



647488EN (14/06/2021)

MRT 3255 PRIVILEGE PLUS ST4/T4F
MRT-X 3255 PRIVILEGE PLUS ST3A

REPAIR MANUAL

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Never step on a part of the machine that has not been designed for it.



Never wear clothes, jewelry or objects that could get caught during work and cause accidents.

Always wear protection glasses, gloves, safety shoes as well as any other protection required for the work to be carried out.



When carrying out maintenance operations near a mobile object, make sure it is securitized.

To do so, insert the locking wedge of the lifting cylinder.

Kit ref.: 921819

- ⇒ Safety wedge: Ref. 909412
- ⇒ Safety wedge supports: Ref. 909419



When changing, or draining oils or fuel, or any other operation with liquids, solids, gases that are harmful to the environment, make sure the necessary precautions are taken to avoid contaminating the environment.

LUBRICANTS AND FUEL

Original document:



Operator manual 648870 (MRT)

⚠ IMPORTANT ⚠

- USE THE RECOMMENDED LUBRICANTS AND FUEL:**
- For topping up, oils may not be miscible.
 - For oil changes, MANITOU oils are perfectly appropriate.

DIAGNOSTIC ANALYSIS OF OILS

If a service or maintenance contract has been organized with the dealer, a diagnostic analysis of engine, transmission and axle oils may be requested depending on the rate of use.

(*) RECOMMENDED FUEL SPECIFICATION

Use a high-quality fuel to obtain optimal performance of the I.C. engine.

MRT-X 3255

- EN590 diesel fuel type - Auto/C0/C1/C2/C3/C4
- BS2869 Class A2
- ASTM D975-91 Class 2-2DA, US DF1, US DF2, US DFA
- JIS K2204 (1992) Grades 1, 2, 3 and Special Grade 3.

MRT 3255

Only refuel using commercially available, sulphur-free diesel fuel that complies with the following standards:

- EN 590 as of 2010, et seq. (max. 0.001% sulphur by weight) (10 ppm) or
- ASTM D975 (max. 0.0015% sulphur by weight) (15 ppm).

(◇) Features of recommended "DEF"

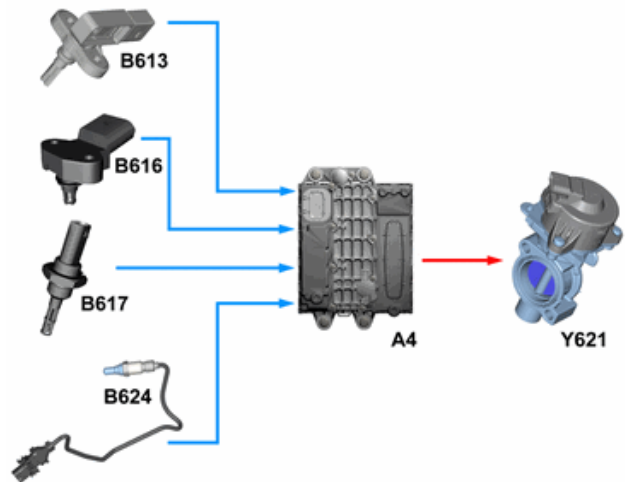
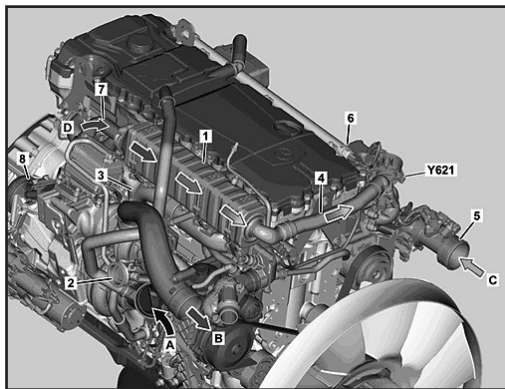
Only use "DEF" in accordance with DIN 70070/ISO 22241. Do not use any additives.

ENGINE				
ORGANS TO BE LUBRICATED	CAPACITY	RECOMMENDATION	PACKAGING	PART NUMBER
ENGINE WITH OIL FILTER <i>MRT-X 3255</i>	13-16 Liter	Oil MANITOU PREMIUM "API CI4/15W40"	5l	895831
			20l	895832
			55l	895833
			209l	895834
			1000l	895835
ENGINE WITH OIL FILTER <i>MRT 3255</i>	± 20,5 Liter	Oil MANITOU EVOLOGY "API CJ4/10W40"	5l	895837
			20l	895838
			55l	895839
			209l	895840
			1000l	895841
COOLING CIRCUIT <i>MRT-X 3255</i>	40 Liter	Coolant (protection - 25°)	2l	788245
			5l	788246
			20l	788247
		Coolant (protection - 35°)	210l	788248
			20l	788249
			210l	788250
			1000l	788251
COOLING CIRCUIT <i>MRT 3255</i>	40 Liter	Coolant (protection - 35°)	1,5l	53017514
			20l	53017515
			210l	53004600
FUEL TANK	361 Liter	Diesel fuel (*)		
DEF TANK <i>MRT 3255</i>	63 Liter	DEF (Diesel exhaust fluid) (◇)		

EXHAUST AFTERTREATMENT SYSTEM - SYSTEM DESCRIPTION

System components (engine model represented only as an example)

- | | |
|------------------------------------|--------------------------------------------|
| 1 Exhaust gas recirculation cooler | 8 Exhaust pipe |
| 2 Exhaust gas turbocharger | Y621 Exhaust gas recirculation positioner |
| 3 Exhaust manifold | A Intake air from air filter |
| 4 EGR line (cold) | B Charge air to charge-air cooler (hot) |
| 5 Charge air pipe | C Charge air from charge-air cooler (cold) |
| 6 Charge air pipe (mixer housing) | D Exhaust gas from exhaust manifold |
| 7 EGR line (hot) | |



FUNCTION: The EGR rate denotes the ratio of recirculated exhaust gas to fresh air. It is determined via the motor control module (MCM) (A4), which compares the mass of the fresh air actually taken in/charged and the mass of the exhaust gas actually recirculated. The EGR rate is calculated by the motor control module (MCM) (A4) on the basis of the information from the charge air pressure and temperature sensor in the charge air pipe (B616), the oxygen sensor (B624), the charge air temperature sensor in the charge air housing (B617) and the fresh air pressure differential (B613). The EGR rate is then regulated via the exhaust gas recirculation positioner (Y621) actuated by the motor control module (MCM) (A4) by pulse-width-modulated signal. The EGR positioner opens and closes the EGR line (4) by means of its throttle valve, thereby regulating the amount of exhaust gas added to the mixture.

The exhaust gas diverted flows firstly through the exhaust gas recirculation cooler (1) connected to the coolant circuit. Here, it is cooled from approximately 650°C to roughly 170°C. The cooling can increase the EGR rate, as the density and thus the mass of the recirculated exhaust gases rise. In addition, the admixture of the cooled exhaust gases effects a reduction in NO_x emissions due to the decrease in combustion temperature. After the exhaust gas coming from the exhaust manifold (3) has passed the EGR cooler (1), it flows through the EGR line (4) to the charge air pipe (5). Here, it is mixed with the fresh air coming from the charge-air cooler and then directed to the individual cylinders for combustion.

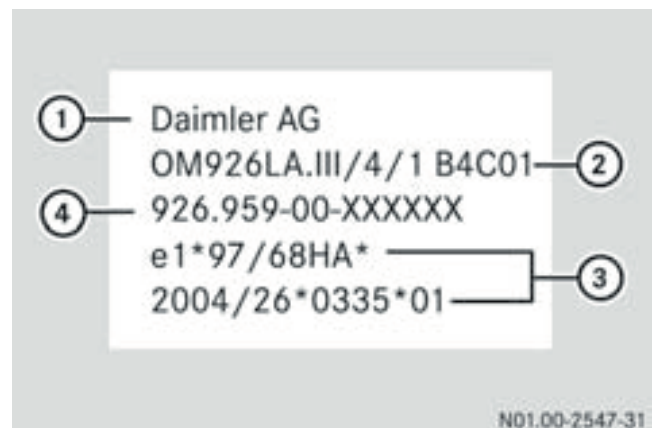
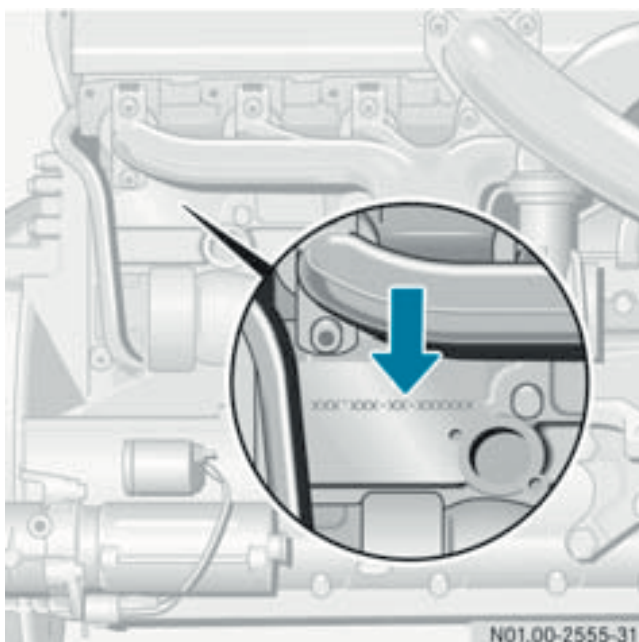
IDENTIFICATION OF THE ENGINE

Engine data plate

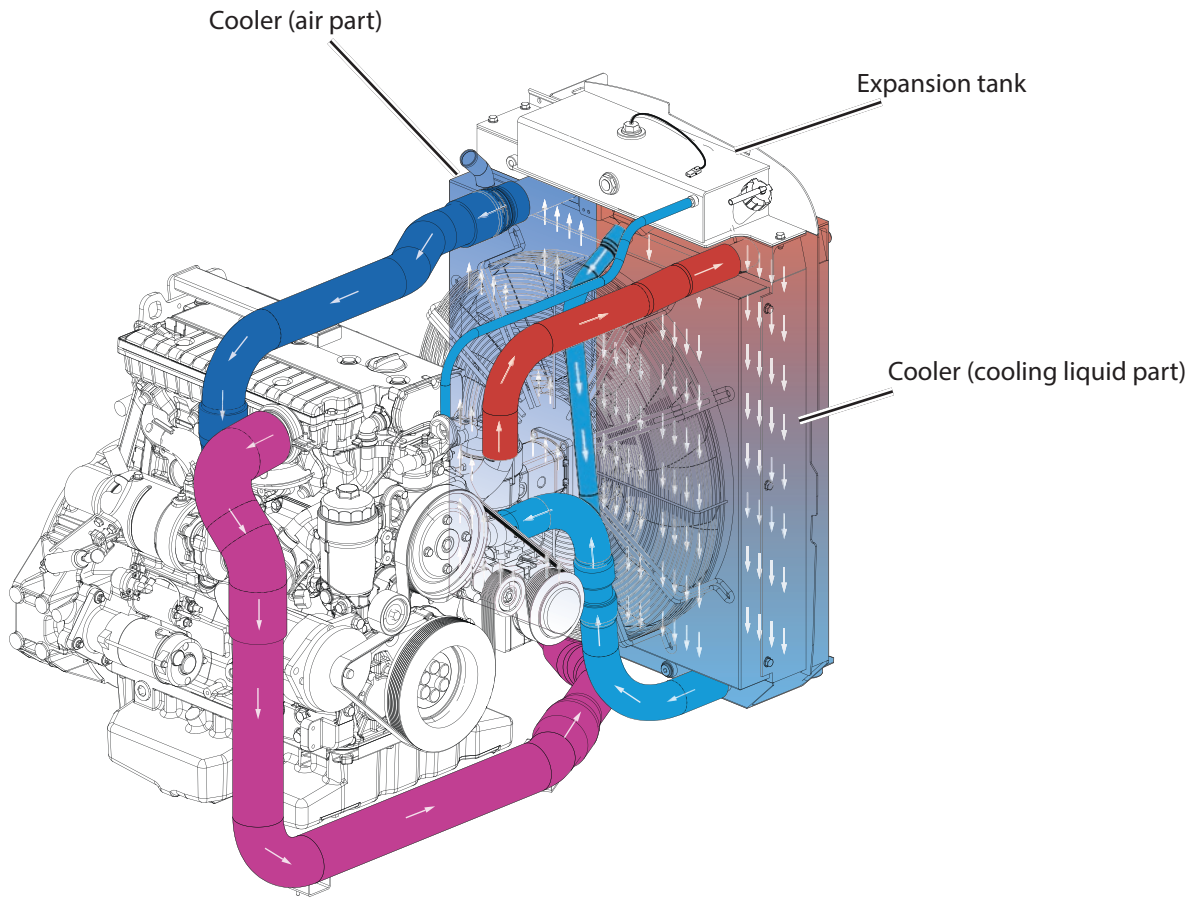
The engine data plate is located on the righthand side of the engine below the exhaust manifold. The engine data plate data is stamped into the crankcase.

Example: engine data plate for non-road vehicles (off-highway engine)

- 1 - Manufacturer's name
- 2 - Engine model designation
- 3 - Type approval number
- 4 - Engine number



AIR COOLING/COOLING LIQUID CIRCUIT

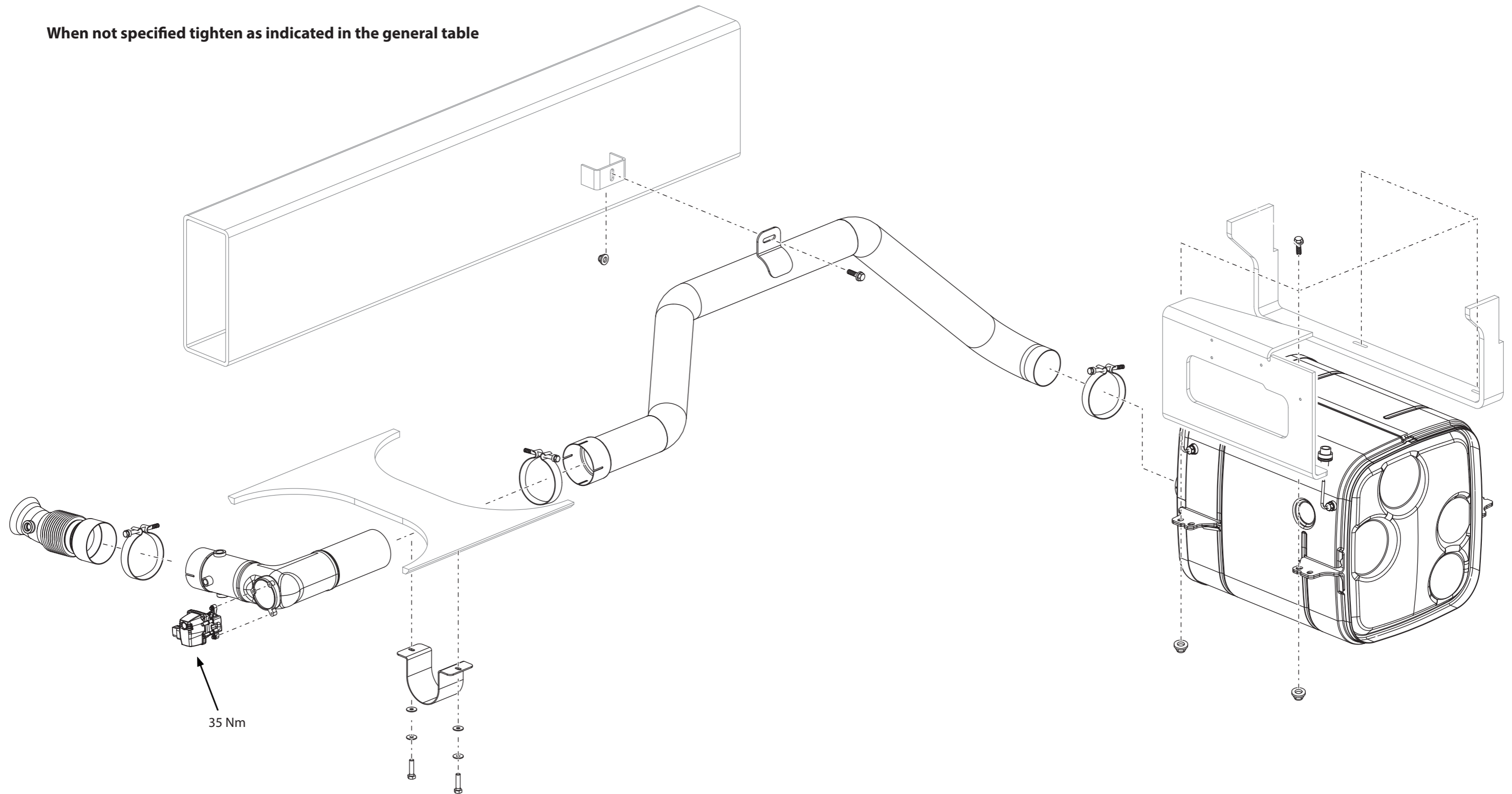


- Hot air
- Hot cooling liquid
- Air cools down
- Cooling liquid cools down

EXHAUST

10 - "ENGINE REFIT" - "EXHAUST FILTER REFIT"

When not specified tighten as indicated in the general table



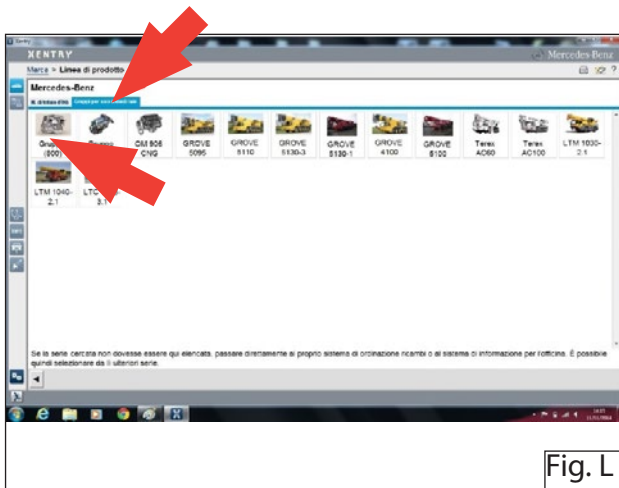


Fig. L

Select "GROUP FOR INDUSTRIAL USE" and click on "GROUP (800)" (Fig. L).

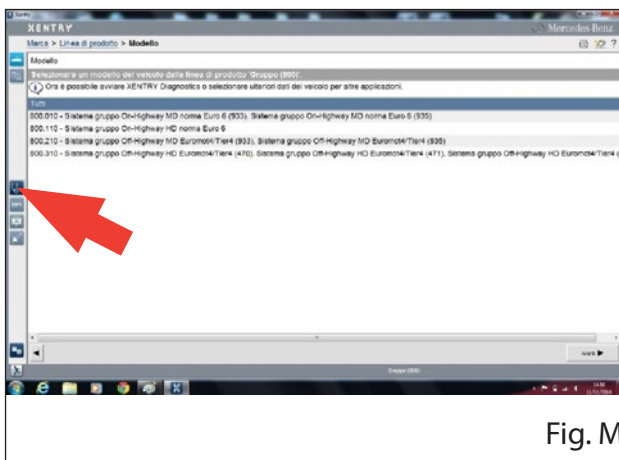


Fig. M

Click on the icon underlined in photo (Fig. M).

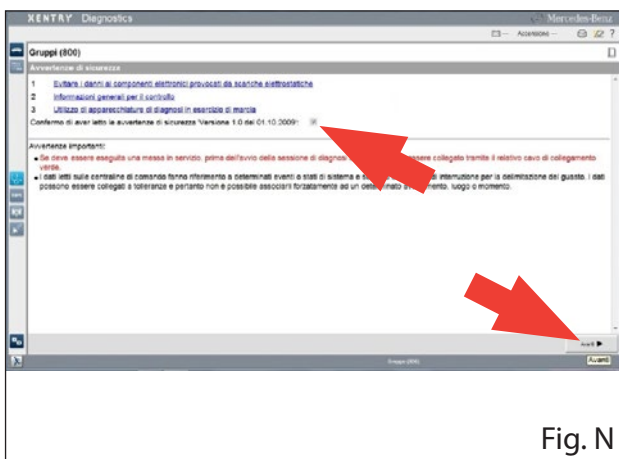


Fig. N

Click on the small square beside to "I confirm to have read the security instructions 'Version 1.0 of 01.10.2009'" and click on "FORWARD" (Fig. N).

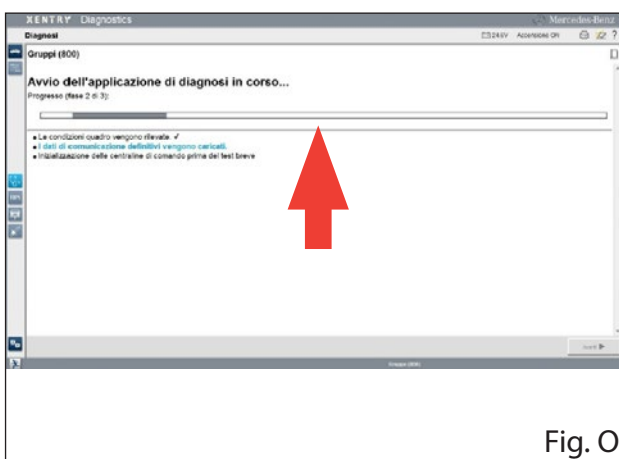


Fig. O

Wait the end of the diagnostic process (Fig. O).

SPN	FMI	DTC	Fault description	Recommended Action	CEL	SEL	MIL	Fault location
701	3	BD0203	Digital Output 3/07 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/06 (Selection), 35/25 (Fault Detection) and 35/42 (Configuration) for correct configuration of output pin 3/07 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 9"	ON	OFF	OFF	Pin 3/07
701	4	BD0204	Digital Output 3/07 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/06 (Selection), 35/25 (Fault Detection) and 35/42 (Configuration) for correct configuration of output pin 3/07 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 9"	ON	OFF	OFF	Pin 3/07
701	5	BD0205	Digital Output 3/07 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/06 (Selection), 35/25 (Fault Detection) and 35/42 (Configuration) for correct configuration of output pin 3/07 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 9"	ON	OFF	OFF	Pin 3/07
702	3	BE0203	Digital Output 3/08 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/07 (Selection), 35/26 (Fault Detection) and 35/43 (Configuration) for correct configuration of output pin 3/08 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 10"	ON	OFF	OFF	Pin 3/08
702	4	BE0204	Digital Output 3/08 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/07 (Selection), 35/26 (Fault Detection) and 35/43 (Configuration) for correct configuration of output pin 3/08 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 10"	ON	OFF	OFF	Pin 3/08
702	5	BE0205	Digital Output 3/08 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/07 (Selection), 35/26 (Fault Detection) and 35/43 (Configuration) for correct configuration of output pin 3/08 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 10"	ON	OFF	OFF	Pin 3/08
703	3	BF0203	Digital Output 3/09 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 35/08 (Selection), 35/27 (Fault Detection) and 35/44 (Configuration) for correct configuration of output pin 3/09 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 14"	ON	OFF	OFF	Pin 3/09
703	4	BF0204	Digital Output 3/09 Circuit shorted to GND	"Check wiring of associated pin Check parameters 35/08 (Selection), 35/27 (Fault Detection) and 35/44 (Configuration) for correct configuration of output pin 3/09 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 14"	ON	OFF	OFF	Pin 3/09
703	5	BF0205	Digital Output 3/09 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check parameters 35/08 (Selection), 35/27 (Fault Detection) and 35/44 (Configuration) for correct configuration of output pin 3/09 Run Service Routine (chapter 6.4, routines 15 to 17): – Digital Output Pin Under Software Control: Start Response with Signal Parameter 14"	ON	OFF	OFF	Pin 3/09
704	3	C00203	Digital Output 4/07 Circuit shorted to Ubat	"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

