

# **WILL THEY STAND FOR IT? THE CHANGEOVER FROM A TO S-STOCK**

**by John Hawkins**

It seems odd that A-stock replacement is met with the same objection that arose with its introduction: a reduction in seating capacity. Some fifty years back the A-stock would offer less seating than the compartment stock on the Watford/Amersham lines, with the introduction of a common stock for all (present) Metropolitan Line branches – today the aim is a common stock for the entire SSL network! (Back then the Metropolitan Line included the Hammersmith & City and East London Lines, with other rolling stock.)

The seating capacity for S-stock has yet to be officially announced, although the standard layout is expected to offer 32% less than current A-stock, allowing additional standing room and a 10% increase in overall carrying capacity (see *Underground News* for June 2006). A 48% increase in service will therefore be required to maintain seating capacity, an apparently unobtainable goal! But the plan is that 33 trains per hour (tph) north of Baker Street will replace the current 21 tph, a 57 % increase, providing over 6% additional seating for passengers.

The planned provision of additional seating in Metropolitan Line S-stock (NF 40/06) may still lead to a 20% fall compared to current trains. This may appear disappointing, but a new batch of A-stock built to modern safety standards would offer similar capacity, allowing stretcher evacuation through the train. This requires a 27% increase in service frequency to match current seating provision, unattainable with current signalling.

However, commissioning of new signalling for an intensive service will depend on operation of an exclusively S-stock service, with higher acceleration and braking capabilities, and particularly provision for automatic operation. Because all Metropolitan services interwork on the trunk section, this will require the withdrawal of all old trains. How can the changeover period be managed, when S-stock are operating with reduced seating capacity alongside A-stock, preventing the operation of a more frequent service?

A similar situation will occur on all lines, as the introduction of new signalling will require all trains to be equipped for automatic operation, although they can be operated conventionally under existing signalling during the changeover period. New signalling may be commissioned over a period of time, as it was on the Central Line, although one hopes over a shorter period! In the case of 2009 stock, the transmission part of the new signalling system that reports to trains must be commissioned before they can begin trial running during traffic hours in 2008, as there is no 'conventional' signalling. The full implementation of new Victoria Line signalling will still await the withdrawal of all 1967 stock. However, other lines will not see the big seating reduction over long distances that the Metropolitan Line changeover involves.

Of course, seating capacity is not a problem at quieter times, when no service frequency improvement will be necessary for S-stock introduction. We can expect a one-for-one stock replacement on trips that avoid peak time journeys. The first S-stock is expected to enter service in late 2009, with a new train every ten days, so it will be early 2010 before sufficient are available to allow the extension of Uxbridge trains to Barking, using both S- and A-stock. East London Line units may also be available for this service, due to line closure for reconstruction. This will improve working at Aldgate junction, with the shorter C-stock trains clearing the junction faster as they work into the bay platforms. Sufficient C-stock will be released for the planned T-Cup service, but this probably requires improved signalling capacity at Praed Street Junction and Edgware Road, which must await the replacement of all C-stock trains in late 2012. Even so, early S-stock deliveries can replace the worst of both A- and C-stock units.

Once all train workings scheduled to miss peak traffic are operated by S-stock, introduction on busier journeys will be necessary, commencing on the shorter branch lines. They may offer a 7% increase in capacity, at the expense of 20% less seats until such time as an increased service can be introduced. Amersham line passengers will hope that the last A-stock is reserved for the busiest journeys, and that withdrawal coincides with the commissioning of new signalling and a more frequent service. This will require sufficient S-stock to be held available to implement the new service, and for an overnight commissioning of new signalling between Amersham and Baker Street. (Resignalling of the fast lines from Harrow to Amersham must provide for conventional operation of Chiltern trains, and so may be commissioned whilst A-stock is still operating.) An interim enhanced service north from Harrow or Wembley Park would not be of much benefit. Perhaps Chiltern Railways may provide additional seating during the changeover period.

The replacement of all A-stock will take around eighteen months, but a further six months will elapse before additional 8-car trains are delivered for the final planned service levels. This will still require another year for the full replacement of C-stock in late 2012 and the subsequent commissioning of new signalling through to Aldgate. The planned service levels around the Circle Line and to Barking can be accommodated within the current signalling until the District Line upgrade.

However, current seating levels can be improved once new signalling is commissioned north from Baker Street with the new trains, due by late 2011. Unlike the new Tube Lines system, the planned Metronet system will provide for the passage of non-equipped trains at reduced frequency, so C-stock and engineers trains could still transfer to Neasden depot outside peak periods (and Steam on the Met is not ruled out!). Chiltern trains will also be accommodated, although the Uxbridge branch requirement for dual trackside signalling systems to accommodate new Piccadilly Line stock is a further complication that may be left until last!

A service frequency of 33 tph is proposed around the Circle Line, and also north

from Baker Street. Since 15 tph are planned from Hammersmith, it must be intended to reverse that number of Metropolitan Line trains at Baker Street, releasing eastward paths. Currently 2 trains reverse there every 17 minutes (T/T No. 320, *Underground News*, February 2006) or 7 tph, so the current Metropolitan Line service of 6 trains every 17 minutes (21 tph) north from Baker Street could be enhanced by 8 tph (15 less current 7 reversers) with the present level of service remaining through to the City under current signalling.

For a 29 tph (current 21 plus extra 8 reversers) service to provide more seating than the current service, each train will need to provide at least 73% of the current A-stock, or 324 seats. Piers Connor's article gives S-stock seating capacity as 304 in 8 cars (June 2006 *Underground News*). With Metronet's promise of additional seating on the Metropolitan Line (NF 40/06), they will need to provide only three more seats per car to give improved seating. Perhaps this is further justification for Metronet's decision. Completion of resignalling to Aldgate will provide further seating capacity, perhaps allowing all trains to revert to a standard S-stock layout. Metropolitan Line travellers will therefore get used to standing more often only once their journey is S-stock operated until the new signalling is implemented, hopefully a period of less than a year in 2010-11.

“Amersham man” may still need to fight for luggage and umbrella racks, since racks appear in only some of the 2003 artists' impressions! They obstruct view of the advertising – not popular with the commercial people. They may also result in more delays due to “suspicious items”, i.e. forgotten luggage.