Chapter 1: - Introduction of industry garage

1.1 Maruti Suzuki

<table>
<thead>
<tr>
<th>Maruti Suzuki India Limited</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td><strong>Traded as</strong></td>
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<td></td>
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<td></td>
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<tr>
<td><strong>Industry</strong></td>
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<tr>
<td><strong>Predecessor</strong></td>
</tr>
<tr>
<td><strong>Founded</strong></td>
</tr>
<tr>
<td><strong>Headquarters</strong></td>
</tr>
<tr>
<td><strong>Key people</strong></td>
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<tr>
<td><strong>Products</strong></td>
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<tr>
<td><strong>Revenue</strong></td>
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<tr>
<td><strong>Net income</strong></td>
</tr>
<tr>
<td><strong>Number of employees</strong></td>
</tr>
<tr>
<td><strong>Parent</strong></td>
</tr>
<tr>
<td><strong>Slogan</strong></td>
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<tr>
<td><strong>Website</strong></td>
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</tbody>
</table>

**Table 1.1** Maruti Suzuki

- Maruti Suzuki India Limited (maruti Suzuki) formerly known as Maruti Udyog Limited, is an automobile manufacturer in India.
- It is a subsidiary of Japanese automobile and motorcycle manufacturer Suzuki.
- As of November 2012, it had a market share of 37% of the Indian passenger car markets.
- Maruti Suzuki manufactures and sells a complete range of cars from the entry level Maruti 800 (discontinued), Alto, to the hatchback Ritz, Celerio, A-Star, Swift, Wagon R, Zen and sedans DZire, Ciaz, Kizashi and SX4, in the 'C' segment Eeco, Omni, Multi Purpose vehicle Suzuki Ertiga and Sports Utility vehicle Grand Vitara.
- The company's headquarters are at No 1, Nelson Mandela Road, New Delhi.
- In February 2012, the company sold its ten millionth vehicles in India.
### 1.1.1 Products and services (current models)

<table>
<thead>
<tr>
<th>Model</th>
<th>Launched</th>
<th>Category</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omni</td>
<td>1984</td>
<td>Minivan</td>
<td>Figure 1.1</td>
</tr>
<tr>
<td>Zen</td>
<td>1993</td>
<td>Hatchback</td>
<td>Figure 1.2</td>
</tr>
<tr>
<td>Wagon R</td>
<td>1999</td>
<td>Hatchback</td>
<td>Figure 1.3</td>
</tr>
<tr>
<td>Swift</td>
<td>2005</td>
<td>Hatchback</td>
<td>Figure 1.4</td>
</tr>
<tr>
<td>Grand Vitara</td>
<td>2007</td>
<td>Mini SUV</td>
<td>Figure 1.5</td>
</tr>
<tr>
<td>Swift DZire</td>
<td>2008</td>
<td>Sedan</td>
<td>Figure 1.6</td>
</tr>
<tr>
<td>Model</td>
<td>Year</td>
<td>Type</td>
<td>Image</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>Ritz</td>
<td>2009</td>
<td>Hatchback</td>
<td><img src="image" alt="Ritz 2009 Hatchback" /></td>
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<tr>
<td>Eeco</td>
<td>2009</td>
<td>Hatchback</td>
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<tr>
<td>Estilo</td>
<td>August 2009</td>
<td>Hatchback</td>
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<tr>
<td>Alto K10</td>
<td>2010</td>
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<tr>
<td>Ertiga</td>
<td>2012</td>
<td>Mini MPV</td>
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<tr>
<td>Alto 800</td>
<td>2012</td>
<td>Hatchback</td>
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</tr>
<tr>
<td>Model</td>
<td>Year</td>
<td>Type</td>
<td>Image</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Stingray</td>
<td>2013</td>
<td>Hatchback</td>
<td><img src="image" alt="STRINGRAY" /></td>
</tr>
<tr>
<td>Celerio</td>
<td>2014</td>
<td>Hatchback</td>
<td><img src="image" alt="CELERIO" /></td>
</tr>
<tr>
<td>Ciaz</td>
<td>2014</td>
<td>Sedan</td>
<td><img src="image" alt="CIAZ" /></td>
</tr>
</tbody>
</table>

