

# 900 ACE

ENGINE			
Engine type			ROTAX® 900 ACE
			4-stroke, Double Over Head Camshaft (DOHC), dry sump, liquid cooled
Number of cylinders			3
Number of valves			12 valves (self adjusting hydraulic valve lifters)
Bore			74 mm (2.91 in)
Stroke			69.7 mm (2.74 in)
Displacement			899.31 cm³ (54.88 in³)
Compression ratio			12.0 : 1
Decompressor type			—
Maximum HP RPM			7250 ± 200 RPM
Intake valve opening			5° ATDC
Intake valve closing			40° ABDC
Exhaust valve opening			40° BBDC
Exhaust valve closing			5° BTDC
Valve stem diameter	Intake	New	4.958 mm to 4.972 mm (.1952 in to .1957 in)
		Service limit	4.94 mm (.1945 in)
	Exhaust	New	4.956 mm to 4.970 mm (.1951 in to .1957 in)
		Service limit	4.94 mm (.1945 in)
Valve guide diameter		New	5.0 mm to 5.012 mm (.1969 in to .1973 in)
		Service limit	5.05 mm (.1988 in)
Valve out of round		New	0.005 mm (.0002 in)
		Service limit	0.060 mm (.0024 in)
Valve spring free length		New	31.35 mm (1.2343 in)
		Service limit	29.50 mm (1.1614 in)
Valve seat contact width	Intake	New	1.05 mm to 1.35 mm (.0413 in to .0531 in)
		Service limit	1.7 mm (.0669 in)
	Exhaust	New	1.25 mm to 1.45 mm (.0492 in to .0571 in)
		Service limit	1.8 mm (.0709 in)
Cylinder head warpage		Service limit	0.15 mm (.0059 in)
Piston measurement		New	73.95 mm to 73.966 mm (2.9114 in to 2.912 in)
		Service limit	73.92 mm (2.91 in)
Piston/cylinder wall clearance		New	0.037 mm to 0.067 mm (.0015 in to .0026 in)
		Service limit	0.08 mm (.0031 in)
Piston ring type		1 <sup>st</sup>	Upper compression ring, rectangular
		2 <sup>nd</sup>	Lower compression ring, tapered face
		3 <sup>rd</sup>	Oil scraper ring

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Ring end gap	Rectangular	New	0.20 mm to 0.35 mm (.0079 in to .0138 in)
		Service limit	1.2 mm (.0472 in)
	Taper-face	New	0.30 mm to 0.50 mm (.0118 in to .0197 in)
		Service limit	1.2 mm (.0472 in)
	Oil scraper ring	New	0.20 mm to 0.70 mm (.0079 in to .0276 in)
		Service limit	1.2 mm (.0472 in)
Ring/piston groove clearance	Rectangular	New	0.030 mm to 0.066 mm (.0012 in to .0026 in)
		Service limit	0.12 mm (.0047 in)
	Taper-face	New	0.020 mm to 0.056 mm (.0008 in to .0022 in)
		Service limit	0.12 mm (.0047 in)
	Oil scraper ring	New	0.010 mm to 0.040 mm (.0004 in to .0016 in)
		Service limit	0.15 mm (.0059 in)
Cylinder bore		New	74.003 mm to 74.017 mm (2.9135 in to 2.9141 in)
Cylinder taper		Maximum New	0.030 mm (.0012 in)
		Service limit	0.05 mm (.002 in)
Cylinder out of round		Maximum New	0.008 mm (.0003 in)
		Service limit	0.03 mm (.0012 in)
Camshaft bearing journal diameter	PTO	New	25.967 mm to 25.980 mm (1.0223 in to 1.0228 in)
		Service limit	25.940 mm (1.0213 in)
	MAG/Center	New	22.957 mm to 22.970 mm (.9038 in to .9043 in)
		Service limit	22.930 mm (.9028 in)
Camshaft holder bore diameter	PTO	New	26.00 mm to 26.021 mm (1.0236 in to 1.0244 in)
		Service limit	26.05 mm (1.0256 in)
	MAG/Center	New	23.00 mm to 23.021 mm (.9055 in to .9063 in)
		Service limit	23.05 mm (.9075 in)
Camshaft journal radial play	All	New	0.020 mm to 0.054 mm (.0008 in to .0021 in)
		Service limit	0.080 mm (.0031 in)
Camshaft lobe height	Intake	New	38.35 mm to 38.55 mm (1.51 in to 1.518 in)
		Service limit	38.33 mm (1.509 in)
	Exhaust	New	38.35 mm to 38.55 mm (1.51 in to 1.518 in)
		Service limit	38.33 mm (1.509 in)
Crankshaft bearing journal diameter		New	35.990 mm to 36.006 mm (1.4169 in to 1.4176 in)
		Service limit	35.960 mm (1.4157 in)
Crankshaft radial play		Service limit	0.08 mm (.003 in)
Crankshaft axial play		New	0.120 mm to 0.353 mm (.0047 in to .0139 in)
		Service limit	0.450 mm (.0177 in)
Crankshaft deflection	MAG	Maximum	0.050 mm (.002 in)
	Center	Maximum	0.050 mm (.002 in)
	PTO	Maximum	0.080 mm (.003 in)
Crankshaft plain bearing inside diameter		Service limit	36.08 mm (1.4205 in)
Connecting rod big end diameter		Service limit	36.06 mm (1.4197 in)
Connecting rod big end radial play		Service limit	0.08 mm (.0031 in)
Connecting rod big end axial play		New	0.100 mm to 0.352 mm (.0039 in to .0139 in)
		Service limit	0.450 mm (.0177 in)

