

# NIMI WALL CHART ( MECHANIC MOTOR VEHICLE FIRST YEAR )

MMV - 1<sup>st</sup> YEAR / CH - 020

**TURBO CHARGER**

NATIONAL INSTITUTIONAL MEDIA INSTITUTE

MMV - 1<sup>st</sup> YEAR / CH - 022

**COMMUNICATION SYSTEM**

NATIONAL INSTITUTIONAL MEDIA INSTITUTE

MMV - 1<sup>st</sup> YEAR / CH - 021

**CATALYTIC CONVERTER**

Major Reaction  
 $CO_2 + 1/2 O_2 = CO_2$   
 $H_2C + 3O_2 = 2CO_2 + 2H_2O$   
 $CO + NOx = CO_2 + N_2$

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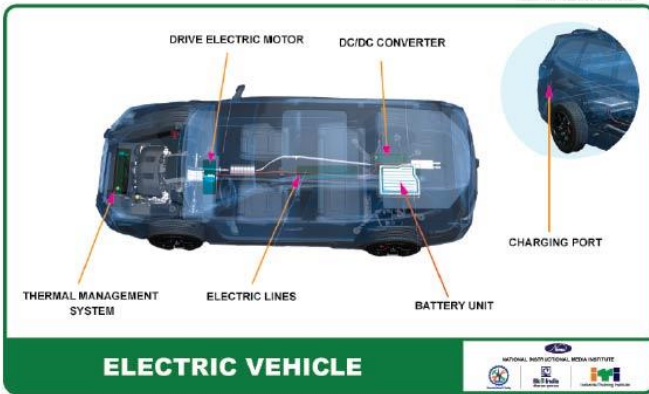
MMV - 1<sup>st</sup> YEAR / CH - 001

**VERNIER CALIPER PARTS & PRINCIPLE**

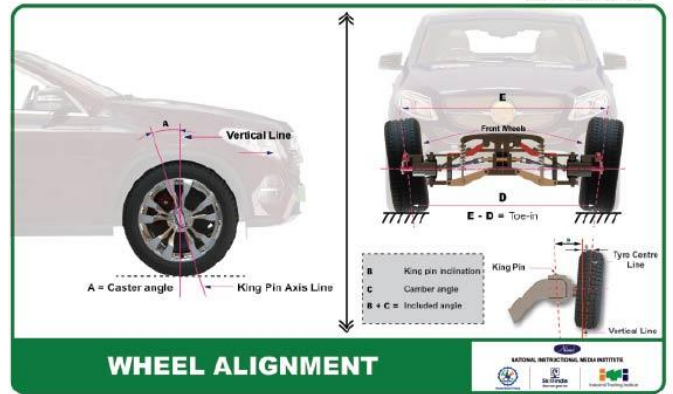
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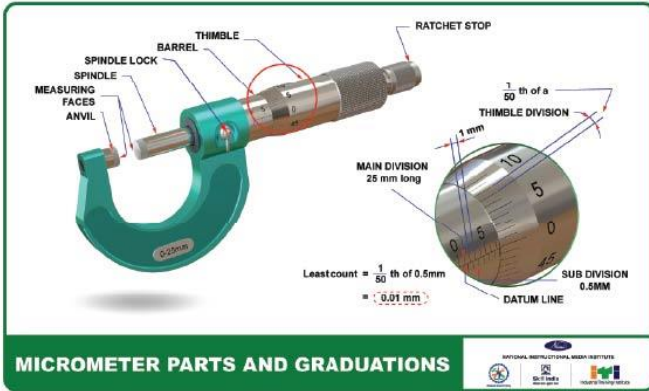
MMV - 1<sup>st</sup> YEAR / CH - 002



