



Metropolitan Police

OPERATION NORTHLEIGH
Site Investigation Report

CONFIDENTIAL



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Site Investigation Report

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1 INTRODUCTION

Following the serious fire at Grenfell Tower on 14th June 2017, as part of their investigation, the Metropolitan Police appointed WSP to review the Vertical Transportation System (Lifts) in order to determine how they behaved in response to the fire.

Due to the technical nature of the type of equipment, WSP employed the expertise of Eric Richards, an independent test engineer to assist with the technical and specialist parts of the investigation. Specifically, this was to download and review data that was recovered from the existing lift controllers.

WSP also employed the services of Elan Lifts to undertake the removal of the lift controllers from the machine room for ongoing investigation and interrogation.

WSP also contacted suppliers, as and when necessary, to obtain technical information e.g. operation manuals, although the purpose of our enquiry, i.e. the investigation at Grenfell Tower was not disclosed

Our site investigation into the behaviour of the lifts in the event of a fire was conducted in four separate visits. The first site visit was an initial visual inspection to witness the condition of the lift equipment after the fire and to assess what the scope of works entailed to produce this confidential report. The second visit was the removal of the lift control panels with further visits to the Metropolitan Police storage facility in Deer Park Road, Wimbledon were undertaken to carry out the interrogation of the lift control panels. We were escorted by the Metropolitan Police on all occasions and observed all protocols requested of us.

Our report in parts makes references to British and European Standards. If so then we will refer to the latest issued documents available at the time of the incident.

1.1 PERSONNEL AND ROLES INVOLVED

WSP (Vertical Transportation)

Steven Truss	:	VT Director
Andrew Hurley	:	Associate Director
Arthur Green	:	Associate
Eric Richards	:	Independent Test Engineer

Metropolitan Police

Martin Tucker	:	MPS, Investigating Officer
James McQuen	:	MPS, Investigating Officer
Metropolitan Police	:	Forensic Photographers
London Fire Brigade	:	Watch Manager

Elan Lifts

Tony Fillery	:	Director, Elan Lifts
Aaron Fillery	:	Engineer, Elan Lifts
Jed N'dong	:	Engineer, Elan Lifts



2 EXCLUSIONS

Due to the condition of both the building and in particular; the lifts on site, the following were not included:

1. Mains power was not applied to the lift controller's whilst on site (power was not available).
2. No operational tests were conducted.
3. No dynamic tests were conducted
4. The lift was not moved using the hand winding system
5. Power failure tests were not conducted.
6. The Lift Test and Data Report was not provided nor referenced.



3 DOCUMENTS RECEIVED

WSP requested and were provided with the following documents:

1. Thames Valley Controls (TVC), Job Details.
2. Butler & Young Standard features January 2005.
3. Calculated values for VVVF Vector Drives.
4. Ver. 2 Stentorgate Speech Unit Request Form.
5. Ver. 2 Stentorgate Handwind Unit Request Form.
6. Fax to Cressall Resistors from TVC re supply of Dynamic Breaking Resistors.
7. Email to TVC from Cressall Resistors re Dynamic Breaking Resistors.
8. TVC Spare Parts List.
9. TVC Certification of Test for contact number V"VEC 66/29 'B'.
10. VEC & VFD Control Panel check list.
11. M6809 Vec/vfr Mk3 Configuration Sheet.
12. M6809 Mk3 Special Programme Request.
13. Motor Data / Parameter Sheet.
14. TVC Contract History.
15. TVC acceptance request.
16. TVC Acknowledgement of receipt of Order.
17. Apex Lift & Escalator Engineers Ltd, Order.
18. TVC Controller wiring diagrams.

4 APPLICABLE STANDARDS

The following Standards were used as reference for this report:

British & National Standards	
BS 5655: Part 1: 1997	Safety rules for the construction and installation of electric lifts
BS 5655-11: 2005	Code of practice for the undertaking of modifications to existing electric lifts
European (CEN) Standards	
BS EN 81-20:2014	Safety rules for the construction and installation of lifts. Lifts for the transport of persons and goods.
BS EN 81-28: 2003	Safety rules for the construction and installation of lifts. Remote alarm on passenger and goods passenger lifts.
BS EN 81-70: 2003	Safety rules for the construction and installation of lifts. Accessibility to lifts for persons including persons with disability.
BS EN 81-71:	Vandal resistant lifts
BS EN 81-73: 2016	Behaviour of lifts in the event of fire
BS EN 81-80: 2003	Safety rules for the construction and installation of existing lifts. Rules for the improvement of safety of existing passenger and goods passenger lift.
BS EN 12015: 2014	Electromagnetic compatibility. Product family standard for lifts, escalators and moving walks. Emission
BS EN 12016: 2013	Electromagnetic compatibility. Product family standard for lifts, escalators and moving walks. Immunity
BS EN 13015:2001+A1:2008	Maintenance for lifts and escalators. Rules for maintenance instructions

This list is non-exhaustive.

At all times the current edition of the above standards are applicable.



5 EQUIPMENT DETAILS

The following details were obtained from documents provided by the Metropolitan Police. As both lifts were not operational it was not possible to include any dynamic data.

	Left Hand Lift	Right Hand Lift
Customer ID:	H090	H091
Manufacturer:	Modernised by Apex Lift & Escalator Engineers	
Installation Date:	Modernised 2005	
Rated Load:	900kg	
Rated Speed:	2m/s	
Travel:	65m	
No. of Stops:	24	
No. of Openings:	24	
Front Openings:	24	
Alternate Openings	None	
Machine Make:	Sassi	
Machine Position:	Machine Above	
Machine Type:	Geared with flange mounted motor	
Drive Type:	Variable Voltage Variable Frequency (VVVF)	
Door Type:	Single panel side opening	
Door Opening:	800 x 2000	
Controller Manufacturer:	Thames Valley Controls	
Controller Type	M6809	



Lift Service Provider	Not Disclosed
Autodialler	Windcrest AD1000EN-4R



6 SITE VISIT 1

Date : 15th March 2018

Time : 10.00

Venue : Grenfell Tower, Grenfell Road, W11 1TQ

Present: Andrew Hurley, Associate Director Vertical Transportation, WSP
Eric Richards, Independent Lift Test Engineer
James McQuen, MPS Investigating Officer, Metropolitan Police
Dave Cross, MPS Investigating Officer, Metropolitan Police

6.1 PURPOSE OF VISIT

The purpose of this visit was to undertake a visual inspection of the site with regard to the lifts in order to determine the general condition of the lift lobby's, lift cars and the control equipment within the lift motor room above the lift shafts at roof level.

- On visual inspection we were unable to determine the integrity (strength) and safe condition of the landing doors at each entrance.
- It was therefore recommended that each landing door was boarded up to restrict access and safe guard personnel working in the tower. The protection applied did not tamper with the existing landing doors / entrance.
- Visual inspection of the fireman's control switches at both the ground and walkway levels.
- Visually they had not been damaged by either the fire or water. It was recommended that both switches were removed from site and further examined off site.
- Check condition of lift motor and controller equipment.
- The general condition of the lift controllers was satisfactory and had not been damaged by the fire or water. In order to interrogate the lift control systems they needed to be removed from site and be powered up to determine what information could still be downloaded from the lift microprocessor control.
- To visually check the electrical power supplies to the lifts.
- The incoming supply main switches show signs of the effect of smoke contamination.
- We were unable to determine if there was a dual power supply as no change over switch was visible within the lift machine room demise.
- To visually check fire alarm interfaces.
- A fire alarm interface was present in the lift motor room.
- To visually check the lift machine (Gearbox, brake and motor)
- Signs of both smoke and intense heat around this area including the lift ropes.

It was recommended that the lift cars and counter weights were both suitably lowered into the lift pits to ensure the lift equipment was safe from future movement.

