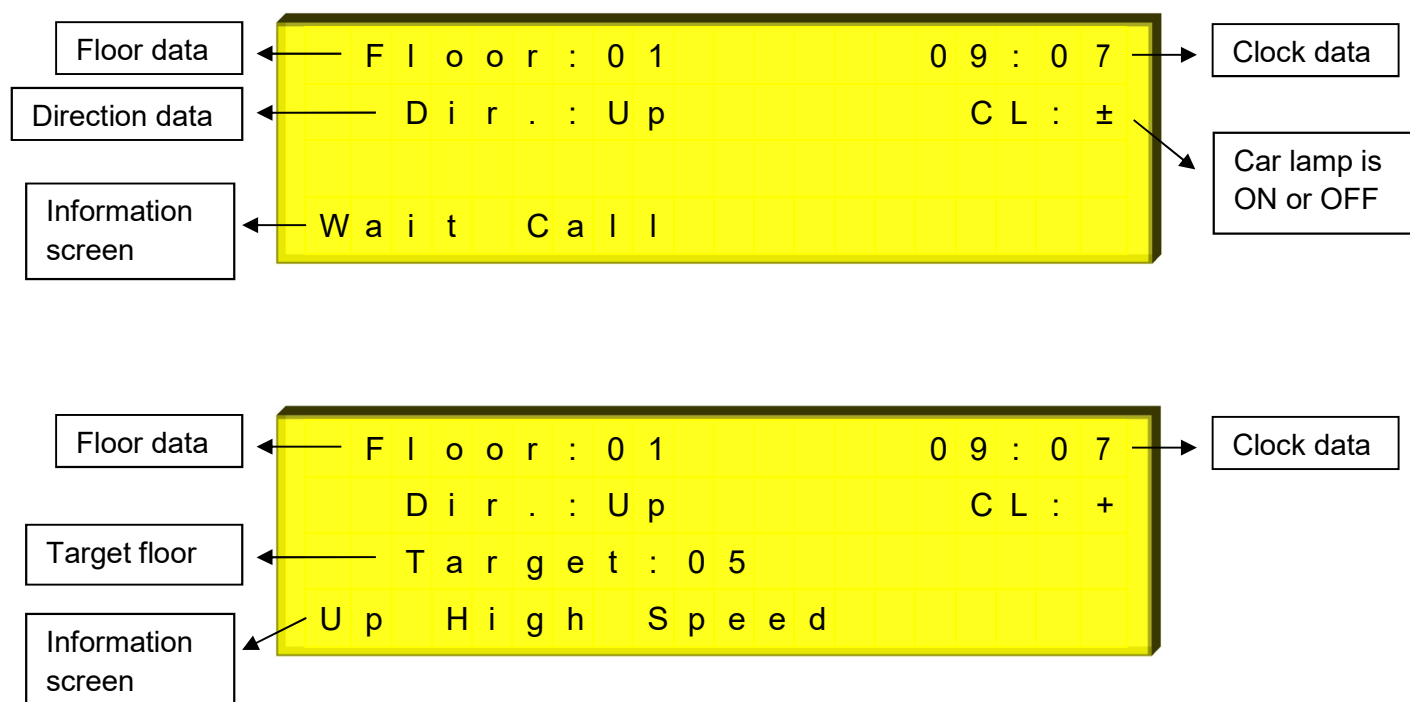


## **ML50S LCD SCREEN USAGE**

Lift position and fault datas are screened on LCD top line on ML50S card. When the car is on stand by position, floor number is on LCD top line.



When the car is moving, on the left side of LCD third line, there is target floor.

## **ML50S BUTTON USAGE EXPLANATIONS**

There are four buttons at the right side of ML50S card. Some functions are appointed to these buttons except the situation that the car is stopped, stop signal is off or stop signal is cut and re-applied and inspection mode.

**ENTER BUTTON (Red)** : Manual movement mode is started when pressed this button. At this situation, if safety circuit is OK, the car is moved with UP and DOWN buttons. Soft stop is done at the end of the movements for Speed Control Systems. ESC button must be pressed to exit Manual Movement mode.

**UP BUTTON (Yellow)**: Situation screens are shown in order when pressed this button. The explanations related this function will be done below.

**DOWN BUTTON (Yellow)**: Car calls function is started when pressed this buton. The explanations related this function will be done below.

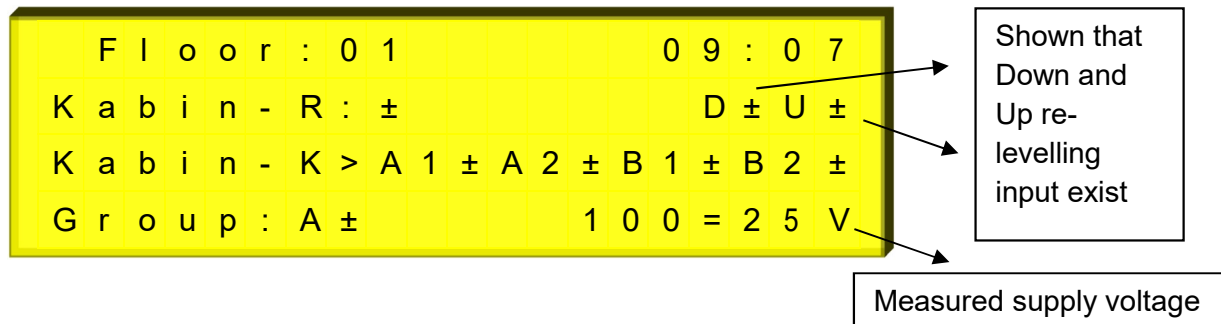
**ESC BUTTON (Black)**: Registered fault observing function is started when pressed this button. The explanations related this function will be done below.

## **SITUATION SCREENS TRACING - UP BUTTON USAGE**

When pushed the up button every time, below screens are traced. Explanations are made.

Situation screens datas can be reached with up button and looked at between the screens.

### **Car Cards Communication Screen**



If there is communication with ML50S card, the sign will be "+" and if not, the sign will be "-".

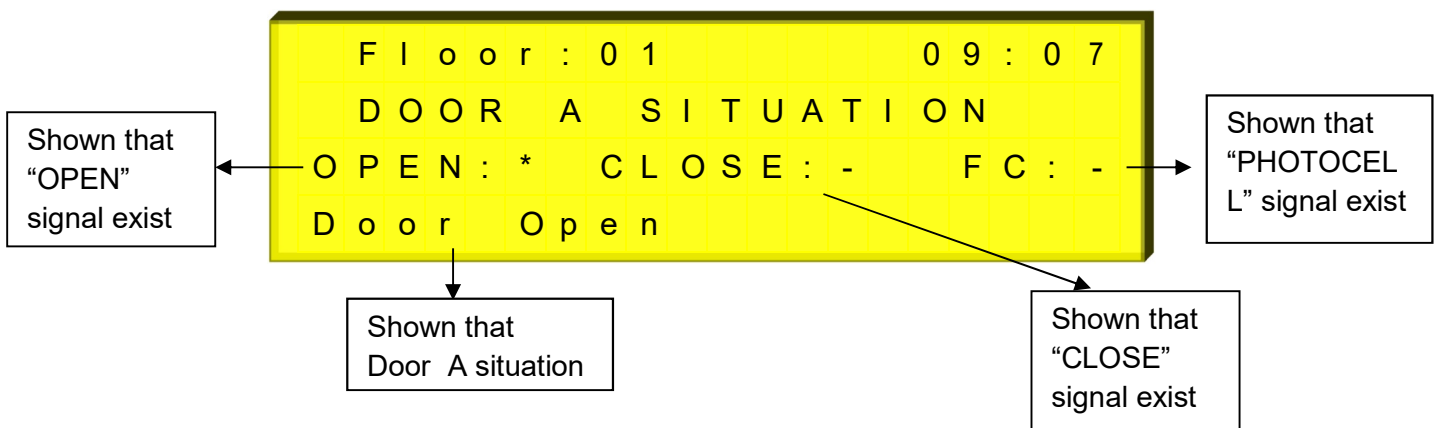
### **Floor Card Communication Screen**

This screen is belong to floor card near door A, if floor number is bigger than 16, the second screen will be traced. The same situation is exist for the floor card near door B.

|                                 |       |           |     |
|---------------------------------|-------|-----------|-----|
| F l o o r                       | C A N | C o m m . | - A |
| 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 |       |           |     |
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 |       |           |     |
| + + + + + - - - - - - - - - -   |       |           |     |

If there is communication with ML50S card, the sign will be "+" and if not, the sign will be "-".

