

**DROTT
Poclain
Model 600**

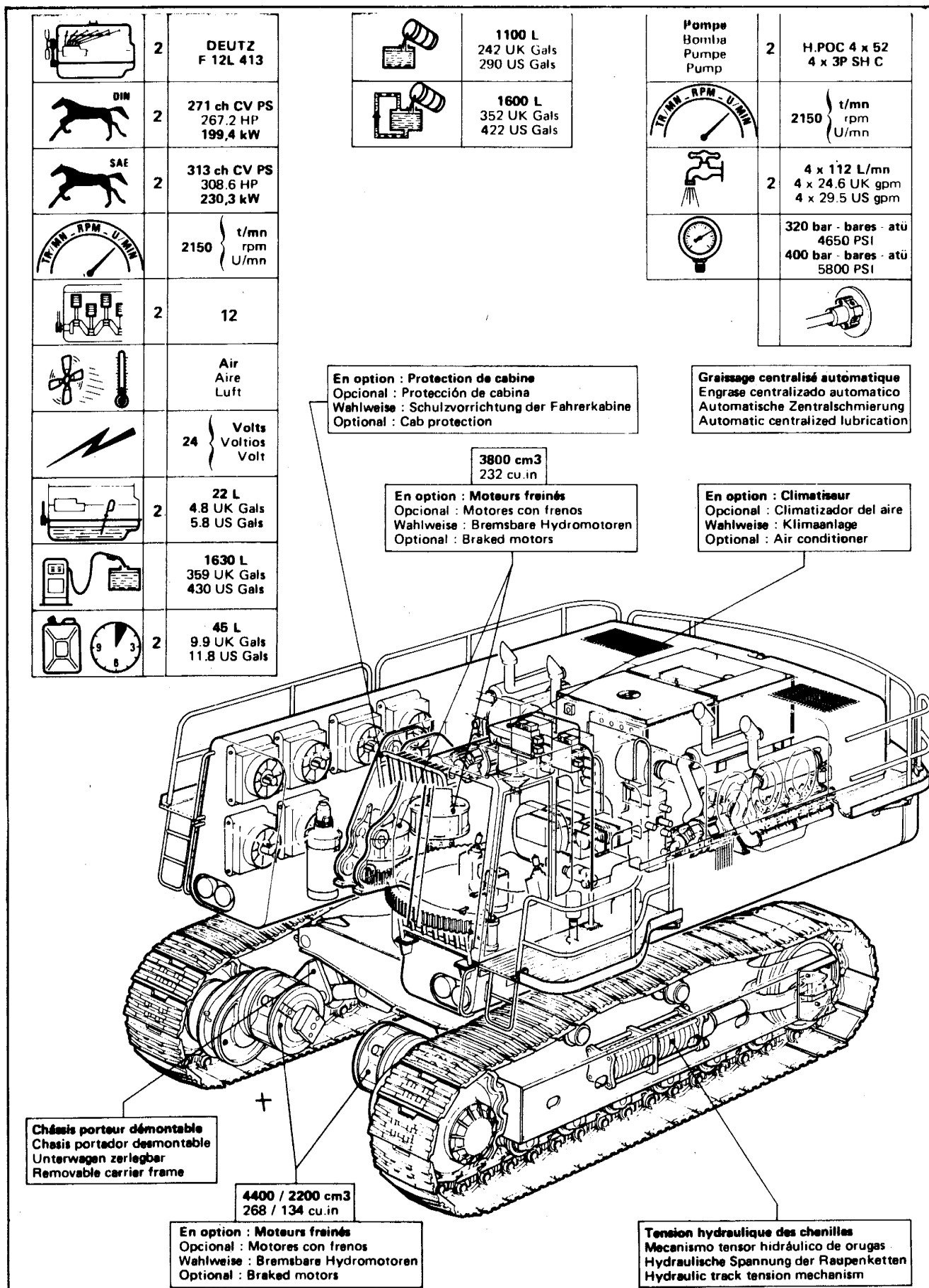
Technical Manual

S406321

Reprinted



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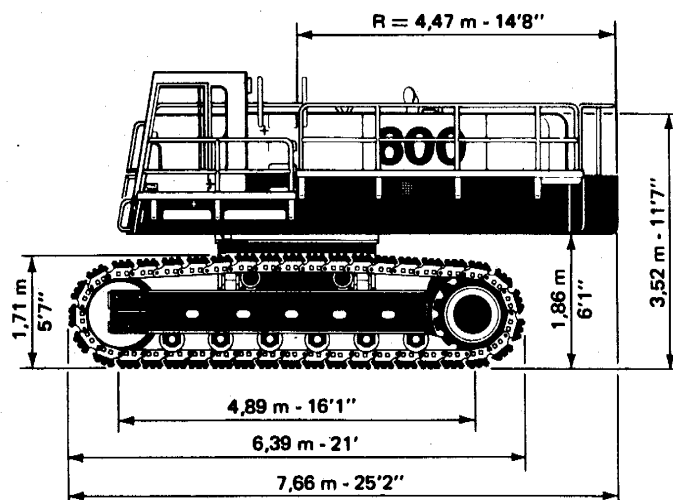
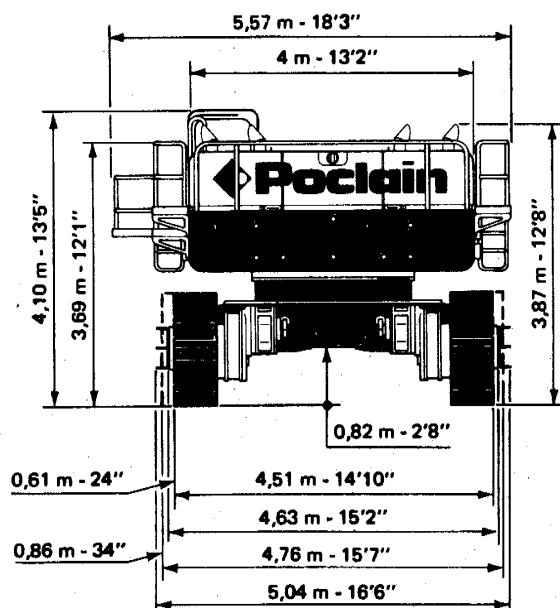
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600 CK



	61 % 58 % en continu 58 % en continuo 58 % beständig 58 % steady climb
	90,2 t 132,400 lbs
	0 → 1,10 km/h 0 → 0.68 mph 0 → 2,70 km/h 0 → 1.67 mph

42 Tulas 42 Tejas 42 Bodenplatten 42 Pads		
24"	99,8 t 219,600 lbs	1515 g/cm2 21.54 PSI
34"	96,4 t 212,100 lbs	1020 g/cm2 14.50 PSI

