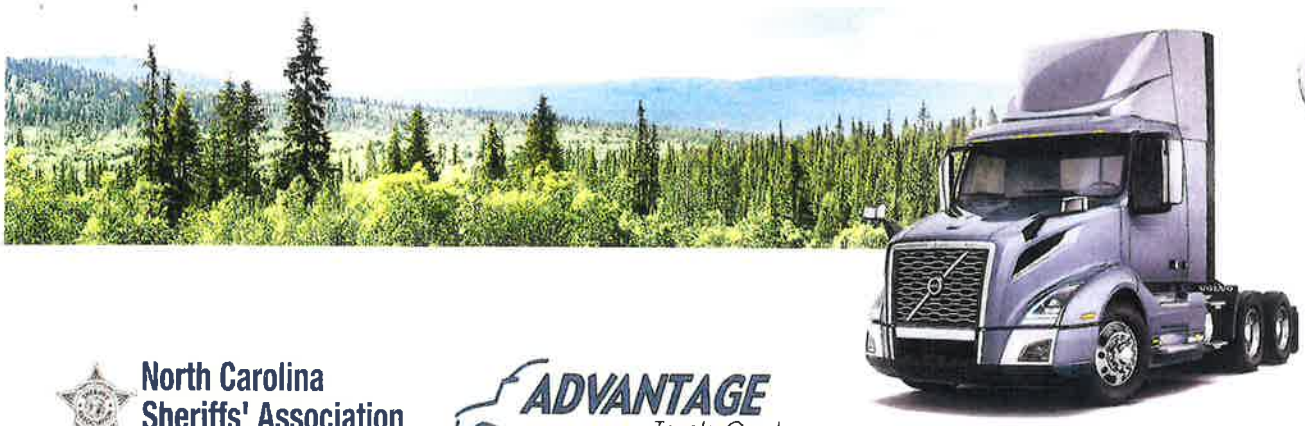


North Carolina Sheriffs' Association
Proudly Serving the Sheriffs and Citizens of North Carolina since 1922

ADVANTAGE Truck Center

TECHNICAL SPECIFICATION

VNL42300 Daycab

VEHICLE ADAPTATION		DESCRIPTION
S	TRAILER TYPE	WITHOUT TRAILER TYPE

PASSIVE AND ACTIVE SAFETY		DESCRIPTION
S	CAB VERSION	DAY CAB

ENGINE		DESCRIPTION
S	ENGINE PACKAGE	VOLVO D13 405HP 2100RPM 1450 LBFT - EPA'21 EMISSION LEVEL

TRANSMISSION		DESCRIPTION
S	TRANSMISSION PACKAGE	VOLVO 12 SPEED I-SHIFT AT2612F DIRECT DRIVE

PROGRAMMABLE FEATURES		DESCRIPTION
S	VEHICLE OVERSPEED,ALL COND,LOG	VEHICLE OVERSPEED,ALL COND, TIME LOG IF ABOVE 87MPH (140KMH)

FRONT AXLE		DESCRIPTION
S	FRONT AXLE PACKAGE	VOLVO VF12 12,000 LB FRONT SPRINGS

REAR AXLE		DESCRIPTION
S	REAR AXLE PACKAGE	DANA SPICER S23-175 23,000 LB CAPACITY
S	REAR AXLE RATIO	2.47 REAR AXLE RATIO

TIRES AND WHEELS FRONT		DESCRIPTION
S	TIRE PACKAGE FRONT	295/75R22.5G BRIDGESTONE R284 ECOPIA (12350 LBS. GAWR) LONG / REGIONAL HAUL (Total for QTY = 2)

TIRES AND WHEELS REAR		DESCRIPTION
S	TIRE PACKAGE REAR	295/75R22.5G BRIDGESTONE M713 ECOPIA (22700 LBS. GAWR) LONG / REGIONAL HAUL (Total for QTY = 4)

VOLVO

Inputs Required	Inputs	UOM
Vehicle Type	Aero Muscle Hood - Roof Fairing (0.60)	MPH
Performance Level	>67 MPH / >108KPH	MPH
Frontal Area	110.0	FEET²
Accessory Power Loss	11.0	HP

