Maintenance Manual



WP2300 Series

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Table of Content

ITD – INTRODUCTION	PAGE	SER-NR. CUT	REV.
Safety Symbols used in the Manual	**3**		**Rev.1 04/00**
General Maintenance and Repair Safety Notes	**3**		
Maintenance and Repair	3		Rev.1 04/00
Before Leaving the Truck	4		
Before Carrying out Work on the Truck	4		
Before Operating the Truck	4		
Warnings and Labels on the Truck	**4**		
General	**7**		
Operating Instructions	7		
Service Training	7		
Ordering Spare Parts	7		
Using the Manual	7		
Model-Number	**8**		

M1 – LUBRICATION AND ADJUSTMENT	PAGE	SER-NR. CUT	REV.
Component Access	**11**		
Jacking up the Truck	**11**		
Lifting by Crane	**11**		
Lifting by Truck	12		
Components	**13**		
Maintenance	**16**		
Recommended Lubricants and Oils	16		
Lubricants	16		
Cold Store Trucks	16		
Truck Decommissioning	**16**		
Restoring the Truck to Service	**16**		
Check and Maintenance Schedule	**18**		
Safety Reverse Switch – Functional Test	**20**		
Grease items and grease intervals	**28**		
Castors	**30**		
Torques	**31**		

M2 – HYDRAULICS	PAGE	SER-NR. CUT	REV.
Hydraulic Symbols	**35**		
Hydraulic System	**39**		
Operation	39		
Removing the Hydraulic Unit	40		
Replacing the Hydraulic Pump	41		
Removal	41		
Installation	41		
Commissioning and Bleeding the System	41		
Filters	43		
Replacing the Pressure Filter	43		
Replacing the Suction and Return Filters	43		
Oil Change	43		
Replacing the Safety Valve	44		
Safety Valve Setting	44		
Safety Valve Test and Setting	44		

M3 – DRIVE UNIT	PAGE	SER-NR. CUT	REV.
Gear Unit	**47**		
Drive Unit, General	**48**		
Removing the Drive Unit	**48**		

MS-WP2300-GB 04/03 • Printed in Germany

MidWestTech | Crown WP2300 Electric Pallet Jack Service Manual | Publication 8125... Order the manual at mid-west-tech.com >

M3 – DRIVE UNIT	PAGE	SER-NR. CUT	REV.
Traction Motor Removal	48		
Dismantling the Motor	49		
Assembling the Motor	49		
Traction Motor Assembly	51		
Gear Unit Disassembly	52		
General	52		
Preparation	52		
Draining the oil	52		
Removing the drive unit	52		
Dismantling the gear unit lid	52		
Dismantling the gear unit	53		
Gear Unit Assembly	53		
Installing the gear unit lid	55		
Adding Oil	55		
Installing the drive unit	55		

M4 – ELECTRICS	PAGE	SER-NR. CUT	REV.
Electrics - General	**59**		
Wire Colour Codes	59		
Abbreviations	60		
Electrical Symbols	62		
Electrical Components	**63**		
Transmitter (POT, FS, RS)	63		
Fast / Slow Travel Switch (HSS)	63		
Reverse Safety Switch (SAS)	63		
Brake Switch (BRS)	63		
Override Switch (ORS)	63		
Raise / Lower Switch (RAS, LOS)	64		
Limit Switch (LMS)	64		
Horn Switch (HNS)	64		
Key Switch (KYS)	64		
Emergency Disconnect	64		
Fuses (FU)	64		
OPTION Thermal Switch (THS)	65		
Battery	**67**		
General	67		
Replacing the battery	67		
Battery Discharge Indicator (BDI)	**67**		
General	67		
Battery Discharge Indicator Setting (BDI)	68		
Calibration	68		
SEM0 Traction Controller	**67**		
General	67		
Precautionary Measures	67		
Operational Features	67		
Speed Control	67		
Reduced Speed Ranges	67		
Downhill Speed Control	67		
Regenerative Braking	67		
Anti - Roll Down Function	67		
Hourmeter	68		
Self Test	68		
Monitored Circuits	68		
Protective Devices	68		
Polarity Protection	68		
Wiring Errors	68		
Temperature	68		
Start Sequence	68		

MS-WP2300-GB 04/03 • Printed in Germany

MidWestTech | Crown WP2300 Electric Pallet Jack Service Manual | Publication 8125... Order the manual at mid-west-tech.com >

