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CHAPTER 1

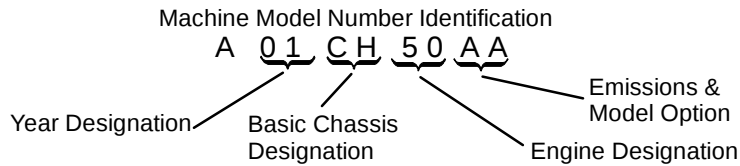
GENERAL INFORMATION

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MODEL IDENTIFICATION

The machine model number must be used with any correspondence regarding warranty or service.



ENGINE DESIGNATION NUMBERS

42 EH42PLE05 Single, L/C, SOHC 4 Stroke, Electric Start
 50 EH50PLE09/13 Single, L/C, SOHC 4 Stroke, Electric Start

VIN IDENTIFICATION

World Mfg. ID			Vehicle Descriptor						Vehicle Identifier							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4	X	A	C	H	5	0	A	*	1	P	0	0	0	0	0	0
			Body Style	Powertrain	Engine	Emissions	Check Digit	Model Year	Plant No.	Individual Serial No.						

* This could be either a number or a letter

ENGINE SERIAL NUMBER LOCATION

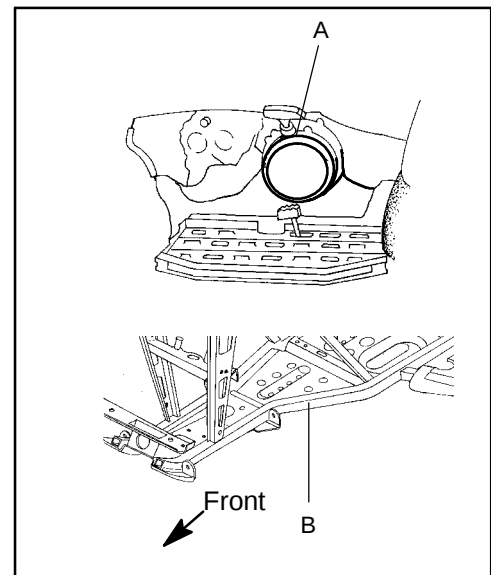
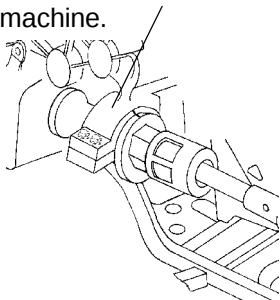
Whenever corresponding about an engine, be sure to refer to the engine model number and serial number. This information can be found on the sticker applied to the recoil housing on the right side of engine.(A) An additional number is stamped on the center top of crankcase beneath the cylinder coolant elbow.

MACHINE MODEL NUMBER AND SERIAL NUMBER LOCATION

The machine model number and serial number are important for vehicle identification. The machine serial number is stamped on the lower left side of the frame tube.(B)

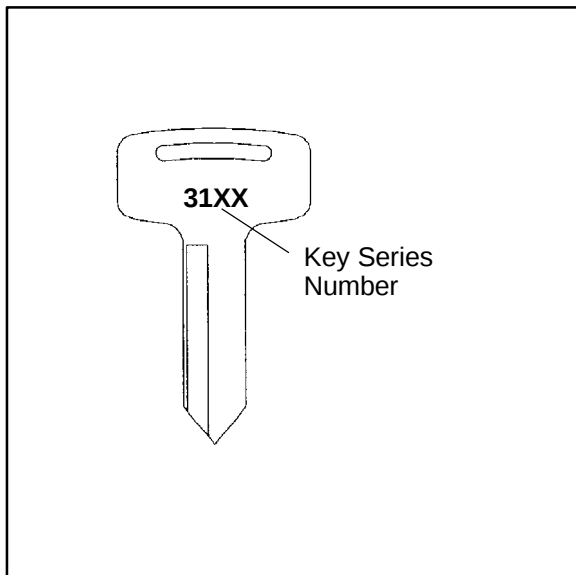
TRANSMISSION I.D. NUMBER LOCATION

The transmission I.D. number is located on top of the transmission snorkel, right side of machine.



REPLACEMENT KEYS

Replacement keys can be made from the original key. To identify which series the key is, take the first two digits on the original key and refer to the chart to the right for the proper part number.



Series #	Part Number
31	4110141
32	4110148
67	4010278
68	4010278
27	4010321
28	4010321