VEHICLE SPECIFICATION SUMMARY		
Model		VNL42300
Gross Combination Weight		NO GROSS COMBINATION WEIGHT PROVIDED
Vehicle Application		ON HIGHWAY, STARTING GRADES <16%
Body/Trailer Type		TRUCK / DRY VAN BODY
Loading/Unloading Surface Type		CONCRETE LOADING AND / OR UNLOADING SURFACE
Engine		VOLVO D13 405HP 2100RPM 1450 LBFT - EPA'21 EMISSION LEVEL
Peak Power	HP	415.0 @ 1500 - 1700
Peak Torque	Newton Meters	2032 @ 1000
Transmission		VOLVO 12 SPEED I-SHIFT AT2612F DIRECT DRIVE
Rear Axle		DANA SPICER S23-175 23,000 LB CAPACITY
Rear Axle Ratio		2.47
Rear Tire		295/75R22.5G BRIDGESTONE M713 ECOPIA (22700 LBS. GAWR) LONG / REGIONAL HAUL
Tire Revolutions per	Mile	513
Total Reduction		2.47

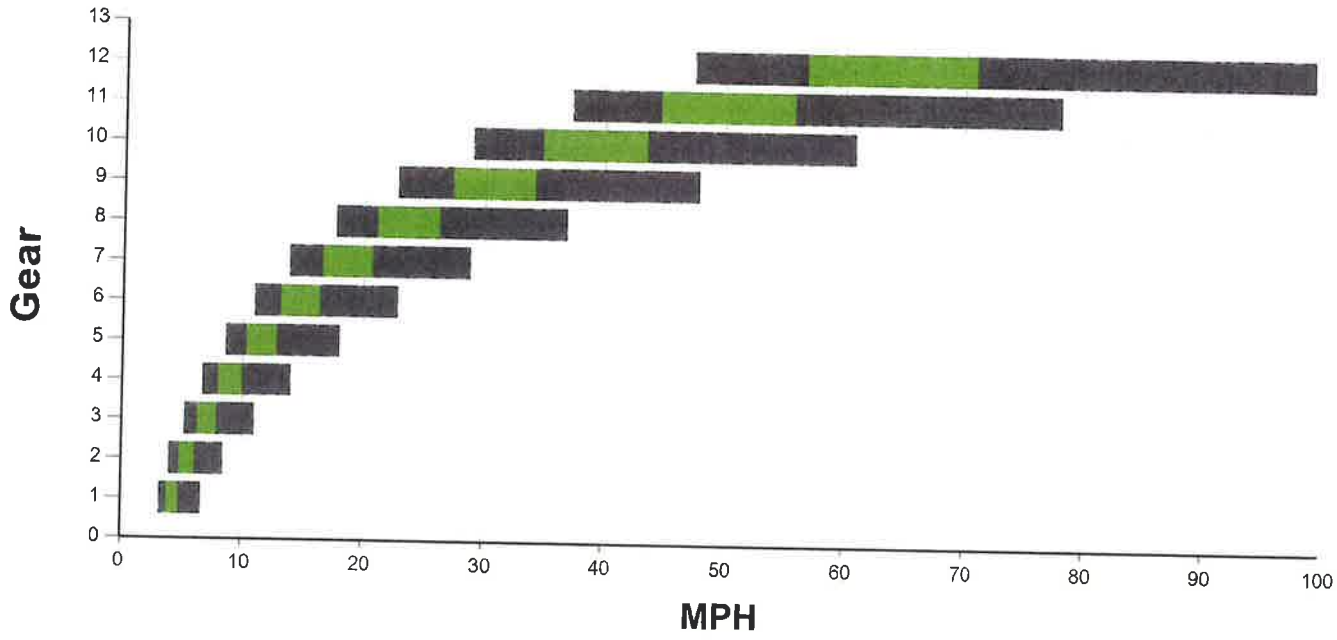
CALCULATED PERFORMANCE SUMMARY	Speed	UOM	RPM	Desired / Recommended Value	Status
Engine RPM @ 65 MPH	65.2	MPH	1378		
Engine RPM @ Desired Cruise Speed	68.4	MPH	1443	1200 - 1500 rpm	OK
Engine RPM @ Road Speed Limit (RSL)	68.4	MPH	1443	< 2100 rpm	OK
Sweet Spot Cruise Speed Range in Top Gear	56.8 - 71.0	MPH	1200 - 1500		
Top Gear Speed Range	47.4 - 99.5	MPH	1000 - 2100	74.6 MPH	OK
Minimum Practical Speed In Reverse	1.6	MPH	600		
Maximum Practical Speed in Reverse	5.7	MPH	2100		
Minimum Practical Speed In Lowest Forward Gear	1.9	MPH	600		
Maximum Practical Speed In Lowest Forward Gear	6.7	MPH	2100		

