

**Bombardier Recreational Products Inc.**

# *ski-doo*® **2005**

## *Operator's Guide*

*Includes  
Safety, Vehicle  
and Maintenance  
Information*



**SUPPLEMENT**

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This Supplement must be used in conjunction with  
2005 ZX™ Series REV™ Series Operator's Guide  
(P/N 520 000 499).



### **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.

**MX ZX™  
440**

5 2 0 0 0 0 5 3 5

## SAFETY WARNING

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

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



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REV®	ROTAX®	DESS™
GSX™	RER™	SUMMIT®
GTX†	MX-Z®	

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**Dear 2005 MX Z X™ 440 owner, informations in the 2005 ZX™/REV® Series Operator's Guide (P/N 520 000 499) also apply to your MX Z X 440 except for the following.**

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## TABLE OF CONTENTS

4) Brake/Parking Brake Pilot Lamp (Red) .....	5
11) Tether Cord Cut-Out System .....	6
13) Engine Cut-Out Switch .....	6
28) Fuel Level .....	7
60) Adjustable Suspensions .....	7
61) Primer Button .....	8
62) Pre-Heat Switch.....	9
Recommended Fuel .....	10
Recommended Oil .....	11
METRIC (SI) .....	13
IMPERIAL .....	13
UNITED STATES .....	13
Brake System .....	15
Coolant Pump Shaft Oil Reservoir.....	15
Coolant Reservoir .....	15
Drive Belt Removal/Installation .....	17

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## LIMITED WARRANTY VALIDATION

Because of its racing application, the 2005 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 gasoline (R + M)/2 inside North America (95 RON outside North America), the following modifications must be done **at predelivery before using the vehicle**.

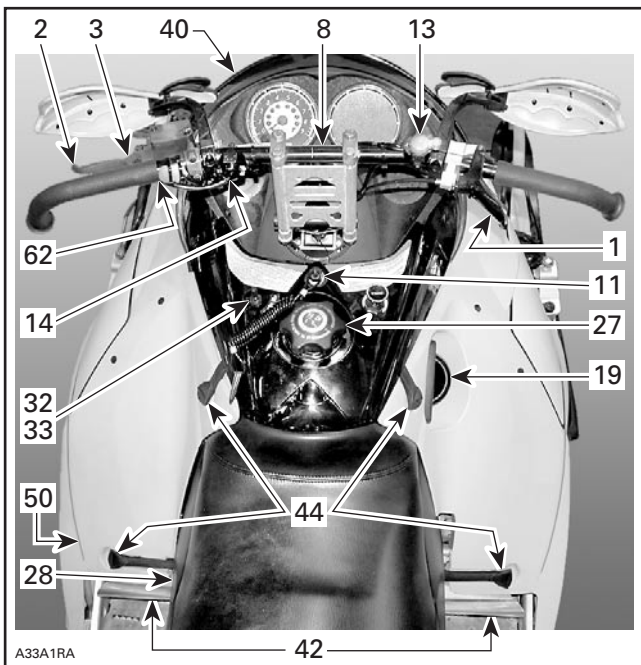
1. Low CR combustion chamber inserts must be installed on engine. The high CR combustion chamber inserts must be returned to BOMBARDIER Warranty Department.
2. Replace the main jets with the ones recommended in the Predelivery bulletin.
3. Replace the needle jets with the ones recommended in the Predelivery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

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## **RACING APPLICATION**

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

## CONTROLS/INSTRUMENTS



NOTE: See description of numbered items in *2005 ZX/REV Series Operator's Guide* (P/N 520 000 499) 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 accidentally falls off, by shutting off the engine.