7 SITE VISIT 2

Date : 18th April 2018
 Time : 10.00
 Venue : Grenfell Tower, Grenfell Road, W11 1TQ
 Present: Arthur Green, Associate Vertical Transportation, WSP
 Eric Richards, Independent Lift Test Engineer
 Melissa Bussette, Forensics Science Officer, Metropolitan Police
 Aaron Fillery, Engineer, . Elan Lifts
 Jed N'dong, Engineer, Elan Lifts
 Watch Manager from London Fire Brigade

7.1 PURPOSE OF VISIT

The purpose of this visit was to complete the following works:

- To arrange for the removal of the existing lift controllers (2 no) by engineers from Elan Lifts
- To check the fire alarm interface in the machine room
- To check the fireman's switches were connected to the controllers
- To check the operation and status of the fireman's switch located on the ground floor
- To check the operation and status of the fireman's switch located on the walkway level
- To check the power supplies
- To check if the safety gears were engaged on the lift car
- To check the condition of the top of the lift cars

7.2 MACHINE ROOM

GENERAL

- There was no lighting in the machine room upon arrival. Temporary lighting was provided.
- The access hatch between the controllers was open. The access hatch doors were damaged in the fire. A scaffold tower was erected underneath the access hatch and used as a temporary platform.
- Temporary scaffold and boarding will be required to remove the controllers from the machine room to the roof.
- Temporary scaffold will be required to remove the controllers from the roof to the external hoist.
- The machine room access door was removed to facilitate the removal of the controllers from the machine room.
- Landing entrance protection was removed at levels G, 9, 10, 11 and the top floor.

The battery terminals were corroded on both controllers. If these batteries are used to retain the event and fault logs then they would now be dead and vital information regarding the lift operation may be lost.



POWER SUPPLIES:

- The lift main isolators were located adjacent to the machine room access door.



- The trunking lids were removed (during this visit) from underneath the mains isolators in order to check the condition of the mains cables.



- The incoming earth wire to the left hand isolator, Lift H091, was wrapped with insulation tape which was hidden inside the conduit. The earth wire was possibly too short and had been extended.





- An attempt was made to determine the route of the incoming mains wire at the top floor riser but extensive fire damage prevented a positive identification.



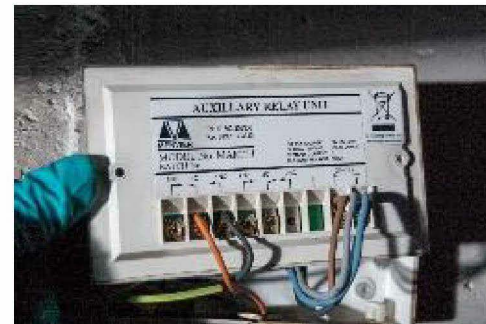
- We removed the trunking lid on the 9th floor riser to confirm there were 2 x red, 2 x blue, 2 x yellow, 2 x green/yellow and 1 x black cables. This was the case.





FIRE ALARM INTERFACE

- Within the machine room an electrical unit to provide the electrical connectivity interface for the lifts to the building alarm system.
- The purpose of this unit was to recall the lifts to a designated floor when a fire was detected.
- We removed the protective cover to confirm wiring was intact.



- We confirmed fire alarm interface was connected to one of the controllers. We also confirmed that an interconnecting wire was connected to the second controller in order to provide a suitable signal.
- We confirmed there was a connection for the fireman's switch on the controller wiring diagrams.
- We confirmed there was a connection for the fireman's switch to both controllers (yellow & grey wiring).
- We were unable to confirm a connection of a second fireman's switch.

MACHINE

- Guarding to hand winding wheels was removed.
- Both brake couplings were corroded with evidence of flaking on top of the brake coupling on the left hand lift. Therefore the brake may not be in a suitable condition to stop the lift car if operated whilst on site.



- The traction sheaves show signs of heat damage as there were very little signs of any yellow paint.



- The traction sheaves and grooves were corroded.



DIVERTER SHEAVES

- The diverter sheaves were corroded and indicated signs of heat damage.



MACHINE STEELWORK

- The original blue paint was not present on steelwork located over the openings to the hoistway.
- The steelwork was blackened and corroded above the openings to the hoistway.

SUSPENSION ROPES

- The main suspension ropes were corroded.
- The hemp inner core of the rope (if provided on this construction of rope) may have been affected by the heat. This would affect the integrity of the rope.
- These ropes may not be safe if the lift cars need to be moved.

OVERSPEED GOVERNORS

- The guarding to both governors was removed.
- The left hand governor, H090, was not engaged.
- The mechanism of the left hand governor appeared to be seized.
- The right hand governor, H091, was not engaged
- The mechanism on the right hand governor appeared to be free.

7.3 TOP OF LIFT CAR

H090

- We gained access to the top of the lift car by opening the landing doors at floor 11.
- The top of car inspection control switch was in the NORMAL position.
- The top of car emergency stop was in the RUN position.
- The lift was in the unlocking zone.
- The lift was approximately 75mm to 100mm above the finished floor level.
- There was no isolation rubbers between the rope anchor and the car hitch plate. There was no evidence of any being fitted.

H091

- We gained access to the top of the lift car by opening the landing doors at floor 11.
- The top of car inspection control switch was in the NORMAL position.
- The top of car emergency stop was in the STOP position.
- The lift was in the unlocking zone.
- The lift was approximately 75mm to 100mm above the finished floor level
- The isolation rubbers between the rope anchor and the car hitch plate were fitted.

7.4 UNDERNEATH LIFT CAR

H091

- We gained visual access to the underside of the lift car by opening the landing doors at floor 9.
- VG Bi Directional safety gears were fitted.
- The safety gear was not engaged.
- The safety operated switch was in its NORMAL position
- There were gaps measuring approx. 1.5mm – 2mm between both car and counterweight guide joints.

7.5 FIREMAN'S SWITCHES

LEVEL 2 (WALKWAY)

- A drop type key is used to both operate the fireman's switch and to open the landing doors of the lift in an emergency.
- The notches on the release key align with similar notches inside the box in order to operate the switch. This is to prevent access by unauthorised persons.





- It was not possible to operate the fireman's switch using the release key.



- We removed the faceplate to discover that there were no wires connected to the fireman's switch.



- The conduit from the shaft to the rear of the box contained one red wire. This was possibly a draw wire for future connection.
- With the faceplate removed we checked the operation with the release key. It was very difficult to align the key to the slots in the brackets to operate the micro switch.
- The micro switch was not bi-stable i.e. it was spring loaded and returned to its normal operating position.

GROUND FLOOR

- A green flag could be seen through the hole in the faceplate.



- The fireman's switch was difficult to operate.
- The faceplate was removed to determine the reason for failing to operate the switch.



- We discovered that the mechanism was seized and damaged/deformed.
- The contacts were open circuit when checked with a multi-meter.
- The wiring was coloured yellow and grey.



7.6 H091 LIFT PIT

- There was approx. 75mm of water in the pit.
- The Pit Emergency Stop switch was in the STOP position.

7.7 POSITION REFERENCE SYSTEM

- It should be ascertained if the position reference system is operated via infra-red as this could have a detrimental effect on the operation of the lift.



ADDITIONAL INFORMATION

- Arthur Green and Eric Richards visited two other tower blocks in the local area to ascertain if the fireman's switches were functional. On both buildings the fireman's switches had been changed from the drop release key to a triangular euro key operated type.
-
- We briefly checked the operation of the fireman's switch. The lifts returned to the Ground Floor. However, we discovered that the operation of the lifts was not to current standards.

8 SITE VISIT 3

Date : 16th May 2018

Time : 10.00

Venue : Deer Park Road, South Wimbledon

Present: Arthur Green, Associate Vertical Transportation, WSP
Eric Richards, Independent Lift Test Engineer
James McQuen, MPS Investigating Officer, Metropolitan Police
Forensic Police Photographer

8.1 PURPOSE OF VISIT

- To check the present (post fire) condition of the controllers.
- To check the status of all fuses, circuit breakers, overloads etc. on both lifts.
- To apply mains power to the controllers.
- To interrogate the controllers and record any stored events and faults.
- To check the present condition of the Windcrest Autodiallers.

8.2 CONTROLLER POWER SUPPLIES

GENERAL

- The lift controllers were positioned close to the roller shutter doors at the side of the building.
- Non-essential components e.g. Variable frequency drive units, dynamic breaking resistors, batteries were not reconnected to the controller to assist the fault interrogation exercise.

POWER SUPPLIES

- Power was not immediately available although there was a 415vac supply used to power the roller shutter doors.
- We instructed the electrician to provide a commando type plug and approx. 25 metres of cable in order to connect 2 phases to the main power supply transformer on the controller.
- Preliminary photographs were taken of the present condition of both controllers.
- The dynamic breaking resistors were not reconnected to the controller as these are only used to absorb the regenerative energy when the lift is in motion.
- The variable frequency drives were not reconnected.
- The main battery backups were not reconnected to the controller.
- The front and back cover doors were not refitted to the controllers.
- The controllers had the remains of the field / shaft wiring attached as a result of them being removed from the lift machine room.



