



SteamRanger's Heritage - an insight into our past

BACKGROUND

An historic announcement in the Society's "Bulletin" of the first 520 class loco to be introduced by the SAR in 1943

This loco has been preserved by the ARHS (SA Division) at Mt Barker

This file contains the full text of the article and a general arrangement drawing

The 520 CLASS 4-0-4 LOCOMOTIVE

South Australian Government Railways

ARHS Bulletin March 1944 pages 31, 32

Early in November 1943, another new type of engine was placed on the road. This was No.520 of the South Australian Government Railways and was named "Sir Malcolm Barclay-Harvey", after esteemed member, the Governor of South Australia. This engine is the first of a batch of seven of the new "520" class, the proposed design of which was dealt with on page 25 of the "Bulletin" for February 1942.

It is of the 4-8-4 wheel arrangement and is intended for working over lines possessed with only 60lb rails, although of sufficient power to be efficiently employed on the heavier main lines. The 5 foot, 6 inches driving wheels have been balanced for a maximum speed of 70 miles per hour, at which speed the engine rode steadily on its trials, and with a tractive effort in the vicinity of 33,000 lbs, the new locomotive is a useful addition to the stock of South Australian Railways as a general utility engine.

As completed the engine differs in some details from those originally shown in the Bulletin, particularly by the addition of streamlining of such startling appearance, as certainly to attract public notice, which presumably is the sole object for this alteration. A revised diagram in this issue sets out the leading dimensions.

The engine is mounted on a cast steel frame carrying a boiler with Belpaire firebox supplying steam at a maximum of 215 lbs pressure to two outside cylinders 20 1/2 inches by 28 inches, developing a tractive effort of 32,600lbs at 85% boiler pressure. The auxiliaries are supplied from a steam turret on top of the firebox near the safety valves, whose vents are flush with the casing, as also is the outlet of the muffled blow-down valve. The whistle lies horizontally in a rectangular depression behind the chimney.

The leading driving wheels and leading wheels of the trailing truck are fitted with lateral motion devices, permitting easy movement round sharp curves, and all wheels of engine and tender are fitted with roller bearings.

With the object of keeping the weight within the 15 ton axle load limitation, welded steel was employed instead of castings in the following places: cylinder block, saving 15%: tender water bottom, saving 30% and tender bottom frames, saving 22%.

The cab is of elaborate design, being totally enclosed with concertina enclosed vestibule to tender, but in view of the hot climatic conditions is well ventilated, with two large louvres in the roof, sliding side windows, and other openings, while the glazed major portions of the entrance doors can be opened back and secured. The driver's and fireman's seats are upholstered, with padded backs and front windows give a good view ahead. A folding seat is provided attached to the driver's door for the convenience of travelling inspectors. Power reverse gear is provided on the driver's (left-hand) side.

Butterfly firedoors are fitted, and the fireman scoops coal from a shovelling plate some 12 inches above the level footplate in the cab, and projecting so that the fireman does not step onto the apron bridge plate between engine and tender. The tender is self trimming and its water capacity can be limited so as to reduce the axle loading, when running on 60 lb track. The tender braking is equipped with a hydrostatic variable pressure brake, which gives maximum braking effort irrespective of the quantity of water and coal at the time.

The engine is painted green with two golden bands running along the valances of the engine and continuing along cab and tender sides. The road number "520" is in large gold figures on the bulbous covering of the front buffer beam and on cab sides, while it is repeated on either side of the headlight. The front automatic coupler is normally invisible, but may be swung out to normal position through double doors in the clothing.

The engine was designed under the supervision of Mr F.H. Harrison, Acting Chief Mechanical Engineer

