TABLE OF CONTENTS

ENGINE

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline. Some causes or corrections may not apply to a specific model.

SYMPTOM	**ENGINE BACKFIRES.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check spark plug(s).** a. Carbon accumulation caused by defective spark plug(s). *Clean carbon accumulation and replace spark plug(s).*
	2. Check cooling system. a. Loose fan belt. *Adjust or replace fan belt (refer to TECHNICAL DATA 10).* b. Low antifreeze level. *Adjust antifreeze level. Then check clamps or hoses.* c. Defective tank cap. *Replace cap.* d. Air in system. *Bleed system.*
	3. Check ignition timing. a. Timing is too advanced. *Set timing according to specifications (refer to TECHNICAL DATA 10).*

SYMPTOM	ENGINE SUDDENLY TURNS OFF.
CONDITION	NORMAL USE.
Test/Inspection	**1. Perform engine leak test. Refer to engine leak verification flow chart. Check possible piston seizure.** a. Damaged gasket and/or seal. *Replace defective parts.*
	2. "Four-corner" seizure of piston(s). a. Accelerating too fast when engine is cold. Piston expands faster than cylinder. *Replace piston(s). Ask driver to refer to warm-up procedure in* Operator's Guide.
	3. Piston(s) seizure on exhaust side (color on piston dome is correct). a. Kinked fuel tank vent tube. *Relocate fuel tank vent tube.* b. Leaks at fuel line connections or damaged fuel lines. *Replace defective lines.* c. Fuel does not flow through carburetor(s) (plastic particles in needle area and/or varnish formation in carburetor(s)). *Clean carburetor(s).* d. Spark plug heat range is too warm. *Install spark plug(s) with appropriate heat range (refer to TECHNICAL DATA 10).* e. Improper ignition timing. *Adjust according to specifications (refer to TECHNICAL DATA 10).* f. Restriction in exhaust system. *Replace.* g. Compression ratio is too high. *Install genuine parts.* h. Carburetor calibration is too lean. *Adjust according to specifications (refer to TECHNICAL DATA 10).* i. Improper rotary valve timing or improper valve. *Adjust according to specifications (refer to TECHNICAL DATA 10) and/or install Bombardier's recommended rotary valve.* j. Poor quality oil. *Use Bombardier Rotax oil.* k. Leaks at air intake silencer. *Replace air intake silencer grommets.*

	4. Melted and/or perforated piston dome; melted section at ring end gap. a. When piston reaches TDC, mixture is ignited by heated areas in combustion chamber. This situation is due to an incomplete combustion of a poor quality oil. *Clean residue accumulation in combustion chamber and replace piston(s). Use Bombardier Rotax oil.* b. Spark plug heat range is too high. *Install recommended spark plug(s) (refer to TECHNICAL DATA 10).* c. Ignition timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA 10).* d. Inadequate fuel quality. *Use appropriate fuel.* e. Carburetion is too lean. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	5. Seized piston all around the circumference (dry surface). a. Lack of oil, damaged oil line or defective injection pump. *Replace defective part(s).*
	6. Grooves on intake side of piston only. a. Oil film eliminated by water (snow infiltration in engine). *Replace piston(s) and check if intake system leaks.*
	7. Piston color is dark due to seizure on intake and exhaust sides. a. Broken or loose fan belt. *Replace fan belt or adjust its tension (refer to TECHNICAL DATA 10).* b. Cooling system leaks and lowers coolant level. *Tighten clamps or replace defective parts. Add antifreeze in cooling system until appropriate level is reached.* c. Accumulation of foreign particles in needle and/or main jet area. *Clean carburetor(s).*
	8. Cracked or broken piston(s). a. Cracked or broken piston(s) due to excessive piston/cylinder clearance or engine overreving. *Replace piston(s). Check piston/cylinder clearance (refer to TECHNICAL DATA 10). Adjust drive pulley according to specifications (refer to TECHNICAL DATA 10) and/or clean pulley sheaves if they are contaminated with greasy particles.*

SYMPTOM	**PISTON RING AND CYLINDER SURFACES ARE GROOVED.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check oil quality.** a. Poor oil quality. *Use Bombardier Rotax oil.*
	2. Check injection pump and its hoses. a. Inadequate injection pump adjustment and/or defective hoses. *Adjust pump according to specifications (refer to ENGINE 04) and/or replace hoses.*

SYMPTOM	ENGINE DOES NOT OFFER MAXIMUM POWER AND/OR DOES NOT REACH MAXIMUM OPERATING RPM.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check spark plug condition.** a. Fouled spark plug(s). *Replace.*
	2. Check if there is water in fuel. a. There is water in fuel. *Drain fuel system, then fill it with appropriate fuel.*
	3. Check items listed in "Engine runs out of fuel" (refer to fuel and oil system subsection 02).
	4. Check carburetor adjustments and cleanliness. a. Inadequate carburetor adjustments or dirt accumulation. *Adjust according to specifications (refer to TECHNICAL DATA 10) or clean.*
	5. Check drive belt. a. Worn belt. *Replace belt if width is 3 mm (1/8") less than nominal dimension (refer to TECHNICAL DATA 10).*
	6. Check track adjustment. a. Too much tension and/or improper alignment. *Align track and adjust its tension to specifications (refer to TECHNICAL DATA 10).*
	7. Check drive pulley. a. Improper calibration screw adjustments (TRA pulley) and/or worn bushing(s). *Adjust according to specifications (refer to TECHNICAL DATA 10) and/or replace bushing(s).*
	8. Check driven pulley. a. Worn bushing and/or spring tension. *Replace spring and/or adjust its tension according to specifications (refer to TECHNICAL DATA 10).*
	9. Check exhaust system. a. Restriction. *Replace.*
	10. Check ignition timing. a. Decrease in power due to retarded ignition. *Adjust according to specification (refer to TECHNICAL DATA 10).*
	11. Check engine compression. a. Worn piston(s) and ring(s). *Replace (refer to TECHNICAL DATA 10 for specification).*
	12. Check engine cooling system. a. Engine overheats. Improper fan belt tension. *Adjust fan belt (refer to TECHNICAL DATA 10).* b. Antifreeze level is low, cap fails to pressurize system or air circulates through lines. *Adjust level, replace cap or bleed cooling system.*

