SERVICE MANUAL

VN260 / VN240

Grape Harvester

Part number 6048227100
English
April 2004

NEW HOLLAND AGRICULTURE

SECTION 14 - LIVE PTO

Chapter 1

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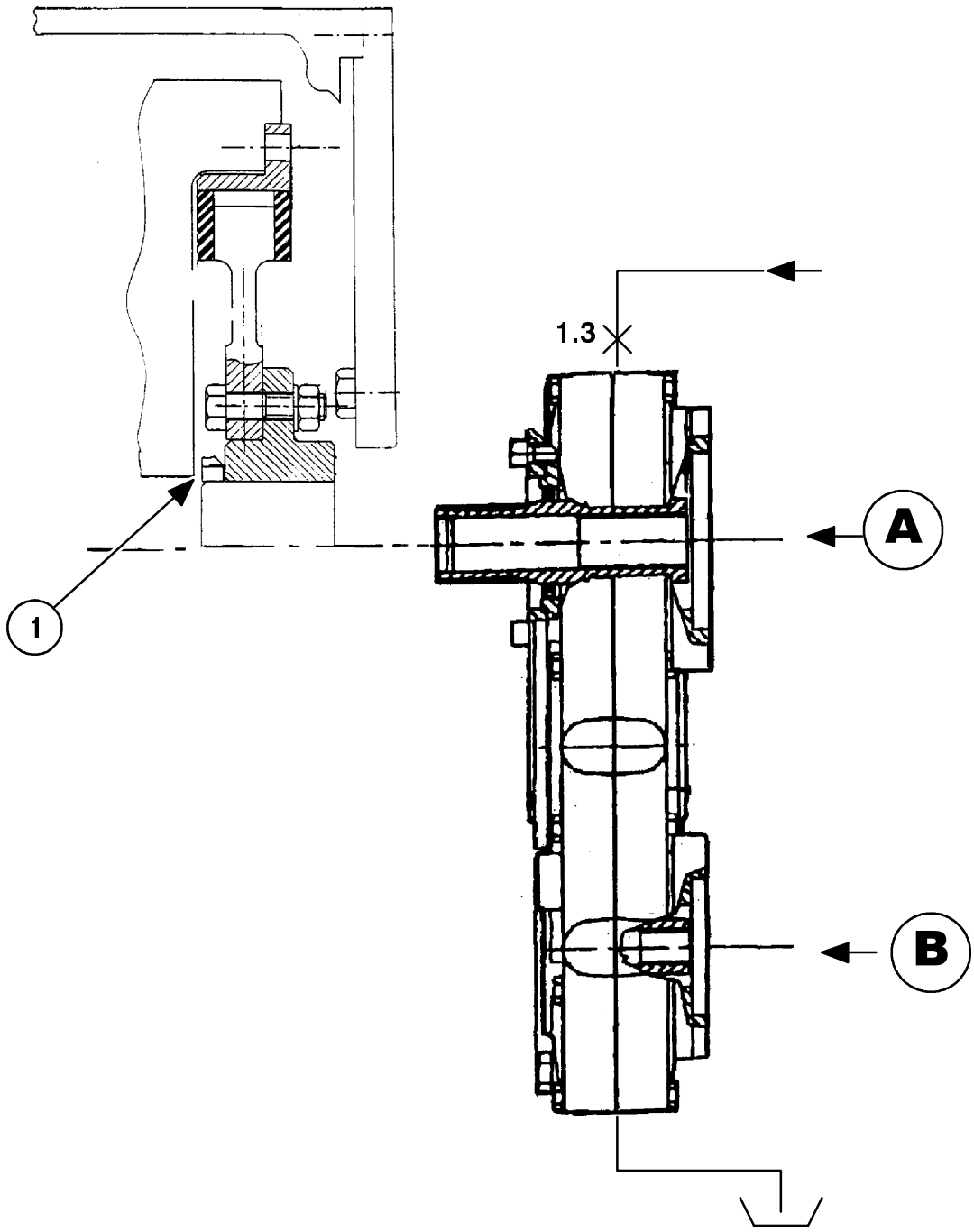

HYDRAULIC PUMP DRIVE CONTROL UNIT (225)

A = Assembly of "SAUER" drive pump

B = Assembly of the "VICKERS" cleaning system pump

(1) = SKF nut with tightening torque = 10 daNm

This control unit (225) in the hydrostatic diagram has a 1/1 ratio and the two output shafts have the same rotation direction of the motor. This control unit does not require maintenance; lubrication and cooling are ensured by a priming delivery passage.

