

# Syntech B100 Initial Trial Report on ADT Volvo A30G



## Syntech Biofuel

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## SCOPE

Syntech B100 FAME (100% Fossil Free/Vegetable/Oil Fuel) trial on our own ADT to establish the actual fuel burn and performance/effects on machine vs quoted.

LTC specified/Approved fuel non hybrid machine applicable. No RAW data available to analyse/compare alongside a Haul machine in this weight category, on this duty cycle and temperature exposure to understand the effects of the fuel.



## AIM

KKB to Understand the Performance of the fuel in real time monitoring to give accurate certainty on potential usage. Currently ADT averaging 3000L/PCM on current work pattern at DP World. KKB to trial min 3000L of the Fuel exclusively through an ADT that can be compared like for like against sister machine, on the same duty. Beginning of May Start for clear Data filtering with a projected 30day usage into June. Understand the long-term effects of the fuel on equipment such as DPF, High pressure system along with Potential Fuel Filter Clogging as anticipated, and Engine issues if any. Understand the Storage and handling of the fuel in general ahead of project to be able to implement resource.

## ACTION

Fuel transported to Site by Syntech and stored isolated in IBC. Initially delivered on the 31/3/25. The fuel was strategically left idle (sealed) for a period of approx. 4 Weeks > This was crucial to understand it shelf life as FAME, the concern of bacterial deposits forming etc, and the fuel in general going stale. It was stored in the open sunlight/heat (10-13Degree) but then exposed to the low/colder temps (2-6Degree) during the night which would aid the growth of any bacterial matter. This would determine how much we can store, and for a giving period.



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Volvo A30G PN715 Serial 753272 was filled 1/5/25 – Smr Reading 1818 / 9685 Km. Volvo Long Life Fuel Filters were installed prior to Engine Run, these are projected for service interval of 1000Hr on standard fossil fuel. Standard filters are 500Hr Expectancy. The cost of the filters approx at £60-80, at todays rates. ECM data was downloaded with current DPF soot Loading – this was precautionary to understand if the DPF accelerated Soot Accumulation/Ash Loading during the trial and after – in other words reduce the life of DPF substantially. DPF life expectancy is approx. 4000Hr. Engine was primed and started – all Engine values recorded which include Fuel pressures, Net Engine Torque etc to which matched the Commanded/Expected Values are of no concern.

PN715 was then put back into normal service for Test/Feedback. The obvious concern ahead was the performance/power drop to which site report non noticeable – It was however felt on the Tarmac/Highway it was sluggish. The original tyres fitted to this truck are the wider spec type, it is possible that these give greater traction/grip and so the expected 20% reduction of power was potentially felt here (accelerated with warm rubber/tarmac). This may have been spurious, and not fact however, something we could only prove in a one/one race with exact loading. It is also worth noting no hill climb accessible during the test.

## FINDINGS

Test continued throughout the 30Days/June with no issues reported. No error codes or breakdowns experienced. This was remarkable, and surprising.

We have dropped back onto the Derv in line with its warranty service scheduled this week as the fuel depletes – it is projected that any accelerated filter clogging happens when the fuel changed over. The filters are to be removed and kept for analysis. When the ADT returns to depot, the DPF itself will be pulled and inspected there also.

PN715 burned through a total of 3469L / 2354Km producing a consumption of 17.5 (L/h) over a 30 day period > This is consistent with its trend of 17 (L/h) since deployed at DP world. This data supports the claim by Syntech it is 1:1 replacement.



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## PN715 – TRIAL ADT

Type	Jan	Feb	Mar	Apr	May
Operating hours	2.6	1.7	210.7	177.6	199.6
Fuel consumption (l)	19.8	11.8	3720.5	2935.1	3469.6
Fuel consumption (l/h)	10.3	10.0	17.6	16.1	17.5
IDLE time	64.3%	49.0%	29.4%	26.4%	25.5%
Carbon emissions ⓘ	48.99 kg	29.19 kg	9204.52 kg	7261.44 kg	8583.79 kg

