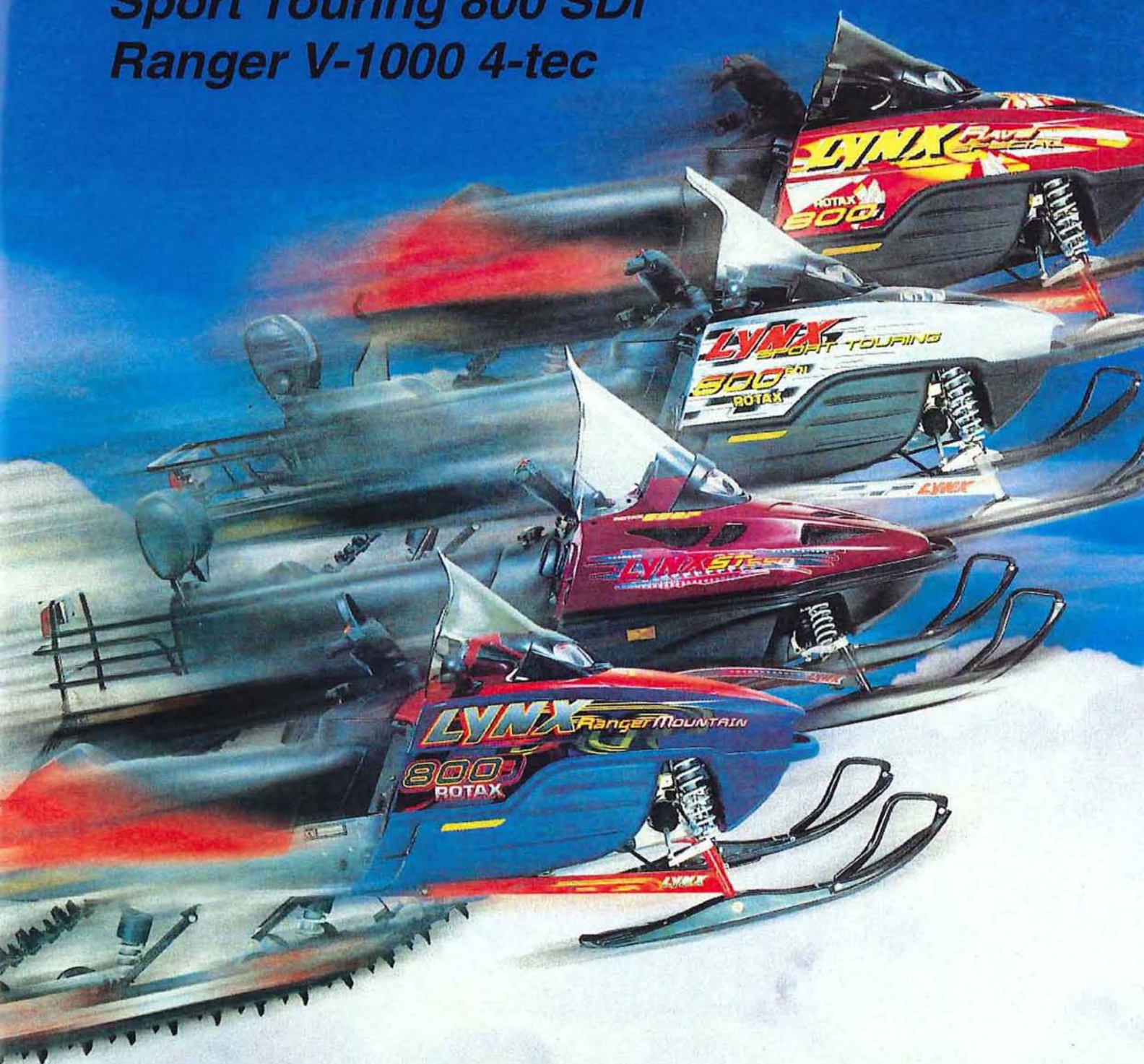




LYNX[®]