8.3 CONTROLLER FUSES

H090

NAME	PURPOSE	SPECIFIED RATING (A)	ACTUAL RATING (A)	STATUS
PSU1		5	5	INTACT
PSU2		5	5	INTACT
BMOL		Specific		INTACT
Motor Overload		Specific	64	INTACT
CB1				ON
BSF		6.3	6.3	INTACT
DF1		3	3.15	INTACT
CCF		3	4	BLOWN
LPF	Landing Push Feed	1	1	BLOWN
CPF	Car Push Feed	0.5	0.5	INTACT
CFF		0.25	0.25	BLOWN
MKII 6809 POWER SUPPLY FUSES				
75v		1	1	INTACT
19v		3	3.15	INTACT
9v		3	3.15	INTACT
100v		0.5	0.25	INTACT
LPF	Landing Push Feed		1	INTACT
CPF	Car Push Feed	0.5	0.5	INTACT
24v		2	2	INTACT
10v		2	2	INTACT
STENTORGATE FUSES				
A			6.3	INTACT
B			6.3	INTACT

H091

NAME	PURPOSE	SPECIFIED RATING (A)	ACTUAL RATING (A)	STATUS
PSU1		5	5	INTACT
PSU2		5	5	INTACT
BMOL		Specific		INTACT
Motor Overload		Specific	64	INTACT
CB1				TRIPPED
BSF		6.3	6.3	INTACT
DF1		3	3.15	INTACT
CCF		3	6.3	BLOWN
LPF	Landing Push Feed	1	1	BLOWN
CPF	Car Push Feed	0.5	0.5	INTACT
CFF		0.25	0.25	INTACT
MKII 6809 POWER SUPPLY FUSES				
75v		1	1	INTACT
19v		3	3.15	INTACT
9v		3	3.15	INTACT
100v		0.5	0.25	INTACT
LPF	Landing Push Feed		1	INTACT
CPF	Car Push Feed	0.5	0.5	INTACT



24v		2	2	INTACT
10v		2	2	INTACT
STENTORGATE FUSES				
A			6.3	INTACT
B			6.3	INTACT

MACHINE ROOM THERMOSTAT (Located inside the controller to monitor the ambient temperature of the machine room)

- H090: Intact
- H091: Broken

M6809 MICROPROCESSOR CONFIGURATION

H090			H091	
DIP SW	SETTING		DIP SW	SETTING
SW1.1	OFF	FL1 BINARY	SW1.1	OFF
SW1.2	OFF	FL2 BINARY	SW1.2	OFF
SW1.3	OFF	FL4 BINARY	SW1.3	OFF
SW1.4	ON	FL8 BINARY	SW1.4	ON
SW1.5	ON	FL16 BINARY	SW1.5	ON
SW1.6	OFF	LISI/LOSI	SW1.6	OFF
SW1.7	ON	ON=DC/WPB OFF=PC	SW1.7	ON
SW1.8	OFF	NOT USED	SW1.8	OFF
SW2.1	ON	HOMING ENABLE	SW2.1	ON
SW2.2	ON	LIFT SELF TEST ENABLE	SW2.2	ON
SW2.3	ON	ANTI-NUISANCE ENABLE	SW2.3	ON
SW2.4	ON	DOOR NUDGING	SW2.4	ON
DDS	UP		DDS	UP
PTT	UP		PTT	UP

8.4 FIELD WIRING

FIELD / SHAFT WIRING

- All redundant field wiring was removed in order not to blow any fuses when the power was applied to the controller
- Two phases of a 415vac supply were connected to the 0v and 400v terminals of the MKII 6908 Power Supply



8.5 STORED EVENTS AND FAULTS

Each controller is capable of storing the latest 200 events/faults. Any new events/faults will shift out the oldest faults. The time on the processor is not the same as the present time.

With the mains power applied the stored events and faults were as follows:

H090

The following faults were recorded when the controller was powered up. Please note the position reference commences at 1 e.g. 1 = Ground, 2 = 1st floor, 11 = 10th floor etc.

LOG	CODE	DESCRIPTION	POS	TIME	DATE	CARD	PHOTO Ref.
200	51	LIGHT DUTY	1	11:48	16/05/2018	A	DSC_0090
199	64	THERMISTOR TRIP	1	11:48	16/05/2018	A	DSC_0091
198	64	LOST LAR	1	11:48	16/05/2018	A	DSC_0092
197	46	SEEK NXT FLR SE5	1	11:48	16/05/2018	A	DSC_0093
196	00	POWER ON RESET	1	11:48	16/05/2018	A	DSC_0094

The following faults were recorded on the date of the incident:

LOG	CODE	DESCRIPTION	POS	TIME	DATE	CARD	PHOTO Ref.
195	51	LIGHT DUTY	11	03:07	14/06/2017	A	DSC_0095
194	01	LOST LAR	11	01:16	14/06/2017	A	DSC_0096
193	04	DOOR OPEN PR. TIME-OUT	11	01:16	14/06/2017	A	DSC_0097
192	04	DOOR OPEN PR. TIME-OUT	11	01:16	14/06/2017	A	DSC_0098
191	04	DOOR OPEN PR. TIM- OUT	11	01:15	14/06/2017	A	DSC_0099
190	27	LOST LDG PUSH FEED	11	01:15	14/06/2017	A	DSC_0100
189	04	DOOR OPEN PR. TIME-OUT	11	01:15	14/06/2017	A	DSC_0101
188	20	FRONT SE OVERTIME	11	01:15	14/06/2017	A	DSC_0102
187	9	D/CLOSE PR. TIME-OUT	11	01:14	14/06/2017	A	DSC_0103
186	12	CALLS TF'D OR CNCL'D	11	01:14	14/06/2017	A	DSC_0104
185	04	DOOR OPEN PR. TIM- OUT	11	01:14	14/06/2017	A	DSC_0105
184	37	STUCK DOWN CALL	11	00:48	14/06/2017	A	DSC_0106
183	37	STUCK DOWN CALL	11	00:38	14/06/2017	A	DSC_0107
182	20	FRONT SE OVERTIME	7	00:29	14/06/2017	A	DSC_0108
181	37	STUCK DOWN CALL	11	00:15	14/06/2017	A	DSC_0109

Please refer to Appendix A for a description of all fault codes.



The following are recorded historic events/faults:

LOG	CODE	DESCRIPTION	POS	TIME	DATE	CARD	PHOTO Ref.
180	36	STUCK CAR CALL	4	23:58	13/06/2017	A	DSC_0110
179	9	D/CLOSE PR. TIME-OUT	3	23:44	13/06/2017	A	DSC_0111
178	15	DOOR NUDGING	3	23:44	13/06/2017	A	DSC_0112
177	20	FRONT SE OVERTIME	3	23:42	13/06/2017	A	DSC_0113
176	15	DOOR NUDGING	1	23:42	13/06/2017	A	DSC_0114
175	20	FRONT SE OVERTIME	1	23:41	13/06/2017	A	DSC_0115
174	15	DOOR NUDGING	1	19:29	13/06/2017	A	DSC_0116
173	20	FRONT SE OVERTIME	1	15:41	13/06/2017	A	DSC_0117
172	15	DOOR NUDGING	6	15:34	13/06/2017	A	DSC_0118
171	20	FRONT SE OVERTIME	6	15:33	13/06/2017	A	DSC_0119
170	12	CALLS TF'D OR CNCL'D	23	07:31	13/06/2017	A	DSC_0120
169	12	CALLS TF'D OR CNCL'D	19	07:23	13/06/2017	A	DSC_0121
168	20	FRONT SE OVERTIME	1	06:05	13/06/2017	A	DSC_0122
167	20	FRONT SE OVERTIME	22	18:24	12/06/2017	A	DSC_0123
166	20	FRONT SE OVERTIME	22	18:23	12/06/2017	A	DSC_0124
165	12	CALLS TF'D OR CNCL'D	6	17:06	12/06/2017	A	DSC_0125
164	15	DOOR NUDGING	6	17:06	12/06/2017	A	DSC_0126
163	20	FRONT SE OVERTIME	6	17:06	12/06/2017	A	DSC_0127
162	12	CALLS TF'D OR CNCL'D	15	05:16	12/06/2017	A	DSC_0128
161	12	CALLS TF'D OR CNCL'D	1	14:11	12/06/2017	A	DSC_0129
160	15	DOOR NUDGING	1	14:11	12/06/2017	A	DSC_0130
159	12	CALLS TF'D OR CNCL'D	23	07:30	12/06/2017	B	DSC_0002
158	15	DOOR NUDGING	1	07:26	12/06/2017	B	DSC_0003
157	20	FRONT SE OVERTIME	1	07:26	12/06/2017	B	DSC_0004
156	20	FRONT SE OVERTIME	1	07:02	12/06/2017	B	DSC_0005
155	20	FRONT SE OVERTIME	20	19:02	11/06/2017	B	DSC_0006
154	15	DOOR NUDGING	15	18:30	11/06/2017	B	DSC_0007
153	20	FRONT SE	1	16:01	11/06/2017	B	DSC_0008