SPN	FMI	DTC	Fault description	Recommended Action	CEL	SEL	MIL	Fault location
3842	5	020F05	Analog Ground 3/02 Open Circuit (broken wire, terminal floating)	"Check wiring of associated pin Check Parameters 35/05 (Selection) and 35/24 (Fault Detection) for correct configuration."	ON	OFF	OFF	Pin 3/02
3843	3	030F03	Digital Input 1/01 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 13/01 (Selection), 13/35 (Fault Detect Ena) for correct configuration of input pin 1/01"	ON	OFF	OFF	Pin 1/01
3843	4	030F04	Digital Input 1/01 Circuit shorted to GND	"Check wiring of associated pin Check parameters 13/01 (Selection), 13/35 (Fault Detect Ena) for correct configuration of input pin 1/01"	ON	OFF	OFF	Pin 1/01
3844	3	040F03	Digital Input 1/02 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 13/01 (Selection), 13/35 (Fault Detect Ena) for correct configuration of input pin 1/02"	ON	OFF	OFF	Pin 1/02
3844	4	040F04	Digital Input 1/02 Circuit shorted to GND	"Check wiring of associated pin Check parameters 13/02 (Selection), 13/36 (Fault Detect Ena) for correct configuration of input pin 1/02"	ON	OFF	OFF	Pin 1/02
3845	3	050F03	Digital Input 1/12 Circuit shorted to Ubat	"Check wiring of associated pin Check parameter 13/39 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/12"	ON	OFF	OFF	Pin 1/12
3845	4	050F04	Digital Input 1/12 Circuit shorted to GND	"Check wiring of associated pin Check parameter 13/39 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/12"	ON	OFF	OFF	Pin 1/12
3846	3	060F03	Digital Input 1/14 Circuit shorted to Ubat	"Check wiring of associated pin Check parameter 13/40 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/12"	ON	OFF	OFF	Pin 1/14
3846	4	060F04	Digital Input 1/14 Circuit shorted to GND	"Check wiring of associated pin Check parameter 13/40 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/12"	ON	OFF	OFF	Pin 1/14
3847	3	070F03	Digital Input 1/15 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 13/04 (Selection), 13/41 (Fault Detect Ena) for correct configuration of input pin 1/15"	ON	OFF	OFF	Pin 1/15
3847	4	070F04	Digital Input 1/15 Circuit shorted to GND	"Check wiring of associated pin Check parameters 13/04 (Selection), 13/41 (Fault Detect Ena) for correct configuration of input pin 1/15"	ON	OFF	OFF	Pin 1/15
3848	3	080F03	Digital Input 1/16 Circuit shorted to Ubat	"Check wiring of associated pin Check parameter 13/42 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/16"	ON	OFF	OFF	Pin 1/16
3848	4	080F04	Digital Input 1/16 Circuit shorted to GND	"Check wiring of associated pin Check parameter 13/42 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/16"	ON	OFF	OFF	Pin 1/16
3849	3	090F03	Digital Input 1/17 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 13/05 (Selection), 13/43 (Fault Detect Ena) for correct configuration of input pin 1/17"	ON	OFF	OFF	Pin 1/17
3849	4	090F04	Digital Input 1/17 Circuit shorted to GND	"Check wiring of associated pin Check parameters 13/05 (Selection), 13/43 (Fault Detect Ena) for correct configuration of input pin 1/17"	ON	OFF	OFF	Pin 1/17
3850	3	0A0F03	Digital Input 1/11 Circuit shorted to Ubat	"Check wiring of associated pin Check parameter 13/38 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/11"	ON	OFF	OFF	Pin 1/11
3850	4	0A0F04	Digital Input 1/11 Circuit shorted to GND	"Check wiring of associated pin Check parameter 13/38 (Fault Detect Ena) for correct configuration of Fault Detection of pin 1/11"	ON	OFF	OFF	Pin 1/11
3851	3	0B0F03	Digital Input 2/09 Circuit shorted to Ubat	"Check wiring of associated pin Check parameters 13/07 (Selection), 13/46 (Fault Detect Ena) for correct configuration of input pin 2/09"	ON	OFF	OFF	Pin 2/09

SPN	FMI	Fault_name	Fault Description
636	10	Crankshaft Position Sensor Signal Erratic	t.b.d.
636	11	Crankshaft Position Sensor Failure	t.b.d.
636	14	Crankshaft Position Sensor Pins Sw apped	Pins Sw apped
636	15	Phase Shift of CRK Tooth 97 to CAM Tooth 10 is too High (Crankshaft Position - Camshaft Position Correlation)	Phase Shift of CRK tooth 97 to CAM tooth 10 is too high
639	14	J1939 Data Link Failure	CPC 2 Fault
641	3	Turbo Control Circuit Failed High	Short Cut to Battery
641	4	Turbo Control Circuit Failed Low	Short Cut to Ground
641	5	Turbo Control Circuit Open	Open Load
647	3	Fan Stage 1 Circuit Failed High	Short Cut to Battery
647	4	Fan Stage 1 Circuit Failed Low	Short Cut to Ground
647	5	Fan Stage 1 Circuit Failed Open	Open Load
651	3	Injector Cylinder #1 Needle Control Valve, Abnormal Operation (MAX)	Injector Push Error
651	4	Injector Cylinder #1 Needle Control Valve, Abnormal Operation (MIN)	Injector Push Error
651	5	Injector Cylinder #1, Needle Control Valve Circuit Open	Injector Open Load Error
651	6	Injector Cylinder #1 Needle Control Valve, Valve Shorted Circuit	Valve short circuit of injector
651	7	Injector Cylinder #1 Needle Control Valve, Stucks Open	Injector from Cylinder 1 has a sticking needle
651	10	Injector Cylinder #1 Needle Control Valve, Abnormal Rate of Change	Pull-in detection failure
652	3	Injector Cylinder #2 Needle Control Valve, Abnormal Operation (MAX)	Injector Push Error
652	4	Injector Cylinder #2 Needle Control Valve, Abnormal Operation (MIN)	Injector Push Error
652	5	Injector Cylinder #2 Needle Control Valve, Circuit Open	Injector Open Load Error
652	6	Injector Cylinder #2 Needle Control Valve, Valve Shorted Circuit	Valve short circuit of injector
652	7	Injector Cylinder #2 Needle Control Valve, Stucks Open	Injector from Cylinder 2 has a sticking needle
652	10	Injector Cylinder #2 Needle Control Valve, Abnormal Rate of Change	Pull-in detection failure
653	3	Injector Cylinder #3 Needle Control Valve, Abnormal Operation (MAX)	Injector Push Error
653	4	Injector Cylinder #3 Needle Control Valve, Abnormal Operation (MIN)	Injector Push Error
653	5	Injector Cylinder #3 Needle Control Valve, Circuit Open	Injector Open Load Error
653	6	Injector Cylinder #3 Needle Control Valve, Valve Shorted Circuit	Valve short circuit of injector
653	7	Injector Cylinder #3 Needle Control Valve, Stucks Open	Injector from Cylinder 3 has a sticking needle
653	10	Injector Cylinder #3 Needle Control Valve, Abnormal Rate of Change	Pull-in detection failure
654	3	Injector Cylinder #4 Needle Control Valve, Abnormal Operation (MAX)	Injector Push Error
654	4	Injector Cylinder #4 Needle Control Valve, Abnormal Operation (MIN)	Injector Push Error
654	5	Injector Cylinder #4 Needle Control Valve, Circuit Open	Injector Open Load Error
654	6	Injector Cylinder #4 Needle Control Valve, Valve Shorted Circuit	Valve short circuit of injector
654	7	Injector Cylinder #4 Needle Control Valve, Stucks Open	Injector from Cylinder 4 has a sticking needle
654	10	Injector Cylinder #4 Needle Control Valve, Abnormal Rate of Change	Pull-in detection failure
655	3	Injector Cylinder #5 Needle Control Valve, Abnormal Operation (MAX)	Injector Push Error
655	4	Injector Cylinder #5 Needle Control Valve, Abnormal Operation (MIN)	Injector Push Error
655	5	Injector Cylinder #5 Needle Control Valve, Circuit Open	Injector Open Load Error
655	6	Injector Cylinder #5 Needle Control Valve, Valve Shorted Circuit	Valve short circuit of injector

SPN	FMI	Fault_name	Fault Description
5588	19	CAN3 Electrical Failure	Timeout of PBS messages
5926	3	Differential Pressure Icooler Out Sensor Circuit Failed High	Compressor Differential Pressure Inlet Failed High
5926	4	Differential Pressure Icooler Out Sensor Circuit Failed Low	Compressor Differential Pressure Inlet Failed Low
5926	13	Icooler Out Differential Pressure Sensor Out of Calibration Low	zero offset compensation too low
5926	14	Icooler Out Differential Pressure Sensor Out of Calibration High	zero offset compensation too high
5926	20	Icooler Out Differential Pressure Plausibility Fault, Pressure too High (Low Box)	Compressor Delta Pressure Failed High
5926	21	Icooler Out Differential Pressure Plausibility Fault, Pressure too Low (High Box)	Compressor Delta Pressure Failed Low
5927	2	Water Pump Limp Home Mode	MU is set if water pump is in limp home mode
5927	7	Water Pump Mechanical Defect Detected	MU is set if an error from PVH is indicated
5928	3	H Bridge 2 EGR Valve Circuit Shorted to Battery	H Bridge 2: Short Cut Battery
5928	4	H Bridge 2 EGR Valve Circuit Shorted to Ground	H Bridge 2: Short Cut to Ground
5928	5	H Bridge 2 EGR Valve Short Circuit/ Over Current	H Bridge 2: Short Cut Open Load
5928	14	H Bridge 2 EGR Valve Circuit Open Load	H Bridge 2 Open Load
520192	18	EGR Feedback on Lambda too Low	EGR Feedback on Lambda to low
520193	16	EGR Feedback on Lambda too High	EGR Feedback on Lambda to high
520194	14	MU_EGR_OBD_3	spare MU needed for prototyping with V4.1
520195	14	MU_EGR_OBD_4	spare MU needed for prototyping with V4.1
520196	14	MU_EGR_OBD_5	spare MU needed for prototyping with V4.1
520197	14	MU_OBD_PROTO_EV_1	spare event MU needed for prototyping with V4.1
520198	14	MU_OBD_PROTO_EV_2	spare event MU needed for prototyping with V4.1
520199	14	MU_OBD_PROTO_EV_3	spare event MU needed for prototyping with V4.1
520200	14	MU_OBD_PROTO_EV_4	spare event MU needed for prototyping with V4.1
520201	14	MU_OBD_PROTO_EV_5	spare event MU needed for prototyping with V4.1
520204	3	Reserved 2	TBD4 Temperature Circuit Failed High
520204	4	Reserved 1	TBD4 Temperature Circuit Failed Low
520205	3	Thermal Switch Circuit Failed High	
520205	4	Thermal Switch Circuit Failed Low	
520206	3	Reserved 4	TBD3 Temperature Circuit Failed High
520206	4	Reserved 3	TBD3 Temperature Circuit Failed Low
520208	3	Turbo Compound Valve Circuit Failed High	Short-circuit to battery
520208	4	Turbo Compound Valve Circuit Failed Low	Short-circuit to ground
520208	5	Turbo Compound Valve Circuit Failed Open	Open Load
520210	3	Function 19 Circuit Failed High	Function 19 (reserved)
520210	4	Function 19 Circuit Failed Low	Function 19 (reserved)
520210	5	Function 19 Circuit Failed Open	Function 19 (reserved)
520211	3	Service Push Button Circuit Failed High	
520214	3	Function 22 Circuit Failed High	Function 22 (reserved)
520214	4	Function 22 Circuit Failed Low	Function 22 (reserved)
520214	5	Function 22 Circuit Failed Open	Function 22 (reserved)
520216	3	Function 25 Circuit Failed High	Function 25 (reserved)
520216	4	Function 25 Circuit Failed Low	Function 25 (reserved)
520216	5	Function 25 Circuit Failed Open	Function 25 (reserved)
520217	3	RCP Test Function 1 Circuit Failed High	Short Cut to Battery
520217	4	RCP Test Function 1 Circuit Failed Low	Short Cut to Ground
520217	5	RCP Test Function 1 Circuit Failed Open	Open Load
520218	3	RCP Test Function 2 Circuit Failed High	Short Cut to Battery

SPN	FMI	Fault_name	Fault Description	Pin No.	Failure cause
3515	19	MU_ISP_UQS_T_DEF_ERR			
3516	1	MU_SCR_DIA_UQS_PCT_DEF			
3516	7	MU_SCR_DIA_UQS_TMPR_DIAG			
3516	9	MU_ISP_UQS_SNA			
3516	19	MU_ISP_UQS_CONC_DEF_ERR			
3516	20	MU_ISP_UQS_CONC_DRIFT_HI			
3516	21	MU_ISP_UQS_CONC_DRIFT_LO			
3517	1	DEF Tank Level - Zone 4			
3517	9	MU_ISP_CAN_L_DEF_TANK_SRH			
3517	14	DEF Tank Level - Zone 2			
3517	17	DEF tank level check - Lim1 reserve			
3517	18	DEF Tank Level - Zone 3			
3517	19	DEF Tank Signal Erratic via CAN			
3517	31	MU_TRC_L_DEF_TANK_LIM_5			
3521	31	MU_SCR_DIA_UQS_IS_DIESEL			
3523	8	Regen Frequency Error			
3556	0	Regen Temperature - Out of Range High			
3556	1	Regen Temperature - Out of Range Low			
3556	18	DOC Outlet Temp Low (Low Temp Regen)			
3597	3	High Side Digital Output 1 Circuit Failed High	Short circuit to battery on HS1_SCR	1,3,5	output is shorted to battery
3597	4	High Side Digital Output 1 Circuit Failed Low	Short circuit to ground on HS1_SCR	1,3,5	output is shorted to ground
3598	3	High Side Digital Output 2 Circuit Failed High	Short circuit to battery on HS2 (HS_DPF)	21,23,25	output is shorted to battery
3598	4	High Side Digital Output 2 Circuit Failed Low	Short circuit to ground on HS2 (HS_DPF)	21,23,25	output is shorted to ground
3599	3	High Side Digital Output 3 Circuit Failed High	Short circuit to battery on HS3_SCR	15,39,9	output is shorted to battery
3599	4	High Side Digital Output 3 Circuit Failed Low	Short circuit to ground on HS3_SCR	15,39,9	output is shorted to ground
3609	3	DOC Inlet Pressure Circuit Failed High		87	
3609	4	DOC Inlet Pressure Circuit Failed Low		87	
3609	8	DOC Inlet Pressure Signal Spike	DPF In Pressure sensor sporadic def ect	87	
3609	10	DOC Inlet Pressure Sensor Stuck			
3609	21	DPF Inlet Pressure - Drift Low			
3610	0	DPF System Back Pressure Too High			
3610	2	DPF Outlet Pressure Sensor - Not Plausible			
3610	3	DPF Outlet Pressure Circuit Failed High		72	
3610	4	DPF Outlet Pressure Circuit Failed Low		72	
3610	7	DPF Outlet Pressure High			
3610	8	DPF Outlet Pressure Signal Spike	DPF Out Pressure sensor sporadic def ect	72	
3610	10	DPF Outlet Pressure Sensor Stuck			

GETTING STARTED ENGINE PROGRAMMING AND DIAGNOSTICS



Fig. B

Connect the OBD cable on the machines (Fig. B).

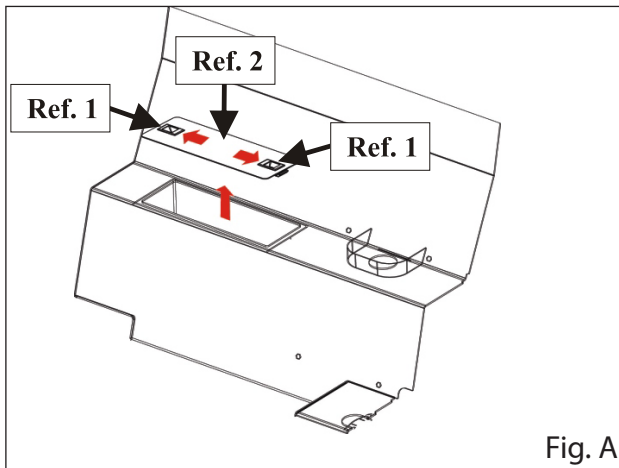
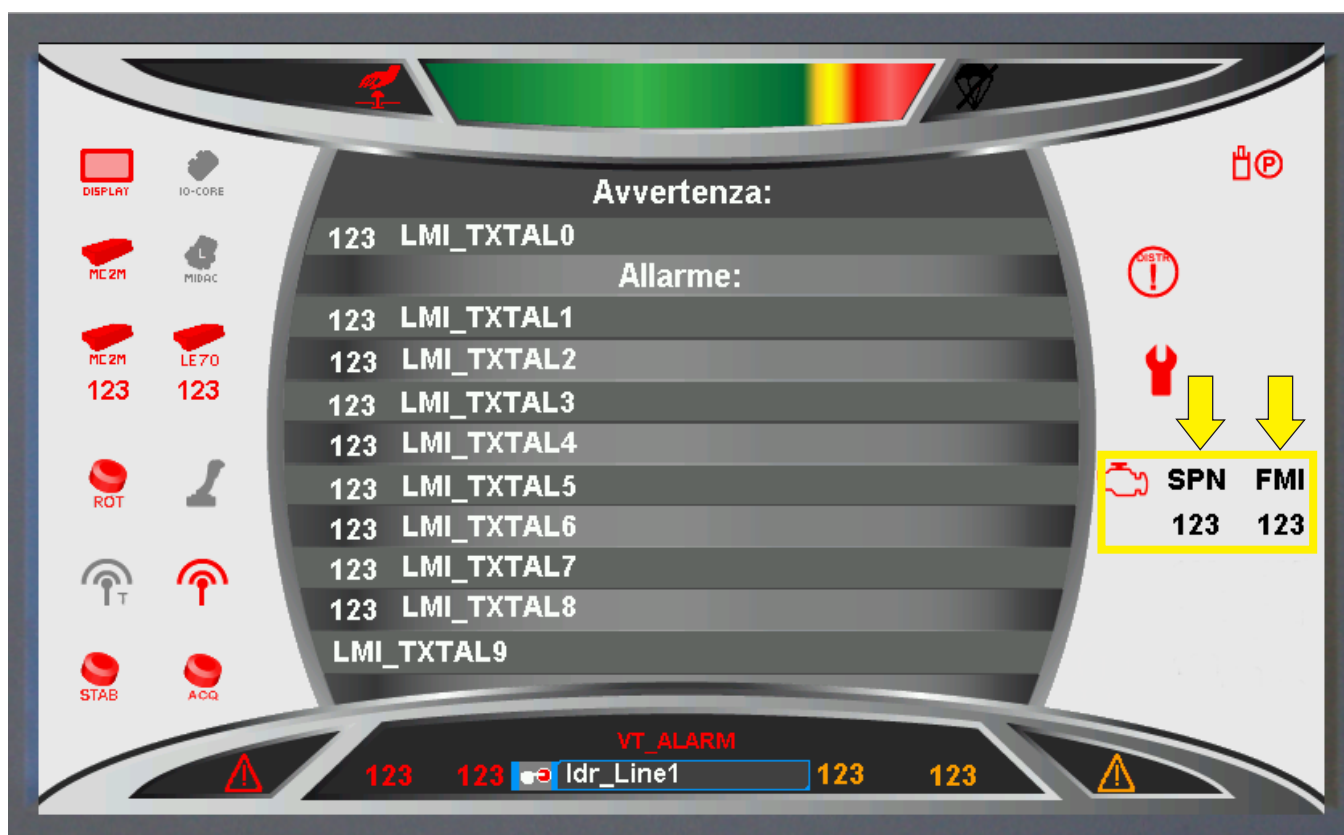


Fig. A

Open the fuses box Ref. 2 of the ADM central unit in the cab (behind the driving seat) acting on the two pressure closing Ref. 1 (Fig. A).

USE OF THE ONBOARD DIAGNOSTIC MERCEDES DETIER

The errors underlined on the engine system will be visualized on the display (SPN / FMI) as shown below.

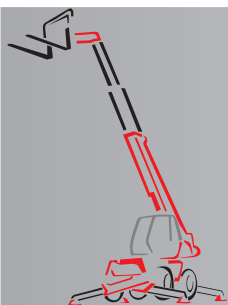


FAULT CODES

The background colour is used to indicate the newly supported or changed fault codes since diagnosis version 207. The background colour is used to indicate the newly supported or changed fault codes since diagnosis version 210. The background colour is used to indicate the newly supported or changed fault codes since diagnosis version 211. The background colour indicates PLD/MR2 fault codes which are received from the PLD/MR2 control unit and are broadcasted by the ADM over J1939.

ADM3 fault code (J1939) SPN / FMI	"ADM3 fault code (K-line)"	"MR2 fault code (K-line)"	Fault location	Fault description	Remedial action	Pin
51 / 0	-	12419	Engine Throttle Position	Above Measuring Range		LSCAN-MR
51 / 1	-	12420	Engine Throttle Position	Below Measuring Range		LSCAN-MR
51 / 2	-	12424	Engine Throttle Position	Measuring Range Not Plausible		LSCAN-MR
51 / 2	-	14217	Engine Throttle Position	Performance		LSCAN-MR
51 / 3	-	14205	Engine Throttle Position Sensor	Circuit High		LSCAN-MR
51 / 4	-	14206	Engine Throttle Position Sensor	Circuit Low		LSCAN-MR
51 / 7	-	12431	Engine Throttle Position	Defective		LSCAN-MR
51 / 13	-	14218	Engine Throttle Position	Position Not Learned		LSCAN-MR
69 / 9	17309	-	Two Speed Axle Switch	Abnormal Update Rate		CAN-J1939

ADM3 fault code (J1939) SPN / FMI	"ADM3 fault code (K-line)"	"MR2 fault code (K-line)"	Fault location	Fault description	Remedial action	Pin
729 / 5	-	16409	Intake Air Heater (PLD/MR2)	Circuit Open		LSCAN-MR
729 / 12	-	16432	Intake Air Heater (PLD/MR2)	Circuit Universal Troubles		LSCANMR
730 / 0	13900	-	Output Relay 2 (REL 2)	Grid Heater: No Increasing Boost Temperature After Activation	- Check wiring - Check relay 2 - Check grid heater	15/09
730 / 1	13901	-	Output Relay 2 (REL 2)	Relay Permanently Closed (Grid Heater)	- Check wiring - Check relay 2	15/09
730 / 2	13902	-	Output Relay 2 (REL 2)	Relay Permanently Open (Grid Heater)	- Check wiring - Check relay 2	15/09
730 / 3	13903	-	Output Relay 2 (REL 2)	Voltage too High when Activated	- Check wiring	15/09
730 / 4	13904	-	Output Relay 2 (REL 2)	Voltage too Low when Activated	- Check wiring - Check relay 2	15/09
870 / 3	-	14223	SCR Diisor Heating	Circuit High		LSCANMR
870 / 3	-	14270	Heater Regeneration System	Circuit High		LSCANMR
870 / 4	-	14222	SCR Diisor Heating	Circuit Low		LSCANMR
870 / 4	-	14269	Heater Regeneration System	Circuit Low		LSCANMR
870 / 5	-	14221	SCR Diisor Heating	Circuit Open		LSCANMR
904 / 9	18809	-	Front Axle Speed	Abnormal Update Rate		CANJ1939
904 / 19	18819	-	Front Axle Speed	Received Network Data in Error		CANJ1939
925 / 3	-	17905	SCR Module Proportional Valve Bank	Circuit High		LSCANMR
925 / 4	-	17908	SCR Module Proportional Valve Bank	Circuit Low		LSCANMR
973 / 9	18909	-	Engine Retarder Selection	Abnormal Update Rate		CANJ1939
973 / 19	18919	-	Engine Retarder Selection	Received Network Data in Error		CANJ1939
974 / 2	14202	-	Remote Throttle Pedal (HFG)	Supply Voltage Out of Range (Pin HFG+)	- Limit values for the supply voltage of the HFG: Minimum value: 4,8 V and maximum value: 5,2 V.	18/17
974 / 3	14203	-	Remote Throttle Pedal (HFG)	Voltage too High		18/18
974 / 4	14204	-	Remote Throttle Pedal (HFG)	Voltage too Low		18/18
986 / 1	-	10631	Fan Speed	Speed Too Low		LSCANMR
986 / 9	-	10612	Fan Speed	Time Out		LSCANMR
986 / 9	-	17112	Fan Speed	Time Out		LSCANMR
1004 / 3	14403	-	Output Relay 4 (REL 4)	Open Circuit		18/01
1004 / 4	14404	-	Output Relay 4 (REL 4)	Short Circuit to Ground		18/01
1005 / 3	14503	-	Output PWM Pedal Supply or Transmission (FP+)	Open Circuit		15/05
1005 / 4	14504	-	Output PWM Pedal Supply or Transmission (FP+)	Short Circuit to Ground		15/05
1015 / 1	15001	-	PWM Accelerator Pedal (PWM FFG)	No Supply Voltage at Pin FP+	- Check wiring	15/05
1015 / 3	15003	-	PWM Accelerator Pedal (PWM FFG)	No Signal at Path 2 (GAS2)	"- Check wiring - Pins 21/13, 15/05 , 21/14."	
1015 / 4	15004	-	PWM Accelerator Pedal (PWM FFG)	No Signal at Path 1 (GAS1)	"- Check wiring - Pins 21/12, 15/05 , 21/14"	
1015 / 5	15005	-	PWM Accelerator Pedal (PWM FFG)	Not Adjusted	"- Restart accelerator pedal adjustment routine"	-

