

18-
Public Works (1898) Department.

RAILWAY BRANCH.

G.O., No. *9. R*

DATED *5th Jan'y 1898*

[Despatch Abstract.]

Automatic vacuum brakes

Govt of India resolution forwarding
the results of the working of — in use on
railways in India during the six months ending
with the 30th Jan'y 1897. Communicated to the
Agents, M & S. S. S. S.

18/12/91

BACK PAPERS.

FURTHER PAPERS.

No. 528 R. Stat.

GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
RAILWAY STATISTICS.

Calcutta, the 7th December 1897.

Results of the working of automatic vacuum brakes in use on railways in India during the six months ending with the 30th June 1897.

Read again—

Government of India letter No. 62 R. Stat., dated the 19th October 1891.
Government of India letter No. 354 R. Stat., dated the 4th September 1894.
Government of India order No. 306 R. Stat., dated the 15th July 1897.

Read also—

Endorsement by the Director of Railway Traffic and Statistics, No. 393 Stat., dated the 1st December 1897, forwarding tables Nos. I and II showing the railways on which automatic vacuum brakes were in use, the number and proportion of rolling stock fitted with the brakes, the progress made in fitting stock since the previous half-year, and the results of working the brakes during the six months ending with the 30th June 1897.

ORDER.—Ordered, that tables Nos. I and II be forwarded, for information, to the Local Governments and Administrations, and to the officers noted in the margin.

The Governments of Burma, Madras, Bombay, Bengal, the North-Western Provinces and Oudh, and the Punjab.
The Chief Commissioners of the Central Provinces and Assam.
The Resident at Hyderabad.
The Resident in Mysore.
The Agents to the Governor General for Central India, Rajputana and Baluchistan.
The Director of Railway Traffic and Statistics.
The Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, and Assam.

Ordered, also, that copies be forwarded for the information of Her Majesty's Government.

Further, that this order, with the tables, be published in the Supplement to the *Gazette of India*.

W. W. Mountbatten

*Capt., R.E.,
Offg. Under Secretary.*

Documents accompanying.

Tables Nos. I and II showing the railways on which automatic vacuum brakes were in use, the number and proportion of rolling stock fitted with the brakes, the progress made in fitting stock since the previous half-year, and the results of working the brakes during the six months ending with the 30th June 1897.

To The Joint Secretary to the Govt. of Madras,
Public Works Department.
G. I. C. P. O.—No. 645 P. W. D.—10-12-97—620.—G. R.
Railway Branch

G. I. C. P. O.—No. 645 P. W. D.—10-12-97—620.—G. R.

Railway Branch

TABLE No. I.

Statement showing, for the six months ending with the 30th June 1897, the railways on which automatic vacuum brakes were in use, the mileage run by trains fitted with the brakes, the number and proportion of rolling stock fitted, and the progress made in fitting stock since the previous half-year.