**Sport Touring 800 SDI
Ranger V-1000 4-tec**



**KÄYTTÄJÄN KÄSIKIRJAN TÄYDENNYSOSA
ANVÄNDARHANDBOK, KOMPLETTERINGSDEL
OPERATOR'S MANUAL SUPPLEMENT**

2101486

2003 OPERATOR'S MANUAL SUPPLEMENT

**Sport Touring 800 SDI
Ranger V-1000 4-tec**

Dear operator,

Informations in the Lynx 2003 Operator's Manual (2101460) also apply to the above listed models except for the following:

CONTROLS / INSTRUMENT

- 1) Engine cut-out switch
- 2) Speedometer
- 3) Fuses
- 4) Start button
- 5) Gear shift lever

FUEL AND OIL

Recommended oil

PRE-OPERATION CHECK LIST

FLUID LEVEL

PERIODIC MAINTENANCE CHART

MAINTENANCE

TROUBLESHOOTING

TECHNICAL SPECIFICATIONS



1. Engine Management System (EMS) pilot lamp
2. Air shock pilot lamp (not in use)
3. Oil pressure pilot lamp
4. Cooling liquid pilot lamp
5. High beam pilot lamp
6. Low Battery Voltage Pilot Lamp
7. DESS pilot lamp
8. Brake pilot lamp

1. Pilot lamp for motor control system:

If the pilot lamp is continuously on, see the TROUBLESHOOTING section for the problem code and relevant remedies. If the light is continuously on and the problem cannot be solved, contact authorised Lynx service workshop.

3. Oil pressure pilot light

If the oil indicator light is continuously on, stop the engine, check the oil level, add oil if necessary and start the engine again. If the light is still on, contact an authorised Lynx service workshop.

4. Coolant pilot light

If the coolant pilot light comes on, stop the engine and check the coolant level (**WARNING! Be careful so that the hot, pressurised water is not sprayed around**), pressure cap and thermostat. Also check the cooling system for air locks. Restart the engine. If the light is still on, contact an authorised Lynx service workshop.

6. Battery voltage pilot light

If the battery voltage pilot light comes on, the battery voltage is too low.
2-tec models: Try to start manually and have the battery and the charging system checked at an authorised Lynx service workshop.
4-tec models: Have the battery and the charging system checked at an authorised Lynx service workshop.

7. DESS pilot light

If this light flashes, you are using a wrong type of cord or the connection is bad. Remove the cap, clean it and reinstall it. If the cord is correct and the cap is clean but the light is still on, contact an authorised Lynx service workshop.

8. Brake pilot light

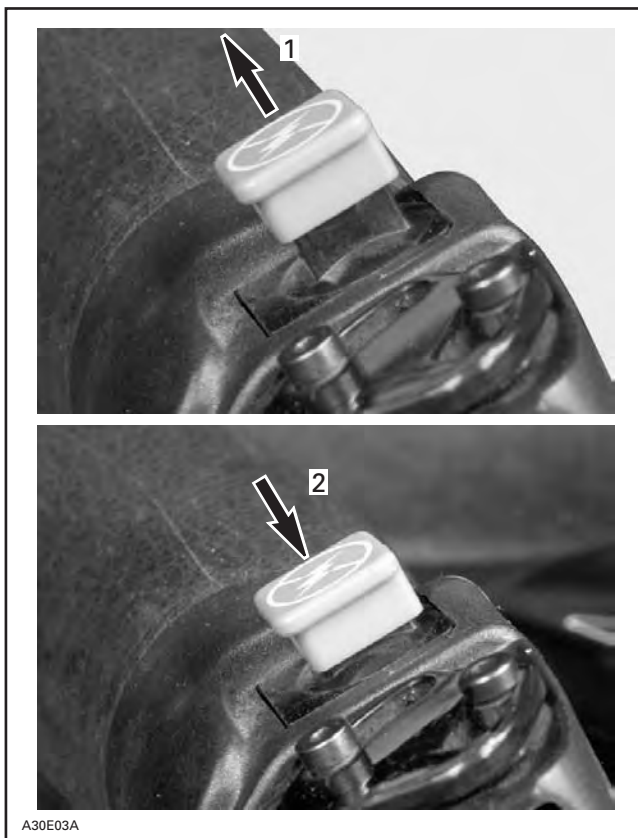
This light comes on when the brake is pressed or when the parking brake is engaged.

