

IM 1865

EKM-H

EHM-M

POWERED SWEEPERS

INSTRUCTION & PARTS BOOK

ISSUE 1

The Bomford EKM-H and EKM-M are vehicle-mounted machines designed for general sweeping purposes. All operators and maintenance personnel should read and fully understand the procedures given in this book before operating or working on the machine

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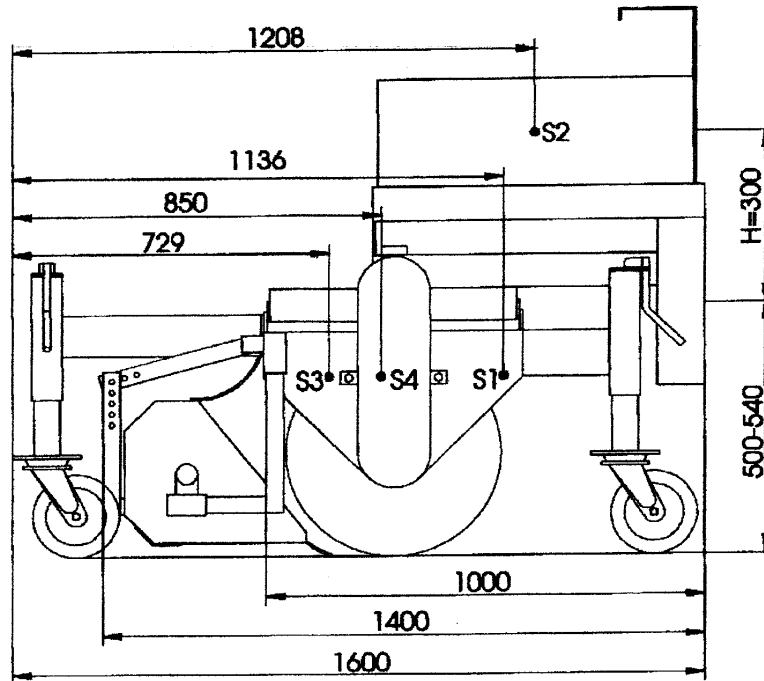
IMPORTANT

This machine is designed for sweeping purposes
and must not be used for any other purpose

It is potentially hazardous to fit or use
Any parts other than genuine **Bomford Turner** parts

The company disclaims all liability for the
consequences of such use which, in addition,
voids the machine warranty

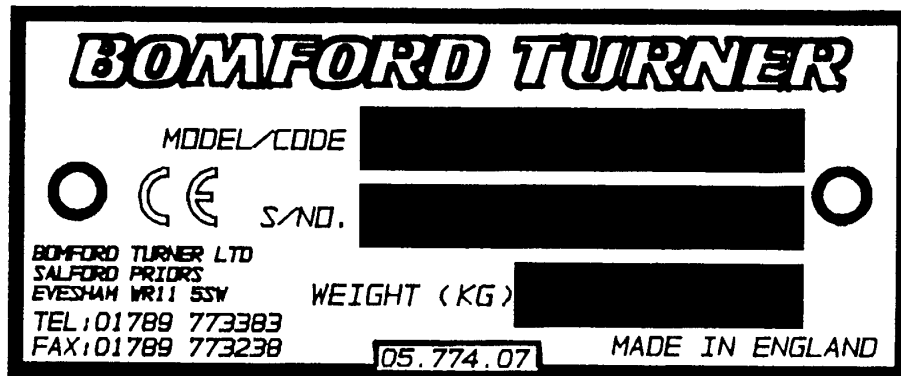
1. TECHNICAL INFORMATION



EKM	cm	120	135	150	165	180	200	230	260
working width	mm	1200	1350	1500	1650	1800	2000	2300	2600
total width	mm	1300	1450	1600	1750	1900	2100	2400	2700
width by 20°	mm	1100	1250	1400	1550	1700	1900	2200	2500
S1 weight sweeping machine complete	kg	115	130	140	155	170	190	210	230
S2 weight sweeping machine + spraying equipment	kg	315	330	340	355	370	390	410	430
S3 weight sweeping machine + dust container + contents	kg	270	300	320	360	390	440	480	530
S4 weight sweeping machine + dust container + spraying equipment	kg	470	500	520	560	590	640	680	730

NOTE. - Check the permitted axle loading of the vehicle

1.1 Data on Serial Plate



1.2. Data on performance and possibilities of use

Surface performance at normal contamination level
 Sweeping speed 6 km/h (pract. performance)
 Example: pract. performance = width x snelheid
 2 meter x 6 km/h
 12.000 m²/h

1.3. Performance

max. operating pressure	hydraulic 160 bar	mechanical n1=540-1000 U/min
absorption hydraulic motor	15-30 l/min	n2=2000 U/min
velocity of revolution	80-160 U/min	80-330 U/min

1.4. Load capacity

Carrying force of the supporting wheels	
rear	350 kg each
front	600 kg

1.5. Application and working width

Sweeping-machine standard

working width	m	1,20	1,35	1,50	1,65	1,80	2,00	2,30	2,60
working width by 20°	m	1,10	1,50	1,40	1,45	1,70	1,90	2,20	2,50
machine width by indirect drive	m	1,30	1,45	1,60	1,75	1,90	2,10	2,40	2,70
machine width by direct drive	m	1,35	1,50	1,65	1,80	1,95	2,15	2,45	2,75

2 SCOPE OF OPERATION

Bomford EKM_H and EKM-M sweepers have been designed and constructed for the sweeping of streets, car parks, yards and similar areas.

