

OPERATOR MANUAL

HD120D

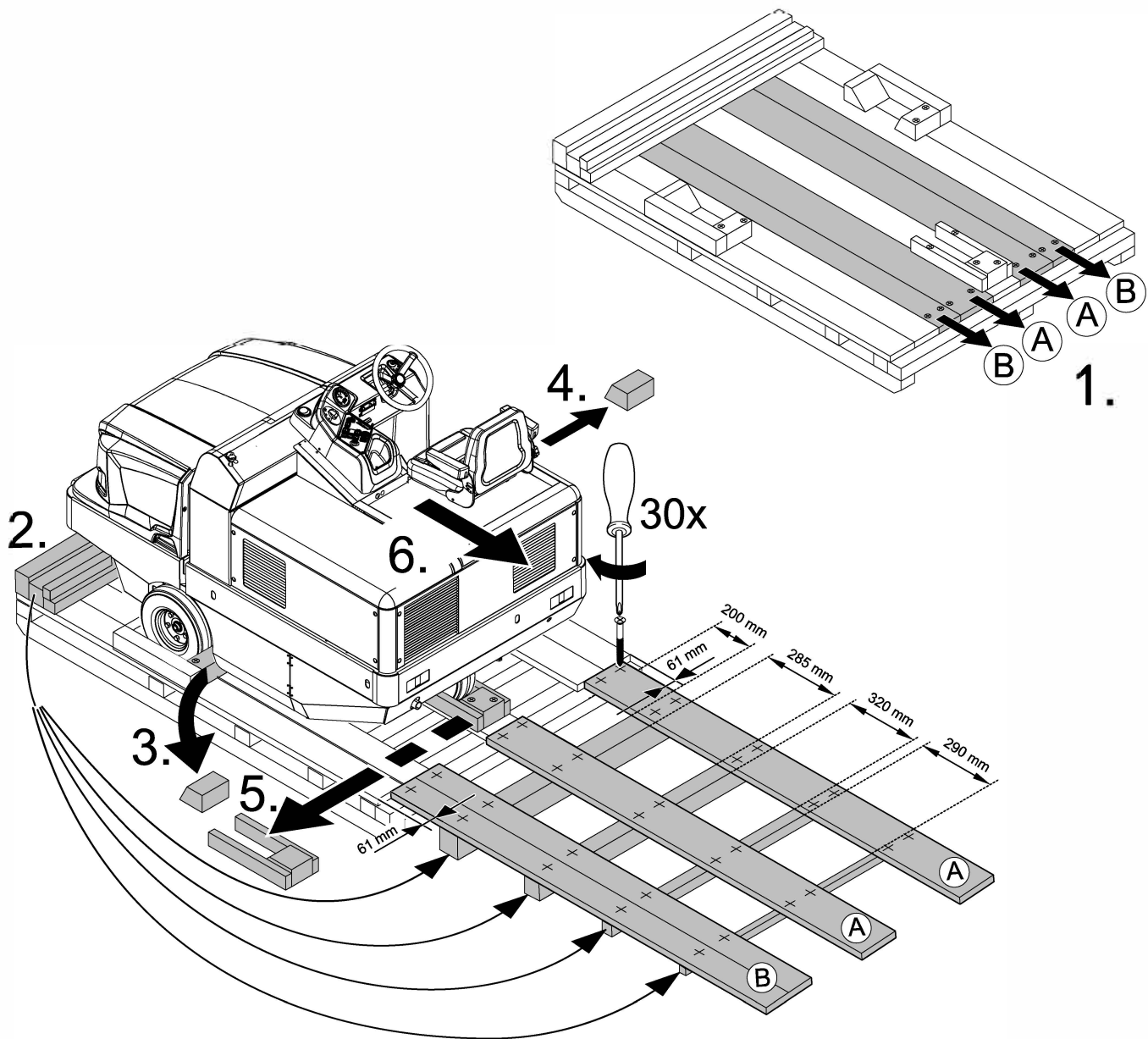
Heavy Duty Ride-on Industrial Sweeper

1800 100 150

sales@conquesteg.com
conquestequipment.com.au



With you, all the way



		120 DY
Bremse		
Vorderräder	--	mechanisch
Hinterrad	--	hydrostatisch
Filter- und Saugsystem		
Bauart	--	Taschenfilter
Drehzahl	1/min	2800
Filterfläche Feinstaubfilter	m ²	6,0
Nennunterdruck Saugsystem	mbar	15,5
Nennvolumenstrom Saugsystem	m ³ /h	800
Rüttlersystem	--	Elektromotor
Umgebungsbedingungen		
Temperatur	°C	-5 bis +40
Luftfeuchtigkeit, nicht betauend	%	0 - 90
Ermittelte Werte gemäß EN 60335-2-72		
Geräuschemission		
Schalldruckpegel L _{pA}	dB(A)	80
Unsicherheit K _{pA}	dB(A)	3
Schalleistungspegel L _{WA} + Unsicherheit K _{WA}	dB(A)	99
Gerätevibrationen		
Hand-Arm Vibrationswert	m/s ²	<2,5
Sitz	m/s ²	0,8
Unsicherheit K	m/s ²	0,1
Maße und Gewichte		
Länge x Breite x Höhe	mm	2082x1250x1450
Wenderadius rechts	mm	1350
Wenderadius links	mm	1350
Leergewicht	kg	880
Zulässiges Gesamtgewicht	kg	1329
Zulässige Achslast vorne	kg	785
Zulässige Achslast hinten	kg	543
Inhalt Kraftstofftank, Diesel	l	16
Technische Änderungen vorbehalten!		

EU-Konformitätserklärung

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EU-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produkt: Kehrsaugmaschine Aufsitzgerät

Typ: 120 DY
S/N 0110136

Einschlägige EU-Richtlinien

2006/42/EG (+2009/127/EG)

2014/30/EU

2000/14/EG

Angewandte harmonisierte Normen

EN 60335-1

EN 60335-2-72

EN 55012: 2007 + A1: 2009

EN 61000-6-2: 2005

EN 62233: 2008

Angewandtes Konformitätsbewertungsverfahren

2000/14/EG: Anhang V

Schalleistungspegel dB(A)

Gemessen: 97

Garantiert: 99



Die Unterzeichnenden handeln im Auftrag und mit Vollmacht der Geschäftsführung.


Giuseppe del Duca
Managing Director


Vincenzo Fornaciari
Manager R&D

ISAL s.r.l. con Unico Socio
Via P.Colletta, 19
42124 REGGIO EMILIA - ITALY
fon. +39 0522 823011
fax. +39 0522 823030

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  Please read and comply with these original instructions prior to the initial operation of your appliance and store them for later use or subsequent owners.

General notes

Your sales outlet should be informed about any transit damage noted when unpacking the product.

- Warning and information plates on the machine provide important directions for safe operation.
- In addition to the information contained in the operating instructions, all statutory safety and accident prevention regulations must be observed.

Environmental protection

	The packaging material can be recycled. Please do not throw the packaging material into household waste; please send it for recycling.
	Old appliances contain valuable materials that can be recycled. Please arrange for the proper recycling of old appliances. Please dispose your old appliances using appropriate collection systems.
Engine oil, diesel and petrol must not be released into the environment. Protect the ground and dispose of used oil in an environmentally responsible way.	

Notes on the content materials (REACH)
Current information on content materials can be found at:
www.isalsweepers.com

Warranty

The warranty terms published by the relevant sales company are applicable in each country. We will repair potential failures of your appliance within the warranty period free of charge, provided that such failure is caused by faulty material or defects in manufacturing. In the event of a warranty claim please contact your dealer or the nearest authorized Customer Service centre. Please submit the proof of purchase.

Accessories and Spare Parts

⚠ DANGER
To avoid risks, all repairs and replacement of spare parts may only be carried out by authorized customer service personnel.

