Karrier Motors Ltd

1908 - 1948
CONTENTS

Karrier Motors Ltd. - A Brief History 1908 - 1948............................................. Page 3

Karrier-Clough (1926-1932)................................................................. Page 15

The Karrier Ro-Railer 1932................................................................. Page 20

Cover Illustration: Ashton-under-Lyne No. 9 (TE9781) was a 1929 Karrier WL6 with English Electric 32-seat bodywork. (GEC collection courtesy David Beilby).

First Published 2015 by the Local Transport History Library. Second edition 2018.

With thanks to David Beilby and the British Railway collection for illustrations.

© The Local Transport History Library 2018. (www.lthlibrary.org.uk)
For personal use only. No part of this publication may be reproduced, stored in a retrieval system, transmitted or distributed in any form or by any means, electronic, mechanical or otherwise for commercial gain without the express written permission of the publisher. In all cases this notice must remain intact. All rights reserved.

PDF-059-2
Clayton and Company (Huddersfield) Ltd

Clayton & Co (Huddersfield) Limited was formed in December 1904 by Herbert Fitzroy Clayton (1857–1935), a prosperous chemicals manufacturer, to carry on the engineering business he had built up since 1899, after leaving his partnership at Dixon, Clayton & Co.

In 1908, joined by his second son, Reginald Fitzroy Clayton (1885–1964), Clayton & Co began designing and making 'Karrier' petrol driven motor vehicles and charabancs which became their main business.

The first Karrier vehicle - a 50 cwt. lorry with 18 h.p. two-cylinder engine - was designed in 1907 by Reginald Fitzroy Clayton and built in the following year by Clayton & Co. (Huddersfield) Ltd.

Originally, the company operated from one small workshop in Queen Street South, Huddersfield alongside the River Colne, around a mile from the centre of Huddersfield, where component parts were machined and chassis assembled; the total number of employees at that time was 35.

The first twelve months was very much an experimental period; but the following year (1909) saw the construction and delivery of 15 vehicles, some of which gave service for more than twenty years.
An early Karrier charabanc dating from 1914 on what is probably a ‘Gentleman’s’ outing as the charabanc seems to have stopped conveniently outside a bar! (LTHL collection).
The following year saw deliveries increase to 46; which included vehicles ranging from 20 to 80 cwts capacity and among them were models fitted with bus and char-a-banc bodies.

Whilst the smaller models were powered with two-cylinder engines developing up to 20 b.h.p., the larger incorporated four-cylinder engines giving up to 30 b.h.p. Both types had magneto ignition.

These early Karrier models had three forward speeds, were chain driven and ran on solid rubber tyres. In some cases the driver was positioned behind the engine whilst in others the cab was placed above the engine thus giving more body space and pioneering the way for vehicles with full forward control.

The passenger carrying vehicles delivered in the early years were of the bonneted type. Chassis were identical with the goods-carrying type and whilst their comfort was not comparable to present day standards they were extremely popular with the public - primarily for local outings previously undertaken by horse-drawn char-a-bancs.

In 1913, a lorry was designed to comply with the War Department's Subsidy Specification, and along with a number of other leading makers' vehicles it took part in the trials held in October of that year by the War Office. Oil and petrol consumptions, accessibility, speed and hill climbing capabilities were special features of these trials and as a result of the performance of the Karrier lorry, Clayton & Co. (Huddersfield) Ltd. were awarded a Subsidy Certificate. A number of these subsidy lorries were ordered by the War Office, and by a fortunate coincidence were ready for
delivery when the First Great War commenced in August 1914. The next four years saw very great activity on the part of the firm with upwards of two thousand 4 ton lorries turned out for the Government.

**Karrier Motors Ltd**

Rapid developments took place following the Armistice in 1918. The immediate postwar range of Karrier vehicles consisted of 36hp and 50hp models based predominantly on the prewar and wartime designs. This was partly a consequence of the War Department subsidy, which was offered on models purchased for civilian use that were approved for Army use and thus could be readily utilised if war was declared. The models were designated K and SK (the 'K' indicating forward control and the 'S' indicating 'side-type'), and had four-cylinder engines but with normally driven rear axles instead of the prewar chain drive.

In 1920, Clayton & Co (Huddersfield) was sold to a newly incorporated public listed company named Karrier Motors Limited, although the Clayton family still retained control. A new and substantial works not far from the centre of Huddersfield was acquired. This covered an area of approximately ten acres. At the peak of its production it employed well over a thousand employees.

