SERVICE MANUAL

VX680

Grape Harvester

Part number 6048231100
English
November 2005

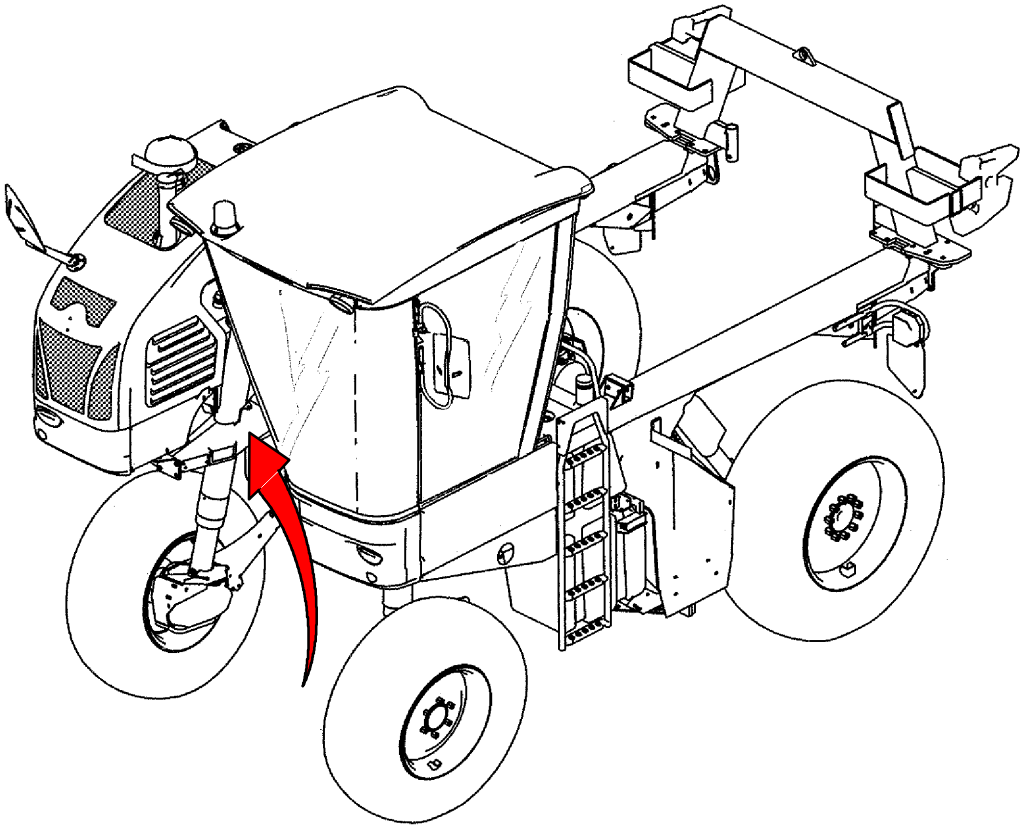
REPAIR MANUAL

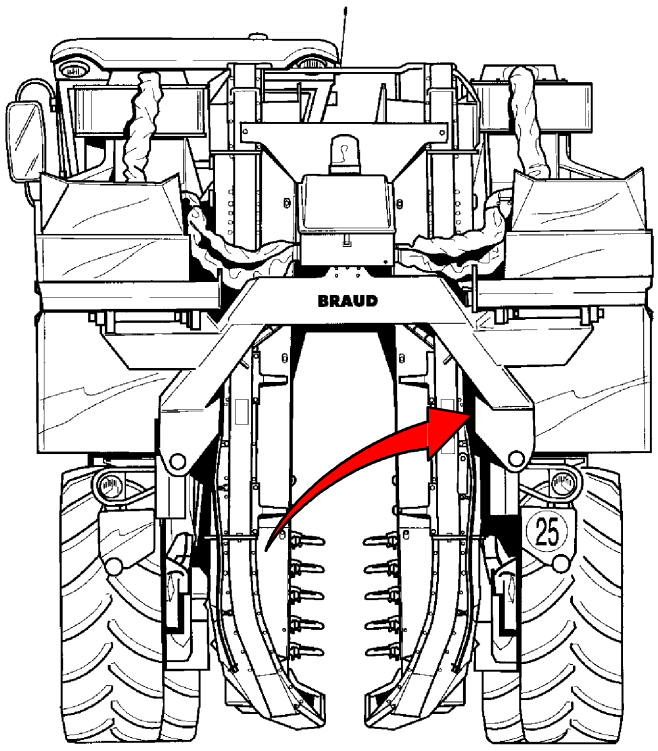
CONTENT

SPECIFICATIONS

Chapter 1

CONTENT

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MACHINE IDENTIFICATION DATA

Model	Type	Serial number	Machine number
VX 680	665	001	001
Harvesting equipment	666	001	001
Harvesting equipment starting from series 002	665	002	001

