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ENGINE

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline.

SYMPTOM	**ENGINE BACKFIRES.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check spark plug.** a. Carbon accumulation caused by defective spark plug. *Clean carbon accumulation and replace spark plug.*
	2. Check ignition timing. a. Timing is fixed but ensure that woodruff key holding flywheel is in place.

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 governor adjustment. a. Governor out of adjustment. *Readjust.*
	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 valve clearance. a. Valve clearance incorrect. *Readjust.*
	6. Check valve condition. a. Valve or valve seat worn or damaged. *Inspect and correct.*
	7. Check track adjustment. a. Too much tension and/or improper alignment. *Align track and adjust its tension to specifications (refer to TECHNICAL DATA 10).*

	8. Check exhaust system. a. Restriction. *Replace.*
	9. Check ignition system. a. Decrease in power due to incorrect ignition. *Check spark plug and ignition coil operation.*
	10. Check engine compression. a. Worn piston(s) and ring(s). *Replace (refer to TECHNICAL DATA 10 for specification).*

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 system. a. Incorrect ignition. *Check spark plug and ignition coil operation.*
	5. Check carburetion. a. Fouled and/or improper carburetor components. *Clean or replace according to specification (refer to TECHNICAL DATA 10).*

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 choke.*
	3. Check spark plug. a. Defective spark plug (no spark). *Replace spark plug.*
	4. Check amount of fuel on spark plug. a. Spark plug wet (flooded engine). *Clean and dry spark plug. Reinstall spark plug and start engine taking care not to use choke. If flooding is severe, check carburetor float valve, then change engine oil.* b. Spark plug dry (no fuel to the engine). *Check fuel tank level; check if fuel valve is opened: check fuel strainer, clean if clogged; check condition of fuel lines and their connections.* *Check carburetor main jet and nozzle.*
	5. Check the ignition system. a. No spark or weak spark. *Replace parts as indicated in section electrical system.*
	6. Check engine compression. a. Insufficient engine compression. *Check valve clearance; carbon accumulation; defective cylinder head gasket, valves or valve seats; Check for worn piston rings, piston or cylinder. Replace defective part(s) (ex. : piston(s), ring(s), etc.).*
	7. Verify check valve on top of fuel tank. a. Improperly installed or obstructed. *Install with vented side toward atmosphere or replace.*

SYMPTOM	IRREGULAR ENGINE IDLE.
CONDITION	NORMAL USE AFTER ENGINE WARM UP.
Test/Inspection	**1. Check choke.** a. Choke plate may be partially closed. *Readjust.*
	2. Check pilot screw position. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	3. Check ignition system coil air gap. a. Air gap is too large. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	4. Check dimension of main jet. a. Inadequate fuel/air mixture. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	5. Check engine compression. a. Insufficient engine compression. *Check valve clearance; carbon accumulation; defective cylinder head gasket, valves or valve seats.* *Check for worn piston rings, piston or cylinder. Replace defective part(s) (ex.: piston(s), ring(s), etc.).*

SYMPTOM	HIGH ENGINE OPERATING TEMPERATURE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check cooling fins of engine.** a. Dirt accumulation between engine fins. *Clean thoroughly.*
	2. Check carburetion. a. Improperly adjusted or inadequate carburetor components. *Adjust according to specifications (refer to TECHNICAL DATA 10) or replace inadequate component(s).*
	3. Check cylinder head gasket. a. Worn gasket. *Replace.*
	4. Check condition and heat range of spark plug. a. Melted spark plug tip or inadequate heat range. *Replace.*
	5. Check exhaust condition. a. Carbon deposit. *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 RATCHET DOES NOT ENGAGE.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check ratchet and ratchet guide.** a. Ratchet and ratchet guide have stuck together because of dirt or heat. *Clean or replace.*
	2. Check ratchet and rope sheave. a. Ratchet 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 is clean. a. Dirt prevents fuel from flowing through. *Clean.*

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.

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 carburetor fittings. a. Leaking fittings. *Replace defective part.*
	3. Check float height in carburetor(s). a. Fuel level is too high in float bowl. *Adjust according to specifications (refer to TECHNICAL DATA 10).*

SYMPTOM	**ENGINE LACKS POWER OR STALLS AT HIGH RPM.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel filter or strainer.** a. Clogged filter or strainer. *Clean.*
	2. Check fuel lines. a. Kinked or clogged lines. *Relocate or replace.*
	3. Check if carburetor is clean. a. Varnish. *Clean.*
	4. Verify check valve on top of fuel tank. a. Improperly installed or obstructed. *Install with vented side toward atmosphere or replace.*

SYMPTOM	ENGINE RUNS OUT OF FUEL (OR LEAN MIXTURE).
CONDITION	NORMAL USE.
Test/Inspection	**1. Check fuel filter or strainer.** a. Clogged filter or strainer. *Clean.*
	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 main jet. a. Dirt (varnish, foreign particle) accumulation at main jet. *Clean.*
	4. Check float height in carburetor bowl. 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.