		OVERTIME					
152	12	CALLS TF'D OR CNCL'D	1	14:28	11/06/2017	B	DSC_0009
151	20	FRONT SE OVERTIME	21	12:13	11/06/2017	B	DSC_0010
150	20	FRONT SE OVERTIME	21	12:13	11/06/2017	B	DSC_0011
149	20	FRONT SE OVERTIME	23	10:19	11/06/2017	B	DSC_0012
148	15	DOOR NUDGING	5	22:45	10/06/2017	B	DSC_0013
147	20	FRONT SE OVERTIME	5	10:48	10/06/2017	B	DSC_0014
146	12	CALLS TF'D OR CNCL'D	6	11:02	10/06/2017	B	DSC_0015
145	15	DOOR NUDGING	6	19:46	10/06/2017	B	DSC_0016
144	20	FRONT SE OVERTIME	6	19:46	10/06/2017	B	DSC_0017
143	12	CALLS TF'D OR CNCL'D	19	19:43	10/06/2017	B	DSC_0018
142	12	CALLS TF'D OR CNCL'D	19	19:42	10/06/2017	B	DSC_0019
141	15	DOOR NUDGING	19	19:42	10/06/2017	B	DSC_0020
140	20	FRONT SE OVERTIME	19	19:42	10/06/2017	B	DSC_0021
139	20	FRONT SE OVERTIME	1	19:28	10/06/2017	B	DSC_0022
138	12	CALLS TF'D OR CNCL'D	23	19:17	10/06/2017	B	DSC_0023
137	15	DOOR NUDGING	23	19:17	10/06/2017	B	DSC_0024
136	20	FRONT SE OVERTIME	23	19:16	10/06/2017	B	DSC_0025
135	12	CALLS TF'D OR CNCL'D	3	14:51	10/06/2017	B	DSC_0026
134	15	DOOR NUDGING	19	13:19	10/06/2017	B	DSC_0027
133	20	FRONT SE OVERTIME	19	13:19	10/06/2017	B	DSC_0028
132	15	DOOR NUDGING	10	08:56	10/06/2017	B	DSC_0030
131	20	FRONT SE OVERTIME	10	08:56	10/06/2017	B	DSC_0031
130	12	CALLS TF'D OR CNCL'D	4	07:13	10/06/2017	B	DSC_0032
129	20	FRONT SE OVERTIME	21	19:41	09/06/2017	B	DSC_0033
128	12	CALLS TF'D OR CNCL'D	15	19:20	09/06/2017	B	DSC_0034
127	20	FRONT SE OVERTIME	19	19:20	09/06/2017	B	DSC_0035
126	12	CALLS TF'D OR CNCL'D	19	19:19	09/06/2017	B	DSC_0036
125	12	CALLS TF'D OR CNCL'D	19	19:18	09/06/2017	B	DSC_0037

124	15	DOOR NUDGING	19	19:18	09/06/2017	B	DSC_0038
123	20	FRONT SE OVERTIME	19	19:18	09/06/2017	B	DSC_0039
122	12	CALLS TF'D OR CNCL'D	24	17:33	09/06/2017	B	DSC_0040
121	15	DOOR NUDGING	24	17:33	09/06/2017	B	DSC_0041
120	20	FRONT SE OVERTIME	24	17:33	09/06/2017	B	DSC_0042
119	12	CALLS TF'D OR CNCL'D	24	09:35	09/06/2017	B	DSC_0043
118	20	FRONT SE OVERTIME	24	08:58	09/06/2017	B	DSC_0044
117	12	CALLS TF'D OR CNCL'D	24	07:05	09/06/2017	B	DSC_0045
116	15	DOOR NUDGING	24	07:05	09/06/2017	B	DSC_0046
115	20	FRONT SE OVERTIME	1	06:56	09/06/2017	B	DSC_0047
114	15	DOOR NUDGING	5	06:42	09/06/2017	B	DSC_0048
113	20	FRONT SE OVERTIME	1	06:42	09/06/2017	B	DSC_0049
112	20	FRONT SE OVERTIME	17	21:21	08/06/2017	B	DSC_0050
111	15	DOOR NUDGING	10	19:45	08/06/2017	B	DSC_0051
110	20	FRONT SE OVERTIME	17	19:45	08/06/2017	B	DSC_0052
109	20	FRONT SE OVERTIME	13	17:49	08/06/2017	B	DSC_0053
108	15	DOOR NUDGING	1	17:34	08/06/2017	B	DSC_0054
107	20	FRONT SE OVERTIME	1	17:34	08/06/2017	B	DSC_0055
106	20	FRONT SE OVERTIME	1	16:33	08/06/2017	B	DSC_0056
105	15	DOOR NUDGING	4	16:30	08/06/2017	B	DSC_0057
104	20	FRONT SE OVERTIME	1	16:28	08/06/2017	B	DSC_0058
103	15	DOOR NUDGING	4	16:27	08/06/2017	B	DSC_0059
102	12	CALLS TF'D OR CNCL'D	1	16:24	08/06/2017	B	DSC_0060
101	15	DOOR NUDGING	1	16:23	08/06/2017	B	DSC_0061
100	20	FRONT SE OVERTIME	4	16:21	08/06/2017	B	DSC_0062
99	20	FRONT SE OVERTIME	1	16:20	08/06/2017	B	DSC_0063
98	15	DOOR NUDGING	4	15:58	08/06/2017	B	DSC_0064
97	20	FRONT SE OVERTIME	6	14:45	08/06/2017	B	DSC_0065
96	20	FRONT SE OVERTIME	1	12:37	08/06/2017	B	DSC_0066



95	37	STUCK DOWN CALL	17	12:34	08/06/2017	B	DSC_0067
94	20	FRONT SE OVERTIME	24	12:33	08/06/2017	B	DSC_0068
93	12	CALLS TF'D OR CNCL'D	24	12:33	08/06/2017	B	DSC_0069
92	12	CALLS TF'D OR CNCL'D	1	12:28	08/06/2017	B	DSC_0070
91	20	FRONT SE OVERTIME	1	12:24	08/06/2017	B	DSC_0071
90	12	CALLS TF'D OR CNCL'D	4	11:57	08/06/2017	B	DSC_0072
89	15	DOOR NUDGING	4	13:26	08/06/2017	B	DSC_0073
88	20	FRONT SE OVERTIME	1	06:42	08/06/2017	B	DSC_0074
87	12	CALLS TF'D OR CNCL'D	8	14:17	07/06/2017	B	DSC_0075
86	15	DOOR NUDGING	8	14:17	07/06/2017	B	DSC_0076
85	20	FRONT SE OVERTIME	8	14:17	07/06/2017	B	DSC_0077
84	20	FRONT SE OVERTIME	1	14:16	07/06/2017	B	DSC_0078
83	03	NOT IN DOOR ZONE	1	10:04	07/06/2017	B	DSC_0079
82	03	NOT IN DOOR ZONE	1	10:04	07/06/2017	B	DSC_0080
81	05	GL LOST	1	10:04	07/06/2017	B	DSC_0081
80	42	TEST CONTROL	2	09:55	07/06/2017	B	DSC_0082
79	18	SELF-TEST ERROR	2	09:55	07/06/2017	B	DSC_0083
78	01	LOST LAR	2	09:55	07/06/2017	B	DSC_0084
77	42	TEST CONTROL	2	09:43	07/06/2017	B	DSC_0085
76	18	SELF-TEST ERROR	2	09:42	07/06/2017	B	DSC_0086
75	01	LOST LAR	2	09:42	07/06/2017	B	DSC_0088
74	38	STUCK UP CALL	1	07:32	07/06/2017	B	DSC_0089
73	37	STUCK DOWN CALL	4	07:31	07/06/2017	B	DSC_0090
72	37	STUCK DOWN CALL	18	07:30	07/06/2017	B	DSC_0091
71	36	STUCK CAR CALL	3	17:05	06/06/2017	B	DSC_0092
70	14	MULTIPLE START FAILS	2	17:00	06/06/2017	B	DSC_0093
69	08	PRE-LOCK FAIL	2	17:00	06/06/2017	B	DSC_0094
68	08	PRE-LOCK FAIL	2	16:59	06/06/2017	B	DSC_0095
67	08	PRE-LOCK FAIL	2	16:59	06/06/2017	B	DSC_0096
66	14	MULTIPLE START FAILS	2	16:56	06/06/2017	B	DSC_0097
65	08	PRE-LOCK FAIL	2	16:56	06/06/2017	B	DSC_0098



