

Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644. Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 5, graph on page 106

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated. likely two BB diesel locos hauling streamlined coaches

Tunnel length: 1218 m tunnel area: 36.98 m² tunnel perimeter: 21.56 m

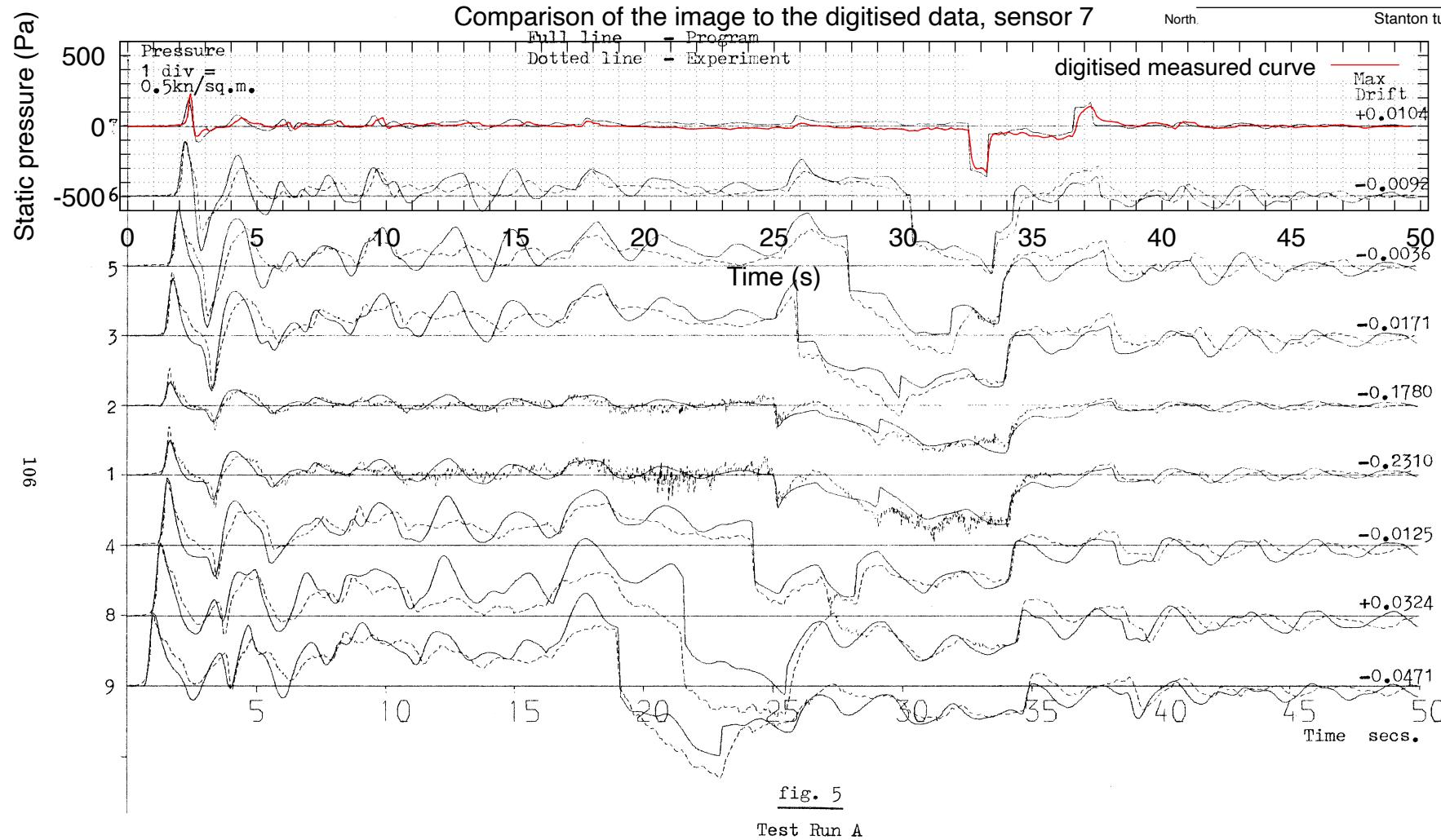
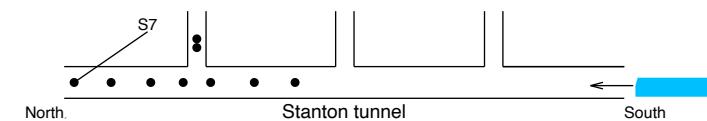
Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train s

Data in the image: measured static pressure at sensor 7 (1196.24 m from the entry portal, 266.79 m north of the no-

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65; tunnel roughness: 0.203 m; train roughness:

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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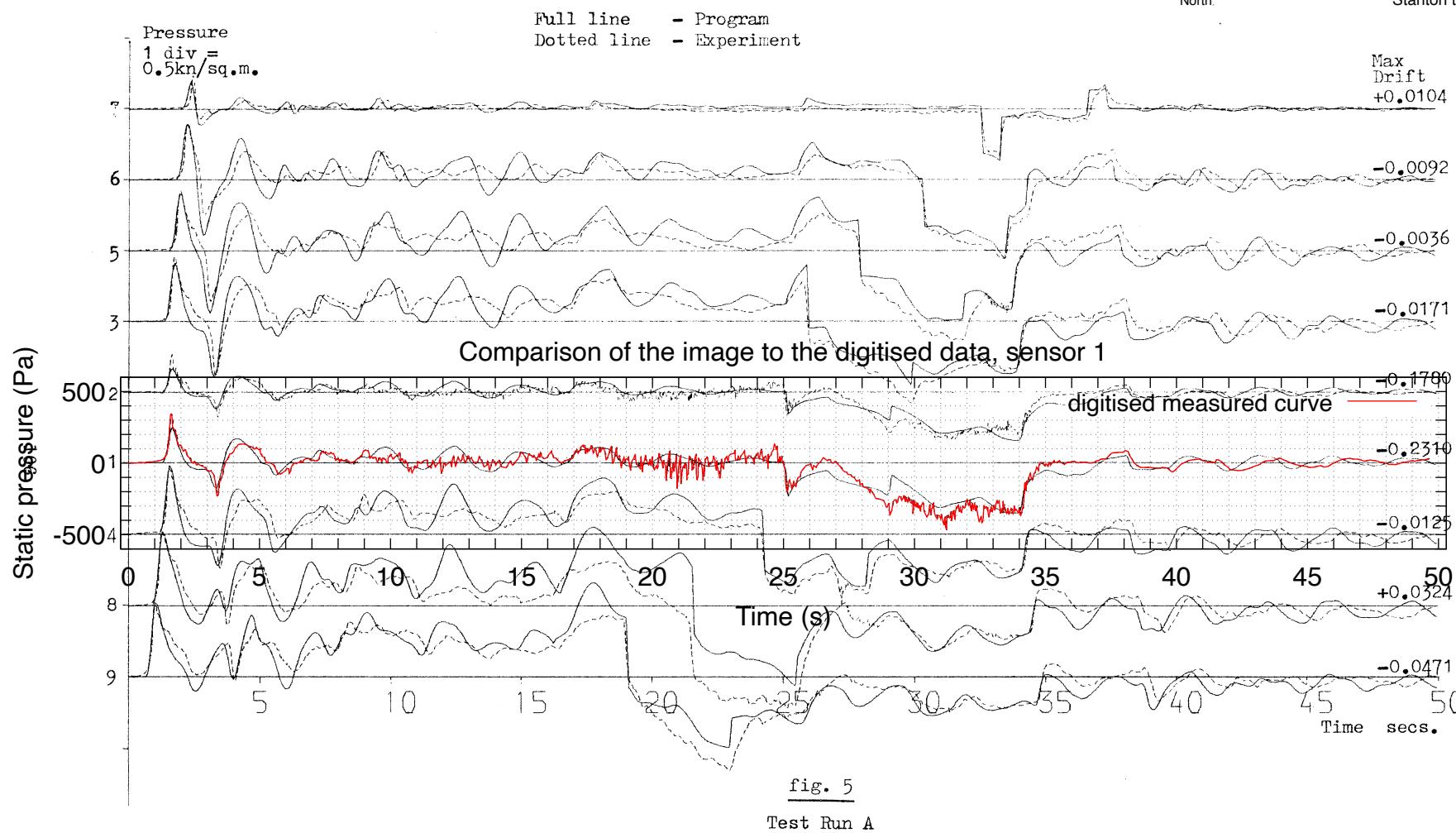
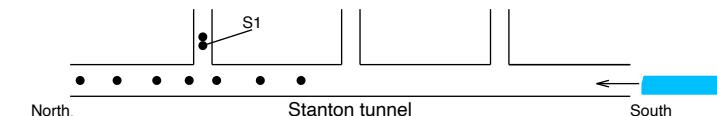
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 1 in the north shaft, 17.5 m below the outlet

