

LOCOMOTIVES AND THEIR PERFORMANCE, No. 27

STORY OF THE "Df" The 18-Year Diesel-Electric

By K. I. Bullock



EARLY in 1972 it was officially announced that the ten diesel-electric locomotives of the "Df" class would soon be withdrawn from service. Already, when the announcement was made, three of the class were sitting forlornly on a back siding at the Westfield locomotive depot, out of use and being cannibalised to keep their sisters in service. Since this article was prepared, another four have been withdrawn.

The story of the "Df" class, New Zealand Railways' first essay in high-power main-line diesel-electric traction, began in 1950. In that year the Hutt Workshops completed an order for 35 "Ka" class 4-8-4 steam locomotives for North Island main trunk service, and the Hillside Workshops were engaged on the construction of a further 35 "Ja" class 4-8-2s for use in the South Island. Traffic was increasing. Gross ton-miles were more than a third higher than in 1935, but the NZR was hampered by a serious shortage of locomotives, among other things.

One solution might have been the placing of further orders for steam locomotives. Indeed, an order for 16 oil-fired "Ja" class 4-8-2s was placed in 1950 with the North British Locomotive

Company, Glasgow, but this was regarded only as a stopgap. The NZR was looking forward to newer forms of motive power. As the then Minister of Railways, the Hon. W. S. Goosman, explained in the 1951 Railways Statement:

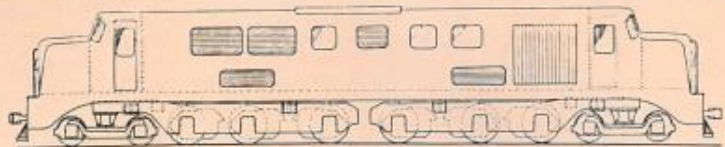
After thorough examination of the General Manager's report on electrification, the Government has approved, in principle, the electrification of the North Island Main Trunk line and has also sought advice on the project from two Swedish railway electrification experts, Messrs Th. Thelander and R. Edenius. These gentlemen confirm the recommendations made to the Government, and so it has been decided to proceed with the Auckland-Frankton Junction section of the railway. A final commitment regarding additional electrification will not be made pending consideration of further detailed estimates. In the meantime, to supply a much-needed increase in locomotive power on the hilly sections south of Frankton Junction and also in the South Island, 31 Diesel-electric main-line locomotives have been ordered from England and should be under early construction.



ABOVE: A "Df" class diesel-electric locomotive with a Wellington-Auckland goods train near Otaki in 1954. Note the large diameter of the main headlight as originally fitted.

OPPOSITE: The view from the cab of a "Df" locomotive northbound near Te Kuiti in 1954.

Photograph: N.Z. Railways Publicity.



DIESEL-ELECTRICS FOR MAIN TRUNK

From the Evening Post, 17 November 1950.

TO augment railway locomotive power and replace engines which have had their day the Government has authorised the expenditure of £2,711,000 for the purchase overseas of 31 diesel-electric and 16 steam locomotives.

This was announced today by the Minister of Railways (Mr Goosman), who said that the heavy and still-increasing traffic, particularly on the North Island Main Trunk line, which was performing 60 per cent. of the traffic haulage of the North Island, required improved locomotive power as early as it could be procured. It was hoped that most of the new locomotives could be obtained within the next three years. Describing the proposed diesel-electric locomotives, the Minister said that the undergear and superstructure would resemble closely although on a smaller scale, a world-famous electric engine used on the Pennsylvania Railroad in the United States.

Compared with 145 tons for the existing "Ka" class steam locomotives the diesel-electrics would weigh only 84 tons and measure 61ft, as against 69ft 8in for the "Ka". They would have a wheel arrangement of 4-6-6-4 or, in other words, eight bogie and 12 driving wheels.

Each locomotive would be driven by six electric traction motors, drawing current from a generator powered by a 1200-1500 h.p. diesel motor. The locomotives would have a maximum operational speed of 55 miles an hour.

"It is proposed that approximately 21 of these powerful engines will be run

The diagram above is as reproduced in the "Evening Post" in November 1950 before the designs were finalised. The main bogie pivots, for example, were shown in a different position.

