



# **Translation of original Operating Instructions**

## **Sweeper Combi Clean Series 2350**

### **2350.003**

**From equipment I.D. No. :**

**Status :      January 2010**

**2350 99 01**



# EC DECLARATION OF CONFORMITY

We

**Wiedenmann GmbH  
Am Bahnhof  
89192 Rammingen**

declare under our sole responsibility that the product

**Sweeper Combi Clean  
Typ 2352 / 2353 / 2354**

to which this declaration refers, corresponds with the relevant basic safety and health requirements of the machinery directive 2006/42/EC.

<b>Rammingen, the 26.04.2010</b>	<b>Horst Wiedenmann</b>
(Place and date of issue)	<b>Managing Partner</b>
	(Name, function and signature of authorised person)

<b>Rammingen, the 26.04.2010</b>	<b>Peter Rischar</b>
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	(Name, function and signature of authorised person)

**NOTE: The declaration of conformity is no longer valid if changes are made to the machine that have not been agreed with the manufacturer.**



## Declaration of conformity

We

**Wiedenmann GmbH  
Am Bahnhof  
89192 Rammingen**

hereby declare that the product

**Sweeper Combi Clean  
Typ 2352 / 2353 / 2354**

referred to by this declaration complies with the requirements of  
Machinery Directive 2006/42/EC.

<b>Rammingen, the 26.04.2010</b>	<b>Karl Wiedenmann</b>
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# Preface

**READ THESE OPERATING INSTRUCTIONS CAREFULLY** to familiarise yourself with the correct way to operate and service your machine, and to prevent personal injury or damage to the machine. These operating instructions and the adhesive safety signs on your machine can also be obtained in other languages (your dealer can order these for you).

**THESE OPERATING INSTRUCTIONS ARE** a permanent part of your machine and should be handed over to the new owner if the machine is sold.

**MEASUREMENTS** in these operating instructions are given in the metric system. Only use suitable parts and screws. Different wrenches are required for metric and inch screws.

**THE DESIGNATIONS "RIGHT" AND "LEFT"** refer to the forward driving direction of the mounted equipment.

**ENTER THE PRODUCT IDENTIFICATION NUMBERS** in the appropriate "Technical data" or "Product - Identification Number" sections. Please ensure that all figures are accurately entered. These numbers can be of invaluable assistance for tracing the machine should it be stolen. Your dealer also needs these numbers when you order spare parts. We recommend that you additionally file these identification numbers in a secure place away from the machine.

**BEFORE DELIVERY OF THIS MACHINE**, your dealer performed a pre-delivery inspection to ensure optimal performance.

**THIS DEVICE IS DESIGNED EXCLUSIVELY** for commercial use and regular application in the maintenance of greens and parks of snow and dirt removal in the maintenance of greens and parks ("SPECIFIED USE"). Usage for any other purpose beyond this is considered as contrary to the intended use. The manufacturer accepts no liability for damage or injury resulting from this improper use. These risks are borne solely by the user. Compliance with and strict adherence to the operating, maintenance and repair conditions as specified by the manufacturer also form essential elements of the intended usage.

**FORESEEABLE INCORRECT USE/MISUSE.** It is not permitted to use the attached device to transport persons or things.

**THIS MACHINE MUST ONLY BE** operated, maintained and repaired by persons familiar with all its particular characteristics and acquainted with the relevant safety regulations. The relevant accident prevention regulations, all other generally recognised safety-related, occupational medicine and road traffic regulations must be adhered to. Any modifications carried out to this machine without the express approval of the manufacturer excludes the manufacturer of all liability for any resulting damage.

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# 1.0. Safety

## Recognize safety information

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

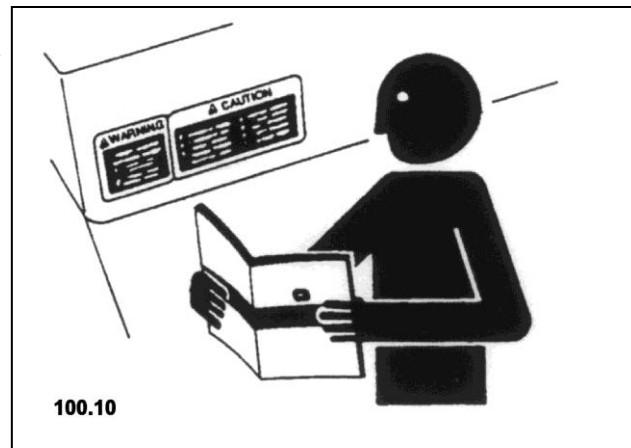
Follow recommended precautions and safe operating practices.



## Follow safety instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your dealer.

Learn how to operate the machine and to use controls properly. Do not let anyone operate without instruction.



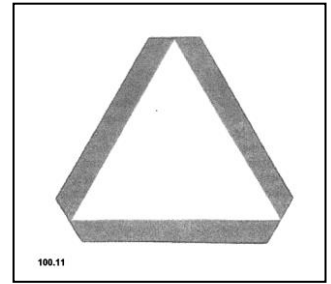
Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your dealer.

# 1.0. Safety

## Observe road traffic regulations

Always observe local road traffic regulations when using public roads.



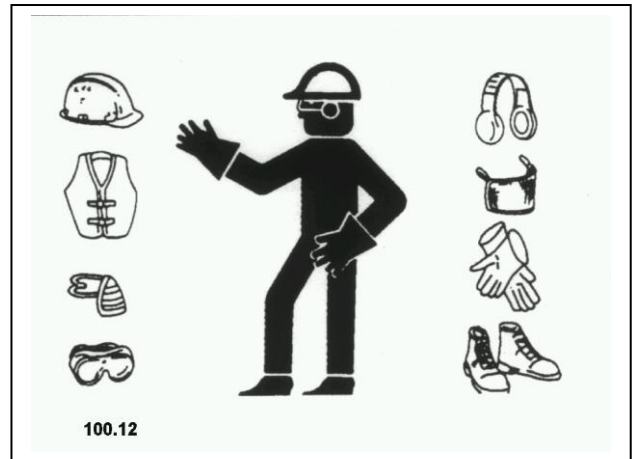
## Wear protective clothing

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safety requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



## Stay clear of rotating drivelines

Entanglement in rotating driveline can cause serious injury or death.

Keep tractor master shield and driveline shields in place at all times. Make sure rotating shields turn freely.

Wear close fitting clothing. Stop the engine and be sure PTO driveline is stopped before making adjustments, connections, or cleaning out PTO driven equipment.



# 1.0. Safety

## Guard and shields

Keep guards and shields in place all the times. Ensure that they are in good condition and installed correctly.

Always disengage the driveline, shut off engine and remove key before removing any guards or shields.

Keep hands, feet and clothing away from moving parts

## Avoid high - pressure fluids

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.



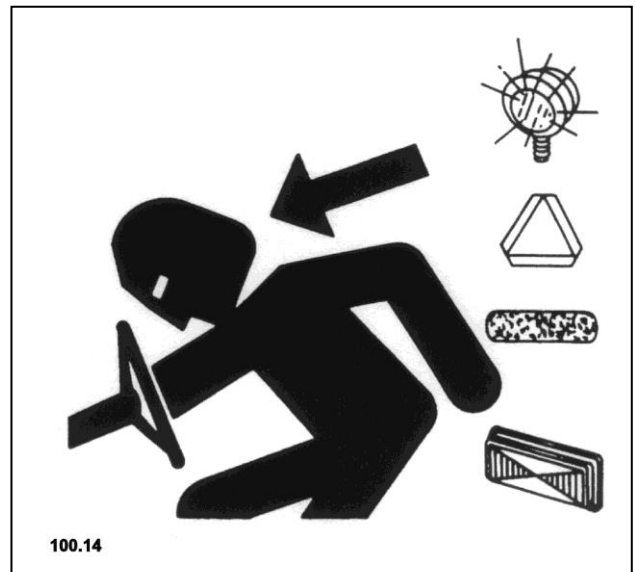


# 1.0. Safety

## .Use safety lights and devices

Prevent collisions between other road users, slow moving tractors with attachments or towed equipment, and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use hand signals or turn signal lights.

Use headlights, flashing warning lights, and turn signals day and night. Follow local regulations for equipment lighting and marking. Keep lighting and marking visible and in good working order. Replace or repair lighting and marking that has been damaged or lost. An implement safety lighting kit is available from your dealer.



## Avoid heating near pressurized fluid lines

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.



## 1.0. Safety

### Remove paint before welding or heating

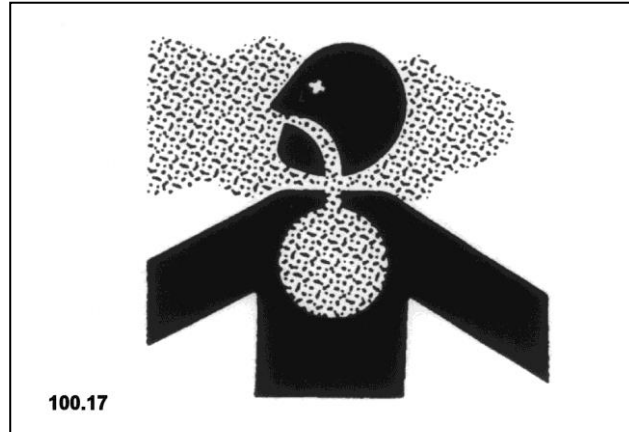
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



# 1.0. Safety

## 1.1. Safety Decals

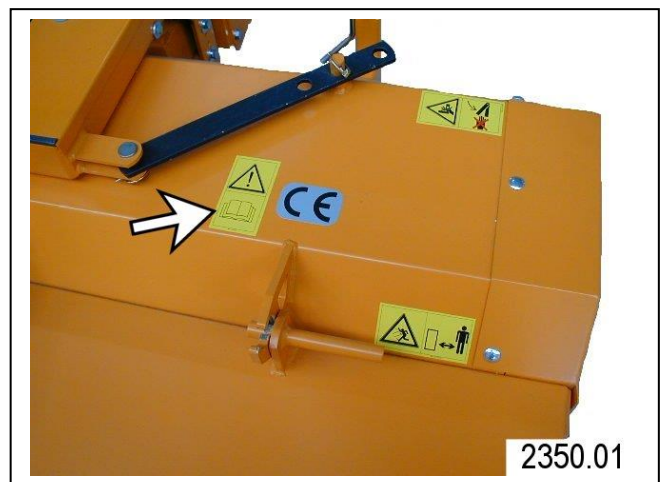
### Pictorial safety signs

At several important places of this machine safety signs are affixed intended to signify potential danger. The hazard is identified by a pictorial in a warning triangle. An adjacent pictorial provides information how to avoid personal injury. These safety signs, their placement on the machine and a brief explanatory text are shown below.



