HOW USE THIS REPAIR MANUAL ?

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GENERAL 00
ENGINE 10
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BRAKE 40
BOOM 50
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ENGINE 10

- ENGINE CHARACTERISTICS AND SPECIFICATIONS — 547981EN
- ENGINE SYNOPTICS CIRCUITS — 547981EN
- ENGINE COMPONENTS LOCATION
- ENGINE CONTROL AND ADJUSTMENT
- ENGINE BOX ASSEMBLY REMOVAL
- ENGINE BOX ASSEMBLY REFIT

3

Engine box assembly removal 1

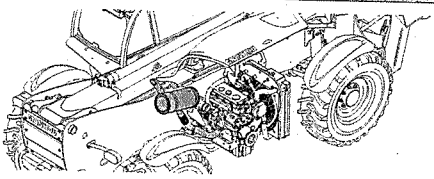
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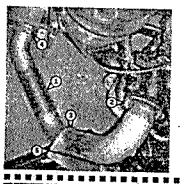
ENGINE BOX ASSEMBLY REMOVAL

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- Exhaust pipe . . . 5
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  - Exhaust pipe on its own
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- Battery compartment . . . 9
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- Clearance of engine surroundings . . . 11
  - Hoses, harnesses, cable, clips
- Removal of engine box assembly . . . 15 to 17
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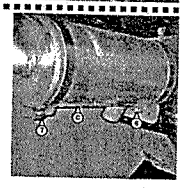


EXHAUST PIPE «C»

EXHAUST PIPE AND TUBE WORKS

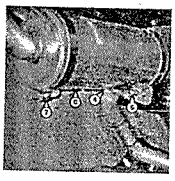
Removal of only the exhaust compensator (item 1) tube works.

Unscrew the flange (Item 2) fixed on the engine block.
Dismantle the flange (Item 3) fixed on the lower bracket.
Unscrew the flange (Item 4) on the exhaust pipe side.
Move the lower flange bracket aside (Item 5).
Remover the tubes (Item 1).



NOTE:
The following operations for removing the exhaust pipe are not indispensable for removing the engine/box assembly.

Unscrew both flange clips (items 6 and 7).
Slide the exhaust pipe «C» towards the back, then remove it.



ONLY THE EXHAUST PIPE

Unscrew both flange clips (Items 6 and 7).
Unscrew the tube flange (Item 4).
Take the front flange clip (Item 6) off completely.
Slide the rear flange clip (Item 7) towards the back then lift up the front of the exhaust pipe «C» and remove it.

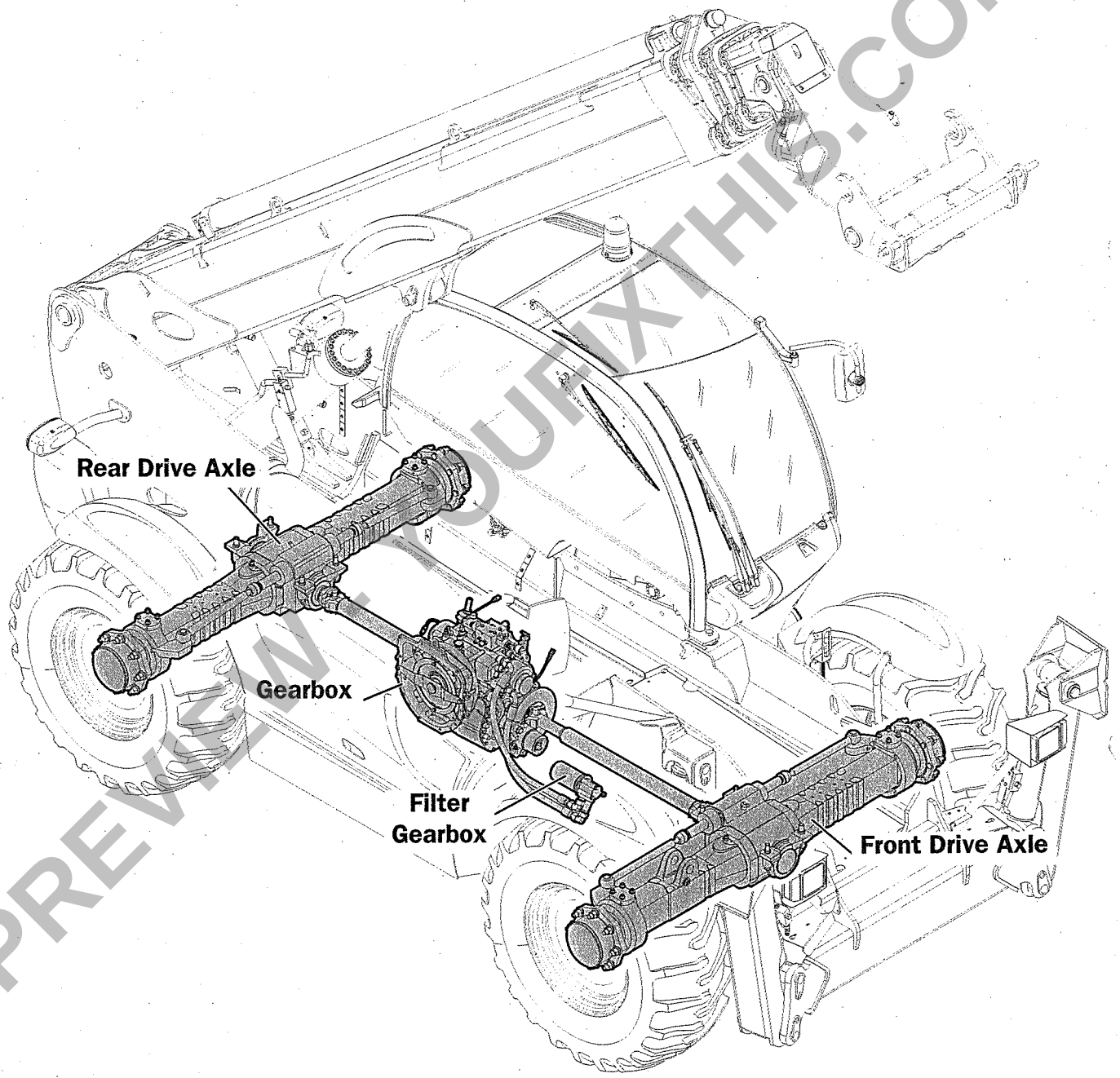
547982: See the repair manual N° 547982.

70 - HYDRAULIC: See the group N° 70 called «Hydraulic».