The early 1950s were a time of important changes in the management of New Zealand Railways. In 1951 the then General Manager, F. W. Aickin, retired and was succeeded by Mr H. C. Lusty, while R. F. Black succeeded James Binsted as Chief Mechanical Engineer. Mr Aickin had been the leading advocate of electrification, while both Messrs Lusty and Black were advocates of diesel traction.

These changes may perhaps have had an important bearing on the order for

over various lengths of the Auckland-Wellington route," said Mr Goosman, "and that later shipments will be used on other heavily graded lines in the Dominion. An important feature in the design of the engines is that their comparatively light axle weight will enable them to run on secondary main lines."

The Minister added that the track capacity of the Main Trunk had to be increased considerably. Even now goods traffic moved far too slowly in the central part of the trunk, not only causing inconvenience to customers but the slow running also wasted wagons and locomotives and involved overtime for the depleted staff.

In a few years' time the further increased traffic was going to try the railway resources very severely. Steam traction could not afford relief except at very heavy cost in locomotives, track alterations, duplications, etc., and increased man-power. Working expenses, too, would rise steeply. The man-power situation was so bad that there was insufficient staff either to carry out the track works and improvements necessary for continued steam operation, or to operate the increased number of trains that steam working would involve.

The number of diesels to be ordered would not be sufficient to cope with the added business expected within the next 10 years, and the Government had under consideration the electrification of the Main Trunk. As an interim aid the diesel-electric locomotives would be of great value.

main-line diesels. Although publicly announced, no firm order appears to have been placed by 31 August 1951 if Statement No. 15 of the annual report for that year is any indication. The summary in the 1952 annual report, without explanation of the increase, recorded that 41 diesel-electric locomotives were incomplete at 31 March, and in the 1953 annual report the General Manager, Mr H. C. Lusty, referred to overseas orders for 21 diesel-electric locomotives of 1,500 h.p. and 20 of 750

h.p., delivery of which would, it was anticipated, commence in the first quarter of 1954.*

The chosen contractor, the English Electric Company, was responsible for the detailed design of the locomotives to conform with general specifications laid down by the NZR. The design presented certain problems. The NZR sought high power within the confines of a 12-ton axle loading and a restrictive loading gauge. English Electric's range of diesel engines at that time included a suitable model which, when turbo-charged, developed 1,500 b.h.p. (continuous rating), but the engine stood 7ft 6in high and 5ft 6in wide, and had a dry weight in excess of 14 tons.

This 12SVT diesel engine was a 12-cylinder 45-degree Vee water-cooled four-stroke type. The cylinders had a bore of 10 inches and a stroke of 12 inches, giving a swept volume of 942.5 cubic inches each. Supercharging with an exhaust-gas-driven turbo-charger gave a compression ratio of 11.4 to 1. Turning over at a maximum engine speed of 850 rev./min., equivalent to a maximum piston speed of 1,700 feet per minute, the trunk type aluminium alloy pistons were connected to a solid forged steel crankshaft housed in an alloy iron casing. Poppet type silicon chrome steel inlet and exhaust valves were timed by a chain-driven camshaft, and fuel injection was by multihoop type injectors.

To the 12SVT engine, English Electric married an 850 kW 828A main generator. Traction current was applied through six 525/2A type traction motors, each of 195 h.p. on the one-hour rating, mounted on two three-axle bogies. To spread the locomotive weight, which amounted to a total of 108 tons ready for service; to keep axle loads within the requirements; and to provide good tracking qualities for high-speed running, a four-wheel non-powered bogie was mounted in a sub-frame at each end of the locomotive. The resulting 2-Co-Co-2 wheel

* Meanwhile, it may be noted, a report was published in The New Zealand Railway Observer for March-April 1952 that the first ten of the 1,500 h.p. main-line diesel-electric locomotives on order from the English Electric Co. Ltd. would be followed by a series of 750 h.p. main-line diesel-electrics capable of being operated as single units or in multiples of two or three.

arrangement was reminiscent of Japanese National Railways and Pennsylvania Railroad electric locomotive practice. The load from the locomotive superstructure was transferred to the main motor bogies through a large pivot bearing and two helical spring bearers. A stylish double-cab car body, similar to that adopted for other English Electric export designs, housed the works and made these locomotives, in some opinions, the most aesthetically pleasing of all NZR diesel locomotives.

