

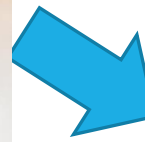


CONDITION MONITORING OF GAS ENGINE COMPRESSOR



APA ITU GAS ENGINE COMPRESSOR?

Kompresor yang digerakkan oleh Engine/Mesin yang berbahan bakar Gas



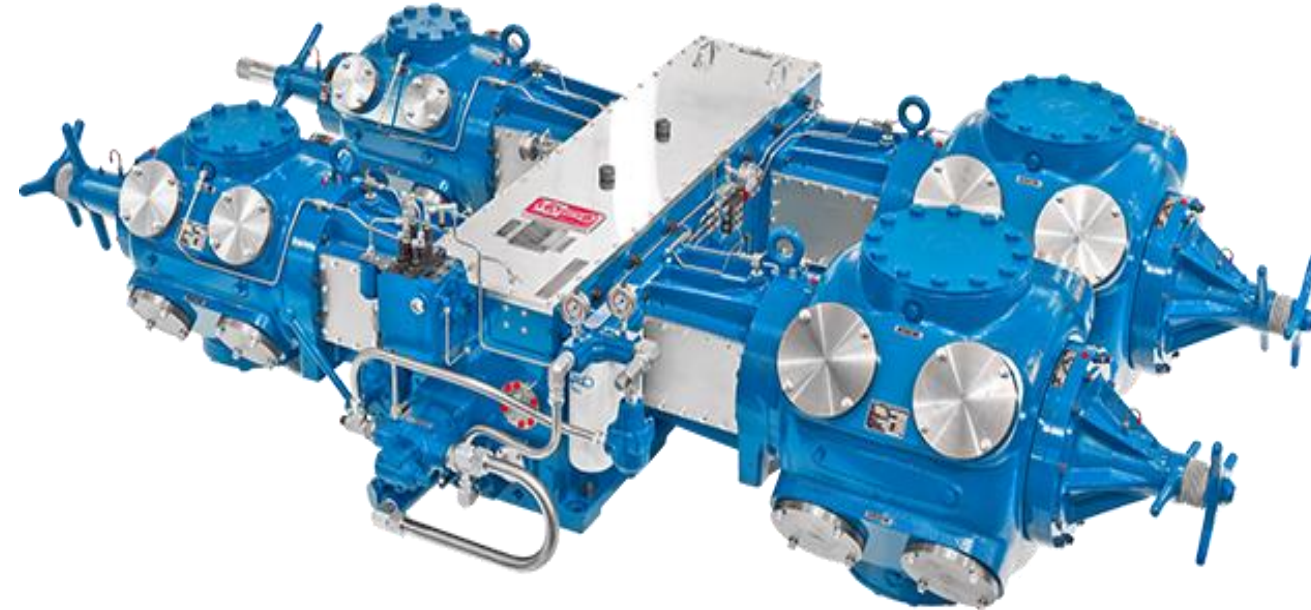
APA ITU CONDITION MONITORING?

- Condition Monitoring adalah salah satu metode Perawatan Mesin yang berlandaskan kondisi dari mesin itu sendiri, bergantung dari parameter yang digunakan.
- Condition monitoring kali ini berfokus pada parameter vibrasi dari Gas Engine Compressor
- Kenapa fokus pada vibrasi?
 - Karena dengan vibrasi kita bisa melihat apa yang terjadi pada engine atau benda berputar lain dan membandingkannya dengan pola kerusakan yang sudah ada pada text book
- Dalam bahasan ini, kita juga akan membahas sedikit performa dari kompresor