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TRANSMISSION CIRCUIT

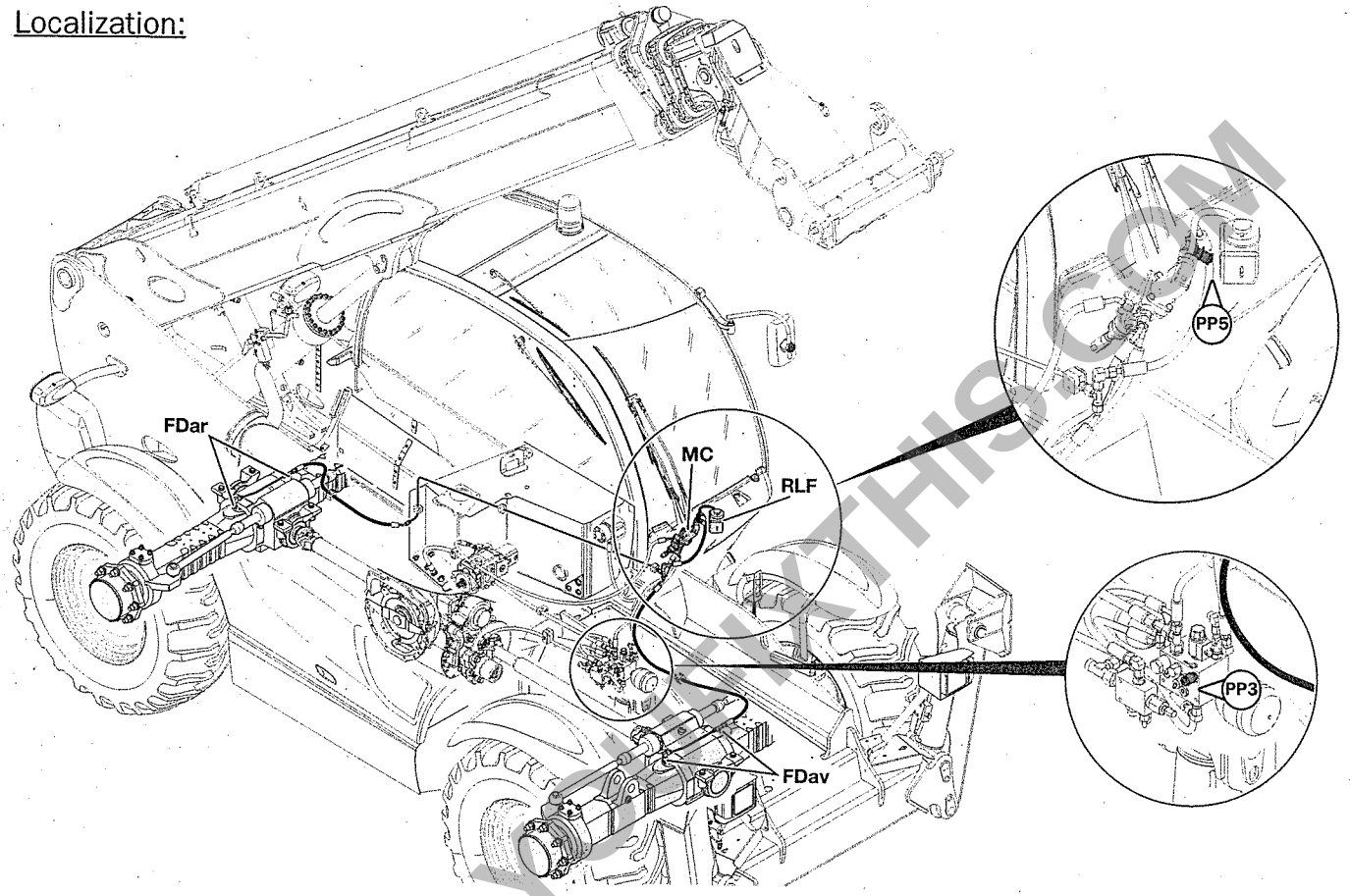


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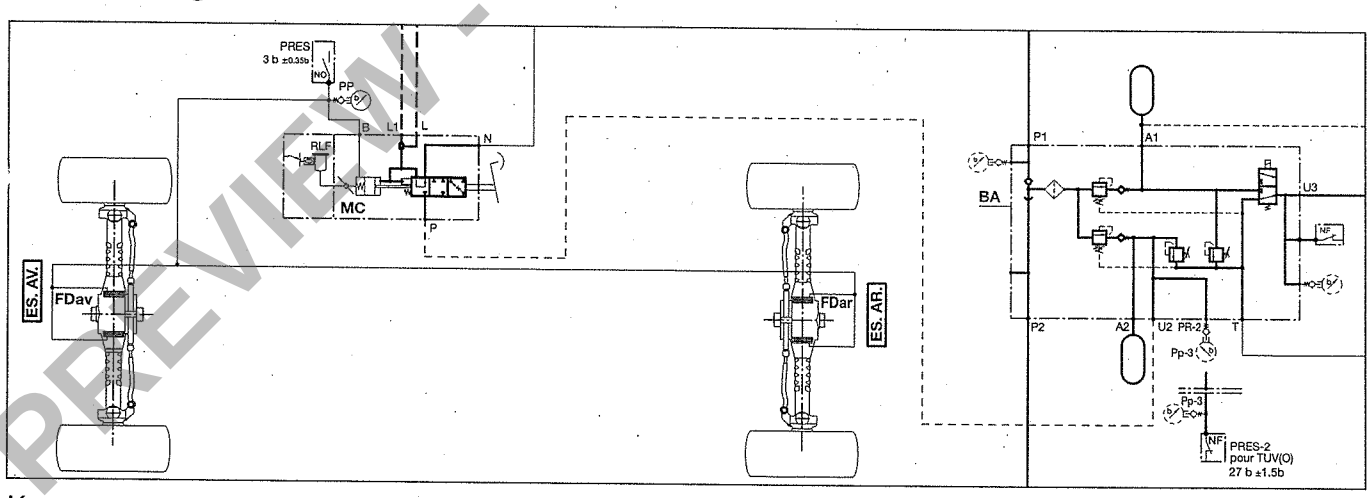
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PRESSURE PORT

Localization:



Hydraulic diagram:



Key:

BA : Accumulator block
ES. AR : Rear axle
ES. AV : Front axle
FDar : Rear brake disc
FDav : Front brake disc
MC : Master-cylinder
PP3 : Pressure port
PP5 : Pressure port
PP5 : Pressure port
RLF: Brake fluid tank

Values:

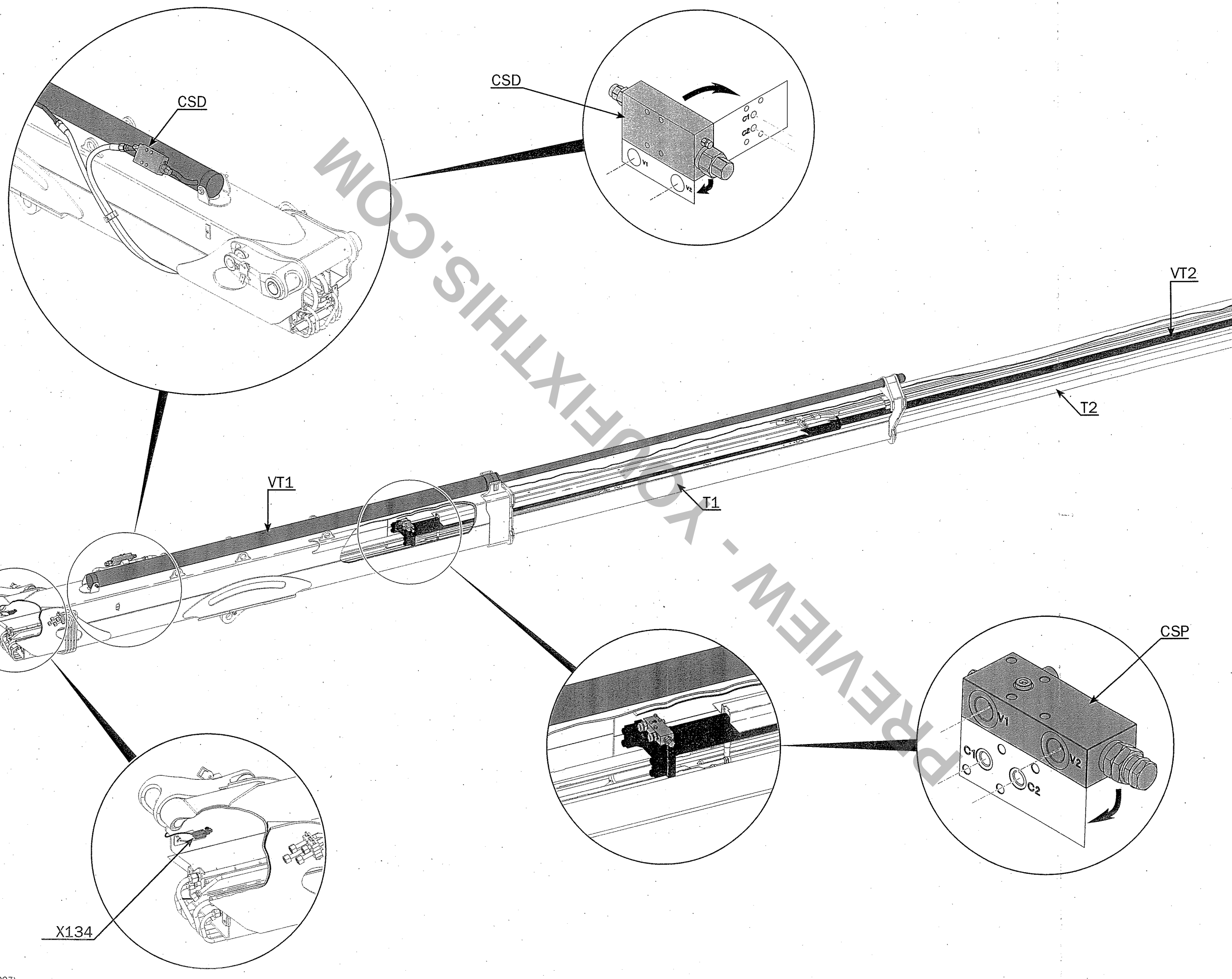
Min. pressure PP3	31 bar
Max. pressure PP3	35 bar

Min. pressurePP5	0 bar
Max. pressure PP5	80 bar

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LOCALIZATION OF MAIN TX BOOM COMPONENTS (3 COMPONENTS)

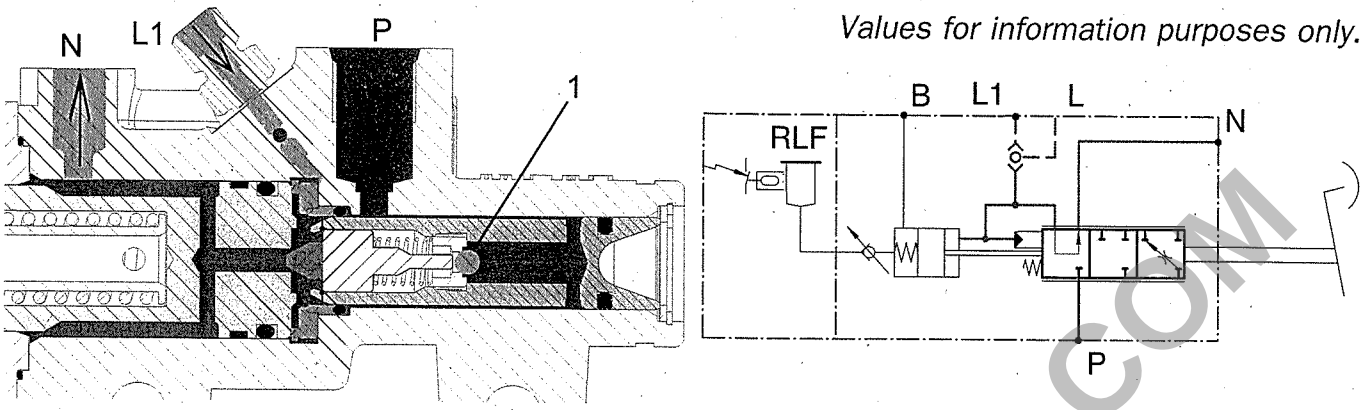


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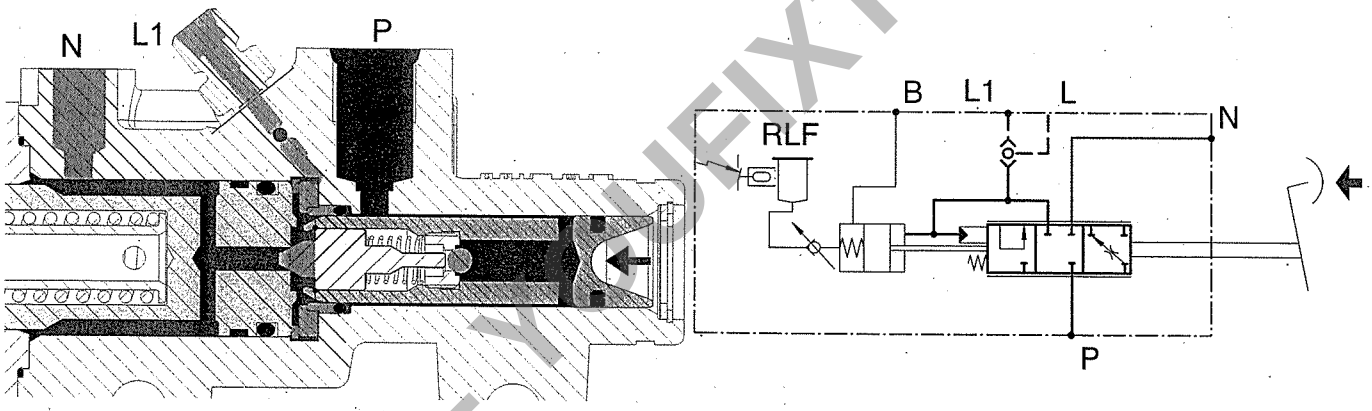
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POWERED BRAKE MASTER CYLINDER

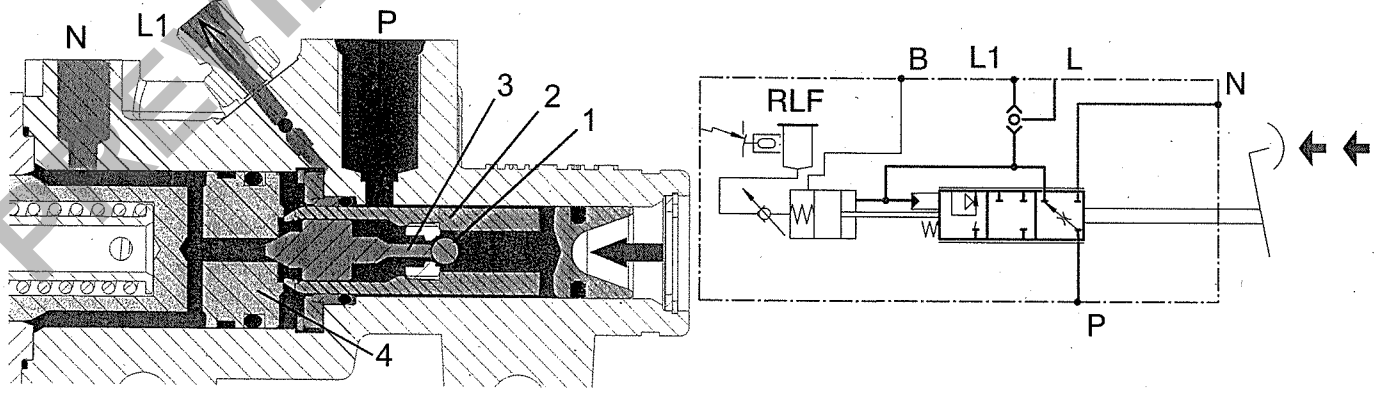
Values for information purposes only.



