3 Wheelers near the top of the Susten Pass, Switzerland
(Photo by Roger Gates)

Morgan 3-Wheeler
A Buyer's Guide

Andrew Warren

Introduction

This Guide provides enough information to allow you, a prospective buyer of a modern Morgan 3-Wheeler[1] (M3W, 2012 and later), to know the right questions to ask when viewing one. The information has been collated from the practical experience of many owners.

A wise owner once said “If you are happy having an interesting and slightly experimental relationship with a vehicle you will get on fine. If you think it will be like buying a new Golf you will be very frustrated!“. Good advice!

There is no such thing as a standard M3W. The main options when ordering a new car have been whether to have the polished Bright Pack for the cowl, roll hoops and engine or whether to have these components in black. Over and above this, there is a myriad of paint, interior trim & decal options. Once an owner takes delivery of the car they usually start putting their own personal stamp on it, whether performance orientated or cosmetic or both, so it is fair to say that no two cars are 100% alike. Remember that the general rule when looking for a car like this is that the car will find you!

Acknowledgements

I could not have put this guide together without the help and encouragement of other M3W owners and the Morgan Three Wheeler Club. Special thanks must go to Ian Brett, Chris Golding, Roger Gates, Geoff Robotham and Julian Vincent.

1 These vehicles are known within Morgan Three Wheeler Club circles as 5-Speeders

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Overview

Since release of the M3W in 2012, the Morgan Motor Company (MMC) has introduced numerous upgrades and improvements. Many of these changes were introduced en masse in major revisions during 2013 and 2014; there is a chronology of the development in Appendix B. Without access to MMC records it is not easy to pinpoint these dates exactly but the authors of this guide have given it their best shot.

This Guide suggests that a post 2014-revision car will be the most tempting purchase, but even a 2012 car can be a good buy as long as it has been upgraded and well looked after by an enthusiastic owner. Occasionally a low mileage, early 2012, car comes up for sale which has had few, if any, upgrades. While it may be in excellent cosmetic condition you should be very wary of such a purchase. It CAN be brought up to the required standard, but expect to spend many thousands in doing so. It is not uncommon to see an early car advertised as having "All the upgrades". You should not always believe this. This Guide highlights the important things to check.

As with most vehicles, it is better to buy a regularly used and well-maintained car than an ultra-low mileage show car. Many cars will have a Morgan Dealer service history. However, don't be put off by a car that has been maintained by the owner. Many owners are fastidious with their vehicles and ensure that all necessary regular maintenance is carried out to a high standard.

By taking care of known problem areas, the M3W can become a dependable long distance tourer. In fact, many owners embark on intrepid multi-thousand mile trans continental trips without encountering any mechanical issues. We have added a section on desirable enhancements that may be relevant even for a brand new car.

Many cars have received a performance upgrade. This Guide highlights what to look out for and the pros and cons of these modifications.

Further Research

If you are serious about purchasing a M3W, it is well worth joining the Morgan Three Wheeler Club (MTWC). There is a wealth of information available in the monthly Club magazine (The Bulletin) and on the website. In addition, Club members in your local area will always be enthusiastic to help you choose the right car.

The Morgan Three Wheeler section of the online forum TalkMorgan contains a huge archive of information. It's fair to say that every issue ever encountered is discussed here; usually a solution is arrived at. However, by the very nature of such forums people tend to post only when they have had a problem, so it's easy to be left with the impression that the M3W is the most unreliable vehicle on the planet!

There are more suggestions for further reading in Appendix C at the end of this Guide.

Special Editions

Special editions usually command a premium over standard cars. They have cosmetic enhancements and often include optional extras as standard. They are usually mechanically standard. Editions include: Superdry, Gulf, and 110th Anniversary models. The exception to this is the Brooklands Special Edition which includes a Brooklands-style exhaust system complete with fish-tail finials (Figure 1).

Figure 1 Brooklands Special Edition showing special exhausts and the Fairbourne aftermarket windscreen.

Unfortunately, the original systems were poorly designed and manufactured with many exhaust systems cracking after just a few hundred miles. MMC redesigned the system to have three mounting points on each side, which appears to be more robust. However, this upgraded exhaust system is quite expensive and availability is not guaranteed.

Desirable Options

Full Width Windscreen

Fairbourne Carriages were the first to offer a full width screen (Figure 1) to replace the standard aero screens; MMC introduced their own version in 2016. Either of these options provides for more pleasant driving, especially when driving without a helmet. The Fairbourne screen is arguably superior because it's wider and higher. However, the MMC version is very nicely finished. There are no wipers on a M3W so both versions can cause visibility issues in wet conditions unless you are tall enough to look over the screen. Many owners prefer to stick with the original aero screens for the ‘full M3W experience’!

Heated seat

These heat the seat squabs only but do make a difference on a cold day.

Luggage rack

Expensive MMC option. Many owners find them indispensable for touring.

Stage 1 Exhaust and air filter

Refer to ‘tuning’ (page 17).

All the Upgrades

It is not uncommon to see a car being advertised as having had "All the upgrades". This refers to retrofits designed to bring early cars up to (near) 2014 standard. You need to check that the vendor really does mean ALL the upgrades! These are the important ones:

Steering Comfort Kit

This kit repositions the track rod ends to correct the very bad bump-steer that afflicted most early cars. Recommended.

Noise, Vibration and Harshness (NVH) Kit

This kit isolates the bevel box from the chassis in an attempt to reduce the noise made by some bevel boxes. It does not work very well and in fact introduces additional problems. Therefore, if you find a car with the bevel box bolted directly to the chassis, the advice is NOT to have the NVH kit fitted. Not recommended.

Urban Cooling Kit
This is an electric fan with plastic cowl fitted behind the engine. It requires an ECU flash to enable the fan to be controlled. Recommended.

Centa Cush Drive
Recommended. See page 6.

Cam cover venting, Pinion pulley & Pulley upgrade
These improvements were introduced via S&S and greatly improve the longevity of the cam belt. Essential.

Revised rear Hub
Designed to increase the clearance between the rear wheel and the drive belt. Recommended. See page 12.

Steel Rear Wheel Drive Sprocket
MUCH more robust than original alloy sprocket. Essential. See page 12

Repositioned Regulator
Originally the regulator was mounted on the engine cradle by three rubber bobbins. In this position it was exposed to extreme vibration such that the rubber bobbins failed. This upgrade simply re-mounts the regulator on the main chassis where it is not exposed to such harsh vibrations. Recommended.

Additional essential upgrades following factory recalls:

Chassis Brace
Fitted behind the engine on pre-2014 cars to prevent chassis fatigue.

Brake Pedal
Modification to strengthen the early (2012) brake pedal.

Chassis

There have been several iterations of the M3W chassis. Identifying which revision is fitted to the car you're viewing can be tricky. The chassis number is stamped on the cross brace just in front of the right hand seat squab.