RUANG LINGKUP BAHASAN



4-stroke Gas Engine dengan 12 Cylinder, konfigurasi V,
putaran 830-870 RPM



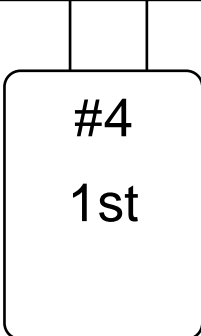
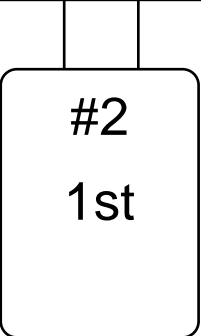
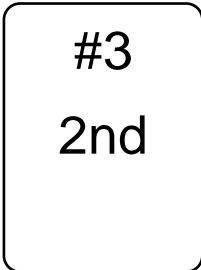
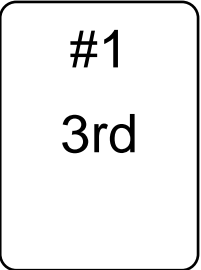
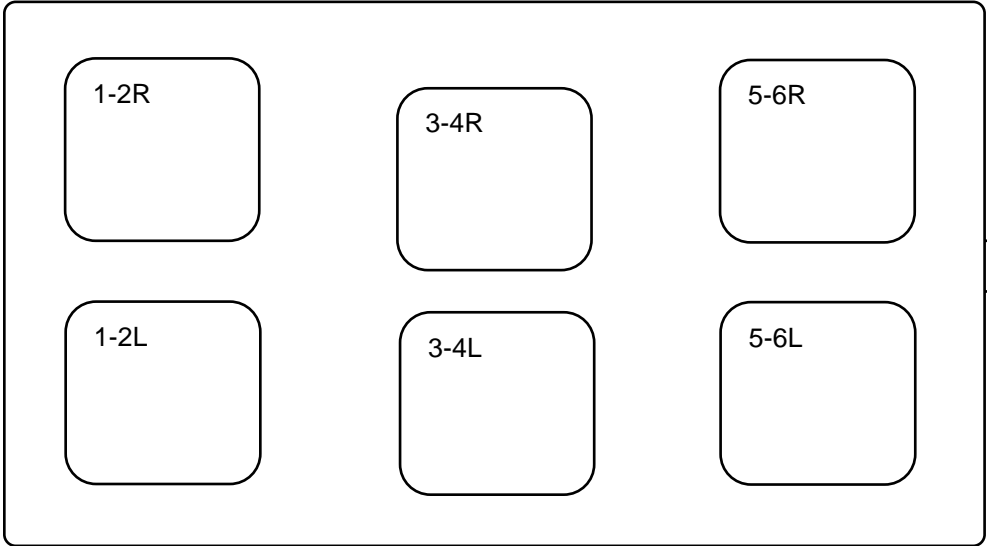
3 Stage Compressor, 4 Throw, 8 Chamber, Double Acting
Reciprocating Compressor

EQUIPMENT LAYOUT



Picture 6 Vibration Sensor

Speed Reference (Optic Sensor)