Pressure from the block accumulator arrives on P. The ball (1) prevents oil from passing because it is held on its seat.
The pilot line is connected to the tank return because the master cylinder is not used, therefore L is connected to N.



When the driver starts to press on the pedal, all components are in contact with each other. In this case, the return tank is switched off from the LS line (L).
The master cylinder is ready to send pressure to the brakes using the power system.



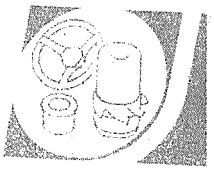
The driver presses fully down on the pedal. With the movement of the slide (2), the needle (3) pushes the ball (1) to enable pressure to be sent onto the power piston (4).
The master-cylinder sends pilot pressure to the flow divisor to give priority to braking.

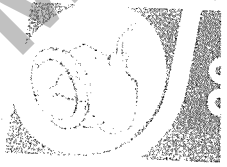
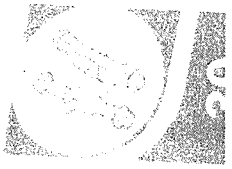
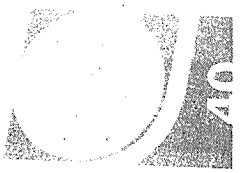
Notes: _____

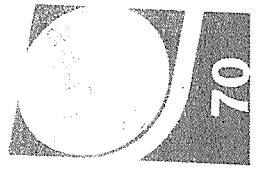
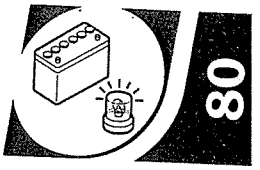
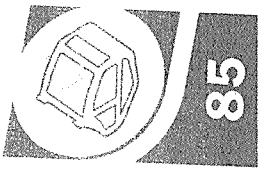
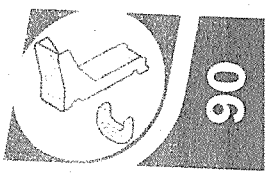
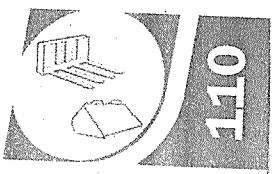
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GENERAL
ENGINE
FUEL
AIR
EXHAUST
BODY
HYDRAULIC
ELECTRIC
DRIVE SYSTEM
FRAME, BUCKET
OPTIONAL PARTS



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LCD CLUSTER ERROR CODES.

LISTING ERROR CODES / FUNCTIONAL DOMAINS

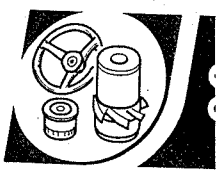
The code displayed on the LCD indicates the faulty function(s). These codes ensure that the connection is made between this fault and the user's problem.

E.G.: OA = Fault on transmission & hydraulic functions.

	Functional domains							
LCD error code (Cluster)	Electricity	I.C. engine	Brake	Steering	Transmission	Safety	Hydraulic	Maintenance
00								
01								✔
02							✔	
03							✔	✔
04						✔		
05						✔		✔
06						✔	✔	
07						✔	✔	✔
08					✔			
09					✔			✔
0A					✔		✔	
0B					✔		✔	✔
0C					✔	✔		
0D					✔	✔		✔
0E					✔	✔	✔	
0F					✔	✔	✔	✔
10				✔				
11				✔				✔
12				✔			✔	
13				✔			✔	✔
14				✔		✔		
15				✔		✔		✔
16				✔		✔	✔	
17				✔		✔	✔	✔
18				✔	✔			
19				✔	✔			✔
1A				✔	✔		✔	
1B				✔	✔		✔	✔
1C				✔	✔	✔		

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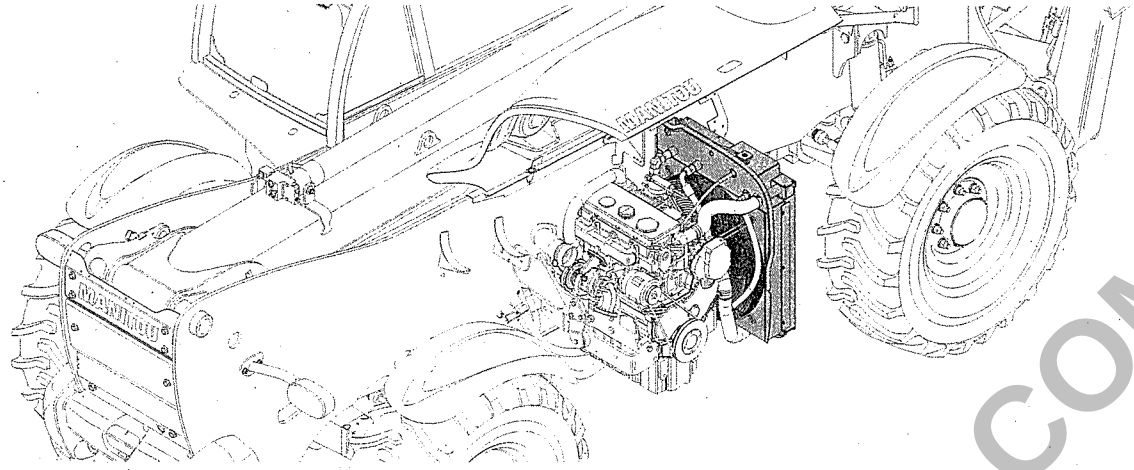
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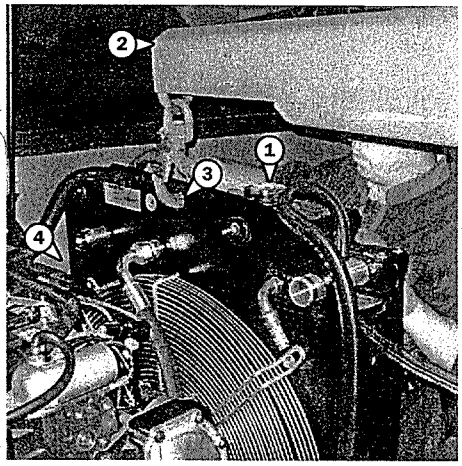


