



The Sheppard Diesel

By Ian M. Johnston

The world wide tractor shortages, which occurred immediately following the end of World War II, opened windows of opportunity for newcomers to the arena. Entrepreneurs, often with little or no tractor experience, rushed through engineering drawings and launched a variety of new tractors into the market place.

Often these were poorly designed and endured only until the traditional manufacturers were once again able to come on stream with volume production. But a few of these opportunistic tractors were in fact well conceived and performed reliably. This is evidenced today by the lineage of those which remain in production.

The Sheppard Diesel was one of the new American tractors that was well designed and could compete favourably alongside such icons as International, Massey Harris and John Deere, but yet did not enjoy a long production run.

IN THE BEGINNING

The origins of the R.H. Sheppard Company extend back to the early 1930s, when Robert Harper Sheppard opened a small manufacturing and engineering business in Hanover, Pennsylvania, specialising in the production of wire fabric used by flour millers for sifting. Noting that there existed a growing demand by farmers for

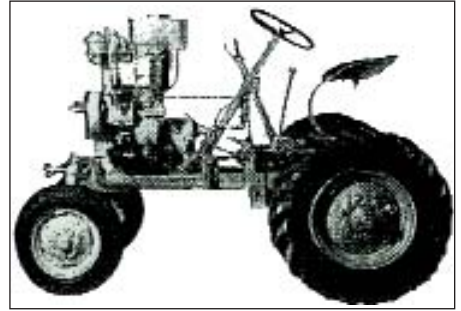
petrol engine driven generators, the company successfully diversified into that field.

Sheppard portable generators were subsequently sold in large numbers into the domestic and export markets.

The concept of the diesel engine became a fascination for Robert Sheppard. By this time his manufacturing business was running smoothly and he was able to direct his talents towards the design of a number of innovative diesel engine initiatives.

The first production Sheppard Diesel engines appeared in the late 1930s and ranged from five to 100 hp. The Chicago based firm of Fairbanks Morse & Co. entered into an agreement with Sheppard resulting in Sheppard Diesel engines being rebadged and marketed under the Fairbanks Morse label.

During the Second World War, Sheppard was contracted by the US Navy to produce thousands of diminutive high revving single cylinder diesel engines, specifically for powering ship's life boats. These engines featured their own encapsulated fuel system which provided around 18 hours of running time. They were designed to cope with the rigours of a disaster at sea and could remain running even if upside down and continually assaulted by waves.



Only 14 examples of the Sheppard Diesel SD 1 were produced — all in 1949.

Accordingly, few photos exist. This poor quality reproduction serves to illustrate the “no frills” nature of the little tractor, which was sold devoid of body panels.

(Courtesy C. H. Wendell)

With war production a thing of the past, the R. H. Sheppard Co. looked around for new manufacturing opportunities. Following extensive research and development, the company introduced its first agricultural tractors in 1949. Most of the new name tractor makers of that era entered the market initially with one model. Sheppard surprised its competitors by unveiling no less than three distinct models at the 1949 Pennsylvania Farm Fair.

It should be noted that Sheppard named his tractor the “Sheppard Diesel”. The tractor was never referred to simply as a “Sheppard”. (So it is incorrect not to use a capital “S” and “D” when referring to the Sheppard Diesel).