* { 4,80 m - 4,80 m - 5500 L
{ 15'9" - 15'9" - 7 1/4 cu.yd

** { 8,30 m - 3,80 m - 3400 L
{ 27'3" - 12'6" - 4 1/2 cu.yd

UNDERCARRIAGE

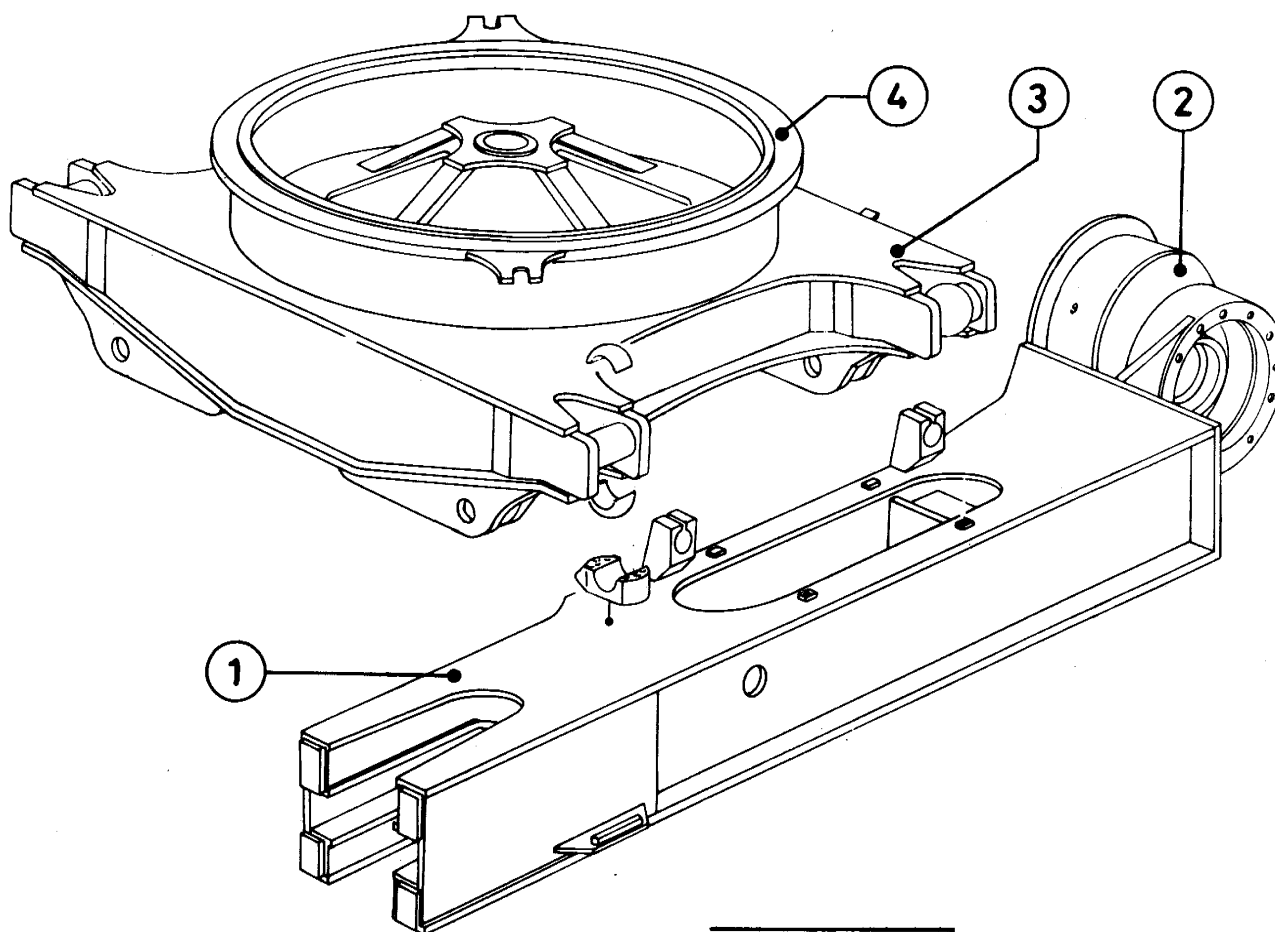
Function :

- It supports the upperstructure on the roller bearing ring
- It ensures stability of the assembly when working
- It is equipped with a track group, making for all-terrain travel.

DESCRIPTION

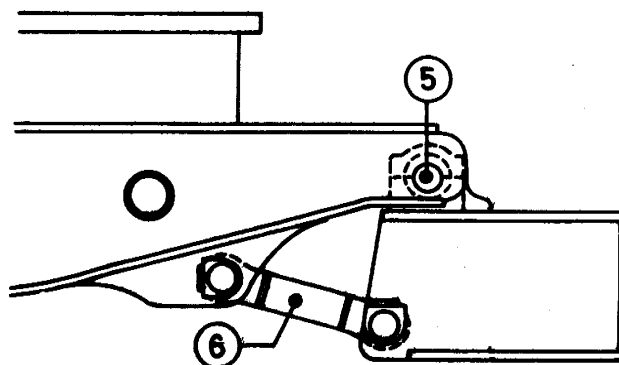
The undercarriage comprises :

- two independent box-type side-members (1) which support the track group.
- A rear bearing (2) is welded to each side member, which houses a hydraulic track drive motor a double reduction gear and a sprocket wheel. The front part of the side-member is fitted with a slipper which receives the idler wheel and the track tension - shock-absorber system.
- a central H-shaped frame (3) to which is welded a tubular frame (4) which supports the roller bearing ring.



CONNECTION BETWEEN SIDE MEMBER AND CENTRAL FRAME

This connection consists of four bearings (5) and four tie-bars (6).



REDUCTION GEARS

Function :

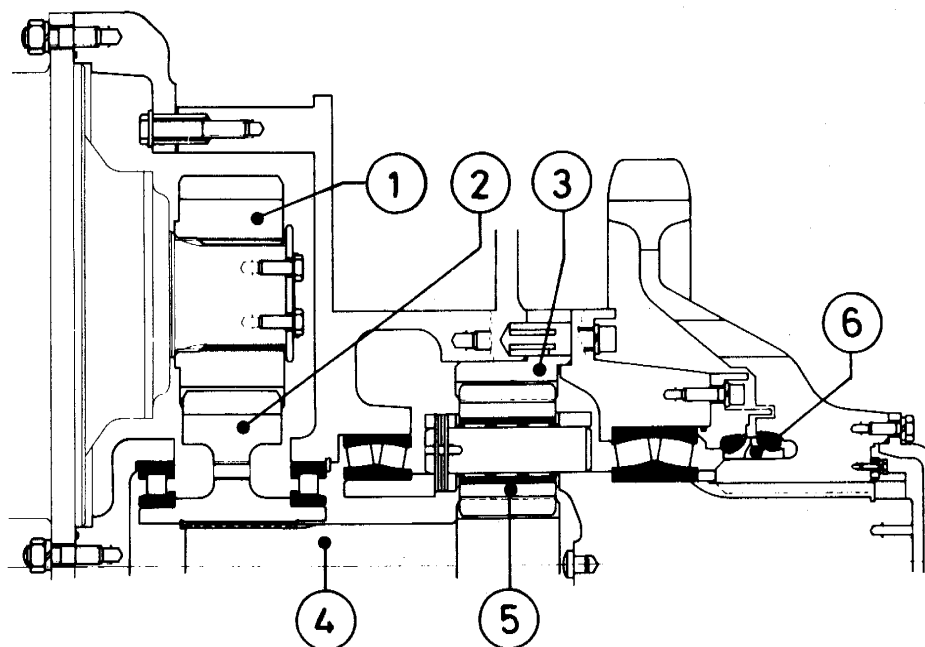
- Reduce the speed transmitted by the hydraulic motor and increase the torque in the reduction gear ratio.

DESCRIPTION

Each rear bearing is equipped with two reduction gears.

- a reduction gear comprising straight gear-wheels; these consist of : a drive pinion (1) and a driven wheel (2)
- a planetary-type reduction gear consisting of a sun wheel (4) integral with wheel (2) by means of splines, four planet wheels (5) and a fixed gearwheel (3).