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A Towards service circuit

B Towards service circuit

C Cleaning intake

D Cleaning circuit return

E Towards service circuit VN 260

Y Bleed plug (VN260)

- The references (13 -18 - etc...) correspond to those of the return hydraulic circuit, section 35.

Q Towards cleaning circuit with drain of the pump only for series 624007 and 641005

NOTE:

- road speed → (20) and (220) are operated simultaneously
- The distributor (209) is represented by the switched-off thermal engine. When it is enabled, the priming pressure moves it to the 4WD position.
- When the capacity divider is used (210), the electric distributor (49) operates simultaneously the distributor (217) that locks the antiskid system independently of the position of the distributor (208).
- The accumulator (218) prevents pressure decrease while passing to the road position.
- The distributor (208) is operated by a cam located at the top of the front right leg.

  Adjustment: 1. place the wheels in straight position

  2. of the cam: - place the cam reference in front of the roller pin

  3. of the distributor: - place the roller button on the distributor

  - make the distributor enter by 8 mm.
- The references on the end of the arrows correspond to the returns on the "intake and return" circuit described in section 35.
- The line in Z of the HP block (202) is available only for series 624001, 002, 003 and 641001 and 002; it increases priming capacity towards the steering block. For the following series, only the line in C is larger.

Drive description

- Boost by hydrostatic drive with variable displacement pump and manual servo-control.
- "SAUER" pump, type 90 R 100 with displacement elimination valves calibrated at 480 bar
- "POCLAIN" wheel motor with fixed displacement
  - front, type MSE 08, 1157 cm^3/rev.
  - rear, type MSE 18 with double displacement, 883 and 1325 cm^3/rev.
- Inching speed:
  - wheel position up to 25 km/h only with rear drive
  - field position up to 10 km/h only with 4 wheel drive

  NOTE: *with the lever in neutral, the drive is automatically in field position*
- Antiskid
  - automatic rear/front by motor series assembly
  - RH/LH by capacity divider enabled by left pedal.
- Braking
  - by two hydraulically-operated multi-disk brakes integrated in rear motors

    simultaneous locking in case of priming pressure lack

    manual simultaneous locking (parking) by switch on the steering column, operating only when the inching lever is in neutral position

    independent locking, on the right or the left, by a single right pedal. The selection is made by the steering, in max. steering position.

    no pedal braking when the wheels are straight.
  - by two drum brakes integrated in rear wheel motors (only VN 260)

    simultaneous braking by a switch on the inching lever.
- Max. allowed slope during work
  - VN 260 = 43%
  - VN 240 = 35%

Operation

1. Forward speed (the supply of pump (201) is in B)

a) Work position without norias

- no electric distributor is powered, thus:
  - the distributor (211) allows the direct return of rear wheels towards the pump
  - the distributor (209) is operated by the priming pressure; the machine works with four drive wheels.
  - The return of rear motors is through the distributor (209) towards rear increased displacement to ensure front/rear antiskid.
  - During steering, the front/rear antiskid is progressively released by the distributor (208) operated by a cam fastened on the front right leg.
  - The distributor (215) is operated by HP enabling the oil exchange valve (216).
  - Only for VN 260, the operation of the electric distributor (50) involves the operation of the distributor (219). According to the adjustment, front motor torque can be decreased.
- Supply of the electric distributor (49); in this case:
  - the distributor (210) operates the divider 50/50 to engage antiskid on the right/left.
  - the distributor (217) cancels the function of the distributor (208). Caution, in this case steering is extremely hard.

b) Work position with norias

- Functions like item a)
- The electric distributor (26) is powered and thus the priming pressure supplies the distributor (211). The return of rear motors passes through the noria motor (213) and makes it rotate; its rotation should be proportional to inching. The max. torque of noria motor is controlled by the limiter (212).

c) Road position

- See chapter concerning the electrical system. This control prevents the supply of (26), (49) and (50).
- The supply of the electric distributor (20) operates:
  - the two distributors inside the rear wheel motors, to engage increased displacement.
  - the valve (222) that removes the control to the distributor (209) that sends to the reservoir the HP lines of front motors. The machine is thus driving only through the two rear reduced displacements.
  - In (A) a valve, calibrated at 0.5 bar is located (see service circuit) to stabilize pressure in the sumps. All pistons are retracted and there is no oil flow.
  - During the inching lever return to neutral position, after one second the two distributors (20) and (220) are not powered anymore; the nozzle integrated in the control of the distributor (209) delays its movement for the time required to the priming pressure to fill the HP lines and relocate the pistons.

