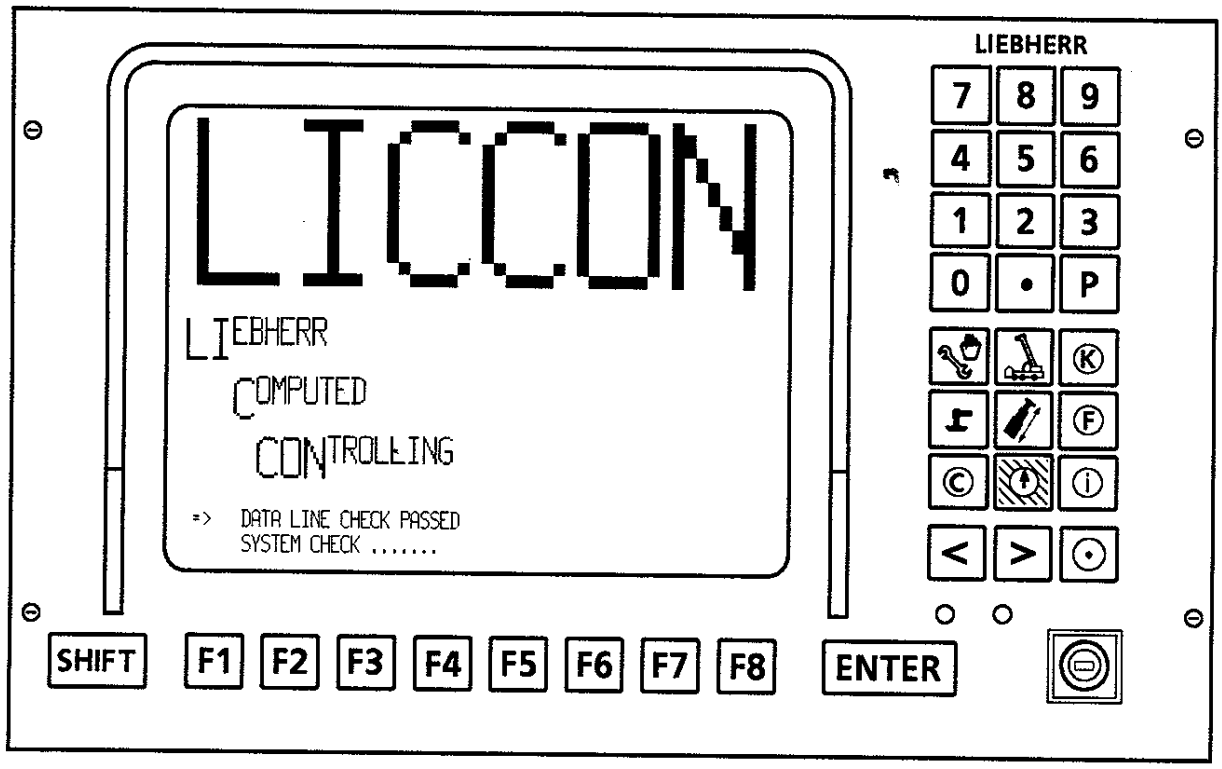
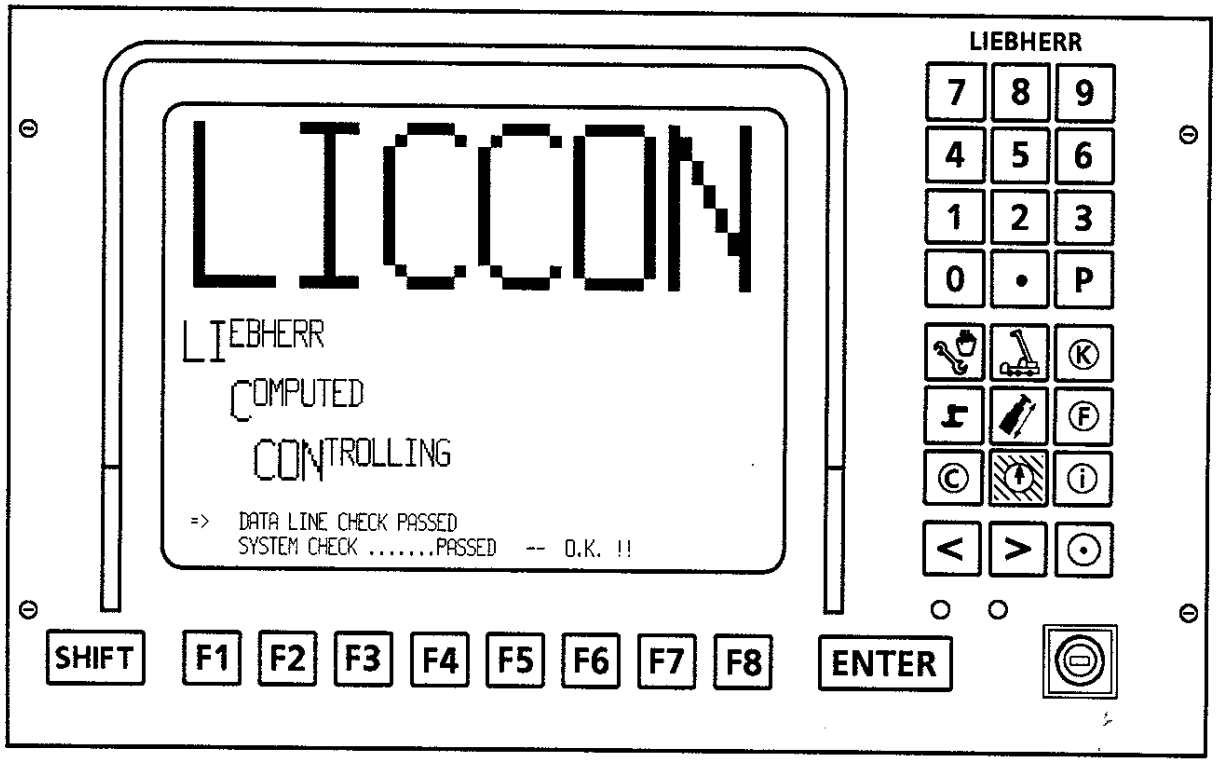
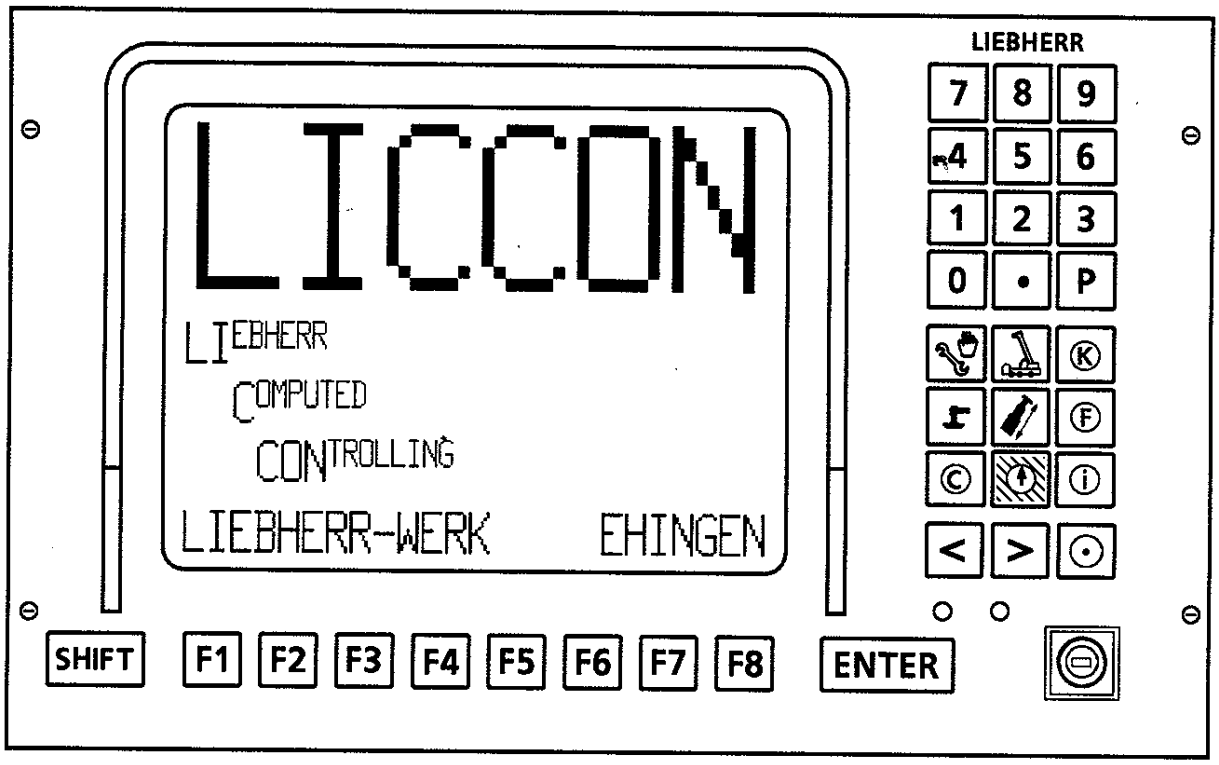
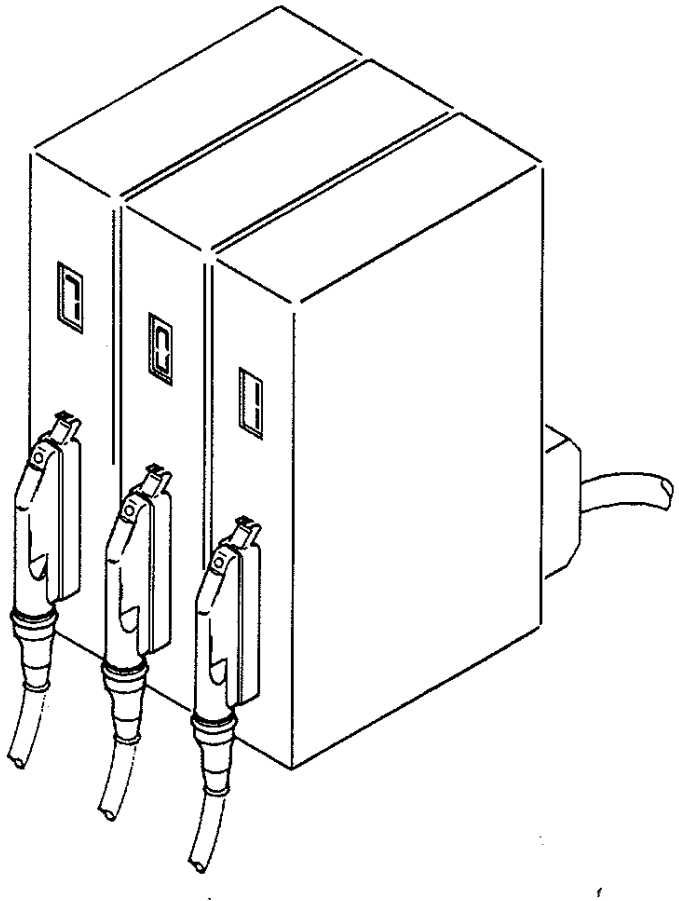

