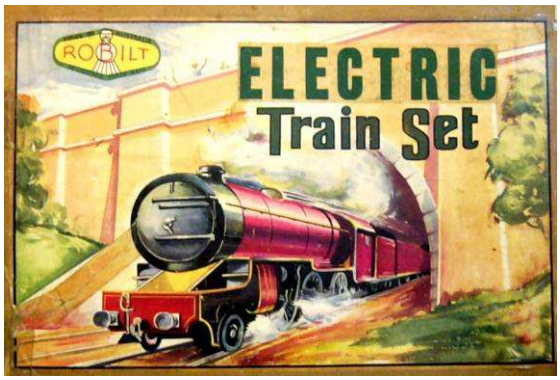
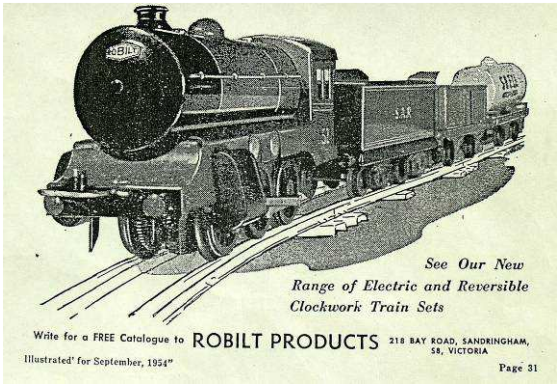
Robilt

No 16 (52) Series 0-6-0 Electric Locomotives

by Stuart Mangleson



Label used on lid of early Electric Train Sets with over pasted green lettered ELECTRIC sticker



Original advertisement for Robilt 0-6-0 loco in September 1954 Hobbies Illustrated magazine

Note: Tender is incorrectly shown back-to-front with the coal opening flares at the rear

Background

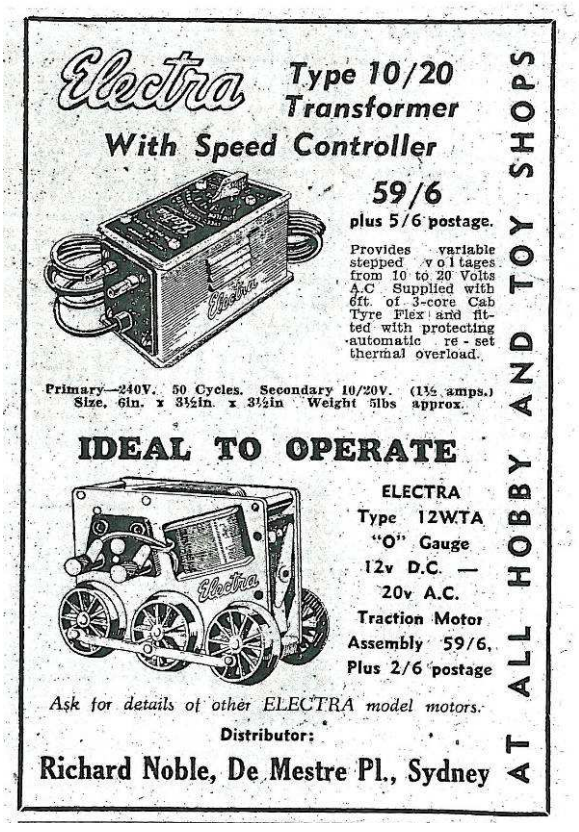
Clockwork powered Robilt O-gauge toy trains went on sale in Australia during 1946. The first Robilt loco was a non-prototypical, steam outline 2-4-0 model with and an accompanying 4-wheel tender. The loco and its 4-wheel clockwork mechanism were designed by Ron Titchener, the founder of Robilt Products, who designed all Robilt products including the production tooling until the business was taken over by Jack Ryding around 1950. The bodies on these early locomotives and tenders were primarily constructed from spot-welded, light gauge sheet brass pressings due to the shortage of suitable tinplate, or light gauge pickled sheet steel, during the early post-war period.

Around 1950, the loco design was revised to a 0-4-0 wheel arrangement with a complementary shortening of the boiler and the running plate. The boiler design was also simplified as a result of the elimination of the Belpaire style firebox that had been used on the earlier 2-4-0 models and tinplate, or light gauge pickled sheet steel, replaced the sheet brass that had previously been used to construct the bodies. The tender design was also altered at this time; still with four wheels, but now having a flat sided, rectangular box like super structure with the top coal opening adjacent to the loco having outward flared sides.

The appearance of the 0-4-0 No 11 (52) series (as they were now catalogued) clockwork powered locomotives remained substantially unchanged until all model railway production ceased around 1964. However, the wheel arrangement on the tender was to change from a 4-wheel fixed axle design to double swivelling bogies (each with 4-wheels) and finally back to a 4-wheel design that featured a substantially revised baseplate pressing with integral axle holders.