Railways (including branch lines worked).	Period.	LOCO-MOTIVES.		VEHICLES.*			Number of miles run by trains fitted.	Total number of instances in which the brakes failed to act or caused delay in the working of trains.	PROPORTION PER CENT.		Number of failures as compared with mileage run by trains fitted.
		Fitted.	Not fitted.	Braked.	Piped.	Not fitted.			Of vehicles braked or piped on total.	Of mileage run by trains fitted or partially fitted on total train-mileage.	
1	2	3	4	5	6	7	8	9	10	11	12
STANDARD GAUGE.											
<i>State lines worked by companies.</i>											
East Indian	2nd-half, 1896 .	75	521	533	165	10,868	787,696	32	6.03	13.12	1 in 24,615
	1st-half, 1897 .	83	547	711	157	10,741	944,082	19	7.46	14.25	1 in 49,688
Bengal-Nágpur	2nd-half, 1896 .	...	118	...	34	3,789	...	...	0.59	...	...
	1st-half, 1897 .	...	118	...	34	3,795	...	...	0.69	...	...
Indian Midland	2nd-half, 1896 .	52	59	108	20	2,429	199,272	9	5.01	24.66	1 in 22,141
	1st-half, 1897 .	62	59	108	23	2,426	196,023	6	5.12	21.74	1 in 32,670
<i>State lines worked by the State.</i>											
North Western	2nd-half, 1896 .	385	217	(a) 1,989	182	10,216	1,687,956	32	17.53	41.87	1 in 52,749
	1st-half, 1897 .	392	222	2,010	183	10,584	1,652,414	16	17.10	37.66	1 in 103,276
Oudh and Rohilkhand	2nd-half, 1896 .	29	(b) 137	207	20	4,779	212,336	...	4.53	18.23	...
	1st-half, 1897 .	29	137	231	20	4,755	208,874	4	5.01	17.96	1 in 52,219
Eastern Bengal	2nd-half, 1896 .	35	82	207	75	2,357	381,577	3	10.69	31.34	1 in 127,191
	1st-half, 1897 .	35	59	205	81	2,111	407,480	7	11.93	44.94	1 in 53,211
East Coast	2nd-half, 1896 .	12	45	...	3	1,507	(c)	...	0.20	...	...
	1st-half, 1897 .	12	45	...	3	1,636	(c)	...	0.18	...	...
<i>Lines worked by guaranteed companies.</i>											
Great Indian Peninsula	2nd-half, 1896 .	165	440	1,165	30	8,407	1,277,290	33	12.45	31.28	1 in 33,706
	1st-half, 1897 .	170	435	1,254	6	8,342	1,497,930	15	13.12	32.05	1 in 99,862
Bombay, Baroda and Central India	2nd-half, 1896 .	92	73	421	54	4,282	546,721	13	9.99	41.36	1 in 42,055
	1st-half, 1897 .	91	73	421	54	4,237	573,400	9	9.97	43.36	1 in 63,719
Madras	2nd-half, 1896 .	22	144	66	31	3,638	53,617	6	2.60	4.21	1 in 8,936
	1st-half, 1897 .	30	136	138	38	3,574	132,848	8	4.78	10.26	1 in 16,606
<i>Line owned by native state and worked by company.</i>											
The Nizam's Guaranteed state	2nd-half, 1896 .	...	50	...	20	962	(c)	...	2.03	...	...
	1st-half, 1897 .	...	50	...	20	965	(c)	...	2.03	...	...
TOTAL OF all RAILWAYS (STANDARD GAUGE)											
	2nd-half, 1896 .	867	1,894	4,696	(d) 634	(d) 53,606	5,146,465	128	(d) 9.44	(d) 23.70	1 in 40,207
	1st-half, 1897 .	904	1,912	5,078	619	54,191	5,613,060	84	9.51	23.93	1 in 66,822
METRE GAUGE.											
<i>State lines worked by companies.</i>											
South Indian	2nd-half, 1896 .	20	184	90	38	4,155	254,537	1	2.99	14.48	1 in 254,537
	1st-half, 1897 .	20	183	93	38	4,151	252,136	3	3.06	13.90	1 in 84,045
Assam-Bengal	2nd-half, 1896 .	34	10	104	...	954	(c)	...	9.83	...	...
	1st-half, 1897 .	44	9	110	...	927	(c)	...	10.60	...	...
<i>State lines worked by the State.</i>											
Eastern Bengal—Northern and Behar sections	2nd-half, 1896 .	13	59	101	25	2,055	116,288	1	5.78	14.65	1 in 116,288
	1st-half, 1897 .	13	59	112	26	2,043	101,467	1	6.33	14.87	1 in 101,467
TOTAL OF all RAILWAYS (METRE GAUGE)											
	2nd-half, 1896 .	67	1,289	295	63	32,727	370,825	2	1.08	3.74	1 in 135,412
	1st-half, 1897 .	77	1,243	315	64	32,773	353,603	4	1.14	3.22	1 in 88,400

* Excluding cranes.

(a) Excluding 4 vehicles retained by the Mushkaf-Bolán railway.

(b) Including 17 locomotives fitted with the Westinghouse brake.

