CHAPTER 1
GENERAL

Specs

1

MODEL IDENTIFICATION

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

Machine Model Number Identification

R 06 RB 63 AA

- 06 — Model Year Designation
- RB — Basic Chassis Designation
- 63 — Engine Designation
- AA — Emissions & Model Option

Engine Designation Number

EH63PFE010 . . . . . Twin, Air-cooled, OHV 4 Stroke, Electric Start

50 EH50PLE . Single, L/C, SOHC 4 Stroke, Electric Start

VIN Identification

World Mfg. ID			Vehicle Description						Vehicle Identifier							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4	X	A	R	F	5	0	A	*	5	P	0	0	0	0	0	0

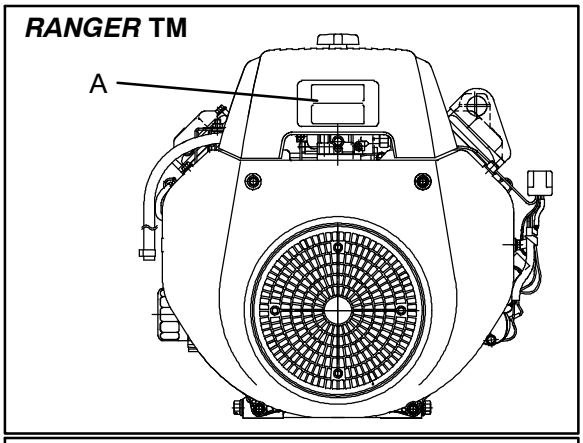
- 4XA — World Mfg. ID
- R — Body Style
- F — Powertrain
- 50 — Engine
- A — Emissions
- * — Check Digit
- 5 — Model Year
- P — Plant No.
- 000000 — Individual Serial No.

* This could be either a number or a letter

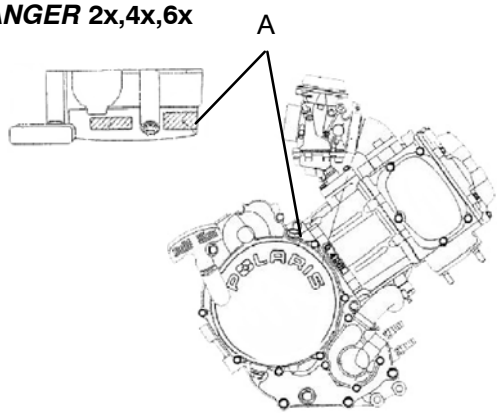
ENGINE SERIAL NUMBER LOCATION

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 flywheel housing on the right side of engine (A).

***RANGER* TM**

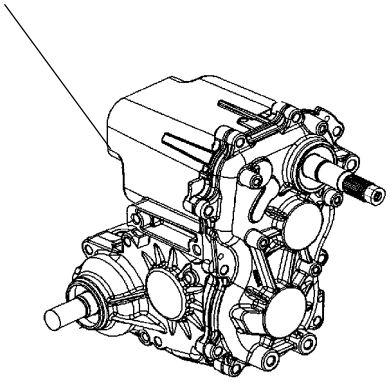


***RANGER* 2x,4x,6x**



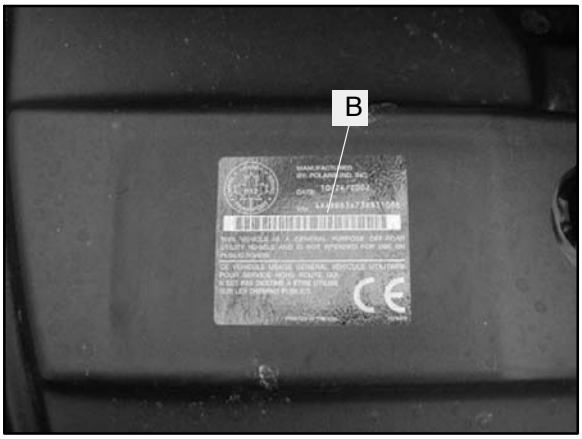
TRANSMISSION I.D. NUMBER LOCATION

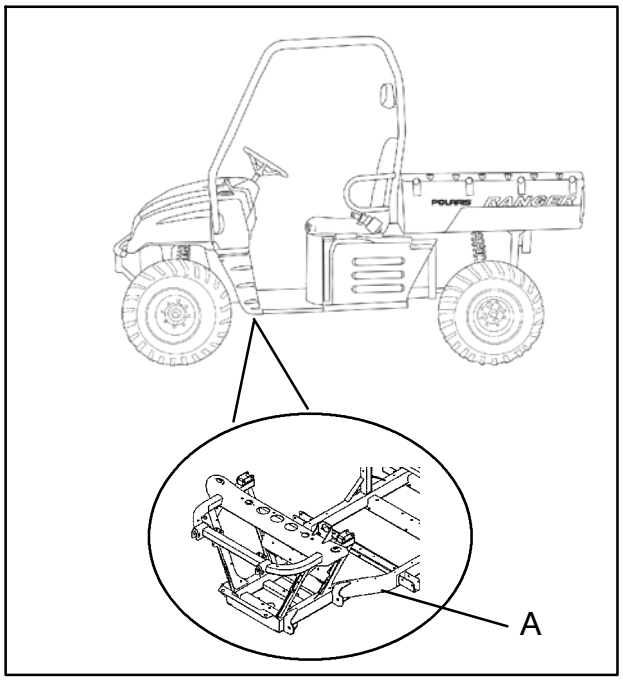
The transmission I.D. number is located on the right side of machine.



MACHINE MODEL NUMBER AND SERIAL NUMBER LOCATION

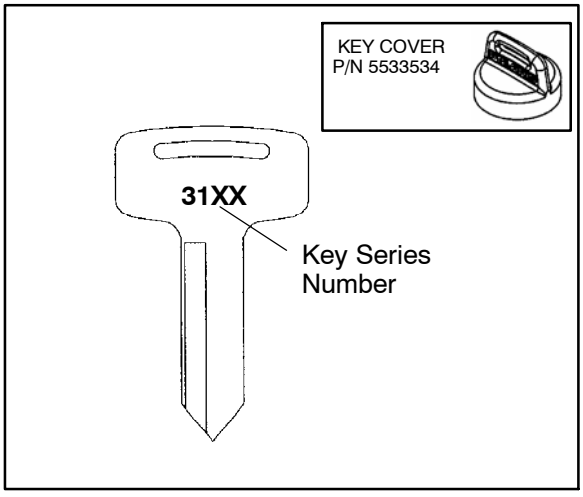
The machine model number and serial number are important for vehicle identification. The machine serial number (A) is stamped on the lower frame rail close to the front drive wheel. The model and serial number (B) are also located on a sticker on the hood liner.





