Connectors	Diag. 1	Diag. 2	Diag. 3	Diag. 4	Diag. 5	Diag. 6	Diag. 7	Diag. 8
X200B	√							
X201	√	√		√	√	√		
X202								√
X203								√
X204						√		
X205						√		
X206						√		
X207						√		
X208						√		
X209						√		
X210								√
X211								√
X216				√				
X217				√				
X218				√				
X219				√				
X220				√				
X221				√				
X222				√				
X223				√				
X224				√				
X225				√				
X226				√				
X227				√				
X228				√				
X229				√				
X230				√				
X231				√				
X232				√				
X233				√				
X234				√				
X235A							√	
X235B							√	
X236							√	
X238							√	
X239A							√	
X239B							√	
X245					√			
X246					√			
X247					√			
X250				√				
X251				√				
X252				√				
X253				√				
X254				√				
X255						√		
X256				√				
X257				√				
X258				√				
X259				√				
X260				√				
X261				√				
X273				√				
X277	√				√			
X280								√
X281					√			
X282					√			
X283A	√							
X283B	√							
X284							√	
X286					√			
X900	√							

Connectors	Diag. 1	Diag. 2	Diag. 3	Diag. 4	Diag. 5	Diag. 6	Diag. 7	Diag. 8
X901	√							
X903	√							
X904	√							
X905	√							
X906	√							
X907					√			
X912	√							
X913					√			
X914					√			
X915	√							
X916					√			
X917	√							
X918	√							
X919	√							
X920	√							

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MLT (except for MLT 732)

KEY

Part No.	Designation	Position on diagram	Characteristics
AC	Accumulator	O27, G36	
BRVI	Fan reverse control unit Y42: Fan reversal EV Y43: Fan control EV	K10	
CA	Suction strainer	S16	125 µm absolute
CSP	Counterbalance valve	I31	
CR (O)	Trailer hook (option)	C17, C19, C26	
D	Distributor	Q39	
EA	Attachment element a (Y18): Proportional EV - direction b (Y17): Proportional EV + direction	Q33	
EA (O)	Attachment element (option)	Q29	
EE	Inlet element Y20: Hydraulic cut-off EV (VS)	Q25	
EF	Closing element	Q38	
EI	Tilting element	Q27	
EL	Lifting element b (Y19): Lowering proportional EV	Q35	
ET	Telescope element	Q31	
EVAA (O)	Rear attachment electrovalve (option)	C16, C18, C21, C23	
EVP (O)	Pilot electrovalve (option)	Q22	
EVTDF (O)	Telescope head electrovalve (option)	C37, C39	
EV (S1)	Electrovalve (solenoid 1)	G35	
EV (S2)	Electrovalve (solenoid 2)	I32	
FDAV	Front disc brake	I2	
FDAR	Rear disc brake	I22	
FEMS	EMS head filter	M39	
FR	Return filter	Q18	15 µm absolute
M	Engine	I17	◁ 10 - ENGINE
MA	Manipulator	O2,O40	
MC	Master cylinder	A3	
N	Level	S11	
REAR OPTION-1	Single-acting option (rear attachment plug)	C28	
REAR OPTION-2	Double-acting option (rear attachment plug)	C27	
REAR OPTION-3	Hydraulic hook option (rear attachment plug)	C25	
REAR OPTION-4	Double + single rear predisposition option (rear attachment plug)	A23	
REAR OPTION-5	2 double rear predispositions option (rear attachment plug)	A20	
REAR OPTION-6	Towing hook + double rear predisposition option (rear attachment plug)	A18	
REAR OPTION-7	Towing hook + single rear predisposition option (rear attachment plug)	A15	
FRONT OPTION-1	Hydraulic locking option (front attachment connector)	C33	
FRONT OPTION-2	Telescope head electrovalve option (front attachment connector)	C36	
FRONT OPTION-3	Telescope head electrovalve and hydraulic locking option (front attachment connector)	A38	
P	Hydraulic pump	G13	
PCR	Cooling circuit pump	K15	
PD	Steering pump	C10	
PFR	Trailer brake connector integrated in the VAFR	E4	
PP	Pressure test port	O25	
PRES	Pressure switch	E12	
PRES (O)	Pressure sensitive switch (option)	G34	
PRF (O)	Leakage return connector (option)	O12	

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NAVIGATION MENU DISPLAY

Press on the scroll button (A) under the display to move between screens.



SPU fault screen and falut number



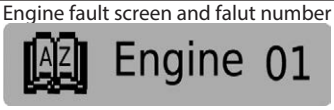
Long press on A

Fault code display



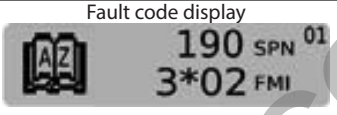
Short press on A

Engine fault screen and falut number



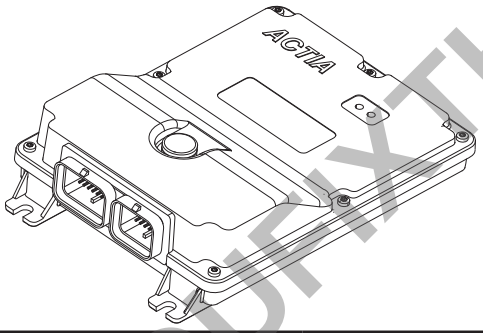
Long press on A

Fault code display



SPU 25-15 - A3 ERROR CODES LIST

A3



SPU 25-15

PAD code	*Code on machine screen*		*COMPONENT*	*CHARACTERISATION DESCRIPTION*
Hexadecimal	*Decimal*			
	SPN	*FMI*		
010203	520450	03	Sensors power supply output	Signal voltage too high: + battery short circuit
010204	520450	04	Sensors power supply output	Signal voltage too low: ground short circuit
010303	520451	03	Forced operation button indicator lamp	Signal voltage too high: + battery short circuit
010304	520451	04	Forced operation button indicator lamp	Signal voltage too low: ground short circuit
010603	520454	03	Telescope head electrovalve output	Signal voltage too high: + battery short circuit
010604	520454	04	Telescope head electrovalve output	Signal voltage too low: ground short circuit
010605	520454	05	Telescope head electrovalve output	Circuit impedance too high: open circuit
010703	520455	03	Levelling authorization output	Signal voltage too high: + battery short circuit
010704	520455	04	Levelling authorization output	Signal voltage too low: ground short circuit
010705	520455	05	Levelling authorization output	Circuit impedance too high: open circuit
011203	520466	03	Lifting cut-off electrovalve output	Signal voltage too high: + battery short circuit
011204	520466	04	Lifting cut-off electrovalve output	Signal voltage too low: ground short circuit
011205	520466	05	Lifting cut-off electrovalve output	Circuit impedance too high: open circuit
011303	520467	03	Transmission authorization output	Signal voltage too high: + battery short circuit
011304	520467	04	Transmission authorization output	Signal voltage too low: ground short circuit
011305	520467	05	Transmission authorization output	Circuit impedance too high: open circuit
012103	520481	03	Safety electrovalve output 2	Signal voltage too high: + battery short circuit
012104	520481	04	Safety electrovalve output 2	Signal voltage too low: ground short circuit
012105	520481	05	Safety electrovalve output 2	Circuit impedance too high: open circuit
012303	520483	03	Cut-off electrovalve output	Signal voltage too high: + battery short circuit
012304	520483	04	Cut-off electrovalve output	Signal voltage too low: ground short circuit
012305	520483	05	Cut-off electrovalve output	Circuit impedance too high: open circuit
012503	520485	03	Telescope extension electrovalve output	Signal voltage too high: + battery short circuit
012504	520485	04	Telescope extension electrovalve output	Signal voltage too low: ground short circuit
012505	520485	05	Telescope extension electrovalve output	Circuit impedance too high: open circuit
013103	520497	03	Tilting neutralization electrovalve output	Signal voltage too high: + battery short circuit
013104	520497	04	Tilting neutralization electrovalve output	Signal voltage too low: ground short circuit
013105	520497	05	Tilting neutralization electrovalve output	Circuit impedance too high: open circuit
01330D	520499	13	Strain gauge calibration error	Out of range signal value defined by the calibration: Calibration not carried out or carried out incorrectly
013403	520500	03	Safety electrovalve output	Signal voltage too high: + battery short circuit
013404	520500	04	Safety electrovalve output	Signal voltage too low: ground short circuit
013405	520500	05	Safety electrovalve output	Circuit impedance too high: open circuit
013507	520501	07	Safety electrovalve operation error	Faulty actuator (mechanical problem)