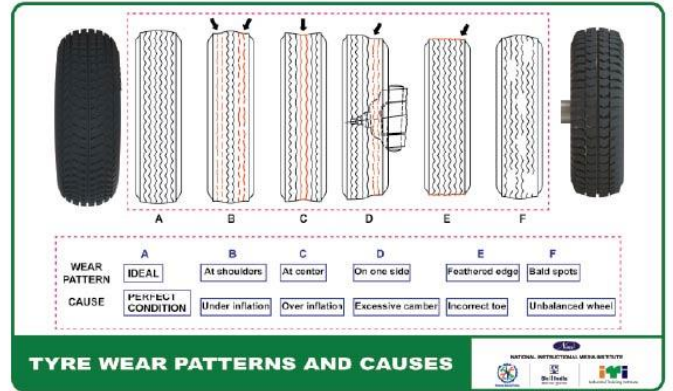
MMV - 1<sup>st</sup> YEAR / CH - 005



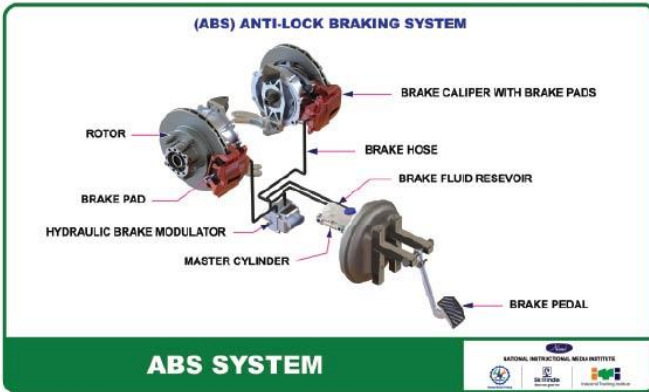
MMV - 1<sup>st</sup> YEAR / CH - 003



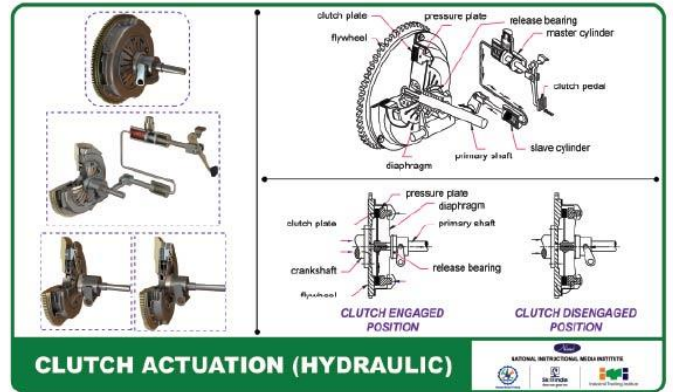
MMV - 1<sup>st</sup> YEAR / CH - 006



MMV - 1<sup>st</sup> YEAR / CH - 004



MMV - 1<sup>st</sup> YEAR / CH - 007



# NIMI WALL CHART ( MECHANIC MOTOR VEHICLE FIRST YEAR )

MMV - 1<sup>st</sup> YEAR / CH - 009

**CONDITION**

- A On Bump
- B On Plain Surface
- C On Ditch

**FUNCTION OF UNIVERSAL JOINT AND SLIP JOINT**

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MMV - 1<sup>st</sup> YEAR / CH - 012

**A - Suction Stroke**  
Action: Inlet valve (1) opens and air fuel mixture enters inside the cylinder.

**B - Compression Stroke**  
Action: Inlet valve (1) and exhaust valve (3) are closed. Air fuel mixture is compressed.

**C - Power Stroke**  
Action: Valves (1) and (3) are closed. Spark from the spark plug (2) ignites the mixture. Piston is forced down by the burnt gases.

**D - Exhaust Stroke**  
Action: Exhaust valve (3) opens and burnt gases are forced out.

**FOUR STROKE CYCLE OPERATION (PETROL)**

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MMV - 1<sup>st</sup> YEAR / CH - 010

**HYDRAULIC BRAKES**

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BILHAIRA

MMV - 1<sup>st</sup> YEAR / CH - 013

**A - Suction Stroke**  
ACTION: Inlet valve (1) opens and only air enters inside the cylinder.

**B - Compression Stroke**  
ACTION: Inlet valve (1) and exhaust valve (3) are closed. Air is compressed.

**C - Power Stroke**  
ACTION: Valves (1) & (3) are closed and injector (2) sprays diesel. Diesel is ignited by hot compressed air. Piston is forced down by burnt gases.

**D - Exhaust Stroke**  
ACTION: Exhaust valve (3) opens and burnt gases are forced out from the cylinder.

**FOUR STROKE CYCLE OPERATION (DIESEL)**

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MMV - 1<sup>st</sup> YEAR / CH - 011

**RELATIONSHIP BETWEEN PISTON AND FLY WHEEL MOVEMENT**

- A Top Dead Center (T.D.C)
- C Stroke Length
- B Bottom Dead Center (B.D.C)
- D Crank Throw

$D \times 2 = \text{Stroke Length}$

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MMV - 1<sup>st</sup> YEAR / CH - 014

**A - Beginning of Compression Stroke**  
ACTION: All the ports 1, 2 & 4 are closed. Air fuel mixture is compressed above the piston.

