



Department
for Transport

Rail Vehicle Accessibility: Exemption application

London Underground Limited:
Bakerloo Line

Moving Britain Ahead

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Foreword

The Rail Vehicle Accessibility (Non-Interoperable Rail System) Regulations 2010 (RVAR) set standards for the accessibility features of a rail vehicle operated on particular types of rail systems. The Secretary of State has powers under section 183 of the Equality Act 2010 to allow operators of regulated rail vehicles to continue to operate a vehicle if it does not fully comply with the standards set in the Schedules to RVAR 2010.

This consultation contains the application from London Underground Limited for exemption from standards set out in Schedule 1, Part 1 (General Requirements) and Part 2 (Additional requirements) RVAR 2010 for trains operated on the Bakerloo Line, known as '72TS'.

The consultation period shall run until 31 October 2019. To share your views and comments on the application please contact us at: railvehicleaccess@dft.gov.uk or write to us at

Bakerloo Line RVAR consultation
Rolling Stock Team
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London SW1P 4DR

1. Exemption application

1 Full name of applicant and address

London Underground Limited
55 Broadway,
London,
SW1H 0BD

2 Description of Rail Vehicles

Bakerloo line 1972 Tube Stock - Vehicle numbers:

Train Formation: 36 x 4-car units and 36 x 3-car units which, when one of each is coupled together, form a 7-car train.

Car Numbers:

Driving Motor Cars:	3231-3248, 3250-3256, 3258-3267 & 3299	
	3331-3348, 3350-3356, 3358-3367	
	3531-3538, 3540-3567	107 vehicles
Trailer Car:	4231-4248, 4250-4256, 4258-4267 & 4299	
	4331-4348, 4350-4356, 4358-4367 & 4399	
	4531-4538, 4540-4567	108 vehicles
Non Driving Motor Car:	3431-3438, 3440-3467 & 3399	37 vehicles
Total:		252 vehicles

3 Circumstances in which exemptions are to apply

At all times in passenger service, when a refurbished 72TS train stops at a platform where:

there is no step-free route from the platform out of the station: or

there is no step-free route between that platform and platforms for other London Underground (LU) lines or national rail services: or

it is not physically possible to:

bring the dimensions of the step and/or gap within the maximum permitted tolerances and deploy a manual boarding ramp in a safe and appropriate way.

4 Relevant requirements from which exemption is sought

Schedule 1, Part 1 (General Requirements), of the Rail Vehicles Accessibility Regulations (RVAR) 2010, paragraph 1:

1(1) Subject to sub-paragraph (2), when a wheelchair-compatible doorway in a rail vehicle is open at a platform at a station, or at a stop, a boarding device must be fitted by the operator between that doorway and the platform, or the stop, if a disabled person in a wheelchair wishes to use that doorway.

1(2) Sub-paragraph (1) does not apply where the gap between the edge of the door sill of the wheelchair-compatible doorway and the platform, or stop, is not more than 75 millimetres measured horizontally and not more than 50 millimetres measured vertically.

5 Technical, economic and operational reasons why exemption is sought

Our aim is to provide a 'turn up and go' service which allows customers the greatest level of access without the need for staff intervention and assistance. However, this is not always possible as many of the platforms were never designed to provide step free and level access. These stations are often difficult to alter due to their physical layout and modifications are constrained as many are below ground in Central London. The cost to make some stations, particularly in Central London, step free is prohibitively expensive, technically challenging and would cause significant disruption to users in both the station and surroundings.

Where step free is possible LU prefers the use of a permanent solution to that of a temporary solution, for example a manual boarding ramp (MBR). This is not possible in all locations and as such MBRs will be used to provide step free access.

Temporary exemptions are being requested so that the installation of manual boarding ramps and platform 'humps' is aligned with the refurbishment of the trains which delivers wheelchair bays. The train fleet will comply with the requirements of RVAR once complete, except where derogations are being sought.

Exemptions are also being requested under the 'Pimlico Principle' at a number of locations as there are no possible step free journeys at those locations. This takes precedent from the pragmatic approach to Pimlico station which does not have any access to platform level or interchange by step free routes. If the Platform Train Interface (PTI) was made compliant, passengers would still be unable to leave the platform to make onward journeys. As such, until the stations have step free routes, exemptions are being requested. Full lists of platforms for which exemptions are being requested are in Section 10.

