TEST RUNS OF AN EDIS-6/MEGAJOLT IGNITION SYSTEM

Prior to installation on a Jaguar Mark 2 3.4L

The object was to ensure that the components bought functioned correctly with one another , prior to installation, and also to demonstrate the details of the system operation.

This note summarizes the work done : for more information on the theory of operation, there are many web sites that explain, e.g.
http://www.dainst.com/info/edis/edis.html
https://wiki.autosportlabs.com/MegaJolt_Lite_Jr.

The parts bought:-

6 Coil Unit	DGE446	Motorcraft
Crank Position Sensor	PC418	Standard Motor Products
POSITION Sensor Pigtail	HP4710	Standard Motor Products
EDIS-6	LX254	Standard Motor Products
EDIS Connector	S-744	Standard Motor Products
Coil Connector	S658	Standard Motor Products
Trigger Wheel	Made in house	B Murray
Plug wire set	8661	United Motor Products

These parts were fitted to a wooden board mounted on a milling machine whose spindle speed could be varied from 0 – 2200RPM
A custom timing wheel was fitted to the spindle.
Readings were taken on a PC using both the Megajolt output and a 4 channel recording of key voltages in the system.
THE Megajolt was set up to duplicate the factory settings of the centrifugal and the vacuum advance.

Bruce Murray Jan 2020

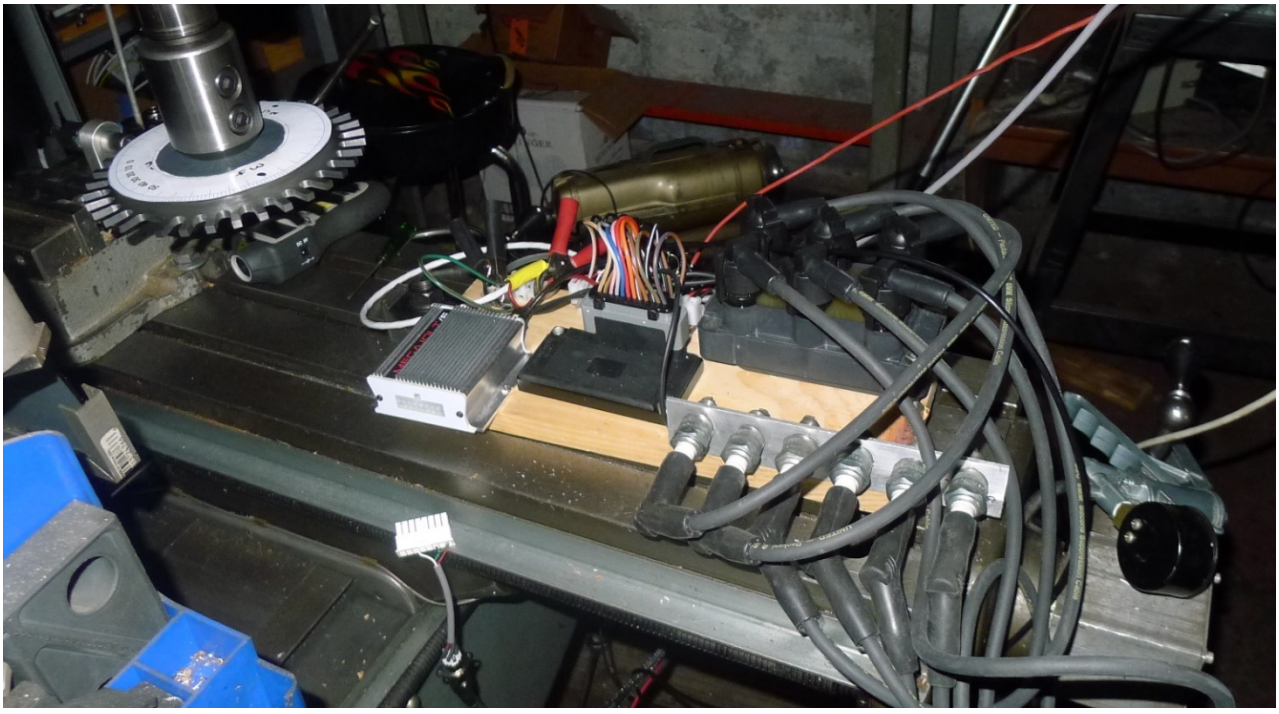
ENGINE SPEED (RPM)