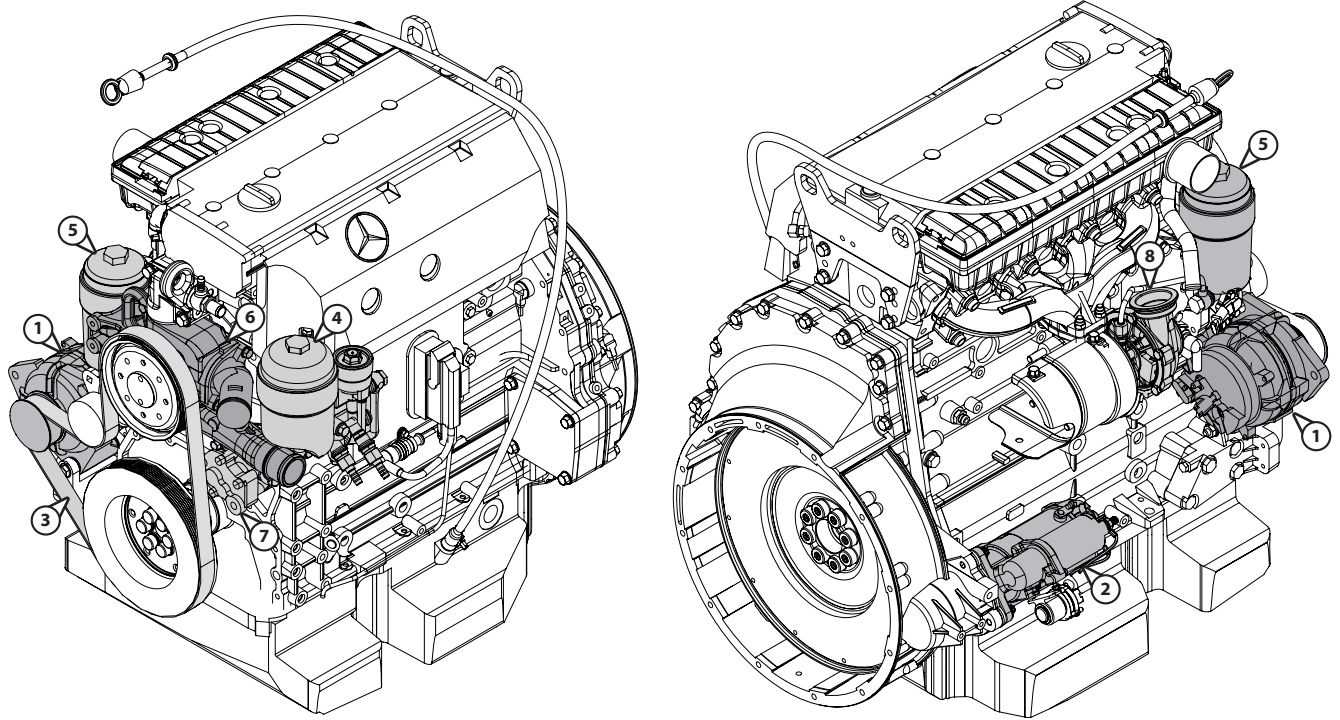


ENGINE REMOVAL

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MRT3255-X

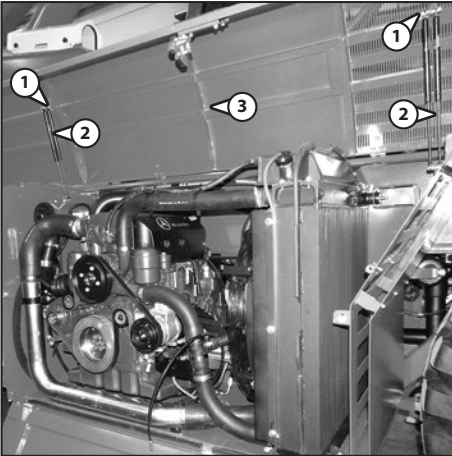
ENGINE COMPONENTS



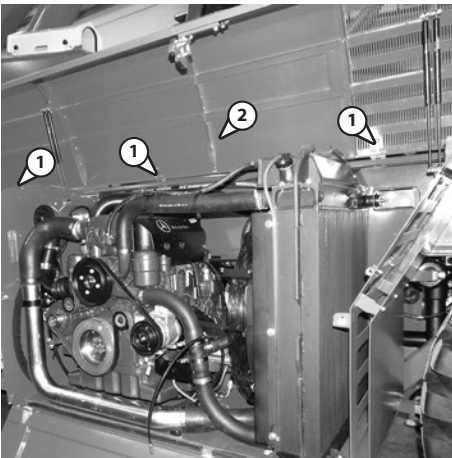
Key:

- 1 - Alternator
- 2 - Starter motor
- 3 - Alternator belt
- 4 - Fuel filter
- 5 - Oil filter
- 6 - Engine cooling water pump
- 7 - Fuel pump
- 8 - Turbocompressor

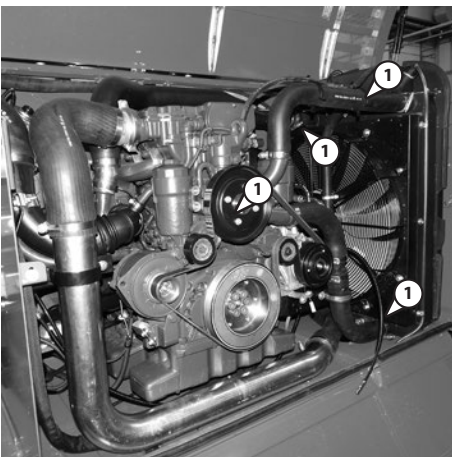
REMOVING THE ENGINE RADIATOR



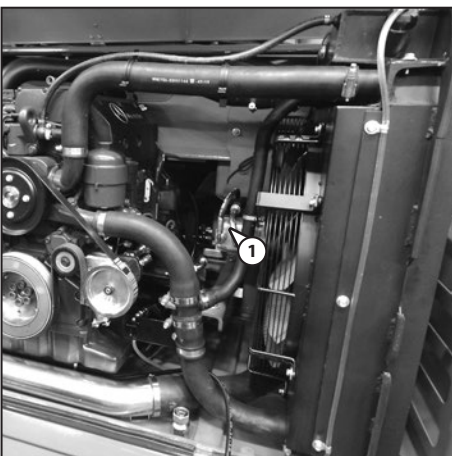
Slacken the screws (Ref. 1) to release the two pairs of gas springs (Ref. 2) from the engine hood (Ref. 3).



Slacken the screws (Ref. 1) and remove the hood (Ref. 2) from the vehicle.

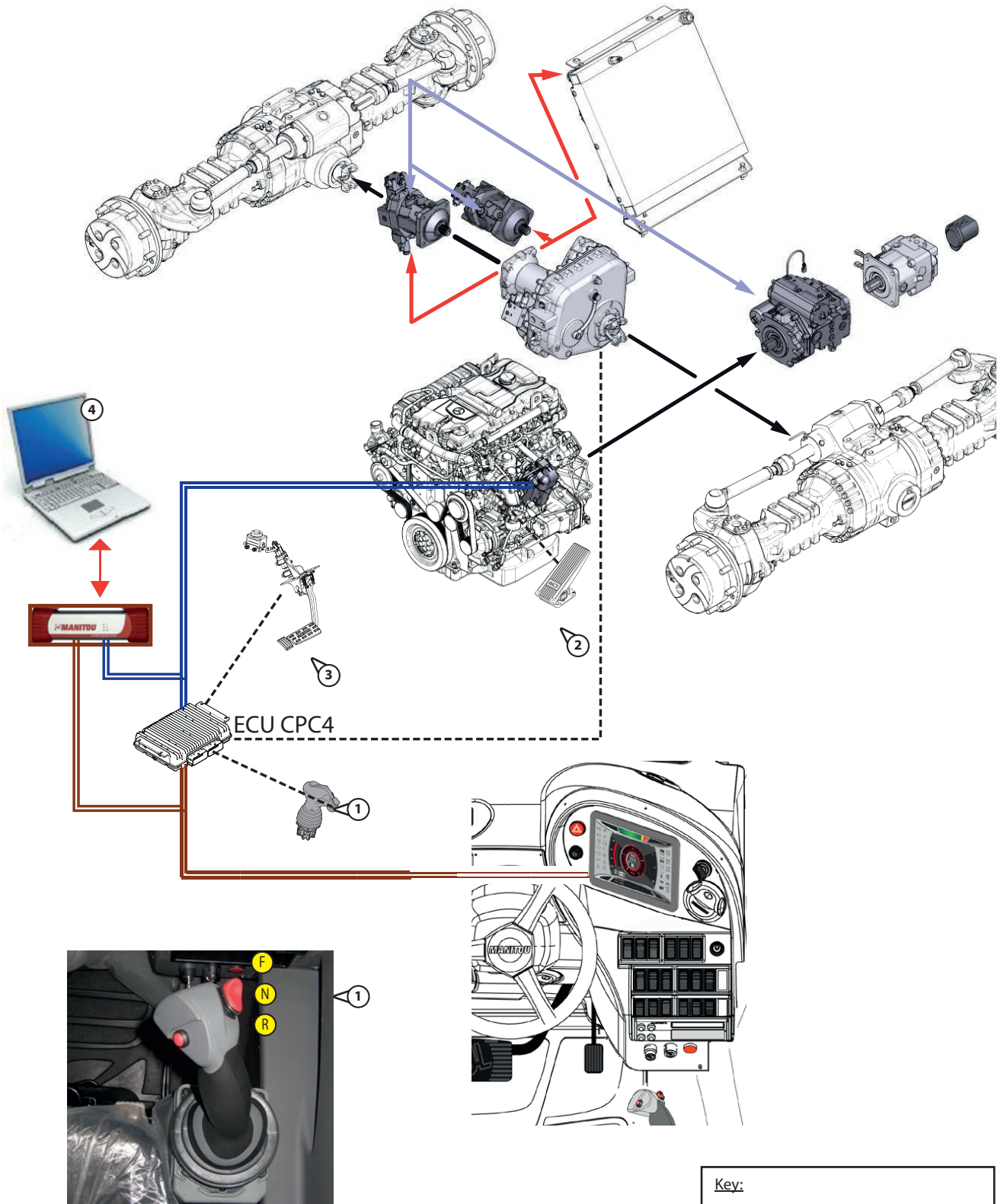


Slacken the clamps (Ref. 1) and remove the hoses from the radiator.



Slacken the clamps (Ref. 1) and remove the hoses and pipes from the radiator.

OVERVIEW



Key:

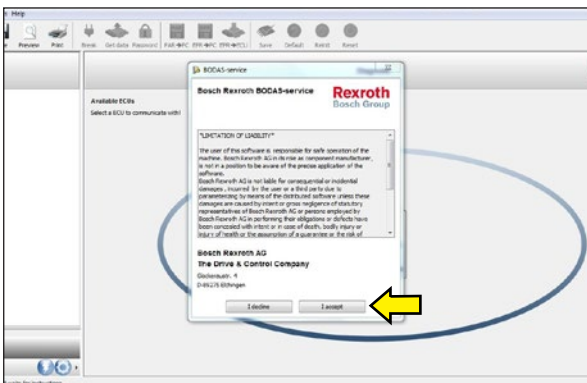
- ▶ : Mechanical connection
- ▶ : Hydraulic system
- ▶ : Cooling circuit hot
- ▶ : Cooling circuit cold
- : OPEN CAN
- : CAN A
- : CAN B
- - - : Electrical connections



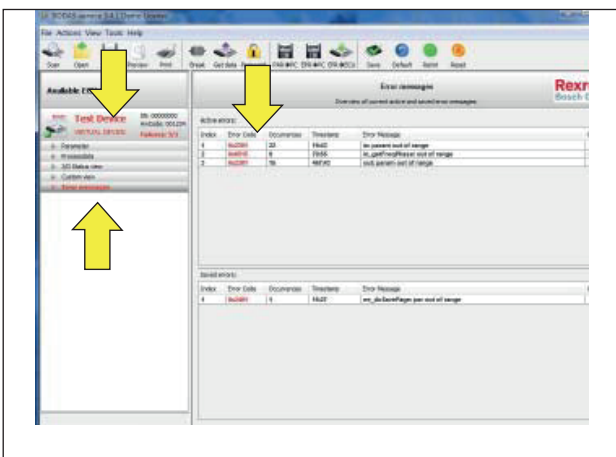
Select «Bodas-service».



Start the Bodas Service Software and select the Scan for controllers icon.



Wait for the software to load and select «Accept» in the Bosch Rexroth BODAS-service screen .

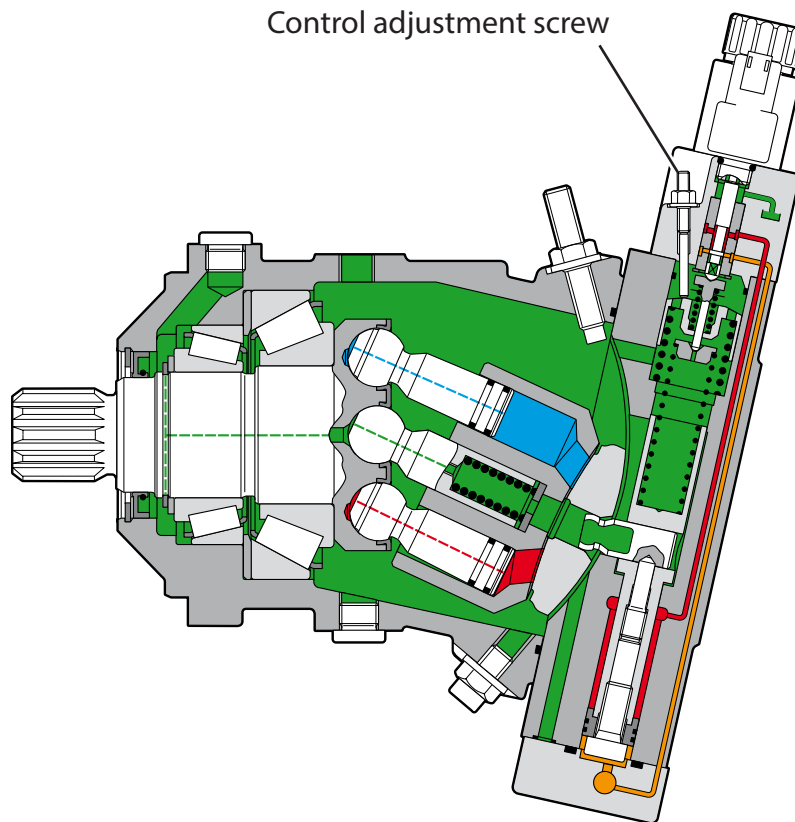


You will be connected to the main ECU.

Push the error messages button (in red) to have the indication of the active errors and saved errors in the right part of the screen.

Check the “Error code” number and refers to the following list to solve the problems occurred.

◀ 20 TRANSMISSION TROUBLESHOOTING

B. CHECKING MAX. DISPLACEMENT (MAX TRACTION FORCE)

- 1 - Install two 600 bar manometers.
 - ⇒ One on the pump (pressure test port Mb) to measure the High Pressure in forward drive.
 - ⇒ The other on the motor (pressure test port M1) to measure the back pressure of the motor displacement control cylinder.
- 2 - Take the nominal load and place the truck on a 15% incline in forward gear. The back pressure of M1 must be half of Mb (320 bar at Mb and 160 bar at M1 approx.).

If it is incorrect, turn the motor adjustment screw (Item 1) (screw seal to be broken with a screwdriver):

- ⇒ if M1 too high, undo the screw (Item 1) (a quarter turn on average).
- ⇒ if M1 too low, tighten the screw (Item 1).

- 3 - Check the pulling force in 1st gear (approx. 8 tonnes)
- 4 - Re-seal the hydrostatic motor control adjustment screw and remove the manometers.

Note: Sealing the valve

The original lead seal is yellow. It is not available as a spare.

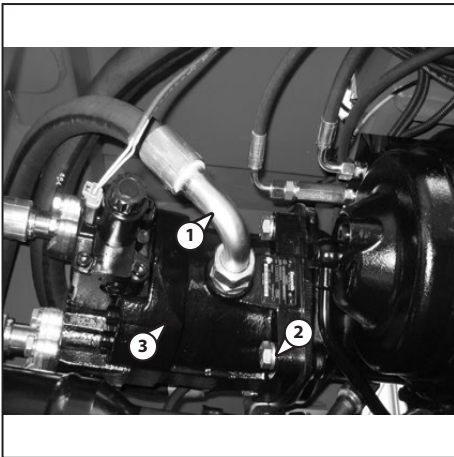
The lead seal to be used in the event that the seal is removed for renovation is orange and is available as a spare.

Lead seal (orange)..... Part no. 601469

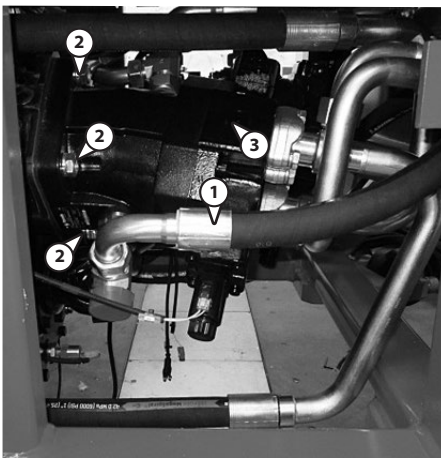
6 - SEAL REPLACEMENT / TIGHTENING TORQUES

A4VG 85 DA Series 40 pump ◀ Repair manual Part no. 647447

A6VM 60 EP1 et A6VM 115 Series 71 motor ◀ Repair manual Part no. 647524

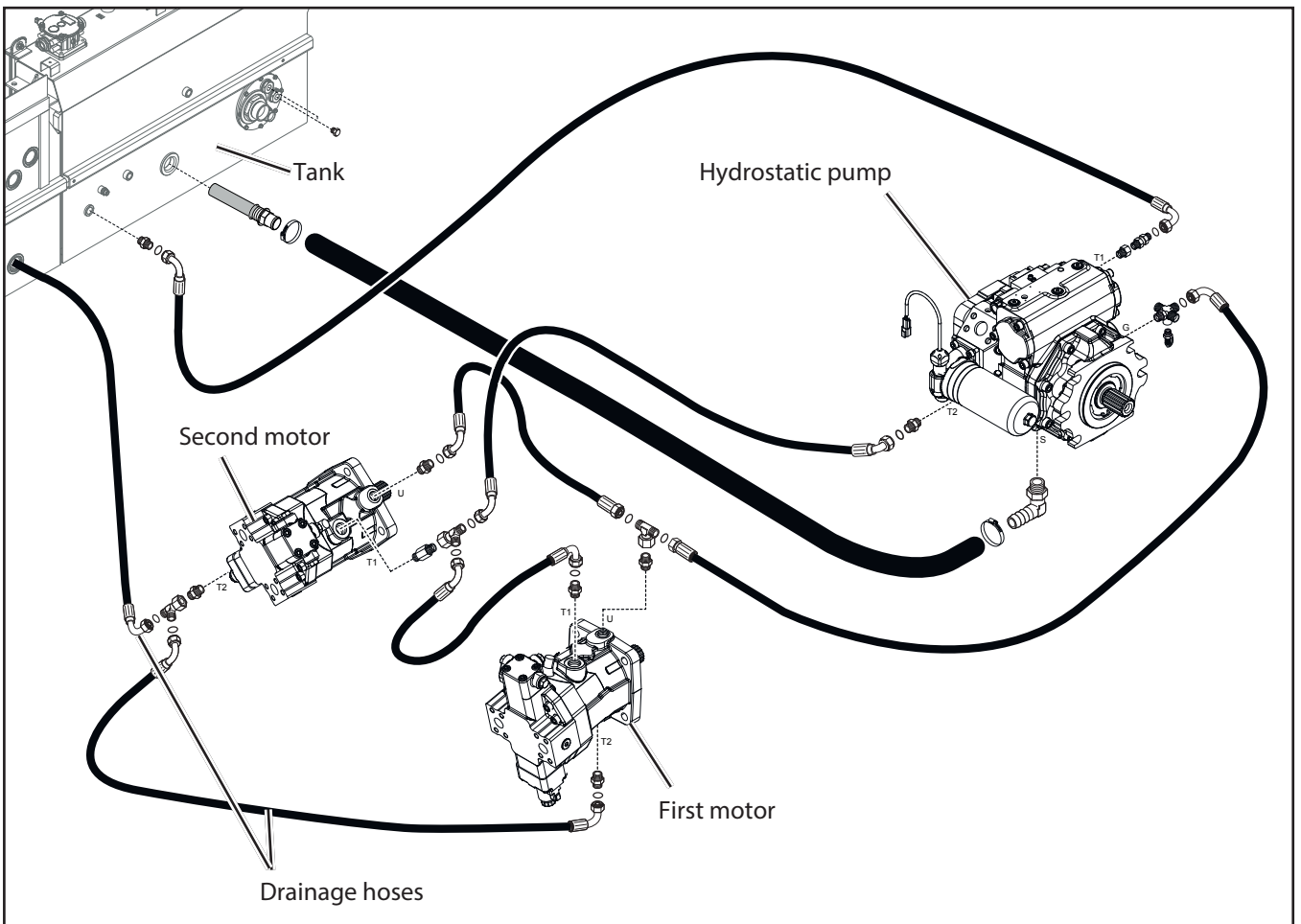


Remove the drainage tubes (Item 1), slacken the screws (Item 2) and remove the first motor (Item 3) from the gear.

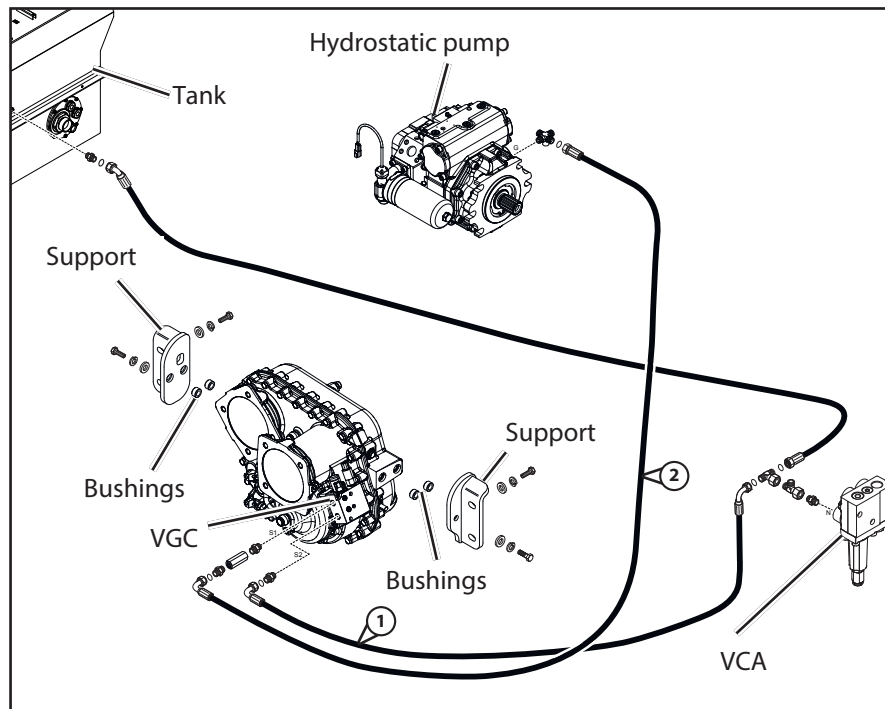


See also the drawing below.

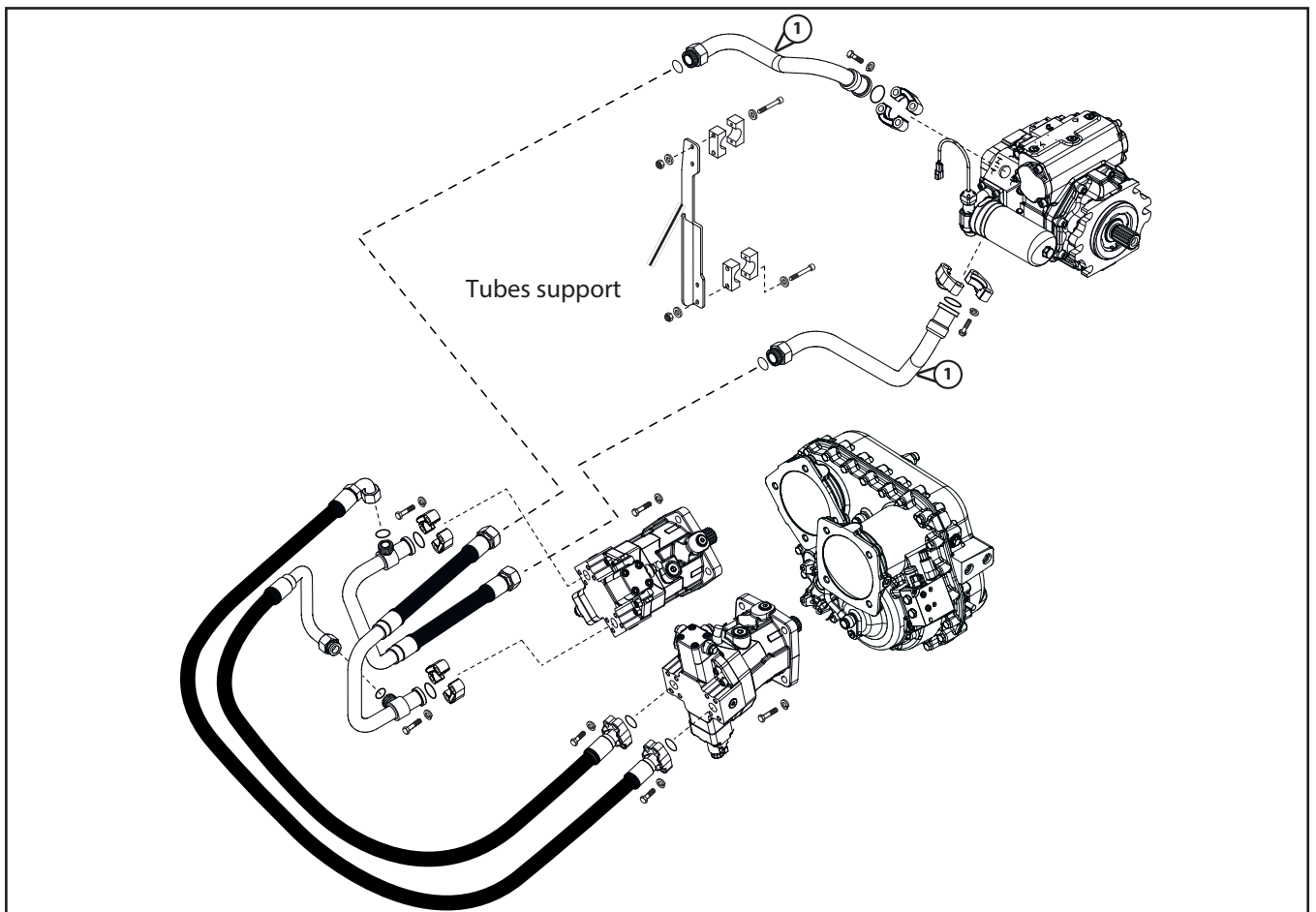
Remove the drainage tubes (Item 1), slacken the screws (Item 2) and remove the second motor (Item 3) from the gear.



Refit the hose connecting the VCA and VGC valves (Item 1) and the hose connecting the VGC valve and the hydrostatic pump (Item 2).



Refit the iron tubes (Item 1) which connect the transmission to the hydrostatic pump.