LIEBHERR
LICCON
LIEBHERR
COMPUTED
CONTROLLING
=> DATA LINE CHECK PASSED
SYSTEM CHECK .....
7 8 9
4 5 6
1 2 3
0 • P
K
F
C
i
< >
SHIFT F1 F2 F3 F4 F5 F6 F7 F8 ENTER


LIEBHERR
LICCON
LIEBHERR
COMPUTED
CONTROLLING
=> DATA LINE CHECK PASSED
SYSTEM CHECK .....PASSED -- O.K. !!
7 8 9
4 5 6
1 2 3
0 • P
K
F
C
i
< >
SHIFT F1 F2 F3 F4 F5 F6 F7 F8 ENTER

187304

The LICCON system performs a self test right after it is turned on. First, it checks the connection between the microprocessor central unit (ZE) and the control and indicator unit (monitor). The monitor shows the view as shown on the upper left page. If the test shows no problems with the connection, it runs through a system test . If the system test passes, the view as shown on the lower left page appears.

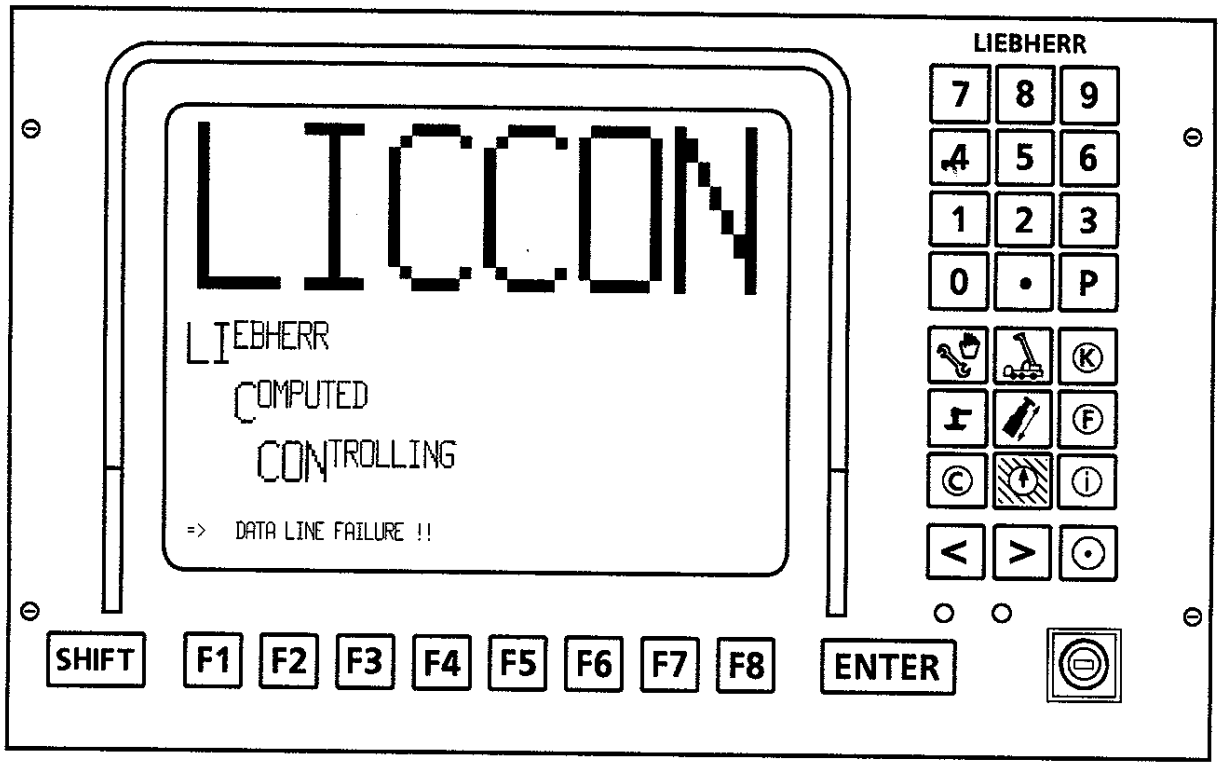

LIEBHERR
LICCON
LIEBHERR
COMPUTED
CONTROLLING
LIEBHERR-WERK EHINGEN
7 8 9
4 5 6
1 2 3
0 • P
SHIFT F1 F2 F3 F4 F5 F6 F7 F8 ENTER

