

LONDON TRANSPORT MINIATURE SIGNAL POWER FRAMES AT ACTON DEPOT

by Bill Collins

EVOLUTION

There are four Signal frames located within the Acton Depot LTM collection and are all co-located. The four frames comprise the evolution of London Transport miniature lever frames. In chronological order they are: York Road, Marble Arch, Elephant & Castle and one part of Barbican Interlocking Machine.

The "York Road" frame has been cleaned and was brought into use in early 2010, having been latterly on display at The London Transport Museum at Covent Garden.

"Marble Arch" has been renovated from as-removed in service condition and from September 2012 became fully functional as it would have been whilst in everyday service.

"Elephant & Castle" has been renovated from as-removed in service condition and from February 2014 became fully functional as it would have been whilst in everyday service.

The Barbican Interlocking Machine is in good condition and is as-removed condition from display at Covent Garden LTM.

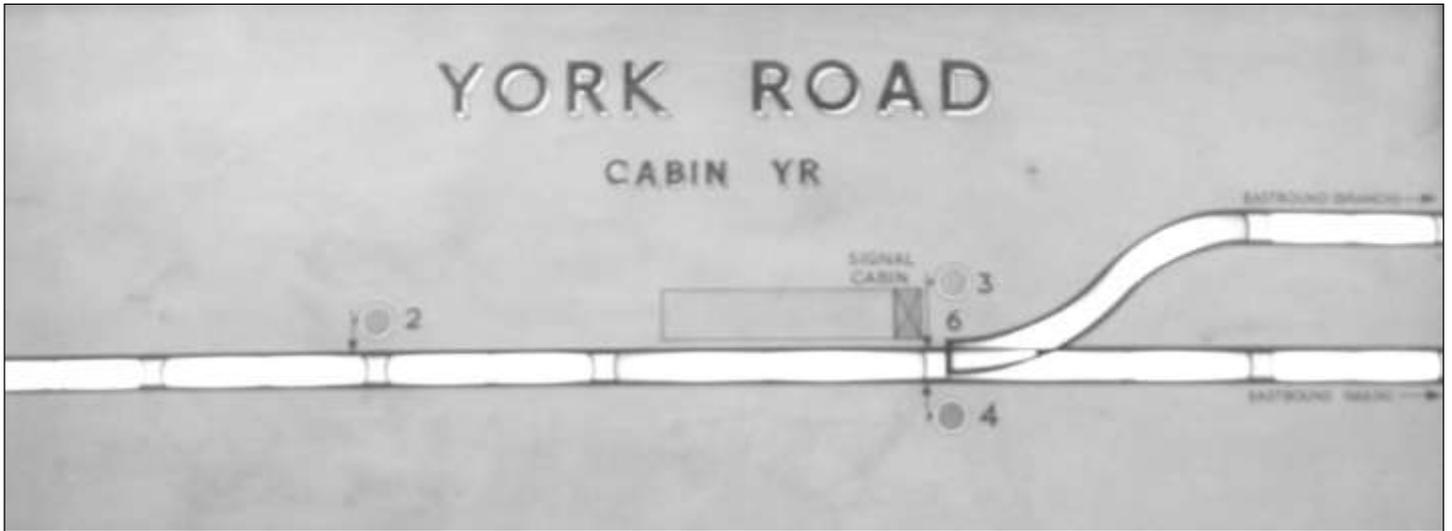
"YORK ROAD" – A 'B/K' STYLE FRAME c.1906

The history of this frame not clear and although called 'York Road', no evidence of it ever being used there has been found. It is believed to have been either a demonstrator for the Westinghouse Brake & Signal Company, whose London offices were in York Road, King's Cross or as a training frame for the introduction of Miniature Frame Power Signalling to the Underground around 1906.