The machine has been designed for the removal of dust and small particles; larger items of debris such as stones, bricks, pieces of wood etc must be removed from the work area before sweeping commences.

The sweeper should be operated if possible in low wind conditions. The use of a water spray system will help prevent dust.

3 SAFETY

DO NOT attempt any maintenance of, or adjustment to the machine while it is running.

STOP the vehicle engine and ensure the brushes have stopped rotating before adjusting or working on the machine.

The machine should be checked before use and after repairs or maintenance have taken place. Ensure all nuts and bolts are tight, guards and covers are in place and check the condition of all hoses.

Examine the condition and security of the brushes before operation.

Keep hands and feet away from rotating parts while the machine is running.

Examine the work area before commencing work and remove all large items of debris. There is a danger that these could be thrown from the sweeper at high velocity.

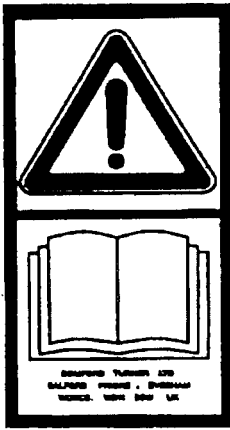
When operating on the public highway ensure you comply with the Road Traffic Act and other regulations. It may be necessary to fit additional lights and warning plates should the ones on the vehicle be obscured by the sweeper.

The operator should ensure that bystanders and animals are well clear of the work area.

Safety Decals

Safety decals are located on various points of the machine. They can be identified by the yellow upper panel depicting the hazard and the lower white panel indicating means of avoidance or precautions to be taken. These decals have no text. It is essential that all operators and personnel associated with the machine fully understand their meanings which are shown on the next page. Any safety decals which are found missing should be replaced.

Safety Decals



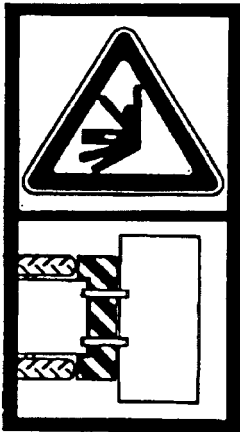
Read Instruction Book
09.821.01



Residual Pressure
09.821.07



Keep Nuts Tight
09.821.10



Keep Out Zone
09.821.16



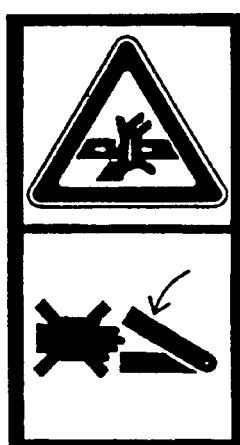
Unsupported Machine
09.821.17



Thrown Debris
09.821.18



Entanglement
09.821.20



Pinch Point
09.821.23

4 ATTACHMENT TO VEHICLE

The machine is attached to agricultural tractors by a 3 point linkage system, different mounting systems are available for other vehicle types.

When attaching the machine do not allow personnel between the vehicle and sweeper.

Hydraulically Driven Sweepers

Hydraulic hoses with “quick release” couplings connect to the hydraulic outlets on the tractor. The sweeper has a permitted maximum operating pressure of 160 bar which must not be exceeded. The sweeper will start to operate as soon as oil starts to flow; if the sweeper operates in the wrong direction reverse the hoses. Ensure the hoses are free of cracks and twists and are routed to prevent damage and stretching.

PTO Driven Sweepers

The sweeper is driven by a standard PTO shaft from the tractor PTO point.

IMPORTANT

MINIMUM ENGAGEMENT OF PTO IS 300MM IN THE WORKING POSITION. THIS MEASUREMENT MUST BE TAKEN INTO ACCOUNT WHEN SHORTENING THE PTO SHAFT.

Before fitting PTO shaft to tractor, grease the sliding drive shafts and bearing units.

Fit PTO to the tractor ensuring locking peg on the splined coupling is fully engaged.

Attach PTO guard check chains to tractor and machine.

5 OPERATION

A pivot system permits the sweeper to follow undulations in the ground and road contours and should be set so that the brush has up and down movement. The angle of the brush roller may also be adjusted.

The working speed is dependent on the conditions. When there are large quantities of sandy material to be swept it is recommended to drive at a low speed (4–5 km/h) and let the brush run at a higher speed of rotation. If only dust is being swept the vehicle speed can be higher (8-10 km/h) and the brush rotation slower.

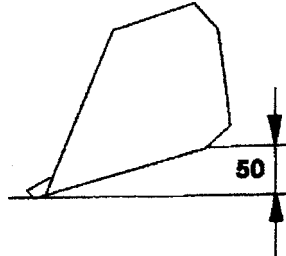
The support wheels are set to correspond with the diameter of the brushes and as the brushes wear the height of the support wheels should be adjusted.

When correctly adjusted the brushes should be just resting on the ground.

6 OPTIONAL EXTRAS

Dust Collector

The dust collector should be set so that the leading edge just touches the ground and the rear of the collector is approximately 50 mm clear of the ground



The emptying of the collector is by an hydraulic cylinder operated from the vehicle hydraulics or alternatively by a lever and cable.

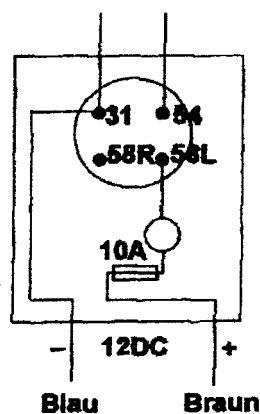
CAUTION

Ensure the collector is closed before the machine is lowered to the ground or damage could occur.

