01 GENERAL INFORMATION AND TECHNICAL DATA

2013B

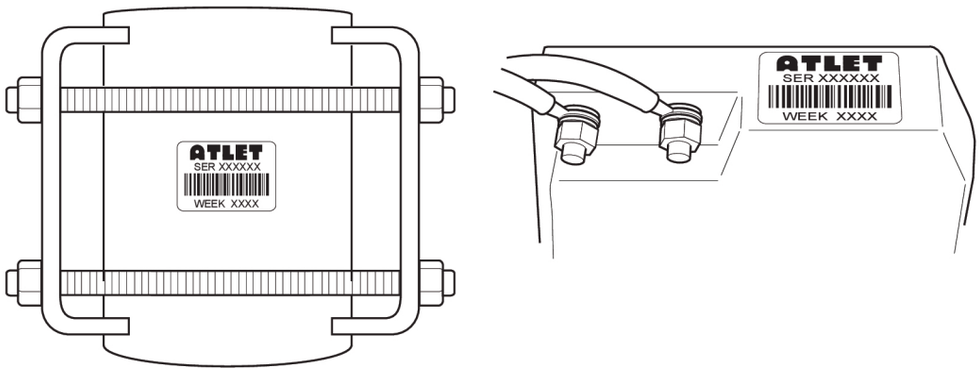


Figure 6. Example of a serial number label

1.5.2 Dimensions and weights

1.5.2.1 Dimensions

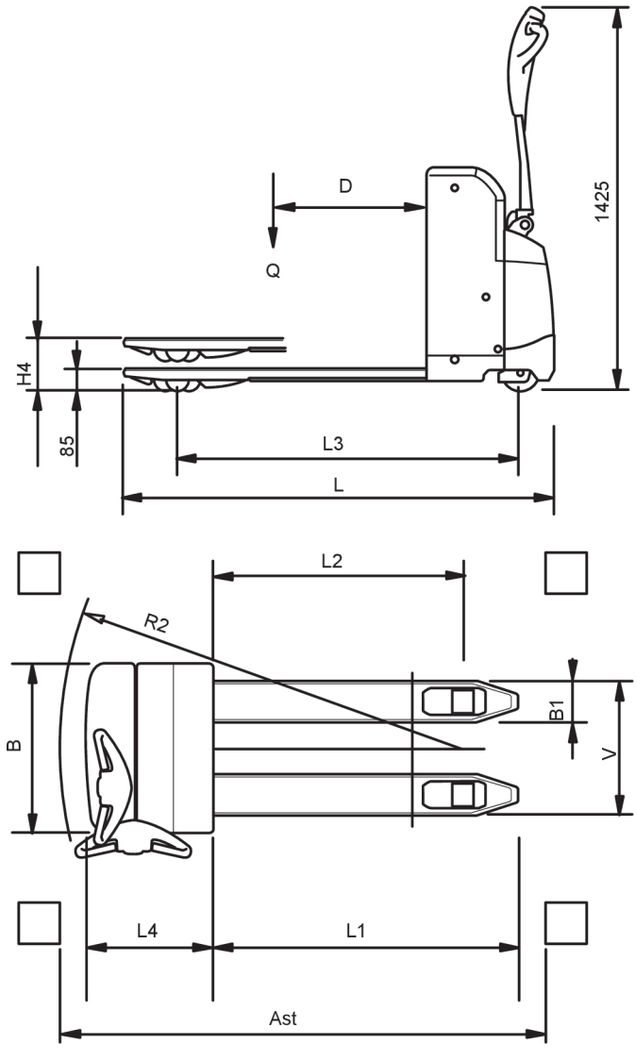


Figure 7. Positions for dimensions PLL

1.8.1.4 Conversion table, pressure units

Pa (N/m2)	Bar (1mb=1hPa)	at (kp/cm2)	torr (mm Hg, 0 C)	atm
1	10^{-5}	$1{,}020*10^{-5}$	$7{,}501*10^{-3}$	$9{,}869*10^{-6}$
$9{,}807*10^{4}$	0,9807	1	735,6	0,9678
133,3	$1{,}333*10^{-3}$	$1{,}360*10^{-3}$	1	$1{,}316*10^{-3}$
$1{,}013*10^{5}$	1,013	1,033	760	1

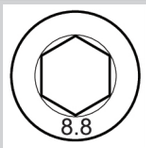
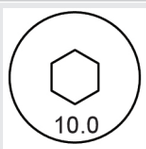
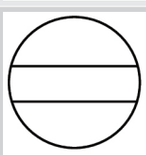
1.8.1.5 Conversion table, speed

m/s	km/h
1	3,6
0,278	1

1.8.2 Standard abbreviations and units

Magnitude	Unit	Designations
Current	Ampere	A
Voltage	Volt	V
Resistance	Ohm	Ω
Output	Watt	W
Torque	Newton metre	Nm
Pressure	Pascal	Pa
-	Kilo (=1000)	k
-	Mega (=1 000 000)	M

1.8.3 Screw types and tensile grades

	Screw type	Description	Tensile grade
	M6S	Hexagon screw	8,8 10,9
	MC6S	Hexagon hole screw	8,8 10,9 12,9
	MF6S	Hexagon hole screw, countersunk	10,9
	MCS	Slotted screw	4,6

03 SERVICE

3.1 Routine periodic maintenance

3.1.1 Introduction

Preventive maintenance should be carried out regularly when the truck is used in normal conditions. The planned service includes operations such as test driving, function tests, and the changing of filters and oils etc. Service is planned at different intervals depending on the running time of the truck. If the truck is working in extreme conditions or in demanding environments, servicing must be planned at tighter intervals.

NOTE!
For recommended oil and grease types, see Section 1.7, page 18.

3.1.2 Safety

NOTE!
Check under each separate section which safety instructions are applicable for work on the truck.

Inspection of the external functions in the power steering system should be carried out after every service and after work carried out in the electrical system. All functional tests of the safety system must be carried out with the truck speed controller in its neutral position, see Section 10, page 105.

3.1.3 Recommendation

Information on what the truck owner should take into consideration.

Regular inspection should be carried out by specially appointed and trained personnel with a good working knowledge of the function and maintenance of the truck. To obtain the best results from your investment in your truck we advise you to contact your local Atlet representative and to sign up for a service contract for regular inspection.

3.1.4 Daily inspection

For instructions, refer to the Operator´s Manual

3.1.5 Weekly inspection (30 hours of operation)

For instructions, refer to the Operator´s Manual

3.1.6 First service (200 hours)

The first service must be carried out after 200 hours. This service has the purpose of ensuring the function of the truck and its component parts.

- Change the oil in the gearbox.
- Test the function of the entire machine in accordance with Section 3.1.7, page 29

3.1.7 Main service

EN-1726 and ISO 3691 specify that regular preventive maintenance should be carried out on the truck. To guarantee high quality, operational reliability and personal safety, this maintenance should be carried out by Atlet Service or by personnel specially trained by Atlet. To comply with this requirement Atlet has prepared the following main service points (A service), which must be checked every 500 hours of operation, on condition that the truck is being used in normal conditions.

- Check for external damage on chassis.
- Check of weld joints at vital points.

