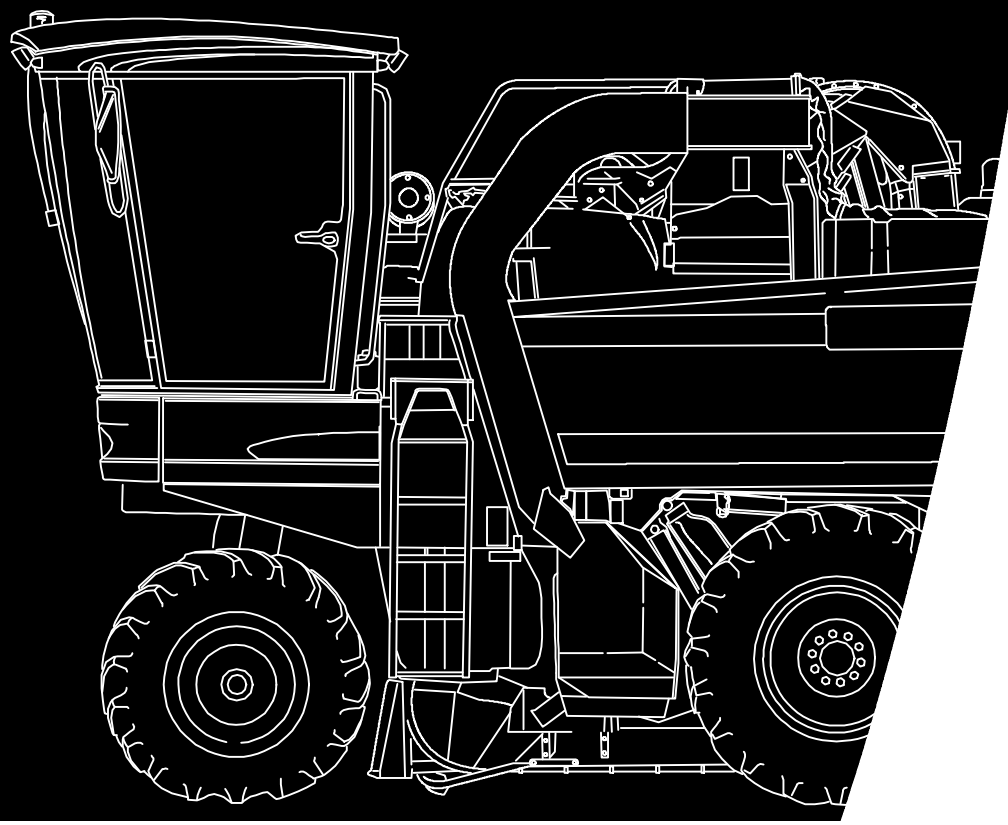
REPAIR MANUAL

NEW HOLLAND
VL5090
VL6040 VM3090
VL6050 VM4090 VN2090
VL6060
VL6070
VL6080
VL6090



NEW HOLLAND

Machine name change
Correspondence

Previous name	New name
VL660 Up to series 024	**VL6090** Starting from series 025
VL640 Up to series 022	**VL6080** Starting from series 023
VL630 Up to series 022	**VL6070** Starting from series 023
VL620 Up to series 021	**VL6060** Starting from series 022
VL610 Up to series 021	**VL6050** Starting from series 022
VL600 Up to series 004	**VL6040** Starting from series 005
VL570 Up to series 008	**VL5090** Starting from series 009
VM460 Up to series 008	**VL4090** Starting from series 009
VM370 Up to series 008	**VL3090** Starting from series 009
VN300 Up to series 003	**VL2090** Starting from series 004

REPAIR MANUAL

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SPECIFICATIONS

Chapter 1

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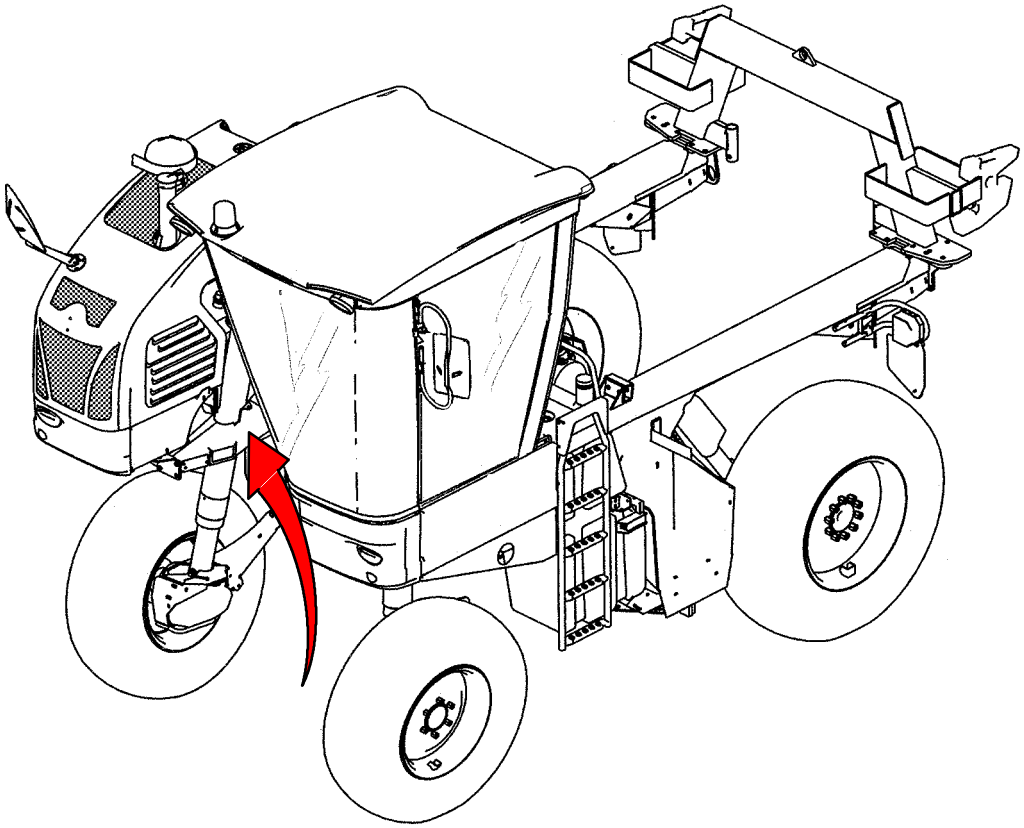
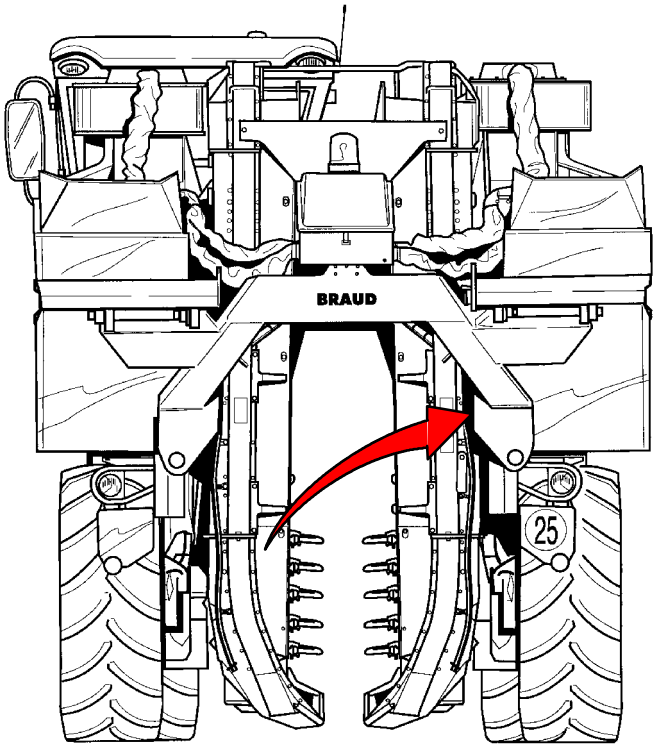




MACHINE IDENTIFICATION DATA

Model	Type	Serial no.	Machine number
VL6090	664	025	001
VL6080	660	023	001
VL6070	660	023	001
VL6090	656	022	001
VL6050	656	022	001
VL6040	650	004	001
VM4090	636	009	001
VM3090	635	009	001
VL5090	655	009	001
VN2090	643	004	001

Note: the harvesting equipment number is the same as the self-propelled machine one.