SYMPTOM	ENGINE DETONATION AT MAXIMUM RPM.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check which type of fuel is used.** a. Octane number is too low and/or alcohol level is too high. *Use recommended fuel type.*
	2. Check spark plug type. a. Improper spark plug heat range. *Install recommended spark plug(s) (refer to TECHNICAL DATA 10).*
	3. Check exhaust system. a. Too much restriction. *Replace.*
	4. Check ignition timing. a. Timing is too advanced. *Adjust according to specification (refer to TECHNICAL DATA 10).*
	5. Check carburetion. a. Fouled and/or improper carburetor components. *Clean or replace according to specification (refer to TECHNICAL DATA 10).*
	6. Check compression ratio and squish area. a. Compression ratio is too high. *Install genuine parts.*

SYMPTOM	**ENGINE TURNS OVER BUT FAILS TO START.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check switches.** a. Ignition switch, emergency cut-out switch or tether switch is in the OFF position. *Place all switches in the RUN or ON position.*
	2. Check fuel level. a. Mixture not rich enough to start cold engine. *Check fuel tank level and use primer.*
	3. Check spark plug. a. Defective spark plug (no spark). *Replace spark plug(s).*
	4. Check amount of fuel on spark plug. a. Flooded engine (spark plug wet when removed). *Do not overprime or overchoke. Remove wet spark plug(s), turn ignition switch to OFF and crank engine several times. Install clean dry spark plug. Start engine following usual starting procedure.*
	5. Check fuel lines. a. No fuel to the engine (spark plug dry when removed). *Check fuel tank level; check fuel filter, replace if clogged; check condition of fuel and impulse lines and their connections.*
	6. Check engine compression. a. Insufficient engine compression. *Replace defective part(s) (ex. : piston(s), ring(s), etc.).*

SYMPTOM	**IRREGULAR ENGINE IDLE.**
CONDITION	NORMAL USE AFTER ENGINE WARM UP.
Test/Inspection	**1. Check primer.** a. Fuel leaks at primer nipple which is mounted to carburetor. *Replace.*
	2. Check choke. a. Choke plunger may be partially opened. *Readjust.*
	3. Check carburetor adapter. a. Air enters through a crack. *Replace.*
	4. Check air screw position. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	5. Check ignition system trigger coil air gap. a. Air gap is too large. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	6. Check dimension of pilot jet. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	7. Perform engine leak test. a. Leaking gaskets allow air to enter in engine. *Replace defective parts.*

SYMPTOM	HIGH ENGINE OPERATING TEMPERATURE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check temperature gauge sensor.** a. False reading. *Replace.*
	2. Check fan belt. a. Belt slides because it is too loose. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	3. Verify antifreeze level and check if there is air infiltration in the system or if there are leaks in gasket areas. a. Low antifreeze level or air in system. *Add antifreeze until recommended level is reached, bleed system and/or tighten clamps at fitting.*
	4. Check if antifreeze flows through system properly. a. Foreign particles and/or broken coolant pump impeller. *Clean cooling system and/or replace coolant pump impeller.*
	5. Check thermostat. a. Thermostat reacts slowly or not at all. *Replace.*
	6. Check antifreeze concentration. a. Antifreeze concentration is too high. *Adjust concentration according to Bombardier's recommendations.*
	7. Check tank cap. a. Cap does not hold pressure. *Replace.*
	8. Check carburetion. a. Improperly adjusted or inadequate carburetor components. *Adjust according to specifications (refer to TECHNICAL DATA 10) or replace inadequate component(s).*
	9. Check cylinder head gaskets. a. Worn gaskets. *Replace.*
	10. Check ignition timing. a. Ignition timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	11. Check if there are leaks at air intake silencer and/or engine crankcase. a. Leak(s). *Repair or replace.*
	12. Check condition and heat range of spark plug(s). a. Melted spark plug tip or inadequate heat range. *Replace.*

SYMPTOM	ENGINE EQUIPPED WITH RAVE VALVE DOES NOT REACH ITS FULL OPERATING RPM (500 TO 1000 RPM SLOWER).
CONDITION	NORMAL USE.
Test/Inspection	**1. Check RAVE valve pistons.** a. Valve piston(s) is (are) too far out. *Screw valve piston(s) to bottom.*
	2. Check RAVE valve stems. a. Bent RAVE valve stem(s). *Replace.*
	3. Check RAVE valves. a. Jamed valve(s). *Clean.*
	4. Check tension of RAVE springs. a. Inadequate spring tension. *Replace.*
	5. Check RAVE pressure holes. a. Clogged holes. *Clean.*
	6. Check clamps or sleeves. a. Damaged clamp(s) or sleeve(s). *Replace.*

SYMPTOM	ENGINE EQUIPPED WITH RAVE. ENGINE HESITATES AT MID-SPEED AND REACHES MAXIMUM PERFORMANCE ONLY AFTER A WHILE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check RAVE valve spring(s).** a. Spring tension is too weak or spring(s) is (are) broken. *Replace.*
	2. Check RAVE valve cover red adjustment screws. a. Adjustment screw(s) is (are) too loose. *Fully tighten.*
	3. Check RAVE valve movement (RAVE movement indicator P/N 861 725 800). a. Valve(s) is (are) stuck in open position. *Clean.*