	Concrete / Asphalt	UOM
Wheel HP Required at (65 MPH) Cruise Speed	189.8 / 200.9	HP
Wheel HP Required at (75 MPH) Road Speed Limit	189.8 / 200.9	HP
Wheel HP Required at (92 MPH) Top Speed	510.4 / 529.7	HP

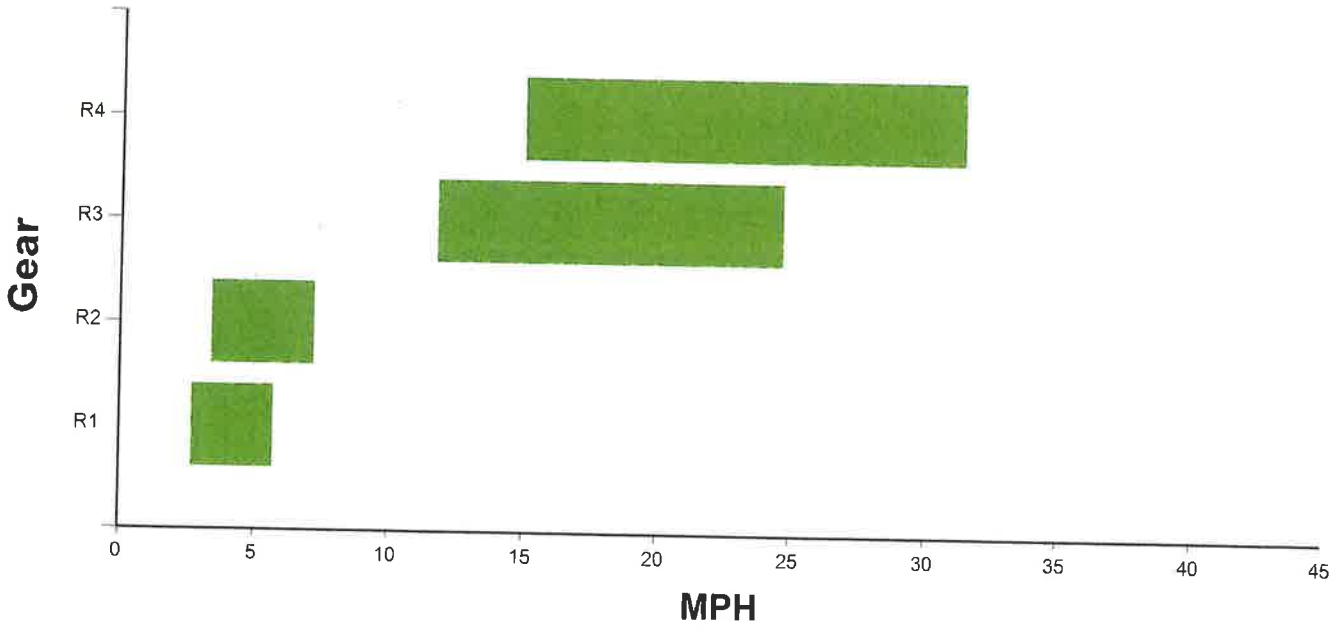
VEHICLE SPECIFICATION SUMMARY			
Gradeability		**Recommended Min. Gradeability in Top Gear**	
Maximum in Top Gear (Concrete)	4.5%	0.0%	OK
Maximum in Top Gear (Asphalt)	4.4%	0.0%	OK
Startability		**Recommended Min. Startability**	
In Lowest Gear	50.0%	16.0%	OK
Loading/Unloading Surface Type	CONCRETE LOADING AND / OR UNLOADING SURFACE		
		Recommended Speed on 1.5% Grade	
Speed on a 1.5% Grade (Concrete)	79.3 MPH	>67 MPH	OK
	@1675 rpm in 12th gear	PL5	
Suggested Value for Gear Down Vehicle Speed	RSL - 10		
Driveability Rating	**Status**		
100% Max Power available after shift	CAUTION!		
>95% Very Good >90% Acceptable			

Performance Level	Recommended Speed on 1.5% Grade	Min. Gradeability in Top Gear
PL5 - High Performance	>67 MPH	1.9%
PL4 - Performance	61 - 67 MPH	1.7%
PL3 - Economy	54 - 60 MPH	1.5%
PL2 - Fleet / Construction	47 - 53 MPH	1.3%
PL1 - Heavy Haul	40 - 46 MPH	1.1%

