



Data Summary: Line-Of-Road Failure – Brake System/Brake Other

Table of Contents

Synopsis.....	2
Purpose	2
Background	2
Data Summary Elements.....	4
Opening Criteria	11
Closing/Reset Criteria	11
Data Summary Roll Up Example	12
Additional Information.....	16
Appendix A – EHMS Display Information	17

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Synopsis

Purpose

The Line-Of-Road Failure – Brake System/Brake Other (LORF-BSO) data summary provides information on equipment involved in trains that experience a line-of-road emergency brake application where the cause was identified as Brake System/Brake Other.

Background

The event will be referred to as **LORF-BSO event**.

A LORF-BSO event occurs when a train goes into emergency brake application that is not induced by the operator and the cause is identified to be as Brake System/Brake Other.

The data summary created based on the event will be LORF-BSO data summary.

LORF-Brake System/Brake Other: An emergency brake application triggered by an identified defect including emergency or service valve failures, not otherwise categorized, such as a train line or other system leak. A car number must be associated with this defect. Do not use this category when it is a No Cause Found (NCF).

Figure 1 – Bad Actor Identification: LORF-BSO

1 Trains experience multiple undesired emergency stops (UDEs) overtime on different railroads and the cause is found to be related to Brake System/Brake Other

2 Individual railroads accumulate information to identify a specific car that has multiple LORF-BSO events reported on it.



3 Line of Road Failure data and consist details are shared with Railinc. Railinc identifies the Bad Actor cars involved in LORF-BSO events and provides LORF-BSO data summaries for their study.

Data Summary Elements

Element Name	Element Text	Element Description	Format	Aggregation Method	Correlation Based On	Action
Type	Type	Data Summary	TEXT			
Format Version	Format Version	Version of the data summary definition	NUMBER [1.0-999.99]			
CreationTMST	Date Opened	GMT timestamp for when the data summary was created and the time zone offset of the originating data location.	TIMESTAMP	Earliest		Update when data summary created
RR_DB_Key	Key from originating railroad	Database key from the originating railroad (or detector owner)	NUMBER [0 - 999999999]			
LastUpdateTMST	Date of last update	GMT timestamp for when the data summary was last updated (any change other than closing) and the time zone offset of the originating data location.	TIMESTAMP	Last		Update every time data summary is updated, including when it is opened.
DSType	LORF_BSO	Data summary type	TEXT			
DS_Owner/Reporting_System	Who created the Data Summary	Company ID (from Railinc) of the owner/creator of data summary	TEXT			
EquipmentMark	Equipment Mark	Current equipment initial	TEXT			
EquipmentNumber	Equipment Number	Current equipment number	NUMBER [0 - 9999999999]			
Location	Location	Location on equipment per EMIS nomenclature				
ComponentType	Component type	BASE	TEXT			
ComponentName	Part of the component location	BASE	TEXT			
ComponentValue	Value for the component location		TEXT			

State	Data Summary state	Current status of Open	TEXT			
TWELVE_MONTH_RAW_COUNT	12mo Raw Count	12 month Count of Unique LORF-BSO events	NUMBER	Sum		Update every time data summary is updated with a LORF-BSO event sent with ONE equipment, including when it is opened. Based on a window of time from current date to the earliest reported event or 12 month window. 12 month window can be changed based on continuing data analysis.
THIRTYSEX_MONTH_RAW_COUNT	36mo Raw Count	36 month Count of Unique LORF-BSO events	NUMBER	Sum		Update every time data summary is updated with a LORF-BSO event sent with ONE equipment, including when it is opened. Based on a window of time from current date to the earliest reported event or 36 month window.36 month window can be changed based on continuing data analysis.
LAST_LORF_BSO_INSPECT_DT_1	Last LORF-BSO Inspection Date	Date on which the most recent Inspection was performed after an LORF-BSO event occurred.	DATE	Latest		Update each time a LORF-BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_1	Last LORF-BSO Inspection Reason	Last LORF-BSO Inspection Reason	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_1	Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_CODE_1	Last LORF- BSO Inspection Reason Code	Last LORF-BSO Inspection Reason Code	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_1	Update each time a LORF- BSO Inspection is performed on the car

