

MASSEY FERGUSON 65

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WELCOME

The Massey Ferguson 65 is one of those models that flies a little bit under the radar, as far as many in the classic tractor movement are concerned. It tends to be overshadowed by both older models, such as the 35, and newer machines like the oh-so-popular MF 135.

Although just over 114,000 MF 65s were built during a production period that ran between 1957 and 1964, the tractor remains a comparatively rare sight at shows and on road runs nowadays. But this, in my view, makes this model just that little bit more special; the relative scarcity means that it's an even greater treat when you actually come across one at an event.

So, the purpose of this bookazine – the third in the *Ferguson & MF Tractor Collection* series – is to shine a much-deserved spotlight on the MF 65. You'll find the

following pages packed with buying hints and tips, fascinating historical information and plenty of practical feedback from owners and enthusiasts about what it's like to live with one of these fine machines.

As usual, I've included as big a spread of feature material as possible, to provide readers with a comprehensive and useful source of reference. The content should be of interest to prospective MF 65 owners as well as those who already appreciate the many benefits of owning and using one of these practical classics.

You'll also find a few bonus features towards the back of the bookazine, including a fascinating, two-part history charting the glory years at Massey Ferguson's famous Banner Lane Factory, in Coventry. There's also a practical guide to

safely and legally trailering tractors – essential reading for anyone who wants to show their machine – plus, as a special treat, a glimpse into the exacting and highly-skilled world of traditional sign-writing. Enjoy it all!

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BUYING GUIDE

MASSEY FERGUSON 65

Chris Graham profiles a no-nonsense model that even today, nearly 60 years after production ended, remains affordable, desirable and still useful





The MF 65 is an essentially reliable, straightforward and appealing tractor (in either Mk.I or II form) that still represents great value for money.

As the 1950s began drawing to a close, Massey Ferguson found itself in desperate need of a larger, new model to offer its power- and performance-hungry customers.

Harry Ferguson had attempted to meet that demand earlier in the decade, with the LTX (Large Tractor Experimental) project but, for whatever reason, his prototypes were rejected by the powers that be at Massey-Harris. One of the official reasons given was that Ferguson's new machine - to be named the TE-60 and powered by a 56hp diesel engine - hadn't been designed with a row-crop option. However, perhaps more telling was the fact that Ferguson's machine decisively out-performed an MH 744 in field trials, under the full gaze of the Massey-Harris big-wigs!

The 'Meccano method'

In the end, the company opted for a more cost-effective method of creating a larger model, by making use of as many parts as possible from the existing MF 35. This became known as the 'Meccano method' and, ultimately, proved successful resulting, as it did, in the MF 65 Mk.1 that was revealed to an appreciative industry at the Smithfield Show in December, 1957.

The new model, of course, featured the full Ferguson System hydraulics (upgraded from the MF 35), and was powered by a version of the Perkins P4 diesel engine. The 3.1-litre, four-cylinder A4.192 unit produced a healthy 50.5hp at 2,000rpm, and this was transmitted through an Auburn, two-stage clutch to a modified, six-speed gearbox (with higher ratios) taken from the MF 35.

A differential lock was available, as were power-assisted steering and a CAV thermostatic cold-start system. Other notable features included lower links fitted with Cat 1 and 2 ball-ends, an adjustable top link, lockable inboard Girling disc brakes with automatic wear compensation,

BUYING GUIDE

a swinging drawbar, twin 6V batteries and an 11-gallon fuel tank.

The design of the MF 65's front end represented quite a visual departure, with the model losing the traditional, slatted radiator grille, in favour of a more modern-looking, three-panel arrangement. The perforated centre section was removable and the space behind the nosecone was utilised for neatly housing the worm and peg steering box as well as the power steering ram (when fitted).

The MF 65 Mk.1 continued successfully in production for three years until, in November 1960, it was replaced by the slightly improved Mk.II version. Most of the Mk.II's gains centred on the engine, which was a 3.3-litre, Perkins AD4.203 direct-injection diesel that produced a fraction under 55hp at the PTO; a useful increase over the Mk.1's 46hp. Externally, you can tell the two engines apart by the shape of the sump. The later variant has a rectangular, one-piece design, while the A4.192's shape necessitated the inclusion of a bolted-in, wedge-shaped filler at the rear of the sump.

Mk.II benefits

The differential lock became standard on the Mk.II, as did a lighting set and a single, 12V battery. This last change allowed for the capacity of the fuel tank to be usefully increased from 11 to 14.5 gallons. A little further down the line, Multi-Power became an option on the Mk.II in 1962, and it's also important to note that Industrial versions of the MF 65 were made available with the introduction

“The design of the MF 65's front end represented quite a visual departure, with the model losing the traditional, slatted radiator grille”

With 50+hp and good levels of torque, the MF 65 can still have a role to play for those looking for a 'classic worker'. It was a successful tractor in its day that competed very favourably with the Fordson Major.





Instrumentation is minimalistic and typical for the period. Industrial models added an oil temperature gauge.

of the Mk.II. Customers could choose between the 'S' variant, with standard clutch and gearbox, or the 'R', which offered an instant reverse transmission and torque converter drive. The latter, with the right wheel configuration, could achieve 19mph

on the road, which, in those days, was really flying.

Both Industrial models were finished in bright yellow paint and, to be road-legal, the specification also included a separate hand-operated parking brake, a metal,

OWNER'S VIEW: STEPHEN PROCTOR

"I bought my MF 65 in 2012, as a bit of a wreck; it had obviously been used as a donor vehicle for years, and many parts were missing. Essentially, all I got was the skid unit, one rear wheel and the front grille! At the time, though, my son, Jonathan, was just getting into mechanical engineering, so the 65 represented the perfect project for him to get his teeth into!

"There are many advantages to the MF 65, in my view. It's a simple machine to live with and work on, and I just love the way it looks. What's more, the spares availability for it nowadays is excellent; there's virtually nothing you can't get. As always, though, it pays to do your research and to shop around.

"Quite often you come across a specialist who believes that he's the only one stocking a particular item, and so thinks he can charge what he likes for it. So I never advise buying parts without searching online first; you may be surprised at what savings can be made elsewhere!

"Despite its age, the MF 65 remains a tractor that's easy to drive and very comfortable,



even for extended periods of use. It's very good on the road, and I find that it'll comfortably cruise at 12mph, at which speed it both brakes and steers very well.

"My tractor has been restored and resprayed. I opted for the white exhaust because that's what it had when it left the factory. As for the red, we had some original paint samples from the tractor analysed, to get the closest possible match to the proper colour. It was sprayed in modern, two-pack paint, which I think was the sensible thing to do, in terms of its overall durability and quality of finish."

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WHAT TO PAY

The entry level these days for an MF 65 – be it a Mk.I or Mk.II – lies somewhere between £1,500 and £2,000. Now, while most at this price will be in need of serious work, original-condition, usable runners still pop up in this price bracket at sales now and then; you just need to be lucky.

Generally, though, for a machine in average, running condition, you should budget to spend around £5,000 while, at the top of the market, you must expect to pay £8,500-£10,000 for a fully-sorted, pristine example.

There isn't much of a price difference between the Mk.I and Mk.II models, although there's a growing perception among enthusiasts that the rarer, Mk.I is the more desirable machine. So, it seems likely that the early examples will start pulling away – in value terms – in the future.

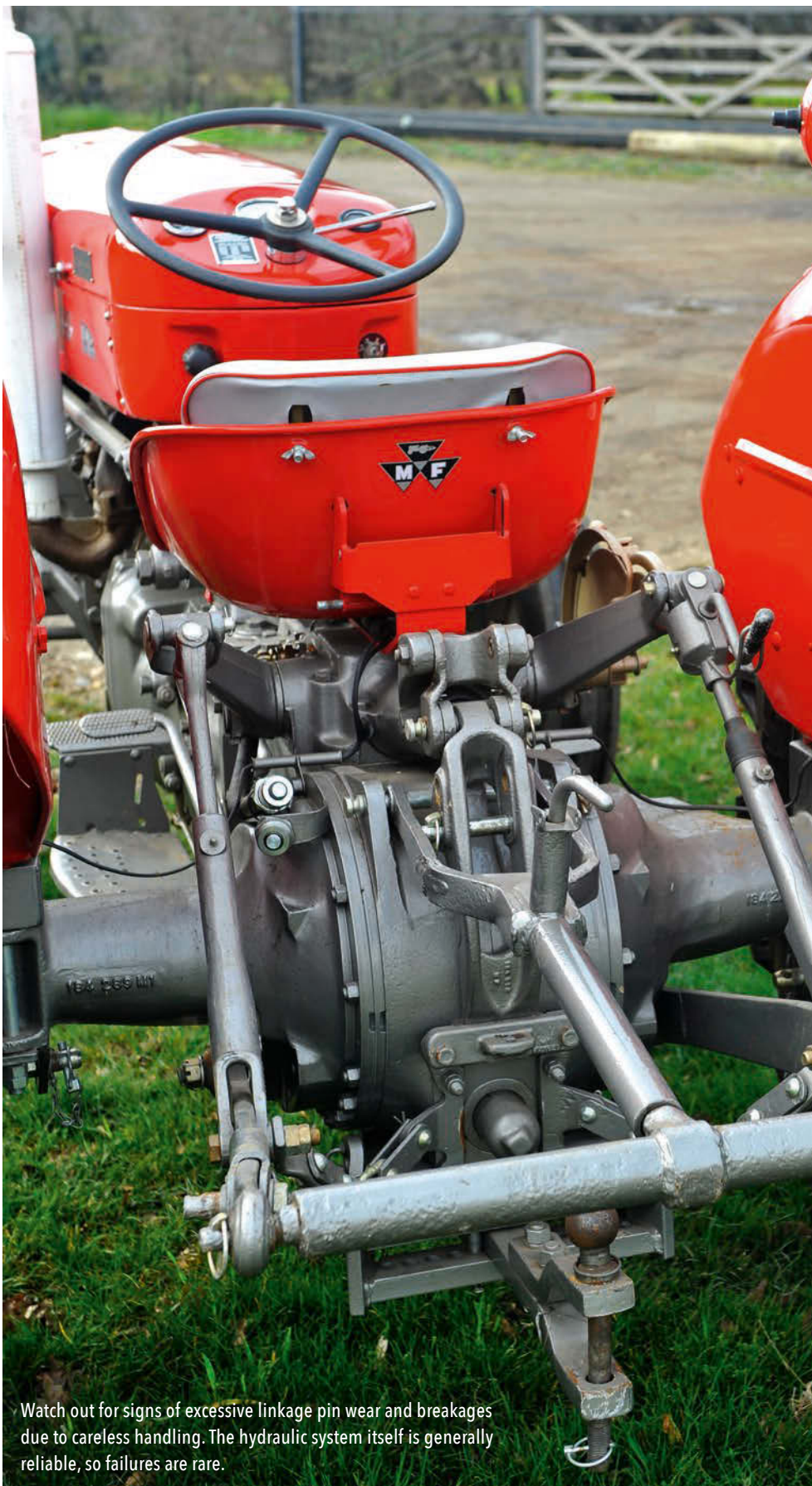
toothed quadrant to allow a more secure setting of the throttle, a horn, a rear view mirror and an oil temperature gauge.

Production of the MF 65 ran on until the winter of 1964, at which point the model took its bow and cleared the stage for the new 100 Series machines. Just over 114,000 MF 65s were built during the five-and-a-half-year production run, and the model has remained highly thought of by enthusiasts and collectors ever since.

Pre-purchase checks

For some inside knowledge about the typical problems associated with buying an MF 65, I went to see Stephen Proctor, who runs Woolpit Engineering, based near Bury St Edmunds, in Suffolk (tel: 07951 578568). Stephen has a fascinating and varied tractor collection but, among his favourites is a 1959 MF 65 Mk.I, which he and his son, Jonathan, restored back in 2012/13.

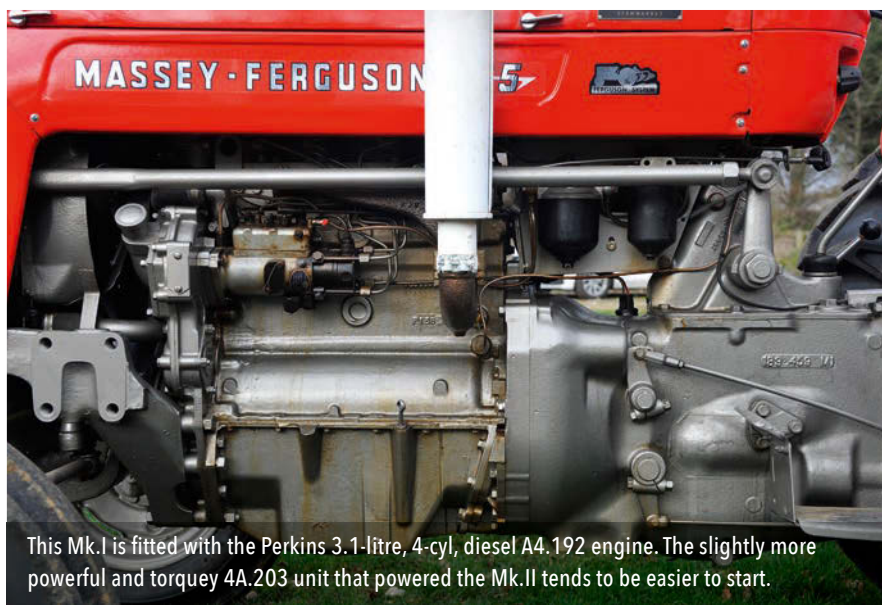
It's clear from chatting with Stephen that he's a real enthusiast for the 65, and his first piece of advice was that buyers need to be



Watch out for signs of excessive linkage pin wear and breakages due to careless handling. The hydraulic system itself is generally reliable, so failures are rare.



The MF 65's three-panel radiator grille design was a noticeable departure from what had gone before. The black, chrome-edged, perforated panel at the top provides a supply for the air cleaner behind the nosecone.



This Mk.I is fitted with the Perkins 3.1-litre, 4-cyl, diesel A4.192 engine. The slightly more powerful and torquey 4A.203 unit that powered the Mk.II tends to be easier to start.

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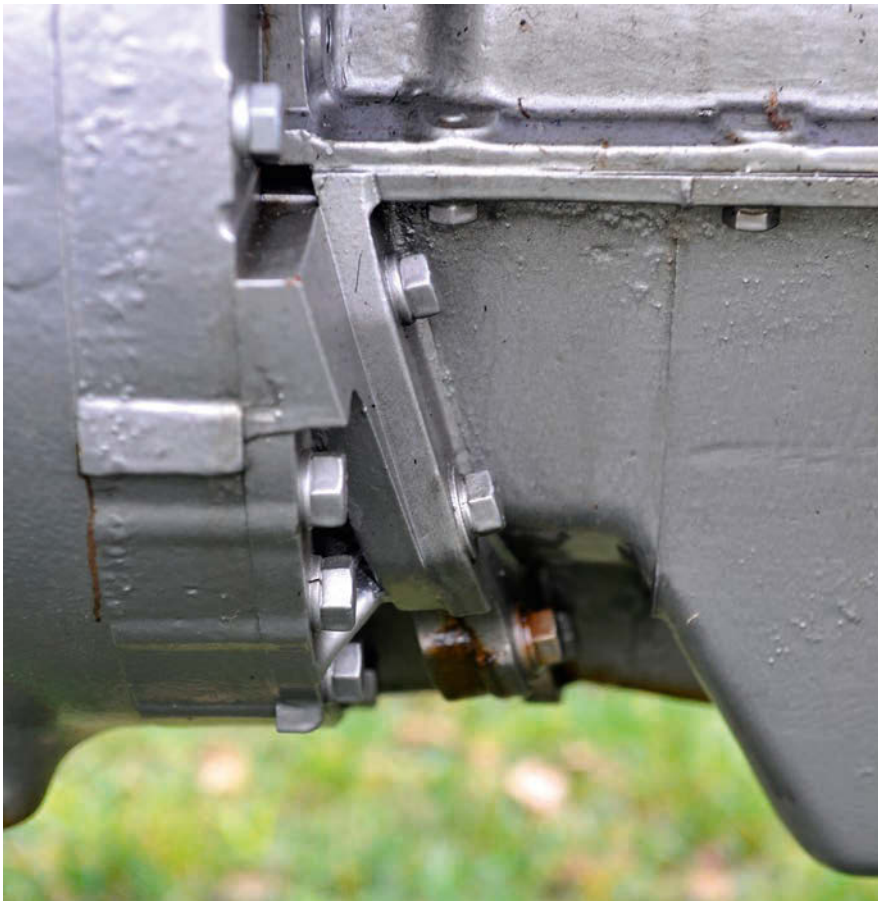


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In the centre is the wedge-shaped, bolted-in section that most obviously identifies this as a Mk.I's Perkins A4.192 engine.

able to run the tractor on a smooth, tarmac surface.

"As far as the engine is concerned, check all the basics. What's the level and condition of the oil, how well does it start and how smokey is the exhaust? You'll want to see it start from cold to judge these important aspects most usefully. If you're looking at a Mk.I, pay particular attention to the cylinder head; these were prone to frost-induced cracking. Also, oil leaks from the front engine seal are quite common, and there are a couple of split pins on the underside; one for the rear engine oil seal and one for the gearbox, which are favourite oil escape points."

Fuel leaks?

Keep an eye out for fuel leaks. "By and large, old diesel pumps don't like modern diesel fuel," Stephen warned, "which is the case on this engine, so watch for leaks from around the throttle shaft. Remember that problems like this will only ever gets worse, so must be rectified. Reconditioning the pump is typically what's required."

"Don't overlook the condition of the pedals; these provide a practical indicator of the amount of use the tractor has had. If you can still see most of the nobbles on the pedal surface, then you can assume that its workload over the years hasn't been too bad. If, on the other hand, the surfaces are worn smooth, then that's a different story."

"Moving further back, check for cracking in the gearbox housing, between the PTO cover on one side, and the dipstick cover on the other. In the worst cases, this stress/age-related problem can actually result in the tractor breaking in half. This isn't a myth - I've known it happen - and it's a problem that mainly afflicts the Mk.I variant."

“Buying an MF 65 needn't be a complicated process. It's not a tractor that's riddled with potential dangers waiting to snare the unwary”

methodical with their pre-purchase inspection. "Start at the front and simply work your way back," he told me. "Carefully inspect and assess the important aspects of the machine as you go. I always begin with the steering as I know this is prone to wear."

"The success and popularity of the MF 65 means that most endured tough working lives, and those that have survived into retirement but remain unrestored, will inevitably be showing wear and tear. Steering always takes a pounding over the years and, in this case, becomes increasingly heavy to use as wear levels increase. Wear in the steering box, and the various joints in the system, will contribute to this, and

add to the amount of free play that can be felt at the steering wheel. About three inches of rotational movement at the wheel is about what it should be so, if it takes more than this before the front wheels start turning, then wear levels in the system will be significant and a rebuild will be necessary."

While still at the front, Stephen advised checking the condition of the stub axles, adding: "These can suffer badly when greasing requirements have been ignored, becoming loose on their splines. So, you'll need to rock and flex all the joints you can find in this area. However, shortfalls in this department will be most noticeable on a test drive, especially if you're



Hinge pins for the bonnet will often be found to be worn. The under-bonnet fuel tank sometimes rusts around the tap.

"Inside the gearbox, the internals are reliable, although careless gearlever operation can result in premature selector wear that's detectable by excessive play in the lever, difficulty with selecting gears or a gearlever that returns to the neutral position while leaving the gearbox in a gear!"

Talking of gear-changing, Stephen also made the point that it's important to check the operation of the two-stage clutch. "The first stage of pedal travel is for the transmission," he explained, "while the second stage acts to control the PTO. In practice, it's quite common to find that PTO control has been lost because that part of the clutch's operation is seized, or badly adjusted.

"To test for the correct operation, put the PTO into gear with the engine stopped then, with a foot held fully down on the clutch pedal, use an adjustable spanner to check if the PTO shaft can be rotated. It should be locked solid if all's well. Quite often, though, you'll find that it's hard to even get the PTO into gear or, if you manage to do that, that depressing the clutch won't stop the PTO shaft from rotating. More expense!"

Seals and bearings

At the rear end of the tractor, check for fluid leaks out onto the inside of the wheels, coming from the

epicyclic units on the half-shafts. "Problems of this sort," Stephen said, "will be caused by seal failure, which is a big job to put right; the half-shafts have to be removed from the housing to get access to the seals.

"The rear wheel bearings can be prone to failure too, but this is something you'll have to listen for during a test drive. Quite often, tractors that have been used a lot for ploughing typically suffer with a nearside wheel bearing failure, as this side was prone to oil starvation due to the angle the machine so often ran at while working.

"Also check the operation and condition of the hydraulic linkage. Watch out for signs of excessive pin wear and breakages due to careless handling. The hydraulic system itself is generally reliable, so failures are actually rare. Then take a moment or two to inspect the drawbar. Make sure that the four studs underneath

“What’s the level and condition of the oil, how well does it start and how smokey is the exhaust?”



The MF 65 Mk.I was fitted with twin, 6V batteries, although this one is currently fitted with a 12V one, as was the case on the Mk.II. The space this saved allowed the fuel tank capacity to be usefully increased on the later model.

BUYING GUIDE



haven't been broken off; this can be caused by towing trailers that are too big and heavy, or by letting the bolts work loose and failing to re-tighten them."

Switching your attention to the tinwork, the good news is that, by

and large, the MF 65 generally fares well in this respect. The panelwork is pretty durable, and the only characteristic place where you're likely to find trouble with corrosion is on the lower sides of the nosecone, where internal joint flanges trap mud

and water. As a result, the metal rusts out from the inside.

Of course, corrosion can occur anywhere on the bodywork of a vehicle this age, with much depending on how it's been used and how well it's been maintained/



Buying an MF 65 needn't be a complicated process. It's not a tractor that's riddled with potential dangers waiting to snare the unwary, or one with the sort of value that tempts unscrupulous sellers into disguising defects as they chase a quick profit.

repaired over the years. The bottoms of the mudguards are a common rust point in cases where tractors haven't been regularly cleaned. Fortunately, though, everything is replaceable these days with accurately made new panels.