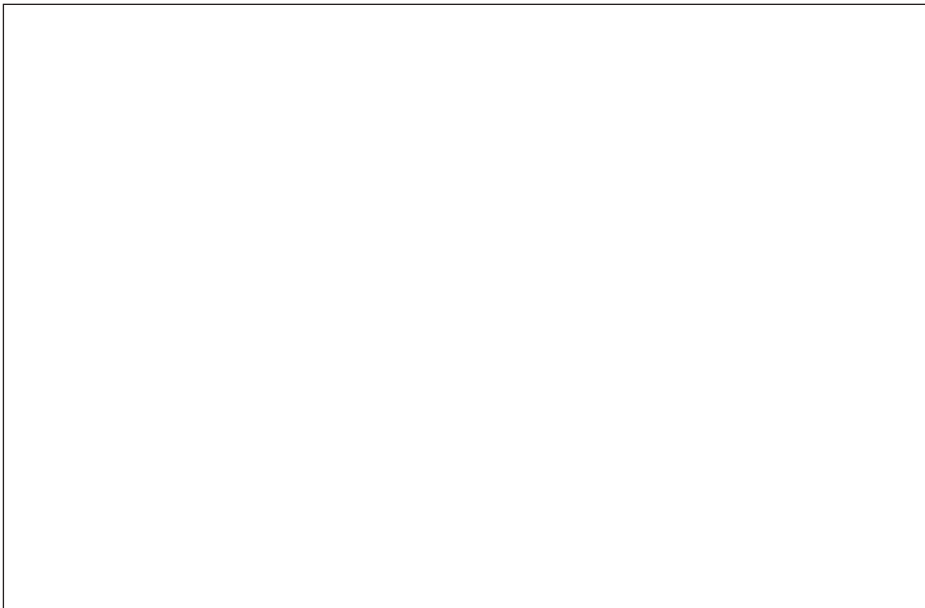
THE SHEPPARD DIESEL SD 1

The SD 1 was an oddball lightweight machine aimed primarily at small acre vegetable growers. Its overall width was a mere 4.5 feet.

The power unit was an air cooled Sheppard single cylinder overhead valve diesel engine, with a bore and stroke of four x five inch, which produced four belt hp at 2000 rpm. (High revs indeed for a single cylinder diesel engine of the period).

As with all Sheppard Diesel tractor engines, oil changes were recommended only twice each year irrespective of the hours worked. Starting of the SD 1 was by hand crank, but an electric starter motor was listed as an optional extra. Forward gear speeds commenced with an unsuitably high three mph, then 5.7 and 10 mph.

78 ▷



This restored SD 2, owned by L. Klingaman of Columbia City, Indiana, is the row crop version and is powered by a 24 belt hp two cylinder diesel engine. (Photo IMJ)

The SD 1 was well designed and performed adequately for a lightweight tractor, but did not prove popular with farmers. The relatively high price tag of \$1095 no doubt contributed to its early demise, following a dismal production run of only 14 units.

THE SHEPPARD DIESEL SD 2

This was an entirely different concept to its little brother the SD 1. Here was a full-size stylish conventional tractor that was cleverly engineered and a credit to its designer. The two cylinder liquid cooled 126 cubic inch diesel engine provided 24 belt hp at 1650 rpm. The optional extra of either an over or under drive transmission increased the number of forward gears from four to eight.

The Timken rear end transmission was identical to that used by the Canadian tractor manufacturer Cockshutt and provided live hydraulics and a live pto shaft. Consequently the SD 2 (and SD 3) were among the very first tractors in the world to incorporate these features, which are taken for granted in modern day tractors. A three point linkage hitch, although not standard, was an option favoured by small acre farmers.

The SD 2 suffered the same price handicap as the SD 1. Its retail price of \$2695 was nearly \$1000 more than the cost of a John Deere A or other similarly rated tractors. As consequence only 257 units were produced.



The SD 3 was the top seller of the Sheppard Diesel range. Its three cylinder diesel produced 32 belt hp. This row crop example is part of the Anderson Collection, located in Lincoln, Nebraska. (Photo IMJ)

THE SHEPPARD DIESEL SD 3

This was the third and most powerful of the Sheppard Diesel range produced by the Pennsylvania factory in 1949. It also proved the most popular with 1,441 of the handsomely styled yellow tractors destined to be produced.

Equipped with a 32 belt hp three cylinder Sheppard Diesel engine, the SD 3 was conservatively rated as having a three furrow plough capability. Although available with the three point implement linkage hitch, the SD 3 was generally put to work with a trailed plough — the usual practice in 1949. The tall rear tyre size of 11.00 x 38 enabled

the tractor to obtain a good grip and it was sufficiently narrow and high to permit row cropping. There was a full 23 inch clearance under the axle for this purpose.

The transmission was identical to that of the SD 2, thus providing the same advanced technology of live hydraulics and a pto shaft working independently of the main clutch.

The list price of \$2995, which was surprisingly below that of most other tractors in its class, rendered the SD 3 more price competitive than the SD 1 or SD 2.

THE SHEPPARD DIESEL SD 4

The largest of the tractors produced at the Pennsylvania plant, the SD 4 was not introduced until 1954. Developed along the same lines as the SD 2 and SD 3 — this was a big good looking tractor that came complete with power steering, disc brakes and an advanced engine monitoring alert system. Robert Sheppard powered this machine with his latest diesel — a 319 cubic inch four cylinder unit capable of producing 51 belt hp at 1650 rpm.