(c) Brakes were not brought into use.

(d) Revised figures.

N. B.—The detailed figures in columns 4 and 7 do not work up to the totals, as the latter represent the totals of all railways.

TABLE No. II.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE.			(i) and (ii)—Nil.	
East Indian	Vacuum automatic.	...	(iii) Neglect of servants.—No. 2 down mail train lost 5 minutes coming to a stand at mile 547½, owing to a screw coupling of a Great Indian Peninsula railway carriage left hanging down and striking the coupling, breaking the lug and parting the pipes.	
		7th January 1897	(iii) Neglect of servants.—No. 2 down mail train lost 5 minutes coming to a stand at mile 547½, owing to a screw coupling of a Great Indian Peninsula railway carriage left hanging down and striking the coupling, breaking the lug and parting the pipes.	
		15th January 1897	(iii) Failure of machinery.—No. 1 up mail train lost 17 minutes at Tundla station, owing to a leakage in the train pipe of one of the carriages.	
		18th January 1897	(iii) Failure of machinery.—No. 1 up mail train lost 8 minutes at Mokameh station, owing to a leakage of the vacuum pipe on the train.	
		23rd January 1897	(iii) Failure of machinery.—No. 1 up mail train started 7 minutes late from Asansol station, owing to the breakage of the vacuum gauge pipe in the brake-van.	
		24th January 1897	(iii) Failure of machinery.—No. 2 down mail train detained for 3 minutes at Jaswantnagar station, due, it is assumed, to one of the couplings having sprung from its face.	
		28th January 1897	(iii) Neglect of servants.—No. 1 up mail train lost 4 minutes at Rájbandh station, owing to the hose pipe between luggage and mail vans becoming disconnected.	
		8th February 1897	(iii) Failure of machinery.—No. 2 down mail train detained for 6 minutes at Bankipore station, due to the vacuum train pipe between a North Western railway carriage and a Post Office van opening out at the jaws.	
		14th February 1897	(iii) Failure of machinery.—No. 1 up mail train lost 8 minutes between Bhádan and Shikohabad stations, 20 minutes at Bhádan station and 25 minutes at Shikohabad station, owing to the driver being unable to release brakes on account of the brake gear in a composite carriage being out of order.	
		15th February 1897	(iii) Failure of machinery.—No. 134 down express train detained for 12 minutes at Kaneegunge station, due to a leak in the pipe of an Oudh and Rohilkhand railway third class carriage.	
		13th April 1897	(iii) Failure of machinery.—No. 1 up mail train lost 3 minutes between Mokameh and Barh stations and 17 minutes at Barh station, owing to a leakage in the train pipe.	

See page 2.

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 1.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE— contd. East Indian—concl.	Vacuum automa- tic.	22nd April 1897	(iii) Neglect of servants.—No. 1 up mail train worked non-vacuum from Allahabad to Eharwari stations, owing to a leakage of the vacuum pipe flange, due to the vacuum pipe not being properly coupled up after repairs.	944,082
		26th April 1897	(iii) Neglect of servants.—No. 2 down mail train was brought to a stand by the misapplication of the brake by some one in the brake-van and the train lost 3 minutes at Sitarampur station.	
		24th May 1897	(iii) Failure of machinery.—Vacuum gauge of front brake-van attached to No. 1 up mail train was out of order, but caused no detention.	
		31st May 1897	(iii) Failure of machinery.—No. 1 up mail train was detained for 8 minutes at Asansol station, owing to a defect in the vacuum hose couplings of a third class and an intermediate class carriage.	
		4th June 1897	(iii) Failure of machinery.—No. 38 down passenger train was detained 12 minutes at Burdwan station and 4 minutes at Rasulpur station, owing to dust being in the release valve.	
		4th June 1897	(iii) Failure of machinery.—No. 1 up mail train lost 10 minutes between Ghaziabad and Umballa Cantonment stations, owing to the guard's van valve being out of order.	
		5th June 1897	(iii) Failure of machinery.—The driver of No. 52 down passenger train was unable to create vacuum at Asansol station, some grit having got under the release valve. No detention.	
		7th June 1897	(iii) Failure of material.—No. 1 up mail train was detained 15 minutes at Cawnpore station, owing to the guard's brake handle in the brake-van being out of order.	
		16th June 1897	(iii) Failure of material.—No. 1 up mail train lost 10 minutes between Hathras and Aligarh stations, owing to the breakage of the vacuum ejector pipe.	
Indian Midland	Vacuum automa- tic.	...	(i) and (ii)—Nil.	See page 3.
		29th January 1897	(iii) Failure of material.—No. 1 down mail train lost 13 minutes at Karonda station in releasing brakes, owing to a leakage in the pipe of a second class carriage.	
		1st April 1897	(iii) Failure of material.—No. 18 up special mail train lost 10 minutes between Jhansi and Basai stations, due to the brake block of an Oudh and Rohilkhand railway composite carriage binding.	

