

### Executive Summary

<ul style="list-style-type: none"><li>• Top trailer costs were related to vessel repairs and recertification</li></ul>
<ul style="list-style-type: none"><li>• Top truck costs were related to major services</li></ul>
<ul style="list-style-type: none"><li>• Services on Trucks – Long periods (several months) between scheduled services<ul style="list-style-type: none"><li>○ Operating regime of trucks necessitates the adoption of 30,000 km intervals in lieu of the 40,000 km intervals currently used.</li></ul></li></ul>
<ul style="list-style-type: none"><li>• Services on Trailer – Infrequent<ul style="list-style-type: none"><li>○ A maximum service to service frequency of 3 months is recommended</li></ul></li></ul>
<ul style="list-style-type: none"><li>• The ceased inspection program in Heriotdale was shown to reduce overall running cost. It is recommended to initiate a similar weekly inspections at both depots</li></ul>

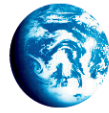
### Fleet list

Trucks				Trailers		
Fleet #	Model	Mileage		Fleet #	Type	Year
D946	MAN 26-440 TGS	565,470		11093	Semi Tanker	2001
D887	MAN 27-440 TGS	206,759		11301	Semi Tanker	2005
D881	MAN 27-440 TGS	266,751		11303	Semi Tanker	2005
D583	MAN 26-440 TGS	662,647		11341	Semi Tanker	2005
D582	MAN 26-440 TGS	667,073		11342	Pup Tanker	2006
D559	MAN 26-440 TGS	453,517		11394	Semi Tanker	2009
D558	MAN 26-440 TGS	491,496		11416	Semi Tanker	2010
444078	MAN 26-440 TGS	627,412		11418	Semi Tanker	2010
444077	MAN 26-440 TGS	630,532		11420	Semi Tanker	2010
444076	MAN 26-440 TGS	481,883		11421	Semi Tanker	2010
444075	MAN 26-440 TGS	660,750		11422	Semi Tanker	2010
444067	MAN 26-440 TGS	465,190		11881	Semi Tanker	2014
444066	MAN 26-440 TGS	455,843		11882	Semi Tanker	2013
444050	MAN 26-440 TGS	692,618		11886	Semi Tanker	2005
444004	MAN 26-440 TGS	408,459		11887	Semi Tanker	2013
444003	MAN 26-440 TGS	478,277		11905	Semi Tanker	2013
				11906	Semi Tanker	2013
				11939	Semi Tanker	2014
				11940	Semi Tanker	2014
				11941	Semi Tanker	2014
				11943	Semi Tanker	2014
				11944	Semi Tanker	2014
				27909	Tautliner	2013
				27910	Tautliner	2013

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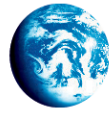


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### Fleet Context

1. The PPC Gauteng fleet operates out of 2 depots, Heriotdale and Hercules.
2. Both fleets are mainly focused on bulk cement delivery (pneumatic semi- & 2x pup- tankers). Secondary, 2x tautliner (with Moffett) [27909 & 27910] trailers are utilised to deliver palletised cement pockets.
3. Four truck tractors were transferred in from the Delportshoop long-distance operation to the PPC Gauteng medium-distance operation. This swap of trucks was to balance the fleet utilisation. The transfer was completed in October and November 2018. In this report, these vehicles were highlighted in yellow.
  - D946
  - 444075
  - 444078
  - 444077
4. At the Heriotdale depot, an arrangement of weekly technical inspections was ceased as of October 2018.

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### High Cost Summary - >R30,000

The summary below is single repair jobs for the current financial year (October 2018 to March 2019)

Tankers			
Fleet Number	Description	Cost	Tanker Age
11301	Tanker Repair and Recertification	R30,575	14 years
11303	Tanker Repair and Recertification	R36,530	14 years
11341	Tanker Repair and Recertification	R35,698	14 years
11420	Tanker Repair and Recertification	R41,125	9 years
11421	Tanker Repair and Recertification	R52,043	9 years
11422	Tanker Repair and Recertification (Nov) <sup>1</sup>	R57,055	9 years
11422	Major Service	R40,765	9 years
11422	Tanker Repair and Recertification (Feb) <sup>1 &amp; 2</sup>	R30,030	9 years
11881	Major Service	R35,038	6 years
11887	Tanker Repair and Recertification	R33,645	6 years
11887	Major Service	R30,602	6 years
11940	Tanker Repair and Recertification	R45,786	5 years
Trucks			
Fleet Number	Description	Cost	Truck Mileage
444004	Service	R57,254	408,459 km
444067	Service	R31,173	465,190 km
444075	Service	R33,582	660,750 km
444076	Service, A Frame, Torque rod	R49,456	481,883 km
444077	5th wheel, A/C, Door module	R66,475	630,532 km
444078	Gearbox casing	R44,329	627,412 km
444078	Service, A Frame, Torque rod	R33,829	627,412 km
D558	Service, 5th wheel <sup>2</sup> , door module	R46,291	491,496 km
D559	Service, 5th wheel <sup>2</sup>	R35,093	453,517 km
D583	Service, 5th wheel <sup>2</sup>	R30,043	662,647 km

Note 1 – 11422

November – Job 43183

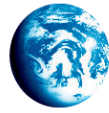
- Clean top of tanker for inspection (R3,482)
- R&I Compressor, Repair Structure (R6,210)
- Pressure Test and Certify (R47,363)

February – Job 44750

- R&R rubbing plate and king pin (R11,460)
- Repair safety release valve, R&R ladder, Repair cracks (R13,490)
- Pressure Test and Certify (R5,080)

Note 2 – Fifth wheel and rubbing plate & king pin forms the main coupling between truck and trailer. These are greased wear items. Re-greasing frequency affects the ultimate component life.

