

### Four Cycle Engine Timing Chart

FirstLook™

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The following chart displays the cylinder exhaust and intake event timings for a four cycle engine at various engine speeds. This is the key to using the FirstLook™ Engine Diagnostic Pulse Sensor.

Important points to note in the chart for setting up your automotive diagnostic scope are noted on the far right. These points allow for full-scale viewing of one cycle (or two rotations) of a four cycle engine at working RPM ranges.

Engine Speed (rpm)	Time Between Valve Opening Events (ms)						Time to Complete 1 Cycle in 4 Stroke Engine (ms)	Starting Time Base Reference (ms)
	2 Cylinder	4 Cylinder	5 Cylinder	6 Cylinder	8 Cylinder	10 Cylinder		
150	400.0	200.0	160.0	133.3	100.0	80.0	800.0	
175	342.9	171.4	137.1	114.3	85.7	68.6	685.7	cold crank
200	300.0	150.0	120.0	100.0	75.0	60.0	600.0	600ms
225	266.7	133.3	106.7	88.9	66.7	53.3	533.3	
250	240.0	120.0	96.0	80.0	60.0	48.0	480.0	
300	200.0	100.0	80.0	66.7	50.0	40.0	400.0	
350	171.4	85.7	68.6	57.1	42.9	34.3	342.9	
400	150.0	75.0	60.0	50.0	37.5	30.0	300.0	
450	133.3	66.7	53.3	44.4	33.3	26.7	266.7	
500	120.0	60.0	48.0	40.0	30.0	24.0	240.0	
550	109.1	54.5	43.6	36.4	27.3	21.8	218.2	idle start
600	100.0	50.0	40.0	33.3	25.0	20.0	200.0	200ms
650	92.3	46.2	36.9	30.8	23.1	18.5	184.6	
700	85.7	42.9	34.3	28.6	21.4	17.1	171.4	
750	80.0	40.0	32.0	26.7	20.0	16.0	160.0	
800	75.0	37.5	30.0	25.0	18.8	15.0	150.0	
850	70.6	35.3	28.2	23.5	17.6	14.1	141.2	
900	66.7	33.3	26.7	22.2	16.7	13.3	133.3	
950	63.2	31.6	25.3	21.1	15.8	12.6	126.3	
1000	60.0	30.0	24.0	20.0	15.0	12.0	120.0	
1100	54.5	27.3	21.8	18.2	13.6	10.9	109.1	low rpm
1200	50.0	25.0	20.0	16.7	12.5	10.0	100.0	100ms
1300	46.2	23.1	18.5	15.4	11.5	9.2	92.3	
1400	42.9	21.4	17.1	14.3	10.7	8.6	85.7	
1500	40.0	20.0	16.0	13.3	10.0	8.0	80.0	
1600	37.5	18.8	15.0	12.5	9.4	7.5	75.0	
1700	35.3	17.6	14.1	11.8	8.8	7.1	70.6	
1800	33.3	16.7	13.3	11.1	8.3	6.7	66.7	
1900	31.6	15.8	12.6	10.5	7.9	6.3	63.2	
2000	30.0	15.0	12.0	10.0	7.5	6.0	60.0	
2100	28.6	14.3	11.4	9.5	7.1	5.7	57.1	
2200	27.3	13.6	10.9	9.1	6.8	5.5	54.5	
2300	26.1	13.0	10.4	8.7	6.5	5.2	52.2	mid range
2400	25.0	12.5	10.0	8.3	6.3	5.0	50.0	50ms