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 1.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE— contd. Indian Midland— concl.	Vacuum automa- tic.	28th April 1897	(iii) Failure of material.—No. 2 up special mail train lost 10 minutes between Jhansi and Talbahat stations, due to the brake blocks of two coaches binding.	196,023
		5th June 1897	(iii) Failure of material.—No. 2 up mail train lost 15 minutes at Tundla station, owing to a leak in the cylinder of a Great Indian Peninsula railway horse-box.	
		24th June 1897	(iii) Failure of material.—No. 2 up mail train lost 21 minutes at Kethora station, owing to the main steam pipe joint blowing.	
North Western State	Vacuum automa- tic.	...	(i) and (ii)—Nil.	
		4th January 1897	(iii) Neglect of servants.—No. 3 up passenger train was detained 4 minutes at Sarisawa station, owing to the vacuum hose pipe drawing air at the rear of the train, the coupling not having been tightened up after shunting at Saharanpur.	
		11th January 1897	(iii) Neglect of servants.—An up troop special train lost 12 minutes at Raewind station, owing to the hose coupling washer on a third class carriage being deficient and to the leakage of a hose pipe of another third class carriage.	
		18th January 1897	(iii) Failure of machinery.—No. 12 down mixed train was detained 14 minutes at Ludhiana station, owing to some grit having got into the vacuum steam cock shell joint of the engine, which necessitated the removal of the big ejector cone for blowing through.	
		25th January 1897	(iii) Neglect of servants.—No. 17 up mixed train was detained 6 minutes at Ghaziabad station, owing to the vacuum brake hose pipe not being properly coupled up.	
		3rd February 1897	(iii) Neglect of servants.—No. 20 down mixed train was detained 5 minutes at Saharanpur station, owing to the vacuum piston bush of a third class carriage blowing.	
		21st February 1897	(iii) Neglect of servants.—No. 2 down mail train was detained 18 minutes at Madeji station, owing to a coupling washer being deficient on a third class carriage.	
		28th February 1897	(iii) Neglect of servants.—No. 17 up passenger train lost 7 minutes at Meerut Cantonment station. The driver on entering the station had applied the brake violently, and the screw coupling being slack caused a bogie composite and a third class carriage to get so far apart as to open the vacuum hose couplings slightly.	See page 4.