### WARNING

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

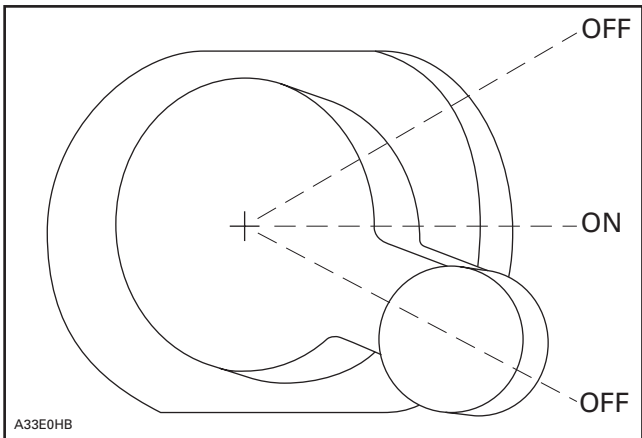
### Operation

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

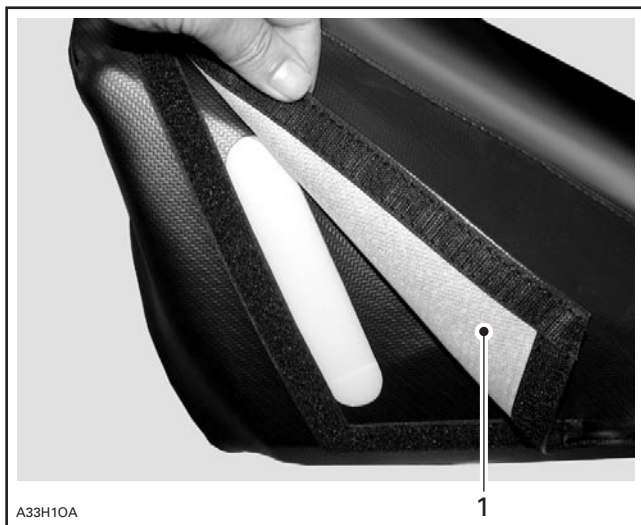
Located on right side of handlebar this switch is used to stop the engine.





## 28) Fuel Level

Open fabric door to see the fuel level through the translucent 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 *ZX/REV Series Operator's Guide*, take note of the 2 following points.

### Shocks

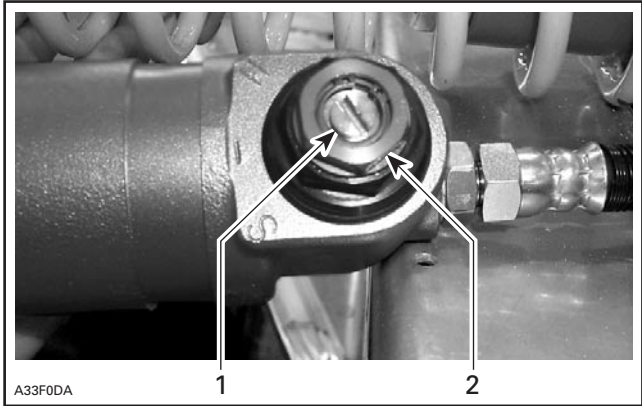
All 4 shocks feature 2 adjustments.

#### 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.

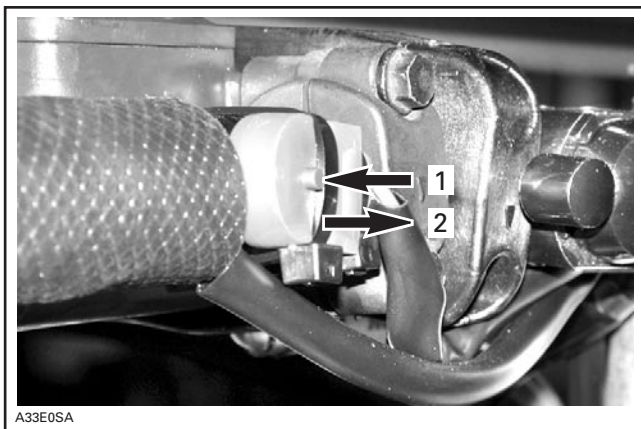
To prime, activate button until a pumping resistance is felt. From this point, pump 2 or 3 times to inject fuel in intake manifold. After priming, ensure that primer button is pushed back.

**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 (R + M)/2 inside North America (95 RON outside North America), this switch must be disabled.



1. Button depressed: Pre-heat timing curve
2. Button released: 108 (R + M)/2+ Octane timing curve for North America version (98 RON + Octane timing curve for outside North America).

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.

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## FUEL AND OIL

### Recommended Fuel

#### ***Vehicles with Valid Warranty (Pre-Heat Switch Disabled)***

Use Premium unleaded gasoline or oxygenated gasoline containing less than 10% of ethanol or 5% of methanol.

In North America, use gasoline with an octane number of 91 (R + M)/2.

**NOTE:** In most service station pump in North America, octane number corresponds to (R + M)/2.

Outside North America, use gasoline with an octane number of 95 (RON).

#### ***Vehicles without Warranty (Pre-Heat Switch Enabled)***

Use racing fuel with an octane number of 108 (R + M)/2 or higher inside North America.

Outside North America, use racing fuel with an octane number of 98 (RON) or higher.

**NOTE:** The fuel tank cap specifies an octane number of 91 as a minimum. A higher octane number is required in racing application.

#### ***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 can flow 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	XP-S synthetic 2-stroke oil <sup>(1)</sup> P/N 293 600 045 (12 x 1 L)

**CAUTION:** <sup>(1)</sup> The XP-S synthetic 2-stroke 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 XP-S synthetic 2-stroke oil. There is no known equivalent on the market for the moment. If a high quality equivalent were available, it could be used.

The XP-S synthetic 2-stroke 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.

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## **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**

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## 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.