A = manufacturer's label

B = stamped frame number

OPERATOR'S MANUAL

From VL6050 to 6090 and VM4090: 87613024 (EN)

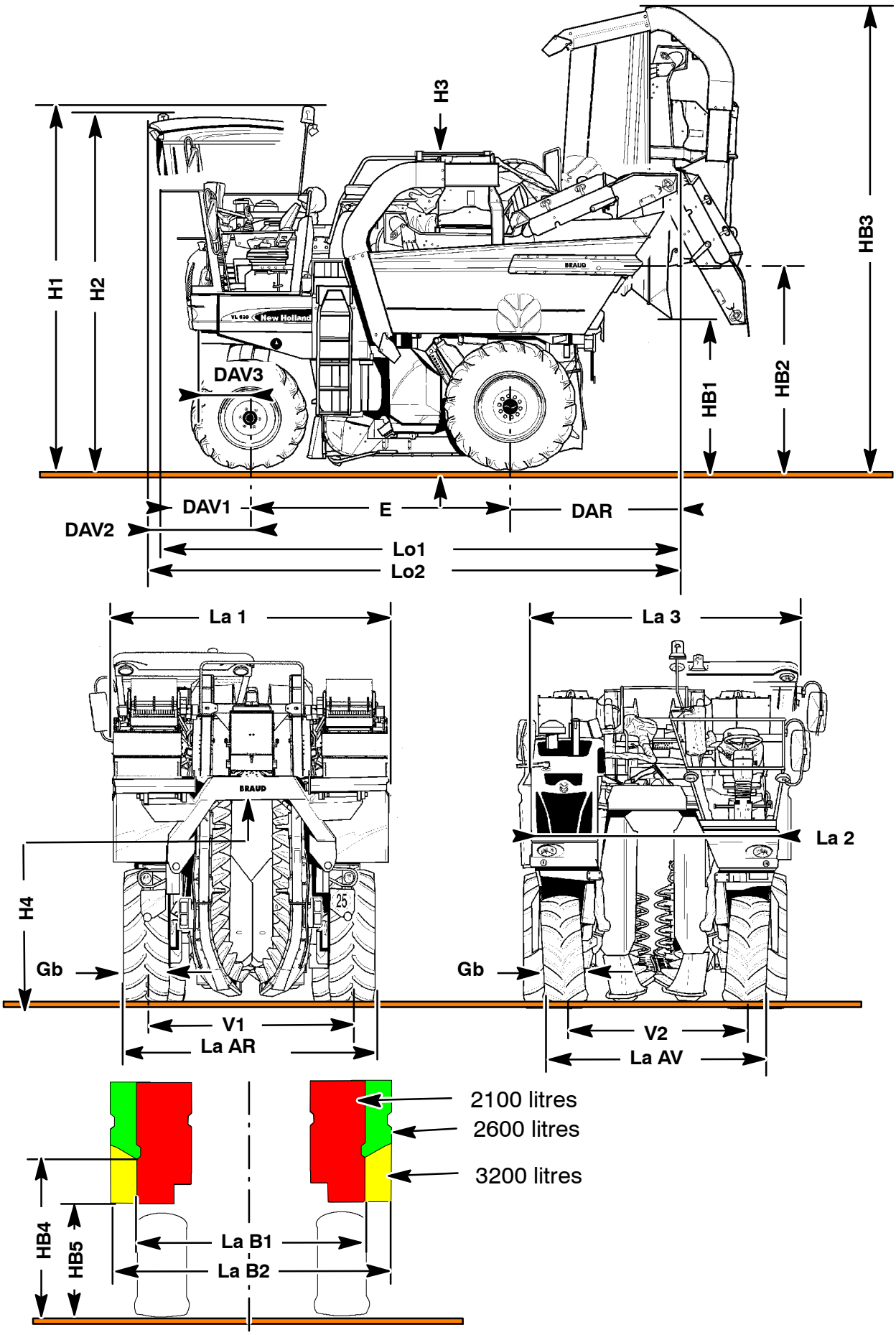
From VL5090 and VM3090: 87613006 (EN)

VL6040: 87613016 (EN)

VN2090:

SPARE PART CATALOGUE

Reference:



COMMERCIAL DESCRIPTION			From VL6040 to 6090	VM4090
Code	**DIMENSIONS (mm)**			
H1 H2	Height: (harvesting equipment on the ground)	without cab with/cab at the revolving beacon	3635	
H3	Harvesting equipment height at the railings without (with) destemmers		3380 (3520)	
H4	Clearance under the harvesting equipment		from 2000 to 2600	
HB1	Clearance under tilted up hoppers		1710	
HB2	Tilting axle height		2100	
HB3	Max. height with lifted hoppers		5150	
HB4	Clearance under the frame	hoppers, 2600 litres	1840	
HB5	Clearance under the frame	hoppers, 3200 litres	1415	
E	Pitch		2850	
La1	Max. width at the hoppers	hoppers, 2100 litres 2100 litres + cab 2600 litres or 3200 litres	2800 (1) 3000 3000	2720 (2) 2800
La2	Max. width from cover to cover	Only self-propelled machine	2590	2390
La3	Max. width from cab top to right cover	Only self-propelled machine	2830	2630
LaB1 LaB2	Hopper width	2100 litres 2600 litres 3200 litres	2530 3000 3000	2330 2800
La AR	Outer width at the rear wheels: (V1 + Gb = La AR)	 Tyres 420/85 R28 Tyres 480 / 70 R 28 Tyres 540/65 R28 Tyres 600/55-30.5	(⁜)(3) 2160 + 454 = 2614 2260 + 480 = 2740 2340 + 540 = 2880 2360 + 600 = 2960	(4) 1790 + 454 = 2244 1860 + 480 = 2340
La AV	Outer width at the front wheel level on ground: (V2 + Gb = La AV) (V2 at ground level)	Tyres 420 / 70 R24 Tyres 13.6 R24	1930 + 420 = 2350 1930 + 350 = 2280	1730 + 420 = 2150 1730 + 350 = 2150
Lo1 Lo2	Max. length without (with) destemmers	without cab with/cab	5360 (5510) 5490 (5650)	
DAV1 DAV2	Front offset	without cab with/cab	930 1070	
DAV3	Offset of front supports for multipurpose		277	
DAR	Rear offset without (with) destemmers		1570 (1730)	