From 2014 the design has remained largely unchanged and these chassis have been found to be stable and robust. They benefit from a welded-in triangulating A-brace behind the engine to prevent flexing of the front upper chassis members. In addition, because of their additional strength, stiffness (and weight?) they provide a smoother and more refined ride on the road.

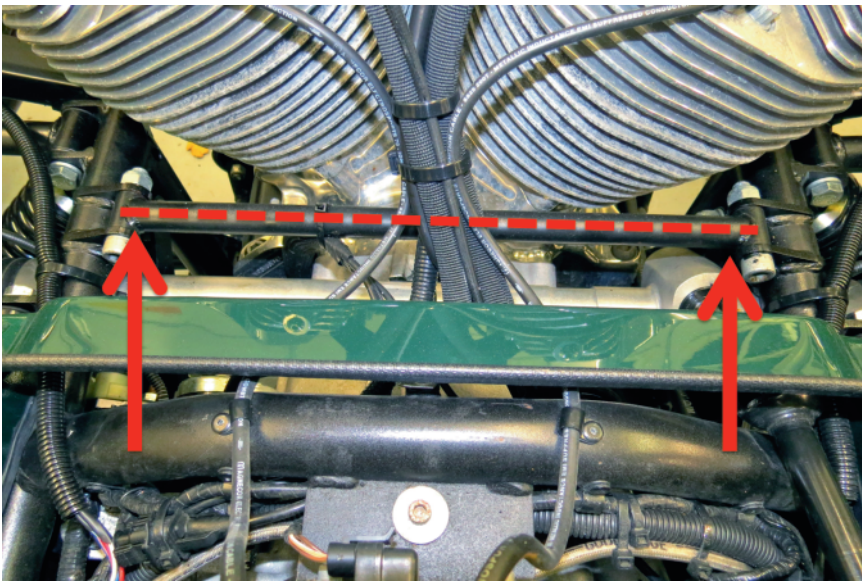
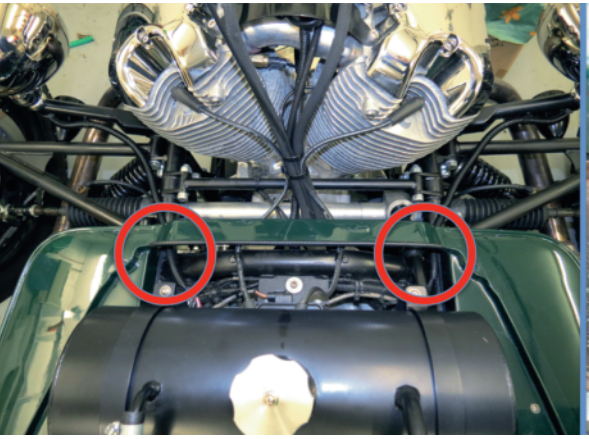
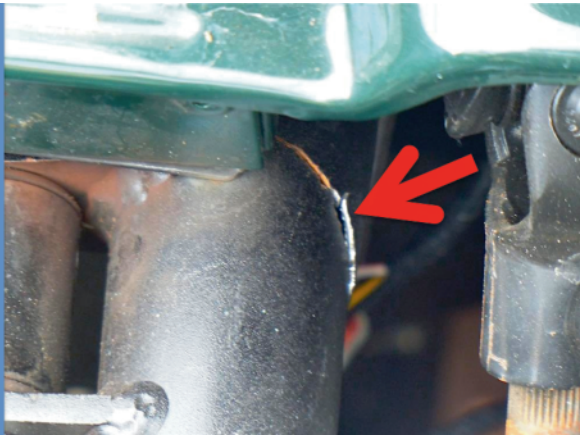


Figure 2 Simple cross brace

Pre-2014 cars were originally fitted with a simple cross brace (Figure 2). In ALL cars the cross brace should have been replaced with a bolt-in A-brace. It is imperative that any car still fitted with the simple cross brace is retrofitted with a bolt-in A brace as soon as possible. A Morgan dealer will supply and fit it free of charge. Prior to the bolt-in kit becoming available in August 2015, some early chassis had the A-frame welded in as a retrofit.

Figure 3 Locations to check for upper chassis cracks and example





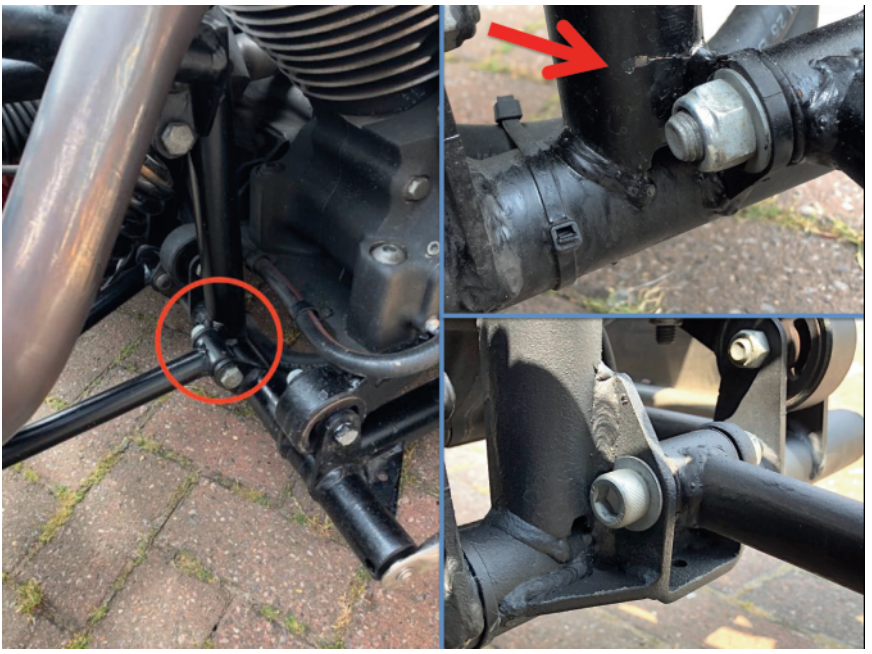


Figure 4 Crack emanating from wishbone lugs. Replacement bracket shown bottom right. (Photo by Roger Gates)

Check the front upper longitudinal chassis members where they disappear under the bodywork. This was the area prone to cracks prior to the A-brace being made available.

Many pre-2014 cars suffered chassis failures. In these instances, MMC fitted a brand new chassis free of charge. Therefore, it's not uncommon to find a 2012 car with a 2014 (or later) chassis.

Check for cracks emanating from the front, lower wishbone mounting lugs. If cracks are discovered here (Figure 4) then MMC will retrofit significantly strengthened brackets free of charge.

Cush Drive

All cars are fitted with a cush drive between the engine and gearbox. This is designed to protect the gearbox and drive train from the huge torque spikes generated by the big V-twin.