2. Reverse

- See chapter concerning the electrical system. The electric distributors (20), (220) and (26) cannot be operated. The reverse is always on 4 drive wheels.
- The distributor (215) is not operated, thus there is no oil exchange.

3. Norias in washing position

- See chapter concerning the electrical system. It can be operated only when the lever is in neutral or reverse.
- The electric distributor (46) lets the service circuit power the noria motor (213). The return of this motor occurs through the sump of the inching pump (201). The max. pressure corresponds to the limiter (212).

4. Braking

- Supply of electric distributors (95) and (96).
  - See chapter concerning the electrical system. They are individually operated by the combined action of right pedal + steering in max. limit or, together, by a switch on the steering column, with the lever in neutral.
  - They lock rear wheel brakes individually or simultaneously.
- Only for VN 260, front wheels have drum brakes. The electric distributor (97) operates these brakes by a push button on the inching lever. The pressure in these brakes depends on the pressure in the large chambers of front leg cylinders.

NOTE:

- always use the recommended tyre types to comply with the rolling circumference ratio between front and rear wheels.
- The machine stop occurs through hydrostatic drive when the operator places the lever in neutral again. On VN 260 models, the front brakes can be used simultaneously.
- In case of priming pressure lower than 15 bar (breakage of one line or no oil in the reservoir), the brakes in the rear wheel motors lock automatically.

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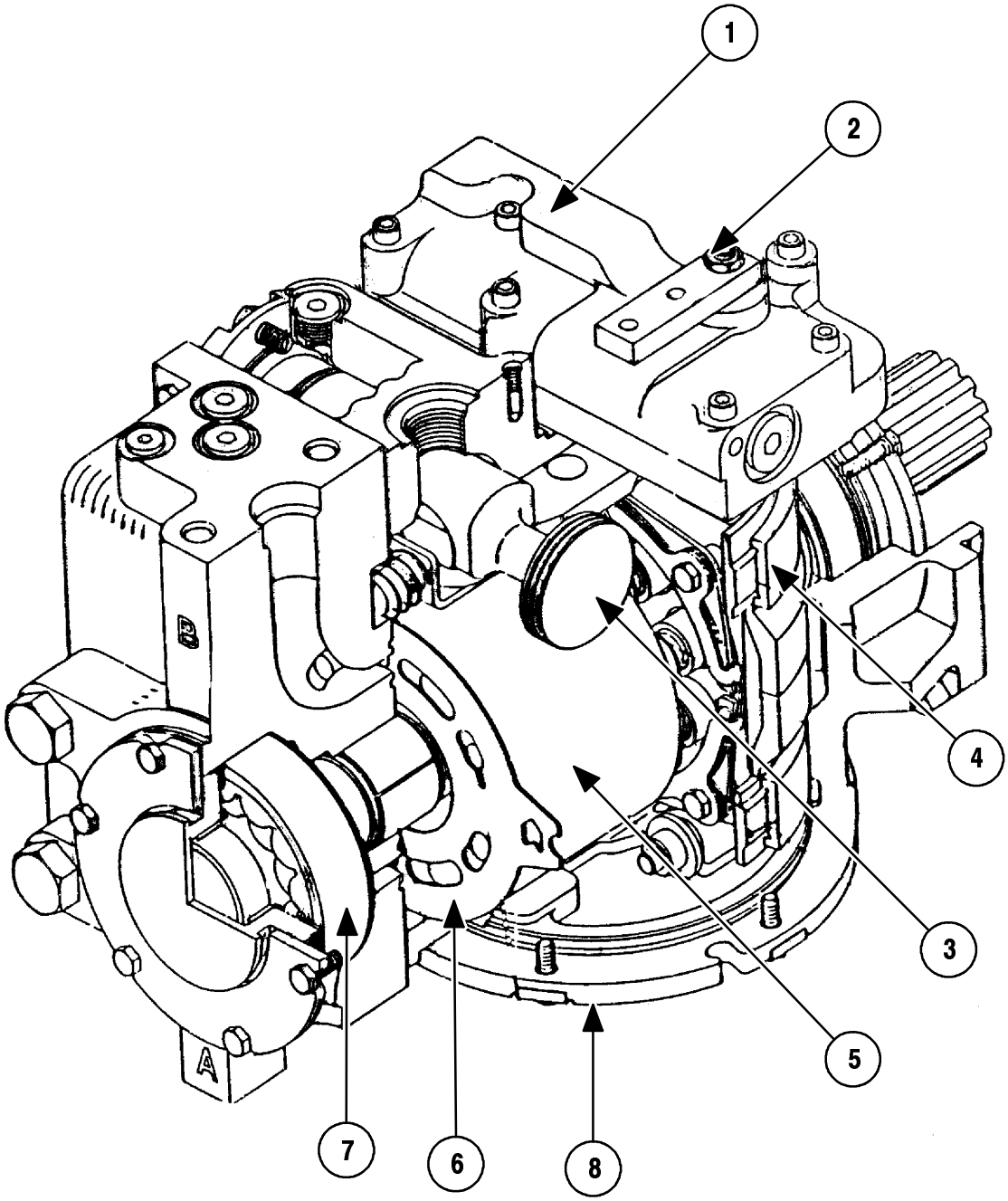