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE—contd.				
North Western State—concl'd.	Vacuum automatic.	3rd March 1897	(iii) Neglect of servants.—No. 1 up Quetta mail train was detained 7 minutes at Mahista station, owing to the hose couplings of two third class carriages getting uncoupled.	1,652,414
		8th March 1897	(iii) Failure of material.—No. 1 up Quetta mail train lost 8 minutes at mile 291 near Mahista station, owing to the vacuum piston of a composite intermediate and third class carriage sticking.	
		10th March 1897	(iii) Neglect of servants.—No. 12 down mixed train was detained 3 minutes at Rājpur station, owing to the vacuum brake hose pipe not being properly connected.	
		29th March 1897	(iii) Neglect of servants.—No. 12 down mixed train was detained 6 minutes at Kesri station, owing to the hose coupling washer of a horse-box being deficient.	
		31st March 1897	(iii) Neglect of servants.—No. 17 up mixed train lost 3 minutes at Meerut Cantonment station in adjusting the vacuum hose pipe of a third class and an intermediate class carriage, the coupling not being tightened.	
		4th April 1897	(iii) Failure of material.—No. 12 down mixed train lost 10 minutes between Jallo and Amritsar stations and 6 minutes at Jandiala station, owing to the hose pipe on a luggage van being punctured.	
		26th April 1897	(iii) Failure of material.—No. 8 down mail train lost 9 minutes at Kot Rādhā Kishen station, owing to a valve on a reserved carriage being defective.	
		30th April 1897	(iii) Neglect of servants.—No. 3 up passenger train was detained 5 minutes at Umballa Cantonment station, owing to the vacuum pipe, which was not properly coupled up, becoming disconnected.	
		29th June 1897	(iii) Neglect of servants.—No. 8 down mail train was detained 12 minutes at Mooltan city station, owing to the traffic staff attaching a third class carriage without a hose coupling washer on.	
Oudh and Rohilkhand State.	Vacuum automatic.	...	(i) and (ii)—Nil.	See page 5.
		12th May 1897	(iii) Failure of material.—No. 1 up mail train lost 5 minutes at Bareilly station, owing to the flexible hose pipe coupling rubber of a third class carriage being defective.	
		14th May 1897	(iii) Failure of material.—No. 16 down mail train on Cawnpore branch lost 22 minutes at Unao station, owing to a leakage in the train pipe of the engine.	

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE—contd.				
Oudh and Rohilkhand State—concl'd.	Vacuum automatic.	15th May 1897	(iii) Failure of material.—No. 16 down mail train on Cawnpore branch lost 6 minutes at mile 16 between Harauni and Aigain stations, owing to a leakage in the train pipe of the engine.	208,874
		17th May 1897	(iii) Neglect of servants.—No. 1 up mail train lost 7 minutes between Shāhjahānpur and Tilhar stations, owing to the valves of the vacuum ejectors of the engine being dirty.	
Eastern Bengal State	Vacuum automatic.	...	(i) and (ii)—Nil.	407,480
		26th February 1897	(iii) Failure of material.—No. 36 down passenger train detained 15 minutes at Rajbāri station, owing to a leakage in the communication valve.	
		6th March 1897	(iii) Failure of material.—No. 16 down passenger train detained 24 minutes between Hālsa and Alāmdānga stations, owing to the derangement of the train pipe and the brake not releasing properly.	
		23rd March 1897	(iii) Failure of machinery.—No. 8 down mail and mixed train detained 7 minutes at Rajbāri station, owing to the vacuum brake steam pipe nut being blown out.	
		23rd April 1897	(iii) Failure of material.—No. 25 up passenger train lost 6 minutes between Calcutta and Kānchrapāra stations, owing to defects in the vacuum train pipe.	
		2nd May 1897	(iii) Failure of material.—No. 15 up passenger train detained 3 minutes at Dum Dum junction, owing to the failure of the engine vacuum brake.	
		17th May 1897	(iii) Inexperience of servants.—No. 6 down passenger train detained 3 minutes at Nāihāti station in destroying vacuum, in order to slacken back the small ejector which was not properly put in.	
		15th June 1897	(iii) Failure of material.—No. 27 up passenger train detained 6 minutes at Barrackpore station, owing to a leakage in the train pipe.	
Great Indian Peninsula	Vacuum automatic.	...	(i) and (ii)—Nil.	See page 7.
		12th January 1897	(iii) Failure of machinery.—No. 113 down passenger train delayed for 12 minutes at Demauli station, on account of the piston of a third class carriage being jammed.	
		16th January 1897	(iii) Neglect of servants.—The pin of a third class carriage on No. 106 up passenger train dropped out of the brake block hanger which allowed it to drop and drag on the ballast at Victoria Terminus. No delay.	