REPLACEMENT KEYS

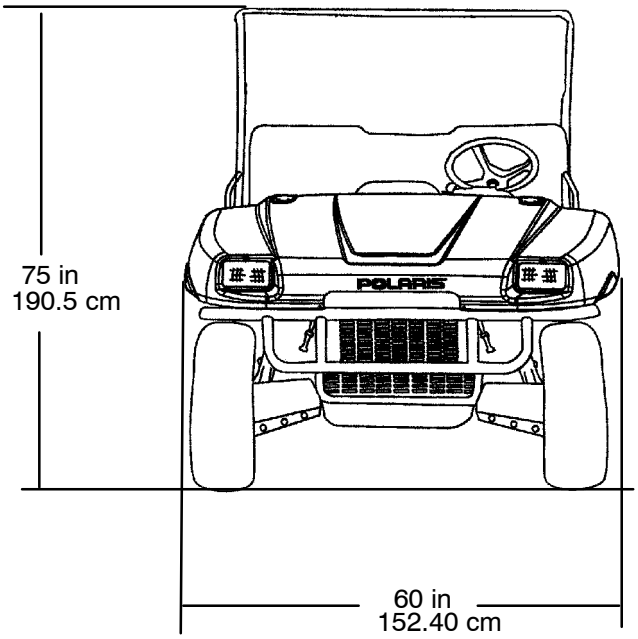
Replacement keys can be made from the original key. To identify which series the key is, take the first two digits on the original key and refer to the chart to the right for the proper part number.



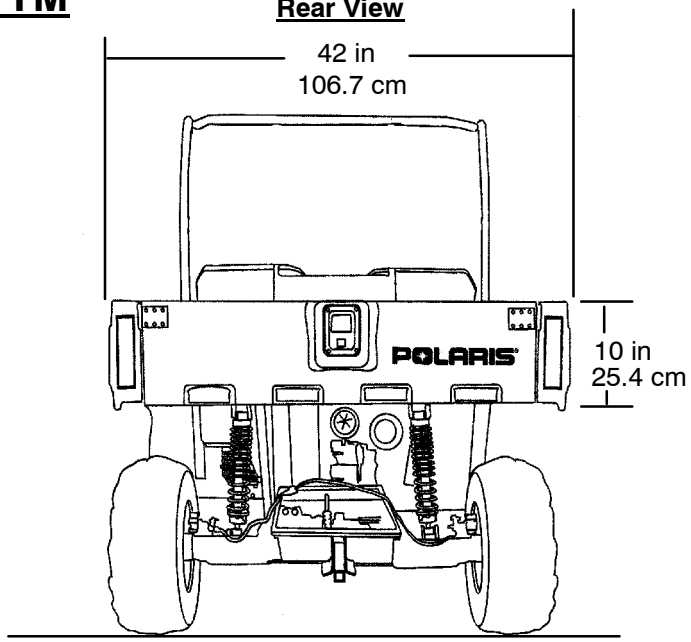
Series #	Part Number
20	4010278
21	4010278
22	4010321
23	4010321
27	4010321
28	4010321
31	4110141
32	4110148
67	4010278
68	4010278

