

Application Report Bundle

iSCAAN**116-A357712-1** (Iteration 2 --- Axle 5,5) *Preliminary*US Units | **SI Units**

DISCLAIMER STATEMENT

The vehicle performance calculated by iSCAAN is an estimate for the specified vehicle and power train operating at standard engine conditions per SAE J1995 at 91 m (300 feet) altitude of 100 kPa barometric pressure and 25°C (77°F) inlet air temperature. Engine performance is significantly affected as operating altitude increases, therefore, Allison Transmission, Inc. does not represent and hereby disclaims that, under all conditions, the actual vehicle will achieve the simulated performance.

APPLICATION PROFILE ▲

Date	May 26, 2025 16:17:42
Scaan Number	
Application	116-A357712-1
Application Name	UAT-4 Cummins ISL9E3 400 Retarder
Owner	Gunter Pilger @ DGS Mainz
SCAAN Analysis Type	Standard Vehicle Run
Optional Analysis Type	
Classification	Standard
Review Status	Not Submitted

Input Summary ▲

MISSION ▲

End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM ▲

Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
User Expected Engine Load	0%

Area and Weight

Frontal Area	8.190 m ²
Height / Width	3.150 m / 2.600 m
Standard Wind Resistance Coefficient	0.750 (no Deflector)
User Defined Wind Resistance Coefficient	0.750 (no Deflector)
Gross Vehicle Weight	19000 kg (no Trailer)
Weight On Drive Wheels	19000 kg (100.00%)

Tires

Number Of Tires	4 (Standard Profile Radial)
Selected Tire	
Tire Revolutions	286 revs/km
Tire Rolling Radius	0.556 m
Standard Surface	Smooth Concrete (SC Factor = 1.00)
Selected Surface	Smooth Concrete (SC Factor = 1.00)
Standard On-Road Traction Limit Coefficient	0.700
Standard Off-Road Traction Limit Coefficient	0.550
User Defined On-Road Traction Limit Coefficient	0.700
User Defined Off-Road Traction Limit Coefficient	0.550
Tire/Wheel Inertia (estimated)	84.4565 kg-m²

ACCESSORY LOSSES (POWER @ GOVERNED SPEED)

Accessory	Standard Loss (kW)	User Defined Loss (kW)
Fan (Clutch Fan)	25.0	25.0
Alternator / Generator	3.1	3.1
Air Compressor	1.6	1.6
Steering Pump	1.6	1.6
Air Conditioning	0.0	0.0
Implement Drive	0.0	0.0

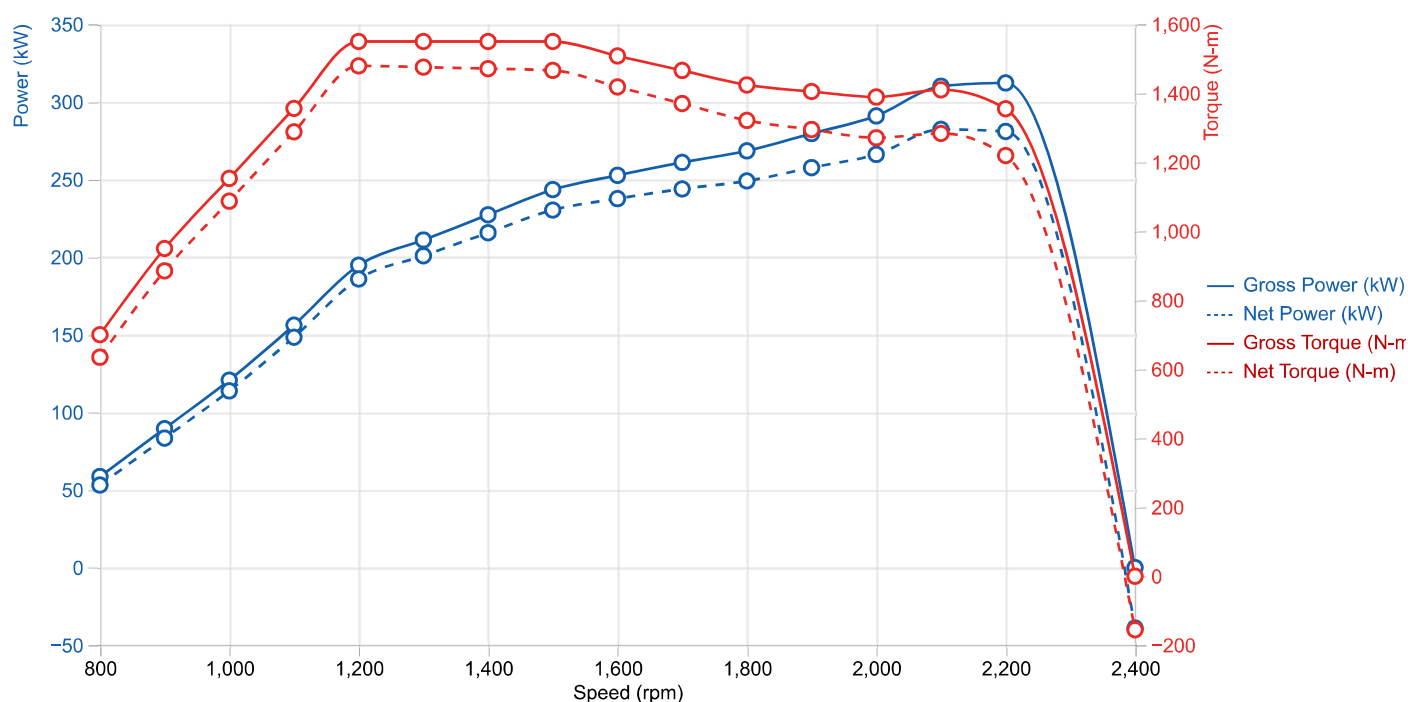
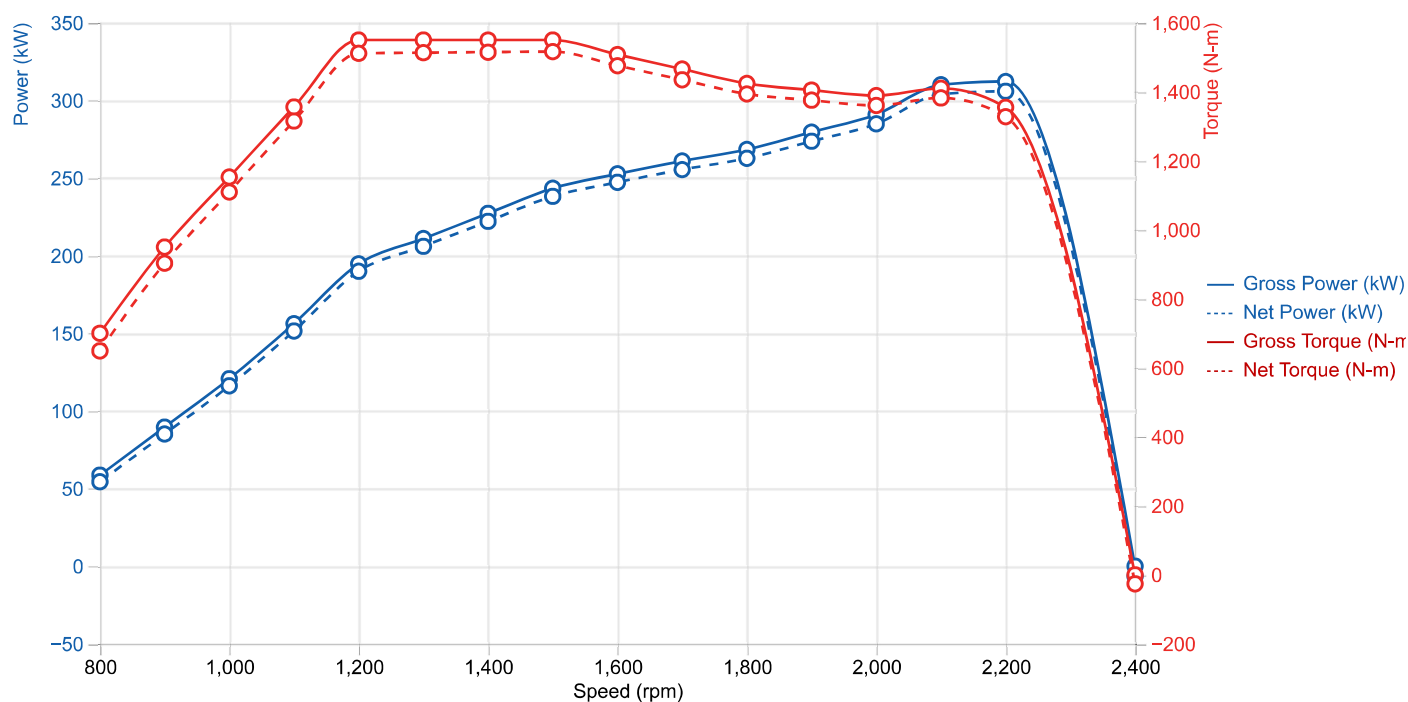
ENGINE

Number of Power Packs	1
Engine Rating	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Engine Controls Type	Electronic
Evaluate at Altitude	No
Certifications	
Displacement	8.85 l
Peak Torque	1550.0 N-m
Peak Torque Speed	1200 rpm
Peak Power	312.2 kW
Peak Power Speed	2200 rpm
Governed Power	312.2 kW
Governed Speed	2200 rpm
Number Of Curves	1
Engine Curve Reference	
Engine Idle Speed	700 rpm
Cruise Velocity @ Speed	0.0 km/h @ 0 rpm
Engine Retarder	
Engine Inertia (estimated)	0.9059 kg-m²

ENGINE CURVE - STANDARD LOSSES - COMBINED LOW & HIGH CURVES (AC ON WHERE APPLICABLE)


Speed (rpm)	Gross Power (kW)	Gross Torque (N-m)	Net Power Fan On (kW)	Net Torque Fan On (N-m)	Net Power Fan Off (kW)	Net Torque Fan Off (N-m)	Point Identification
800	58.6	700.0	53.2	634.7	54.4	649.0	
900	89.5	950.0	83.4	885.0	85.1	903.2	
1000	120.7	1153.0	113.8	1087.1	116.2	1109.5	
1100	156.2	1356.0	148.4	1288.1	151.5	1315.2	
1200	194.8	1550.0	185.9	1479.2	189.9	1511.5	Peak Torque
1300	211.0	1550.0	200.9	1475.5	206.0	1513.4	
1400	227.2	1550.0	215.7	1471.1	222.1	1515.0	
1500	243.5	1550.0	230.3	1466.1	238.2	1516.5	
1600	252.7	1508.0	237.6	1418.4	247.3	1475.7	
1700	261.0	1466.0	243.9	1370.1	255.4	1434.8	
1800	268.4	1424.0	249.0	1321.2	262.7	1393.8	
1900	279.5	1405.0	257.6	1294.8	273.7	1375.7	
2000	290.9	1389.0	266.2	1270.8	284.9	1360.4	
2100	310.1	1410.0	282.2	1283.4	304.0	1382.2	
2200	312.2	1355.0	280.9	1219.4	305.9	1327.8	Peak Governed
2400	0.0	0.0	-39.0	-155.1	-6.5	-26.1	No Load Governed

Peak Power point has been defined for the purposes of assessing Accessory Losses

PLOTS - ENGINE CURVE - STANDARD LOSSES - COMBINED LOW & HIGH CURVES (AC ON WHERE APPLICABLE)
Standard Parameters Fan On

Standard Parameters Fan Off

ENGINE CURVE - USER DEFINED LOSSES - COMBINED LOW & HIGH CURVES (AC ON WHERE APPLICABLE)

Speed (rpm)	Gross Power (kW)	Gross Torque (N-m)	Net Power Fan On (kW)	Net Torque Fan On (N-m)	Net Power Fan Off (kW)	Net Torque Fan Off (N-m)	Point Identification
800	58.6	700.0	53.2	634.7	54.4	649.0	
900	89.5	950.0	83.4	885.0	85.1	903.2	
1000	120.7	1153.0	113.8	1087.1	116.2	1109.5	
1100	156.2	1356.0	148.4	1288.1	151.5	1315.2	

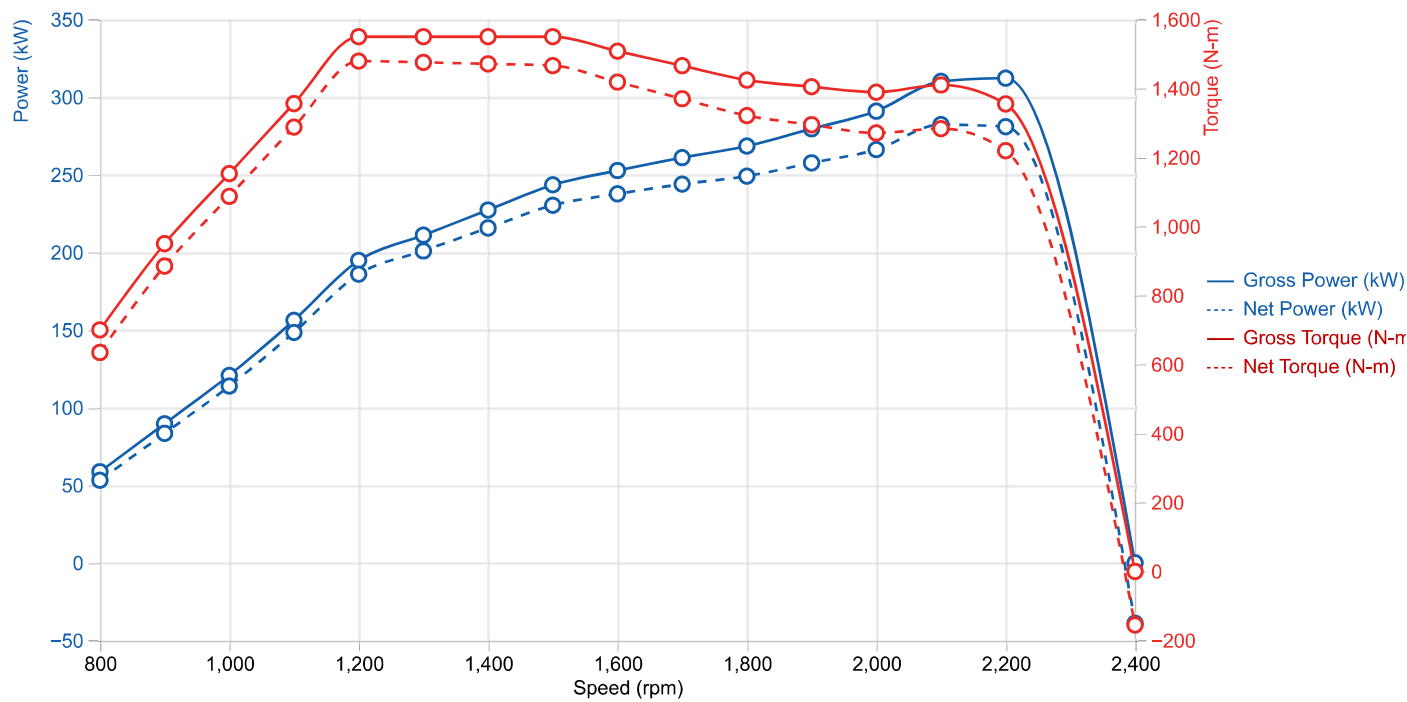
1200	194.8	1550.0	185.9	1479.2	189.9	1511.5	Peak Torque
1300	211.0	1550.0	200.9	1475.5	206.0	1513.4	
1400	227.2	1550.0	215.7	1471.1	222.1	1515.0	
1500	243.5	1550.0	230.3	1466.1	238.2	1516.5	
1600	252.7	1508.0	237.6	1418.4	247.3	1475.7	
1700	261.0	1466.0	243.9	1370.1	255.4	1434.8	
1800	268.4	1424.0	249.0	1321.2	262.7	1393.8	
1900	279.5	1405.0	257.6	1294.8	273.7	1375.7	
2000	290.9	1389.0	266.2	1270.8	284.9	1360.4	
2100	310.1	1410.0	282.2	1283.4	304.0	1382.2	
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2400	0.0	0.0	-39.0	-155.1	-6.5	-26.1	No Load Governed

Peak Power point has been defined for the purposes of assessing Accessory Losses

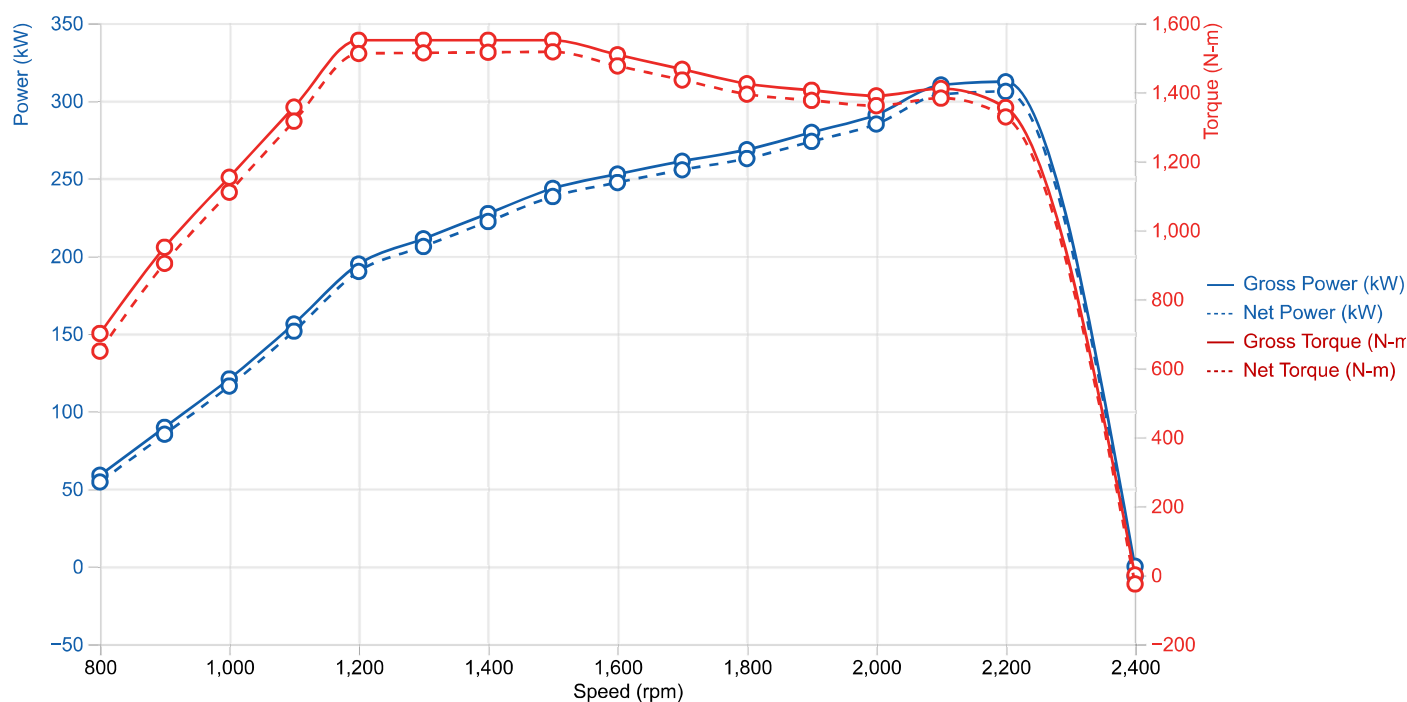
PLOTS - ENGINE CURVE - USER DEFINED LOSSES - COMBINED LOW & HIGH CURVES (AC ON WHERE APPLICABLE)



User Defined Parameters Fan On



User Defined Parameters Fan Off



TRANSMISSION

Transmission Manufacturer	Allison Transmission
Transmission Family	3000 Series (1-L001243-TF, Rev AJ)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Torque Converter	TC421 (1-L001255-TC, Rev C) - Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)

CONTROLS

Controls Release	Production Calibration (PC) for 3000 Series (1-L001194-CR, Rev F)
Shift Schedule	Primary
DynActive	No
Speed Profile	Performance
Shift Speed & Strategy	2200 rpm S2 Performance 2
Equivalent DynActive Bias	11
Primary Mode: Gears	Low = 1, Start = 1, High = 6 (1-1-6)

DRIVELINE

Driveline Protection	No
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Component	Description	Ratio	Standard Efficiency (%)	User Defined Efficiency (%)
Propshaft -- One Piece -- Two Joint (1-L003521-DL)	Single	1.000	98.60	98.60
Axle -- On Hwy Single Red -- 4x4 (1-L003532-DL)	Single	5.500	95.00	95.00
Aux Gearing -- Transfer Case -- Two Speed (1-L003523-DL)	Low	0.950	97.00	97.00
	High	2.150	97.00	97.00

Overall Driveline Ratio	Description	Ratio	Standard Efficiency (%)	User Defined Efficiency (%)	N over V Ratio rpm/kph
	High	11.825	90.86	90.86	56.403
	Low	5.225	90.86	90.86	24.922

Ratings and Guidelines Check**MISSION**

End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM

Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) - Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE

This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.

! CONVERTER RATING AND GUIDELINE CHECKSSECTION SCORE - XXX

Check	Check Name	Minimum or Maximum	Rating or Recommendation	Actual Value	Units	Overall Status
C01 ▼?	Transmission / Converter Compatibility					✓ OK: Acceptable
C02 ▼?	Engine / Converter Compatibility					✓ OK: Acceptable
C04 ▼?	Engine Speed at Converter Stall			1748	rpm	🚩 Reference
C05 ▼?	Minimum Engine Speed	Min	1300	1748	rpm	✓ OK: Acceptable
C10 ▼?	Torque Converter Input Torque	Max	1695.0	1550.0	N-m	✓ OK: Acceptable
C07 ▼?	Turbine Torque at Converter Stall	Max	2305.0	2354.0	N-m	! XXX: Not Acceptable - rating or usage violation
C08 ▼?	Converter Speed Ratio at Engine Governed Speed	Min	0.800	0.749		! XX: Questionable - may not be acceptable
C03 ▼?	Converter Stall Torque Ratio			1.770		🚩 Reference

Notes

Check	Comments
C05	Net peak torque speed (1200 rpm) + allowable variation (100 rpm).