Spraying System

A water spray system is available which fits on the sweeper. A 12v D.C, electrical supply is required from the vehicle to operate the sprayer and the control switch located in the cab close to the operator.

The pump operates at a pressure of 2.8 to 3.1 bar and is protected by a 10 amp fuse. Clean water must be used in the system tank to prevent blocking the filter,



7 TRANSPORT

During transport the machine should be lifted completely clear of the ground. The support wheels should not be used for transporting the machine

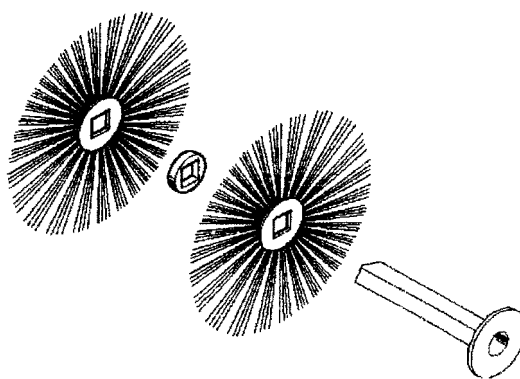
8 MAINTENANCE AND STORAGE

The machine should be stored on its supports with the brush clear of the ground.

Clean and lubricate the machine.

Examine all parts for wear or damage and replace if necessary

Brush Rings



Changing the brush rings (Hydraulically driven machines)

Loosen the motor and bearings from the sideplates. The brush roll is then free. Loosen the support plate to replace the brush segments

Changing the brush rings (PTO driven machines)

Remove the drive guard. Release the tension on the chain and remove it. Remove the sprocket from the brush shaft and remove the bearings. The brush roll is then free. Replace the brush segments as above.

Re-assembly

Ensure that a spacer is inserted between each brush ring. The bearings and drive shaft of the hydraulic motor must be greased before refitting the brush roll.

If necessary adjust the height of the support wheels.

Diagram of hydraulic connections

1. SVK plug
2. dust cap
3. hydr. hose
4. adjustable L joint
5. straight inserted screw socket
6. hydr. cylinder
7. SVK plug
8. dust cap
9. dust cap
10. SVK coupling
11. hydr. hose 1SN DN10
12. Stauff clamp
13. return valve
14. inserted T screwed joint
15. straight inserted screw socket
16. one-way restrictor
17. T screwed joint
18. hydr. hose 1SN DN10
19. hydr. hose 1SN DN10
20. straight screwed joint
21. hydr. motor
22. sheet metal-screw
23. pipe clamp
24. hex. head cap screw
25. spring ring

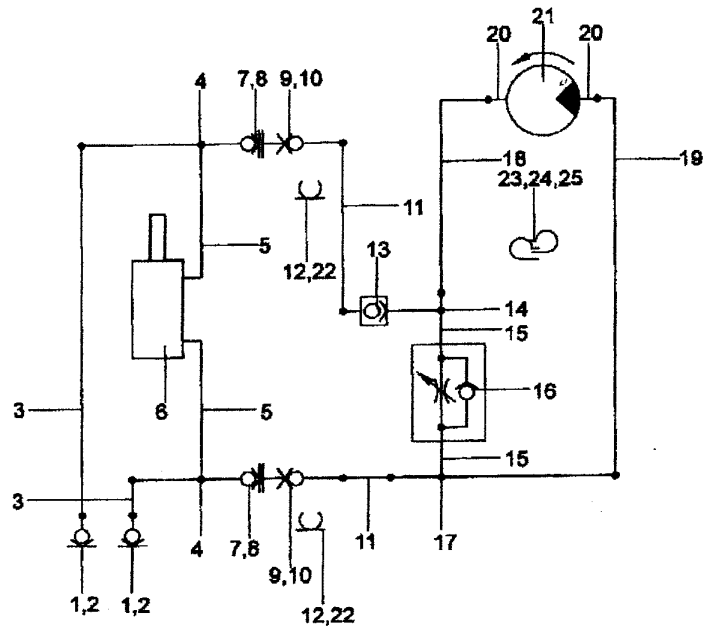
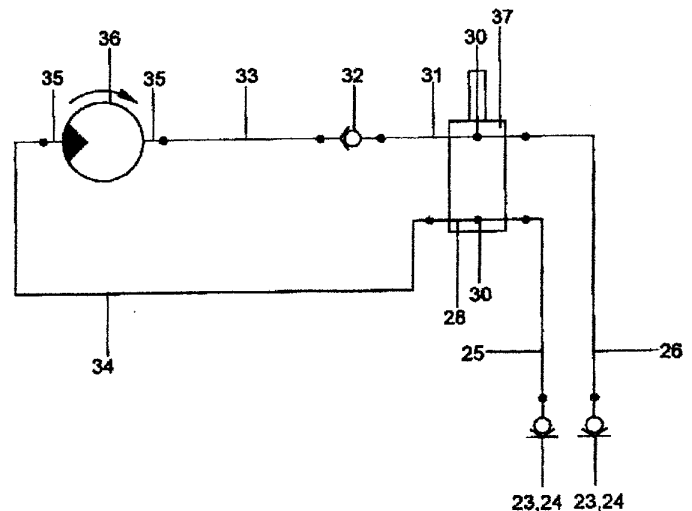
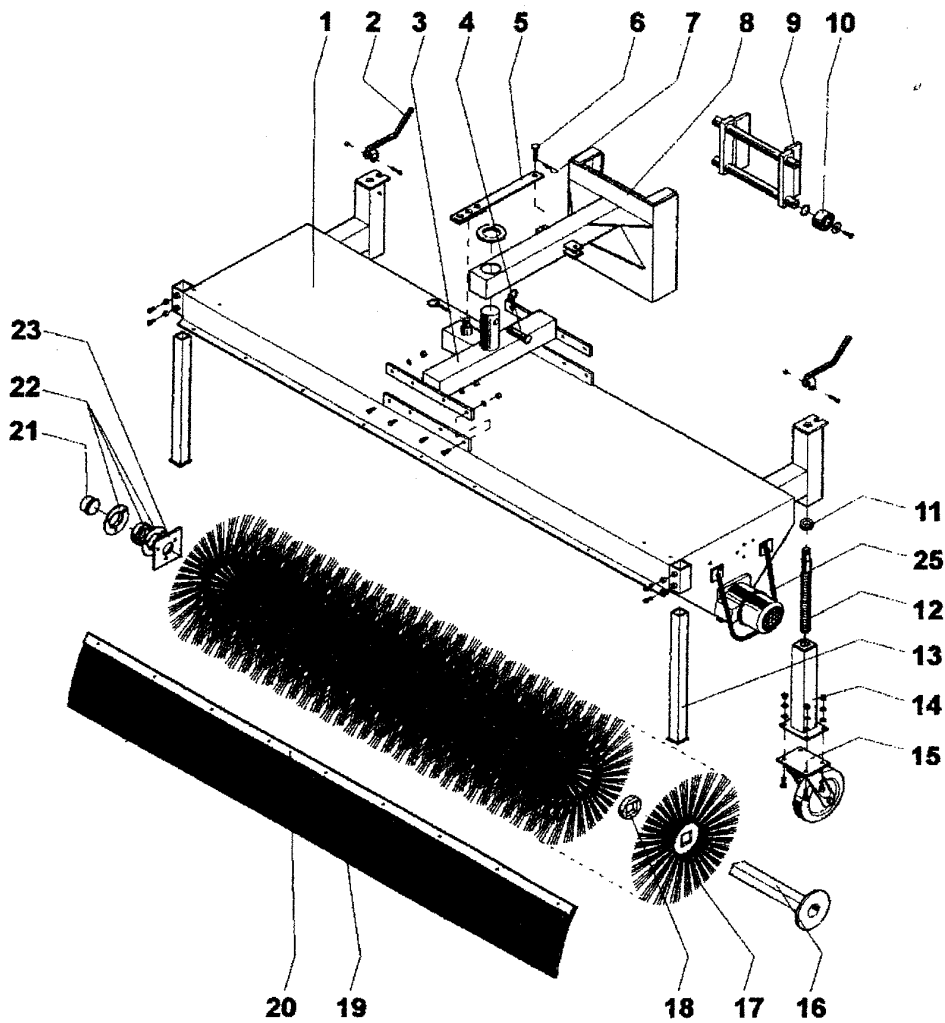