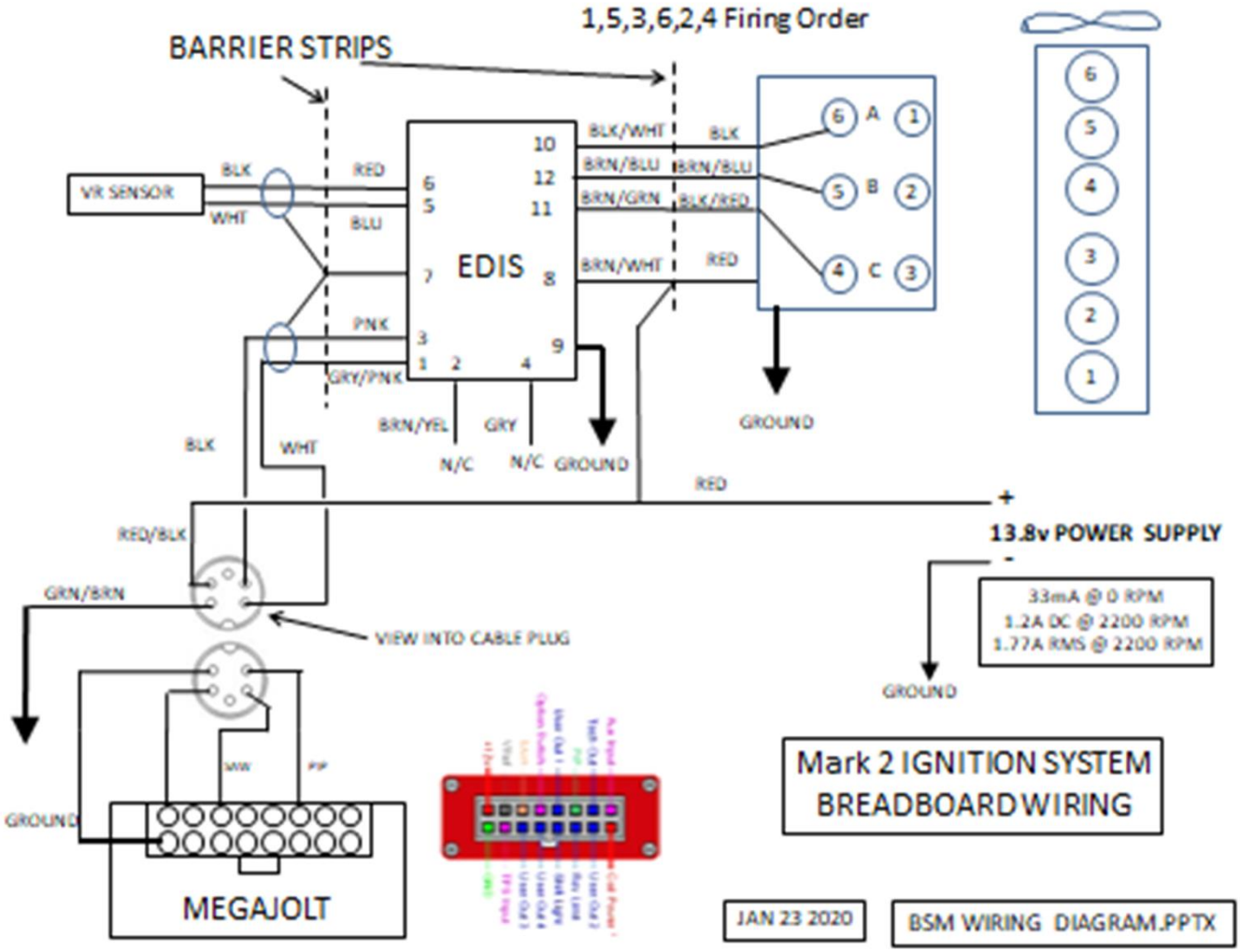
MANIFOLD PRESSURE (kPa)	500	1000	1500	2000	2500	3000	3500	4000	5000	6000
33	20	25	36	42	44	46	48	50	53	55
42	19	24	35	41	43	45	47	49	52	54
50	18	23	34	40	42	44	46	48	51	53
60	16	21	32	38	40	42	44	46	49	51
63	15	20	31	37	39	41	43	45	48	50
65	14	19	30	36	38	40	42	44	47	49
68	12	17	28	34	36	38	40	42	45	47
80	4	9	20	26	28	30	32	34	37	39
84	2	7	18	24	26	28	30	32	35	37
100	2	7	18	24	26	28	30	32	35	37