The electrical system, as with most other tractors from this era, is pretty straightforward, so there's very little to go wrong. As Stephen pointed out, "all there is is the start and stop circuitry, the heated starting aid, the dynamo with its control box and a very

MF 65 TECH SPECS

Production period	1958-1964
Produced at	Coventry, England Detroit, Michigan
Engine:	Mk.I: Perkins 3.1-litre, 4-cyl, diesel A4.192 Mk.II: Perkins 3.3-litre, 4-cyl, diesel 4A.203
Bore/stroke	A4.192: 89x127mm 4A.203: 91x127mm
Compression ratio	A4.192: 16.5:1 4A.203: 17.4:1
Max power	A4.192: 50.5hp 4A.203: 54.9hp
Transmission	6 fwd, 1 rev MultiPower available on Mk.II
Dimensions	Length: 133in Height: 57in Width: 72in
Weight	4,511lb (2,046kg)

basic lighting system. New looms are available, should you need to fit one."

The instrumentation remained pretty basic on both the Mk.I and II 65s, consisting of just an oil pressure gauge, an ammeter and a rev counter/tractormeter. The headlights can start letting water inside which, ultimately, causes corrosion within but, once again, good quality replacements are available.

So, there you have it. Buying an MF 65 needn't be a complicated process. It's not a tractor that's riddled with potential dangers waiting to snare the unwary, or one with the sort of value that tempts unscrupulous sellers into disguising defects as they chase a quick profit. Instead, it's a straightforward machine that was developed and built at a time when things were kept simple and made to last. As such, the MF 65 represents a smart choice for anyone looking for an easy-to-live-with and manageable entry into the fantastic world of classic tractors, agricultural shows, ploughing matches and road runs.

HEAD-TO-HEAD

GO COMPARE !

Ben Phillips considers a couple of popular tractor rivals – the Massey Ferguson 65 and the Fordson Major – and assesses the differences between them



The Massey Ferguson 65, which was launched in 1958, went head-to-head with the already popular Fordson Major. Fresh new styling and Perkins power made it an instant success.

“The MF 65’s long bonnet opened to the side and revealed the fuel tank, battery tray and the top of the radiator; access was good to all of these essential items”



The Massey Ferguson 65 arrived in the late 1950s with American-designed styling taken fresh from the Ferguson 40. The Perkins A4-192 was a great engine and, by the time the Mk.II model was introduced, the new Perkins A4-203 was just as reliable.

The brakes were discs with actuators to activate them and, while these weren’t bad brakes compared to the more familiar shoe and drum

type, if they weren’t set up correctly they would either not work at all, or get hot and stick on. In addition, they were more awkward to work on due to their position (right up against the tractor), so removing the whole axle and the reduction hubs was required.

The shell wings were almost identical to the ones found on the TE-20 or MF 35, and the more safety-type – with the extensions



The Fordson Major – this is a late, New Performance model – built on the sales success of the E27N, and was a usefully sized and impressive all-round performer.



The design of the Massey Ferguson 65 was taken largely from the Ferguson 40 tractor that was made in America

HEAD-TO-HEAD



The new Fordson Major was introduced in the early 1950s, and was in production until 1964. It was as popular then with working farmers as it is today with enthusiast owners.



The MF 65's long bonnet opens to the side, providing good access to the fuel tank, the radiator and the battery.



The Fordson Major's bonnet wasn't quite as long as the 65's, due to the fact that the fuel tank was behind it rather than under it. It also lifted to the side.

down to the foot boards, as found on the 35X – were fitted later.

A lighting kit was available, which consisted of two headlamps mounted on the side of the bonnet, plus a pair of side lamps that catered for lighting the front and

rear; these were positioned on the top of the shell wings.

The MF 65's long bonnet opened to the side and revealed the fuel tank, battery tray and the top of the radiator; access was good to all of these essential items. The dash only

had three dials – a tractormeter and oil pressure gauge and an ammeter. Once again, these were the same as those found on the MF 35, and told the driver the main things he needed to know while working with the tractor.



The MF 65's dash was a simple affair that stayed largely the same throughout the model's production run. The three gauges provide all the essential information that the driver would need.



The Fordson dash was updated later in production; this is the early type that doesn't include a tractorometer.



Lights weren't always fitted to the MF 65 but, if they were, they were mounted on the side. The centre grille section could be removed to access the radiator.



The four-cylinder Perkins engines fitted in the Massey Ferguson 65 were almost unbeatable, due to their impressive reliability.

Seat comfort was as good as it is on any tractor of the period that's equipped with two cushion pads and support for the lower back. The seat also tipped backwards so that, when not in use, it could be lifted to prevent water collecting. The fact that it tips also makes it easier to get onto the tractor, and stand up. A power steering kit and a good loader was available for the MF 65 which, when fitted, made it an even more useful tractor.

Major success

The Fordson Major was a great success, and was the model that carried on from the E27N. It was a newly re-styled tractor that was launched in 1953, and came with new engines and a modified gearbox from its predecessor. The Major was to become incredibly popular and, as a result, light blue tractors with orange wheels were destined to become a common sight on many British farms.

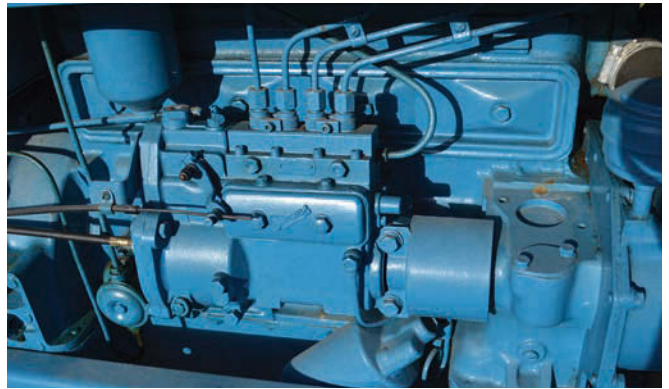
Compared to the Massey Ferguson 65, the Major was a bit bigger, weighed more and wasn't quite as refined. Yes, it was developed a few years earlier than the MF 65 but, even the later updates to the Major still left it trailing a little bit behind the 65.

The Fordson's hydraulic system wasn't quite as good as that on the Massey, but that was often the

HEAD-TO-HEAD



Original Fordson Majors also had lights mounted on the side but, later on, they were positioned within the front grille panels as here, where they were less vulnerable to accidental damage.



Fordson also produced an engine that was reliable and strong, and which was a great starter in all conditions.



Rear lights were positioned on the wings on the MF 65, and these units included front-facing sidelights. Sometimes a plough lamp was also fitted, as here.



The Major had a good lighting kit that included separate side and rear lights mounted on the wings.

case in those days; the Ferguson System always seemed just that little bit more advanced than the competition. The dash on the Major was originally a simple affair; a cluster of small gauges that included those displaying oil



Good access and a nice comfortable seat made the MF65 easy to drive, and offered the operator a good view of crops ahead and the rear hydraulics. Later tractors had safety fenders fitted that extended down to the footplates.



Having a good view from the Major's driving seat was also a great advantage. However, getting on on the offside, if a pulley was fitted, was somewhat tricky.

pressure and water temperature, plus an ammeter. However, by the time the Super Major was introduced, the clocks had improved and a tractormeter had been added to the line-up.

The seat was almost comfortable by late 1950s standards, and the driving position was good although, if a pulley was fitted, that tended to make it more awkward to mount the tractor on that side. As became the norm for Fordson tractors, the fuel tank was positioned up by the driver, which made it easier to fill up.

The bonnet opened at the side to reveal the battery and a clear view of the engine. Safety fenders that reached to the footplates and protected the driver from the rear wheels were fitted on all Majors. The drum brakes weren't stuck behind the wheels either, so working on them could just be

“The Major was to become incredibly popular and, as a result, light blue tractors with orange wheels were destined to become a common sight on many British farms.”

done without the need to remove the rear wheels. However, the brakes were operated by a cable, which needed greasing regularly to avoid the risk of it seizing up.

MY VERDICT

Both these tractors were great machines in their day, and still are today. However, weighing everything up, my choice would be the Massey Ferguson 65.

TECHNICAL SPECIFICATION: MF 65 & FORDSON MAJOR

	Massey Ferguson 65	Fordson Major
Engine	Perkins 4-cylinder diesel	Ford 4-cylinder diesel, Ford 4-cylinder petrol TVO
Horsepower	50-56	30-47 (PTO)
Gears	6 forward, 2 reverse	6 forward, 2 reverse
Rear tyres	11/32	11/36 or 14/30
Front tyres	6.00/16	6.00/19 or 7.50/16

STILL GOING STRONG!

With it now being just over 60 years since the introduction of the MF 65 Mk.II we assess the significance of this important model with the help of owners and ex-Massey Ferguson employees



John Senior baling straw with a Massey Ferguson 65 Mk.II. The obvious differences between this model and its predecessor were the introduction of the AD4.203 engine and a Stoneleigh Grey skid unit. (Photo courtesy of Ted Everett)

The new Massey Ferguson 65 went into production on March 11th, 1958, at Banner Lane in Coventry, but those that hailed from the United States would have noticed a familiar look. Taking design cues from the Ferguson 40, designed in Detroit, Michigan, the 65 was very much an 'Anglicised' version of its American cousin.

Chris Clack, who was based at Massey Ferguson's Stoneleigh Training Centre in the 1960s, told us: "The tractor retained the transmission of the smaller TO 35 model, but introduced a box-section, adjustable-track, straight front axle in order to meet the demands of a row-crop version fitted with single or twin front wheels under the centre of the tractor.

"This necessitated a pedestal-type steering mechanism housed within

“It was the straight axle design that killed off the ill-fated Ferguson LTX large tractor project, much to the annoyance of Harry Ferguson!”



An early 65 Mk.II in action with a spring-tine cultivator. Note the shell-type fenders and tapered footplates that weren't updated until 1963. (Photo courtesy of Ted Everett)

the front bonnet cowl, ahead of the radiator. This was operated with a single steering arm running alongside the engine, from the steering box."

Appropriate axle

"It was deemed appropriate for this purpose, whereas the swept-back axle of the original Ferguson design, with twin steering arms, couldn't accommodate centrally-mounted front wheels. It was the straight axle design that killed off the ill-fated Ferguson LTX large tractor project, much to the annoyance of Harry Ferguson!"

The A4.192 diesel engine, built by F Perkins Ltd of Peterborough, was chosen as the power source for Massey Ferguson's new tractor and, the following year, Perkins was purchased by MF, which was, at the time, the engine manufacturer's largest customer. This gave MF access to a range of modern diesel engines that could be specified to its needs, including a cast sump to form the backbone of the tractor.

The A4.192 was an indirect-injection unit with 3.5in bore and 5in stroke with removable, dry-type liners and could trace its origins back to the famous, P4 engine. "It was rated at 50.5hp at 2,000rpm, and proved to have good torque characteristics and excellent durability," Chris Clack explained.

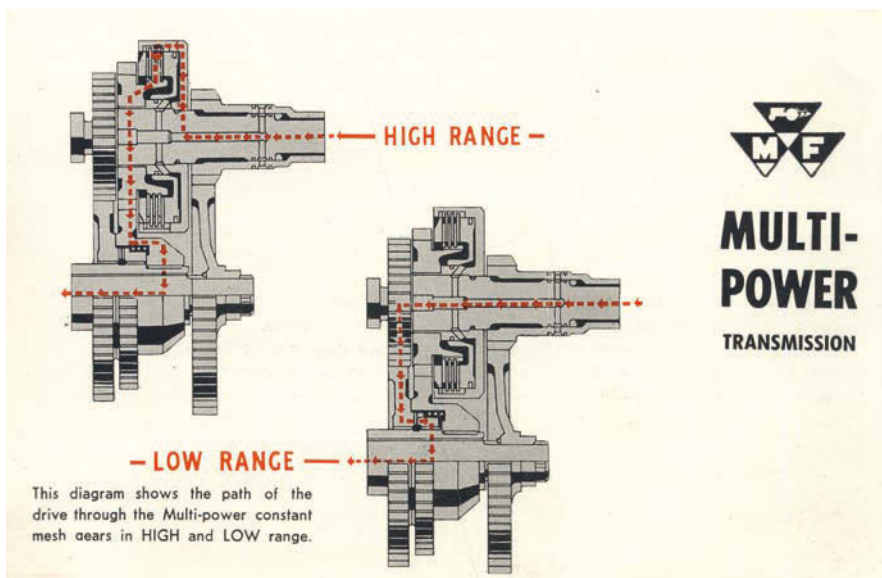
"Coventry engineers coupled this to the current six-speed gearbox and a rear axle that now had outboard epicyclic reduction units. This enabled more power to be transmitted through the transmission, by speeding up the gearbox. The tractor retained the famous Ferguson System hydraulics with some modifications, including exchangeable category I and II lower link ends.

"The 65's chassis was finished in Flint Grey, the same as the four-cylinder MF 35 model (FE 35), and the panels were painted in what's now known as MF Vintage Red."



Nigel Liney at work with another early MF 65 Mk.II, this time with a conventional plough. In December 1960, the standard-clearance tractor with 6.00-16 and 11-32 tyres had a list price of £792-10-0. (Photo courtesy of Ted Everett)

MODEL FOCUS



One for the mechanically-minded readers... a diagram showing the path of the drive through the Multi-Power system.

"The AD4.203 engine was a direct-injection diesel engine, denoted by the letter 'D' in the engine prefix. The engine capacity was also increased from 192cu in to 203cu in, and the power rose from 50.5hp to 54.5hp."

Chris Clack explained some of the new model's other key features. "A single, 12-volt battery, located under the opening bonnet, allowed a larger fuel tank with a capacity of 14.5 gallons, up from 11 gallons, as the earlier model

The tractor was also produced in France and the United States to each country's specifications, and it should be noted that any information provided here refers only to UK-produced tractors.

No fanfare

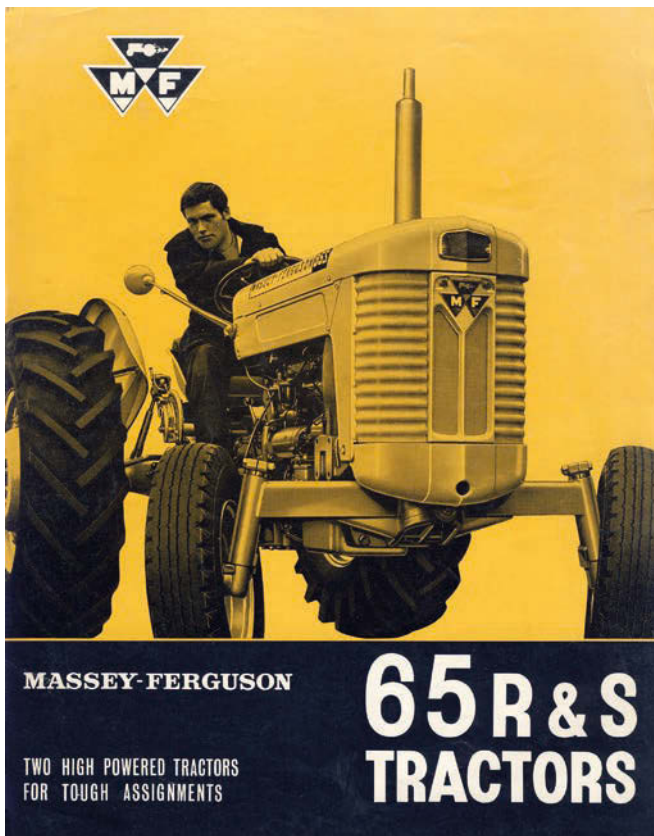
The first Mk.II tractor was produced on November 9th, 1960, but there was little in terms of celebration according to former MF photographer, Ted Everett. "When the MF 65 Mk.II came in there was no launch as such; no special photoshoots or the like," he said. "I think that the first one appeared at Stoneleigh for an updated course for group classes and field training."

The Massey Ferguson 65 Mk.II was introduced at serial number 531453, and the most noticeable differences were a new engine and a change of livery. Coinciding with the fitment of the A3.152 diesel engine to the MF 35, the MF 65 Mk.II now sported a Stoneleigh Grey skid unit, rather than the Flint Grey version.

The new AD4.203 engine had a 3.6in bore and 5in stroke and was, according to John Kirkham - a member of Massey Ferguson's Service and Parts departments from 1964 to 2009 - a big success for the 65 Mk.II. "It transformed the tractor into a well-liked and excellent performer," he said.



Striking literature was produced to herald the arrival of the Massey Ferguson 65 Mk.II with Multi-Power.



A brochure for the Industrial versions of the Massey Ferguson 65 Mk.II - the 65R and 65S.



Sales staff were issued with literature to help them explain the benefits of the Multi-Power transmission.

had twin, six-volt batteries that took up more space.

"Factory-fitted road lighting became standard equipment - a change from the optional lighting kit previously fitted by Massey

“The first Mk.II tractor was produced on November 9th, 1960, but there was little in terms of celebration according to former MF photographer, Ted Everett”

Ferguson dealers after delivery from the factory. The headlights would now be half-way down the engine side panels, to comply with the latest highway regulations, whereas dealer fit was generally at a higher position on the same side panels.”

Revised engine rating

"The new engine rating was soon revised to 58.3hp at 2,000 rpm. This figure was now stated in MF literature as the original figure of around 55hp was found to be an underestimate, after the tractor was independently tested.

"As with the Mk.I version, a High Clearance model was available - fitted with 11-38 or 12-38 rear tyres and longer front stub axles to maintain a level bonnet line - for use in special applications.

"In 1963, the 65 Mk.II was fitted with safety rear fenders (mudguards), that extended to wider footplates, plus there was additional guarding to the fan belt and cooling fan."

Standard equipment included a self-ventilating dual clutch, foot-operated differential lock, inboard dry disc brakes, a fully adjustable swinging drawbar, road lights, 'Comfort seat', category I and II rear linkage, 6.00-16 front and 11-32

rear tyres, three forward gears and one reverse - doubled by the high/low range, as well as a 540rpm and ground speed power take-off. One of the most distinctive features of the original 65 - the double-dished rear wheels - was retained, and these enabled track widths of 52-88in to be achieved.

Maximum oil pressure for external supply was 2,500psi and the lift capacity from the lower links' lowest position was 2,500lb (1,134kg).

Among the options available were 13-28 or 11-36 rear tyres, power steering, 'T-type' pick-up hitch, rear-mounted belt pulley, tractor jack, front frame and weights, front and rear wheel weights, dual wheel attachment kit, plough lamp and tractor cover.

The eagle-eyed among you will have noticed that up until this point, there's been no mention of Multi-Power. This is because the system wasn't available until August 1962, when the first 65

MODEL FOCUS

Photo courtesy of
Graham Sutton



OWNER'S COMMENTS: GRAHAM SUTTON, WARWICKSHIRE

Graham Sutton is a champion ploughman who has enjoyed tremendous success with an MF 65 Mk.II in numerous competitions. He's been the British National Ploughing Champion in the classic reversible class, and was also placed third in the classic reversible class at the 2019 European Vintage Ploughing Championships.

"My association with the 65 Mk.II goes back to when father bought one to replace a Nuffield," he said. "It was lighter and more powerful than his previous tractor, and it was clear that the Mk.II was an improvement on the Mk.I. He ran two Mk.IIs, and used to pull TS59 four-furrow conventional ploughs with them.

"Massey Ferguson machines became a serious part of our contracting business, and we ended up using Drotts and diggers, as well as tractors and combines. But, as the first Massey we had was a 65 Mk.II, nostalgia came into play when I was looking for a tractor to plough with.

"I've actually got two Mk.IIs – one was bought about 12 years ago and I've had the other one for seven. The plan is to do a nut-and-bolt rebuild on the second one, but only so that it can be used and enjoyed as it was meant to be.

"The first was in a poor state and needed the hydraulic pump and clutch replacing, among other things, but I find that the general wear and tear on these tractors is minimal.

"Father always said that the power-to-weight ratio of the 65 was far superior to the Nuffield and the Super Major, and that's certainly noticeable when ploughing. The Mk.II is definitely boss of the job with the reversible plough, and much better than a 35 would be.

"They get used for other jobs around the place and are actually very versatile – they are big enough, but also small enough – if that makes sense! They mow and bale, and rack-up about 50-60 hours per year, which isn't much – but they've proved to be very reliable."

was noticeably faster, there was more to it than that.

"Each gear had a high and low option, provided by a hydraulic multi-plate clutch operating with a pair of constant-mesh gears in front of the main gear clusters," Chris Clack explained. "This was powered by a low-capacity, low power-consuming gear pump, not requiring any special oils. In effect, it allowed an 'overdrive' to each gear without a break in transmission, together with a 'hill hold' facility when high was selected.

"A smooth transition from low-to-high and back again provided an ability to maintain engine torque when ploughing or cultivating uphill. This also afforded the ability to maintain PTO speed in changing conditions, such as when baling and operating harvesters.

"Multi-Power was the first transmission of its type for this size of tractor, and would later be introduced on the MF 35X model where, again, it consumed minimum horsepower to operate. As testament to its simplicity and durability, Multi-Power would continue in production on numerous MF tractor models right up to the closure of the Banner Lane factory, in 2002."

Not content with its offering, Massey Ferguson also began to offer a weight transfer hitch for trailed equipment at around the same time. This, purportedly, had been designed and used in Sweden, and was marketed by Massey Ferguson as the 'Multipull hitch'. Chris explained the theory behind it: "It was a unit that fitted onto the tractor's three-point linkage with a chain and roller system mounted on its framework, with the chain connecting to the implement drawbar."

Weight transfer

"More or less weight could be transferred to the tractor's rear wheels by operating the draft

“Multi-Power was the first transmission of its type for this size of tractor, and would later be introduced on the MF 35X model where, again, it consumed minimum horsepower to operate”

Mk.II to be fitted with it was serial number SNDYW 564963.

Transmission progress

Multi-Power was a clutch-less, change-on-the-move system that

doubled the number of speeds available to 12 forward and four reverse. A dashboard-mounted, 'flick-change' lever switched the system between high and low and, although the tractor's top speed

control lever on the hydraulic quadrant. It was only suitable for the MF 65 model, but was later modified to the well-known Pressure Control system hitch with the introduction of the MF 100 Series models. These incorporated a separate part of the quadrant and a built-in facility from the tractor's hydraulic pump."

The MF 65 Mk.II was also available in Industrial guise, painted yellow, as the 65R and 65S. These had the option of a dual braking system incorporating an extra set of drum brakes for the handbrake, a non-adjustable, heavy-duty front axle and, in the case of the 65R, a torque converter with 'Instant Reverse'.

A multi-directional pedal meant the operator could switch between forward and reverse by stepping on either the right or left of the pedal, respectively. The upper part of the pedal was an accelerator that could be used to speed up cycle times when working with a loader.