Diagram of hydraulic connections

23. SVK plug
24. dust cap
25. hydr. hose 1SN DN10
26. hydr. hose 1SN DN10
- 27.
28. T screwed joint
- 29.
30. straight inserted screw socket
31. adjustable L joint
32. return valve
33. hydr. hose 1SN DN10
34. hydr. hose 1SN DN10
35. straight screwed joint
36. hydr. motor 160cm³
37. hydr. cylinder



Spare parts list



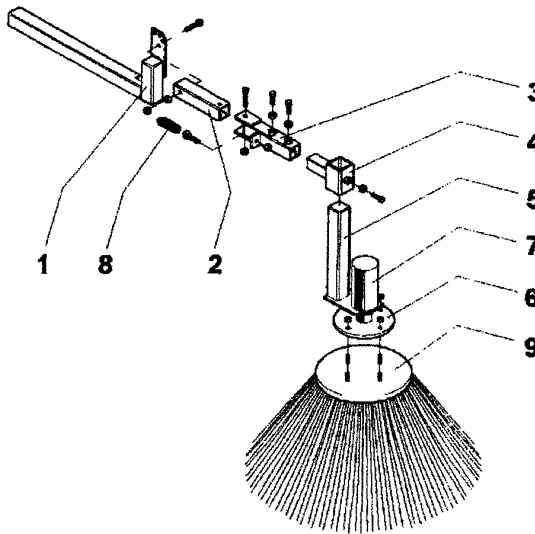
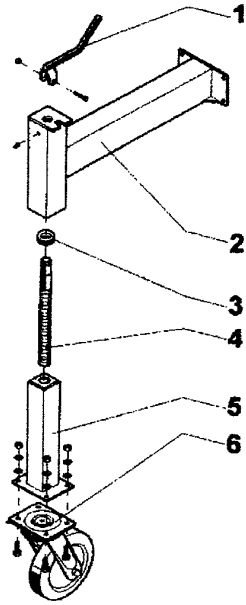
working width in cm

sweeping machine

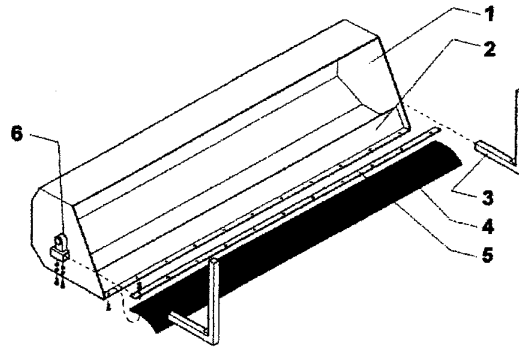
No.	120	135	150	165	180	200	230	260	order number	description
1	1								92.02.A0000	frame 120
1		1							92.03.A0000	frame 135
1			1						92.04.A0000	frame 150
1				1					92.07.A0000	frame 165
1					1				92.05.A0000	frame 180
1						1			92.06.A0000	frame 200
1							1		92.08.A0000	frame 230
1								1	92.09.A0000	frame 260
2	2	2	2	2	2	2	2	2	92.04.D0000	crank
3	1	1	1	1	1	1	1	1	92.58.B0000	ground-plate
4	1	1	1	1	1	1	1	1	00.JK.00004	split pin
5	1	1	1	1	1	1	1	1	92.58.C0000	mechanical side adjustment

