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 plugs.** a. Carbon accumulation caused by defective spark plug(s). *Clean carbon accumulation and replace spark plugs.*
	2. Check ignition timing. a. Timing is too advanced. *Set timing according to specifications (refer to TECHNICAL DATA).*
	3. Check carburetor. a. Fuel passages obstructed. *Clean carburetor and install new filter(s).* b. Fuel level too low. *Adjust float level according to specifications.*
	4. Check cooling system. a. Low antifreeze level. *Adjust antifreeze level. Then check clamps or hoses.* b. Defective tank cap. *Replace cap.* c. Air in system. *Bleed system.*

SYMPTOM	**ENGINE SUDDENLY TURNS OFF AT HIGH RPM AND/OR WITH LIGHT LOAD.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check that all ground wires are well connected.**

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) (foreign particles in needle area and/or varnish formation in carburetor(s)). *Clean carburetor(s) and install new filter(s).* d. Spark plug heat range is too warm. *Install spark plugs with appropriate heat range (refer to TECHNICAL DATA).* e. Improper ignition timing. *Adjust according to specifications (refer to TECHNICAL DATA).* 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).* i. Improper reed valve adjustment or damage. *Adjust according to specifications (refer to 493, 593, 693 AND 793 ENGINES TYPES) and/or install Bombardier's recommended reed valve.* j. Poor oil quality. *Use BOMBARDIER 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 oil quality. *Clean residue accumulation in combustion chamber and replace piston(s). Use BOMBARDIER injection oil.* b. Spark plug heat range is too high. *Install recommended spark plugs (refer to TECHNICAL DATA).* c. Ignition timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA).* d. Inadequate fuel quality. *Use appropriate fuel.* e. Carburetion is too lean. *Adjust according to specifications (refer to TECHNICAL DATA).*

	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. Cooling system leaks and lowers coolant level. *Tighten clamps or replace defective parts. Add antifreeze in cooling system until appropriate level is reached.* b. 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). Adjust drive pulley according to specifications (refer to TECHNICAL DATA) and/or clean pulley sheaves if they are contaminated with greasy particles.*
	9. DPM manifold air vent is obstructed. a. Carburetion is too lean. *Ensure proper air vent.*

SYMPTOM	**PISTON RING AND CYLINDER SURFACES ARE GROOVED.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check oil quality.** a. Poor oil quality. *Use BOMBARDIER injection 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) 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 and gap.** a. Fouled spark plugs or wrong spark plug gap. *Replace or readjust gap.*
	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).
	4. Check carburetor adjustments and cleanliness. a. Inadequate carburetor adjustments or dirt accumulation. *Adjust according to specifications (refer to TECHNICAL DATA) 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).*
	6. Check track adjustment. a. Too much tension and/or improper alignment. *Align track and adjust its tension to specifications (refer to TECHNICAL DATA).*
	7. Check drive pulley. a. Improper calibration screw adjustments (TRA pulley) and/or worn bushing(s). *Adjust according to specifications (refer to TECHNICAL DATA) 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).*
	9. Check exhaust system. a. Restriction or exhaust system leaks. *Replace or reseal with Ultra Copper.*
	10. Check ignition timing. a. Decrease in power due to retarded ignition. *Adjust according to specifications (refer to TECHNICAL DATA).*
	11. Check engine compression. a. Worn piston(s) and ring(s). *Replace (refer to TECHNICAL DATA for specifications).*
	12. Check engine cooling system. a. Antifreeze level is low, cap fails to pressurize system or air circulates through lines. *Adjust level, replace cap or bleed cooling system.*
	13. Check reed valve. a. Improper tightness and/or opening. Replace or adjust. Refer to proper ENGINE subsection.