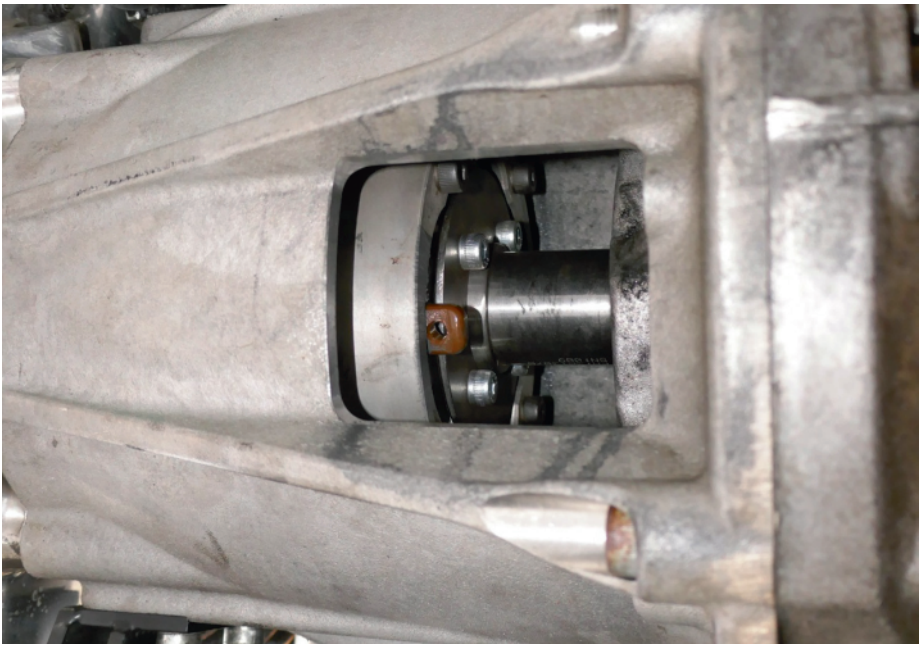
From 2012 to early 2014, cars were fitted with a compensator derived from Harley Davidson. Many of these failed in service. By now most

will have been replaced. If the car you're viewing still has the original type, you are potentially looking at a £2k+ bill to upgrade it to the later type so this needs to be factored in (or you may choose to walk away).

From some point in 2014, the Centa type cush drive was fitted. This uses four rubber cylinders (referred to as rollers) to smooth out the torque pulses. These rubber rollers are regarded as 'consumables' and will eventually break up. Provided that the car you're looking at has a circular inspection hole on the underside of the housing, you can check for small tell-tale chunks of black rubber in the bellhousing between the engine and gearbox. Otherwise it is not easy to ascertain the condition of the rollers. The car will be driveable even with only one (out of four) rollers remaining intact, although you may notice some slack and juddering in the drive train. If all four rollers fail then all drive is lost. Bear in mind that replacement of the rollers requires the engine to be removed, an expensive job if carried out by a dealer and not to be undertaken lightly by the home mechanic.

It seems that there have been at least two specifications of rollers used, with the earlier type often failing after around nine thousand miles. From late 2017 improved specification rollers have been fitted and these

Figure 5 Underside of Bleazey modified Centa housing with enlarged oblong opening.



appear to be more reliable. However, during late 2018 and 2019, some owners of new cars have reported Centa rollers failing after just one or two thousand miles, suggesting some variability in the quality of the rollers.
Some cars will have been fitted with the kit developed by Phil Bleazey. This deserves special mention because it allows the Centa rollers to be replaced without removing the engine. If you are lucky enough to find a car fitted with this modification it is a highly desirable feature. Look for the tell-tale large oblong hole on the underside of the bellhousing.

Engine

Cars of all ages will be fitted with the S&S X-Wedge engine. In general this is a good, strong engine but here are some points to look out for.
Rough running can often be attributed to loose spark plug terminals. These can be firmly fixed in place by crimping the terminal nut and/or gluing the terminal to the spark plug thread with Loctite

Cam chamber

If possible remove the cam belt cover from the front of the engine.
There should be no appreciable damage or wear evident on the cam belt.

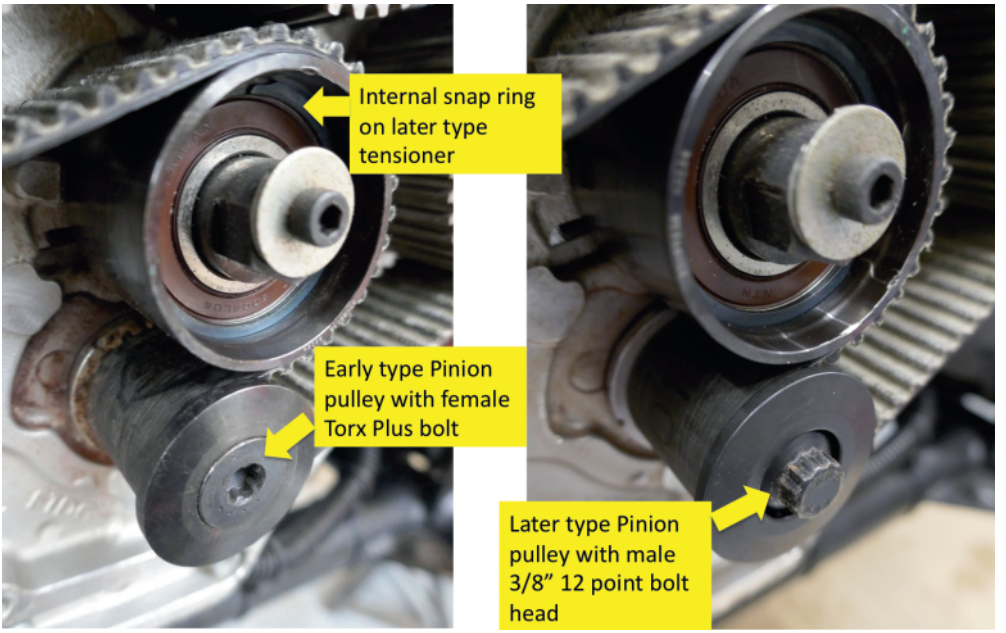


Figure 6 Cam chamber pinion pulley and tensioner detail

On pre-2015 cars, check that the pinion pulley has been upgraded to the later type. Early pinion pulleys had a tendency to come loose and punch a hole in the front cover! Also check that the pulleys are fitted with internal snap-rings (Figure 6).

Spacers should be fitted between the cam chamber cover and the engine block OR the later type vented cover should be fitted. Either of these options prevents excessive heat building up in the cam chamber that can reduce reliability of the cam belt.

A slight weep of oil from under the pinion pulley is not unusual and nothing to worry about unless it gets noticeably worse.

Oil Leaks

The M3W does not, in general, suffer unduly from oil leaks.

Look for signs of oil weeping from the head to block mating surfaces. This indicates that the head needs to be tightened down.

Early type rocker cover gaskets were made from a flexible material and are prone to leaking, often covering the windscreen with a fine oil mist. By 2015, S&S had introduced a superior aluminium gasket that has been totally reliable.

