
6 HOPPER CLEANING
7 FILTER CLEANING
PTO stopped
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PTO 300 rpm
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H
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7
1 3 6
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Vidange
Drain
Entleerung
Viciado

27

## MIXING

- Hydraulic mixing by returning non-sprayed liquid and HYDROMAX to the tank.

## HAND WASH TANK

Hygiene and comfort: a tank (1) of 15 litres of fresh water, separate from the rinsing tank, is for washing your hands or any part of your body (face, eyes, etc.) contaminated by the product.
To do this open the tap (5) (figure 28), more or less depending on the desired flow.

- The hand-washing basin MUST be filled with fresh, clear water via the lid (6) (figure 28), without pressure.

## TRANSFER VALVE (option)

- Open valve position ❶, closed valve position ❷ (figure 29).

## DRAINING THE TANK

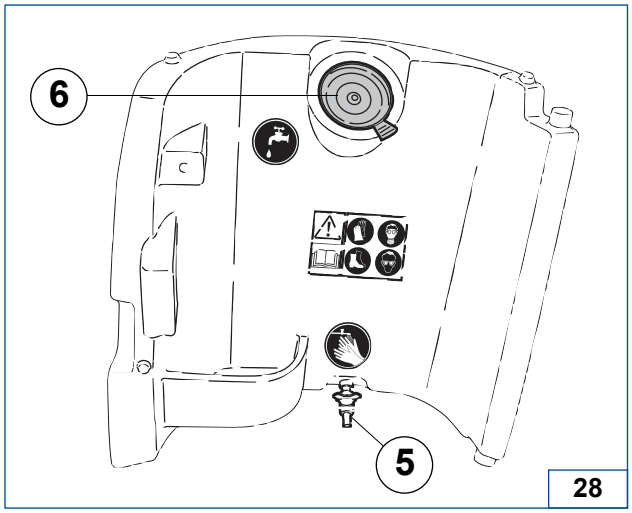
- Open the valve (H) in position ⓫ (figure 30).

## CHASSIS FEET

- Before removing the sprayer, on level and stable ground, check that the feet (9) of the chassis are in rest position Ⓡ (figure 31).
- During the treatments, the feet (9) must be in working position Ⓣ (figure 31).

## STEPS

- An anti-slip step (11) (figure 32) allows safe access to the manhole.
- Using the lower handle (P), pull upwards following the arrow (1).
- During treatment, to avoid "hurting" the vegetation, store the step: unlatch it by pushing in the direction of the arrow (2) and fold it down following the arrow (3).

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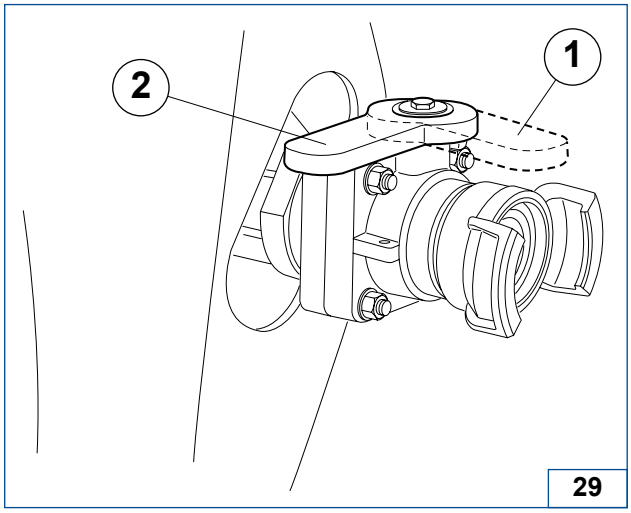


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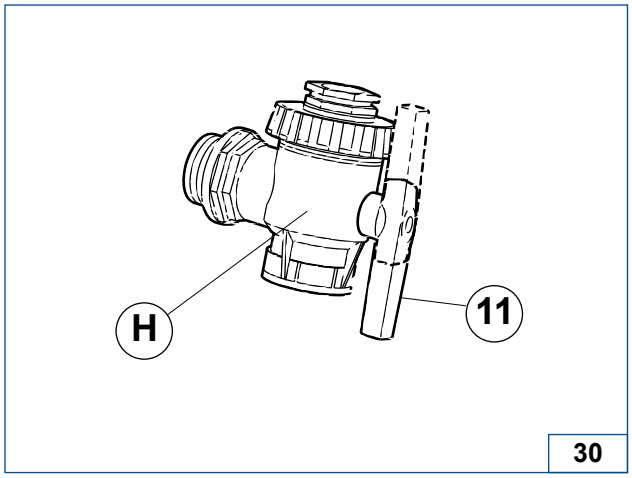