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Connecting rod small end diameter		New	17.010 mm to 17.020 mm (.6697 in to .6701 in)
		Service limit	17.060 mm (.6717 in)
Piston pin diameter		New	16.996 mm to 17.000 mm (.6691 in to .6693 in)
		Service limit	16.986 mm (.6687 in)
Connecting rod small end radial play		Service limit	0.04 mm (.0016 in)
Chain guide groove depth		Service limit	1 mm (.039 in)
Oil pressure regulator spring free length		New	46 mm (1.811 in)
		Service limit	45 mm (1.772 in)
Oil pump radial clearance		Service limit	0.25 mm (.0098 in)
Oil pump axial clearance		Service limit	0.15 mm (.0059 in)
COOLING SYSTEM			
Coolant	Type		Ethyl glycol and distilled water (50%/50%). Use BRP premixed coolant (P/N 219 702 685) or coolant specifically formulated for aluminum engines
	Quantity		6 L (1.59 U.S. gal.)
Thermostat opening temperature			75°C (167°F)
Radiator cap opening pressure			110 kPa (16 PSI)
LUBRICATION SYSTEM			
Lubrication	Type		Dry sump. Replaceable oil filter
	Oil filter		BRP Rotax paper type, replaceable
	Engine oil pressure at 100°C (212°F)	Minimum	80 kPa (11.6 PSI) @ idle speed
			350 kPa (50.8 PSI) @ 6000 to 7250 RPM
	Engine oil	Capacity (oil change with filter)	3.3 L (3.5 qt (U.S. liq.))
		Recommended	XPS Synthetic 4-Stroke oil (All climate) (P/N 293 600 112) or a SAE 0W 40 API service SM synthetic oil
FUEL SYSTEM			
Fuel injection type			Multipoint fuel injection
Throttle body type			46 mm heated Dell'Orto throttle body with iTC (intelligent Throttle Control)
Idle speed	Normal idle	Standard Mode	1250 ± 100 RPM
		Sport Mode	1500 ± 100 RPM
	Fast idle at -40°C (-40°F)		1850 ± 100 RPM
Gasoline type			Regular Unleaded
Minimum octane rating	Inside North America ((R+M)/2)		87
	Outside North America (RON)		92
Fuel tank capacity			40 L (10.57 U.S. gal.)
ELECTRICAL SYSTEM			
Magneto generator output			420 W @ 6000 RPM @ 14 V
Magneto stator resistance (between any pair of yellow wires)			0.1 to 1 Ohm @ 20°C (68°F)
Ignition type			IDI (Inductive Digital Ignition)
Spark plug	Make and type		NGK MR7BI-8
	Gap		.70 mm to 0.80 mm (.028 in to .031 in)

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ELECTRICAL SYSTEM			
Ignition timing			Not adjustable
Ignition coil	Primary		0.80 to 0.97 Ω
	Secondary		9.5 to 13.5 Ω
Engine speed limiter setting			8000 RPM
Battery			12 volt 18 A.h. YTX20HL-BS
Headlamp LOW/HI beam			2 x 60/55 Watts (H-4)
Taillight and stoplight			2.6 W / 139m W LED
Fuses	F A	Main	40 A
	F 1	Ignition coils, fuel injectors, fuel pump, starter solenoid	10 A
	F 2	Accessories	20 A
	F 3	Electro Mechanical Reverse	20 A
	F 4	Start clock, cooling fan	15 A
	F 5	Headlights, taillight, brake light	20 A
	F 6	ECM, gauge and CAPS	10 A
Relays	Relay 1		Main relay
	Relay 2		Lighting relay
	Relay 3		Accessory relay
DRIVE SYSTEM			
Chaincase oil	Type		XPS synthetic chaincase oil (P/N 413 803 300)
	Quantity		500 ml (16.9 U.S. oz)
Chain drive small sprocket	Teeth quantity		24
Chain drive large sprocket	Teeth quantity	MX Z TNT	45
		GSX LE	
		Renegade Adrenaline	49
		Grand Touring LE	
		Expedition Sport	
Chain	Pitch		9.53 mm (3/8 in)
	Type/links qty/plate qty		Silent 106/13
Drive pulley	Type		eDrive II
	Clutch engagement		2200
	Spring color		Red/White
	Spring length		115 mm (4.528 in)
	Pin		—
	Ramp		716
	Screw position		—

