6.1 Radiator Types and Construction

SCOTT RADIATORS
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My old scoutmaster, a New Zealand Scot. was an officer during World War 1 and about 1920-21 started a troop of scouts which I joined. His name was James Stuart-White and he was director of the firm Purdy and White (a branch of I.C.I. Ltd). He was the proud owner of a 3-speed Scott fitted with a Sturmey Archer gear box. He used to carry dynamite etc. on the pannier of his 'Scott' for delivering to the local coalmines. He also rode in the "Leeds Motor Club" events, such as "The Scott Trial". It was no mean feat even to finish in such events. His elder son, Jack, later purchased a 'Flyer' and followed his father in trials riding.

I never drove a 'Scott', but two of my friends owned 'Scott Flyers'. My uncle also had a two-speed sidecar outfit.

My father was Arthur Lewis Dunn, a sheet metal expert by trade. He made the radiators and bonnets and mudguards for the Royce cars in the days before Rolls-Royce. He owned his own business before going into partnership in 1908/09 as 'Pendleton Radiator Co. Ltd.' He made the first 'Scott' radiators and these were patented. The radiators were all hand-made with the exception of the square honeycomb tubes; I don't know who made these tubes. The method of manufacture was nearly the same throughout the years.

In 1914, my father opened the Leeds branch of Pendleton Radiator Co. Ltd. which later became the firm of Northern Radiators Ltd. of Sheepscar Street, Leeds 12.

I started work as an apprentice at 4/6d per week in 1926 and my first working tools were a sweeping brush and a water can. I soon learned how to build the cores (or blocks) for 'Scott' radiators which were known as "Standard Scott". These were hand built with round tubes, 75mm x 7mm with a swelling at each end about 9mm long.

We built the cores into a steel clip and screwed down a bar on top and a bar at the side, to given sizes. These cores were dipped to swelling depth in a 50/50 bath of lead and tin using a flux of "killed spirits" in the "Scott Pan".

The backs for these cores were cut from 20 SWG ½ hard brass, 3" wide with a 1" hole punched for the outlet pipe. The backs were fitted individually and a packing of brass was used to form a bottom tank. The 3 bolt hole tubes of about ¾" diam x ⅜" long were fitted with soldered tacks and the whole lot redipped to about ½" depth. While still hot the cores were checked for a 'good dip' and the bolt tubes jigged.

They were then loaded with solder at the bottom tank and the bolt tubes were stiffened. These were put into a tank to soak in water overnight.

The sheet metal workers were busy making up the other parts of the radiator. The two ends were embossed in a die, and part of the rim was cut away for fitting. The embossed emblem was filled with solder on the inside. The saddle or centre-piece was cut to a given size and an edge thrown off for soldering and an air pipe soldered on.

The covers for the header were made up in pairs one having a hole in the centre for the filler cap tube.

In production these holes were on the right-hand side looking to the front wheel from the riding saddle, and were made of 26 SWG hard brass.

The cores were cleaned of solder on the outside and polished with fine or worn emery cloth.

The sheet metal workers built up the radiator and soldered it up after fitting a throat which held the inlet tube (1" OD copper). This core unit was filed and finished with emery cloth. The radiators made under my care were label stamped in a special way, with a long space between the 3rd and 4th figures.

The filler, now complete with screw ring, was fitted, together with bottom outlet pipe and four copper tubes which were to take the leg shield wires at the corners. The bolt tubes were reamed out to ½" diam. and the label soldered in place. The radiator was tested under water to 6lb. per square inch. If sound, the washers were soldered on to the bolt tubes and the excess was filed off. An air pipe (or overflow) was fitted and end sealed off.

The complete radiator was washed in boiling water. When dry the "rad" was "topped up" and left overnight to cool and test. Next day, the chief "sheety" checked them and they were put on one side for delivery, now complete with brass cap (filler). These radiators were made in batches of up to thirty at a time and were delivered to "Scotts" at Shipley during a routine visit by our van to Bradford which was daily.

"Scotts" did their own plating and a matt finish was standard on every radiator.

As years went by, Scotts produced their "Power Plus" engines and Replica models. The radiators had complete honeycomb block and a cast brass inlet.

Later the 'Grass Track Scott' was produced and the centre of the core was cut out and the inlet pipe was fitted as on the 'Standard' radiator. This cutaway became standard design and a larger filler also standard. The same manufacturing procedure was used.

The TT radiators had a left hand filler of quick action design, and the bolt tubes were heavily soldered. The testing was also more severe.

The 'Flyer' had a larger diameter header and the top ends were hollowed on a wooden block with a hammer. Different parts were made to meet the needs but the only things not made in the works were the filler ring and cap and the bolt tubes together with the blanks for the inlet and outlet pipes.

As years went by the Pendleton Radiator Co. Ltd. opened a factory in Leeds 12, and my father was managing director. I cannot give the date of the changeover. My father was in that position until he passed away in 1933.

During the early part of World War 2 "Scotts" made six machines for a Major for use behind German lines in France, but up to my leaving the firm no report was available.

During the prewar years I saw a six cylinder crankshaft that turned with a small mouth blow, made at Scotts. The wage of a tradesman in 1930/40 was three pounds four and sixpence a week and I think petrol was one shilling and one and a half pence per gallon.

Northern Radiators made the radiators for the three cylinder machine and I am told it was a very fast bike. Scotts fitted an engine into an MG Midget chassis and we were informed it was at least 5mph faster than the original.

I owned a 1926-250cc OHV New Imperial and during a camping holiday in hilly country, the front fork broke at the brake anchorage

and I limped home with a 'tent pole splint'. Scotts were asked who to send it to for repair and we were told to send it to them. The result was a "no charge job" for fitting a new tube and re-enamelling. The fitter was sent 50 cigarettes with my thanks.

During the 'era' of the "ultralight" aircraft, Scotts made and sold their "Flying Flea". It was a fine job with an inverted engine. I remember the name of one of the Scott riders, it is Geoff Milnes. He was our local Scott agent and a very fine mechanic. His workshop was in Woodhouse Lane, Leeds. Frank Varey was another Scott man, being the World Champion for a few years on the Speedway.

MATERIALS LIST

Tubes	75mm × 7mm Brass
Back	20SWG ½ hard brass
Centre	20SWG ½ hard brass
Centre throat	26SWG hard brass
Top headers	26SWG hard brass
Tank ends	24SWG soft brass
Standard ends	Spun to size
Standard saddle pressing	Bought in
Flyer panels	24SWG soft brass
All bolt tubes	Bought in
Flyer filler	20SWG soft brass
Standard filler (3 pieces)	bought in from Rotherham, Coventry
Flyer screw filler and cap	bought in from Rotherham, Coventry
Tube blanks 1" o.d.	Bought in
3/16 air pipe)	Supplied in random
Inner pipe standard)	lengths
¼" o.d.)	by Yorkshire Copper
4 corner pipes ¼"o.d.)	Company

Labels were standard works label.