3.1.11.3 Lubrication chart PSL/PSD

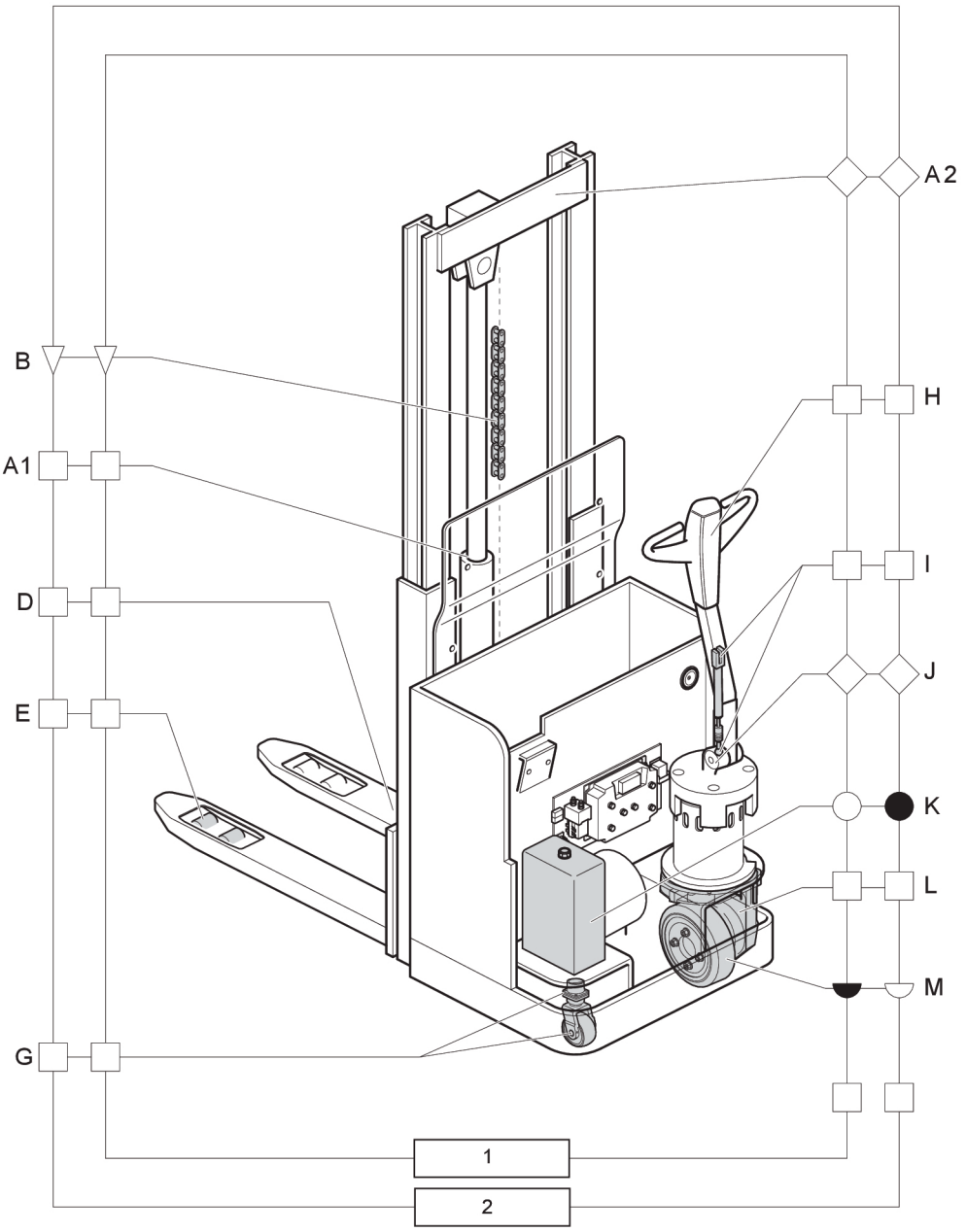


Figure 12. Lubrication chart.

1. 500 hour service
2. Annual service

For symbol key, see Table 24, page 40.

Servicing consists partly of servicing that is required due to how heavily the truck is loaded an how often it is used (see Section 3.1.9, page 30), and partly of annual routine servicing.

3.1.11.4 Components requiring lubrication

Location	Explanation	Location	Explanation
A1	Mast profile roller surfaces and slide surfaces	G	Castor wheel - sliding bearing, grease nipple
A2	Thrust rollers	H	Speed and brake controls - slide surfaces and springs

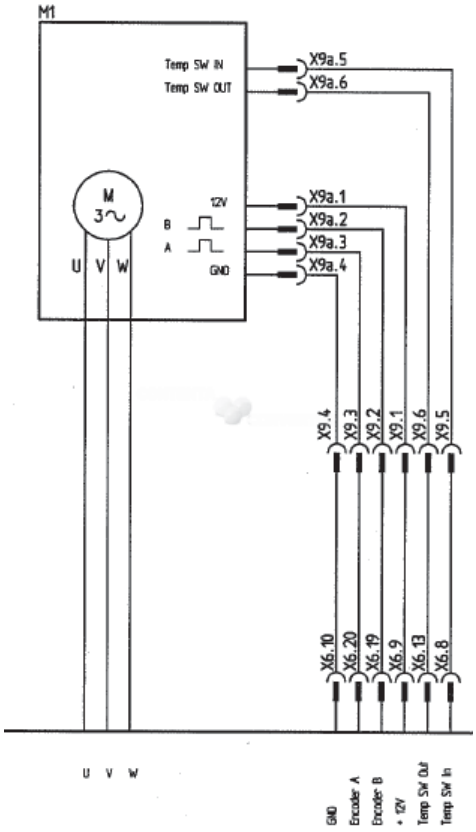
MASTER MANUAL

Machine: PLL PSD

Manual No: 119000

Edition 2012B

5 Drive unit



TractionMotorController - TMC

1. Measure the feed voltage between X 9,1 - 9,4 X. Approx. 12V.

2. Measure the channel A voltage at X9.3 - X9.4. About 4V when the motor is rotating, 0V or 8V when stationary.

3. Measure the channel B voltage at X9.2 - X9.4. About 4V when the motor is rotating, 0V or 8V when stationary.

3) Lift up the inner mast with truck's standard hydraulic system until the fork carriage is released.

CAUTION!
Observe great caution!

4) Reverse the truck away.

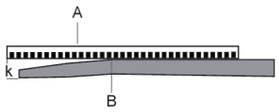
6.2.2.2 Inspection of welded fork carriages

6.2.2.2.1 General

CAUTION!
Inspection of the forks must be carefully performed by trained personnel.

The purpose of the inspection is to detect damage, faults, deformation, etc. A fork carriage showing this kind of damage may not be used until it has been repaired.

6.2.2.2.2 The fork blade is bent



A. Ruler
B. Deformation location

The fork blade must not be bent downwards by more than a certain proportion of the length of the fork. If the fork blade is bent too much, the fork carriage must be straightened or replaced.

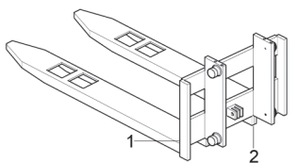
l= fork blade length in mm.

k= measurement in mm between the fork blade tips and a ruler.

Measurement when a blade must be straightened: greater than k=l/33. Example: k=1150/33= 34 mm.

NOTE!
Repairs must be carried out by a licensed welder.

6.2.2.2.3 Crack formation



1. Front welded joints
2. Rear welded joints

Check whether the forks are cracked. Take extra care when welding joints at the front (item 1) and rear (item 2). If cracks are detected, the fork carriage must be replaced or repaired.

NOTE!
Repairs must be carried out by a licensed welder.

7.2.3.4 Fitting the main cabling

Securing the tiller arm main cabling

The cabling is secured by cable clips to the tiller arm head. The cabling is secured inside the truck by cable ties to the motor.

CAUTION!
The cabling must have enough slack so that the arm can be lowered to its lowest position without straining the cable. It must also be possible to open the upper part of the tiller head with being restricted by the cabling.

CAUTION!
The cabling must not be so long that the programming cable takes the load when the upper part is hanging on the cabling.

