Long Hill Auto Service

Millington, New Jersey

GENERAL AUTO REPAIR PRECAUTIONS:

- **Have a fire extinguisher nearby** just in case.
- **Don't smoke or get any sparks near the battery**. Better yet, don't smoke at all. It's bad for your health!
- **NEVER crawl under an improperly supported vehicle**. In other words, never trust a jack alone to hold the vehicle up. Always use a pair of support stands positioned underneath the vehicle to keep it from falling on you. Make sure the weight ratings on the support stands is more than adequate to hold up the vehicle's weight, too. Do not use blocks of wood, boxes, wheels or bricks for supports because these may slip or collapse and allow the vehicle to fall.
- **Do not wear loose clothing,** jewelry, rings, neckties, scarves or bulky gloves when working on your vehicle. If you have long hair, tie it back or cover it.
- **Watch out for moving parts** such as drive belts, pulleys, fans, etc.
- **Watch out for hot stuff**, let the car cool down before working on it
- **NEVER open the radiator cap on a hot engine**. **Wear ear protection**
- **Minimize distractions** while working on your vehicle.
- **Tell someone** if you're going to be working on your vehicle outdoors

Your Car's Fluids:

What colors are the fluids?
Engine Oil - usually brown (if it is black, the oil should be changed)
Engine coolant (Anti-freeze) - usually green (sometimes red)
Transmission fluid - usually redish
Brake fluid - usually clear (very thin texture)
Windshield washer fluid - ususally blue
Power steering fluid - usually clear (sometimes has a red tint)

Basic Maintenance:

Tires

This is the most important aspect of auto safety. You need to check for pressure and wear and tear.

Wear. To determine if the tires are worn beyond safety levels, stick a penny into one of the tread grooves with Lincoln's head pointing down. If the tread is lower than Lincoln's hair, your tires need to be replaced. If his hair is covered, your tires are fine. Be sure to check all four tires because they may wear at a different rate, even on the same vehicle.

Inflation. Look for the correct tire pressure in one of three locations on your car: the glove box, the door jamb or the fuel filler door. A two-pound decrease could affect fuel mileage by about 4 percent.

Oil Change

Introduction

Plan to change your motor oil every 4,000 miles or every 3 months. However, you may want to do it more often if you've been driving in very hot and/or dusty conditions.

Getting Ready

1 Gather necessary tools and materials (refer to Necessary Items list). If you plan to change your oil regularly, consider investing in jack stands, a socket set and an oil drain pan.

2 Run the car's engine for 10 minutes before you drain the oil. Warm oil drains faster than cold oil.

3 Park the car on a level surface, engage the parking brake and turn off the engine. If your car has a low clearance, raise it by driving it onto a ramp or by jacking it up and supporting it securely.

4 Open the hood and place the new oil and funnel on top of the engine to ensure that you won't forget to add oil afterwards (an expensive mistake that many do-it-yourselfers make!).

Tips & Warnings

- Consult your owner's manual or an automotive parts specialist to find out the weight of oil and type of oil filter your car needs.
- You'll need the year, make, model and mileage of your car if you go to an auto parts store.
- Make sure the car is securely supported before you crawl underneath.
- You will need two jack stands to support the front of your car after jacking it up. Never get under a car that is supported only by a jack! A pair of jack stands costs less than $20.

Draining the Oil and Changing the Oil Filter

1 Crawl under the car once it is securely supported.

2 Locate the oil drain plug on the underside of the engine, usually near the front center of the car. Consult your owner's manual for the exact location.

3 Place the oil drain pan under the plug and loosen the plug with a socket wrench. Remember: turn counterclockwise to remove bolts.

4 Remove the plug by hand. Be prepared for the rush of hot oil!

5 Let the oil drain into the pan. Hold onto the plug.

6 Reposition the pan, if necessary, to catch all the dripping oil.

7 Wipe off the drain plug and the plug opening when the oil finishes draining.

8 Replace the drain plug gasket.

9 Reinstall the plug. Always start threading any bolts or screws by hand to prevent cross threading.

10 Tighten with a wrench or socket. Be careful not to overtighten the plug.

11 Locate the existing oil filter. Oil filters are usually on the side of the engine.

12 Position the oil pan underneath the filter to catch any remaining oil.

13 Use an adjustable oil filter wrench to unscrew the old oil filter.

14 Use a rag to wipe the area where the filter mounts to the engine. Make sure the rubber seal of the old filter is not stuck to the engine.