NOTE: The electric fuel gauge and temperature gauge are optional on 4-TEC models. See description or numbered items in *2003 Owner's Manual* except for the following:

1) Engine cut-out switch

This push-pull type switch is located on the right side of the handlebar. To stop the engine, push the button to the lower position (OFF) and simultaneously apply the brakes. To restart, button must be at the upper position (ON).

NOTE.: When shutting-off engine with the engine cut-out switch, all instruments will keep functioning for 30 seconds before auto-shut off.



Typical:

1) ON

2) OFF

All operators of the snowmobile should familiarize themselves with the function of this device by using it several times on first outing and whenever stopping the engine thereafter. Thereby this engine cut-out procedure will become a reflex and will prepare operators in emergency situations requiring its use.

2) Speedometer

Change from One Unit to the Other

NOTE: Speedometer, odometer and trip meter will have their units (kilometers or miles) changed all together.

Stop engine and open hood. Cut locking ties. Plug connectors together to change units from miles to kilometers.

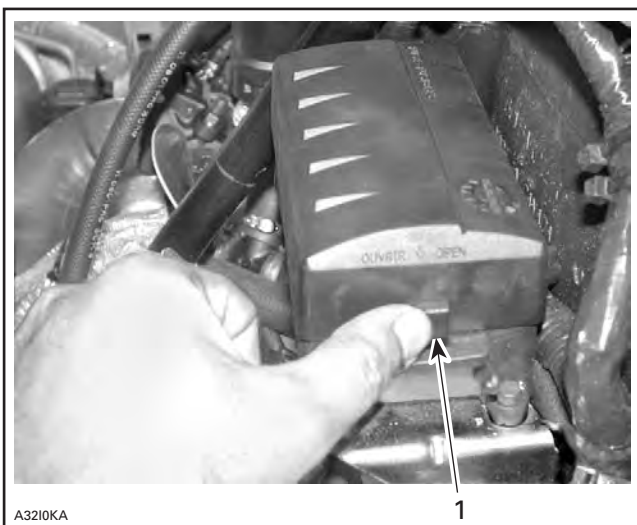


Kilometers reading –Connectors plugged

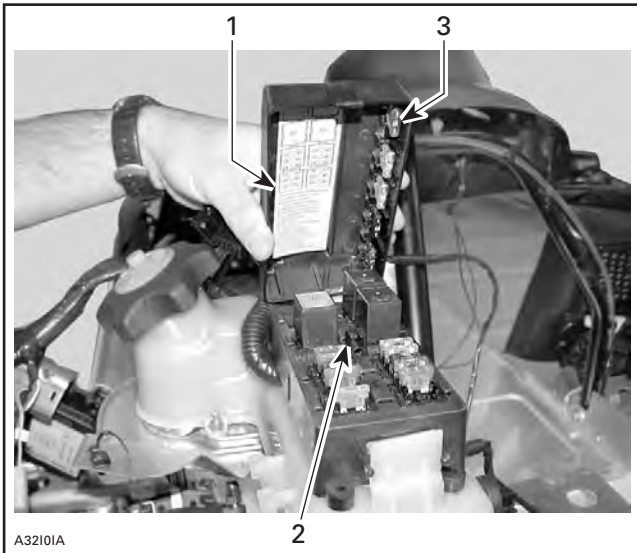
3) Fuses

All models

To open fuse box push on cover tab and tilt cover.



1. Push tab



1. *Fuse description decal*
2. *Fuse remover*
3. *Spare fuses*

4) Starter switch

Start Mode - 2-tec models (see item 6 for 4-tec-models)

Turn ignition key clockwise completely to activate electric starter in order to start engine.

CAUTION: Do not turn key for more than 10 seconds. Wait 15 seconds before restarting to let starter cool down.

Release key immediately when engine has started

If engine does not start on first try, wait a few seconds before turning key again to let starter cool down.

Only SDI-model: Engine may be started with rewind starter if necessary.

If starter does not operate, check starting system fuse condition.
Refer to "FUSES". Later on this manual

RER- Mode – 2 –tec Models only (SDI)

Shifting in reverse

WARNING!

Shifting to reverse mode on these snowmobiles is done by turning the ignition key clockwise completely and releasing it when the engine is running. Wait until the reverse buzzer sounds and the DESS/RER pilot lamp begins to blink in the dash board before operating throttle to proceed in reverse.