Prior to the introduction of the 0-4-0 clockwork powered tender locomotives Robilt Products had introduced a larger, more expensive, locomotive loosely modelled on the streamlined Victorian Spirit of Progress 4-6-2 express steam locomotive to extend its product range. When introduced, this loco was equipped with a non-reversing 6-wheel clockwork motor instead of the 4-wheel mechanism that was used in the smaller tender locos. Whilst the decision to produce two different sized clockwork powered locomotives satisfied the majority of Robilt customers, a small market was identified for electrically driven models that the company wanted to tap into.

Reversible O-gauge, six-wheel electric drive mechanisms manufactured by the Sydney based Davis Electra Company had been advertised in Australian hobby magazines prior to 1950. These mechanisms were targeted at hobbyists for scratch built models, or to convert existing clockwork locomotives to more up to date motive power.



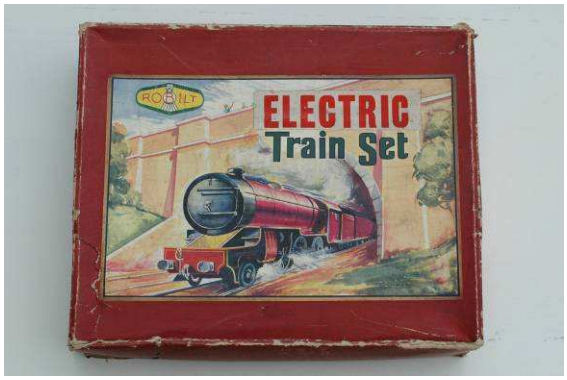
Someone from Rytime-Robilt (the new name under which the Company now traded after Ron Titchener sold the business to Jack Ryding) became aware of the Davis Electra electric mechanisms and, in the early 1950's, investigated the feasibility of fitting them into the existing Spirit of Progress locomotives. As it transpired, the proprietary Davis Electra electric mechanisms were found to be dimensionally very similar with the Robilt 6-wheel clockwork mechanisms. Even the axle spacings were almost identical, and only minor modifications to the clockwork Spirit of Progress loco bodies were required to accommodate the Davis Electra mechanisms.

Even so, the electric mechanisms that were subsequently supplied to Robilt are not the same as the earlier Davis Electra proprietary offerings with different drive gears, wheels, crank pins, connecting rods, all of which were made by Rytime-Robilt. The first Robilt locomotives to be equipped with the 6-wheel Davis Electra supplied electric mechanisms were the Spirit of Progress EDWARD HENTY models followed by the smaller No 16 series (52) 0-6-0 tender locomotives during late 1953.

In the February 1954 Robilt price list, an 0-6-0 Robilt electric locomotive was listed at £8-2-0 (without tender) versus £4-7-6 for the corresponding 0-4-0 clockwork version. A matching bogie tender, suiting the electric 0-6-0 and 0-4-0 clockwork models, was listed against catalogue number 12 (and designated M Type) with a retail price of £1-0-3. As well as being sold separately boxed, the electric 0-6-0 locomotives and tenders were also available in five different train sets:-

1. Junior Passenger Set with two 4-wheel passenger coaches.
2. Senior Passenger Set with two bogie passenger coaches.
3. Junior Goods Set with two 4-wheel goods wagons (an open wagon and tank wagon).
4. Senior Goods Set with three 4-wheel goods wagons (open wagon, tank wagon and produce van).
5. Oil Tank Set with three different 4-wheel tank wagons.

All five train sets were packaged in attractive cardboard boxes with deep-sided lift off lids that included an oval of 3-rail tinplate track. Complementary transformers made by David Electra (costing £4-17-6 in 1954), were sold separately.



Lid from Robilt Electric Junior Goods Set (circ. 1957) with red lettered ELECTRIC sticker

Robilt Electric Junior Goods Set (circ. 1957)

It is not known when the last electric Robilt 0-6-0 locomotives were produced, however, they were not listed in the final 1964 Robilt product list and it is thought that their manufacture ceased around 1960.

Design and Construction

The locomotive body is manufactured from seven separate sheet metal pressings that are spot-welded together and, although the 0-6-0 electric bodies are very similar in appearance to contemporary 0-4-0 clockwork versions, they are not interchangeable. In addition to the semi-circular slot in the front of the cabin to accommodate the reversing lever, the electric locomotive body has two brush holder cut-outs in the left hand valance panel, slightly forward of where the cut out for the winding spindle on the clockwork locomotive is located.