- Only use accessories and spare parts which have been approved by the manufacturer. The exclusive use of original accessories and original spare parts ensures that the appliance can be operated safely and trouble free.

Symbols in the operating instructions











⚠ DANGER
Warns about immediate danger which can lead to severe injuries or death.

⚠ WARNING
Warns about possible danger which could lead to severe injuries or death.

⚠ CAUTION
Points out a possibly dangerous situation which can lead to light injuries or property damage.

ATTENTION
Pointer to a possibly dangerous situation, which can lead to property damage.

Symbols on the machine

	<i>Risk of burns on account of hot surfaces! Allow the exhaust to cool down sufficiently before starting work on the machine.</i>
	<i>Always use appropriate gloves while working on the device.</i>
	<i>Risk of getting squeezed on account of getting jammed between vehicle parts.</i>
	<i>Risk of injury on account of moving parts. Do not reach in.</i>
	<i>Risk of fire. Do not vacuum up any burning or glowing objects.</i>
	<i>Chain pick-up / crane point</i>
	<i>Intake points for the jack</i>
	<i>Maximum decline of ground when driving with the waste container raised.</i>
	<i>The gradient in the direction of travel should not exceed 18%.</i>
	<i>Risk of damage! Do not rinse out the dust filter.</i>

Proper use

The sweeper is intended for cleaning floor surfaces for commercial use and e.g. for the following fields of application:

- Car parks
- Production facilities
- Logistics areas
- Hotel
- Retail industry
- Storage areas
- Walkways
- Use this sweeper only as directed in these operating instructions. Any use extending beyond this is not considered as proper use. The manufacturer is not liable for any losses resulting from this; the user alone bears the risk for this.
- The machine may not be modified.
- The sweeper is only suitable for use on the types of floor areas specified in the operating instructions.
- The machine may only be operated on the surfaces approved by the company or its authorised representatives.
- The following applies in general: Keep highly-flammable substances away from the appliance (danger of explosion/fire).

Foreseeable misuse

- Never vacuum up explosive liquids, combustible gases or undiluted acids and solvents. This includes petrol, paint thinner or heating oil which can generate explosive fumes or mixtures upon contact with the suction air. Acetone, undiluted acids and solvents must also be avoided as they can harm the materials on the machine.
- Never sweep/vacuum up reactive metal dusts (e.g. aluminium, magnesium, zinc), as they form explosive gases when they come in contact with highly alkaline or acidic detergents.
- Do not sweep/vacuum up any burning or glowing objects.
- The appliance is not suitable for sweeping off hazardous substances.
- The appliance should not be used in closed rooms.
- The machine may not be used or stored in hazardous areas. It is not allowed to use the appliance in hazardous locations.
- It is strictly prohibited to take co-passengers.
- Pushing/pulling or transporting objects by means of this appliance is prohibited.

Suitable surfaces

- Asphalt
- Industrial floor
- Screed
- Concrete
- Paving stones

Safety instructions

Safety instructions concerning the operation

- (Applicable for Finland only) The device may not be used at low ambient temperatures (below 0°C) if it is equipped with a PVC hose line. Contact ISAL if you should have questions regarding your device.
- The machine with working equipment must be checked to ensure that it is in proper working order and is operating safely prior to use. Otherwise, the appliance must not be used.
- If the appliance is used in hazardous areas (e.g. filling stations) the corresponding safety provisions must be observed. It is not allowed to use the appliance in hazardous locations.
- ⚠ **DANGER**
Risk of injury!
 - Do not use the appliance without an overhead guard in areas where the operator might get hit by falling objects.
 - The operator must use the appliance properly. The person must consider the local conditions and must pay attention to third parties, in particular children, when working with the appliance.
 - It is important to follow all safety instructions, rules and regulations applicable for driving motor vehicles.
 - Prior to starting work, the operator must ensure that all protective devices are properly installed and function correctly.
 - The operator of the appliance is liable for accidents with other individuals or their property.
 - Ensure that the operator wears tight-fitting clothes. Wear sturdy shoes and avoid wearing loose-fitting clothes.
 - Check the immediate vicinity prior to starting (e.g. children). Ensure sufficient visibility!
 - Never leave the machine unattended so long as the engine is running. The operator may leave the appliance only when the engine has come to a standstill, the appliance has been protected against accidental movement, and the key has been removed.
 - Please remove the key, when not in use, to avoid unauthorised use of the appliance.
 - The appliance may only be used by persons who have been instructed in handling the appliance or have proven qualification and expertise in operating the appliance or have been explicitly assigned the task of handling the appliance.
 - This appliance is not intended for use by persons (including children) with limited physical, sensoric or mental capacities or lack of experience and/or skills, unless such persons are accompanied and supervised by a person in charge of their safety or if they received precise

instructions on the use of this appliance.

- Children should be supervised to prevent them from playing with the appliance.

CAUTION

Risk of damage! Do not sweep up straps, strings or wires as these may wrap around the brush roller.

Safety information concerning the driving operation

⚠ DANGER

Risk of injury! Verify the stability of the ground prior to driving on it.

⚠ DANGER

Risk of accident, risk of injury!

- The travel speed must be adapted to the existing conditions.

Danger of tipping if gradient is too high.

- The gradient in the direction of travel should not exceed 18%.

Danger of tipping on unstable ground.

- Only use the machine on sound surfaces.

Danger of tipping with excessive sideways tilt.

- The gradient perpendicular to the direction of travel should not exceed 10%.

Appliances with combustion engine

- Do not use the device at elevations of over 1200 m.

⚠ Danger

Risk of injury!

- Do not close the exhaust.
- Do not bend over the exhaust or touch it (risk of burns).
- Do not touch the drive motor (risk of burns).
- Exhaust gases are poisonous and hazardous to health, do not inhale them.
- The engine requires approx. 3-4 seconds to come to a standstill once it has been switched off. During this time, stay well clear of the working area.

Appliances with high emptying system

⚠ DANGER

Risk of injury!

- When working on the high emptying system, completely lift and secure the waste container.
- Perform the safeguarding only from outside the hazard zone.

Devices with overhead guard

NOTICE

The overhead guard (optional) protects the driver against larger falling objects. However, it does not provide rollover protection!

- Check the overhead guard for damage daily.
- If the overhead guard, as well as individual elements, should be damaged, replace the entire overhead guard.
- Any modification of the overhead guard and installation of elements, components and assemblies other than those approved by ISAL is not permitted and

may limit the function of the overhead guard.

Safety information concerning the transport of the appliance

- Observe the net weight (transport weight) of the device during transport on trailers or vehicles.
- Disconnect the battery and securely fasten the device for transport.

Safety information concerning maintenance and care

- First switch off the appliance and remove the key before performing any cleaning or maintenance tasks on the appliance, replacing parts or switching over to another function.
- Always disconnect the battery when working on the electrics.
To do this, first disconnect the negative terminal and then the positive terminal. Reconnection is performed in reverse sequence. Connect the positive terminal first, then connect the negative terminal.
- Do not clean the appliance with a water hose or high-pressure water jet (danger of short circuits or other damage).
- Maintenance work may only be carried out by approved customer service outlets or experts in this field who are familiar with the respective safety regulations.
- Please observe the local safety regulations regarding portable commercially used appliances.
- Always use appropriate gloves while working on the device.

Function

The sweeper operates using the sweep-shovel principle.

- The rotating roller brush moves the dirt directly into the waste container.
- The side brush cleans the corners and edges of the surface and moves dirt and debris into the path of the roller brush.
- The fine dust is sucked in via the dust filter through the suction blower.

Unloading tips

⚠ DANGER

Risk of personal injury or damage!

- Observe the weight of the appliance when you load it!
- Do not use a fork lift, the appliance could get damaged.

Net weight (transport weight)	880 kg*
* If upgrade kits are installed, the weight is respectively higher.	