6 The effect which non-compliance would have on a disabled person's ability to use rail vehicles of the description to which the application relates

London Underground has sought to minimise the effect of these exemptions on peoples' ability to travel. By utilising a combination of platform 'humps' and MBRs a person with restricted mobility will be able to utilise parts of the Bakerloo line. It will unfortunately not be possible to make fully independent journeys to all step free stations on the Bakerloo line as staff will be required to deploy a ramp at some stations. Assistance however is available on a 'turn up and go' basis meaning that delays to a journey are minimised as much as practical and do not need to be planned in advance.

7 Any measures which could be taken to enable disabled persons to use the rail

vehicle if exemption sought is granted

The Mayor has committed £200m to step free works which will further improve access to the Underground network over the next five years. In future, as more stations become step free, the network will be opened up further to people with restricted mobility. LU works and will continue to do so with local boroughs and user groups to shortlist stations for step free access and improvements.

8 Any proposals for later modification of rail vehicles to secure compliance with RVAR within a stated period

At stations where compliance is planned (Section 10), the temporary exemptions will enable LU to carry out works in parallel with the train refurbishment programme. Infrastructure and MBRs will provide an appropriate, accessible and sustainable solution to give greater access for customers at these stations.

LU has not applied for a permanent exemption for platforms where compliance is not currently possible as we are aware that technology and circumstances change. Consideration of future compliance and methods will be a factor for the introduction of new trains on the line. A list of platforms for which exemption is requested under the Pimlico Principle is in Section 10.

9 Supplementary information for consideration

A list of compliant platforms is available in Section 10.

10 Unless permanent exemption sought, the period during which exemption is to apply.

LU is requesting timed and untimed exemptions in line with the tables below with outlined timescales.

Timed exemptions

Station	Platform	Works for compliance	Completion date
Paddington	3	Hump	December 2019

Untimed Exemption Requests Under The Pimlico Principle.

Station	Platforms	Station	Platforms
Charing Cross	1, 2	Marylebone	1, 2
Edgware Road	1, 2	North Wembley	1, 2
Embankment	5, 6	Piccadilly Circus	1, 2
Harlesden	1, 2	Regent's Park	1, 2
Kensal Green	1, 2	South Kenton	1, 2
Kenton	1, 2	Stonebridge Park	1, 2
Kilburn Park	1, 2	Warwick Avenue	1, 2
Lambeth North	1, 2	Waterloo	3, 4

Maida Vale	1, 2		
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Compliant platforms

Station	Platforms	Station	Platforms
Baker Street	8, 9	Queen's Park	1, 2, 3, 4
Harrow & Wealdstone	1, 2	Wembley Central	1, 2
Oxford Circus	3, 4	Willesden Junction	1, 3

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13 Circumstances in which exemptions are to apply

At all times while the train is in passenger service

14 Relevant requirements from which exemption is sought

Schedule 1, Part 1 (General Requirements), of the Rail Vehicles Accessibility Regulations (RVAR) 2010, paragraph 10:

10 (1) Subject to sub-paragraphs (2) and (3), a handrail must be fitted in the following positions—

(a) in every rail vehicle, on the inside as close as practicable to, and on either side of, the passenger doorways in the side of the vehicle, extending vertically from a point not more than 700 millimetres above the floor to a point not less than 1200 millimetres above the floor;

10 (4) Subject to sub-paragraphs (5) and (6), any passenger handrail fitted in or to a rail vehicle must comply with the following requirements—

(a) it must have a circular cross section with a diameter of not less than 30

millimetres and not more than 40 millimetres;

15 **Technical, economic and operational reasons why exemption is sought**

Paragraph 10 (1) a: Handrails in doorways

London Underground is requesting that partial compliance is accepted for handrails in single doorways on the 72TS as it has been proven through feasibility it is not possible to comply in all areas. Detailed below is the output of the RVAR works feasibility.