MODEL COLOR IDENTIFICATION

SPORTSMAN 400 - A01CH42AA



SPORTSMAN 400 - A01CH42AB



MODEL COLOR IDENTIFICATION

SPORTSMAN 400 - A01CH42AC



MODEL COLOR IDENTIFICATION

SPORTSMAN 500 H.O. - A01CH50AA

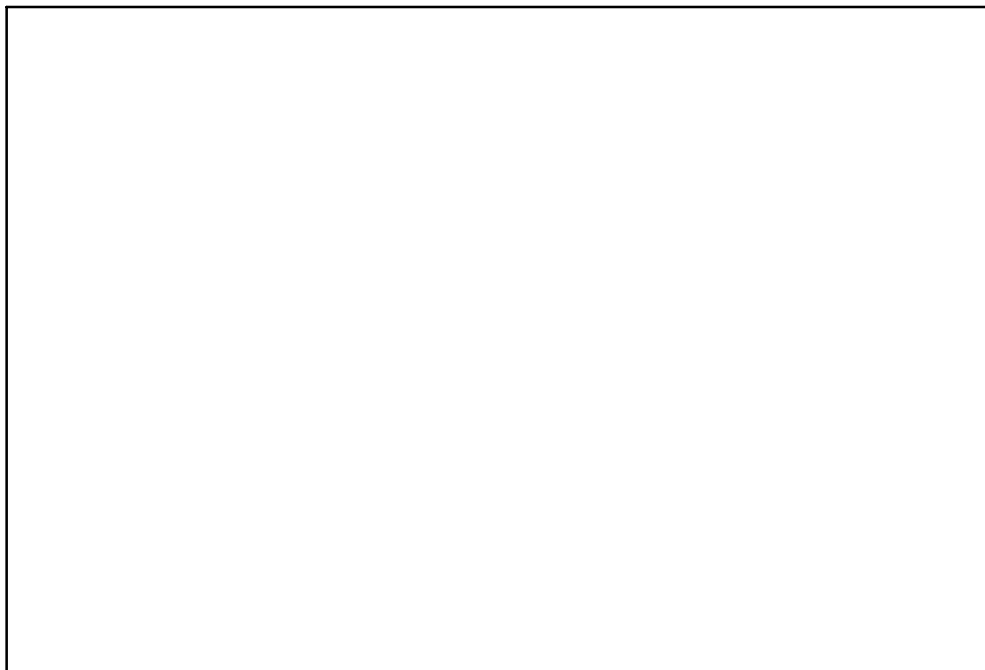


SPORTSMAN 500 H.O. - A01CH50AB



MODEL COLOR IDENTIFICATION

SPORTSMAN 500 DUSE - A01CH50AD



SPORTSMAN 500 H.O. - A01CH50AE



MODEL COLOR IDENTIFICATION

SPORTSMAN 500 H.O. DUSE - A01CH50AF

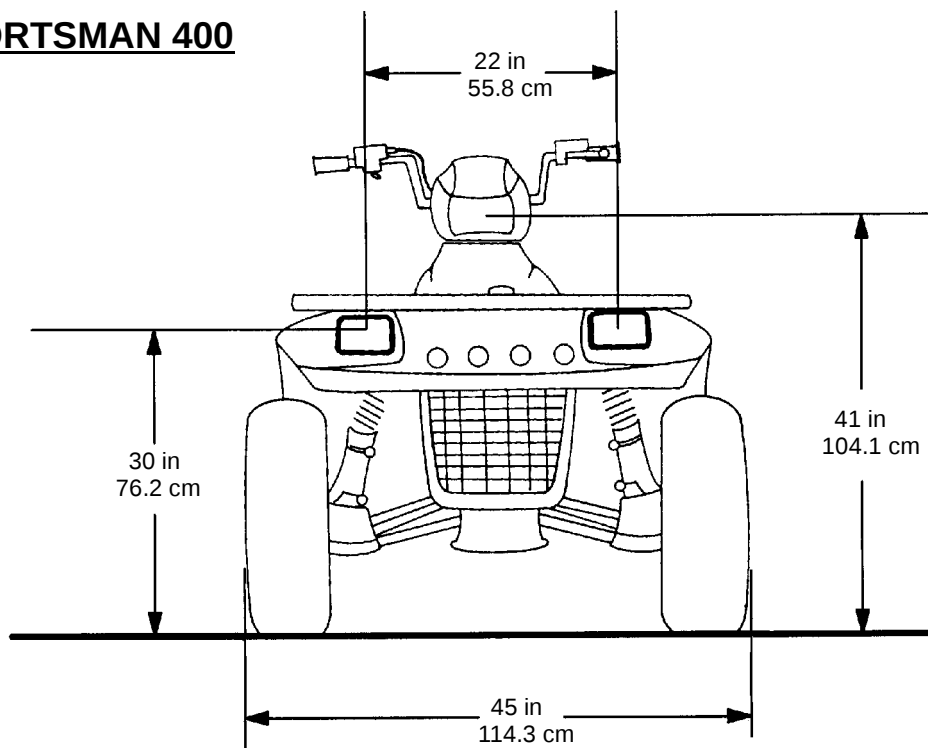


SPORTSMAN 500 H.O. RSE - A01CH50AJ

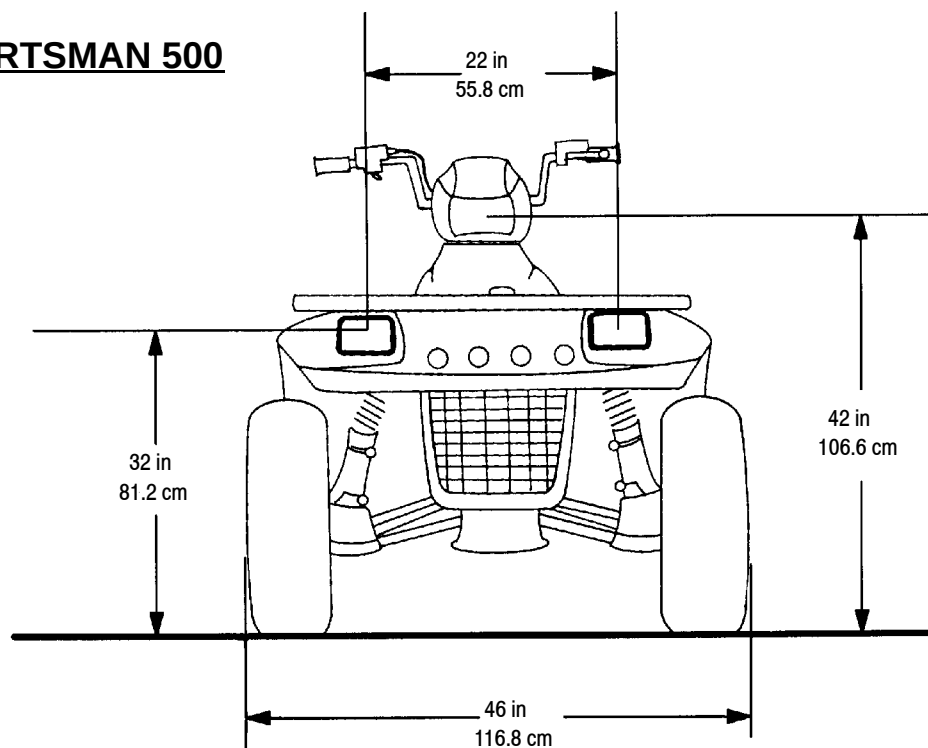


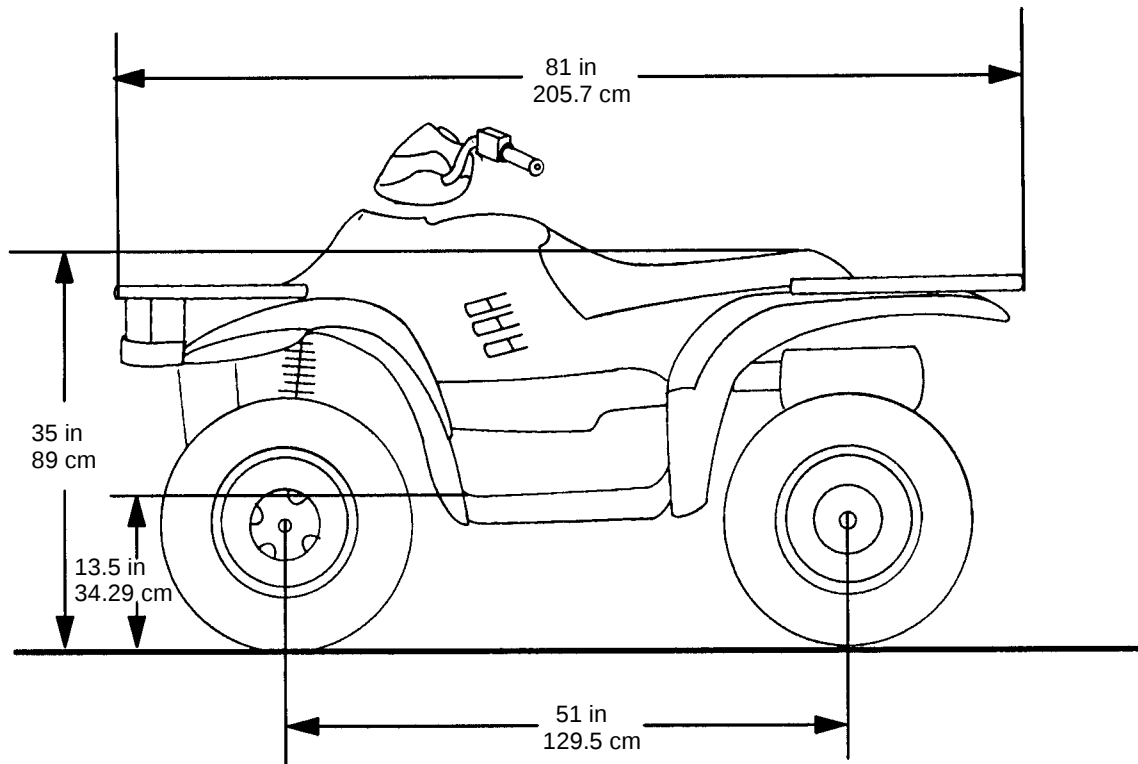
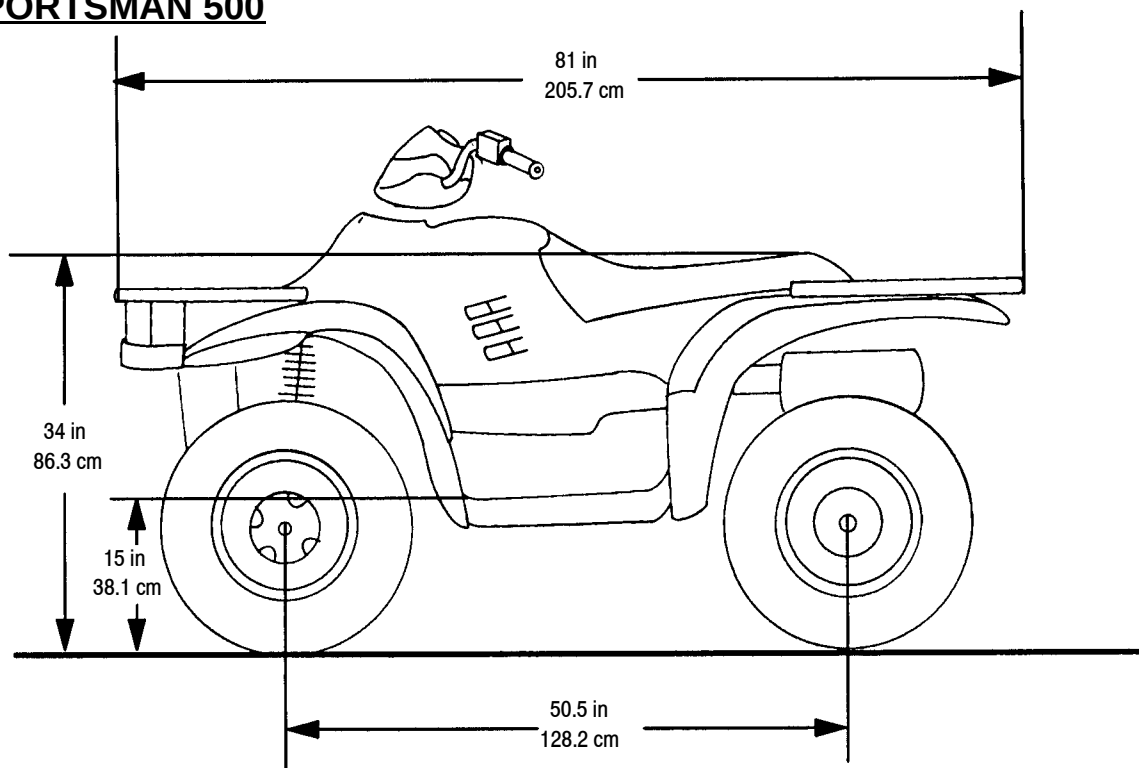
MACHINE DIMENSIONS