LAST_LORF_BSO_INSPECT_DT_2	2 nd to Last LORF- BSO Inspection Date	Date on which the 2nd to Last Inspection was performed after an LORF-BSO event occurred	DATE	Latest		Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_2	2nd to Last LORF- BSO Inspection Reason	2nd to Last LORF-BSO Inspection Reason	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_2	Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_CODE_2	2nd to Last LORF- BSO Inspection Reason Code	2nd to Last LORF-BSO Inspection Reason Code	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_2	Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_DT_3	3 rd to Last LORF- BSO Inspection Date	Date on which the 3rd to Last Inspection was performed after an LORF-BSO event occurred	DATE	Latest		Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_3	3rd to Last LORF- BSO Inspection Reason	3rd to Last LORF-BSO Inspection Reason	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_3	Update each time a LORF- BSO Inspection is performed on the car
LAST_LORF_BSO_INSPECT_REASON_CODE_3	3rd to Last LORF- BSO Inspection Reason Code	3rd to Last LORF-BSO Inspection Reason Code	STRING	Latest	LAST_LORF_BSO_INSPECT_DT_3	Update each time a LORF- BSO Inspection is performed on the car
LAST_AB_T_INSPECT_DT_1	Last LORF-BSO ABT Inspection Date Done	Last LORF-BSO ABT Inspection Date Done	DATE	Latest		Updated each time a ABT Inspection is performed on the car and the data is available in Umler
LAST_AB_T_DEVICE_1	Last LORF-BSO ABT Device	Last LORF-BSO ABT Device	STRING	Latest		Updated if ABT Device information is available in Umler
LAST_AB_T_INSPECT_PERFORMER_1	Last LORF-BSO ABT Inspection Performer	Last LORF-BSO ABT Inspection Performer	STRING	Latest		Updated if ABT Inspection Performer information is available in Umler

LAST_ABT_SPLC_1	Last LORF-BSO ABT Location/SPLC	Last LORF-BSO ABT Location/SPLC	STRING	Latest		Updated if ABT Location/SPLC information is available in Umler
LAST_ABT_INSPECT_DT_2	2 nd to Last LORF-BSO ABT Inspection Date Done	2 nd to Last LORF-BSO ABT Inspection Date Done	DATE	Latest		Updated if 2 nd to Last ABT Inspection is performed on the car and the data is available in Umler
LAST_ABT_DEVICE_2	2 nd to Last LORF-BSO ABT Device	2 nd to Last LORF-BSO ABT Device	STRING	Latest		Updated if 2 nd to Last ABT Device information is available in Umler
LAST_ABT_INSPECT_PERFORMER_2	2 nd to Last LORF-BSO ABT Inspection Performer	2 nd to Last LORF-BSO ABT Inspection Performer	STRING	Latest		Updated if 2 nd to Last ABT Inspection Performer information is available in Umler
LAST_ABT_SPLC_2	2 nd to Last LORF-BSO ABT Location/SPLC	2 nd to Last LORF-BSO ABT Location/SPLC	STRING	Latest		Updated if 2 nd to Last ABT Location/SPLC information is available in Umler
LAST_ABT_INSPECT_DT_3	3 rd to Last LORF-BSO ABT Inspection Date Done	3 rd to Last LORF-BSO ABT Inspection Date Done	DATE	Latest		Updated if 3 rd to Last ABT Inspection is performed on the car and the data is available in Umler
LAST_ABT_DEVICE_3	3 rd to Last LORF-BSO ABT Device	3 rd to Last LORF-BSO ABT Device	STRING	Latest		Updated if 3 rd to Last ABT Device information is available in Umler
LAST_ABT_INSPECT_PERFORMER_3	3 rd to Last LORF-BSO ABT Inspection Performer	3 rd to Last LORF-BSO ABT Inspection Performer	STRING	Latest		Updated if 3 rd to Last ABT Inspection Performer information is available in Umler

