

PORT TIMING DIAGRAM OF TWO STROKE CYCLE PETROL ENGINE

Ex.No. :

Date:

Aim :

To draw the port timing diagram of given two stroke cycle petrol engine .

Apparatus Required :

1. Two stroke petrol engine
2. Measuring tape
3. Chalk

Theory and Description :

In the case of two stroke cycle engines the inlet and exhaust valves are not present . Instead , the slots are cut on the cylinder itself at different elevation and they are called ports. There are three ports are present in the two stroke cycle engine .

1. Inlet port
2. Transfer port
3. Exhaust port

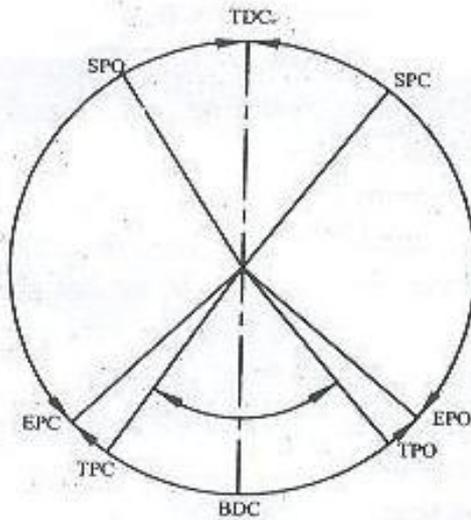
The diagram which shows the position of crank at which the above ports are open and close are called as port timing diagram.

The extreme position of the piston at the bottom of the cylinder is called “ Bottom Dead centre “ [BDC] . The extreme position of the piston at the top of the cylinder is called “TOP dead centre “ [TDC]

In two stroke petrol engine the inlet port open when the piston moves from BDC to TDC and is closed when the piston moves from TDC to BDC .

The transfer port is opened when the piston is moved from TDC to BDC and the fuel enters into the cylinder through this transport from the crank case of the engine . The transfer port is closed when piston moves from BDC to TDC . The transfer port opening and closing are measured with respect to the BDC .

The exhaust port is opened , when the piston moves from TDC to BDC and is closed when piston moves from BDC to TDC . The exhaust port opening and closing are measured with respect to the BDC.



- EPO to EPC - Exhaust
- TPO to TPC - Charging
- EPC to TDC - Compression
- TDC to EPO - Expansion
- EPO - Exhaust Port Open (35° to 50° before BDC)
- EPC - Exhaust Port Close (35° to 50° After BDC)
- TPO - Transfer Port Open (30° to 40° Before BDC)
- TPC - Transfer Port Close (30° to 40° After BDC)

Observation and Tabulation

1. Circumference of the flywheel = X Cm

$$\therefore 1 \text{ Cm} = \frac{360}{X} \text{ in degrees}$$

S.No.	Event	Position of crank w.r.to TDC or BDC	Distance in 'cm'	Angle degrees
1.	IPO	Before TDC		
2.	IPC	After TDC		
3.	EPO	Before BDC		
4.	EPC	After BDC		
5.	TPO	Before BDC		
6.	TPC	After BDC		

Procedure :

1. Remove the ports cover and identify the three ports .
2. Mark the TDC and BDC position of the fly wheel . To mark this position follow the same procedure as followed in valve timing diagram .
3. Rotate the flywheel slowly in usual direction (usually clockwise) and observe the movement of the piston
4. When the piston moves from BDC to TDC observe when the bottom edge of the piston . Just uncover the bottom end of the inlet port . This is the inlet port opening (IPO) condition , make the mark on the flywheel and measure the distance from TDC
5. When piston moves from TDC to BDC observe when the bottom edge of the piston completely covers the inlet port . This is the inlet port closing (IPC) condition . Make the mark on the flywheel and measure the distance from TDC .
6. When the piston moves from TDC to BDC , observe , when the top edge of the piston just uncover the exhaust port . This is the exhaust port opening [EPO] condition . Make the mark on the flywheel and measure the distance from BDC .
7. When the piston moves from BDC to TDC , observe , when the piston completely cover the exhaust port ,. This is the exhaust port closing condition [EPC] . Make the mark on the flywheel and measure the distance from BDC .
8. When the piston moves from TDC to BDC observe, when the top edge of the piston just uncover the transfer port . This is the transfer port opening [TPO] condition . Make the mark on the flywheel and measure the distance from BDC
9. When the piston moves from BDC to TDC , observe , when the piston completely covers the transfer port. This is the transfer port closing [TPC] condition . Make the mark on the flywheel and measure the distance from BDC .

- Note :**
1. The inlet port opening distance and closing distance from TDC are equal .
 2. The exhaust port opening distance and closing distance from BDC are equal .
 3. The transfer port opening distance and closing distance from BDC are equal .

Result :

The port timing diagram for the given two stroke cycle petrol engine was drawn.