SPN / FMI	SPN / FMI	DTC	Fault / Description	Possible Cause	Reaction	Quit	Remedy	Result	Note
FMI = 31, CONDITION EXISTS	31	1F	in_getStatus()					not	Never occurs
801F	32799	7F01F	HydMot2 speed sens	Speed sensor does not work	Gearbox locked. Vehicle velocity limited.		Check the wiring pin: 110,111 (signal) 146 (gnd)		
FMI = 2, DATA ERRATIC, INTERMITTENT OR INCORRECT	2	2	Gbx2p1.StGbxAct_e = GEAR_1ST_E AND Callback_MaiTsk.Out_PrmlPmpDRE_s16 <> 0 AND in_RC.HydMot_1_rpm_s16 > 100 AND in_RC.HydMot_2_rpm_s16 = 0)					ok	
FMI = 8, ABNORMAL FREQUENCY OR PULSE WIDTH OR PERIOD	8	8	in_RC.StHydMot_2_SpdSens_b8 in_getStatus()					not	Never comes also if VSS2 is broken
FMI = 9, ABNORMAL UPDATE RATE	9	9	in_getStatus()					not	Never occurs
FMI = 11, ROOT CAUSE NOT KNOWN	11	B	in_getStatus()					not	Never occurs
FMI = 31, CONDITION EXISTS	31	1F	in_getStatus()					not	Never occurs
8020	32800	7F020	Pump angle sensor	Pump angle faulty	No reaction				sensor not present
FMI = 2, DATA ERRATIC, INTERMITTENT OR INCORRECT	2	2	(out_Driving.PmpDRE_A_mA_s16 > 0 AND in_RC.Pmp_10_ccm_s16 < 0 OR out_Driving.PmpDRE_B_mA_s16 > 0 AND in_RC.Pmp_10_ccm_s16 > 0)						
FMI = 3, VOLTAGE ABOVE NORMAL, OR SHORTED TO HIGH SOURCE	3	3	in_getStatus()						
FMI = 4, VOLTAGE BELOW NORMAL, OR SHORTED TO LOW SOURCE	4	4	in_getStatus()						
FMI = 5, CURRENT BELOW NORMAL OR OPEN CIRCUIT	5	5	in_getStatus()						
FMI = 6, CURRENT ABOVE NORMAL OR GROUNDED CIRCUIT	6	6	in_getStatus()						
FMI = 11, ROOT CAUSE NOT KNOWN	11	B	in_getStatus()						
FMI = 13, OUT OF CALIBRATION	13	D	in_getStatus()						
FMI = 31, CONDITION EXISTS	31	1F	in_getStatus()						

SPN / FMI	SPN / FMI	DTC	Fault / Description	Possible Cause	Reaction	Quit	Remedy	Result	Note
FMI = 6, CURRENT ABOVE NORMAL OR GROUNDED CIRCUIT	6	6	safout_getStatus()					ok	
8FFC	36860	7FFFC	pwron engine speed	Diesel engine stopped. The error occurs during initialization.	Machine doesn't move.	Restart drive controller. Check the diesel operation.	Check the wiring CAN2 pin: 253 (CAN H2) 254 (CAN L2)		
FMI = 17, DATA VALID BUT BELOVE NORMAL OPERATING RANGE - LEAST SEVERE LEVEL	17	11	j1939_EEC1.nEng_u16 < 500					ok	
8FFD	36861	7FFFD	pwron hwmonitor 2	HW errors: inputs, outputs, can bus module. Error occurs during initialization.	Machine doesn't move.	Restart drive controller.			
FMI = 31, CONDITION EXIST	31	1F						not	Never occurs
8FFE	36862	7FFFE	pwron startcondition 2	The error occurs during initialization.	Machine doesn't move.	Start condition satisfied. StartupLock initialization done.			
FMI = 31, CONDITION EXIST	31	1F	NOT Err_s.Can_cvc2tcu_1_b8 AND NOT Err_s.Can_cvc2tcu_2_b8 AND j1939_CVC2TCU_2.RdntSafNeutReq = CVC2TCU_2_RDNT_SAFE_NEUTRAL_REQ AND j1939_CVC2TCU_1.DirReq = DIR_NEUT_E AND in_RC.PrmlApp_s16 < 100 AND in_RC.PrmlAppEEEC2_s16 < 100					ok	

Error code hex		Error parameter decimal	Description
0x	406	1	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	407	01..03	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	408	1	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	409	01..02	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	040A	1	Configuration for a safety channel. The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	040B	01..03	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	040C	01..04	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x	040D	1	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x			
0x	040E	0	No hardware support
0x	040F	0..255	A PVG output was configured for mode frequency output after function sys_init() was called. But this configuration has to be done only before function sys_init() is called. The last byte of the output channel number is saved in <error parameter>.
0x	410	0..255	A PVG output which was configured for mode frequency output, was configured again. But a re-configuration is not allowed if a PVG output was configured once for mode frequency output. The last byte of the output channel number is saved in <error parameter>.
0x	411	0..255	Mode frequency output is not available for this PVG output. The last byte of the output channel number is saved in <error parameter>.
0x	501	0..255	A difference between data of the original page and data of the related shadow page in EEPROM was detected. The number of page is saved in <error parameter>. But data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).
0x	502	01..63	A CRC error of the shadow page in EEPROM was detected. The number of page is saved in <error parameter>. But data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).
0x	503	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 shadow page in EEPROM were detected. The number of page is saved in <error parameter>. But data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).
0x	504	01..63	A CRC error of a original page (The page has a shadow page) was detected. The number of page is saved in <error parameter>. But data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).
0x	505	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 were detected. But data are valid because they could be repaired. Note: Data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).
0x	506	01..63	A CRC error of the original page and a CRC error of the related shadow page in EEPROM were detected. The number of page is saved in <error parameter>. But data are valid because they could be repaired. This error is only reported if the error counter > 5 (The error counter will be incremented if ECU starts with this error otherwise it will be decremented.).

Error code hex	Error parameter decimal	Description
0x 140F	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 meaning: 255 : buffer overflow
0x 1410	01, 02, 04, 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 meaning: 255 : buffer overflow
0x 1411	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 meaning: 255 : buffer overflow
0x 1412	01, 02	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1413	01, 02, 04	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1414	01, 02	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1415	01, 02, 04	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1416	01, 02	An internal API error was detected: The Dflash server order was aborted and could not finished successfully. As a consequence some data were not saved into DFlash.
0x 1417	01..02, 255	An error of an API internal function was detected.
0x 1418	01, 02, 255	An error of an API internal function was detected.
0x 1601	01..03	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1602	1	The specified API function was called with an invalid parameter. The number of this parameter is saved in <error parameter>.
0x 1801	1..6	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 1802	0	Calling of function is not allowed in that program state. The call of this function must be located within the function sys_main / PLC_PRG.
0x 1803	0	This function was already executed and must not be called twice.
0x 1804	0	There are too less CAN hardware databoxes available in the configuration of the given CAN channel. Possible solutions: Use another CAN channel for CCP or change the hardware databox configuration with the function can_cfgHwBoxes() before initialization the CCP.
0x 1805	0	The required CAN hardware databoxes are already used by the function can_initRxDatabox(). Possible solutions: Initialize the CCP module before the initialization of the CAN databoxes or use another CAN channel for CCP.
0x 1806	0	There is no DAQ list defined. At least one DAQ has to be defined with the API function ccp_initDaqList() before the CCP communication can be started.
0x 1807	0	Common error during initialization of the CAN databoxes.
0x 1808	1..4	The CCP module could not register the required idle task within the system. <error parameter> = return code of sys_registerIdleTask()
0x 1809	1..7	The CCP module could not register the required application task within the system. <error parameter> = return code of sys_registerTask()
0x 1820	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 1821	0	The function call ccp_registerOdtBuf() is not allowed after the execution of ccp_initComm().
0x 1822	0..1	The given CCP ODT buffer overlaps with an already registered buffer (e.g. CAN, J1939,...) within the system. <error parameter>: 0: Buffers have a different start address. 1: Both buffers have the same start address. May be the same variable is used twice.

AXLE

- AXLE CONTROL AND ADJUSTMENT

- CHARACTERISTICS AND SPECIFICATIONS

- CONTROL AND ADJUSTMENT

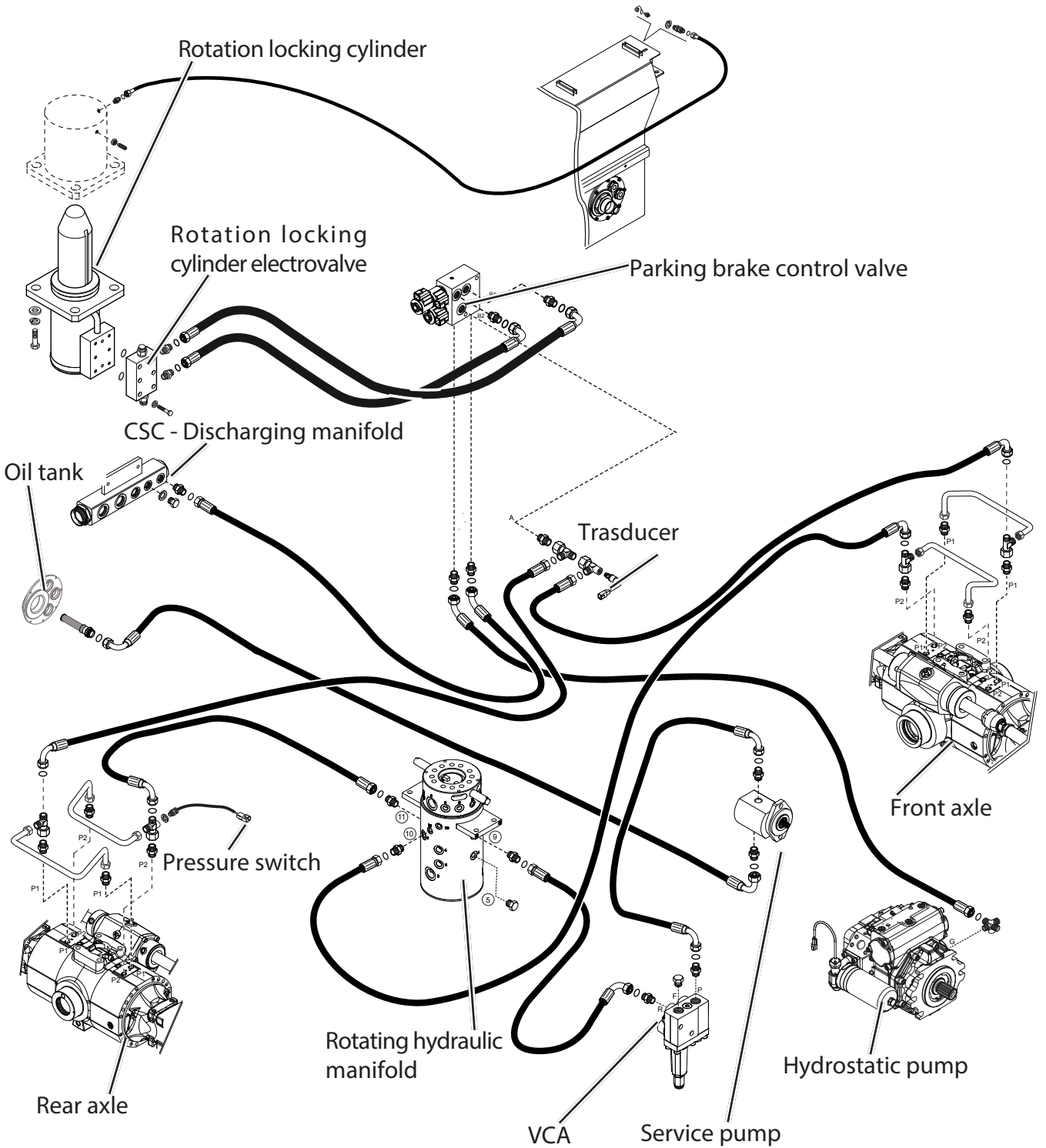
- TROUBLESHOOTING

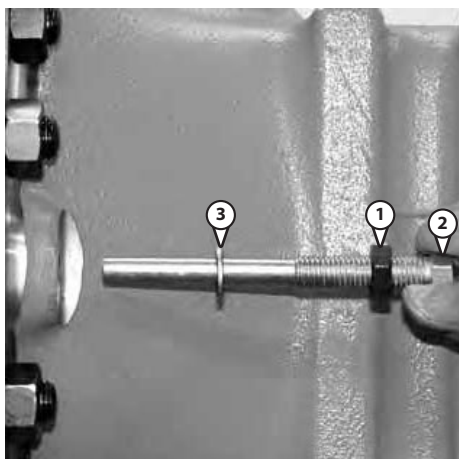
- SPECIFIC TOOLING

 **647142EN**
(PONT TYPE 213)



BRAKING CIRCUIT FLUID FLOW AND TURRET LOCKING



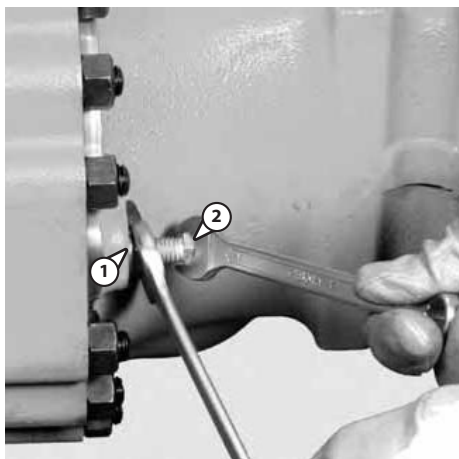


SETTINGS AFTER EACH MANUAL UNLOCKING

- Completely remove the screws (Item 2) with the nuts (Item 1) and the seals (Item 3).
- Replace the seals (Item 3), lubricate the screws (Item 2) with silicon grease.
- Refit the whole screws 1-2-3.



- Adjust the screws (Item 2) until there is an overhang of 34 mm in relation to the jib.



- Lock the position of the screws (Item 2) with the lock nuts (Item 1).

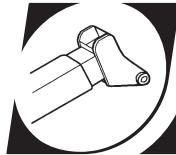
⚠ Once again, check closely the overhang of the screws.

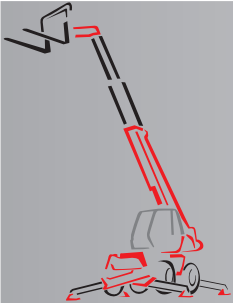
This procedure is also available in the AXLE RM

 647041EN

BOOM

- **BOOM CHARACTERISTICS AND SPECIFICATIONS**
- **BOOM COMPONENTS LOCATION**
- **BOOM CONTROL AND ADJUSTMENT**
- **BOOM REMOVAL**
- **BOOM REFIT**
- **SPECIFIC BOOM TOOLING**

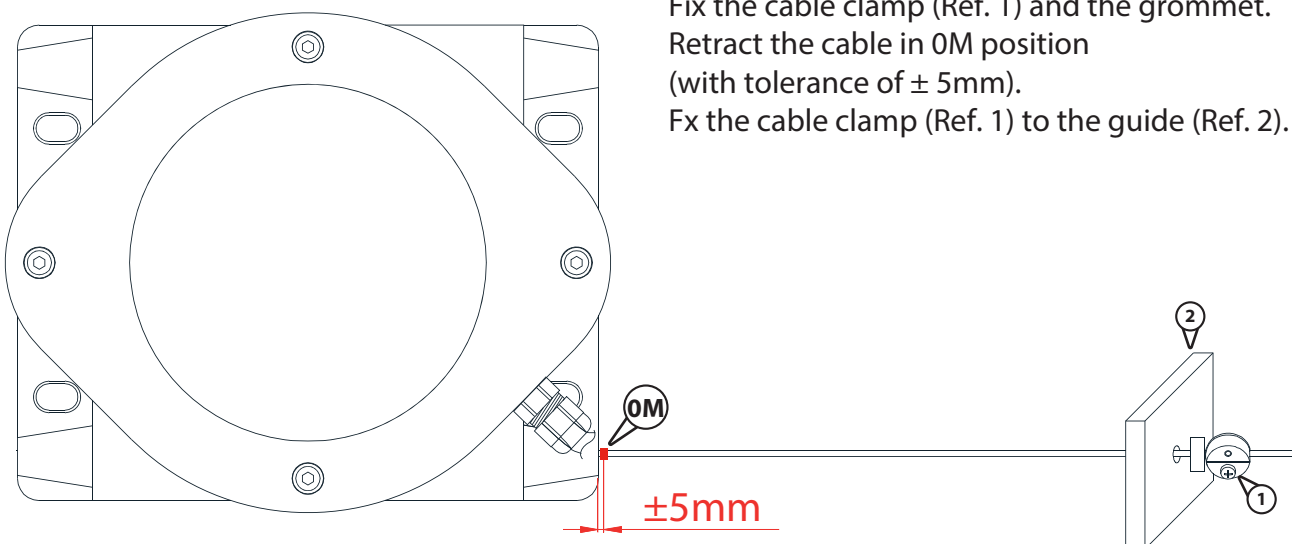
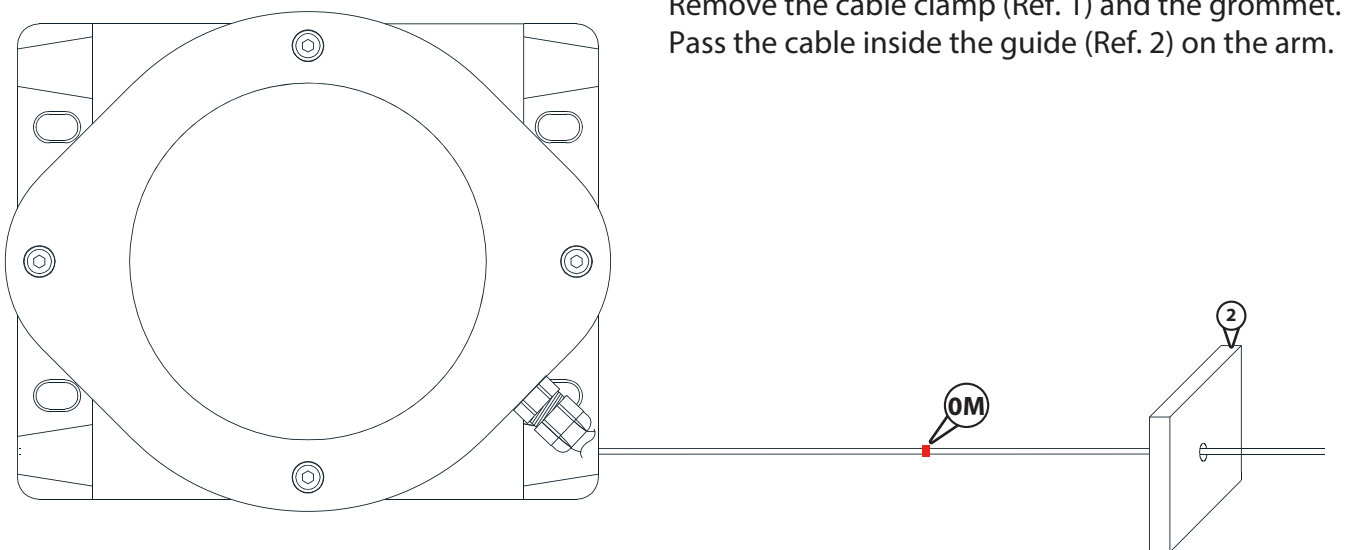
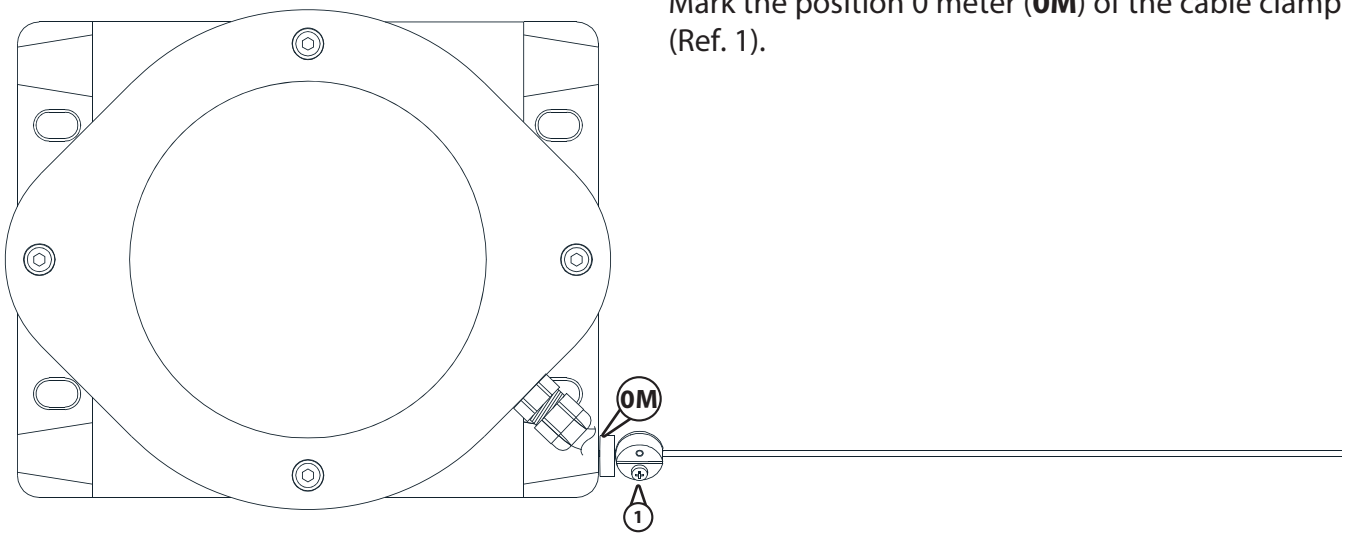


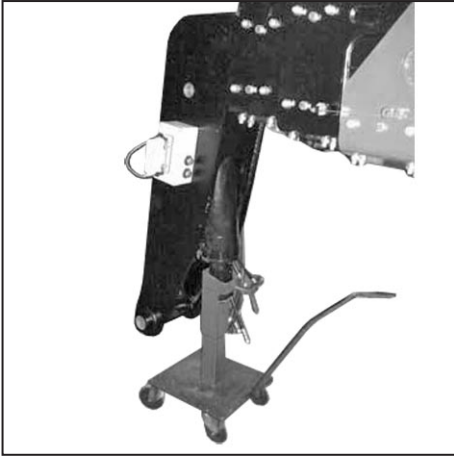


BOOM CONTROL AND ADJUSTMENT

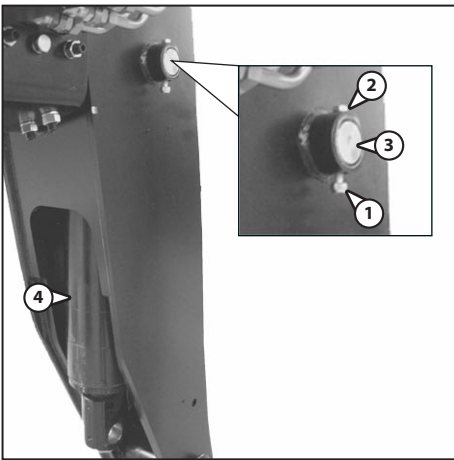
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REPLACING THE SLIDING BLOCKS.....	3
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CABLE REEL ADJUSTMENT

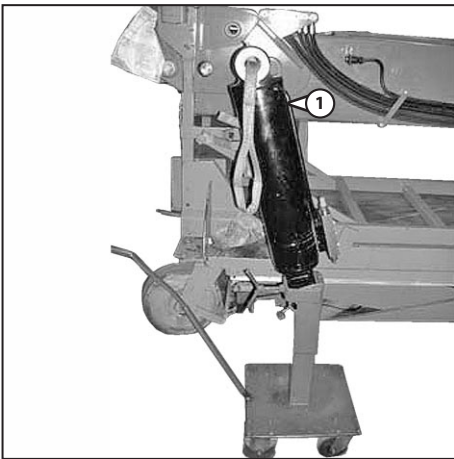




Secure the ram to a suitable jack.



Loosen the screw (Item 1) and nut (Item 2) and remove the pin (Item 3) to release the traverse ram (Item 4).

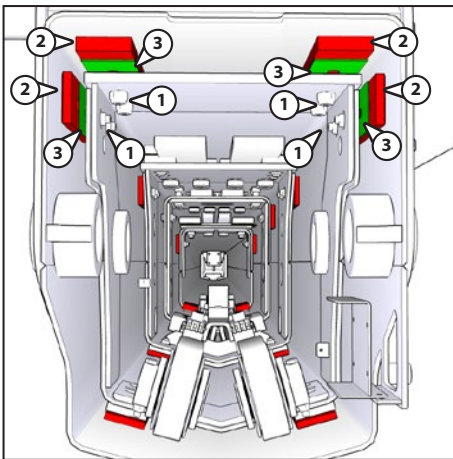


With the help of ropes, an overhead crane and a jack, remove the traverse ram (Item 1) from the head of the boom.

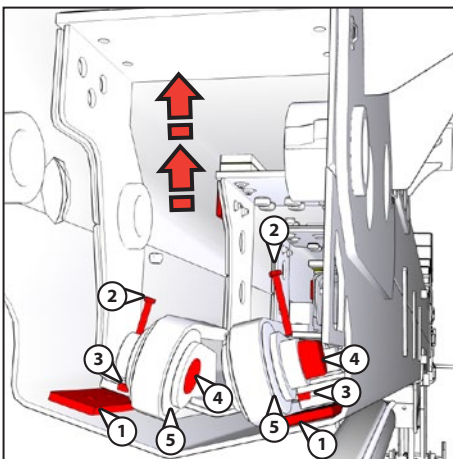


REMOVING THE EXTENSION RAM

Position the boom so that the 1st extension ram hinge pin (Item 1) is visible through the rear hole in the turret.