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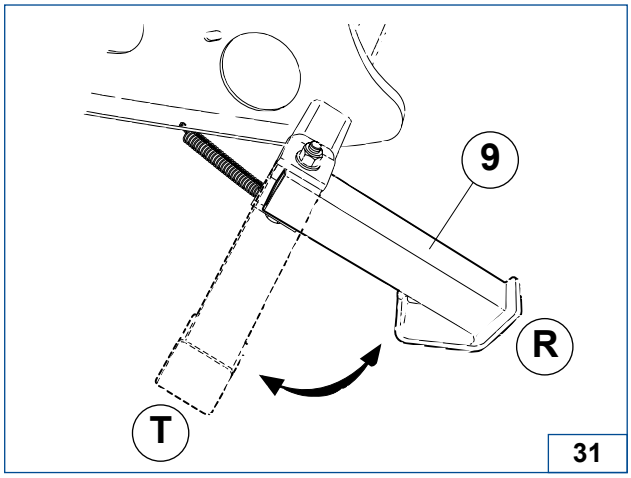


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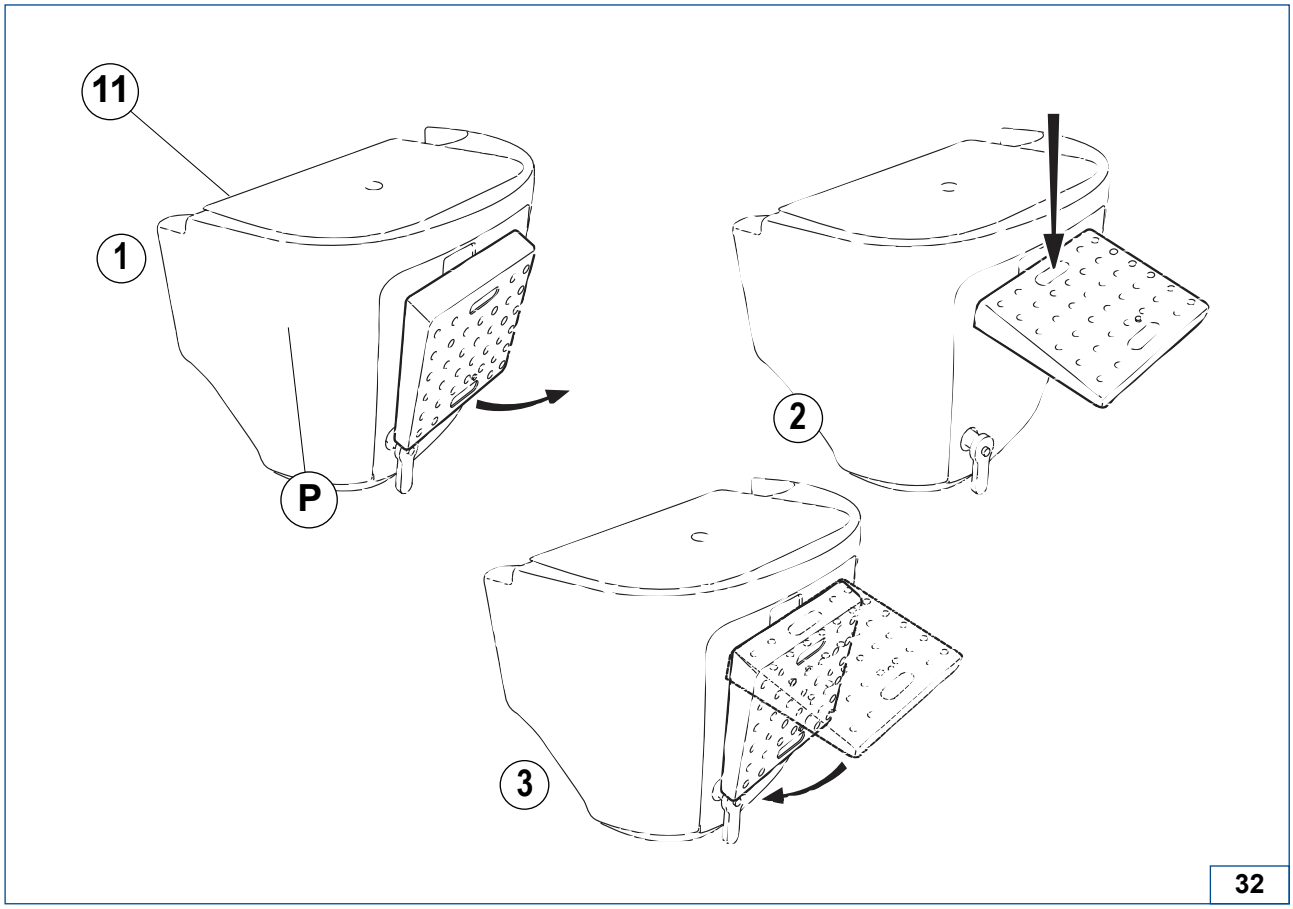



32

# HYDRAULIC PIPING

- When removing the machine, the hydraulic pipes must rest on a support (12) (figure 33) to avoid any dirt.
- A neutral support is also stipulated to fix the connections and avoid any dirt and oxidation of the contacts.