Providing handrails on both sides of the single doorways on the 72TS has proven technically unfeasible after studies have been carried out on the trains. There is no stand back area (as indicated in Figure 1) in the single doorways at the end of each car meaning that any hand rail would protrude into the door opening if fitted to the body end side. This is because the doorway is very close to the end of the car. Furthermore, because the trains have not yet undergone mid-life refurbishment, much of the original equipment and wiring still remains behind interior panels at the car ends. Figure 1 shows the area which would be required to be removed from the body panel in order to fit a handrail which would still protrude into the doorway and the structure behind then panelling.

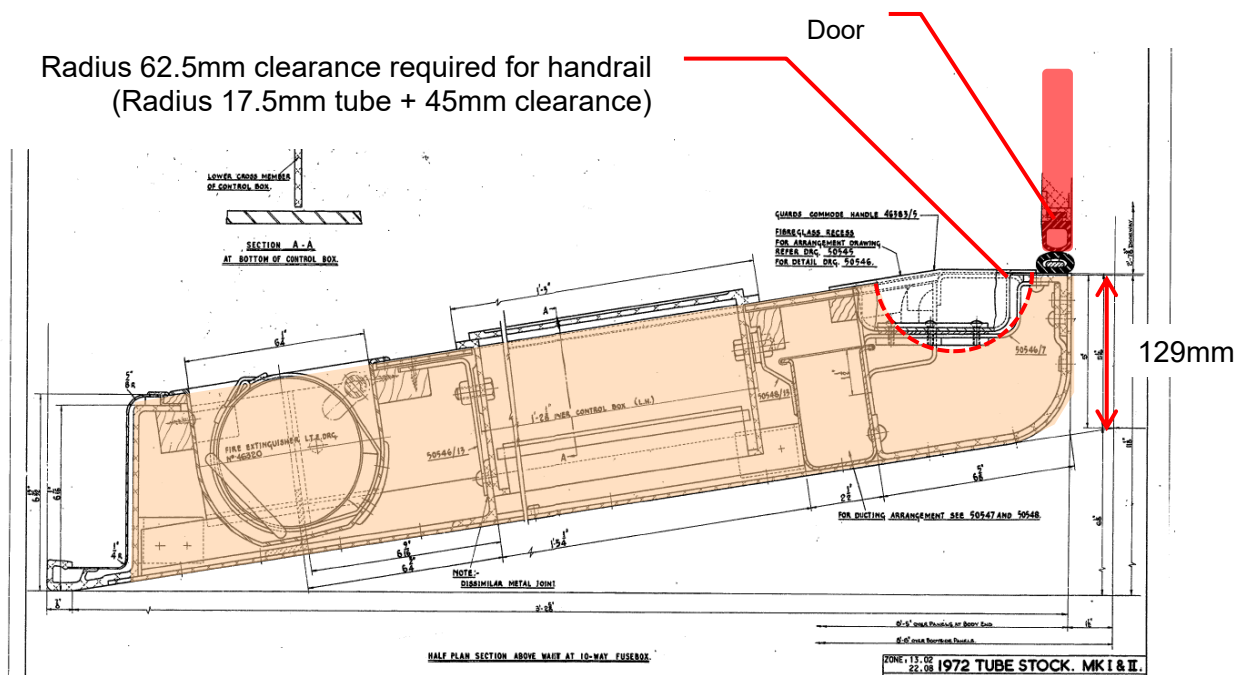


Figure 1 Single doorway area

It is possible to retrofit a single compliant vertical handrail in the single doorways on the saloon side. The locations which will have handrails fitted once refurbishment is complete are indicated in Figure 2.

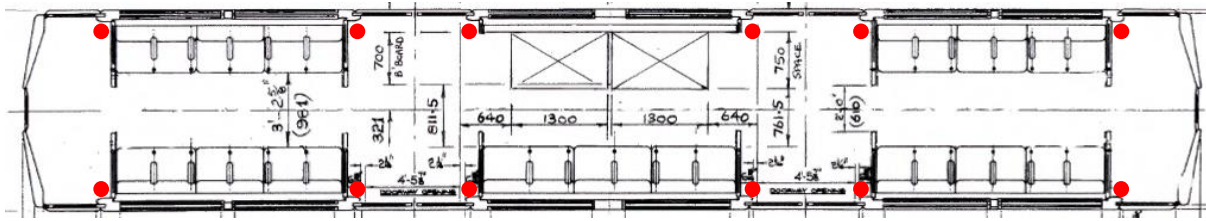


Figure 2 - Handrail positions post refurbishment

Whilst it may be possible to fit handrails to the body end, this would require 10 unique designs to ensure that equipment was not disturbed behind the panel. Additionally, wiring and structural support for the equipment has been seen to vary in location between differing cars of the same design. This further adds to complications and may lead to a modified design for each individual installation. The different car ends are detailed in Figure 3 which shows the complications with working in this area of the train and the number of built configurations.

