

The Morgan Pre-season check over notes

Disclaimer

These notes have been prepared based on my experience, they are intended as a generic guide as not all Morgans are the same in every detail.

I make no claim to have written a "complete idiots guide" or re-written the Morgan handbook. These notes have been written to compliment a practical demonstration of what I consider to be a good pre-season check over.

It is up to you to decide whether or not you feel competent enough to do this type of work yourself, but even if you don't, after this event you will have a better understanding of your car and the process of checking it over mechanically.

Literati

I am mechanically trained, criticism of grammatical or spelling errors will be dealt with mechanically!

Format

These notes are grouped loosely in the order in which I would carry out such works; some systems such as the brakes are not dealt with in just one section which may seem a little odd on paper. However, as we proceed you will understand my reasons for setting it out in this manner.

Questions

Please feel free to ask for clarification or further information during this talk.

Roll up your sleeves and prepare to get dirty!

Under the parcel shelf

Shock absorbers 2 types fitted, telescopic and lever arm. The telescopic units have a bush in either end. Check for perishing and check for leaks around the body of the shock absorber - they are sealed units so faulty units must be replaced. The lever arm type are not that common as most cars originally fitted with these have been converted to the later telescopic. This is the advised route if you have leaking or ineffective lever arms, though they can be topped up with fluid via the nut above the pivot point on the side of the unit.

Axle "U" bolts Check that they are tight and not fractured.

Handbrake cable Look out for signs of a fraying cable inside the spring and lubricate the cable and the pivot of the brake compensator.

Brake back plates Look for signs of leaks which could be either brake fluid or axle oil - axle seals are not easy to replace, special tools are required.

Brake pipes Have a look at the brake pipes running across the back axle, check for corrosion. Also check the flexible brake pipe which links the axle pipes to the car for perishing.

Rear springs Check for sagging, a gap of an inch or more between the axle and the chassis bump stop indicates worn springs. Broken springs are unusual but shine a torch along the them for peace of mind.

Propshaft Some cars have a grease nipple on the propshaft's universal joint - a shot of multi purpose grease is all that is required.

Axle pinion seal Just behind the propshaft flange is the rear axle pinion seal. Check for leaking around this area, replacements are available but beware that the pre-load on the pinion bearings must be reset correctly.

Battery Check that battery is secured firmly to the vehicle and that the terminals are tight and free from corrosion. Battery acid can be neutralised with bicarbonate of soda solution, terminals should be smeared with grease to prevent further corrosion. Also, if your battery allows, top up the battery cells with distilled water. Do not overfill, the cells just need to be covered.

Earth point Have a look at the battery earth strap, a good connection to the chassis is very important! Any signs of corrosion will cause major problems. Remove clean terminal and contact area of chassis to bright metal, refit and smear with grease.

Fuel lines Some cars house the fuel pump and filter below the rear axle. Check for good electrical connections and perished pipes.

Under the luggage rack / spare wheel

It is worth a quick look here, the fuel filler hoses are often found to be perished and while the spare is off have a good look at its condition and adjust tyre pressure.

In the cockpit

Electrics Carry out electrical function tests:

Front lights

Rear lights

Horn
Wipers
Windscreen washers
Also check the condition of wiper blades

Propshaft Lift up the gearbox cover fitted to the centre tunnel. Lubricate front end of propshaft (slider and hardy splicer) - on some cars this is only accessible from under the car.

Gearbox The oil filler plug is accessed from the footwell through an inspection hatch in the side of the centre tunnel. Remove the plug and dip in your finger to test the level.

Handbrake If you are lucky, Morgan will have provided another hatch at the base of the handbrake. If so, take a look at the end of the cable and look for signs of fraying. A drop of oil on the pivot will keep things working nicely.

Pedals Some cars have grease nipples on the pedal pivots others need a squirt of lubricant.

Doors If you are feeling really thorough, give the door hinges and lock a drop of light oil

Under the bonnets

General With a good torch, carry out a hands and eyes test. Look at control cables, coolant hoses, fuel lines, drive belts etc.

Top up fluid levels:

Engine oil
Coolant
Brake fluid
Clutch fluid
Screen washer fluid

Cooling fan Start the engine and allow to reach normal operating temperature Listen out for strange noises whilst waiting for the cooling fan to cut in (90 – 100 degrees C)

Note: gauges are not that accurate but the fan should cut in before you see steam!