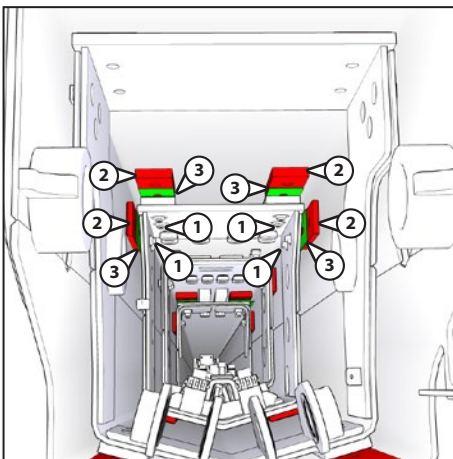
Unscrew the grub screws (Item 1) from the 1st extension boom and extract the upper sliding blocks (Item 2), their shims (Item 3) and the lateral sliding blocks (Item 4) and shims (Item 5).



With the help of the overhead crane, slightly raise the framework of the 1st extension boom and extract the lower sliding blocks (Item 1).

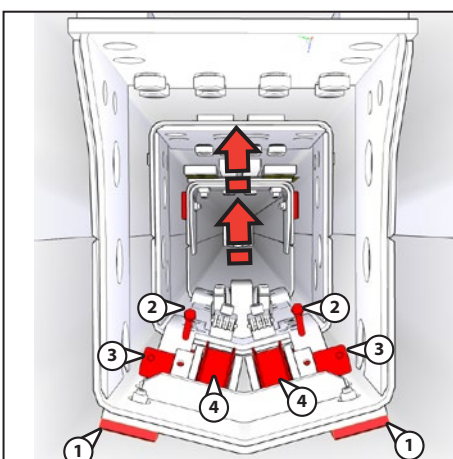
Unscrew the screws (Item 2) and nuts (Item 3) and extract the pins (Item 4) to remove the pulleys (Item 5).

Withdraw the 1st, 11nd, 111rd and 1Vth extension booms from the external boom.



REMOVING THE 11ND, 111RD AND 1VTH BOOMS FROM THE 1ST EXTENSION BOOM

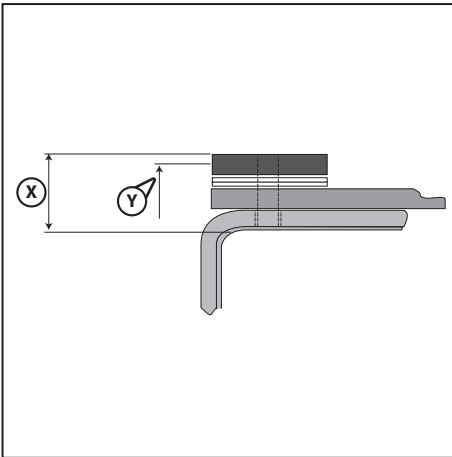
Unscrew the grub screws (Item 1) from the 11st extension framework and extract the upper sliding blocks (Item 2), their shims (Item 3) and the lateral sliding blocks (Item 4) and shims (Item 5).



With the help of the overhead crane, slightly raise the framework of the 11nd extension and extract the sliding blocks (Item 1).

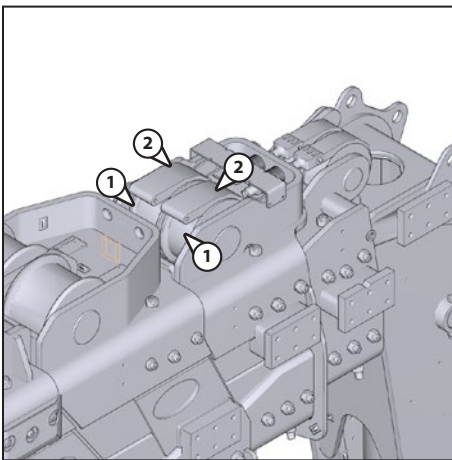
Unscrew the screws (Item 2) and nuts to remove the pins (Item 3) and remove the pulleys (Item 4).

With the help of the overhead crane, extract the 11nd, 111rd and 1Vth extension booms from the 1st extension boom.



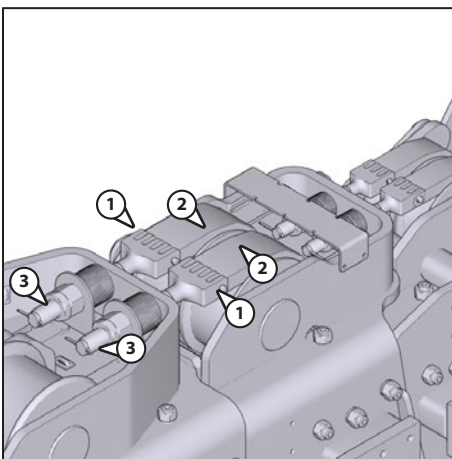
For fitting the grub screws, check the measurement "X" from which 6 mm must be subtracted to obtain the exact measurement "Y" of insertion of the grub screw into the framework.

Warning: do not exceed the maximum height measurement of the grub screw otherwise there would be a risk of interference with the framework.



Refit the pulleys (Item 1).

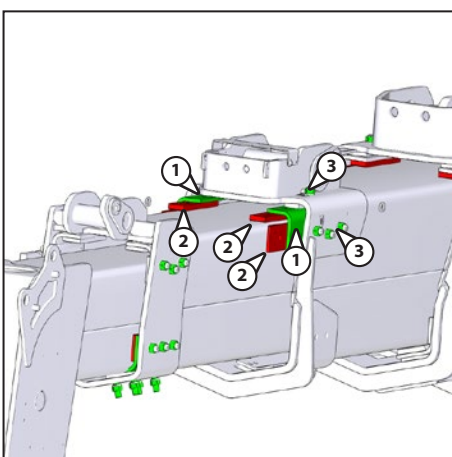
Raise the chains (Item 2) on the IIIrd extension framework, passing them through the pulleys of the IIrd extension.



Fit the tie rods (Item 3) to the chains (Item 2) using the pins (Item 1).

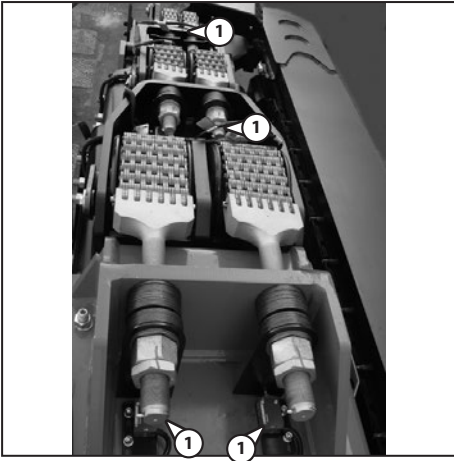
Fit the tie rods (Item 3) to the framework, taking care when fitting the bucket springs (quantity and direction of fitting).

To adjust the chains : (\triangleleft **50-04 - BOOM CONTROL AND ADJUSTMENT**)

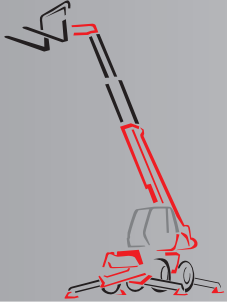


Refit the plates (Item 1) and the upper and lateral sliding blocks (Item 2) of the IIrd extension using their respective grub screws (Item 3).

For registration of the feet: (\triangleleft **50-04 - BOOM CONTROL AND ADJUSTMENT**)



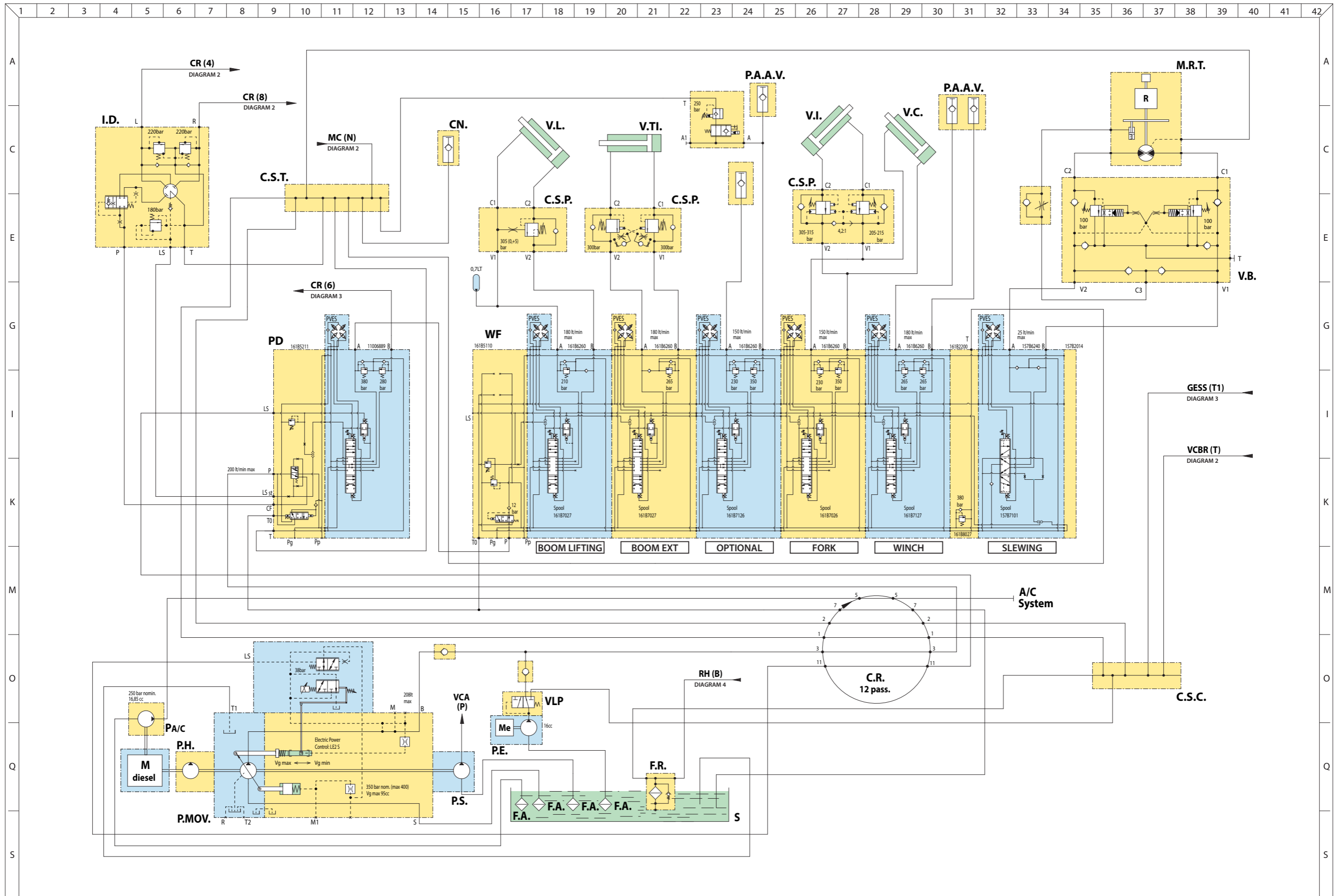
Reconnect the «water tight» electrical connections (Item 1) of the microswitches on the chain attachment points in the top front of the boom and lock the cables with clips.

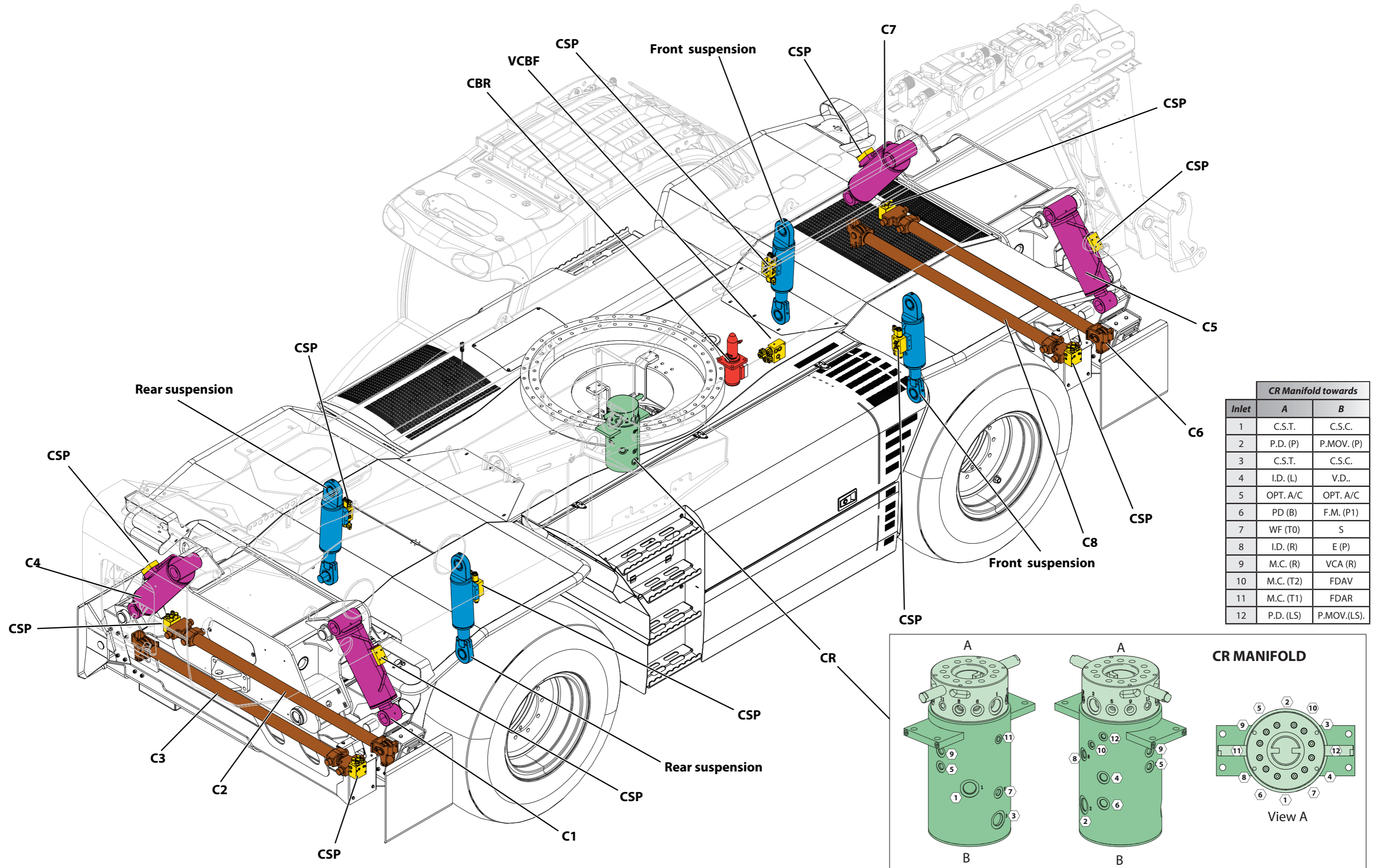


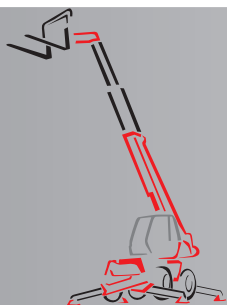
SPECIFIC BOOM TOOLING

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TOOL FOR REMOVING THE EXTENSION RAM.....	2
FLARE NUT WRENCH	2
MAGNETIC LIFTER.....	2

1 - MOVEMENTS HYDRAULIC SYSTEM

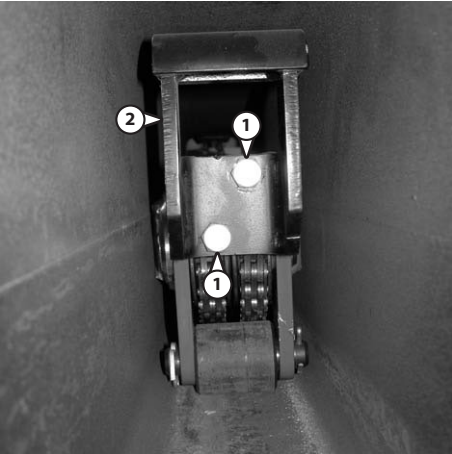




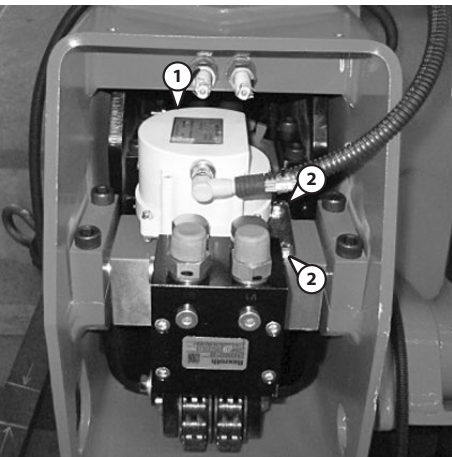


HYDRAULIC COMPONENTS REMOVAL

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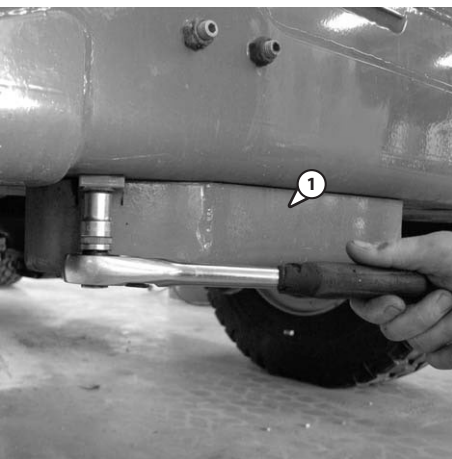


Remove the 2 screws (Item 1) of the cylinder guide (Item 2) and then remove it.

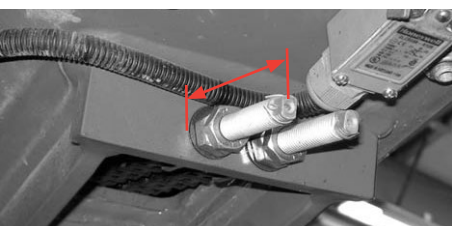


Remove the length sensor (Item 1) by unscrewing its 2 screws (Item 2). Position it on the outside of the stabiliser.

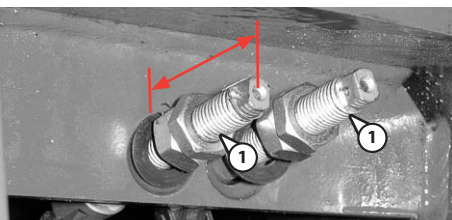
Note: Each length sensor is specific to its stabiliser and has a different reference.



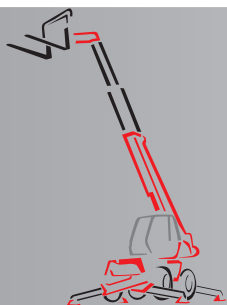
Remove the protective casing (Item 1) under the stabiliser.



Using a slide caliper, take the dimension for the 4 chain tensioners. These measurements will be useful for reassembling the chains provided that they are not replaced by new ones.

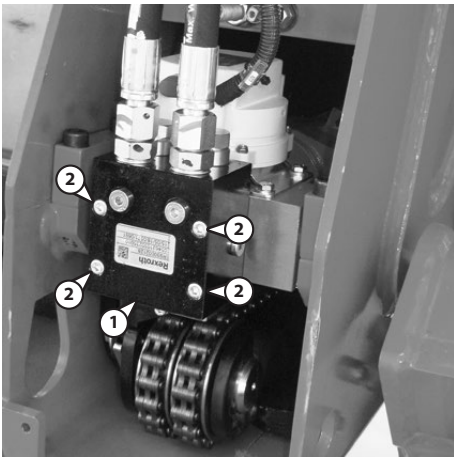


Only loosen the telescope extension chains behind the stabiliser base. Next dislodge the 2 tensioners (Item 1).



HYDRAULIC COMPONENTS REFIT

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Refit the valve (Item 1) by screwing the 4 screws (Item 2).

Tighten the chains correctly.

Before reassembling the protective casings, start the truck and then carry out extension and retraction movements and check that the chains run correctly. Also check for hydraulic leaks.

Check no the VIEW that:

⇒ 0% = retracted stabiliser

⇒ 100% = extended stabiliser

As needed, calibrate the stabiliser sensors.

One all checks have been made, reassemble the protective casing assembly.

DIGITAL MANOMETER KIT














































FUNCTIONS:











































- **Manometer function:** the display allows the following combinations:
 - ⇒ The upstream pressure temperature at +/- 2°C
 - ⇒ The upstream temperature P1 with its mini and maxi (700 bar in class 0.1)
 - ⇒ Downstream pressure P2 with its mini and maxi (700 bar in class 0.1)
 - ⇒ Differential pressure $\Delta P = P1 - P$
- **Hold function:** the user can freeze the screen display at any time to take notes
- **Unit function:** the user can change the unit of measurement at any time (bar, psi, kPa, mCe).
- **Function Tare:** enables offset to zero
- **Leak test function:** can measure a pressure variation over a specified time
- **Record function:** a maximum of 16000 readings can be recorded. The sampling period can be configured.
- **Reset function:** the 2 sensors are reset to zero





































Digital Manometer kit..... 662187

Consisting of:

1. 1 Mano digital manometer ΔP HP 700 bar
2. 1 Measuring hose DN2 1215/1620, L = 1,5 m, 630 bar
3. 2 Measuring hoses DN2 1620/1620, L = 1,5 m, 630 bar
4. 2 Manometer adaptors 1620

X64 ENGINE  A167
X64 ENGINE  A188
X65 CABIN  A159
X65 ENGINE  A167
X65 ENGINE  A188
X66  A159
X67  A159
X68  A159
X69  A160
X70  A160
X71  A160
X74  A160
X75  A160
X77  A160
X78  A160
X80  A161
X81  A161
X82  A161
X84  A118
X85  A119
X86  A161
X87  A119
X88  A119
X88  A162
X89  A119
X90  A119
X91  A119
X92  A119
X93  A119
X94  A162
X95 CABIN  A232
X95 TURRET  A179
X96  A180
X97  A181
X98  A56
X99  A56
X100 CABIN  A232
X100 TURRET  A56
X101 CABIN  A233
X101 TURRET  A57
X 102 CABIN  A233
X102 OPT  A162
X102 TURRET  A57

X103  A57
X104  A57
X105  A57
X106  A57
X107 CABIN  A233
X107 DRIVER PLACE  A123
X108  A123
X109  A123
X110  A124
X111  A124
X112  A124
X113  A125
X114  A125
X115  A125
X116  A183
X138  A220
X139  A221
X150  A202
X151  A23
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X154  A202
X155  A202
X156  A202
X191  A36
X191  A198
X192  A36
X192  A198
X200  A234
X201  A234
X202  A234
XA  A6
XA  A7

XA  A39
XA  A185
XA  A209
XA  A210
XA  A220
XA-A  A215
XA-A  A216
XARG  A181
XB  A7
XB  A39
XB  A186
XB-A  A216
XB-A  A217
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XB-A  A219
XBI  A55
XC  A39
XD+  A55
XDM  A200
XEB  A163
XED+  A55
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XM3  A200
XM4  A201
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XP1  A198
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XR1  A181
XRB  A201
XRD  A182
XS3  A163
XS3  A201
XSC  A25
Y627  A167

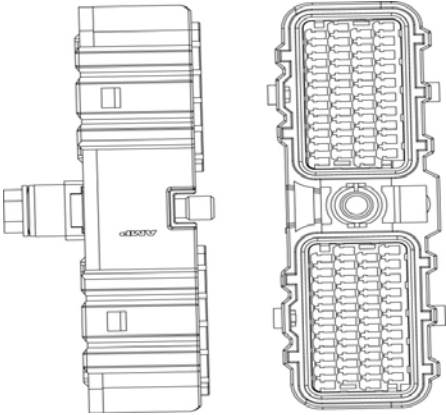

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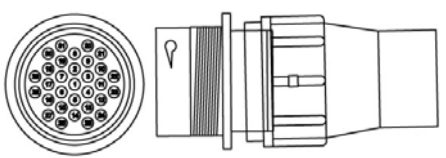
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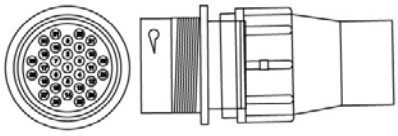


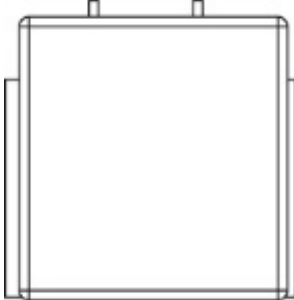
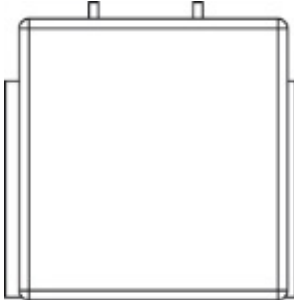
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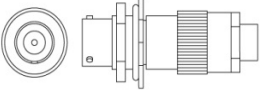
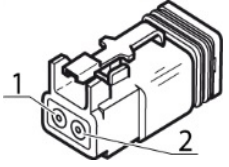
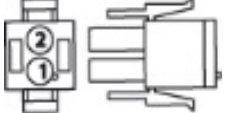
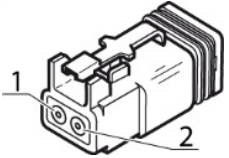
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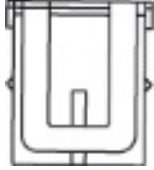
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
MC2M-3 CHASSIS	L3	Azure - Orange		X151	10	
	L4	Yellow - Green		X46	1	
	L5	Red - White		XSC	25	
	L6	Purple		X45	2	
	L9	Yellow - Brown		X52	2	
	L10	Green - Brown		X49	2	
	L11	Orange - Brown		X151	14	
	L12	Pink - Brown		X151	16	
	L13	Pink - Yellow (N°1)		XSC	16	
	L14	Grey - Green		X152	11	
	L15	Red - Grey		XSC	21	
	L19	Grey - Pink		X16	19	
				X17	27	
	L20	Red - Yellow		XSC	22	
	L21	White - Green		X44	1	
	L22	White - Blue		X151	12	
	L24	White - Black		X151	9	
	L26	Red - Blue		XSC	23	
	L29	Red - Purple		XSC	24	
	L31	Yellow - Grey (N°1)		X51A	2	
	L32	Green - Grey (N°1)		X48A	2	
	L33	Orange - Grey (N°1)		X152	14	
	L34	Pink - Grey (N°1)		X152	15	
	L37	Yellow - Red		X16	10	
				X17	11	
	L38	Grey - Yellow		X43	2	
	L39	Blue - Black		FASX	2	
				X16	8	
			X151	8		
L40	Blue		FADX	2		
			X16	9		
			X151	7		
PE	/	Brown - Yellow		X17	6	
	/	Black		GND		