# RINSING TANK - STORAGE COMPARTMENT

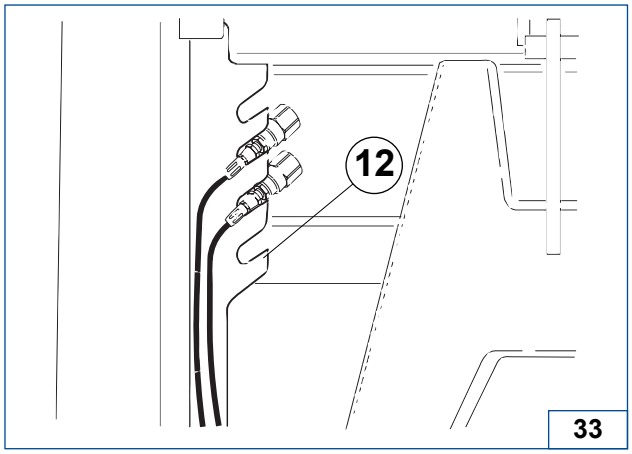
- The rinsing tank MUST be filled with fresh, clear water via the lid (1) (figure 34), without pressure.
- Storage box (2) (figure 34).

# GAUGES

Serial : Direct reading float gauge (figure 35).
Optional: Drum gauge, easy to read from both the cab and the operating station (figure 36).

# EXTERNAL WASHING DEVICE (option)

- Remove the brush (4) from its holder, connect it to the connector (3) (figure 37).
- Use the Berlogic function (tank flush) by placing the valves in position (5) (see figure 27 page 43).
- In the case of motorized washing, press on the tank rinsing switch (see figure 40, page 50).
- To wash, put the valve (V) in position (2).
- To stop, put the valve (V) in position (1), then store the brush (4) on its support.

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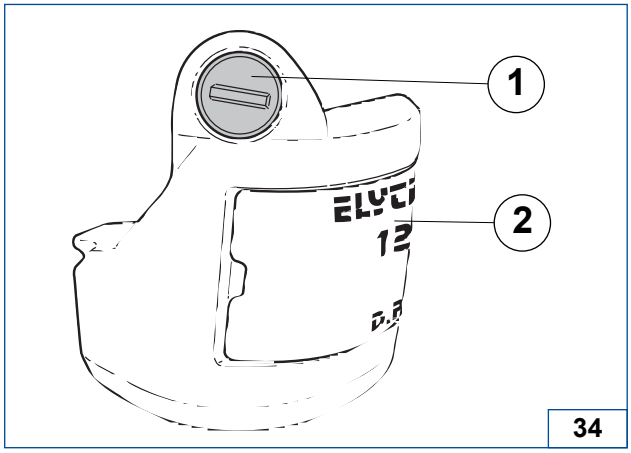


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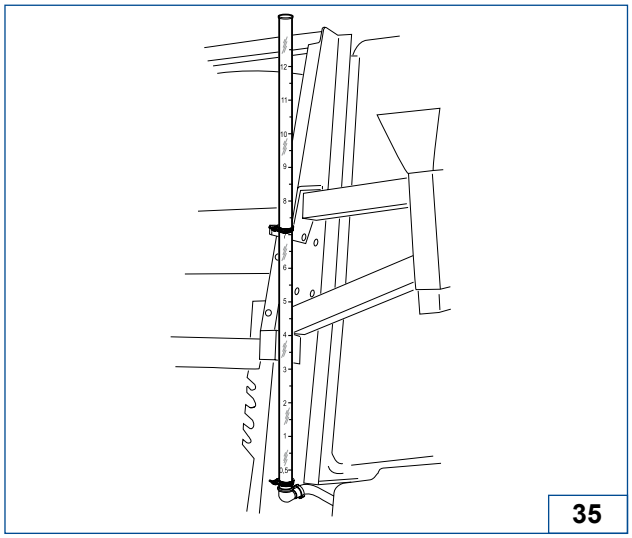

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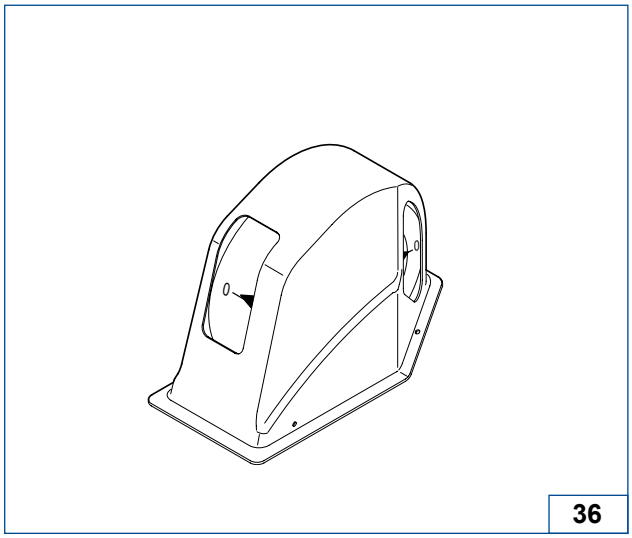