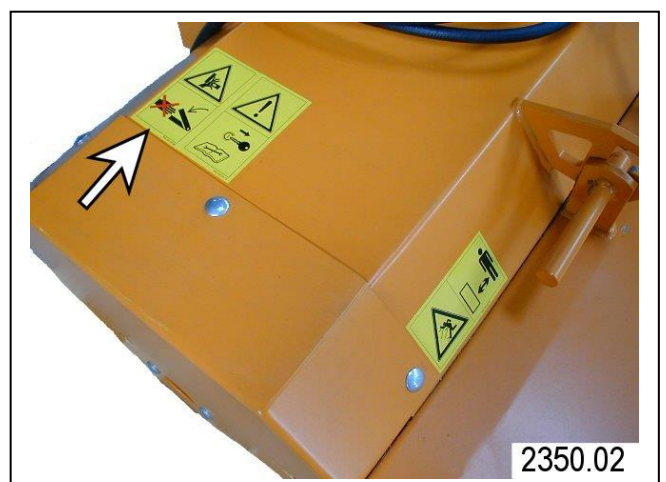
### Operator' manual

This operator's manual contains all important information necessary for safe machine operation. Carefully observe all safety rules to avoid accidents.



### Protectors

Never reach into areas of crushing hazard as long as any parts may move.

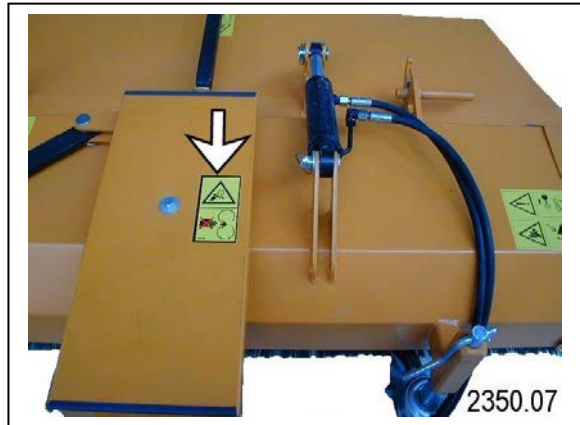


# 1.0. Safety

## 1.1. Safety Decals

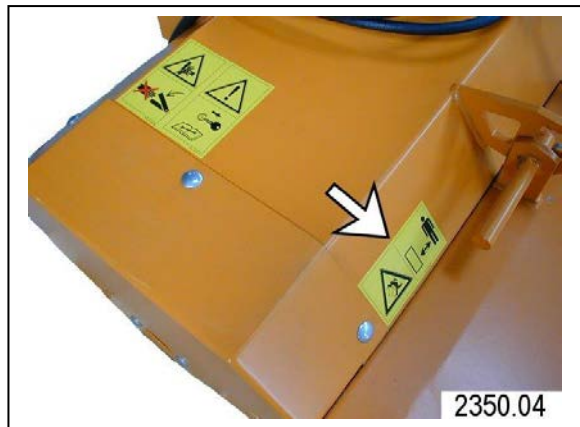
### Avoiding injury from rotating blade

When the engine is running, keep a safe distance from the mowing blades.



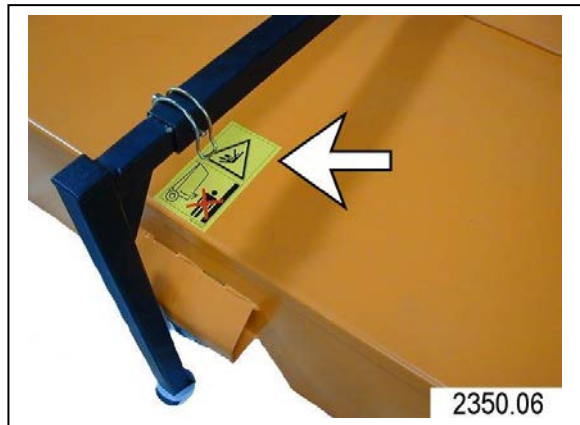
### Tools

When operating ensure that sufficient distance is left as there is a risk of injury from thrown or flying objects.



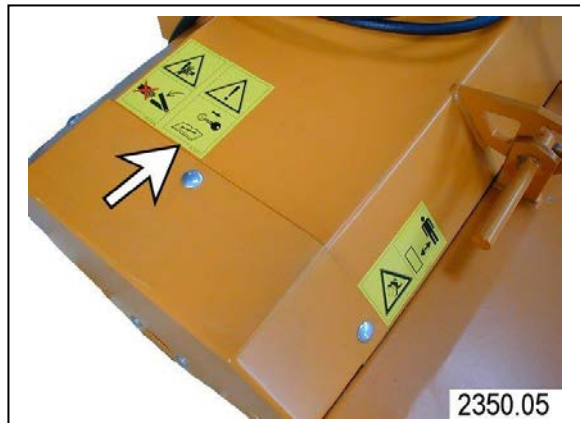
### Container opening

When the tractor engine is running, stay clear of the swivel area of the container



### Service

Before performing service or repair work, turn off engine and remove key.



# 1.0. Safety

## 1.2. Safety instructions



- Besides the information in these operating instructions, please also observe generally applicable safety and accident-prevention standards!
- Familiarise yourself with all equipment and operating elements and their functions before starting work. Ensure that all protective equipment has been properly installed. It is too late to do this when you have started work!
- During work operation, the user is responsible for the safety of third parties!
- During operation on public highways, the relevant traffic regulations must be observed!
- Before moving off, ensure that the immediate area of the machine is clear e.g. no children nearby. Ensure that your visibility is not impaired!
- Keep all persons clear of the danger zone of the machine!
- Mount the appliance only when the motor and the power take-off shaft have been switched-off.
- Use only cardan shafts prescribed for the machine which is being mounted.
- When driving the machine outside the work area, the drive should be switched off and the attachment placed in transport position.
- In event of malfunctions (vibrations) or if the machine runs over a foreign object, turn off the drive, switch off the engine (remove ignition key or spark-plug connector) and examine the machine, particularly the equipment, for damage.
- Damaged equipment must be replaced.
- When working on the tool, precautions should be taken to prevent injury (e.g. gloves).
- The driving and operational characteristics of the tractor may be influenced by the attachment of the sweeper. Always adapt your driving style to match the terrain and ground conditions.
- Before carrying out any maintenance work, the machine and the tractor engine must be switched off. All protective devices must be mounted before initial operation.

## 2.0. Connecting

### 2.1. General

Ensure that the tyre pressure of the vehicle tyres is correct.

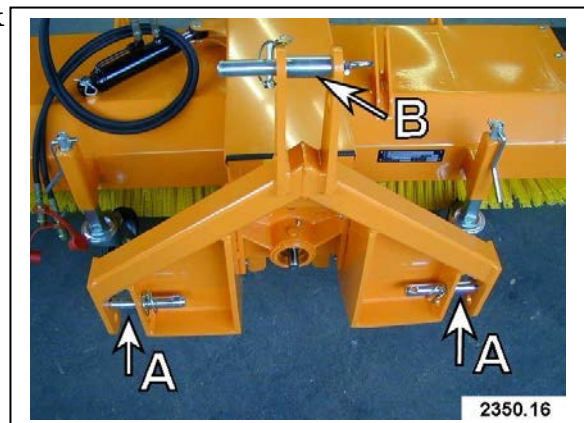
Please observe the following when selecting the correct mounting points (for the installed parts):

1. Lowest position of tractor - frontal lifting
2. Top position of tractor - frontal lifting
3. Clearance for the p.t.o shaft
4. Enough clearance between sweeping machine and ground in order to overcome obstacles (e.g. kerbs).
5. Installed sweeping machine must be in float position in order to be able to adapt to the unevenness of the ground.
6. The protective cover of the V-belt must be parallel to the ground. Setting is made via the tractor's upper link.

### 2.2. INSTALLATION WITH STANDARD THREE-POINT LINKAGE CAT.1

The installation stand is as standard equipped with category I connection components.

- U Insert and secure the lower link to the installation stand using suitable pin (A).
- Insert and secure upper link with plug (B) to suitable bore hole of the installation stand.
- Mount the PTO shaft.
- Raise sweeping machine with front hydraulics.

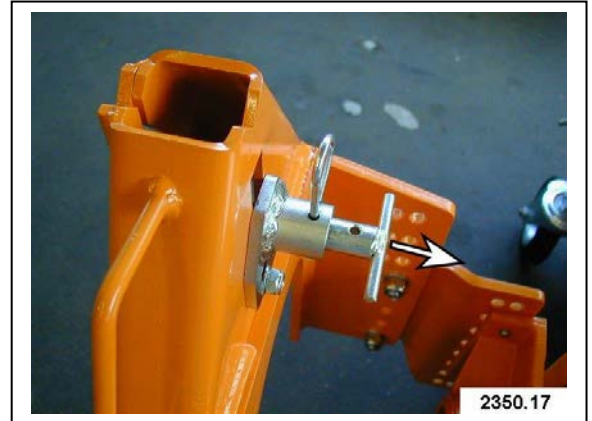


## 2.0. Connecting

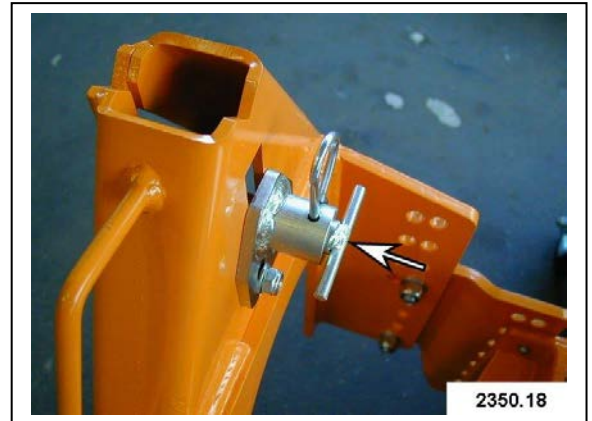
### 2.3. MOUNTING USING THE COUPLING TRIANGLE

#### Version 1

- Pull off the spring pin and pull out the locking pin up to the second bore.
- Lock position using the spring pin.
- Lower the front power lift.
- Drive the coupling half of the tractor into the coupling triangle.
- Lift the front power lift.



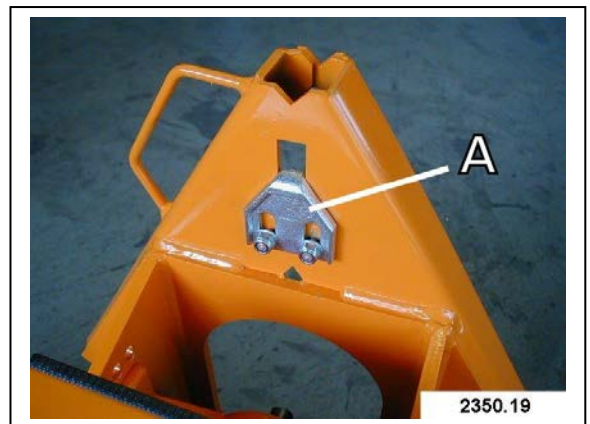
- Pull off the spring pin and push in the locking pin up to the first bore; if necessary adjust the height of the guide.
- Lock the position using the spring pin.
- Mount the propeller shaft.



