

Truck Operating Benchmarks

By
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Brought to you in the interests
of improving fuel savings & control



Market related owning & operating estimates for a variety of popular trucking operations

Welcome to the *FleetWatch* truck operating benchmarks. The schedule covers a variety of typical primary and secondary distribution trucking operations published since February 2004.

The objective is to provide operators and shippers (consignors) with a reliable independent guide to trucking costs incurred in the transportation of raw materials, semi-finished and finished products.

A thorough understanding of the assumptions and how they are applied in developing the benchmarks is necessary if the various benchmarks are to be informative, beneficial and helpful. While *FleetWatch* takes no responsibility for the accuracy of the estimates, considerable time and effort has been expended to ensure the various components are realistic and representative of the hypothetical transport tasks contained in the schedule. Updated estimates are published quarterly. However, the schedule is continuously monitored and updated monthly.

ASSUMPTIONS

While many transport tasks are similar few are ever identical. With this in mind it is important to bear in mind the aim and application of the various components that apply to a transport operation. These include:

VEHICLE TYPE

Briefly describes the vehicle configuration contemplated for a specific task (eg – 4x2 a rigid freight carrier with

volume van body for medium distance delivery of typical FMCG products).

PAYLOAD (TONS)

The assumptions are based on typical optimal legal mass payload that can be achieved on any number of vehicles, bodies and trailers freely available on the local market. In practice the actual payload will depend on the vehicle manufacturers' specification and the road-ready unladen mass.

DECK LENGTH (METRES)

The assumptions are based on typical optimum mass distribution for the assumed vehicle configuration and the contemplated task. In practice there are many wheelbase and axle capacity options to suit specific requirements.

PALLETS

The assumption contemplates 1000x12000 mm 4-way entry pallets. The mass of pallets is not taken into account.

VOLUME

Cubic assumptions are based on length, width and height of typical bodies applicable to the various operations. In practice this varies with measurements of specific bodies.

ANNUAL KILOMETRES

Annual kilometres are based on typical operations. Annual kilometres of vehicles engaged in short and medium collect and delivery tasks vary considerably. Space limitations prohibit the inclusion of a wider variety of such tasks.

WORKING DAYS

A five-day week is assumed for the vehicles most likely to be involved in delivery operations. Larger rigs often work longer hours to meet the demands of long distance haulage. The imminent implementation of driving hours must be

taken into account to ensure compliance with the regulations.

SHIFTS

Shifts indicate the daily working hours of fridge units and tipper trucks.

ECONOMIC LIFE

Is based on 800 000 km as a first economic life for the driveline. This is in line with vehicle manufacturers' maintenance contracts for standard operations over 48 or 60 month periods. The estimates do not assume that vehicles may be replaced before, on or after the suggested date. Achieving the economic life of the major components is an important element in producing cost-effective transport.

CAPITAL COST

All estimates are based on the cost of new vehicles and equipment. The indicated initial cost of vehicles, trailers, bodies and auxiliary equipment (such as fridge units) is based on the current list price of such items. The prices quoted by leading suppliers are averaged. VAT is excluded.

STANDING COST/FIXED COSTS

Standing costs are incurred whether the vehicle moves or just stands. When vehicles do not cover significant kilometres or work for long hours, standing costs will be high and difficult to recover. Our assumptions are:

DEPRECIATION

All depreciation is straight line.

- Vehicles – 20% a year over five years. No allowance for residual value
- Auxiliaries – 25% a year straight line. No residual value
- Trailers – 10% a year. No residual value

Tyre values are not deducted from the initial price of vehicles and trailers prior to depreciation. ▶ 64

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FLEETWATCH MARKET RELATED TRUCK OPERATING BENCHMARKS (Per Annum) 01-Aug-19