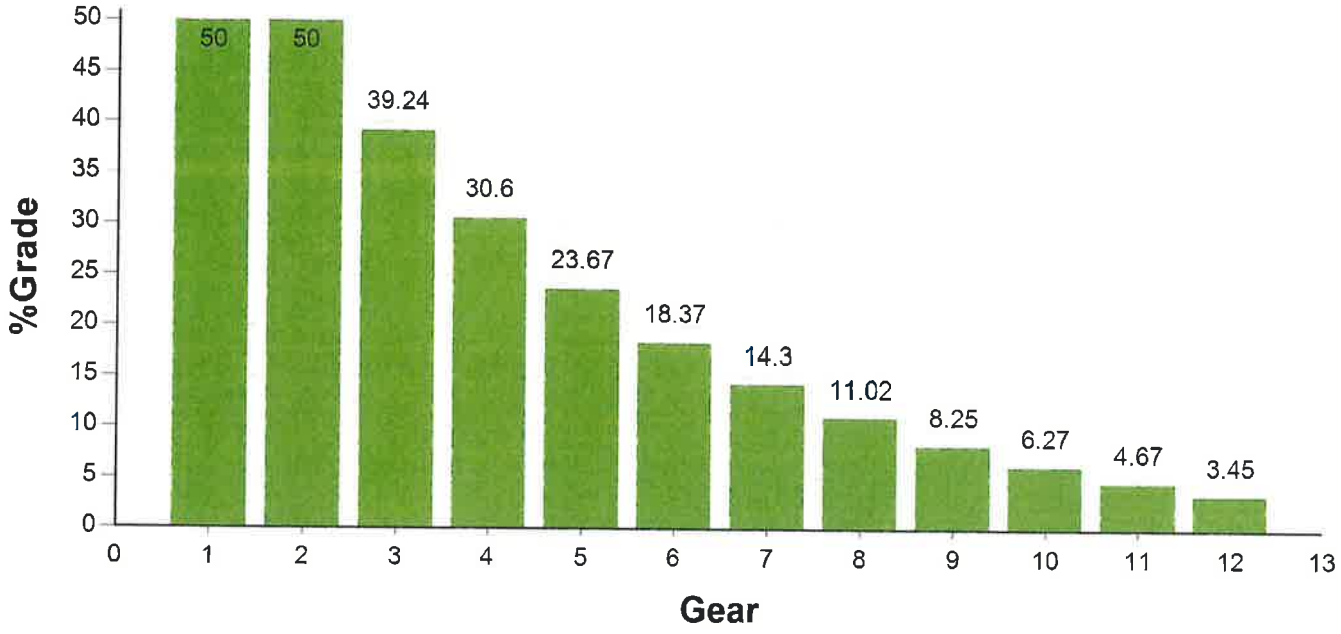
Forward Geared Speed



Reverse Geared Speed

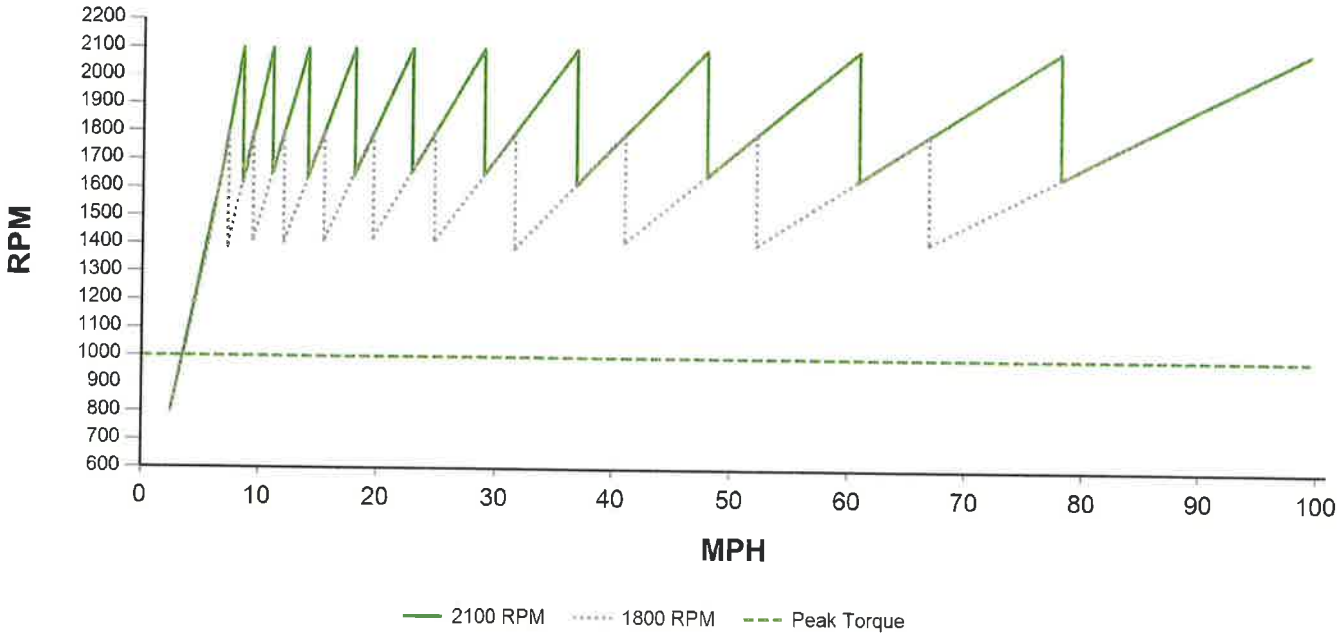


Startability

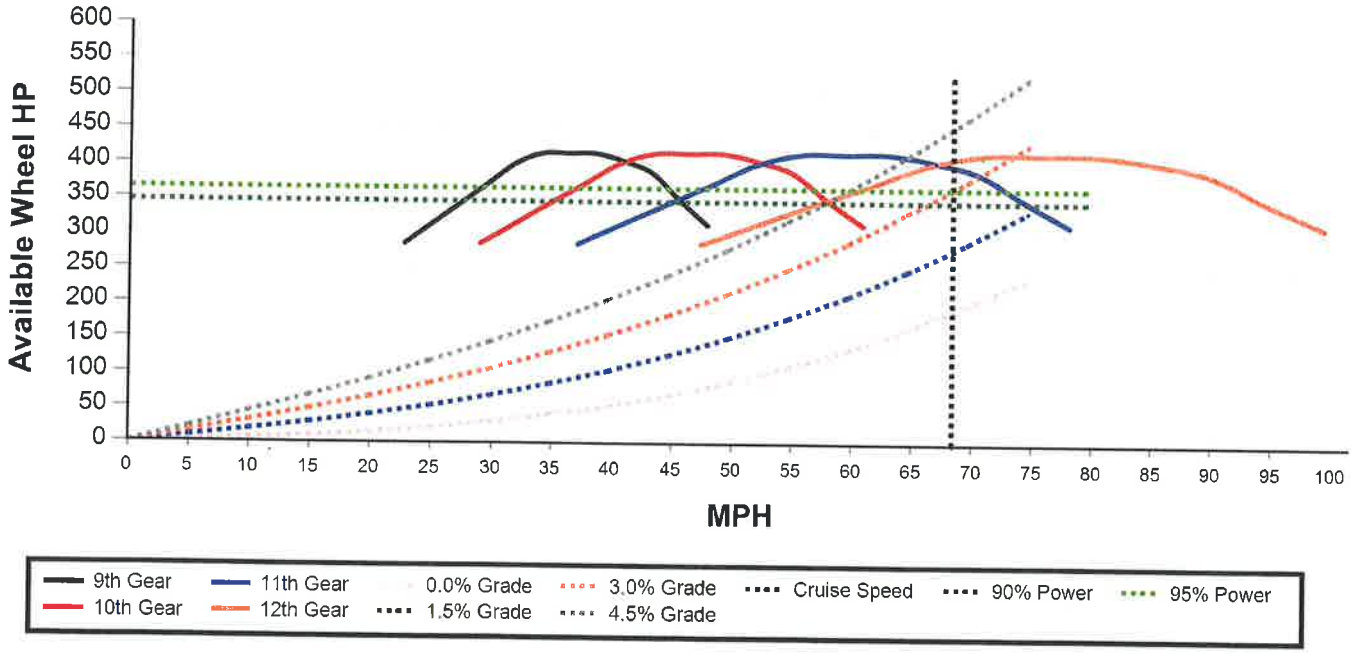


