



647802EN (21/10/2019)

MT 1135 EASY 75D ST5 S1
MT 1135 H EASY 75D ST5 S1
MT 1135 HA EASY 75D ST5 S1
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00.2.3 EXPLANATION OF SYMBOLS

The symbols shown below are used to warn of potential hazards as well as to provide useful information concerning a procedure.

SYMBOLE	OBSERVATION
	Indicates an imminent hazardous situation which, if not avoided will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or damage to property. It is also used to warn users of unsafe practices.
	Indicates a tip to facilitate the performance of a procedure.
	Indicates a message to draw attention to important information regarding environmental protection.
	Indicates special tools for performing a task.
	" SEE ": Indicates a cross-reference to a manual.
	" SEE ": Indicates a cross-reference to a page.
	" SEE ": Indicates a cross-reference to a picture.
	" WEIGHT ": Indicates the weight of an item. (E.g.: it helps to anticipate an action linked to a person's health or the choice of lifting equipment)
	" TIGHTENING TORQUE ": Indicates the value of tightening torque to be applied.
	" OPTION ": Indicates the presence of an option.

The manufacturer cannot predict all possible risky situations. Consequently, the safety instructions given in the manual are not exhaustive.

At any time, as an operator, you must consider, within reason, the possible risk to yourself, to others or to the lift truck itself when you repair, service or drive it.

Manitou cannot be held responsible for the use of any lifting devices, tools or operating methods other than those specified.



CONTENTS

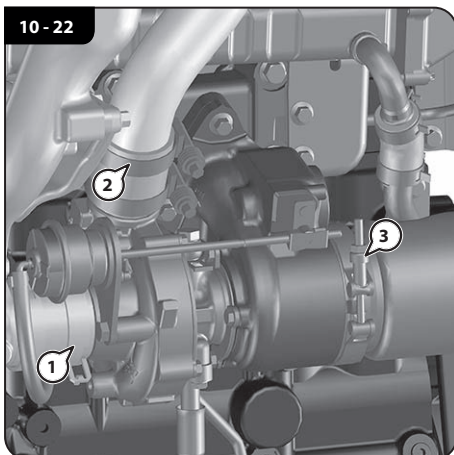
10.1	CHARACTERISTICS AND SPECIFICATIONS	23
10.1.1	CHARACTERISTICS.....	23
10.2	ENGINE SCHEMATIC DIAGRAMS	24
10.2.1	INTAKE CIRCUIT AND EGR.....	24
10.2.2	LUBRICATION CIRCUIT.....	25
10.2.3	COOLING CIRCUIT.....	26
10.2.4	FUEL CIRCUIT.....	27
10.3	LOCATION	28
10.3.1	ENGINE.....	28
10.3.2	WATER COOLING SYSTEM.....	30
10.3.3	DIESEL FUEL CIRCUIT.....	31
10.3.4	FUEL INJECTION CIRCUIT.....	32
10.3.5	EGR CIRCUIT.....	33
10.4	CONTROL AND ADJUSTMENT	34
10.4.1	DIESEL FUEL CIRCUIT TIGHTENING TORQUES.....	34
10.4.2	EXHAUST CIRCUIT TIGHTENING TORQUES.....	34
10.4.3	HEATING SYSTEM TIGHTENING TORQUES.....	34
10.5	REMOVAL - REFIT	35
	<i>PREPARATION AND SAFETY INSTRUCTIONS</i>	35
10.5.1	REMOVING THE ENGINE COVER.....	35
10.5.2	REMOVING THE STARTER MOTOR.....	35
10.5.3	REMOVING THE BELT CASING.....	36
10.5.4	REMOVING THE ATTACHMENT BELT.....	36
	<i>REFITTING THE ATTACHMENT BELT</i>	36
10.5.5	REMOVING THE AIR CONDITIONING BELT.....	37
	<i>REFITTING THE AIR CONDITIONING BELT</i>	37
10.5.6	REMOVE THE ALTERNATOR.....	37
10.5.7	REMOVING THE WATER PUMP.....	37
10.5.8	REMOVING THE FUEL FILTER.....	38
10.5.9	REMOVE THE ENGINE ECU.....	38
10.5.10	REMOVING THE AIR CONDITIONING COMPRESSOR.....	38
10.5.11	REMOVING THE EXHAUST LINE.....	40
	<i>REFITTING THE EXHAUST LINE</i>	40
10.5.12	REMOVING THE TURBO.....	41
10.5.13	REMOVE THE EXPANSION TANK.....	41

10.3.3 DIESEL FUEL CIRCUIT



Key:


- 1 - Diesel supply
- 2 - Diesel return
- 3 - Fuel gauge
- 4 - Diesel valve
- 5 - Pre-filter
- 6 - Water presence sensor
- 7 - Diesel pump
- 8 - Filter
- 9 - Pressure sensor
- 10 - Pressure connector (in place of the sensor)

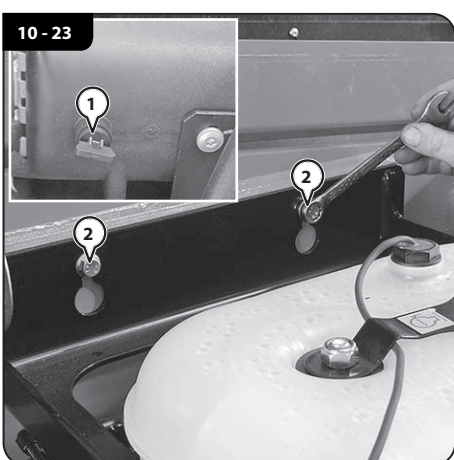


10.5.12 REMOVING THE TURBO

Carry out the operation (◀ 10.5.13 REMOVE THE EXPANSION TANK, 41)

- 1 - Loosen the turbo side air inlet hose clamp (1).
- 2 - Remove the turbo hose clamp (2).
- 3 - Undo the exhaust clamp (3).
- 4 - Undo the 3 turbo fastening screws.

 647848 (3.6 TD engine) - Water pump removal and refit

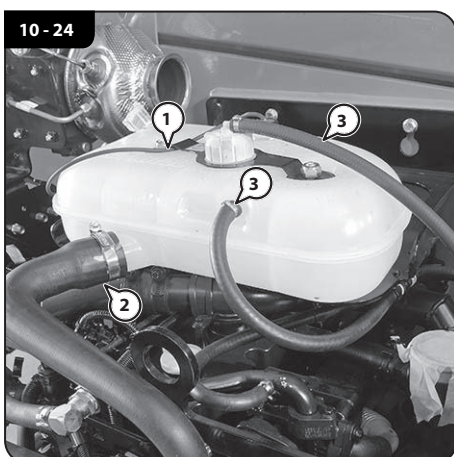


10.5.13 REMOVE THE EXPANSION TANK

- 1 - Place a container under the radiator.
- 2 - Drain the cooling circuit (1).
- 3 - Remove the tank support screws (2).

CAUTION

Pay attention to any coolant drips

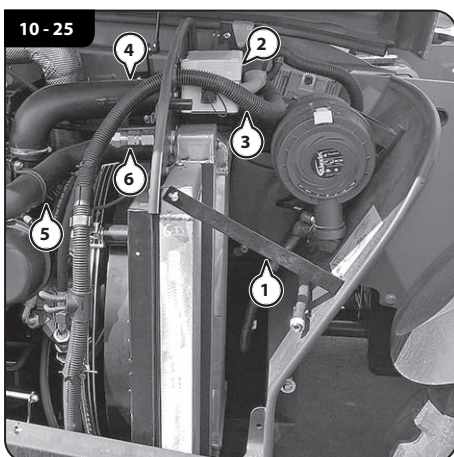


- 4 - Disconnect the level sensor (X258) (1).
- 5 - Remove the water inlet hose (2).
- 6 - Remove the radiator return hoses (3).
- 7 - Remove the expansion tank.

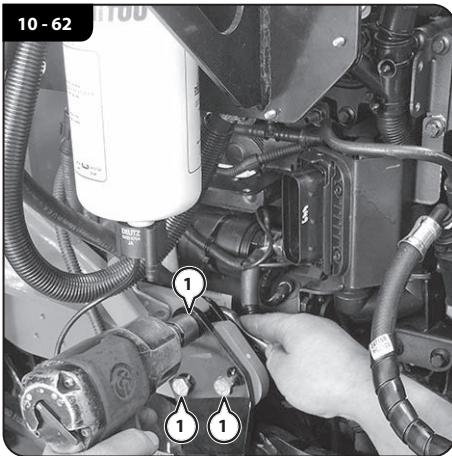
10.5.14 REMOVING THE RADIATOR

Carry out the operation (◀ 10.5.1 REMOVING THE ENGINE COVER, 35)

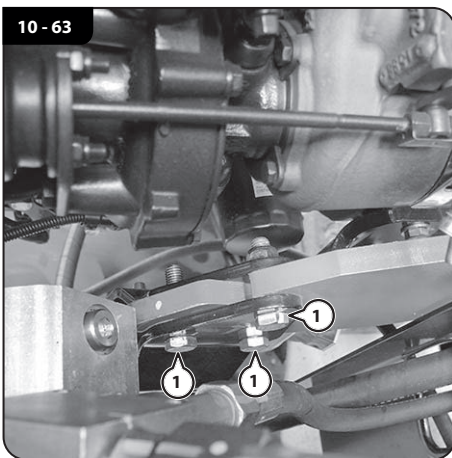
Carry out the operation (◀ 10.5.13 REMOVE THE EXPANSION TANK, 41)



- 1 - Drain the oil circuit.
- 2 - Remove the tie rod (1).
- 3 - Remove the 2 screws from the fuse box support (2).
- 4 - Remove the fuse box.
- 5 - Remove the harness (3).
- 6 - Remove the turbo side air hose and air filter (4).
- 7 - Plug the turbo inlet pipe.
- 8 - Remove the upper radiator hose (5).
- 9 - Remove the lower radiator hose.



4 - Remove the exhaust side support screws (1).



5 - Remove the radiator side support screws (1).
6 - Remove the engine.

ENGINE REFIT

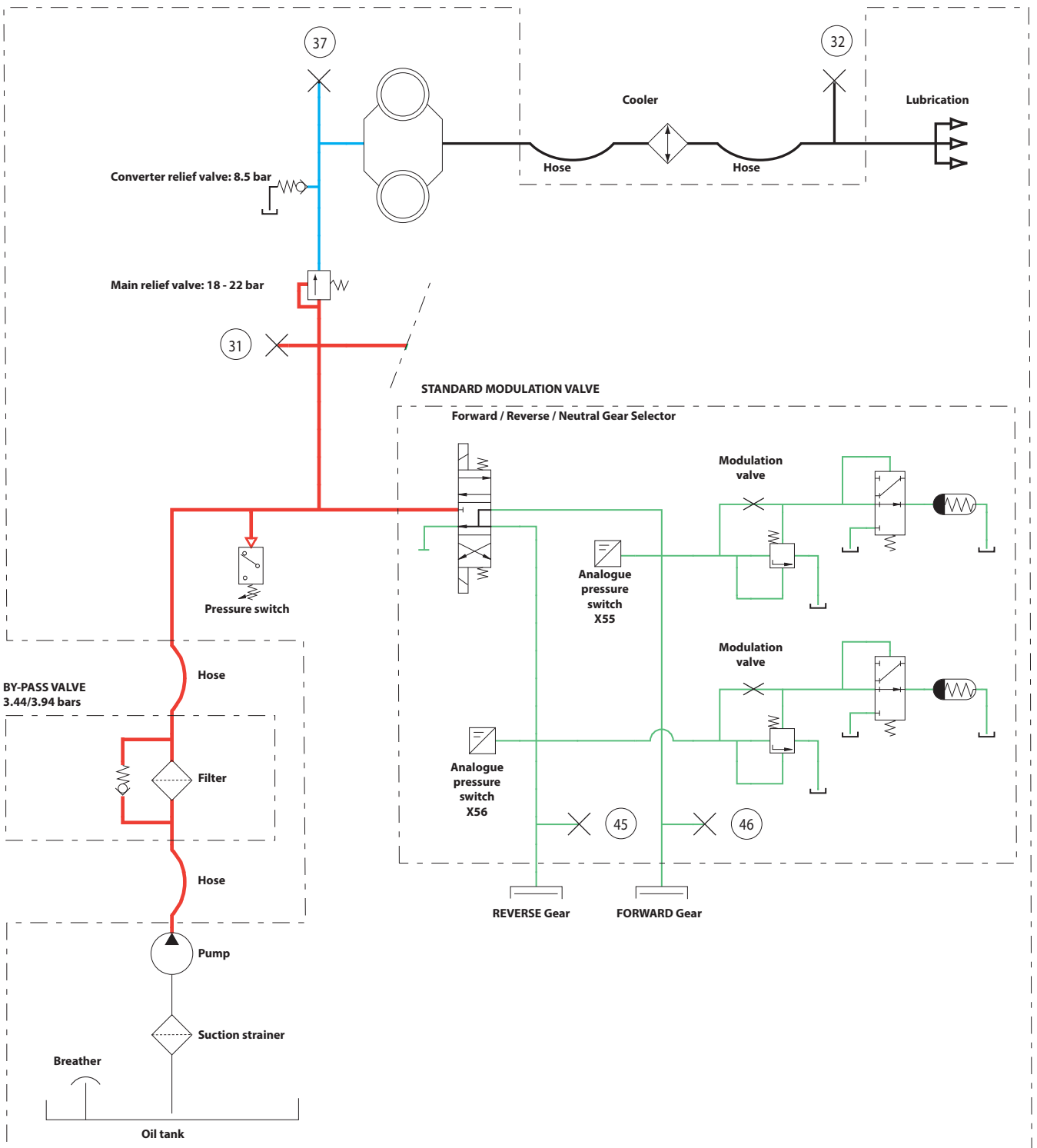
1 - Perform the removal operations in reverse order.

POST REFIT ENGINE INSPECTION

- 1 - Fill the hydraulic oil, gearbox and coolant tanks.
- 2 - Activate the battery cut-off.
- 3 - Switch on the ignition.
- 4 - Warm up the vehicle.
- 5 - Check the levels.
- 6 - Check that the engine is working properly.