This frame was previously displayed at Covent Garden as part of the Railway Signalling display. In 2008 a number of the LT Museum Friends began restoration of the frame with a view to allowing the frame to operate as it would have done at Covent Garden. Thoughts had been given to an electronic means of 'train movement' but with the remains of the Covent Garden relay cabinets being available it was decided to use a cam timer/relay based means of demonstration. By June 2009 substantial pro-

gress had been made on the mechanical and electrical aspects. Having five Friends by this time greatly assisted the restoration, so much so that for the Family Open Days in October 2009 the frame was 'in operation'. The frame was also in operation for the March 2010 Open Days with the added benefit of having real signals (from Covent Garden LTM) operated. It is planned to operate the LTM 3-position semaphore signal from this frame, once the signal itself has been renovated. The frame and associated illuminated diagram are in the same condition as when removed from Covent Garden with the exception of the internal wiring – all other items are restored/re-used as found.



Above: Close-up of the track layout, signals, points and track circuits for the 'York Road' demonstrator/training frame.

Below: At present, the three signals for the York Road frame. The home signal YR2 (*Left*), and the junction starting signal YR3/4, showing the signal at danger (*Centre*) and clear for the left-hand diverging route (*Right*). Underneath the starting signal is a Fog Repeater (which, in reality, would be 120 metres to the rear of the main signal it is repeating) showing yellow with a black 'F' (*Centre*) and clear with junction route indicator (*Right*).





“MARBLE ARCH” – AN ‘N’ STYLE FRAME 1952-1994

In the chronology of signal frames, this ‘N’ style was the next frame style acquired by London Transport (the first is believed to have been at Acton Town in 1932). The complete frame was removed from Marble Arch in ‘as-service’ condition and located at Acton Depot.



Left: The signal diagram for Marble Arch, underneath which is the train description apparatus. At the bottom is the 11-lever frame.

The frame is in good condition and is complete. The Friends completed renovation of the mechanical frame and locking, together with the illuminated diagram. As indicated above, this frame has been put back ‘in operation’. The telephone and floodgate equipment associated with this frame await renovation to “as in service” condition. In a departure from the ‘York Road’ restoration a PC has been used to output trains to a timetable such that it is able to operate the frame in ‘real-time’ as it would have been.

All photos: Brian Hardy

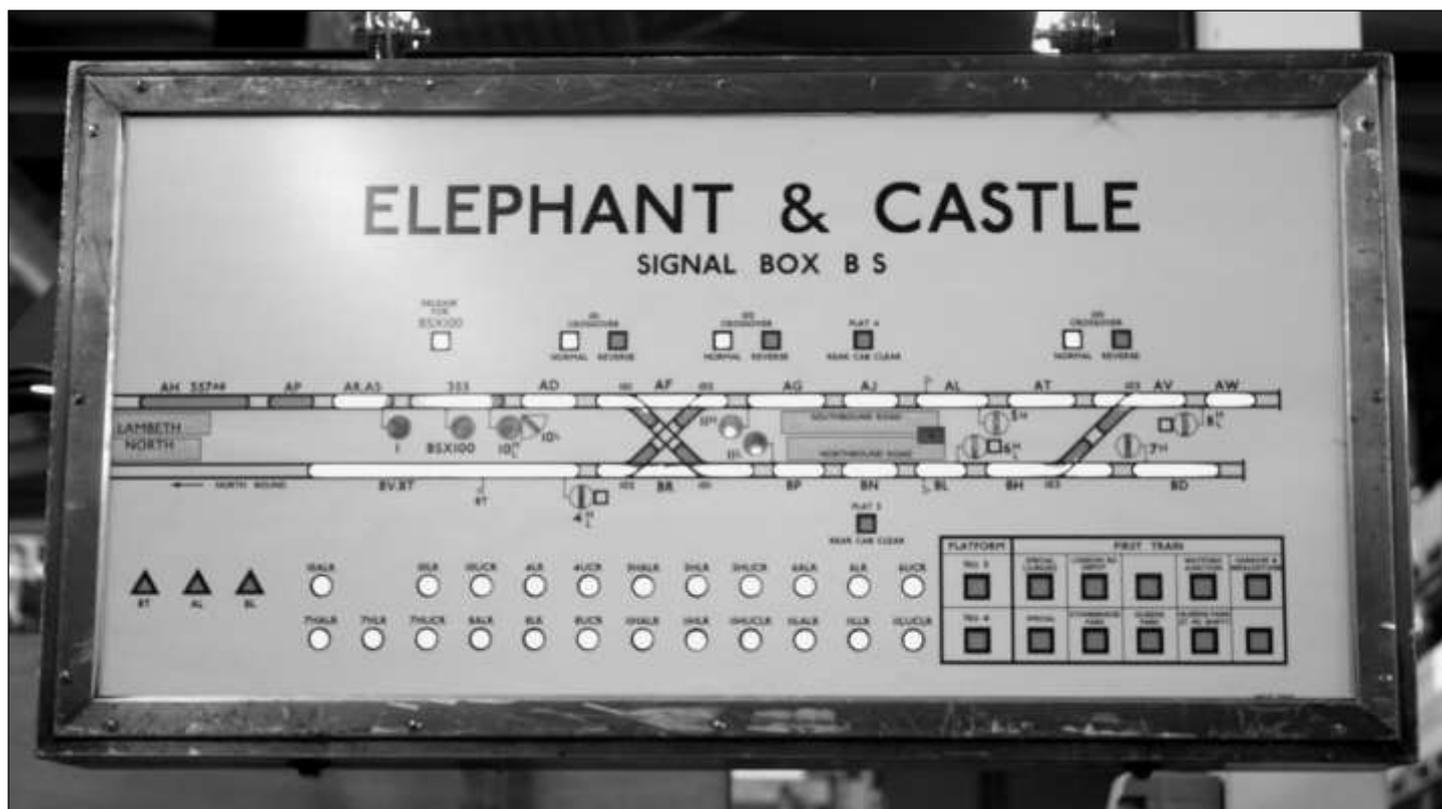
Additionally, there are Train Describer controls as part of the frame and as the Museum has some original platform train destination signs from the Central Line, it is proposed to drive these from the frame.