Production of the 65 Mk.II continued until December 1964, when serial number 614024 was the last to leave the assembly line. The model was also known as the MF 765 tractor, where the '7'

MF 65 SERIAL NUMBERS

YEAR	SERIAL NO. RANGE
1958	500001-510450*
1959	510451-520568
1960	520569-533179**
1961	533180-551732
1962	551733-572324
1963	572325-593027
1964	593028-614024

Notes:

* First MK.I built on March 11th, 1958

** 65 Mk.II introduced on November 9th, 1960, at serial no. 531453

Total number of MF 65/65 Mk.II tractors built: 114,024 (of which approx. 80,000 were 65 Mk.II)
MF 65 Mk.II serial numbers include a small quantity of 65R/65S models

Multi-Power transmission was introduced as an option in August 1962, at serial no. SNDYW 564963

Photo courtesy of Alistair Henry



OWNER'S COMMENTS: ALISTAIR HENRY, CO. DOWN

Alistair Henry writes: "It all started around 1970 or '71, when my father bought what he thought was a cheap MF 65 Mk.II that had seized on one piston. The head was off it and one piston was out. It was seized because someone had fitted the wrong type of piston.

"The short version of this story is that the eventual outcome was the purchase of a complete, second-hand engine from a yellow Massey Ferguson 50B digger, sourced in the early '90s from James Wightman's breaker's yard, outside Ballynahinch.

"The engine was fitted to the tractor and the difference in power and smoothness was unbelievable! Our MF 65 only started to become a tractor with the new yellow AD4.203, which is still in the tractor today.

"It was some step up from a three-cylinder 35 in power and hydraulic lift capacity, and was the main tractor on our farm in those days, doing ploughing, discing and harrowing before the 185 came along.

"The MF 65 remained on the farm and was used every year to draw in barley, 'wuffle' the straw, roll the spring crops and do general jobs with the link box. We fitted a set of wide, 28-inch rear wheels with worn tyres for rolling the spring crops, so no tread marks were left in the soil and this is what this tractor is still doing now.

"The MF 65, in my opinion, was a well-designed tractor. It has a really good power-to-weight ratio and runs on the smell of diesel! It's hard to stop an MF 65 with a load on in second gear – I can vouch for that! It also has a classic look and when I'm at a vintage show I'm always on the lookout for one to see if it's a Mk.I or Mk.II, and whether it has Multi-Power or not.

"Everyone should drive an MF 65 at least once in their life. We have no intention of getting rid of ours any time soon, as we would be lost without her.

"The photograph here shows the tractor in April 2020, when I was rolling a field of the previous year's winter bird feed, to break up the stalks so that we could start ploughing it to plant that year's winter bird feed for the environmental farming scheme."

denoted Massey Ferguson's country reference for the UK.

The MF 65 Mk.II and 35X tractors were the forerunners of the DX Series, introduced in 1965 – better known as the Red Giants – as the first MF 165 and 135 models were

almost identical in specification, save for the new panel designs.

Thanks to Chris Clack for his technical knowledge, John Kirkham for serial number and build data information, and to Alistair Henry and Graham Sutton for their comments.

PRESERVATION TIPS



Richard Sherratt's Massey Ferguson 65 Mk.II looks great in its original-style condition.



KEEP IT ORIGINAL!

Peter Love travelled to Shropshire to cast an admiring eye over Richard Sherratt's award-winning, Massey Ferguson 65

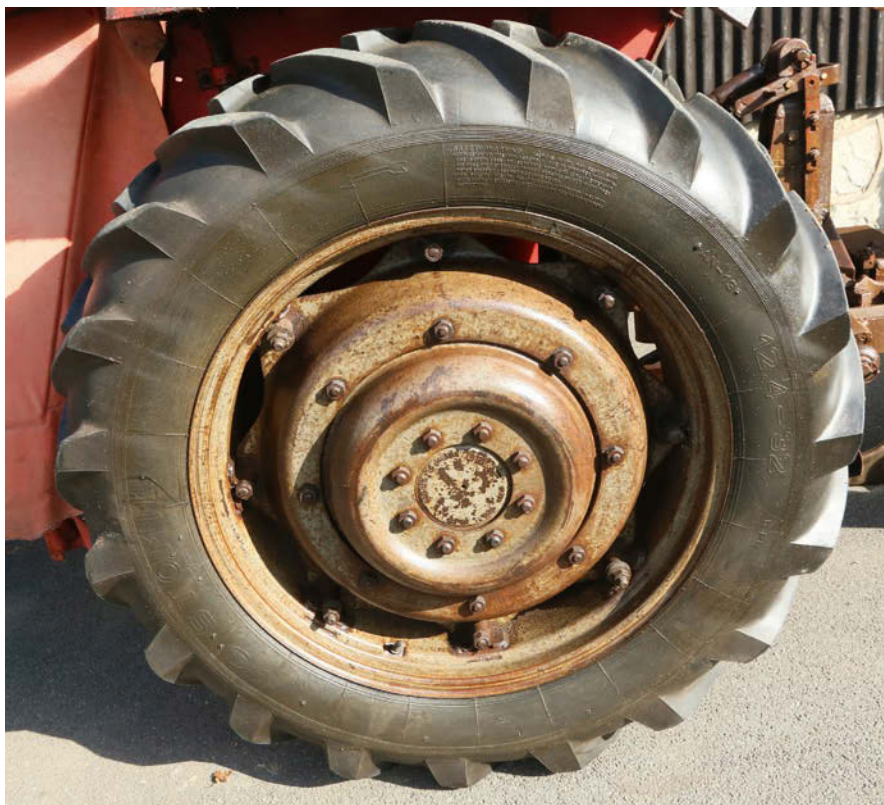
Richard Sherratt purchased this largely original Massey Ferguson 65 Mk.II more than 10 years ago, yet it's only comparatively recently that he started displaying it at a few events. At the Tractor World Autumn show back in 2017, held at Newbury Showground, Richard's MF 65 took the judges' award for Best Show Exhibit and rightly so, in my opinion.

It's an interesting tractor in many respects, and certainly worthy of closer inspection in its own right. However, I was also keen to quiz Richard on the preservation methods he's adopted with this machine. But, before I do that, I thought it would be interesting to explore a little more about him, and his association with Massey Ferguson products.



The appearance of the Perkins AD4.203 engine, producing 58.3hp (gross), has been maintained, but it has certainly been well serviced.

PRESERVATION TIPS



It would be nice to see the tractor with period Goodyear or Firestone rear tyres, as this type of Stomil tyre dates back to the 1980s.



Firestone tyres feature on the front and appear to be in good condition for their age. Cracks have to be taken into account in terms of safety.

Massey experience

Richard was a successful branch manager for Shukers – a Massey Ferguson agent with several branches in Shropshire and one in Powys – starting in the 1960s, and working his way up the company ladder, including time as a salesman during the 100 Series era.

He eventually established his own business, with his wife Ann, offering his customers 24-hour service to keep tractors, arable and grassland equipment going on the farm. He later patented a fuel heating system that was sold upon his retirement. These days he's fully occupied with his restorations and his excellent original-style 100 Series seat covers.

In Richard's youthful working days, the 35 and 65 models were very much part of the scene, even when the 100 Series era was on-going, as these earlier tractors were taken in as part-exchange. As I've written before, the 65 Mk.II is an underrated tractor and, Richard says, was a better bet than a Fordson New Performance Super Major.

For a start, it was easier to get on and off the 65's footplate, which was slightly wider than the Fordson's – making it more comfortable, with better spacing of the pedals and so on. There was more torque from the Perkins AD4.203 diesel engine, with a better choice of gear ratios and, of course, stronger and more reliable hydraulics – capable of lifting more with the lift arms directly above the rear axle.

It's worth remembering that the Ferguson System was patented and others had to work around it, giving

“It's worth remembering that the Ferguson System was patented and others had to work around it, giving Massey Ferguson a big advantage”



The ball joint rubbers are the original ones and have cleaned up well.

Massey Ferguson a big advantage. But, irrespective of that, the tractor was reliable and well-built.

Multi-Power

Richard's example is fitted with Multi-Power, which reduces the tractor's speed by 23% but increases power by 30% and, if the farmer read how to operate the system properly, gave more advantages than with other tractors available at the time.

Nevertheless, it was not fool-proof, owing to drivers trying to take short cuts, particularly when freewheeling down a hill and then pulling the lever up! However, one of the advantages with the system is that you could operate it 'on the go' and no clutch was needed to engage it; just move the lever down to disengage it and carry on.

Multi-Power's big advantage was delivered when operating on flat fields, working the vegetable rows. After selecting the gear, say first high, you pulled away and then you could bring Multi-Power in. As soon as you came near the headland you could take the lever down and you were back in the original gear – all without operating the clutch.

The major disadvantage of Multi-Power – the lack of engine braking in



Repairs have been made to the drop arms during the tractor's working life, but Richard has left these alone.

“Richard's example is fitted with Multi-Power, which reduces the tractor's speed by 23% but increases power by 30%”

'low' – has been well publicised over the years and, like all cutting-edge systems, it took time to understand how to get the best out of it – but some elements of the transmission were never fully appreciated.

Finding an original

Richard bought his 65 at a sale near Peterborough on July 7th, 2006. He'd spotted the event in the farming press and knew that, among the lots, there was a one-owner, 1964 Massey Ferguson 65 Multi-Power. However, he was too busy to attend the sale, but the auctioneers let him speak with the

vendor, who explained that the tractor had only done just over 3,200 hours from new. It had also been well cared for, being put away in a shed every night and benefitting from regular servicing. It was also being sold with full documentation.

Evidently, others at the sale fancied the tractor, too, and Richard had to pay just over £5,600 to secure it, but he was happy to do so. Original tractors like this are always in demand, although understanding the actual meaning of 'original' can be difficult, as nothing is exactly that.

PRESERVATION TIPS



Original details, like the Sirocco decals, enhance the tractor's appeal.

As a starting point, any tractor that's been serviced won't be as it was when it left the factory. But what 'original' really means is that the original components, such as the engine block, are still present and that the machine hasn't been repainted during its life.

When it comes to tyres, as long as it's got original-style tyres (even if they've

been replaced) they won't really detract from the tractor, but if it's got tyres that don't look right, and are a make that would have been unknown when the tractor left the factory, this can certainly count against a tractor, particularly when it's being sold. The same applies to oversize rims – normally they don't look right and can detrimental affect value.

Storing a tractor

When Richard got the tractor home from the sale it had to wait in turn before receiving any attention. However, after giving the matter some thought, he decided that he was going to keep the MF 65 looking original by oiling-up the panels, 'WD-40ing' the electrical parts and greasing parts where needed, to keep the condensation out.

It's worth remembering that oil can dry out during a hot summer, particularly if the tractor is being kept in an open shed, as Richard does. In these circumstances, you have to keep on top of the tractor and not simply ignore it for the year. This includes adding anti-freeze to the cooling system, starting and running the engine up to normal operating temperature at least once every six months, and checking the brakes to prevent inactivity-triggered seizure.



Complete with 85-7 reversible plough, Richard's MF pairing took the Judges' award for best show exhibit at Tractor World Autumn back in 2017.

“Richard is also a great believer in Owatrol Oil. It's a versatile, highly-penetrating, air-drying oil that's used as a rust inhibitor”

If storing a vehicle in a temperature-controlled building, it can be a different story, but keeping the wheels off the ground can be helpful by avoiding the risk of creating flat spots on the tyres.

Preparing an original tractor

Of course, Richard has always kept on top of the tractor in terms of its condition. He's also particular about the preparations undertaken before shows etc. He always changes the oils and all the filters, using Morris lubricants. He particularly likes Morris' Magnol Super TOU 15W-30, as it's a high-quality, universal oil for multiple applications. The filters he uses are of a type that look 'period', thus enhancing the overall appearance. The same applies to the black Lucas battery that's been fitted.

He didn't need to power-wash the tractor as such, but he used Autoglym Engine & Machine Cleaner, which is a water-based formula that's supplied in a 1,000ml plastic container with spray attachment, and costs around £10. After application, this product is allowed time to dwell before being wiped off using a wide-section paintbrush. Then a second coat is applied, given time to work and then washed off with water. Richard then goes over the whole tractor again with some clean rag, then rinses it thoroughly before drying with an air line. After the cleaning stage, any rust that's found is carefully dealt with using fine, 600 grade wet and dry paper.

Owatrol Oil

Richard is also a great believer in Owatrol Oil. It's a versatile,

highly-penetrating, air-drying oil that's used as a rust inhibitor – providing a tough, flexible finish, driving out excess moisture and air and stopping rust dead in its tracks. Using Owatrol Oil as a rust inhibitor will penetrate through the rusted metal to the sound metal below, isolating it and protecting it from further rusting. As it's a penetrating oil, it can be used directly on rusted surfaces; it stabilises the metal to protect it from future damage.

This product leaves a bonding film on all surfaces it's used on, which maintains the natural look of the surface, but allows enhanced adhesion. It's also heat-resistant up to 175°C. A one-litre can costs around £27, but a tractor like the MF 65 will require around five litres for effective coverage. A five-litre can is available for about £114, while a 20-litre container will cost you £435 or so.

Applying Owatrol Oil isn't as simple as you might think, as Richard says, there's a knack to doing the job properly without it ending up looking as though you've applied a heavy varnish, with runs included! This is particularly so when applying Owatrol with a brush. Accordingly, Richard uses a spray gun and applies a very light coat that's then allowed to air-dry for 48 hours before a second is applied. If you're new to the product, practice on something other than your tractor is advisable, and the photographs included here highlight what can be achieved with care and effort.

Hey, good-looking!

Richard's MF 65 Mk.II features a Sirocco cab, which is unusual as they are more likely to be seen on 100 Series models. This example has its original decals and is in good order, and Richard says that it was expensive to buy compared to the more popular, Lambourn cab. However, he believes it's a

better option because it's wider and ensures great, all-round visibility.

As for the red-centred front wheels, Richard told me that it was fitted with one of these when he bought it, along with one white one – probably from a David Brown, as the farm it came from used DB models. Although the front wheels should be grey, Richard decided that, in a bid to have a matching pair, he'd paint and distress a wheel to make it resemble the red one that arrived with the tractor.

All told, the tractor looks a stunner, and I hope that this insight has given you a better understanding about what's involved in effectively and sympathetically preserving an original tractor.

USEFUL CONTACTS

Autoglym
Works Road
Letchworth Garden City
Hertfordshire
SG6 1LU
tel: 01462 677766
autoglym.com

Morris Lubricants
Castle Foregate
Shrewsbury
Shropshire
SY1 2EL
tel: 01743 232 200
morrislubricants.co.uk

Owatrol UK Ltd
23 Scott Road
Luton
LU3 3BF
tel: 01582 592707
owatroldirect.co.uk

WD-40 Company Ltd
PO Box 440
Kiln Farm
Milton Keynes
MK11 3LF
tel: 0844 9800838
wd40.co.uk

INDUSTRIAL MODEL

GEOFF'S RARE BEAUTY

A bright yellow tractor caught David Bowers' eye on a road run, so he went to learn more about it. Here's what he found

There were a number of tractors that stood out from the crowd when the National Vintage Tractor Road Run took place around Gretna Green in April, and Geoff Dunn's MF 65

Mk.II Industrial was certainly one of them.

It attracted much attention from flashing cameras on a dull morning when thick fog lay close to the ground. In fact, Geoff could have

been excused for assuming he was a famous film star who was attending a Hollywood movie premiere!

Painted in a striking shade of yellow, Industrial models always command a fair degree of attention,



What a great MF65 Mk.2, but what about those large rear wheel rims?



It's definitely a 65!

“Geoff could have been excused for assuming he was a famous film star who was attending a Hollywood movie premiere!”

which is precisely why Geoff bought this one, which has further credentials that make it stand out from the crowd; an MF 65 in this form is something of a rarity, with the large, heavy-duty rear tyres adding a further point of interest.

Big and bouncy!

Geoff explained: “You do get a bit of a bounce when you’re driving along on those big tyres, but this is all to the good as it adds a bit of character! I applied to Chris Massingham, at Friends of Ferguson Heritage, to confirm the tractor’s identity. There were only about 150 of these Industrial tractors built, and Chris replied to my enquiry saying that I was a ‘lucky boy’ for discovering this one.

“It would have come out of the factory with a front loader bucket and a backacter. The large wheels at the front and the back were for extra stability, with the backacter being carried or used. To carry the loader bucket, a loader chassis would have been fitted, which came right to the back of the tractor’s chassis. I’ve already tracked down a backacter that will be fitted one day, and I also



Geoff Dunn (right) and his fitter, with the 65 and 135.



This driver's view of the 65 shows another of Geoff's restorations, his MF 135.

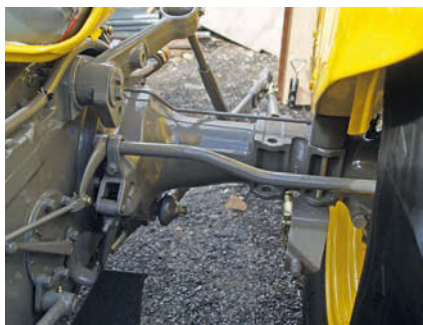
INDUSTRIAL MODEL



Geoff's machine just looks fine from every angle.



The bright yellow paint on this Industrial model never fails to attract attention.



Every detail just looks so good.

know where there's a loader bucket to finish off the job."

Travelling around the Yorkshire Dales, close to where he lives in Skipton, provided Geoff with the golden opportunity to find and buy such a rare tractor. As a haulier specialising in agricultural deliveries, this came about as Geoff always likes to scout around farmyards

“There wasn't another of these MF 65 Industrials to be seen at shows in England, Scotland, Ireland or Wales”

when he makes a delivery. This habit was well rewarded after he arrived with a load of hay at Richard Caton's farm on Malham Moor, near Stainforth, where he first saw the MF 65 when it was safely stored under cover and part-covered by straw.

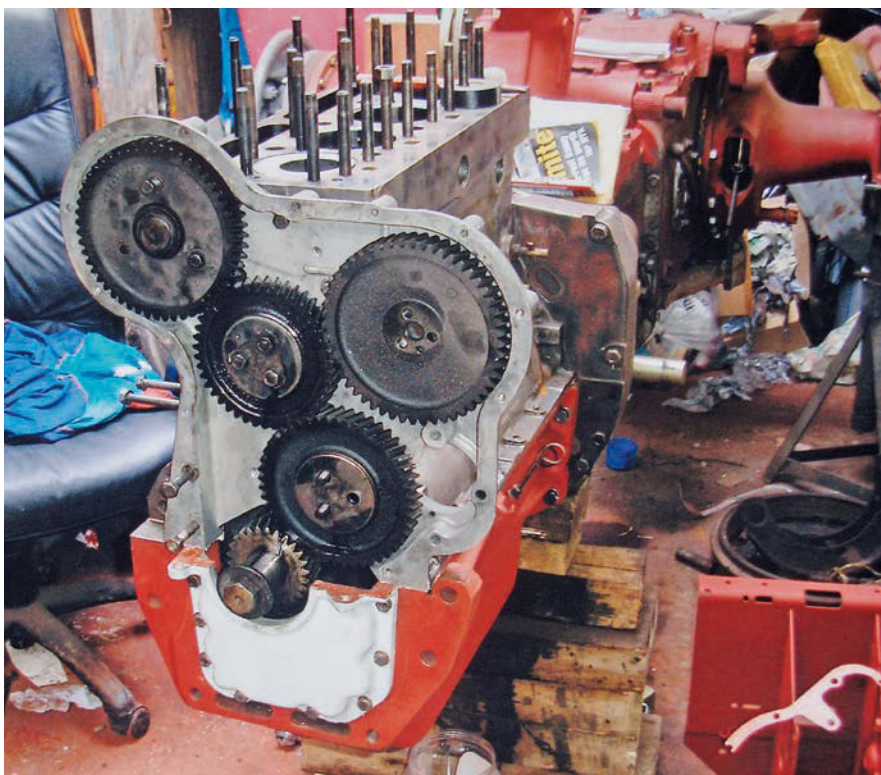
"I always like to take a look around and although Richard didn't want to sell at first, I could see this tractor



Partially stripped; now the work really begins.

was safe where it was and, after a year Richard – who is a grand lad – phoned to say I could have it because he could see how well I had restored our other tractor, a Massey Ferguson 135. So off I went, and

when it was towed out of the barn, it only went a few yards after letting out the clutch before the engine started up. What really appealed to me at the time was that there wasn't another of these MF 65 Industrials



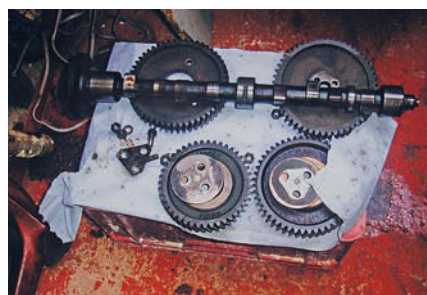
Geoff's abiding memory of the engine rebuild was seeing all the timing gear parts neatly laid out on the floor in the correct order, ready for assembly!



The secret to a good paint finish lies in the preparation.



It should be decades until any rust starts appearing on this skid unit, such was Geoff's attention to detail.



Much of the engine was rebuilt using original parts.

to be seen at shows in England, Scotland, Ireland or Wales."

Good memories

A secondary factor was that Geoff had many memories of working an MF 65 when he was in his late teens. He had quite a few adventures on one when he was asked by a local farmer, John Oversby of Grassington, to undertake snow clearance contracting work during the winter months.

"The one I've now bought was built in 1962," Geoff explained. "I had a brand new one just like this to drive in the bad winter of 1963/64,

INDUSTRIAL MODEL



The paint finish on the front axle looks every bit as good as that on the tinwork!

which also had a loader fitted on it in those days. A farmer had bought it as a way of clearing snow for the council in the Yorkshire Dales. My tractor today is just the same as the one I remembered, so I knew all the details on mine were correct. I don't know anything about this tractor's history other than that it was used by a private contractor at one time.

"I was living at Grassington when I drove one of these tractors in the Sixties. I remember it took two or three weeks for me to clear the road from Buckden, going over the fells towards Hawes. The snow was so high

in one place I couldn't get the bucket to reach the top so that I could clear the road. In the end, I used the bucket to clear all the snow behind me by pushing this into a ravine and, when the ravine was full of snow and had been rolled down, I could drive the tractor round the blockage and clear the road from the other side."

Geoff was at a considerable advantage when it came to restoring his Industrial as he already had a good source of replacement parts courtesy of Mick Appleby.

