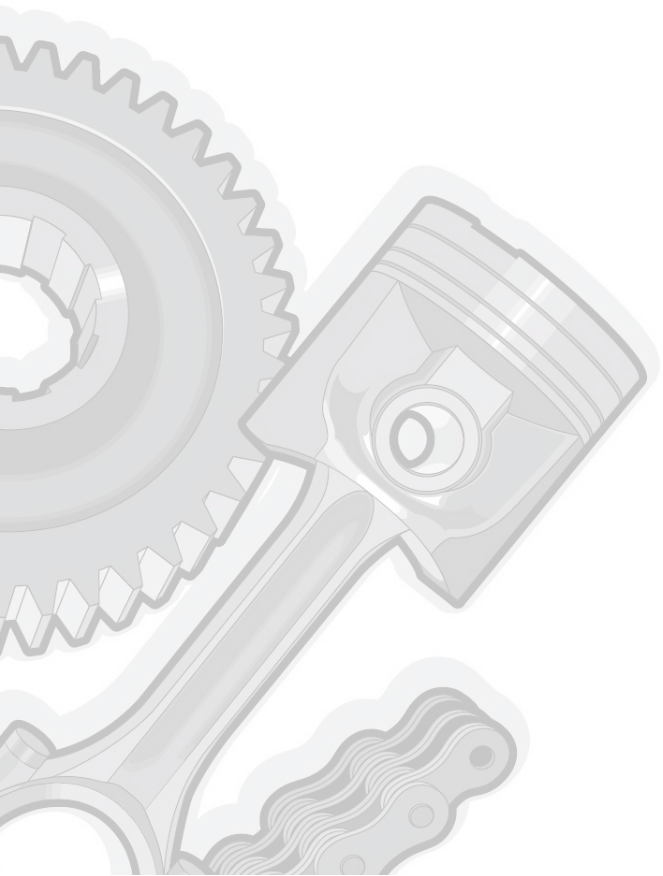
MANITOU
HANDLING YOUR WORLD

GENUINE PARTS CATALOGUE
CATALOGUE PIECES D'ORIGINE
ORIGINAL ERSATZTEILKATALOG
CATALOGO DE PIEZAS LEGITIMAS
CATALOGO RICAMBI ORIGINALI



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CHARACTERISTICS

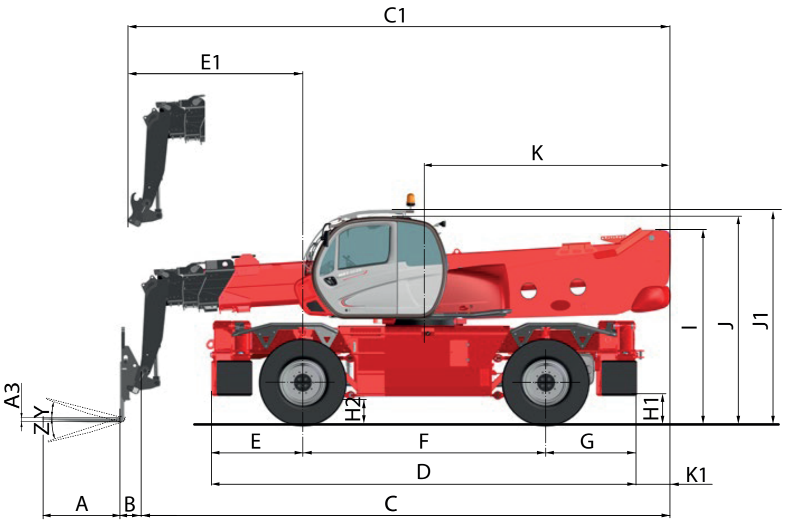
Designation		Value
Truck weight with standard equipment (Forks)		23 986 kg
Boom weight		5 560 kg
Distribution of mass with standard equipment (Forks)	Front axle	11 328 kg
	Rear axle	11 658 kg

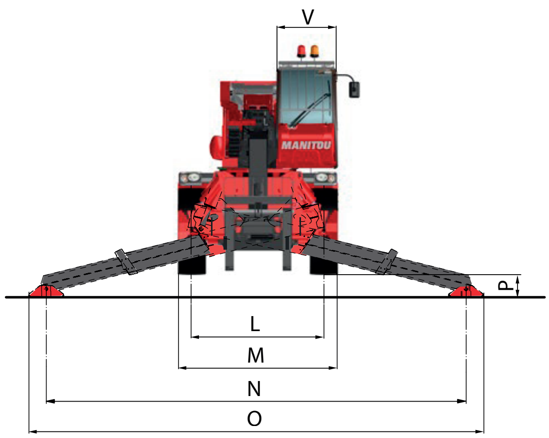
Designation	Value
Overall width	2,50 m
Overall height	3,30 m
Overall length (without forks)	8,41 m
Ground clearance	0,43 m
Drag strain	10 500 daN

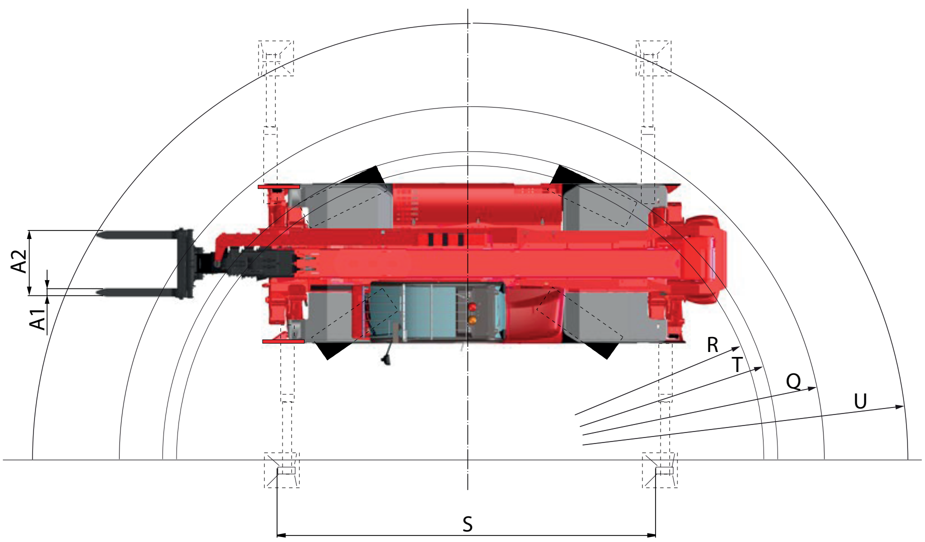
DIMENSIONS

	mm	in
A	1200	47,24
A1	130	5,12
A2	1028	40,47
A3	60	2,36
B	383	15,08
C	8114	319,45
C1	8412	331,18
D	6568	258,58
E	1409	55,47
F	3750	147,64
G	1409	55,47
H1*	431	16,97
H2*	420	16,54
I*	3002	118,19
J*	3205	126,18
J1*	3306	130,16
K	3803	149,72
K1	519	20,43
L	2064	81,26
M	2499	98,39
N	6490	255,51
O	7100	279,53
P*	350	13,78
P2	14°	
P3	20°	
P4	20°	
Q	5560	218,90
R	4690	184,65
S1	5945	234,06
S2	6490	255,51
T	4910	193,31
U	7000	275,59
V	933	36,73
Y	12°	
Z	105°	

*: Mid suspension position ± 78 mm.







INDUCEMENT STRATEGY (ONLY WITH ENGINE VERSION ST4)

REQUIREMENTS FOR DASHBOARD AND CABINE

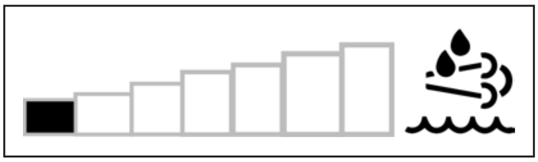
Inside of the driver cabine are installed the following indicator lamps explained below and also a buzzer which shall be activated to highlight every state transition with an audible signal.
The lamps and the buzzer are connected and controlled by the CPC4c.

To ensure proper Tier 4 emission levels and to comply with the EPA and CARB regulations , the engine has equipped with an inducement strategy that will activate when emission related warnings occur.
The following occurrences will trigger a warning indicator light:

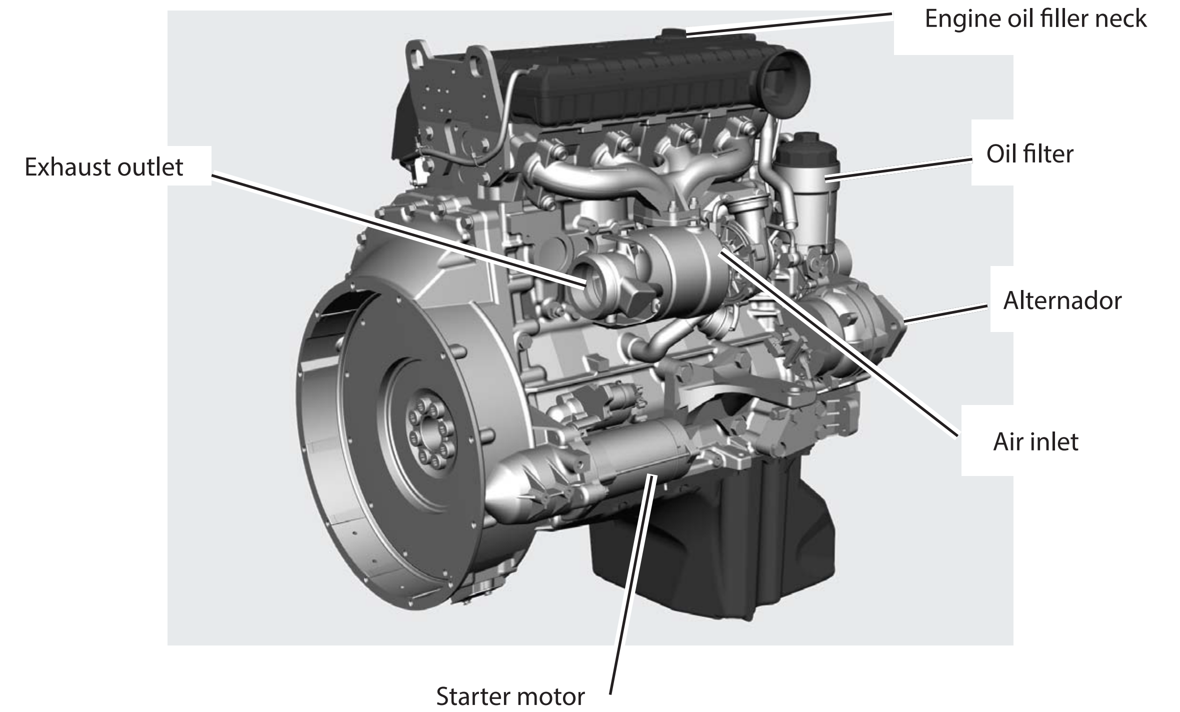
- **Low DEF Additive**
- **Insufficient DEF Additive Quality**
- **Faulty Elements of the Aftertreatment**

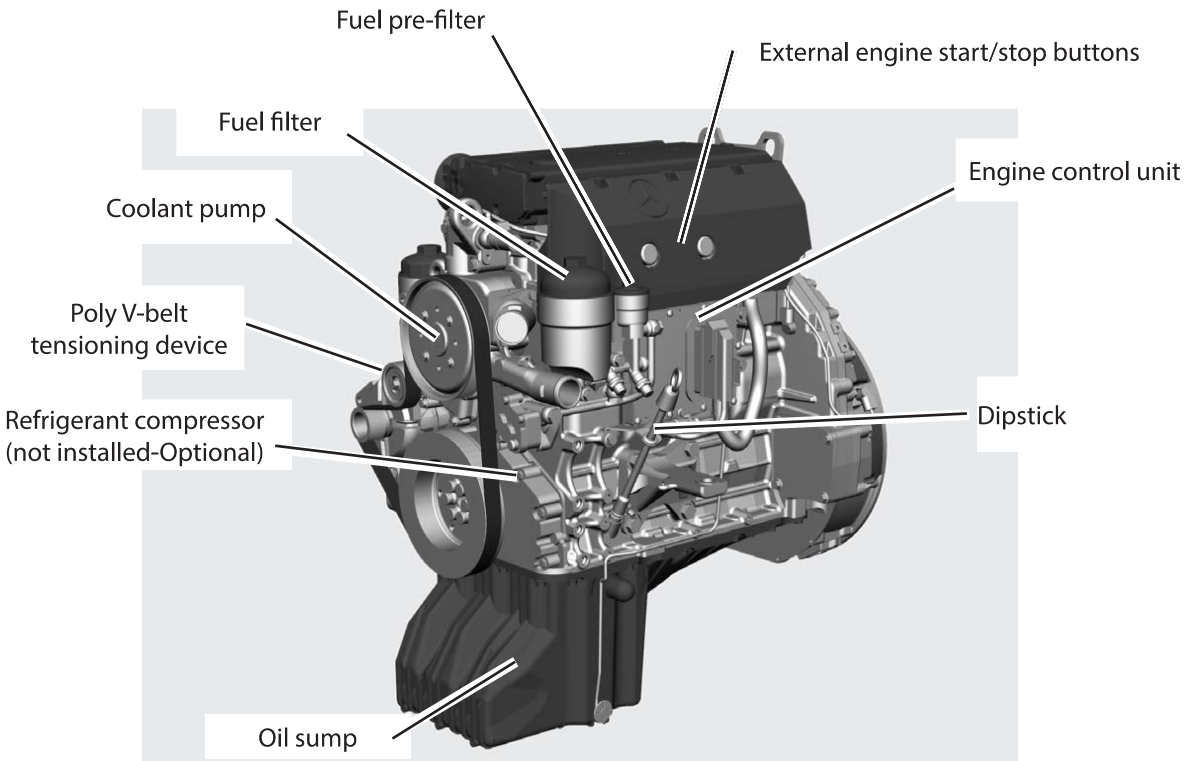
In the case that inducement occurs again within 40 hours of engine operation, shortened inducement periods are activated.

Operators must:
- regularly check the gauge to make sure the DEF additive is at a proper level or else engine inducement may occur;
- ensure in-time refilling with DEF additive;
- avoid any contamination of DEF additive with any other fluids or debris;
- ensure refills with properly stored DEF only.



MRT-X 3255 PLUS PRIVILEGE ST3A





DOWNLOADING THE XENTRY STARTKEY ONLINE

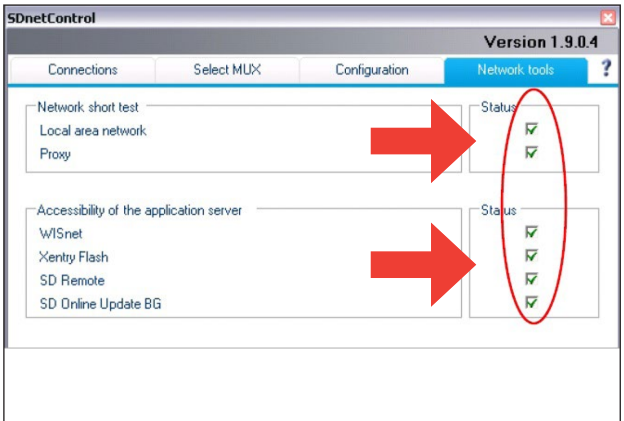


Fig. A

To download the StartKey from the StartKey server, first make sure that the XENTRY System (XENTRY Connect) or the Star Diagnosis system, respectively, has been correctly configured for the network/Internet connection.
To do this, on Star Diagnosis systems please use the available network tools, SDnetControl or SDnetAssist (see the separate operating instructions for these tools). The StartKey can only be downloaded online if all servers and central services are displayed as active

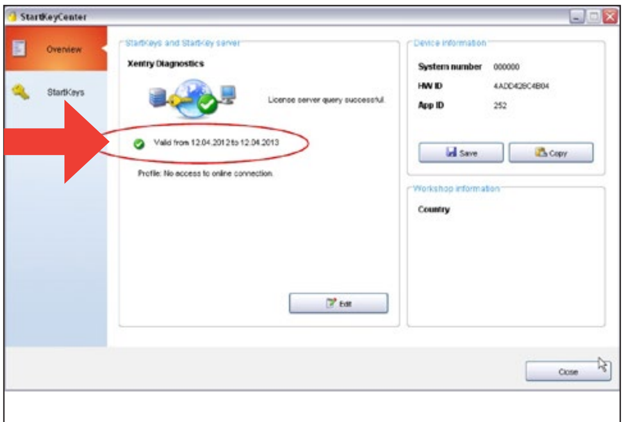


Fig. B

Send the System Number
(**260xxx; sticked on the SDConnect**)
and the HW-ID to
xd4imo@mtu-online.com.

After this we can order the Startkey.

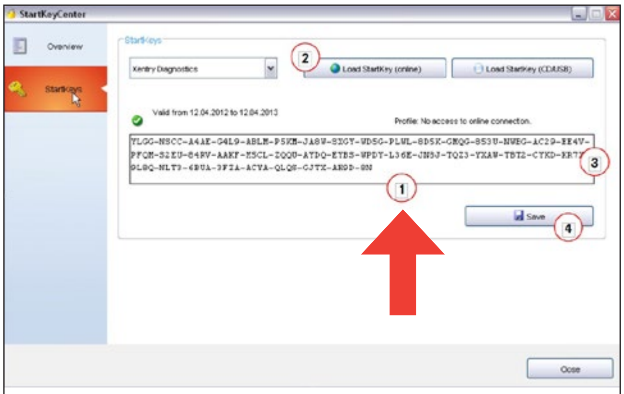


Fig. C

Send the System Number
(**260xxx; sticked on the SDConnect**)
and the HW-ID to
xd4imo@mtu-online.com.

After this we can order the Startkey.

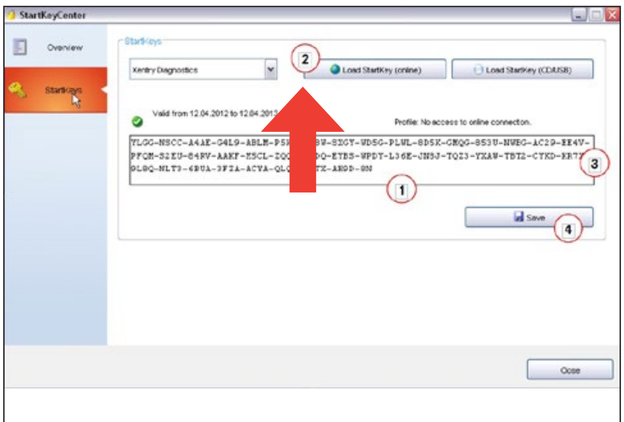


Fig. D

To download a new StartKey or update the StartKey, click on the “Load StartKey (online)” button at the top right. (2)

If you have ordered a new StartKey and it has been generated, the latest and only valid StartKey for this XENTRY Connect or Star Diagnosis system will be found in the central StartKey server and downloaded automatically. Any existing, older, or invalid StartKeys will thus be automatically replaced by the new StartKey.

SPN	FMI	DTC	Fault description	Recommended Action	CEL	SEL	MIL	Fault location
925	5	9D0305	Digital Output 3/17 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/12 (Selection), 35/31 (Fault Detection) and 35/48 (Configuration) for correct configuration of output pin 3/17 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 8"	ON	OFF	OFF	Pin 3/17
926	3	9E0303	Digital Output 4/01 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/13 (Selection), 35/32 (Fault Detection) and 35/49 (Configuration) for correct configuration of output pin 4/01 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 16"	ON	OFF	OFF	Pin 4/01
926	4	9E0304	Digital Output 4/01 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/13 (Selection), 35/32 (Fault Detection) and 35/49 (Configuration) for correct configuration of output pin 4/01 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 16"	ON	OFF	OFF	Pin 4/01
926	5	9E0305	Digital Output 4/01 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/13 (Selection), 35/32 (Fault Detection) and 35/49 (Configuration) for correct configuration of output pin 4/01 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 16"	ON	OFF	OFF	Pin 4/01
972	2	CC0302	Throttle inhibit switch signal not plausible due to excess vehicle speed	"Check wiring of associated pin. Check parameters 13/05 (Selection) and 13/43 (Fault Detection) for correct configuration of input pin 1/17."	ON	OFF	OFF	Pin 1/17
973	2	CD0302	Evobus 5stage retarder level position not plausible	"Check wiring of associated pin. Check parameters 13/08 (Selection) and 13/49 (Fault Detection) for correct configuration of input pin 2/13."	ON	OFF	OFF	Pin 2/13
973	9	CD0309	J1939 EBC1 Message is missing or not available	"Check J1939 link connection and Devices Turbocharger. Check Parameter 01/10 (EBC1 Source Adress SAE J1939)"	ON	OFF	OFF	
973	13	CD030D	J1939 Engine Retarder Selection Signal Missing or not available = SNA (signal not available)	Check J1939 link connection to Engine Retarder	ON	OFF	OFF	
973	19	CD0313	J1939 Engine Retarder Selection Signal erractic = undefined value but not SNA	Check J1939 link connection to Engine Retarder	ON	OFF	OFF	
974	2	CE0302	Remote Accelerator Pedal Supply Voltage Out of Range	Check wiring of associated pins	ON	OFF	OFF	Pin 3/03 Pin 3/04
974	3	CE0303	Remote Accelerator Pedal Circuit shorted to Ubat	Check wiring of associated pins	ON	OFF	OFF	Pin 3/02 Pin 3/03 Pin 3/04
974	4	CE0304	Remote Accelerator Pedal Circuit shorted to GND	Check wiring of associated pins	ON	OFF	OFF	Pin 3/02 Pin 3/03 Pin 3/04
979	9	D30309	J1939 PTO Message Not Received This Ignition Cycle	"Check J1939 link connection. Check Parameter 01/52 (PTO Source Adress SAE J1939) for proper configuration."	ON	OFF	OFF	
986	9	DA0309	J1939 CM1 DPF Message is missing or not available	"Check J1939 link connection and Devices Cab Controller 1 and Climate Control. Check Parameter 01/07 (CM1 DPF Source Adress SAE J1939) for proper configuration."	OFF	OFF	OFF	

SPN	FMI	Fault_name	Fault Description
1188	13	MU_AM_SRA1_NO_VALID_SIGNAL	tbd (Uebachs)
1188	14	MU_AM_SRA1_POWER_LIMITING	tbd (Uebachs)
1188	19	Smart Actuator Indicates Turbo Charger Waste Gate Position Error	position failure on sra1
1188	31	Smart Remote Actuator 1 (Wastegate), Failsafe Mode, Motor Off	tbd (Uebachs)
1231	9	ACM Message Not Received or has Stopped Arriving	Detection of communication error between ACM and MCM
1322	14	Multiple Cylinder Misfire Detected	Multiple Misfire Detection
1322	31	Multiple Cylinder Misfire Detected at Idle	correction value for multiple cylinders out of range
1323	11	Cylinder #1 Misfire Detected	Misfire Detection Cyl 1
1323	14	Idle Smoothness Control / Cylinder #1 Quantity Excess at Idle	correction value for cyl1 out of range
1323	31	Idle Smoothness Control / Cylinder #1 Quantity Deficit at Idle	correction value for cyl1 out of range
1324	11	Cylinder #2 Misfire Detected	Misfire Detection Cyl 2
1324	14	Idle Smoothness Control / Cylinder #2 Quantity Excess at Idle	correction value for cyl2 out of range
1324	31	Idle Smoothness Control / Cylinder #2 Quantity Deficit at Idle	correction value for cyl2 out of range
1325	11	Cylinder #3 Misfire Detected	Misfire Detection Cyl 3
1325	14	Idle Smoothness Control / Cylinder #3 Quantity Excess at Idle	correction value for cyl3 out of range
1325	31	Idle Smoothness Control / Cylinder #3 Quantity Deficit at Idle	correction value for cyl3 out of range
1326	11	Cylinder #4 Misfire Detected	Misfire Detection Cyl 4
1326	14	Idle Smoothness Control / Cylinder #4 Quantity Excess at Idle	correction value for cyl4 out of range
1326	31	Idle Smoothness Control / Cylinder #4 Quantity Deficit at Idle	correction value for cyl4 out of range
1327	11	Cylinder #5 Misfire Detected	Misfire Detection Cyl 5
1327	14	Idle Smoothness Control / Cylinder #5 Quantity Excess at Idle	correction value for cyl5 out of range
1327	31	Idle Smoothness Control / Cylinder #5 Quantity Deficit at Idle	correction value for cyl5 out of range
1328	11	Cylinder #6 Misfire Detected	Misfire Detection Cyl 6
1328	14	Idle Smoothness Control / Cylinder #6 Quantity Excess at Idle	correction value for cyl6 out of range
1328	31	Idle Smoothness Control / Cylinder #6 Quantity Deficit at Idle	correction value for cyl6 out of range
1413	16	Injection Timing Cylinder #1 Out of Range	injection timing failure
1413	31	End of injection Timing Cylinder #1 Out of Range	injection timing failure
1414	16	Injection Timing Cylinder #2 Out of Range	injection timing failure
1414	31	End of Injection Timing Cylinder #2 Out of Range	injection timing failure
1415	16	Injection Timing Cylinder #3 Out of Range	injection timing failure
1415	31	End of Injection Timing Cylinder #3 Out of Range	injection timing failure
1416	16	Injection Timing Cylinder #4 Out of Range	injection timing failure
1416	31	End of Injection Timing Cylinder #4 Out of Range	injection timing failure
1417	16	Injection Timing Cylinder #5 Out of Range	injection timing failure
1417	31	End of Injection Timing Cylinder #5 Out of Range	injection timing failure
1418	16	Injection Timing Cylinder #6 Out of Range	injection timing failure
1418	31	End of Injection Timing Cylinder #6 Out of Range	injection timing failure
1563	14	Detect Unw anted ECU Change	Detect unw anted ECU exchange
1636	0	Charge Air Cooler Low Efficiency	Charge cooler fail high by detecting a high intake manifold temperature
1636	2	Difference Intake Manifold and Icooler Temperature Out Less Than Threshold (Low Box)	likely fault in either engine gas-path or component
1636	3	Intake Manifold Temperature Circuit Failed High	Intake Manifold Temperature Circuit Failed High
1636	4	Intake Manifold Temperature Circuit Failed Low	Intake Manifold Temperature Circuit Failed Low
1636	11	Intake Manifold Temperature Plausibility Error	general temperature diagnostic, t intake air
1636	20	Intake Manifold Temperature Drift (Low Box)	Intake Air Temperature above threshold
1636	21	Intake Manifold Temperature Drift (High Box)	Intake Air Temperature less than threshold
1639	1	FAN Clutch Issue	Detection of a faulty fan clutch for fan type 28

SPN	FMI	Fault_name	Fault Description	Pin No.	Failure cause
3610	14	MU_DPF_MON_SCR_PIPE_LEAK			
3610	15	MU_DPF_MON_P_BACK_SRH			
3610	21	DPF Oulet Pressure - Drift Low			
3703	31	Regen Inhibit Sw icht active w hen zone logic increments	Regeneration inhibition pop-up		increment of dpf-zone w hile inhibit sw itch active
3711	31	Parked Regen Failed - DOC Temp In Low Preventing Dosing			
3713	31	Parked Regen Failed - DOC Temp Out, Not Reaching Target Temp			
3719	0	Soot Level Very High			
3719	15	DPF Zone 3 Condition			
3719	16	Soot Level High			
3719	31	DPF Zone 2 Condition			
3720	15	DPF Ash Clean Request			
3720	16	DPF Ash Derate Request			
3750	31	High Idle Regen Aborted - CPC Request			
3826	0	Long term DEF consumption too high			
3826	1	Long term DEF consumption too low			
3828	0	Short term DEF consumption too high			
3828	1	Short term DEF consumption too low			
3828	15	MU_UCM_SC_CONSUM_SRH			
3828	17	MU_UCM_SC_CONSUM_SRL			
3936	7	Incomplete Regeneration	Interruption of the service regeneration in zone 5		
3936	17	MU_DPF_EFF_CHECK			
3936	18	DPF Pressure - Out of Range Low			
4094	31	Improper DEF Quality	Urea dilution detected		
4100	13	MCM/ACM Softw are Not Compatable	freeze frame versions of ECU A and ECU B does not match		
4246	14	Tier4 Inducement System has not been activated	Inducment Function is not activated		
4331	16	MU_DEF_DLVRY_OVER_DOS			
4331	18	MU_DEF_DLVRY_UNDER_DOS			
4332	31	DOC inlet temperature out of range low preventing hc dosing			
4334	2	DEF Pressure Sensor Drift in Range		100	
4334	3	DEF Pressure Sensor Circuit Failed High	Urea pressure signal range failed high	100	Sensor shorted to supply voltage or battery
4334	4	DEF Pressure Sensor Circuit Failed Low	Urea pressure signal range failed low	100	Sensor shorted to ground, open connector or broken w ire
4334	5	DEF Pressure Sensor not Plausible		100	
4334	7	DEF Pressure Low		100	
4334	8	DEF Pressure Signal Spike	Urea Pressure sensor sporadic defect	100	
4334	10	Def Acumulator Failure			
4334	17	DEF Purge Pressure High		100	
4335	1	DEF Air Pressure Not Detected (from vehicle supply)		74	
4335	2	DEF Air Pressure Sensor Drift		74	

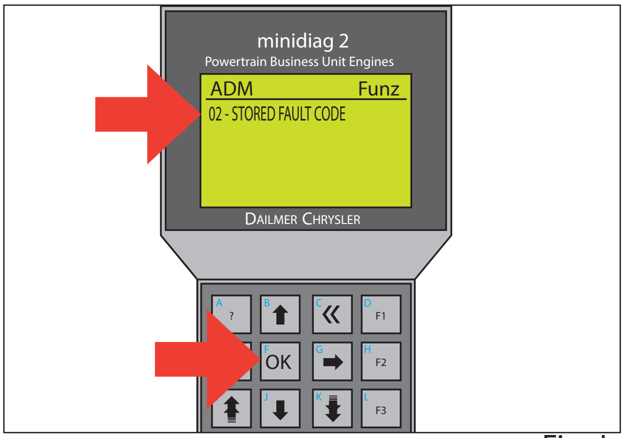


Fig. J

After resetting the errors, go on «02 - STORED FAULT CODE» and push the button «OK» (Fig. J).