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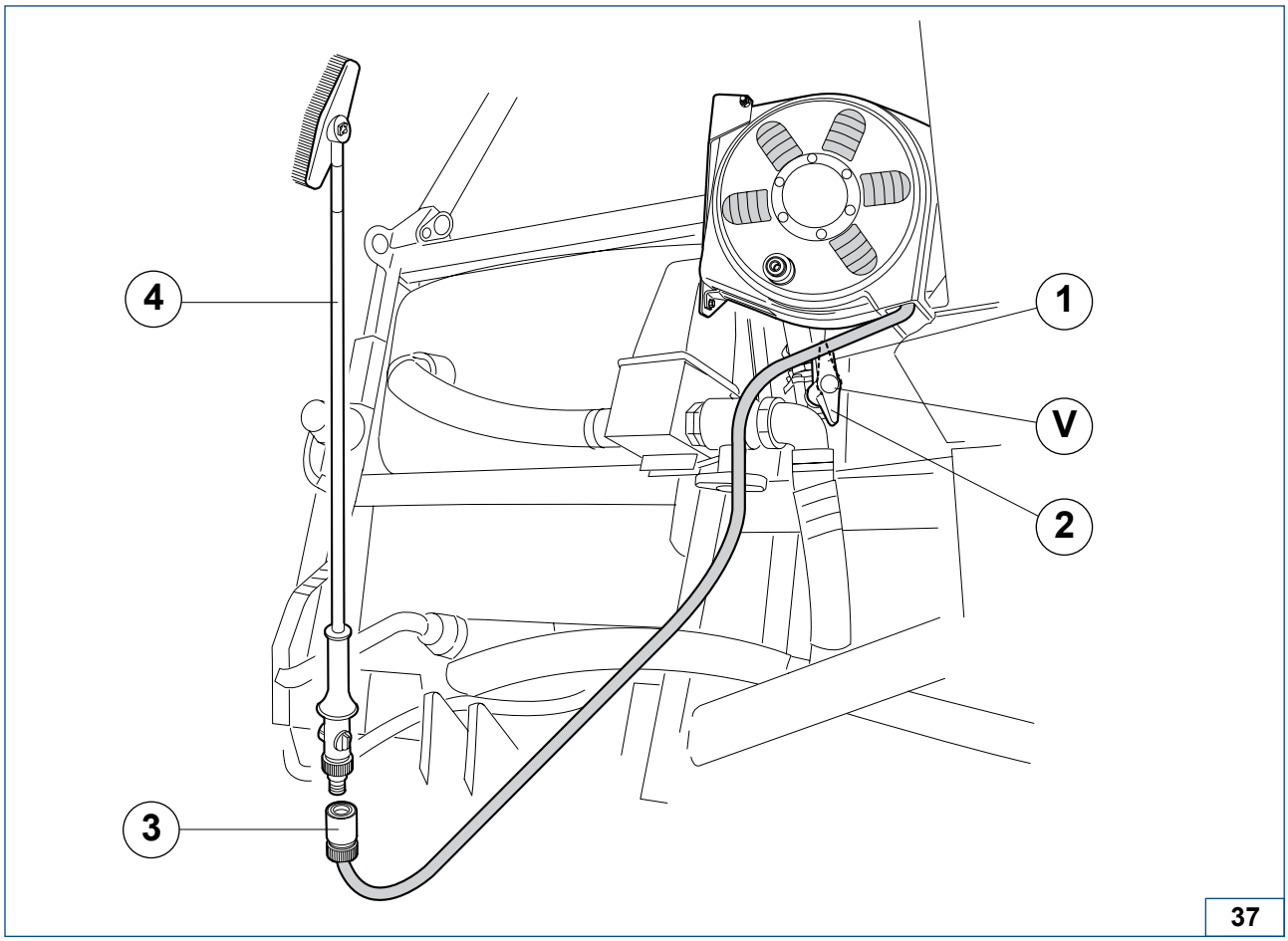