- Use a suitable ramp or a crane to load the appliance!
- Observe when using a ramp:
Ground clearance 70 mm.
- If the machine is delivered on a pallet, you must create an unloading ramp using the boards provided.
You will find the instructions for this procedure on page 2 (inside of cover).
Important instruction: every board must be attached with at least 2 screws.

Operating and Functional Elements

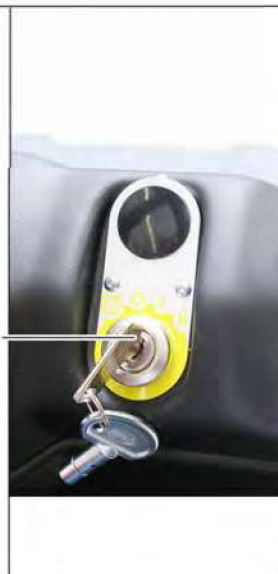
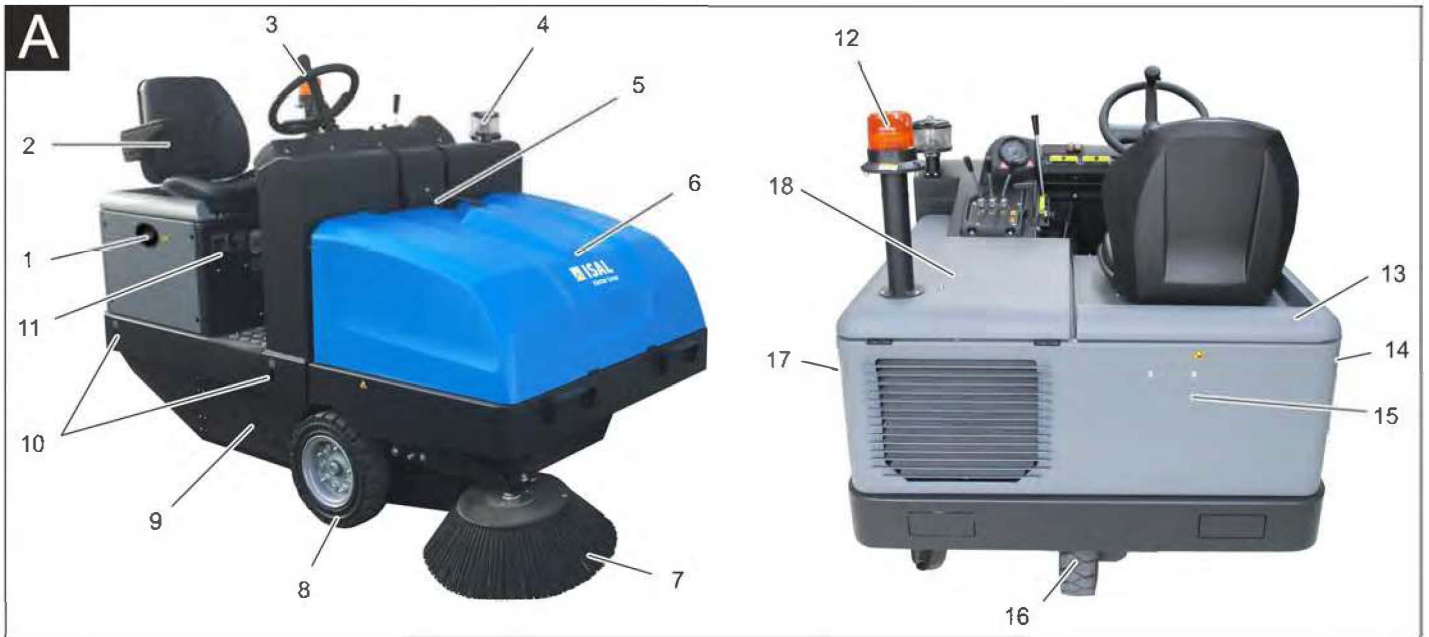


Illustration of sweeper

Illustration

- 1 Tank lid
- 2 Seat (with seat contact switch)
- 3 Steering wheel
- 4 Centrifugal separator
- 5 Lock of appliance hood
- 6 Cover
- 7 Side brush, right
- 8 Front wheel
- 9 Roller brush access
- 10 Lashing point
- 11 Nameplate
- 12 Beacon lamp
- 13 Appliance cover right side
- 14 Cover, right
- 15 Tail panel
- 16 Rear wheel
- 17 Cover, left
- 18 Bonnet left side (engine bonnet)

Operating field

Illustration

- 1 Roller brush and side brush control lever
Lever forwards: Switches the roller brush on and lowers and switches the side brushes on.
Lever backwards: Switches the roller brush on
- 2 Control lever waste container
Raise/lower waste container
- 3 Roller brush control lever
Raises and lowers the roller brush
- 4 Control lever container flap
Open/close container lid
- 5 Indicator lamps and display
Position centred: Filter cleaning and blower off
Rear position: Blower on
Front position: Filter cleaning on
- 7 Horn switch
- 8 Fuses
- 9 Ignition lock
Filament symbol : Pre-heat

Position 0: Switch off engine

Position 1: Ignition on

Position 2: Start the engine

10 Motor speed adjustment

Gas lever

11 Parking brake

12 Roller brush wear adjustment / sweeping area setting

Pedals

Illustration

- 1 Brake pedal
- 2 Accelerator pedal forward / reverse

Indicator lamps and display

Illustration

- 1 Operating hour counter
- 2 Charge warning lamp
- 3 Oil pressure warning lamp
- 4 Cooling water temperature warning lamp
- 5 Motor suction air
- 6 Warning lamp fuel reserve
- 7 Preglow indicator light
- 8 Indicator lamp (not connected)

- 9 Indicator light parking light/low beam (option)
- 10 Tank indicator
- 11 Without function, only illuminates during start-up of the motor (self-test)
- 12 Without function
- 13 Without function
- 14 Without function

Before Startup

Lock/ release parking brake

- Loosen parking brake; press brake pedal at the same time.
- Activate the parking brake; press brake pedal at the same time.

Moving sweeper without engaging self-propulsion

Note

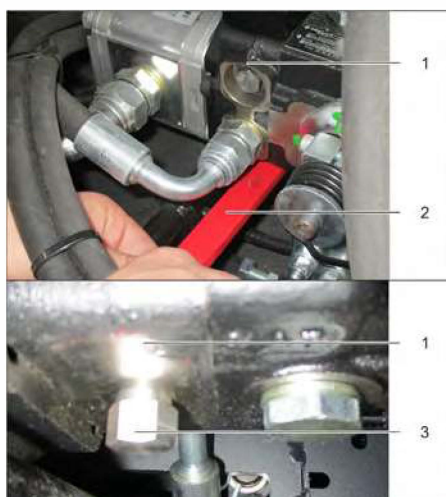
This procedure is necessary if the device needs to be pushed off the palette or towed away, or must be moved onto a transport vehicle without its own drive.

ATTENTION

Do not move the machine for long distances without engaging self-propulsion; a speed of 10 km/h should not be exceeded.



- 1 Screw
- 2 Key
- Unscrew the screw.
- Remove the spanner.



- 1 Hydraulic pump
- 2 Key
- 3 Nut
- Loosen the nut using the spanner (open freewheel) until the device can be pushed.
- **IMPORTANT:** Once pushed, reclose the nut (close freewheel = drive position).

Start up

General notes

- Read the operating instructions of the engine manufacturer before start-up and follow the safety instructions carefully.
- Park the sweeper on an even surface.
- Remove ignition key.
- Lock parking brake.

Inspection and maintenance work

Daily before starting operations

- Check fill level of fuel tank.
- Check engine oil level.
- Check the filling level in the coolant expansion tank.
- Check the sweeping roller and the side brush for wear and wrapped belts.
- Check the wheels for tied up belts.
- Check the centrifugal separator and the air filter, clean if required.
- Check function of all operator control elements.
- Check appliance for damages.
- Clean the dust filter with the filter cleaning button.

