

## WARRANTY

### (ART. 6 GENERAL TERMS OF SALE)

The dump body is covered by a 12 (twelve) month warranty starting from the date of delivery of the vehicle. Any repairs or maintenance interventions that become necessary during the warranty period must be carried out exclusively at our plant or at the premises of one of our authorised service centres. The warranty is limited to the replacement of parts that develop faults due to defective workmanship or materials, and the relative labour costs. Inspection of defective parts or identification of possible causes of faults must be carried out exclusively at the headquarters of Cantoni & C. or on the premises of its authorised service centres.

The Warranty does not cover parts subject to normal wear and tear and will lapse if the dump body is modified, tampered with, or disassembled, even partially, by non-authorised repair shops. The Warranty will also be automatically invalidated if the dump body is loaded in excess of the rated loading capacity specified in the vehicle's logbook.

The Warranty does not cover faults caused by incorrect use, negligence, or due to failure to perform routine servicing. The Warranty does not cover the cost of transporting the vehicle to our plant or to our authorised service centres, nor does it cover any losses arising through unavailability of the vehicle or any whatsoever other costs and expenses. Any replaced parts that are not covered by the terms of the Warranty will be charged on the basis of the Price List in force at the time the work is carried out.

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This Certificate must be rigorously retained together with the other vehicle documents and produced at the time of any warranty claims.

# USER AND MAINTENANCE HANDBOOK

ORIGINAL INSTRUCTION - revision: 05    Edition: September 2010

*Tipper structure JOLLY type*



**READ THE CONTENTS OF THIS HANDBOOK  
CAREFULLY BEFORE USING THE DUMP TRUCK !**



## INTRODUCTION

This user and maintenance handbook contains all the information needed to get the best use out of your CANTONI dump truck in conditions of the maximum safety.

The handbook is addressed to vehicle operators and the persons responsible for maintenance and repair work.

Before using the dump truck you must read the information in this manual carefully in order to gain familiarity with the exact operation of the equipment and the relative manoeuvring procedures.

Incorrect manoeuvres or insufficient maintenance can cause serious damage to the dump truck and impair the overall level of safety.

This handbook must be kept in a safe place and placed at the disposal of the operator at all times. The information in this handbook defines the Manufacturer's Conditions of Intended Use.

This handbook reflects the current state of the art in the construction of the dump body. The manufacturer reserves the right to make improvements whenever it deems appropriate with no obligation of prior notification. The dump truck you have purchased may incorporate updated features with respect to the features described in the latest revision of this manual.

**CANTONI & C** S.p.A.

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ITALIA

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**1. DUMP BODY**

**1.1 Identification**

1.1.1 The dump body is identified in terms of Type and Serial Number as punched on the dataplate shown below, complete with the Year of Manufacture, Technical Payload, and chassis number of the vehicle on which the dump body is installed.

1.1.2 The dataplate, which complies with the requirements of the EC "Machinery Directive", bears the CE marking. The dataplate is located on the outside of the left-hand subframe side member, in the forward section.



1.1.3 Dump bodies installed on vehicles registered in Italy are identified also by a dataplate complete with: Type and Serial number of the dump body, Type and chassis number of the vehicle and, when specified, Type approval number of the converted vehicle. The dataplate is located on the outside of the right-hand subframe side member, in the forward section.

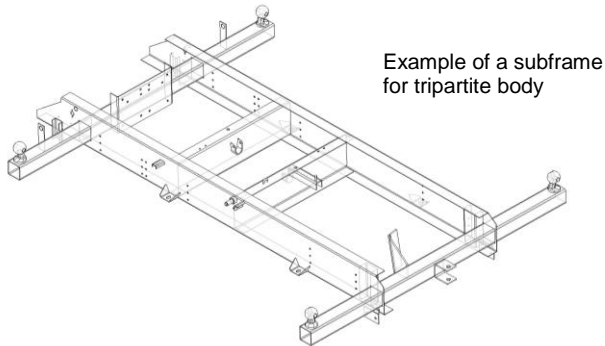


## 1.2. Description

The dump body is made up of the following units: :