SETTINGS PROGRAMMED INTO MEGAJOLT

These were derived from data for Lucas distributor 40576A and vacuum unit 42107 for oil-bath air cleaner on a 3.4L 8:1 cr as shown on page P14 of the service manual. Static timing is 2°BTDC and is built in to the table.

Bread board and timing wheel arrangement





Breadboard wiring diagram

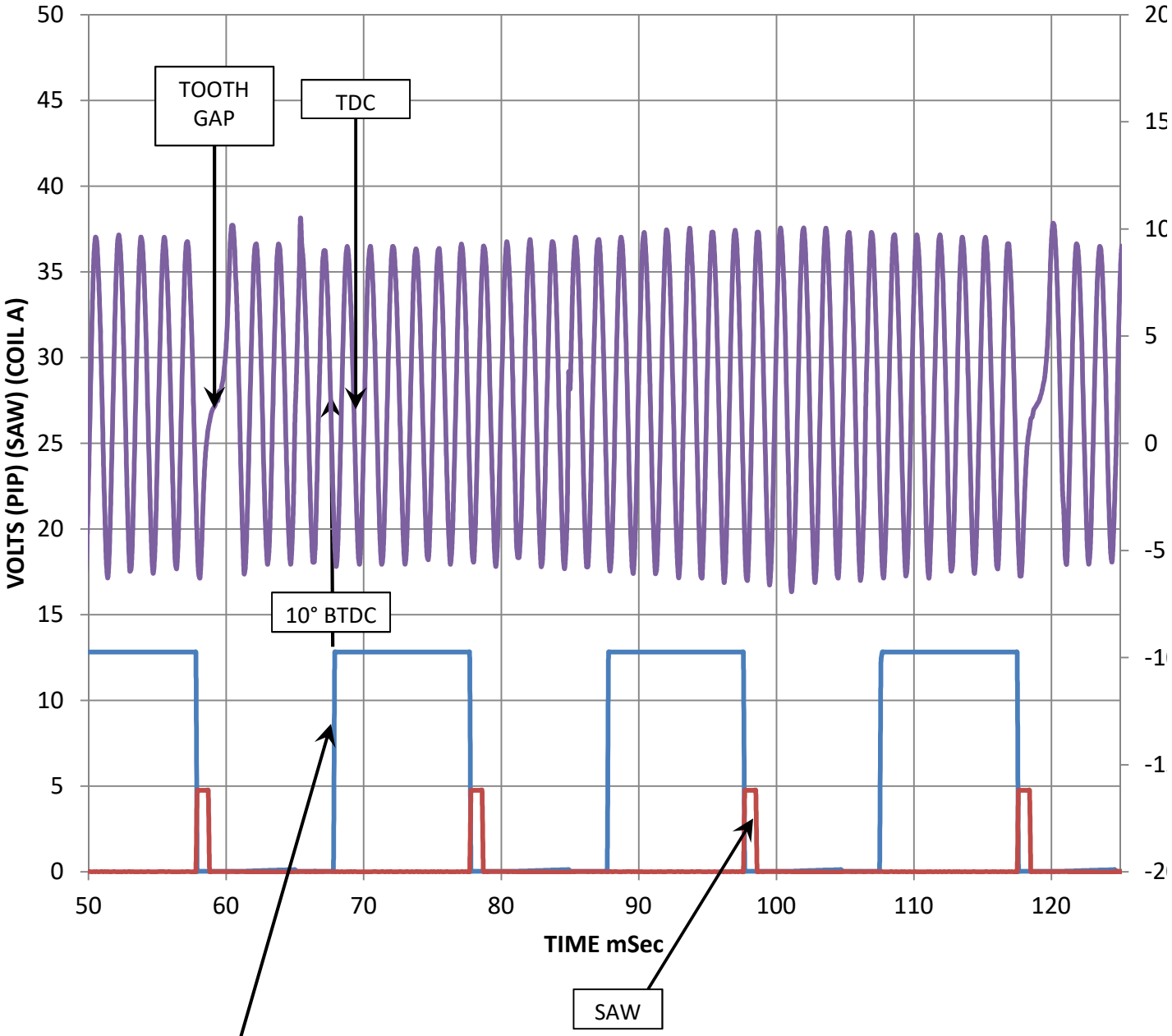
Voltage recordings were taken on EDIS module at pins 1,3,6 & 10. Namely PIP, SAW, VR & Coil A