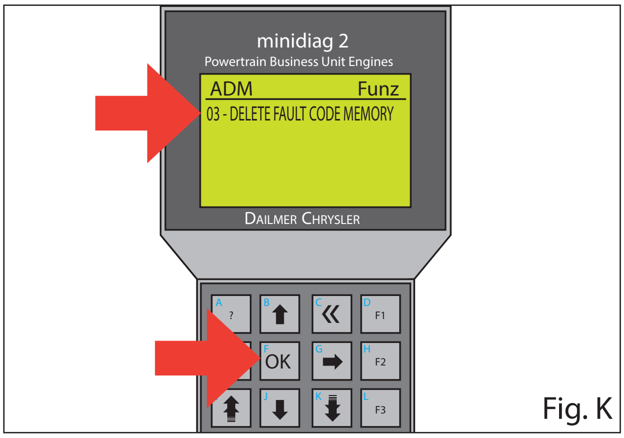


Fig. K

Select «03 - DELETE FAULT CODE MEMORY» and push the button «OK» (Fig. K).

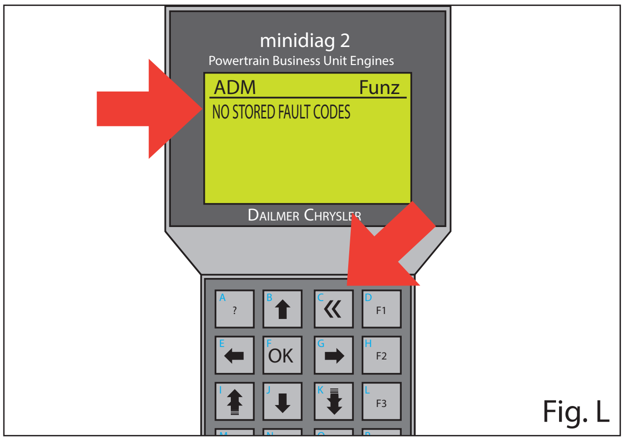


Fig. L

Wait that on the display is visualized «NO STORED FAULT CODES».

Push for six times the control "«" to finish the parameters calibration procedure (Fig. L).

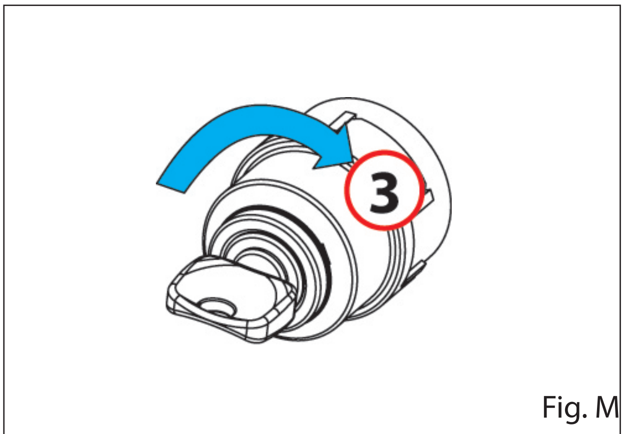
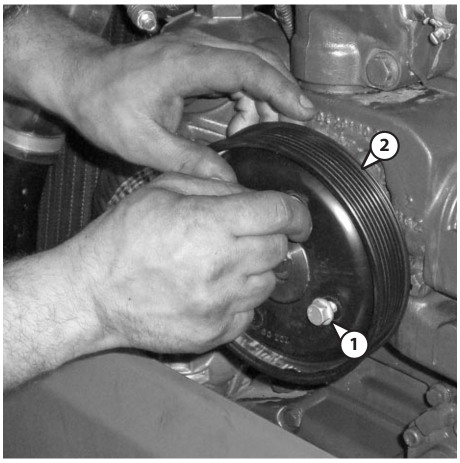


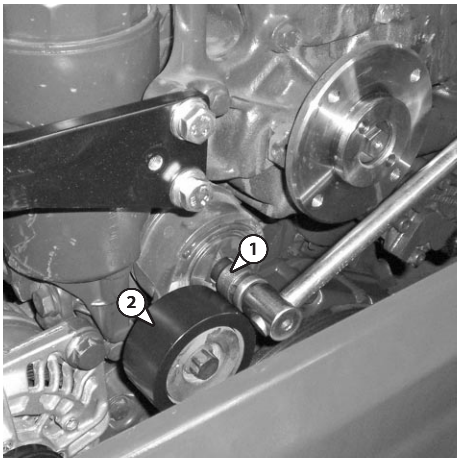
Fig. M

Start the machine and turn the key in position «3» (Fig. M).

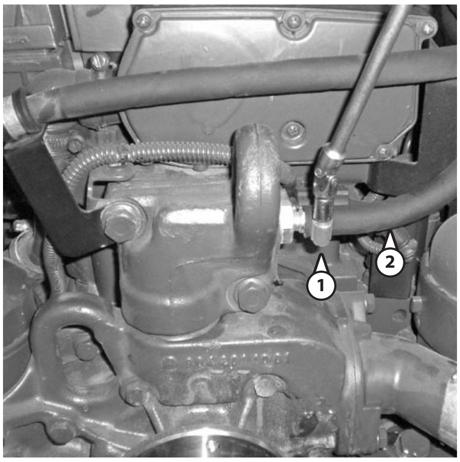
ADM3 fault code (J1939) SPN / FMI	"ADM3 fault code (K-line)"	"MR2 fault code (K-line)"	Fault location	Fault description	Remedial action	Pin
4335 / 14	-	14264	SCR Air Pressure System	Draining Pressure Pipe Not Performed		LSCAN-MR
4336 / 3	-	13707	SCR Air Pressure Control Valve Solenoid	Circuit Low		LSCAN-MR
4336 / 4	-	13706	SCR Air Pressure Control Valve Solenoid	Circuit High		LSCAN-MR
4336 / 5	-	13709	SCR Air Pressure Control Valve Solenoid	Circuit Open		LSCAN-MR
4337 / 3	-	18315	Reductant Temperature Sensor	Circuit High Input		LSCAN-MR
4337 / 4	-	18316	Reductant Temperature Sensor	Circuit Low Input		LSCAN-MR
4354 / 3	-	15807	SCR Reductant Pipe Heating	Circuit High		LSCAN-MR
4354 / 4	-	15806	SCR Reductant Pipe Heating	Circuit Low		LSCAN-MR
4354 / 5	-	15809	SCR Reductant Pipe Heating	Circuit Open		LSCAN-MR
4354 / 7	-	15869	SCR Reductant Pipe Heating	Circuit		LSCAN-MR
4360 / 0	-	10797	SCR Catalyst Temperature Before Catalyst	Temperature Too High		LSCAN-MR
4360 / 2	-	13817	Catalyst Temperature Sensors	Range/Performance		LSCAN-MR
4360 / 15	-	10788	SCR Catalyst Temperature	Level 1 Exceeded		LSCAN-MR
4360 / 16	-	10789	SCR Catalyst Temperature	Level 2 Exceeded		LSCAN-MR
4363 / 0	-	10722	SCR Catalyst Temperature Behind Catalyst	Temperature Too High		LSCAN-MR
4364 / 15	-	12971	NOx Emission	Level 1 Exceeded		LSCAN-MR
4364 / 16	-	12972	NOx Emission	Level 2 Exceeded		LSCAN-MR
4375 / 0	-	16777	Reductant Pressure System Pump	Current Too High		LSCAN-MR
4375 / 3	-	13907	Reductant Supply Control	Curcuit High		LSCAN-MR
4375 / 4	-	13906	Reductant Supply Control	Curcuit Low		LSCAN-MR
4375 / 5	-	13909	Reductant Supply Control	Curcuit Open		LSCAN-MR
4794 / 14	-	10782	Aftertreatment 1 SCR Catalyst System	Component Not Present		LSCAN-MR
4809 / 3	-	10815	Catalyst Temperature Sensor (Bank 1 Sensor 1)	Circuit High Input		LSCAN-MR
4809 / 3	-	12404	Catalyst Temperature Sensor (Bank 1 Sensor 1)	Circuit High Input		LSCAN-MR
4809 / 4	-	10816	Catalyst Temperature Sensor (Bank 1 Sensor 1)	Circuit Low Input		LSCAN-MR
4809 / 4	-	12405	Catalyst Temperature Sensor (Bank 1 Sensor 1)	Circuit Low Input		LSCAN-MR
4810 / 3	-	10915	Catalyst Temperature Sensor (Bank 1 Sensor 2)	Circuit High		LSCAN-MR
4810 / 4	-	10916	Catalyst Temperature Sensor (Bank 1 Sensor 2)	Circuit Low		LSCAN-MR
520192 / 9	19409	-	Engine Start Stop Signals	Abnormal Update Rate		CAN-J1939
520192 / 19	19419	-	Engine Start Stop Signals	Received Network Data in Error		CAN-J1939



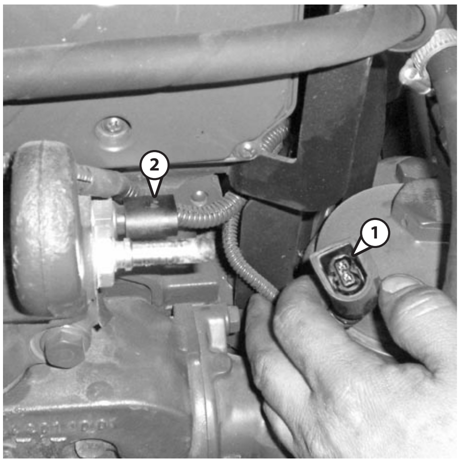
Slacken the four screws (Ref. 1) and remove the pulley (Ref. 2).



Slacken the screw (Ref. 1) and remove the belt tensioner (Ref. 2).



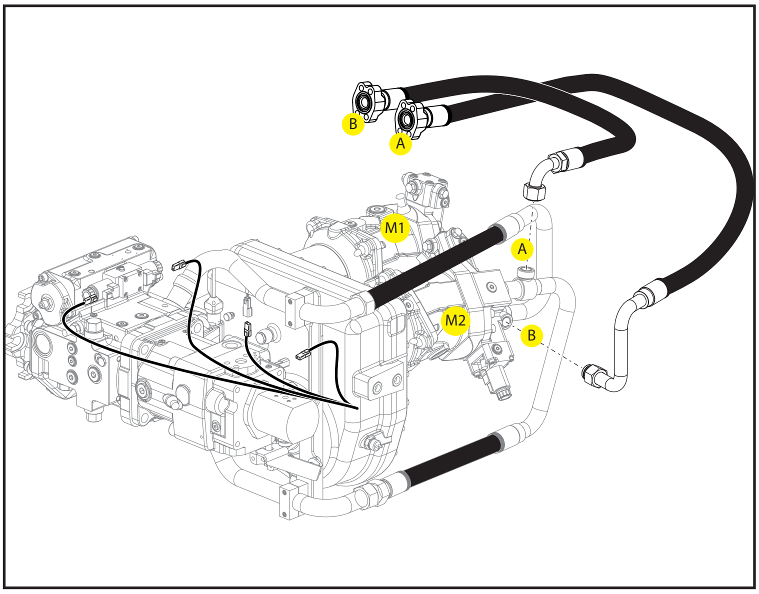
Slacken the clamp (Ref. 1) and disconnect the drainage tube (Ref. 2) from the thermostatic valve.



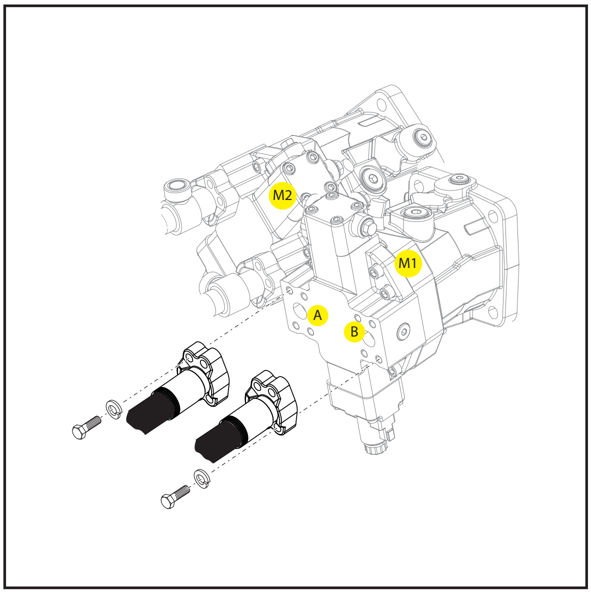
Disconnect the temperature sensor (Ref. 1) from the thermostatic valve (Ref. 2).

FUNCTION OF HYDROSTATIC COMPONENTS

Item	Component	Function
1	Booster pump	Supplies a flow of oil to compensate for losses caused by internal leaks in the system + maintains pressure in the circuit
2	Boost relief valve	Limits the maximum pressure on the suction/boost line
3	DR valve	Enables regulation of the pump swashplate by creating a leak on the pilot line when the HP reaches the limit value
4	DRE valve	Regulates the pilot pressure according to the engine speed and to the pump regulation information
5	HP limiter	Limits the maximum pressure in the HP line
6	Switch valve	Enables regulation of the engine swashplate by moving the control cylinder towards large or small displacement
7	Flushing valve	Creates a leak on the low pressure circuit by removing hot oil in order to send it to the tank passing by the cooler
8	Filter bypass valve	Enables the transfer of oil when the filter is blocked
9	Engine displacement control cylinder	Moves the control plate to small or large displacement



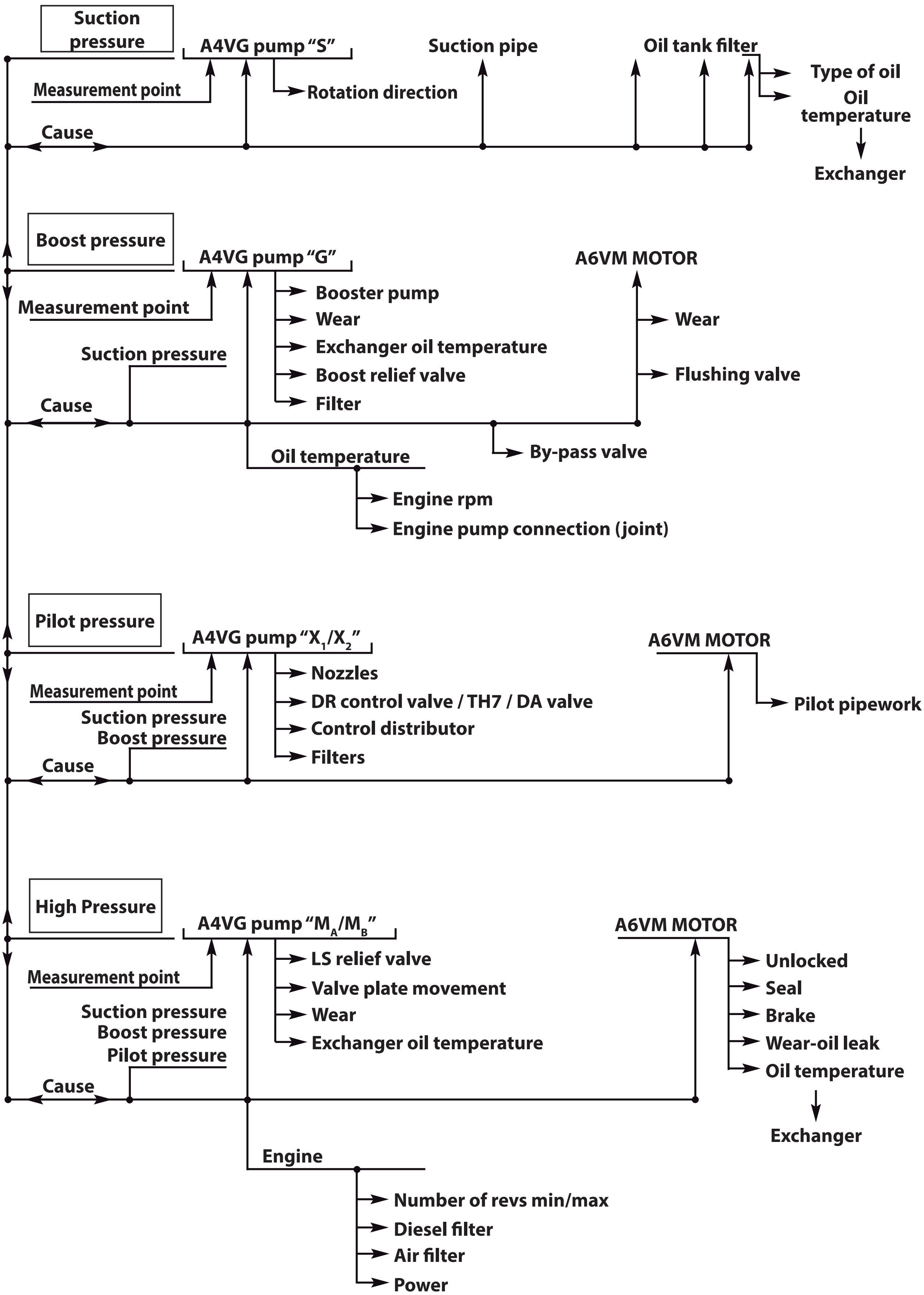
Ports on hydrostatic pump and motors

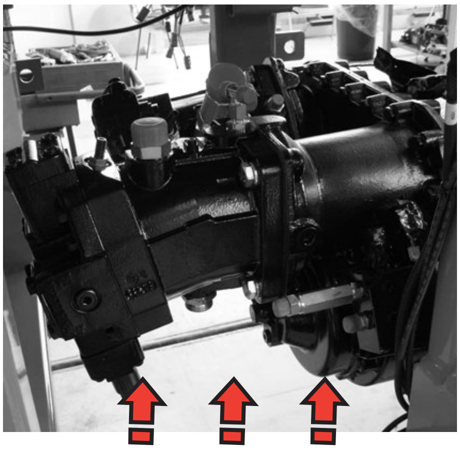


Motors rear view

HYDROSTATIC SYSTEM TROUBLESHOOTING

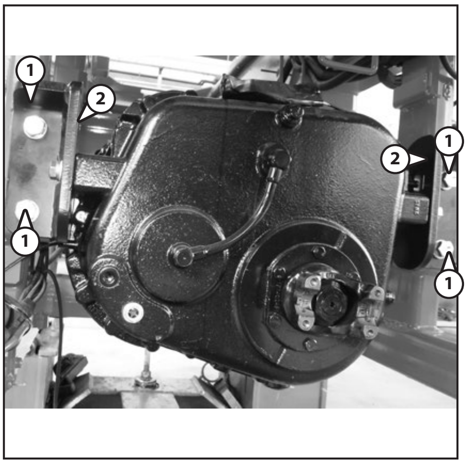
PUMP / MOTOR



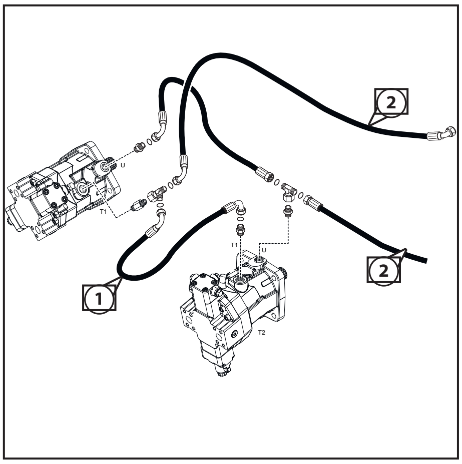


Using suitable lifting means, position the gear in the machine and by means of a pallet jack lift the gear.

Group 20_06 Trasmission removal



Fix the support (Item 1) to the chassis using the screws (Item 2). Pay attention to the bearings between gear and support.



Refit the hoses connecting the motors (Item1) and the hydrostatic pump (Item 2).

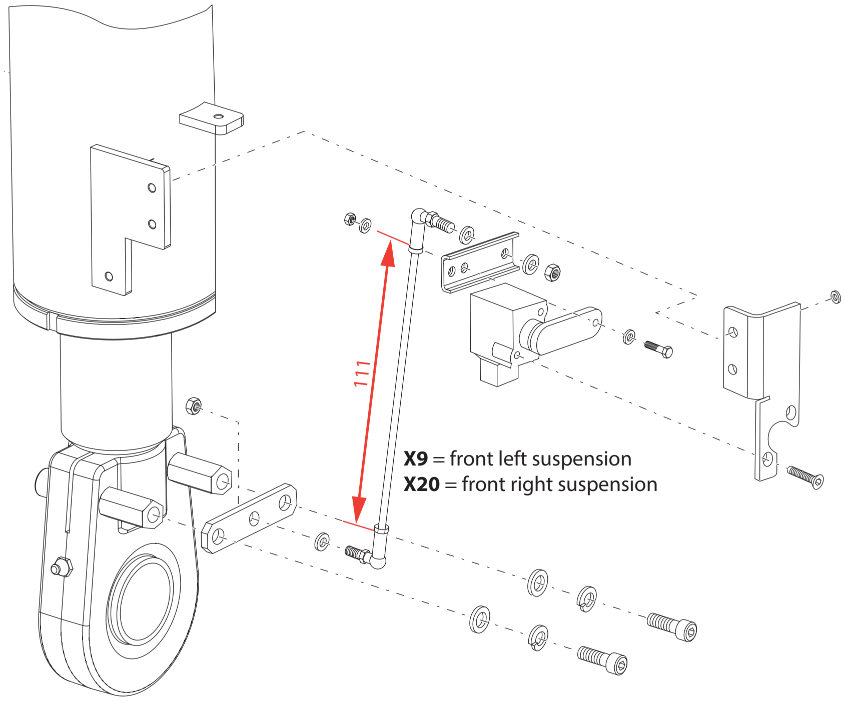
20

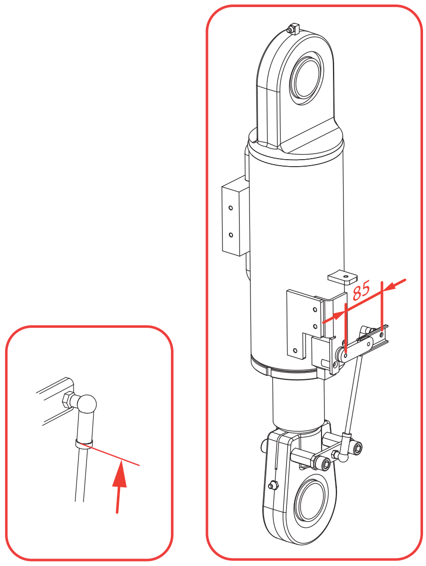
SPN / FMI	SPN / FMI	DTC	Fault / Description	Possible Cause	Reaction	Quit	Remedy	Result	Note
8058			res_88						
8059			res_89						
805A	32858	7F05A	Error Monitoring OFF	Error Monitoring flag active	No reaction				
FMI=14, SPECIAL INSTRUCTIONS	14	E	Prm_s.DiagPrm_s.ErrMonitoring_b					ok	Test bench
805B	32859	7F05B	Scicos Active	Simulation flag active	Vehicle doesn't move				
FMI=14, SPECIAL INSTRUCTIONS	14	E	SCICOS_ACTIVE: Simulation active					ok	Test bench
805C			res_92						
805D			res_93						
805E			res_94						
805F			res_95						
8060			res_96						
8061			res_97						
8062			res_98						
8063			res_99						
8064	32868	7F064	Wrong Machine Configuration	Machine configuration from master controller is wrong. Drive controller is not initialized.	Vehicle doesn't move	Restart drive controller.			
FMI=14, SPECIAL INSTRUCTIONS	14	E	set_Machine.WrgMchCfg_b8 PLC_PRG.StSysInit_u16 <> 16#0000					ok	
8065	32869	7F065	ECU Temperature above normal operation limit	The traction controller temperature above normal operation limit	Ramp down to velocity limited --> Machine moves at limited velocity in both direction. Gearbox is locked.	Restart drive controller.			
FMI = 12 BAD INTELLIGENT DEVICE OR COMPONENT	12	C	sys_getHwTemp() > 85°C					not	Never occurs
8066	32870	7F066	ECU Maximum continuous operating time reached	The traction controller runs for more of 24h	Ramp down to velocity limited --> Machine moves at limited velocity in both direction. Gearbox is locked.	Restart drive controller.			
FMI = 12 BAD INTELLIGENT DEVICE OR COMPONENT	12	C	sys_getTime() > 24h					not	Never occurs
8067	32871	7F067	ECU Maximum operating lifetime reached	The traction controller operating lifetime above maximum value limit	Ramp down to velocity limited --> Machine moves at limited velocity in both direction. Gearbox is locked.	Restart drive controller.			
FMI = 12 BAD INTELLIGENT DEVICE OR COMPONENT	12	C	sys_getAge() > 10000h					not	Never occurs
8067			res_103						
8068			res_104						
8069			res_105						
806A			res_106						
806B			res_107						
806C			res_108						
806D			res_109						
806E			res_110						

Error code hex		Error parameter decimal	Description
0x	0A95	1	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	0A96	1	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0A97	1	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0B01	1..4	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0B02	1	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0B03	1	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0B04	1	PWM channel is not in closed loop mode, <error parameter> = LSB of channel number
0x			
0x	0C01	1..3	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0C03	1..2	The specified API function was called with a parameter which is out of range. The number of this parameter is saved in <error parameter>.
0x	0C05	1..4	Command execution was rejected. Switch on of power outputs is not yet allowed. The reason is saved in <error parameter>: 1: INH (OE) - input is still active 2: SW_INH - input is still active (n.a. in all devices) 3: Sensor supply VSS_2 is switched off (if pullup resistor of input SW_INH is connected to VSS_2; n.a. in all devices) 4: Function is locked by HW monitor (n.a. in all devices)
0x	0C11	0	Stop function is active, but a wrong level at the SW_INH input was detected. Possible reasons: Emergency-off switch may be defect or the line to this switch may be broken or the debounce time is to small for this kind of switch. Power outputs are switched off.
0x	0C12	0	Stop function is active, but a wrong level at the INH (or OE) input was detected. Possible reasons: Emergency- off switch may be defect or the line to this switch may be broken or the debounce time is to small for this kind of switch. Power outputs are switched off.
0x	0C13	1..2	Stop function is active, but a wrong level at the power main switch <VP_x> was detected. Possible reasons: Internal hardware failure. Power outputs are switched off.
0x	0C14	1..2	The switch off of the power main switch <VP_x> failed. Possible reasons: Internal hardware failure. Power outputs are switched off.
0x	0C15	0	Sensor supply voltage Vss_2 has been switched off. Possible reasons: Application has switched off this voltage supply. Power outputs are switched off.
0x	0C16	0	Stop function is active, but a failure within the CPU hardware path of the SW_INH pin (dependent on controller type) was detected. Power outputs are switched off.
0x	0C17	1..2	Stop function is active, but a failure within the hardware path of the INH (or OE) pin for <VP_x> was detected. Possible reasons: Internal hardware failure, or in case of 2 HW-Inhibit pins these pins are not connected together. Power outputs are switched off.
0x	0C18	0..1	The configuration <internal configuration nbr> of the CPU registers for the SW-INH path failed. The SW_INH path of the STOP function does not work. The switch on of the power supplies is locked but for an emergency operation it can be unlocked with the function mo_ignoreError().
0x	0C80	0	This is an optional warning that the SW_INH input was disabled by the application. The occurence of this warning depends on the configuration of the specific RC30 controller type.
0x	0D01	00	A single bit error in internal flash was detected (by ECC). But the ECU is able to correct single bit errors without data lost.
0x	0D02	00	A double bit error in internal flash was detected (by ECC). The ECU is not able to correct double bit errors.
0x	0D03	00	A timeout of the external watchdog was occured.
0x	0D04	00	An inconsistency of data in RAM was detected.
0x	0D05	00	A RAM writability test was failed.
0x	0D06	00	An undefined state was occured in API (sub module mo).
0x	0D07	00	A SPI malfunction was occured in API (sub module mo).
0x	0D08	0	A PCP code checksum error was detected. Note: PCP (Peripheral Control Processor) is part of the TriCore microcontroller.
0x	0D09	0	A GPTA timer malfunction was detected. Note: GPTA (General Purpose Timer Array) is part of the TriCore microcontroller.