Sensor Vibrasi
Accelerometer

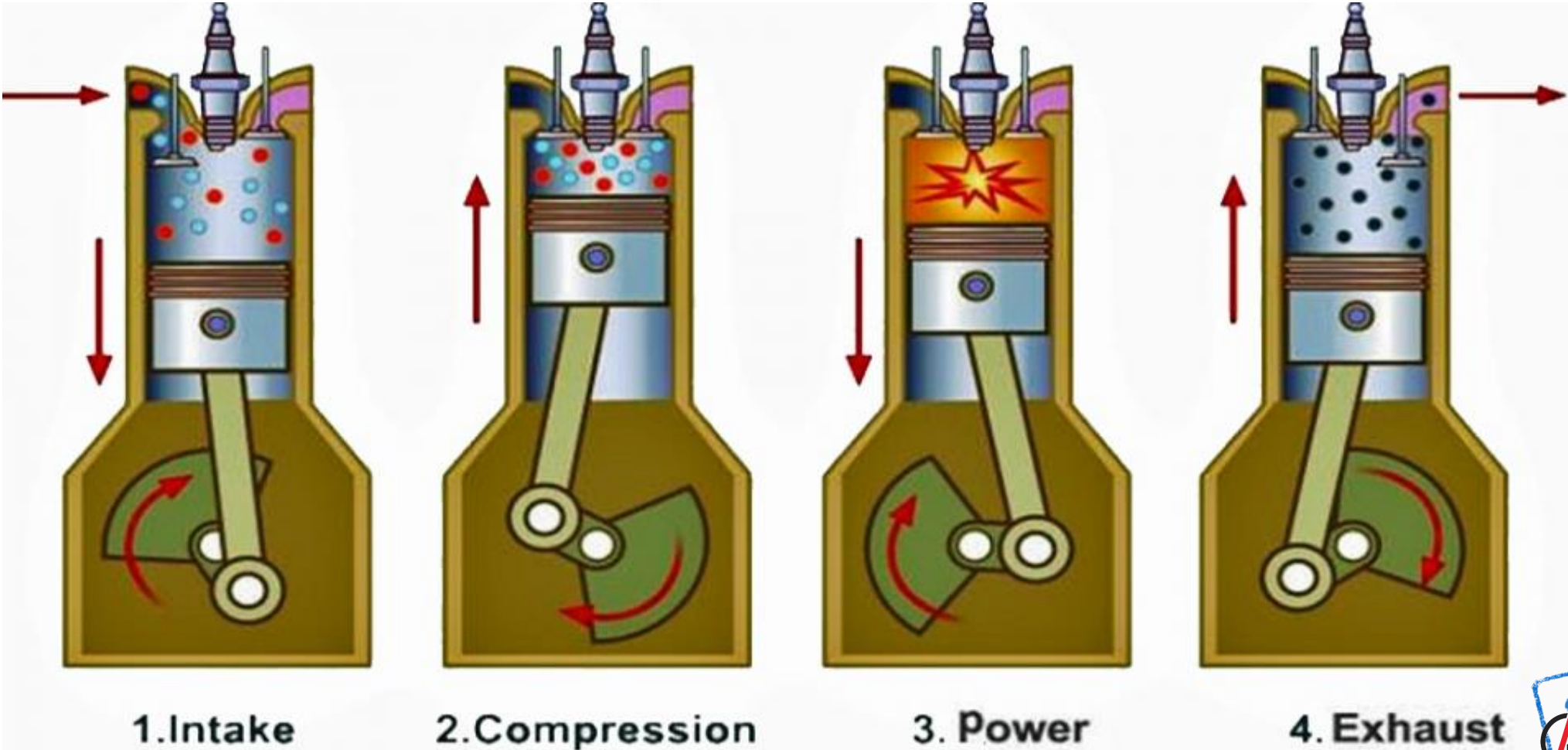
Sensor Tekanan
Pressure Transducer



Picture 5 Air cooled pressure transducer



CARA KERJA 4-STROKE GASOLINE ENGINE



CARA KERJA 4-STROKE GASOLINE ENGINE

Source:

<https://www.youtube.com/watch?v=Pu7g3ulG6Zo>

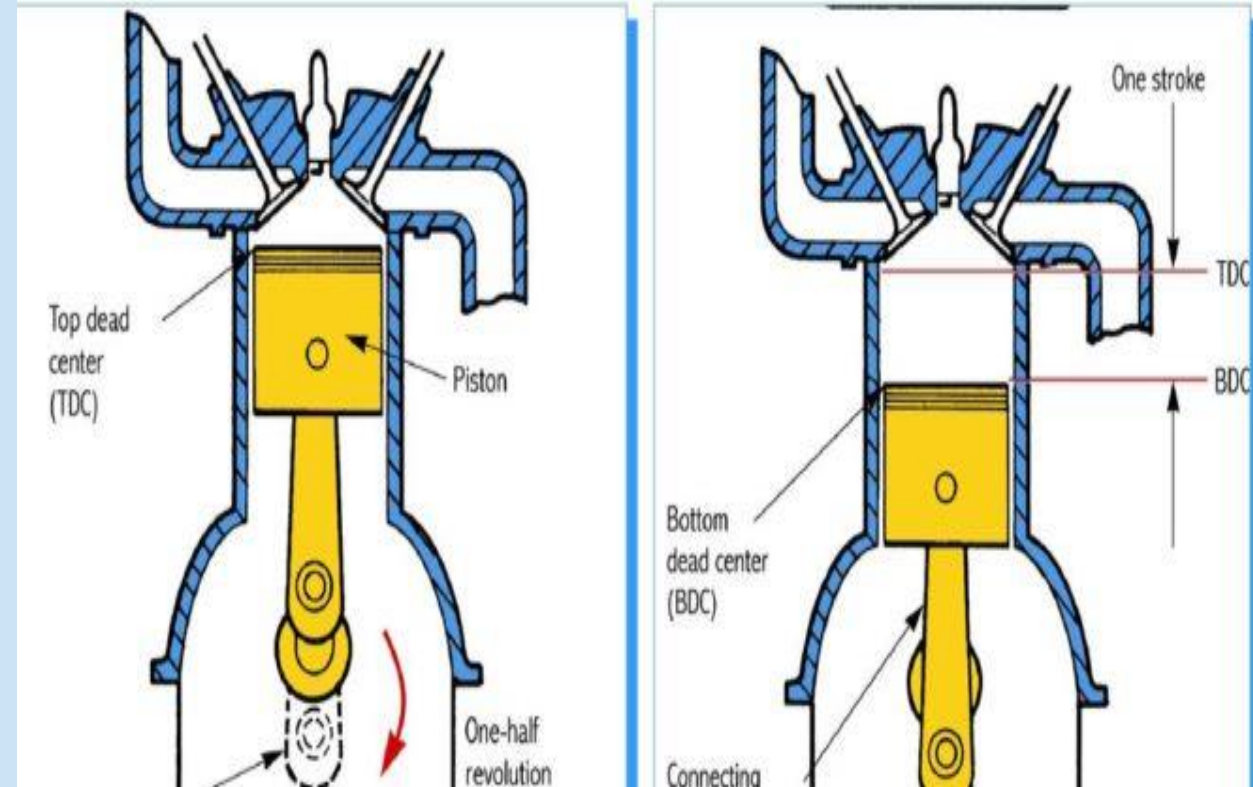
DATA TEKNIS SEPUTAR ENGINE

RELIABILITY, AVAILABILITY, MAINTAINABILITY

Gas Engine

Manufacture	: Waukesha
Type	: L5790G
Configuration	: V-12
Firing Order	: 1R-6L-5R-2L-3R-4L-6R-1L-2R-5L-4R-3L
Bore / Stroke	: 8.5 " / 8.5 "
Ind. Cock?	: No
Comp. Ratio	: 8.2:1
Exh. Open	: 47 BBDC (493° Crank Degree)
Exh. Close	: 20 ATDC (20° Crank Degree)
Int. Open	: 17 BTDC (703° Crank Degree)
Int. Close	: 51 ABDC (231° Crank Degree)
Spark Timing	: 17 BTDC (343° Crank Degree)
	Timing valve from "Waukesha VHP 12 Cyl G/GSI/GL – Repair & Overhaul Manual"

(TDC, BDC)



BDC: Bottom Dead Center (Titik Mati Bawah)

TDC: Top Dead Center (Titik Mati Atas)