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# MOTORIZED FUNCTIONS

## (options)

**Only in D.P.Tronic and D.P.Control regulations.**
**Absent in Autoregulator regulation.**

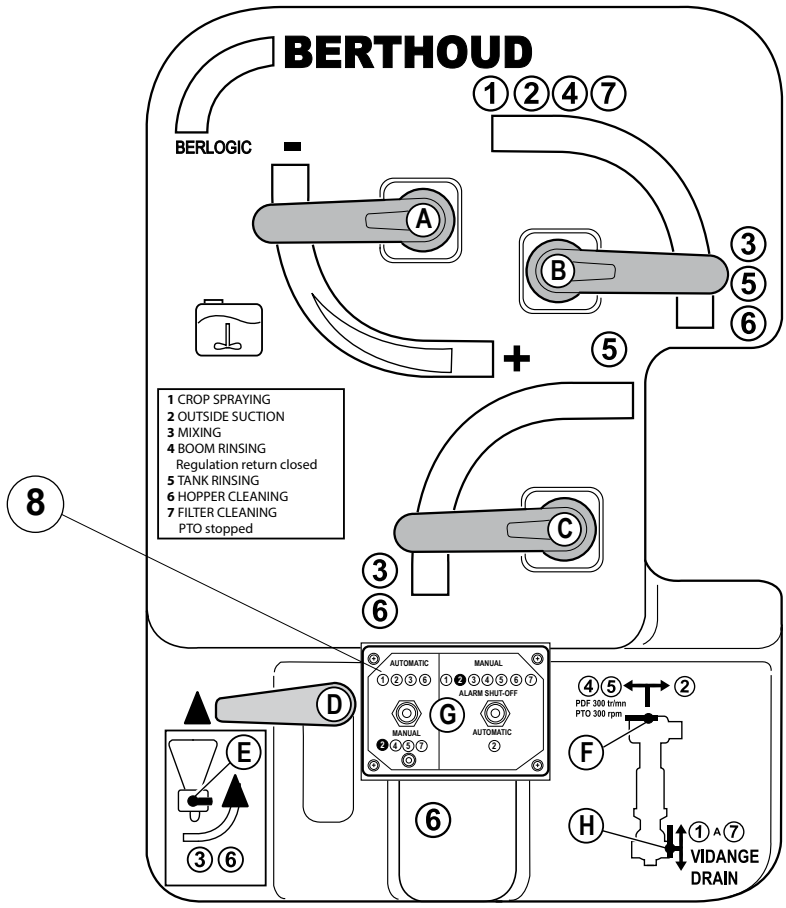
# MOTORIZED SUCTION

- The manual valve (G) (figure 3, page 21) is replaced by an electric valve controlled by the unit (8) (Figures 38 and 39).

  This unit has two switches, depending on whether or not there is an alarm (option) that warns of the tank being filled (figure 39).

# MOTORIZED WASHING OF THE BOOM OR TANK

- Press one of the two switches (see figure 40) and place valve V in position 2 (see figure 37 on page 47).

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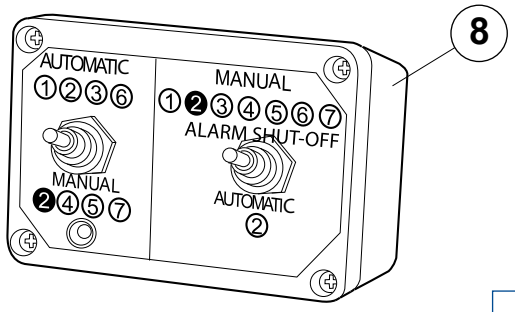


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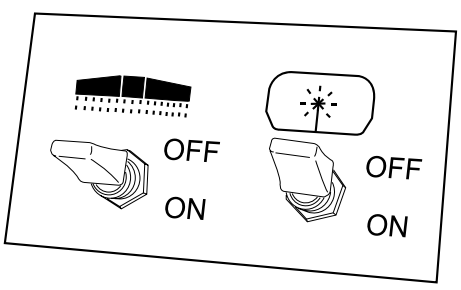


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# CROP SPRAYER MAINTENANCE

**See "Safety, Checks and Maintenance of crop sprayers" manual No. 82.471.**

# PRACTICAL ADVICE FOR MAINTAINING YOUR CROP SPRAYER

- By cleaning your machine regularly during and at the end of the spraying season:
  - you will avoid spreading phytosanitary residues on the crops,
  - you will ensure the product is evenly distributed by preventing total or partial blockage of the nozzles,
  - you will increase the life span of your crop sprayer.

**Carry out maintenance operations on your crop sprayer with the engine off, ignition stopped and the power take-off disconnected.**

# END-OF-SPRAYING MAINTENANCE

It is also important to rinse the exterior of the spray tank and the tractor.
This cleaning operation should also be repeated during the day between applications of 2 different products.

**PROCEDURE**

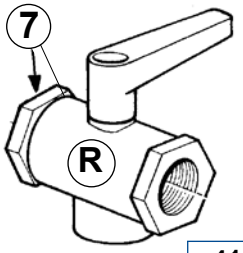
- Remove the filters.
- Fill the tank with 20% water, adding a detergent (All Clear reference 771.053 one-litre container or 778.886 five-litre container).
- Run for a few moments.
- Move the tractor forwards and backwards to swill the water in the tank.
- Leave to act for 12 to 24 hours.
- Switch on mixing and move the tractor backwards and forwards a few times then empty via the drain valve.
- Put clear water in the tank.
- Unscrew a nozzle (remove pellet and cap) at the end of each boom element.
- Rinse with clean water.
- Remove all nozzles, clean them and the filters.
- Put back in place.
- See "Boom maintenance" chapter.

# WINTER STORAGE OF THE CROP SPRAYER

- The crop sprayer must be cleaned before winter storage (see above).
- Completely drain the circuit of liquid, ensuring that the pump does not run for too long without water (2 minutes maximum).
- Grease or oil the metal parts and joints which may rust.
- Deoxidise the electric plug contacts (reference BERTHOUD 765.065 KF F2 aerosol).
- Clean the outside of the machine, repaint the bare mechanical parts (reference BERTHOUD 769.077 blue aerosol paint or 778.890 green aerosol paint).
- Store the machine out of sunlight and bad weather on a stable, flat surface.

