

TECHNICAL DATA

SI* METRIC INFORMATION GUIDE

BASE UNITS			
DESCRIPTION	UNIT	SYMBOL	
length	meter	m	
mass	kilogram	kg	
force	newton	N	
liquid	liter	L	
temperature	Celsius	°C	
pressure	kilopascal	kPa	
torque	newton•meter	N•m	
speed	kilometer per hour	km/h	
PREFIXES			
PREFIX	SYMBOL	MEANING	VALUE
kilo	k	one thousand	1 000
centi	c	one hundredth	0.01
milli	m	one thousandth	0.001
micro	μ	one millionth	0.000001
CONVERSION FACTORS			
TO CONVERT	TO †	MULTIPLY BY	
in	mm	25.4	
in	cm	2.54	
in ²	cm ²	6.45	
in ³	cm ³	16.39	
ft	m	0.3	
oz	g	28.35	
lb	kg	0.45	
lbf	N	4.4	
lbf•in	N•m	0.11	
lbf•ft	N•m	1.36	
lbf•ft	lbf•in	12	
PSI (lbf/in ²)	kPa	6.89	
imp. oz	U.S. oz	0.96	
imp. oz	mL	28.41	
imp. gal	U.S. gal	1.2	
imp. gal	L	4.55	
U.S. oz	mL	29.57	
U.S. gal	L	3.79	
MPH	km/h	1.61	
Fahrenheit	Celsius	(°F - 32) ÷ 1.8	
Celsius	Fahrenheit	(°C × 1.8) + 32	






* The international system of units abbreviates SI in all languages.

† To obtain the inverse sequence, divide by the given factor. To convert mm to in, divide by 25.4.

NOTE: Conversion factors are rounded off to 2 decimals for easier use.






Section 10 TECHNICAL DATA

Subsection 02 (ENGINES)

VEHICLE MODEL		TUNDRA R	SKANDIC LT		
ENGINE TYPE		277	443		
	Number of Cylinders		1	2	
	Bore	mm (in)	72.00 (2.835)	67.5 (2.6575)	
	Stroke	mm (in)	66.00 (2.598)	61.0 (2.402)	
	Displacement	cm ³ (in ³)	268.7 (16.40)	436.6 (26.64)	
	Compression Ratio (corrected)		6.4		
	Maximum Power Engine Speed ①		± 100 RPM 6900		
	Piston Ring Type		1 st /2 nd ST/R		
	Ring End Gap	(new) mm (in) (wear limit) mm (in)	0.25 (.010) 1.0 (.039)	0.2 (.008) 1.0 (.039)	
	Ring/Piston Groove Clearance	(new) mm (in) (wear limit) mm (in)	0.025 (.001) 0.2 (.008)	0.04 (.0016) 0.2 (.0079)	
	Piston/Cylinder Wall Clearance	(new) ± 0.016 mm (± .0006 in) (wear limit) mm (in)	0.080 (.0031) 0.2 (.008)	0.080 (.0031) ⑨ 0.2 (.008)	
	Connecting Rod Big End Axial Play	(new) mm (in) (wear limit) mm (in)	0.20 (.0079) 1.0 (.0394)		
	Max. Crankshaft End-Play ②		mm (in) 0.3 (.012)		
	Max. Crankshaft Deflection Measured at PTO		mm (in) 0.08 (.0031)		
		Magneto Generator Output		W 240	
Ignition Type		CDI			
Spark Plug Make and Type		NGK BR9ES			
Spark Plug Gap		± 0.05 mm (± .002 in) 0.45 (.018)			
Ignition Timing BTDC ④ ⑧		mm (in)	3.61 (.142)	2.79 (.110)	
Trigger Coil Air Gap		mm (in)	0.50 – 0.70 (.020 – .028)	0.45 – 0.55 (.018 – .022)	
Trigger Coil ⑤		Ω	160 – 180		
Generating Coil ⑤		Ω	5.1 – 6.2		
Lighting Coil ⑤		Ω	0.17 – 0.21		
High Tension Coil ⑤		Primary Ω Secondary kΩ	N.A. 0.9 – 1.1		
	Carburetor Type		PTO/MAG 1 x VM 34	PTO/MAG 1 x VM 32-19121	
	Main Jet		200		
	Needle Jet		159 0-8		
	Pilot Jet		40		
	Needle Identification — Clip Position		6DH4		
	Slide Cut-Away		2.5		
	Float Adjustment		± 1 mm (± .040 in) 23.9 (.94)		
	Air Screw Adjustment		± 1/16 Turn 1		
	Idle Speed RPM		± 200 RPM 1650		
	Gas Type/Pump Octane Number		Unleaded/87		
	Gas/Oil Ratio		Injection		
	Type		Radial fan	Axial fan	
	Axial Fan Belt Adjustment	Deflection	mm (in)	N.A.	9 – 10 (.35 – .39)
		Force ⑥	kg (lbf)	N.A.	5 (11)
	Thermostat Opening Temperature		°C (°F) N.A.		
Radiator Cap Opening Pressure		kPa (PSI) N.A.			
	ENGINE COLD N•m (lb•ft)	Drive Pulley Retaining Screw		⑦	⑩
		Exhaust Manifold Nuts or Bolts		25 (18)	22 (16)
		Magneto Ring Nut		100 (73.34)	
		Crankcase Nuts or Screws		M6 —	9 (6.5)
				M8 22 (16)	22 (16)
		Crankcase/Engine Support Nuts or Screws		21 (15)	
		Cylinder Head Nuts		26 (19)	
		Crankcase/Cylinder Nuts or Screws		N.A.	
Axial Fan Shaft Nut		N.A.			
		48 (35)			