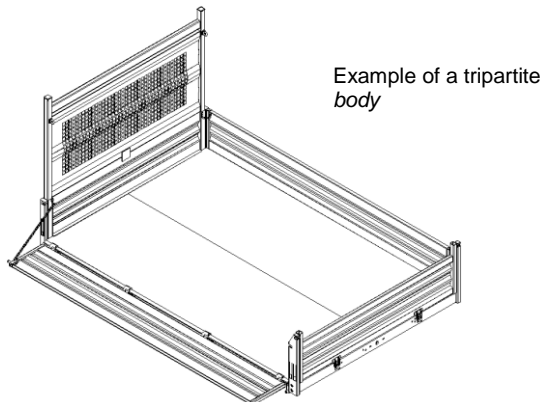
### 1.2.1 Subframe:

The subframe is composed of welded steel profiles; its function is to reinforce the chassis of the vehicle to which it is bolted. The subframe accommodates the lifting gear and relative hydraulic system.



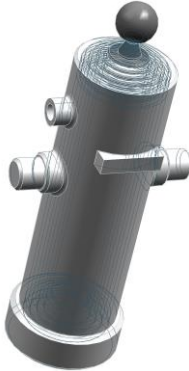
### 1.2.2 Load body:

The body is composed of a load floor complete with side boards and a tailgate of various different types in accordance with the specific type of dump truck. The load-bearing frame is fabricated from pressed steel profiles. The panels making up the load floor and the sides are in different gauges and materials in relation to the specific type of use for which the dump truck is designed.



**Lifting system:**

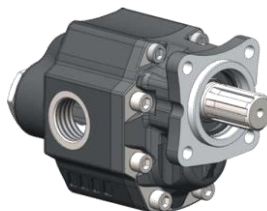
The lifting system is composed of a telescopic cylinder that tips the dump body, which is articulated on specially designed spherical or cylindrical pivots.

**1.2.3 The hydraulic system, made up of the following parts:**

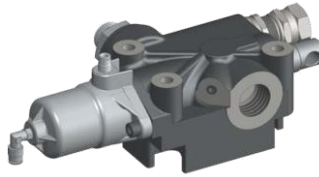
- *Power take off:* the power take off is fitted to the vehicle gearbox, which provides the necessary drive. The power take off is engaged by a pneumatically-operated clutch controlled from the vehicle cab.



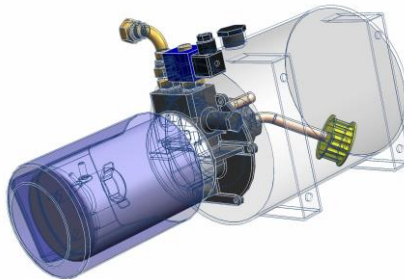
- *Pump:* the pump is driven by the power take off to which it is mounted by means of a flange coupling. The pump draws in oil from the hydraulic tank and delivers it under pressure to the directional control valve.



- *Directional control valve:* the directional control valve distributes the pressurised oil to the services in accordance with the required operations of lifting or lowering of the load body. The directional control valve is composed of an open-centre spool valve, a load-holding check valve that serves to hold the body in its raised position, and a *pressure relief valve* that protects the various parts of the system from possible overpressure conditions.



- *Power unit:* in alternative to the mechanical plant above mentioned, is actuated by a tele-control located in the cab.



- *Piping:* suction (from tank to pump);  
delivery (from pump to directional control valve);  
delivery/return (from directional control valve to lift cylinder);  
delivery/return (from power unit to lift cylinder).



1.2.4 **Controls and indications:** the operating controls for the dump truck, engagement of the power takeoff, and lifting and lowering of the load body, are installed in the operator cab in such a way as to eliminate the risk of inadvertent activation. Engagement of the power take off is signalled by the illumination of a warning light in the cab, while the load body raised condition is signalled by an acoustic sounder that is audible in the immediate area of operation of the dump truck. If necessary, the **emergency stop function** can be activated by stopping the vehicle engine.