! TRANSMISSION RATING AND GUIDELINE CHECKSSECTION SCORE - XX

Check	Check Name	Minimum or Maximum	Rating or Recommendation	Actual Value	Units	Overall Status
T01 ▾?	Transmission / Vocation Compatibility					! XX: Questionable - may not be acceptable
T02 ▾?	Transmission / Engine Compatibility					✓ OK: Acceptable
T17 ▾?	Transmission Permitted in End User/Chassis Mfg Locations					✓ OK: Acceptable
T15 ▾?	Transmission Input Power (Gross)	Max	336.0	312.2	kW	✓ OK: Acceptable
T14 ▾?	Transmission Input Torque (Gross)	Max	1695.0	1550.0	N-m	✓ OK: Acceptable
T03 ▾?	Transmission Input Speed		1900 / 2800	2200	rpm	✓ OK: Acceptable
T11 ▾?	Transmission Output Speed	Max	3600	3374	rpm	✓ OK: Acceptable

Notes

Check	Comments
T11	Check made in Range 6L at 59.9 km/h

! VEHICLE RATING AND GUIDELINE CHECKS - STANDARDSECTION SCORE - XX


Check	Check Name	Minimum or Maximum	Rating or Recommendation	Actual Value	Units	Overall Status
V06 ▾?	Minimum Required Driveline Ratio For Wheel Slip	Min	10.278	5.225		! XX: Questionable - may not be acceptable
V21 ▾?	1st Range Converter Stall Gradeability			39.56	%	📖 Reference
V13 ▾?	1st Range 70% Converter Efficiency Gradeability			28.58	%	📖 Reference
V23 ▾?	1st Range 80% Converter Efficiency Gradeability			25.24	%	📖 Reference
V17 ▾?	Maximum Geared Vehicle Speed at Engine Governed Speed			59.8	km/h	📖 Reference
V18 ▾?	Maximum Speed on 0.25% Grade	Min	88.5	134.9	km/h	✓ OK: Acceptable
V46 ▾?	Heat Generated at 0.7 Tractive Effort to Drive Wheel Weight Ratio			N/A	kW	📖 Reference
V49 ▾?	Heat Generated at 0.6 Tractive Effort to Drive Wheel Weight Ratio			N/A	kW	📖 Reference

Notes

Check	Comments
V06	1st range at 70% converter efficiency operation, 0.55 traction coefficient.
V17	Check is in 6L Lockup.
V18	At 2192 rpm Engine Speed, Range 6L.
V46	Cannot attain conditions required at 0.7 Tractive Effort to Drive Wheel Weight Ratio
V49	Cannot attain conditions required at 0.6 Tractive Effort to Drive Wheel Weight Ratio

Vehicle Performance Summary

MISSION

End User

xxx

Selected Vocation

Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM

Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE

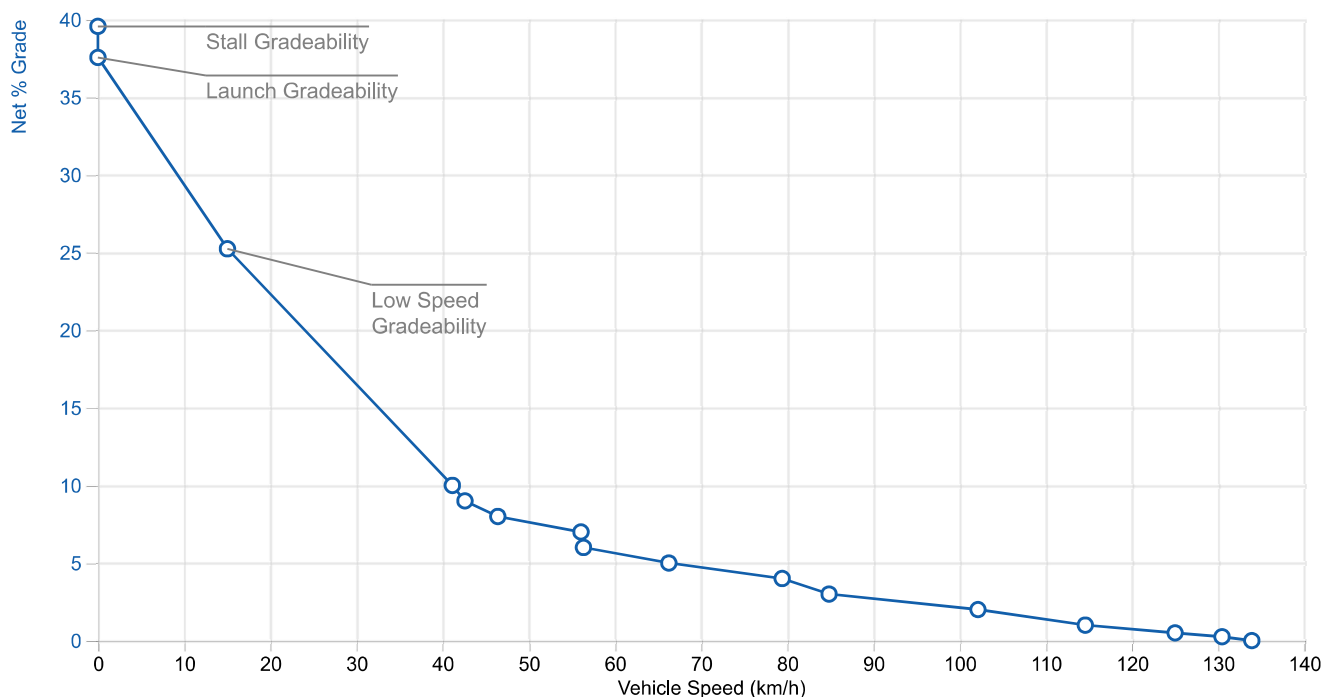
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FULL THROTTLE AUTOMATIC UPSHIFTS (GRADEABILITY) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.95▲

Engine Fan	On	Engine Power	Standard Power Curve
Air Conditioning	Off	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	0.950

Gradeability	% Grade	Vehicle Speed (km/h)	Gear Range	Match Point
Stall Gradeability	39.6		1C	Stall
Launch Gradeability	37.6		1C	
Low Speed Gradeability	25.2	15.0	1C	80 Percent
Maximum Speed on Grade	0.0	133.9	6L	Road Load
	0.3	130.5	6L	
	0.5	125.0	6L	
	1.0	114.6	6L	
	2.0	102.1	5L	
	3.0	84.9	5L	
	4.0	79.4	4L	
	5.0	66.3	4L	
	6.0	56.4	3L	
	7.0	56.1	3L	
	8.0	46.4	3L	
	9.0	42.6	2L	
	10.0	41.1	2L	

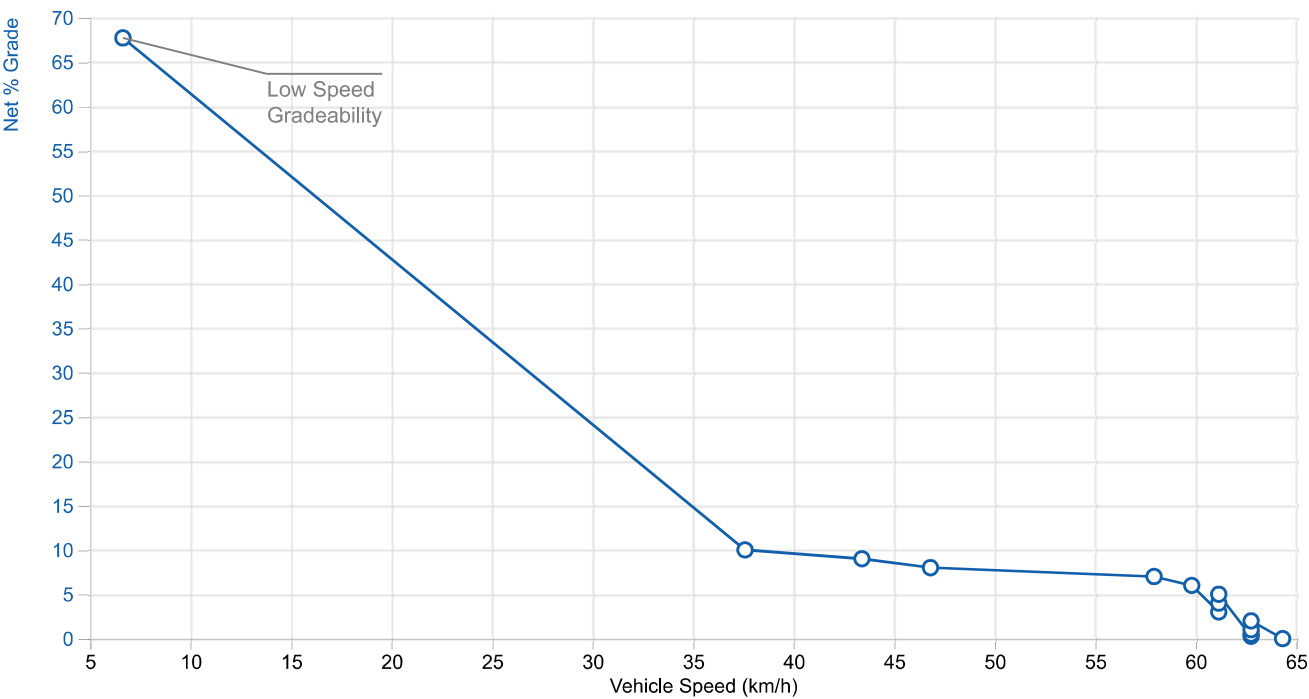
PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (GRADEABILITY) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.95▲


FULL THROTTLE AUTOMATIC UPSHIFTS (GRADEABILITY) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.15▲

Engine Fan	On	Engine Power	Standard Power Curve
Air Conditioning	Off	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	2.150

Gradeability	% Grade	Vehicle Speed (km/h)	Gear Range	Match Point
Stall Gradeability	153.5		1C	Stall
Launch Gradeability	151.5		1C	
Low Speed Gradeability	67.7	6.6	1C	80 Percent
Maximum Speed on Grade	0.0	64.3	6L	Road Load
	0.3	62.8	6L	
	0.5	62.8	6L	
	1.0	62.8	6L	
	2.0	62.8	6L	
	3.0	61.2	6L	
	4.0	61.2	6L	
	5.0	61.2	6L	
	6.0	59.8	6L	
	7.0	57.9	6L	
	8.0	46.8	5L	
	9.0	43.4	5L	
	10.0	37.6	5L	

PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (GRADEABILITY) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.15▲

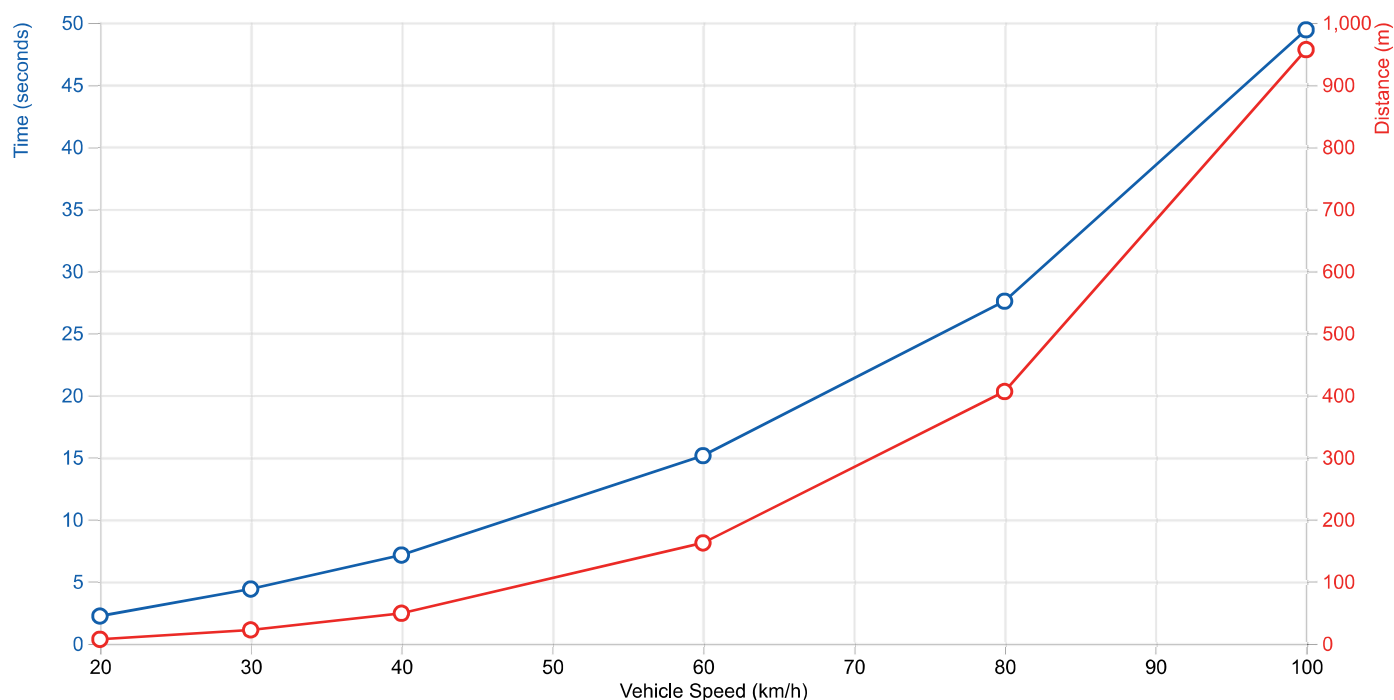


FULL THROTTLE AUTOMATIC UPSHIFTS (ACCELERATION) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950▲

Engine Fan	On	Engine Power	Standard Power Curve
Air Conditioning	Off	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	0.950

Speed	Time (seconds)	Distance (m)
0 - 20 km/h	2.2	7
0 - 30 km/h	4.4	22
0 - 40 km/h	7.1	49
0 - 60 km/h	15.1	162
0 - 80 km/h	27.6	406
0 - 100 km/h	49.4	956

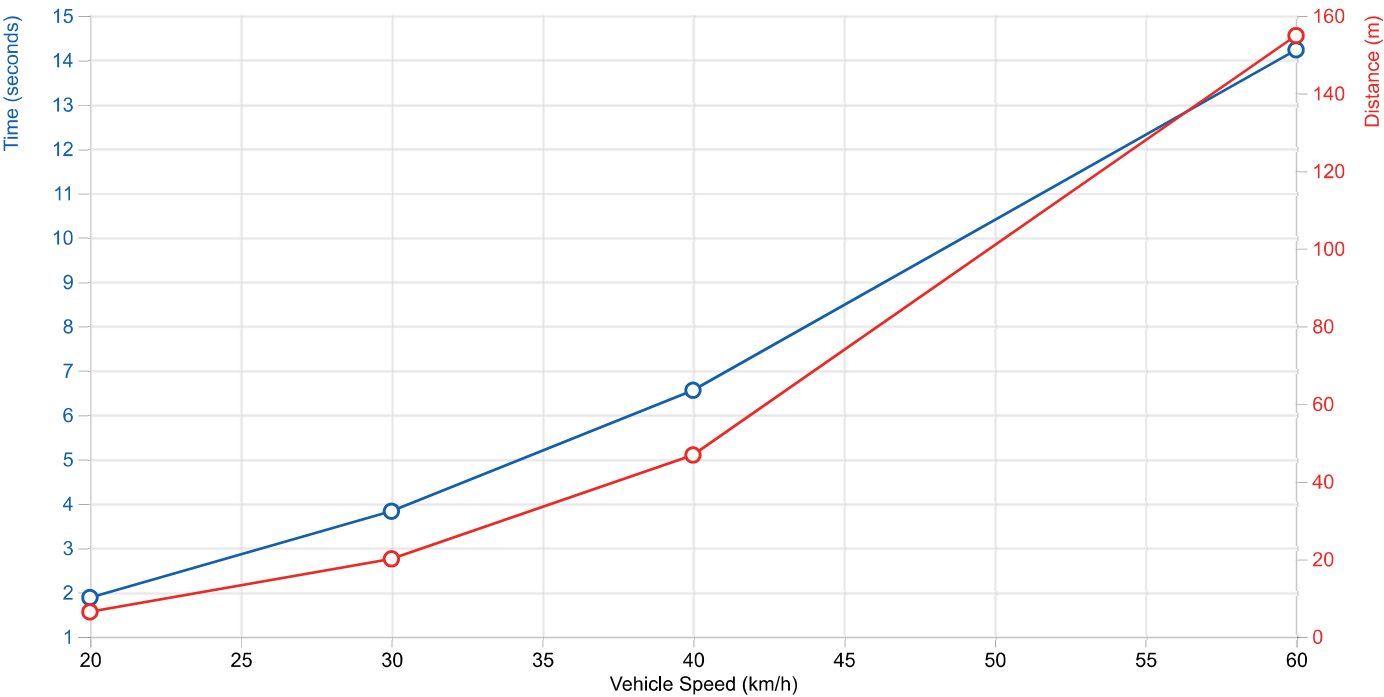
PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (ACCELERATION) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RA▲


FULL THROTTLE AUTOMATIC UPSHIFTS (ACCELERATION) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.1▲

Engine Fan	On	Engine Power	Standard Power Curve
Air Conditioning	Off	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	2.150

Speed	Time (seconds)	Distance (m)
0 - 20 km/h	1.9	6
0 - 30 km/h	3.8	20
0 - 40 km/h	6.6	47
0 - 60 km/h	14.2	155
0 - 80 km/h	Speed not possible	Speed not possible
0 - 100 km/h	Speed not possible	Speed not possible

PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (ACCELERATION) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RA▲



Engine-Converter Match

MISSION	
End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

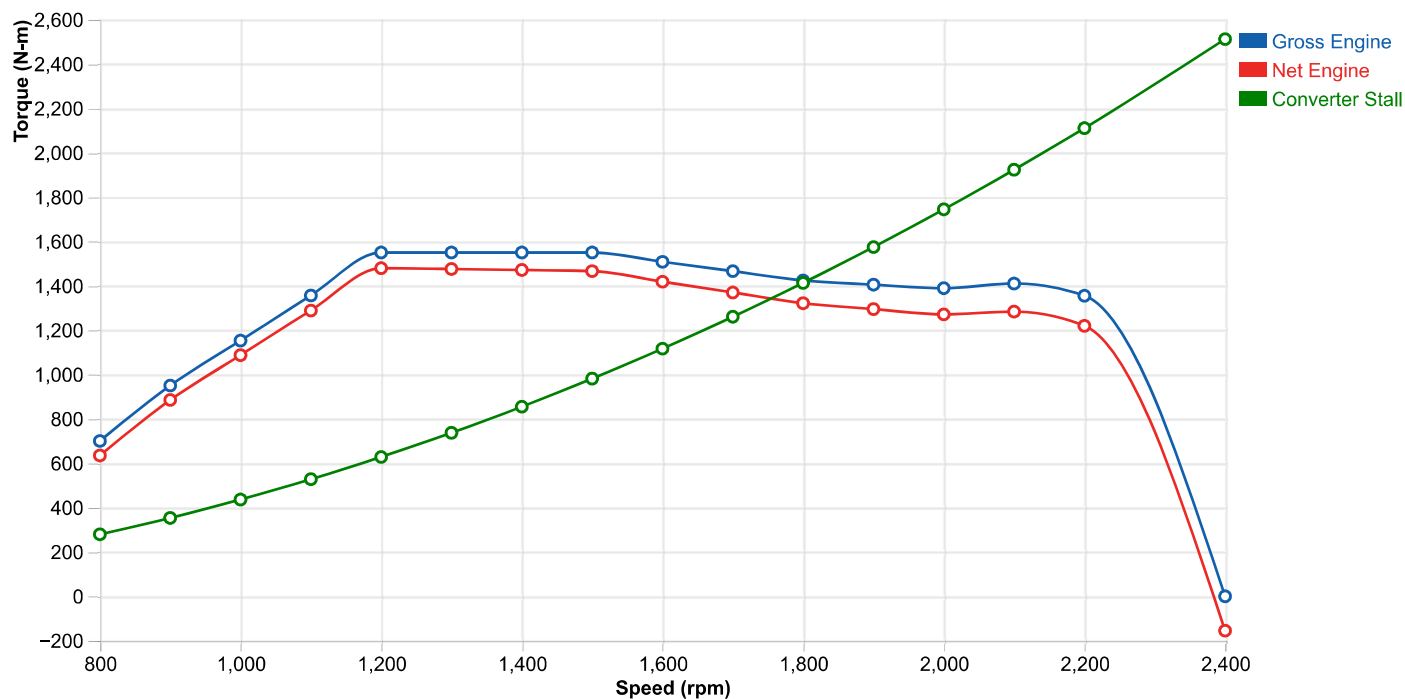
PLATFORM	
Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE	
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CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE	
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Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Speed Ratio	Torque Ratio	Engine Speed (rpm)	Net Engine Torque (N-m)	Net Engine Power (kW)	Turbine Speed (rpm)	Turbine Torque (N-m)	Turbine Power (kW)	Converter Heat Rejection (kW)	Match Point
0.000	1.770	1748	1346.5	246.5	0	2354	0	246.59	Stall
0.100	1.730	1755	1343.4	246.8	175	2295.3	42.2	204.73	
0.200	1.670	1775	1333.3	247.9	355	2198.8	81.8	166.17	
0.300	1.590	1808	1319.1	249.7	542	2070.7	117.6	132.17	
0.400	1.489	1853	1307.1	253.7	741	1920.8	149.1	104.6	
0.499	1.401	1928	1288	260.1	963	1780.9	179.6	80.49	70 Percent
0.500	1.401	1929	1287.9	260.1	964	1780.2	179.8	80.37	
0.600	1.298	2013	1272.5	268.3	1208	1628.4	206	62.31	
0.634	1.263	2061	1278.5	275.9	1307	1592.2	217.9	58.07	80 Percent
0.700	1.196	2142	1256.4	281.8	1499	1481.8	232.7	49.19	
0.725	1.172	2170	1238.4	281.5	1573	1430.1	235.5	45.94	
0.727	1.170	2173	1236.7	281.4	1580	1425.3	235.8	45.65	85 Percent
0.749	1.147	2200	1219.4	280.9	1649	1378.3	238	42.99	Governed
0.750	1.147	2200	1219.4	280.9	1649	1377.9	238	42.96	
0.750	1.147	2200	1219.4	280.9	1650	1377.5	238	42.92	
0.800	1.094	2214	1125.9	261	1771	1211.7	224.7	36.3	
0.825	1.067	2220	1085	252.2	1831	1138	218.2	33.98	
0.881	0.998	2239	954.5	223.8	1972	934.1	192.9	30.84	Coupling
0.900	0.999	2254	846.7	199.9	2029	827.3	175.8	24.12	
0.925	0.995	2275	704.2	167.8	2104	682.2	150.3	17.44	
0.950	0.992	2306	487.8	117.8	2191	465.5	106.8	11.03	
0.975	0.988	2341	248.8	61	2283	227.5	54.4	6.63	
0.990	0.985	2362	104.5	25.9	2339	84.6	20.7	5.13	