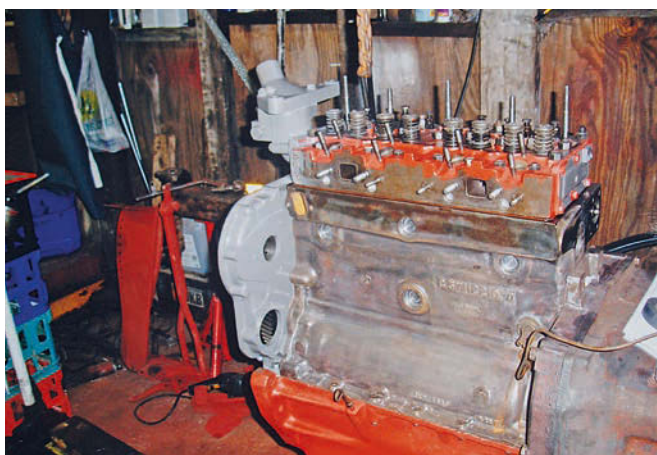
"We started off by stripping down the tractor," recalled Geoff. "The

back end didn't look too good when I found out this was full of water. When we took off the trumpets and pulled out the diff' and everything else, we found all the parts were covered in muck, rust and gunge. So we started again from scratch with new bearings and seals. There were these little roller bearings with about two dozen fitted to each roller, and you hadn't to miss a single one. By this time my son, Steven, had started to get interested in restoring this tractor, and he brought on his mate, Mark Cooper, who did some of the paintwork later on."

Engine parts reused

The engine and gearbox were rebuilt using the same parts, from the pistons and liners, the clutch assembly down to all the bearings and seals; a task that brought this stage of the rebuild to a close after two-and-a-half years. This was a period Geoff remembers well from seeing all of the timing gear neatly laid out on the floor in the correct order of assembly! He also recalls that the work was done in fits and starts, which was probably necessary to avoid any decline in the standards of workmanship.

"We also rebuilt the steering box with new parts," Geoff told me. "The front axle is a heavy-duty item to cope with working the loader, and it looks as if it could stand



Geoff says that the mechanical restoration work was done in fits and starts, which was probably necessary to avoid any decline in the standards of workmanship.



By the time Geoff and Steven had finished the metal preparation, they must have been tempted to leave it in its highly-burnished and polished state!



Gently does it! Geoff watches the manoeuvre.

some hammering. We fitted extra-large sized kingpins and track rod ends, and I had some bearings specially made. This tractor had been bumped, damaging the water thermostat housing. It had been welded up, but I wasn't having that! So I wracked my brains and contacted this bloke in Devon called Ron Greet, and he sold me a new thermostat housing for a 65, which cost about £8, so that was a really good do! We also rebuilt the steering box with new parts."

As this is the Industrial version of the MF 65, the brakes are of the dual type on the rear axle, with both internal brakes and external drum brakes. The front axle is different to the agricultural models as there is no

“This was a period Geoff remembers well from seeing all of the timing gear neatly laid out on the floor in the correct order of assembly! ”

provision for adjusting the width of the track.

Much to Geoff's surprise, a set of replacement mudguards came his way at a Cheffins' sale in Cambridge. He had seen and inspected some others, but these were of the wrong type - a foot too short in length and five inches too narrow. "This was the

best day's work we ever did," Geoff said. "There is a difference between the mudguards fitted to the earlier and the later 65s. Ours is the later model."

Geoff always pays lots of attention to prepping the tinwork and, by the time he and Steven had finally finished this off to their satisfaction, it must have been tempting to leave the steel in its highly burnished and polished state! After priming the surfaces in red lead paint, Mark Cooper then completed the process by adding coats of high-build two-pack paint, followed by ordinary coats of two-pack paint, and then the gloss top coats in Massey Ferguson's version of Highway Yellow.

BUYING TIPS

Triple triangle treat!

Thanks to the popularity of Massey Ferguson's three-cylinder models, the 65 is often overlooked. Yet it's an extremely competent tractor that's worthy of consideration

In the late 1950s, pressure was mounting on the major tractor manufacturers to increase the size and power of their models. Ford had been producing the Diesel Major since the early 1950s and so a relatively straightforward evolution enabled it to market the Power Major in the final years of the decade.

BMC had been turning out Nuffield models from the late 1940s and, like Ford, chose to update its tractors throughout the 1950s, resulting in the Nuffield Universal models being introduced in 1957.

David Brown's 900 model – a tractor that was plagued by



Tom French's fabulous Massey Ferguson Mk.I. (Pic: Bob Weir)

reliability issues – became the 950 in 1958 and, at the same time, the B-450 began flying the flag for International Harvester.

More power needed

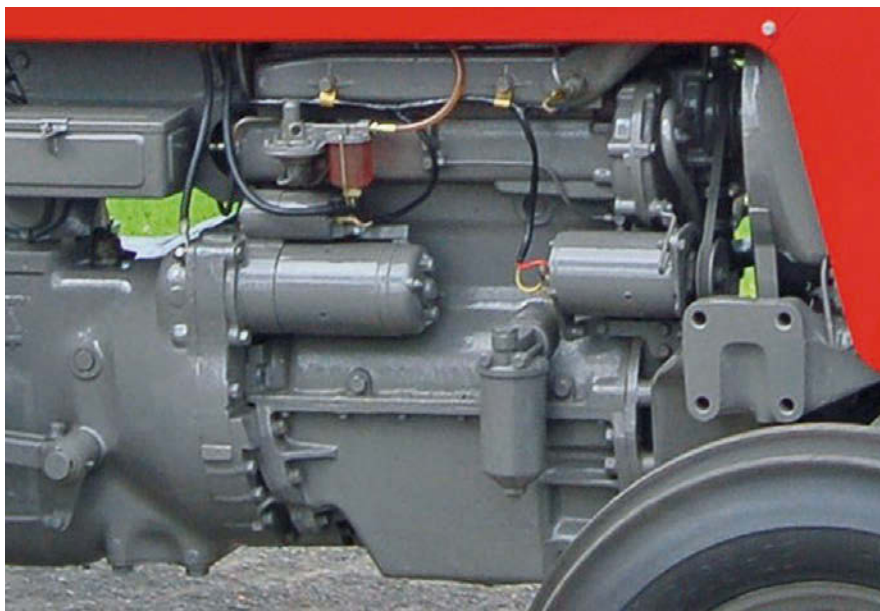
Massey Ferguson also recognised the need to upgrade its offering and, having enjoyed success with the FE 35, decided that it needed a more powerful version to take the fight to its rivals.

Attempts to develop a larger tractor had been made back in the days of Harry Ferguson, with a desire to put into production what was known as the LTX. This model became a victim of the merger between Ferguson and Massey-Harris, due to potential production costs, resulting in the likes of the Massey-Harris 744 and 745 fulfilling the demand for larger tractors.

Although more powerful than the FE 35, the 744 and 745 were basic in specification, so Massey-Harris-Ferguson engineers set to work on what would become the Massey Ferguson 65.

During the 1950s, the Ferguson 40 and Massey-Harris 50 were in production in the USA, and it was decided to use the tinwork from the 40, albeit with slight modifications, and the TO 35's gearbox mated to a Perkins A4.192 diesel engine. In addition to this, the rear axle was designed with epicyclic reduction units on the outer ends of each axle shaft.

Produced at Banner Lane in Coventry (from March 11th, 1958), the 65 was turned out in the red/grey livery of the newly-renamed Massey-Ferguson, and the tractor became an immediate success. Both Mk.I and Mk.II (introduced on November 9th, 1960) models were produced and the aim of this guide is to provide information to prospective purchasers. The youngest of these machines is more than 55 years old, but the 65 is still a very capable model.



A right-hand view of an A4.192 (MF 65 Mk.I) engine, clearly showing the 'wedge' between the sump and flywheel housing. This version has the vertical oil filter. (Pic: Bob Weir)



This photograph clearly shows the single-arm steering system used on the MF 65. (Pic: Andrew Hall)

“Grey or black smoke, particularly under load, can often be an indicator of worn injector nozzles, while light blue smoke usually indicates the burning of engine oil”

Engine issues

The engines used in the 65 were manufactured by Perkins of Peterborough, and this is the main difference between the Mk.I and Mk.II models. The former uses the indirect-injection A4.192 unit developed from the P4, and has a bore and stroke of 3.5in x 5in, giving a displacement of 3,146cc and a power output of 50.5hp. Mark two models use the direct-injection AD4.203 engine with an

BUYING TIPS



The Ferguson System hydraulic control makes the 65 a pleasure to operate – it's both simple and effective. (Pic: Andrew Hall)

increased bore size of 3.6in, giving a displacement of 3,335cc and a power rating of 58.3hp.

Both engines are well-designed, robust units and have no specific weaknesses. The indirect-injection A4.192 may not start as well in cold conditions as the later AD4.203, but it's otherwise a good performer. When inspecting any 65, you should listen for any knocking or rumbling noises from the lower end of the engine, as this may indicate worn big end or main bearings – which is often accompanied by a low oil pressure reading on the gauge.

Smoke from the exhaust pipe will also provide you with evidence of the engine's condition. Grey or black smoke, particularly under load, can often be an indicator of worn injector nozzles, while light blue smoke usually indicates the burning of engine oil, due to wear on the cylinder bores.

Both Mk.I and Mk.II engines have press-fit cylinder liners. If wear is suspected, it's probably time for a full engine rebuild. Kits are available to do this without too much expense being incurred.

Do not be put off if the engine starts and runs well, but has evidence of oil leaks on the sides of the unit. Seals harden with age

and gaskets can fail, with front and rear crank seals and the rocker cover gasket being particular areas to be mindful of. Anyone with a reasonable mechanical knowledge can change seals and gaskets without too much difficulty.

The oil bath air filter is located behind the front grille and it's worth checking the hose between the filter and the inlet manifold, as any damage will compromise the cleanliness of the air taken in, and may shorten the engine's life. The oil level within the filter should be maintained at the correct level and, with regular maintenance, both the A4.192 and AD4.203 are reliable and should provide many hours of work without needing major surgery.

Transmission trouble?

The clutch fitted to the Massey Ferguson 65 is of the dual (two-stage) type, providing live drive to both the power take-off and hydraulic systems. This has proved to be a very reliable system and so shouldn't cause issues, providing that it's been correctly adjusted.

When checking, try the tractor in all gears and take note of the clutch's operation. Engagement of the 11in (279.4mm) traction clutch should

PARTS PRICES: MF 65 (EXCL. VAT)

Engine oil filter	£8.62
Fuel filter	£8.43
Fan belt	£6.91
Thermostat	£24.00
Head gasket	£38.48
Dynamo	£110.81
Water pump	£88.91
Exhaust silencer	£421.00
Clutch disc	£97.67

Please note: As with any tractor, some parts are 'serial number-specific' – so always provide your MF dealer with your serial number when placing an order. All prices refer to the AD4.203-engined MF 65, exclude VAT and shipping, and were correct at time of going to print April 2022. Many thanks to Antony Hempstead of Chandlers (Farm Equipment) Ltd. for providing parts prices. Please see the website for further details of the company's branches, the tractor/machinery brands it retails and current offers: chandlersfe.co.uk

be smooth and, if juddering occurs as it engages, this may be due to a leak of oil onto the clutch linings, or a distorted clutch plate. This means that the tractor will need to be split to investigate further.

Operation of the second stage of the clutch – the nine-inch (228.6mm) PTO drive – should also be checked by fully depressing the pedal and engaging the power take-off. As with the traction clutch, this should be smooth in operation, and is better done with an implement attached.

If power take-off engagement proves difficult due to clutch drag, the clutch will need to be adjusted – firstly externally (at the pedal) and then internally through the bottom of the clutch housing – in order to reset the second stage.

The gearbox on the MF 65 is based on the FE 35 and comprises a sliding mesh unit with three forward ratios and a single reverse, coupled to a two-speed epicyclic unit. This provides a total of six forward and two reverse speeds.

Multi-Power arrives

From August 1962 (serial number SNDYW 564963), the 65 was

“Multi-Power tractors cannot be tow-started, and do not provide engine braking in the ‘Low’ portion of Multi-Power, so care must be taken when descending hills and slopes!”

available with the now-famous Multi-Power transmission – doubling the number of gear ratios available by means of a dashboard-mounted lever. Multi-Power tractors cannot be tow-started, and do not provide engine braking in the ‘Low’ portion of Multi-Power, so care must be taken when descending hills and slopes!

Problems with gearboxes in general are rare and, if Multi-Power doesn’t engage properly, it’s always worth checking the linkages between the lever and the casting first, as wear can result in insufficient movement.

The oil in the rear end of the tractors serves the gearbox, differential unit and hydraulics. Provided the oil level is correct, no specific issues should be encountered but, if on inspection the oil in the rear end appears milky, it’s likely to have absorbed moisture from the atmosphere and will require changing.

The epicyclic reduction units have their own oil supply and this should be to the level of the filler/level plug. Look for signs of leakage down the inside of the rear wheels due to a failed oil seal. This means a strip of the reduction unit and the outer housing being pressed off.

Steering and brakes

The 65 uses a cam and lever-type steering box with a single pitman arm, actuated by a worm and roller peg arrangement. Movement is conveyed to the front via a high-positioned track arm that allowed the MF engineers to equip the 65 with a single front wheel for row-crop work, if desired. The design of the linkage behind the radiator grille enabled optional power steering to be fitted in minutes, with everything required fitting neatly between the grille and the radiator.

Look for wear in the steering box, ball joints and the mechanical

USEFUL CONTACTS

Chandlers (Farm Equipment) Ltd
Lincolnshire
tel: 01476 590077
chandlersfe.co.uk
MF dealer

Goodwin Farm Services Ltd
Staffordshire
tel: 01889 500303
goodwintractorparts.co.uk
Tractor parts

The Vintage Tractor Company
Buckinghamshire
tel: 01908 611864
thevintagetractorcompany.co.uk
Tractor parts

Vintage Tractor Spares
Leicestershire
tel: 01455 556784
vintagetractorspares.co.uk
Tractor parts

linkage behind the grille, as well as the front axle king pins – particularly on tractors fitted with a loader, or those that have been fitted with one in the past. Leaking from the power steering also needs to be checked for.

Parts to renovate worn steering are available from various outlets and it’s always worth checking the simplest things first – wear can often be eliminated by fitting shims between the steering box and operational lever, for example.

Disc brakes are situated between the differential and the epicyclic reduction units. The reason for this is to provide a more efficient braking effect, as the half shaft turns at a higher speed than the wheels, and is easier to slow than the output of the reduction unit.

The dry disc brake units are sealed from ingress of dirt but, by their very nature, are prone to problems associated with dust from within the housings due to wear and tear, unlike later, oil-immersed disc brakes.



The dash panel is simple, as was the case with many tractors from this era. (Pic: Bob Weir)

BUYING TIPS

Specifications: Massey Ferguson 65			
	Mk.I		Mk.II
Engine	Perkins A4.192		Perkins AD4.203
Power	50.5hp		58.3hp
Rated speed		2,000rpm	
Cylinders		4	
Displacement	192cu in (3,146cc)		203.5cu in (3,335cc)
Bore	3.5in (88.9mm)		3.6in (91.4mm)
Stroke		5in (127mm)	
Fuel capacity	11 gallons (50 litres)		14.5 gallons (66 litres)
Transmission	6 fwd, 2 rev		6 fwd, 2 rev or 12 fwd, 4 rev (Multi-Power)
Ground clearance		14.25in (362mm)	
Length		133in (3,378mm)	
Wheelbase		84in (2,133.6mm)	
Width		72.5in (1,841mm)*	
Weight	4,010lb (1,819kg)		4,158lb (1,886kg)
Front tyres		6.00-16	
Rear tyres		11-32	

Standard specification shown, unless stated. * At minimum track of 52in (1,321mm)

When inspecting, be prepared for work to be required on the brakes – this is normal! Access isn't easy, as the axle housings need to be removed from the tractor to replace discs and actuators.

Hydraulics and PTO

Like its smaller sibling, the Massey Ferguson 65 has a great hydraulic system that is both reliable and accurate. It provides position control for non-soil-engaging machinery, and automatic depth control for soil-engaging implements such as ploughs, cultivators and the like.

An external oil supply is available for tipping trailers and either takes the form of a simple pipe, or an external valve block bolted to the hydraulic top cover to divert oil to external cylinders.

The cleanliness and level of the oil is vitally important to ensure trouble-free operation and avoid damage to the Ferguson System pump. This is an evolution of that fitted to the TE-20, with 57% greater output than its predecessor – resulting in a flow rate

of almost four gallons per minute (18.18 litres per minute) with the engine turning at 2,000rpm.

It's always preferable to have an implement attached when checking the hydraulic system. Movement of the position lever (round knob) should give accurate movement of the lower links and they

“It has proved itself to be a reliable workhorse with few shortcomings and, in good condition, makes a great machine for work or play”

should move and stop with small increments of the lever.

The draft lever (square head) adjusts the depth of soil-engaging implements and upward movement also raises the linkage. It's worth noting that the draft lever shouldn't be left in the raised position for too long, unless external services are required, as this will continuously blow the relief valve and lower the pressure available.

With the engine switched off and the lower links raised, the implement should stay in the raised position. If it descends steadily, this is likely to be due to leakage past the internal ram seals, which will require removal of the top cover to rectify.

The three-point linkage consists of lower links with pivoting ball ends to enable easy attachment of implements. Interchangeable ball



You can clearly see the model's American origins, giving the 65 its distinctive look. (Pic: Peter Love)



The PTO control lever is positioned next to the operator's left heel, and allows for both engine and ground speeds. (Pic: Bob Weir)

ends mean category one and two implements can be attached.

Power from the dual clutch provides drive to the PTO when the lever on the left-hand side of the transmission housing is moved rearward. Forward movement engages ground speed, enabling the power take-off to turn proportionally to the rear wheels.

Look out for oil leaks from the PTO shaft seal, although this can be easily replaced at low cost.

Operator area

Unlike some of its competitors, the 65 has a low stance - meaning access to the operator's platform is extremely easy. Wide footplates make it simple to take up a seated position and, once comfortable, the major controls fall easily to hand.

The dash panel is a simple array of tractorometer, ammeter and oil pressure gauge, with the hand-throttle positioned to the right-hand side, under the steering wheel. The gear levers and hydraulic controls are also within easy reach, with the power take-off lever the only noticeable stretch - beside the driver's left heel.

A foot-operated differential lock (optional on the Mk.I) is operated by the right foot, and shouldn't cause any issues. Tractors fitted with Multi-Power have a chromed lever adjacent to the key switch to enable



You can expect to pay more for a Mk.II model, especially one equipped with Multi-Power - such as this example. (Pic: Bob Weir)

a change-on-the-move, clutch-less shift between 'High' and 'Low'.

Overall aesthetics

As previously mentioned, the 65's styling was based upon that of the Ferguson 40, with slight modifications to distinguish it from the earlier model. Areas to study include distortion in the front grille assembly due to impact, especially on loader tractors, and damage and corrosion of the rear mudguards. Thankfully, the majority of panels are available from aftermarket parts suppliers.

Standard wheel equipment for the 65 is pressed steel front wheels with 6.00-16 tyres. Rear wheels have detachable, 'double-dished' centres for row-crop adjustment with 11-32 tyres. Tyre options included 13-28 and 11-36 rears, with 12-38s for high-clearance models. Many tractors will have 6.00-16 fronts and 11-32 rears.

Wheel rims are durable but can suffer from corrosion, particularly where tractors have been used on scraper work.

In summary

As with all tractors, the price will vary according to overall condition but, as a general rule, Mk.II examples command higher prices. Rough examples (in 2022) can be found for under £2,000, while those that are tidy can be bought for £3,000-£4,000.

You can expect to pay between £6,000 and £7,000 for a nice, original example, while a concours tractor will set you back £8,000-£10,000. Examples are readily available and there's usually something to suit all budgets.

The Massey Ferguson 65 broke the mould for the company in terms of size and power, and would live on as the 165 with the introduction of the 100 Series. It has proved itself to be a reliable workhorse with few shortcomings and, in good condition, makes a great machine for work or play - particularly thanks to maximum torque being generated at just 1,300rpm. Plus, thanks to its American styling, it's a distinctive model that sets it apart among what's often a sea of red tractors!

POWER AND PERFORMANCE

Alan Barnes takes a nostalgic look back at the story behind the development of the Massey Ferguson 65

Interested by the sight of an ageing Massey Ferguson 65 being driven along a country road a few miles from the Northumberland town of Wooler, my curiosity overcame any thoughts of immediately filling the lengthy list of shopping given to me by my wife.

This Massey was by no means a restored machine on its way to a show, but a working tractor that was

towing an equally ageing harvester, and was heading for a nearby field of 'baigies'. The Massey was in the company of an International 684, and I spent a while watching the two old tractors in action as they harvested the field.

Early plans

While its baby brother - the MF 35 - has become an iconic British tractor

that arguably rather overshadowed the 65, the latter was also a very successful model, with well in excess of 100,000 machines being built in the UK. Its design stemmed from development work to produce a more powerful version of the TE-20 and, by 1948, prototype machines had been built for testing and evaluation. Both diesel- and petrol-engined versions were built, and the



The Massey Ferguson 65 Mk.I.

result was a final specification being drawn up for a new, 56hp tractor to be designated the TE-60.

The prototype machines had been designated the LTX and, in the summer of 1953, one of the LTX machines successfully completed a series of demonstrations, being put up against a Massey-Harris 744. The new tractor out-performed the Massey-Harris, but it would seem that internal politics came into play as the LTX, or the TE-60, didn't enter production in the USA. For a time the possibility of producing the TE-60 at the Banner Lane factory was also considered but, by this stage, production there was geared-up for the new FE-35 model.

Eventually the decision was taken that a new, larger tractor would indeed be built, but that it would use as many of the FE-35's parts as possible in a scaled-up version of that tractor. This Variable Module Concept brought problems of its own, but it was obviously felt that these issues were outweighed by the cost savings in using existing parts. Essentially, the new tractor used a modified FE-35 gearbox and virtually the same hydraulics, and the Perkins A4.192 four-cylinder diesel engine had been selected as the power unit.

Rear-end changes

The use of the existing transmission and a larger Perkins engine had involved the addition of epicyclic gearing to the ends of the rear axles, which effectively reduced the output speed of the drive to the rear wheels. The gears and shafts rotated at a higher speed and this reduced the loads on the shafts. The axle layout called for some design changes to the rear wheels as the ones fitted to the FE-35 were no longer suitable as they were too small. The new rear wheels for the MF 65 were designed as a three-part construction, which had a distinctive central bulge that actually protruded beyond the tyres

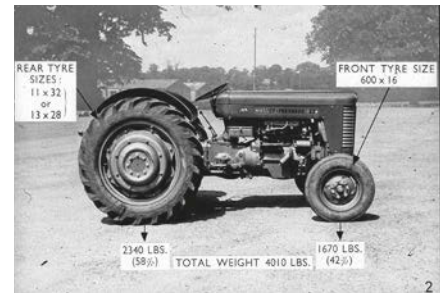
when the variable track was at its narrowest setting.