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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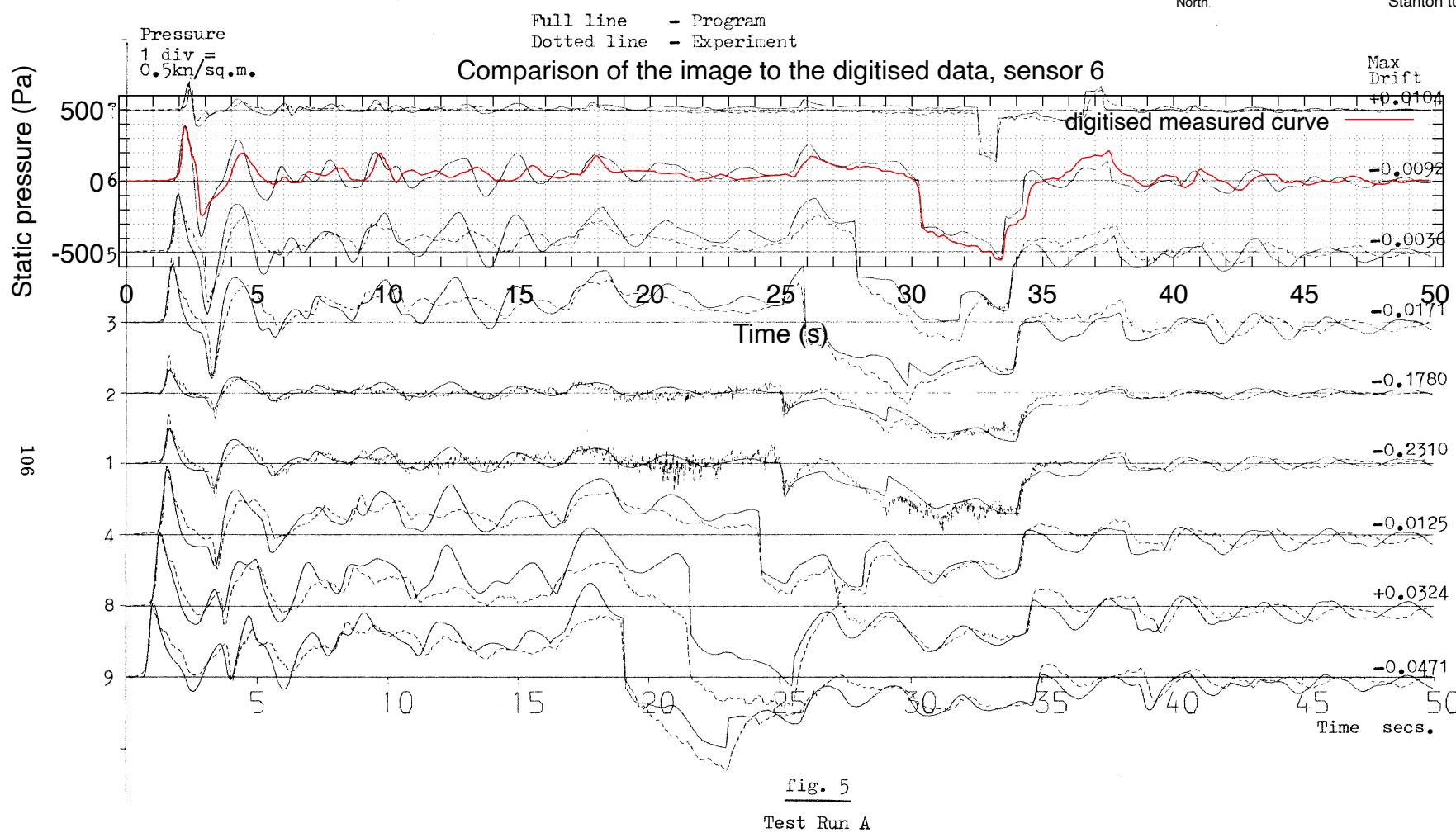
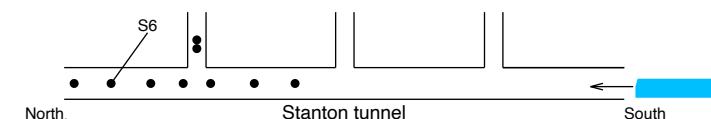
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 6 (1115.91 m from the entry portal, 186.46 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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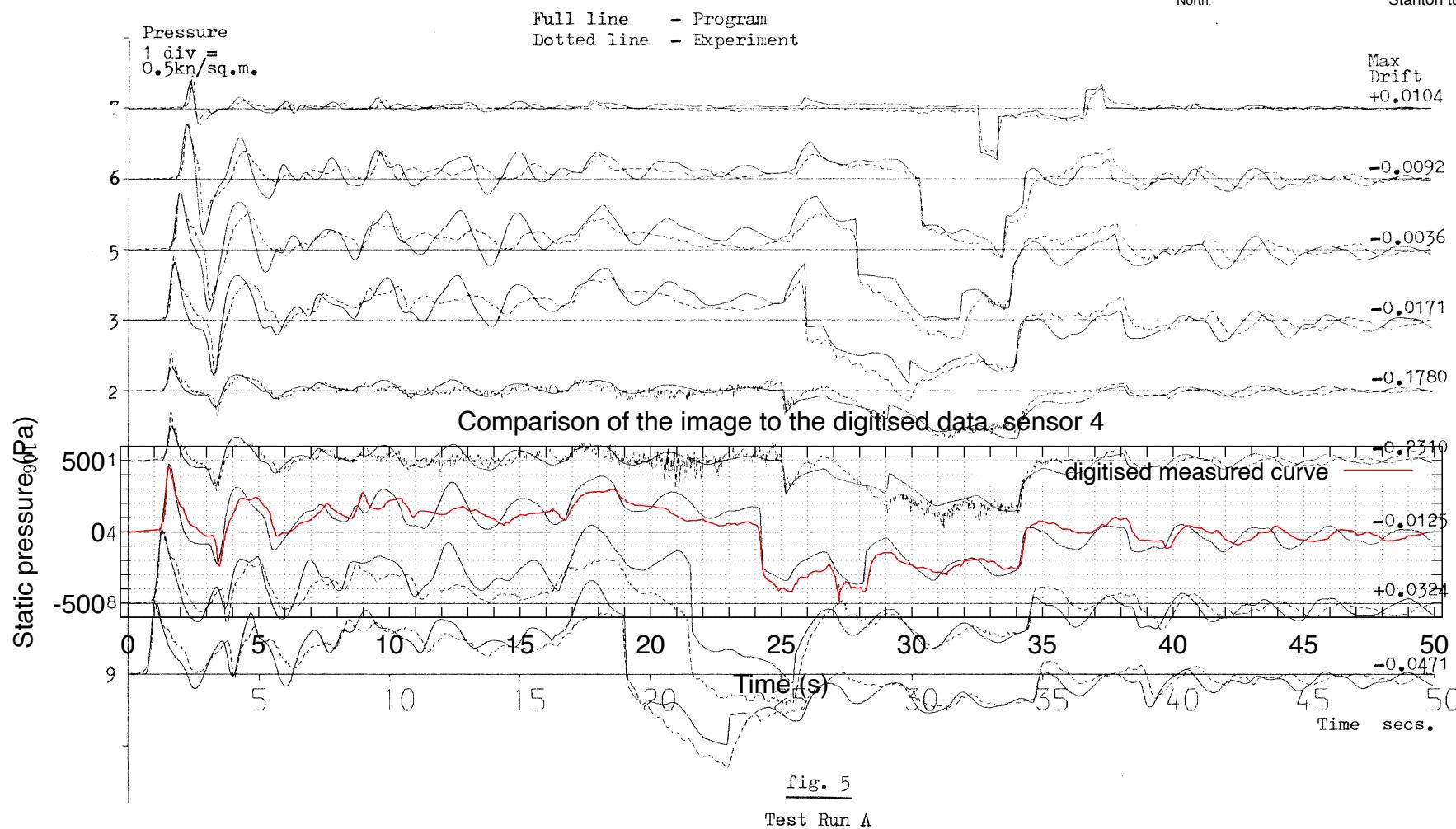
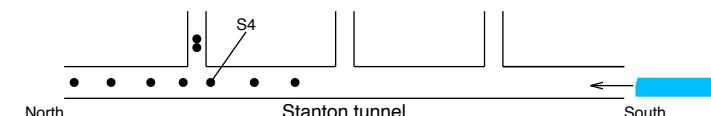
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 4 (899.45 m from the entry portal, 30 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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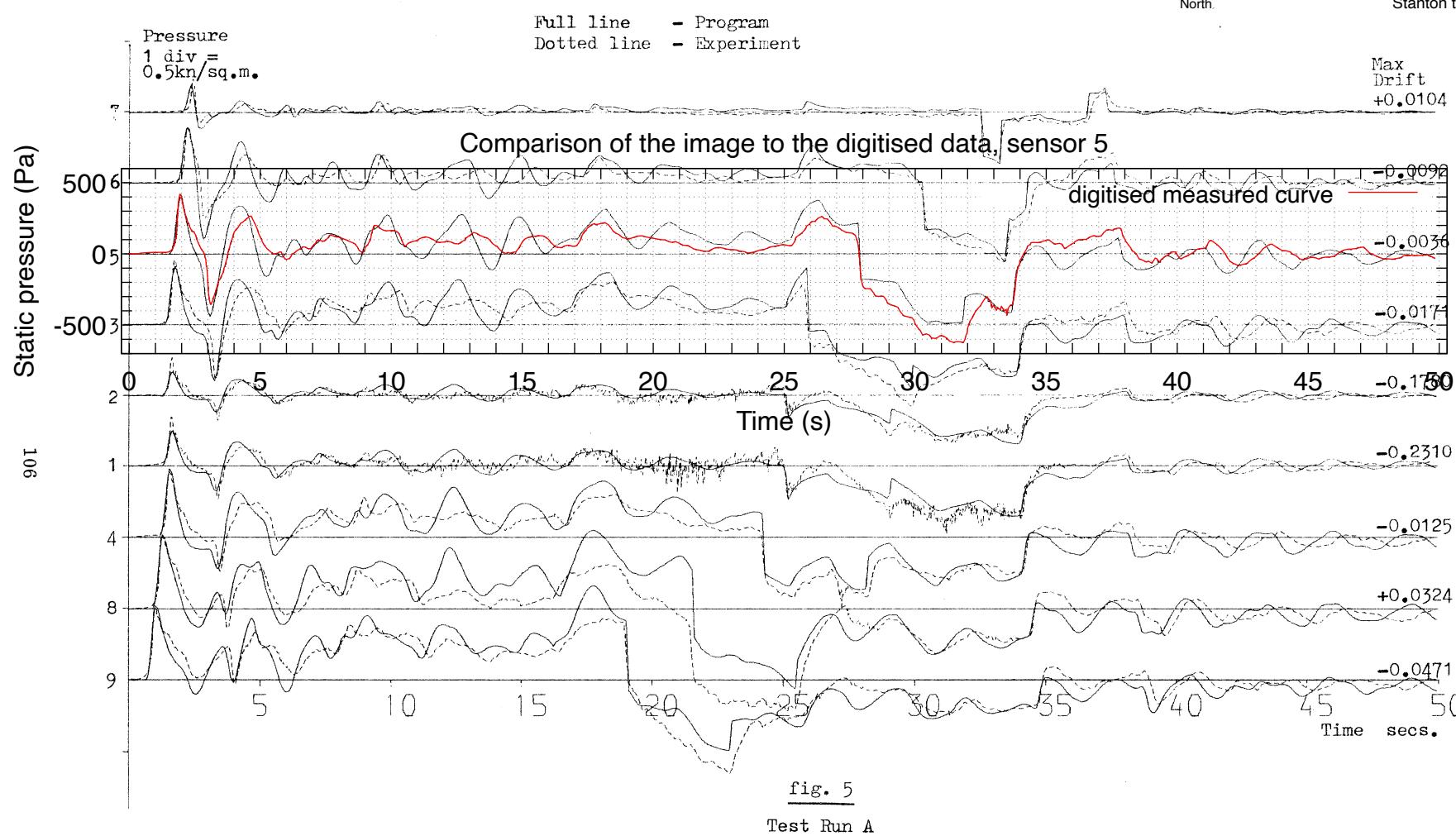
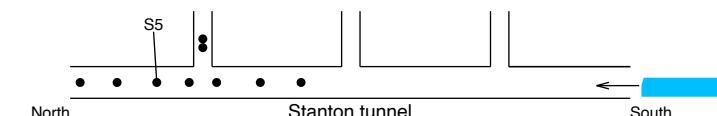
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 5 (1029.63 m from the entry portal, 100.18 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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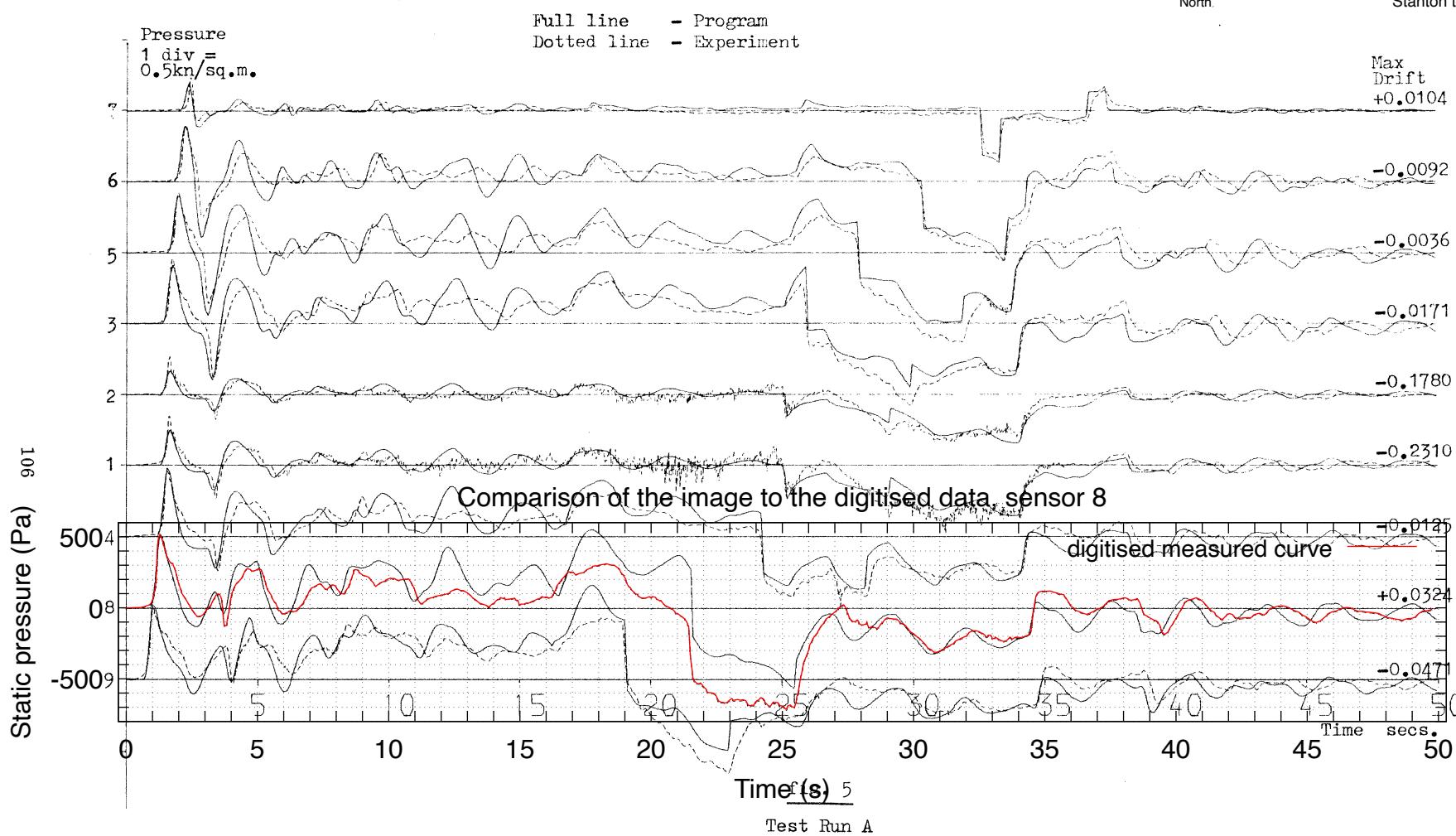
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 8 (804.45 m from the entry portal, 125 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