Remove the bonnet/hood. Check the end welds of the oil tank for signs of oil weeping out. Oil leaking from here can migrate down to the bottom of the cush drive housing. Otherwise the underside of the engine and gearbox should be dry and oil-free. However, if there is oil here it may also be that the crank seal on the rear of the engine is at fault. Obviously this is expensive to fix as it requires removal of the engine. The area around the bevel box should be oil-free. If oil is present, then it may indicate that there is a defective oil seal, possibly caused by overfilling with oil.

Euro 4 Specification Cars

By the end of 2016, the M3W had reached the peak of its development and most of the earlier manufacturing and design issues had been addressed. However, from 1st January 2017 Morgan had to comply with the newly introduced Euro4 emissions and safety regulations for any car sold in Europe. This left Morgan in a quandary: it could not sell the Euro3 spec cars in Europe (non-EU cars remained unaffected) but they had not yet completed the Euro4 compliance design changes. Therefore, there was a hiatus of sales in the Spring of 2017 which was ended by the factory either:

a) Offering Euro3 cars which would be individually inspected and approved under the UK SVA (Single Vehicle Approval) scheme. This meant the cars were the same as in 2016 but had to be sent by the factory to a test centre, which involved delay. These can be registered only in the UK and not sold for registration in the rest of the EU.
b) Completing the redesign to comply with Euro4, which they did by the middle of 2017, and the first Euro4 cars were delivered in Oct 2017. The re-engineering changed the cars in these main ways:

Performance

New camshafts, revised low noise air intake, a second catalytic converter and revised ECU (Engine Control Unit) saw the torque and power reduced, but with 15% lower emissions 15% better fuel consumption and less noise.

Electrical

The ECU now had a OBD1 (On-board Diagnostics) wiring circuit and diagnostics socket. This allows access to the vehicle ECU systems and fault codes. This isn't present on Euro3 cars, although these can be checked by connecting a PC to the micro USB port in the ECU with software downloaded from the S&S website. The headlights were now permanently 'on' and the headlight switch just operated parking lights.

Appearance

The ride height was raised by about 50 mm. At the back end this was achieved by adding alternative brackets for the suspension coilover units on the swingarm and at the front a new suspension upright was produced which had the axle stub welded 50 mm lower down. This had the advantage of allowing separate brackets for the steering arm and mudguard, which were fixed to the bracket as on the Euro3 cars.

Lighting

The rear lights stick out on much longer stalks. The front lights were brought forward of the engine.

Engine

Only a polished engine (which has rounded fins) was now available. A noise reducing manifold runs through aluminium tubes from the air intake on the front of the engine to an intake box under the bonnet. A total of four catalytic converters were incorporated into the exhaust headers.

All the appearance mods could, and still can, be reversed in total or in part by purchase of factory extra-cost options; or changed after purchase by acquiring the parts from the factory. For instance, some owners removed the air intake and altered the lights but kept the higher ride

height (which allows easier access under the car to check the tyre pressure and is less likely to catch on road protrusions, especially with passengers and luggage). The rear light stalks can be simply removed.

There was no factory option to reverse the electrical or performance changes, although aftermarket Stage 1 exhausts and air filter could be fitted, which work best with (1) changing the exhaust headers back to (single cat) Euro3 form and (2) buying a factory "stage 1 flash" to update the ECU.

Issues with Euro4 cars

Euro4 cars proved more reluctant to start in very cold weather, due to the changed cams, slightly thicker oil and the headlights being 'on' while the engine is turned over. This problem can be overcome by fitting a battery with a higher CCA (Cold Cranking Amperage), such as an Exide AGM 12-3, which is almost the same size as the factory battery and has the same amp hours rating but a CCA of 430 compared with 300 for the factory item.

Early Euro4 cars had running problems caused by a mismatch between the mechanical changes to the engine, air intake and exhaust and the mapping of the ECU. These were often: Very rough running at tickover and first running until the engine had warmed up, inability to tickover even when warm, and momentary engine cutout at higher revs. Morgan changed the ECU to correct these problems to one closer to Euro3 ECU, although this didn't improve performance and disabled the OBD socket. More torque and power (and better sound) can be achieved by fitting an aftermarket exhaust and air intake, although these work best with the Euro3 exhaust headers and Stage 1 flash for the ECU (available via a dealer at extra cost from the factory). It is also an option to unlock the ECU, or buy a replacement unlocked version, and then have the ECU re-mapped while on a rolling road/dyno. Lambda sensors and throttle position sensors appear more prone to failure on Euro4 cars.

Early Euro4 cars also had very thin front indicator brackets that were prone to breaking. This was exacerbated by badly adjusted headers which touched the bracket and caused them to fail, especially on the front left. A much stronger bracket was later introduced.

At the time of writing (Jan 2020) both Euro3 and Euro4 cars are still available from the factory new at the same price. The Euro3 car is recommended by most people because it has more torque and power and looks better. It cannot be later sold to a buyer elsewhere in Europe and there may be a longer delivery time due to the SVA testing. The

Euro4 car works perfectly well if you like the looks, costs extra if you don't, but can be sold anywhere in Europe at a later date.

Inspection of the Rear Wheel and Fuel Tanks

Ask the vendor to remove the boot liner. This will enable you to inspect the rear wheel and drive belt area.

The rear wheel drive sprocket should be made of steel which although being very heavy is durable. Cars manufactured during or prior to 2015 may be fitted with an aluminium sprocket. These wear quickly, identified by a loud screeching sound, and should be replaced. Some cars may have been fitted with a Supermax sprocket which is a valid alternative to the steel item. Supermax sprockets are aluminium with black polyimide teeth. A few cars have been fitted with a 'Fabian' lightweight steel sprocket. These were beautifully designed and made to special order by a member of the TalkMorgan online forum. Unfortunately they seem to be no longer available so if you find one on your car, hang on to it!

You may notice the drive belt overhanging the drive sprocket (on the side away from the wheel) by a few mm. This sometimes happens if guides are not fitted to both sides of drive sprocket and is nothing to worry about. In fact, some owners remove the outer guide ring to allow the belt a little more movement on the sprocket.

The rear hub should be black anodized. 2012 and some 2013 cars may be fitted with a silver anodized hub that does not allow much clearance between the drive belt and tyre.

Press down on the rear part of each fuel tank. There should be very little vertical movement, 5 mm at most. If there is more movement it indicates that the fuel tank retaining straps are loose. These straps may easily be re-tightened but the fuel tank mounting brackets may already have been damaged due to the excessive movement of the fuel tank. Unfortunately it is not possible to inspect the tank brackets without removing the seat backrests and rear bulkhead which is not practical on a car viewing.

If an inner mudguard is fitted then it's a bonus as it will help to keep the area dry and cleaner than if not fitted. Inner mudguards are a factory option but many owners have fitted their own version.

Check the fuel filter. This is a silver canister mounted on the bulkhead in front of the rear wheel. It should be replaced regularly as specified in the owner's handbook since galvanic corrosion can occur between the mounting bracket and the filter. This can result in a serious fuel leak.