Tests were run at speeds of 1000 and 2200 RPM and at various manifold pressures. The manifold pressures were generated with a MityVac™ tool.

The selection of results shown confirm what was expected from the technical literature

Note that when a timing light is used, the inductive pick up must be oriented with its arrow toward the spark plug otherwise it may not trigger.

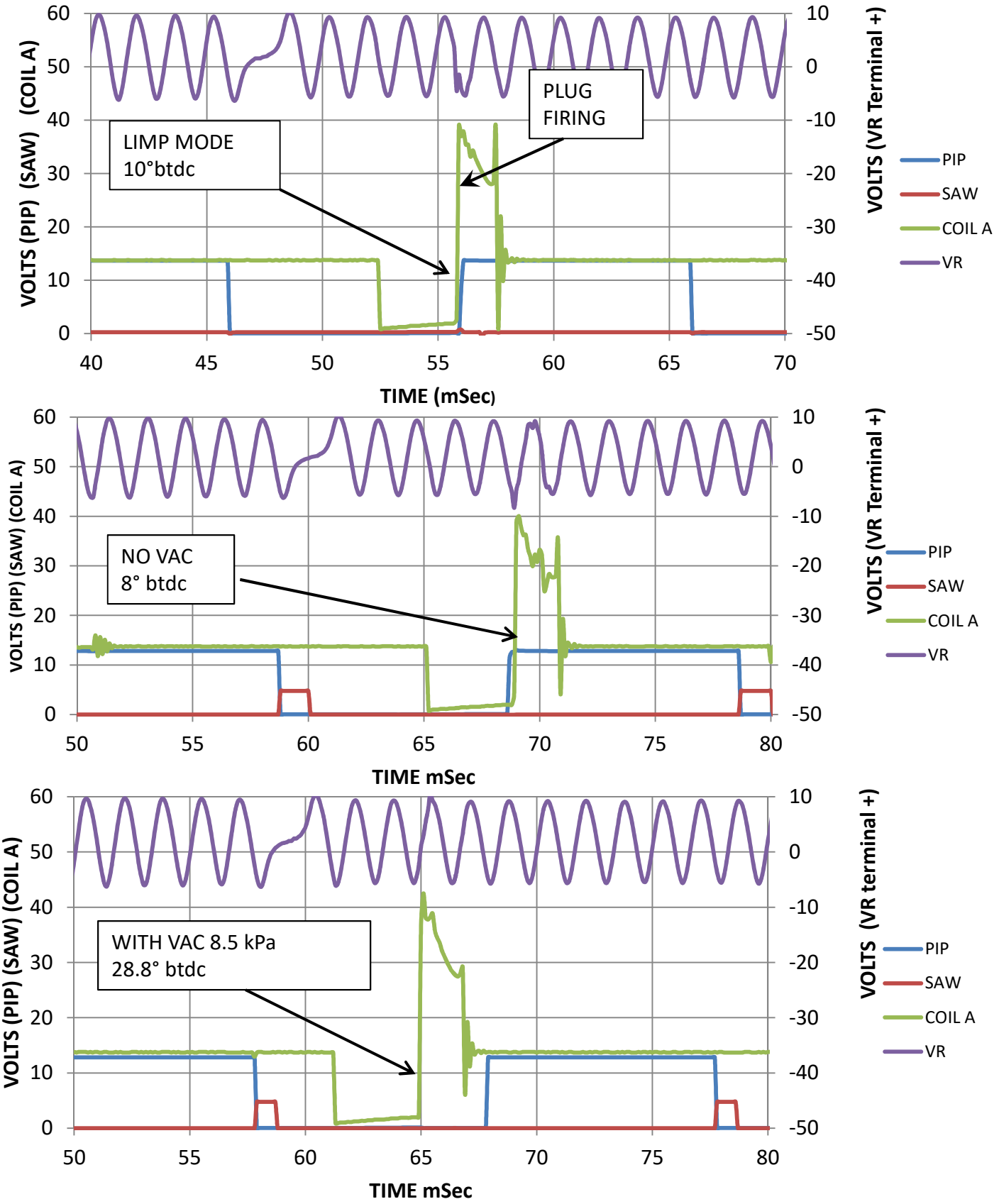
RELATIONSHIP BETWEEN CRANK SENSOR OUTPUT AND PIP & SAW WAVEFORMS



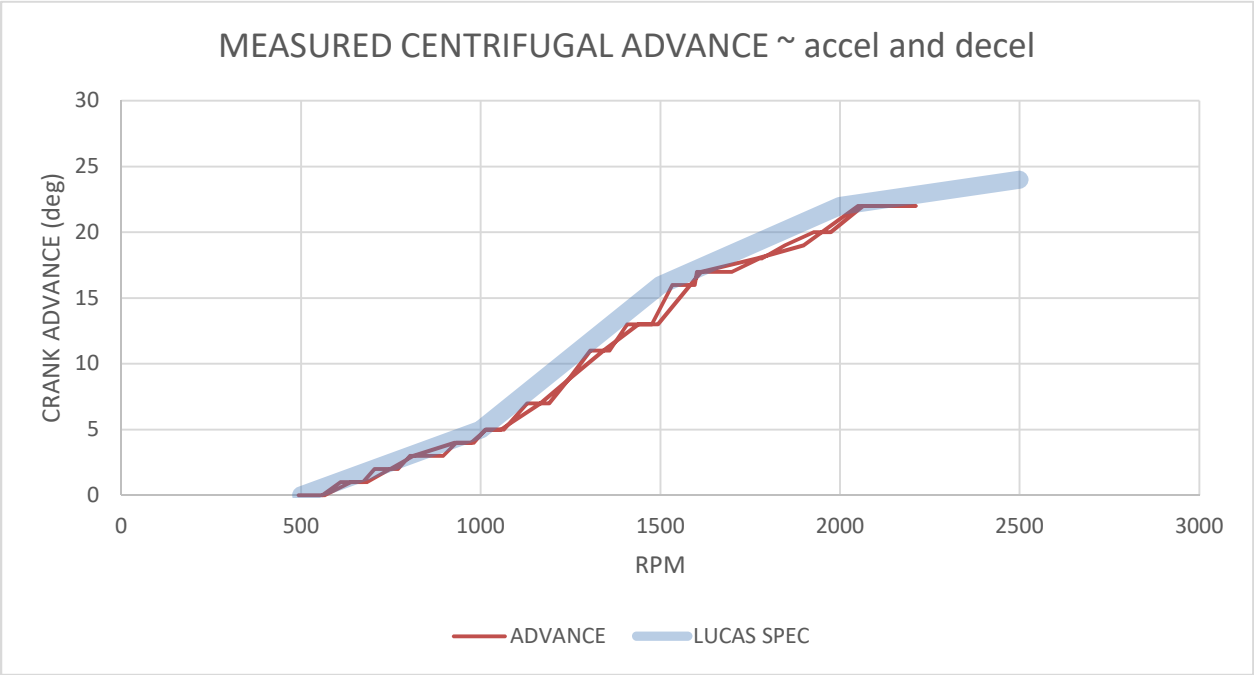
The width of the Spark Advance Word sets the timing:-
SAW (microseconds) = 1536 - (25.6 * Commanded_degrees)