Designed for maximum speeds up to 60 m.p.h., the "Df" class, as they became, developed a maximum tractive effort (at 25 percent adhesion) of 38,500 lb., or a continuous tractive effort of 27,700 lb. at 16 m.p.h., sufficient to allow a single locomotive to take 1,000-ton freight trains over the 1 in 100 ruling grades between Auckland and Frankton, or 350-ton trains up the uncompensated 1 in 50 grade of the Raurimu Spiral. For controlling trains down steep grades, dynamic braking was provided in addition to the automatic and independent Westinghouse ATEL air-brake equipment, and the locomotives were equipped for multiple-unit operation.

The first and, as was to eventuate, the only ten locomotives of the "Df" class were delivered during 1954 and all were in service by March 1955. As soon as each locomotive had been set up and the necessary crew training had been carried out, the whole class was placed in through freight service between Wellington and Auckland. Special schedules were drawn up, reducing the former through timings by more than a third.

Plainly, the intention was that the utmost advantage should be taken of the high availability and long endurance characteristics of the new locomotives. Unfortunately, it was doubtful whether either management or staff were psychologically prepared for the sudden break from their steam-orientated habits. For a season the new schedules were maintained, but only at the cost of some decidedly unorthodox operating practices. The word seems to have gone out to keep the new locomotives moving, and so every possible expedient was adopted. The new trains were marshalled to avoid intermediate shunting, even if it meant attaching tonnage blocks for intermediate



Photograph: Derek Cross.

On 22 February 1955 "Df" 1508 lifts an Auckland-Wellington goods train into Watouru, the highest station in New Zealand.

stations behind the brake van. Other trains were swept rigorously to one side. From local shunts to crack passenger expresses, everything else went into the crossing loops, often for half an hour or more at a time, to keep the road clear for the diesels.

During this brief season, there were some remarkable sights to be seen. On Christmas Eve at Raurimu, for instance, two opposing through freight trains were stopped to exchange locomotives so that the "Df"s on each could return to their home depots for the holiday break. When on Saturday evenings the up Daylight Limited was timed to overtake up goods train 216 at Otahuhu, it was the "Df"-hailed 216 that held the up main line while the steam-hauled J-10 express was detoured through the down yard.

It was all too good to last. On the one hand the new locomotives seemed to be overworked; although in retrospect one may wonder how many minor problems arose from teething troubles

magnified by staff inexperience. On the other hand, the disruption of other traffic, and the grumbles of the crews of other trains, was too great to endure. By the end of 1955 the "Df" class was regarded and being treated as just another ten locomotives in the general North Island Main Trunk pool. This writer recalls one journey on J-10 in January 1956 when one "Df" worked the train from Paekakariki to Palmerston North, where another took over to work the train on to Taihape. It was, once again, not the best way to use diesel-electric locomotives.