#### Version 2

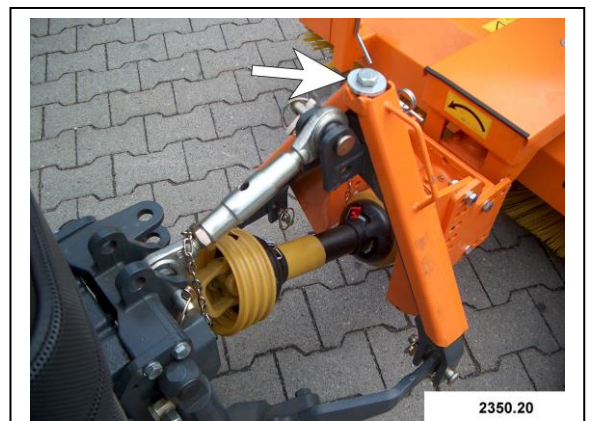
Some tractors are equipped with safety hooks.

Locking plate (A) must be adjusted to the safety hooks.



#### Version 3

- Raise sweeping machine with front hydraulics.
- Secure the triangular coupling against jumping out using screw and U-disc.



## 2.0. Connecting

### 2.4. EXTENSION FOR STANDARD THREE-POINT LINKAGE AND TRIANGULAR COUPLING

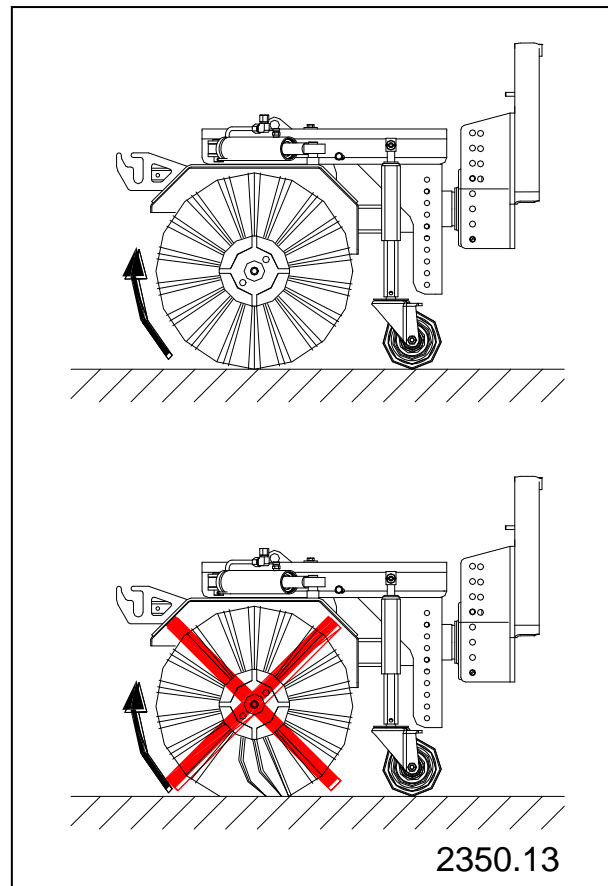
This could lead to installation problems with some tractors. There is the possibility of remedying this problem with extension plates.



### 2.5. SETTING CYLINDER BROOM

Adjust the sweeping roller so that the bristle ends just touch the ground (see picture 2350.13).

The sweeper should be horizontal in relation to the ground when installed. If necessary, correct at the connector to the vehicle.



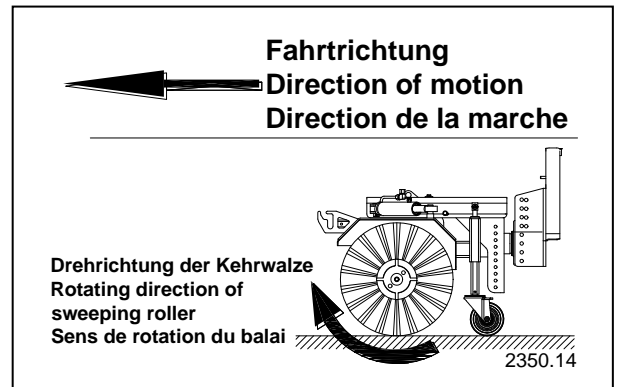


## 2.0. Connecting

### 2.6. DIRECTION OF ROTATION OF CYLINDER BROOM

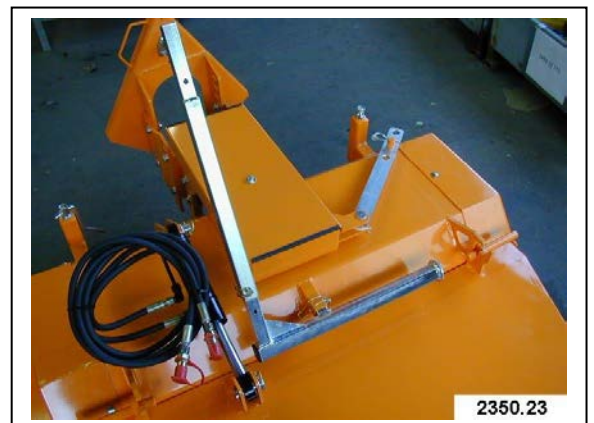
The sweeping roller must as shown on picture 2350.14.

You can set the direction of rotation yourself by turning the brushing gear 180°. To do this, the brushes must be disassembled and the four screws between the brushing gear and the swivel part must be released.



### 2.7. PARK SUPPORTS

After a successful installation, refit the park supports as shown in the diagrams.



### 2.8. Connecting the hydraulics

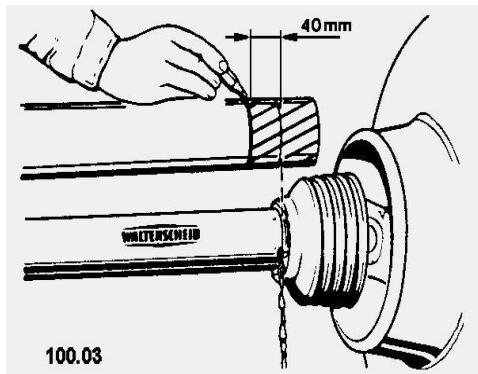
If a hydraulic swivel device is fitted, the hydraulic hoses to the vehicle must be installed so that shearing and chafing is prevented.

If necessary, secure cable binders at suitable positions. Mount quick-action couplings on the coupling fitted on the vehicle.

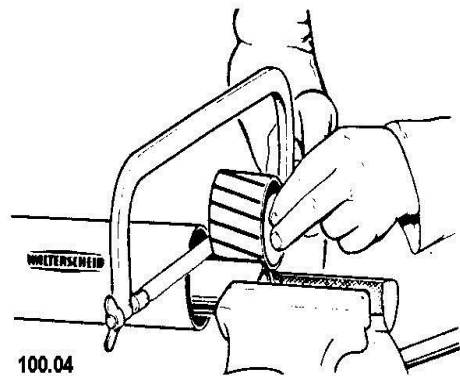
## 2.0. Connecting

### 2.9. CARDAN SHAFT ADJUSTMENT

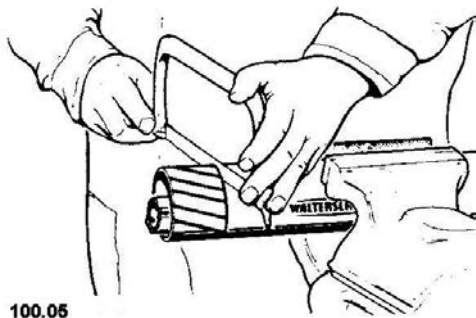
Connect the cardan shaft and check that it has the correct length in working position and in raised position; shorten if necessary. Secure cardan shaft guard with attached chain.



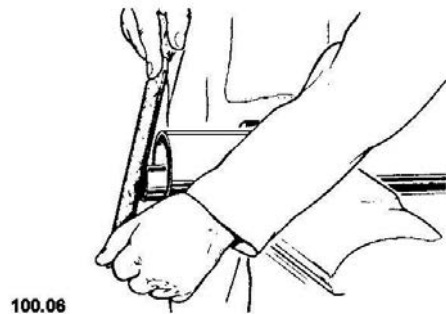
For adjusting the length hold the two shaft parts side by side within the shortest operating position and mark them out.



Cut off the inner and outer sliding profile by the same length as the sheath tube.



Cut off the inner and outer sheath tube evenly.



Smooth off division edges, remove chips carefully. Lubricate sliding profile.

## 3.0. Disconnecting

### 3.1. General

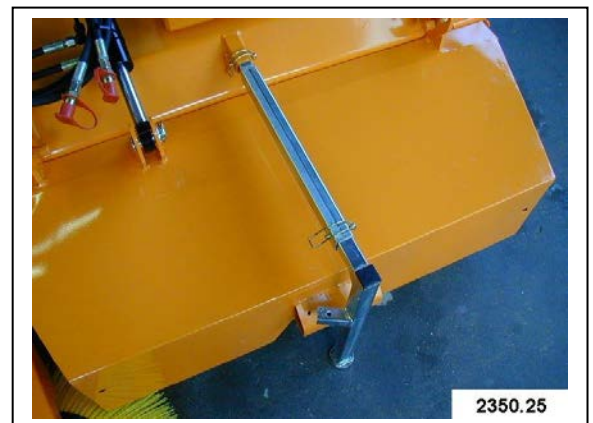
Only set the dirt sweeping machine down:

- on a firm, level surface
- on the mounted park supports
- with the lateral broom folded up

The dirt sweeping machine is thus secure. The cylinder broom and lateral broom are not damaged.

### 3.2. Support leg

The parking supports must be mounted as shown in the diagrams before the sweeping machine is lowered.



## 3.0. Disconnecting

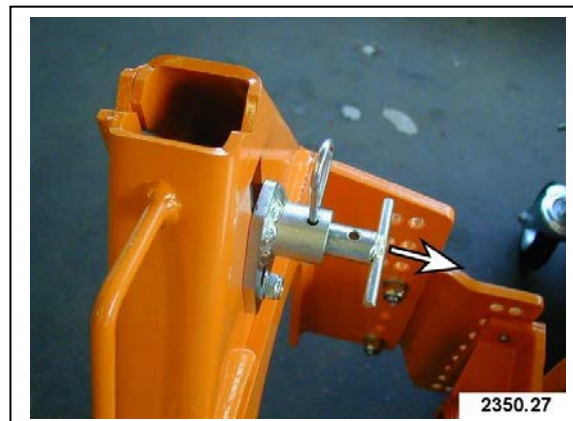
### 3.3. DISMANTLING WITH STANDARD THREE-POINT LINKAGE CAT.1

- Unrig the PTO-Shaft.
- Lower sweeping machine.
- Release tension in upper link and release from sweeping machine.
- Release lower connecting rod turnbuckles and pull out the bolt for the lower connecting rod.
- Lay down the unrigged PTO-Shaft for storing as illustrated in picture 2350.26



### 3.4. DEMOUNTING WITH COUPLING TRIANGLE

- Unrig the PTO-Shaft.
- Pull off the spring ring pin and pull out the locking pin up to the second bore.
- Lock position using the spring pin.
- Lower sweeping machine.



- Lay down the unrigged PTO-Shaft for storing as illustrated in picture 2350.28



## 4.0. Operating

### 4.1. General



#### CAUTION DANGER

Familiarise yourself with all equipment and operating elements and their functions before starting work. Ensure that all protective equipment has been properly installed. It is too late to do this when you have started work!

Before switching on the p.t.o. shaft, ensure that nobody is in the danger zone of the machine and the rotating p.t.o shaft.

Besides the information in these operating instructions, please also observe generally applicable safety and accident-prevention standards!