Note: in road position, the noria is at 190 mm from the ground

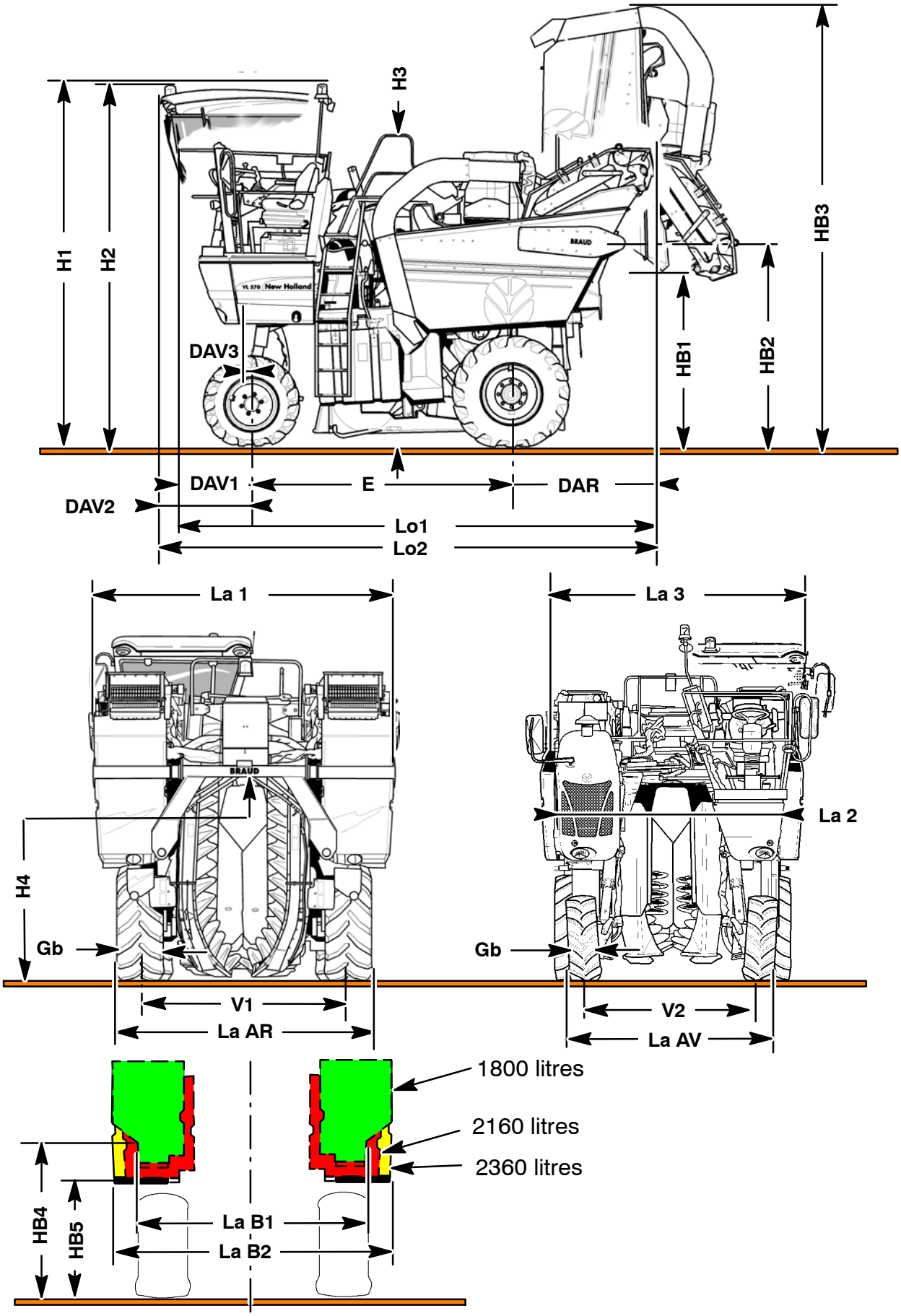
(1) Tyres 420/85 R28

(2) Tyres 480/70 R28

(⁜) large track = narrow track + 160 mm

(3) Bearings on large track

(4) Bearings on narrow track


H3
H1
H2
HB3
HB1
HB2
DAV3
DAV1
E
DAR
DAV2
Lo1
Lo2
La 1
La 3
La 2
H4
Gb
Gb
V1
V2
La AR
La AV
1800 litres
2160 litres
2360 litres
HB4
HB5
La B1
La B2

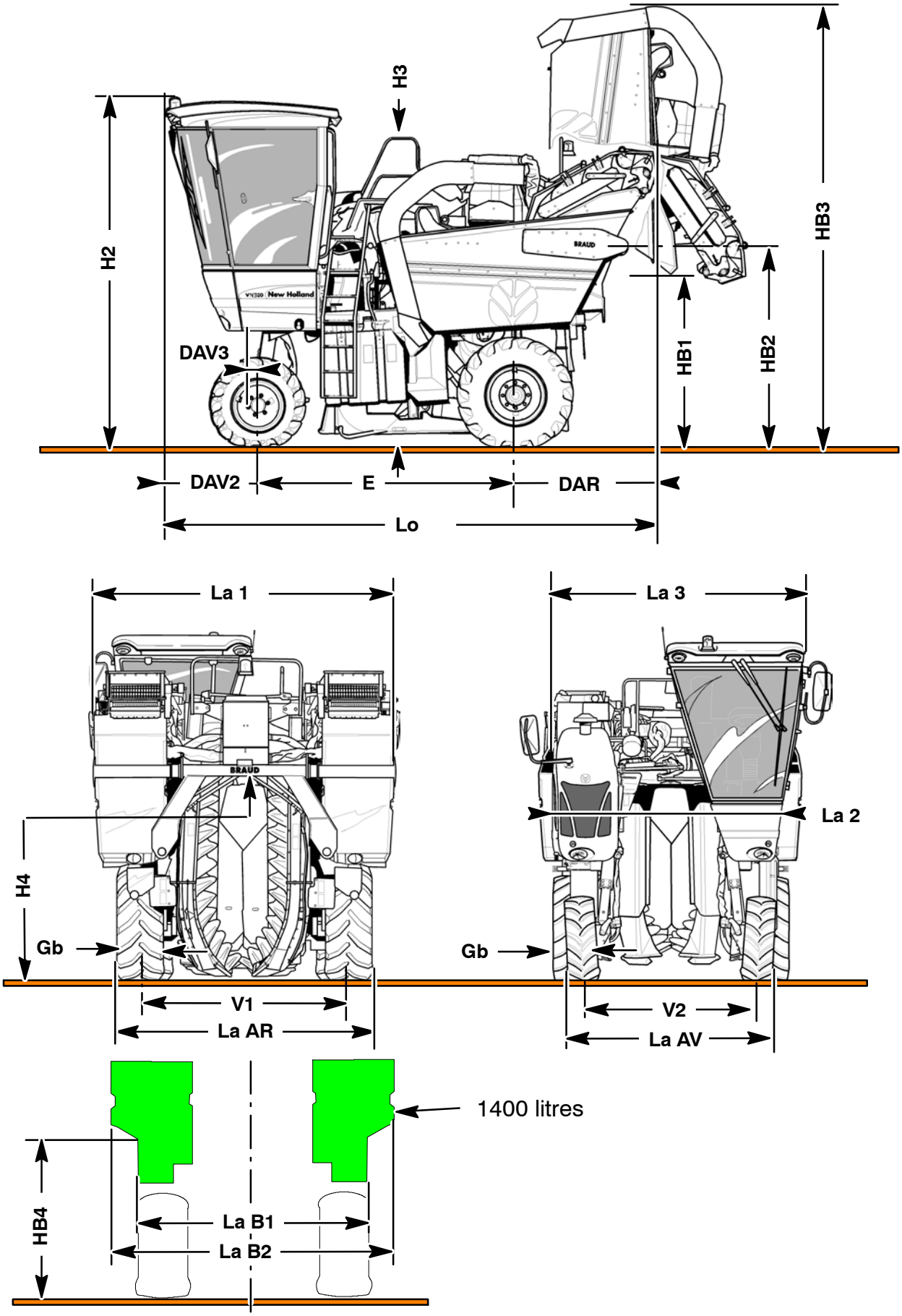
COMMERCIAL DESCRIPTION			VL5090	VM3090
Code	**DIMENSIONS (mm)**			
H1	Height:	without cab	3160	3040
		(at the revolving beacon)	(3745)	(3615)
H2	(harvesting equipment on the ground)	with cab at the revolving beacon	3605	3475
H3	Harvesting equipment height at the railings		3285	3185
H4	Clearance under the harvesting equipment		from 1950 to 2450	from 1800 to 2300
HB1	Clearance under tilted up hoppers		1830	1700
HB2	Tilting axle height		2110	1980
HB3	Max. height with lifted hoppers		4620	4490
HB4	Clearance under the frame	hoppers, 1800 litres	1700	1550
HB5	Clearance under the frame	hoppers, 2160 litres	----	1150
		hoppers, 2360 litres	1150	----
E	Pitch		2760	
La1	Max. width at the hoppers	hoppers, 2360 litres	3000	2800
		2360 litres + cab	3000	2800
La2	Max. width from cover to cover	Only self-propelled machine	2540	2340
La3	Max. width from cab top to right cover	Only self-propelled machine	2750	2540
LaB1	Hopper width	1800 litres	2480	2290
LaB2		2160 litres	----	2800
		2360 litres	3000	----
La AR	Outer width at the rear wheels: (V1 + Gb = La AR)	Tyres 11.2 R 24 (1)	----	1680 + 291 = 1971
		Tyres 11.2-24 T35	----	1680 + 305 = 1985
		Tyres 340/85 R24	----	1780 + 366 = 2146
		Tyres 420 / 70 R24	2090 + 431 = 2521	----
		Tyres 460/70 R24	2120 + 462 = 2582	----
		Tyres 480/65 R24 (2)	2120 + 484 = 2604	----
La AV	Outer width at the front wheel level on ground: (V2 + Gb = La AV) (V2 at ground level)	Tyres 280/70 R20		1720 + 275 = 1995
		Tyres 320/70 R20	1920 + 315 = 2235	1720 + 315 = 2035
Lo1	Max. length without (with) destemmers	without cab	4900 (5090)	
Lo2		with cab	4990 (5180)	
DAV1	Front offset	without cab	880	
DAV2		with cab	970	
DAV3	Offset of front supports for multipurpose		40	
DAR	Rear offset without (with) destemmers		1260 (1450)	