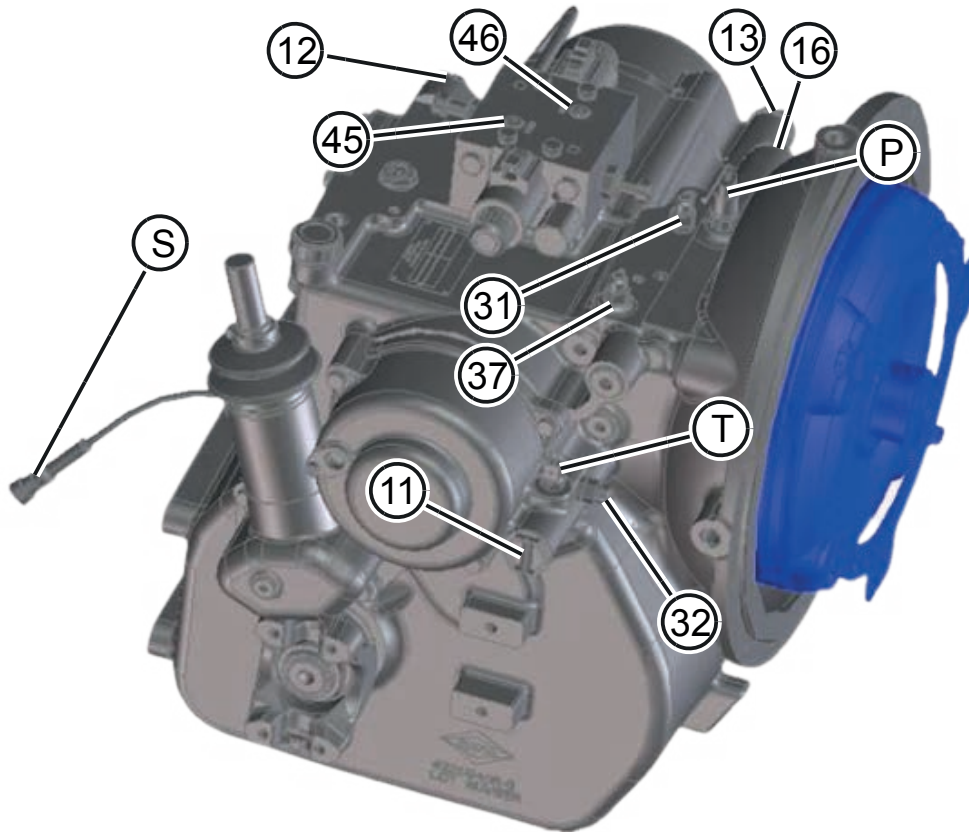
NEUTRAL GEAR SCHEMATIC DIAGRAM

- RETURN
- CONVERTER PRESSURE
- REGULATED PRESSURE



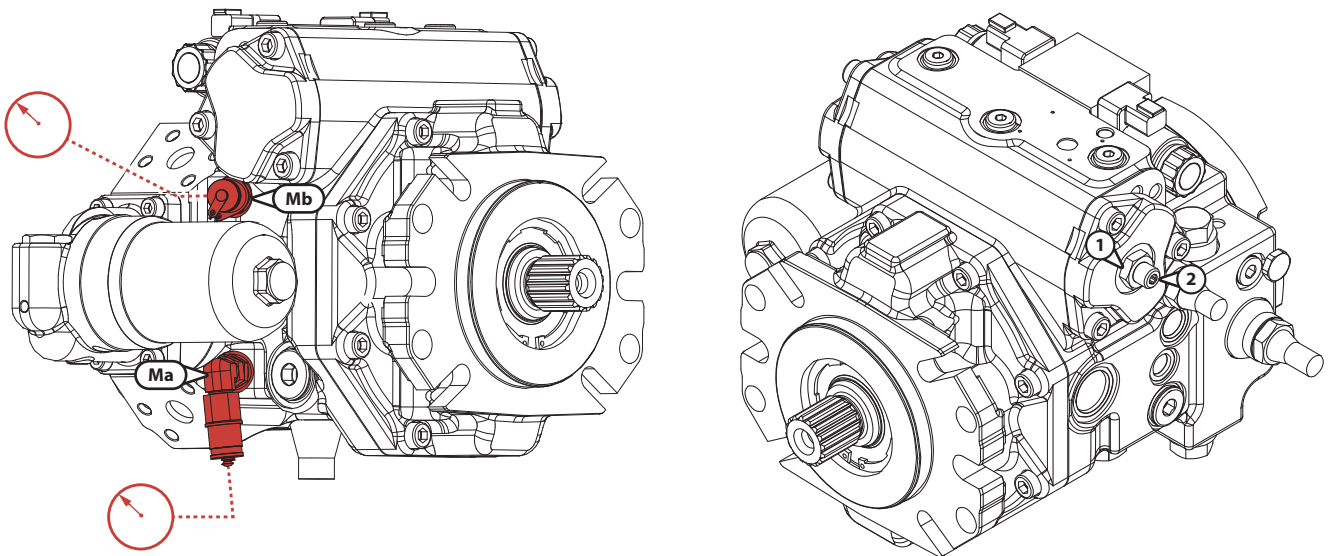
20.2 LOCATION

20.2.1 MECHANICAL GEARBOX PORTS



<i>Components</i>	
<i>Item</i>	<i>Designation</i>
11	Coolant inlet
12	Coolant outlet
13	Oil filter inlet
16	Oil filter outlet
31	Main pressure test port
32	Lubrication pressure test port
37	Converter pressure test port
45	Clutch reverse gear pressure test port
46	Forward clutch pressure test port

PUMP MECHANICAL "0" ADJUSTMENT



20

Connect a low-range (40 to 100 bar) manometer to each of the two HP pressure ports (Ma / Mb). Check that the handbrake is released and that the machine is on blocks (wheels off the ground). Engine at min. rpm.

Forward/reverse selector in neutral.

Loosen the "mechanical 0" adjustment screw locknut (Item 1).

Gently turn the screw (Item 2) clockwise so as to detect the slightest variation in HP.

Mark the position of the key. Next, turn the screw in the anti-clockwise direction until the HP changes in the other direction of travel. Mark the position of the key.

Next, turn the screw (Item 2) until the key is mid-way between the two marks.

Tighten the lock-nut (Item 1).

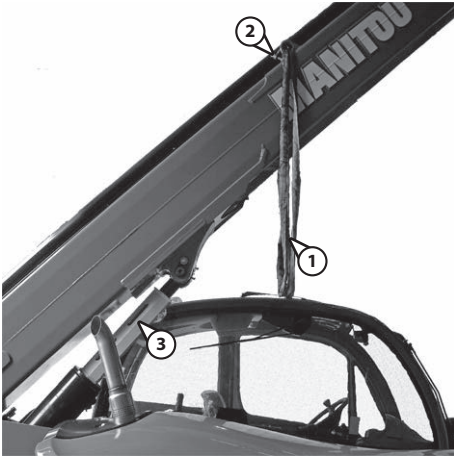
Checking the settings:

- 1 - Disconnect the two low-range manometers from the HP ports to check the setting with 600 bar manometers:
- 2 - To check the corresponding HP and pilot pressures, with the wheels locked and the forward/reverse selector in the forward position, gradually accelerate the engine to maximum rpm. Note the forward travel HP and pilot pressures. Repeat the same operation with the selector in the reverse position; the values should be identical.

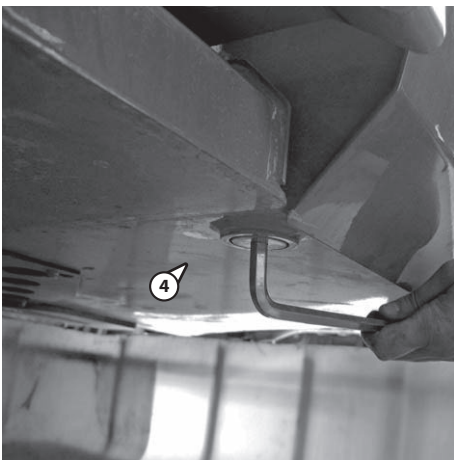
HYDROSTATIC PUMP REMOVAL

Attach a sling (Item 1) to the boom attachment points (Item 2). Raise it so as to position the sling above the hydrostatic pump.

Place the safety device (Item 3) and activate the battery cut-off.

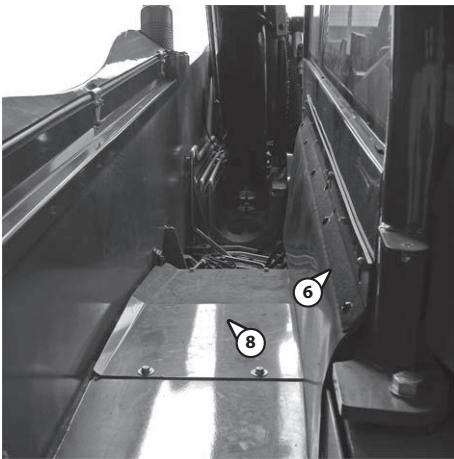


Drain the oil tank (Item 4)



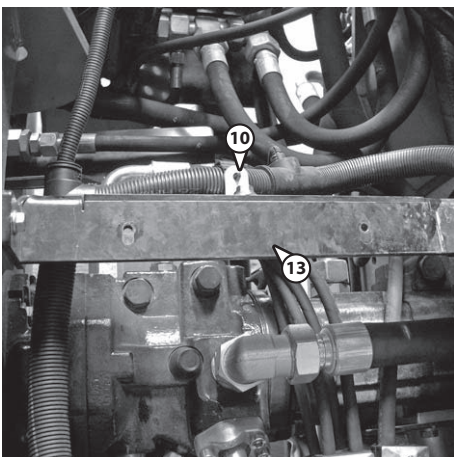
Remove the cab side trim (Item 6).

Remove the cover plate (Item 8).



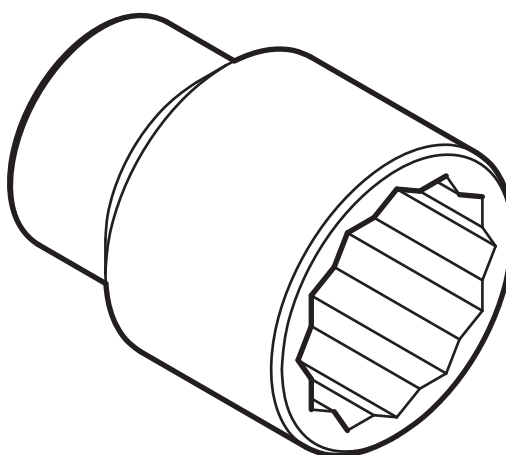
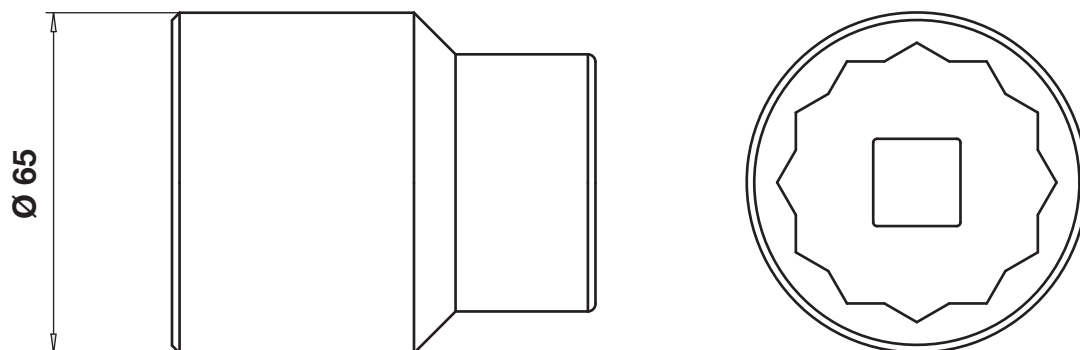
Remove the clamp (Item 10).

Remove the hose mounting attachment (Item 13).



20.6.4 50 MM MACHINED SOCKET

Socket 50 machined to an outer diameter of 65 mm which is used to dismantle the flanges connecting the transmission shaft to the gearbox.



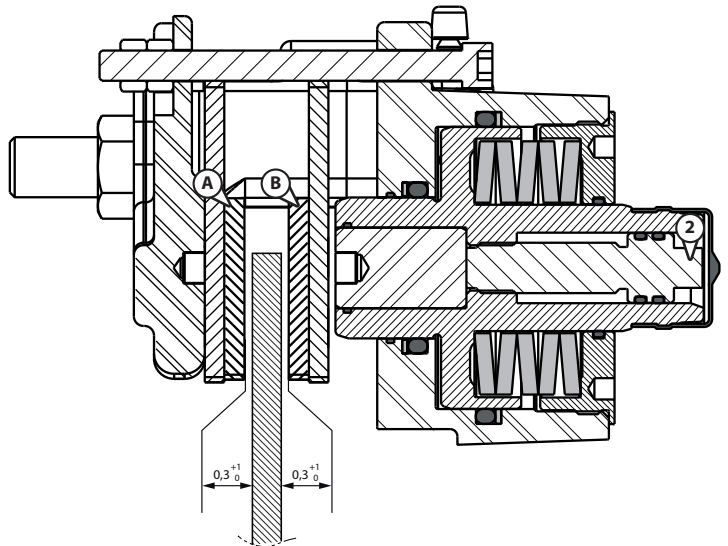
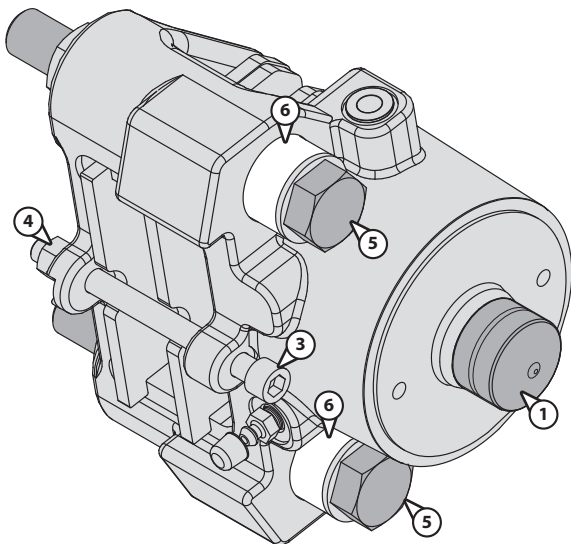
40.2.2 PARKING BRAKE

ADJUSTMENT PROCEDURE

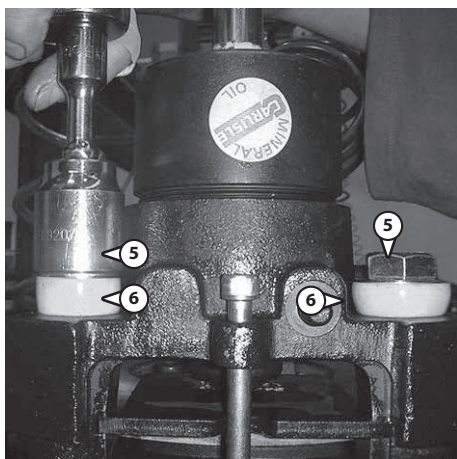
- 1 - Apply hydraulic pressure to the brake (Min. 80 bar).
- 2 - Remove the cap (1).
- 3 - Completely undo the adjustment screw (2).
- 4 - Loosen the lock nut (4).
- 5 - Turn the adjustment screw (3) to adjust the clearance of plate A to 0.3 mm.
- 6 - Retighten the locknut (4).
- 7 - Turn the adjustment screw (2) to adjust the clearance of plate B to 0.3 mm.
- 8 - Refit the cap (1).
- 9 - Check that the brake linings are free.
- 10 - Lower the hydraulic pressure.