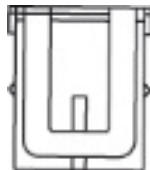
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
XSC	1	Red - Blue		X16	12	
				X17	10	
	2	Black		GND		
	4	Grey - Blue		X17	26	
	9	Azure		X151	27	
	10	Azure - Green		X151	26	
	11	Azure - Grey		X151	25	
	12	Azure - White		X151	24	
	16	Pink - Yellow (N°1)		MC2M-3 CHASSIS	L13	
	17	Green - Grey	1,5	X16	3	
	21	Red - Grey		MC2M-3 CHASSIS	L15	
	22	Red - Yellow		MC2M-3 CHASSIS	L20	
	23	Red - Blue		MC2M-3 CHASSIS	L26	
	24	Red - Purple		MC2M-3 CHASSIS	L29	
	25	Red - White		MC2M-3 CHASSIS	L5	
	26	Blue - Pink		MC2M-2 CHASSIS	S10	
	27	Blue - White		MC2M-2 CHASSIS	S14	
	28	Purple		MC2M-2 CHASSIS	S4	
	29	Purple - White		MC2M-2 CHASSIS	S3	
	30	Purple - Blue		MC2M-2 CHASSIS	S15	
31	Purple - Green		MC2M-2 CHASSIS	S16		

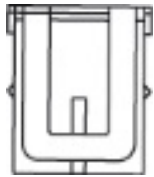
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
X18	1	Green - Black	2,5	EV3	A	
	2	Red - White (N°2)	4	M58	1	
			4	M58	3	
			4	M58	4	
			4	M58	5	
			4	M58	6	
	3	Grey - Black	2,5	EV2 chassis	A	
	4	White - Black	2,5	EV1 chassis	A	
	5	Red - Yellow		M58	45	
				M58	58	
	6	Azure		X151	27	
	7	Azure - Green		X151	26	
	8	Azure - Grey		X151	25	
	9	Azure - White		X151	24	
	10	Brown - Green		X34	2	
				XP1	B	
	11	Yellow (N°11)		X20 chassis	2	
				X23 chassis	2	
	12	Brown - Black		X35-a	1	
	13	White - Yellow		FPD	5	
				FPS	5	
				X37	6	
	14	White - Green		A2	1	
				FPD	3	
				FPS	3	
				X37	2	
	15	Yellow - Black		FPS	2	
				X37	7	
	16	Yellow		FPD	2	
				X37	5	
				X39	1	
	18	Brown - Blue		X22 chassis	1	
X25				1		
X151				23		
19	Brown - Red		X21-a	1		
			X21A	1		
			X24	1		
			X24A	1		
			X151	22		
20	Orange		X26 chassis	2		
21	Green - Red		A60-1	16		
23	Red - Green		M58	40		
26	Pink - Black		EV4	A		
			X18	28		
28	Pink - Black		EV4	A		
			X18	26		

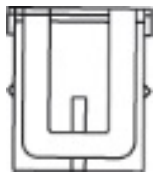
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
R4	30	Green	2,5	F23	OUT	
	85	Black		R1	85	
				R2	85	
				R3	85	
				R5	85	
				R6	85	
				R7	85	
				R8	85	
				R9	85	
				R10	85	
				R11	85	
				R12	85	
	R15	85				
	R16	85				
	R17	85				
	X19	B				
	86	Green - Black		R2	86	
R3				86		
R5				86		
X17				29		
87	Green - Black	2,5	X18	1		
R5	30	Pink	2,5	F24	OUT	
	85	Black		R1	85	
				R2	85	
				R3	85	
				R4	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		
X17				29		
87	Pink - Black	2,5	X18	26		
			X18	28		

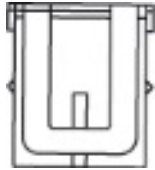
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
X153	1	Red	25	F6	IN	
				F21	IN	
				F22	IN	
				F23	IN	
				F24	IN	
				F27	IN	
				F28	IN	
				R1	30	
				R6	30	
				R7	30	
X19	S					
XBI	1	Grey - Purple		R16	30	
				X17	22	
	2	Yellow - Purple		R16	87a	
				X17	24	
XED+	1	Grey		X19	F	
				XD+	1	
	2	Red - Black		F14	OUT	
				X19	R	
XD+	1	Grey		X19	F	
				XED+	1	
	2	Grey - Pink		X17	27	

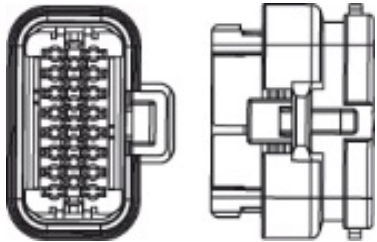
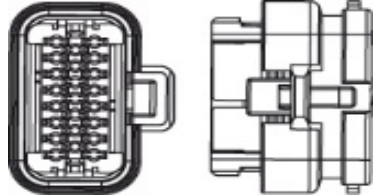
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
I3	B	Red - Green (N°13)		I1	10	
				I2	10	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	B	
				I12	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			


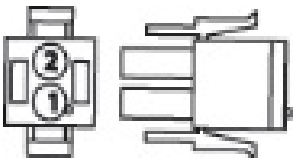
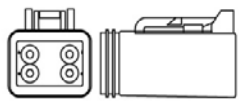
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
I8	1	Orange - Yellow		I1	5	
				I2	5	
				I3	3	
				I3	4	
				I4	3	
				I5	1	
				I6	1	
				I7	5	
				I12	3	
				I12	4	
				I13	1	
				I14	3	
				I15	4	
				I15	3	
				I15	6	
				I16	5	
				I19	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				
	3	Azure		I8	B	
			J1	10		
9	Black		GND			

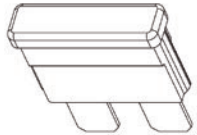
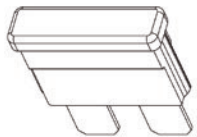
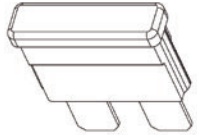
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
I12	B	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	10	
				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				

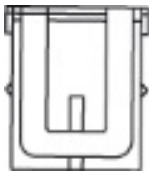
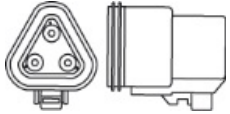
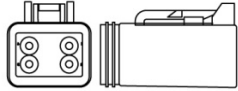
<i>Rif</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
I15	B	Red - Green (N°13)		I1	10	
				I2	10	
				I3	B	
				I3	10	
				I4	B	
				I4	10	
				I5	10	
				I6	10	
				I7	10	
				I8	10	
				I9	10	
				I10	2	
				I10	10	
				I11	2	
				I11	10	
				I12	10	
				I12	B	
				I13	10	
				I14	B	
				I14	10	
				I15	10	
				I16	10	
				I17	2	
				I17	10	
				I18	2	
				I18	10	
I19	8					
I19	10					
I20	B					
I20	10					
	X20 cabin	G				

Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I20	1	Brown - Yellow		J2	20	
	3	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	
				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					
7	Black - Yellow		J2	19		
9	Black		GND			

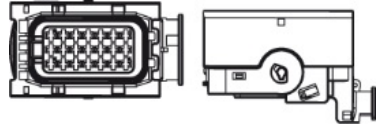

Rif	Pin	Wire color	Section	Component Destination	Pin	Image	
J1	1	Green - White		I15	2		
	2	Green - Grey		I15	8		
	3	Brown - White		I30 cabin	4		
	4	Brown - Grey		I30 cabin	4		
	5	Pink - Blue			I6		5
					I6		B
	6	White	0,75+		T-9		6
					X21 cabin		30
	8	Red - Green (N°1)	1,5		X21 cabin		14
	10	Azure			I8		3
					I8		B
	11	Pink - Green			X21 cabin		20
	12	Pink - Red			X21 cabin		21
	13	Orange - White			I5		3
					I5		B
	14	Brown	0,75+		T-9		5
					X21 cabin		29
	15	Pink - Grey			A6		1
	17	Brown - Yellow			I30 cabin		4
	18	Brown - Green			I30 cabin		4
	19	Pink			I3		8
	20	Orange			I3		1
	21	Orange - Black			I2		1
I2					B		
X20 cabin					J		
22	Purple			X21 cabin	8		
23	Black			GND			
J2	1	Grey - Black		X85	A		
	2	White - Orange		X85	B		
	3	Purple - Black			X21 cabin		6
	4	Green - Red			X21 cabin		22
	5	White			I19		5
					X90		2
	6	White - Orange			I11		5
	7	White - Grey			I10		5
	8	White - Blue			I18		5
	9	White - Green			I17		5
	13	Orange - Purple			I4		1
	14	Purple - White			I7		7
	15	Yellow - Red			X20 cabin		P
	16	Blue - Black			X20 cabin		W
	17	Orange - Green			I4		7
	18	Green - Black			X20 cabin		R
	19	Black - Yellow			I20		7
	20	Brown - Yellow			I20		1
	21	Orange - Blue			X20 cabin		S
	22	Grey - Red			I13		3
					I13		B

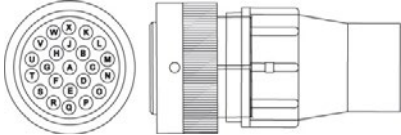
Rif	Pin	Wire color	Section	Component Destination	Pin	Image	
X113	1	Black		M3	1		
				M4	1		
				M5	2		
				M12	2		
				X14	D		
				X14	E		
				X107 driver place	2		
				X110	2		
				X111	2		
				X112	4		
	X114	2					
	2	Red - Green			X14		A
					X112		3
					X112		1
	3	Green - Red			X14		P
					4		Green - Grey
	5	Red - Green					
X112					3		
X112					1		
X114	1	Red			X14	X	
	2	Black			M3	1	
					M4	1	
					M5	2	
					M12	2	
					X14	D	
					X14	E	
					X107 driver place	2	
					X110	2	
					X111	2	
					X112	4	
X113	1						
X115	1	Yellow - Green (N°1)			X14	R	
	2	Brown - Red			X14	C	
					X107 driver place	1	
				X109	2		

Rif	Pin	Wire color	Section	Component Destination	Pin	Image					
F52	IN			F29	IN						
				F42	IN						
				F43	IN						
				F44	IN						
				F47	IN						
				F49	IN						
				F50	IN						
				F51	IN						
				F54	IN						
				F55	IN						
				F62	IN						
				F63	IN						
				F65	IN						
				F67	IN						
				F70	IN						
				R34	87						
	OUT			X88	A						
F53	IN			F33	IN						
				F34	IN						
				F38	IN						
				F46	IN						
				F48	IN						
				F60	IN						
				KEY	6						
				R33	86						
									X66	8	
					OUT				I35	1	
									I35	3	
			X20 cabin	A							
			X102 opt	2							
F54	IN			F29	IN						
				F42	IN						
				F43	IN						
				F44	IN						
				F47	IN						
				F49	IN						
				F50	IN						
				F51	IN						
				F52	IN						
				F55	IN						
				F62	IN						
				F63	IN						
				F65	IN						
				F67	IN						
				F70	IN						
				R34	87						
	OUT			X21 cabin	1						

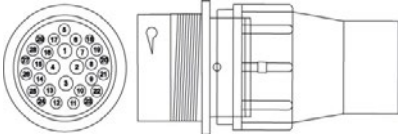
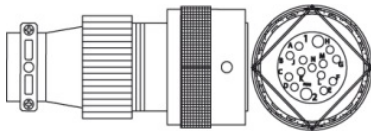
Rif	Pin	Wire color	Section	Component Destination	Pin	Image
I27	1	Orange - Yellow		F64	OUT	
				I26	3	
				I26	5	
				I26.1	3	
				I26.1	5	
				I27	B	
				X20 cabin	E	
	5	Blue - Black		X20 cabin	W	
	9	Black		GND		
	10	Red - Green (N°13)		F31	OUT	
				I21	10	
				I24	10	
				I25	10	
				I26	10	
				I26	B	
				I26.1	10	
				XEB	10	
				X20 cabin	G	
				X88	P	
	B	Orange - Yellow		F64	OUT	
				I26	3	
I26				5		
I26.1				3		
I26.1				5		
I27				1		
X20 cabin				E		
I34	A	Azure		X22 cabin	36	
				X71	2	
				X71	5	
	B	Black		GND		
C	Orange - Blue		X20 cabin	S		
I35	1	Red - Blue		F53	OUT	
				I35	3	
				X20 cabin	A	
				X66	8	
				X102 opt	2	
	2	Yellow - Red		X20 cabin	P	
	3	Red - Blue		F53	OUT	
				I35	1	
				X20 cabin	A	
				X66	8	
	4	Green - Black		X102 opt	2	
				X20 cabin	R	

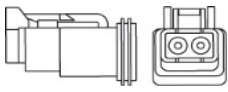


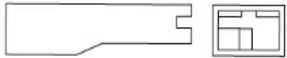



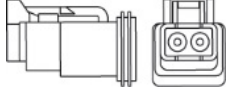


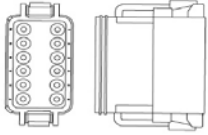
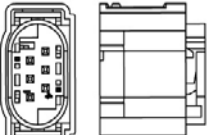
Rif	Pin	Wire color	Section	Component Destination	Pin	Image	
X20 cabin	A	Red - Blue	1,5	I35	1		
				I35	3		
				X66	8		
				F53	OUT		
				X102 opt	2		
	C	Red			X66		1
					X23 cabin		5
					F30		OUT
	D	Black (N°4)			GND		
	E	Orange - Yellow	2,5		I26		3
					I26		5
					I26.1		3
					I26.1		5
					I27		1
					I27		B
					F64		OUT
	F	Orange - Green (N°2)			F58		OUT
	G	Red - Green (N°13)	2,5		F31		OUT
					I25		10
					I21		10
					I24		10
					I26		10
					I26		B
					I26.1		10
					I27		10
					XEB		10
					X88		P
	H	Grey - Red			X22 cabin		45
	J	Orange - Black			X22 cabin		33
	K	Orange - White			X22 cabin		32
	L	Pink - Yellow			DL		6
					R23		C
	M	Yellow - Red	1,5		R23		+
	N	Pink - Green			F47		OUT
P	Yellow - Red			I35	2		
R	Green - Black			I35	4		
S	Orange - Blue			I34	C		
T	Brown - Blue			X22 cabin	22		
				X66	6		
U	Brown			CPC4-2	3		
				R32	86		
				R34	86		
				X16	13		
				X23 cabin	21		
V	Red - White	1,5		F68	OUT		
W	Blue - Black			I27	5		

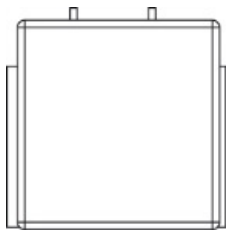
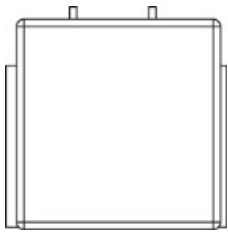
Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
MCM 2.1	5	Blue (N°*)	4	B-	1	
				MCM 2.1	6	
				MCM 2.1	8	
				MCM 2.1	9	
	6	Blue (N°*)	4	B-	1	
				MCM 2.1	5	
				MCM 2.1	8	
				MCM 2.1	9	
	7	Brown (N°1)		X35	5	
	8	Blue (N°*)	4	B-	1	
				MCM 2.1	5	
				MCM 2.1	6	
				MCM 2.1	9	
	9	Blue (N°*)	4	B-	1	
				MCM 2.1	5	
				MCM 2.1	6	
				MCM 2.1	8	
	10	Green	0,34	MCM 2.1	16	
				X35	1	
	11	Brown	4	FMCM	OUT	
				MCM 2.1	12	
MCM 2.1				14		
MCM 2.1				15		
12	Brown	4	FMCM	OUT		
			MCM 2.1	11		
			MCM 2.1	14		
			MCM 2.1	15		
13	Yellow	0,34	CR5	2		
			X35	3		
14	Brown	4	FMCM	OUT		
			MCM 2.1	11		
			MCM 2.1	12		
			MCM 2.1	15		
15	Brown	4	FMCM	OUT		
			MCM 2.1	11		
			MCM 2.1	12		
			MCM 2.1	14		
16	Brown	0,34	MCM 2.1	10		
			X35	1		
17	Blue - Pink		X19	T		
18	Grey - Pink		X19	U		
19	White	0,34	CR5	1		
			X35	2		
20	Yellow - Purple		X19	L		
21	Blue		X19	M		
M1	1	White - Red	2,5	X19	G	

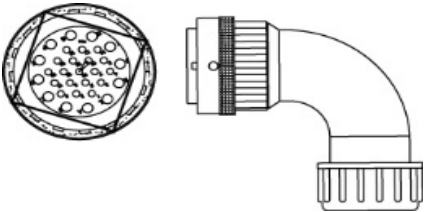
Rif.	Pin	Wire color	Section	Component Destination	Pin	Image	
X11	16	Black - White (N°1)		MC2M-3 TURRET	R28		
	17	Orange - Green		MC2M-3 TURRET	R26		
	18	Pink - Green		MC2M-3 TURRET	R40		
	19	Orange - Black		X22 cabin	33		
	20	Orange - White		X22 cabin	32		
	21	Blue - Red		X23 cabin	16		
	22	Blue - Yellow		X23 cabin	14		
	23	White - Red			X9		T
					X10		6
					X22 cabin		27
	24	Brown - Purple		MC2M-3 TURRET	L1		
	25	Blue - Green		X23 cabin	12		
	26	Blue - Black		X23 cabin	10		
	27	Brown - Blue			X22 cabin		22
					XR1		2
	28	Brown	0,75+		MC2M-2 TURRET		25
					MDCP		19
					X9		P
					X14		U
					X23 cabin		27
					X96		3
					X96		8
					XRD		C1
	29	White	0,75+		MC2M-2 TURRET		23
					MDCP		20
					X9		Q
					X14		V
					X23 cabin		29
					X96		4
					X96		9
					X97		5
30	Brown	0,75++		CR5	2		
				MC2M-2 TURRET	28		
				X97	7		
31	White	0,75++		CR5	1		
				MC2M-2 TURRET	30		
				X97	8		


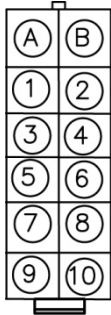
CABLE ON PLATFORM

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image		
X11A	1	Black (N° 25)		XA	1			
	2	Black (N° 26)		XA	2			
	5	Black (N° 1)		XA	E			
	6	Black (N° 2)		XA	F			
	7	Black (N° 3)		XA	G			
	8	Black (N° 4)		XA	M			
	9	Black (N° 5)		XA	H			
	10	Black (N° 6)		XA	J			
	11	Black (N° 7)		XA	K			
	12	Black (N° 8)		XA	L			
	13	Black (N° 11)		XA	A			
	14	Black (N° 12)		XA	B			
	15	Black (N° 13)		XA	C			
	16	Black (N° 14)		XA	D			
	17	Black (N° 15)		XB	E			
	18	White*		XB	B			
	19	Black (N° 16)		XB	K			
	20	Brown*		XB	A			
	21	Black (N° 21)		XB	G			
	22	Black (N° 22)		XB	H			
	23	Black (N°9)		XB	M			
	24	Black (N° 10)		XB	L			
	25	Black (N° 23)		XB	J			
	26	Black (N° 24)		XB	F			
	27	Yellow*		XB	D			
	28	Black (N° 17)		XA	N			
	29	Green*		XB	C			
	XA	1	Black (N° 25)		X11		1	
		2	Black (N° 26)		X11		2	
A		Black (N° 11)		X11A	13			
B		Black (N° 12)		X11A	14			
C		Black (N° 13)		X11A	15			
D		Black (N° 14)		X11A	16			
E		Black (N° 1)		X11A	5			
F		Black (N° 2)		X11A	6			
G		Black (N° 3)		X11A	7			
H		Black (N° 5)		X11A	9			
J		Black (N° 6)		X11A	10			
K		Black (N° 7)		X11A	11			
L		Black (N° 8)		X11A	12			
M		Black (N° 4)		X11A	8			
N		Black (N° 17)		X11A	28			

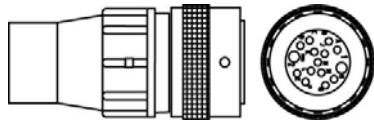
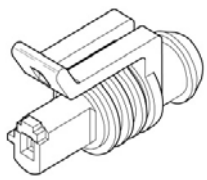
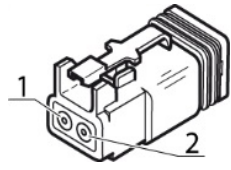
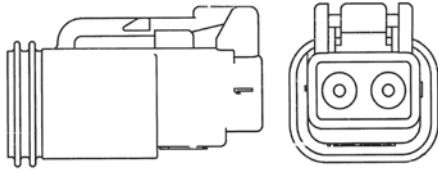
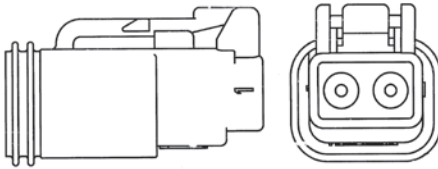
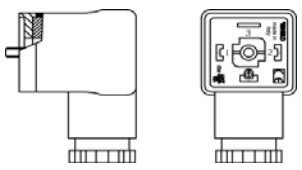
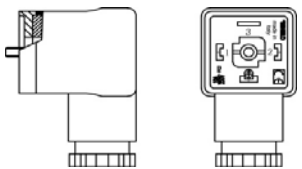
<i>Rif.</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
X25	1	Brown - Blue		X18	18	
				X22 chassis	1	
				X151	23	
	2	Pink - Brown		X151	16	
X26 chassis	1	Purple - Yellow		M58	47	
	2	Orange		X18	20	
X27 chassis	1	Purple		M58	31	
	2	Purple - Red		M58	55	
X28 chassis	/	Purple - Blue		M96	21	
X30 chassis	1	Pink		M96	54	
	2	Black		GND		
X31	1	Pink - Green		M96	51	
	2	Pink - Black (N° 1)		M96	79	
X32	1	Grey - Yellow		X151	2	
	2	Black		GND		
X33 chassis	1	Grey - Red		X151	1	
	2	Black		GND		
X34	1	White - Blue		X151	12	
	2	Brown - Green		X18	10	
				XP1	B	
3	Black		GND			
X35	1	Brown - Black		X18	12	
	2	Black		GND		
X35	1	Black		X152	22	
	2	White	0,34	X152	23	
	3	Yellow	0,34	X152	24	
	4	Pink - Red		X152	21	
	5	Brown		X152	12	
	6	Grey - Green		X152	11	
	7	Pink - Brown		X152	6	
X36	1	Black	0,75	X151	17	
	2	Brown	0,75	X151	18	
	3	Blue	0,75	X151	19	

<i>Rif.</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
R3-a	30	Yellow	1,5	F2-a	OUT	
	85	Black		R1-a	85	
				R2-a	85	
				R4-a	85	
				R5-a	30	
				R5-a	85	
				R6-a	85	
				R7-a	85	
				R8-a	85	
				R9-a	85	
				R10-a	85	
	86	Blue - Yellow		T1	86	
XA				1		
87	Yellow - Black	1,5	XA	2		
R4-a	30	Azure	2,5	XA	F	
	85	Black		R1-a	85	
				R2-a	85	
				R3-a	85	
				R5-a	30	
				R5-a	85	
				R6-a	85	
				R7-a	85	
				R8-a	85	
				R9-a	85	
				R10-a	85	
	86	Pink - Yellow		T1	86	
				XA	1	
	87	Grey	2,5	T1	87	
XA				G		

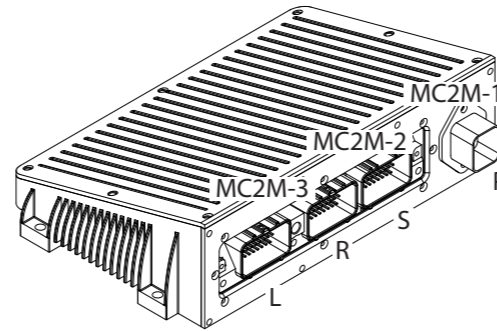
<i>Rif.</i>	<i>Pin</i>	<i>Wire color</i>	<i>Section</i>	<i>Component Destination</i>	<i>Pin</i>	<i>Image</i>
XA-a	1	Black	1,5	EVC	2	
				EV1 opt	2	
				EV2 opt	2	
				IA/C	9	
				IV	9	
				PRT	2	
				V3	B	
				XB-a	C	
				XB-a	D	
				XB-a	E	
				XB-a	F	
				XB-a	G	
				XB-a	H	
				XB-a	J	
	2	Yellow - Black	1,5	EV1 opt	1	
	3	Brown - Black	1,5	EV2 opt	1	
	4	Red - Grey		IV	2	
				IV	B1	
	5	Blue - Yellow	1,5	IA/C	1	
				IA/C	B	
				V1/2	1	
	6	Purple - Red		PRT	1	
	7	Purple		PRT	3	
	8	Blue - Yellow		RISC	1	
	9	Orange - Red		EVC	1	
	10	Pink		PR	2	
	14	Blue - Red	1,5	IA/C	5	
				IA/C	10	
				IV	10	
				XB-a	K	
	15	White - Grey		X16A	1	
	16	Red - Green	1,5	IV	5	
				V1/2	2	
	A	Red	2,5	XA-a	B	
				XA-a	C	
				XA-a	D	
				XB-a	1	
				XB-a	2	
				XB-a	A	
				XB-a	B	
B	Red	2,5	XA-a	A		
			XA-a	C		
			XA-a	D		
			XB-a	1		
			XB-a	2		
			XB-a	A		
			XB-a	B		