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### Cost per Kilometre – SMART – Summary

Below is the Cost per kilometre (cpk) summary on the fleet. For comparison a summary of year to date (October'18 to March'19) is contrasted against the trailer 12 months (April'18 to March'19).

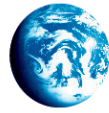
Truck costs indicted ignores the depot allocation of the truck. Relevant truck costs and distances for the Delportshoop operation were taken into consideration.

Trailer calculations were based on distances complete by the relevant depot's trucks during the period.

Trucks – F2019							
Fleet Number	Service	Maintenance	Attitude	Repair	Tyre	Out of Scope	Total
D558	R0.19	R0.02	R0.04	R2.09	R0.84	R0.31	R3.50
444004	R0.16	R0.65	R0.00	R1.53	R0.41	R0.08	R2.83
D559	R0.40	R0.58	R0.00	R1.10	R0.16	R0.28	R2.52
444078	R0.40	R1.33	R0.00	R0.80	R0.16	(R0.35)	R2.33
444003	R0.33	R0.58	R0.00	R0.76	R0.29	R0.34	R2.30
D582	R0.00	R0.47	R0.00	R0.83	R0.71	R0.23	R2.24
444050	R0.56	R0.07	R0.39	R0.84	R0.27	R0.08	R2.21
D946	R0.15	R0.74	R0.00	R0.76	R0.25	R0.00	R1.91
444077	R0.08	R0.42	R0.00	R0.81	R0.34	R0.21	R1.85
444075	R0.80	R0.00	R0.00	R0.48	R0.43	R0.11	R1.82
D887	R0.56	R0.55	R0.00	R0.45	R0.14	R0.01	R1.72
444076	R0.16	R0.75	R0.00	R0.49	R0.27	R0.04	R1.71
D881	R0.13	R0.65	R0.00	R0.35	R0.40	R0.15	R1.69
444066	R0.25	R0.33	R0.00	R0.36	R0.69	R0.04	R1.66
D583	R0.18	R0.13	R0.17	R0.59	R0.36	R0.04	R1.47
444067	R0.21	R0.04	R0.00	R0.50	R0.22	R0.29	R1.27
<b>Total</b>	<b>R0.28</b>	<b>R0.48</b>	<b>R0.03</b>	<b>R0.76</b>	<b>R0.10</b>	<b>R0.10</b>	<b>R1.76</b>

Trucks – Trailing 12 months							
Fleet Number	Service	Maintenance	Attitude	Repair	Tyre	Out of Scope	Total
444003	R0.27	R0.65	R0.07	R0.63	R0.63	R0.34	R2.31

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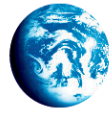
444004	R0.21	R0.70	R0.00	R1.15	R0.29	R0.15	R2.29
444050	R0.37	R0.07	R0.18	R1.02	R0.34	R0.13	R1.74
444066	R0.20	R0.15	R0.43	R0.21	R0.29	R0.06	R1.13
444067	R0.26	R0.13	R0.00	R0.39	R0.26	R0.29	R1.07
444075	R0.40	R0.14	R0.00	R0.45	R0.20	R0.06	R0.86
444076	R0.35	R0.62	R0.00	R0.72	R0.39	R0.07	R1.81
444077	R0.24	R0.16	R0.40	R0.63	R0.34	R0.17	R1.70
444078	R0.32	R0.45	R0.00	R0.34	R0.27	R0.03	R1.10
D558	R0.39	R0.62	R0.04	R2.09	R0.44	R0.30	R3.49
D559	R0.31	R0.38	R0.00	R1.32	R0.08	R0.30	R2.08
D582	R0.14	R0.36	R0.06	R1.35	R0.59	R0.52	R2.88
D583	R0.22	R0.18	R0.08	R1.00	R0.37	R0.16	R1.79
D881	R0.32	R0.39	R0.08	R0.31	R0.25	R0.12	R1.15
D887	R0.27	R0.31	R0.00	R0.35	R0.20	R0.01	R0.87
D946	R0.26	R0.22	R0.00	R0.29	R0.30	R0.02	R0.83
<b>Total</b>	<b>R0.29</b>	<b>R0.31</b>	<b>R0.08</b>	<b>R0.66</b>	<b>R0.31</b>	<b>R0.14</b>	<b>R1.79</b>

### Comments - Trucks

The following was noted:

- “Service” costs remained relatively constant – R0.29 (12 months) vs R0.28 (F2019)
  - Service cost is based purely on the OEM scheduled replacement program. Although the cost of various category of services fluctuates the diverse age of the fleet results in an average that remained relatively low.
- “Maintenance” costs increased – R0.31 (12 months) vs R0.48 (F2019)
  - Maintenance cost is “on-condition” replacement of OEM parts. The type of operation, age and driver behaviour impacts this cost directly. Brakes and suspension and air conditioning components are costed in this category.
  - Maintenance cpk tends to increase with reduced monthly distances.
- “Attitude” costs decreased – R0.08 (12 months) vs R0.03 (F2019)
  - This cost is based on incidents only. It is directly linked to driver behaviour.
  - These costs cpk tends to increase with increased deliveries.
- “Repair” costs increased – R0.66 (12 months) vs R0.76 (F2019)
  - Costs in this category are expenses not covered under a maintenance contract from the OEM. Fifth wheels are costed in this category.
  - Repair cpk tends to increase with reduced monthly distances.
- “Tyre” costs decreased – R0.31 (12 months) vs R0.10 (F2019)
  - Tyre costs fluctuates with replacement cycles.
- “Out of Scope” costs decreased – R0.14 (12 months) vs R0.10 (F2019)
  - Costs deemed to be purely operational is allocated to this category.
- Overall costs decreased – R1.79 (12 months) vs R1.76 (F2019)

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### Trailers

Period	Service	Maintenance	Attitude	Repair	Tyre	Out of Scope	Total
F2019	R0.45	R0.42	R0.08	R1.59	R0.32	R0.25	R3.11
12 months	R0.38	R0.28	R0.06	R1.23	R0.31	R0.27	R2.54

### Comments - Trailers

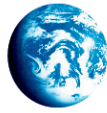
The following was noted:

- “Service” costs remained relatively constant – R0.38 (12 months) vs R0.45 (F2019)
  - Service cost is based purely on the scheduled replacement program. Although the cost of various category of services fluctuates the higher age of the fleet is resulting in a steady increase in the cost.
- “Maintenance” costs increased – R0.28 (12 months) vs R0.42 (F2019)
  - Maintenance cost is “on-condition” replacement of OEM parts. The type of operation, age and driver behaviour impacts this cost directly. Brakes and suspension and off-loading components are costed in this category.
  - Maintenance cpk tends to increase with reduced monthly distances.
  - The average age of the fleet also impacts the costs negatively.
- “Attitude” costs decreased – R0.06 (12 months) vs R0.08 (F2019)
  - This cost is based on incidents only. It is directly linked to driver behaviour.
  - These costs cpk tends to increase with increased deliveries.
- “Repair” costs increased – R1.23 (12 months) vs R1.59 (F2019)
  - Tanker vessel repairs are a major portion of this category. Off-loading cycles and cleanliness (chemical reaction of cement and aluminium) of tankers has a negative impact on these costs.
  - Repair cpk tends to increase with reduced monthly distances.
- “Tyre” costs decreased – R0.31 (12 months) vs R0.32 (F2019)
  - Tyre costs fluctuates with replacement cycles.
- “Out of Scope” costs decreased – R0.27 (12 months) vs R0.25 (F2019)
  - Costs deemed to be purely operational is allocated to this category.
- Overall costs decreased – R2.54 (12 months) vs R3.11 (F2019)

### Preventive Maintenance Analysis

A key ingredient to an effective preventive maintenance program is consistent and regular inspections. Extended “uninspected” periods increase the risk of run-to-failure with consequential costs. (Travel, Call-outs, Extended downtime, unsupervised repairs)

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A graphical summary of the actual services carried out on the trucks indicate the maintenance frequency.

### Trucks

	2018									2019			
Fleet #	Apr	Ma y	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Interval
444050													30,000
444075													30,000
444077													30,000
444078													30,000
444003													40,000
444004													40,000
444066													40,000
444067													40,000
444076													40,000
D558													40,000
D559													40,000
D582													40,000
D583													40,000
D881													40,000
D887													40,000
D946													40,000

Ignoring the ex-Delportshoop fleet (yellow), the extended periods between services are of concern.

Most of the trucks were serviced as per MAN's Group A+ @ 40,000 km (Extra Long-Distance).  
A minority of trucks were serviced as per Group A @ 30,000 km (Long haul)

The guidelines as set out by MAN is as follows:

#### Group A+

Covering more than 150,000 km per year (12,500 km per month)

#### Group A

Covering more than 80,000 km per year (6,666 km per month)

#### Group B

Covering 10,000 km to 80,000 km per year (833 km to 6,666 km per month)

The PPC Gauteng averaged 6,900 km per month in F2019. This fleet qualifies for Group A (30,000 km interval)

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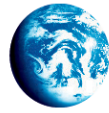
### Trailers

	2018									2019		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
<b>Semi Tanker</b>												
11301												
11303												
11342												
11394												
11416												
11418												
11420												
11421												
11422												
11881												
11882												
11886												
11887												
11905												
11906												
11939												
11940												
11941												
11943												
11944												
11093												
<b>Pup</b>												
11341												
<b>Tautliner</b>												
27909												
27910												

In operations with dedicated truck-trailer combinations, trailers are serviced with the truck. However, trailer services are not to exceed 3 months. Based on billing information, trailers were serviced irregularly.