During operation on public highways, the relevant traffic regulations must be observed!

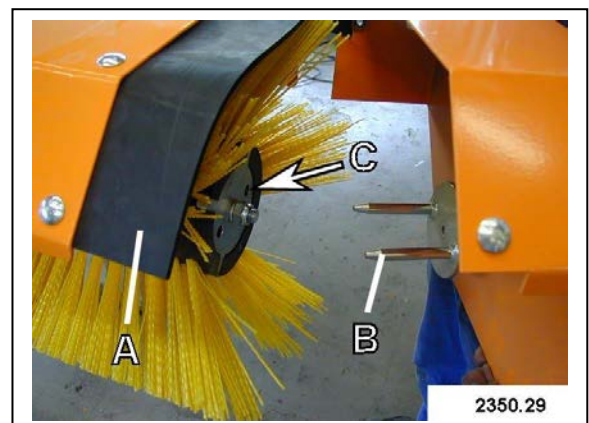
Ensure a reliable front axle load as the steerability of the tractor must be ensured (where required attach weights i.a.w. the tractor's operating instructions).

Exercise caution when working on a slope

- RISK OF TIPPING OVER - !

### 4.2. INSTALLATION OF THE SIDE MOUNTING

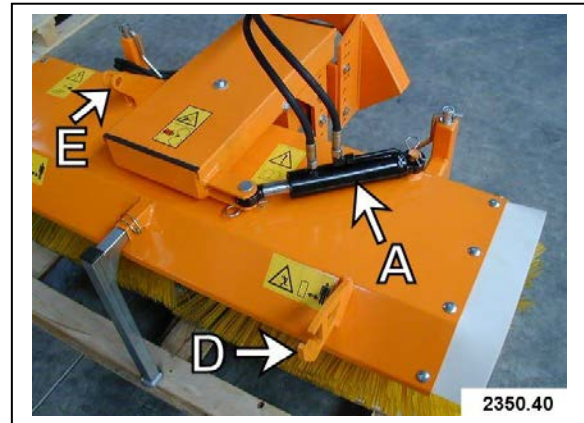
- Remove rubber tabs (A).
- To install the side parts, the attachment pins (B) must be inserted into the bore holes of fixing plate (C).
- Screw on side part to guard plate.



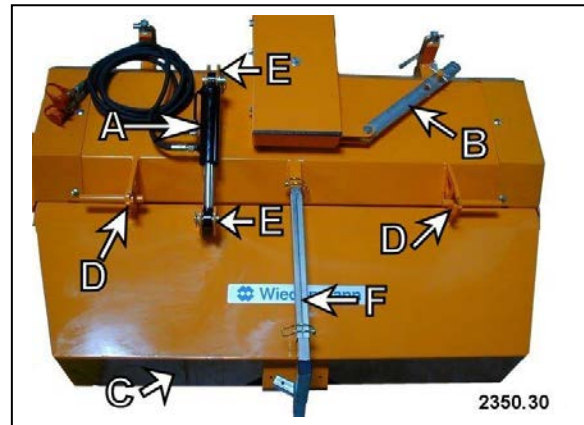
## 4.0. Operating

### 4.3. INSTALLATION OF DIRT CONTAINER

- Demount hydraulic cylinder (A).
- Install bar (B) in the place of the hydraulic cylinder. The mechanical tangential deviation of the sweeping machine can be set using the bar.
- Attach container (C) to hooks (D).



- Insert and secure hydraulic cylinder (A) to mounting links (E) of guard plate and container
- The supplied extension (F) is for the park supports.



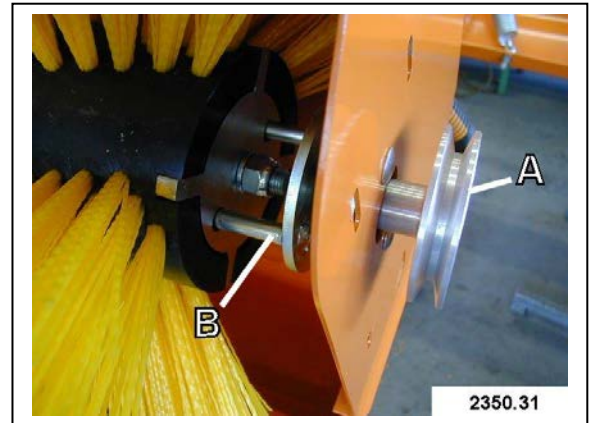
#### NOTE :

On even surfaces, the guide roll on the dirt tank must not touch the ground.

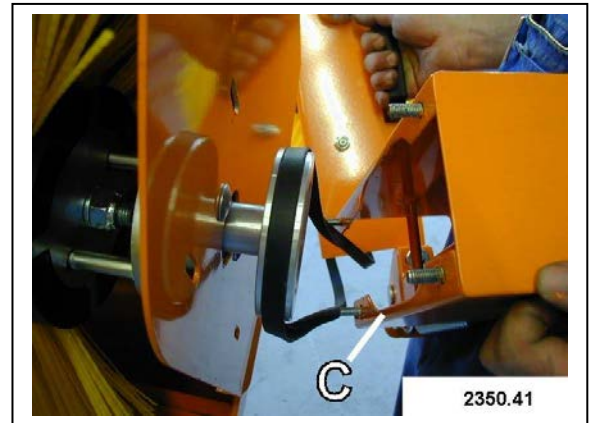
## 4.0. Operating

### 4.4. INSTALLING LATERAL BROOM

- Screw on V-belt pulley (A) to attachment (B) on the right of side part.
- Insert V-belt into the profile of the V-belt pulley.



- Insert lateral broom retainer (C) with the screws to side part (middle slot) and secure with nuts.
- Release nuts to retension. Push lateral broom retainer forward. Secure setting by tightening the nuts.



## 5.0. Operation

### 5.1. General



#### CAUTION DANGER

During work operation, the user is responsible for the safety of third parties!

Never operate the dirt sweeping machine without the safety devices. Otherwise you will be exposing yourself and others to extreme danger.

Before moving off, ensure that the immediate area of the machine is clear e.g. no children nearby. Ensure that your visibility is not impaired!

Never reverse while the dirt sweeping machine is in operation. Avoid making rash steering movements when using articulated tractors.

**The p.t.o. shaft:**

- never switch on when engine is off
- always switch off when it is not required,
- always switch off before raising the dirt sweeping machine

### 5.2. WORKING WITH THE SWEEPING MACHINE

Raise the machine in the event of obstacles.

Never switch the drive under full load.

Maintain a working speed of approx. 5-6 km/h.

When raising the equipment and driving in reverse, the sweeper drive must be switched off.

Operate the machine only in float position so that the support wheels are not subject to load on uneven terrain.



## 5.0. Operation

### 5.3. Working speed

The sweeper has a double pulley for 2 brushing speeds. The V-belt in the upper groove provides fast speed for sweeping snow; the lower groove provides slow speed for sweeping dirt.

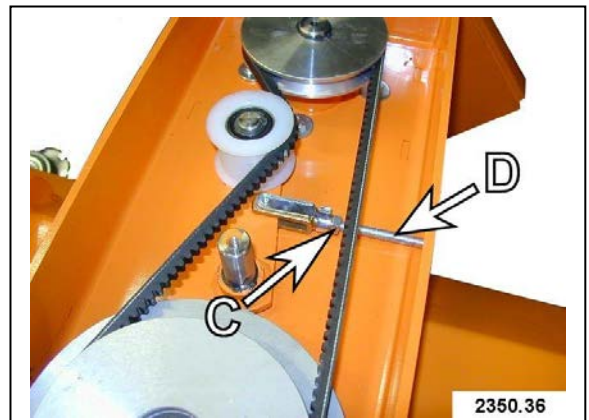
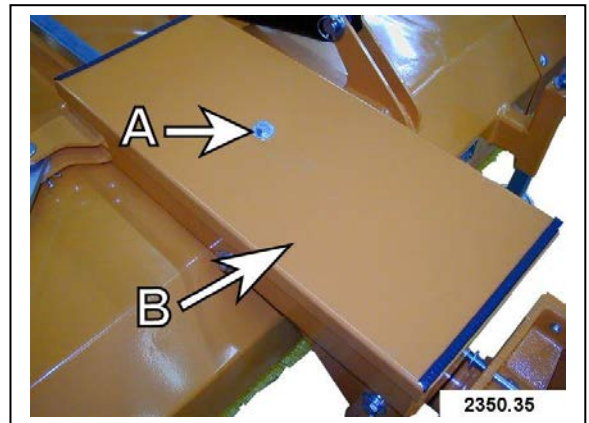


### 5.4. V-belt drive

After a running-in period of 3-5 hours, the V-belt tension must be checked.

### 5.5. Changing speed of driving motor

- Release screw (A)
- Remove protective cover (B)
- Release locknut (C)
- Release screw (D) to untension the V-belt
- Insert the V-belt on the lower splines of the V-belt pulleys
- Secure screw (D) to the V-belt tensioner (see Chapter 6.4.)
- Attach protective cover (B) and secure using screw (A)



## 5.0. Operation

### 5.6. SWITCHING OFF LATERAL BROOM DRIVE

To switch off the lateral broom, pull handle upwards.



### 5.7. SWITCHING ON LATERAL BROOM DRIVE

Lower lateral broom to the front.



## 6.0. Maintenance

### 6.1. General



#### CAUTION DANGER

Carry out maintenance work only with the equipment installed. Switch off the tractor and secure it against inadvertent starting.

Check security of screw fittings on a regular basis and tighten if necessary.

Replace wear parts in good time.

Use original spare parts only.

Shut the machine down before carrying out maintenance / repair work.

Reinstall guard decays after maintenance / repair work.

### 6.2. Changing the cylinder broom

- Release nut (A).
- Remove cover disc (B).
- Remove cylinder broom.
- Slide new cylinder broom onto shaft axle.
- Slide cover disc (B) onto shaft axle and insert into recesses  $\Rightarrow$  of the cylinder broom.
- To secure the cylinder broom, tighten nut (A) to a specified torque of 35 Nm.



## 6.0. Maintenance

### 6.3. Cleaning



#### CAUTION DANGER

Clean with a hand brush or water only never with your bare hands.

**RISK OF INJURY !**

Clean the machine daily after the work is finished to ensure faultless functioning when it is next used.

Only cleaned cylinder brooms ensure optimal functioning.

