

Product: 2001 Case 75C-90C Crawler Excavator Service Manual 01-0018E

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75C-90C (English)

Service Manual

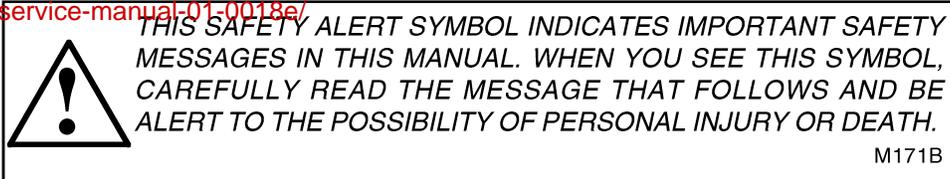
01-0018E

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Reprinted

CASE



If Safety Decals on this machine use the words **Danger, Warning or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as   and  if used, are RED.



WARNING

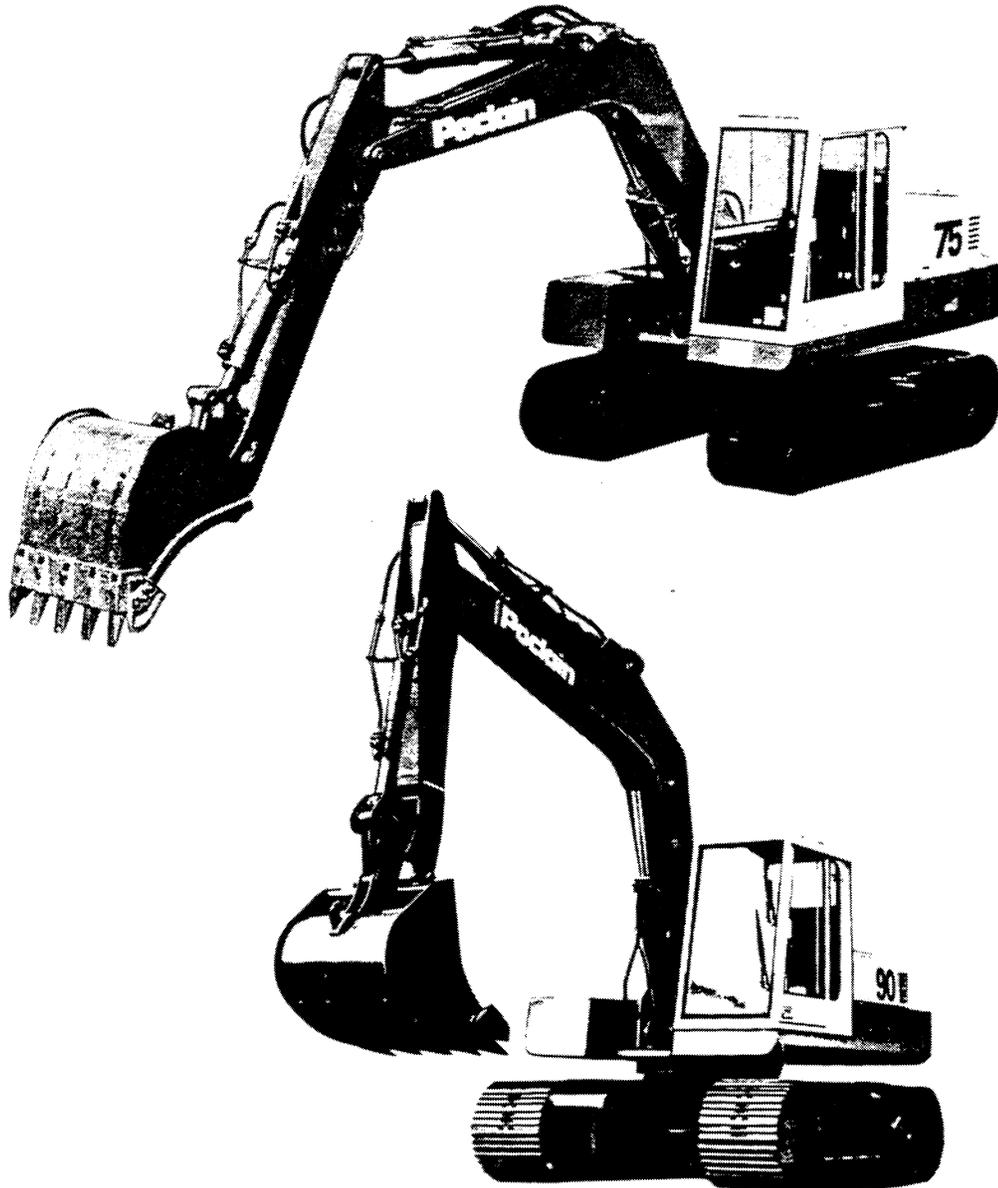
IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

GENERAL DESCRIPTION	3
CHARACTERISTICS	4 to 7
CARRIER FRAME	8
– Track group	8
– Pinion-type reduction gear	9
– Tensioner and shock-absorber	9
– Rollers	10
– Tracks - Pads	11
UPPERSTRUCTURE	12
SWING GEAR	13
ENGINE	14
DRY-TYPE AIR FILTER	15
HEAVY DUTY FILTER	16
GENERAL HYDRAULIC CIRCUIT	
– General layout	18
– Operation	20 to 25
– Description	26 to 29
– Components :	
- Hydraulic oil tank	30
- Hydraulic filters	31
- Hydraulic pump	32 to 33
- Make and break assembly	34 to 35
- Valve bank control	36
- 3 S19 valve banks	37
- S19 inlet block	38 to 39
- Discharge valve	40
- S19 control valves	41
- S19 safety valve	42
- 3 P22 valve banks	43
- P22 control valves	44
- P22 forcible feed/safety block	45
- Flow regulator valve	46
- Hydraulic motors	47 to 48
- Swing joint	49
- Double-acting hydraulic cylinders	50
FORCIBLE FEED AND COOLING CIRCUIT	
– Diagrammatic layout	52
– Components :	
- Cooler	53
- Hydraulic accumulator	53
- Gear-type pump	54
- Gear-type motor	54
- Counter-pressure valve	55
PRESSURE-SETTING OF GENERAL CIRCUIT	56 to 57
ELECTRIC CIRCUIT	
– Diagram	58
– Description	59 to 60
ATTACHMENTS	61 to 63

The 75C and 90C are track-mounted hydraulic excavators. They are designed for earthmoving operation on all kinds of terrain. These machines benefit from the experience acquired from other models in the Poclair range, and incorporate the latest advances as regards both technique and comfort. Thanks to Poclair's Variodyn hydraulic circuit, optimum use is made of the power available, and as a result a high output can be obtained from these machines. Owing to the wide range of attachments which can be mounted, the 75C and 90C are versatile machines, well suited for earthmoving, rehandling, winning, boring, ditch-cleaning, etc...



These machines consist of two main assemblies :
– a carrier frame
– an upperstructure
These two assemblies are connected by a swing gear.

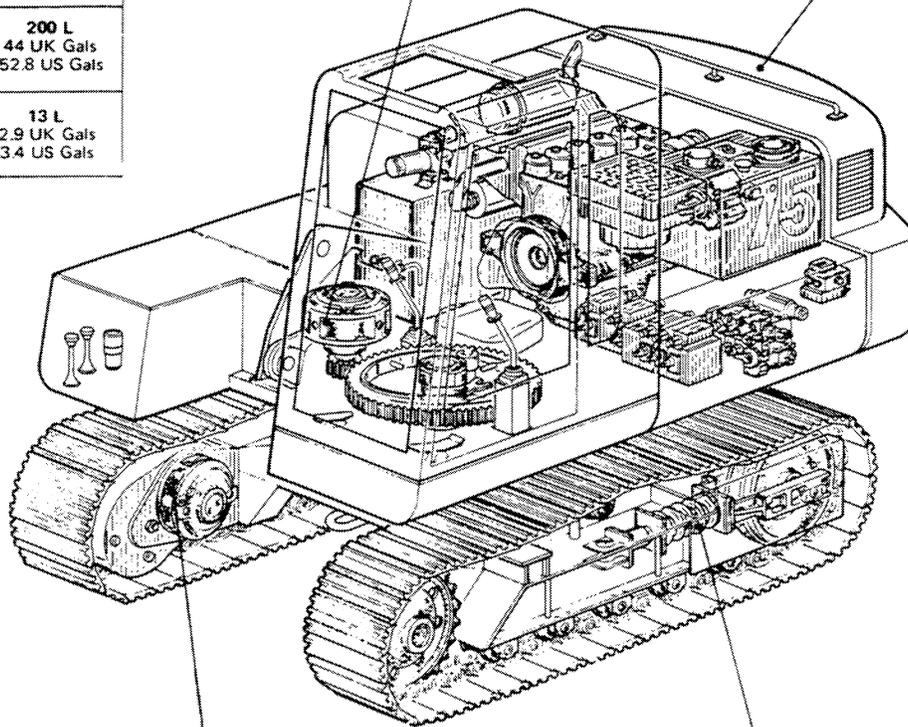
	DEUTZ F 5 L 912
	79 ch CV PS 77.9 HP 58,1 kW
	88 ch CV PS 86.8 HP 64,8 kW
	2150 } t/mn rpm U/mn
	5
	Air Aire Luft
	24 } Volts Voltios Volt
	12 L 2,6 UK Gals 3,2 US Gals
	200 L 44 UK Gals 52,8 US Gals
	13 L 2,9 UK Gals 3,4 US Gals

	130 L 28,6 UK Gals 34,3 US Gals
	190 L 41,8 UK Gals 50,2 US Gals

Pompe Bomba Pumpe Pump	H.POC 4 x 17,5 4 x 3P SIH C
	2150 } t/mn rpm U/mn
	4 x 38 L/mn 4 x 8,4 UK gpm 4 x 10 US gpm
	320 bar - bares - atü 4650 PSI 400 bar - bares - atü 5800 PSI

**1100 cm3
67 cu.in**
 En option : Moteur freiné
 Opcional : Motor con freno
 Wahlweise : Bremsbarer Hydromotor
 Optional : Motor with brake

