



# [MORGAN 3 WHEELER]

OWNERS HANDBOOK

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## 1 INTRODUCTION

Welcome to the world of Morgan 3 Wheeler ownership. Your Morgan is as individual as you are, and employs traditional coach-building techniques, using only the highest quality materials – leather, aluminium and seasoned ash. Each Morgan is built to an individual specification. Utilizing the latest high performance V-twin engine technology combined with exceptionally lightweight manufacture each Morgan 3 Wheeler not only delivers unrivalled performance but provides excellent standards in emissions and fuel economy.

### *Your Morgan 3 Wheeler*

This handbook has been produced in order to give the owner a good understanding of how best to use and enjoy their Morgan vehicle. The owner/driver should read and understand all that is in this handbook before using the 3 Wheeler, and the handbook should then be kept in the vehicle for reference at any time. It should be passed on to new owners if and when the vehicle changes hands. Contained within the handbook are important safety warnings and instructions. These warnings are to prevent any risk of injury being caused to you or others. This book is intended to give an understanding of the operating procedures and general servicing instructions as well as technical information. It is not intended to give comprehensive technical details and full servicing procedures. To ensure maximum pleasure and performance are delivered it is important to keep the Morgan well maintained and serviced at the correct intervals. It is the responsibility of the owner to ensure the vehicle is serviced at the correct periods. If any adjustment is required we request that you contact a Morgan dealer for advice before any work is carried out. Alterations from the standard specification are not recommended as this may affect the performance and safety of the vehicle.

## 2 VEHICLE IDENTIFICATION

Morgan 3 Wheeler Ltd. advises that the Vehicle Identification Number (VIN) is recorded in this section along with other records that may be useful when requesting or ordering replacement parts.

**VIN:**

**CHASSIS no.**

*Your VIN number is displayed on a plate attached to the body bulkhead beneath the bonnet. Your chassis number is displayed on the chassis floor bar in the foot well.*

Other Information

Body Colour:

Trim Colour:

Ignition Key Code:

Fuel Cap Key Code:

Supplying Dealer Information:



### 3 TECHNICAL INFORMATION – Morgan 3 Wheeler

#### Engine Information

|                       |  |
|-----------------------|--|
| Engine                | 5 & 5 V-Twin X-wedge   |
| Bore of cylinder (mm) | 108  |
| Stroke (mm)           | 108  |
| Cubic capacity        | 1976cc (120.6 cubic inches)  |
| Maximum engine rpm    | 5800   |
| Power EEC @ rpm (BHP) | 82bhp @ 5250rpm  |
| Torque EEC (ft.lbs)   | 140nm @ 3250 rpm   |
| Valve operation       | Hydraulic roller tappet with push rods, belt driven, 2 valves per cylinder |

|                    |   |
|--------------------|---|
| Oil:               |   |
| Engine             | 20W-50 V-twin mineral oil. 6 litres total fill.<br>(Synthetic oil recommended for unusually hot conditions) |
| Gearbox            | Permanently filled (to fill hole)<br>(2.0 litres SAE 75W-90)  |
| Bevel box          | 80-140 Fully synthetic. Fill to level plug.   |
| Cooling system     | Air cooled  |
| Petrol             | 95/98 Octane unleaded only  |
| Fuel tank capacity | 25 Litres (at "E")  |
| Brake fluid        | Dot 4   |

#### Caution

The use of leaded fuel in a catalyst engine will severely affect the operation of the engine and destroy the catalyst.

#### Engine Management System

|                  |                                     |
|------------------|-------------------------------------|
| Type             | Programmed electronic               |
| Ignition timing  | Module Controlled                   |
| Spark Plug type  | Autolite 4564 12mm / Champion RA8HC |
| Spark Plug gap   | 0.97mm to 1.07mm                    |
| Fuel System type | Indirect multi-point injection      |



#### Front Wheel Alignment and Suspension

Toe-out 2mm each side. 4mm overall

#### Transmission

Clutch Diaphragm spring mechanical, single plate  
Operation Hydraulic  
Clutch release free play 2-54mm  
Rear bevel box 90 degree conversion prop to belt. 2:1 Ratio  
Gearbox Five speed and reverse synchromesh on all forward gears

| Gear ratios | Gearbox | Overall |
|-------------|---------|---------|
| 1st         | 3.136   | 12.94   |
| 2nd         | 1.888   | 7.79    |
| 3rd         | 1.330   | 5.49    |
| 4th         | 1.000   | 4.13    |
| 5th         | 0.814   | 3.36    |
| Reverse     | 3.758   | 15.50   |

#### Fuel Consumption and carbon dioxide emissions:

Urban conditions 21.1mpg (13.37 l/km)  
Extra urban conditions 44.9mpg (6.29 l/km)  
Combined 30.3mpg (9.33 l/km)  
CO<sub>2</sub> 215 g/km

#### General Dimensions

Wheelbase 2381mm  
Track (front) 1533mm  
Ground clearance (unladen) 100mm  
Turning Circle 15m  
Tyre size (rear) 175/65 15  
Tyre size (Front) 4.00S19 m/c 65S

#### Body Dimensions

Floor pan to roll over top 900mm  
Body Width (elbow - elbow) 1000mm  
Height of seat from floor (front) 150mm  
Legroom (driver) 500mm (standard)



|                |       |
|----------------|-------|
| Luggage Space: |       |
| Length (Max)   | 750mm |
| Width (Max)    | 600mm |
| Depth (Max)    | 250mm |

|                               |        |
|-------------------------------|--------|
| Overall Dimensions            |        |
| Length (wheel to brake light) | 3225mm |
| Width (wheel arches)          | 1720mm |
| Height (roll hoops)           | 1000mm |

#### Weights

Complete with half tank of petrol 525 kg

#### Tyre pressures

|       |        |
|-------|--------|
| Front | 22 PSI |
| Rear  | 25 PSI |

## 4 SAFETY INFORMATION

Throughout this handbook there are important safety warnings as well as safety warning labels located on your Morgan. These safety **Warnings** are there to help you make informed decisions and reduce the risk of accidents causing possible injury or death to yourself or others. There are also **Cautions** and **Notices** to assist you in making decisions to avoid damage to your Morgan or other property.

#### Important safety warnings

Always ensure that your 3 Wheeler is in a road worthy condition. It is the responsibility of the driver to ensure this.

The driver and passenger must be seated correctly and should ensure that all safety restraints are used properly and are free from obstructions.

Check that the tyres are in good condition with no excessive wear or damage.

Ensure fly screens\* and mirrors are clear and positioned correctly before driving.

Ensure that tonneau cover if used is fastened/shut correctly.

Check all lights and signalling devices are operating correctly before use.

Although not compulsory, Morgan 3 Wheeler Ltd highly recommends that occupants wear a motorcycle approved helmet and eye protection.

\*(To clean flyscreen, and remove dirt and insects, lay a clean damp micro fibre cloth over screen, leave for 60 seconds then gently wipe clean. For improved results use recommended glass cleaner.)



#### **Always wear your seatbelt**

Wearing seatbelts is the best form of protection against injury or even death in the case of an accident. Make sure that you and any passenger travelling in your vehicle always wear a seatbelt.

#### **Do not carry children in your Morgan**

Morgan 3 Wheeler Ltd strongly recommends that you do not carry very young children in your Morgan and you should on no occasion carry children using a child seat.

#### **Harmful substances**

Some components used in the manufacture of cars contain or emit chemicals known to increase the risk of cancer and birth defects as well as increasing the risk of reproductive harm.

Exhaust gases contain carbon monoxide (CO). This gas cannot be seen or smelt and can cause unconsciousness or even death. If you suspect exhaust gases are entering the cockpit of the vehicle, do not drive until a qualified engineer has rectified the fault. Never park in a garage with the engine running and the garage door shut.

#### **Engine system**

If the engine malfunctions in any way, Morgan 3 Wheeler Ltd recommends you have the fault diagnosed and repaired by a qualified engineer before using the vehicle. Continuing to drive the vehicle with an engine misfire could cause the catalytic converter to overheat, with possible heat damage to other components.

For more information on the automatic 'skip fire' overheat prevention function see page 29.

Do not park or drive the vehicle in areas where combustible material, such as dry grass or leaves, could come into contact with the hot exhaust system as this may ignite fires.

Do not tamper with the electrical system whilst the battery is connected.

Do not touch the engine or exhaust pipes when the vehicle is running or until safely cooled after shut off.