15 Use some new oil to lightly coat the rubber seal of the new filter.

16 Screw the new filter into place by hand. It's usually not necessary to tighten the oil filter with the oil filter wrench, but have it at the ready if you're grip's not strong (or large) enough.

Tips & Warnings

- Wear gloves to remove the plug if it's hot.
- It's always best to replace the oil drain plug gasket.
- Use the right size wrench or socket. Don't use an adjustable wrench: you can strip the bolt.
- Handle hot automotive oil with extreme care.
- Be careful when removing the old oil filter. It's full of oil.

Installing New Oil and Cleaning Up

1 Locate the oil filler cap on top of the engine. Remove it.

2 Place the funnel in the opening and pour in the new oil. Typically, you will use 4 to 5 quarts of oil. Check your manual for the correct oil capacity.

3 Replace the cap when you're finished.

4 Run the engine for a minute, then check the dipstick. Add more oil if necessary.

5 Check the area around the oil drain plug and the filter for oil leaks. Tighten the plug or oil filter if you find leakage.

6 Use rags and newspapers to wipe away excess oil.

7 Pour the used oil into a plastic container after the used oil cools.

8 Dispose the used oil properly: either bring it to a recycling center or an auto repair shop that can recycle it for you. Don't pour it down the sewer!

Tips & Warnings

- Record the date and mileage after you change the oil so you will know when your car is due for another oil change. It helps to put a small sticker on your windshield to remind you.
- Handle hot motor oil with extreme caution.
- Only dispose of used motor oil and filters at authorized locations.

Checking other fluids

Power Steering Fluid. The reservoir for this can be hard to find. Check the owner's manual, or ask your mechanic where it is. Remove the cap and make sure the fluid is above the minimum mark. If it is low, carefully fill and recheck the dipstick.

Engine Coolant (antifreeze). Visually check the fluid level with a flashlight. The reservoir should be visible near the front of the engine.

Transmission fluid

Most automatic transmissions should be checked while the engine is running. Check your owners manual to be sure. Also make sure 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, then immediately pull it out to see the fluid level. Transmission fluid should be pink or red in color with the look and consistency of cherry cough syrup. If the fluid is a muddy brown or has a burnt smell, have it checked by a mechanic. As with the engine, never add fluid unless it is below the "Add" mark and never bring it above the "Full" mark. Make sure you use the correct transmission fluid for your vehicle. If you plan to add Transmission fluid yourself, you should know that fluid usually comes in quarts, but the level may not be low enough to take the full quart. Also, you will need a special funnel to get the fluid into the small tube that the dipstick came out of. Check your owners manual for the type of fluid and **do not substitute anything else.** Any noticeable transmission oil consumption should be checked out at a repair shop.

Brake fluid

The brake fluid reservoir is under the hood right in front of the steering wheel. Most cars today 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. If the level drops noticeably over a short period of time or goes down to about two thirds full, have your brakes checked as soon as possible. **NEVER PUT ANYTHING BUT APPROVED BRAKE FLUID IN YOUR BRAKES. ANYTHING ELSE CAN CAUSE SUDDEN BRAKE FAILURE!** Keep the reservoir covered except for the amount of time you need to fill it and never leave a can of brake fluid uncovered. Brake fluid must maintain a very high boiling point .Exposure to air will cause the fluid to absorb moisture which will lower that boiling point.

Emergency Procedures:

Changing a flat tire

Preparing To Change Your Flat Tire

- Find a level spot completely off the side of the road, even if you must drive for a few hundred yards on a flat tire. Make sure you are out of the way of traffic.
- Apply your parking brake. If you have an automatic transmission, place the car in “park.” Manual transmissions should be placed in first gear or reverse.
- Turn off your engine and turn on your hazard lights.
- Alert other drivers of your presence by placing safety flares and / or reflectors about five car lengths in front and back of your vehicle.
- Gather your tools: the spare tire, jack, lug wrench and the wheel key (if your car requires one).

The Process:

- Remove your wheel covers (if applicable). Depending on the type you have, you may need to unlock them first. Others can be popped off or unscrewed.
- Loosen, but do not remove, the lug nuts. Usually you can achieve this by turning them about a half-turn counterclockwise (you will probably need to stand on the lug wrench to loosen the nuts).
- Determine the proper positioning for your jack according to the owner’s manual and raise the car until the tire barely touches the ground. It should take the weight off the tire, but not come off the ground.
- Rotate the lug wrench counterclockwise, removing each lug nut. In order to remove the

flat tire, it will be easiest if you position your hands at the “three o’clock” and “nine o’clock” positions and pull it straight toward you.