## PN713

Type	Jan	Feb	Mar	Apr	May
Operating hours	83.2	38.4	221.4	175.3	203.2
Fuel consumption (l)	613.8	526.7	3361.6	2642.3	2927.6
Fuel consumption (l/h)	7.9	10.6	14.7	14.6	14.4
IDLE time	62.5%	74.6%	39.9%	33.5%	22.7%
Carbon emissions ⓘ	1518.54 kg	1303.06 kg	8316.6 kg	6537.05 kg	7242.88 kg

## PN700

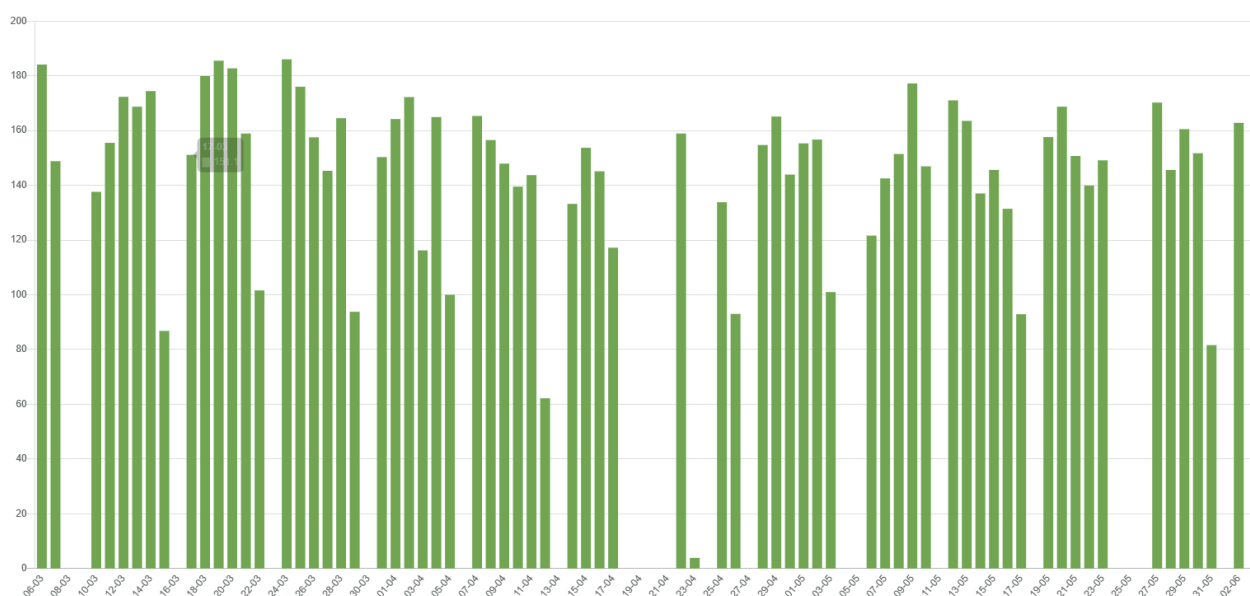
Type	Jan	Feb	Mar	Apr	May
Operating hours	123.6	1.5	161.1	190.1	204.8
Fuel consumption (l)	1237.6	11.1	2533.8	2869.9	2827.7
Fuel consumption (l/h)	10.0	8.9	14.3	15.1	13.7
IDLE time	63.6%	57.1%	43.0%	26.7%	31.0%
Carbon emissions ⓘ	3061.82 kg	27.46 kg	6268.62 kg	7100.13 kg	6995.73 kg

## PN691

Type	Jan	Feb	Mar	Apr	May
Operating hours	0.7	14.2	219.9	198.7	212.5
Fuel consumption (l)	3.8	144.9	3538.0	3158.3	3004.2
Fuel consumption (l/h)	6.9	7.6	16.1	15.9	14.2
IDLE time	57.8%	80.8%	33.9%	26.8%	25.4%
Carbon emissions ⓘ	9.4 kg	358.48 kg	8753.01 kg	7813.63 kg	7432.39 kg