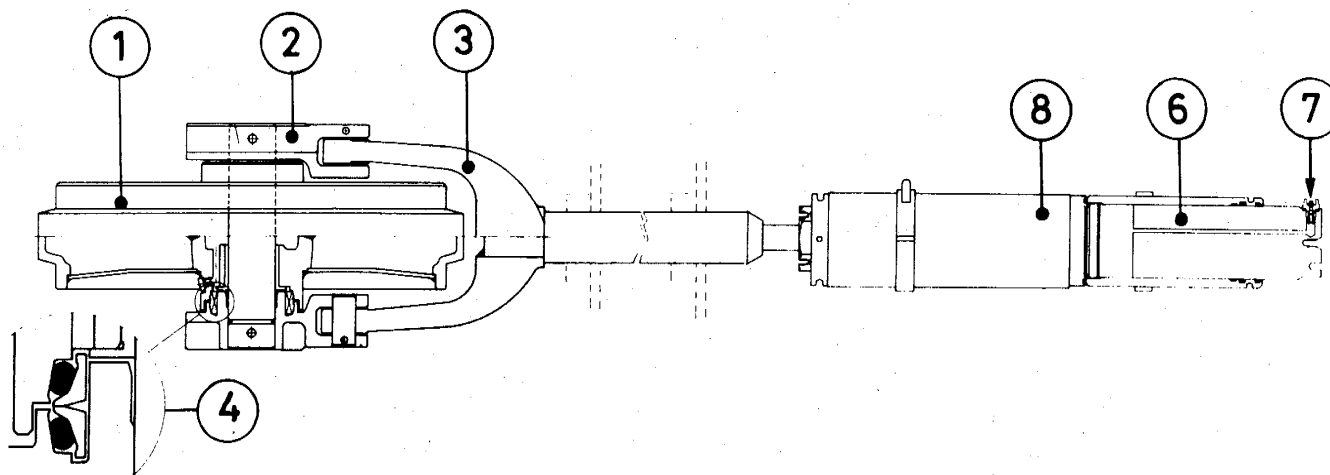
An face seal (6) ensures tightness of the bearing, on the sprocket wheel side.



CHARACTERISTICS

Machine Type	Motor Type	First reduction gear				Second reduction gear					TOTAL reduction ratio	Theoretical torque at 320 bars X2 Mot.
		No. teeth Pinion	No. teeth Wheel	Module	Reduction ratio	No. teeth gearwheel	No. teeth sunwheel	No teeth Planet wheel	Module	Reduction ratio		
REF		1	2			3	4	5				in mdaN
600 CK	2x2800	17	43	14	0.395	47	17	15	11	0.285	0.106	27136

IDLER WHEEL AND TENSIONING SYSTEM – SHOCK–ABSORBER



IDLER WHEEL

The idler wheel (1) is embedded between two slippers (2); it is connected to the tensioning system and shock-absorber by a fork (3)

Lubrication is by oil bath. Two steel bushes (4) ensure tightness

TENSIONER

Track tightness is effected by a hydraulic cylinder (6) which is filled with grease by a grease fitting (7). To slacken the track, all that is required is to unscrew this grease fitting so as to allow the grease to make its way out of the cylinder.

Track tension varies according to the ground on which the machine is travelling (refer to operator's manual).

SHOCK–ABSORBER

An elastic system is installed to dampen the shocks received by the tracks during machine travel.

Two types are used :

– Elastomer-type shock-absorber (8)

Elastomer is a material which :

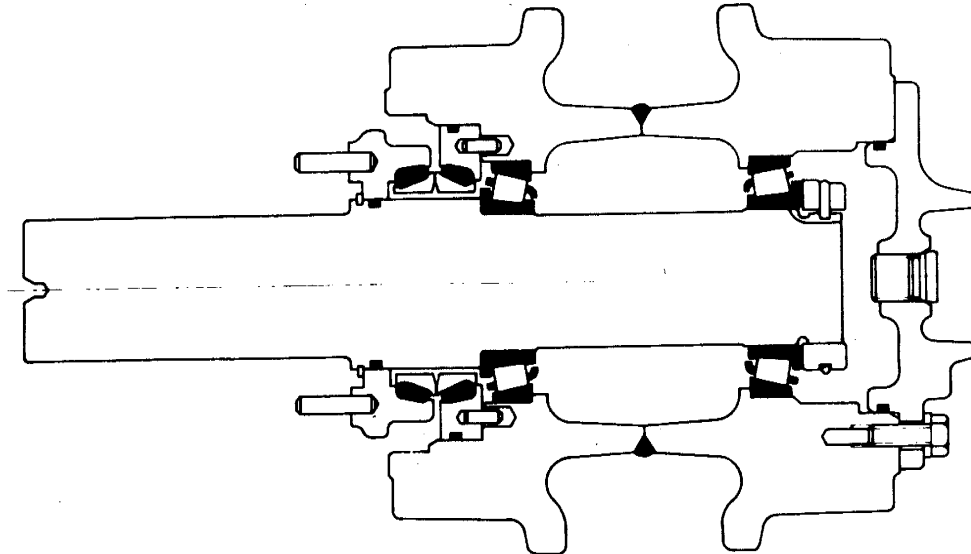
- . is highly elastic
- . can be tightly compressed
- . is very stable at extreme temperatures
- . is highly resistant to ageing factors.

ROLLERS

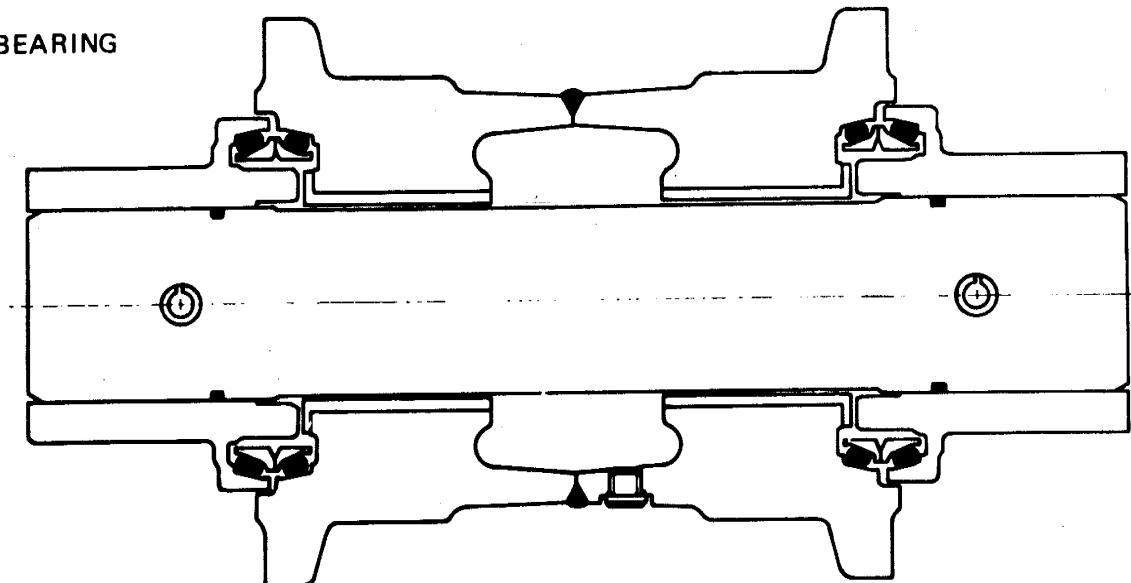
Two rows of bearing rollers guide the tracks and enable them to turn round.
Supporting rollers prevent each track from rubbing against the upper part of the side-member. Each roller is lubricated for life.
Tightness is ensured by two face seals

ROLLERS	600 CK	
	SUPPORTING	BEARING
TYPE	D9	D9G
NUMBER PER TRACK	2	6

SUPPORTING BEARING



ROLLER BEARING



TRACKS – PADS

The choice of pads depends on the ground on which the machine is working.
Irrespective of the machine model, all pads have three ribs; only the width varies (this is expressed in inches).