MACHINE DIMENSIONS *RANGER* TM

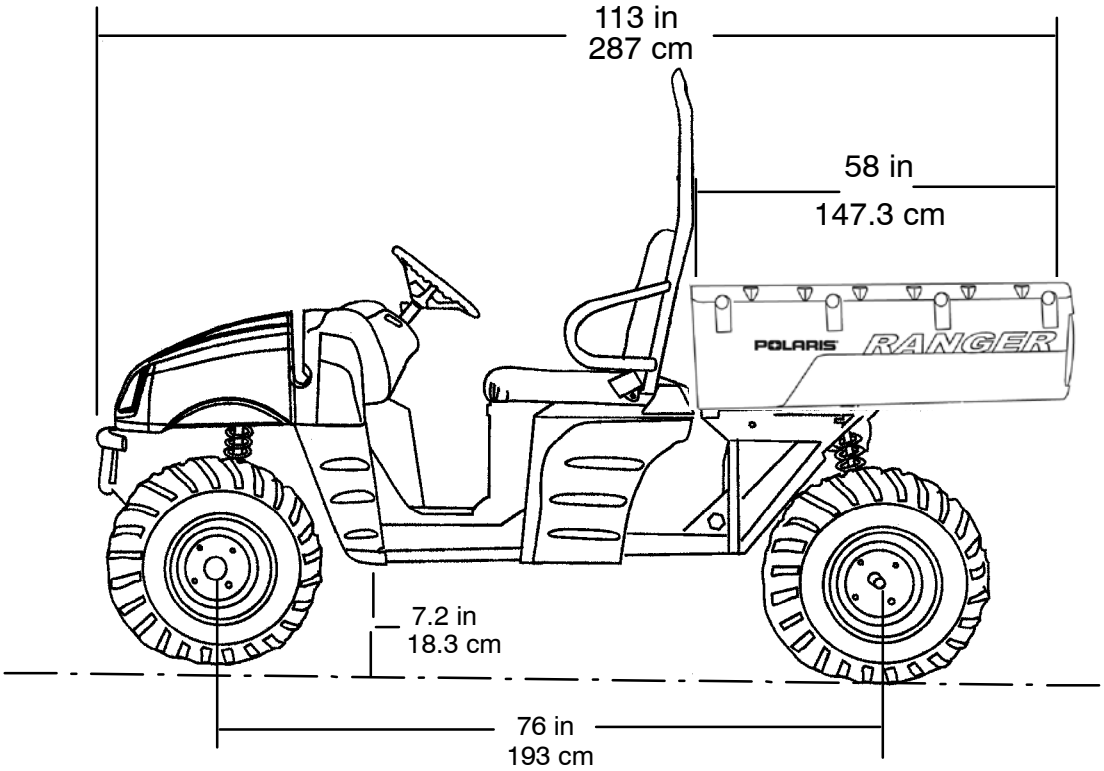
Front View



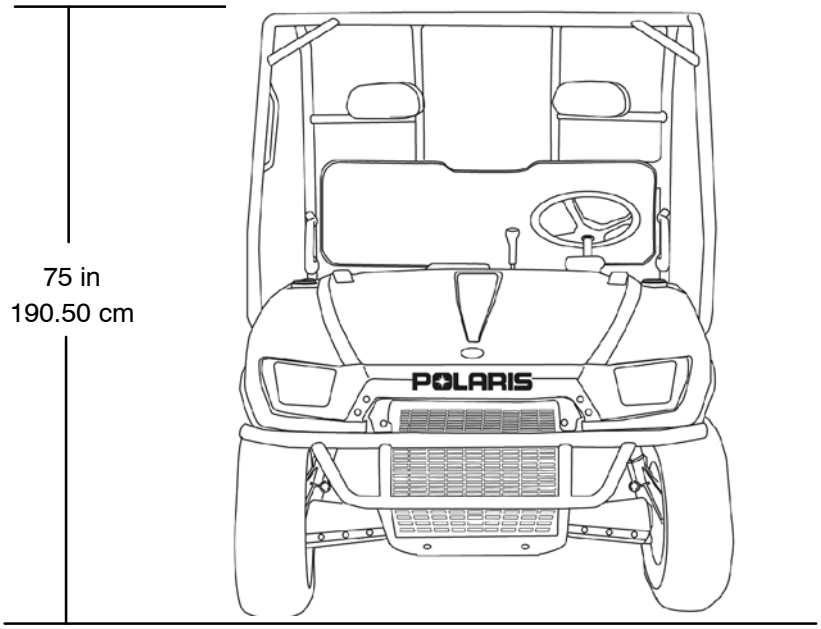
Rear View



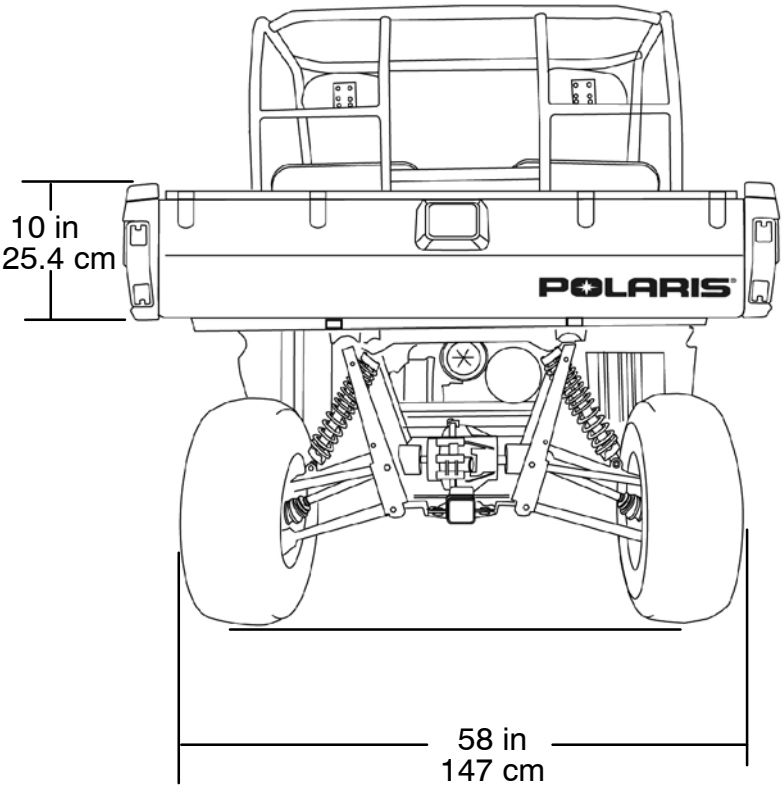
Side View



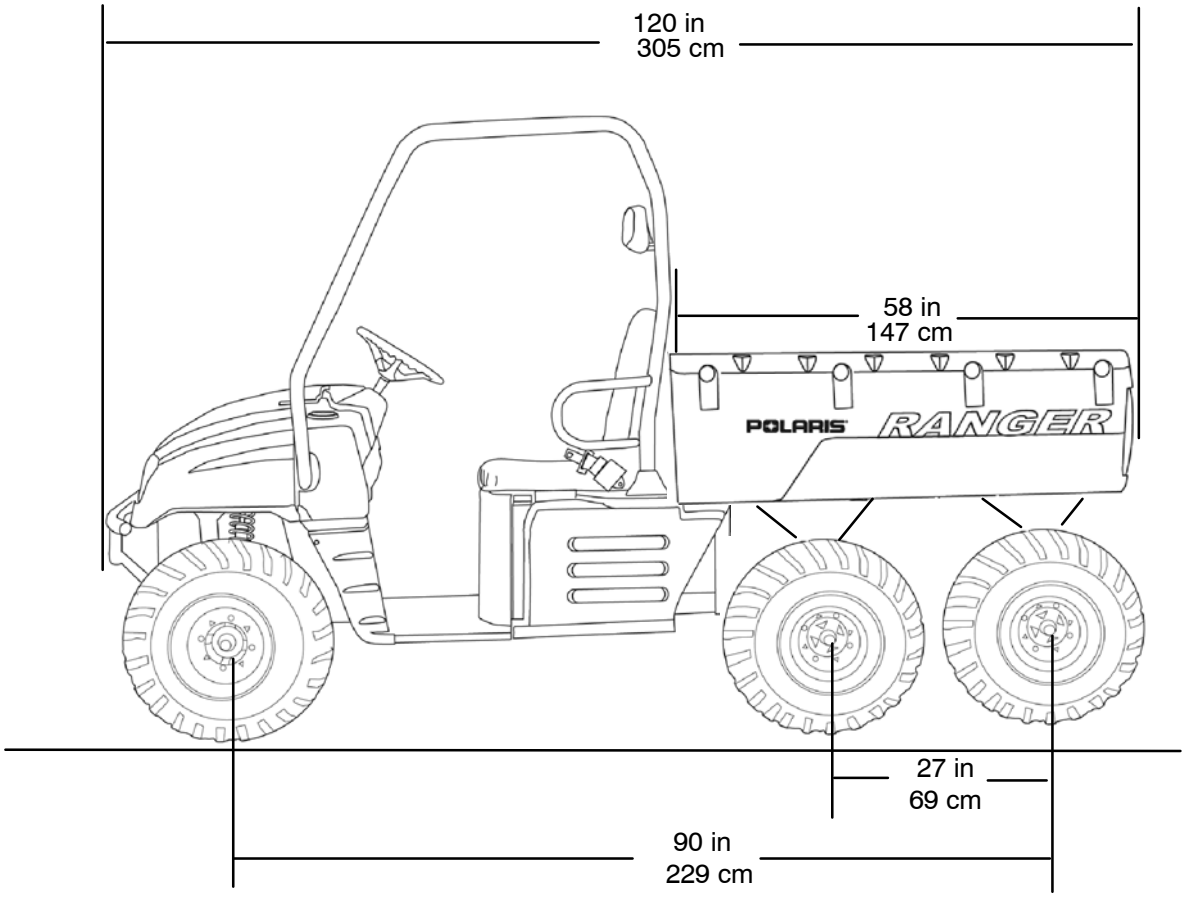
MACHINE DIMENSIONS *RANGER* 2X,4X,6X

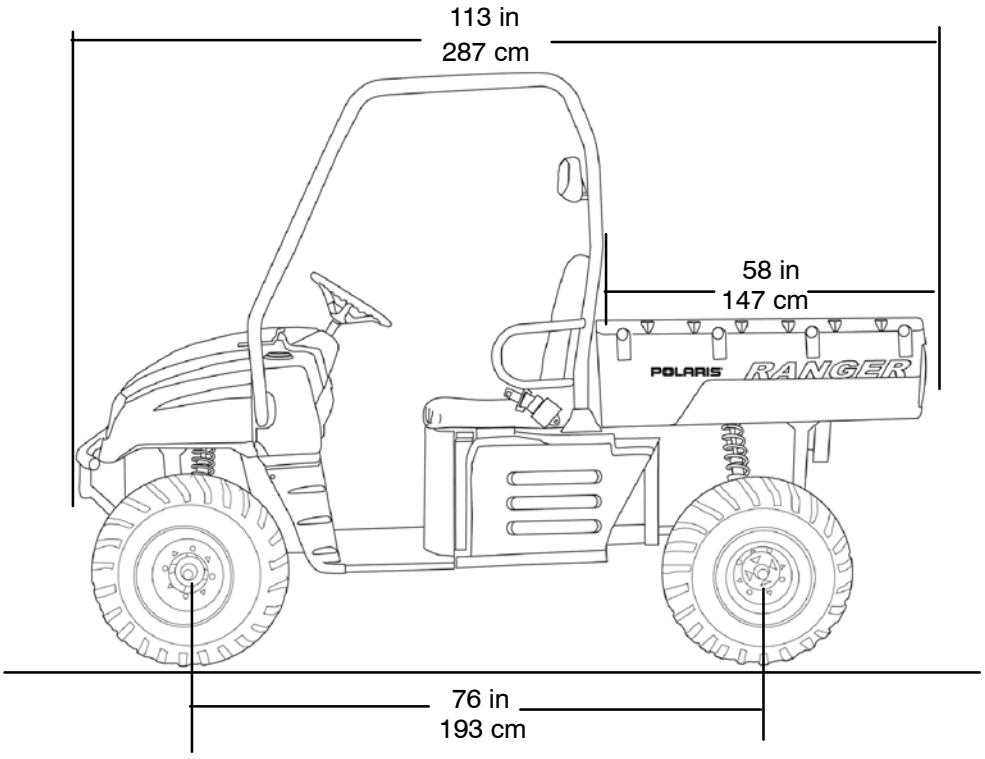


***RANGER* 2x4, 4x4**



MACHINE DIMENSIONS *RANGER* 2X,4X,6X





MODEL: 2005-2006 *RANGER* TM

MODEL NUMBER: . R05RB63AA, R06RB63AA
ENGINE MODEL: . . EH650DA70

Category	Dimension / Capacity
Length	**113 in./287 cm**
Width	**60 in./152.4 cm**
Height	**75 in./190.5 cm**
Wheel Base	**76 in./193 cm**
Turning Radius	**76 in./193 cm**
Ground Clearance	**7.2 in./183 cm**
Dry Weight	**1050 lbs./476 kg**
Gross Vehicle Weight	**2400 Lbs. / 1089 kg**
Cargo Box Capacity	**750 lbs./340 kg**
Cargo Box Dimensions	**58 x 42 x 10 in. / (147 x 106.7 x 25.4 cm)**
Vehicle Payload	**1250 lbs./567.5 kg (Includes driver,cargo, and passenger)**
Hitch Towing Capacity	**1000 lbs./454 kg**
Hitch Tongue Capacity	**100 lbs./45.4 kg**

***RANGER* TM**

MODEL: 2005-2006 *RANGER* 2x4

MODEL NUMBER: . R05RB50AA, R06RB50AA
ENGINE MODEL: . . EH50PLE

Category	Dimension / Capacity
Length	**113 in./287 cm**
Width	**60 in./152.4 cm**
Height	**75 in./190.50 cm**
Wheel Base	**76 in./193 cm**
Ground Clearance	**Front - 11 in./28 cm Rear - 12 in. /30.5 cm**
Dry Weight	**1105 lbs./412 kg**
Gross Vehicle Weight	**2500 Lbs. / 1135 kg**
Cargo Box Capacity	**850 lbs./385 kg**
Cargo Box Dimensions	**58 x 42 x 10 in. / (147 x 106.7 x 25.4 cm)**
Vehicle Payload	**1500 lbs./681 kg (Includes driver,cargo, and passenger)**
Hitch Towing Capacity	**1400 lbs./523 kg**
Hitch Tongue Capacity	**150 lbs./68.1 kg**

***RANGER* 2x4**

MODEL: 2005-2006 *RANGER* 4X4

MODEL NUMBER: . R05RD50AA, R06RD50AA
ENGINE MODEL: . . EH50PLE

Category	Dimension / Capacity
Length	**113 in./287 cm**
Width	**60 in./152.4 cm**
Height	**75 in./190.50 cm**
Wheel Base	**76 in./193 cm**
Ground Clearance	**Front - 11 in./28 cm Rear - 12 in. /30.5 cm**
Dry Weight	**1185 lbs./537 kg**
Gross Vehicle Weight	**2700 Lbs. / 1226 kg**
Cargo Box Capacity	**1000 lbs./454 kg**
Cargo Box Dimensions	**58 x 42 x 10 in. / (147 x 106.7 x 25.4 cm)**