### **Door Situation and Signals Screen**





### ***Maintenance Date Screen***

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| 0 | 1 | . | 0 | 1 | . | 1 | 7 |   |   |   |   |   |   |   |   |   |   | 0 | 9 | : | 0 | 7 |  |
| M | a | i | n | t | . | D | a | t | e | : | 0 | 7 | . | 0 | 4 | . | 1 | 7 |   |   |   |   |  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |

### ***Run Numbers Screen***

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
|   |   |   |   | T | o | t | a | l |   | R | u | n |   |   |   |   |   |   |   |  |  |  |  |
|   |   |   |   | 0 | 0 | 0 | 1 | 4 | 0 | 2 | 6 |   |   |   |   |   |   |   |   |  |  |  |  |
| R | u | n | A | f | t | e | r |   | M | a | i | n | t | e | n | a | n | c | e |  |  |  |  |
|   |   |   |   | 0 | 0 | 0 | 0 | 1 | 5 | 7 | 8 |   |   |   |   |   |   |   |   |  |  |  |  |

### **DOWN BUTTON USAGE**

When the lift is stand-by, three functions can be run with down button. These are;

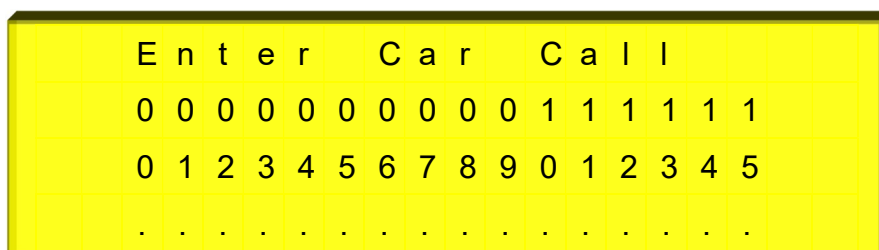
- 1- Inside the car calls,
- 2- Doing active or passive the floor doors,
- 3- Doing active or passive the floor calls.

When pushed the down button every time, below screens are traced in order. If the function is requested to run, pressed ENTER. Floor doors and calls situations in that time (Active or Passive) are shown the bottom line.

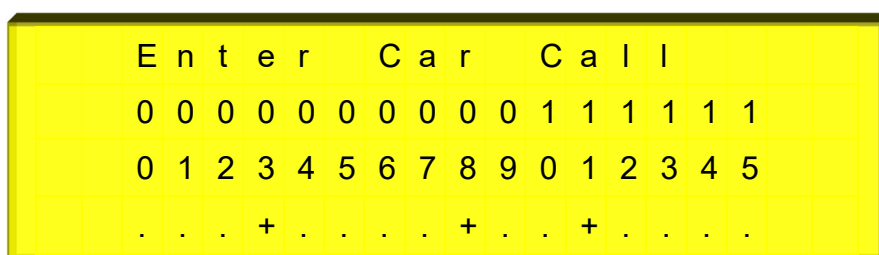
## **1- Enter Car Call**

Manual car call can be entered to the lift with down button.

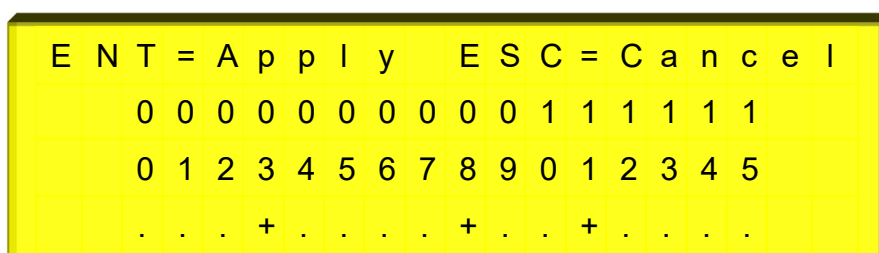
### ***Enter Call Screen***



Dots on the screen indicate floor numbers in order. Floor that will be given call is selected with cursor and put "+" sign with "ENTER" on the floor number. More than one call, the other floors are selected the same.



To exit the function, it must be pressed to "ESC" button.



On the screen, registrations are canceled with "ESC" button or registrations are confirmed with "ENTER" button and exit from the function.

## **2- Floor Doors Active And Passive Function**

When this functions is on the top screen, if pressed the ENTER button, arrow sign is traced the right bottom line of the screen. Then the floor doors situation, active or passive, will

be changed with UP and DOWN buttons on the bottom line of the screen. When pushed the ENTER button, arrow sign is deleted and the situation on the bottom line is selected.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | l | o | o | r | : | 0 | 1 |   |   |   |   |   |   |   |   | 0 | 9 | : | 0 | 7 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   | L | a | n | d | i | n | g |   | D | o | o | r | s |   |   |   |   |
| - | > |   |   |   |   |   | A | c | t | i | v | e |   |   |   |   |   |   |   |   |

### **3- Floor Calls Active And Passive Function**

When this functions is on the top screen, if pressed the ENTER button, arrow sign is traced the right bottom line of the screen. When this functions is traced, if pressed the ENTER button, arrow sign is traced the right bottom line of the screen. Then the floor calls are changed active or passive on the bottom line of the screen. When pushed the ENTER button, arrow sign is deleted and the situation on the bottom line is selected.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | l | o | o | r | : | 0 | 1 |   |   |   |   |   |   |   |   | 0 | 9 | : | 0 | 7 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   | L | a | n | d | i | n | g |   | C | a | L | L | s |   |   |   |   |
| - | > |   |   |   |   |   | A | c | t | i | v | e |   |   |   |   |   |   |   |   |

### **ML50S REGISTRATION FAULTS TRACING – ESC BUTTON USAGE**

When the lift is working, some faults being in the system are registered with the direction, station, day and hour (real time) datas. It can be registered the last 64 faults. When the car is stopped, if ESC button is pressed except the situation that the car is stopped, stop signal is off or stop signal is cut and re-applied and inspection mode, fault tracing function is started. Out of service lamp is ON.

|   |   |   |   |   |  |   |   |   |   |   |   |   |   |  |   |   |   |   |   |
|---|---|---|---|---|--|---|---|---|---|---|---|---|---|--|---|---|---|---|---|
| E | r | r | o | r |  | T | r | a | c | k | i | n | g |  | 1 | 4 | : | 5 | 1 |
|   |   | 0 | 1 |   |  | C | o | d | e | = | 3 | 6 |   |  | 1 | 2 | : | 3 | 0 |
|   |   | > | 0 | 2 |  | C | o | d | e | = | 0 | 7 |   |  | 1 | 4 | : | 2 | 9 |
|   |   |   | 0 | 3 |  | N | o |   | F | a | u | l | t |  |   |   |   |   |   |

Faults are shown by order on the first viewing screen with their codes and times of occurrence. They can be viewed with up and down buttons. When pressed ENTER button, detailed fault information that is shown with the arrow on the left side is screened.