Table 1.2
Production cars

1.1.2 Awards and recognition

- The Brand Trust Report published by Trust Research Advisory, a brand analytics company, has ranked Maruti Suzuki in the thirty seventh position in 2013[64] and eleventh position in 2014 among the most trusted brands of India.
- Blue bytes News, a news research agency, rated Maruti Suzuki as India’s Most Reputed Car Company in their Reputation Benchmark Study conducted for the Auto (Cars) Sector which launched in April 2012.
- In 1994 Maruti Suzuki produced its 1 millionth vehicle since the commencement of production, being the first company in India to do so.
- Maruti also launches a 24-hour emergency on-road vehicle service, the first of its kind in the country.
- In 2000 Maruti became the first car company in India to launch a Call Centre for internal and customer services.
- In 2004 the Alto became India's new bestselling car, overtaking the Maruti 800 which had been number one for nearly two decades.
1.2 Perfect auto service

- I choose a maruti Suzuki authorized workshop perfect auto service as my training institute for industrial training.
- Perfect auto service was started at 1989 as perfect aligning shop by suryakant bhalodiya.
- Suryakant bhalodiya starts perfect house pvt.ltd.
- Suryakant bhalodiya also starts Perfect hero PVT. LTD. And perfect auto service Tata commercial vehicle.
- Perfect house-Perfect auto service starts maruti Suzuki India limited dealership on 10\textsuperscript{th} July, 1995.
- This was one of the first 26\textsuperscript{th} maruti Suzuki dealership in India appointed by binding process.
- This dealership was started at Gondal road, vavdi, Rajkot, Gujarat.
- This dealership was for sales, service, spares.
- In July 2002, perfect starts one other branch of perfect auto service at junagadh.
- This was a 3s sales, service, spares, facility.
- In morbid they stared branch in January, 2004. Another sales, service, spares facility.
- Rajkot, ghandigram branch sales, service and spares facility starts in January 2006.
1.3 Hierarchy of industry/organization chart

- **KEVAL BHALODDIYA (M.D.)**
- **HIREN SAKRIYA (G.M.)**
- **NAYAN PAREKH (A.G.M.)**
  - RAJKOT (GHANDIGRAM)
  - JUNAGADH
  - MORBI
  - RAJKOT GONDAL CHOKDI
  - VANRAJSINH (W.M.)
  - AMIT PAREKH (A.W.M.)
    - service adviser
    - technical adviser
    - floor manager
    - mechanics
    - helpers
Keval bhalodiya (M.D.) is managing director of all perfect auto service.
Hiren sakriya (G.M.) is one general manager of all branches of perfect auto service.
Nayan parekh (A.G.M.) is one assistant general manager of perfect auto service.
Under nayan parekh there are 4 workshops.
  - Rajkot gondal chowck
  - Rajkot gandhigram
  - Junaghadh
  - Morbid
I’m at Rajkot gondal chock workshop.
There are workshop manager vanrajshin jadeja,
Under vanrajshin amit parekh is assistant workshop manager.
Under amit parekh there are 6 service advisor and 2 technical advisers.
Floor manager is under technical advisor.
After floor manager there are 15 mechanics and 27 helpers.
1.4 Workshop layout and modern workshop layout

1.4.1 Workshop layout

This is perfect auto service workshop were am taking training.

This is a simple layout of perfect auto service workshop.

The car’s are indicate lift of workshop.

There 18 lifts in this workshop.

Silver area indicated special tools room.

In this workshop every mechanics has hand tools and pneumatic air gun and for other tools they have to take the tools from special tools room.

Dark yellow coloured area was for spares store.

Black area indicated oil room.

Dark blue area indicates office.

Light green area is for customer waiting room.
1.4.2 Modified workshop layout

Figure 1.17
modern garage layout

1. OFFICE
2. CUSTOMER WAITING ROOM
3. FINAL INSPECTOR OFFICE
4. SPECIAL TOOLS ROOM
5. SPARE STORE

- As you show in garage I made some changes in ordinary workshop layout and this modern workshop layout.
- First of all I made one other door to take car in or out it may helps mechanics.
- I made this door because the first door id short and at a corner so many time when mechanics have to take out car at the same time it’s difficult because mechanics take at other end of workshop.
- Another change is store at meddle of workshop it gives more space for service and also help mechanics to take part’s.
- Some other changes related to upper change of store when I change position of store it give some space for some more cars.
Chapter 2: Major tools

2.1 Hand tools

2.1.1 Open-end wrench

- This wrench is often double-ended, with a different-sized opening at each end. The ends are generally oriented at an angle of around 15 degrees to the longitudinal axis of the handle. This allows a greater range of movement in enclosed spaces by flipping the wrench over.

2.1.2 Ring spanner

- A one-piece wrench with an enclosed opening that grips the faces of the bolt or nut. The recess is generally a six-point or twelve-point opening for use with nuts or bolt heads with a hexagonal shape. The twelve-point fits onto the fastening at twice as many angles, an advantage where swing is limited.