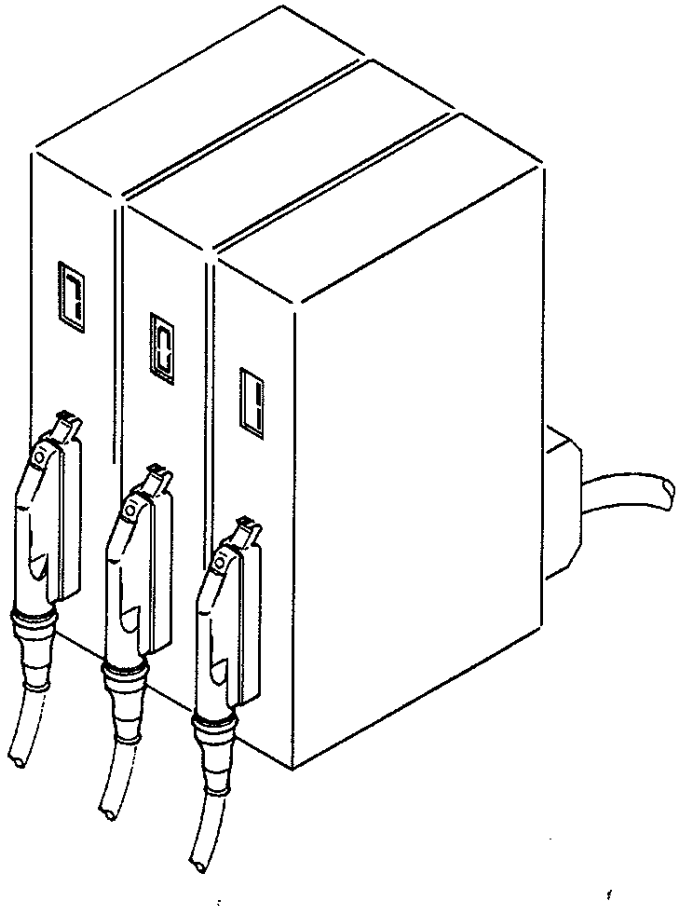


187305

If no error was found in the system test, the view, as shown on the upper left page appears on the monitor for a short time. Then the set up view appears, with the equipment figuration as was used during the last working cycle.
This view also appears for a short time anytime you switch between the various LICCON programs.

The 7 segment indicator of the power supply unit displays the number "7" if no error is found. The microprocessor unit, installed to the right, shows the number "0","1", and/or "2", depending on the type of crane. An error was found if anything else appears on the display.


LIEBHERR
LICCON
LIEBHERR
COMPUTED
CONTROLLING
=> DATA LINE FAILURE !!
7 8 9
4 5 6
1 2 3
0 • P
SHIFT
F1 F2 F3 F4 F5 F6 F7 F8
ENTER



187306

However, it is possible that errors arise on the LICCON during the starting procedure or during crane operation. Possible errors are divided into 3 error categories:

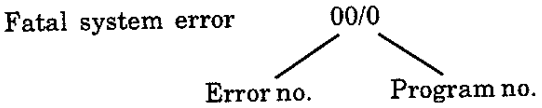
6.1 Initializing error
6.2 System errors
6.3 Application errors.

All 3 types of errors are recognized by the system and are displayed on the screen as a series of numbers or as text or on the 7 segment indicator of the central unit. This enables the crane operator to localize any arising errors and decide if he can eliminate the error himself or if he must call a LIEBHERR customer service representative.
If LIEBHERR customer service must be called, you must supply the following information:
- Type of crane
- Crane serial number
- Error number
- Error text
- Application conditions.

6.1 INITIALISING ERRORS

Initialising errors are hardware errors which are detected during the self-test of the LICCON.
The 7-segment display of the microprocessor central unit blinks and displays the error no. If possible the error is also displayed on the screen.
Additional to the error no., the error text and a closer description of the error is displayed.

If a hardware error arises during operation, e.g. "EPROM defective",
first a system error is displayed and then a display appears on the screen.



If the monitor is dark, see error diagram "Monitor error".

On the microprocessor central unit "E ■" is displayed.

If the LICCON is then switched off and restarted (5 minutes waiting-time between switching off and on), the initialisation error is displayed on the screen and on the display of the microprocessor central unit, e.g. on screen:
"Error F: INCORRECT EPROM-TYPE ....."

In the display of the central display only the letter "F" appears. This display blinks.

IMPORTANT:
A waiting-time of 5 secs. must be adhered to between switching the LICCON off and on.

An error which can only be partially attributed to the initialisation errors is a defective connection between monitor and microprocessor central unit (ZE). When switching the LICCON on the connection between the monitor to central unit (ZE) is checked first.
If this connection is defective, the message **"Data line failure"** is displayed on the monitor.
If the connection is in order, the following message is displayed on the monitor:
"Data Line Check Passed OK!"

The following error table displays the possible initialising errors and the possiblities of eliminating them:

Error no	Error text	Possible cause	Eliminating error
0	ILLEGAL INTERRUPT HC11 HARDWARE-FAILURE (RAM-REG)	ZE (Central unit defective)	Consult customer service
1	INCORRECT BLOCK-TYPE	Memory card defective	Consult customer service
2	INCORRECT BLOCK-CHECKSUM	Memory card defective	Consult customer service
3	HARDWARE LINE-FAILURE	ZE (Central unit defective)	Consult customer service
4	INCORRECT UNIT-NUMBER	Memory card defective	Consult customer service
5	LCA-REGISTER FAILURE	ZE (Central unit defective)	Consult customer service
6	RAM FAILURE	ZE (Central unit defective)	Consult customer service
7	HARDWARE FAILURE		Consult customer service
8	PS-LCA CONFIGURATION FAILURE	ZE (Central unit defective)	Consult customer service
9	MONITOR OR OTHER TERMINAL CONNECTED BUT FAIL!! ≫ CRC Selftest ERROR: Host Interface-BREAK! Data Line Failure!	Send and receive line from monitor interrupted. Connection between ZE and bus board not in order. Program memory card has no connection to ZE	Check connection from and to screen and replace if necessary. Check fuse on power supply unit. Check screen, replace if necessary. Check connection between ZE and bus board, repair if necessary. Check program memory card and ZE, repair if necessary.
b	BUS-CONTROLLER FAILURE		
C	HC11 HARDWARE-FAILURE (ADC)	ZE (Central unit defective)	Consult customer service
F	INCORRECT EPROM-TYPE	Memory card defective	Consult customer service

System errors are errors in the electronic basic assembly and must normally be eliminated by the manufacturer's trained customer service staff.
The following table shows which errors can be eliminated locally and how they are to be eliminated:

A system error is displayed both on the screen and on the display of the central unit.