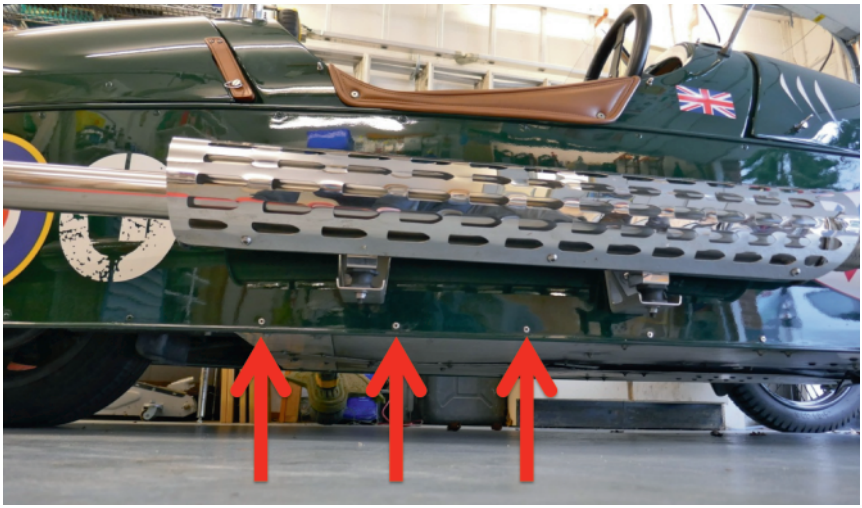


Figure 7 Rivets holding the body to the chassis

Bodywork and Corrosion

On the whole, Morgan bodywork is good. Paint is usually expertly applied and well finished. However, there are some areas to check. Check for paint blistering around the roll hoop panel, under the number plate and around the lower side panels where rivets hold the body to the chassis.

Check the rearmost body-to-chassis rivets (Figure 7) on each side of the car for tightness. Over time, these rivets can work loose and should be replaced. MMC originally used alloy rivets but at some point switched to stainless steel ones which have proved more reliable.

It is common for the front mudguards to corrode. They are powder coated so the only cure is to have them blasted and re-coated or painted. In the same vein, the plastic coating on the headlamp brackets tends to crack, allowing corrosion to take hold. The rear end of the M3W is very close to the ground which makes it vulnerable to damage from hitting kerbs etc. A small crack through the beading on the lower rear panel below the fog light is fairly common and nothing to worry about. However, do check underneath for more significant damage.

Scratches in the paintwork near the boot retaining straps are common. These are caused by the sharp corners of the boot lid (and possibly the Dzus fasteners) scraping against the body when closing the boot and are hard to avoid.

A polished engine should be polished! If it has been neglected then the surface will be corroded which will take many, many hours to remove and re-polish. Only you can decide if this is important to you.

Carefully inspect the exhaust system. Look for hairline cracks where the pipes meet the silencer box. Also, check that the mounting rubber bobbins are in good order.

If a car has been used all year round, and especially when roads have been salted, it is not uncommon for the chassis to be corroded. This can be a major job to rectify, so may influence your decision.

Test drive

The handling should be sure-footed and the car should be stable under braking. If not the problem may be due to something as simple as the front wheels being out of alignment (they should have zero toe-in) or incorrect tyre pressure. However, an ill-handling car may indicate a more serious problem that requires further investigation.

The M3W is not a quiet car! It is usual to have various rattles and squeaks and the exhaust will be noisy.

On the test drive, listen for the bevel box. A little gear noise is expected but it is not uncommon to find a bevel box that 'screams', requiring the use of ear plugs when driving at speed for any distance. There does not appear to be any cure for this other than swapping out the bevel box, and even this is not guaranteed to be successful. You will need to decide how much of an issue this is for you.

Watch out for excessive play and associated knocking or clanking from the drive train as this may point to wear in the Cush drive and/or an incorrectly tensioned drive belt.

A loud bang when accelerating from standstill is caused by excessive vertical movement of the bevel box NVH bracket causing it to hit the chassis. This is often mistakenly diagnosed as the drive belt slipping a tooth on the drive sprocket. Morgan's solution for this is to run very tight drive belt tension.

The speedometer will probably be optimistic by around 8%. This can be rectified by simple recalibration of the gauge. Instructions for doing this are available on the MTWC web site.

The Mazda MX5 gearbox is usually problem free and should change easily and smoothly.

Electrical

The regulator often failed on early cars, cured by adding an earth cable between the regulator and the chassis. In addition, (on early cars) reliability of the regulator can be enhanced by relocating it from the engine cradle to the chassis. Many owners fit standard Harley Davidson regulators which are more robust and can be bolted straight on to the original mounting plate.

Check operation of the indicators and hazard lights. If there is a problem here it may not be an easy fix! The electronic Turn Signal Module that controls these functions has been known to fail.

On older cars, the wires in the harness alongside the boot hinge can fracture due to repeated flexing. This results in the brake lights not operating correctly.

Check for chafed electrical cables behind the engine.

Additional things to look out for on a 2012 car

In November 2019, MMC recalled cars fitted with a brake pedal with the laser cut 'M3W' logo. These were fitted in 2012 and some had an inherent weakness. A Morgan dealer will retrofit a strengthening bracket free of charge.

These cars have the gear lever mounted closer to the driver than 2013 cars. You can change this with a different extension adapter on the gearbox, and use the original gear lever hole as a tray.

Desirable Reliability and Safety Enhancements

There are several things you can do to enhance a standard car. Many of these are very desirable, especially if you intend to embark on long journeys. If any of these have been done to the car you are viewing, then it indicates that the owner has taken an interest in and cared for the car.

The standard battery is made by Banner. These often fail within three or four years. Replace with an alternative brand of larger capacity.

The standard fuel pump is from the LandRover Discovery and commonly fails. Replace with a better quality Walbro one.

A rear puncture is at least very inconvenient, and potentially extremely dangerous. Tyre replacement is a workshop job that takes several hours. Put slime-type puncture sealant (like that made by OKO) in the rear tyre. This is much better than the foaming product that Morgan supplies.

Replace the rear spindle bearings with higher quality SKF items. These are not expensive but are much better quality than the standard ones.

The brackets holding the fuel tanks in position are flimsy and tend to crack. This is usually due to incorrectly tensioned tank retaining straps which, in turn allow excessive tank movement to occur. In extreme circumstances this can lead to the fuel tanks rupturing. Bond reinforcing plates over the original tank brackets and regularly check the tank straps are tight.

Any crimp type fuel hose clamps on the fuel lines around the engine should be replaced with screw type hose clips (NOT Jubilee clips).

Check for chafed fuel lines, especially behind the engine. It may be desirable to trim the lower edge of the cooling fan housing as this area has been found to be a pinch point for fuel lines and cables.

If applicable, reposition the rectifier to the chassis rather than engine.

