

# G Class Locomotive

## Historical Notes

### A Return to the Cab Unit

The first G Class were ordered from Clyde Engineering in August 1983, but by April 1984, before any deliveries on the first order were received, V/Line (as they were by then known) needed more motive power in a hurry. The then current production run for the ANR BL class was extended by five units, becoming G 511 to G 515 with builder's numbers 84/1239 to 84/1243. They were only slightly different from the BL Class, conformed to the first generation of "Super Series" units with the AR 16 alternator and D77 motors, and were fitted with trimount bogies. These bogies give better adhesion than the conventional "Hi-Ad" type fitted to the N Class and the C Class locomotives. These locomotives were delivered in the V/Line Orange and Grey.

After the last S Class diesel had been delivered, V/Line had only been ordering narrow-bodied ("hood") type locos with single cab structures. The G Class marked a return to the full width ("carbody") style construction and was the first class since the unique B Class to have a full cab at both ends of the loco.

The "SS" in the model code stands for "Super Series", a sophisticated wheelslip 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, i.e., for maximum pulling power the locomotive, has to just started 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 wheelslip 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.

G 511 to G 515 (the second order, but first delivered) are described by V/Line diagram G-1, while G 516 to G 525 (first order, second delivered) are diagram G-2. These numerical suffixes have spread to more general usage to describe the various subgroups of locomotives.

The G-1 group were initially used on the broad gauge, often with the AN BL Class on freight traffic between Adelaide and Melbourne, but since standardisation of that line, they can be found anywhere where the track conditions permit their use.

Delivery of the first order of G Class followed the second with units numbered G 516 to G 525, and with lower builders numbers 85/1229 – 1235 and 86/1236 – 1238 (owing to the fact they were ordered earlier). It was originally intended that these be built at Somerton, in Victoria, but they were actually built in Rosewater following the first batch. This group mainly differed in having AR-11 alternators with internal series-parallel switching. Externally they were most easily recognised by their roof mounted cab air conditioning units rather than the body side mounted units used in the earlier locos. As well as this, all panels down both sides, the cab ends, fuel tanks and pilots are different. The roof access steps have also swapped from one side of the cab

door to the other, compared with the first batch. Even the marker lights were rotated 90 degrees.

The NSW pattern fog lights at coupler level were first fitted to this group for standard gauge use, but are now on other broad gauge locomotives.

G 516 to G 525 are described by V/Line diagram G-2, and are generally known by this title. Most of the G-2's were initially used on the standard gauge Sydney-Melbourne line, although some later units replaced a few of them, resulting in a transfer to the broad gauge.

V/Line were obviously happy with the G Class, and a third batch were ordered. These were known as the G-3 group although no new diagram had been issued for them. They were also equipped as the second generation of "Super Series" units with AR11 alternators with internal series-parallel switching and the new D87 traction motors.

Externally they are most easily distinguished from the G-2 type by the double engine room doors (rather than single) at the body centres, and by the roof access steps fitted at both ends of the body rather than just one. (It should be noted that some earlier locos have been retrofitted with the second set of steps)

The G-3's are numbered G 526 to G 536 and have builders numbers 88/1256 – 1265 and 89/1266.

A fourth batch, inevitably known as the G-4's followed, numbered G 537 to G 543. They are essentially identical to the G-3's, with minor internal changes. However, the last unit has desk type control consoles, similar to those on the ANR DL Class, which have the same electrical equipment, but the later 710G3 engine.

Some members of the class had received the "V/LINE FREIGHT" logo replacing the original "V/Line" logo on the body side, but now most have received the Freight Victoria, later Freight Australia, livery, green with yellow whiskers.

The G Class is the largest class of non-steam mainline locomotives in Victoria. All have been used on through interstate fast freight traffic, including the standard gauge Sydney-Melbourne line. They were used on the Sydney and Melbourne expresses until the introduction of the XPT service, but were rarely used on broad gauge passenger trains. They take the major share of broad gauge freight traffic, including grain haulage.

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