2004 ski-doo®

Operator's Guide

Includes Safety, Vehicle and Maintenance Information

SUPPLEMENT

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This Supplement must be used in conjunction with 2004 ZX™ Series REV™ Series Operator's Guide (P/N 520 000 361).

MX Z X™ 440

⚠ WARNING

This snowmobile is a high performance vehicle for competitive use only. It is intended for experienced operator's with advanced skills. It is sold without any warranty coverage.

Read this guide thoroughly. It contains important safety information.

Do not remove this Operator's Guide from the vehicle.

BOMBARDIER

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SAFETY WARNING

Disregarding any of the safety precautions and instructions contained in this *Operator's Guide Safety Videocassette* or on-product warnings may result in injury, including the possibility of death.

This *Operator's Guide* and *Safety Videocassette* should remain with the unit at time of resale.

BOMBARDIER
RECREATIONAL PRODUCTS

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Dear 2004 MX Z X™ 440 owner, informations in the *2004 ZX™ Series REV™ Series Operator's Guide* (P/N 520 000 361) also apply to your MX Z X 440 except for the following.

LIMITED WARRANTY VALIDATION

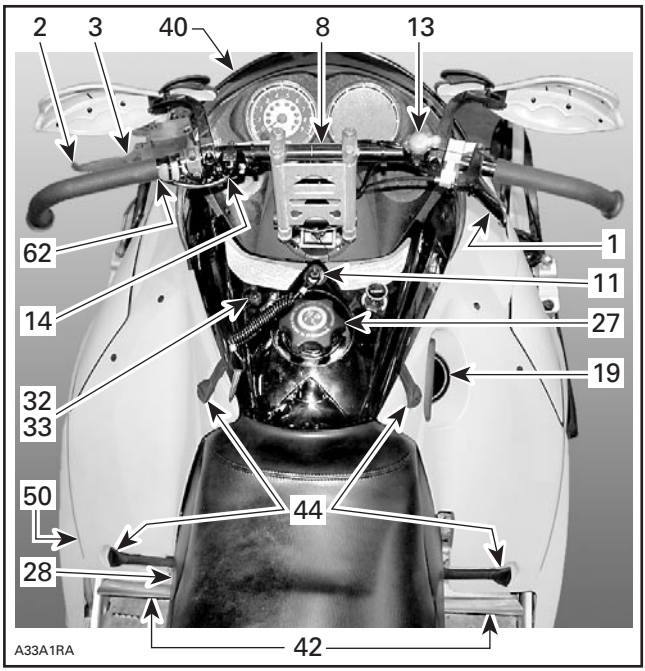
Because of its racing application, the 2004 MX Z X 440 is shipped from the factory with high compression ratio (CR) combustion chamber inserts installed.

To validate limited warranty coverage and to run engine with 91 octane number fuel, the following modifications must be done **at predelivery before using the vehicle**.

1. Low CR combustion chamber inserts must be installed on engine. The high CR combustion chamber inserts must be returned to BOMBARDIER Warranty Department.
2. Replace the main jets with the ones recommended in the *Predelivery bulletin*.
3. Replace the needle jets with the ones recommended in the *Predelivery bulletin*.
4. Disconnect the pre-heat switch as explained in the *Predelivery bulletin*.

RACING APPLICATION

For racing application, the main jets have to be replaced according to the chart found on belt guard.



NOTE: See description or numbered items in *2004 ZX Series REV Series Operator's Guide* (P/N 520 000 361) except for the following.

4) Brake/Parking Brake Pilot Lamp (Red)

This pilot lamp is disabled (does not light up) on the MX Z X 440.

⚠ WARNING

Make sure parking brake is fully disengaged before operating the snowmobile.

When you ride the vehicle, brake that are caused to drag by a continuous pressure on the lever may cause damage to the brake system and cause loss of braking capacity and/or fire.

11) Tether Cord Cut-Out System

General

The tether cord cut-out system prevents snowmobile to runaway, if the operator accidently falls off, by shutting off the engine.

⚠ WARNING

Always disconnect tether cord when leaving vehicle unattended and keep in a secured location.