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | v | e | r | M | a | x | H | i | g | h | S | p | e | e | d | T | i | m | e |   |
| 2 | 4 | . | 1 | 0 | . | 1 | 6 |   |   |   |   |   |   |   |   | 1 | 4 | : | 2 | 9 |
| F | : | 0 | 1 |   |   |   |   |   | D | i | r | : | D | o | w | n |   |   |   |   |
| x | = | 1 | 1 | 1 | 0 |   | y | = | 1 | 1 | 1 | 1 |   | z | = | 1 | 0 | 1 | 0 |   |

Some numbers against x,y,z are shows that some inputs are (1) or (0). These inputs are like that:

x = 120 – 130 – 140 – 142

y = 817 – 818 – ML1 – ML2

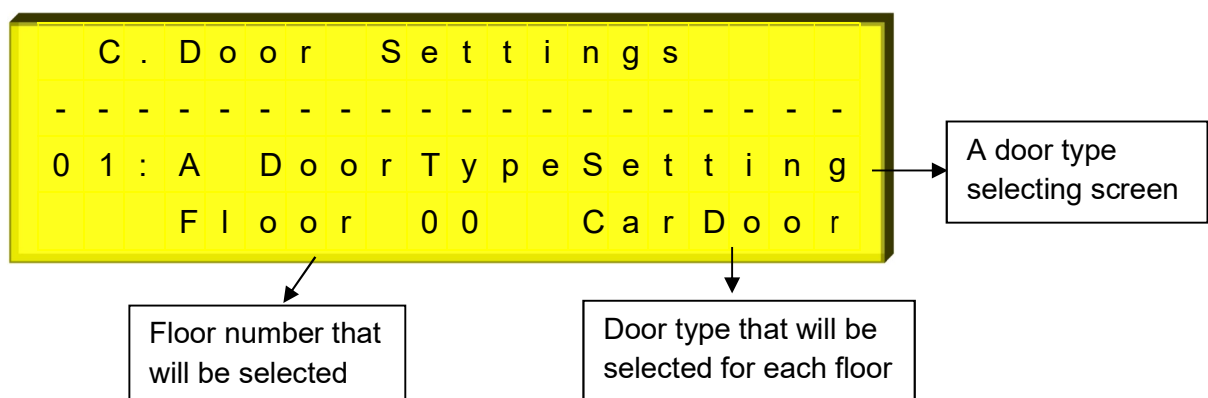
z = KRC – 870 – 869 – HRF

(If 142 is in cabin stopping distance with shaft learning system, for example if stopping distance is 70mm, it will be shown “1” if the car is between +70mm and -70mm, if it is out of this zone, it will be shown “0”)

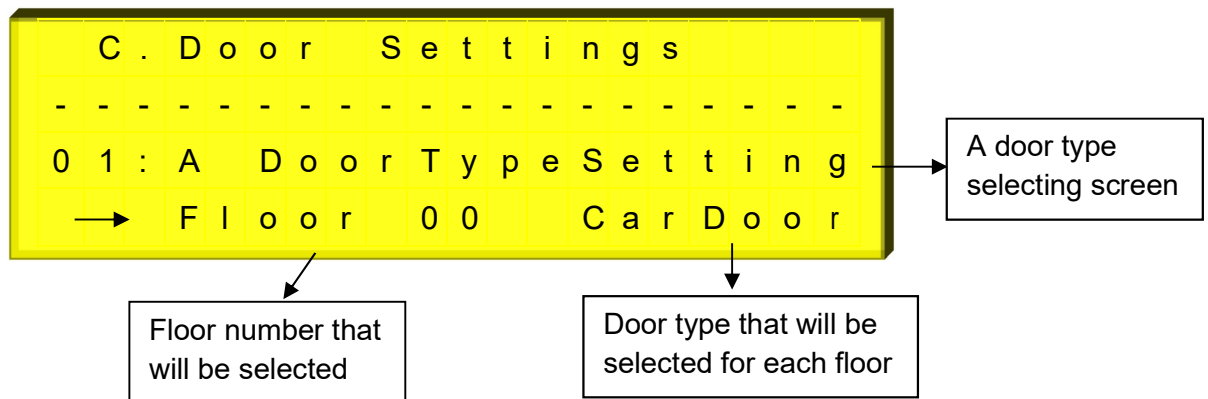
When ESC button is pressed or detected the car or control panel inspection key, fault tracing function is end. At the programming mode, if enter to “G.Maintenance Sets” section and select YES in (G04) parameter “Delete Faults ?” menu, registered faults are deleted.

## **DOOR TYPES SELECTION IN PROGRAMMING**

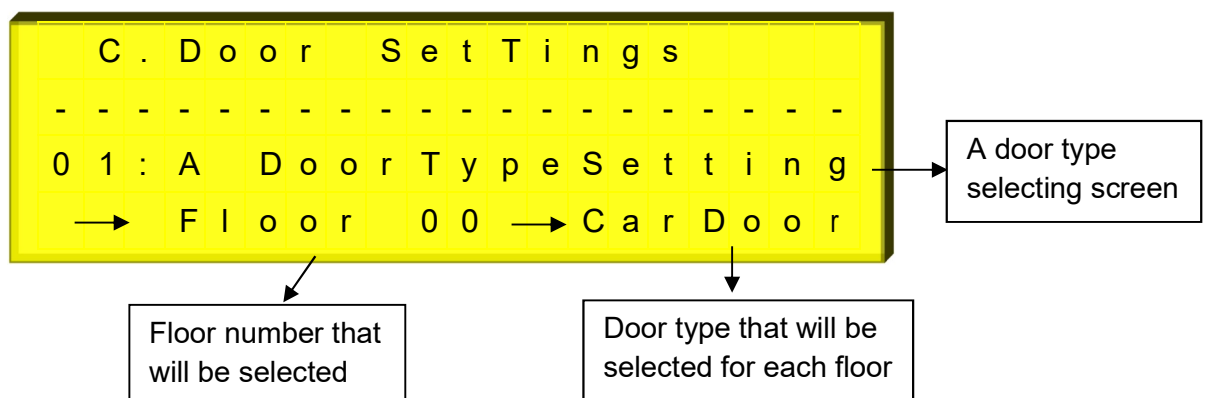
Door types on each floors can be selected A side and B side separately. Door types can be indicated as; CarDoor (only car door automatic), FullAu. (floor +car door automatic), No Door (there is no door).



For selection, with lightening left arrow by pressing ENTER button, required floor is selected.

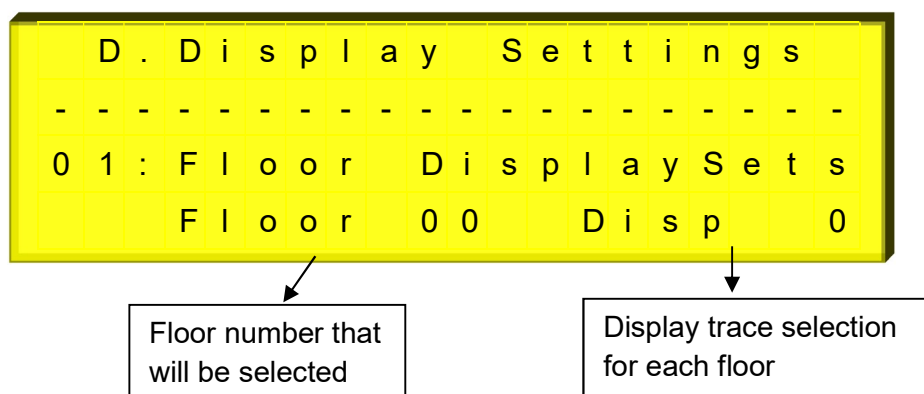


If floor door type is required to change, it is pressed ENTER button second time and lightened right arrow and door type is selected.



Also if all door types are the same type, "For All" on the left side floor screen is selected, it is pressed ENTER button and door type is selected with second arrow on the right side and all floors door types are defined the same type.