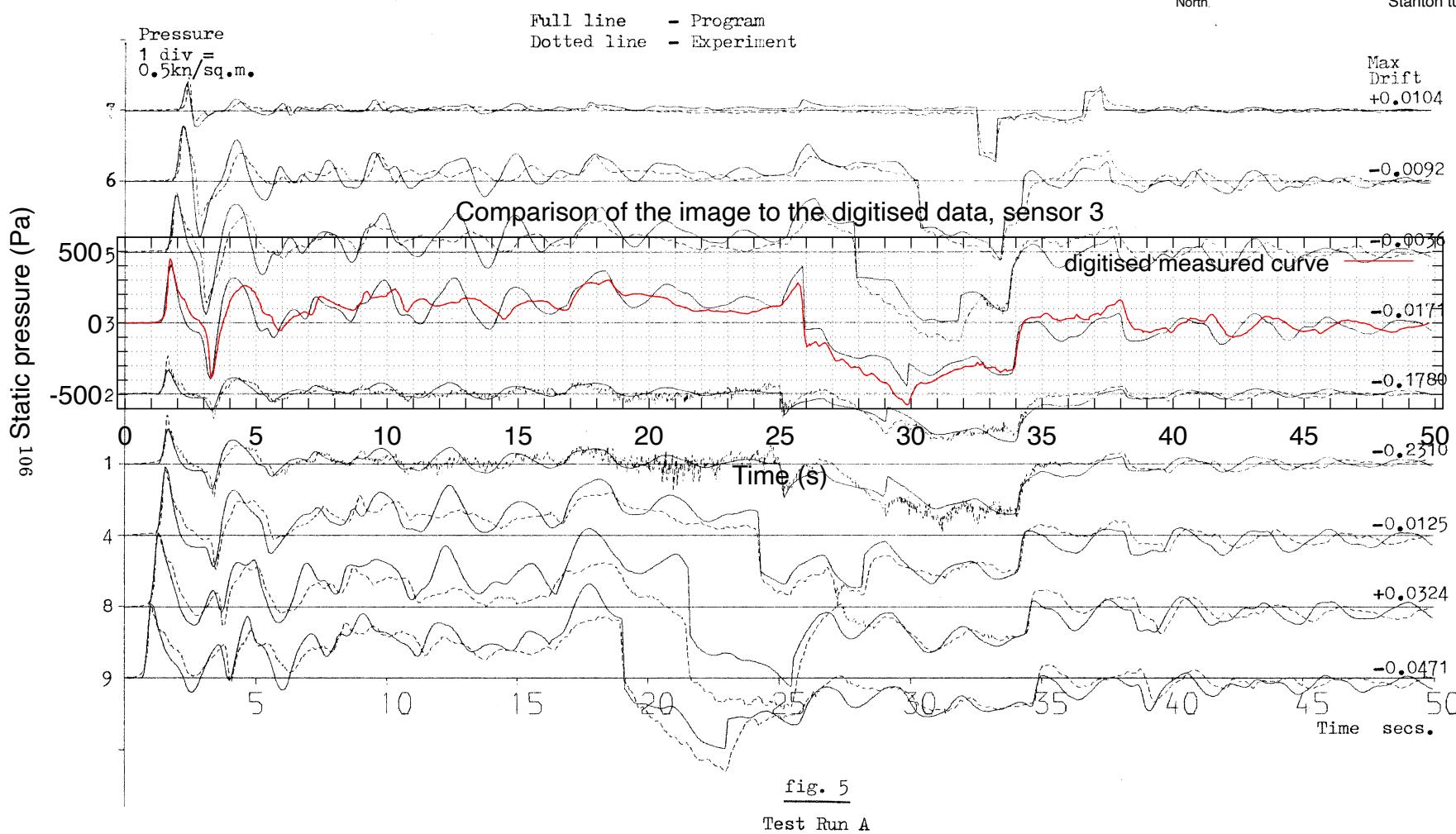
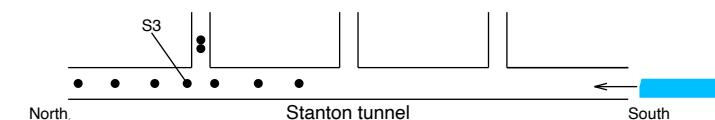
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 3 (959.1 m from the entry portal, 29.65 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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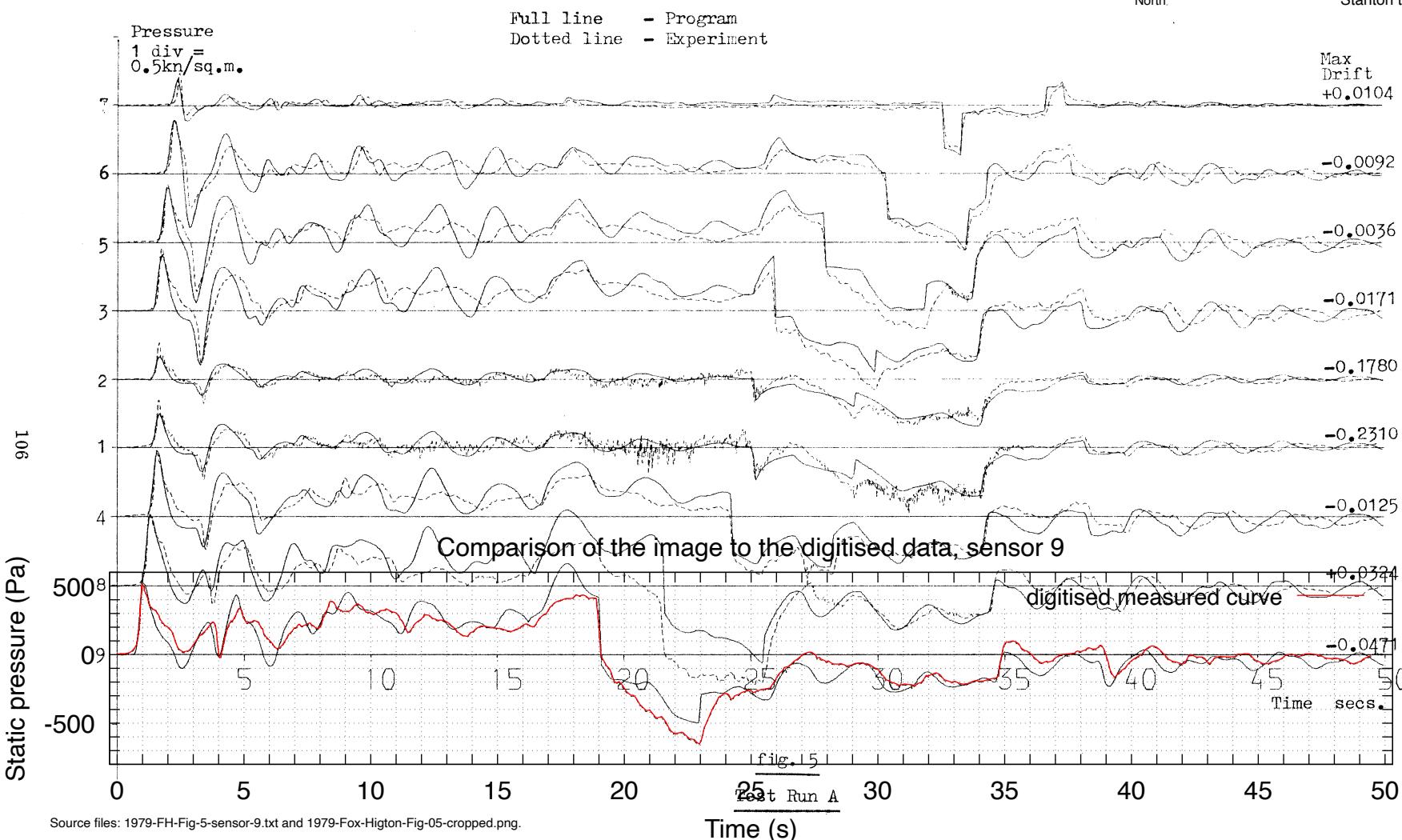
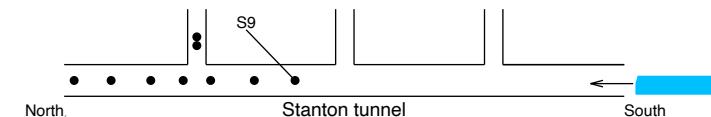
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 9 (715.85 m from the entry portal, 213.6 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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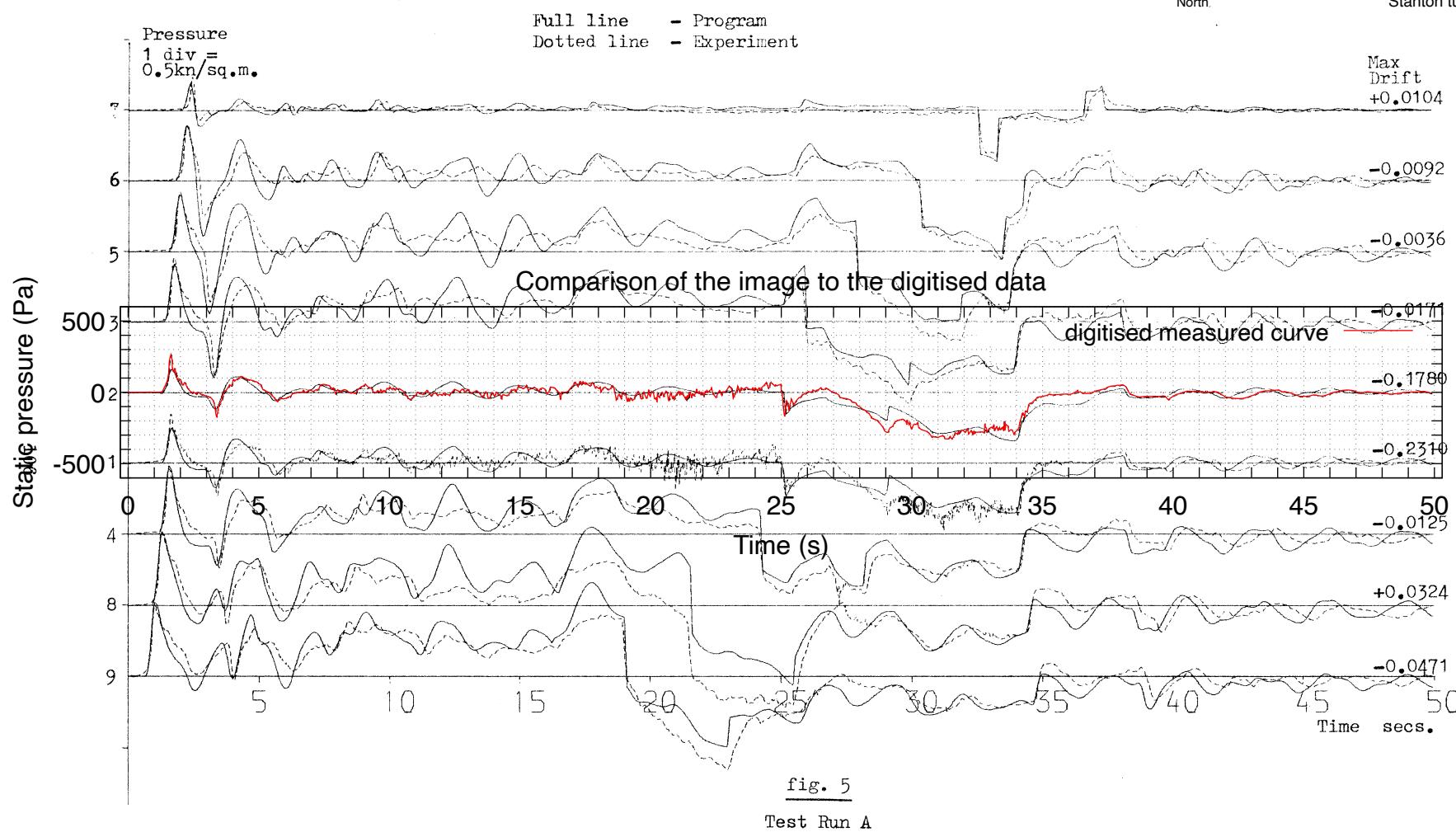
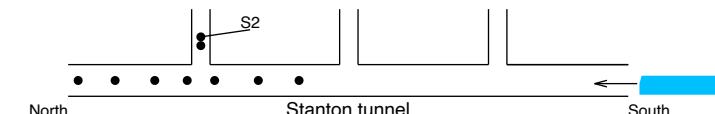
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 35.3 m/s (127.1 km/h), northbound

Data in the image: measured static pressure at sensor 2 in the north shaft, 12.5 m below the outlet

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-5.tar' into WebPlotDigitizer for more details.