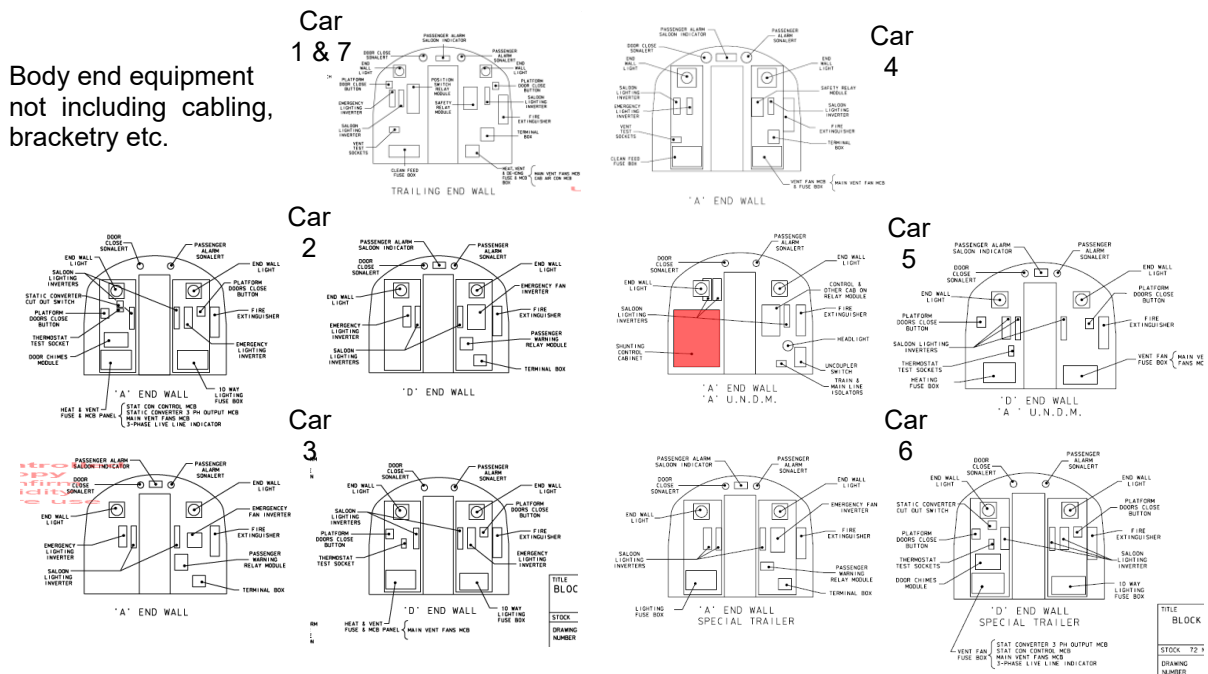


Figure 3 Car body ends (Excerpts from LU drawings: 77767, 77768, 77769 and 77770)

LU does not believe that this represents an economic solution which delivers value to passengers to install handrails on both sides of the doors. It is also considered that there is minimal disbenefit as the provision of one handrail at these doorways will provide significant improvement to accessibility at these doorways over today. The provision of one handrail results in a similar situation to at double doorways, where it is unlikely somebody would be able to use both handrails to board or alight.

A secondary concern is the inability to fit a handrail in the Uncoupling Non-Driving Motor car (UNDM) units where the shunting control panel is fitted. This area is highlighted in red in Figure 3. Relocating this equipment would be complex and would likely affect functionality of the panel which is used for moving units around depots. It is therefore considered unfeasible to fit any extra structures in this area.