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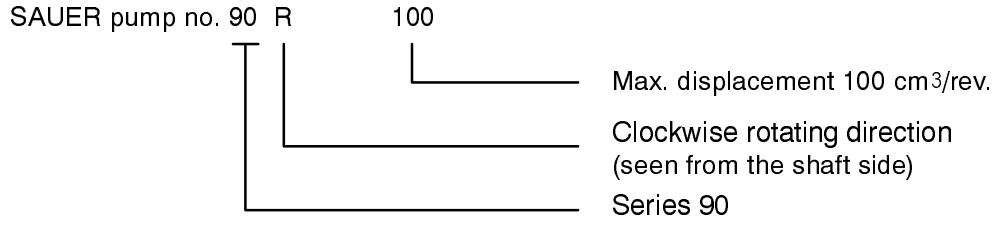
Inching hydrostatic pump (201)



1 Servo-control

2 Mechanical control lever

3 Servo-piston,

4 Plate orientation bearing,

5 Rotating unit,

6 Distribution glass,

7 Priming pump (26 cm^3/rev.)

8 Adjustable cover for the pump mechanical zero.

Adjustment of the neutral point

This pump is equipped only with mechanical zero adjustment.

- Remove the inching cable.
- Place the road/field switch in the dashboard in "road" position and press the lever forwards (so that the sensor confirms the road position).
- Lift one front wheel.
- Place the thermal engine at max. speed; the wheel should not rotate. Otherwise:
  - loosen the fastening screws of the cover (8) and, by a screwdriver, rotate the cover slowly until the wheel stops.
- Adjust the control cable length.