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Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

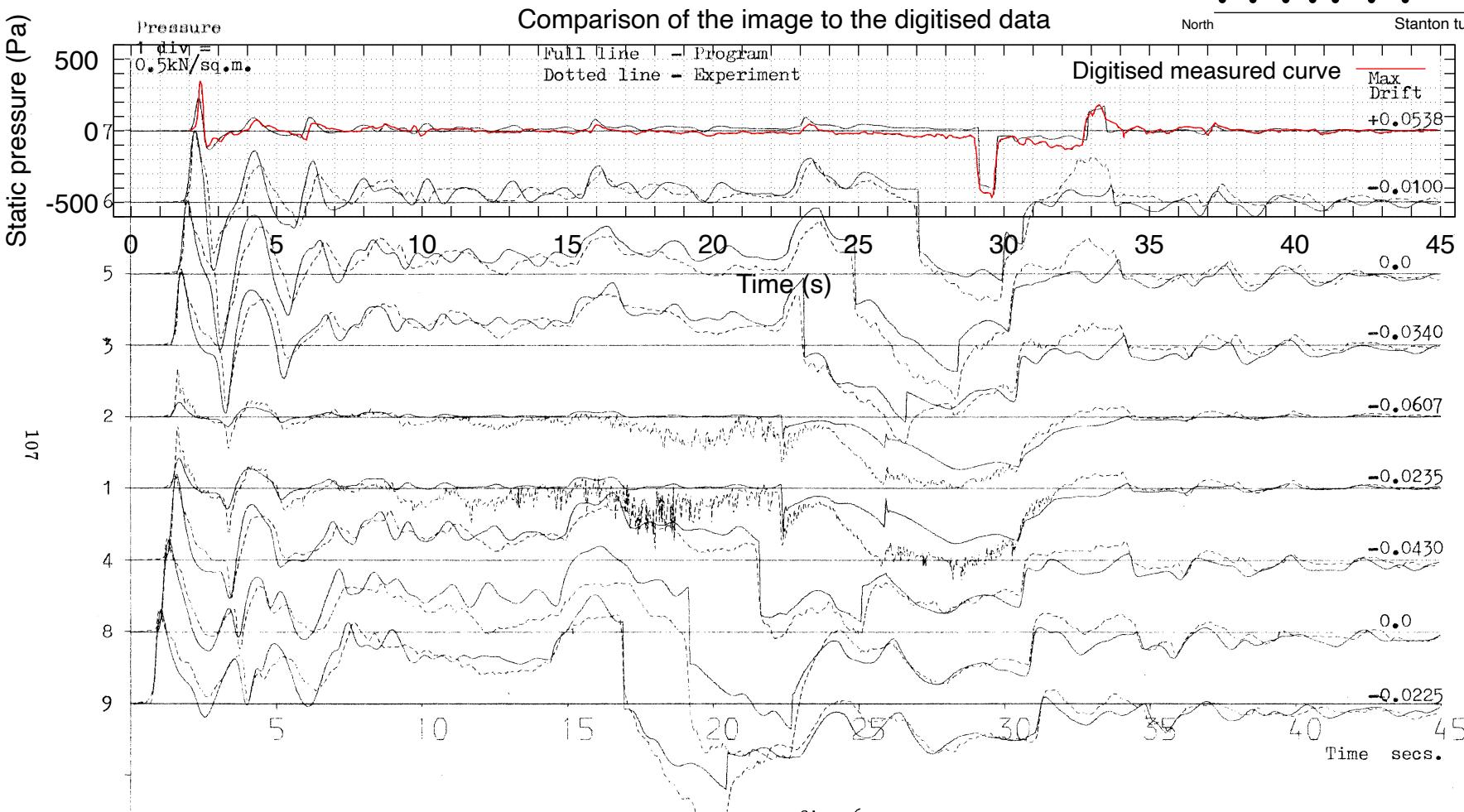
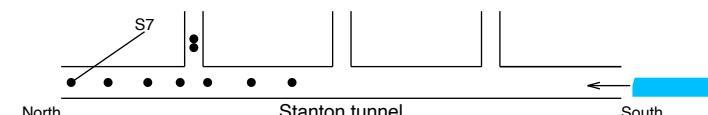
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 7 (1196.24 m from the entry portal, 266.79 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



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Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

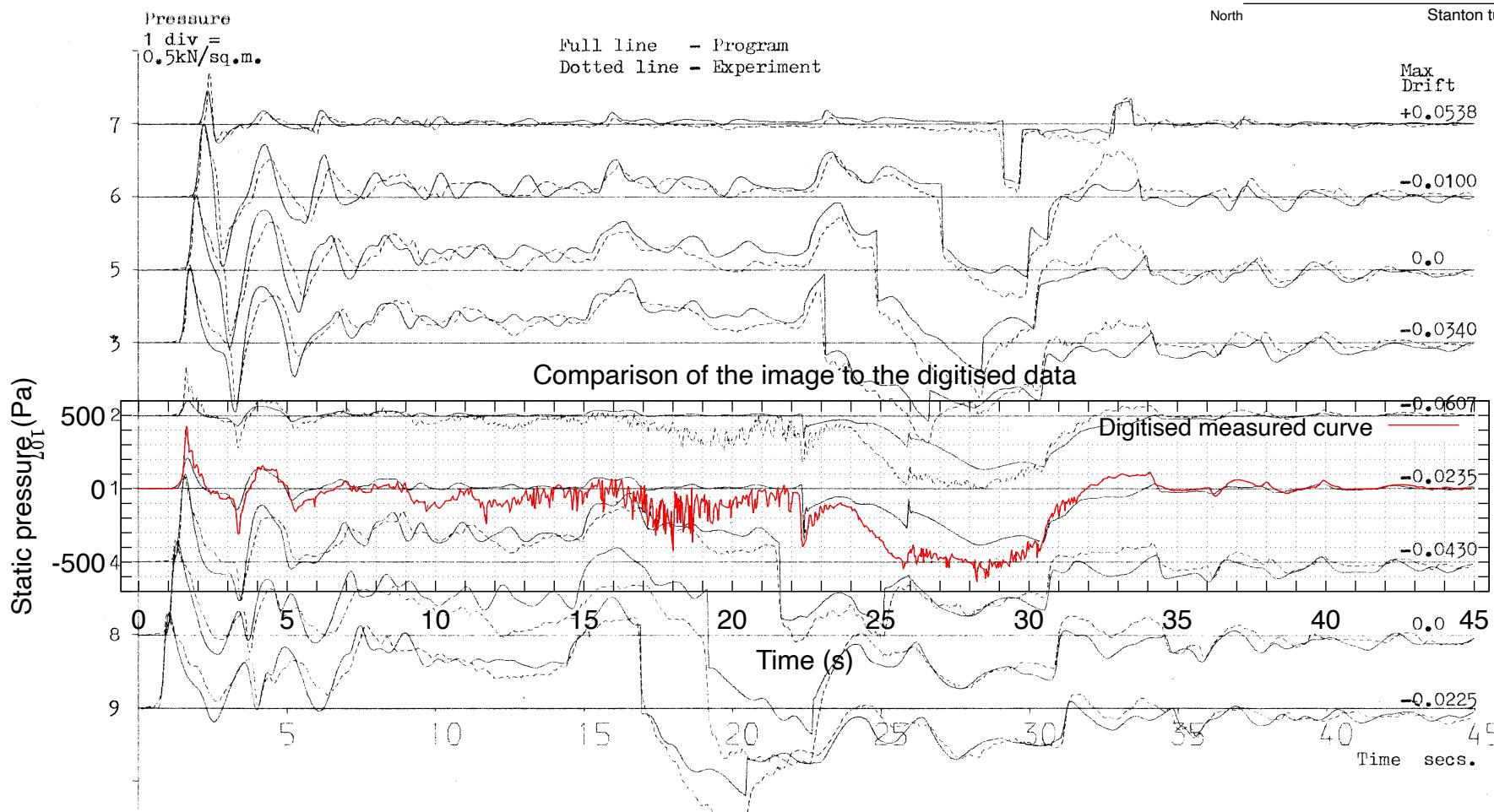
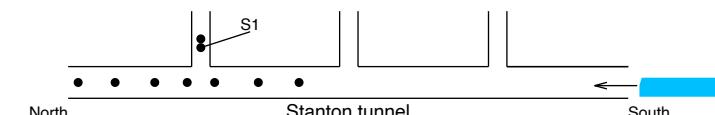
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 1 in the north shaft, 17.5 m below the outlet

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



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Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

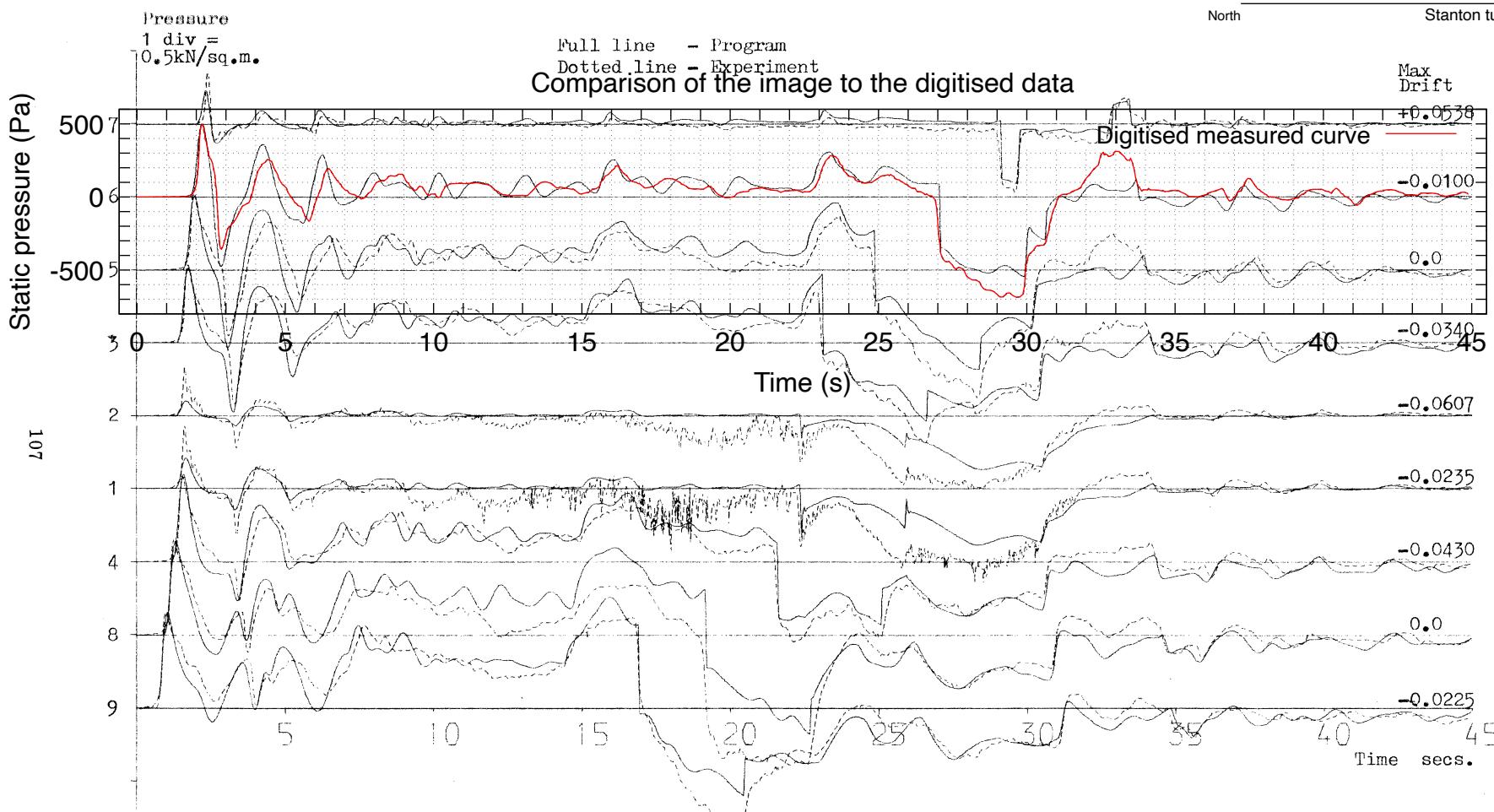
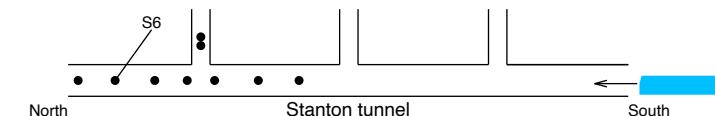
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 6 (1115.91 m from the entry portal, 186.46 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



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Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 4 (899.45 m from the entry portal, 30 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.