M4 – ELECTRICS	PAGE	SER-NR. CUT	REV.
Safety Class	68		
Maintenance	69		
Replacing the SEM0 Traction Controller	**70**		
Parameter Setting after Replacing the Traction Controller	70		
Preparatory Measures	70		
Setting	70		
Status LED	72		
Programmer	**73**		
General	73		
Operating SEM0 Controller Menu	74		
General	74		
Operating Menu - Overview	75		
Menu Functions	75		
PARAMETER CHANGE	75		
Settings and Alarms	**76**		
TESTER Menu	77		
ALARMS Menu	78		
PROGRAM VACC Menu	79		
Calibrating the Traction Pod Potentiometer, PROGRAM VACC menu	81		
Preparatory Measures	81		
Calibration	81		
CONFIG Menu	**82**		
SET MODEL	82		
SET OPTIONS	82		
Adjustments	82		
Traction Controller Safety Test	**83**		
Battery	**85**		
General	85		
Replacing the battery	85		
Battery Discharge Indicator (BDI)	**85**		
General	85		
Battery Discharge Indicator Setting (BDI)	86		
Calibration	86		
On Board Charger	**87**		
General	87		
Battery Charging Phases	87		
Special Charging Phases	87		
Charging Errors	88		
Green LED is not lit	88		
Green LED flashing	88		
Important Technical Data	89		
Replacing the Charger	89		
Removal / Installation	89		
Electric Motors	**91**		
General Maintenance Instructions	91		
Preparation	91		
Important Maintenance Instructions	91		
Traction Motor Maintenance	**92**		
Access to Brushes	92		
Maintenance	92		
Armature	92		
Bearings	92		
Pump Motor Maintenance	**93**		
Access to brushes	93		
Maintenance	93		
Armature	93		

MS-WP2300-GB 04/03 • Printed in Germany

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ALARMS Menu

The traction controller can collect and store operational faults during operation. The last 5 error messages are stored together with the following information:

- Type of error
- Error frequency
- Hourmeter status
- Power part temperature

The ALARMS menu can be used to call up and read the respective fault codes.

ALARMS Menu		
Error Message	**Description**	**Possible Cause**
LOGIC FAILURE #1	Main contactor drive test error during auto-diagnostic function on truck power-up.	Control logic error. Replace logic system.
WATCH-DOG	Error in auto-diagnostic function performed during truck power-up, when parked and during travel.	Watchdog circuit (hardware) or program (software) faulty. Replace logic system.
EEPROM KO	Error in non-volatile memory area where hourmeter, error message and truck parameter data is stored.	Turn key switch off and on again. If the error persists, replace the logic system. If the error is removed, make sure that all the stored data is deleted and reset to a default value.
INCORRECT START	Start sequence incorrect. The following sequence must be maintained: Override switch (by moving the multitask handle from idle to travel position), followed by travel switch (by pressing the butterfly switch).	- Travel direction switch (FS/RS) or multitask handle switch jammed. - Wiring error. - Incorrect start sequence entered by user.
FORW + BACK	Test is performed constantly and checks whether both travel directions are applied simultaneously.	- Wiring error. - Travel direction switch jammed. - Incorrect start sequence entered by user. - Tiller main board faulty.
CAPACITOR CHARGE	Test during auto-diagnostic function on power-up. If the capacitors have not started to charge 500 metres after turning the key switch, an error message appears and the main contactor does not close.	- Armature power cable wiring error - Faulty controller.

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Battery Discharge Indicator Setting (BDI)

The acid density is a very reliable indicator of the charge status of a lead acid battery. However, since it is unrealistic to continually measure the acid density of a truck battery to an industrial standard, the battery voltage is used to determine the charge status over longer journeys.

To adapt the BDI to the battery used and the truck's specific application profile, you need the battery manufacturer's data sheet. The values you require are the density of the electrolyte for an 80% discharged battery (20% battery residual capacity) and for a fully charged battery (100% battery capacity).

Finally, via the potentiometer on the back of the BDI the display is set to the actual discharge terminal voltage of the battery at 20% residual capacity.

The factory default setting of the battery discharge indicator is "N" (any setting from K to U is possible).