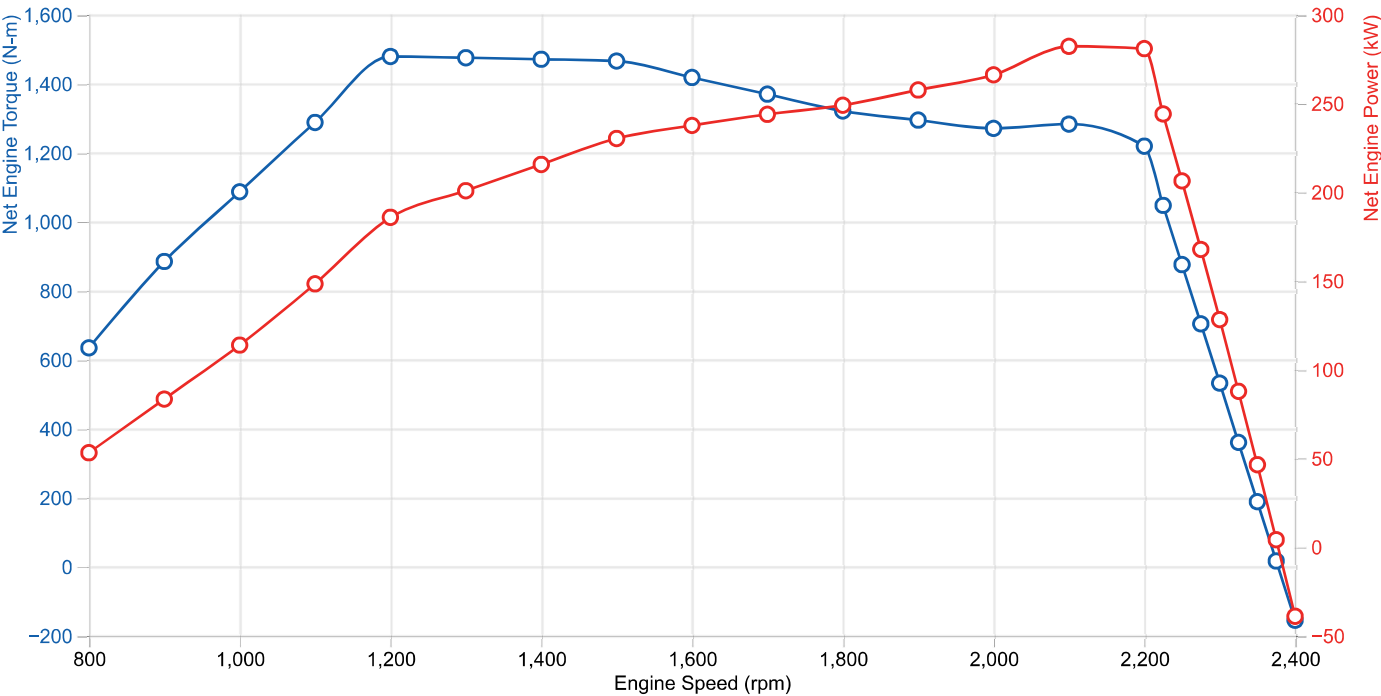
PLOTS - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE



LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE

Engine Fan		On		Engine Power		Standard Power Curve	
Air Conditioning		Off		Vehicle Parameters		Standard	
Engine Speed (rpm)	Net Engine Torque (N-m)	Net Engine Power (kW)	Turbine Speed (rpm)	Turbine Torque (N-m)	Turbine Power (kW)	Converter Heat Rejection (kW)	Match Point
800	634.7	53.2	800	622.2	52.1	1.04	
900	885	83.4	900	871.6	82.2	1.26	
1000	1087.1	113.8	1000	1072.9	112.4	1.49	
1100	1288.1	148.4	1100	1273.3	146.7	1.71	
1200	1479.2	185.9	1200	1463.9	184	1.93	
1300	1475.5	200.9	1300	1459.8	198.7	2.14	
1400	1471.1	215.7	1400	1455.2	213.3	2.34	
1500	1466.1	230.3	1500	1450.5	227.8	2.45	
1600	1418.4	237.7	1600	1402.3	235	2.69	
1700	1370.1	243.9	1700	1353.7	241	2.92	
1800	1321.2	249	1800	1304.4	245.9	3.16	
1900	1294.8	257.6	1900	1277.7	254.2	3.41	
2000	1270.8	266.2	2000	1253.4	262.5	3.66	
2100	1283.4	282.2	2100	1265.6	278.3	3.91	
2200	1219.4	280.9	2200	1201.3	276.8	4.17	Governed
2225	1047.7	244.1	2225	1029.5	239.9	4.23	
2250	876	206.4	2250	857.7	202.1	4.3	
2275	704.2	167.8	2275	685.9	163.4	4.37	
2300	532.4	128.2	2300	514	123.8	4.43	
2325	360.6	87.8	2325	342.1	83.3	4.5	
2350	188.7	46.4	2350	170.2	41.9	4.57	
2375	16.8	4.2	2375	-1.8	-0.4	4.63	

2400	-155.1	-39	2400	-173.8	-43.7	4.7	
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PLOTS - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE



Transmission Output Performance Summary

MISSION
PLATFORM
NOTE
GEAR F1 (RATIO = 3.487) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F2 (RATIO = 1.864) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F3 (RATIO = 1.409) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F4 (RATIO = 1.000) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F5 (RATIO = 0.750) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F6 (RATIO = 0.652) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR R1 (RATIO = 5.026) - CONVERTER MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F1 (RATIO = 3.487) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F2 (RATIO = 1.864) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F3 (RATIO = 1.409) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F4 (RATIO = 1.000) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F5 (RATIO = 0.750) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE
GEAR F6 (RATIO = 0.652) - LOCKUP MODE - STANDARD, FAN ON, AC OFF, STANDARD POWER CURVE

Vehicle Full Throttle Performance

MISSION

End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM

Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE

This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.

Results indicate the vehicle operating conditions at steady state (acceleration = 0).

The ! symbol indicates that Wheel Slip may occur.

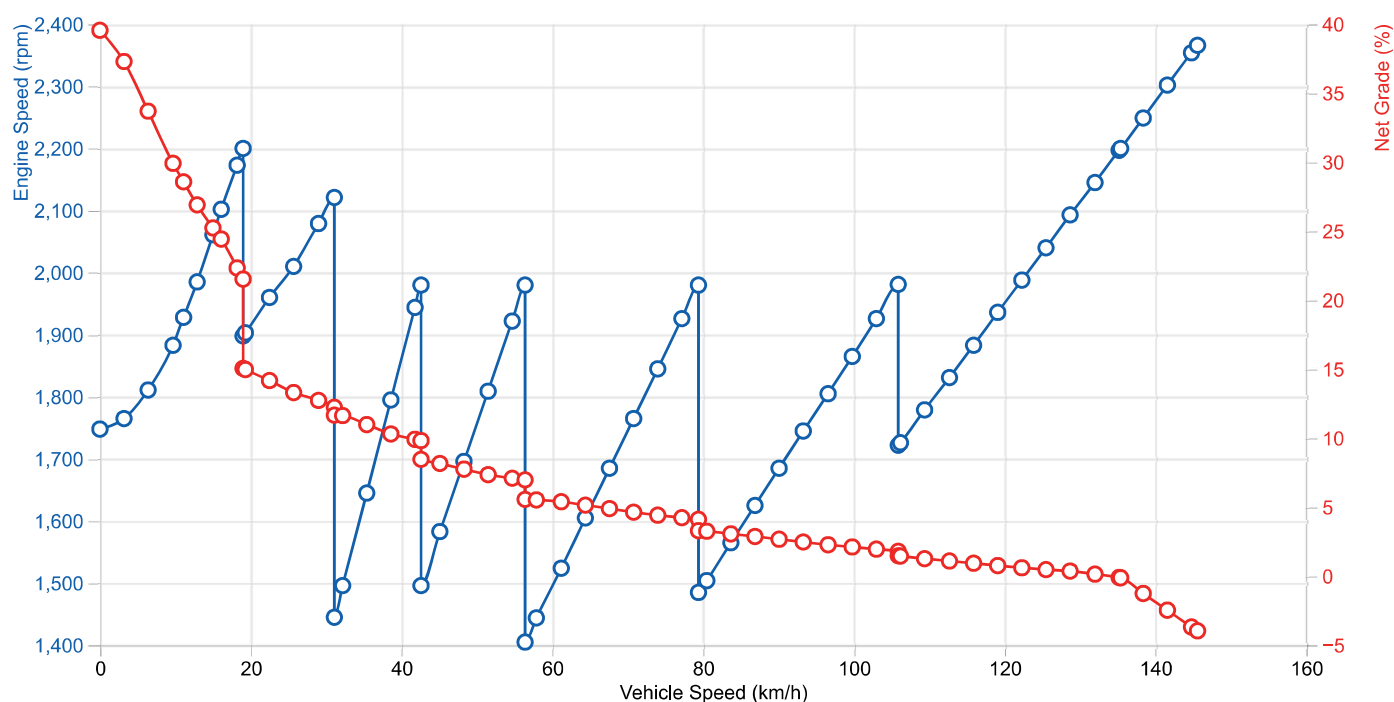
FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RAT▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
1C	0.0	1748	0	69.34	68.55	0.0	39.56	246.46	
1C	3.2	1765	80	65.93	65.12	58.9	37.30	182.42	
1C	6.4	1811	160	60.34	59.50	107.9	33.70	131.30	
1C	9.7	1883	241	54.29	53.42	145.6	29.92	95.96	
1C	11.1	1928	276	52.10	51.21	160.4	28.58	83.58	70 Percent
1C	12.9	1985	321	49.33	48.42	176.4	26.91	70.78	
1C	15.0	2061	375	46.53	45.59	194.3	25.24	62.13	80 Percent
1C	16.1	2102	401	45.17	44.22	201.9	24.43	59.99	
1C	18.2	2173	453	41.61	40.63	210.0	22.34	50.12	85 Percent
1C	19.0	2200	473	40.21	39.21	211.9	21.53	47.68	
2C	19.0	1898	473	28.75	27.75	151.5	15.06	90.68	
2C	19.3	1903	481	28.60	27.60	153.4	14.98	89.09	

2C	22.5	1960	562	27.22	26.16	170.3	14.18	75.33	
2C	25.7	2010	642	25.70	24.59	183.8	13.31	65.41	
2C	29.0	2079	722	24.73	23.54	199.0	12.74	59.85	
2C	31.1	2121	775	23.86	22.63	206.1	12.24	55.19	
2L	31.1	1445	775	22.83	21.60	197.1	11.67	5.24	
2L	32.2	1496	802	22.79	21.54	203.8	11.64	5.36	
2L	35.4	1645	883	21.69	20.36	213.3	10.99	5.68	
2L	38.6	1795	963	20.53	19.12	220.3	10.31	6.31	
2L	41.8	1944	1043	19.90	18.39	231.3	9.92	6.88	
2L	42.6	1980	1062	19.76	18.23	233.8	9.83	7.05	
3L	42.6	1496	1062	17.26	15.73	204.2	8.47	4.98	
3L	45.1	1583	1123	16.78	15.18	210.0	8.17	5.22	
3L	48.3	1696	1204	16.12	14.42	216.2	7.76	5.70	
3L	51.5	1809	1284	15.48	13.67	221.4	7.36	6.15	
3L	54.7	1922	1364	15.12	13.20	229.8	7.10	6.62	
3L	56.4	1980	1405	14.95	12.97	234.0	6.98	6.89	
4L	56.4	1405	1405	12.34	10.36	193.1	5.57	3.84	
4L	57.9	1444	1444	12.32	10.29	198.3	5.53	3.92	
4L	61.2	1524	1524	12.20	10.04	207.2	5.40	4.07	
4L	64.4	1605	1605	11.86	9.58	212.2	5.15	4.44	
4L	67.6	1685	1685	11.53	9.11	216.4	4.90	4.76	
4L	70.8	1765	1765	11.19	8.63	220.0	4.64	5.10	
4L	74.0	1845	1845	10.93	8.23	224.8	4.42	5.56	
4L	77.2	1926	1926	10.75	7.89	230.6	4.24	6.01	
4L	79.4	1980	1980	10.63	7.67	234.5	4.12	6.32	
5L	79.4	1485	1980	9.10	6.14	200.7	3.30	7.22	
5L	80.5	1504	2006	9.08	6.07	202.9	3.26	7.33	
5L	83.7	1565	2086	8.89	5.72	206.6	3.07	7.66	
5L	86.9	1625	2166	8.70	5.36	210.0	2.88	8.13	
5L	90.1	1685	2247	8.50	4.99	212.9	2.68	8.65	
5L	93.3	1745	2327	8.31	4.62	215.5	2.48	9.10	
5L	96.6	1805	2407	8.12	4.25	217.8	2.28	9.75	
5L	99.8	1865	2487	8.01	3.95	222.0	2.12	10.27	
5L	103.0	1926	2567	7.91	3.65	226.2	1.96	10.89	
5L	105.9	1981	2641	7.81	3.37	229.9	1.81	11.47	
6L	105.9	1722	2641	7.20	2.76	212.0	1.48	11.76	
6L	106.2	1726	2648	7.19	2.73	212.1	1.46	11.80	
6L	109.4	1779	2728	7.04	2.37	214.0	1.27	12.45	
6L	112.7	1831	2808	6.93	2.05	216.8	1.10	13.14	
6L	115.9	1883	2888	6.84	1.74	220.2	0.94	13.86	
6L	119.1	1936	2969	6.76	1.44	223.6	0.77	14.56	
6L	122.3	1988	3049	6.68	1.13	227.0	0.61	15.33	
6L	125.5	2040	3129	6.68	0.90	233.0	0.48	16.19	
6L	128.7	2093	3209	6.71	0.68	239.9	0.37	17.00	
6L	132.0	2145	3290	6.54	0.27	239.9	0.15	17.61	
6L	135.2	2197	3370	6.35	-0.17	238.4	-0.09	18.56	
6L	135.4	2200	3374	6.34	-0.20	238.3	-0.11	18.62	Governed
6L	138.4	2249	3450	4.45	-2.33	171.3	-1.25	18.76	
6L	141.6	2302	3530	2.46	-4.58	96.8	-2.46	18.89	
6L	144.8	2354	3611	0.47	-6.85	18.7	-3.68	19.01	

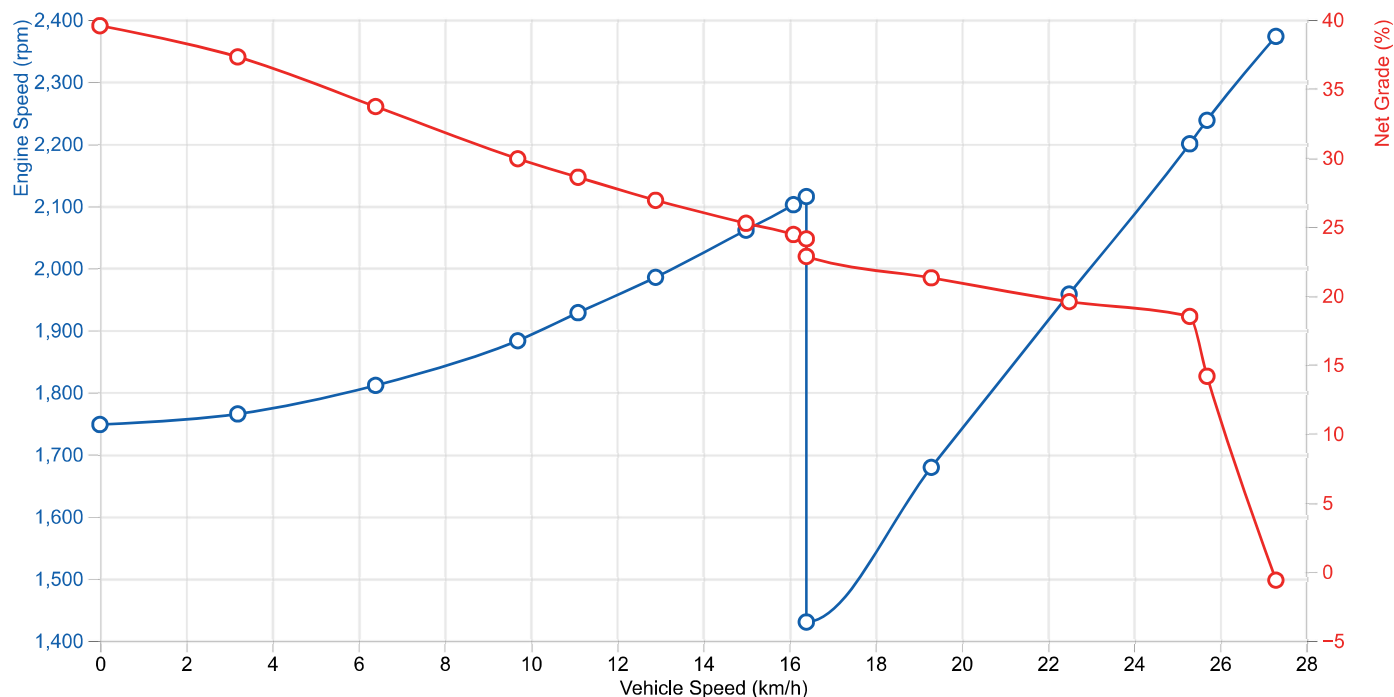
6L	145.6	2366	3629	0.00	-7.38	0.0	-3.96	19.04	
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PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲

FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
1C	0.0	1748	0	69.34	68.55	0.0	39.56	246.46	
1C	3.2	1765	80	65.93	65.12	58.9	37.30	182.42	
1C	6.4	1811	160	60.34	59.50	107.9	33.70	131.30	
1C	9.7	1883	241	54.29	53.42	145.6	29.92	95.96	
1C	11.1	1928	276	52.10	51.21	160.4	28.58	83.58	70 Percent
1C	12.9	1985	321	49.33	48.42	176.4	26.91	70.78	
1C	15.0	2061	375	46.53	45.59	194.3	25.24	62.13	80 Percent
1C	16.1	2102	401	45.17	44.22	201.9	24.43	59.99	
1C	16.4	2115	410	44.63	43.68	203.9	24.11	57.62	
1L	16.4	1430	410	42.45	41.49	194.0	22.84	6.55	
1L	19.3	1679	481	39.80	38.80	213.5	21.29	7.58	
1L	22.5	1958	562	36.83	35.77	230.5	19.56	8.95	
1L	25.3	2200	631	34.98	33.87	245.9	18.49	10.25	Governed
1L	25.7	2238	642	27.25	26.13	194.9	14.16	9.82	
1L	27.3	2373	680	0.00	-1.15	0.0	-0.62	8.12	

PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AU▲

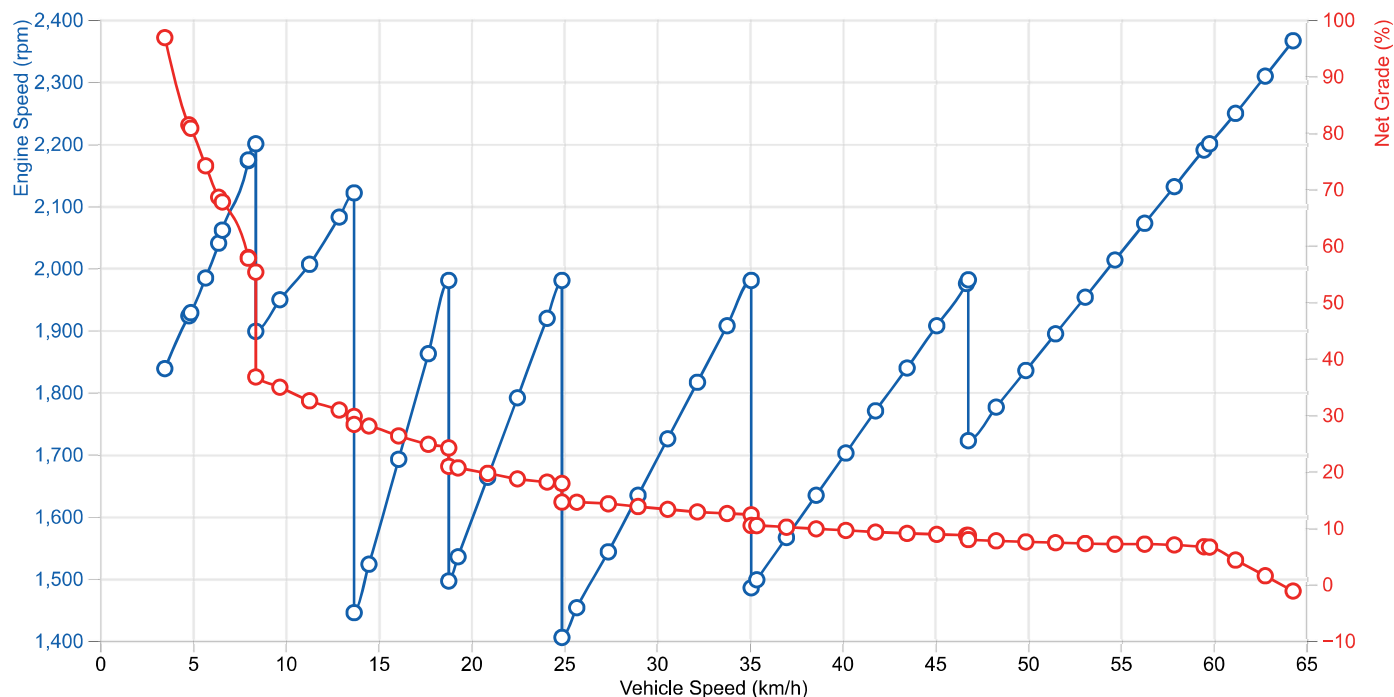

FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RAT▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
1C !	0.0	1748	0	156.92	156.13	0.0	153.55	246.46	
1C !	1.6	1770	91	147.75	146.95	66.0	128.27	174.84	
1C !	3.2	1827	182	132.89	132.08	118.8	100.50	120.65	
1C	3.5	1838	195	130.43	129.60	125.5	96.81	114.26	0.70 TE/Weight Ratio
1C	4.8	1923	272	118.41	117.59	158.8	81.36	84.84	
1C	4.9	1928	276	117.90	117.08	160.4	80.77	83.58	70 Percent
1C	5.7	1984	320	111.80	110.93	176.2	74.10	70.99	0.60 TE/Weight Ratio
1C	6.4	2040	363	106.17	105.34	189.9	68.54	63.73	
1C	6.6	2061	375	105.31	104.47	194.3	67.71	62.13	80 Percent
1C	8.0	2173	453	94.17	93.32	210.0	57.86	50.12	85 Percent
1C	8.0	2174	454	94.02	93.16	210.1	57.73	49.99	
1C	8.4	2200	473	91.00	90.14	211.9	55.28	47.68	
2C	8.4	1898	473	65.07	64.21	151.5	36.71	90.68	
2C	9.7	1949	545	62.27	61.40	167.0	34.90	77.99	
2C	11.3	2006	636	58.45	57.57	182.9	32.48	65.86	
2C	12.9	2082	726	55.82	54.92	199.6	30.84	59.68	
2C	13.7	2121	775	54.00	53.08	206.1	29.72	55.19	
2L	13.7	1445	775	51.66	50.74	197.1	28.30	5.24	
2L	14.5	1523	817	51.18	50.25	205.9	28.01	5.35	
2L	16.1	1692	908	48.27	47.32	215.8	26.26	5.93	
2L	17.7	1862	999	45.78	44.81	225.1	24.77	6.54	

2L	18.8	1980	1062	44.72	43.73	233.8	24.14	7.05	
3L	18.8	1496	1062	39.06	38.06	204.2	20.87	4.98	
3L	19.3	1535	1089	38.59	37.59	207.0	20.60	5.00	
3L	20.9	1663	1180	36.92	35.89	214.5	19.63	5.47	
3L	22.5	1791	1271	35.21	34.15	220.4	18.65	6.05	
3L	24.1	1919	1362	34.23	33.14	229.5	18.08	6.61	
3L	24.9	1980	1405	33.82	32.72	234.0	17.84	6.89	
4L	24.9	1405	1405	27.92	26.82	193.1	14.54	3.84	
4L	25.7	1453	1453	27.87	26.76	199.4	14.51	3.94	
4L	27.4	1543	1543	27.42	26.27	208.4	14.24	4.11	
4L	29.0	1634	1634	26.57	25.39	213.8	13.75	4.48	
4L	30.6	1725	1725	25.70	24.48	218.3	13.25	4.92	
4L	32.2	1816	1816	24.89	23.64	222.6	12.79	5.44	
4L	33.8	1907	1907	24.41	23.12	229.2	12.51	5.94	
4L	35.1	1980	1980	24.06	22.73	234.5	12.29	6.32	
5L	35.1	1485	1980	20.59	19.26	200.7	10.39	7.22	
5L	35.4	1498	1997	20.57	19.24	202.3	10.38	7.31	
5L	37.0	1566	2088	20.10	18.73	206.7	10.10	7.67	
5L	38.6	1634	2179	19.61	18.20	210.4	9.81	8.18	
5L	40.2	1702	2270	19.12	17.66	213.7	9.52	8.85	
5L	41.8	1770	2361	18.62	17.11	216.4	9.22	9.34	
5L	43.5	1839	2451	18.24	16.69	220.2	8.99	10.01	
5L	45.1	1907	2542	17.96	16.36	224.8	8.82	10.73	
5L	46.7	1975	2633	17.70	16.06	229.5	8.65	11.40	
5L	46.8	1981	2641	17.68	16.03	229.9	8.63	11.47	
6L	46.8	1722	2641	16.30	14.65	212.0	7.89	11.76	
6L	48.3	1776	2724	15.95	14.25	213.9	7.67	12.40	
6L	49.9	1835	2815	15.66	13.91	217.0	7.49	13.19	
6L	51.5	1894	2905	15.44	13.64	220.9	7.34	14.03	
6L	53.1	1953	2996	15.24	13.38	224.8	7.20	14.81	
6L	54.7	2013	3087	15.09	13.18	229.4	7.09	15.75	
6L	56.3	2072	3178	15.16	13.18	237.2	7.09	16.68	
6L	57.9	2131	3268	14.93	12.89	240.2	6.94	17.43	
6L	59.5	2190	3359	14.43	12.33	238.6	6.63	18.41	
6L	59.8	2200	3374	14.35	12.24	238.3	6.58	18.62	Governed
6L	61.2	2249	3450	10.08	7.93	171.3	4.26	18.76	
6L	62.8	2309	3541	4.97	2.76	86.7	1.48	18.91	
6L	64.3	2366	3629	0.00	-2.28	0.0	-1.22	19.04	

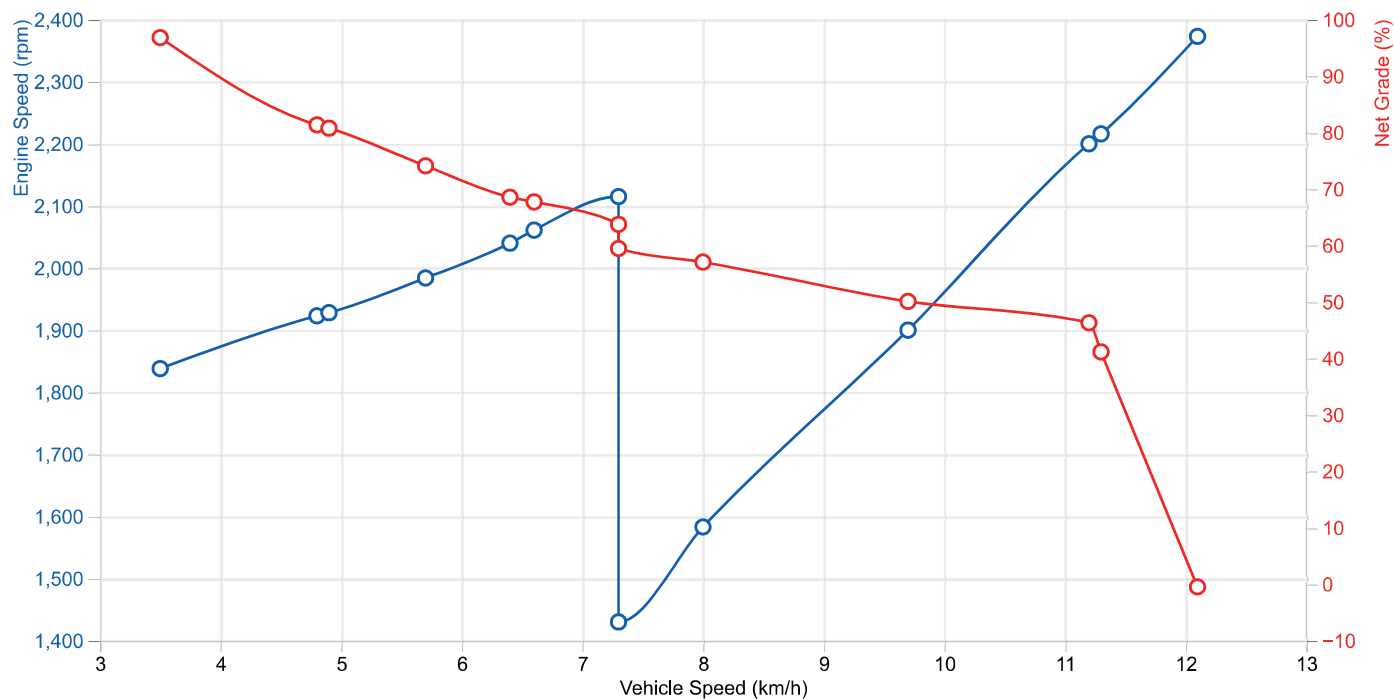
PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲


FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ➤

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
1C !	0.0	1748	0	156.92	156.13	0.0	153.55	246.46	
1C !	1.6	1770	91	147.75	146.95	66.0	128.27	174.84	
1C !	3.2	1827	182	132.89	132.08	118.8	100.50	120.65	
1C	3.5	1838	195	130.43	129.60	125.5	96.81	114.26	0.70 TE/Weight Ratio
1C	4.8	1923	272	118.41	117.59	158.8	81.36	84.84	
1C	4.9	1928	276	117.90	117.08	160.4	80.77	83.58	70 Percent
1C	5.7	1984	320	111.80	110.93	176.2	74.10	70.99	0.60 TE/Weight Ratio
1C	6.4	2040	363	106.17	105.34	189.9	68.54	63.73	
1C	6.6	2061	375	105.31	104.47	194.3	67.71	62.13	80 Percent
1C	7.3	2115	410	101.01	100.17	203.9	63.76	57.62	
1L	7.3	1430	410	96.07	95.23	194.0	59.46	6.55	
1L	8.0	1583	454	93.19	92.33	208.3	57.05	7.16	
1L	9.7	1900	545	84.31	83.44	226.1	50.08	8.71	
1L	11.2	2200	631	79.17	78.28	245.9	46.30	10.25	Governed
1L	11.3	2216	636	71.78	70.89	224.6	41.14	10.07	
1L	12.1	2373	680	0.00	-0.90	0.0	-0.48	8.12	

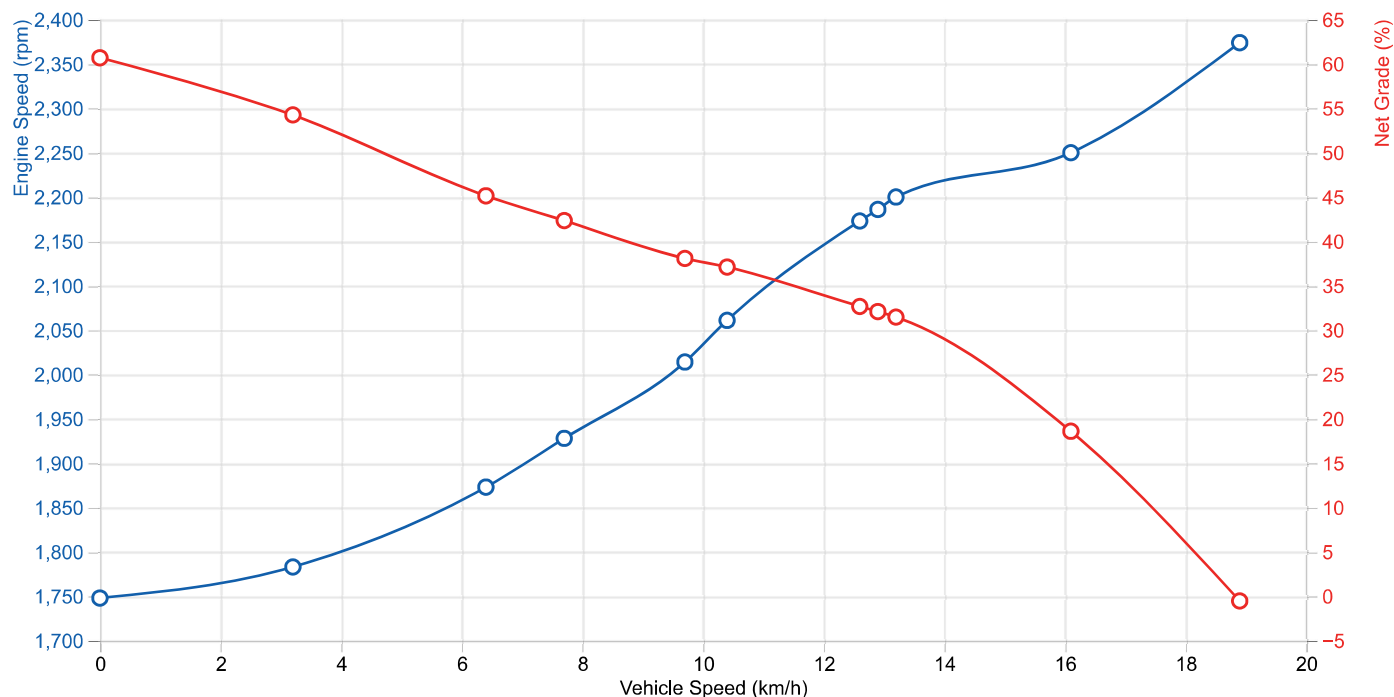
PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AU ➤


FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STAN

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
R1C	0.0	1748	0	97.48	96.69	0.0	60.70	246.46	
R1C	3.2	1783	80	89.67	88.86	80.2	54.26	159.96	
R1C	6.4	1873	160	77.50	76.67	138.6	45.14	102.78	
R1C	7.7	1928	192	73.52	72.67	157.0	42.35	87.27	70 Percent
R1C	9.7	2014	241	67.17	66.30	180.2	38.08	70.12	
R1C	10.4	2061	260	65.71	64.83	190.4	37.11	66.46	80 Percent
R1C	12.6	2173	314	58.79	57.89	205.9	32.68	54.68	85 Percent
R1C	12.9	2186	321	57.84	56.93	206.9	32.09	53.46	
R1C	13.2	2200	328	56.84	55.93	207.8	31.47	52.28	Governed
R1C	16.1	2250	401	35.03	34.07	156.6	18.60	33.48	
R1C	18.9	2374	471	0.00	-1.00	0.0	-0.53	6.53	

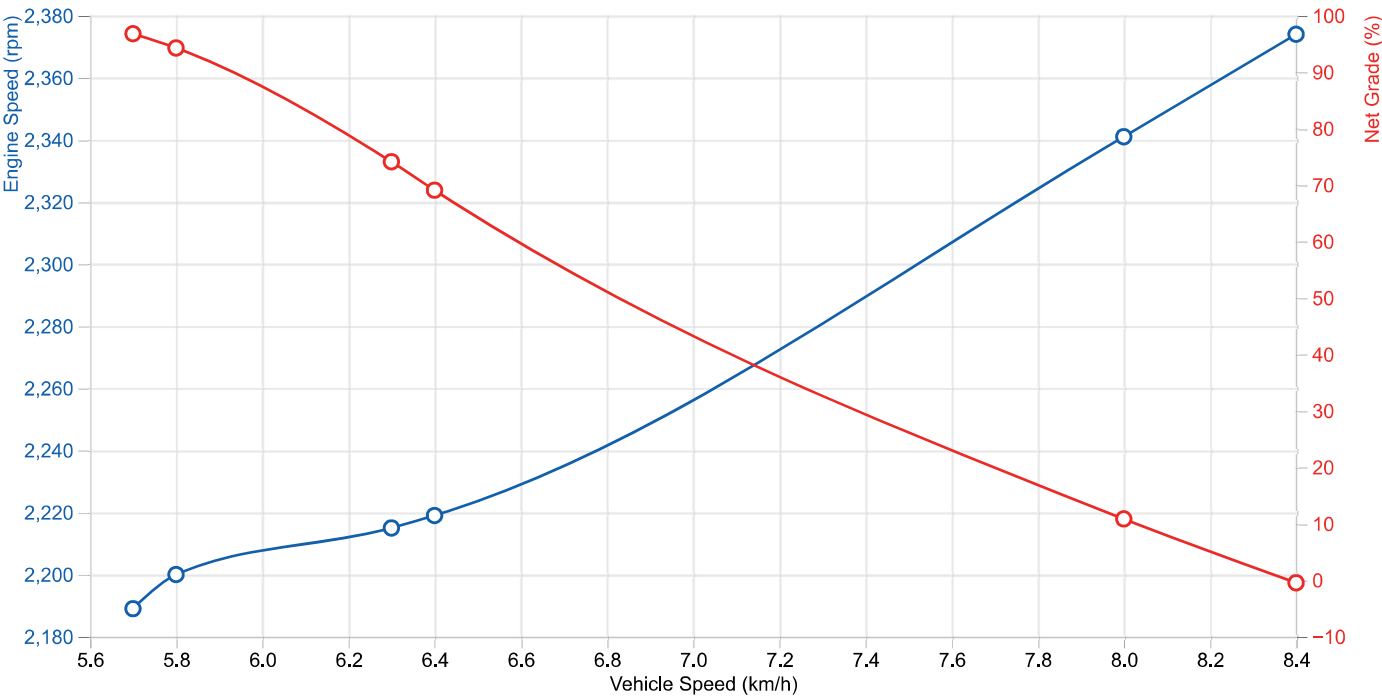
PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.9


FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STAN▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)	Match Point
R1C I	0.0	1748	0	220.60	219.81	0.0	999.00	246.46	
R1C I	1.6	1791	91	199.58	198.78	89.2	999.00	150.46	
R1C I	3.2	1909	182	169.15	168.33	151.2	210.73	91.98	
R1C I	3.4	1928	192	166.38	165.57	157.0	193.72	87.27	70 Percent
R1C I	4.6	2061	260	148.71	147.89	190.4	130.49	66.46	80 Percent
R1C I	4.8	2089	272	145.91	145.09	195.7	124.10	65.11	
R1C I	5.6	2173	314	133.05	132.22	205.9	100.72	54.68	85 Percent
R1C	5.7	2189	322	130.43	129.60	207.0	96.80	53.21	0.70 TE/Weight Ratio
R1C	5.8	2200	328	128.64	127.81	207.8	94.27	52.28	Governed
R1C	6.3	2215	354	111.80	110.95	195.1	74.12	44.77	0.60 TE/Weight Ratio
R1C	6.4	2219	363	106.74	105.90	190.9	69.08	42.95	
R1C	8.0	2341	454	20.95	20.09	46.8	10.85	10.21	
R1C	8.4	2374	471	0.00	-0.86	0.0	-0.46	6.54	

PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.1▲



Vehicle Full Throttle Performance - Defense Wheeled

MISSION	
End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM	
Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE	
This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.	
Results indicate the vehicle operating conditions at steady state (acceleration = 0).	
The ! symbol indicates that Wheel Slip may occur.	
The ✖ symbol indicates that the required grade cannot be negotiated.	

FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
1C ✖							60.00	
1C	19.7	2204	492	38.28	37.27	209.9	20.00	44.11
1C	24.2	2275	604	19.64	18.55	132.1	10.00	21.91
1C	27.0	2367	674	1.14		8.6	0.00	8.49
2C ✖							60.00	
2C ✖							20.00	
2C	37.2	2206	928	20.27	18.90	209.7	10.00	41.54
2C	50.0	2357	1248	1.75		24.4	0.00	7.40
2L ✖							60.00	
2L ✖							20.00	
2L	41.1	1911	1025	20.03	18.54	228.8	10.00	6.78
2L	50.7	2357	1265	1.78		25.1	0.00	6.63
3L ✖							60.00	
3L ✖							20.00	
3L ✖	0.1						10.00	
3L	66.7	2344	1664	2.38		44.2	0.00	7.27
4L ✖							60.00	
4L ✖							20.00	
4L ✖	0.1						10.00	
4L	92.7	2310	2310	3.65		94.0	0.00	8.46
5L ✖							60.00	
5L ✖							20.00	
5L ✖	0.1						10.00	
5L	120.1	2246	2995	5.40		180.1	0.00	14.00
6L ✖							60.00	
6L ✖							20.00	
6L ✖	0.1						10.00	
6L	133.9	2177	3338	6.43		239.0	0.00	18.14

PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲
FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
1C ✖							60.00	

1C	19.7	2204	492	38.28	37.27	209.9	20.00	44.11
1C	24.2	2275	604	19.64	18.55	132.1	10.00	21.91
1C	27.0	2367	674	1.14		8.6	0.00	8.49
1L ✖							60.00	
1L	21.4	1858	533	37.58	36.54	223.2	20.00	8.43
1L	26.2	2276	653	19.67	18.54	143.0	10.00	9.37
1L	27.2	2367	679	1.15		8.7	0.00	8.20

PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AU▲

FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RAT▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
1C	7.8	2152	437	96.76	95.90	208.4	60.00	52.19
1C	10.9	2290	616	37.87	36.99	114.8	20.00	18.50
1C	11.5	2330	646	19.50	18.61	62.0	10.00	11.79
1C	12.0	2371	677	0.90		3.0	0.00	8.33
2C ✖							60.00	
2C	17.9	2226	1013	37.71	36.73	188.0	20.00	35.27
2C	20.5	2293	1156	19.79	18.77	112.7	10.00	16.04
2C	22.4	2369	1265	1.05		6.6	0.00	6.73
2L ✖							60.00	
2L	21.1	2221	1191	37.57	36.54	220.4	20.00	7.87
2L	21.8	2294	1231	19.58	18.54	118.7	10.00	7.23
2L	22.5	2369	1271	1.06		6.6	0.00	6.51
3L ✖							60.00	
3L	20.3	1614	1146	37.56	36.54	211.9	20.00	5.34
3L	28.5	2267	1609	19.71	18.54	156.2	10.00	7.67
3L	29.8	2367	1680	1.20		9.9	0.00	7.15
4L ✖							60.00	
4L ✖							20.00	
4L	39.4	2222	2222	19.98	18.54	218.6	10.00	7.86
4L	41.8	2361	2361	1.51		17.5	0.00	8.82
5L ✖							60.00	
5L ✖							20.00	
5L	37.6	1591	2121	19.93	18.54	208.1	10.00	7.91
5L	55.5	2350	3133	1.95		30.0	0.00	13.99
6L ✖							60.00	
6L ✖							20.00	
6L ✖	0.1						10.00	
6L	63.6	2340	3589	2.25		39.8	0.00	18.98

PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲

FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ➤▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
1C	7.8	2152	437	96.76	95.90	208.4	60.00	52.19
1C	10.9	2290	616	37.87	36.99	114.8	20.00	18.50
1C	11.5	2330	646	19.50	18.61	62.0	10.00	11.79
1C	12.0	2371	677	0.90		3.0	0.00	8.33
1L	6.3	1230	353	96.67	95.84	167.9	60.00	5.59
1L	11.6	2291	657	37.44	36.54	121.1	20.00	9.18
1L	11.8	2330	668	19.44	18.54	64.0	10.00	8.68
1L	12.1	2371	680	0.90		3.0	0.00	8.15

PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX ➤▲**FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STAN ➤▲**

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
R1C	0.8	1750	20	96.22	95.42	21.6	60.00	222.78
R1C	15.8	2241	395	37.54	36.59	165.1	20.00	37.59
R1C	17.4	2304	435	19.57	18.60	94.9	10.00	16.69
R1C	18.8	2370	469	0.99		5.2	0.00	6.82

PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.9 ➤▲**FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STAN ➤▲**

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Transmission Heat Rejection (kW)
R1C	6.7	2228	378	97.22	96.38	181.0	60.00	40.44
R1C	7.8	2315	441	37.48	36.63	81.3	20.00	14.52
R1C	8.1	2343	455	19.39	18.53	43.5	10.00	9.86
R1C	8.3	2372	471	0.86		2.0	0.00	6.64

PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.1

Vehicle Acceleration Performance

MISSION

End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM

Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE

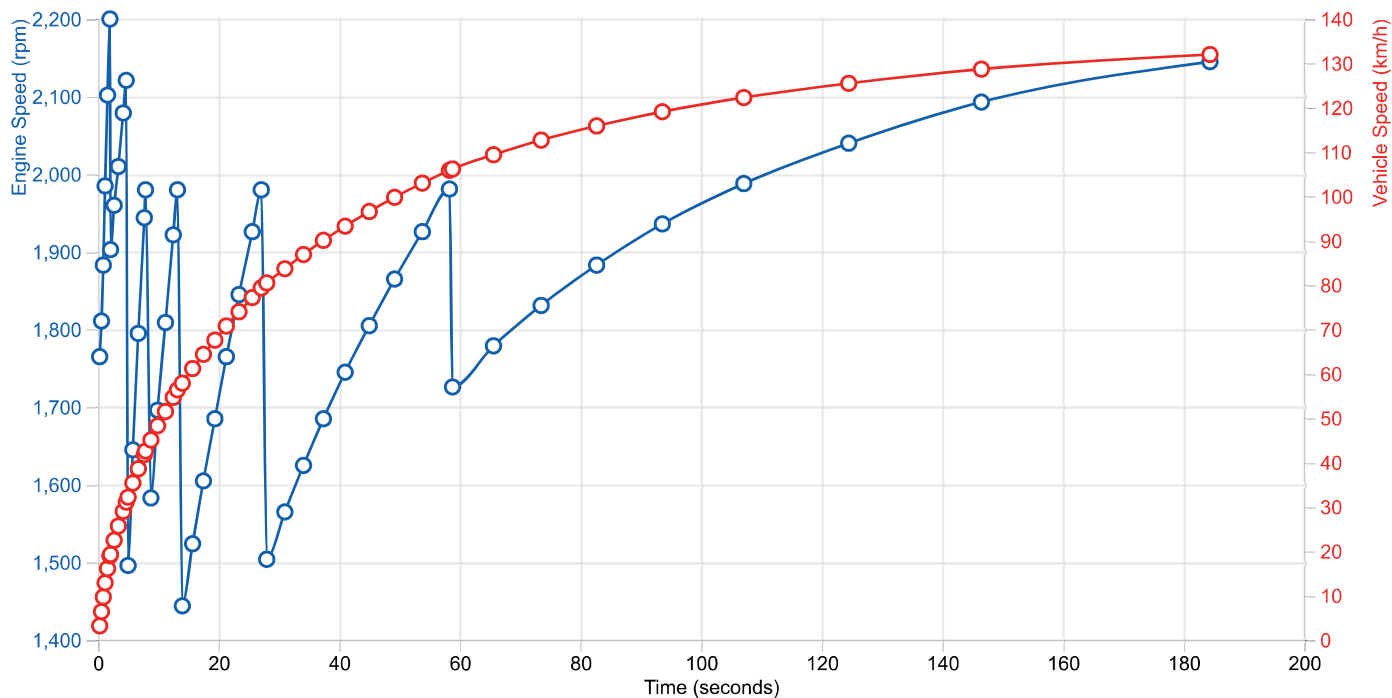
This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.
The ! symbol indicates that Wheel Slip may occur.
Initial conditions for this report are Service Brakes locked and Engine at Full Throttle.

FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RAT

Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Axle Ratio		5.500			Auxiliary Gearing Ratio		0.950		
Grade		0.00%							
Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
1C	3.2	0.3	0	3.265	1765	65.93	65.12	58.9	182.42
1C	6.4	0.6	1	2.962	1811	60.34	59.50	107.9	131.30
1C	9.7	0.9	1	2.628	1883	54.29	53.42	145.6	95.96
1C	12.9	1.2	2	2.383	1985	49.33	48.42	176.4	70.78
1C	16.1	1.6	4	2.158	2102	45.17	44.22	201.9	59.99
1C	19.0	2.0	6	1.952	2200	40.21	39.21	211.9	47.68
2C	19.3	2.1	6	1.409	1903	28.60	27.60	153.4	89.09
2C	22.5	2.7	10	1.335	1960	27.22	26.16	170.3	75.33

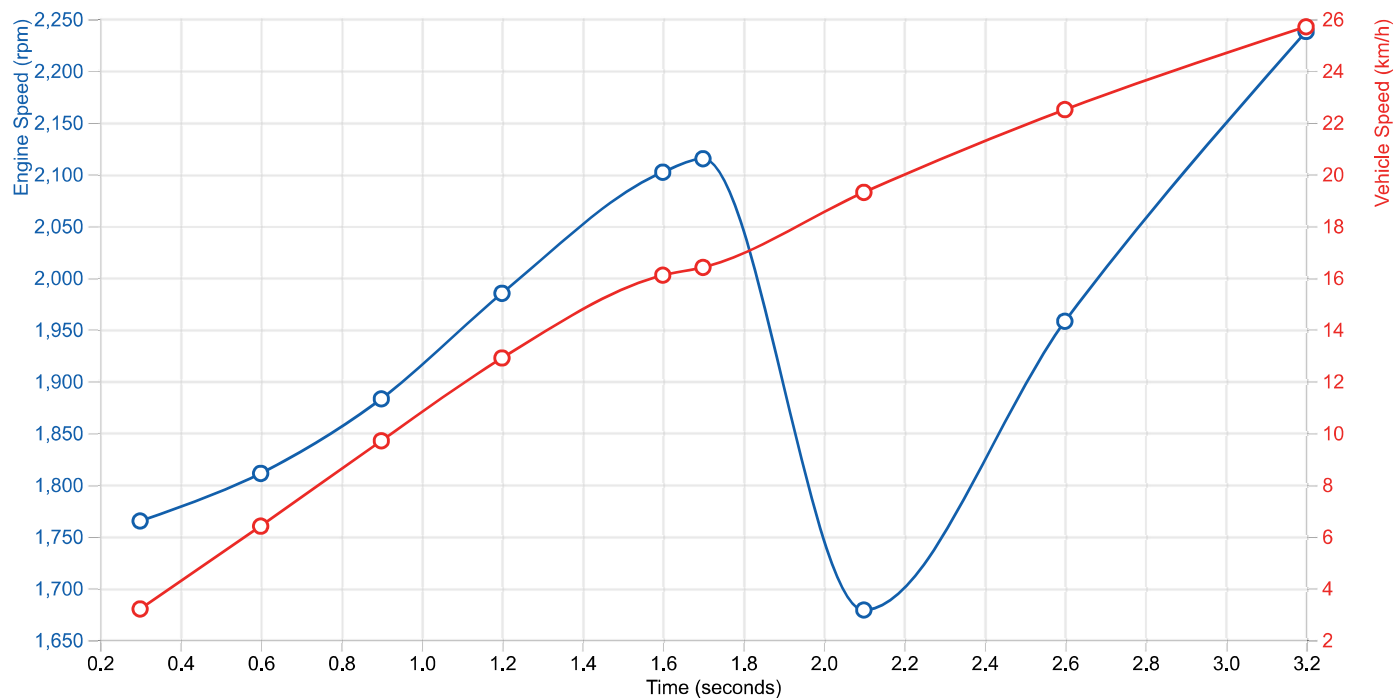
2C	25.7	3.4	15	1.258	2010	25.70	24.59	183.8	65.41
2C	29.0	4.2	20	1.199	2079	24.73	23.54	199.0	59.85
2C	31.1	4.7	24	1.153	2121	23.86	22.63	206.1	55.19
2L	32.2	5.0	27	1.079	1496	22.79	21.54	203.8	5.36
2L	35.4	5.8	35	1.021	1645	21.69	20.36	213.3	5.68
2L	38.6	6.7	44	0.959	1795	20.53	19.12	220.3	6.31
2L	41.8	7.7	55	0.922	1944	19.90	18.39	231.3	6.88
2L	42.6	7.9	58	0.914	1980	19.76	18.23	233.8	7.05
3L	45.1	8.8	68	0.773	1583	16.78	15.18	210.0	5.22
3L	48.3	9.9	84	0.734	1696	16.12	14.42	216.2	5.70
3L	51.5	11.2	101	0.695	1809	15.48	13.67	221.4	6.15
3L	54.7	12.5	120	0.671	1922	15.12	13.20	229.8	6.62
3L	56.4	13.2	131	0.659	1980	14.95	12.97	234.0	6.89
4L	57.9	14.0	144	0.528	1444	12.32	10.29	198.3	3.92
4L	61.2	15.7	172	0.516	1524	12.20	10.04	207.2	4.07
4L	64.4	17.5	203	0.492	1605	11.86	9.58	212.2	4.44
4L	67.6	19.4	237	0.468	1685	11.53	9.11	216.4	4.76
4L	70.8	21.3	275	0.443	1765	11.19	8.63	220.0	5.10
4L	74.0	23.4	317	0.423	1845	10.93	8.23	224.8	5.56
4L	77.2	25.6	362	0.405	1926	10.75	7.89	230.6	6.01
4L	79.4	27.1	395	0.394	1980	10.63	7.67	234.5	6.32
5L	80.5	28.0	416	0.313	1504	9.08	6.07	202.9	7.33
5L	83.7	31.0	483	0.295	1565	8.89	5.72	206.6	7.66
5L	86.9	34.1	557	0.277	1625	8.70	5.36	210.0	8.13
5L	90.1	37.4	640	0.258	1685	8.50	4.99	212.9	8.65
5L	93.3	41.0	732	0.239	1745	8.31	4.62	215.5	9.10
5L	96.6	45.0	835	0.219	1805	8.12	4.25	217.8	9.75
5L	99.8	49.2	950	0.204	1865	8.01	3.95	222.0	10.27
5L	103.0	53.8	1079	0.188	1926	7.91	3.65	226.2	10.89
5L	105.9	58.3	1211	0.174	1981	7.81	3.37	229.9	11.47
6L	106.2	58.8	1226	0.141	1726	7.19	2.73	212.1	11.80
6L	109.4	65.6	1430	0.123	1779	7.04	2.37	214.0	12.45
6L	112.7	73.5	1673	0.106	1831	6.93	2.05	216.8	13.14
6L	115.9	82.7	1964	0.090	1883	6.84	1.74	220.2	13.86
6L	119.1	93.6	2321	0.075	1936	6.76	1.44	223.6	14.56
6L	122.3	107.1	2775	0.059	1988	6.68	1.13	227.0	15.33
6L	125.5	124.5	3371	0.047	2040	6.68	0.90	233.0	16.19
6L	128.7	146.5	4151	0.036	2093	6.71	0.68	239.9	17.00
6L	132.0	184.4	5523	0.015	2145	6.54	0.27	239.9	17.61

PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲


FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ➤

Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Axle Ratio		5.500			Auxiliary Gearing Ratio		0.950		
Grade		0.00%							
Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
1C	3.2	0.3	0	3.265	1765	65.93	65.12	58.9	182.42
1C	6.4	0.6	1	2.962	1811	60.34	59.50	107.9	131.30
1C	9.7	0.9	1	2.628	1883	54.29	53.42	145.6	95.96
1C	12.9	1.2	2	2.383	1985	49.33	48.42	176.4	70.78
1C	16.1	1.6	4	2.158	2102	45.17	44.22	201.9	59.99
1C	16.4	1.7	4	2.133	2115	44.63	43.68	203.9	57.62
1L	19.3	2.1	6	1.798	1679	39.80	38.80	213.5	7.58
1L	22.5	2.6	9	1.656	1958	36.83	35.77	230.5	8.95
1L	25.7	3.2	13	1.289	2238	27.25	26.13	194.9	9.82

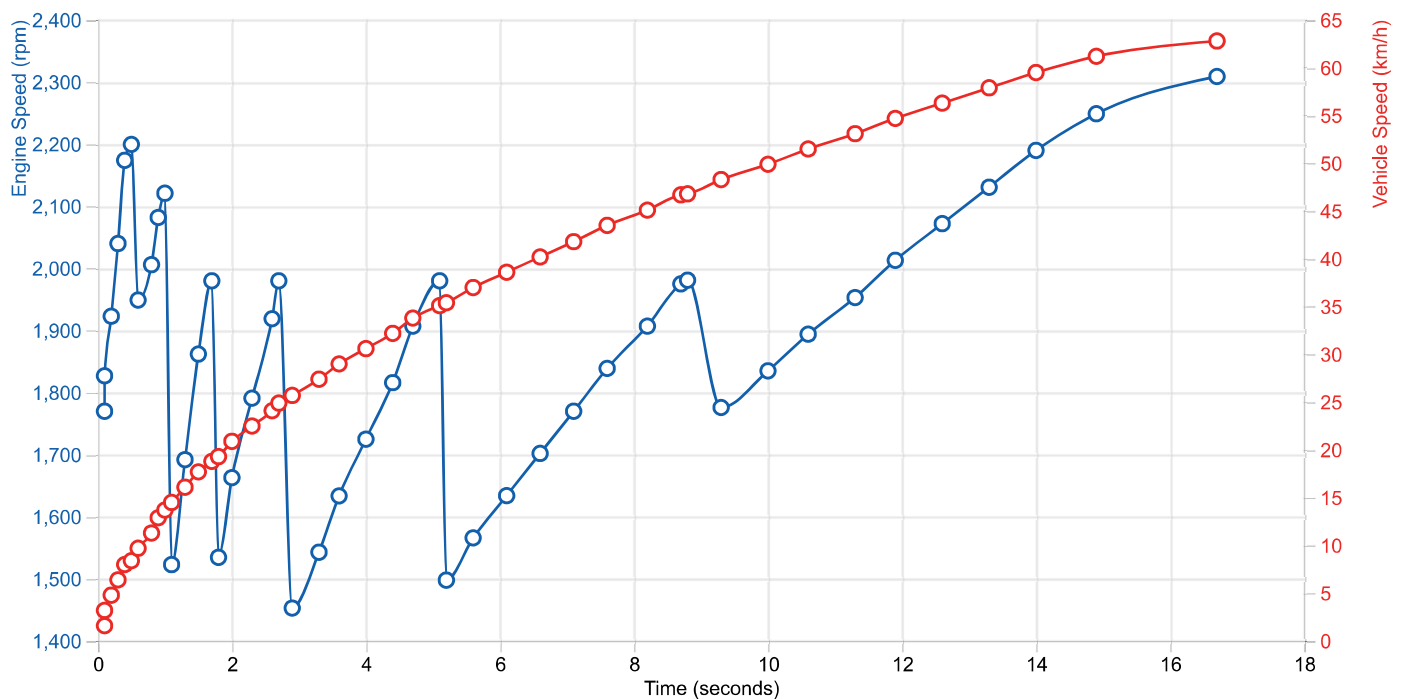
PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AU ➤


FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150

Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Axle Ratio		5.500			Auxiliary Gearing Ratio		2.150		
Grade		0.00%							
Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
1C Ⅰ	1.6	0.1	0	6.392	1770	147.75	146.95	66.0	174.84
1C Ⅰ	3.2	0.1	0	5.552	1827	132.89	132.08	118.8	120.65
1C	4.8	0.2	0	4.634	1923	118.41	117.59	158.8	84.84
1C	6.4	0.3	0	3.987	2040	106.17	105.34	189.9	63.73
1C	8.0	0.4	1	3.685	2174	94.02	93.16	210.1	49.99
1C	8.4	0.5	1	3.847	2200	91.00	90.14	211.9	47.68
2C	9.7	0.6	1	2.916	1949	62.27	61.40	167.0	77.99
2C	11.3	0.8	1	2.763	2006	58.45	57.57	182.9	65.86
2C	12.9	0.9	2	2.586	2082	55.82	54.92	199.6	59.68
2C	13.7	1.0	2	2.507	2121	54.00	53.08	206.1	55.19
2L	14.5	1.1	3	2.209	1523	51.18	50.25	205.9	5.35
2L	16.1	1.3	4	2.079	1692	48.27	47.32	215.8	5.93
2L	17.7	1.5	5	1.966	1862	45.78	44.81	225.1	6.54
2L	18.8	1.7	5	1.916	1980	44.72	43.73	233.8	7.05
3L	19.3	1.8	6	1.765	1535	38.59	37.59	207.0	5.00
3L	20.9	2.0	7	1.685	1663	36.92	35.89	214.5	5.47
3L	22.5	2.3	9	1.604	1791	35.21	34.15	220.4	6.05
3L	24.1	2.6	11	1.554	1919	34.23	33.14	229.5	6.61
3L	24.9	2.7	12	1.534	1980	33.82	32.72	234.0	6.89
4L	25.7	2.9	13	1.311	1453	27.87	26.76	199.4	3.94
4L	27.4	3.3	15	1.290	1543	27.42	26.27	208.4	4.11
4L	29.0	3.6	18	1.246	1634	26.57	25.39	213.8	4.48

4L	30.6	4.0	21	1.202	1725	25.70	24.48	218.3	4.92
4L	32.2	4.4	25	1.159	1816	24.89	23.64	222.6	5.44
4L	33.8	4.7	28	1.134	1907	24.41	23.12	229.2	5.94
4L	35.1	5.1	31	1.114	1980	24.06	22.73	234.5	6.32
5L	35.4	5.2	32	0.965	1498	20.57	19.24	202.3	7.31
5L	37.0	5.6	37	0.941	1566	20.10	18.73	206.7	7.67
5L	38.6	6.1	42	0.914	1634	19.61	18.20	210.4	8.18
5L	40.2	6.6	47	0.887	1702	19.12	17.66	213.7	8.85
5L	41.8	7.1	53	0.860	1770	18.62	17.11	216.4	9.34
5L	43.5	7.6	59	0.838	1839	18.24	16.69	220.2	10.01
5L	45.1	8.2	66	0.822	1907	17.96	16.36	224.8	10.73
5L	46.7	8.7	73	0.806	1975	17.70	16.06	229.5	11.40
5L	46.8	8.8	74	0.804	1981	17.68	16.03	229.9	11.47
6L	48.3	9.3	81	0.721	1776	15.95	14.25	213.9	12.40
6L	49.9	10.0	90	0.703	1835	15.66	13.91	217.0	13.19
6L	51.5	10.6	99	0.689	1894	15.44	13.64	220.9	14.03
6L	53.1	11.3	108	0.676	1953	15.24	13.38	224.8	14.81
6L	54.7	11.9	118	0.665	2013	15.09	13.18	229.4	15.75
6L	56.3	12.6	129	0.666	2072	15.16	13.18	237.2	16.68
6L	57.9	13.3	139	0.653	2131	14.93	12.89	240.2	17.43
6L	59.5	14.0	151	0.625	2190	14.43	12.33	238.6	18.41
6L	61.2	14.9	165	0.417	2249	10.08	7.93	171.3	18.76
6L	62.8	16.7	196	0.155	2309	4.97	2.76	86.7	18.91