2.1.3 Combination wrench

- A double-ended tool with one end being like an open-end wrench or open-ended spanner, and the other end being like a box-end wrench or ring spanner. Both ends generally fit the same size of bolt.

2.1.4 Flare-nut wrench

- A wrench that is used for gripping the nuts on the ends of tubes. It is similar to a box-end wrench but, instead of encircling the nut completely, it has a narrow opening just wide enough to allow the wrench to fit over the tube, and thick jaws to increase the contact area with the nut.
2.1.5 Adjustable wrench

- The most common type of adjustable wrench in use today. The adjustable end wrench differs from the monkey wrench in that the gripping faces of the jaws are displaced to a (typically) 15 degree angle relative to the tool's handle, a design feature that facilitates the wrench's use in close quarters.

2.1.6 Socket wrench

- A hollow cylinder that fits over one end of a nut or bolt head. It may include a handle, if it does not then it is often just referred to as a socket and is usually used with various drive tools to make it a wrench or spanner such as a ratchet handle, a tee bar (sliding Tommy bar) bar or a knuckle bar (single axis pivot).

2.1.7 Torque wrench

- A torque wrench is also known as a tension wrench. It is designed to tighten bolts and nuts using the drive on the end which takes any sockets and accessories found in an ordinary socket set. It is used to tighten fasteners, to a predetermined tension (torque) by the use of a movable scale that allows how tightly the nut or bolt is being done up.

2.1.8 Allen key

- A wrench used to turn screw or bolt heads designed with a hexagonal socket (recess) to receive the wrench. The wrenches come in two common forms: L-shaped and T-handles. The L-shaped wrenches are formed from hexagonal wire stock, while the T-handles are the same hex wire stock with a metal or plastic handle attached to the end. There are also index able-driver-bits that can be used in index able screwdrivers.
2.1.9 torx wrench

- An internal socket-head screw design. The cross-section resembles a star. Commonly used in automobiles, automated equipment, and computer components as it is resistant to wrench cam-out and so suitable for use in the types of powered tools used in production-line assembly.

2.1.10 Oil filter wrench

- A type of wrench for removing cylindrical oil filters. It may be either a strap-type wrench or a socket.

2.1.11 Extension or distance

- Extensions are used between a socket and its handle. They allow the handle to be placed farther from the work piece, giving you room to swing the handle and turn the fastener.

2.1.12 Universal joint

- A universal joint is a swivel that lets the socket wrench reach around obstructions. It is used between the socket and drive handle, with or without an extension. Avoid putting too much bend into a universal joint, or it may bind and break.

2.1.13 T-spanner

- T-spanner is spanner which is looks like a t. it helps to loose or tight nuts easily.
2.1.14 **standard screwdriver**
- A standard screwdriver has a single blade that fits into a slot in the screw head. A screwdriver is a tool, manual or powered, for tuning screws.

2.1.15 **Phillips screwdriver**
- A Phillips screwdriver has two crossing blades that fit into a star-shaped screw slot. The Phillips recessed heads are optional on several types of screws. The Phillips screw has a slightly larger centre in the cross, the Phillips screwdriver is blunt on the end.

2.1.16 **Reed & prince screwdriver**
- A Reed and Prince screwdriver is similar to a Phillips, but it has a slightly different tip shape. Reed & Prince recessed heads are optional on several types of screws. The Reed & Prince recessed head forms a perfect cross. The screwdriver used with this screw is pointed on the end.

2.1.17 **Ratchet-handle**
- The most common socket handle, the ratchet, makes easy work of tightening or loosening a nut where not a lot of pressure is involved. It can be set to turn in either direction and it doesn’t need much room to swing it. It’s built to be convenient, not super-strong, so too much pressure could damage it.
2.1.18 Sliding t-handle

- The most common socket handle, the ratchet, makes easy work of tightening or loosening a nut where not a lot of pressure is involved. It can be set to turn in either direction and it doesn’t need much room to swing it. It’s built to be convenient, not super-strong, so too much pressure could damage it. For heavier tightening or loosening, an adjustable offset handle or breaker bar, gives the most leverage.

2.1.19 Pliers

- Combination pliers are made from 2 pieces of high carbon or alloy steel. They pivot together so that any force applied to the handles is multiplied in the strong jaws. Some pliers provide a powerful grip on objects, others are designed to cut. Combination pliers can do both - that’s why they’re the most common type.
2.2 Power tool

2.2.1 Air gun
- Air gun use the energy of compressed air for operation. They are also called pneumatic tools. Air gun are labor-saving devices and well worth their cost. Always lubricate an air gun before and after use. While pressing the air gun's trigger, squirt a few drops of air gun oil into the gun's air inlet fitting. Not only will the oil protect the internal parts of the gun during use, but it will also prevent the internal parts from rusting during storage.