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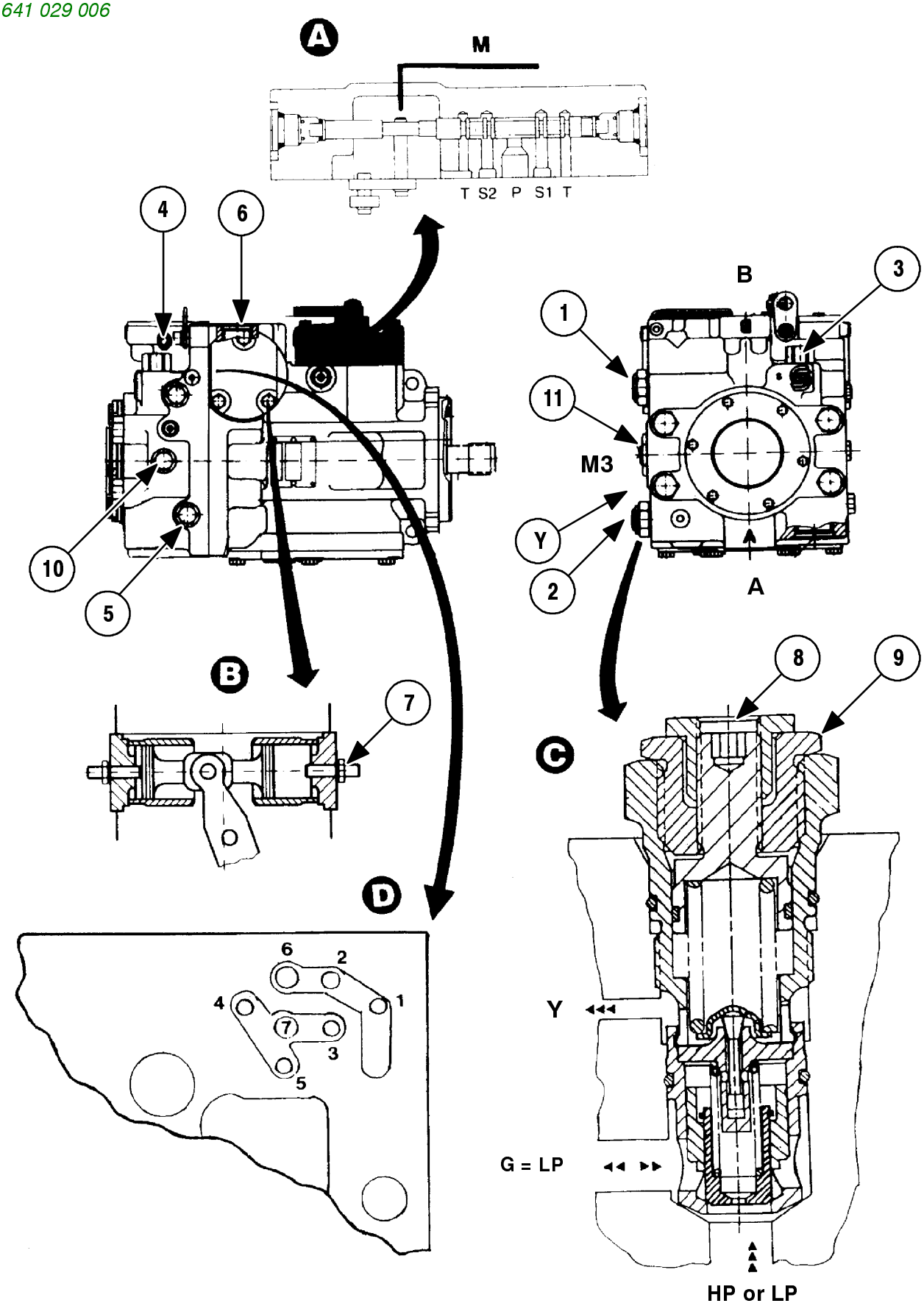

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1 Forward range HP valve with displacement elimination at 480 bar

2 Reverse range HP valve with displacement elimination at 480 bar

3 Priming pressure limiter calibrated at 30 bar

4 Plug marked M2 on the diagram,

5 Plug marked M1 on the diagram,

6 Plugs for servo-drive pressure intake, marked M4 and M5 on the diagram.

7 Max. capacity adjustment screw, that can be used as pump priming and drive pressure intake

8 High pressure adjustment screw

9 By-pass nut of high pressure valve

10 Plug corresponding to priming intake

11 Sump bleed plug on VN 260

M3 Priming pressure outlet

Y Bleed plug (VN260)

Detail A:

Servo-control, valve-type, without hydraulic zero setting.

M: represents the manual control.

P: hole of the nozzle (single-acting type) of acceleration and deceleration timing ∅ 0.81 mm

Detail B:

Servo-piston for displacement control: it has no spring, as the return is made by the pump plate.

The screws (7) limit the pump max. displacement and thus its moving speed.

The max. travel speed, on road, corresponds to 25 km/h (1). It is factory set by the screw (7) located on the bottom for VN 260 model or at the top for VN 240 model.

Detail C:

1. Operation of the multifunction HP valve - (1) and (2)

a) **Booster valve** that lets priming pressure G pass to the LP branch lifting the valve first step.

b) **Pressure holding**: when the pressure reaches the adjustment value (screw 8), the displacement passing through the central nozzle of the slide valve comes out in Y and balances the pressure in the servo-drive. The plate return forces cancel the pump displacement.

c) **Piloted pressure valve** that lets HP pass towards LP when the pressure reaches the set value. This value is adjusted by the hollow screw (8).

