Parts:

Engine oil filter

- Engine oil filter removes the impurities accumulated in oil during flushing & cleaning.
- The accumulation of filtered impurities decreases the filtering capacity of filter which may lead to greater wear of engine components.
- Oil filter therefore has to be periodically replaced along with engine oil. Please note that filter is not reusable & cannot be cleaned

Timing Belt

- Timing belt becomes worn, elongated & hardened with usage In case of any teeth damage/uprooting the valve timing would get disturbed with major damages to valve train, camshaft & pistons
- Thus timing belts are to be periodically checked & replaced as per TML recommendations

Parts:

Drive Belts

- Drive belts drive engine auxiliaries like alternator, AC compressor, Power steering pump & radia tor fan (in some models).
- With usage, the drive belt wears out, elongates & hardens. This leads to belt slip which affects the performance of these auxiliaries viz. Battery draining, less AC cooling, engine overheating etc.
- The belt tension is thus to be periodically adjusted & belts to be replaced, if damaged.
- Snapping of belt during drive could be potentially dangerous due to sudden loss of brake & power steering efficiency.

Parts:

Cooling system

- The cooling system is sealed & pressurised to improve cooling.
- Coolant is used for prevention of rust & scaling, which reduces space in cooling water passages in engine & radiator
- The coolant loses its properties gradually due to heat & chemical changes.
- The coolant is thus to be periodically replaced as per TM recommendation for better efficiency.
- The rubber hoses in cooling system harden over a period of time, thereby losing flexibility in connections or develop cracks. This leads to water leakage, which can overheat & damage the engine.
- The hose clips are therefore to be tightened periodically & hoses replaced for crack & hardness complaints.

Parts:

Exhaust Pipe & Catalytic Converters

- Exhaust pipe & silencer can corrode due to moisture & sulphides in exhaust gases.
- Damage to exhaust pipe can also take place due to flying stones hitting the underside of the same.
- Leakage of exhaust gases lead to air & noise pollution.
- The noble metal present in Catalytic Converter has fine passages for chemical reaction to reduce emission. The passages can get choked gradually with carbon / soot, especially if fuel system is defective & fuel is adulterated. This reduces engine pickup, increases pollution & fuel consumption.
- The exhaust pipe & catalytic converter are to be periodically cleaned by blowing compressed air through them.

Parts:

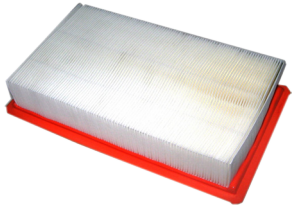
Spark Plugs (Petrol engine) & Glow plugs (Diesel engine)

- The exhaust pipe & catalytic converter are to be periodically
- Spark plugs generate spark for fuel ignition.
- The Spark plug electrodes erode with usage thereby increasing the gap in between.
- This makes spark generation difficult.
- The combustion deposits & oil etc, on the electrodes cause short circuit.
- This results in poor start ability, poor combustion & loss in fuel efficiency.
- Spark plugs are to be cleaned periodically & gap maintained.
- Spark plugs are to be replaced as per TML recommendations.
- Glow plugs preheat the Pre combustion chamber for smooth start of diesel engines, & also lower emission. The erosion of heating element with usage may result in poor cold start of engine & air pollution. These are to be replaced as per the need.

Parts:

Air Cleaner

- Air filter removes dust particles from engine air intake & ensures supply of clean air to engine.
- With usage the filter gets clogged thereby reducing air flow which diminishes engine perfor mance & increases smoke emission.
- In case of severe clogging, the filter paper in air filter may puncture causing flow of dust, etc into cylinders. This will lead to rapid wear of engine.
- Air filter is therefore required to be cleaned (by gentle tapping) from time to time & replaced periodically.



Parts:

Fuel Filter

- Fuel in fuel tank contains impurities like sediments, dust, moisture, etc which can clog fuel injectors & cause wear & damage to preci sion parts in fuel injection system.
- The fuel filter helps remove impurities & maintains supply of clean fuel.Fuel filter also separates out moisture in fuel which gets col lected in fuel filter housing.
- With use, filters get clogged & reduce fuel supply to engine leading to loss of power. Excess collection of moisture may lead water flow to fuel injection system leading to rapid wear of FIP components.
- Water from Fuel filter housing is to be drained from time to time & filters to be replaced periodically as per TML recommendations for optimum performance of fuel system & engine.