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X011A	1	Black (N°3)		X6	1	
				X010	2	
				X013	9	
				X014	9	
				X015	9	
				X016	9	
				X017	9	
				X018	9	
				X27 cabin	1	
				X95 cabin	2	
				X101 cabin	2	
				X107 cabin	3	
X013	1	Yellow (N°570)	2	X010	1	
				X15A	L	
	5	Yellow (N°280)	2	X6	2	
				X15A	C	
	5	Grey (N°112)	0,6	X013	B	
	9	Black (N°4)	0,6	X6	1	
				X010	2	
				X011A	1	
				X014	9	
				X015	9	
				X016	9	
				X017	9	
				X018	9	
				X27 cabin	1	
				X95 cabin	2	
	X101 cabin	2				
	X107 cabin	3				
	10	Grey (N°56)	0,6	X014	10	
				X015	10	
				X15A	P	
				X016	10	
X017				10		
X018				10		
X30 cabin	C					
B	Grey (N°112)	0,6	X013	5		

OPTIONAL X10A

Rif.	Pin	Wire color	Section	Component Destination	Pin	Image
X10A	A	Blue	2,5	FLB1	1	
				FLB2	1	
	B	Blue	2,5	BMP	1	
	C	Grey	2,5	S2TB	1	
	D	Brown	2,5	S3TB	1	
	E	Brown	2,5	FLB1	2	
				FLB2	2	
	F	Yellow - Green	2,5	S2TB	2	
				S3TB	2	
	G	Brown	2,5	BMP	2	
H	Azure	1,5	WM	1		
N	Brown	1,5	WM	2		
2	Yellow - Green	4	BMG	1		
BMG	1	Yellow - Green	4	X10A	2	
	2	Black	6	GND		
BMP	1	Blue	2,5	X10A	B	
	2	Brown	2,5	X10A	G	
FLB1	1	Blue	1,5	FLB2	1	
				X10A	A	
	2	Brown	1,5	FLB2	2	
				X10A	B	
FLB2	1	Blue	1	FLB1	1	
				X10A	A	
	2	Brown	1	FLB1	2	
				X10A	E	
S2TB	1	Grey	2,5	X10A	C	
	2	Yellow-Green	2,5	X10A	F	
				S3TB	2	
S3TB	1	Brown	2,5	X10A	D	
	2	Yellow-Green	2,5	S2TB	2	
				X10A	F	

ECU TURRET INPUTS/OUTPUTS



MC2M TURRET											
Connector L						Connector R					
No. PIN	TYPE	Designation	No. PIN	TYPE	Designation	No. PIN	TYPE	Designation	No. PIN	TYPE	Designation
L1	INP32	Broken chain sensor	L21	INP33	RC safety signal(GND)	R1	OUT33		R21	OUT32	
L2	INP26	Seat sensor	L22	INP27	signal joystick rotation	R2	OUT37		R22	OUT36	
L3	INP21	50	L23	INP20	signal confirmation (GND)	R3	OUT24		R23	INP11	Predisposition output joystick right
L4	INP13	Winch switch	L24	INP12	signal roller left	R4	OUT25	Pressure sensor relay	R24	INP09	Platform locked 1
L5	INP46	Door sensor	L25	INP47	RC Safety (Vbat)	R5	OUT26	Red beacon	R25	INP02	
L6	INP43	Steering pressure sensor	L26	INP40	lbypass transmission switch	R6	OUT27	Safety alarm	R26	INP03	Platform door
L7	INP49		L27	INP48		R7	OUT28		R27	INP31	Platform overload 1
L8	INP53	Override key	L28	INP52	Emergency stop button	R8	OUT29		R28	INP06	Platform overload 2
L9	INP39	Turret locked	L29	INP37	Max height sensor	R9	OUT30		R29	INP00	Transmission potentiometer
L10	INP38		L30	INP19	signal confirmation (Vbat)	R10	OUT31		R30	INP24	Platform locked 2
L11	INP34		L31	INP22	Accessory exclusion switch	R11	OUT35		R31	OUT34	
L12	INP30	Signal lifting	L32	INP35	signal tilting	R12	OUT39		R32	OUT38	
L13	INP28	Emergency pump	L33	INP29	Predisposition output joystick right	R13	OUT14	EV locking 3D platform	R33	INP10	Unlocking turret
L14	INP15	Predisposition output joystick right	L34	INP14	signal extension telescope	R14	OUT15		R34	INP08	
L15	INP41		L35	INP45	Turret alignment sensor	R15	OUT12	Signal activation RC	R35	INP25	
L16	INP44	Reset gear box	L36	INP42	Locking turret sensor	R16	OUT13	Reward BIP	R36	INP04	
L17	INP51	by-pass transmission	L37	INP50	Emergency stop button	R17	OUT10	Boom suspension	R37	INP07	
L18	INP55	Plaform exclusion key	L38	INP54		R18	OUT11		R38	INP01	iA-B-C switch
L19	INP36	signal Inching 1	L39	INP17	Predisposition	R19	OUT08	Seat forward	R39	INP05	A-B-C switch
L20	INP18	signal Inching 2	L40	INP16	Predisposition	R20	OUT09	Seat reward	R40	INP23	Platform angle sensor

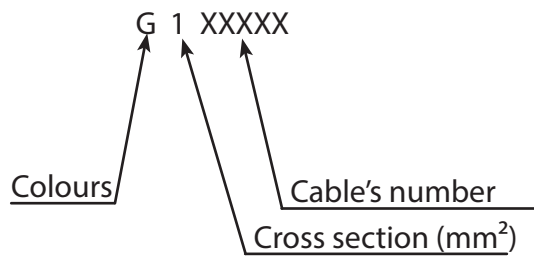
CABLE DESIGNATION ON ELECTRICAL WIRING HARNESS

The electrical harnesses installed on the truck are composed of connectors.

In order to identify the connectors, their numbers include these.



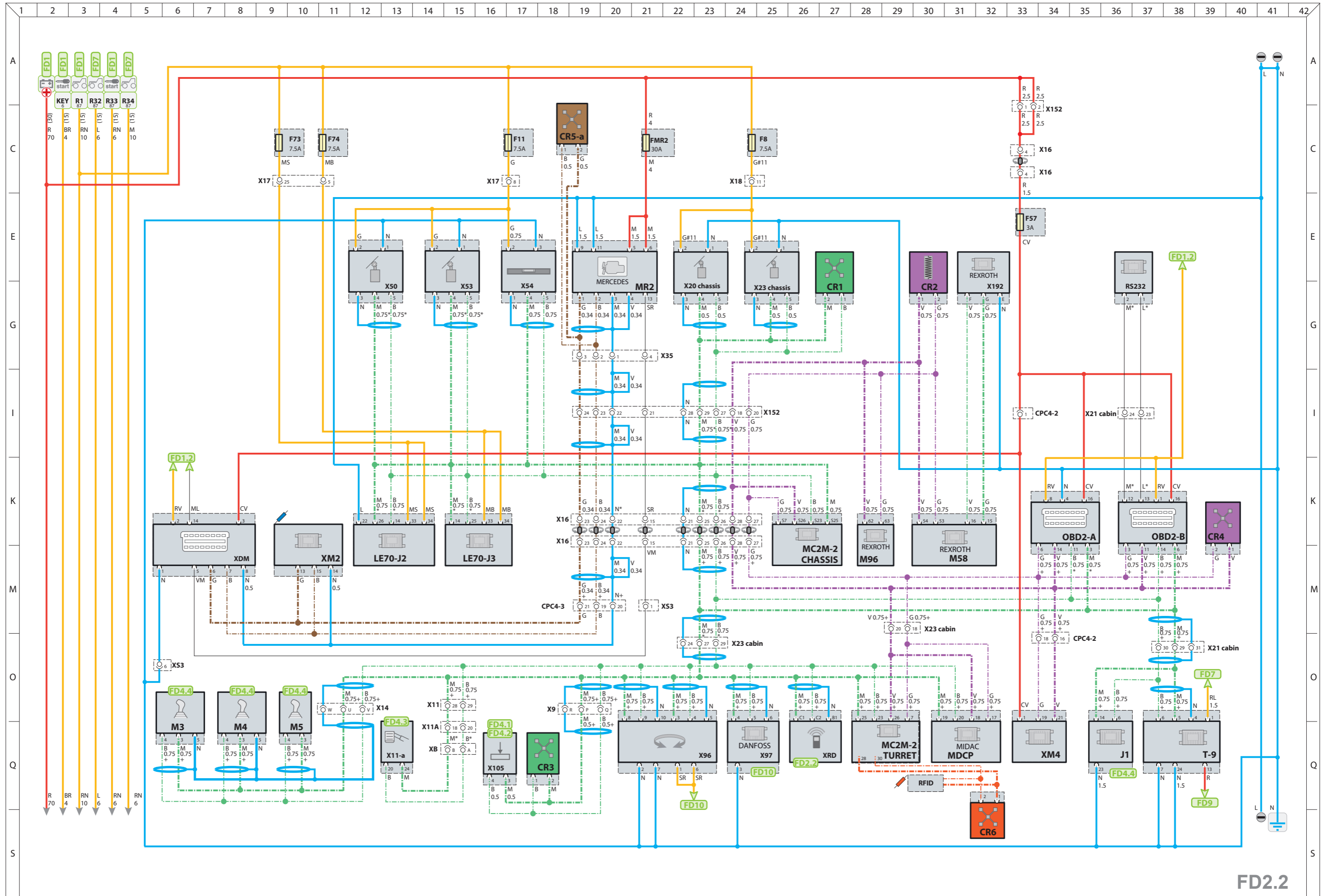
The identification of the wires are marked on the diagrams.



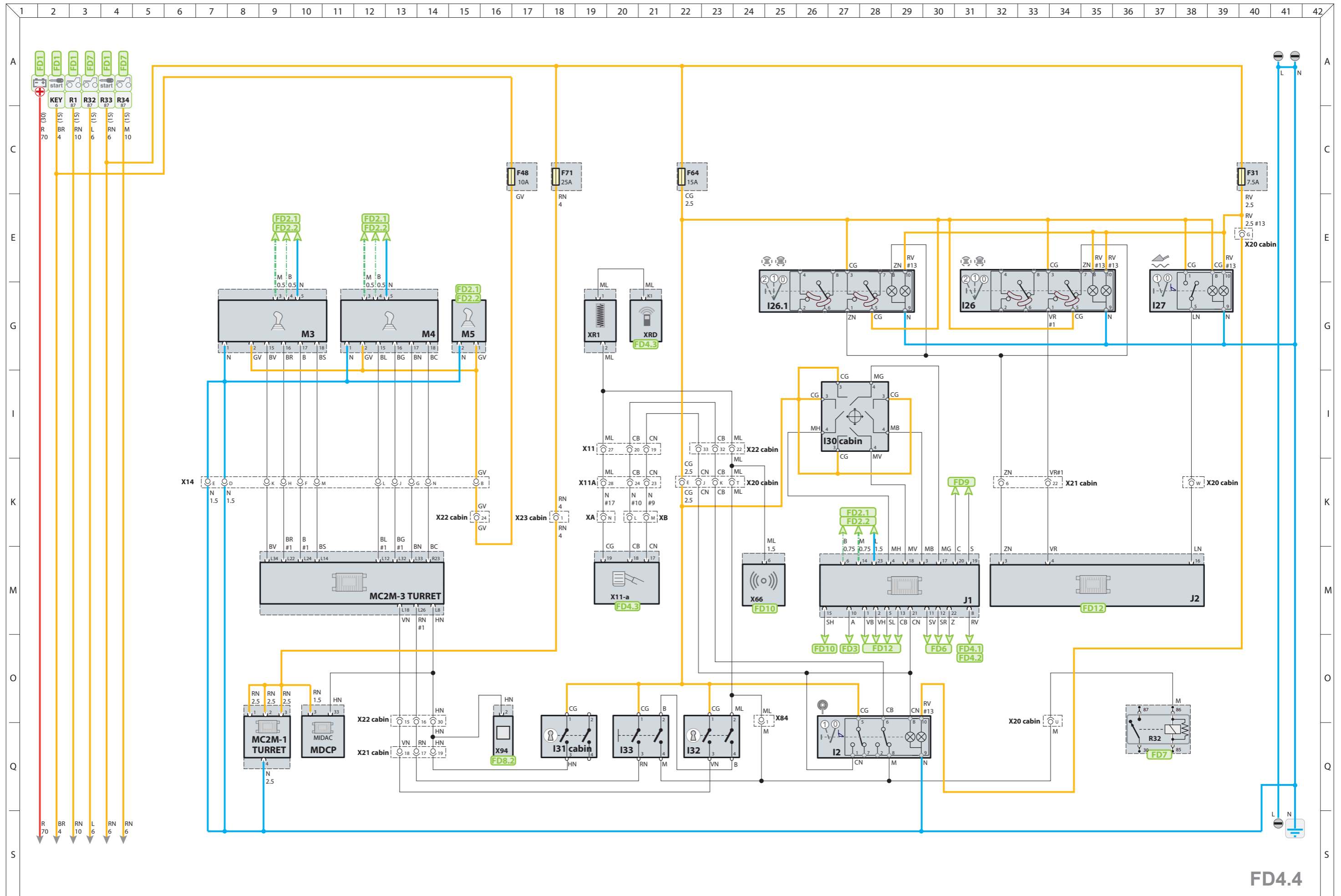
Colour code:

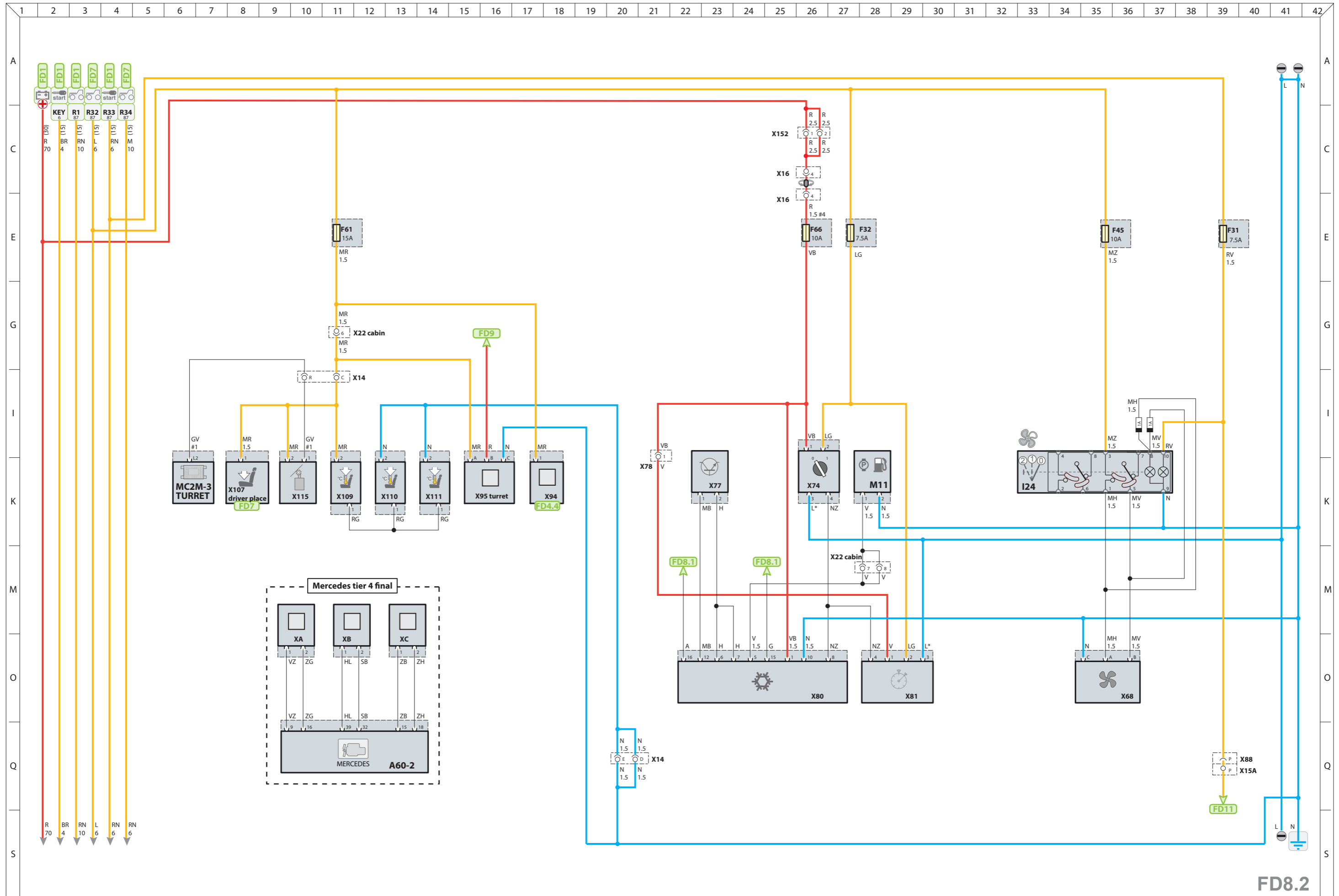
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

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
X95 cabin																	√	
X95 turret														√	√			
X96			√	√												√		
X97			√	√		√		√								√		
X98						√	√											
X99						√	√											
X100 cabin																	√	
X100 turret						√	√											
X101 cabin																	√	
X101 turret						√	√											
X102 cabin																	√	
X102 opt												√						
X102 turret						√	√											
X103						√	√											
X104						√	√											
X105			√	√		√	√											
X106						√	√											
X107 cabin																	√	
X107 driver place												√		√				
X108												√						
X109														√				
X110														√				
X111														√				
X112															√			
X113															√			
X114															√			
X115														√				
X116							√											
X138																√		
X139																√		
X150							√											√
X151					√		√			√					√	√		
X152		√	√	√	√	√	√			√		√		√		√		
X153	√	√			√	√	√					√						
X154							√											
X155							√											
X156							√											
X191						√	√											
X192			√	√														
X200																	√	
X201																	√	
X202																	√	
XA						√		√	√					√				
XA-a													√					√
XARG																		
XB			√	√				√	√					√				
XB-a													√					
XBI	√	√																
XC														√				
XD+	√	√																

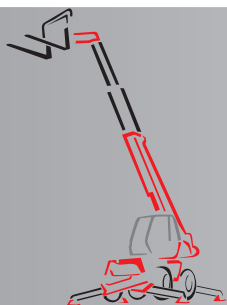


FD2.2



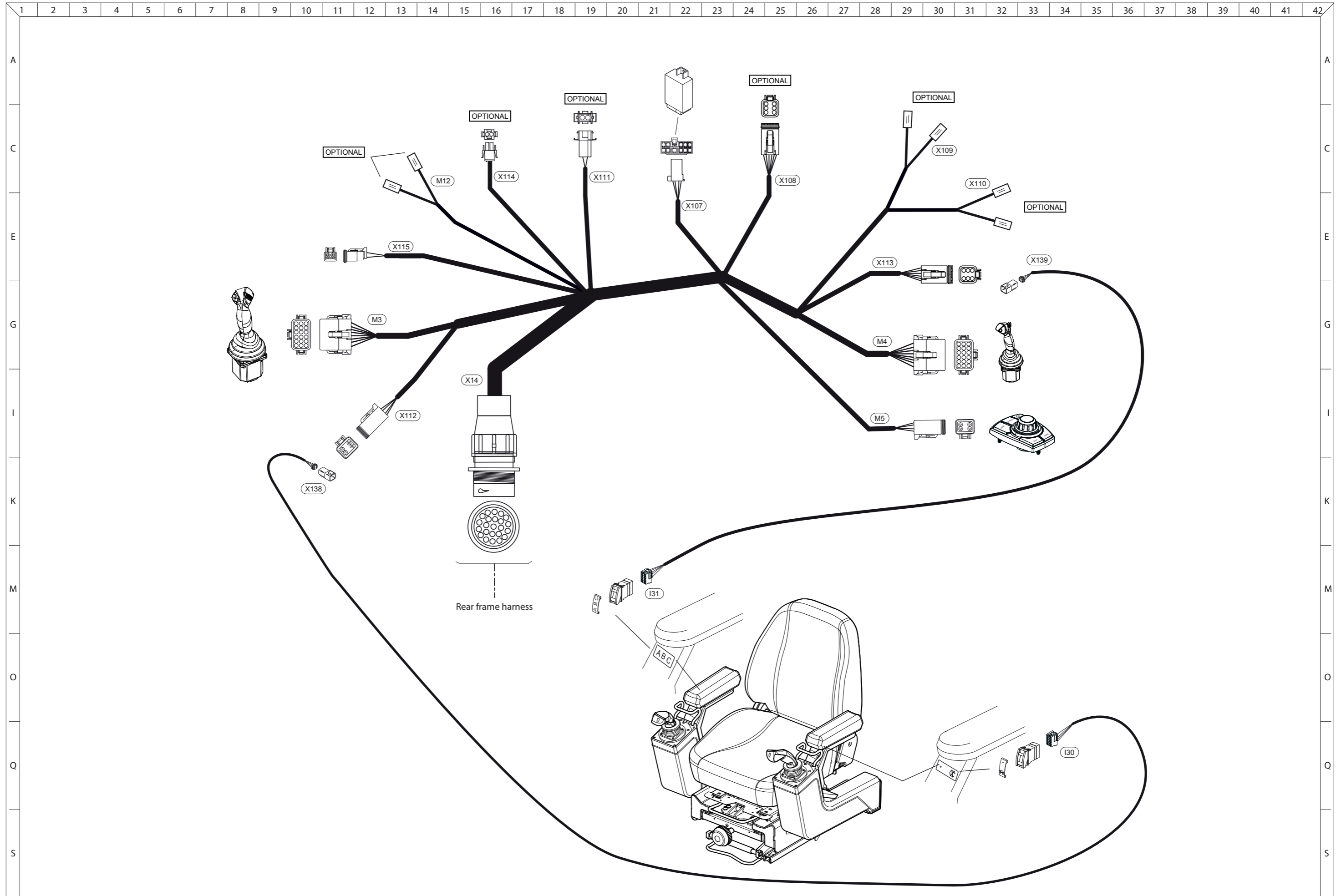


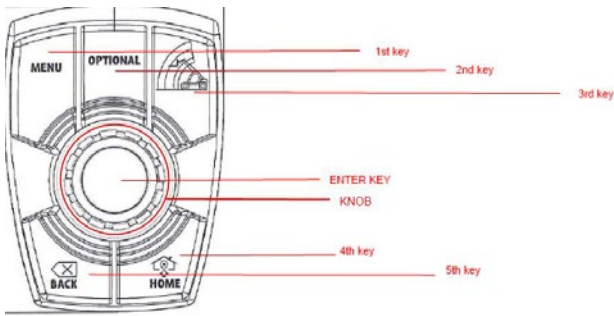
FD8.2



ELECTRICAL COMPONENTS LOCATION

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– ENGINE MRT 3255 HARNESS	29
– ENGINE MRT-X 3255 HARNESS	30
– CAB HARNESS	31





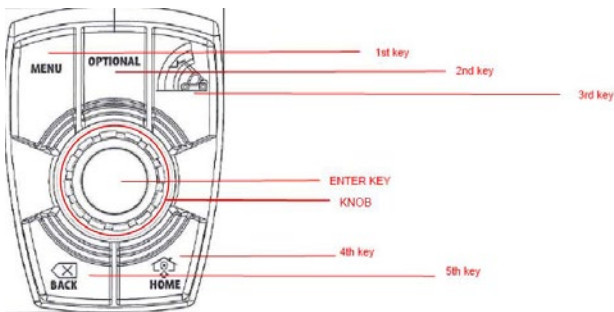
Gray Hill Knob function button:

4th key

To change the selected tool, press this key and then, with the encoder choose the wished tool.

Enter key

To confirm the wished tool press enter key



1st key

By pressing 1st key the display will show the menu with the pages that can be selected. (See this page in the next paragraph)

5 st key

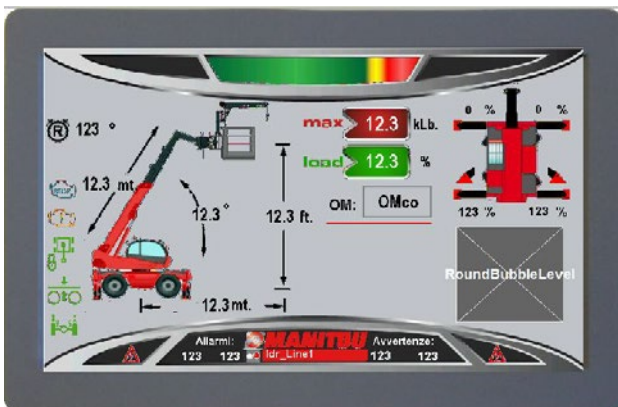
By pressing 5th key you can choose if you want to change the tool or the limit speed value (over the engine gauge)



On the Menu page you can choose your favorite one.