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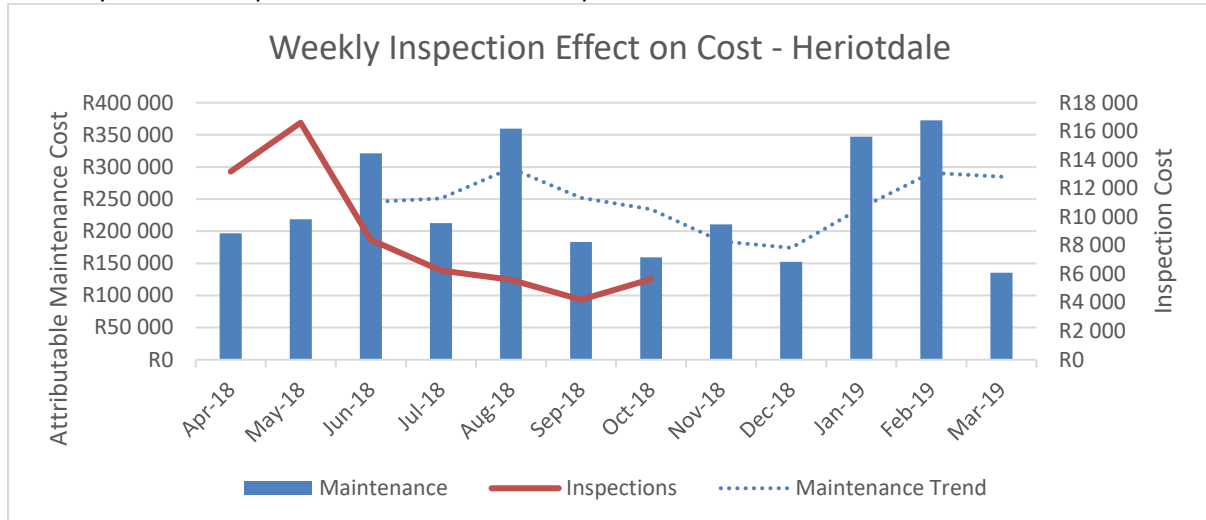




### Weekly Inspections – Heriotdale

Historically the Heriotdale fleet was subject to a weekly technical inspection by an onsite contractor. This arrangement was stopped in October, presumably to contain costs.

An analysis of the impact of the lack of these inspections were done.



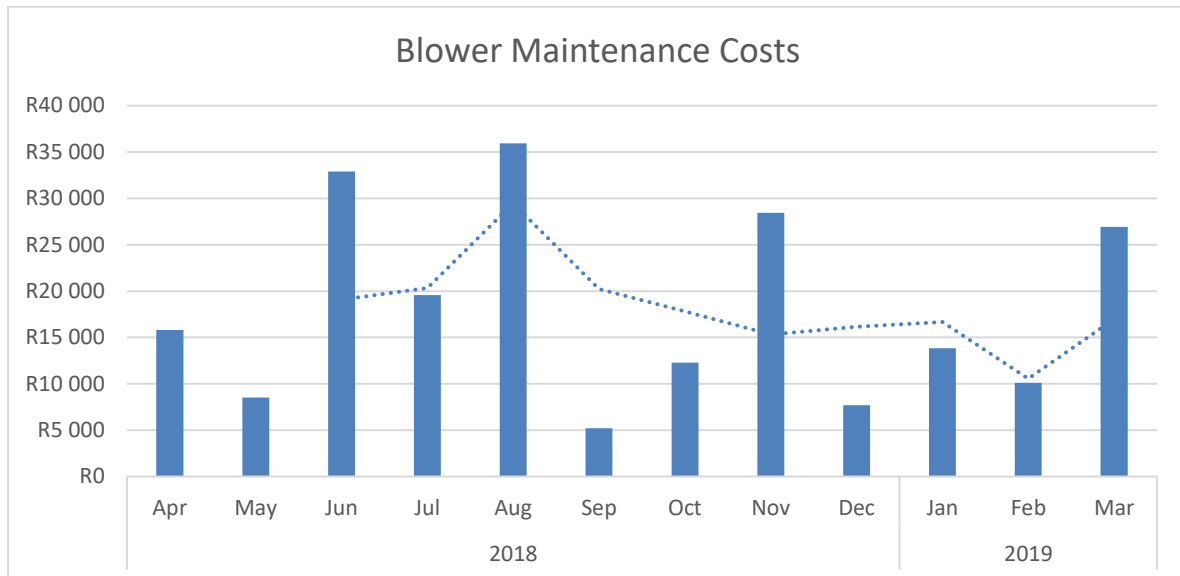
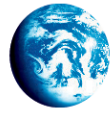
It was noted that during the inspections, the costs fluctuated but the average cost was R235,935 (This included the cost of the inspections). After October the costs averaged R243,628.

The average costs increased (3%) after the inspections were ceased. The value of the weekly inspection outweighs the cost.

### Blowers

Costs related to blowers were summarised below. It was noted that Ex-PPC Slurry blowers were used for unit repairs up to February. This resource is now depleted which will result in needing to purchase new components going forward.