If a system error arises, all crane functions are interrupted and the following appears on the screen:

Fatal System error 00/0

Error no. Mode

At the same time, the letter "E ■" is always displayed on the display of the central unit.

If the monitor remains dark, the error can only be defined on the display of the 7-segment display of the central unit.

In the display the following displays decribing the error appear as letter, number or sign:

Error no.	Significance	Error elimination
E	SYSTEM / -HARDWARE-ERROR	
E■	SYSTEM / -HARDWARE-ERROR+GLOBAL RESET	Restart LMB up to 3 times and inform customer servic
P■	POWER DOWN	Restart LMB up to 3 times and inform customer servic
F	BREAK POINT REACHED	
6■	SYSTEM CELL MARK-DI DESTRUCTED BRA $ IN	
8■	PROGRAM RUNNING UNDER "SEI" BRA $ IN	
o■	WATCHDOG OCCURRED	

Other messages which can appear on the 7-segment display of the central unit:
(s = static; b = blinking)

Error no		Significance
	s	CHECK ON POWER SUPPLY UNIT - RAM IS BEING CALCULATED
	b	NO MONITOR ON ZE 0 CONNECTED
	b	TXD/RXD SHORT-CIRCUITED (CABLE TEST)

IMPORTANT
If a system error occurs, switch off the LICCON and start again after a waiting- time of 5 seconds. Repeat this procedure up to three times. If a system error occurs again, determine the error in the following error table. Eliminate the error if possible. (If the error cannot be eliminated, call for customer service).

CAUTION
The customer service must be informed after **every** system error message even for the case that the error can be eliminated alone.

The following table shows which error messages can appear on the screen, their causes and how to eliminate the error:

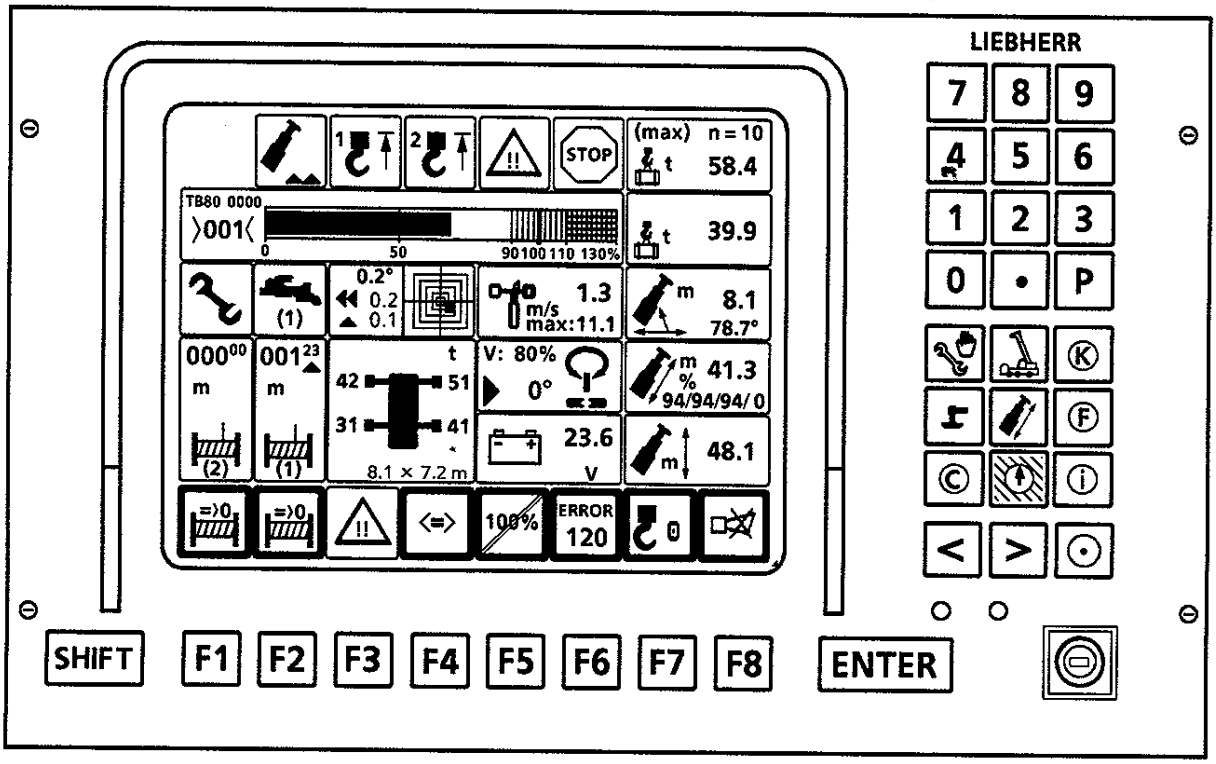
Error no.	Prog. no.	Error text	Error elimination	
			Call customer service	Comments
12	..	ILLEGAL-TYPE BYTE IN PROG. DIRECTORY	X	
13	..	CRC ERROR	X	
14	..	TASK ALREADY RUNNING	X	
15	..	PROGRAM DOES NOT EXIST	X	
16	..	SYSTEM WATCHDOG EXPIRED	X	
17	..	UNALLOWABLE CPU TIME SUM TOO GREAT	X	
18	..	ARITHMETIK-OVERFLOW	X	
19	..	DIVISION BY ZERO	X	
20	..	TASK WATCHDOG EXPIRED	X	
21	..	ILLEGAL OP-CODE TRAP	X	
22	..	TASK NOT ACTIVE	X	
23	..	NO RUNNABLE PROGRAM	X	
24	..	TASK OCCUPIED EXCL. AT INIT	X	
25	..	REAL TIME CONTROL BLOCK NOT FREE	X	
30	..	UNALLOWABLE BANK ADDRESS	X	
33	..	G-BUS CANNOT BE OCCUPIED TIMEOUT	X	
34	..	G-BUS OCCUPIED SLAVE DOES NOT REPORT	X	
35	..	TIMEOUT DATA CYCLE LOW BYTE READ	X	
36	..	TIMEOUT DATA CYCLE HIGH BYTE READ	X	
37	..	TIMEOUT DATA CYCLE LOW BYTE WRITE	X	
38	..	TIMEOUT DATA CYCLE HIGH BYTE WRITE	X	

Error no.	Prog. no.	Error text	Error elimination	
			Call customer service	Comments
41	..	ARITHMETIC PROCESSOR ERROR	X	
43	..	MEMORY OVERFLOW IN TRACE PROGRAM	X	
45	..	PARAMETER UNDEFINED (INPUT INACTIVE)	X	
46	..	INVALID CONTROLLER PARAMETER	X	
50	..	FILE NOT THERE	X	
51	..	LOGICAL FILE ALREADY OPEN	X	
52	..	FILE NOT OPEN WHEN "CLOSE"	X	
53	..	SYSTEM TEXT NOT THERE	X	
54	..	FILE "TEXT MASK" NOT THERE	X	
55	..	USER DEFINED SYMBOL NOT THERE	X	
56	..	USER DEFINED SYMBOL NOT THERE	X	
57	..	DEFAULT CARRYING LOAD NOT THERE	X	
58		OUTPUT STAGE DEFECTIVE <B> = Channel <X> = Current <Y> = Voltage	X	
59		UP NOT REENTERED	X	
60	..	TRANSFER ERROR SCI	X	Monitor defective or cable broken, Check bothand replace if necessary
61	..	SCI-BREAK!!	X	Check connection between ZE and monitor
62	..	SCI NOT CONNECTED	X	
63	..	MONITOR ERROR IN OPERATION	X	