CAUTION

- Adjust the parking brake beyond a total maximum clearance of 2.5 mm



40



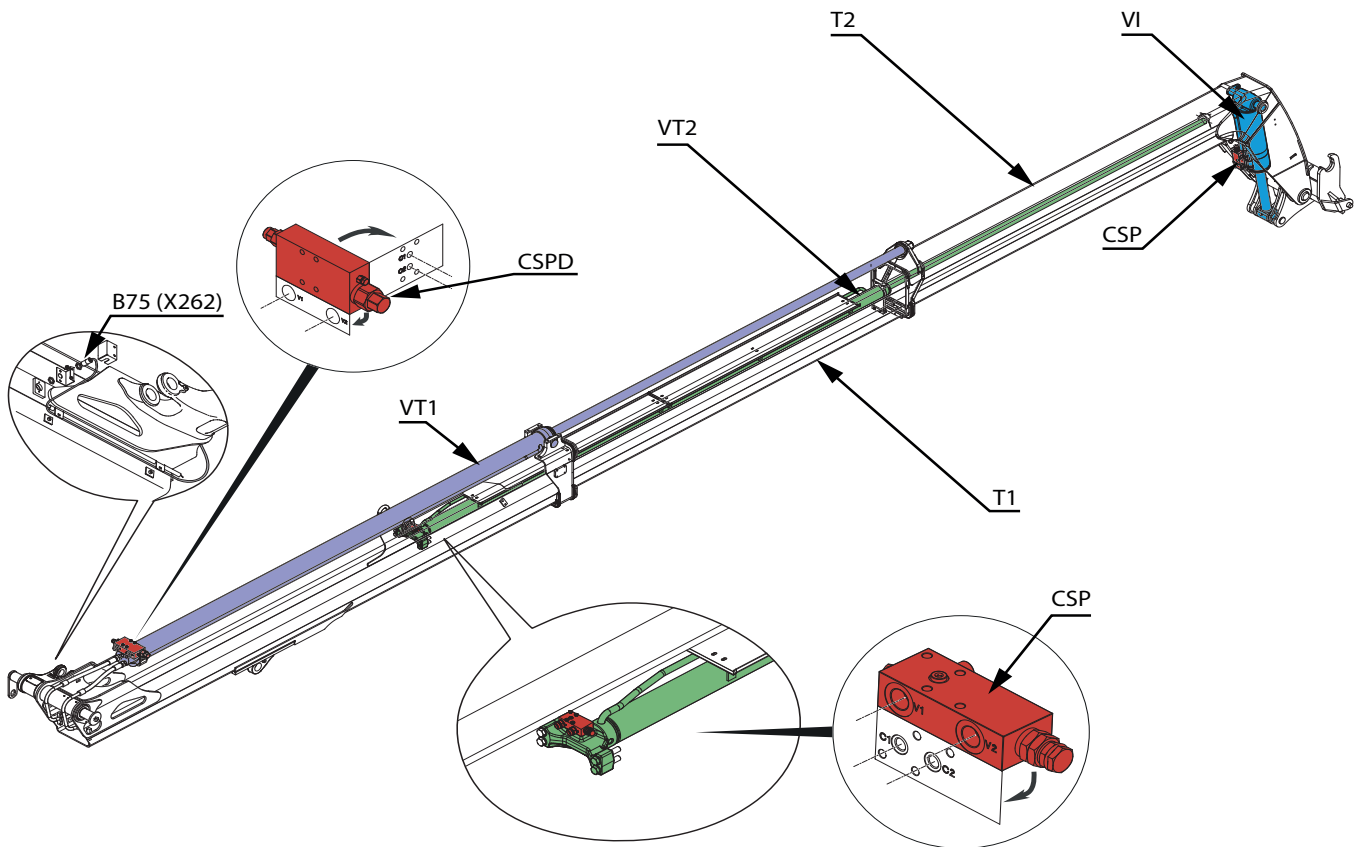
REFIT

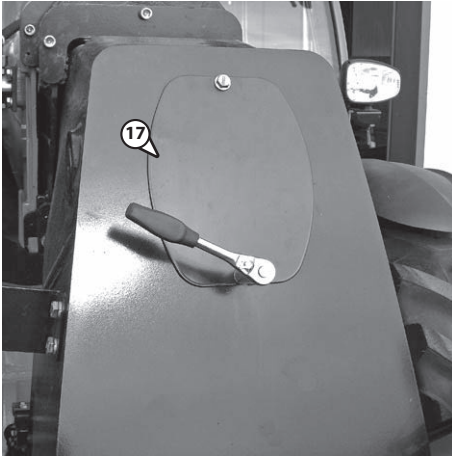
- 1 - Rotate 1.5 to 2 turns to tighten the 2 screws (5) to compress the washers (Item 6) by approximately 1.5 - 2.0 mm.

50.2 LOCATION

50.2.1 LOCATION OF MAIN TRIPLEX BOOM COMPONENTS

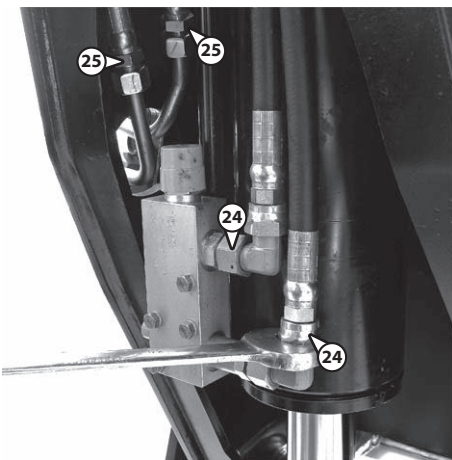
Item	Designation
B75	Telescopic boom retraction speed sensor
CSPD	Double safety valve
CSP	Counterbalance valve
T1	Telescope 1
T2	Telescope 2
VI	Tilting cylinder
VT1	Telescope cylinder 1
VT2	Telescope cylinder 2





Remove the boom head access panel (Item 17).

Chock the carriage with 2 support stands.



Mark the hoses.

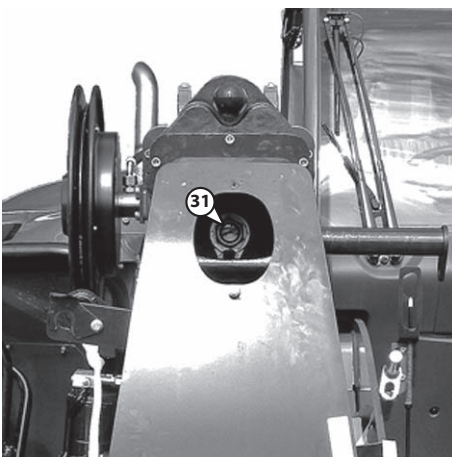
Disconnect the tilting supply (Item 24) and attachment supply (Item 25) hoses.

Plug the inlets of the tilting cylinder valve.

Attach the ends of the hoses in order to guide them when refitting.



Remove the upper pin (Item 29) of the tilting cylinder.



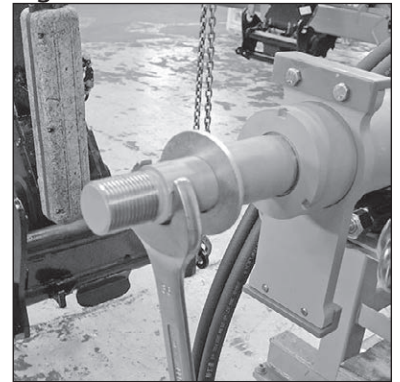
Lower the tilting cylinder to remove the telescope cylinder attachment nut (Item 31).



50.4.8 TELESCOPING CIRCUIT REFIT

Turn the cylinder rod so that the flat is in the vertical direction (Fig. A).

Fig. A



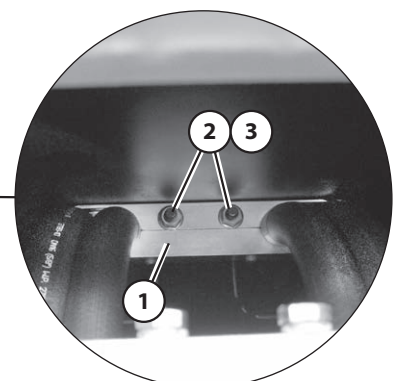
Insert the cylinder assembly and place the 4 hoses in the upper channels (Fig. B).

Fig. B



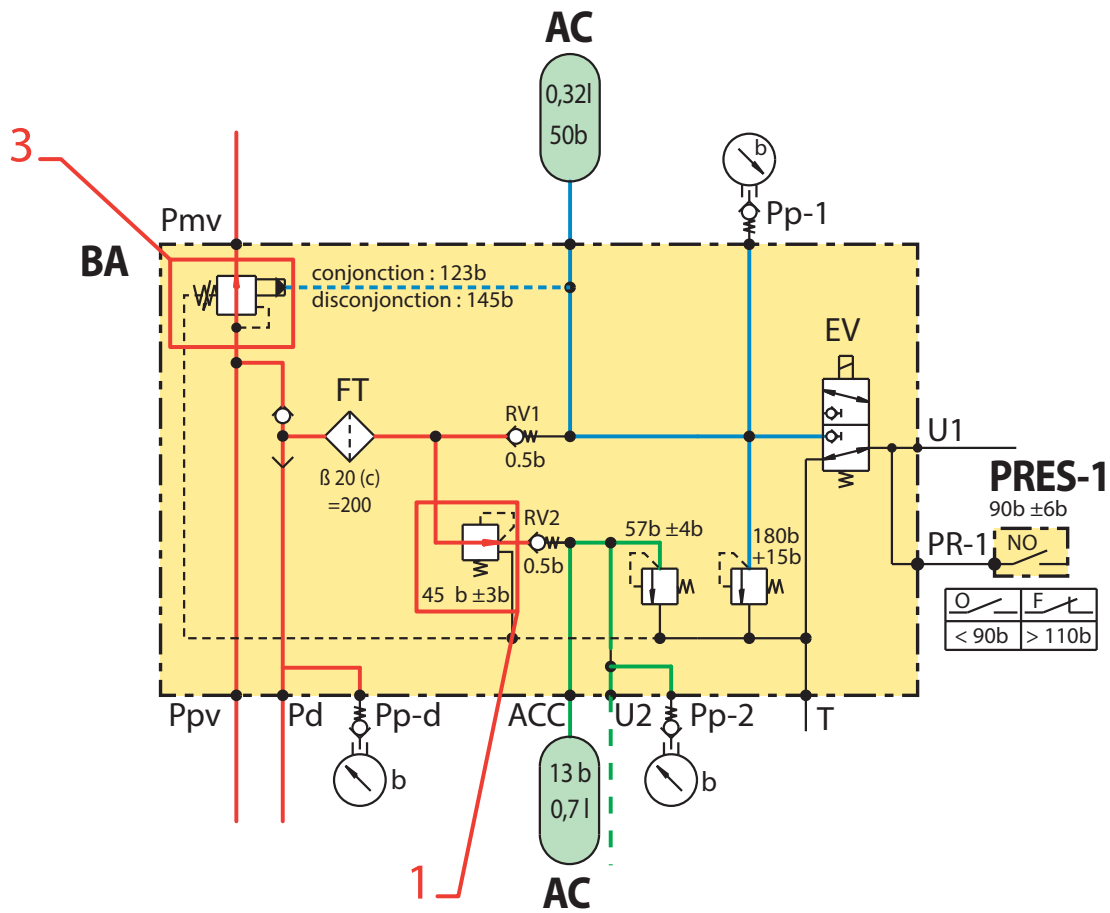
Insert the "cylinder + channel" assembly into the telescope (Fig. C). Attach the clamp 1 with the nuts 2 and washers 3 (Fig. C) (tighten to the correct torque and if replacing the hose, follow the instructions, \triangleleft TIGHTENING TORQUE AND GREASING AREA).

Fig. C



Values for information purposes only

Operation



The flow of the pump comes in Ppv and Pd.

The priority valve (3) is normally closed, so the flow of oil is directed towards the accumulators by the pressure reducer (1).

Max. pressure in Pp2 = 45 b:

- Master cylinder assistance + distributor control.

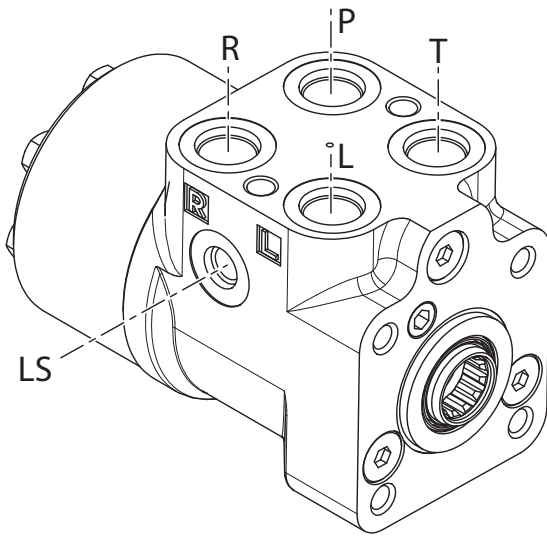
Max. pressure in Pp1 = 145 b:

- Parking brake.

When the pressure reaches 145 b in PP1, the valve will be controlled and will connect the ventilation pump to the ventilation motor. The flow of oil will power the fan.

LAGU 250/125 STEERING PUMP

Values for information purposes only



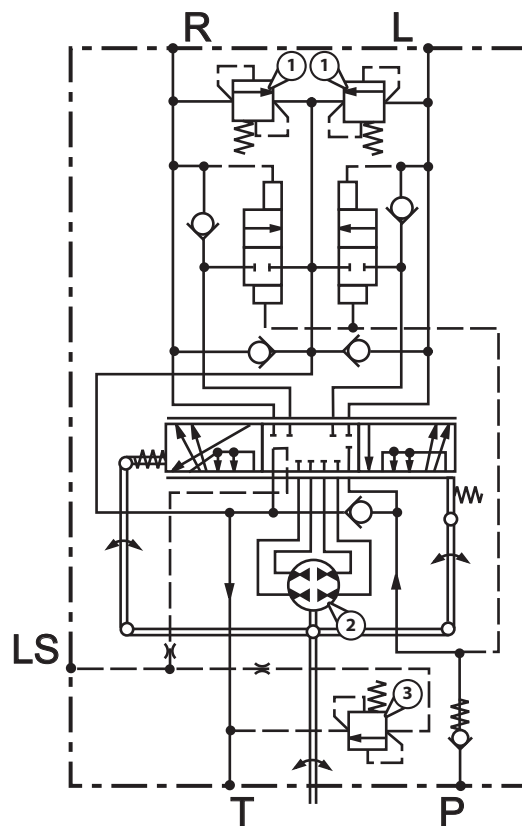
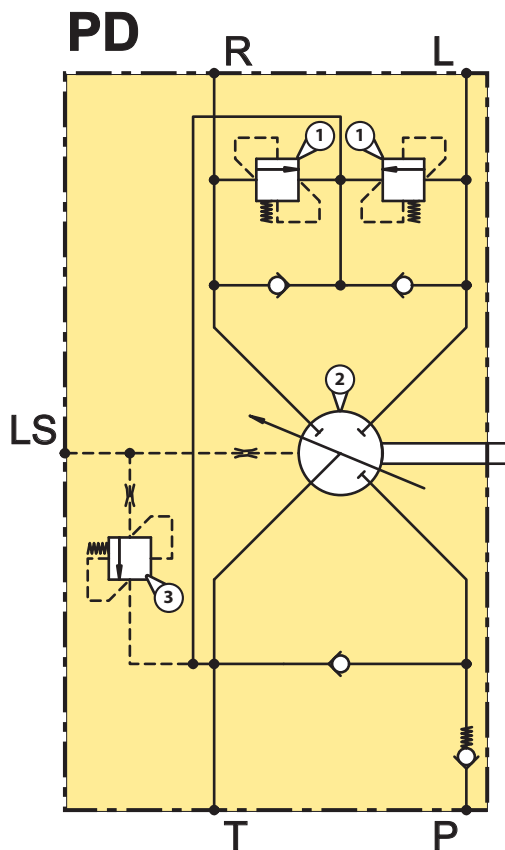
Role:

- Direct and dose the flow in order to supply the steering circuit.