### 1.3. Essential safety requirements (ESR)

1.3.1 The dump body is constructed in compliance with the "Machinery Directive" 2006/42/EC and subsequent amendments.

1.3.2 The equipment complies with the following Italian standards: UNI 10691, UNI 10692, UNI 10693, UNI 10694, UNI 10695, which regulate the risk analysis of the dump truck and determine the relative ESR.

#### 1.3.3 *Construction criteria*

- The members of the load-bearing structure are designed in accordance with the rules of calculation issued by the Motorizzazione Civile Italiana (Italian vehicles authority), to ensure adequate resistance and safety in relation to the intended Conditions of Use.
- The dump body and relative systems are installed on the vehicle in accordance with best workmanship practices and in strict compliance with the instructions of the vehicle manufacturer.
- The installation does not affect the value of the sound level detected by EC in the process of approval of the vehicle cab.
- The dump body controls, featuring "maintained action" type operation, are safe, reliable, and designed in accordance with basic logic criteria. Controls are clearly visible and marked in such a way as to assure coherent, practical, and safe manoeuvres.
- The high pressure fluid pipelines are designed to withstand the calculated stresses with an ample safety margin in conditions of the maximum permissible load as specified in the project.
- The hydraulic, pneumatic, and electrical systems are fully tested and checked.
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#### 1.3.4 Safety devices


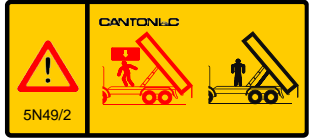
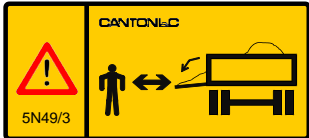
- A pressure relief valve incorporated in the directional control valve or in the power unit serves to safeguard the various elements of the hydraulic system from excess stress caused by overpressure.
- A 175 A electrical fuse protects the electrical system of the power unit.
- A stroke limiting device determines the maximum tipping angle of the body.
- In the standard version the tailgate is released automatically when the body starts tipping; the latch engages only with the body in its rest position.
- These structures are equipped with removable journals that link the pivots of the tipping movement and determine rear or side lifting of the

body in an unequivocal manner, preventing lifting in the direction of the cab and providing the facility to inhibit body lifting.

- All points of the dump body requiring periodic servicing are easily accessible. The equipment is supplied with a safety prop to support the raised body during maintenance work.  
(See Maintenance Prescriptions, point 4.1.3).
- Residual risks are highlighted by a series of dedicated warning plates as specified on the next page.

### 1.3.5 Guarantee of risk-free operation

- Observation of the instructions given in this handbook, in particular, observance of the Prescriptions for Use and Prescriptions for Servicing given in the following chapters.
- Warning plates for residual risks:

	<p>Do not occupy work area during tipping operations.</p> <p>Do not insert any part of your body in the area under the dump body.</p>
	<p>Always fit the safety prop during maintenance work with the load body in its raised position.</p>
	<p>Do not occupy the load dumping area.</p> <p>Adopt the maximum caution during the opening of the side board.</p>