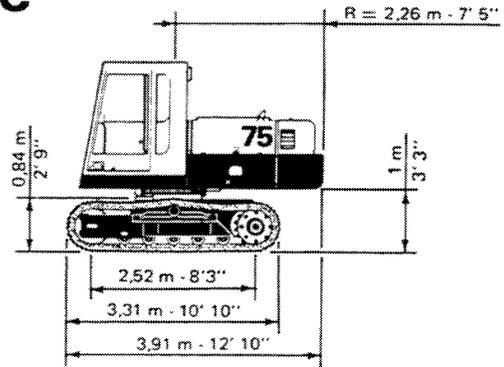
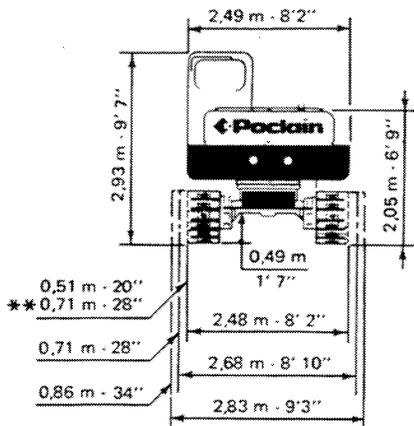
**Châssis tourelle insonorisé
Torreta insonorizada
Schaligedämpfter Oberwagen
Sound proofed upperstructure**



75 C	1100 cm3 67 cu.in	En option : Moteurs de translation freinés, deux cylindrées Opcional : Motores de traslación con freno, dos cilindradas Wahlweise : Bremsbare Fahrwerkmotoren, 2 Geschwindigkeiten Optional : Braking-type track motors, dual displacement
75 CL	1250 cm3 76 cu.in	En option : Moteurs de translation freinés, deux cylindrées Opcional : Motores de traslación con freno, dos cilindradas Wahlweise : Bremsbare Fahrwerkmotoren, 2 Geschwindigkeiten Optional : Braking-type track motors, dual displacement

**Tension hydraulique des chenilles
Mecanismo tensor hidráulico de orugas
Hydraulische Spannung der Raupenkettten
Hydraulic track tension mechanism**

75c



	69% 36 % en continu 36 % en continuo 36 % beständig 36 % steady climb
	9,1 t 20,020 lbs
	0 → 1,20 km/h 0 → 0.74 mph 0 → 1,75 km/h 0 → 1.08 mph 0 → 2,35 km/h 0 → 1.45 mph

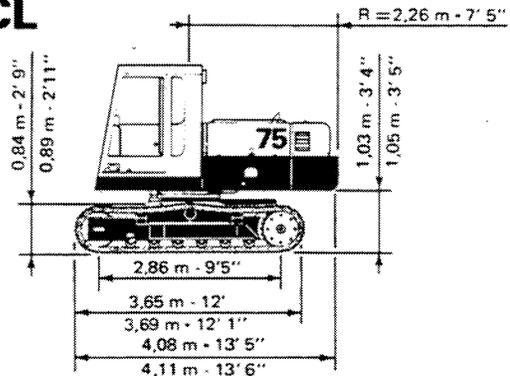
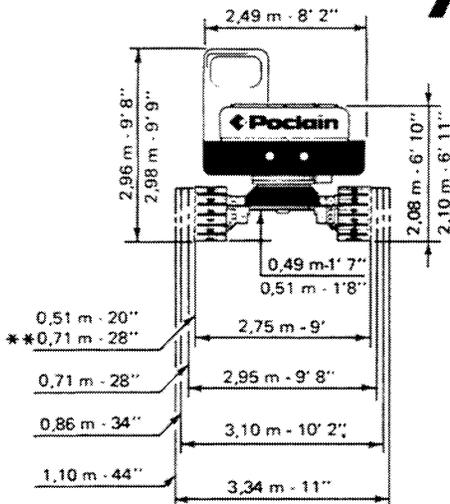
** { 4,40 m - 2,10 m - 620 L
14' 5" - 6' 11" - 3/4 cu.yd

** { Déportées
Descentradas
Versetzte
Offset

41 Tuiles 41 Tejas 41 Bodenplatten 41 Pads		
20"	13,5 t 29,700 lbs	475 g/cm2 6.75 PSI
28"	14 t 30,800 lbs	350 g/cm2 4.97 PSI
** 28"	14 t 30,800 lbs	350 g/cm2 4.97 PSI
34"	14,2 t 31,240 lbs	295 g/cm2 4.19 PSI

En option Opcional Wahlweise Optional	1100/550 cm3 67/33.5 cu.in		0 → 1,20 km/h 0 → 0.74 mph 0 → 1,75 km/h 0 → 1.08 mph 0 → 2,35 km/h 0 → 1.45 mph 0 → 4,70 km/h 0 → 2.91 mph
--	-------------------------------	--	--

75cl



* { 4,40 m - 2,10 m - 620 L
14' 5" - 6' 11" - 3/4 cu.yd

** { Déportées
Descentradas
Versetzte
Offset

	77% 36 % en continu 36 % en continuo 36 % beständig 36 % steady climb
	10,2 t 22,440 lbs
	0 → 1,05 km/h 0 → 0.65 mph 0 → 1,55 km/h 0 → 0.96 mph 0 → 2,10 km/h 0 → 1.30 mph 0 → 2,10 km/h 0 → 1.30 mph 0 → 1,05 km/h 0 → 0.65 mph 0 → 1,55 km/h 0 → 0.96 mph 0 → 2,10 km/h 0 → 1.30 mph 0 → 4,20 km/h 0 → 2.60 mph

En option
Opcional
Wahlweise
Optional

1250/625 cm3
76/38 cu.in

45 Tuiles 45 Tejas 45 Bodenplatten 45 Pads		
20"	14,1 t 31,020 lbs	440 g/cm2 6.25 PSI
28"	14,6 t 32,120 lbs	325 g/cm2 4.62 PSI
** 28"	14,6 t 32,120 lbs	325 g/cm2 4.62 PSI
34"	15 t 33,000 lbs	275 g/cm2 3.91 PSI
44"	14,8 t 32,560 lbs	210 g/cm2 2.98 PSI

75 CM

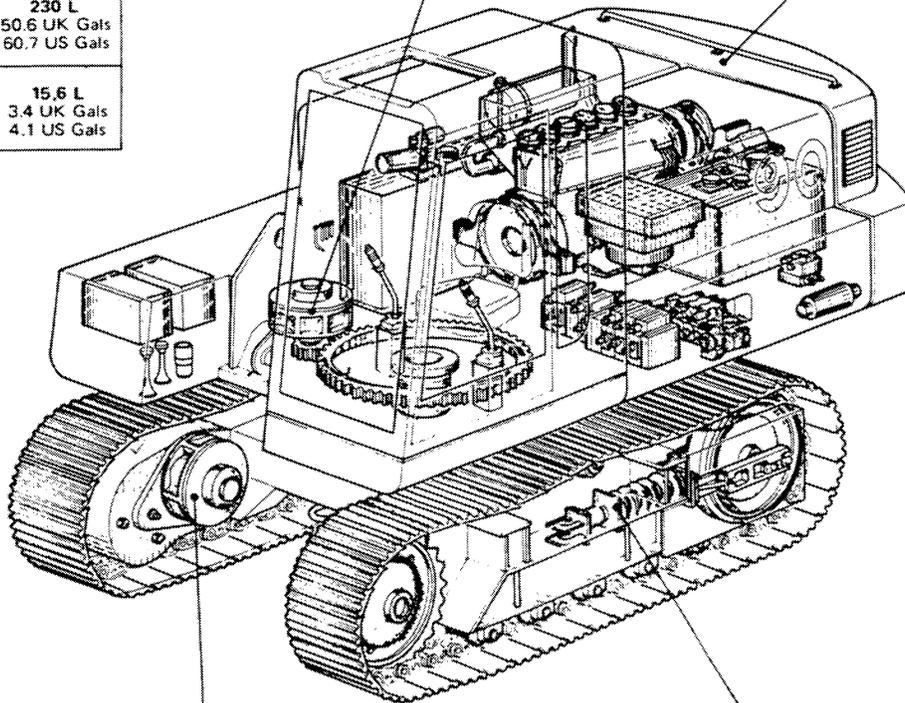
	DEUTZ F 6 L 912
	95 ch CV PS 93.7 HP 69.9 kW
	105 ch CV PS 103.5 HP 77.3 kW
	2150 } t/mn rpm U/mn
	6
	Air Aire Luft
	24 } Volts Voltios Volt
	17 L 3.7 UK Gals 4.5 US Gals
	230 L 50.6 UK Gals 60.7 US Gals
	15.6 L 3.4 UK Gals 4.1 US Gals

	165 L 36.3 UK Gals 43.5 US Gals
	250 L 55 UK Gals 66 US Gals

Pompe Bomba Pumpe Pump	H,POC 4 x 22 4 x 3P SIH C
	2150 } t/mn rpm U/mn
	4 x 47 L/mn 4 x 10.3 UK gpm 4 x 12.4 US gpm
	320 bar - bares - atü 4650 PSI 400 bar - bares - atü 5800 PSI

1250 cm³
76 cu.in
En option : Moteur freiné
Opcional : Motor con freno
Wahlweise : Bremsbare Hydromotoren
Optional : Motor with brake

Châssis tourelle insonorisé
Torreta insonorizada
Schaligedämpfter Oberwagen
Sound proofed upperstructure



90 C	1250 cm ³ 76 cu.in	En option : Moteurs de translation freinés, deux cylindrés Opcional : Motores de traslación con freno, dos cilindradas Wahlweise : Bremsbare Fahrwerkmotoren, 2 Geschwindigkeiten Optional : Braking-type track motors, dual displacement
90 CK 90 CL	2000 cm ³ 122 cu.in	En option : Moteurs de translation freinés, deux cylindrés Opcional : Motores de traslación con freno, dos cilindradas Wahlweise : Bremsbare Fahrwerkmotoren, 2 Geschwindigkeiten Optional : Braking-type track motors, dual displacement

Tension hydraulique des chenilles
Mecanismo tensor hidráulico de orugas
Hydraulische Spannung der Raupenkettyn
Hydraulic track tension mechanism

90c

****** Déportées
Descentradas
Versetzte
Offset

* { 4,80 m - 2,30 m - 765 L
15' 9" - 7' 7" - 1 cu.yd

	64 %	53 % en continu 53 % en continuo 53 % beständig 53 % steady climb		
		10,7 t 23,540 lbs	En option Opcional Wahlweise Optional	1250/625 cm3 76/38 cu.in
		0 → 1,25 km/h 0 → 0,77 mph 0 → 1,90 km/h 0 → 1,17 mph 0 → 2,50 km/h 0 → 1,55 mph		0 → 1,25 km/h 0 → 0,77 mph 0 → 5,00 km/h 0 → 3,10 mph