“ELEPHANT & CASTLE” – AN ‘N (PP)’ STYLE FRAME 1941-1991

In the chronology of signal frames this 'N' (PP) style was the next frame style acquired by London Transport (the first is believed to have been at Rayners Lane in 1935). The complete frame was removed from Elephant & Castle in 'as-service' condition and located at Acton Depot.

The frame has been renovated and a new glass and card diagram insert has been produced. The wiring has been completed as at Marble Arch and a PC to output trains to a timetable to allow 'real time' operation of the frame.

This frame was demonstrated at the March 2014 open days and work has begun on re-installing the telephone panel. This type of frame is a 'route setting' frame with the opportunity to allow the Signaller to pre-select routes. Additionally, it is intended to demonstrate the Train Description apparatus, using authentic items from the LTM collection.



Above: The signal diagram at Elephant & Castle. The former cabin was located off the south end of the southbound platform and was operational from 2 November 1941. The frame was taken out of use on 12 August 1991 and the cabin closed on 8 September 1991. The two sidings are at the far right of the diagram.

Left: The push-pull levers in the 'mid' position apart from No.10 which is in the 'pull' position.

Both photos: Brian Hardy

BARBICAN INTERLOCKING FRAME, A 'V' STYLE FRAME EARLY 1960'S

This frame is in excellent condition and is the last of the LT family of miniature electro/mechanical signal frames, all new installations now utilising solid state/computer type installations. The LT Museum Friends see this as the last of the Acton frames to be 'restored', not least because the Museum currently has no Push Button control console to link to its operation. A compressed air supply is required to operate it in remote – i.e. normal – operation. Additionally, research needs to be undertaken to see if a diagram can be found that matches the current lever locking.

CONCLUSION

The Museum has an extensive collection of LT railway signalling artefacts, not all of which can be displayed at the Depot or at Covent Garden.

Whilst understanding that not all of the artefacts can ever be restored, it is believed that many can be to the benefit of the Museum and the public. As a source for future generations to see and understand early- and mid-20th century signalling technology, it is unlikely to be bettered. This, it is believed, will provide 'hands on' education for many and also a living archive for future historians.