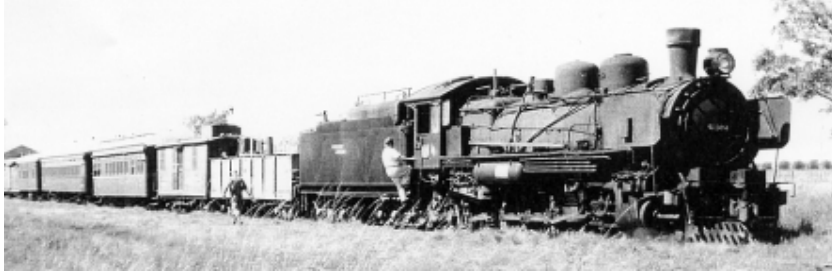


A Brief History of PT Application

Porta Treatment has been used on the following railways and locomotives:

- a) *Ferrocarril General Belgrano (Argentina)*: The metre gauge routes radiating from Salta and Tucumán were the “testbed” from 1969 to 1974. Locomotive N°1802 was the principle development loco.¹



FCGB N° 1802 during PT development trials. 1971. © R.Campbell

- b) *Ferrocarril General Belgrano (Argentina)*: PT was used in fleet service from 1974 until the end of metre gauge steam in mid-1980s. Its use extended the period steam was able to be retained within this region. The following FCGB depots fully implemented the treatment regime: Güemes, Humahuaca, Jujuy, La Quiaca, Metan, Salta, Tucumán, San Antonio de los Cobres, Quijano, Volcan.



Tucumán's large FCGB running shed in the 1970s. © J.B.West

¹ Ramal Ferro Industrial Río Turbio (Argentina) is believed to have been used for certain tests. However this 75cm gauge railway used Dearborn treatment until the end of steam in 1997.

- c) *South African Railways (SAR):* Class 26 4-8-4 N^o3450 'L.D.Porta', perhaps better known as "The Red Devil". As part of his development work David Wardale implemented the treatment on 3'6" gauge N^o3450. Problems were experienced due to inflexible operating procedures and attitudes and poor antifoams. However, this did not mean the system failed as N^o3450's boiler stayed remarkably clean internally. Further trials on the SAR Orange Free State, Western Transvaal and Cape Northern systems also took place but with unknown results and these were not under the control of David Wardale.



N^o.3450 'L.D.Porta' on test in South Africa. 1981. © R. Griffiths

- d) *Alfred County Railway (South Africa):* Class NGG16A 2-6-2+2-6-2 N^{os}.141 & 155 and NGG16 N^o. 127. Again problems were experienced because of inflexible procedures and attitudes. However, as with N^o3450, despite the problems the boilers on these 2' gauge Garratts stayed very clean internally.



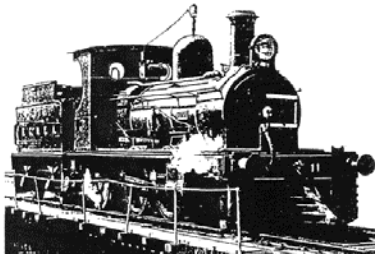
ACR NGG16A N^o.141 in service. 1998. © N.A.H.Day

- e) *Cuban Minaz system locomotives N^{os}.1650, 1816 & 1910:* These standard gauge locomotives have used the system with success. 1816, an ALCO 2-8-0, was comprehensively modified in the late 1990's by L.D.Porta. PT was always an essential elements of such modernisations.



(left) Minaz N^o.1816 operating in 2001. (Right) Minaz N^o.1910 © J.Olmo

- f) *Ferroclub Argentino*: Standard gauge locomotives operating from the Lynch depot in Buenos Aires make full use of the treatment.



FCGU² N°.11 'Yatay', operated by the Ferroclub Argentino, is one of several operating from Lynch depot using Porta Treatment.

- g) *Ferrocarril Austral Fueguino (Argentina)*: Class KM 0-4-0+0-4-0 N°2 'Nora' now rebuilt and renamed 'Ing. L.D.Porta' and 2-6-2t N°3 'Camila' and since construction in 2006 Class KM 0-4-0+0-4-0 N°.5 'Ing H.R.Zubieta'.. The system has been in use on this 50 cm gauge line since 1999 resulting in very clean boilers and six month interval washouts currently being extended towards yearly washouts to coincide with annual boiler exams. FCAF can be seen as a textbook example of PT application.



FCAF N°s . 2 (left) and 3 in 2004. © M.Bane



FCAF N N°.5 in 2006 – this loco has used PT from new. © S.Barral

- h) *Kirklees Light Railway (UK)*: The treatment has been in use since early 2005 on locomotive 'Fox'. Following several successful months of use the regime has been extended to the three other locomotives on this 15" gauge railway.



KLR locos Fox (left) and Badger in 2005. © M.Bane

² Ferrocarril Nacional General Urquiza.

- i) *Nº.6024 King Edward I (UK)*: The treatment was introduced to this mainline approved ex Great Western Railway 4-6-0 in April 2006. It became the first locomotive fitted with a copper inner firebox and the first standard gauge locomotive in Europe on the treatment.



Nº.6024 King Edward I, the first standard gauge locomotive in Europe to use the treatment.

Additionally the regime has been used within industrial boilers in Argentina.