Key:

- 1 - Anti-shock secondary relief valve.
- 2 - Distributor pump.
- 3 - Main pressure relief valve.

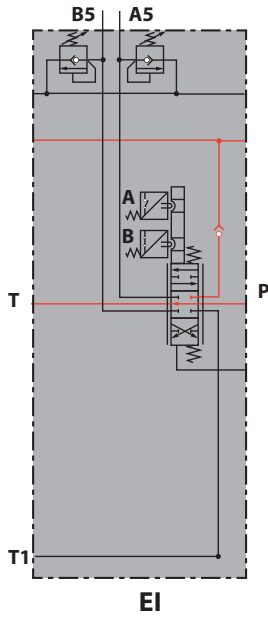
- P : Pressure.
- T : Tank return.
- R : Outlet towards right side.
- L : Outlet towards left side.
- LS : Pilot line.



Detail schema

Note: _____

TILTING COMPONENT (EI)

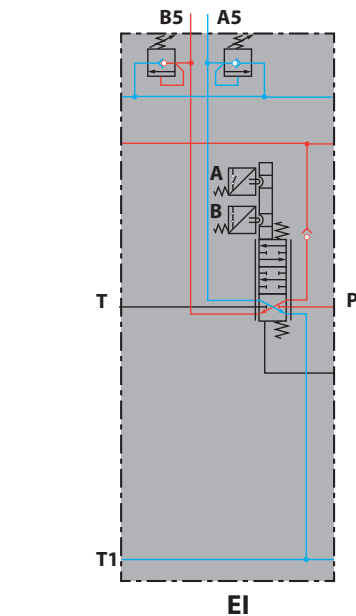
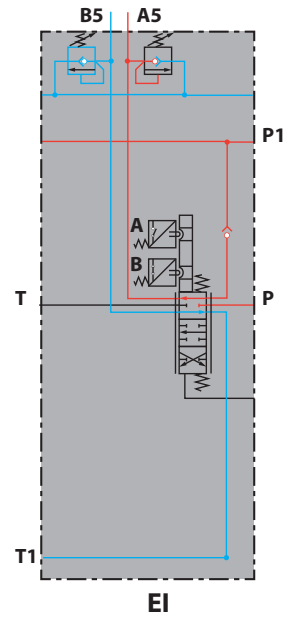


The slide is in the neutral position.

The flow passes through the spool and returns to the tank.

The slide moves downwards following operator action.

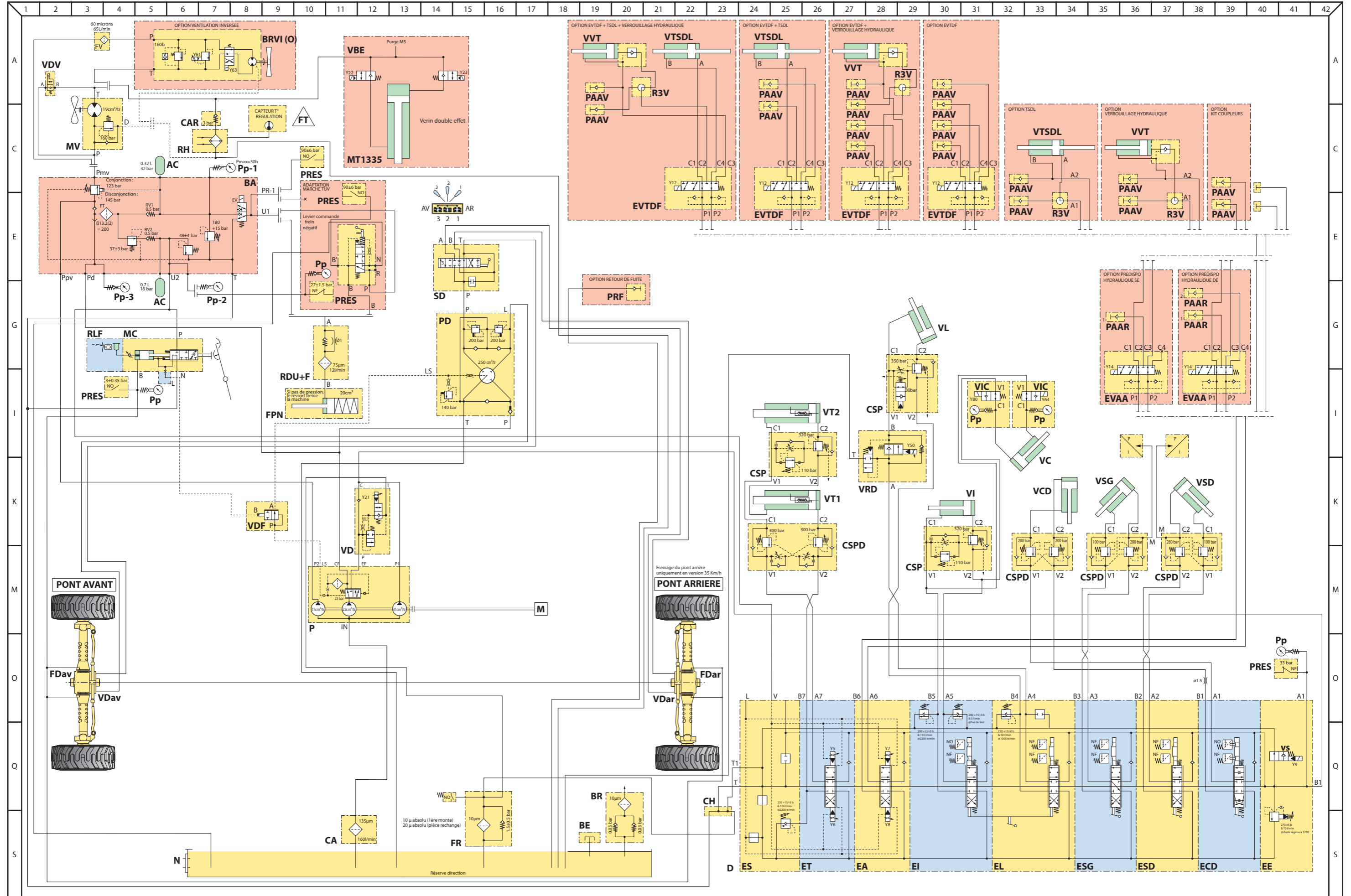
The flow is directed to A5 and the pressure on the tilting movement increases.



The slide moves upwards following operator action.

The flow is directed to B5 and the pressure on the tilting movement increases.

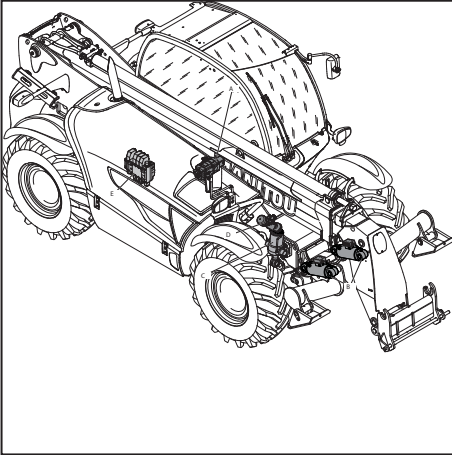
70.2.2 MT 1135 + 1335



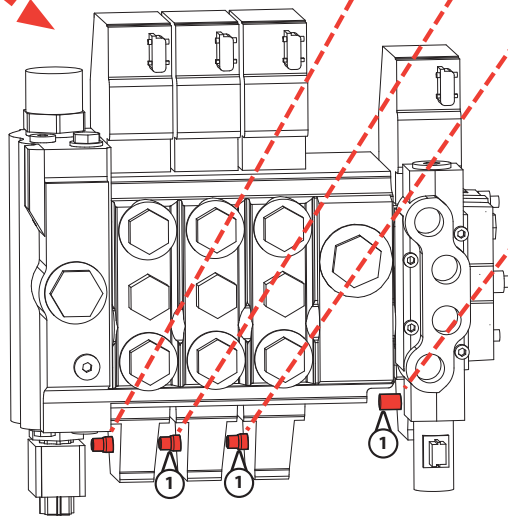
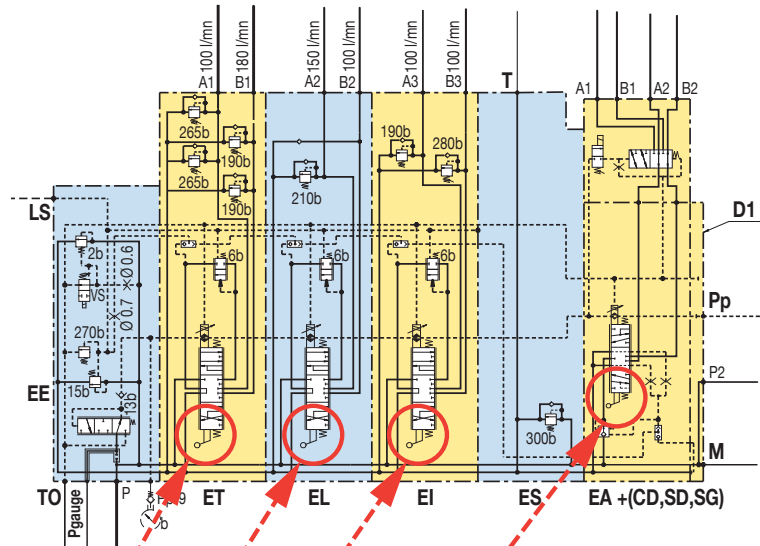
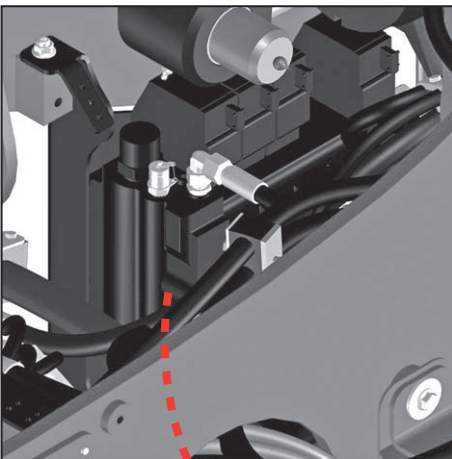
70.4.6 COUNTERBALANCE VALVE TEST PROCEDURE (MT 1135/1335 HA)

The aim of this procedure is to test the load holding capacity of the counterbalance valves for the lifting, tilting, telescope, stabiliser and levelling cylinders.

PREPARATION



Raise the boom (A) to access mechanical controls (Item 1) of the electro-proportional hydraulic distributor (B).



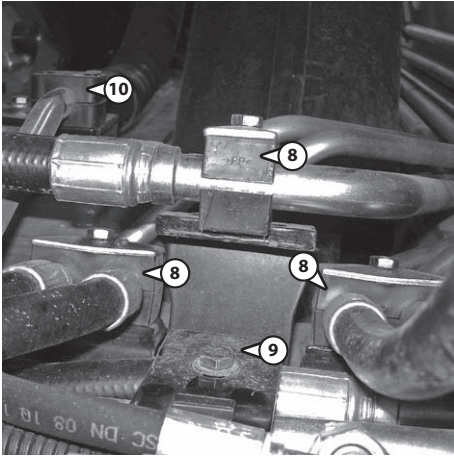
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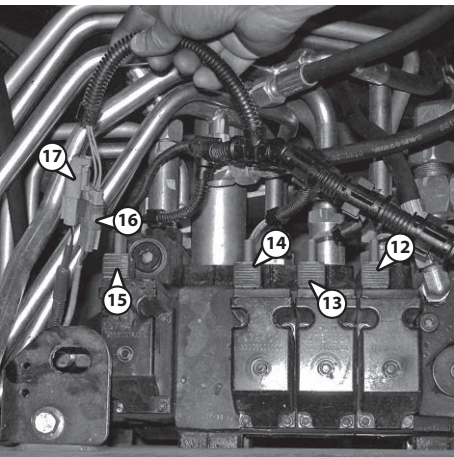
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Remove the flanges (Item 8) and the support (Item 9).

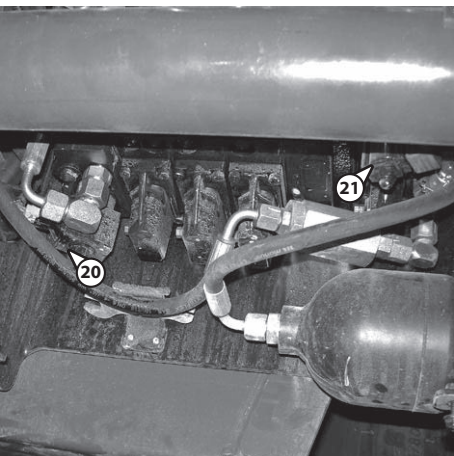
Remove the flanges (Item 10).



Disconnect connectors X156 (Item 12), X157 (Item 13), X158 (Item 14), X159 (Item 15), X66 (Item 16) and X191 (Item 17).



Remove the protective guard (Item 18).



Disconnect connectors X75 (Item 20) and X161 (Item 21).