Cable routing, standard version

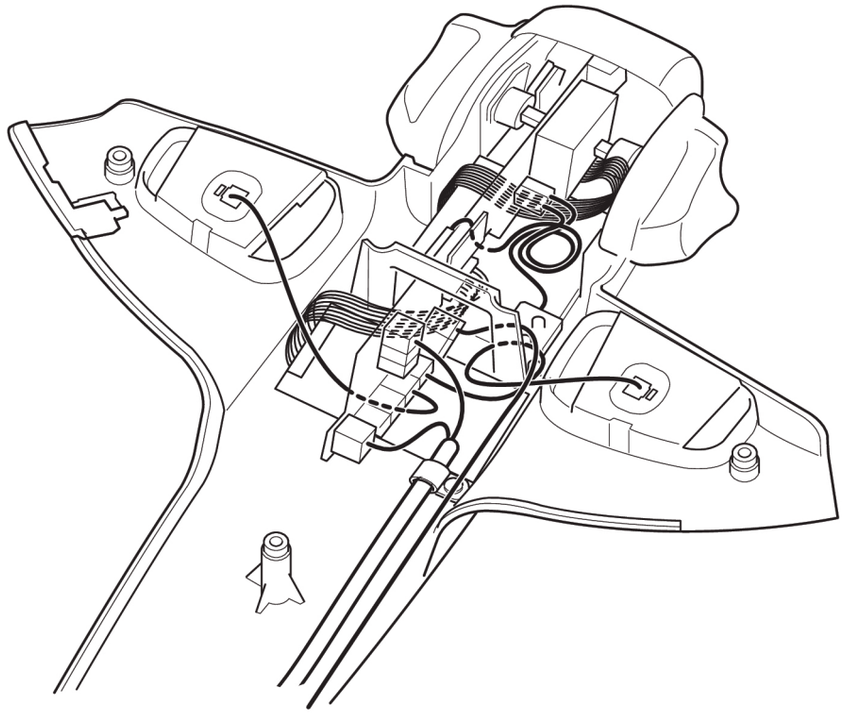


Figure 23. Cable routing, standard version

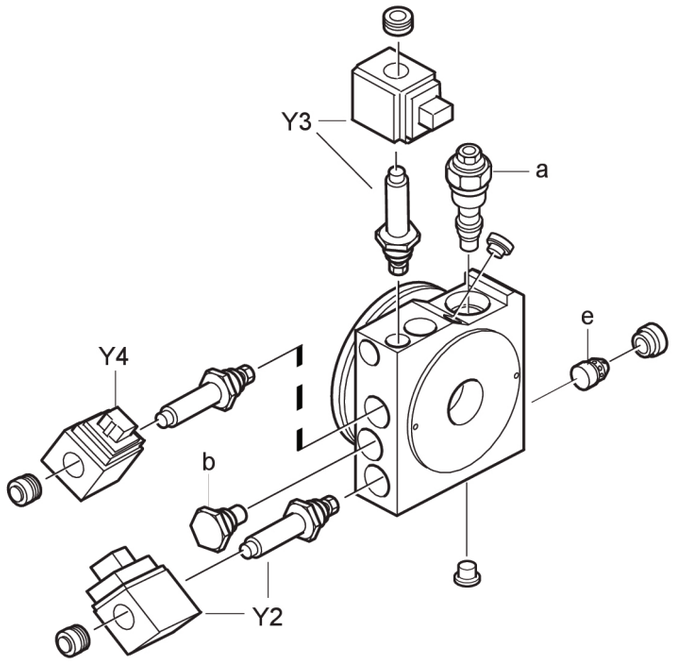


Figure 31. Hydraulic unit, PSD PLE (2008w39-)

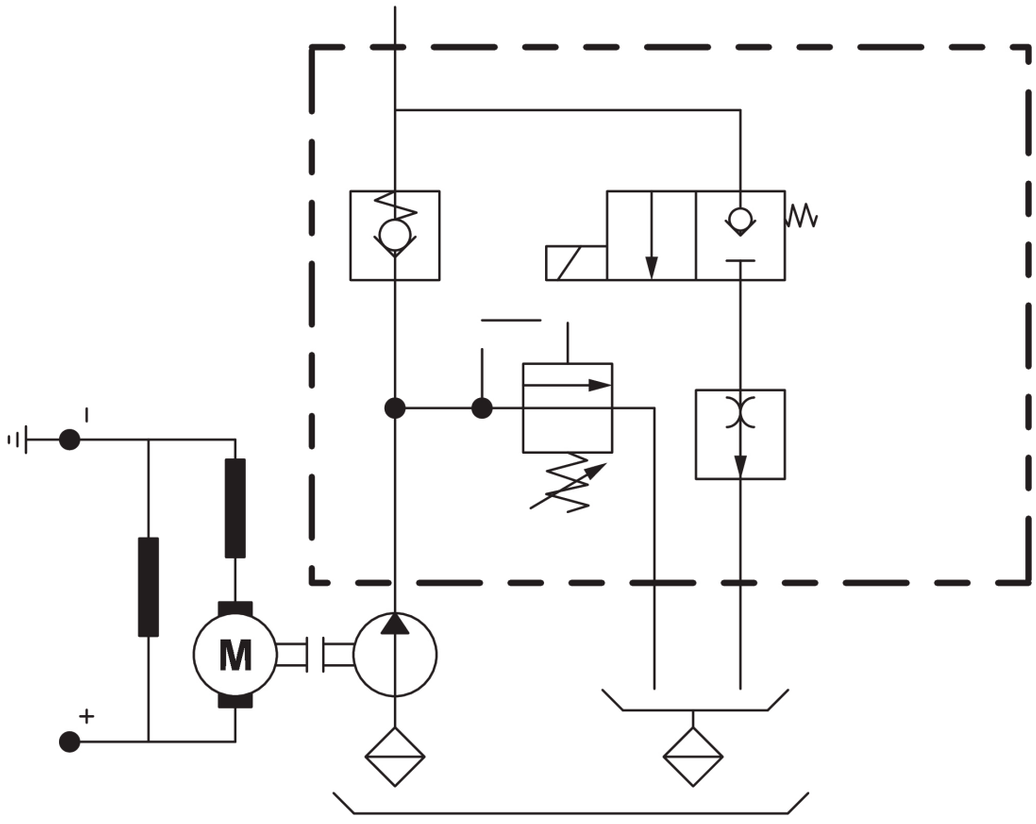


Figure 32. Hydraulic schematic diagram, hydraulic unit PLL (-2009w44)

8.2.3.4 Tips for prolonging the service-life of the motor

- The rapid wearing of carbon brushes and the commutator is often caused by oil. Oil or grease is burned by the sparks produced at the brushes, and leaves a residue of abrasive ash. If oil or grease is detected in the motor the reason for this must be eliminated immediately.
- Never overload the motor. Brushes that have been severely overheated expand permanently and can fasten in the brush holders.
- The service-life of the brushes does not only depend on the loading, but also on how worn the commutator is. The commutator should have smooth, level and greyish black surface. A worn commutator must be machine milled (never use abrasive paper, grindstone or a file!) to a surface finish of Ra = 0.8-1.8µm and a maximum runout of 0.03 mm (with the rotor resting in the bearing seats). The service-life of the commutator is prolonged if it is machined a little and often, rather than seldom and a lot. The minimum permitted diameter of the commutator is 40.8 mm.
- The motor must not be exposed to full load immediately after changing the brushes.
- Look for signs of overheating on the windings, dark patches, brittle or burned insulation, and damage to the soldering on the commutator. The electric motor should be replaced if such damage is found.
- If possible, remove dust and dirt from inside the motor with compressed air.
- A dirty commutator should always be cleaned with a cloth moistend with petrol (do not used cotton rags since these shred fibres), and carefully blown dry with compressed air.
- If the bearing cup looks as if it has run out of oil (i.e. if there is a lot of oil on the rotor washer or brush holder) lubricate it with a little bearing grease.

8.2.4 Hose rupture valve

8.2.4.1 Dismantling and assembling

1) Lower the forks and relieve the pressure.
2) Place protective paper under the cylinder to be repaired.
3) Loosen the pipe or hose that goes to the cylinder, and plug it.
4) Remove the nipple placed in the cylinder.
5) Unscrew the hose rupture valve (item 1, see Figure 40, page 95) that is screwed into the cylinder.

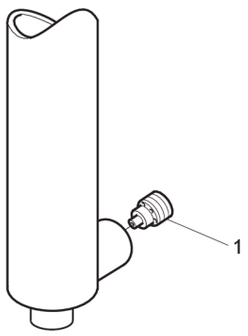


Figure 40. Hose rupture valve

6) If a fault is suspected, check the length of the spring in relation to the table or data sheet. Adjust, or fit a new valve.
7) Fit the nipple, connect the pipes, and wipe clean.
8) Test run.