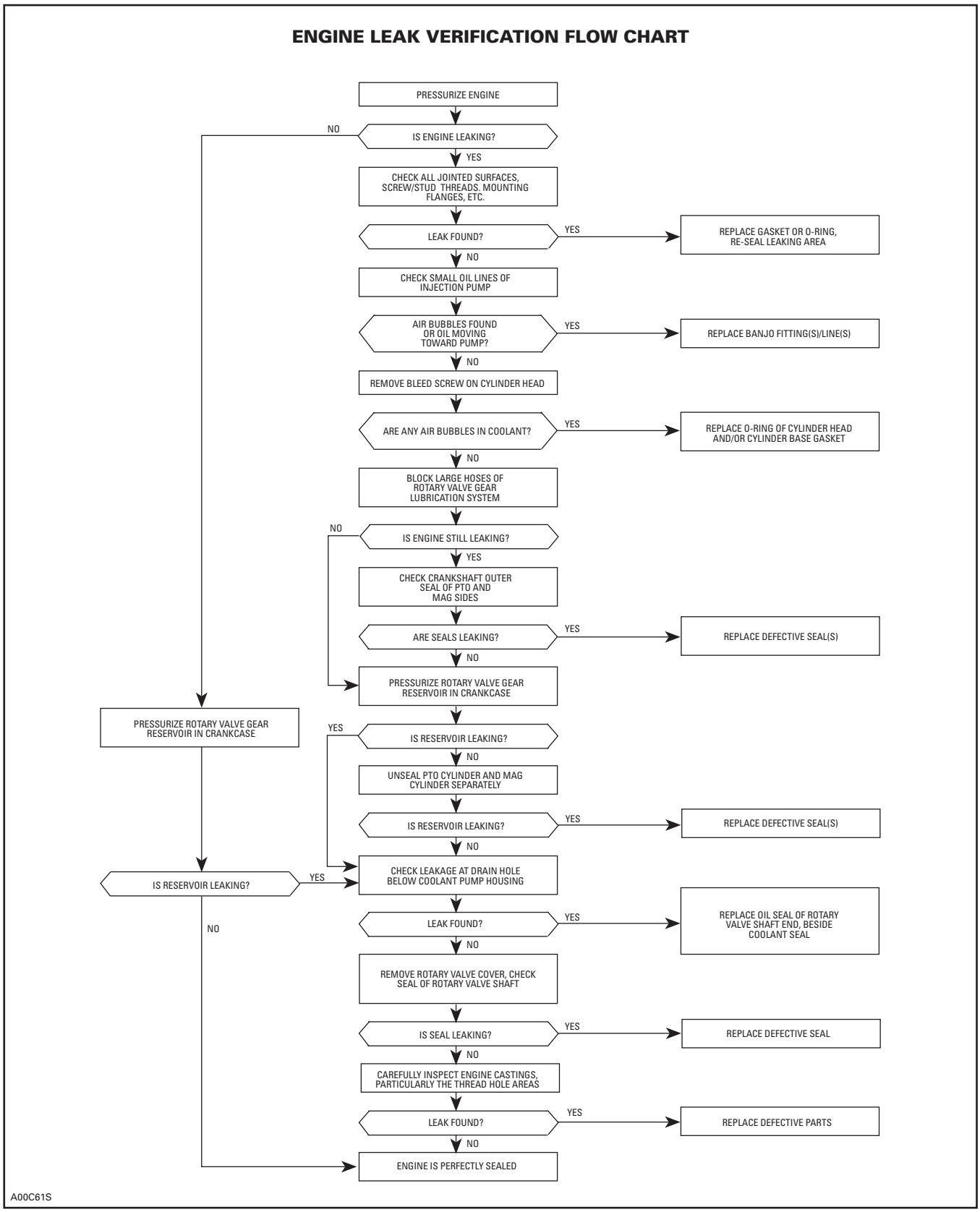
SYMPTOM	REWIND STARTER ROPE DOES NOT REWIND.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check rewind spring.** a. Broken spring. *Replace spring.*

SYMPTOM	REWIND STARTER PAWL DOES NOT ENGAGE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check stopper spring.** a. Broken stopper spring. *Replace.*
	2. Check pawl and pawl lock. a. Pawl and pawl lock have stuck together because of heat. *Replace.*
	3. Check pawl and rope sheave. a. Pawl and rope sheave have stuck together because of heat. *Replace.*

SYMPTOM	ENGINE PINGING.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel lines.** a. Bent fuel lines (preventing fuel from flowing through). *Relocate or replace fuel lines.*
	2. Check if carburetor(s) is (are) clean. a. Dirt prevents fuel from flowing through. *Clean.*
	3. Check ignition timing. a. Timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	4. Check compression ratio. a. Compression ratio is too high. *Replace inadequate part(s) to obtain manufacturer's recommended compression ratio or use a higher grade fuel.*

SYMPTOM	ENGINE GENERATES A LOT OF VIBRATIONS.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check engine supports.** a. Loose broken supports or interference between support(s) and chassis. *Retighten to specification (refer to TECHNICAL DATA 10) or replace.*
	2. Check drive pulley (refer to: vibrations coming from drive pulley).
	3. Check carburetor synchronization. a. Throttle slide heights are adjusted differently and/or throttle slide openings are unsynchronized. *Adjust throttle slide heights and throttle cable.*

ENGINE LEAK VERIFICATION FLOW CHART



FUEL AND OIL SYSTEMS

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline. Some causes or corrections may not apply to a specific model.