### 6.4. Check and tension the drive V-belts

- Release screw (A)
- Remove protective cover (B)
- Release locknut (C)

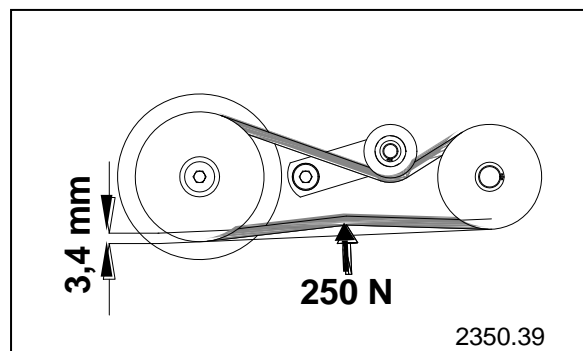
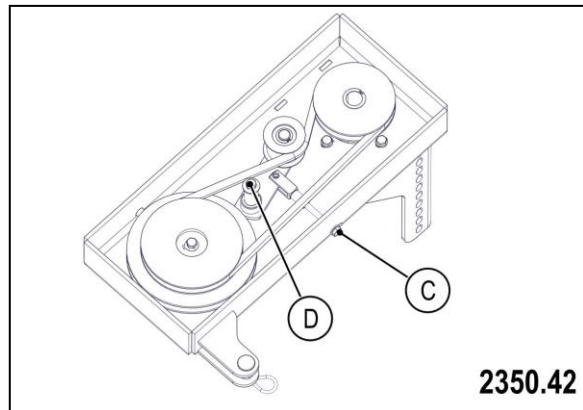
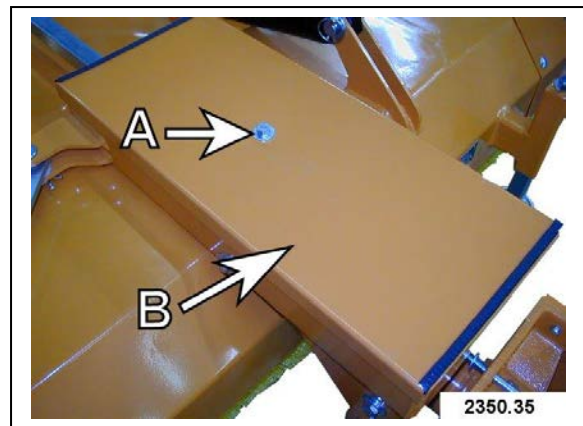
Check V-belt tension on a regular basis.

The V-belt must press between the belt pulleys by about 3,4 mm at a load of 250 N.

#### ATTENTION!

V-belt must not touch the pivot point (D)!

- Insert screw (C) until the values for the correct V-belt tension are reached.
- Attach protective cover (B) and secure using screw (A)





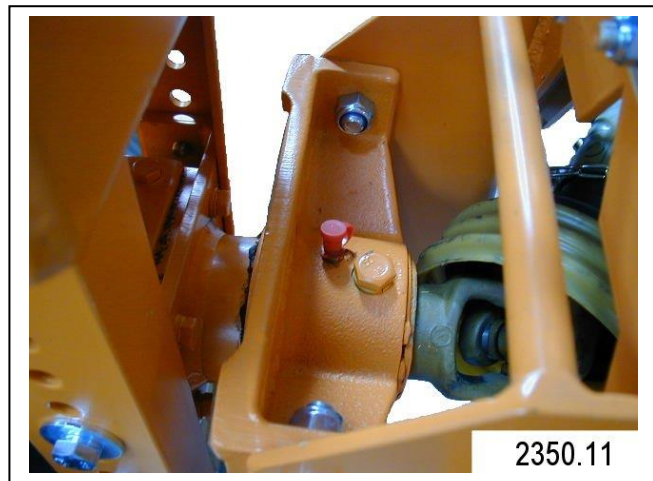
## 6.0. Maintenance

### 6.5. LUBRICATION POINTS

The lubrication nipple on the swivel part, the wheel hubs and the cardan shaft must be greased after every 50 operating hours.

The grease filling for the brushing gear and angular gear must be topped up every 200 operating hours, or at least once a year. Fill with low-viscosity gear grease to approx. 1/4 of the housing volume. Seal the gear unit with liquid sealer.

#### 6.5.1. Transverse link



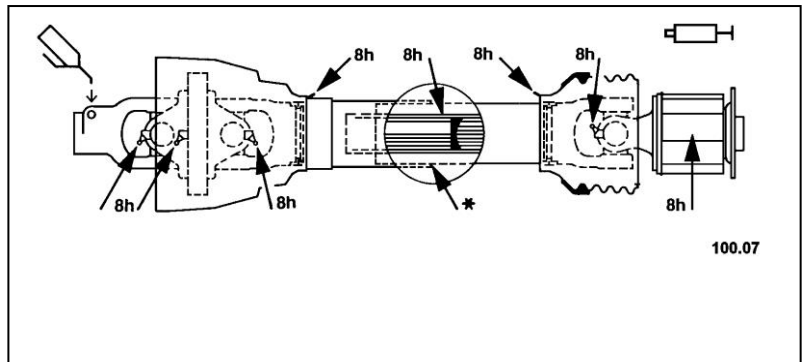
#### 6.5.2. Bearing for lateral adjustment



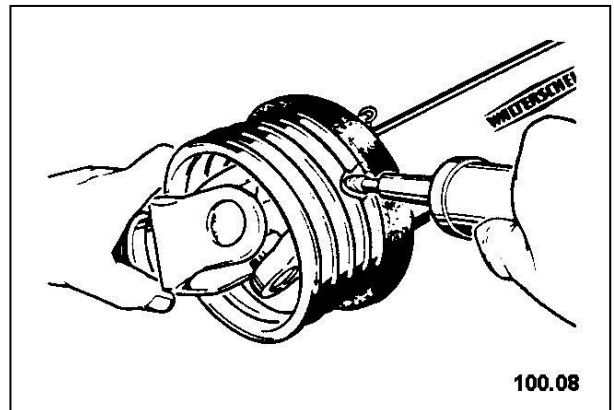
## 6.0. Maintenance

### 6.5. LUBRICATION POINTS

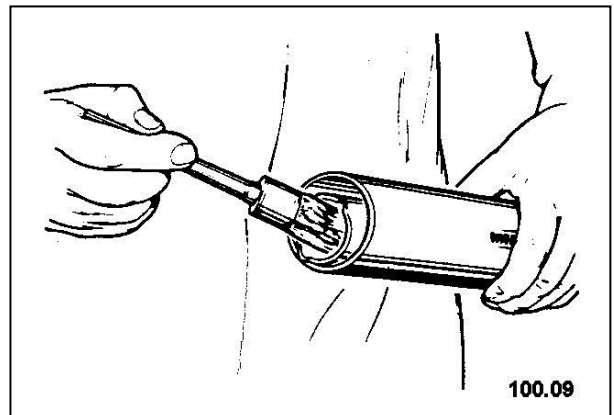
#### 6.5.3. Cardan shaft



- Grease the inside of the outer sliding profile.
- Prior to long out-of-service periods, clean and degrease the cardan shaft.



- Clean the profile pipes and protective pipes if they are contaminated.



## 6.0. Maintenance

### 6.6. Hydraulic installation



#### ATTENTION!

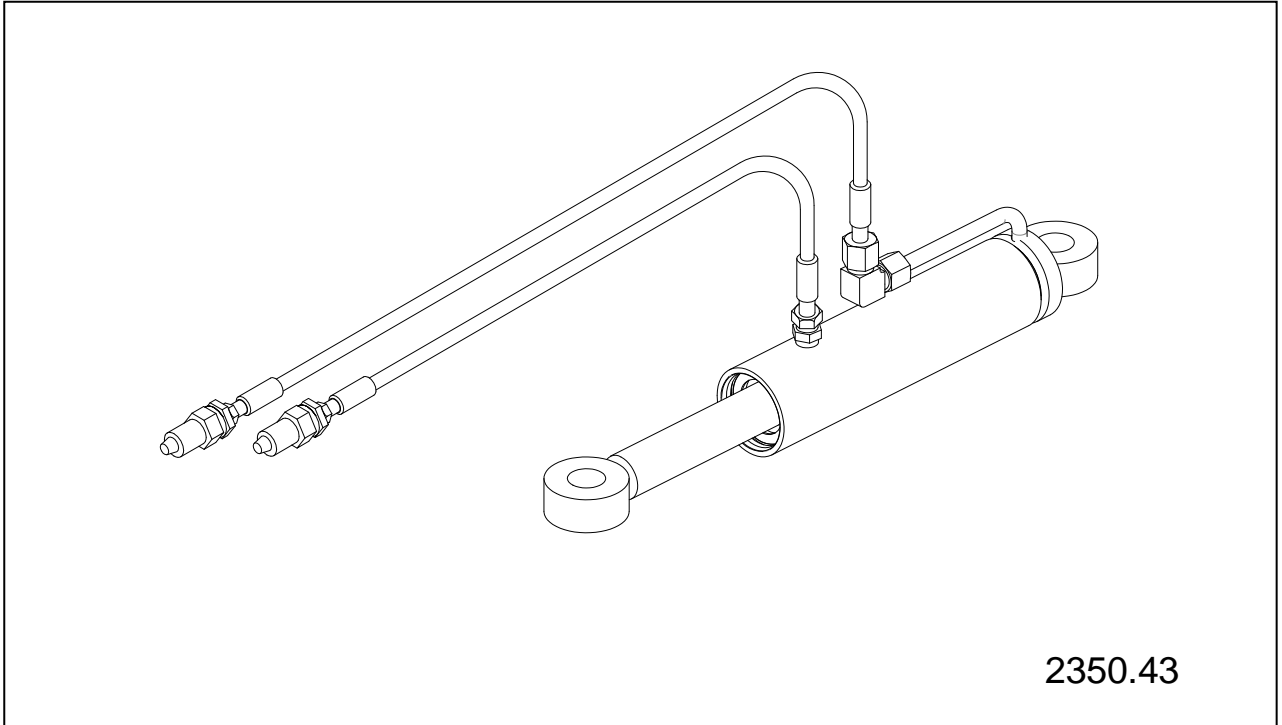
- The hydraulic system is under high pressure!
- Looking for leaks use proper devices due to risk of injury!
- To work on the hydraulic system it is imperative to switch off the motor and secure the tractor against rolling away!
- Connecting hydraulic cylinders and motors, attention must be paid to the prescribed hydraulic tube's connection!
- Exchanging the connections the functions will be inverted (f. raising / lowering)  
- **RISK OF ACCIDENT!** -
- Examine periodically the hydraulic tubes conditions for damages or aging and change them if necessary!
- High-pressure fluids, (fuel, hydraulic oil) emerging under high pressure can penetrate the skin causing severe injuries. Therefore contact immediately a physician, otherwise severe infections can be caused.
- Oils, fuels and filter must be duly cleared!
- Be careful raking hot oil off  
- **RISK OF BURNING!** -