With the snowmobile completely stopped and engine running at idle, rotate the ignition key clockwise completely and release key.

The DESS/RER pilot lamp will blink and a reverse alarm will sound once every second with a half second duration when the snowmobile is engaged in reverse.

Apply throttle slowly and evenly. Allow drive pulley to engage then accelerate carefully.

Shifting in Forward

With the snowmobile completely stopped and engine running at idle, rotate the ignition key clockwise completely and release key.

DESS/RER pilot lamp and reverse alarm will stop.

5) Gear shift lever

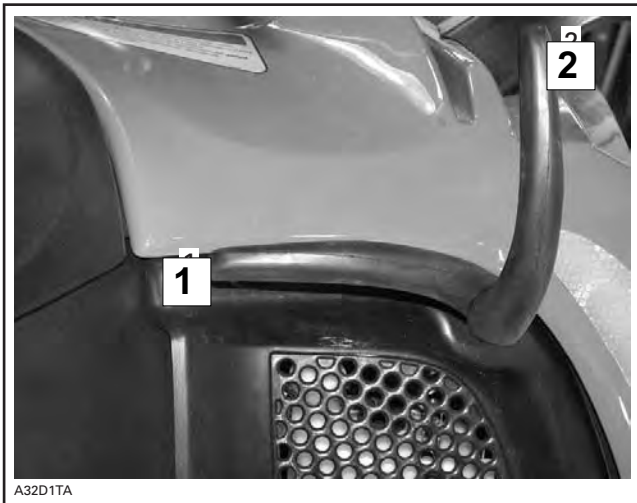
4-TEC model

With engine running, a warning buzzer will sound when the shift lever is in reverse gear position.

A 2-position lever:

Move lever toward left side: Forward gear.

Move lever toward right side: Reverse gear.



1. *Forward*
2. *Reverse*

Shifting Procedure

With snowmobile completely stopped and engine at idle, move lever to engage in desired gear.

Do not force lever. If unable to shift, apply throttle to move snowmobile and try again.

FUEL AND OIL

Recommended fuel

Use regular unleaded gasoline, available from most service stations. The gasoline used must have an octane number 95 or higher.

CAUTION: Never experiment with other fuels or fuel ratios. The use of unrecommended fuel can result in snowmobile performance deterioration and damage to critical parts in the fuel system and engine components. Do not mistake oil reservoir cap for fuel tank cap. Oil reservoir cap is identified OIL.

WARNING!

Always stop engine before refueling. Open cap slowly. If a differential pressure condition is noticed (whistling sound heard when loosening fuel tank cap) have vehicle inspected and/or repaired before further operation. Fuel is flammable and explosive under certain conditions. Never use an open flame to check fuel level. Never smoke or allow flame or spark in vicinity. Always work in a well-ventilated area. Never top up the fuel tank before placing the vehicle in a warm area. As temperature increases, fuel expands and may overflow. Always wipe off any fuel spillage from the vehicle.

RECOMMENDED OIL

2-TEC –models (SDI)

CAUTION: Use only oil that flows at - 40°C (- 40°F).

Oil is contained in the injection oil reservoir.

Use only two-stroke engine synthetic injection oil, sold by authorized Lynx dealer

CAUTION: The BOMBARDIER Formula XP-S II oil is specially formulated and tested for the severe requirements of this engine. Use only BOMBARDIER FORMULA XP-S II oil. There is no known equivalent on the market for the moment. If a high quality equivalent were available, it could be used.

The BOMBARDIER FORMULA XP-S II synthetic injection oil provides superior lubrication, reduced engine component wear and oil deposit, thus maintaining maximum-level performance and antifriction properties. This synthetic injection oil meets the latest ASTM and JASO standards by ensuring high biodegradability and low exhaust smoke.

CAUTION: Never use four-stroke petroleum or synthetic motor oil and never mix these with outboard motor oil. Do not use NMMA TC-W, TC-W2 or TC-W3 outboard two-stroke engine oils or ashless two-stroke engine oils. Avoid mixing different brands of API TC oil as resulting chemical reactions may cause severe engine damage.

4-TEC -models

These models are equipped with a 4-stroke engine.