Do not use the 3 Wheeler if a fuel leak is suspected. Ensure that a qualified engineer or service agent repairs the fault before starting or using the vehicle. Leaking fuel may cause fires or explosions.

Do not touch or approach any part of a hot exhaust system. Failure to comply with this may result in you receiving severe burns. Ensure people in proximity of a recently active vehicle are aware of exposed hot exhausts.

Any work to be performed on your Morgan must be performed by a qualified engineer or Morgan service agent.

#### **General Warnings**

It is essential that at the very least eye protection is worn at all times. However Morgan 3 Wheeler highly recommends use of an approved helmet.

Always drive with seatbelts on and ensure that any passenger does the same.

The exhausts and engine are exposed on a Morgan 3 Wheeler; they get very hot and can cause serious injury and damage to operator and belongings.

The Morgan 3 Wheeler is classed as a motor tricycle and as such does not feature the same safety equipment apparent in most cars.

Please ensure that any passenger is aware of this.

Wear suitable clothing in different weather conditions. Failure to do so will affect concentration levels and comfort.

Traction in the wet / cold is reduced in a more extreme way with a 3 Wheeler. Take extra care when driving in bad conditions.

With minimal noise proofing you will be exposed to many sounds from engine and transmission. Ear plugs are recommended.

Do not tamper with the Morgan 3 Wheeler and ensure any mechanical work is carried out by a qualified Morgan representative.



## 5 LOCKS, KEYS AND SECURITY

### 5.1 Keys

Your Morgan is supplied with 2 keys for the vehicle ignition system and 2 keys for the fuel filler. If fitted as an option, you will also be provided with a key fob used to disarm the 'TOAD' engine immobilisation system. Your Morgan can only be started with a fob containing the correct chip corresponding to that vehicle. Upon receipt of your vehicle and keys you will find a code located on a tag attached to your keys; it is important to record the manual ignition key code before removing and discarding the tag.

#### **Warning**

There is no alarm system supplied on your Morgan.

Do not leave your 3 Wheeler unattended with the keys in the ignition.

Do not leave your vehicle with any animals or children inside when the keys are in the ignition or when the engine is running, accidental operation of the vehicles controls could cause an accident resulting in serious injury or even death.

Do not force the steering lock mechanism.

If the key will not go into the ignition or fuel filler consult a qualified engineer.

### 5.2 Removable steering wheel (see 8.2)

The steering wheel on your Morgan 3 Wheeler leaves the factory permanently fixed.

Morgan 3 Wheeler Ltd does **NOT** recommend removing the wheel. Incorrect fastening on the wheel before driving could result in very serious injury or death.

#### **Warning**

Tampering with a Morgan 3 Wheeler to make this system active could result in very serious injury or death.

Do not attempt to remove the steering wheel whilst the engine is running or the vehicle is moving.

#### **Caution**

With the engine off ensure wheels turn when turning motion is applied to the steering wheel. Secondly pull hard against steering wheel when in place to ensure it does come away from spindle.

### 5.3 Engine Immobiliser

Your Morgan could be fitted with an engine immobiliser. This means that the engine can only be started using the correct keys and key fob with the correct transponder installed. For exact details about the immobilizer system contact your dealer.





#### *Caution*

Due to the nature of your Morgan, it is easy for thieves to gain access to the inside of the vehicle. Do not leave items in the vehicle as they may be easily stolen.

#### *5.4 Boot Space*

Each 3 Wheeler has luggage space beneath the tail of the vehicle. This area is accessed by un-fastening the two leather tabs either side of the vehicle and lifting the panel. This space is NOT a lockable area and any belongings stored in here should not be left unattended.

#### *Warning*

Never put animals within the boot space or leave within the 3 Wheeler unattended.

## **6 SEATING AND SAFETY RESTRAINTS**

### *6.1 Seating, driving and pedal positions*

The seats in a Morgan 3 Wheeler are permanently fixed in position and securely to the chassis. Adjustment in driving ergonomics is achieved solely by moving the pedal box assembly toward or away from seat. This requires mechanical labour and although fairly simple to adjust, Morgan 3 Wheeler Ltd recommends that this adjustment is carried out by your local Morgan dealership or a qualified automotive mechanic.

#### *Warning*

Do not adjust the driving position whilst the vehicle engine is running.  
Ensure that no objects can be trapped when the pedals are moved /adjusted.  
Morgan 3 Wheeler Ltd does not recommend using any extra cushions or back supports whilst driving.

### *6.2 Helmets and eyewear*

Although not compulsory, Morgan 3 Wheeler Ltd highly recommends that occupants wear a motorcycle approved helmet and a form of eye protection when driving.



### 6.3 Seatbelts

Seatbelts should be worn at all times when in the vehicle. It is a proven fact that wearing seatbelts reduces the risk of injury or death in the event of an accident. It is a requirement by law for seatbelts to be worn when travelling in a vehicle.

The seatbelt units fitted to your Morgan are inertia reel seatbelts. The seatbelts will lock automatically when the vehicle is subjected to braking, acceleration, cornering and impact forces. The seatbelt unit may also lock if the vehicle is tilted in any way.

When fastening the seatbelt sit fully back and upright in the seat. Take the buckle tongue in your hand and draw the belt diagonally across the body and tuck into the buckle lock. Ensure the buckle is secured and correctly engaged; this will be apparent by a click sound when fastening the buckle tongue into the buckle lock. Ensure the belt sits across the front of the pelvis and across the chest and shoulder.

To release the belt push the red button on the buckle. The belt will automatically retract.

#### **Warning**

Driver and passenger seatbelts should always be worn properly. Wearing a seatbelt incorrectly increases the chance of serious injury or death in a crash.

When fastening the seatbelt, ensure that the belt is not twisted or entangled with clothing.

Seatbelts are designed to bear upon the bone structure of the body and should be worn low across the front of the pelvis or the pelvis, chest and shoulder. Wearing the lap section of the belt across the abdominal area must be avoided.

Improperly positioning the seatbelts can cause serious injury or death in a crash. Ensure the seat belts are correctly positioned before driving.

Seatbelts should be worn whatever your condition, especially in the case of pregnant women.

The shoulder portion of the belt must never be worn beneath the arm or behind the back.

Each seatbelt assembly is designed for use by one occupant of adult build, and should not be used by children unable to meet the requirements of both laws.

A child seat must never be used in a Morgan 3 Wheeler.

Never use one belt around two people, or allow a child to be carried on a driver or passenger's lap.

No modifications or additions should be made to the seatbelt assemblies.

The seatbelt should be replaced if components are frayed, contaminated or damaged. Inspect regularly.

The seatbelt system must be replaced if the vehicle has been involved in a severe impact, even if no damage to the assembly is visible. Seatbelt anchorage points must also be checked.

Not checking or maintaining seatbelts can result in serious injury or death if the seatbelts do not work properly when needed. Check the belts regularly and have any problem corrected immediately.

Seat belts should be adjusted as firmly as possible, consistent with comfort, to provide protection for which they have been designed. A slack belt will greatly reduce the protection afforded to the wearer.

Belts should not be worn with the straps twisted.

#### **Caution**

When cleaning the seatbelt assembly, care should be taken to avoid contamination or damage to the system. Do not use any substance that may contaminate or damage the webbing material. Never use bleach or dye, only clean with a mild detergent and ensure the system is completely dry before using the vehicle. Ensure the entire system is kept free of dirt contamination. Do not disassemble the system for cleaning purposes.



## 7 INSTRUMENTS AND SWITCHES



### 7.1 Ignition switch/ steering lock/ (s)

The ignition switch is located on the steering column and has 3 positions.

*Notice*

Take note of the ignition key number.

- 1st position**     Steering wheel lock in operation and ignition off, key can be extracted in this position.
- 2nd position**     Moving clockwise 'garage lock'. Ignition off, but steering unlocked which allows the vehicle to be moved and steered by hand.
- 3rd position**     Ignition on.



**To start vehicle** lift cover and push 'Start button' (10). (Note: hold down until ignited and refrain from using too much throttle when starting)

**Warning**

Never allow the vehicle to move unless the lock is deactivated. Failure to unlock the steering may result in an accident resulting in serious injury or even death.

## 7.2 Tell tale lamps (2)



Turn tell tale

When the indicators are operated, the tell tale lamps will flash in conjunction with the vehicles indicator lamps. If the tell tale lamp flashes at an irregular rate or does not flash when the indicators are operated, check the functionality of the indicators.



