1 Alarm codes

This chapter explains the meaning of the various alarms that the different controllers may produce. Refer to Chapter 2 for information on using the console and accessing the Alarms submenu.

1.1 Traction motor controller (Combi Ac1) Mode:2

Before you start to troubleshoot, make sure all power supplies, fuses and connections are in order.

The fault diagnostic system of controller is divided into two main groups:

Alarms: These are the faults which open the power bridge and when possible also the main contactor is opened and magnetic brake is activated. Failures in the motor, controller or in the safety functions cause alarms.

Warnings: These are faults which not stop the truck or stop the truck by using regeneration braking. Controller is working well, but it has detected conditions to reduce the performances or to stop the truck without opening the power devices. Wrong operation sequences or conditions which needs performance reduction, like high temperatures etc. cause warnings.

“Stored” text means that alarm or warning is stored in the controller logbook.

Code:	**Console and display description:**
0	**NONE No alarms**

226 ACC OUT OF RANGE (Alarm) Stored

Used only in Stand on / Sit on Stackers! (Analog sensor)

Cause:
Throttle minilever voltage out of range.

a) Teach minilever values again.

b) Check that connectors and cables are in order.

c) Change new minilever and teach new values.

228 TILLER OPEN (Warning) Not showed on Display

Cause:
This is a warning, when the safety mat is not activated, after a fixed time in standby the main contactor open (30s).

After next travel request the warning disappear.

229 POS AUX SHORT (Alarm) Stored

Cause:
The output of the built in smart driver, which supplies the positive to the electromechanical brake coil is high when the Tiller and H&S switch are open.

a) Check the wiring in order to verify that no extra positive supply is connected to the electromechanical brake when the Tiller H&S switch are open, at connector XA1 pin 30.

b) The driver circuit is damaged inside the Combiac1 controller, which has to be replaced.

231 COIL SHORT HW KO (Alarm) Stored

Cause:
The hardware circuit which manages short circuit protections for the main contactor and the electromagnetic brake coils has a problem.

This type of fault is not related to external components; so, when it is present it is necessary to replace the Combiac1 controller.

238 LIFT+LOWER (Warning)

Cause:
This alarm occurs when both requests lift and lower are active at the same time.

Check the wirings of the lift and lower inputs (use the readings in the TESTER menu) check the accelerator for failure.
If no failure found, the fault is in the logic of the Combiac1 controller, which must be replaced.

239 PUMP INC START (Warning)

Cause:
This warning occurs for an incorrect starting sequence.

Check possible reasons for this alarm, by using the console TESTER menu. If no signal is active by key on, the fault is in the Combiac1 controller.

240 PUMP VACC NOT OK (Warning)

Cause:
The test is made at key on and after 20 sec to make sure that the hydraulic accelerator lift/lower is back in neutral position.
This alarm occurs if the lift/lower accelerator reading in the TESTER menu is 1,0V higher than the minimum programmed value, when the accelerator is released.

Check the mechanical calibration and the function of the lift lower accelerator.

241 NO ENC PULSES (Alarm) Stored

Only in models which have lifting height measurement option!

Cause:
No encoder pulses from the mast height measurement after the free-lift sensor has activated.

Check the sensor bearing wiring. If there is no fault, replace sensor bearing or can-encoder card.

225 CURRENT GAIN (Warning)

Cause:
This warning occurs when the parameters to compensate for the gain if the current amplifiers have the default values (the maximum current was not regulated.

It is necessary to replace the EPS controller.

226 NO SYNC (Alarm) Stored

Cause:
This alarm occurs when the inside checking cycle does not update the information, the controller cuts of the steering and traction.

It is necessary to replace the EPS controller.

227 SLAVE COM. ERROR (Alarm) Stored

Cause:
This alarm occurs when there is a fault in the internal communication.

It is necessary to replace the EPS controller.

237 WAITING DATA (Warning) Not showed on Display

Cause:
This is a warning, while the EPS controller receives information from the combi ac controller. The safety relays remain open when this warning is present and the steering is not activated.

238 EPS NOT ALIGNED (Warning) Not showed on Display

Cause:
This is a real alarm which cut off the traction function. It occurs at the initial alignment if straight ahead condition is not matched within 6 sec. Throughout this time, the steering is not activated, the safety relays are open and the traction is stopped.