Use BOMBARDIER 4-stroke synthetic oil 0W40 (P/N 293 600 054 — 12 x 1L).

Starting the engine

IMPORTANT: On 2-TEC models if the low battery voltage pilot lamp is on, battery would not have enough power to start the engine. In this case, use the manual rewind starter.

IMPORTANT: On 2-TEC and 4-TEC models if the battery is dead, engine cannot be started. Have the battery recharged or replaced.

Re-check throttle control lever operation.

Ensure that the engine cut-out switch is in the ON position.

Ensure the tether cord cut-out cap is set in place and that the cord is attached to your clothing.

Turn ignition key clockwise completely to activate electric starter.

Release key when engine has started.

CAUTION: Do not turn key for more than 10 seconds. A rest period should be observed between the cranking cycles to let starter cool down.

If engine does not start on first try, wait few seconds before turning key again.

NOTE: 2-TEC engine may be manually started with rewind starter if necessary. There is no rewind starter on 4-TEC engine.

Emergency Starting

2-TEC -models

Only 2-TEC models are equipped with an emergency starting device. Refer to *2003 Owner's Manual*.

FLUID LEVEL

CAUTION: Vehicle must be on a level surface before checking any fluid levels.

Engine oil level

4-TEC -models

Snowmobile must be on a level surface.

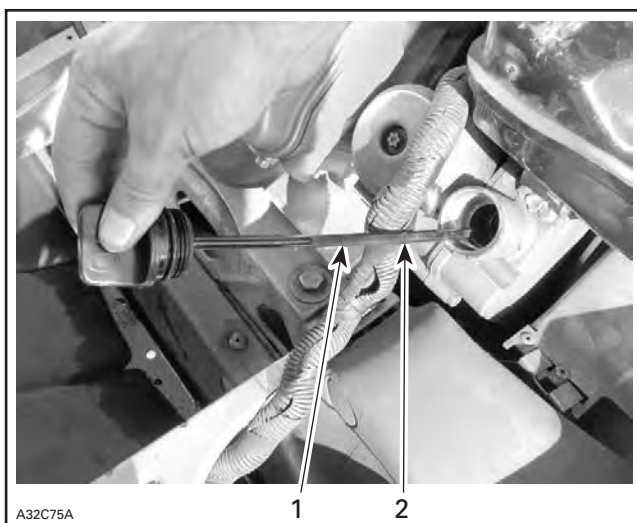
Leave engine running at idle for 30 seconds.

Stop engine and wipe the dipstick.

Dipstick must be completely screwed in before checking oil level.

Oil level must be between minimum and maximum marks on dipstick.

There is a capacity of 500 mL between the two marks.



1. *Maximum*

2. *Minimum*

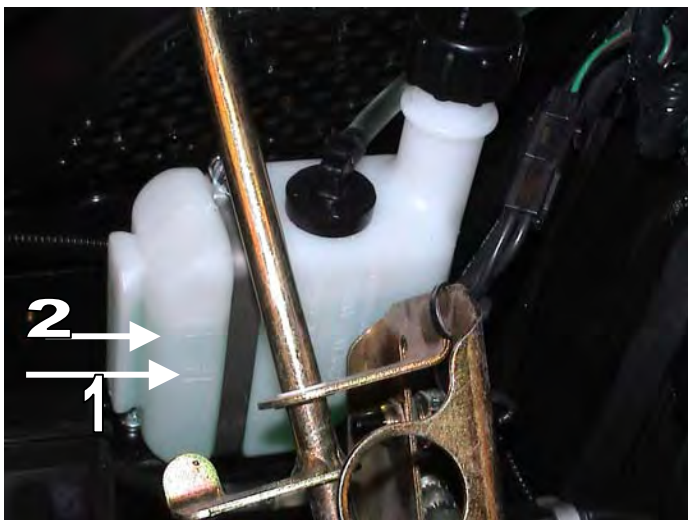
Add BOMBARDIER synthetic oil 0W40 through dipstick hole as required.

Reinstall dipstick.

Coolant system












4-TEC -models

Check coolant level in expansion reservoir. When the engine is cold, the level must be between minimum and maximum marks.