9.2 Repair and maintenance instructions

9.2.1 General

9.2.1.1 Bleeding of cylinders with air screw

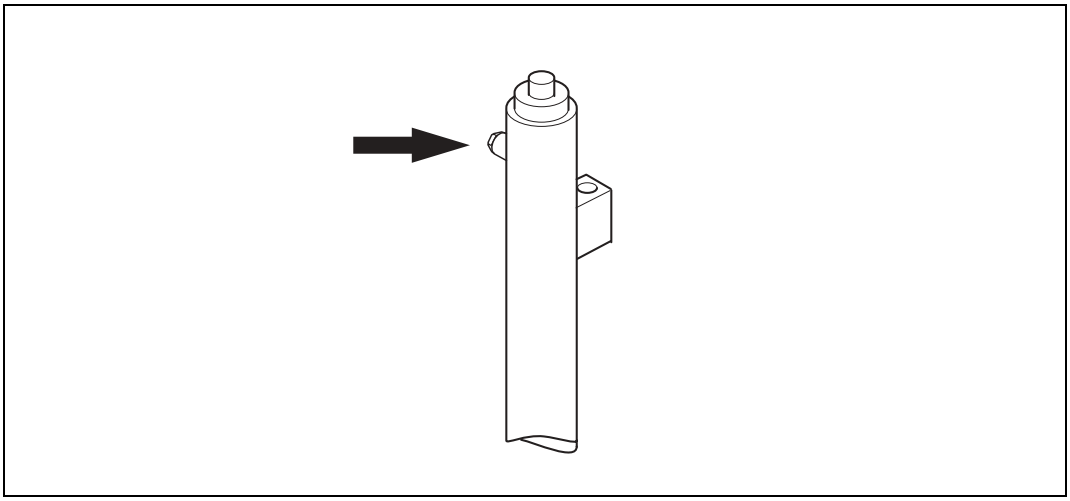


Figure 9.3 Example, air screw.

When bleeding, the air screw must be opened no more than approx. a half turn. If the air screw is opened completely the oil will spurt out and the forks crash uncontrollably to bottom position. The hose rupture valves do not function in this phase.

1. Open the air screw a maximum of approx. one half turn.
2. Check that there is sufficient oil in the hydraulic tank and that the pump does not suck air.
3. Carefully run the cylinder repeatedly between its end positions.
4. When oil without air bubbles comes in the tank the cylinders have been bled.
5. Adjust the oil level in the hydraulic tank.
6. Repeatedly lift from bottom to top position.
7. Check that the forks do not bounce, if so repeat the bleeding again.

9.2.1.2 Bleeding of cylinders without air screw

Cylinders without air screws are bled by running the cylinder repeatedly between its end positions.

☞ ***Important!***

Check the oil level regularly.

1. Switch on the voltage to the truck.
2. Go into “Lowering high“ (*Service menu » Settings » Battery » Lowering high*). This parameter ((0-9) determines how quickly BDI reduces the indicated level when the battery has just been charged.
   - If the indication does not show 100% after a complete charging cycle, or falls too quickly in the range 100%-60%, this parameter must be reduced.
   - If the indication falls too slowly in the range 100%-60%, this parameter must be increased.
3. Go into “Lowering low“ (*Service menu » Settings » Battery » Lowering low*). This parameter ((0-9) determines how quickly BDI reduces the indicated level when the battery is almost discharged.
   - If the indication falls too quickly in the range 60%-20%, this parameter must be reduced.
   - If the indication falls too slowly in the range 60%-20%, shows too high a battery status, or if the truck stops due to a low voltage level alarm, this parameter must be increased.

10.2.3 General handling

10.2.3.1 Keyboard operation

The keyboard is used for driver identification, settings, and for diagnostics. The keyboard consists of 12 keys, which have different functions depending on which position the system is in.

Table 30. 10.2

Key:	Input mode:	Function in Operation mode:	Service mode:
0	Enter a zero.	-	-
1	Enter an eight.	-	-
2	Enter a two.	Switch between creep speed and full speed.	Step one step down in the menu tree.
3	Enter a three.	-	-
4	Enter a four.	-	Step one step to the left in the menu tree.
5	Enter a five.	-	-
6	Enter a six.	-	Step one step to the right in the menu tree.
7	Enter a seven.	-	-
8	Enter an eight.	Set the truck to full speed.	Step one step up in the menu tree.
9	Enter a nine.	-	-
i	-	Set the truck to standby mode, or else log off. See Section 10.2.3.2, page 114.	Steps to the upper menu level loop if pressed during input in the upper level.
ENT	Used to accept the shown value.	-	Used to select the shown menu alternative.

10.2.8.9 Calibration of lifting and lowering controller (ATC T4mk2, 2007w28–)

NOTE!
The lifting and lowering controller must be calibrated for both ON/OFF and proportional regulation.

1) Navigate to *Service menu » Calibrate » Lift/Lower*. The following display appears:

```
Lift control to 0
press ENT
```

2) Check that no controllers are activated. Then press ENT. The following display appears:

```
Give full lifting
press ENT
```

3) Press lift completely down on the right lifting and lowering control. Then press ENT.

4) The following display then appears:

```
Give full lowering
press ENT
```

5) Press lower completely down on the right lifting and lowering control. Then press ENT.

6) The display shows whether the calibration was successful or not. (only software 2.23–)

```
OK!
Press ENT
```

```
Not accepted
Press ENT
```

7) The following display appears:

```
Signal check:
x. xV Out: xxx%
```

In this menu it is now possible to check that the calibration is correct. The signal check must show the following values:

- With lifting activated: 4.7 V (± 0.1 V)
- Neutral (control not activated): 2.7 V (± 0.1 V)
- With lowering activated: 0.6 V (± 0.1 V)

Press ENT.

8) Repeat the same calibration procedure for the left lifting and lowering control by selecting Channel 2, and performing steps 1-6. Finish after this with ENT.

9) Exit the Atlet menu by going to Exit and pressing Enter.

10) Disconnect the battery and then restart the truck.

11) Perform a functional test of the lifting/lowering functions.

10.2.8.10 Adding a new driver

New drivers can be added via the Set Access menu. Select Operator to add a new driver.

1) Select new/update, and press enter.

An explanation of the different interlock conditions is available under Section 10.2.8.22, page 128.

10.2.9.6 Printing of statistics

A function is available under customer service to print out all statistic functions, either individually or all at once. For this Any serial printer or a PC can be used for this purpose.

10.2.9.7 ATC connector

ATC, connector and pin numbering. Connections seen from above.