			*	
44 Tuiles 44 Tejas 44 Bodenplatten 44 Pads	20"	16,1 t 35,420 lbs	550 g/cm2 7,82 PSI	
28"	16,6 t 36,520 lbs	405 g/cm2 5,75 PSI		
** 28"	16,6 t 36,520 lbs	405 g/cm2 5,75 PSI		
34"	16,9 t 37,180 lbs	340 g/cm2 4,83 PSI		

90ck

* { 3 m - 2,20 m - 950 L
9' 10" - 7' 3" - 1 1/4 cu.yd

	65 %	53 % en continu 53 % en continuo 53 % beständig 53 % steady climb		
		12 t 26,400 lbs	En option Opcional Wahlweise Optional	2000/1000 cm3 122/61 cu.in
		0 → 1,10 km/h 0 → 0,68 mph 0 → 1,70 km/h 0 → 1,05 mph 0 → 2,25 km/h 0 → 1,39 mph		0 → 1,10 km/h 0 → 0,68 mph 0 → 4,50 km/h 0 → 2,79 mph

			*	
49 Tuiles 49 Tejas 49 Bodenplatten 49 Pads	20"	19 t 41,800 lbs	560 g/cm2 7,96 PSI	
24"	19,3 t 42,460 lbs	475 g/cm2 6,75 PSI		
28"	19,6 t 43,120 lbs	415 g/cm2 5,90 PSI		

90cl

****** Déportées
Descentradas
Versetzte
Offset

* { 4,80 m - 2,30 m - 765 L
15' 9" - 7' 7" - 1 cu.yd

	70 %	53 % en continu 53 % en continuo 53 % beständig 53 % steady climb		
		12 t 26,400 lbs	En option Opcional Wahlweise Optional	2000/1000 cm3 122/61 cu.in
		0 → 1,10 km/h 0 → 0,68 mph 0 → 1,70 km/h 0 → 1,05 mph 0 → 2,25 km/h 0 → 1,39 mph		0 → 1,10 km/h 0 → 0,68 mph 0 → 4,50 km/h 0 → 2,79 mph

			*	
48 Tuiles 48 Tejas 48 Bodenplatten 48 Pads	20"	17,5 t 38,500 lbs	535 g/cm2 7,60 PSI	
28"	18,1 t 39,820 lbs	395 g/cm2 5,61 PSI		
** 28"	18,1 t 39,820 lbs	395 g/cm2 5,61 PSI		
34"	18,4 t 40,480 lbs	330 g/cm2 4,69 PSI		

			*	
90 CM	44"	18,2 t 40,040 lbs	250 g/cm2 3,55 PSI	

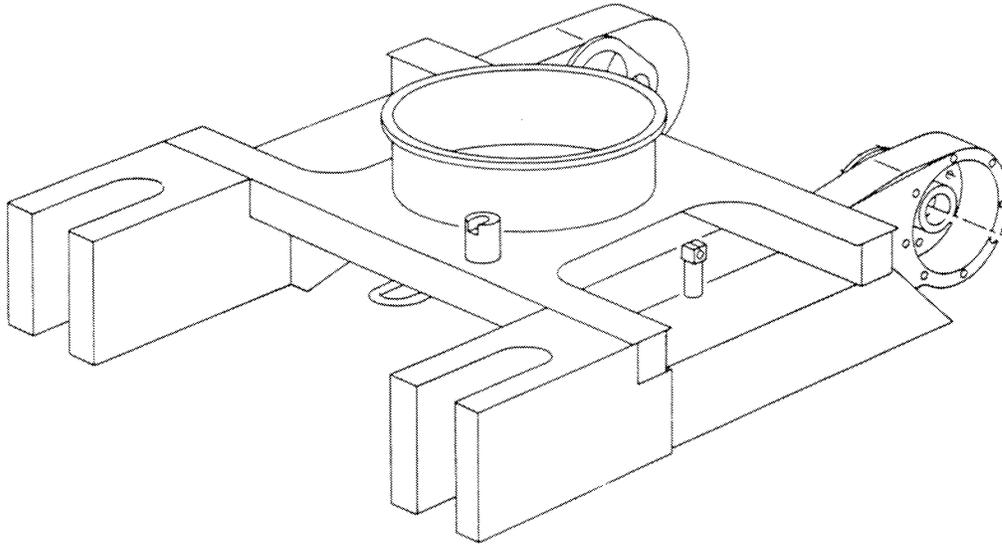
CARRIER FRAME

FUNCTION

- It supports the upperstructure centered on the swing gear.
- It ensures stability of the assembly when working.
- It incorporates the track group, which makes for all-terrain travel.

DESCRIPTION.

The carrier frame consists entirely of welded components.

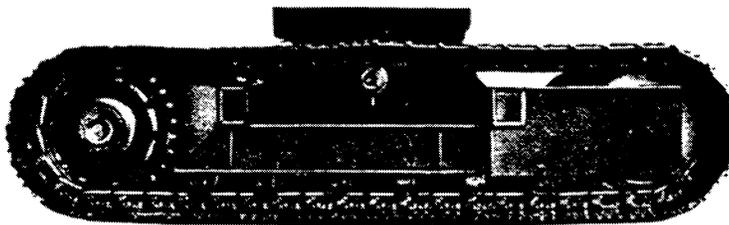


It comprises :

- two box-type side-members which support the track group.
- two moulded steel bearings, located at the rear of the side-members, which support the sprocket wheels and hydraulic drive motors.
- a wide H-shaped cross-member which connects the side-members.
- a central tubular frame which supports the swing gear.

TRACK GROUP

It ensures machine travel in both drive directions.



Each track is driven independently by a hydraulic motor.

This design enables the right and left-hand tracks to turn in opposite directions (rotation on the spot)

A grease cylinder enables track tension to be adjusted.

A spring type shock absorber dampens the impact caused by obstacles during machine travel.

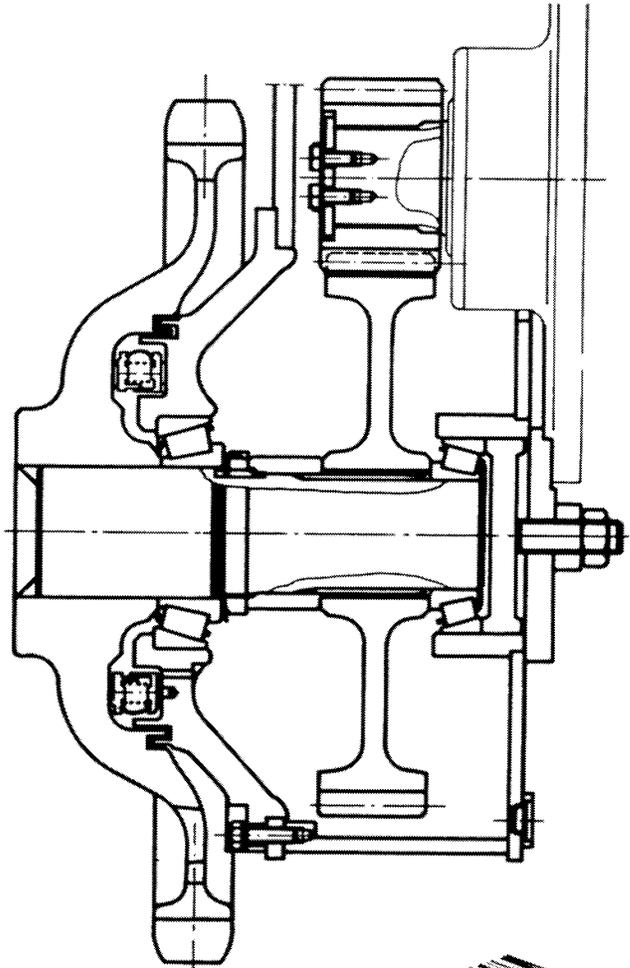
Track rollers are lubricated for life.

PINION—TYPE REDUCTION GEAR

FUNCTION :

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

	75C	75CL	90C	90CL	90CK
Hyd. mot.	1100cm ³	1250cm ³	1250cm ³	2000cm ³	2000cm ³
No. of teeth PINION	17	17	15	20	28
WHEEL	56	56	63	59	50
MODULE	7	7	8	8	10
Reduction ratio	0,303	0,303	0,238	0,339	0,560
Theoretical torque at sprocket wheel at 320 bars (m.daN)	1749	2013	2563	2831	1714

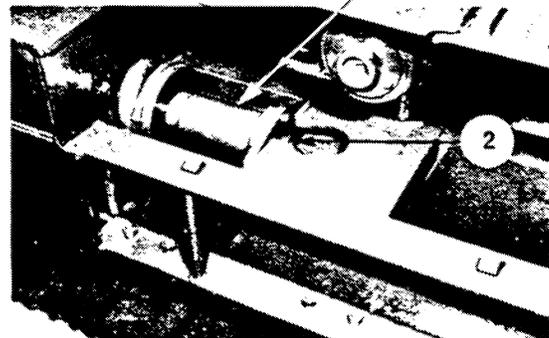
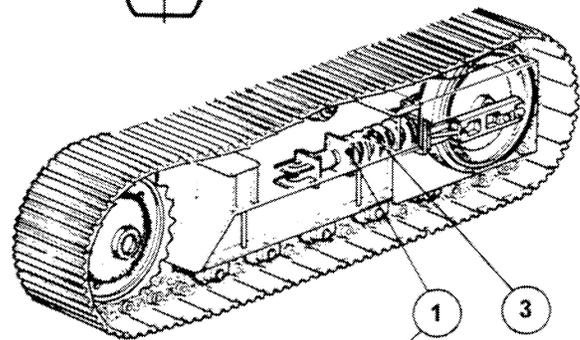


TRACK TENSIONER WITH SHOCK ABSORBER

Track tension is effected by a grease cylinder (1)

To slacken the track, unscrew grease fitting (2) to allow the grease to flow out of the cylinder,

A spiral spring (3) dampens impacts which may be encountered by the track.



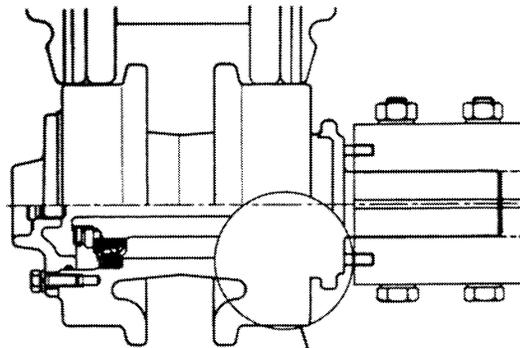
ROLLERS

The travel function of track-mounted machines is ensured by two rows of bearing rollers.
A supporting roller is mounted, to prevent the track from rubbing against the upper part of the side-member.
Each roller is lubricated for life.