LAST_ABT_SPLC_3	3 rd to Last LORF-BSO ABT Location/SPLC	3 rd to Last LORF-BSO ABT Location/SPLC	STRING	Latest		Updated if 3 rd to Last ABT Device information is available in Umler
EVENT_TS_1	Last Event Timestamp	Date and Time of Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_1	Last Event Load/Empty Indicator	Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_1	Update each time a new LORF-BS event occurs
EVENT_TS_2	2 nd to Last Event Timestamp	Date and Time of 2 nd to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_2	2 nd to Last Event Load/Empty Indicator	2 nd to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_2	Update each time a new LORF- BS event occurs
EVENT_TS_3	3 rd to Last Event Timestamp	Date and Time of 3 rd to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_3	3 rd to Last Event Load/Empty Indicator	3 rd to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_3	Update each time a new LORF- BS event occurs
EVENT_TS_4	4 th to Last Event	Date and Time of 4 th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_4	4 th to Last Event Load/Empty Indicator	4 th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_4	Update each time a new LORF- BS event occurs
EVENT_TS_5	5 th to Last Event Timestamp	Date and Time of 5 th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs

LE_INDICATOR_5	5th to Last Event Load/Empty Indicator	5th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs
EVENT_TS_6	6th to Last Event Timestamp	Date and Time of 6th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_6	6th to Last Event Load/Empty Indicator	6th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs
EVENT_TS_7	7th to Last Event Timestamp	Date and Time of 7th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_7	7th to Last Event Load/Empty Indicator	7th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs
EVENT_TS_8	8th to Last Event Timestamp	Date and Time of 8th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_8	8th to Last Event Load/Empty Indicator	8th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs
EVENT_TS_9	9th to Last Event Timestamp	Date and Time of 9th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs

LE_INDICATOR_9	9th to Last Event Load/Empty Indicator	9th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs
EVENT_TS_10	10th to Last Event Timestamp	Date and Time of 10th to Last Event	Date Time	Descending2		Update each time a new LORF- BS event occurs
LE_INDICATOR_10	10th to Last Event Load/Empty Indicator	10th to Last Event Load Empty Indicator	STRING	Correlated	EVENT_TS_5	Update each time a new LORF- BS event occurs

Opening Criteria

A LORF-BSO data summary will be created for equipment involved in a line-of-road failure emergency brake application where the cause is identified as Brake System/Other.

Once opened, the LORF- BSO data summary will continue to aggregate event timestamps from subsequent line-of-road failures where the cause is identified as Brake System/Other.

Closing/Reset Criteria

1. A LORF-BSO data summary will reset for the following actions:

- A predetermined period of time passes without subsequent LORF - BSO events being reported on an equipment. Currently this time period is 36 months.

2. LORF-BSO Inspections:

- LORF- BSO Inspections reported on an equipment do not close or reset the Counts of the LORF- BSO data summary. Inspections are used to indicate that an equipment has been reviewed for LORF- BSO related issues.
- When a LORF- BSO inspection of types 'BI' or 'BR' is reported on the equipment, the LORF- BSO data summary will remain open. The counts on an LORF- BSO data summary will NOT be reset by a LORF- BSO inspection.

A LORF- BSO inspection is reported to EHMS. The inspections are listed below.

- BI - LORF BSO Inspected and Released
- BR- LORF BSO Repaired and Released

Data Summary Roll Up Example

Element Name	Aggregation	RR1	RR2	RR3
Type	DS	DS	DS	DS
Format Version	1	1	1	1
CreationTMST	08-04-2015 13:01	08-04-2015 13:01	08-06-2015 13:21	08-07-2015 13:40
RR_DB_Key		772762	657646	346545
LastUpdateTMST	08-08-2015 13:40	08-05-2015 13:01	08-06-2015 13:40	08-08-2015 13:40
DSType	LORF_BSO	LORF_BSO	LORF_BSO	LORF_BSO
DS_Owner/Reporting_System		RR1	RR2	RR3
Equipment Mark	UP,NS,CSXT	UP	NS	CSXT
EquipmentNumber (ID)	ABOX51110	ABOX51110	ABOX51110	ABOX51110
Location				
ComponentType	BASE	BASE	BASE	BASE
ComponentName	BASE	BASE	BASE	BASE
ComponentValue	BASE	BASE	BASE	BASE
State	0	0	0	0
12mo Raw Count	7	3	2	2
36mo Raw Count	7	3	2	2
Last LORF-BSO Inspection Date	08-07-2015	08-07-2015	08-07-2015	08-07-2015
Last LORF-BSO Inspection Reason	LORF-BSO Inspected and Released			
Last LORF-BSO Inspection Reason Code	BI	BI	BI	BI
2nd to Last LORF-BSO Inspection Date	08-06-2015	08-06-2015	08-06-2015	08-06-2015
2nd to Last LORF-BSO Inspection Reason	LORF-BSO Inspected and Released			

