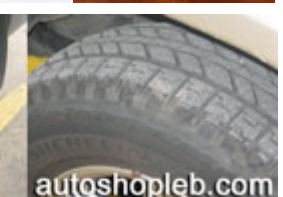
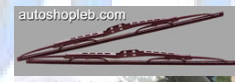
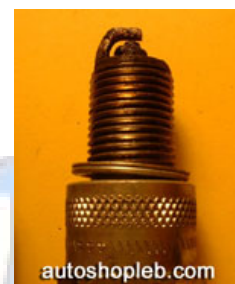


How to take care of your car?

BRIEF


| Part Desc | When to change or check |
|-------------------------------|---|
| Engine Oil | 5,000 km (Synthetic oil is preferable for newest cars with low mileage) |
| Transmission Oil + Filter | 20,000 to 40,000 km |
| Oil Filter | 10,000 km or 2 oil changes |
| Air Filter | 20,000 km & check/clean on 10,000 km |
| A/C Filters | 20,000 km & check/clean on 10,000 km |
| Fuel Filter | 10,000 km |
| Spark Plugs | 10,000 km or 25,000 km |
| Battery | 2 to 4 years |
| Tires | 60,000 km for good quality or 30,000 km for normal tires (2 to 4 years max) |
| Brake Pads (Front & Rear) | Front Brakes need the double time of rear ones & it depends on if you live in the mountains & go every day down to the coast (Check on 10,000 km & change on 20,000 to 30,000 km) |
| Disc brakes | 3 to 4 times of changing brakes or when the steering wheel start shaking while braking |
| Wiper Blades | 1 year or 2 years |
| Leather Seats taking care | Every 3 to 6 months polish: Especially in spring before summer |
| Check Brakes Fluid | once a month |
| Check Power Steering Fluid | once a month |
| Radiator Coolant / Antifreeze | once a week (Add coolant only not water) & change it every 2 years |
| Timing Belt | 25,000 to 60,000 km depending on cars |
| Fan Belt | 40,000 km |
| CV Joint (If Exist) | Check every 10,000 km |



How to take care of your car?

INTRODUCTION

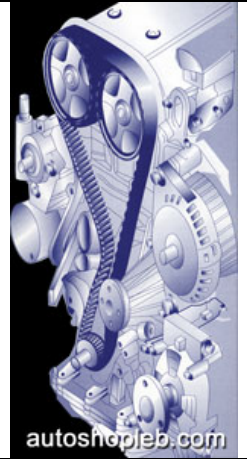
What to check & When?

| | |
|---|---|
| <p>1- Under hood checks: Once a week or when refueling Beware! New cars require less attention and most problems are covered by the warrantee, <u>But</u> if the problem has to do with low oil, and as a result engine damage happens, <u>you are not covered</u>.</p> |  |
| <p>2- Oil change: Follow manufacture's recommendations Beware! Some new engines normally run very hot and are hard on oil. Even missing a single oil change can cause an engine to develop sludge (mud) which can cause engine damage is as little as 15.000 miles (24.000 Km)</p> |  |
| <p>3- Washing: Every 2 to 4 weeks depending on conditions in your area Beware! Bird droppings should be removed as soon as possible as they can damage the finish</p> |  |
| <p>4- Waxing: Optional Beware! Waxing will protect the finish and require less washing. A good idea if you park outside in industrial areas or under trees</p> |  |
| <p>5- Alignment & Balance:</p> <ul style="list-style-type: none">• Tire rotation: Check the tread depth from time to time• This is more important from front-wheel-drive cars that usually wear front tires much faster than rear-wheel-drive vehicles.• Tune up: Follow manufacture's recommendations |  |
| <p>6- Winterizing: Follow manufacture's recommendations Do you know what is winterizing? If you don't winterizing is preparing or equipping for winter weather</p> | |

7- Timing belt: Usually not required for the 1st 30.000 miles (48.000 Km)

Beware!

Letting this service go can cause severe engine damage if the old belt fails which may not be covered under the warrantee



8- Filters: Follow manufacture's recommendations



How to take care of your car?