Switch off engine and have another look around for leaks - mind the hot bits!

Under the front

Jacking up Chock the rear wheels and using that shiny new trolley jack, jack up the front end and place axle stands under the front crossframe.

Tyres Rotate each front wheel whilst examining the tyre. Look for cracks in the side wall of the tyre and check tread depth and wear pattern. Check and adjust tyre pressures.

Suspension and wheel bearings

Grasp the wheel top and bottom and take a firm pull out with the lower hand. Evidence of free play could be either worn suspension or wheel bearing problems.

To decide which, repeat the operation whilst looking at the bottom of the stub axle. If the suspension is worn you will be able to see it moving.

Wheel bearings are taper roller type and easy to adjust, though removing the split pin on wire wheeled cars can be a challenge.

Spin the wheel and listen, it should spin freely and sound smooth though you may hear the brake pads touching the disc.

Shock absorbers Have a look at the shock absorbers. Check that they are secure, not leaking and that the rubber bushes are not perished.

Brake test With the aid of an assistant, make sure that the brakes are working. You spin the wheel, ask assistant to operate the middle pedal and the wheel should stop.

Steering Whilst your assistant is sitting in the car it is a good time to check for free play in the steering joints. Ask them to rotate the steering wheel gently (left-right-left-right) whilst you look for movement in the track rod ends and column universal joints. On cars fitted with a steering rack also note any up/down movement of the bracket in the centre of the rack. Facility to adjust components is not provided, new parts are the only option.

Damper blades Check for forwards-backwards movement of the damper blade at the end nearest the chassis. Small amounts of movement can be dealt with by removing the blade, filing out the wear points on the edges of the blade and adjusting the shims. Lubricate with grease on assembly and take care not to pinch the blade with a shim. It needs to be able to slide between the shims without any for-aft play.

Lubricate Steering and suspension points. All cars have a grease nipple on the stub axle adjacent to the bottom of the shock absorber. Some may have one on the top of the king pin and on the track rod ends.

Pre-steering rack cars have an oil level plug on top of the steering box. (It is the shallow headed one hidden out of sight). Remove it and check the oil level by dipping the end of your finger through the hole (it is almost impossible to see).

Brake inspection Remove front roadwheels to enable inspection of the brakes. Pad wear can be judged without dismantling. Rotate the wheel so that you can see into the back of the brake calliper, a minimum of 3mm of friction material should be apparent. Also have a look at the brake discs, (on both sides), they should be shiny metal without rust or heavy score marks.

General Now whilst you are under the front have a good look around both sides, common problems include broken bottom springs, split steering rack gaiters, frayed flexible brake pipes, perished radiator bobbins and leaking radiators.

Refit the roadwheels, remove axle stands and lower the car to the ground, tighten wheel nuts.

Under the back

Jacking up Chock the front wheels, jack up the back of the car from the centre of the rear crossmember, support on axle stands. These can be placed anywhere on the chassis members.

Wheel bearings Release the handbrake, and make sure that the gearbox is in neutral. Carry out a similar process to that done at the front, checking for movement in the wheel bearings, listening to their smoothness of operation. Note; rotating the wheel on cars fitted with a limited slip diff is not that easy.

Tyres Check tyre condition and adjust pressures.

Brake test With your assistant, check operation of both foot brake and hand brake on each side by rotating the wheel whilst assistant operates the controls.

Exhaust Get down under the car and inspect exhaust pipe and its mountings.

Axle oil Check the axle oil level which should be just below the filler plug (Dip your finger).

General Remove the roadwheels and take another look at the back side of the brake drums, dampness could mean leaking axle seals, leaking rear brake wheel cylinders or that you have driven through a puddle!

Lubricate Whilst inspecting the back of the drums you will have noticed a grease nipple. This is to lubricate the rear wheel bearings, care should be taken here as it is easy to inadvertently lubricate the rear brakes!

Have a look at the brake pipes where they enter the rear wheel cylinders. They are exposed to a lot of road dirt, smearing them with a little grease will help protect them.

Brake inspect/adjust - pre 93 cars

Three points of adjustment are provided, one on the handbrake cable and one on each rear brake back plate. If you have recently had a new handbrake cable it may need adjusting but once its initial stretch has been compensated for then you can ignore this point of adjustment.