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 plugs (refer to TECHNICAL DATA).*
	3. Check exhaust system. a. Too much restriction. *Replace.*
	4. Check ignition timing. a. Timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA).*
	5. Check carburetion. a. Fouled and/or improper carburetor components. *Clean or replace according to specifications (refer to TECHNICAL DATA).*
	6. Check compression ratio and combustion chamber volume. 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. If it still does not work, connect DESS switch BK/GN and BK/WH wires together (harness side).*
	2. Check fuel level. a. Mixture not rich enough to start cold engine. *Check fuel tank level and use choke.*
	3. Check spark plug. a. Defective spark plug (no spark) or wrong spark plug gap. *Replace spark plugs or readjust gap.*
	4. Check amount of fuel on spark plug. a. Flooded engine (spark plug wet when removed). *Do not overprime or overchoke. Remove wet spark plugs, turn ignition switch to OFF and crank engine several times. Install clean dry spark plugs. Start engine following usual starting procedure.*
	5. Check fuel lines. a. No fuel to the engine (spark plugs dry when removed). *Check fuel tank level; turn fuel valve on if applicable; 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 choke.** a. Choke plunger may be partially opened. *Readjust.*
	2. Check carburetor adapter. a. Air enters through a crack. *Replace.*
	3. Check air screw position. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA).*
	4. Check ignition system trigger coil air gap. a. Air gap is too large. *Adjust according to specifications (refer to TECHNICAL DATA).*
	5. Check dimension of pilot jet. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA).*
	6. Check reed valve. a. Improper tightness and/or opening. *Replace or adjust. Refer to proper ENGINE subsection.*
	7. Perform engine leak test. a. Leaking gaskets allow air to enter in engine. *Replace defective parts.*
	8. DPM manifold air vent is obstructed. a. Carburetion is too lean. *Ensure proper air vent.*

SYMPTOM	HIGH ENGINE OPERATING TEMPERATURE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check temperature gauge sensor.** a. False reading. *Check terminal connections. If problem still persists, replace sensor.*
	2. 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.*
	3. 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.*
	4. Check antifreeze concentration. a. Antifreeze concentration is too high. *Adjust concentration according to Bombardier's recommendations.*
	5. Check thermostat. a. Thermostat reacts slowly or not at all. *Replace.*
	6. Check tank cap. a. Cap does not hold pressure. *Replace.*
	7. Check carburetion. a. Improperly adjusted or inadequate carburetor components. *Adjust according to specifications (refer to TECHNICAL DATA) or replace inadequate component(s).*
	8. Check cylinder head gaskets. a. Worn gaskets. *Replace.*
	9. Check ignition timing. a. Ignition timing is too advanced. *Adjust according to specifications (refer to TECHNICAL DATA).*
	10. Check if there are leaks at air intake silencer and/or engine crankcase. a. Leak(s). *Repair or replace.*
	11. Check condition and heat range of spark plugs. 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. Jammed 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.*
	7. Check exhaust tightness. a. Exhaust system is leaking leading to a too low back pressure. *Replaces parts and reseal.*

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. *Adjust according to ASSEMBLY procedure in appropriate ENGINE subsections.*
	3. Check RAVE valve movement (RAVE movement indicator P/N 861 725 800). a. Valve(s) is (are) stuck in open position. *Clean.*