TRANSMISSION

SYMPTOM	**LOOSENESS IS FELT IN DRIVE SYSTEM WHEN ACCELERATING/DECELERATING.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive chain tension.** a. Drive chain automatic tensioner is too loose. *Replace tensioner.* b. Drive chain is worn out. *Replace drive chain with new one.*

SYMPTOM	**VIBRATIONS ORIGINATING FROM DRIVEN SPROCKET.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check driven sprocket hub fit with drive axle.** a. Driven sprocket is loosened on drive axle. *Replace driven sprocket or drive axle.*
	2. Check drive chain. a. Drive chain is worn out. It rubs on frame. *Replace drive chain.*

SYMPTOM	**VIBRATIONS ORIGINATING FROM DRIVE SPROCKET.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check tightening torque of drive sprocket screw.** a. Moving drive sprocket. *Retighten screw.* b. Worn key way. *Replace parts.*

SYMPTOM	**CLUTCH DO NOT OPERATE PROPERLY.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Replace clutch with new one.**

SYMPTOM	**EXCESSIVE NOISE WITH DRIVE CHAIN.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check drive chain lubrication.** a. Drive chain is dry. *Lubricate drive chain.*
	2. Check drive chain condition. a. Chain is cracked, damaged or some link rollers are missing. *Replace drive chain.*
	3. Check sprockets. a. Excessive wear at sprocket teeth. *Replace sprockets.*
	4. Check drive chain. a. Drive chain is worn out. It rubs on frame. *Replace drive chain.*

BRAKE SYSTEM

MECHANICAL BRAKE

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).*

SYMPTOM	BRAKE SYSTEM IS NOISY.
CONDITION	NORMAL USE.
Test/Inspection	**1. Check brake pad thickness.** a. Pad is worn up to wear limit. *Replace.*
	2. Check brake attachment. a. Attachment is loose or cracked. *Tighten or replace.*
	3. Check brake pad alignment. a. Brake pad is not properly aligned with clutch. *Rotate brake pad 180° or replace with new one.*

ELECTRICAL SYSTEM

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline.

SYMPTOM	**HEADLAMP NOT LIGHTING.**
CONDITION	WHITE BULB.
Test/Inspection	**1. Check bulb.** a. Burnt bulb. *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.** a. Excessive voltage in lighting circuit. *Ensure proper wire connections and 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.* b. Wires are worn or loose. *Ensure proper wire connections and grounding. 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.*

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. 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 ignition 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.*

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 3, 4, 5 and 6 above.**
CONDITION	AT LOW SPEED.
Test/Inspection	**1. Verify items 3, 4 and 5 above and ignition 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	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. 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.** a. Carburation is too rich. *Adjust according to specifications (refer to TECHNICAL DATA 10).*
	2. Check engine compression. a. Leaking piston ring(s). *Replace.*

SYMPTOM	**SPARK PLUG TIP IS 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 ELECTRICAL 06).*
	3. Check carburetor gasket. a. Cracked or deformed gasket. *Replace.*

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

SUSPENSION AND TRACK

The following chart is provided to help in diagnosing the probable source of troubles. It should be used as a guideline.

SYMPTOM	**REAR SUSPENSION BOTTOMS OUT.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check rear spring preload.** a. Spring tension is too low. *Replace spring or add a shim under torsion spring leg on each side.*

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	**PREMATURE WEAR ON TRACK GUIDES.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check track tension.** a. Pressure is too great on guides. *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. Idler wheel rubber is damaged. *Replace.*
	3. Check sprockets. a. One or various teeth of drive shaft sprockets are broken. *Replace sprocket(s).*
	4. Check track internal traction teeth. a. One or various track teeth are broken. *Replace track.*
	5. Check stopper strap. a. Stopper strap is worn out. *Replace stopper strap.*

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 slide suspension retaining bolts. a. Missing bolt(s) allowing movement of certain components which in turn interfere with track rotation. *Replace missing bolt(s).*

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 condition of cushion between shaft and front arm. a. Damaged cushion and shaft. *Replace cushion and shaft.*
	3. Check rear spring preload. a. Insufficient preload. *Replace rear spring.*

SYMPTOM	**WHEN HANDLEBAR IS TURNED, SNOWMOBILE UNDERSTEERS.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check ski runner condition.** a. Worn ski runners. *Replace.*
	2. Check if front arm stopper strap is too long. a. Insufficient ski pressure on the ground. *Replace front arm stopper strap.*

SYMPTOM	**HANDLE BAR IS DIFFICULT TO TURN.**
CONDITION	NORMAL USE.
Test/Inspection	**1. Check condition of ball joints.** a. Corrosion restrains movement. *Lubricate or replace.*
	2. Check U-clamp and retaining support a. Torque on screws are too high. *Refer to STEERING/FRONT SUSPENSION 08.* b. Grease missing. *Apply lithium grease on steering column bushings.*

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/FRONT SUSPENSION 08).*
	3. Check if bushings are too loose in steering system. a. Bushings are too loose. *Replace.*