Appendix A: HAL NC2022-01 Platform Gap Filler Fixings for use by Class 387 and Class 345 at Heathrow Central, Heathrow Terminal 4 and Heathrow Terminal 5 stations.

Contents

i. Glossary

FEA	Finite Element Analysis
HEOC	Heathrow Express Operating Company
HAL	Heathrow Airport Limited
MTREL	MTR Elizabeth Line
PTI	Platform-Train Interface
PGF	Platform Gap Filler

ii. Related Documents

This Network Change should be read in conjunction with:

- HAL Network Change notice HAL-NC/G1/2022/001

1. Introduction

The proposed Network Change seeks to install platform train interface gap fillers at Heathrow Central CTA station serving Terminals 2 and 3, Heathrow Terminal 4 station and Heathrow Terminal 5 station. The Platform Gap Filler (PFG) will be manufactured by Delkor.

The Class 387 units used by HEOC and the Class 345 units used by MTREL have a greater stepping distance between the vehicle step and the platform edge compared with the Class 332 and Class 360 units they replaced respectively. Hence, HAL proposes to replace the existing gap filler with a wider solution.

A GRIP3 report was produced by SNC-Lavalin as an optioneering study for accommodating the larger step gap created by the current fleet. This included an option to replace the existing gap fillers with a revised design which provided an increased width, reducing the step gap and amending the PGF proposals to address the defects observed in the existing designs.

The design was then progressed to GRIP4 stage which began with a gauging assessment carried out by SNC-Lavalin Atkins. This determined the required widths of PGF needed to service the Class 345 and 387 fleets and these product widths were agreed in principle with Network Rail, as well as confirming the allowable finger length of the PGF's based on the envelope.

The GRIP5 design then followed. A specialist supplier of PGF products, Delkor, were given the required widths and have produced designs for the product itself based on performance requirements identified in a previous asset condition report by SNC-Lavalin. Delkor have provided an FEA analysis of the PGF to ensure loading and functionality compliance.

2. Project objective

There is a greater stepping distance between the Class 345 and Class 387 units compared to the Class 332 and 360 units that previously served Heathrow Airport. The key project objective is to replace the existing gap filler with a wider solution, thereby reducing the current stepping distances from the vehicle steps to the platform edge.

Vehicle Change is not required for this modification.

3. Reasons for the proposed change

The change is being proposed by HAL to reduce the current gap between the Class 345 and 387 units vehicle steps and the platform edge.

4. Specification of works

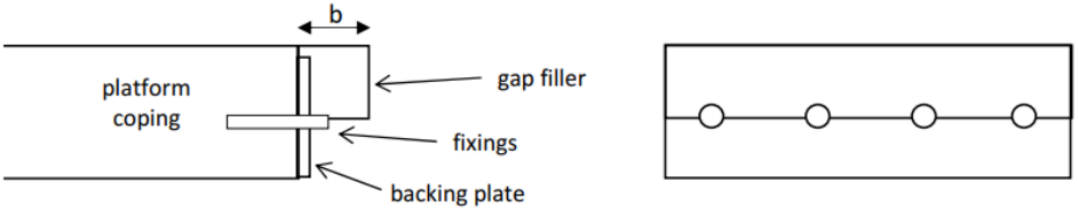
To install the new PGFs, the existing gap fillers must be removed along the entire length of the platforms by removing the bolts.

The specification for the proposed bolt fixing design for the new platform filler:

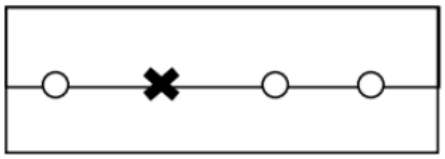
- Serviceability loading: 2kN point load (Category C36 from BS EN 1991-1-1:2002)
- Bolt size (min.): Hilti HAS-U M10 Grade 8.8 bolt (or equivalent approved), with minimum 100mm embedment into concrete coper.
- Recommended resin for bolt installation: Hilti HIT HY-200 minimum specification (or equivalent)
- Minimum edge distance to any free edge of the coper (whether exposed or covered): 20mm (based on 2 x bolt diameter and concrete shear stress.
- Where only 3 bolts can be installed along a PGF as per fixing application case scenarios, these must be installed at the end fixings of the PGF.