MACHINE TYPE	600 CK
TYPE OF TRACK	D9G
Number of LINKS	42
TYPE OF PAD	
24"	X
34"	X

FITTED UPPERSTRUCTURE

The upperstructure frame consists entirely of welded components in high tensile steel, ensuring ruggedness of the assembly.

The upperstructure consists of two main parts :

A central frame which supports :

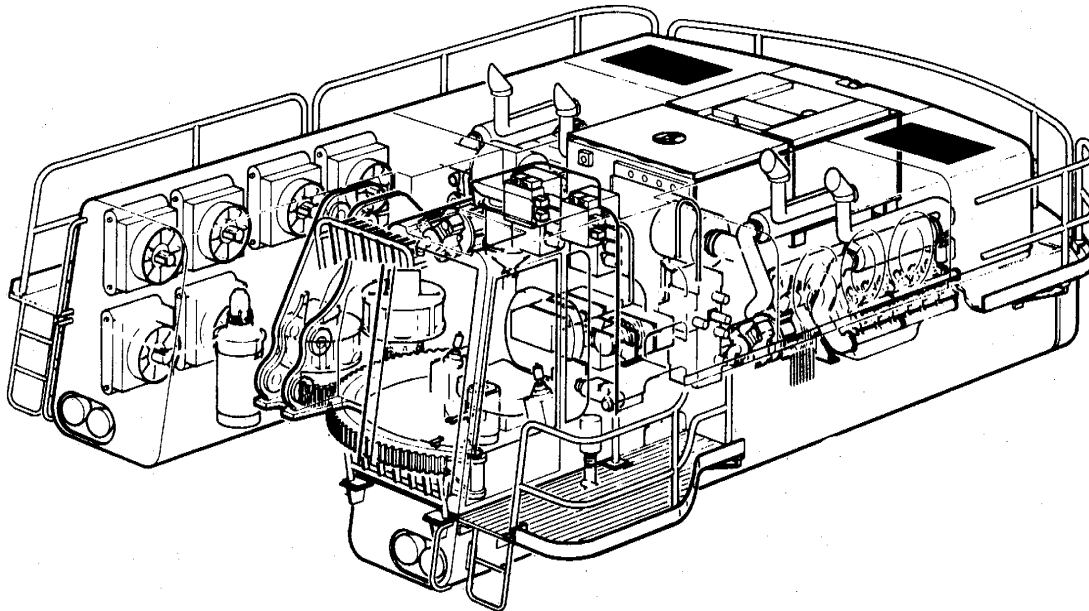
- the attachments
- the counterweight
- the hydraulic fluid and fuel tanks
- the hydraulic swing motors
- the swing joint
- the attachment valve banks

Box-type sections on either side which support :

- the hydraulic components
- the cab
- the controls
- the engines

Cowlings can be opened fully, providing easy access to the various components and facilitating servicing, checking and repairs.

During carriage, upperstructure swing motion is immobilized by a pin controlled from the cab.



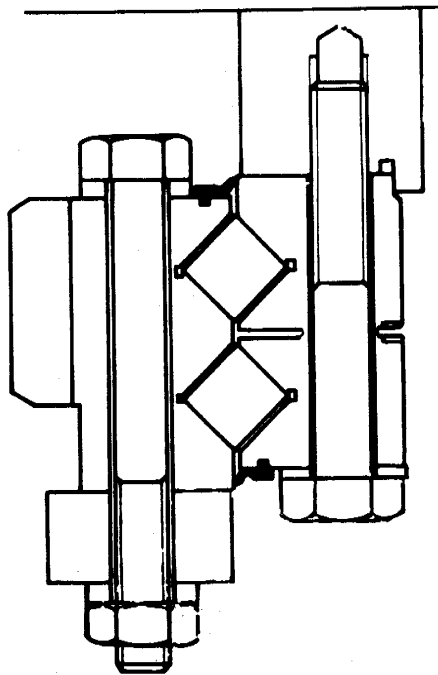
ROLLER BEARING RING

The roller bearing ring provides the connection between the undercarriage and the upperstructure, and enables the latter to describe a complete revolution.

It consists of two parts, connected by two rows of alternate rollers.

- One part is bolted and centered on the upperstructure.
- The other part has the form of a gearwheel, and is fixed to the undercarriage (129 module 18 teeth)
- The hydraulic motors which ensure upperstructure swing motion are fitted with pinions (15 module 18 teeth).

Reduction ratio : 0.116

**LUBRICATION OF ROLLER BEARING RING**

Lubrication is effected by the automatic system (centralized lubrication); there are twice five grease points, distributed angularly.

Manual grease fittings are provided, in case the automatic system stops operating.