No.	working width in cm								order number	description
	120	135	150	165	180	200	230	260		
6	1	1	1	1	1	1	1	1	00.AH.00026	split pin
7	1	1	1	1	1	1	1	1	00.JH.00001	linch pin
8	1	1	1	1	1	1	1	1	92.58.D0000	turning part
9	1	1	1	1	1	1	1	1	81.00.00007	lift console
10	4	4	4	4	4	4	4	4	00.DA.00006	bearing
11	2	2	2	2	2	2	2	2	00.DA.00004	thrust-bearing
12	2	2	2	2	2	2	2	2	92.24.C0000	spindle
13	2	2	2	2	2	2	2	2	92.24.G0000	shore feet
14a	2	2	2	2	2	2	2	2	92.24.B0000	Inside tube for guide pulley
14b	2	2	2	2	2	2	2	2	92.24.B1000	Inside tube for guide pulley
15a	2	2	2	2	2	2	2	2	00.LA.00007	guide pulley 200x50
15b	2	2	2	2	2	2	2	2	00.LA.00008	guide pulley 200x80
16	1								92.02.E10000	extrusion shaft 120
16		1							92.03.E10000	extrusion shaft 135
16			1						92.04.E10000	extrusion shaft 150
16				1					92.07.E10000	extrusion shaft 165
16					1				92.05.E10000	extrusion shaft 180
16						1			92.06.E10000	extrusion shaft 200
16							1		92.08.E10000	extrusion shaft 230
16								1	92.09.E10000	extrusion shaft 260
17a	28	32	35	39	42	47	53	60	00.MA.00010	brush ring steel
17b	14	16	17	19	21	23	26	30	00.MA.00010	brush ring mixed
17b	14	16	18	20	21	24	27	30	00.MA.00011	brush ring mixed
17c	28	32	35	39	42	47	53	60	00.MA.00011	brush ring PPN
18	27	31	34	38	41	46	52	59	00.ME.00001	distance ring
19	1								92.02.00005	rubber apron 120
19		1							92.03.00005	rubber apron 135
19			1						92.04.00005	rubber apron 150
19				1					92.07.00005	rubber apron 165
19					1				92.05.00005	rubber apron 180
19						1			92.06.00005	rubber apron 200
19							1		92.08.00005	rubber apron 230
19								1	92.09.00005	rubber apron 260
20	1								11.32.00005	clamping rail 120
20		1							11.33.00005	clamping rail 135
20			1						11.34.00005	clamping rail 150
20				1					11.37.00005	clamping rail 165
20					1				11.35.00005	clamping rail 180
20						1			11.36.00005	clamping rail 200
20							1		11.38.00005	clamping rail 230
20								1	11.39.00005	clamping rail 260
21	1	1	1	1	1	1	1	1	00.FV.00009	wrapper
22	1	1	1	1	1	1	1	1	00.DA.00005	flange bearing
23	1	1	1	1	1	1	1	1	92.02.R0000	holder
24	1	1	1	1	1	1	1	1	93.04.K0000	motor guard

working width									third shore wheel	
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	92.24.D0000	crank
2	1	1	1	1	1	1	1	1	92.24.A0000	supporting bracket
3	1	1	1	1	1	1	1	1	00.DA.00004	thrust-bearing
4	1	1	1	1	1	1	1	1	92.24.C0000	spindle
5a	1	1	1	1	1	1	1	1	92.24.B0000	Inside tube for guide pulley 200x50
5b	1	1	1	1	1	1	1	1	92.24.B1000	Inside tube for guide pulley 200x80
6a	1	1	1	1	1	1	1	1	00.LA.00007	guide pulley 200x50
6b	1	1	1	1	1	1	1	1	00.LA.00008	guide pulley 200x80