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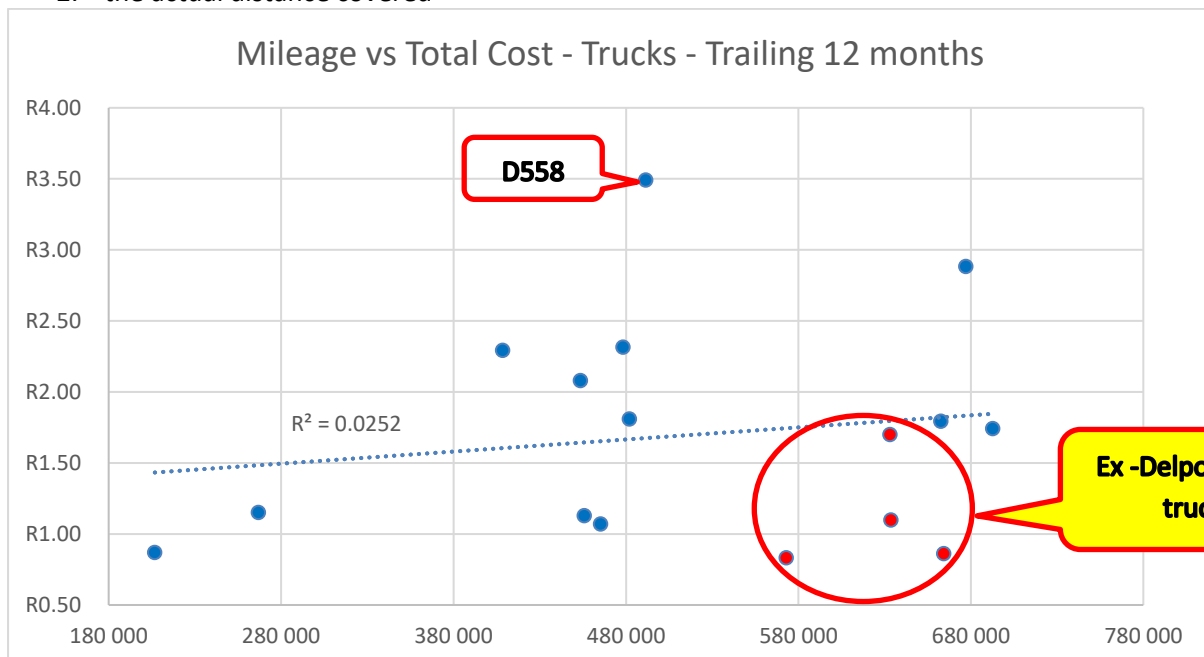
### Statistical Cost Analysis

Several statistical analyses were performed to gain insights into the nature of the costs.

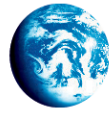
### Trucks – Trailing 12 months

The total cost cpk were plotted against

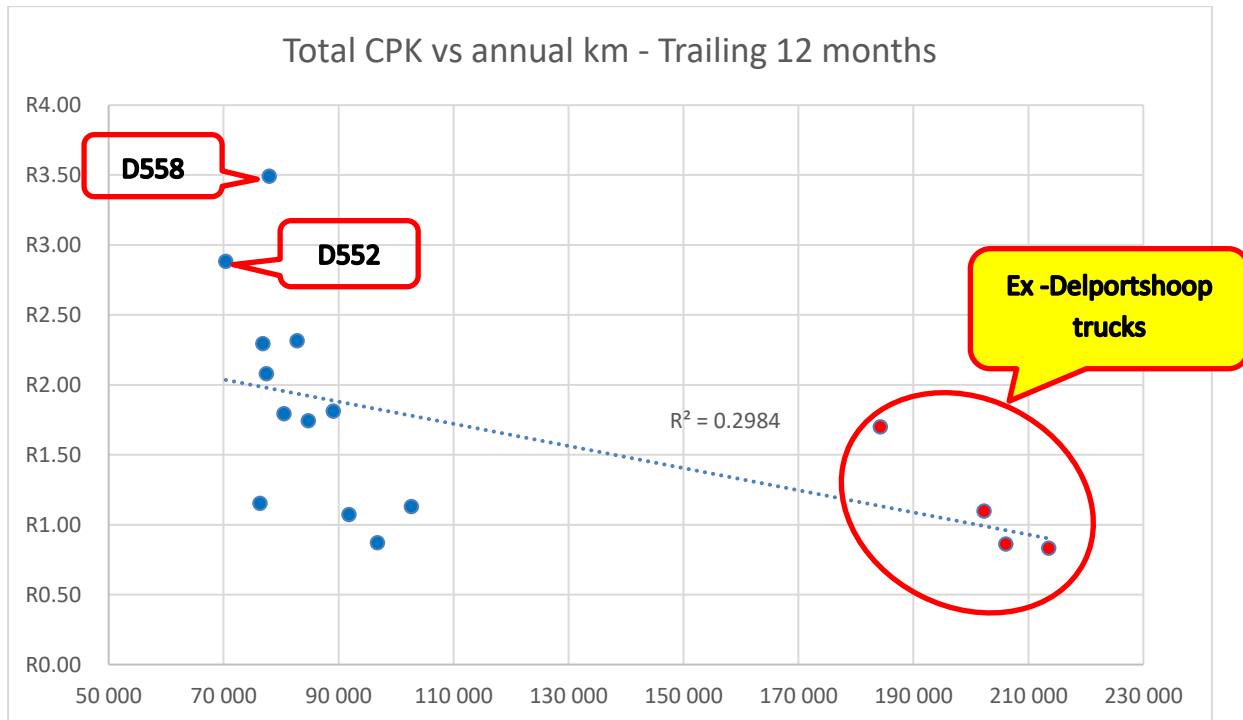
1. the mileage of the truck
2. the actual distance covered