## OPERATING PRESCRIPTIONS – Conditions of use

### 2.1 Configuration of the vehicle

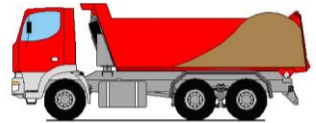
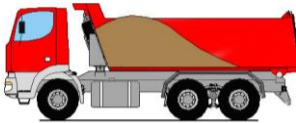
- 2.1.1 Before loading/unloading the body take steps to ensure:
- your personal safety;
  - that you have an adequate view of the working area (construction site) such as to ensure the absence of persons, animals, or property exposed to the risk posed by projected objects and material;
  - that the lifting movement of the load body can be performed without encountering any obstructions such as scaffolding, bridges, balconies, and – in particular – overhead electrical power lines;
  - that the vehicle is at a standstill with the gear lever set to neutral;
  - that the vehicle's parking brake is applied;
- 2.1.2 While tipping the body, in normal circumstances do not exceed an engine speed of 1000 rpm;
- 2.1.3 After dumping the material and before pulling away with the vehicle, check that:
- the dumped material is not in a position where it may obstruct the return of the load body to its rest position;
  - the power take off has been disengaged (a warning light illuminates in the cab when the power take off is engaged);
  - the load body has been fully lowered (the load body raised condition is signalled by an audible warning signal);
- 2.1.4 To avoid the risk of damaging the lift cylinder, the body must not be left in the raised position – even when the vehicle is at a standstill.



**IMPROPER USE OF THE DUMP BODY IS STRICTLY PROHIBITED !**

## 2.2 Unloading conditions

- 2.2.1 The weight of the load must never exceed the Payload value specified in the vehicle logbook. *(Overloads will compromise the correct operation of the dump body and increase the risk of accidents and the dangers associated with road circulation of the vehicle).*
- 2.2.2 Ensure the side boards and tailgate are closed.
- 2.2.3 When loading the body, bulk material must be dropped into the body from the minimum possible height.
- 2.2.4 Heavy materials such as boulders or demolition blocks must be placed carefully on the load floor; never allow heavy blocks or boulders to fall into the body.
- 2.2.5 Distribute the payload uniformly in the body both lengthwise and crosswise.



**DO NOT OVERLOAD THE VEHICLE !**



**ENSURE THE SIDE BOARDS AND TAILGATE ARE CLOSED !**

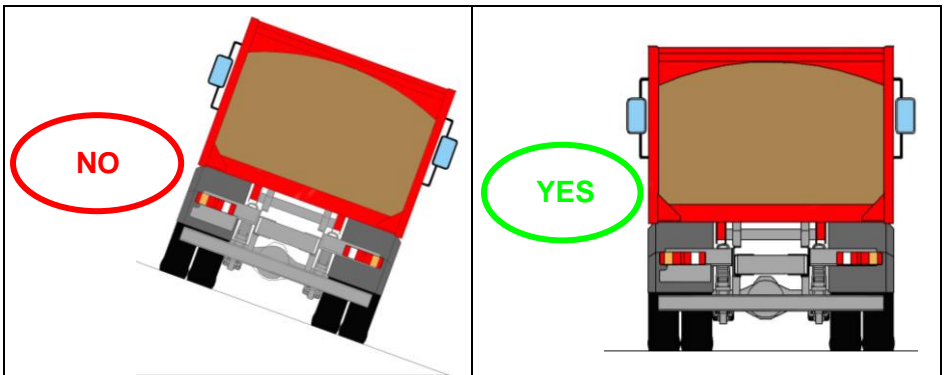


**LOAD THE VEHICLE CORRECTILY !**

## 2.3 Unloading conditions

2.3.1 Before dumping the load, check the condition of the ground:

- the vehicle must be standing on stable terrain that does not allow the tyres to become embedded;
- the tyres must be in contact with a flat area of ground;
- when dumping loads on uneven terrain make sure the body is horizontal before proceeding.



2.3.2 Before tipping and at the start of the tipping movement make sure that the material does not adhere to the inside walls of the body, particularly with:

- soil with high clay contents (agricultural soil);
- sand with high contents of binder material;
- frozen material due to low ambient temperatures.