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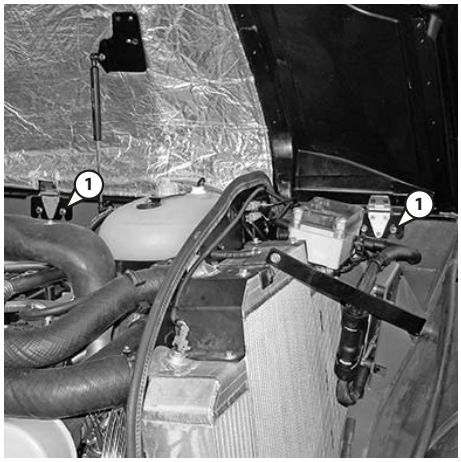
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PREPARATION AND SAFETY INSTRUCTIONS

Operate the battery cut-off no less than 30 seconds after turning off the ignition with the ignition key.

Stabilize the machine on level ground.
Position the boom in the raised position and install the safety wedge.

COMPONENT REMOVAL / REFIT



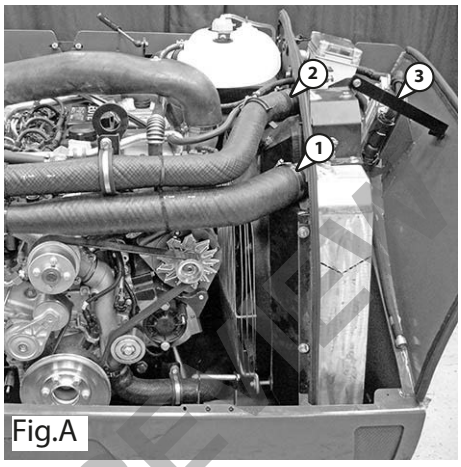


Fig.A

A – MOVABLE ENGINE COVER REMOVAL

Unclip the strut from the cover (flat screwdriver) and support the cover using a strap.

Undo the 4 screws of the 2 hinges (Item 1).

Remove the mobile cover.

B – RADIATOR AND FAN MOTOR REMOVAL

⇒ Carry out the "MOVABLE ENGINE COVER REMOVAL" operation ◁ A

Drain the water and oil radiators.

Remove the water and air hoses (Fig. A (Item 1) and (Item 2)) .

Remove the expansion tank (2 nuts, 1 connector) and its support bracket (3 screws).

Unscrew the bottom 2 silent blocks.
Unscrew the tie and the bracket (Fig. A (Item 3)).

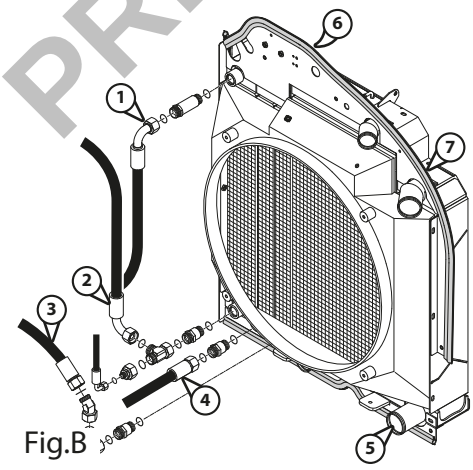


Fig.B

Unscrew the oil hoses (Fig. B (Item 1) to (Item 4)).
Remove the turbo air supply pipe (Fig. B (Item 5)).

Disconnect the 3 sensors (Fig. B (Item 6) and (Item 7)).

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STANDARD TIGHTENING TORQUES

Standard tightening torque to be used when not otherwise indicated in the removal and refitting operations:

- The following tightening torques are given for hexagon head screws without flanges and cylinder head hexagon socket screws.
- The torques are given for a friction coefficient μ = 0,20 corresponding to dry-fitted zinc-plated fasteners and for torque tools having a ± 20 % class C tightening torque accuracy (equivalent to pneumatic screwdrivers).

1 - Tightening torque in N.m (±20%) for screw / nut connection (NF E 25-030-1):

Ø x "coarse" pitch	*Grade 8.8*	*Grade 10.9*	*Ø x "fine" pitch*	*Grade 8.8*	*Grade 10.9*
M6 x 1	8,2	12,1	-	-	-
M8 x 1,25	20	30	M8 x 1	22	32
M10 x 1,5	40	59	M10 x 1,25 (x 1)	43 (46)	63 (68)
M12 x 1,75	69	102	M12 x 1,5 (x 1.25)	74 (78)	108 (115)
M14 x 2	111	163	M14 x 1,5	123	181
M16 x 2	175	256	M16 x 1,5	190	279
M18 x 2,5	240	352	M18 x 1,5	279	410
M20 x 2,5	341	501	M20 x 1,5	391	574
M22 x 2,5	470	691	M22 x 1,5	531	780
M24 x 3	588	864	M24 x 2	659	967
M27 x 3	874	1284	M27 x 2	965	1418
M30 x 3,5	1181	1735	M30 x 2	1351	1984
M33 x 3,5	1614	2371	M33 x 2	1821	2674
M36 x 4	2068	3037	-	-	-

For hexagon screws with flanges (NF E 25-030-1) :
Apply an increased torque of +10%.



Where washers are used, the following coefficient is to be applied (FD E 25-502) :
- Plate : +0%
- Smooth tapered washer (CL): +5%
- Spring (or Grower) washer without jaws (W) : +10%
- Conical, internal teeth (CDJ-JZC) : +15%.

2 - Tightening torque in N.m (±20%) for screw / nut connection (with marking) :

Ø x Pitch	4 *4T* (flange : 4.8T)	5 *5T*	6 *6T* (flange : 6.8T)	7 *7T*	8 *8T* (flange : 8.8T)	(flange : 10.9T)	11 (flange : 11.9T)
M6 x 1	**5.4** (5.5)	**6.5**	**7.8** (7.5)	**11**	**12** (12)	(15.5)	(17.5)
M8 x 1,25	**13** (13)	**16**	**19** (19)	**25**	**29** (29)	(38)	(42)
M10 x 1,25	**25** (27)	**32**	**39** (39)	**52**	**61** (61)	(80)	(89)
M12 x 1,25	**47** (50)	**59**	**72** (71)	**95**	**108** (110)	(145)	(160)
M14 x 1.5	**75** (78)	**91**	**108** (110)	**147**	**172** (175)	(230)	(260)
M16 x 1.5	**113** (120)	**137**	**172** (170)	**226**	**265** (270)	(360)	(400)

use the upper class where spring (or Grower) washers are used.