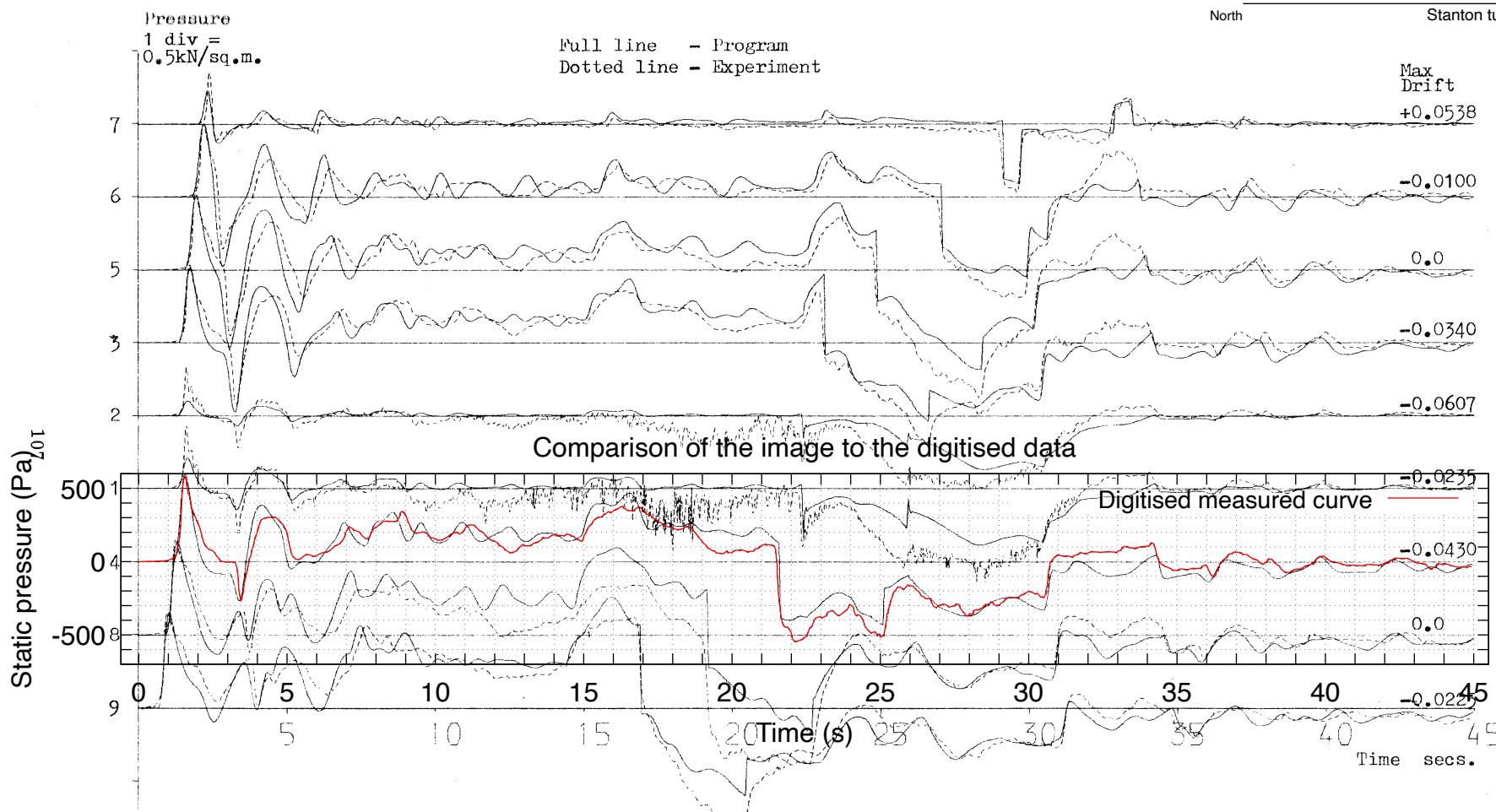
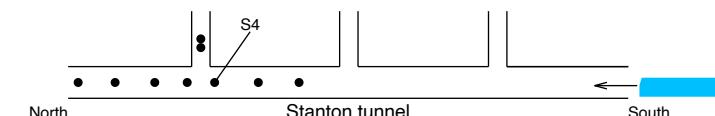


fig. 6

Test Run B

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Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 5 (1029.63 m from the entry portal, 100.18 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.

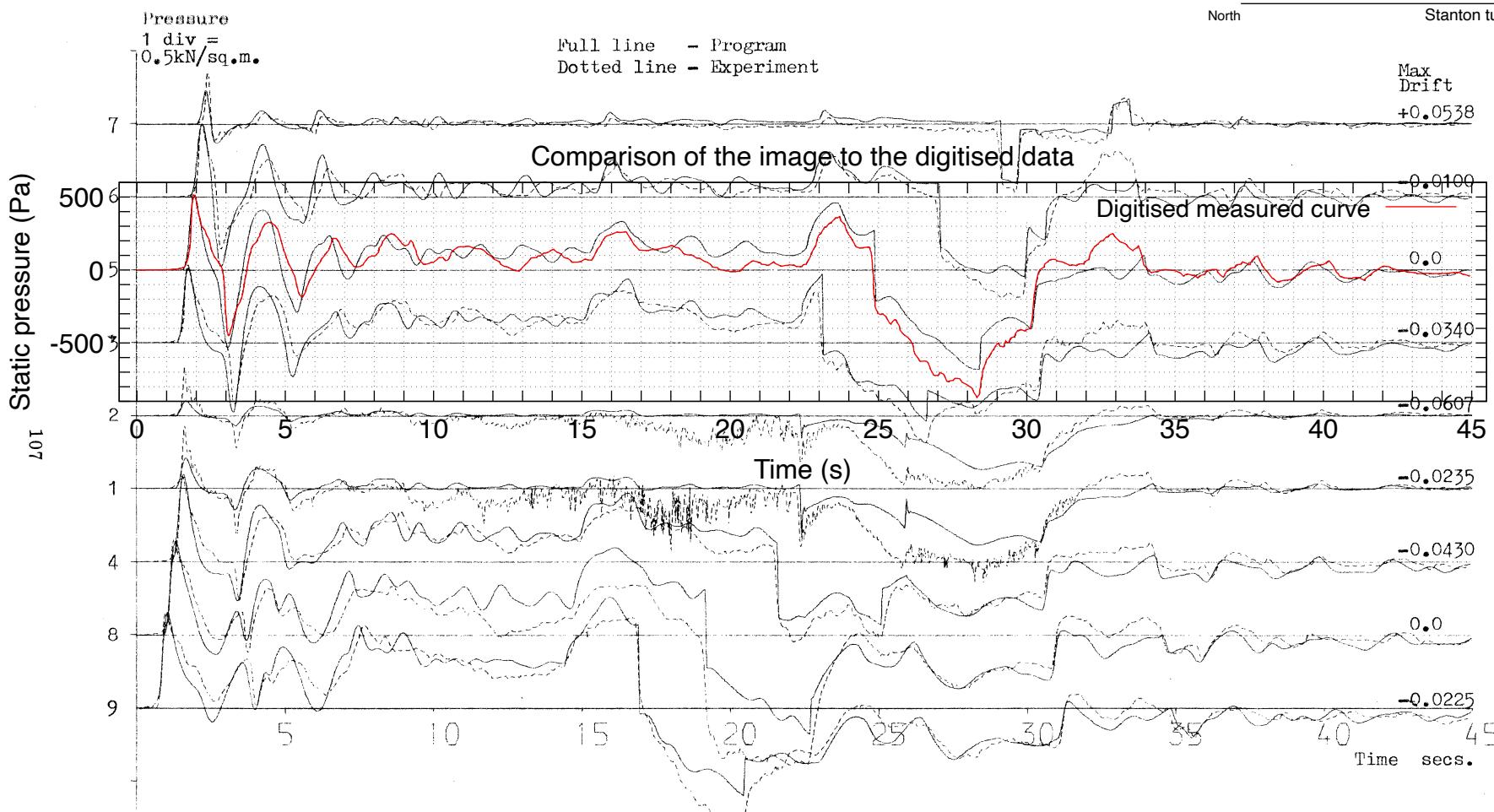
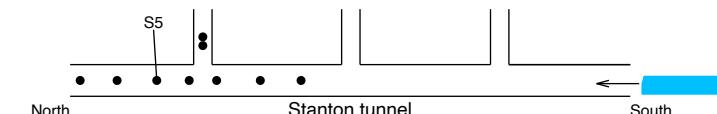


fig. 6

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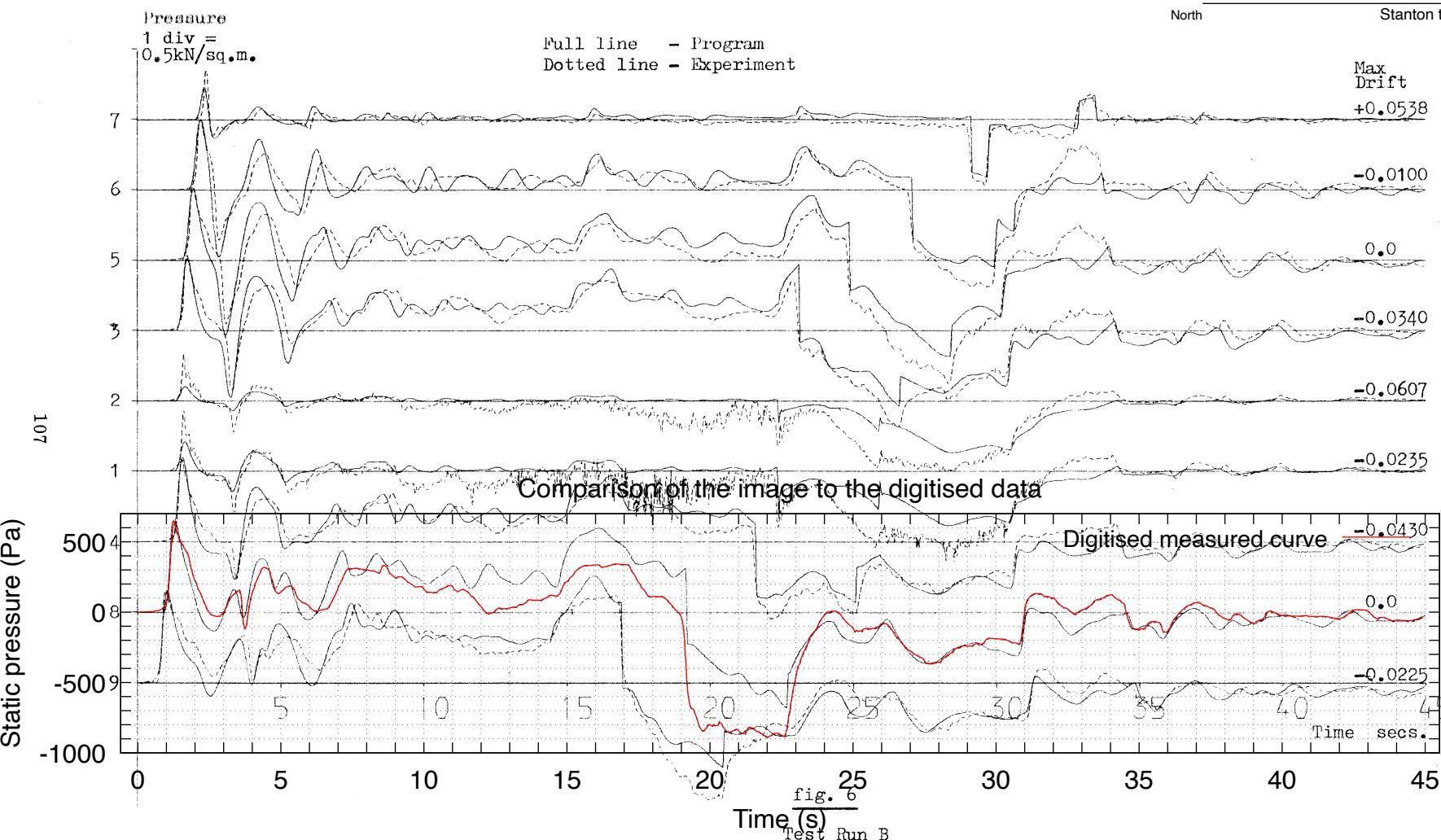
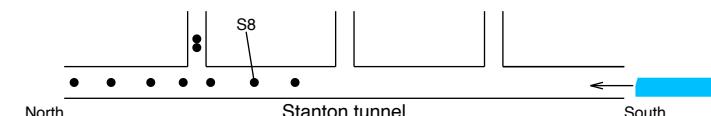
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 8 (804.45 m from the entry portal, 125 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