Replace bevel box gear oil with Redline Heavy Shockproof or Millars EP140. Change every 3000 miles, along with engine oil and filter.

Seal around the rear bulkhead edges behind the seats with gaffer tape and/or water pipe insulation to keep dirt out of the cabin. Some owners fit sound-deadening material such as Dynamat to the bulkhead.

Recalibrate the speedo to eliminate the 6-8% over read error.

Details of most of these enhancements are available via the Morgan Three Wheeler Club website and/or TalkMorgan along with some detailed step-by-step instructions.

Bleazey Drive Train

Phil Bleazey has developed improvements to the drive train. It is a definite bonus if the car you are viewing has these fitted. There are two major parts:

Bevel Box Mounting Kit

The standard NVH arrangement allows excessive vertical movement of the bevel box under acceleration and deceleration. This can result in loud clonks upon a quick getaway and other resonances and vibrations in service. The Bleazey kit replaces the standard NVH bracket and firmly locates the bevel box in position while still retaining some isolation from the chassis.

Centa Coupling Modifications

This modification allows the Centa rubber rollers to be replaced from under the car within an hour or so. It includes enhanced rollers made

from high temperature Polybush material that, due to their shape, minimize free movement in the coupling thus providing a smoother drive. For more details, Google 'Bleazey Morgan'

Tyres

Standard front tyres are made by Avon, originally intended for sidecars. MMC offer an optional front tyre made by Blockley. Many regard these as superior to the Avons in grip, handling and longevity, so they are a popular replacement when the Avons wear out. Inner tubes are TR11 and tyres are 4.00 x 19. Google 'MWS' for more details. In the USA, owners fit Excelsior Comp H tyres which appear to be similar to the Blockleys. Tyre life is typically around 10,000 miles, front and rear. The Blockleys tend to last a little longer. During 2019, some owners started to fit performance motorbike tyres, either the Michelin Commander II (110/90 B19 62H) or the equivalent Pirelli Night Dragons. Apparently you get an appreciable improvement in performance but at the expense of a reduced tyre life (less than half the mileage of the Blockley). There is around a 25 mm reduction in overall diameter compared to the standard tyres. The rear tyre should have plenty of tread depth; types designed to clear water well are strongly recommended in order to minimize the rear wheel aquaplaning. There is no requirement for the rear tyre to be symmetrical - asymmetric tyres simply have different sections of the width optimized for different conditions. The standard tyre is a Yokohama Blue Earth. Popular alternatives include: Michelin Cross Climate; Bridgestone Weather Control A005; Avon ZT5; Dunlop SP Sport Blue Response; Pirelli All Season; Nokian Weatherproof

Tuning the Engine

Many cars have been tuned so it pays to know what to look out for. The standard exhaust system is very restricting. A free flowing system will greatly enhance the smoothness and drivability of the engine while unlocking some horsepower. Bear in mind that some options are very loud. Most use the standard headers with the catalytic converters retained. The following are the most common systems:

Morgan Stage 1
This comes with an S&S air filter and shorter, square cut tail pipes. It is quite loud but compact and fits inside the standard heat shields. It has been known to suffer from cracking on the front face of the silencer

boxes. Supply from Morgan has been a problem at times. Early cars will require the later style heat shields which are attached to the body rather than to the exhaust box. This is an expensive addition so many owners choose to do without the heat shields.

Garage 56 Stage 1

This has its own design of 'Spitfire' air filter which takes the standard filter element but has an air scoop for a ram air effect. The exhaust system is larger than standard, with its own brackets and shields. Being an absorption system it has no internal baffles and is quieter with a deep rumbling tone. It is well made and has an extra flexible joint in the front pipe to help isolate the engine movement. It is reliable with good customer service from G56.

Figure 8 2013 M3W fitted with Garage56 exhaust and air filter. (Photo by Simon Goldsworthy)

Performance is much the same with either option. The G56 option is more expensive but a bit quieter. New car warranty is not invalidated with the Morgan kit but could be an issue with G56 fitment. The standard ECU will adapt its map to either system after a short time.

Another option favored by some (and certainly more economical), is to perform a "baffle-ectomy" on the standard exhaust which involves drilling out some or all of the restrictive baffles with a hole cutter. This has the effect of reducing the restriction thus improving running and performance but greatly increases the noise. If the exhaust looks standard but is loud, have a look up the pipe with a torch. MOT testers

(and your neighbours) may not like this exhaust! Some owners remove the catalytic converter material thus increasing performance by one or two hp. This can be an option if the material has started to break up.

Air Filter

The standard air filter is restricting and fits the element tightly. Some owners have cut away part of the standard cover to improve the air flow. Many replace the filters with S&S after-market items that come with a matching support plate. Harley Davidson filters will fit but do not come with a support plate to mount them to the X-Wedge, although a suitable plate could easily be fabricated.

ECU remap

The standard ECU is locked by the manufacturer and has adaptive mapping that adjusts itself as the engine runs. The range of adjustment will allow for Stage 1 upgrades of exhaust and air filter but nothing more. Unlocked S&S ECUs are available and allow for setting up the engine accurately on a rolling road and tuning beyond Stage1. Even a Stage 1 car will be improved with a correctly set up ECU. Other than connecting a laptop running S&S ProTune II software it is not easy to identify what sort of ECU is fitted.

Figure 9 Empire kit adjustable top wishbone. Also shows a ATR shock absorber. (Photo by Simon Goldsworthy)

Cams

To identify what cams are fitted you will have to remove the cam belt cover and look at the end of the camshaft where you will find a stamped 3-digit number. There are three cam shafts: the two outer ones are exhaust with the centre one for the inlet valves.

A 548 inlet valve cam is the standard fit and will produce approximately 90 bhp and 100 lbs ft torque on a well sorted Stage 1, Euro3 car.

The 569 high-lift cam kit is popular and improves power to around 100 bhp and torque to 110 lbs ft.

With both these cams the valves will not hit the pistons (i.e. safe) if the cam belt fails.

618 cams are race items, need stronger springs, the safe aspect is lost.

Roller Rockers

The standard rockers are pressed steel and perfectly adequate for normal road use. Roller rockers are billet aluminum and require new studs, pushrods and some extra clearance for the pushrods to install them. They give a small increase in performance as the lift ratio is larger than standard. The engine remains safe with both 548 and 569 cams.

128 cu in (2098cc) Engine

These are very rare and expensive. The standard engine is 121 cu in (1983cc). The 128 engine has same stroke as the 121 but a bigger bore and comes with big valve CNC ported heads and roller rockers as standard. They are usually for competition use.

Tuning the Suspension

Empire / Krazy Horse Upper wishbones

The early M3W suspension geometry was poorly designed and generated severe bump steer. The Comfort Kit corrected some of the design errors, but before that, Empire Racing produced a geometry correction kit designed by suspension guru and race car designer Bill Chaplin. This kit is now marketed by Krazy Horse. It is easy to identify as it has billet alloy brackets and shorter fabricated upper wishbones with spherical bearing adjustable rod ends.

