M1 DBW Set-up data

Subject	DBW set-up data for Jenvey Ford Coyote ETA2 Kit
Date	19/04/2018
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DBW motor

ECU	**M1**			
Proportional Gain	100			
Integral Gain	40			
Derivative Gain	115			
Model Delay	18.0ms			
Model Time Constant	13.0ms			
Dead Band	0.6%			
Feed Forward	TP	0.0%	1.0%	100.0%
	Gain	0.0	18.0	23.0
Negative Integral Clamp	-25			
Frequency	8000Hz			
Motor Volts	14V			
Servo Zero Duty Cycle	-15%			
Servo Zero Tolerance	1%			
Tracking Limit	90%			

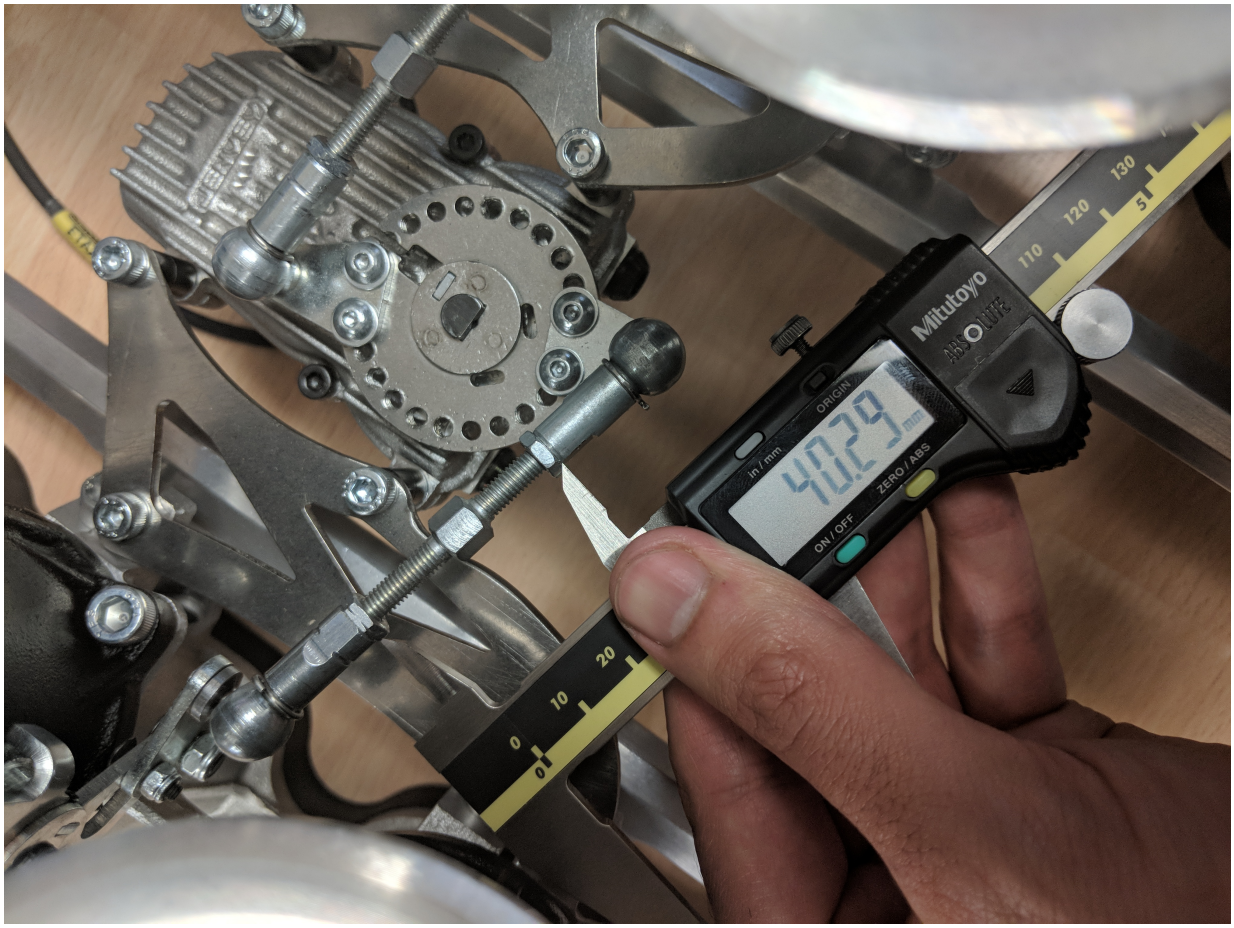
Throttle Position Tracking Linearisation									
0.0	15.0	28.0	40.0	52.0	63.0	74.0	84.0	93.0	100.0
0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0