Vehicle Payload	**1500 lbs./681 kg (Includes driver,cargo, and passenger)**
Hitch Towing Capacity	**1500 lbs./681 kg**
Hitch Tongue Capacity	**150 lbs./68.1 kg**

***RANGER* 4x4**

MODEL: ..... 2005 *RANGER* 6X6

MODEL NUMBER: . R05RF50AA
ENGINE MODEL: . . EH50PLE

Category	Dimension / Capacity
Length	**120 in./305 cm**
Width	**60 in./152.4 cm**
Height	**75 in./190.50 cm**
Wheel Base	**90 in./229 cm**
Ground Clearance	**7.2 in./18.25 cm**
Dry Weight	**1410 lbs./526 kg**
Gross Vehicle Weight	**2900 Lbs. / 1315 kg**
Cargo Box Capacity	**1250 lbs./567 kg**
Cargo Box Dimensions	**58 x 48 x 10 in. / (147 x 122 x 25.4 cm)**
Vehicle Payload	**1750 lbs./794 kg (Includes driver,cargo, and passenger)**
Hitch Towing Capacity	**1750 lbs./794 kg**
Hitch Tongue Capacity	**150 lbs./68.1 kg**

***RANGER* 6x6**

MODEL: . . . . . 2005-2006 *RANGER* TM
MODEL NUMBER: . R05RB63AA, R06RB63AA
ENGINE MODEL: . . EH650DA70

Engine	
Platform	Robin V-Twin, OHV 4 stroke
Engine Model Number	EH650DA7001
Engine Displacement	653cc
Number of Cylinders	2
Bore & Stroke (mm)	2 - 80 x 65 mm
Compression Ratio	8.3:1
Engine Idle Speed	1000 ± 100 RPM
Valve Clearance Int./Exh.	0.1 ± 0.015 mm
Thermostat Opening Temperature	N/A
Oil Pressure Warning	Dash Light
Lubrication	Pressurized Wet Sump
Oil Requirements	0W-40
Oil Capacity	1.64 qts. / 1.55L
Exhaust System	2 to 1 canister style
Carburetion	
Carburetor model	27 mm Nikki Down Draft Type
Main Jet	140
Pilot (Slow) Jet	50
Jet Needle	N/A
Needle Jet	N/A
Air Screw	2 Turns Out (Initial starting point, settings may vary)
Fuel Delivery	Gravity Fuel Pump
Fuel Requirement	87 Octane (minimum)
Fuel Capacity	8 gal. / 30.1 L
Electrical	
Alternator Max Output	360 watts @ 3600 RPM
Lights : Main Headlights	2-Dual Beam 35 watts / quartz
Tail	5 watts
Brake	5 watts
Indicator Panel Lights	1 watt (ea.)
Ignition System	Electric Start
Max RPM	3600
Ignition Timing	26.5° ± 2° BTDC @ 3600 RPM
Ignition Coil Clearance	0.3 - 0.5 mm
Spark plug / Gap	NGK BPR4EY/ .035 in./ 0.9 mm
Battery / Model / Amp Hr	Maintenance-Free 30 Amp/12Volt
Circuit Breakers	Harness 20 amp
Starting	Electric - Standard
Instrument Panel Type	Indicator Lights/Hour Meter