Brake tell tale

The BRAKE tell tale will illuminate in 2 situations.

The BRAKE tell tale will be illuminated when the park brake is applied. When the park brake is released the red BRAKE tell tale will no longer be lit.

If the park brake is released and the BRAKE light remains illuminated stop the vehicle immediately in a safe and responsible manner.

**Warning**

Driving a vehicle with low levels of brake fluid may cause the brake system to fail resulting in an accident, causing serious injury or even death. If the red BRAKE tell tale is illuminated after the park brake has been released the vehicle must not be driven until checked by a qualified engineer.



Check Engine tell tale

The Check Engine tell tale light will illuminate amber if the engine management system detects a fault with the engine system that may result in damage to the engine or environment.



High beam tell tale

The high beam tell tale will illuminate when the lights are on and the lights are in the high beam operating position.



### 7.3 Instruments

#### Speedometer (3)

The speedometer indicates the road speed of the vehicle. The main display is in miles per hour (mph), kilometres per hour (kph) or both with one range inside the other.

#### Tachometer (4)

The tachometer displays the engine speed in revolutions per minute (rpm)

##### **Warning**

Excessive rpm used when an engine is not at normal running temperature may cause damage to your engine. This damage may result in failure of the engine components.

#### Fuel gauge (5)

Your Morgan 3 Wheeler is equipped with a digital fuel gauge. The level of fuel in the tanks is indicated with a percentage. Empty 0-100% Full.

##### **Warning**

Do not allow your vehicle to run dry of fuel. This may cause damage to engine, emissions and fuel system components.

#### Trip distance (6) \*

Each trip you take in the 3 Wheeler is recorded and the distance covered can be displayed digitally here.

#### Volts (7) \*

Displays the virtual battery strength. 12v standard.

#### Odometer (8) \*

Located in the bottom of the speedometer is an odometer (total distance recorder).

#### Time Clock (9) \*

This setting will display the current time on the screen at the bottom of the speedometer.

To adjust firstly push button on indicator stalk (17) repeatedly until the time function is displayed. Secondly hold down the button until the first number on the display flashes; then release. Push button repeatedly to change this number. Hold down again until the second number on the display flashes. Repeat until time is set. Leave untouched or hold down button until flashing ceases to finish.

##### **Warning**

Do not adjust whilst driving. This may result in serious injury or death.



\*All functions on this page are displayed on the screen at the base of the speedometer. Each is displayed one at a time. To toggle through these displays simply press the button on the end of the indicator stalk once. (17)

#### 7.4 Hand operated controls

##### Start Button (10)

Once ignition is activated (section 7.1) the vehicle can be started. To start, lift the cover of the start button. Depress the actual button and hold until engine runs. If engine fails to fire after 6 seconds of holding release, wait for ten seconds and retry. Refrain from applying too much throttle whilst starting.

##### Hazard switch (11)

The hazard switch is located on the instrument panel. When switched on the switch will flash red in conjunction with all the direction indicators on the vehicle. The rev counter dial will also illuminate. Hazard lights should be used in an emergency. In the case of an emergency move the vehicle to a safe position and turn the hazard lights on.

##### Front Fog lamps

Your Morgan is not supplied with front fog lamps fitted when it leaves the Morgan factory. There is no standard provision to fit them.

##### Rear Fog lamp(s) (12)

Flicking this switch operates the rear fog lamp. The rear fog lamp will only operate when the main vehicle lights are switched on. If the ignition is turned off whilst the fog lamp is on then the fog lamp will remain off when the ignition is turned back on.

##### *Caution*

Do not use rear fog lamp in good weather conditions.

##### Horn (15)

Pressing the switch down operates the audible horn. Switch returns to off automatically.

##### Lights (18)

To operate lights flick this switch. First movement turns lights on as side lights only, second as dipped beam.



## 7.5 Column switches

### Lights and Indicators (16)

The lights and indicators are operated with the stalk behind the steering wheel.

To indicate left push the stalk in a downward direction. To indicate right lift the stalk in an upward direction. To cancel indicator push in the same direction again. The stalk will automatically return to its central position although the indicator will remain on at speeds of less than 10mph. However if the speed is above 10mph approx. then the indicators if activated will time out and cancel after 7 seconds. If the speed drops below 10mph before the 7 seconds then indicators will remain on.

To operate the lights on your Morgan switch them onto dipped beam first using the switch on the central instrument panel (18).

The stalk also operates the main beam function of the headlights. Pull the stalk towards the steering wheel to flash the main beam on, and then release to turn off. Push the stalk away from the steering wheel then release to permanently turn main beam on. This operation will change the lights from dipped to main, or from main to dipped position each time you do it.

## 8 DRIVING CONTROLS

### 8.1 Foot Controls

The foot controls are set out in the standard format with the accelerator on the right, brake in the centre and the clutch pedal on the left hand side. The position of these controls is adjustable. **Consult your dealer.**

#### *Warning*

When driving suitable footwear should be worn. The use of incorrect footwear may inhibit your ability to operate any of the foot-operated controls resulting in an accident causing serious injury or even death. This should be checked by depressing pedals prior to starting the engine.

It is essential that all foot-operated controls are free of carpets, trim and any other items that may interfere with their operation.

Foot well carpets should be properly fastened to the floor at all times when driving the vehicle.

#### *Caution*

Do not slip or hold the vehicle on the clutch for more than a few moments. Excessive slipping or holding the vehicle on the clutch when on a slope will cause wear and damage to the clutch system.

Fully depress the clutch when changing gear. Do not rest your foot on the clutch pedal whilst driving.



## Footbrake

Allow the brake system to fully bed in before heavy braking is performed unless in an emergency or other cases when heavy braking is required. The required pedal effort will be reduced as the brake system beds in.

### *Warning*

After driving in floods or other heavy water conditions a loss of brake performance may be experienced. Apply the brakes until normal braking performance is restored when it is safe to do so. Failure to do this may result in a loss of brake performance when required, resulting in an accident causing death or serious injury.

## 8.2 Hand Operated Controls

### Hand Brake.

The hand brake on your Morgan only operates the rear wheel brake. The hand brake lever is a "fly-off" type. To operate the hand brake pull the hand brake lever backwards until the brake is functioning; to secure the brake push the button on the top of the lever down and hold and gently release the lever until the hand brake engages. To release the hand brake pull the lever backwards until the button comes up and then release the lever forwards. The hand brake system is independent of any other brake system on the vehicle.

### *Warning*

Ensure the hand brake is securely applied especially when the brake system is hot. As the brakes cool then a loss in hand brake performance may be experienced resulting in the vehicle rolling away causing an accident resulting in serious injury or even death.

Ensure the hand brake is fully released before driving the vehicle. Failure to do so may result in damage to the brake system and drive train components.

### Gear lever

The gear positions are laid out in the standard H type pattern. When in neutral the gear lever will naturally sit between 3<sup>rd</sup> and 4<sup>th</sup> gear.

For Reverse gear position see the top of the gear lever.

### Reverse gear

When engaging reverse gear ensure the vehicle is stationary and the clutch pedal is fully depressed. Move the gear lever in the direction indicated on the top of the gear knob.

### *Caution*

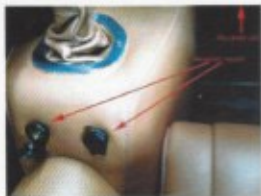
Ensure the clutch is fully depressed when changing gear. Failure to do so may result in damage to the transmission system.





## 9 INTERCOM SYSTEM AND AFTERMARKET PRODUCTS (IF FITTED)

### Intercom system



If specified an intercom system can be fitted to the Morgan 3 Wheeler. The system fitted will be a Starcom 1 Digital kit. Full instruction manuals and operating instructions for this system will be provided with the vehicle.

This intercom system allows up to two headsets to be plugged in to the centre console tunnel. The receiver unit/ input box is located under the dash area in the passenger side foot-well.

The systems will automatically detect speech from driver to passenger and relay messages between headsets / micro phones.

It is also possible to plug in a music device and or sat-nav system which will automatically mute during conversation.

For full details and operating instructions consult the Starcom user manual.

**Warning** – Refrain from adjusting settings whilst driving. Failure to do so may result in serious injury or death.

### Aftermarket accessories

The Morgan 3 Wheeler has an array of aftermarket components and accessories available to purchase from official Morgan representatives. Any upgrade or addition to the Vehicle must be checked by an official Morgan dealer to ensure safe operation and prevent warranty from becoming invalidated.