Rather than fit handrails in all positions other than UNDMs, a consistent approach to all single doorways is perceived to give best value for money and benefit to customers. Having a single handrail in all end car doorways will ensure that there is no expectation of anything different when boarding or alighting the train. At double doorways, the 72TS will have a compliant handrail on each side of the doors.

Paragraph 10 (4) a: Handrail circular cross section

London Underground is requesting derogation against paragraph 10(4)a as it is not believed to be economic to replace the horizontal handrails on the 72TS.

As the train has not undergone a significant interior refurbishment since it was brought into service and as such has many of the original fixtures. The horizontal hand rails are 28.49mm to 29.55mm (nominal tubing diameter of 28.54mm plus coating as shown in figure 4) in diameter and as such fall short of the 30mm stipulated by RVAR. LU does not believe there would be an economic case to replace all the horizontal handrails on the fleet for an average increase of 1mm in diameter. Whilst LU understands that minimum standards are set in RVAR for a reason, there is belief that no customers will be disadvantaged or suffer disbenefit from the very small difference between regulation and the provided handrails.

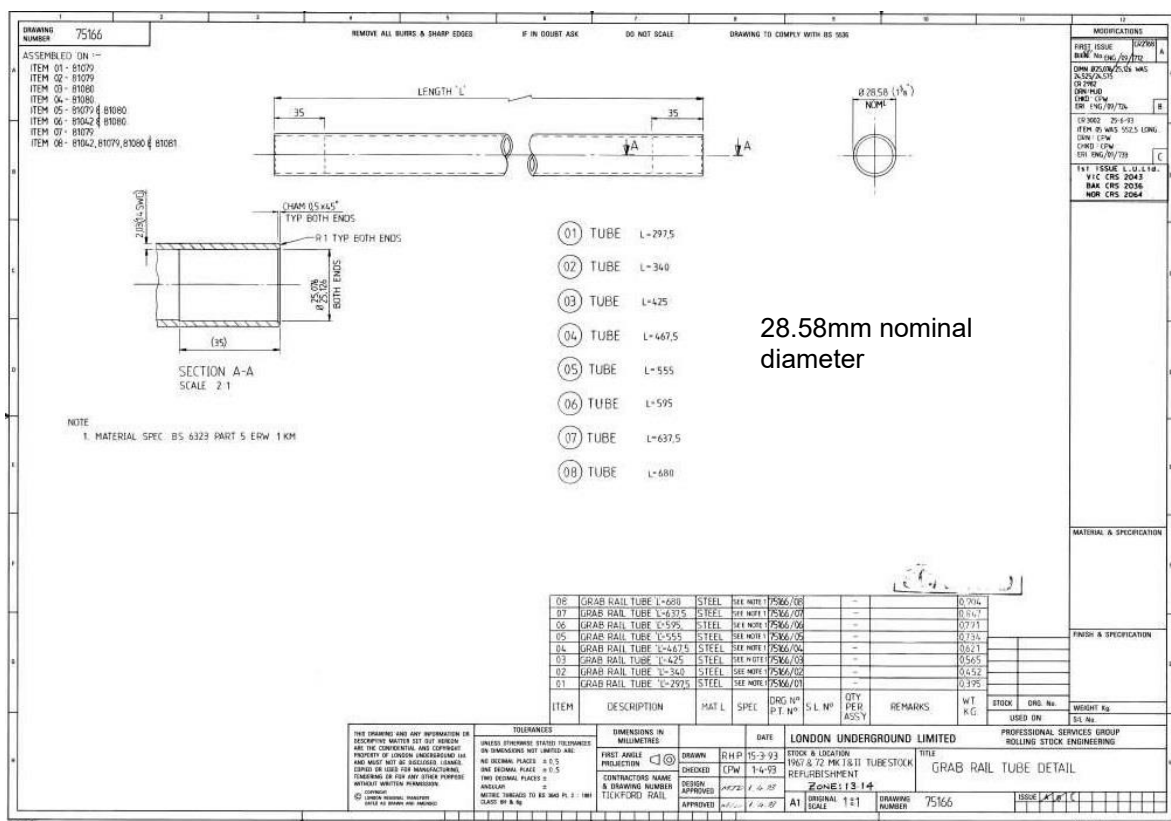


Figure 4 Horizontal handrails. (LU drawing 75166)

The effect which non-compliance would have on a disabled person's ability to use rail vehicles of the description to which the application relates

London Underground does not believe that there is detriment to any customers' use of the train due to the clearance of the handrail.

