

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following paper:—

From the Agent, The Vacuum Brake Company (Limited), to the Secretary to the Government of Madras, Public Works Department, dated 32, Queen Victoria Street, London, E.C., September 1890.

Seeing that there has of late been a great deal of discussion upon the amount of coal consumed by the Vacuum Automatic Brake, I herewith have the honor to enclose copies of letters showing the opinions of most of the leading Locomotive Superintendents at home, upon this subject, which may be interesting to you.

2. I also enclose a copy of a report upon "Pumps and Ejectors" that Mr. Johnson, the Locomotive Superintendent of the English Midland Railway, was called upon by his Board of Directors to make.

ENCLOSURES.

From S. W. JOHNSON, Esq., to A. L. SACRÉ, Esq., Vacuum Brake Company, 32, Queen Victoria Street, London, E.C., dated Midland Railway, Locomotive Superintendent's Office, Derby, 18th November 1887.

Consumption of Fuel with Automatic Vacuum Brake.

In reply to your letter of the 17th November. The consumption of fuel required to work the Automatic Vacuum Brake is so small, we have not been able to ascertain it, and have not been able to find any difference between those engines fitted with brake and those working without it.

From W. DEAN, Esq., to A. L. SACRÉ, Esq., Vacuum Brake Company, London, E.C., dated Great Western Railway, Locomotive Department, Swindon, 18th November 1887.

In reply to yours of the 17th instant, our experience has been the same as that of the other Railway Companies you mention, *i.e.*, we have been unable to detect any increase in the consumption of coal with engines fitted for working the Automatic Vacuum Brake.

From J. A. F. ASPINALL, Esq., to Messrs. The Vacuum Brake Company (Limited), 32, Queen Victoria Street, London, E.C., dated Lancashire and Yorkshire Railway, Chief Mechanical Engineer's Office, Horwich, Nr. Manchester, 18th November 1887.

I have your letter of yesterday asking for an intimation with regard to the consumption of fuel in connection with the use of the Automatic Vacuum Brake.

2. We keep records of the consumption of all our engines, but I am not able to trace the fact that the consumption of fuel has been seriously affected by the use of the small ejector.

From D. JONES, Esq., to Messrs. The Vacuum Brake Company, 32, Queen Victoria Street, London, E.C., dated The Highland Railway Company, Locomotive Department, Engineer's Office, Inverness, 18th November 1887.

I have yours of yesterday and beg to say that our experience hitherto is the same as that of the other Railway Companies you refer to, *i.e.*, that the fuel used in connection with the use of your Automatic Vacuum Brake does not make any appreciable difference on the consumption of the locomotives.

From B. MALCOLM, Esq., to A. SACRÉ, Esq., The Vacuum Brake Company (Limited), 32, Queen Victoria Street, London, E.C., dated Belfast and Northern Counties Railway, Locomotive Department, Belfast, 18th November 1887.

In reply to your inquiry of the 17th instant *re* increase in the consumption of coal due to the adoption of the Automatic Vacuum Brake, I beg to say that this matter received my most careful attention before finally deciding to recommend my Directors to adopt the brake for their entire passenger stock, and the conclusion at which I then arrived has since been proved to be correct.

2. I formed the opinion after making a series of careful experiments that the consumption of coal would be very slightly if at all increased.

3. I felt confident the increase would not in any case exceed 1 or 1½ lb. per mile, but in actual practise extending over several years and with almost the entire stock fitted with the brake, there has been no increase in the consumption, as a matter of fact our consumption has fallen slightly since its adoption, but this is probably due to other causes.

4. I have, however, carefully compared the consumption of engines fitted with the brake, and working braked trains, with the consumption of engine not fitted, but doing exactly similar work, and I find the consumption practically the same, in some cases slightly higher and in others lower.

From W. ADAMS, Esq., to The Vacuum Brake Company (Limited), 32, Queen Victoria Street, E.C., dated London and South Western Railway, Locomotive Engineer's Office, Nine Elms Works, London, S.W., 30th November 1887.

Automatic Vacuum Brake.

Referring to your inquiry of the 17th instant, I have looked carefully into the matter therein mentioned and am unable to find any increase in our fuel consumption attributable to the use of the "Automatic Vacuum Brake."

2. On consulting with the chief of our Running Department in connection with this subject he informs me that some of the drivers he has questioned express an opinion that so far from increasing the fuel consumption the brake has a tendency to lessen it, the men having now a more perfect control over their trains, which enables them to regulate their fires to better advantage.