Early 0-6-0 electric bodies were made from tinplate sheet steel that was superseded by light gauge pickled sheet steel. The change in material was implemented in response to production delays that were being experienced due to unplanned stoppages required to clean contaminants that build up on the tips of electrodes when spot-welding tinplate.

Two circular machined steel buffers are riveted to the front buffer beam. For some unknown reason the rear locomotive buffer beam has two unused buffer holes which is also a characteristic of most clockwork models.

The overall (coupled) length (buffer head to buffer head) of the locomotive and tender is 356mm (14 inches).

Unlike the clockwork models, the electric locomotive bodies are not fitted with a dummy whistle and the pressed steel steam dome that is spot welded to the boiler is a slightly different shape and, not as high as the steam domes that were fitted on similar time frame clockwork models. A machined chimney is riveted onto the boiler barrel.

Even though there were some changes in the construction of the electric locomotive body during the period of production, they are relatively minor. The most recognisable revision was the addition of a circular headlamp hole and rim in the centre of the smokebox door on later models. The earlier (pre-headlamp) models have a circular knob that is riveted to the centre of the smokebox door.

Early Robilt 0-6-0 electric loco (circ. 1954) without working headlamp – Note double grey and red lining on side of cabin and tender and black coloured cylinder castings

Both the clockwork and electric models have detachable, left and right hand diecast zinc alloy cylinder castings attached to a separate sheet metal mounting plate that is fastened to the front underside of the running plate. Each cylinder casting features two dummy slide bars.

The 20-volt AC electric mechanism is a six-wheel type with the same twelve spoke 35 mm diameter diecast zinc alloy drive wheel castings that were fitted on the 0-4-0 clockwork versions, however, the two middle drivers on the electric motors have their wheel flanges machined off to assist the negotiation of two feet radius tinplate curves. The front wheel set is driven by a spur gear that is press fitted to a machined boss on the inside of one drive wheel via an intermediate pinion gear and a smaller gear press fitted to the end of the pinion shaft. Different ratio gear trains have been observed. Most examples sighted have traction tyres fitted to the two leading drive wheels. The armature is mounted transversely between the mechanism side frames with the pinion supported by a bush in one side frame and the brush holder on the opposite side. Brush to commutator contact pressures are maintained by small coil compression springs retained by screw-on brush caps. Current is collected from the centre rail via a flat thin gauge copper strip pick up with two rubbing copper buttons riveted to each end of the strip. The pick-up itself is either riveted or attached via small screws to the underside of the mechanism.

The electric mechanism is suspended under the body and attached via two machine screws inserted in holes in the top of the boiler housing. A manual reversing lever protrudes through a semi-circular cut out, or slot, in the cabin. Forward or reverse is selected by moving this lever in a semi-circular arc from side to side with an off position in the middle that allows the locomotive to be parked in a siding that is live. To prevent shorting of the knurled, screw-on brush caps with the tinplate body orange rubber sleeves are slid over each brush cap. The brush caps have been observed both with and without holes in the end. Presumably these holes were an attempt to assist cooling of the brushes. Although Robilt electric mechanisms are reliable and perform well, brush to commutator contact pressures are critical and if not correctly set performance will suffer and overheating of the commutator, brushes and brush holders will occur. When the mechanism is in a serviceable condition it will draw a current of around 1.0-1.5 amps under normal operating conditions and load.

Coupling and piston rods are attached to the drive wheels by means of specially machined hexagonal head screws that serve as crank pins.

As stated previously, the 0-6-0 electric locomotives were initially supplied without an electrically lit headlight. Later versions were fitted with a revised smokebox door that features a circular central opening and headlight rim along with internally mounted Miniature Edison Screw (MES) lamp holder that is mounted on a bracket attached to the locomotive body.

Later 0-6-0 electric locomotives were not fitted with a front coupling even though the front buffer beam is slotted on all models. The front coupling (where fitted) is similar to that used on later Robilt rolling stock, except that it has a larger attaching hole.

Tenders were produced in several variants and similar to the locomotive running plate, usually have two redundant buffer holes at the locomotive end, however, some tenders exist with buffers at both ends. The first tenders were fitted with compensating Bettendorf pattern die cast bogie side frames with central mounting stubs lightly riveted to inverted U-shaped sheet steel bogie mounts attached to the tender underframe via eyelets. Later on, the attachment of the Bettendorf side frames was revised with the mounting stubs attached to the bogie frame by split pins rather than riveted, as was the case previously. Later 4-wheel type tenders have underframes that are very similar in appearance to post-war Hornby Type 4 wagon bases.

Final type 4-wheel tender with Hornby style axle guards (circ. 1958)

All types of tenders are coupled to the locomotive via a simple swivelling flat steel drawbar with a circular hole through which the locomotive to tender coupling is inserted. Early tenders have six spoke 20mm diecast zinc alloy wheels press fitted onto bright steel axle rods. Later tenders have solid sintered iron wheels in varying diameters with raised spoke representations and are, similarly, press fitted onto bright steel axle rods.