16 Any measures which could be taken to enable disabled persons to use the rail vehicle if exemption sought is granted

London Underground does not believe that there are any further measures which could be taken to address the handrails in the 72TS which are economic to carry out and provide value.

17 **Any proposals for later modification of rail vehicles to secure compliance with RVAR within a stated period**

There are currently no proposals for later modifications relating to these clauses.

18 **Supplementary information for consideration**

None

19 **Unless permanent exemption sought, the period during which exemption is to apply**

A permanent exemption is sought.

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23 Circumstances in which exemptions are to apply

At all times while the train is in passenger service

24 Relevant requirements from which exemption is sought

Schedule 1, Part 1 (General Requirements), of the Rail Vehicles Accessibility Regulations (RVAR) 2010, paragraph 11(5):

11 (5) Whilst a rail vehicle is stationary at a station or stop any public address systems required to be fitted inside the vehicle, and on its exterior, must be used to announce the destination of the vehicle or, if it is following a circular route, the name or number of the route and, in the case of systems inside the vehicle only, to announce the next stop.

25 Technical, economic and operational reasons why exemption is sought

London Underground is committed to providing sufficient timely, accurate and accessible customer information to enable our customers to be confident during their journey, make informed decisions and to minimise the impact of disruption.

London Underground is seeking a permanent exemption that would allow the removal of the 'next station' information inside the saloon whilst the train is stationary at a platform. It is believed that announcing the 'destination' information provides the same benefit to passengers whilst at a station. This is because the direction of travel

can be ascertained from the destination, as routes are simple and maps available inside the train. Additionally the 'next station' and 'destination' announcement is made during the interstation run.

There is the concern that operation of the passenger service could be impeded in delivering all regulated information whilst stationary at a station. The dwell time is carefully balanced with run times in order to deliver the train service and delays whilst stationary can have knock on effects to service robustness and over crowding.

London Underground strongly believes that better service to passengers can be provided by reducing the amount of regulated information given. This allows a driver to give additional information about service disruption, interchange with other transport modes or LU lines, step free access and where appropriate high-level local and tourist information. All regulated information will still be given inside the train between stations in audible and visual format once the new Passenger Information System is delivered as part of the train overhaul.

Passengers on the platform are able to get information from a range of sources including audible station announcements, platform 'next train' display indicators, visual displays on the external side of the vehicle and fixed signage such as network maps. Supplementing this are Platform Help Points which enable passengers to communicate directly with station staff for further information.

The Bakerloo line service operates a high frequency service and LU believe that the information provided is representative of the "spirit of RVAR" in its meaning; namely the direction of the train and destination where it is appropriate to give this information. Short run times between stations offers reassurance if a passenger is travelling in the wrong direction and frequent service allows for correction quickly and easily with the minimum disruption should this occur.

In applying for this exemption, LU will bring the Bakerloo line fleet into line with the more modern trains used on the network. The standardisation of messaging brings a consistency across London Underground and aids travellers with familiarity of the. In silent time during the dwell, the driver or digitised announcer system can make announcements, where applicable, without detracting from the purpose of the regulated information.

26 Any proposals for later modification of rail vehicles to secure compliance with RVAR within a stated period

There are currently no proposals for later modifications relating to these clauses.

27 The effect which non-compliance would have on a disabled person's ability to use rail vehicles of the description to which the application relates

There is a possibility that passengers may board the wrong train as full information is not broadcast whilst the train is stationary. There are supplementary information sources which can be consulted to ensure that the chance of this happening is minimised before boarding the train.

28 Any measures which could be taken to enable disabled persons to use the rail vehicle if exemption sought is granted

London Underground periodically reviews all information which is broadcast to customers to ensure that it is appropriate and meaningful to provide the best customer experience. All station and train messages are examined during these reviews.

29 Supplementary information for consideration

Information given in this way is in line with other train fleets operating on London Underground.

30 **Unless permanent exemption sought, the period during which exemption is to apply.**

A permanent exemption is sought.