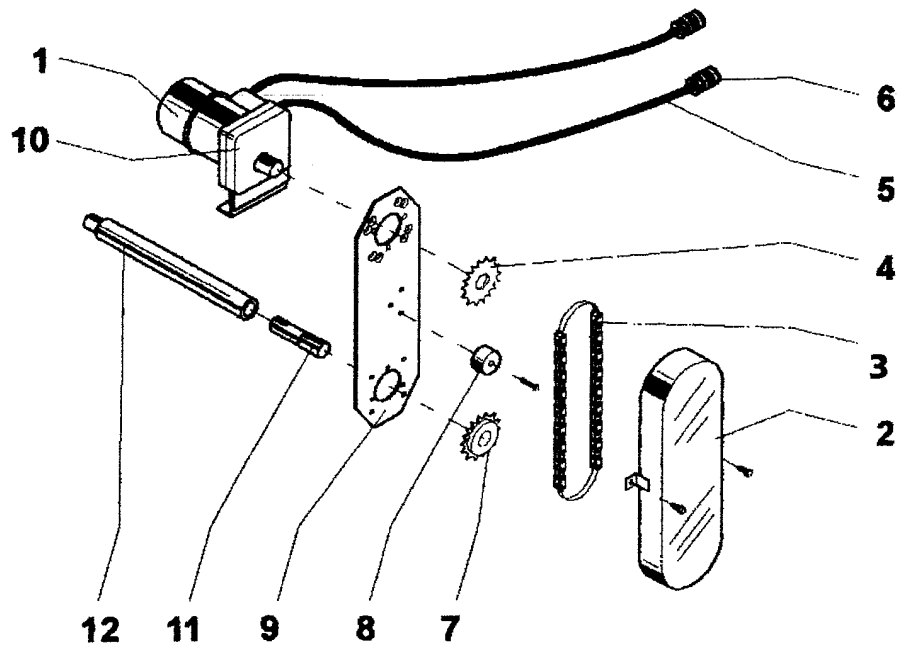
working width									circular broom	
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	93.21.AB000	shifter regulating device
2	1	1	1	1	1	1	1	1	93.21.AD000	rocking lever
3	1	1	1	1	1	1	1	1	93.21.AE000	turning lever
4	1	1	1	1	1	1	1	1	93.21.AF000	crossbar head
5	1	1	1	1	1	1	1	1	16.21.D0000	motor girder
6	1	1	1	1	1	1	1	1	16.21.E0000	flange
7	1	1	1	1	1	1	1	1	00.EK.00001	hydraulic motor
8	1	1	1	1	1	1	1	1	93.21.00001	draw spring
9	1	1	1	1	1	1	1	1	00.MD.00001	circular broom



working width in cm

dust protection

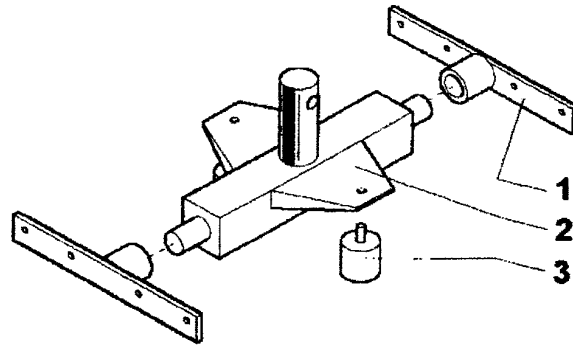
No.	120	135	150	165	180	200	230	260	order number	description
1	1								92.32.A0000	collector 120
1		1							92.33.A0000	collector 135
1			1						92.34.A0000	collector 150
1				1					92.37.A0000	collector 165
1					1				92.35.A0000	collector 180
1						1			92.36.A0000	collector 200
1							1		92.38.A0000	collector 230
1								1	92.39.A0000	collector 260
2	1								92.32.01000	high-filling-flap 120
2		1							92.33.01000	high-filling-flap 135
2			1						92.34.01000	high-filling-flap 150
2				1					92.37.01000	high-filling-flap 165
2					1				92.35.01000	high-filling-flap 180
2						1			92.36.01000	high-filling-flap 200
2							1		92.38.01000	high-filling-flap 230
2								1	92.39.01000	high-filling-flap 260
3	2	2	2	2	2	2	2	2	92.32.E0000	supporting bracket
4	1								00.MF.00013	sweeper ledge 120
4		1							00.MF.00015	sweeper ledge 135
4			1						00.MF.00018	sweeper ledge 150
4				1					00.MF.00019	sweeper ledge 165
4					1				00.MF.00021	sweeper ledge 180
4						1			00.MF.00023	sweeper ledge 200
4							1		00.MF.00025	sweeper ledge 230
4								1	00.MF.00027	sweeper ledge 260
5	1								92.32.00002	fastening strip 120
5		1							92.33.00002	fastening strip 135
5			1						92.34.00002	fastening strip 150
5				1					92.35.00002	fastening strip 165
5					1				92.36.00002	fastening strip 180
5						1			92.37.00002	fastening strip 200
5							1		92.38.00002	fastening strip 230
5								1	92.39.00002	fastening strip 260
6	2	2	2	2	2	2	2	2	92.32.W0000	pendulum tube



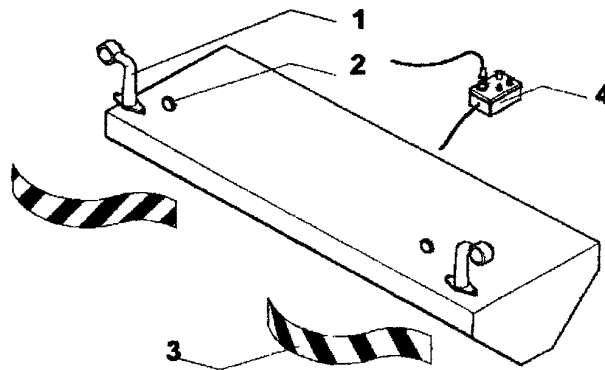
working width in cm

indirect drive

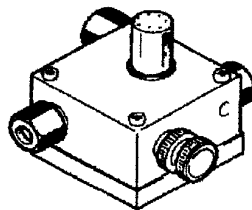
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1				00.EK.00012	hydraulic motor
1						1	1	1	00.EK.00002	hydraulic motor
2	1	1	1	1	1	1	1	1	92.04.F0001	guard plate
3a	1	1	1	1	1	1	1	1	00.HG.00004	chain
3b	1	1	1	1	1	1	1	1	00.HG.00005	chain-lock, straight
3c	1	1	1	1	1	1	1	1	00.HG.00006	chain-lock, cranked
4	1	1	1	1	1	1	1	1	00.CD.00007	chain wheel
5	2	2	2	2	2	2	2	2	00.EP.00020	hydraulic hose
6	2	2	2	2	2	2	2	2	00.ES.00002	hydraulic bayonet
7	1	1	1	1	1	1	1	1	00.CD.00012	chain wheel
8	1	1	1	1	1	1	1	1	92.04.00001	chain adjuster
9	1	1	1	1	1	1	1	1	92.04.00002	center plate
10	1	1	1	1	1	1	1	1	92.04.H0000	distance plate
11	1	1	1	1	1	1	1	1	92.04.00003	vertical shaft
12	1								92.02.E1000	drum shaft 120
12		1							92.03.E1000	drum shaft 135
12			1						92.04.E1000	drum shaft 150
12				1					92.07.E1000	drum shaft 165
12					1				92.05.E1000	drum shaft 180
12						1			92.06.E1000	drum shaft 200
12							1		92.08.E1000	drum shaft 230
12								1	92.09.E1000	drum shaft 260