Enter key: Command to confirm the wished page

Knob movement: To choose the page

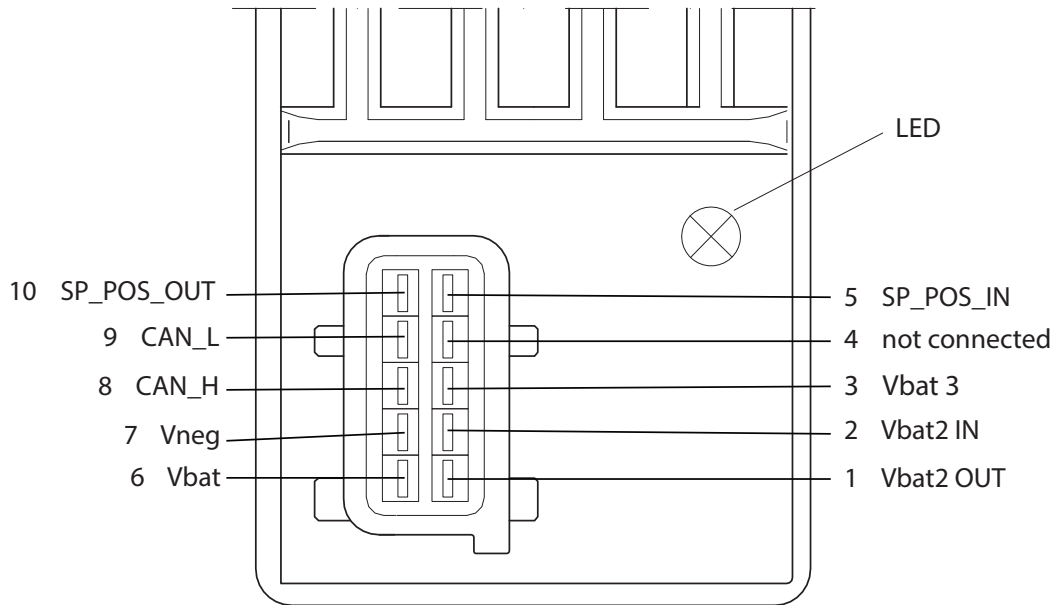


Load moment indicator Page

ALARM CODE	
Code	Description
473	Pressure Low chamber main cylinder A: Min
474	Pressure Low chamber main cylinder A: Max
475	Pressure Low chamber main cylinder B: Min
476	Pressure Low chamber main cylinder B: Max
477	Pressure Low chamber main cylinder : Congruency A-B
478	Pressione bassa camera cilindro principale: Congruenza A-A CPUs
479	Pressione bassa camera cilindro principale: Congruenza B-B CPUs
482	Pressure High chamber main cylinder A: Min
483	Pressure High chamber main cylinder A: Max
484	Pressure High chamber main cylinder B: Min
485	Pressure High chamber main cylinder B: Max
486	Pressure High chamber main cylinder : Congruency A-B
487	Pressione alta camera cilindro principale: Congruenza A-A CPUs
488	Pressione alta camera cilindro principale: Congruenza B-B CPUs
491	Pressure Low chamber compensation A: Min
492	Pressure Low chamber compensation A: Max
493	Pressure Low chamber compensation B: Min
494	Pressure Low chamber compensation B: Max
495	Pressure Low chamber compensation : Congruency A-B
496	Pressione bassa camera compensazione: Congruenza A-A CPUs
497	Pressione bassa camera compensazione: Congruenza B-B CPUs
500	Pressure High chamber compensation A: Min
501	Pressure High chamber compensation A: Max
502	Pressure High chamber compensation B: Min
503	Pressure High chamber compensation B: Max
504	Pressure High chamber compensation : Congruency A-B
505	Pressione alta camera compensazione: Congruenza A-A CPUs
506	Pressione alta camera compensazione: Congruenza B-B CPUs
509	Pressione bassa camera cilindro principale A CPU1
510	Pressione bassa camera cilindro principale B CPU1
511	Pressione alta camera cilindro principale A CPU1
512	Pressione alta camera cilindro principale B CPU1
513	Pressione bassa camera compensazione A CPU1
514	Pressione bassa camera compensazione B CPU1
515	Pressione alta camera compensazione A CPU1
516	Pressione alta camera compensazione B CPU1
518	Switch err. Stabilize front right:Congruency
519	Switch err. Stabilize front left:Congruency
520	Switch err. Stabilize rear right:Congruency
521	Switch err. Stabilize rear left:Congruency
522	Switch err. Outrigger front right: Congruency
523	Switch err. Outrigger front left:Congruency
524	Switch err. Outrigger rear right:Congruency

ALARM CODE	
Code	Description
525	Switch err. Outrigger rear left:Congruency
527	Overload condition 1
528	Overload condition 2
529	Overload condition 3
530	Fault condition output Pin [Pin - Extra CutOff]
531	Extra CutOff From LMI
532	LMI: By-Pass Key activated
536	Can bus time out from Tools Recognition
537	Fault from Tools Recognition: Blk
538	Fault from Tools Recognition: Error Code
540	Err. Outrigger front right: Signal B
541	Err. Outrigger front left: Signal B
542	Err. Outrigger rear right:Signal B
543	Err. Outrigger rear left:Signal B
545	Err. Stabilize front right:Congruency
546	Err. Stabilize front left:Congruency
547	Err. Stabilize rear right:Congruency
548	Err. Stabilize rear left:Congruency
554	Can bus time out from CAT [Pdo1A]
555	Can bus time out from CAT [Pdo1B]
556	Can bus time out from CAT [Pdo2A]
557	Can bus time out from CAT [Pdo2B]

PVED-CX connector pin out



Cable color codes and external connection

Description	J0 / wire ends	J1	J2	Jn
CAN low*	Yellow	9	9	9
CAN high	Orange	8	8	8
Ground	Brown	7	7	7
Vbat	Red	6	6	6
Vbat 2	Green	2	-	-

* CAN wires are only intended for communication according to ISO 11898-2.

Filtered No
 Finding Table value or input value used for division is 0.
 Problem Operation puts uC in fault mode
 Likely root cause Electrical input out of range, electrical disturbance or fault in components
 Counteraction A: Reboot module.
 --- By multiple reoccurrence replace module
 Deactivation Cycle power

Index 6 • Internal table value corrupted, illegal SW operation

Obj. Dict. Index 0x2005
 CANopen Name Demand value generation
 Error code ID 0x6202
 Severity Severe
 Error register 0x81
 Error type Application
 Filtered No
 Finding Internal table value for set point or calibration is out of range
 Problem Calculations can not be trusted
 Likely root cause Electrical disturbance or fault in components
 Counteraction A: Reboot module.
 --- By multiple reoccurrence replace module
 Deactivation Cycle power

Index 7 • Wrong data interpretation, truncation of values

Obj. Dict. Index 0x2006
 CANopen Name Variable truncation
 Error code ID 0x6203
 Severity Severe Error register 0x81
 Error type Application
 Filtered No
 Finding Calculation is giving result out of range Software error indicating that an (unintended) variable truncation happened.
 Problem Calculations can not be trusted
 Likely root cause Electrical disturbance or fault in components
 Counteraction A: Reboot module.
 --- By multiple reoccurrence replace module
 Deactivation Cycle power

Index 8 • Interpolation fault, illegal SW operation

Obj. Dict. Index 0x2007
 CANopen Name Interpolation fault
 Error code ID 0x6204
 Severity Severe
 Error register 0x81
 Error type Application
 Filtered No
 Finding Indication that an extrapolation was used instead of interpolation or interpolation coordinates are overlapping

Filtered No

Finding CANbus spool position reporting from neighbor has a fault. The position and the inverted value do not mach.

Problem Communication can not be trusted.

Likely root cause A: Neighbor is sending signal with fault.

B: Module CAN interpretation has faults

Counteraction A: Reset Application.

--- By multiple reoccurrences replace module.

Switch positions to identify module with fault.

Deactivation Reset applications

Index 36 • No set point

Obj. Dict. Index 0x2023

CANopen Name Set point time guarding

Error code ID 0x8003

Severity Warning

Error register 0x91

Error type Communication

Filtered No

Finding Module has not recognized set point from master within time guarding, default value set is 100ms

Problem Missing command signal

Likely root cause A: Wiring fault.

B: Master not sending.

C: Module not receiving

Counteraction A: Check for master status.

B: Check wiring.

C: Reset communication.

D: Reboot system

--- By multiple reoccurrences replace module or wiring.

Deactivation Automatically, once again start receiving set point msg within timeout period

Index 37 • CAN stack error

Obj. Dict. Index 0x2024

CANopen Name CANopen stack error

Error code ID 0x8201

Severity Severe

Error register 0x11

Error type Communication

Filtered No

Finding Software error in the CANopen protocol stack

Problem Communication can not be trusted.

Likely root cause Electrical disturbance or fault in components

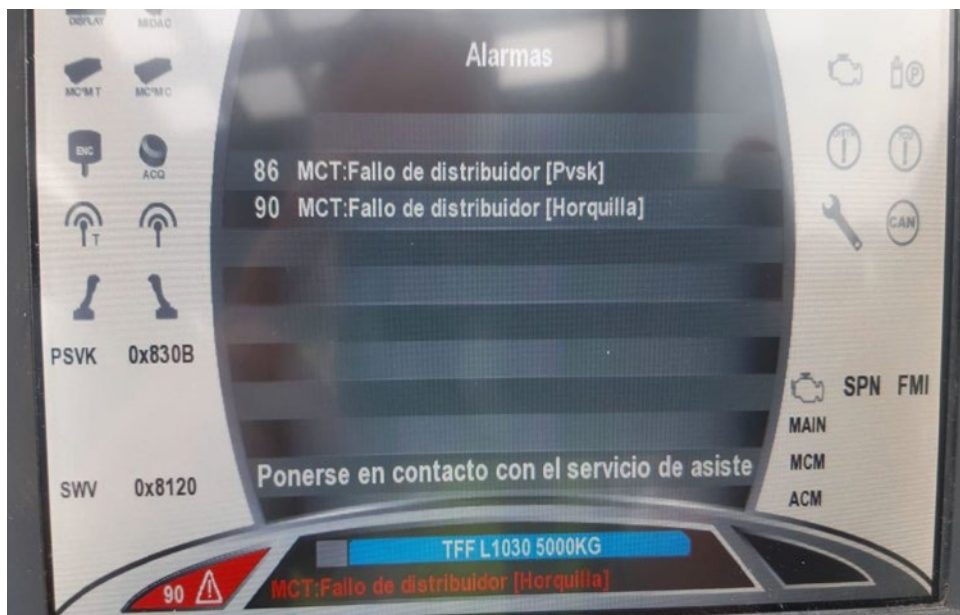
Counteraction Cycle power.

--- By multiple reoccurrence replace module.

Deactivation Cycle power

Index 38 • DSM initialization failed

Example 2 (complex)



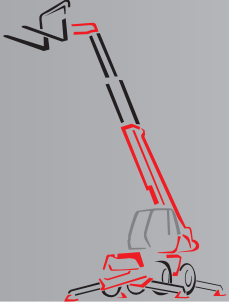
On this example the troubleshooting is more complex.

- We have alarm 86 + PVSX 0x830B, So the PVSX warn that it neighbor has a defect about the return to zero position.
- It neighbor is the optional head and we can see that there is no fault code for the OPT head (we should have alarm 91 + OPT 0x8305).
- We have alarm 90 + SWV 0x8120. So, fault on the forks element and CAN construction error on the rotation element. No links between its.

The troubleshooting in this case consist to move the heads that you think involved to be sure about which one is defective and which one is good.

If you exchange the OPT with the LFT and you see after that LFT 0x8305 + 87 or EXT 0x830B + 88 it means that the OPT head is defective (same logic for the other codes).

To finish, if you can't see any link between Manitou codes and Danfoss codes don't hesitate to move the heads to find where is really the problem.



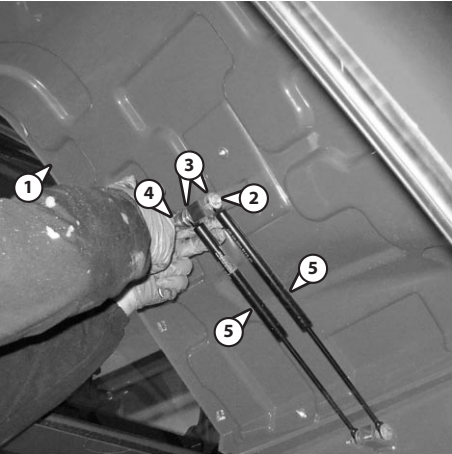
DRIVER'S CAB SCHEMATIC DIAGRAMS

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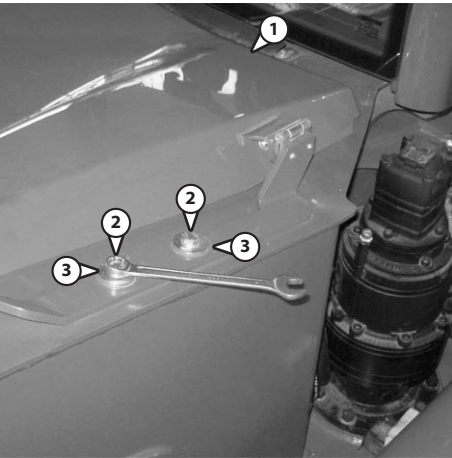
REMOVING THE CAB

REMOVING THE CAB HOUSING

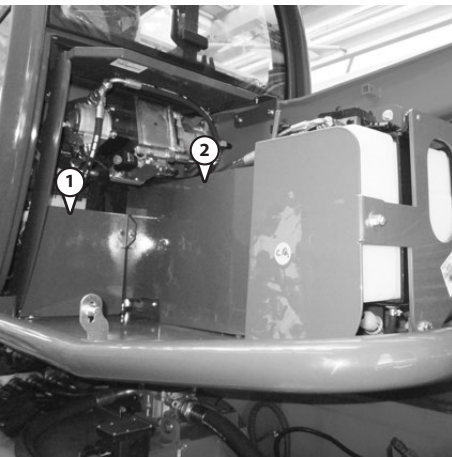
Open the engine cover (Item 1) and unscrew the screws (Item 2) and remove the washers (Item 3) and nuts (Item 4) to release the tie rods (Item 5).



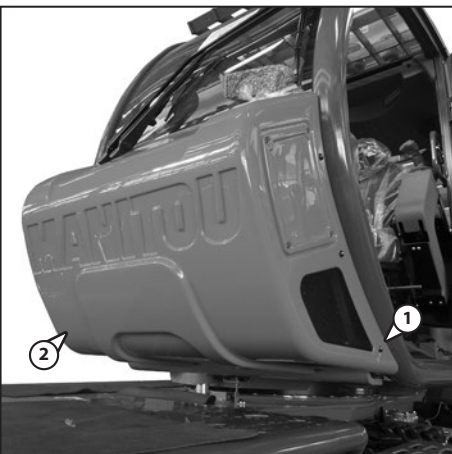
Unscrew the screws (Item 2), remove the washers (Item 3) and remove the engine cover (Item 1) from the truck.



After unscrewing all the fixing screws, remove the housings (Item 1 and 2) protecting the distributor.



Unscrew the screws (Item 1), remove their washers and remove the front cover housing (Item 2).



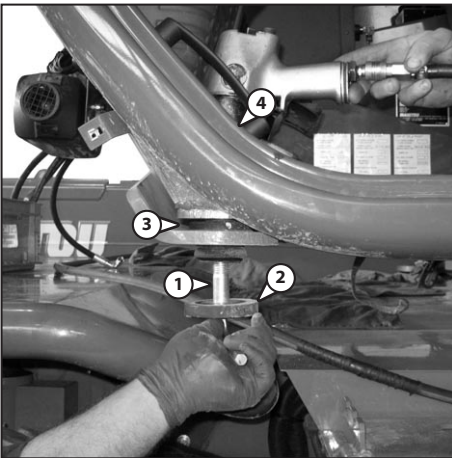


REFITTING THE CAB

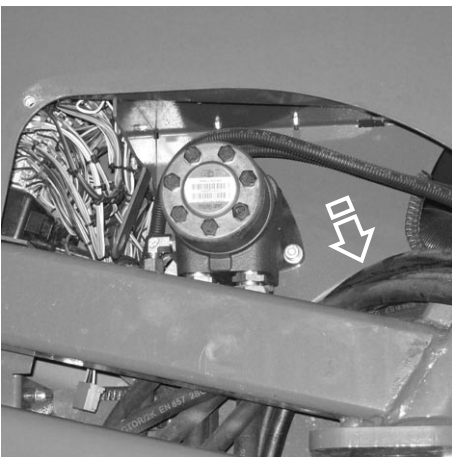
REFITTING THE CAB TO THE FRAME

Replace the antivibration mounts in their correct seats on the frame.

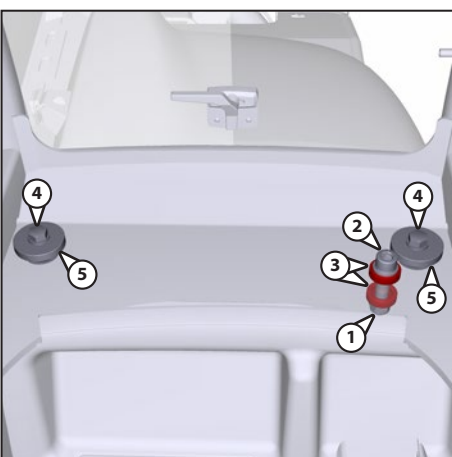
With the help of the overhead crane, replace the cab on the frame.



Fix the left front antivibration mount (Item 3) by screwing in the screw (Item 1) with washer (Item 2) and nut (Item 4).



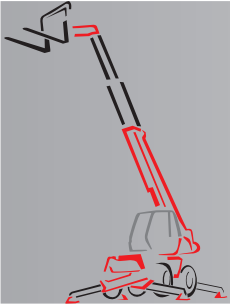
To refit the right front antivibration mount, gain access through the power steering opening in the right side of the cab.



Tighten the nut (Item 1) until the two fairleads (Item 2) have not game.

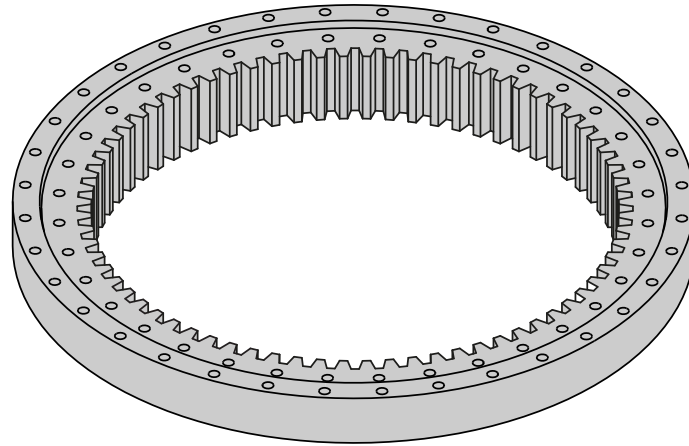
Check moving the screw (Item 3) that there is no game vertical.

Fix the antivibration mounts at the rear of the cab by screwing in the screws (Item 4), with the washers (Item 5) and associated nuts.



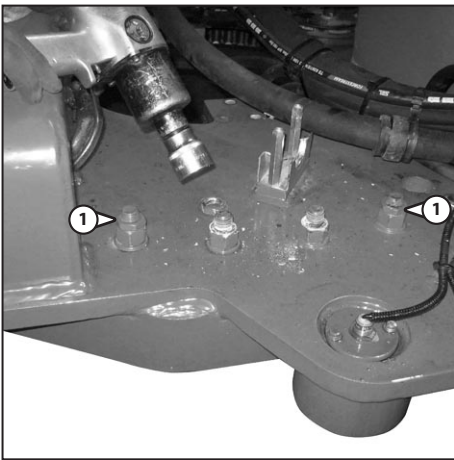
SPECIFIC DRIVER'S CAB TOOLING

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AIRTRONIC HEATING DIAGNOSTIC DEVICE	2



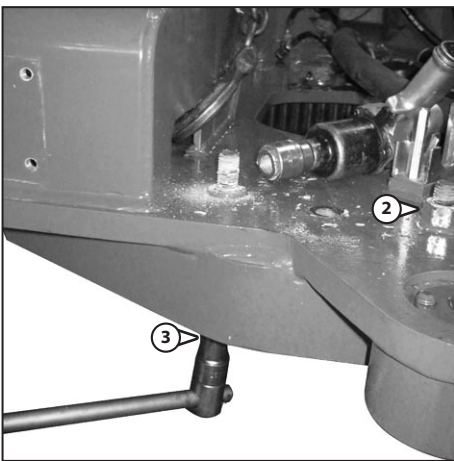
REMOVING THE TURRET THRUST RING

Unscrew all the locknuts (Item 1) at the top of the turret.

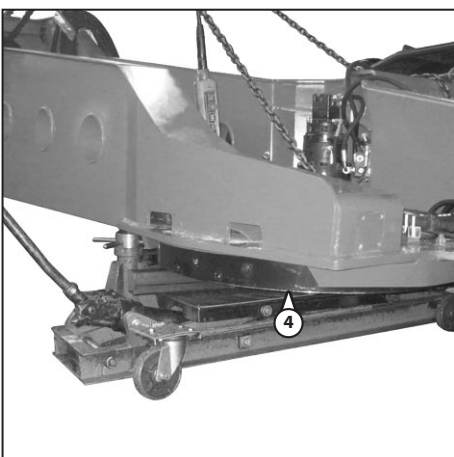


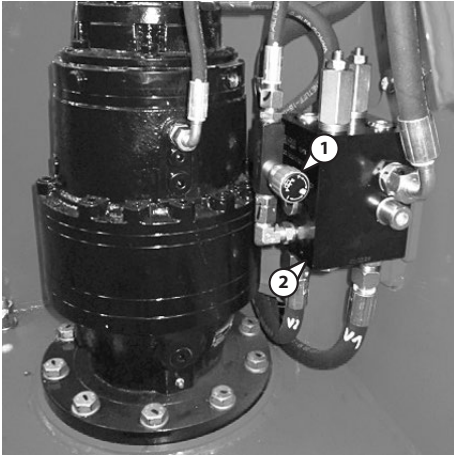
Unscrew the nuts (Item 2) at the top and the screws (Item 3) at the bottom.

Unscrew all the screws and nuts (Item 2 and 3) except for two.



With the help of the overhead crane, place the turret and thrust ring, still assembled, on a trolley, unscrew the last nuts and screws (Item 2 and 3) thus releasing the thrust ring from the turret. Lift and remove the turret.





ADJUSTING THE TURRET ROTATION BRAKE

Turn the handle (Item 1) of the valve (Item 2) (*clockwise*) until the valve is closed (*Photo 01*).

Then, to obtain the correct adjustment, turn the valve (Item 1) (*anticlockwise*) by 2 turns and tighten the grub screw (*Photo 02*).

PHOTO 01

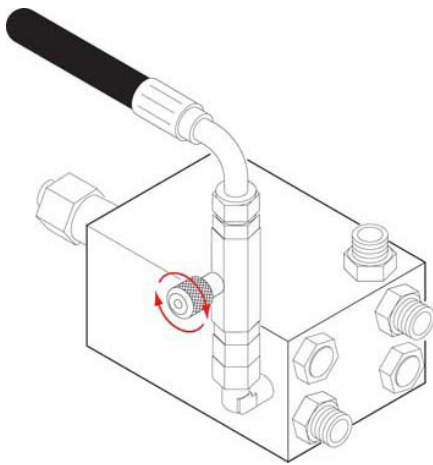
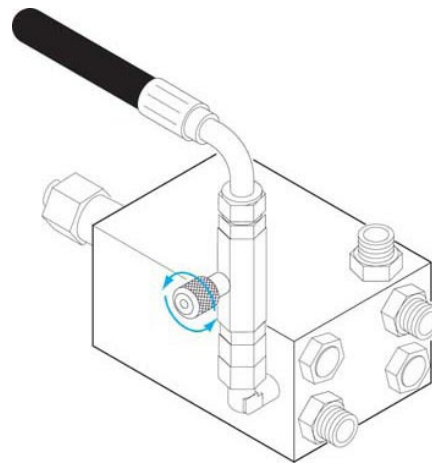
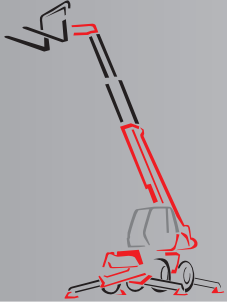


PHOTO 02





OPTIONS - ATTACHMENTS COMPONENTS LOCATION

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POSITION OF AIR CONDITIONING COMPONENTS	5
POSITION OF AIR CONDITIONING CONNECTORS.....	6
– POSITION OF AIR CONDITIONING CONNECTORS ON DIAGRAM	7

FEATURES OF COOLANT R134a

Description	Hydrofluorocarbon
Use	Coolant
Chemical features	Tetrafluoroethane 134a
Chemical formula	CH ₂ F-CF ₃
Physical state	Liquified gas
Colour	Colourless
Odour	Slightly ethereal
Boiling point (at atmospheric pressure)	- 26.5 °C
Melting point	- 101 °C
Density at 25°C	1.21 kg/l
Critical pressure	40.7 bar
Critical temperature	+ 101 °C
Weight in vapour state	5 times heavier than air
1 kg in liquid state less than 1 bar	200 l in gaseous state
Solubility of water in product	0.097% in weight
Thermal decomposition	Starting from 110 °C
Hazardous decomposition products	Halides of hydrogen and traces of carbonyl halides
Hazardous reactions	With alkaline metals and alkaline-earth metal salts in powder form (Al-Zn-Be ...)
Flash point	Non-flammable (very stable)
Ignition temperature	Above 75 °C
Explosiveness limit	less than or more than none
Ozone depletion potential	None, ODP=0

PRECAUTIONS FOR HANDLING R134a

- 1 - Personal protection:** Safety goggles and rubber gloves.
- 2 - First aid:** In case of inhalation remove immediately to fresh air, administer oxygen and give artificial respiration depending on the degree of the emergency (do not administer drugs). Get medical attention. In case of contact with eyes, flush eyes with plenty of water for 15 minutes and get medical attention. In case of contact with the skin, flush with plenty of clean water and remove contaminated clothing.
- 3 - Storage conditions:** Store the R134a liquid in a cool, dry well-ventilated place.
- 4 - Handling:** Only in well-ventilated places.
- 5 - Accidental release measures:** In case of exposure of liquid R134a to fire, wear breathing apparatus.

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