**B - Suction and Compression Stroke**  
ACTION: Inlet port (2) opens and the charge goes inside crank case (3). Charge above the piston is compressed and ignited.

**C - Power and Exhaust Stroke**  
ACTION: Piston is forced down, transfer port (4) and exhaust port (1) opens and burnt gases are forced out by the charge entered through the transfer port (4).

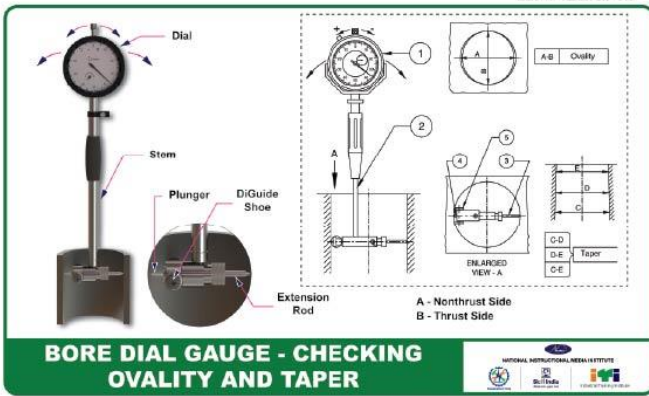
**TWO STROKE CYCLE OPERATION (PETROL)**

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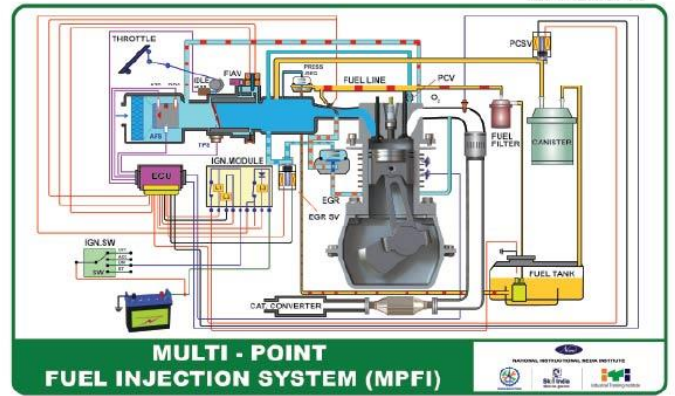


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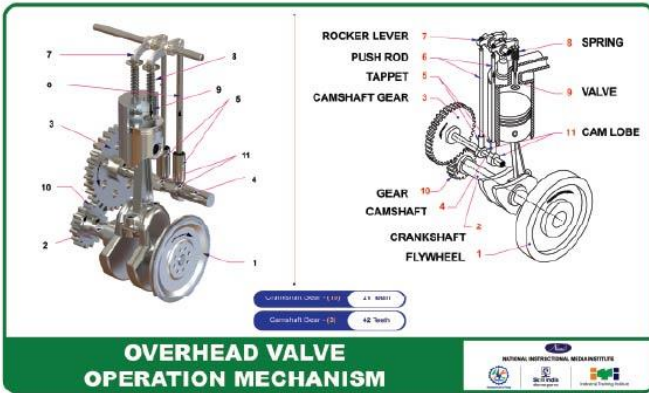
MMV - 1<sup>st</sup> YEAR / CH - 015



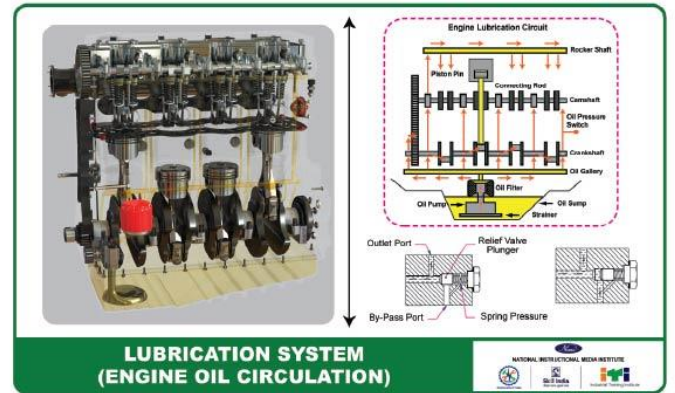
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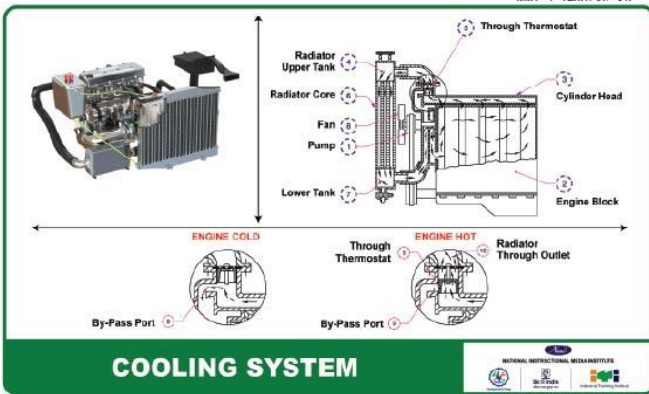
MMV - 1<sup>st</sup> YEAR / CH - 016