## **FLOOR DISPLAY SELECTION IN PROGRAMMING**

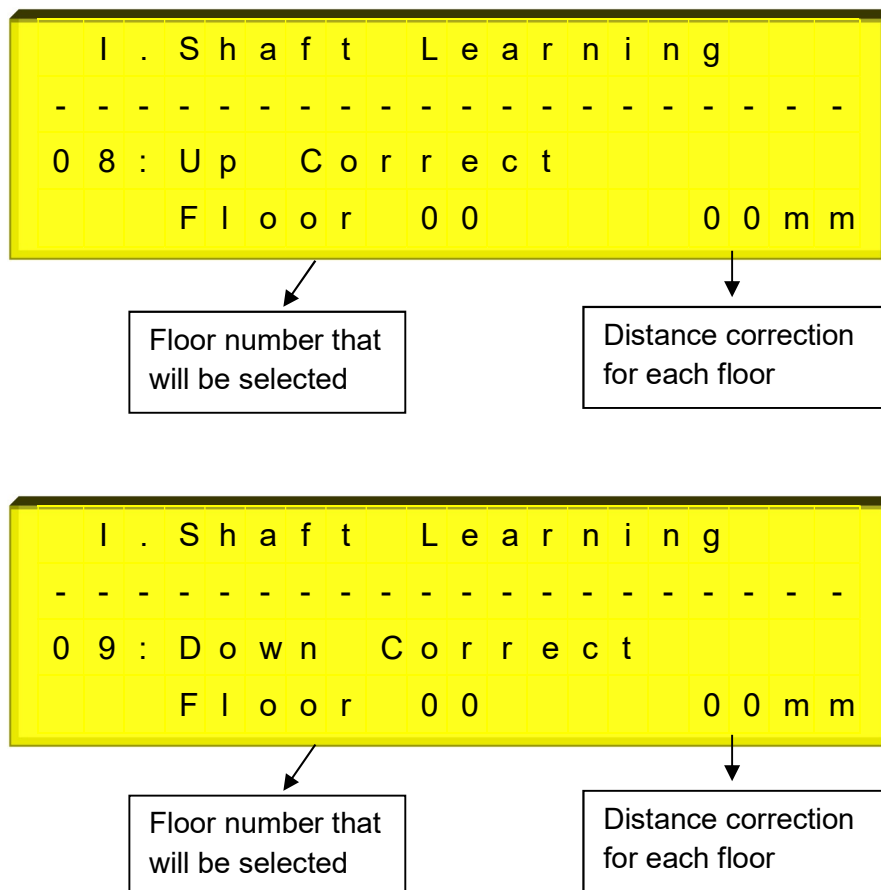




It is used for trace type selection that is required to be traced on floor for every floor. To change the parameter; first, by pressing ENTER button, floor is selected with arrow on left side. By pressing ENTER button again, display that will be traced is adjusted with arrow on right side.

If any floor display is adjusted a number value and the other floors displays are required to sort, it is pressed ENTER button during 2 seconds. "ENTER For Sorting" is started to flash on LCD bottom line. At this situation if it is confirmed by ENTER, all floor displays are sorted. ESC cancels the operation.

## **FLOOR LEVEL CORRECTIONS IN PROGRAMMING**



For each floor in shaft learning, at the situation of the car doesn't stop the floor level, it is used for accuracy correction. To enter the parameter, floor is selected with the arrow on left side by pressing ENTER button and by pressing again, distance correction is done as (-) or (+) value with arrow on the right side. Distances are indicated one by one or by using "For All" option in the left side of parameter, the same correction for all floors can be entered.

## **ML50S GENERAL FAULT EXPLANATIONS**

| <b>ERROR CODE</b> | <b>ERROR SCREEN DISPLAY</b>        | <b>EXPLANATION</b>  |
|-------------------|------------------------------------|---|
| <b>1</b>          | <b><i>Contactor Fault</i></b>      | This fault will be explained in the following sections.   |
| <b>2</b>          | <b><i>817-818 BothNotExist</i></b> | The situation that both necessary cutter is not exist at the same time. At this situation the calls are deleted and the lift is out of service till the one of the cutter is detected.  |
| <b>3</b>          | <b><i>StopNotExistLongTime</i></b> | The situation that stop signal is remained cut till the end of the adjusted time at menu C08 "DoorOpenInsp.Time" parameter. At this situation the calls are deleted and the lift is out of service till the stop signal is detected.  |
| <b>4</b>          | <b><i>DoorOpenForLongTime</i></b>  | The situation that the door is open till the end of the adjusted time at menu C08 "DoorOpenInsp.Time" parameter. At this situation the calls are deleted and the lift is out of service till the door signal is detected.   |
| <b>5</b>          | <b><i>Safety Circuit Error</i></b> | After the lift movement is started, this fault is given when one of 120-130-140 inputs are cut. During 10 sec. fault is shown on the screen and then back to normal working.  |
| <b>6</b>          | <b><i>Lock Signal Error</i></b>    | When the lift will move, the situation that the lock signal is not detected. Door lock magnet is picked up during the time in menu B05 "Lock Wait Time" parameter. At the end of the time, if it is not detected 140 input, fault is given. The fault is registered with the direction data. At this situation the calls are deleted and lift is out of service during 10 sec.  |
| <b>7</b>          | <b><i>OverMaxHighSpeedTime</i></b> | While the lift is high speed movement, the situation that floor changing is not detected from pulse bi-stable in adjusted time at parameter. At this situation the calls are deleted and fault is registered with direction data. If "Only Warn" on menu B33 "AtTheSpeedTime End" parameter is selected, fault is given during 10 sec. and then back to normal working. If "Block The Lift" is selected, system is blocked. |
| <b>8</b>          | <b><i>OverMax LowSpeedTime</i></b> | While the lift is high speed movement, the situation that floor changing is not detected from pulse bi-stable in adjusted time at parameter. At this situation the calls are deleted and fault is registered with direction data. If "Only Warn" on menu B33 "AtTheSpeedTime End" parameter is selected, fault is given during 10 sec. and then back to normal working. If "Block The Lift" is selected, system is blocked. |
| <b>20</b>         | <b><i>Driver Error Exist</i></b>   | When one of the rescue options is selected, the driver fault control is done from PGx input. When this input is not detected, this fault warning is shown at lcd screen.  |
| <b>21</b>         | <b><i>No 818 BeforeLastFl.</i></b> | Before coming the top floor, the situation of cutting 818 signal. The fault is registered with the direction data. At this situation the calls are deleted and lift is out of service during 10 sec.  |
| <b>22</b>         | <b><i>No817 BeforeFirstFl.</i></b> | Before coming the bottom floor, the situation of cutting 817 signal. The fault is registered with the direction   |

|           |   |   |
|-----------|---|---|
|           |   | data. At this situation the calls are deleted and lift is out of service during 10 sec.   |
| <b>23</b> | <b><i>OSG/Brake Error</i></b>   | This fault will be explained in the following sections.   |
| <b>24</b> | <b><i>UCM Error Detected</i></b>  | This fault will be explained in the following sections.   |
| <b>25</b> | <b><i>OSGrelayErr.Detected</i></b>  | This fault will be explained in the following sections.   |
| <b>26</b> | <b><i>R Phase Error<br/>S Phase Error<br/>T Phase Error</i></b>                             | The situation that one the phases is not exist. If this situation is occurred while the lift is moving, the car is stopped by locating a call to the nearest floor in the same direction. If there is not a phase when the lift is stopped at the nearest floor or the car is stopped, the calls are deleted and the lift is out of service.                      |
| <b>26</b> | <b><i>R,S Phase Error<br/>R,T Phase Error<br/>S,T Phase Error<br/>R,S,T Phase Error</i></b> | The situation that two of three of the phases are not exist. If the car is moving, it is stopped; the calls are deleted and the lift is out of service.   |
| <b>27</b> | <b><i>Phase Sequence Error</i></b>  | The situation that the phases orders connected to phase protection terminals (R, S, T) are wrong. At this situation the calls are deleted and the lift is out of service (Phase order is only controlled when the lift is stopped).   |
| <b>28</b> | <b><i>Motor PTC Error</i></b>   | Fault of motor over heated. In this situation, if the lift is moving, the lift is stayed out of service position at the nearest floor.  |
| <b>29</b> | <b><i>EARTHQUAKE Input !</i></b>  | This fault will be explained in the following sections.   |
| <b>30</b> | <b><i>FIRE Input !</i></b>  | This fault will be explained in the following sections.   |
| <b>31</b> | <b><i>Limit Error</i></b>   | In shaft learning systems, this fault is occurred when 817 input is exist although the car is at the bottom floor or 818 input is exist although the car is at the top floor. When the fault occurs, all calls are deleted. The lift is stayed out of service position till the lift is inspection mode.  |
| <b>32</b> | <b><i>Door Opening Error</i></b>  | To control the unintended opening of one or any of floor doors, it is connected to assignable inputs Door Control 1 and 2 from the control outputs of door situation control card (MLDC). This faults is occurred when unintended opening of one or any of floor doors. When the fault occurs, all calls are deleted. The lift is blocked.                        |
| <b>33</b> | <b><i>Valve Error</i></b>   | In hydraulic systems, if it is selected a value between 500-5000 msec. on menu B36 "A3valve TraceTime" parameter, it is detected A3 valve working from assigned PGx input. When the valve is dropped or picked up, if it is detected unsuitable signals for working diagram this fault occurs. When the fault occurs, all calls are deleted. The lift is blocked. |
| <b>34</b> | <b><i>CarDoor ContactError</i></b>  | This fault will be explained in the following sections.   |
| <b>35</b> | <b><i>Door Contact Error</i></b>  | This fault is screened when door open relay is picked up and 130 input is still exist, and the lift is blocked. At the same way, this fault is screened when door close relay is picked up and 130 input is not still exist, and the lift is blocked.   |
| <b>36</b> | <b><i>Low Voltage Error</i></b>   | This fault is screened when the card supply voltage is dropped under 20V and the lift is blocked.   |

