



**Lift & Escalator Industry Association**

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Website: www.leia.co.uk

**To: All Members**  
**cc: The Quality and Technical Committee (Code No. 598)**  
**The Maintenance Committee**

**Date: 3<sup>rd</sup> June 2003**

Dear Member,

**BERINGER LRV VALVE**

You may be aware that following a letter from the Gerald Honey Partnership to various LEIA members regarding the 'Beringer LRV Valve', there has been further correspondence on this topic between the Gerald Honey Partnership and Bucher Hydraulics.

In order to clarify the situation and to allay any unwarranted concerns, we have been asked by Bucher Hydraulics to circulate copies of the following correspondence to all LEIA members.

1. Letter of Notification of Potential Safety Hazard by the Gerald Honey Partnership dated 8<sup>th</sup> May 2003.
2. Letter from Bucher Hydraulics dated 15<sup>th</sup> May, in response to the GHP letter of 8<sup>th</sup> May.
3. Further letter from GHP dated 20<sup>th</sup> May.

We trust that members will take note of the content of these letters and be guided accordingly.

Yours faithfully

Robert N Lee  
Director, Technical Services



EMTA Awards Limited  
Approved Assessment Centre

Registered in England N° 3851206.



Registered office as above.



Certificate N° 12368

# Gerald Honey Partnership

Lift and Escalator Consultants

London and Leeds

Our Ref: MBS/Is

20<sup>th</sup> May 2003

[Contractors Distribution List]

Dear Sirs

**Re: Notification of Potential Safety Hazard**

We write to refer you to our letter of the 8<sup>th</sup> May 2003.

We enclose for your closest consideration copy of a response to our letter issued by Bucher Hydraulics, directly in relation to the situation as described in our letter noted above.

In bringing the situation to your attention we did not pass comment as to the quality of the design or manufacture of parts, neither did our statement establish fault or responsibility for the circumstance and its potential.

You are therefore requested to take full cognisance of the enclosed details obtained from the manufacturers/suppliers of the LRV directly particularly in circumstance where this situation applies to GHP projects past or present.

You are asked to note especially the "conclusion" given by Bucher Hydraulics, and, from the point of view of this practice, please note that our specification will call for special notice to bring the important issue of filter cleaning to the maintenance engineer. This is likely to be sited in prominent position adjacent to the valve block. Our form of maintenance contract will be modified to show the absolute need for the cleaning of filters associated with hydraulic installations.

As part of an ongoing interest in the situation we would welcome your views, particularly if this can provide assurances relative to your maintenance procedures.

Yours faithfully,



**M.B. Shearman  
The Gerald Honey Partnership**

Enc. Letter from Bucher Hydraulics to GHP dated 15/05/03 - [single page total]  
Statement from Bucher Hydraulics (with reference to GHP letter to Contractors dated 08/05/03) - [2 pages total and dated 09/05/03]

c.c. Mr C B Thoony, Managing Director, Bucher Hydraulics.  
Mr Rv Holzen, Head of R & D Department, Bucher Hydraulics  
Mr C D C Rattle, The Gerald Honey Partnership.

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Registered in England 927767

Gerald Honey Partnership  
Lift and Escalator Consultants  
Mr M. Shearman  
13 St Johns Hill, Savonnoake  
Kant TN 133NP

May 15, 2003

Re: **Letter sent by Gerald Honey Partnership, dated 8<sup>th</sup> May 2003**  
**Notification of Potential Safety Hazard**

Dear Sirs

Further to the above referenced letter we respond as follows.

Bucher Hydraulics is a worldwide leading company, specialised in safety critical components and systems with a four decade safety record.

We are in the fortunate position to ensure that the potential hazard as described will in reality not occur due to the inclusion of multiple preventative safety measures.

The Beringer LRV lift valve was introduced into the market in 1978. Since its launch over 100,000 valves have been sold and installed. The lift control valve is designed and manufactured in accordance with EN81-2 and fulfils all specified safety requirements. There has been no known failure as described during millions of operating hours.

Proper maintenance is essential for all safety critical systems, lifts are no exception. The Beringer LRV valve incorporates a filter in compliance with EN81-2. This filter needs to be cleaned on a regular basis in compliance with manufacturers instructions. Should the recommended maintenance procedure not be adhered to a system malfunction would be recognised gradually, resulting in an eventual breakdown.

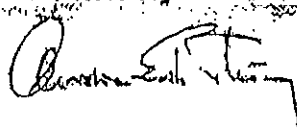
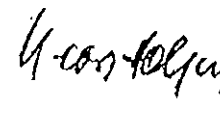
**The detailed technical attachment describes the system operating characteristics.**

In conclusion we would recommend a closer scrutiny of maintenance procedures which of course is applicable to all types of lifts, traction and hydraulics.

Should you require clarification on any of the points raised please do not hesitate to contact either of the undersigned.

Yours faithfully

**Bucher Hydraulics AG**

G.E. Thoeny  
Managing Director

Richard von Holzen  
Head of R & D Department

## Statement to clogged filters on LRV-1

Letter of Gerald Honey Partnership May 8, 2003

### 1. General

The Berlinger lift control valve LRV was introduced into the market in year 1978. Since this time over 100'000 valves have been sold and installed. The lift control valve is developed according EN81-2 and fulfills all safety requirements.

The LRV-1 valve is equipped with different filters to protect the valve against dirty oil and to ensure proper function.

In the main oil flow two filters are build in to protect the valve against rough dirt. In the pilot valve two additional filters are build in to protect the pilot valves also against very fine dirt.