NOTE:

in road position, the noria is at 200 mm from the ground

(1) not produced anymore

(2) an additional equipment with destemmers on a VL5090 machine equipped with 480 / 65 R 24 tyres is not allowed.


H3
H2
HB3
DAV3
HB1
HB2
DAV2
E
DAR
Lo
La 1
La 3
La 2
H4
Gb
Gb
V1
La AR
V2
La AV
1400 litres
HB4
La B1
La B2

COMMERCIAL DESCRIPTION			VN2090	
Code	**DIMENSIONS (mm)**			
H1 H2	Height: (harvesting equipment on the ground)	without cab with cab at the revolving beacon	3475	
H3	Harvesting equipment height	to the railings	3025	
H4	Clearance under the harvesting equipment		from 1500 to 2000	
HB1	Clearance under tilted up hoppers (under the destemmers)		1735 (1570)	
HB2	Tilting axle height		1965	
HB3	Max. height with lifted hoppers		4490	
HB4	Clearance under the frame	hoppers, 1400 litres	1340	
E	Pitch		2740	
La1	Max. width at the hoppers		2400	
La2	Max. width from cover to cover	Only self-propelled machine	2090	
La3	Max. width from cab top to right cover	Only self-propelled machine	2300	
LaB1 LaB2	Hopper width		2017 2400	
La AR	Outer width at the rear wheels: (V1 + Gb = La AR)	Tyres 340/85 R24	1540 + 365 = 1905	
La AV	Outer width at the front wheel level on ground: (V2 + Gb = La AV) (V2 at ground level)	Tyres 320/70 R20	1480 + 315 = 1795	
Lo	Max. length without (with) destemmers	with cab	4930 (5210)	
DAV1 DAV2	Front offset	without cab with cab	980	
DAV3	Offset of front supports for multipurpose		40	
DAR	Rear offset without (with) destemmers		1210 (1490)	

NOTE: *in road position, the noria is at 200 mm from the ground*

COMMERCIAL DESCRIPTION		From VL6040 to 6090	VM4090
WEIGHTS			
PTAC – Total allowed weight under load (kg) (1) (2)		from 9200 to 10500	from 9200 to 9600
Allowed partition (2)	Front axle (kg)	from 3980 to 4200	from 3980 to 4200
	Rear axle (kg)	from 5380 to 7300	from 5380 to 5540
Empty weight (kg) with harvesting equipment VL6040 (from VL6050 to 6090)		8200 (8660)	8660
– *with hoppers (litres), standard wheels and cab, but without destemmers and without lower extractors.*		2600	2200
– *with destemmers, add .... (kg)*		460	460
(1) up to 10000 kg for VL6040 and up to 10500 kg for VL from 6050 to 6090			
(2) depending on the tyres and on the load index			
FEEDING / EXHAUST			
Fuel tank	Used fuel	Diesel fuel	
	Capacity (litres)	250	
Engine (cylinders)		6	4
– ISO power (kW/CV)		VL6050 and 6060 = 107/145	94/128
– Displacement = 1125 cm^3/cylinder		VL6070 and 6080 = 120/160	
		VL6090 = 129/175	
Empty operating speed +/– 50 (rpm)		2500	2500
Air filter	Make	DONALDSON	
	Type	ELB 12–0265	
Engine cooling	Water capacity (litres)		
	Fan	Sucking	
Cooling fan ∅ (mm)		610	584
DRIVE			
Pump for engine fan	Make	SAUER	
	Displacement (cm^3/rev.)	17	
	Empty operating speed (rpm)	(1.02 x engine speed)	
	Capacity (l/minute), output 0.9	38	
Fan motor	Make	SAUER	
	Displacement (cm^3/rev.)	12.2	
Variable displacement inching hydraulic pump	Make	REXROTH	
	Type	A4VG	
	Total displacement (cm^3/rev.)	from 0 to 105	

COMMERCIAL DESCRIPTION		From VL6040 to 6090	VM4090
DRIVE (follows)			
Priming pump	Displacement (cm^3/rev.)	26	
	Capacity (l/minute), output 0.9	58.5	
Front wheel motor	Make	POCLAIN	
	Type	MS 08	
	Displacement (cm^3/rev.)	1043	
Rear wheel motor	Make	POCLAIN	
	Type	MSE 18	
	Displacement (cm^3/rev.)	2636 (1406/1230)	
Max. speed (km/h) in road position		25 km/h	
Max. speed in field position		12	
Hydraulic oil			
Capacity (litres)	Reservoir	65	
Oil type	New Holland	Hydrosystem 68	
		Hydrosystem 68 BIO S	
Conveyor and extractor pump	Make	REXROTH	
	Displacement (cm^3/rev.)	”Load sensing” from 0 to 45	
	Empty operating speed (rpm)	2500 (see engine speed)	
	Capacity (l/minute), output 0.9	101.2	
Shaking pump	Make	SAUER	
	Displacement (cm^3/rev.)	22	
	Empty operating speed (rpm)	2500 (see engine speed)	
	Capacity (l/minute), output 0.9	49.5	
Pump for steering/lifting/hoppers	Make	SAUER	
	Displacement (cm^3/rev.)	14	
	Empty operating speed (rpm)	(1.02 x engine speed)	
	Capacity (l/minute), output 0.9	32	
STEERING		**Hydrostatic**	
Type		EATON QAMP 146 cm^3/rev.	
BRAKING SYSTEM			
Service brake		Supplied by the hydrostatic transmission	
Parking brake (acting on both rear wheels)		Operated by ONE pedal and by the steering	
Park brake		Operated by left manual lever	