OPERATION	Short Haul Metro	Stop/Start	Med Haul Fresh Del	Long Haul Fresh Del	Med Long Cargo Van	Long Haul Cargo Van	Truck Med Haul Flat Deck	Truck & Trailer Long Haul Flat Deck
ASSUMPTIONS								
Vehicle Type	Panel Van		Insulated Van	Insulated Van	Volume Van	Flat Deck	6x4 Rigid	6x4 Rigid & Trailer
Average Payload (tons)	3		3,5	5,5	8	8	14	26
Deck Length (metres)	4		4,2	6,5	7,5	7,5	7,5	15
Pallets			4	6	8	8	8	24
Cubes	16		20	37	37			
Annual KM	50000		30000	60000	45000	85000	65000	100000
Working Days	260		260	260	260	260	260	260
Shift Hours (fridge)			11	11				
Useful Life (KM)	300000		350000	350000	450000	600000	800000	800000
Useful Life (Years)	6		8	6	8	8	8	8
CAPITAL COST								
Prime Mover	420000		540000	650000	750000	750000	1500000	1500000
Body			114000	140000	165000	125000	150000	150000
Auxiliary Equipment			283000	330000				
1st Trailer								350000
2nd Trailer								
Other								
Total Capital Cost	420000		937000	1120000	915000	875000	1650000	2000000
STANDING COST								
Prime Mover Depreciation	84000		108000	130000	150000	150000	300000	300000
Body Depreciation			22800	28000	33000	25000	30000	
Auxiliary Depreciation			70750	82500				
Trailer Depreciation								35000
Total Depreciation	84000		201550	240500	183000	175000	330000	335000
Cost of Capital	26888		59987	71702	58578	56018	105633	128040
Prime Mover Licence	1656		2993	5495	5495	5495	18406	18406
Trailer Licence								5386
Total Licence Fee	1656		2993	5495	5495	5495	18406	23792
Total Insurance	29400		65590	78400	64050	61250	115500	140000
Driver Wages	124416		136858	143793	155520	155520	214618	214618
Assistant Wages	114000		114000	114000	114000	114000	114000	114000
Total Wages	238416		224520	230942	241800	241800	296520	296520
TOTAL STANDING COST	380360		554640	627040	552923	539563	866059	923352
As a % of Total Cost	56,30%		60,14%	49,90%	62,58%	48,35%	57,11%	46,22%
VARIABLE COST								
Prime Mover Fuel	210766		165370	343970	201545	380696	388161	651459
Auxiliary Fuel			89576	89576				
Total Vehicle Fuel	210766		254946	433546	201545	380696	388161	651459
Top-up Oil	10538		12747	21677	10077	19035	19408	32573
Prime Mover Repair & Maint	42000		28500	57000	47250	89250	81900	126000
Auxiliary Repair & Maint			30000	60000				
Trailer Repair & Maintenance								55000
Total Repair & Maintenance	42000		58500	117000	47250	89250	81900	181000
Total Tyres	6981		6440	22400	16800	32300	35880	84400
Unforeseen Expense	25000		35000	35000	55000	55000	125000	125000
TOTAL VARIABLE	295286		367633	629623	330672	576281	650349	1074432
As a % of Total Cost	43,70%		39,86%	50,10%	37,42%	51,65%	42,89%	53,78%
TOTAL OPERATING COSTS	675646		922273	1256663	883596	1115844	1516408	1997784
SUMMARY								
Standing Cost Rands per/day	1463		2133	2412	2127	2075	3331	3551
Standing Cost (Rands/Km)	7,61		18,49	10,45	12,29	6,35	13,32	9,23
Variable Cost (Rands/Km)	5,91		12,25	10,49	7,35	6,78	10,01	10,74
Total CPK (Rands/Km)	13,51		30,74	20,94	19,64	13,13	23,33	19,98
Cost per ton (Rands)	866		1013	879	425	536	417	296
Cost per Pallet (Rands)			887	806	425	536	729	320
Cost per Ton/Km (100% Load)	R 4,50		R 8,78	R 3,81	R 2,45	R 1,64	R 1,67	R 0,77
Cost per Ton/Km (75% Load)	R 6,01		R 11,71	R 5,08	R 3,27	R 2,19	R 2,22	R 1,02
Cost per Ton/Km (50% Load)	R 9,01		R 17,57	R 7,62	R 4,91	R 3,28	R 3,33	R 1,54
Cost per Pallet/Km (100%)			R 122,97	R 125,67	R 157,08	R 105,02	R 186,63	R 479,47
Cost per Cube/Km (100%)	R 216		R 615	R 775	R 727			
Cost per Deck Metre (Rands)			129	136	147	98	175	300
RATIOS								
Useful Life Cost	4053878		7378184	7539979	7068766	8926750	12131265	15982272
Capital Cost per Payload Ton	140000		267714	203636	114375	109375	117857	76923
Capital Cost per Deck Metre	105000		223095	172308	122000	116667	220000	133333
Capital Cost % Useful Life Cost	10,36%		12,70%	14,85%	12,94%	9,80%	13,60%	12,51%
Oper Cost per Payload Ton	140000		267714	203636	114375	109375	117857	76923
Oper Cost per Deck Metre	105000		223095	172308	122000	116667	220000	133333
Capital Cost % Operating Cost	62,16%		101,60%	89,12%	103,55%	78,42%	108,81%	100,11%
Maint Cost % Variable Costs	14,22%		15,91%	18,58%	14,29%	15,49%	12,59%	16,85%
MaintCost % Operating Cost	6,22%		6,34%	9,31%	5,35%	8,00%	5,40%	9,06%
Fuel Cost % Variable Cost	71,38%		69,35%	68,86%	60,95%	66,06%	59,69%	60,63%
Fuel Cost % Operating Cost	31,19%		27,64%	34,50%	22,81%	34,12%	25,60%	32,61%
Co2 (tons pa)	40,76		49,31	83,85	38,98	73,63	75,08	126,00