CYLINDER HEAD VIBRATION PARADE

Sebelum memasuki data Cylinder Head, kita harus mengetahui 3 hal penting dalam

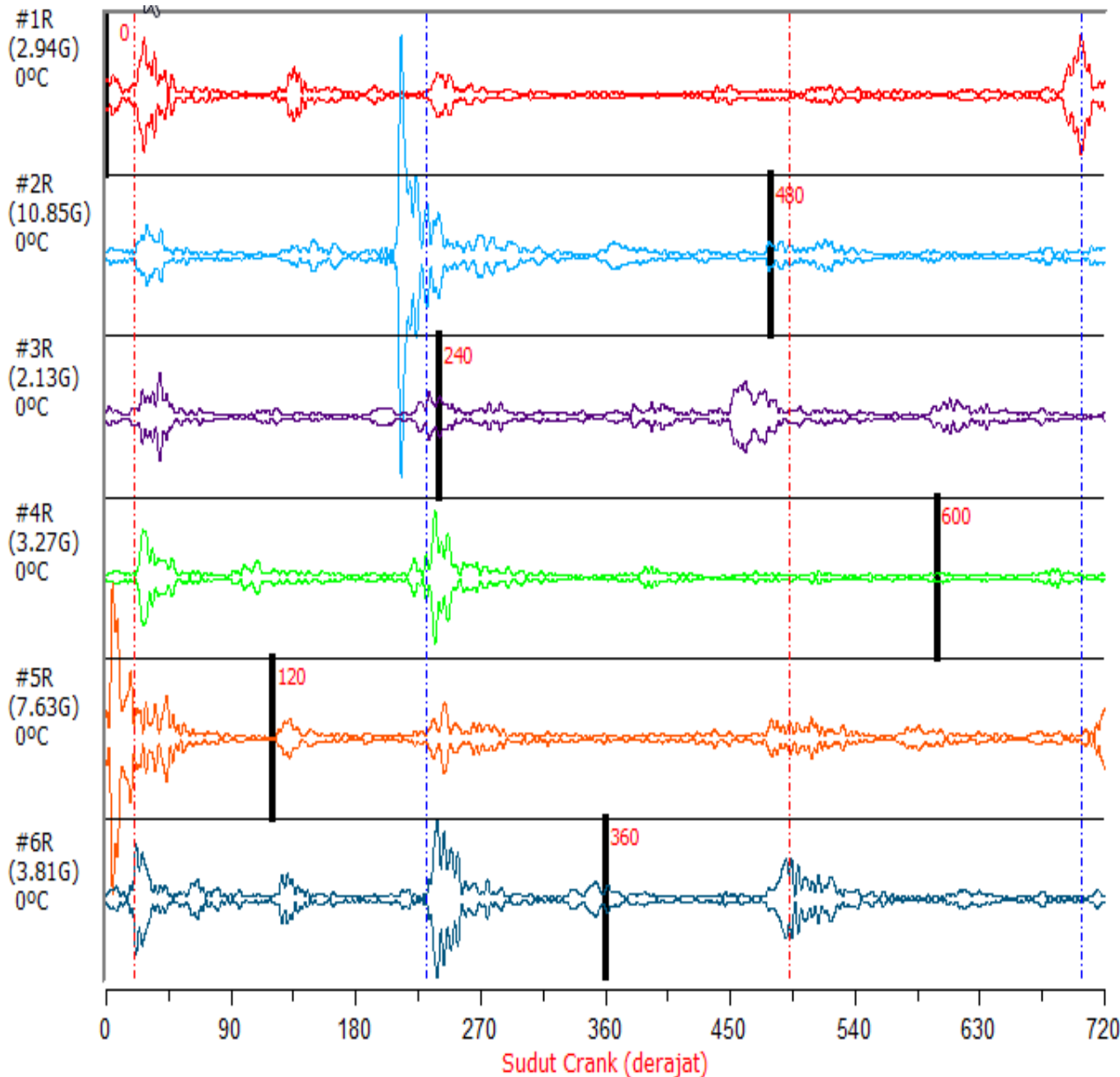
Analisa vibrasi dari Cylinder, yaitu:

1. Posisi
2. Pola
3. amplitudo

<u>Exh. Open</u>	: 47 BBDC (493° Crank Degree)
<u>Exh. Close</u>	: 20 ATDC (20° Crank Degree)
<u>Int. Open</u>	: 17 BTDC (703° Crank Degree)
<u>Int. Close</u>	: 51 ABDC (231° Crank Degree)
<u>Spark Timing</u>	: 17 BTDC (343° Crank Degree)