Calibration

- Fully charge the battery as indicated by the battery manufacturer in the operating instructions. Measure the acid density in accordance with the battery manufacturer's maintenance instructions to check if the battery is actually 100% charged. Faulty battery cells will make calibration impossible.
- Operate the truck as usual under normal operating conditions until the battery is empty: both LEDs of the BDI will flash and the lift cutout system will be triggered.
- Leave the battery for at least 10 to12 hours (one hour at the very minimum!).
- After this interval measure the acid density on at least three different battery cells. The smallest recorded value is the one you need.
- Compare the recorded density with the density specified by the manufacturer for an 80% discharged battery (20% residual capacity).
- If the battery is more than 80% discharged (less than 20% residual capacity), set the potentiometer on the back of the BDI to direction **K**.
- If the battery is less than 80% discharged (more than 20% residual capacity), set the potentiometer on the back of the BDI to direction **U**.
- Charge the battery again and then check the calibration.

Discharge Terminal Voltage Setting in Volts/Cell

K	L	M	N	O	P	Q	R	S	T	U
1.57	1.63	1.68	1.73	1.78	1.82	1.84	1.86	1.89	1.91	1.93

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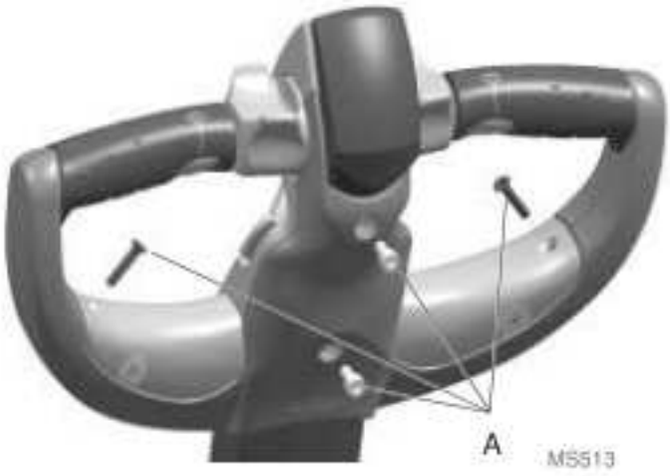
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Switch Unit

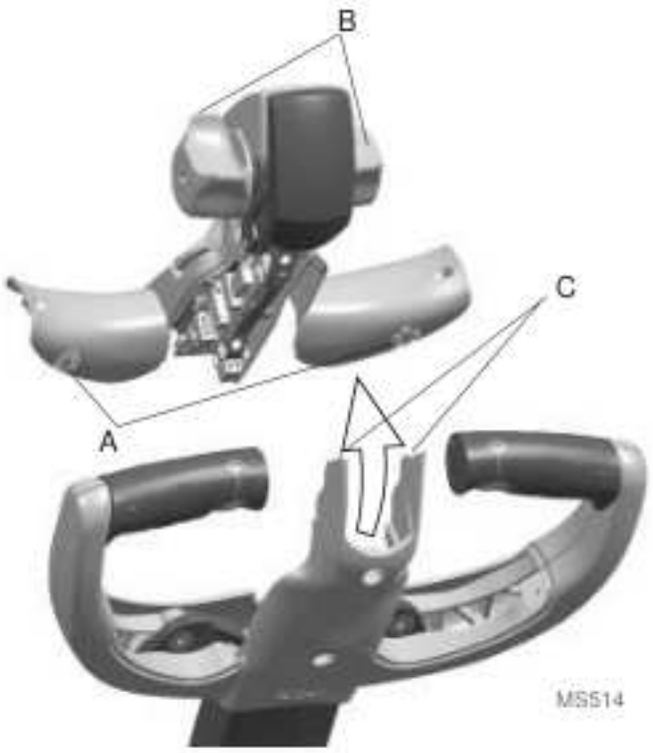
Removal

The switch unit contains the safety reverse switch, the travel switch, the "Fast/Slow" toggle switch, the main board and the pump controller board.

To replace any one of these components you have to disassemble the entire switch unit.



- Remove the 4 M5 Torx® screws (A, Fig. MS513).



- Press on the thumb markings (A, Fig. MS514) of the switch unit or pull on the butterfly switches (B). The switch unit will slide up out of the lower shell.
- Remove the plug connector of the tiller wire harness and the horn switch from the switch unit boards.

Switch Unit Installation

Installation is essentially the reverse order of removal.

Ensure you re-connect the tiller wire harness and the horn wiring. The connectors cannot be interchanged and are reverse battery protected.