|           |                                    |  |
|-----------|------------------------------------|--|
| <b>50</b> | <b><i>Shaft Learning Error</i></b> | At shaft learning system, if menu B29 "Floor Detection" parameter is selected "Encoder", this fault is screened. The lift is stayed out of service position.   |
| <b>51</b> | <b><i>Encoder ReadingError</i></b> | At shaft learning system, while entering the floor door zone that the car will stopped, this fault is screened when the distance between ML1 and ML2 is not detected from the encoder. In this case, all calls are deleted. The lift is blocked. |
| <b>52</b> | <b><i>DoorMotorTemp.NTC</i></b>    | This fault is screened when detection of the motor temperature is increased and the lift is blocked.   |

Notes :

Controls that phases are not exist are shown at screen during ML50S card has power.

- 1- Phase order fault is only controlled when the lift is stopped.
- 2- If one of the lifts is out of service at doublex working because of any fault, external calls appointed on this lift are transfered to the other lift.

## **WORKING OF DOOR BRIDGING SECTION and EXPLANATIONS OF THE FAULTS ABOUT THIS SECTION**

### ***1- Working of Door Bridging Section***

Door bridging section is made up of three safety relays (RML1, RML2, RML3) and a mini relay (RE). Door bridging means to bridge the 120 and 140 inputs. It is explained that how to do this operation with below substances.

- When 24V is exist on ML1 and ML2 inputs (when the leds are lighted)
- RML3 relay is dropped and picked up for a short time.
- With RML3 relays dropped, RML1 and RML2 relays are dropped and stayed like this.
- It is controlled from the ST output that RML1 and RML2 relays are dropped.
- It is ready to bridging operation that RML1 and RML2 relays are dropped and RML3 relay is picked up.
- Then RE relay is dropped to door bridging.
- If the bridging is completed, it means 120 and 140 terminal pins are short circuit.
- RML1 and RML2 relays are stayed droppped if ML1 and ML2 inputs have 24V.

If any fault is occurs about the bridging section, RE relay is picked up.

### ***2- Door Bridging Fault Descriptions***

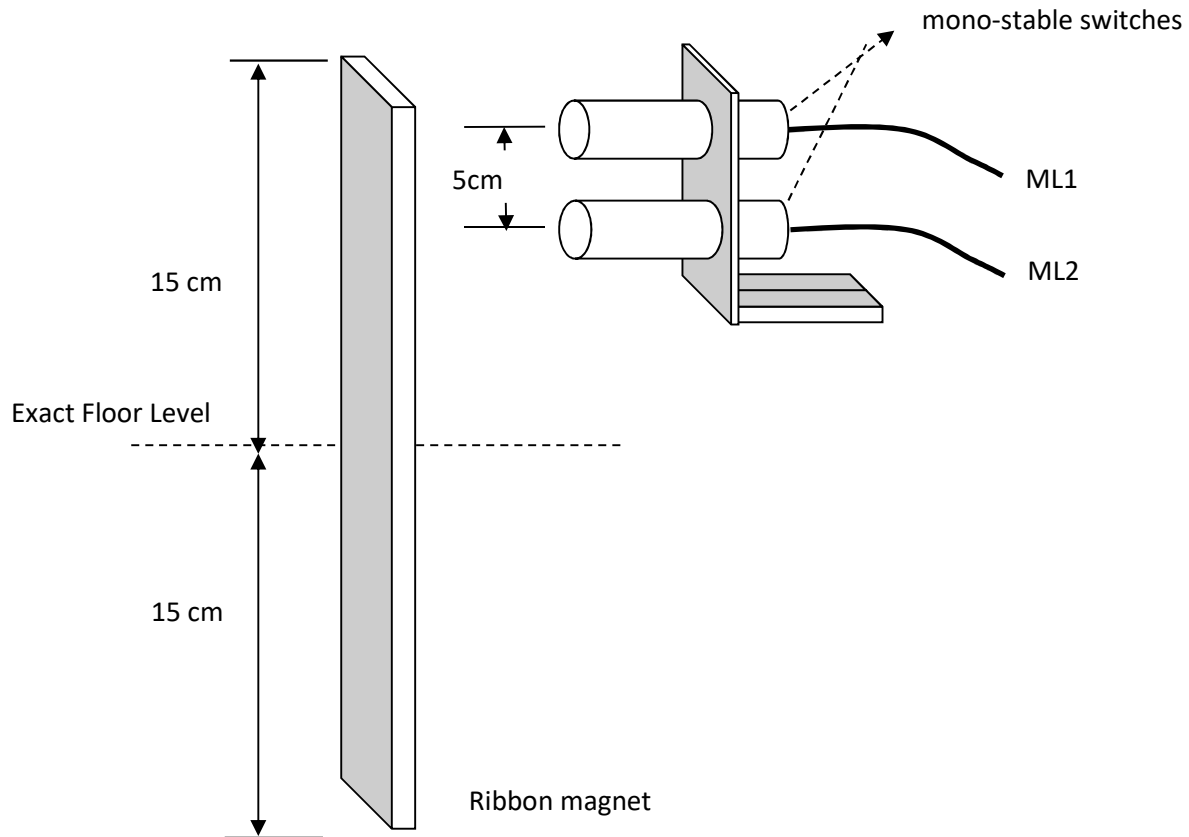
When door bridging operation is done, if the faults that descriptions are belowed are occurred, fault message is shown at lcd screen and registered to the memory. At this situation the lift is blocked by lightening out of service lamp. After the block operation, when the control panel power is cut and re-applied, "BridgeErrorExist" is traced on lcd and blockage of the card is continues. To cancel the blockage, must be entered to "J.GeneralSetings" and selected YES

on “Del.BridgeErr” menu in (J05) parameter, and registered fault must be deleted. To look the registered fault, UP button must be used that is explained in button descriptions.

| <b>ERROR CODE</b>       | <b>FAULT SCREEN DISPLAY</b>   | <b>EXPLANATION</b>  | <b>WHAT TO DO</b>  |
|-------------------------|---|---|--|
| <b>9</b>                | <b><i>ML1-ML2 ShortCircuit</i></b>  | ML1 and ML2 inputs are short circuit.   | Check ML1 and ML2 inputs that they are short circuit or not. Use different switches for ML1 and ML2 re-levelling zone mono-stable swithes.               |
| <b>10</b>               | <b><i>RML1OrRML2NotPickUp</i></b>   | There is no situation signal of RML1 or RML2 bridging safety.   | If there are ML1 and ML2 signals, check RML3 relay is dropped at the start of bridging and then RML1, RML2 relays are dropped.                           |
| <b>11</b>               | <b><i>RML1OrRML2NotDropped</i></b>  | There is always situation signal of RML1 or RML2 bridging safety.   | Check RML1 or RML2 relays are not pulled although there are no ML1 or ML2 signals.   |
| <b>12</b>               | <b><i>Not Bridged</i></b>   | The signal is not detected from “140” input although bridging operations are done.                            | Check that RML1,RML2,RE relays are dropped and RML3 relay is picked up.  |
| <b>13</b>               | <b><i>140 On AfterBridging</i></b>  | Although the end of bridging operation, signal is detected from “140” input.                                  | Check RE relay is dropped.   |
| <b>14<br/>15<br/>16</b> | <b><i>ML1 Shunt To 100<br/>ML2 Shunt To 100<br/>ML1AndML2ShuntTo100</i></b> | Detecting ML1 and/or ML2 signal when the lift is at low speed movement because of detecting the target floor. | 1-Check ML1 and/or ML2 input is not short circuit with 100.<br>2-Take the zone that the car passed to low speed to the front than the re-levelling zone. |
| <b>17<br/>18<br/>19</b> | <b><i>ML1 Missing<br/>ML2 Missing<br/>ML1-2 Missing</i></b>                 | Not detecting ML1 and/or ML2 signal when the car is stopped at call floor.                                    | Check ML1 and/or ML2 inputs.   |