Note: For description, see section on Care and maintenance.

Refuelling

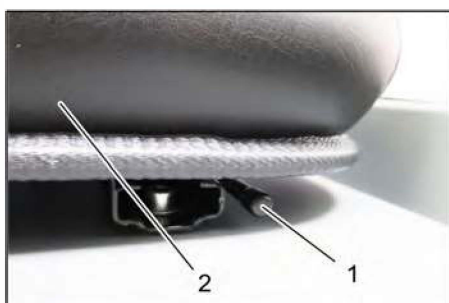
⚠ DANGER

Risk of explosion!

- Only use the fuels specified in the Operations Manual.
- Do not refuel the machine in enclosed spaces.
- Smoking and naked flames are strictly prohibited.
- Ensure that no fuel reaches the hot open surfaces.
- Check fuel level via the tank indicator.
- Switch off engine.
- Open fuel filler cap.
- Fill in diesel.
- Wipe off any spilt fuel and close fuel filler cap.

Operation

Adjusting driver's seat



- 1 Lever for seat adjustment
- 2 Driver seat
- Pull seat adjustment lever outwards.
- Slide seat, release lever and lock in place.
- Check that the seat is properly locked in position by attempting to move it backwards and forwards.

Starting the machine

Note: The machine is equipped with a seat contact switch. If the driver's seat is vacated, the machine is switched off.



- 1 Parking brake
- 2 Motor speed adjustment
- Sit on the driver's seat.
- Lock parking brake.
- Engine speed adjustment - push forward by 1/3.

Pre-heat

- Insert the ignition key into the ignition switch.
- Turn the ignition key to position "Filament".
- Pre-heat lamp glows.

Start the engine

- Press the brake pedal in order to start the engine.
- When the pre-heating lamp goes off, turn the ignition key to position "II".
- If the machine starts, release the ignition key.

Note: Never operate the starter motor for longer than 10 seconds. Wait at least 10 seconds before operating the starter motor again.

Drive the machine



- 1 Brake pedal
- 2 Accelerator pedal, "forwards"
- 3 Accelerator pedal, "reverse"
- Push the motor speed adjustment all the way to the front (operating speed).
- Press brake pedal and keep it depressed.
- Release parking brake.

Drive forward

- Press slowly the accelerator pedal "forward".

Reverse drive

⚠ DANGER

Risk of injury!

- When reversing, there must not be any risk for third parties, have somebody marshal the driver if necessary.
- Press slowly the accelerator pedal "reverse".

Driving method

- The accelerator pedal can be used to vary the driving speed infinitely.
- Avoid sudden operation of the pedal as this may damage the hydraulic system.
- In the event of power loss on inclined surfaces, slightly reduce the pressure on the accelerator pedal.

Brakes

- Release the accelerator pedal, the machine brakes automatically and stops.

Note: The braking effect can be supported by pressing the brake pedal.

Driving over obstacles

Driving over fixed obstacles which are 70 mm high or less:

- Drive forwards slowly and carefully.

Driving over fixed obstacles which are more than 70 mm high:

- Only drive over these obstacles using a suitable ramp.

Sweeping mode

ATTENTION

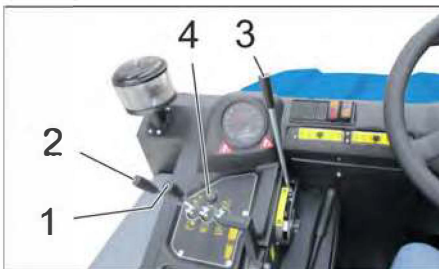
Do not sweep up packing strips, wire or similar objects as this may damage the sweeping mechanism.

Note: To achieve an optimum cleaning result, the driving speed should be adjusted to take specific situations into account.

Note: During operation, the dust filter should be shaken off and cleaned at regular intervals.

Note: When frequently working in areas with fine dust, the filter must be cleaned more often.

Control lever



- 1 Roller brush and side brush control lever
- 2 Control lever waste container
- 3 Roller brush control lever
- 4 Control lever container flap

Roller brush and side brush control lever

- Control lever (1) forwards: Switches the roller brush on and lowers and switches the side brushes on.
- Control lever (1) backwards: Switches the roller brush on.

Control lever waste container

- Control lever waste container (2) to the front: Waste container is lowered.
- Control lever waste container (2) to the back: Waste container is raised.

Control lever roller brush

- Roller brush control lever (3) forwards: Raises the roller brush.
- Roller brush control lever (3) backwards: Lowers the roller brush.

Control lever container flap

- Control lever container flap (4) to the front: The container flap of the waste container opens.
- Control lever container flap (4) to the back: The container flap of the waste container closes.

Sweeping dry floors



- Switch on the blower.
- **With surface cleaning:**
Roller brush and side brush control lever (1) backwards: Switches the roller brush on.
Roller brush control lever (3) backwards: Lowers the roller brush.
- Control lever container flap (4) to the front: Container flap opens.
- **With cleaning of side edges:**
Roller brush and side brush control lever (1) forwards: Switches the roller brush on, switches the side brushes on and lowers them.
Roller brush control lever (3) backwards: Lowers the roller brush.

Sweeping damp or wet floors

- Switch off the blower.
- **With surface cleaning:**
Roller brush and side brush control lever (1) backwards: Switches the roller brush on.
Roller brush control lever (3) backwards: Lowers the roller brush.
- Control lever container flap (4) to the front: Container flap opens.
- **With cleaning of side edges:**
Roller brush and side brush control lever (1) forwards: Switches the roller brush on, switches the side brushes on and lowers them.
Roller brush control lever (3) backwards: Lowers the roller brush.

Emptying waste container

⚠ DANGER

Risk of injury!

- During the emptying process, persons and animals must not stay within the swivelling range of the waste container. *Danger of tipping!*

- Place the device on an even surface during the emptying process.

⚠ WARNING

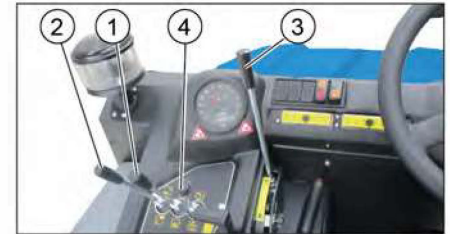
Risk of crushing!

- Never reach into the rod assembly for the drainage mechanism. Do not stay under the raised container.

ATTENTION

Risk of personal injury or damage!

- Material of the rotating roller brush may be catapulted off during the emptying process. Keep an appropriate distance.



- Raise the roller brush and side brushes using the control levers: Control lever 1 to middle position and control lever 3 forwards.
- Close the container flap, in order to do so, move the control lever (4) to the back:
- Raise the container flap, in order to do so, move the waste container control lever (2) to the back:
- Slowly drive towards the collection container.
- Lock parking brake.
- Open the container flap, in order to do so, push the container flap operating lever (4) to the front and empty the waste container.
- Close the container flap, in order to do so, push the container flap operating lever (4) to the back until it is tipped inwards in the end position.
- Release parking brake.
- Drive away the collection container slowly.
- Lower the waste container into the end position, in order to do so, move the waste container control lever (2) to the front

Turn off the appliance

- Raise the roller brush and side brushes using the control levers: Control lever 1 to middle position and control lever 3 forwards.

- Close the container flap, in order to do so, move the control lever (4) to the back:
- Pull the motor speed adjustment all the way to the back.
- Press brake pedal and keep it depressed.
- Lock parking brake.
- Turn ignition key to "0" and remove it.

Transport

⚠ DANGER

Transport damage!

- Observe the net weight (transport weight) of the device during transport on trailers or vehicles.
- When transporting in vehicles, secure the appliance according to the guidelines from slipping and tipping over.
- Turn ignition key to "0" and remove it.
- Lock parking brake.
- Secure the appliance at the lashing points (4x) using tension belts, ropes or chains.
- Secure the wheels of the machine with wheel chocks.
- Disconnect the battery of the sweeper during transport.