IN DETAIL

The following items should be checked and changed periodically:

1. Engine oil level
2. Transmission fluid
3. Brake fluid
4. Power steering fluid
5. Coolant Antifreeze level
6. Battery
7. Windshield washer solvent
8. Windshield Wiper Blades
9. Tires
10. Belt & Hoses
11. C.V. Joint
12. Spark Plugs
13. Fuel Filter
14. Air Filter
15. Oil Filter
16. A/C Filters
17. Shock Absorbers
18. Brake Pads
19. Brake Discs

1. Engine oil level

How?

- First make sure that the engine is turned off
- Then find the engine oil dipstick and remove it
- With a paper towel or rag, wipe off the end of the stick and notice the markings on it (You will usually see a mark for «Full» and another mark for «Add»)
- Push the stick back into the tube until it seats. Immediately pull it out to see the oil level
- You should not add oil unless the level is below the «Add» mark and NEVER add oil to bring the level above the «Full» mark.

Did you know?

- To check the oil level of the Porsche 911, we must TURN ON the engine! Weird but TRUE
- An engine cannot run without oil even for a minute without serious engine damage or total destruction!



2. Transmission fluid

How?

- First make sure that the engine is running and Make sure that the car is on a level surface and fully warmed up
- Pull the transmission dipstick out, wipe off the end and note the markings on the end of the stick
- (The usual markings are «Full» and «Add 1 pint»)
- Push the stick into the tube until it seats, the IMMEDIATELY pull it out to see the fluid level.
- As with the engine, never add fluid unless it is below the «Add» mark and never bring it above the «Full» mark



Beware!

- Transmission fluid should be pink or red in color. If the fluid is a muddy brown or has a burnt smell, have it checked by a mechanic
- Check your owner's manual for the type of fluid and do not substitute anything else.

3. Brake fluid:

Today most cars have a transparent reservoir so that you can see the level without opening the cover. The brake fluid level will drop slightly as the brake pads wear out (this is a normal condition and you shouldn't worry about it)

Beware!

NEVER put anything but approved brake fluid in your brakes. Anything else can cause sudden brake failure



Advice

Keep the reservoir covered except for the amount of time you need to fill it and never leave a car of brake uncovered

4. Power Steering fluid:

- Usually the Power Steering fluid has a small dipstick attached to the cap
- Remove the cap and check the fluid level
- The level should not change more than the normal range on the stick



Warning of low power steering fluid!

- If you have to add fluid more once or twice a year, then have the system checked for leaks. (these systems are easily damaged if you drive while the fluid is very low)
- A buzzing noise when you turn the steering wheel at low speeds



5. Coolant Antifreeze level:

- Look for the cooling system reserve tank near the radiator
- Usually it is transparent white so you can see the fluid level without opening it
- The reserve tank will have 2 marks on the side of it: «FULL HOT» and «FULL COLD».

Warnings!

- NEVER open the radiator of a car that has just been running.
- The cooling system of a car is under high pressure with fluid that is usually hotter than boiling water.
- If the level frequently goes below «FULL COLD» after adding fluid, you probably have a leak which should be checked as soon as possible.



Attention: do not confuse its fluid with the windshield washer tank

6. Battery:

Easy: check the water level

All the latest models of cars batteries today are «maintenance free» which simply means that you can't check the water level.

However this doesn't mean that there is nothing to check.



But how?

The main things to check are the top of the battery which should be clean and dry, and the terminal connections should be clean and tight.



Warning!

If the top of the battery continuously becomes humid or corroded soon after cleaning, then have the charging system and battery checked by your electrician.

7. Windshield Washer Solvent:

Windshield washer solvent is readily available in Auto supply stores as well as in fuel stations. You can add about 100 ml to the wiper blades water tank every 3 or 4 months or whenever it's empty. It helps removing the dirt & the insects quickly.

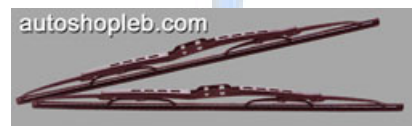


Good news: the Windshield washer solvent is cheep.