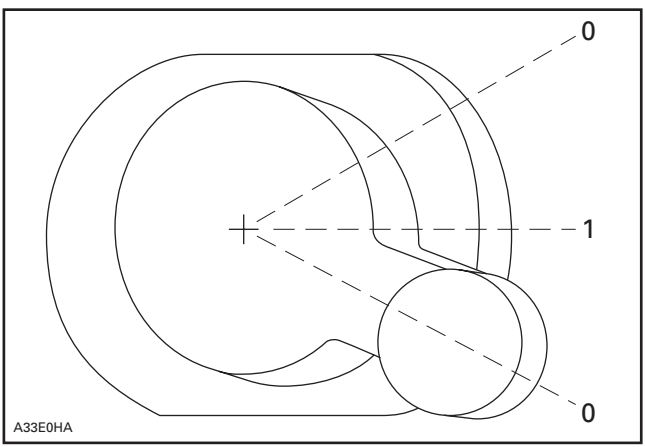
Operation

Attach tether cord to clothing eyelet then snap tether cord cap over post before starting engine.

To stop engine, completely pull cap from post.

13) Engine Cut-Out Switch

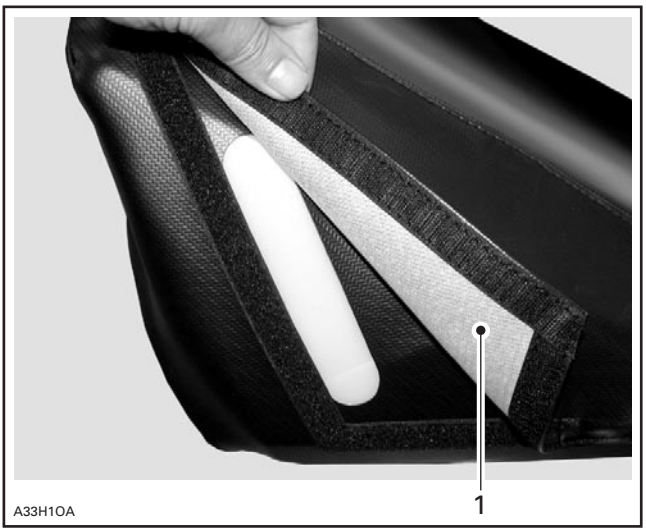
Located on right side of handlebar this switch is used to stop the engine.



0. OFF
1. ON

28) Fuel Level

Open fabric door to see the fuel level through the transparent fuel tank.



1. Fabric door

60) Adjustable Suspensions

NOTE: There is no rear shock motion ratio adjustment on the MX Z X 440.

In addition to all suspension adjustments described in *REV Series Operator's Guide,* take note of the 2 following points.

Shocks

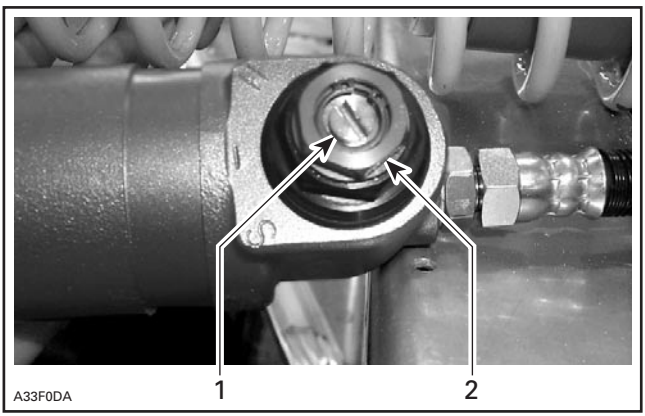
All 4 shocks feature 2 adjustments.

Low Speed Compression Adjuster

The low speed adjuster modifies the damping force for small suspension velocities — less than 0.75 m/s (2.5 ft/s). It tunes the vehicle for braking, cornering, hole shot and all the bumps that create low speed movement in the suspension. This adjuster has 4 turns of adjustment. Use a flat screwdriver to adjust it. Turning it clockwise increases shock damping action (stiffer) for these low compression speeds.