Error no.	Prog. no.	Error text	Error elimination	
			Call customer service	Comments
41	..	ARITHMETIC PROCESSOR ERROR	X	
43	..	MEMORY OVERFLOW IN TRACE PROGRAM	X	
45	..	PARAMETER UNDEFINED (INPUT INACTIVE)	X	
46	..	INVALID CONTROLLER PARAMETER	X	
50	..	FILE NOT THERE	X	
51	..	LOGICAL FILE ALREADY OPEN	X	
52	..	FILE NOT OPEN WHEN "CLOSE"	X	
53	..	SYSTEM TEXT NOT THERE	X	
54	..	FILE "TEXT MASK" NOT THERE	X	
55	..	USER DEFINED SYMBOL NOT THERE	X	
56	..	USER DEFINED SYMBOL NOT THERE	X	
57	..	DEFAULT CARRYING LOAD NOT THERE	X	
58		OUTPUT STAGE DEFECTIVE <B> = Channel <X> = Current <Y> = Voltage	X	
59		UP NOT REENTERED	X	
60	..	TRANSFER ERROR SCI	X	Monitor defective or cable broken, Check bothand replace if necessary
61	..	SCI-BREAK!!	X	Check connection between ZE and monitor
62	..	SCI NOT CONNECTED	X	
63	..	MONITOR ERROR IN OPERATION	X	

Error no.	Prog. no.	Error text	Error elimination	
			Call customer service	Comments
64		HARDWARE ERROR	X	
65		IMPERMISSIBLE ADDRESS AT BUS TRANSFER	X	
66		ADC FUNCTIONING OUTSIDE TOLERANCE	X	
67		ARITHMETIC PROCESSOR NOT THERE!	X	
68		IMPERMISSIBLE WAKE-UP-INT (ONLY CENTRAL UNIT)	X	
69		TRANSFER ERROR PARALLEL BUS	X	
70		DIFFERENT STRUCTURE VERSIONS	X	
71		FILE "STRUCTURE" UNAVAILABLE (VERSION SOFTWARE RELEASE)	X	
72		INVALID STRUCTURE ENTRY (3* NOT RELEVANT)	X	
73		INTERPRETER ERROR	X	
74		ERROR AT ASCII⇒BIN CONVERSION	X	
75			X	
76			X	
77			X	
78			X	
79			X	
80			X	
81			X	
82			X	
83			X	
84			X	
85			X	
86			X	
87			X	

Error no.	Prog. no.	Error text	Error elimination	
			Call customer service	Comments
88			X	
89			X	
90			X	
91			X	
92			X	
93			X	
94		TRANSFER ERROR PPI (ERROR NUMBER IN REG. A) ERROR IS OUTPUT IN LONG FORMAT	X	


LIEBHERR
STOP
(max) n = 10
58.4
39.9
8.1
78.7°
1.3
m/s
max:11.1
41.3
94/94/94/ 0
48.1
23.6
V
8.1 × 7.2 m
ERROR
120
SHIFT
F1
F2
F3
F4
F5
F6
F7
F8
ENTER


ERROR
120

Application errors are errors which can arise during crane operation due to external influences. The error numbers appear in the FK symbol "ERROR" via the F8 function key in the set up view or via F6 in the operation and telescoping view.

The crane functions are continuously monitored by the following sensors.

- Hoist limit switch
- Length sensor
- Angle sensor
- Pressure sensor.

The limits of the sensor are monitored by several programs in the micro processor central unit for the following limit errors:

- Broken wire
- Short circuit after (-) ground
- Short circuit after (+) system voltage.

The following application errors are differentiated:

- Error due to technical defect
- Error due to crane operation
- Error due to external influences

Errors, which occur due to crane operation, are differentiated:

a) Errors , which are dangerous for the operation of the crane and lead to shut down.
The shut off is always indicated by the shut off symbol .

b) Errors, where the permitted limits for operation of the crane are being exceeded.
The crane operator is warned, however, the system is not shut down.

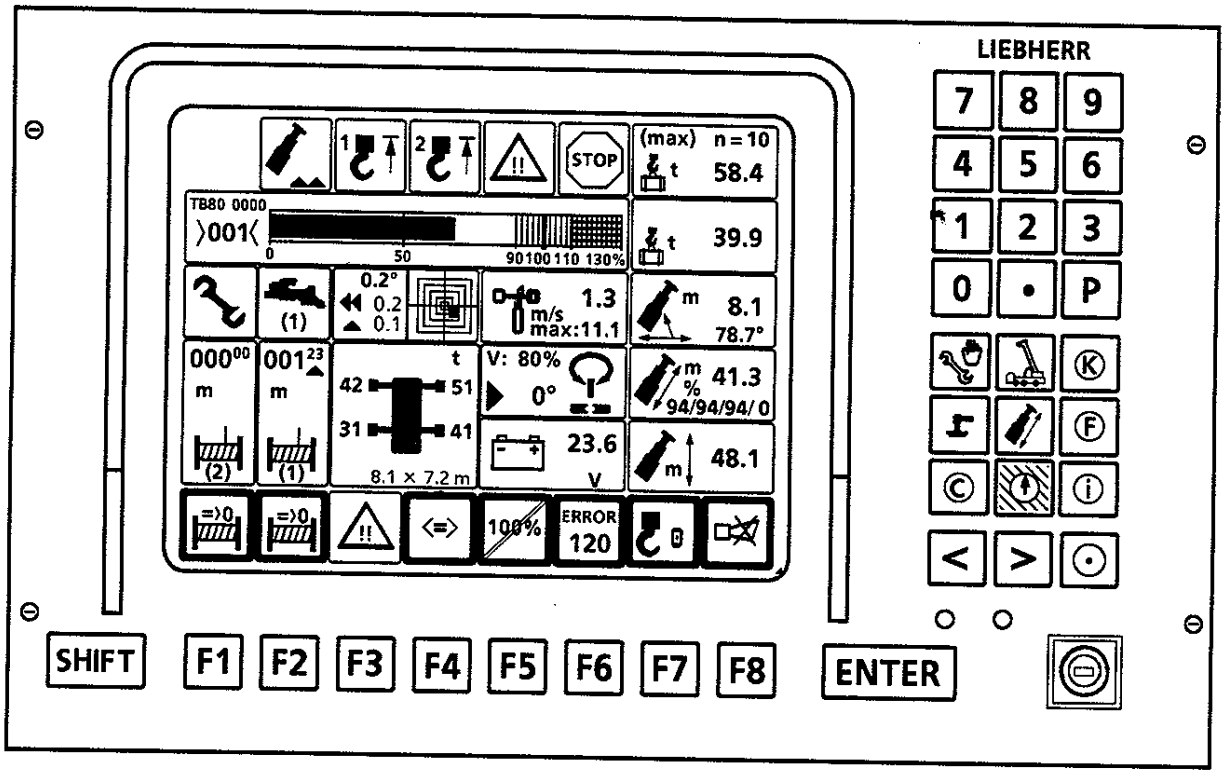
With exception of **Error No. 000**, an acoustical signal sounds for any error message, this acoustical signal can be turned off with the corresponding function key.