1. *Minimum*
2. *Maximum*

Use a blend of 50/50 distilled water and ethylene-glycol (P/N 293 600 038 — 16 x 1L). That blend will protect the system from freezing as low as - 37°C (- 35°F).

MAINTENANCE SCHEDULE		500 km first service (authorized serv.shop)	every 1500 km or once a season (authorized serv. shop)	Summer storage (authorized serv. shop)	Pre season service (authorized serv. shop)	
						
	Starting rope 2-tec			✓	✓	
	Engine mount nuts	✓	✓	✓		
	Exhaust system/Inspection	✓	✓	✓		
	Cleaning/Inspection of RAVE valves 2-tec		✓			
	Cooling system (coolant level / belt condition)	✓	✓		✓	
	Cooling hoses and connections, cold grade	✓	✓		✓	
	Coolant replacement	Every 2. year				
	Condition of seals		✓		✓	
	Injection oil filter replacement 2-tec AT FIRST SERVICE	At least once a year				
	Oil and filter replacement 4-tec AT FIRST SERVICE	Every 3000 km or once a year				
	Injection oil pump adjustment 2-tec	✓	✓		✓	
	Fuel stabilizer/storage oil			✓		
	Fuel filter condition inspection (fuel tank)		✓			
	Fuel filter replacement (at least once a year)		✓			
	Fuel lines and connections	✓		✓	✓	
	Inspection of throttle cable	✓	✓	✓	✓	
	Air filter cleaning		✓		✓	
	Drive belt condition	✓	✓		✓	
	Drive pulley and driven pulley cleaning	✓			✓	
	Drive pulley screw torque	✓	✓		✓	
	Driven pulley preload	✓	✓			
	Brake fluid level	✓	✓		✓	
	Brake fluid replacement	Every 2. year				
	Brake condition (brake pads/disc)	✓	✓	✓	✓	
	Drive chain tension	✓	✓	✓		
	Inspection of chain case/gearbox oil level	✓	✓		✓	
	Replacement of chain case/gearbox oil	First serv. and at least once a year				
	Drive chain replacement	Every 5000 km				
	Lubrication of drive axle bearing	✓	✓	✓		
	Steering and front suspension mechanism lubrication	✓	✓	✓		
		Wear and condition of skis and runners	✓	✓	✓	
		Inspection of dismountable front shock condition	✓	✓		
Steering and ski leg chamber adjustment		✓	✓			
Service and oil change of dismountable front shock		Once a year				
	Suspension adjustments	When needed				
	Suspension lubrication		✓	✓		
	Suspension condition (slide rails and wheel bearings)	✓	✓	✓		
	Shocks service and oil change	Once a year				
	Stopper strap condition		✓	✓		
	Track condition	✓	✓	✓		
	Track tension and alignment	✓	When needed			
	Spark plug cleaning	✓	✓		✓	
	Battery condition and mounting	✓	✓	✓	✓	
	Headlight beam aiming		✓		✓	
	Wiring harnesses, cables and lines	✓	✓	✓		
	Test of lights; brake light, emergency cut-out switches etc.	✓	✓	✓		
	Add grease to all nipples and ball joints		✓		✓	
	Check and tighten all bolt connections	✓	✓		✓	
	General testing and cleaning	✓	✓	✓	✓	
	Procedures described in bulletins	✓	✓		✓	
	Test control devices, testdrive	✓	✓		✓	

MAINTENANCE

Belt Guard Removal and Installation

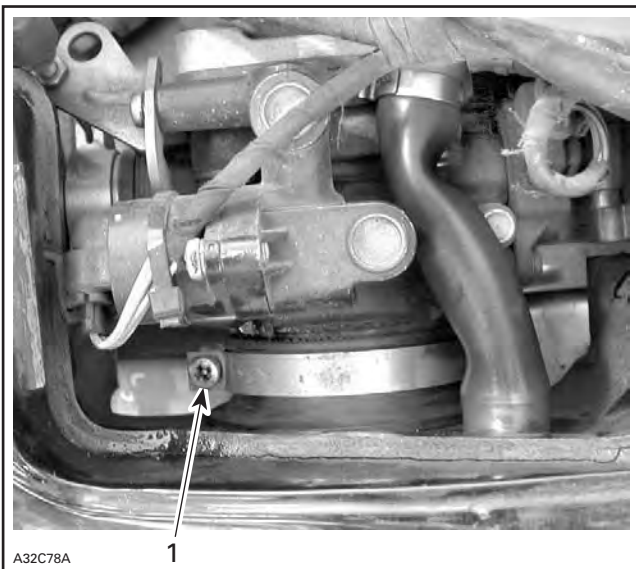
4-TEC -models

Turn off engine cut-out switch. Open hood.
Remove air silencer access panel.