SPORTSMAN 400



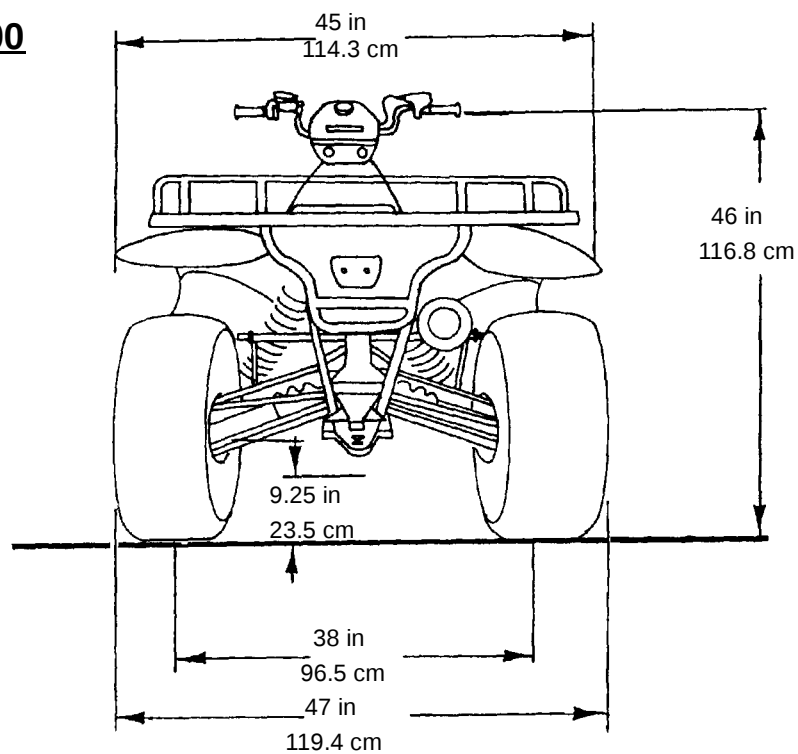
SPORTSMAN 500



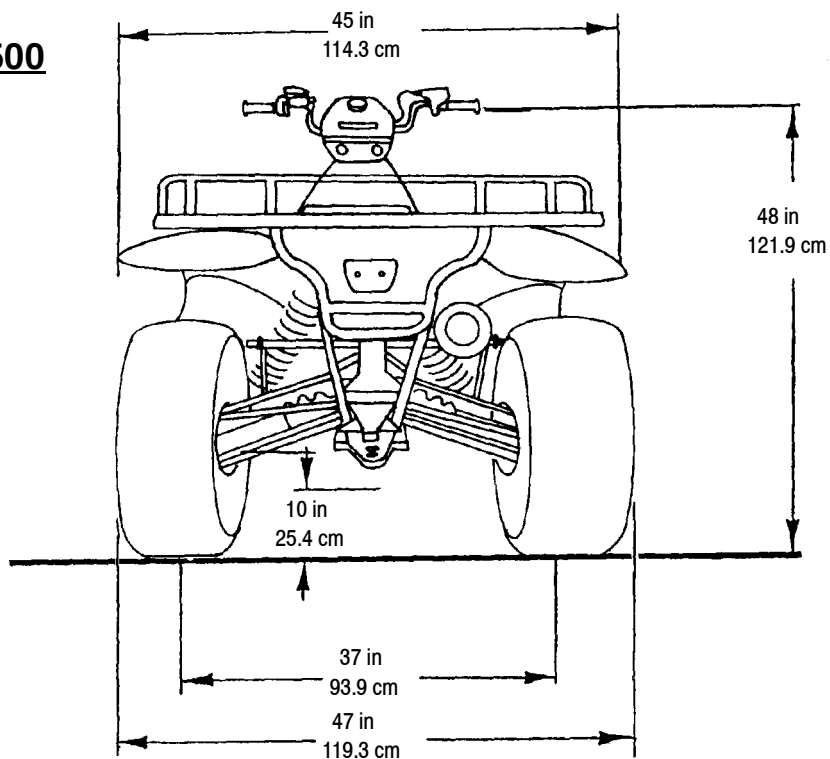
MACHINE DIMENSIONS**SPORTSMAN 400****SPORTSMAN 500**

MACHINE DIMENSIONS

SPORTSMAN 400



SPORTSMAN 500



MODEL: **SPORTSMAN 400**
 MODEL NUMBER: . A01CH42AA/AB/AC
 ENGINE MODEL: .. EH42PLE05

CARBURETION

Type	BST 34 Mikuni
Main Jet	167.5
Pilot Jet	40
Jet Needle	JF-3
Needle Jet	Q-0 (829)
Throttle Valve	#100
Pilot Screw	2 3/4 Turns Out
Pilot Air Jet	160
Valve Seat	1.5
Float Height	13.0mm (.51")±1mm
Fuel Octane (R+M/2) .	87 Non-Oxygenated or 89 Oxygenated

CLUTCH

Type	PVT
Belt	3211069
Belt Width (Projected)	1.188" (30.18mm)
Side Angle (Overall)	26°
Outside Circumference	40.86 ±.12"
Center Distance	10±.12" (254.5mm)
Clutch Offset	0.5" (12.7mm)
Secondary Spring	Black
Driven Helix	44-36°
Spring Position (Helix)	2
Spring Position (Sheave) ..	2

ENGINE

Type	4 Cycle, Single Cyl.
Displacement	425 cc
Bore	3.461" (87.9mm)
Stroke	2.756" (70mm)
Valve Clearance In/Ex	0.006/0.006" @ TDC on compression
Compression Ratio	9.2/1 Full Stroke
Cooling	Liquid
Lubrication Type	Dry Sump
Operating RPM±200	6300 RPM
Idle RPM±200 (lights off)	1200 RPM
Compression Pressure	(Std) ±15%

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below +5°C	+40°F and above +5°C and above
Meters (Feet)	0-1800 (0-6000)	175	167.5
	Above 1800 Above (6000)	165	160

CLUTCH CHART

Altitude		Shift Weight	Clutch Spring	Driven Helix
Meters (Feet)	0-1800 (0-6000)	10BH	Blue/Green	2+2
	1800-3700 (6000-12000)	10WH	Blue/Green	2+2

GENERAL INFORMATION

MODEL: SPORTSMAN 400

MODEL NUMBER: ... A01CH42AA/AB/AC

ENGINE MODEL: EH42PLE05

ELECTRICAL

Flywheel I.D. FF95
 CDI Marking CU2565
 Alternator Output ... 200 Watts
 Ignition Timing 30° BTDC@5000RPM±2°
 Spark Plug / Gap ... NGK BKR5E / 0.036" (0.9mm)
 Lights: Head Halogen 60/60 watts
 Tail 8.26 watts
 Brake 26.9 watts
 Voltage Regulator .. LR39
 Electric Start Standard