2. By-pass

To tow the machine to a repair workshop when the main drive shaft does no longer rotate, oil from HP branch must be sent to the LP branch. To this purpose, simply loosen the nut (9) by three turns on the two multifunction valves. In this way, the pressure limiting and holding functions are no longer active.

NOTE: *this operation is not required if the machine is to be towed over a short distance.*

Detail D:

Pressure adjustment

By multifunction valve with displacement elimination.
To this purpose:

- the holes 1 and 3 are closed
- the holes 2, 4 and 5 are free
- the holes 6 and 7 are equipped with valves.

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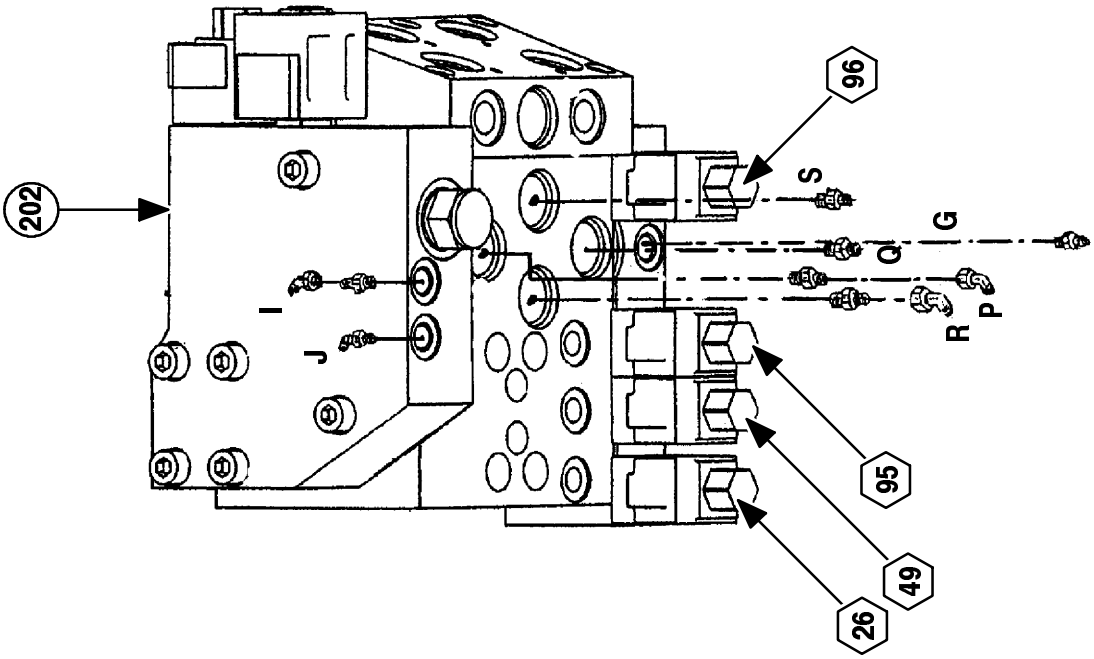
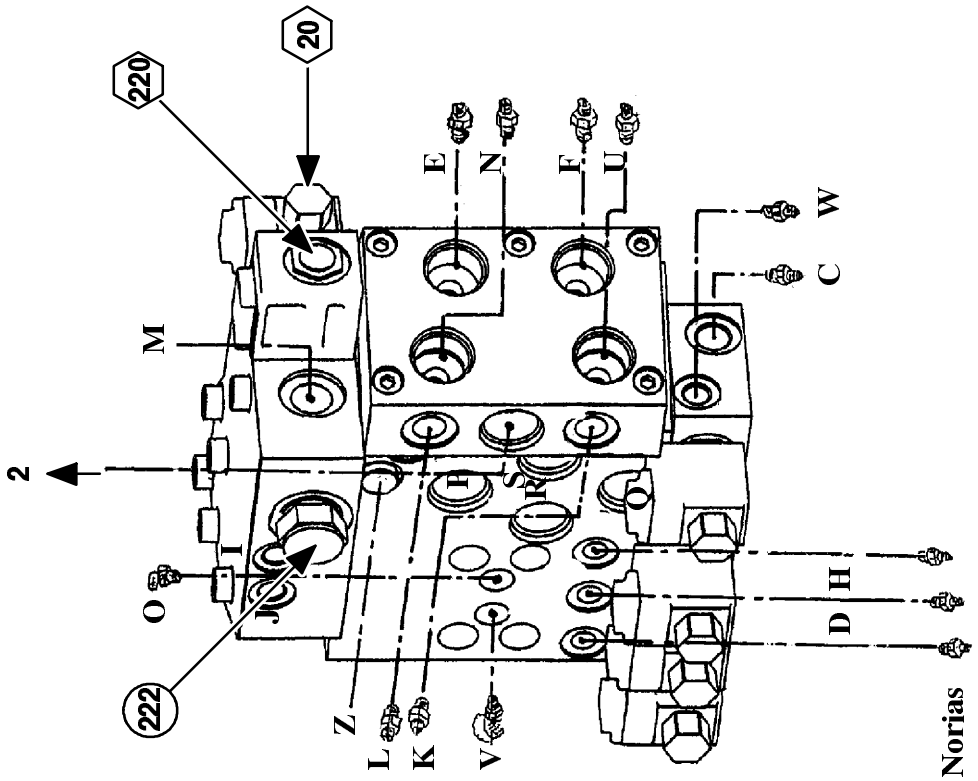