#### **Caution**

Ensure any luggage or bolt on accessories are securely fastened to vehicle before driving. Failure to do so may result in damage to the vehicle, serious injury or death.



## 10 STARTING PROCEDURE

### 10.1 Starting

Before attempting to start the 3 Wheeler, make certain that the handbrake is fully applied and the vehicle is in neutral. Depress the clutch.

#### *Caution*

Do not operate the accelerator pedal when starting. Turn the key and ensure that the ignition/steering lock is free. Never allow the vehicle to move with the steering lock engaged.

Move the key forward to the ignition position and push the start button, release the button as soon as the engine is running. If the engine does not start, release the button, pause for ten seconds and try again. Do not operate the accelerator. Do not operate the starter for more than 6 seconds at a time. If the engine still fails to start, switch off the ignition and investigate the cause.

#### *Caution*

Continued operation of the starter will discharge the battery and damage the starter.

#### *Warning*

Carbon Monoxide is dangerous. Do not breathe exhaust gases, which contain carbon monoxide. Before starting any vehicle, be sure that there is sufficient ventilation to allow gases to escape.

### 10.2 Engine Start

When the engine first starts, under certain conditions, the hydraulic tappets may emit a rattling noise. This is due to oil having drained from the hydraulic system when the vehicle was standing.

The level of oil will automatically recharge the tappets and the noise cease after a period of engine running. After the engine has been standing for long periods, or in very cold weather, this noise may last for some minutes. In these cases the vehicle may be driven, but the engine speed should remain below 3,000rpm, until the noise ceases.

#### *Notice*

If the vehicle has been stored and the battery disconnected or allowed to go flat, the initial running of the engine may be unusual, as the management system has to realign with the system settings. This may take a few miles. Always disconnect the battery or use a conditioner if the vehicle is left for more than 1 week.

### 10.3 Warming up

As soon as the engine is running and the instruments are reading correctly, the vehicle may be driven. The tick-over will be adjusted by the fuel injection and may run a little higher than normal while the engine is cold. The tick-over may also fluctuate for a short time when electrical equipment is switched on.



### **Caution**

Avoid harsh acceleration or labouring at all times, but especially when the engine is cold. It is recommended that the vehicle be run carefully until the normal running temperature is reached. When the vehicle reaches normal operating temperature, check that all the instruments are reading correctly. Under cold conditions, the gearbox may appear stiff whilst the vehicle is cold. Operate the gears carefully; allow time for the clutch to free the box and the lever to travel between the gates.

## **11 GENERAL PROCEDURES**

### **11.1 Bodywork**

#### **Polishing**

It is recommended that the paintwork should not be treated with a heavy wax for a period of three months after the vehicle has been painted. This will allow the paintwork to 'breathe' and cure correctly. During this time the vehicle should be cleaned regularly and may be treated with a light polish. The chrome work should be cleaned and waxed every time the vehicle is cleaned.

After this initial period, the surface of the paintwork should be thoroughly cleaned. Any imperfections, such as scratches, could be removed using a fine rubbing compound applied with a soft cloth.

### **Caution**

Polishing compounds must be used carefully as they actually remove the paint surface. A fine cutting polish, such as Supercut, can be used to polish road film off the paint surface.

Do not use cutting polishes, which contain ammonia this may bleach some pigments.

After you are happy that the paint is completely clean, a good quality wax polish should be used to finish off. You should avoid silicone-based products and polymer sealers, as these can prevent the paint from 'breathing'. Use a traditional wax polish which may require a little more effort, but the result is worth it. After the initial polishing of the 3 Wheeler, it is most important to keep the paintwork and chrome work clean and well waxed. A good coating of wax protects the vehicle from harmful deposits, from the atmosphere and the road. The wire wheels also need regular cleaning and polishing to protect them from corrosion. When polishing or oiling the spokes, particular attention should be paid to the ends; these move while the vehicle is in motion and will corrode very quickly if not protected. It is important to remove brake dust as soon as possible, as this can affect the wheel finish.

### **Caution**

Be sure not to get polish or oil on the brakes when cleaning. If oil is used to protect the spokes, be sure it will not damage the tyres. Your dealer will be happy to provide advice about the best materials to use when cleaning your vehicle.

### **Caution**

The fuel filler cap must be cleaned and polished on a regular basis, especially after the filler cap has been exposed to water, road salt or other elements. The filler cap should be polished using 'Autosol'. Failure to efficiently maintain the finish of the filler cap will result in damage/markings of the finish.



### 11.2 Leather

The leather upholstery (where fitted) is made of 1st grade hides. To clean the upholstery, wipe with a damp cloth using Cleaning Solution or mild hand soap. Do not use detergents. After soaping use a fresh cloth with clean water, then dry. After cleaning, feed leather with Hide Food to maintain the supple feel of the leather.

### 11.3 Fuel Filling

Your Morgan must be fuelled with unleaded petrol. Your Morgan will run satisfactorily on petrol of a minimum octane rating of 95. For increased performance and reduced knocking use a higher-grade petrol. Using fuel with a lower octane rating may cause knocking (pinking) that in severe cases can cause damage to the engine and it's components. The engine is not calibrated to run on ethanol contents greater than 10%.

You should increase the amount of fuel in the fuel tank if the fuel gauge reads 0%. The fuel system in the Morgan 3 Wheeler is designed with a fuel reserve (after the fuel gauge reads 0%) there are 10 litres ( 2.2 Imperial Gallons ) remaining.

#### **Warning**

Using the incorrect fuel in your vehicle may cause damage to your vehicle's engine and emission control components. Damage caused to your vehicle as a result of the use of improper fuel is not covered by your manufacturer warranty.

#### Fuel Tank Filling

The fuel filler cap is located centrally on top of the 3 Wheeler directly behind the cockpit. It is covered by a flip type fuel filler cap.

To open the fuel filler press down on the fuel cap and flip over the latching part of the fuel cap, release the cap and flip open. Insert the fuel filler cap key and turn in an anti clockwise direction, then pull out the locking filler cap. After filling with fuel, reverse the procedure to seal the fuel tank.

When filling the tank place the fuel filler nozzle into the filler neck and fill until the auto-shut off stops the fuel filling pump. Do not attempt to further fill the tank after the auto-shut off has stopped the pump.

#### **Warning**

Petrol and its fumes are highly flammable. When filling your vehicle with fuel ensure the engine is turned off, switch off mobile phones and ensure there are no naked flames or other potential ignition sources present.

When removing the filler cap do so slowly. Failure to do this may result in fuel spray causing serious injury and a fire hazard.



#### 11.4 Opening the Bonnet and boot compartment

To open the bonnet on your Morgan 3 Wheeler, first rotate the retaining quarter turn fastener counter clockwise until they become detached. With a hand on the cowling and another on the rear of the bonnet lift up and vertically away from the vehicle as pictured below.



To open the boot compartment undo the quarter turn fasteners on the leather tabs at the front of the panel and hinge vertically for the entire length of the available rotation or until boot can be self-supported.

To close push down firmly at the front of the panel with one hand and fasten the quarter turn fasteners with the other.

#### *Caution*

Always take care when opening the bonnet or boot in windy weather conditions. The wind may cause the boot to fall down causing serious injury to yourself or others.

#### *Warning*

Take extra care when opening compartments after vehicle has been run.

Stand clear of hot exhaust pipes and advise others to do the same. Failure to do this may result in severe injury.

#### 11.5 Mirrors

Your Morgan 3 Wheeler is fitted with side mounted mirrors. To adjust the mirrors hold them firmly and move into the desired position.

#### *Notice*

Never force the movement of the mirrors; this may cause damage to the mirrors or their mounting surfaces.



## 12 TONNEAU COVER FITMENT (IF SUPPLIED)

Your Morgan 3 Wheeler may come with the optional tonneau cover. This cover will allow the owner to cover all of the cockpit when not in use or only half the cockpit when travelling alone and wishing to protect as much of the interior as possible. The cover will provide considerable water protection and prolong the life of the interior. To affix the cover follow the guidelines below:



1. With the centre zip closed push the two central push clips on the cover onto the two centre pins. One at the front and one at the rear of the cockpit.
2. Working one side at a time, fasten the next two clips. (One toward front and one toward rear of car)
3. Finish with the lowest two clips
4. Repeat for opposite side
5. Reverse above procedure to remove

### *Warning*

Never try to install cover whilst the vehicle is moving.