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The mileage of the truck is not strongly correlated to the total running cost of the truck.  $R^2 = 0.03$   
[ $R^2$  varies between 0 (0% correlation) and 1 (100% correlation)]

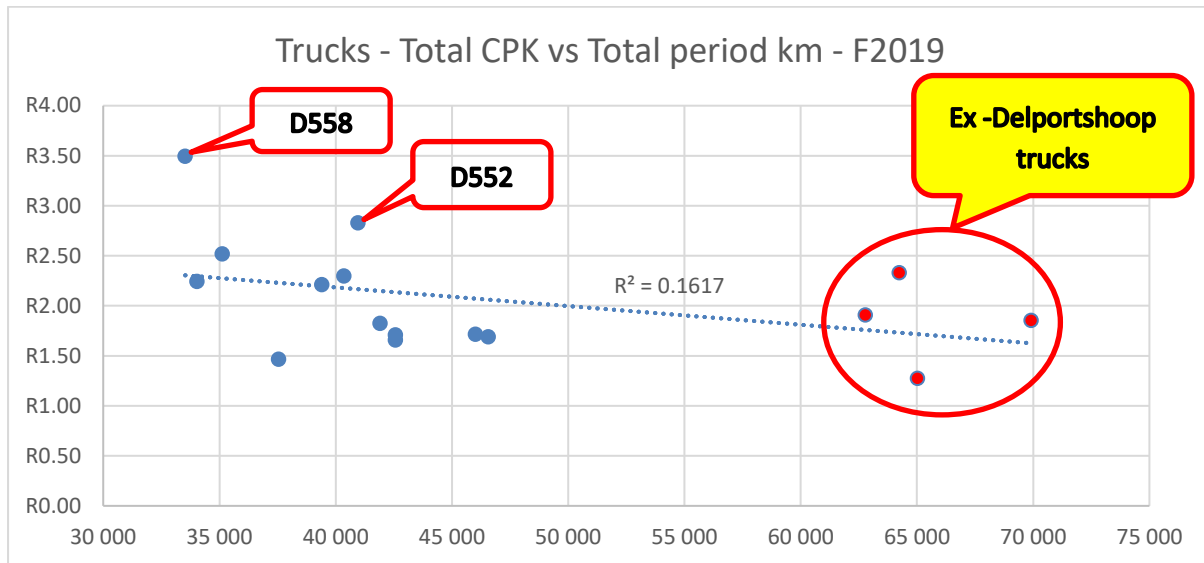


The annual distance is weakly negatively correlated to the total running cost of the truck.  $R^2 = 0.30$

### Trucks – F2019

The total cost cpk were plotted against the actual distance covered

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The period distance is weakly negatively correlated to the total running cost of the truck.  $R^2 = 0.16$  [ $R^2$  varies between 0 (0% correlation) and 1 (100% correlation)]