C A U T I O N: **There are three dangerous operating conditions,which are indicated by a blinking warning symbols, but without an Error No.**

- **Overload**	LICCON turns off
- **Hoist limit switch was triggered**	LICCON turns off
- **maximum permissible wind velocity has been exceeded**	LICCON does not turn off
- **maximum supporting force has been exceeded or minimum supporting force has not been reached**	LICCON does not turn off

The charts on the following pages supply information regarding the type of error of possible application errors and if the crane movement is being turned off by the LICCON system.

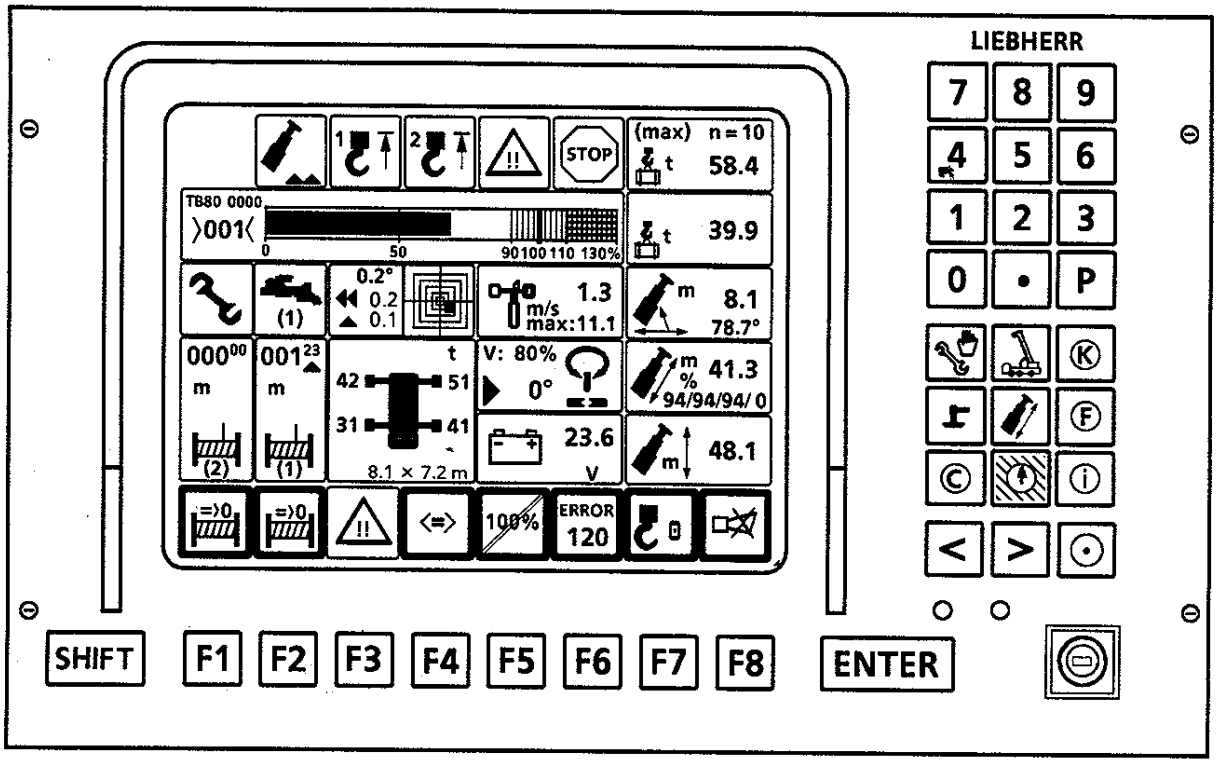
The remaining tables explain the causes of errors and possible remedies.


LIEBHERR
7 8 9
4 5 6
1 2 3
0 • P
STOP
(max) n = 10
58.4
39.9
1.3
8.1
78.7°
41.3
94/94/94/ 0
23.6
V
48.1
8.1 × 7.2 m
V: 80%
0°
100%
ERROR
120
SHIFT
F1
F2
F3
F4
F5
F6
F7
F8
ENTER


ERROR
120

The following charts (2 pages) show all possible error numbers with short error description and the crane model, where the error can occur.
The sequence of the error numbers is related to the priority of the error.
2 Error numbers at input: even number = fallen below lower limit value (l.l.v.)
uneven number = upper limit value has been exceeded (u.l.v.)
0 < Error No. <64 : No overload safety device shut off, actual value calculation
63< Error No. <128 : Overload safety device shut off

Error number	Error description	Cause of error	Elimination of error
No Number	Overload -STOP-Symbol blinks-	The maximum permissible load capacity for the set up and operating mode has been exceeded.	Elimination of the overload condition depends how the overload situation occurred and elimination must be decided by the crane operator according to each individual situation. Basically, it is only permitted to use that crane movement bypassing the overload safety device, which counters the movement which led to overload cut off. Some measures are: a) Lower load with hoisting gear. b) By releasing the luffing movement via the additional switch on left arm rest and therefore reducing the load momentum. c) By retracting the telescopic section and simultaneously luffing, the load momentum can be reduced. This movement however, depends on the type of crane
No Number	Hoist limit switch was triggered - Hoist limit switch symbol blinks-	The hook block has lifted the weight of the hoist limit switch and thus has triggered the hoist limit switch.	Restart the crane by lowering the cable.
No Number	Wind sensor blinks	The maximum permissible wind velocity has been exceeded.	If possible, set operating mode and set up configuration to a more favorable load capacity chart, otherwise discontinue crane operation. If necessary, take down crane.


LIEBHERR
STOP
(max) n=10
58.4
39.9
TB80 0000
001
1.3
m/s
max:11.1
8.1
78.7°
V: 80%
0°
41.3
94/94/94/0
23.6
V
48.1
8.1 × 7.2 m
100%
ERROR
120
7 8 9
4 5 6
1 2 3
0 • P
SHIFT F1 F2 F3 F4 F5 F6 F7 F8 ENTER


ERROR
120

187307

Error number	Error description	Cause of error	Elimination of error
000	Memory error in power supply unit	Memory card for different crane has been installed. Power supply unit has been changed. Crane has not been put in service.	!! C A U T I O N !! The load and radius indicators are not exact. The crane may NOT be loaded to full capacity. Crane must be put in service by customer service personnel or reprogrammed.
008	Data concentrator SLAVE Code not OK	Address code of the data concentrator SLAVE incorrect or coding switch faulty	Set address code correctly / Replace data concentrator
009	Data concentrator MASTER Code not OK	Address code of the data concentrator MASTER incorrect or coding switch faulty	Set address code correctly / Replace data concentrator
010	Data concentrator ZE 1 SLAVE defective	Data pack or connection to data pack is defective.	Reestablish the connection to data pack.
011	Data concentrator ZE MASTER defective	Data pack or connection to Data pack is defective.	Reestablish connection to Data pack or replace.
012	Tele 2 and Tele 3 do not run synchronized.	Due to high friction and too high load, the control cannot reestablish synchronization.	Set down load. Lubricate telescopic boom. Retry moving to this boom position .
013	Error in relay chain	When running LICCON control it was found that one or more outputs did not shift properly.	Check LICCON output flow, check CENTRAL UNIT -DK relay. Replace CENTRAL UNIT or relay.
040	Programming error in EPROM table, NO table was sold	Memory error in EPROM program .	Have EPROM program reprogrammed and replaced at the factory.
041	Default operating mode not complete (load capacity chart or geometry data is missing!)	Memory error in EPROM program .	Have EPROM program reprogrammed and replaced at the factory.
042	No valid set up configuration in this load capacity chart	Memory error in EPROM program .	Have EPROM program reprogrammed and replaced at the factory.