Section 10 TECHNICAL DATA

Subsection 02 (ENGINES)

VEHICLE MODEL		SKANDIC WT	SKANDIC WT LC			
ENGINE TYPE		503	593			
	Number of Cylinders		2			
	Bore	mm (in)	72.0 (2.835)	76.00 (2.992)		
	Stroke	mm (in)	61.0 (2.402)	65.8 (2.591)		
	Displacement	cm ³ (in ³)	496.7 (30.31)	597.0 (36.43)		
	Compression Ratio (corrected)		6.2	6.7		
	Maximum Power Engine Speed ①		± 100 RPM	6750	7000	
	Piston Ring Type		1 st /2 nd	ST/R	ST	
	Ring End Gap	(new) mm (in) (wear limit) mm (in)	0.2 (.0079) 1.0 (.039)	0.4 (.016) 1.0 (.039)		
	Ring/Piston Groove Clearance	(new) mm (in) (wear limit) mm (in)	0.04 (.0016) 0.2 (.0079)			
	Piston/Cylinder Wall Clearance	(new) ± 0.016 mm (± .0006 in) (wear limit) mm (in)	0.9 (.0035) 0.2 (.0079)	0.12 (.0047) 0.2 (.0079)		
	Connecting Rod Big End Axial Play	(new) mm (in) (wear limit) mm (in)	0.2 (.0079) 1.0 (.0394)	0.39 (.0154) 1.2 (.0472)		
	Max. Crankshaft End-Play ②		mm (in)	0.3 (.012)		
	Max. Crankshaft Deflection Measured at PTO		mm (in)	0.06 (.0024)	0.08 (.0031)	
		Magneto Generator Output		W	240	290
Ignition Type		CDI				
Spark Plug Make and Type		NGK BR9ES	NGK BR9ECS			
Spark Plug Gap		± 0.05 mm (± .002 in)	0.45 (.018)	0.5 (.02)		
Ignition Timing BTDC ④ ⑧		mm (in)	1.66 (.065)	3.00 (.118)		
Trigger Coil Air Gap		mm (in)	0.45 – 0.55 (.018 – .021)	0.55 – 1.45 (.022 – .057)		
Trigger Coil ⑤		Ω	140 – 180	190 – 300		
Generating Coil ⑤		Ω	230 – 330	11.6 – 21.6		
Lighting Coil ⑤		Ω	0.23 – 0.28	0.10 – 0.40		
High Tension Coil ⑤	Primary	Ω	N.A.	0.3 – 0.7		
	Secondary	kΩ	5.1 – 6.3	8 – 16.5		
	Carburetor Type		PTO/MAG	2 x VM 34-19084	2 x VM 38-19111	
	Main Jet		PTO/MAG	185	330	
	Needle Jet			159 P-1	480 P-9	
	Pilot Jet			40		
	Needle Identification — Clip Position			6DH2-3	6FL14-5	
	Slide Cut-Away			2.5		
	Float Adjustment		± 1 mm (± .040 in)	23.9 (.937)	18.1 (.710)	
	Air Screw Adjustment		± 1/16 Turn	1-1/4	1-1/2	
	Idle Speed RPM		± 200 RPM	1650	1900	
	Gas Type/Pump Octane Number			Unleaded/87		
	Gas/Oil Ratio			Injection		
	Type		Axial fan	Liquid		
	Axial Fan Belt Adjustment	Deflection	mm (in)	9 – 10 (.35 – .39)	N.A.	
		Force ⑥	kg (lbf)	5 (11)	N.A.	
	Thermostat Opening Temperature		°C (°F)	N.A.	42 (108)	
Radiator Cap Opening Pressure		kPa (PSI)	N.A.	100 (14.5)		
	ENGINE COLD N·m (lb·ft)	Drive Pulley Retaining Screw		⑦		
		Exhaust Manifold Nuts or Bolts		22 (16)	23 (17)	
		Magneto Ring Nut		105 (77)	125 (92)	
		Crankcase Nuts or Screws		M6	9 (6.5)	23 (17)
		Crankcase/Engine Support Nuts or Screws		M8	39 (29)	35 (26)
		Cylinder Head Nuts			22 (16)	29 (21)
		Crankcase/Cylinder Nuts or Screws			N.A.	29 (21)
		Axial Fan Shaft Nut			48 (35)	N.A.