3. In taking out the fuel consumption of twelve main line engines for six months in 1882, I find it was 29·7 lb. per mile, whereas for the same period of 1887 it was 27·8 lb., showing an economy of 1·9 lb per mile. During the period referred to the Automatic Vacuum Brake has been applied to the whole of our passenger stock, and although this economy in fuel is largely due to the fitting of our engines with the vortex blast pipe, I am of opinion that the Automatic Vacuum Brake has had no retarding influence on the reduction effected.

From M. URBAN, Esq., Chief Engineer, Director of Traction and Material, to the Manager of the Vacuum Brake Company, 32, Queen Victoria Street, London, dated Great Central Railway of Belgium, Brussels, 14th January 1888.

In reply to your letter of the 12th instant, I have the pleasure to inform you that we have not ascertained any appreciable difference in the consumption of fuel of the locomotives due to the use of the Vacuum Brake.

Colonel Rich's report on Caricle Accident Memorandum re above Ejectors and Pumps.

Ejectors are more certain in their action, and less liable to get out of order than pumps of any description.

They are simple in construction, having no moving parts, and are more easily maintained in good working order, and require neither oiling nor packing.

The working of the two systems may be compared as under, for 4 years ending December 1889 :—

Railway Company.	Miles run.	Casualties reported.	Minutes delay.	Number of times trains had to run with more or less brake-power cut off.
Great Western	55,504,055	560	2,620	241 } or equivalent to 7 21 } times.
Midland	34,078,363	58	507	

Of the 58 Midland Vacuum Automatic Brake casualties shown in Board of Trade returns for four years ending December 1889 none were caused by ejectors, and consequently the ejectors did not cause delay, or cut off brake-power during that time; but the said returns show that the pumps on the Great Western Railway caused considerable trouble, delay to trains, and cutting off of brake-power throughout the train. M.R. standard is 20 inches of vacuum, this gives 1 ton effective power on lever and enables us to stop a train going at 50 miles per hour in 260 to 280 yards in 20 seconds, which is quite powerful enough and just within the point of skidding wheels.

(Signed) S. W. JOHNSON.

ORDER—dated 24th September 1890, No. 1452 R., Public Works.

Communicated to the Consulting Engineer for Railways for information.

(True Extract.)

Major, R.E.,

Under-Secy. to Govt., P.W.D.,
Railway Branch.

To the Consulting Engineer for Railways.

Exd. J. Moses.
Spare Copies

RAILWAY.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated September, 24th.

Recd.

Encl.

G.O., 24th Sept. 1890, No. 1452 R.

SEPTEMBER.

Vacuum Automatic Brake

Letter from the Agent, Vacuum Automatic Brake Company, forwarding correspondence on the subject of the consumption of coal by the — and a report upon "Pumps and Ejectors" made by Mr. Johnson, Locomotive Superintendent of the English Midland Railway, communicated to the Consulting Engineer for Railways.

Copy

Midland Railway.

Locomotive Superintendents Office,

Derby, 18th Nov^r 1887

Consumption of Fuel with Automatic
Vacuum Brake.

Dear Sir,

In reply to your letter of the 17th Nov^r
The consumption of Fuel required to work
the Automatic Vacuum Brake is so small, we
have not been able to ascertain it, and have
not been able to find any difference between
those Engines fitted with Brake, and those working
without it,

Yours truly,

(Signed) J. W. Johnson.

A. L. Sacré, Esq^r

32, Queen Victoria St.

London, E.C.

620
520
420
Great Western Railway,
Locomotive Department
Swindon, Nov. 18th, 1887.

My Dear Sir,

In reply to yours of the 17th inst. our experience has been the same as that of the other Railway Companies you mention, i.e., we have been unable to detect any increase in the consumption of coal with engines fitted for working the Automatic Vacuum Brake.

Yours truly,
(Signed) Wm Dean.

Alfred L. Sacré, Esq.,
Vacuum Brake Co.,
London, E.C.

620

520

Copy

Lancashire & Yorkshire Railway,
Chief Mechanical Engineer's Office,
Horwich, Nov. 18th 1887.
N. MANCHESTER.

Messrs,
The Vacuum Brake Co. Limited,
32, Queen Victoria Street,
London, &c.