About this time, the range of models expanded considerably; Karrier were amongst the pioneers of the rigid-frame six-wheel vehicle both for passenger and goods transportation a good many municipalities operated single and double-deck buses of the six-wheeled type with success.
Huddersfield Corporation No. 5 (CX4802) seen here in Kirkheaton village, was a Karrier K chassis (No. 4020) with Blackburn Aeroplane single-deck 30-seat front entrance bodywork, new in 1921. It cost £1592-10s and ran until 31 December 1926, by which time it had covered 137,811 miles. (LTHL collection).
In November 1925, a passenger carrying six-wheel coach was designed and constructed; the single-deck Super Safety Six-wheel Coach was exhibited at Olympia - the only example of its type shown - and proved to be the centre of attraction.

During the next two years rapid development took place in the six-wheel field; municipalities in particular taking a keen interest in the passenger models and during this period Huddersfield, Liverpool, Edinburgh, Salford, Leeds, Portsmouth, Bimingham, Halifax, Blackpool, Oldham, Manchester, Wallasey, Sheffield and Wigan took delivery of single and double deck Karrier six-wheel buses, the latter type accommodating up to as many as 66 passengers.

Following the success of the Karrier six-wheel bus in municipal service, attention was turned to the electrically propelled vehicle and with the collaboration of the old-established firm of electrical engineers, Clough, Smith & Co. Ltd. of London, a six-wheel double-deck trolleybus was designed and placed on the market in 1928.

This vehicle, known as the Karrier-Clough "E6" model, possessed all the comfort and mobility of the bus and enabled those municipalities, who were having to abandon sections of their existing tramway routes, to utilise the overhead equipment and preserve the load on their electricity generating stations.

Six of these double-deckers purchased by Doncaster Corporation in 1928 were the first Karrier trolleybuses to be placed in service and were the forerunners of the trolleybus fleets operated by municipal undertakings throughout the country.
This Karrier CL6/1 was new to Salford Corporation (either No. 20 or 21) with Hall Lewis 20-seat forward entrance bodywork built in 1927, seen here when new. (LTHL collection).
Although Karrier had been concentrating on the six-wheel range, in 1928 it produced an entirely new range of passenger carrying vehicles - three four-wheel chassis (Cutter, Coaster, Chaser) and two six-wheel chassis (Clipper and Consort) - accommodating from 20 to 68.

Each chassis embodied automatic chassis lubrication and the largest vehicle in the range, the "Consort" 68 seater, was fitted with a single sleeve valve engine, tested and developed by Karrier during previous years. This engine, which had a high thermal and mechanical efficiency, developed exceptionally high power without noise or vibration and its introduction to the Karrier range of power units was yet another instance of the company's determination to advance.

A further four-wheel model - the "Monitor" - a double-deck chassis with a 50 seat capacity was added twelve months later. Experience had shown that for a large capacity bus operating on a route of high traffic density the six-wheel chassis was much the better type of vehicle with regard to axle weight and the proper provision for overloading. Many operators, however, preferred a four-wheel chassis when having to transport smaller numbers of passengers and it was to supply this demand that the "Monitor" was introduced.

Around this time, further pioneering work was undertaken by Karrier Motors Ltd., which included the Karrier 'Ro-Railer'. This unique design was intended to permit a vehicle - goods or passenger - to travel with equal ease on either road or rail.
In 1933 an order for 10 Monitor chassis (the Monitor had been introduced in 1930) was received from the Johannesburg Municipality and remarkably, these were almost certainly the final Karrier motorbuses to be built.

The demise of Karrier Motors Limited was swift and sudden. Despite the Karrier range of chassis having a good reputation it was thought to be outmoded and the newer chassis had not yet had the impact of which their mechanical design and engineering were obviously capable. Karrier had experienced financial difficulties and suffered substantial losses in the late 1920's. A plan to amalgamate T.S. Motors Limited (Tilling-Stevens) with Karrier agreed in August 1932 was dropped a month later without explanation. The following August 1933, Karrier announced that under difficult trading conditions they had made a substantial loss during the 1932 calendar year.

In June 1934 the Company went into receivership and was taken over by the Rootes Group.

Apart from trolleybuses, which had become an important part of Karrier's business, the decision was taken to cease the manufacture of passenger carrying vehicles.

The trolleybus side of the business was by this time quite successful. Under the control of the Rootes Group, production of trolleybuses was transferred to the Sunbeam factory in Wolverhampton and the Huddersfield premises closed down. During the war years, trolleybuses were manufactured under both Sunbeam and Karrier names before the trolleybus business was sold (via Brockhouse of West
Bromwich) to Guy Motors Ltd., in 1948, with the Rootes Group retaining the right to use the Karrier name. This effectively broke the link between the Karrier name and full-sized passenger vehicles, although it was later revived for a small 14-seat coach based on the Commer 25cwt van chassis.