SUSPENSION CYLINDER SENSOR SETTINGS

Front drive axle

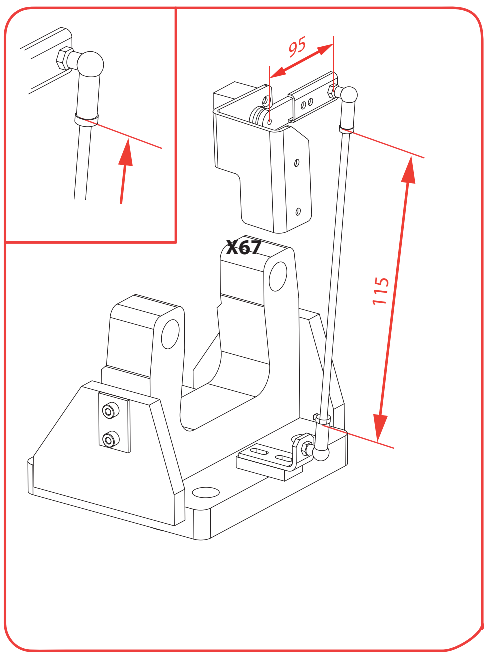


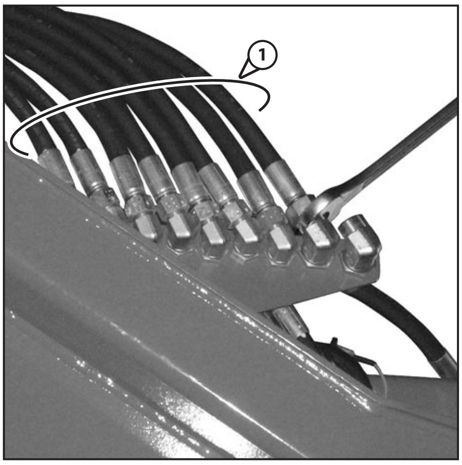


Note, the dimension
includes the nut

Rear drive axle

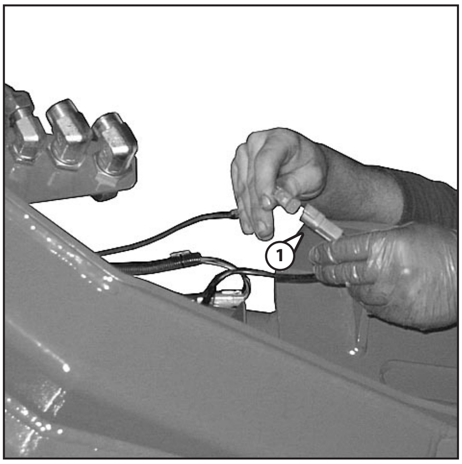
Note, the dimension
includes the nut



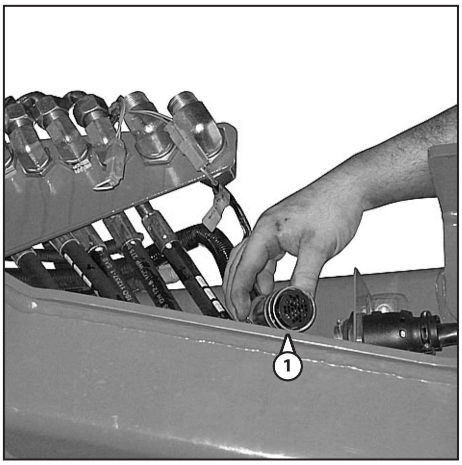


Disconnect all the pipes (Item 1) from the bracket on the boom.

Disconnect the boom/turret hinge pin lubrication pipe (Item 1).

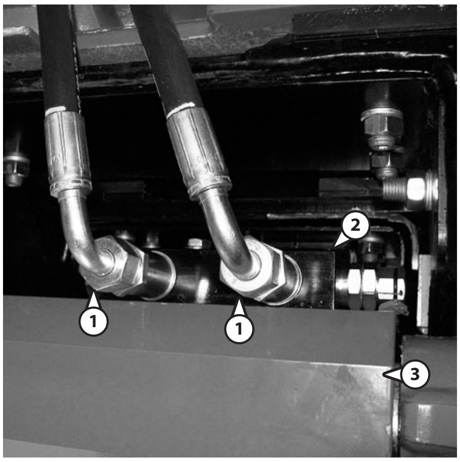


Disconnect the chain microswitch connectors (Item 1).

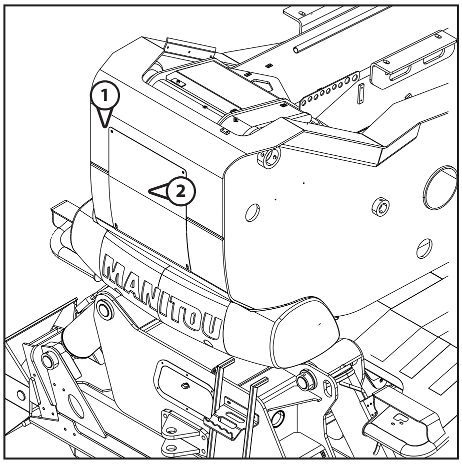


Disconnect the platform electrical system connector (Item 1) and the safety system connector.

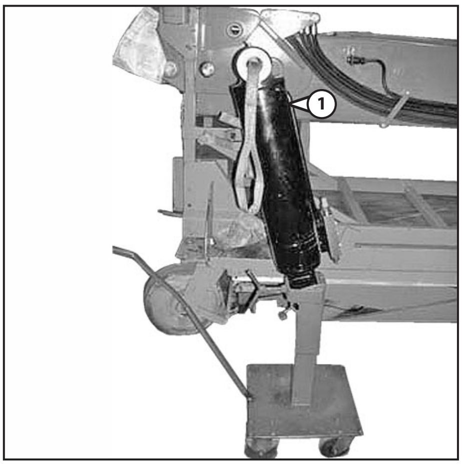
Spread a layer of grease on the pins and reinsert it (Item 1) the rear hinge pin (Item 1) of the ram (Item 1) and refit the seeger clip (Item 2).



Reconnect the pipes (Item 1) to the valve (Item 2) of the Ist extension ram (Item 3).



Refit the rear turret housing (Item 2) by screwing in the screws (Item 1).



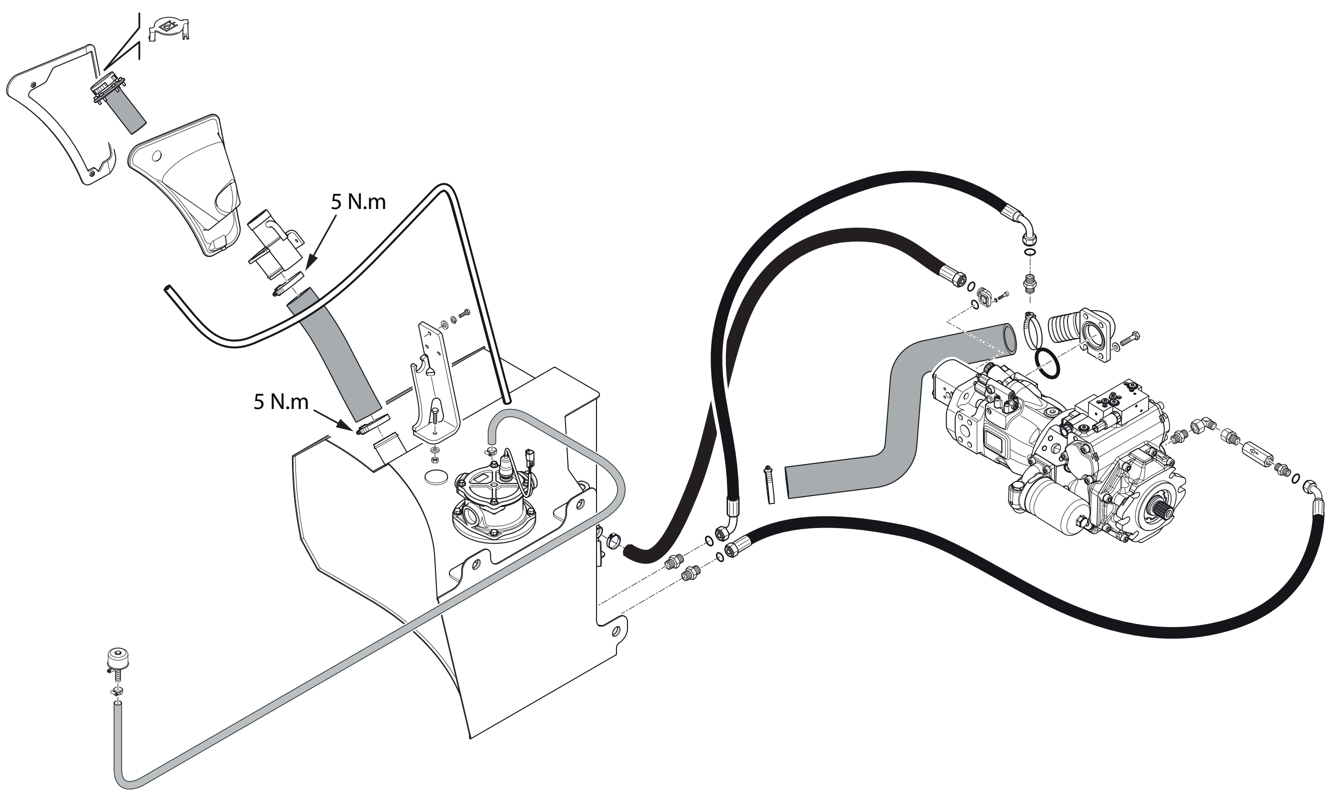
REFITTING THE TRAVERSE RAM

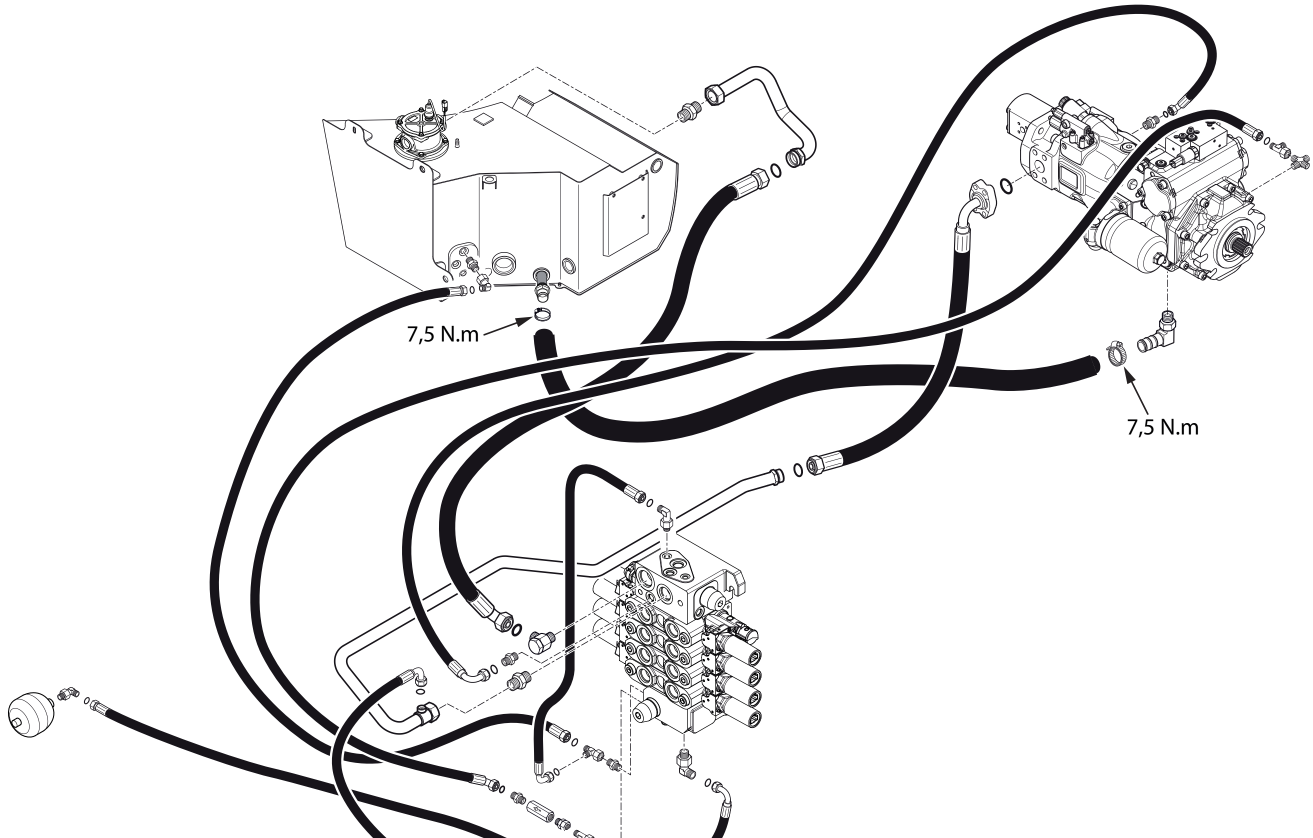
With the help of ropes, an overhead crane and a jack, refit the traverse ram (Item 1) to the head of the boom.

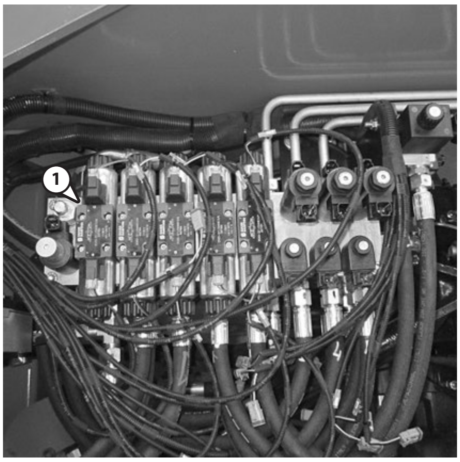
2 - STEERING/BRAKES HYDRAULIC SYSTEM LEGEND

Item.	Designation	Position on diagram	Characteristics (Options)
C.R.	Rotating Hydraulic Manifold	E30	
C.S.C.	Exhaust manifold on the wagon	O30	
C.B.R.	Rotation locking cylinder	K35	
E	Steering selector electrovalve	K31	
F.A.	Suction filter	Q19 / Q20 / Q21	
FDAR	Rear Axle Disk Brakes	C4 / E4	
FDAV	Front Axle Disk Brakes	C39 / E39	
F.R.	Exhaust filter	Q22	
I.D.	Steering System	C13	
M.	Diesel engine	M4	
M.V.	Fan Motor	M23	
MC	Brake pump	A31	
P. MOV.	Load Sensing Movements Pump	M19	
P.H.	Hydrostatic Pump	O12	
P.S.	Service Pump	M21	
R1	Accumulator1	A27	
R2	Accumulator 2	C27	
S	Oil Tank	S16	
V.D.	Steering Cylinder	E5 / E38	
VCA	Accumulators Charge Valve	I23	
VCBF	Parking brake & turret-rotating locking combined valve.	O38	
VF P.AR.	Rear parking brake control cylinder	E6 / E7	
VF P.AV.	Front parking brake control cylinder	E36 / E37	
VSR	Turret-rotating unlocking valve	K38	

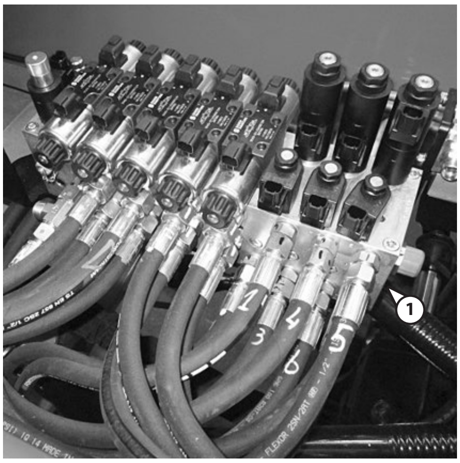
HYDRAULIC CIRCUITS



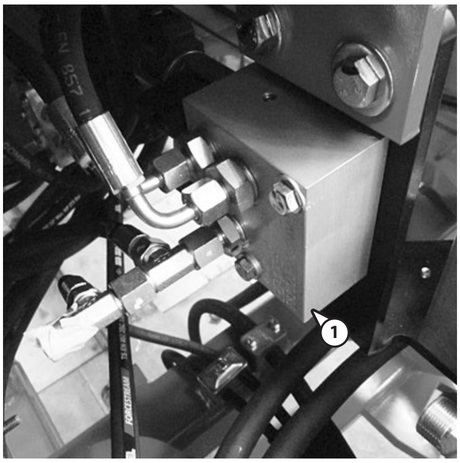




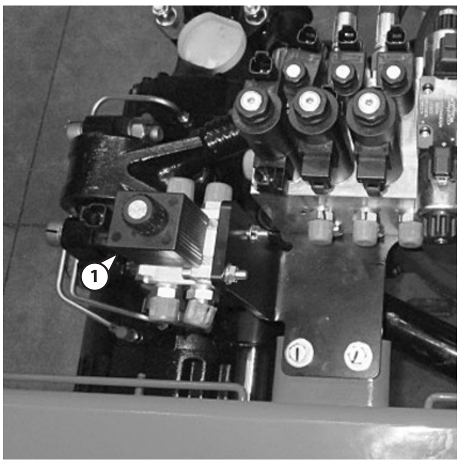
Disconnect all the electrical connectors from the stabilisers electrovalve group (Item 1).



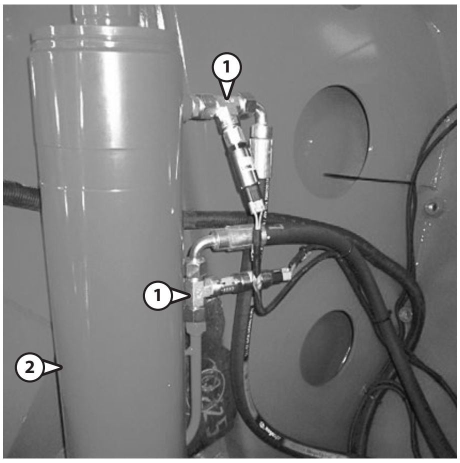
Place a container under the machine.
Disconnect all the hydraulic tubes from the stabilisers electrovalve group (Item 1).



Disconnect all the hydraulic tubes from the turret-rotating unlocking valve (Item 1).



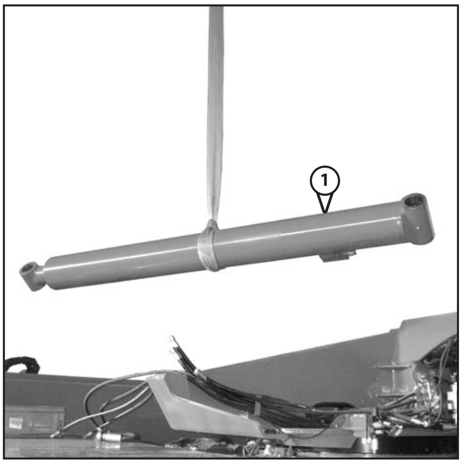
Disconnect all the hydraulic tubes from the steering selector electrovalve (Item 1).



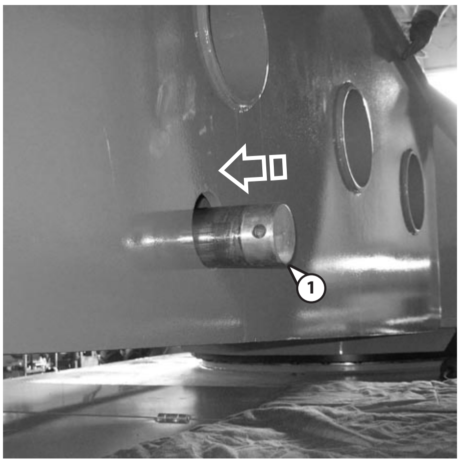
Connect all the tubes (Item 1) on the cylinder (Item 2).

REFIT THE LIFT CYLINDER

Secure the boom to the overhead crane with the appropriate eye bolts.

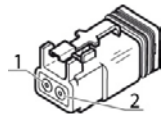
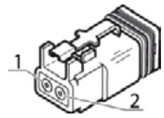
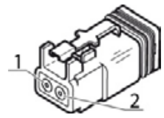
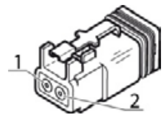
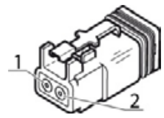
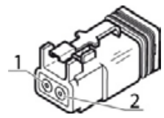
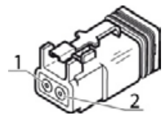
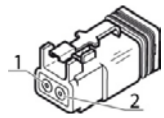
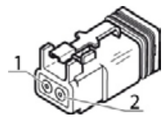
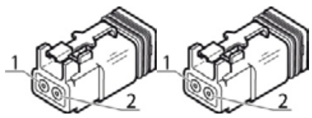
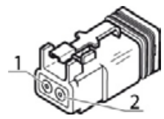
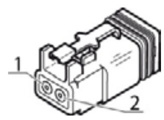
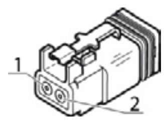


With the help of the overhead crane, place the lifting cylinder (Item 1) on the turret.

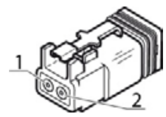
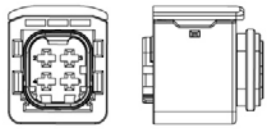
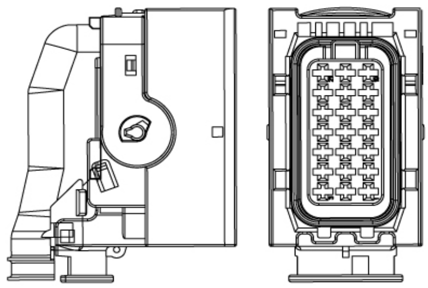


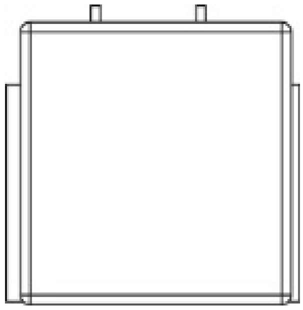
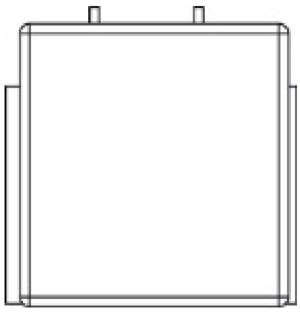
Insert the pin (Item 1) locking the cylinder on the base plate side through the appropriate hole in the turret.

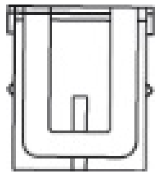
FRONT CHASSIS LINE

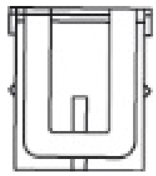
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
EV5	1	Grey - Purple		MC2M-2 CHASSIS	S18	
	2	Black		GND		
EV6	1	Red - White (N°1)		LE70-J2	1	
	2	Black		GND		
EV7	1	White (N°1)		LE70-J2	2	
	2	Black		GND		
EV8	1	Yellow		LE70-J2	3	
	2	Black		GND		
EV9	1	White - Black		LE70-J2	4	
	2	Black		GND		
EV10	1	Yellow - Black		LE70-J2	5	
	2	Black		GND		
EV11	1	Green		LE70-J2	6	
	2	Black		GND		
EV12	1	Green - Black		LE70-J2	7	
	2	Black		GND		
EV13	1	Grey		LE70-J2	8	
	2	Black		GND		
EV14	1	Grey - Black (N°1)		LE70-J2	9	
	2	Black		GND		
EV15	1	White - Pink		MC2M-2 CHASSIS	S8	
	2	Black		GND		
EV16	1	White-Green (N°1)		MC2M-2 CHASSIS	S9	
	2	Black		GND		
EV17	1	Orange - Black		MC2M-2 CHASSIS	S5	
	2	Black		GND		

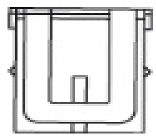
REAR CHASSIS LINE (TIER4)

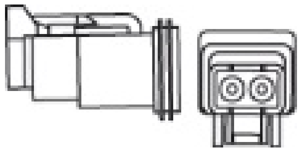
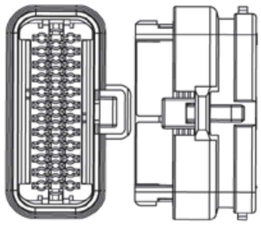
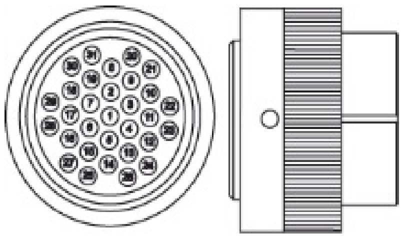
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
A2	1	White - Green		FPS	3	
				FPD	3	
				X18	14	
				X37	2	
	2	Black		GND		
A57	1	Yellow	0,75	A60-2	42	
	2	Brown	0,75	A60-2	41	
	3	White	0,75	A60-2	40	
	4	Green	0,75	A60-2	43	
A60-1	3	Blue		GND		
	5	Blue		GND		
	6	Blue		GND		
	8	Blue		GND		
	9	Blue		GND		
	10	Yellow	0,34	X35	3	
			0,34	X152	24	
	11	Brown (N°1)		FACM	OUT	
	12	Brown (N°1)		FACM	OUT	
	13	Green	0,34	X35	1	
			0,34	A60-1	19	
			0,34	X152	22	
	14	Brown (N°1)		FACM	OUT	
	15	Brown (N°1)		FACM	OUT	
	16	Green - Red		X18	21	
	18	Brown (N°1)		FACM	OUT	
	19	Brown	0,34	X35	1	
			0,34	A60-1	13	
			0,34	X152	22	
	20	White	0,34	X35	2	
			0,34	X152	23	

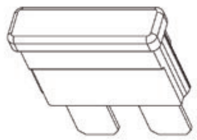
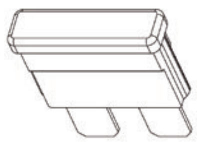
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
R2	30	White	2,5	F21	OUT	
	85	Black		R1	85	
				R3	85	
				R4	85	
				R5	85	
				R6	85	
				R7	85	
				R8	85	
				R9	85	
				R10	85	
				R11	85	
				R12	85	
				R15	85	
				R16	85	
				R17	85	
				X19	B	
	86	Green - Black		R3	86	
				R4	86	
				R5	86	
				X17	29	
	87	White - Black	2,5	X18	4	
R3	30	Grey	2,5	F22	OUT	
	85	Black		R1	85	
				R2	85	
				R4	85	
				R5	85	
				R6	85	
				R7	85	
				R8	85	
				R9	85	
				R10	85	
				R11	85	
				R12	85	
				R15	85	
				R16	85	
				R17	85	
				X19	B	
	86	Green - Black		R2	86	
				R4	86	
				R5	86	
				X17	29	
	87	Grey - Black	2,5	X18	3	