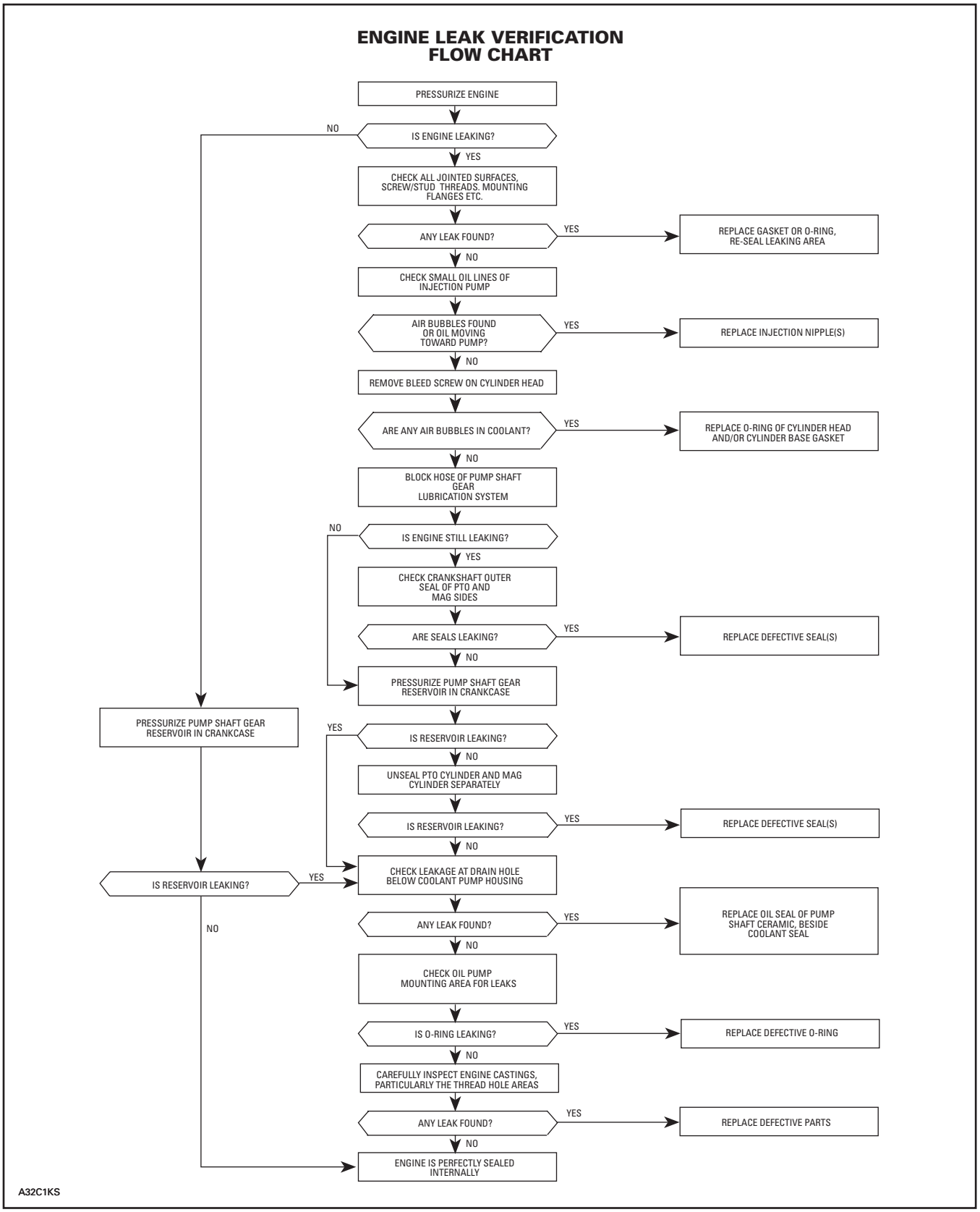
SYMPTOM	**REWIND STARTER ROPE DOES NOT REWIND.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check rewind spring.** a. Broken spring. *Replace spring.*

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).*
	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 and stopper.** a. Loose and/or broken supports or interference between support(s) and chassis. *Retighten to specification (refer to TECHNICAL DATA) 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 choke adjustment. a. Fuel flows through choke circuit while engine runs. *Readjust choke.*
	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).*
	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.*
	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 pump shaft gear reservoir. a. Leaking seal(s). *Replace seal(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 routed. *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 height according to specifications.*

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 less than specified in DRIVE BELT.*
	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).*
	3. Check driven pulley sliding half play. a. Jammed sliding half. *Replace.*
	4. Check spring tension of driven pulley sliding half. a. Sliding half rotation is accelerated when spring tension is too weak. *Adjust according to specifications (refer to TECHNICAL DATA).*
	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. a. Spring tension is too stiff. *Adjust according to specifications (refer to TECHNICAL DATA).*
	3. Check position of the calibration screws. (TRA drive pulley) a. Selected numbers are too high. *Adjust according to specifications (refer to TECHNICAL DATA).*
	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 play of driven pulley splines. a. Worn splines. *Replace.*

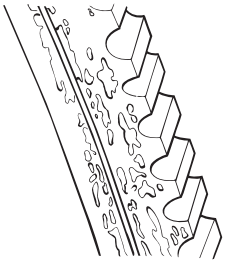
SYMPTOM	VIBRATIONS ORIGINATING FROM DRIVE PULLEY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive belt.** a. Belt width is uneven at many places. *Replace.*
	2. Check tightening torque of drive pulley screw. a. Moving governor cup. *Retighten screw.*
	3. Spring cover screws. a. Spring cover moves 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.*

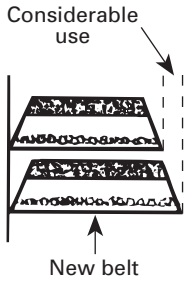
SYMPTOM	VIBRATIONS ORIGINATING FROM DRIVEN PULLEY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check sliding half play.** a. Sliding half runout. *Replace sliding half bushing.*
	2. Check sliding half and fixed half straightness. a. Sliding half/fixed half runout. *Replace.*
	3. Check cam slider shoes.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

