

## **The History of Nuffield and Leyland Tractors - In the Beginning, The Nuffield Years and BMC**

During the Second World War, agricultural mechanisation was expanding at a very rapid rate. The bulk of tractors and equipment, during this time, were being imported from North America, resulting in a heavy drain on hard currency and other assets of the nation.

Before the war most cultivation's and general work on the farm were carried out using horses. This was OK when labour was plentiful and time was not the issue that it is today. Indeed many would say that during these 'Good old days' the work was done on time in most weathers and that the land was in a much better condition due to less compaction etc. The 'Tractor' was basically designed to replace the horse so that farming could become more efficient.

The Government of the day encouraged the Morris Motors Company, to divert some of their energies, to produce agricultural tractors. The offer was placed just at the right time, since Morris Motors of Birmingham were carrying out a policy of centralisation, and the Wolseley car production had been moved to Cowley thereby leaving factory space at the Ward End plant in Birmingham vacant. An assessment of the factory was made and the site deemed suitable for tractor production. Early design work was carried out by Dr Herbert Merritt and Mr Claude Culpin and a team from Nuffield Mechanisation, who during wartime, were responsible for the design and production of Crusader tanks. These tanks were based on an original Russian design which proved unsuitable for the British army.

In 1919 there was an Austin tractor, built by Herbert Austin at Longbridge, but there is no evidence to show that there was any connection with the future Nuffield Tractor. Indeed by the mid twenties production had moved to France.

By May 1946, the prototype Nuffield Universal tractor was on test, and during the following three months, another twelve prototype tractors were made and tested in the UK and abroad. The tractors were shown to a selected audience at a demonstration at Pershore Wore in late 1946.

The tractor itself was now thought to be ready for production. All the refinements had been completed and teething problems overcome, however production was held up due to the steel shortages and full production would be delayed for over a year.

By November 1948, the steel situation changed and sufficient stock could be obtained on a regular basis to begin production. The New tractors were first seen at the 'Smithfield show' in London in December that year and were put on the market in utility and row-crop versions. During the following years, the basic design proved itself so reliable and successful in world markets that, even at the end of Leyland Tractors, many of the basic principles were still being used!

The first tractors produced in 1948 were powered by a Morris Commercial, 4 cylinder side valve T.V.O. engine, type ETA, which produced 38 horse power at 2,000 rpm. The Hydraulic power-lift was well thought out, and remained basically the same for over 20 years, apart from occasional improvements. It was operated by two separate levers, providing 1 lever for internal hydraulics and one for external tapings (such as front end loaders and tipping trailers) or both levers could be used for one double acting external ram. The first hydraulic units were basic lift and drop with auxiliary service, 1200 psi and 2000 lift at the link ends. A single plate 11" Borg & Beck was used and the gearbox had 5 forward and 1 reverse gear. Drum brakes were fitted to the final drive pinions and a PTO was optional.

In 1952 the British Motor Corporation (BMC), was formed by the merger of the Austin Motor Company and the Nuffield Organisation (parent of the Morris car company, MG, Riley and Wolseley)

Initially all the Nuffield tractors produced were allocated to the UK with a view to assisting in the increase of crop production to counter the food shortage. After this, from 1949, Nuffield began the exportation of the Universal by a subsidiary company belonging to Morris-Motors called 'Nuffield exports Ltd' (initially exports were limited to 5 countries, but later became world wide.)

In 1950 the range was expanded with the introduction a 4 cyl petrol engine and a 4 cyl Perkins P4 diesel engine giving 48 & 45 hp respectively. The Nuffield Universal M4 had a conventional front axle whilst the M3 had a row crop single wheel and from 1953 the MV3 featured a 'V' twin front wheel. (Petrol models had a P suffix to the model number and the diesel a D. i.e. :- PM4/PM3V or DM4/DM3V).

1954 saw the introduction of the BMC 3.4 ltr 4 cyl Diesel engine producing 56 hp. Diesel was, by far, more economical to run and the most popular, The ever increasing availability of this cheap fuel was to sound the death of TVO powered tractors, these were phased out in 1956.

In 1957 a three cylinder 37 hp 2.55 ltr BMC engine was introduced to meet the need for a smaller tractor. Model number changed to Universal 3 and Universal 4. An optional double 11" clutch allowed a hand lever operated IPTO (Independent Power Take Off) to be offered, although Hydraulics & PTO still remained an option. Flanged axle shaft were introduced in place of the original 'Sliding' hubs, many of which had been 'Cut off' rendering wheel adjustment impossible. At the same time independent wheel brakes were introduced. By 1960 75% of production was Universal Fours and 80% of production was exported to 78 countries. At the same time the hydraulics were up-rated to a pressure of 2000 psi with a lift capacity of 2830 lbs.

A number of improvements were introduced in 1959, the main ones being; inclusion of differential lock and independent wheel brakes.

The 1961 season saw the engine size increased to 2.8 & 3.8 ltr with 39.8 & 57.5 hp respectfully. Model numbers change to 3/42 & 4/60, these numbers represented the number of engine cylinders and engine horse power. Power steering was offered as an option on the 4/60 for the first time. The 'Standard' model still retained the single clutch while the 'Deluxe' model featured IPTO. A new hydraulic system with draught control, an adjustable stop on the quadrant, single acting top link & cat 1 & 2 linkage was introduced. System pressure and lift capacity remained the same as previously.

In 1962 production of all Nuffield tractors was moved from Ward End, Birmingham to a new BMC commercial vehicle factory at Bathgate in Scotland. Building of the Bathgate factory commenced in 1961, on about 250 acres of land just outside Edinburgh. This move was politically motivated, by the government of the day, to replace the loss of employment due to the massive closure of coal mines in central Scotland.

The move was heralded as a new beginning for industry in Scotland and joined the Chrysler and Pressed Steel Fisher plants at Linwood. It was hoped that independent entrepreneurs would start up component manufacturing facilities to 'feed' parts to Bathgate. But, apart, from a few suppliers, the factory had to rely on all major components being brought up from the midlands of England. This caused a heavy burden on overhead costs which increased unit costs. Bathgate did however machine all castings, gears, shafts, engine parts and hydraulic valve blocks etc. This, along with the Red Line BMC truck production, meant that at the time Bathgate had the largest 'Machine Shop' in Europe.

At one point Bathgate employed 4500 workers. Labour relations were strained at times causing even more cost increases.