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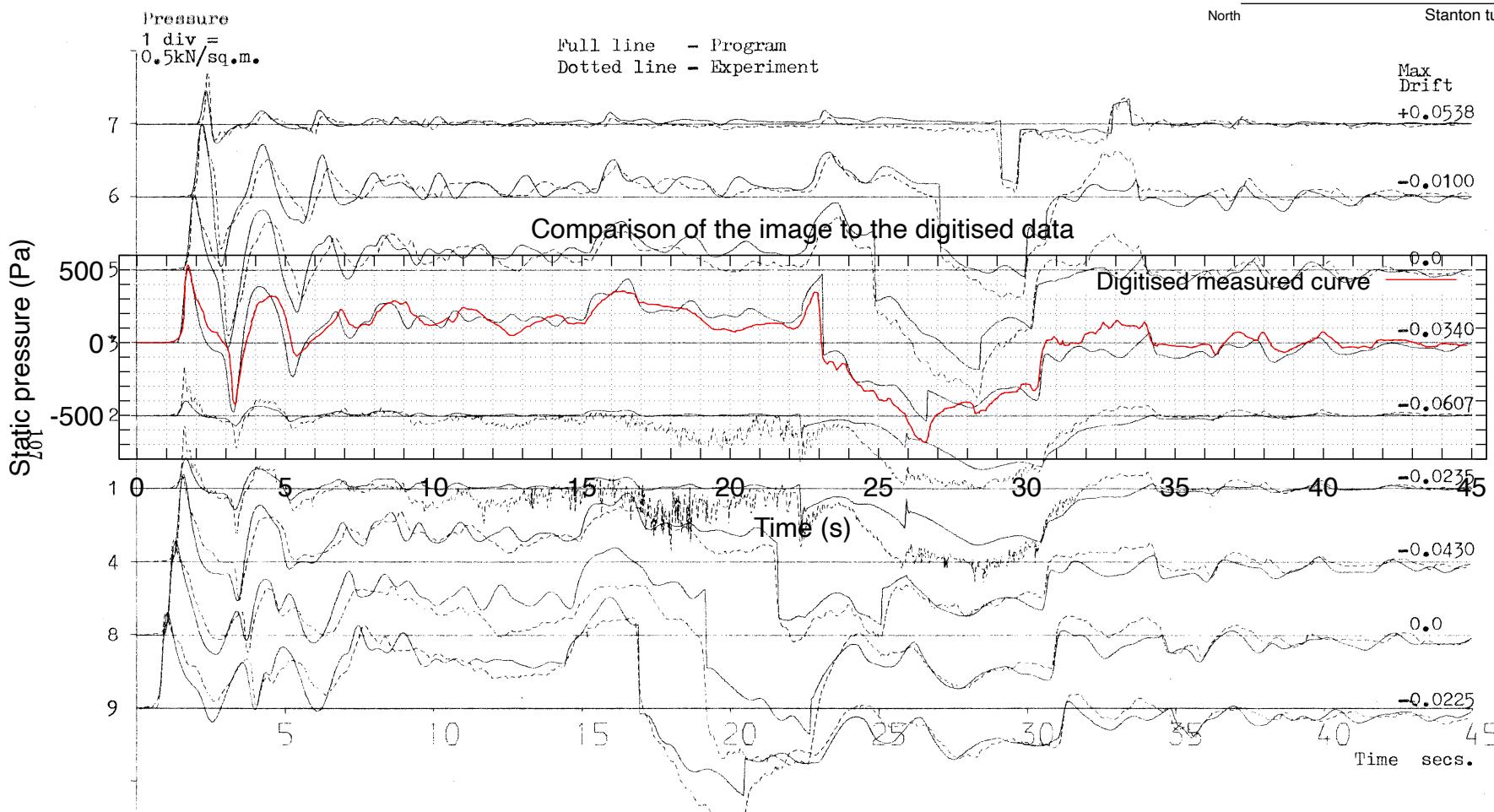
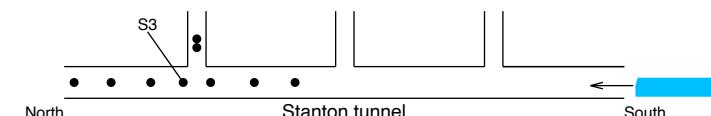
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 3 (959.1 m from the entry portal, 29.65 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

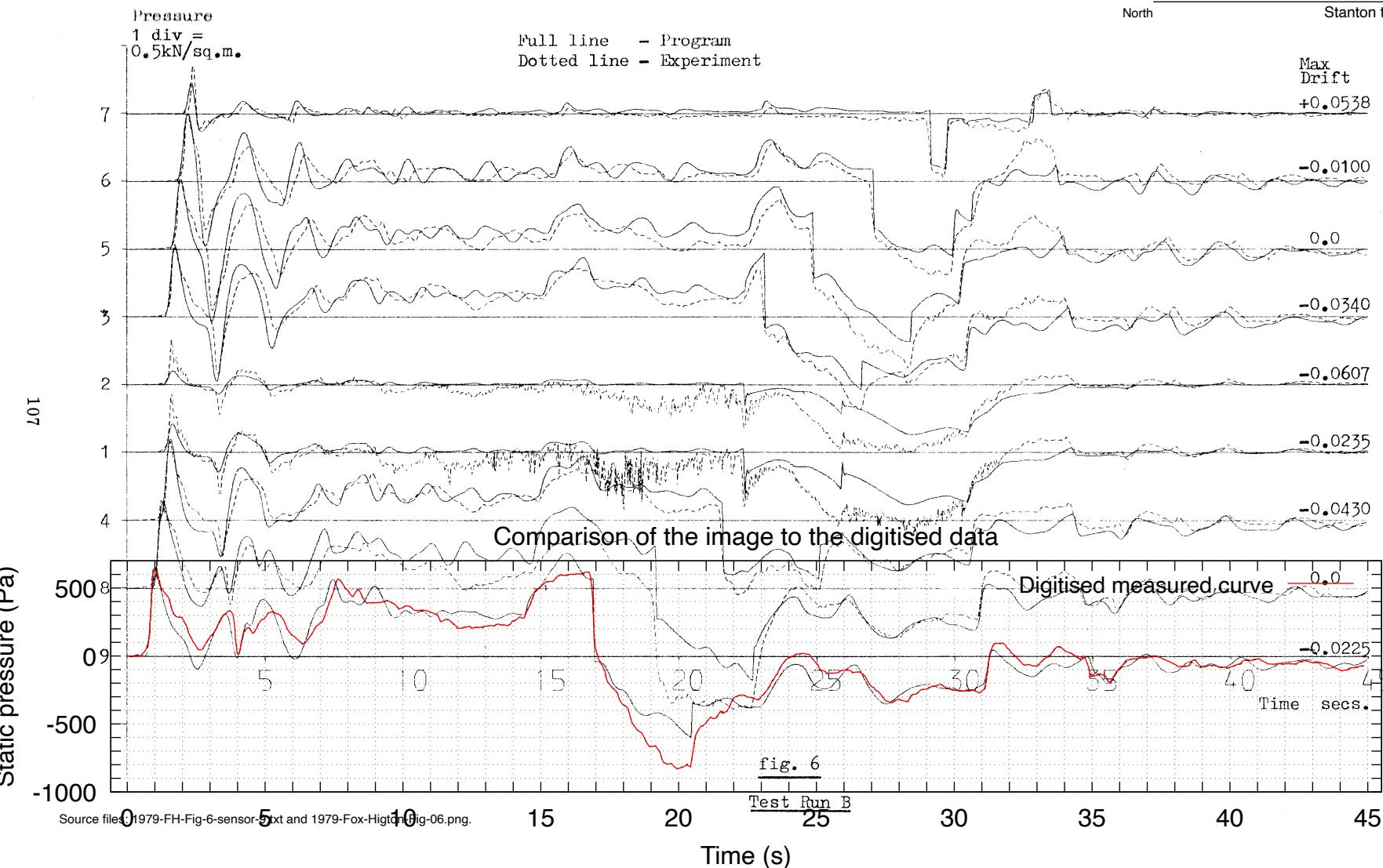
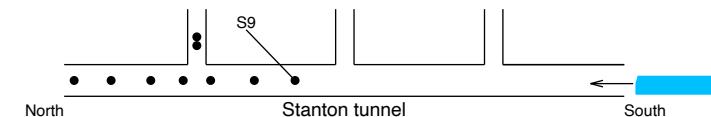
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 9 (715.85 m from the entry portal, 213.6 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 6, graph on page 107

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: unstated, likely two BR diesel locos hauling streamlined coaches

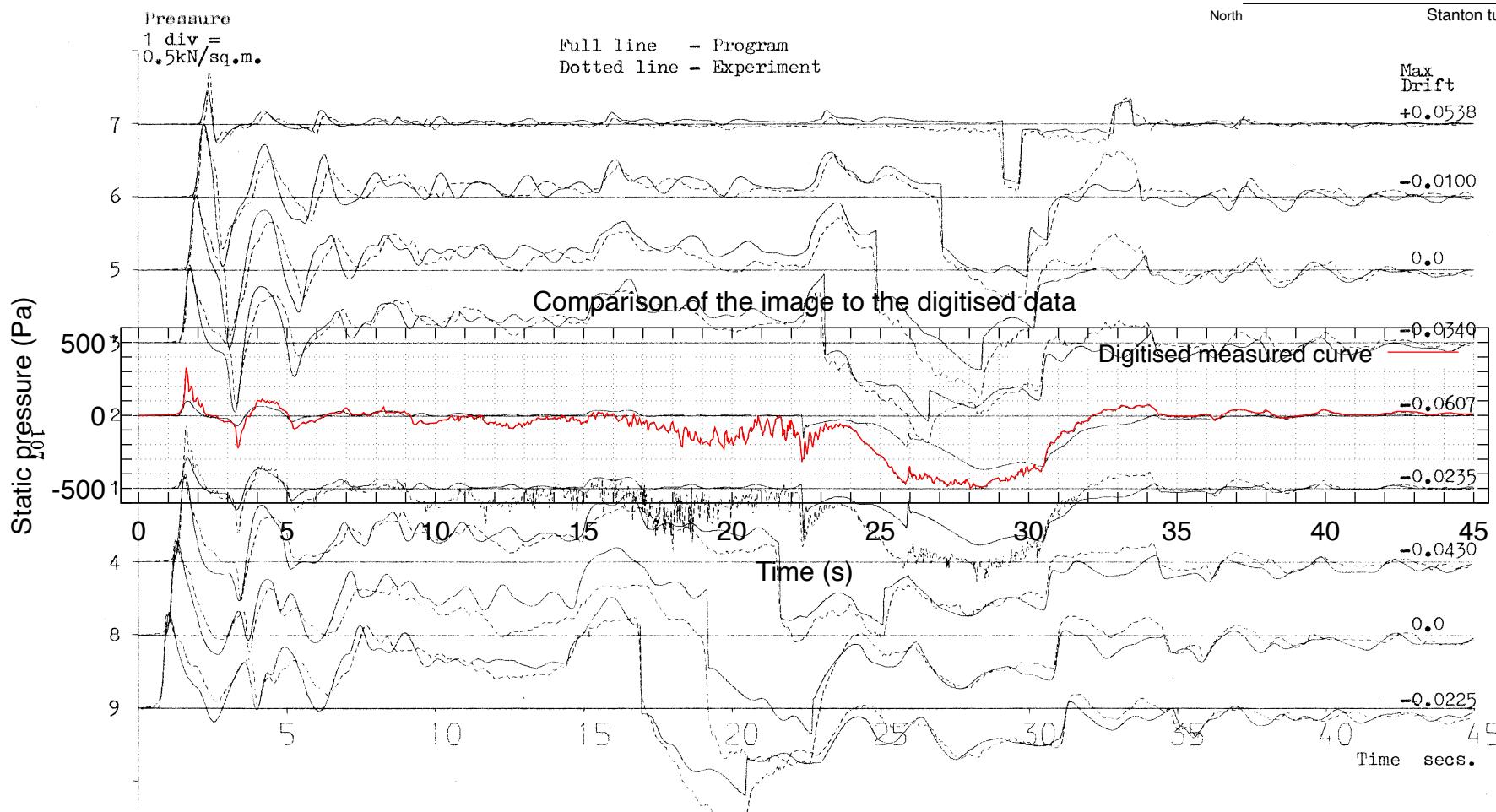
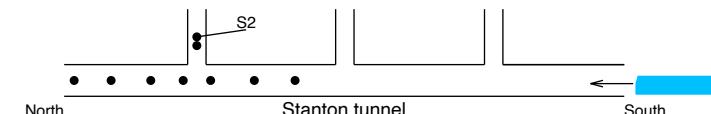
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 139.1 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 39.5 m/s (142.2 km/h), northbound

Data in the image: measured static pressure at sensor 2 in the north shaft, 12.5 m below the outlet

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=50 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=4000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-6.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