SUSPENSION / CHASSIS

Body Style Gen IV
 Front Suspension .. MacPherson Strut
 Tow Capacity 850 lbs. (385.6kg)
 Turning Radius 65" (165.1cm)
 Toe Out 1/8"-1/4" (3-6.35mm)
 Ground Clearance .. 11" (27.94cm)
 Front Vertical Travel 6.7" (17.02cm)
 Rear Suspension ... Progressive Rate Independent
 Rear Travel 9.5" (24.13cm)
 Rear Shock 2" Twin Tube
 Shock Adjustment .. Cam

TIRES

Tire Size - Front 25 x 8 - 12
 Tire Size - Rear 25 x 11 - 10
 Tire Size - Center .. N / A
 Tire Pressure - F/R . 5/5 lbs
 Total Width 46" (116.84cm)
 Total Length 81" (205.74cm)
 Total Height 47" (119.38cm)
 Wheel Base 50.50" (128.27cm)
 Weight - Dry 697 lbs. (316.4kg)

OPTIONAL SUSPENSION SPRINGS

SOFT

STANDARD

FIRM

Rear Compression Spring	N / A	7041453-067 Standard 100 lb/in.	7041519-067 Option 140 lb/in.
Front Strut Spring	7041238-067 Option 61 lb/in.	7041375-067 Standard 64/113 lb/in.	7041450-067 Option 101 lb/in.

FLUID

Capacity Type

Fuel Tank 5.25 gals. (19.9L)
 Injector Oil N / A
 Coolant 2.25 qts. (2.1L) PP6*
 Transmission 32 oz. PPS*
 Gearcase Oil (Front) . 4 oz. (120ml) . 80-90 GL5
 Gearcase Oil (Center) N / A
 Gearcase Oil (Rear) . N / A
 Engine Counter Bal. . N / A
 Engine Oil 2 qts. (1.9L) .. PP4*
 Brake (Hand) Dot 3
 Brake (Foot) Dot 3
 Front Hubs (AWD) ... 2.5 oz. (75ml) PDD*
 Shift Selector Box ... 1 oz. (30ml) .. PP4*

Lubricant Key

*PP6 Polaris Premium 60/40 Antifreeze/Coolant
 *PPS Polaris Premium Synthetic Gear Case Oil
 *PP4 Polaris 0W/40 Synthetic Engine Lubricant
 *PDD Premium Demand Drive Hub Fluid

DRIVE TRAIN

Chain Type Shaft Drive
 Gear Reduction-Low . 6.69/1
 Gear Reduction-Rev . 5.17/1
 Gear Reduction-High 3.34/1
 Front Drive Ratio 2/1
 Center Drive Ratio ... N / A
 Final Drive Ratio 3.16/1
 Brake (Hand) Single Lever, Hyd. Disc
 Brake (Auxiliary Foot) Hydraulic

LOAD CAPACITY

Front Rack (Std) 90 lbs.
 Rear Rack (Std) 180 lbs.
 Tongue Weight 30 lbs.
 Tow Hitch Std

MODEL: **SPORTSMAN 500 DUSE**
 MODEL NUMBER: . A01CH50AD
 ENGINE MODEL: .. EH50PLE09

CARBURETION

Type	BST 34 Mikuni
Main Jet	162.5
Pilot Jet	40
Jet Needle	4HB41-3
Needle Jet	Q-0 (513)
Throttle Valve	#100
Pilot Screw	2 5/8 Turns Out
Pilot Air Jet	160
Valve Seat	1.5
Float Height	13.0mm (.51")±1mm
Fuel Octane (R+M/2) .	87 Non-Oxygenated or 89 Oxygenated

CLUTCH

Type	PVT
Belt	3211069
Belt Width (Projected)	1.188" (30.18mm)
Side Angle (Overall)	26°
Outside Circumference	40.86 ±.12"
Center Distance	10±.12" (254.5mm)
Clutch Offset	0.5" (12.7mm)
Secondary Spring	White/Green
Driven Helix	Compound (EBS)
Spring Position (Helix)	N/A
Spring Position (Sheave) ..	N/A

ENGINE

Type	4 Cycle, Single Cyl.
Displacement	499 cc
Bore	3.6248" (92mm)
Stroke	2.955" (75mm)
Valve Clearance In/Ex	0.006/0.006" @ TDC on compression
Compression Ratio	10/2 Full Stroke
Cooling	Liquid
Lubrication Type	Dry Sump
Operating RPM±200	6000 RPM
Idle RPM±200 (lights off)	1200 RPM
Compression Pressure	(Std) ±15%

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below +5°C	+40°F and above +5°C and above
Meters (Feet)	0-1800 (0-6000)	170	162.5
	Above 1800 Above (6000)	160	155

CLUTCH CHART

Altitude		Shift Weight	Clutch Spring	Driven Helix*
Meters (Feet)	0-1800 (0-6000)	10MH	Blue/Green	EBS
	1800-3700 (6000-12000)	10WH	Blue/Green	EBS

*EBS require no helix/spring adjustment

GENERAL INFORMATION

MODEL: SPORTSMAN 500 DUSE

MODEL NUMBER: ... A01CH50AD

ENGINE MODEL: EH50PLE09

ELECTRICAL

Flywheel I.D. FF97
 CDI Marking CU2570
 Alternator Output ... 250 Watts
 Ignition Timing 30° BTDC@5000RPM±2°
 Spark Plug / Gap ... NGK BKR5E / 0.036" (0.9mm)
 Lights: Head Halogen 60/60 watts
 Tail 8.26 watts
 Brake 26.9 watts
 Voltage Regulator .. LR39
 Electric Start Standard

SUSPENSION / CHASSIS

Body Style Gen IV
 Front Suspension .. MacPherson Strut
 Tow Capacity 1225 lbs. (555.6kg)
 Turning Radius 65" (165.1cm)
 Toe Out 1/8"-1/4" (3-6.35mm)
 Ground Clearance .. 11" (27.94cm)
 Front Vertical Travel 6.7" (17.02cm)
 Rear Suspension ... Progressive Rate Independent
 Rear Travel 9.5" (24.13cm)
 Rear Shock 2" Twin Tube
 Shock Adjustment .. Cam

TIRES

Tire Size - Front 25 x 8 - 12
 Tire Size - Rear 25 x 11 - 10
 Tire Size - Center .. N / A
 Tire Pressure - F/R . 5/5 lbs
 Total Width 46" (116.84cm)
 Total Length 81" (205.74cm)
 Total Height 47" (119.38cm)
 Wheel Base 50.50" (128.27cm)
 Weight - Dry 697 lbs. (316.4kg)

OPTIONAL SUSPENSION SPRINGS

SOFT

STANDARD

FIRM

Rear Compression Spring	N / A	7041453-067 Standard 100 lb/in.	7041519-067 Option 140 lb/in.
Front Strut Spring	7041238-067 Option 61 lb/in.	7041375-067 Standard 64/113 lb/in.	7041450-067 Option 101 lb/in.