8. Windshield Wiper Blades:

Wiper blades should be changed every 1 or 2 years. They will tend to streak when they are dirty.

Take a paper towel with some window cleaner and clean the rubber blade whenever you clean the windshield.



9. Tires:

Tire pressure will change with the seasons, so in winter months make sure they are under inflated. Remember; always check them when they are cold.

Advice: keep a decent tire gage in your car



10. Belts & Hoses:

Belts are used to drive a number of components on an engine including:

- The water pump
- The power steering pump
- The air conditioner
- The alternator
- The emission control pump

Let the mechanic check belts periodically for cracks and tightness and have them replaced if he finds any problems.

Hoses should be checked visually and by feel.

Look for dry cracked rubber, especially at the ends when they are attached for any signs of ballooning.

11. C.V. Joint:

CV joint (Constant Velocity joint) used to transfer the engine torque to the front wheels.

It is located on the internal side of each of the front



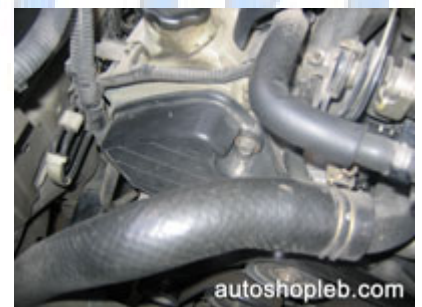
wheels.

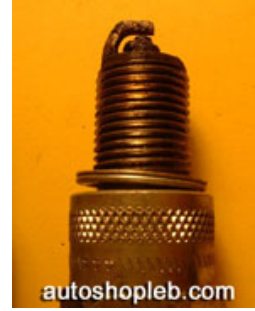
It is usually greased inside and sealed by a rubber boot.

If the CV-joint boot breaks (which it happens sometimes), the axle unit may become inoperative in a short period of time

How to check?

With the wheel turned outside, you can check it visually by looking inside the front wheel arch from the front car. If you see grease splashed all over the area, it means that it's broken, so it needs to be replaced.





12. Spark Plugs:

It is very important to change the spark plugs each 15.000 Km in order to improve the engine performance.

They may burn too so they must be replaced as well with the new ones.

13. Fuel Filter:

The fuel filter must be replaced every 10,000 km (especially in Lebanon where the fuel oil is not very good as the other countries) to avoid engine stalling and loss of engine power too. Dirty fuel filter can cause damage to the fuel pump & to the injectors. It's preferable to add an INJECTOR CLEANER directly after changing the fuel filter.



BE AWARE: Do not put INJECTOR CLEANER in the fuel tank if the fuel filter is old. Doing this may take all the dirt from the fuel filter directly to injectors.

14. Air Filter:

As the fuel filter, the air filter must be clean to avoid loss of engine power and increasing fuel consumption. It must be changed every 20,000 km.



15. Oil Filter:

The oil filter must be changed every 2 times of oil change (Every 10,000 km)



16. Air-conditioning (A/C) Filter:

The A/C filter serves as a defense to stop the bad smells, dust & pollution from entering into the car while the A/C is running. You must check them (if exist) every 10,000 km & they must be replaced every 20,000 km.



17. Shock Absorbers:

In Lebanon where the streets full of wholes, you need to change your shock absorber faster than the other countries. You must replace the shock absorbers every 50,000 km. In the yearly car inspection in Lebanon, the



paper test attracts your attention if the shock absorbers value is less than 40 %.

NB: if your shock absorbers are new, the test values shows about 70 to 75 %.

You must change them when less than 25 % & the car stability depends on them too.



18. Brake Pads:

Check your brake pads every oil change (5,000 km) or every 10,000 km especially in the front, because the rear brakes needs the double time of the front brakes. If you are a resident in the mountain & every day you go to the coast, then you need to change your brakes faster than a resident in the cities near the sea.



19. Brake Discs:

Check your brake discs on every change of the brakes. The average km to replace the brake discs is about 50,000 km.