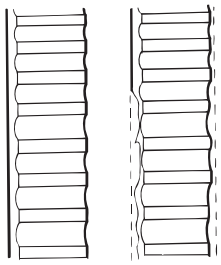
SYMPTOM	**PULLEYS DO NOT DOWN SHIFT PROPERLY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check driven pulley spring tension.** a. Spring tension is too weak. *Adjust according to specifications (refer to TECHNICAL DATA).*
	2. Refer to VIBRATIONS COMING FROM DRIVEN PULLEY and check items listed.
	3. Check drive pulley bushings (cleanliness, wear, etc.). a. Bushings stick to fixed half pulley shaft. *Clean or replace.*
	4. Check driven pulley spring tension. a. Spring tension is too weak. *Replace.*

SYMPTOM	**IN REVERSE ENGINE BOGS AND DRIVEN PULLEY OPENS TOO FAST (DRIVE BELT IS LOW IN DRIVEN PULLEY).**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check pulley distance and alignment.** a. Improper adjustment. *Adjust according to specifications (refer to PULLEY DISTANCE AND ALIGNMENT) and make sure that engine stopper is resting against engine.*

SYMPTOM	**UNEVEN BELT WEAR ON ONE SIDE ONLY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check tightening torque of engine mount bolts.** a. Loose engine mount. *Tighten engine mount nuts/bolts equally.*
 A00D09Y	**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.*

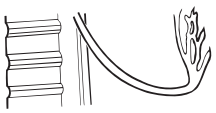
SYMPTOM	**BELT GLAZED EXCESSIVELY OR HAVING BAKED APPEARANCE.**
CONDITION	NORMAL USE.
Test/Inspection  A00D0AY	**1. Check if drive pulley bushings are worn.** a. Insufficient pressure on belt sides. *Replace bushing.* **2. Check condition of drive pulley fixed half shaft.** a. Rusted drive or driven pulley shafts. *Clean shaft with fine steel wool.* **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 specifications.*

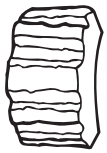
SYMPTOM	**BELT WORN EXCESSIVELY IN TOP WIDTH.**
CONDITION	NORMAL USE.
Test/Inspection  A00D0BY	**1. Check drive pulley.** a. Excessive slippage due to irregular outward actuation movement of drive pulley. *Carry out drive pulley inspection.* **2. Check drive belt identification number.** a. Improper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

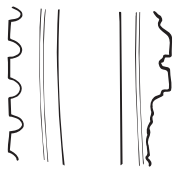
SYMPTOM	BELT WORN NARROW IN ONE SECTION.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check if parking brake is released.** a. Parking brake is engaged. *Release parking brake.*
	2. Check track tension/alignment. a. Frozen or too tight track. *Liberate track from ice or check track tension and alignment.*
 A00D0CY	**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 specifications.*
	5. Check drive belt length. a. Incorrect belt length. *Replace belt with an appropriate drive belt (refer to TECHNICAL DATA).*
	6. Check distance between pulleys. a. Incorrect pulley distance. *Readjust according to specifications.*
	7. Check belt deflection. a. Deflection is too small. *Adjust according to specifications.*

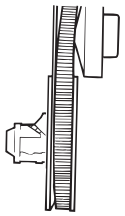
SYMPTOM	BELT SIDES WORN CONCAVE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check pulley half surfaces.** a. Rough or scratched pulley half surfaces. *Repair or replace.*
 A00D0DY	**2. Check drive belt identification number.** a. Unspecified type of belt. *Replace belt with an appropriate drive belt (refer to TECHNICAL DATA).*

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).* **2. Check if pulley halves are clean.** a. Oil on pulley surfaces. *Clean pulley surfaces with fine emery cloth and wipe clean using Parts Cleaner (P/N 413 711 809) 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).*

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	**1. Check pulley alignment.** a. Pulley misalignment. *Align pulley according to specifications (refer to TECHNICAL DATA).*
 A00D0IY	**2. Check drive belt identification number.** a. Using unspecified type of belt. *Replace belt with an appropriate drive belt.*

BRAKE SYSTEM

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 loosened hose connectors.** *Replace copper washers and retighten.*
	2. Check for damaged hose, master cylinder and caliper. *Replace part(s) and check for proper mounting.*

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 battery and verify recharge system and wires.*
	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 brushes. a. Poor contact of brushes. *Replace brushes.*
	7. Check commutator. a. Burnt commutator. *Turn commutator on a lathe. Respect outer diameter wear limit.* *Refer to ELECTRIC STARTER.*