Cost: 2000

2.2.2 Bench grinder
- A bench grinder can be used for grinding, cleaning, or polishing operations, Figure 4-8. A bench grinder usually has two wheels—a grinding wheel and a wire wheel. The hard, abrasive grinding wheel is used for sharpening and deburring. The soft wire wheel is used for cleaning and polishing.

Cost: 4500

2.2.3 Drills
- Drills are used to create holes in metal and plastic parts. Some drills are portable; others are mounted on a workbench or the floor. Drills use different-size bits to create the size of hole needed.

Cost: 2000
2.2.4 Battery charger

- A battery charger is used to re-energize a "dead," or discharged, battery. It forces current back into the battery to recharge the plates and battery acid. The red charger lead connects to the positive (+) battery terminal. The black charger lead connects to the negative (−) battery terminal.

Cost: 4000

Figure 2.23
battery charger
2.3 Special equipment

2.3.1 Floor jack

- A floor jack is used to raise either the front, sides, or rear of a vehicle. To avoid vehicle damage, place the jack saddle under a solid part of the car such as the frame, suspension arm, or axle housing. If the saddle is not properly located, it is very easy to smash the oil pan, muffler, floor pan, or another part of the vehicle. To raise the vehicle, turn the jack handle or knob clockwise and pump the handle. To lower the vehicle, turn the handle or knob counter clockwise slowly to release the pressure-relief valve. When raising the front of a vehicle, place the transmission in neutral and release the parking brake. This lets the vehicle roll, preventing it from pulling off the jack. After raising, secure the vehicle on jack stands. Place an automatic transmission in park and a manual transmission in gear. Apply the emergency brake and block the wheels. It is then safe to work under the vehicle.

Cost: 2000 (for light), 10000 (for heavy)

2.3.2 Hydraulic press

- A hydraulic press is used to install or remove gears, pulleys, bearings, seals, and other parts requiring a high pushing force. One is shown in Figure 4-16. A hydraulic ram extends as the pump handle is worked. The ram presses the parts against a table.

Cost: 3,50,000
2.3.3 Jack stands
- Jack stands support a vehicle during repairs. After raising the vehicle with a jack, place stands under the vehicle. Be sure the stands are placed in secure positions. For example, place jack stands under the frame, axle housing, or suspension arm.

Cost: 1500

2.3.4 Coil spring compressor
- Coil spring is used on service coil spring type suspension service. This tool is compress and hold the spring so mechanic easily works on suspension.

Cost: 22000

2.3.5 Auto fuel injector tester & cleaner
- Auto fuel injector tester and cleaner is a tool which is used to service injector in workshop. This tool automatic test and clean injector in some time.

- Cost: 36000
2.3.6 Electric car lift

- Electric car lift is used in workshop to lift a car for service. It uses electric motor power to lift any vehicle.

  Cost: 130000

2.3.7 Suzuki diagnoses tester

- SDT is a device only for Maruti Suzuki cars to find diagnoses.
Chapter 3 :- maintenance and services

3.1 Periodic maintenance

Table 3.1

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Engine oil &amp; filter</td>
<td>10000km or 1 year</td>
</tr>
<tr>
<td>Coolant &amp; brake oil</td>
<td>20000km or 2 year</td>
</tr>
<tr>
<td>Transmission &amp; differential oil</td>
<td>40000km or 4 year</td>
</tr>
<tr>
<td>E.g.r. cleaning</td>
<td>30000km</td>
</tr>
<tr>
<td>(diesel) Air filter &amp; diesel filter</td>
<td>20000 km</td>
</tr>
<tr>
<td>(petrol) air filter &amp; petrol filter</td>
<td>40000 km</td>
</tr>
<tr>
<td>Timing chain</td>
<td>1 lac. km</td>
</tr>
</tbody>
</table>

- In this periodic maintenance as we show give information and time period to change some oil and filter which helps to take your vehicle in good condition.
- Engine oil should be change at every 10,000 km or 1 year which comes first.
- Coolant should be changed at every 20,000 km or 2 years which comes first.
- Transmission & differential oil should be changed at every 40,000 km or 4 years.
- Exhaust gas recirculation valve should clean at every 30,000 km.
- Air filter in diesel car and diesel filter should changed at every 20,000 km.
- Air filter in petrol car and petrol filter should changed at every 40,000 km.
- Timing chain should be changed at every 1,00,000 km.
3.2 Free services

- Perfect auto service provides 3 free services on every vehicle.
- In my workshop services starts by giving mechanics free services.
- They give all mechanics 1st, 2nd, and 3rd free service per day.
- For free service mechanics have to check if all is given before it.