SYMPTOM	**HIGH FUEL CONSUMPTION OR RICH MIXTURE.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel tank.** a. Perforated fuel tank. *Replace fuel tank.*
	2. Check fuel pump, reservoir and carburetor fittings. a. Leaking fittings. *Replace defective part.*
	3. Check primer. a. Fuel flows through primer while engine runs. *Replace primer.*
	4. Check float height in carburetor(s). a. Fuel level is too high in float bowl(s). *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	5. Check needle valve. a. Foreign particles prevent needle valve(s) from closing and/or worn seating area. *Clean or replace needle valve(s), then clean seating area.*

SYMPTOM	**FUEL LEAKS IN ENGINE BASE WHEN ENGINE IS STOPPED.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check items 3, 4 and 5 of "High fuel consumption".**
	2. Check fuel pump diaphragm. a. Cracked diaphragm. *Replace.*

SYMPTOM	ENGINE LACKS POWER OR STALLS AT HIGH RPM.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel tank vent hose.** a. Kinked or clogged hose. *Relocate or replace.*
	2. Check fuel filter. a. Clogged filter. *Replace.*
	3. Check fuel lines. a. Kinked or clogged lines. *Relocate or replace.*
	4. Check fuel pump flow. a. Dried diaphragm. *Replace.*
	5. Check if carburetor(s) is (are) clean. a. Varnish. *Clean.*

SYMPTOM	HIGH INJECTION OIL CONSUMPTION.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check oil injection pump adjustment.** a. Oil injection pump adjusted too rich. *Adjust.*
	2. Check injection pump identification. a. Wrong pump installed. *Replace with the appropriate pump. Refer to OIL INJECTION SYSTEM 04-06.*
	3. Check injection oil lines and their fitting. a. Leaking lines and/or cover. *Replace defective part(s).*
	4. Check injection pump cover gasket. a. Worn gasket. *Replace.*
	5. Pressurize crankcase rotary valve gear reservoir. a. Leaking gasket(s). *Replace gasket(s).*

SYMPTOM	**ENGINE RUNS OUT OF FUEL (OR LEAN MIXTURE).**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel filter ball located in fuel tank. Ball must move freely.** a. Corrosion due to oxidation at installation. *Replace fuel filter.*
	2. Check if lines are perforated or kinked and make sure they do not leak at fittings. a. Lines are too big for their fittings or are improperly rooted. *Replace or properly relocate lines.*
	3. Check fuel pump outlet flow. a. Dirt clogging fuel pump lines or torn membrane. *Clean or replace fuel pump.*
	4. Check carburetor needle valve(s). a. Dirt (varnish, foreign particle) clogging fuel line inlets. *Clean.*
	5. Check main jet. a. Dirt (varnish, foreign particle) accumulation at main jet. *Clean.*
	6. Check float height in carburetor bowl(s). a. Running out of fuel at high speed because float height is too low. *Adjust float lever height according to specification.*

TRANSMISSION AND BRAKE SYSTEMS

The following charts are provided to help in diagnosing the probable source of troubles. It should be used as a guideline. Some causes or corrections may not apply to a specific model.

TRANSMISSION

SYMPTOM	THE SNOWMOBILE ACCELERATES SLOWLY, ESPECIALLY WHEN IT IS STOPPED.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive belt condition.** a. Belt is too narrow (drive belt engagement is higher in drive pulley). *Replace belt if width is 3 mm (1/8 in) less than a new one (refer to TECHNICAL DATA 10).*
	2. Check distance between pulleys and/or drive belt deflection. a. Distance is too small between pulleys or deflection is too high (drive belt engagement is higher in drive pulley). *Adjust distance between pulleys and/or drive belt deflection according to specifications (refer to TECHNICAL DATA 10).*
	3. Check driven pulley sliding half play. a. Jammed sliding half. *Replace.*
	4. Check spring tension of driven pulley (only on models without RER). a. Sliding half rotation is accelerated when spring tension is too weak. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	5. Refer to "Vibrations originating from driven pulley" and check items listed.
	6. Check drive pulley spring tension. a. Spring tension is too weak. *Replace.*

SYMPTOM	ENGINE MAXIMUM RPM IS TOO HIGH AND TOP SPEED IS NOT REACHED.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check items 1, 2 and 3 of "The snowmobile accelerates slowly, especially when it is stopped".**
	2. Check driven pulley spring tension (only on models without RER). a. Spring tension is to stiff. *Adjust according to specification (refer to TECHNICAL DATA 10).*
	3. Check position of the calibration screws (TRA drive pulley). a. Selected numbers are too high. *Adjust according to specification (refer to TECHNICAL DATA 10).*
	4. Refer to "Vibrations originating from driven pulley" and check items listed.

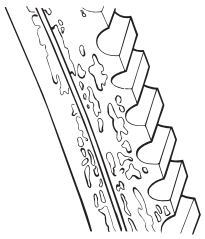
SYMPTOM	LOOSENESS IS FELT IN DRIVE SYSTEM WHEN ACCELERATING/DECELERATING.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive chain tension.** a. Drive chain is too loose. *Adjust.*
	2. Check radial play of driven pulley (aluminum frame models). a. Worn key or keyway (splines on models with RER). *Replace.*

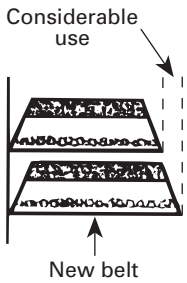
SYMPTOM	VIBRATIONS ORIGINATING FROM DRIVE PULLEY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive belt.** a. Belt width is uneven at many places. *Replace (refer to TECHNICAL DATA 10 for the part number).*
	2. Check tightening torque of drive pulley screw. a. Moving governor cup. *Retighten screw.*
	3. Spring cover screws. a. Spring cover moves and restrains sliding half movement. *Retighten screws.*
	4. Check spring cover (TRA TYPE) and/or outer half bushings. a. Excessive gap between bushings and inner half shaft, thus restraining sliding half movements. *Replace bushing(s).*
	5. Check sliding half slider shoes. a. Worn slider shoes. *Replace.*

SYMPTOM	VIBRATIONS ORIGINATING FROM DRIVEN PULLEY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check sliding half play.** a. Sliding half runout. *Replace sliding half bushing.*
	2. Check sliding half and fixed half straightness. a. Sliding half/fixed half runout. *Replace.*
	3. Check cam slider shoes. a. One or 2 slider shoes out of 3 are broken. *Replace.*

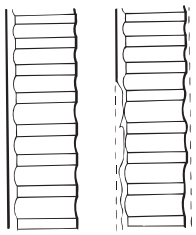
SYMPTOM	**PULLEYS DO NOT DOWN SHIFT PROPERLY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check driven pulley spring tension.** a. Spring tension is too weak. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	2. Refer to "Vibrations coming from driven pulley" and check items listed.
	3. Check drive pulley bushings (cleanliness, wear, etc.). a. Bushings stick to fixed half pulley shaft. *Clean or replace.*
	4. Check driven pulley spring tension (only on models without RER). a. Spring tension is too weak. *Replace.*

