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To whom it concerns

For your information Urgent

Neede, 31 July 2017

From : Albert Kroon
Subject : Manufacturer statement on Fireball ride accident on Ohio State Fair
Affected serials : FRB24 (serial numbers 01 up to and including 39)
FRB24P (serials 01, 02 and 03)
MVT24 (serials 00, 01, 02, 03 and 04)
MVT32 (serial 01)

Dear Mr./Mrs.,

On July 27th, KMG started an investigation to determine the cause for an accident with a KMG Fireball. In this accident happened on July 26th, a passenger carrying gondola detached from the supporting sweep arm of the ride also known as a KMG Afterburner.

The investigation was based on video footage and photographs of the accident and an expert visit of the accident site in Columbus, Ohio, USA.

It was determined that excessive corrosion on the interior of the gondola support beam caused to have dangerously reduced the beam's wall thickness over the years being. This finally lead to the catastrophically failure of the beam when it was exposed to the intense dynamic loads during the ride cycle.

KMG is currently implementing inspection procedures to determine if and in what grade other Afterburner / Fireball might be subjected to the same phenomenon. Depending the outcome of the inspection procedures the rides can then be reopened to the public or be subjected to additional repair procedures to assure further safe operation of the Afterburner / Fireball ride.

Operators of KMG Afterburner / Fireball rides will be contacted on the required actions for their rides.

We trust to have you informed sufficiently.

Albert Kroon
Product Manager

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Bulletin No:	FRB24-SB008
Release Date:	August 2 nd , 2017
Effective Date:	August 2 nd , 2017
Supersedes:	none
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SAFETY ALERT

Ride Mfg:	KMG International BV	Affected Production Dates:	All
Ride Name:	Afterburner / Fireball Afterburner Park model	Affected Serial Numbers:	FRB24 serials 01 – 39 FRB24P serials 01 – 03
Model Number:	FRB24 and FRB24P		

Abstract of Issue: Inspection of gondola support beam and joint

Reason for release:

KMG has become aware of possible excessive corrosion inside the gondola support beam of the above mentioned Afterburner / Fireball ride build by KMG. The corrosion can lead to hazardous wall thickness reduction of the beam and its adjacent joint, causing the beam to fail under normal operation. Failure of the beam/joint can cause serious injury to staff, passengers and bystanders.

The above mentioned Afterburner / Fireball ride is not to be operated until all inspections described in this safety alert bulletin are satisfactorily completed.

Action to be taken:

All owners of the above mentioned Afterburner / Fireball or Afterburner Park model rides are required to cease operation until the inspection procedures A, B and C described in this safety alert bulletin are completed.

- **If any of the results of procedures A, B or C are rejected:** DO NOT OPERATE THE RIDE and consult KMG for further instructions.
- **If ALL results of procedures A, B and C for all gondolas are accepted:** The ride can be taken into normal operation again until December 31st, 2017, under the condition that Areas L5, R5, LC, RC, have a daily visual inspection prior to operation and **procedure D is performed every 20 operating days of the ride.**
- If any of the measurements of **Procedure C** =< 4mm the swing angle should be limited to max 90 degrees

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Abstract of Issue:	Inspection of gondola support beam and joint			

Detail of issue

Inspection is to be carried out on all gondolas of the Afterburner / Fireball ride. All results shall be documented to the manufacturer. Inspections are to be carried out by KMG approved inspectors or inspection companies, certified in the field of testing materials.

Procedure descriptions and requirements

A level 2 inspector acc. ISO 9712 is required .

Inspector shall have knowledge about the parts to inspect. All tests shall be performed under the responsibility of one company. All reports have to be send to KMG to validate or a level 3 inspector shall validate the results and proper procedure.

The inspections exists of three levels of inspection being:

Procedure A – Inspection for cracks and corrosion, determination of grade of corrosion.
Qualification of inspection acc. ISO 9712.

Procedure B – Magnetic testing of gondola support beam joint.

Procedure C – Inspection of wall thickness of gondola support beam.
Requirement to calibrate tools acc. EN 12668-3.