Drivetrain	
Transmission Type	Dual Sensing Automatic PVT
Gear Ratio : High Rev.	4.71:1 6.84:1
Final Drive Ratio	3.70:1
Shift Type	In Line EZ Shift Hi/Low/Reverse
Trans. Oil Requirements	Polaris Gear Drive Fluid
Belt	3211101
Drive Belt Deflection	1.125″ / 28.57 mm
Center Distance	14.5” / 368 mm
Clutch Offset	0.5” / 12.7 mm
Springs and Clutches	See Chart on Previous Page
Steering / Suspension	
Front Suspension	MacPherson Strut
Front Travel	4.6 in. / 12 cm
Rear Suspension	Swing Arm w/ Dual Shocks
Rear Travel	4.25 in. / 11 cm
Ground Clearance	7.2 in. / 18.3 cm
Shock Preload Adjustment Front / Rear	Cam Adjustment 2-2” Twin Tubes
Turning Radius	132 in. / 335.3 cm
Toe Out	1/8-1/4 in. / 3-6.35 mm
Wheels / Brakes	
Wheel Size - Front	25x10-12
Wheel Size - Rear	25x11-12
Recommended Air Pressure F / R	6-10 psi Front 6-10 psi Rear
Brake - Front	Dual Hydraulic Disc
Brake - Rear	Dual Hydraulic Disc
Parking Brake	Foot Actuated (Mechanical)
Brake Fluid	DOT 3 or DOT 4

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below 5°C	+40°F to +80°F +5°C to +28°C
Meters (Feet)	0-1500 (0-5000)	132 (3088426)	132 (3088426)
	above 1500 (above 5000)	124 (3088823)	124 (3088823)

CLUTCH CHART

All Applications	Shift Weight	Drive Spring	Driven Spring
	208 grams (3234176)	Black/Grn (3234184)	Pur/Yel (3234186)

NOTE: The *RANGER* TM contains a different style clutch than the other *RANGER* models. The clutches use the same springs and weights for high elevation.

MODEL: . . . . . 2005-2006 *RANGER* 2X4
MODEL NUMBER: . R05RB50AA, R06RB50AA
ENGINE MODEL: . . EH50PLE

Engine	
Platform	Fuji 4 stroke, Single Cylinder
Engine Model Number	MY'05: EH50PLE166 MY'06: EH50PLE167
Engine Displacement	500cc
Number of Cylinders	1
Bore & Stroke (mm)	92 x 75 mm
Compression Ratio	10.2:1
Compression Pressure	70-90 psi
Engine Idle Speed	1200 ± 200 RPM
Valve Clearance Int./Exh.	0.006mm (.006 in.)
Engine Hot Light	Dash Light
Lubrication	Pressurized Dry Sump
Oil Requirements	0W-40
Oil Capacity	2 qts. / 2.1 L
Coolant Capacity	2.25 qts. / 2.4 L
Exhaust System	2 to 1 canister style
Carburetion	
Carburetor model	Mikuni BST 34 CV
Main Jet	135
Pilot Jet	42.5
Jet Needle	4MB32-3
Needle Jet	P-6 (829)
Pilot Screw	2.5 Turns Out (Initial starting point, settings may vary)
Pilot Air Jet	160
Float Height	13 ± 1 mm (0.51 ± 0.40")
Fuel Delivery	Electric Fuel Pump
Fuel Capacity / Requirement	8.5 gal. (32.2 L) 87 Octane (minimum)
Electrical	
Alternator Max Output	250 watts @ 5000 RPM
Lights : Main Headlights	2 - Dual Beam 35 watts / quartz
Tail	5 watts
Brake	5 watts
Indicator Panel Lights	1 watt (ea.)
CDI Marking	CU2570
Ignition System	Electric Start (CDI)
RPM Limit	6600 RPM
Ignition Timing	30° ± 2° BTDC @ 5000 RPM
Spark plug / Gap	NGK BKR5E/ .036 in./ 0.9 mm
Battery / Model / Amp Hr	Yuasa YB30L-B/ 30 AmpHr./12Volt
Instrument Panel Type	Indicator Lights/Hour Meter
DC Outlet	Standard

Drivetrain	
Transmission Type	Dual Sensing Automatic PVT
Gear Ratio : High Low Rev.	 3.81:1 8.66:1 5.91:1
Final Drive Ratio	3.70:1
Shift Type	In Line EZ Shift Hi/Low/Reverse
Trans. Oil Requirements	Polaris AGL Gearcase Lube
Belt	3211094
Drive Belt Deflection	1.125" / 28.57 mm
Center Distance	10" / 254.5 mm
Clutch Offset	0.5" / 12.7 mm
Springs and Weights	See Below
Steering / Suspension	
Front Suspension	MacPherson Strut
Front Travel	6.7 in. / 170 mm
Rear Suspension	Independent Rear Suspension
Rear Travel	8.63 in. / 22 cm
Ground Clearance	Front - 11 in./28 cm Rear - 12 in. /30.5 cm
Shock Preload Adjustment Front / Rear	Cam Adjustment 2-2" Twin Tubes
Turning Radius	132 in. / 335.3 cm
Toe Out	1/8-1/4 in. / 3-6.35 mm
Wheels / Brakes	
Wheel Size - Front	25x10-12
Wheel Size - Rear	25x11-12
F/R Tire Air Pressure	8-12 psi Front / 8-12 psi Rear
Brake - Front	Dual Hydraulic Disc
Brake - Rear	Dual Hydraulic Disc
Parking Brake	Foot Actuated (Mechanical)
Brake Fluid	DOT 3 or DOT 4

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below 5°C	+40°F to +80°F +5°C to +28°C
Meters (Feet)	0-1500 (0-5000)	140 (3130527)	135 (3130563)
	above 1500 (above 5000)	132.5 (3130562)	127.5 (3130560)

CLUTCH CHART

Altitude		Shift Weight	Drive Spring	Second Spring	Driven Helix
Meters (Feet)	0-1500 (0-5000)	10 BH (5630711)	Blu/Grn (7041157)	Black (7041782)	41-37 (5132344)
	1500-3700 (5000-12000)	10 RH (5630709)	Blu/Grn (7041157)	Black (7041782)	41-37 (5132344)