The following sketches represent the bolt fixing arrangements:

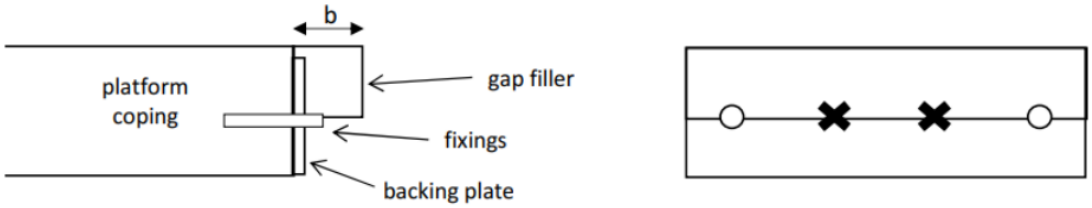
Where 4no bolt fixings are installed, all bolts must be installed as per case scenario requirements detailed in Section 4



Where 3no bolt fixings are installed, the omitted fixing is permissible for either of the inner bolts only. End bolts must not be omitted.



Where 2no bolt fixings are installed, the inner bolt fixings may both be omitted if required.

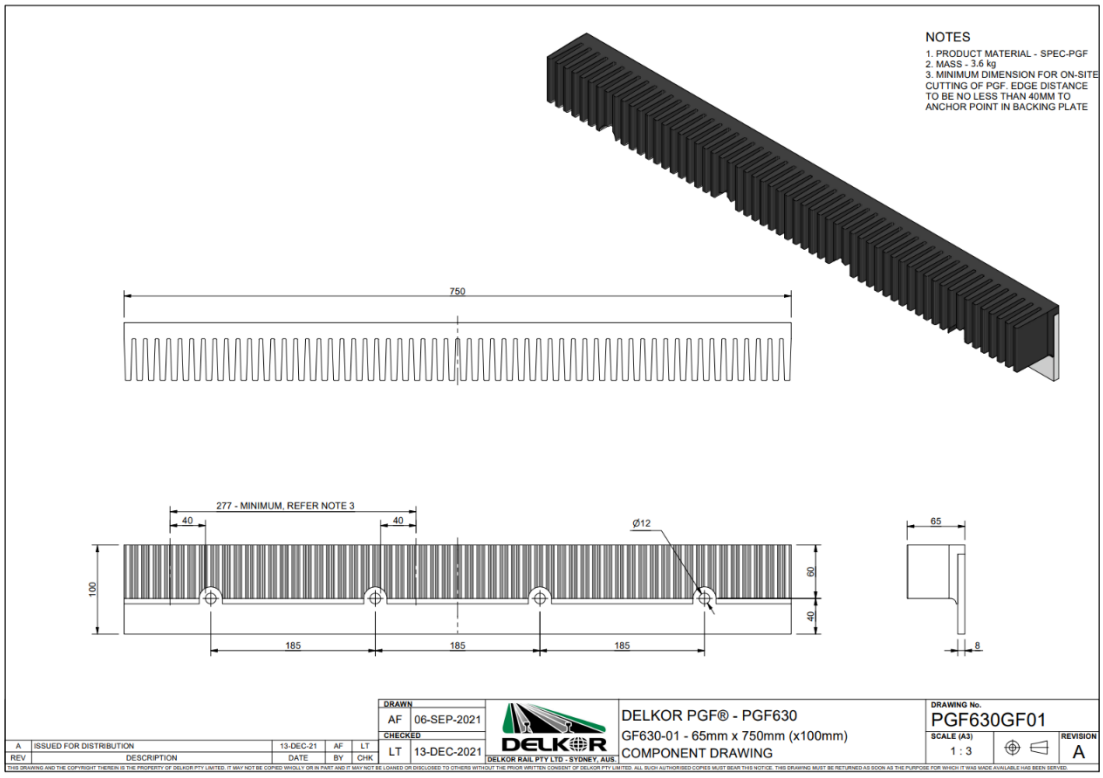


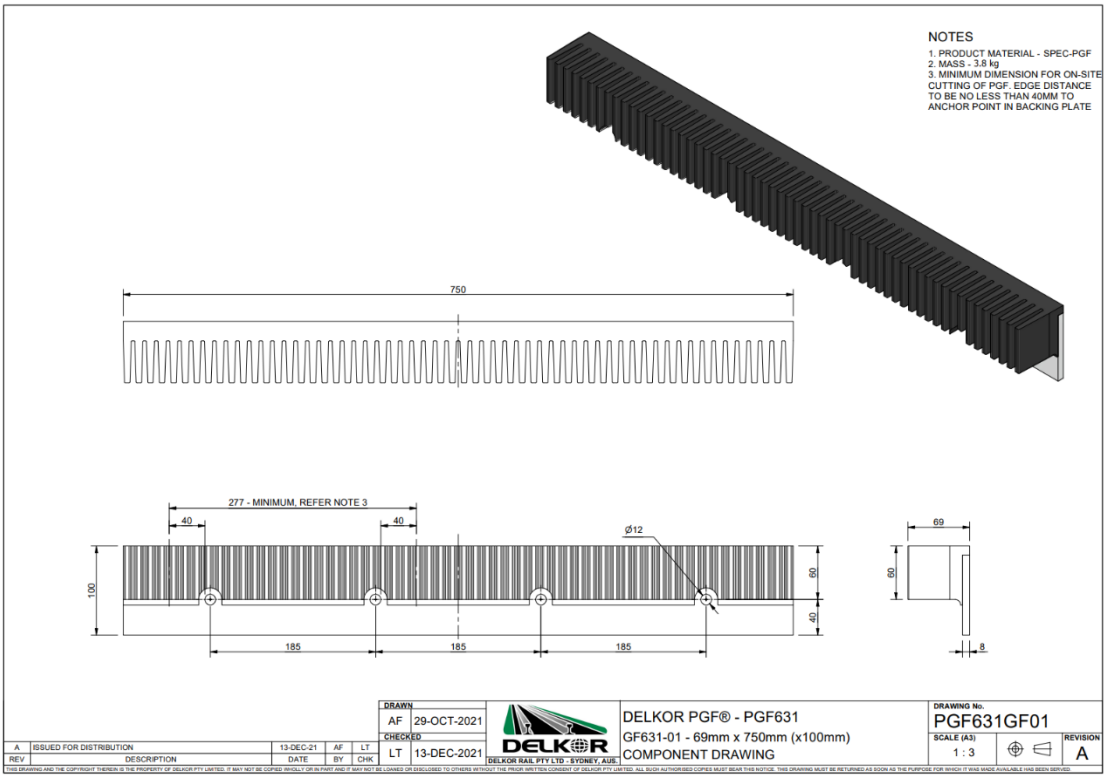
There maybe a need for copper repair works on the edge of the platforms as part of this work.