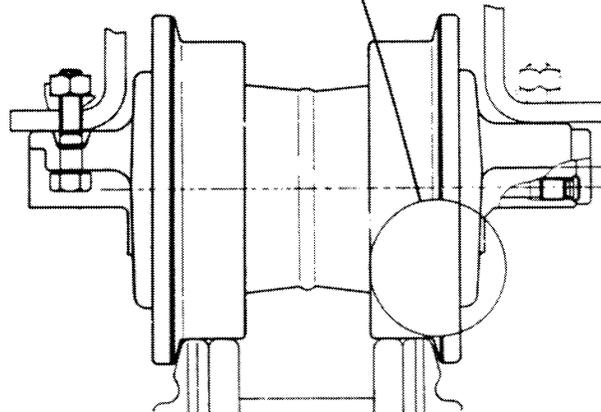
ROLLERS	75C	75CL	90C	90CL	90CK
TYPE	D4	D4	D4R*	D4R*	D6
NUMBER/track	5	6	5	6	7

*R : reinforced roller.

Supporting roller.



Bearing roller.

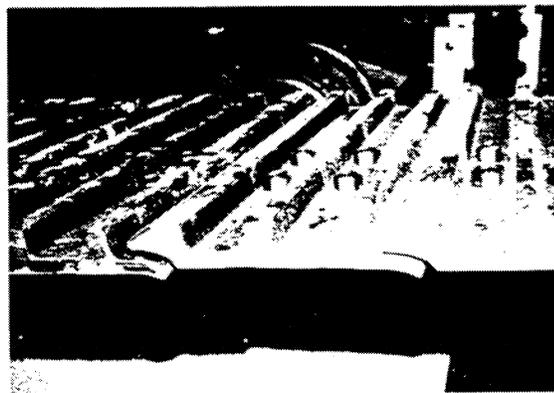


TRACKS – PADS

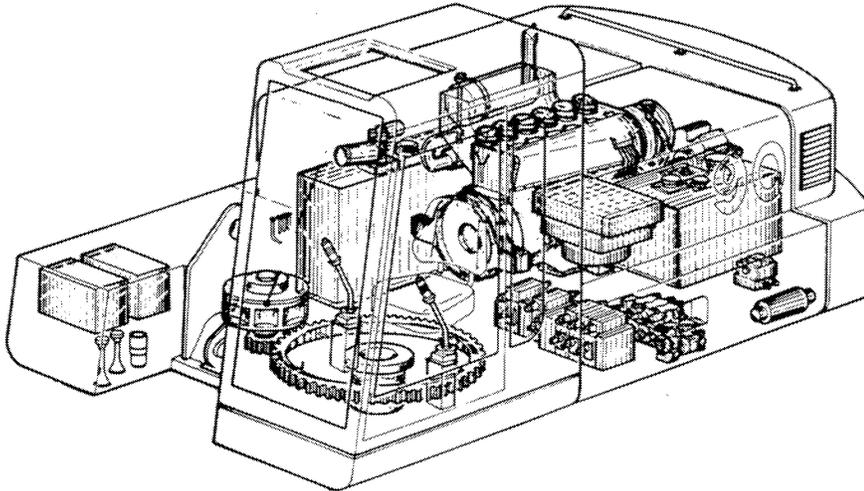
The choice of pads depends on the terrain on which the machine is working. Irrespective of the machine model, all pads are triple-ribbed; only the width varies (this is expressed in inches). Machines working or travelling on marshy ground are equipped with special hollow pads (44" wide) which reduce the ground bearing pressure (expressed in g/cm²).

	75C	75CL	90C	90CL	90CK
TRACK TYPE	D4	D4	D4R	D4R	D6
Number of LINKS	41	45	44	48	49
PAD TYPE					
20"	⊗	X	⊗	X	⊗
24"	X	X	X	X	X
28"	X	⊗	X	⊗	X
28"D	X	X	X	X	
34"		X	X	X	
34"PD4	X	X	X		
44"Marsh-type		75CM		X	

- ⊗ Standard version
- * 28"D : offset pad.
- * 34"PD4 : reinforced pad.



UPPERSTRUCTURE



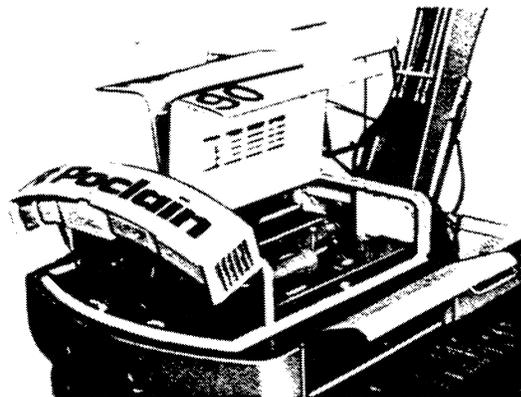
The upperstructure frame consists entirely of welded components in high tensile steel, ensuring ruggedness of the assembly.

The upperstructure consists of two main parts :

- A central frame which supports:
 - the attachments
 - the counterweight
 - the engine.
 - transmission components
 - the hydraulic swing motor.
- Box-type sections on either side which support :
 - the hydraulic components.
 - the cab.
 - the control linkage.
 - fuel and hydraulic oil tanks.

- Cowlings and side panels can be opened fully, providing easy access to the various components and facilitating servicing, checking and repairs. The cowlings are lined with soundproofing material (80 dB at 7 metres).

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



SWING GEAR

The swing gear provides the connection between the carrier frame and the upperstructure, and enables the latter to describe a complete revolution.

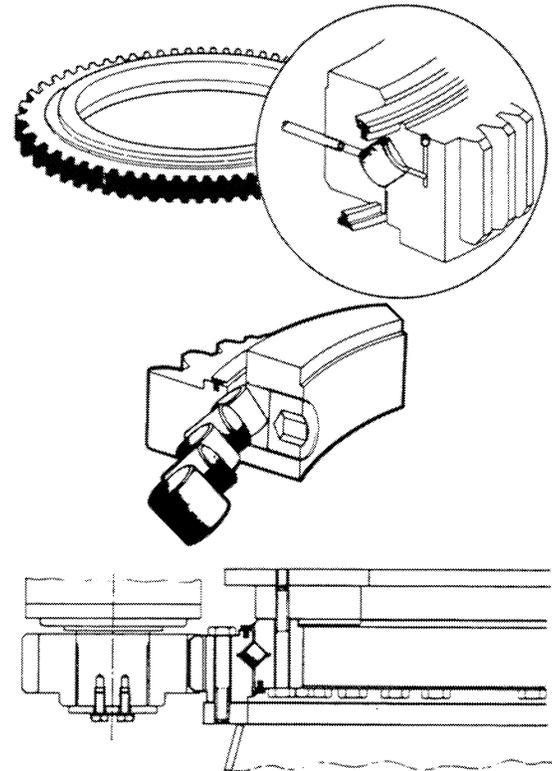
It consists of two parts, connected by a row of alternate rollers.

- One part is bolted and centered on the upperstructure.
- The other part takes the form a gearwheel, and is fixed to the carrier frame.
(94 module 10 teeth on machine 75C)
(102 module 11 teeth on the 90C).
- The hydraulic motor which ensures upperstructure swing motion is fitted with a pinion :
(17 module 10 teeth on machine 75C)
(17 module 11 teeth on machine 90C)

Reduction ratio :

$$75C : \frac{17}{94} = 0.180$$

$$90C : \frac{17}{102} = 0.166$$

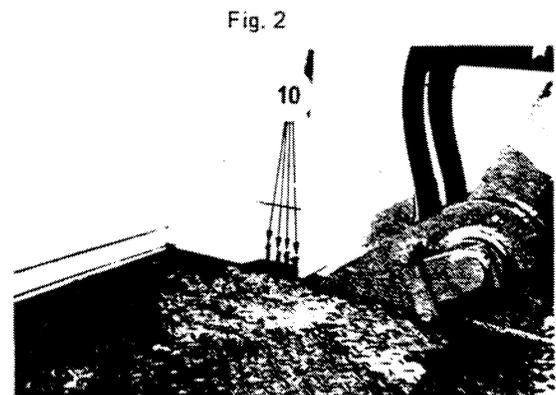
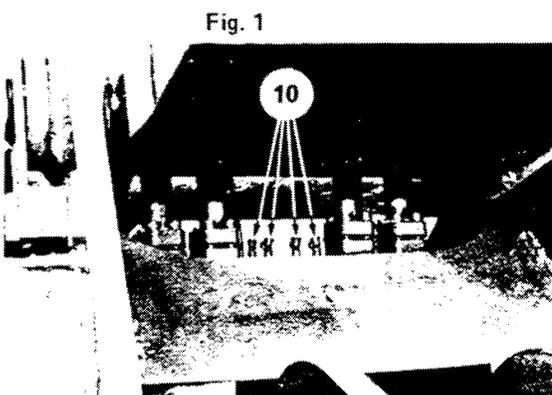


LUBRICATION OF SWING GEAR :

There are four grease points, distributed angularly, each of which is connected to a grease fitting by independent piping.

The four grease fittings are grouped as follows : (10).

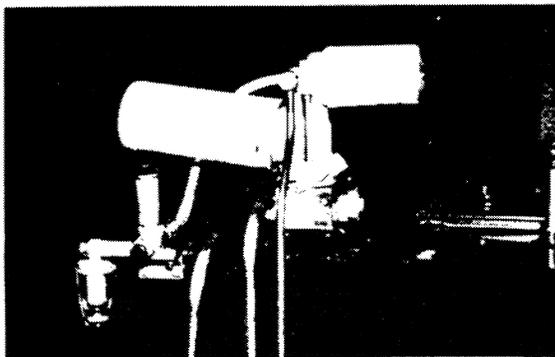
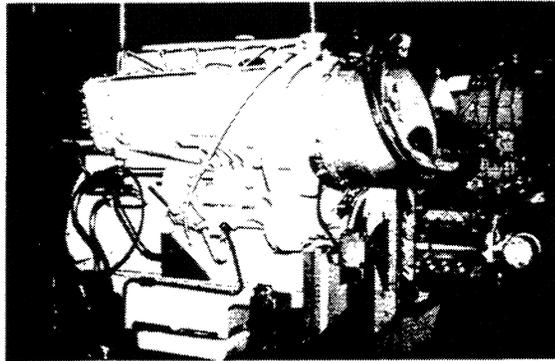
- Close to boom foot on machine 75C (fig.1).
- On right-hand side of boom foot on machine 90C (fig.2).