Colour Scheme and Transfers

Gloss black Robilt 0-6-0 electric loco with working headlamp (circ. 1956)

The 0-6-0 locomotive body and tender were finished in several different colour schemes, or liveries, over the period that they were manufactured. The quality of paint, preparation and application varied considerably and most models have some paint imperfections aside from damage caused by usage, poor storage or rough handling. Even so, the quality of the paint finish improved on the later (gloss and matt black) models and occasionally some are occasionally found that are free from almost all imperfections or blemishes.

The first models were spray painted with Brolite supplied gloss enamel and were available in three alternative multi-coloured liveries:-

1. Dark red locomotive and tender with black smokebox, smokebox door, chimney and cylinder castings.
2. Mid-green locomotive and tender with black smokebox, smokebox door, chimney and cylinder castings.
3. Light blue locomotive and tender with black smokebox, smokebox door, chimney and cylinder castings.

For all three liveries listed above, examples have also been observed with the cylinders painted in the predominant colour (ie non-black) used on the locomotive and tender.

The front buffer beam and buffer shanks on these versions were painted gloss red and the heads of the buffers were painted gloss black. Two single gold bands were hand painted on the boiler barrel. Generally, hand painted horizontal gold lining was also applied to the sides of the cabin and the tender although some examples exist with multi-coloured cabin (and tender) lining, generally, red and light grey.

Later (circ. early 56) versions of the 0-6-0 electric locomotive and tender were painted with a single gloss black finish (still with hand applied gold boiler bands and lining) to save costs associated with the masking and application of two colours on the loco. The faces of the two buffers on the front of the gloss black locomotives were hand painted red, but the faces on the buffers on the back of the tender were left black.

The very last (circ. late 1956 onwards) 0-6-0 electric locomotives and tenders were painted with a flat matt black finish, still with hand finished gold boiler bands and lining and red buffer faces on the front of the loco.

Robilt Electric Junior Goods Set (circ. 1957) with matt black loco & tender

In all cases, the locomotive body was painted prior to the installation of the electric drive mechanism, front coupling (where fitted) and boiler handrails (and handrail knobs). The two cylinder castings were painted separately prior to assembly. The tender was always painted in the predominant colour of the locomotive body. Tender wheels and the rear coupling loop were usually fitted after painting, although some tenders have over painted rear couplings, similarly to other Robilt rolling stock.

After painting, water-slide, screen-printed, transfers supplied by De Neefe Signs Pty Ltd of Melbourne were affixed to the locomotive body and the tender. Transfers of the number 52 in gold were fixed to each side of the cabin and a small Robilt trademark transfer was fixed to the front of the smokebox door. One of three different gold lettered transfer variants (N.S.W.G.R, V.R or S.A.R) was applied centrally to each side of the matching tender body. Even though the 0-6-0 locomotive bodies were a non-prototypical freelance design, the Company considered it important for the model to carry an Australian State rail system identifier on the sides of the tender to help encourage local sales, with:-

1. N.S.W.G.R representing New South Wales Government Railways.
2. V.R representing Victorian Railways
3. S.A.R representing South Australian Railways.

Finally, a small Robilt trademark transfer was centrally fixed to the rear of the tender.

Conclusion

Even though the Robilt 0-6-0 electric tender locomotives were well designed, manufactured and reasonably priced, they were not big sellers and, as a consequence, survivors are not widely seen. In general, it appears that the numbers surviving, both with and without operating front headlamps, is approximately equal. There are numerous reasons why only small numbers of these locomotives were produced. The price of the electric models was almost double that of the clockwork versions, (not including the £5 cost for the transformer). Whilst this must have been a major consideration, by the time that they were introduced in 1954, the total market for O-gauge model railway products was already in decline with the emphasis on the smaller (predominantly electric) and well-established OO and HO models. This was certainly the case for the more expensive models that predominantly targeted a more mature market. As a consequence, after 1954, Robilt Model Railway Products, as they were termed, were increasingly simplified to reduce unit production costs and, at the same time, appeal to a younger user. For example, paint schemes were simplified and the tenders supplied with the final 0-4-0 clockwork locomotives and 0-6-0 electric locomotives were changed from a double swivelling bogie wheel arrangement to a 4-wheel fixed axle arrangement.

This change not only resulted in a lower production cost but it also enabled a very young operator to more easily place (or replace) the tender on the track.

Even with the investment in redesigning and retooling of the models to reduce the manufacturing costs it became apparent, around 1960, that there was insufficient demand to continue with production and the Robilt electric models quietly faded away.

Acknowledgments

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