Parts:

Brake components

- Brakes components are wear and tear items, which wear gradually when it comes into contact with brake drums due to the frictional energy developed between them.
- To compensate for wear which increases the clearance, periodic adjustment / replacement of linings as per TML recommendation may be required.
- Please note that use of brake lining beyond the recommended limit results in ineffective braking & damage to brake drum.

Lubes:

Engine oil

- Engine oil reduces friction & thus reduces wear in pistons, bearings & other moving parts.
- Engine oil also helps in better sealing during combustion of fuel.
- Engine oil also cools high temperature zones in engine through heat transfer to oil cooler & engine sump.
- Oil also helps in flushing & cleaning carbon & soot deposited during combustion within the engine.
- Some amount of oil is lost or consumed in process of all of the above. The oil consumption may vary from engine to engine & may also depend on driving condition & usage. It is thus necessary to periodically check & top up the engine oil level.
- Engine oil gradually loses its said properties with use & is to be periodically changed to restore its effectiveness & improve engine performance & life.

Lubes:

Brake & clutch fluids

- Both Clutch & brake systems are hydraulic systems having compo nents like Master Cylinder and Slave cylinder with hydraulic oil in the lines between them. Presence of hydraulic oil helps in easy brake & clutch application.
- Fluid level may go down due to leakages. The same has to be topped up & leak arrested. Periodically brake & clutch fluid level must be checked.
- With usage, brake fluid loses its properties. The same is to be replaced as per TML recommendation for optimum performance of the brakes.

Lubes:

Power Steering Oils

- Power steering principle makes use of hydraulic oil power to assist easy steering operation.
- Insufficient power steering oil will result in steering operation becoming heavy & noisy.
- Periodic check of Power steering oil level in the power steering reservoir as per TML recommendation is necessary. This will help identify leaks, if any.

Lubes:

Transmission oil & differential oil

- Oil reduces friction &wear between the mating gears and at the same time absorbs the tremendous heat which is developed on account of rubbing of gears.
- With passage of time, the oil loses its viscosity & it lubricating property due to continuous usage.
- Hence transmission & differential oil is to be replaced at recommended interval as per TML recommendations.

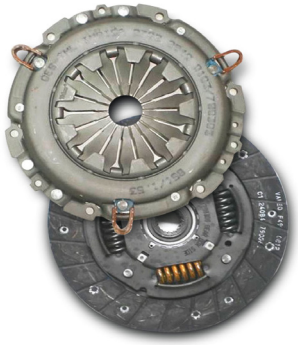
Original Vens us Duplicate Parts Comparison:

Clutch

Clutch is a device used in the transmission system of a vehicle to engage and disengage the engine to the transmission. Hence the clutch is located between the engine and the transmission. Typically, a clutch consists of clutch fork, thrust bearing, pressure plate, clutch disc, and a flywheel. When the clutch is engaged, the power flows from the engine to the wheels through the transmission system and the vehicle moves. When the clutch is disengaged, the power is not transmitted to the wheels and the vehicles stops while the engine is still running. The clutch is disengaged when starting the engine, when shifting the gears, when stopping the vehicle and when idling the engine. The clutch is kept engaged when the vehicle is moving. The clutch also permits the gradual taking up of the load. On proper operations, it prevents jerky motion of the vehicle.

Moresoever, using a TOP Clutch is equally important , since a duplicate clutch due to its inferior specifications can cause loss of power transmission and adversely damage your gear parts as well. Ensure a lower ownership cost by investing in TOP Clutches for Tata Passenger Vehicles.

Parameter	Tata Motors Original Part	Duplicate Part
Weight of Clutch Cover	2403 gms	2314 gms
Overall Diameter of Cover	228 mm	224-225 mm
Thickness of Sheet Metal on Cover	2.92 mm	2.85 mm
Width of Friction Surface	29 mm	28 mm



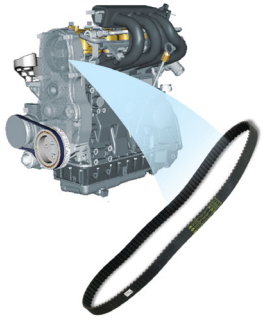
Original Vens us Duplicate Parts Comparison:

Timing Belt

The timing belt serves a very important part when it comes to making your engine run. The timing belt is the belt that controls the camshaft in your engine and keeps the entire operation running smoothly. A failure in the timing belt will cause the engine to suddenly stop and also result in costly consequential damages to other engine components. Changing your belt after checking condition as per stipulated intervals is definitely a lot safer for your engine, and a little money invested now can save you a lot of costly damages in the long run.

