



Timing Chart for Four Stroke Engines

Use this chart to preset diagnostic scope time base to understand timing events with your *Firstlook[®]* Engine Diagnostic Sensor.

Chart indicates time between valve opening events in milliseconds.
Time to complete 1 cycle = 2 engine revolutions.

Engine Speed (rpm)	Time Between Valve Opening Events (milliseconds)							Starting Time Base Reference (ms)
	Time to Complete 1 Cycle in 4 Stroke Engine (ms)	A 2 Cylinder	B 3 Cylinder	C 4 Cylinder	D 5 Cylinder	E 6 Cylinder	F 8 Cylinder	
150	800.0	400.0	266.7	200.0	160.0	133.3	100.0	
175	685.7	342.9	228.6	171.4	137.1	114.3	85.7	
200	600.0	300.0	200.0	150.0	120.0	100.0	75.0	Cold Crank 600.0 ms
225	533.3	266.7	177.8	133.3	106.7	88.9	66.7	
250	480.0	240.0	160.0	120.0	96.0	80.0	60.0	
300	400.0	200.0	133.3	100.0	80.0	66.7	50.0	
350	342.9	171.4	114.3	85.7	68.6	57.1	42.9	
400	300.0	150.0	100.0	75.0	60.0	50.0	37.5	
450	266.7	133.3	88.9	66.7	53.3	44.4	33.3	
500	240.0	120.0	80.0	60.0	48.0	40.0	30.0	
550	218.2	109.1	72.7	54.5	43.6	36.4	27.3	
600	200.0	100.0	66.7	50.0	40.0	33.3	25.0	Idle Start 200.0 ms
650	184.6	92.3	61.5	46.2	36.9	30.8	23.1	
700	171.4	85.7	57.1	42.9	34.3	28.6	21.4	
750	160.0	80.0	53.3	40.0	32.0	26.7	20.0	
800	150.0	75.0	50.0	37.5	30.0	25.0	18.8	
850	141.2	70.6	47.1	35.3	28.2	23.5	17.6	
900	133.3	66.7	44.4	33.3	26.7	22.2	16.7	
950	126.3	63.2	42.1	31.6	25.3	21.1	15.8	
1000	120.0	60.0	40.0	30.0	24.0	20.0	15.0	Auto Low rpm 100.0 ms
1100	109.1	54.5	36.4	27.3	21.8	18.2	13.6	
1200	100.0	50.0	33.3	25.0	20.0	16.7	12.5	
1300	92.3	46.2	30.8	23.1	18.5	15.4	11.5	
1400	85.7	42.9	28.6	21.4	17.1	14.3	10.7	Diesel Mid Range rpm 80.0 ms
1500	80.0	40.0	26.7	20.0	16.0	13.3	10.0	
1600	75.0	37.5	25.0	18.8	15.0	12.5	9.4	
1700	70.6	35.3	23.5	17.6	14.1	11.8	8.8	
1800	66.7	33.3	22.2	16.7	13.3	11.1	8.3	
1900	63.2	31.6	21.1	15.8	12.6	10.5	7.9	
2000	60.0	30.0	20.0	15.0	12.0	10.0	7.5	
2100	57.1	28.6	19.0	14.3	11.4	9.5	7.1	
2200	54.5	27.3	18.2	13.6	10.9	9.1	6.8	Auto Mid Range rpm 50.0 ms
2300	52.2	26.1	17.4	13.0	10.4	8.7	6.5	
2400	50.0	25.0	16.7	12.5	10.0	8.3	6.3	

For a complete discussion for use of this table refer to the Firstlook[®] User's Guide

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Timing Chart for Two Stroke Engines

Use this chart to preset diagnostic scope time base to understand timing events with your *Firstlook*[®] Engine Diagnostic Sensor.

Chart indicates time between valve opening events in milliseconds.
Time to complete 1 cycle = 1 engine revolution.

Engine Speed (rpm)	Time Between Valve Opening Events (milliseconds)							Starting Time Base Reference (ms)
	Time to Complete 1 Cycle in 2-Stroke Engine (ms)	A	B	C	D	E	F	
	2 Cylinder	3 Cylinder	4 Cylinder	5 Cylinder	6 Cylinder	8 Cylinder		
150	400.0	200.0	133.3	100.0	80.0	66.7	50.0	
175	342.9	171.4	114.3	85.7	68.6	57.1	42.9	
200	300.0	150.0	100.0	75.0	60.0	50.0	37.5	
225	266.7	133.3	88.9	66.7	53.3	44.4	33.3	
250	240.0	120.0	80.0	60.0	48.0	40.0	30.0	Idle rpm 200.0 ms
300	200.0	100.0	66.7	50.0	40.0	33.3	25.0	
350	171.5	85.7	57.2	42.9	34.3	28.6	21.4	
400	150.0	75.0	50.0	37.5	30.0	25.0	18.8	
450	133.4	66.7	44.5	33.3	26.7	22.2	16.7	
500	120.0	60.0	40.0	30.0	24.0	20.0	15.0	
550	109.1	54.6	36.4	27.3	21.8	18.2	13.6	
600	100.0	50.0	33.3	25.0	20.0	16.7	12.5	
650	92.3	46.2	30.8	23.1	18.5	15.4	11.5	
700	85.7	42.9	28.6	21.4	17.1	14.3	10.7	
750	80.0	40.0	26.7	20.0	16.0	13.3	10.0	
800	75.0	37.5	25.0	18.8	15.0	12.5	9.4	
850	70.6	35.3	23.5	17.7	14.1	11.8	8.8	
900	66.7	33.3	22.2	16.7	13.3	11.1	8.3	
950	63.2	31.6	21.1	15.8	12.6	10.5	7.9	Full speed rpm 60.0 ms
1000	60.0	30.0	20.0	15.0	12.0	10.0	7.5	
1100	54.6	27.3	18.2	13.6	10.9	9.1	6.8	
1200	50.0	25.0	16.7	12.5	10.0	8.3	6.3	
1300	46.2	23.1	15.4	11.5	9.2	7.7	5.8	
1400	42.9	21.4	14.3	10.7	8.6	7.1	5.4	
1500	40.0	20.0	13.3	10.0	8.0	6.7	5.0	
1600	37.5	18.8	12.5	9.4	7.5	6.3	4.7	
1700	35.3	17.7	11.8	8.8	7.1	5.9	4.4	
1800	33.4	16.7	11.1	8.3	6.7	5.6	4.2	
1900	31.6	15.8	10.5	7.9	6.3	5.3	4.0	
2000	30.0	15.0	10.0	7.5	6.0	5.0	3.8	
2100	28.6	14.3	9.5	7.1	5.7	4.8	3.6	
2200	27.3	13.6	9.1	6.8	5.5	4.5	3.4	
2300	26.1	13.1	8.7	6.5	5.2	4.4	3.3	
2400	25.0	12.5	8.3	6.3	5.0	4.2	3.1	