A = manufacturer's label

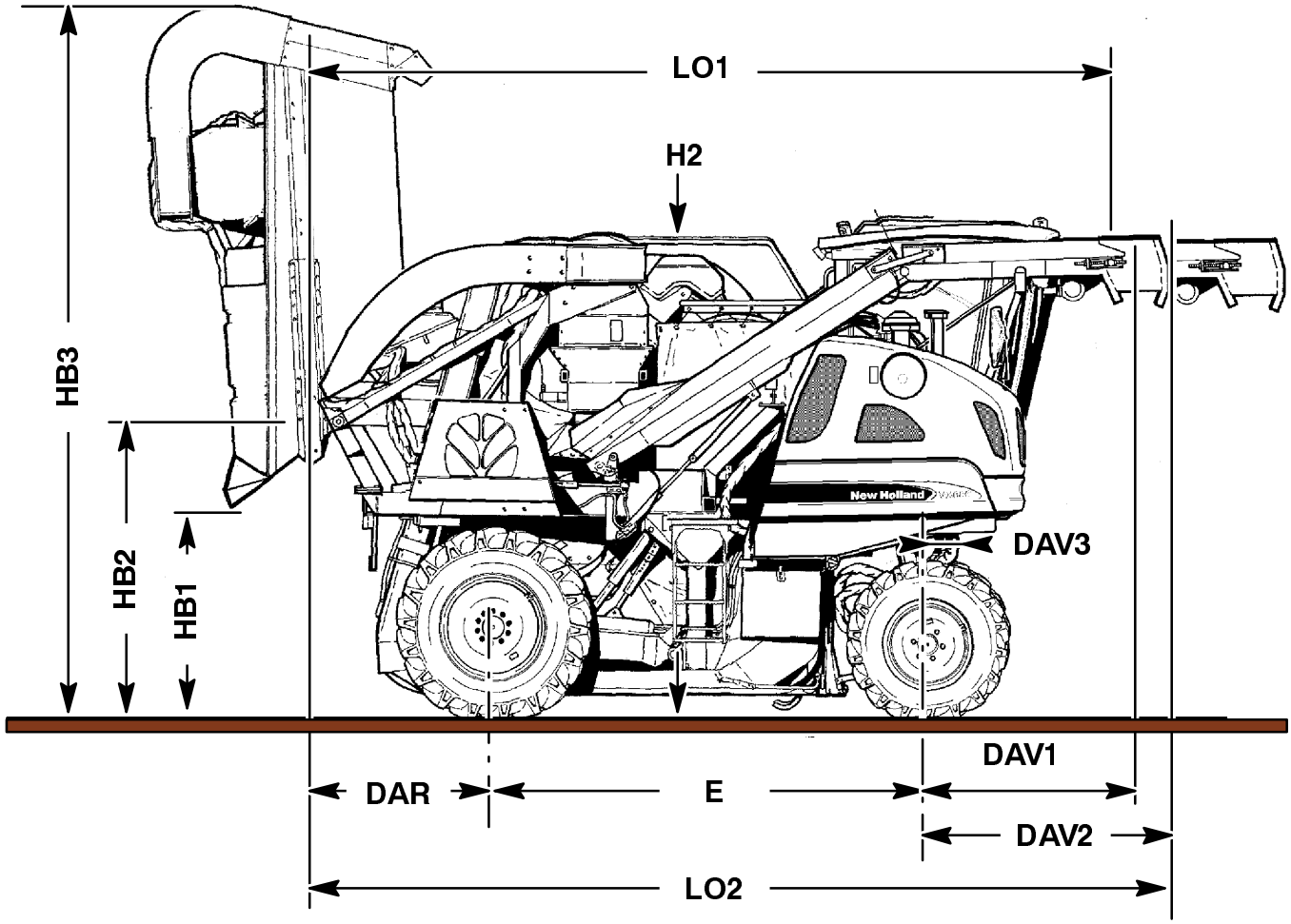
B = stamped frame number

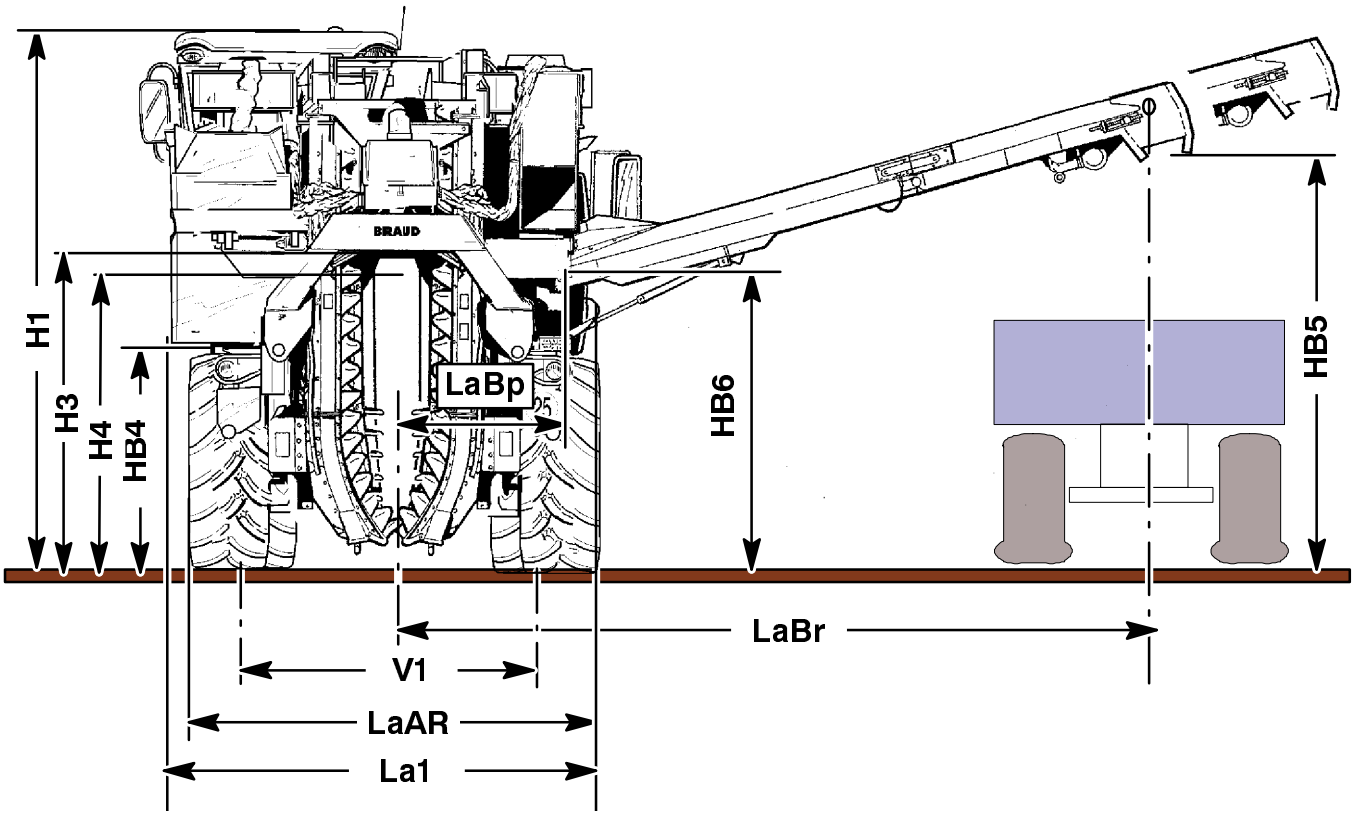
OPERATOR'S MANUAL

Reference: 604 80 240 00 (I)
604 80 241 00 (GB)
604 80 242 00 (F)
604 80 243 00 (SP)

SPARE PART CATALOGUE

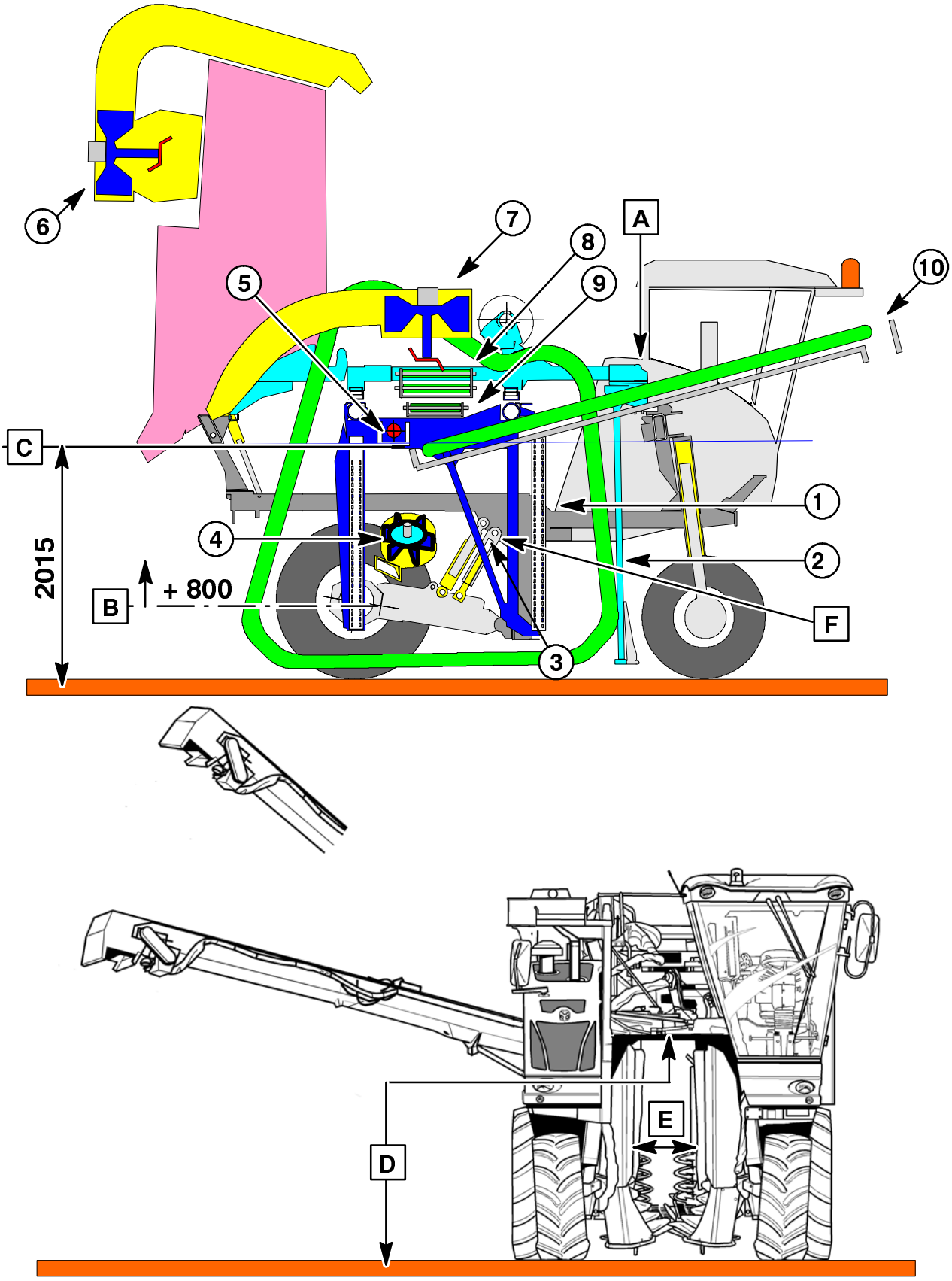
Reference:


LO1
H2
HB3
HB2
HB1
DAV3
DAV1
DAR
E
DAV2
LO2


H1
H3
H4
HB4
LaBp
HB6
HB5
LaBr
V1
LaAR
La1

COMMERCIAL DESCRIPTION			VX 680 (1)
Self-propelled machine			
Code	**DIMENSIONS (mm)**		
H1	Height: in road position (the noria is at 200 mm from the ground)	with cab	3810
H2	Harvesting equipment height (2)	to the railings	3470
H3	Clearance under rear beam	Min. Max.	2015 2815
H4	Harvesting equipment clearance under tunnel	Min. Max.	2015 2815
HB1	Clearance under tilted up hoppers		1660
HB2	Tilting axle height		2080
HB3	Max. height with lifted hopper		5270
HB4	Height under clearance	1550 l hopper	1375
HB5	Height to the roller axis of the emptying link Machine on ground 5200 mm 4200 mm		 from 1780 to 4460 to 3950
HB6	Link pivot height		1850
LaBp	Link pivot position		1113
LaBr	Position of the roller on the link end perpendicular to the machine axis 5200 mm if HB5 = 3180 mm 4200 mm if HB5 = 2920 mm		 6015 5045
La1	Max. width 1550 l hopper and emptying link in road position		 3140
La AR	Outer width at the rear wheel level: (V1 + Gb = La AR)	 Tyres 480 / 70 R 28 Tyres 600 / 55 x 30.5	 2425 + 495 = 2920 2530 + 600 = 3130
La AV	Outer width at the front wheel level on ground: (V2 + Gb = La AV) (V2 at ground level)	 Tyres 420 / 70 R 24	 2130 + 430 = 2560
E	Wheelbase		3180
Lo 1 Lo 2	Overall length	at the cab front on the link end 4200	5840 6540
DAV1 DAV2	Front offset	at the cab front on the link end 4200	1050 1750
DAV3	Tool fixing offset		280
DAR	Rear offset		1610

- (1) VX 680 version with hopper and emptying link
- (2) noria on the ground


6
7
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4
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2015
B
+ 800
F
3
E
D

EMPTYING CONVEYOR ON THE RIGHT SIDE AND LEFT HOPPER
Low machine

A Central cross beam of the harvesting equipment with a 200-mm rise
B Sloping correction, 800 mm
C Sliding shaking transmission to get a clearance by 2015 mm under the cover, with harvesting equipment in low position
D Clearance height under the frame beam,
min. 2015 mm
max. 2815 mm
E Clearance width
at the leaves entry, 700 mm
F No lock

1 Shaking frame

- shaking plates
  for removable shakers
- 24 shakers
  22 straight connecting rods
  2 elbow connecting rods
- 240-mm extension

2 Norias

- 67 large buckets
- clearance in the stake-guide,
  195 ÷ 400 mm

3 Lift retainer

- on one side

4 Lower extractors

- diameter 430 mm
- independent stalk choppers, released in washing position

5 Shaking drive

- drive sliding in the center of the longitudinal members (at the bottom)

6 Left hopper

- capacity 1550 litres
- extractor, dia. 638 mm, with a removable stalk chopper
- leaf evacuation chute, on the side

7 Emptying conveyor extractor

- extractor, dia. 638 mm, with a removable stalk chopper
- leaf evacuation chute, at the back