Moresoever, using a TOP Timing belt is equally important , since a duplicate timing belt due to its inferior specifications can adversely damage your engine parts.

Ensure a lower ownership cost by investing in TOP Timing Belts for Tata Passenger Vehicles.



Parameter	Tata Motors Original Part	Duplicate Part
Tensile Strength	20.58 kN/20 mm, hence high tension capability, better retention and durability in terms of life.	15.8 kN/20 mm, hence lower tension capability and low life.
Tooth Shear Strength	1290 N/cm, higher tooth shear strength to withstand repeated loading over the life of belt.	1210 N/cm, lower tooth shear strength.
Material	Fibre reinforced Sulphur cured HNBR-Compound, (for higher temperature resistance upto 135°C), cord with standard E glass (low elongation of belt) and Nylon 6, 6 fabric Jacket (high wear resistance capabilities).	Low temperature and elongation resistant rubber compound.

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Original Vens us Duplicate Parts Comparison:

Pivot Bush

In a vehicle's suspension, bushes are used to connect various moving arms and pivot points to the chassis body and other parts of the suspension. For a comfortable and smooth ride the vehicle must be fitted with quality suspension bushes. Since suspension bushes are very important component on a vehicle, these are designed to stand the torsional pressure on the vehicle. To provide strength, original bushes use high quality rubber , which is securely bonded between inner and outer metal to give maximum axial, radial and torsional stiffness. One of the most important functions of a suspension bush is to provide cushion to the entire body of the vehicle.

It minimizes the effects of jerks induced by rough terrains or a potholed road. Moreover, suspension bushes provides stability to cars and the grip on the road ensures that the tyres of a vehicle have greater contact with the road at all times. TOP Pivot Bushes are technologically advanced, with higher durability and strength than duplicate bushes. A duplicate pivot bush looses out due to a low pushout force , higher rubber hardness and ash content . Absence of heat treatment on inner sleeve can cause component failure. Ensure your safety by investing in TOP Pivot Bushes for Tata Cars and UVs.

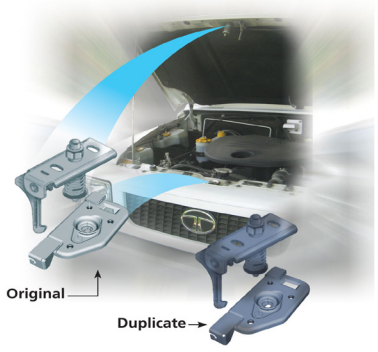
Parameter	Tata Motors Original Part	Duplicate Part
Pushout Force	2500 Kgf, hence higher strength.	380 Kgf, low in strength.
Rubber Ash Contents	5%, hence longer life and durability.	39%, and hence low life.
Inner Sleeve Heat Treatment	Done, better strength of component.	Not Done.

Original Vens us Duplicate Parts Comparison:

Sumo Bonnet Lock

Bonnet Lock is a crucial part which plays a role in firmly locking the hood shell to the vehicle body. Any malfunction can prove to be a safety hazard during motion. It is of utmost importance that a TOP Bonnet Lock be used on your vehicle, since duplicate locks differ from original locks on all fronts, ranging from material specifications, manufacturing processes to critical dimensions as seen in the table. Always, insist on original parts and remain safe.

Parameter	TOP Bonnet Lock	Duplicate Bonnet Lock
Raw Material	Hardened Mild Steel EN.	Non Hardened, ordinary Mild Steel.
Lower Lock Link Lever	Thickness 3 mm and 4 mm, better strength.	Thickness 1.6 mm and 3 mm, lower strength.
Lower Lock Bracket	Thickness 2 mm, better strength.	Thickness 1.6 mm, low strength.
Lower Lock Hex. Nut	Self centering nut, 14 mm diameter, proper alignment.	Plain nut, 12.7 mm diameter, improper alignment.
Lock Spring	10 no. of coils on upper lock spring.	7 no. of coils on upper lock spring.
Lower Lock Stud Holding	Welding at 3 places, better strength.	Welding at 1 place, lower strength.
Threaded Pin on Upper Lock	12 mm diameter, better strength.	10 mm diameter, lower strength.