64	08	PRE-LOCK FAIL	2	16:56	06/06/2017	B	DSC_0099
63	08	PRE-LOCK FAIL	2	16:55	06/06/2017	B	DSC_0100
62	12	CALLS TF'D OR CNCL'D	2	16:52	06/06/2017	B	DSC_0101
61	14	MULTIPLE START FAILS	2	16:51	06/06/2017	B	DSC_0102
60	08	PRE-LOCK FAIL	2	16:51	06/06/2017	B	DSC_0103
59	12	CALLS TF'D OR CNCL'D	2	16:51	06/06/2017	B	DSC_0104
58	08	PRE-LOCK FAIL	2	16:51	06/06/2017	B	DSC_0105
57	08	PRE-LOCK FAIL	2	16:51	06/06/2017	B	DSC_0106
56	37	STUCK DOWN CALL	21	16:09	06/06/2017	B	DSC_0107
55	37	STUCK DOWN CALL	19	16:09	06/06/2017	B	DSC_0108
54	36	STUCK CAR CALL	23	15:46	06/06/2017	B	DSC_0109
53	36	STUCK CAR CALL	22	15:46	06/06/2017	B	DSC_0110
52	36	STUCK CAR CALL	21	15:46	06/06/2017	B	DSC_0111
51	36	STUCK CAR CALL	19	15:46	06/06/2017	B	DSC_0112
50	36	STUCK CAR CALL	18	15:46	06/06/2017	B	DSC_0113
49	36	STUCK CAR CALL	17	15:46	06/06/2017	B	DSC_0114
48	36	STUCK CAR CALL	20	15:46	06/06/2017	B	DSC_0115
47	36	STUCK CAR CALL	15	15:46	06/06/2017	B	DSC_0116
46	36	STUCK CAR CALL	16	15:46	06/06/2017	B	DSC_0117
45	36	STUCK CAR CALL	24	15:46	06/06/2017	B	DSC_0118
44	12	CALLS TF'D OR CNCL'D	2	16:51	06/06/2017	B	DSC_0119
43	15	DOOR NUDGING	7	15:43	06/06/2017	B	DSC_0120
42	12	CALLS TF'D OR CNCL'D	1	15:28	06/06/2017	B	DSC_0121
41	15	DOOR NUDGING	23	13:26	06/06/2017	B	DSC_0122
40	08	PRE-LOCK FAIL	2	07:41	06/06/2017	B	DSC_0123
39	08	PRE-LOCK FAIL	2	07:41	06/06/2017	B	DSC_0124
38	14	MULTIPLE START FAILS	2	07:38	06/06/2017	B	DSC_0125
37	08	PRE-LOCK FAIL	2	07:38	06/06/2017	B	DSC_0126
36	08	PRE-LOCK FAIL	2	07:38	06/06/2017	B	DSC_0127
35	08	PRE-LOCK FAIL	2	07:37	06/06/2017	B	DSC_0128
34	14	MULTIPLE START FAILS	2	07:37	06/06/2017	B	DSC_0129



33	08	PRE-LOCK FAIL	2	07:37	06/06/2017	B	DSC_0130
32	08	PRE-LOCK FAIL	2	07:37	06/06/2017	B	DSC_0131
31	08	PRE-LOCK FAIL	2	07:36	06/06/2017	B	DSC_0132
30	08	PRE-LOCK FAIL	2	21:40	05/06/2017	B	DSC_0133
29	08	PRE-LOCK FAIL	1	16:52	05/06/2017	B	DSC_0134
28	12	CALLS TF'D OR CNCL'D	16	15:11	05/06/2017	B	DSC_0135
27	15	DOOR NUDGING	16	15:11	05/06/2017	B	DSC_0136
26	20	FRONT SE OVERTIME	16	15:11	05/06/2017	B	DSC_0137
25	20	FRONT SE OVERTIME	6	15:07	05/06/2017	C	DSC_0002
24	12	CALLS TF'D OR CNCL'D	1	14:27	05/06/2017	C	DSC_0003
23	15	DOOR NUDGING	1	14:27	05/06/2017	C	DSC_0004
22	20	FRONT SE OVERTIME	1	14:27	05/06/2017	C	DSC_0005
21	12	CALLS TF'D OR CNCL'D	12	12:42	05/06/2017	C	DSC_0006
20	15	DOOR NUDGING	12	12:42	05/06/2017	C	DSC_0007
19	20	FRONT SE OVERTIME	12	14:27	05/06/2017	C	DSC_0008
18	18	SELF-TEST ERROR	2	10:55	05/06/2017	C	DSC_0009
17	01	LOST LAR	2	10:55	05/06/2017	C	DSC_0010
16	37	STUCK DOWN CALL	24	07:37	05/06/2017	C	DSC_0011
15	38	STUCK UP CALL	15	07:34	05/06/2017	C	DSC_0012
14	37	STUCK DOWN CALL	15	07:37	05/06/2017	C	DSC_0013
13	37	STUCK DOWN CALL	16	07:37	05/06/2017	C	DSC_0014
12	38	STUCK UP CALL	1	12:24	05/06/2017	C	DSC_0015
11	37	STUCK DOWN CALL	4	12:23	05/06/2017	C	DSC_0016
10	37	STUCK DOWN CALL	23	12:22	05/06/2017	C	DSC_0017
9	38	STUCK UP CALL	1	11:31	05/06/2017	C	DSC_0018
8	37	STUCK DOWN CALL	22	11:29	05/06/2017	C	DSC_0019
7	37	STUCK DOWN CALL	16	11:29	05/06/2017	C	DSC_0020
6	38	STUCK UP CALL	16	11:27	05/06/2017	C	DSC_0021
5	36	STUCK CAR CALL	3	02:35	04/06/2017	C	DSC_0022
4	12	CALLS TF'D OR CNCL'D	12	02:22	04/06/2017	C	DSC_0023
3	08	PRE-LOCK FAIL	2	02:22	04/06/2017	C	DSC_0024



2	08	PRE-LOCK FAIL	2	02:21	04/06/2017	C	DSC_0025
1	20	FRONT SE OVERTIME	6	01:08	04/06/2017	C	DSC_0026

H091

The following faults were recorded when the controller was powered up:

LOG	CODE	DESCRIPTION	POS	TIME	DATE	CARD	PHOTO Ref.
200	51	LIGHT DUTY	1	14:41	16/05/2018	C	DSC_0034
199	64	THERMISTOR TRIP	1	14:41	16/05/2018	C	DSC_0035
198	01	LOST LAR	1	14:41	16/05/2018	C	DSC_0036
197	04	SEEK NXT FLR SE5	1	14:41	16/05/2018	C	DSC_0037
196	00	POWER ON RESET	1	14:41	16/05/2018	C	DSC_0038

All of the remaining faults were recorded on the date of the incident:

LOG	CODE	DESCRIPTION	POS	TIME	DATE	CARD	PHOTO Ref.
195	01	LOST LAR	11	02:33	14/06/2017	C	DSC_0039
194	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0040
193	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0041
192	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0042
191	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0043
190	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0044
189	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0045
188	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0046
187	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0047
186	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0048
185	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0049
184	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0050
183	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0051
182	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0052
181	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0053
180	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0054
179	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0055
178	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0056



177	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0057
176	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0058
175	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0059
174	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0060
173	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0061
172	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0062
171	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0063
170	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0064
169	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0065
168	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0066
167	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0067
166	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0068
165	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0069
164	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0070
163	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0071
162	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0072
161	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0073
160	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0074
159	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0075
158	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0076
157	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0077
156	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0078
155	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0079
154	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0080
153	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0081
152	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0082
151	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0083
150	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0084
149	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0085
148	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0086
147	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0087
146	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0088