High Speed Compression Adjuster

The High speed adjuster modifies the damping force for high suspension velocities — more than 0.5 m/s (1.6 ft/s). It tunes the vehicle for hoops or bumps that create high speed movement in the suspension. This adjuster has 3 turns of adjustment. Use a 17 mm wrench to adjust it. Turning it clockwise increases shock damping action (stiffer) for these high compression speeds.



1. Low speed compression adjuster (flat screwdriver)
2. High speed compression adjuster (17 mm wrench)

Center and Front Springs

CAUTION: Make sure that center spring and both front springs are still preloaded when front of vehicle is off the ground. Maximum spring preload is 25 mm (1 in). Otherwise, **spring will be coil bound** when fully compressed.

61) Primer Button

Pull and push button. It is not necessary when engine is warm.

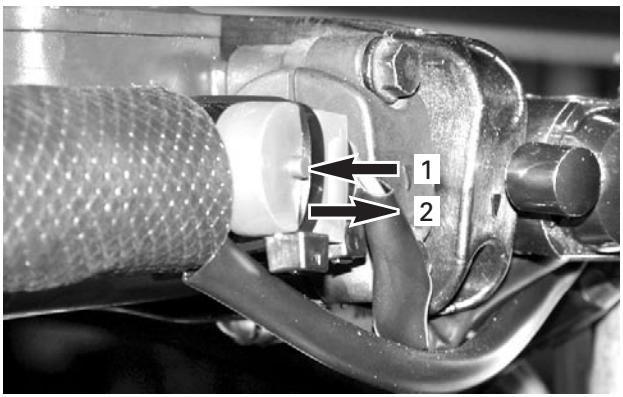
To prime, activate button until a pumping resistance is felt. From this point, pump 2 or 3 times to inject fuel in intake manifold. After priming, ensure that primer button is pushed back.

NOTE: In very cold temperature, it is recommended to rotate primer button 3-4 turns prior to pull it. This will eliminate the possibility of sticking.

62) Pre-Heat Switch

Racing Application Only

NOTE: This switch is disabled (not operative) on vehicles modified for warranty validation. To run engine with 91 octane number fuel, this switch must be disabled.



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1. Button depressed: Pre-heat timing curve
2. Button released: 108 + Octane timing curve

After starting the engine, push and hold the pre-heat switch button in order to pre-heat the tuned pipe. Release pre-heat switch button once the tuned is pre-heated.

FUEL AND OIL

Recommended Fuel

Vehicles with Valid Warranty (Pre-Heat Switch Disabled)

Use super unleaded gasoline, available from most service stations or oxygenated fuel containing less than 10% of ethanol or 5% of methanol. The gasoline used must have an octane number (R + M)/2 of 91 or higher.

NOTE: In most service station pump octane number corresponds to (R + M)/2 octane number.

Vehicles without Warranty (Pre-Heat Switch Enabled)

Racing fuel with an octane number (R+M)/2 of 108 and more.

All Vehicles

CAUTION: Never experiment with other fuels or fuel ratios. The use of unrecommended fuel can result in snowmobile performance deterioration and damage to critical parts in the fuel system and engine components.

⚠ WARNING

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

Fuel System Antifreeze

NOTE: Fuel antifreeze may add alcohol to fuel which may lead to disqualification by technical inspection after the race.

When using oxygenated fuel, additional gas line antifreeze or water absorbing additives are not required and should be not used.

When using non-oxygenated fuel, we highly recommend the use of isopropyl base gas line antifreeze in a proportion of 150 mL (5 U.S. oz) of gas line antifreeze added to 40 liters (10-1/2 U.S. gal) of gas.

This precaution is in order to reduce the risk of frozen carburetor(s) which may lead, in certain cases, to high fuel consumption or severe damage to engine.

IMPORTANT: Use only methyl hydrate free gas line antifreeze.

Recommended Oil

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

Oil must be mixed with fuel in proper ratio in a jerrycan then, be poured in the fuel tank.