CONTENTS

80.1	CHARACTERISTICS AND SPECIFICATIONS	225
80.1.1	FUSES AND RELAYS	225
	<i>IN THE CAB</i>	225
	<i>IN THE ENGINE HOUSING</i>	228
80.1.2	ECU INPUTS/OUTPUTS	230
	HARMONY SCREEN	230
	MT 1135 / 1335	231
	MT 1135 / 1335 H	236
	MT 1135 / 1335 HA	241
	ENGINE ECU	247
80.1.3	TECHNICAL SHEETS FOR ELECTRICAL COMPONENTS	252
	X1/X2 - STARTER IGNITION SWITCH	252
	X6 - ROTATING BEACON LIGHT	252
	X20 - AIR FILTER CLOGGING SWITCH	253
	X24 - LIGHTING STALK	254
	X38 - REVERSE GEAR WARNING	254
	X39 - AUDIBLE ALARM	255
	X41 / X42 - DSB DASHBOARD	256
	X45 / X52 - NC DOOR OPENING SWITCH	257
	X46 / X47 - CIGARETTE LIGHTER	257
	X53 / X54 - H PUMP + H MOTOR ELECTROVALVE	258
	X57 - TRANSMISSION OIL PRESSURE SWITCH	258
	X58 - TRANSMISSION OIL THERMOCONTACT	259
	X61 - WATER IN FUEL FILTER SENSOR	259
	X62 - TRANSMISSION SPEED SENSOR	260
	X63 - FUEL LEVEL GAUGE	260
	X67 / X74 / X98 - JSM	261
	X76 - MECH DISTRIBUTOR PRESSURE SWITCH CONTACT	262
	X98 - SEE X67 / X74 / X98 - JSM	262
	X100 - BOOM ANGLE SENSOR	263
	X116 / X117 - DSB RIGHT CONSOLE AND FUSE BOX	264
	X134 - BOOM RETRACTED SWITCH	265
	X138 - EMERGENCY STOP	265
	X144 / X145 - 1 OR 2 SPEED ELECTROVALVE (EVCV)	266
	X147 - FORWARD OR REVERSE ELECTROVALVE	266



MT 1135 / 1335

X112 - MAIN ECU (MT 1135 / 1335)

Key:

APC: Power supply after contact

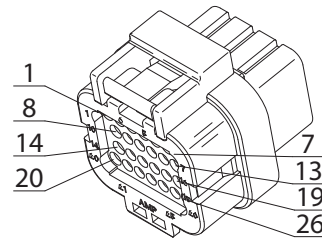
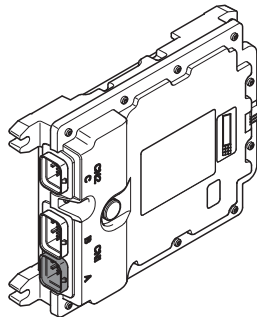
+BAT: Fixed power supply

GND: Ground

NO: Normally Open

NC: Normally Closed

S.P.U.: Safety Power Unit



Pin N°	Type	Active state	Function on truck	Comments
1	Analogue input	0 to 12 V		
2	Proportional output	0 to 12 V	Ventilation control	
3	Logic output	GND	Boom head electrovalve	
4	Logic output	GND	Rear axle blocking	
5	Logic output	GND	Safety valve ground	
6	Logic output	GND	VS ground	
7	Power supply	+BAT	ECU power supply	
8	Logic input	APC	Pressure button 1 - JSM	
9	Logic input	GND	Boom lowering contact	
10	Logic input	GND	Emergency stop info	
11	Logic input	GND	Tilt contact 2	
12	Analogue input	0 to 5 V	Track 1 angle sensor - boom	
13	ECU wake-up input	APC	Power supply 12 V after contact	
14	Proportional output	0 to 12 V	Front attachment electrovalve minus direction (outlet B)	
15	Logic input	APC	Speed sensor - mechanical gearbox	
16	Logic input	GND	Safety valve pressure switch	
17	Logic input	GND	Forward gear pressure switch info - mechanical gearbox	
18	Logic input	APC		
19	Power supply	5 V	Forward and reverse gear pressure sensor - mechanical	
20	Ground	GND	Sensors on ECU grounds	
21	Power supply	10 V	Strain gauge supply	
22	Logic input	GND	NC telescope retracted contact	
23	Logic input	GND	Contact left stabilizer mount +	
24	Logic input	APC	Transmission cut-off - gear lever	
25	Logic input	APC	Forward gear - FNR switch on JSM	
26	Ground	GND	Ground	

MT 1135 / 1335 HA

X112 - MAIN ECU (MT 1135 / 1335 HA)

Key:

APC: Power supply after contact

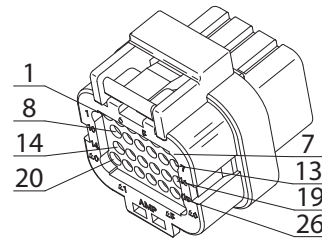
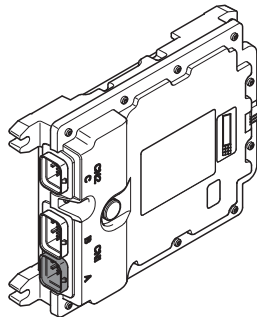
+BAT: Fixed power supply

GND: Ground

NO: Normally Open

NC: Normally Closed

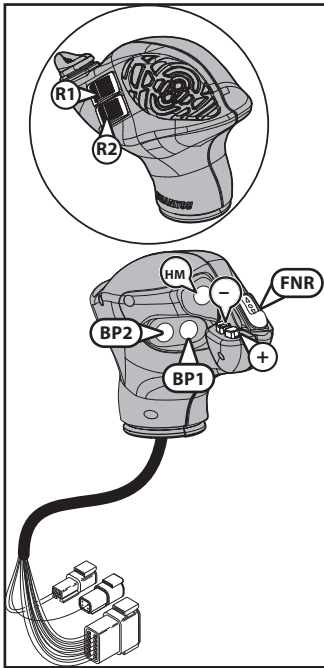
S.P.U.: Safety Power Unit



Pin N°	Type	Active state	Function on truck	Comments
1	Analogue input	0 to 12 V		
2	Proportional output	0 to 12 V	Ventilation control	
3	Logic output	GND	Boom head electrovalve	
4	Logic output	GND	Rear axle blocking	
5	Logic output	GND	Pvg lifting head power	
6	Logic output	GND		
7	Power supply	+BAT	ECU power supply	
8	Logic input	APC	Pressure button 1 - JSM	
9	Analogue input	0 to 5 V	Boom lowering Joystick P1 - BMEP	
10	Logic input	GND	Emergency stop info	
11	Analogue input	0 to 5 V	Tilting Joystick P2 - BMEP	
12	Analogue input	0 to 5 V	Track 1 angle sensor - boom	
13	ECU wake-up input	APC	Power supply 12 V after contact	
14	Proportional output	0 to 12 V	Telescope PVG head power supply	
15	Logic input	APC	Speed sensor - gearbox	
16	Logic input	GND	Safety valve pressure switch	
17	Logic input	GND		
18	Logic input	APC	Button + on JSM	
19	Power supply	5 V	Joystick power supply - BMEP	
20	Ground	GND	Sensors on ECU grounds	
21	Power supply	10 V	Strain gauge supply	
22	Logic input	GND	NC telescope retracted contact	
23	Logic input	GND	Contact overload MEWP platform	
24	Logic input	APC	Button - on JSM	
25	Logic input	APC	Forward gear - FNR switch on JSM	
26	Ground	GND	Ground	

X67 / X74 / X98 - JSM

(Joystick Switch and Move)

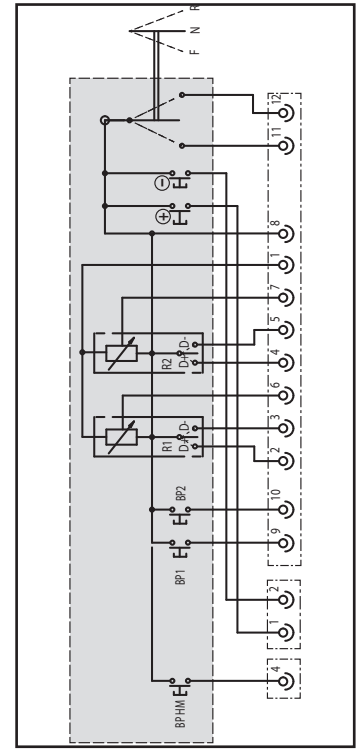


PIN	Function
1*	Power supply or Ground
2	Roller 1 direction A (+)
3	Roller 1 direction B (-)
4	Roller 2 direction A (+)
5	Roller 2 direction B (-)
6	Signal Roller 1
7	Signal Roller 2
8*	Power supply or Ground
9	BP1
10	BP2 Option
11	Forward gear
12	Reverse gear

PIN	Function
1	Speed +
2	Speed -

PIN	Function
4	Dead man button

Corresponding connectors



Diagram

12-way connector		PIN	Min.	Typical	Max.
Potentiometers under 5 V (10% to 90%)	Current ± 10%			1 mA	2 mA
	Supply voltage **	1 or 8		5 V	
	Output voltage	6-7	0.5 V	2.5 V	4.5 V
2-3-4-5			0 V	5 V	
Potentiometer under 12 V (25% to 75%)	Current ± 10%			1 mA	2 mA
	Supply voltage **	1 or 8		12 V	
	Output voltage	6-7	3 V	6 V	9 V
2-3-4-5			0 V	12 V	

2-way connector		PIN	Min.	Max.
Output voltage	1		0 V	5 or 12 V
	2		0 V	5 or 12 V

4-way connector		PIN	Min.	Max.
Output voltage	4		0 V	5 or 12 V

Remarks:

* Depending on the machine range, pins 1 and 8 may be a ground or a power supply connection. Determine which option applies ◀ Group 80 - Electrical schematic diagrams - Electrical diagrams by function.

** Depending on the machine range the supply voltage may be either 5 V or 12 V. Check on the power supply pin.

80.2.2 MARKING OF CABLES ON A WIRING HARNESS

The electrical harnesses installed on the truck are composed of connectors. In order to identify the connectors and their wires, each wire carried a marking.

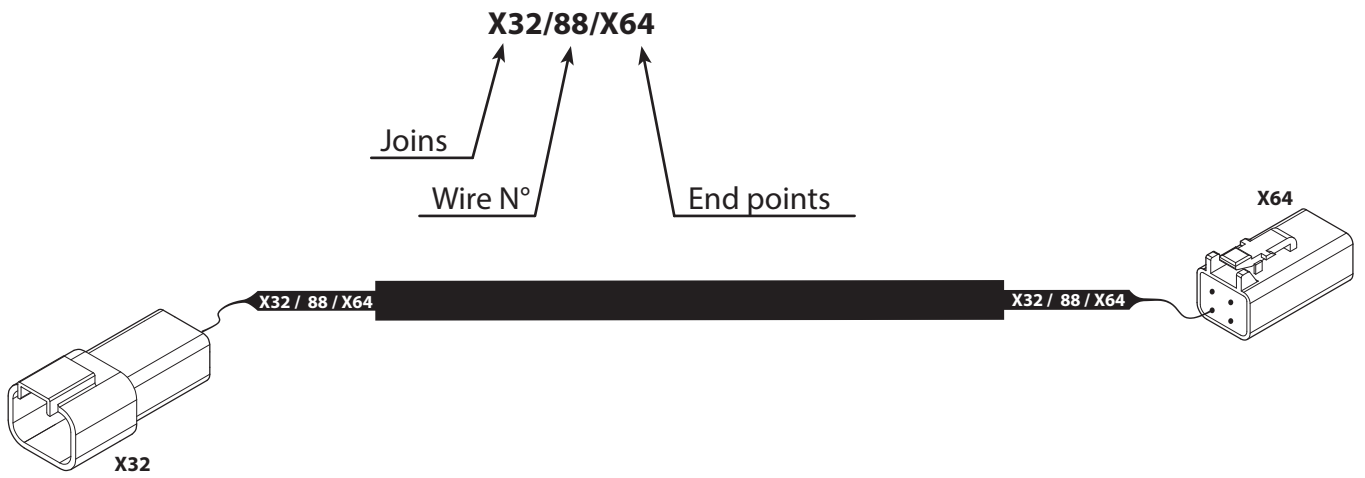


Diagram 3 - TRANSMISSION (MT 1135 & 1335)

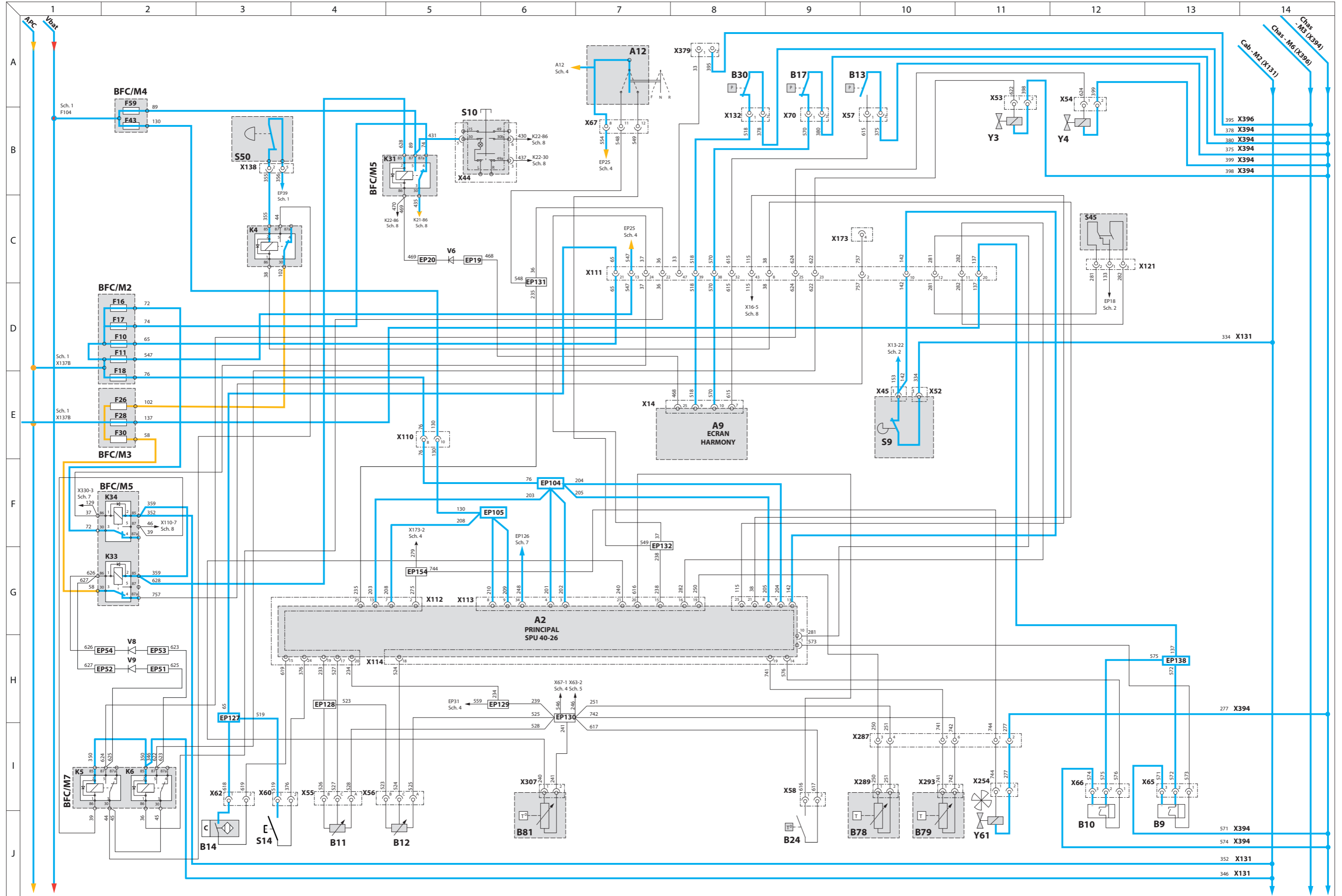


Diagram 8 - Lights and signalling (MT 1135 & 1335)