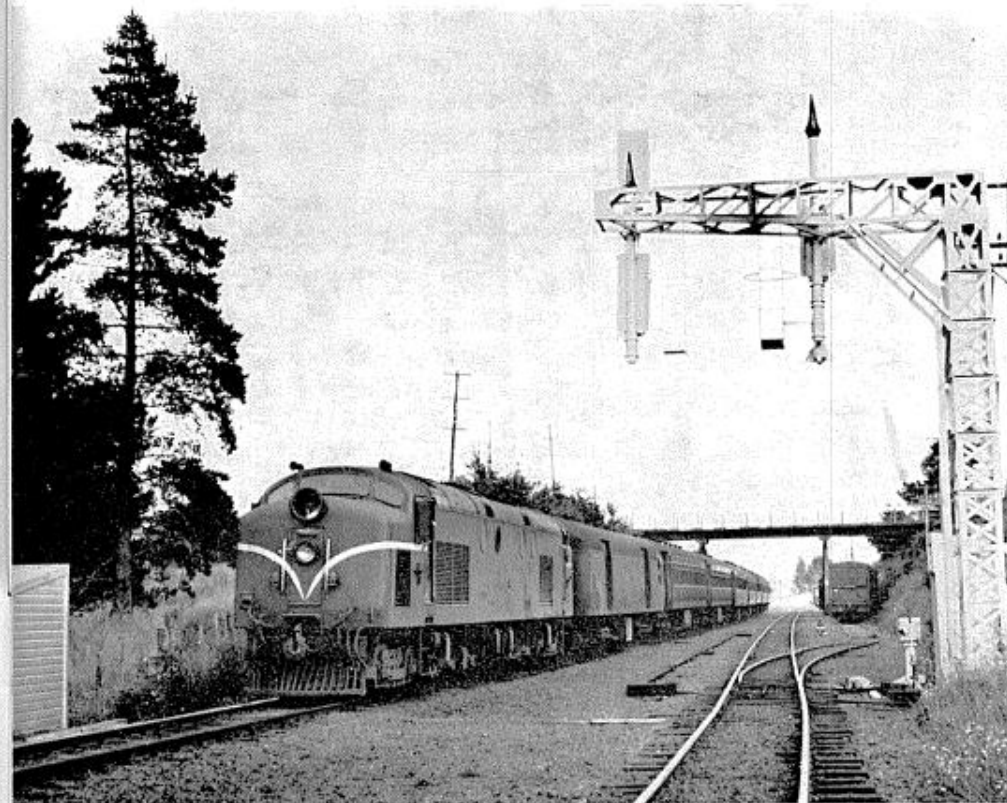
In 1955 the motive power crisis came to a head, and its solution was to determine the future of the "Df" class. The crisis had been foreshadowed by Mr F. W. Aickin in his 1951 Annual Report, where he had written: "The Auckland-Frankton Junction electrification must be kept up to schedule, because, in planning our steam and Diesel-electric locomotive requirements, straight electric

locomotives have been considered as being in operation in 1955."

In the four years after those words were written, electrification was relegated to a limbo, but no further orders for locomotives had been placed, even though freight tonnage in the North Island had increased by 12½ percent. New locomotives were urgently needed. The Railways Commission, then in the first stage of its unhappy career, reviewed the position and substituted twenty 750 h.p. English Electric units for the balance of the "Df" order as well as ordering thirty 1,425 h.p. units from North America.

Probably there was no real alternative

to these decisions, given the urgency of the situation and the time that had elapsed between the placing of the order for and the delivery of the "Df" class. As the Commission explained in its 1955 Report: "These latter locomotives [i.e. those from North America] were readily available and an assured delivery within five months of the placing of the order ensured the quickest possible means of further augmenting the locomotive power situation." No mention of respective technical merits was apparent here! Not for the first nor for the last time delivery dates appear to have been the main determinant of NZR motive power policy.



Photograph: W. W. Stewart.

A "Df" diesel-electric locomotive passes Tunkau with the Auckland-Wellington "Daylight Limited" on 24 December 1955. The main line was still single at that point at that time.



Photograph: G. T. Radcliffe.
"Df" 1309 crosses the interesting double-deck Karangahake bridge between Paeroa and Waihi with a goods train bound for Tauranga on 4 April 1972.

Notwithstanding their much greater axle loading, which restricted their running to the heavy-traffic main lines, the North American diesels were an immediate success, and it was probably never likely thereafter that the "Df" class would be enlarged. The ten orphaned locomotives were moved from their original Main Trunk location to regions of light rail and heavy trains. First to benefit from this transfer was the North Auckland line, but increasingly the "Df"s were concentrated on the East Coast main trunk line between Frankton, Tauranga, and Taneatua, where goods traffic was growing rapidly. In this latter area they were particularly valuable, for no other locomotive suitable for light rail was available that could lift such tonnages up the Athenree bank or through the Karangahake tunnel.

To understand the effects of dieselisation on New Zealand Railways' operations and finances, it is instructive to compare the "Df" class with its nearest steam contemporaries, the North British-built "Ja" class of 4-8-2s. The two classes of locomotive were of a similar weight and route availability, and were subject to similar speed restrictions. They were built at about the same time, and enjoyed a similar life span in service. In assessing the overall performance of the two classes, however, it has to be recalled that, at least in the late 1950s and early 1960s, some "Ja"s were still being used on passenger trains. This difference can nevertheless be pressed too far, for each class ran much the greater part of its mileage in freight service.