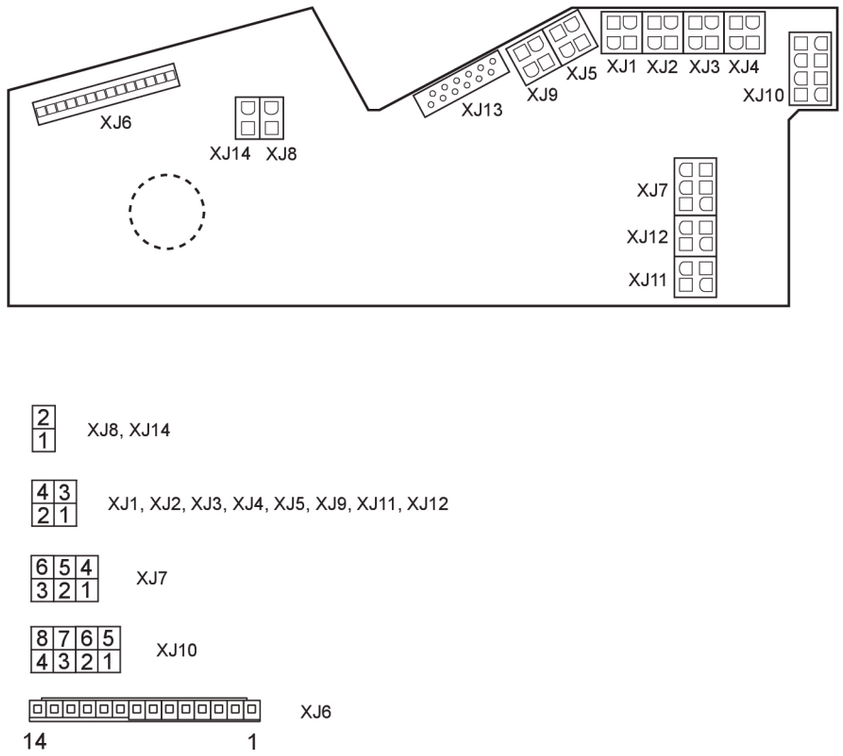


Figure 57. Cortex card

10.2.9.8 Digital I/Os

Digital inputs ATC

There are 12 digital inputs on the ATC card, of which seven are used for the pushbuttons on the tiller arm. The pushbuttons control the functions lift/lower, the horn, Tiller-up drive, and the raising/lowering of the straddle lift. The signal voltage is 5 V.

The other five digital inputs are not used in these truck models. The fact that the inputs are read by the ATC can easily be confirmed in the Atlet service menu by selecting Test => Inputs, and then activating the different functions.

The signal supply of approx. 5V is on pin no 1 in the following connectors:

Connector	Functionality	Comment
XJ1.3	Lift PLL/Lift straddle lift PSD	
XJ2.3	Lower PLL/Lower straddle lift PSD	
XJ3.3	Lift	
XJ4.3	Lower	

Fault code indications	Class	Explanation	Control/Procedure
E118 TMC pulse transducer error	B	Error on the signal from the transducer bearing in the drive motor	Check and measure the transducer in accordance with the trouble shooting chart: Section 10.3.1.4.4, page 151.
E119		Not used	
E120 TMC EEPROM error	C	EEPROM set to default. Error in the range that includes adjustable values.	The battery settings have probably been lost. See Section 10.2.2.1, page 112.
E121 TMC controller temperature	Warning C	The internal temperature monitor has exceeded the 75° C warning level. The current is limited in relation to the temperature. TMC stops completely at 100°C.	1. See Trouble shooting: Section 10.3.1.4.7, page 153. 2. Change the TMC
E122 TMC motor temperature	Warning C	The drive motor temperature has exceeded the warning level.	1. See Trouble shooting: Section 10.3.1.4.6, page 153
E123 TMC generic	Warning C	Generic warning	Try restarting a few times. If the error does not disappear, change TMC. **NOTE!** The fault is probably logged together with E115, but should normally never occur. If E135 or E123 still logs, this should be reported to the service function at UniCarriers

4. Check that there is 24V on the brake switch contact X4.3 when the arm is in drive position. Also check that there is a connection between X4.3 och X7.1. If not, repair or change the cabling, or alternatively change the brake switch S9 if this does not work.

Fault trace completed

5. There is either a mechanical or an electrical fault in the brake. The resistance must be approx. 23 Ω. Test if the brake functions if it is released from the motor. If not, change the brake.

Fault trace completed

Fault trace completed

10.3.1.4.6 High temperature in drive motor E122

If other error codes are logged, rectify those first. The drive motor may have become overheated because it has been run over its performance level for a long period. Check motor and gearbox.

For information on temperature log, see Section 10.2.8.15, page 126Section 10.2.8.15, page 126.

1. Is the warning also given when the motor is cold?

Yes: Step 3 **No:** Step 2

2. The truck may have been driven over its maximum performance. There may be a fault on the motor or gearbox. Temporarily reduce the drive performance.

Fault trace completed

3. Check that the cabling connection between X6.8 and X9.5 is OK and has low-resistance, and do the same for X6.13 and X9.6. If not, repair or change the cabling. If the cabling is OK there is a fault on the temperature sensor, and error code E126 has probably been logged. The temperature sensor resistance at room temperature must be approx. 940 Ω, with increased resistance at rising temperature. This means that a cable break or a break in the sensor causes a max temperature alarm. Temperature sensing can be temporarily removed by connecting an external resistance of 1 kΩ ½u. In order to repair the temperature sensing, the motor must be cooled down.

Continue with: Step 4

4. Did this solve the problem? If not, change TMC.

Fault trace completed

Fault trace completed

10.3.1.4.7 The traction motor loses power and the speed slowly reduces

High temperature in drive controller, error code E121 may be logged. A warning text is normally shown in the display.

The TMC begins to linearly reduce the motor current at 75°C and stops it completely at 100°C. If the fault occurs with a cold controller there is probably an fault in the TMC internal temperature monitoring. If other error codes are logged, start the trouble shooting by rectifying these first. Otherwise, change the controller.

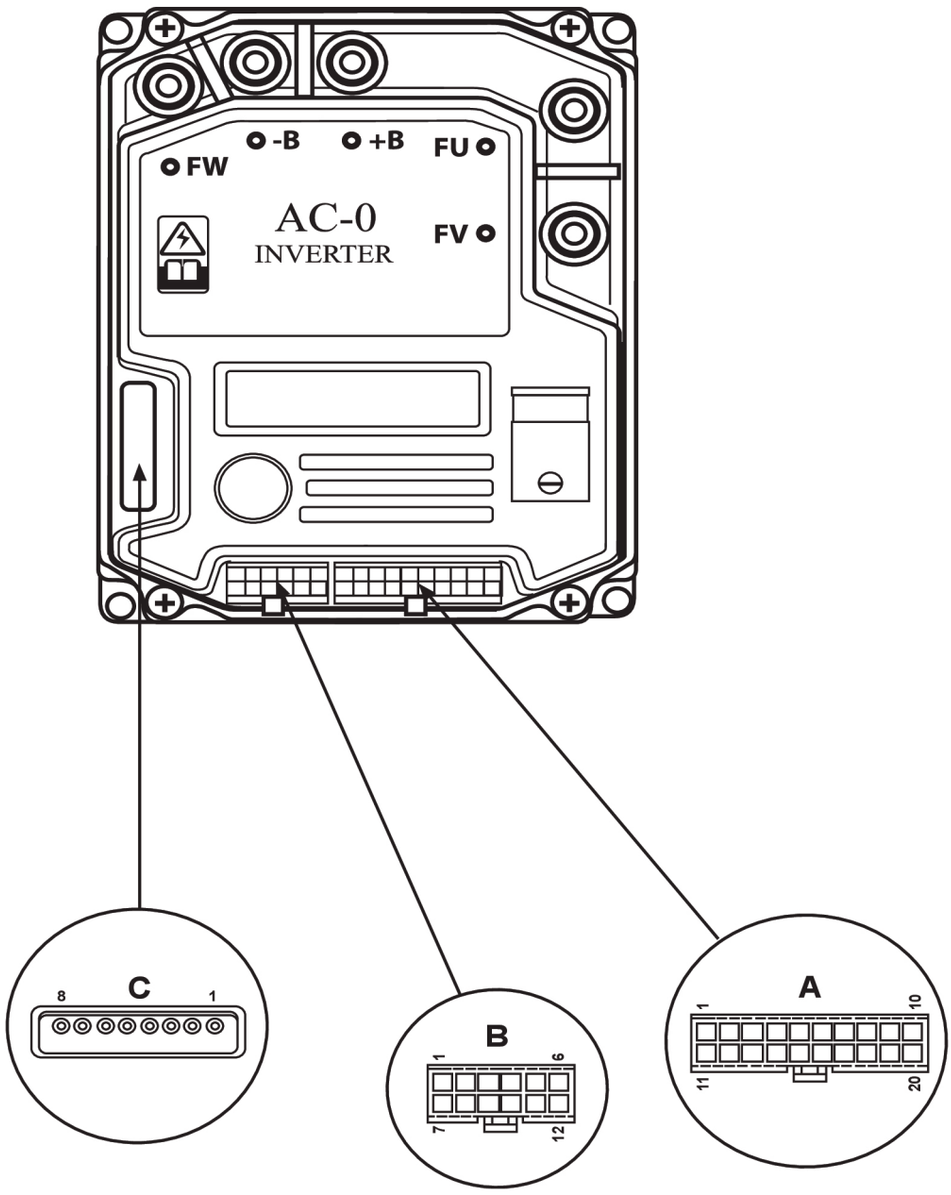


Figure 58. Controller connectors

Table 38. Port descriptions

PIN	Functionality	Description
A1	NLC	Main contactor coil minus output
A2	PLC, PEB/PHYD	Main contactor coil or electromagnetic brake plus output, respectively the servo control contactor plus output
A3	NBRAKE/ NHYD	The electromagnetic brake or servo control minus output (depending on the selection AUX OUTPUT #1), max. current 3 A
A4	NPC	Pump contactor minus output
A5	PPC, PEV	Pump contactor coil and lowering valve plus output
A6	NEV	Lowering valve coil minus output