8 Harvesting conveyors

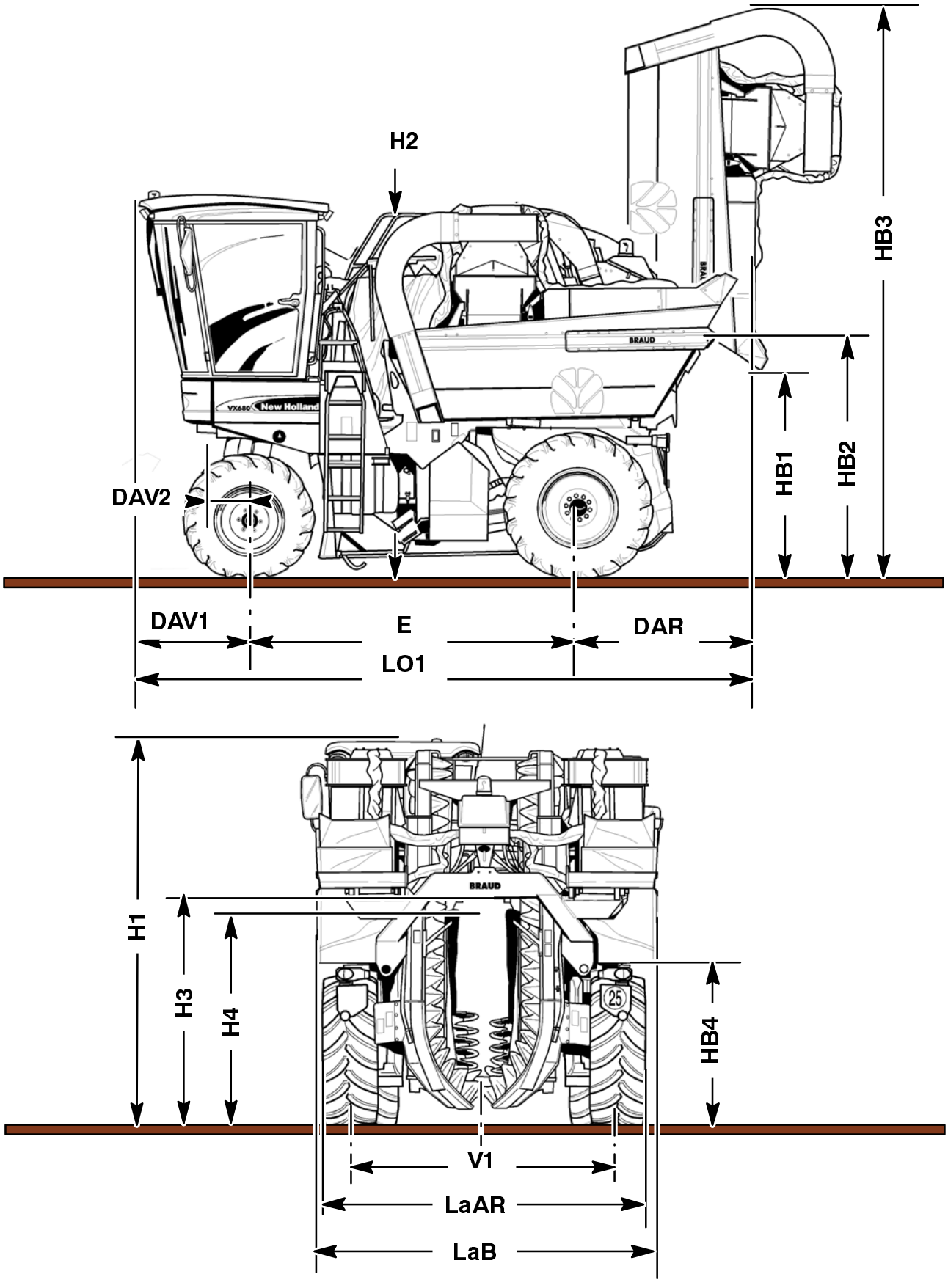
- width 600 mm

9 Transfer conveyor

- width 600 mm

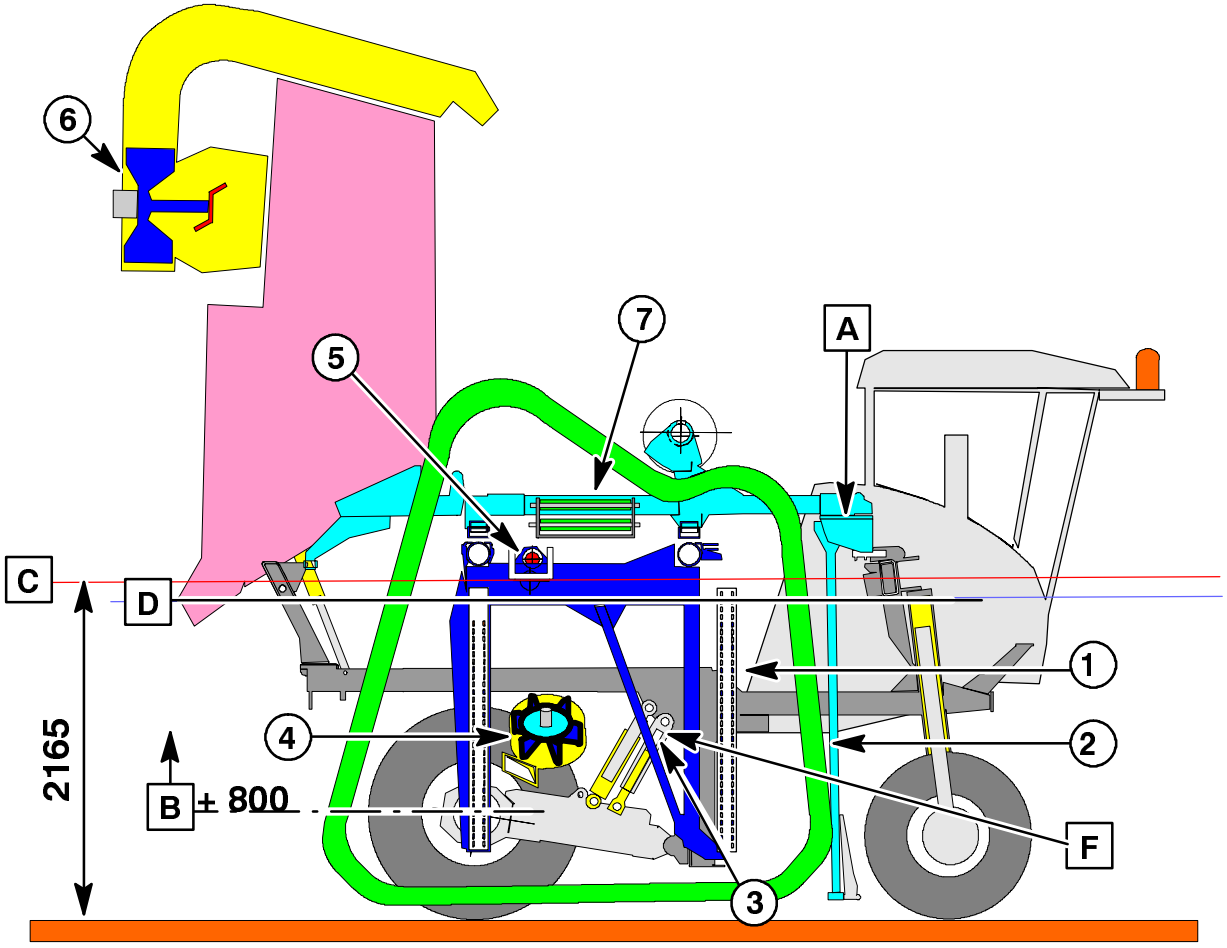
10 Side emptying conveyor

- width 350 mm
- length 4200 or 5200 mm depending on the version (only the end length changes)


H2
HB3
HB1
HB2
DAV2
DAV1
E
DAR
LO1
H1
H3
H4
HB4
V1
LaAR
LaB
BRAUD
New Holland

COMMERCIAL DESCRIPTION			VX680 (2)	VX680 (3)
Self-propelled machine				
Code	**DIMENSIONS (mm)**			
H1	Height: (lowered harvesting equipment)	with cab	3605	3740
H2	Harvesting equipment height (with noria on the ground)	to the railings	3470	3470
H3	Clearance under beam Harvesting equipment	Min. Max.	2015 2815	2215 2815
H4	Harvesting equipment clearance under tunnel	Min. Max.	2165 2965	2265 2865
HB1	Clearance under tilted up hoppers		1860	2080
HB2	Tilting axle height		2080	2310
HB3	Max. height with lifted hopper		5270	5500
HB4	Height under clearance	1550 l hopper	1375	1600
LaB	Max. width of 2x1550 litres hoppers		3220	
La AR	Outer width at the rear wheel level: (V1 + Gb = La AR)	 Tyres 480 / 70 R 28 Tyres 600 / 55 x 30.5	 2425 + 495 = 2920 2530 + 600 = 3130	
La AV	Outer width at the front wheel level on ground: (V2 + Gb = La AV) (V2 at ground level)	 Tyres 420 / 70 R 24	 2130 + 430 = 2560	
E	Wheelbase		3180	
Lo 1	Overall length	at the cab front	5840	
DAV1	Front offset	at the cab front	1050	
DAV2	Tool fixing offset		280	
DAR	Rear offset		1610	