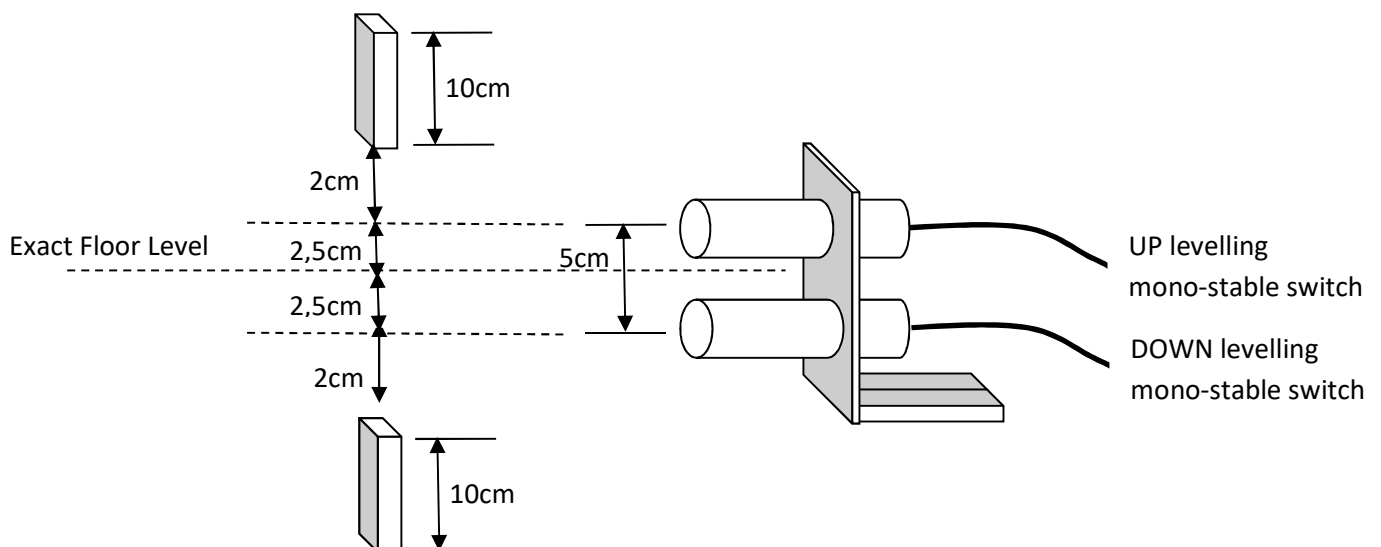
## **DOOR ZONE MAGNET LOCATION**

ML1 ve ML2 mono-stable swithes are shown how to be located below that will be used in the lift system do the re-levelling.



## **RE-LEVELLING MAGNET LOCATION**

Mono-stable swithes using for UP and DOWN re-levelling and ribbon magnets are shown how to be located below that will be used in the lift system do the re-levelling.



## **TRACING CAR DOOR EXTRA CONTACT AND DOOR SOCKETS**

EN 81-20 standard requests an extra open contact that will work with car lock contact. This contact is NC type and one of the pins is connected to 100 (+24 VDC), the other pin is connected to an any assignable input. When the car is not moving and 120 input is exist, if 130, 140 and any of extra contact inputs are energized and two of them are not energized, then the fault occurs and "CarDoor ContactError" is shown on the top of the screen. A few time later after door closing relay dropped, if this input still has not energized, at the same time fault is screened and blocked the lift.

While the car is stopped and 120 input is exist; A few time later after door opening relay dropped, if 130 input is still exist, "Door Contact Error" is screened. A few time later after door opening relay dropped, if 130 input is not still exist, at the same time fault is screened and blocked the lift.

When the car is moving at normal working, car extra contact input is not controlled. But in inspection mode, it is always controlled.

## **INSPECTION MODE**

### **1- Taking the Lift to Inspection Mode**

The lift can be taken to inspection mode by three ways; recall key, inspection key on top of the car and pit inspection key. Inspection key on top of the car and recall key are controlled by an input (869) that connected serial. If this input energy is cut, "Inspection" will be written on the left top of the screen. Pit inspection signal input is seperate (870). If this input energy is cut, "Pit Inspection" will be written on the left top of the screen.

### **2- Moving the Car to the Inspection Position**

2 inspection speed outputs are exist on ML50S card. First of them S2 terminal that is connected to S2 relay contact. Inverter speed input that is connected to this output must be selected max. 0.3m/s. Second output is provided by assignable outputs. It can be used by doing "InspectionSpeed 2" assignment to any relay output in F menu. If this output will be used, Inverter speed input that will be connected must be selected max. 0.63 m/s and it must be connected by passing from the closed contact of recall key while connecting to inverter.

To moving the car in down or up direction, is pressed to direction button and (RUN) button at the same time. When the car is moving in up direction, "Up" is written on the right top of the screen and When the car is moving in down direction, "Down" is written on the right top of the screen.

When the car is not moving in inspection mode, all of the automatic door relays are not energized.

When the moving is started, closing relay is energized. If the safety circuit is completed, inspection low speed output (S2) and inspection 2nd speed output are energized. So the movement is started.

When the car is moving, the car is stopped if the contacts are detected that are placed to pit and top of the well with 2m distance. To start again, hands off from the buttons first and re-pushed again. In this 2m zone, speed signal output (S2) is given that will not be more than inspection low speed 0.30m/s.

If the system has shaft learning system, without placing the contacts to top of the well and to pit, the distance between the top of the car and the top of the well and the distance between bottom of the car and the pit can be entered with "I14.TopOfWellDistance" and "I15.Pit Distance" parameters from "I.Shaft Learning" menu. So while the car moving, 2m distance of the top of the well and the 2m distance to the pit is calculated and no need to use contact.

Another control is according to "Inspect.Move Type" parameter in Menu B-17 while moving in inspection mode; it is working to limit switches (817, 818) or to the exact floor. If "To Limit Switch" parameter is selected, car is moved till the limit switches will be OFF. If "To Exact Floor" parameter is selected the car is moved to top or bottom floor level.

### **3- Taking Out the Lift From Inspection Mode**

If the lift is taken to inspection mode with top of the inspection key or recall key, to back to the normal mode, these keys are taken to the normal working position (869 input is energized again). After 869 input is energized, it is waited to cut the energy of 130 input (opening one of the floor doors) once for safety. If 130 input energy is cut, lift is taken to the normal working. This is important for the operator to open the door once while taking to the lift to normal working to exit from the well. So the lift movement is prevented with a call when the inspection key is passing unintended to the normal position.

If the lift is taken to the inspection mode with pit inspection key, to back to the normal working, the key is taken to the normal working position (870 input is energized again). After 870 input is energized, it is waited to cut the energy of 130 input (opening one of the floor doors) once for safety. If 130 input energy is cut, lift is not taken to the normal working immediately. Reset must be done ("Waiting Reset" is shown at the top of the screen). Reset can be done in two ways. First is to push the –ESC– button on ML50S card during 5 seconds. Second is any assignable input is energized and then cut. If the lift main power is cut without reset, reset operation will be registered and when the power on, reset will be waited again.

## **UNINTENDENT CAR MOVEMENT (UCM) DETECTION OF ML50S CARD**

### **1-UCM Detection For The Electrical Lifts**



Re-levelling can be done with door open or close. When the re-levelling is being done, it is detected that the car exit out of door zone with an input from "RML1" and "RML2" relays closed contacts that is serial connected on ML50S card. If it is detected that the car exit from this zone "UCM Error Detected" is traced on lcd and stopped running. At this situation lift is blocked with lightening out of service lamp. After the block operation, when the control panel power is cut and re-applied, "UCM Error Exist" is traced on lcd and blockage of the card is continues. To cancel the blockage, must be entered to "J.General Settings" and selected YES on "Del UCM Error" menu in (J06) parameter, and registered fault must be deleted.