**List of models produced by Karrier:**

*Note: Some of the early vehicles were built on what were effectively lorry chassis and are not included here.*

**Bus chassis**

- C 14-seat (1922, 1924–5)
- CL 20/29 seat (1926)
- CL4 30, 26, 26/29 seat (1927–29)
- CL6 30 seat (1928)
- CV5 32 seat (1928)
- CLR-6WH 30 seat (1927)
- Cutter 20 seat 4-wheel (1928–32)
- Coaster 28 seat 4-wheel (1928–35)
- Chaser 4 26/35 seat 4-wheel (1928–32)
- Chaser 6 26 seat (1930–5)
- Clipper 40 seat 6-wheel (1928–31)
Consort 68 seat 6-wheel (1928–34)

DD6 various bus models (1929–31)

H 18–25 seat or 50 cwt (1922–25)

J type (1924–29)
JK 30/32 seat 75 cwt (1926)
JKL 52 or 32 seat (1927–28)
JKL FC 32 seat (1929)

K (forward control) and SK (side) type (1922–33)
K1 60/65cwt or 28–45 seat (1922–23)
K3 60 cwt or 28–54 seat (1922–25)
    SK3 33/35 seat (1922–25)
KL 30/32 seat 5 ton (1926)

Monitor 50 seat 4-wheel double decker (1929–34)

WL6 6-wheel rigid chassis, 5 ton, 28 passengers single or 54 passengers double deck bus
WO6 various bus models (1929–31)
Z 20/25 cwt (1925–27)
ZX 30 cwt or 20 seat (1926–29)
ZX2 24 seat (1927)

**Trolleybus chassis**

EA3 32-34 seat single deck 4-wheel
E4L 32-36 seat single deck 4-wheel
E4S 32 seat single deck 4-wheel
E4 56 seat double deck 4-wheel
E6 60 seat double deck 6-wheel
E6A 70 seat double deck 6-wheel
W4 double deck 4-wheel

Under Rootes ownership the Huddersfield operation was closed and trolleybus manufacture moved to Moorfield Works, Wolverhampton where the same Karrier designs were built alongside Sunbeam designed trolleybuses. The first trolleybus built by Sunbeam entered service on the Wolverhampton system in 1931. It was a model MS2 with bodywork by Weymann, and carried the fleet number 95. It had three axles and could carry 61 passengers. Later the Karrier name would be applied to some of the Sunbeam MS2 trolleybuses built.
Karrier-Clough (1926-1932)

Clough, Smith & Co. Ltd., were engineers and contractors, founded in 1910 by Norman Clough and Sidney G. Smith, both experienced electrical engineers with knowledge of tramway electrification both at home and abroad. The partners intended to promote the design and installation of suitable overhead power supplies for the tramway and trolleybus markets.

They designed and installed the overhead and traction supplies for all the Cedes-Stoll systems in Britain.

Just after the First World War they purchased six Brush trolleybuses for £7,800 that had been in mothballs since March 1915 and, almost immediately, re-sold them to the Tees-side Railless Traction Board for £9,900. This transaction encouraged the Company to exploit this market further, especially as the General Manager at Tees-side had been so pleased with the 'new' trolleybuses that he designed a new type of 'trolley-omnibus' system, which Clough, Smith duly arranged to be manufactured. The basic chassis was purchased from the Straker-Squire company at Edmonton, London, with the electrical equipment from BTH at Rugby and the body (in most cases) by Roe or Brush. They were marketed under the name of Straker-Clough and came as part of a package that included the design, supply and erection of the overhead. The first
Straker-Clough entered service in October 1921 and the final product was sold in September 1926, a total of 63 in all.

However, in May 1925, Straker-Squire was in financial difficulties and went into voluntary liquidation, forcing Clough, Smith & Co. to seek another supplier. That turned out to be Karrier Motors Ltd., of Huddersfield.

The original design of Karrier-Clough vehicles were developed from the six-wheeled double-deck Karrier WL6/2 motorbus chassis, and was designated the E6. A new series of chassis numbers was commenced at 54001 (although the first vehicles delivered, to Doncaster Corporation in 1928 had chassis numbers 54003-54006). A total of 44 Karrier-Clough trolleybuses were sold, mainly going to Doncaster Corporation, although Derby, Nottingham and York Corporations all had examples.
Karrier-Clough Trolleybuses 1928-1932

This listing is in the format - Chassis No; Purchaser; Fleet No/s; Body; Seating.