COMMERCIAL DESCRIPTION		From VL6040 to 6090	VM4090
TILTING CORRECTION		30%	
PLATFORM CAB			
Heated and A/C cab		Depending on the model	
Activated charcoal filter		Optional	
Board computer		●	
Grand–Luxe seat			
Pneumatic seat		●	
Multifunctional handle		●	
LIGHTING AND WARNING LIGHTS			
High/low beams		2	
Front parking lights		2	
Rear parking lights		2	
Direction indicator warning lights	Front	2	
	Rear	2	
	Side	2	
Stop lights		2	
License plate light		1	
Reflector	Rear	2	
Revolving beacon		2	
Supply voltage	(V)	12	
Alternator	(A)	120	
Battery	(Ah)	180	
Starting presetting	(A)	1000	

COMMERCIAL DESCRIPTION		VL6040	From VL6050 to 6090	VM4090
HARVESTING EQUIPMENT				
HARVESTING HEADER				
Harvesting header hour counter		No	Yes	
Type		Swinging, self-aligning		
System		SDC shaking		
Number of shakers		14		
Straight/elbow connecting rod		13/1		
Shaking start	Motor manufacturer	EATON	SAUER	
	Displacement (cm^3/rev.)	46	22	
	Control unit: - ratio - grease		1/4 AMBRA GR75MD 1.2 kg	
	Chain:	•		
Toe-in adjustable from the operator's seat		No	yes	
Amplitude settings		4 or 3		
Min. clearance under the frame (mm)		2000		
Grape harvesting useful height (mm)		1650		
Harvesting tunnel width (mm)		500		
Noria system	Buckets per chain	63		61
	Type	XXL		small
	Synchronization	in field speed		
	Drive gears:	16/59		
Width of flexible stake-guides (mm)		from 195 to 265		from 165 to 235
Tightness length (mm)		2100		
Harvesting min. height (mm)		150		
Operation	Motor manufacturer	EATON		
	Displacement (cm^3/rev.)	500		
Harvesting conveyors	Width (mm)	600		
	Max. operating speed rpm	about 750		
	Reverse	yes		
Single operation	Motor manufacturer	EATON		
	Displacement (cm^3/rev.)	31.6		

COMMERCIAL DESCRIPTION		From VL6040 to 6090	VM4090
RECEIVING / TRANSPORTATION			
Noria system	Buckets per chain	63	61
	Type	XXL (from 6040 to 6090)	small
	Syncronized Drive	in field speed	in field speed
	gears	16/59	16/59
Width of flexible stake-guides (mm)		from 195 to 265	from 165 to 235
Tightness length (mm)		2100	
Harvesting min. height (mm)		150	
Operation	Motor manufacturer	EATON	
	Displacement (cm^3/rev.)	500	
Harvesting conveyors	Width (mm)	600	
	Max. operating speed rpm	about 750	
	Reverse	yes	
Single operation	Motor manufacturer	EATON	
	Displacement (cm^3/rev.)	31.6	
2 upper extractors with removable stalk choppers	Diameter (mm)	460	
	Operation	hydraulic	
	Motor manufacturer	SAUER	
	Displacement (cm^3/rev.)	11	
2 lower extractors with	Diameter	430	
	Operation	Hydraulic	
	Motor manufacturer	SAUER	
	Displacement (cm^3/rev.)	6	
2 independent stalk choppers, enabled by shaking	Operation	Hydraulic	
	Motor manufacturer	EATON	
	Displacement (cm^3/rev.)	8.2	
	Rotation direction	reverse to the wheels	

COMMERCIAL DESCRIPTION		From VL6040 to 6090	VM4090
RECEIVING / TRANSPORTATION (follows)			
HOPPERS			
Capacity (litres)		2 x 1600	
		2 x 1300	2 x 1300
		2 x 1050	2 x 1050
Electrically-operated distribution auger		Control independent of the grape harvester	
Separating destemmers			
- Belt drive	Motor	EATON	
	Displacement (cm^3/rev.)	59	
	Speed		
- Distributor drive	Motor	EATON H plus	
	Displacement (cm^3/rev.)	36	
	Speed		

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
WEIGHTS				
PTAC – Total allowed weight under load (kg) (1)		from 8000 to 8300	7800	7900
Allowed partition	Front axle (kg) (1)	3440	from 3100 to 3400	3400
	Rear axle (kg) (1)	from 4700 to 5200	from 4600 to 4800	4600
Empty weight (kg) with harvesting equipment		7140	6820	6760
– *with hoppers (litres), standard wheels and cab, but without destemmers and without lower extractors.*		2400	2200	1500
– *with destemmers, add .... (kg)*		580	580	460
(1) depending on the tyres and on the load index				
FEEDING / EXHAUST				
Fuel tank	Capacity (litres)	160		
Engine (cylinders)		4		
– Power ISO (kW/CV)		94/128		
– Displacement (cm^3)		4485		
Empty operating speed +/– 50 (rpm)		2500		
Air filter	Make	DONALDSON		
	Type	FPG090225		
Engine cooling	Liquid capacity (litres)			
	Sucking fan	●		
Air/air intercooler		●		

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
DRIVE				
Variable displacement inching hydraulic pump	Make	REXROTH A4VG90		
	Displacement elimination	●		
	Operation	control		
	Total displacement (cm^3/rev.)	90		
Priming pump	Displacement (cm^3/rev.)	25		
	Capacity (l/minute), output 0.9	56.25		
Front wheel motor	Make	POCLAIN		
	Type	MSE 05		
	Displacement (cm^3/rev.)	688		
Rear wheel motor	Make	POCLAIN		
	Type	MSE 11		
	Displacement (cm^3/rev.)	843/843		
Double steering valve		●		
Front drive wheels in road position		●		
”Twin lock” antiskid		●		
Torque reduction on front wheels **optional**		●		
Capacity divider 50/50 right/left **optional**		NO	NO	●
Max. speed in road position, (km/h)		25	25	20
Max. speed in field position, (km/h)		11		
Hydraulic oil				
Capacity (litres)	Reservoir	65		
Oil type	New Holland	Hydrosystem 68		
		Hydrosystem 68 BIO S		
Hydraulic filtering (intake/return)		●		

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
DRIVE (follows)				
Conveyor and extractor pump	Make	SAUER		
	Displacement (cm^3/rev.)	44		
	Empty operating speed (rpm)	engine speed		
	Capacity (l/minute), output 0.9	99		
Double pump – for shaking	Make	SAUER		
	Displacement (cm^3/rev.)	22		
	Empty operating speed (rpm)	(1.02 x engine speed)		
	Capacity (l/minute), output 0.9	50.49		
– for steering/ lifting/hoppers	Displacement (cm^3/rev.)	11		
	Empty operating speed (rpm)	(1.02 x engine speed)		
	Capacity (l/minute), output 0.9	25.24		
STEERING		**Hydrostatic**		
Type	Make	EATON		
	Displacement (cm^3/rev.)	100		
BRAKING SYSTEM				
Service brake		Supplied by the hydrostatic transmission		
Parking brake (acting on the two rear wheels)		●		
Park brake		manual control, on the left		
Electrically-operated independent brakes		No		
TILTING CORRECTION				
Max. tilting (%)		25		
Max. tilting in road position (%)		8		
Max. tilting in work position (%) (with destemmers or special implements and front wheels with ballasts)		32		
FRAME				
Harvesting header quick uncoupling		●		
Link fitting possibility		●		No
Front and rear tracks = see relevant SB		●		No

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
PLATFORM CAB				
Heated and A/C cab				
Activated charcoal filter				
Dashboard	Make	ELTEC		
Imitation leather seat as standard outfit		●		No
Pneumatic seat with cab **optional**		●		Standard
Multifunction lever, number of push buttons		18		
Electrical inching control adjusted through sensors (**optional radar**)		●		
Electrical presetting for:				
- electrically-operated rear view mirrors		●	●	●
- CDHA		●	●	No
- rear viewing		●	●	●
LIGHTING AND WARNING LIGHTS				
High/low beams		2		
Front parking lights		2		
Rear parking lights		2		
Direction indicator warning lights	Front	2		
	Rear	2		
	Side	2		
Stop lights		2		
License plate light		1		
Reflector	Rear	2		
Revolving beacons		2		
Supply voltage	(V)	12		
Alternator	(A)	120		
Battery	(Ah)	135		
Starting presetting	(A)	760		