Gradeability at Max Torque

Shift Chart



Horsepower VS. Speed



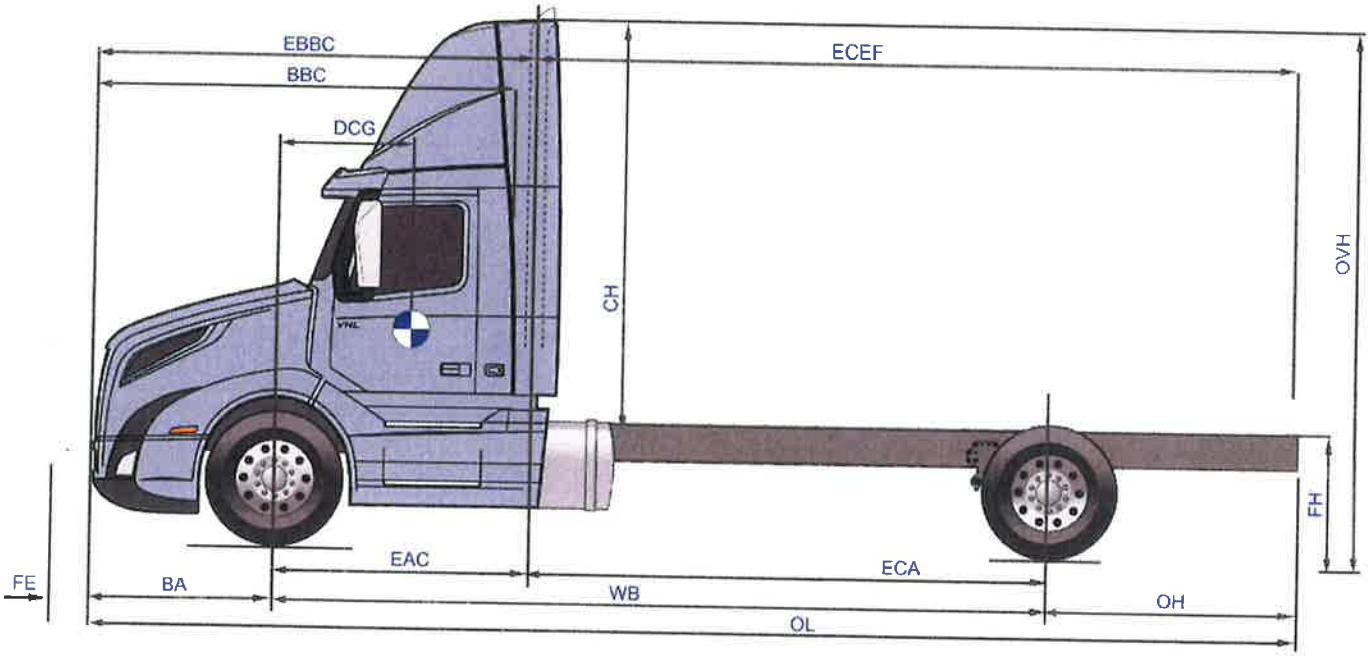
RPM at 65 MPH

RPM at Cruise Speed

	MPH	RPM
Minimun of Engine Range	47.4	1000.00
Minimum of Economy Range	56.8	1200.00
Cruise Speed	68.4	1443.18
Maximum of Economy Range	71.0	1500.00
Road Speed Limit	68.4	1443.18
Maximum of Engine Range	99.5	2100.00