3.2.1 1st free service

- 1st service is provided in period of 1 month or 1000 km.
- In first free service workshop gives free full checkup of vehicle, engine, transmission, etc.
- Wheel balancing and alignment for free.

1. Engine
   - i. Engine coolant
   - ii. Engine oil
   - iii. Cooling system
2. Fuel
   - i. Fuel filter, fuel tank cap, fuel lines and connections
3. Clutch and transmission
   - i. Clutch pedal
   - ii. Clutch slipping
   - iii. Transmission, differential/transfer oil
   - iv. Gear shifter cable
4. Brakes
   - i. Brake fluid
   - ii. Brake pedal
   - iii. Parking break lever
   - iv. Break hoses pipes
5. Wheel
   - i. Tyres
   - ii. Wheels
6. Front and rear suspension
   - i. Struts/shock absorbers
7. Steering
   - i. Steering wheel
   - ii. All rods & arms
   - iii. Steering system
   - iv. Steering gear box
   - v. Tilt steering
8. Electrical
   i. Battery electrolyte
   ii. Lighting system / horn
   iii. Wiper
9. Body
   i. All latches, hinged & locks/ central locking
10. For maruti air-conditioned vehicle
    i. Drive belt
    ii. Check functioning of recirculation lap
    iii. Check all hose joints
11. Road test
    i. Operation of breaks, clutch, gear shifting and Speedo meter
    ii. Body & chassis noise.

3.2.2 2nd free service
   - 2nd free service is provide in period of 6 months or 5000km.
   - In second free service workshop gives free full checkup of vehicle, engine, transmission, etc. with some brief inspection then 1st free service.
   - In 2nd free service customer have to pay for wheel balancing and alignment.

1. Engine.
   i. Engine coolant
   ii. Engine oil
   iii. Cooling system
   iv. Valve clearance (inspect)
   v. Exhaust system
   vi. P.c.v. system
2. Fuel.
   i. Fuel filter, fuel tank cap, fuel lines and connections
   ii. Air cleaner
   iii. Acceleration cable & shaft
3. Clutch and transmission.
   i. Clutch pedal
   ii. Clutch slipping
   iii. Transmission, differential/transfer oil
   iv. Gear shifter cable
   v. Drive shaft boots
   i. Brake fluid
ii. Brake pedal
iii. Parking break lever
iv. Break hoses pipes
v. Brake disc & pads

5. Wheel.
   i. Tyres
   ii. Wheels
   iii. Front/rear wheel bearings

6. Front and rear suspension.
   i. Struts /shock absorbers
   ii. Suspensions arm, knuckle, rear spring
   iii. All nuts & bolts

7. Steering.
   i. Steering wheel
   ii. All rods & arms
   iii. Steering system
   iv. Steering gear box
   v. Tilt steering

8. Electrical.
   i. Battery electrolyte
   ii. Lighting system / horn
   iii. Wiper
   iv. Wiring harness connections

   i. All latches, hinged & locks/ central locking
   ii. All chassis nuts & bolts(inspect)
   iii. Seat belt
   iv. Seat latch(lever & knob)

10. For maruti air-conditioned vehicle.
    i. Drive belt
    ii. Check functioning of recirculation lap
    iii. Check all hose joints
    iv. Tighten compressor mounting belts
    v. Clean condenser with low pressure water

11. Road test.
    i. Operation of breaks, clutch, gear shifting and Speedo meter
    ii. Body & chassis noise.
3.2.3 3\textsuperscript{rd} free service

- 3\textsuperscript{rd} free service is provide in period of 12 months or 10000km.
- In third free service workshop gives free full checkup of vehicle, engine, transmission, etc. with some brief inspection then 2\textsuperscript{nd} free service.
- In 3\textsuperscript{rd} free service customer have to pay for wheel balancing and alignment.

1. Engine
   i. Engine coolant
   ii. Engine oil
   iii. Cooling system
   iv. Engine oil & oil filter change
   v. Cylinder manifolds nuts & bolts
   vi. Spark plugs
2. Fuel
   i. Fuel filter, fuel tank cap, fuel lines and connections
   ii. Air cleaner
   iii. Accelerator cable & shaft
3. Clutch and transmission
   i. Clutch pedal
   ii. Clutch slipping
   iii. Transmission, differential/transfer oil
   iv. Gear shifter cable
   v. Propeller shat play
   vi. Universal joint slack
   vii. Drive shaft boots
4. Brakes
   i. Brake fluid
   ii. Brake pedal
   iii. Parking break lever
   iv. Break hoses pipes
   v. Brake disc & pads
   vi. Brake drums & shoes
5. Wheel
   i. Tyres
   ii. Wheels
   iii. Front/rear wheel bearings
6. Front and rear suspension
   i. Struts/shock absorbers
ii. Suspensions arm, knuckle, rear spring
iii. All nuts & bolts