If vehicle has been running recently, stand well clear of hot exhausts and advise others to do the same. Failure to do this may result in serious injury.

### *Notice*

When the vehicle is new or a new tonneau has been fitted, clips will require more force to release (refer to above if required). It is advised that at each service interval, the pins are lubricated to ensure smooth operation.

### *Caution*

When cleaning trims never use detergents, these will seriously damage the materials used.

During cold weather, the cover when not in use may contract and become difficult to fit. If left in a warm atmosphere it will expand and may become easier to fit. Do not expose to direct heat.

When the vehicle is not in use always leave the cover in the assembled position. Failure to do this may result in the cover being hard to assemble or cause it to become loose during normal driving conditions.

When the tonneau is in the half open position take care to position the cover material in a way that prevents the material rubbing against itself or other parts of the vehicle. Failure to do this may result in damage/wear to the tonneau or paintwork.



## 13 TYRES

### 13.1 Cold Tyre Inflation Pressure

Morgan 3 Wheeler Ltd recommends that the front tyres should be inflated to **22 PSI or 1.5 BAR**. Rear tyres should be inflated to **25 PSI or 1.7 BAR**.

To measure and adjust your tyres remove the dust caps from the valves on the wheels and connect the measuring/inflation device. Follow the instruction supplied with the measuring/adjusting device to measure/adjust the tyre pressures. When you have finished remove the measuring/adjusting device and refit the dust caps to the valve.

#### **Warning**

Tyres should be regularly inspected for any signs of damage, and for any uneven tread wear. Uneven tread wear may indicate that the suspension system may require attention from your dealer.

Take care when parking to avoid tyre contact with kerbs. Contact with the kerb can cause internal damage to the tyre that may not be visibly apparent. Damage may also be caused if the tyre strikes potholes, rocks or other highway debris.

If the wheels or tyres have been damaged, have them replaced.

Tyres must be replaced when the legal tread depth limits are approached.

Poorly maintained and improperly used tyres are dangerous and may cause an accident resulting in serious injury or even death.

Tyres must not exceed their loading limits. Overloading of tyres can cause blowouts resulting in accidents causing serious injury or even death.

Tyres must be inflated to the correct pressures. Over or under inflated tyres can cause blowouts resulting in accidents causing serious injury or even death.

Tyres matching the correct manufacturer's specification must be used. Using incorrect tyres can affect the handling of the vehicle, which can cause an accident resulting in serious injury or even death.

### 13.2 Tyre Care

Wear indicators are moulded into the bottom of the tread grooves at intervals around the tyre, indicated by small pointers on the outer tread blocks. The tyres should be replaced before being worn to this minimum legal tread depth. The cold tyre pressures should be checked every week, or every 1,000 miles (1,700 km), whichever is the sooner, and corrections made as necessary. See "Technical Data" in the handbook for tyre pressures. It is important that the tyre pressures are adjusted only when the tyres are cold (when the vehicle has been standing for a minimum of 3 hours, or driven less than 1 mile). Always replace the tyre valve dust cap to prevent dirt and moisture getting into the valve, which could cause leakage.

### 13.3 Replacement Tyres and Tyre Quality Grading

The tyre quality grade can be found on the tyre sidewall, indicating the quality of performance of the tyre. For example: -

**TREADWEAR 280 TRACTION AA TEMPERATURE A**



### 13.4 Treadwear

The treadwear grade is a comparative rating based on the wear rate of the tyre when tested under controlled conditions on a specified government test course. For example a tyre graded 150 would wear one and one-half (1 1/2) times as well on the government course as a tyre graded 100. The relative performance of tyres depends upon the actual conditions of their use, however, and may depart significantly from the norm due to variations in driving habits, service practices and differences in road characteristics and climate.

### 13.5 Traction

The traction grades, from highest to lowest, are AA, A, B, and C. Those grades represent the tyre's ability to stop on wet surfaces as measured under controlled conditions on specified government test surfaces of asphalt and concrete. A tyre marked C may have poor traction performance.

#### *Warning*

The traction grade assigned to this tyre is based on straight-ahead braking traction tests, and does not include acceleration, cornering, hydroplaning, or peak traction characteristics.

### 13.6 Temperature

The temperature grades are A (the highest), B, and C, representing the tyre's resistance to the generation of heat and its ability to dissipate heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the material of the tyre to degenerate and reduce tyre life, and excessive temperature can lead to sudden tyre failure. The grade C corresponds to a level of performance, which all passenger vehicle tyres must meet under the Federal Motor Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

#### *Warning*

The temperature grade for this tyre is established for a tyre that is properly inflated and not overloaded. Excessive speed, under inflation, or excessive loading, either separately or in combination, can cause heat build-up and possible tyre failure.

### 13.7 Tyre Markings

#### Tyre Identification Number (TIN)

Marked on the sidewall of the tyre is the TIN; this is made up of 5 sections.

Starting with DOT, then a 2-digit manufacturers code, then a 2 digit tyre size code, then a 3-digit construction code finishing with a 4-digit month and year code.

#### Tyre Size Markings

On the sidewall of the tyre will be marked the tyre size, for example: -

#### *Yokohama 175/65R15 84H*

*Yokohama is the tyre manufacturer, 175 is the nominal width of the tyre in mm, 65 is the height of the cross section of the tyre expressed as a percentage of the width, R is the tyre construction in this case radial, 15 is the rim diameter in inches, 84 is the tyre load index and H is the tyre speed rating.*





## 14 ELECTRICAL

### *Warning*

Never make modifications or additions to the electrical circuit or components on your Morgan 3 Wheeler.

### 14.1 Battery

The battery on your Morgan 3 Wheeler is located under the bonnet. The battery is a 'maintenance free' battery. If the battery is required to be removed from the vehicle a Morgan dealer should perform this. No routine servicing of the battery is required other than that specified by the service schedule. When service of the battery is required the terminals should be cleaned and covered in petroleum jelly.

The battery will discharge gradually if the vehicle is not used. **If the vehicle is left standing for more than 1 week then it is advised that a battery conditioner is used to maintain the battery correctly.** If a battery is allowed to discharge fully this will damage the battery leading to failure and this will not be covered on your vehicles warranty.

### *Notice*

Battery conditioners may be purchased through your Morgan 3 Wheeler dealer.

### *Warning*

Batteries contain acid based liquids; avoid contact with skin, eyes or clothing. If battery acid is in contact with the skin or eyes flush with copious amounts of water. Remove contaminated clothes immediately. Seek medical attention. If ingested do not induce vomiting or ingest any fluids, seek immediate medical attention.

Batteries produce explosive gases; keep isolated from potential ignition sources.

Ensure battery terminals are always isolated.

Observe all warnings as shown on the battery.

Always disconnect the battery when working on a vehicle.

Never short circuit a battery, short-circuiting a battery may result in serious burns.

### 14.2 Jumpstarting

To jump start your Morgan connect the positive jump starting power supply, first to the live terminal on the battery and then the negative terminal of the jump starting power supply to a good earth on the chassis.

### *Caution*

Great care must be taken to avoid short-circuits when jump-starting a vehicle.

Not connecting jump-starting cables correctly may result in damage to a vehicle's electrical system.

Do not push or tow start the vehicle as this may cause damage to a vehicle's emissions control system.



### 14.3 Inertia switch

The safety inertia switch is designed to operate on impact, typified by vehicle collision, to switch off the fuel pump, and thus minimize any fire hazard. The inertia switch is mounted under the bonnet behind the oil reservoir. Pressing the rubber diaphragm button on the top of the unit resets the switch.

#### *Warning*

Never reset the inertia switch after an accident until all fuel lines, tank, pump and filter have been checked to ensure there is no damage. If there is any damage to the fuel system do not reset the inertia switch.

### 14.4 Fuses

The main fuse box is located under the bonnet in front of the bulkhead. A card is supplied with your vehicle (or from your dealer) indicating the position, function and rate of the fuses.

#### *Warning*

Only replace a fuse with the correct rated fuse, using an incorrect rated fuse or other material may cause damage to your vehicles electrical system resulting in a fire and/or damage to property

### 14.5 Bulb replacements

#### Headlamps

The headlights are of the Halogen type with H4 12 volt clear bulbs. To renew the headlight bulb, remove the screw at the top of the rim and the complete rim. Undo the three crosshead screws and carefully pull the lens forward. Remove the rubber cover and the wiring socket. Unclip the bulb spring and remove the bulb. Do not touch the glass of the new bulb when fitting.