10.6.5 Calibrating (ADJUSTMENTS)

Table 41. Calibrating (adjustments)

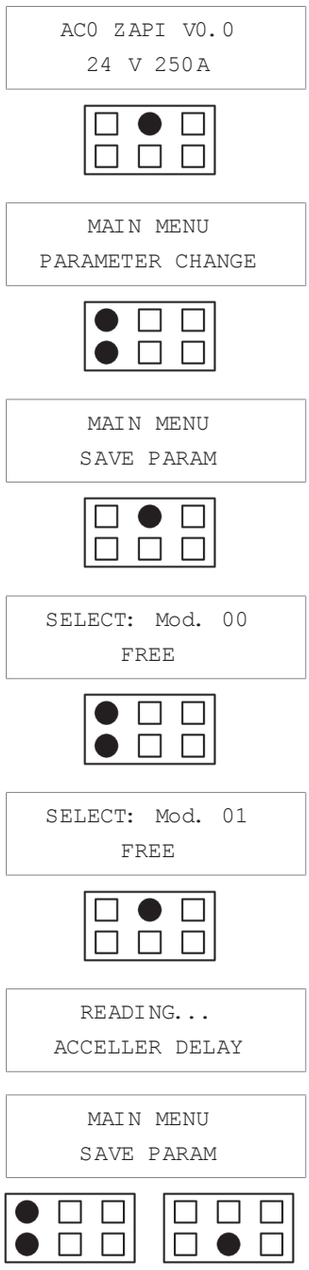
SET POT BRK MIN (only the standard version)	Not used.
SET POT BRK MAX (only the standard version)	Not used.
MOTOR OVERTEMP	Set point for triggering the error message MOTOR TEMPERATURE Only an alarm message is triggered, there is no reduction
SET MOT TEMP	The motor temperature that is measured by the controller is synchronised with the actual motor temperature. This may be necessary, if for example the temperature monitor has not been fitted into the coil
MIN LIFT (only the MDI PRC version)	Minimum value for the lift potentiometer. Not used.
Programming:	Select the respective menu alternative. The most recent saved value is displayed. Press ENTER. Move the lift joystick just as much as is needed for the microswitch to close and for the displayed voltage to reach its lowest value. Then press OUT followed by ENTER to save
MAX LIFT (only the MDI PRC version)	Maximum value for the lift potentiometer. Not used.
Programming:	Select the respective menu alternative. The most recent saved value is displayed. Press ENTER. Move the "lift" joystick just as much as is needed for the microswitch to close and for the displayed voltage to reach its highest value. Then press OUT followed by ENTER to save
MIN LOWER (only the MDI PRC version)	Minimum value for the lowering potentiometer. Not used.
Programming:	Select the respective menu alternative. The most recent saved value is displayed. Press ENTER. Move the "lowering" joystick just as much as is needed for the microswitch to close and for the displayed voltage to reach its lowest value. Then press OUT followed by ENTER to save
MAX LOWER (only the MDI PRC version)	Maximum value for the lowering potentiometer. Not used.
Programming:	Select the respective menu alternative. The most recent saved value is displayed. Press ENTER. Move the "lowering" joystick just as much as is needed for the microswitch to close and for the displayed voltage to reach its highest value. Then press OUT followed by ENTER to save
SET BATTERY TYPE	Setting the nominal battery voltage
Programming:	Select the respective menu alternative and set the nominal voltage of the battery using the SET UP or SET DOWN buttons.
ADJUST BATTERY	The battery voltage that is measured by the controller is synchronised with the actual battery voltage. This may be necessary if, for example, the voltage drop in the voltage supply cable (key switch) is relatively high.

The following data is saved:

- all parameter values (PARAMETER CHANGE)
- configuration of alternatives (SET OPTIONS)
- calibration values (ADJUSTMENT)

The function SAVE PARAM on the programming panel:

1. Information menu
2. Press ENTER to access the menu.
3. The first menu PARAMETER CHANGE is displayed.
4. Using ROLL UP and ROLL DOWN it is possible to scroll between the different menus.
5. The menu SAVE PARAM is displayed.
6. Press ENTER to access the menu.
7. The first line shows the memory location number, the second shows the type of controller or "FREE" if the location has not been assigned.
8. Use ROLL UP and ROLL DOWN to scroll between the different program positions (memory locations).
9. A new location is displayed.
10. In order to save the controller settings at this position press ENTER.
11. The second line shows the parameters that are about to be saved, in sequence.
12. When the process has been completed, the menu heading SAVE PARAM is displayed.
13. Select another menu with ROLL UP or ROLL DOWN or return to the Information menu by pressing OUT.



10.6.9 Restore the settings (RESTORE PARAM)

Only with the panel program version 3.12 or higher

The data saved in the panel can be recovered to another controller of the same type by using the RESTORE PARAM function.