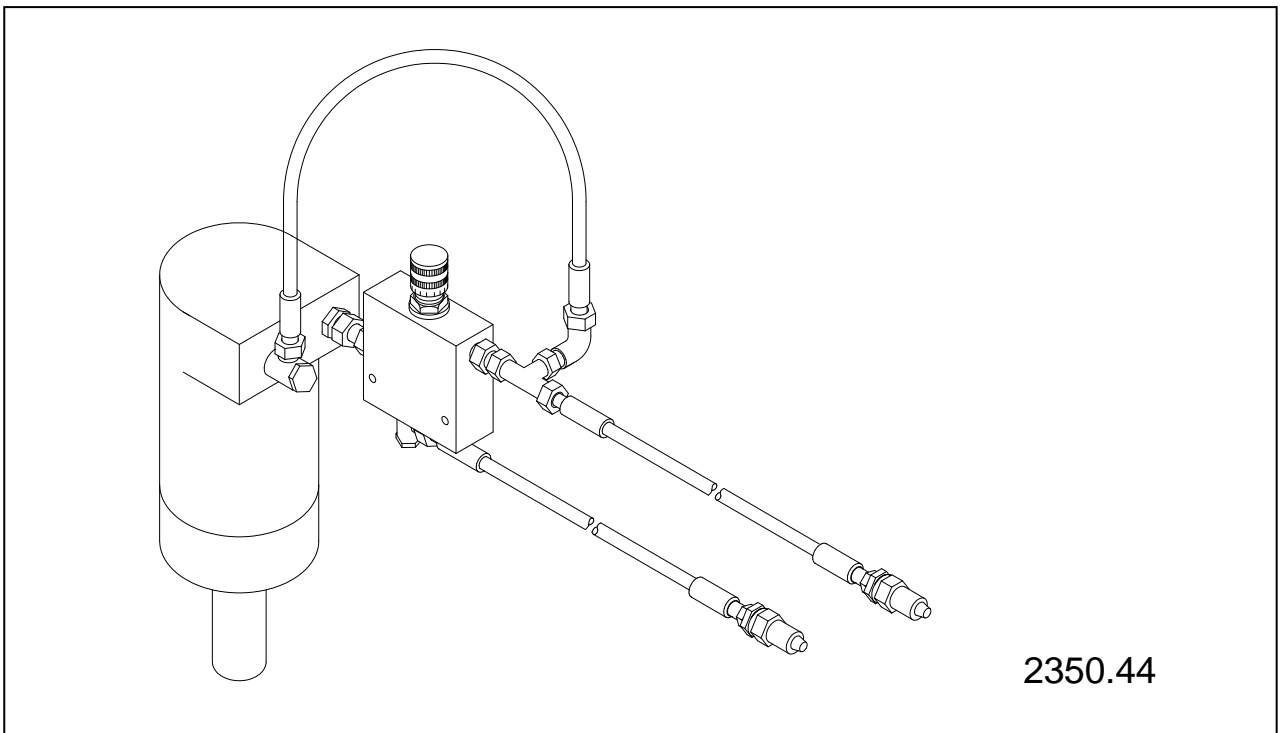
## 6.0. Maintenance

### 6.7. Hydraulic connection diagram

Hydraulic system for inclination  
or  
Hydraulic system for emptying the hopper



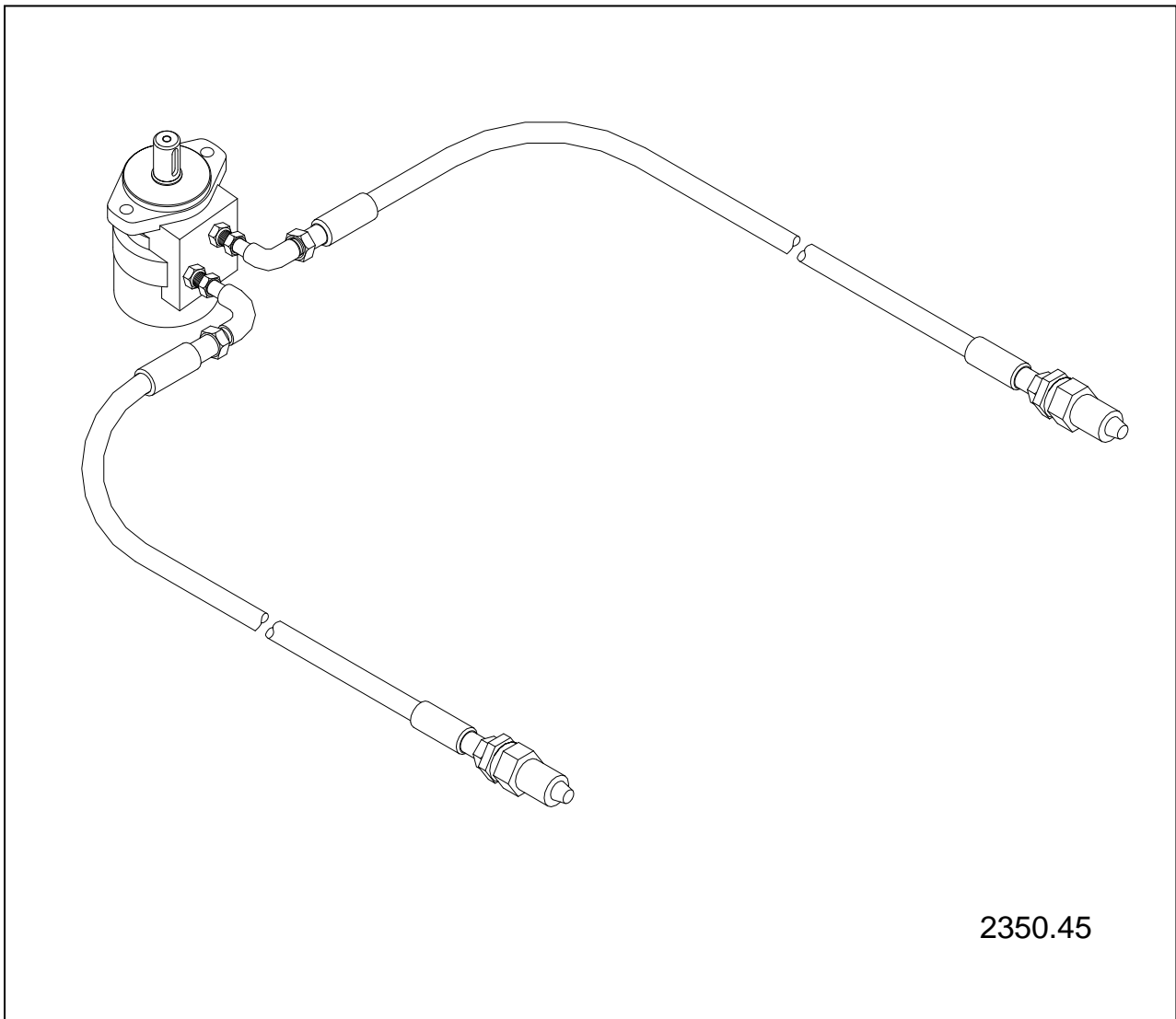
Lateral broom with hydraulic drive



## 6.0. Maintenance

### 6.7. Hydraulic connection diagram

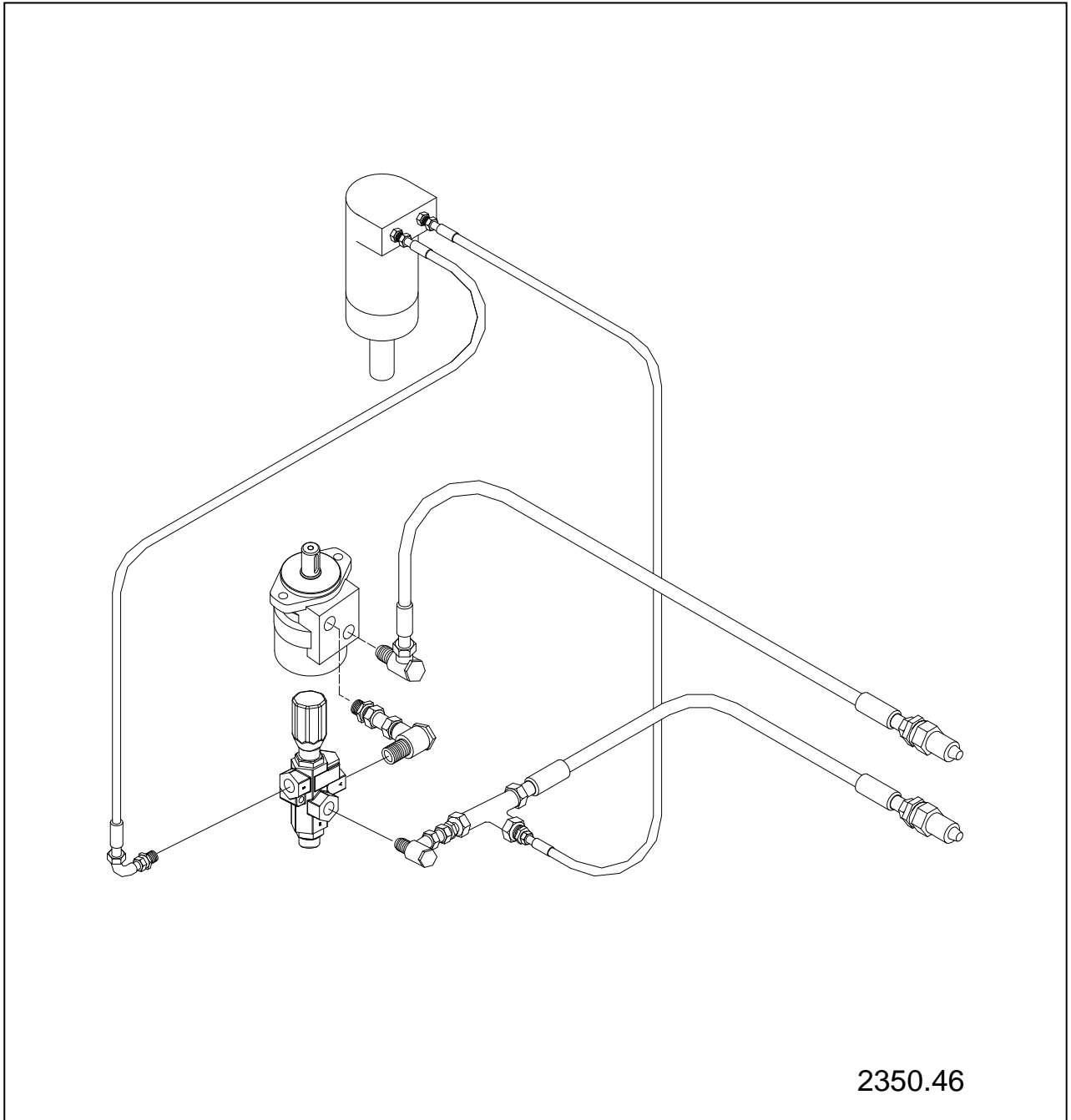
Basic unit with hydraulic drive



## 6.0. Maintenance

### 6.7. Hydraulic connection diagram

Main drive and lateral broom drive



## 6.0. Maintenance

### 6.8. Dismounting / Disposal



#### **ATTENTION !**

Take care when you dismount the sweeper. Read the chapter "Safety and Precautions" and observe local safety regulations.

The following dangers exist:

- Residual pressure in lines and adjusting elements,,
- Heavy parts might fall down after dismounting,
- Sharp edges,
- The machine might tilt and crush someone.

#### **Dismounting for disposal**

1. Place the sweeper on stable ground.
2. Remove the oil of the gear unit and dispose of it.
3. Disassemble sweeper from the top downwards.

#### **NOTE**

Strictly observe the regulations and laws concerning the disposal of environmentally hazardous substances. Get detailed information about their disposal.

### 6.9. Unauthorized modification and spare part manufacturing

- Modifications of the sweeper are only authorized with the permission of the manufacturer!
- Original spare parts and accessories authorized by the manufacturer guarantee your safety. The use of other parts might change the characteristics of the sweeper. In this case we do not accept any liability. Place contact us.