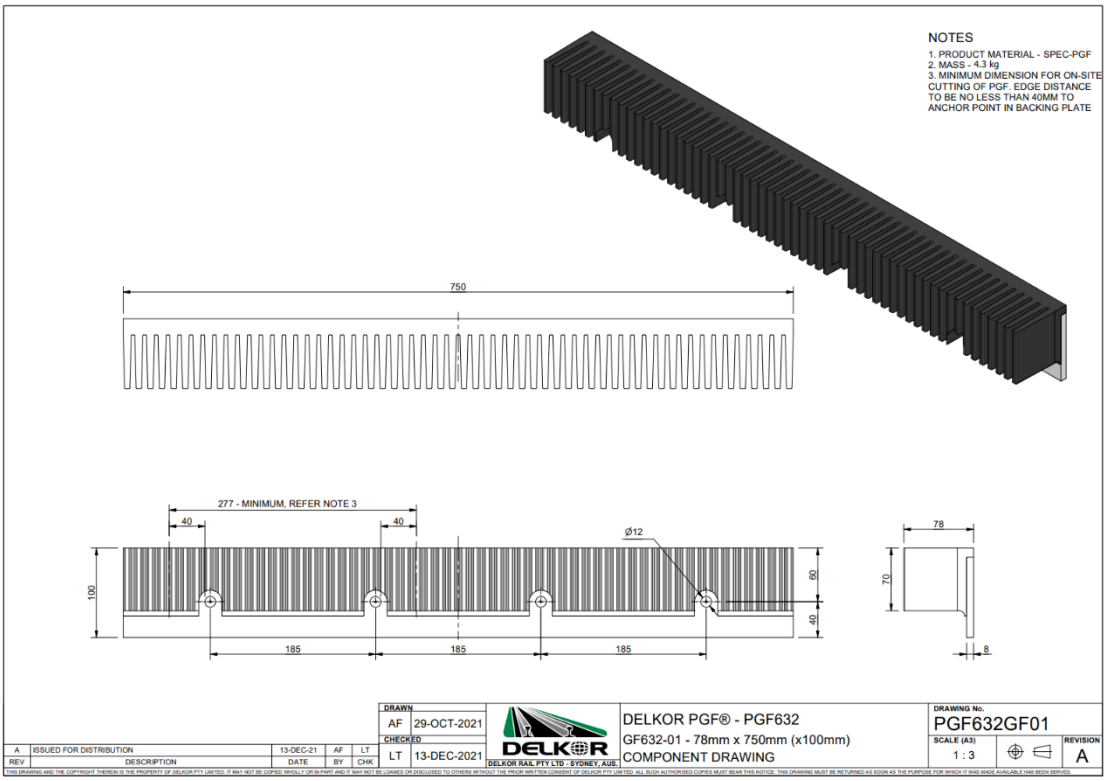
The following table presents the proposed Gap filler width for each platform at the three HAL stations.

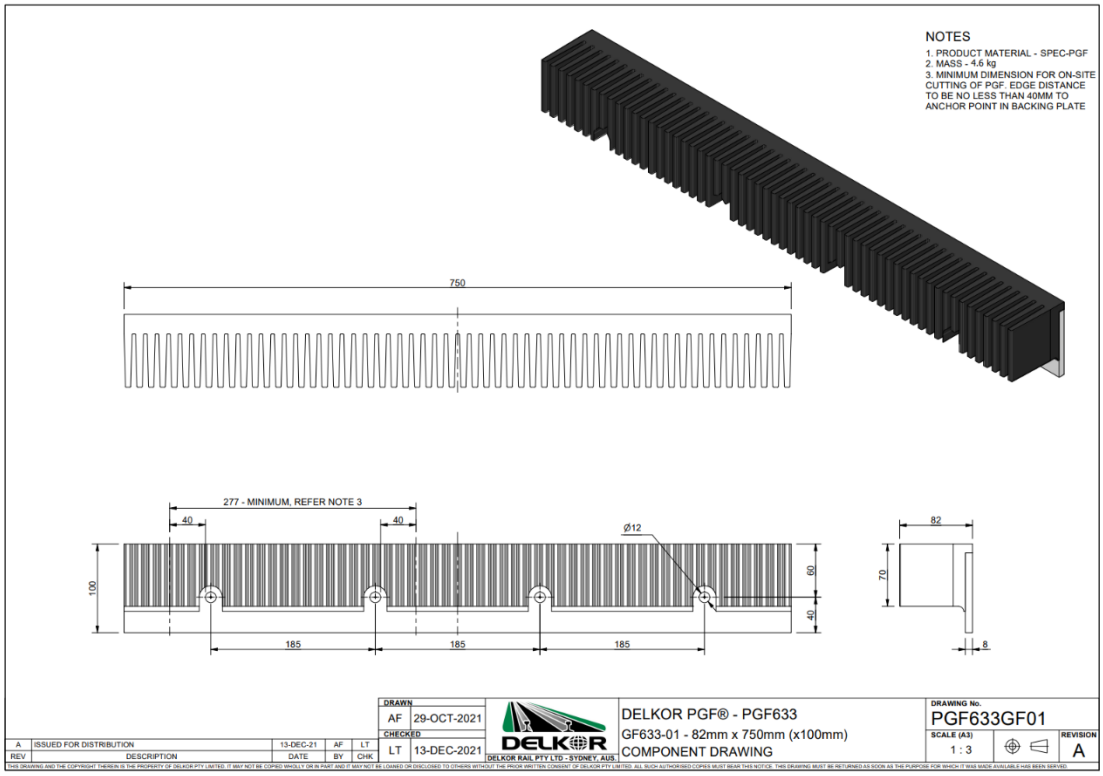
Site name	Gap filler total width	Delkor drawing reference number
Heathrow CTA Terminal 3 Platform 1	78mm	PGF632GF01
Heathrow CTA Terminal 3 Platform 2	82mm	PGF633GF01
Heathrow Terminal 4 Platform 1	78mm	PGF632GF01
Heathrow Terminal 4 Platform 2	82mm	PGF633GF01
Heathrow Terminal 5 Platform 3	65mm	PGF630GF01
Heathrow Terminal 5 Platform 4	69mm	PGF631GF01