12.5 m Dual-axle Semi 1.1.2. artic	8.4 m Insulated Med Haul 1.2. Rigid	13.5 m Dual-axle Semi 1.2.2. artic	13.5m Tridem-axle Semi 1.1.3. artic	End Tridem Tip Semi 1.2.3. artic	14,7 Tridem Reefer Semi 1.2.3. artic	Taut-liner Interlink 7-axle rig	Flat deck Interlink 7-axle rig	OPERATION
								ASSUMPTIONS
4-axle Artic 21 12,5 20	6x2 Rigid 13,5 8,4 16	5-axle Artic 26 13,5 24	5-axle Artic 25 13,5 24	6-axle Artic 30 14,7	6-axle Artic 30 14,7 30	7-axle Artic 34 18 36	7-axle Artic 36 18 36	Vehicle Type Payload (tons) Deck Length (metres) Pallets Cubes (cubic metres)
120000 260	135000 260	160000 260	160000 260	75000 286	180000 286 10	180000 286	200000 286	Annual KM Working Days Shift Hours (fridge) Useful Life (KM) Economic Life (Years)
600000 5	800000 6	800000 5	800000 5	600000 8	800000 5	800000 5	800000 4	
								CAPITAL COST
1300000 297000	1300000 185000 333000	1600000 297000	1350000 319000	1750000 590000	1850000 520000 700000	1900000 220000 396000	1900000 209000 374000	Prime Mover Body Auxiliary Equipment 1st Trailer 2nd Trailer Other
1597000	1818000	1897000	1669000	2340000	3070000	2516000	2483000	Total Capital Cost
								STANDING COST
260000 29700 289700 102240 12268 5386 18598 111790 233280 114000	260000 37000 83250 380250 116388 16294 16294 127260 233280 114000	320000 29700 349700 121446 16294 16294 132790 284602 114000	270000 31900 301900 106849 16294 8472 24825 116830 298598 114000	350000 59000 409000 149807 20145 20028 24825 163800 304819 114000	370000 130000 70000 570000 196541 20145 20028 41545 214900 339034 114000	380000 61600 441600 161074 20145 17280 38634 176120 339034 114000	380000 58300 438300 158962 20145 15888 37145 173810 339034 114000	Prime Mover Depreciation Body Depreciation Auxiliary Depreciation Trailer Depreciation Total Depreciation Cost of Capital Prime Mover Licence Trailer Licence Total Licence Fee Total Insurance Driver Wages Assistant Wages
313800	313800	361320	374280	380040	411720	411720	411720	Total Wages
836128 41,75%	953992 39,99%	981550 36,30%	924684 36,19%	1127472 50,10%	1434706 37,63%	1229148 34,58%	1219937 31,99%	TOTAL STANDING As a % of Total cost
								VARIABLE COST
731852 731852 36593 151200 66000 217200 55920	806181 89576 895756 44788 170100 135000 305100 60660	1146568 1146568 57328 206400 88000 294400 99093	1042335 1042335 52117 192000 120000 312000 99093	614233 614233 30712 133500 135000 268500 84600	1289889 107491 1397380 69869 320400 180000 653400 131880	1474159 1474159 73708 320400 180000 500400 152280	1637954 1637954 81898 380000 200000 580000 169200	Prime Mover Fuel Auxiliary Fuel Total Fuel Top-up Oil Prime Mover Repair & Maint Auxiliary Repair & Maint Trailer Repair & Maintenance Total Repair & Maint Total Tyres
125000	125000	125000	125000	125000	125000	125000	125000	Unforeseen Expense
1166565 58,25%	1431304 60,01%	1722390 63,70%	1630545 63,81%	1123045 49,90%	2377529 62,37%	2325547 65,42%	2594052 68,01%	TOTAL VARIABLE As a % of Total cost
2002692	2385296	2703940	2555229	2250516	3812235	3554695	3813989	TOTAL OPERATING COSTS
								SUMMARY
3216 6,97 9,72 16,69 367 385 R 0,79 R 1,06 R 1,59 R 333,78	3669 7,07 10,60 17,67 680 573 R 1,31 R 1,75 R 2,62 R 282,70	3775 6,13 10,76 16,90 400 433 R 0,65 R 0,87 R 1,30 R 405,59	3556 5,78 10,19 15,97 393 409 R 0,64 R 0,85 R 1,28 R 383,28	3942 15,03 14,97 30,01 262 409 R 1,00 R 1,33 R 2,00	5016 7,97 13,21 21,18 444 444 R 0,71 R 0,94 R 1,41 R 635,37	4298 6,83 12,92 19,75 366 345 R 0,58 R 0,77 R 1,16 R 710,94	4266 6,10 12,97 19,07 370 345 R 0,53 R 0,71 R 1,06 R 686,52	Standing Cost p/day Standing Cost (Rands) Variable Cost (Rands) Total CPK (Rands) Cost per ton (Rands) Cost per Pallet (Rands) Cost per Ton/Km (100% Load) Cost per Ton/Km (75% Load) Cost per Ton/Km (50% Load) Cost per Pallet/Km (100%) Cost per Cube/Km (100%) Cost per Deck Metre (Rands)
209	148	228	216	441	311	355	343	
								RATIOS
10013462 76048 127760 15,95% 76048 127760 79,74% 18,62% 10,85% 62,74% 36,54% 141,55	14311779 134667 216429 12,70% 134667 216429 76,22% 21,32% 12,79% 62,58% 37,55% 173,25	13519698 72962 140519 14,03% 72962 140519 70,16% 17,09% 10,89% 66,57% 42,40% 221,76	12776145 66760 123630 13,06% 66760 123630 65,32% 19,13% 12,21% 63,93% 40,79% 201,60	18004130 78000 159184 13,00% 78000 159184 103,98% 23,91% 11,93% 54,69% 27,29% 118,80	19061176 102333 208844 16,11% 102333 208844 80,53% 27,48% 17,14% 58,77% 36,66% 270,27	17773476 74000 139778 14,16% 74000 139778 70,78% 21,52% 14,08% 63,39% 41,47% 293,51	15255955 68972 137944 16,28% 68972 137944 65,10% 22,36% 15,21% 63,14% 42,95% 316,80	Useful Life Cost Capital Cost per Payload Ton Capital Cost per Deck Metre Capital Cost % Eco Life Cost Oper Cost per Payload Ton Oper Cost per Deck Metre Capital Cost % Operating Cost Maint Cost % Variable Cost Maintenance Cost % Operating Cost Fuel Cost % Variable Cost Fuel Cost % Operating Cost Co2 (tons pa)