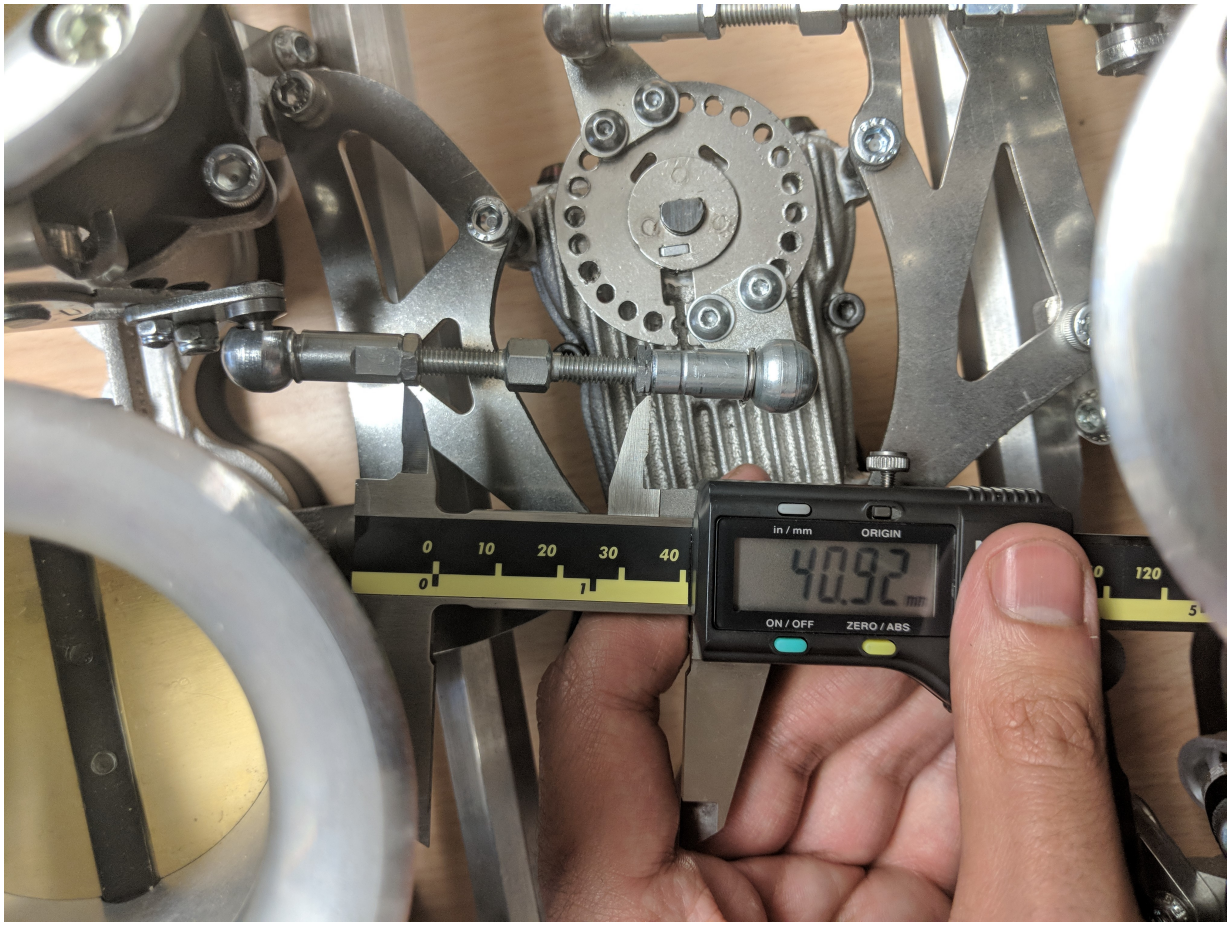
PLEASE NOTE:
Due to the nature of ITB DBW setups, no two setups are identical. As such these setting may not be ideal for all setups and each setup may require additional PID tuning.

A minimum of 2 Throttle Position sensors are required. While a dual output sensor can be used, the recommended arrangement is two have two single output sensors. TP1 or Throttle Position Main to be mounted on the motor axle. TP2 or Throttle Position Tracking to be mounted on the Throttle Body Shaft. As the movement between the two sensors will not be identical, a linearisation for the tracking sensor is required. Again one has been provided above, but this could vary by installation.

In order to obtain optimum control, the linkage should be adjusted to minimise free play and differences in Throttle Position between banks. It's also imperative all components of the DBW system are mounted in a manner that allows for no free play or movement e.g. Throttles & Actuator.

Please see the pictures below for linkage dimensions of the calibrated setup.


Mitutoyo
ABSOLUTE
ORIGIN
in / mm
ON / OFF
ZERO / ABS


in / mm
ORIGIN
40.92
ON / OFF
ZERO / ABS

TP and TP2 can be assigned to any of the following AV inputs.

Input	M800 /M130	M142 /M150	M880 /M170	M182 /M190
AV1	A14	C14	A26	C42
AV2	A15	C15	A18	C36
AV3	A16	C16	A6	C35
AV4	A17	C17	A7	C28
AV5	A25	C25	A12	C29
AV6	B20	D20	A36	C11
AV7	B21	D21	A35	C12
AV8	B22	D22	A44	C6
AV9		B10		C13
AV10		B11		C7
AV11		B12		A13
AV12		B16		C35
AV13		B17		C34
AV14		B18		C41
AV15		A3		A27
AV16		A4		A28
AV17		A5		A29

Sensor 0V and 5V can be connected to any of the pins below

Output	M800 /M130	M142 /M150	M880 /M170	M182 /M190
5V - A1	A02	B26	A16	C48
5V - A2		C02		C53
5V - B1	A09	C09	A34	C50
5V - B2		A19		C55
5V - C1		A10		A08
5V - C2		A18		A09
5V - C3				A16
0V - A1	B15	A34	A11	C14
0V - A2		D15		C15
0V - B1	B16	A33	A27	C23
0V - B2		D16		C30
0V - C1		A26		A18
0V - C2		A27		A19
0V - C3				A20

The Motor - & Motor + can be connected to any of the pins below

Output		M800	M880	M130	M142 /M150	M170	M182 /M190
Motor -	AUX1 /HB1	A18	A09	A18	C18	A09	B_A
	AUX3 /HB3	A23	A43	A31	C31	A29	B_C
	AUX5 /HB5	A31	A59	A33	C33	A28	B_E
	AUX7 /HB7	A33	A58		B20		B_R
	HB9				B01		B_N
Motor +	AUX2 /HB2	A18	A8	A01	C01	A08	B_B
	AUX4 /HB4	A24	A51	A32	C32	A65	B_D
	AUX6 /HB6	A32	A65	A34	C34	A64	B_F
	AUX8 /HB8	A34	A64		B21		B_P
	HB10				B02		B_M