Where the comparison does break down is in the respective power that each type of locomotive exerted. The difference here was expressed succinctly in a 1967 instruction as to the work and loading of goods trains: "No. 309 leaving Frankton must not exceed the following: "Df" locomotive, 600 tons; "J" locomotive, 290 tons of through tonnage."

This difference may be expressed in a different way by referring to the loads that each type could haul up the ruling grades on their common routes. On the North Auckland line, the ruling grade against down (northbound) trains was that from Kaukapakapa to the Makarau Tunnel, where a "Df" was allowed 500

tons and a "Ja" but 290 tons. On the Bay of Plenty line the ruling grade for down trains (eastbound) was through the Karangahake Tunnel between Paeroa and Waihi, and for up trains was on the Athenree bank. The loads for a "Df" were 530 tons in each direction, and for a "Ja" 290 tons down and 340 tons up. On the flatter lines east of Te Maunga a "Df" was allowed 1,000 tons and a "Ja" 900 tons, the latter being reduced to 790 tons from Taneatua to Whakatane West.

In more recent years a single "Df" (or "Da") has been permitted to take up to 2,000 tons from Kawerau to Mt. Maunganui.

A comparison between the performance of diesel and steam locomotives, and also between the "Df" and "Da" classes of locomotives, is set out in the accompanying tables derived from information published in New Zealand Railways annual reports until 1960. Figures for later years have been kindly made available to me for the purposes of this article.

Table 1 shows the use that was made of each class of locomotive, detailing both the frequency with which each was used and the distances covered in a day. There are a number of factors that affect the utilisation of a class of locomotives, including the work required of the class and the number of units undergoing repair or overhaul. Bearing these points in mind, it is nonetheless instructive to note that the "Df" class as a whole was never, in the period considered, used on an average of five days of every week in the year. Indeed, in the earliest three years, the utilisation (and hence no doubt the availability) of the class did not even match that of the "Ja" class. When one recalls that the "Df"s were rostered on diagrams calling for six and sometimes even seven days in traffic each week, one must suspect that there was something wrong.

A study of the daily mileages shows that, when available, the "Df" locomotives were consistently hard worked. The round trip from Frankton to Te Maunga, in latter years their most typical assignment, is 193 miles, and for more than half of the period under review each loco-



Photograph: G. W. Emerson.
ABOVE: "Df" 1506 at Dunedin after an overhaul at the Hillside Workshops in September 1967.
BELOW: "Df" 1504 at Wellington after an overhaul at the Hutt Workshops in 1965.
 Photograph: N.Z. Railways Publicity.



TABLE 1: UTILIZATION

Class of Loco.	Year ended 31 March										
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
	Average Number of Days in Use per Locomotive										
Df	249	222	220	228	257	258	246	257	255	244	220
Da	300	261	250	259	273	252	263	280	298	285	284
Ja	255	251	252	227	244	236	220	190	231	230	233
	Average Miles Run per Day in Use										
Df	188	177	173	200	178	185	194	194	193	220	215
Da	200	197	209	205	208	211	210	207	205	213	201
Ja	161	157	172	154	148	141	137	135	126	113	88

In "average number of days in use", 208 days represents an average of four days per week, 260 days represents five days a week, and 312 days, six days a week. It should be noted that the annual averages of days in use can be affected when new locomotives are introduced during the year, or when old locomotives are withdrawn. Figures for such years should be treated with care.

motive in traffic covered at least this distance every day. By comparison, the average daily mileage run by the "Ja" class shows a changing pattern of use; in 1957 they were still express engines, but by 1967 their role was very much a secondary one.

The justification for the changeover to diesel traction is that, compared with steam, the admittedly more expensive locomotives (expensive that is in first cost) can do more work at a lower annual cost. The greater capacity of the "Df" has already been mentioned; Tables 2 and 3 clearly show the financial savings. Compared with a "Ja", a "Df" was about

40 percent cheaper to run, notwithstanding the heavier loads hauled. These savings began with the cost of fuel, and were maintained in spite of the higher charges against the diesel for depreciation. The tables show, moreover, that the performance of the General Motors diesels, the "Da" class, amply justified their purchase, no matter what the original reason for the choice.