2nd to Last LORF-BSO Inspection Reason Code	BR	BR	BR	BR
3rd to Last LORF-BSO Inspection Date	08-05-2015	08-05-2015	08-05-2015	08-05-2015
3rd to Last LORF-BSO Inspection Reason	LORF-BSO Repaired and Released	LORF-BSO Repaired and Released	LORF-BSO Repaired and Released	LORF-BSO Repaired and Released
3rd to Last LORF-BSO Inspection Reason Code	BR	BR	BR	BR
Last LORF-BSO ABT Inspection Date Done	03-19-2015 00:00	03-19-2015 00:00	03-19-2015 00:00	03-19-2015 00:00
Last LORF-BSO ABT Device	M	M	M	M
Last LORF-BSO ABT Inspection Performer	IMX	IMX	IMX	IMX
Last LORF-BSO ABT Location/SPLC	283110000	283110000	283110000	283110000
2 nd to Last LORF-BSO ABT Inspection Date Done	01-30-2014 00:00	01-30-2014 00:00	01-30-2014 00:00	01-30-2014 00:00
2 nd to Last LORF-BSO ABT Device				
2 nd to Last LORF-BSO ABT Inspection Performer	TRRA	TRRA	TRRA	TRRA
2 nd to Last LORF-BSO ABT Location/SPLC	396295000	396295000	396295000	396295000

3rd to Last LORF-BSO ABT Inspection Date Done				
3rd to Last LORF-BSO ABT Device				
3rd to Last LORF-BSO ABT Inspection Performer				
3rd to Last LORF-BSO ABT Location/SPLC				
Last Event Timestamp	08-09-2015 13:40	08-09-2015 13:40	08-09-2015 13:40	08-06-2015 13:40
Last Event Load/Empty Indicator	L	L	L	L
2nd to Last Event Timestamp	08-08-2015 13:40	08-04-2015 13:01	08-06-2015 13:21	08-08-2015 13:40
2nd to Last Event Load/Empty Indicator	L	L	L	L
3rd to Last Event Timestamp	08-06-2015 13:40	08-04-2015 13:01		
3rd to Last Event Load/Empty Indicator		L		
4th to Last Event Timestamp	08-06-2015 13:21	08-06-2015 13:21		
4th to Last Event Load/Empty Indicator	L			
5th to Last Event Timestamp	08-05-2015 13:01		08-05-2015 13:01	
5th to Last Event Load/Empty Indicator				

	6th to Last Event Timestamp	08-04-2015 13:06	08-04-2015 13:06		
	6th to Last Event Load/Empty Indicator				
	7th to Last Event Timestamp	08-03-2015 13:08			08-03-2015 13:08
	7th to Last Event Load/Empty Indicator				
	8th to Last Event Timestamp	08-02-2015 13:01		08-02-2015 13:01	
	8th to Last Event Load/Empty Indicator				
	9th to Last Event Timestamp	08-01-2015 13:01	08-01-2015 13:01		
	9th to Last Event Load/Empty Indicator				
	10th to Last Event Timestamp	07-25-2015 15:01		07-25-2015 15:01	
	10th to Last Event Load/Empty Indicator				

Additional Information

Note 1:

EVENT_TS_n, LE_INDICATOR_n is cascaded (when a more recent event is found, it takes #1 position and #1 moves to #2, etc.). Once all timestamps for a group are populated, the oldest timestamp for that group rolls off. Currently, the data summary allows for the TEN most recent events.

Note 2:

- LORF- BSO events that are submitted with more than ONE equipment will NOT affect the Counts of the LORF- BSO data summary and will only be populated in the Last 10 events section of the LORF- BSO data summary

- LORF-BSO events that are submitted with ONE equipment will affect the Counts of the LORF- BSO data summary and will also be populated in the Last 10 events section of the LORF- BSO data summary.

- LORF-BSO 12 month and 36 month counts will only increment when LORF-BSO events are reported with one equipment.

Appendix A – EHMS Display Information

Opening Criteria Display Text

Any LORF-BSO event when train is in an emergency braking condition that was not operator induced and cause was identified as Brake System/Other.

Closing Display Text

A LORF-BSO data summary will always remain open.