SYMPTOM	**UNEVEN BELT WEAR ON ONE SIDE ONLY.**
CONDITION	NORMAL USE.
Test/Inspection  A00D09Y	**1. Check tightening torque of engine mount bolts.** a. Loose engine mount. *Tighten engine mount nuts/bolts equally.*
	2. Check pulley alignment. a. Pulley misalignment. *Align pulleys.*
	3. Check drive belt contact area on pulleys. a. Rough or scratched pulley surfaces. *Repair or replace pulley half.*
	4. Check driven pulley sliding half play. a. Driven pulley bushing worn. *Replace bushing.*

SYMPTOM	BELT GLAZED EXCESSIVELY OR HAVING BAKED APPEARANCE.
CONDITION	NORMAL USE.
Test/Inspection  A00D0AY	**1. Check if drive pulley bushings are worn.** a. Insufficient pressure on belt sides. *Replace bushing.* **2. Check condition of drive pulley fixed half shaft.** a. Rusted drive or driven pulley shafts. *Clean shaft with fine steel woof.* **3. Check if pulley halves are clean.** a. Oil on pulley surfaces. *Clean pulley halves.* **4. Check pulley calibration.** a. Improper pulley calibration. *Calibrate according to specification.*

SYMPTOM	BELT WORN EXCESSIVELY IN TOP WIDTH.
CONDITION	NORMAL USE.
Test/Inspection  A00D0BY	**1. Check drive pulley.** a. Excessive slippage due to irregular outward actuation movement of drive pulley. *Carry out drive pulley inspection.* **2. Check drive belt identification number.** a. Improper belt angle (wrong type of belt). *Replace belt with an appropriate drive belt.* **3. Check drive belt width.** a. Considerable use. *Replace belt if 3 mm (1/8 in) less than recommended width (see TECHNICAL DATA 10).*

SYMPTOM	BELT WORN NARROW IN ONE SECTION.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check if parking brake is released.** a. Parking brake is engaged. *Release parking brake.*
	2. Check track tension/alignment. a. Frozen or too tight track. *Liberate track from ice or check track tension and alignment.*
	3. Check drive pulley. a. Drive pulley not functioning properly. *Repair or replace drive pulley.*
	4. Check idle speed. a. Engine idle speed too high. *Adjust according to specification.*
	5. Check drive belt length. a. Incorrect belt length. *Replace belt with an appropriate drive belt (refer to TECHNICAL DATA 10).*
	6. Check distance between pulleys. a. Incorrect pulley distance. *Readjust according to specification.*
	7. Check belt deflection. a. Deflection is too small. *Adjust according to specification.*



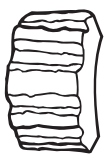
A00D0CY

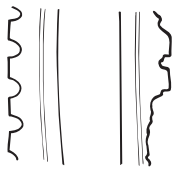
SYMPTOM	BELT SIDES WORN CONCAVE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check pulley half surfaces.** a. Rough or scratched pulley half surfaces. *Repair or replace.*
	2. Check drive belt identification number. a. Unspecified type of belt. *Replace belt with an appropriate drive belt (refer to TECHNICAL DATA 10).*

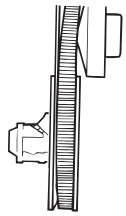
A00D0DY

SYMPTOM	BELT DISINTEGRATION.
CONDITION	NORMAL USE.
Test/Inspection  A00DOEY	**1. Check drive belt identification number.** a. Excessive belt speed. *Using unspecified type of belt. Replace belt with proper type of belt (refer to TECHNICAL DATA 10).* **2. Check if pulley halves are clean.** a. Oil on pulley surfaces. *Clean pulley surfaces with fine emery cloth and wipe clean using Cleaning Solvent (P/N 413 708 200) and a cloth.*

SYMPTOM	BELT EDGE CORD BREAKAGE.
CONDITION	NORMAL USE.
Test/Inspection  A00DOFY	**1. Check pulley alignment.** a. Pulley misalignment. *Align pulley according to specifications (refer to TECHNICAL DATA 10).*

SYMPTOM	FLEX CRACKS BETWEEN COGS.
CONDITION	NORMAL USE.
Test/Inspection  A00D0GY	**1. Check drive belt condition.** a. Considerable use, belt wearing out. *Replace.*

SYMPTOM	SHEARED COGS, COMPRESSION SECTION FRACTURED OR TORN.
CONDITION	NORMAL USE.
Test/Inspection  A00D0HY	**1. Check drive belt rotational direction.** a. Improper belt installation. *Replace.* **2. Check if drive belt rubs against components.** a. Belt rubbing on stationary object. *Relocate components.* **3. Check drive pulley.** a. Violent engagement of drive pulley. *Check drive pulley engagement speed, drive pulley bushings and components.*

SYMPTOM	BELT "FLIP-OVER" AT HIGH SPEED.
CONDITION	NORMAL USE.
Test/Inspection  A00D0IY	**1. Check pulley alignment.** a. Pulley misalignment. *Align pulley according to specifications (refer to TECHNICAL DATA 10).*
	2. Check drive belt identification number. a. Using unspecified type of belt. *Replace belt with an appropriate drive belt.*

BRAKE SYSTEM

MECHANICAL BRAKE

SYMPTOM	BRAKE DOES NOT ADJUST AUTOMATICALLY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check ratchet wheel spring.** a. Broken ratchet wheel tag. *Replace.*
	2. Check mobile pad stud. a. Stud rotates in pad. *Replace.*