7. Steering
   i. Steering wheel
   ii. All rods & arms
   iii. Steering system
   iv. Steering gear box
   v. Tilt steering

8. Electrical
   i. Battery electrolyte
   ii. Lighting system / horn
   iii. Wiper
   iv. Wiring harness connections

9. Body
   i. All latches, hinged & locks/ central locking
   ii. All chassis nuts & bolts (inspect)
   iii. Seat belt
   iv. Seat latch (lever & knob)

10. For maruti air-conditioned vehicle
    i. Drive belt
    ii. Check functioning of recirculation lap
    iii. Check all hose joints
    iv. Tighten compressor mounting belts
    v. Clean condenser with low pressure water

11. Road test
    i. Operation of breaks, clutch, gear shifting and Speedo meter
    ii. Body & chassis noise.
3.3 Paid service

- After that the car will come in workshop.
- Paid service is at every 10000 km.
- In paid service mechanic has to inspect periodic maintenance schedule.
- Following is service doing in paid service.

1. Engine tune up
2. Spark plug cleaning
3. Tappet adjust
4. R.p.m. timing setting
5. Clutch play adjustment
6. Brake check
7. All light checking
8. All door & glass setting
9. Engine oil check
10. Gear oil check
11. Vehicle washing & cleaning
12. Coolant water level check
13. Wiper spray check & setting
14. Battery water level & gravity check
15. Starter motor & alternator check
16. Under body belt tainting
17. Upholstery cleaning
18. Tyre pressure & condition check

- And mechanic also check last service so it helps to compare periodic maintenance schedule.
- After that service advisor tacks approval of service from customer which is they want to do.
- After taking approval we starts service.
Chapter 4: Practical work experience

4.1 Common work

Table 4.1
Common work

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>work</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>all light check &amp; service</td>
<td>➢ In this service we check the vehicles lights like head light, tail light, side light, break light, parking light, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ This light has to check that no one is damaged or broken.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ And if there has any problem than we change the bulb or full assemble.</td>
</tr>
<tr>
<td>2.</td>
<td>Engine oil check &amp; replace</td>
<td>➢ engine oil changing period is 10000 km or 1 year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ But because of some reasons engine oil spoiled.</td>
</tr>
<tr>
<td>3.</td>
<td>Engine oil filter replace</td>
<td>➢ Generally engine oil filter changed with engine oil.</td>
</tr>
<tr>
<td>4.</td>
<td>Gear oil replace</td>
<td>➢ Gear oil or transmission oil changed at every 40000 km or 4 years.</td>
</tr>
<tr>
<td>5.</td>
<td>Air filter service or replace</td>
<td>➢ Air filter service means dusting by air.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Air filter changed at every 40000 km in petrol filter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ air filter changed at every 20000 km in diesel because diesel engine takes more air in every stroke in compare of petrol engine.</td>
</tr>
<tr>
<td>6.</td>
<td>Coolant replace</td>
<td>➢ Coolant replace at every 10000km.</td>
</tr>
<tr>
<td>7.</td>
<td>Petrol filter replace</td>
<td>➢ Petrol filter changed at every 40000 km.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Petrol filter is an full assemble for change.</td>
</tr>
<tr>
<td>8.</td>
<td>Diesel filter replace</td>
<td>➢ Diesel filter changed at every 20000 km.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Our workshop use paper type Diesel filter.</td>
</tr>
<tr>
<td>9.</td>
<td>A.c. blower service</td>
<td>➢ In A.C. blower we have to clean blower of A.C. with the help of air.</td>
</tr>
<tr>
<td>10.</td>
<td>Battery water level top-up</td>
<td>➢ In Battery water level top up we have to include electrolyte in battery by putting in distilled water.</td>
</tr>
<tr>
<td>11.</td>
<td>Caliper play service</td>
<td>➢ If calliper has space they noise.</td>
</tr>
</tbody>
</table>
|         |                                            | ➢ We have put pure the space by using tayplon tap and
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Brake shoe replace</td>
<td>Brake shoe replace at every 60000 km.</td>
</tr>
<tr>
<td>13.</td>
<td>Axle replace</td>
<td>Axle replace when they damage.</td>
</tr>
<tr>
<td>14.</td>
<td>Valve clearance setting</td>
<td>Valve clearance is gap given between valve and cam shaft for set valve due to increase of height of valve by heat of engine.</td>
</tr>
<tr>
<td>15.</td>
<td>Stabilizer replace</td>
<td>Stabilizer is a part which helps lower arm to stabilized vehicle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stabilizer changed when it’s bosh is wear.</td>
</tr>
<tr>
<td>16.</td>
<td>Synchronizer ring replace</td>
<td>Synchronizer ring is used in synchromesh gear box to mesh the gear.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If this ring damaged it create problems in changing gear.</td>
</tr>
<tr>
<td>17.</td>
<td>Spark plug change</td>
<td>We change spark plug when spark plug loose his gap.</td>
</tr>
<tr>
<td>18.</td>
<td>Windshield wiper replace</td>
<td>Windshield wiper replace when it becomes bed conditions.</td>
</tr>
<tr>
<td>19.</td>
<td>Inter cooler service</td>
<td>Inter cooler clean by diesel.</td>
</tr>
<tr>
<td>20.</td>
<td>Carburettor service</td>
<td>Carburettor is due to use fill by carbon and if we not clean it, it block the carburettor.</td>
</tr>
<tr>
<td>21.</td>
<td>Front suspension</td>
<td>Maruti use Make person strut suspension.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>We replace jumper and strut service.</td>
</tr>
<tr>
<td>22.</td>
<td>Brake disk clean-up</td>
<td>In every service we clean brake disk.</td>
</tr>
<tr>
<td>23.</td>
<td>Clutch play set</td>
<td>Clutch play is play given clutch pedal because if we not give this play clutch is always in friction with flywheel and it burn.</td>
</tr>
<tr>
<td>24.</td>
<td>Break play set</td>
<td>Brake play is given for loose unused wear.</td>
</tr>
<tr>
<td>25.</td>
<td>Clutch facing replace</td>
<td>When Clutch facing</td>
</tr>
</tbody>
</table>
## Chapter 5: Major Works