FLUID

Capacity Type

Fuel Tank 5.25 gals. (19.9L)
 Injector Oil N / A
 Coolant 2.25 qts. (2.1L) PP6*
 Transmission 32 oz. PPS*
 Gearcase Oil (Front) . 4 oz. (120ml) . 80-90 GL5
 Gearcase Oil (Center) N / A
 Gearcase Oil (Rear) . N / A
 Engine Counter Bal. . N / A
 Engine Oil 2 qts. (1.9L) .. PP4*
 Brake (Hand) Dot 3
 Brake (Foot) Dot 3
 Front Hubs (AWD) ... 2.5 oz. (75ml) PDD*
 Shift Selector Box ... 1 oz. (30ml) .. PP4*

Lubricant Key

*PP6 Polaris Premium 60/40 Antifreeze/Coolant
 *PPS Polaris Premium Synthetic Gear Case Oil
 *PP4 Polaris 0W/40 Synthetic Engine Lubricant
 *PDD Premium Demand Drive Hub Fluid

DRIVE TRAIN

Chain Type Shaft Drive
 Gear Reduction-Low . 6.69/1
 Gear Reduction-Rev . 5.17/1
 Gear Reduction-High 3.34/1
 Front Drive Ratio 2/1
 Center Drive Ratio ... N / A
 Final Drive Ratio 3.16/1
 Brake (Hand) Single Lever, Hyd. Disc
 Brake (Auxiliary Foot) Hydraulic

LOAD CAPACITY

Front Rack (Std) 90 lbs.
 Rear Rack (Std) 180 lbs.
 Tongue Weight 35 lbs.
 Tow Hitch Std

MODEL: **SPORTSMAN 500 H.O.**
 MODEL NUMBER: . A01CH50AA/AB/AE/AF/AJ
 ENGINE MODEL: .. EH50PLE13

CARBURETION

Type	BST 40 Mikuni
Main Jet	152.5
Pilot Jet	40
Jet Needle	KE-3 (683)
Needle Jet	X-6
Throttle Valve	#120
Pilot Screw	2 1/2 Turns Out
Pilot Air Jet	1.3
Valve Seat	1.5
Float Height	14.7mm (.58")±1mm
Fuel Octane (R+M/2) .	87 Non-Oxygenated or 89 Oxygenated

CLUTCH

Type	PVT
Belt	3211069
Belt Width (Projected)	1.188" (30.18mm)
Side Angle (Overall)	26°
Outside Circumference	40.86 ±.12"
Center Distance	10±.12" (254.5mm)
Clutch Offset	0.5" (12.7mm)
Secondary Spring	White/Yellow
Driven Helix	Compound (EBS)
Spring Position (Helix)	N/A
Spring Position (Sheave) ..	N/A

ENGINE

Type	4 Cycle, Single Cyl.
Displacement	499 cc
Bore	3.6248" (92mm)
Stroke	2.955" (75mm)
Valve Clearance In/Ex	0.006/0.006" @ TDC on compression
Compression Ratio	10/2 Full Stroke
Cooling	Liquid
Lubrication Type	Dry Sump
Operating RPM±200	6500 RPM
Idle RPM±200 (lights off)	1200 RPM
Compression Pressure	(Std) ±15%

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below +5°C	+40°F and above +5°C and above
Meters (Feet)	0-1800 (0-6000)	157.5	152.5
	Above 1800 Above (6000)	150	145

CLUTCH CHART

Altitude		Shift Weight	Clutch Spring	Driven Helix*
Meters (Feet)	0-1800 (0-6000)	10WH	Blue/Green	EBS
	1800-3700 (6000-12000)	10RH	Blue/Green	EBS

*EBS require no helix/spring adjustment

GENERAL INFORMATION

MODEL: **SPORTSMAN 500 H.O.**

MODEL NUMBER: ... **A01CH50AA/AB/AE/AF/AJ**

ENGINE MODEL: **EH50PLE13**

ELECTRICAL

Flywheel I.D. FF97
 CDI Marking CU2570
 Alternator Output ... 250 Watts
 Ignition Timing 30° BTDC@5000RPM±2°
 Spark Plug / Gap ... NGK BKR5E / 0.036" (0.9mm)
 Lights: Head Halogen 60/60 watts
 Tail 8.26 watts
 Brake 26.9 watts
 Voltage Regulator .. LR39
 Electric Start Standard

SUSPENSION / CHASSIS

Body Style Gen IV
 Front Suspension .. MacPherson Strut
 Tow Capacity 1225 lbs. (555.6kg)
 Turning Radius 65" (165.1cm)
 Toe Out 1/8"-1/4" (3-6.35mm)
 Ground Clearance .. 11" (27.94cm)
 Front Vertical Travel 6.7" (17.02cm)
 Rear Suspension ... Progressive Rate Independent
 Rear Travel 9.5" (24.13cm)
 Rear Shock 2" Twin Tube
 Shock Adjustment .. Cam

TIRES

Tire Size - Front 25 x 8 - 12
 Tire Size - Rear 25 x 11 - 10
 Tire Size - Center .. N / A
 Tire Pressure - F/R . 5/5 lbs
 Total Width 46" (116.84cm)
 Total Length 81" (205.74cm) (AA/AB/AE)
 85" (215.9cm) (AF/AJ)
 Total Height 47" (119.38cm)
 Wheel Base 50.50" (128.27cm)
 Weight - Dry 697 lbs. (316.4kg) (AA/AB/AE)
 750 lbs. (340kg) (AF/AJ)

OPTIONAL SUSPENSION SPRINGS

	SOFT	STANDARD	FIRM
Rear Compression Spring	N / A	7041453-067 Standard 100 lb/in.	7041519-067 Option 140 lb/in.
Front Strut Spring	7041238-067 Option 61 lb/in.	7041375-067 Standard 64/113 lb/in.	7041450-067 Option 101 lb/in.

FLUID

Capacity Type

Fuel Tank 5.25 gals. (19.9L)
 Injector Oil N / A
 Coolant 2.25 qts. (2.1L) PP6*
 Transmission 32 oz. PPS*
 Gearcase Oil (Front) . 4 oz. (120ml) . 80-90 GL5
 Gearcase Oil (Center) N / A
 Gearcase Oil (Rear) . N / A
 Engine Counter Bal. . N / A
 Engine Oil 2 qts. (1.9L) .. PP4*
 Brake (Hand) Dot 3
 Brake (Foot) Dot 3
 Front Hubs (AWD) ... 2.5 oz. (75ml) PDD*
 Shift Selector Box ... 1 oz. (30ml) .. PP4*

Lubricant Key

*PP6 Polaris Premium 60/40 Antifreeze/Coolant
 *PPS Polaris Premium Synthetic Gear Case Oil
 *PP4 Polaris 0W/40 Synthetic Engine Lubricant
 *PDD Premium Demand Drive Hub Fluid

DRIVE TRAIN

Chain Type Shaft Drive
 Gear Reduction-Low . 6.69/1
 Gear Reduction-Rev . 5.17/1
 Gear Reduction-High 3.34/1
 Front Drive Ratio ... 2/1
 Center Drive Ratio ... N / A
 Final Drive Ratio ... 3.16/1
 Brake (Hand) Single Lever, Hyd. Disc
 Brake (Auxiliary Foot) Hydraulic

LOAD CAPACITY

Front Rack (Std) 90 lbs.
 Rear Rack (Std) 180 lbs.
 Tongue Weight 35 lbs.
 Tow Hitch Std

PUBLICATION NUMBERS

Year	Model	Model No.	Owner's Manual PN	Parts Manual PN	Parts Micro Fiche PN
2001	Sportsman 400	A01CH42AA/AB/AC	9915754	9916443	9916444
2001	Sportsman 500 DUSE	A01CH50AD	9915754	9916002	9916003
2001	Sportsman 500 H.O.	A01CH50AA/AB/AE/ AF/AJ	9915754	9916446	9916447

When ordering service parts be sure to use the correct parts manual.

PAINT CODES

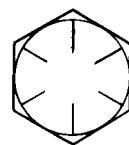
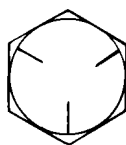
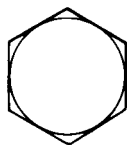
PAINTED PART	COLOR DESCRIPTION	DITZLER NUMBER	POLARIS NUMBER
(400) Springs/Rims	Black	9440	P-067
(500) Springs/Rims	Black	9440	P-067
(500) Opt. B Springs	Black	9440	P-067
(500) Opt. B Rims	Brushed Aluminum	N/A	P-117

FRAME COLOR - (All) P067 Medium Gloss Black 9440 / 8520147.

Order direct from Midwest Industrial Coatings (952-942-1840). Mix as directed.

STANDARD TORQUE SPECIFICATIONS

The following torque specifications are to be used as a general guideline. There are exceptions in the steering, suspension, and engine areas. Always consult the exploded views in each manual section for torque values of fasteners before using standard torque.