2.3.3 It is extremely hazardous to agitate the load body in the attempt to facilitate unloading of the material.

2.3.4 Do not tip the load body in positions exposed to strong winds.



**DUMP LOADS EXCLUSIVELY ON FLAT, STABLE GROUND!**



**SUPERVISE CORRECT EMPTYING OF THE BODY DURING LOAD DUMPING**



**DO NOT AGITATE THE LOAD BODY DURING TIPPING!**

### **3 OPERATING PRESCRIPTIONS – Manoeuvring instructions**

#### **3.1 Opening of tailgate or side boards – Position of the pivot pins**

- 3.1.1 In the standard configuration the tailgate is equipped with an automatic release device that is activated as soon as the body starts to tip.
- 3.1.2 In the standard version the side boards are opened manually by means of the specific handle located at the end of the body.
- 3.1.3 Before starting the tipping movement, check the following:
- pins correctly inserted in the pivot points for tilting, thereby ensuring that the body lifts on the required side,
  - that the tailgate or side board on the side towards which the body is to be tipped has been released.



**ALWAYS CHECK THAT THE SIDE BOARDS / TAILGATE OPEN CORRECTLY!**



**OPEN THE SIDE BOARDS, KEEPING ALL PARTS OF YOUR BODY WELL CLEAR OF THE AREA IN WHICH THE LOAD WILL BE DUMPED!**



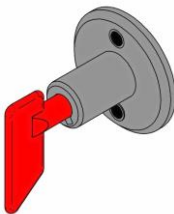
**MAKE SURE THE PIVOT PINS ARE CORRECTLY POSITIONED !**

### 3.2. Body tipping controls

**THE CONTROLS** FOR THE MECHANICAL ENGAGEMENT (WITH PTO) ARE LOCATED ON THE DASHBOARD IN THE CAB IN POSITION CLEARLY VISIBLE AND EASILY ACCESSIBLE.



**THE KEYBOARD** FOR THE ELECTRICAL ENGAGEMENT IS LOCATED IN THE CAB, USUALLY BEHIND THE DRIVING SEAT, TO PREVENT ACCINTAL CONTACT.



THE BATTERY SWITCHES (RED KEY LOCATED ON THE FRONT PART OF THE LEFT SIDE MEMBER OF THE AUXILIARY CHASSIS) MUST BE INSERTED ONLY DURING THE TIPPING

**N.B.** In the case of controls provided by the vehicle manufacturer, consult the "**Vehicle Owner's Handbook**".



If it becomes necessary to perform an Emergency Stop, switch off the vehicle engine.

### 3.1.1 Lifting

#### **Lifting with mechanical plant**

- With the vehicle engine running (neutral gear selected) press the clutch pedal fully down and wait a few seconds to allow all gears currently spinning in the gearbox to coast to a stop.
- For engage the Power Take-Off, push the button with indicated a symbol in the shape of gear.
- *Engagement of the Power Take-Off is confirmed by illumination of a red indicator light.*
- Release the clutch pedal.
- Press the button indicated with an arrow pointing upwards. *Begins to tip the bucket until reaching the maximum lifting, determined by the end of stroke device. The tailgate, in the standard version, it opens automatically at the beginning of the lift.*
- Release the **button**, it will automatically return to the **Stop** position.
- *The body remains lifted.*
- During the step of tipping, releasing the **button**, the body stops the lifting.

#### **Lifting with electrical plant**

- Press the button of the **keyboard** with the arrow pointing upwards.

### 3.1.1 Lowering

- Press the button indicated with an arrow pointing downward. *The body starting lowering.*  
During lowering, releasing the **button**, it stops running, and the body remains in the required position.  
*During the entire duration of the tipping phase an **Audible Warning** will sound warn that the body is **raised**.*



**MAKE SURE THE SIDE BOARDS / TAILGATE ARE CORRECTLY CLOSED!**



**RESTART ONLY WHEN THE BODY IS IN ITS REST POSITION !**

Note: The aesthetic aspect of the controls in the cab may be different from that reported in previous drawings. The operating logic remains the same.



## 4 MAINTENANCE PRESCRIPTIONS

Use of the equipment in accordance with the designated Prescriptions for Use together with properly executed maintenance constitute the best possible guarantee of lasting efficiency of the dump truck and the minimum possible need for repairs.