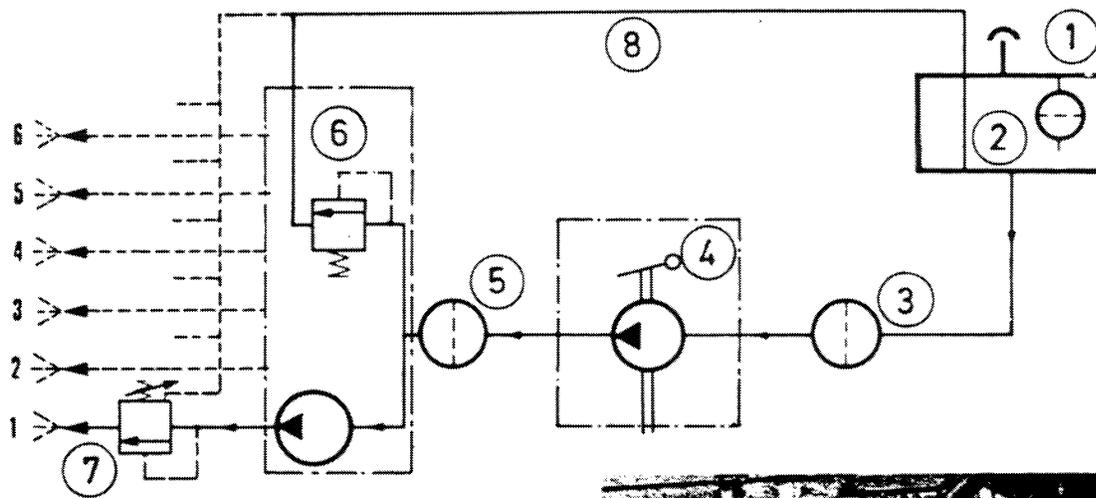
ENGINE

The engine supplies the energy required by the hydraulic circuit.

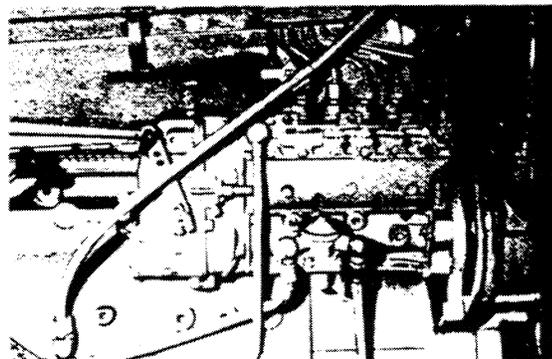
Characteristics :	75C	90C
Make	Deutz	Deutz
Type	F5L912	F6L912
Number of in-line cylinders :	5	6
Cooling system	air	air
Horsepower DIN HP	79	95
Horsepower SAE HP	88	105
Total capacity cm3	4710	5652
Bore (mm)	100	100
Stroke (mm)	120	120
Direct injection	yes	yes
Speed (rpm)	2150	2150
Hydraulic oil tank capacity (litres)	13.5	17
Fuel tank capacity (litres)	200	230
Average consumption litres/hour.	14	16.4
Electric startup (volts)	24	24
Electric heating	yes	yes
Weight in Kg. (approx.)	410	543



FUEL CIRCUIT (90C)



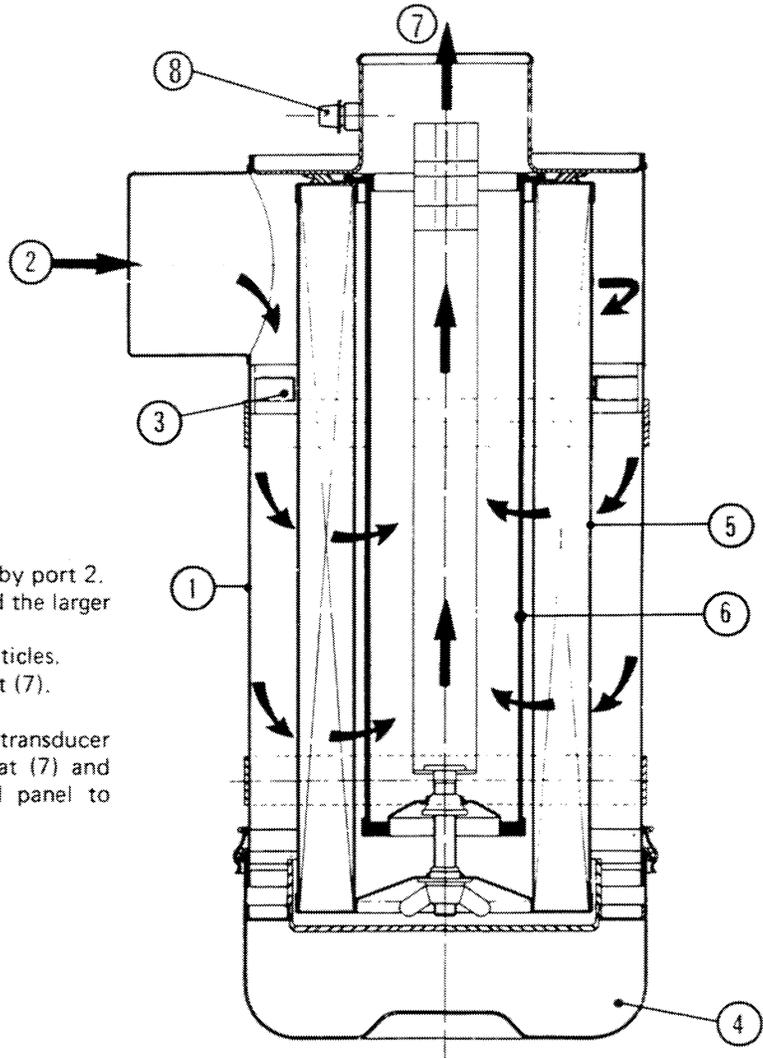
Filtration at (1) when filling tank (2).
 Filtration (3) before entering feed pump (4) (the pump can be activated manually to prime the circuit).
 Filtration (5) before injection pump (6) comprising valve which discharges overflow from (4) in return line to tank (8).
 Five injectors (7) on the 75C and six injectors on 90C with leak return towards tank.



DRY-TYPE AIR FILTER

DESCRIPTION

- 1 – Outer casing of filter
- 2 – Intake of air to be filtered.
- 3 – Blade.
- 4 – Dust recovery bowl (dry filter).
- 5 – Paper cartridge.
- 6 – Felt cartridge.
- 7 – Filtered air outlet.
- 8 – Pressure transducer.



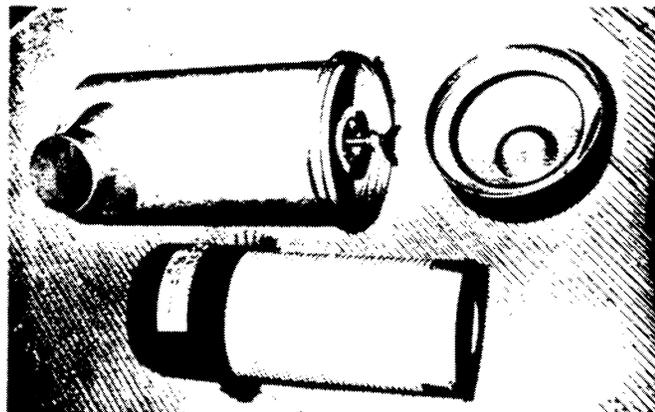
OPERATION.

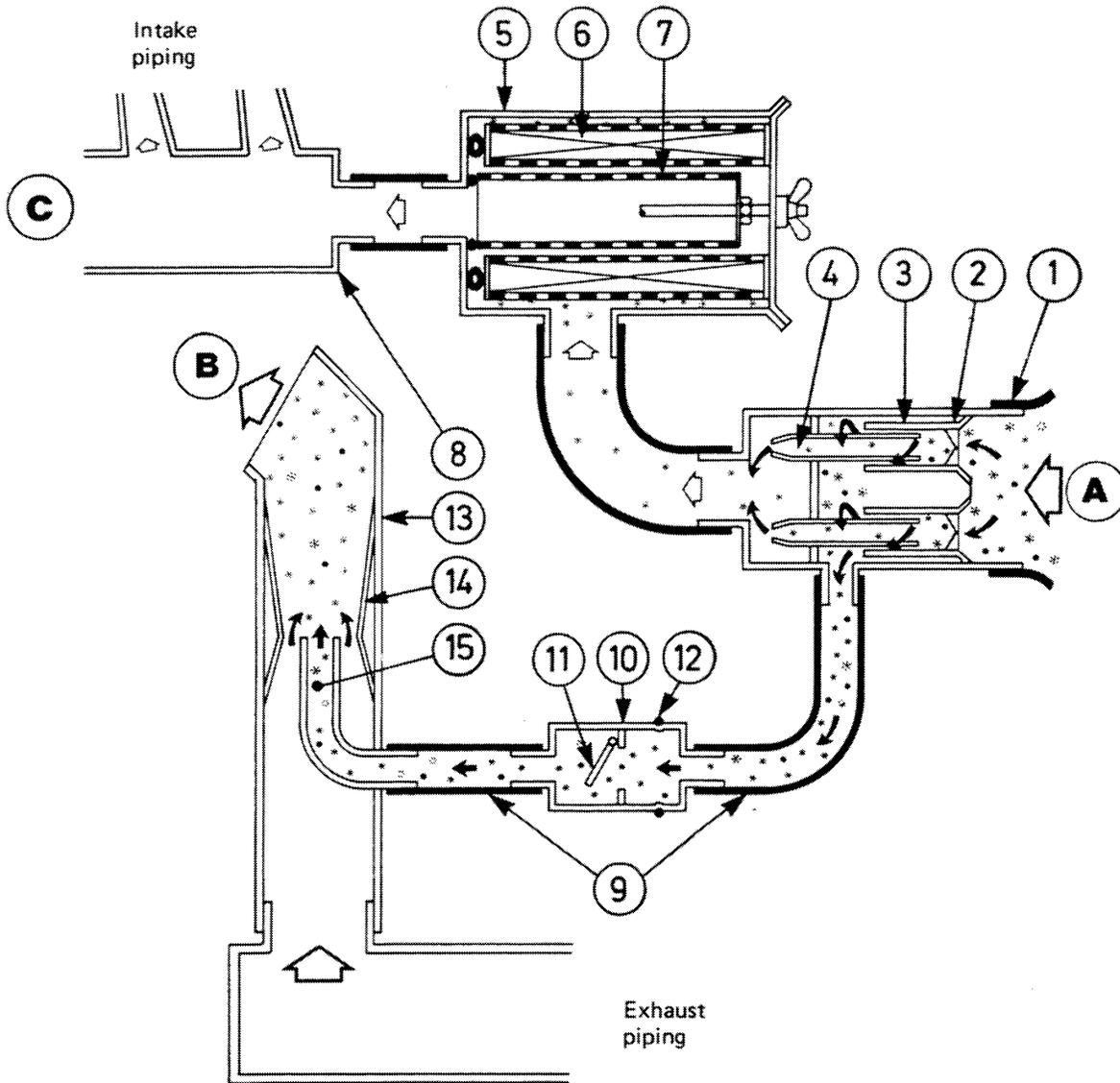
Air sucked by the engine enters the filter by port 2. This air is centrifugalized by blade 3 and the larger particles of dust fall into bowl (4). Cartridges (5) and (6) retain the finer particles. Fully filtered air feeds the engine via port (7).

