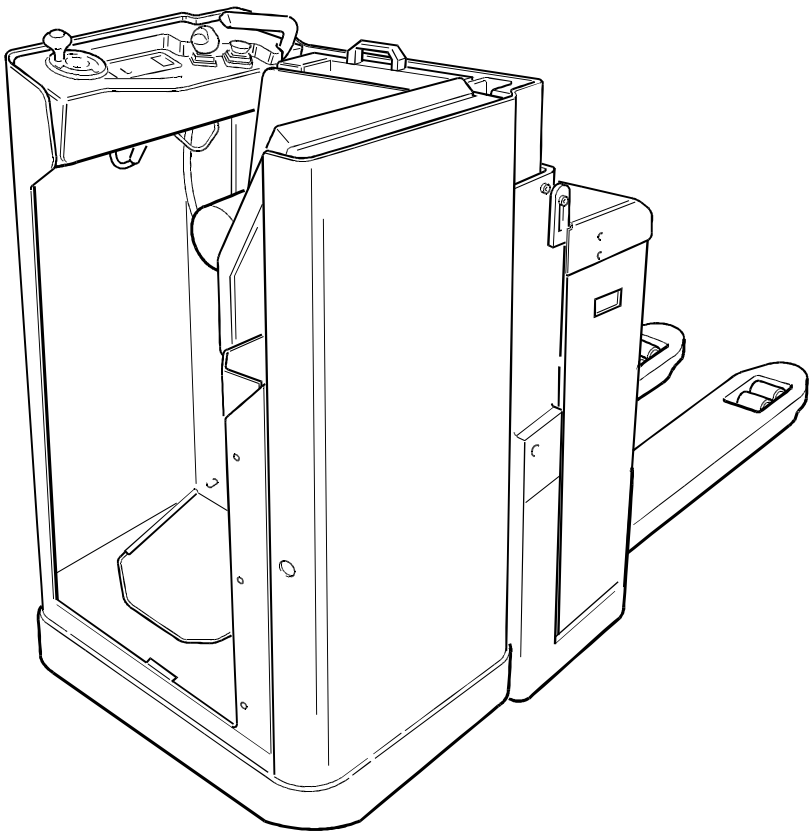
Master Service Manual
Product family SL

BT SL 2.0



C-Code revision: 2

Part number: 170422-040
Issued : 1998-12-18 SSD

2. Truck data

The table provides information regarding some technical data, which is of value with daily use of the truck.

Truck type	**SL 2.0**
Lifting capacity with rated load, kg	2000
Operating speed without load, m/s	2,9
Operating speed with rated load, m/s	2,0
Max. operating gradient with rated load, %	8
Time of lifting, without load, s	2,5
Time of lifting, with rated load, s	3,0
Time of lowering, without load, s	2,8
Time of lowering, with rated load, s	2,8
Weight without battery, kg	630
Battery (5h discharge)	300 / 450
Weight of battery, kg	280 / 400
Truck's calculated equivalent acoustic pressure level according to CE prEN 12053, dB (A)	< 70
Truck's calculated equivalent acoustic pressure level according to ASME B56.11.5_1992, dB (A)	65
Vibration level, m/s^2	0,7

The truck's lifting capacity, lift height and weight can be found on the truck's identification plate.

2.3. Electrical components

- Blow electric motors down using compressed air.
- Clean the electrical panels, electronic boards, contactors, connections, solenoid valves, etc. using a damp cloth and a cleaning agent.

NOTE!
Risk of short-circuiting.
Electrical components can be damaged.
Do not break the guarantee seal on the electronic board.