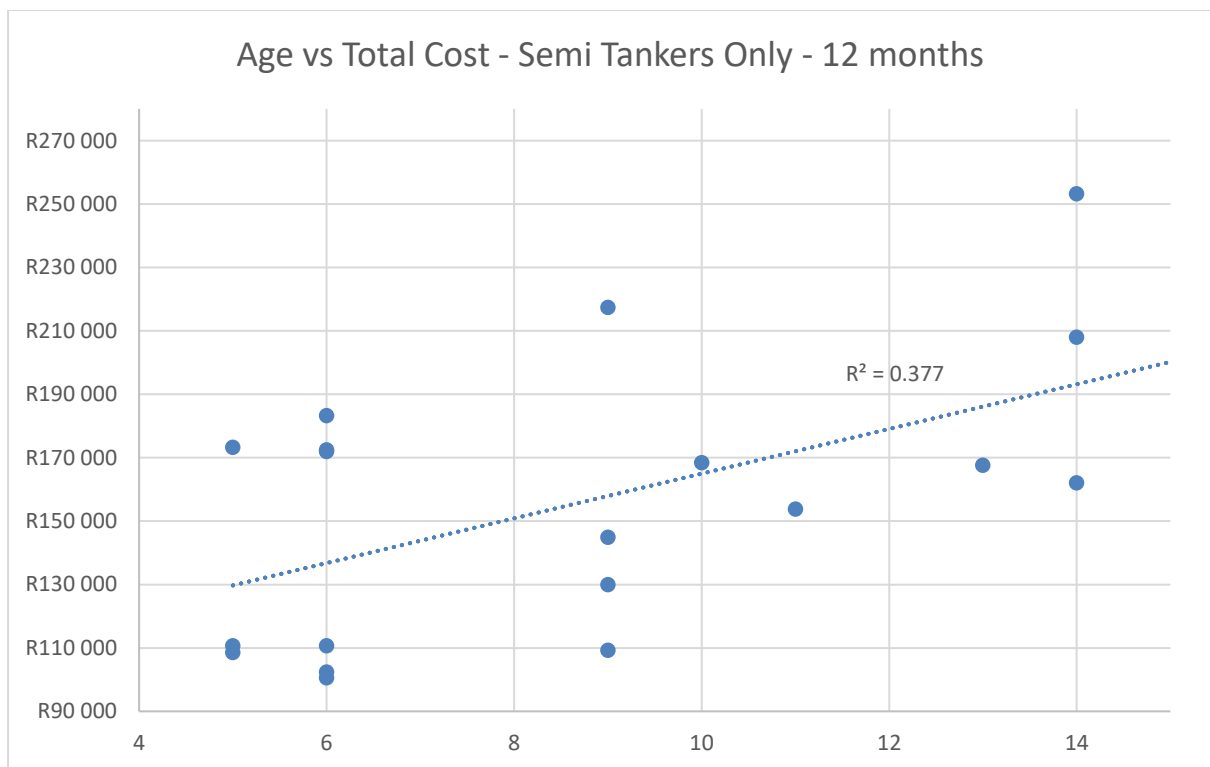
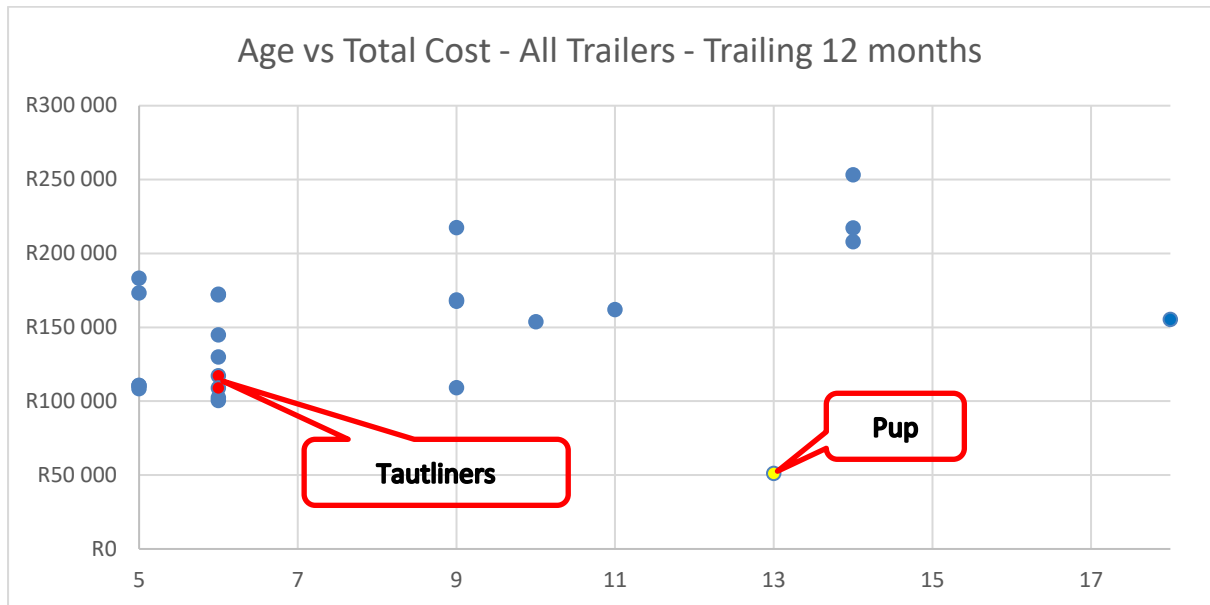
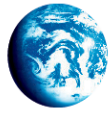
Although the ex-Delportshoop vehicles has more mileage than the than the average, it was running at a similar cost per km than the remaining fleet. It is anticipated that the cpk of these trucks will remain close to the mean.

### Trailer – Trailing 12 months

The total cost was plotted against

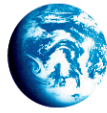
1. age - all trailers
2. age - semi tankers only

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The age of the tanker is correlated to the total cost of the tanker.  $R^2 = 0.38$   
[ $R^2$  varies between 0 (0% correlation) and 1 (100% correlation)]