If the filter becomes clogged, a pressure transducer (8) picks up the pressure drop arising at (7) and causes a warning light on the control panel to come on.

N.B :

Engine longevity depends largely on the filtration of the air which is sucked. Accordingly, it is necessary to service the filter regularly, and to watch the clogging indicator (see servicing procedure in operator's manual).





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 interior of the pre-filter (1), whilst the purified air makes its way through tubes (4) towards filter (5), where it is filtered twice, via the filtering cartridge (6) and emergency cartridge (7). The engine intake piping receives clean air at (C).

The pre-filter is connected to the exhaust pipe (13) by a set of hoses (9) on which a non return valve (10) is mounted in-series.

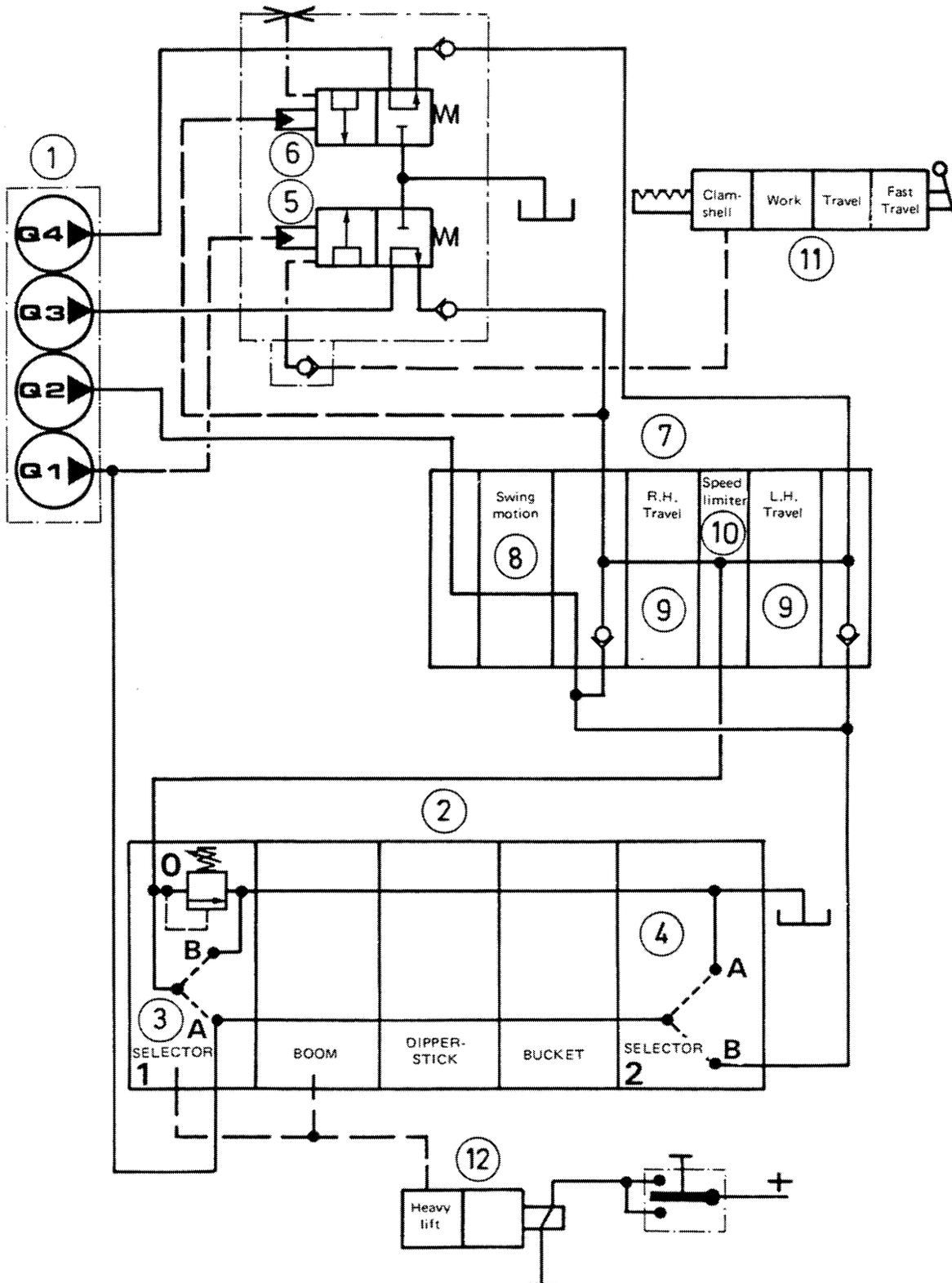
When the exhaust fumes pass through restriction (14) (Venturi tube), a pressure drop takes place in zone (Z), resulting in suction via pipe (15). The effects of this suction are felt in hoses (9) and pre-filter (1).

Dust retained in the pre-filter is sucked from (A) to (B); it goes through the non-return valve assembly (10), raises valve (11) and is ejected outside with the exhaust fumes.

N.B : The non-return valve assembly (10) prevents dust from being discharged in the pre-filter when the engine backfires.

Therefore it is important that this valve assembly be mounted correctly (with ring (12) on the inlet side). The valve opening must be at the bottom.

H25.17



INTRODUCTION

On machines 75 C and 90 C, travel, upperstructure swing motion and attachment functions are effected hydraulically by the VARIODYN circuit.

In this circuit, flow selectors enable one function to be backfed in preference to another so as to concentrate all the power where it is needed, and obtain maximum speed and efforts in all operating phases.

This power is also used depending on the type of work to be effected.

– For HEAVY LIFT, the VARIODYN circuit increases the lifting capacities of the machine and reduces speed of movements to attain precision.

– When in WORKING position, the circuit provides the efforts required for digging and extracting, and speed to reduce the non-productive periods of the working cycle (upperstructure swing, raising and lowering of attachment).

– When in TRAVEL position, the VARIODYN circuit makes for two important conditions :
speed for travelling on level ground
efforts for climbing slopes.

In all cases use of the VARIODYN circuit guarantees synchronization of functions between themselves and combination of movements of boom, dipperstick and bucket.

Power regulation by feed flow modulation (MODULATED flow) enables constant use of the full engine power.

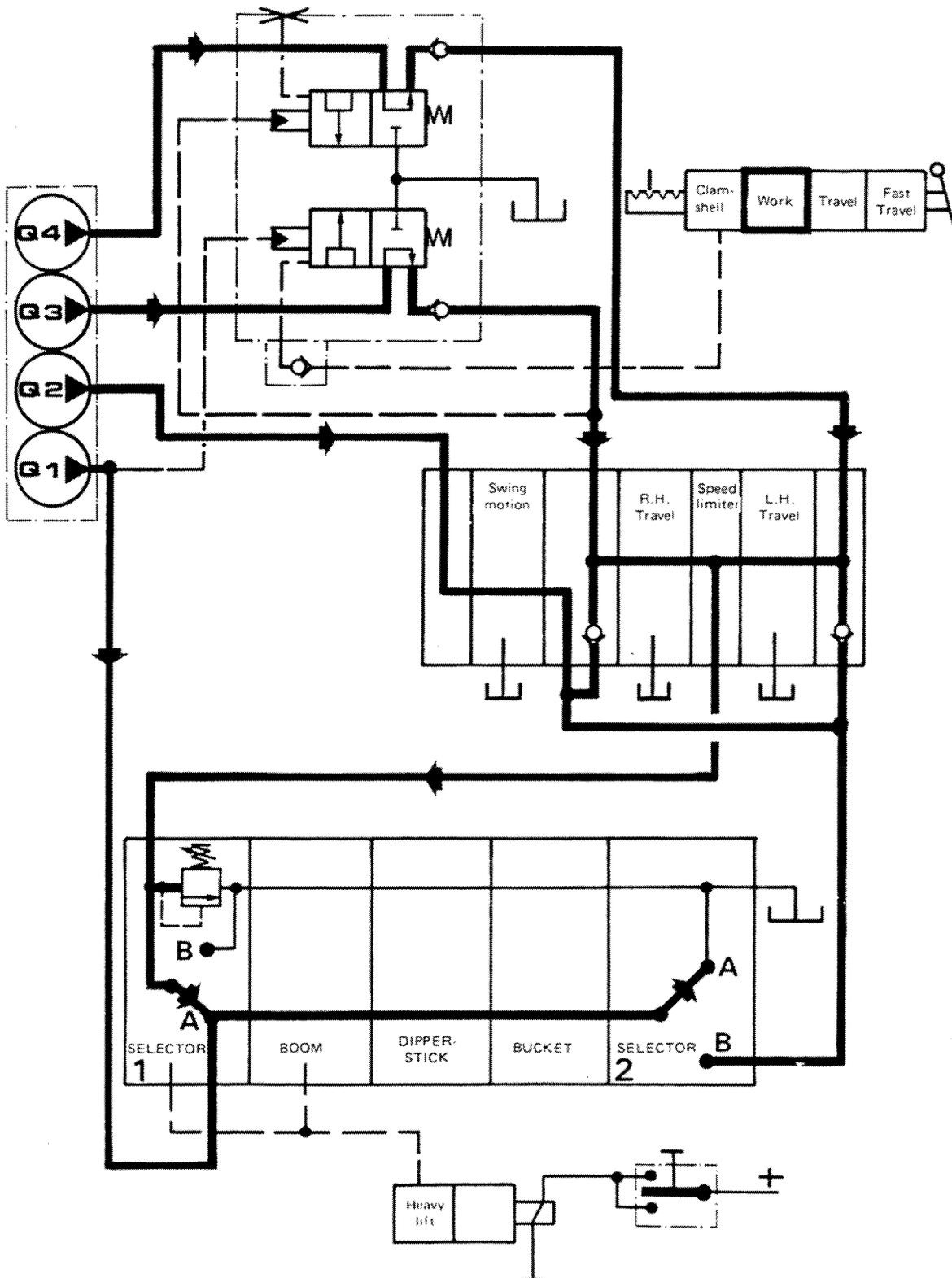
Finally the VARIODYN circuit consists of a number of a components whose characteristics improve the hydraulic output of the circuit and the performances of the machine.