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE— contd.				
Great Indian Peninsula— contd.	Vacuum automatic.	19th January 1897	(iii) Neglect of servants.—Waste got into the ejector of the engine attached to No. 6 up mail train at Bhusaval station and the train worked non-automatic.	See page 7.
		21st January 1897	(iii) Failure of material.—The face of clappet valve of the engine attached to No. 240 up local train fell off and caused a delay of 14 minutes at Cooria station.	
		31st January 1897	(iii) Neglect of servants.—The coupling of a second class carriage on No. 141 down mail train hanging down, came in contact with the vacuum pipe coupling at mile 46, and caused it to disconnect, which brought the train to a stand. No delay.	
		20th February 1897	(iii) Failure of material.—The brake of brake van on No. 149 down mail train disconnected at Chalisgaon station and the train worked to Bhusaval station non-automatic. No delay.	
		23rd March 1897	(iii) Neglect of servants.—The coupling and side chain of a third class carriage attached to No. 76 up passenger train broke at Khápri station through careless application of the brake and caused a delay of 3 minutes.	
		4th April 1897	(iii) Failure of material.—The copper pipe connecting the vacuum gauge to the main train pipe of the brake van attached to No. 149 down mail train broke at Narsinghpur and resulted in 10 minutes delay.	
		9th May 1897	(iii) Failure of machinery.—The brake gear trailing on the ballast owing to the breakage of pin of the brake hanger of a third class carriage on No. 152 up passenger train at mile 33, the brake gear was dragged along the ballast and the train lost 10 minutes.	
		14th May 1897	(iii) Failure of material.—No. 152 up passenger train was delayed for 8 minutes at Poona station, owing to the leakage of the India rubber washer of the flexible pipe of a third class carriage.	
		26th May 1897	(iii) Failure of material.—No. 76 up passenger train was detained for 10 minutes at Nándura station, on account of the leakage of the flexible coupling pipe of a Bengal-Nagpur railway composite carriage.	
		14th June 1897	(iii) Failure of material.—The Clayton coupling washer on the rear brake of the brake van attached to No. 49 down passenger train broke at Igatpuri station, and the train was delayed for 15 minutes.	

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE— contd.				
Great Indian Peninsula— contd.	Vacuum automatic.	26th June 1897	(iii) Failure of material.—No. 39 down passenger train lost 10 minutes at Bhusaval station on account of the injector steam pipe of the engine breaking from its flange.	1,497,930
		28th June 1897	(iii) Failure of material.—No. 203 down passenger train was delayed for 35 minutes at Itarsi station on account of the leakage of the ball valve of a horse-box.	
Bombay, Baroda and Central India.	Vacuum automatic.	...	(i)—Nil.	See page 8.
		8th May 1897	(ii) Failure of material.—No. 13 down mixed train lost 4 minutes at Asláoda station, on account of the automatic brake having failed to act in stopping the train, as the tender brake screw had worked out of the die block and bent.	
		1st January 1897	(iii) Neglect of servants.—No. 3 down ordinary train was delayed for 10 minutes at Grant Road station and lost 25 minutes between Grant Road and Bháyndar stations, on account of defects in coupling up a second class carriage.	
		6th January 1897	(iii) Failure of material.—No. 2 up mail train delayed for 8 minutes at Ahmedabad station, on account of the nut of the disc spindle starting to blow as the threads were stripped.	
		12th March 1897	(iii) Failure of machinery.—No. 2 up mail train detained for 6 minutes at Gholvad station, as the small ejector could not keep the blocks off the wheels through a leakage in the train pipe of the engine.	
		8th May 1897	(iii) Failure of machinery.—No. 3 down ordinary train could not maintain vacuum, as the small ejector being run out failed to work.	
		30th May 1897	(iii) Neglect of servants.—No. 8 up ordinary train detained 20 minutes at Gholvad station, as the vacuum leaked off rapidly on account of a rubber washer from the hose coupling of a third class carriage having been lost when the pipes were uncoupled to attach a saloon carriage.	See page 8.
		2nd June 1897	(iii) Failure of machinery.—No. 2 up mail train detained for 4 minutes at Nadiád station, on account of the pipe between a bogie composite second class and an intermediate class carriage having become uncoupled.	