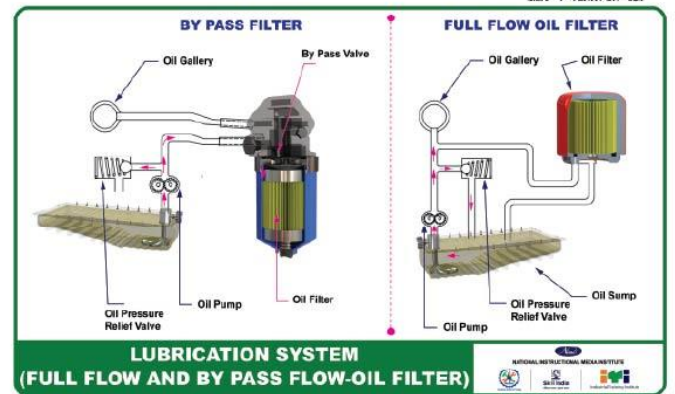
MMV - 1<sup>st</sup> YEAR / CH - 023



MMV - 1<sup>st</sup> YEAR / CH - 017

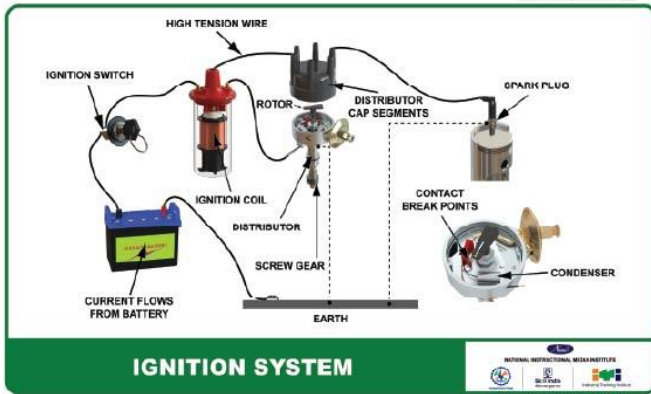


MMV - 1<sup>st</sup> YEAR / CH - 024



# NIMI WALL CHART ( MECHANIC MOTOR VEHICLE FIRST YEAR )

MMV - 1<sup>ST</sup> YEAR / CH - 025



MMV - 1<sup>ST</sup> YEAR / CH - 008

|  |   |
|--|---|
|  |   |
| <p><b>SPUR GEARS</b></p> <p>Teeth are straight and parallel<br/>Only one tooth is in contact at a time.<br/>There is no axial thrust<br/><b>APPLICATION</b> - Gear box</p>       | <p><b>WORM GEARS</b></p> <p>Teeth are at an angle and curved<br/>More teeth are in contact at a time<br/>There is axial thrust<br/><b>APPLICATION</b> - Gear box.</p>   |
|  |   |
| <p><b>HELICAL GEARS</b></p> <p>Teeth are at an angle<br/>More teeth are in contact at a time<br/>There is axial thrust<br/><b>APPLICATION</b> - Gear box.</p>                    | <p><b>RACK AND PINION</b></p> <p>Teeth are parallel<br/>Only one tooth is in contact at a time<br/>There is no axial thrust.<br/>Converts rotary motion into linear motion.<br/><b>APPLICATION</b> - Steering</p> |
|  |   |
| <p><b>HERRING BONE GEARS</b></p> <p>Teeth are straight at an angle<br/>More teeth are in contact at a time<br/>Axial thrust is neutralized<br/><b>APPLICATION</b> - Gear box</p> | <p><b>SPIRAL BEVEL GEARS</b></p> <p>Teeth are curved<br/>More teeth are in contact at a time<br/>Produces axial thrust<br/>Transmits torque at 90°<br/><b>APPLICATION</b> - Final drive differential</p>          |

**TYPES OF GEARS**

NATIONAL INSTITUTIONAL RESEARCH INSTITUTE