Use only two-stroke engine injection oil, sold by authorized SKI-DOO dealers.

MODEL	OIL TYPE
MX Z X 440	BOMBARDIER FORMULA XP-S II synthetic injection oil ①

① **CAUTION:** The BOMBARDIER Formula XP-S II oil is specially formulated and tested for the severe requirements of the 453 engine. Use of any other brand two-stroke oil may void the limited warranty. Use only BOMBARDIER FORMULA XP-S II oil. There is no known equivalent on the market for the moment. If a high quality equivalent were available, it could be used.

BOMBARDIER injection oil is a special blend of basic oil and additives especially selected to ensure unequalled lubrication, engine cleanliness and minimum spark plug fouling.The BOMBARDIER FORMULA XP-S II synthetic injection oil **provides superior lubrication**, reduced engine component wear and oil deposit, thus maintaining maximum-level performance and antifriction properties. This synthetic injection oil meets the latest ASTM and JASO standards by ensuring high biodegradability and low exhaust smoke.

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

⚠ WARNING

Wipe off any oil spills. Oil is highly flammable.

OIL/FUEL 33/1

METRIC (SI)

1 L of oil + 33 L of fuel = 33/1

IMPERIAL

35 imp. oz of oil + 7.2 imp. gal of fuel = 33/1

1 L of oil + 7.2 imp. gal of fuel = 33/1

UNITED STATES

34 U.S. oz of oil + 8.8 U.S. gal of fuel = 33/1

1 L of oil + 8.8 U.S. of fuel = 33/1

STARTING PROCEDURE

- Re-check throttle control lever operation.
- Ensure that the emergency cut-out switch is in the ON position.
- Ensure the tether cut-out cap is in position and that the cord is attached to your clothing.
- To prime, activate button until a pumping resistance is felt. From this point, pump 2 or 3 times to inject fuel in intake manifold. After priming, ensure that primer button is pushed back.

NOTE: In very cold temperature, it is recommended to rotate primer button 3-4 turns prior to pull it. This will eliminate the possibility of sticking.

NOTE: Priming is not necessary when engine is warm.

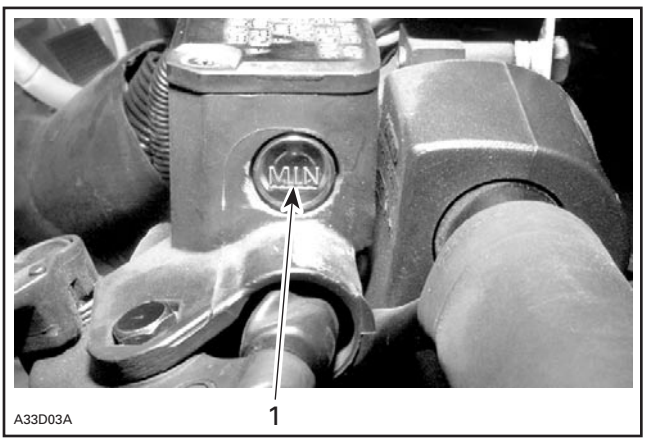
FLUID LEVEL

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

Brake System

Check brake fluid (DOT 4) in reservoir on handlebar for minimum level. Add recommended fluid (DOT 4) as required. Refer to SPECIFICATIONS for recommended fluid.

CAUTION: Use only (DOT 4) brake fluid from a sealed container. Never use any other types of fluid.



TYPICAL — BRAKE FLUID RESERVOIR

1. Minimum

Coolant Pump Shaft Oil Reservoir

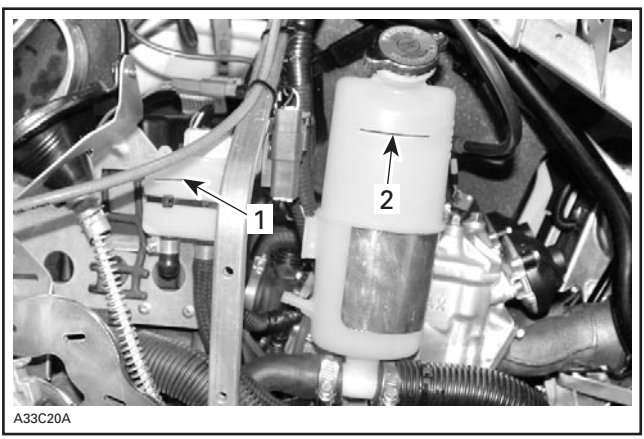
Use BOMBARDIER injection oil (P/N 413 802 900) (12 x 1 L).