145	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0089
144	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0090
143	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0091
142	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0092
141	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0093
140	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0094
139	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0095
138	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0096
137	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0097
136	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0098
135	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0099
134	48	SE COMMS FAILURE	11	02:33	14/06/2017	C	DSC_0100
133	50	SE COMMS OK SE5	11	02:33	14/06/2017	C	DSC_0101
132	48	SE COMMS FAILURE	11	02:32	14/06/2017	C	DSC_0102
131	50	SE COMMS OK SE5	11	02:32	14/06/2017	C	DSC_0103
130	48	SE COMMS FAILURE	11	02:32	14/06/2017	C	DSC_0104
129	50	SE COMMS OK SE5	11	02:32	14/06/2017	C	DSC_0105
128	48	SE COMMS FAILURE	11	02:32	14/06/2017	C	DSC_0106
127							
126	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0002
125	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0003
124	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0004
123	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0005
122	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0006
121	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0007
120	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0008
119	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0009
118	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0010
117	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0011
116	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0012
115	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0013
114	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0014



113	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0015
112	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0016
111	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0017
110	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0018
109	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0019
108	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0020
107	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0021
106	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0022
105	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0023
104	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0024
103	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0025
102	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0026
101	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0027
100	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0028
99	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0029
98	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0030
97	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0031
96	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0032
95	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0033
94	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0034
93	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0035
92	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0036
91	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0037
90	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0038
89	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0039
88	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0040
87	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0041
86	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0042
85	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0043
84	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0044
83	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0045
82	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0046



81	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0047
80	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0048
79	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0049
78	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0050
77	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0051
76	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0053
75	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0054
74	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0055
73	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0056
72	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0057
71	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0058
70	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0059
69	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0060
68	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0061
67	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0062
66	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0063
65	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0064
64	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0065
63	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0066
62	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0067
61	50	SE COMMS OK SE5	11	02:32	14/06/2017	D	DSC_0068
60	48	SE COMMS FAILURE	11	02:32	14/06/2017	D	DSC_0069
59	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0070
58	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0071
57	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0072
56	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0073
55	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0074
54	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0075
53	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0076
52	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0077
51	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0078
50	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0079



49	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0080
48	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0081
47	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0082
46	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0083
45	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0084
44	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0085
43	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0086
42	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0087
41	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0088
40	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0089
39	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0090
38	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0091
37	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0092
36	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0093
35	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0094
34	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0095
33		SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0096
32	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0097
31	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0098
30	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0099
29	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0100
28	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0101
27	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0102
26	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0103
25	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0104
24	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0105
23	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0106
22	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0107
21	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0108
20	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0109
19	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0110
18	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0111

17	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0112
16	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0113
15	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0114
14	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0115
13	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0116
12	48	SE COMMS FAILURE	11	02:31	14/06/2017	D	DSC_0117
11	50	SE COMMS OK SE5	11	02:31	14/06/2017	D	DSC_0118
10	48	SE COMMS FAILURE	11	02:31	14/06/2017	E	DSC_0001
9	50	SE COMMS OK SE5	11	02:31	14/06/2017	E	DSC_0002
8	48	SE COMMS FAILURE	11	02:31	14/06/2017	E	DSC_0003
7	50	SE COMMS OK SE5	11	02:31	14/06/2017	E	DSC_0004
6	48	SE COMMS FAILURE	11	02:31	14/06/2017	E	DSC_0005
5	50	SE COMMS OK SE5	11	02:31	14/06/2017	E	DSC_0006
4	48	SE COMMS FAILURE	11	02:31	14/06/2017	E	DSC_0007
3	50	SE COMMS OK SE5	11	02:31	14/06/2017	E	DSC_0008
2	48	SE COMMS FAILURE	11	02:31	14/06/2017	E	DSC_0009
1	50	SE COMMS OK SE5	11	02:31	14/06/2017	E	DSC_0010

8.6 WINDCREST AUTODIALLERS

GENERAL

The label on the front of the Autodialler control box provided the following details:

- Windcrest AD1000EN-4R System
- Press button to operate intercom facility
- For Technical Assistance TEL 0208-7959 333
- Back up Battery to be Tested/Changed May 2008 31/05/05
- Access was gained to the internal components of the Autodiallers
- The back-up batteries appear to be original as the cable ties securing them had not been cut and replaced.
- There were no additional labels on the battery indicating the replacement date.
- The fuses protecting both Autodiallers were intact
- We will return to site on 23rd May 2018 in order to confirm which Rescue Service numbers the Autodiallers were programmed with.



9 SITE VISIT 4

Date : 23rd May 2018

Time : 10.00

Venue : Deer Park Road, South Wimbledon

Present: Arthur Green, Associate Vertical Transportation, WSP
Eric Richards, Independent Lift Test Engineer
Jim McQuen, MPS Investigating Officer, Metropolitan Police
Forensic Police Photographer

9.1 PURPOSE OF VISIT

- To apply mains power to the Autodiallers.
- To obtain set up parameters for the Windcrest Autodiallers on both units.
- To obtain the stored telephone numbers of the rescue services.
- To confirm the status of the batteries.

9.2 GENERAL

The lift controllers were positioned near to the roller shutter doors at the side of the building.
Photographs of the condition of the controllers were taken before work commenced
A temporary 240 vac supply was provided in order to power up the Windcrest Autodiallers

9.3 WINDCREST AUTODIALLERS

H091

- A button for communicating with the top of the lift car was damaged. However, this may have been caused when removing the controller from the machine room.
- The label on the outside of the Autodialler provided details of the type of unit, Windcrest AD1000EN-4R
- The label on the outside of the Autodialler, dated 31/05/2005, indicated that the battery should have been tested/changed in May 2008.
- This suggests that the battery should be tested / changed every three years i.e. 2011, 2014 and 2017. This needs to be confirmed.
- The Autodialler was opened. We noticed that the Autodialler was compliant with BS EN 81-28. This is a British & European standard for remote alarms on passenger and goods passenger lifts that was introduced in 2003.
- The label indicated that the unit had not been registered when first installed.



- All redundant wiring was removed in order to prevent wiring shorting or earthing and causing damage to the Autodialler.
- The battery was disconnected in order to maintain its present state.
- There was no other information on the battery.
- 240 volt ac was connected to the live, neutral and earth terminals of the Autodialler unit.
- Green and red LED's were illuminated on the Autodialler.
- A Windcrest programming unit was connected to the D socket on the Autodialler in order to check the system parameters.
- The display indicated that version 12 software was installed in the Autodialler.
- We contacted Windcrest in order to obtain details of how to use the programming unit to check the system parameters.
- Photographs of all system parameters were taken
- This Autodialler has the capacity to store five telephone numbers. If the first number is not available then the system will connect to the second number. If the second number is not available then the third number will be dialled etc. up to the fifth number.
- We simulated an alarm button being pressed using a temporary jumper. The following telephone numbers were programmed into the Autodialler:
 - 0800 089 0005
 - 0800 089 0005
 - 0800 089 0005
 - 0800 089 0005
 - 0800 089 0005
- James McQuen contacted the telephone number. Details are as follows:
 - Lift Line
 - 292 Kensal Road
 - W10 5BE
 - Tel: 0800 137 111
 - Tel; 0263 617 7080
 - Contact name Jim Green

We noticed that there was no voice recorded message programmed on the Autodialler. This means that in the event of a trapped passenger the rescue service would not be able to identify the location of the lift in accordance with 4.1.6 of BS EN 81-28, Remote Alarms which states:

"4.1.6 Identification

The alarm equipment shall enable the rescue service to identify at least the installation even when testing."

The battery was reconnected in order to charge it up and ascertain if sufficient power could be retained to operate the Autodialler when the 240 vac was disconnected. After a period of approx. 15 minutes the 240 vac power was removed. The Autodialler failed to operate.



H090

- We followed an identical procedure to unit number H090.
- Our findings were identical with the following exception
- The following telephone numbers were programmed into the Autodialler:
 - 0800 037 111
 - 0800 037 111
 - 0800 037 111
 - 0800 037 111
 - 0800 037 111
- James McQuen contacted the telephone number. Details are as follows:
 - RBKC Housing Management
 - 292a Kensal Road
 - W10 5BE
 - Contact name Jerome (refused to provide surname)
 - Email: [REDACTED]@rbkc.gov.uk

10 OBSERVATIONS

10.1 SITE VISIT 2

The incoming earth wire to the main isolator of lift H091 was extended and wrapped with insulation tape before being concealed inside the conduit. This is poor / bad practice. The earth wire should have been replaced during the modernisation works.