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DRIVE SYSTEM			
Driven pulley	Type		QRS
	Spring preload (New)		7.0 kgf ± 0.7 kgf (15.4 lbf ± 1.5 lbf)
	Spring preload (After break-in)		6.4 kgf ± 0.7 kgf (14.1 lbf ± 1.5 lbf)
	Spring color		Pink 3
	Cam angle		41°/45°
	Offset	Z	21.40 mm (.843 in)
X		37.2 mm ± 0.5 mm (1.465 in ± .02 in)	
Drive belt	Width		34.925 mm (1.375 in)
	Wear limit		32.512 mm (1.28 in)
Track	Width	Expedition Sport	40.6 cm (16 in)
		Grand Touring LE	38.1 cm (15 in)
		GSX LE	
		MX Z TNT	
		Renegade Adrenaline	40.6 cm (16 in)
	Length	Expedition Sport	392 cm (154 in)
		Grand Touring LE	348 cm (137 in)
		GSX LE	305 cm (120 in)
		MX Z TNT	
		Renegade Adrenaline	348 cm (137 in)
	Profile height	Expedition Sport	38 mm (1-1/2 in)
		Grand Touring LE	25,5 mm (1 in)
		GSX LE	31.8 mm (1.25 in)
		MX Z TNT	
		Renegade Adrenaline	
Track adjustment	Deflection	Expedition Sport	40 mm to 45 mm (1.57 in to 1.77 in)
		Grand Touring LE	30 mm to 35 mm (1.18 in to 1.38 in)
		GSX LE	
		MX Z TNT	
		Renegade Adrenaline	
	Force		7.3 kg (16 lb)
BRAKE SYSTEM			
Brake lining minimum thickness		1 mm (.039 in)	
Brake disk minimum thickness		4.5 mm (.177 in)	
Brake fluid	Type		DOT 4
	Quantity		65 ml (2.2 U.S. oz)
FRONT SUSPENSION			
Suspension type		Dual A-Arms	
Suspension maximum travel	Expedition Sport		210 mm (8.3 in)
	Grand Touring LE		229 mm (9 in)
	GSX LE		
	MX Z TNT		
	Renegade Adrenaline		

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FRONT SUSPENSION		
Shock absorber type	Expedition Sport	Motion control
	Grand Touring	HPG
	GSX LE	
	MX Z TNT	HPG Plus
	Renegade Adrenaline	

REAR SUSPENSION			
Suspension type		Expedition Sport	SC-5U
		Grand Touring LE	rMotion
		GSX LE	
		MX Z TNT	
		Renegade Adrenaline	
Suspension maximum travel		Expedition Sport	340 mm (13.4 in)
		Grand Touring LE	407 mm (16 in)
		GSX LE	394 mm (15.5 in)
		MX Z TNT	
		Renegade Adrenaline	407 mm (16 in)
Shock absorber type	Center	Expedition Sport	Motion control
		Grand Touring LE	
		GSX LE	
		MX Z TNT	HPG Plus
		Renegade Adrenaline	HPG
	Rear	Expedition Sport	HPG
		Grand Touring LE	
		GSX LE	
		MX Z TNT	HPG Plus
		Renegade Adrenaline	HPG
Stroke limiter standard position		Expedition Sport	3
		Grand Touring LE	2
		GSX LE	1
		MX Z TNT	
		Renegade Adrenaline	

STEERING SYSTEM		
Ski type	Expedition Sport	DS2
	Grand Touring LE	Pilot SL
	GSX LE	Pilot 5.7
	MX Z TNT	
	Renegade Adrenaline	
Toe-out		5 mm (.197 in)
Camber		0°

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WEIGHT AND DIMENSIONS		
Dry weight	Expedition Sport	253 kg (558 lb)
	Grand Touring LE	259 kg (570 lb)
	GSX LE	227 kg (501 lb)
	MX Z TNT	220 kg (485 lb)
	Renegade Adrenaline	228 kg (503 lb)
Length	Expedition Sport	332,9 cm (131.6 in)
	Grand Touring LE	322,6 cm (127 in)
	GSX LE	290,5 cm (114,4 in)
	MX Z TNT	
	Renegade Adrenaline	311 cm (122,4 in)
Width	Expedition Sport	115.9 cm to 120.4 cm (45.6 in to 47.4 in)
	Grand Touring LE	121.7 cm (47.9 in)
	GSX LE	
	MX Z TNT	
	Renegade Adrenaline	
Height	Expedition Sport	127.5 cm (50.2 in)
	Grand Touring LE	137 cm (53.9 in)
	GSX LE	120 cm (47.2 in)
	MX Z TNT	121 cm (47.6 in)
	Renegade Adrenaline	
Ski stance (carbide to carbide)	Expedition Sport	97.5 cm to 101.9 cm (38.4 in to 40.1 in)
	Grand Touring LE	107.7 cm (42.4 in)
	GSX LE	
	MX Z TNT	
	Renegade Adrenaline	
Ski width	Expedition Sport	165 mm (6.5 in)
	Grand Touring LE	145 mm (5.7 in)
	GSX LE	
	MX Z TNT	
	Renegade Adrenaline	