The below drawings are examples of the Delkor platform filler.




NOTES
1. PRODUCT MATERIAL - SPEC-PGF
2. MASS - 3.8 kg
3. MINIMUM DIMENSION FOR ON-SITE CUTTING OF PGF, EDGE DISTANCE TO BE NO LESS THAN 40MM TO ANCHOR POINT IN BACKING PLATE
750
277 - MINIMUM, REFER NOTE 3
40
40
Ø12
100
60
40
185
185
185
69
60
8
DRAWN
AF 29-OCT-2021
CHECKED
LT 13-DEC-2021
DELKOR RAIL PTY LTD - SYDNEY, AUS.
DELKOR PGF® - PGF631
GF631-01 - 69mm x 750mm (x100mm)
COMPONENT DRAWING
DRAWING No.
PGF631GF01
SCALE (A3)
1 : 3
REVISION
A
A ISSUED FOR DISTRIBUTION 13-DEC-21 AF LT
REV DESCRIPTION DATE BY CHK


NOTES
1. PRODUCT MATERIAL - SPEC-PGF
2. MASS - 4.3 kg
3. MINIMUM DIMENSION FOR ON-SITE CUTTING OF PGF, EDGE DISTANCE TO BE NO LESS THAN 40MM TO ANCHOR POINT IN BACKING PLATE
750
277 - MINIMUM, REFER NOTE 3
40
40
Ø12
100
60
40
185
185
185
78
70
8
DRAWN
AF 29-OCT-2021
CHECKED
LT 13-DEC-2021
DELKOR RAIL PTY LTD - SYDNEY, AUS.
DELKOR PGF® - PGF632
GF632-01 - 78mm x 750mm (x100mm)
COMPONENT DRAWING
DRAWING No.
PGF632GF01
SCALE (A3)
1 : 3
REVISION
A
A ISSUED FOR DISTRIBUTION 13-DEC-21 AF LT
REV DESCRIPTION DATE BY CHK



The intention is for Network Rail to include the gap filler in their track patrol inspections, with maintenance of the gap filler undertaken by HAL.

5. Proposed timescales

The platform gap filler work is expected to be completed in November 2022 with the removal of the existing gap filler and then installation of the new platform gap filler. Both the removal and installation to take place together. Site survey work has been completed in advance of the main works.

Indicative Programme	***Date***
Submit Network Change	April 2022
Commence Network Change consultation	April 2022
Complete Network Change consultation	June 2022
Removal of existing platform gap filler	November 2022
Installation of existing platform gap filler	November 2022

6. Costs and compensation

Compensation will be calculated in line with Part G of the Network Code unless alternative arrangements have been made. All possession related compensation will be paid through the standard Schedule - 8 regime where applicable.

6.1. Additional terms and conditions

Once this Network Change has become an established HAL Network Change (as defined in Part G of the HAL Network Code), HAL may, if it wishes to make any modification to the terms or conditions (including as to the specification of the works to be done, their timing, the manner of their implementation, the costs to be incurred and their sharing, and the division of risk) on which the change was established, use the following variation procedure: HAL shall ensure the specific variation (or variations) is formally communicated to all parties to this notice (the original consultation notice) for consideration. The parties to the consultation shall consider and respond to the variation (or variations) in accordance with the procedures set out in Conditions G1 and G2 allowing for the changes in detail that must follow as a result of the procedure applying only to the proposed variation. It shall not be necessary for HAL to re-issue the entire HAL Network Change notice for consultation.

7. Distribution list

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