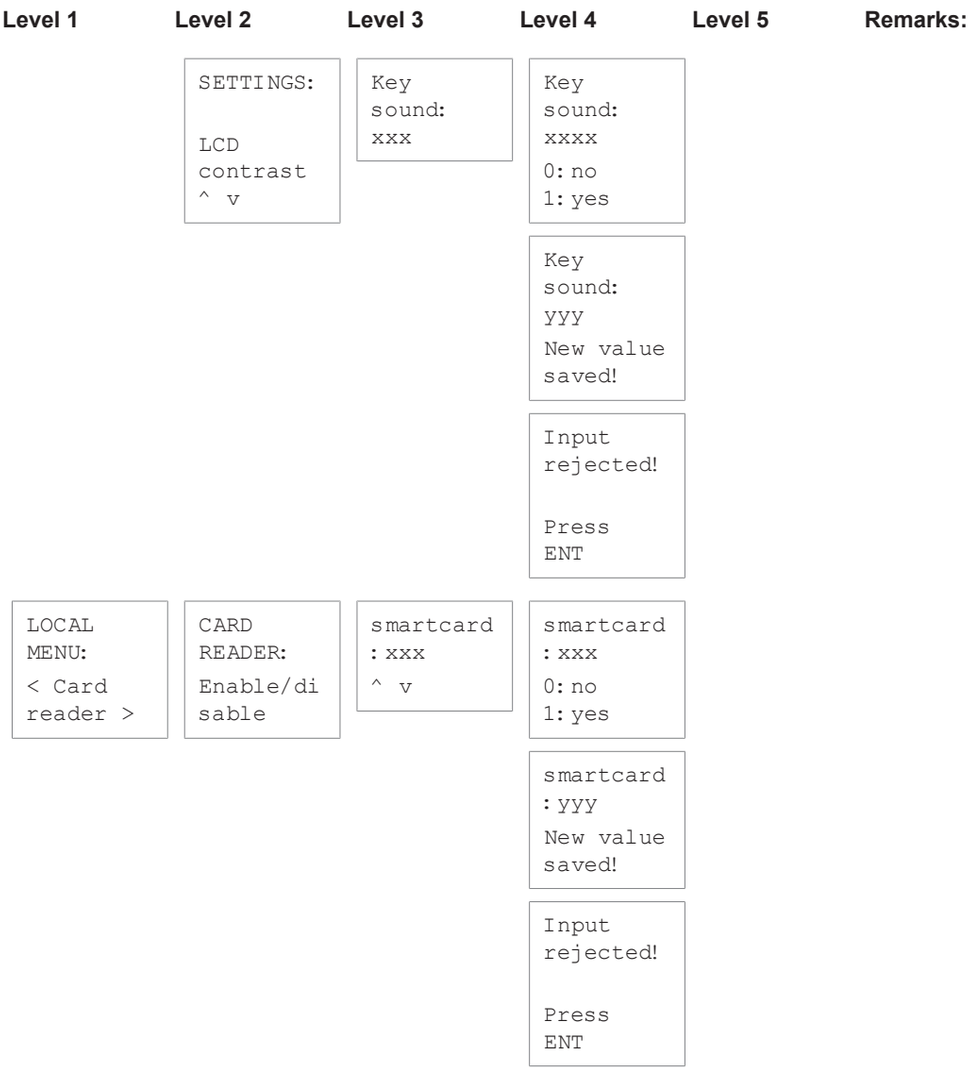
Index	MDI fault code	Panel fault code	Fault description	Cause/solution
22	02A60/AL60	CAPICITOR CHARGE	Test during self-monitoring at starting. The controller tries to charge the capacitors via a current resistance. If this fails for a certain time period, an alarm is triggered. Main contactor does not close.	• The connection to the current resistance is open - > change the controller. • Charging circuit defective -> change the controller • power unit defective -> change the controller • check that the motor cabling has not become disconnected -> depending on the phase the disconnection controller detects AL60 instead of AL31
23	02A78/AL78	VACC NOT OK	Test at stopping. If the potentiometer signal voltage is greater than 1 V the minimum value is saved and an alarm is triggered.	• The connection wiring to the potentiometer is disconnected • The potentiometer is connected incorrectly • The potentiometer is defective or has no setting • PROGRAMM VACC is not operating or is being incorrectly used. (calibration)
24	AL06	SERIAL ERROR #1	No communication with the connected controller.	Check the serial connections, change the MDI and/or the controller (only MDI fault)
25	02A65/AL65	MOTOR TEMPERATURE	The traction motor maximum temperature has been reached. The value can be set with the parameter (MOTOR OVERTEMP).	One of the drive motors is too hot - > check by measuring the temperature, check the motor in respect of its earth connection, check the wiring, check the motor temperature setting -> if necessary set the actual ambient temperature.

		-> Motor temperature	°C		
		-> Accelerator	V		
		-> Lifting control	V		
		-> Lifting switch	ON/OFF		
		-> Descent switch	ON/OFF		
		-> Digital input # 1	ON/OFF		
		-> Digital input # 2	ON/OFF		
		-> Forward switch	ON/OFF		
		-> Backward switch	ON/OFF		
		-> Handle/seat switch	ON/OFF		
		-> HS cutback	ON/OFF		
		-> Quick inversion	ON/OFF		
	-> Save parameter				
	-> Restore parameter				
	-> Alarms				
	-> Program VACC				
	-> Motor data				
* CONFIGURATION MENU *	-> Set modell	-> Modell type	0-255	2	

		-> Throttle 0 zone	0 - 17 %	9 %
		-> Throttle x zone	18 - 100 %	45 %
		-> Throttle y zone	4 - 100 %	25 %
		-> Adjustment #01	Level 0-9	Level 6
		-> Adjustment #02	Level 0-9	Level 9
		-> Load HM from MDI	ON / OFF	OFF
		-> Check up done	ON / OFF	OFF
		-> Check up type	None / option #1 / option #2 / option #3 / option #4	None
* ZAPI MENU *	-> Special adjustments	-> Adjustment #1	fixed value	100 %
		-> Adjustment #2	fixed value	98 %
		-> Set current	0 - 1000 A	150 A
		-> Set temperature	fixed value	25 °C
		-> Aux function 1	fixed value	Level 15
		-> Aux function 2	fixed value	Level 15
	-> Hardware settings	-> AC type 0	ON / OFF	ON

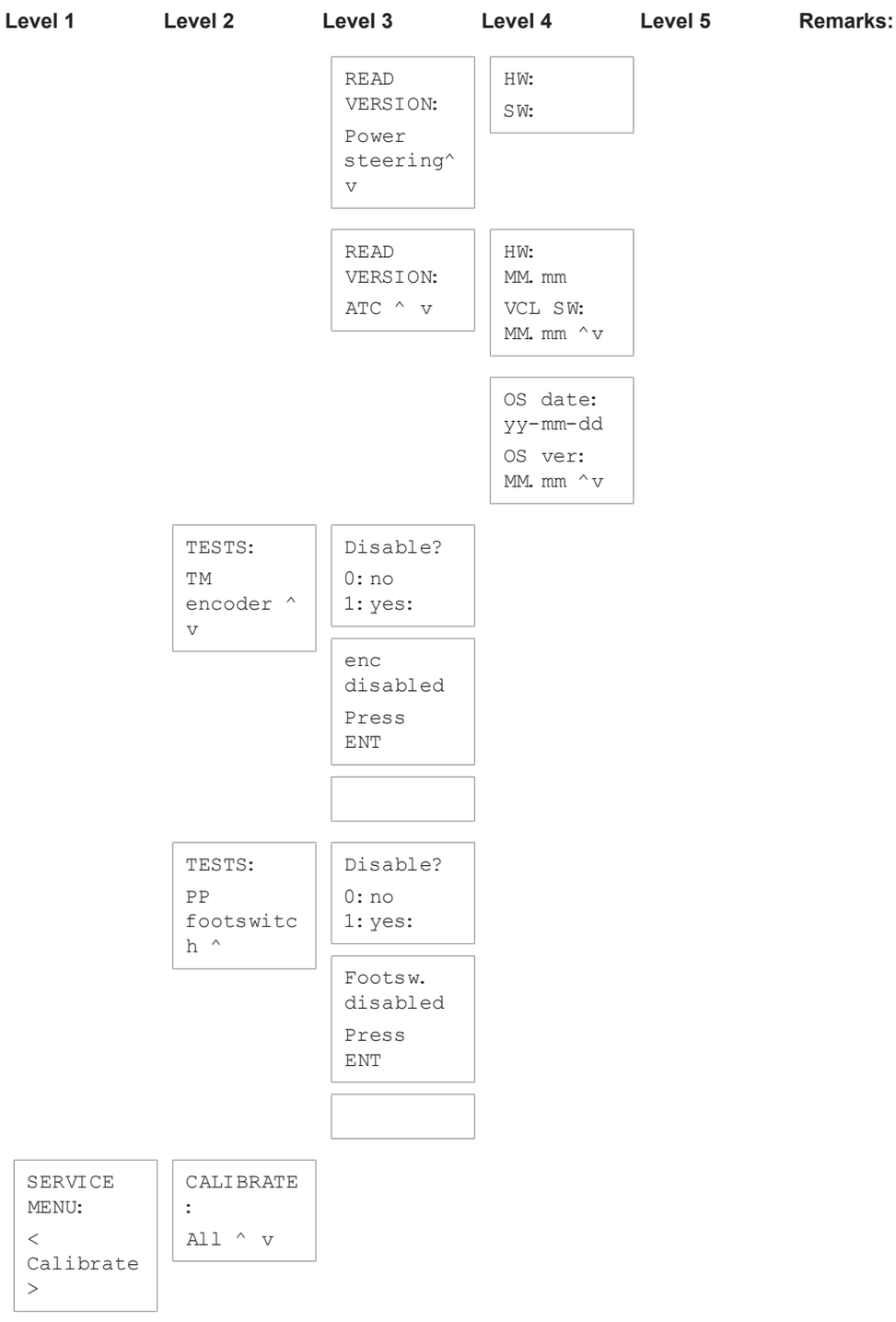
	-> Set current	0 - 1000 A	150 A
	-> Set temperature	fixed value	25 °C
	-> Aux function 1	fixed value	Level 15
	-> Aux function 2	fixed value	Level 15
-> Hardware settings	-> AC type 0	ON / OFF	ON
	-> Compensation	ON / OFF	ON
	-> Slip control	ON / OFF	ON
	-> DC-link compensation	ON / OFF	ON
	-> Sat frequency	0 -100 Hz	75 Hz
	-> Braking modul	0 - 200 Hz	75 Hz
	-> Minimum voltage	0 - 100 %	2 %
	-> Boost at low frequency	0 - 100 %	45 %
	-> Boost at high frequency	0 - 100 %	45 %