In November 1957, the company released the full technical details of the new tractor in a rather snappily entitled publication, *Specification and Performance Release SPR 89 Information Vital to your Business. Massey Ferguson MF 65 Tractor*.

The following December, the new 65 was displayed at the Smithfield Show, and the public was able to see for the first time that, while the new tractor was based on parts from the FE-35, the overall look was very different.

The rounded lines of the FE-35 had given way to a more angular design with a distinctive front grille that featured three, perforated-steel sheet panels. This new design wasn't just for aesthetic reasons, as the changes to the steering involved the use of a high-mounted draft link to the steering pivot

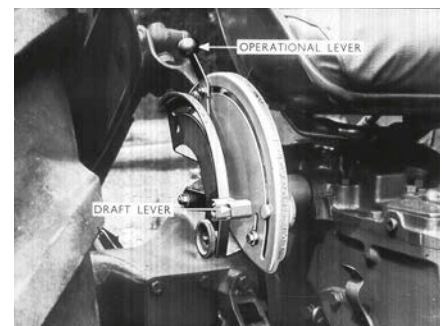
“While the new tractor was based on parts from the FE-35, the overall look was very different”



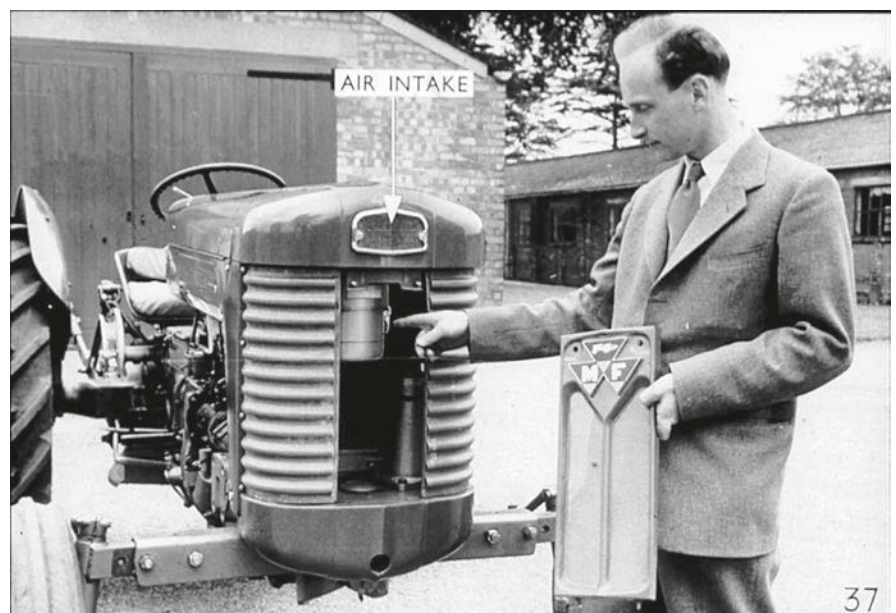
The MF 65 Mk.I entered production in 1958.



Hydraulic details.



Draft lever controls.



The new grille design afforded easy access to the air filter.

MODEL HISTORY



The Massey Ferguson 65 production line.



The diff' lock later became standard on the MF 65.

pedestal, and this was hidden behind the new front grille.

The three steel sheets also formed a screen to give a measure of protection to the radiator from dust, chaff and insects. Two thumb nuts secured the central panel, allowing this to be easily detached to give access to the air cleaner that lay behind, and also to allow access to the steering pedestal for servicing or repair. Power steering wasn't fitted



Angled oil filter on the MF 65 Mk.I.

as standard, but was available as an optional extra.

Simple controls

The dashboard and the controls were practically the same as those found on the FE-35. This was seen as an advantage for the sales force when trying to convince existing FE-35 users to upgrade to the more powerful new tractor, and the fact that the existing range of implements could also be used by the 65 was another significant bonus.



An MF 65 Mk.I fitted with double rear wheels.



An MF 65 Mk.I with front loader.

The MF 65 was fitted with ball ends on the upper and lower links and this allowed for the attachment of the Category One implements. However, a supplementary set of ball ends was also available, which enabled the 65 to be used with Category Two implements. The use of heavier implements required front-end weight attachments, and a separate weight frame assembly was available to facilitate this.

A frame that weighs some 45lb could be bolted to the front of the 65 and this held a total of eight

weights which were secured by a single bolt. This allowed sequential weights to be added from 45lb to a total of 525lb. In addition, an optional stabiliser assembly could be fitted to the drawbar and this improved the stability of the tractor when heavier implements were being used.

The marketing boys seemingly went to town with the advertising for the new tractor, announcing that this was 'The First and Only 50hp tractor with the exclusive Ferguson System' in a statement that was, arguably, blindingly obvious. They also affirmed

that 'It's terrific - that is what thousands of farmers are saying about the brilliant Massey Ferguson 65 tractor. Old yardsticks of comparison are out for the MF 65, which sets its own standard of excellence in power, performance, versatility, appearance, traction and control.'

Impressive results

While it was understandable for the company to extol the virtues of its new tractor, the performance for the machine was backed up by some impressive test results from Nebraska. For the American market, the MF 65 was seen as a direct competitor to the Ford 801 Series, and the results of some comparative tests between the two tractors were published. The Ford 851 was used as a comparison and recorded a maximum drawbar pull of 5,033lb, while the MF 65 recorded a pull of 6,798lb.

Production at Banner Lane began in 1958, with the first of the new 65s being allocated the Serial Number 500001; during that first year, 10,450 tractors came off the production line. The tractor would continue to be built until 1964, by which time the original Mk.I machine had given way to the Mk.II, the Mk.II Multi-Power and the Industrial versions.

• The story continues on page 52.

“The fact that the existing range of implements could also be used by the 65 was another significant bonus”



An MF 65 Mk.I pulling a log trailer.

The Massey Ferguson 65 has become a collectible and much-admired classic tractor, and deservedly, too. It's a model that remains affordable and yet can offer so much to many different types of enthusiastic owner.





MODEL HISTORY

POWER AND PERFORMANCE

Alan Barnes concludes his fascinating account of the story behind the development of the Massey Ferguson 65



An MF 65 Mk.II and baler at Banner Lane.



By the end of 1960, certain design changes and modifications had been incorporated into the 65 and, on November 9th, the first of the Mk.II machines was built (recorded as Serial Number 531453).

Arguably the most significant change was the fitting of a new, direct-injection diesel engine, the Perkins AD4.203, which boosted the power output at the PTO to 55hp at 2,000rpm, as compared to the 46hp produced by the Mk.I.

Externally, the tractor had changed little in overall appearance, although the difference in engines could be seen clearly as the AD4.203 had a rectangular sump while the earlier Mk.I, fitted with the A4.192, featured a tapered wedge fitted at the rear of the sump.

Standard equipment

The Mk.II also included, as standard equipment, some of the features that had been optional on the Mk.I,

including the differential lock and full lighting. A larger fuel tank had also been specified, facilitated by the use of a single, 12V battery that replaced the Mk.I's two 6V units, which created more space.

The High Clearance version, which had been introduced in July 1958, continued to be available in Mk.II form, the first of which was built in December 1960. This was a model aimed at specialist crop growers, and boasted extra ground clearance – 18.75in instead of the previous 14.5in – and the overall height of the tractor increased from 58 to 63in.

Increased front axle clearance was achieved by the use of longer swivel kingpins on the front struts while, at the back, larger wheels with either 11x38 or 12x38 tyres, were fitted. Special brackets were also bolted to the sides of the rear axle housing to allow the standard 20in implement attachment height to be maintained.

Further modifications and improvements were made towards

“The High Clearance version, which had been introduced in July 1958, continued to be available in Mk.II form”

An MF 65 Mk.II on demonstration.



MODEL HISTORY



An MF 65 Industrial.



An MF 65 Mk.II with front weights and wide front track setting.

the end of 1961, including the provision of the Multi-Power system, and the updated tractor was presented at the Royal Smithfield Show, in 1962.

As well as the introduction of the agricultural versions of the Mk.II,

the company also introduced an Industrial version in August 1961. These were characterised by the Massey Ferguson Industrial Yellow livery and a suffix appended to the model name. The MF 65S was fitted with the standard clutch and

gearbox, while the MF 65R featured instant reverse transmission and torque convertor drive.

Independent braking

The Industrial models were also fitted with two independent



The MF 65 Multi-Power was introduced in 1962.



A 1960 MF 65 Mk.II, serial number 531453. (Pic: Alan Barnes)



The front cover of an MF 65 sales brochure.



The conveniently positioned MF 65 Multi-Power switch.

“Fitted with road tyres, the MF 65 Industrial tractors were reasonably fast, with a top speed of nearly 20mph”

braking systems to comply with the requirements of the Road Traffic Act, together with lights and a dash-mounted transmission oil temperature gauge. The braking system involved the retention of the standard, dry disc brakes operated by a pair of pedals, while the second system used a handbrake connected via a linkage to drum brakes on the rear wheel hubs. Fitted with road tyres, the MF 65 Industrial tractors were reasonably fast, with a top speed of nearly 20mph.

While the available production records for the MF 65 at Banner Lane detail a total of 114,023 having been built by the time production came to an end in 1964, it's safe to say that a considerably greater number have seen use all over the world. With the company already having established a first-class dealer network and worldwide sales force, the MF 35 and MF 65 were

sold in countries in many different parts of the world. In addition, a large number of machines were exported in CKD form, for assembly



A dash detail of 531453. (Pic: Alan Barnes)

MODEL HISTORY

A 1963 MF 65 Mk.II,
serial number 589277.
(Pic: Alan Barnes)



An engine detail of 531453. (Pic: Alan Barnes)

“While production in the UK may have been in the hundreds of thousands, the production total worldwide was very probably well into the millions”

in factories and plants in India, South Africa and Australia, while licences for the tractors to be manufactured abroad were also granted.

The licence for the MF 65 granted in Brazil, for example, opened the door to the significant

South American markets, and dramatically increased sales in that region, while actually relieving some of the pressure on the assembly lines at the Banner Lane factory. It seems likely that, as far as the MF 35 and the MF 65 were

concerned, while production in the UK may have been in the hundreds of thousands, the production total worldwide was very probably well into the millions.

A popular choice

With a proven Perkins engine, reliable transmission and hydraulics, the MF 65 proved to be a popular model, although the market for the larger and more powerful tractor wasn't as large as for the MF 35. Nevertheless, the model was certainly a commercial success and, during the late 1960s and early 1970s there seemed to be a very healthy second-hand market.

With many farmers recognising the financial benefit of trading-in their existing tractors when they'd been worked for only a few years, a great many of the MF 65s that had operated on UK farms came



An MF 65 Mk.II with baler.



A 1960 MF 65 Mk.II publicity photograph.



An MF 65 Mk.II Multi-Power working on the 'baigie' harvest in Northumberland. (Pic: Alan Barnes)



A 1960 MF 65 Mk.II demonstration ploughing.

back into the hands of dealers, and were subsequently overhauled, refurbished and sold abroad.

While they may not be as common as the MF 35 today, there are certainly some well-restored examples to be seen at rallies and shows all over the country. While the efforts of the owners of these tractors are to be commended, there's always something rather special about the sight of a veteran MF 65 that's still in its 'working clothes' hard at work in a 'baigie' field.

Our thanks to Ted Everett for providing images from the Agco Archive, and also to David Walker for additional details. The following sources of further information are also acknowledged John Farnworth, Michael Thorne, Michael Williams, *Classic Tractor* magazine and *Tractor & Machinery* magazine.

Trailer for the main event

Tom French's bespoke trailer is a regular sight at shows, so we thought we'd peek inside at his award-winning Massey Ferguson 65 Mk.I



Some critics questioned the need for such a big tractor, but the MF 65 soon won the hearts of most farmers.



A fine selection of Tom's tractors. The multiple prize-winning MF-65 is second from the right.

TFrench & Son is a respected name in East Ayrshire, and a familiar sight on the doors of one of the largest fleet of lorries in Scotland. Tom's roots are in farming, and he still lives on the former site of the French family smallholding at Cronberry, on the outskirts of Cumnock.

"My father died when I was only five years old but, fortunately, my mother kept things going," he explained. "When I grew up, I got into the haulage business. I suppose I've always liked Massey Ferguson from my boyhood days. My father had a Ford-Ferguson, which he eventually swapped for a T20. I always thought Masseys were great tractors and very reliable."

Transport roots

During the 1960s, the family survived by keeping sheep and buying-in calves to fatten for market. It was during this period that Tom acquired a secondhand lorry to supplement their income. This new venture quickly took off, and it wasn't long before he was transporting other farmers' livestock to market, while his new wife, Elizabeth, concentrated on running the farm.

One of Tom's biggest contracts during his early days in business was working for the local Massey Ferguson plant at Kilmarnock. Massey-Harris had originally opened the factory in 1946, to build tractors but, following the



The MF 65 was given a full, 'bottom up' restoration which took the best part of two years to complete.

“The MF 65 was one of the first tractors in Tom's collection, and he acquired the machine back in 2001, from a farmer near Stirling”

merger with Ferguson, production was switched to making combine harvesters. For several years, Tom and his growing fleet of trucks made regular deliveries for the factory. After the plant closed in 1979, he also worked for a nearby open-cast mine.

"By the time of the miner's strike in the mid-1980s we were running a dozen outfits, and using a Cat 933 dozer and 360 excavators to work

the coal site," he recalls. Ironically, it was the shortage caused by the strike that presented him with his biggest windfall. As coal stocks declined, it was decided to open a new open-cast mine almost on his doorstep. Tom grasped the opportunity with both hands and agreed to meet all their plant and haulage needs. Ignoring the usual ups and downs in the business cycle, he's not looked back.

TRACTOR TRANSPORT



The 65 Mk.I was lavishly equipped by the standards of the day, although the operator still had to sit exposed to all weathers. Modern tractor drivers take note!



Tom's custom-made tractor container provides snug and safe transportation for his precious machines...

Like a lot of self-made businessmen, Tom credits his success to his family and team of hard-working staff. His son, also called Tom, plus daughters Liz-Ann and Sandra, are all involved with the company. As the family business expanded, the depot at Cronberry has been steadily developed and now features a fully-equipped workshop to maintain the company's fleet of lorries. The site also includes a commercial vehicle MoT testing station, and operates courses on driver training. Just as importantly from a preservation point of view, it allows Tom the opportunity to restore his tractors in-house.

One of the first

The MF 65 was one of the first tractors in Tom's collection, and he acquired the machine back in 2001, from a farmer near Stirling. "I was looking for something to cut the grass and spotted the advert in one of the specialist magazines," he explained. "The tractor was originally sold by a company called Tweedies, in 1958, and carries a Dumfries registration. It's thought that the machine worked locally for several years before it was eventually moved on."

The rest of the tractor's history is a grey area, although it resurfaced again around the time of the millennium. Once Tom had used the tractor for a few months, he decided to restore the machine. This was a big challenge as the Massey had arrived in a dilapidated condition. He gave the tractor a full, 'bottom-up' resto and the job took the best part of two years.

Tom admits it was a big help to have access to a workshop on site. He could also count on the help of his son, Tom Jnr, along with one of his mechanics who has some experience in restoring old tractors. Finally, he could enlist the expertise of well-known restorer and engineer, Ted Hannon. Mr Hannon



... and is a regular sight at major shows across the UK.

will be familiar to some readers, although his specialty is actually lorry restorations.

"We decided from the outset that the tractor should be finished as closely as possible to the original factory finish," says Tom. The MF 65 was stripped down to its last nut and bolt, and rebuilt to Mr Hannon's exacting standards. By the time the job was finished, the tractor was in approximately the same condition as the day it left Massey Ferguson's Banner Lane production plant, in Coventry.

Instant success!

Tom had intended to give the revitalised Massey its first baptism of fire at a vintage rally down in the Midlands. Unfortunately, he had to withdraw at the last moment, but Mr Hannon was



The Perkins A4.192 engine had plenty of power for its day; ideal for larger acreages.

happy to step into the breach and returned with the 'Best in Class' and 'Best MF' trophies. The tractor followed this success by winning its class at the 2005 Scottish National Tractor Show at Lanark, then was successful at a similar event at Newark later that same year. But these proved to be just the beginning, as the tractor has won a long string of awards, and continues to do so today.

Tom admits to always having several projects on the go. He has steadily grown his Massey Ferguson collection over the years, and it's now surely one of the most significant in Scotland. Apart from the British models, his stable also includes several Continental tractors rarely seen in the UK.

He said: "I use a wide number of sources to find my tractors and am a big fan of the internet. We have even travelled to an auction in Spain, to bring a tractor back to Scotland."

Tom has also put together a custom-made articulated lorry transporter to ferry his tractors to rallies. Painted in Massey Red with tractor illustrations on both sides of the trailer, this impressive vehicle is a regular sight at the UK's top shows.

MF 65: FACTS AND FIGURES

The MF 65 was a step up from the model 35, and aimed at the large acreage farmer. It had all the features of its smaller sibling, with the added advantages of the power and torque from a larger, four-cylinder engine. The transmission also came from the 35 and the tinwork and front axle had their roots in the American-built Ferguson 40.

The new tractor was intended to compete with the likes of Nuffield and Ford in the 50hp sector, and the design also followed Massey Ferguson's philosophy that the tractor could be driven by any operator. Its controls were identical to other MF tractors, and the model's shell-type mudguards, sculpted bonnets and matching livery were like other Masseys of the period.

At the heart of the MF 65 was a Perkins four-cylinder engine. This could develop just over 50hp and was designed to pull a four- or five-furrow plough. As well as the traditional ploughs, Massey Ferguson could now show the 65 with the new model 85 three-furrow reversible. Weighing 1,500lb, this unit featured a fully automatic tripping mechanism, and spring-loaded breakaway beams.

TRACTOR TRANSPORT



Tom French with his son, also Tom, who has an involvement in the family business, as do his sisters, Liz-Ann and Sandra.

The list of standard equipment on the tractor was generous for its day, and featured the excellent Ferguson System, dual clutch, disc brakes and dual-category linkage. Options included power steering, a differential lock and a heavy-duty hydraulic pump. Epicyclic reduction was also provided at the axle ends to enable higher transmission speeds and improve the tractor's braking.

Besides the standard model, Massey Ferguson also offered a high clearance, and two Industrial versions. The 65S was very like the standard model, while the 65R featured a Borg & Beck torque convertor and shuttle transmission. This was equipped with four forward and four reverse speeds, which was the model's biggest selling point.

“These proved to be just the beginning, as the tractor has won a long string of awards, and continues to do so today”

Following the launch of the improved Mk.II version at the Smithfield Show in 1960, Massey Ferguson offered the tractor with the new 'Multi-pull' hitch to improve the machine's capability when using trailed implements.

The hitch was a forerunner of Pressure Control, and consisted of a heavy chain attached to a three-point linkage frame. This was then wrapped around a trailed

implement draw bar. By partially raising the hydraulic lift arms, a lot of the weight was transferred to the back of the tractor which significantly improved wheel grip.

Other improvements included a new direct-injection Perkins AD4.203 engine, offering an extra 8hp. The diff' lock became standard equipment and there was also the option of road lights. Two years later, the renowned Multi-Power gearbox was also made an option, at a cost of £70.

All-in-all, the MF 65 (in both Mk.I and Mk.II forms) was one of the best tractors of its generation. It proved so reliable it would become the basis of the 165, with very few mechanical differences - the sign of a great machine. As we all know, if it ain't broke, don't fix it!

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Renovation assessment



Ben Phillips casts his expert eye over an MF65 Mk.II renovation project, to highlight the problems typically encountered by tractor restorers

Tim Elgood sent me his Massey Ferguson 65 Mk.II for some much-needed attention.

Most tractors come to me once their working lives are over and they're heading into a well-earned retirement, which often includes some degree of restoration. Here, though, this Massey Ferguson 65 will probably carry on working once it has had an overhaul.

Tim Elgood sent the tractor to me from his smallholding in Derbyshire, where he uses it for rolling, harrowing and for pulling a tipping trailer. He'd noticed that the Perkins four-cylinder engine was using more oil than it should, so thought it was time for an engine rebuild. In addition, the tractor had been scheduled for a new paint job, too.

TLC much needed!

Affectionately known to them as 'Sal', due to the reg number containing those letters, it's clear that this MF 65 is a valued part of the family, and means a lot to the Elgoods. But it was also clear from the moment it arrived with me that the tractor was long overdue a good dose of TLC. So I wasted little time in beginning my assessment to establish precisely what needed to be done to get it back into decent shape.

At first glance it was clear to me that the tractor was sloping forwards, and the reason for this was that it was running on big, 36in rims at the back, but the standard, 16in ones on the front. When standard, the rears would have been 32in rims and, if larger ones are fitted, these are usually matched with bigger ones on the front, to keep the tractor level overall.

TOP RIGHT: This Massey Ferguson 65 certainly pitched forwards, so levelling it up would be my preferred choice but, ultimately, that will be down to the owner's preference.

BOTTOM RIGHT: I wasn't overly keen on this weight frame on the front; the original, lower curved section always looks better, as far as I'm concerned.



RESTORATION TIPS

“Tim Elgood sent the tractor to me from his smallholding in Derbyshire, where he uses it for rolling, harrowing and for pulling a tipping trailer”

Of course, before setting about levelling the tractor, I'd always discuss the options with the owner, during which I'd also point out the need for a new set of tyres. Those currently fitted are pretty much worn out and badly cracked, so I think there would be little point in getting the rest of the tractor looking right, while leaving the shabby old tyres in place.

Another item that I'd like to remove is the weight frame. To my eye these accessories only look good on the 100 Series Masseys, and do nothing for the frontal appearance of older-style models like this 65. It was also obvious that this was a 'Multi-Speed' model, judging by the remains of the stickers on the bonnet; a feature that some people like, but others don't.

Next to the sticker on the nearside of the tractor, I couldn't help noticing that the exhaust silencer was being supported by a piece of wire. Evidently it had broken off just above the clamp, and the whole lot was leaning at an odd angle as well as rattling noticeably when the engine was running. Opening the bonnet revealed that its stay was missing and, in its place there was a length of garden twine being used to stop the hinged panel from opening too far.

Reasonable tinwork

Overall, though, it was clear to me that the tractor's tinwork was in reasonable condition. Most of the panels looked pretty much straight and seemed rot-free. The always



The angle of this exhaust obviously isn't right. It was being held in place by wire and rattled a lot when the engine was running.