Dear Sirs,

I have your letter of yesterday asking
for an intimation with regard to the consumption
of Fuel in connection with the use of the Automatic
Vacuum Brake.

We keep records of the consumption of all
our Engines but I am not able to trace the fact
that the consumption of Fuel has been seriously
affected by the use of the small Ejector.

Yours truly,
(Signed) John A. F. Aspinall.

620

Copy

The Highland Railway Company,
Locomotive Department,
Engineers' Office,
Inverness, 18th Nov^r 1887.

Mess^{rs} The Vacuum Brake Coy.
32, Queen Victoria St,
London, E.C.

Dear Sirs,

I have yours of yesterday and beg to say
that our experience hitherto is the same as that of
the other Railway Companies you refer to, i.e. that
the Fuel used in connection with the use of your
Automatic Vacuum Brake does not make any
appreciable difference on the consumption of the
Locomotives.

Yours truly,
(Signed) D. Jones.

728.
Belfast and Northern Counties Ry.
Locomotive Department,
Belfast, 18th Nov. 1887.

A. Sacré Esq.,
The Vacuum Brake Co. Ltd
32, Queen Victoria St. London, &c

Dear Sir,

In reply to your enquiry of the 17th inst. re increase in the consumption of coal due to the adoption of the Automatic Vacuum Brake, I beg to say that this matter received my most careful attention before finally deciding to recommend my Directors to adopt the Brake for their entire Passenger Stock, and the conclusion at which I then arrived has since been proved to be correct.

I formed the opinion after making a series of careful experiments that the consumption of coal would be very slightly if at all increased.

I felt confident the increase would not in any case exceed 1 or 1½ lbs. per mile, but in actual practise extending over several years and with almost the entire stock fitted with the Brake, there has been no increase in the consumption, as a matter of fact our consumption has fallen slightly since its adoption, but this is probably due to other causes.

I have however carefully compared the consumption of Engines fitted with the Brake, and working Braked Trains, with the consumption of Engine not fitted, but doing exactly similar work and I find the consumption practically the same, in some cases slightly higher, and in others lower.

Yours truly,
(Signed) B. Malcolm.

820.

London & South Western Railway,
Locomotive Engineers Office,
Nine Elms Works,

London, 30th November 1887.
S.W.

Gentlemen,

Automatic Vacuum Brake.

Referring to your enquiry of the 17th inst, I have looked carefully into the matter therein mentioned and am unable to find any increase in our Fuel consumption attributable to the use of the "Auto. Vac. Brake."

On consulting with the chief of our Running Dept in connection with this subject he informs me that some of the Drivers he has questioned express an opinion that so far from increasing the Fuel consumption the Brake has a tendency to lessen it, the men having now a more perfect control over their trains, which enables them to regulate their fires to better advantage.

In taking out the Fuel consumption of twelve Main Line Engines for six months in 1882, I find it was 29.7 lbs. per mile, whereas for the same period of 1887, it was 27.8 lbs. shewing an economy of 1.9 lbs. per mile. During the period referred to the Auto. Vac. Brake has been applied to the whole of our Passenger Stock, and although this economy in Fuel is largely due to the fitting of our Engines with the Vortex Blast Pipe, I am of opinion that the Auto. Vac. Brake has had no retarding influence on the reduction effected.

Yours truly,

(Signed) W. Adams,

The Vacuum Brake Co. L^d

32, Queen Victoria Street & C.

Translation

Great Central Railway of Belgium.
Brussels, 14th January 1888.

M. Sacré,

Manager of the Vacuum Brake Co.

32, Queen Victoria Street,

London.

In reply to your letter of the 12th instant,
I have the pleasure to inform you that we have not
ascertained any appreciable difference in the consumption
of Fuel of the Locomotives due to the use of the
Vacuum Brake.

Yours &c

The Chief Engineer,
Director of Traction & Material

(Signed) M. Urban.

London & South Western Railway
Locomotive Engineers Office
Nine Elms Works.
London, 30th January 1887.

Automatic Vacuum Brake

Referring to your enquiry of the 17th inst,
I have looked carefully into the matter therein mentioned and
am unable to find any evidence in our trial consumption at
Brussels of the use of the Auto Vac Brake.

In consulting with the chief of our Running Dept
in connection with this subject he informs me that some of the
Locos he has questioned express an opinion that so far from
increasing the fuel consumption the Brake has a tendency to
lessen it the men having now a more perfect control over their
trains, which enables them to regulate their fire to better
advantage.