We were unable to determine where the second fireman's switch was connected to the controllers.

We were unable to determine why the lift cars were positioned approx. 75mm to 100mm above the 10th floor. This may be the result of the fire affecting the shaft positioning system.

Although the top of car emergency stop on Lift H091 was in the stop position this may have been caused by others accessing the top of the lift cars after the fire.

The gaps between the car guides may have occurred as a result of the fire.

As the fireman's switch on the 2nd floor (walkway) was not connected to the controllers we can only assume that it was never tested at regular intervals.

As there was no event log of the fireman's switch on the ground floor being operated we can only assume the lifts were in normal service at the time of the incident. This means that passengers were able to call the lift to a floor during the fire or maybe the fire brigade used them on normal service until such time as they failed to operate.

As the mechanism on the fireman's switch on the ground floor was defective then we can assume this had not been examined by the lift service company at regular intervals.

10.2 SITE VISIT 3

The fault/event log on lift H090 on the date of the incident did not include any reference to the lift returning to the designated landing from the building alarm system.

Event log 190 (LOST LDG PUSH FEED) on lift H090 may have been caused by the fire at position 11 (the 10th floor). The landing push feed fuses on both controllers were blown, possibly due to a short or connection to earth.

The controller thermostat on lift H091 was damaged. This may have occurred when the controller was removed from the machine room.

The fault/event log on lift H091 at the time of the incident was dominated by two faults (log nos 1 through 195). SE COMM OK SE5 and SE COMMS FAILURE. This indicates the processor in the controller had repeatedly attempted and failed to communicate with the shaft encoder.

As the event logs for both lifts did not record the following:

(68) FIRE ALARM RECALL - Lift returns to fire floor, no calls can be entered

(70) *FIRE SERVICE* - Lift on fire service

We can safely assume that the lift controllers did not receive any signal for a recall to the designated landing (Log 68) and that the lifts were not switched to fireman's Service (Log 70)

10.3 SITE VISIT 4

The date on the label on the outside of the Autodialler suggests the battery should be changed in May 2008 i.e. every three years.

The batteries within the Autodiallers appeared to be original from 2005 as the cable tie used to secure them were intact. There were no additional labels on the batteries indicating a later replacement date.



The telephone numbers for the rescue service were different on the two Autodiallers. We are unsure if the staff have been trained on how to respond to the alarm or if they are manned 24 hours per day 365 days per year as recommended by clause 4.2.1 of BS EN 81-28 which states:

“The alarm system shall be able to operate at all times when the lift is intended to be accessed by users”

Both Autodiallers were not programmed with the location of the lift. This is in contravention to clause 4.1.6 of BS EN 81-28. This is of particular importance should the passenger be disabled or unable to communicate. In this case the rescue service would not be able to identify where the trapped passengers were located.

After attempting to recharge the batteries by applying 240 vac to the Autodiallers for a period of time they failed to provide a backup supply to the Autodialler when the power was removed. It appears the batteries were defective i.e. unable to be recharged. This is in contravention to clause 4.1.3 of BS EN 81-28 which states:

“4.1.3 Emergency electrical power supply

Any alarm shall not be impeded or lost even in cases of electrical power supply switching or power supply failure.

Where a rechargeable emergency electrical power supply is used, means shall be provided to inform automatically the rescue service as soon as the capacity is lower than needed to provide one hour of function of the alarm system.”

We need to ascertain if the rescue service had received a message of this type.

11 INDUSTRY GOOD PRACTICE

In order for a lift to react and operate correctly in the event of a fire it should be checked at regular intervals.

These periodic checks will include the return to a designated floor from the building alarm system and the operation of the lift after the fireman's key switch has been operated.

We would recommend that power failure tests are conducted, and recorded, at regular intervals in order to ensure trapped passengers can communicate effectively with the rescue service. Power failure tests include the following:

- 1 Is it possible to open the landing and car doors?
- 2 Does the alarm function correctly?
- 3 Does the yellow pictogram illuminate?
- 4 Does the green pictogram illuminate?
- 5 Does the Autodialler connect to the rescue service?
- 6 Is the communication quality satisfactory?
- 7 Does the emergency lighting function correctly?
- 8 Does the hand winding floor level indicator function correctly?
- 9 Does the rope brake remain in its normal position?
- 10 Does the sheave brake remain in its normal position?
- 11 Does the guide clamp remain in its normal position?
- 12 Does the governor device remain in its normal position?

The drop key used to operate the fireman's switches proved to be very difficult to operate and may prevent the fireman from gaining use of the lift to fight the fire. We would recommend these are replaced by triangular type keys in accordance with clause 5.8.2 of BS EN 81-72 which states:

“5.8.2

Operation of the firefighters lift switch shall be by means of the unlocking key, which fits the unlocking triangle as defined in EN 81-20:2014, 5.3.9.3. Other keys may be used to operate the firefighters lift switch only when a car key switch is used (see Introduction). The operating positions of the switch shall be bi-stable and clearly marked '1' and '0'. There shall be clear visual indication on which position the switch is. In position '1' firefighting operations is initiated.

An additional external control or input may be used only to automatically return the firefighters lift to the fire service access level and keep the firefighters lift at that level with open doors. The firefighters lift switch shall still be operated to the '1' position to complete the Phase 1 operation.”

LEIA (Lift and Escalator Industry Association) have produced several articles relating to the behaviour of lifts in the event of a fire. Guidance note 24 provides details of the Maintenance Responsibilities, Owner Responsibilities, Lift Contractor Responsibilities, Weekly, Monthly and Yearly Checks together with a sample report. We would recommend this advice is acted upon and that each lift has a “Firefighting Log Card” to record these tests.

We would recommend that the last telephone number programmed into the Autodialler would be the lift maintenance 24 hour call-out number.

Appendix A

CONTROLLER EVENT MESSAGES





As Displayed...

Verbose Description...

(0) POWER-ON RESET	CPU has reset after power-up or "reset" button pushed (see Note 1)
(1) LOST LAR	Lift Available Relay de-energised
(2) NOT USED	
(3) NOT IN DOOR ZONE	Lift stopped outside door zone
(4) D/OPEN PR. T/OUT	Door opening protection fault
(5) GL LOST : STOPPED	Gate lock fault whilst the lift was idle
(6) GL LOST : HI-SPEED	Gate lock tipped whilst the lift was on high speed
(7) GL LOST : LO-SPEED	Gate lock tipped whilst the lift was on low speed
(8) PRE-LOCK FAIL	Gate pre-lock failure
(9) D/CLOSE PR T/OUT	Door closing protection fault
(10) 110% OVERLOAD	Weight switch indicates 110% of full load
(11) ENGN'R ATTENDED	Engineer made note of a previous visit
(12) CALL TF'D/CNCL'D	Call transferred or cancelled
(13) POSITION RESET	The MPU lift position has been reset at a terminal floor
(14) MULT START FAILS	Multiple start failures
(15) DOOR NUDGING	Limited force door closing in operation
(16) RAM FAILURE	CPU Non-Volatile Random Access Memory Failure
(17) STACK ERROR	CPU NVRAM or program failure
(18) SELF-TEST ERROR	Lift-in service self-test error
(19) EPROM FAILURE	CPU program failure
(20) FRONT SE OVERTIME	Safety edge is holding the front doors open for too long
(21) START FAILURE	Lift has failed to start
(22) EVENT LOG RESET	Event Logger has been reset
(23) – (25) NOT USED	
(26) LOST CAR PUSH FD	The feed to the car push has been lost
(27) LOST LDG PUSH FD	The feed to the landing push has been lost
(28) EARTHQUAKE	Earthquake routine activated
(29) EMERGENCY SUPPLY	Normal power replaced by emergency power
(30) NOT USED	
(31) GT LOCKS BRIDGED	Gate lock signal present after doors have opened
(32) NOT USED	
(33) LTLR TIMEOUT	Lift has taken excessive time to obtain floor level
(34) STUCK LEVELLER	Levelling proximity/relay contact operated incorrectly
(35) DRIVE ERROR	A drive monitor device has led to motor power removal
(36) STUCK CAR CALL	A car push is stuck or is being held in
(37) STUCK DOWN CALL	A landing down push is stuck or is being held in
(38) STUCK UP CALL	A landing up push is stuck or is being held in
(39) STUCK REAR CCALL	Rear car call is stuck or being held
(40) STUCK REAR DCALL	Rear down landing call is stuck or being held
(41) STUCK REARUCALL	Rear up landing call is stuck or being held
(42) *TEST CONTROL*	The lift is currently under Engineer's test control