Section 10 TECHNICAL DATA

Subsection 03 (VEHICLES)

	VEHICLE MODEL	TUNDRA R	SKANDIC LT	
	ENGINE TYPE	277	443	
	Chain Drive Ratio	14/25	17/44	
	Chain	Pitch in	1/2	3/8
		Type/Links Qty/Plates Qty	Single/62	Silent 70/11
	Drive Pulley	Type of Drive Pulley	Bombardier Lite	Comet
		Ramp Identification	N.A.	U53
		Calibration Screw Position or Calibration Part ①	1143 — 1 x C, 3 x S3.4	—
		Spring Color	Turquoise	Silver/Black
		Spring Length ± 1.5 mm (± .060 in)	85.3 (3.36)	78.99 (3.11)
		Clutch Engagement ± 100 RPM	3000	3200
	Driven Pulley	Type of Driven Pulley	Tundra reverse	LPV27
		Spring Preload ± 0.7 kg (± 1.5 lb)	N.A.	
		Cam Angle degree	37.8	40
	Pulley Distance Z	mm (in)	37.0 ± 0.5 (1.457 ± .020)	39 ± 0.75 (1.535 ± 0.030)
	Offset	X	mm (in)	36.0 ± 0.5 (1.417 ± .020)
		Y - X	MIN. MAX.	1.0 ± 0.5 (.039 ± .020)
	Drive Belt Part Number (P/N)		414 827 600	414 633 800
	Drive Belt Width (new) ②		mm (in)	33.3 (1-5/16)
	Drive Belt Adjustment		Deflection ± 5 mm (± 13/64 in)	32 (1-1/4)
			Force ③	kg (lbf)
	Track	Width	cm (in)	38.1 (15.0)
Length		cm (in)	354 (139)	
Profile Height		mm (in)	18.4 (.724)	
Adjustment		Deflection	mm (in)	35 - 40 (1-3/8 - 1-9/16)
		Force ④	kg (lbf)	40 - 50 (1-9/16 - 1-31/32)
Suspension Type		Track	Torque reaction slide	
		Ski	Telescopic strut	
	Length	cm (in)	284.5 (112)	
	Width	cm (in)	95.3 (37.5)	
	Height	cm (in)	114 (44.9)	
	Ski Stance	cm (in)	81.3 (32.0)	
	Toe-Out and Camber	mm (in) degree	0 (0) 0	
	Mass (dry)	kg (lb)	173 (380)	
	Ground Contact Area	cm ² (in ²)	7570 (1173)	
	Ground Contact Pressure	kPa (PSI)	2.24 (.325)	
	Frame Material	Steel		
	Bottom Pan Material	Polyethylene high density		
	Hood Material	Polyethylene high density	RRIM	
	Battery	V (A•h)	N.A.	
	Headlight	W	H4 60/55	
	Taillight and Stoplight	W	8/27	
	Tachometer and Speedometer Bulb	W	N.A.	
	Fuel and Temperature Gauge Bulb	W	3	
	Fuse	Starter Solenoid	A	N.A.
		Tachometer	A	N.A.
	Fuel Tank	L (U.S. gal)	26 (6.9)	
	Chaincase Gearbox	mL (U.S.oz)	250 (8.5)	
	Cooling System ⑦	L (U.S. oz)	N.A.	
	Injection Oil Reservoir	L (U.S. oz)	1.9 (64)	