- GENERAL INSTRUCTIONS AND SAFETY NOTICE

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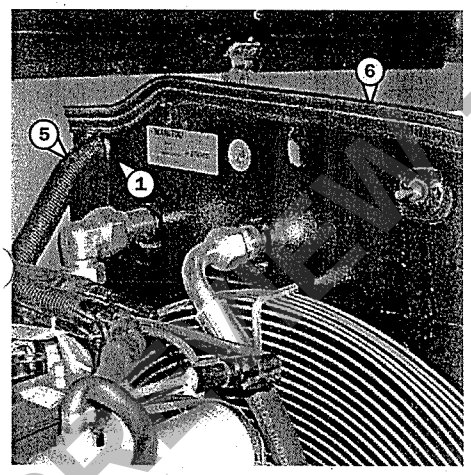
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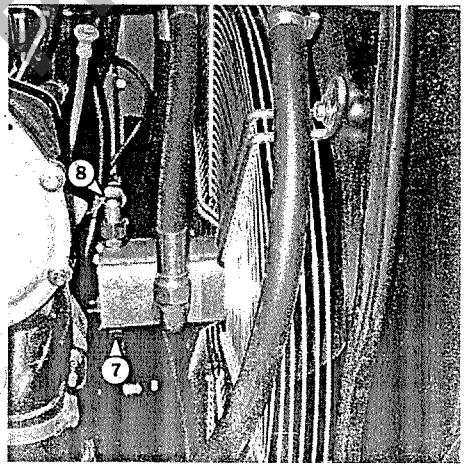


COOLER «D»

Lift the cooler «D», using the lifting crane (Item 2) with the hoist hole (Item 3).
Place the cooler «D» on the right side of the truck then fit both mountings (Item 4).



Pass the electrical harness (Item 5) in the slot located on the upper left part of the cooler «D», then refit the rubber insert (Item 6).



Connect the hydraulic engine supply hose for the ventilator control (Item 7).

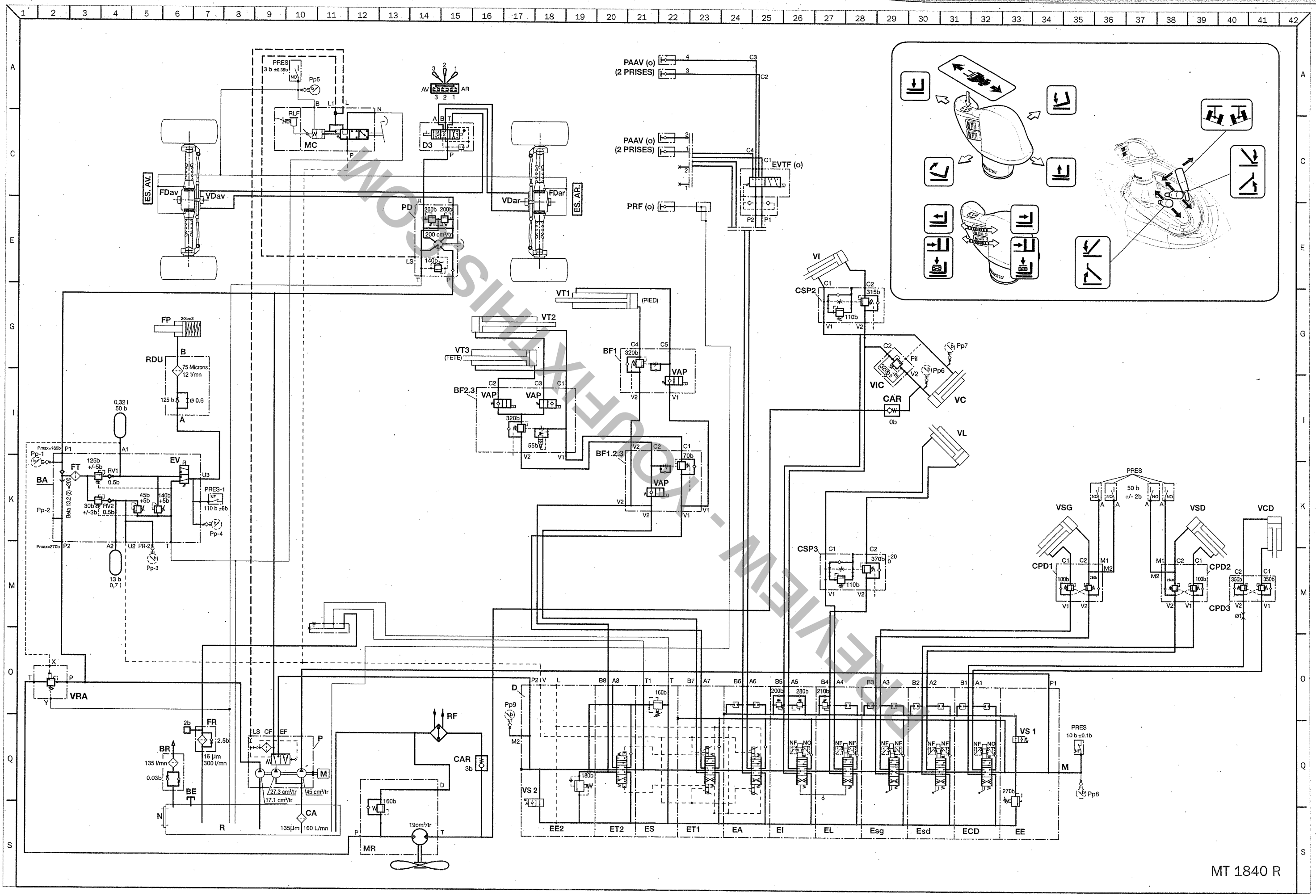
Connect the hose (Item 8).

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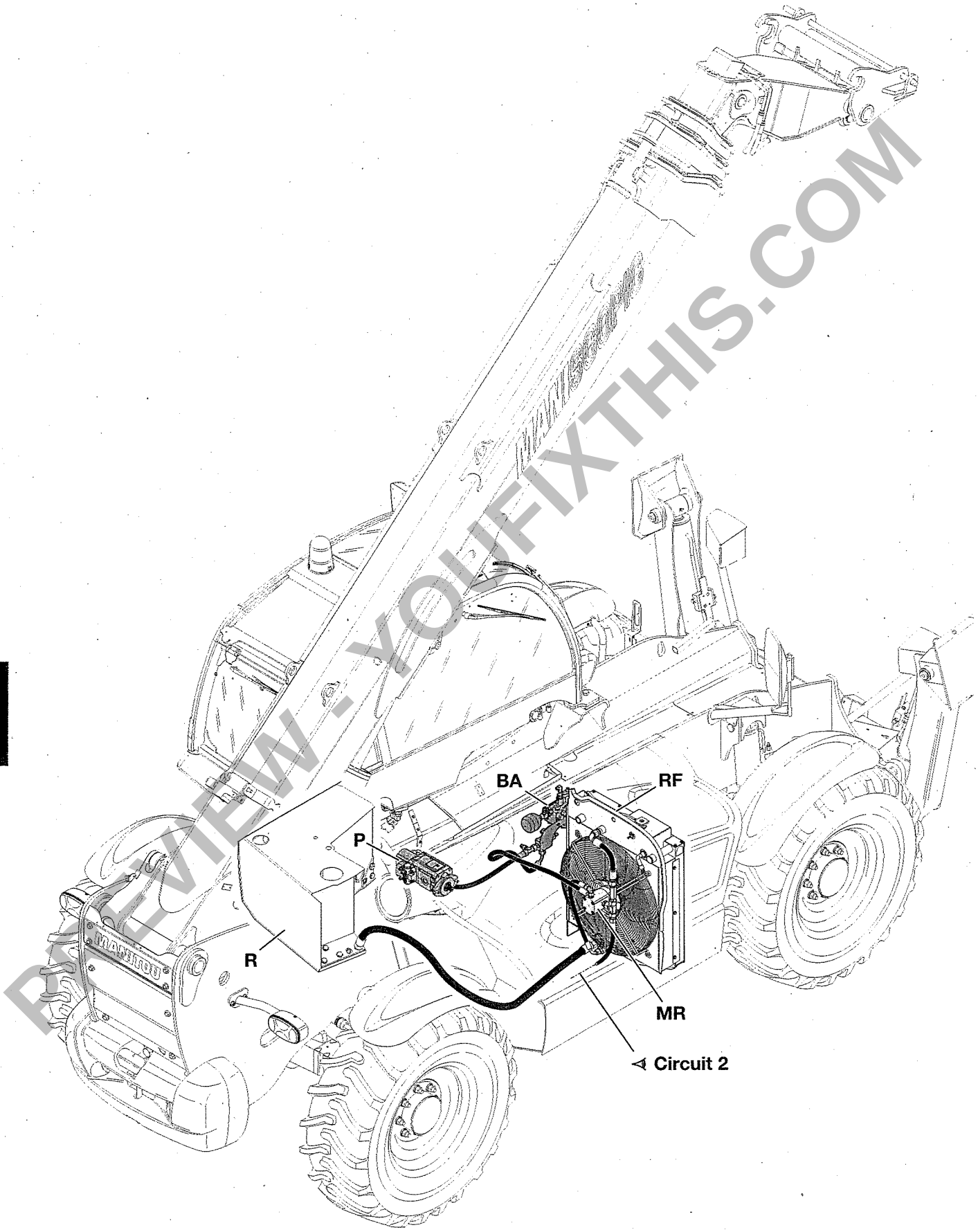
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6 – COOLING CIRCUITS



