

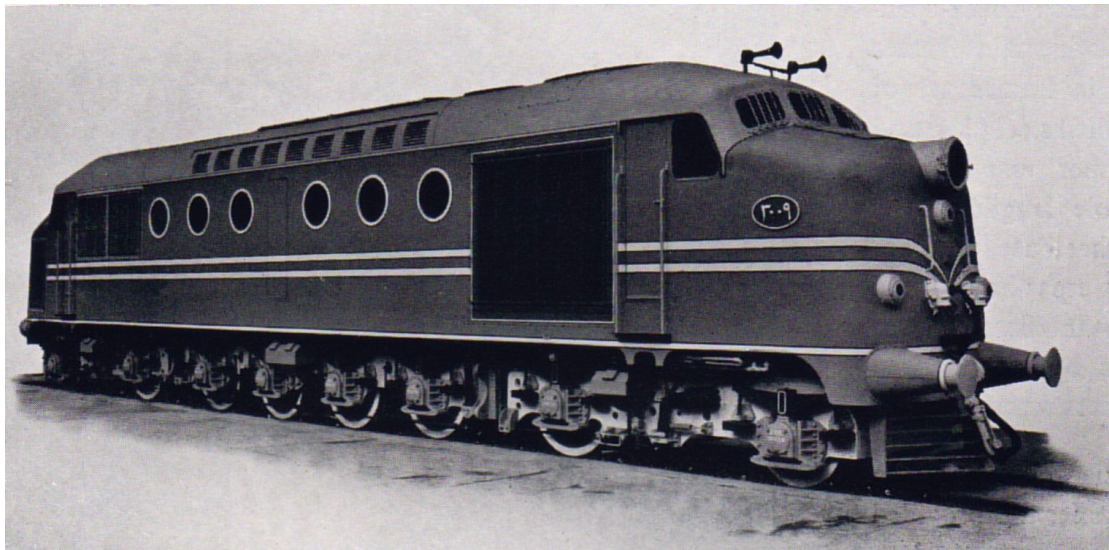
EGYPTIAN REPUBLIC RAILWAYS



4 ft. 8½ in. Gauge

1949

1A-Do-A1



Engine H.P. at 750 R.P.M.	1600	Tractive Effort (Maximum).....	36,000 lb.
Traction Motors	6	Maximum Axleload	17 tons
Tractive Effort (Continuous) at 32.5 m.p.h.	14,000 lb.	Weight in Working Order	124 ”

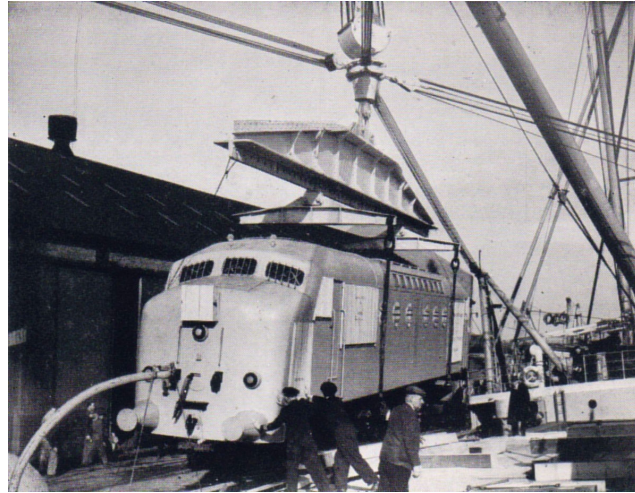
During 1949 The Vulcan Foundry built the mechanical parts for six 1,600 H.P. main line diesel electric locomotives for the Egyptian Republic Railways. These six locomotives, which were erected at Newton-le-Willows, formed part of an order for 12 obtained by English Electric Co. Ltd., and in addition to building the six sets referred to, Vulcan were responsible for the design of the main frames and running gear for all 12 locomotives.

To conform to an axle load of 17 tons, the rather unusual 1A-Do-A1 wheel arrangement was adopted with a 16 ft. rigid wheelbase of four motored axles at the centre and a bogie at each extremity, the inner axles of each bogie also being motored. These six motored axles are driven by axle-hung nose-suspended motors through single reduction spur gearing.



All axleboxes are cast steel and provided with Timken roller-bearings. Both main frames and bogie frames are of 1½ in. rolled steel plate and the former extend over the whole length of the rigid wheelbase and are robustly cross-braced and stayed, the diesel engine supports being bolted to the cross stretchers.