Error number	Error description	Cause of error	Elimination of error
050	No load capacity chart shown in set up configuration	There are no load capacity values in the table columns in the set up program , because an attempt was made to choose an invalid equipment configuration or after choosing an equipment configuration, via the function key, the "ENTER" key was not pressed.	Choose the correct equipment configuration via CODE or, after choosing it via the function keys, press the "ENTER" key to validate the entry.
051	External occurrence is missing	The necessary limit switch information for the equipment configuration is missing, such as "slewing platform locked".	Apply slewing platform lock.
052	Change set up under load	An attempt is made to select a new set up configuration and the load is larger than 500 kg **and** the working radius is larger than 20 %.	Remove load or turn system off and start again. On the 1st confirmation of the equipment configuration after turning the system on, press "OK" to permit this load.
059	Loss of telescope length information	The power supply unit was replaced and when it was turn on again it was found that the gripper was pinned in a different telescope, than was stored in the unit before it was turned off. The replaced power unit contains no valid information about the pinning condition of the telescopic boom. If a telescope is unpinned, the length sensor stops functioning (wiring torn, electrical defect).	Retract all telescopic sections. If the gripper is in tele 4 and the total tele length is below 50%, the system synchronizes automatically. If the length sensor is defective, replace it.
061	An attempt is made to telescope with the telescopic pin inserted.	The pins of the open telescope are aligned on the telescopic wall and are not close to a pin hole.	Unlock telescopic section.
064	Total momentum < half of empty momentum, boom supported	The boom pressure has been released by setting it down, or the pressure sensor is defective.	Free the boom or replace the pressure sensor.

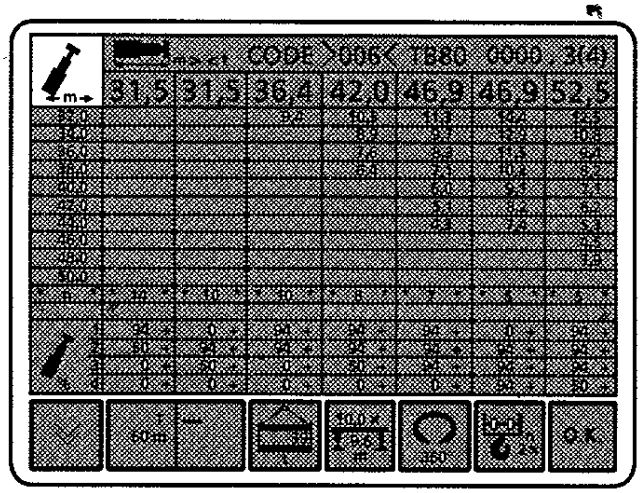
Error number	Error description	Cause of error	Elimination of error
070	Tele 1 moves without control.	Due to too high friction of the telescope, tele 1 is pulled along when telescoping the other section.	Retract tele 1 .
072	Coupled telescopic sections move without control	Due to too high friction of the telescope, the coupled telescopic sections are pulled long when telescoping the other sections .	Retract tele 2/3 .
120	Upper hoist limit switch "Telescopic boom " falls below lower limit value	Hoist limit switch signal is below limit value, which signals "switch open". Check for broke wire or short circuit after ground or parallel wiring resistance in hoist limit switch is interrupted.	Eliminate wiring problem or replace hoist limit switch.
121	Upper hoist limit switch "Telescopic boom " exceeds upper limit value	Hoist limit switch signal is above limit value, which signals "switch closed". There is a short circuit after PLUS or serial wiring resistance in hoist limit switch has continuity.	Eliminate wiring problem or replace hoist limit switch.
122	Upper hoist limit switch "Auxiliary boom" falls below lower limit value	Hoist limit switch signal is below limit value, which signals "switch open". Check for broke wire or short circuit after ground or parallel wiring resistance in hoist limit switch is interrupted.	Eliminate wiring problem or replace hoist limit switch.
123	Upper hoist limit switch "Auxiliary boom" exceeds upper limit value	Hoist limit switch signal is above limit value, which signals "switch closed". There is a short circuit after PLUS or serial wiring resistance in hoist limit switch has continuity.	Eliminate wiring problem or replace hoist limit switch.

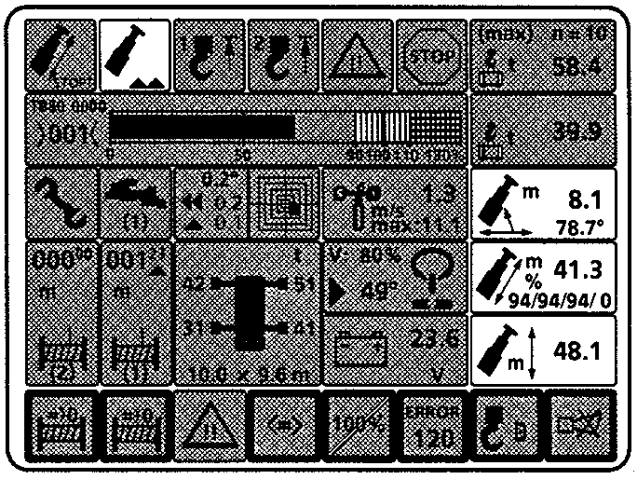
Error number	Error description	Cause of error	Elimination of error
147	Radius list has incorrect entry	Memory error in EPROM program	Have EPROM reprogrammed at the factory or replace it.
148	The actual reach (working radius) is smaller than the smallest working radius	Boom system was raised to much. For this range, there is no load capacity chart.	Carefully lower the boom
149	The actual reach (working radius) is larger than the largest working radius	Boom system was lowered to much. For this range, there is no load capacity chart.	Carefully raise the boom
150	The boom system is in an unpermitted boom position	The boom position is determined by the angle of the telescopic boom,possibly the angle of a luffing lattice fly jib, the percentage extension condition and the pinning condition of the various telescopic sections. One or more of these criteria are fulfilled.	Return to the last movement / pinning change,which led to a change of the last valid boom position .
151	Programming error (unknown access to load capacity chart)	Memory error in EPROM program.	Have EPROM reprogrammed at the factory or replace it.
152	Chosen load capacity chart was not found because external signals changed.	A set up configuration is used, which requires an external limit switch signal (for example: 0 degrees to the back). This signal was changed during operation.	Reset the signal condition, or choose a load capacity chart, which does not require this signal (for example: slewing range 360 degrees)
153	Selected operating mode does not correspond to the operating mode key.	A different operating mode was preselected on the instrument panel than in the LICCON Wiring error in operating mode entries of LICCON system.	Choose the correct operating mode in the control or LICCON system.
154	Crane is not supported or at least one support pressure sensor is defective (only for cranes with sliding arm monitoring system)	The sum of all supporting surfaces is smaller than the minimum crane weight without counterweight and attachments. The error message can also occur if at least one support pressure sensor is defective.	Support the crane properly that all wheels are raised off the ground, see crane Operation Manual. If the support pressure sensor is defective, replace it.