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70

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INSTRUCTIONS TO PUT INTO SERVICE ON THE PRODUCTION LINE

CONTROL BEFORE CHARGING

Frigorific fitting tightening according to the couple chart:

FITTING	MODEL	COUPLE
COMPRESSOR DISCHARGE	8	15,4 Nm
COMPRESSOR SUCTION	10	24,4 Nm
CONDENSER ENTRY	8	15,4 Nm
FILTER DRIER EXIT	6	15,4 Nm
EVAPORATOR ENTRY	6	15,4 Nm
EVAPORATOR EXIT	10	24,4 Nm

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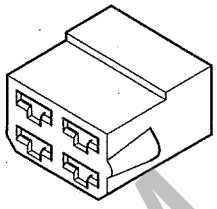
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BF3 (Cab)							
Modules	**Item**	**Designation**	**Pos**	**Wire N°**	**Color**	**Section (mm2)**	**Towards**
Module 2	F21	Roof light		33	GREY	0,6	X16/6
				34	GREY	0,6	X45
	F22	Manimux CLUSTER		35	GREY	0,6	X13/10
				36	GREY	0,6	X13/20
	F23	RC Battery charger		37	YELLOW	2	X112/18
	F24	Front windscreen wiper and auto return motor		38	YELLOW	2	X25/6
	F25	Digicode + permanent		39	GREEN	1	X118/1
	F26	Car radio + BAT		40	GREEN	1	X93/7
	F27	Rear windscreen wiper motor + roof + side windshield auto return		41	WHITE	3	X68/1
	F28	Fault finding plug		42	GREY	0,6	X115/16
	F29	Air conditioning compressor relay		43	GREEN	1	BF3 Module3/K6-3
	F30	Air-conditioning fan motor		44	YELLOW	2	BF3 Module3/K3-3
				45	GREEN	1	BF3 Module4/K12-3
	F31	Relay safety system starting switch K5 pump GO + KSB + EV M/A		46	YELLOW	2	BF3 Module3/K5-3
	F32	Side windshield wiper + option for windshield washer		47	GREEN	1	X15/11
	F33	Fault finding plug		48	GREY	0,6	X115/1
	F40	Free			YELLOW	2	BF3 Module3/K2-3
Module 3	K1		1	93	GREY	0,6	X112/4
			2	179	BLACK	0,6	BF3 Module3/K4-2
				180	BLACK	0,6	BF3 Module4/K12-1
			3	21	YELLOW	2	BF3 Module1/F14
			5	94	YELLOW	2	X112/5
Module 3	K2	Front windscreen wiper intermittence relay.	1	136	GREY	0,6	X13/8
			2	176	BLACK	0,6	BF3 Module3/K6-2
				177	BLACK	0,6	BF3 Module3/K5-2
			3	233	YELLOW	2	EP 11
			5	133	YELLOW	2	X25/4
				129	GREEN	1	X11/7
Module 3	K3	Air-conditioning fan motor relay	1		GREY	0,6	DETAIL A /62
			2	174	BLACK	0,6	M2 Cab Earth
				175	BLACK	0,6	BF3 Moduie3/K6-2
			3	44	YELLOW	2	BF3 Module2/F30
			5	115	YELLOW	2	X15/6
Module 3	K4		1	95	GREY	0,6	X112/6
			2	178	BLACK	0,6	BF3 Module3/K5-2
				179	BLACK	0,6	BF3 Module3/K1-2
			3	1	YELLOW	2	BF3 Module1/F3
			5	96	YELLOW	2	X112/7
Module 3	K5	Stop electrovalve relay, diesel supply pump, cold starter electrovalve	1	137	GREY	0,6	X13/6
			2	177	BLACK	0,6	BF3 Module3/K2-2
				178	BLACK	0,6	BF3 Module3/K4-2
			3	46	YELLOW	2	BF3 Module2/F31
			5	141	YELLOW	2	X118/6

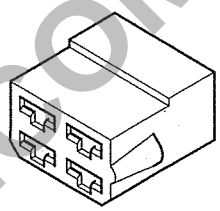
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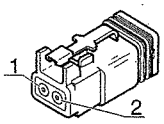
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X107	1	44	GREEN	1	X68A/1
	2	52	GREEN	1	S40/5
	3	41	GREEN	1	S40/7
	4	13	BLACK	1	EP1



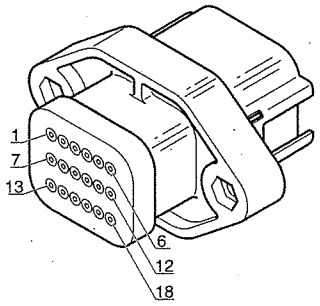
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X108	1	45	GREEN	1	X68A/1
	2	53	GREEN	1	S41/5
	3	42	GREEN	1	S41/7
	4	14	BLACK	1	EP1



Item	Pos	Wire N°	Color	Section (mm2)	Towards
X109	1	251	YELLOW	2	X112-9
	2	252	BLACK	2	M3 Chassis Earth