Fill up to mark.

Coolant Reservoir

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

Fill up to mark when engine is cold.



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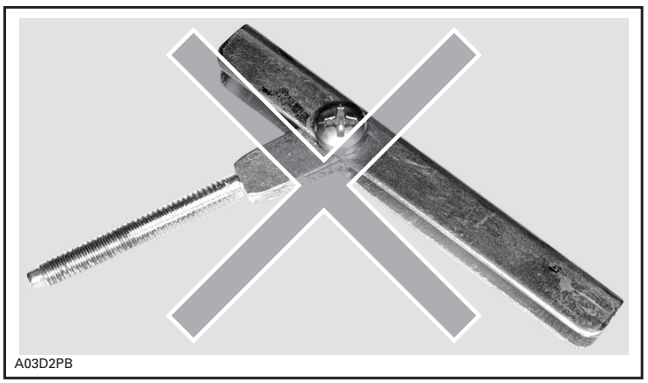
1. Coolant pump shaft oil filling mark
2. Coolant cold level mark

MAINTENANCE

Drive Belt Removal/Installation

Follow the procedure described in *2004 ZX Series REV Series Operator's Guide* except for the following:

CAUTION: Two different drive belt installer/removers are included in the tool kit. Use the one piece installer/remover as shown in following photos.



WRONG TOOL — DO NOT USE ON MX Z X 440



PROPER TOOL TO BE USED ON MX Z X 440



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PROPER TOOL OPENING DRIVEN PULLEY OF MX Z X 440

SPECIFICATIONS

GENERAL		MX Z X 440
Engine		
– Maximum power engine speed	± 100 RPM	8400
Drive belt		
– Number		417 300 253
– Wear limit width	mm (in)	34.7 (1-3/8)
Spark plug		
– Type		NGK BR 9 ECS
– Gap	± 0.5 mm (± .002 in)	0.45 (.018) ⑦
Track		
– Tension	mm (in)	30 to 35 (1-3/16 to 1-3/8) ①
– Alignment		②
FLUIDS		
Fuel		
– Type		③
– Tank capacity	L (U.S. gal)	21 (5.55)
Oil (engine)		
– Type		④
– Premix ratio		33/1
Chaincase/Transmission Oil		
– Type		⑤
– Capacity	mL (U.S. oz)	250 (8.5)
Cooling System		
– Type		⑥
– Capacity	L (U.S. oz)	3.5 (118)
Brake System Fluid		
– Type		DOT 4

① Measure gap between slider shoe and bottom inside of track when exerting a downward pull of 7.3 kg (16 lb) to the track.

② Equal distance between edges of track guides and slider shoes.

③ Super unleaded gasoline with a minimum octane number of 91 (R + M)/2 (pre-heat switch disabled) or racing fuel with a minimum octane number of 108 (R + M)/2 (pre-heat switch enabled).

④ BOMBARDIER Formula XP-S II synthetic injection oil (P/N 293 600 245) (12 x 1 L).

⑤ BOMBARDIER synthetic chaincase oil (P/N 413 803 300) (12 x 355 mL).

⑥ Blend of 50/50 distilled water and ethylene-glycol (P/N 293 600 038) (16 x 1L). That blend will protect the system from freezing as low as - 37°C (- 35°F).

⑦ **CAUTION:** Do not attempt to adjust gap on spark plug BR 9 ECS.

⑧ Brake fluid SRF (DOT 4) (P/N 293 600 063) (1 L).

Bombardier reserves the right at any time to discontinue or change specifications, designs features, models, prices or equipment without incurring obligation.