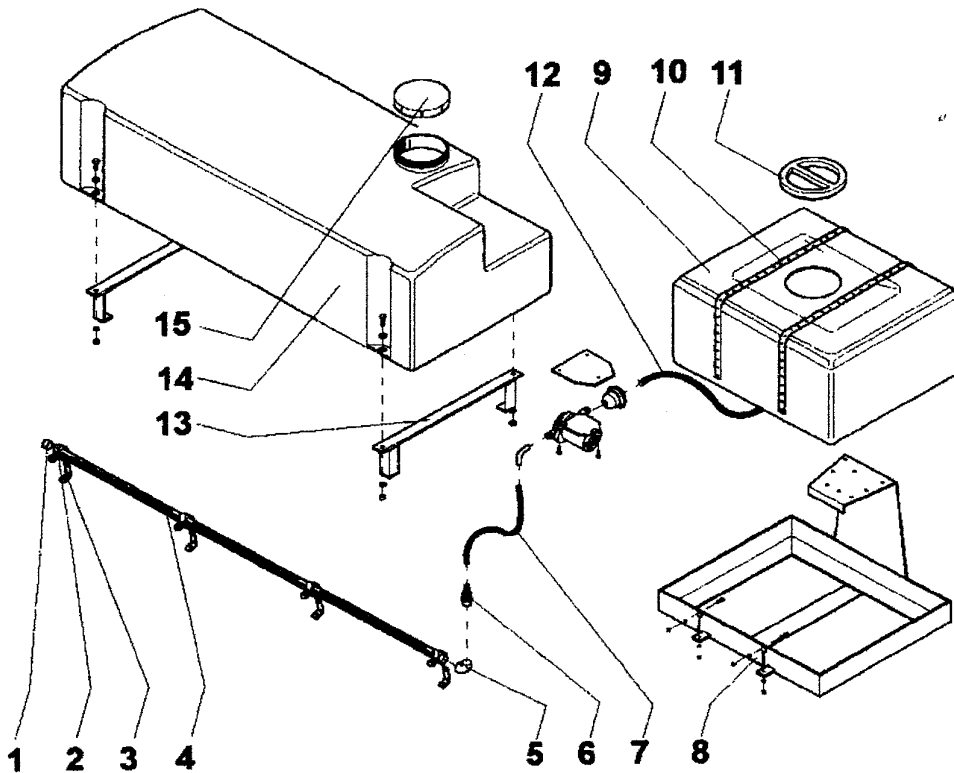
working width in cm									leveling control	
No.	120	135	150	165	180	200	230	260	order number	description
1	2	2	2	2	2	2	2	2	92.57.A0000	sidepart
2	1	1	1	1	1	1	1	1	92.57.B0000	ground-plate
3	2	2	2	2	2	2	2	2	00.HP.00004	rubber-buffer



working width in cm									StVZO-equipment	
No.	120	135	150	165	180	200	230	260	order number	description
1	2	2	2	2	2	2	2	2	00.GE.00001	side lamp
2	2	2	2	2	2	2	2	2	00.KG.00001	reflexion foil
3	2	2	2	2	2	2	2	2	00.KH.00001	rear reflector
4	1	1	1	1	1	1	1	1	01.20.F0000	switch-gear



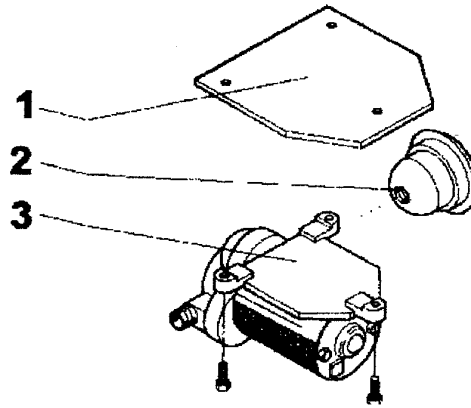
working width in cm									flow rule control with press. valve	
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	00.EN.00014	flow rule control with pressure valve 1/2"
2	1	1	1	1	1	1	1	1	00.EN.00017	flow rule control with pressure valve 3/4"