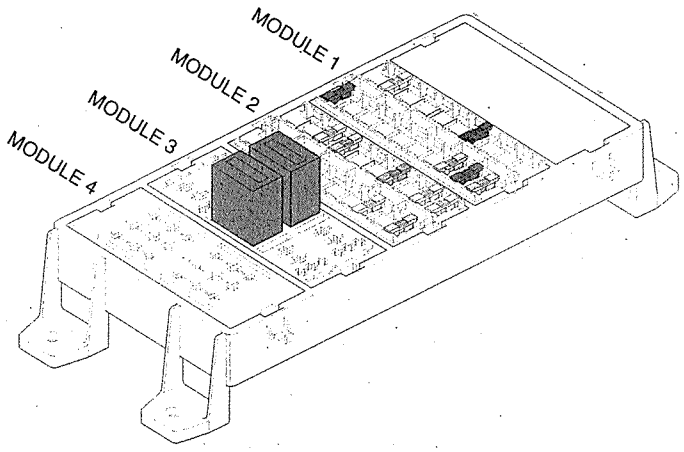


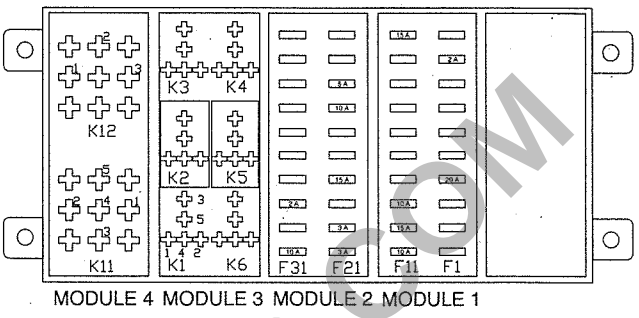
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X110 (Chassis)	1	63	GREY	0,6	X149/46
	2	64	GREY	0,6	X149/45
	3	65	GREY	0,6	X148/26
	4	231	GREY	0,6	X148/5
	5		BROWN	0,5	X150/41
	6		GREEN	0,5	X150/42 (Shielded)
	7		WHITE	0,5	EPCANA R (CAN A)
	8		WHITE	0,93	X150/11
	9	71	GREY	0,6	EP32
	10	72	GREY	0,6	X149/69
	11	534	GREY	0,6	X150/20
	12	535	GREY	0,6	X150/21
	13	75	YELLOW	2	X149/87
	14	76	YELLOW	2	X149/59
	15	77	GREEN	1	X149/62
	16	66	GREY	0,6	X148/4
	17		PLUG	114017	
	18	80	GREY	0,6	X148/06



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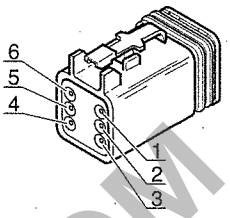


BF3 (Cab)							
Modules	**Item**	**Designation**	**Pos**	**Wire N°**	**Color**	**Section (mm2)**	**Towards**
Module 1	F1	K4 predisposition relay		1	YELLOW	2	BF3 Module3/K4
	F2	Rear double hydraulic way (S18)		2	YELLOW	2	S18/5
	F3	Inter Supp S35		3	YELLOW	2	S35
	F4	Heating / Ventilation		6	YELLOW	4	X29/2
	F5	Inter Supp S19		7	YELLOW	2	S19/5
	F6	Head of jib electric connector (S17)		9	YELLOW	2	S17/5
	F7	Digicode (transmission + engine immobilizer?)		11	GREEN	1	X118/2
				12	GREEN	1	X118/4
	F8	Pneumatic seat		13	YELLOW	2	X121/1
	F9	Manimux CLUSTER Supply		14	GREY	0,6	X13/4
	F10	Car radio +Post contact		15	GREEN	1	X93/4
	F11	Cigarette lighter		16	YELLOW	2	X46/2
	F12	Front screenwiper + windscreen washer fluid intermittence relay K2		17	YELLOW	2	EP 11
				18	GREEN	1	X11/5
	F13	Rear windscreen wiper + RR windscreen washer fluid		19	YELLOW	2	X11/1
	F14	K1 predisposition relay		21	YELLOW	2	BF3 Module3/K1
				20	YELLOW	2	X112/16
	F15	Inter Power Supp S36 and S37		22	YELLOW	2	EP1
	F16	Boom work headlight power supply (inter S42) and cab option S43		28	WHITE	3	X68/2
	F17	Rear work lights		29	YELLOW	2	X15/9
	F18	Rear window defroster		30	YELLOW	2	X15/10
	F19	Roof windscreen wiper + option for windscreen washer		31	GREEN	1	X15/12
	F20	Electric window up		32	YELLOW	2	X69/A

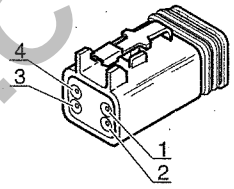
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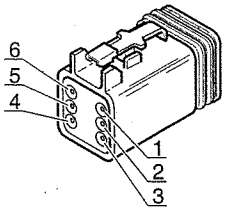
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X32	1	9	GREEN	1	X149/74
	2	10	GREEN	1	X38-1
	3	11	GREEN	1	X149/17
	4	12	BLACK	1	M3 Chassis Earth
	5	13	GREEN	1	X149/42
	6	16	GREEN	1	X149/78



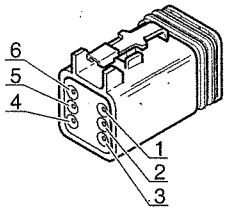
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X33	1	27	GREEN	1	X15A/4
	2	16	BLACK	1	X011
	3	26	GREEN	1	X15A/3
	4	17	BLACK	1	EP2



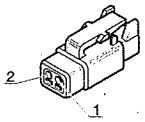
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X35	1	131	BLACK	1	M2 Chassis Earth
	2	132	GREEN	1	X149/63
	3	133	GREEN	1	X149/31
	4	134	GREEN	1	X149/14
	5	135	GREEN	1	X149/43
	6		PLUG	114017	



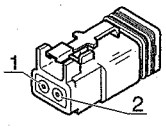
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X36	1	118	BLACK	1	M2 Chassis Earth
	2	119	GREEN	1	X149/60
	3	120	GREEN	1	X149/61
	4	121	GREEN	1	X149/16
	5	122	GREEN	1	X149/48
	6		PLUG	114017	



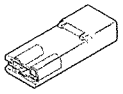
Item	Pos	Wire N°	Color	Section (mm2)	Towards
X37	1	50	GREEN	1	X31-2
	2	51	BLACK	1	M3 Chassis Earth



Item	Pos	Wire N°	Color	Section (mm2)	Towards
X38	1	10	GREEN	1	X32-2
	2	17	BLACK	1	M3 Chassis Earth

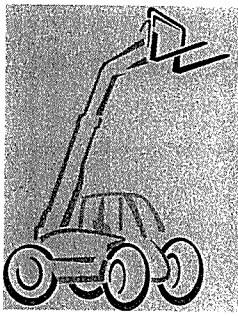


Item	Pos	Wire N°	Color	Section (mm2)	Towards
X39	1	116	GREEN	1	X149/90



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ELECTRIC DIAGRAMS

pages

– Codes on the electrical diagrams A3
– Cable marking on an electrical wiring harness A4
– Multiplexing of the Manimux system A5
– Electrical diagrams
  – MT 1436 R / 1840 R . . . . . .B
  – MT 1440 / 1840 C
  – MT 1440 Inching / 1840 Inching . . . . . .D
  – MT 1440 EP+A / 1840 EP+A . . . . . .E
  – MT 1440 EP+A Inching / 1840 EP+A Inching . . . . . .F

