

Enclosure 11.

REPORT of TRIALS made with the WESTINGHOUSE CONTINUOUS AIR-BRAKE on the WELLINGTON and MASTERTON RAILWAY, 25th March, 1876.

The train upon which the trials were made consisted of a Tank Engine (4 wheels coupled), a Guard's Van and three Passenger Cars (6-wheeled), the total weight being estimated as follows:—

						Tons.	cwts.	qrs.	lbs.
1 Engine ...	...	...	...	...	...	13	0	0	0
1 Van ...	...	...	...	...	...	4	16	2	0
3 Cars ...	...	...	...	...	...	19	5	2	0
Passengers	...	...	...	...	...	0	10	0	0
Total						37	12	0	0

The length of train without Engine was 133 feet.

The Engine and Guard's Van had the air-brake mechanism, connected to the ordinary hand-brake fitted with wooden blocks. The Cars had cast-iron blocks. The brakes on Engine and Van were so arranged that they could be worked by hand in the usual way, independently of the air-brake.

The air-brake fittings were such that the blocks could be controlled by the Driver or Guard on every wheel in the train. The compressed air, for the application of the brake-power by the Guard, was stored in a reservoir under the Van.

The following are particulars of the various experiments devised to test the application of the brake under the varied circumstances attending trains in motion, as taken by several persons; in some cases a slight difference of time was reported, and in such cases the mean time was adopted:—

No. and Nature of Test.	State of Rails.	Speed in Miles per Hour.	Gradient.	Time of stop from application of Brake to absolute rest.	Distance run from application of Brake to absolute rest.	Wind.
1. Ordinary Station Stop with air-brake applied by Driver, steam being first shut off	Dry	30	...	Seconds. 17	Yards. 108	calm.
2. Ordinary Station Stop, hand-brake applied on Engine and Van, steam being first shut off	„	32	...	40	127	„
3. Air-brake applied from Engine, steam shut off, and Engine reversed, but no steam applied	„	26	1 in 166 down	16	133	„
4. Air-brake applied from Engine, Engine reversed and steam applied	Greasy	30	1 in 227 down	20	181	„
5. Brake applied from Engine, full steam on. Engine in third notch	Damp	33.32	1 in 440 down	18	222	„
6. Stop made at given point as if for water	Exactly opposite.					
7. Time disconnecting and connecting Cars with air-brake attached	Disconnecting, 6 secs.; connecting, 10 secs.					
8. Time ditto without air-brake ...	5 7 " " " " Pressure raised from zero to 50 lbs. in 44 secs.					
9. Time taken by pump to restore pressure in reservoir (of Engine only) after brake had been used	" "		60 "		52 "	"
	" "		70 "		62 "	
	" "		80 "		76 "	
	" "		90 "		92 "	
	" "		100 "		124 "	