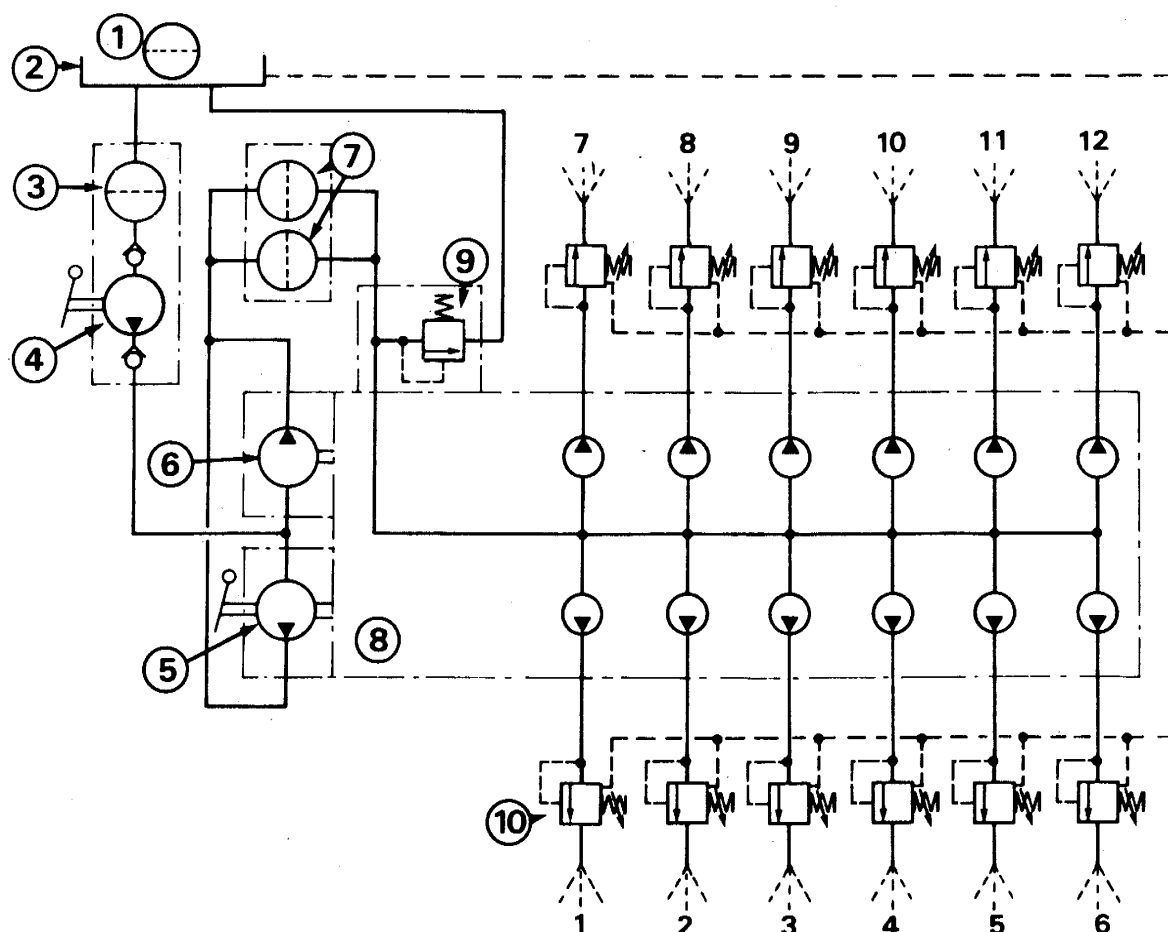
ENGINE

Machine 600 CK is equipped with two engines.

CHARACTERISTICS

Make	DEUTZ	Direct injection	yes
Type	BF12L413	Working speed with load	rpm 2150
Number of cylinders (in V)	12	Hydraulic oil tank capacity	l 22
Cooling system	air	Fuel tank capacity	l 1630
Horsepower DIN	HP 271	Average consumption	l/h 45
Horsepower SAE	HP 313	Electric startup	V 24
Total displacement	cm ³ 16964	Electric heating	yes
Bore	(mm) 120	Basic weight (approx.)	Kg 1100
Stroke	(mm) 125		

FUEL CIRCUIT OF ONE ENGINE



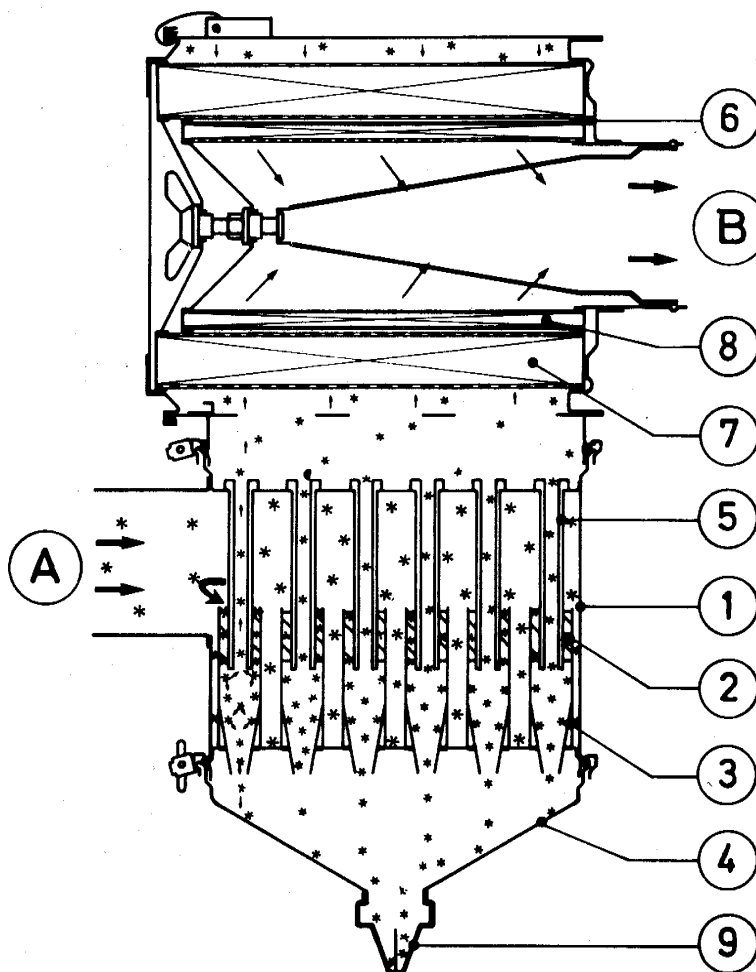
The oil is first filtered at (1) when filling the tank (2) and a second time at (3) before passing through the priming pump (4).

Suction of the oil is effected by both feed pumps (5 and 6) and is then delivered through filters (7) before entering the injection pump (8).

Valve (9) discharges the overflow of the feed pumps towards the tank. Injection pump (8) delivers the fuel towards 12 injectors (10).

Each injector has a leak return which consolidates in an independent line which leads to the tank.

OPERATING PRINCIPLE



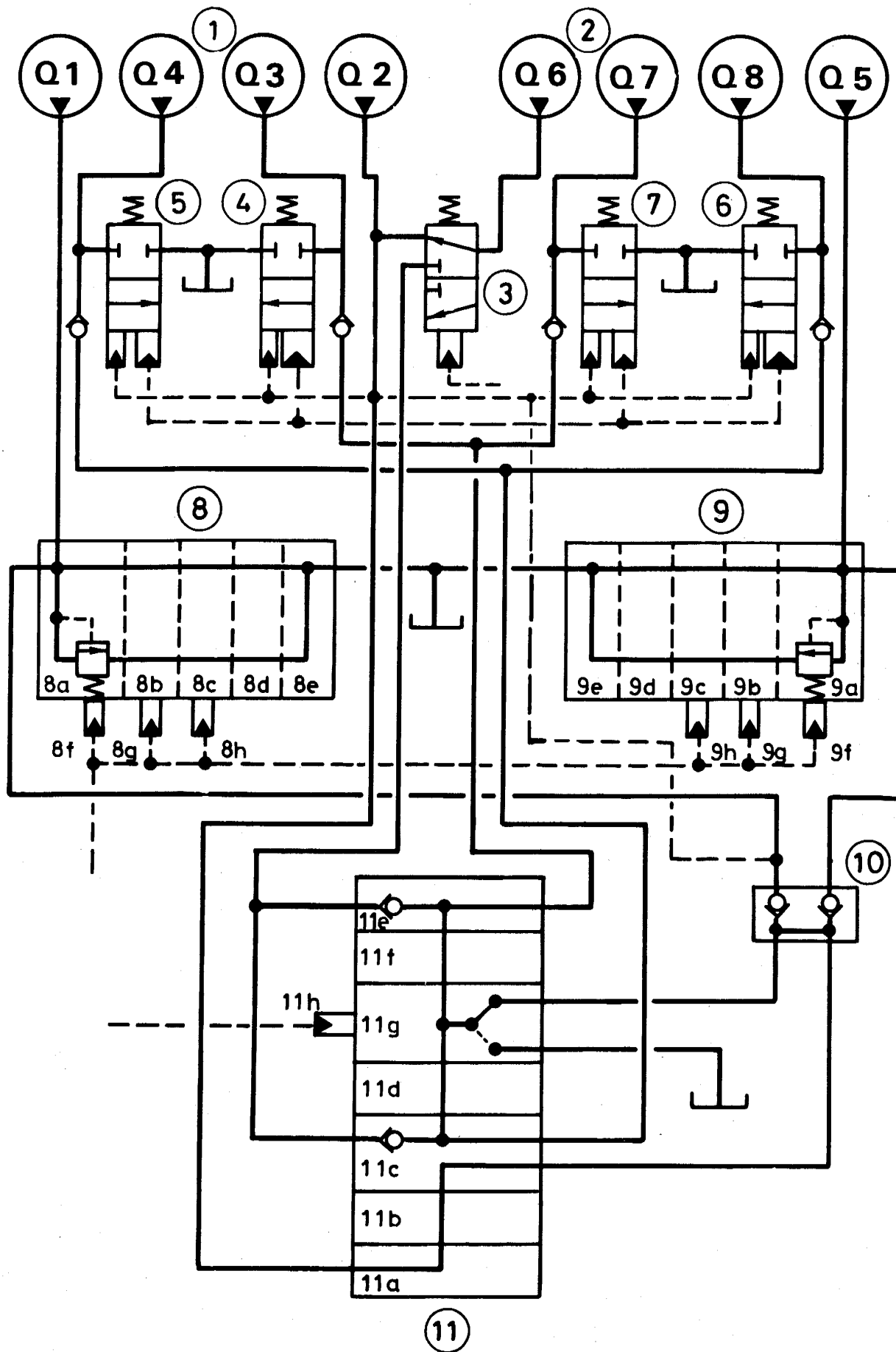
Dust-laden air sucked by the engine enters pre-filter (1) at (A).

