

Fixing my Ford Car – Not Another Ford Repair Manual



One of the main reasons I purchased my brand new Ford Fiesta was once the warranty had expired I would be able to carry out all future repairs myself. I have some mechanical background knowledge of fixing cars. I intend to purchase a Ford manual that will provide me with all the technical tolerances, measurements and settings. Not forgetting the invaluable Ford Motor Company owner's handbook that comes with every Ford car, which is a valuable reference guide.

My first do it yourself job I needed to carry out on my Fiesta is the brake pads.

It is very important at this point to put a common misconception to rest.

The braking system on a car is a sealed unit. The Brake fluid reservoir is designed to hold the right amount of fluid. When the brake linings start to wear on the brake pads and rear shoes (if fitted), the brake fluid will go below the maximum level. Some garages and individuals will top up this fluid in a service but this will result in a big problem further down the line.

As you will read later in this article when the brake caliper piston is forced back to accommodate the new thicker brake pads the brake fluid will rise in the reservoir if it has been topped up it will overflow. The brake fluid is corrosive. If it comes into contact with either metal or rubber fittings, it can cause major problems.



Even if the level drops in the reservoir suddenly then you should refrain from using the car until it has been inspected and repaired.

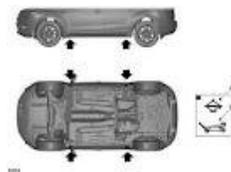
The first step is to find a suitable safe area to carry out the repair. It should be level and away from moving traffic. You may wish to cone off the area or use signage to warn people about the repair you are doing.

DO NOT LEAVE THE KEYS IN THE IGNITION AS THIS COULD RESULT IN SOMEONE TRYING TO MOVE THE CAR AND CAUSE SERIOUS INJURY TO BOTH PARTIES.

Once a suitable place has been found, it is time to make the car safe. Apply the hand brake and place a chock underneath the wheel. If you are working on the rear then chock the front, vice versa if you intend to work on the front, like we are, then chock both rear wheels. Look in the Ford owner's handbook for the best place to jack up the car.

Once the jack is in place, you need to loosen the wheel nuts. If you have steel wheels and they are covered with plastic wheel trims remove them and then undo the wheel nuts. If you have alloys then the wheel nuts will be visible to the eye. Only loosen them at this point. Once they are slightly loose, jack up the car until the tire is away from the hard standing.

Remove all the wheel nuts and place them in a safe place. It is time to lift off the wheel and tire. I always like to place the wheel under the chassis leg as an extra safety measure.



If the car was to fall, it will go no further than the wheel rim. If you have axle stands then you may wish to use them. One further tip is to do one side at a time. You will have the other side as a reference if you forget where a particular clip or spring may go.

Depending on what year your Ford car was produced, the brake caliper will be held on by either Allen keys or thirteen-millimeter nuts. Once again, check your Ford owner's manual to check which one is particular to your model. Use a flat bar or screwdriver and force back the piston that pushes the brake pads on to the disc. Remember to unscrew the brake fluid reservoir cap. This will allow any trapped air to escape.

Once the piston is pushed back, it is time to undo the brake caliper retaining bolts. Put them somewhere safe. Remove the caliper and then dislodge the old worn out pads.

I like to smear on copper grease on the side of the pad that comes into contact with the metal parts of the braking system. Ensure you do not allow the copper grease to go on the braking part of the pads.

Replace the pads like for like and ensure all the parts are fitted in the correct order and are secure. If you are in any doubt, always refer to the Ford owner's handbook.

The brake pedal should be pumped until it becomes hard to depress. Once this is done move to the next side and repeat the sequence.

The brake pads are an easy repair and one that most Ford owners can carry out with limited mechanical knowledge and a simple toolbox. Remember always check the Ford manual or owner's handbook.



My second do it yourself job on my Ford Fiesta was the water pump. This job has some hidden benefits and complications. It is very important to check the Ford handbook and Ford manual to ensure you know what is entailed and that you have the right tools and skills for the job.

In the Ford hand book there will be a list of any specific tools needed to carry out this job. I have taken the time to ensure I have them all and for some very specialist tools, I am able to make use of some other instruments I have at my disposal.

The water pump is one of those jobs that will involve removing different mechanical pieces to enable you to remove the water pump. In my case, I have to remove the driver's side wheel and wheel arch liner; I will have to remove the engine mounting and the timing belt.

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Once you have removed the driver's side front wheel and the inner wheel arch covers, it is now time to turn your attention to the upper engine compartment. You need to decide if you intend to re-use the cooling fluid. If so then choose a suitable receptacle capable of holding five to six liters of water and antifreeze. Please remember if you have been topping up the coolant level for a while due to a leaking water pump then the cooling fluid will require more antifreeze. Check your Ford owners hand book or manual for the correct amount.



As I have to remove the engine mount, I have devised a bar to stride the engine bay and use nylon webbing as a tunicate so I can adjust the height of the engine accordingly. The other alternative is to either purchase one or check out your local hire shops.

Once this is in place it is time to loosen and remove the fan belt, check the condition, as it is advisable to change any worn parts now. It will save time and money in the end. Replace any parts with genuine Ford replacement parts as they fit better, are made from high quality products thus lasting longer. My Ford car has only genuine parts fitted from new and listening to some of my mates at work, they are forever replacing parts far more frequently than me.