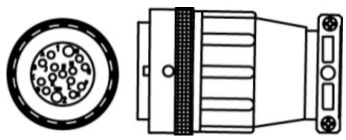
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I3	1	Orange		J1	1	
	3	Orange - Yellow		I1	5	
				I2	5	
				I3	4	
				I4	3	
				I5	1	
				I6	1	
				I7	5	
				I8	1	
				I12	3	
				I12	4	
				I13	1	
				I14	3	
				I15	4	
				I15	3	
				I15	6	
				I16	5	
				I19	1	
				I20	3	
				I30 cabin	3(1)	
				I30 cabin	3(2)	
				I30 cabin	3(3)	
				I30 cabin	3(4)	
				I31 cabin	1	
				I32	1	
				I33	1	
				X20 cabin	E	

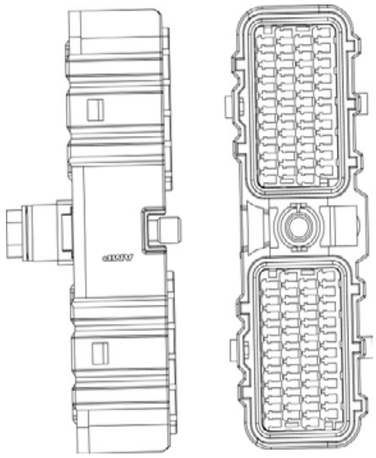
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I11	1	Blue - Green		I10	1	
				I12	1	
				I12	7	
				I17	1	
				I18	1	
	2	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	10	
				I12	B	
				I12	10	
				I13	10	
				I14	B	
				I14	10	
				I15	B	
				I15	10	
				I16	10	
				I17	2	
				I17	10	
				I18	2	
				I18	10	
				I19	B	
				I19	10	
				I20	B	
				I20	10	
				X20 cabin	G	
	5	White - Orange		J2	6	
	6	White		I11	B	
	9	Black		GND		

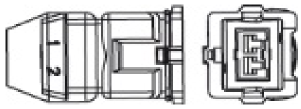
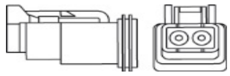
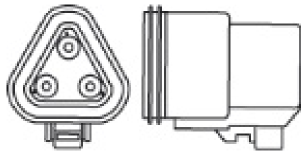
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I17	1	Blue - Green		I10	1	
				I11	1	
				I12	1	
				I12	7	
				I18	1	
	2	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	10	
				I12	B	
				I13	10	
				I14	B	
				I14	10	
				I15	10	
				I15	B	
				I16	10	
				I17	10	
				I18	2	
				I18	10	
				I19	B	
				I19	10	
				I20	B	
				I20	10	
				X20 cabin	G	
	5	White - Green		J2	9	
	6	White		I17	B	
	9	Black		GND		

Rif	Pin	Wire color	Section	Component Destination	Pin	Image
RS232	1	Blue*		X21 cabin	23	
	2	Brown*		X21 cabin	24	
T - 9	1	Red - Blue	1,5	X20 cabin	A	
	4	Black	+	Screen cable line CAN-OPEN		
	5	Brown	0,75+	J1	14	
				X21	29	
	6	White	0,75+	J1	6	
				X21 cabin	30	
	7	Black		GND		
	13	Red		X20 cabin	C	
	24	Black	1,5	GND		
X20 cabin	A	Red - Blue	1,5	T-9	1	
	C	Red		T-9	13	
	D	Black	4	GND		
	E	Orange - Yellow	2,5	I1	5	
				I2	5	
				I3	3	
				I3	4	
				I4	3	
				I5	1	
				I6	1	
				I7	5	
				I8	1	
				I12	3	
				I12	4	
				I13	1	
				I14	3	
				I15	4	
				I15	3	
				I15	6	
				I16	5	
				I19	1	
				I20	3	
				I30 cabin	3(1)	
				I30 cabin	3(2)	
				I30 cabin	3(3)	
				I30 cabin	3(4)	
				I31 cabin	1	
				I32	1	
				I33	1	
	F	Orange - Green		I29	3	

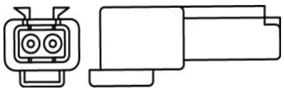
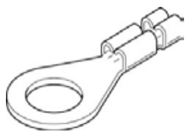
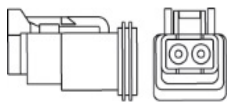
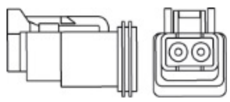
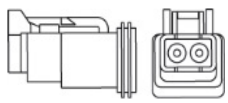
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
F50	IN			F29	IN	
				F42	IN	
				F43	IN	
				F44	IN	
				F47	IN	
				F49	IN	
				F51	IN	
				F52	IN	
				F54	IN	
				F55	IN	
				F62	IN	
				F63	IN	
				F65	IN	
				F67	IN	
				F70	IN	
				R34	87	
	OUT			X88	E	
F51	IN			F29	IN	
				F42	IN	
				F43	IN	
				F44	IN	
				F47	IN	
				F49	IN	
				F50	IN	
				F52	IN	
				F54	IN	
				F55	IN	
				F62	IN	
				F63	IN	
				F65	IN	
				F67	IN	
				F70	IN	
				R34	87	
	OUT			X88	F	

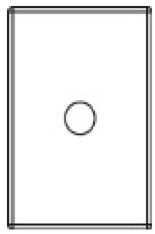
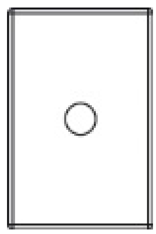
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
X8	1	Red	4	F30	IN	
				F35	IN	
				R32	30	
				R33	30	
				R34	30	
				KEY	1	
				X6	1	
				X8	2	
				X8	A	
				X8	B	
	2	Red	4	F30	IN	
				F35	IN	
				R32	30	
				R33	30	
				R34	30	
				KEY	1	
				X6	1	
				X8	1	
				X8	A	
				X8	B	
	A	Red		F30	IN	
				F35	IN	
				R32	30	
				R33	30	
				R34	30	
				KEY	1	
				X6	1	
				X8	1	
				X8	2	
				X8	B	
	B	Red		F30	IN	
				F35	IN	
				R32	30	
				R33	30	
				R34	30	
				KEY	1	
				X6	1	
				X8	1	
				X8	2	
				X8	A	
	C	Black		GND		
	E	Black		GND		
	F	Black		GND		
	G	Black		GND		
	H	Black		GND		
	J	Black		GND		
	K	Blue - Red	1,5	F37	OUT	

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
MC2M-3 TURRET	R4	Grey - Green		X22 cabin	20	
	R5	Yellow - Grey		X22 cabin	5	
	R6	Purple - Red		A2	1	
	R13	Blue - Black		X22 cabin	41	
	R14	Green - Black (N°1)		XARG	1	
	R15	Red - Yellow		XRD	H2	
				XRD	H3	
	R16	Black - Blue		A1	1	
	R17	Orange - Purple (N°1)		X9	U	
	R19	Orange - Black		X14	S	
	R20	Orange - Green (N°1)		X14	T	
	R23	White - Orange		X14	N	
	R24	Brown - Black (N°1)		X11	13	
	R26	Orange - Green		X11	17	
	R27	Black - Yellow (N°1)		X11	15	
	R28	Black - White (N°1)		X11	16	
	R29	Green - Red		X23 cabin	28	
	R30	Brown - Green		X11	14	
	R33	Orange		X23 cabin	26	
	R38	Green - Red		X14	P	
	R39	Green - Grey (N°1)		X14	Q	
	R40	Pink - Green		X11	18	
	L1	Brown - Purple		X11	24	
	L2	Yellow - Green (N°1)		X14	R	
	L3	Grey - Purple		X22 cabin	19	
	L4	Brown - Pink		X9	V	
				X10	7	
				X23 cabin	22	
	L5	Azure - Black		X22 cabin	3	
	L6	Green - Brown		X9	W	
	L8	Grey - Black (N°1)		MDCP	33	
				X22 cabin	30	
	L9	Orange - Green (N°1)		X23 cabin	25	
	L10	Brown - Red (N°1)		X22 cabin	28	
	L11	Brown - Green (N°1)		X22 cabin	29	
	L12	White - Blue (N°1)		X14	L	
	L13	Pink - Grey		X23 cabin	9	
	L14	White - Pink		X14	M	
	L16	Grey - Red (N°1)		X22 cabin	45	
	L17	Orange - Brown		X22 cabin	13	
	L18	Green - Black		X22 cabin	15	
	L19	Azure - Green (N°1)		X22 cabin	37	
	L20	Azure - Yellow (N°1)		X22 cabin	38	
	L21	Orange - White (N°1)		XRD	K2	
	L22	White - Red (N°1)		X14	H	
	L23	Blue (N°1)		X11	12	
	L24	White (N°1)		X14	F	
	L25	Black - Green (N°1)		XRD	F2	
	L26	Red - Black (N°1)		X22 cabin	16	

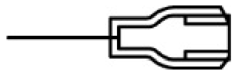
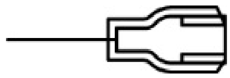
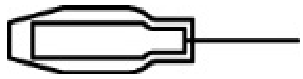
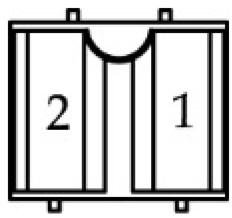
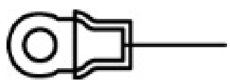
Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X63 engine	1	Grey - Green		X35	6	
	2	Black		GND		
				X19	B	
				X62	2	
				X65 engine	C	
X64 engine	1	Red - Black		X19	R	
				X65 engine	A	
	2	Pink - Brown		X35	7	
X65 engine	A	Red - Black		X19	R	
				X64 engine	1	
	B	Red		X19	S	
	C	Black		X19	B	
				X62	2	
				X63 engine	2	
				GND		

REAR CHASSIS LINE WIRING - T3A

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
A2	1	White - Green		FPS	3	
				FPD	3	
				X18	14	
				X37	2	
	2	Black		GND		
B+	/	Red	6	X152	1	
				X152	2	
B-	/	Blue	16*	GND		
CR1	1	White		X20 chassis	5	
				X23 chassis	5	
				X152	27	
	2	Brown		X20 chassis	4	
				X23 chassis	4	
				X152	29	
CR2	1	Green	0,75	M58	54	
				M96	62	
				X152	18	
	2	Yellow	0,75	M58	53	
				M96	63	
				X152	20	
DRE-A	1	Yellow (N° 2)		M96	53	
	2	Yellow - Black (N° 1)		M96	83	

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
R5-a	30	Black		R1-a	85	
				R2-a	85	
				R3-a	85	
				R4-a	85	
				R5-a	85	
				R6-a	85	
				R7-a	85	
				R8-a	85	
				R9-a	85	
				R10-a	85	
				T1	86	
				XA	1	
	85	Black		R1-a	85	
				R2-a	85	
				R3-a	85	
				R4-a	85	
				R5-a	30	
				R6-a	85	
				R7-a	85	
				R8-a	85	
				R9-a	85	
				R10-a	85	
				T1	86	
				XA	1	
	86	Pink - Yellow		R4-a	86	
				R10-a	86	
				T1	87	
	87a	Purple - Red	2,5	XA	6	
R6-a	30	Green - Black	2,5	R9-a	30	
				F4-a	OUT	
	85	Black		R1-a	85	
				R2-a	85	
				R3-a	85	
				R4-a	85	
				R5-a	30	
				R5-a	85	
				R7-a	85	
				R8-a	85	
				R9-a	85	
				R10-a	85	
				T1	86	
				XA	1	
	86	Blue - Red		D1/D2	4	
				XA	14	
	87	Green		XA	E	

CAB WIRING

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
HPD	1	Green (N°21)		X15A	H	
	2	Green (N°20)		X15A	G	
HPG	1	Green (N°23)		X15A	K	
	2	Green (N°22)		X15A	J	
X6	1	Black		X010	2	
				X011A	1	
				X013	9	
				X014	9	
				X015	9	
				X016	9	
				X017	9	
				X018	9	
				X27 cabin	1	
				X95 cabin	2	
				X101 cabin	2	
				X107 cabin	3	
	2	Red		X013	5	
				X15A	C	
X010	1	Yellow (N°38)	2	X013	1	
				X15A	L	
			2	X6	1	
				X011A	1	
				X013	9	
				X014	9	
				X015	9	
				X016	9	
				X017	9	
				X018	9	
				X27 cabin	1	
				X95 cabin	2	
				X101 cabin	1	
				X107 cabin	3	
X011	1	Black (N°2)	5	X26 cabin	3	
				X30 cabin	B	
				X33 cabin	2	
				X33 cabin	4	
				X100 cabin	3	
				X102 cabin	2	
				X200	2	
				X201	2	
				X202	2	

(Continued)

MANIMUX POWER MC2M CHASSIS								
Connector S						Connector P		
No. PIN	TYPE	Designation	No. PIN	TYPE	Designation	No. PIN	TYPE	Designation
S1	+VB	Vbat	S21	-VB	GND	P1	VPWRA	VP_A
S2	OUT16	EV 31 parking brake	S22	VAref		P2	VPWRB	VP_B
S3	OUT06	Telma niv 2	S23	CAN0-L	CAN OPEN Low	P3	VPWRC	VP_C
S4	OUT07	Telma Niv 1	S24	CAN0-R		P4	WDOPWRA	WDO_OUT_A
S5	OUT04	EV 17 extension stabs	S25	CAN0-H	CAN OPEN high	P5	WDOPWRB	WDO_OUT_B
S6	OUT05		S26	CAN1-L	CAN J1939 low	P6	WDOPWRC	WDO_OUT_C
S7	CAN1-H	CAN J1939 high	S27	CAN1-R		P7	WDOPWRD	WDO_OUT_D
S8	OUT21	EV15 locking turret	S28	CAN2-H		P8	WDOPWRE	WDO_OUT_E
S9	OUT22	EV16 unlocking turret	S29	CAN2-R				
S10	OUT23	activation Bi-Energy	S30	CAN2-L				
S11	+15Vout		S31	+5Vout	supply sensors suspension (5V)			
S12	AGND		S32	AGND	GND sensors suspension			
S13	OUT17	EV27 exclusion Stabs	S33	DGND				
S14	OUT18		S34	DGND				
S15	OUT19	Telma Niv 3	S35	DGND				
S16	OUT20	Telma Niv 4	S36	LIN1				
S17	OUT02	EV 5 engine oil cooler	S37	LIN0				
S18	OUT03	activation oil cooler motor fans	S38	RS232-RX				
S19	OUT00		S39	RS232-TX				
S20	OUT01		S40	EGND				

Electrical connectors																		
Item	***Diag. 1.1***	***Diag. 1.2***	***Diag. 2.1***	***Diag. 2.2***	***Diag. 3***	***Diag. 4.1***	***Diag. 4.2***	***Diag. 4.3***	***Diag. 4.4***	***Diag. 5***	***Diag. 6***	***Diag. 7***	***Diag. 8.1***	***Diag. 8.2***	***Diag. 9***	***Diag. 10***	***Diag. 11***	***Diag. 12***
XDM		√		√														
XEB												√						
XED+	√	√																
XM1		√																
XM2		√		√	√													
XM3					√													
XM4				√	√							√						
XP1										√		√						
XP2												√						
XR1									√									
XRB		√			√													
XRD			√	√				√	√			√			√			
XS3		√		√	√													
XSC	√	√			√										√			
Y627										√								

4.4 - HYDRAULIC MOVEMENTS (Platform version)

Electrical connectors					
Wiring harness type	Item	Name of component	Designation	Position on diagram	Hydraulic equivalence code
	X11		Basket	I19	
	X11-a		Basket interface	M20	
	X11A		Basket interface	K19	
	X14		Driver's position interface	K6	
	X20 cabin		Dashboard interface switch	E40 / E41 / K24 / K25 / K39 / K40 / O32 / O33	
	X21 cabin		Dashboard interface switch	K34 / K35 / Q11 / Q12	
	X22 cabin		Dashboard interface switch	I24 / I25 / K14 / K15 / O11 / O12	
	X23 cabin		Dashboard interface switch	K17 / K18	
	X66		Anti-theft alboom connector	M24	
	X84		Emergency stop line bypass jumper	O25	
	X94		Disable safety system (logic)	Q16	
	XA		DEF tubes heater	K19	
	XB		DEF tubes heater	K21	
	XR1		Radio control resistor	G19	
	XRD		Radio control	G21	

Electrical components			
Item	Designation	Position on diagram	Hydraulic equivalence code
I2	Remote control ON switch	Q27	
I26	2nd/3rd output boom head switch	G31	
I26.1	2nd/3rd output boom head switch	G25	
I27	boom suspension switch	G37	
I30 cabin	4 position Manual Suspensions levelling joystick	I26 / I27	
I31 cabin	Anti-tipping exclusion	Q18 / Q19	
I32	Disable basket selector key switch	Q22	
I33	Basket bypass emergency stop pushbutton	Q20	
J1	Display connector	M31	
J2	Display connector	M38	
M3	LH joystick	G10	
M4	RH joystick	G14	
M5	keypad	G15	
MC2M-1 TURRET	TURRET MC2M control unit - power supplies	Q8 / Q9	
MC2M-3 TURRET	TURRET MC2M control unit	M12 / M14	
MDCP	Midac plus control unit	Q10 / Q11	

Fuse box				
Item	Designation	Current	Position on diagram	Hydraulic equivalence code
F31	Fuse for switch backlight	7,5A	C40	
F48	Fuse "15" joystick	10A	C17	
F64	Fuse "15" switch supply	15A	C22	
F71	Fuse for 3B6 control unit supply	25A	C18	
R32	+ 15 power supply below emergency pushbutton		Q37	

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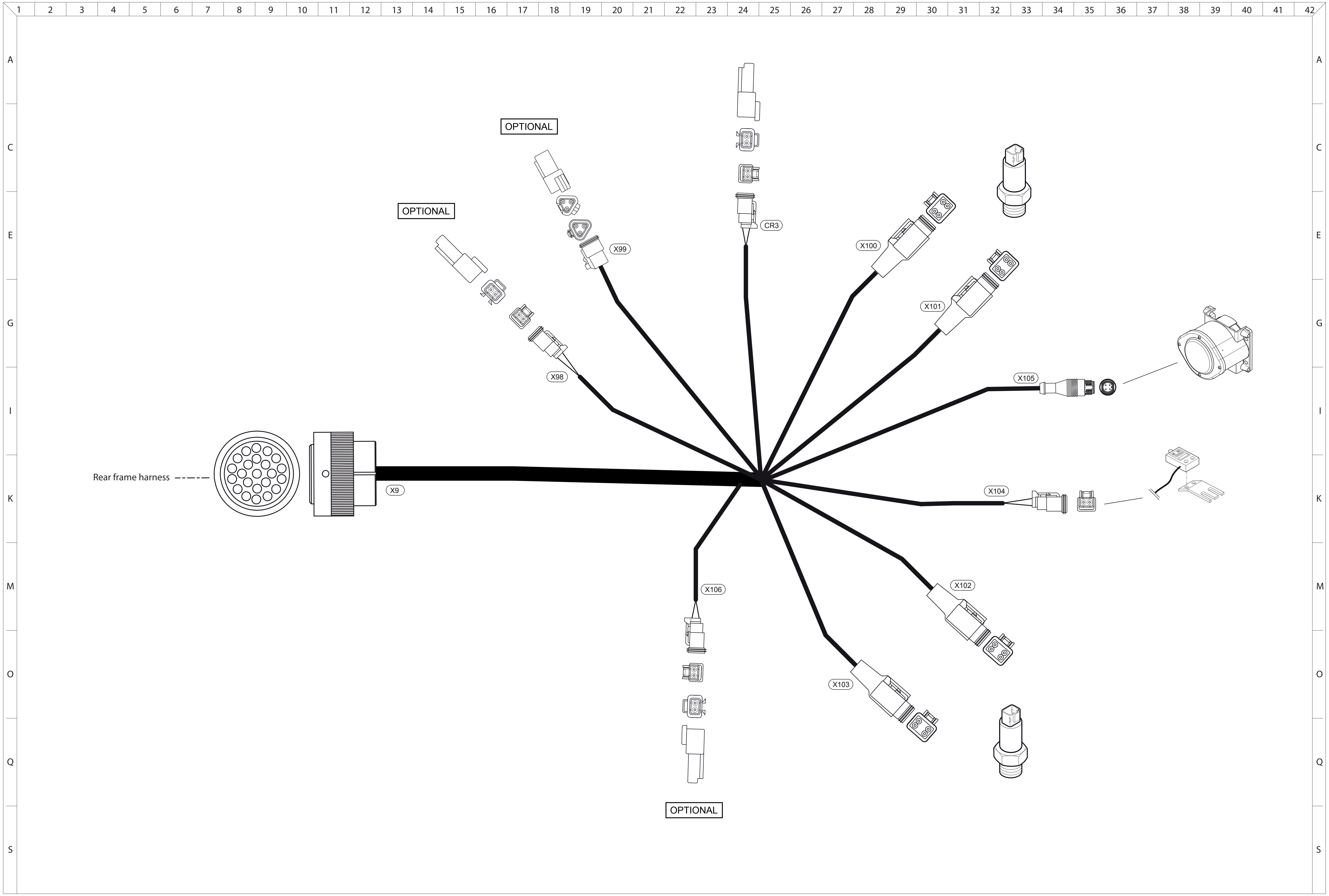
12 - SUSPENSIONS

Electrical connectors					
Wiring harness type	**Item**	**Name of component**	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
	X20 cabin		Dashboard interface switch	C32 / C33	
	X21 cabin		Dashboard interface switch	C30 / C31	
	X22 cabin		Dashboard interface switch	C30 / C31	
	X23 cabin		Dashboard interface switch	C21 / C22	
	X32		RH rear rod solenoid valve	Q24	
	X33 chassis		RH rear solenoid valve	Q25	
	X36		Rear Suspension Potentiometer	K11	
	X40		LH rear rod solenoid valve	Q26	
	X41		LH rear bottom solenoid valve	Q27	
	X56		Rh Fr. Susp. Potentiometer	K7	
	X57		Rh Fr. bottom suspension	Q19 / Q20	
	X58		Rh Fr. rod suspension	Q20 / Q21	
	X59		Lh Fr. Susp. Potentiometer	K8	
	X60		Lh Fr. bottom suspension	Q21 / Q22	
	X61		Lh Fr. rod suspension	Q22 / Q23	
	X88		Axle	G29	
	X90		Compass pre-configuration	G37	
	X151		Chain brake micro-switch (nc)	I9 / O27 / O28	
	XARG		winch solenoid valve	G39	

Fuse box				
Item	**Designation**	**Current**	**Position on diagram**	**Hydraulic equivalence code**
F31	Fuse for switch backlight	7,5A	A34	
F64	Fuse "15" switch supply	15A	A36	

Electrical components			
Item	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
EV6	Suspension damper	Q5	
EV7	RH rear suspension downstroke	Q6	
EV8	LH rear suspension downstroke	Q7	
EV9	RH rear suspension upstroke	Q8 / Q9	
EV10	LH rear suspension upstroke	Q9 / Q10	
EV11	RH front suspension upstroke	Q10 / Q11	
EV12	RH front suspension downstroke	Q11 / Q12	
EV13	LH front suspension upstroke	Q12 / Q13	
EV14	LH front suspension downstroke	Q13 / Q14	
EV15	Turret rotation blocking pin insertion	Q15	
EV16	Turret rotation blocking pin extraction	Q16	
EV17	Stabilizers downstroke/extension	Q17	
EV18	Stabilizers upstroke/retraction	Q28	
EV19	LH rear stabilizer	Q29	
EV20	LH rear beam	Q30 / Q31	
EV21	RH rear stabilizer	Q31 / Q32	
EV22	RH rear beam	Q32 / Q33	
EV23	LH front stabilizer	Q33 / Q34	
EV24	LH front beam	Q34 / Q35	
EV25	RH front stabilizer	Q35 / Q36	
EV26	RH front beam	Q36 / Q37	
EV27	Stabilizers block disabled	Q18	
EV28	Concentric steering	Q37 / Q38	
EV29	Crab steering	Q38 / Q39	
EV30	Detent	Q39 / Q40	
I4	Raise/lower suspensions switch	I15	
I5	Automatic suspensions levelling switch	G10	
I6	Suspensions ON switch	G6	
I10	LH front stabilizer switch	I23	
I11	RH front stabilizer switch	I19	
I12	Extend/retract beams and stabilizer Selector switch	G30	
I13	Extend/retract beams and stabilizer Selector switch	I35	
I14	Cabin bocking pin Upstroke/downstroke switch	G24	
I15	Steering mode Selector switch	G14	
I16	Translation Bypass switch	G19	
I17	LH rear stabilizer switch	I31	
I18	RH rear stabilizer switch	I27	
I19	Beams/stabilizers Selector switch	I38 / I39	
J1	Display connector	K13	
J2	Display connector	M38	
LE70-J2	LE70 control unit	M12 / M13	
LE70-J3	LE70 control unit	M26 / M27	
MC2M-2 CHASSIS	CHASSIS MC2M control unit	M17 / M18	
MC2M-3 CHASSIS	CHASSIS MC2M control unit	M39 / M40	
MC2M-3 TURRET	TURRET MC2M control unit	C30 / C31	

TURRET 2 HARNESS



ELECTRONIC SYSTEM OVERVIEW

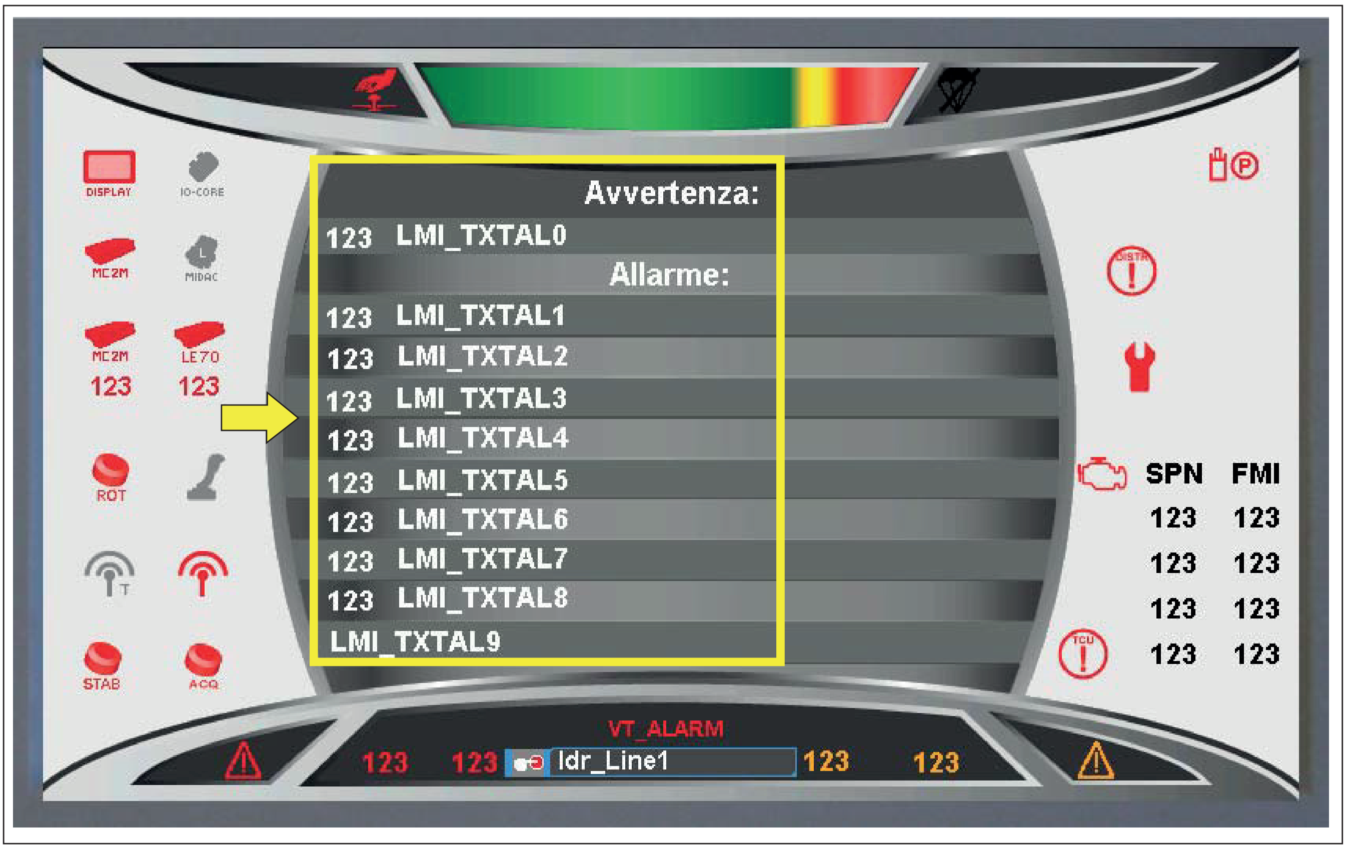
PRINCIPLE OF OPERATION

The system is a global machine management based on Can Bus technology.
Main Features of the system:
- Full electronic control with MULTIPLEX TECHNOLOGY based on CAN BUS
- Boom control from the cabin
- Boom control from Basket
- Boom control from radio remote control
- Redundant LMI according with ISO13000 and EN280 standards
- Automatic attachment selection
- "Black box" management with up to 100 events.