Storage/decommissioning

⚠ DANGER

Risk of injury and damage! Note the weight of the appliance in case of storage.

- Park the sweeper on a level surface in a dry, frost protected area. Protect it against dust by means of covering material.
- Raise the roller brush and the side-brushes to prevent the bristles from being damaged.
- Close the container flap.
- Turn ignition key to "0" and remove it.
- Lock parking brake.
- Lock the sweeper to ensure that it does not roll off.

Additionally observe the following points if the sweeper is not used over a longer period of time:

- Change engine oil.
- Drain off the cooling water if frost is expected and check whether there is adequate anti-frosting agent.
- Clean the inside and outside of the sweeper.
- Disconnect battery.
- Charge battery and recharge it approx. every 2 months.

Care and maintenance

General notes

ATTENTION

Risk of damage!

- Do not rinse out the dust filter.
- Maintenance work may only be carried out by approved customer service outlets or experts in this field who are familiar with the respective safety regulations.

→ Mobile appliances used for commercial purposes are subject to safety inspections according to VDE 0701.

- Park the sweeper on an even surface.
- Turn ignition key to "0" and remove it.
- Lock parking brake.

Cleaning

CAUTION

Risk of damage!

- Do not clean the appliance with a water hose or high-pressure water jet (danger of short circuits or other damage).

Cleaning the inside of the machine

⚠ DANGER

Risk of injury!

- Wear dust mask and protective goggles.
- Clean machine with a cloth.
- Blow through machine with compressed air.

External cleaning of the appliance

- Clean the machine with a damp cloth which has been soaked in mild detergent.

Note: Do not use aggressive cleaning agents.

Maintenance intervals

Note: The elapsed-time counter shows the timing of the maintenance intervals.

Maintenance by the customer

Note: If maintenance is carried out by the customer, all service and maintenance work must be carried out by qualified staff. An ISAL specialist dealer can be consulted at any time if needed.

Daily maintenance:

- Check fill level of fuel tank.
- Check engine oil level.
- Check the filling level in the coolant expansion tank.
- Check the sweeping roller and the side brush for wear and wrapped belts.
- Check fuel filter.
- Check the centrifugal separator and the air filter, clean if required.
- Check function of all operator control elements.
- Check appliance for damages.

Weekly maintenance:

- Clean the water cooler.
 - Clean the hydraulic oil cooler.
 - Check hydraulic unit.
 - Check the hydraulic oil level.
 - Check brake fluid status.
 - Check the pad for wear, replace if required.
 - Check the container lid and lubricate it.
- Maintenance to be carried out every 50 operating hours:**
- Drain the water from the diesel/water separator.

Maintenance following wear:

- Replace sealing strips.
- Readjust the side seals or replace them.
- Replace roller brush.
- Replace side brush.

Note: For description, see section on Maintenance work.

Maintenance by Customer Service

Note: In order to preserve warranty claims, all servicing and maintenance work during the warranty period has to be performed by an authorised ISAL Customer Service, in accordance with the inspection check list.

Maintenance to be carried out after 50 operating hours:

- Have the first maintenance performed by the customer service in accordance with the inspection check list.

Maintenance after 250/500/1000/1500/2000 operating hours:

- Have the maintenance performed by the customer service in accordance with the inspection check list.

Maintenance Works

Preparation:

- Park the sweeper on an even surface.
- Turn ignition key to "0" and remove it.
- Lock parking brake.

General notes on safety

⚠ DANGER

Risk of injury!

- Always apply the safety rod when the waste container is raised.
- Perform the safeguarding only from outside the hazard zone.



- 1 Holder of safety rod
 - 2 Safety rod
- Fold the safety rod for the high emptying up and insert it into the holder (secured).



Please do not release engine oil, fuel oil, diesel and petrol into the environment. Protect the ground and dispose of used oil in an environmentally-clean manner.

Safety notes regarding the batteries

Please observe the following warning notes when handling batteries:










Observe the directions on the battery, in the instructions for use and in the vehicle operating instructions!



Wear an eye shield!



Keep away children from acid and batteries!

	Risk of explosion!
	Fire, sparks, open light, and smoking not allowed!
	Danger of causticization!
	First aid!
	Warning note!
	Disposal!
	Do not throw the battery in the dustbin!

⚠ DANGER

Risk of explosion!

- Only use batteries with terminal cover. Restore terminal cover in the event of loss.

⚠ DANGER

Risk of explosion!

- Do not place tools or similar items on the battery. Risk of short-circuit and explosion.

⚠ DANGER

Risk of injury!

- Ensure that wounds never come into contact with lead. Always clean your hands after working on batteries.

⚠ DANGER

Risk of fire and explosion!

- Smoking and naked flames are strictly prohibited.
- Rooms where batteries are charged must have good ventilation because highly explosive gas is emitted during charging.

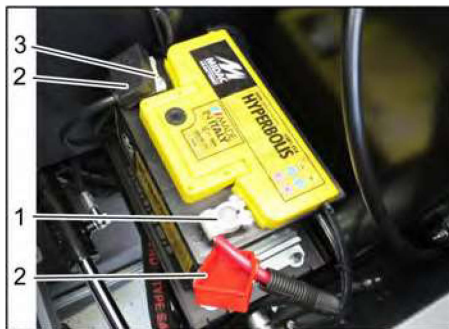
⚠ DANGER

Danger of causticization!

- Rinse thoroughly with lots of clear water if acid gets into the eye or comes in contact with the skin.
- Then consult a doctor immediately.
- Wash off the acid if it comes in contact with the clothes.

Installing and connecting the battery

Normally, the machine is equipped with a maintenance-free battery.



- 1 Positive terminal
- 2 Terminal cover
- 3 Negative terminal
- Insert battery in battery mount.
- Screw on mounts on battery base.
- Connect pole terminal (red cable) to positive pole (+).
- Connect pole terminal to negative pole (-).
- Attach the pole covers.
- Check that the battery poles and pole terminals are adequately protected with pole grease.

Check and correct the fluid level of the battery (only with low-maintenance battery with cell caps)

CAUTION

Risk of damage!

- Regularly check the fluid level in acid-filled batteries.
- Unscrew all cell caps.
- Take a sample from each cell using the acid tester.
 - The acid in a fully charged battery has a specific weight of 1.28 kg/l at a temperature of 20 °C.
 - The acid in a partially discharged battery has a specific weight between 1.00 and 1.28 kg/l.
 - The specific weight of the acid must be uniform in all cells.
- Put the acid sample back into the same cell.
- Where fluid level is too low, top up cells to the mark provided with distilled water.
- Charge battery.
- Screw in cell caps.

Charging battery

⚠ DANGER

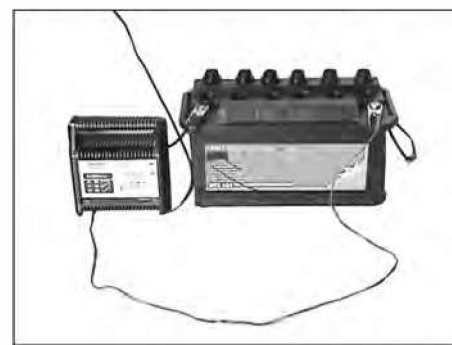
Risk of injury!

- Comply with safety regulations on the handling of batteries. Observe the directions provided by the manufacturer of the charger.

⚠ DANGER

Risk of damage!

- Charge the battery only with an appropriate charger.