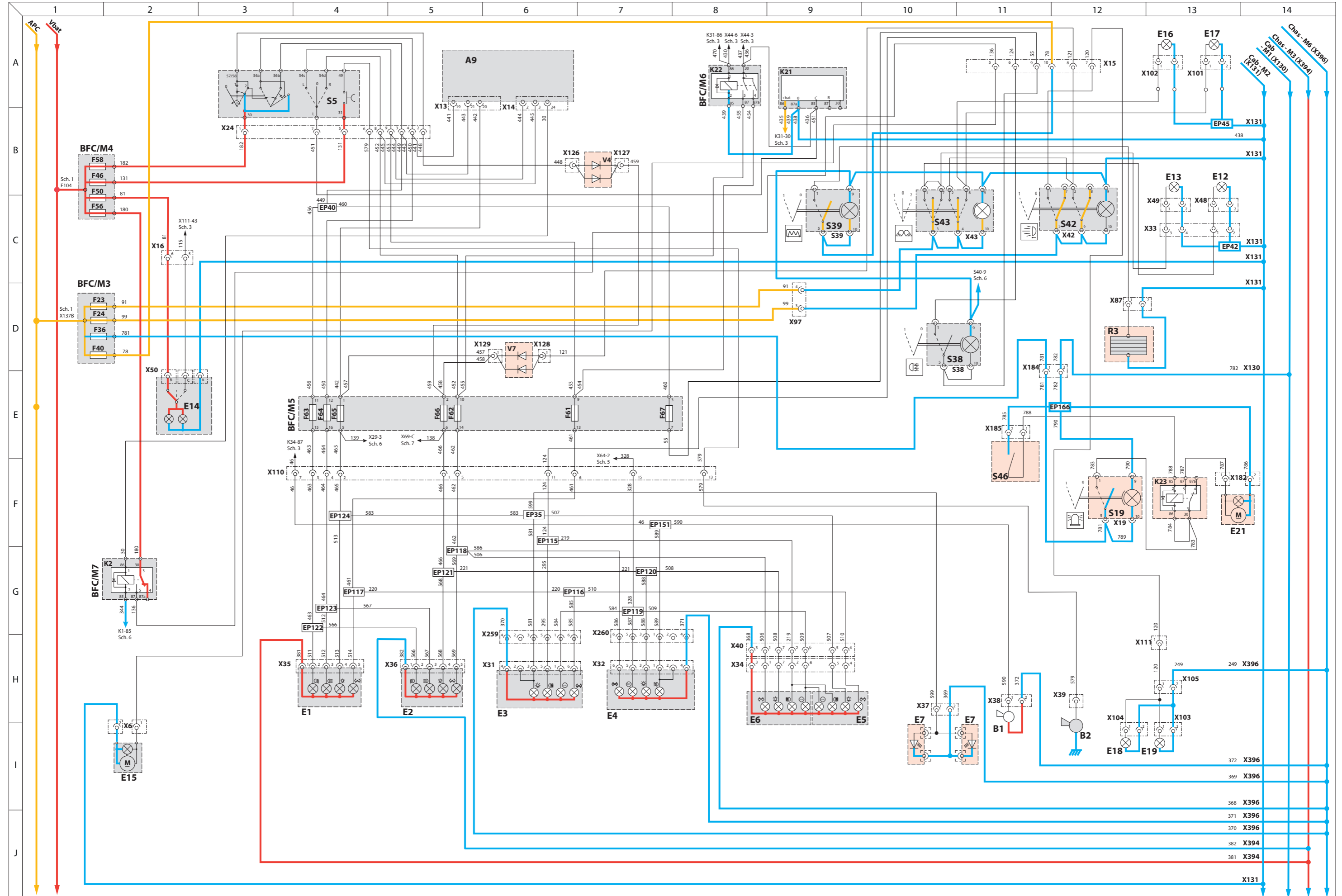


Diagram 8 - Lights and signalling (MT 1135 & 1335 H)

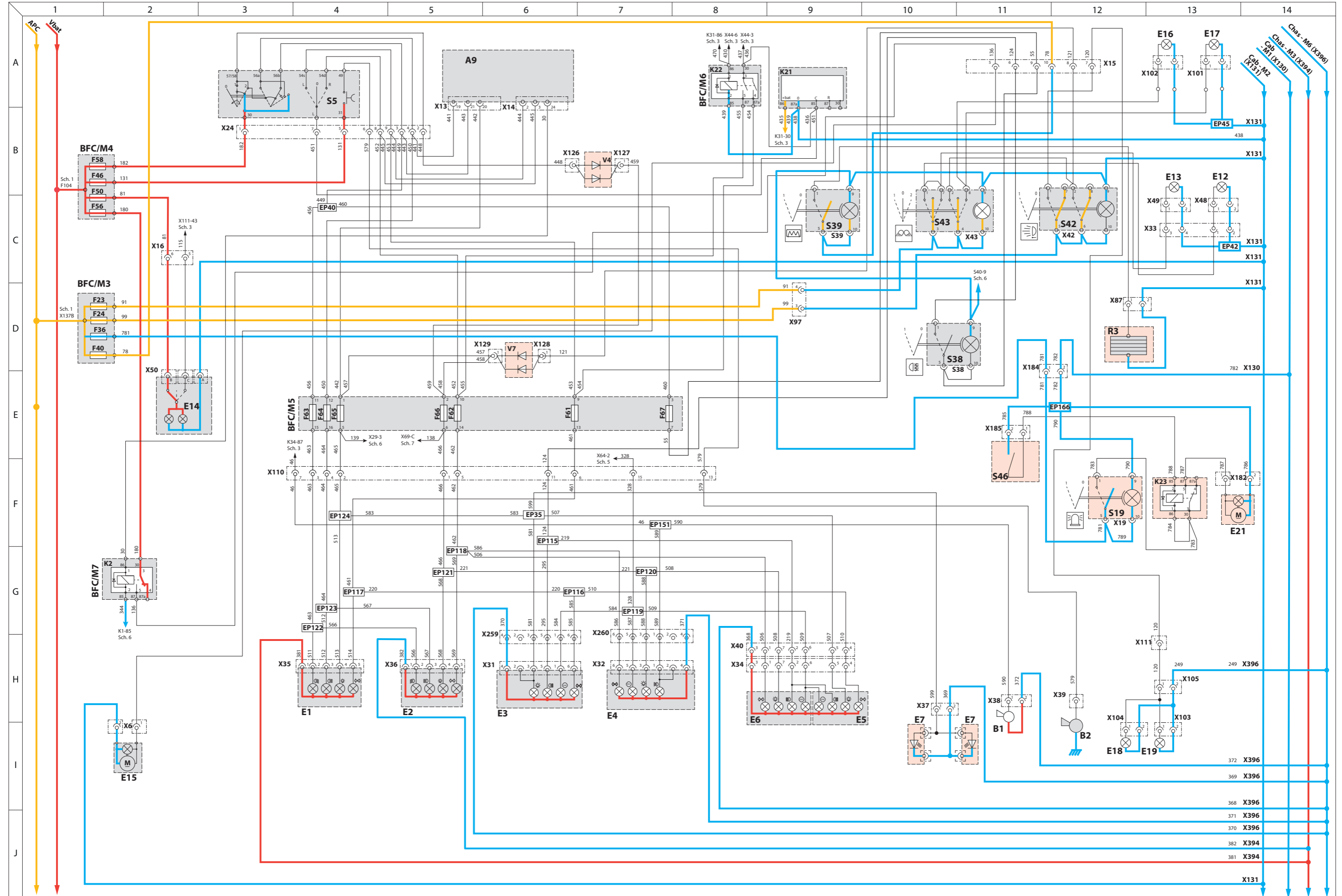


Diagram 3 - TRANSMISSION (MT 1135 & 1335 HA)

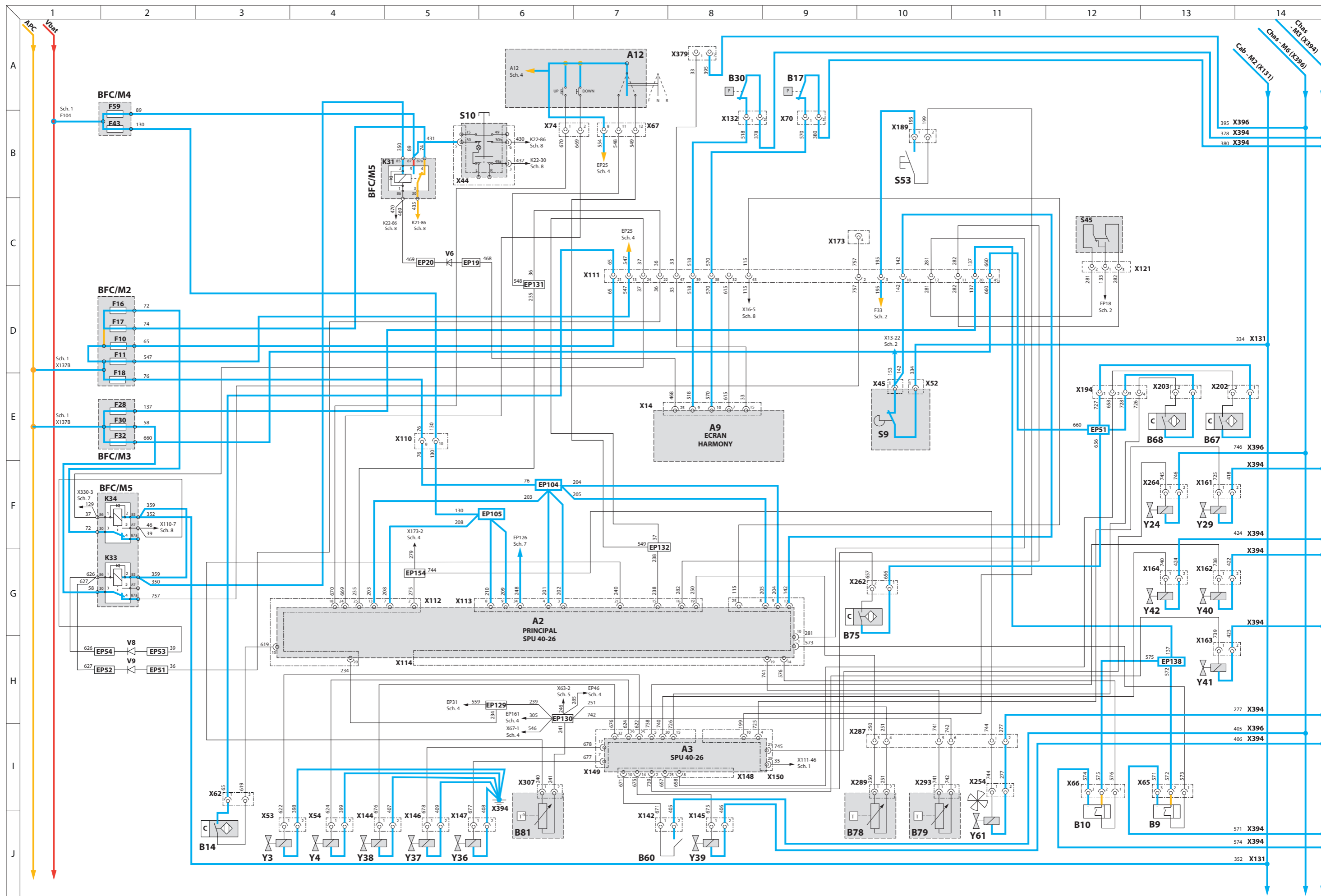
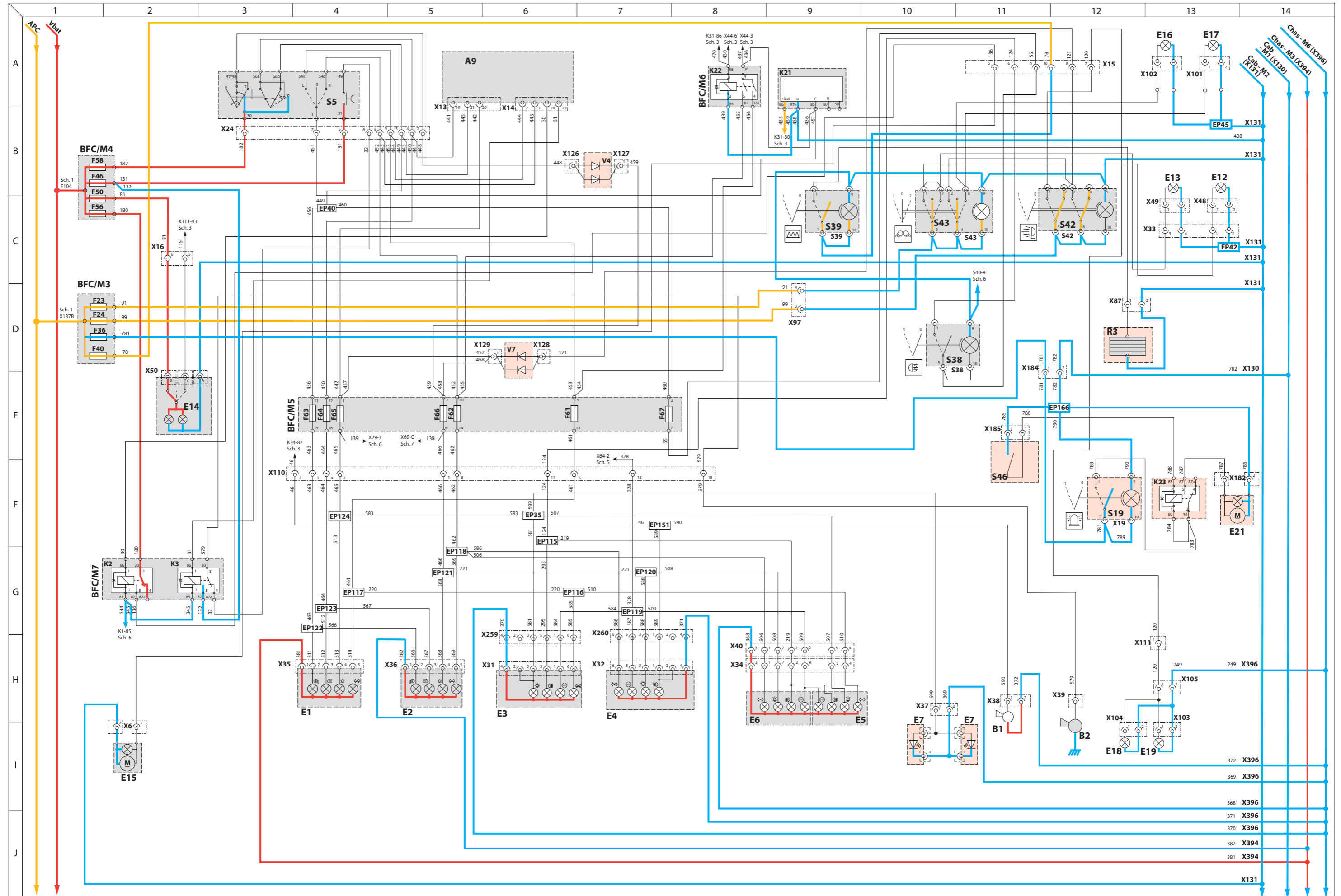
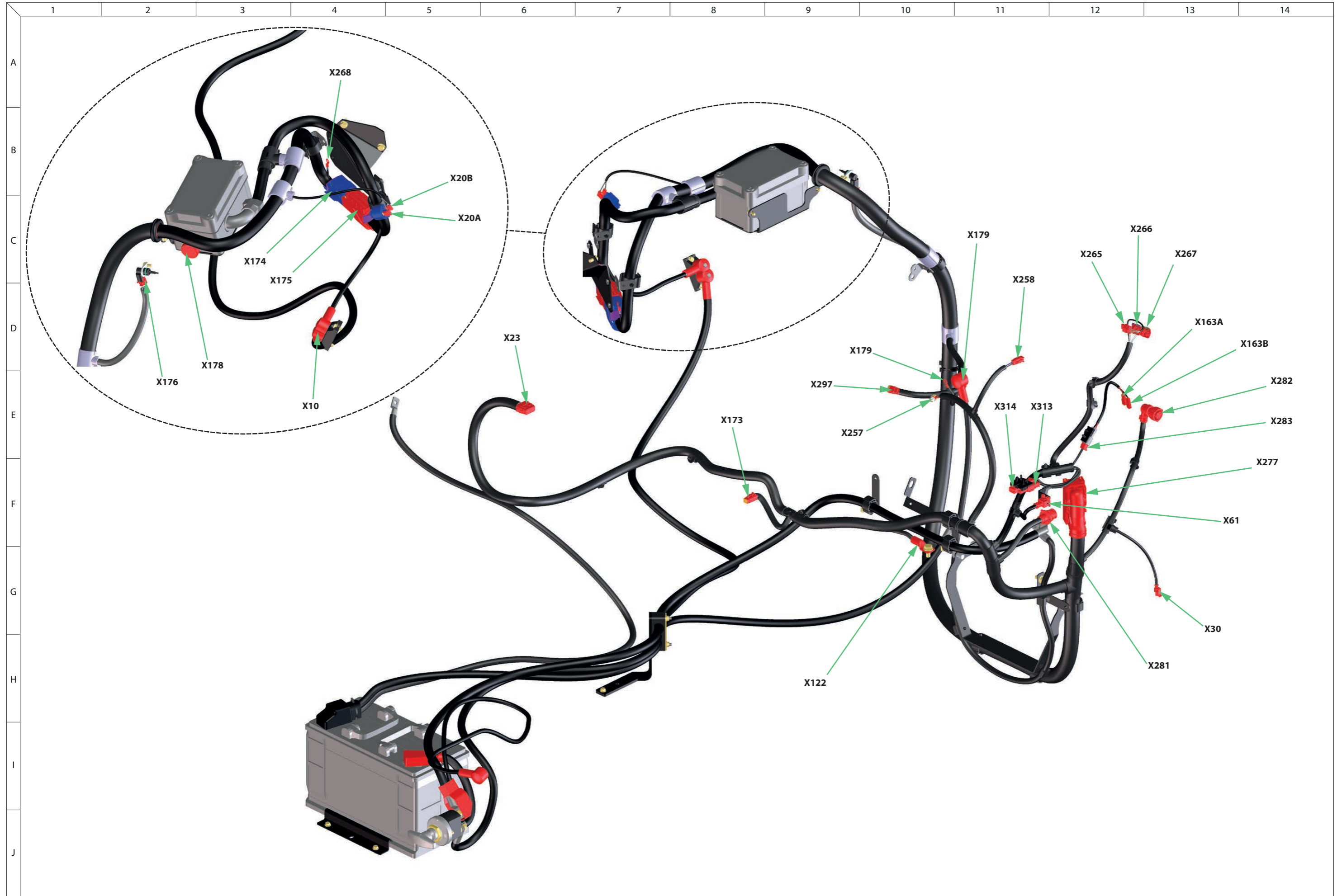