# MAINTENANCE OF PLASTIC VALVES

- The slurries used for the treatments are solutions, suspensions or emulsions.
- The solvents present in the slurries may cause swelling of some joints, which seems to be the case for plastic valves.
- If, despite good maintenance, these valves are blocked, a simple intervention allows you to remedy this inconvenience:
- **Case of the valves (R)** (figure 41)
  Act on the ferrules (7) by unscrewing them 1/8 of a turn until the plug rotates normally, without excessive effort. Do not loosen too much to avoid leakage.



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# MAINTENANCE OF THE BOOM

- After each use, thoroughly rinse the piping by operating the machine for a few minutes in clear water (PTO 300 revolutions/minute, valve on return of the closed regulator valve).
  - valves (D) and (E), in position ▲, (figure 27, page 43),
  - valves (B), (F), (G) and (H) in position ❹, figure 27, page 43).
- Drain the piping, particularly if there is a risk of frost.
- Keep the hinges on the arms and the bearing surfaces of the hinge cam greased.
- After cleaning the boom with a high-pressure cleaner, grease the rods of the cylinders to avoid any risk of corrosion.
- Do any necessary paint retouching (reference BERTHOUD 769.077, blue paint spray).
- Lubricate all the points provided with a grease nipple (boom tie rods).

**For more information on the spraying boom, refer to the technical leaflet concerning it.**

# LUBRICATION AND GREASING

## CHECK THE OIL LEVEL IN THE PUMP

- **For GAMA pump 101/130** (figure 42)
  - The level must reach the notch on the gauge (1).
  - Mark (2): total emptying of the pump.
- **Oil capacity of pumps**
  - GAMA 101/130 = 1.40 litres.
  - GAMA 160 = 1.70 litres.
  - BP 280 = 1.90 litres.

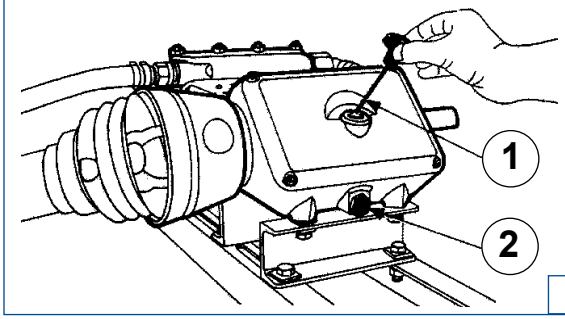
**Oil SAE 30 BERTHOUD reference 769.286 the 2 litres can.**

## TRANSMISSION WITH CARDAN SHAFTS

- With each use: GREASER + TUBES

**ELF EPEXA 2** or **MOBILUX EP2 grease.**

**Drain all campaigns.**



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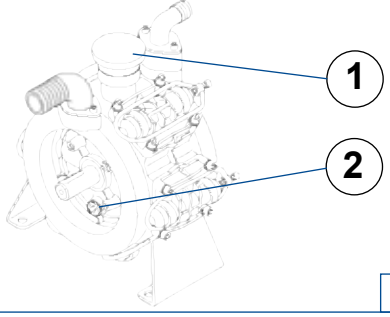

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# MAINTENANCE DIAGRAMS


**Hydraulic circuit (manual suction)** — **D.P. Tronic ..... / D.P. Control ..... / Autoregulator..... — pages 56/57**

**Hydraulic circuit (suction, tank rinsing, motorized boom rinsing) D.P. Tronic..... / D.P. Control ..... — pages 58/59**