Comment by Max Braun



THE REDUCTION in the fuel price for August and the small reduction in interest rates are as always welcome especially because it is likely to be the last relief we will see for a while. The August transport owning and operating benchmarks reflect a drop in the rands per kilometre cost that remains close to R20 a kilometre excluding overheads, admin and toll fees for large rigs covering 200000 kmpa. With inland diesel wholesale price at R14.33 fuel costs represent at least 43% of running expenses. Owning and operating costs before drivers wages is approximately is at least R3200 per day working 286 days a year.

With the Rand back to plus R15 to the US dollar and plus R17 to the Euro it does not augur well for equipment and replacement parts prices for the months to come. Tyre prices are almost certainly chalked up some increases. The ongoing trade tariff war between the USA and China weighing in on stock markets and currencies around the world as governments and Central banks ponder on what moves to make. Bloomberg and other leading financial establishments are forecasting a recession to the extent billions is flowing out of the bond markets. It seems then; we will be stuck with rising trucking costs for some time to come. Just make sure you have identified all sources that eat your fuel, tyres, maintenance resulting in impaired utilisation of payload capacity and up time ☐

COST OF CAPITAL

"There's no free lunch" as the saying goes. Interest on the cost of vehicles and equipment is calculated at the prime bank overdraft rate (currently 10% a year) on the full amount. The calculation indicates the average interest paid per annum on the reducing balance over five years.

VEHICLE LICENCES

Licence fees for vehicles and trailers are based on the current Western Cape tariff, among the most expensive among the nine provincial governments.

INSURANCE

Insurance cost assumes the operator has a low risk rating. Premiums are presently set at 7 per cent of the purchase price (replacement value) for vehicles, equipment and trailers.

WAGES

Driver and assistant wages vary considerably across the country in terms of vehicle size, task complexity, region, metropolitan operators and remuneration packages. All assumptions include an allowance for company contributions but exclude overtime and bonuses. Where applicable an assistant has been included as a casual, daily worker.