## **2-OSG Fault Detection For the Lifts Has Geared Machine**

OSG seleoid working is detected from "HRF" terminal via a closed contact on OSG. If it is detected that the selenoid dropped not correctly, "OSG/Brake Error" is traced on lcd. At this situation lift is blocked with lightening out of service lamp. After the block operation, when the control panel power is cut and re-applied, "OSG/Brake Error" is traced on lcd and blockage of the card is continues. To cancel the blockage, must be entered to "J.GeneralSetings" and selected YES on "Delete UCM Error" menu in (J06) parameter, and registered fault must be deleted.

## **3- Brake Fault Detection For The Lifts Has Gearless Machine**

NC contacts of the two brakes that gearless machine had are connected serial to each other. It is detected that the info coming from this serial contact with "HRF" terminal. If it is detected that the brake dropped not correctly, "OSG/Brake Error" is traced on lcd. At this situation lift is blocked with lightening out of service lamp. After the block operation, when the control panel power is cut and re-applied, "UCM Error Exist" is traced on lcd and blockage of the card is continues. To cancel the blockage, must be entered to "J.General Settings" and selected YES on "Delete UCM Error" menu in (J06) parameter, and registered fault must be deleted.

## **4- UCM Detection For Hydraulic Lifts**

In hydraulic units suitable to A3 standards, there is one A3 protection valve. In down direction movement, this valve is being dropped with down landing valve. In hydraulic with re-levelling systems, while re-levelling operation, it is detected that the car exit out of door zone with an input from "RML1" and "RML2" relays closed contacts that is serial connected on ML50S card. If it is detected that the car exit from this zone "UCM Error Detected" is traced on lcd and stopped running. At this situation lift is blocked with lightening out of service lamp. After the block operation, when the control panel power is cut and re-applied, "UCM Error Exist" is traced on lcd and blockage of the card is continues. To cancel the blockage, must be entered to "J.General Settings" and selected YES on "Delete UCM Error" menu in (J06) parameter, and registered fault must be deleted.

## **5-Manual Test For Unintendent Car Movement**

There are UP and DOWN direction test menus of ML50S card for testing the detection of unintended car movement (UCM) correctly.

Before doing UP direction test operation, car is taken to the floor level of the floor that is under the the topper floor. Than to start the test, must be entered to “J.General Settings” and selected YES on “UCM Up Test” menu in (J07) parameter.

Before doing DOWN direction test operation, car is taken to the floor level of the floor that is on the bottom floor. Than to start the test, must be entered to “J.General Settings” and selected YES on “UCM Down Test” menu in (J08) parameter.

These test operations simulates unintended car movement (UCM) error that occurs when the door is open normally as closed door. During the test, car is moved with low speed to the test direction. When the car is exit from the door zone, unintended car movement (UCM) error occurs and reset operations of the fault must be applied the same.


### **6- Cancellation OSG/Brake Control At Auto-Tuning**

To do auto tuning as brake is closed in gearless systems, must be entered to “J.General Settings” and selected YES on “Auto Tuning” menu in (J04) parameter. So in INSPECTION mode, during 100 seconds after the first movement, OSG/Brake Control is not done.

### **7-Cancellation Over Speed Governor Solenoid Or Gearless Brake Control**

If B30 parameter is selected PASSIVE, control of OSG solenoid contact or gearless brake contact that dropped or not is canceled after the lift stopped. But when the lift is moving, control is still going on. If B30 parameter is selected CANCEL A3, all controls are canceled.

**IMPORTANT WARNING !**



*If B30 parameter is selected PASSIVE from M50S menu, system can damage more because of not checking of UCM faults that can be occurred on OSG solenoid or gearless brake. If parameter selected “Cancel A3” Mikrolift does not take any responsibility for these actions and Liftinstituut certificate is no longer valid.*

### **BYPASS DEVICE**

According to EN 81-20 standard, safety circuit bridging box must be done and connected to the control panel. Box contents and how to connect are shown in ML50S\_11a and ML50S\_11b schemes. Contacts that will be used in this box are suitable with EN 60947-1 standards. This box that the keys are placed must have cover and it is protected with lock to not used unauthorized persons.

Lift safety circuit working with bridging is like below using safety circuit bridging box:

1- At full automatic door systems, 120-130 and 130-140; at only car door automatic systems, 120-130, 130-135 and 135-140 can be bridged with safety circuit keys.

2- Bridging is done at only line. For example, when 120-130 is bridged, if 130-140 is requested to be bridged, bridging operation can't be done with the mechanical contact protection.

3- If any bridging key is taken to ON position, SCBO output will be OFF. This input is detected with any programmable input on ML50S card that is assigned as "Bridging Exist !".

4- If it is detected that bridging is done, "Bridging Exist !" is traced on top of the screen.

5- In this situation, automatic door relays are made passive.

6- When bridging input exists, lift can be run only in inspection mode.

7- While lift is moving in inspection mode, Output that is assigned "Bridging Warn" is active. So warning is given that the car is working while bridging exists with a sound and light warning system that is connected to that output.

## **OVER LOAD FUNCTION**

If the inside car weight is over than permitted, over load contact on the car is closed and 24V is applied to no.804 terminal. Microcontroller doesn't allow the car movement. In this situation "Over Load" is traced on the screen. Car lamp is ON and open relay is dropped to stay the door opened. Re-levelling is allowed if needed. When the over load contact is opened, movement is allowed again. While the car moving, over load control is not done.

## **FIRE FUNCTION**

At the lifts in buildings that has fire floor, "B10.Fire Floor" parameter in B.System Settings is set to that floor value. If any fire contact in the floors are closed and "YAN" nicknamed terminal is energized, the car is moved automatically to the predetermined fire floor. While this input exists, "FIRE Input !" is traced on the screen.

If the car is moving and fire floor is on the movement direction, all calls are deleted and the car is moved directly to the fire floor. If the car is moving to the opposite direction of fire floor, it stops the first floor, all calls are deleted and the car is moved to the fire floor without opening the doors. The car waits on the fire floor with open doors and doesn't answer the other calls. These are called "Phase-1". After this, fireman key input is waited. When the "YAN" terminal voltage is cut, the lift is back to normal working.

## **FIREMAN MODE WORKING**

After the fire input is detected and "Phase-1" section operations are applied, fireman key input is started to wait. To fireman mode working, below set and assigns must be done:

- Fireman input is assigned to a programmable input.
- Door limit types of A and B doors are selected "With Limit".
- Fireman Call Delete input is assigned a programmable input (Not obligatory).

At the end of "Step-1", if the doors are selected "With Limit" after the doors are wide opened, fireman input is started to control. If the fireman input is active, "Fire / Phase-2" is written on the screen and the car is given to fireman service.

If the fireman wants to close the car door, he must push the CLOSE button till the door closed. When the door is closing, if he takes his hands from the button, the door will open again. If he wants to open the car door like that, he must push the OPEN button till the door opened. When the door is opening, if he takes his hands from the button, the door will close again. The door is under control of fireman during Step-2.

Fireman gives only one inside call. Before the car is moved, with pushing Call Delete input, he can delete the call and give a new call.

When the car is gone to new floor in Phase-2, the door is not opened automatically.

If the fireman input is canceled, it is exit from Phase-2 and back to normal working (If the fireman input is still active, back to Step-1).

## **EARTHQUAKE FUNCTION**

Building earthquake sensor that the lift is in is connected to "DEP" nicknamed terminal. When this input is energized, if the car is moving, it is stopped the first floor. "EARTHQUAKE Input !" is written on the screen and it is waited with the doors are opened. When "DEP" terminal voltage is cut, the lift is back to normal working.

## **CONTACTOR CONTROL**

24 VDC that is circulating serial from the contactors closed contacts that are providing the movement is connected to "KRC" terminal. Thus the card controls the contactors that are working correct or not when the car is stopped or moved. If the fault is occurred, "Contactor Fault" is written on the screen. Contactor control is done as below according to "B.System Settings" "B23.KRC Control" parameter content:

- 1) When the parameter is "Passive", contactor control is not done.
- 2) When the parameter is "Active", control is done while the contactors are dropped.
- 3) When the parameter is "Full Active", control is done while the contactors are both dropped and picked up.