Bolt Size	Threads/In	Grade 2	Grade 5	Grade 8
Torque in. lbs. (Nm)				
#10 -	24	27 (3.1)	43 (5.0)	60 (6.9)
#10 -	32	31 (3.6)	49 (5.6)	68 (7.8)
Torque ft. lbs. (Nm)*				
1/4 -	20	5 (7)	8 (11)	12 (16)
1/4 -	28	6 (8)	10 (14)	14 (19)
5/16 -	18	11 (15)	17 (23)	25 (35)
5/16 -	24	12 (16)	19 (26)	29 (40)
3/8 -	16	20 (27)	30 (40)	45 (62)
3/8 -	24	23 (32)	35 (48)	50 (69)
7/16 -	14	30 (40)	50 (69)	70 (97)
7/16 -	20	35 (48)	55 (76)	80 (110)
1/2 -	13	50 (69)	75 (104)	110 (152)
1/2 -	20	55 (76)	90 (124)	120 (166)

Metric

6 x 1.0 72-78 In. lbs.

8 x 1.25 14-18 ft. lbs.

10 x 1.25 26-30 ft. lbs.

*To convert ft. lbs. to Nm multiply foot pounds by .1.382

*To convert Nm to ft. lbs. multiply Nm by .7376.

SPECIFIC TORQUE VALUES OF FASTENERS

Refer to exploded views in the appropriate section.

TORQUE CONVERSIONS**Newton Meter to Pound Foot and Pound Inch**

Nm	lb ft	lb in	Nm	lb ft	Nm	lb ft
1	0.74	8.65	49	36.14	97	71.55
2	1.48	17.30	50	36.88	98	72.28
3	2.21	25.95	51	37.62	99	73.02
4	2.95	34.60	52	38.36	100	73.76
5	3.69	43.26	53	39.09	101	74.50
6	4.43	51.91	54	39.83	102	75.24
7	5.16	60.56	55	40.57	103	75.97
8	5.90	69.21	56	41.31	104	76.71
9	6.64	77.86	57	42.04	105	77.45
10	7.38	86.51	58	42.78	106	78.19
11	8.11	95.16	59	43.52	107	78.92
12	8.85	103.81	60	44.26	108	79.66
13	9.59	112.46	61	44.99	109	80.40
14	10.33	121.11	62	45.73	110	81.14
15	11.06		63	46.47	111	81.87
16	11.80		64	47.21	112	82.61
17	12.54		65	47.94	113	83.35
18	13.28		66	48.68	114	84.09
19	14.01		67	49.42	115	84.82
20	14.75		68	50.16	116	85.56
21	15.49		69	50.89	117	86.30
22	16.23		70	51.63	118	87.04
23	16.96		71	52.37	119	87.77
24	17.70		72	53.11	120	88.51
25	18.44		73	53.84	121	89.25
26	19.18		74	54.58	122	89.99
27	19.92		75	55.32	123	90.72
28	20.65		76	56.06	124	91.46
29	21.39		77	56.80	125	92.20
30	22.13		78	57.53	126	92.94
31	22.87		79	58.27	127	93.68
32	23.60		80	59.01	128	94.41
33	24.34		81	59.75	129	95.15
34	25.08		82	60.48	130	95.89
35	25.82		83	61.22	131	96.63
36	26.55		84	61.96	132	97.36
37	27.29		85	62.70	133	98.10
38	28.03		86	63.43	134	98.84
39	28.77		87	64.17	135	99.58
40	29.50		88	64.91	136	100.31
41	30.24		89	65.65	137	101.05
42	30.98		90	66.38	138	101.79
43	31.72		91	67.12	139	102.53
44	32.45		92	67.86	140	103.26
45	33.19		93	68.60	141	104.00
46	33.93		94	69.33	142	104.74
47	34.67		95	70.07	143	105.48
48	35.40		96	70.81	144	106.21

TORQUE CONVERSIONS**Newton Meter to Pound Foot and Pound Inch**

Nm	lb ft
145	106.95
146	107.69
147	108.43
148	109.16
149	109.90
150	110.64
151	111.38
152	112.12
153	112.85
154	113.59
155	114.33
156	115.07
157	115.80
158	116.54
159	117.28
160	118.02
161	118.75
162	119.49
163	120.23
164	120.97
165	121.70
166	122.44
167	123.18
168	123.92
169	124.65
170	125.39
171	126.13
172	126.87
173	127.60
174	128.34
175	129.08
176	129.82
177	130.56
178	131.29
179	132.03
180	132.77
181	133.51
182	134.24
183	134.98
184	135.72
185	136.46
186	137.19
187	137.93
188	138.67
189	139.41

Nm	lb ft
190	140.14
191	140.88
192	141.62
193	142.36
194	143.09
195	143.83
196	144.57
197	145.31
198	146.04
199	146.78
200	147.52
201	148.26
202	149.00
203	149.73
204	150.47
205	151.21
206	151.95
207	152.68
208	153.42
209	154.16
210	154.90
211	155.63
212	156.37
213	157.11
214	157.85
215	158.58
216	159.32
217	160.06
218	160.80
219	161.53
220	162.27
221	163.01
222	163.75
223	164.48
224	165.22
225	165.96
226	166.70
227	167.44
228	168.17
229	168.91
230	169.65
231	170.39
232	171.12
233	171.86
234	172.60

Nm	lb ft
235	173.34
236	174.07
237	174.81
238	175.55
239	176.29
240	177.02
241	177.76
242	178.50
243	179.24
244	179.97
245	180.71
246	181.45
247	182.19
248	182.92
249	183.66
250	184.40
251	185.14
252	185.88
253	186.61
254	187.35
255	188.09
256	188.83
257	189.56
258	190.30
259	191.04
260	191.78
261	192.51
262	193.25
263	193.99
264	194.73
265	195.46
266	196.20
267	196.94
268	197.68
269	198.41
270	199.15
271	199.89
272	200.63

DECIMAL EQUIVALENTS

1/64	.0156	
1/32	.0312	1 mm = .0394"
3/64	.0469	
1/16	.0625	
5/64	.0781	2 mm = .0787"
3/32	.0938	
7/64	.1094	3 mm = .1181"
1/8	.1250	
9/64	.1406	
5/32	.1563	4 mm = .1575"
11/64	.1719	
3/16	.1875	5 mm = .1969"
13/64	.2031	
7/32	.2188	
15/64	.2344	6 mm = .2362"
1/4	.25	
17/64	.2656	7 mm = .2756"
9/32	.2813	
19/64	.2969	
5/16	.3125	8 mm = .3150"
21/64	.3281	
11/32	.3438	9 mm = .3543"
23/64	.3594	
3/8	.375	
25/64	.3906	10 mm = .3937"
13/32	.4063	
27/64	.4219	11 mm = .4331"
7/16	.4375	
29/64	.4531	
15/32	.4688	12 mm = .4724"
31/64	.4844	
1/2	.5	13 mm = .5118
33/64	.5156	
17/32	.5313	
35/64	.5469	14 mm = .5512"
9/16	.5625	
37/64	.5781	15 mm = .5906"
19/32	.5938	
39/64	.6094	
5/8	.625	16 mm = .6299"
41/64	.6406	
21/32	.6563	17 mm = .6693"
43/64	.6719	
11/16	.6875	
45/64	.7031	18 mm = .7087"
23/32	.7188	
47/64	.7344	19 mm = .7480"
3/4	.75	
49/64	.7656	
25/32	.7813	20 mm = .7874"
51/64	.7969	
13/16	.8125	21 mm = .8268"
53/64	.8281	
27/32	.8438	
55/64	.8594	22 mm = .8661"
7/8	.875	
57/64	.8906	23 mm = .9055"
29/32	.9063	
59/64	.9219	
15/16	.9375	24 mm = .9449"
61/64	.9531	
31/32	.9688	25 mm = .9843
63/64	.9844	
1	1.0	