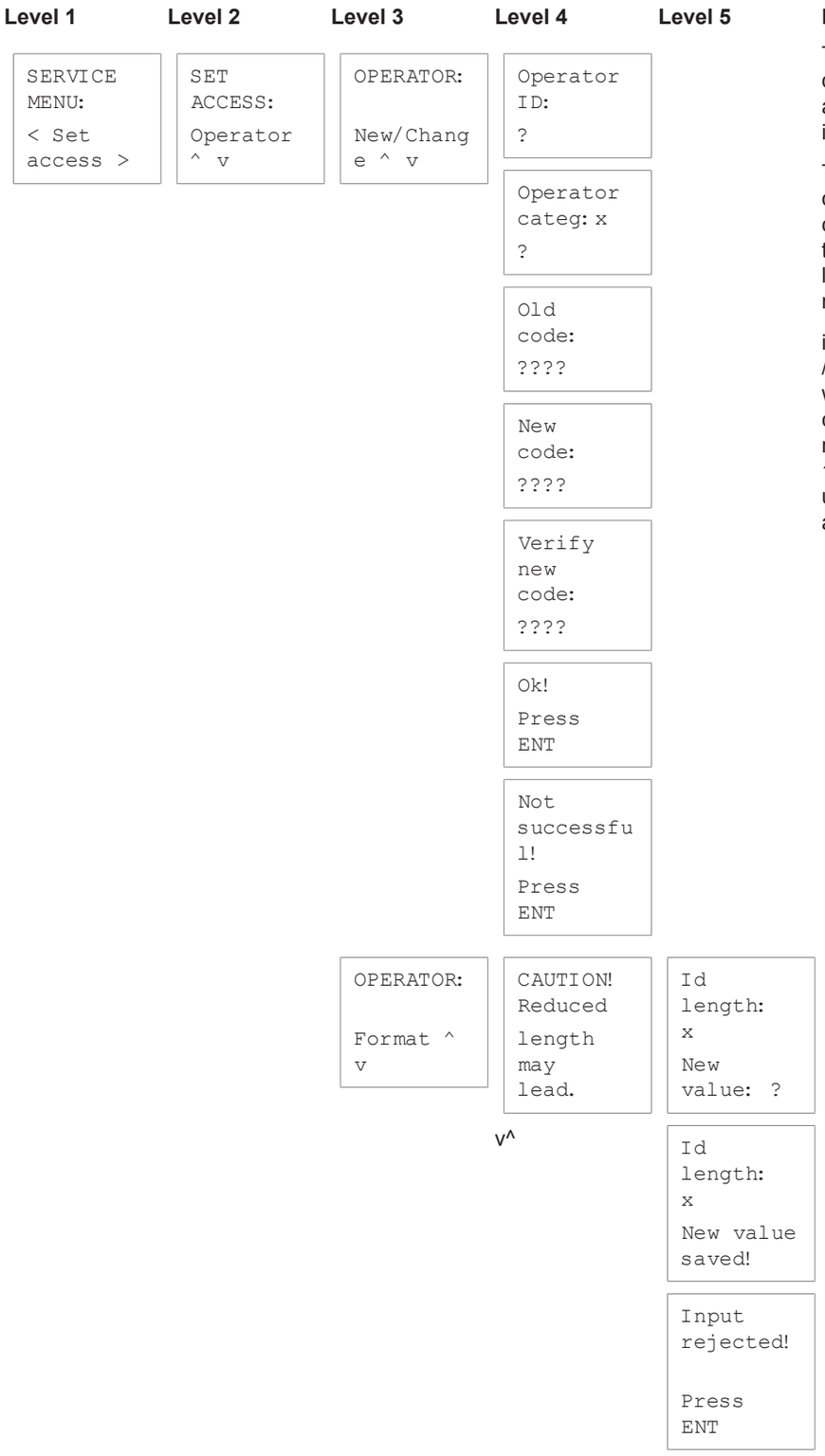
		-> Option 04	Level 0-9	0
		-> Option 03	Level 0-9	0
		-> Option 02	Level 0-9	0
		-> Option 01	Level 0-9	0
* ZAPI MENU *	-> Special adjustments	-> Adjustment #1	fixed value	100 %
		-> Adjustment #2	fixed value	98 %
		-> Set current	0 - 1000 A	150 A
		-> Set temperature	fixed value	25 °C
		-> Aux function 1	fixed value	Level 15
		-> Aux function 2	fixed value	Level 15
	-> Hardware settings	-> AC type 0	ON / OFF	ON
		-> Compensation	ON / OFF	ON
		-> Slip control	ON / OFF	ON


Level 1
Level 2
Level 3
Level 4
Level 5
Remarks:
SETTINGS:
LCD contrast
^ v
Key sound: xxx
Key sound: xxxx
0: no
1: yes
Key sound: yyy
New value saved!
Input rejected!
Press ENT
LOCAL MENU:
< Card reader >
CARD READER:
Enable/disable
smartcard: xxx
^ v
smartcard: xxx
0: no
1: yes
smartcard: yyy
New value saved!
Input rejected!
Press ENT

Level 1	Level 2	Level 3	Level 4	Level 5	Remarks:
	Reverse ind : xxx ^ v	Reverse ind : xxx 0: no 1: yes			
		Reverse ind : yyy New value saved! !			
		Input rejected! Press ENT			
	Raise steer : xxx ^ v	Raise steer : xxx 0: no 1: yes			
		Raise steer : yyy New value saved! !			
		Input rejected! Press ENT			
	Stop on ramp : xxx ^ v	Stop on Ramp : xxx 0: no 1: yes			
		Stop on ramp : yyy New value saved! !			
		Input rejected! Press ENT			

Level 1	Level 2	Level 3	Level 4	Level 5	Remarks:
			Speed ctrl: xxxx x ^ v	Speed ctrl: xxxx x 0: Valve 1: Motor	
				Speed ctrl: yyyy y New value saved!	
				Input rejected! Press ENT	
			Raise min: xxx% ^ v	Raise min: xxx New value: ?	Refers to [valve PWM] or [pump motor speed] depending on choice above.
				Raise min: yyy New value saved!	Note that the min/max parameters only are used if speed control are selected.
				Input rejected! Press ENT	
			Raise max: xxx% ^ v	acc to above!	
			Lower min: xxx% ^ v	acc to above!	
			Lower max: xxx% ^ v	acc to above!	
			Breakp: xxx% ^ v	acc to above!	Defines the ouput signal level at 50% of the input signal


Level 1
Level 2
Level 3
Level 4
Level 5
Remarks:
READ VERSION: Power steering^ v
HW: SW:
READ VERSION: ATC ^ v
HW: MM.mm VCL SW: MM.mm ^v
OS date: yy-mm-dd OS ver: MM.mm ^v
TESTS: TM encoder ^ v
Disable? 0: no 1: yes:
enc disabled Press ENT
TESTS: PP footswitch ^
Disable? 0: no 1: yes:
Footsw. disabled Press ENT
SERVICE MENU: < Calibrate >
CALIBRATE: All ^ v



Remarks:

The level 3 displays are always followed in sequence.

The no of question marks corresponds to the chosen id length (ATLET menu).

invalid old code / verifyed code wrong / category out of range (1..4) / all 100 user ID's used / no access