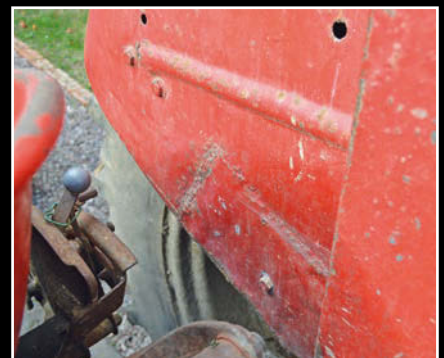
Lifting the silencer revealed the problem; the pipe had broken off just above the clamp.



This was obviously a Multi-Power model!



The tinwork was essentially in good condition, although the front grille had a few slight dents, but this sort of damage is always easy to tap out.



The right-hand mudguard was displaying quite a crude repair; a patched section had been welded on in rather 'agricultural' style!



The registration plate explained why the owners referred to this tractor as *Sal*. Looking closely, I could see signs of oil leakage around the axle and PTO.



This bucket seat was missing its cushion set and was cracked. It also looked as though it had been previously repaired.



The whole tractor was angled forwards, largely due to these big, 36in rear wheels.



Combine the standard, 16in front rims with the over-sized ones on the back and the tractor is bound to tilt forwards.



The Perkins engine was plastered with old oil and dirt, for which assorted leaks were to blame. But a thorough jet-wash quickly got things looking much better.



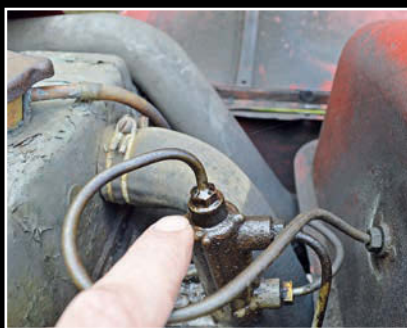
This diesel pump needed to be professionally overhauled by Dieselec in Ditton Priors. My guess is that it would be full of dirt, judging by the amount of grime on it.



Fuel lift pumps tend to leak without warning, so I always replace them as part of any engine rebuild. It's a false economy not to.



The usual black oil was present as I pulled out the dipstick; it wasn't thin and runny, though, which told me the fuel lift pump hadn't failed yet.



This fuel reservoir was leaking from the top union; this part feeds the heater plug, and returns excess to the fuel tank.

“To my eye these accessories only look good on the 100 Series Masseys, and do nothing for the frontal appearance of older-style models like this 65”

vulnerable front grille showed just a few dents, but these would be easy to tap out, but the right-hand wing had been crudely repaired.

As the rear wheels were bigger than standard, the shell fenders (mudguards) had the extension blocks fitted between them and the axles. It was also clear that the bucket seat would need a new cushion set and, maybe, some repairs; the bottom was breaking up where the rubber buffer block at the front makes contact.

Tractors usually arrive with me dirty, but this one was particularly oily; the engine was plastered in black oil, and there were no remnants of the original, Stoneleigh Grey paint showing. However, I felt quite confident that once I'd pressure-washed the machine, I'd find that most of the paint was still in decent condition beneath the oil layer.

All the dirt and grime coating the engine was the result of numerous oil and fuel leaks over the years, with the most obvious of them coming from the fuel reservoir that feeds the heater plug. As you'd expect, the four-cylinder Perkins started well – these engines normally do, even if they're getting worn out.

But the tell-tale sign that all was not well inside was obvious at the end of the breather pipe; there was more smoke coming out of it than there was from the exhaust. This told me that the pistons and liners were getting worn, which confirmed that a new engine kit would definitely be needed and also indicated that

RESTORATION TIPS



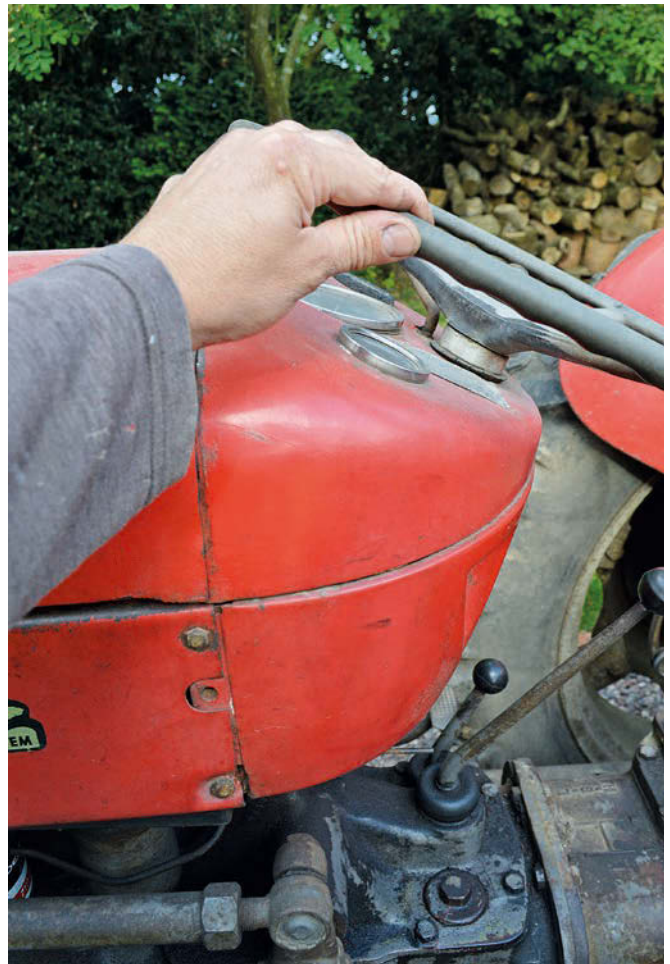
The pimple grips having been worn away on the clutch pedal told me that the clutch had certainly been well used.



I found a lot of play at the clutch pedal's pivot point. This would obviously need to be put right.



The brakes on the MF 65 are found here, right up by the rear end. The whole trumpet axle needs to be removed to get at them.



On most MF 65s you'll find slight play in the steering, as in this case. Some of this is undoubtedly being caused by wear in the ball joint by the steering box.

the crankshaft would have to come out to be checked and machined, as necessary. In addition, the whole block would need stripping and cleaning, then new water, fuel lift and oil pumps would have to be

fitted, together with a whole host of other new parts.

Servicing the brakes

Another important job would be to service the brakes, renewing worn

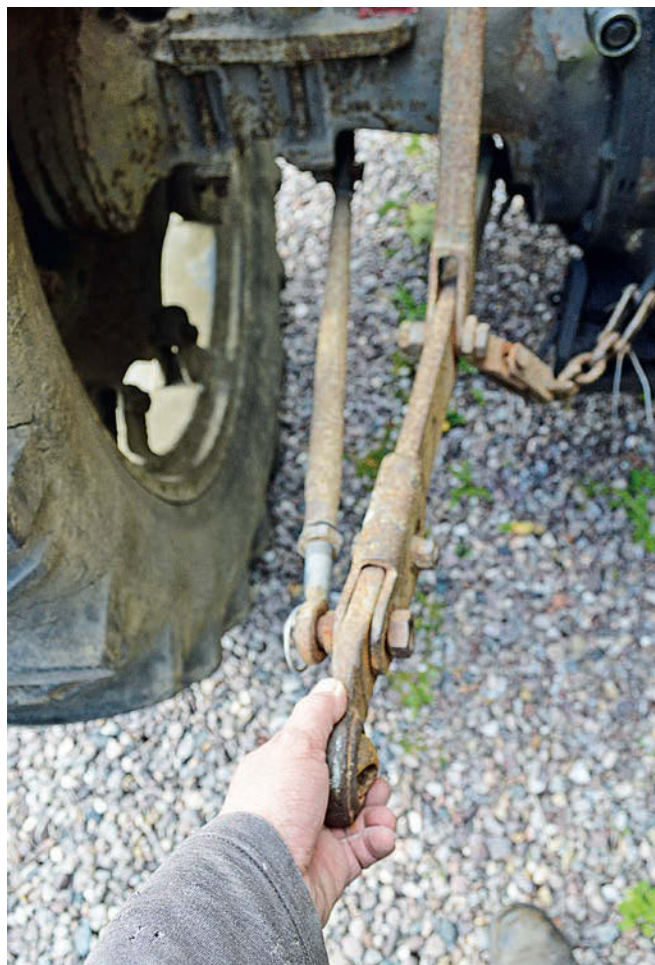
parts as required – I suspected there were leaking oil seals that would have to be dealt with. The brakes on the MF 65 are disc-based, and these are found inside the trumpet housing at the back end of the tractor. They



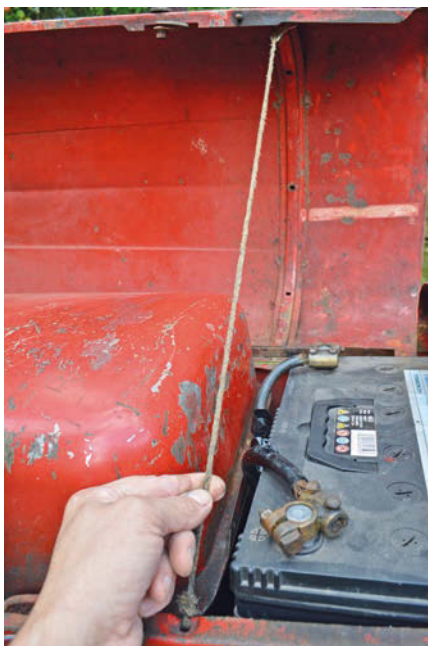
This cable tie on the brake pedal latch did the job the proper springy metal part should do. You can buy a replacement for the original part, so the cable tie will be heading for the bin.



The gauges on the dash were in a mixture of conditions; the oil pressure one was good, the tractormeter was slightly worse but the ammeter was completely wrecked!



The hydraulic arms had slight play, indicating that some of the pins were worn and would need to be replaced to tighten things up.



The proper bonnet latch was missing and, in its place, I found a length of garden twine.

“Another important job would be to service the brakes, renewing worn parts as required – I suspected there were leaking oil seals”

need fine adjustments to get them performing properly, and poor adjustment can result in binding and over-heating. Generally speaking, I find that MF 65 brakes either work extremely well, or not at all!

As the engine was due to be removed, a new clutch would be fitted and, as is usually the case, I would expect to find oil contaminating the original (a tell-tale drip from the rear crank seal alerted me to this likelihood). Also, judging



As this is a Multi-Power model, the key switch is positioned further to the right than usual, creating space for the chrome-plated Multi-Power lever.

by the worn state of the clutch pedal, the machine had obviously seen plenty of hard use, and the free play I found on the pivot pin would certainly need addressing. This is another common, wear-related thing to find, but parts are available to stop the side-to-side wagggle.

Sealing the deal

Leaking oil seals on old tractors are commonplace and, as **Ben Phillips** explains, mechanics go to great lengths to stem the flow, but with varying degrees of success!

When this Massey Ferguson 65 Mk.I came to me, the main problem requiring attention was a leaking rear crank oil seal causing an annoying drip onto the floor under the clutch housing. Sometimes the gearbox oil will leak out through here but, judging by how black the fluid was, it certainly looked like engine oil to me.

It's not an unusual problem; I've dealt with quite a few in this area before on Massey Fergusons. However, to get to the seal that's leaking, the tractor has to be split apart. When doing this, effective support of both the engine and the clutch housing is important, so I generally prop the back end, then hold the engine with a crane. But, before you can slide it out, certain things have to be disconnected – wiring looms, fuel pipes and the engine stop rod.

The starter motor needs to be removed and the fuel tank could be left but, on this occasion, I opted to remove it. Then, once you're happy that everything has been disconnected or removed (as the slightest thing left in place will impede the removal process), you'll then be ready to turn your attention to the main bolts.

On the MF 65 there are multiple, 1½" bolts located around the clutch housing and, when these are undone and if you're lucky, you'll see the tractor start to split apart.

Once it does, make sure the apparatus you're using to support



This Massey Ferguson 65 Mk.I came to me with a leaking rear crank oil seal. The cost of labour involved in putting it right far outweighed the cost of the parts needed, but the job was well worth doing.

the engine has the weight on it, as you remove the last one if it hasn't come apart, gently prise it with a screwdriver or similar. Be careful when moving the engine as it's heavy; you'll only need to move it enough to remove the clutch and flywheel, and to reach into the clutch housing. Once it's been moved a sufficient distance, I always add further supports underneath for extra security; even though my crane is relatively new, it still sinks down over time, so it's always better to be safe than sorry.

It always amazes me when I mention to customers about the importance of replacing the clutch and bearings when doing such a job, and they wince at the thought

of spending more money. But, as with most things of this sort, the labour is more expensive than the actual component being fixed. In this case, the rope seal and gasket only cost a few quid to buy.

So I always try to emphasise to customers that it makes good sense to replace the clutch when they've already paid me for the time taken to split the tractor. To simply replace the cheap seal and leave the clutch alone is a real false economy, in my view.

In this case, the clutch was moderately worn and I certainly wouldn't have been happy refitting it. Fortunately, the customer agreed to have it replaced. Removing the clutch is quite easy;



The first job was to remove the tinwork and exhaust on this Massey Ferguson 65; these were all due to be painted later.



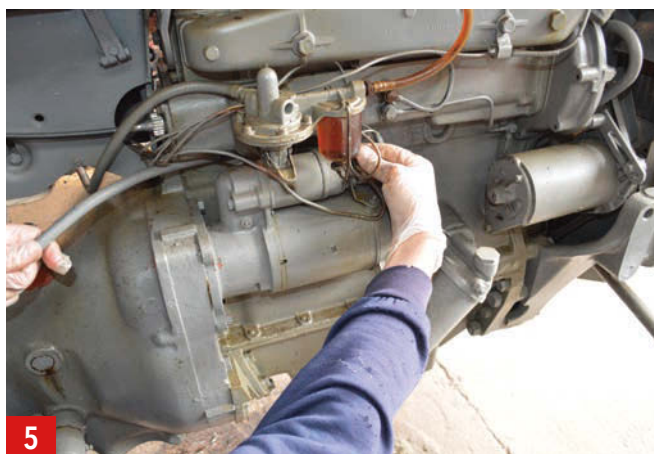
There is only one steering arm on the MF 65; it's up level with the bonnet and you'll need a ball joint separator, as shown.



Using an engine crane to support the engine; this helps with sliding it out and, hopefully, with sliding it back in again!



Forgetting to disconnect simple things like fuel lines and throttle levers will prevent the engine from separating - they're easily overlooked!



The same goes for electrical items, this main battery lead to the starter needs removing, as does the starter motor.

six bolts hold the assembly in place and, with these removed it can be lifted clear. However, there is a loose clutch plate behind,

so always take care that this isn't allowed to fall out.

The flywheel is a different beast, though. It's a heavy component, so

always organise some help to make sure that you don't get hurt. It's bolted on with some tab washers to secure it.

SEALING THE DEAL



6

Now the main bolts on the clutch housing can be undone; once they're all out you should see the tractor splitting.



9

This black line of oil is a tell-tale sign that the seal has failed. More will become visible when the plate is removed.



7

This is a nice sight! The engine only needs sliding out a sufficient distance to comfortably work on the clutch assembly. Always add further supports underneath to provide extra security.



10

Removing the backplate is done by undoing these $\frac{3}{16}$ th bolts. It might require a tap as it sits on some dowel pins.



8



11

Now the seal housing is visible; the bolts highlighted by my fingers need to be undone to remove it.

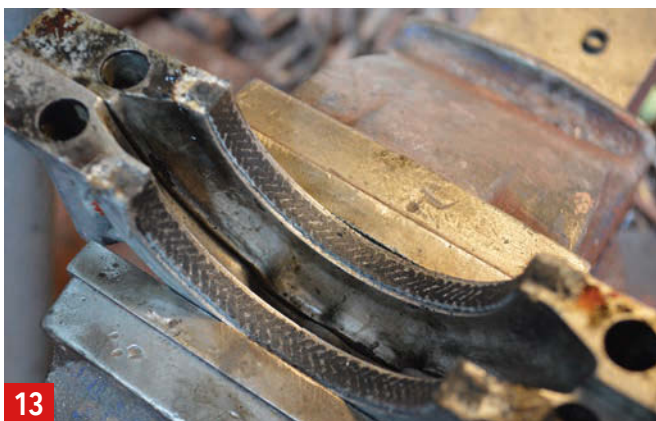
BOTTOM LEFT: These tab washers hold the flywheel on. Be careful undoing them, the flywheel will drop off once they're all undone, and it's heavy!



12 As I mentioned in the caption for Pic 9, more leaked oil would be visible, and it sure was! This pool of the black stuff was more than I thought there would be.



15 Here is what the rear crank oil seal involves – the new rope seal has been rolled into the grooves.



13 These worn rope seals haven't helped stop the oil leaking; a set of new ones will look a lot better.



16 Refitting the backplate after the seal is fitted is the first step to putting this job back together. It's all been cleaned prior to fitment.



14 Dressing the crank up with some Emery tape gives the new seal a nice smooth surface to sit against.



17 The oil-soaked flywheel was degreased and a new spigot bearing was fitted, then it was tapped out from behind.

With all the clutch side removed, you'll be able to see the housing that the seal is pressed into but, to remove it, you'll need to remove the back plate. A series of $\frac{3}{16}$ th bolts hold this to the engine block.

The rear crank oil seal is located in a peculiarly-shaped housing that's secured with six, $\frac{1}{2}$ in bolts into the engine block, and two longer $\frac{1}{2}$ in nuts and bolts to clamp it round the crankshaft.

As soon as I undid this housing, I could see why the leak was so bad in this case; somebody had fitted it without the paper gasket behind. Instead, sealant had been used, which certainly wasn't up to the job.

SEALING THE DEAL



18 The new bearing was fitted in through the face side; it really did need one as the old one was very noisy.



21 This clutch lining tool is a very useful thing that makes lining-up the double clutches easy. It will fit a number of MF Perkins-engined tractors from the 1960s and 1970s.



19 Jamming the flywheel with a screwdriver enables the bolts to be torqued up, I always go over them twice to double-check.



22 In the middle, the clutch lining tool is in position. My left hand is showing the installation bolts that need removing.



20 The new clutch assembly was wrapped in oiled paper to stop it rusting in transit. Here I'm degreasing the surface.



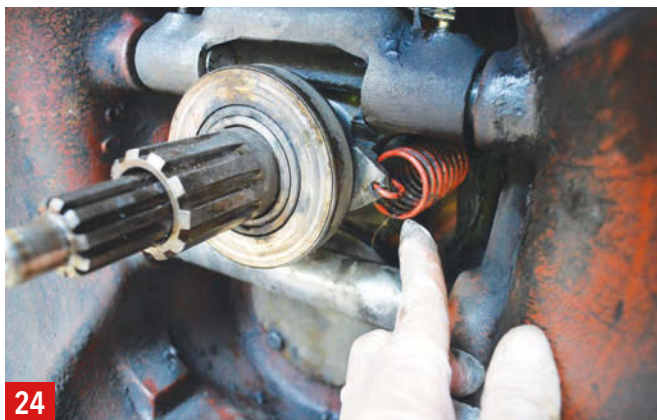
23 Setting the PTO clutch plate gap is done using feeler gauges. A nut locks it into position.

The two-section seal is pressed in by rolling a socket around the face, to make sure it seats in the grooves, then the gasket is slipped over the end of the crank after which the two sections are sandwiched around the crank. Then it's all bolted onto the engine block.

The oil-stained backplate and flywheel were thoroughly washed and refitted (seeking help with the heavy flywheel). A few years ago I bought a clutch lining tool for Perkins-engined Massey Ferguson tractors, and it's proved so valuable

ever since. It makes lining up these double clutches extremely easy, and was worth every penny.

Once the clutch was fitted, my attention turned to the thrust bearing, which was noisy and needed pressing out. I found that



24

This thrust bearing was badly worn and noisy, so a replacement was bought. Removing the carrier is achieved by unclipping these springs.



27

If you get everything right, the engine will slide back into place quite easily. Bolting it up secures it to complete the job.



25

A 46mm socket is just the right size to knock the bearing carrier away from the bearing; just make sure you catch it underneath.



26

Here the new thrust bearing has been pressed onto the carrier. I used a bench vice to do this, which worked perfectly.



28

If you're planning to tackle this job yourself, investing in a crane like this is a great idea; it makes it so much easier.

a 46mm socket was just the right size to remove it, and the bench vice pressed it back in. The return springs were hooked back over the carrier and at the back of the input shaft.

The process of sliding the engine back in went very smoothly, with hardly any resistance, and I was soon locating the 1 $\frac{1}{4}$ th bolts in the bell housing. Once all the fuel lines were reconnected it was time to start

the engine for a test run and, after 10 minutes of constant running, I'm happy to report that there wasn't any sign of dripping oil. It's amazing that such a cheap little seal can be responsible for such a mess!

How to make 3,307,996 tractors!

Part 1: David Walker explains how the famous Banner Lane factory in Coventry worked. It sounds easy, but was it?



A post-1970 photograph of the MF 135 final assembly line. Here the tractor is almost complete and ready for despatch. It's the later type with pressed-steel rear fenders and 'straight' front axle.

Massey Ferguson's Banner Lane factory in Coventry, just about a million square feet of it, was quite a complex place to make things. To many people, the perception of Banner Lane is that it was where tractors were put together, and this is true. What's not so obvious, to those less familiar with

it is that, even from its earliest times, a good deal more actually happened there than simply assembling these famous machines, which started in 1946 and ended in 2002.

The fact that a staggering 3,307,996 tractors would be made only scratches the surface of this remarkable achievement. Even

under the aegis of the Standard Motor Company, which began building tractors for Harry Ferguson in 1946, there were a great number of additional activities in the factory and, as tractors became more complex and diversified, manufacture became an ever more difficult task to achieve.

So many parts

An enormous amount of the components that make up a tractor were delivered to the factory as 'bought-in' items – wheels, tyres, sheet metal components, steering parts and many more – but these were only a fraction of the parts actually needed.

To add to this input, which would extend to complete engines from Continental, Standard and Perkins, there were also huge amounts of components made in-house. This is confirmed by the fact that, although the factory was divided into three huge bays measuring 706x250ft (215m x 76m), only one of them was the actual production line. The other two were filled, right from 1946, with around 1,500 separate machine tools that were used to produce a huge range of components, either from bought-in castings and forgings, or from metal bar and sheet.