#### Round Lamps

The indicators and stop/taillights are LED units. In the unlikely event that these should stop working, contact your local Morgan dealer for a replacement unit.



## 15 LIFTING AND TOWING

### 15.1 Recovery

A Morgan 3 Wheeler should never tow or be towed. To transport - use a trailer or vehicle transporter.

#### *Warning*

Failure to use the correct equipment may result in an accident causing serious injury or even death.

Before pushing a 3 Wheeler ensure that the ignition key is in the on position, vehicle is in neutral and the steering lock is released.

#### *Notice*

It is always best, whenever possible, to transport a vehicle using a transporter rather than towing a vehicle. When moving a vehicle using a car transporter secure the vehicle using wheel chocks and wheel tie down straps. Do not secure the vehicle using the bodywork or suspension components.

### 15.2 Towing

Your Morgan is not designed for use as a towing vehicle for either towing trailers or other vehicles.

#### *Warning*

Do not use a Morgan to tow trailers or any other vehicles. This will result in damage to the vehicle and could cause serious injury.

### 15.3 Lifting

To lift the vehicle, use a dealer recommended jack.

Make sure that the vehicle cannot move backwards or forwards by applying the park brake and chocking the wheels firmly. The jack may be used for lifting front wheels by placing it under the bottom cross tube in the centre.

Rear wheel can be lifted by using the jack directly under the rear chassis cross members at the point they join the side members. (Below the front of the radius arm).

#### *Notice*

Care should be taken not to damage the brake pipe or other components under the vehicle when using a jack or stands.

#### *Warning*

Only lift your vehicle using the specified lifting points.

Lifting a vehicle when using a jack can be dangerous. If the vehicle falls off the jack at any time you or others may be seriously injured or even killed.

Never lift a vehicle when the engine is running.



## 16 ROUTINE MAINTENANCE

This section provides information necessary to ensure your 3 Wheeler remains in good mechanical condition. (Applicable to average temperate climates). Details of the intervals of service may be found in the schedule at the back of this book. The time between examinations is dependent on the type of use and the road conditions. In dusty conditions or regular town journeys the time between services must be reduced. If a 3 Wheeler is not in use for long periods the need for regular attention is as great as for a vehicle in everyday use. The following details, along with services from your Morgan distributor or dealer, will help to prolong the life and enjoyment of your 3 Wheeler.

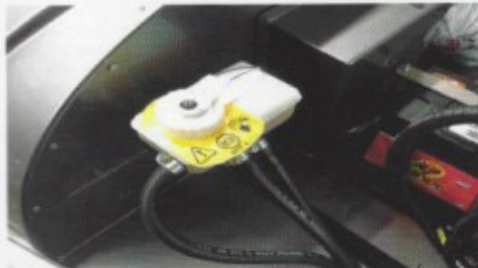
### 16.1 Regular Checks

#### 1. Daily checks:

- Lights
- Horn
- Indicators
- Mirrors
- Fly screen - (take care not to scratch)
- Brakes operation (foot and hand)

#### 2. Weekly checks (or before long journeys)

- Engine Oil Level (pictured right)
- Brake Fluid (pictured right)
- Clutch Fluid (pictured right)
- Tyre Pressures and Condition
- Lubricate all locks and hinges



### 16.2 Engine Oil Level

The engine oil level must be checked every week. Stand the vehicle on level ground when the engine is warm, allow time for the oil to settle then remove oil reservoir cap which incorporates dipstick. Clean the dip stick and replace by resting on the reservoir thread collar. (see above) Withdraw the stick again and read the level. The level should fall between the groove and the end of the dip stick. Replace the dipstick. Do not fill above the 'max' mark.

#### **Warning**

The dipstick is situated close in the hot engine oil. When the engine is running / recently run parts of the engine will be extremely hot.  
Never over fill the engine with oil.  
Never run the engine with the oil cap removed.

### 16.3 Oil Change

The engine oil should be changed as per the service requirements. Run the engine to normal temperature. Switch off the engine and remove drain plug from the sump and the supply pipe from the reservoir marked 'S'. When the oil has drained completely, clean and replace plug, with a new plug gasket. Fit a new oil filter (see overleaf) and fill with the correct grade and quantity of oil. Replace the filler cap and run the engine for a short while. Check oil level as per 16.2 and correct as required. Total fill 6 litres.



#### **Warning**

Never over fill an engine with oil.

Care should be taken when draining engine oil, as it may be very hot. Prolonged exposure to used engine oil can cause serious skin disorders. Avoid excessive contact with skin or use protection. Take care not to work near the engine until it has cooled sufficiently.

#### **16.4 Oil Filter**

The filter should always be changed when the engine oil is replaced. To remove, turn the filter anti-clockwise until clear of the thread. Discard the old filter. Clean the thread and face of the mounting with a dust-free cloth; lightly oil the sealing ring on the new filter and screw into place in a clockwise motion. Tighten until the seal is in contact with the face and then make a half a turn more. Do not over-tighten. Start engine, check oil pressure and examine for leaks. Be sure to check oil level after filter change.

#### **16.5 Gearbox**

At every service the gearbox oil level should be checked and if necessary topped up with the correct grade of oil. The filler plug is located on the left-hand side of the box. The oil level should be just below the filler hole.

#### **16.6 Bevel box**

It is essential to replace the bevel box oil every 100,000 miles or 5 years. The unit has a drain plug in the base of the centre casing. This has a hex head. When the oil has completely drained and the plug refitted, the axle should be refilled with the correct oil, to the base of the filler hole in the back plate. Again care must be taken when handling hot oil and used oil. (300ml fill)

*NOTE: Some noise may be heard from the bevel box. This can be expected to reduce substantially by the time the car has driven 1000miles.*

#### **16.7 Air Cleaner**

It is most important that the airflow is not restricted. The air cleaner should be changed every 10,000 miles, or more frequently in dusty conditions or regular town use. The element can be removed by releasing the four screws around the front of the case. The element is free to be removed. When replacing, use the correct specification of element and make certain that it is fitted correctly on the raised areas in the cleaner and on its lid. Be sure the lid is properly secured.

#### **16.8 Spark Plugs**

The spark plugs should be checked every 5,000 miles for the correct gap. The electrode and body should be cleaned and examined for damage. If the plug shows any sign of damage or deposits it must be replaced. When fitting new spark plugs be sure only the correct specification is used and the gap correctly set.

#### **Warning**

Under no circumstances should any modification to ignition or fuel system be attempted.

The ignition system fitted to this 3 Wheeler needs no adjustment by the owner.



### *16.9 Cooling and engine firing at high temperatures*

There is an overheat protection system in the car; if the engine reaches high temperatures it will go into 'skip fire mode'. The purpose is to reduce heat buildup in the engine when idling at high temperatures. It will only do this when stationary. If you are travelling at over 5 mph it will come out of 'skip fire'. It will also come out of 'skip fire' as soon as it cools down to safe running levels.

When in this mode, the engine will run with an evenly timed misfire. This is achieved by cutting fuel from each cylinder at regular intervals. The result is that the left and right cylinders will misfire in a pattern where at least one cylinder is firing for every engine cycle.

Characteristics of the 3 Wheeler engine overheat protection strategy:

- Occurs when the engine temperature is 385 deg F (196 deg C) and above.
- Only occurs when the vehicle is not moving. As soon as you begin driving, the misfire will stop.
- Inhibited for 60 seconds after start. If the engine is started at 385 deg F or higher, there will be a 60 second delay before the overheat protection strategy begins.
- A DTC, "Overheat Protection 2" will be stored in the ECM. This can be viewed and cleared using the Morgan 3-Wheeler Diagnostic Software.

If the driver experiences a situation where overheat protection has been invoked, it is recommended that the vehicle be pulled over and allowed to cool for at least 30 min. Alternatively, find an area in traffic where the vehicle can be driven at speeds greater than 25 MPH (40 KPH) to allow sufficient airflow for cooling the engine.

#### *Warning*

Do not remove the oil filler cap when the engine is warm.

Engine and exhausts are exposed and can become extremely hot. Failure to be careful approaching these areas, (and making others aware) could result in serious injury.