### Table 5.1: Major Works

<table>
<thead>
<tr>
<th>Work no.</th>
<th>Models</th>
<th>Problem</th>
<th>Remedies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>swift</td>
<td>low pickup</td>
<td>First of all we take out all oil from oil chamber.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>After that we take out silencer, inter cooler, carburetor, turbocharger</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>and clean it properly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Then it work properly.</td>
</tr>
<tr>
<td>2.</td>
<td>eeco</td>
<td>noise from backside</td>
<td>Changing differential unit</td>
</tr>
<tr>
<td>3.</td>
<td>swift</td>
<td>clutch facing burn</td>
<td>Changing full clutch assembly</td>
</tr>
<tr>
<td>4.</td>
<td>Ertiga</td>
<td>gear problem</td>
<td>Synchronizer ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carburetor jam</td>
<td>Carburetor service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Caliper noise</td>
<td>Caliper play service</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Valve clearance service</td>
</tr>
<tr>
<td>5.</td>
<td>swift</td>
<td>bearing noise</td>
<td>Bearing replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engine oil weak</td>
<td>Engine oil replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gear synchronizer ring</td>
<td>Synchronizer ring replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>not in good condition</td>
<td>Valve clearance setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valance clearance noise</td>
<td>Clutch facing replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clutch facing burn</td>
<td>Wind shield wiper replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wind shield wiper in bed</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>eeco</td>
<td>air filter</td>
<td>Air filter replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a.c. cooling coil</td>
<td>a.c cooling coil replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>clutch facing wear out</td>
<td>Clutch facing replace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>caliper play service</td>
<td>Caliper play service</td>
</tr>
<tr>
<td>7. eeco</td>
<td>gear problem</td>
<td>synchronizer ring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carburetor jam</td>
<td>Carburetor service</td>
<td></td>
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<tr>
<td></td>
<td>Caliper noise</td>
<td>Caliper play service</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valve clearance service</td>
<td></td>
</tr>
</tbody>
</table>

| 8. swift | Clutch facing wear out | Clutch facing replace |
|          | Caliper noise         | Caliper play service |
|          | Tappet noise          | Valve clearance setting |
|          | Coolant weak          | Coolant replace |
|          | Wheel bearing wear    | Wheel bearing replace |

| 9. eeco  | Caliper noise        | Caliper play service |
|          | Hand break not work  | Hand break Setting |
|          | Coolant weak         | Coolant replace |
|          |                      | Engine oil replace |
|          |                      | Transmission oil replace |

| 10. wagon r | Air filter | Air filter replace |
|             | Petrol filter | Petrol filter |
|             | Coolant engine oil | Coolant replace |
|             | Caliper noise | Caliper play service |
|             | Wheel bearing | Wheel bearing replace |

| 11. eeco | Clutch facing wear out | Clutch facing replace |
|          | Caliper noise          | Caliper play service |
|          | Tappet noise           | Valve clearance setting |
|          | Coolant weak           | Coolant replace |
|          | Wheel bearing wear     | Wheel bearing replace |