Slacken off the adjuster on the back plate, remove brake drum - some have one or two countersunk screws, others have four bolts. Wash out the drum and rear brake shoes with some brake cleaner and refit the drum. Tighten the adjuster nut until it just locks up the rear brakes against the drum (until you can't rotate the drum), then back off one or two clicks until the drum rotates freely. Once again this is not that easy if you have a limited slip differential.

Brake inspect /adjust - post 93 cars

You have self adjusting brakes and a different handbrake cable arrangement. You can still remove the drums and wash out excess dust but adjustment may not be necessary. However, as a precaution, sit in the car and operate the handbrake and foot brake simultaneously a couple of times.

Handbrake cables on these cars are positioned so that they chafe against the chassis - keep an eye on this as eventually when the outer casing has worn away, water gets in and corrodes the inner cable leading to problems with sticking handbrakes.

Propshaft Those of you who were unable to access the front propshaft lubrication points in the "cockpit" section can do so now - good luck!

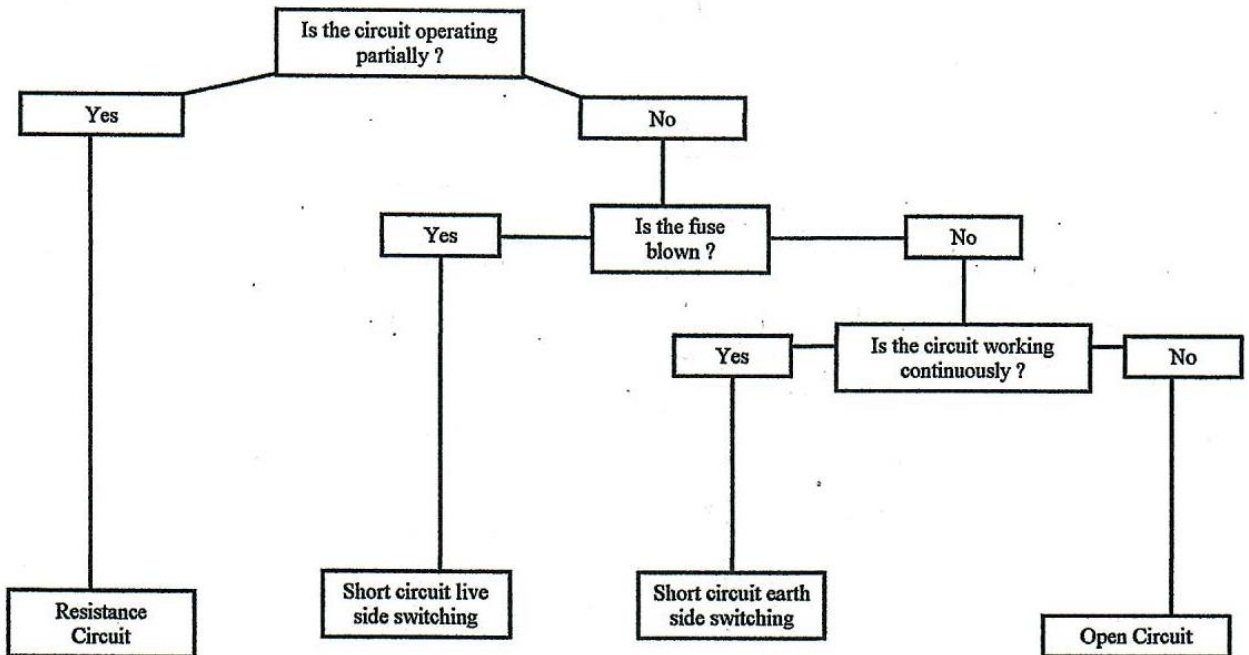
Refit the roadwheels, lower the car to the ground and tighten the wheel nuts.

Road test

Time for a road test, take care at first until the car settles down. Use your senses, if it feels right, sounds right, looks right and smells right then it probably is right!!!

Electrical tips

Identifying faults



Wiring colours for lights and horn

Red - side and tail lamp
Red/yellow - rear fog lamp
Blue/white - main beam
Blue/red - dipped beam
Blue/yellow - driving lamps
Green/white - rh flasher lamps
Green/red - lh flasher lamps
Green/brown - reverse lamps
Green/purple - stop lamps
Purple - horn, purple/black - horn switch

Bulbs

Headlight - 472
Indicator - 382
Stop/tail - 380
Side light - 233
Fog - 382
Reverse - 382
Spot light - 453