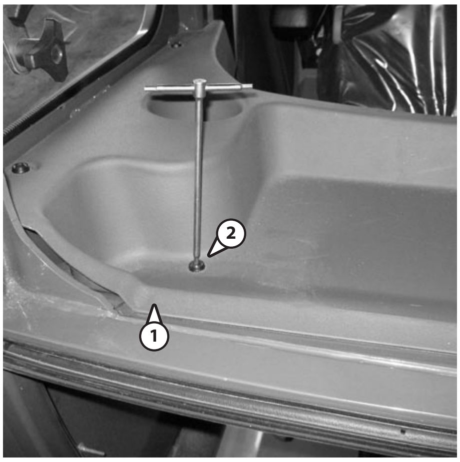
Vehicle driving direction must follow the direction request send by Manitou’s system. If it is not possible, the “Transmission State Code” indicates the reason for refusal.
The direction request is send by 3B6 ECU via j1939 “Direction Request".
Additionally a plausibility check will be performed by a redundant message which will be sent additionally by 3B6 ECU.
In any case of communication problems via CAN, the direction will be forced to “Neutral”.

USE OF THE ONBOARD DIAGNOSTIC VEHICLE

The errors underlined on the vehicle system will be visualized on the display as shown below.

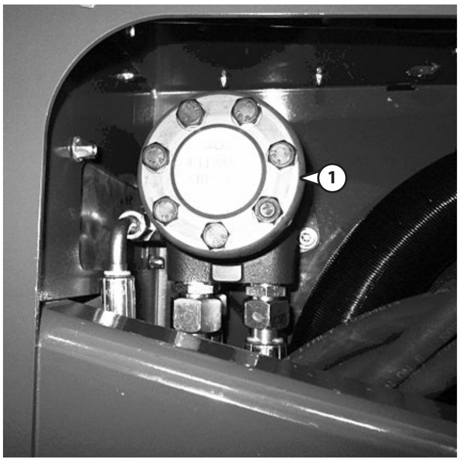


There are not codes and descriptions of the errors because visualized in the page.



Refit the plastic housing (Item 1) behind the seat by screwing in the screws (Item 2).

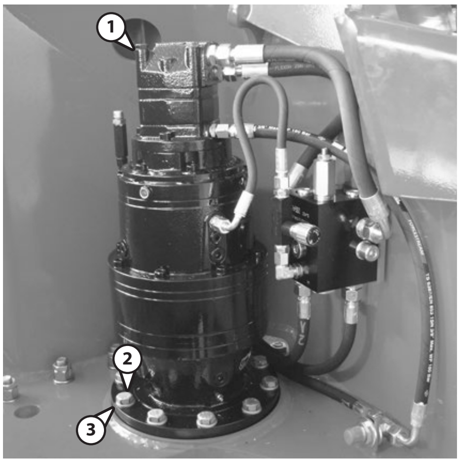
Disconnect the overhead crane from the cab and remove the eye bolts (Item 1).



RECONNECT THE CAB HYDRAULIC SYSTEM

Reconnect the hydraulic pipes to the power steering (Item 1) located at the front right of the cab.

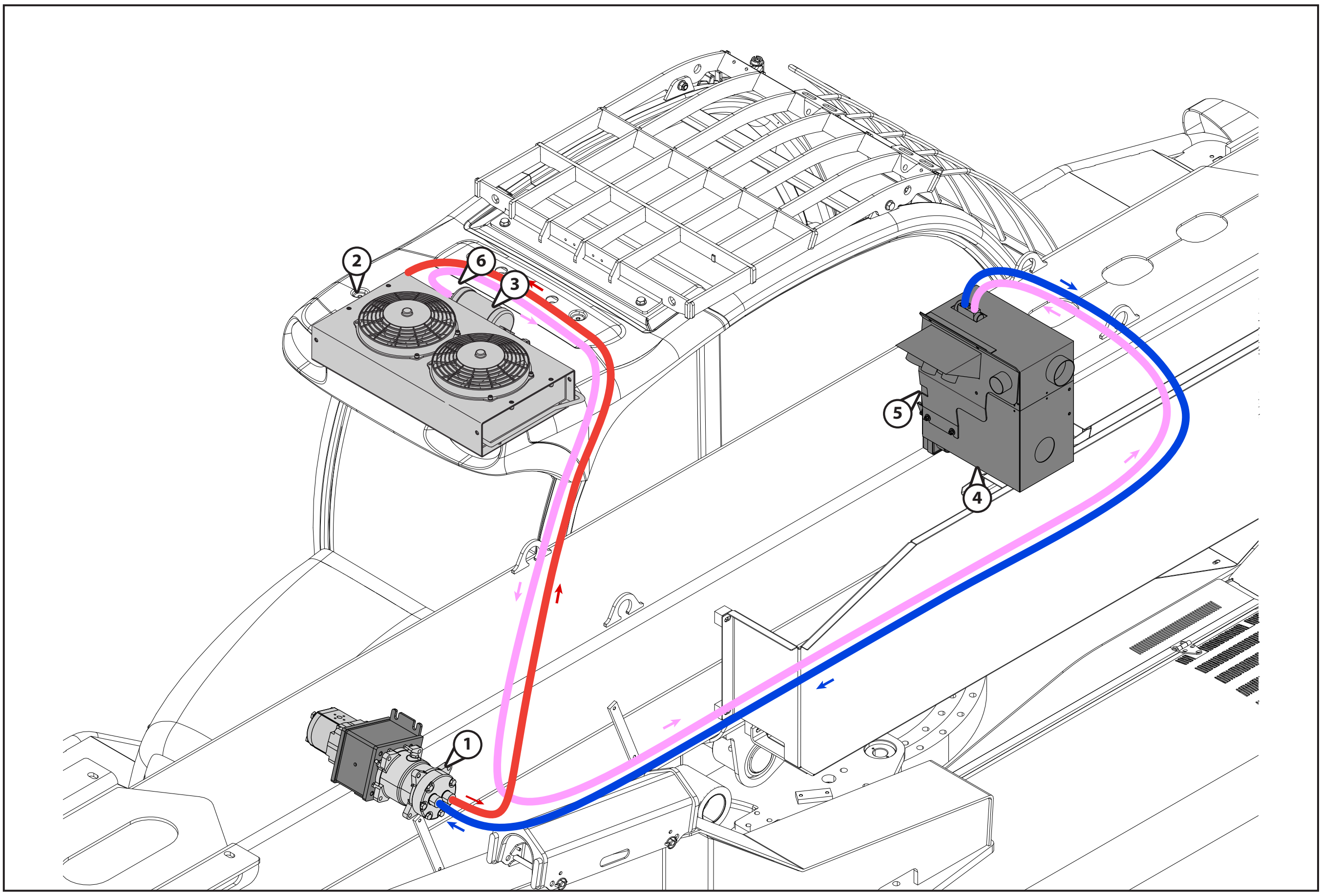
Reconnect the hydraulic pipes to the brake pump (Item 1) located at the front of the cab.



REMOVING THE TURRET ROTATION MOTOR

Disconnect all the hydraulic pipes of the turret rotation motor (Item 1).
Secure the motor (Item 1) with ropes and an overhead crane, unscrew all the screws (Item 2) remove the washers (Item 3) and lift the rotation motor (Item 1) until it is removed from the turret.

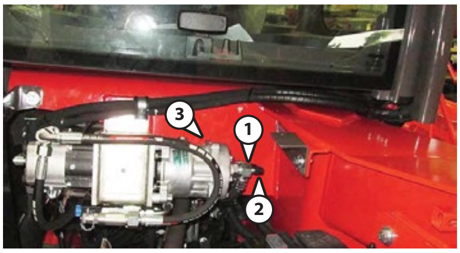
FLUID CIRCUIT



– Fluid in gaseous state at high pressure and high temperature.
– Fluid in liquid state at high pressure and high temperature.
– Fluid in liquid state at low pressure and low temperature.

CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL

ADJUSTING THE AIR CONDITIONING PRESSURES



Remove the caps (Ref. 1 and 2) on the compressor connections (Ref. 3).

Connect the high pressure and low pressure pipes of the refilling station on the compressor (Ref. 3).

- Start up the vehicle engine.
- Switch on the air conditioner as follows:
  - Select air diffusion speed "I" by means of the fan knob.
  - Press the air conditioning switch so that the LED lights up.
  - Adjust the temperature regulation knob to maximum cold
  - Open all the diffuser spouts.
  - Set minimum speed (approx. 800 rpm)
  - Wait for at least 5 minutes to allow the circuit to stabilize.
  - Check the low pressure **LP** and high pressure **HP** values of the circuit to make sure they are between:

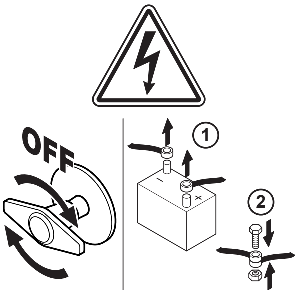
- 0.5 bar and 2 bar in low pressure **LP**,
- 6 bar and 20 bar in high pressure **HP**,

RULES FOR MAINTENANCE

Do not carry out any work on the machine unless you have followed a suitable training course and have the knowledge required for it.

Make sure you have taken into consideration all the indicator plates on the machine and in the instruction manual.

Be careful not to burn yourself when touching hot liquids or parts when operations have to be done before the machine has had time to cool down.

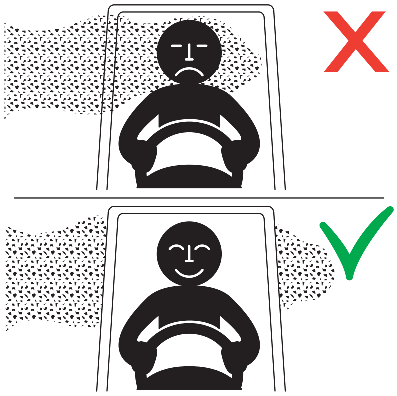


Before carrying out any operation on an electrically powered component, activate the battery cut-off.

Press the battery switch at least 30 seconds after disconnecting the electrical contact with the ignition key.

If the telehandler does not have a battery isolating switch, disconnect the battery terminals then gather them.

Before carrying out any welding operations, think of disconnecting computers.



A machine operating in a contaminated environment should be specifically equipped. Moreover, local safety notices deal with maintenance and repair work on such machines.

MRT3255 - ENGINE CHARACTERISTICS

MAKE: MERCEDES BENZ
Model: OM 934
Number of cylinders: 4 in line
Power rating: 231 CV.170 kW @ 2200 rpm

Displacement: 5,10 liter
Bore: 110 mm
Stroke: 135 mm
Firing ordere: 1-3-4-2

ENGINE SYSTEM GENERAL INFORMATION

The OM 934 serie of engines only function as intended when used in conjunction with the corresponding exhaust gas aftertreatment unit.
Therefore the term «engine system» refers to the engine and the exhaust gas aftertreatment unit.
The engine is a water-cooled four-stroke diesel engine with direct injection.
The engine is equipped with a Common Rail diesel injection system, cooled and regulated exhaust gas recirculation and turbocharging with charge-air pressure control.
The engine turbocharging is two stage exhaust gas turbocharging with two sequential exhaust gas turbochargers of differing dimensions.
The valve gear has:
- twin overhead camshafts, whereby the exhaust camshaft is continuously variable
- two inlet valves and two exhaust valves per cylinder.

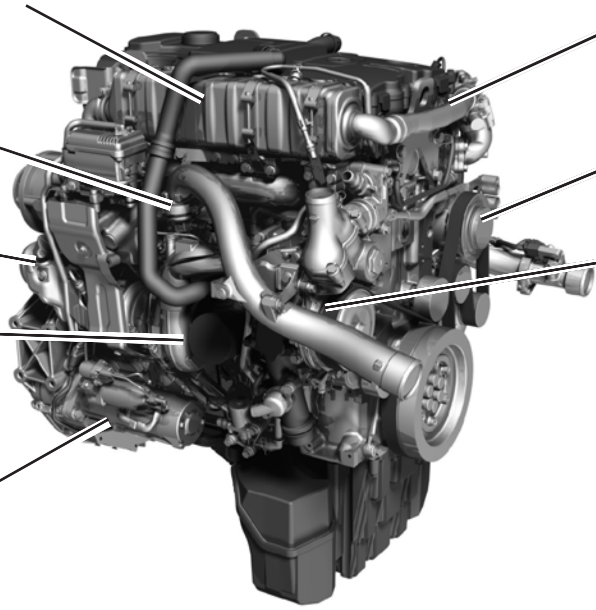
The exhaust gas aftertreatment unit is characterised by the following technologies:
- selective catalytic reduction (SCR) with ammonia slip catalytic converter
- the diesel oxidation catalytic converter (DOC)
- the diesel particle filter (DPF)

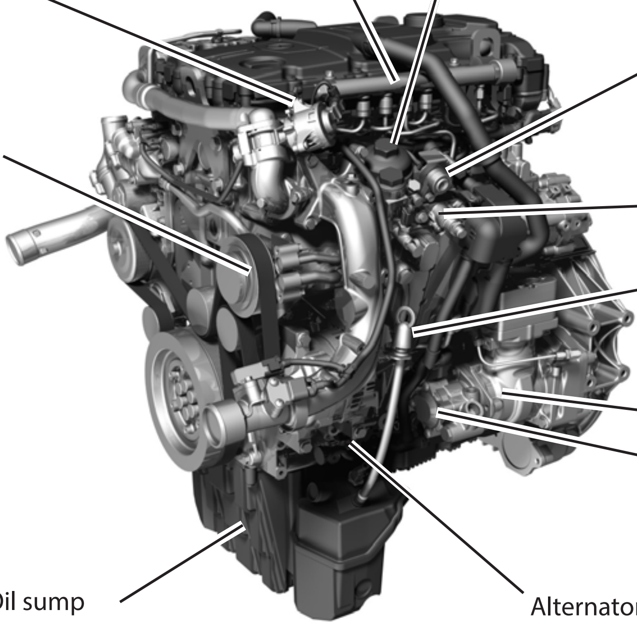
ELECTRONIC ENGINE MANAGEMENT

The engine system is equipped with an electronic engine management system which comprises the following control units:
- Engine management control module (MCM)
- Drive control system unit (CPC)
- Exhaust gas aftertreatment control unit (ACM)

The control units are connected in an electronic network.
Data is exchanged via CAN (Controller Area Network).
In addition to the engine, the exhaust gas aftertreatment and the vehicle-side connection, the electronic engine management system also monitors itself.
Depending on the malfunctions/failures which occur, warning and information displays are activated.
The malfunction is stored in the fault memory and if necessary a safety and emergency mode is automatically selected. If the electronic engine management control detects a fault, the fault code is stored in the control units. It can then be read by a qualified specialist workshop using a diagnostic tester.

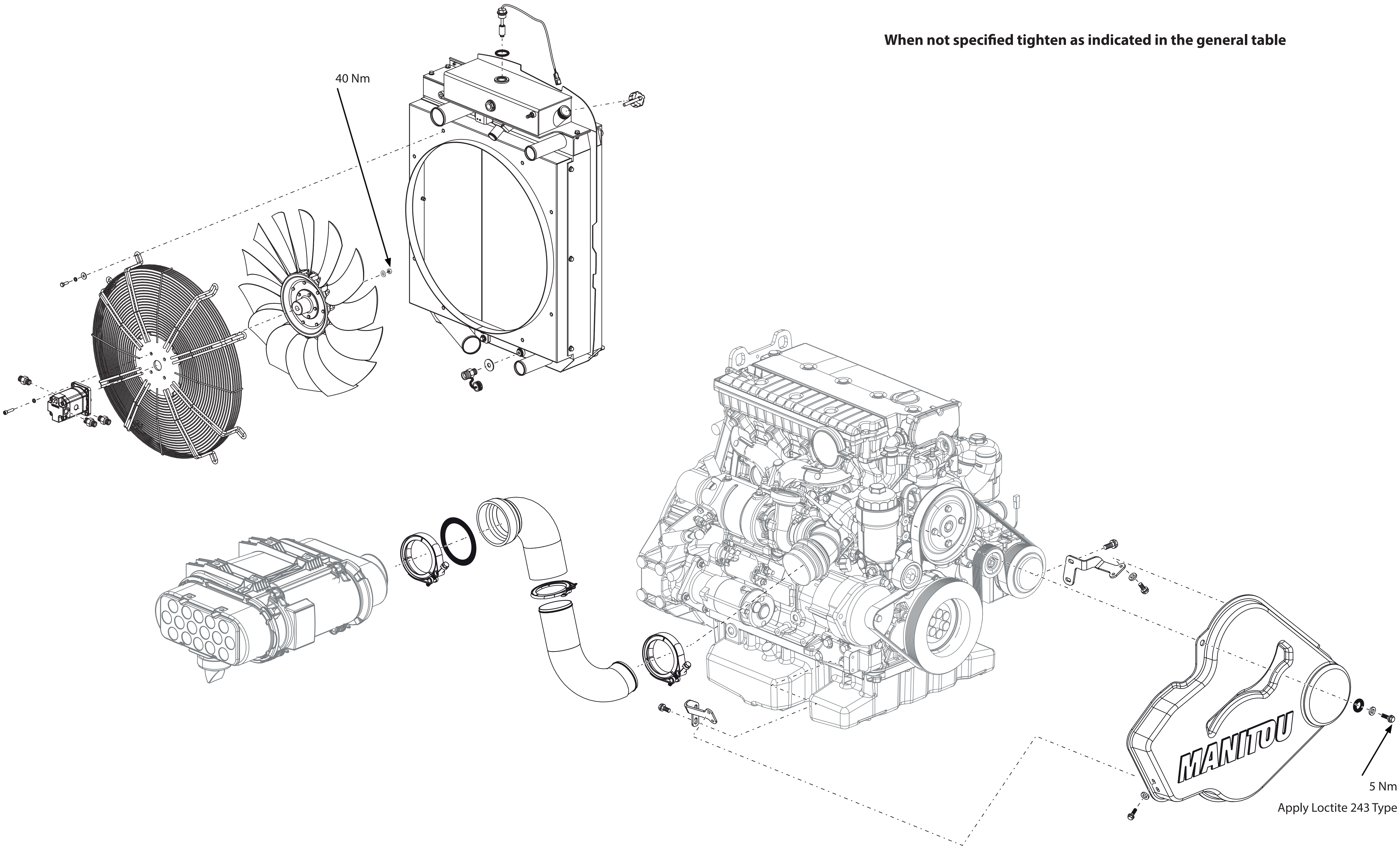
MRT 3255PLUS PRIVILEGE ST4 / T4F





FAN CONTROL AND AIR FILTER

When not specified tighten as indicated in the general table



SPN	FMI	DTC	Fault description	Recommended Action	CEL	SEL	MIL	Fault location
704	4	C00204	Digital Output 4/07 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/16 (Selection), 35/35 (Fault Detection) and 35/52 (Configuration) for correct configuration of output pin 4/07 Run Service Routine (chapter 6.4, routines 15 to 17): – Dvigital Output Pin Under Software Control: Start Response with Signal Parameter 15"	ON	OFF	OFF	Pin 4/07
704	5	C00205	Digital Output 4/07 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/16 (Selection), 35/35 (Fault Detection) and 35/52 (Configuration) for correct configuration of output pin 4/07 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 15"	ON	OFF	OFF	Pin 4/07
705	3	C10203	Digital Output 1/13 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/03 (Selection), 35/22 (Fault Detection) and 35/40 (Configuration) for correct configuration of output pin 1/13 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 1"	ON	OFF	OFF	Pin 1/13
705	4	C10204	Digital Output 1/13 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/03 (Selection), 35/22 (Fault Detection) and 35/40 (Configuration) for correct configuration of output pin 1/13 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 1"	ON	OFF	OFF	Pin 1/13
705	5	C10205	Digital Output 1/13 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/03 (Selection), 35/22 (Fault Detection) and 35/40 (Configuration) for correct configuration of output pin 1/13 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 1"	ON	OFF	OFF	Pin 1/13
706	3	C20203	Digital Output 3/10 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/09 (Selection), 35/28 (Fault Detection) and 35/45 (Configuration) for correct configuration of output pin 3/10 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 2"	ON	OFF	OFF	Pin 3/10
706	4	C20204	Digital Output 3/10 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/09 (Selection), 35/28 (Fault Detection) and 35/45 (Configuration) for correct configuration of output pin 3/10 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 2"	ON	OFF	OFF	Pin 3/10
706	5	C20205	Digital Output 3/10 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/09 (Selection), 35/28 (Fault Detection) and 35/45 (Configuration) for correct configuration of output pin 3/10 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 2"	ON	OFF	OFF	Pin 3/10
707	3	C30203	Digital Output 2/10 Circuit shorted to Ubat (CEL / AWL Lamp)	"Check wiring of associated pin Check parameters 35/04 (Selection), 35/23 (Fault Detection) and 35/41 (Configuration) for correct configuration of output pin 2/10 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 3"	OFF	OFF	OFF	Pin 2/10
707	4	C30204	Digital Output 2/10 Circuit shorted to GND (CEL / AWL Lamp)	"Check wiring of associated pin Check parameters 35/04 (Selection), 35/23 (Fault Detection) and 35/41 (Configuration) for correct configuration of output pin 2/10 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 3"	OFF	OFF	OFF	Pin 2/10

SPN	FMI	Fault_name	Fault Description
190	16	MU_EPF_ENGINE_OVERSPEED	Engine-protection-function to save the engine in case of an overspeed because of engine failure (uncontrolled intake of oil or fuel)
191	13	J1939 Transmission Output Shaft Speed Signal is Missing	CPC 2 Fault
191	19	J1939 Transmission Output Shaft Speed Signal is Erratic	CPC 2 Fault
354	3	Relative Humidity Circuit Failed High	Ambient Air Combi Sensor , Part Humidity Circuit Low
354	4	Relative Humidity Circuit Failed Low	Ambient Air Combi Sensor , Part Humidity Circuit Low
411	0	EGR Differential Pressure Failed (Low Box)	EGR Differential Pressure Failed High Speed
411	1	EGR Differential Pressure Failed (High Box)	EGR Differential Pressure Failed Low Speed
411	2	EGR Delta Pressure Sensor Out of Calibration Low	zero offset compensation too low
411	3	EGR Delta Pressure Sensor Circuit High	EGR Differential Pressure Failed High
411	4	EGR Delta Pressure Sensor Circuit Low	EGR Differential Pressure Failed Low
411	13	EGR Delta Pressure Sensor Out of Calibration High	zero offset compensation too high
412	0	EGR Temperature Very High	Temperature exceeds buzzer threshold
412	2	EGR Temperature Sensor, General Temperature Plausibility Error	general temperature diagnostic, t egr
412	3	EGR Temperature Sensor Circuit Failed High	EGR Temperature Circuit Failed High
412	4	EGR Temperature Sensor Circuit Failed Low	EGR Temperature Circuit Failed Low
412	15	EGR Valve Temperature too High	MU ist set if EGR valve temperature is to high
412	16	EGR Temperature Sensor / Temperature too High	Temperature too high
412	20	EGR Temperature Drift (High Box)	Difference betw een EGR and Coolant Temperature less than threshold at high speed
412	21	EGR Temperature Drift (Low Box)	Difference betw een EGR and Coolant Temperature above threshold at low speed
520	1	MU_EBM_BRAKE_MALFUNCTION	Engine brake prohibited due to sensor or actuator failure
520	18	MU_EBM_RED_BRAKE_POWER	Reduced brake pow er due to sensor or actuator failure
523	13	J1939 Transmission Current Gear Signal is Missing	CPC 2 Fault
523	19	J1939 Transmission Current Gear Signal is Erratic	CPC 2 Fault
623	0	Driver Inducement System, SEL solid active	Driver-Inducement: Stop Engine Lamp Solid On
623	16	Driver Inducement System, SEL flash active	Driver-Inducement: Stop Engine Lamp Flash On
624	0	Driver Inducement System, CEL solid active	Driver-Inducement: Check Engine Lamp Flash On
624	16	Driver Inducement System, SEL flash active	Driver-Inducement: Check Engine Lamp Flash On
625	2	Invalid Data on Engine CAN Link	threshold, af ter expiration of start delay
625	8	MCM UDS DM1 Message Not Received or has Stopped Arriving	CPC 2 Fault
625	9	No Data Received from Engine CAN Link	No Data Received from Engine CAN Link
625	14	ACM UDS DM1 Message Not Received or has Stopped Arriving	CPC 2 Fault
625	17	No ACM Communication - Pre Warning	Extension of existing MU_CAN_ACM_NO_COM to protect dpf
625	18	No ACM Communication - Warning	Extension of existing MU_CAN_ACM_NO_COM to protect DPF in ACM
630	2	Calibration Data Not Plausible	calibration error
630	10	MU_STU_NO_PWL	Powerlatch of last driving cycle not completed
630	12	EEPROM Read / Write Operation Failed	EEPROM Hardw are Error
630	13	Calibration Data Not Plausible (CPLD)	cpld verification error
630	14	UDS Tables unsorted, UDS security access issue	The MU checks if UdsSecurityAccessLevelTableDai[i] is correct sorted
630	31	MU_E2P_IR_DATA_LOSS	Loss of non-volatile data
636	1	Crankshaft Position Sensor Short to Ground	Short Cut to ground
636	2	No Match of Camshaft and Crankshaft Signals	Signal assignment not plausibel (CCS - CRK)
636	3	Crankshaft Position Sensor Open Circuit	Open Load
636	4	Crankshaft Position Sensor Signal Voltage too Low	Signal level too low
636	8	Crankshaft Position Sensor Time Out	Signal-Timeout

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SPN	FMI	Fault_name	Fault Description	Pin No.	Failure cause
3226	3	SCR Outlet Nox Sensor Circuit Failed High			
3226	4	SCR Outlet Nox Sensor Circuit Failed Low			
3226	7	Nox out sensor presence check			
3226	10	SCR Outlet Nox Sensor - Drift Low			
3226	11	SCR Outlet NOx - Rationality Error	NOx out emissions probe rationality check failed		
3226	13	SCR Outlet Nox Sensor Signal Not Available			
3226	14	MU_ISP_NOXO_CONV_RAT			
3226	18	MU_RESERVE_03			
3226	20	Nox Outlet Sensor Drift Low			
3226	21	Nox Outlet Sensor Drift High			
3236	9	Exhaust Mass Signal Not Available via CAN			
3238	2	NOx OUT Sensor not ready af ter dew point enable check			
3242	0	DOC inlet Temperature High			
3242	2	DOC Inlet Temperature Stuck (high box)	Diesel Oxidation Catalyst Inlet Temperature Stuck (high box)		
3242	3	DOC Inlet Temperature Circuit Failed High			
3242	4	DOC Inlet Temperature Circuit Failed Low			
3242	7	MU_T_DOC_IN_MISS_OR_ BYPAS S			
3242	8	DOC Inlet Temperature - Signal Spike	Diesel Oxidation Catalyst Inlet Temperature - Signal Spike		
3242	10	DOC Inlet Temperature Sensor Stuck	Diesel Oxidation Catalyst		
3242	14	MU_ATS_DIA_TDOC_IN_FIN_ RAT			
3242	17	Diesel Oxidation Catalyst (DOC) Inlet Temperature Out Of Range Low Preventing HC Dosing			
3242	20	DOC Temperature Drift - Inlet High or Outlet Low			
3242	21	DOC Inlet Temperature Sensor - Plausibility Error			
3246	0	DPF Outlet Temperature Very High			
3246	3	DPF Oulet Temperature Circuit Failed High		27	
3246	4	DPF Oulet Temperature Circuit Failed Low		27	
3246	7	MU_T_DPF_O_MISS_OR_ BYPASS			
3246	8	DPF Outlet Temperature - Signal Spike			
3246	10	DPF Outlet Temperature Sensor Stuck			
3246	14	Abnormal DPF Temperature Rise 2			
3246	15	DPF Outlet Temperature - High			
3246	20	DPF Outlet/SCR Inlet Temperature - Abnormal			

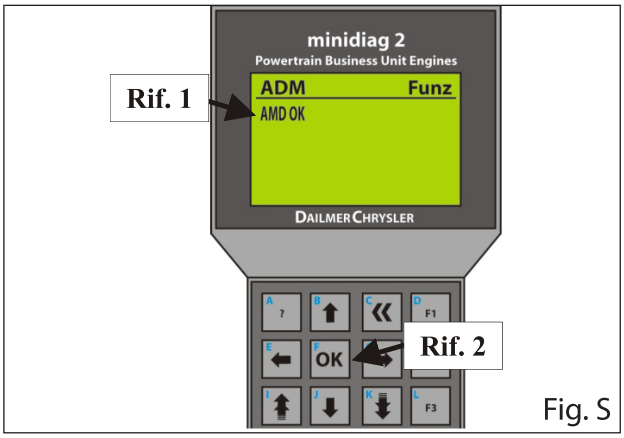


Fig. S

Wait on the display is visualized "**ADM OK**" Ref.1 and push the button "**OK**" Ref.2 (Fig. S).