SYMPTOM	BRAKE HANDLE DOES NOT RETURN COMPLETELY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check brake return spring.** a. Broken return spring. *Replace.*
	2. Check if brake cable moves freely in its housing. a. Brake cable movement is limited due to oxidation or dirt accumulation. *Replace.*
	3. Check distance between brake lever and caliper. a. Distance is too wide. *Adjust according to specifications (refer to TRANSMISSION 05).*

HYDRAULIC BRAKE

SYMPTOM	**SPONGY BRAKE CONDITION.**
CONDITION	NORMAL USE.
Test/Inspection	*Replace brake fluid and bleed system. If problem still occurs, replace master cylinder.*

SYMPTOM	**BRAKE FLUID LEAKING.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check for loosen hose connectors.** *Retighten.*
	2. Check for damaged hose, master cylinder and caliper. *Replace part(s) and check for proper mounting.*

MECHANICAL AND HYDRAULIC BRAKES

SYMPTOM	**BRAKE SYSTEM IS NOISY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check brake pad thickness.** a. Pads are worn up to wear warner. *Replace.*

ELECTRICAL SYSTEM

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline. Some causes or corrections may not apply to a specific model.

SYMPTOM	**STARTER DOES NOT TURN.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuse.** a. Burnt fuse. *Check wiring condition and replace fuse.*
	2. Check continuity of starter switch contact points. a. Poor contact of starter switch contact points. *Repair or replace switch.*
	3. Check continuity between starter switch and solenoid. a. Open circuit between starter switch and solenoid switch. *Repair.*

SYMPTOM	**STARTER TURNS; BUT DOES NOT CRANK THE ENGINE.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check battery capacity.** a. Shorted battery cell(s). *Replace.*
	2. Check battery charge. a. Weak battery. *Recharge.*
	3. Check wire connection. a. Inadequate connection (too much resistance). *Clean and reconnect.*
	4. Check solenoid switch contact disc. a. Burnt or poor contact of solenoid switch contact disc. *Replace solenoid switch.*
	5. Check continuity of solenoid switch pull-in winding. a. Open circuit of solenoid switch pull-in winding. *Replace solenoid switch.*
	6. Check continuity of solenoid switch hold-in winding. a. Open circuit of solenoid switch hold-in winding. *Replace solenoid switch.*

	7. Check brushes. a. Poor contact of brushes. *Replace brushes.*
	8. Check commutator. a. Burnt commutator. *Turn commutator on a lathe. Respect outer diameter wear limit. Refer to ELECTRIC STARTER 06-06.*
	9. Check height of commutator mica. a. Commutator mica too high. *Undercut mica.*
	10. Check field coil resistance. a. Shorted field coil. *Repair or replace yoke.*
	11. Check armature resistance. a. Shorted armature. *Repair or replace armature.*
	12. Check tension of brush springs. a. Weak brush spring tension. *Replace springs.*
	13. Check yoke assembly magnets. a. Weak magnets. *Replace yoke assembly.*
	14. Check if bushings are worn. a. Worn bushings. *Replace bushings.*

SYMPTOM	STARTER TURNS, BUT OVERRUNNING CLUTCH PINION DOES NOT MESH WITH RING GEAR.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check clutch pinion gear.** a. Worn clutch pinion gear. *Replace clutch.*
	2. Check clutch. a. Defective clutch. *Replace clutch.*
	3. Check movement of clutch on splines. a. Poor movement of clutch on splines. *Clean and correct.*
	4. Check clutch bushing. a. Worn clutch bushing. *Replace clutch.*
	5. Check starter bushings. a. Worn starter bushing(s). *Replace bushing(s).*
	6. Check ring gear. a. Worn ring gear. *Replace ring gear.*

SYMPTOM	ELECTRIC STARTER KEEPS TURNING WHEN ENGINE IS STARTED.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check clutch.** a. Jammed clutch pinion gear. *Replace or clean.*
	2. Check movement of clutch on splines. a. Clutch is stuck on splines. *Clean.*
	3. Check ignition switch. a. Ignition switch does not return to its ON position or is short-circuited. *Replace switch.*
	4. Check solenoid. a. Shorted solenoid switch winding(s). *Replace solenoid switch.*
	5. Check solenoid switch contacts. a. Melted solenoid switch contacts. *Replace solenoid switch.*
	6. Check starter switch. a. Starter switch returns poorly. *Replace ignition switch.*

SYMPTOM	NOISE OCCURENCE WHEN STARTING ENGINE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check if ring gear is well mounted to drive pulley inner half.** a. Loose and/or broken bolts. *Retighten bolts using thread-locker or replace ring gear and drive pulley inner half.*

SYMPTOM	**ELECTRIC STARTER SOMETIMES DOES NOT WORK WHEN TURNING IGNITION SWITCH.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check battery cables and starter wires.** a. Corroded and/or loose connection(s). *Clean and/or retighten.*
	2. Check fuse. a. Oxidized fuse. *Clean.*
	3. Check wiring harness connections. a. Oxidized connections. *Clean or replace defective terminals.*
	4. Check ignition switch. a. Defective contacts in ignition switch. *Replace.*
	5. Check solenoid of electric starter. a. Shorted solenoid wiring harness or eroded contact washer. *Replace.*

SYMPTOM	**HEADLAMP NOT LIGHTING.**
CONDITION	WHITE BULB.
Test/Inspection	**1. Check bulb.** a. Gas leak. *Replace bulb.*
CONDITION	BROKEN ELEMENT.
Test/Inspection	**1. Check for loose headlamp housing and bulb socket.** a. Vibration problem. *Tighten headlamp mounting screws. Lock bulb in socket. Replace bulb.*
CONDITION	MELTED FILAMENT (ENDS OF ELEMENT HOLDER) AND BLACK BULB.
Test/Inspection	**1. Check voltage at headlamp at different speeds. It must not be above 15 Vac.** NOTE: If quartz halogen bulb is involved, ensure that proper voltage regulator is installed. a. Excessive voltage in lighting circuit. *Replace voltage regulator and ensure proper grounding. Retest.*