Error number	Error description	Cause of error	Elimination of error
155	Support basis and load capacity chart do not match or a length sensor for the support system is defective (only for cranes with sliding arm monitoring system)	The sliding arm with the least extension condition determines the support basis. The corresponding load chart must be selected.	Match the support basis to the selected load chart or select one of the load charts, which corresponds to the correct support basis. If necessary, fix the defective length sensor.
	Counterweight on the crane does not match the selected load capacity chart (only applicable on cranes with counterweight monitor).	The counterweight was not correctly assembled and installed.	Assemble and install the counterweight as specified on the load capacity chart.
157	Pressure sensor values in left and right luffing cylinder are not the same	One or both pressure sensors are defective	Check pressure sensor and replace defective sensor.
158	Pressure sensor values in left luffing cylinder falls below lower limit value.	Left pressure sensor is defective or wire is broken in sensor wiring	Replace pressure sensor or fix wiring defect.
159	Pressure sensor values in left luffing cylinder exceeds upper limit	Left pressure sensor is defective or short circuit in Plus in sensor wiring	Replace pressure sensor or fix wiring defect.
160	Pressure sensor value in right luffing cylinder falls below lower limit value	Right pressure sensor is defective or wire is broken in sensor wiring	Replace pressure sensor or fix wiring defect.
161	Pressure sensor value in right luffing cylinder exceeds upper limit value	Right pressure sensor is defective or short circuit in Plus in sensor wiring	Replace pressure sensor or fix wiring defect.
162	Angle sensor value - telescopic section falls below lower limit value	Angle sensor on telescopic section is defective or wire is broken	Replace angle sensor or fix wiring defect.
163	Angle sensor value telescopic section exceeds upper limit value	Angle sensor on telescopic section is defective or short circuit to Plus	Replace angle sensor or fix wiring defect.
164	Length sensor total smaller than Tele 1	Length sensor total measures wrong or length sensor 1 is stuck	Check length sensor 1 and length sensor total in test range, if necessary, release length sensor 1
165	The difference between angle sensor value of telescopic section and pulley head is too large	One or both pressure sensors do not work properly	Check both angle sensor and check wiring. Fix wiring problem or replace defective angle sensor.

Error number	Error description	Cause of error	Elimination of error
166	Length sensor value - gripper has fallen below lower limit value	Length sensor is defective or wire is broken	Replace length sensor or fix wiring defect.
167	Length sensor value- gripper has exceeded upper limit value	Length sensor is defective or short circuit to PLUS	Replace length sensor or fix wiring defect.
168	Angle sensor - pulley head has fallen below lower limit value	Angle sensor in pulley head is defective or broken wire	Replace angle sensor or fix wiring defect.
169	Angle sensor - pulley head has exceeded upper limit value	Angle sensor on pulley head is defective or short circuit to PLUS	Replace angle sensor or fix wiring defect.
170	Total value of length sensor value is outside of test range	Length sensor defective or broken wire	Replace length sensor or fix wiring defect.
171	Total value of length sensor value is outside of test range	Length sensor is defective or short circuit to PLUS	Replace length sensor or fix wiring defect.
172	Value of length sensor / Tele 1 is outside test range	Length sensor 1 is defective or wire is broken	Replace length sensor or fix wiring defect.
173	Value of length sensor / Tele 1 is outside test range	Length sensor 1 is defective or short circuit to PLUS	Replace length sensor or fix wiring defect.
174	Value of length sensor / Tele 2 is outside test range	Length sensor 2 is defective or wire is broken	Replace length sensor or fix wiring defect.
175	Value of length sensor / Tele 2 is outside test range	Length sensor 2 is defective or short circuit to PLUS	Replace length sensor or fix wiring defect.
176	Total value of length sensor is smaller than Tele 2	Total of length sensor or length sensor 2 measures wrong or length sensor 2 wire is stuck	Check test range of length sensor total and length sensor 2, if necessary, replace length sensor 2
177	Value of length sensor Tele 2 is smaller than Tele 1	Length sensor 1 or length sensor 2 measures wrong or length sensor 1 wire is stuck	Check test range of length sensor total and length sensor 2 , if necessary, replace length sensor 2
182	Angle sensor value of luffing lattice fly jib has fallen below lower limit value	Luffing lattice fly jib has been lowered below 0 degrees, the angle sensor for the luffing lattice fly jib is defective or wire is broken	Raise luffing lattice fly jib or replace angle sensor or fix wiring defect
183	Angle sensor value of luffing lattice fly jib has exceeded upper limit value	Angle sensor for the luffing lattice fly jib is defective or short circuit to PLUS	Replace angle sensor or fix wiring defect
184	Force sensing box / measure shaft / pressure sensor -1 on luffing lfly jib has fallen below lower limit value.	not connector or defective or wire is broken	connect or replace it or fix wiring defect

Error number	Error description	Cause of error	Elimination of error
185	Force sensing box / measure shaft / pressure sensor -1 on luffing fly jib has exceeded upper limit value.	defective or short circuit to PLUS	Connect or replace it or fix wiring defect.
186	Measuring bracket of winch has fallen below lower limit value	Measuring bracket is not connected,the measuring bracket is defective or a wire is broken	In cabled operation, connect the measuring bracket or replace it or fix wiring defect
187	Measuring bracket of winch has exceeded upper limit value	Measuring bracket is defective or short circuit to PLUS	Replace measuring bracket or fix wiring defect
188	Length sensor - telescoping luffing jib	Length sensor is defective or wire is broken	Replace length sensor or fix wiring defect
189	Length sensor - telescoping luffing jib	Length sensor is defective or short circuit to PLUS	Replace length sensor or fix wiring defect
190	Pressure sensor 2 - telescoping luffing jib	Pressure sensor is defective or wire is broken	Replace pressure sensor 2 or fix wiring defect
191	Pressure sensor 2 - telescoping luffing jib	Pressure sensor is defective or short circuit to PLUS	Replace pressure sensor 2or fix wiring defect
249	Both data concentrator coding incorrect	Address code of both data concentrators incorrect or coding switch faulty	Set address codes correctly / Replace data concentrators
250	Data concentrator is defective	Both data concentrator on the boom or line are defective	Check supply line and data line and replace data concentrators, if necessary.
254	At hyperbolic interpolation X1 = X2	Data error in EPROM program	Determine condition of crane (angle, T1, T2, T3, T4) and forward this information to Liebherr-Werk Ehingen GmbH . Replace EPROM .
499	The necessary number of central units for this application is not available.	Second central unit (ZE 1) is not installed or defective	Check second central unit for proper function ("¦" must be visible in the red display) replace it if necessary.


CODE 006 TB80 0000 3(4)
31,5 31,5 36,4 42,0 46,9 46,9 52,5
O.K.


STOP
58.4
39.9
8.1
78.7°
41.3
94/94/94/0
48.1
23.6
V
10.0 x 9.6 m
ERROR
120