- (2) VX680 low version, with two hoppers, axle clearance 2.00 m
- (3) VX680 high version with two hoppers, axle clearance 2.20 m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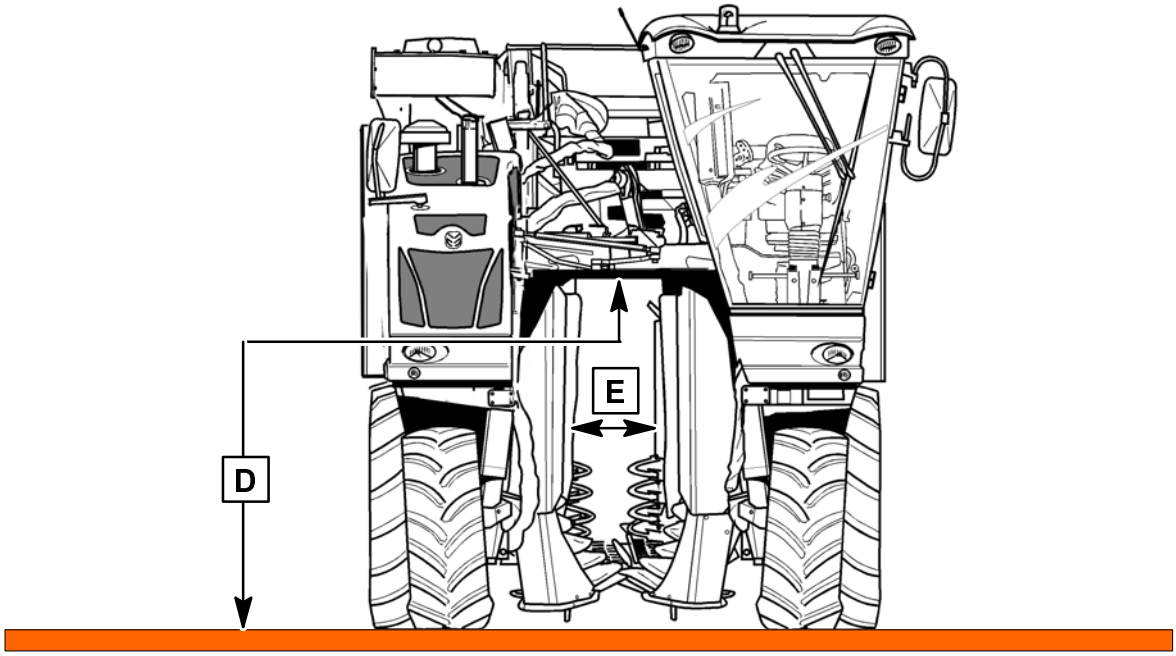

E
D

VX680 WITH TWO HOPPERS, LOW VERSION
AXLE CLEARANCE 2.00 m

A Central cross beam of the harvesting equipment with a 200-mm rise
B Sloping correction, 800 mm
C Sliding shaking transmission to get a clearance by 2165 mm under the cover, with harvesting equipment in low position
D Max. clearance height limited
by the frame front beam
and by the rear cross-piece at
min. 2015 mm
max. 2815 mm
E Clearance width
at the leaves entry: 700 mm
F No lock

1 Shaking frame

- shaking plates
  for removable shakers
- 24 shakers
  22 straight connecting rods
  2 elbow connecting rods
- 240-mm extension

2 Norias

- 67 large buckets
- clearance in the stake-guide,
  195 ÷ 400 mm

3 Lifting retainer

- on one side

4 Lower extractors

- diameter 430 mm
- independent stalk choppers,
  released in washing position

5 Shaking drive

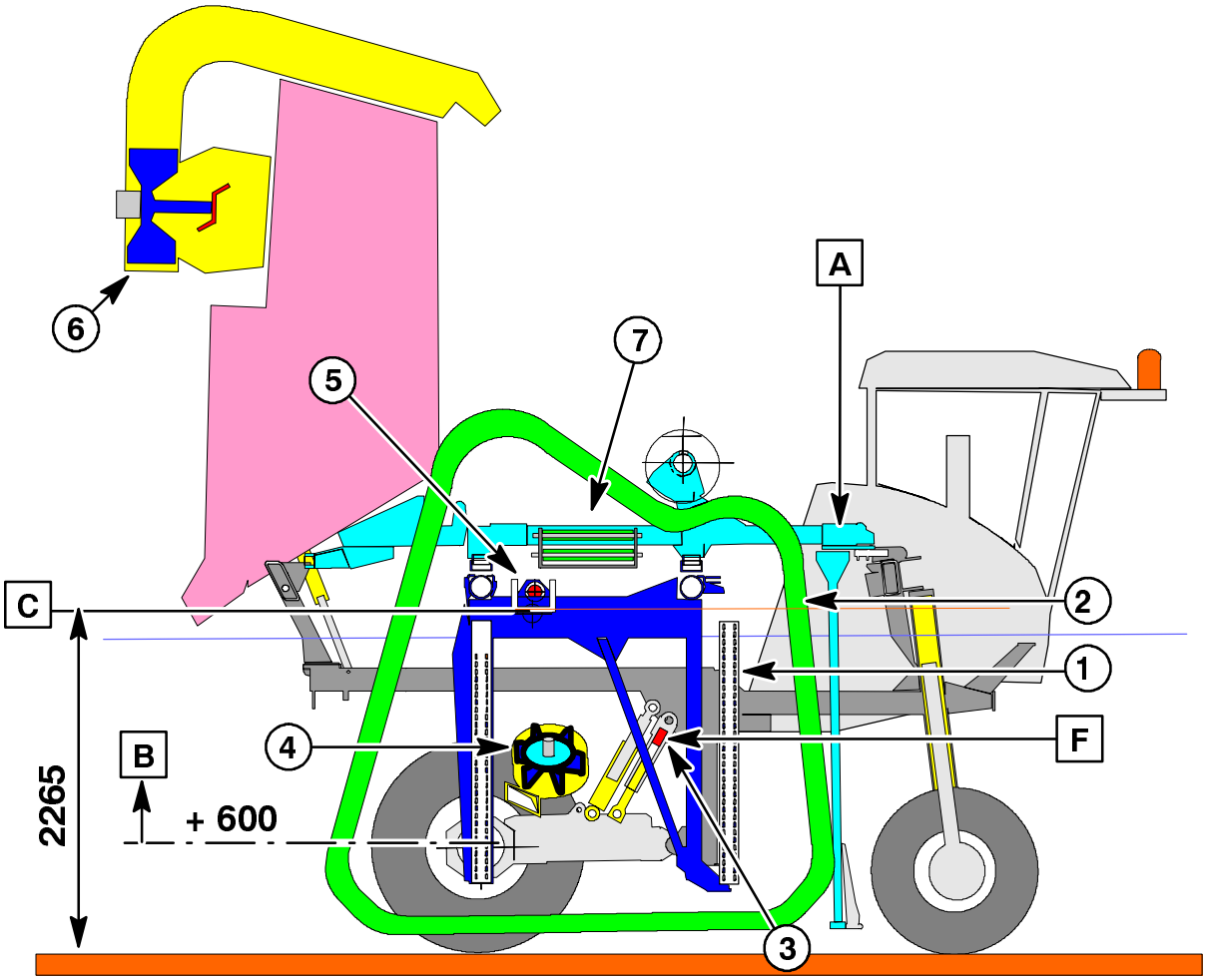
- sliding drive located above the longitudinal members (at the top)

6 Left and right hoppers

- capacity 1550 litres
- extractor, dia. 460 mm, with a removable stalk chopper
- leaf evacuation chute, on the side