### *16.10 Front Suspension*

The suspension should be inspected every 1,000 miles (or 1,600 km) and more regularly in poor road conditions. This system will be checked at every service.

### *16.11 Brake maintenance*

#### *Warning*

The importance of brake maintenance cannot be over-stressed. You are legally required to keep the braking system to a satisfactory performance level. Brake pads and linings must be renewed in axle sets. Failure to do so will seriously affect the operation of the system.

Any drop in reservoir fluid level or operation standards must be reported immediately to your dealer.

Never make modifications to the braking system. Trained personnel must carry out changes. It is recommended that your dealer should carry out all repairs and brake services.

Care must be taken when handling brake fluid, as it may cause skin problems.

Follow manufacturer's instructions carefully.

Use only new brake fluid.

Never leave fluid exposed to the air, as it will absorb moisture.

Brake fluid will damage paint and other surfaces.

Use only the recommended brake fluid or equivalents.



### **16.11.1 Brake Fluid Reservoir**

The brake fluid reservoirs are situated under the bonnet on the bulkhead on the same side of the vehicle as the driver. Every 5,000 miles (8,000km) remove the covers and check fluid level in the reservoirs. If necessary replenish to within 1/2" (12mm) of the top with A.P. Universal Brake Fluid. Replace cover ensuring that the rubber-sealing ring is in good condition and that the ventilation hole is unblocked. If significant topping-up is required check the master cylinder, slave cylinders and pipes for leakage, any leakage must be rectified immediately. After approximately 3 years or 40,000 miles (64,000km) the seals and cups of the hydraulic system should be inspected and if necessary replaced. Brake fluid should be replaced every 20,000 miles or 2 years.

### **16.11.2 Brakes service**

The brakes will be inspected regularly during a normal service. Cleanliness is essential when dealing with brakes as grease or oil cannot be removed from brake linings. Always replace brake parts with genuine Morgan original specification components.

#### **Warning**

Brake fluid is hazardous and will cause illness or even death if swallowed.

Use only the specified brake fluid; using the incorrect fluid may cause damage to the brake system.

Using incorrect brake components or excessively worn components will affect your braking system and may result in an accident causing serious injury or even death.

### **16.12 Break in procedure**

During the break-in period the ECU will automatically limit engine RPM in two stages during the first 20 hours of engine operation. During the first two hours the rev limiter is 4250 RPM. From two hours to 20 hours of engine operation the rev limit is 5125RPM. After 20 hours the rev limit is 5800RPM.



## 17 REAR WHEEL REMOVAL AND DRIVE BELT ADJUSTMENT

### 17.1 Rear wheel/drive belt adjustment.

1. Jack and secure the rear end of the vehicle in the air with the rear wheel off the ground.
2. Remove the split pin from the rear wheel spindle on the nut side.
3. Slacken off the rear wheel spindle nut until it can be moved freely (do not remove the wheel nut).
4. Slacken off the lock nuts on the rear wheel adjusters
5. Evenly screw the rear wheel adjuster bolts until the optimum belt tension is achieved. **Seek advice from your local Morgan 3 Wheeler dealer** regarding optimum tension but as a guide; when adjusted correctly, it should be possible to depress the top of the belt, in the centre between the sprockets, by 10mm only.
6. To increase tension screw the rear wheel adjuster bolt in (turn clockwise if you are looking at the head of the bolt), and to reduce tension screw out (turn anti-clockwise if you are looking at the head of the bolt) the rear wheel adjuster bolt. If reducing the tension ensure the wheel is pushed forward and is firmly against the rear wheel adjuster flats.
7. Tighten the rear wheel nut and spin the wheel to ensure it is central and in line with the belt and swing arm.

#### *Warning*

Failure to ensure correct alignment of the rear wheel may cause excessive wear/damage to the drive belt and other components, the possibility of the belt coming off and will affect the handling of the Morgan.

8. When the wheel is correctly aligned ensure the wheel nut is correctly tightened and secure the nut by refitting a split pin into the nut end of the rear wheel spindle.

### 17.2 Rear wheel removal and fitting

1. Jack and secure the rear end of the 3 Wheeler in the air with the rear wheel off the ground.
2. Remove the split pin from the rear wheel spindle on the nut side.
3. Remove the rear wheel nut
4. Slacken off the rear wheel adjuster lock nuts and then slacken off the rear wheel adjusters to remove any tension from the rear drive belt.
5. Slide the rear wheel forward in the swing arm slots and remove the rear wheel belt from the sprocket.
6. Slide the rear wheel back out of the slots and drop down to the floor still holding it vertically up. *Warning:* Take care not to damage the brake pipe and handbrake cable. Do not allow the wheel to drop too far away from the vehicle because the brake pipe and handbrake cable are still attached and will be damaged if stretched.
7. Remove the rear brake assembly from the drum and hang in a suitable way so as not to damage pipes and cables.
8. The rear wheel can be taken away from the vehicle.
9. To re-fit the rear wheel follow the procedure in reverse followed by the procedure shown in point 17.1 Rear wheel/drive belt adjustment.





### 17.3 Drive belt removal/refit

1. Jack and secure the rear end of the vehicle in the air with the rear wheel off the ground.
2. Remove the seats from the car
3. Remove the seat back bulkheads
4. Release the tension in the drive belt as described in 'rear wheel/drive belt adjustment'
5. Remove the drive belt from the rear sprocket
6. Support the rear wheel, but do not compress the suspension in any way
7. Release the swing arm pin lock nuts
8. Remove the swing arm pins
9. Slide the swing arm out from the chassis and remove the drive belt
10. Replace the drive belt
11. Re-fit the swing arm and swing arm pins with some thread locking compound, ensuring the swing arm is located in the centre of the chassis and there is no free play in the swing arm bearings.

#### Warning

The swing arm bearings are taper roller bearings; take care not to over tighten the bearings as doing so will cause damage and excessive wear to the bearings.

12. Securely lock the swing arm pins with the lock rings using some thread lock compound on assembly.
13. Continue to reverse the procedure with the new belt installed ensuring that the correct belt tension is applied and the rear wheel is aligned correctly.

#### Warning

Failure to ensure correct alignment of the rear wheel may cause excessive wear/damage to the drive belt and other components possibly resulting in serious injury or death. Morgan 3 Wheeler Ltd. Recommends that any belt changes, wheel / tyre replacement and rear wheel alignment procedures be carried out by an official Morgan 3 Wheeler company representative.



## 18 WARRANTY INFORMATION

### Introduction

Morgan 3 Wheeler Ltd (MORGAN) would like to thank you for buying a Morgan 3 Wheeler. Your satisfaction with your Morgan is very important to us. When you need warranty repairs you may take your vehicle to any MORGAN authorised service dealer. If you have questions or concerns with your vehicle, we suggest you follow these steps:

1. Contact your Service Advisor at your authorised service Dealer.
2. If the inquiry or concern remains unresolved, contact the Dealer principle.
3. If the inquiry or concern cannot be resolved, please contact the Morgan Customer Assistance Department at:

Morgan 3 Wheeler Limited  
Pickersleigh Road, Malvern, Worcestershire, England WR14 2LL  
Customer Assistance No.  
0044 (0)1684 573104  
This is UK Number

### Know when your warranty begins

Your **Warranty Start Date (for all warranties)** is the day the first retail owner takes delivery of the new vehicle, or the day it is first put into service (for example, as a demonstrator), whichever occurs first.

### Check your vehicle

We check vehicles carefully at the factory to assure quality. However we advise that upon delivery you check your vehicle carefully and if you see any damage or problem, notify your dealer immediately.

### Maintain your vehicle properly

This handbook specifies the proper care and operation of your vehicle as well as the scheduled maintenance required. Proper maintenance protects against major repair expenses resulting from neglect or inadequate maintenance.

It is your responsibility to make sure that all of the scheduled maintenance is performed in a timely manner and that the materials used meet Morgan specifications. Failure to perform scheduled maintenance as specified in the Scheduled Maintenance Guide will invalidate warranty coverage on parts affected by the lack of maintenance. Make sure that you keep confirmation of maintenance work.

### Who pays for warranty repairs?

You will not be charged for covered warranty repairs made during the warranty periods for the New Vehicle Warranty.

Check with the MORGAN Customer Assistance Centre to learn whether any adjustment program is applicable to your vehicle. Please have your vehicle identification number available.