- Unscrew all cell caps. (only with low-maintenance battery)
- Connect positive terminal cable from the charger to the positive pole connection on the battery.
- Connect negative terminal cable from the charger to the negative pole connection on the battery.
- Plug in mains connector and switch on charger.
- Charge battery using lowest possible level of charging current.
- When the battery is charged, first remove the charger from the mains and then disconnect it from the battery.
- Screw in cell caps. (only with low-maintenance battery)

Remove the battery

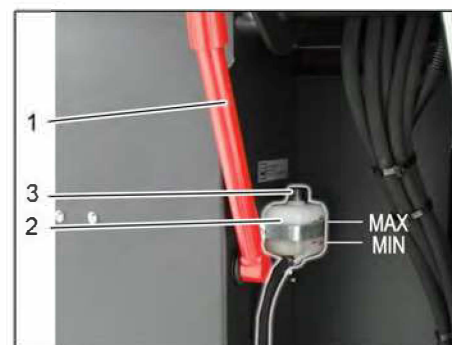
- Disconnect pole terminal to negative pole (-).
- Disconnect pole terminal to positive pole (+).
- Loosen the mounts on battery base.
- Remove the battery from the battery holder.
- Dispose of the used battery according to the local provisions.

Checking the brake fluid level and topping up brake fluid

⚠ DANGER

Risk of injury!

- Always apply the safety rod when the waste container is raised.
- Perform the safeguarding only from outside the hazard zone.



- 1 Holder of safety rod
- 2 Brake fluid container
- 3 Closing head
- Move up the waste container and secure it by means of the safety rod, see Chapter "Emptying the waste container"
- Check if there is enough brake fluid in the brake fluid reservoir.

Note

The filling level has to be between Min. and Max.

- If necessary, refill DOT brake fluid currently commercially available.

Check engine oil level and top up, if required

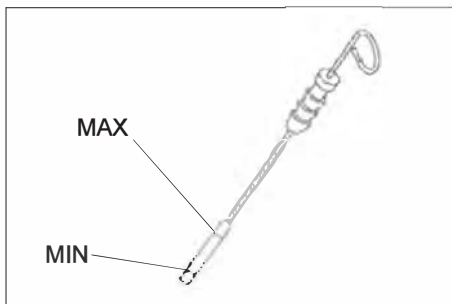
⚠ DANGER

Risk of burns!

- Allow engine to cool down.
- Wait for at least 5 minutes after switching off the engine before checking the engine oil fill level.



- 1 Oil cap (engine)
 - 2 Oil dipstick
- Pull out oil dipstick.
 - Wipe off oil dipstick and insert.
 - Pull out oil dipstick.
 - Read the value of the oil level.
 - Insert the oil dip again.



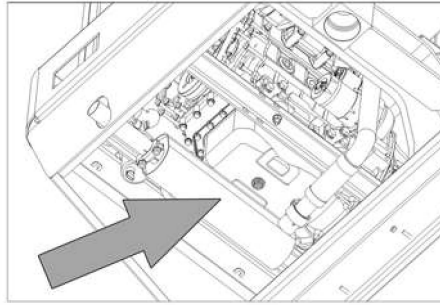
- The oil level must lie between "MIN" and "MAX" marking.
- Add motor oil if the oil level is below the "MIN" marking.
- Do not fill oil above the "MAX" marking.
- Remove oil cap.
- Fill in motor oil.
For oil type refer to Chapter "Technical specifications".
- Close oil cap.
- Wait at least 5 minutes.
- Check engine oil level.

Change the motor oil and the oil filter

CAUTION

Risk of burns due to hot engine oil!

- Allow engine to cool down.
- Prepare a collection container for at least 6 litres of engine oil.
- Allow engine to cool down.



- Unscrew oil drain plug.
- Remove oil cap.
- Drain off oil.



- 1 Engine oil filter
 - 2 Fuel filter
- Unscrew the oil filter.
 - Clean the intake and sealing areas.
 - Coat the washer of the new oil filter with oil before fitting it.
 - Fit in the new oil filter and tighten it by hand.
 - Screw in the oil drain screw along with the new washer.
Tightening torque: 25 Nm
 - Fill in motor oil.
For oil type and filling quantity refer to Chapter "Technical specifications".
 - Close oil cap.
 - Let the motor run for approx. 10 seconds.
 - Check engine oil level.

Check fuel filter

- Check the fuel filter for soiling.
- Clean the fuel filter and filter casing as needed; replace the fuel filter if necessary.

Replace the fuel filter



- 1 Fuel cock
 - 2 Fuel filter
- Close fuel cock.
 - Unscrew the fuel filter and replace it.



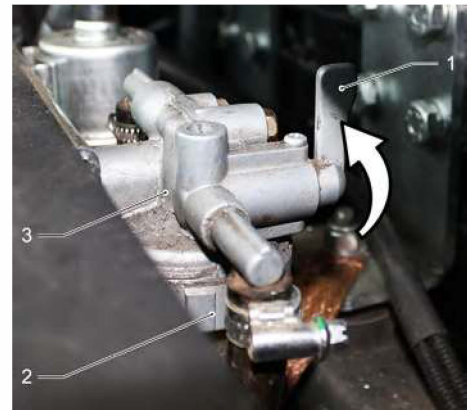
- 1 Fuel cock
- 2 Fuel filter

NOTICE

Fill the fuel filter with diesel fuel prior to installing it.

- Screw the new fuel filter in.
- Torque the fuel filter to 20 Nm.
- Open fuel cock.

Draining the condensation water from the diesel water separator



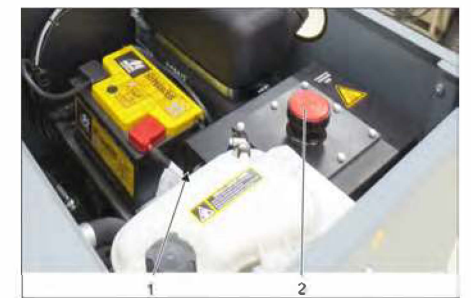
- 1 Fuel cock
 - 2 Separator cup
 - 3 Water separator
- Close fuel cock.
 - Unscrew the separator cup and empty it.
 - Screw on the separator cup.
 - Open fuel cock.

Check hydraulic oil level and refill hydraulic oil

NOTICE

The waste container must not be raised.

- Open engine cover.



- 1 Hydraulic oil sight glass
 - 2 Screw cap, oil fill opening
- Check hydraulic oil level in the looking glass.
 - The oil level must lie between "MIN" and "MAX" marking.
 - Add hydraulic oil if the oil level is below the "MIN" marking.

- Loosen the closing cap of the oil filling opening.
- Clean the filling area.
- Refill hydraulic oil.
For oil type refer to Chapter "Technical specifications".
- Replace and tighten the closing cap of the oil filling opening.

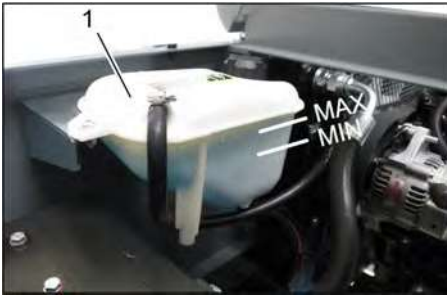
Check hydraulic unit

- Lock parking brake.
- Start the motor.

Maintenance of the hydraulic system is only to be carried out by ISAL Customer Service.

- Check all hydraulic hoses and connections and ensure that they are leak-proof.

Check coolant level



- 1 Coolant expansion tank
- Check filling level while the motor is cold.
 - Check the filling level in the coolant expansion tank.
The correct coolant level has to be between MIN and MAX.

Checking and cleaning water/hydraulic oil cooler

⚠ DANGER

Risk of burning and scalding!

- Allow the water cooler to cool down for at least 20 minutes.
- The coolant level of the water cooler is checked at the coolant expansion tank. See chapter "Checking the cooling water level".
- Clean cooler lamella.
Remove soiling by means of a soft brush, compressed air or low water pressure.
- Check cooler hoses and connections and ensure that they are leak-proof.
- Clean the fan.