3. Safe lifting of the truck

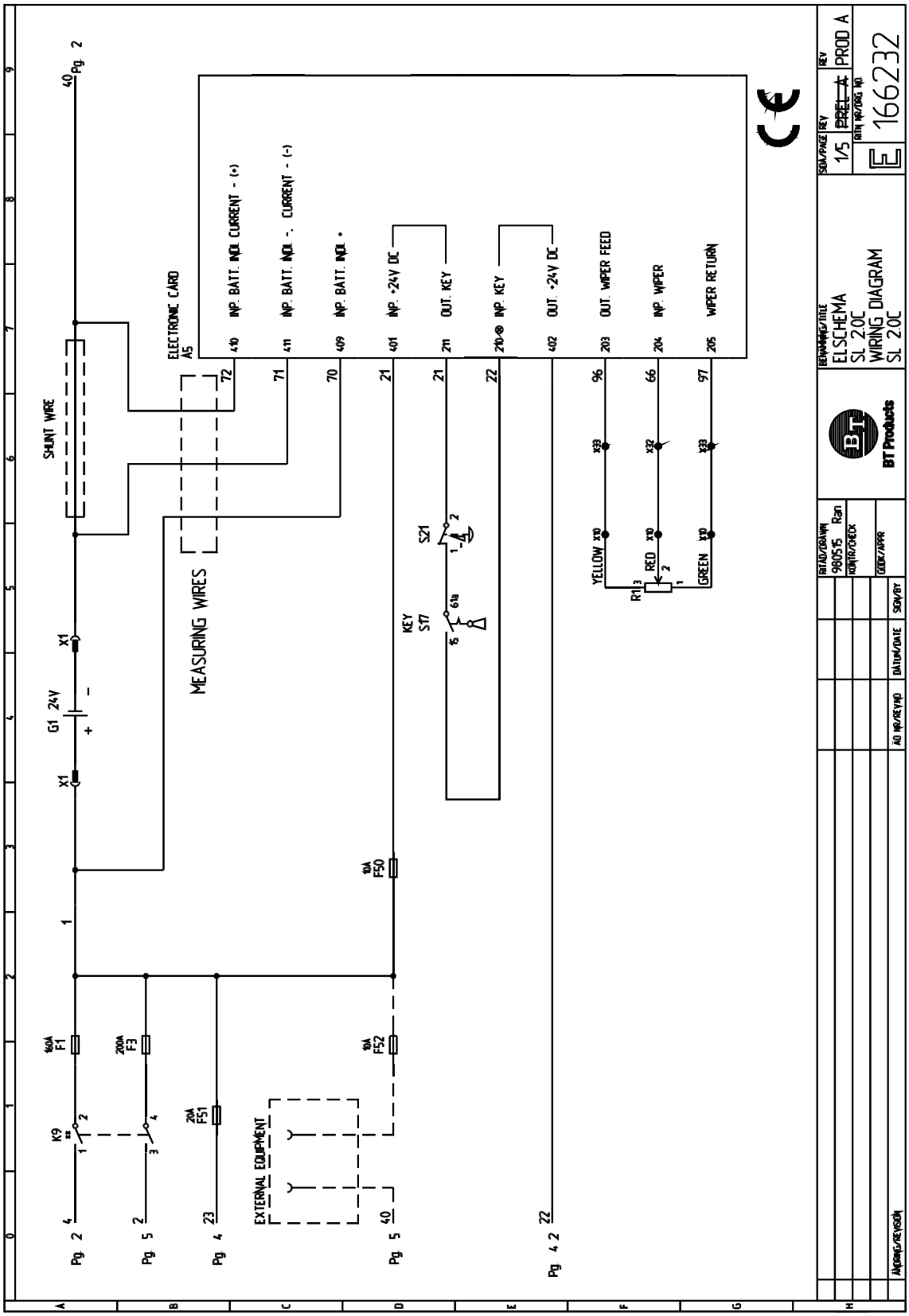
All lifting must be carried out on a flat, non-slip and firm surface. Avoid new laid asphalt or asphalt on a hot summer's day.

- Apply the parking brake to prevent the truck from moving during the lift. If the lift applies the brake on the drive wheel, chock the other wheels so that the truck stands still.
- Select a lifting point so that the lift is as easy as possible (one corner at a time). If the truck has marked lifting points on the under side of the chassis these can be used to obtain a well balanced lift.
- Ensure that the surface under the jack is clean and free from oil and grease.
- Ensure that your hands and the jack's lever are free from oil and grease.
- Use the lever that belongs to the jack. A lever that is too short requires more force than is necessary. If the lever is too long there is a risk of the jack being overloaded.
- Support the truck:
- as close to the part of the chassis that is lifted as possible to reduce the falling height if the truck tips over.
- so that the truck cannot roll.
- **Never** raise up the jack to lift higher
- **Never** work under a lifted truck unless it is well supported.

WARNING!
Risk of crushing.
A badly supported truck can fall.
Never work under a truck that is not supported on trestle-blocks and secured by a lifting device.