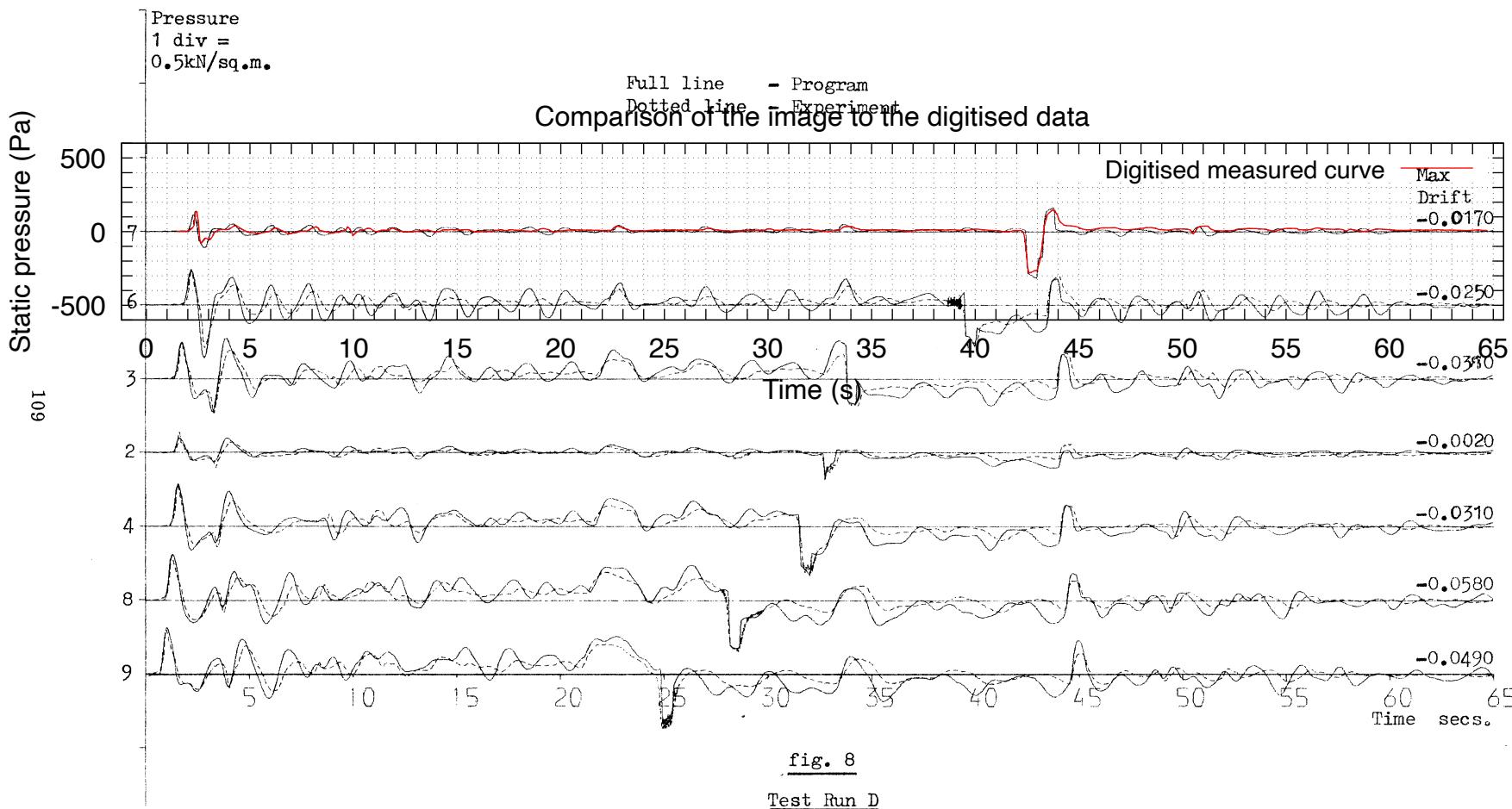
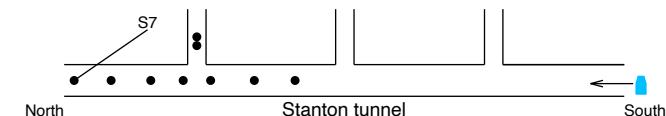
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 7 (1196.24 m from the entry portal, 266.79 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

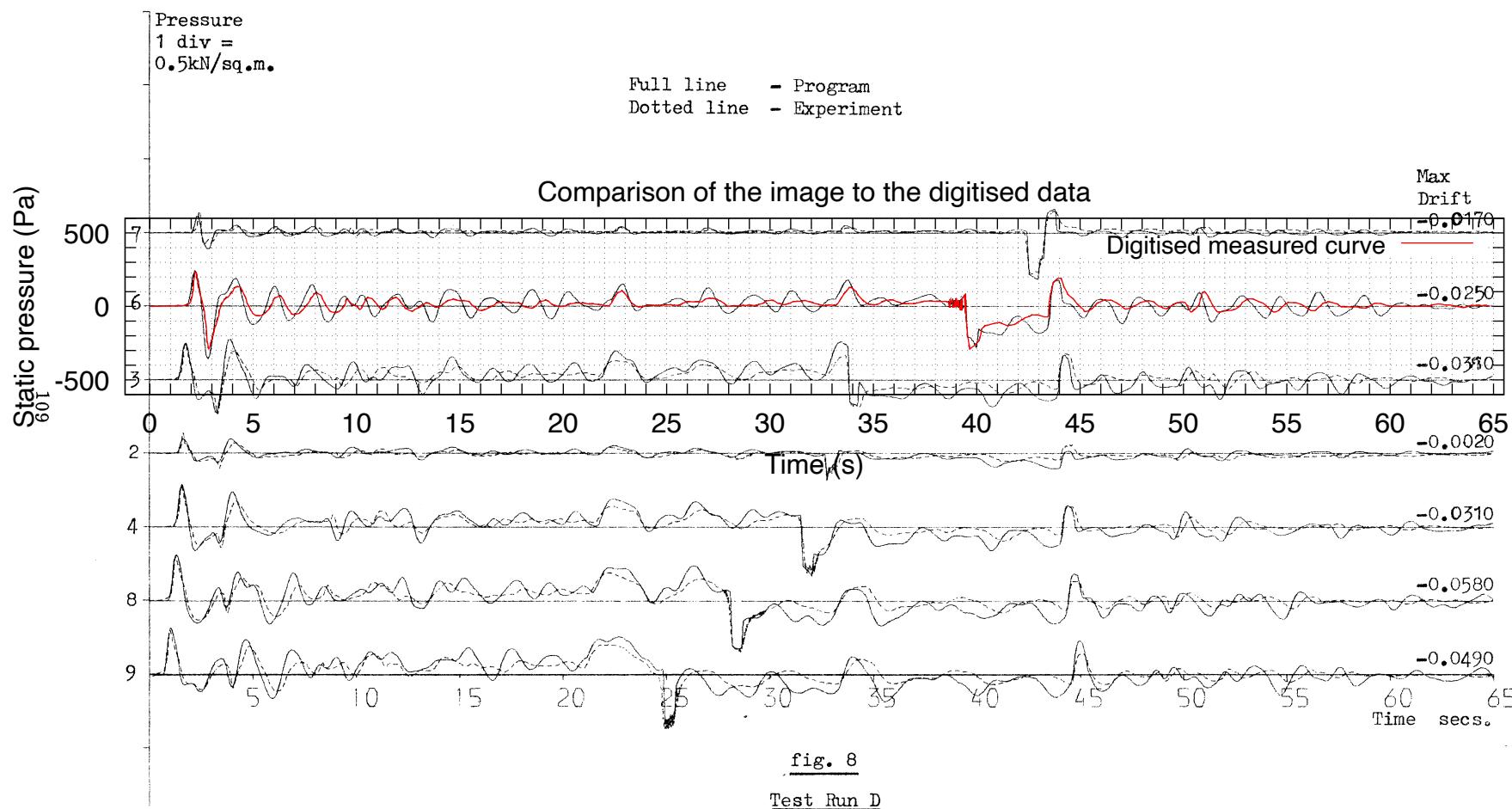
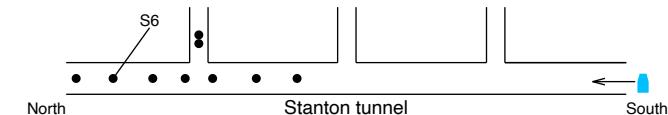
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 6 (1115.91 m from the entry portal, 186.46 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

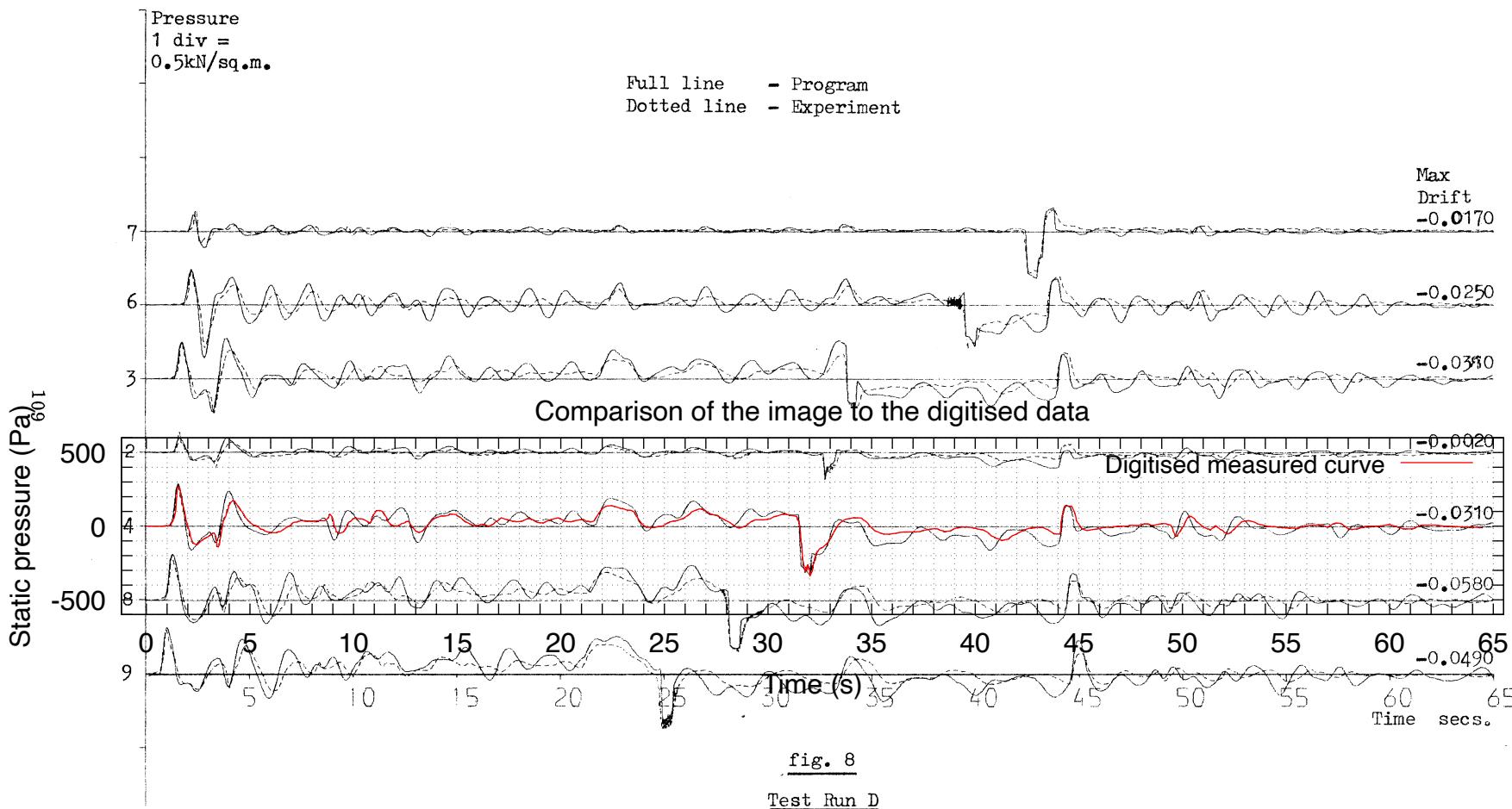
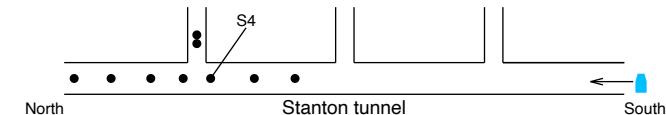
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 4 (899.45 m from the entry portal, 30 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