- Replace the flat with your spare tire. It’s easier if you align the holes in your spare tire with the bolts first, then place it firmly on them.
- Replace and slightly tighten the lug nuts.
- Lower your car back to the ground and then finish tightening the lug nuts in a cross pattern.

Final Steps:

- Put your tools back in the proper places and conduct a final check to be sure you haven’t forgotten anything.
- Get to a service station as soon as possible. You will need to have the flat tire repaired and reinstalled (if possible) and have your lug nuts tightened with a torque wrench to the proper specification for your vehicle.

Jump starting your car

Clamp one cable to the positive (+) terminal of the dead battery. Don't let the positive cable touch anything metal other than the battery terminals.

Connect the other end of the positive cable to the positive terminal of the good battery.

Connect one end of the negative (-) cable to the negative terminal of the good battery.

Connect the other end of the negative cable to metal on the engine block on the car with the dead battery. Don't connect it to the dead battery, carburetor, fuel lines or moving parts.

Stand back and start the car with the good battery.

Start the stalled car.

Remove the cables in reverse order.

- Wear a pair of splash-proof, polycarbonate goggles with the designation Z-87 on the frame. This certifies that your goggles are meant for activities such as automotive repair.
- Batteries contain sulfuric acid, which gives off flammable and explosive gas when a battery is charged or jump-started. Never smoke or operate anything that may cause a spark when working on a battery.
- Whenever you change the oil, take time to check your battery for damage such as cracks,

corrosive materials and loose wires.

- Make sure you have a pair of jumper cables that are free of rust and corrosion and have no exposed wires. (Never use electrical tape to cover exposed wires.)
- Make sure you buy a battery that is recommended in your car owner's manual.
- Never throw an automobile battery in a garbage dumpster or leave it in a parking lot, especially if it is cracked or damaged. Take it to a service station and have it disposed of properly.
- Never jump-start your battery if your car's fluids are frozen.
- When buying a new battery, make sure that its terminals are sturdy and large enough to allow the clamps of a pair of jumper cables to attach easily when jump-starting.
- Always call a professional if you think there might be trouble you can't handle, or you can't remember how to jump-start a vehicle.
- Prevent Blindness America offers a battery safety sticker that lists the correct steps to take when jump-starting a dead battery. To get one, call 1-800-331-2020.

If you get into a car accident

1. Stop:
Immediately after you get into an accident, stop. If you caused the accident, don't run. Take responsibility and acknowledge your error. Causing an accident and fleeing from the scene is a crime. If you're the one who's been hit, it's important that you also stop. If the individual who hit you reports that you ran from the accident scene, you can also get in serious trouble. So, regardless of if you caused the accident or are the victim in an accident, stop and don't leave the accident scene.

2. Check for Injuries:
Immediately after the accident, check yourself, your passengers, and the individual(s) in the other vehicle for injuries. If there are injuries that need medical attention, call 911. Before you even look at the damage done to your car, check everyone involved for injuries.

3. Call the Police (if necessary):
If the accident is serious, or it's a hit and run situation, the authorities need to be notified. Most insurance companies require you to call the authorities in a hit and run situation if you want your damage to be covered. Serious accidents sometimes require police involvement if the accident is backing up traffic or if debris is blocking the street. Minor fender benders, on the other hand, don't necessarily require police involvement.

4. Exchange Information:
Regardless of if you're at fault or not, or the severity of the accident, you need to exchange information with the other party involved. You need to provide your name, phone number,

address, license plate number, and your driver's license number. You also need to obtain this information from all individuals involved in the accident. Your car insurance company will need this information to resolve the incident.

5. Document Damage:
If you have a camera on hand, take pictures of the damage. If you don't, write down details about the damage. Document what damage was done to your vehicle and the other vehicle(s) involved.

Have all parties involved in the accident sign the paper as proof that they agree on the damages done to each vehicle. If you hit a parked car and the owner can't be identified or found, leave a note with the appropriate information. If you don't, it can be considered a hit and run.

6. Contact Your Insurance Company (and possibly the DMV):
Immediately after the accident, contact your insurance provider about the accident and provide all details regarding it. Also, if anyone was injured in the accident or the damage to the vehicle is $750 or higher, you need to report the incident to the DMV. If you don't, your license could be suspended.

Car accidents are not fun. If you ever find yourself involved in one, remember these steps. They will help you resolve the incident without the possibility of future repercussions or involvement of law enforcement.