Blades (2) located at the inlet of each tube (3) cause the air to whirl round, thus centrifugalizing the larger particles of dust against the walls of these tubes (3), afterwards sliding towards the recovery bowl (4), whilst the partly purified air makes its way through tubes (5) towards filter (6) and is then filtered twice, via the filtering cartridge (7) and emergency cartridge (8).

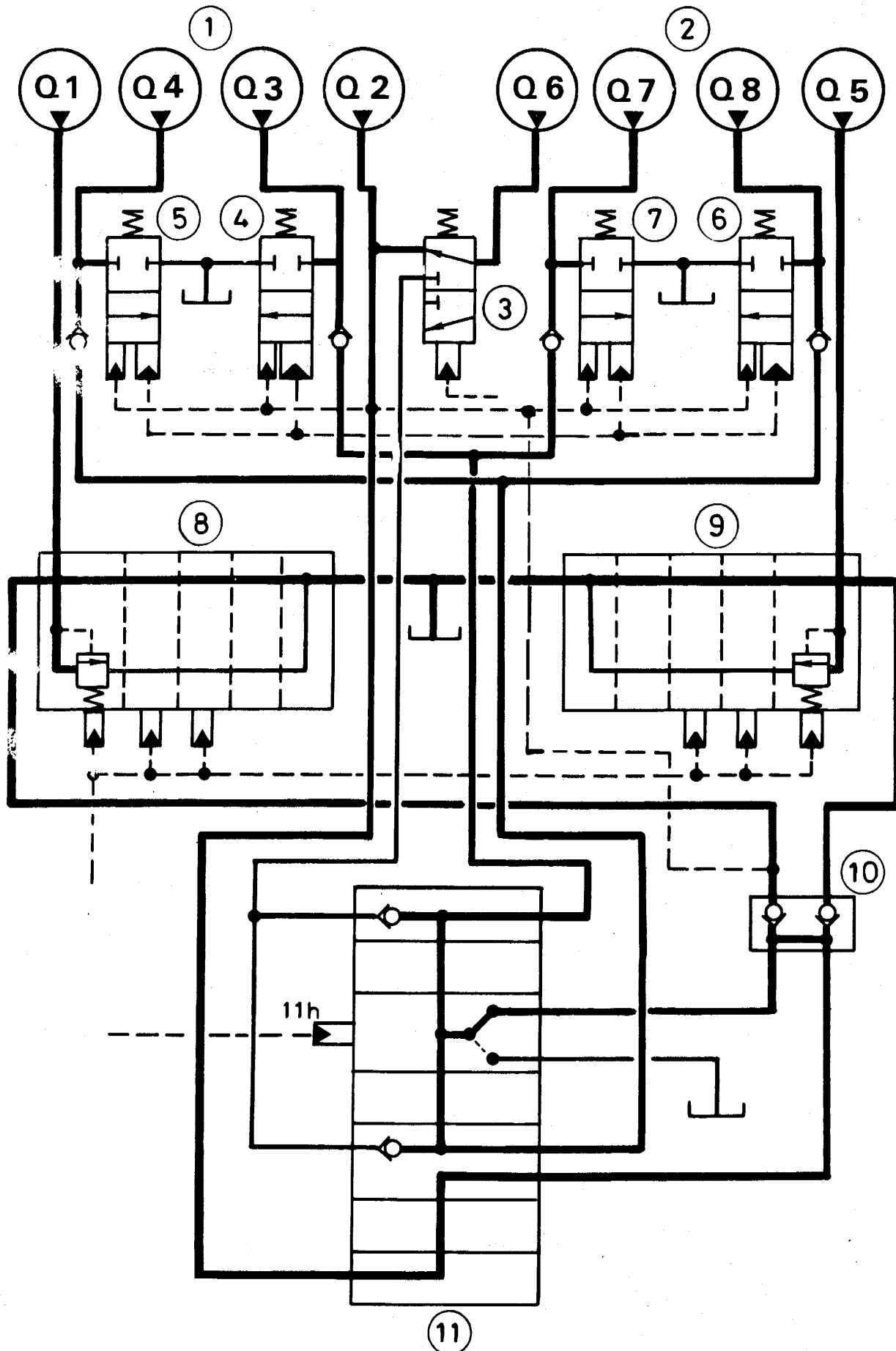
Clean air leaves the filter at (B) and then goes towards the engine intake piping.

The pressure drop inside the filter created by the engine keeps the membrane (9) closed; when the engine is shut down, this membrane opens, and this allows the dust to be ejected outside.

(For servicing, see operator's manual).