## 7.0. Device combinations

### 7.1. Versions

For types	2352	2353	2354
Combi Clean Neutral	<b>S</b>	<b>S</b>	<b>S</b>
Drive 1000 rpm, right	<b>W</b>	<b>W</b>	<b>W</b>
Drive 1000 rpm, left	<b>W</b>	<b>W</b>	<b>W</b>
Drive 2000 rpm, right	<b>W</b>	<b>W</b>	<b>W</b>
Drive 2000 rpm, left	<b>W</b>	<b>W</b>	<b>W</b>
Hydraulic drive	<b>W</b>	<b>W</b>	<b>W</b>
Mounted coupling triangle	<b>W</b>	<b>W</b>	<b>W</b>
Mounting with three-point linkage cat. 1	<b>W</b>	<b>W</b>	<b>W</b>
Special attachments	Upon request, dep. on vehicle type		

<b>S = Standard</b>	<b>W = selective</b>	<b>O = optional</b>
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## 8.0. Additional equipment

### 8.1. Scope of Delivery

- Basic unit for PTO drives  
1000 r.p.m. right or left-hand operation;  
or  
2000 r.p.m. right or left-hand operation;  
or  
hydraulic drive
- Attachment components  
triangular coupling  
or  
three-point frame  
or  
special attachment according to  
type of tractor
- PTO-shaft
- Operating instructions,  
transfer declaration with  
guarantee card.

### 8.2. Accessories

For types	2352	2353	2354
Side brush with V-belt drive	O	O	O
Side brush with hydraulic drive, controllable	O	O	O
Dirt container 110 l	O	---	---
Dirt container 130 l	---	O	---
Dirt container 150 l	---	---	X
Splash guard 1.10 m	O	---	---
Splash guard 1.30 m	---	O	---
Splash guard 1.50 m	---	---	O
Side mount (necessary with container and side brush)	O	O	O

<b>S = Standard</b>	<b>W = selective</b>	<b>O = optional</b>
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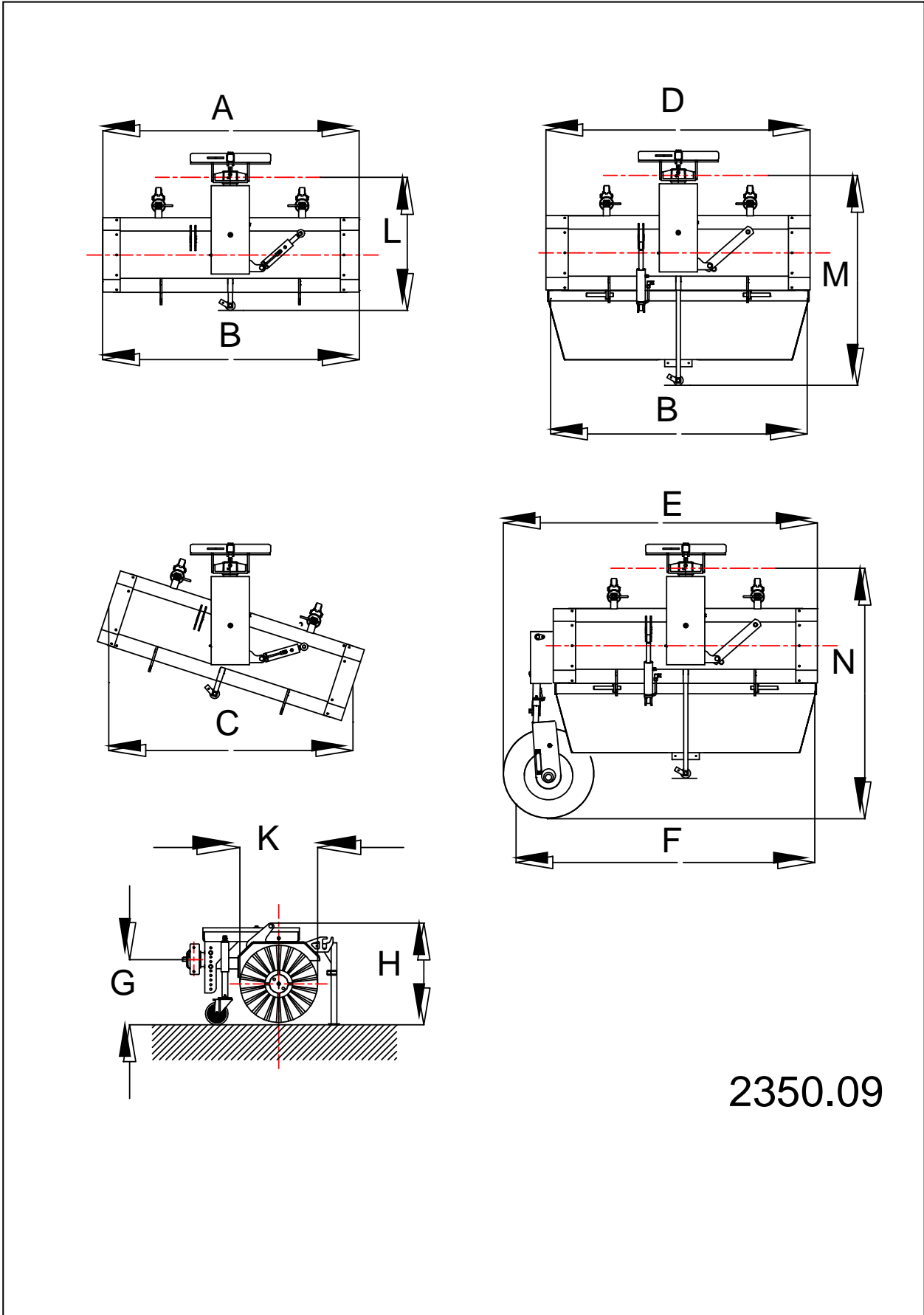
## 9.0. Technical Specifications

### 9.1. TECHNICAL DATA TYP 2352

<b>A</b>	Machine width standard version	mm	1100
<b>B</b>	Effective width in straight position	mm	1100
<b>C</b>	Effective width in inclined position	mm	950
<b>D</b>	Machine width with side mounting and dirt container	mm	1170
<b>E</b>	Device width with side brush	mm	1440
<b>F</b>	Effective width with side brush	mm	1300
<b>G</b>	min. height to middle of drive	mm	246
	max. height to middle of drive	mm	346
<b>H</b>	Machine height	mm	540
<b>K</b>	Plastic brushing roller with spiral fitting	D=	mm 420
<b>L</b>	Standard machine length	mm	750
<b>M</b>	Machine length with dirt container	mm	1190
<b>N</b>	Machine length with lateral broom	mm	1400
	Drive with right or left rotation	rpm	1000
	Drive with right or left rotation	rpm	2000
	Hydraulic drive at an operating pressure of	rpm	litres 30
			bar 150
	Attachment to vehicles up to	KW (PS)	26 (35)
	Min. hydraulic operating pressure	bar	150
	Brushing roller speed stage 1	rpm	150 – 158
	Brushing roller speed stage 2	rpm	305 – 320
	Diameter of side brush	mm	520
	Capacity of dirt container	litres	ca. 110
	Weight:		
	without dirt container and side brush	kg	120
	Splash guard	kg	4
	Max. weight without dirt tank	kg	124
	Dirt container	kg	36
	Side mount	kg	10
	Side brush	kg	14
	Max. weight without additional load	kg	180
	Perm. load capacity in dirt tank	kg	98
	Max. weight with additional load	kg	278

# 9.0. Technical Specifications

## 9.1. TECHNICAL DATA TYP 2352



2350.09



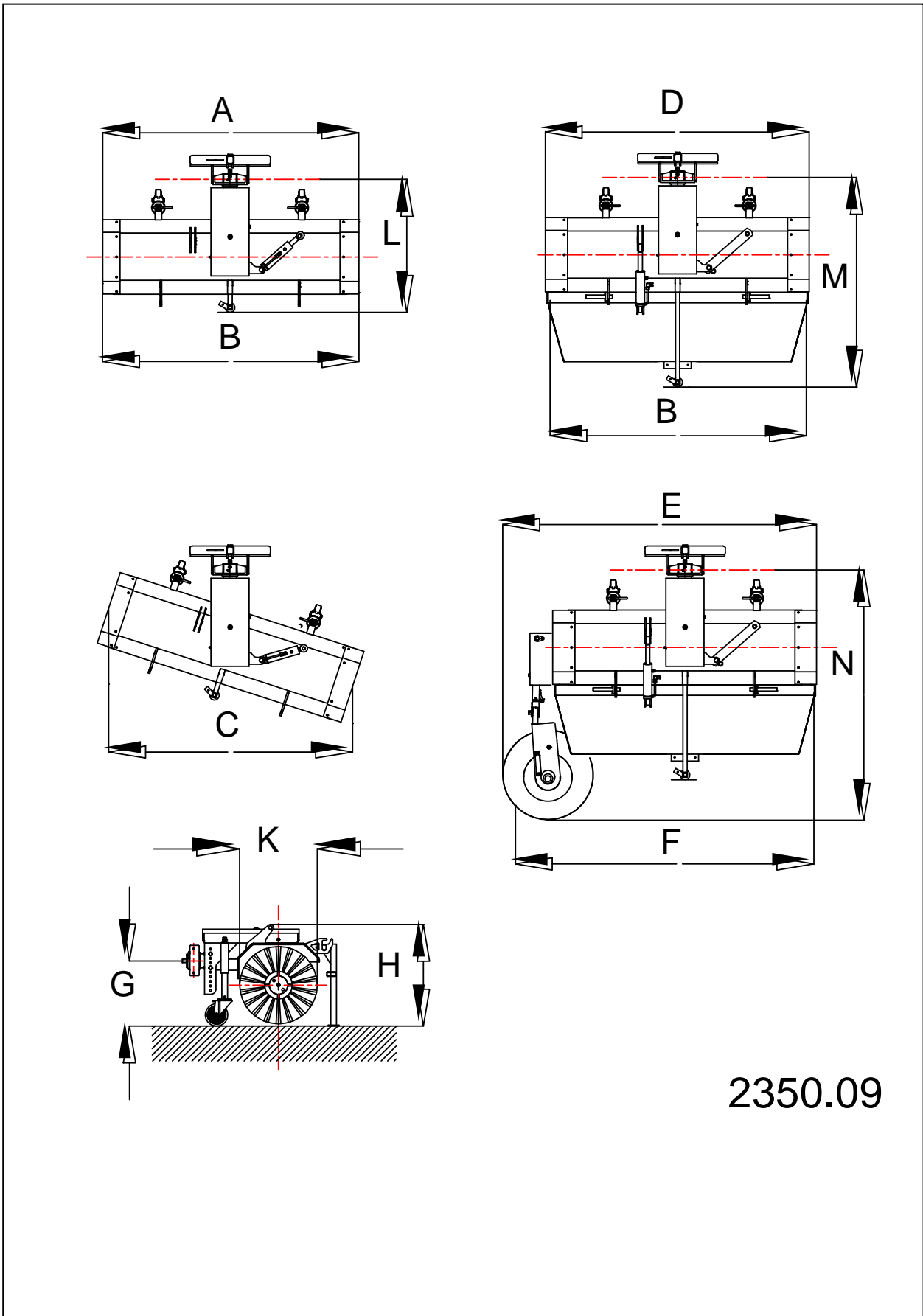
## 9.0. Technical Specifications

### 9.2. TECHNICAL DATA TYP 2353

<b>A</b>	Machine width standard version	mm	1300
<b>B</b>	Effective width in straight position	mm	1300
<b>C</b>	Effective width in inclined position	mm	1150
<b>D</b>	Machine width with side mounting and dirt container	mm	1370
<b>E</b>	Device width with side brush	mm	1640
<b>F</b>	Effective width with side brush	mm	1500
<b>G</b>	min. height to middle of drive	mm	246
	max. height to middle of drive	mm	346
<b>H</b>	Machine height	mm	540
<b>K</b>	Plastic brushing roller with spiral fitting	D= mm	420
<b>L</b>	Standard machine length	mm	750
<b>M</b>	Machine length with dirt container	mm	1190
<b>N</b>	Machine length with lateral broom	mm	1400
	Drive with right or left rotation	rpm	1000
	Drive with right or left rotation	rpm	2000
	Hydraulic drive at an operating pressure of	rpm	litres 30
			bar 150
	Attachment to vehicles up to	KW (PS)	26 (35)
	Min. hydraulic operating pressure	bar	150
	Brushing roller speed stage 1	rpm	150 – 158
	Brushing roller speed stage 2	rpm	305 – 320
	Diameter of side brush	mm	520
	Capacity of dirt container	litres	ca. 130
	Weight:		
	without dirt container and side brush	kg	126
	Splash guard	kg	5
	Max. weight without dirt tank	kg	131
	Dirt container	kg	40
	Side mount	kg	10
	Side brush	kg	14
	Max. weight without additional load	kg	190
	Perm. load capacity in dirt tank	kg	115
	Max. weight with additional load	kg	305