201	Logic fault	Alarm has caused truck to go into low performance mode. (See alarm list) Normal Mode active.
202	Logic fault	Alarm has caused truck to go into stop mode. All functions are disabled (See alarm list) Normal Mode active.
203	Logic fault	Alarm has caused truck to go into slow performance mode. (See alarm list) Normal Mode active.
204	Normal State	Truck idle timeout has elapsed and the truck has entered the sleep mode. Normal Mode active.
205	Battery Low	Battery level close to minimum. Battery should be charged soon. Slow Mode active.
206	Max. Lifting Height	Mast is at it's defined electrical top position, further lifting is disabled. Normal Mode active.
208	Incorrect Operation	No lifting allowed, because defined maximum weight is exceeded. (Option) Normal Mode active.
210	Traction Fault	Traction controller temperature is above defined warning level (80°C) Normal Mode active.
211	Hydraulic Fault	Pump controller temperature is above defined warning level (80°C) Normal Mode active.
212	Traction Fault	Traction motor temperature is above defined alarm level (90°C) Normal Mode active.
213	Hydraulic Fault	Pump motor temperature is above defined alarm level (90°C) Normal Mode active.
218	Temp. lift/lower limit	Lift/lower has been disabled. Release lift/lower lever to continue. Normal Mode active.
220	Shock Penalty	Shock sensor input has detected shock above defined level 2 and will remain in slow (Option) mode until the defined timeout has elapsed. Slow Mode active.
231	Incorrect Start	Throttle lever not in neutral position in startup. Release lever and check throttle lever (B300) or wiring. Stop mode active.
233	Incorrect Start	Lift/lower lever or service button activated at start-up Stop mode active.
234	Incorrect Operation	Lift/lower lever activated before dead man pedal. Stop mode active.
239	Incorrect Start	Foot switch activated at start-up Stop mode active.
240	Incorrect Start	Option switch, horn button or initial lift button activated at start-up. Check correct configuration for option switch (parameter 15 Option BITS, bit 15) and option switch S309 or wiring. Check also horn and initial lift buttons and wiring. Stop mode active.
241	Incorrect Start	Safety switch activated at start-up. Check switch S306 (and S308 if present) or wiring. Normal Mode active.

This parameter determines the maximum current limit for the steering controller. Factory default value is “50A”. Do not change the default value!

CAN BUS

This parameter defines the presence of the CAN BUS communication network. When we have a steering controller and a steering motor installed in the vehicle the factory default is “PRESENT”. Do not change the default value!

SET HI RESOL AD

When this parameter is set to level “1”, it enables an analogy to digital conversation with high resolution applied to the command point connector XA3A pin 9. Do not change the default value!

AUTOTEACHING

This parameter controls the automatic teaching for steering.
Automatic steering teaching is activated on the next start-up.
This option (On/Off) is used to launch the autoteaching procedure. Take care there is not mechanical angle limitation before to turn it on. Then recycle the key and the steering motor starts an automatic sequence to collect the ENC COUNT AT 360 and ENC COUNT AT 180. If the collected couple is consistent (ENC COUNT AT 180 stays inside the window from 3/8 to 6/8 of ENC COUNT AT 360) they are automatically saved on the settings SET ENC AT 360 and SET ENC AT 180. If the autoteaching procedure successful ends, the display switches from the DATA ACQUISITION alarm to the collected values (in the range 0 to 5Vdc. Left side shows the ENC COUNT AT 360 value; the right side shows the ENC COUNT AT 180 value). If the couple of values is not consistent they were not saved and the display switches cyclically from the collected data to the DATA ACQUISITION inscription.

AUX FUNCTION 11

This parameter defines the steering motor and feedback sensors position on the big mounting plate. See the parameter table for correct setting for each truck model!

2. Safety instructions

Instructions for site supervision

- Familiarise yourself with the operating instructions and their contents
- Train the operator on the use, safety and maintenance aspects of the truck
- Control that the operating and maintenance instructions, and safety regulations are observed

Occupational safety

- Keep the truck clean and in good working order. Carry out the daily and weekly maintenance checks in accordance with the maintenance instructions and schedule to avoid faults and operational errors.
- If you notice any faults or deficiencies that may effect the safe operation of the truck, take the truck out of operation until the faults or deficiencies have been remedied
- In the event of a malfunction, switch off the power and notify the site supervision.
- Do not repair anything on the truck without the permission from the site supervision
- When using the truck, you are responsible for both your own and your environment's safety
- Immediately notify the site supervision of any accidents or injuries. In such a case, leave the truck at the place of the accident
- The truck can only be used for purposes corresponding with its equipment. Intended use, see Chapter 4.

Truck operator

Requirements:

- At least 18 years old
- Sufficient physical (e.g. good hearing and sight) and mental abilities for operating the truck without risks
- Appropriately trained; familiar with operating, safety and maintenance instructions
- Has written permission from the site supervision to operate the truck
- Knows and masters the drive and operational features of the truck.