- 1 — High pressure hydraulic pump delivering four identical fixed flows.
 - Flow Q1 first power-supplies the ATTACHMENT (left-hand S30)
 - Flow Q2 first power-supplies the SWING MOTION (P200)
 - Flow Q3 first power-supplies the RIGHT-HAND TRACK DRIVE (P200)
 - Flow Q4 first power-supplies the LEFT-HAND TRACK DRIVE (P200)
- 2 — High pressure hydraulic pump delivering four identical fixed flows :
 - Flow Q5 first power-supplies the ATTACHMENT (right-hand S30)
 - Flow Q6 first power-supplies :
 - . SWING MOTION when in WORK position
 - . RIGHT AND LEFT-HAND TRACK DRIVE when in TRACK DRIVE position.
 - Flow Q7 first power-supplies the RIGHT-HAND TRACK DRIVE
 - Flow Q8 first power-supplies the LEFT-HAND TRACK DRIVE
- 3 — Flow selector which makes for the following :
 - Flow Q6 to join Q2 towards swing motion when in WORK position (not piloted)
 - Flow Q6 to power-supply right and left-hand track drive in parallel when in TRACK DRIVE position (piloted).
- 4 — Modulator with two pilot circuits which eliminates flow Q3 at 220 bars
- 5 — Modulator with two pilot circuits which eliminates flow Q4 at 290 bars
- 6 — Modulator with two pilot circuits which eliminates flow Q8 at 220 bars
- 7 — Modulator with two pilot circuits which eliminates flow Q7 at 290 bars
- 8 — 9 — Two series-type valve banks (S30) consisting of :
 - 8a - 9a — Inlet blocks each equipped with a discharge valve with oversetting (8f - 9f)
 - 8b - 9b — Boom cylinder control spools
 - 8c - 9c — Dipperstick cylinder control spools
 - 8d - 9d — Bucket cylinder control spools
 - 8e - 9e — Flow selectors (not used on machine 600 CK)
 - 8f - 9f — Discharge valves with oversetting
 - 8g - 9g — Safety valves with oversetting on large chamber feed side of boom cylinders.
 - 8h - 9h — Safety valves with oversetting on feed side :
 - . Large chamber of dipperstick cylinders (loader attachment)
 - . Small chamber of dipperstick cylinders (backhoe attachment)
- 10 — Flow distributor valves
- 11 — Parallel-type valve banks (3P200) consisting of :
 - 11a — Inlet block receiving flows Q2 and Q6
 - 11b — P200 swing motion control valve
 - 11c — Intermediate block
 - It enables flows Q2 and Q6 to make their way out outwards the attachment
 - it receives flows Q4 and Q8
 - and is equipped with a non-return valve for the partial entry of flow Q6 when selector (3) is in TRACK DRIVE position.
 - 11d — P200 left-hand track drive control valve.
 - 11e — Inlet block :
 - It receives flows Q3 and Q7
 - and is equipped with a non-return valve for the partial entry of flow Q6 when selector (3) is in TRACK DRIVE position
 - 11f — P200 right-hand track drive control valve
 - 11g — Central connecting block, serving as :
 - flow regulator valve (speed limiter)
 - two-position flow selector (11h)



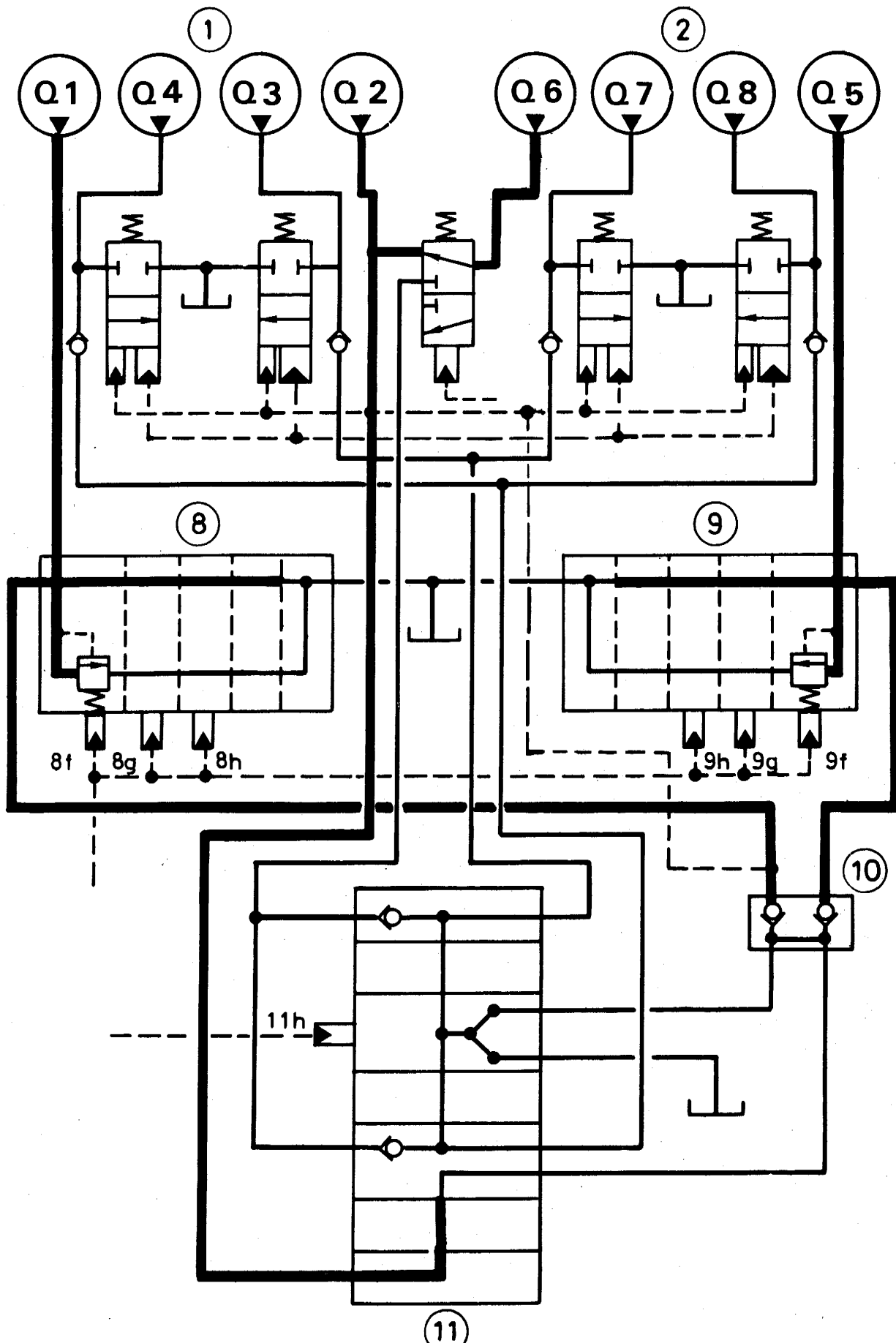
POWER-SUPPLY IN WORK POSITION

When in this position :

- Flow selector (3) is not piloted, which enables the SWING MOTION to receive flows (Q2 and Q6) direct.
- Flow selector (11h) is not piloted, which enables flows (Q3 and Q7)(Q4 and Q8) to be directed to the ATTACHMENT, provided they are not used for the TRACK DRIVE.
- Flows (Q3 and Q8) will be eliminated when the pressure in the power circuit reaches 220 bars.
- Flows (Q4 and Q7) will be eliminated when the pressure in the power circuit reaches 290 bars.
- The maximum pressure for each function will be determined by the setting of the various discharge and safety valves.
- The ATTACHMENT, SWING MOTION and TRACK DRIVE can be used separately or simultaneously.

Combinations possible :

WORK		0 to 220 b				220 b to 290 b				290 b to 320 b				320 b to 350 b				
ATTACHMENT ALONE		1	2	3	4	1	2	/	4	1	2	/	/					
		5	6	7	8	5	6	7	/	5	6	/	/					
SWING MOTION ALONE																		
			2				2								2			
			6				6								6			
TRACK DRIVE ALONE	RH			3				3								3		
				7				7								7		
	LH				4				4								4	
					8				8								8	
ATTACHMENT + SWING MOTION		1		3	4	1		/	4	1		/	/					
		5		7	8	5		7	/	5		/	/					
			2				2								2			
			6				6								6			
ATTACHMENT + TRACK DRIVE		1	2			1	2			1	2							
		5	6			5	6			5	6							
				3	4			/	4			/	/			/	/	
				7	8			7	/			/	/			/	/	
ATTACHMENT + SWING MOTION + TRACK DRIVE		1				1				1								
		5				5				5								
			2				2								2			
			6				6								6			
				3	4			/	4			/	/			/	/	
				7	8			7	/			/	/			/	/	



POWER-SUPPLY IN HEAVY LIFT POSITION

This position is obtained by means of an electrovalve controlled from the cab.