SYMPTOM	HEADLAMP DIMING.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check voltage at headlamp at different speeds. It must not be below 11 Vac.** a. Insufficient voltage in lighting circuit. *Replace voltage regulator and retest.*
	2. Visually inspect wiring harness for damaged and/or melted wires and/or bad wire terminal crimping and/or connections. a. Heating, rotating or sharp part in contact with harness. Improper harness routing. *Repair/replace damaged wires and/or terminals. Reroute harness where necessary.*
	3. On manual start models: Verify regulator ground. a. Rusted or loose retaining screws. *Clean, apply lithium grease (LMZ1) and firmly tighten screws.*
	4. Verify if there is an interconnection between AC and DC current. a. Faulty installation of optional equipment. *Find optional equipment connected directly to DC ground (BK wire or chassis) or to any DC hot wire (RD, RD/BL). Disconnect and reconnect to AC current (YL and YL/BK wires).*
	5. Verify of optional electric accessories are overloading the magneto/generator. a. Excessive electrical load to magneto/generator. *Reduce the electrical load by removing excess accessories. Reconnect as recommended by manufacturer.*
	6. Hot Grips brand: Verify if they were connected in parallel by mistake. a. Excessive electrical load to magneto/generator. *Reconnect as recommended by manufacturer.*
	7. Bombardier heating grips: Verify if the return wires of the elements were grounded to the chassis by mistake. a. Faulty installation of optional equipment. *Reconnect as recommended by manufacturer.*
	8. Verify if heating grips installation overloads the magneto/generator capacity. a. Excessive electrical load to magneto/generator. *Reduce the electrical load by removing accessories.*

SYMPTOM	**FALSE FUEL AND/OR TEMPERATURE GAUGE READINGS.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Verify if gauge was connected on DC current by mistake (in case of optional installation).** a. Faulty installation of optional equipment. *Find optional wires connected directly to DC ground (BK wire to chassis) or to any DC hot wire (RD, RD/BL). Disconnect and reconnect to AC current (YL and YL/BK wires).*
	2. Verify sender unit for free movement and/or correct arm position. a. Defective or damaged part. *Correct or replace sender unit.*
	3. Verify sender unit/gauge wiring harness condition. a. Heating, rotating or sharp part in contact with harness. Improper harness routing. *Replace or repair damaged wires. Reroute where necessary.*

SYMPTOM	**ENGINES DOES NOT START — NO SPARK AT SPARK PLUG.**
CONDITION	AT ENGINE CRANKING.
Test/Inspection	**1. Verify spark plug condition.** a. Defective, improperly set, worn-out, fouled. *Identify source of problem and correct. Replace spark plug.*
	2. Verify spark plug cap resistance with an ohmmeter. a. Defective part. *Replace cap.*
	3. Verify if problem originated from electrical system wiring harness and/or accessories and/or ignition cut-out switches by unplugging the BLACK/YELLOW wire between the magneto/generator and the vehicle wiring harness. Check condition of connectors. a. Heating, rotating or sharp part in contact with harness. Improper harness routing. Defective switch(es). Corroded connector terminals. *Replace or repair damaged wires. Reroute where necessary. Replace defective switch(es). Clean connectors and apply silicone dielectric grease.*
	4. Verify trigger coil resistance with an ohmmeter and connector condition. a. Defective coil. Corroded connector terminals. *Replace defective coil. Clean terminals and apply silicone dielectric grease.*
	5. Verify condition of ignition coil. a. Mechanically damaged part. Vibration problem. Electrically damaged part. *Tighten mounting screws. Replace ignition coil.*
	6. Verify condition of ignition generator coils. a. Mechanically damaged part. Vibration problem. Electrically damaged part. *Tighten mounting screws. Replace coils.*
	7. Verify CDI (Capacitor Discharge Ignition) module. a. Mechanically damaged part. Vibration problem. Electrically damaged part. *Tighten mounting screws. Replace CDI module, retest and verify ignition timing.*

SYMPTOM	**ENGINE STALLS.**
CONDITION	AT LOW SPEED.
Test/Inspection	**1. Verify items 4, 5 and 6 above.**

SYMPTOM	**IRREGULAR ENGINE SPEED.**
CONDITION	AT HIGH SPEED.
Test/Inspection	**1. Verify items 4, 5 and 6 above.**
CONDITION	AT LOW SPEED.
Test/Inspection	**1. Verify items 4 and 5 above and trigger coil/flywheel protrusion air-gap.** a. Air-gap too large. *Readjust air-gap.*

SYMPTOM	**ENGINE IS MISFIRING — ERRATIC SPARK AT SPARK PLUG.**
CONDITION	RIDING ON WET SNOW.
Test/Inspection	**1. Verify if spark plug wires and/or spark plug cap seals are sealing-out moisture.** a. Defective wires and/or seals. *Replace defective part.*
	2. Verify if ignition system wiring harness connectors are in good condition and/or are sealing-out moisture. a. Loose connectors, corroded terminals or defective parts. *Clean terminals and apply silicone dielectric grease. Replace defective parts.*
CONDITION	NORMAL USE.
Test/Inspection	**1. Verify misfiring by observing flash of stroboscopic timing light; unplug connectors between magneto/generator and vehicle wiring harness to isolate problem. Check condition of connectors.** a. Defective spark plug and/or cables/caps. Defective electrical system wiring harness and/or accessories and/ignition cut-out switches. Condition of connector terminals. *Replace defective parts and/or repair damaged wires. Replace defective switch(es). Clean terminals and apply silicone dielectric grease.*
CONDITION	RIDING IN DEEP AND THICK SNOW.
Test/Inspection	**1. Perform all verifications outlined under "Engine does not start — no spark at spark plug".**
	2. Verify spark plug(s). Proceed with spark plug analysis in order to identify source of problem. a. Defective and/or worn spark plug(s) and/or cable(s) and/or cap(s). *Replace defective part(s). Proceed with ignition system testing procedures. Perform engine analysis.*