If locomotives have an "Achilles heel", then that for the "Df" class was clearly maintenance, as is shown by the comparative figures for repair costs. In part this must be attributed to the rarity of the 12SVT diesel engine on the NZR;

TABLE 2: LOCOMOTIVE RUNNING COSTS

Class of Loco.	Year ended 31 March										
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
	Running Costs (Wages, Fuel, Stores) in Pence per Mile										
Df	40.6	42.6	41.8	42.5	40.1	42.0	42.1	42.5	46.7	45.7	47.6
Da	33.0	35.7	36.4	36.6	35.2	35.3	36.9	36.7	38.5	38.7	40.7
Ja	74.7	77.8	68.8	69.3	63.6	64.6	70.1	71.2	71.8	71.4	89.0
	Repair Costs in Pence per Mile										
Df	11.7	31.3	17.2	30.2	27.8	20.3	30.3	26.2	23.1	34.6	33.6
Da	5.2	5.6	7.3	13.8	9.0	10.3	7.0	8.9	10.8	9.6	12.0
Ja	24.2	22.6	17.8	33.9	26.8	27.4	31.0	45.1	20.2	7.7	19.8
	Fuel Costs (included in Running Costs above) in Pence per Mile										
Df	18.6	19.6	18.3	18.7	15.3	15.0	15.1	15.4	16.3	15.7	15.3
Da	15.6	17.2	16.6	16.6	13.7	12.9	12.9	13.3	13.5	13.3	13.1
Ja	53.3	55.2	47.7	44.8	37.0	37.4	40.6	41.4	42.0	46.3	52.8



Photograph: N.Z. Railways Publicity.

Photograph: G. W. Emerson.



in part it must be due to the sheer bulk of that engine and the consequent lack of working space inside the locomotive body. The "Df" gained a reputation as a fitter's nightmare and, with less than 18 inches available between diesel engine and body wall, there can be no surprise that maintenance staff found their work more difficult, or that it may, at times, have been less than perfect. Maintenance difficulties affect availability as well as operating costs; there were, I believe, embarrassing periods when only two, or even one, of these locomotives out of the ten were fit for traffic.

As originally delivered, the new 1,500 h.p. diesel-electric locomotives wore number plates showing class "DE" and numbers 1501 to 1510. Before they were placed in service, however, they were reclassified "Df", and the last member of the batch, No. 1510, was renumbered 1500 before being placed in service in March 1955. Then, in November 1965, all ten were renumbered 1300-1309 to leave numbers in the 15xx series available for more "Da" class locomotives that were then on order.

The "Df" was essentially a North Island locomotive, but in the late 1960s the availability of rail ferries and a decision to concentrate the overhaul of English Electric locomotives at Dunedin's Hillside workshops meant that individual locomotives worked briefly in the South Island. At Easter 1971 this writer's first trip on the "Southerner" was enlivened by the unexpected combination of a "Df" and a "Dj" at the head of a passing goods train.

Because so much of their working life was spent at the head of heavy goods trains, the "Df" class rarely had the opportunity to demonstrate to passengers the speeds of which they were capable, and for the same reason there are com-

LEFT, UPPER: Between Kawerau and Tauranga a "Df" locomotive may haul a train up to 2,000 tons in weight. This one is near Matata in October 1965.

LEFT, LOWER: The first "Df" to haul a train in the South Island was No. 1306, seen here at Dunedin station on 5 September 1967 with a goods train to Palmerston.

