

## **The BL Locomotive**

### Updating the Tradition

The then Commonwealth Railways introduced the first mainline diesel locomotive in mainland Australia in September 1951. This locomotive, GM-1, was followed by the ten similar and thirty six more powerful GM-12 Class from October, 1955.

These satisfied all needs on the standard gauge until February 1970 when the introduction of the CL Class closely followed the commencement of through uniform gauge working. The CL Class started a new number series from CL-1, perhaps based on the higher power rating. The class letters could have stood for the builder, Clyde, or perhaps for "Commonwealth L" since the CL shared the power equipment of the Western Australian L Class.

After the formation of the Australian National Railways, a further order was placed for a double ended version, the AL, (almost certainly for "Australian L") numbered in sequence from AL-18. These were built at Rosewater in South Australia, and were initially overweight and suffered from some electrical problems. The Clyde model code for the AL Class was JT-26C. Only eight were built, and they were largely restricted to freight traffic through their (still) excessive weight resulting in a limited maximum speed. However they served as prototypes for the current generation of mainline locomotives on the New South Wales and Victorian systems, and on the broad and standard gauge lines of the Australian National Railways.

Both the CL and AL classes were rebuilt in 1994 – 95 by Morrison Knudsen in Whyalla, and are now either CLP Class passenger locomotives or CLF or ALF Class freight locomotives, with new microprocessor control systems.

The third of this series of 2240kw locomotives was classified BL more to fill the "gap" than to convey any encrypted meaning. These units were also built at Rosewater, incorporating lessons learned with the AL Class and a series of technical improvements resulting from work carried out by EMD in the United States. The updates resulted in a change in model designation from JT-26C to JT-2SS, although the "-2" was deleted and restored at various stages of design and construction.

Although the running numbers are in sequence after the AL Class, the BL class appeared in two groups delivered concurrently. BL-27 to BL-30 were allocated to the standard gauge and entered service between August 1983 and December, 1984. BL-31 to BL-35 appeared on the broad gauge between November, 1983 and July, 1984, and BL-26, named "Bob Hawke" after the then Prime Minister, commenced operation on the broad gauge in March, 1984. The class carry Clyde builders numbers 83/1010 – 83/1016 and 84/1017 – 84/1019 in numerical order.

The "SS" in the model code stands for "Super Series", a sophisticated wheel slip control system. The maximum tractive effort for a locomotive is reached when its wheels are turning at a speed 5% to 15% faster than the actual speed of the train, ie., for maximum pulling power the locomotive, has to just start to slip. The control system determines the actual "ground speed" using the "Doppler Effect" from radar directed on to the track and can then limit power to keep the wheel speed just slightly more than ground speed.

Super Series wheel slip control has meant that while only 50% more powerful on paper than a 2000hp (1500kw) loco, a JT26C-2SS is in many ways worth two such units, because it can use its power so much more effectively. The result was a dramatic increase in tonnages per train, and in overall annual freight tonnages for the systems using these units.

In appearance the BL differed from the AL in the shape of the cab roof, the taper seen in preceding Clyde and cab units having been given up in favour of a simpler flat roof providing more room for an air conditioning evaporator/fan unit. The BL was the first AN Class to have air-conditioned cabs on all units and was the first class introduced in the green "Corporate Image" colour scheme. By the early 1990's, the simplified version of this scheme with a green, rather than grey, roof had been applied to a number of the class.

Internally the BL has the modular card based electrical equipment associated with the "Dash-2" designation, and the large AR-16 alternator and radar Doppler effect "Super Series" anti-slip system which permit heavier loads to be hauled under unfavourable adhesion conditions. This advantage was more valuable in the Adelaide hills and on the Ingliston bank (on the former broad gauge route through Ballarat to Adelaide) than on the more open country of the Trans Australian Railway.

The broad gauge locomotives were employed almost exclusively on the heavy freight traffic on the Melbourne-Adelaide line, working alongside the five almost identical, first series G class of V/Line (Diagram G-1), built to the same drawings in Rosewater. (The G-1 group was obtained as a stopgap while the Victorian plant at Somerton was preparing to build the later and somewhat different third and fourth series G class).

The standard gauge locomotives were used on services to Broken Hill, Alice Springs and Kalgoorlie, but with increasing traffic were all transferred to the broad gauge Melbourne-Adelaide route and were used until that line was converted to standard gauge.

The transfer of all interstate rail freight traffic to the National Rail organisation resulted in the BL Class locomotives being used exclusively by this operation, and as these broad gauge units were being converted to standard gauge in 1995 for the Melbourne-Adelaide standardisation, two units, BL-27 and BL-35 were repainted in the National Rail Corporate colours for use on the inaugural train. BL-29 has also been retained alongside the purpose built NR Class for the present time.

It is expected that the BL Class, along with the NSW 81 Class and V/Line G Class will remain an important part of Australian motive power fleets for many years yet.

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