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Wiring harness type	Item	Name component	Designation	Position on diagram	Hydraulic correspondence
Cluster	X120	B33	Strain gauge 2	A9	
Boom	X122	B51	Boom ABD sensor connector QX	Q17	
Chassis	X124		C1 and C2 QX boom inductive sensor connector	O38	
Chassis	X125		ABD/chassis inductive sensor connector	O17	
QX Boom	X130	B54	Inductive sensor inner C1 QX boom	O37	
QX Boom	X131	B55	Inductive sensor inner C2 QX boom	O38	
Chassis	X132	B30	Servo steering circuit fault pressure switch	I34	
Chassis	X133	B29	ON/OFF negative brake pressure switch	C36	
Chassis	X134	S34	Retracted boom sensor	I29	
Chassis	X135		Boom suspension connector	Q12	
Cab 1	X138	S50	Emergency stop button	M5	
Cab 1	X139		Pedal potentiometers	G20/E15	
Chassis	X148	A1	Manimux Power CN1-P1	E26	
Chassis	X149	A1	Manimux Power CN2-P1	E38	
Chassis	X150	A2	Manimux Power CN1-P2	K16	
Chassis	X151	A2	Manimux Power CN2-P2	K20	
Option	X155	B46	Aircon socket on SNDC condenser	S31	
Option	X169	B25	Boom suspension cylinder valve pressure switch 1	Q13	
Option	X170	B26	Boom suspension cylinder valve pressure switch 2	Q14	
Option	X180	B47	Brake pedal potentiometer	G14	
Option	X181	B48	Accelerator pedal potentiometer	G18	
Option	X182	B49	Turbine speed (inching) sensor	E21	
Option	X186	A10	ECU Econ.B 120 (inching)	C15	

Components

Item	Designation	Position on diagram	Hydraulic correspondence
A1	Manimux Power MP1	E31	
A2	Manimux Power MP2	I18	
A8	Heating / ventilation panel	O27	
A9	Manimux Cluster MC2	C9	
A10	Econ.B 120 transmission (inching) module	C18	
B3	Engine oil pressure switch	I7	
B5	Engine temperature sensor	G7	
B6	Engine air filter clogging pressure switch	G4	
B7	Hydraulic filter clogging pressure switch	K25	
B8	Brake master cylinder pressure switch	K11	
B9	Front wheel alignment sensor	C33	
B10	Rear wheel alignment sensor	C35	
B11	Forward pressure switch	G34	
B12	Reverse pressure switch	G36	
B13	Front clutch oil pressure switch	I21	
B14	Gearbox output speed sensor	E18	
B17	Servo brake circuit fault pressure switch	E39	
B18	Right stabilizer pressure switch 1	I29	
B19	Right stabilizer pressure switch 2	K32	

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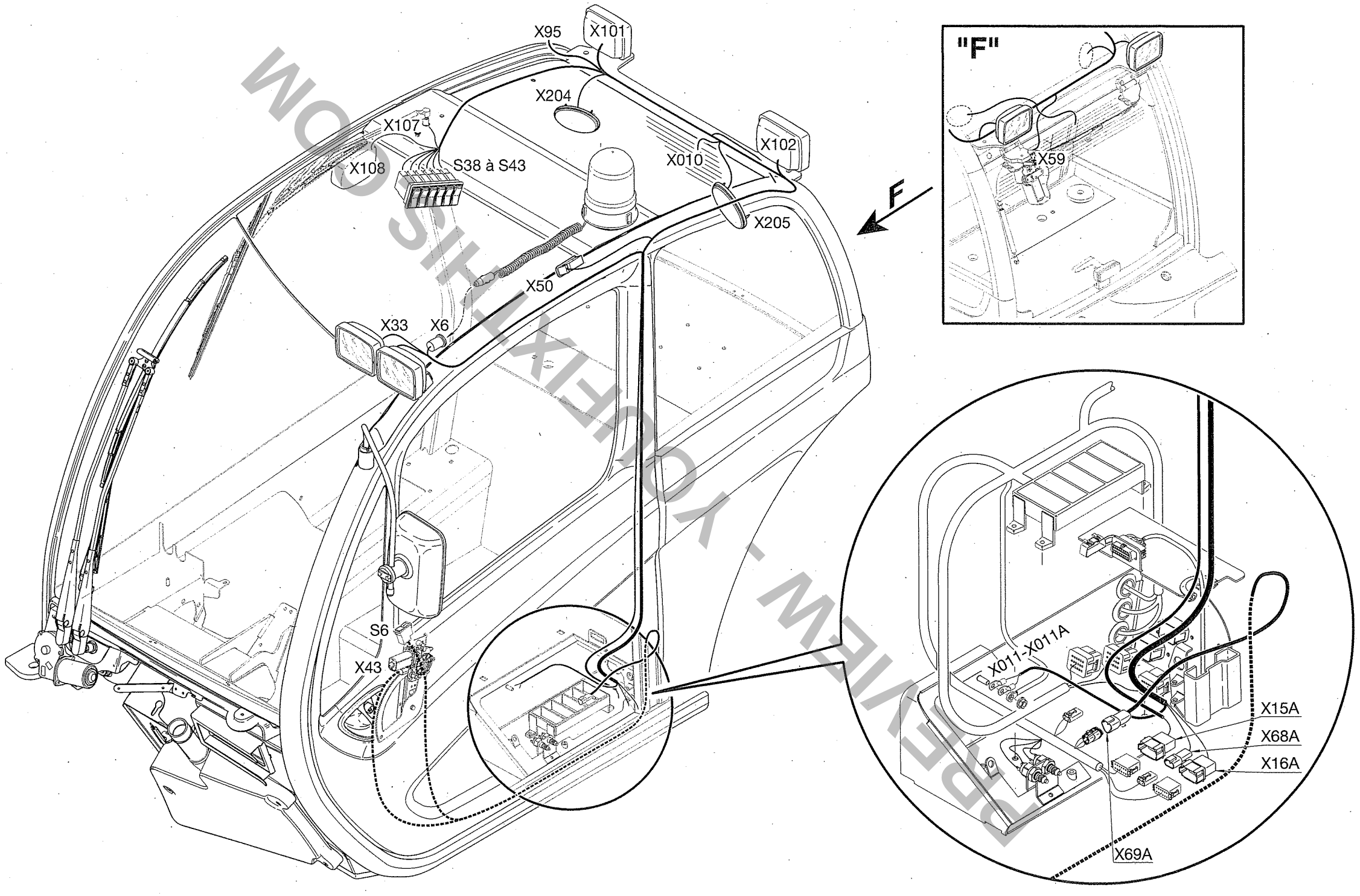
Item	Designation	Position on diagram	Hydraulic correspondence
S38	Rear work light switch	023	
S39	Rear window de-frost switch	018	
S40	Roof screenwiper switch	011	
S41	Side screenwiper switch	06	
S42	Boom work light switch	I37	

Fuses and relays		
Item	**Designation**	**Position on diagram**
BFI/M1		
F1	BF3 Power supply (cab) (40A)	G5
BF3/M2		
F26	+V bat car radio (7,5A)	G11
F27	Side + roof + rear screenwiper motor + Vbat (10/15A)	G11
F32	+ Post contact side screenwiper and screenwasher (7.5A)	G11
BF3/M1		
F10	Car radio + Post contact (2A)	C5
F11	Cigarette lighter (10A)	C6
F12	Front windscreen wiper and windscreen-washer (15A)	C6
F16	S42 and S43 switch supply (15A max.)	C7
F17	Rear work light (15A)	C7
F18	Rear de-icing windscreen (10A)	C8
F19	Roof screenwiper and screenwasher (7.5A)	C9

Splices	
Item	**Position on diagram**
Ep.9	G9
Ep.10	G15
Ep.11	I36
Ep.73	O29

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