# 9.0. Technical Specifications

## 9.2. TECHNICAL DATA TYP 2353



2350.09

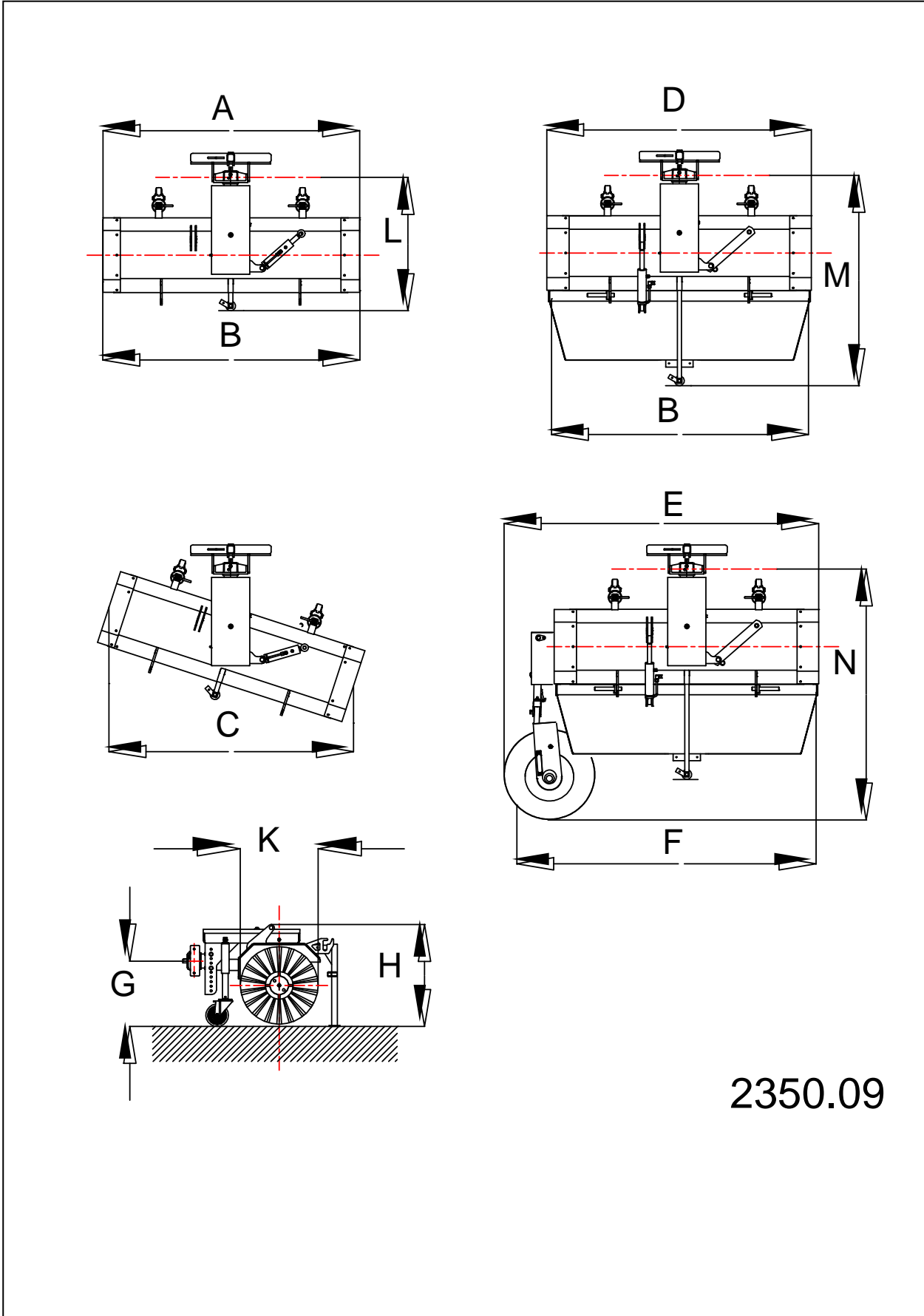
## 9.0. Technical Specifications

### 9.3. TECHNICAL DATA TYP 2354

<b>A</b>	Machine width standard version	mm	1500
<b>B</b>	Effective width in straight position	mm	1500
<b>C</b>	Effective width in inclined position	mm	1350
<b>D</b>	Machine width with side mounting and dirt container	mm	1570
<b>E</b>	Device width with side brush	mm	1840
<b>F</b>	Effective width with side brush	mm	1700
<b>G</b>	min. height to middle of drive	mm	246
	max. height to middle of drive	mm	346
<b>H</b>	Machine height	mm	540
<b>K</b>	Plastic brushing roller with spiral fitting D=	mm	420
<b>L</b>	Standard machine length	mm	750
<b>M</b>	Machine length with dirt container	mm	1190
<b>N</b>	Machine length with lateral broom	mm	1400
	Drive with right or left rotation	rpm	1000
	Drive with right or left rotation	rpm	2000
	Hydraulic drive rpm at an operating pressure of	litres	30
		bar	150
	Attachment to vehicles up to	KW (PS)	26 (35)
	Min. hydraulic operating pressure	bar	150
	Brushing roller speed stage 1	rpm	150 – 158
	Brushing roller speed stage 2	rpm	305 – 320
	Diameter of side brush	mm	520
	Capacity of dirt container	litres	ca. 150
	Weight:		
	without dirt container and side brush	kg	130
	Splash guard	kg	6
	Max. weight without dirt tank	kg	136
	Dirt container	kg	46
	Side mount	kg	10
	Side brush	kg	14
	Max. weight without additional load	kg	200
	Perm. load capacity in dirt tank	kg	135
	Max. weight with additional load	kg	335

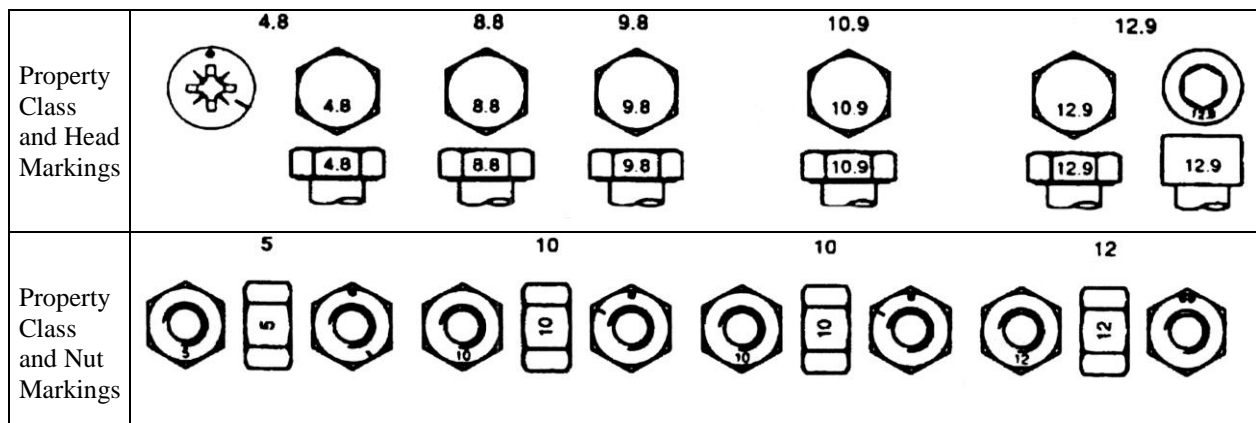
# 9.0. Technical Specifications

## 9.3. TECHNICAL DATA TYP 2354



## 9.0. Technical Specifications

### 9.4. METRIC BOLT AND CAP SCREW TORQUE VALUES



Größe	class 4.8				class 8.8 or 9.8				class 10.9				class 12.9			
	Lubricated *		Dry **		Lubricated *		Dry **		Lubricated *		Dry **		Lubricated *		Dry **	
	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft	N-m	lb-ft
M6	4,8	3,5	6	4,5	9	6,5	11	8,5	13	9,5	17	12	15	11,5	19	14,5
M8	12	8,5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70

M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300

M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800

M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000

M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

DO NOT use these values if a different torque value or tightening procedure is given for a specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designet to fail under predetermined loads. Always replace shear bolt with identical property class

Fasteners should be replaced with the same or higher property class. If higher property class

\*\* "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phossphate and oil coatings.

fasteners used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

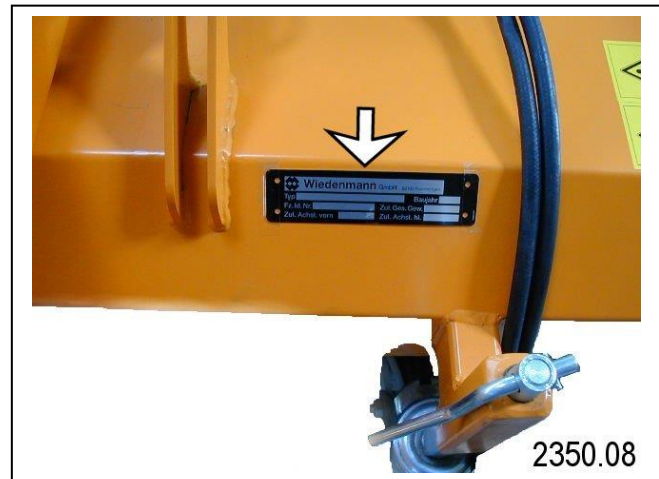
Tighten plastic insert or crimped steel-type lock nuts to approximately 50 percent of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

\*\* "Dry" means plain or zinc platend without any lubrication.

## 9.0. Technical Specifications

### 9.5. SERIAL NUMBER

Record product identification no. (serial no.) in the space provided below. Always quote this number when ordering spare parts or making warranty claims.



Prod Ident No.: \_\_\_\_\_