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Procedure A

1. Interior of gondola support beam is to be sand blast cleaned and all loose parts are to be removed, until the interior surface of the beam can be inspected.
2. Full interior is to be photographed with endoscope or video scope to have full access , especially the area on bottom side of the beam around the joint with the round tube.
3. Visually inspect the corners of the support beam where it joins the round tube, looking for cracks.
4. The conditions of the different beams shall be compared by the manufacturer before taking further actions.

Accepted: Steel surface on which the mill scale has rusted away or from which it can be scraped, but with slight pitting visible under normal vision.

Grades A, B, or C corrosion as classified in ISO 8501-1.

Rejected: Pitting or cracking is visible under normal vision.

Grade D corrosion as classified in ISO 8501-1.

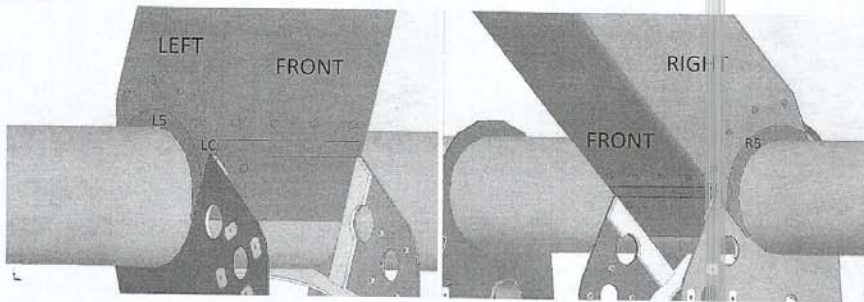
Do NOT return ride to service.

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Procedure B

- Gain access to all four sides of the gondola support beam and around the joint. The secondary lock solenoid can be left in place.
- Remove all parts and paint in below mentioned areas L5 and R5 on both sides of the beam joint and on both corners LC and RC of the support beam joint:

Areas:



- Test for cracks using magnetic testing following ISO 17638.

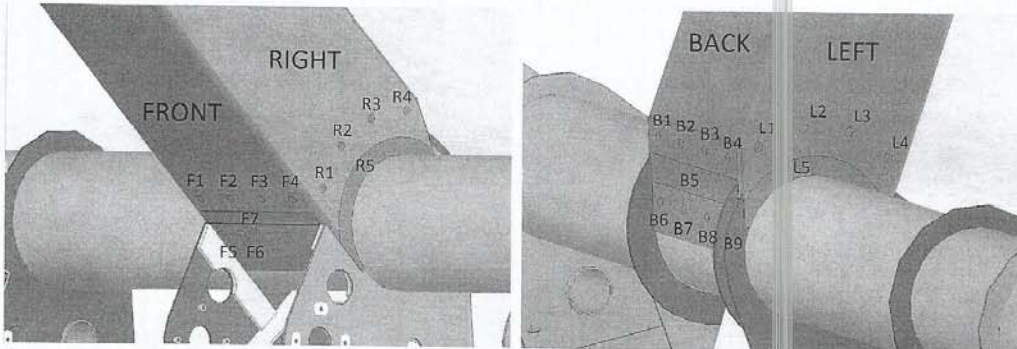
Accepted: Magnetic test results are meeting class 1 criteria as per ISO 23278.
 Rejected: Magnetic test results are not meeting class 1 criteria as per ISO 23278.
Do NOT return ride to service.

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Procedure C

1. Remove all parts and paint in below mentioned areas L, R, F, B following the specific locations in below drawings.
 2. Do a wall thickness measurement in all numbered areas L, R, F, B following the specific locations in below drawings.
- Applicable standard for inspection: EN14127. Equipment: Ultrasonic thickness measurement equipment with minimum an A-scan. Probe: GE / Krautkrämer DA312, TruSonics TS-400 or equivalent.

Areas:



Spots L1, L2, L3, L4:

Take measurement on described position.

Spots R1, R2, R3, R4:

Take measurement on described position.

Spots F1, F2, F3, F4, F5, F6:

Take measurement on described position.