Another point to consider is the workforce. In many cases, the machine tools could be set to produce a piece of work, or operation, under the control of what were rated as semi-skilled operators. But this title underplays the abilities of those employees, as most were both highly experienced and sensitive to the needs of the job. They weren't only expected to man the machines, but also to keep tabs on the quality of the work to make sure that it was meeting the engineering drawing specifications.

Backing them up was a team of qualified engineers who, having spent an intensive five years as apprentices, were there to keep the machinery up to its optimum performance, making adjustments and replacing the cutting tools that actually did the work. Make no mistake, the tool setter was a master craftsman, even though many years later he would be replaced by the CNC machine programmer. Different age, different title, but the responsibilities and the outcome were very much the same.



The final checkout and 'snagging' (fault correction) point on the 'grey and gold' FE-35 line, circa 1957/8.

The right people

As might be expected, the recruitment of people with the relevant skills needed was quite a task, but there was always a leavening of young men (no women in those days) available from within the company's own apprentice training scheme. Added to this, outsiders – especially those from local machine tool companies – were also welcomed. The machine tool industry in Coventry enjoyed a formidable reputation for both the quality of its products and the post-apprenticeship skilled men it produced.

machines they had helped to build at companies such as Alfred Herbert Ltd, with which they'd been closely involved when they were undergoing their training, and which were used in the Banner Lane factory.

Add to this a team of inspectors, quality control engineers and metallurgists, whose task was to ensure that what was being made measured up to the exacting standards required, and conformed to the engineering drawings. From the outset in 1946, Harry Ferguson had insisted on high standards of precision and quality of work, plus the use of the best quality materials

“The fact that a staggering 3,307,996 tractors would be made only scratches the surface of this remarkable achievement”

Many of these young men became available after their five years of education in a very tough school of learning, which included paper qualifications as well as the skilled use of their hands. Ironically, many of these recruits from outside were often reunited with the very

for all of his machines, whether tractors or implements, and this practice persisted for the whole life of Banner Lane.

Pssst... need a watch?

An aside here, perhaps not obvious to those never exposed to this

FACTORY HISTORY



A late 1959 photograph of MF35s. The chassis 'carcass' was largely assembled on the transverse track, before going on to the final 'follow-my-leader' assembly line.



The crownwheel and pinion assembly track showing, at the front, assemblies for the larger, four-cylinder machines (the bigger pinion is the giveaway). The rear line has the smaller, three-cylinder-type assemblies. Note that the pinions and crownwheels are paired when being set up, and have been matched for optimum performance and adjustment.

“Most factories had a ‘Mr Fixit’ who could either acquire things, or knew a man who could”

factory environment, is that Banner Lane, like just about every other factory in Coventry (and elsewhere), had its own internal trade and commerce team, which could supply just about anything from hard-to-get items like ladies' nylons to fishing tackle, car parts and a multitude of other things.

Added to this, there was the inevitable taking of bets and acting as agents for the football pools. Those who remember the character of Private Walker, the archetypal 'spiv' in the BBC's *Dad's Army* television series, might think he was an exaggeration. But most factories had a 'Mr Fixit' who could either acquire things, or knew a man who could. While the Black Market had been a product of wartime shortages, it should be remembered that rationing remained in place until 1954, and some commodities were still very hard to get.

The management obviously knew of these goings-on, but would turn a somewhat Nelsonian 'blind eye' to them, provided they didn't interfere with the running of the factory, and that transactions were made during break periods. The other proviso was that nothing illegal was handled; although it has to be said that this rule was pushed to the limit, on occasions!

Sports and social activities were also encouraged by the company, with a wide range of attractions including indoor facilities for darts, dominos and snooker, plus football and cricket teams that earned enviable reputations in the local leagues. So, plenty to do if you had an interest.

However, by the 1960s even the Banner Lane machine shop was

found to be inadequate to meet the need for machined components. The acquisition of the former Armstrong-Whitworth Aviation machine shop, at nearby Baginton, just about doubled this machined component output capacity, and allowed for over 85,000 tractors to be produced in a good year; many of them to far more complex build schemes than had originally been the case.

Increasing complexity

Where the original design called up almost a single-build scheme, even the TE-20 in its 10-year life would begin to impose the need for variations of builds.

Just take the engine specification as a case in point, where the original build, with its imported Continental engine used petrol and nothing else; by 1956, the engine had become a Standard Motor Company product, which spread to a mix of petrol, TVO, LO (lamp oil) and diesel builds. This, in turn, demanded an ever-increasing assortment of different components, ostensibly all doing the same job, such as fuel tanks, cooling systems and electrics, but needing to be tailored to the demands of that particular model's engine type.

What then became a necessity was an ever-increasing reliance on a team of production planning and scheduling engineers, whose job was not only to source the right parts for a given build, but also to ensure that they appeared in the right place on the production lines, at the right time.

From those early beginnings in the 1940s with a fairly straightforward and relatively simple set of builds, as time went on a combination of market-led demands, plus climate and territorial needs – not to mention specific countries' field and traffic regulations – resulted in a somewhat different scenario.

To meet these demands, as might be expected, each tractor model had a potential build specification



The final production line run-off point for the FE-35, circa 1957/8. Note the 35 rim on the left, that's on the wrong side of the tractor.

list which, in turn, was broken down into its major assemblies, such as front axle, engine, clutch, gearbox, rear axle, hydraulics, brakes, electrics, wheels and tyres, linkage and drawbars, sheet metal and fenders, and so on.

Assembly choices

In most cases, as might be expected, you needed pretty well one of each of the major assemblies to make a complete tractor, although even this wasn't always the case. For any given assembly, the choices available within that major assembly might not be too stretching, with only a few choices of build. In other assemblies, especially those that had to interact with other sections of the tractor, this section could certainly rise to dozens, if not quite hundreds. So considerable care was needed when planning a build to ensure that what was specified would actually fit together and be compatible.

This composite jigsaw, which made up the required assemblies, had already also been through this scenario at an earlier stage, to actually get together all the matching components to build a gearbox, or hydraulic pump. So you

had the added complication that, unlike the pieces of the jigsaw that come out of the box ready for fitting, they had the additional headache of actually making the pieces for the jigsaw, too!

At this juncture, readers might think that I'm over-emphasising the fact that things weren't quite as simple as they looked. There is, however, a small but sobering point that brings some strength to this argument. This is that by the 1970s, if the production lines at Banner Lane had started with a single, basic build of each model, then changed just one of the available options as they built the next one, it was calculated that over three million model variations, each one different, could be made... Admittedly, some of the variations were relatively minor, but it does give some indication that the care in putting together the production schedules was no small task.

Another point that might surprise some, is that every tractor coming off the Banner Lane lines was an actual order – there were no tractors built speculatively with the hope that what had been built might appeal to someone, somewhere.

• Pictures courtesy of AGCO.

How to make 3,307,996 tractors!

Part 2: David Walker concludes his story of the famous Banner Lane factory in Coventry, starting with the growth of its production lines

Originally, a single production line had sufficed in the assembly shop for TE-20 tractor production, but this had grown to a pair of tracks by the time the FE-35 (later the MF 35) and the MF 65 were brought into production. There were enough

differences between the basic builds to necessitate a separate line for the bigger model.

This change, post-1956, was quite adequate even with the introduction of the DX range – the famous MF 100 Series – late in 1964, when the line for the larger models

accommodated both the MF 165 and the MF 175 (later, the MF 178).

Sometimes it's forgotten that mixed in with these models were the semi-industrial tractors, very much based on their agricultural counterparts, but in yellow livery, so quite a distinctive contrast to



The MF 200 series main production line, in the late 1970s, with a MF 240 in the right foreground. Note the stillages and racks of parts placed strategically at the points on the line where they'll be needed, as listed on the computer-generated build card, produced for each individual tractor.



Rear axle centre housing castings, fully machined and in red primer, awaiting fitment of the internal components and the rear axle trumpet housings.

the normal, red machines. That this was adding to the complexity of build requirements isn't in question, because they also had special requirements to meet road traffic laws, different to those required for farm use.

Greater diversification

In 1970, significant changes were made at the factory, with electrically-guided, moveable assembly tracks for the gearboxes and rear axles, plus the addition of an even more



The initial chassis build line, where the main assemblies - front axle, engine, gearbox and rear axle - came together before the complete chassis 'carcass' went for painting.

diverse range of models on the production lines.

The MF 135 was joined by the 148 on the small tractor line, and the 165 was supplemented by the 168, 185 and 188 models on the other

line, which emphasises the point made earlier about the need to have pinpoint accuracy of build codes for each model, without even thinking about the various levels of build and specifications for each.

“The MF 135 was joined by the 148 on the small tractor line, and the 165 was supplemented by the 168, 185 and 188 models on the other line”



A late 1980s shot of the MF 300 series line, with a mix of cab builds for the UK and European markets, plus roll bars for export.

The icing on the cake came with the requirement to build tractors, especially for most European markets, with quiet safety cabs. From 1970 to 1976, the legislation on safety cabs was a lot less strict about in-cab noise which meant that, like most manufacturers, MF elected to have these earlier cabs fitted by their dealers.

These cabs, which were quite safe in terms of a turnover were also, in just about every case, hideously noisy, having no sound insulation between the driver and the engine or transmission. What the new cabs demanded was that not only were they mounted to reduce noise levels, but that they also had to have all their controls operated by remote linkages, which again had to be designed so they didn't transmit noise into the cab.

To accommodate this new need, an extra building - inevitably referred to as the 'the cab shop' -

FACTORY HISTORY



An early 1980s shot of the fairly brief MF 600 Series production, with the Italian-sourced SIAC cab. The MF 600s, after some initial cab rust problems, gained an excellent reputation for comfort, reliability, performance and economy.

was added to the side of the main production area. The problem here was that a fair proportion of the tractor chassis had to be assembled before cab fitment but not, unfortunately, as an add-on at the end of the line.

Correct cab?

If you can visualise a main road with a junction where a side road joins it,



Around 10 years later and it's MF 300 Series on final assembly, again with a mix of cab and non-cab builds on the line. Once again, this emphasises the point about each build being an individual machine, with its own specification.

this was the arrangement whereby, when the point was reached that the chassis and cab had to come together, the cab would then appear and be lowered onto the chassis. All the linkages and assorted hoses would then be connected up between the cab and the chassis, then final assembly of the remaining components would take place.

In this case, the initial builds were four models – MF 550, 565, 575 and 590 – with the small relief that these were only 2WD builds; the 4WD versions being produced, in parallel, at the French factory at Beauvais.

What did cause its own ration of headaches was that there were three different MF 500 Series cabs – A, B and C – which were fitted to the 550, 565 and 575/590 respectively. As can probably be imagined this, in itself, needed some pretty precise planning to make sure that the right cab was matched to the right chassis, and it mostly was. However, I do recall visiting the production track one day and



This is a c1980 photo of MF 200 Series builds. The chassis has been painted, and the sheet metal (not tinwork) is fitted. It awaits its wheels so that the finished machine can be driven to the tractor park.

hearing an explosion of colourful expletives as it was discovered that an MF 550 chassis was being matched to a cab for an MF 590!

Later, these would be followed by their successors, the MF 200, 300 and 600 Series, with their own raft of build variations, including the addition of 4WD models.

Did it work?

To actually get more than three million tractors out of the door in the years of production is its own testimonial but, needless to say, it wasn't always plain sailing. In every generation of tractor models, there was always a working-up period to get production to happen. In many cases, usually around the time of the summer holiday period, the plans for new models would have been finalised and, as soon as the last of the previous models was built, the lines would

“ I do recall visiting the production track one day and hearing an explosion of colourful expletives as it was discovered that an MF 550 chassis was being matched to a cab for an MF 590! ”



Back in time, to the early 1970s (can it really be nearly 50 years ago?). One of the superb MF 185 models, of which many thousands were made. In this case, an export build, as denoted by the big rear tyres, has its wheels fitted, on final assembly. Note the air-powered, multi-spindle wrenches, that fitted a full set of six wheel nuts in one shot, to speed production.



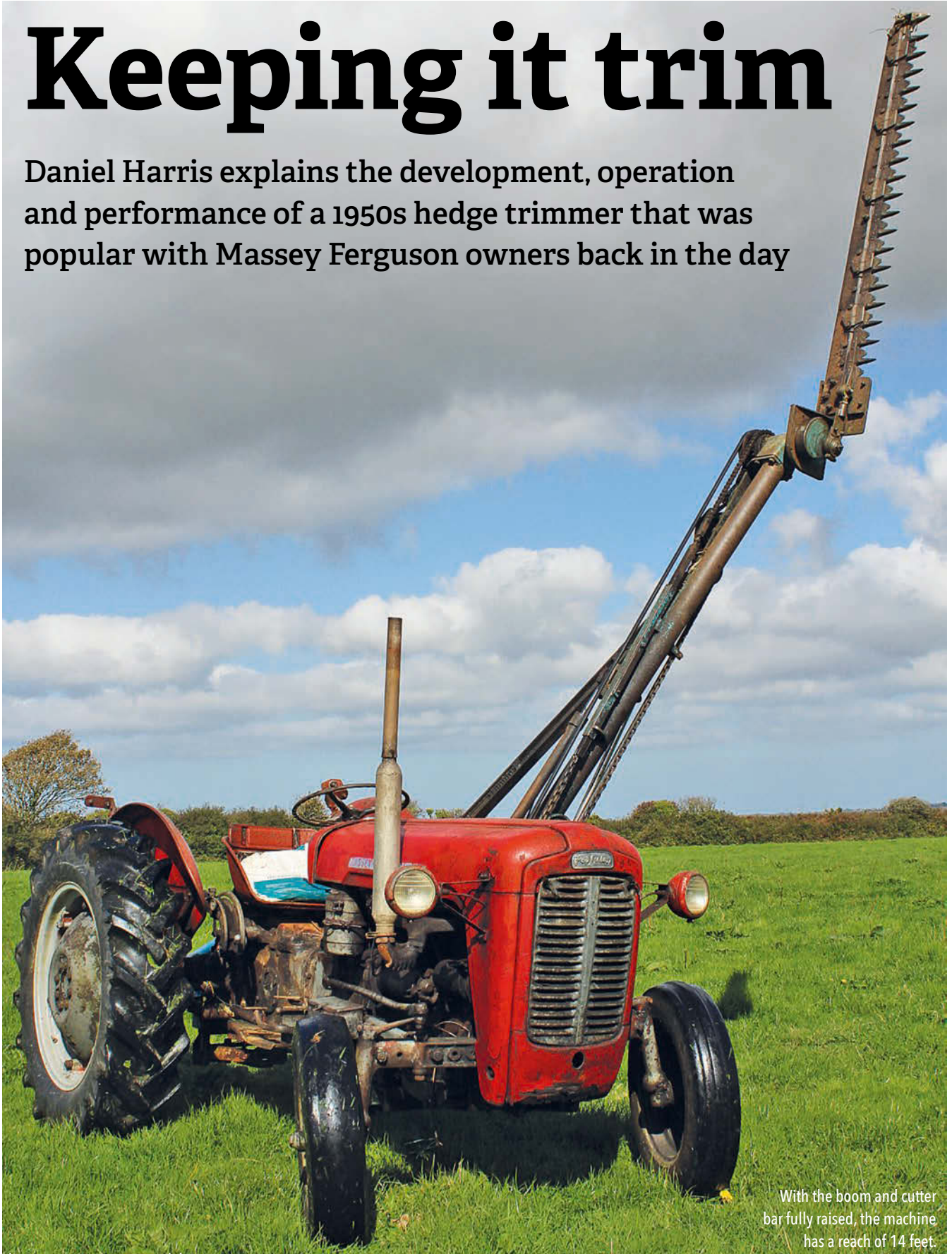
Living proof that even late on, after more than 35 years of production, the lower cost, lower specification three-cylinder basic models – for export markets – were still being turned out with what many would see as antiquated drum brakes and shell fenders.

be stripped of all loose items and installation of new track components, new tools and new conveyor lines would begin.

Bear in mind that this set of operations had a very finite timescale to get the lines back in action after the holidays, and it was sometimes met to the minute, sometimes not, depending on the complexity and size of the re-work. The factory planning teams had it planned like a military operation, with each progressive step planned in a logical sequence to enable the things least accessible to go in first. It sounds easy, but it was a real test of the engineers' ingenuity to get it to all come together in the right order and on time.

Keeping it trim

Daniel Harris explains the development, operation and performance of a 1950s hedge trimmer that was popular with Massey Ferguson owners back in the day

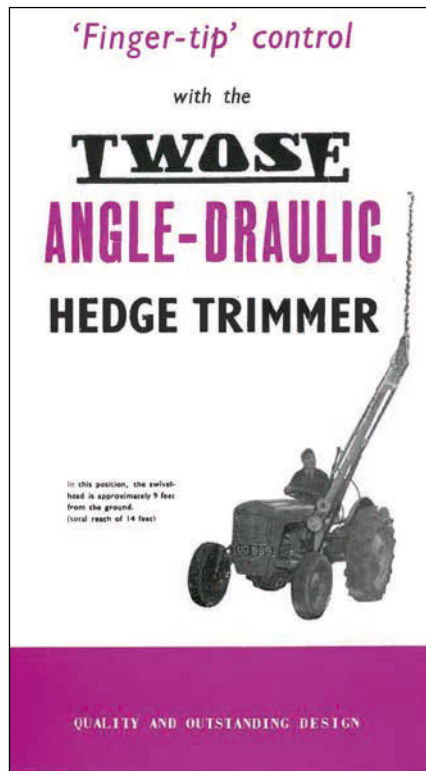


With the boom and cutter bar fully raised, the machine has a reach of 14 feet.

Until the middle of the 20th-century, hedge-trimming had been accomplished with a sharp hook in one hand and a stick in the other to support the growth for a nice clean cut. However, the 1950s saw a number of agricultural engineering companies develop machinery to bring mechanisation to this previously labour-intensive task.

A range of solutions emerged besides tractor-mounted machines, including the pedestrian-carried Teagle Jetcut and Ferguson hedgecutter. Trailed machines, including the Fisher-Humphries hedge cutter with a rotary slasher blade and a trailer-mounted Blanch T2 utilising a traditional cutter bar, required a separate operator from the driver to control the cutting head.

Early tractor-mounted machines, such as the Bomford Hedgemaker, consisted of a framework bolted to the tractor's rear axle that included a pivoting boom onto which a stationary engine at one end and a cutter bar on



The front cover of an original Angle-Draulic brochure clearly shows the model was aimed at FE-35 owners.



Drive to the cutter bar is taken from the PTO shaft through a double vee-belt arrangement.

the other were attached. A separate operator was required to manually control the height of the boom and angle of the cutter bar, while the tractor driver just had to steer!

Continued development

Development continued and it was inevitable that, by the end of the 1950s, the successful models would be three-point linkage versions, enabling hedge trimming to be a one-man operation while allowing the tractor to be made



The Twose Angle-Draulic Mk.II cost £215 when launched in 1964; this machine was delivered new in 1966.

CLASSIC CUTTER



The rear mounting bracket is attached to the rear axle mudguard attachment point.



The mounting brackets cradle the boom pivot tube, which carries the driveshaft internally.



Trimmer hydraulic controls are well placed to the lower left of the dash panel.



Hydraulic rams control both boom and cutter bar orientation.



The front mounting bracket attaches to the underside of the clutch housing; the driving pulley receiving power from the PTO is shown.



The vee-belt travelling the length of the boom supplies power to the swivel head; the belt-tensioner is clearly visible.

readily available for other tasks. The majority of machines were supplied with a cutter bar, although some were available with a circular saw blade as an option. The ease

of mounting a rear-mounted machine does, however, come with compromises in operator comfort, due to the need to look behind to monitor the progress of the cutter

bar. To reduce operator fatigue, the machines were typically right-hand cut when viewed from the rear, enabling the operator to monitor progress more comfortably, but resulted in facing traffic when cutting British highway hedges.

Twose, of Tiverton, was a manufacturer that identified the opportunity to provide a truly integrated solution in a bid to address the shortcomings of the rear-mounted machines. With an abundance of hydraulic power available on all new tractors of the period, Twose launched the appropriately named Angle-Draulic mid-mounted hedge trimmer in 1960, releasing a Mk.II version in 1964, with a retail price of £215.

To appeal to a large market, the Angle-Draulic was available to suit the majority of British tractors that had been manufactured since the late 1950s. Massey Ferguson tractors were catered for with the original Mk.I machine being available with mounting brackets to suit both MF 35 and MF 65 tractors. Although the Mk.II model was released before



The boom shear bolt (centre of photo) prevents the boom from torque-overload.



The boom shear pin or nail (centre of photo) provides a breakaway device for the cutter bar.



A chain, operated by a double-acting ram, rotates the swivel head and angles the cutter bar.

the launch of the MF 135, 165 and 175, they were added to the list of compatible models with their launch in late 1964. The MF 130 wasn't included as a compatible model which, in my opinion, was because it was a low volume seller, and also much weaker in the mounting region of the clutch housing.

Massey assistance

Massey Ferguson produced general arrangement drawings for each tractor, detailing the implement mounting point locations to assist manufacturers, such as Twose, with adapting machinery without the need to resort to a tape measure.

For all MF tractors, the mounting brackets are the same, with the exception of the 175, and consist of one located on the mudguard mount of the rear axle, and a second bracket located on the four bolts on the bottom of the clutch housing. The only difference for the MF 175 is that the bracket mounted

to the clutch housing is a slightly different design.

A substantial steel tube, cradled between the two brackets, supports the main boom of the hedge trimmer, and allows it to pivot up and down. The pivot tube also carries a power transmission shaft, the rear end of which receives power from the tractor PTO shaft via a double vee-belt arrangement. The front end supplies power to the cutter bar via a single vee-belt.

A single belt is all that's required on the front as the pulley is of a larger diameter than the rear, resulting in a higher belt speed that allows greater power to be transmitted for a belt of similar cross-section. The double vee-belt drive at the rear of the tractor is guarded by a glass reinforced plastic guard, which is identical for all MF models.

A nine-hole drawbar is fitted to the linkage arms, which supports a strut connected to the drawbar stay connection point below the top link

bracket. The strut keeps the linkage arms in a fixed position, ensuring that hydraulic flow is always available to the hedge trimmer spool valve without the delay in having to fill the linkage cylinder first.

How it works

The main boom of the hedge trimmer carries the cutter bar swivel head together with the machinery to rotate it, consisting of a chain arrangement operated by a double-acting ram. A further single-acting hydraulic ram is connected between the front mounting bracket and the main boom, thus providing the ability to raise and lower the boom. Both hydraulic rams are controlled by a spool valve manufactured by Cessna, a name more commonly associated with light aircraft, but the hydraulics division is now part of the Eaton group.