Diagram 8 - Lights and signalling (MT 1135 & 1335 HA)

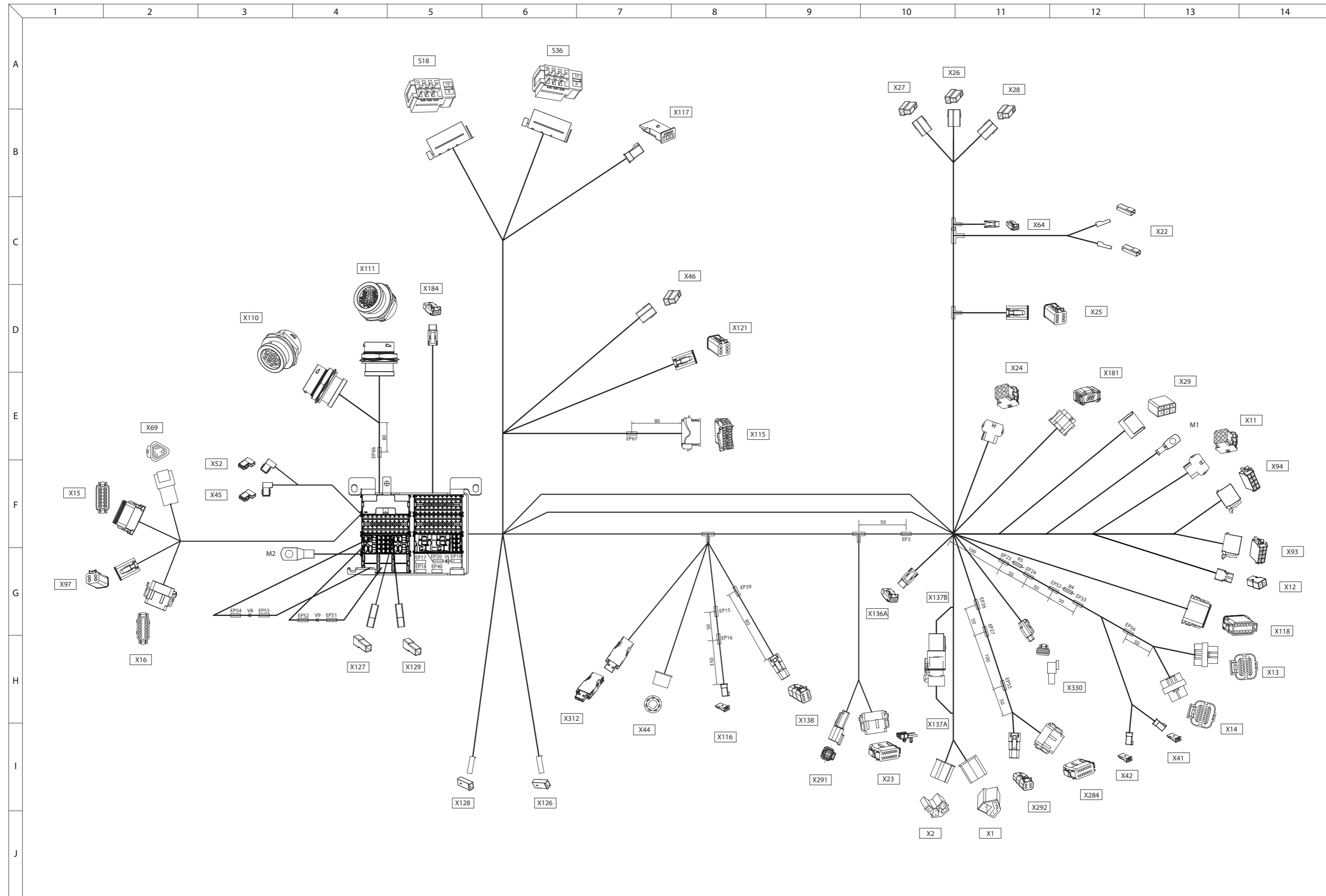


Item	Designation	Distributor	Frame	Engine	Cab
X146	SNAIL SPEED EV				
X147	MOTION DIRECTION EV				
X148	AUXILIARY ECU CN1-A				
X149	AUXILIARY ECU CN1-B				
X150	AUXILIARY ECU CN2-C				
X152	BMEP				
X156	TELESCOPING PROPORTIONAL EV				
X157	LIFTING PROPORTIONAL EV				
X158	TILTING PROPORTIONAL EV				
X159	AUXILIARY PROPORTIONAL EV				
X161	DEFLECTOR/VALVE BANK EV				
X162	RIGHT STABILISER DEFLECTOR				
X163	LEFT STABILISER DEFLECTOR				
X164	LEVELLING DEFLECTOR				
X173	ENGINE CAN/FRAME CONNECTION		I6	I1	
X174	ENGINE ECU			C13	
X175	ENGINE ECU			B14	
X176	AMBIENT TEMPERATURE SENSOR			E8	
X178	DIAGNOSTICS PLUG			B8	
X179	D+ ALTERNATOR CONNECTION			E7	
X181	ACCELERATOR PEDAL SENSOR				E12
X184	GREEN ROTATING BEACON LIGHT (UK)				D5
X188	DISCHARGE VALVE		E7		
X189	RESCUE PUSHBUTTON				
X191	REAR AXLE LOCK VALVE CONNECTION		E6		
X192	ARMREST DSB INTERFACE				
X194	BOOM INTERMEDIATE SENSORS				
X195	ORH RETRACTOR PLUG				
X196	RC UNIT CHARGER				
X197	RC RECEIVER				
X198	ACCESS TILT METER				
X199	RESCUE KEY				
X252	COMPENSATION ISOLATION		C7		
X255A	SENSOR ON DISTRIBUTOR LINK	E2			
X255	SENSOR ON DISTRIBUTOR LINK		I12		
X256	COMPENSATION ISOLATION		A8		
X257	GLOW PLUGS POWER SUPPLY			H1	
X258	MIN RADIATOR WATER LEVEL SENSOR			F2	
X259	LEFT REAR LIGHT		E2		
X260	RIGHT REAR LIGHT		B4		
X262	BOOM RETRACTION SPEED SENSOR				
X263	STRAIN GAUGE		B9		
X264	FLOW RATE CONTROL VALVE		B6		
X265	DPF PRESSURE SENSOR			E4	
X266	EXHAUST TEMP BEFORE CATA SENSOR			D5	
X267	EXHAUST TEMP AFTER CATA SENSOR			E6	
X268	ENGINE ECU			D11	
X277	TRUCK ENGINE CONNECTION			C2	
X281	DIESEL FILTER PRESSURE SENSOR EXTENSION/ ENGINE			E1	
X282	DIESEL FILTER PRESSURE SENSOR EXTENSION/ FILTER			A4	
X283	DIESEL PUMP			H7	
X284	EASY MANAGER				I12
X287	FAN CONTROL OPTION		I6		
X291	EASY MANAGER/BAT +/- ADDITIONAL HARNESS OPTION INTERFACE				J9
X292	EASY MANAGER/ENGINE IMMOB ADDITIONAL HARNESS OPTION INTERFACE				I11
X300	STAB ROCKER CONNECTION				
X302	AUXILIARY SPU OPTION		C12		
X303	BATTERY DIRECT GROUND		E12		
X306	EASY CONNECT SYSTEM SWITCH CONNECTION		I4		

ENGINE 3D LOCATION MT 1135 & 1335 H

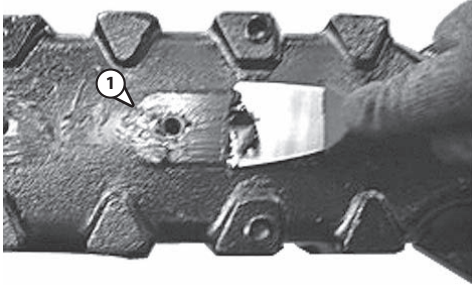


CAB 2D LOCATION MT 1135 & 1335 H



Item	Designation	Engine	Cab	Frame
X149	AUXILIARY ECU CN1-B			A12
X150	AUXILIARY ECU CN2-C			B12
X152	BMEP			G12
X156	TELESCOPING PROPORTIONAL EV			E7
X157	LIFTING PROPORTIONAL EV			E7
X158	TILTING PROPORTIONAL EV			E6
X159	AUXILIARY PROPORTIONAL EV			E5
X161	DEFLECTOR/VALVE BANK EV			F4
X162	RIGHT STABILISER DEFLECTOR			I9
X163	LEFT STABILISER DEFLECTOR			J10
X164	LEVELLING DEFLECTOR			I9
X173	ENGINE CAN/FRAME CONNECTION	I1		I8
X174	ENGINE ECU	C13		
X175	ENGINE ECU	B14		
X176	AMBIENT TEMPERATURE SENSOR	E8		
X178	DIAGNOSTICS PLUG	B8		
X179	D+ ALTERNATOR CONNECTION	E7		
X181	ACCELERATOR PEDAL SENSOR		E12	
X184	GREEN ROTATING BEACON LIGHT (UK)		D5	
X188	DISCHARGE VALVE			F10
X189	RESCUE PUSHBUTTON		A6	G12
X191	REAR AXLE LOCK VALVE CONNECTION			G6
X192	ARMREST DSB INTERFACE		H9	
X194	BOOM INTERMEDIATE SENSORS			C4
X195	ORH RETRACTOR PLUG			E2
X196	RC UNIT CHARGER		C10	
X197	RC RECEIVER		C10	
X198	ACCESS TILT METER		A9	
X199	RESCUE KEY		A7	
X252	COMPENSATION ISOLATION			D7
X255A	SENSOR ON DISTRIBUTOR LINK			
X255	SENSOR ON DISTRIBUTOR LINK			
X256	COMPENSATION ISOLATION			B8
X257	GLOW PLUGS POWER SUPPLY	H1		
X258	MIN RADIATOR WATER LEVEL SENSOR	F2		
X259	LEFT REAR LIGHT			F1
X260	RIGHT REAR LIGHT			C4
X262	BOOM RETRACTION SPEED SENSOR			C4
X263	STRAIN GAUGE			C8
X264	FLOW RATE CONTROL VALVE			C6
X265	DPF PRESSURE SENSOR	E4		
X266	EXHAUST TEMP BEFORE CATA SENSOR	D5		
X267	EXHAUST TEMP AFTER CATA SENSOR	E6		
X268	ENGINE ECU	D11		
X277	TRUCK ENGINE CONNECTION	C2		
X281	DIESEL FILTER PRESSURE SENSOR EXTENSION/ ENGINE	E1		
X282	DIESEL FILTER PRESSURE SENSOR EXTENSION/ FILTER	A4		
X283	DIESEL PUMP	H7		
X284	EASY MANAGER		I12	
X287	FAN CONTROL OPTION			I7
X291	EASY MANAGER/BAT +/- ADDITIONAL HARNESS OPTION INTERFACE		J9	
X292	EASY MANAGER/ENGINE IMMOB ADDITIONAL HARNESS OPTION INTERFACE		I11	
X300	STAB ROCKER CONNECTION			J12
X302	AUXILIARY SPU OPTION			
X303	BATTERY DIRECT GROUND			F12
X306	EASY CONNECT SYSTEM SWITCH CONNECTION			I4
X307	EXTERNAL TEMPERATURE SENSOR			I5
X311	DISTRIB SAFETY VALVE PRESSURE SWITCH VS			E5
X312	USB SOCKET		I8	
X313	DIESEL THINNER CONNECTION	G7		

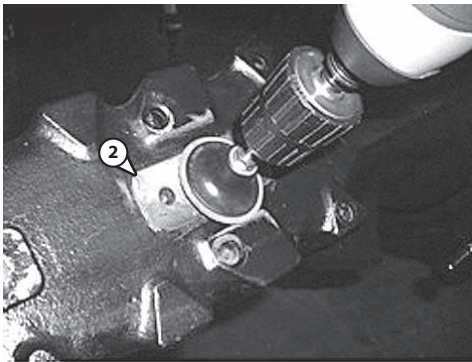
AXLE PREPARATION



The area in contact with the strain gauge (Item 1) is covered with a protective painted coating.