CONVERSION TABLE

Unit of Measure	Multiplied by	Converts to
ft. lbs.	x 12	= in. lbs.
in. lbs.	x .0833	= ft. lbs.
ft. lbs.	x 1.356	= Nm
in. lbs.	x .0115	= kg-m
Nm	x .7376	= ft.lbs.
kg-m	x 7.233	= ft. lbs.
kg-m	x 86.796	= in. lbs.
kg-m	x 10	= Nm
in.	x 25.4	=mm
mm	x .03937	= in.
in.	x 2.54	= cm
mile (mi.)	x 1.6	= km
km	x .6214	= mile (mi.)
Ounces (oz)	x 28.35	= Grams (g)
Fluid Ounces (fl. oz.)	x 29.57	= Cubic Centimeters (cc)
Cubic Centimeters (cc)	x .03381	= Fluid Ounces (fl. oz.)
Grams (g)	x 0.035	= Ounces (oz)
lb.	x .454	= kg
kg	x 2.2046	= lb.
Cubic inches (cu in)	x 16.387	= Cubic centimeters (cc)
Cubic centimeters (cc)	x 0.061	= Cubic inches (cu in)
Imperial pints (Imp pt)	x 0.568	= Liters (l)
Liters (l)	x 1.76	= Imperial pints (Imp pt)
Imperial quarts (Imp qt)	x 1.137	= Liters (l)
Liters (l)	x 0.88	= Imperial quarts (Imp qt)
Imperial quarts (Imp qt)	x 1.201	= US quarts (US qt)
US quarts (US qt)	x 0.833	= Imperial quarts (Imp qt)
US quarts (US qt)	x 0.946	= Liters (l)
Liters (l)	x 1.057	= US quarts (US qt)
US gallons (US gal)	x 3.785	=Liters (l)
Liters (l)	x 0.264	= US gallons (US gal)
Pounds - force per square inch (psi)	x 6.895	= Kilopascals (kPa)
Kilopascals (kPa)	x 0.145	= Pounds - force per square inch (psi)
Kilopascals (kPa)	x 0.01	= Kilograms - force per square cm
Kilograms - force per square cm	x 98.1	= Kilopascals (kPa)
$\pi (3.14) \times R^2 \times H$ (height)		= Cylinder Volume

°C to °F: $9 (°C + 40) \div 5 - 40 = °F$

°F to °C: $5 (°F + 40) \div 9 - 40 = °C$

SAE TAP DRILL SIZES

Thread Size	Drill Size	Thread Size	Drill Size
#0-80	3/64	1/2-13	27/64
#1-64	53	1/2-20	29/64
#1-72	53	9/16-12	31/64
#2-56	51	9/16-18	33/64
#2-64	50	5/8-11	17/32
#3-48	5/64	5/8-18	37/64
#3-56	45	3/4-10	21/32
#4-40	43	3/4-16	11/16
#4-48	42	7/8-9	49/64
#5-40	38	7/8-14	13/16
#5-44	37	1-8	7/8
#6-32	36	1-12	59/64
#6-40	33	1 1/8-7	63/64
#8-32	29	1 1/8-12	1 3/64
#8-36	29	1 1/4-7	1 7/64
#10-24	24	1 1/4-12	1 11/64
#10-32	21	1 1/2-6	1 11/32
#12-24	17	1 1/2-12	1 27/64
#12-28	4.6mm	1 3/4-5	1 9/16
1/4-20	7	1 3/4-12	1 43/64
1/4-28	3	2-4 1/2	1 25/32
5/16-18	F	2-12	1 59/64
5/16-24	I	2 1/4-4 1/2	2 1/32
3/8-16	O	2 1/2-4	2 1/4
3/8-24	Q	2 3/4-4	2 1/2
7/16-14	U	3-4	2 3/4
7/16-20	25/64		

METRIC TAP DRILL SIZES

Tap Size	Drill Size	Decimal Equivalent	Nearest Fraction
3 x .50	#39	0.0995	3/32
3 x .60	3/32	0.0937	3/32
4 x .70	#30	0.1285	1/8
4 x .75	1/8	0.125	1/8
5 x .80	#19	0.166	11/64
5 x .90	#20	0.161	5/32
6 x 1.00	#9	0.196	13/64
7 x 1.00	16/64	0.234	15/64
8 x 1.00	J	0.277	9/32
8 x 1.25	17/64	0.265	17/64
9 x 1.00	5/16	0.3125	5/16
9 x 1.25	5/16	0.3125	5/16
10 x 1.25	11/32	0.3437	11/32
10 x 1.50	R	0.339	11/32
11 x 1.50	3/8	0.375	3/8
12 x 1.50	13/32	0.406	13/32
12 x 1.75	13/32	0.406	13/32

GLOSSARY OF TERMS

ABDC: After bottom dead center.

ACV: Alternating current voltage.

Alternator: Electrical generator producing voltage alternating current.

ATDC: After top dead center.

BBDC: Before bottom dead center.

BDC: Bottom dead center.

BTDC: Before top dead center.

CC: Cubic centimeters.

Center Distance: Distance between center of crankshaft and center of driven clutch shaft.

Chain Pitch: Distance between chain link pins (No. 35 = 3/8" or 1 cm). Polaris measures chain length in number of pitches.

CI: Cubic inches.

Clutch Buttons: Plastic bushings which transmit rotation of the clutch to the movable sheave in the drive and driven clutch.

Clutch Offset: Drive and driven clutches are offset so that drive belt will stay nearly straight as it moves along the clutch face.

Clutch Weights: Three levers in the drive clutch which relative to their weight, profile and engine RPM cause the drive clutch to close.

Condenser/Capacitor: A storage reservoir for DC voltage.

Crankshaft Run-Out: Run-out or "bend" of crankshaft measured with a dial indicator while crankshaft is supported between centers on V blocks or resting in crankcase. Measure at various points especially at PTO.

DCV: Direct current voltage.

Dial Bore Gauge: A cylinder measuring instrument which uses a dial indicator. Good for showing taper and out-of-round in the cylinder bore.

Electrical Open: Open circuit. An electrical circuit which isn't complete.

Electrical Short: Short circuit. An electrical circuit which is completed before the current reaches the intended load. (i.e. a bare wire touching the chassis).

End Seals: Rubber seals at each end of the crankshaft.

Engagement RPM: Engine RPM at which the drive clutch engages to make contact with the drive belt.

ft.: Foot/feet.

Foot Pound: Ft. lb. A force of one pound at the end of a lever one foot in length, applied in a rotational direction.

g: Gram. Unit of weight in the metric system.

gal.: Gallon.

HP: Horsepower.

ID: Inside diameter.

in.: Inch/inches.

Inch Pound: In. lb. 12 in. lbs. = 1 ft. lb.

kg/cm²: Kilograms per square centimeter.

kg-m: Kilogram meters.

Kilogram/meter: A force of one kilogram at the end of a lever one meter in length, applied in a rotational direction.

l or ltr: Liter.

lbs/in²: Pounds per square inch.

Left Side: Always referred to based on normal operating position of the driver.

GLOSSARY OF TERMS

m: Meter/meters.

Mag: Magneto.

Magnetic Induction: As a conductor (coil) is moved through a magnetic field, a voltage will be generated in the windings. Mechanical energy is converted to electrical energy in the stator.

mi.: Mile/miles.

mm: Millimeter. Unit of length in the metric system. 1mm = approximately .040".

Nm: Newton meters.

OD: Outside diameter.

Ohm: The unit of electrical resistance opposing current flow.

oz.: Ounce/ounces.

Piston Clearance: Total distance between piston and cylinder wall.

psi.: Pounds per square inch.

PTO: Power take off.

PVT: Polaris Variable Transmission (Drive Clutch System)

qt.: Quart/quarts.

RPM: Revolutions per minute.

Regulator: Voltage regulator. Regulates battery charging system output at approx. 14.5 DCV as engine RPM increases.

Reservoir Tank: The fill tank in the liquid cooling system.

Resistance: In the mechanical sense, friction or load. In the electrical sense, ohms. Both result in energy conversion to heat.

Right Side: Always referred to based on normal operating position of the driver.

RPM: Revolutions per minute.

Secondary Clutch: Driven clutch on chaincase or jackshaft.