- * Reduction of load losses of the circuit (losses caused through heating of oil) by adopting components in moulded steel (e.g. valve bank).
- * Bracket-type unions to guarantee tightness.
- * Piping of adequate dimensions.

DESCRIPTION

- 1 – Pump delivering four fixed identical flows Q1, Q2, Q3, Q4.
- 2 – 3S19 series-type valve bank, power-supplying boom, dipperstick and bucket cylinders respectively.
- 3 – 3S19 inlet block comprising :
 - Flow selector (A) with two hydraulically controlled positions.
 - Discharge valve (C).
- 4 – Outlet block fitted with flow selector (B) with two hydraulically controlled positions.
- 5 – Make and break assembly, operating at 190 bars to eliminate Q3.
- 6 – Make and break assembly, operating at 280 bars to eliminate Q4.
- 7 – 3P22 parallel-type valve bank comprising :
 - P22 control valve (8) power-supplying swing motor.
 - Two P22 control valves (9) power-supplying right and left-hand drive motors.
 - A flow regulator valve assembly (speed limiter) (10).
- 11 – Manually controlled low pressure flow selector, enabling different positions to be obtained (WORK-TRAVEL-CLAMSHELL).
- 12 – Electrically controlled flow selector for obtaining HEAVY- LIFT position.

H20.18



POWER–SUPPLY IN WORKING POSITION

In this position selectors A and B of valve bank 3S19 are not piloted.

Selector A is in position 2 thus enabling the attachment to receive all the flows when travel and swing motion are not used.

Selector B is at 1; this enables oil flow passing via S19 to return to the tank.

Flows Q3 and Q4 which pass via the make and break assembly will be eliminated when the pressure of the power circuit attains 190 and 280 bars respectively.

The maximum pressure will be determined by the pressure-settings of the various discharge and safety valves. Use of functions (attachment – swing motion – travel) can be separate or simultaneous.

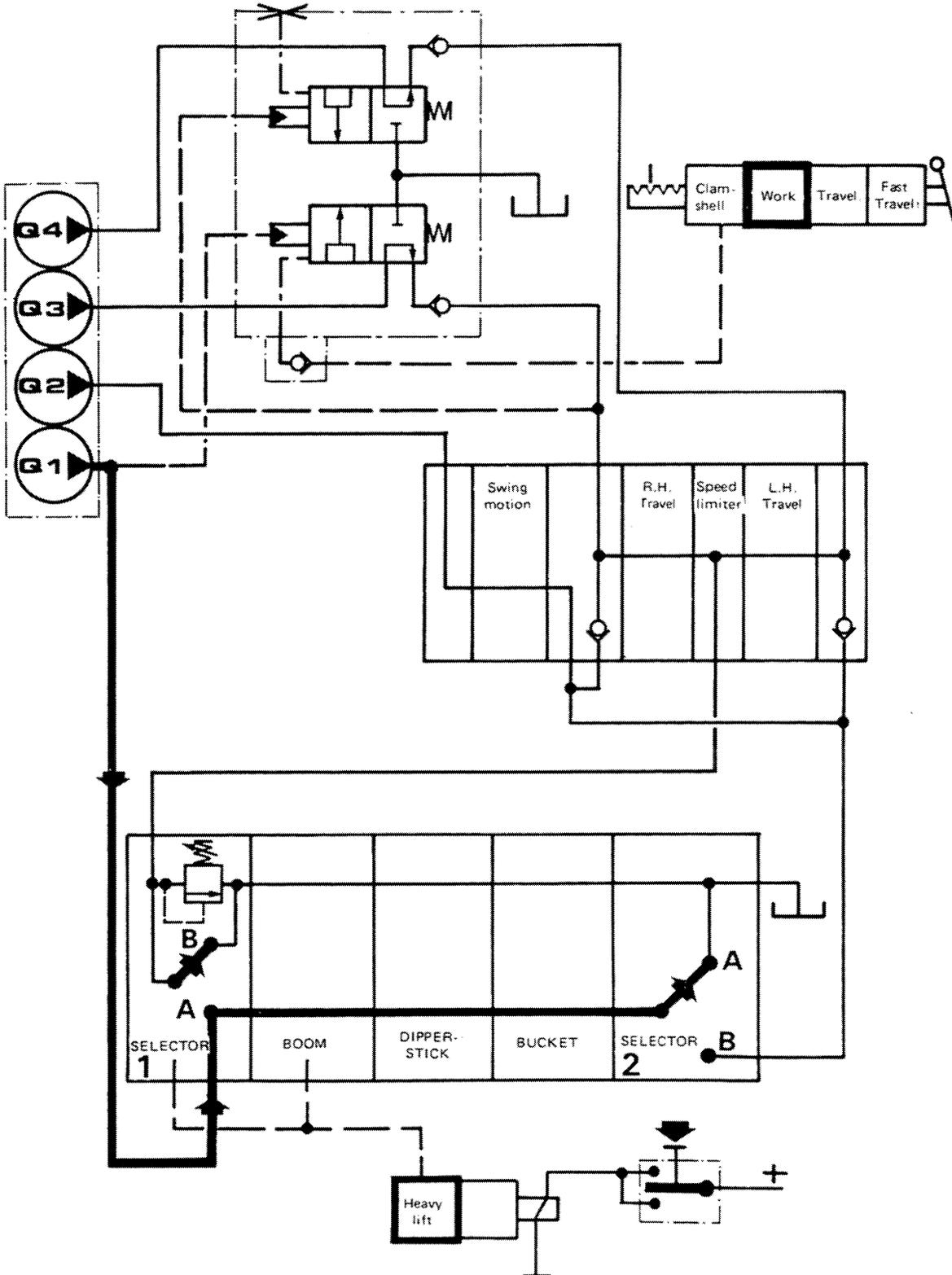
Possible combinations

WORK	0b to 190b	190b to 280b	280b to 320b	320b to 370b	370b to 420b
ATTACHMENT ALONE	1 - 2 - 3 - 4	1 - 2 - 4	1 - 2		
SWING MOTION ALONE	2	2	2		
TRAVEL ALONE	2 - 3 - 4	2 - 3 - 4	2 - 3		
ATTACHMENT + SWING MOTION	1 - 3 - 4	1 - 4	1		
	2	2	2		
ATTACHMENT + TRAVEL	1	1	1		
	2 - 3 - 4	2 - 4	2		
SWING MOTION + TRAVEL	2	2	2		
	3 - 4	3 - 4	3		
ATTACHMENT + SWING MOTION + TRAVEL	1	1	1		
	2	2	2		
	3 - 4	4			

POWER–SUPPLY IN CLAMSHELL POSITION

The clamshell position is used when operating with the clamshell. It is obtained by means of the four-position manual selector which pilots the make and break assembly at 190 bars. This piloting acts direct on the make and break assembly spool which transmits flow Q3 to the tank. The attachment receives the three flows (Q1 - Q2 - Q4) from 0 to 280 bars and two flows (Q1 and Q2) from 280 bars to 320 bars.

H20-19



POWER–SUPPLY IN HEAVY LIFT POSITION.

In this position the 3S19 inlet block selector A is piloted (A at 2).

In practice, this piloting results in completely unsetting the pressure of the 3S19 discharge valve (see page 38 for operation) and enabling flows Q2 - Q3 and Q4 to flow freely to the tank.

Outlet block selector B is not piloted (B at 1); this enables flow Q1 to return to the tank after use.

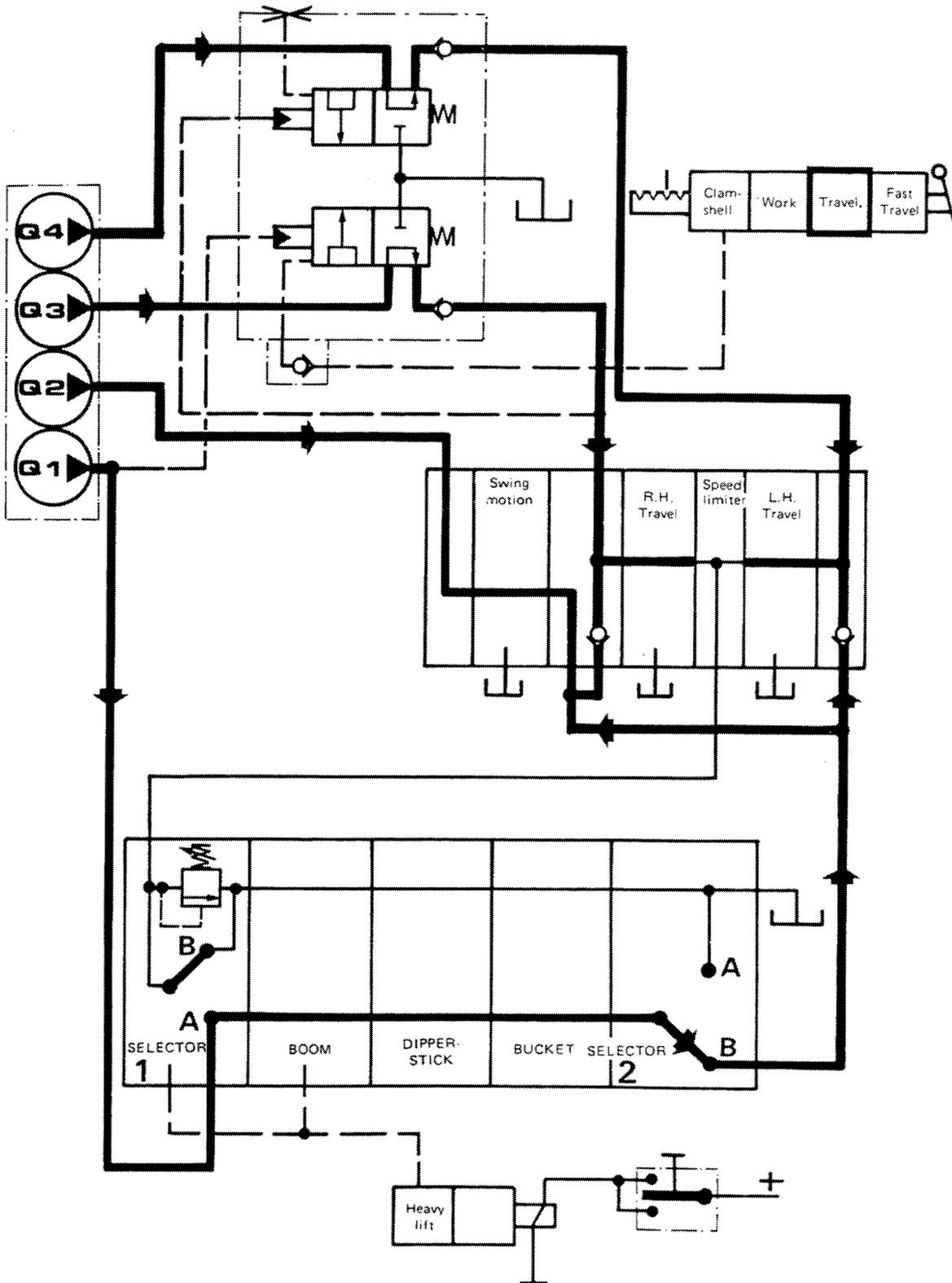
The safety valve on the large chamber side of the boom cylinder is set for excess pressure by a hydraulic pilot circuit (see page 40 for operation).