1928

54001-06; Doncaster CT; 5-10; Roe; H32/28R

1929

54007-12; Doncaster CT; 11-16; Roe; H32/28R
54013-18; Doncaster CT; 17-22; Roe; H32/28R

1930

54019; Bloemfontein; 5; Roe; H32/28R
54020; Doncaster CT; 23; Roe; H32/28R
54023*; Demonstrator; - ; Park Royal; H32/28R

* later purchased by Nottingham CT (No. 50).
1931

54021-22; Doncaster CT; 24-25; Roe; H32/28R
54024-28; Doncaster CT; 26-30; Roe; H32/28R
54032-43; Nottingham CT; 25-36; Park Royal; H30/30R
55001-03; York CT; 30-32; Roe; B32R

1932

54044; Derby CT; 99; Dodson; H29/27R
Doncaster No. 8 (DT1146) was a 1928 Karrier-Clough E6 with Roe 60-seat bodywork. Out of the 44 Karrier-Clough trolleybuses built Doncaster purchased 30 of them. (LTHL collection).
The Karrier Ro-Railer

At the beginning of 1931 the London, Midland and Scottish Railway Co. after much experimental work carried out in conjunction with Karrier Motors, Ltd., Huddersfield, held demonstrations of a vehicle called the Ro-Railer, which was virtually a motor coach capable of travelling either on the road or on the railway track.

A road-service licence was obtained for operation between the Welcombe Hotel, Stratford-on-Avon, which was one of the L.M.S. hotels, and Blisworth Station, on the main line from Euston to Holyhead, Glasgow. The service operated once daily in each direction.

Ten minutes was allowed for converting the four wheels for operation on the rails. The journey comprised about one mile on the road and approximately 30 miles on the rail.

The object of the service was to provide a direct link between the L.M.S. London terminus at Euston and a comfortable hotel in Stratford-on-Avon, which served as headquarters for visitors to the Shakespeare country. For this purpose the Ro-Railer was timed to connect with express trains to and from London which stopped at Blisworth.

The chassis of the Ro-Railer was fundamentally the Karrier Chaser 6, having a six-cylindered engine of 110 b.h.p. The road-wheel track was 6 ft. 3.5 ins., the rail
gauge being 4 ft. 6 ins. On the front wheels 32-inch by 6-inch tyres were fitted, those on the rear wheels being single 42-inch by 9-inch tyres. A supplementary gearbox behind the main gearbox provided a secondary range of gears, with a top-gear ratio of 4.2 to 1, against 7.2 to 1 when in direct drive. The particularly high gear was necessary for fast travel on level stretches of rail.

The mechanical means employed to render the chassis suitable for both road and rail duty was quite simple, the same principle being applied to both front and rear wheels. The flanged railway wheels were fixed in a normal manner to the axles and carried hubs which extended outward and had outer plates. The road wheel was located between each flanged wheel and its outer plate, held in position by two pins. To raise the road wheel one of these pins was temporarily employed and provided an eccentric fulcrum, and the wheel held in the raised position by means of a slipper-block structure attached to the chassis. In earlier designs, the wheel incorporated two eccentrics, but this arrangement did not give quite enough clearance over possible obstructions slightly higher than the rail. The only other modification was a reduction in weight to bring it within the legal limit.

All that was required for the change over was a length of ground (about 40 ft) raised to the level of the rail top. The vehicle then drove into position above the track and moved forward or backward off the raised ground level, down ramps until the weight was taken by the rail wheels. The road wheels were then raised.
Satisfactory braking was obtained by use of drums on the rear wheels, whilst a sanding gear operated from the driver's cab fed the rear rail wheels. Standard buffers are fixed to the frame at the rear end, and a detachable buffer bar is fitted at the front.

The body was built by Cravens, Ltd., Sheffield and seated 26 persons and featured 14 front facing seats in the forward vestibule and 12 longitudinal seats in the rear smoking saloon with two main entrances, one at the centre on each side, the roof being arched over the central vestibule to afford headroom for passengers who entered from station platforms. The gap between the side of the vehicle and the platform was bridged by a sliding floor, controlled through a chain-and-sprocket system by convenient handles.

The experiment was withdrawn in June 1932 due to the vibrations, mechanical problems and a lack of passengers.
The Karrier Ro-Railer 1931. The body was built by Cravens, Ltd., Sheffield and is seen here at the Cravens factory before delivery. It had 14 front facing seats in the forward vestibule and 12 longitudinal seats in the rear smoking saloon with two main entrances on each side, the roof being arched over the central vestibule to afford headroom for passengers who entered from station platforms and is clearly shown here. (British Railways collection).
The Ro-Railer seen here with a full complement of passengers during demonstration trials. It has just travelled past bridge 7 on its way to Stratford upon Avon. (British Railways collection).