MODEL: . . . . . 2005-2006 *RANGER* 4X4
MODEL NUMBER: . R05RD50AA, R06RD50AA
ENGINE MODEL: . . EH50PLE

Engine	
Platform	Fuji 4 stroke, Single Cylinder
Engine Model Number	MY'05: EH50PLE166 MY'06: EH50PLE167
Engine Displacement	499cc
Number of Cylinders	1
Bore & Stroke (mm)	92 x 75 mm
Compression Ratio	10.2:1
Compression Pressure	70-90 psi
Engine Idle Speed	1200 ± 200 RPM
Valve Clearance Int./Exh.	0.006 mm (.006 in.)
Engine Hot Light	Dash Light
Lubrication	Pressurized Dry Sump
Oil Requirements	0W-40
Oil Capacity	2 qts. / 2.1 L
Coolant Capacity	2.25 qts. / 2.4 L
Exhaust System	2 to 1 canister style
Carburetion	
Carburetor model	Mikuni BST 34 CV
Main Jet	135
Pilot Jet	42.5
Jet Needle	4MB32-3
Needle Jet	P-6 (829)
Pilot Screw	2.5 Turns Out (Initial starting point, settings may vary)
Pilot Air Jet	160
Float Height	13 ± 1 mm (0.51 ± 0.40")
Fuel Delivery	Electric Fuel Pump
Fuel Capacity / Requirement	8.5 gal. (32.2 L) 87 Octane (minimum)
Electrical	
Alternator Max Output	250 watts @ 5000 RPM
Lights : Main Headlights	2 - Dual Beam 35 watts / quartz
Tail	5 watts
Brake	5 watts
Indicator Panel Lights	1 watt (ea.)
CDI Marking	CU2570
RPM Limit	6600 RPM
Ignition System	Electric Start (CDI)
Ignition Timing	30° ± 2° BTDC @ 5000 RPM
Spark plug / Gap	NGK BKR5E/ .036 in./ 0.9 mm
Battery / Model / Amp Hr	Yuasa YB30L-B 30 AmpHr./12Volt
Instrument Panel Type	Indicator Lights/Hour Meter
DC Outlet	Standard

Drivetrain	
Transmission Type	Dual Sensing Automatic PVT
Gear Ratio : High Low Rev.	 3.83:1 8.71:1 5.94:1
Final Drive Ratio	3.70:1
Front Drive Ratio	3.83:1
Shift Type	In Line EZ Shift Hi/Low/Reverse
Trans. Oil Requirements	Polaris AGL Gearcase Lube
Belt	3211094
Drive Belt Deflection	1.125" / 28.57 mm
Center Distance	10" / 254.5 mm
Clutch Offset	0.5" / 12.7 mm
Springs and Weights	See Below
Steering / Suspension	
Front Suspension	MacPherson Strut
Front Travel	6.7 in. / 170 mm
Rear Suspension	Independent Rear Suspension
Rear Travel	8.63 in. / 22 cm
Ground Clearance	Front - 11 in./28 cm Rear - 12 in. /30.5 cm
Shock Preload Adjustment Front / Rear	Cam Adjustment 2-2" Twin Tubes
Turning Radius	132 in. / 335 cm
Toe Out	1/8-1/4 in. / 3-6.35 mm
Wheels / Brakes	
Wheel Size - Front	25x10-12
Wheel Size - Rear	25x11-12
F/R Tire Air Pressure	8-12 psi Front / 8-12 psi Rear
Brake - Front	Dual Hydraulic Disc
Brake - Rear	Dual Hydraulic Disc
Parking Brake	Foot Actuated (Mechanical)
Brake Fluid	DOT 3 or DOT 4

JETTING CHART

Altitude		AMBIENT TEMPERATURE	
		Below 40°F Below 5°C	+40°F to +80°F +5°C to +28°C
Meters (Feet)	0-1500 (0-5000)	140 (3130527)	135 (3130563)
	above 1500 (above 5000)	132.5 (3130562)	127.5 (3130560)

CLUTCH CHART

Altitude		Shift Weight	Drive Spring	Second Spring	Driven Helix
Meters (Feet)	0-1500 (0-5000)	10 MH (5630513)	Blu/Grn (7041157)	Black (7041782)	40 (5131446) 2-2
	1500-3700 (5000-12000)	10 WH (5630710)	Blu/Grn (7041157)	Black (7041782)	40 (5131446) 2-2

MODEL: . . . . . 2005 *RANGER* 6X6
MODEL NUMBER: . R05RF50AA
ENGINE MODEL: . . EH50PLE

Engine	
Platform	Fuji 4 stroke, Single Cylinder
Engine Model Number	EH50PLE166
Engine Displacement	499cc
Number of Cylinders	1
Bore & Stroke (mm)	92 x 75 mm
Compression Ratio	10.2:1
Compression Pressure	70-90 psi
Engine Idle Speed	1200 ± 200 RPM
Valve Clearance Int./Exh.	0.006 mm (.006 in.)
Engine Hot Light	Dash Light
Lubrication	Pressurized Dry Sump
Oil Requirements	0W-40
Oil Capacity	2 qts. / 2.1 L
Coolant Capacity	2.25 qts. / 2.4 L
Exhaust System	2 to 1 canister style
Carburetion	
Carburetor model	Mikuni BST 34 CV
Main Jet	135
Pilot Jet	42.5
Jet Needle	4MB32-3
Needle Jet	P-8M (829)
Pilot Screw	2.5 Turns Out (Initial starting point, settings may vary)
Pilot Air Jet	160
Float Height	13 ± 1 mm (0.51 ± 0.40“)
Fuel Delivery	Electric Fuel Pump
Fuel Capacity / Requirement	8.5 gal. (32.2 L) 87 Octane (minimum)
Electrical	
Alternator Max Output	250 watts @ 5000 RPM
Lights : Main Headlights	2 - Dual Beam 35 watts / quartz
Tail	5 watts
Brake	5 watts
Indicator Panel Lights	1 watt (ea.)
CDI Marking	CU2570
RPM Limit	6600 RPM
Ignition System	Electric Start (CDI)
Ignition Timing	30° ± 2° BTDC @ 5000 RPM
Spark plug / Gap	NGK BKR5E/ .036 in./ 0.9 mm
Battery / Model / Amp Hr	Yuasa YB30L-B 30 AmpHr./12Volt
Instrument Panel Type	Indicator Lights/Hour Meter
DC Outlet	Standard

Drivetrain	
Transmission Type	Dual Sensing Automatic PVT
Gear Ratio : High Low Rev.	 3.83:1 8.71:1 5.94:1
Final Drive Ratio	3.70:1
Front Drive Ratio	3.83:1
Mid Drive Ratio	3.70:1
Shift Type	In Line EZ Shift Hi/Low/Reverse
Trans. Oil Requirements	Polaris AGL Gearcase Lube
Belt	3211094
Drive Belt Deflection	1.125″ / 28.57 mm
Center Distance	10” / 254.5 mm
Clutch Offset	0.5” / 12.7 mm
Springs and Weights	See Below
Steering / Suspension	
Front Suspension	MacPherson Strut
Front Travel	6.7 in. / 170 mm
Rear Suspension	Swing Arm w/ Dual Shocks
Rear Travel	6.25 in. / 158.75 mm
Ground Clearance	7.2 in. / 180 mm
Shock Preload Adjustment Front / Rear	Cam Adjustment 2-2” Twin Tubes
Turning Radius	186 in. (472.4 cm)
Toe Out	1/8-1/4 in. / 3-6.35 mm
Wheels / Brakes	
Wheel Size - Front	25x10 - 12
Wheel Size - Rear	25x11 - 12
Recommended Air Pressure F / R	8-12 psi Front 8-12 psi Rear
Brake - Front	Dual Hydraulic Disc
Brake - Rear	Dual Hydraulic Disc
Parking Brake	Foot Actuated (Mechanical)
Brake Fluid	DOT 3 or DOT 4