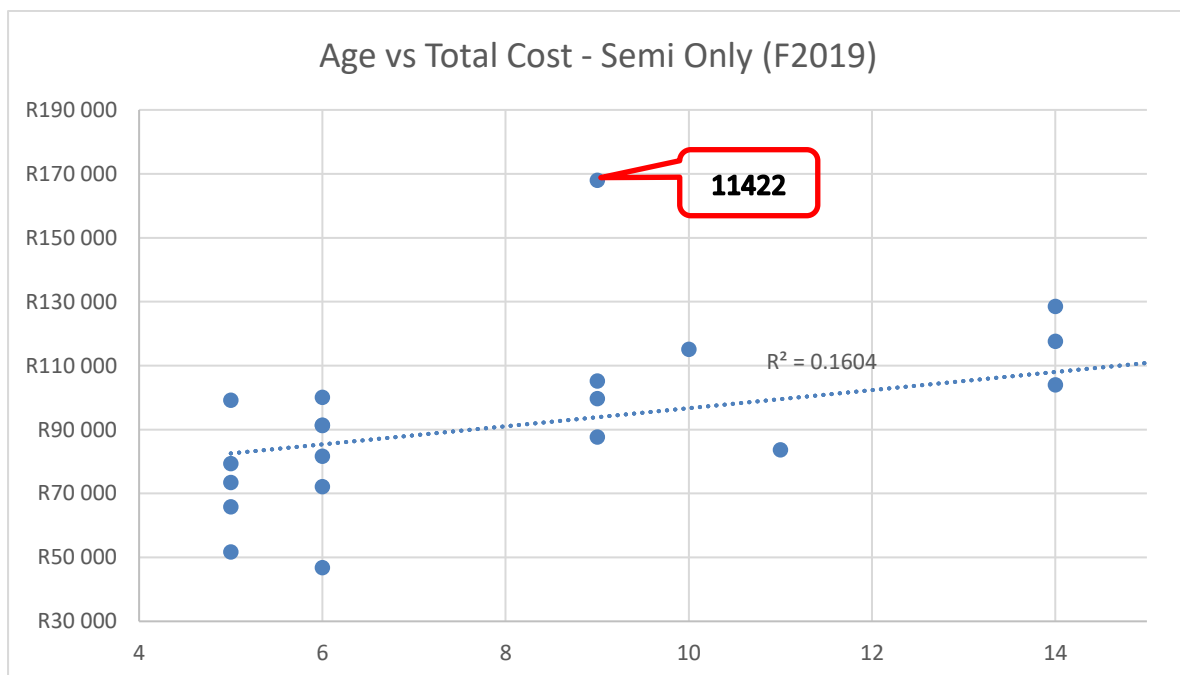
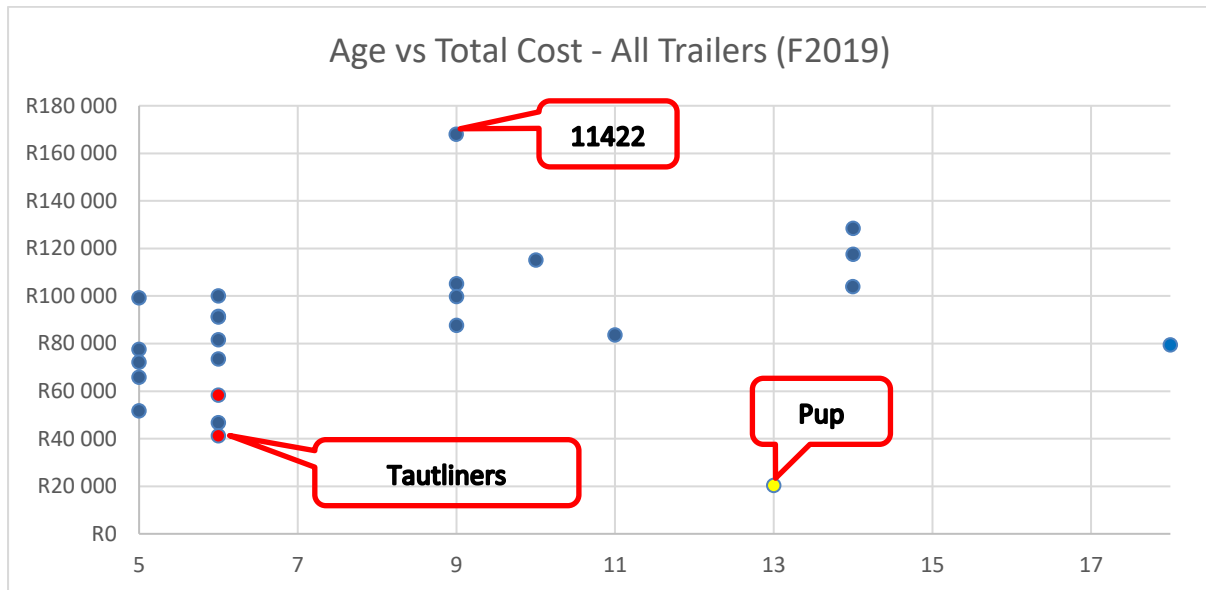
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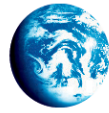
### Trailer – F2019

The total cost was plotted against

1. age - all trailers
2. age - semi tankers only



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The age of the tanker is weakly correlated to the total cost of the tanker.  $R^2 = 0.16$

If the outlier 11422 is ignored, the correlation goes up to  $R^2 = 0.25$

[ $R^2$  varies between 0 (0% correlation) and 1 (100% correlation)]

Although the tanker age is an indicator of running cost, the external factors has a greater effect on total running cost.

### Information Sources

Fleet list (Service Schedule)  
Cost information  
Kilometre information

Fleet Manager – Johannes Molokome  
Autoline billing report – April 2018 to March 2019  
Group Fuel Reports (September 2018 & March 2019)

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