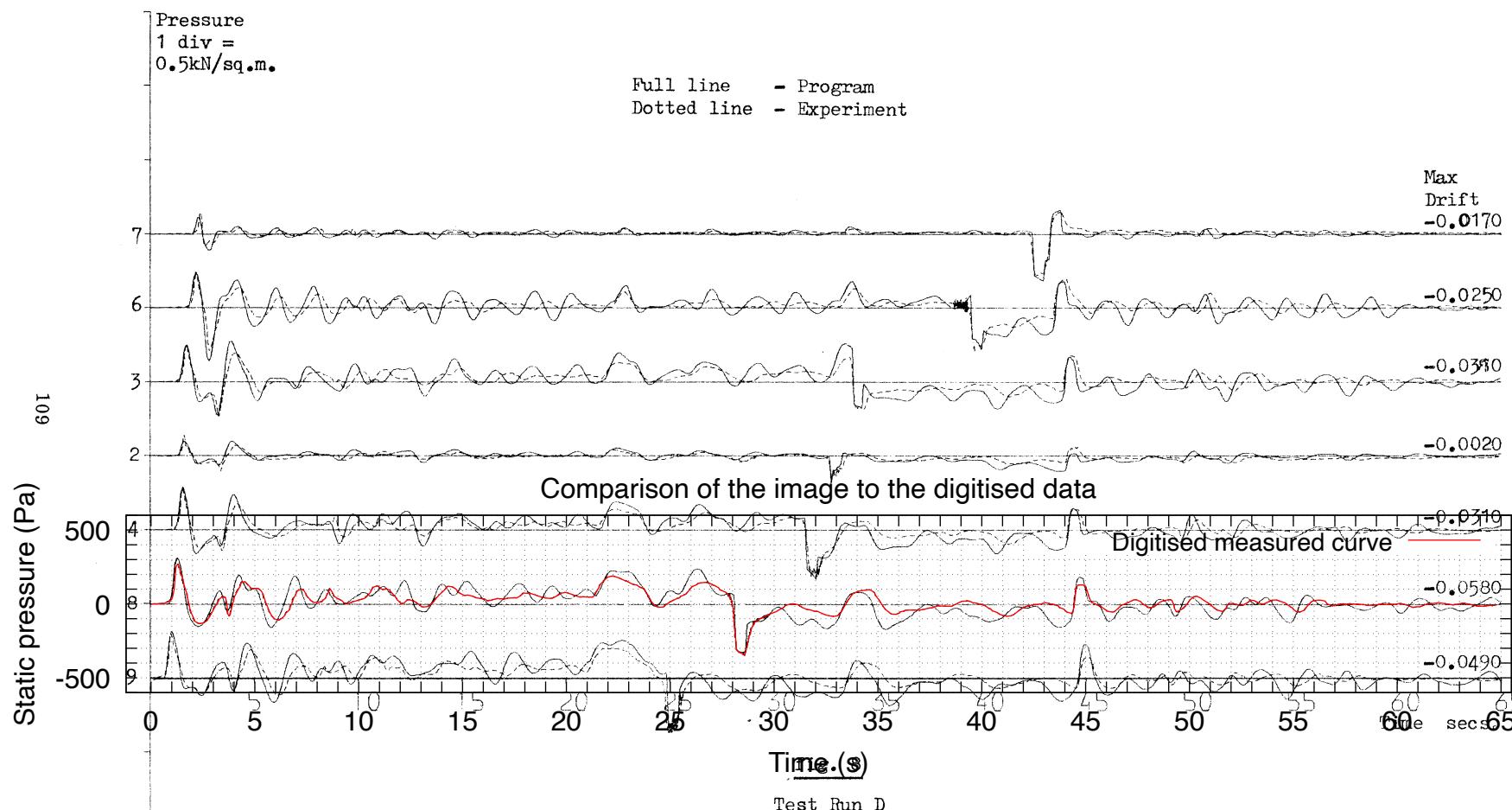
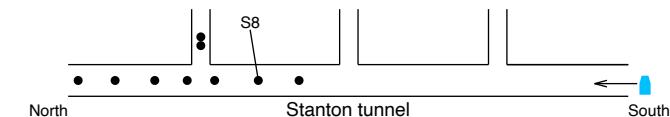
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 8 (804.45 m from the entry portal, 125 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

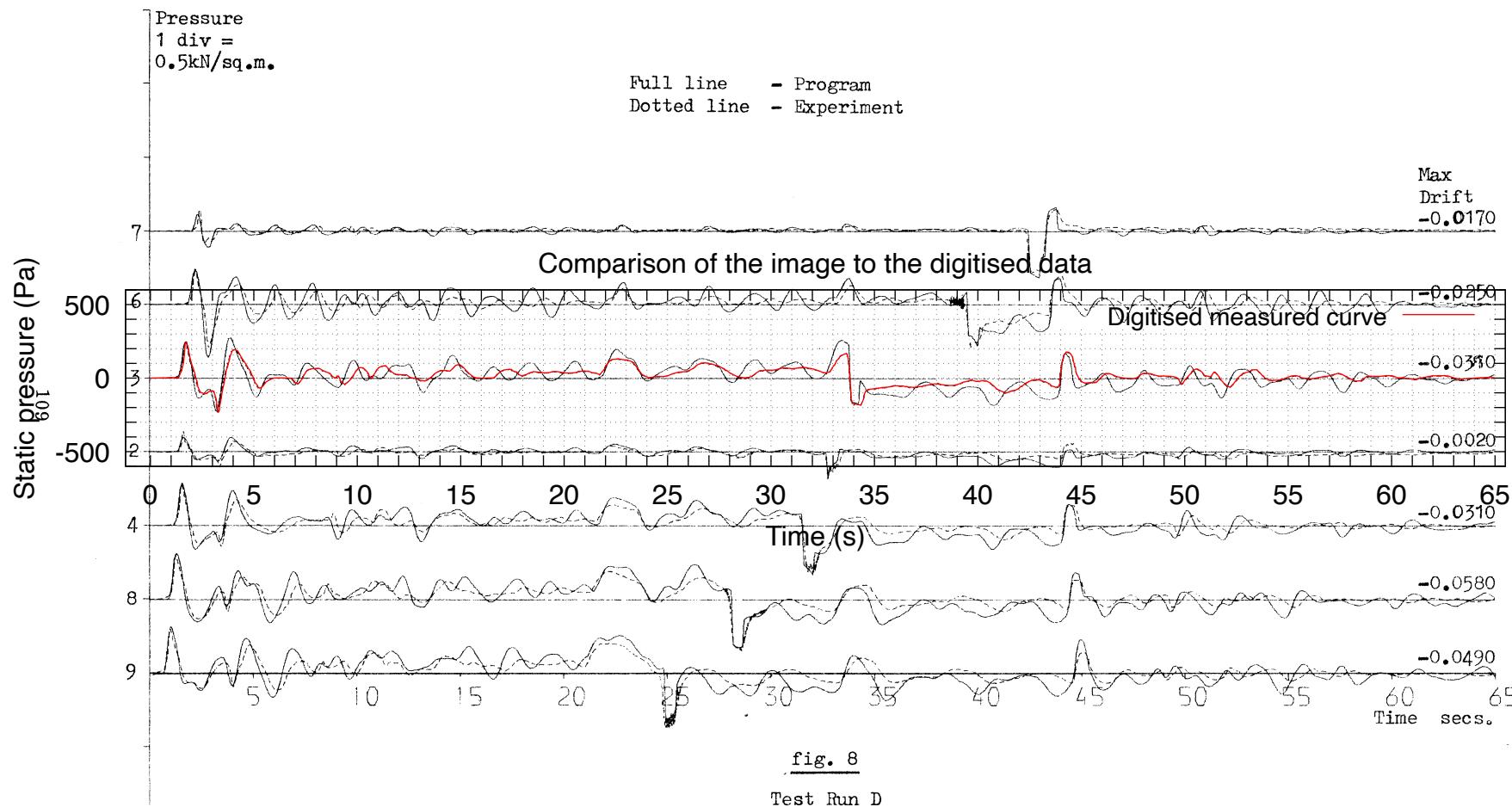
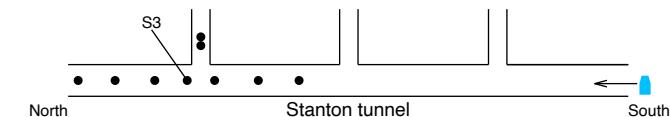
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 3 (959.1 m from the entry portal, 29.65 m north of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

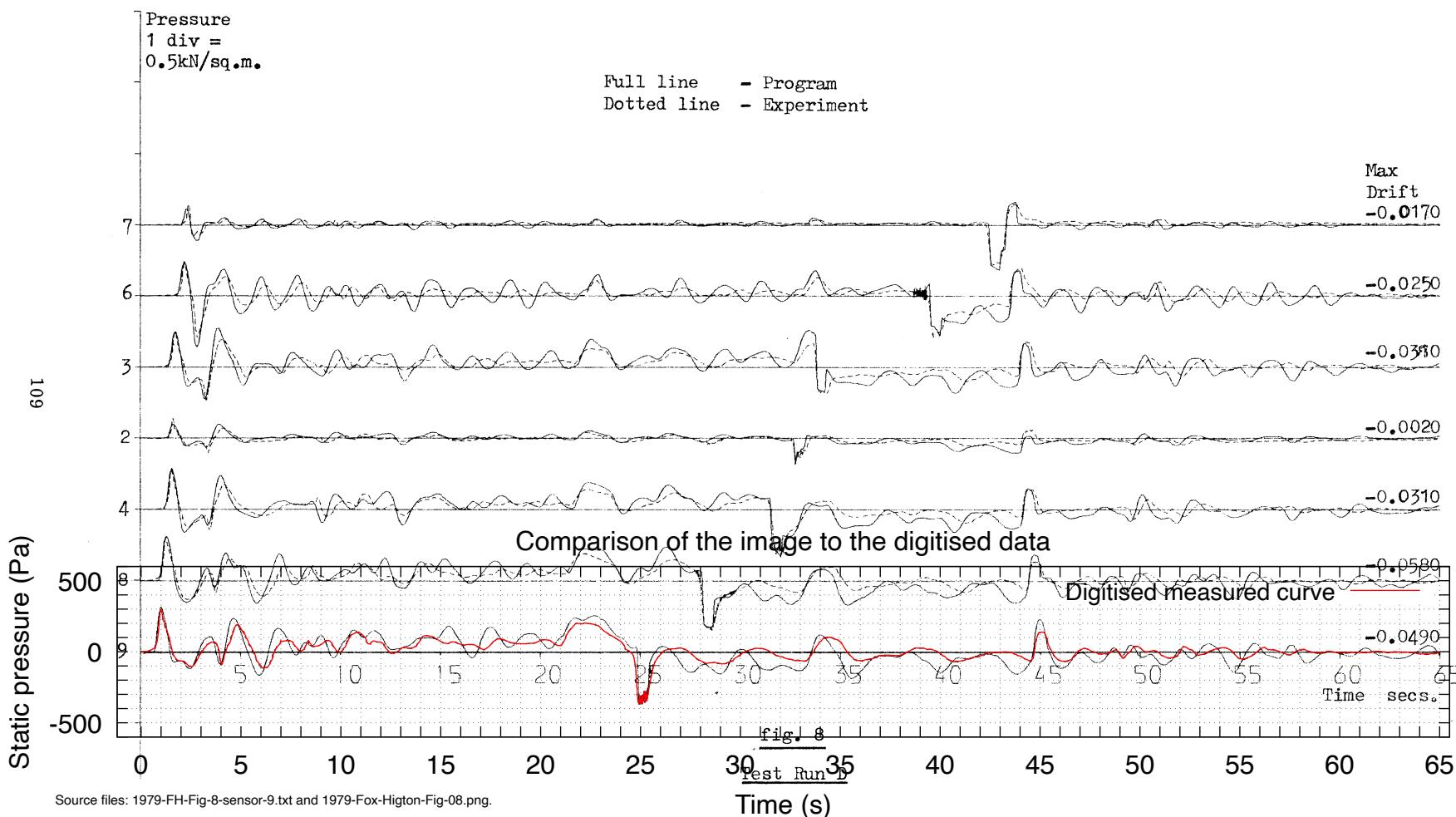
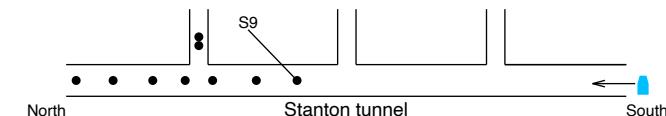
Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 9 (715.85 m from the entry portal, 213.6 m south of the north vent shaft)

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.



Source paper: "Pressure transient predictions in railway tunnel complexes", Fox, J A & Higton, N N, pages 97-114 and 643-644, Proceedings of the 3rd International Symposium on the Aerodynamics and Ventilation of Vehicle Tunnels (ISAVVT), 1979.

Image source: Figure 8, graph on page 109

Test place & time: Stanton tunnel (double track, three shafts), May 1974

Consist: one BR diesel locomotive

Tunnel length: 1218 m, tunnel area: 36.98 m², tunnel perimeter: 21.56 m

Train length: 14.6 m, train area: 8.2 m², train perimeter: 10.0 m, train speed: 27.4 m/s (98.6 km/h), northbound

Data in the image: measured static pressure at sensor 2 in the north shaft, 12.5 m below the outlet

Empirical data used in the paper's calculation: train nose contraction coefficient: 0.65, tunnel roughness: 0.003 m, train roughness: 0.0055 m

Digitisation method: WebPlotDigitizer was given the following setting out points: (t=0 s, P=0 Pa), (t=65 s, P=0 Pa), (t=0, P=0 Pa) and (t=0, P=3000 Pa). It adjusted the axes of the image to be orthogonal and digitised a set of manually selected points. Load '1979-Higton-Fig-8.tar' into WebPlotDigitizer for more details.