Checking roller brush

- Start the motor.
- Raise the waste container up to the end-position.
- Switch off engine.
- Lock parking brake.
- Use the safety bar for emptying from a height.
- Remove belts or cords from roller brush.
- Remove the safety bar.
- Start the motor.
- Lower the waste container up to the end-position.
- Switch off engine.

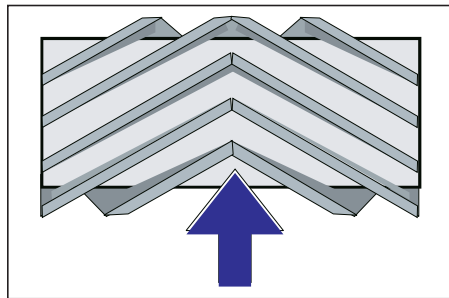
Replacing roller brush



- 1 Key
 - 2 Side panels
- Drive the waste container up and support it with the safety rod.
 - Open the side covers using a key.



- 1 Holding bow
 - 2 Wing nut
 - 3 Side seal
- Unscrew the wing nuts.
 - Remove the retaining clamp.
 - Flip the side seal out.
 - Unscrew the retaining screw of the roller brush intake, and swing the intake to the outside.
 - Pull out roller brush.



Installation position of roller brush in direction of travel (top view)

Note: When installing the new roller brush, ensure correct positioning of the bristle assembly.

- Install new roller brush. The nuts of the roller brush must be inserted on the notches of the opposite crank.

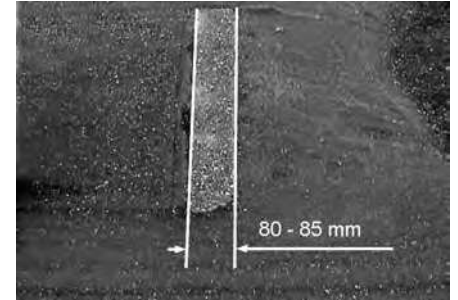
Note: Once the new roller brush has been installed, the sweeping track must readjusted.

Check and adjust roller brush sweeping track

Note: The sweeping track is factory-set to 80 mm; it is steplessly adjustable if the brush roller wears down.

- Check tyre pressure.
- Switch off suction blower.

- Drive sweeper on to a smooth, even surface covered with a visible layer of dust or chalk.
- Roller brush and side brush control lever (1) backwards: Switches the roller brush on.
Roller brush control lever (3) backwards: Lowers the roller brush.
- Allow the roller brush to run for approx. 10 seconds.
- Roller brush and side brush control lever (1) to middle position.
Roller brush control lever (3) forwards: Raises the roller brush.
- Drive machine backwards.
- Check sweeping mirror.



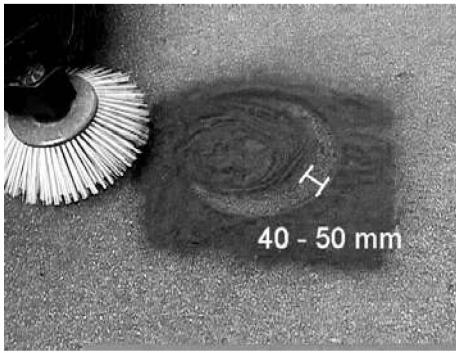
The sweeping track should have an even rectangular shape which is 80-85 mm wide.



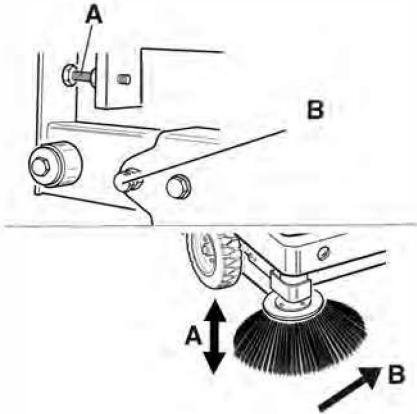
- Undo and adjust the stop screw for wear adjustment (12).
Stop screw at the top: narrow sweeping area.
Stop screw at the bottom: broad sweeping area.
- Tighten the stop screw again.
- Check the sweeping area of the roller brush again as described.

Check and adjust sweeping track of the side-brush

- The side-brushes lift up.
- Drive sweeper on to a smooth, even surface covered with a visible layer of dust or chalk.
- Lower the side brushes using the control lever and allow them to run for approx. 10 seconds.
- The side-brushes lift up.
- Drive machine backwards.
- Check sweeping mirror.



The width of the sweeping track should lie between 40-50 mm.



- Set the sweeping track using the two adjusting screws.
- Check sweeping mirror.

Adjust the side seals

⚠ **DANGER**

Risk of injury!

- Always apply the safety rod when the waste container is raised.
- Perform the safeguarding only from outside the hazard zone.
- Drive the waste container up and secure it with the safety rod.
- Fold the safety rod for the high emptying up and insert it into the holder (secured).



- 1 Holder of safety rod
- 2 Safety rod

- Open the side cover as described in Chapter "Replace brush roller".
- Release the 6 wing nuts on the side holding plate.
- Loosen 3 nuts (SW 13) on the front holding plate.
- Press the side seal down (elongated hole) until it is about 1 to 3 mm to the floor.
- Screw in the holding plates.

- Repeat the procedure on the other side of the appliance.

Manually clean the dust filter



- Switch on manual filter shake off.

Check/replace dust filter

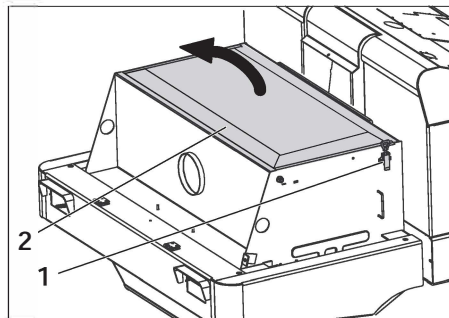
⚠ **WARNING**

Risk of injury!

- Wear a dust mask when working around the dust filter. Observe safety regulations on the handling of fine particles.
- Clean the dust filter with the filter cleaning button.
- Empty waste container.



- 1 Lock of appliance hood
- 2 Cover
- 3 Filter cover
- Open the lock, remove the star grip screw to do this.
- Fold cover forwards.



- 1 Lock, filter cover (2x)
- 2 Filter cover
- Open the lock.
- Open filter cap.



- 1 Cross struts

2 Dust filter

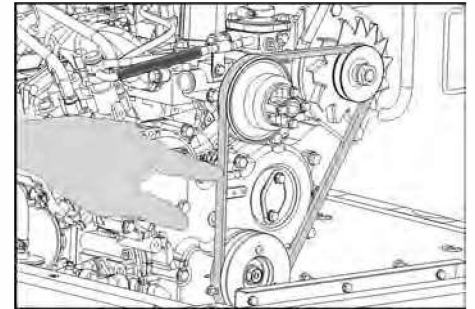
- Check the dust filter, clean or replace if necessary.

Note

Exchanging the dust filter may only be done by the ISAL Customer Service.

- Insert and lock the filter cover.

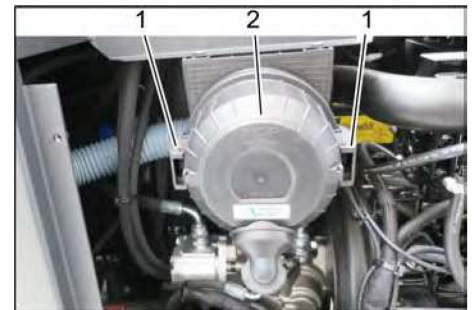
Check and adjust the V-Belt



The V-Belt must deflect approx. 7-9 mm at a pressure of 10 kg.

- Get the V-belt tension adjusted by an authorized customer service.