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FAULT TABLE

Fault	*Cause*	*Measures*
The engine starts with difficulty or not at all	Fuel tank empty	Fill the fuel tank
	Faulty electric fuel supply pump	Check
	Clogged fuel intake line	Check
	Temperature below startup temperature limit	Check
	Cold start installation	Check/Replace
	Incorrect engine oil SAE viscosity	Change lubrication oil
	The fuel quality does not comply with the operating instructions	Change fuel
	Battery is faulty or not charged	Check the battery
	Wiring to starter loose or oxidized	Check the cables
	Faulty starter motor or pinion will not mesh	Check the starter motor
	Clogged air filter/ Faulty exhaust gas turbo-compressor	Check/Replace
	Air in the fuel supply system	"Bleed fuel supply system"
	Low compression pressure	Check compression pressure
	Engine exhaust gas back-pressure too high	Check
	Leaking injection line	Check the injection line
The engine will not start and the diagnostic lamp is flashing	The engine's electronic system prevents startup	Check the fault according to the error code, eliminate the fault, if applicable
The engine starts but runs erratically or stops	Engine exhaust gas back-pressure too high	Check
	Low compression pressure	Check compression pressure
	Cold start installation	Check/Replace
	Air in the fuel supply system	Bleed
	Fuel pre-filter clogged	Clean
	The fuel quality does not comply with the operating instructions	Change fuel
	Defective injector	Replace
	Leaking injection line	Check the injection line
Gear changes are possible and the diagnostic indicator light comes on	The engine electronic management system has detected a system error and activated a replacement gear	Check the fault according to the error code, eliminate the fault, if applicable
The engine is too hot. The temperature warning system is tripped	Coolant bled pipe to expansion tank blocked	Clean
	Incorrect engine oil SAE viscosity	Change lubrication oil
	Faulty engine radiator	Check/Replace
	Engine oil filter clogged on air or oil side	Replace
	Engine oil level too high	Check oil level, empty if necessary
	Oil level too low	Fill lubricating oil
	Defective injector	Replace
	Heat exchanger coolant dirty	Clean
	Faulty coolant pump (V-belt broken or slack)	Check whether the belt is broken or has come off
	Cooling liquid fault	Fill
	Resistance in the cooling system is too high/Flow rate too low	Check the cooling system
	Charging air line not air-tight	Check the air line
	Charge air radiator clogged	Check/Clean
	Clogged air filter/ Faulty exhaust gas turbo-compressor	Check/Replace

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CHARACTERISTICS

Designation		MLT 634 120 + PS ST3B	MLT 732 100D ST3B S1	MLT 735 100/120 + PS ST3B	MLT 741 100/120 + PS ST3B	MT 732 ST3B	MT 732 EASY 75D ST3B S1	MT 932 ST3B	MT 932 EASY 75D ST3B S1	MT 1030 EASY 75D ST3B S1
Truck weight with forks (kg)	MT / MLT	7340		7080	7475	7585	6780	7980	7145	7720
	MLT PS	7530		7230	7630					
Boom weight (kg)		1250	1390	1390	1390	1390	1390	1680	1680	1760
Weight distribution per axle with forks (kg)	Front	3200		3370	3375	3225	3280	3450	3445	
	Rear	4140		3710	4100	4360	3500	4530	3700	
	Front (PS)	3260		3390	3340					
	Rear (PS)	4270		3840	4290					
Pulling force (daN)		5650		5235	5235	6110	5300	5770	5530	8160

DIMENSIONS

Ref.	MLT 634 120 + PS ST3B	MLT 732 100D ST3B S1	MLT 735 100/120 + PS ST3B	MLT 741 100/120 + PS ST3B	MT 732 ST3B	MT 732 EASY 75D ST3B S1	MT 932 ST3B	MT 932 EASY 75D ST3B S1	MT 1030 EASY 75D ST3B S1
A (mm)	1200	1200	1200	1200	1200	1200	1200	1200	
B (mm)	2560	2560	2810	2810	2560	2810	2560	2810	2690
C (mm)	1142	1440	1192	1192	1440	1193	1373	1128	1510
C1 (mm)	1245	1378	1287	1128	1378	1128	1314	1064	
D (mm)	4436	4743	4712	4755	4743	4761	4676	4696	4990
D1 (mm)	4539	4681	4807	4691	4681	4696	4617	4632	
D2 (mm)	3889	3931	4115	4158	3931	4193	3932	4193	
E (mm)	5636	5948	5912	5955	5948	5961	5881	5896	
F (mm)	1935	2050	1935	1935	2050	1930	2050	1930	1930
F1 (mm)	1935	2050	1935	1935	2050	1930	2050	1930	
G (mm)	450	450	450	450	450	450	450	450	
G1 (mm)	435	435	435	435	435	435	435	435	450
G2 (mm)	435	435	435	435	435	435	435	435	
I (mm)	734	742	710	753	742	742	742	758	790
J (mm)	980	890	980	980	890	890	890	890	890
K (mm)	1260	1260	1260	1260	1260	1260	1260	1260	
L (mm)	45	45	45	45	45	45	45	45	
N (mm)	1715	1715	1715	1715	1715	1715	1715	1715	
O (mm)	125	125	125	125	125	125	125	125	
P2 (°)	47,5	38	38	38	38	38	38	38	
P3 (°)	53	53	53	53	53	53	53	53	
R (mm)	3535	3747	3685	3685	3747	3685	3550	3685	
S (mm)	7391	6675	7716	7716	6675	6685	7616	7620	
T (mm)	3450	3519	3575	3575	3519	3490	3519	3460	
U1 (mm)	2345	2299	2345	2345	2299	2299	2299	2299	2300
U2 (mm)	2545	2488	2545	2545	2488	2488	2488	2488	
V (mm)	4650	4829	4885	4885	4829	4800	4829	4770	
V1 (mm)	1200	1310	1310	1310	1310	1310	1310	1310	
V2 (mm)	3769	3954	3919	3919	3954	3800	3757	3800	3750
W (mm)	2402	2340	2402	2402	2340	2340	2340	2340	2340
Y (°)	12	13	13	13	13	13	13	13	11.9
Z (°)	134	134	134	134	134	134	134	134	113.7