I am now able to see the timing marks that my Ford manual have shown me. Once they are aligned it is time for me to loosen the retaining bolts of my defective water pump. My water pump is also the timing belt tensioner so I intend to change the belt at the same time. It is due to be changed in the next service in three thousand miles so no point going to all this trouble now without changing it.

Once the water pump is loose I am able to remove the belt from the top part of the engine, I now need to turn my attention to the lower part and remove the bottom crankshaft pulley. This is held on by one large nut. One quick tip is if you place a spanner on the nut prior to removing any parts and just turn your ignition key for a second the nut will undo. This is only my quick tip but you may wish to follow the Ford manual.

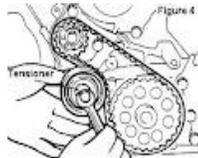
The whole timing belt is now able to be removed. Take out all the water pump bolts, I use cardboard and draw a picture of the water pump. Place the bolts through the card this way you know where each bolt goes this is important, as they are all different lengths.

You need to ensure the flat edge of the engine block is totally clean from old gasket and oil. Use a scraper to dislodge any unwanted bits. I like to use a small amount of grease on the new gasket as it will help keep it in place and help create a watertight seal.

Once the new water pump is in place (and left loose). Replace the timing belt in reverse. Once the water pump is used to tighten up the timing belt, tighten all the bolts to the recommended settings in your Ford handbook or manual.

It is now time to replace all the parts you removed in the reverse sequence. Ensure all bolts, screws and clips are tight. If you have any parts left over you must find where they go unless you have replaced them with new genuine Ford parts in which case they should be disposed of appropriately.

Once the car is back together and the fluid reservoir is full, start the engine and run for a while until the engine temperature is showing its normal operational temperature. Keep an eye out for leaks. Once the engine is warm, I like to run the internal heater on hot, full speed. Once the engine is hot and running ok, top up the reservoir to the max level and replace the top. Check again when the car has been out for a run.



My bottom ball joint has been showing some signs of wear and tear, such as my near side front tire has a lot less tread on the inner edge, when I go over a bump there is a loud knocking noise and the steering has gone stiff. I attribute the need to replace this part due to the terrible condition of the road surface leading up to my new house. I did detect some free play in this part during the last service so I now intend to change it and the tire at the same time to keep within the law.

The bottom ball joint is a simple quick inexpensive job. Looking at both, the Ford owner's handbook and manual I will need basic tools and one ball joint splitter. I purchased this at my local DIY store for less than twenty quid.



Tool needed

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With the wheel off and the car suitably safe on my axel stands, it is time for me to undo the large nut in the center of the ball joint, this holds the joint to the suspension leg. I now need the new ball joint splitter to separate the lower part from the upper. A few big hits and the lower wishbone became loose and dropped down.

I then removed the two securing bolts and the ball joint was detached. I always like to put a little copper grease on the retaining bolts so future removal will be made a lot easier. The new ball joint was quick and simple to fit. Simply re-in act you steps in reverse.

The second part of the job was to change the tire. I have chosen to fit my spare tire and have the old one changed as soon as the car is back together. I did encounter one problem whilst carrying out this repair. I noticed a crack in the brake disc. I read the Ford manual and these cracks are due to the disc temperature being too high. After having thought it through and checking the other side, which was clear from cracks. I decided to check out the caliper on the defective side. The wheel hub was tight to turn.

After checking out the section in the Ford owners hand book and the manual I came to the conclusion the brake caliper was sticking. I removed the two Allen key bolts that held in the brake pads, then forcing the brake piston back I removed the pads. The two retaining bolts holding the brake caliper to the hub were next. The caliper has two slides. I noticed one was sticking. With some fine emery paper, I cleaned it and greased it to prevent any water penetration.



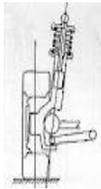
I cleaned the whole caliper and slide mechanism to ensure it would operate correctly. I replaced the cracked disc with a genuine Ford disc. After re-assembling the brakes, I pumped the brake pedal until it was hard. The hub was now free to spin by hand.



I replaced the wheel ensuring the wheel nuts were tight. After removing the jack, I once again tightened the wheel nuts and replaced the wheel trim. It was now time to test drive the Ford car and check out my handy work. The car ran like a dream and the new tire was replaced the very same day.

Macpherson Strut replacement

My Ford Fiesta has forty five thousand miles on the clock. I have noticed the front suspension is not the way it used to be. I can feel the bumps in the road a little more now. I read my Ford owners handbook and the Ford manual and they both directed me to the front Macpherson Struts that house the front shock absorbers.



Tools needed



After having checked in the manual etc., I noticed I would need just basic tools and one special instrument to compress the springs on the struts themselves. After some internet surfing I found a local car shop who sells the spring compressors for eighteen pounds so I purchased them the very next day.



The genuine ford shock absorbers were very reasonably priced. I thought if the last set lasted this long from new then genuine Ford parts are the best option. They will fit perfectly and complement the cars handling, bringing it back to the way it used to drive and feel.

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I have decided to change both struts together so after having secured the hand brake and chocked both rear wheels. I have jacked up the front and placed the two axel stands on the front chassis legs either side. I have ensured I have enough ground clearance to pull down on the bottom ball joints to release them from the front hubs.



This job can be archived in a few different ways. One way is remove the brake pipe and leave the front brake intact removing the whole strut. I prefer to remove the outer caliper and leave the hydraulic brake system un-touched; it will undo enough to slide out of a groove (see below).

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