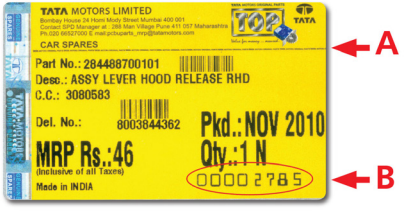
Original Vens us Duplicate Parts Comparison:

MRP Lable

All Tata Motors Original Parts packagings are affixed with MRP Lable. Original MRP label carries details such as part number, description, packing date, MRP, customer code, bar coded delivery number, quantity and an unique MICR number (B). Some differences between original and duplicate MRP lables are enlisted in table which can be referred to ensure that you acquire only original parts.

Moresoever, using original parts is important, since a duplicate part due to its inferior specifications can affect performance and safety on your vehicle.

Parameter	Original Lable	Duplicate Lable
Hologram	7 Colour Hologram with 3D effect.	Flat Single Colour.
Tata Motors Original Parts Script (A)	Available	Not Available
TOP Logo	Available	Not Available



Original MRP Lable

Duplicate MRP Lable

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Original Vens us Duplicate Parts Comparison:

Fuel Filter Element

Fuel filters serve a vital function in the modern, tight-tolerance engine fuel systems. Unfiltered fuel may contain several kinds of contamination, dirt, dust or rust particles . If these substances are not removed before the fuel enters the system, they will cause rapid wear and failure of the fuel pump and injectors, due to the abrasive action of the particles on the high-precision components used in the injection systems. Fuel filters also improve engine performance and mileage, as the fewer contaminants present in the fuel, the more efficiently it can be burnt. Fuel filter elements need to be replaced at regular intervals as stipulated in the operators service book.

TOP Engine Fuel Filters are technologically advanced, effective in use and provide reliable protection for the engine and fuel injection system. Duplicate fuel filters, may be cheap, but fail to protect your fuel injection equipment and engine on account of their inferior quality as is evident in the table. Hence, never compromise on quality and always insist on TOP Engine Fuel Filters for your Tata Cars and UVs.

Parameter	TOP Fuel Filter Element	Duplicate Fuel Filter Element
Raw Material	Special micro-fibre paper impregnated with resin for better stability	Ordinary Paper
Filter Paper Porosity	Minimum 5 microns, even pore distribution for high degree of contaminant separation, hence a long engine life	No porosity control, low engine life
Filtration Area	More Filtration Area	Lesser Filtration Area
Filter Top Cover	Corrosion resistant galvanised steel, aluminium for high mechanical, chemical and thermal stability	Tin or low grade material

Original

Duplicate

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Original Vens us Duplicate Parts Comparison:

Helical Gear

It is time for Original Spare Parts education.

Various components of the vehicle such as gears, pistons, drive shafts, shock absorbers, clutch and belts help to translate power generated by the engine into motion and vehicle support. Speed gear is a precision machined item which requires various manufacturing processes ranging from gear cutting to heat treatment for production. Any variation in component material, dimensions, teeth strength, hardness and heat treatment will result in teeth breakage and damage to mating parts. A non genuine gear differs in critical dimensions such as outside diameter, pitch circle diameter, tooth depth and bore diameter. Besides, non genuine gears possess inferior metallurgical properties in the form of low carbon steel which can cause premature wear and tear of the gear . These drawbacks in non genuine gears only invite costly repairs making vehicle operation uneconomical. Hence, always use Tata Motors Original Parts for servicing and repairs of Tata Cars and MUVs.

As pilots of TOP Drive, it is recommended that you encourage your buyers to go in only for original parts so that the vehicle always stays in TOP condition.

Parameter	TOP Gear	Duplicate Gear
Raw Material	Alloy Steel, better strength.	Low Carbon Steel, poor strength.
Outer Diameter	As per Tata Motors Specification	Undersize by as much as 0.5 mm, affects mating parts.
Gear Height	As per Tata Motors Specification	Oversize by as much as 0.25 mm, can damage mating parts.
Tooth Strenght	105 to 145 kg per sq mm, long life.	90 kg per sq mm, earlier teeth breakage.