1 - Scrape this surface with a spatula.

2 - If there are any remaining traces of adhesive, use Soft Surface Cleaner Degreaser (aerosol).



3 - Sand the area to be glued to roughen the surface and achieve a good bond (Item 2).



CHARACTERISTICS OF PRODUCTS USED

	Part nos.
ACROBOND PU 284/30 (two-part polyurethane structural adhesive).....	273504
Mixer	781596
Hand gun.....	781597

Handling time before start of polymerization and hardening phase is approx. 5 min.

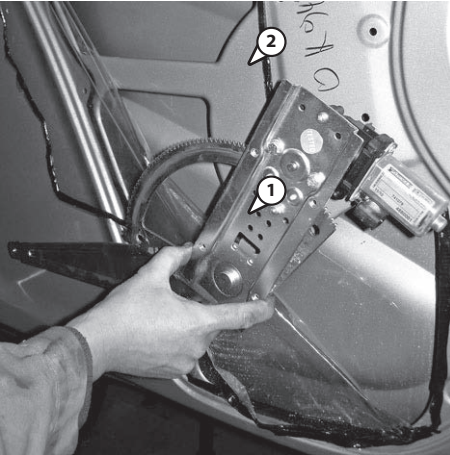
! *If the product stays inside the mixer for more than 5 minutes, replace the mixer.*

DTC Engine Control Unit EDC17CV52					
Hexadecimal		Decimal		KWP Code	Description
SPN	FMI	SPN	FMI		
4766	3	0129E	03	1402	"Sensor error exhaust gas temperature downstream (DOC); signal range check high."
4766	4	0129E	04	1403	"Sensor error exhaust gas temperature downstream (DOC); signal range check low."
4766	15	0129E	0F	1401	Temperature downstream DOC, temperature above upper warning threshold.
4781	0	012AD	00	1088	DPF soot load exceeded warning level.
4781	14	012AD	0E	1087	DPF soot load exceeded shut off level.
4781	16	012AD	10	1089	Too much standstill time in short time interval.
5357	2	014ED	02	876	Diagnostic fault check to report the plausibility error between level 1 energizing time and level 2 information.
5357	2	014ED	02	878	Diagnostic fault check to report the error due to non plausibility in ZFC
5357	2	014ED	02	882	"Diagnosis fault check to report the error to demand for an ICO due to an error in total torque relevant quantity."
5357	2	014ED	02	883	Diagnostic fault check to report the error due to injection quantity correction.
5357	14	014ED	0E	1200	Shut-off due to undershoot of minimum rail pressure.
5358	5	014EE	05	816	Open load on the power stage of injection valve 0.
5358	6	014EE	06	824	Short circuit of the power stage low-side (cylinder error 0).
5358	6	014EE	06	830	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5359	5	014EF	05	817	Open load on the power stage of injection valve 1.
5359	6	014EF	06	825	Short circuit of the power stage low-side (cylinder error 1).
5359	6	014EF	06	831	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5360	5	014F0	05	818	Open load on the power stage of injection valve 2.
5360	6	014F0	06	826	Short circuit of the power stage low-side (cylinder error 2).
5360	6	014F0	06	832	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5361	5	014F1	05	819	Open load on the power stage of injection valve 3.
5361	6	014F1	06	827	Short circuit of the power stage low-side (cylinder error 3).
5361	6	014F1	06	833	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5362	5	014F2	05	820	Open load on the power stage of injection valve 4.
5362	6	014F2	06	828	Short circuit of the power stage low-side (cylinder error 4).
5362	6	014F2	06	834	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5363	5	014F3	05	821	Open load on the power stage of injection valve 5.
5363	6	014F3	06	829	Short circuit of the power stage low-side (cylinder error 5).
5363	6	014F3	06	835	Short circuit between high-side and low-side of the power stage (high-side non plausible error).
5441	2	01541	02	877	Diagnostic fault check to report the error due to plausibility between the injection begin v/s injection type.
5442	2	01542	02	884	Diagnostic fault check to report the plausibility error in rail pressure monitoring.
5571	0	015C3	00	1166	Open Pressure Relief Valve (PRV) was detected.
5571	2	015C3	02	1162	Pressure relief valve is forced to open, perform pressure increase.
5571	2	015C3	02	1163	Pressure Relief Valve (PRV) forced to open. Performed by pressure increase.
5571	2	015C3	02	1167	Unexpected opening of the pressure relief valve.
5571	2	015C3	02	1168	Successful PRV opening cannot be ensured.
5571	13	015C3	0D	1169	Averaged rail pressure after PRV opening is outside the expected tolerance range.
5571	15	015C3	0F	1165	Pressure Relief Valve (PRV) forced to open. Warning conditions.
5571	16	015C3	10	1161	The pressure relief valve (PRV) has reached the number of allowed activations.
5571	16	015C3	10	1164	Pressure Relief Valve (PRV) forced to open. Shutoff conditions.
5571	16	015C3	10	1170	Open time of Pressure Relief Valve (PRV) for wear out monitoring had exceeded.
5763	3	01683	03	582	EGR valve, short circuit to battery.
5763	4	01683	04	583	EGR valve, short circuit to ground.
5826	0	016C2	00	1235	NCD Inducement level 2 for EU.
5826	14	016C2	0E	1236	NCD Pretrigger for inducement level 2.
5826	15	016C2	0F	1233	NCD Inducement level 1 for EU.
7103	0	01BBF	00	1197	Maximum rail pressure exceeded.
7103	1	01BBF	01	1195	Rail pressure value is below minimum rail pressure threshold.
7103	2	01BBF	02	1198	Setpoint of metering unit in overrun mode not plausible.
7103	3	01BBF	03	855	Short circuit to battery on the high side power stage of MeUn.
7103	3	01BBF	03	856	Short circuit to battery on the low side power stage of MeUn.
7103	4	01BBF	04	857	Short circuit to ground on the high side power stage of MeUn.
7103	4	01BBF	04	858	Short circuit to ground on the low side power stage of MeUn.
7103	5	01BBF	05	854	Open load diagnosis of MeUn power stage.
7103	6	01BBF	06	859	"Short circuit between high side and low side power stage of MeUn."

Auxiliary ECU DTC - SPU 25-15 - SPU 46-26	
DTC No.	Designation
31-7F218.05	Safety valve ground fault (Pin A05). Open circuit detected.
31-7F219.01	Safety valve ground fault (Pin A06). SPU power supply problem (Ground).
31-7F219.03	Safety valve ground fault (Pin A06). Short to Batt+ detected.
31-7F219.04	Safety valve ground fault (Pin A06). Short to ground detected.
31-7F219.05	Safety valve ground fault (Pin A06). Open circuit detected.
31-7F21A.01	Inversion fan drive valve fault (Pin A04). SPU power supply problem (Ground).
31-7F21A.03	Inversion fan drive valve fault (Pin A04). Short to Batt+ detected.
31-7F21A.04	Inversion fan drive valve fault (Pin A04). Short to ground detected.
31-7F21A.05	Inversion fan drive valve fault (Pin A04). Open circuit detected.
31-7F21B.01	Boom suspension valve 1 fault (Pin A02). SPU power supply problem (VBatC: Pin B08 and B09).
31-7F21B.03	Boom suspension valve 1 fault (Pin A02). Short to Batt+ detected.
31-7F21B.04	Boom suspension valve 1 fault (Pin A02). Short to ground detected.
31-7F21B.05	Boom suspension valve 1 fault (Pin A02). Open circuit detected.
31-7F21C.01	Boom suspension valve 2 fault (Pin B30). SPU power supply problem (VBatD: Pin B03 and B04).
31-7F21C.03	Boom suspension valve 2 fault (Pin B30). Short to Batt+ detected.
31-7F21C.04	Boom suspension valve 2 fault (Pin B30). Short to ground detected.
31-7F21C.05	Boom suspension valve 2 fault (Pin B30). Open circuit detected.
31-7F21D.01	Levelling plus valve fault (Pin B25). SPU power supply problem (VBatC: Pin B08 and B09).
31-7F21D.03	Levelling plus valve fault (Pin B25). Short to Batt+ detected.
31-7F21D.04	Levelling plus valve fault (Pin B25). Short to ground detected.
31-7F21D.05	Levelling plus valve fault (Pin B25). Open circuit detected.
31-7F21E.01	Levelling minus valve fault (Pin B29). SPU power supply problem (VBatD: Pin B03 and B04).
31-7F21E.03	Levelling minus valve fault (Pin B29). Short to Batt+ detected.
31-7F21E.04	Levelling minus valve fault (Pin B29). Short to ground detected.
31-7F21E.05	Levelling minus valve fault (Pin C05). Open circuit detected.
31-7F21F.01	Service brake valve fault (Pin B33). SPU power supply problem (VBatC: Pin B08 and B09).
31-7F21F.03	Service brake valve fault (Pin B33). Short to Batt+ detected.
31-7F21F.04	Service brake valve fault (Pin B33). Short to ground detected.
31-7F21F.05	Service brake valve fault (Pin B33). Open circuit detected.
31-7F220.01	VP safety valve fault (Pin B17). SPU power supply problem (VBatD: Pin B03 and B04).
31-7F220.03	VP safety valve fault (Pin B17). Short to Batt+ detected.
31-7F220.04	VP safety valve fault (Pin B17). Short to ground detected.
31-7F221.01	FR/RR attachment deflector valve fault (Pin A05). SPU power supply problem (Ground).
31-7F221.03	FR/RR attachment deflector valve fault (Pin A05). Short to Batt+ detected.
31-7F221.04	FR/RR attachment deflector valve fault (Pin A05). Short to ground detected.
31-7F221.05	FR/RR attachment deflector valve fault (Pin A05). Open circuit detected.
31-7F222.01	FR/RR attachment deflector valve 2 fault (Pin A06). SPU power supply problem (Ground).
31-7F222.03	FR/RR attachment deflector valve 2 fault (Pin A06). Short to Batt+ detected.
31-7F222.04	FR/RR attachment deflector valve 2 fault (Pin A06). Short to ground detected.
31-7F222.05	FR/RR attachment deflector valve 2 fault (Pin A06). Open circuit detected.
31-7F301.09	CAN network fault. Bus error or bus off or CRC error or bus warning
31-7F302.09	CAN network fault. Communication lost with the engine ECU
31-7F303.09	CAN network fault. Communication lost with the platform console
31-7F304.09	CAN network fault. Communication lost with the radio control
31-7F501.03	5 V power supply fault (Pin A19). Short to Batt+ detected.
31-7F501.04	5 V power supply fault (Pin A19). Short to ground detected.
31-7F502.03	10 V power supply fault (Pin A21). Short to Batt+ detected.
31-7F502.04	10 V power supply fault (Pin A21). Short to Batt+ detected.
31-7F505.01	ECU power supply fault. Loss of VBattB power supply (Pin A01). SPU 25-15
31-7F507.01	ECU power supply fault. Loss of VBattC power supply (Pin B08 and B09)
31-7F508.01	Loss of controller power supply. Loss of VBattD (Pin B03 & B04)
31-7F509.01	ECU power supply fault. Loss of VBattE power supply (Pin C08 and C09). SPU 40-26
31-7F50A.00	Rocker power supply or ground fault. The 4 rocker analogue channels are less than 0.4 V.
31-7F515.05	SPU controller fault. Ground lost.
31-7F515.0B	SPU controller fault. Internal voltage out of range.
31-7F515.10	SPU ECU overcurrent fault. Total current > 25.5 A for 5 seconds.
31-7F615.00	SPU controller fault. Too high temperature reached (110°C) for 30 seconds.
31-7F615.06	SPU Fault, issue with SPI.
31-7F615.0B	SPU controller fault. Voltage converter ADC out of range or blocked.
31-7F615.0C	Internal controller fault. software error.
31-7F615.10	SPU controller fault. Over voltage detected.
31-7F701.02	ECU hardware part number incompatible with software version or options

85.1.3 ELECTRIC WINDOW AND ENGINE REFIT

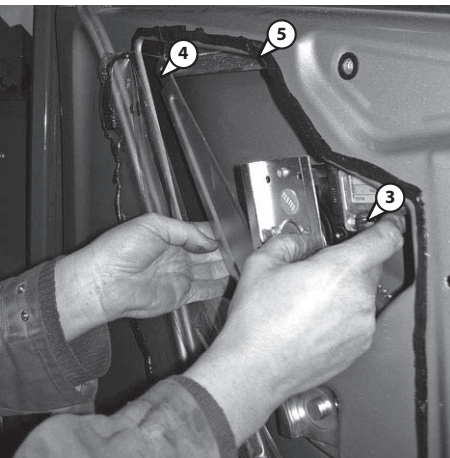
Slide the whole rack and pinion engine (Item 1) into the door (Item 2).



Connect the connector (Item 3).

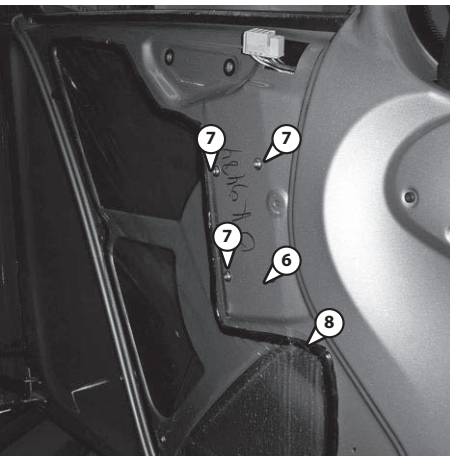
Insert the roller (Item 4) in the rail (Item 5).

Pivot the engine in the door.



Press the electric window engine against the bracket (Item 6) and mount it using the four screws (Item 7).

Re-stick the plastic film (Item 8) or change it, depending on its condition.



Check the condition of the door's interior trim clips (Item 9) before refitting it



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