# HYDRAULIC CIRCUIT of an ELYTE MACHINE with ELECTRICAL FLAP VALVES (V.E.C.), GAMA PUMP, RINSING TANK, HOPPER

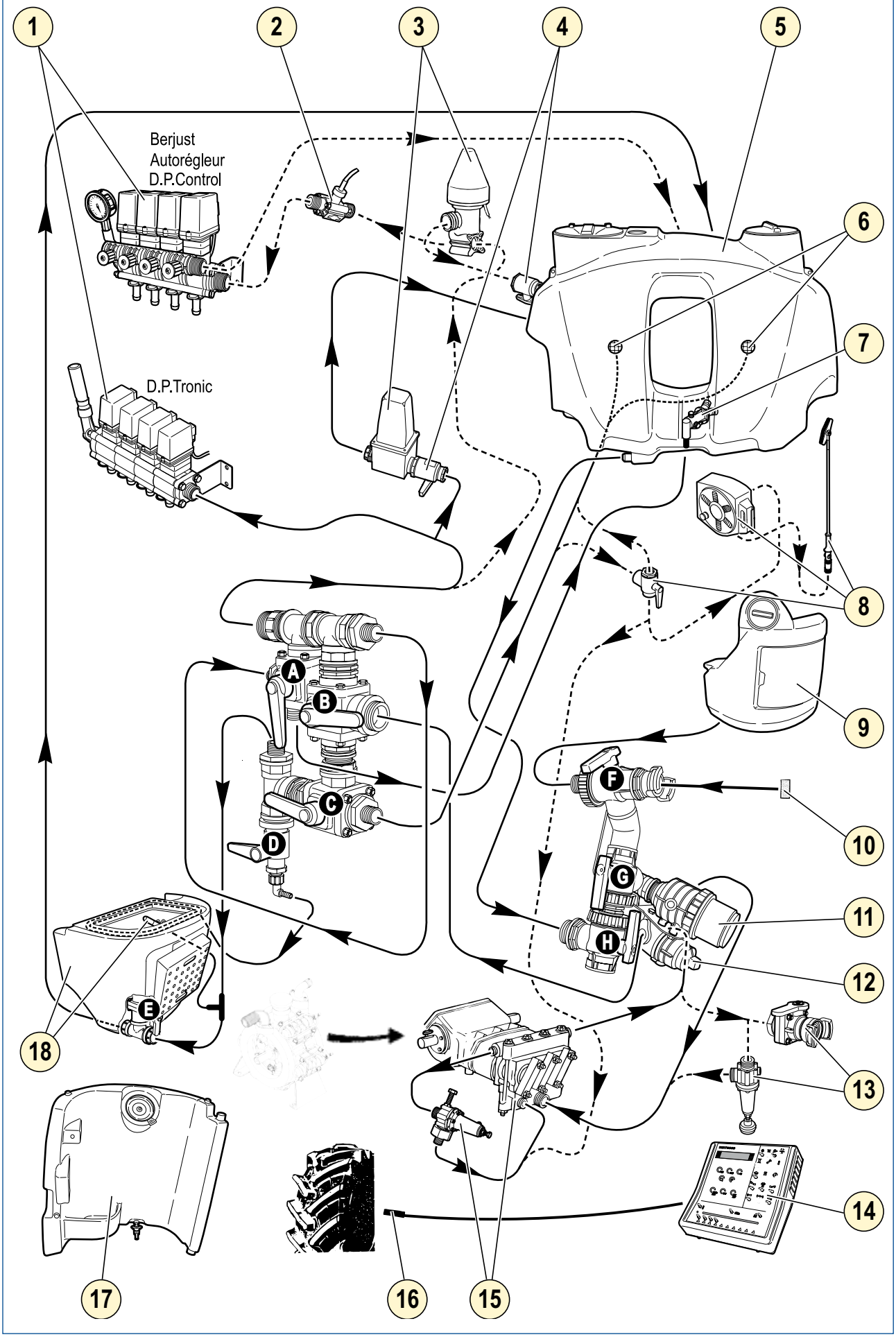
# MANUAL SUCTION

## DESCRIPTION OF BENCHMARKS
**from page 57**

**1** - Block 3 or 4 V.E.C. (electric flap valves)
**2** - Flow meter.
**3** - Regulation valve.
**4** - 2-way valve to cut off the regulator valve tank return.
**5** - Main tank of 1000, 1200 or 1600 litres.
6 - Rinsing balls from the main tank.
**7** - Hydromax.
**8** - Valve, winder and brush for external washing (option).
**9** - Rinsing tank of 125 or 165 litres and storage box.
**10** - Filling pipe with strainer.
11 - Suction filter.
12 - Discharge filter.
**13** - Transfer valve with safety valve (option).
**14** - Control unit.
**15** - Gama pump with safety valve or pump BP 280.
**16** - Speed sensor on the tractor wheel.
**17** - 15 litre handwash tank.
**18** - Hopper for incorporation of trace elements with canister rinse.

Ⓐ Ⓑ Ⓒ Ⓓ Ⓦ Ⓕ Ⓖ Ⓗ - Function valves.