Possible combinations.

HEAVY LIFT	0b to 190b	190b to 280b	280b to 320b	320b to 370b	370b to 420b
ATTACHMENT ALONE	1	1	1	1	1 boom large chamber
SWING MOTION ALONE	2	2	2		
TRAVEL ALONE	2 - 3 - 4	2 - 3 - 4	2 - 3		
ATTACHMENT + SWING MOTION + ATTACHMENT	1	1	1	1	1 boom large chamber
	2	2	2		
	1	1	1	1	1 boom large chamber
TRAVEL + SWING MOTION + TRAVEL	2 - 3 - 4	2 - 4	2		
	2	2	2		
	3 - 4	3 - 4	3		
ATTACHMENT + SWING MOTION + TRAVEL	1	1	1	1	1 boom large chamber
	2	2	2		
	3 - 4	4			

N.B : The pressure-setting values given above are only shown to make it easier to understand functioning; for further details please see the corresponding technical information note.

H20-20



POWER–SUPPLY IN TRAVEL POSITION.

In this position both selectors of valve bank 3S19 are piloted (A and B)

Inlet selector A is in position 1 (discharge valve pressure unset and return to tank of flows not used by swing motion and travel.

The outlet selector B is in position 2, which permits flow Q1 to backfeed travel control valves.

The safety valve on the large chamber side of the boom is set for excess pressure.

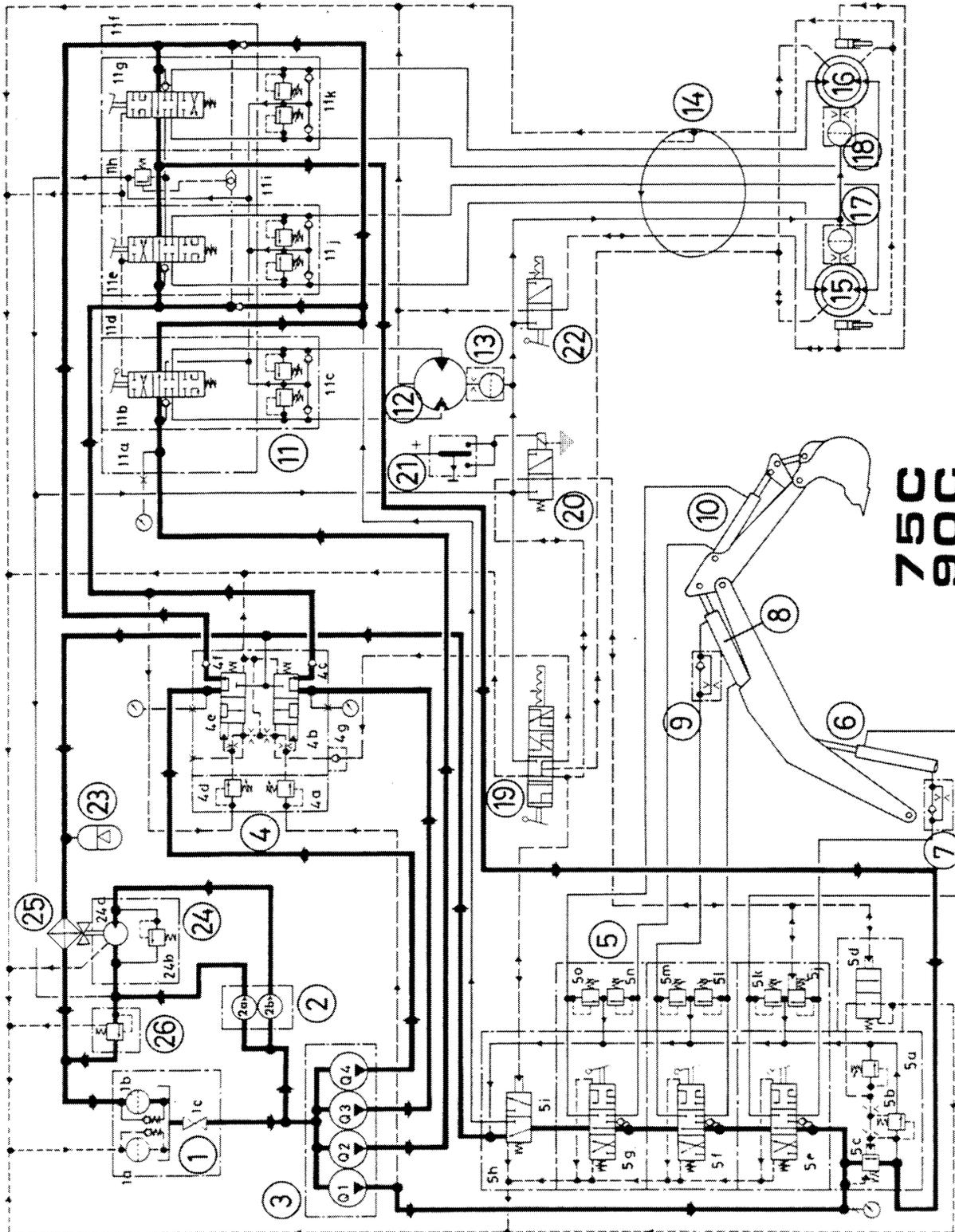
The maximum pressure of the power circuit will be regulated by the various safety valves.

Possible combinations.

TRAVEL	0b to 190b	190b to 280b	280b to 320b	320b to 370b	370b to 420b
ATTACHMENT ALONE	1	1	1	1	1 boom large chamber
SWING MOTION ALONE	2	2	2		
TRAVEL ALONE	1 - 2 - 3 - 4	1 - 2 - 4	1 - 2		
ATTACHMENT + SWING MOTION	1	1	1	1	1 boom large chamber
	2	2	2		
ATTACHMENT + TRAVEL	1	1	1	1	1 boom large chamber
	2 - 3 - 4 Return 1	2 - 4 Return 1	2 Return 1		
SWING MOTION + TRAVEL	2	2	2		
	1 - 3 - 4	1 - 4	1		
ATTACHMENT + SWING MOTION + TRAVEL	1	1	1	1	1 boom large chamber
	2	2	2		
	3 - 4 Return from 1	4 Return from 1			

N.B : In this position the four flows are regrouped for travel application resulting in higher travel speed.

As an option, the hydraulic travel motors can have two displacements, in which case the flow selector must be placed in FAST TRAVEL position. This position does not alter the data given above, it power-supplies the hydraulic motors for small displacement, which doubles travel speed.



75C
90C

-
- 1 - Oil tank.
 - 1a - Leak return filter.
 - 1b - General return filter.
 - 1c - Shutoff valve.

 - 2 - Gear-type hydraulic pump (twin stage : 2 x 12 cm³)
 - 2a - Stage power-supplying hydraulic motor forcible feed and warming-through and low pressure pilot circuits)
 - 2b - Stage power-supplying cooler motor.

 - 3 - Power circuit hydraulic pump, type PL44 (4 x 3P)
 - Q1 - Stage power-supplying attachments.
 - Q2 - Stage power-supplying hydraulic swing motor.
 - Q3 - Stage power-supplying right-hand travel hydraulic motor.
 - Q4 - Stage power-supplying left-hand travel hydraulic motor.

 - 4 - Double make and break assembly block comprising :
 - 4a - Control valve (set at 190 bars)
 - 4b - Hydraulically piloted flow selector (2 positions, with drawback spring).
 - 4c - Non-return valve.
 - 4d - Control valve (set at 280 bars)
 - 4e - Hydraulically piloted flow selector (2 positions with drawback spring)
 - 4f - Non-return valve.
 - 4g - Non-return valve (low pressure circuit)

 - 5 - Series-type valve bank (3S19) comprising :
 - 5a - S19 inlet block.
 - 5b - Indirect action discharge valve.
 - 5c - differential non-return valve.
 - 5d - Two-position flow selector (piloted hydraulically)
 - 5e - Boom control series control valve.
 - 5f - Dipperstick control series control valve.
 - 5g - Bucket control series control valve.
 - 5h - S19 outlet block.
 - 5i - Two-position flow selector (piloted hydraulically)
 - 5j - Safety valve and heavy lift (boom hoist)
 - 5k - Boom lowering safety valve
 - 5l - Dipperstick lowering safety valve.
 - 5m - Dipperstick hoist safety valve.
 - 5n - Bucket closing safety valve.
 - 5o - Bucket opening safety valve.

 - 6 - Boom cylinder.

 - 7 - Boom lowering flow restrictor valve.

 - 8 - Dipperstick cylinder.

 - 9 - Dipperstick lowering flow restrictor valve.

 - 10 - Bucket cylinder.

H30.43

