REPORT ON
IN – PLANT TRAINING at GOODWIN MOTORS

TOPICS:

Day 1
Morning Session

1. Automobile Basics
2. IC Engine Basics
3. Automotive Industry Updates
4. Passenger cars and Commercial Vehicles basics
5. Hands On - Experience, PPT, Video

Afternoon Session
1. IC Engines Practical’s
2. Aptitude Test Practice
3. Hands on - Experience

**Day 2**

Morning Session

1. Passenger car MPFI engine - Practicals
2. Group Discussion Practice  
   a. PPT And Videos  
   b. Hands on - Experience

Afternoon Session  
   a. Passenger car MPFi engine - Practicals  
   b. Aptitude Test Practice  
   c. Hands on - Experience

**Day 3**

Morning Session  
1. Motor cycle Building Practicals  
   – Complete overhauling of Bikes and rebuilding PPT and videos  
   Hands on Experience

Afternoon Session  
1. Bike Building Practicals contd –Complete Overhauling of Bikes and rebuilding  
2. Group Discussion Practice  
   Hands on Experience

**Day 4**

Morning Session  
Vehicle Systems  
Practical on Passenger cars PPT and videos  
Hands on Experience

Afternoon Session  
1. Practicals on Passenger car  
2. Group discussion Practice  
   Hands on Experience
MPFI ENGINES

RepoPetrol vehicles use device called carburetor for supplying the air fuel mixture in correct ratio to cylinders in all rpm ranges. The construction of the carburetor is relatively simple, it has been used almost exclusively on gasoline engines in the past. However in response to recent demands for cleaner exhaust emission, more economical fuel consumption, improved drivability, etc., the carburetor now must be equipped with various compensating devices, making it more complex system. So In place of the carburetor, the MPFI (multi point fuel injection) system is used, assuring proper air fuel ratio to the engine by electrically injecting fuel in accordance with various driving conditions.

MPFI system injects fuel into individual cylinders, based on commands from the ‘on board engine management system computer’ – popularly known as the Engine Control Unit/ECU. These techniques result not only in better ‘power balance’ amongst the cylinders but also in higher output from each one of them, along with faster throttle response. The electronic fuel injection system supplies the combustion chambers with air/fuel mixture of optimized ratio under widely varying driving conditions.
ADVANTAGES OF MPFI

- More uniform A/F mixture will be supplied to each cylinder; hence the difference in power developed in each cylinder is minimum. Vibration from the engine equipped with this system is less, due to this the life of engine components is improved.
- No need to crank the engine twice or thrice in case of cold starting as happens in the carburetor system.
- Immediate response, in case of sudden acceleration / deceleration.
- Since the engine is controlled by ECM* (Engine Control Module), more accurate amount of A/F mixture will be supplied and as a result complete combustion will take place. This leads to effective utilization of fuel supplied and hence low emission level.
- The mileage of the vehicle will be improved.

Almost all vehicles in India are changing to the MPFI because of law emissions, improved mileage and drivability since the engine is controlled by micro computer more accurate amount of A/F mixture will be supplied and as a result complete combustion will take place. This leads to effective utilization of fuel supplied and hence low emission level. it reduces wastage of fuel by the use of sensors and other control systems.
BIKE ENGINES:

Motorcycle engines work the same way that car engines do. They consist of pistons, a cylinder block and a head, which contains the valve train. The pistons move up and down in the cylinder block, driven by explosions of a fuel-air mixture that has been ignited by a spark. Valves open and close to allow the fuel-air mixture to enter the combustion chamber. As the pistons move up and down, they turn a crankshaft, which transforms the energy from the pistons into rotary motion. The rotational force of the crankshaft is transmitted, via the transmission, to the rear wheel of the motorcycle.
Motorcycle engines are generally classified by one of three characteristics: the number of cylinders they possess, the capacity of their combustion chambers or the number of strokes in their power cycles.
PASSENGER CAR:

Basic parts:
- Hood
- Boot
- Trunk or Tail gate
- Front wind shield
- Rear wind shield
- Outer rear view
- Inner rear view

HOOD:
ENGINE COMPARTMENT:

Radiator:

**Radiators** are heat exchangers used to transfer thermal energy from one medium to another for the purpose of cooling and heating. The majority of radiators are constructed to function in automobiles, buildings, and electronics. The radiator is always a source of heat to its environment, although this may be for either the purpose of heating this environment, or for cooling the fluid or coolant supplied to it, as for engine cooling.

starter motor:

A **starter** is an electric motor, pneumatic motor, hydraulic motor, or other device for rotating an internal-combustion engine so as to initiate the engine's operation under its own power.

Airfilter:

A particulate **air filter** is a device composed of fibrous materials which removes solid particulates such as dust, pollen, mold, and bacteria from the air. A chemical air filter consists of an absorbent or catalyst for the removal of airborne molecular contaminants such as volatile organic compounds or ozone. Air filters are used in applications where air quality is important, notably in building ventilation systems and in engines.

**oil filter**:

An **oil filter** is a filter designed to remove contaminants from engine oil, transmission oil, lubricating oil, or hydraulic oil. Oil filters are used in many different types of hydraulic machinery. A chief use of the oil filter is in internal-combustion engines in on- and off-road motor vehicles, light aircraft, and various naval vessels. Other vehicle hydraulic systems, such as those in automatic transmissions and power steering, are often equipped with an oil filter. Gas turbine engines, such as those on jet aircraft, also require the use of oil filters. Aside from these uses, oil production, transport, and recycling facilities also employ filters in the manufacturing process.

wiper motor:

A **windscreen wiper** or **windshield wiper** is a device used to remove rain and debris from a windscreen or windshield. Almost all motor vehicles, including trains, aircraft and watercraft, are equipped with such wipers, which are usually a legal requirement.

A wiper generally consists of an arm, pivoting at one end and with a long rubber blade attached to the other. The blade is swung back and forth over the glass, pushing water from its surface. The speed is normally adjustable, with several continuous speeds and often one or more "intermittent" settings.
Carburettor or fuel injection system:

A carburetor is a device that blends air and fuel for an internal combustion engine.

The other components are:

- Various sensors
- Battery
- Hoses
- Wiring
- Fuse box
- Engine mounts
- Rotor arm
- Points
- Electronic ignition
- ECU
- Rocker covers
- Inlet manifold
- Outlet manifold
- Exhaust
- Heat shield
- Oil
- Water reservoir
- Washer jet lines
- Brake servo
- ABS switch
- Steering column
- UJ's
- Suspension tops
- Various bolts
- Screws
- Grill surround
- Hood support
- Sound deadening felt
- Clutch & housing
- Release bearing
- Gearbox
- Drive shaft (FWD)
- Coil springs
- Shock absorbers
- Anti roll bars
- Core plugs
- Solenoid
- Accelerator cable
- Various mountings
- Headlights
- Fuel pump
- Fuel filter
- Diagnostic check plug in
VARIOUS TESTS CONDUCTED ON ENGINE COMPARTMENT:

- Ignition cut off test
- Injection cut off test
- checking engine sounds
- finding out resistance battery voltage
- Spark plug test
- Brake drum test

:: Spark plug test

Multimeter

:: checking engine sounds

Bike parts:

- **Chassis**
  - Frame
  - Suspension
  - Front fork
- **Engine**
- **Transmission**
- **Final drive**
- **Wheels**
- **Tires**
- **Brakes**
CONCLUSION:

We learnt all the above topics practically in “GOOD WIN MOTORS”. We felt it as a very useful one and helps in learning many new terms in automobiles. We wish such type of trainings should be happened further.