1. Access panel

Loosen collar screw on air silencer grommet.



1. Collar screw

Disconnect air temperature sensor at rear of air silencer.
Then, follow the procedure described in the *2003 Owner's Manual*.

At installation do not forget to connect air temperature sensor otherwise a trouble code will appear.

TRA Drive Pulley Adjustment

4-TEC -models

General

From factory TRA drive pulley adjustment screws are set to position 3. This position allows the best compromise between acceleration, top speed and fuel economy.

Position 1 or 2 would provide the best fuel economy. Top speed would be reduced.

Position 4 would give the best acceleration. Fuel economy would be reduced.

Adjustment

To gain access to drive pulley, refer to BELT GUARD REMOVAL AND INSTALLATION above in order to remove air silencer.

Follow the procedure described in the *2003 Owner's Manual*.

TROUBLESHOOTING

The following chart is provided to help in diagnosing the probable source of simple troubles. You may be able to solve many of these problems rather quickly, but others may require the skills of a mechanical technician. In such cases, consult an authorized Lynx dealer for servicing.

SYMPTON: Electric starter does not crank and no power to gauges.

POSSIBLE CAUSES

Engine cut-out switch in the OFF position or tether cord cap away from switch post.

WHAT TO DO

Place engine cut-out switch in the ON position and install tether cord cap on switch post.

MPEM/fuel pump fuse burnt out.

Replace MPEM/fuel pump fuse with an appropriate rated fuse.

SYMPTON: Electric starter does not crank and low battery voltage pilot lamp is on.

POSSIBLE CAUSES

Battery voltage is too low to allow electric starter.

WHAT TO DO

On 2 TEC models: try to start engine with rewind starter and have battery and charging system checked by an authorized Lynx dealer.

4-TEC models: have battery and charging system checked by an authorized Lynx dealer.

SYMPTON: Engine is cranked over but fails to start.

POSSIBLE CAUSES

Flooded engine.
(spark plug wet when removed)

WHAT TO DO

Remove wet spark plug and crank engine several times. Install clean dry properly gapped spark plug. If engine continues to flood, see an authorized Lynx dealer.

No fuel to engine
(spark plug dry when removed).

Check fuel tank level; check condition of fuel lines and their connections. If a failure of the fuel pump has occurred, contact an authorized Lynx dealer.

Spark plug/ignition (no spark).

Remove spark plug(s) then reconnect to spark cap. Start engine with spark plug(s) grounded to engine away from spark plug hole. If no spark appears, replace spark plug with new ones properly gapped. If trouble persists, contact an authorized Lynx dealer.

Engine compression

As the engine is cranked over with the rewind starter, "cycles" of resistance should be felt as piston past top dead center(each piston). If no pulsating resistance is felt, it suggests a major loss of compression. Contact an authorized Lynx dealer.

SYMPTOM: Engine lacks acceleration or power.

POSSIBLE CAUSES

Fouled or defective spark plug.

WHAT TO DO

Check item "Engine is cranked over but fails to start".

Lack of fuel to engine.

Check item "Engine is cranked over but fails to start".

Drive belt worn or too thin.

If the drive belt has lost more than 3 mm of its original width, it will affect vehicle performance.

Drive and driven pulleys require servicing.

Contact an authorized Lynx dealer.

Engine is overheating.

Check coolant level, pressure cap, thermostat and for air locks in cooling system.

SYMPTON: On 2-tec models engine cannot exceed 6400

POSSIBLE CAUSES

Faulty injector

WHAT TO DO

Contact an authorized Lynx dealer.

SYMPTON: Engine backfires

POSSIBLE CAUSES

Faulty spark plug (carbon accumulation) or wrong gap.

WHAT TO DO

See item "Engine is cranked over but fails to start".