Check air filter and replace, if necessary



- 1 Lock
- 2 Air filter housing
- Remove side panel.
- Remove the air filter housing.
- Replace the air filter insert.
- Note:** Installation position with blowout opening pointing down (see illustration).

Clean the centrifugal separator



- 1 Wing nut
- 2 Centrifugal separator
- Unscrew the wing nut from the centrifugal separator.
- Clean the centrifugal separator.

Replacing fuses



1 Lock nut

2 Cover fuse box

→ Unscrew the knurled nut.

→ Open the cover on the fuse box.

→ Check the fuses.

→ Replace defective fuses.

Note: Only use fuses with identical safety ratings.

Note: The fuse FU 01 is located in the engine compartment.



FU 01*	Main fuse	60 A
FU 02	Horn	25 A
FU 03	Safety relay Multifunction display	10 A
FU 04	Beacon lamp	5 A
FU 05	Safety relay Time delay	25 A
FU 06	Driver cabin (optional) Wiper	10 A
FU 07	Fuel pump	10 A
FU 08	Starter	3 A
FU 09	Left lighting	7,5 A
FU 10	Right lighting	7,5 A
FU 11	Working light	10 A
FU 12	Vibrator system Suction blower	25 A
FU 13	Backup signal	5 A

** These fuses may only be changed by Customer Service, as it is necessary to check the device for potential faults.*

Troubleshooting

Fault	Remedy
Appliance cannot be started	Sit on the driver seat, the seat contact switch gets activated.
	Press the brake pedal in order to start the engine.
	Charging or replacing battery
	Fill in fuel, deaerate the fuel system
	Change fuel filter
	Check fuel pipes, connections and joints and maintain them if required
	Contact an ISAL Customer Service department
Engine is running erratically	Clean air filter or change filter cartridge.
	Check fuel pipes, connections and joints and maintain them if required
	Contact an ISAL Customer Service department
Engine is overheated	Refill coolant
	Rinse cooler
	Tighten V-Belt
	Contact an ISAL Customer Service department
Engine is running but machine is only moving slowly or is not moving at all	Release parking brake
	Close freewheel (drive position)
	Move the gas lever all the way to the front (high speed).
	Check for trapped ribbons and strings.
	Contact an ISAL Customer Service department
Whistling sound in the hydraulic system	Refill hydraulic fluid
	Contact an ISAL Customer Service department
Brushes are rotating slowly or not at all	Move the gas lever all the way to the front (high speed).
	Check for trapped ribbons and strings.
	Contact an ISAL Customer Service department
Too little or no suction power in the brush area	Check dust filter, clean or replace.
	Contact an ISAL Customer Service department
Dust gathers in the machine	Adjust the side seals
	Switch on blower
	Check dust filter, clean or replace.
	Replace filter washers
	Open the container flap of the waste container.
	Contact an ISAL Customer Service department
Sweeping unit does not pick up waste	Empty waste container
	Check dust filter, clean or replace.
	Replacing roller brush
	Adjust sweeping track
	Replace sealing strips of the waste container
	Remove the blocking of the brush roller
	Open the container flap of the waste container.
	Contact an ISAL Customer Service department
Waste container does not raise or lower	Move the gas lever all the way to the front (high speed).
	Remove the locking support from the waste container
	Contact an ISAL Customer Service department
The container flap of the waste container does not open.	Contact an ISAL Customer Service department
Operation problems with hydraulic movement parts	Contact an ISAL Customer Service department

Technical specifications

		120 DY
Machine data		
Drive speed, forward	km/h	9
Drive speed, reverse	km/h	4
Climbing capability (max.)	%	18
Surface cleaning performance without side brushes	m ² /h	8100
Surface output with side-brush	m ² /h	10800
Working width without side brushes	mm	900
Working width with side-brush	mm	1200
Protection type, drip-proof	--	IPX 3
Usage duration when tank is full	h	4
Engine		
Type	--	YANMAR 3TNV76A
Type	--	3-Cylinder 4-stroke diesel engine
Cooling type	--	Water cooling
Rotation direction	--	Anticlockwise direction
Holes	mm	70
Hub	mm	82
Cylinder capacity	cm ³	1116
Amount of oil	l	3,5
Operating speed	1/min	2500
Max. speed	1/min	2500
Dry run speed	1/min	1300
Max. power	kW/PS	15,8 / 21,5
Maximum torque at 2100 rpm	Nm	67,9
Oil filter	--	Filter cartridge
Suction air filter	--	Internal filter cartridge, external filter cartridge
Fuel filter	--	Filter cartridge
Electrical system		
Battery	V, Ah	12, 60
Generator, rotary current	V, A	12, 55
Starter	--	Electrical starter
Hydraulic system		
Oil quantity in the entire hydraulic system	l	26,5
Oil quantity in hydraulic tank	l	21,2
Oil grades		
Engine (above 25 °C)	--	SAE 30, SAE 10W-30, SAE 15W-40
Engine (0 to 25 °C)	--	SAE 20, SAE 10W-30, SAE 10W-40
Engine (below 0 °C)	--	SAE 10W, SAE 10W-30, SAE 10W-40
Hydraulics	--	HV 46
Waste container		
Max. unloading height	mm	1400
Volume of waste container	l	250
Roller brush		
Roller brush diameter	mm	300
Roller brush width	mm	900
Speed	1/min	350
Sweeping track	mm	80
Side brushes		
Side brush diameter	mm	600
Speed (continuous)	1/min	0 - 60
Solid rubber tyres		
Size, front	--	15-4.5x8

Size, rear	--	120 DY 15-4.5x8
Brake		
Front wheels	--	mechanical
Rear wheel	--	hydrostatic
Filter and vacuum system		
Type	--	Pocket filter
Speed	1/min	2800
Filter surface area, fine dust filter	m ²	6,0
Nominal vacuum, suction system	mbar	15,5
Nominal volume flow, suction system	m ³ /h	800
Vibrator system	--	Electric motor
Working conditions		
Temperature	°C	-5 and +40
Air humidity, non-condensing	%	0 - 90
Values determined as per EN 60335-2-72		
Noise emission		
Sound pressure level L _{pA}	dB(A)	80
Uncertainty K _{pA}	dB(A)	3
Sound power level L _{WA} + Uncertainty K _{WA}	dB(A)	99
Machine vibrations		
Hand-arm vibration value	m/s ²	<2,5
Seat	m/s ²	0,8
Uncertainty K	m/s ²	0,1
Dimensions and weights		
Length x width x height	mm	2082x1250x1450
Right turning radius	mm	1350
Left turning radius	mm	1350
Unladen weight	kg	880
Permissible overall weight	kg	1329
Permissible front axle load	kg	785
Permissible rear axle load	kg	543
Capacity of fuel tank, diesel	l	16
Subject to technical modifications!		

EU Declaration of Conformity

We hereby declare that the machine described below complies with the relevant basic safety and health requirements of the EU Directives, both in its basic design and construction as well as in the version put into circulation by us. This declaration shall cease to be valid if the machine is modified without our prior approval.

The undersigned act on behalf and under the power of attorney of the company management.


Giuseppe del Duca
Managing Director


Vincenzo Fornaciari
Manager R&D

Product: Ride-on vacuum sweeper
Type: 120 DY
S/N 0110136

Relevant EU Directives
2006/42/EC (+2009/127/EC)
2014/30/EU
2000/14/EC

Applied harmonized standards
EN 60335-1

EN 60335-2-72
EN 55012: 2007 + A1: 2009
EN 61000-6-2: 2005
EN 62233: 2008

Applied conformity evaluation method

2000/14/EC: Appendix V
Sound power level dB(A)

Measured: 97
Guaranteed: 99

ISAL s.r.l. con Unico Socio
Via P.Colletta, 19
42124 REGGIO EMILIA - ITALY
fon. +39 0522 823011
fax. +39 0522 823030

1800 100 150

sales@conquesteg.com
conquestequipment.com.au



With you, all the way