202
96
S
G
Q
P
R
I
J
95
49
26


20
220
E
N
F
U
W
C
M
2
H
S
R
I
O
J
D
22
Z
L
K
V
Norias

DRILLED BLOCK (202)

This hydraulic block is directly fastened to the inching pump (on the forward range supply side).

All references are the same as those of the corresponding hydraulic diagram.

EV = electric distributor

20 Road speed EV

26 Norias in work position EV

49 Capacity divider EV

95 Rear brake EV, left side

96 Rear brake EV, right side

220 Road speed EV

222 Piloted check valve

Fig. 1 (209)

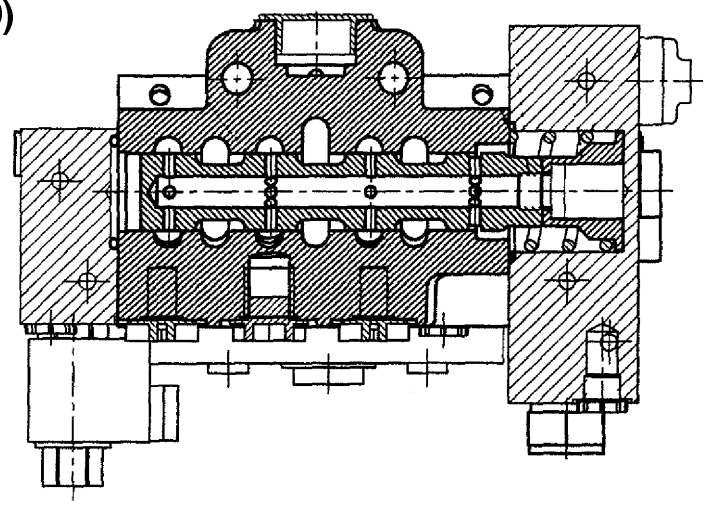


Fig. 2 (210)

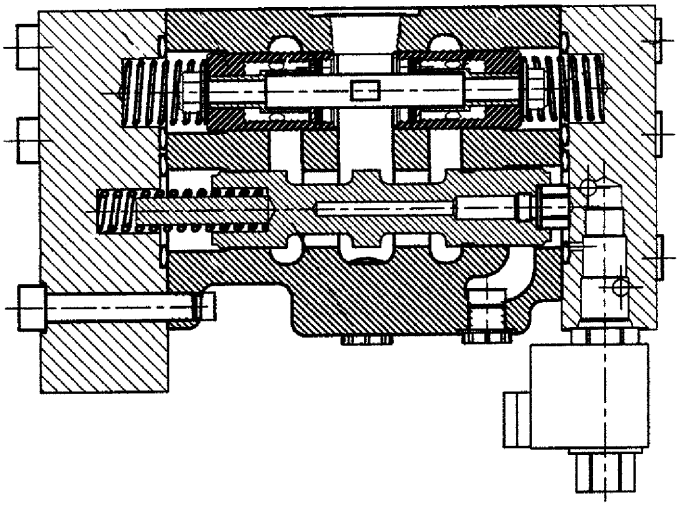


Fig. 3 (211)