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
HARVESTING EQUIPMENT				
HARVESTING HEADER				
Harvesting header hour counter		yes		
Type – swinging, self-aligning		●		
SDC shaking system		●		
Number of shakers		14	12	10
Straight/elbow flexible connecting rod		13/1	11/1	9/1
Shaking start	Motor:	SAUER		EATON
	Displacement (cm^3/rev.)	22		46
	Reducer control unit:			
	– ratio	1/4		
	– grease	AMBRA GR75MD 1.2 kg		
	Chain:			●
Toe-in adjustable from the operator's seat		●	●	No
Amplitude settings		3	3	1
Removable shakers, **optional**		●	●	No
Clearance under the frame (min./max. mm)		1950/2450	1800/2300	1500/2000
Grape harvesting useful height (mm)		1200	1100	1050
Harvesting tunnel width (mm)		500		300
RECEIVING / TRANSPORTATION				
Noria system	Large buckets	55		
	Small buckets		53	54
	Fastening by rivets	2 x 2	1 x 3	1 x 3
	Drive gears	17/58	16/59	16/59
Stake-guides width (mm)		flexible 195/265	flexible 165/235	fixed 165
Tightness length (mm)		1750		1900
Harvesting min. height (mm)		150		
Operation	Motor	EATON		
	Displacement (cm^3/rev.)	395		

COMMERCIAL DESCRIPTION		VL5090	VM3090	VN2090
RECEIVING / TRANSPORTATION (follows)				
Harvesting conveyors	Width (mm)	450		
	Speed (max. rpm)			
	Reverse	Yes		No
Single operation	Motor	EATON		
	Displacement (cm^3/rev.)	31.6		
CLEANING				
2 upper extractors with removable stalk choppers	Diameter (mm)	430		
	Motor	SAUER		
	Displacement (cm^3/rev.) (*)	8/11/14	8/14	8/14
	Speed adjustment	electrically operated		
2 lower extractors (optional)	Diameter (mm)	430		
	Motor	SAUER		
	Displacement (cm^3/rev.)	6		
	Speed adjustment:	electrically operated		
2 independent stalk choppers, enabled by noria in proportional	Motor	EATON		
	Displacement (cm^3/rev.)	8.2		
HOPPERS				
Capacity (litres)		2 x 900	2 x 900	2 x 700
		2 x 1180	2 x 1080	
Distribution auger	Motor	EATON		
	Displacement (cm^3/rev.)	31.6		
	Speed	adaptable		
Separating destemmers				
- Belt drive	Motor	EATON		
	Displacement (cm^3/rev.)	59		
	Speed			
- Distributor drive	Motor	EATON H plus		
	Displacement (cm^3/rev.)	36		
	Speed			

(*) (depending on the outfit) (see section 35).

SECTION 00 - MAINTENANCE

Chapter 1

CONTENTS

LUBRICANT AND LIQUID CAPACITIES

Item to be supplied	Quantity	Recommended product	Corresponding international classification
Self-propelled machine grease fittings		Grease **AMBRA GR 9**	Lithium-calcium based grease, consistency NLGI 2
Harvesting machine grease fittings		Grease **Food type**	24 cartridges re. **62777339**
Noria ECU	1 kg		
Shaking rear connecting rod articulations		Grease	Teflon silicone grease Sitef degree 3 410-g cartridge, re. 920019780
Shaking ECU	1.2 kg	**AMBRA GR 75 MD** **NH 720 A**	Re. 661874 molybdenum bisulfide grease, consistency NLGI 2
Engine sump and filter/s 6-cylinder engine 4-cylinder engine	 16 l 9.5 l	Oil **AMBRA MASTER GOLD HSP** **15W - 40**	SAE 15W40 NH 330H API CI - 4 CH4 ACEA E3/E5
Reservoir	65 l	Oil AMBRA **HYDROSYSTEM 68**	ISO 68 DIN 51524 - part 2
Cooling system	20 l	AMBRA **AGRIFLU (50%) +** clean water (50%)	

NOTE: *the integrated joints of the rear shaking flexible connecting rods do not require greasing.*

THERMAL ENGINE MAINTENANCE

a) After the first 50 hours

- Let the engine run until it reaches the standard operating temperature.
- Replace diesel oil filter cartridge/s.
- Check alternator and compressor belt tension.

  Check engine tightness.

b) Every day, or every 10 hours, check:

- oil level,
- coolant level,
- check the cleaning conditions of the radiator core.

c) Every 400 hours, or before each harvesting season:

- engine oil,
- replace oil filter cartridge/s,
- replace diesel oil filter cartridge/s,
- Check the belt tension,
- Check the radiator core cleanliness.
- If the air filter clogging indicator comes on, clean the main cartridge by compressed air, blowing inside out.
  Be careful not to use a pressure over 6 bar; shift the nozzle downwards and hold it at about 3 cm from the paper.

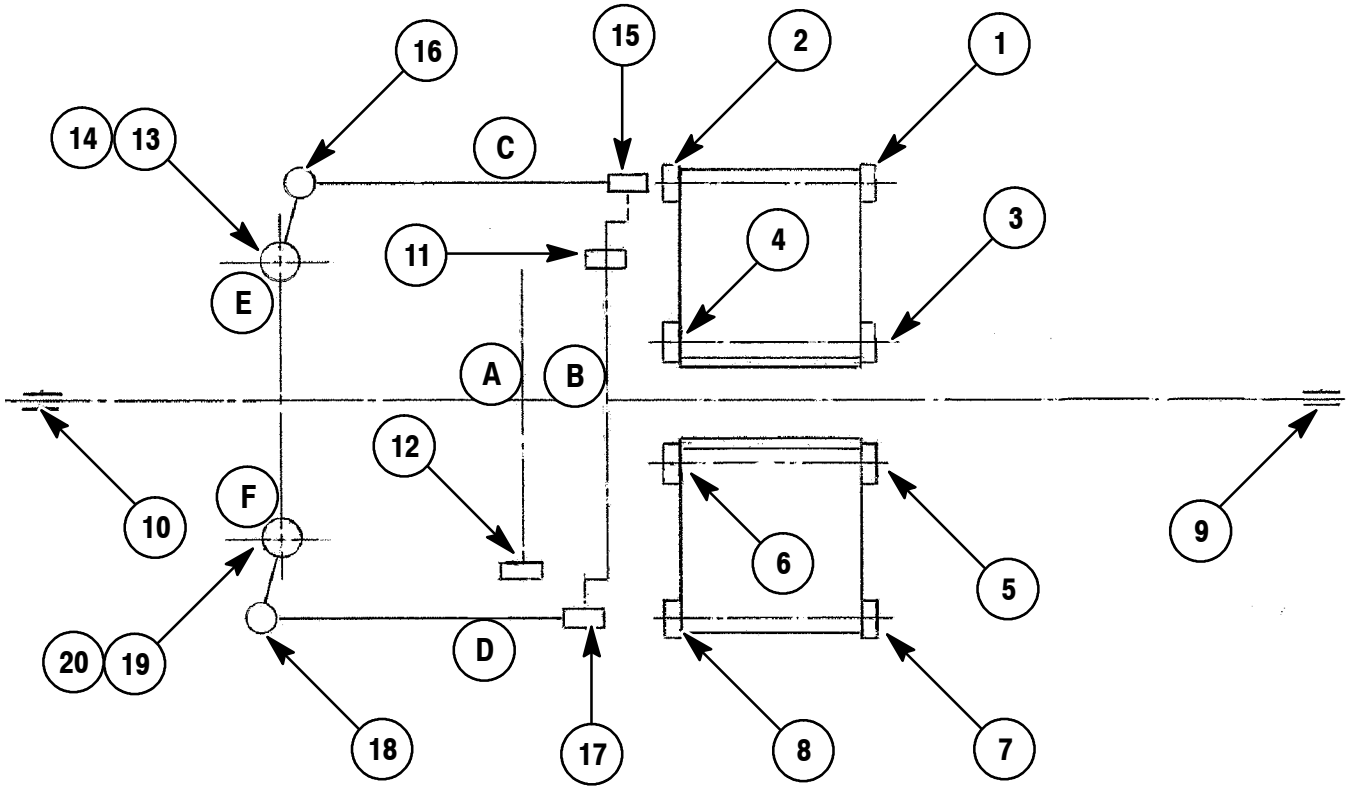
d) Only before each campaign:

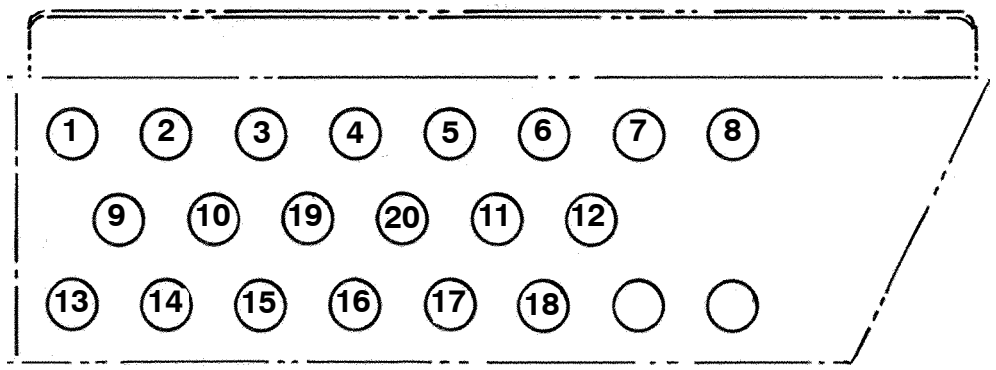
- replace the air filter main cartridge.

e) Every 1200 hours:

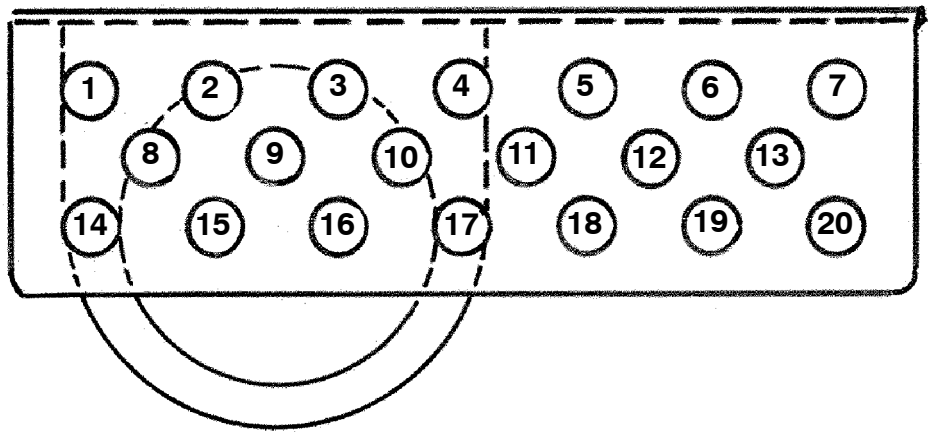
- adjust the tappets,
- adjust the injector setting.

NOTE: *the diesel oil filter cartridges should be replaced more often if the diesel oil conditions require it.*





From VL6050 to 6090



VM4090

LOCATION OF THE GREASING POINTS OF THE HARVESTING EQUIPMENT

From VL6050 to 6090 and VM4090

The greasing ramp is located on the harvesting equipment central gangway. All the points described here below must be greased with food-type grease every day, after washing:

A) Noria control shaft

B) Shaking control shaft

C) Right shaking control connecting rod

D) Left shaking control connecting rod

E) Right shaking plate

F) Left shaking plate

These positions are not localised and should be greased every 50 hours:

- 2 x 2 grease fittings at the hopper cylinder pivots
- 2 x 1 grease fittings on the lower stalk choppers

TOTAL: 26

VL6040

As no specific greasing points are available, all the points described here below must be greased with food-type grease every day, after washing:

- Front shaking plate 2x2
- Shaking control connecting rod 2x2
- Under the left conveyor:
  - 4 belt bearings
  - 1 shaking shaft bearing
  - 1 noria shaft bearing

Under the right conveyor:

- 4 belt bearings
- 1 shaking shaft bearing

These positions are not localised and should be greased every 50 hours:

- lower stalk chopper 2x1
- Hopper tilting cylinder 2x2
- 1 harvesting equipment rear pivot pin

TOTAL: 26

SELF-PROPELLED MACHINE - from VL6040 to 6090 and VM4090

There is no centralized greasing on the self-propelled machine, thus you need to grease daily only the following:

- 2 x 3 grease fittings on the front legs

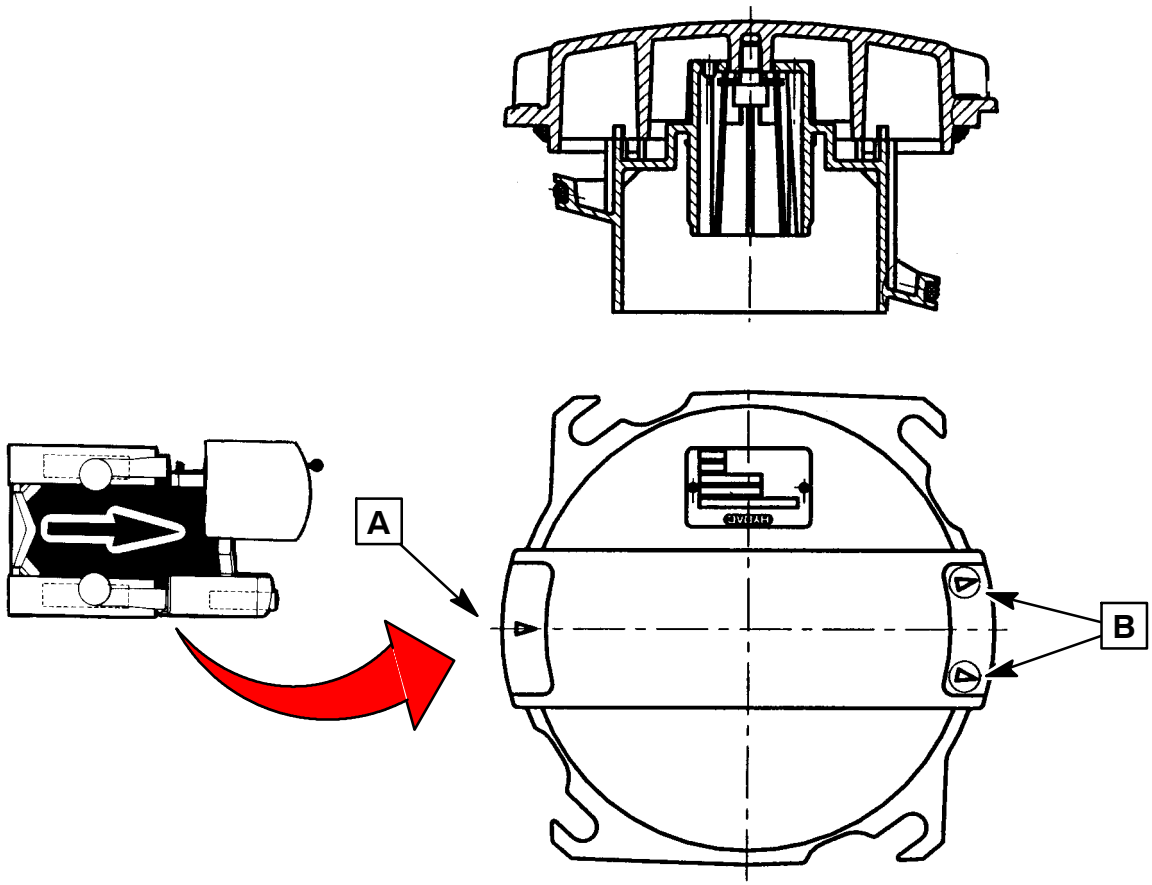
To grease every 50 hours:

- 2 x 1 grease fitting on the steering cylinder pivot
- 2 x 2 grease fittings on the steering bar pivots
- 2 grease fittings on steering relay
- 2 x 2 grease fittings on the wheel link pivot
- 2 x 2 grease fittings on the rear lifting cylinder

TOTAL: 22

LOCATION OF THE GREASING POINTS - VL5090, VM3090 and VN2090

Position and number of grease fittings	Greasing frequency	
	10 h	50 h
SELF-PROPELLED MACHINE		
Front legs 2 x 3	6	
Steering cylinder articulation		2
Steering relays		2
Steering bar ball joints		4
Rear wheel link articulation 2 x 2		4
Rear lifting cylinder articulation 2 x 2		4
Total: 22		
HARVESTING EQUIPMENT		
Shaking front plate 2 x 2	4	
Shaking control connecting rods 2 x 2	4	
Right side shaking shaft bearing 1	1	
Left side noria shaft bearing 1	1	
Belt bearings 2 x 4	8	
Hopper tilting cylinder 2 x 1		2
Hopper articulation 2 x 1		2
Harvesting equipment rear articulation 1		1
Lower stalk chopper 2 x 1		2
Total 25		



Hydraulic filter cover

During reassembly, **pay attention** to the assembly direction:

- the (A) side with only one arrow on the cover must be directed towards the return line,
- the (B) side with two arrows on the cover must be directed towards the intake lines.

MACHINE WASHING

To avoid sugar deposits and harvesting equipment clogging and to preserve the harvesting quality, the machine must be washed once or more times a day, especially after its utilization.

The tractor unit should be cleaned with the engine at a standstill, but for proper cleaning of the harvester unit it is necessary to operate the norias, conveyors and extractor fans with the machine in a permanent location. **This is anyway a departure from the general safety requirements specified in the Operator's manual.**

This operation requires thus a **special care** and the absolute **compliance** with the following precautions:

- first of all, this operation must be made by a **single operator,** skilled in the control of this machine.
- The machine should be **at a standstill**, inside a suitable washing area, if possible asphalted and levelled, by at least 5x8 m, with a water draining system, complying with the regulations as for environmental preservation.

The washing area should be equipped as follows:

- a hose having a minimum diameter by 35 mm, long enough for cleaning the machine all around;
- a sufficient water flow to get a 2-m water jet, or a motor-pump unit with high capacity, with a water reserve of 3-4 m^3;
- an adjustable nozzle to direct the water jet to about 5 m;
- a ladder about 3.5-m high and a hook about 0.7-m long.

NOTE: *the use of a high pressure cleaning machine is definitely not recommended.*

MACHINE ARRANGEMENT FOR WASHING AT THE END OF THE CAMPAIGN

Before emptying the last hoppers, stop the thermal engine.

- Alight from the driver's seat, gain access to the inside of the harvester and cause any build-up of crop around the shaker plates and on the rear frame to fall into the buckets.
- Move all the machine round and, starting from below, remove all the accumulated dirt or scrap material.
- Climb onto the driver's seat and start up the engine, the extractor fans and the conveyors. Place the norias in the cleaning position. Run the engine for 10 seconds, then empty the hoppers.

WASHING (in the washing area)

After entering the washing area, lower the machine to about 10 cm from the ground and tilt the hoppers fully. Make sure the inching lever is in neutral, engage the hand brake, stop the thermal engine, get off the driver's seat and position the hopper safety stops.

- Place the ladder in the machine rear side to reach the upper part of the rear arch; from this position, drop the clogged or deposited sarments around the plastic cover and in the nearby area, using the hook.

- Then, move the ladder and place it against the pipe fastening the side plates, to release the elastic bands holding the side plates and let the accumulated residues fall down.
  Make sure that the plate upper part folds correctly against the lower one, to prevent it from being trapped in the hoppers during tilting.
  This operation must be carried out on both machine sides.

- Put the ladder away and remove the hopper stops.

- Detach the elastic bands from the rear sealing plates and remove any debris trapped behind.

- Remove the possible plastic caps closing the noria rear lower part.

- Climb onto the driver's seat and operate the engine at medium speed, lower the hoppers, engage the extractor fans and conveyors, then place the norias in the washing position.

- Get off the driver's seat leaving the harvesting equipment in operation.

WARNING: this is a departure from the general safety requirements specified in the Operator's Manual.

- Open the water supply valve, pick up the hose without the nozzle and climb onto the harvesting equipment platform located behind the driver's seat. From there, wash the top of the machine, the conveyors, the hopper augers, the norias, etc. for about 10 minutes.
- Get off the machine and, starting from the ground, clean, from the harvesting machine front part, the tunnel inner part:
  - cloth, shaking frame, shakers;
  - pour in water in the right and left front deflectors, through the special openings.
- Now go to the back of the machine, open the saloon doors and clean the rear part of the harvesting tunnel:
  - the shaking frame assembly, washing in particular the shaker connecting rods;
  - the plates and the lower sealing sheets.
- Pour in water through the side openings of the conveyor cases.
- Spray a lot of water in the hoods of the lower extractors, remaining at a sufficient distance from the stalk choppers.

DANGER: the extractor rotors are fitted with stalk chopper knives.
Do not try and fit the pipe or the nozzle when the thermal engine is running.

- Wash carefully the machine rear outer part and clean carefully the rear deflector inner part. Inject water into the rear left and right deflectors through the special openings.

- Lay the pipe (shut off the water supply if necessary) and get on the tractor, lift the right hopper by about 50 cm, to clear the extractor suction hood.

- Place the left hopper in the same position.

- Increase the engine speed at max. speed.

- Get off the tractor, to recover the pipe and get on the harvesting equipment platform to wash the extractor inner part, washing them one after the other, at intervals of 7 seconds.

- Get off the harvesting equipment platform, shut off the water supply, climb onto the driver's seat and stop the harvesting functions (extractors, conveyors and norias).

Optional operation

Now, you can control the cleaning conditions of the extractor slides opening the suitable covers, after making sure that the stalk choppers are completely stopped.

- Operate the machine to empty the hoppers and return to the washing area.

- Lift the machine at half height, tilt the hoppers fully, **stop the thermal engine** and engage the hand brake.

- Get off the tractor, fit the nozzle on the water pipe and open water supply. One side after the other, direct the jet toward and around each conveyor, paying special attention to the lateral opening of the conveyor housings, to the plates, etc...

- Go to the back of the machine, wash the hoppers and the container auger end.
  - Turn around the machine again and wash the wheel links, the wheels, the safety covers, the lower extractor outlets, the cab, etc...
  - Shut off the water supply and open the conveyor housing inspection doors through the inside of the harvesting tunnel.

- Climb onto the driver's seat, start the thermal engine and set it to idling. Lower the machine keeping the hoppers lifted, start the extractors, the conveyors, the shaking and norias in washing position. Let the machine run for 2-3 minutes, so that all excess water drops down.

At the end of the washing operation, the machine must undergo the daily greasing procedure.

NOTE: *after greasing, remember to reposition the inspection doors, the plates, etc... which were opened during the washing operations.*