7 Harvesting conveyors

- width 600 mm


6
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7
A
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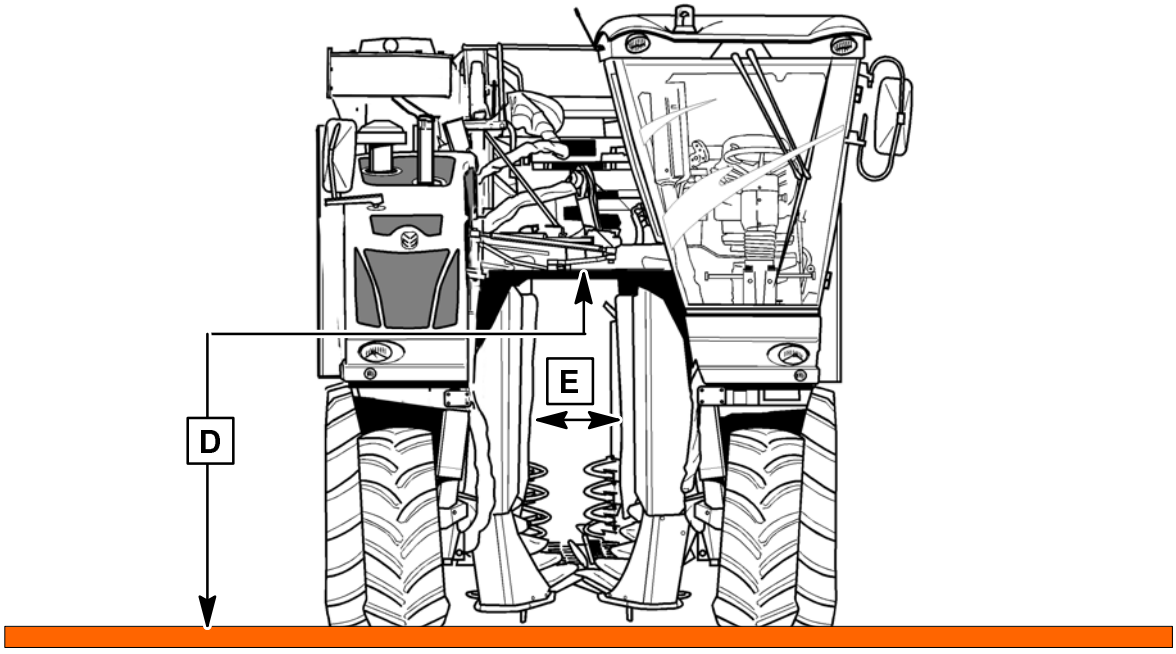
2
1
F
4
B
+ 600
2265
3


E
D

VX680 WITH TWO HOPPERS, HIGH VERSION
AXLE CLEARANCE 2.20 m

A No rise to lift the self-propelled machine by 200 mm

B Sloping correction, 600 mm

C Sliding shaking transmission to get a clearance by 2265 mm under the cover, with harvesting equipment in low position

D Max. clearance height limited
by the frame front beam
and by the rear cross-piece at
min. 2215 mm
max. 2815 mm

E Clearance width
at the leaves entry: 700 mm

F Retainer, 100 mm, to increase the frame height by 200 mm

1 Shaking frame

- shaking plates,
  1) standard (compulsory for olives)
  34 openings, useful height 1650 mm,
  2) optimized
  for removable shaking
- 24 shakers
  22 straight connecting rods
  2 elbow connecting rods
- 240-mm extension

2 Norias

- 67 large buckets
- clearance in the stake-guide,
  195 ÷ 400 mm
- clearance (E) in the entry sheets, 700 mm

3 Lifting retainer

- on two sides

4 Lower extractors

- diameter 430 mm
- independent stalk choppers,
  released in washing position

5 Shaking drive

- sliding drive located above the longitudinal members (at the top)

6 Left and right hoppers

- capacity 1550 litres
- extractor, diameter 460 mm, with removable stalk chopper
- leaf evacuation chute, on the side

7 Harvesting conveyors

- width 600 mm

COMMERCIAL DESCRIPTION		VX 680
WEIGHT		
PTAC - Total allowed weight under load (kg)		
Partition	Front axle (kg)	
	Rear axle (kg)	
Empty weight with harvesting equipment and without (with) destemmers	Total	
Weight of one wheel (kg)	420/70 R 24 480/70 R 28 600/55 x 30.5	
Thermal engine weight (kg)		
FEEDING/EXHAUST		
Fuel tank	Used fuel	Diesel fuel
	Capacity (litres)	250
Engine feeding system		Direct injection
Air filter	Make	DONALDSON
	Type	ELB 12-0265
Engine cooling	Water capacity (litres)	
	Fan	sucking (2 speeds)
Cooling fan ∅ (mm)		610
DRIVE		
Pump for engine fan	Make	SAUER
	Displacement (cm^3/rev.)	17
	Empty operating speed (rpm)	2325 (93% of engine speed)
	Capacity (l/minute), output 0.9	35
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

DRIVE (follows)		
Priming pump	Displacement (cm3/rev.)	25
	Capacity (l/minute), output 0.9 Speed 2500 rpm	56.25
Front wheel motor	Make	POCLAIN
	Type	MS 08
	Displacement (cm3/rev.)	1043
Rear wheel motor	Make	POCLAIN
	Type	MSE 18
	Displacement (cm3/rev.)	2636 (1406/1230)
Max. speed (km/h) in road position		25 km/h
Max. speed in field position		12
Hydraulic oil		
Capacity (litres)	Total	
	Reservoir	65
Oil type		NEW HOLLAND: Hydrosystem 68 or Hydrosystem 68 BIO S
Conveyor and extractor pump	Make	REXROTH
	Displacement (cm3/rev.)	”Load sensing” from 0 to 45
	Idle operating rpm speed	2500 (see engine speed)
	Capacity (l/minute), output 0.9	101.2
Shaking pump	Make	SAUER
	Displacement (cm3/rev.)	22
	Idle operating rpm speed	2500 (see engine speed)
	Capacity (l/minute), output 0.9	50
Steering/lifting/hopper pump	Make	SAUER
	Displacement (cm3/rev.)	14
	Idle operating rpm speed	2325 (93% of engine speed)
	Capacity (l/minute), output 0.9	29
STEERING SYSTEM		**Hydrostatic**
Type		EATON QAMP 146 cm3/rev.
BRAKING SYSTEM		
Service brake		Supplied by the hydrostatic transmission
Service brake (on one rear wheel)		Operated by one pedal and by the steering
Parking brake		Operated by left manual lever

TILTING CORRECTION		30%
PLATFORM CAB		
Heated and A/C cab		Depending on the model
Activated charcoal filter		Optional
On-board computer		●
Pneumatic seat		●
Multifunction lever		●
Climate control compressor	Manufacturer / Model	Sanden U 4643
	Gas R 134a (g)	1900
	Oil SP20 or SK 20	FIAT LUBRIFICANTI LBAR 134
	cm^3	Add 125
LIGHTING AND WARNING LIGHTS		
High/low beams		2
Front parking lights		2
Rear parking lights		2
Direction indicator lights	Front	2
	Rear	2
	Side	2
Stop lights		2
License plate light		1
Reflector	Rear	2
Revolving beacon	with cab	2
Supply voltage / battery		12 V / 180 Ah
Alternator		120 A