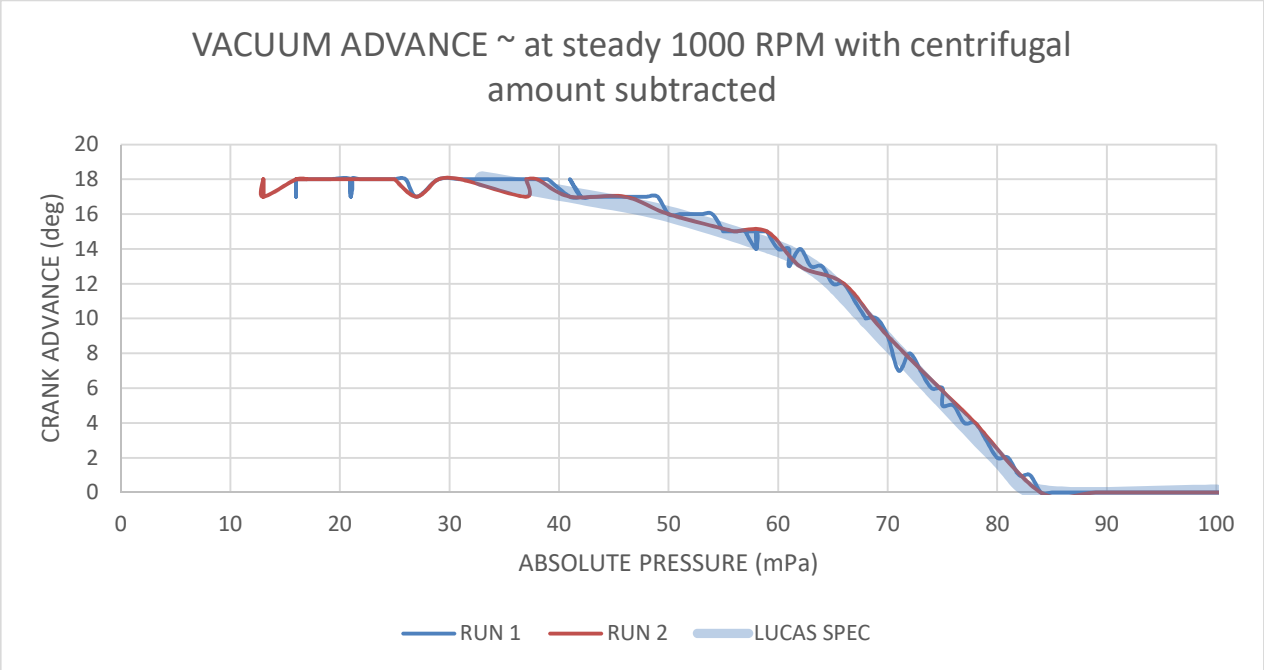
The PIP signal has a fixed relationship with the VR sensor signal and goes +ve at 10° BTDC.

RUNS AT 1004 RPM (Limp) (No Vac) (with Vac)



The USB output from the Megajolt was recorded over a range of speeds and manifold vacuum to see how it tracked with the desired advance characteristics.
Quite well as it turned out.





Installation notes.

The cable to the Megajolt is fitted with an audio style DIN-5pin connector of 5/8” diameter so that it can pass through a hole in the bulkhead to the interior location of the Megajolt. A Jaguar grommet part no C502 or similar can be used.

The wiring harness will be fitted with a test connector for ease of trouble shooting.

Design of Trigger Wheel and pick for installation.