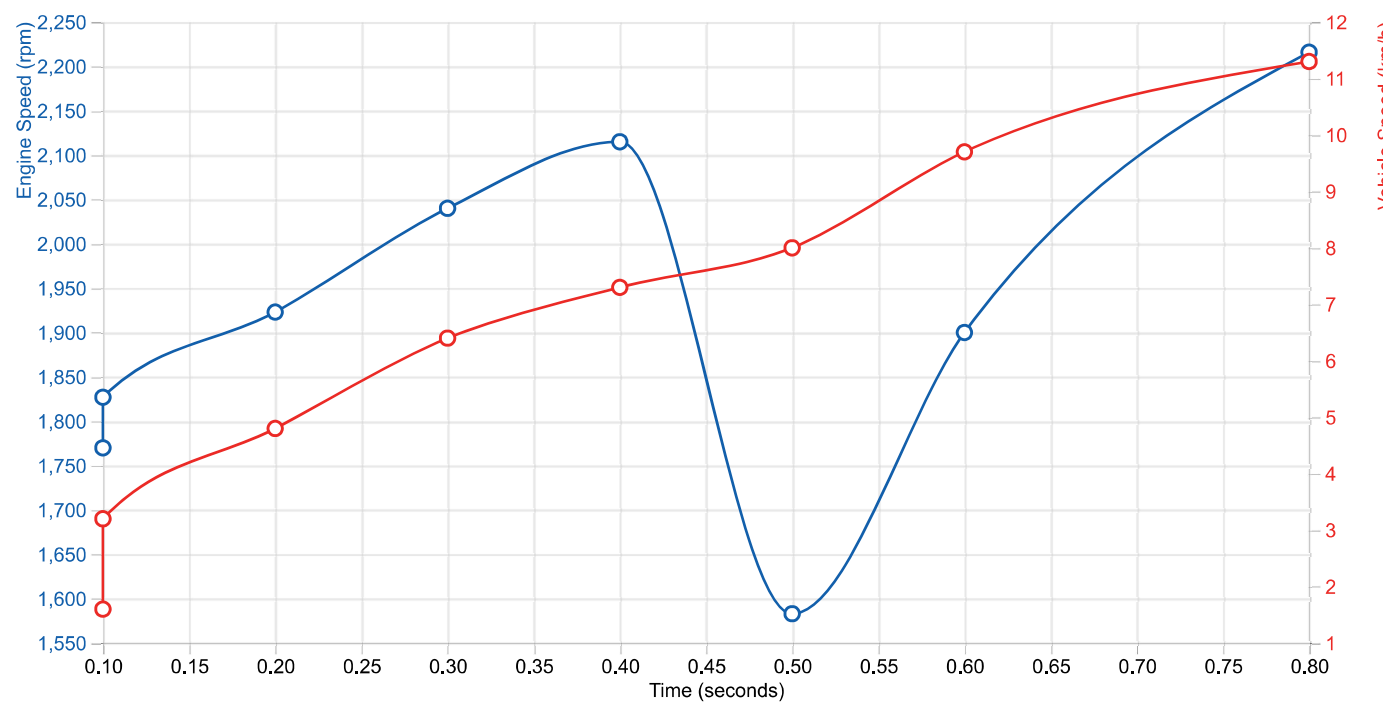
PLOTS - FULL THROTTLE AUTOMATIC UPSHIFTS (1C, 2C, 2L, 3L, 4L, 5L, 6L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, ▲



FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO ▲

Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Axle Ratio		5.500			Auxiliary Gearing Ratio		2.150		
Grade		0.00%							
Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
1C !	1.6	0.1	0	6.392	1770	147.75	146.95	66.0	174.84
1C !	3.2	0.1	0	5.552	1827	132.89	132.08	118.8	120.65
1C	4.8	0.2	0	4.634	1923	118.41	117.59	158.8	84.84
1C	6.4	0.3	0	3.987	2040	106.17	105.34	189.9	63.73
1C	7.3	0.4	0	3.897	2115	101.01	100.17	203.9	57.62
1L	8.0	0.5	1	2.958	1583	93.19	92.33	208.3	7.16
1L	9.7	0.6	1	2.666	1900	84.31	83.44	226.1	8.71
1L	11.3	0.8	1	2.416	2216	71.78	70.89	224.6	10.07

PLOTS - FULL THROTTLE MANUAL 1ST HOLD - LOCKUP APPLY (1C, 1L) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AU▲

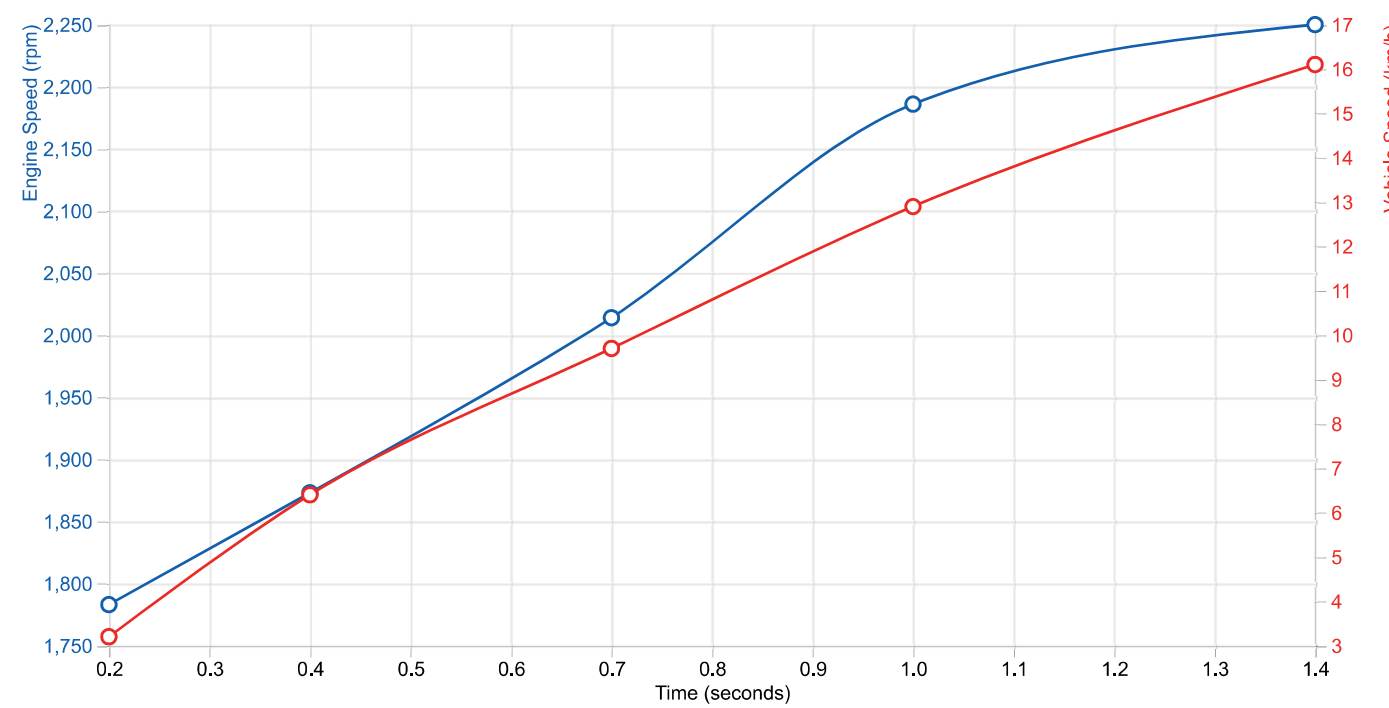


FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STAN▲

Engine Fan		On			Engine Power		Standard Power Curve		
Air Conditioning		Off			Vehicle Parameters		Standard		
Axle Ratio		5.500			Auxiliary Gearing Ratio		0.950		
Grade		0.00%							
Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
R1C	3.2	0.2	0	4.262	1783	89.67	88.86	80.2	159.96
R1C	6.4	0.4	0	3.576	1873	77.50	76.67	138.6	102.78
R1C	9.7	0.7	1	3.055	2014	67.17	66.30	180.2	70.12
R1C	12.9	1.0	2	2.623	2186	57.84	56.93	206.9	53.46

R1C	16.1	1.4	4	1.634	2250	35.03	34.07	156.6	33.48
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PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.9▲

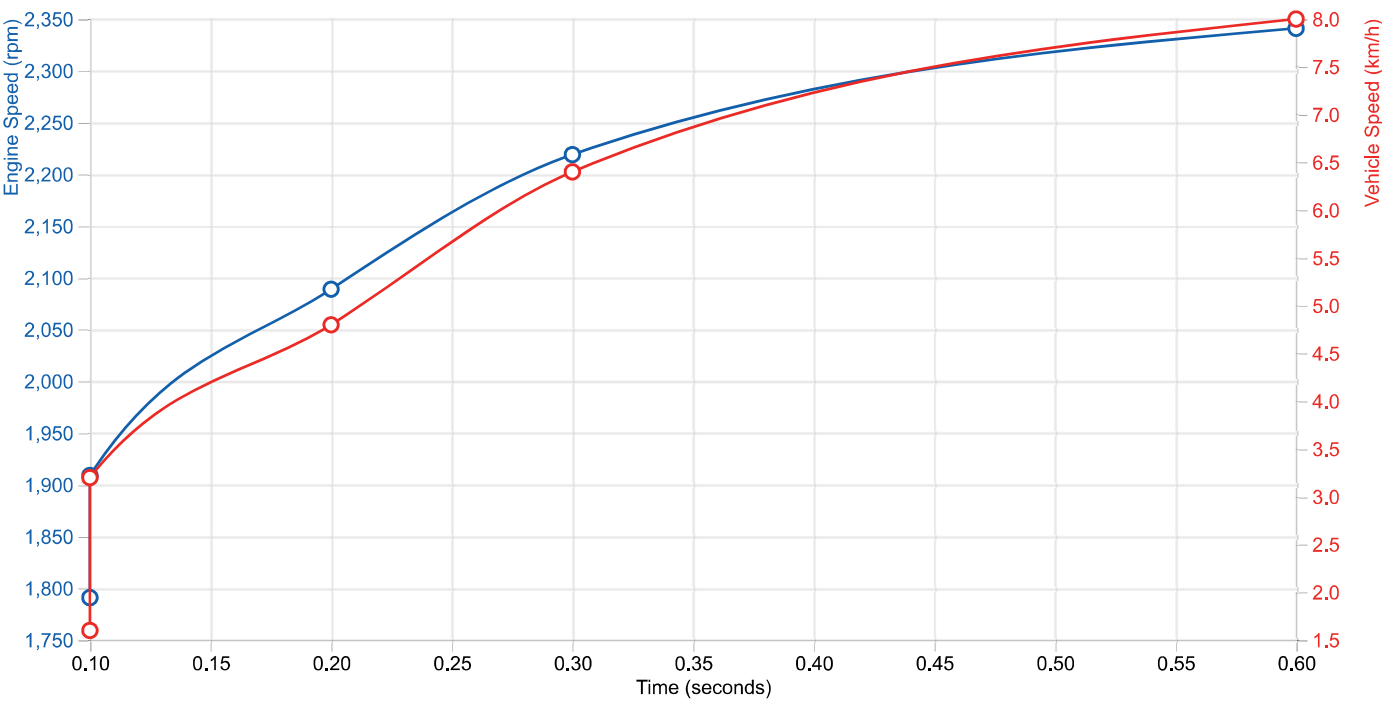


FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STAN▲

Engine Fan	On	Engine Power	Standard Power Curve
Air Conditioning	Off	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	2.150
Grade	0.00%		

Gear Range	Vehicle Speed (km/h)	Time (seconds)	Distance (m)	Acceleration Rate (m/sec²)	Engine Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Transmission Heat Rejection (kW)
R1C I	1.6	0.1	0	7.136	1791	199.58	198.78	89.2	150.46
R1C I	3.2	0.1	0	5.315	1909	169.15	168.33	151.2	91.98
R1C I	4.8	0.2	0	4.399	2089	145.91	145.09	195.7	65.11
R1C	6.4	0.3	0	4.105	2219	106.74	105.90	190.9	42.95
R1C	8.0	0.6	1	0.840	2341	20.95	20.09	46.8	10.21

PLOTS - FULL THROTTLE REVERSE PERFORMANCE (R1C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.1▲



Vehicle Closed Throttle Braking Performance

MISSION	
End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)
PLATFORM	
Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	
NOTE	
This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.	
Results indicate the vehicle operating conditions at steady state (acceleration = 0).	
The ! symbol indicates that Wheel Slip may occur.	
CLOSED THROTTLE DOWNSHIFTS, STANDARD RETARDER (6L, 5L, 4L, 3L, 2L, 2C) - STANDARD, FAN ON, AC OFF, AXLE RATIO =	

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Engine Retarder Off

Transmission Retarder Off

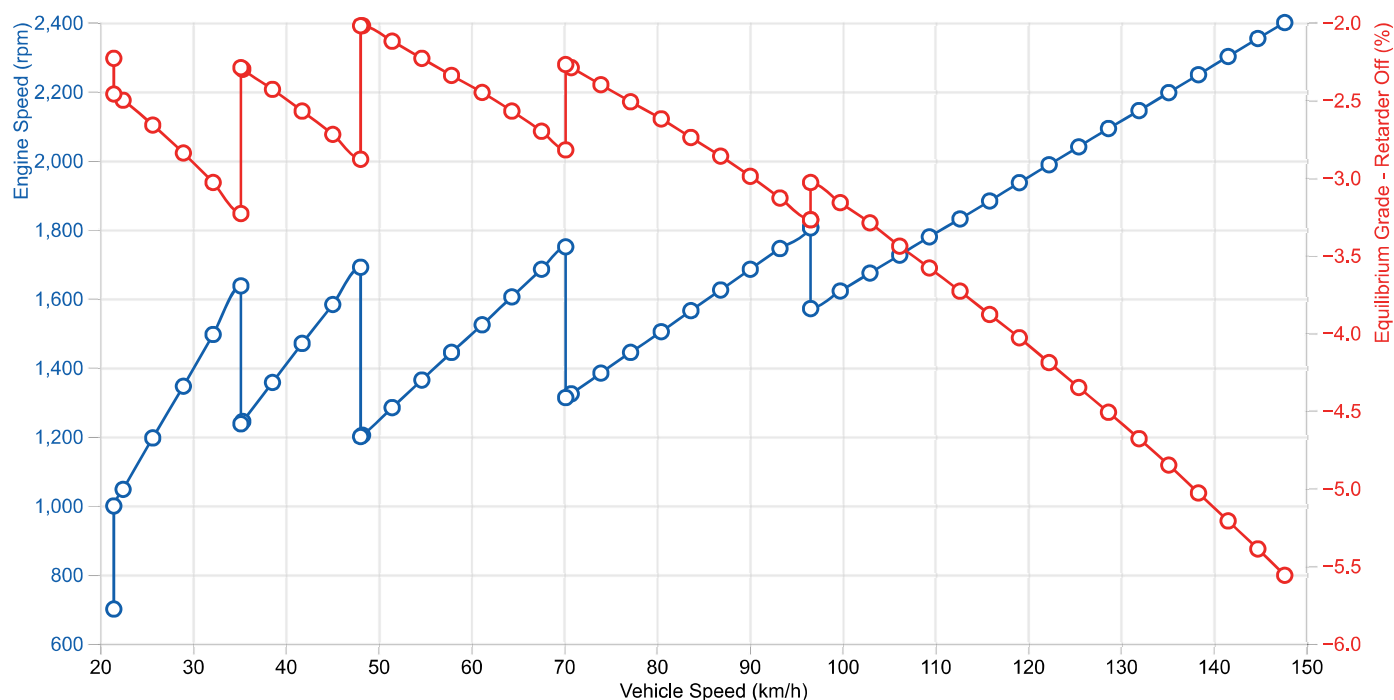
Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
6L	147.7	2400	3681	-5.56	20.29	-0.534	114.5
6L	144.8	2354	3611	-5.39	19.45	-0.518	109.6
6L	141.6	2302	3530	-5.21	18.54	-0.500	104.3
6L	138.4	2249	3450	-5.03	17.63	-0.483	99.2
6L	135.2	2197	3370	-4.85	16.76	-0.466	94.3
6L	132.0	2145	3290	-4.68	15.93	-0.450	89.6
6L	128.7	2093	3209	-4.51	15.11	-0.434	85.0
6L	125.5	2040	3129	-4.35	14.33	-0.418	80.7
6L	122.3	1988	3049	-4.19	13.57	-0.403	76.4
6L	119.1	1936	2969	-4.03	12.83	-0.387	72.3
6L	115.9	1883	2888	-3.88	12.12	-0.373	68.3
6L	112.7	1831	2808	-3.73	11.43	-0.358	64.4
6L	109.4	1779	2728	-3.58	10.78	-0.344	60.7
6L	106.2	1726	2648	-3.44	10.12	-0.330	57.1
6L	103.0	1674	2567	-3.29	9.50	-0.317	53.7
6L	99.8	1622	2487	-3.16	8.92	-0.304	50.5
6L	96.6	1571	2409	-3.03	8.40	-0.292	47.5
5L	96.6	1807	2409	-3.27	8.23	-0.314	59.5
5L	96.6	1805	2407	-3.27	8.22	-0.314	59.4
5L	93.3	1745	2327	-3.13	7.68	-0.300	55.5
5L	90.1	1685	2247	-2.99	7.14	-0.287	51.7
5L	86.9	1625	2166	-2.86	6.67	-0.275	48.1
5L	83.7	1565	2086	-2.74	6.27	-0.263	44.9
5L	80.5	1504	2006	-2.62	5.91	-0.252	41.9
5L	77.2	1444	1926	-2.51	5.55	-0.241	39.0
5L	74.0	1384	1845	-2.40	5.19	-0.230	36.3
5L	70.8	1324	1765	-2.29	4.83	-0.220	33.7
5L	70.2	1313	1750	-2.27	4.76	-0.218	33.2
4L	70.2	1750	1750	-2.82	5.13	-0.269	52.9
4L	67.6	1685	1685	-2.70	4.80	-0.258	49.1
4L	64.4	1605	1605	-2.57	4.45	-0.245	44.7
4L	61.2	1524	1524	-2.45	4.21	-0.234	40.9
4L	57.9	1444	1444	-2.34	3.97	-0.223	37.3
4L	54.7	1364	1364	-2.23	3.70	-0.213	33.9
4L	51.5	1284	1284	-2.12	3.42	-0.203	30.7
4L	48.3	1204	1204	-2.02	3.13	-0.193	27.7
4L	48.1	1200	1200	-2.02	3.11	-0.193	27.6
3L	48.1	1691	1200	-2.88	4.45	-0.272	49.0
3L	45.1	1583	1123	-2.72	4.08	-0.257	43.3
3L	41.8	1470	1043	-2.57	3.78	-0.243	38.1
3L	38.6	1357	963	-2.43	3.45	-0.230	33.3

3L	35.4	1244	883	-2.30	3.11	-0.218	29.0
3L	35.2	1237	878	-2.29	3.09	-0.217	28.8
2L	35.2	1637	878	-3.23	4.12	-0.302	45.9
2L	32.2	1496	802	-3.03	3.83	-0.283	39.2
2L	29.0	1346	722	-2.84	3.49	-0.265	33.0
2L	25.7	1196	642	-2.66	3.06	-0.248	27.4
2L	22.5	1047	562	-2.50	2.59	-0.233	22.6
2L	21.5	999	536	-2.46	2.42	-0.230	21.2
2C	21.5	700	536	-2.23	5.62	-0.204	18.6

Engine Retarder Off
Transmission Retarder On

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
6L	147.7	2400	3681	-10.99	393.26	-1.050	524.8
6L	144.8	2354	3611	-10.93	392.42	-1.044	520.0
6L	141.6	2302	3530	-10.87	391.51	-1.039	514.7
6L	138.4	2249	3450	-10.82	390.60	-1.034	509.6
6L	135.2	2197	3370	-10.78	389.73	-1.030	504.7
6L	132.0	2145	3290	-10.75	388.90	-1.028	499.9
6L	128.7	2093	3209	-10.73	388.08	-1.026	495.4
6L	125.5	2040	3129	-10.72	387.30	-1.025	491.0
6L	122.3	1988	3049	-10.73	386.54	-1.026	486.8
6L	119.1	1936	2969	-10.75	385.80	-1.028	482.7
6L	115.9	1883	2888	-10.78	385.09	-1.031	478.6
6L	112.7	1831	2808	-10.82	384.40	-1.035	474.8
6L	109.4	1779	2728	-10.89	383.75	-1.041	471.1
6L	106.2	1726	2648	-10.96	383.09	-1.048	467.5
6L	103.0	1674	2567	-11.06	382.47	-1.057	464.1
6L	99.8	1622	2487	-11.17	381.89	-1.068	460.8
6L	96.6	1571	2409	-11.31	381.37	-1.080	457.9
5L	96.6	1807	2409	-11.55	381.20	-1.102	469.9
5L	96.6	1805	2407	-11.56	381.19	-1.102	469.8
5L	93.3	1745	2327	-11.70	380.65	-1.116	465.8
5L	90.1	1685	2247	-11.87	380.11	-1.132	462.0
5L	86.9	1625	2166	-12.07	379.64	-1.151	458.5
5L	83.7	1565	2086	-12.30	379.24	-1.173	455.3
5L	80.5	1504	2006	-12.50	376.26	-1.191	449.4
5L	77.2	1444	1926	-12.38	361.08	-1.180	430.2
5L	74.0	1384	1845	-12.27	345.90	-1.170	411.1
5L	70.8	1324	1765	-12.16	330.71	-1.159	392.2
5L	70.2	1313	1750	-12.14	327.85	-1.158	388.7
4L	70.2	1750	1750	-12.70	328.22	-1.204	408.4
4L	67.6	1685	1685	-12.58	315.86	-1.193	391.3
4L	64.4	1605	1605	-12.45	300.68	-1.180	370.7
4L	61.2	1524	1524	-12.32	285.62	-1.169	350.5
4L	57.9	1444	1444	-12.21	270.54	-1.158	330.6
4L	54.7	1364	1364	-12.09	255.42	-1.147	310.8
4L	51.5	1284	1284	-11.98	240.29	-1.137	291.3
4L	48.3	1204	1204	-11.88	225.15	-1.127	272.0

4L	48.1	1200	1200	-11.87	224.48	-1.127	271.1
3L	48.1	1691	1200	-12.75	225.82	-1.198	292.6
3L	45.1	1583	1123	-12.59	211.25	-1.182	271.2
3L	41.8	1470	1043	-12.43	196.09	-1.168	249.7
3L	38.6	1357	963	-12.29	180.91	-1.155	228.6
3L	35.4	1244	883	-11.24	150.85	-1.057	191.5
3L	35.2	1237	878	-11.16	148.87	-1.050	189.1
2L	35.2	1637	878	-12.12	149.89	-1.122	206.3
2L	32.2	1496	802	-10.71	119.25	-0.994	166.2
2L	29.0	1346	722	-9.29	90.91	-0.863	129.2
2L	25.7	1196	642	-7.94	66.81	-0.739	97.5
2L	22.5	1047	562	-6.71	47.00	-0.624	71.4
2L	21.5	999	536	-6.34	41.55	-0.591	64.3
2C	21.5	700	536	-6.11	44.75	-0.557	61.6

