

Tivoli Mfg. Ltd.

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Safety Bulletin

Bulletin No: SOSA019A (Supersedes SOSA019)

Ride Type: Spin Out

(aka. The Claw, The Maelstrom, El Nino)

Date: August 7, 2017

Rides Included: All Rides

Pages: 1 of 2

Parts supplied: N/A

Purpose: Procedures for reopening Spin Out Ride

On August 2nd KMG International BV issued Safety Alert FRB24-SB008 allowing the reopening of the Fireball Amusement Ride provided they pass the inspection criteria issued in that bulletin (see attached)

As previously stated in Bulletin SOSA019 the Spin Out seat and support arm were designed by KMG Int. BV and manufactured by Tivoli Enterprises Ltd. and are of similar construction with the following differences.

- The Spin Out sweep bolt plate was manufactured without and access hole in the center of the plate, thus protecting the interior of the support tube from the outside elements.
- Latter models were constructed with a 2 pin construction also protecting the interior from the elements.



Original Design



2 Pin Design

Tivoli Mfg. requires that all Spin Out owners follow the inspection procedure outlined in the KMG bulletin FRB24-SB008 with the exception of Procedure A. The interior of the support tube is not accessible.

If the Spin Out Ride Complies to procedures B, C, and D the ride is permitted to be reopened for operation.

All inspection results must be submitted to both Tivoli Mfg. Ltd and local authorities prior to the reopening of the ride.

Attached: KMG Intl. BV Bulletin FRB24-SB008

Tivoli Mfg. LTD

**KMG International BV**

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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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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.

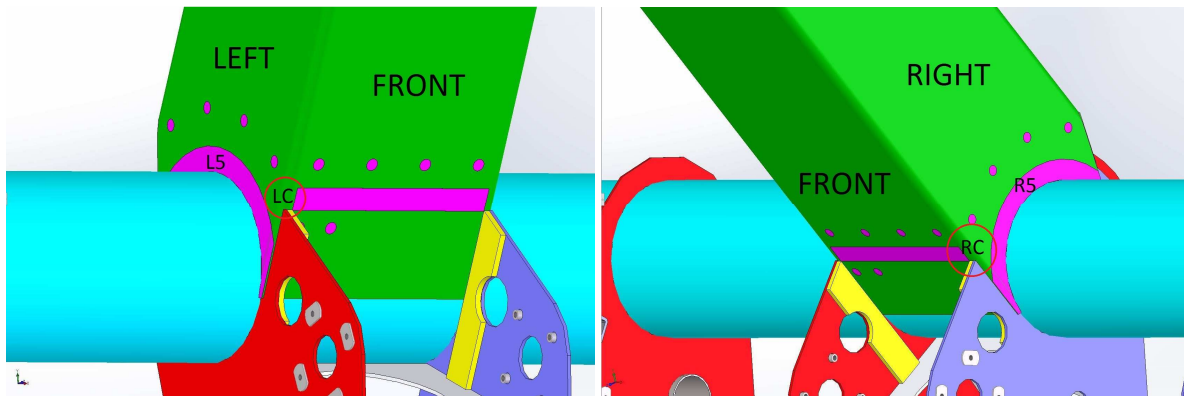
Do NOT return ride to service.

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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.

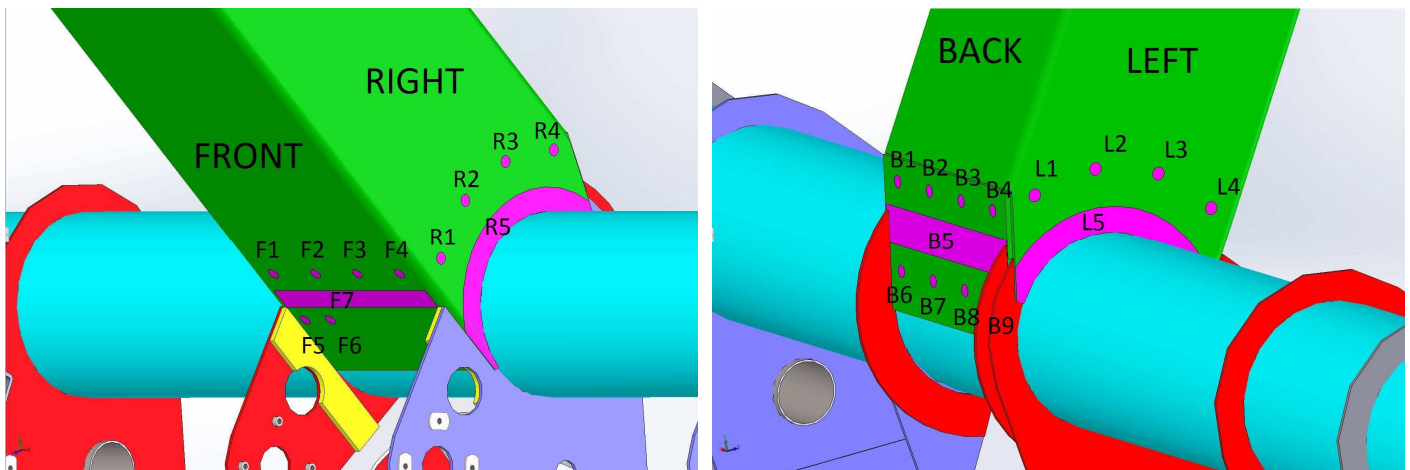
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Procedure C

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, Trusonic 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.