	8. Check height of commutator mica. a. Commutator mica too high. *Undercut mica.*
	9. Check field coil resistance. a. Shorted field coil. *Repair or replace yoke.*
	10. Check armature resistance. a. Shorted armature. *Repair or replace armature.*
	11. Check tension of brush springs. a. Weak brush spring tension. *Replace springs.*
	12. Check yoke assembly magnets. a. Weak magnets. *Replace yoke assembly.*
	13. 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 starter brackets. a. Broken bracket(s). Replace bracket(s).
	4. Check ignition switch. a. Ignition switch does not return to its ON position or is short-circuited. *Adjust switch position. Face nut is too far in.*
	5. Check starter relay. a. Shorted starter relay winding(s). *Replace starter relay.*
	6. Check starter relay contacts. a. Melted starter relay contacts. *Replace starter relay.*
	7. Check starter relay. a. Starter relay returns poorly. *Replace starter relay.*

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	**20 A FUSE LOCATED IN LEFT FRONT CORNER OF ENGINE COMPARTMENT IS BURNT.**
CONDITION	NORMAL USE.
Test/Inspection	**1. 20 A fuse burns when electric starter is activated with a faulty starter ground. Check that ground cable between chassis and starter bracket is well connected.** a. Broken, corroded and/or loose connection(s). *Replace, clean and/or retighten. Replace 20 A fuse.*

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 or burnt fuse. *Clean or replace.*
	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	**ENGINE 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 plugs.*
	2. Verify spark plug wire and cap resistance with an ohmmeter. a. Defective part. *Replace.*
	3. Verify if problem originated from electrical system wiring harness and/or accessories and/or ignition cut-out switches by unplugging the 3-wire connectors 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 terminals 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 MPEM. a. Mechanically damaged part. Vibration problem. Electrically damaged part. *Check that MPEM is properly mounted and secured. Replace MPEM, retest and verify ignition timing.*

SYMPTOM	**MPEM DOES NOT WORK.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check that high tension coil wires do not touch any metal parts.** a. Short circuit. *Isolate and reroute wires.*

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 as specified (refer to CDI MAGNETO). 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(s) and/or cable(s)/cap(s). 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 as specified (refer to CDI MAGNETO).*
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 plugs. 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).*
	2. Check injection oil consumption. a. Injection pump flow is too high. *Adjust according to specifications or replace.*
	3. Check oil quality. a. Poor oil quality that creates deposits. *Use BOMBARDIER injection 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 IRREGULAR ENGINE SPEED AT HIGH SPEED 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).*
	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	**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 contact surfaces 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 if 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 sender unit for free movement and/or correct arm position.** a. Defective or damaged part. *Correct or replace sender unit.*
	2. 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	WITH ENGINE IDLING NO ELECTRICAL ACCESSORIES WORK.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check idle speed.** a. Too low idle speed. *Readjust to specifications.*
	2. Verify regulator. a. Faulty regulator. *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. *Replace 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 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. Other wire connected to pilot lamp. Mixed-up connections. *Reconnect YELLOW/BLACK and GRAY wires 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	**SUSPENSION IS TOO LOW.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check condition of spring.** a. Spring is weakened or broken. *Replace spring.*
	2. Check preload of spring. a. Low spring preload. *Increase preload to the recommended position.*

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).* *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).*
	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. Idler 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.*
	3. Check for proper suspension fastening. a. Loose or lost retaining screws. *Install new screws and tighten to recommended torque.*

SYMPTOM	**REAR SUSPENSION IS 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. Too much preload. *Adjust to recommended position.*

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 ski 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. *Loosen spring tension.*

SYMPTOM	**HANDLEBAR IS DIFFICULT TO TURN.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check position of ski spring adjustment cams.** a. More pressure on the ground when cam increases spring preload. *Reduce ski 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 swing arm camber. a. Too much ski leg inclination. *Adjust camber to specifications.*
	6. Check for proper lubrication. a. Components need lubrication. *Lubricate. Refer to LUBRICATION AND MAINTENANCE.*

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).*
	3. Check if bushings are too loose in steering system. a. Bushings are too loose. *Replace.*
	4. Check ski pressure. a. NOTE: If all parts are in good condition and the customer still complains about an unstable snowmobile, consider the installation of optional Proactive Control System.