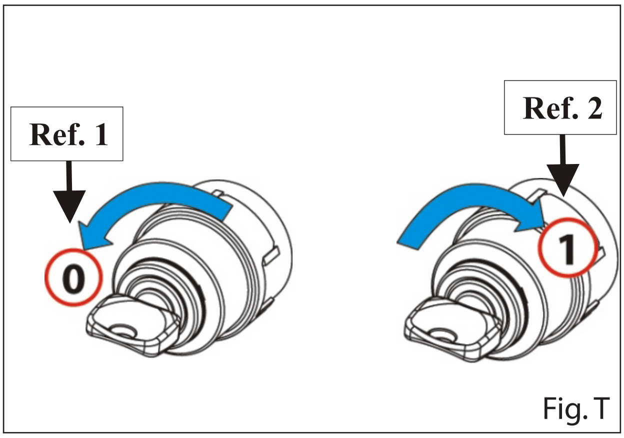


Fig. T

Turn the starting key of the machine and bring it to position "**0**" Ref.1.
Wait that the data progression bar arrives to the end and turn the starting key of the machiune and bring it on position "**1**" Ref. 2 (Fig. T).

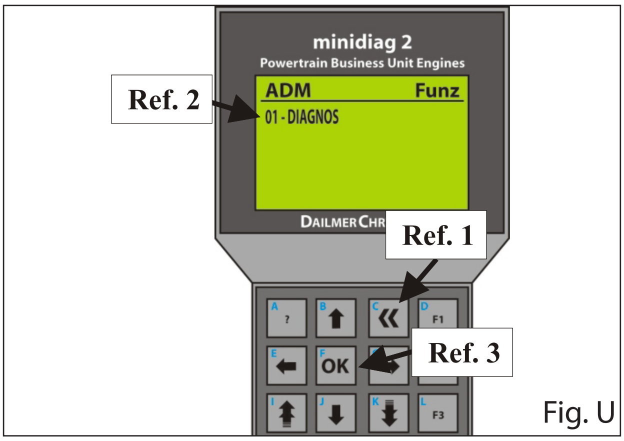


Fig. U

Push the control button "<< " Ref. 1 on the Minidiag2, go on "**01-DIAGNOS**." Ref. 2 and push the button "**OK**" Ref. 3 (Fig. U).

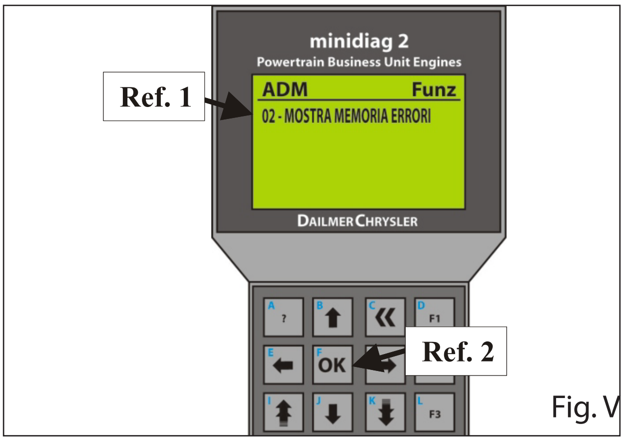


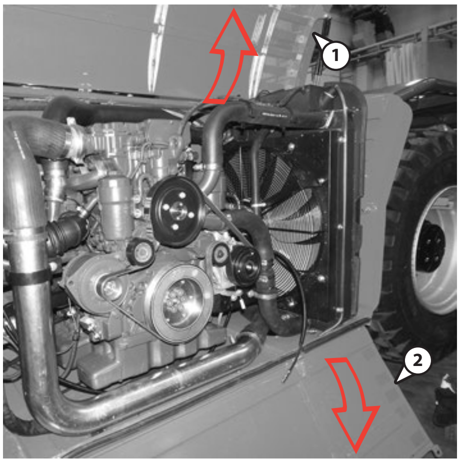
Fig. V

Then go on "**02-MOSTRA MEMORIA ERRORI**" Ref. 1 and push the button "**OK**" Ref.2 (Fig. V).

10

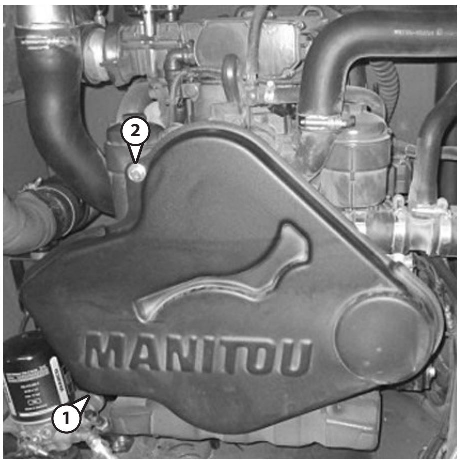
ADM3 fault code (J1939) SPN / FMI	"ADM3 fault code (K-line)"	"MR2 fault code (K-line)"	Fault location	Fault description	Remedial action	Pin
1695 / 0	-	12413	Engine Exhaust Gas Oxygen Sensor (Lambda Sensor) Fueling Correction	Control Deviation Too High		LSCAN-MR
1695 / 2	-	12450	Engine Exhaust Gas Oxygen Sensor (Lambda Sensor) Fueling Correction	Drift Not Plausible		LSCAN-MR
1716 / 9	19309	-	Retarder Selection, non- engine	Abnormal Update Rate		CAN-J1939
1716 / 19	19319	-	Retarder Selection, non- engine	Received Network Data in Error		CAN-J1939
1761 / 1	-	16029	Reductant Level	Level Low		LSCAN-MR
1761 / 18	-	14270	Tier4i Reductant Level Sensor	Level Too Low		LSCAN-MR
1761 / 3	-	16015	Reductant Level Sensor	Circuit High		LSCAN-MR
1761 / 4	-	16016	Reductant Level Sensor	Circuit Low		LSCAN-MR
1908 / 3	-	18107	SCR Air Pressure Shut- Off Valve Solenoid	Circuit High		LSCAN-MR
1908 / 4	-	18106	SCR Air Pressure Shut- Off Valve Solenoid	Circuit Low		LSCAN-MR
1908 / 5	-	18109	SCR Air Pressure Shut- Off Valve Solenoid	Circuit Open		LSCAN-MR
2436 / 9	-	12712	Generator Speed Sensing	Signal-Timeout		LSCAN-MR
2791 / 0	-	13215	Exhaust Gas Recirculation	Temperature Sensor Circuit High		LSCAN-MR
2791 / 1	-	13216	Exhaust Gas Recirculation	Temperature Sensor Circuit Low		LSCAN-MR
2791 / 2	-	16679	Exhaust Gas Recirculation	System Performance, Temperature Diagnosis		LSCAN-MR
2791 / 7	-	16678	Exhaust Gas Recirculation	System Performance, Universal Control Error		LSCAN-MR
2791 / 12	-	13332	Exhaust Gas Recirculation	Temperature Too High/Too Low		LSCAN-MR
2797 / 3	-	14805	Engine Injector Group 1	Circuit High		LSCAN-MR
2797 / 4	-	14806	Engine Injector Group 1	Circuit Low		LSCAN-MR
2797 / 5	-	12427	Engine Injector Group 1	Open Circuit		LSCAN-MR
2797 / 9	-	19846	Engine Injector Group 1, Cylinder Contribution/Balance	Timeout		LSCAN-MR
2798 / 3	-	14905	Engine Injector Group 2	Circuit High		LSCAN-MR
2798 / 4	-	14906	Engine Injector Group 2	Circuit Low		LSCAN-MR
2798 / 5	-	12428	Engine Injector Group 2	Open Circuit		LSCAN-MR
3031 / 3	-	16115	Reductant Tank Temperature Sensor	Circuit High		LSCAN-MR
3031 / 4	-	16116	Reductant Tank Temperature Sensor	Circuit Low		LSCAN-MR
3031 / 7	-	16169	Reductant Tank Temperature Sensor	Circuit		LSCAN-MR
3050 / 7	-	14247	NOx Emission SCR Catalyst	SCR Catalyst Error		LSCAN-MR
3050 / 13	-	16949	SCR System Calibration	Calibration Error		LSCAN-MR

REMOVING THE ENGINE COMPONENTS

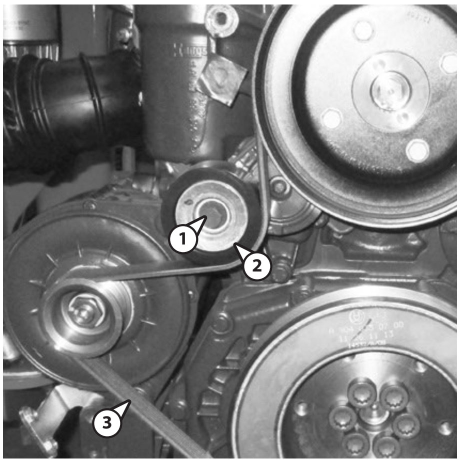


A - REMOVING THE ALTERNATOR BELT

Open the engine bonnet (Ref. 1) and the housing (Ref. 2) of the engine compartment.

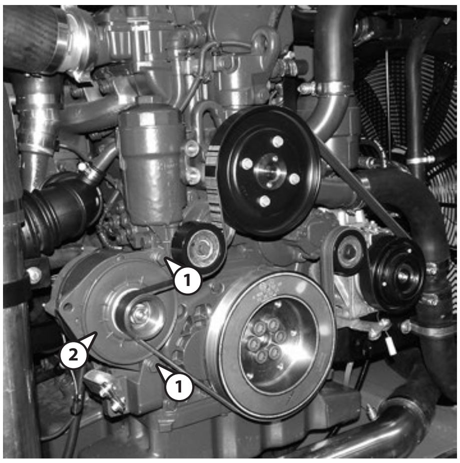


Remove the guard (Ref. 1) after slackening the screws (Ref. 2).



Insert an unlocking lever on the screw (Ref. 1), tilt the belt tensioner roller upwards (Ref. 2) and remove the belt (Ref. 3).

The tensioning device is spring-tensioned. When it is loosened or tightened, there is a risk of injury from crushing or entrapment in pretensioned parts.
- Always carry out work on the tensioning device with extreme care.
- Make sure that the tool is handled correctly.



B - REMOVING THE ALTERNATOR

Slacken a little the two screws (Ref. 1) to remove the alternator belt .
Disconnect the alternator electric wires, remove the two screws (Ref. 1) to disassamble the alternator (Ref. 2).

PRINCIPLE OF OPERATION OF GEARBOX

OPERATION

⇒ (**F - N - R**) Forward/Neutral/Reverse gear selection (Item 1).

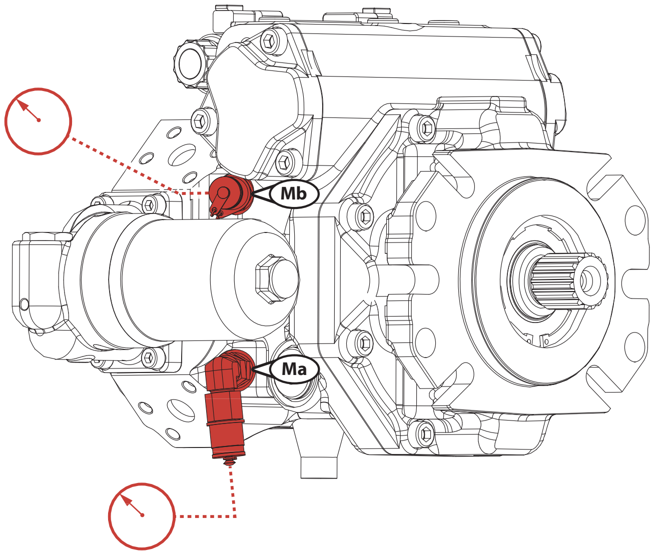
⇒ DRIVING MODE by means of the selector (Item 1):
- **FORWARD MOVEMENT:** Push the switch forwards (position «**F**»). The engine is directly managed by the accelerator pedal (Item 2). The moving speed of the truck changes during the whole run of the accelerator pedal.
- **NEUTRAL MODE**: To start up the forklift truck the switch must be in the neutral position (position «**N**”); central position.
- **REVERS GEAR:** Setting the switch in backwards position «**R»:** the direction will be reversed.

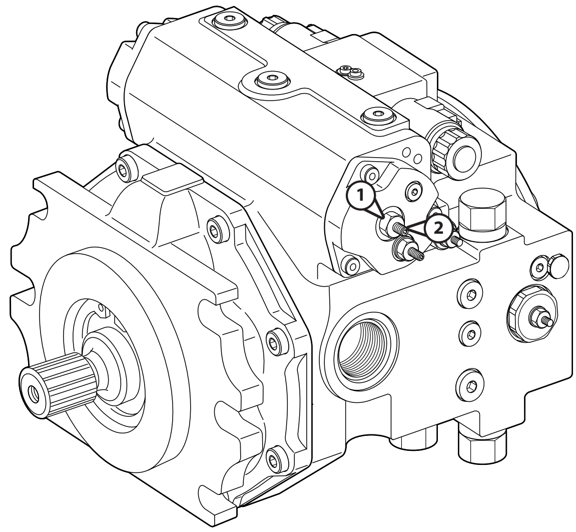
⇒ In **HANDLING MODE**, during the braking with inching pedal phase (Item 3), the transmission is gradually cut-off.The inching pedal acts like a combination of a clutch pedal and brake pedal:
- When slightly depressed, it puts the transmission in neutral allowing the operator to rev the engine.
- When completely depressed it engages the brakes.

⇒ Diagnostics and adjustment via PAD (Item 4).

If the cab door is open, the movement of the vehicle is inhibited.

3 - PUMP MECHANICAL "0" ADJUSTMENT





- 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.

SPN / FMI	SPN / FMI	DTC	Fault / Description	Possible Cause	Reaction	Quit	Remedy	Result	Note
FMI = 4, VOLTAGE BELOW NORMAL, OR SHORTED TO LOW SOURCE	4	4	safout_getStatus()					not	Never occurs
FMI = 5, CURRENT BELOW NORMAL OR OPEN CIRCUIT	5	5	safout_getStatus()	The error occurs during initialization.				ok	
FMI = 6, CURRENT ABOVE NORMAL OR GROUNDED CIRCUIT	6	6	safout_getStatus()					not	Never occurs
FMI = 11, ROOT CAUSE NOT KNOWN	11	B	safout_getStatus()	The error occurs if initialization is done.				ok	
8033	32819	7F033	Pump DRE B Safe Output	Pump solenoid faulty in backward direction	Ramp down --> Machine stop in backward direction. Machine moves at limited velocity in forward direction.	Restart drive controller.	Check the wiring pin: 177,184		
FMI = 4, VOLTAGE BELOW NORMAL, OR SHORTED TO LOW SOURCE	4	4	safout_getStatus()					not	Never occurs
FMI = 5, CURRENT BELOW NORMAL OR OPEN CIRCUIT	5	5	safout_getStatus()	The error occurs during initialization.				ok	
FMI = 6, CURRENT ABOVE NORMAL OR GROUNDED CIRCUIT	6	6	safout_getStatus()					not	Never occurs
FMI = 11, ROOT CAUSE NOT KNOWN	11	B	safout_getStatus()	The error occurs if initialization is done.				ok	
8034	32820	7F034	Hydmot 1 Safe Output	Smaller motor 1 solenoid faulty	Ramp down --> Machine moves at limited velocity in both direction. Gearbox is locked.	Restart drive controller.	Check the wiring pin: 178,185		
FMI = 4, VOLTAGE BELOW NORMAL, OR SHORTED TO LOW SOURCE	4	4	safout_getStatus()					not	Never occurs
FMI = 5, CURRENT BELOW NORMAL OR OPEN CIRCUIT	5	5	safout_getStatus()	The error occurs during initialization.				ok	
FMI = 6, CURRENT ABOVE NORMAL OR GROUNDED CIRCUIT	6	6	safout_getStatus()					not	Never occurs

Error code hex		Error parameter decimal	Description
0x	507	01..63	A difference between data of the original page and data of the related shadow page in EEPROM and a CRC error of the original page and the releted shadow page were detected (worst error). The number of page is saved in <error parameter>. Data can not be repaired. Page 0 (system page): The calibration data are set to invalid and default values are used!!!
0x	508	01..63	A CRC error of a page (without shadow page) in EEPROM was detected. The number of page is saved in <error parameter>. Data can not be repaired.
0x	509	01..63	A generally check error of a page in EEPROM which is relatated to the API internal program flow was detected. The number of page is saved in <error parameter>. Data consistency can not guaranteed.
0x	050A	01..02, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>. But there is an <error parameter> with an other meanning: 255 : buffer overflow
0x	050B	01, 02, 04, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in
0x			<error parameter>. But there is an <error parameter> with an other meanning: 255 : buffer overflow
0x	050C	01, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>. But there is an <error parameter> with an other meanning: 255 : buffer overflow
0x	050D	01..02	Invalid parameter. <error parameter> = number of parameter
0x	050E	01, 02, 04	Invalid parameter. <error parameter> = number of parameter
0x	050F	01..02, 254, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>. But there are <error parameter> with an other meannings: 254 : writing into this page is locked because a ree_setValue() and/or ree_setArray() command was executed which was not completed by the corresponding ee_savePage() command 255 : buffer overflow
0x	510	01, 02, 04, 254, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>. But there are <error parameter> with an other meannings: 254 : writing into this page is locked because a ree_setValue() and/or ree_setArray() command was executed which was not completed by the corresponding ee_savePage() command 255 : buffer overflow
0x	511	01, 255	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>. But there is an <error parameter> with an other meanning: 255 : buffer overflow
0x	512	01..02	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	513	01, 02, 04	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	514	01, 02	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	515	01, 02, 04	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	516	01..63	Invalid parameter. <error parameter> = number of page

PARKING BRAKE

CHARACTERISTICS

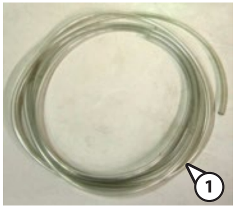
Type: Disk immersed in oil
Pressure: 40 bar

A negative controlled electro-hydraulic system acts on the front and rear axle.

PURGING PROCEDURE

<u>Tools required:</u>

⇒ 1 transparent hose (Item 1)
⇒ 1 container
⇒ 1 10 mm wrench



<u>Purging order:</u>

1 - Rear right purge screw
2 - Rear left purge screw
3 - Front right purge screw
4 - Front left purge screw

Stabilise the machine on level ground. Wedge the machine in place to prevent any movement during the bleeding procedure.

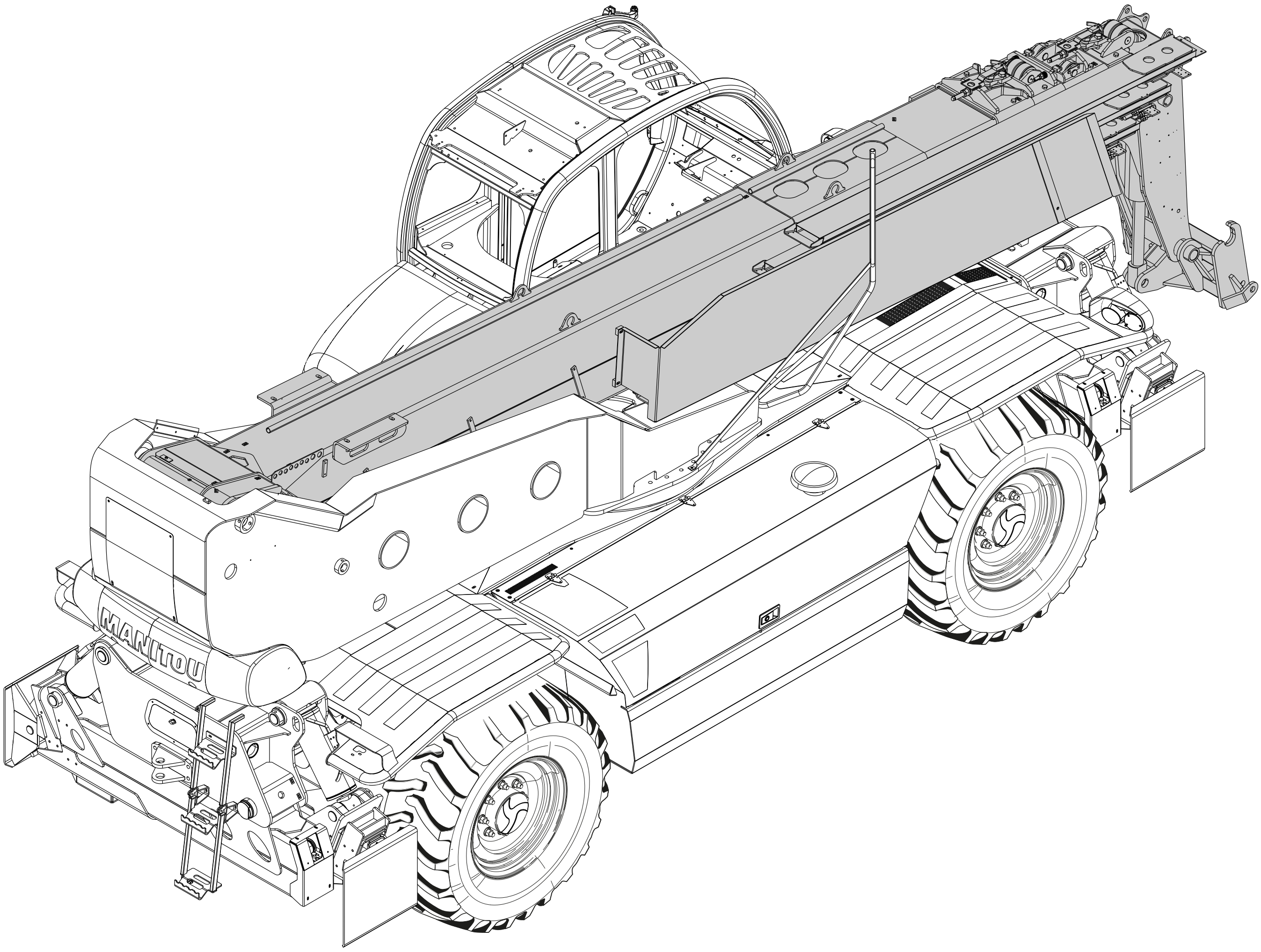
Start machine.

Deactivate the parking brake using the switch (Item 2) inside the cab.

LIST OF COMPONENT PART NOS.

Part no.	Description	Characteristics (Options)
3B6	Roller	
CSP	Controlled safety valve	
MC1	Micro chain 1	
MC2	Micro chain 2	
MC3	Micro chain 2	
TC	Remote camera	OPTION
VI	Traverse ram	
VTI1	First extension ram	
X134	Roller connector	
X152	Connector provided for basket	

REMOVING THE PENTAGONAL TELESCOPIC BOOM



GENERAL INFORMATION

To reach the various components, the order of removal must be observed.
Mark all the hydraulic pipes and electrical connections with a felt tip pen before removing them to ensure correct repositioning during reassembly.

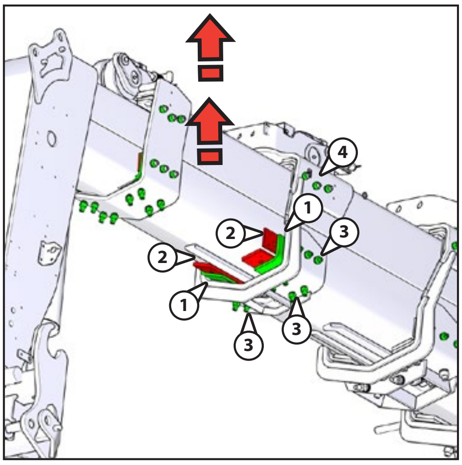
Release the pressure in the hydraulic system before disconnecting the pipes. Plug the pipes and hydraulic orifices to prevent the hydraulic system being contaminated by impurities.

PREPARATION AND SAFETY INSTRUCTIONS

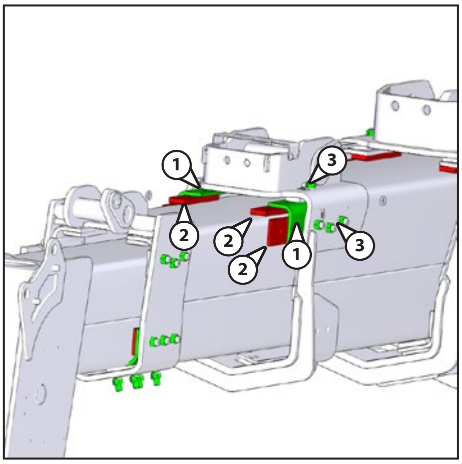
Position the truck on a horizontal surface, support the stabilisers to ensure maximum stability and safety (do not stop the engine).

Special instruments:
- Lifting crane (6000 kg. minimum).

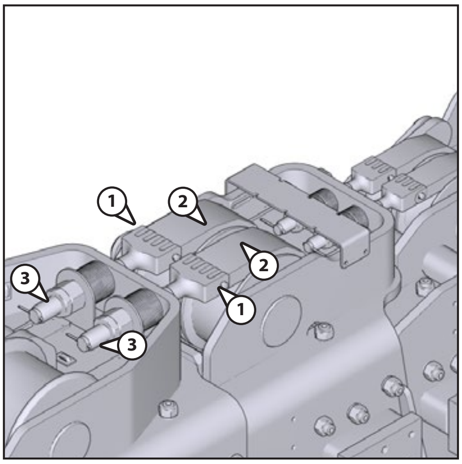
REMOVING THE IIIrd AND IVth BOOMS FROM THE IIND EXTENSION BOOM



By acting on the grains of the upper sliding blocks (Item 4), create «play» so you can raise your arm slightly with a crane: With the help of the overhead crane, keep the framework of the IIIrd extension boom raised and remove the lower carrier plates (Item 1) and sliding blocks (Item 2) by unscrewing the lower lateral grub screws (Item 3).

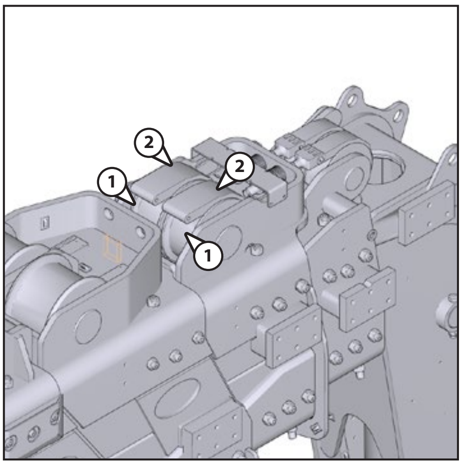


Remove the upper sliding blocks plates (Item 1) and the sliding blocks (Item 2) of the IInd extension slacking the grub screws and upper lateral grub screws (Item 3).