Seized Piston: Galling of the sides of a piston. Usually there is a transfer of aluminum from the piston onto the cylinder wall. Possible causes: 1) improper lubrication; 2) excessive temperatures; 3) insufficient piston clearance; 4) stuck piston rings.

Stator Plate: The plate mounted under the flywheel supporting the battery charging coils.

TDC: Top dead center. Piston's most outward travel from crankshaft.

Volt: The unit of measure for electrical pressure of electromotive force. Measured by a voltmeter in parallel with the circuit.

Watt: Unit of electrical power. Watts = amperes x volts.

WOT: Wide open throttle.

CHAPTER 2

MAINTENANCE

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PERIODIC MAINTENANCE CHART

Inspection, adjustment and lubrication intervals of important components is listed in the following chart. Maintenance intervals are based upon average riding conditions and a vehicle speed of approximately 10 mph. Inspect, clean, lubricate, adjust or replace parts as necessary. **NOTE:** Inspection may reveal the need for replacement parts. Always use genuine Polaris parts.

■ **CAUTION:** Due to the nature of these adjustments, it is recommended that service be performed by an authorized Polaris dealer.

► Vehicles subjected to severe use (operation in wet or dusty areas, low speed heavy load operation, prolonged idle) should be inspected and serviced more frequently. For engine oil, short trip cold weather riding also constitutes severe use. Pay special attention to oil level. A rise in oil level in cold weather can indicate moisture collecting in the oil tank. Change oil immediately if oil level begins to rise.

E Emission Control System Service (California).

PERIODIC MAINTENANCE - ENGINE					
	Item	Frequency (Whichever comes first)			Remarks
		Hours	Calendar	Miles (Km)	
E►	Engine Oil - Level/Change	100 hrs	6 months	1000 (1600)	Check Level Daily; Break In service at 1 month
E	Oil Filter	100 hrs	6 months	1000 (1600)	Replace with oil change
E►	Air Filter - Foam Pre-Cleaner	Daily	Daily		Inspect-Clean & oil more often in dirty conditions.
E►	Air Filter - Main Element	Weekly	Weekly		Inspect - Replace if necessary
►	Air Box Sediment Tube	-	Daily		Drain deposits whenever visible
►	Engine Breather Filter	20 hrs	Monthly	200 (320)	Inspect and replace if necessary
►	Oil Tank Vent Hose	100 hrs	12 months	1000 (1600)	Inspect hose routing /hose condition
E■	Valve Clearance	100 hrs	12 months	1000 (1600)	Inspect/Adjust
E	Idle Speed	As required	As required		Adjust
■	Throttle Cable / ETC Switch	50 hrs	6 months	500 (800)	Inspect -Adjust, Lubricate, Replace if necessary
	Choke (Enricher) Cable	50 hrs	6 months	500 (800)	Inspect -Adjust, Lubricate, Replace if necessary
	Carburetor Float Bowl	50 hrs	6 months	500 (800)	Drain bowl periodically and prior to storage
	Carburetor Air Intake Ducts/Flange	50 hrs	6 months	500 (800)	Inspect all ducts for proper sealing/air leaks
E■	Fuel System	100 hrs	12 months	1000 (1600)	Check for leaks at tank cap, lines, fuel valve, filter, pump & carburetor. Replace lines every 2 years.
E■	Fuel Filter	100 hrs	12 months	1000 (1600)	Replace filter annually
	Coolant/Level Inspection	Daily	Daily		Replace engine coolant every 2 years
	Coolant Strength / Pressure Test System	100 hrs	6 months	1000 (1600)	Inspect strength seasonally; Pressure test system annually
	Radiator	100 hrs	12 months	1000 (1600)	Inspect / Clean external surface
	Cooling System Hoses	100 hrs	12 months	1000 (1600)	Inspect
	Engine Mounts	100 hrs	12 months	1000 (1600)	Inspect
	Drain Recoil Housing	Weekly	Weekly		More often if operating in wet environment
	Exhaust Muffler / Pipe	100 hrs	12 months	1000 (1600)	
ELECTRICAL					
E	Spark Plug	100 hrs	12 months	1000 (1600)	Inspect - Replace if necessary
	Wiring	100 hrs	12 months	1000 (1600)	Inspect for abrasion, routing, security
	Ignition Timing	100 hrs	12 months	1000 (1600)	Inspect
	Battery	20 hrs	Monthly	200 (320)	Check terminals; Clean; Check fluid level
	Headlight Aim	As required	As required		Adjust if Necessary
	Headlamp Inspection	Daily	Daily		Check operation daily; Apply Nyogel™ Grease to connector when lamp is replaced
	Tail Lamp Inspection	Daily	Daily		Check Operation Daily; Apply Nyogel™ Grease to socket when lamp is replaced

MAINTENANCE

Product: 2001 Polaris Sportsman 400/500 DUSE & H.O. Motorcycle Service Repair Workshop Manual

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CHASSIS					
		Frequency (Whichever comes first)			
	Item	Hours	Calendar	Miles (Km)	Remarks
▶	General Lubrication	50 hrs	3 months	500 (800)	Lubricate All Fittings, Pivots, Cables, Etc.
▶	Front Hubs/Fluid Check	50 hrs	6 months	500 (800)	Check monthly
▶	Front Hubs/Fluid Change	100 hrs	12 months	1000 (1600)	Check monthly
▶	Front Gearcase Lubricant	100 hrs	12 months	1000 (1600)	Inspect Monthly; Change Annually
	Drive Belt	50 hrs	6 months	500 (800)	Inspect - Adjust, Replace if Necessary
	Clutches (Drive And Driven)	100 hrs	12 months	1000 (1600)	Inspect, Clean
▶	Transmission Oil Level	25 hrs	Monthly	250 (400)	Inspect Monthly; Change Annually
	Shift Linkage	50 hrs	6 months	500 (800)	Inspect, Lubricate, Adjust
	Shift Selector Box	200 hrs	24 months	2000 (3200)	Change Lubricant Every Two Years
■	Steering	50 hrs	6 months	500 (800)	Inspect Daily, Lubricate
■	Toe Adjustment	As required	As required		Periodic Inspection, Adjust When Parts are Replaced
▶	Front Suspension	50 hrs	6 months	500 (800)	Inspect - Lubricate
▶	Rear Suspension	50 hrs	6 months	500 (800)	Inspect - Lubricate
	Tires	Pre-ride	Pre-ride		Inspect Daily, Pre-Ride Inspection Item
■	Brake Fluid	200 hrs	24 months	2000 (3200)	Change Every Two Years
▶	Brake Fluid Level	Pre-ride	Pre-ride		Inspect Daily, Pre-Ride Inspection Item
▶	Brake Lever Travel	Pre-ride	Pre-ride		Inspect Daily, Pre-Ride Inspection Item
■	Brake Pad Wear	10 hrs	Monthly	100 (160)	Inspect Periodically
	Auxiliary Brake Adjustment	As required	As required		Inspect Deflection Daily; Adjust
	Brake System	Pre-ride	Pre-ride		Pre-Ride Inspection Item
	Wheels	Pre-ride	Pre-ride		Pre-Ride Inspection Item
	Frame Nuts, Bolts, Fasteners	Pre-ride	Pre-ride		Pre-Ride Inspection Item

PRE-RIDE / DAILY INSPECTION

Perform the following pre-ride inspection daily, and when servicing the vehicle at each scheduled maintenance.

- Tires - check condition and pressures
- Fuel and oil tanks - fill both tanks to their proper level; Do not overfill oil tank
- All brakes - check operation and adjustment (includes auxiliary brake)
- Throttle - check for free operation and closing
- Headlight/Taillight/Brakelight - check operation of all indicator lights and switches
- Engine stop switch - check for proper function
- Wheels - check for tightness of wheel nuts and axle nuts; check to be sure axle nuts are secured by cotter pins
- Air cleaner element - check for dirt; clean or replace
- Steering - check for free operation noting any unusual looseness in any area
- Loose parts - visually inspect vehicle for any damaged or loose nuts, bolts or fasteners
- Engine coolant - check for proper level at the recovery bottle

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