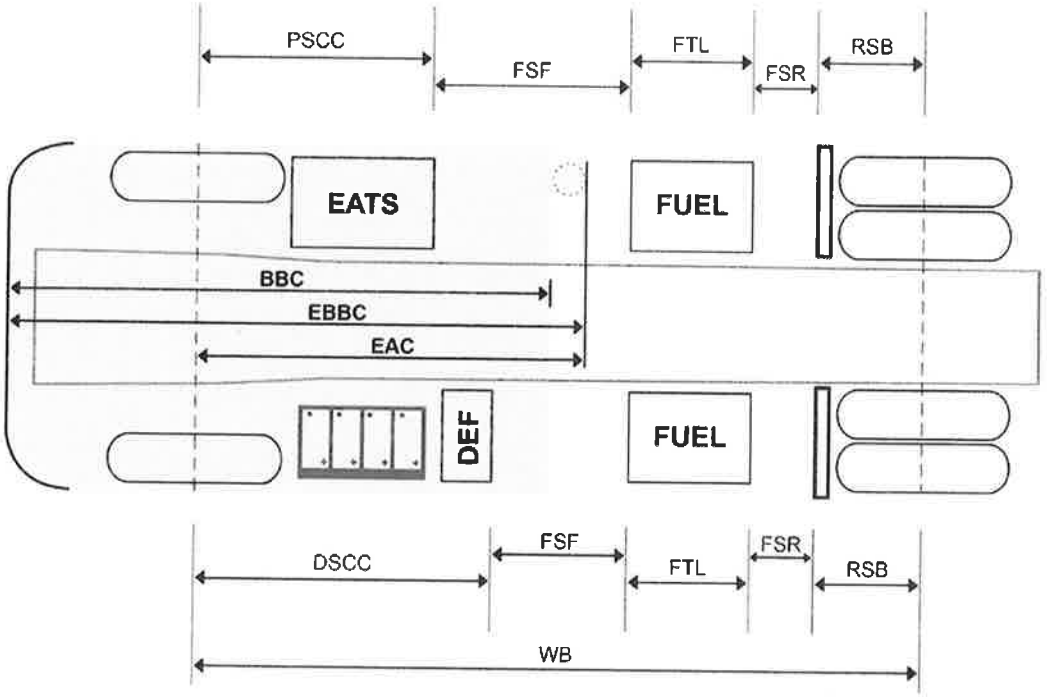
VOLVO

VEHICLE SPECIFICATION/CALCULATED PERFORMANCE SUMMARY				
Description	Sales Code	Dwg Ref	Length	UOM
Front Frame Extension	N/A	FE	0.0	INCHES
Bumper to Front Axle	N/A	BA	53.7	INCHES
Wheelbase	N/A	WB	155.5	INCHES
Rear Overhang	N/A	OH	33.3	INCHES
Overall Length	N/A	OL	242.5	INCHES
Bumper to Back of Cab	N/A	BBC	124.0	INCHES
Eff. Bumper to Back of Cab	N/A	EBBC	124.0	INCHES
Eff. Cab to Rear Axle	N/A	ECA	85.2	INCHES
Eff. Front Axle to Back of Cab	N/A	EAC	70.3	INCHES
Eff. Cab to End of Frame	N/A	ECEF	118.5	INCHES
Unladen 5th Wheel Height	E5BZ1X	5W	0.0	INCHES
Unladen Frame Height	N/A	FH	39.0	INCHES
Cab Height	N/A	CH	75.0	INCHES
Overall Height	N/A	OVH	114.0	INCHES
Driver CG	N/A	DCG	50.0	INCHES
Second Front Axle Spacing		SFAS	0.0	INCHES



VOLVO

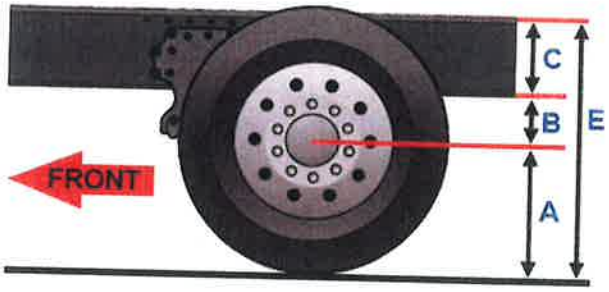
VEHICLE SPECIFICATION/CALCULATED PERFORMANCE SUMMARY				
Description	Sales Code	Dwg Ref	Left Value(in)	Right Value(in)
Wheelbase	N/A	WB	155.5	155.5
Bumper to Back of Cab	N/A	BBC	124.0	124.0
Eff. Bumper to Back of Cab	N/A	EBBC	124.0	124.0
Eff. Front Axle to Back of Cab	N/A	EAC	70.3	70.3
LEFT HAND BATTERY BOX - 4 CAPACITY, DEF TANK MOUNTED BEHIND BATTERY BOX (VNL / VNR)	3XBHAX	DSCC	78.5	N/A
INTEGRATED DPF & SCR (VNR / VNL / VHDB)	3YBAFX	PSCC	N/A	75.2
Frame Space Front	N/A	FSF	0.9	0.0
75 GALLON LEFT HAND FUEL TANK / NO RIGHT HAND DIESEL TANK PROVIDED	J8XB1X / J9XK1X	FTL	36.0	0.0
Frame Space Rear	N/A	FSR	12.6	52.8
20,000 LB VOLVO AIR SUSPENSION	350407	RSB	27.5	27.5



Top View image is intended for illustration purposes only and is not presented to scale. Wheelbase, Axle Spacing and After frame are not shown as specified, but are a representation. Customer Adaptation (CA) options and relocated components are not represented in these images. Most CA options impact the variation of the image, thus an image may not populate. Calculations are approximate to a tolerance of ± 4 inches due to component mounting variation. Certain chassis component options are NOT represented in the Top View image, such as, but not exclusive to, Front Frame Extensions, Fuel Water Separators, Air Dryers, PTOs, Fifth Wheels, Chassis Fairings, Toolboxes, Trailer Connections. For further information on these items and their respective locations on your specification, please refer to the data sheets associated with those items in the configurator.