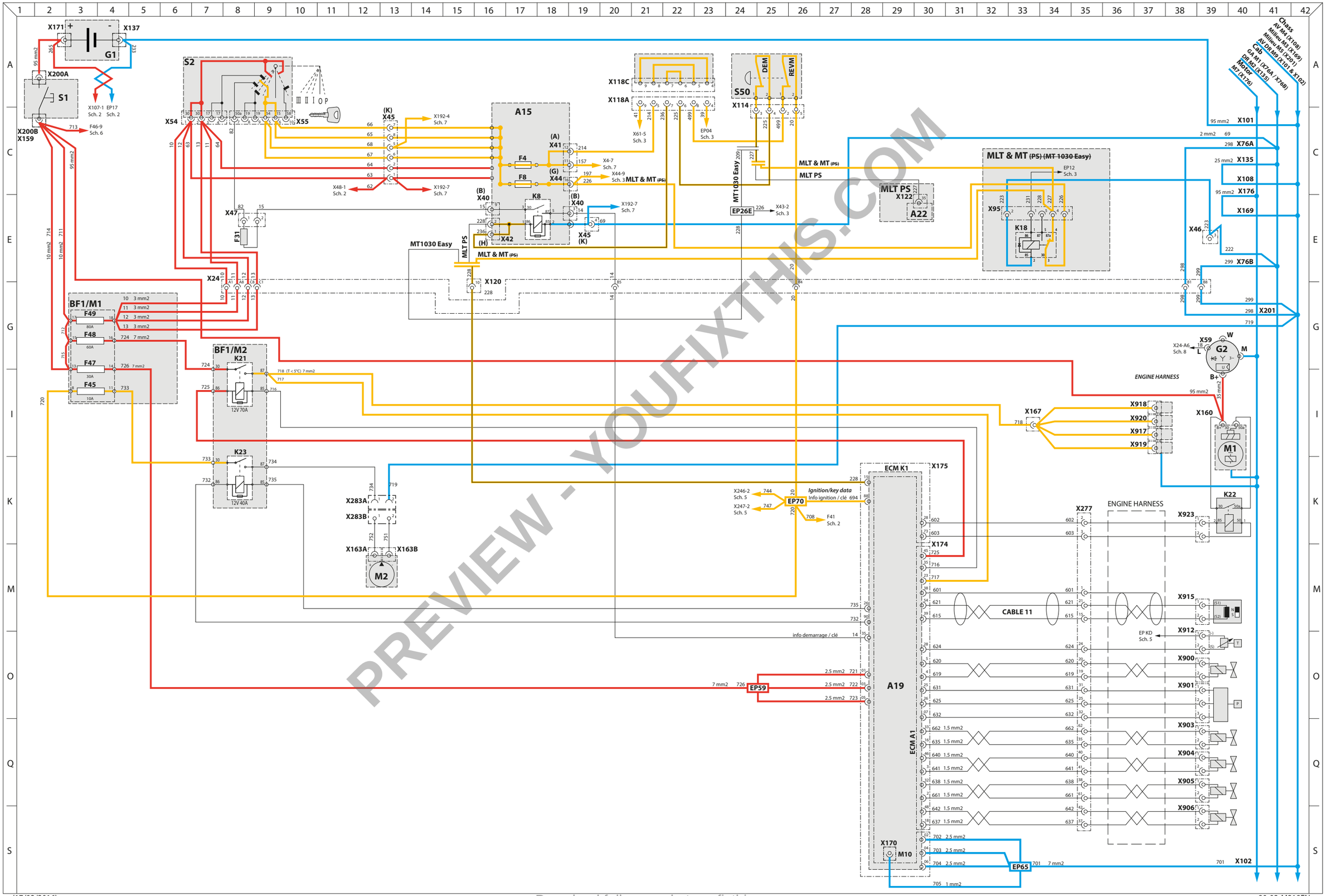
FLUIDS

Designation	Type	Quantity
Fuel tank	EN590 / ASTM D975	120 ℓ
Engine oil	MANITOU GOLD	10 ℓ
Cooling system	Cooling liquid (protection -35°)	20.5 ℓ
Gear box	MANITOU Automatic transmission oil	16.6 ℓ
Hydraulic tank	MANITOU ISO VG 46 Hydraulic oil	135 ℓ
Brake system	MANITOU Mineral brake fluid	1 ℓ
Air-conditioning system	R134A gas	950 g ±50
Axle differential	Special MANITOU oil for immersed brakes	8.1 ℓ
Wheel reduction gear	MANITOU SAE80W90 Mechanical transmission oil	0.8 ℓ

Data obtained from Instruction Manuals:
- 647444 of 06/12/2013
- 647449 of 18/06/2014
- 647480 of 30/10/2014

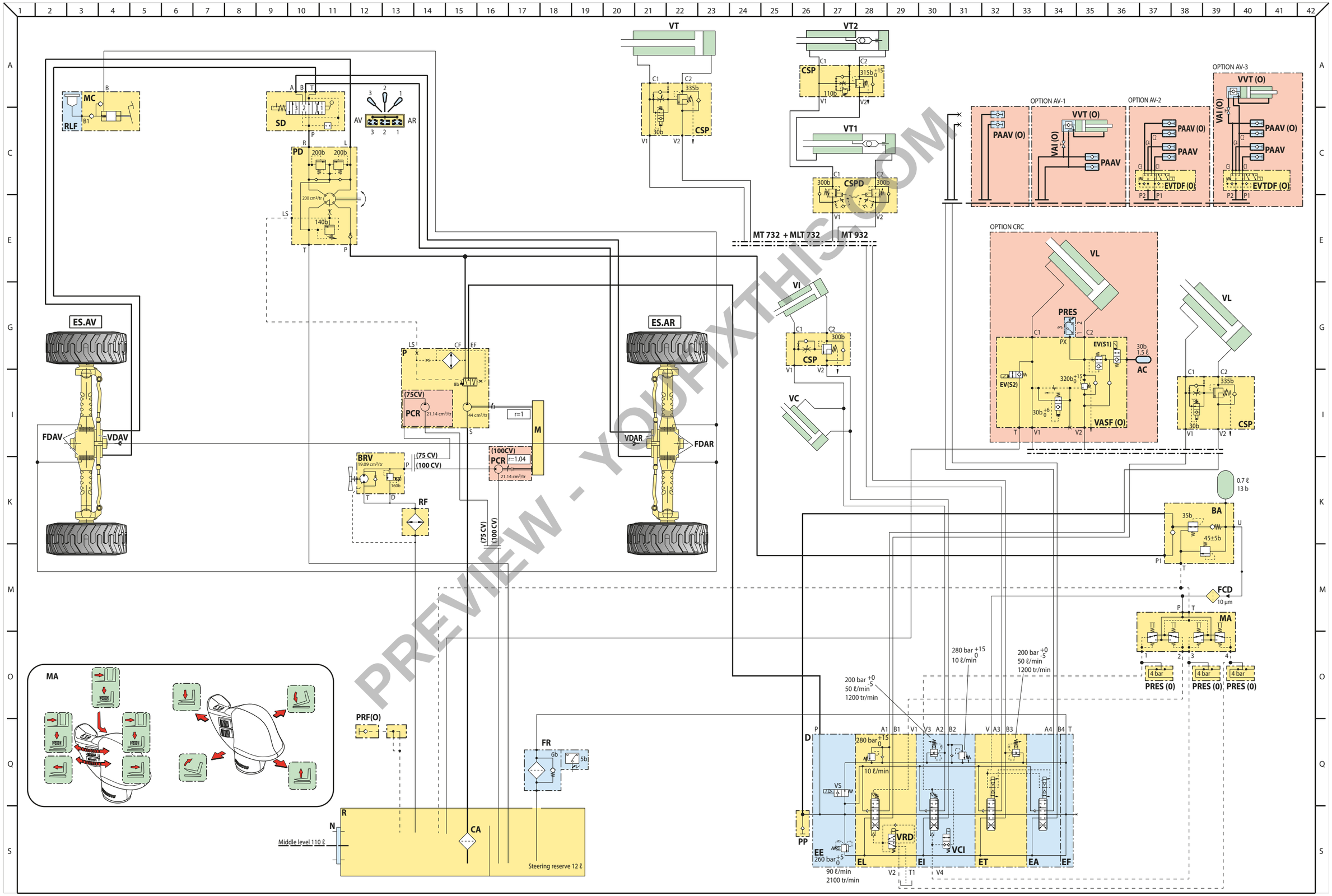
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DIAGRAM 1 (Start-up / Customer Digicode)