Content, S

2.1. Electrical wiring diagram (1/5)

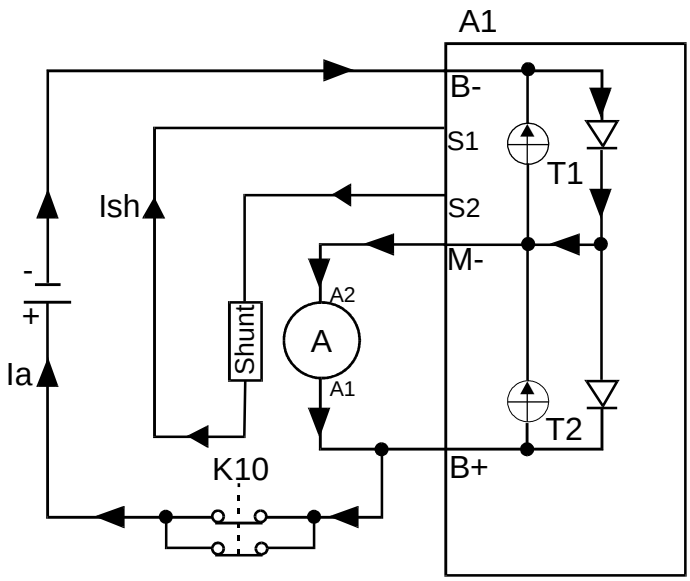


3.6. Motor braking and reversing

When the speed lever (R1) is released to the neutral position or moved in the opposite direction, an alteration in the voltage on output 509 *(OUT SPEED REF. VALUE)* on the electronic card takes place. At the same time the status on outputs 501 and 502 changes. The transistor regulator senses these changes and applies the motor brake.
This is achieved by completely disengaging the switch regulators used while driving, and instead using other transistors (T2) to regulate the generated current from the motor.
These transistors that regulate the brake current are switched on/off rapidly. While the transistors are not live, the generated current needs to pass through the battery over K10 and to B-on the transistor regulator. Inside the regulator, the brake current passes through the brake diodes and onto the motor through M- (see picture 3).
When the transistors go live, the brake current passes through the transistors (T2) to the armature via M- (see picture 4).
Throughout this entire process and until the truck comes to a complete stop, the shunt field is engaged achieving current generation inside the armature circuit.

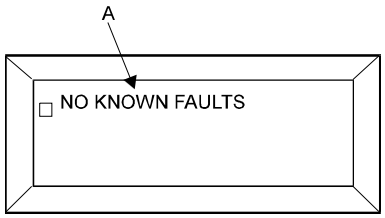
3.6.1. Picture 3

The transistors (T2) for the generated brake current are not live.

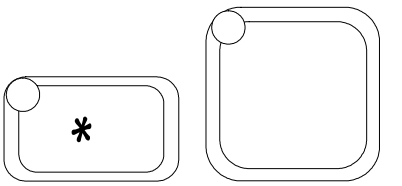


STATUS LED		Handheld terminal display	Explanation	Possible cause
3,3	¤¤¤ ¤¤¤	FIELD OPEN	Open field winding	1. Field winding not connected 2. Interruption in field winding
3,4	¤¤¤ ¤¤¤¤	MISSING CONTACTOR	Missing contactor	1. Main contactor, coil interruption 2. Missing main contactor 3. Main contactor not connected
4,1	¤¤¤¤ ¤	LOW BATTERY VOLTAGE	Low battery voltage	1. Battery voltage <16 volts 2. Corroded battery terminals 3. Loose battery or regulator connections
4,2	¤¤¤¤ ¤¤	OVERVOLTAGE	Overvoltage	1. Battery voltage > 33 volts 2. Truck operating with connected charger
4,3	¤¤¤¤ ¤¤¤	THERMAL CUTBACK	Over-/under-temperature reduction	1. Temp. >85^{o}C or < - 25^{o}C 2. Truck overloaded 3. Wrong installation of transistor regulator 4. Operation under extreme conditions

HPD error This is a sequence error. This error is detected if the reference voltage (0-5 V) exceeds 25% of the maximum value when the KSI input is high (pin 16).



8.5. SPECIAL DIAGNOSTICS MODE



In the SPECIAL DIAGNOSTICS MODE, the DIAGNOSTIC HISTORY FILE of the regulator is displayed. This file contains all errors logged by the regulator since the file was last cleared. Each error is logged only once in disregard of how many times the error may have occurred.

To access the SPECIAL DIAGNOSTICS MODE, keep the MORE INFO button depressed and simultaneously press the DIAGNOSTICS button. The LED in the DIAGNOSTICS button lights.

To clear the DIAGNOSTICS HISTORY FILE, switch to the SPECIAL PROGRAM MODE, select “Clear Diag History" and press the MORE INFO button for further instructions.