This is a desirable feature as it allows the suspension to be accurately set with adjustable caster and camber angles, improving the steering feel. Check the condition of the rod end bearings as they can wear but are easily replaced.

Shock Absorbers

The standard shock absorbers are non-adjustable Spax, coloured either black or blue. A few early cars were fitted with Suplex shock absorbers but due to supply problems they were soon replaced by the Spax. The Spax cannot be serviced, only replaced.

Adjustable Spax are sold by MMC and are a good improvement. Their red colour, spring height adjustment and a small black plastic adjusting wheel at the base identifies them.

Morgan sold some expensive adjustable Suplex shock absorbers but there were design and manufacturing issues with these and not many were supplied.

You may be lucky and come across a car fitted with Ohlin shock absorbers which are expensive but very good (and fully serviceable). They give a greatly improved ride and can be identified by their vivid yellow springs.

A more affordable alternative is from ATR. These have a similar performance to the Ohlins, can be serviced and are identified by their distinctive orange-anodized fittings (although they are also available in black to special order). Note: The standard ATR shock absorbers are shown in the above photo of the Empire suspension.

All the adjustable shock absorbers allow for rate and spring height adjustments. This can be useful to raise the rear ride height slightly as the standard shock absorbers and springs tend to sag over time. Check clearance to the drive belt on the rear as tolerances can be very close. Also check the clearance between the lower part of the front shock absorber and the exhaust header pipe. The header can be repositioned if it rubs on full compression.

MOT Testing (UK)

M3Ws are not subject to emission checks. Headlights often need adjusting. Non-slip surface or rubber on the brake pedal should be in good condition (except where it wasn't fitted at manufacture). A front number plate is required at the time of the test.

Appendix A

MMC Advice Notes and Recalls

These are messages sent from MMC to vehicle owners, either directly or via dealers. This information is added to this guide for completeness.

Bevel Box oil additive

Message sent to dealers:

Between November 2012 and 9th September 2013 an additive was combined to the bevel box oil on all M3W's. This additive has been found to bond with the oil and forms clumps within the box. This can result in the gears not getting sufficient lubricant when required. It is essential that vehicles produced between the two dates above have the bevel box oil changed. We recommend turning the rear wheel while filling the bevel box with oil to flush any debris through the system (obviously as we recommend this is done at first service 1000 miles or 3 months whichever is first. All affected vehicles should now have passed through their dealer and the oil changed).

Bolt-in Chassis Brace

On 4th August 2015 the following message from MMC was posted on TalkMorgan [http://www.talkmorgan.com/ubbthreads.php/topics/299106/4]:

All M3W's built between 09/11/2011 and 31/12/2013 will need inspecting at your nearest dealer. You'll see an attached letter that has left the factory today. All vehicles will require a chassis brace to be fitted this will be covered by MMC F.O.C and will take around two hours to complete. Brace kits are in stock and we will be shipping them to dealers as required, (please don't ask for kits to fit yourself). This needs to be logged and relevant information forwarded to government bodies. There is no need to be alarmed or panic, your M3W will not fall to pieces while you wait for inspection, and the dealer network has been fully briefed on what's required. If you do not receive an official letter (within the next 10 working days) or have purchased the vehicle second hand, please contact dsc@morgan-motor.co.uk with your car's chassis number, mileage, name and address, and we'll ensure a letter reaches you (either directly or via a dealer).

The attached pdf explained where to inspect for signs of fatigue – i.e where the chassis tubes either side of the engine meet the cross tube under the bonnet cowl. It instructed that if signs of fatigue (i.e. cracks) were found, the vehicle should not be used.

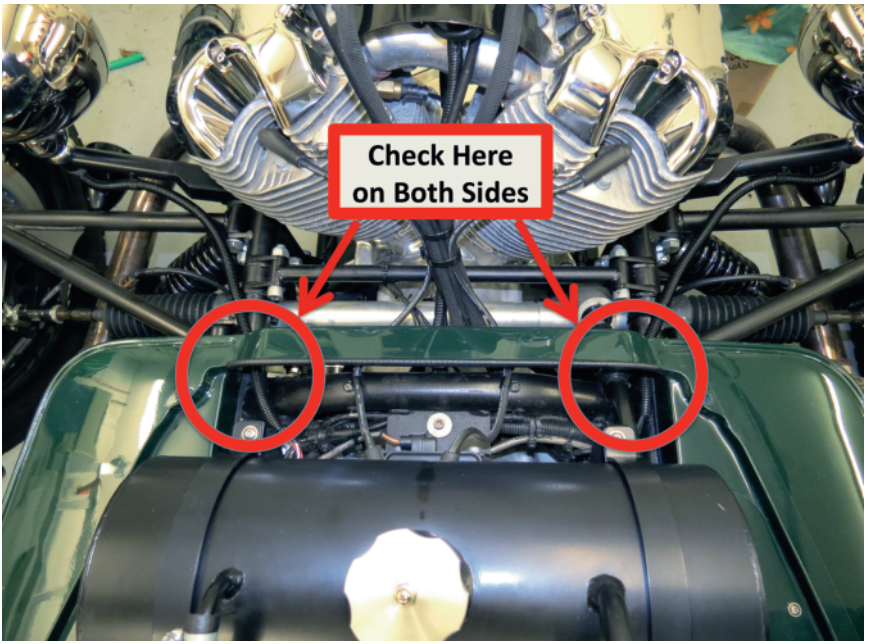


Figure 10 Where to check for upper chassis member fatigue

It did not say in as many words, but in these instances MMC would replace the whole chassis. If no fatigue was found then the dealer would fit the bolt-in chassis brace. All this is free of charge.

Cam Chamber updates (via Dealer network?)
It is thought that S&S provided hardware to MMC to perform the following reliability enhancements: Spacers added behind cam chamber cover to aid cooling. Upgraded Pinion Pulley & bolt. Revised tensioner and snap rings added to other pulleys.

MMC performed these upgrades free of charge for a while but then started charging. Presumably at the point when the free-issue S&S parts had been exhausted.

Brake Pedal & Chassis
(MMC Post on TalkMorgan – 18th June 2019)

Morgan Motor Company continually monitors and develops its range of models. As a result of this programme it has been recognised that there is a potential cause for warranty affecting 'new' Morgan 3 Wheelers manufactured up to December 2014.

Chassis

If your vehicle was manufactured between 2010 and 2014 it may be due to have a chassis modification which will eliminate any signs of fatigue. [It is thought that this refers to the issue of fatigue around the lower wishbone mounts but this is not specified in the message] Any inspection or subsequent modification will be carried out at no cost. Morgan 3 Wheeler models manufactured after 2014 are unaffected.

Brake pedal Assembly

We are aware of potential, safety related, remedial work being required to the brake pedal on Morgan 3 Wheelers manufactured between 2011 and June 2013. This affects some vehicles with M3W laser cut into the pedal arm. Morgan wish to have the pedal assembly inspected by an official Morgan Dealer. Your vehicle may require a modification to the pedal assembly and this will be carried out free of charge. Vehicles without the logo on the pedal require no further action.