<p>| 12. ertiga | Clutch facing replace | Air filter replace |
|            | Caliper play service  | Petrol filter |
|            |                         | Coolant replace |
|            |                         | Caliper play service |</p>
<table>
<thead>
<tr>
<th></th>
<th>setting</th>
<th>Wheel bearing replace</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coolant replace</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wheel bearing replace</td>
<td></td>
</tr>
</tbody>
</table>

13. wagon r
- Air filter
- Petrol filter
- Coolant engine oil
- Caliper noise
- Wheel bearing
- Tappet noise
- Front suspension
- Lower arm weak

Lower arm replace

Air filter replace

Petrol filter

Coolant replace

Caliper play service

Wheel bearing replace

Valve clearance setting

Jumper replace

14. steem
- Air filter
- Petrol filter
- Coolant engine oil
- Caliper noise
- Wheel bearing

Air filter replace

Petrol filter

Coolant replace

Caliper play service

Wheel bearing replace

15. alto
- Air filter
- Petrol filter
- Coolant engine oil
- Caliper noise
- Wheel bearing

Air filter replace

Petrol filter

Coolant replace

Caliper play service

Wheel bearing replace

16. swift
- Clutch facing wear out
- Caliper noise
- Tappet noise
- Coolant weak
- Wheel bearing wear

Clutch facing replace

Caliper play service

Valve clearance setting

Coolant replace

Wheel bearing replace

17. swift dzire
- Air filter
- Petrol filter
- Coolant engine oil
- Caliper noise
- Wheel bearing

Air filter replace

Petrol filter

Coolant replace

Caliper play service

Wheel bearing replace
<p>| | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>18. swift</strong></td>
<td>Caliper noise</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
</tr>
<tr>
<td></td>
<td>Hand break not work</td>
<td>Hand break Setting</td>
<td>Hand break Setting</td>
<td>Hand break Setting</td>
</tr>
<tr>
<td></td>
<td>Coolant weak</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
</tr>
<tr>
<td><strong>19. swift dzire</strong></td>
<td>Clutch facing wear out</td>
<td>Clutch facing replace</td>
<td>Clutch facing replace</td>
<td>Clutch facing replace</td>
</tr>
<tr>
<td></td>
<td>Caliper noise</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
</tr>
<tr>
<td></td>
<td>Tappet noise</td>
<td>Valve clearance setting</td>
<td>Valve clearance setting</td>
<td>Valve clearance setting</td>
</tr>
<tr>
<td></td>
<td>Coolant weak</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
</tr>
<tr>
<td></td>
<td>Wheel bearing wear</td>
<td>Wheel bearing replace</td>
<td>Wheel bearing replace</td>
<td>Wheel bearing replace</td>
</tr>
<tr>
<td><strong>20. swift</strong></td>
<td>Air filter</td>
<td>Air filter replace</td>
<td>Air filter replace</td>
<td>Air filter replace</td>
</tr>
<tr>
<td></td>
<td>Petrol filter</td>
<td>Petrol filter</td>
<td>Petrol filter</td>
<td>Petrol filter</td>
</tr>
<tr>
<td></td>
<td>Coolant engine oil</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
<td>Coolant replace</td>
</tr>
<tr>
<td></td>
<td>Caliper noise</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
<td>Caliper play service</td>
</tr>
<tr>
<td></td>
<td>Wheel bearing</td>
<td>Wheel bearing replace</td>
<td>Wheel bearing replace</td>
<td>Wheel bearing replace</td>
</tr>
</tbody>
</table>

Figure 5.1
Changing gear selector

figure 5.2
oil filter
Figure 5.3  
clutch facing replace

figure 5.4  
gear selector

Figure 5.5  
5th gear bearing

figure 5.6  
synchronizer ring
Figure 5.7
cam shaft replace

figure 5.8
piston ring change
chapter 6 :- special challenges

- Special challenges of my training is gear changing.
- Another challenge is tightening the bolts because some time I apply more force than required and bolts are broke.
Chapter 7 :- likes & dislikes

7.1 likes

- I really like the work of workshop.

7.2 dislikes

- I dislike not technical language of mechanics.
Reference

- Maruti Suzuki swift manual
- Swift desire manual
- Eeco manual
- Ertiga manual
- Theory of machine
- Automobile engineering
- Automotive technic’s