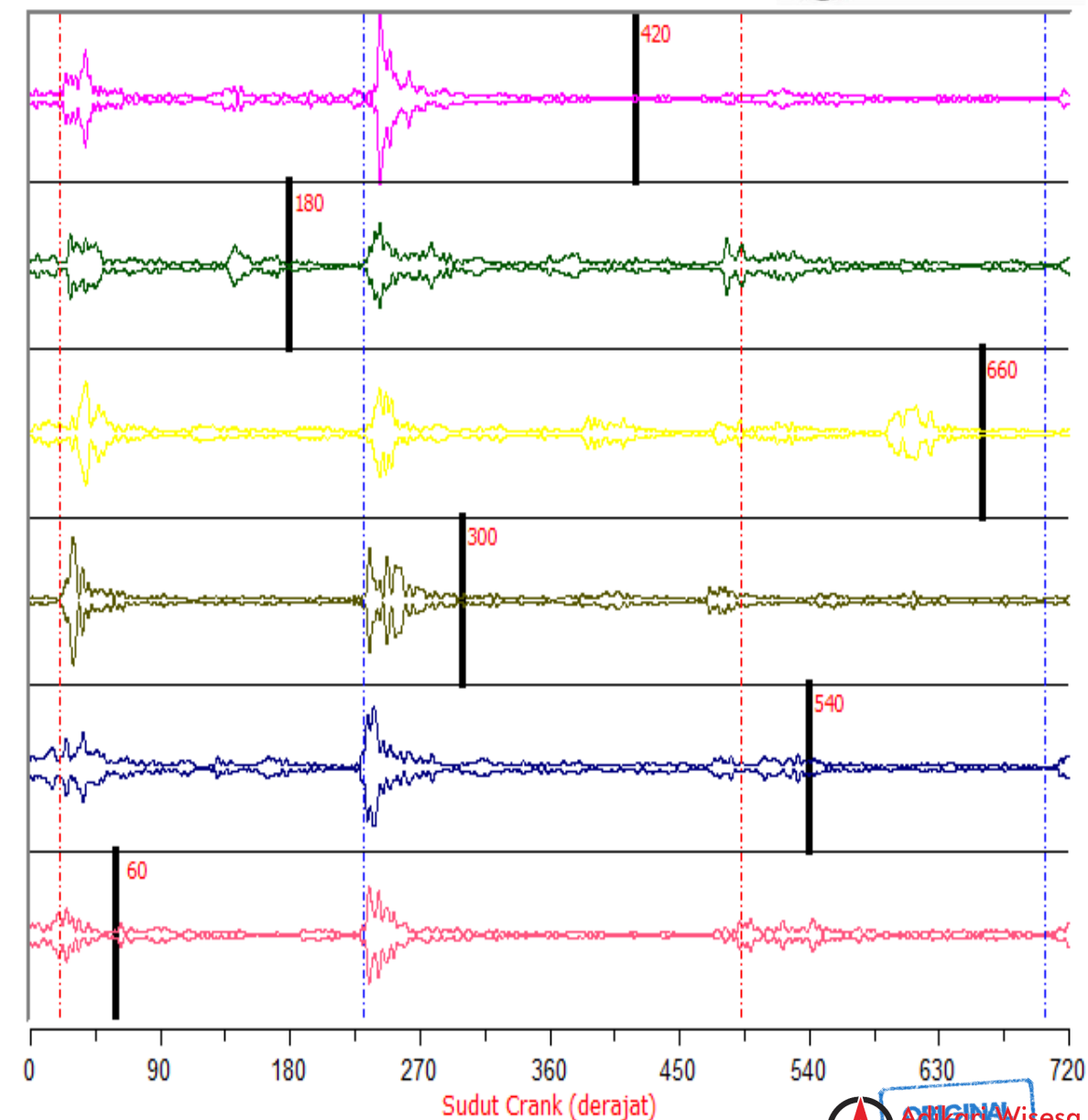
CYLINDER HEAD VIBRATION PARADE

RELIABILITY, AVAILABILITY, MAINTAINABILITY



■ #1R ■ #2R ■ #3R ■ #4R ■ #5R ■ #6R

CRANK DEGREE

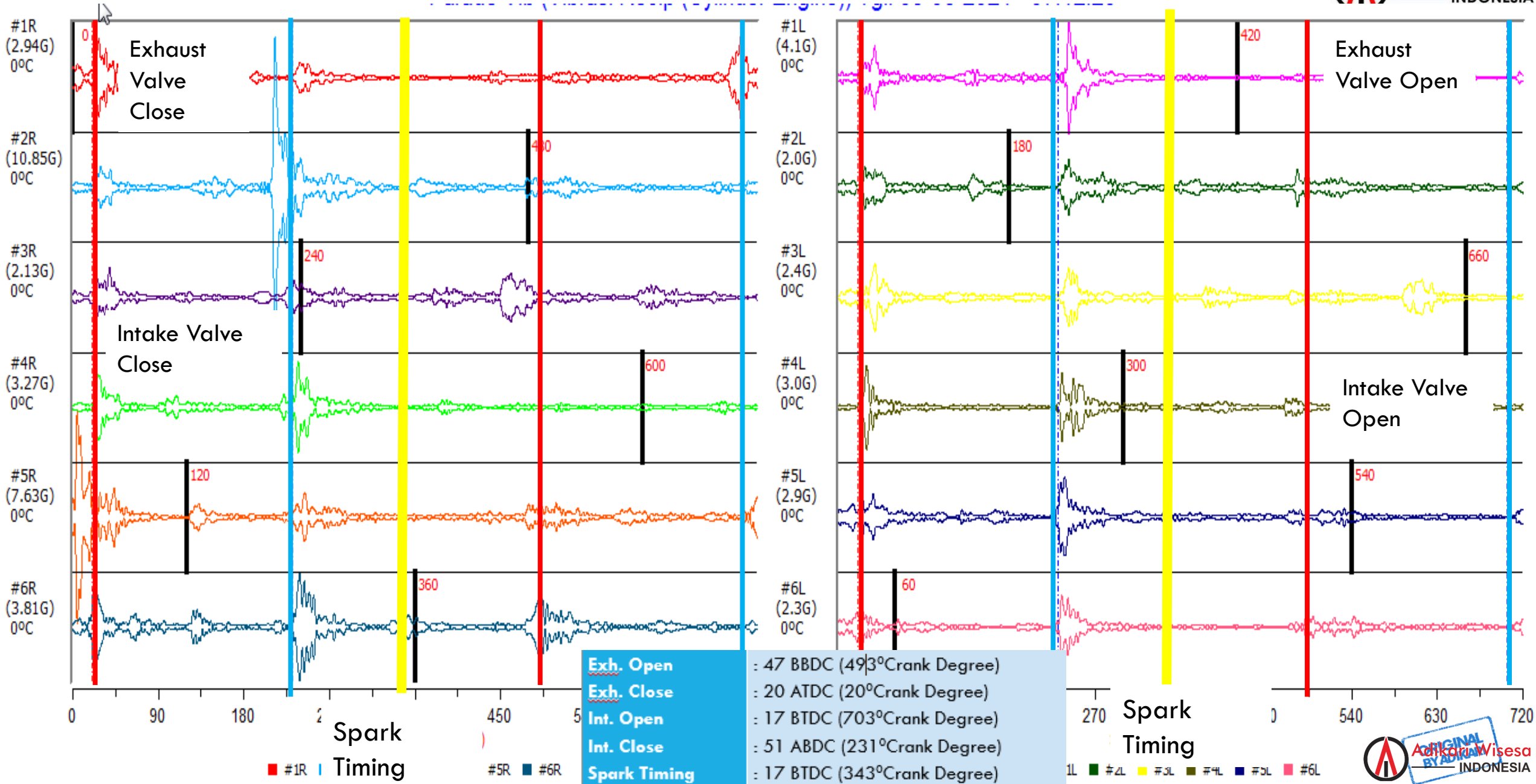