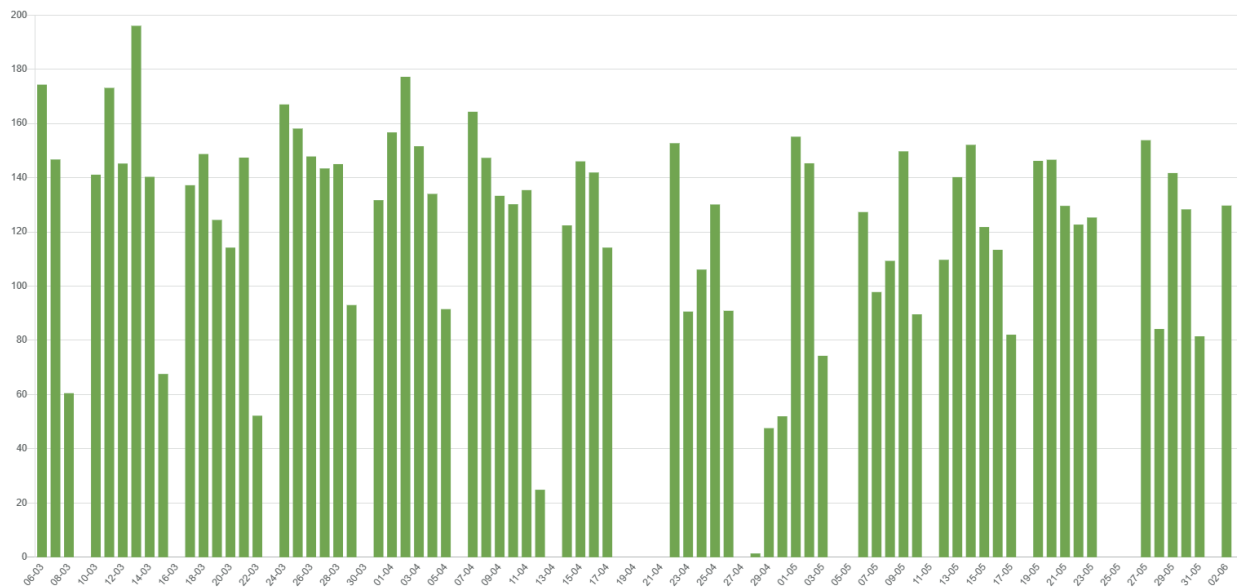
## PN715

### Fuel consumption



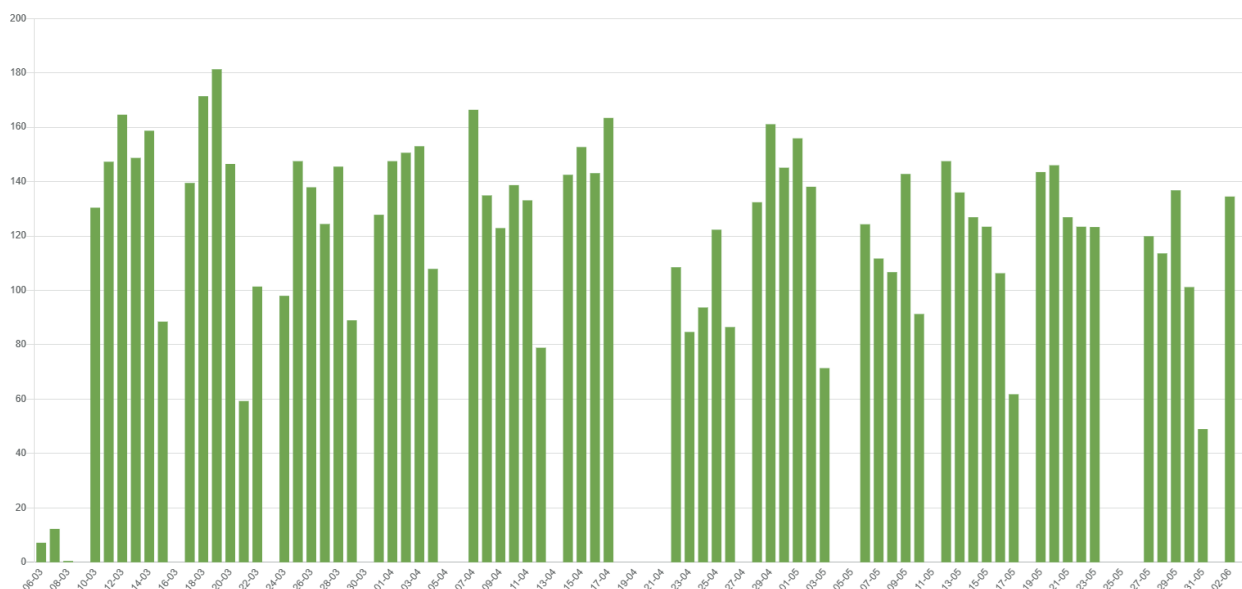
## PN713

### Fuel consumption



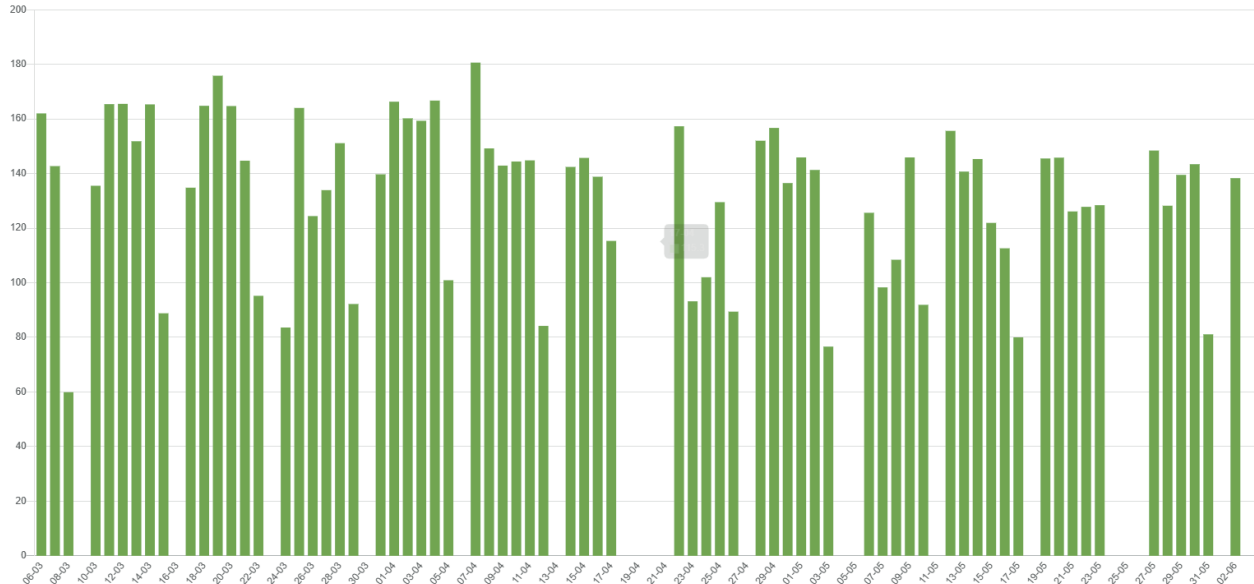
## PN700

### Fuel consumption



## PN691

### Fuel consumption



When PN715 was compared to PN691, PN700 and PN713 – interestingly an anomaly stood out that PN715 is burning significantly more fuel – so the FAME usage is naturally now questioned. The average Fuel burn on the sister trucks is logged at approx. 14 (l/h)

However, as shown, PN715 trend has not derailed, and it has consistently burned through more fuel during the months of March/April compared to the sister trucks, suggesting a characteristic of the Driving Style, or the truck in general is using more fuel. Idle time and operating hours are almost simultaneous across the sister trucks making the comparison legitimate. The data for PN691, 700 and 713 is attached for secondary analysis/verification.

The Carbon Emissions Data above is void for May > this is a calculated figure of hours worked vs Grams of CO2 when Derv is burned\*

Further field testing would produce greater data naturally, and confidence in the fuel – It would be ideal to switch trucks, but also beneficial to explore application into the Dozer/Excavator range for greater understanding/handling of the fuel. PN715 will continue to be monitored as long term effects are unknown. As mentioned, DPF to be inspected once returned.