In taking out the fuel consumption of the
Locos for six months in 1885 I find it was
27.8 lbs per mile, whereas for the same period of 1887 it was
27.8 lbs per mile. The Auto Vac Brake has been applied to the whole
of our Running stock, and although this economy in fuel is
largely due to the fitting of our Engines with the Auto
Vac Brake, I am of opinion that the Auto Vac Brake
has had no retarding influence on the reduction effected.

Yours truly,
(Signed) W. Adams.

The Vacuum Brake Co.
32 Queen Victoria Street &c.

Copy

Colonel Rich's Report on Carlisle accident.
Memo re above Ejectors & Pumps.

Ejectors are more certain in their action, and less liable to get out of order than Pumps of any description.

They are simple in construction, having no moving parts, and are more easily maintained in good working order, & require neither oiling nor packing.

The working of the two systems may be compared as under, for 4 years ending Decr. 1889.

Railway Company	Miles run	Casualties reported	Minutes delay	No. of times trains had to run with more or less brake power cut off.
St. Western	55,504,055	560	2,620	2417 or equivalent
Midland	34,078,263	58	507	21 } to 7 times.

Of the 58 Midland Vacuum automatic Brake Casualties shown in Board of Trade Returns for 4 years ending December 1889, none were caused by Ejectors, and consequently the Ejectors did not cause delay, or cut off Brake-power during that time; but the said returns show that the Pumps on the St. Western Ry. caused considerable trouble, delay to trains, and cutting off of Brake-power throughout the trains. Mr. R. S. Lardner is 20" of Vacuum, this gives 1 ton effective power on level, and enables us to stop a train going at 50 miles per hour in 260 to 280 yards in 20 seconds, which is quite powerful enough and just within the point of skidding wheels.

(Signed) B. W. Johnson

GOLD MEDALS, PARIS, 1878. LONDON, 1885.

TELEGRAPHIC ADDRESS, SOLUTION, LONDON.

The Vacuum Brake Company, Limited.

Chairman.

RICHARD BIDDULPH MARTIN, ESQ.^{RE}

CHIEF OFFICE,

32, Queen Victoria Street,

Managing Director.

ALFRED LOUIS SACRÉ, M.E.C.E.

London, September 18 90
E.C.

Branch Offices.

PARIS, 156, BOULEVARD MAGENTA. BERLIN, 71, ALT MOABIT.

VIENNA, 1, LOTHRINGERSTRASSE, 5. FLORENZ, 1, VIA CAVOUR.

ST. PETERSBURG, 21, G^R ITALIANSKAYA. SYDNEY, 15, BOND STREET.

Calcutta 30 Strand Road
To

The Secretary
Government of Madras
Public Works Department
Madras.

Sir.

Seeing that there has of late
been a great deal of discussion upon
the amount of coal consumed by the
Vacuum Automatic Brake, I there-
with have the honor to enclose
copies of letters shewing the opinions
of most of the leading Locomotive
Superintendents at home, upon this
subject, which may be interesting to you.

I

I also enclose a copy of a report upon "Pumps & Injectors" that Mr. Johnson the Locomotive Superintendent of the English Midland Railway was called upon by this Board of Directors to make.

I have the honor to be
Sir

your most obdt. servant
J. H. Heatley.

J. Thresham

agent The Vacuum Brake Co.
Limited

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 Report upon the
 New Johnson the locomotive
 Superintendent of the English
 Midland Railway was called
 upon by the Board of Directors
 to make

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Report the Vacuum
 24/23/9/90
 Communicated to
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 Railways for information.
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I have been informed of a
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 Superintendent of the English
 Midland Railway was called
 upon by the Board of Directors
 to make
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 Report the Vacuum
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 Communicated to
 the Consulting Engineer for
 Railways for information.
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8750.

Govt. of Madras.

PUBLIC WORKS.

Dated

29/9/90

28/9/90

Recd.

Encl.

G.O. 24th Sept 1890, No. 1452R

Vacuum Automatic
Brake.

Letter from the Agent V.A. B. Coy.
found correspondence
on the subject of the Com-
-munications of Coal by
the — + a report upon
"Pumps & Ejectors" made
by Mr. Johnson Secy. Dy. of
the English Hindland Ry.
Command to the Chief Eng.

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25/9/90

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