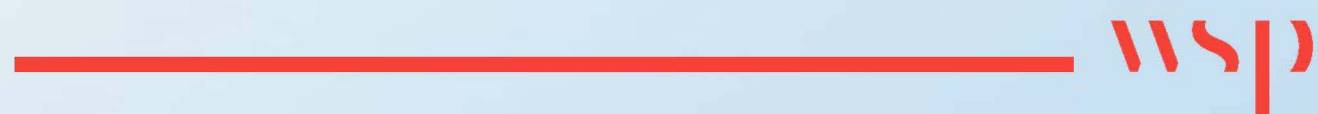
(43) REAR SE OVERTIME	Safety edge is holding the rear doors open for too long
(44) REAR D/OPEN PR.	Rear doors opening protection fault
(45) RR. DOOR NUDGING	Limited force rear door closing in operation
(46) SEEK NXT FLR SE5	Shaft encoder SE500P seeking next floor
(47) FULL DIVE SE5	Shaft encoder SE500P lost its position – seeking terminal floor
(48) SE COMMS FAILURE	Communication failed between M6809 & shaft encoder
(49) RR. CLOSE PR T/O	Rear door closing protection fault
(50) SE COMMS OK SE5	Shaft encoder SE500P communications successful
(51) LIGHT DUTY	System bias to DOWN calls
(52) UP HEAVY DUTY	System bias to UP calls
(53) DOWN HEAVY DUTY	System bias to DOWN calls
(54) UP PEAK DUTY	Car returns to main floor & ignores intermediate down calls
(55) HEAVY MAIN FLOOR	Invokes UP peak for a limited time
(56) DOWN PEAK DUTY	Ignore intermediate UP calls & return car to uppermost hall call
(57) HOSPITAL SERVICE	Adjustments to RTC are recorded with new time/date
(58) M-G SET SHUT DOWN	Corruption of the real time clock data register has been detected
(59) LOBBY RETURN	Hall calls cancelled/transferred, lift returns to main floor until LRET released
(60) VIP RETURN	Lift calls to predetermined floor
(61) EMERGENCY RECALL	Lift calls to predetermined floor & shuts down
(62) LEVELLER/DIR ERR	Leveller or direction error
(63) NOT USED	
(64) THERMISTER TRIP	Recorded when the Motor Room Temperature monitoring device is exceeded
(65) COMPENSATOR RESET	Load weighing device auto calibration has taken place
(66), (67) NOT USED	
(68) FIRE ALARM RECALL	Lift returns to fire floor - no calls can be entered
(69) LANDING INHIBIT	Set if Landing Calls Disabled due to DDS or PTT
(70) *FIRE SERVICE*	Lift on Fire Service
(71) *SPECIAL SERVICE*	Lift on Special Service
(72) DESPATCH FAILURE	'Bus-stop' routine invoked due to loss of LPF or CPF and homing is enabled.
(73) – (81) NOT USED	
(82) PWR ON MEM TEST	Memory error detected on power up
(83) RUN MEM TEST	Memory error detected while running
(84) – (85) NOT USED	
(86) RTC CLOCK RESET	Out of range time/date value recorded
(87) RTC CLOCK CHANGE	Adjustments to RTC are recorded with new time/date
(88) RTC REGS UPDATE	Corruption of the real time clock data registers has been detected
(89) NOT USED	
(90) COUNTERS RESET	Journey and door counters have been reset to



	0,000,000
(91) LCD OVERFLOW ERROR	LCD screen construction error
(92) LCD INIT FAILURE	LCD module initialisation failure
(93) SETTINGS MENU ENTRY	User has entered the Settings Menu from the secure password entry screen
(94) CONFIG MENU ENTERED	User has entered the Configuration Menu from the config password entry screen
(95) SETTINGS PWD ALTERED	User has changed the settings security password
(96) CONFIG PWD ALTERED	User has changed the config security password
(97) FACTORY DEFAULTS	All parameters have been reset to factory defaults including the event logs, timers, passwords and feature settings
(98) SHADOW SET	Shadow RAM majority verdict
(99) EEPROM BUSY	Miscellaneous serial EEPROM error

Appendix B

LEIA GUIDANCE NOTE





THE QUALITY AND TECHNICAL COMMITTEE

GUIDANCE NOTE No. 24

Fire-fighting Lift Testing

General

We have been contacted by the Fire service over concerns they have in relation to their findings that some Fire-fighting lifts fail to operate correctly when required.

A Fire-fighting lift is an important tool to Fire-fighters especially when there is a fire and a failure is likely to delay fire-fighting with possible serious consequences.

In this guide the term Fire-fighting should be understood to mean any special service provided on a lift to enable it to be driven by a Fire-fighter. It therefore includes Fireman's lifts and in some buildings, typically Hospitals, it can include emergency recall service or some form of Evacuation service etc.

Maintenance responsibilities

Many members use the LEIA type A or B model service contract or a variation of it and these contracts include, inspection and adjustment of the plant. This means all the plant unless a specific exclusion is agreed in the contract. The result of this is that all parts of the lift and its features should be inspected at some regular interval and if defective, either repaired or at least reported to the customer.

The responsibility for ensuring plant is safe and operating correctly ultimately rests with the owner but this does not exclude other parties from their responsibilities to carry out their work.

Owner responsibilities

Those persons responsible for the day to day operation of a building have a legal duty to ensure its emergency procedures and equipment are maintained in good working order.

BS9999 provides advice on the maintenance of Fire Safety Installations and includes lifts in its advice along with sprinkler systems hydrants etc. In relation to lifts it provides the following advice.

Weekly

It states for the owner in BS9999 Annex V that the operation of the Evacuation lift and Fire-fighting lift switches should be tested once a week and should be repaired or replaced if found defective.

Monthly

It also states for the owner that once per months a failure of the primary electricity supply should be simulated. If a generator provides the standby supply it should energize the lift(s) for at least 1 hour.

Yearly

In addition arrangement should be made for an annual test of various Fire-fighting plant including, Evacuation and Fire-fighting lifts and a certificate of test should be obtained and retained by the owner. This test should ensure that all the lift operations related to Fire-fighting operation are checked not just that the car returns to the main landing. As many such lifts will be connected to a building management system (BMS) the testing needs to be co-ordinated with those conducting testing of any BMS.

Lift contractor responsibilities.

To maintain the lift and its features in accordance with the contract and to correct or report any issues to the customer.

To liaise with the customer for a yearly test of the Evacuation or Fire-fighting lift to be conducted and to issue a report of the test results to the customer. An example report form follows. Please note the example is for a Fire-fighting lift and a different report would need to be compiled, along similar line, for other special service features such as Evacuation service.



Other information

New lifts are required to be accompanied by instructions according to BSEN13015. This means there should be information provided to the owner regarding how the lift should operate on any particular special service it may have and we would suggest it includes advice to the owner on the need for weekly and monthly tests by the owner and yearly tests by the lift maintainer in liaison with the owner.

Example report

Annual Fire-fighting lift condition report

Name of the company making the examination
Address
Contact name
Contact details

Building name
Address
Lift reference number
Customers lift identification number or name

Date of test

Name of the special service feature checked e.g. Fire fighting service.

a)	Did the lift recall to the fireman's main landing without undue delay?	Yes	No
b)	Did the lift on arrival at fireman's main landing stand with doors open?	Yes	No
c)	Does the lift respond correctly to car calls entered?	Yes	No
d)	Are landing calls disabled?	Yes	No
e)	On arrival at a floor do doors operate as intend?	Yes	No

Note Fire fighting lift door open in response to door open button. Fireman's lift doors open automatically.

f)	Is lift connected to a building alarm or BMS system?	Yes	No
g)	Was the reaction of the lift to an Alarm or BMS signal tested?	Yes	No
h)	Was the reaction of the lift to loss of supply tested?	Yes	No
i)	Do all indicators relevant to the special service operate correctly?	Yes	No
j)	Is the special feature working correctly?	Yes	No

If the answer to any question is No provide details of the problem and corrective action required by customer.

Name of company representative

Signed on behalf of



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