Engine is running too hot.

See item "Engine lacks acceleration or power".

Ignition timing is incorrect or there is an ignition system failure.

Contact an authorized Lynx dealer.

SYMPTON: Engine misfires.

POSSIBLE CAUSES

DESS did not read cap code.
Engine cannot reach pulley engagement speed.

DESS has read a different code than the one programmed. Engine cannot reach pulley engagement speed.

Fouled/defective/worn spark plugs or wrong gap.

Too much oil supplied to engine (SDI only).

Water in fuel.

WHAT TO DO

DESS pilot lamp blinks once every 1.5 seconds. properly install tether cord cap.

DESS pilot lamp blinks rapidly (3 times per second). Install a cap (key) for which this snowmobile was programmed.

Clean/verify spark plug and heat range. Replace as required.

Improper oil pump adjustment, refer to an authorized Lynx dealer.

Drain fuel system and refill with fresh fuel.

SYMPTON: Snowmobile cannot reach full speed.

POSSIBLE CAUSE

DESS did not reach cap code.
Engine cannot reach pulley engagement speed.

DESS has read a different code than the one programmed. Engine cannot reach pulley engagement speed.

Drive belt.

Incorrect track adjustment.

Pulleys misaligned.

Incorrect drive pulley adjustment.

Engine.

WHAT TO DO

DESS/RER pilot lamp blinks once every 1.5 seconds. properly install tether cord cap.

DESS pilot lamp blinks rapidly (3 timer per second). Install a cap (key) for which this snowmobile was programmed.

Check item "Engine lacks acceleration or power".

See MAINTENANCE and/or an authorized Lynx dealer for proper alignment and tension adjustments.

Contact an authorized Lynx dealer.

See MAINTENACE and/or authorized Lynx dealer for proper drive pulley adjustment.

See items "Engine lacks acceleration or power".

MONITORING BEEPER CODED SIGNALS

CODED SIGNALS

2 short beeps (while installing tether coed cap on DESS post). DESS/RER pilot lamp also blinks

POSSIBLE CAUSE

Confirms that proper tether cord cap is installed.

REMEDY

Engine can be started.

1 short beep every 1.5 seconds (while installing tether cord cap on

Bad DESS system connection.

Reinstall tether cord cap correctly over post.

DESS post). DESS/RER pilot lamp also blinks. Engine cannot reach pulley engagement speed. Vehicle can not be driven.

Defective tether cord cap.
Dirt or snow in tether cord cap.
Defective DESS post.

Use another programmed tethercord cap. Clean tether cord cap.refer to an authorized Lynx dealer.

1 long beep per second. DESS/RER pilot lamp also blinks.

Reverse is selected.

Vehicle can be driven in reverse.

3 short beeps per second. DESS/RER pilot lamp also blinks. Engine cannot reach pulley engagment speed. Vehicle cannot be driven.

Wrong tether cord cap is installed.

Install proper tether cord cap.

3 short beeps per second. Engine overheating pilot lamp also blinks.

Engine is overheating.

Stop engine immediately and allow to cool. If problem repeats, see an authorized Lynx dealer.

3 short beeps per second. Oil pilot lamp also lights up.

Low oil pressure on 4-tec models.

Stop engine immediately and check oil level and top it. If problem repetas, see an authorized Lynx dealer.

3 short beeps per second. Battery pilot lamp also blinks.

Low battery voltage.

Have battery and charging system checked by an authorized Lynx dealer.

4 short beeps every 2 minutes. Oil pilot lamp also lights up.

Low oil level on 2-tec models.

Check oil level and replenish as soon as possible.

4 short beeps every 2 minutes. Engine pilot lamp blinks 3 times per second.

Too high battery voltage. DESS system has Defected a shorted key installed on DESS post.

Have battery and charging system Checked by an authorized Lynx dealer. Use another programmed tether cord cap.

4 short beeps every 2 minutes. Engine pilot lamp lights up.

Engine management system (EMS) failure.

Have EMS checked by an Authorized Lynx dealer.

4 short beeps every 2 minutes. Engine pilot lamp blinks 1 time per second.

Engine management system (EMS) failure.

Have EMS checked by an authorized Lynx dealer.

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