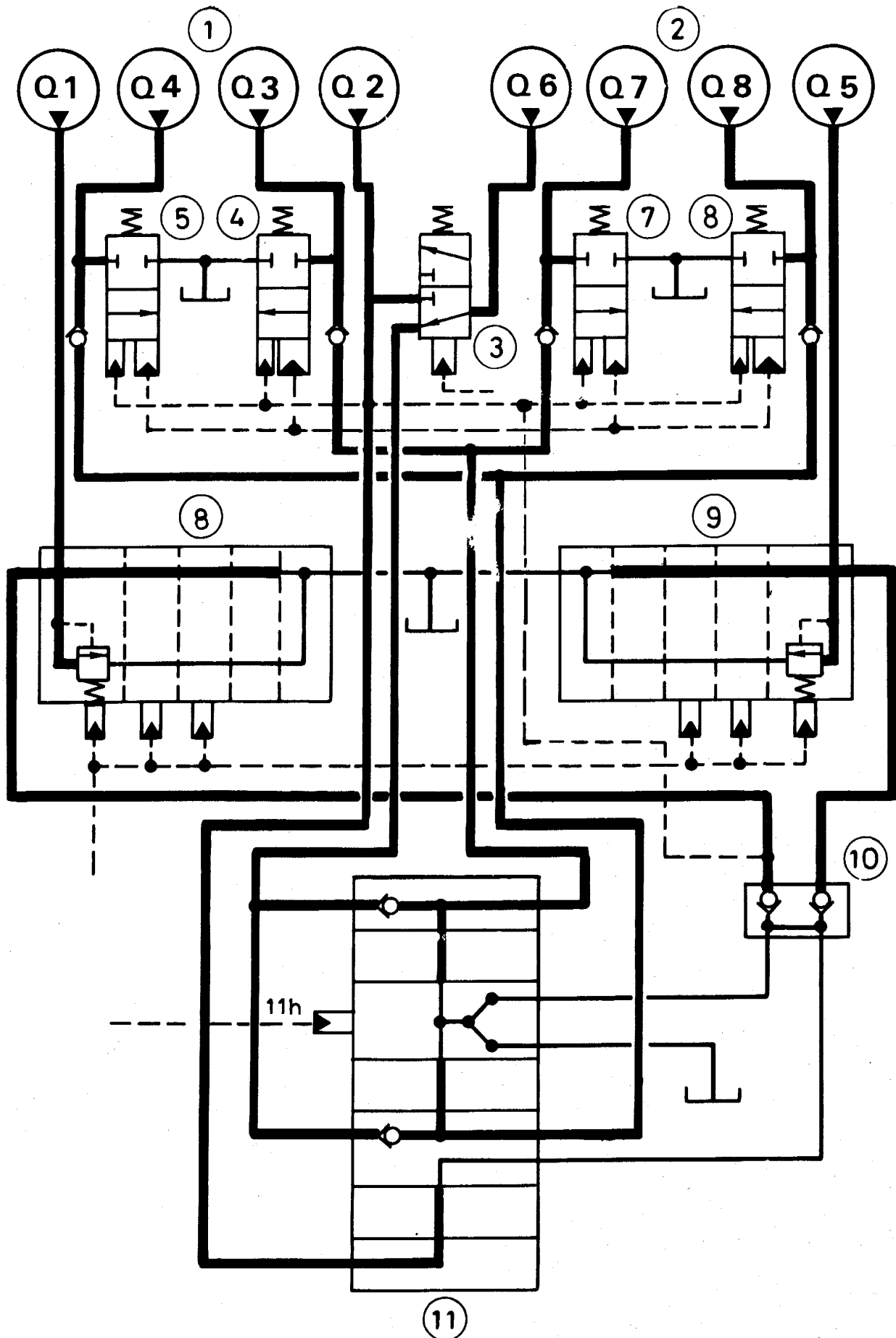
When in this position :

- Flow selector (3) is not piloted (same as WORK position)
- Flow selector (11h) is piloted, therefore flows (Q2 and Q6) not used for the swing motion return to the tank, together with flows (Q3 and Q7) not used for the right-hand track drive and (Q4 and Q8) not used for the left-hand track drive.
- Discharge valves (8f and 9f) are overset, and also safety valves (8g - 8h) and (9g - 9h).
- The maximum pressure on each function will depend on the setting of the various safety and discharge valves.
- The ATTACHMENT, SWING MOTION and TRACK DRIVE can be used separately or simultaneously.

Possible combinations :

HEAVY LIFT		10 to 220 b				220 b to 290 b				350 b				290 b to 370 b				400 b			
ATTACHMENT ALONE		1				1								Boom - Stick - Bucket				Hoist : Boom - Stick			
		5				5								1				1			
														5				5			
SWING MOTION ALONE			2				2				2										
			6				6				6										
TRACK DRIVE ALONE	RH			3				3				3									
				7				7				7									
	LH																				
					4				4				4								
					8				8				8								
ATTACHMENT + SWING MOTION		1				1								Boom - Stick - Bucket				Hoist : Boom - Stick			
		5				5								1				1			
														5				5			
			2				2				2										
			6				6				6										
ATTACHMENT + TRACK DRIVE		1				1								Boom - Stick - Bucket				Hoist : Boom - Stick			
		5				5								1				1			
														5				5			
				3	4			3	4			3	4								
				7	8			7	8			7	8								
ATTACHMENT + SWING MOTION + TRACK DRIVE		1				1								Boom - Stick - Bucket				Hoist : Boom - Stick			
		5				5								1				1			
														5				5			
			2				2				2										
			6				6				6										
				3	4			/	4			/	/								
				7	8			7	/			/	/								

NOTE : The various pressure-settings are only given to make operations easier to understand. For more precise details please refer to the corresponding technical information note.



POWER-SUPPLY IN TRACK DRIVE POSITION

This position is obtained by means of a rotary selector in the cab.

When in this position :

- Flow selector (3) is piloted; in this case, only flow (Q2) power-supplies the SWING MOTION, whereas flow (Q6) power-supplies the TRACK DRIVE in parallel and joins flows (Q3, Q4, Q7, Q8)
- Flow selector (11h) is piloted (same as HEAVY LIFT position)
- The maximum pressure on each function depends on the setting of the various safety and discharge valves.

Combinations possible :

TRACK DRIVE		0 to 220 b				220 b to 290 b				290 b to 320 b				320 b to 350 b				
ATTACHMENT ALONE		1				1				1								
		5				5				5								
SWING MOTION ALONE			2				2								2			
TRACK DRIVE ALONE	RH.			3				3								3		
			6en //	7			6en //	7							6en //	7		
	LH.				4				4								4	
			6en //		8		6en //		8						6en //		8	
ATTACHMENT + SWING MOTION		1				1				1								
		5				5				5								
ATTACHMENT + TRACK DRIVE																		
				3	4			3	4							3	4	
			6en //	7	8		6en //	7	8						6en //	7	8	
ATTACHMENT + SWING MOTION + TRACK DRIVE		1				1				1								
		5				5				5								
			2				2								2			
				3	4			/	4				/	/		/	/	
			6en //	7	8		6en //	7	/				6en //	/	/		/	

POWER-SUPPLY IN HIGH SPEED TRACK DRIVE POSITION :

This position is obtained by a rotary selector in the cab.

This enables the hydraulic track drive motors to be changed from large to small displacement and so double the travel speed of the machine.

Combinations are the same as those shown in the table above.