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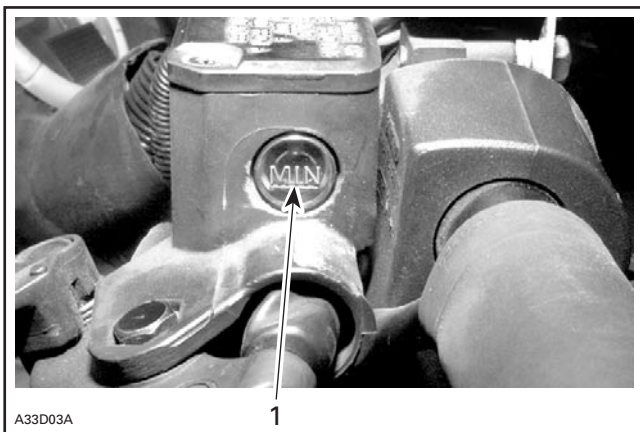
## FLUID LEVEL

**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

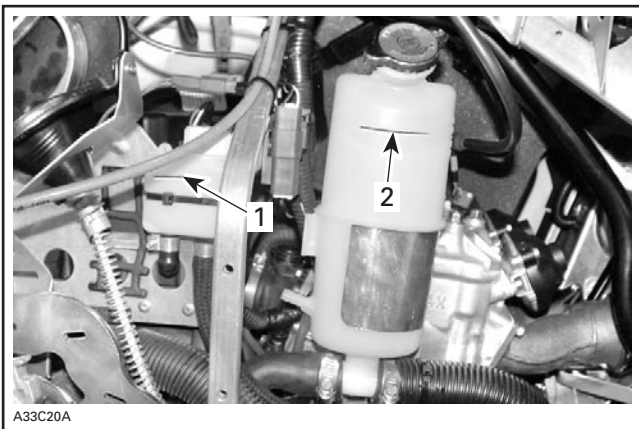
Use XP-S mineral injection oil (P/N 413 802 900) (12 x 1 L).  
Fill up to mark.

### Coolant Reservoir

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

BRP sells premixed 50/50 water/antifreeze can (P/N 413 711 802 — 16 x 1 L).

Fill up to mark when engine is cold.



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

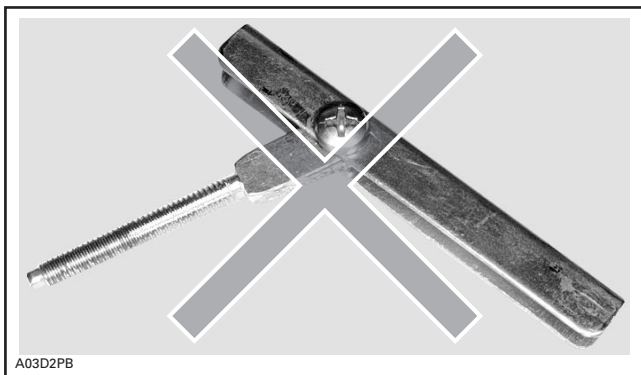
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## MAINTENANCE

### Drive Belt Removal/Installation

Follow the procedure described in *2005 ZX/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**



A33D1AA

*PROPER TOOL OPENING DRIVEN PULLEY OF MX Z X 440*

<b>MODEL</b>		<b>MX-ZX 440</b>
<b>ENGINE</b>		
Maximum power engine speed	± 100 RPM	8400
<b>DRIVE BELT</b>		
Part number		417 300 288
Wear limit width	mm (in)	34.7 (1-3/8)
<b>SPARK PLUG</b>		
Type		NGK BR9ECS
Gap	± 0.05 mm (± .002 in)	0.45 (.018) (7)
<b>TRACK</b>		
Tension	mm (in)	30 - 35 (1-3/16 - 1-3/8) (1)
Alignment		(2)
<b>FUEL</b>		
Type		See RECOMMENDED FUEL
Tank capacity	L (U.S. gal)	21 (5.55)
<b>OIL (ENGINE)</b>		
Type		(3)
Premix ratio	L (U.S. oz)	33:1
<b>CHAINCASE/TRANSMISSION OIL</b>		
Type		(4)
Capacity	mL (U.S. oz)	250 (8.5)
<b>COOLANT</b>		
Type		(5)
Capacity	L (U.S. oz)	3.5 (118)
<b>BRAKE SYSTEM FLUID</b>		
Type		DOT 4 (6)
Because of its ongoing commitment to product quality and innovation, BRP reserves the right, at any time, to make changes in design and specifications and/or to make additions to, or improvements in its products without imposing any obligation upon itself to install them on its products previously manufactured.		

- (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) XP-S™ synthetic 2-stroke oil (P/N 293 600 045) — 12 x 1 L).
- (4) XP-S™ synthetic chaincase oil (P/N 413 803 300) — 12 x 355 mL).
- (5) Premixed coolant (P/N 413 711 802) — 16 x 1 L).
- (6) SRF (DOT 4) (P/N 293 600 063) or GTLMA (DOT 4) (P/N 293 600 062).

**CAUTION:** (7) Do not attempt to adjust gap on spark plug BR9ECS.