PLOTS - CLOSED THROTTLE DOWNSHIFTS, STANDARD RETARDER (6L, 5L, 4L, 3L, 2L, 2C) - STANDARD, FAN ON, AC OFF, AXLE ▲

CLOSED THROTTLE MANUAL 1ST HOLD - LOCKUP RELEASE, WITHOUT RETARDER (1L, 1C) - STANDARD, FAN ON, AC OFF, AXLE ▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Engine Retarder Off
Transmission Retarder Off

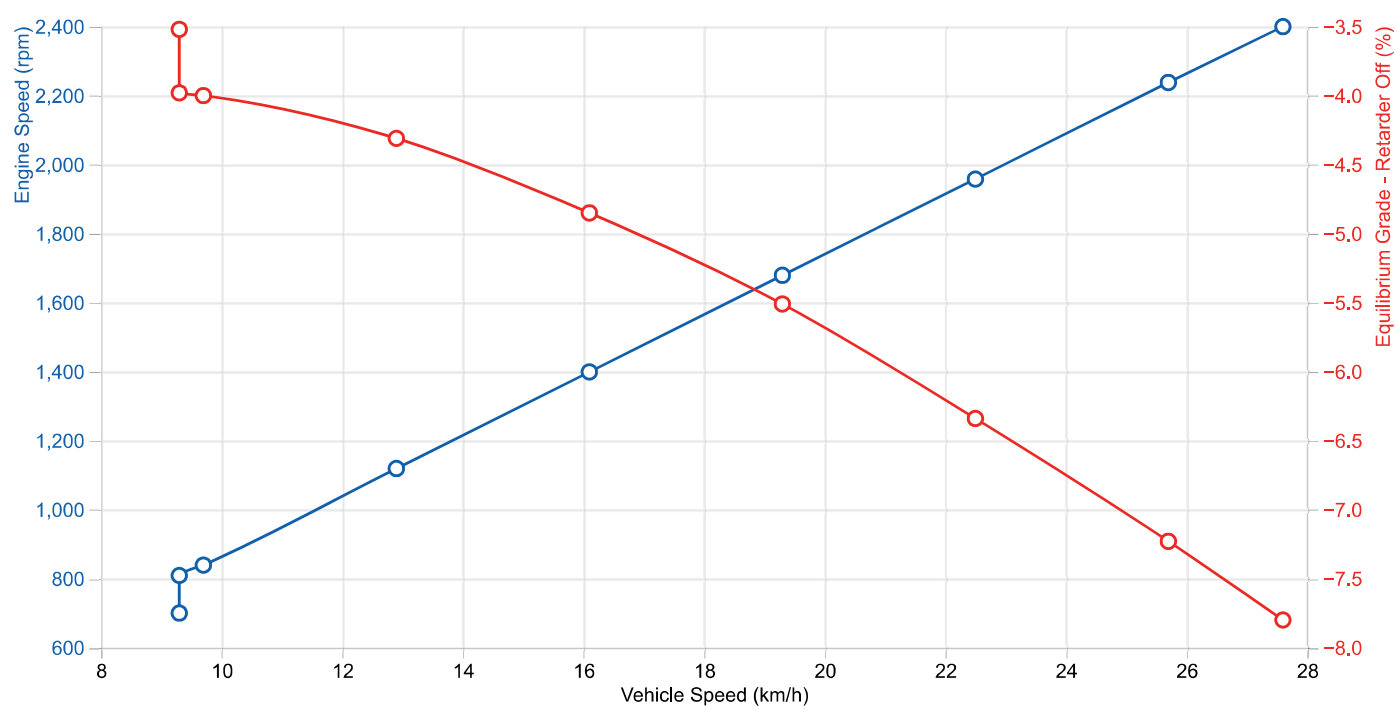
Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
1L	27.6	2400	688	-7.80	9.16	-0.669	102.2
1L	25.7	2238	642	-7.23	8.28	-0.620	88.0
1L	22.5	1958	562	-6.34	6.86	-0.545	67.2
1L	19.3	1679	481	-5.51	5.52	-0.473	49.6

1L	16.1	1399	401	-4.85	4.49	-0.417	36.1
1L	12.9	1119	321	-4.31	3.40	-0.370	25.4
1L	9.7	839	241	-4.00	2.38	-0.344	17.6
1L	9.3	809	232	-3.98	2.26	-0.342	16.9
1C	9.3	700	232	-3.52	2.09	-0.284	14.7

Engine Retarder Off
Transmission Retarder On

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
1L	27.6	2400	688	-13.82	86.07	-1.105	186.8
1L	25.7	2238	642	-12.57	72.03	-1.006	158.2
1L	22.5	1958	562	-10.57	51.26	-0.849	116.0
1L	19.3	1679	481	-8.76	34.91	-0.705	81.9
1L	16.1	1399	401	-7.17	21.97	-0.577	55.3
1L	12.9	1119	321	-5.74	12.08	-0.463	35.0
1L	9.7	839	241	-4.73	5.66	-0.381	21.3
1L	9.3	809	232	-4.64	5.15	-0.374	20.1
1C	9.3	700	232	-4.18	4.99	-0.337	17.9

PLOTS - CLOSED THROTTLE MANUAL 1ST HOLD - LOCKUP RELEASE, WITHOUT RETARDER (1L, 1C) - STANDARD, FAN ON, AC ▲



CLOSED THROTTLE DOWNSHIFTS, STANDARD RETARDER (6L, 5L, 4L, 3L, 2L, 2C) - STANDARD, FAN ON, AC OFF, AXLE RATIO = ▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

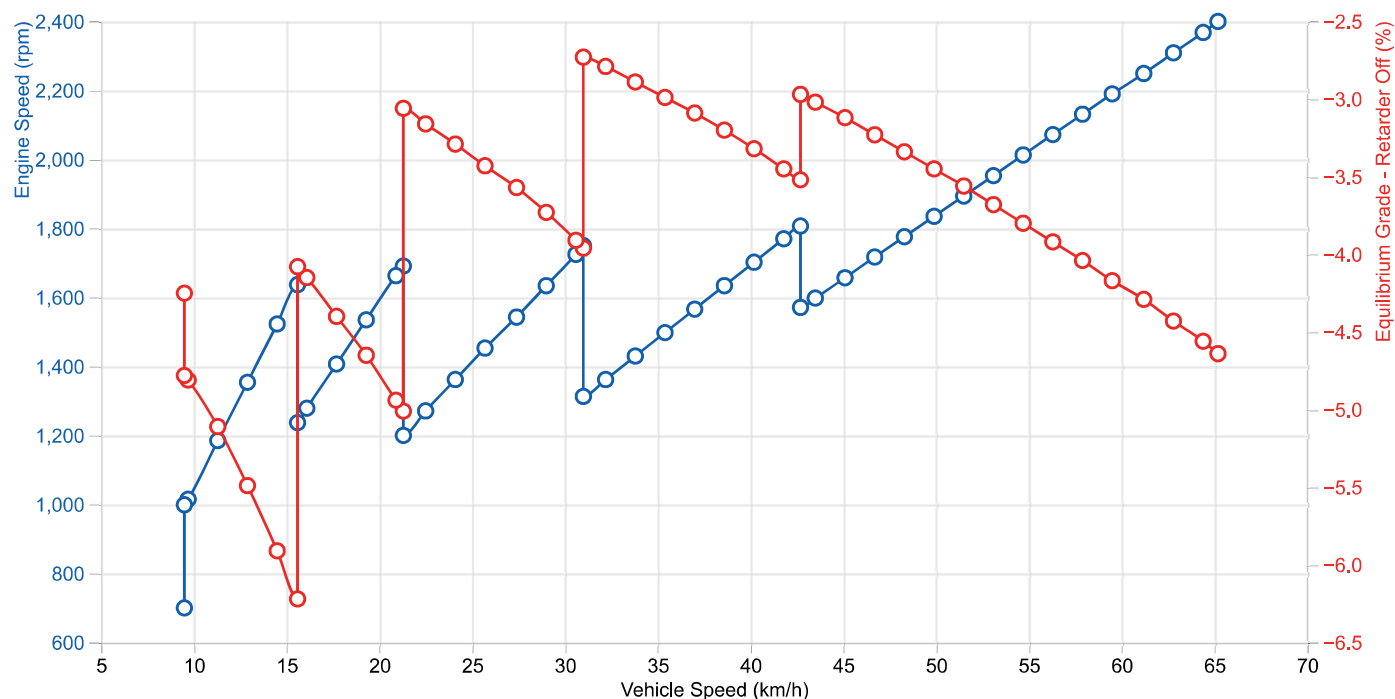
Engine Retarder Off
Transmission Retarder Off

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
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6L	65.2	2400	3681	-4.64	20.29	-0.436	114.5
6L	64.4	2368	3632	-4.56	19.70	-0.429	111.1
6L	62.8	2309	3541	-4.43	18.65	-0.416	105.0
6L	61.2	2249	3450	-4.29	17.63	-0.404	99.2
6L	59.5	2190	3359	-4.17	16.65	-0.392	93.7
6L	57.9	2131	3268	-4.04	15.71	-0.380	88.3
6L	56.3	2072	3178	-3.92	14.80	-0.368	83.3
6L	54.7	2013	3087	-3.80	13.92	-0.357	78.4
6L	53.1	1953	2996	-3.68	13.08	-0.346	73.7
6L	51.5	1894	2905	-3.56	12.26	-0.335	69.1
6L	49.9	1835	2815	-3.45	11.49	-0.324	64.7
6L	48.3	1776	2724	-3.34	10.74	-0.314	60.5
6L	46.7	1717	2633	-3.23	10.00	-0.303	56.5
6L	45.1	1657	2542	-3.12	9.31	-0.293	52.7
6L	43.5	1598	2451	-3.02	8.67	-0.284	49.1
6L	42.7	1571	2409	-2.97	8.40	-0.280	47.5
5L	42.7	1807	2409	-3.52	8.23	-0.328	59.5
5L	41.8	1770	2361	-3.45	7.91	-0.322	57.1
5L	40.2	1702	2270	-3.32	7.29	-0.310	52.8
5L	38.6	1634	2179	-3.20	6.74	-0.299	48.7
5L	37.0	1566	2088	-3.09	6.28	-0.288	45.0
5L	35.4	1498	1997	-2.99	5.87	-0.279	41.6
5L	33.8	1430	1907	-2.89	5.47	-0.270	38.4
5L	32.2	1362	1816	-2.79	5.06	-0.261	35.3
5L	31.0	1313	1750	-2.73	4.76	-0.255	33.2
4L	31.0	1750	1750	-3.96	5.13	-0.361	52.9
4L	30.6	1725	1725	-3.91	5.00	-0.356	51.4
4L	29.0	1634	1634	-3.73	4.57	-0.340	46.3
4L	27.4	1543	1543	-3.57	4.26	-0.326	41.8
4L	25.7	1453	1453	-3.43	3.99	-0.313	37.7
4L	24.1	1362	1362	-3.29	3.69	-0.300	33.8
4L	22.5	1271	1271	-3.16	3.38	-0.288	30.2
4L	21.3	1200	1200	-3.06	3.11	-0.279	27.6
3L	21.3	1691	1200	-5.01	4.45	-0.437	49.0
3L	20.9	1663	1180	-4.94	4.34	-0.431	47.5
3L	19.3	1535	1089	-4.65	3.95	-0.405	41.1
3L	17.7	1407	999	-4.40	3.61	-0.383	35.4
3L	16.1	1279	908	-4.15	3.22	-0.362	30.3
3L	15.6	1237	878	-4.08	3.09	-0.356	28.8
2L	15.6	1637	878	-6.22	4.12	-0.506	45.9
2L	14.5	1523	817	-5.91	3.88	-0.481	40.5
2L	12.9	1354	726	-5.49	3.51	-0.447	33.3
2L	11.3	1185	636	-5.11	3.02	-0.416	27.0
2L	9.7	1015	545	-4.81	2.48	-0.392	21.7
2L	9.5	999	536	-4.78	2.42	-0.390	21.2
2C	9.5	700	536	-4.25	5.62	-0.317	18.6

Engine Retarder Off
Transmission Retarder On

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
6L	65.2	2400	3681	-17.03	393.26	-1.579	524.8
6L	64.4	2368	3632	-17.12	392.67	-1.588	521.4
6L	62.8	2309	3541	-17.31	391.62	-1.605	515.3
6L	61.2	2249	3450	-17.52	390.60	-1.623	509.6
6L	59.5	2190	3359	-17.75	389.62	-1.644	504.0
6L	57.9	2131	3268	-18.01	388.68	-1.667	498.7
6L	56.3	2072	3178	-18.29	387.77	-1.693	493.6
6L	54.7	2013	3087	-18.60	386.89	-1.720	488.8
6L	53.1	1953	2996	-18.94	386.05	-1.751	484.1
6L	51.5	1894	2905	-19.31	385.23	-1.784	479.5
6L	49.9	1835	2815	-19.71	384.46	-1.819	475.1
6L	48.3	1776	2724	-20.15	383.71	-1.859	470.9
6L	46.7	1717	2633	-20.64	382.97	-1.902	466.8
6L	45.1	1657	2542	-21.17	382.28	-1.949	463.0
6L	43.5	1598	2451	-21.76	381.65	-2.000	459.4
6L	42.7	1571	2409	-22.06	381.37	-2.026	457.9
5L	42.7	1807	2409	-22.64	381.20	-2.063	469.9
5L	41.8	1770	2361	-22.98	380.88	-2.092	467.5
5L	40.2	1702	2270	-23.66	380.26	-2.151	463.1
5L	38.6	1634	2179	-24.42	379.71	-2.217	459.0
5L	37.0	1566	2088	-25.28	379.25	-2.290	455.3
5L	35.4	1498	1997	-25.96	374.66	-2.348	447.4
5L	33.8	1430	1907	-25.85	357.49	-2.339	425.7
5L	32.2	1362	1816	-25.75	340.30	-2.330	404.2
5L	31.0	1313	1750	-25.67	327.85	-2.323	388.7
4L	31.0	1750	1750	-27.03	328.22	-2.382	408.4
4L	30.6	1725	1725	-26.98	323.47	-2.377	401.8
4L	29.0	1634	1634	-26.77	306.27	-2.360	378.2
4L	27.4	1543	1543	-26.60	289.19	-2.346	355.3
4L	25.7	1453	1453	-26.44	272.13	-2.333	332.7
4L	24.1	1362	1362	-26.28	255.02	-2.320	310.3
4L	22.5	1271	1271	-26.13	237.90	-2.308	288.2
4L	21.3	1200	1200	-26.02	224.48	-2.298	271.1
3L	21.3	1691	1200	-28.19	225.82	-2.367	292.6
3L	20.9	1663	1180	-28.11	222.06	-2.360	287.0
3L	19.3	1535	1089	-27.77	204.87	-2.334	262.1
3L	17.7	1407	999	-27.48	187.72	-2.312	238.0
3L	16.1	1279	908	-25.97	162.06	-2.192	205.1
3L	15.6	1237	878	-24.71	148.87	-2.093	189.1
2L	15.6	1637	878	-27.06	149.89	-2.130	206.3
2L	14.5	1523	817	-24.35	124.93	-1.930	173.6
2L	12.9	1354	726	-20.57	92.30	-1.643	131.0
2L	11.3	1185	636	-17.06	65.08	-1.371	95.3
2L	9.7	1015	545	-13.93	43.36	-1.126	66.6
2L	9.5	999	536	-13.66	41.55	-1.104	64.3
2C	9.5	700	536	-13.11	44.75	-0.971	61.6

PLOTS - CLOSED THROTTLE DOWNSHIFTS, STANDARD RETARDER (6L, 5L, 4L, 3L, 2L, 2C) - STANDARD, FAN ON, AC OFF, AXLE ▲

CLOSED THROTTLE MANUAL 1ST HOLD - LOCKUP RELEASE, WITHOUT RETARDER (1L, 1C) - STANDARD, FAN ON, AC OFF, AXL▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Engine Retarder Off
Transmission Retarder Off

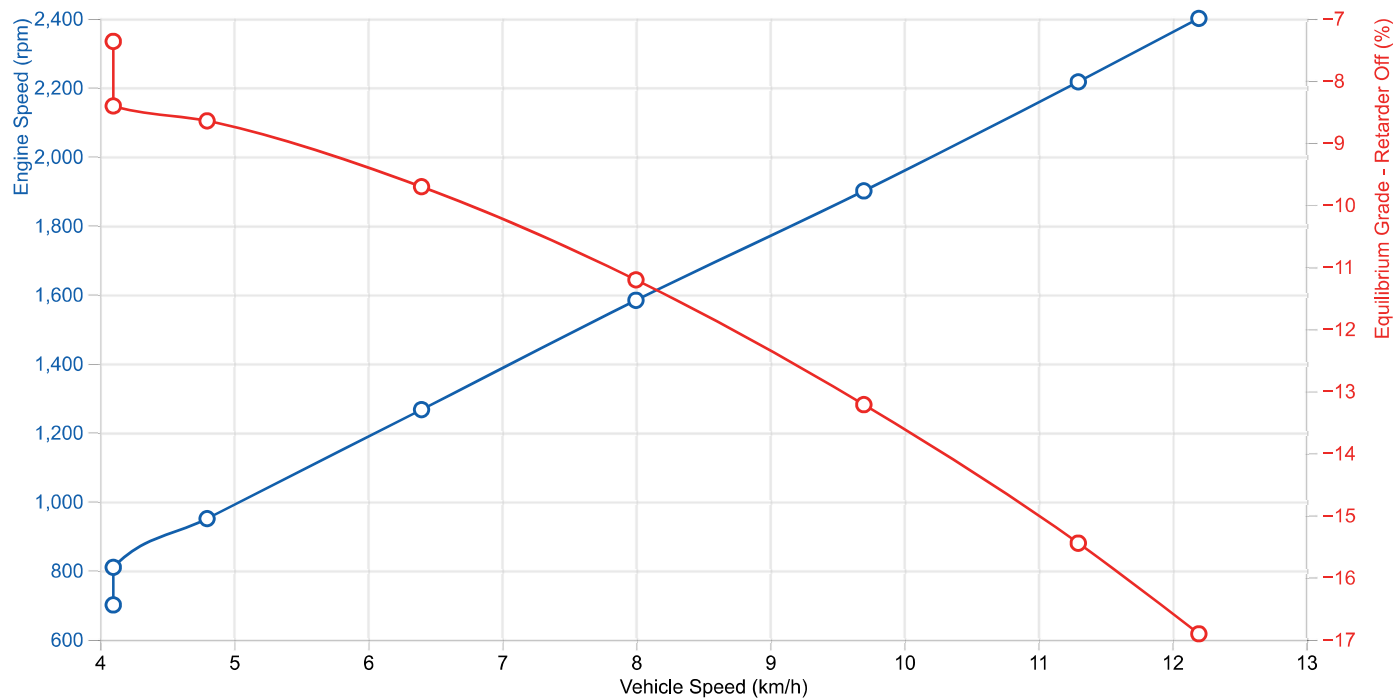
Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
1L	12.2	2400	688	-16.91	9.16	-0.988	102.2
1L	11.3	2216	636	-15.45	8.16	-0.905	86.2
1L	9.7	1900	545	-13.22	6.57	-0.777	63.2
1L	8.0	1583	454	-11.21	5.13	-0.660	44.5
1L	6.4	1266	363	-9.71	3.98	-0.573	30.7
1L	4.8	950	272	-8.65	2.75	-0.511	20.4
1L	4.1	809	232	-8.41	2.26	-0.497	16.9
1C	4.1	700	232	-7.37	2.09	-0.353	14.7

Engine Retarder Off
Transmission Retarder On

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Output Speed (rpm)	Equilibrium Grade (%)	Transmission Heat Rejection (kW)	Deceleration Rate (m/sec ² s)	Wheel Power (kW)
1L	12.2	2400	688	-31.53	86.07	-1.444	186.8
1L	11.3	2216	636	-28.02	70.23	-1.295	154.5
1L	9.7	1900	545	-22.67	47.45	-1.061	108.2
1L	8.0	1583	454	-18.06	30.27	-0.853	72.1
1L	6.4	1266	363	-14.06	16.87	-0.668	44.9
1L	4.8	950	272	-10.88	7.75	-0.519	25.9

1L	4.1	809	232	-9.93	5.15	-0.474	20.1
1C	4.1	700	232	-8.88	4.99	-0.425	17.9

PLOTS - CLOSED THROTTLE MANUAL 1ST HOLD - LOCKUP RELEASE, WITHOUT RETARDER (1L, 1C) - STANDARD, FAN ON, AC ▲



Vehicle Wheel Power Requirements ▲

MISSION ▲	
End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)
PLATFORM ▲	
Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	
NOTE ▲	

This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.

The data presented in this report defines the actual wheel power required to maintain a specified vehicle speed on various grades. The results are based on the physical characteristics of the vehicle – weight, aerodynamics, and rolling resistance – and are independent of engine rating, transmission model, and shift schedule.