When the fault is detected first time, the lift is waited out of service position during 10 sec. and then back to normal working. This fault is saved temporary. After that if the contactors work 5 times correctly, this temporary fault will be deleted. If the fault occurs before 5 times

normal working, the fault is saved permanently and the lift will be blocked. To back to normal working, the main power must be cut and then given again.

## **FULL LOAD FUNCTION**

Car full load contact can be connected to any assignable input. If the car weight is full capacity, full load contact is closed and 24VDC is applied to assignable input. In this situation, because of there are any place for the other passengers, while the car is moving, microcontroller doesn't stop the floors that are given as outside calls and the calls are stored.

## **VATMAN FUNCTION**

Vatman key can be connected to any assignable input. When the car is stopped, vatman key input is controlled. If this input is active, all calls are deleted first and while this input is exist, only car calls are accepted. When the vatman key is OFF, lift is back to normal working.

## **PARKING FLOOR FUNCTION**

While the lift is stand-by, when the time that is adjusted with parking floor time parameter is over, the lift is gone to the floor that is adjusted with parking floor parameter. If parking floor parameter is selected passive, this function is invalid.

## **SHAFT LEARNING**

### ***1-What Needs To Be Done For Shaft Learning***

1) As shown at ML50S\_18a and ML50S\_18b schemes, 30cm ribbon magnets are must be used for all floor levels.

2) ML1 and ML2 that will be located across these magnets are must be electronic mono-stable switches.

3) ML1 electronic mono-stable switch must be certainly ABOVE.

4) Location of ML1 and ML2 electronic mono-stables must be certainly done 5 cm far away from the centers as shown in ML50S user manuals.

5) Shaft learning is done in INSPECTION speed and driver inspection speed input is must be connected to S2 terminal of ML50S card (Inspection speed 0,30 - 0,50 m/sec. is adviced).

6) ML50S card encoder inputs (A, A<sup>-</sup>, B, B<sup>-</sup>) must be connected to inverter tracing outputs as shown in ML50S\_20 scheme. The shielded cables absolutely must be used in these connections.

7) If MLKS10-S is used in the control panel, "At Floor Signal" is must be assigned to one of assignable relay outputs on ML50S card. A relay must be connected to this assigned output. MLKS10-S 142 input must be connected to 24VDC with using this relay NC contact.

## **2-Shaft Learning Usage Details**

1) In pulse systems **817** and **818** limit switches were located a little bit top or a little bit bottom of magnets. In this system, limit magnets or limit switches can be located to "passing to slow speed distance" place.

2) If there is really rope creep; if encoder value is not changed with the rope creep, **ASM** and **YSM** are must be connected..

3) In high speed systems that used middle speed output, when is moving to neighbour floor, passing to slow speed distance value (I03:Mid.Spd.SlowDist.) is accepted this value. In high speed systems that is not used middle speed, slowing distance from high speed (I02:Hi.SpeedSlowDist.) and slowing distance from middle speed (I03:Mid.Spd.SlowDist.) are must be selected the same.

## **3-Shaft Learning To Be Done**

When the lift is standby, it is entered to programming. In "I.Shaft Learning" menu, "I01:Learn Shaft" sub menu is selected **YES**. The car is first moved to 817 bottom switch position. Then, it is moved to bottom level of ML1 and ML2 and Shaft learning is started in up direction. In the left bottom of LCD passing floor number, in the right bottom of LCD encoder value is screened. After detected that 818 top switch is not exist, when it is reached to top of ML1 and ML2 level, Shaft Learning is completed.

In the Shaft Learning operation if safety device is cut or the lift is taken to inspection mode, Shaft Learning is canceled.

## **4-Floor Level Corrections From The Car**

1) Is entered into "B.System Settings". "B31. Re-levelling" parameter is done ACTIVE.

2) Is entered "I.Shaft Learning". "I13.Correction Mode" parameter is done ACTIVE.

3) Shaft learning is done.

4) Is exit from programming and is passed to normal mode. Then the car automatically will go to the bottom floor with position reset.

5) While inside the car, is gone to down direction with calling all floors in order. If level correction needed at that floor, is holded down to "OPEN" button. After 3 seconds, "d" letter is traced on digital screen and for down and up direction movement, the command is waited from "0" and "1" calls inside the car. While holding down to "OPEN" button, the car is moved to down direction if is holded down to "0" button; the car is moved to up direction if is holded down to "1" button. When the floor correction is done at that floor, "OPEN" button is dropped out. After 1 second is passed to normal working mode. If requested the correction again at that moment, the same process is done. When returned to normal working, is called another floor.

6) After gone to bottom floor, the same processes are done for all floors to up direction to top floor in order.

7) After floor level controls and floor corrections if needed are done with going to all floors for each direction, "I13.Correction Mode" in "I.Shaft Learning" is selected PASSIVE. So exit "Correction Mode" and the temporary registered floor level corrections are saved permanent.

8) After four times working of the numbers of floors, if "I13.Correction Mode" parameter is still ACTIVE, program will select this parameter as PASSIVE and the temporary registered floor level corrections will be saved permanent.

## ***5-Another Method for Floor Level Corrections***

After Shaft Learning is completed, exit from programming mode, by calling each floors, floor level correction distances are noted one by one in up and down directions. If the car is not reached to the floor level, distance value must be stored as (+); if the car passed the level, distance value must be stored as (-). These values are registered to "I08:Up Correct" and "I09:Down Correct" menu. If correction distances are bigger than -99mm or +99mm, ribbon magnets must be checked.

## ***6-Position Reset***

If B21.Position Reset parameter in System Settings is selected "Active"; In encoder Systems, when the power is ON first time, the car is sent to the lowest floor for position reset. If the car is in the zone that the bottom cutter is not exist or between the two floors that ML1-ML2 are not exist, first the car is moved to MI1-ML2 zone with INSPECTION speed. Then it is moved with normal speed in down direction.

If position reset parameter is selected "No", when the power is ON first time, if the car is att the door zone, position reset is not done. Before the main power OFF, registered floor is accepted as the main floor.

## ***7- "I11.CalculateDistance" Parameter Usage***

While "I11.CalculateDistance" parameter is PASSIVE, systems with shaft learning are working like M0 pulse systems as floor based. At floor based working, increasing and decreasing floors and passing from high speed to low speed was being in floors. Because of this, slowing distance is limited by floor height.

If "I11.CalculateDistance" parameter is selected ACTIVE; distance to target floor will be always calculated as milimetric. So the slowing distance from high speed or middle speed can be selected without depending on floor heights. In systems that has very low floor height (min. 50cm) or in high speed systems (bigger than 1,6m/sec.) is started to slowing before one stop or several stops.

## **8- "I12.Slowing Distance 3" Parameter**

This parameter is used in systems which has one floor or several floors that have low height less than normal height. In movement to next floor; if next target floor height is lower than the distance that is selected in "I03.Mid.SpeedSlowDist." parameter, slowing distance is being the distance that registered in "I12.SlowingDistance 3" parameter.

## **9-Usage Shaft Learning in 2 Stops Systems**

In 2 stops systems, before shaft learning, 30cm ribbon magnet is temporary placed to middle point of 0 and 1 stops. After the shaft learning operation, this ribbon magnet is placed out from its place. To be read the shaft as 3 stops by the program, "B03.Number Of Floor" parameter is again set as 2.

## **NUDGING FUNCTION**

If the car door is left open for a long time by the passengers for no reason with pushing OPEN button or stopping obstructively in front of photocell (this time is the time that is adjusted in "C.Door Settings" section in "C.08 Photocell BlockT." parameter), an assignable output is done active and close relay is dropped. This output is connected to "SLOW" input of automatic door control card. When the automatic door control card detected this input, closes the door slowly with a sound warning. To work this function properly, automatic door type must be selected "With Limit" and open and close limits of the automatic door must be connected to the control card.

## **SOUND OUTPUT FUNCTION**

Sound output card (MLSERISES) can be plugged on MLKABIN-R50 top of car serial communication card optionally. So floor names, movement and door situation datas can be read with an another speaker except alarm speaker. Car warning gong sound can be given from this output or alarm speaker. Reading assignments for every floors about the sound output can be done in "L. Sound Settings" in programming.