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SPU 25-15				
PAD code	Code on machine screen		COMPONENT	CHARACTERISATION DESCRIPTION
Hexadecimal	Decimal			
	SPN	FMI		
013603	520502	03	Control electrovalve output	Signal voltage too high: + battery short circuit
013604	520502	04	Control electrovalve output	Signal voltage too low: ground short circuit
013605	520502	05	Control electrovalve output	Circuit impedance too high: open circuit
013707	520503	07	Control electrovalve operation error	Faulty actuator (mechanical problem)
014503	520517	03	Telescope retraction electrovalve output	Signal voltage too high: + battery short circuit
014504	520517	04	Telescope retraction electrovalve output	Signal voltage too low: ground short circuit
014505	520517	05	Telescope retraction electrovalve output	Circuit impedance too high: open circuit
014603	520518	03	Attachment line A control electrovalve output	Signal voltage too high: + battery short circuit
014604	520518	04	Attachment line A control electrovalve output	Signal voltage too low: ground short circuit
014605	520518	05	Attachment line A control electrovalve output	Circuit impedance too high: open circuit
014703	520519	03	Attachment line B control electrovalve output	Signal voltage too high: + battery short circuit
014704	520519	04	Attachment line B control electrovalve output	Signal voltage too low: ground short circuit
014705	520519	05	Attachment line B control electrovalve output	Circuit impedance too high: open circuit
014803	520520	03	Fan rotation direction reversal electrovalve output	Signal voltage too high: + battery short circuit
014804	520520	04	Fan rotation direction reversal electrovalve output	Signal voltage too low: ground short circuit
014805	520520	05	Fan rotation direction reversal electrovalve output	Circuit impedance too high: open circuit
014903	520521	03	Fan speed control electrovalve output	Signal voltage too high: + battery short circuit
014904	520521	04	Fan speed control electrovalve output	Signal voltage too low: ground short circuit
014905	520521	05	Fan speed control electrovalve output	Circuit impedance too high: open circuit
020102	520705	02	Forced operation button	Erratic signal value
020402	520708	02	Telescope head electrovalve activation button	Erratic signal value
020502	520709	02	Attachment line decompression button	Erratic signal value
021007	520720	07	Retracted telescope not detected	Faulty actuator (mechanical problem)
021402	520724	02	JSM FNR selector	Erratic signal value
021602	520726	02	Longitudinal stability display	Erratic signal value
02160C	520726	12	Longitudinal stability display	Faulty sensor or actuator
021702	520727	02	Aggravating movements contact 1	Erratic signal value
022202	520738	02	Override button	Erratic signal value
022402	520740	02	Retracted telescope sensor	Erratic signal value
022602	520742	02	Boom lifting angle sensor	Erratic signal value
022609	520742	09	Boom lifting angle sensor	Information not available on the CAN bus
022610	520742	16	Boom lifting angle sensor	Upper sensor signal value at normal value
022612	520742	18	Boom lifting angle sensor	Lower sensor signal value at normal value
022700	520743	00	Strain gauges	Upper sensor signal value at normal value
022701	520743	01	Strain gauges	Lower sensor signal value at normal value
022702	520743	02	Strain gauges	Erratic signal value
022709	520743	09	Strain gauges	Information not available on the CAN bus
02270A	520743	10	Strain gauges	Abnormal signal value variation for correct operation
022713	520743	19	Strain gauges	Transmitted signal value on CAN bus invalid
02320D	520754	13	Boom angle sensor calibration error	Out of range signal value defined by the calibration: Calibration not carried out or carried out incorrectly
024102	520769	02	Telescope roller sensor	Erratic signal value
024110	520769	16	Telescope roller sensor	Upper sensor signal value at normal value
024113	520769	19	Telescope roller sensor	Lower sensor signal value at normal value
024202	520770	02	Attachment roller sensor	Erratic signal value
024210	520770	16	Attachment roller sensor	Upper sensor signal value at normal value
024213	520770	19	Attachment roller sensor	Lower sensor signal value at normal value
024302	520771	02	Tilting movement slide contact	Erratic signal value
024402	520772	02	Attachment movement slide contact	Erratic signal value
024A05	520778	05	Air intake temperature sensor	Circuit impedance too high: open circuit
031101	520977	01	ECU power supply voltage	Lower sensor signal value at normal value
041609	521238	09	Longitudinal stability display	Information not available on the CAN bus
044009	521280	09	CAN bus fault	Information not available on the CAN bus
051500	521493	00	Computer	Upper sensor signal value at normal value
05150C	521493	12	Computer	Faulty sensor or actuator

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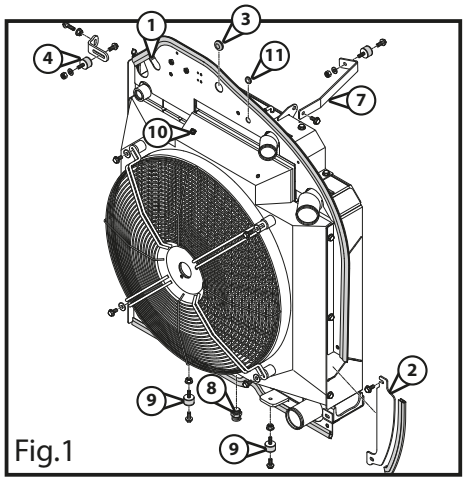


Fig.1

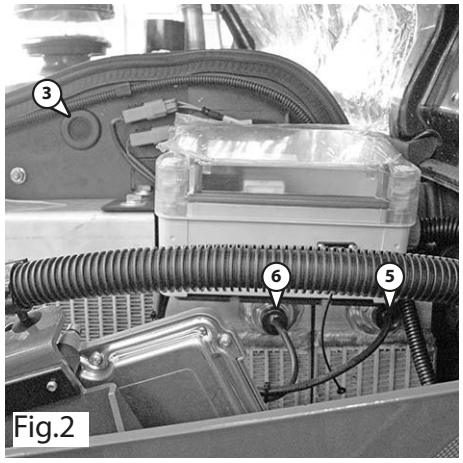


Fig.2

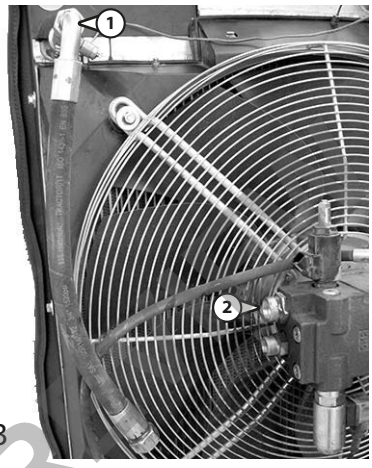


Fig.3

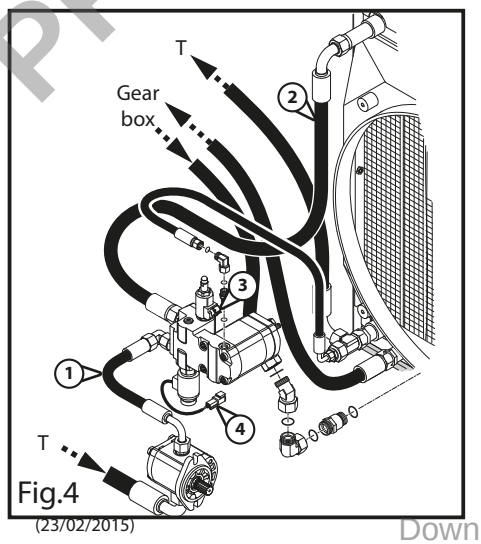


Fig.4

Remove the fuse box support bracket.
Disconnect the cable harnesses (Fig. 1, (Item 1)) and the computer.
Remove the anti-recycling plate (Item 2).
Remove the cap (Item 3) and lift the radiator.

Beware of the cable harness beneath the radiator.

C – RADIATOR AND FAN MOTOR REFIT

⇒ Carry out the "MOVABLE ENGINE COVER REMOVAL" operation ◅ A

When carrying out a replacement, retain:
- the upper right hand silent block (Fig. 1, (Item 4)) and the two lower silent blocks (Fig. 1, (Item 9)).

- the 2 (75°C) hydraulic temperature senors (Item 5) and the (90°C) gear box temperature sensor (Item 6), (25 N.m ± 15%).

- the turbo air temperature sensor (21 N.m ± 15%).
- the drain plug (Item 8), the anti-recycling plate (Item 2), the cap (Item 3), the grommet (Item 11) and the cage nut (Item 10) on the top of the radiator.

Attach the 3 silent blocs (Fig. 1, (Item 4) and (Item 9)), the tie (Fig. 1, (Item 7)) and the drain plug (Fig. 1, (Item 8)) to the radiator.

Attach the hydraulic hose to the radiator inlet (Fig. 3 (Item 1)).

Pass a sling through the hole at the cap (grommet) location (Fig. 1 (Item 3)), refit the cap after installation.

Lower the radiator, being careful to avoid the turbo and the computer,

Place the radiator and screw the silent blocks (Fig. 1 (Item 4) and (Item 7)).