## MANUAL SUCTION



# HYDRAULIC CIRCUIT of an ELYTE MACHINE with ELECTRICAL FLAP VALVES (V.E.C.), GAMA PUMP, RINSING TANK, HOPPER

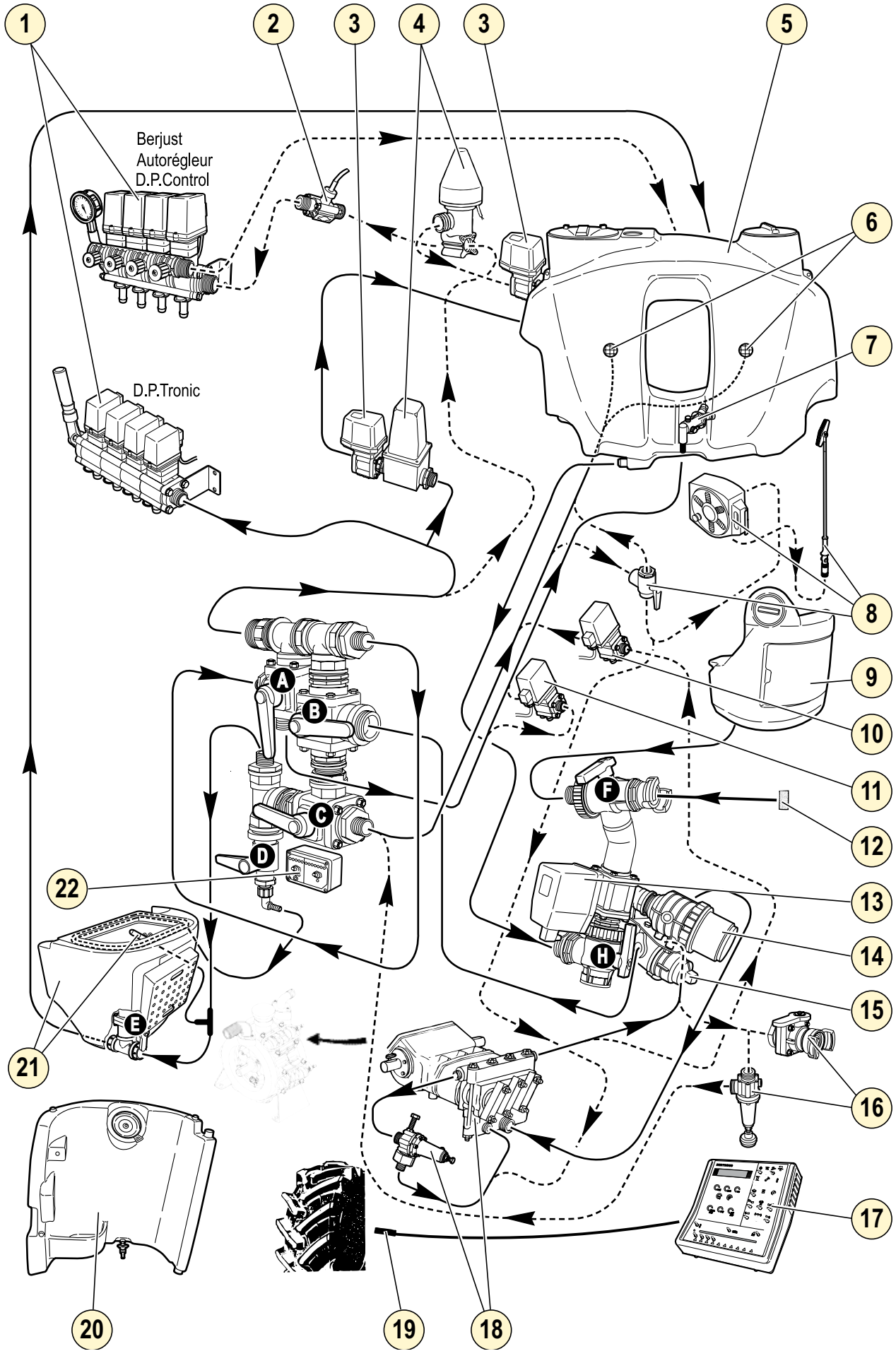
# SUCTION, TANK RINSING, MOTORIZED BOOM RINSING

## DESCRIPTION OF BENCHMARKS
**from page 59**

**1** - Block 3 or 4 V.E.C. (electric flap valves)
**2** - Flow meter.
**3** - 2-way valve to cut off the regulator valve tank return.
**4** - Regulation valve.
**5** - Main tank of 1000, 1200 or 1600 litres.
6 - Rinsing balls from the main tank.
**7** - Hydromax.
**8** - Valve, winder and brush for external washing (option).
**9** - Rinsing tank of 125 or 165 litres and storage box.
**10** - Electric tank rinse control valve.
**11** - Electric agitation control valve.
**12** - Filling pipe with strainer.
**13** - Electric suction control valve.
**14** - Suction filter.
**15** - Discharge filter.
**16** - Transfer valve with safety valve (option).
**17** - Control unit.
**18** - Gama pump with safety valve or pump BP 280.
**19** - Speed sensor on the tractor wheel.
**20** - 15 litre handwash tank.
**21** - Hopper for incorporation of trace elements with canister rinse.
**22** - Motorized suction control unit.

Ⓐ Ⓑ Ⓒ Ⓓ Ⓦ Ⓕ Ⓗ - Function valves.

## SUCTION, TANK RINSING, MOTORIZED BOOM RINSING



# REMINDER OF YOUR PARAMETERS

**As a reminder of the values programmed, the brand of the nozzles and their colours, complete the boxes below.**

**NOZZLE 1**

**nozzle:**

**NOZZLE 2**

**nozzle:**

**NOZZLE 3**

**nozzle:**

**NOZZLE 4**

**nozzle:**

**NOZZLE 5**

**nozzle:**

**NOTE:** At the beginning of each treatment season, check the real flows from your nozzles.

**Effective circumference length of the wheel:** _____ (in metres, from 1 to 6.50 m plus the 0)

**Number of pulses:** _____ (per revolution of wheels, from 1 to 32 pulses)

**Number of pulses:** _____ (per litre, 50 to 9999 pulses)

# NOTES ON SPRAYING CARRIED OUT DURING THE SEASON

| Date | Plot | Treatment | Product | Dose | Volume l/ha | Nozzle | Pressure | Speed km/hour |
|---|---|---|---|---|---|---|---|---|
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*Due to the constant improvements we are making to our production,*
*we reserve the right to modify the design or specifications without prior notice.*

09/2013 - 82473G_Elyte_EN.indd

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