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Original Vens us Duplicate Parts Comparison:

Helical Gear

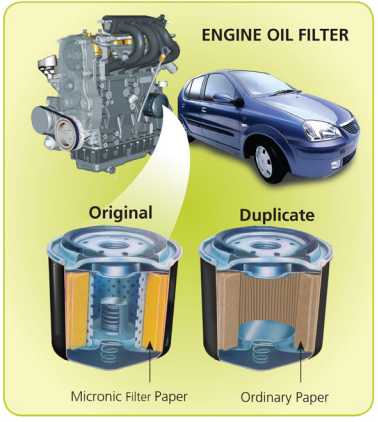
Parameter	Tata Motors Original Part (TOP)	Duplicate Part
Glass Plate	Convex Glass for wider vision, better safety.	Flat Glass Plate, restricted vision.
Articulation Movement	Smooth and less effort required for movement, easy to adjust.	Jerky and more effort required for movement.
Housing Folding Force	Less housing folding force required, even gap.	More housing folding force required, uneven gap.
Gap in Housing and Glass Plate	Even gap, no glass vibration and thus better vision.	Uneven gap, glass vibration and thus unclear vision.
Aesthetic Appearance	Good appearance.	Poor appearance.
Adhesive Tape on backside of Glass.	Available for avoiding glass plate from falling.	Not available, glass plate can fall down.
Warning Note	Available as per regulations.	May not be available as per regulations.

Original Vens us Duplicate Parts Comparison:

Helical Gear

Oil does a number of important things in an engine. It helps cool the engine by transfering heat, seals the gap between piston rings and cylinder walls, absorbs contaminants; and suspends soot particles that are the residue of combustion. If left by itself for very long, the oil would become saturated with the byproducts of combustion. It would carry minute, harsh particles that would wear the oil pump's machined components as well as the bearing surfaces in the engine.

The ultimate goal is to balance filtration performance with the desired cleanliness level. To ensure maximum engine life and performance , it is necessary to use an original oil filter only and change same at stipulated intervals. Lookalike duplicate filters, on the other hand use substandard components which adversely affect engine life. Spin-on filters are the most popular design for liquid filtration on internal combustion engines today and our TOP filters guarantee optimum life and performance on your engine.



Parameter	Tata Motors Original Part (TOP)	Duplicate Part
Raw Material	Micronic Paper	Ordinary Paper
Filter Paper Porosity	Minimum 18 microns, best filtration, long engine life.	No porosity control, low engine life.
Pressure Relief Valve	Operating pressure 1 bar to avoid oil starvation.	Not available
Element Spring	Available for proper fitment of element.	Not available
Sealing Rubber	Nitrile Rubber	Ordinary reclaimed rubber.
Filter Bowl	CR Steel with surface treatment, inhouse manufactured.	Substandard steel or reconditioned bowl.

Original Vens us Duplicate Parts Comparison:

Poly Vee Belt

Usually connected to the crankshaft of an engine, a Poly-V belt runs through a series of pulleys. These pulleys connect to engine accessories such as the alternator and the air conditioning system, rotating them in order to make them function. TOP

Poly Vee Belts are technologically advanced, more temperature and oil resistant and have a longer life than duplicate belts. Save on ownership cost on your Tata Cars and UVs by investing in TOP Belts.

Parameter	Tata Motors Original Part	Duplicate Part
Material	EPDM in Original Belt is more high temperature resistive, hence original belts are less prone to rib cracks, and offer higher life..	CR in duplicate belts is prone to rib cracks as its temperature operating capability is lower.
Tensile Strength	2218 N/Rib, thus higher tension capability of TOP Belt, hence better durability and life.	1847 N/Rib, and hence a lower life.
Elongation at 980 N	1.15%, thus over a period of time and mileage, elongation of TOP Belt is lesser than that in a duplicate belt.	1.76%, and hence higher elongation over a period of time.
Cord Peel Strength (2 Cords)	25.9 N, hence cord peel strength is low in a TOP Belt and consequently less prone to stiffness or cord breakage.	61.2 N, thus more prone to cord breakage.