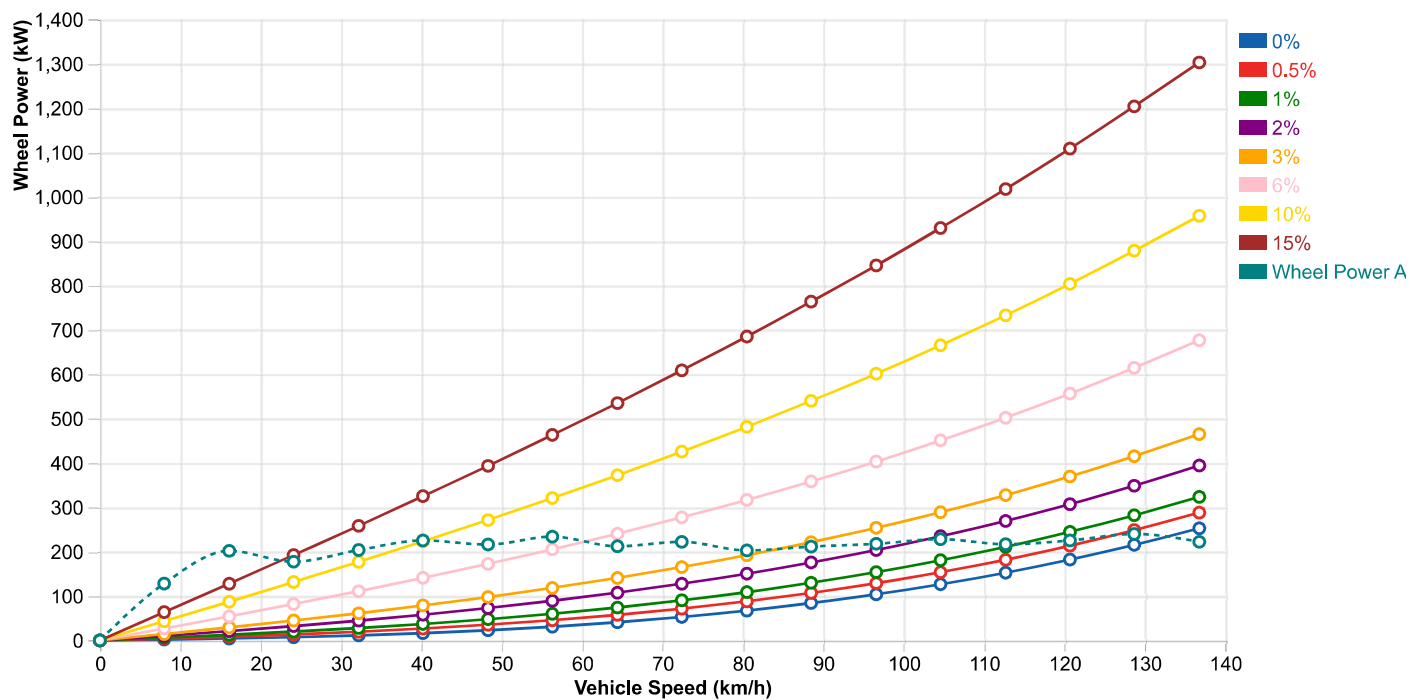
Positive grades indicate uphill operation and negative grades indicate downhill operation.

Positive wheel power values indicate propulsion power required, and negative wheel power values indicate braking power required. Wheel power values that exceed the available propulsion or braking wheel power indicate operating conditions that are not possible with the specified vehicle configuration.

WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STANDARD POW▲

Engine Fan		On		Air Conditioning		Off			
Engine Power		Standard Power Curve		Vehicle Parameters		Standard			
Axle Ratio		5.5		Auxiliary Gearing Ratio		0.95			
Vehicle Speed (km/h)	Wheel Power Available (kW)	0%	0.5%	1%	2%	3%	6%	10%	15%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.0	128.2	1.9	4.0	6.1	10.2	14.4	26.9	43.3	63.7
16.1	201.9	4.3	8.4	12.6	20.9	29.2	54.1	87.1	127.8
24.1	177.5	7.3	13.5	19.8	32.3	44.8	82.1	131.6	192.6
32.2	203.8	11.2	19.6	27.9	44.5	61.2	111.0	177.0	258.3
40.2	225.3	16.3	26.7	37.1	58.0	78.8	141.0	223.5	325.2
48.3	216.2	22.8	35.3	47.8	72.8	97.7	172.5	271.4	393.5
56.3	233.9	30.9	45.5	60.0	89.2	118.3	205.5	321.0	463.3
64.4	212.2	40.8	57.5	74.1	107.5	140.7	240.4	372.4	535.1
72.4	222.2	52.9	71.6	90.4	127.8	165.3	277.4	425.8	608.9
80.5	202.9	67.2	88.1	108.9	150.5	192.1	316.7	481.6	685.0
88.5	211.5	84.2	107.1	130.0	175.8	221.5	358.5	540.0	763.8
96.6	217.8	103.9	128.9	153.9	203.8	253.8	403.2	601.2	845.3
104.6	228.2	126.7	153.7	180.8	234.9	289.0	450.9	665.4	929.8
112.7	216.8	152.7	181.8	211.0	269.3	327.5	501.9	732.9	1017.6
120.7	225.3	182.2	213.5	244.7	307.1	369.6	556.4	803.8	1108.9
128.7	239.9	215.5	248.8	282.1	348.7	415.3	614.6	878.6	1204.0
136.8	222.2	252.8	288.2	323.6	394.3	465.1	676.8	957.3	1303.0

PLOTS - WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STAND▲

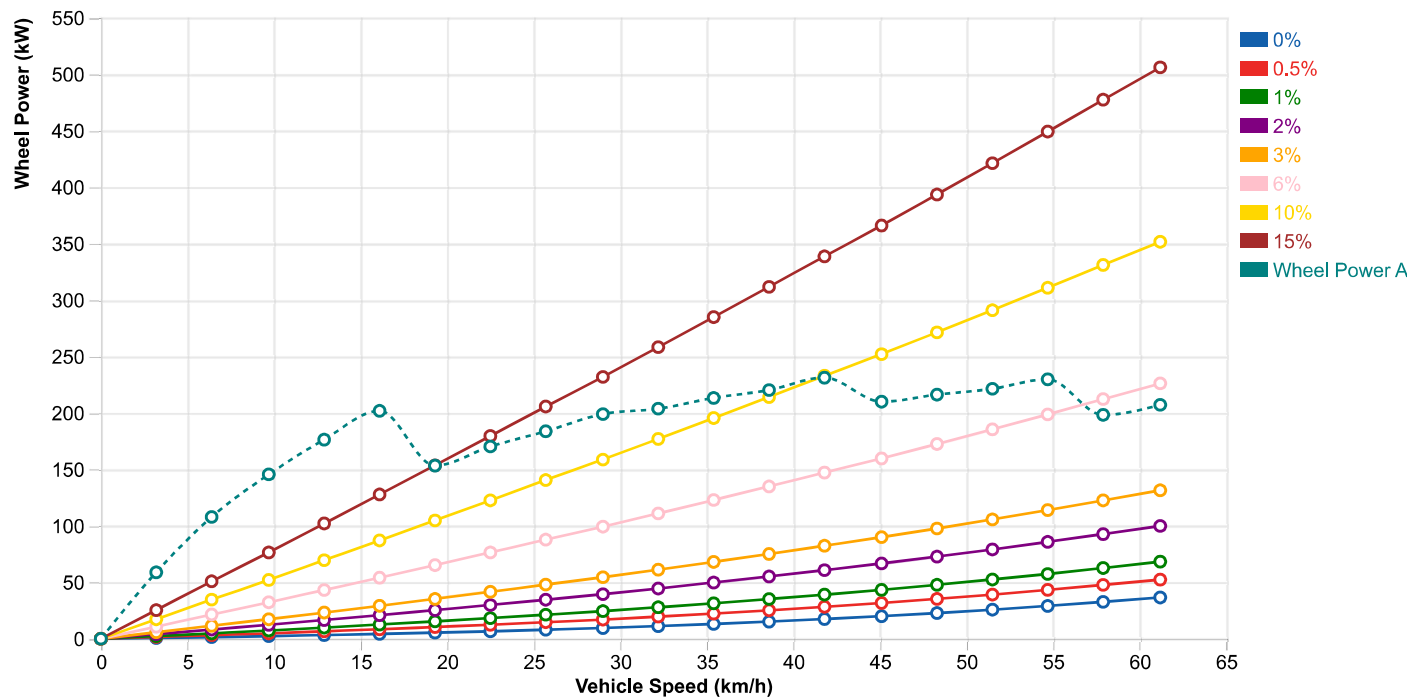


WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STANDARD POW▲

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	0.95

Vehicle Speed (km/h)	Wheel Power Available (kW)	0%	0.5%	1%	2%	3%	6%	10%	15%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2	58.9	0.7	1.6	2.4	4.1	5.7	10.7	17.3	25.4
6.4	107.9	1.5	3.2	4.8	8.2	11.5	21.5	34.7	50.9
9.7	145.6	2.3	4.8	7.3	12.3	17.3	32.3	52.1	76.5
12.9	176.4	3.3	6.6	9.9	16.6	23.2	43.2	69.6	102.1
16.1	201.9	4.3	8.4	12.6	20.9	29.2	54.1	87.1	127.8
19.3	153.4	5.4	10.4	15.4	25.4	35.3	65.2	104.8	153.6
22.5	170.3	6.6	12.4	18.3	29.9	41.6	76.5	122.6	179.6
25.7	183.8	8.0	14.7	21.3	34.6	48.0	87.8	140.6	205.7
29.0	199.0	9.5	17.0	24.5	39.5	54.5	99.3	158.7	231.9
32.2	203.8	11.2	19.6	27.9	44.5	61.2	111.0	177.0	258.3
35.4	213.3	13.1	22.3	31.4	49.8	68.1	122.9	195.5	284.9
38.6	220.3	15.2	25.2	35.2	55.2	75.1	134.9	214.1	311.7
41.8	231.3	17.5	28.3	39.1	60.8	82.4	147.2	233.0	338.7
45.1	210.0	20.0	31.7	43.3	66.7	90.0	159.7	252.1	366.0
48.3	216.2	22.8	35.3	47.8	72.8	97.7	172.5	271.4	393.5
51.5	221.4	25.8	39.1	52.5	79.1	105.7	185.5	291.0	421.2
54.7	229.8	29.1	43.3	57.4	85.8	114.0	198.7	310.9	449.2
57.9	198.3	32.7	47.7	62.7	92.7	122.6	212.3	331.1	477.5
61.2	207.2	36.6	52.4	68.3	99.9	131.5	226.2	351.6	506.1

PLOTS - WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STANDARD

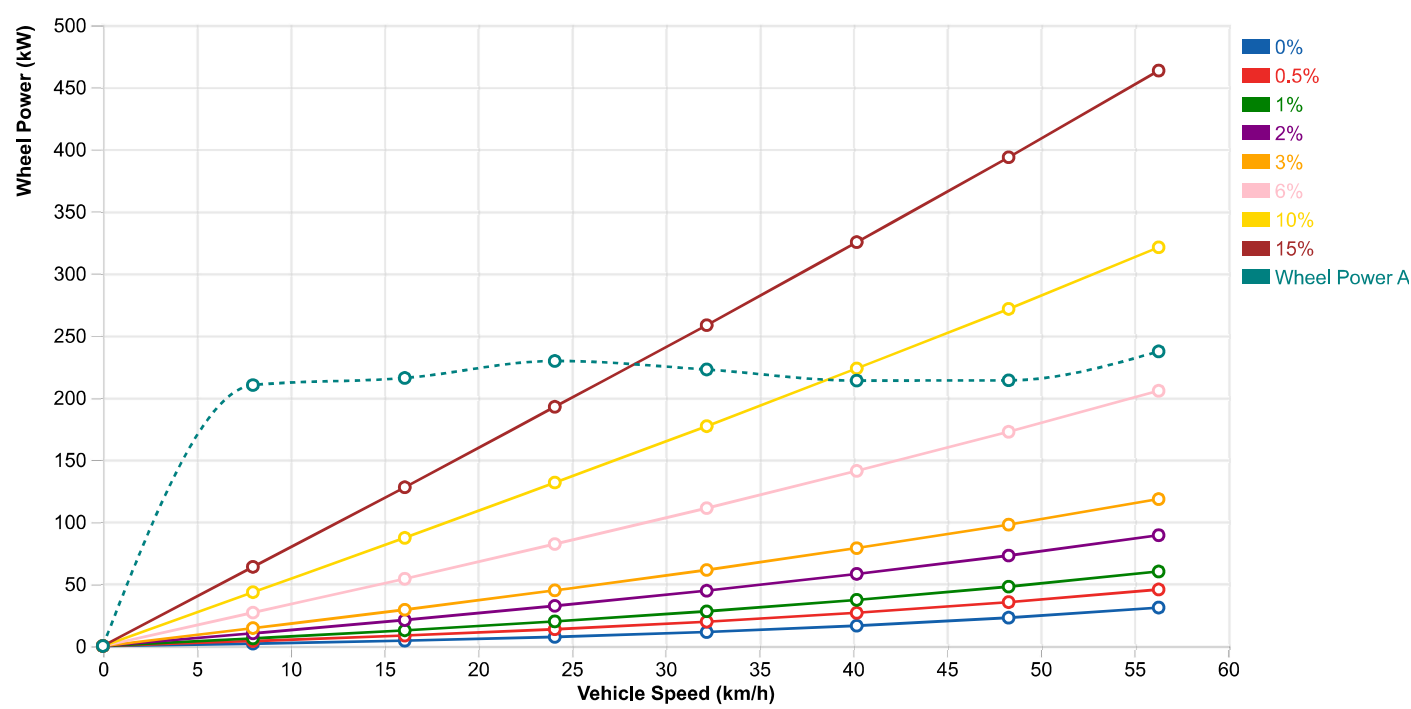


WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STANDARD

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Vehicle Speed (km/h)	Wheel Power Available (kW)	0%	0.5%	1%	2%	3%	6%	10%	15%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.0	210.1	1.9	4.0	6.1	10.2	14.4	26.9	43.3	63.7
16.1	215.8	4.3	8.4	12.6	20.9	29.2	54.1	87.1	127.8
24.1	229.5	7.3	13.5	19.8	32.3	44.8	82.1	131.6	192.6
32.2	222.6	11.2	19.6	27.9	44.5	61.2	111.0	177.0	258.3
40.2	213.7	16.3	26.7	37.1	58.0	78.8	141.0	223.5	325.2
48.3	213.9	22.8	35.3	47.8	72.8	97.7	172.5	271.4	393.5
56.3	237.2	30.9	45.5	60.0	89.2	118.3	205.5	321.0	463.3

PLOTS - WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STANDARD POW

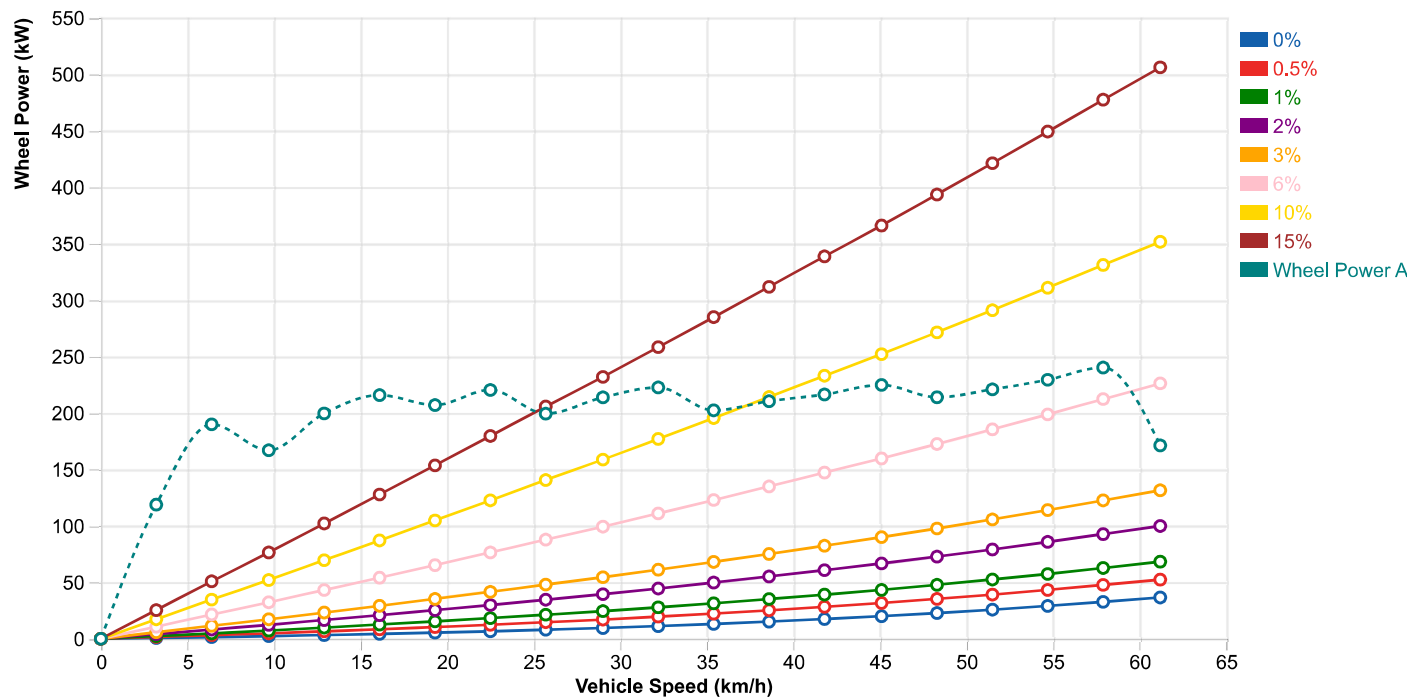


WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STANDARD POW

Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.5	Auxiliary Gearing Ratio	2.15

Vehicle Speed (km/h)	Wheel Power Available (kW)	0%	0.5%	1%	2%	3%	6%	10%	15%
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.2	118.8	0.7	1.6	2.4	4.1	5.7	10.7	17.3	25.4
6.4	189.9	1.5	3.2	4.8	8.2	11.5	21.5	34.7	50.9
9.7	167.0	2.3	4.8	7.3	12.3	17.3	32.3	52.1	76.5
12.9	199.6	3.3	6.6	9.9	16.6	23.2	43.2	69.6	102.1
16.1	215.8	4.3	8.4	12.6	20.9	29.2	54.1	87.1	127.8
19.3	207.0	5.4	10.4	15.4	25.4	35.3	65.2	104.8	153.6
22.5	220.4	6.6	12.4	18.3	29.9	41.6	76.5	122.6	179.6
25.7	199.4	8.0	14.7	21.3	34.6	48.0	87.8	140.6	205.7
29.0	213.8	9.5	17.0	24.5	39.5	54.5	99.3	158.7	231.9
32.2	222.6	11.2	19.6	27.9	44.5	61.2	111.0	177.0	258.3
35.4	202.3	13.1	22.3	31.4	49.8	68.1	122.9	195.5	284.9
38.6	210.4	15.2	25.2	35.2	55.2	75.1	134.9	214.1	311.7
41.8	216.4	17.5	28.3	39.1	60.8	82.4	147.2	233.0	338.7
45.1	224.8	20.0	31.7	43.3	66.7	90.0	159.7	252.1	366.0
48.3	213.9	22.8	35.3	47.8	72.8	97.7	172.5	271.4	393.5
51.5	220.9	25.8	39.1	52.5	79.1	105.7	185.5	291.0	421.2
54.7	229.4	29.1	43.3	57.4	85.8	114.0	198.7	310.9	449.2
57.9	240.2	32.7	47.7	62.7	92.7	122.6	212.3	331.1	477.5
61.2	171.3	36.6	52.4	68.3	99.9	131.5	226.2	351.6	506.1

PLOTS - WHEEL POWER REQUIRED ON GRADE - STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STAND▲



Transmission Converter Cooling Test Point Summary

MISSION

End User	xxx
Selected Vocation	Military — Wheeled - Tactical — Straight Truck (52-25-10)

PLATFORM ▲	
Vehicle Manufacturer	Unknown - Europe/ME/SA - Germany (Europe/ME/SA)
Vehicle Model	UAT-4
Vehicle Configuration	4x4 MRAP
Engine Description	Cummins ISL9 (Diesel) -- 298kW@2100rpm 1550Nm@1100-1400rpm -- without SEM/LRTP (116-L033736-E, Rev A)
Transmission	3200 SP Retarder (1-L007346-T, Rev E)
Transmission Rating	3200 SP Retarder Specialty/Military - Diesel Allison 6th Generation Controls without SEM/LRTP (1-L022117-R, Rev C)
Vehicle Parameters	Standard
Torque Converter	TC421 (1-L001255-TC, Rev C) Unacceptable
Transmission Retarder	3000 Series Medium Capacity (1-L001293-TR, Rev A)
LRTP Status	

NOTE	
This SCAAN information is subject to the SCAAN Disclaimer set forth elsewhere.	
The information presented in this report is intended to aid with the performance of Transmission Cooling Tests as described in TD-157 for On-Highway and On/Off-Highway Commercial transmissions and TD-165 for Off-Highway transmissions.	
Cooling test should be conducted at 38°C (100°F) ambient temperature. If the vehicle will be operated in an area with an average ambient temperature greater than 38°C (100°F), then conduct the test at the LAT (Limiting Ambient Temperature) as defined in TD157 or TD165.	
If Air Conditioning losses have been defined in the iSCAAN Application, the results below should be used with Fan ON if the air conditioning condenser is located in front of the engine radiator. If the air conditioning condenser is located elsewhere, use the Fan OFF results.	

COOLING TEST (GEAR F4)-STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 0.950, STANDARD POWER CURVE ▲											
Engine Fan		On				Air Conditioning		Off			
Engine Power		Standard Power Curve				Vehicle Parameters		Standard			
Axle Ratio		5.500				Auxiliary Gearing Ratio		0.950			
Limiting Ambient Temp		37.778 °C				End User Sub Region					
Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Speed Ratio	Turbine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Heat Rejection (kW)	Match Point
F4	52.4	2061	0.634	1307	1307	13.51	11.67	196.7	6.28	59.42	80% Converter Efficiency

COOLING TEST (GEAR F4)-STANDARD, FAN ON, AC OFF, AXLE RATIO = 5.500, AUX RATIO = 2.150, STANDARD POWER CURVE ▲			
Engine Fan	On	Air Conditioning	Off
Engine Power	Standard Power Curve	Vehicle Parameters	Standard
Axle Ratio	5.500	Auxiliary Gearing Ratio	2.150
Limiting Ambient Temp	37.778 °C	End User Sub Region	

Gear Range	Vehicle Speed (km/h)	Engine Speed (rpm)	Speed Ratio	Turbine Speed (rpm)	Output Speed (rpm)	Tractive Effort (kN)	Drawbar Pull (kN)	Wheel Power Available (kW)	Net Grade (%)	Heat Rejection (kW)	Match Point
F4	23.2	2061	0.634	1307	1307	30.58	29.51	196.7	16.04	59.42	80% Converter Efficiency