If you own a 3-Wheeler manufactured between 2010 and December 2014, we would encourage you to make yourself known to your Morgan Dealership or the Morgan Motor Company to enable us to arrange to carry out any necessary work. If you have any further questions regarding these inspections, please contact Morgan After sales directly via e-mail to dsc@morgan-motor.co.uk

[In November 2019, most M3W owners received a recall notice from MMC regarding the brake pedal. No mention was made of the chassis issue]

Appendix B

M3W Development History

2012

Original car
Very early cars had Suplex shocks, soon replaced with Spax (with corresponding increase in ride height).
November Upgraded pedal box to replace 'M3W Stamped' ones
Base price £25,000 or £28,333 for Superdry

2013

Moved gear lever forward
Revised rear hub (black) to improve clearance between belt and tyre
Base price £25,950, Superdry still £28,333
Optional footwell side pockets introduced.
Gulf model introduced mid year at £29,162.50
September - Brooklands edition launched at £29,162.50 – several iterations of exhaust to follow!

2014

Chassis upgrade with additional bracing.
Compensator changed from Harley type to Centa
Urban cooling kit (including ECU flash)
Comfort steering to minimise bump steer
Bevel box NVH mounting
Repositioned regulator to side mount
Revised exhaust mounting with heat shield now mounted to body instead of exhaust.
Upgraded rubber exhaust mounts
Cam cover venting, initially spacers then modified cam cover.
Modifications offered for earlier cars:

- Urban Cooling Fan kit £125 fitted
- NVH Bevel Box isolation kit £395 fitted
- Steering 2 Comfort Pack upgrade £165 fitted

Morgan Aero Racing started offering performance upgrades:
Stage 1: Air filter and straight-through exhaust - £716.45 (plus fitting)
Stage 2: Cams, throttle body, ECU, Air cleaner and exhaust - £1,512.88 (plus fitting)
Stage 3: 128ci big bore, CNC heads, Cams, throttle body, rockers, ECU, Air cleaner, exhaust. £9,795.11

2015

Early Steel rear sprocket
August bolt in chassis brace for pre 2014 cars.

2016

Louvres in rear bodywork
Base cost from July £27,795
A range of new options including:

JAP rocker and crank covers £2,495
Heritage dashboard £795
Blockley square cut tyres (front) £395
Fish tail exhaust pipes £795
Headlight mesh £45
Vintage bonnet catches £295
Full Morgan windscreen £295

2017

April
Traven Quick Release steering wheel hub introduced. Cars up to this point had been fitted with Lifeline quick release hubs.

2018

From April Euro 4 compliant
Chrome engine only (as fins on black engine deemed too sharp and a danger to pedestrians……)
Moustache air intake and under cowl air filter
Increased ride height and taller roll hoops
Second Catalytic converter in exhaust
Lower tune ECU with OBCD port (62 bhp instead of 82 bhp)
Rear lights on stalks
Various guards on brake discs, voltage regulator etc
Base cost now £33,395 or £32,905 for Euro 3 IVA
Option Euro 3 Appearance Pack to reduce ride height, move lights, remove moustache, retune ECU.

2019 (February)

110 edition with a range of appearance options included as standard:

16 (instead of 10) standard body colours, Body coloured cowl
Mohair tonneau, Tall roll hoops,
Black exhaust heat shields, Quilted stitching,
Leather storage pockets

Appendix C

Further Reading

The Morgan 3 Wheeler back to the future! by Peter Dron (ISBN: 9781845847630) Covers the story of the inception of the M3W and some early history. Not currently in print but normally available from Amazon, eBay etc.

Some useful web sites

Morgan dealers

https://www.morgan-motor.com/ https://www.morgan-motor.com/dealerships/

Talk Morgan

http://www.talkmorgan.com/ubbthreads.php/forums/13/1/Morgan_Three_Wheeler

5-speeder information on the MTWC website

https://www.mtwc.co.uk/the5speeder/

Garage56 Aftermarket Accessories and Upgrades

https://www.mtwc.co.uk/the-5-speeder/ https://www.garage56.co.uk/

Krazyhorse Morgan Dealer

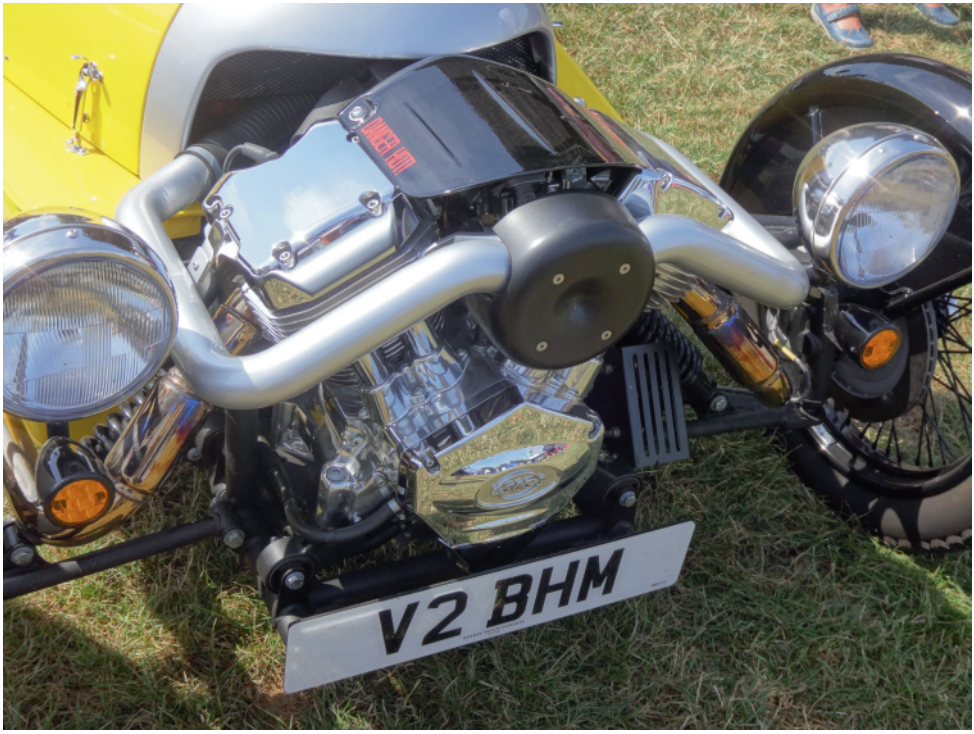
https://krazyhorse.co.uk/pages/morgan-3-wheeler-upgrades

Allon White Aftermarket M3W Trim Options

https://allonwhite.co.uk/morgan-car-interiors-trimming/morgan-3-wheeler

Phil Bleazey's Drive Train Upgrade

http://www.bleazey.co.uk/M3WKIT.html



Euro4 Specification Car