### The Morgan Motor Company New Vehicle Warranty

The New Vehicle Limited Warranty is the only express warranty applicable to your vehicle. MORGAN does not assume nor authorise anyone to assume for it any other obligation or liability in connection with your vehicle or this warranty.

MORGAN is not responsible for any time that you lose, for any inconvenience you might be caused, for the loss of your transportation, or for any other incidental or consequential damages you may have.

#### What is covered under the new vehicle limited warranty?

Under your New Vehicle Warranty, Coverage begins at the warranty start date and lasts for  TWO  years, or  24,000 miles  whichever comes sooner. Also your warranty covers you for  ONE  year, or  12,000 miles free recovery service (UK only) .

During this coverage period, the authorised MORGAN service point will repair, replace, or adjust all parts on your vehicle that are defective in factory-supplied materials or workmanship. Items and conditions that are not covered by the New Vehicle Limited Warranty are described below.

When making warranty repairs on your vehicle, the authorised service point will use genuine MORGAN new or remanufactured parts, or other parts that are authorised by MORGAN.

#### What is not covered?

##### Damage Caused By:

- accidents, collision or objects striking the vehicle
- acts of theft, vandalism, war, riot, fire or explosion
- freezing
- misusing the vehicle, such as speeding, driving over curbs, overloading,
- altering or modifying the vehicle – including the engine, body, chassis, or components – after the vehicle leaves MORGAN's control
- non-MORGAN parts installed after the vehicle leaves MORGAN's control. (for example, but not limited to, cellular phones, alarm systems)
- tampering with the vehicle, tampering with the emissions systems, or with other parts that affect these systems
- disconnecting or altering the odometer or allowing the odometer to be inoperative for an extended period of time with the result that the actual mileage cannot be determined
- using contaminated or improper fuel/fluids
- customer-applied chemicals or accidental spills
- driving through water deep enough to cause water to be ingested into the engine
- driving on unreasonable road surfaces or driving in excess of legal speed limits for extended periods
- use in racing or timed competitive events or by parts sold as "off road" or "competition-only" parts

##### Damaged Caused by Use and/or the Environment

Your New Vehicle Limited Warranty does not cover surface rust and deterioration of paint, trim, upholstery, and other appearance items that result from use and/or exposure to the elements. Here are examples:

- Stone chips, scratches (some examples are on paint and glass)
- Dings, dents
- Cuts, burns, punctures or tears
- Road salt, tree sap



- Bird droppings
- Lightning, hail
- Strong winds
- Earthquake
- Water or flood
- Normal interior aging

#### **Damaged Caused by Improper Maintenance**

Your New Vehicle Limited Warranty does not cover damage caused by failure to maintain the vehicle, improperly servicing or maintaining the vehicle, or using the wrong part, fuel, oil, lubricants, or fluids. See the section in this manual for correct fluid types and levels, and consult the following **Scheduled Maintenance Guide** for proper maintenance of your vehicle.

#### **Maintenance/Wear and Tear**

Your New Vehicle Warranty does not cover: (1) parts and labour needed to maintain the vehicle; and (2) the replacement of parts due to normal wear and tear. You, as the owner, are responsible for these items. Examples are:

- Oil changes
- Oils, lubricants, other fluids
- Oil/air filters
- Brake linings/pads
- Tyre rotation or balancing
- Cleaning/polishing
- Clutch linings
- Engine tune-up
- Bulbs
- Belts
- Hoses
- Wheel alignment.

#### **Other Items and Conditions Not Covered**

Your New Vehicle Limited Warranty also does not cover:

- Minor wind noise or water ingress or normal vehicle noises or vibrations
- Non-MORGAN engine parts; for example, parts installed by modifiers, or damage to original components caused by installation of such non-MORGAN, other than "certified" emissions parts
- Vehicles that have ever been labelled or branded as "dismantled", "fire", "flood", "junk", "rebuilt", "reconstructed", or "salvaged"; this will void the New Vehicle Limited Warranty
- Vehicles that have been determined to be a "total loss" by an insurance company; this will void the New Vehicle Limited Warranty
- Tyres, sound systems, batteries
- Incidental and consequential damages, as explained above.

**NOTE:** Some noise may be heard from the bevel box. This can be expected to reduce substantially by the time the car has driven 1000miles.



### Warranties on tyres and Batteries

The tyre and battery manufacturers may provide you with separate warranties. You may find these warranties with the owner literature supplied with your new vehicle. Morgan provides no warranty coverage on these items.

However, if a tyre or battery is damaged during the New Vehicle Limited Warranty coverage period because of a vehicle defect in factory-supplied materials or workmanship, MORGAN will replace the tyre or battery.

### Scheduled Maintenance Guide

#### General Maintenance Information

This Guide describes the scheduled maintenance required for your vehicle. Carefully following this schedule helps protect against major repair expenses resulting from neglect or inadequate maintenance. It is your responsibility to see that all scheduled maintenance is performed and that the materials used meet engineering specifications. Failure to perform scheduled maintenance specified in this guide will invalidate warranty coverage on parts affected by the lack of maintenance. Be sure confirmation of the work performed is always kept.

Your authorised service point has factory-trained technicians who can perform the required maintenance using genuine parts.

To assure the proper performance of your vehicle and its emission control systems, scheduled maintenance must be completed at the designated intervals. Engine parts other than Morgan new or remanufactured parts that are used for maintenance replacement or for the service of components must be equivalent to genuine Morgan part in performance and durability. It is the owner's responsibility to assure the equivalency of such parts.

#### Which Maintenance Schedule Should You Follow?

##### Normal Schedule

The Normal Schedule applies to those who operate their vehicle under typical, everyday driving conditions. The maintenance frequency represented in the normal schedule typifies what most vehicle operators will require.

##### Special Operating Conditions

If you operate your vehicle in any of the more demanding "Special Operating Conditions" listed below, you will need to have some items maintained more frequently. If you only **occasionally** operate your vehicle under these conditions, it is not necessary to perform the additional maintenance. For specific recommendations contact the Morgan Customer Assistance Centre:

- Extensive idling and/or driving at low speeds for long distances
- Driving in dusty conditions



### Items Needing Special Attention

Extensive idling and/or low-speed driving for long distances

Every 3,000 miles or 1 year

Replace engine oil and filter

Every 5,000 miles

Inspect brake system

Every 15,000 miles

Replace fuel filter

Every 5,000 miles

Replace spark plugs

Operation in dusty conditions such as unpaved or dusty roads

Every 3,000 miles or 3 months

Replace engine oil and filter

Every 15,000 miles

Replace fuel filter

As required

Replace engine air filter

### Owner Checks and Services

#### Refer to Mileage Intervals for Additional Checks and Services

Certain basic maintenance checks and inspections should be performed by the owner or a service technician at the intervals indicated.

The owner maintenance service checks are generally not covered by warranties so you may be charged for labour, parts or lubricants used.

#### Check At Least Every Month:

Check function of all exterior lights

Check tyres for wear and proper air pressure

Check engine oil fluid level

Check lap/shoulder belts for wear and function

Check parking brake for proper operation

Check and lubricate all hinges, latches and locks

Check and clean body and drain holes

Check safety warning lamps for operation

Check battery water level (non-maintenance free)

Check battery connections and clean if necessary

Check brake and clutch fluid level

Polished components ESPECIALLY ENGINE cleaned and protected against tarnish

#### Normal Maintenance Schedule

The following section (section 19) contains the "Normal Schedule". This schedule is presented at specific mileage intervals with exceptions noted.



### 19 SERVICE HISTORY

First Service (vehicle check) (must be completed on time)

After 1000 miles (1500km) or 3 months after delivery (Whichever comes first)

Serviced by: Name: .....

Address: .....

.....

.....

Date: ..... Mileage: .....

Signature .....

### Second Service

After 4,000 miles or annually after delivery (Whichever comes first)

Serviced by: Name: .....

Address: .....

.....

.....

Date: ..... Mileage: .....

Signature .....



### Third Service

After 7,000 miles or 2 years after delivery (Whichever comes first)

Serviced by:      Name: .....

                                 Address: .....

                                 .....

                                 .....

                                 Date: ..... Mileage: .....

                                 Signature .....

### Fourth Service

After 10,000 miles or 3 years after delivery (Whichever comes first)

Serviced by:      Name: .....

                                 Address: .....

                                 .....

                                 .....

                                 Date: ..... Mileage: .....

                                 Signature .....





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