Connect the hoses (Fig. 4, (Item 1) and (Item 2)) and the connectors (Fig. 4, (Item 3) and (Item 4)) to the fan motor.

Attach the motor fuse box, pass the 2 sensor cables underneath.
Refit the cable harness grommet to the anti-recycling plate (Fig. 1, (Item 1)).
Connect the sensors to the harness.

Refit the hydraulic hoses.

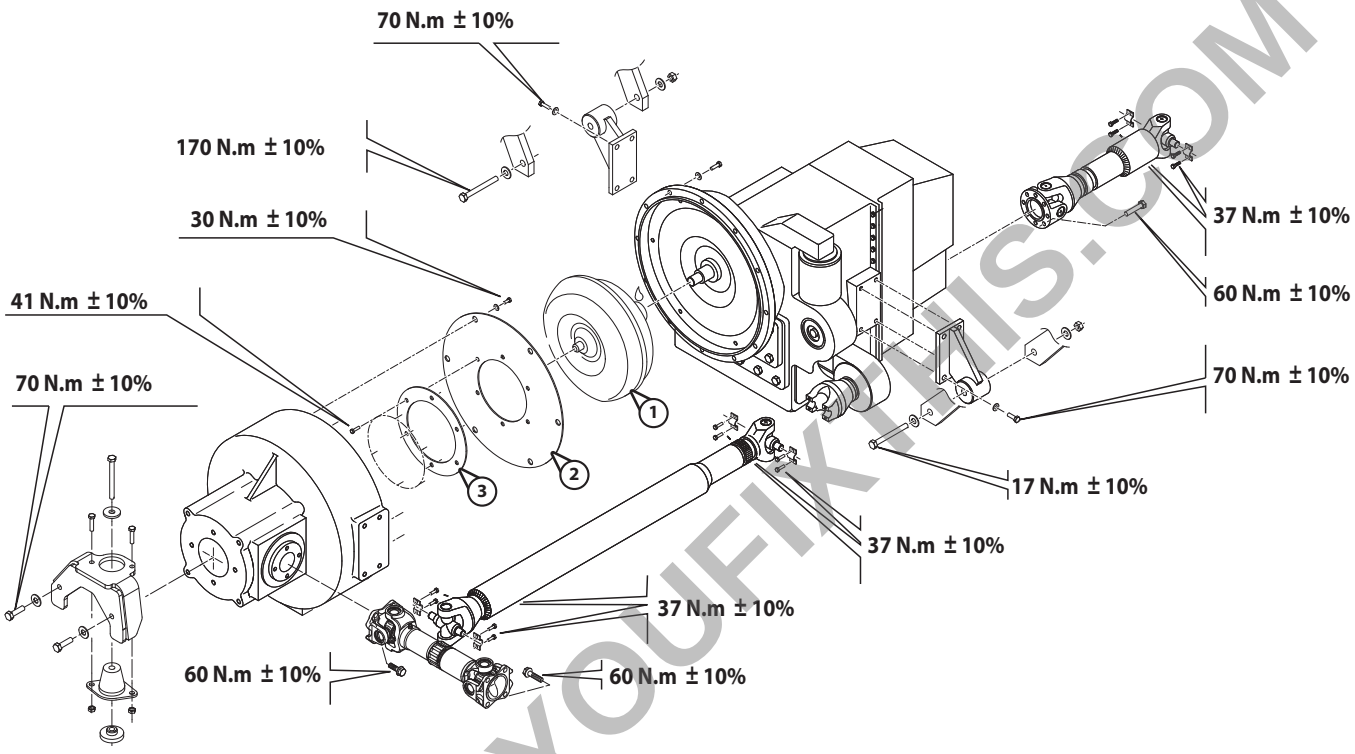
Refit the tie and the bracket.

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TIGHTENING TORQUE

MECHANICAL TRANSMISSION



When connecting the converter (Item 1) with the flange (Item 2) and the washer (Item 3) ensure that it is correctly centered and check the mounting of the screws on the angle gear box.

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Fault	Cause	Measures
The engine is too hot. The temperature warning system is tripped	Faulty air filter switch/Indicator lamp	Check/Replace
	Faulty fan / torn or slack v-belt	Check the fan/the v-belt/replace if required
	Engine exhaust gas back-pressure too high	Check
The engine lacks power	Engine oil level too high	Check oil level, empty if necessary
	Fuel suction temperature too high	Check the system
	The fuel quality does not comply with the operating instructions	Change fuel
	Clogged air filter/ Faulty exhaust gas turbo-compressor	Check/Replace
	Faulty air filter switch/Indicator lamp	Check/Replace
	Faulty fan / torn or slack v-belt	Check the fan/the v-belt/replace if required
	Charging air line not air-tight	Check the air line
	Charge air radiator clogged	Clean
	Resistance in the cooling system is too high/Flow rate too low	Check the cooling system
	Leaking injection line	Check the injection line
	Defective injector	Replace
"Not all engine cylinders are working"	Leaking injection line	Check the injection line
	Defective injector	Replace
	Charging air line not air-tight	Check the air line
	Engine oil level too high	Check oil level, empty if necessary
No or too low engine oil pressure	Oil level too low	Fill lubricating oil
	Engine angle too steep	Check engine position/Reduce inclination
	Incorrect engine oil SAE viscosity	Change lubrication oil
Excessive engine oil consumption	Engine oil level too high	Check oil level, empty if necessary
	Engine angle too steep	Check engine position/Reduce inclination
	Drain crankshaft sump	Check/Replace
Oil i the exhaust system	Engine used with insufficient load (< 20-30%) for a long period	Check the load factor
Engine emitting blue smoke	Engine oil level too high	Check oil level, empty if necessary
	Engine angle too steep	Check engine position/Reduce inclination
Engine emitting white smoke	Temperature below startup temperature limit	Check
	Cold start installation	Check/Replace
	The fuel quality does not comply with the operating instructions	Change fuel
	Defective injector	Replace
Engine exhaust is black	Clogged air filter/ Faulty exhaust gas turbo-compressor	Check/Replace
	Faulty air filter switch/Indicator lamp	Check/Replace
	Charging air line not air-tight	Check the air line
	Defective injector	Replace

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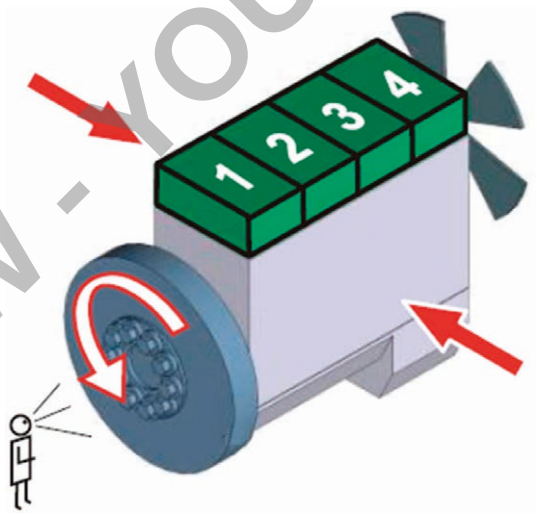
Comment: Once all the faults have been repaired, the fault indicator will go off. For certain faults, it is necessary to switch off the ignition and wait 30 s before switching it on again. In the event of a sensor failure, the corresponding monitoring functions will be deactivated. Only the sensor failure is recorded in the fault memory.