KMG International BV

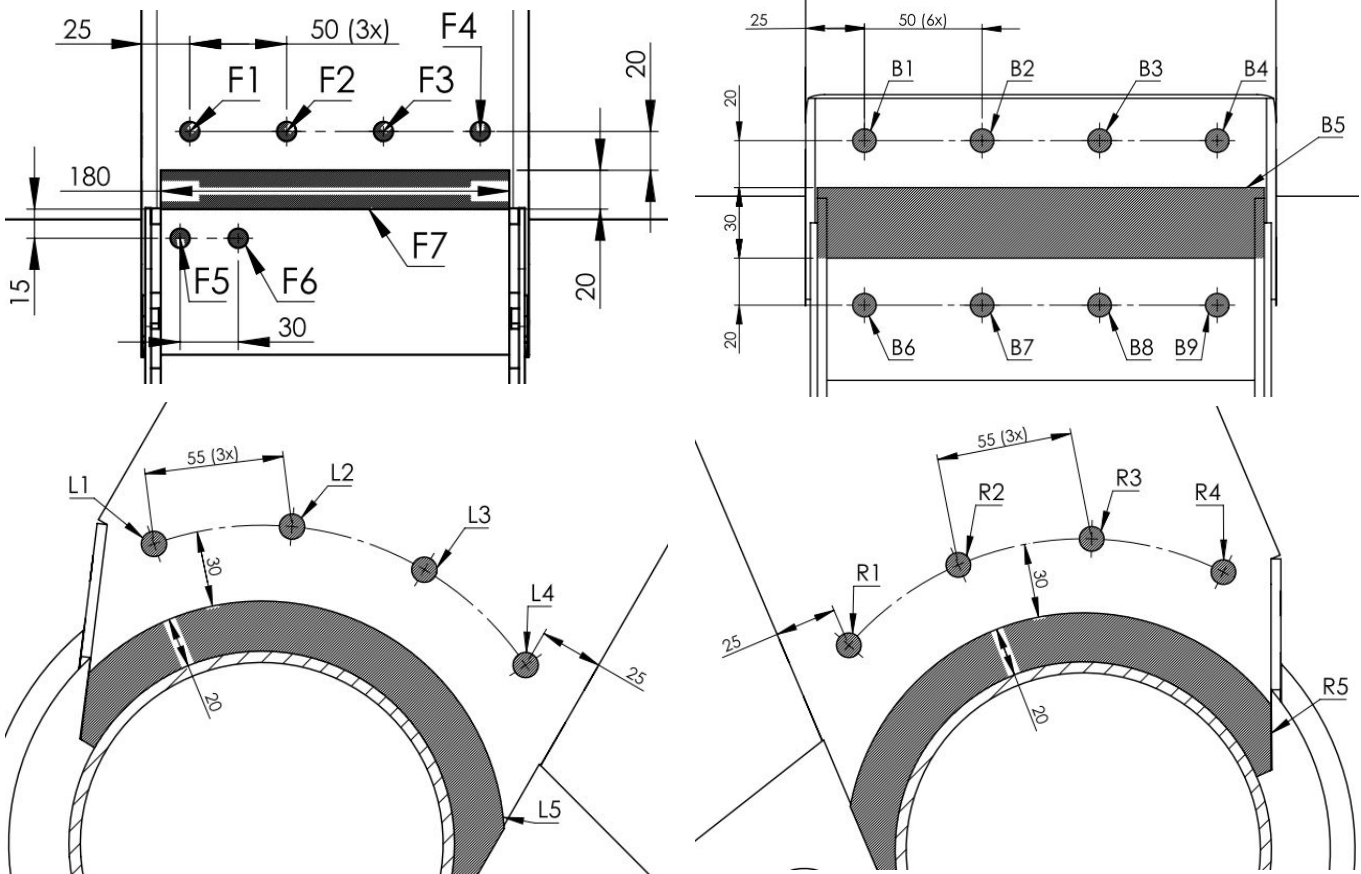
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Location dimensions (measurements in metric unit mm):



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.

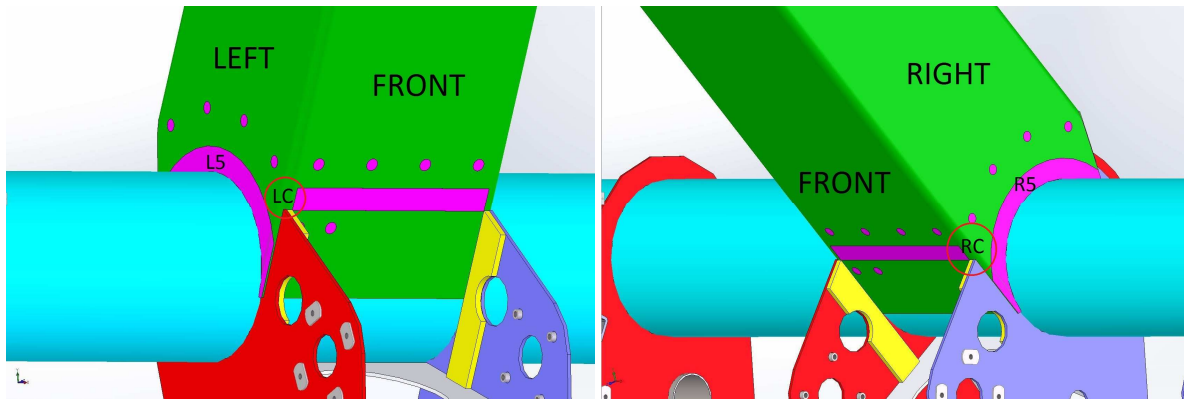
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Overall acceptance criteria

- **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.