JETTING CHART		AMBIENT TEMPERATURE	
Altitude		Below 40°F Below 5°C	+40°F to +80°F +5°C to +28°C
Meters (Feet)	0-1500 (0-5000)	140 (3130527)	135 (3130563)
	above 1500 (above 5000)	132.5 (3130562)	127.5 (3130560)

CLUTCH CHART

Altitude		Shift Weight	Drive Spring	Second Spring	Driven Helix
Meters (Feet)	0-1500 (0-5000)	G (5630514)	Blu/Grn (7041157)	Silver (7041499)	41-37 (5132344) 1-1
	1500-3700 (5000-12000)	F (5630515)	Blu/Grn (7041157)	Silver (7041499)	41-37 (5132344) 1-1

PUBLICATION NUMBERS

Model	Model No.	Owner's Manual PN	Parts Manual PN	Parts Micro Fiche PN
2005 RANGER TM	R05RB63AA	9919534	9919817	9919818
2005 RANGER 2x4, 4x4, 6x6	R05RB50AA R05RD50AA R05RF50AA	9919534	9919535	9919536
2006 RANGER TM	R05RB63AA	9920210	9920215	9920216
2006 RANGER 2x4, 4x4	R05RB50AA R05RD50AA R05RF50AA	9920210	9920211	9920212

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

NOTE: Some Polaris factory publications can be found at **www.polarisindustries.com** or purchased from **www.purepolaris.com**.

PAINT CODES

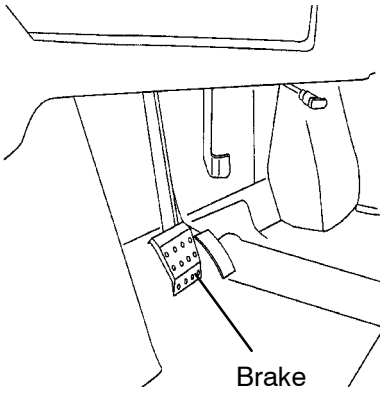
PAINTED PART	COLOR DESCRIPTION	POLARIS NUMBER
Frame/Cab	Medium Gloss Black	P-067
RANGER 2x, 4x, 6x - Plastic - Hood / Dash	Eddie Bauer Green	P-195
RANGER TM - Plastic - Hood / Dash	Porsche Red	P-136

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

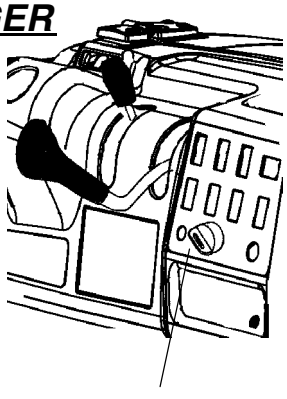
STARTING THE *RANGER*

NOTICE: To start the *RANGER*, place the gear selector in neutral. Press down on the brake and turn the key. The *RANGER* utilizes the brake start safety feature to help prevent any possible injury or accidents that may occur during initial machine start up.

Starting the *RANGER*



1. Press down on the foot brake.

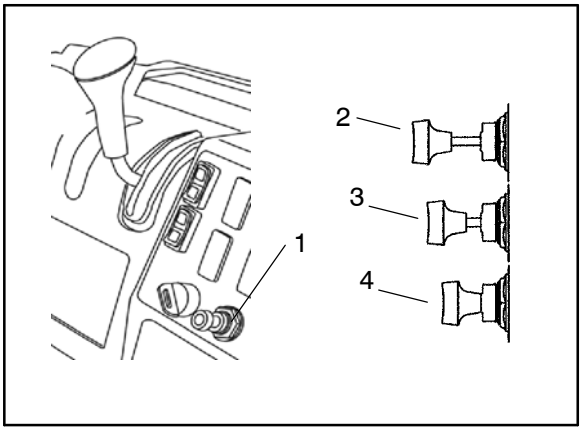


2. Shift to neutral and turn the ignition key to start the vehicle

STARTING THE *RANGER* IN COLD CONDITIONS

1. Place the transmission in neutral.
2. Lock the parking brake.
3. Sit in the driver's seat and fasten the seat belt.

NOTE: Do not use the choke before attempting to start the *RANGER* TM model. If the engine does not start on the first attempt without choking, proceed to step 4.



4. Pull the choke knob (1) all the way out (2).

NOTE: Do not press the throttle pedal while starting the engine.

CAUTION: Do not operate the starter continuously for more than five seconds or the starter will overheat and the battery power will drop temporarily. Wait at least five seconds between each operation of the starter to allow it to cool and to allow battery power recovery.

WARNING: Do not turn the ignition switch key to the START position while the engine is running. Damage to the starter can result.

5. Turn the ignition key to START.
6. If the engine does not start within five seconds, release the ignition switch and wait five seconds. Repeat steps 5. and 6. until the engine starts.
7. After the engine starts, push the choke knob in half way (3).
8. Vary the engine RPM slightly with the throttle to aid in warm up until the engine idles smoothly.
9. Push the choke completely in (4).

STARTING THE *RANGER* IN WITH WARM ENGINE

Warm engines do not normally require the use of the choke. Overuse of the choke can cause the spark plug to become wet fouled.

1. Place the transmission in neutral and move the vehicle to a level surface.
2. Lock the parking brake.
3. Sit in the driver's seat and fasten the seat belt.
4. Turn the ignition key to START.
5. If the engine has cooled and does not readily start, intermittent use of the choke knob (pulled half way out) may be necessary.
6. If the engine is over-choked when warm, depress the throttle lever fully while cranking to aid in starting.
7. Release the throttle lever immediately after the engine starts.

NOTE: If the engine does not start and all conditions are favorable, change the spark plug.

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

RANGER ACCESSORIES

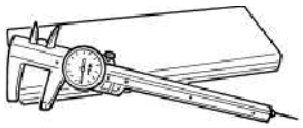
RANGER ACCESSORIES

A variety of accessories are available for your *RANGER.* Contact your dealer for pricing and availability.

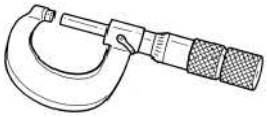
SPECIAL TOOLS

Special Tools maybe required while servicing your machine. Some of the tools listed are mandatory and other tools maybe substituted with a similar tool, if available. Polaris recommends the use of Polaris special tools when servicing any Polaris product.