Spots B1, B2, B3, B4, B6, B7, B8, B9:

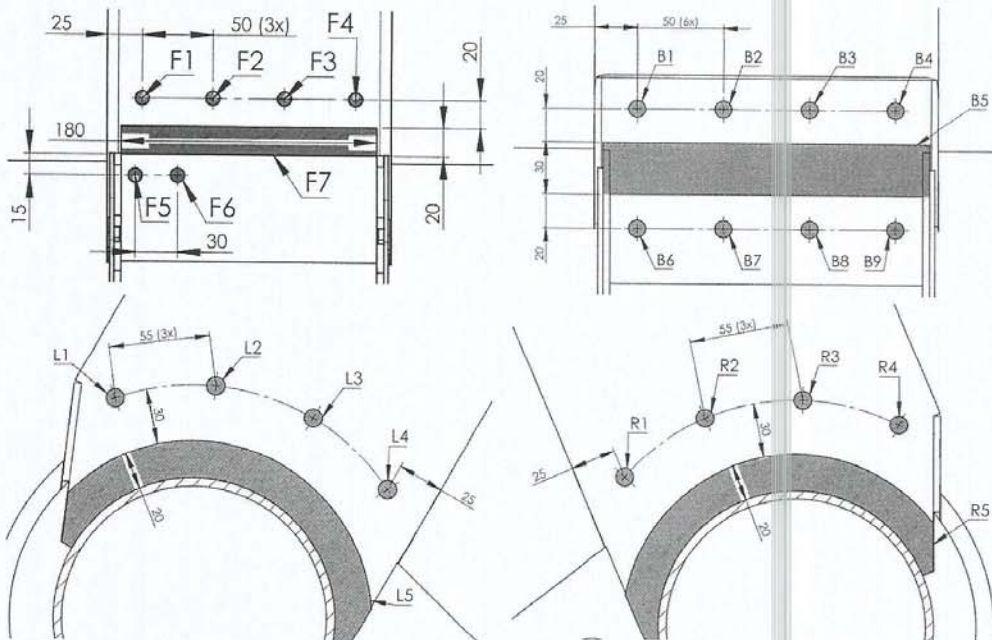
Take measurement on described position.

Areas L5, R5, B5, F7:


Test complete area and take smallest measurement over area.

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Location dimensions (measurements in metric unit mm):



Accepted: All measured area meet a wall thickness ≥ 3 mm.
 Rejected: One or more measured areas have a wall thickness less than 3mm.
Do NOT return ride to service.

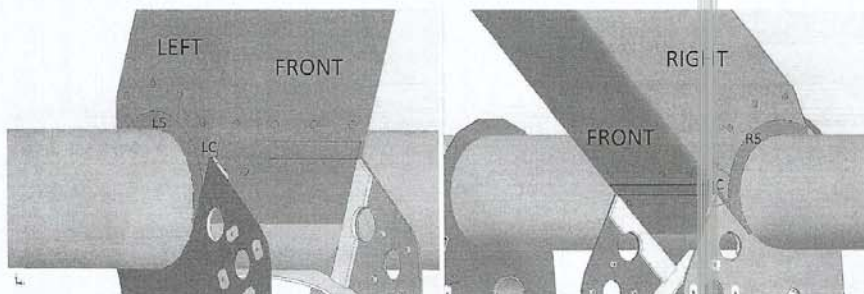
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Overall acceptance criteria

- If any of the results of procedures A, B or C are rejected: DO NOT OPERATE THE RIDE and consult KMG for further instructions.
- If ALL results of procedures A, B and C for all gondolas are accepted: The ride can be taken into normal operation again until December 31st, 2017,
- If the ride is taken to operation:
Areas L5, R5, LC, RC, Need a daily visual inspection prior to operation and **Procedure D must be performed every 20 operating days of the ride.**

Procedure D

1. Gain access to areas described in below images.
2. Visually inspect areas L5 and R5 and corners LC and RC, looking for cracks. Applicable standard for inspection is ISO 17637 and acceptance criteria following ISO 5817 acceptance class B.



Accepted: Visual test results are meeting class B criteria as per ISO 5817.
 Rejected: Visual test results are not meeting class B criteria as per ISO 5817.
Do NOT return ride to service and consult KMG.