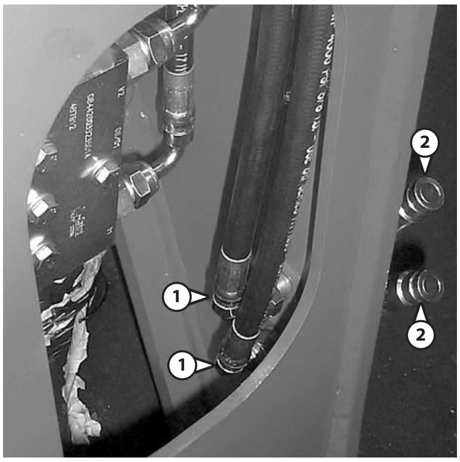
Ensure that the chains attached to the upper part of the Ist extension are not under tension.

Withdraw the pins (Item 1) that attach the chains (Item 2) to the tie rods (Item 3).

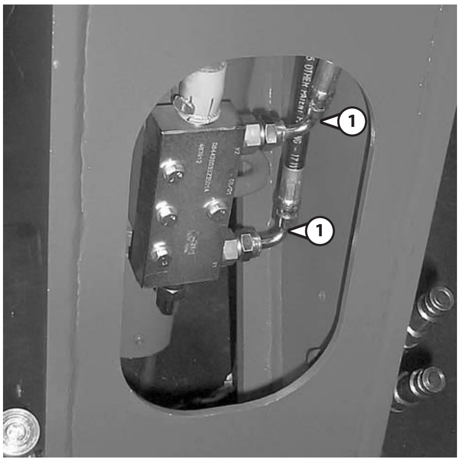


Remove the pulleys (Item 1).
Withdraw the chains (Item 2) towards the front of the boom, stretching them at the upper part of the framework of the IIIrd extension boom.

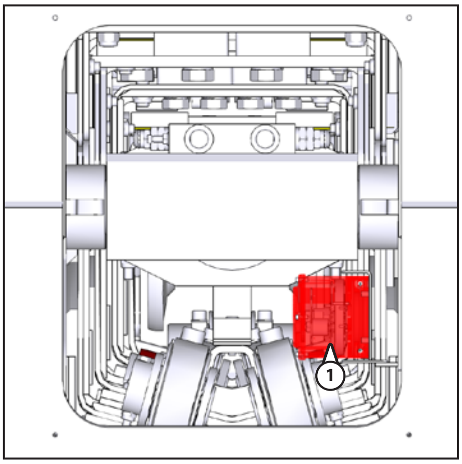
Warning: secure the chains to the top of the boom so that when extracting the framework they are under tension and therefore cannot slide laterally.



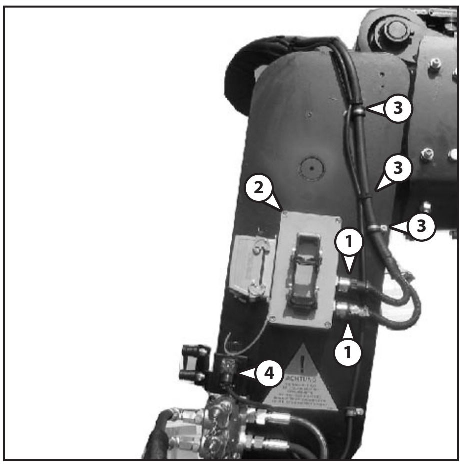
Reconnect the pipe of ther quick connector on the right side of the head of the boom.
Reconnect the hydraulic pipes (Item 1) to the quick connectors (Item 2) on the top left of the boom.



Reconnect the hydraulic pipes (Item 38) to the traverse ram valve.



Fit the “M.S.S.” winder (Item 1) in the rear I of the boom.
Attach the “M.S.S.” winder cable to the bush on the Ist extension boom.



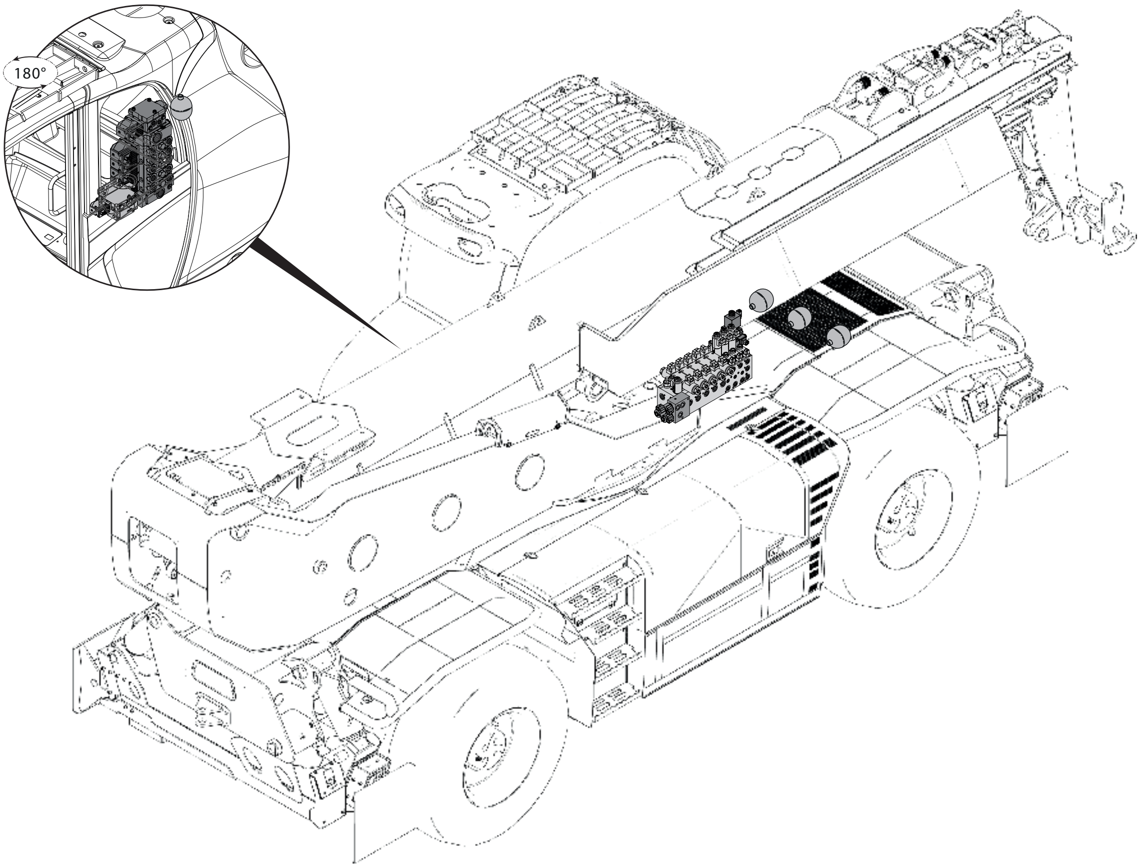
Reconnect the connectors(Item 1) to the electrical junction box (Item 2) at the head of the boom.
Lock the electric cable to the head of the boom with rubberised clips (Item 3).
If the truck is fitted with a double outlet valve, connect the power supply connector (Item 4).

PRESSURE TEST PORTS

VALUES

Element	No. of pressure test ports	Correspondence	Values (bar)	
			Min.	Max.
Hydrostatic pump	PP-1	Main pressure	48	380
Hydrostatic pump	PP-2	Main pressure	20	32±34
Distributor	PP-3	Main pressure	10	360
Distributor	PP-4	Main pressure	48	360
Stabilizer - Suspension accumulator block	PP-5	Main pressure	48	220
Boom cylinder	PP-6	Main pressure	48	250
Air Conditioned compressor	PP-7	Main pressure	32	250

HYDRAULIC DISTRIBUTOR REMOVAL



GENERAL INFORMATION

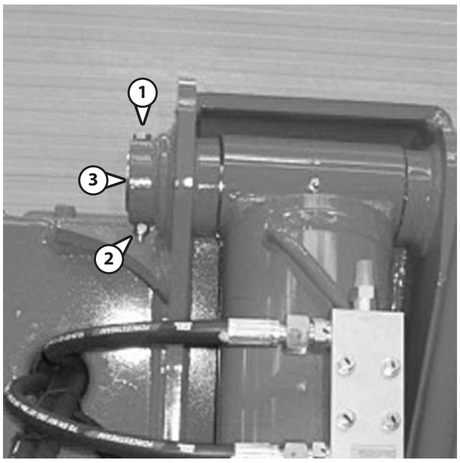
The sequence for disassembly operations must be followed to access the various components.
Mark all the hydraulic piping and electrical connections with a marker pen before disassembling , to the correct positioning in the reassembly phase.

PREPARATION AND SAFETY INSTRUCTIONS

- Position the truck on a level surface.
- Position the boom at alf height to acces.
- Switch off the I.C. engine and deactivate the battery.

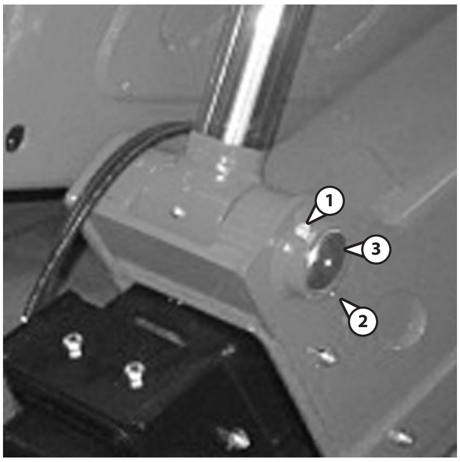
Discharge pressure from the hydraulic circuits before disconnecting the tubes. Plug all the hydraulic pipes and orifices to prevent impurities from contaminating the hydraulic circuits.

Specific tooling:
- Crane for lifting (5000 kg. minimum).

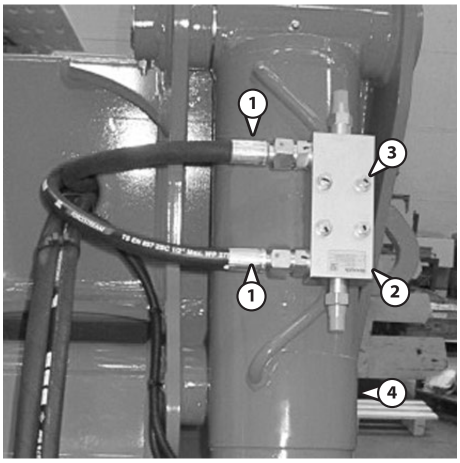


STABILISER LIFT CYLINDER

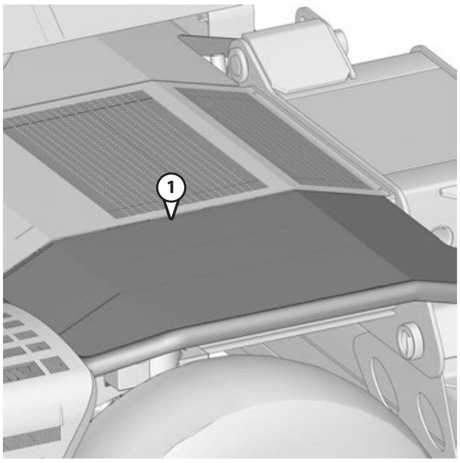
Secure the stabiliser lift cylinder with ropes and an overhead crane, reposition it on the frame.
Insert the pin (Item 3) in the hole then lock it by means the screw (Item 1) and the nut (Item 2)



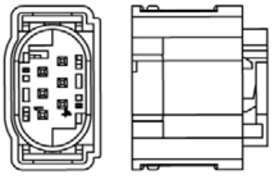
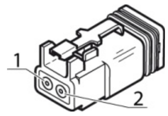
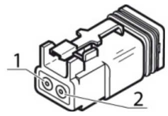
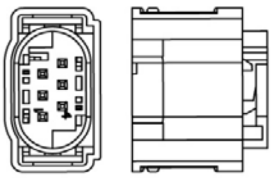
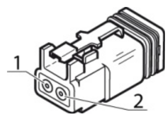
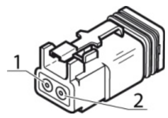
Insert the pin (Item 3) in the hole then lock it by means the screw (Item 1) and the nut (Item 2)



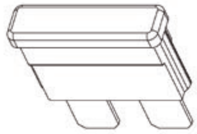
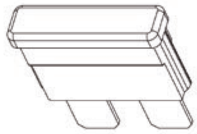
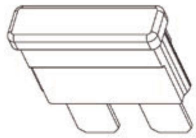
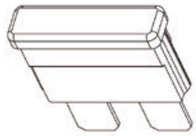
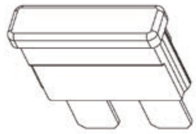
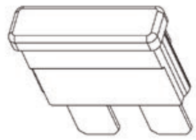
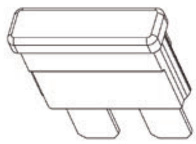
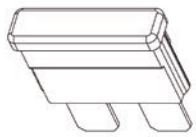
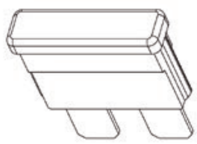
Screw the screws (Item 3) to refit the control valve (Item 2) on the lift cylinder (Item 4).
Connect the hydraulic tubes (Item 1) on the control valve (Item 2).



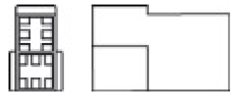
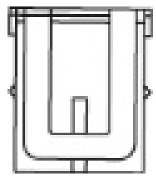
Refit the mudguard (Item 1).

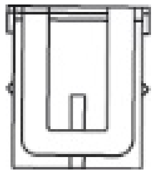
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
X56	1	Black	0,75	MC2M-2 CHASSIS	S32	
			0,75	X59	1	
			0,75	X151	17	
	2	Brown	0,75	LE70-J2	29	
	3	Blue	0,75	MC2M-2 CHASSIS	S31	
				X59	3	
				X151	19	
X57	1	Black - Red		LE70-J3	5	
	2	Black		GND		
X58	1	Black - Yellow		LE70-J3	6	
	2	Black		GND		
X59	1	Black	0,75	MC2M-2 CHASSIS	S32	
			0,75	X56	1	
			0,75	X151	17	
	2	Brown	0,75	LE70-J2	30	
	3	Blue	0,75	MC2M-2 CHASSIS	S31	
				X56	3	
				X151	19	
X60	1	Pink-Red (N°1)		LE70-J3	7	
	2	Black		GND		
X61	1	Pink-Yellow		LE70-J3	8	
	2	Black		GND		

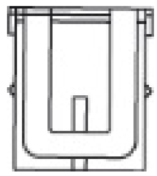
FUSE AND RELAYS BOX CHASSIS

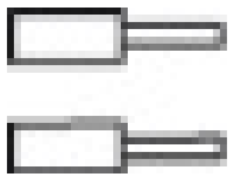
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
F1	1	IN		R1	87	
	2	OUT		X18	23	
F2	1	IN		R1	87	
	2	OUT		X18	20	
F3	1	IN		R1	87	
	2	OUT		X18	19	
F4	1	IN		R1	87	
	2	OUT		X18	18	
F5	1	IN		R1	87	
	2	OUT		X17	9	
F6	1	IN		X153	1	
	2	OUT		X18	5	
				X19	A	
F7	1	IN		R1	87	
	2	OUT		X17	7	
				X18	10	
F8	1	IN		R1	87	
	2	OUT		X18	11	
F9	1	IN		X17	11	
	2	OUT		X18	16	
				X17	12	

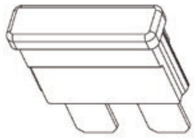
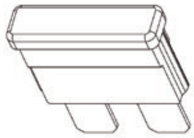
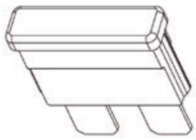
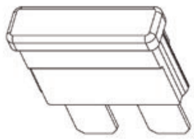
DASHBOARD TRANSDUCTORS WIRING

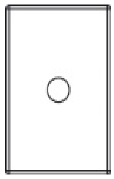
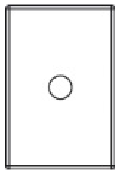
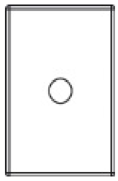
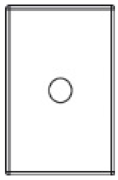
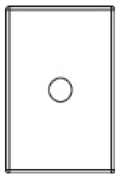
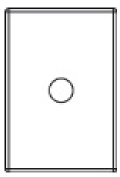
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
A6	1	Pink - Grey		J1	15	
	2	Black		GND		
I1	1	Pink - Grey		X21 cabin	4	
	2	Black - Blue		I1	9	
	5	Orange - Yellow		I2	5	
				I3	3	
				I3	4	
				I4	3	
				I5	1	
				I6	1	
				I7	5	
				I8	1	
				I12	3	
				I12	4	
				I13	1	
				I14	3	
				I15	4	
				I15	3	
				I15	6	
				I16	5	
				I19	1	
				I20	3	
				I30 cabin	3(1)	
				I30 cabin	3(2)	
				I30 cabin	3(3)	
				I30 cabin	3(4)	
				I31 cabin	1	
				I32	1	
				I33	1	
				X20 cabin	E	
	6	Black		GND		
	9	Black - Blue		I1	2	

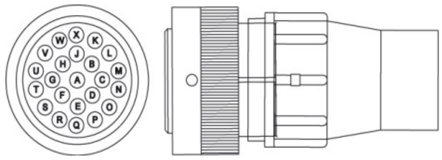
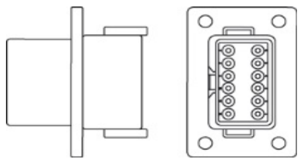
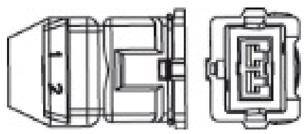
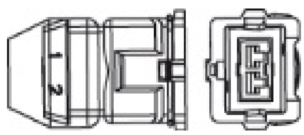
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I8	10	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	B	
				I12	10	
				I13	10	
				I14	B	
				I14	10	
				I15	B	
				I15	10	
				I16	10	
				I17	2	
				I17	10	
				I18	2	
				I18	10	
				I19	B	
				I19	10	
				I20	B	
				I20	10	
				X20 cabin	G	
	B	Azure		I8	3	
				J1	10	

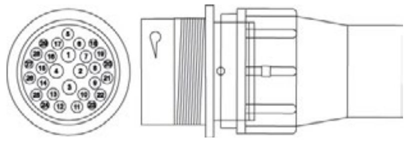
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I15	10	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	10	
				I12	B	
				I13	10	
				I14	B	
				I14	10	
				I15	B	
				I16	10	
				I17	2	
				I17	10	
				I18	2	
				I18	10	
				I19	B	
				I19	10	
				I20	B	
				I20	10	
				X20 cabin	G	

Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I31 cabin	1	Orange - Yellow		I1	5	
				I2	5	
				I3	3	
				I3	4	
				I4	3	
				I5	1	
				I6	1	
				I7	5	
				I8	1	
				I12	3	
				I12	4	
				I13	1	
				I14	3	
				I15	4	
				I15	3	
				I15	6	
				I16	5	
				I19	1	
				I20	3	
				I30 cabin	3(1)	
				I30 cabin	3(2)	
				I30 cabin	3(3)	
				I30 cabin	3(4)	
				I32	1	
				I33	1	
				X20 cabin	E	
	3	Grey - Black		X21 cabin	19	

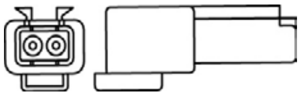
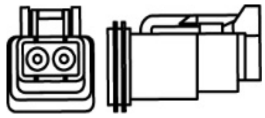
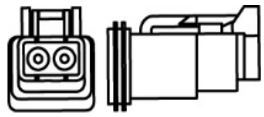
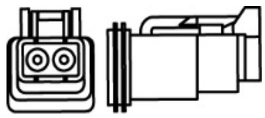
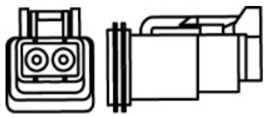
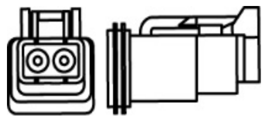
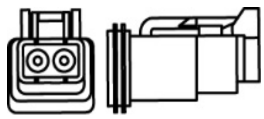
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
F38	IN			F33	IN	
				F34	IN	
				F46	IN	
				F48	IN	
				F53	IN	
				F60	IN	
				KEY	6	
				R33	86	
	OUT			R24	30	
				X22 cabin	10	
F39	IN			F31	IN	
				F36	IN	
				F41	IN	
				F59	IN	
				F64	IN	
				F71	IN	
				F72	IN	
				R33	87	
	OUT			X22 cabin	2	
F40	IN			X102 opt	4	
	OUT			X21 cabin	9	
F41	IN			F31	IN	
				F36	IN	
				F39	IN	
				F59	IN	
				F64	IN	
				F71	IN	
				F72	IN	
				R33	87	
	OUT			X22 cabin	34	

Rif	Pin	Wire color	Section	Component Destination	Pin	Image
R23	+	Yellow - Red	1,5	X20 cabin	M	
	31	Black		GND		
	C	Pink - Yellow		DL	6	
				X20 cabin	L	
R24	30	Pink - Red	1,5	X22 cabin	10	
				F38	OUT	
	85	Black		GND		
	86	Azure - Yellow		X22 cabin	17	
	87	Azure	1,5	I36	2	
R25	30	Pink - Black (N°1)		X22 cabin	21	
	85	Black		GND		
	86	Grey - Green		X22 cabin	20	
	87	Pink		F55	OUT	
R26	30	Green	2,5	R22	30	
				R27	30	
				R28	30	
				R29	30	
				R30	30	
	85	Black		GND		
	86	Orange		I25	5	
				I25	B	
	87	Grey	2,5	X23 cabin	8	
R27	30	Green	2,5	R22	30	
				R26	30	
				R28	30	
				R29	30	
				R30	30	
	85	Black		GND		
	86	Blue - Black		X22 cabin	41	
	87	Blue - Black (N°1)		X23 cabin	10	
R28	30	Green	2,5	R22	30	
				R26	30	
				R27	30	
				R29	30	
				R30	30	
	85	Black		GND		
	86	Blue - Green		X22 cabin	42	
	87	Grey - Black		X23 cabin	12	
R29	30	Green	2,5	R22	30	
				R26	30	
				R27	30	
				R28	30	
				R30	30	
	85	Black		GND		
	86	Yellow - Black		X22 cabin	43	
	87	Blue - Yellow		X23 cabin	14	

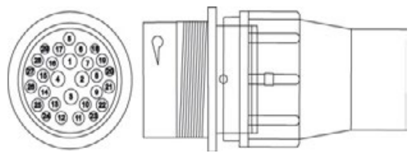
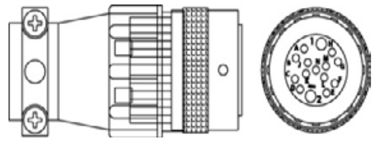
Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X19	A	Red - Yellow		G1	4	
	B	Black	2,5	GND	1	
				X62	2	
				X63 engine	2	
				X64 engine	2	
				X65 engine	C	
	C	Red - Green		G1	3	
	F	Grey		G1	2	
	G	White - Red	2,5	M1	1	
	L	Yellow - Purple		MCM 2.1	20	
	M	Blue		MCM 2.1	21	
	N	Azure	1,5	X19	P	
				X62	1	
	P	Azure	1,5	X19	N	
				X62	1	
	R	Red - Black		X65 engine	A	
	S	Red		X65 engine	B	
	T	Blue - Pink		MCM 2.1	17	
	U	Grey - Pink		MCM 2.1	18	
	V	Orange - Black		G1	1	
X35	1	Black		MCM 2.1	10	
				MCM 2.1	16	
	2	White	0,34	CR5	1	
				MCM 2.1	19	
	3	Yellow	0,34	CR5	2	
				MCM 2.1	13	
	4	Blue - Green		Y627	2	
	5	Brown (N°1)		MCM 2.1	7	
	6	Grey - Green		X63 engine	1	
	7	Pink - Brown		X64 engine	1	
	8	Blue - White		Y627	1	
X62	1	Azure	2,5	X19	N	
				X19	P	
	2	Black	2,5	GND	1	
				X19	B	
				X63 engine	2	
				X64 engine	2	
				X65 engine	C	
X63 engine	1	Grey - Green		X35	6	
	2	Black		GND	1	
				X19	B	
				X62	2	
				X64 engine	2	
				X65 engine	C	

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
	1	Grey - Black	2,5	X11	1	
				X11	2	
	2	Black	2,5	X11	3	
				X11	4	
	5	Green - Brown		X11	5	
	6	Green - Grey		X11	6	
	7	Green - Yellow		X11	7	
	8	Green - White		X11	8	
	9	Grey - Red		X11	9	
	10	Grey - Black		X11	10	
	11	Green		X11	11	
	12	Blue		X11	12	
	13	Brown - Black		X11	13	
	14	Brown - Green		X11	14	
X11A	15	Black - Yellow		X11	15	
	16	Black - White		X11	16	
	17	Orange - Green		X11	17	
	18	Brown	0,75+	X11	28	
	19	Pink - Green		X11	18	
	20	White	0,75+	X11	29	
	21	Blue - Red	1,5	X11	21	
	22	Blue - Yellow	1,5	X11	22	
	23	Orange - Black		X11	19	
	24	Orange - White		X11	20	
	25	Blue - Green	1,5	X11	25	
	26	Blue - Black	1,5	X11	26	
	27	Brown	0,75++	X11	30	
	28	Brown - Blue		X11	27	
	29	White	0,75++	X11	31	

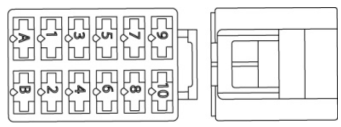
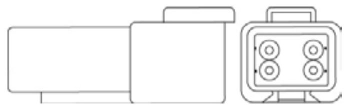
MICRO WIRING FOR BREAKING CHAINS

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X150	1	Blue		X156	2	
	2	Brown		X151	1	
X151	1	Brown		X150	2	
	2	Purple - White		X152	1	
X152	1	Purple - White		X151	2	
	2	Blue		X153	1	
X153	1	Blue		X152	2	
	2	Purple - Blue		X154	1	
X154	1	Purple - Blue		X153	2	
	2	Brown		X155	1	
X155	1	Brown		X154	2	
	2	Purple - Black		X156	1	
X156	1	Purple - Black		X155	2	
	2	Blue		X150	1	

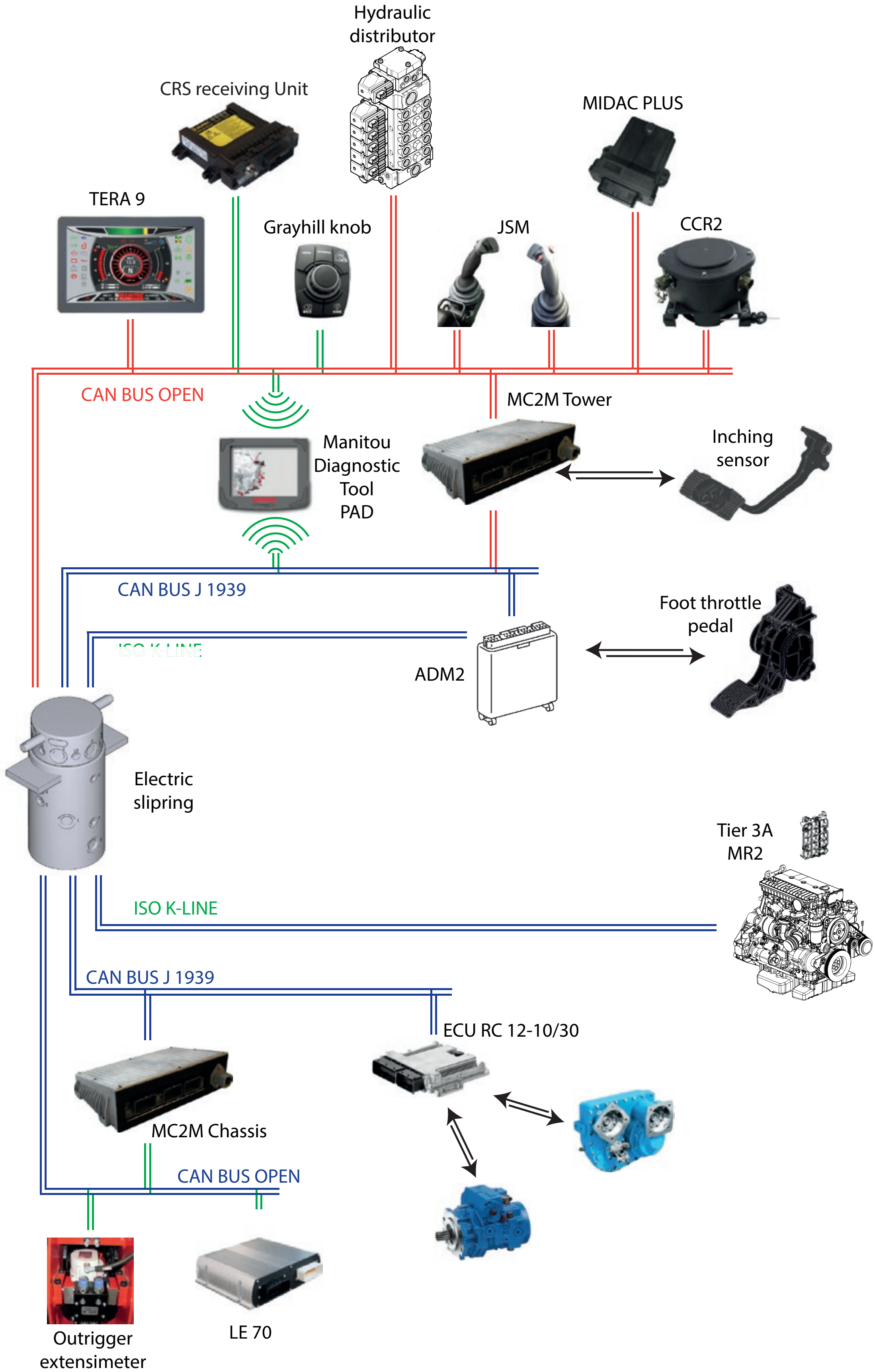
INTERMEDIATE CABLE FOR ACCESSORY SEARCH - WITHOUT PLATFORM