The ends of the main frames are provided with fabricated frame extensions of cellular construction which form 760 gallons capacity. This innovation saves the weight of a separate fuel tank and also allows more space for other essential equipment in the superstructure.



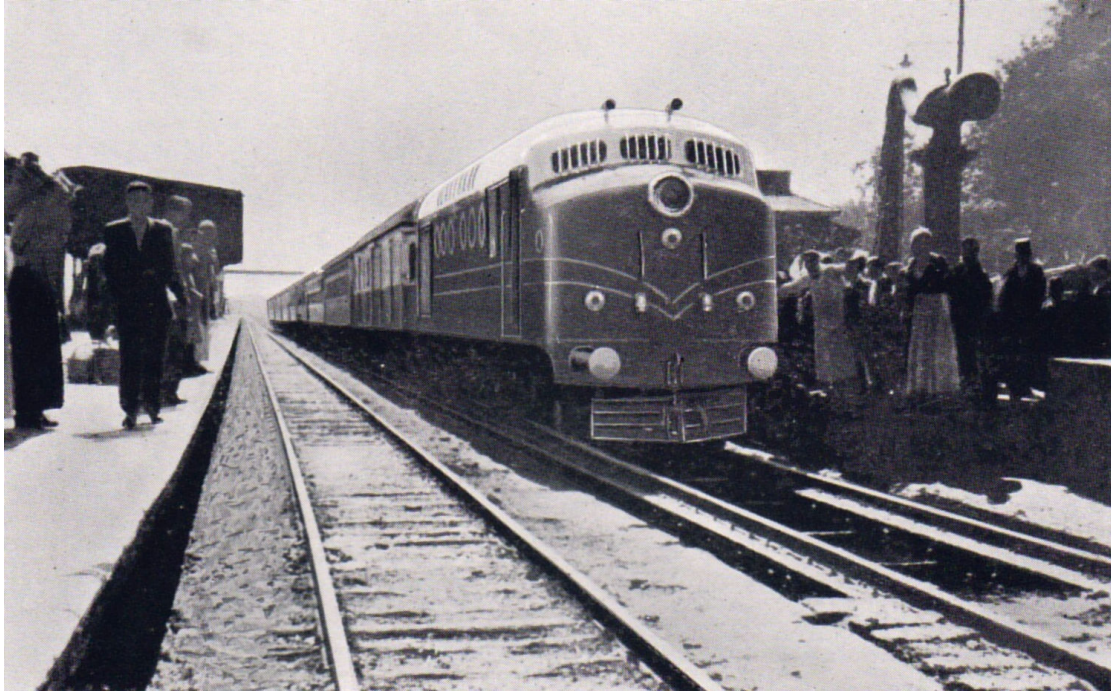
Locomotive Superstructure being loaded for shipment at Liverpool

Dual bogie side-control gear incorporates a group of springs fitted fore and aft of the bogie centres and the locomotive can traverse a 393 ft. radius curve with ease.

The body consists of a framework of rolled steel sections with side panelling of 10 s.w.g. steel sheets, seam welded and ground flush, thus providing a most satisfactory rigid structure. The roof over the engine compartment is removable as a complete unit, and is also provided with separate hatches for access to cylinder heads and control gear.

There is a driving cab at each end and in view of the sandy conditions in which these locomotives have to operate, the cabs can be closed and air circulated by bleeding off from the traction motor air ducts. In each nose end are mounted the compressors, traction motor blowers, and auxiliary brake equipment and reservoirs.

The English Electric Company 16-cylinder V-type supercharged engine which constitutes the power unit, has in this case a rating of 1,600 H.P. at 750 r.p.m., and is placed centrally in the locomotive with the main generator directly coupled to one end.



1,600 H.P. D.E. Locomotive in service in Egypt

Westinghouse air brakes are provided on all the wheels of the motored axles. These can be operated by the driver's air-brake valve and also by the driver's vacuum valve which controls the vacuum brakes on the train. Pneumatic sanding is also provided, with four sandboxes.

Since 1945, passenger traffic on the Egyptian Republic Railways has become steadily heavier and these locomotives were built to operate the heavy express trains on the Upper Egypt line and between Cairo and Alexandria, where speeds of 70 m.p.h. are frequently attained. They also work extensively between Cairo and Port Said, where water conditions are poor.

V U L C A N L O C O M O T I V E S