Section 10 TECHNICAL DATA

Subsection 03 (VEHICLES)

VEHICLE MODEL		SKANDIC WT	SKANDIC SWT	SKANDIC WT LC	
ENGINE TYPE		503	503	593	
Chain Drive Ratio		N.A.			
Chain	Pitch	in			
	Type/Links Qty/Plates Qty	N.A.			
Drive Pulley	Type of Drive Pulley	TRA			
	Ramp Identification	290 ⑤	290 ⑤	290 ⑥	
	Calibration Screw Position or Calibration Part ①	4	2	4	
	Spring Color	Yellow/Orange	Yellow/Orange	Red/Red	
	Spring Length ± 1.5 mm (± .060 in)	110 (4.331)	110 (4.331)	99 (3.897)	
	Clutch Engagement ±100 RPM	3000	3000	2500	
	Type of Driven Pulley	Cam			
Driven Pulley	Spring Preload ± 0.7 kg (± 1.5 lb)	7.0 (15.4)			
	Cam Angle	degree			
Pulley Distance Z		mm (in)			
Offset	X	mm (in)			
	Y - X	MIN. MAX.			
Drive Belt Part Number (P/N)		414 633 800			
Drive Belt Width (new) ②		mm (in)			
Drive Belt Adjustment	Deflection ± 5 mm (± 13/64 in)	32 (1-1/4)			
	Force ③	kg (lbf)			
Track	Width	cm (in)	50.0 (19.7)	60.0 (23.6)	50.0 (19.7)
	Length	cm (in)	396.8 (156.2)		
	Profile Height	mm (in)	23.5 (.925)	23.5 (.925)	31.8 (1.250)
	Adjustment	Deflection	mm (in)	40 - 50 (1-9/16 - 1-31/32)	
		Force ④	kg (lbf)	7.3 (16)	
Suspension Type	Track	Skandic WT			
	Ski	Telescopic strut			
	Length	cm (in)	302.0 (118.9)	315.0 (124.0)	315.0 (124.0)
	Width	cm (in)	104.5 (41.1)	110.0 (43.3)	110.0 (43.3)
	Height	cm (in)	129.5 (50.98)	133 (52.4)	122 (48)
	Ski Stance	cm (in)	90.0 (35.4)		
	Toe-Out and Camber	mm (in)	5 (3/16)		
		degree	- 2		
	Mass (dry)	kg (lb)	260 (573)	277 (611)	281 (620)
	Ground Contact Area	cm² (in²)	10793 (1672.9)	13986 (2167.8)	12335 (1912)
	Ground Contact Pressure	kPa (PSI)	2.41 (.350)	1.98 (.287)	2.28 (.331)
	Frame Material	Steel			
	Bottom Pan Material	Polyethylene high density			
	Hood Material	RRIM			
		Battery	V (A•h)	12 (20)	
Headlight		W	H4 60/55		
Taillight and Stoplight		W	8/27		
Tachometer and Speedometer Bulb		W	3		
Fuel and Temperature Gauge Bulb		W	N.A.		
Fuse		Starter Solenoid	A	15	
		Tachometer	A	N.A.	
	Fuel Tank	L (U.S. gal)	42 (11.1)		
	Chaincase Gearbox	mL (U.S.oz)	400 (13.5)		
	Cooling System ⑦	L (U.S. oz)	N.A.	N.A.	4.5 (152)
	Injection Oil Reservoir	L (U.S. oz)	2.5 (84.5)		