HARVESTING EQUIPMENT		
HARVESTING HEADER		
Type		Swinging, self-aligning
System		S.D.C shaking
Number of shakers		24
Straight/elbow connecting rod		22/2
Shaking drive	Motor manufacturer	SAUER
	Displacement (cm^3/rev.)	22.8
	ECU:	
	Ratio	4/1
	Grease: AMBRA GR75MD	1.2 kg
Toe-in adjustment		from the ground
Amplitude settings		3
Min. clearance under the frame (mm)		from 2020 to 2820 (depending on the model)
Grape harvesting useful height (mm)		1750
Harvesting tunnel width (mm)		700
Shaking frame width at the front cross-beams (mm)		In front of the mark 0 = 550 (like VL) Fully closed = 510 Fully open = 750
RECEIVING/TRANSPORTATION		
Noria system	Buckets per chain	67
	Type	XXL
	Synchronization	in field speed
Width of flexible stake-guides (mm)		from 195 to 265
Tightness length (mm)		2400
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				
CLEANING for equipment with 2 hoppers				
2 upper extractors with removable stalk choppers	Diameter (mm)	460 (2 hoppers) 638 (emptying link)		
	Operation	hydraulic		
	Motor manufacturer	SAUER		
	Displacement (cm^3/rev.)	11		
2 lower extractors	Diameter (mm)	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		
	Direction of rotation	reverse to the wheels		
HOPPERS				
Capacity (litres)		2 x 1550		
Electrically-operated distribution auger		Control independent of the grape harvester		
EQUIPMENT for side link				
Left hopper	Capacity (litres)	1550		
Distribution auger	Hydraulic drive Motor (cm^3)	Control by cross belt direction 160		
Transfer conveyor	Width (mm) Motor (cm^3)	450 46		
Side emptying conveyor	Width (mm) Motor	380 46		

SECTION 00 - MAINTENANCE

Chapter 1

CONTENT

CAPACITIES
LUBRICANTS AND FLUIDS

Item to be supplied	Quantity dm^3 (litres)	Recommended product	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		
Shaking ECU	1.2 kg	Grease **AMBRA GR 75 MD** **NH 720 A**	Re.: 661874 molybdenum bisulfide grease, consistency NLGI 2
Engine sump and filter/s 6-cylinder engine	15	Oil **AMBRA MASTER GOLD HSP** **15W - 40**	SAE 15W40 API CH - 4 ACEA E3/E5
Reservoir	65	Oil **AMBRA** **HYDROSYSTEM 68**	ISO 68 DIN 51524 - part 2
Cooling system	20	**AMBRA** **AGRIFLU (50%) +** Clean water (50%)	

THERMAL ENGINE MAINTENANCE

a) After the first 50 hours

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

b) Every day or every ten hours, check:

- the oil level,
- the coolant level,
- the radiator core cleanliness.

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

- the engine oil;
- the oil filter cartridge/s;
- the diesel oil filter cartridge/s.
- Check 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.

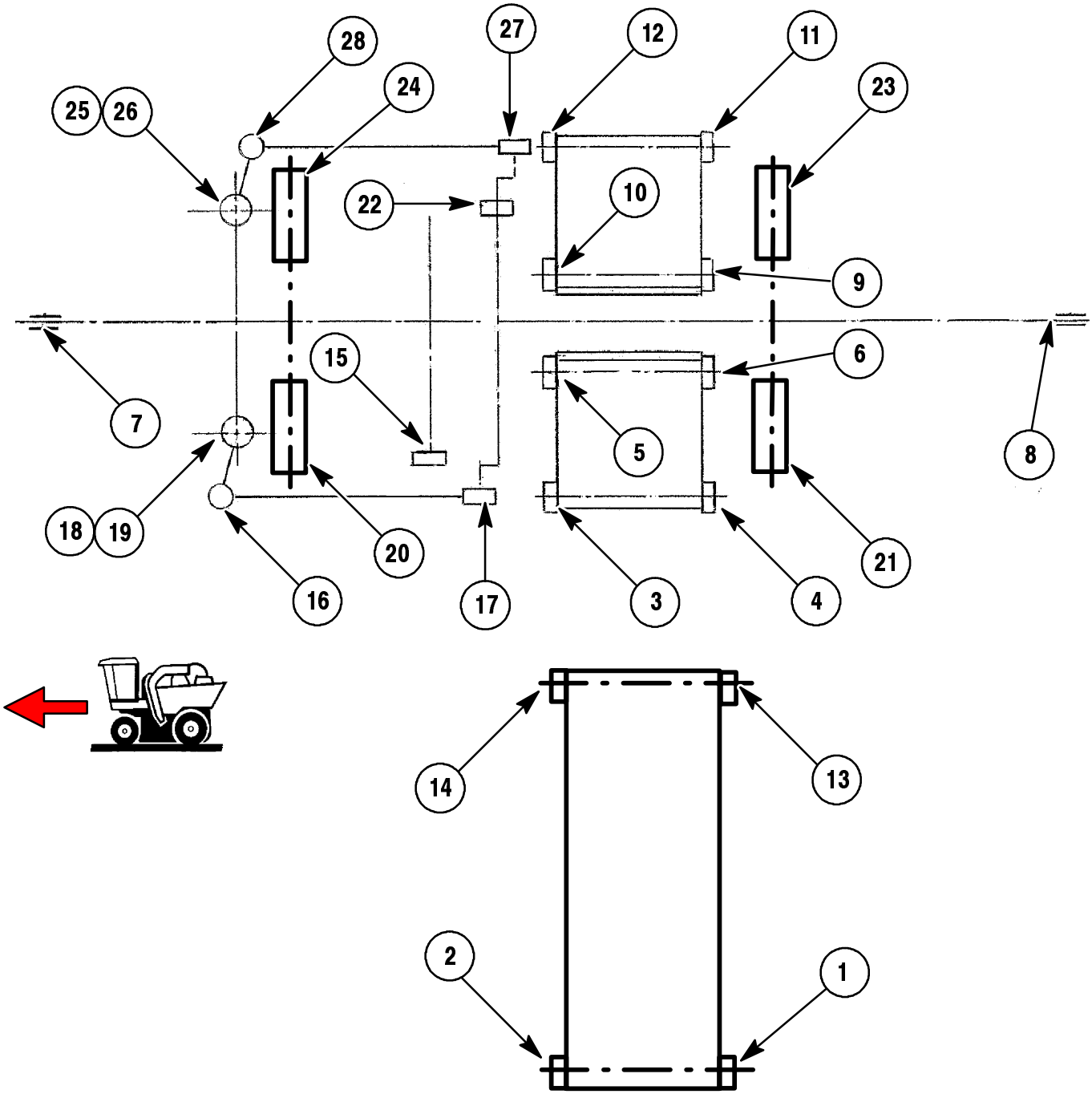
d) Only before each harvesting season:

- replace the air filter main cartridge.