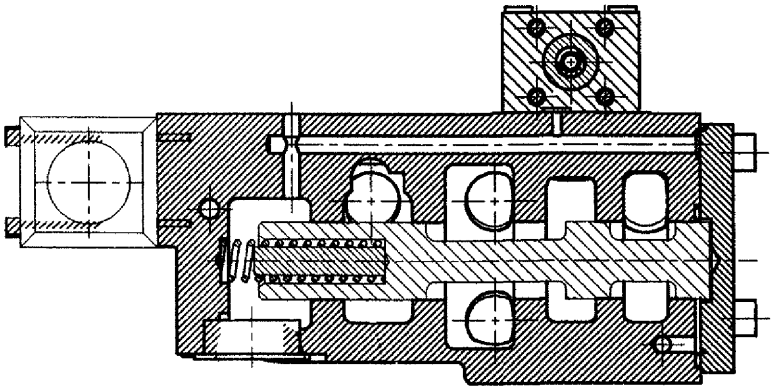


FIG. 1:

Slide valve (209 for road/field selection, installed in the drilled block (202).

FIG. 2:

Capacity divider (210) installed in the drilled block (202).

FIG. 3:

Slide valve (211) for noria control, installed in the drilled block (203).

Suggest:

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to download the complete manual.

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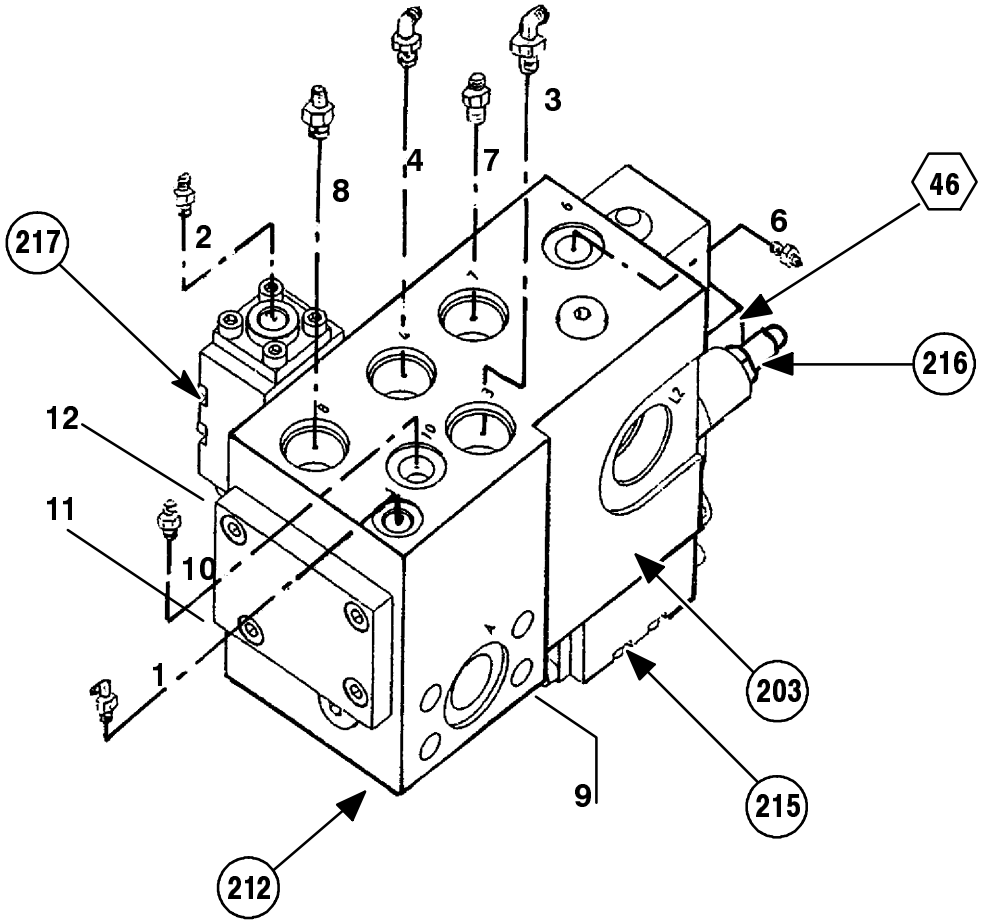

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