To facilitate maintenance operations, all parts subject to adjustment, lubrication, or cleaning can be easily accessed in such a way as to allow the operator to work with the minimum fatigue and in conditions of safety.

### 4.1 Preventive maintenance

- 4.1.1 Observe general accident prevention regulations. Italian Law 626 / 94
- 4.1.2 Work only when the vehicle is parked with the parking brake applied and disconnected from sources of power (switch off the ignition and, if necessary, open the battery disconnect switch).
- 4.1.3 When work must be performed with the body in its raised position, it is **absolutely mandatory to use the SAFETY PROP** which is normally stowed in its housing under the body. The prop is pivoted to the subframe and identified by a specific warning plate.
- 4.1.4 Even though the prop must be used, it is still strictly prohibited to work under the body when this latter is fully or partially loaded.
- 4.1.5 Compile the register of inspections and repairs (see the attached table II).

### 4.2 Washing and Greasing

- 4.2.1 Wash the dump body every month, carefully removing all dust and remains of materials that could otherwise attack the paintwork and compromise the proper operation of the various devices.
- 4.2.2 Wash using cold or lukewarm water. Do not wash any parts of the system with high pressure washers.
- 4.2.3 Grease parts in contact with each other and the pivots by way of the dedicated grease nipples (if present). Specifically:
  - Supports of the lift cylinder and cradle.
  - Tipping pivots.
  - Side board and tailgate hinges and latches.
  - Return springs
  - Winches, safety prop, and other accessories supplied with the dump body.
- 4.2.4 Grease the parts once a month and, in any event, after each time the dump body has been washed and following work performed in demanding conditions with particularly aggressive and/or abrasive

materials such as, for example, very high concentrations of dust, humidity, substances with high salt contents.

- 4.2.5 Use Grease with a high pour point ( $\geq 180^{\circ}\text{C}$ ) featuring elevated resistance to mechanical stress. Do not use grease containing acid, naphtha, or solid particulate.

### 4.3 Checking the Hydraulic Oil

- 4.3.1 Once a week check the hydraulic system for possible external or internal leakage of oil in the Power Take-Off – pump assemblies.
- 4.3.2 Each month (or after 200 working hours) check for possible leakage of oil from the unions of the hydraulic system, which may have worked loose due to vibration generated when the vehicle is travelling. If necessary, tighten ringnuts, hose clamps, and screws.
- 4.3.3 With the same frequency check for leakage from between the extensions of the lift cylinder due to wear of the relative seals. If you notice signs of leakage take the vehicle to an authorised service centre.
- 4.3.4 Check also that the oil tank filler plug vent line is not obstructed and that the oil level in the tank is correct (see point 1.2.4. under the heading Oil tank).
- 4.3.5 If necessary, top up the oil or change the oil if the characteristics of the original oil contents have altered due to ageing. Use Hydraulic Oil viscosity class 32/46 (ISO 3448) and viscosity index 106/110 (ASTM D2270).



**WARNING! DO NOT DISPERSE SPENT OIL IN THE ENVIRONMENT!**



#### 4.4 Torquing of Threaded Fasteners

Once a month check the torque of the Subframe to Vehicle chassis fixing bolts.

##### 4.4.1 Fixing:

Braket type

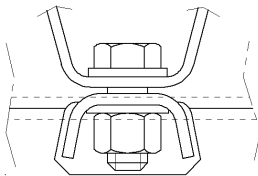
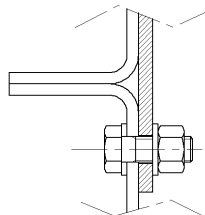


Plate type



BOLT DIAMETER (mm)	TIGHTENING TORQUE (Nm)
ø 10	55
ø 12	100

##### 4.4.2 In the event of replacement use fasteners with resistance class 10.9

#### 4.4 Functions of controls and safety devices

Check the following aspects during normal use of the dump body and at least one a month:

- 4.4.1 That the indicator symbols and warning plates are present and legible.
- 4.4.2 That the dump truck controls are working correctly, checking also that there are no leaks from the pneumatic circuit.
- 4.4.3 That the indicator light illuminates to signal engagement of the power takeoff.
- 4.4.4 Efficiency of the sounder signaling the "Body raised" condition
- 4.4.5 That the safety cables are not frayed and that the relative attachment points are in good condition.
- 4.4.6 The efficiency of the stroke limiting device. On structures incorporating this solution, check the cable as per the previous point.
- 4.4.7 Functionality of the devices for insertion of the pivot pins to ensure the correct direction of tipping.
- 4.4.8 Perfect condition and functionality of the check valve and the pressure relief valve. **Do not tamper with the parts!**
- 4.4.9 If necessary, have the system checked by an authorised repair shop.

BEFORE WORKING UNDER THE RAISED LOAD BODY:



MAKE SURE THE BODY IS COMPLETELY EMPTY !



INSTALL THE SAFETY PROP !

## 4.5 Condition of wear of the dump body parts

Each month check wear of the dump body parts. Specifically:

- 4.6.1 The lift cylinder must be free of signs of scoring on the extensions. Clean the extensions to remove all traces of dust etc.
- 4.6.2 The tipping pivots must be free of play and the relative coupling pins must be in perfect condition.
- 4.6.3 The hinges and opening devices of the side boards and tailgate must not have any excessively worn parts or show any signs of abrasion. Opening of the side boards / tailgate must not result in mechanical interference with the load floor or with the supporting posts.
- 4.6.4 The tailgate opening device and the engagement latch in particular must show no signs of impact damage.
- 4.6.5 The load bearing parts of the structure must be free of fatigue cracks, particularly in the welds on the side members, cross-members, tipping cradle, pivots, brackets, posts, and the borders of the side boards.
- 4.6.6 Likewise, check the condition of the paintwork, paying special attention to any spots of corrosion due to the formation of rust.



**USE EXCLUSIVELY GENUINE ORIGINAL CANTONI SPARE PARTS !**

**5 PROBLEM OF USE**

Table I - Anomalies of operation and use

5.1 Problem	5.2 Cause	5.3. Corrective action
<p><b>The body fails to lift – even when empty</b></p>	Power Take-Off not engaged	Engage Power Take-Off
	Power Take-Off faulty	Renew power Take-Off
	Leakage from pneumatic circuit	Tighten all air line unions
	Insufficient oil in hydraulic tank	Replenish (see point 1.2.4 under the heading Oil tank).
	Jamming of the directional control valve	Adjust the fixing screws (tightening torque: 20 Nm)
<p><b>During lowering of the body oil spatter is projected from the hydraulic oil tank filler plug</b></p>	Hydraulic oil tank too full	Adjust the oil level



**REPAIRS MUST BE CARRIED OUT ONLY BY AUTHORISED REPAIR SHOPS !**

5.1 Problem	5.2 Cause	5.3. Corrective action
"PTO engaged" indicator light fails to illuminate	Lamp burnt out or faulty switch/electrical system.	Renew lamp or switch. Check wiring
"Body raised" acoustic warning is not audible	Faulty sounder or switch.	Renew sounder or switch.
	No switch contact	Adjust position of switch
When loaded the body only lifts partially	Body overloaded or loaded excessively at the front	Load the body correctly (See point 2.1)
	Vehicle parked on excess downward gradient	Move the vehicle to level ground
	Insufficient oil in hydraulic tank	Replenish
	Pump capacity reduced due to wear	Renew pump
Body fails to remain in its lifted position when the joystick is released	Internal oil leakage in check valve or lowering valve of directional control valve	Clean the valves or renew them if necessary.



THE PRESSURE RELIEF VALVE MUST BE CHECKED EXCLUSIVELY BY AUTHORISED PERSONNEL !

### Register of inspections and repairs

Table II Inspections and repairs

Date	Subject	Result