TABLE 3 — NZR HELENSVILLE - MT. EDEN

9.45 a.m. Oksihau-Auckland Relief Express (Train A88) Easter Monday, 1961

Locomotive: Class "Df" Diesel-Electric No. 1501

Load: 10 total, 200 tons tare, 230 tons gross

Distance	Stations	Sched.	Actual Times	Average Speeds
0.00	HELENSVILLE	min.	m.s.	m.p.h.
0.00	—	—	0.00	—
2.27	Ohirangi	—	4.00	34.0
3.76	Wharepapa	6	5.41	53.1
5.24	Woodhill	—	7.29	49.3
6.84	Rewiti	—	9.52	40.3
			5/R	
9.41	Waimauku	17	15.13	28.8
11.97	Huapai	—	19.03	40.1
13.34	Kumeu	—	20.52	45.2
16.49	Taupaki	—	24.55	46.7
			Sigs	
18.45	Waitakere	30	29.03	—
			—	—
			38.30	—
20.91	Swanson	37/44	44.12	25.8
24.38	Henderson	x	48.57	43.8
			—	—
			50.23	—
26.82	Glen Eden	52}	54.58	31.9
28.65	New Lynn	—	58.02	35.4
30.32	Avondale	x	60.53	35.6
			—	—
			64.47	—
31.27	Mt. Albert	66	67.25	23.9
32.83	Morningside	72}	69.24	44.2
33.46	Kingsland	—	70.27	36.0
34.30	Mt. Eden	77	72.39	22.9

paratively few logs of their running. These pages, however, have recorded an occasion on 17 January 1957 when "Df" 1509 ran a six-total 180-ton Tourist special from Auckland to Rotorua, 172.6 miles (277.8 km), in 4hr. 58min., including three stops aggregating 32 minutes. The return journey from Rotorua was completed in 4hr. 50min., including two stops totalling 27 minutes. Mr K. E. McLennan, who supplied the report (NZRO No. 71, Vol. 14, No. 1), noted that highlights included an average speed of 49 m.p.h. (79 km/hr) from Manurewa to Pukekohe, a 15.7-mile section including some 1 in 100 banks, and an average speed of 23.8 m.p.h. (38.3 km/hr) up the 1 in 35 climb from Tarukenga to Mamaku.

Article No. 13 in this series (NZRO No. 93, 1962, Vol. 19, No. 3) gave some details of the performance of the "Df" with the "Daylight Limited" on the Main

Trunk in the summer of 1955-56 compared with that of "Da's on the "Scenic Daylight" a few years later, and showed how closely comparable was the work of these two classes with 240-ton trains. The accompanying logs, one made on a relief express between Helensville and Auckland, and the other compiled on a fan trip, may also be of some interest.

The first log, in Table 4, was made on Easter Monday 1961 when A-88, the 9.45 a.m. Okaihau-Auckland train, consisted of nine very crowded open-platform 51-seat cars and a van. When this writer joined the train at Helensville, standing room only was available, and in fact times were taken through the guard's lookout. Because of the crowd, the train was 14 minutes late when it left Helensville, but the driver, a reputed fast runner, seemed determined to be home on time. I doubt if I have timed a faster departure from Helensville; the first 2½ miles, about half of which is round restrictive curves, were covered in four minutes, speed having reached a peak of 53 m.p.h. So rapid was our progress that it took the Train Control Operator by surprise, and he held A-88 at Waitakere instead of Swanson for the scheduled crossing with No. 53 down passenger. This stop cost 10 minutes, and when I left the train at Mt. Eden, the lateness was exactly nine minutes!

The 1972 log, timed by James Moffat, also began with the impetus of a late departure, in this instance no fewer than 32 minutes (which says something about fan trips). Railcars aside, it is the fastest journey from Frankton to Auckland of which I have seen any record. To pass through Tuakau, 48.9 miles from the start, in one minute under the even hour, was a notable effort. Notwithstanding five passenger stops in the last 32 miles of the run, the 85.94 miles were covered at an all-inclusive average of 46 m.p.h. Total running time was 108min. 20sec. It was a fitting finale to the career of a much misunderstood, much maligned, and much under-rated locomotive class.