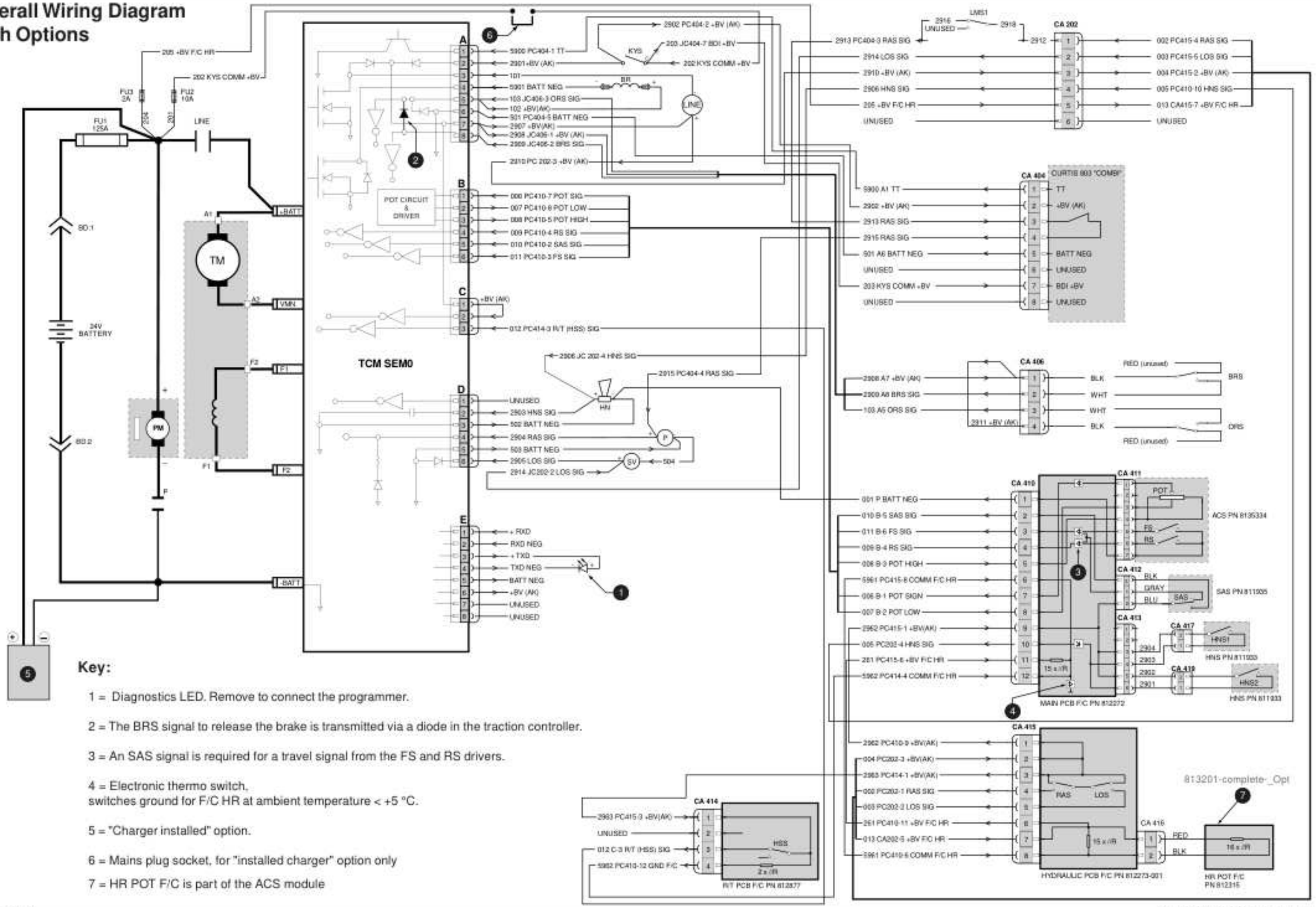
Guide the switch unit over the two side sections (C, Fig. MS514), pushing the switch unit downward and forward in the process.

Tighten the mounting screws (M5).

After re-connecting the battery test all functions.

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Overall Wiring Diagram with Options



Key:

1 = Diagnostics LED. Remove to connect the programmer.

2 = The BRS signal to release the brake is transmitted via a diode in the traction controller.

3 = An SAS signal is required for a travel signal from the FS and RS drivers.

4 = Electronic thermo switch,
switches ground for F/C HR at ambient temperature < +5 °C.

5 = "Charger installed" option.

6 = Mains plug socket, for "installed charger" option only

7 = HR POT F/C is part of the ACS module

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