SYMPTOM	**FOULED (BLACK) SPARK PLUG TIP.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check carburetor(s).** a. Carburetion is too rich. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	2. Check injection oil consumption. a. Injection pump flow is too high. *Adjust according to specification or replace.*
	3. Check oil quality. a. Poor oil quality that creates deposits. *Use Bombardier oil.*
	4. Check engine compression. a. Leaking piston ring(s). *Replace.*

SYMPTOM	**SPARK PLUG TIP(S) IS (ARE) LIGHT GREY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Refer to "Engine slows down or stops at high RPM" and check items listed.**
	2. Check spark plug heat range. a. Spark plug heat range is too high. *Replace by Bombardier's recommended spark plug (refer to TECHNICAL DATA 10).*
	3. Check if air intake silencer leaks. a. Air surplus coming from opening(s) located between halves. *Seal.*
	4. Check carburetor adapter collars. a. Loose collar(s). *Tighten.*
	5. Check carburetor adapter(s). a. Cracked or deformed adapter(s). *Replace.*

SYMPTOM	**BRAKE LIGHT REMAINS ON.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check if bulb is properly installed.** a. Bulb is not installed correctly (contact elements are reversed). *Install bulb correctly.*
	2. Check brake switch. a. Switch contact remains closed. *Adjust brake cable or brake switch.*

SYMPTOM	REAR LIGHT BULB FLASHES.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check bulb tightness in housing.** a. Looseness at bulb contact elements. *Install bulb correctly.*
	2. Check if rear light is properly connected. a. Connector housing is partially connected. *Install connector housing properly.*
	3. Check continuity of wires. a. Corroded terminals and/or broken wires. *Replace terminal(s) or crimp defective wires.*

SYMPTOM	TACHOMETER DOES NOT WORK.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuse.** a. Burnt fuse. *Replace.*
	2. Check continuity of wires. a. Corroded terminals and/or broken wires. *Replace terminal(s) or crimp defective wires.*

SYMPTOM	HIGH BEAM PILOT LAMP LIGHTS UP WHEN LOW BEAM IS SELECTED.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check proper connections.** a. Yellow wire connected to pilot lamp. Mixed-up connections with heating element pilot lamps. *Reconnect a YELLOW/BLACK wire to pilot lamp. YELLOW wires are connected to heating element pilot lamps.*

SUSPENSION AND TRACK

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline. Some causes or corrections may not apply to a specific model.

SYMPTOM	**REAR SUSPENSION BOTTOMS OUT.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check rear spring preload or rear arm spring preload.** a. Spring tension is too low. *Increase rear arm spring preload.*

SYMPTOM	**SLIDER SHOES WEAR OUT PREMATURELY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check track tension.** a. Pressure is too great on slider shoes. *Adjust according to specifications (refer to TECHNICAL DATA 10).* *Replace defective parts.*

SYMPTOM	**TRACK CLEATS BECOME BLUE.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check track tension.** a. Pressure is too great on cleats. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	2. Check slider shoes and/or suspension retaining screws. a. Worn slider shoes or lost retaining screws. *Replace defective parts and/or tighten loose screws.*

SYMPTOM	NOISE OR VIBRATIONS ORIGINATING FROM THE TRACK.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check slide suspension retaining bolts.** a. Missing bolt(s) allowing movement of certain components which in turn interfere with track rotation. *Replace missing bolt(s).*
	2. Check condition of idler wheel(s). a. Idle wheel rubber is damaged. *Replace.*
	3. Check guide cleats. a. Top portion of guide cleat(s) is bent. *Replace.*
	4. Check sprockets. a. One or various teeth of drive shaft sprockets are broken. *Replace sprocket(s).*
	5. Check track rods and/or internal traction teeth. a. One or various track rods and/or teeth are broken. *Replace track.*

SYMPTOM	DERAILING TRACK.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check track tension.** a. Track is too loose. *Adjust.*
	2. Check if track and slider shoes are properly aligned. a. Improper alignment. *Adjust.*

SYMPTOM	REAR SUSPENSION IS LOW OR TOO STIFF.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check track tension.** a. Track is too tight. *Adjust.*
	2. Check if axles are properly lubricated. a. Improper lubrication and/or contaminated grease (sticky oil sludge). *Clean and/or lubricate.*
	3. Check rear spring preload. a. Insufficient preload. *Increase preload using shock adjustment cams.*

SYMPTOM	WHEN HANDLEBAR IS TURNED, SNOWMOBILE UNDERSTEERS.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check ski runner condition.** a. Worn ski runners. *Replace.*
	2. Check tension of front spring adjustment cams. a. Insufficient ski pressure on the ground. *Increase spring preload.*
	3. Check if front arm stopper strap is too long. a. Insufficient ski pressure on the ground. *Shorten stopper strap.*
	4. Check front arm spring tension. a. Insufficient ski pressure on the ground. *Reduce spring preload.*

SYMPTOM	HANDLE BAR IS DIFFICULT TO TURN.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check position of front spring adjustment cams.** a. More pressure on the ground when cam increases spring preload. *Reduce front spring preload.*
	2. Check position of stopper strap. a. More weight when stopper strap is short. *Lengthen front arm stopper strap.*
	3. Check position of front arm shock adjustment cam(s). a. When spring tension is weak, more weight is transferred to the skis. *Increase spring preload.*
	4. Check condition of ball joints. a. Corrosion restrains movement. *Lubricate or replace.*
	5. Check straigthness of suspension components. a. Bent component(s). *Replace as required.*

SYMPTOM	THE SNOWMOBILE IS UNSTABLE (IT MOVES FROM LEFT TO RIGHT AND VICE VERSA).
CONDITION	NORMAL USE.
Test/Inspection	**1. Check ski runner condition.** a. Worn or bent ski runners. *Replace ski runners.*
	2. Check ski alignment. a. Improper ski alignment. *Align skis in order to obtain proper toe-out (opening) (to adjust, refer to STEERING SYSTEM 08).*
	3. Check if bushings are too loose in steering system. a. Bushings are too loose. *Replace.*