TABLE 4 — NZR FRANKTON - AUCKLAND

Special Train K10 Tauranga-Auckland
Excursion, 19 February 1972

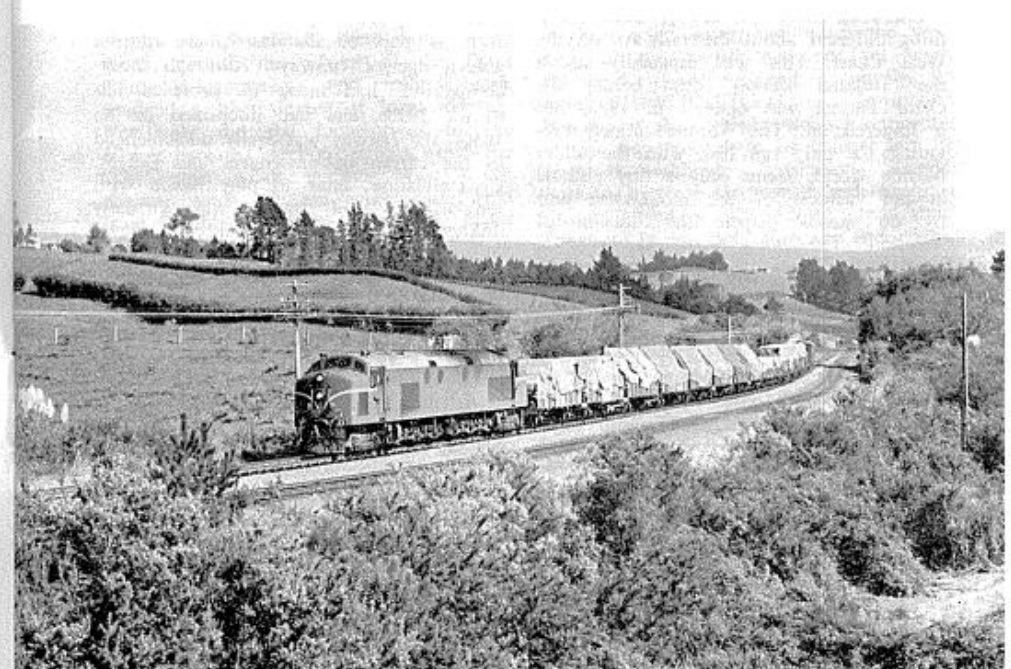
Locomotive: Class "Df" Diesel-Electric
No. 1301

Load: 8 total, 228 tons tare, 245 tons gross

Distance	Stations	Sched.	Actual Times	Average Speeds
Miles		min.	m.s.	m.p.h.
0.00	FRANKTON	—	0.00	—
3.36	Te Rapa	—	4.16	47.2
6.91	Horotiu	—	7.52	59.2
10.34	Ngaruawahia	15	11.33	55.9
14.95	Taupiri	—	16.36	54.8
19.49	Huntly	28	22.49	43.9
24.62	Otinowai	—	28.32	53.8
30.52	Te Kauwhata	42	34.50	56.2
34.95	Whangamarino	—	40.48	44.5
41.45	Mercer	—	49.33	44.6
44.09	Pokeno	—	52.46	44.6
48.91	Tuakau	—	59.05	45.9
53.65	Pukekhe	76	65.00	48.0
			66.24	—
56.41	Paerata	—	70.06	44.7
61.76	Drury	—	76.09	53.1
64.95	Papakura	b	80.00	49.7
		95	81.07	—
66.15	Tironui	—	83.43	27.7
69.35	Mereurewa	—	87.01	58.2
71.54	Wiri	—	89.23	55.5
			S/R	—
73.29	Papatotote	b	92.29	33.9
			93.13	—
75.01	Mangere	b	96.13	34.4
			96.48	—
75.61	Oteliuhu	115	98.16	24.5
76.42	Westfield	118	99.29	39.9
80.04	Tamaki	b	104.25	44.0
			105.01	—
80.89	Glen Innes	—	106.47	28.9
83.87	Orakei	—	110.00	54.1
85.94	AUCKLAND	136	112.06	62.1‡

b Stops only to set down passengers.
S/R Temporary speed restriction.

‡The editor begs leave to doubt the validity of the time quoted for the Auckland arrival as even fast railcars normally have taken three minutes or more from Orakei to the Auckland stop, and the record-breaking "Rm" 30 on 28 January 1967 required 2min. 43sec., but the author has supplied an argument in support of his claim which he found "no reason to doubt".



RIGHT, UPPER: A "Df" locomotive with an Auckland-Swanson picnic special about 1955. Photograph: Derek Cross.

RIGHT, LOWER: Graham Radcliffe's camera finds "Df" 1309 again on 4 April 1972, this time passing Apata on its way to Tauranga.