ENGINE TECHNICAL DATA LEGEND

BTDC: Before Top Dead Center
CDI: Capacitor Discharge Ignition
K: Kilo (x 1000)
MAG: Magneto Side
N.A.: Not Applicable
PTO: Power Take Off Side
R: Rectangular
ST: Semi-Trapezoidal

- ① The maximum horsepower RPM is applicable on the vehicle. It may be different under certain circumstances and BOMBARDIER INC. reserves the right to modify it without obligation.
- ② Crankshaft end-play is not adjustable on these models except Tundra R. Specification is given for verification purposes only.
- ③ Rotary valve to crankcase clearance: 0.27 – 0.48 mm (.011 – .019 in).
- ④ For all non-RER models timing is verified at 6000 RPM (engine cold) with headlamp turned on.
- ⑤ All resistance measurements must be performed with parts at room temperature (approx. 20°C (68°F)). Temperature greatly affects resistance measurements.
- ⑥ Force applied midway between pulleys to obtain specified deflection.
- ⑦ Drive pulley retaining screw: torque to 90 to 100 N•m (66 to 74 lbf•ft), install drive belt, accelerate the vehicle at low speed (maximum 30 km/h (20 MPH)) and apply the brake; repeat 5 times. Recheck the torque of 90 to 100 N•m (66 to 74 lbf•ft).
- ⑧ For all RER models timing is verified at 3500 RPM (engine cold) with headlamp turned on.
- ⑨ Piston/cylinder clearance with new parts on Skandic LT is 0.080 ± 0.0067 mm (.0031 ± .00026 in).
- ⑩ Tightening torques for Skandic LT Comet drive pulley.
Retaining screw: 60 to 68 N•m (44 to 50 lbf•ft).
Spider: 170 N•m (125 lbf•ft).
Cover screws: 12.5 N•m (110 lbf•in).
Pivot bolts and nuts: 5.6 N•m (50 lbf•in).

VEHICLE TECHNICAL DATA LEGEND

RRIM: Reinforced Reaction Injection Molding
TRA: Total Range Adjustable drive pulley
N.A.: Not Applicable

- ① For Bombardier Lite drive pulleys:
1157 = Red block, push type 38 g (P/N 417 115 700).
1181 = Black block, screw type 39.6 g (P/N 417 118 100).
1143 = Red block, screw type 41.8 g (P/N 417 114 300).
W = Washer 1.8 g (P/N 417 115 800).
C = Cap 1.65 g (P/N 417 114 500).
S3.4 = Weight, screw type 3.4 g (P/N 417 114 400).
S21 = Weight, screw type 21 g (P/N 417 120 400).
- ② Minimum allowable width may not be less than 3.0 mm (1/8 in) of a new drive belt.
- ③ Force applied midway between pulleys to obtain specified deflection.
- ④ Force or downward pull applied to track to obtain specified tension deflection.
- ⑤ Lever with roller pin (P/N 417 004 309) (hollow).
- ⑥ Lever with roller pin (P/N 417 004 308) (solid).
- ⑦ Ethylene-glycol antifreeze for aluminum engines mixed with distilled water (1 parts of antifreeze for 1 parts of distilled water). Bombardier pre-mixed coolant - 37°C (- 35°F) (16 x 1 L) (P/N 293 600 038).