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

e) Every 1200 hours

- Adjust the tappets
- Adjust the injector calibration



1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28

HARVESTING EQUIPMENT

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

15 Noria control shaft

22 Shaking control shaft

27 - 28 Right shaking control connecting rod

16 - 17 Left shaking control connecting rod

25 - 26 Right shaking plate

18 - 19 Left shaking plate

9 - 10 - 11 - 12 Right harvesting conveyor

3 - 4 - 5 - 6 Left harvesting conveyor

20 - 21 - 23 - 24 Shaking gauge cursor

7 - 8 Harvesting equipment pivot

22 Right bearing for noria control shaft

1 - 2 - 13 - 14 Transfer conveyor (depending on the version)

The following parts are not shown:

4 grease fittings for the emptying link (depending on the version)

1 grease fitting for the emptying link pivot (depending on the version)

1 grease fitting for the shaking drive

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

- 2 x 2 grease fittings on the hopper cylinder pins (depending on the version)
- 2 x 1 grease fitting on the lower stalk choppers

TOTAL: 39 or 32 (depending on the version)

SELF-PROPELLED MACHINE

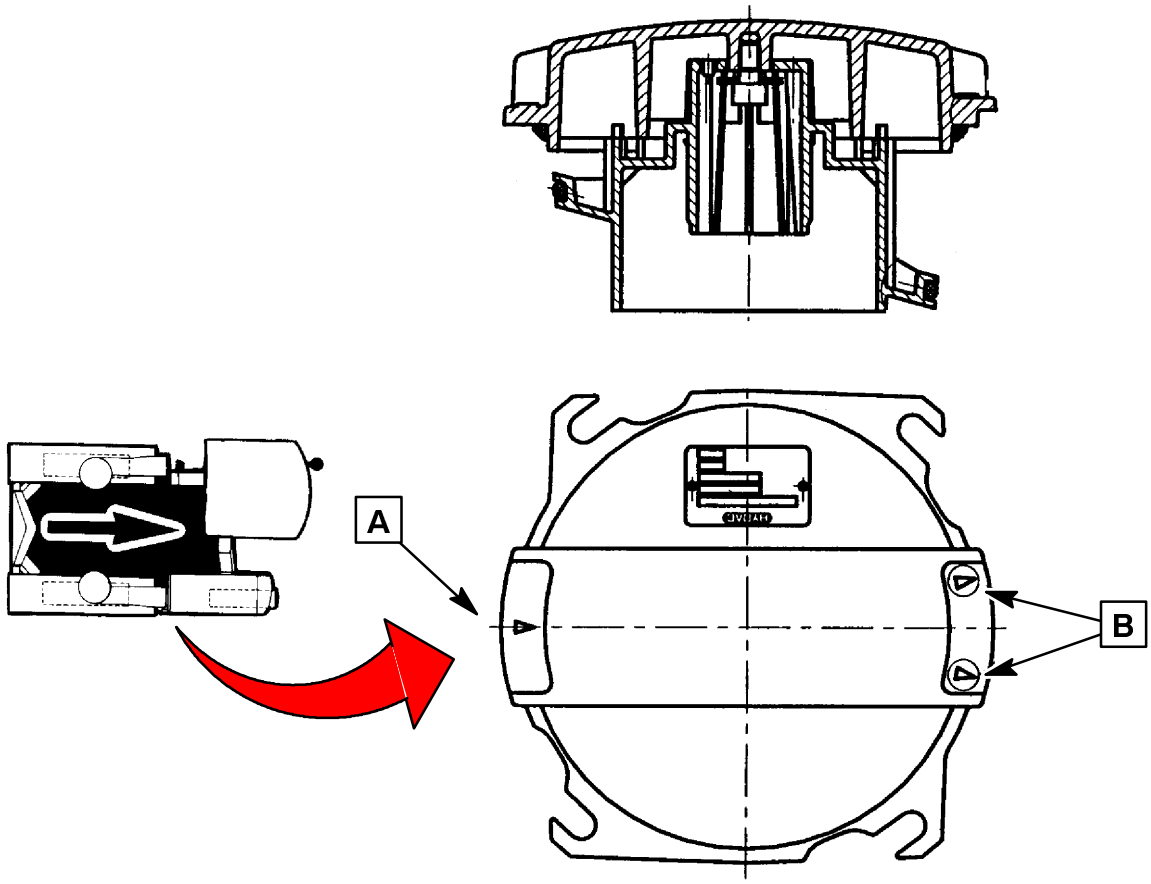
There is no centralized greasing on the self-propelled machine, thus you need to grease daily only the following:

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

TOTAL: 19



Hydraulic filter cover

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

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

WASHING THE MACHINE

To avoid the building up of sugar and dirt in the harvesting equipment and to preserve the grape harvesting quality, the machine must be washed once or several times a day, and above all at the end of the work.

The self-propelled machine washing must take place with standstill thermal engine; anyway, for cleaning the harvesting equipment in the best way, it is necessary to start the norias, the conveyors and the extractors, after positioning the machine in a stable place. **This is anyway a departure from the general safety requirements specified in the Operator's Manual.**

This operation calls for **close attention** and **strict adherence** to the following rules:

- first of all, this operation must be made by **a single operator,** skilled in the control of this machine.
- The machine must be placed in a **stable cleaning area,** preferably on a level concrete floor measuring at least 5x8 m, provided with drainage facilities and consistent with current environmental protection regulations.

The cleaning area should be equipped with the following:

- a hose with min. diameter 35 mm, long enough to enable the washing all around the machine;
- a sufficient flow of water to provide a 2-m jet, or alternatively a heavy-duty pumping unit, with 3-4 m^3 capacity water storage tank;
- an adjustable nozzle to direct the water jet at 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.*

PREPARING THE MACHINE FOR THE WASHING AT THE END OF THE CAMPAIGN

Before emptying the last hoppers, stop the thermal engine.

- Get off the driver's seat and, from inside the harvesting machine, scroll the harvested product gathered around the shaking plates and the rear frame into the buckets.
- Make an inspection all the machine round and, starting from the ground, remove any impurities or deposits sticking to the surfaces.
- Climb onto the driver's seat, start the thermal engine, the extractors and the conveyors; place the norias in washing 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 at the rear of the machine and climb onto the rear arch. Using the hook, pull off any vine shoots built up or sticking to and around the plastic safety cover.
- Shift the ladder and lay it against the pipe where the side plates are fastened, so as to release the elastics holding the plates and make the residues behind 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.
- Remove the ladder and the hopper stops.
- Detach the elastics from the rear sealing plates and remove any debris trapped behind.
- Remove any plastic plugs sealing the lower rear part of the norias.
- Climb onto the driver's seat and operate the engine at medium speed, lower the hoppers, engage the extractors and the conveyors, then place the norias in the washing position.
- Get off the tractor, leaving the harvesting machine working parts in operation.

CAUTION: 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 the inside of the tunnel from the front of the harvesting machine:
  - plates, shaking frame, shakers;
  - then, inject water into the front LH and RH deflectors through the holes provided.
- 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, paying special attention to the shaker connecting rods;
  - the plates and the lower sealing sheets.
- Inject water through the side openings in the conveyor housings.
- 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.
Never try to fit the pipe or the nozzle when the thermal engine is running.

- Now wash the rear outer part of the machine, carefully cleaning the inside of the rear deflectors. Inject water into the rear LH and RH deflectors through the holes provided.

- Lay down the hose (shutting off the water supply, if necessary) and climb onto the tractor. Raise the RH hopper for about 50 cm, just enough to uncover the extractor intake hood.

- Place the left hopper in the same position.

- Increase the thermal engine speed to maximum.

- Get off the tractor, retrieve the hose and climb onto the harvesting equipment platform. Wash the inside of the extractors by flooding them with water, one after another, at 7-second intervals.

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

Option

At this stage, you can check the extractor chutes for cleanliness by opening the inspection doors provided. First make sure that the stalk choppers have come to a complete stop.

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

- Raise the machine to mid-height and tilt the hoppers completely, **stop the thermal engine** and engage the parking brake.

- Get off the tractor, fit the nozzle to the water hose and open the 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...

- From the back side of the machine, wash the hoppers and the hopper auger ends.

  - Inspect 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 tractor, 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. Operate the machine for 2 to 3 minutes to allow the water to drain off.

After cleaning has been completed, the machine is ready for daily lubrication.

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