Standard Tools and Engine Tools



PU-45432 - Caliper or
A Basic Caliper

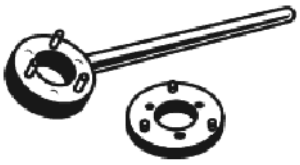


Basic Micrometer

2871043 - Flywheel Puller

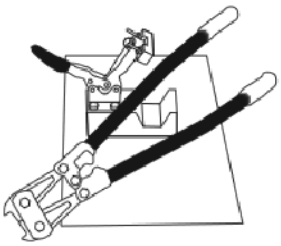
2870773 - C-Clip Install Tool

2870967 - Slotted Nut Socket



8700229 - Flywheel Holder & Adapter

Standard Tools and Engine Tools

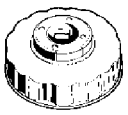


2870569 - Crankshaft True Kit

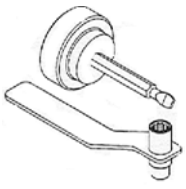
2870386 - Piston Pin Puller

2871445 - Piston Pin Puller Adapter

2870968 - Counter Balance Puller



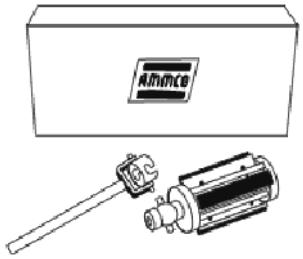
PV-43527 Oil Filter Wrench



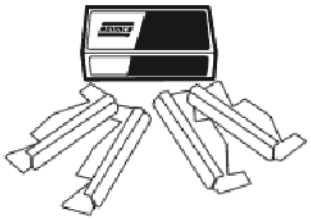
PA-44689 - Valve/Clutch Adjuster

2870390 - Piston Support Block

Standard Tools and Engine Tools

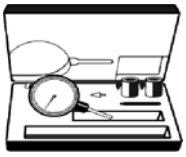


2870303 – Hone Kit

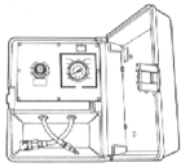


2870305 – Stone Replacement Kit

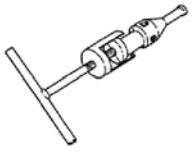
2870588 – Hone Oil (12 oz.)



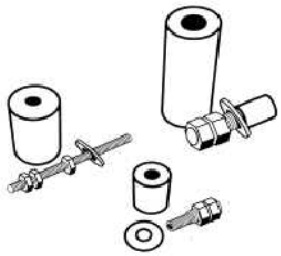
2870459 – Dial Indicator



PV-35667-A – Cylinder Leak down Tester

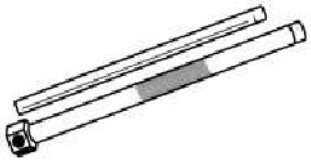


2872105 – Water Pump Seal Puller

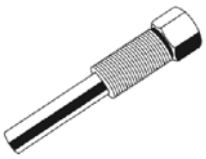


2871283 – Crank/Water Pump Seal Install Kit

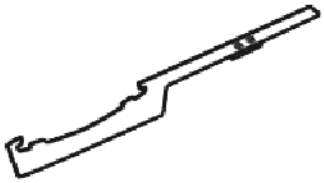
Clutch (PVT) Tools



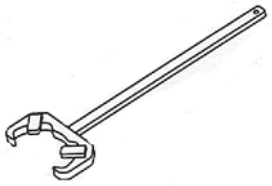
2870506 – Drive Clutch Puller



2870913 – Driven Clutch Puller



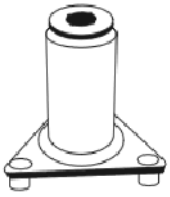
2870654 – ATV Clutch Align Tool



9914177-A- Drive Clutch Holding Tool

2871358 – Clutch Holding Fixture

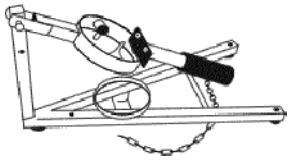
Clutch (PVT) Tools



2870341 – Drive Clutch Spider Removal Tool

2870910 – Roll Pin Tool

2871226 – Clutch Bushing Replacement Kit

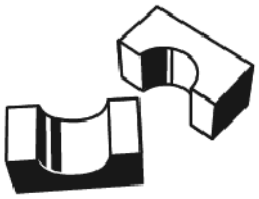


8700220 – Clutch Compression Tool

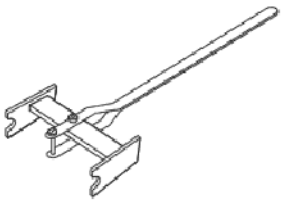
2870338 – Spider Nut Socket

Suspension Tools

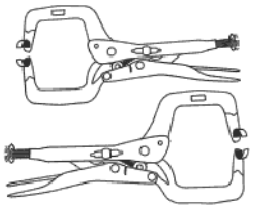
2870871 – ATV Ball Joint Tool Kit



2871071 – Shock Body Holding Tool



2870623 – Shock Spring Compressor



2871573 & 2871574 – Strut Spring Compressor

8700225 & 8700226 – CV Boot Clamp Pliers

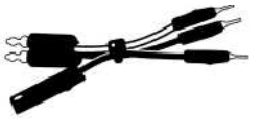
Suspension & Transmission Tools

2870872 – Shock Spanner Wrench

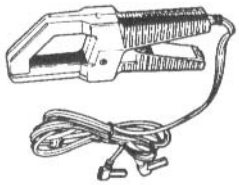
2872608 – Roll Pin Removal Tool

Electrical Tools

PV-43568 -Fluke 77 Multimeter



2460761 – Hall Sensor Probe Harness



PV-39617 – Current Clamp

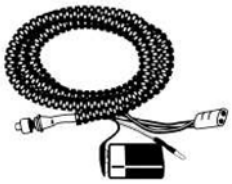
2870836 – Battery Hydrometer

8712500 – Tachometer

PV-39951-A – Tachometer

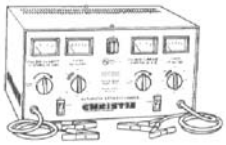
Electrical Tools

2870630 – Timing Light



2871745 -Static Timing Light Harness

PV-39991 – Peak Reading Adapter



PV-37453 – Christie Se-Sulfating Multi-Battery Charger

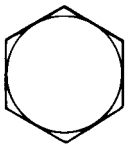
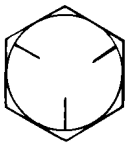
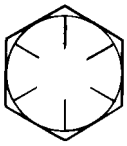
PV-63070 – Christie Multi-Battery Charger

Fuel & Brake Systems

2870975 – Mity Vac™

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 sectionTorque Conversions

COLD WEATHER KITS FOR 4 CYCLE ATVS

Engine Heater – (**PN 2871507**)

ACCESSORY ENGINE HEATER

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

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	

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 aid rotation of 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 and grip the drive belt.
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.
ID: Inside diameter.
in.: Inch/inches.
Inch Pound: In. lb. 12 in. lbs. = 1 ft. lb.
kg/cm^2 : 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/in^2 : Pounds per square inch.
Left or Right Side: Always referred to based on normal operating position of the driver.
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.
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, resulting in energy conversion to heat.
RPM: Revolutions per minute.
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.