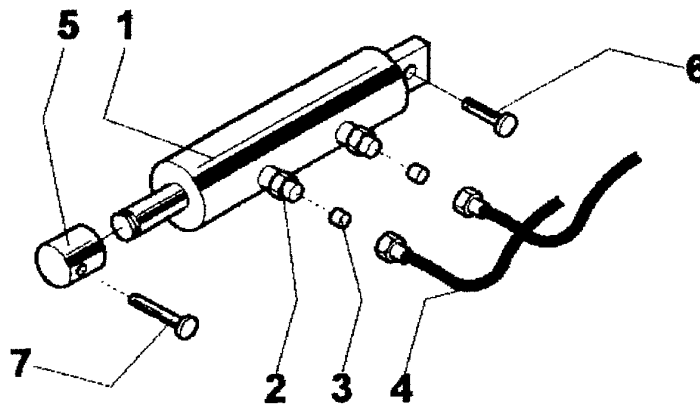
working width in cm

nozzle spraying equipment

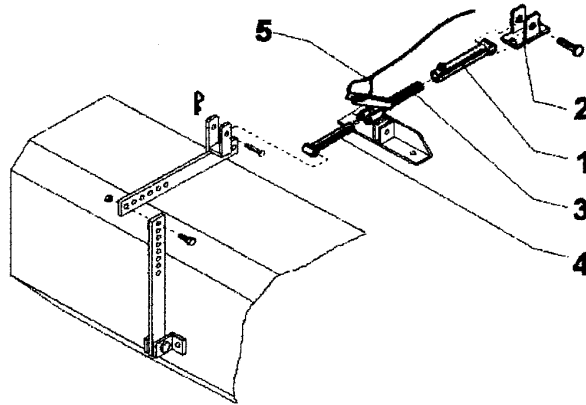
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	00.FW.00020	terminal cap
2	3	3	4	4	4	5	5	6	01.20.C0000	nozzle
3	3	3	4	4	4	5	5	6	05.20.00002	angle sheet
4	1	1							00.BX.00002	PVC pressure pipe
4			1	1	1				00.BX.00003	PVC pressure pipe
4						1	1		00.BX.00004	PVC pressure pipe
4								1	00.BX.00005	PVC pressure pipe
5	1	1	1	1	1	1	1	1	00.FQ.00001	angle
7	1	1	1	1	1	1	1	1	00.FO.00003	pressure hose
8	1	1	1	1	1	1	1	1	92.20.B0000	water tank frame
9	1	1	1	1	1	1	1	1	00.CD.00037	water tank, 100l
10	2	2	2	2	2	2	2	2	00.FM.00002	punched tape
11	1	1	1	1	1	1	1	1	00.CD.00042	filler cap, 100l
12	1	1	1	1	1	1	1	1	00.FO.00002	suction hose
13	2	2	2	2	2	2	2	2	92.20.B2000	water tank frame
14	1	1	1	1	1	1	1	1	00.CD.00038	water tank, 200l
15	1	1	1	1	1	1	1	1	00.CD.00039	filler cap, 200l



working width in cm									waterpump	
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	00.EM.00006	pump plate (from 21KW96)
2	1	1	1	1	1	1	1	1	00.ER.00006	filter (to 21KW96)
2	1	1	1	1	1	1	1	1	00.ER.00010	filter (from 21KW96)
3a	1	1	1	1	1	1	1	1	00.EM.00004	waterpump 12V (from 21KW96)
3b	1	1	1	1	1	1	1	1	00.EM.00005	waterpump 24V (from 21KW96)



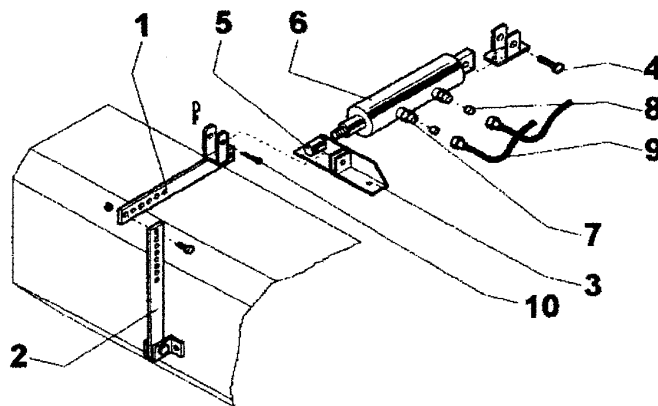
working width in cm									hydraulic side adjustment	
No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	00.EL.00008	hydraulic cylinder
2	2	2	2	2	2	2	2	2	92.22.A0001	screw coupling
3	2	2	2	2	2	2	2	2	92.22.A0002	choke screw
4	2	2	2	2	2	2	2	2	00.EP.00027	hydraulic hose
5	1	1	1	1	1	1	1	1	01.04.D0301	threaded joint
6	1	1	1	1	1	1	1	1	00.JK.00004	split pin
7	1	1	1	1	1	1	1	1	00.JK.00006	split pin



working width in cm

mechanical emptying

No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	11.34.E0000	pressure pipe
2	1	1	1	1	1	1	1	1	92.34.C0000	holder
3	1	1	1	1	1	1	1	1	11.34.F0000	pressure stick
4	1	1	1	1	1	1	1	1	92.34.J0001	pressure arm
5	1	1	1	1	1	1	1	1	00.UB.00002	cable-pull



working width in cm

hydraulic emptying

No.	120	135	150	165	180	200	230	260	order number	description
1	1	1	1	1	1	1	1	1	92.34.H0000	adjusting SBH above
2	1	1	1	1	1	1	1	1	92.34.I0000	adjusting SBH down
3	1	1	1	1	1	1	1	1	92.34.D0001	holder
4	1	1	1	1	1	1	1	1	00.JK.00004	split pin
5	1	1	1	1	1	1	1	1	01.04.D0301	threaded joint
6	1	1	1	1	1	1	1	1	00.EL.00008	hydraulic cylinder
7	2	2	2	2	2	2	2	2	92.22.A0001	screw coupling
8	2	2	2	2	2	2	2	2	92.22.A0002	choke screw
9	2	2	2	2	2	2	2	2	00.EP.00027	hydraulic hose
10	1	1	1	1	1	1	1	1	00.JK.00006	split pin

NOTES