■ #1L ■ #2L ■ #3L ■ #4L ■ #5L ■ #6L



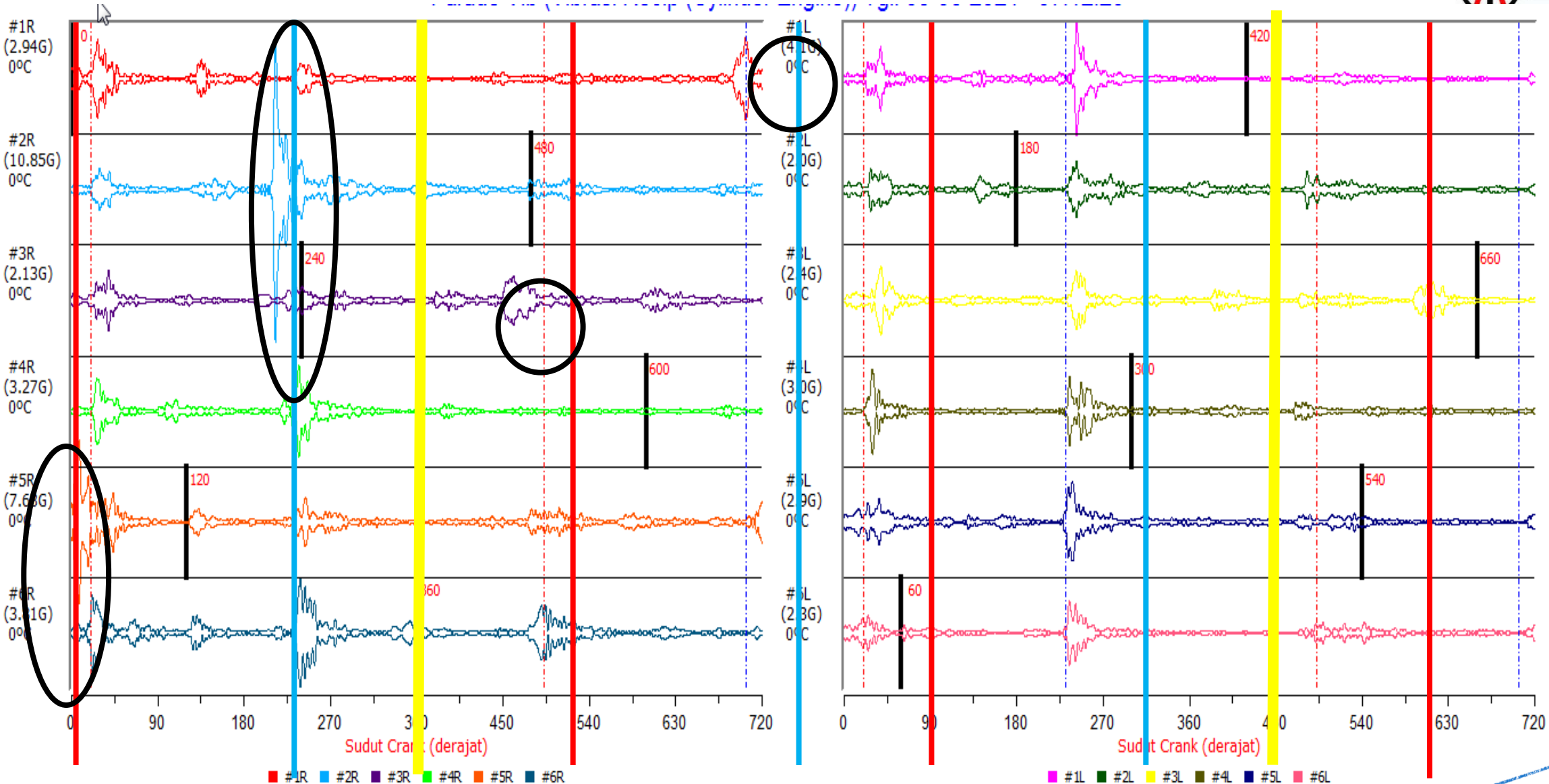
CYLINDER HEAD VIBRATION PARADE

RELIABILITY, AVAILABILITY, MAINTAINABILITY



CYLINDER HEAD VIBRATION PARADE

RELIABILITY, AVAILABILITY, MAINTAINABILITY



Spark
Timing



Adikari Wisesa
INDONESIA



adikariwisesa



PT Adikari Wisesa Indonesia



extreme-maintenance.com

THANK YOU



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