TABLE No. II—contd.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—contd.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
STANDARD GAUGE— contd.				
Bombay, Baroda and Central India—concl.	Vacuum automatic.	8th June 1897	(iii) Neglect of servants.—No. 5 down ordinary train lost 6 minutes at Nadiad station, owing to a washer having been missing from a road van, which was attached at this station by hand shunting while the driver had his engine unhooked for water.	573,409
		12th June 1897	(iii) Failure of machinery.—No. 5 down ordinary train lost 25 minutes, as the ejector failed to work, being worn out and through leakage in pipes.	
Madras	Vacuum automatic.	...	(i) and (ii)—Nil.	132,848
		10th March 1897	(iii) Failure of machinery.—No. 14 up mail train lost 18 minutes between Ratchur and Adoni stations, in consequence of air passing round the piston of one of the vehicles.	
		15th March 1897	(iii) Failure of machinery.—No. 81 mail train was delayed for 6 minutes at Mamanduru station in disconnecting brakes, owing to a defective brake piston.	
		6th April 1897	(iii) Neglect of servants.—No. 14 mail train was detained for 27 minutes at Tadpatri station, as the flexible hose of the engine was cut by an inter-communication wire.	
		1st May 1897	(iii) Failure of machinery.—No. 14 mail train came to a stand at mile 2½, owing to the piston of a foreign vehicle passing air, and lost 19 minutes in disconnecting the brake.	
		14th May 1897	(iii) Neglect of servants.—No. 14 mail train lost 15 minutes between Renigunta and Madras stations, owing to the improper adjustment of the rigging of a foreign vehicle which caused the brake blocks to grind against the wheels.	
		17th May 1897	(iii) Failure of machinery.—No. 14 mail train lost 16 minutes between Renigunta and Puttur stations, owing to the blocks of a home and a foreign vehicle binding on the wheels.	
		2nd June 1897	(iii) Failure of machinery.—No. 14 mail train was detained for 20 minutes at Pudi station in disconnecting brake, owing to the binding of blocks on the wheels of three foreign vehicles.	
		6th June 1897	Failure of machinery.—No. 81 mail train was delayed for 6 minutes at Chinammápet station and 10 minutes at Nagari station, in consequence of the binding of brakes of four foreign vehicles.	

TABLE No. II—concl.

Statement showing, for the six months ending with the 30th June 1897, all cases in which the automatic vacuum brakes failed to act, when required to be brought into action, or caused delay in the working of trains—concl.

1	2	3	4	5
Railway.	Name or description of brakes which failed or caused delay in the instances specified in column 4.	Date of failure.	Instances under the three following heads separately, of: (i) Failure or partial failure to act when required in case of an accident to a train, or a collision between trains being imminent. (ii) Failure or partial failure to act under ordinary circumstances to stop a train when required. (iii) Delay in the working of trains in consequence of defects in, or improper action of, the brakes, distinguishing whether they arose from neglect or inexperience of servants, or failure of machinery or material.	Number of miles run by trains fitted with automatic vacuum brakes.
METRE GAUGE.				
South Indian	Vacuum automatic.		(i) and (ii)—Nil.	252,186
		1st January 1897	(iii) Failure of material.—No. 19 mail train lost 10 minutes at Madura station, owing to the pin having come out of the brake lever.	
		15th April 1897	(iii) Neglect of servants.—No. 57 mail train detained 5 minutes at Trichinopoly junction station, owing to the drip valves being dirty.	
		17th April 1897	(iii) Neglect of servants.—No. 19 mail train detained 5 minutes at Trichinopoly station, owing to the train pipes not having been properly coupled up.	101,467
Eastern Bengal State—Northern and Behar Sections.			(i) and (ii)—Nil.	
		26th May 1897	(iii) Failure of material.—No. 22 down mail train detained 27 minutes at Saidpur station, owing to the driver being unable to create vacuum in consequence of some defect in the vacuum brake.	