According to the configuration of the monitoring functions, the engine's electronic control system can protect the engine in certain well-defined critical circumstances by ensuring that certain important limits are not exceeded during operation and the correct operation of the system components. Depending on the severity of a detected fault, the engine may continue running with restrictions, while the fault indicator lamp remains on or flashes to indicate a severe system fault. In this event, the engine should

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CHARACTERISTICS

⇒ 4 cylinders in line
⇒ Firing order from flywheel: 1, 3, 4, 2
⇒ Anti-clockwise (viewed from flywheel)
⇒ 3,6 ℓ cubic capacity
⇒ Electronic management
⇒ Direct injection
⇒ Turbo (75cv)
⇒ Turbo with cooler (100 hp and 120 hp)
⇒ Compression ratio: 18:1
⇒ Power rating 55.4 kW (75 hp), 74.4 kW (100 hp) and 90 kW (120 hp)
⇒ Specific consumption: 210 and 220 g/kWh
⇒ Maximum torque: 330 N.m (75 hp), 410 N.m (100 hp) and 480 N.m (120 hp) (at 1600 rpm)
⇒ Dry engine weight: 270 kg
⇒ Idle speed: - min rpm: 930 rpm
- nominal laden: 2200 rpm
- max. unladen: 2360 rpm
⇒ Pre-heating and post-heating times: 10 and 140 s from -30 to -20°C
10 and 100 s at -10°C
5 and 50 s at 0°C
No pre-heating above 5°C



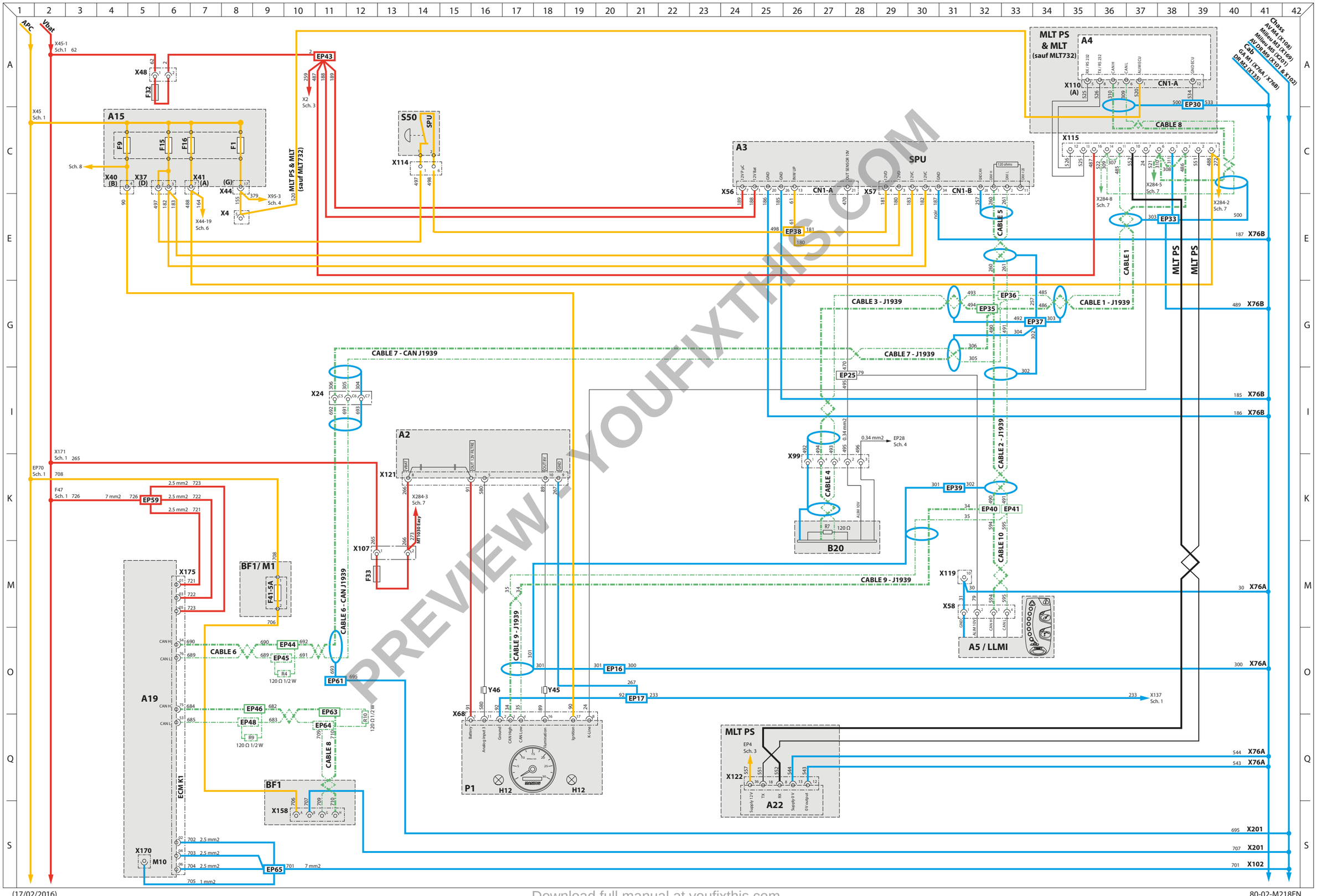
POLLUTION MANAGEMENT

The Stage 3B pollution standard is complied with by optimizing combustion to produce small amounts of soot but which, in turn, produces large quantities of NOx.
Among other parameters, the EGR management is designed accordingly and the engine is therefore equipped with a large exhaust gas recirculation cooler, thus reducing NOx levels.
This version does not have a throttle valve so as to allow more air to be supplied to the engine and thus improve NOx management.
The remaining NOx is treated to 90 % by the catalytic converter.
There is no lambda probe as all the operating conditions are on the ECU map.

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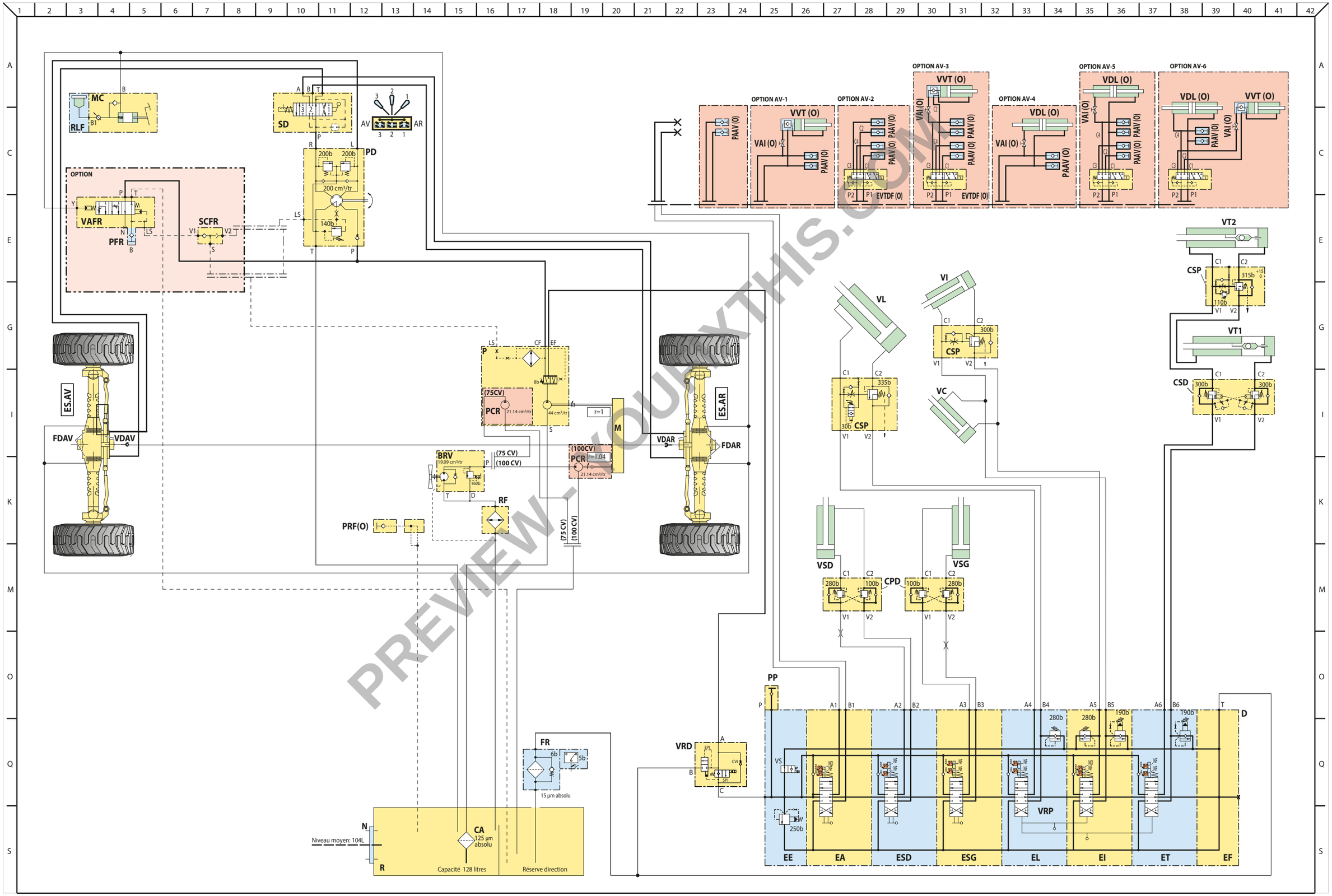
DIAGRAM 2 - CAN/ ECU