Emergency procedures

If the truck falls over, hold onto the steering wheel and warn others. Beware of spilling battery acid. If the machine malfunctions, brake and switch off the power. The truck must not be used again, until a person authorised by the supervisor has repaired the truck.

In case of fire, press the emergency stop button, disconnect the recharging plug and warn others.

Noise

The average noise level (L_{pA}) to which the driver may be subjected has been measured at the driver's ear as per standards EN 12053:2001 and EN ISO 4871. The measured values are listed in Chapter 12, Technical Specifications, section 8.4 in this manual.

NOTE *Higher sound pressure levels may occur during the truck's operation, caused by different method of operation, environmental effects and other sources of noise.*

Vibration

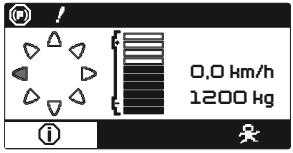
The level of vibration to which the driver is subjected ($a_{w,z}$) has been measured as per standard EN 13059:2002. The measured values are listed in Chapter 12, Technical Specifications, section 8.4 in this manual.

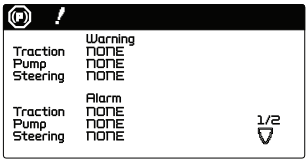
Work at dangerous premises

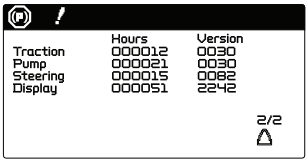
A standard truck may not be used in an explosive atmosphere. There are specially manufactured trucks for such premises. Contact your truck dealer for a specially designed and equipped trucks for hazardous conditions.

MESSAGE CENTER

Menu	Display	Description
MESSAGE CENTER (Press "ESC")		
Message center 1/2		Basic information about the truck's status:
	Warning	Last warning message (e.g. Incorrect start)
	Alarm	Last alarm message (e.g. Main contactor)
Message center 2/2		Basic information about the truck's status continues:
	Hours	Operational hours
	Version	Software version

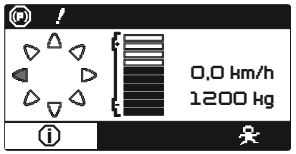


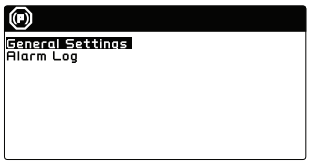


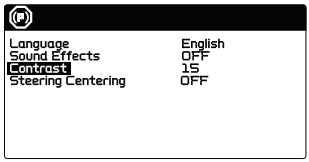


MAIN MENU

Menu	Setting	Description
MAIN MENU		
Main menu	General settings	List of operator adjustable settings for the display
	Alarm log	List of alarms
Main menu / General settings	Language	English / Finnish / French / German / Italian / Portuguese / Spanish / Swedish
	Sound Effects	OFF/ON
	Contrast	Display contrast setting 0-14 (default 13)







WARNING! *When opening or closing the cover, do not hold the cover from the sides to avoid injury to your fingers.*

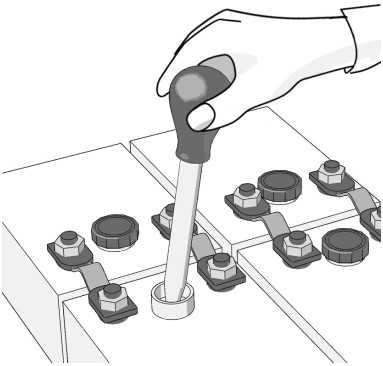
NOTE *When closing the cover, make sure that the locking button returns all the way up to the locking position.*

NOTE *If the play in the battery cover lock is more than 2 mm, contact the maintenance personnel.*

NOTE *If welding needs to be performed on the truck body, do the following before welding:*

- *Disconnect the battery.*
- *Disconnect the plugs of the electronic devices.*

Measuring the battery's specific gravity



Measure the specific gravity of the battery according to the manufacturer's instructions. The specific gravity of a fully charged battery is 1.28 to 1.30 at +30°C. The gravity is

- 1.24 when the battery is 3/4 charged.
- 1.20 when the battery is 1/2 charged.
- 1.16 when the battery is 1/4 charged.
- 1.15 when the battery is empty. Charge the battery immediately.

Replacing the battery

Replace the battery according to the manufacturer's instructions. When reinstalling batteries, use the appropriate tools for moving, connecting and fastening the battery securely. Do not keep the tools and other metal implements on top of uncovered batteries.

When replacing the battery, use one with similar dimensions and weight so that the stability or braking properties of the truck do not decrease. The minimum weight of the battery is indicated on the identification plate of the truck.