VARIABLE COSTS

Variable costs (also known as running costs) are incurred when the wheels turn. These include:

FUEL

A major cost item in all transport operations. Where annual kilometres exceed about 120000 km a year, fuel is usually the largest expense. Fuel consumption is calculated according to a formula that assumes the vehicle is always fully loaded, travels at an average speed of approximately 80% of the speed limit in the case of highway operations and 75% of the urban speed limit. The formula takes into account an assumed maximum power demand expressed as a percentage of maximum available kW/hrs for each task. A similar approach is used in calculating the fuel used by fridge units. The price of fuel is based on the pump price in Gauteng for diesel with 500 ppm sulphur. Bulk rebates where they apply are ignored.

TOP-UP OIL

Is based on five per cent of the cost of fuel consumed.

REPAIRS & MAINTENANCE

The assumed cost of maintenance is based on current vehicle manufacturer and FML maintenance contract rates, expected economic component life and industry experience. The assumptions take into account the complexity of each task including typical operating conditions such as roads, topography, traffic density etc. Repair and maintenance costs for the tipper and fridge operations are calculated in hours.

TYRES

Tyre life is based on typical casing life currently experienced in the various operations. The benchmarks exclude tyre management charges, breakdown and recovery costs or other allied expenses incurred. Major tyre supplier tyre management programmes offer excellent data to establish achievable tyre performance.

UNFORESEEN

An annual appropriate amount is allowed to cover any number of unexpected and unforeseen expenses such as insurance excess and the cost of unrecoverable incidents.

EXCLUSIONS

The estimates do not include toll fees, vehicle tracking, engine protection or other optional equipment. No allowance is made for administration or overhead expenses. The variation in operator approach to such costs excludes the inclusion of a sensible amount to cover these aspects.

SUMMARY

The summary expresses operating costs under numerous headings including tons, ton/km, pallets, pallet/km, metres of deck length and cubic metres. It is important to note that all calculations assume a fully loaded vehicle – in other words a 100% load factor.

RATIOS

Management ratios provide an excellent insight into the high capital and operating cost of vehicles, especially when not properly managed. However, correctly selected vehicles that are decently driven and timeously maintained offer shippers cost-effective transport and the prospect of a commercially acceptable return for the operator.

ROAD TRANSPORT COST COMPARISON

Based on a 7-axle Interlink covering 200 000 kmpa, working 286 days a year

As at (July)	2016	2017	2018	2019	% Difference
KMPA	180000	180000	180000	180000	
Days	286	286	286	286	
Payload (tons)	34	34	34	34	
Pallets	36	36	36	36	
Truck-Tractor	1616843	1616843	1757600	1900000	17.51%
Tautliner-Links	616000	616000	616000	616000	0.00%
Total Equipment Cost	2232843	2232843	2373600	2516000	12.68%
Fixed Costs	1081617	1112414	1176270	1219148	12.72%
% of Total Costs	32.00%	31.17%	30.28%	31.15%	-5.37%
Running Costs	1991417	2131596	2355220	2339360	17.47%
% of Total Costs	58.91%	59.74%	60.63%	59.76%	1.45%
Admin & Overhead Expenses	307303	324401	353149	355851	15.80%
TOTAL OPERATING COST	3380337	3568411	3884639	3914359	15.80%
Rands per Kilometre	18.78	19.82	21.58	21.75	15.80%
Standing cost per Day	3782	3890	4113	4263	12.72%
Ton/Km 100% load factor	0.55	0.58	0.63	0.64	15.80%
Ton/Km 50% load factor	1.10	1.17	1.27	1.28	14.92%
Fuel Wholesale price per litre	11.7	10.97	14.45	14.56	24.44%
Total fuel cost	1239745	1161879	1530000	1487324	19.97%
Fuel Cost % of Total Costs	36.68%	32.56%	39.39%	41.68%	13.65%
Maintenance % of Total Costs	15%	15.50%	14.20%	14.20%	-5.33%
Est Useful Life Cost (millions)	R 15.37	R 15.37	R 17.65	R 17.84	16.11%
Av Interest rate	10.50%	10.25%	10.00%	10.40%	-0.95%

NOTE

These truck operating cost benchmarks offer shippers and operators the opportunity to fine tune these estimates to suit their specific transport needs and actual operating costs. Where particular elements differ from your operations you may simply make the adjustments.

If, however, you require more information to complete your benchmarks, contact *Max Braun* at maxbraun@iafrica.com for some assistance. ☐



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