A heavy duty 12 inch Rockford clutch transmitted the power to a 10 forward speed transmission. In 1956 however, Sheppard offered the option of a torque convertor which was astutely installed in series with the engine and retained the 10 speed transmission. The maximum torque multiplication of 2.14 occurred at 1540 rpm, at which point the tractor would be at near stall conditions. Live pto shaft and hydraulics were also fitted as standard.

Rear tyres of the SD 4 were 14 x 34, but 13 x 38 were usually fitted if the tractor was of a tricycle row crop configuration.



The flagship of the Sheppard fleet was the SD 4 — an outstandingly good heavyweight tractor powered by the unique Sheppard four cylinder 319 cubic inch diesel engine, which developed a lusty 51 belt hp. The driver is Lynn Klingaman, a farmer in Indiana, who is an authority on Sheppard diesel tractors and is the owner of an impressive collection. (Photo IMJ)



This rear view of the SD 4 illustrates the outboard disc brakes and the commanding operator position. (Photo IMJ)

Pictured is an International Farmall M repowered by the purpose built replacement three cylinder Sheppard diesel. (Photo IMJ)

The SD 4 in 1954 was listed at \$4147. This made it one of the highest priced tractors of the time, restricting its production to only 231 units. This is a shame as it was truly an outstanding tractor.

THE TRACTOR ENGINES

The two, three and four cylinder diesel engines used in Sheppard Diesel tractors were based on the Lanova system — first developed by the brilliant German engineer Franz Lang. (In modern day terminology this concept is usually loosely referred to as indirect injection). Put simply, each cylinder had a pre-combustion chamber designed to produce controlled combustion turbulence, which resulted in a smooth output of power.

The negative of the Lanova design was that it generally required a higher compression ratio than an engine incorporating the direct injection principle. In the instance of the Sheppard engines this was a 22 to one ratio. This in turn, necessitated a larger battery capacity and glow plug pre-heating requirement for starting in cold weather.

The R. H. Sheppard Co. was one of the few engine manufacturers that designed its own fuel injection system. The in-line fuel pump was incorporated within one housing, but each pressure piston could be individually adjusted. The fuel was pumped to the fuel injector nozzle, which contained only one pin hole orifice (as distinct from the customary “pepper pot” spray configuration). The total amount of fuel that arrived at each injector was injected — there was no by-pass return line. Significantly, the injection took place just beyond maximum compression in the cylinder.

The result was a diesel engine that could

utilise a variety of diesel fuels — including low cost second grade furnace oil. Another bonus was that a farmer could service the relatively simple injection equipment without recourse to a skilled mechanic.

INTERNATIONAL FARMALL M AND SHEPPARD

Sheppard produced a custom version of its three cylinder 188 cubic inch diesel engine, designed exclusively as a replacement for the petrol/kero power unit of the International Farmall M. The replacement engine could be installed in less than a day by an average mechanic, without the use of special tools. It was designed to fit into the International without any alteration to the frame. Only one small hole had to be drilled in the bonnet.

The Sheppard Diesel engine transplant provided the Farmall M with much improved torque and fuel economy, when compared to the original petrol/kero International engine. The cost of supplying and fitting the Sheppard Diesel engine to the Farmall M was \$1200.

THE END OF TRACTOR PRODUCTION

The manufacturing of Sheppard diesel tractors was discontinued in late 1956. During their seven years of production, sales had been limited by the company’s rigid policy of extracting full settlement from its dealers for each tractor prior to it leaving the factory. This was at a time when firms such as Case and John Deere were offering attractive floor plan schemes, enabling their dealers to carry extensive stocks.

Curiously, no Sheppard Diesel was ever tested at The Nebraska Tractor Test Laboratory, a short-sightedness upon which competitor tractor manufacturers

capitalised. Additionally, as previously stated, the comparatively high price level of the tractors (with the exception of the SD 3) proved another limiting factor to potential volume sales.

SHEPPARD TODAY

The R.H. Sheppard Company has expanded under the directorship of the founder’s son Mr Peter Sheppard and has become a major supplier of power steering equipment to the truck and tractor industry. Peter is also actively engaged in encouraging the restoration of Sheppard Diesel tractors. In this regard he extends valuable historical research assistance to Mr Lynn Klingaman of Indiana, who is the President of the Sheppard Diesel Club. 🌱

IAN'S MYSTERY TRACTOR QUIZ

QUESTION: What are we looking at in the photo ?

CLUE: It has to do with ploughing.

DEGREE OF DIFFICULTY: This will separate the “old boys” from the “young boys”.

ANSWER: See page 88.

