

SIEMENS 9-CAR PICCADILLY LINE TRAINS

by John Hawkins

Further details of the new Siemens 9-car walk-through air-conditioned Piccadilly Line trains are emerging. This is the first radical redesign of a tube train since the 1938 Tube Stock appeared over 80 years back. It is the first train ordered by LU since they lost that right through the PPP era, and harks back to the Space Train concept conceived for the Victoria Line back in 1998 (see meeting report in *Underground News*, April 1999).

Assuming even spacing of bogies along the new train, there will be 11.75 metres between bogie centres compared with 11.124 metres on the current 6-car trains, so a 5% increase and maybe slightly larger gaps at curved platforms. The 11-car Central Line trains are expected to be of the same dimensions except for the end cars, which will be about a metre shorter to fit current platform lengths. The current Central Line 8-car trains have traditional car lengths with 10 metres between bogies, which makes the new dimensions 17.5% longer with larger gaps at places like Bank, and 14% longer than current 7-car Bakerloo Line trains. Hence the development of active gap fillers for curved platforms, a trial of which is planned for the Baker Street bay road next year.

It seems that the Piccadilly end cars will be about 16 metres long, similar to current Bakerloo or Central Line end cars; the four even-numbered wheel-less cars are only some 10 metres long, suspended between adjacent cars; and twin-bogie cars 3, 5, and 7 will be around 14 metres long, similar to half a DLR unit. The total length of the train will be around 113 metres, some 6 metres longer than current trains, although earlier trains like current Bakerloo Line trains were another half-metre longer still. The first bogies will be set back about as far as those on the Victoria Line trains. So 10 new bogies will replace trains with 12 bogies on the Piccadilly, and 14 bogies on the Bakerloo, a considerable weight saving. The new Central Line trains will have 12 bogies compared with the current trains' 16.

The next Waterloo & City Line trains will be of five cars, since the end cars must obviously have bogies. If they are built alongside the Central Line trains they will be a couple of metres shorter than the current trains, but if they are built with the Bakerloo Line cars, which will be the same as the Piccadilly Line trains, then they will be about the same length as the current trains on the line, although the line could accommodate trains up to 4 metres longer. It seems unlikely that longer end cars will be built for just six new trains on this line. They will have six bogies rather than the current trains' eight. Orders for lines other than the Piccadilly await a new funding agreement with central Government.

The new trains will avoid car-end single doorways, part of tube travel since the 1938 Tube Stock. A pair of adjacent single doorways could perhaps be considered a poor substitute for a double doorway, but the new trains will also provide one additional double doorway on each train, with 36 door leaves along a new Piccadilly Line train compared with the current 34 in total (33 with a double-ended unit included!). The doorways will be evenly spread along the side of each train despite the varying length of cars. The other lines actually see a reduction in door leaves per train, with effectively one less equivalent double doorway on the Central and Waterloo & City trains compared to today, and one and a half less on the Bakerloo Line with 36 door leaves replacing the current 39 there. This is a consequence of accepting the 9-car train option, rather than the original 10-car proposal, since all lines would have had an additional car with two double-doorways each side. However, the chosen option has wider door openings to compensate, with more widely spread doorways down the train allowing more seating and less standing space. This 7% drop in total capacity over the 10-car proposal may be a disadvantage in peak periods, but the 2017 business case saw an advantage in off-peak periods including weekends, which far outweigh peak hours. The provision of all double-doorways together with service frequency upgrades will, hopefully, overcome this reduction in door leaves.

On Tuesday 8 September 2020, the OPO CCTV system contract for the design, installation and maintenance of a new One Person Operation (OPO) CCTV system was formally awarded to Panasonic Marketing Europe (PME) for the Deep Tube Upgrade Programme (DTUP). This is one of the key design interfaces with the rolling stock manufacturer, Siemens, and enabling them to progress with the design of the new trains, initially for the Piccadilly Line. The OPO CCTV system allows the Train Operator to see real-time images of the platform-train interface from the driver's cab, which means that when the new trains are brought onto the LU network in 2024, the Train Operator can self-dispatch (the term used for OPO on the Berlin U-Bahn) safely and quickly.