The safe operation of the LRV valve has been proven during millions of operation hours and until today we never got knowledge of a falling valve because of clogged pilot valve filters.

### 2. Maintenance

To perpetuate the proper function of the lift control valve the filters have to be checked and cleaned according to our maintenance guide.

### 3. Clogging of filters

If the lift control valve is operated with dirty oil, the filters are getting clogged slowly. This will also affect the driving comfort of the elevator by overshooting the floors more and more. To clog the filter completely it needs a lot of travels and it will be a creeping process over weeks or months. During this time it is probable, that the elevator is stopped several times because of the build in monitoring circuit for the demand feedback difference. This will result in a breakdown of the elevator and will need assistance of the service company to get the elevator running again. **If the indicated, urgently and indispensable cleaning of the filters is not done and the lift is just reset, the filter system might get clogged completely after a while. This would be a careless or even punishable act.**

What happens if the pilot valve filters are completely clogged:

#### up direction

The elevator accelerates very slowly, because the main spool is not able to close normally due to shortage of oil (constricted by clogged filter). If the difference between demand and feedback value gets too big, the electronic card opens up the spool immediately and the elevator will stop. The opening of the up spool and so the stopping of the elevator is not constricted by the clogged filter.

#### down direction

The elevator accelerates faster than normal, because the oil flow to close the spool is constricted by the clogged filter. If the difference between demand and feedback value gets too big, the electronic card starts to close the spool again, but because of the lack of oil, the down spool closes slower than normal.

This can not result in an overshooting of the elevator in down direction as mentioned in the letter, except if the maintenance is carelessly neglected and the filters are not cleaned over a long period. The maintenance is laid down by EN81-2 and also remarked in our documentation.

#### 4. Lost signal of feedback sensor because of loose wires

With the DelCon electronic card the feedback value is checked before starting to operate the valve and if the feedback value is out of range, the elevator will not move and the electronic card will go on error.

To prevent dangerous situations, the EN81-2 code lay down to use in up direction two motor contactors and in down direction two safety relays for the down solenoid. These contactors have to open up immediately if the elevator is leaving the door zone with open doors and so the elevator will stop immediately. These safety circuits have to be provided by the elevator controller and are also remarked in our documentation.

#### 5. Monitoring circuit SIU-1 of electronic card

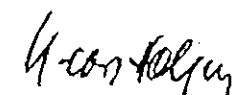
To monitor the proper function of the lift control valve LRV the electronic cards are equipped with a monitoring circuit for the difference between demand and feedback value. With ELRV-A and ELRV-1 cards, the SIU-1 relay needs to be wired into the safety circuit of the elevator controller. With the new DelCon cards, the wiring into the safety circuit is not needed anymore; the card will also stop the elevator by itself, if the difference of demand and feedback gets to big.

#### 6. Conclusion

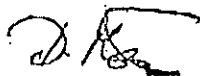
A failing of the LRV valve as mentioned in the letter will not happen, except the maintenance (clearly defined within EN81-2 in order to ensure the operational safety) is neglected completely in a serious careless way over a long period. Same or similar effects can occur in other hydraulic or traction systems, under such even punishable conditions.

**Bucher Hydraulics AG**  
R&D Department

May 9, 2003



R. von Holzen



D. Moser

# Gerald Honey Partnership

Lift and Escalator Consultants  
London and Leeds

Our Ref: MBS/wjd

8<sup>th</sup> May 2003

Dear Sirs

Re: Notification of Potential Safety Hazard

We write to bring to your immediate attention information received by our office in relation to the following.

Plant: Hydraulic Operated Lifts

Item: Beringer 'LRV Valve'

### Concern

In certain circumstances it is possible that the Beringer LRV valve can accelerate out of control in either the up or down directions.

In the valve block there are two filters in line with the up and down pilot valves, should these filters become clogged, when the pilot valves call for speed insufficient oil passes through the filters to the pilot valve so the main spools do not open enough to accelerate the lift.

As the feed back control does not see an increase in speed the pilots call for more speed. This process continues until there is sufficient pressure to force the oil through the clogged filter. The main spool is then driven fully open and the lift will accelerate out of control until the electronics regain control or the rupture valve activates. The same fault can also occur if the feed back sensor is removed or the wiring is disconnected (loose wire etc).

### Circumstance Relating

The Beringer electronic LRV control card is fitted with a monitoring circuit that measures the difference between demand and feed back. However, this circuit is not always incorporated into the lift control safety circuit.

### Outcome

Should the lift be able to re-level with the doors open and the differential monitoring circuit is not incorporated it is possible, if the lift tries to re-level, for it to accelerate out of control until the rupture valve is engaged or the electronics regain control, the lift could drop one or two metres before this happens.

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Registered in England 927762

**GHP Projects**

Would you please carry out close review of any projects completed with the involvement of this Practice (at whatever level/degree) that may incorporate designs and/or components as described and advise, as a matter of urgency.

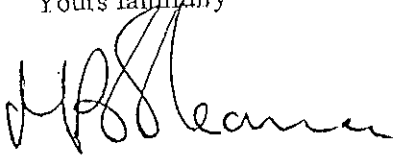
**Immediate Action**

Should you have any lift under contract or should you have worked on any installation incorporating the components and designs noted, please take immediate steps to advise the particular building managers/administrators with the advice that the lift is to be placed safely out of service until corrective works can be arranged and undertaken.

This office will assist in situations where immediate contact cannot be made with the administrators of the building.

Your soonest cooperation in this important issue would greatly oblige.

Yours faithfully



**M Shearman  
For and on behalf of The Gerald Honey Partnership**

c.c. Mr C Rattle, GHP  
GHP Staff