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X11A	1	Black (N° 1)		XA	1	
	2	Black (N° 2)		XA	2	
	27	Black (N° 3)		XA	A	
	29	Black (N° 4)		XA	B	
XA	1	Black (N° 1)		X11A	1	
	2	Black (N° 2)		X11A	2	
	A	Black (N° 3)		X11A	27	
	B	Black (N° 4)		X11A	29	

SWITCH WIRING FOR OPT EXCLUSION

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
I30 driver place	1	White		X138	1	
	5	White - Black		I30 driver place	B	
				X138	2	
	9	Black		X138	4	
	10	Red - Black		X138	3	
	B	White - Black		I30 driver place	5	
				X138	2	
X138	1	White - Black		I30 driver place	1	
	2	White - Black		I30 driver place	5	
				I30 driver place	B	
	3	Red - Black		I30 driver place	10	
	4	Black		I30 driver place	9	

MRT-X 3255


Hydraulic distributor
CRS receiving Unit
MIDAC PLUS
TERA 9
Grayhill knob
JSM
CCR2
CAN BUS OPEN
MC2M Tower
Manitou Diagnostic Tool PAD
Inching sensor
CAN BUS J 1939
Foot throttle pedal
ISO K-LINE
ADM2
Electric slipring
Tier 3A MR2
ISO K-LINE
CAN BUS J 1939
ECU RC 12-10/30
MC2M Chassis
CAN BUS OPEN
Outrigger extensimeter
LE 70

Electrical connectors

Item	Diag. 1.1	Diag. 1.2	Diag. 2.1	Diag. 2.2	Diag. 3	Diag. 4.1	Diag. 4.2	Diag. 4.3	Diag. 4.4	Diag. 5	Diag. 6	Diag. 7	Diag. 8.1	Diag. 8.2	Diag. 9	Diag. 10	Diag. 11	Diag. 12
R6-a													√					
R7	√	√																
R7-a													√					
R8											√							
R8-a													√					
R9											√							
R9-a													√					
R10											√							
R10-a													√					
R11											√							
R12	√															√		
R14											√							
R15											√							
R16	√	√																
R17															√			
R20															√			
R21															√			
R22								√				√						
R23																√		
R24																√		
R25						√	√											
R26								√							√			
R27								√							√			
R28								√										
R29								√										
R30								√										√
R32									√			√						
R33	√	√																
R34												√						
R35		√																
R33013	√	√																
RFID			√	√														
RS232			√	√														
S2TB															√			
S3TB															√			
SV												√						
T-9			√	√								√			√			
T1													√					√
V1/2													√					
V3													√					
WM						√	√											
X1						√												
X4D													√					
X6																	√	
X6-a	√	√									√	√	√		√			
X8													√					
X9			√	√		√	√											
X010																	√	
X10						√	√								√			
X10A						√	√								√			
X011																	√	

4.2 - HYDRAULIC MOVEMENTS (Platform version)

Electrical connectors					
Wiring harness type	**Item**	**Name of component**	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
	X9		3B6 transducers interface	O14	
	X10		Optional	K14	
	X10A		Optional interface	I14	
	X11		Basket	O11	
	X16		Rotating manifold	E12	
	X17		Relay box interface	I40	
	X18		Relay box interface	I37	
	X19		Carriage box connector	O37	
	X21 cabin		Dashboard interface switch	G7	
	X22 cabin		Dashboard interface switch	I23	
	X23 cabin		Dashboard interface switch	I9 / I21	
	X47		Oil feed filter	G19	
	X64 engine		Micro winch bypass	G21	
	X98		boom suspension	S20	
	X99		Pre-configuration	S18	
	X100 turret		Compensation pad	S25	
	X101 turret		Compensation stem	S28	
	X102 turret		Compensation pad	S31	
	X103		Rod - lifting	S34	
	X104		Max. boom upstroke	S16	
	X105		Winder - 3B6	S23	
	X106		boom lowered micro-switch	S14	
	X116		Chain break micro-switch	O11	
	X150		Chain brake micro-switch (nc)	O11	
	X151		Chain brake micro-switch (nc)	S12	
	X152		Chain brake micro-switch (nc)	E17 / S10	
	X153		Chain brake micro-switch (nc)	C33 / M9 / M10	
	X154		Chain brake micro-switch (nc)	M8	
	X155		Chain brake micro-switch (nc)	S8	
	X156		Chain brake micro-switch (nc)	S6	
	X191		Fan oil pressure sender	G18	

Electrical components			
Item	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
09181	Battery disconnector switch	C7 / C8	
EV1 chassis	Oil radiator fan solenoid valve	K28 / K29	
EV2 chassis	Oil radiator fan solenoid valve	K31	
EV3	Oil radiator fan	K33	
EV4	Oil radiator fan	K36	
EV5	Engine oil radiator	G15	
J1	Display connector	I8	
LE70-J2	LE70 control unit	E13 / E14	
MC2M-2 CHASSIS	CHASSIS MC2M control unit	E15 / E16 / K39 / K40	
MC2M-2 TURRET	TURRET MC2M control unit	M5 / M6	
MC2M-3 CHASSIS	CHASSIS MC2M control unit	E18 / E19	
MC2M-3 TURRET	TURRET MC2M control unit	M18 / M19	
MDCP	Midac plus control unit	M33	
WM	winch micro-switch	G13	

Fuse box				
Item	**Designation**	**Current**	**Position on diagram**	**Hydraulic equivalence code**
F21	Fuse "30" oil radiator solenoid valve #1	25A	E29	
F22	Fuse "30" oil radiator solenoid valve #2	25A	E31	
F23	Fuse "30" oil radiator solenoid valve #3	25A	E34	
F24	Fuse "30" oil radiator solenoid valve #4	25A	E36	
F34	Fuse for winch microswitch	7,5A	E24	
F55	Fuse for 3B6 transducer supply	10A	E25	
F72	Fuse "15" +VE control units	7,5A	E10	
FGC	General carriage fuse	80A	C32 / C33	
R2	Relay for condenser fan 2		G29	
R3	Relay for condenser fan 1		G31	
R4	Relay for cabin fan switch		G34	
R5	Relay for compressor solenoid valve		G36	
R25	Relay for 3B6 transducer supply		G26	

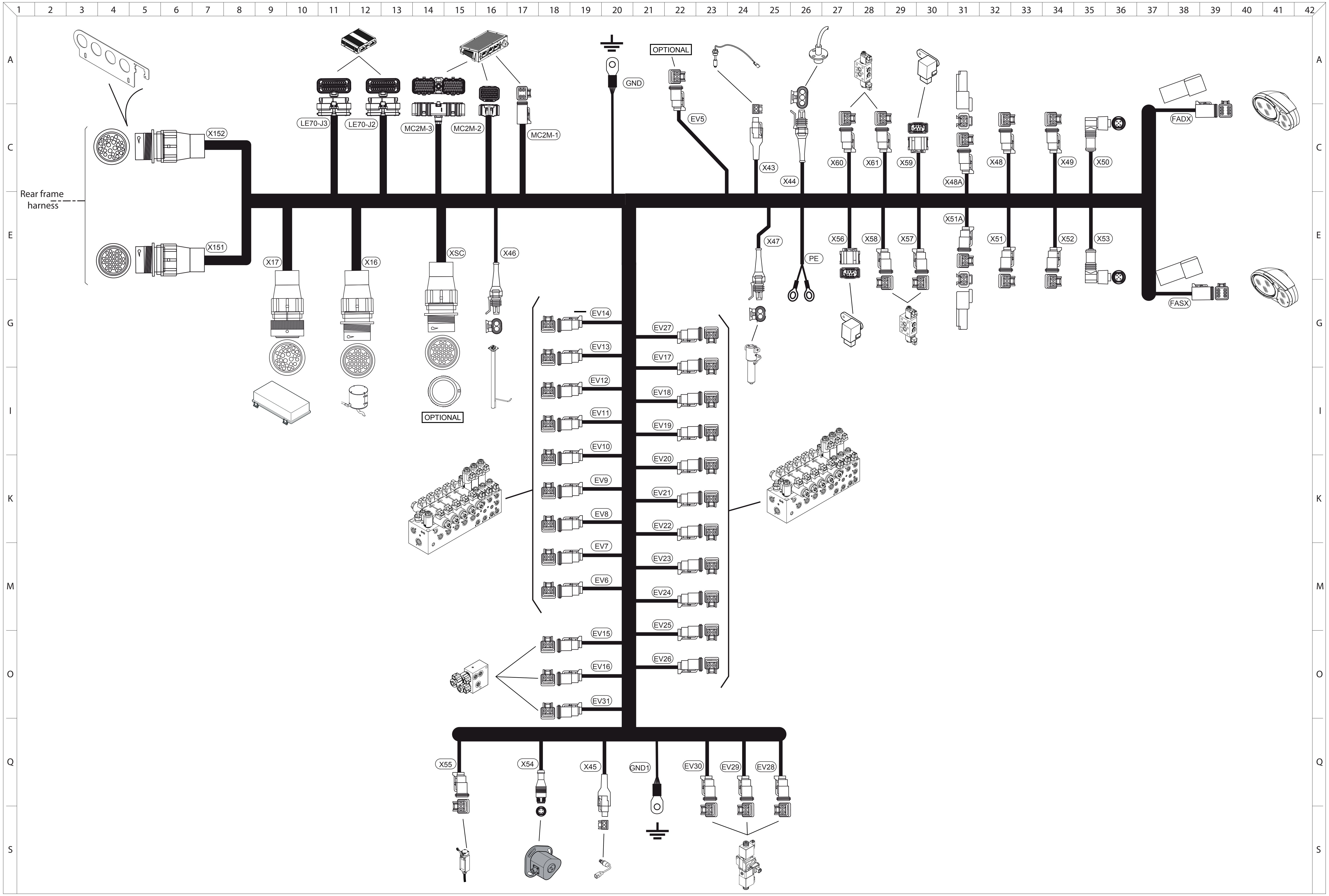
10 - EMERGENCY

Electrical connectors					
Wiring harness type	**Item**	**Name of component**	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
	X15A		Roof interface	G24	
	X16		Rotating manifold	C39 / E39 / I27 / M19	
	X17		Relay box interface	I9 / I10 / M9	
	X19		Carriage box connector	I5 / Q7	
	X20 cabin		Dashboard interface switch	I20 / I21 / I39 / I40 / M37 / M38	
	X21 cabin		Dashboard interface switch	I34 / I35 / M22 / M23	
	X22 cabin		Dashboard interface switch	I13 / I14 / M11 / M12	
	X23 cabin		Dashboard interface switch	M22 / M23	
	X37		Trailer	O25	
	X66		Anti-theft alboom connector	O16	
	X88		Axle	G24	
	X96		Manifold encoder	G14	
	X97		Danfoss distributor	G21	
	X151		Chain brake micro-switch (nc)	M19 / M24	
	X152		Chain brake micro-switch (nc)	C39	

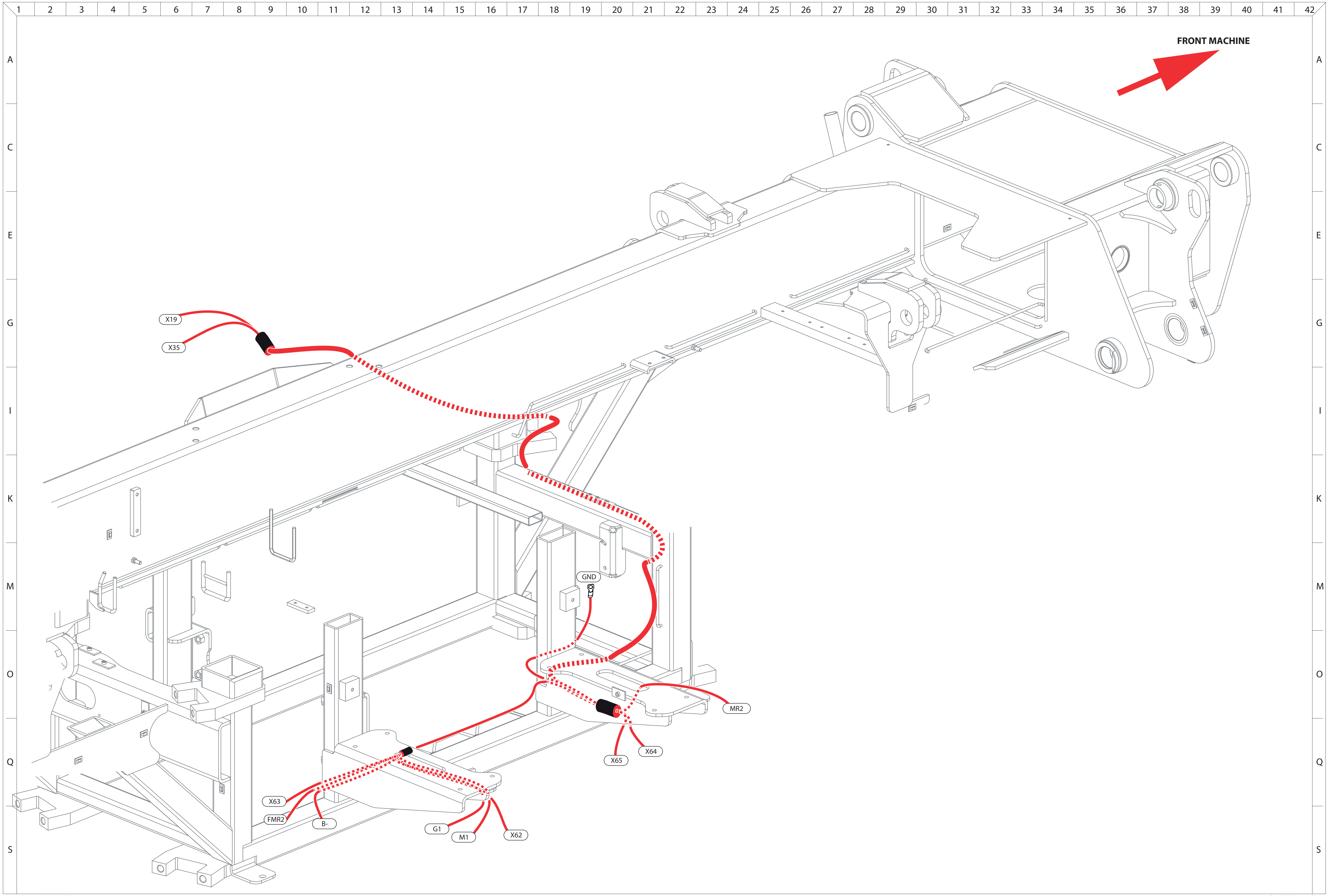
Electrical components			
Item	**Designation**	**Position on diagram**	**Hydraulic equivalence code**
A6	Emergency pump buzzer	O32	
A2-a	Buzzer	O28	
B+	+ 24 V battery positive (Turret)	E35	
DL	Indicator lights switch	K31	
FADX	RH front headlight	K28	
FASX	LH front headlight	K29	
FPD	RH tail light	O23 / O24	
FPS	LH tail light	O26	
G1	Alternator	G7	
I1	Emergency pump ON switch	K21	
I29	Pneutron emergency button	K38	
I36	Emergency stop pushbutton	K19	
J1	Display connector	O30	
M58	Rexroth RC12-10/30 control unit	O18	
M96	Rexroth RC12-10/30 control unit	O20	
MC2M-3 CHASSIS	CHASSIS MC2M control unit	K26 / K27 / O9 / O10	
MC2M-3 TURRET	TURRET MC2M control unit	O21 / O22	
MDCP	Midac plus control unit	O12	
PE	Emergency pump contactor	G10	
R23	Direction indicator intermittent operation	K32	

Fuse box				
Item	**Designation**	**Current**	**Position on diagram**	**Hydraulic equivalence code**
F17	Fuse "15" alternator and emergency pump control	10A	E8 / E9	
F31	Fuse for switch backlight	7,5A	E23	
F38	Fuse for manifold encoder and hydraulic movement distributor	7,5A	E13 / E14	
F46	Fuse for emergency pushbutton	10A	E17 / E18	
F47	Fuse “15” emergency button (4 arrows)	10A	E37	
F58	Fuse “30” emergency button (4 arrows)	5A	E38 / E39	
F64	Fuse “15” switch supply	15A	E22	
R12	Relay for emergency pump contactor control		K9	
R24	Relay for hydraulic movement safety		K12 / K13	

FRONT FRAME HARNESS



ENGINE MRT-X 3255 HARNESS



3B6 TROUBLESHOOTING

ALARM CODE

ALARM CODE	
Code	**Description**
1	MCT: E2Prom Alarm
2	MCT: Crc Error in program Flash
5	MCT: Crc Error in system
6	LES: Error on LE70 Unit
7	MCC: Error on Mc2m Chassis Unit
8	MCC: Error in system
10	MCT: can bus timeout from radio [1]
11	MCT: can bus timeout from radio [2]
13	Front Right Outrigger sensor Fault
14	Front Left Outrigger sensor Fault
15	Rear Right Outrigger sensor Fault
16	Rear Left Outrigger sensor Fault
17	Encoder fault
19	MCT: can bus timeout cabin right joystick [1]
20	MCT: can bus timeout cabin right joystick [2]
21	MCT: can bus timeout cabin right joystick [3]
22	MCT: can bus timeout cabin right joystick [4]
23	MCT: can bus timeout cabin left joystick [1]
24	MCT: can bus timeout cabin left joystick [2]
25	MCT: can bus timeout cabin left joystick [3]
26	MCT: can bus timeout cabin left joystick [4]
28	MCT: can bus timeout MC2M chassis [1]
29	MCT: can bus timeout MC2M chassis [2]
30	MCT: can bus timeout from LE70 [1]
32	MCT: Fault found in Tera7/IoCore
33	MCT: can bus timeout from Tera7/IoCore [1]
34	MCT: can bus timeout from Tera7/IoCore [2]
35	MCT: can bus timeout from Tera7/IoCore [5]
37	MCT: can bus timeout from Lmi [1]
38	MCT: can bus timeout from Lmi [2]
39	MCT: can bus timeout from Lmi [3]
40	MCT: can bus timeout from Lmi [4]
41	MCT: can bus timeout from Lmi [5]
46	can bus timeout from Tools Recognition
50	can bus timeout from TCU1
51	can bus timeout from TCU2
55	can bus timeout from level angle transducer
56	Inching: Congruency A-B
57	Inching A: Calibration
58	Inching B: Calibration
59	Inching A: Min Value
60	Inching A: Max Value
61	Inching B: Min Value
62	Inching B: Max Value
64	MCT: Fault on Lmi bypass key

ALARM CODE	
Code	**Description**
65	MCT: Fault on traveling byapss button
66	MCT: Fault on basket bypass key
67	MCT: Fault on frontal proximity switch
68	MCT: Fault on Emergency
69	MCT: Fault on Emergency radio
70	MCT: By-Pass Key activated
71	MCT: Recovery Key
72	MCT: Basket bypass activated
73	MCT: congruency [Radio safety]
74	MCT: congruency [Basket connected]
75	MCT: congruency [Basket overload switch]
76	MCT: congruency [Basket lock switch]
77	MCT: Tx Radio with low battery
78	MCT: Radio Communication error RX/TX
80	Machine overspeed
81	Fault [MCT Pin S6: Start Engine]
82	Fault [MCT Pin R4: Power transducers]
83	Fault [MCT Pin R5: Cabin red lamp]
84	Fault [MCT Pin R6: External buzzer]
85	Fault [MCT Pin R13: Pendulum activation valves]
86	Fault [MCT Pin R15: Power to radio unit]
87	Fault [MCT Pin R16: Claxson]
88	Fault [MCT Pin R17: EV boom suspension]
89	Fault [MCT Pin R14: EV 7200 Kg Winch]
91	Fault [MCT Pin R19: EV seat forward]
92	Fault [MCT Pin R20: EV seat backward]
93	Fault [MCT Pin S3: EV rotation basket 3D]
94	Fault [MCT Pin S4: EV lift basket 3D]
95	Fault [MCT Pin S5: EV inclination Basket 3D]
96	Fault [MCT Pin S19: EV1 Optional]
97	Fault [MCT Pin S20: EV2 Optional]
100	MCT:Fault from distributor [Pvsk]
101	MCT:Fault from distributor [Boom Lift]
102	MCT:Fault from distributor [Boom Extend]
103	MCT:Fault from distributor [Rotation]
104	MCT:Fault from distributor [Fork]
105	MCT:Fault from distributor [Optional]
106	MCT:Fault from distributor [Rear winch]
107	MCT:Fault condition Transmission unit
109	Fault from Cabin Joystick [Boom lift A]
110	Fault from Cabin Joystick [Boom lift B]
111	Fault from Cabin Joystick [Forks A]
112	Fault from Cabin Joystick [Forks B]
113	Fault from Cabin Joystick [Rotation A]
114	Fault from Cabin Joystick [Rotation B]

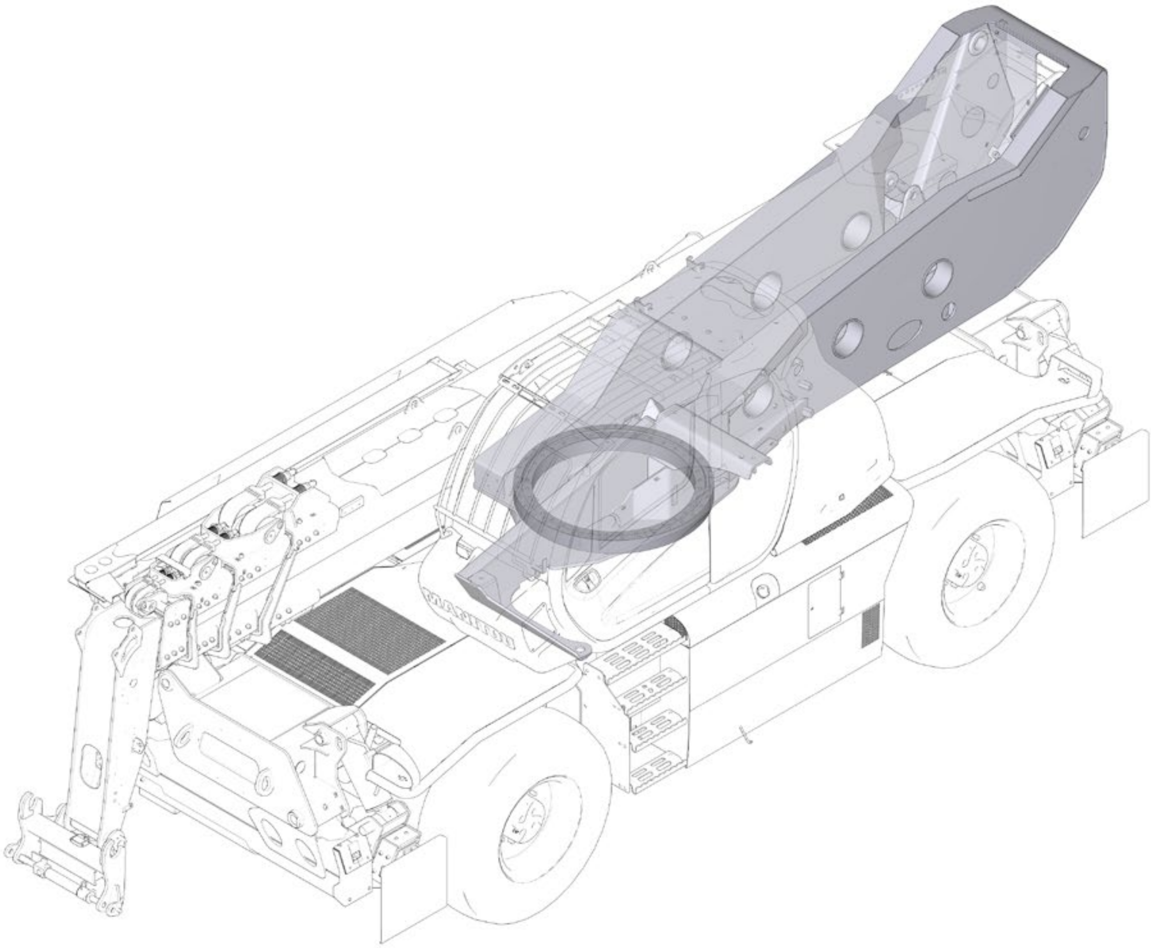
HEATING TECHNICAL DATA

HEATING SYSTEM	AITRONIC D2				AIRTRONC D4 (option)			
HEATING FLUID	AIR							
THERMAL POWER	WATT				WATT			
	(power)	(max)	(average)	(min)	(power)	(max)	(average)	(min)
	2200	1800	1200	850	4000	3000	2000	1000
HOT AIR FLOW	Kg/h				Kg/h			
	(step)	(max)	(average)	(min)	(power)	(max)	(average)	(min)
	105	87	60	42	185	150	110	65
FUEL CONSUMPTION	l/h				l/h			
	(power)	(max)	(average)	(min)	(power)	(max)	(average)	(min)
	0.28	0.23	0.15	0.10	0.51	0.38	0.25	0.13
ELECTRICITY CONSUMPTION	WATT				WATT			
	(power)	(max)	(average)	(min)	(power)	(max)	(average)	(min)
(12-24 Volt)	34	23	12	8	40	24	13	7
AT START-UP (12-24 Volt)	≤ 100				≤ 100			
RATED VOLTAGE	12 to 24 Volt							
PERMITTED TEMPERATURE in service	-40° C / +70° C							
PERMITTED TEMPERATURE in storage	-40° C / +85° C							
FUEL	diesel - commercial (according to DIN EN 590)							
All the data has a tolerance of +/- 10								

AIRTRONIC D2
After around 60 seconds, the fuel supply starts and the air-fuel mixture ignites in the combustion chamber. Approximately 60 seconds after the combi sensor (flame sensor) detects the flame, the spark is extinguished. After an additional 120 seconds, the AIRTRONIC reaches the "POWER" level (maximum quantity of fuel and maximum engine speed).

AIRTRONIC D4 (option)
After around 60 seconds, the fuel supply starts and the air-fuel mixture ignites in the combustion chamber. Approximately 80 seconds after the combi sensor (flame sensor) detects the flame, the spark is extinguished and the AIRTRONIC operates in the calibration phase.

REMOVING THE TURRET AND THUST RING



GENERAL INFORMATION

To reach the various components, the order of removal must be observed.
Mark all the hydraulic pipes and electrical connections with a felt tip pen before removing them to ensure correct repositioning during reassembly.

Plug all hydraulic orifices to prevent any impurities from contaminating the hydraulic system.

PREPARATION AND SAFETY INSTRUCTIONS

Place the truck on a horizontal surface and extend the stabilisers to ensure the greatest stability and safety.

Special instruments:
– Lifting crane (5000 kg. minimum).
– Hydraulic power unit.

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