VOLVO

VEHICLE SPECIFICATION/CALCULATED PERFORMANCE SUMMARY					
			Rear		
Description	Sales Code	Dwg Ref	Unladen	Laden	UOM
Requested Fifth Wheel Height	E5BZ1X		0.0	0.0	INCHES
Tire Radius	0940A1	A	20.2	18.9	INCHES
Suspension Height	350407	B	8.3	8.0	INCHES
Frame Depth	403002	C	10.5	10.5	INCHES
Closest Available Fifth Wheel Leg Height	N/A	D	0.0	0.0	INCHES
Total Height	N/A	E	39.0	37.4	INCHES



VOLVO

VEHICLE SPECIFICATION/CALCULATED PERFORMANCE SUMMARY				
Description	Sales Code	Dwg Ref	Length	UOM
SAE Turning Radius	N/A	A*	21.9	FEET
Adjusted Turning Radius	N/A	A	22.3	FEET
Curb-to-Curb Diameter	N/A	B	45.7	FEET
Wall-to-Wall Diameter	N/A	C	49.8	FEET

Tests have shown that the true location of the turning center is further to the rear than midway between drive axle sets (where applicable)

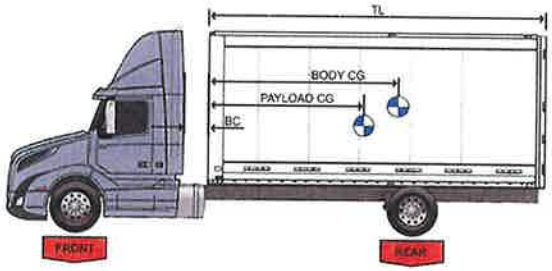
The actual location of the turning center depends on:

- Whether the drive tire equipment is single or dual.
- The overall load distribution for the vehicle (front/rear, between drive axles) in a loaded condition
- Manufacturing tolerances within the steering components

VOLVO

Inputs Required	Inputs	UOM
Driver Weight	201	LB
Total Body Length	16.4	FEET
Body Tare Weight	3501	LB
Front of Body to Body CG	96.0	INCHES
Additional Clearance from Back of Exhaust to Front of Body	6.0	INCHES

VEHICLE SPECIFICATION SUMMARY				
Description	Description	Dwg Ref	Length	UOM
Bumper to Front Axle	N/A	BA	53.7	INCHES
Wheelbase	N/A	WB	155.5	INCHES
Rear Overhang	N/A	OH	33.3	INCHES
Bumper to Back of Cab	N/A	BBC	124.0	INCHES
BOC Exhaust Space	230048	N/A	0.0	INCHES
Driver CG from Front Axle	N/A	DCG	50.0	INCHES
First Pusher Axle Spacing			0.0	INCHES



CALCULATED PERFORMANCE SUMMARY				
Tare Weights	Front Axle	Rear Axle (s)	Total	UOM
Chassis	8382	3415	11797	LB
Driver	137	65	201	LB
Fuel	192	322	513	LB
Body/Trailer	-378	3880	3501	LB
Total Tare	8331	7681	16012	LB
Payloads				
First Body Payload	-1730	17720	15989	LB
Total - Lift Axles Down	6600	25400	32000	LB
GAWR	12000	20000	32000	LB

VOLVO

VEHICLE SPECIFICATION/CALCULATED PERFORMANCE SUMMARY				
Sub-Category	Sales Code	Sales Code Description	Value	UOM
Front Axle	370400	VOLVO VF12 12,000 LB FRONT SPRINGS	12500	LB
Front Suspension	370400	VOLVO VF12 12,000 LB FRONT SPRINGS	12000	LB
Front Tires	093879	295/75R22.5G BRIDGESTONE R284 ECOPIA (12350 LBS. GAWR) LONG / REGIONAL HAUL	12350	LB
Front Wheels	084548	22.5X8.25 ALCOA ULTRA ONE CLEAN BUFF ALUMINUM 286BC HUB PILOTED	14800	LB
		Front GAWR	12000	LB
Rear Axle	330723	DANA SPICER S23-175 23,000 LB CAPACITY	23000	LB
Rear Suspension	350407	20,000 LB VOLVO AIR SUSPENSION	20000	LB
Rear Tires	0940A1	295/75R22.5G BRIDGESTONE M713 ECOPIA (22700 LBS. GAWR) LONG / REGIONAL HAUL	22700	LB
Rear Wheels	085548	22.5X8.25 ALCOA ULTRA ONE CLEAN BUFF ALUMINUM 286BC HUB PILOTED	29600	LB
		Rear GAWR	20000	LB
		Truck GVWR	32000	LB
		Gross Combination Weight Rating	0	LB
		Tax Value GVWR (USA FET Only)	32000	LB

Volvo Trucks. Driving Progress