To protect the hedge trimmer boom in the event of hitting an obstruction, two protection devices



Power drive is transmitted through the swivel head to the knife crank and connecting rod.



View of the cutter bar in the vertical position, from the operator's seat.

CLASSIC CUTTER



The cutter bar from the operator's seat while taking the base horizontal cut.

are provided. The first is a breakaway strut that's connected between the boom and pivot tube, incorporating a spring dampener and shear pin arrangement. The second is a shear bolt at the base of the boom, to protect it from an excessive torque overload, which can occur when the cutter bar is positioned at right angles to the boom.

Motive power from the vee-belt travelling the length of the boom passes through the swivel head to drive the crank and connecting rod, which converts rotary motion into the linear motion of the cutter bar. The connecting rod has a self-aligning roller bearing at the big end, and a plain spherical bearing at the small end, necessary to allow for adjustment in cutter bar lead.

To prevent the belt from coming off the swivel head pulley in use due to interference from stray branches, the belt tensioner, enclosed in design, is positioned very close to the pulley.

The cutter bar delivers a five-foot cut and is very similar to grass mowers of the period, to the extent that knife sections are interchangeable with the MF articles. A significant difference is that the knife clips are substantial plates, which operate against wear plates riveted back-to-back on a number of knife sections, rather than operating directly on the knife sections themselves.

Operational delight!

According to the original brochure, the Angle-Draulic is a delight to

operate, and takes the drudgery out of a seasonal chore. I've spent many hours in the driving seat and, while vision of the cutter bar and positioning of the controls is excellent, job satisfaction depends on the type of hedge being cut. Cutting brambles and ferns is infinitely more enjoyable than hawthorn and other woody species, which require bottom gear and concentration to achieve progress without breaking shear bolts and pins.

In general, three circuits around the field are required, a bottom horizontal cut, a high vertical cut and a middle cut (which I term the 'money cut'!) whereby the trimmings peel away from the hedge if the previous two cuts have been effective. The machine is capable of cutting branches that are up to two inches thick, but not necessarily in a single stroke, requiring the cutter bar to be allowed to chip away until the branch yields. Under these circumstances, the cutter bar needs to be carefully monitored to ensure the material is presented to it cleanly between fingers, otherwise an unsatisfactory cut will occur. Fortunately, the responsiveness of the hydraulics makes this possible.

When the FE-35 featured was the only tractor on the farm, certain jobs - such as muck-spreading and trailer work - were carried out with the Angle-Draulic fitted. In fact, most jobs are possible as the three-point



Original PTO guard fitted with machine set to take the high, vertical cut.



Taking the final cut, allowing the trimmings to peel away from the hedge.



The Teagle mid-mounted Tracut - costing £150 in 1962 - provided competition to the Angle-Draulic. Photograph kindly used by permission of the owner, Reginald Sharpe.

linkage, PTO and swinging drawbar can be made available with the removal of the rear belt guard and PTO pulley.

Originally, the Angle-Draulic was fitted and completely removed every year but, as other tractors arrived on the farm, the mounting brackets and pivot tube were left in place, making the task of fitting and removing a one-hour job rather than one taking two. The machine is now permanently attached as there's no need to use the tractor for any other job.

Amazingly durable

In general, very little has had to be replaced since the machine was delivered new in 1966. I replaced the small end of the connecting rod assembly with a metric spherical rod end equivalent, and fitted a splined sleeve to the original PTO pulley about 12 years ago. Last year, a weeping boom lift ram necessitated replacement of the seals with custom-made items, while new O-rings were also fitted to the spool valve. Replacement this year of the tractor's PTO shaft, and a new pulley, have eliminated the play in the splines, making the use of two driving belts possible again.

A benefit is that the rear belts do not slip, therefore allowing progress without de-clutching and reversing with ground PTO engaged to clear the cutter bar. The negative impact is broken knife sections, so I may elect to remove one belt and afford a little more protection to the machine.

An alternative to the Angle-Draulic was available from Teagle Machinery Ltd, in the form of the Silver Bullet mid-mounted Tracut model, available

for both the MF 35 and MF 65. When launched in 1962, the machine could have been purchased for £150, rising to £198 when manufacture ended around 1970.

The distinction between the two models is that the Teagle is right-hand cut and has a manual head angling arrangement which, no doubt, made it cheaper as fewer expensive hydraulic components were required. Other features are similar, although the rear mounting bracket of the Teagle machine attaches to the linkage arms, rendering the linkage inoperable for other implements when fitted.

Most period, cutter bar hedge trimmers left in preservation will be of the rear-mounted type but, the next time you see a cutter bar among a pile of random tubes, shafts and pulleys at a dispersal sale, it may be identifiable as either a Twose or Teagle mid-mounted machine. What's more, the chances are that it'll be suitable for an MF tractor as this was the best-selling tractor brand during the Angle-Draulic's period of manufacture.

- Thanks to Dale Lewis of Twose and Tom Teagle of Teagle Machinery for providing retail prices.



The finished article; a trimmed Cornish hedge.

TRAILER TIPS



While we all love taking our tractors to rallies and shows, if the event is more than a few miles from home, transporting the tractor will require the use of a trailer. The rules and regulations governing the transportation of heavy machines, like tractors, need to be adhered to to avoid the risk of penalty points and fines.

A photograph of a red tractor with a black trailer at a rally. The tractor is in the foreground, and a man in a red shirt is standing next to it. In the background, there are other people and a white tent.

Trailers, towing and you!

Are you breaking the law every time you take your tractor to a rally or run? Jonathan Whitlam explains how you just might be

It's a scary thought, but it seems that a lot of people who tow trailers with their cars are breaking the law! With ever-changing legislation and various rules that have seemed virtually to come from nowhere, it's becoming ever more important to check whether you can or cannot tow a trailer on your driving licence, and whether what you are going to tow is within the weight limits that are permitted.

This problem was brought home to me recently when a good friend, who is a builder by trade, was stopped on the road between jobs while towing his tipping trailer behind his Transit van. The police had pulled him over for a faulty rear light but, when he produced his driving licence as requested, it was discovered that he didn't have the required entitlement to be pulling a trailer of the size he was on the road

at all, despite having been doing so for many years quite happily! The end result was that he wasn't allowed to tow his trailer any further until he'd gone for training and passed the required test, which he did as soon as possible.

Are you allowed?

The upshot of this sorry tale was that, although my friend was extremely competent at driving with a trailer, this didn't entitle him to do so and, because he'd passed his original driving test at a certain time, he wasn't permitted to tow heavy trailers. The fact that he was unaware of this restriction was no excuse, and I just wonder how many of us are unwittingly doing exactly the same – and breaking the law – every time we tow our tractors on trailers to events far and wide?

Of course, as with most legal issues, the law isn't exactly

“The police had pulled him over for a faulty rear light but, when he produced his driving licence as requested, it was discovered that he didn't have the required entitlement to be pulling a trailer of the size he was **”**

TRAILER TIPS



Strapping the tractor back and front is the way this load is held in.

“It’s also essential to have an adequate view of the road behind you, especially if your trailer with load is wider than the rear of the towing vehicle”

ESSENTIAL CHECKS

If you’re considering towing, take time to check the following points after, of course, ensuring that both the trailer and your towing vehicle are fully roadworthy. You must also make sure that the load is secured properly, can’t move while in transit and is well balanced on the trailer.

1. Check your personal driving licence entitlement
2. Check the overall weight of your car and trailer combination empty
3. Check the weight of the load you intend to transport on the trailer and the combined weight
4. Check the maximum train weight of your car on its VIN plate, and that you will not exceed it
5. Finally, check that you’re within the permitted total weight for your licence entitlement

Once again, we cannot emphasise enough that if you are in any doubt, double check with the DVLA first to make sure that you are within the terms of the law. Ignorance is no excuse in these matters and it is surely best to comply with the legislation required.

straightforward on this issue in many respects. When you start delving into the information provided by the DVLA, it does make you begin to wonder if it’s even worth taking a trailer anywhere! But there are some guidelines to follow and, in this article, my intention is to cover the primary rules and regulations as they stand now. However, things change and the information included here should be regarded as a guide only. I strongly recommend that you do your own research to double-check on how the regulations actually affect your personal situation, so that you can ensure you stay within the law.

Your test date

A lot of the technicalities of trailer towing are related to when you actually passed your driving test in the first place. This seems a rather arbitrary categorisation and it relates more to ever-changing legislation than any common sense in the real world. Nevertheless, this should be your starting point.



This is one way of tying down your tractor, but is it the right way?

If you are lucky enough to have passed your car test before January 1st, 1997, then you can hook a trailer up to your vehicle and, as long as your combination doesn’t exceed a Maximum Authorised Mass (MAM) of 8.25 tonnes, then you’re within the law. But it’s very important to appreciate that this total represents



the maximum combined weight of the vehicle, the trailer and whatever you load it with that's allowable. All three must not exceed the permitted 8.25 tonnes, or you'll be in trouble!

For those who passed their driving test after January 1st, 1997, and hold an ordinary, Category B (car) licence, things get a bit more interesting,

with more emphasis being placed on trailer and vehicle weights. But the main point to note is that you can tow a trailer of over 750kg MAM as long as the combined weight of both the vehicle and the trailer does not exceed 3,500kg.

If you are not sure about the categories on your own driving

licence, then the DVLA allows you to check this on its website, or by post, which would certainly be worth doing to make sure you are clear on your own personal entitlement.

For any heavier trailer combinations you'll need to get provisional entitlement to the new C1+E category, and then pass the

TRAILER TIPS



The diamond pattern strapping is a good way of holding the load down on the trailer bed.



The use of strong, properly-anchored strapping is essential to hold a tractor in place. Avoiding load movement in transit is essential.

“I strongly advise that you take the time to check the latest towing regulation position on the DVLA's website”

category C theory test and the C1+E practical test. Once you have done this, you can drive vehicles and trailers up to a combined weight of 12 tonnes MAM.

Weight limits

Once you have decided that you are able to tow a certain weight on your licence, the next thing to check is what your particular vehicle is allowed to tow. You can't simply

work out the individual weight of both car and trailer yourself; you must go by the manufacturer's stated gross train weight. Often the maximum weight a given make or model of car can tow will be listed in the handbook but, if not, look for the vehicle identification number (VIN) plate on the car, often placed under the bonnet or inside the driver's door, which will give the gross train weight figure.



It's essential that your towing vehicle is both up to the job and well maintained.

Also, you must display the same number plate on the trailer as the one fitted to the towing vehicle. Failure to do so can lead to another fine.

Brakes working?

Brakes on your trailer are very important and, although they are optional on some small trailers, if they are fitted then they must be maintained in good, working order. Any trailer that weighs over 750kg, including its load, must have a working and effective braking system.

With all the above in mind, I strongly advise that you take the time to check the latest towing regulation position on the DVLA's website before doing anything else. You should also be sure about your own driving licence entitlement.

Visiting gov.uk/towing-with-car will provide lots of up-to-date information, and will also include links to plenty more relevant detail about the latest rules and regulations associated with towing. Whatever you do, though, don't simply assume that you are within the law; check it out and make sure you are legal. It's just not worth the aggravation or cost of getting caught towing without the required licence, or being overweight. Also, being fastidious about checking and maintaining your trailer's brakes and lights can save you a great deal of woe!

Weight is the critical thing for trailer towing on the road and, when calculating this, you must take many things into consideration. The DVLA explains the terminology it uses with regard to Maximum Authorised Mass as the weight of the vehicle or trailer, including the maximum load that can be safely carried when it's being used on the road and, although the DVLA uses the MAM acronym, some people might know this better as the 'gross vehicle weight' (GVW) or, simply, the permissible maximum weight.

Do not confuse this with the unladen weight, which refers to the weight of the vehicle when it's not carrying any passengers or other items, but does include the body and all parts normally used with the vehicle or trailer when it's on the road. Remember, though, that it doesn't include the weight of any fuel!

Width and length are also things that need to be taken into consideration, and the maximum trailer width for any towing vehicle is 2.55 metres, while the maximum length is seven metres for a trailer towed by a vehicle weighing up to 3.5 tonnes.

Other towing equipment

Obviously, your trailer has to be in good working condition and fully roadworthy; it's also worth remembering that the towbar on your car needs to be type-approved and should be designed for your particular car. However, if your car was first used before August 1st, 1998, the towbar doesn't need to be type-approved!

It's also essential to have an adequate view of the road behind you, especially if your trailer with load is wider than the rear of the towing vehicle. To ensure this you'll need to fit proper towing mirrors. If you are found not to have complied with this requirement, you could face police prosecution, three points on your licence and a fine of up to £1,000. So this is well worth bearing in mind!

The information given in this article is intended to be used as a general guide only, and we strongly recommend that you check the UK government's websites for further information about the latest, towing-related legislation. Rules and regulations are changing all the time.

The term 'gross train weight' refers to the weight of the fully-loaded car plus fully-loaded trailer, and must not be exceeded in any circumstances! Importantly, the DVLA states that if your vehicle's VIN plate does not list a train weight, then you should not use your vehicle for towing!

A sign of past times

Bernard Holloway enjoys a rare insight into the skill and technique displayed by an experienced sign-writer putting the finishing touches to his restored tractor



Royston Edwards has been sign-writing for 40 years, and mainly uses pre-mixed colours manufactured by JT Keep & Sons, specifically for sign-writing. He makes it all look so easy!

Readers of the magazine *Tractor and Machinery* may recall my article about Bob Griggs' pair of Kent County Council tractors, and how seeing those prompted me to complete the restoration of my own council tractor.

Well, that restoration is now complete and you'll be relieved to hear that I'll be sparing you a blow-by-blow account of the work involved! However, I'd like to include a few details about its background before we get into the meat of this feature, the tractor's sign-writing.

Background history

When I purchased the TE-A 20 it came without history and, as far as I was concerned, it was a weathered grey Fergie with a Kent registration (VKR 556). The story was that it had belonged to the Maund family, one

of whom had been the captain of *HMS Ark Royal*, which was torpedoed off Gibraltar during World War Two.

However, I also noticed traces of green and yellow paint on the tinwork and rear wheels, respectively. Subsequent archive research, coupled with assistance from Friends of Ferguson Heritage Limited, revealed Kent County Council was the first registered owner, in 1955, and allocated the tractor to its Roads Department.

But, quite when the council disposed of the tractor remains a mystery, although I assume it was during the early 1970s, when most of the council tractors were replaced by more modern models, such as the MF 35. Anyway, I pressed on with the renovation over the coming years, replacing the axle trunnion, overhauling the brakes, repairing



The simple tools of Royston's trade; paint box, mahl and paint dippers.



The chalk is powdered and rubbed across the back of the tracing which, when over-written, leaves an impression of the design to be sign-written.



It's surprising what lurks beneath! 'H Bowdler M.I.C.E. County Surveyor' a member of the Institution of Highway Engineers and senior council employee, was written on the bonnet. This will be sign written at a later date.

the cracked block and rebuilding the head. Then, after fitting new tyres, replacing the ignition system, fitting

“Surprisingly, the weight of the paint is determined by its pigmentation – yellow is a relatively heavy paint, more so than red.”

a new carburettor plus a new loom, I came across Royston Edwards, a sign-writer and owner of the TV.200 Lambretta, complete with Union Jack livery that he painted, which was used in the film, *Quadrophenia*.

I met Royston when he was commissioned by a neighbour to sign-write 'Cherry Blossom' on his 1952 Scammell MU but, because his skills are always in such demand, it was almost a year before he could get started on my Fergie.

In the meantime, though, he'd done his research into the lettering that would be required, and studied the photographs I'd sent of the original sign-writing, the remnants of which having been revealed as I rubbed back the layers of grey paint. This enabled him to assess the spacing, font type and positioning needed for the new script 'Kent County Council Roads Dept', as well as the design of the county crest.

The work begins

The first step, before any sign-writing actually started, involved the careful measuring of the designated area, and the preparation of a draft design which was then transcribed in pencil onto tracing paper. Royston does some designs freehand, but not in the case of VKR.

The tracing paper template was then offered up to ensure the spacing of the characters and font was correct; Royston will prepare several drafts until he's satisfied. We came to the conclusion that, over time, different sign-writers had been engaged by the council and, unlike stencils and modern vinyls, which are uniform in appearance, each would have his own style, so there would be

variations from tractor to tractor.

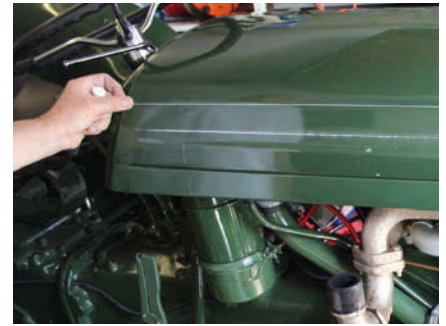
Royston transferred his design quite simply to the tractor tinwork by rubbing the back of the tracing with powered chalk, before it was positioned on guidelines drawn on the bonnet using a Stabilo white pencil; both mediums rub off easily and so don't damage the surface. Masking tape was used to hold it in position and then the design was overwritten with a medium-to-hard pencil, leaving a chalk impression on the tinwork upon removal of the tracing paper. This all sounds a deceptively simple process but, in practice, I can vouch for the fact that it's not. Royston, of course, made it look easy, thanks to the many years of practice he has behind him.

Colours are made up of the three primary colours, or bought ready-mixed off the shelf. Royston has been sign-writing for 40 years, and mainly uses pre-mixed colours manufactured by JT Keep & Sons, specifically for sign-writing. These paints are heavily-pigmented, fast-drying synthetic enamels. Any paint can be used, but these ones provide the best durability.

Favourite paint

Paints from JT Keep & Sons are what he used during his five-year apprenticeship, so he knows by instinct how they react under most circumstances. Hot weather tends to dry the paint on the brush, whereas cold can lead to runs and the paint taking too long to dry. Either way, a dust-free environment is absolutely essential during the application and drying stages.

When available, Keep paint is often the material of choice for the profession; it has excellent cover and flow properties, eliminating a good percentage of brush marks. Unfortunately, the paint is becoming scarce as it's no longer manufactured; the company closed in 2007. Fortunately, Royston has sourced stock from a supplier who was shutting down, and has reserves



The guide lines are drawn with a white Stabilo pencil; like the chalk, it rubs off easily so doesn't affect the paint finish.



The draft is temporarily attached to the bonnet and adjustments made to the script.



Royston over-writes the script with a medium hard pencil.



An impression of the lettering is retained when the tracing is removed.

that are sufficient to last him for many years. But he'll always buy more if the opportunity presents itself. Other brands he's tried tend to

Sign-writing masterclass



The first coat of the lettering is applied with a No.2 chisel brush. Two coats were necessary, particularly with white on a green background.



Almost complete. A No.1 'pointer' is used for the detail work on the crest and black highlights to the main lettering. Again, two coats were applied.

dry on the brush too quickly.

Surprisingly, the weight of the paint is determined by its pigmentation - yellow is a relatively heavy paint, more so than red. Red has poor coverage, and Royston says that he's never found a red that doesn't allow the under-paint to 'grin

through'. Prior to the current Health & Safety legislation, sign-writers used wholly lead-based paints with better coverage, and many painters had affiliations with plumbers who provided the raw materials.

Because of the high level of pigmentation, the paint is too thick to use out of the tin and needs to be thinned to at least two to three times its original volume with white spirit; a medium also used to clean the brushes which, afterwards, are dressed with light LM grease to protect them in storage.

Brush types

Royston uses three main types of hand-made brush, although there are other types available. He uses 'chisels' (also known as 'writers', or 'pencils') for the main lettering, 'pointers' for intricate work and highlighting, and 'rounders' for heavier work; they are ranked in size from 1-12 (small to large). He favours those made of pure sable because they're supple and durable, but brushes made from other materials are available, including ox and pig bristle as well as synthetic options.

The selection of the brush, accompanied by the correct paint

consistency, is important as the paint has to flow smoothly without build-up. Royston used a No.2 'chisel' to do most of the lettering on my tractor, and a No.1 'pointer' for the black highlights and detail on the crest. The lettering was given two coats and the golden rule is that, once you've applied the first coat, you should never play with it. Get it right first time otherwise the paint pulls or runs, then let it dry before applying another coat.

Once the paint has been thinned to the correct consistency and the brush, known as the filling, is loaded to the ferrule, Royston will clean the brush frequently - maybe as often as between the application of each letter - to avoid the paint clogging up and drying out in the ferrule and lower part of the filling. The cleaning frequency really is dependent on climatic conditions, and whether the paint is drying and affecting its flow. Errors - perish the thought! - can be removed with white spirit, if you're quick enough.

Over the years, sign-writers cultivate their own techniques, be it for sign boards, shop fronts or tractors. For example, the fictitious T77 roundels (representing T7 for the tractor number, and 7 for the depot) were painted freehand with a wrist action that created much of the circle at one sweep. The lettering is painted with a deft hand and broad, bold strokes. Royston says that the muscles in the arm and wrist build up a memory, and that the body provides a steady platform.

Royston's other tools are the mahl stick, a German word meaning 'painter's stick', which has a padded head, normally of leather, which steadies the hand. The paint is loaded into small tubs, known as dippers, positioned on the palette. The stool is also an integral part of his kit, allowing the correct sitting position to be achieved. Watching Royston at work, it's apparent that his enviable skills are all about economy of movement blended with precise smooth movements. It's all down to practice!



At last the Fergie is restored to its former glory!

NEXT ISSUE – DON'T MISS IT!

THE MASSEY FERGUSON 35

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The MF 35 grew out of the Ferguson FE 35 which, itself, was the successor to the original Little Grey Fergie, the ever-popular TE-20. Launched in 1957 after nearly 73,600 grey and gold FE35s had rolled from the Banner Lane production line, the red and grey MF 35 was initially very similar to the FE 35. However, a couple of years into its production run, the model got a major boost thanks to Massey Ferguson's acquisition of Peterborough-based engine manufacturer F Perkins Ltd, in 1959.

As a result, the MF 35 got the three-cylinder, Perkins A3.152 diesel engine, and the power increase and improved starting performance that tractor delivered injected new life and desirability into the model.

Production continued until 1964 and the rest, as they say is history. This new bookazine will be packed with our usual mix of fascinating content covering all aspects of the MF 35; everything from buying and restoring advice to owner's stories and DIY maintenance step-by-step guides. In short, it'll be a must-read publication for anyone interested in – or thinking about buying – the fabulous Massey Ferguson 35 tractor.

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The Massey Ferguson 65 is a comparatively rare sight on the rally field nowadays, compared to models such as the MF 35 and the MF 135. So it's always good to see well maintained, original examples like this one being paraded in the show ring.