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HYDRAULIC DIAGRAM MT 1030 EASY 75D ST3B S1



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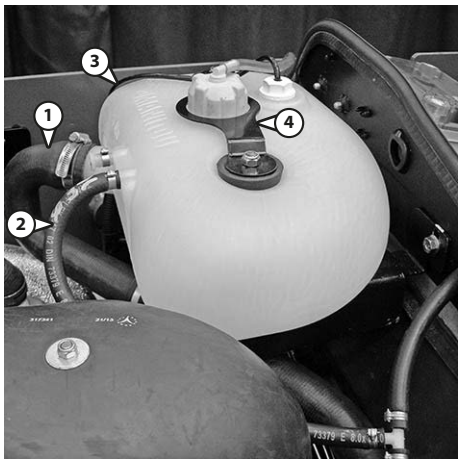
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ENGINE ECU ERROR CODES LIST (DTC)

Engine ECU					
Code KWP	**SPN**	**FMI**	**Blink code**	**ERROR DESCRISCRIPTIONS**	**ACTION**
38	523925	3	731	Short circuit to battery	Check wiring harness and connected loads.
40	523927	3	733	UB5; Short circuit to battery error of actuator SCR-Heater/Rev.Valve	Check wiring harness and connected loads on pins A04, A05.
42	523924	4	167	Short circuit to ground actuator relais 2	Threshold for error detection is an internal ECU threshold. Check wiring harness and connected loads on pins A01, K74, K91 and/or reflash ECU. If error is still present, exchange ECU.
43	523925	4	731	Short circuit to ground actuator relais 3	Threshold for error detection is an internal ECU threshold. Check wiring harness and connected loads on pinsA88, K57. If error is still present, exchange ECU.
44	523926	4	732	Short circuit to ground aktuator relais 4.	Threshold for error detection is an internal ECU threshold. Check wiring harness and connected loads on pin A90. If error is still present, exchange ECU.
45	168	3	318	Sensor error battery voltage; signal range check high.	Check wiring harness and connected alternator.
46	168	4	318	Sensor error battery voltage; signal range check low	Check wiring harness and connected alternator.
47	168	2	318	High battery voltage; warning threshold exceeded	Check wiring harness and connected alternator.
73	523912	4	7-2-2	Throttle valve error, Open Load or Short cut to Battery, blocked valve or wrong control signal for valve.	The sensed raw voltage value DPM_uRawBrnDVDsP is above the minimum threshold DPM_SRCBrnDVDsP.uMin_C Check throttle valve
84	639	14	271	CAN-Bus 0 BusOff-Status	"Threshold for error detection is an internal ECU threshold. BusOff bit for CAN A node is set. Check wiring of CAN bus and if necessary repair it, check connection cable and if necessary repair or replace it, check resistance in CAN lines (120 Ohm)"
85	1231	14	271	CAN-Bus 1 BusOff-Status	"Threshold for error detection is an internal ECU threshold. BusOff bit for CAN B node is set. Check wiring of CAN bus and if necessary repair it, check connection cable and if necessary repair or replace it, check resistance in CAN lines (120 Ohm)"
86	1235	14	271	CAN-Bus 2 = engine bus BusOff-Status	Threshold for error detection is an internal ECU threshold. BusOff bit for CAN C node is set. Check wiring of CAN bus and if necessary repair it, check connection cable and if necessary repair or replace it, check resistance in CAN lines (120 Ohm)
88	102	2	223	Charged air pressure above warning threshold.	Check waste gate system if necessary replace TC, check CAC if all channels are clean,check charge air piping if nececery.
89	102	2	223	Charged air pressure above shut off threshold.	Check waste gate system if necessary replace TC, check CAC if all channels are clean, check charge air piping if necessery.
93	110	1	225	Physical Range Check low for Coolant temperature.	Check wiring harness and connected Coolant Temp Sens.
96	110	3	225	Sensor error coolant temperature; signal range check high	Check sensor and if necessary replace it, check connection cable and if necessary repair or replace it.
97	110	4	225	Sensor error coolant temperature; signal range check low	Check sensor and if necessary replace it, check connection cable and if necessary repair or replace it Measure Voltage at Coolant Temperature Sensor and renew harness if needed.
98	110	0	232	High coolant temperature; warning threshold exceeded	Clean radiator, check fan drive, check coolant level, check cooling system in general, check thermostat function, check water pump.

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Attach the engine water boost pressure line (Item 1) to the holder under the expansion tank.
Connect hoses (Item 1 and Item 2).
Connect the water level sensor (Item 3).
Attach the expansion tank mounting flange (Item 4).

Fill the cooling water circuit with approx. 20 liters of water. Top up the gear box oil and hydraulic oil levels.

Start-up and check the levels.

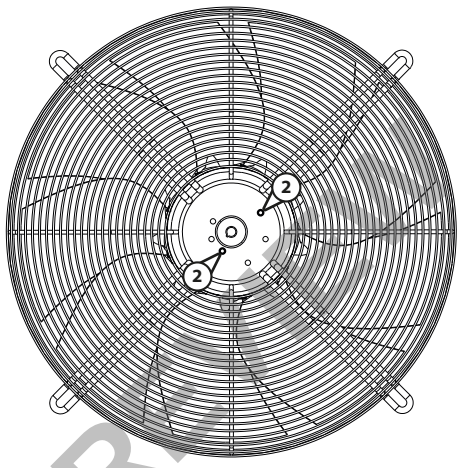


D – FAN HYDRAULIC MOTOR REMOVAL / REFIT

⇒ Carry out the "MOVABLE ENGINE COVER REMOVAL" operation ◁ A
⇒ Carry out the "RADIATOR AND FAN MOTOR REMOVAL" operation ◁ B

Lay the radiator flat, remove the grill, 4 screws.

Undo the nut securing the fan to the motor shaft.



Detach the tapered fan motor shaft by hitting with a hammer and a bronze drift punch (Item 1), taking care not to damage the shaft. Recover the cotter and make sure to put it back in the reinsert it in the fan slot,
Tightening of 45 N.m and 25 N.m couplings (10 mm hose).
When refitting: put back the washer and nut, tighten with torque wrench to 40 N.m ±10%.
Be careful to place the grill in the correct direction so as to use the appropriate hydraulic motor fastening holes (Item 2), tightening torque 45N.m ±10%.
After refitting the fan motor on the grill, refit the fan grill, centering the blades in the shroud.

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